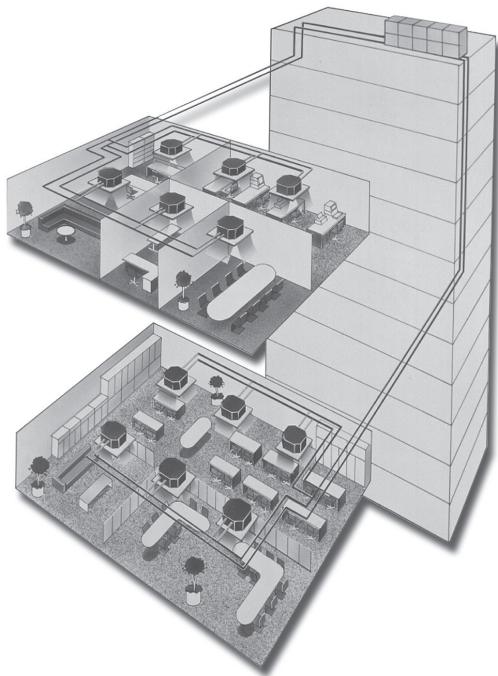


ENGINEERING MANUAL

INVERTER-DRIVEN MULTI-SPLIT SYSTEM HEAT PUMP AIR CONDITIONERS

Engineering Manual



< Outdoor Units >

- Standard Type
(H,Y)VAHP072B(3,4)1S to (H,Y)VAHP360B(3,4)1S
(H,Y)VAHR072B(3,4)1S to (H,Y)VAHR360B(3,4)1S
- Less Module Type
(H,Y)VAHP240B(3,4)1LM, (H,Y)VAHP336B(3,4)1LM,
(H,Y)VAHP360B(3,4)1LM
(H,Y)VAHR240B(3,4)1LM, (H,Y)VAHR336B(3,4)1LM,
(H,Y)VAHR360B(3,4)1LM

< Indoor Units >

- Ducted High Static Type
(H,Y)IDH018B21S to (H,Y)IDH048B21S
- Ducted Medium Static Type
(H,Y>IDM006B21S to (H,Y>IDM048B21S
- Ducted Slim Type
(H,Y)IDS006B21S to (H,Y)IDS018B21S
- 4-Way Cassette Type
(H,Y)IC4012B21S to (H,Y)IC4036B21S
- 1-Way Cassette Type
(H,Y)IC1006B21S to (H,Y)IC1015B21S
- Wall Mounted Type
TIWM006B21S to TIWM024B21S

IMPORTANT NOTICE AND SAFETY SUMMARY



1. Introduction

This Engineering Manual concentrates on heat pump air conditioning units. Read this manual carefully before performing installations or operations.


This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

(Transportation/Installation Work) > (Refrigerant Piping Work) > (Electrical Wiring Work) > (Ref. Charge Work) > (Test Run) > (User)

2. Important Safety Instructions

| Signal Words | |
|--|---|
|  WARNING | Indicates a hazardous situation that, if not avoided, could result in death or serious injury. |
|  CAUTION | Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. |
| NOTICE | Indicates information considered important, but not hazard-related (for example, messages relating to property damage). |

General Precautions

| | |
|--|--|
|  WARNING | To reduce the risk of serious injury or death, read these instructions thoroughly and follow all warnings or cautions included in all manuals that accompanied the product and are attached to the unit. Refer back to these instructions as needed. |
|--|--|

- This system should be installed by personnel certified by Johnson Controls, Inc. Personnel must be qualified according to local, state and national building and safety codes and regulations. Incorrect installation could cause leaks, electric shock, fire or explosion. In areas where Seismic "Performance requirements are specified, the appropriate measures should be taken during installation to guard against possible damage or injury that might occur in an earthquake if the unit is not installed correctly, injuries may occur due to a falling unit.
- Use appropriate Personal Protective Equipment (PPE), such as gloves and protective goggles and, where appropriate, have a gas mask nearby. Also use electrical protection equipment and tools suited for electrical operation purposes. Keep a quenching cloth and a fire extinguisher nearby during brazing. Use care in handling, rigging, and setting of bulky equipment.
- When transporting, be careful when picking up, moving and mounting these units. Although the unit may be packed using plastic straps, do not use them for transporting the unit from one location to another. Do not stand on or put any material on the unit. Get a partner to help, and bend with your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut fingers, so wear protective gloves.
- Do not touch or adjust any safety devices inside the indoor or outdoor units. All safety features, disengagement, and interlocks must be in place and functioning correctly before the equipment is put into operation. If these devices are improperly adjusted or tampered with in any way, a serious accident can occur. Never bypass or jump-out any safety device or switch.
- Johnson Controls will not assume any liability for injuries or damage caused by not following steps outlined or described in this manual. Unauthorized modifications to Johnson Controls products are prohibited as they...
 - May create hazards which could result in death, serious injury or equipment damage.
 - Will void product warranties.
 - May invalidate product regulatory certifications.
 - May violate OSHA standards.

NOTICE

Take the following precautions to reduce the risk of property damage.

- Be careful that moisture, dust, or variant refrigerant compounds not enter the refrigerant cycle during installation work. Foreign matter could damage internal components or cause blockages.
- If air filters are required on this unit, do not operate the unit without the air filter set in place. If the air filter is not installed, dust may accumulate and breakdown may result.
- Do not install this unit in any place where silicon gases can coalesce. If the silicon gas molecules attach themselves to the surface of the heat exchanger, the finned surfaces will repel water. As a result, any amount of drainage moisture condensate can overflow from the drain condensate pan and could run inside of the electrical box, possibly causing electrical failures.
- When installing the unit in a hospital or other facility where electromagnetic waves are generated from nearby medical and/or electronic devices, be prepared for noise and electronic interference Electromagnetic Interference (EMI). Do not install where the waves can directly radiate into the electrical box, controller cable, or controller. Inverters, appliances, high-frequency medical equipment, and radio communications equipment may cause the unit to malfunction. The operation of the unit may also adversely affect these same devices. Install the unit at least 10 ft. (approximately 3m) away from such devices.
- When a wireless controller is used, locate at a distance of at least 3.3 ft. (approximately 1m) between the indoor unit and electric lighting. If not, the receiver part of the unit may have difficulty receiving operation commands.
- Do not install the unit in any location where animals and plants can come into direct contact with the outlet air stream. Exposure could adversely affect the animals and plants.
- Do not install the unit with any downward slope to the side of the drain boss. If you do, you may have drain water flowing back which may cause leaks.
- Be sure the drain hose discharges water properly. If connected incorrectly, it may cause leaks.
- Do not install the unit in any place where oil can seep onto the units, such as table or seating areas in restaurants, and so forth. For these locations or social venues, use specialized units with oil-resistant features built into them. In addition, use a specialized ceiling fan designed for restaurant use. These specialized oil-resistant units can be ordered for such applications. However, in places where large quantities of oil can splash onto the unit, such as a factory, even the specialized units cannot be used. These products should not be installed in such locations.
- If the wired controller is installed in a location where electromagnetic radiation is generated, make sure that the wired controller is shielded and cables are sleeved inside conduit tubing.
- If there is a source of electrical interference near the power source, install noise suppression equipment (filter).
- During the test run, check the unit's operation temperature. If the unit is used in an environment where the temperature exceeds the operation boundary, it may cause severe damage. Check the operational temperature boundary in the manual. If there is no specified temperature, use the unit within the operational temperature boundary of 35 to 104°F (0 to 40°C).
- Read installation and appropriate user manuals for connection with PC or peripheral devices. If a warning window appears on the PC, the product stops, does not work properly or works intermittently, immediately stop using the equipment.

Installation Precautions



To reduce the risk of serious injury or death, the following installation precautions must be followed.

- When installing the unit into...
 - A wall: Make sure the wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.
 - A room: Properly insulate any refrigerant tubing run inside a room to prevent "sweating" that can cause dripping and water damage to wall and floors.
 - Damp or uneven areas: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
 - An area with high winds: Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.
 - A snowy area (only for Heat Pump Model): Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.
- If the remote sensors are not used with this controller, then do not install this controller...
 - in a room where there is no thermostat.
 - where the unit is exposed to direct sunshine or direct light.
 - where the unit will be in close proximity to a heat source.
 - where hot/cold air from the outdoors, or a draft from elsewhere (such as air vents, diffusers or grilles) can affect air circulation.
 - in areas with poor air circulation and ventilation.
- Do not install the unit in the following places. Doing so can result in an explosion, fire, deformation, corrosion, or product failure.
 - Explosive or flammable atmosphere.
 - Where fire, oil, steam, or powder can directly enter the unit, such as in close proximity or directly above a kitchen stove.
 - Where oil (including machinery oil) may be present.
 - Where corrosive gases such as chlorine, bromine, or sulfide can accumulate, such as near a hot tub or hot spring.
 - Where dense, salt-laden airflow is heavy, such as in coastal regions.
 - Where the air quality is of high acidity.
 - Where harmful gases can be generated from decomposition.
- Do not position the drain pipe for the indoor unit near any sanitary sewers where corrosive gases may be present. If you do, toxic gases can seep into breathable air spaces and can cause respiratory injuries. If the drainpipe is installed incorrectly, water leakage and damage to the ceiling, floor, furniture, or other possessions may result. If condensate piping becomes clogged, moisture can back up and can drip from the indoor unit. Do not install the indoor unit where such dripping can cause moisture damage or uneven locations: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
- Before performing any brazing work, be sure that there are no flammable materials or open flames nearby.
- Perform a test run to ensure normal operation. Safety guards, shields, barriers, covers, and protective devices must be in place while the compressor/unit is operating. During the test run, keep fingers and clothing away from any moving parts.
- Clean up the site when finished, remembering to check that no metal scraps or bits of wiring have been left inside the unit being installed.
- During transportation, do not allow the backrest of the forklift make contact with the unit, otherwise, it may cause damage to the heat exchanger and also may cause injury when stopped or started suddenly.
- Remove gas inside the closing pipe when the brazing work is performed. If the brazing filler metal is melted with remaining gas inside, the pipes will be blown off and it may cause injury.
- Be sure to use nitrogen gas for an airtight test. If other gases such as oxygen gas, acetylene gas or fluorocarbon gas are accidentally used, it may cause explosion or gas intoxication.

After installation work for the system has been completed, explain the "Safety Precautions," the proper use and maintenance of the unit to the customer according to the information in all manuals that came with the system. All manuals and warranty information must be given to the user or left near the Indoor Unit.

Refrigerant Precautions



WARNING

To reduce the risk of serious injury or death, the following refrigerant precautions must be followed.

- As originally manufactured, this unit contains refrigerant installed by Johnson Controls. Johnson Controls uses only refrigerants that have been approved for use in the unit's intended home country or market. Johnson Controls distributors similarly are only authorized to provide refrigerants that have been approved for use in the countries or markets they serve. The refrigerant used in this unit is identified on the unit's faceplate and/or in the associated manuals. Any additions of refrigerant into this unit must comply with the country's requirements with regard to refrigerant use and should be obtained from Johnson Controls distributors. Use of any non-approved refrigerant substitutes will void the warranty and will increase the potential risk of injury or death.
- If installed in a small room, take measures to prevent the refrigerant from exceeding the maximum allowable concentration in the event that refrigerant gases should escape. Refrigerant gases can cause asphyxiation (0.026 lbs/ft³ (0.42 kg/m³) based on ISO 5149 for R410A). Consult with your distributor for countermeasures (ventilation system and so on). If refrigerant gas has leaked during the installation work, ventilate the room immediately.
- Check the design pressure for this product is 601 psi (4.15MPa). The pressure of the refrigerant R410A is 1.4 times higher than that of the refrigerant R22. Therefore, the refrigerant piping for R410A shall be thicker than that for R22. Make sure to use the specified refrigerant piping. If not, the refrigerant piping may rupture due to an excessive refrigerant pressure. Besides, pay attention to the piping thickness when using copper refrigerant piping. The thickness of copper refrigerant piping differs depending on its material.
- The refrigerant R410A is adopted. The refrigerant oil tends to be affected by foreign matters such as moisture, oxide film, (or fat). Perform the installation work with care to prevent moisture, dust, or different refrigerant from entering the refrigerant cycle. Foreign matter can be introduced into the cycle from such parts as expansion valve and the operation may be unavailable.
- To avoid the possibility of different refrigerant or refrigerant oil being introduced into the cycle, the sizes of the charging connections have been changed from R407C type and R22 type. It is necessary to prepare the appropriate tools before performing installation work.
- Use refrigerant pipes and joints which are approved for use with R410A.
- A compressor/unit comprises a pressurized system. Never loosen threaded joints while the system is under pressure and never open pressurized system parts.
- Before installation is complete, make sure that the refrigerant leak test has been performed. If refrigerant gases escape into the air, turn OFF the main switch, extinguish any open flames and contact your service contractor. Refrigerant (Fluorocarbon) for this unit is odorless. If the refrigerant should leak and come into contact with open flames, toxic gas could be generated. Also, because the fluorocarbons are heavier than air, they settle to the floor, which could cause asphyxiation.
- When installing the unit, and connecting refrigerant piping, keep all piping runs as short as possible, and make sure to securely connect the refrigerant piping before the compressor starts operating. If the refrigerant piping is not connected and the compressor activates with the stop valve opened, the refrigerant cycle will become subjected to extremely high pressure, which can cause an explosion or fire.
- Tighten the flare nut with a torque wrench in the specified manner. Do not apply excessive force to the flare nut when tightening. If you do, the flare nut can crack and refrigerant leakage may occur.
- When maintaining, relocating, and disposing of the unit, dismantle the refrigerant piping after the compressor stops.
- When pipes are removed out from under the piping cover, after the insulation work is completed, cover the gap between the piping cover and pipes by a packing (field-supplied). If the gap is not covered, the unit may be damaged if snow, rain water or small animals enter the unit.
- Do not apply an excessive force to the spindle valve at the end of opening. Otherwise, the spindle valve flies out due to refrigerant pressure. At the test run, fully open the gas and liquid valves, otherwise, these devices will be damaged. (It is closed before shipment.)
- If the arrangement for outdoor units is incorrect, it may cause flowback of the refrigerant and result in failure of the outdoor unit.
- The refrigerant system may be damaged if the slope of the piping connection kit exceeds $\pm 15^\circ$.

Electrical Precautions



Take the following precautions to reduce the risk of electric shock, fire or explosion resulting in serious injury or death.

- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause serious injury or death.
- Perform all electrical work in strict accordance with this installation and maintenance manual and all the relevant regulatory standards.
- Before servicing, open and tag all disconnect switches. Never assume electrical power is disconnected. Check with meter and equipment.
- Only use electrical protection equipment and tools suited for this installation.
- Insulate a wired controller against moisture and temperature extremes.
- Use specified cables between units.
- The new air conditioner may not function normally in the following instances:
 - If electrical power for the new air conditioner is supplied from the same transformer as the device* referred to below.
 - If the power source cables for this device* and the new air conditioner unit are located in close proximity to each other.

Device*: (Example): A lift, container crane, rectifier for electric railway, inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch.

Regarding the cases mentioned above, surge voltage may be inducted into the power supply cables for the packaged air conditioner due to a rapid change in power consumption of the device and an activation of a switch.

Check field regulations and standards before performing electrical work in order to protect the power supply for the new air conditioner unit.
- Communication cabling shall be a minimum of AWG18 (0.82mm²), 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.
- The polarity of the input terminals is important, so be sure to match the polarity when using contacts that have polarity.
- Use an exclusive power supply for the air conditioner at the unit's rated voltage.
- Highly dangerous electrical voltages may be used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause serious injury or death.
- Before installing the controller or remote devices, ensure that the indoor and outdoor unit operation has been stopped. Further, be sure to wait at least five minutes before turning off the main power switch to the indoor or outdoor units. Otherwise, water leakage or electrical breakdown may result.
- Do not open the service cover or access panel to the indoor or outdoor units without turning OFF the main power supply. Before connecting or servicing the controller or cables to indoor or outdoor units, open and tag all disconnect switches. Never assume electrical power is disconnected. Check with a meter and equipment.
- This equipment can be installed with a Ground Fault Circuit Breaker (GFCI), which is a recognized measure for added protection to a properly grounded unit. Install appropriate sized breakers / fuses / overcurrent protection switches, and wiring in accordance with local, state and NEC codes and requirements. The equipment installer is responsible for understanding and abiding by applicable codes and requirements.

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1. General Informations (Features)

VRF Air Conditioners

Johnson Controls proudly introduces new Variable Refrigerant Flow (VRF) air conditioners, a highly-efficient and reliable air-conditioning system. Recently, increased numbers of buildings are requiring "Intelligent" facilities that include communication networks, office automation, and a comfortable environment. In particular, a comfortable environment is becoming more of a year-around requirement in office buildings. The VRF multi-split system air conditioner meets these requirements. The proven combination of the scroll compressor and inverter provides the best air conditioning for small and medium office buildings.

■ VRF System

Johnson Controls has developed the VRF system with its customers in mind.

This system, which is unique in the world, allows the interconnection of indoor units for all our VRF air conditioners.

This system provides the consumer with greater flexibility for installation, which means that the air-conditioning systems will integrate better within complex facility structures.

■ Wide Product Range of Outdoor Units

Along with space, structure, and necessary functions, in line with evolution in building design, the requirements for air conditioning have also diversified.

New VRF air conditioners offer three modular outdoor units.

Because the most suitable unit can be selected from a wide range of models from the heat pump type and the heat recovery type, you can create a custom air conditioning environment to satisfy your specific building conditions.

FEATURES

- The number of indoor units that can be connected to an outdoor unit is as defined in Table 1.1: Comply with the following conditions when installing the unit.
- A maximum and minimum total capacity against the nominal outdoor unit capacity can be obtained through combination of indoor units.

Table 1.1 System Combination

● Standard Type (Model: (H,Y)VAH(P,R)_B(3,4)1S)

| Outdoor Unit Capacity (MBH) | Minimum Capacity at Individual Operation (MBH) | Maximum Number of Connectable I.U. | Recommended Number of Connected I.U. | Connectable Indoor Unit Capacity Ratio | |
|-----------------------------|--|------------------------------------|--------------------------------------|--|---------|
| | | | | Maximum *2) | Minimum |
| 72 | 6 *1) | 18 | 10 | 150% | 70% |
| 96 | | 21 | 16 | 135% | 65% |
| 120 | | 25 | 16 | 130% | 60% |
| 144 | | 36 | 26 | 150% | 75% |
| 168 | | 39 | 32 | 140% | 65% |
| 192 | | 43 | 32 | 135% | 65% |
| 216 | | 54 | 32 | 150% | 70% |
| 240 | | 60 | 38 | 150% | 70% |
| 264 | | 61 | 38 | 140% | 65% |
| 288 | | 64 | 38 | 135% | 65% |
| 312 | | 64 | 38 | 130% | 65% |
| 336 | | 64 | 38 | 140% | 65% |
| 360 | | 64 | 38 | 135% | 65% |

● Less Module Type (Model: (H,Y)VAH(P,R)_B(3,4)1LM)

| Outdoor Unit Capacity (MBH) | Minimum Capacity at Individual Operation (MBH) | Maximum Number of Connectable I.U. | Recommended Number of Connected I.U. | Connectable Indoor Unit Capacity Ratio | |
|-----------------------------|--|------------------------------------|--------------------------------------|--|---------|
| | | | | Maximum *2) | Minimum |
| 240 | 6 *1) | 48 | 32 | 120% | 60% |
| 336 | | 64 | 38 | 120% | 60% |
| 360 | | 64 | 38 | 120% | 60% |

*1) When the outdoor air temperature is 23°F (-5°C) or cooler during the outdoor unit cooling operation, the minimum connectable indoor unit capacity is 18,000 Btu/h. A snow protection hood (optional) should be installed.

*2) When the outdoor air temperature is 109°F (43°C) or warmer during the outdoor unit cooling operation, the maximum connectable indoor unit capacity ratio is 100%.

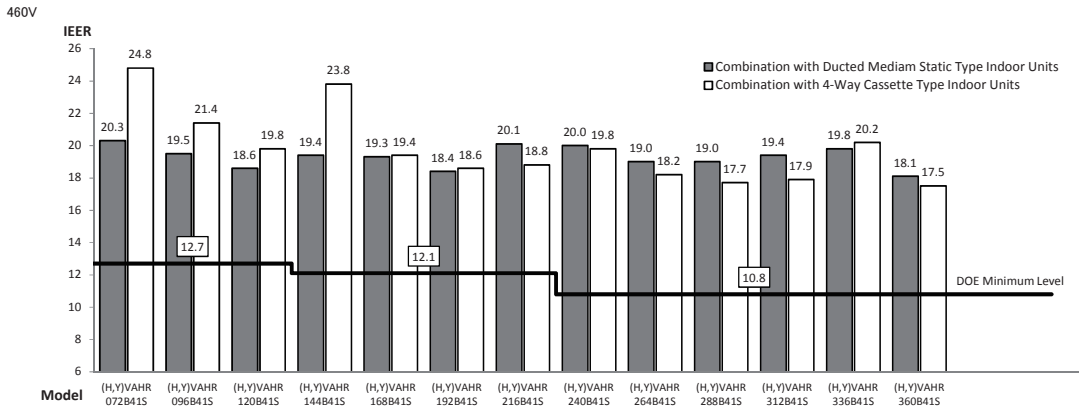
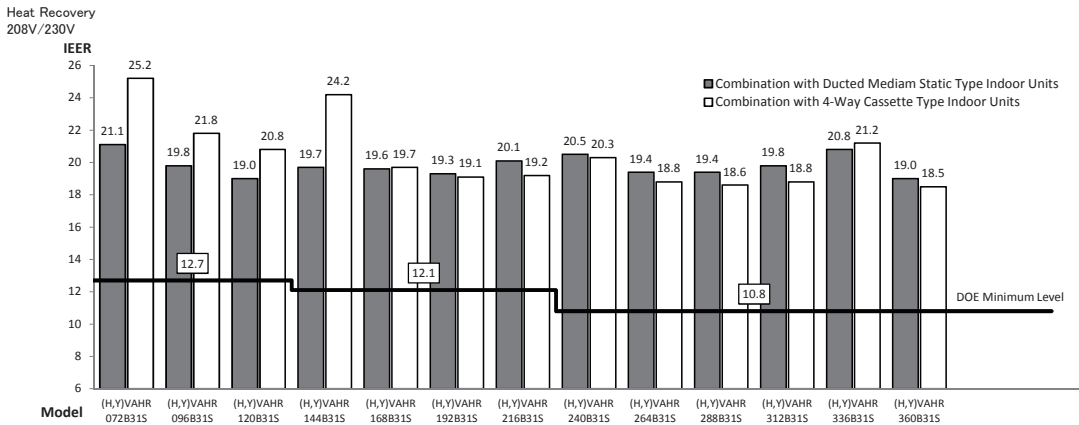
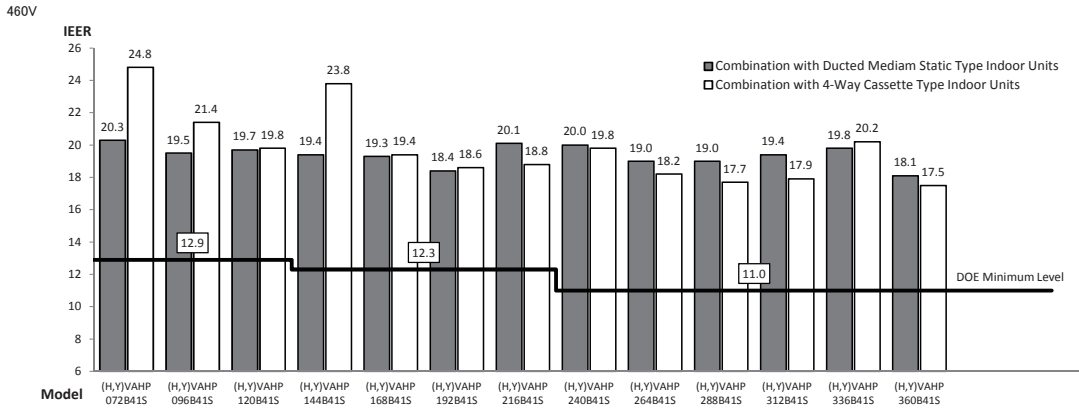
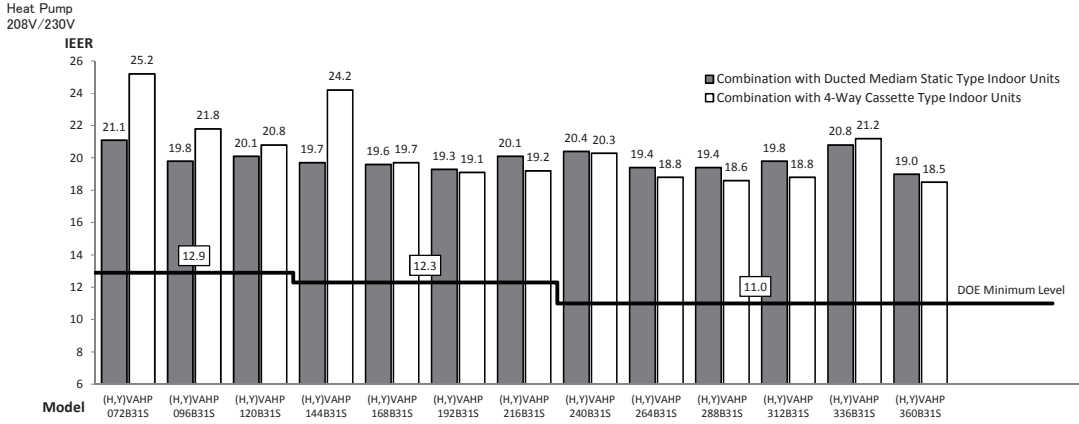
NOTES:

1. The connectable indoor unit capacity ratio can be calculated as follows:

$$\text{Connectable Indoor Unit Capacity Ratio} = \frac{\text{Total Indoor Unit Capacity}}{\text{Total Outdoor Unit Capacity}}$$
2. For the system under which all the indoor units operate simultaneously, the total indoor unit capacity should be less than the outdoor unit capacity. Otherwise, a decrease in operating performance and an increase in the operating limit can result in an overload.
3. For the system under which all the indoor units do not operate simultaneously, the total indoor unit capacity is available up to 150% against the outdoor unit capacity.
4. A maximum number of connectable indoor units differs depending on the model, capacity, environment and installation location of connected indoor units. Refer to "Engineering Manual" for the selection.
5. When operating the outdoor unit in cold areas with temperatures of 14°F (-10°C), or under the high heating load conditions, the total indoor unit capacity should be less than 100% against the outdoor unit capacity and the total piping length should be less than 984.3ft (300m).
6. The air flow volume for indoor units of 6 and 8 MBH is set higher than that for indoor units of 12 MBH or more. Make sure to select appropriate indoor units for installation where cold draft may occur during heating operation. If installing indoor units in such locations, refer to the recommended number of indoor units that can be connected.
7. When the connected indoor units are only the types indicated below, regardless of the value indicated in Table 1.1 "System Combination", the maximum connectable indoor unit capacity ratio is 150%. (The outdoor units of less module type are not included.)
 - Ducted (Medium Static)
 - Ducted (Slim)
 - Ceiling Suspended
 - Floor Exposed
 - Floor Concealed

High Efficiency and Energy Saving

By improving the performance of the compressor and optimizing the refrigerant system, considerable energy savings for buildings will be achieved with the line-up of the heat pump system and the heat recovery system.



FEATURES

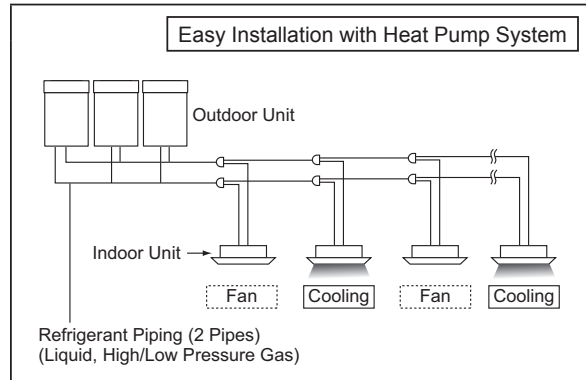
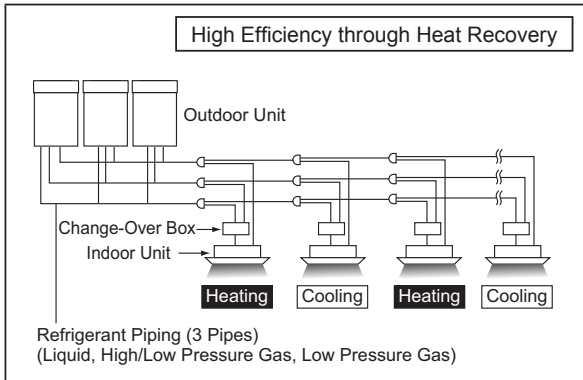
Line-Up for Various Needs

Johnson Controls' VRF series provides two options, the "Heat Pump System" and "Heat Recovery System" depending on the need. The VRF series provides an outdoor unit capacity of 72,000 to 360,000 with 13 combinations of outdoor units for each system. A custom air conditioning environment can be created to satisfy specific building conditions.

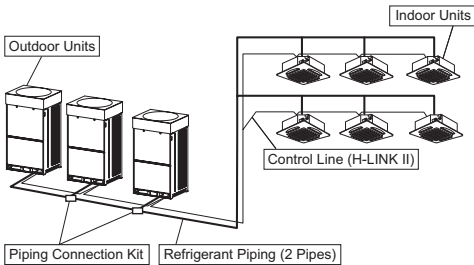
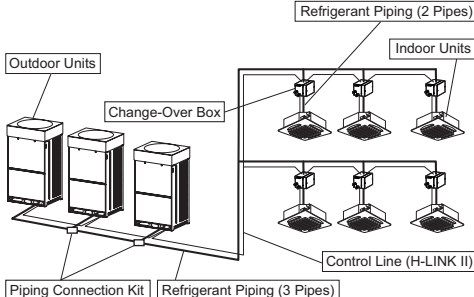
< System Selections from Heat Recovery System and Heat Pump System >

Used as **Heat Recovery System**
Simultaneous cooling/heating operation is an option.

Used as **Heat Pump System**
Cooling or heating operation is possible.



System Configuration / Appearance

| | Heat Pump System | Heat Recovery System |
|----------------------------|--|--|
| Configuration / Appearance |  |  |
| System Accessories | Without Change-Over Box | Change-Over Box |
| | <div style="display: flex; align-items: center; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;">Indoor Unit</div> <div>+</div> <div style="border: 1px solid black; padding: 5px;">Optional Controller</div> <div>+</div> <div style="border: 1px solid black; padding: 5px;">Optional Decorative Panel for 4-Way Cassette Type and 1-Way Cassette Type</div> <div>+</div> <div style="border: 1px dashed black; padding: 5px;">Other Optional Parts</div> </div> | |
| | <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">Optional Multi-Kit</div> <div>For Branch Connection of Indoor Units</div> </div> | |
| | <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">Outdoor Unit</div> <div>+</div> <div style="border: 1px dashed black; padding: 5px; margin-left: 10px;">Other Optional Parts (Drain Boss or Other Components)</div> </div> | |
| | <div style="display: flex; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px; width: 150px;">Piping Connection Kit</div> <div> For Branch Connection of Outdoor Units < Heat Pump Type and Heat Recovery Type > Applicable for 144,000 Btu/h to 360,000 Bth/h Outdoor Units </div> </div> | |

: Necessary equipment for system

: Necessary equipment depending on usage purpose

Energy-Saving Improvement through Schedule Setting of “Self-Demand Function”

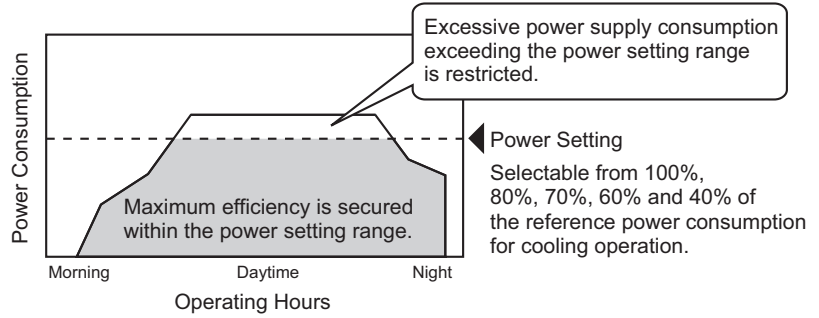
“Self-Demand Function”* can be set for each outdoor unit from a Computerized Central Controller (CCCS01 and CCA01) or Wired Controller (CIW01).

For small and medium buildings, it facilitates power saving. The energy-saving operation can be adjusted conforming to an operating environment and individual needs.

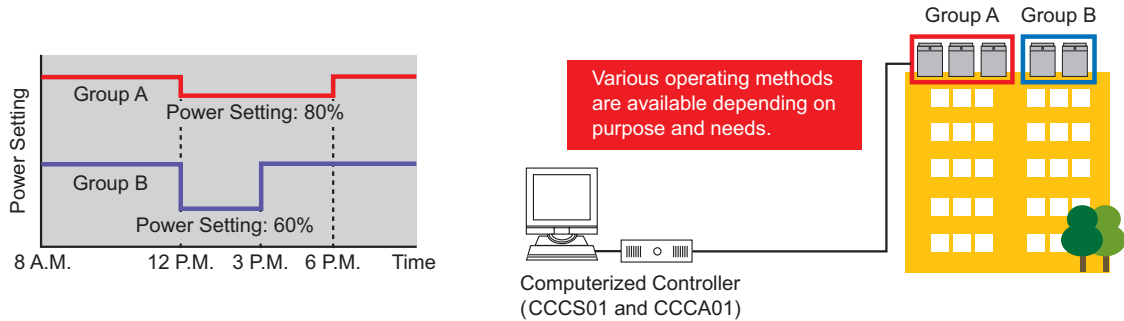
*Self-Demand Function: It saves capacity so as not to exceed demand current control based on the electric power data detected.

< Self-Demand Function >

| Outdoor Unit Capacity [MBH] | Reference Power Consumption [kW] |
|-----------------------------|----------------------------------|
| 072 | 10.5 |
| 096 | 12.5 |
| 120 | 14.0 |



< Setting Example: Schedule Setting for Each Group by Computerized Controller >



The specific outdoor unit and the period of time can be set from computerized controller.

NOTE:

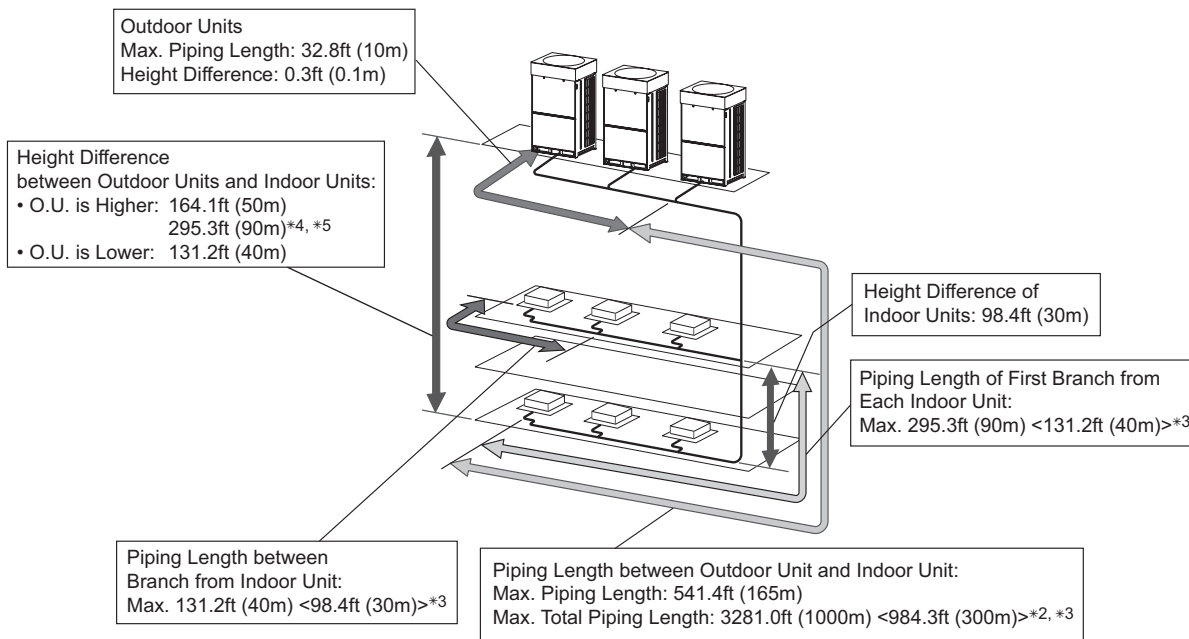
1. The demand current control (%) is indicated by approximate values. The value in this control which is calculated by the current is different from the value in the wattmeter.
If it is required that the maximum power consumption is managed precisely, a field-supplied demand controller should be used.
2. The range may temporarily be higher than the power-setting range (%) depending on the operating control condition such as protection control.
3. When the above self-demand control is set, performance is restricted because the rotation frequency of the compressor is forcibly decreased.

Flexibility of Facility Design

■ Improvement of Piping Installation

Height difference between the outdoor units and indoor units and the height difference between the indoor units are changed as shown below.

| Item | | Heat Pump System | Heat Recovery System (*1) |
|--|------------------------|----------------------|---|
| Height Difference between Outdoor Units and Indoor Units | Outdoor Unit is Higher | ≤ 295.3ft (90m) (*4) | ≤ 164.1ft (50m) |
| | | | (> 164.1ft (50m)) (*5) ≤ 295.3ft (90m) |
| Height Difference between Indoor Units | | ≤ 98.4ft (30m) | ≤ 49.2ft (15m) |



NOTES:

- *1: No installation condition has been changed for the Heat Recovery System.
- *2: When the total piping length is over 984.3ft (300m), the maximum additional refrigerant charge is restricted.
(The total field additional charge (refrigerant pipe + indoor unit) should not exceed the maximum additional refrigerant charge (table below)).

| Outdoor Unit Capacity (MBH) | 72 | 96 - 120 | 144 | 168 - 360 |
|--|-----------|-----------|------------|------------|
| Max. Additional Refrigerant Charge: lbs (kg) | 79.4 (36) | 88.2 (40) | 112.4 (51) | 138.9 (63) |

- *3: If the piping length exceeds the dimensions as shown above*, the connectable indoor units number should be less than the recommended number.
- *4: When the height difference is longer than 164.1ft (50m) and up to 295.3ft (90m), there are following restrictions for the piping installation. (Only for Heat Pump System)
 - a) Maximum outdoor temperature for cooling operation should be within 109°F DB (43°C DB).
 - b) Maximum connectable indoor units capacity ratio must be within 100%.
 - c) Refer to Section 7.3 "Correction Factor for Capacity" for the correction factor for capacity according to piping length of heat pump system (2 Pipes).
When operating the outdoor unit under the high cooling load conditions or in the high outdoor air temperature (approx. 109°F (38°C) or more), the capacity may decrease significantly due to the compressor protection controls compared to the installation condition of height difference below 164.1ft (50m).
 - d) Use of outdoor unit function setting item "nU" (Priority Capacity Mode) is prohibited.
 - e) Contact your distributor or contractor for details of setting.
- *5: Contact your distributor or contractor for details. (Only for Heat Recovery System)

FEATURES

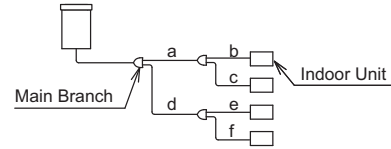
■ Lifting Limits on Main Piping Branch Numbers (*)

No Limit for the Number of Main Piping Branches

No limit for the number of main piping branches is realized.

(*): Main Piping Branch:

Both of the pipes branched from a Multi-Kit (Line Branch) are connected to the next Multi-Kits.



Wide Operation Range

This unit has been designed for cooling operations under low ambient temperatures down to 14°F (-10°C) *3), *4).

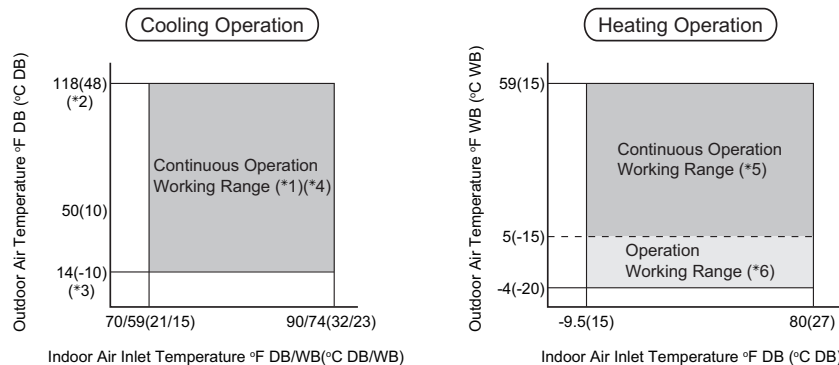
This wide operation range enables cooling even in winter in buildings with high internal heat gains resulting from lighting, people and machines, particularly in areas such as shops, lecture rooms, and data processing areas. Heating operations under low ambient temperature down to -4°F (-20°C)*6) can also be accomplished.

Temperature

| | | Maximum | Minimum |
|-------------------|---------|-----------------------------------|-----------------------------------|
| Cooling Operation | Indoor | 89°F DB/73°F WB (32°C DB/23°C WB) | 69°F DB/59°F WB (21°C DB/15°C WB) |
| | Outdoor | 118°F DB (48°C DB) *1), *2) | 14°F DB (-10°C DB) *3), *4) |
| Heating Operation | Indoor | 80°F DB (27°C DB) | 59°F DB (15°C DB) |
| | Outdoor | 59°F WB (15°C WB) *5) | -4°F WB (-20°C WB) *6) |

DB: Dry Bulb, WB: Wet Bulb

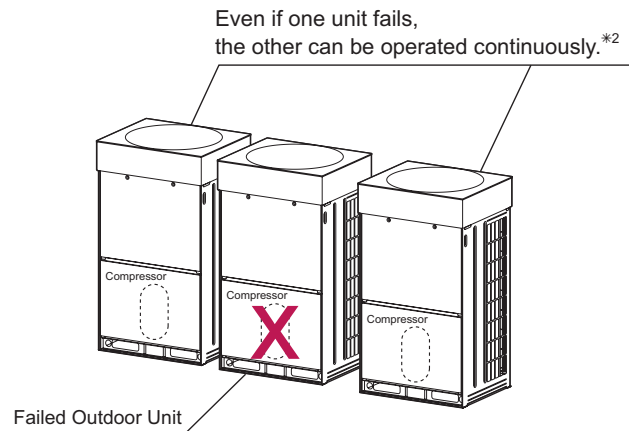
- *1) When the outdoor air temperature is 100°F DB (38°C DB) or more and the outdoor unit operation capacity ratio is 100% or more, the outdoor unit will function as Thermo-OFF to protect the compressor from failure.
- *2) When the outdoor air temperature is 109°F (43°C) or more during the outdoor unit cooling operation, the maximum connectable indoor unit capacity ratio is 100%.
- *3) When the outdoor air temperature is 23°F (-5°C) or less during the outdoor unit cooling operation, the minimum connectable indoor unit capacity is 18,000 Btu/h. In this instance, installing the snow protection hood (optional part) is required.
- *4) When operating the outdoor unit under the low cooling load conditions and in a low outdoor air temperature, of approximately 50°F DB (10°C DB) or less, the indoor unit will function as Thermo-OFF to prevent the heat exchanger of the indoor unit from frost.
- *5) When operating the outdoor unit under the low heating load conditions and the outdoor temperature is 59°F DB (15°C DB) or more, the outdoor unit will function as Thermo-OFF to protect the compressor from failure.
- *6) Operation in outdoor temperatures between 5 and -4°F WB (-15~-20°C WB) is assumed to limit conditions such as start-up in early morning. Lengthy operation in this condition may shorten the life of the compressor.



Backup Operation Function for Emergency

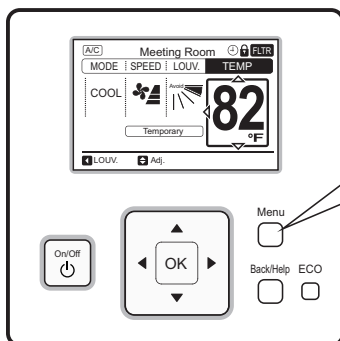
The Backup Operation Function prevents the system from coming to a complete stop when an outdoor unit failure occurs. *1

The wired controller starts an emergency operation after an alarm occurrence.*3



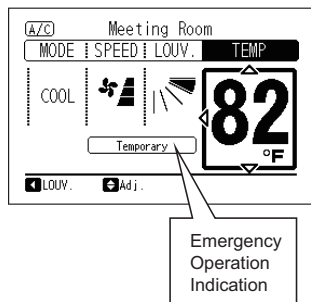
NOTE:

- *1: At least two outdoor units are required for this function.
- *2: Do not perform an emergency operation for more than eight hours. Doing so may damage the unit.
- *3: An emergency operation can be performed when a specified alarm code occurs. Refer to the following.



Starting for Emergency Operation

Press "Menu" button at least 3 seconds when the alarm code is indicated on the LCD.



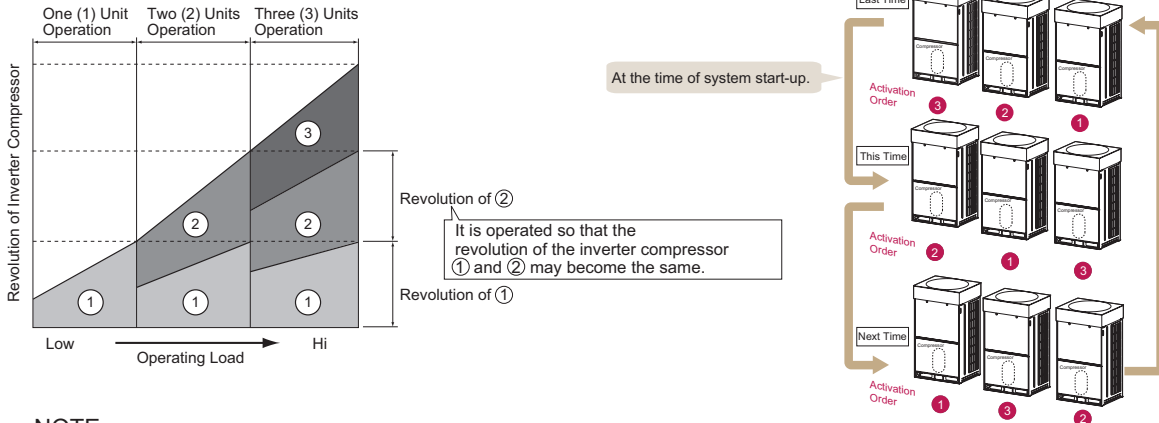
* In these alarm code instances, emergency operation is possible.

- (1) Inverter Compressor Failure
 - 06: Abnormality of Inverter Voltage
 - 23: Abnormality of Discharge Gas Thermistor
 - 48: Activation of Overcurrent Protection Device
 - 51: Abnormality of Inverter Current Sensor
 - 53: Inverter Error Signal Detection
 - 54: Abnormality of Inverter Fin Temperature
- (2) Fixed Speed Compressor Failure
 - 23: Abnormality of Discharge Gas Thermistor
 - 39: Abnormality of Running Current at Fixed Speed Compressor

Rotation Operation Function for Outdoor Unit *1

Regulating the operation time of each outdoor unit leads to a compressor load reduction. *2
 During a multiple unit operation, the same rotation frequency of the inverter compressor results in an equivalent load on each compressor.
 Therefore, there is improved function of the outdoor unit.

Inverter Compressor Rotation Frequency Control (Example)



NOTE:

- *1. At least two outdoor units are required for this function.
- *2. Comparison between rotation operation function and non-rotation operation function based on the same system.

Noise Reduction Preference Mode

■ **Noise Reduction Preference Mode (Optional Function)**

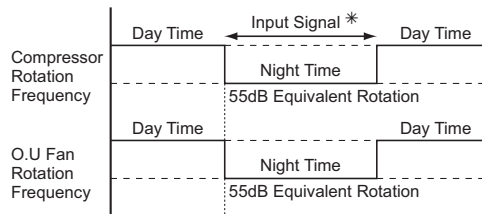
With the Noise Reduction Preference Mode, the sound pressure level for a particular time zone can be set based upon the usage environment. *1

- **Selecting from three Stages of Sound Pressure Level by setting from Outdoor Unit PCB External Input and Output Function**

| Control Function No. | Item | Sound Pressure Level (dB) (Approx. Value) *2 |
|----------------------|---|--|
| 11 | Noise Reduction Setting 1 (Standard Value -2dB) | 58 |
| 12 | Noise Reduction Setting 2 (Standard Value -5dB) | 55 |
| 13 | Noise Reduction Setting 3 (Standard Value -8dB) | 52 |

< Setting Example >

Low-Sound Operation during Night Time only by Using Timer



*: Perform the electrical wiring work on site when setting input signal.

NOTE:

- *1. A range of performance and operation is restricted because the rotation frequency of the compressor and outdoor fan is forcibly decreased.

[Target Capacity of Each Setting]

- Noise Reduction Setting 1: 80% of Standard Capacity
- Noise Reduction Setting 2: 60% of Standard Capacity
- Noise Reduction Setting 3: 40% of Standard Capacity

- *2: The table above shows an approximate value of 72 MBH model. In some cases, the value may temporarily become higher than the approximate value on the table above because of an operating condition.

Installation

- Transportation and Handling Using Elevator
An elevator * can be used to transport the base unit.

< Elevator * >

Capacity: Maximum of 11 persons.
Door Opening: 31-1/2 inches (800 mm)
Depth: 53-1/8 inches (1344 mm)

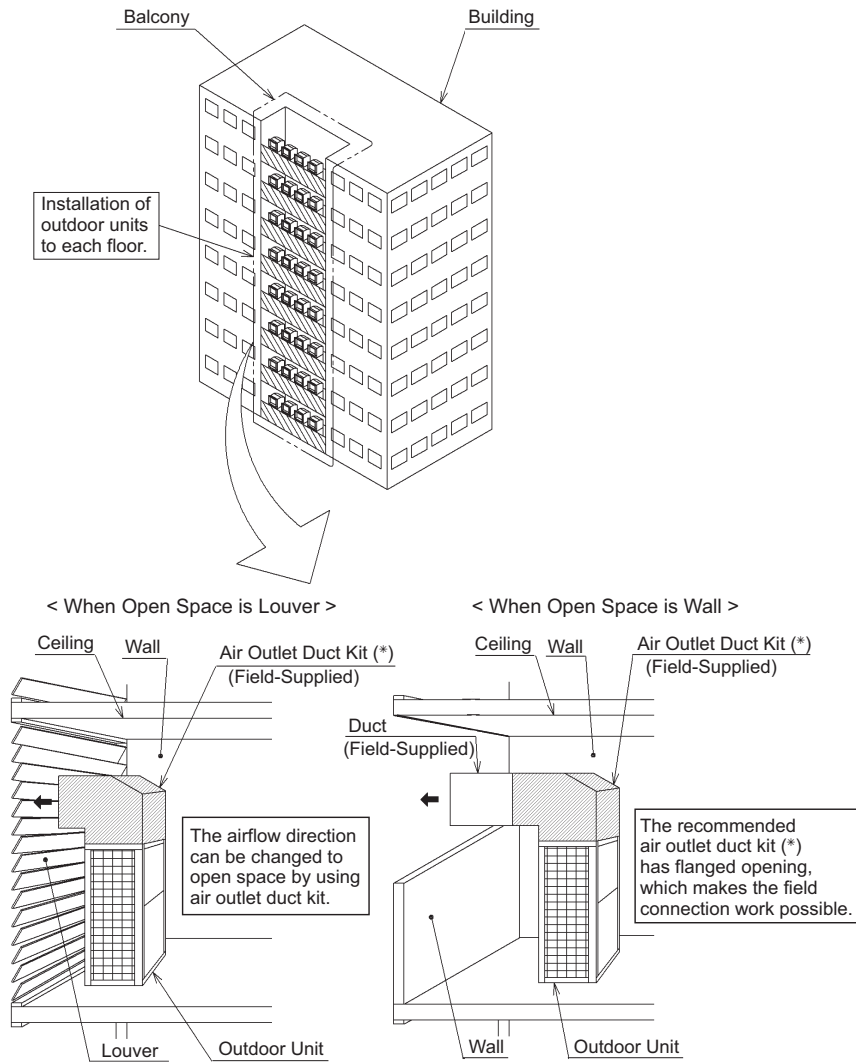


FEATURES

■ Installation Flexibility

There is flexibility for installation spaces such as a balcony or a floor where an external static pressure such as a louver or a duct is required for installation, the external static pressure 0.24in.W.G.(60Pa) by the DIP switch setting (No. 5 pin on DSW5 is "ON").

< Installation Example for Air Outlet Duct Kit >

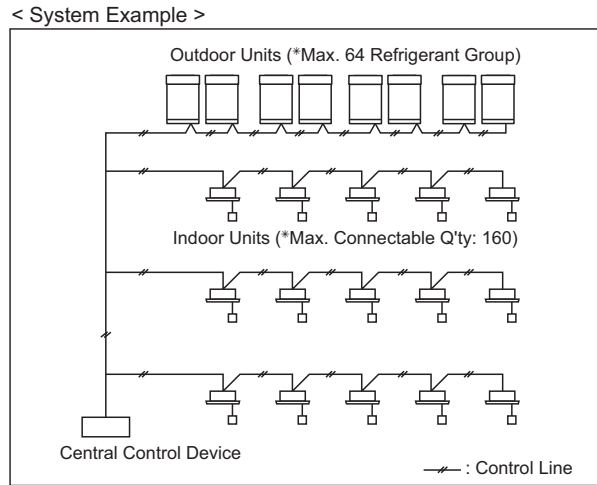


NOTE:

If the outlet air intakes short-circuit, the operation range is limited because of increasing high pressure in the cooling operation or decreasing low pressure in the heating operation causing failure of the unit.

Corresponds to H-LINK II System

The outdoor units in the VRF Series corresponds to the H-LINK II transmission system. A maximum of 64 refrigerant groups and a maximum 160 indoor units can be controlled by only one central control device when the equipment (central control device, indoor units, wired controller) in the same transmission system all correspond to H-LINK II.



■ H-LINK II System

The H-LINK II wiring system requires only two communication cables to connect each indoor unit and outdoor unit for up to 64 refrigerant systems, and to connect wires for all indoor units and outdoor units.

<Specifications>

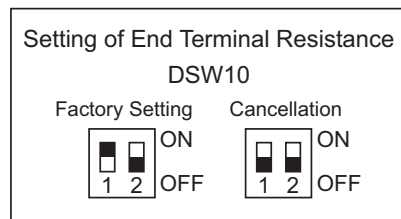
- * Communication Cable: 2-Wire
- * Polarity of Communication Cable: Non-Polar Cable
- * Maximum Outdoor Units to be Connected: 64 Units per System
- * Maximum Indoor Units to be Connected: 160 Units per H-LINK II System
- * Maximum Cable Length: Total 3,280 ft. (1,000m) (including central controller)
- * Recommended Cable: Communication Cable with Shield, over AWG18 (Equivalent to KPEV-S)
- * Voltage: DC5V

NOTE:

When using an H-LINK II system, the setting of DIP switches for an outdoor unit and indoor unit is required. If the DIP switches are not set, or set incorrectly, an alarm may occur because of a communication failure.

■ Setting of End Terminal Resistance

Factory setting of the No.1 pin of DSW10 is in the "ON" position. When the number of outdoor units in the same H-LINK II system is two or more, set the No.1 pin of DSW10 at "OFF" at the second unit. If only one outdoor unit is used, no setting is required.



FEATURES

Diverse Indoor Units and Combinations

The line-up of the new VRF Series indoor units has been extends to six types of indoor units to meet various building requirements.

Table 1.2 Indoor Unit Type List

| Indoor Unit Type | | | Capacity (MBH) | | | | | | | | |
|------------------|----------------------|---------------|----------------|---|----|----|----|----|----|----|----|
| | | | 6 | 8 | 12 | 15 | 18 | 24 | 30 | 36 | 48 |
| Ducted | Ducted High Static | (H,Y)IDH_B21S | | | | | ○ | ○ | ○ | ○ | ○ |
| | Ducted Medium Static | (H,Y>IDM_B21S | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Ducted Slim | (H,Y)IDS_B21S | ○ | ○ | ○ | ○ | ○ | | | | |
| Non-Ducted | 4-Way Cassette | (H,Y)IC4_B21S | | | ○ | ○ | ○ | ○ | ○ | ○ | |
| | 1-Way Cassette | (H,Y)IC1_B21S | ○ | ○ | ○ | ○ | | | | | |
| | Wall-Mounted | TIWM_B21S | ○ | ○ | ○ | ○ | ○ | ○ | | | |

○ : Available

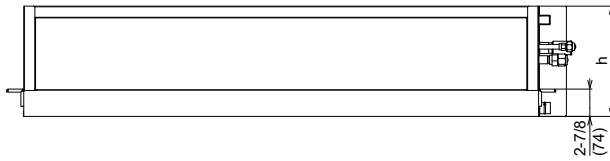
■ Duct Type Models

High Static Type: (H,Y)IDH018B21S to (H,Y)IDH048B21S
 Medium Static Type: (H,Y)IDM006B21S to (H,Y)IDM048B21S
 Slim Type: (H,Y)IDS006B21S to (H,Y)IDS018B21S

● Space Saving Design

A small height design is adapted.
 These units can be installed in a false ceiling space in almost any building.

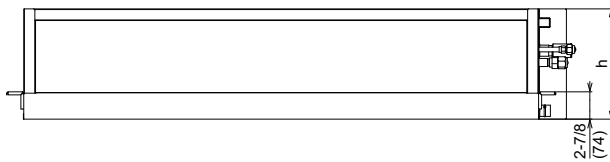
High Static Type



Unit: inch (mm)

| Capacity (MBH) | Model | h |
|----------------|-----------------|----------------|
| 18 | (H,Y)IDH018B21S | 10-5/8 (270) |
| 24 | (H,Y)IDH024B21S | 13-25/32 (350) |
| 30 | (H,Y)IDH030B21S | 13-25/32 (350) |
| 36 | (H,Y)IDH036B21S | 13-25/32 (350) |
| 48 | (H,Y)IDH048B21S | 13-25/32 (350) |

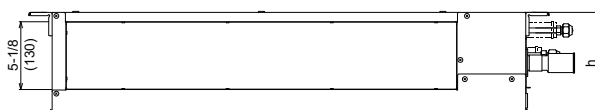
Medium Static Type



Unit: inch (mm)

| Capacity (MBH) | Model | h |
|----------------|-----------------|----------------|
| 6 | (H,Y)IDM006B21S | 10-5/8 (270) |
| 8 | (H,Y)IDM008B21S | 10-5/8 (270) |
| 12 | (H,Y)IDM012B21S | 10-5/8 (270) |
| 15 | (H,Y)IDM015B21S | 10-5/8 (270) |
| 18 | (H,Y)IDM018B21S | 10-5/8 (270) |
| 24 | (H,Y)IDM024B21S | 11-13/16 (300) |
| 30 | (H,Y)IDM030B21S | 11-13/16 (300) |
| 36 | (H,Y)IDM036B21S | 11-13/16 (300) |
| 48 | (H,Y)IDM048B21S | 11-13/16 (300) |

Slim Type



Unit: inch (mm)

| Capacity (MBH) | Model | h |
|----------------|-----------------|--------------|
| 6 | (H,Y)IDS006B21S | 7-9/16 (192) |
| 8 | (H,Y)IDS008B21S | 7-9/16 (192) |
| 12 | (H,Y)IDS012B21S | 7-9/16 (192) |
| 15 | (H,Y)IDS015B21S | 7-9/16 (192) |
| 18 | (H,Y)IDS018B21S | 7-9/16 (192) |

- Alternative External Static Pressure Setting (only for Medium Static Type and Slim Type)

The external static pressure setting on the Medium Static type can be set using any of three steps from the wired controller as shown below.

Medium Static Type

| Static Pressure | Wired Controller Setting |
|----------------------|--------------------------|
| 0.32 in.W.G. (80 Pa) | C501 |
| 0.20 in.W.G. (50 Pa) | C500 |
| 0.14 in.W.G. (35 Pa) | C502 |

* Static pressure setting on the wired controller ("C5").
Refer to the "Installation and Maintenance Manual" for the wired controller for details.

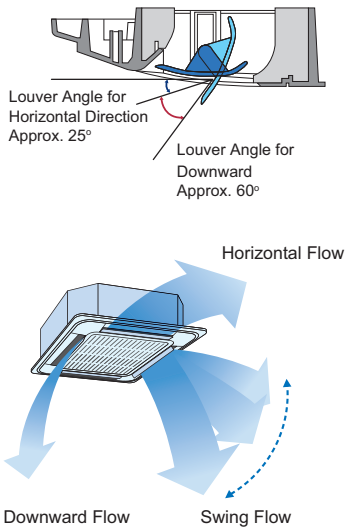
Slim Type

| Model | Static Pressure | Wired Controller Setting |
|-----------------------|----------------------|--------------------------|
| (H,Y)IDS006 - 012B21S | 0.12 in.W.G. (30 Pa) | C501 |
| | 0.04 in.W.G. (10 Pa) | C500 |
| | 0 in.W.G. (0 Pa) | C502 |
| (H,Y)IDS015, 018B21S | 0.12 in.W.G. (50 Pa) | C501 |
| | 0.04 in.W.G. (10 Pa) | C500 |
| | 0 in.W.G. (0 Pa) | C502 |

* Static pressure setting on the wired controller ("C5").
Refer to the "Installation and Maintenance Manual" for the wired controller for details.

FEATURES

- 4-Way Cassette Models
(H,Y)IC4012B21S to (H,Y)IC4036B21S
- Comfortable Function
 - (1) Airflow can be controlled by adjusting four louvers individually.



A comfortable air-conditioned environment can be provided by various louver settings depending on the situation. (The setting is available only when combined with the wired controller.)

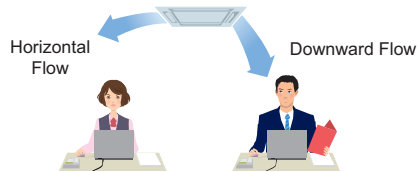
Air conditioning comfort is improved using a louver control function to adjust louvers individually for better control of airflow direction. One option adjusts the louver horizontally to avoid direct airflow toward individuals. Another option provides an individual swing operation to discharge enough airflow.

The airflow direction can be selected according to the situation.

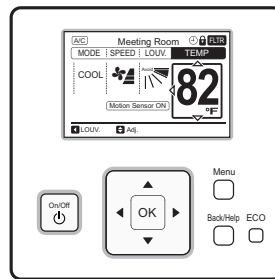
Example 1: At Front Desk



Example 2: At Office

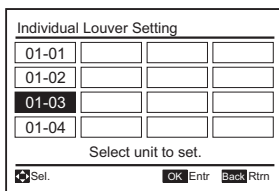


- (2) Easy setting of each louver airflow direction using a wired controller.



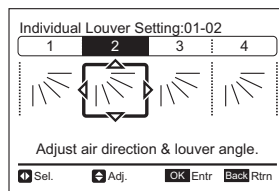
Wired Controller
CIW01

Indoor Unit Selection



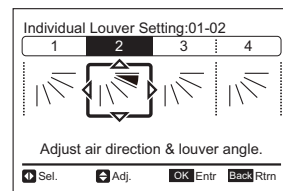
Individual louver setting is possible with one wired controller for multiple indoor units.

Louver Selection to Set



After selecting the indoor unit, select one louver to set. At this time, the selected louver of the indoor unit opens.

Louver Angle Adjustment



Louver angle can be selected to fixed airflow direction or swing flow.

● **Motion Sensor**

(1) A decorative panel with a motion sensor can intelligently detect human activity and furniture heat signatures.

Air conditioning comfort is improved with four motion sensors and one heat-detecting sensor equipped with the decorative panel.

* **Motion Sensor**

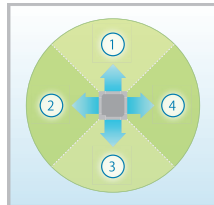
Infrared is always radiated from humans and objects.

The motion sensor uses infrared in a “detecting area” to detect human energy.

* **Radiation Sensor**

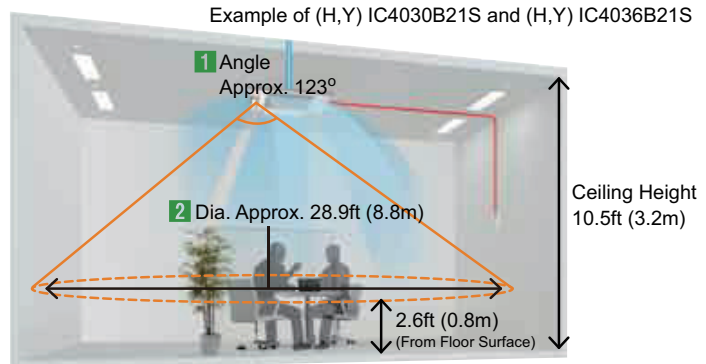
The radiation sensor measures the temperature in its detecting area through radiated infrared from human and objects.

Detecting Area of Motion Sensors
(Viewed from Ceiling)

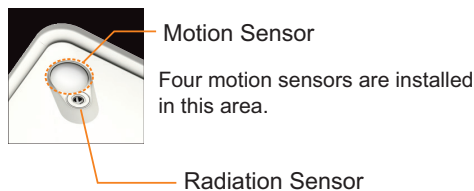


The motion sensors' detecting area is divided into four separate areas as shown above.

Detecting Area



In an instance where the ceiling height is 10.5 ft (3.2m)



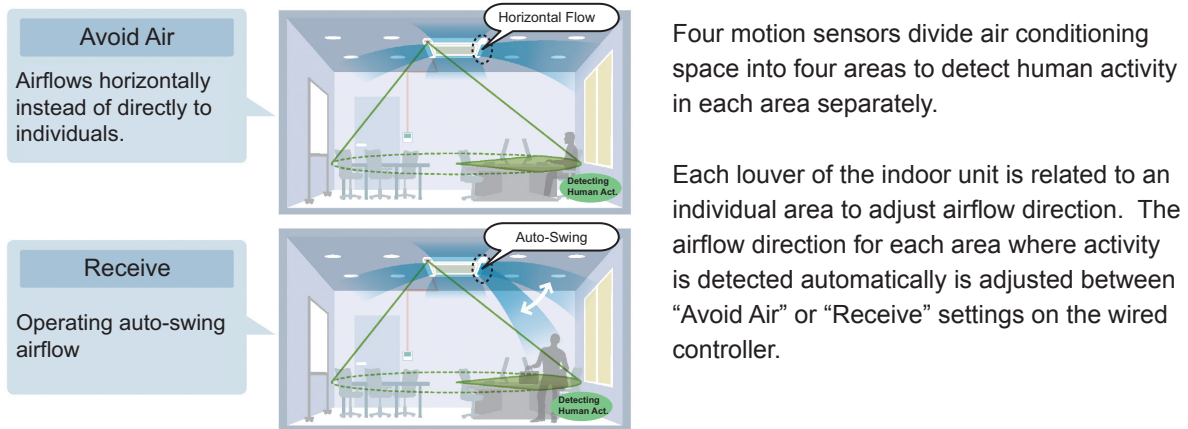
| Model | (H,Y)IC4012B21S to (H,Y)IC4024B21S | (H,Y)IC4030B21S and (H,Y)IC4036B21S |
|-----------------|---|--|
| Detecting Angle | Approx. 123° | |
| Detecting Area | When the ceiling height is 8.9 ft. (2.7m). ● Detecting Diameter Approx. 23ft (7m) (2.6ft (0.8m) from floor surface) | When the ceiling height is 10.5 ft. (3.2m). ● Detecting Diameter Approx. 28.9ft (8.8m) (2.6ft (0.8m) from floor surface) |

NOTE:

1. The motion sensor detects human activity. However, if someone is in a room with very little activity, the motion sensors may not detect motion.
2. The motion sensor may detect human activity if the indoor unit with the motion sensor is installed near a moving object which has a temperature different than the environment.
3. The motion sensors may detect no activity if the indoor unit is installed on a high ceiling of 13.1 ft. (4m) or more, or fingerprints or contaminants are on the motion sensors' lenses, even if someone is in a room.

FEATURES

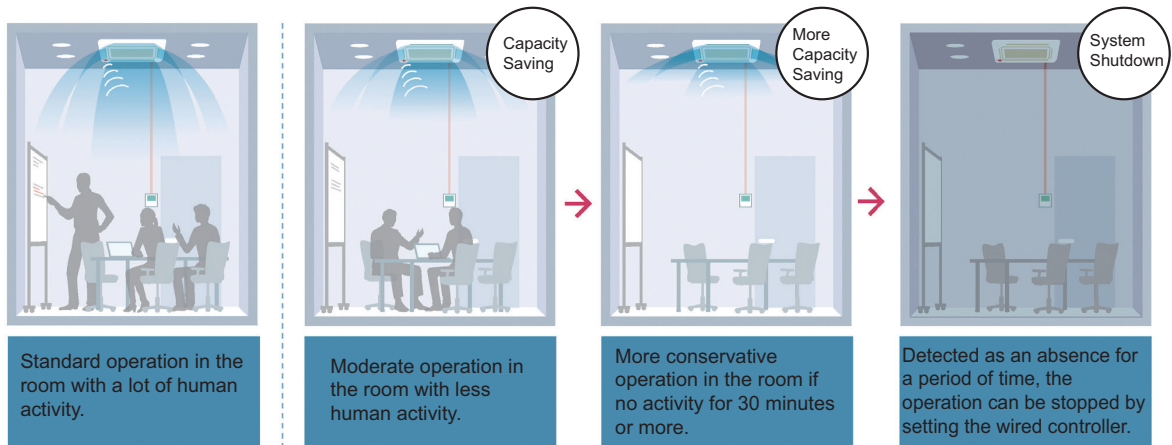
- (2) Airflow direction for each area can be automatically adjusted by detecting human activity with four motion sensors.



NOTE:

When the motion sensor detects no activity, the airflow direction is adjusted by the user setting directions on the wired controller.

- (3) With a motion sensor, air conditioning capacity is saved automatically depending on the situation and the amount of detected human activity.



- *1) Setting the motion sensor requires the wired controller (CIW01). When connecting with another wired controller, a communication cable between each wired controller is required. Without a communication cable, the motion sensor function is not supported.
- *2) During heating operation, a correction factor of the temperature setting may make the environment too cool.
- *3) The default setting is “Continuous Running”. However, “Automatic Stop” can be selected using the wired controller. In addition, after starting the operation, setting a stop time can be changed by the wired controller.

- Radiation Sensor

The radiation temperature sensor can adjust airflow direction and airflow volume if there is a big difference between the radiation temperature and setting temperature.

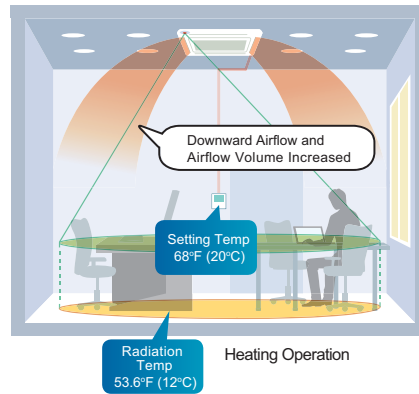
By setting “Floor HEAT Control” in an instance where there is a big difference between radiation temperature and setting temperature, the operation is as below:

1. Warm air is discharged downward to increase airflow volume. *1)
2. When increased temperature reaches the setpoint, the airflow volume and airflow direction will return to the default setting position. *2)

- *1) When there is human activity in a room, the air flows horizontally during the “Avoid Air” setting.
- *2) When 60 minutes have passed after starting this function and the setpoint is not reached, the setting will return to the default setting.

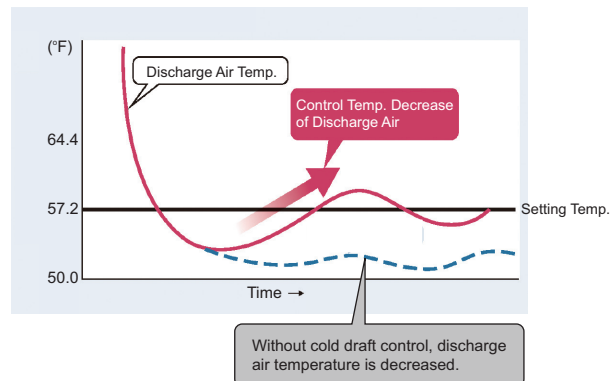
NOTICE

The effect of this function is dependent on the size of the room and air-conditioning load.



- Discharge Air Thermistor

The Discharge Air Thermistor prevents a perception of a cold draft at cooling operation.



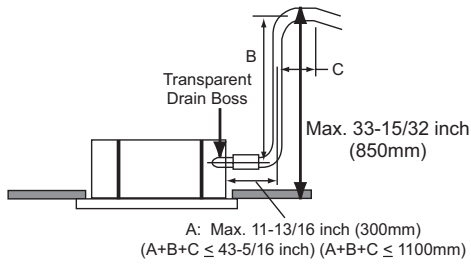
NOTE:

- Set “HIGH”, “MED” and “LOW” airflow volume in advance on the wired controller. Depending on the setting, the discharged air temperature is controlled by adjusting the air conditioning capacity. (Discharged air temperature is increased in order of “HIGH”, “MED”, “LOW”.)
- This function may not be effective depending on the unit’s operating condition, for example if multiple indoor units are operating at the same time.
- Depending on the cold draft control setting, it may take longer to cool the entire room.

FEATURES

- Flexible Design

(1) Equipped with a condensate mechanism with high pump lift



A condensate pump lift of up to 33-1/2 inches (838mm) from the false ceiling surface is achieved by employing a condensate mechanism with a high pump lift.

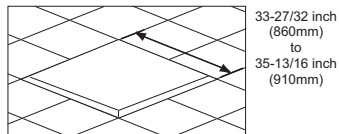
(2) Attractive appearance with shutter function.



The shutter function conceals the air outlet with louvers when the operation is stopped. The louvers cover the air outlet horizontally providing an attractive appearance.

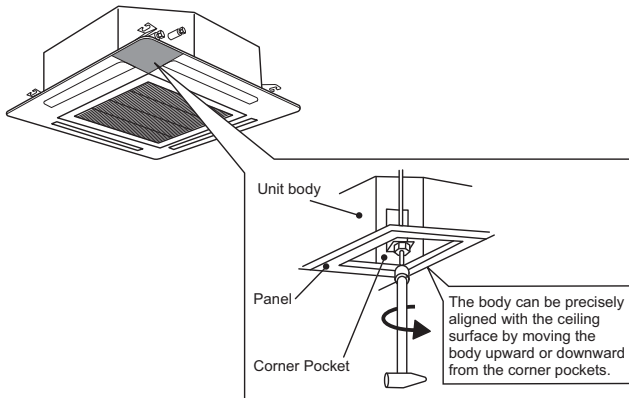
- Easy Installation

(1) Small ceiling opening for installation and removal.



The ceiling opening size has a range of 33-27/32 inches (860mm) to 35-13/16 inch (910mm), so a ceiling joint cut will be easier.

(2) Unit body height easily adjustable in the corner pockets.



A pocket is provided for each of the four panel corners, so that the height of the unit can be adjusted easily without removing the panel.

- (3) Simplified panel wiring
The panel wiring connector is located inside the air inlet grille.
No need to open the electrical box cover for panel wiring work.
 - (4) Ability to easily install the air grille direction at a 90° position
Suspension bolt pitch is 29-29/32 inch × 29-29/32 inch (760mm × 760mm). No need to change the bolt position for matching the unit direction with a pipe connection position. Grille direction can be selected in four ways. This results in a pleasing and flexible layout of multiple units' installation.
 - (5) Improvement of piping workability
Workability is improved by a different location of refrigerant piping and condensate piping.
- Easy Maintenance
 - (1) Easy to check condensate condition and condensate work
A drain plug is equipped as part of the air inlet grille to simplify checking of condensate condition and emergency condensate work by just removing the air inlet grille. In addition, the drain plug diameter is 7/8 inch (22mm) to enhance maintenance effectiveness.
 - (2) Antibacterial agent for condensate pan
A silver ions antibacterial agent is in the condensate pan. It inhibits the generation of mold or bacteria which is the cause of clogging.
 - (3) Clean and Easy-Care
The form of louver enables smooth blowing and prevents smudging and stains on the ceiling surface. Underside of louver can be easily cleaned.

FEATURES

■ 1-Way Cassette Type Models (H,Y)IC1006B21S to (H,Y)IC1015B21S

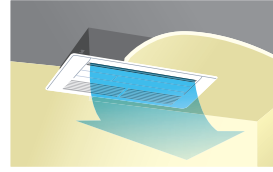
● Flexible Design

(1) Ability to choose from three installation types

• Corner Type (Standard)

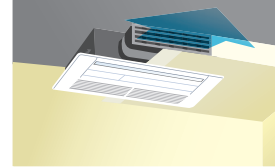
It is possible to install the unit closer to the wall side of the ceiling.

No interference with ceiling equipment such as lighting, and assists in providing additional space for ceiling equipment.



• Clipped Ceiling for 1-Way Discharge Type (Optional)

It is suitable if requirements are not to embed the unit directly into the ceiling because of ceiling equipment.

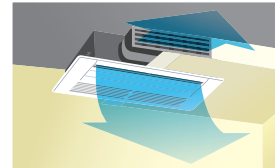


NOTE:

Not suitable for installing on a high ceiling as the heated air has difficulty reaching the floor.

• Clipped Ceiling for 2-Way Discharge Type (Optional)

Discharged air is discharged horizontally from the front air outlet and downward from the lower air outlet for wide air distribution.



NOTE:

As for 2-Way Discharge Type, air reaching distance is shorter than 1-Way Discharged Type. When installing, make sure that ceiling height is within 8.9 ft. (2.7m)

(2) Flexibility of installation on a high ceiling

If the unit is installed on a high ceiling, use the high speed function to select the airflow volume which is higher than the normal airflow volume.

Set High Speed using the wired controller depending on the ceiling height as shown in the table below.

| Ceiling Height | | High Speed Setting Function |
|------------------------------------|------------------------------------|-----------------------------|
| (H,Y)IC1006B21S (H,Y)IC1008B21S | (H,Y)IC1012B21S (H,Y)IC1015B21S | |
| Less than 9 ft. (2.7m) | Less than 10 ft. (3.1m) | Standard |
| 9 ft. to 10 ft. (2.7 - 3.0m) | 10 ft. to 12 ft. (3.1 - 3.5m) | High Speed |

● Slim and Stylish Design

The unit height is only 9-1/4 inches (235mm).

It can be installed at a small installation height such as a clipped ceiling.

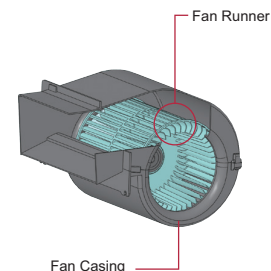
Decorative panel design is simple and stylish.

The shutter function closes the air outlet with the louver when the operation is stopped.



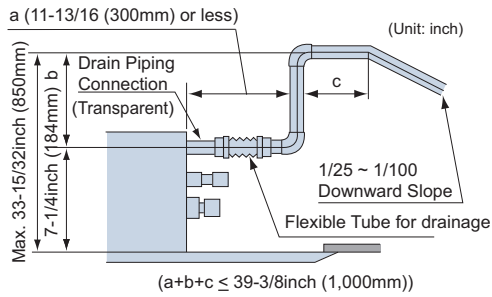
● Highly-Advanced Low Sound Pressure Level

By improving the fan wing shape and air outlet design, there is highly improved efficiency of the airflow operation and lower sound pressure level.



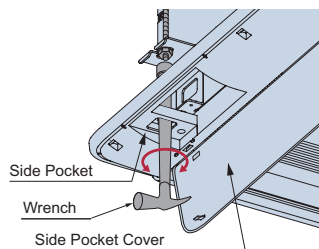
• Easy Installation

(1) Equipped with a condensate mechanism with high-life pump.



High-lift pump with flexible condensate tube makes it possible to raise the condensate pipe, up to 33-1/2 inches (838mm) from the false ceiling surface.

(2) Easier Height Adjustment



Side pocket covers are provided on both sides of the decorative panel so that the height of the unit can be adjusted easily without removing the panel.

(3) Ability to embed receiver kit (optional part) in decorative panel

Even after installing the decorative panel, there is the ability to embed the receiver kit (optional part) to the decorative panel while still providing a stylish appearance.

• Easy Maintenance

The silver ions antibacterial agent is in the condensate pan and inhibits the generation of mold or bacteria which is the cause of clogging.

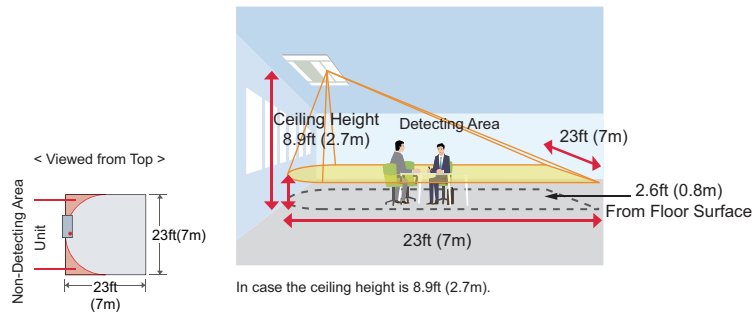
FEATURES

- Motion Sensor Kit (Optional Part)

(1) By adding the motion sensor on the corner of the decorative panel, air conditioning capacity is saved automatically depending on the amount of detection of human activity. In addition, the operation can be stopped automatically if activity is absent and continues for more than 30 minutes.* The motion sensor allows for continuation of a comfortable indoor environment while eliminating unnecessary operation.

* The default setting is “Continuous Running”. However, “Automatic Stop” can be selected using the wired controller.

(2) Detection Area (For a ceiling height of 9 ft. (2.8m))
Detecting Diameter: Approx. 23 ft. (7m) (2.6ft (0.8m) from floor surface)



NOTE:

- * The motion sensor detects human activity. However, if someone is in a room with very little activity, the motion sensors may not detect motion.
- * The motion sensor may detect human activity if the indoor unit with the motion sensor is installed near a moving object which has a temperature different than the environment.
- * The motion sensors may detect an absence of activity if the indoor unit is installed on a high ceiling of 13 ft. (4m) or more if fingerprints or contaminants are on the motion sensors' lenses, even if someone is in a room.
- * Make sure to operate the motion sensor with a wired controller.
- * This cannot be used with a wireless controller alone.

- Wall Mount Type Models
TIWM006B21S to TIWM024B21S

- Easy Maintenance and Flexible Design

- (1) Face panel

The unit has been designed with a face panel and a slim body. The front panel is easy to clean and should remain relatively dust free. It is easily removed and washed with water.

- (2) Compact design width of 31-3/32inch (790mm) (Only for TIWM006B21S and TIWM008B21S)

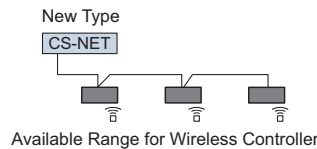
The compact design width of 31-3/32inch (790mm) makes it possible to install in a narrow space.

31-3/32inch (790mm)



- (3) Applicable to centralized control

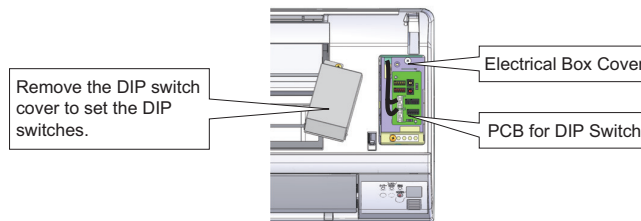
When each indoor unit is controlled with a wireless controller, there is no need to install a wired controller with a centralized control system.



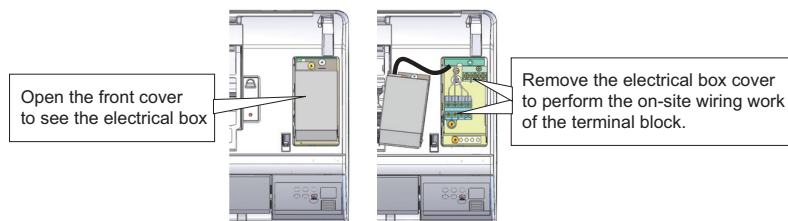
- Easy Installation

- (1) DIP switch setting without removing the front panel

Other switch settings can be performed without removing the front panel.



Open the electrical box cover and perform the field electrical wiring work without removing the front panel.



- (2) Operation control with wireless controller

Each unit can be controlled with a wireless controller by built-in receiver kit. A wired controller is also available instead of a wireless operation.



A signal-receiving buzzer and indicator light signals the wireless controller operation.

In an instance of group control with a wireless controller (multiple units are controlled simultaneously with one wireless controller), an optional receiver kit or wired controller is required.



2. Outdoor Units

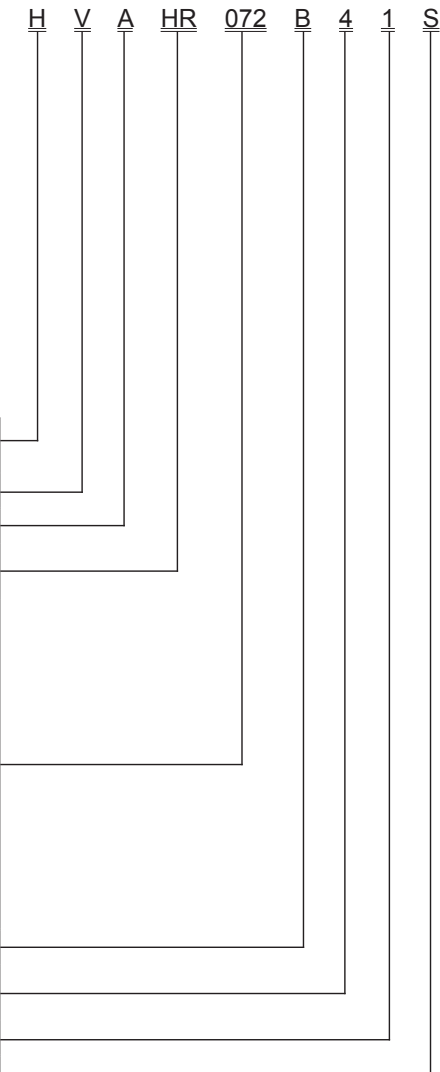
2.1 Unit Nomenclature

- Outdoor Units Model Descriptions

Example

H V A HR 072 B 4 1 S

| Nomenclature Description | |
|---|-----|
| H = Hitachi Brand Y = York Brand | H |
| VRF | V |
| A = Air Source | A |
| HR = Heat Recovery HP = Heat Pump | HR |
| 072 = 72 MBH 096 = 96 MBH 120 = 120 MBH 144 = 144 MBH 168 = 168 MBH 192 = 192 MBH 216 = 216 MBH 240 = 240 MBH 264 = 264 MBH 288 = 288 MBH 312 = 312 MBH 336 = 336 MBH 360 = 360 MBH | 072 |
| B = R410A | B |
| 3 = 208/230Volts - 3Phase - 60Hz 4 = 460Volts - 3Phase - 60Hz | 4 |
| 1 = 1st Generation | 1 |
| S = Standard (Factory Options) LM = Less Module | S |



OUTDOOR UNITS

2.2 Line-up

Heat Pump Type

| Voltage | | Capacity (MBH) | Heat Pump System |
|-----------------|--------------------|---------------------|---------------------|
| 208/230V | Base Unit | 72 | (H,Y)VAHP 072 B31S |
| | Base Unit | 96 | (H,Y)VAHP 096 B31S |
| | Base Unit | 120 | (H,Y)VAHP 120 B31S |
| | 72 + 72 | 144 | (H,Y)VAHP 144 B31S |
| | 96 + 72 | 168 | (H,Y)VAHP 168 B31S |
| | 96 + 96 | 192 | (H,Y)VAHP 192 B31S |
| | 72 + 72 + 72 | 216 | (H,Y)VAHP 216 B31S |
| | 96 + 72 + 72 | 240 | (H,Y)VAHP 240 B31S |
| | 120 + 120 | 240 | (H,Y)VAHP 240 B31LM |
| | 120 + 72 + 72 | 264 | (H,Y)VAHP 264 B31S |
| | 120 + 96 + 72 | 288 | (H,Y)VAHP 288 B31S |
| | 120 + 120 + 72 | 312 | (H,Y)VAHP 312 B31S |
| | 96 + 96 + 72 + 72 | 336 | (H,Y)VAHP 336 B31S |
| | 120 + 120 + 96 | 336 | (H,Y)VAHP 336 B31LM |
| | 120 + 96 + 72 + 72 | 360 | (H,Y)VAHP 360 B31S |
| 120 + 120 + 120 | 360 | (H,Y)VAHP 360 B31LM | |
| 460V | Base Unit | 72 | (H,Y)VAHP 072 B41S |
| | Base Unit | 96 | (H,Y)VAHP 096 B41S |
| | Base Unit | 120 | (H,Y)VAHP 120 B41S |
| | 72 + 72 | 144 | (H,Y)VAHP 144 B41S |
| | 96 + 72 | 168 | (H,Y)VAHP 168 B41S |
| | 96 + 96 | 192 | (H,Y)VAHP 192 B41S |
| | 72 + 72 + 72 | 216 | (H,Y)VAHP 216 B41S |
| | 96 + 72 + 72 | 240 | (H,Y)VAHP 240 B41S |
| | 120 + 120 | 240 | (H,Y)VAHP 240 B41LM |
| | 120 + 72 + 72 | 264 | (H,Y)VAHP 264 B41S |
| | 120 + 96 + 72 | 288 | (H,Y)VAHP 288 B41S |
| | 120 + 120 + 72 | 312 | (H,Y)VAHP 312 B41S |
| | 96 + 96 + 72 + 72 | 336 | (H,Y)VAHP 336 B41S |
| | 120 + 120 + 96 | 336 | (H,Y)VAHP 336 B41LM |
| | 120 + 96 + 72 + 72 | 360 | (H,Y)VAHP 360 B41S |
| 120 + 120 + 120 | 360 | (H,Y)VAHP 360 B41LM | |

Heat Recovery Type

| Voltage | | Capacity (MBH) | Heat Recovery System |
|-----------------|--------------------|---------------------|----------------------|
| 208/230V | Base Unit | 72 | (H,Y)VAHR 072 B31S |
| | Base Unit | 96 | (H,Y)VAHR 096 B31S |
| | Base Unit | 120 | (H,Y)VAHR 120 B31S |
| | 72 + 72 | 144 | (H,Y)VAHR 144 B31S |
| | 96 + 72 | 168 | (H,Y)VAHR 168 B31S |
| | 96 + 96 | 192 | (H,Y)VAHR 192 B31S |
| | 72 + 72 + 72 | 216 | (H,Y)VAHR 216 B31S |
| | 96 + 72 + 72 | 240 | (H,Y)VAHR 240 B31S |
| | 120 + 120 | 240 | (H,Y)VAHR 240 B31LM |
| | 120 + 72 + 72 | 264 | (H,Y)VAHR 264 B31S |
| | 120 + 96 + 72 | 288 | (H,Y)VAHR 288 B31S |
| | 120 + 120 + 72 | 312 | (H,Y)VAHR 312 B31S |
| | 96 + 96 + 72 + 72 | 336 | (H,Y)VAHR 336 B31S |
| | 120 + 120 + 96 | 336 | (H,Y)VAHR 336 B31LM |
| | 120 + 96 + 72 + 72 | 360 | (H,Y)VAHR 360 B31S |
| 120 + 120 + 120 | 360 | (H,Y)VAHR 360 B31LM | |
| 460V | Base Unit | 72 | (H,Y)VAHR 072 B41S |
| | Base Unit | 96 | (H,Y)VAHR 096 B41S |
| | Base Unit | 120 | (H,Y)VAHR 120 B41S |
| | 72 + 72 | 144 | (H,Y)VAHR 144 B41S |
| | 96 + 72 | 168 | (H,Y)VAHR 168 B41S |
| | 96 + 96 | 192 | (H,Y)VAHR 192 B41S |
| | 72 + 72 + 72 | 216 | (H,Y)VAHR 216 B41S |
| | 96 + 72 + 72 | 240 | (H,Y)VAHR 240 B41S |
| | 120 + 120 | 240 | (H,Y)VAHR 240 B41LM |
| | 120 + 72 + 72 | 264 | (H,Y)VAHR 264 B41S |
| | 120 + 96 + 72 | 288 | (H,Y)VAHR 288 B41S |
| | 120 + 120 + 72 | 312 | (H,Y)VAHR 312 B41S |
| | 96 + 96 + 72 + 72 | 336 | (H,Y)VAHR 336 B41S |
| | 120 + 120 + 96 | 336 | (H,Y)VAHR 336 B41LM |
| | 120 + 96 + 72 + 72 | 360 | (H,Y)VAHR 360 B41S |
| 120 + 120 + 120 | 360 | (H,Y)VAHR 360 B41LM | |

OUTDOOR UNITS

Combinations for Heat Pump Type

< 208/230V >

- Standard Type

Base Unit

| Capacity (MBH) | 72 | 96 | 120 |
|----------------|------------------|------------------|------------------|
| Model | (H,Y)VAHP072B31S | (H,Y)VAHP096B31S | (H,Y)VAHP120B31S |

Combination of Base Units

| Capacity (MBH) | 144 | 168 | 192 | 216 |
|----------------|------------------|------------------|------------------|------------------|
| Model | (H,Y)VAHP144B31S | (H,Y)VAHP168B31S | (H,Y)VAHP192B31S | (H,Y)VAHP216B31S |
| Combination | (H,Y)VAHP072B31S | (H,Y)VAHP096B31S | (H,Y)VAHP096B31S | (H,Y)VAHP072B31S |
| | (H,Y)VAHP072B31S | (H,Y)VAHP072B31S | (H,Y)VAHP096B31S | (H,Y)VAHP072B31S |
| | - | - | - | (H,Y)VAHP072B31S |

| Capacity (MBH) | 240 | 264 | 288 | 312 |
|----------------|------------------|------------------|------------------|------------------|
| Model | (H,Y)VAHP240B31S | (H,Y)VAHP264B31S | (H,Y)VAHP288B31S | (H,Y)VAHP312B31S |
| Combination | (H,Y)VAHP096B31S | (H,Y)VAHP120B31S | (H,Y)VAHP120B31S | (H,Y)VAHP120B31S |
| | (H,Y)VAHP072B31S | (H,Y)VAHP072B31S | (H,Y)VAHP096B31S | (H,Y)VAHP120B31S |
| | (H,Y)VAHP072B31S | (H,Y)VAHP072B31S | (H,Y)VAHP072B31S | (H,Y)VAHP072B31S |
| | (H,Y)VAHP072B31S | (H,Y)VAHP072B31S | (H,Y)VAHP072B31S | (H,Y)VAHP072B31S |

| Capacity (MBH) | 336 | 360 |
|----------------|------------------|------------------|
| Model | (H,Y)VAHP336B31S | (H,Y)VAHP360B31S |
| Combination | (H,Y)VAHP096B31S | (H,Y)VAHP120B31S |
| | (H,Y)VAHP096B31S | (H,Y)VAHP096B31S |
| | (H,Y)VAHP072B31S | (H,Y)VAHP072B31S |
| | (H,Y)VAHP072B31S | (H,Y)VAHP072B31S |

- Less Module Type

Combination of Base Units

| Capacity (MBH) | 240 | 336 | 360 |
|----------------|-------------------|-------------------|-------------------|
| Model | (H,Y)VAHP240B31LM | (H,Y)VAHP336B31LM | (H,Y)VAHP360B31LM |
| Combination | (H,Y)VAHP120B31S | (H,Y)VAHP120B31S | (H,Y)VAHP120B31S |
| | (H,Y)VAHP120B31S | (H,Y)VAHP120B31S | (H,Y)VAHP120B31S |
| | - | (H,Y)VAHP096B31S | (H,Y)VAHP120B31S |

< 460V >

• Standard Type

Base Unit

| Capacity (MBH) | 72 | 96 | 120 |
|----------------|------------------|------------------|------------------|
| Model | (H,Y)VAHP072B41S | (H,Y)VAHP096B41S | (H,Y)VAHP120B41S |

Combination of Base Units

| Capacity (MBH) | 144 | 168 | 192 | 216 |
|----------------|------------------|------------------|------------------|------------------|
| Model | (H,Y)VAHP144B41S | (H,Y)VAHP168B41S | (H,Y)VAHP192B41S | (H,Y)VAHP216B41S |
| Combination | (H,Y)VAHP072B41S | (H,Y)VAHP096B41S | (H,Y)VAHP096B41S | (H,Y)VAHP072B41S |
| | (H,Y)VAHP072B41S | (H,Y)VAHP072B41S | (H,Y)VAHP096B41S | (H,Y)VAHP072B41S |
| | - | - | - | (H,Y)VAHP072B41S |

| Capacity (MBH) | 240 | 264 | 288 | 312 |
|----------------|------------------|------------------|------------------|------------------|
| Model | (H,Y)VAHP240B41S | (H,Y)VAHP264B41S | (H,Y)VAHP288B41S | (H,Y)VAHP312B41S |
| Combination | (H,Y)VAHP096B41S | (H,Y)VAHP120B41S | (H,Y)VAHP120B41S | (H,Y)VAHP120B41S |
| | (H,Y)VAHP072B41S | (H,Y)VAHP072B41S | (H,Y)VAHP096B41S | (H,Y)VAHP120B41S |
| | (H,Y)VAHP072B41S | (H,Y)VAHP072B41S | (H,Y)VAHP072B41S | (H,Y)VAHP072B41S |
| | (H,Y)VAHP072B41S | (H,Y)VAHP072B41S | (H,Y)VAHP072B41S | (H,Y)VAHP072B41S |

| Capacity (MBH) | 336 | 360 |
|----------------|------------------|------------------|
| Model | (H,Y)VAHP336B41S | (H,Y)VAHP360B41S |
| Combination | (H,Y)VAHP096B41S | (H,Y)VAHP120B41S |
| | (H,Y)VAHP096B41S | (H,Y)VAHP096B41S |
| | (H,Y)VAHP072B41S | (H,Y)VAHP072B41S |
| | (H,Y)VAHP072B41S | (H,Y)VAHP072B41S |

• Less Module Type

Combination of Base Units

| Capacity (MBH) | 240 | 336 | 360 |
|----------------|-------------------|-------------------|-------------------|
| Model | (H,Y)VAHP240B41LM | (H,Y)VAHP336B41LM | (H,Y)VAHP360B41LM |
| Combination | (H,Y)VAHP120B41S | (H,Y)VAHP120B41S | (H,Y)VAHP120B41S |
| | (H,Y)VAHP120B41S | (H,Y)VAHP120B41S | (H,Y)VAHP120B41S |
| | - | (H,Y)VAHP096B41S | (H,Y)VAHP120B41S |

OUTDOOR UNITS

Combinations for Heat Recovery Type

< 208/230V >

- Standard Type

Base Unit

| Capacity (MBH) | 72 | 96 | 120 |
|----------------|------------------|------------------|------------------|
| Model | (H,Y)VAHR072B31S | (H,Y)VAHR096B31S | (H,Y)VAHR120B31S |

Combination of Base Units

| Capacity (MBH) | 144 | 168 | 192 | 216 |
|----------------|------------------|------------------|------------------|------------------|
| Model | (H,Y)VAHR144B31S | (H,Y)VAHR168B31S | (H,Y)VAHR192B31S | (H,Y)VAHR216B31S |
| Combination | (H,Y)VAHR072B31S | (H,Y)VAHR096B31S | (H,Y)VAHR096B31S | (H,Y)VAHR072B31S |
| | (H,Y)VAHR072B31S | (H,Y)VAHR072B31S | (H,Y)VAHR096B31S | (H,Y)VAHR072B31S |
| | - | - | - | (H,Y)VAHR072B31S |

| Capacity (MBH) | 240 | 264 | 288 | 312 |
|----------------|------------------|------------------|------------------|------------------|
| Model | (H,Y)VAHR240B31S | (H,Y)VAHR264B31S | (H,Y)VAHR288B31S | (H,Y)VAHR312B31S |
| Combination | (H,Y)VAHR096B31S | (H,Y)VAHR120B31S | (H,Y)VAHR120B31S | (H,Y)VAHR120B31S |
| | (H,Y)VAHR072B31S | (H,Y)VAHR072B31S | (H,Y)VAHR096B31S | (H,Y)VAHR120B31S |
| | (H,Y)VAHR072B31S | (H,Y)VAHR072B31S | (H,Y)VAHR072B31S | (H,Y)VAHR072B31S |
| | (H,Y)VAHR072B31S | (H,Y)VAHR072B31S | (H,Y)VAHR072B31S | (H,Y)VAHR072B31S |

| Capacity (MBH) | 336 | 360 |
|----------------|------------------|------------------|
| Model | (H,Y)VAHR336B31S | (H,Y)VAHR360B31S |
| Combination | (H,Y)VAHR096B31S | (H,Y)VAHR120B31S |
| | (H,Y)VAHR096B31S | (H,Y)VAHR096B31S |
| | (H,Y)VAHR072B31S | (H,Y)VAHR072B31S |
| | (H,Y)VAHR072B31S | (H,Y)VAHR072B31S |

- Less Module Type

Combination of Base Units

| Capacity (MBH) | 240 | 336 | 360 |
|----------------|-------------------|-------------------|-------------------|
| Model | (H,Y)VAHR240B31LM | (H,Y)VAHR336B31LM | (H,Y)VAHR360B31LM |
| Combination | (H,Y)VAHR120B31S | (H,Y)VAHR120B31S | (H,Y)VAHR120B31S |
| | (H,Y)VAHR120B31S | (H,Y)VAHR120B31S | (H,Y)VAHR120B31S |
| | - | (H,Y)VAHR096B31S | (H,Y)VAHR120B31S |

< 460V >

• Standard Type

Base Unit

| Capacity (MBH) | 72 | 96 | 120 |
|----------------|------------------|------------------|------------------|
| Model | (H,Y)VAHR072B41S | (H,Y)VAHR096B41S | (H,Y)VAHR120B41S |

Combination of Base Units

| Capacity (MBH) | 144 | 168 | 192 | 216 |
|----------------|------------------|------------------|------------------|------------------|
| Model | (H,Y)VAHR144B41S | (H,Y)VAHR168B41S | (H,Y)VAHR192B41S | (H,Y)VAHR216B41S |
| Combination | (H,Y)VAHR072B41S | (H,Y)VAHR096B41S | (H,Y)VAHR096B41S | (H,Y)VAHR072B41S |
| | (H,Y)VAHR072B41S | (H,Y)VAHR072B41S | (H,Y)VAHR096B41S | (H,Y)VAHR072B41S |
| | - | - | - | (H,Y)VAHR072B41S |

| Capacity (MBH) | 240 | 264 | 288 | 312 |
|----------------|------------------|------------------|------------------|------------------|
| Model | (H,Y)VAHR240B41S | (H,Y)VAHR264B41S | (H,Y)VAHR288B41S | (H,Y)VAHR312B41S |
| Combination | (H,Y)VAHR096B41S | (H,Y)VAHR120B41S | (H,Y)VAHR120B41S | (H,Y)VAHR120B41S |
| | (H,Y)VAHR072B41S | (H,Y)VAHR072B41S | (H,Y)VAHR096B41S | (H,Y)VAHR120B41S |
| | (H,Y)VAHR072B41S | (H,Y)VAHR072B41S | (H,Y)VAHR072B41S | (H,Y)VAHR072B41S |
| | (H,Y)VAHR072B41S | (H,Y)VAHR072B41S | (H,Y)VAHR072B41S | (H,Y)VAHR072B41S |

| Capacity (MBH) | 336 | 360 |
|----------------|------------------|------------------|
| Model | (H,Y)VAHR336B41S | (H,Y)VAHR360B41S |
| Combination | (H,Y)VAHR096B41S | (H,Y)VAHR120B41S |
| | (H,Y)VAHR096B41S | (H,Y)VAHR096B41S |
| | (H,Y)VAHR072B41S | (H,Y)VAHR072B41S |
| | (H,Y)VAHR072B41S | (H,Y)VAHR072B41S |

• Less Module Type

Combination of Base Units

| Capacity (MBH) | 240 | 336 | 360 |
|----------------|-------------------|-------------------|-------------------|
| Model | (H,Y)VAHR240B41LM | (H,Y)VAHR336B41LM | (H,Y)VAHR360B41LM |
| Combination | (H,Y)VAHR120B41S | (H,Y)VAHR120B41S | (H,Y)VAHR120B41S |
| | (H,Y)VAHR120B41S | (H,Y)VAHR120B41S | (H,Y)VAHR120B41S |
| | - | (H,Y)VAHR096B41S | (H,Y)VAHR120B41S |

2.3 General Data

(1) Heat Pump Type (208/230V)

• Standard Type

| Category | | Unit | 6RT | 8RT | 10RT | |
|-------------------------------------|---------|---|---------------------------|--|--|--|
| Model (Combination) | | | (H,Y)VAHP072B31S | (H,Y)VAHP096B31S | (H,Y)VAHP120B31S | |
| Model (Individual) | | Unit A | - | - | - | |
| | | Unit B | - | - | - | |
| | | Unit C | - | - | - | |
| | | Unit D | - | - | - | |
| Power Supply | | | 208/230V/ 3PH 60Hz | 208/230V/ 3PH 60Hz | 208/230V/ 3PH 60Hz | |
| Capacity (Nominal) *1 | Cooling | Capacity (Nominal) | Btu/h (kW) | 72,000 (21.1) | 96,000 (28.1) | 120,000 (35.2) |
| | | Power Input | kW | 6.08 | 7.61 | 10.57 |
| | | Current Input | A (208V/230V) | 18.3 / 16.6 | 23.0 / 20.8 | 33.0 / 31.6 |
| | Heating | Capacity (Nominal) | Btu/h (kW) | 81,000 (23.7) | 108,000 (31.7) | 135,000 (39.6) |
| | | Power Input | kW | 5.93 | 7.33 | 9.73 |
| | | Current Input | A (208V/230V) | 17.9 / 16.2 | 23.1 / 22.2 | 30.3 / 28.7 |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h (kW) | 69,000 (20.2) | 92,000 (27.0) | 114,000 (33.4) |
| | | EER | Btu/Wh (W/W) | 15.60 (4.58) | 13.70 (4.02) | 11.60 (3.40) |
| | | IEER | Btu/Wh (Wh/Wh) | 25.20 (7.39) | 21.80 (6.39) | 20.80 (6.10) |
| | Heating | Capacity (Rated) | Btu/h (kW) | 76,000 (22.3) | 103,000 (30.2) | 129,000 (37.8) |
| | | High COP | W/W | 4.21 | 4.01 | 3.74 |
| | | Low COP | W/W | 2.60 | 2.43 | 2.36 |
| Cooling Operating Range | | Indoor °F WB (°C WB) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | |
| | | Outdoor °F DB (°C DB) | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | |
| Heating Operating Range | | Indoor °F DB (°C DB) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | |
| | | Outdoor °F WB (°C WB) | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | |
| Cabinet Color (Munsell Code) | | | 2.5Y 8/2 | 2.5Y 8/2 | 2.5Y 8/2 | |
| Outer Dimensions | Height | in (mm) | 68-1/8 (1730) | 68-1/8 (1730) | 68-1/8 (1730) | |
| | Width | in (mm) | 37-7/8 (962) | 48-1/8 (1222) | 48-1/8 (1222) | |
| | Depth | in (mm) | 31-7/32 (793) | 31-7/32 (793) | 31-7/32 (793) | |
| Package Dimensions | Height | in (mm) | 74-1/4 (1886) | 74-1/4 (1886) | 74-1/4 (1886) | |
| | Width | in (mm) | 40-5/8 (1032) | 50-7/8 (1292) | 50-7/8 (1292) | |
| | Depth | in (mm) | 34-1/32 (864) | 34-1/32 (864) | 34-1/32 (864) | |
| Weight | Net | lbs (kg) | 540 (245) | 730 (331) | 732 (332) | |
| | Gross | lbs (kg) | 587 (266) | 787 (357) | 789 (358) | |
| Connection Ratio | | Total Indoor Unit Capacity | % | 150 - 70 | 135 - 65 | 130 - 60 |
| | | Max. (Recommendation) Indoor Units/System | | 18 (10) | 21 (16) | 25 (16) |
| Heat Exchanger | | Type | - | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube |
| | | Material | - | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) |
| Compressor | | Type | Inverter | DA65PHD×1 | DA65PHD×1 | DA65PHD×1 |
| | | Fixed Speed | - | E655DH×1 | E655DH×1 | E655DH×1 |
| | | Motor Output (Pole) | kW (Pole) | 7.2(6) | 4.8(6)+4.4(2) | 6.0(6)+4.4(2) |
| | | Start Method | - | inverter | inverter | inverter |
| | | Operation Range | % | 20 ~ 100 | 16 ~ 100 | 15 ~ 100 |
| | | Refrigeration Oil Type | - | FVC68D | FVC68D | FVC68D |
| Crank Case Heater | | W×Q'ty | | 40.8 (230V) ×2 | 40.8 (230V) ×4 | 40.8 (230V) ×4 |
| Fan | | Type | - | Propeller Fan | Propeller Fan | Propeller Fan |
| | | Motor Output (Pole) | kW (Pole) | 0.49(8) | 0.66(8) | 0.91(8) |
| | | Quantity | Q'ty | 1 | 1 | 1 |
| | | Airflow Rate | cfm (m ³ /min) | 6178 (175) | 6884 (195) | 7413 (210) |
| | | External Static Pressure | in.WG (Pa) | 0 (0) *5 | 0 (0) *5 | 0 (0) *5 |
| | | Drive | - | Direct-drive | Direct-drive | Direct-drive |
| Electrical | | Min Circuit Amps | A | 41/37 | 48/43 | 56/50 |
| | | Recommended Fuse/Breaker Size | A | 60/50 | 60/60 | 80/70 |
| | | Maximum Fuse Size | A | 60/50 | 60/60 | 80/70 |
| Sound Pressure Level *6 | | Cooling (Night-Shift) | dB (A) | 60 (55) | 62 (57) | 64 (57) |
| | | Heating | dB (A) | 60 | 62 | 64 |
| Protection Devices | | Cycle | - | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) |
| | | Inverter | - | Over-current protection | Over-current protection | Over-current protection |
| | | Compressor | - | Over-heat protection | Over-heat protection | Over-heat protection |
| | | PCB | - | Over-heat protection | Over-heat protection | Over-heat protection |
| | | Refrigerant | - | Over-current protection | Over-current protection | Over-current protection |
| Refrigerant | | Type | | R410A | R410A | R410A |
| | | Charge Amount | lbs (kg) | 16.1 (7.3) | 18.7 (8.5) | 20.9 (9.5) |
| Refrigeration Oil | | Charge Amount | gal/Unit (L/Unit) | 1.6 (6.0) | 2.1 (7.9) | 2.1 (7.9) |
| Defrost Method | | | - | Reversed Refrigerant Cycle | Reversed Refrigerant Cycle | Reversed Refrigerant Cycle |
| Main Refrigerant Piping (Heat Pump) | | High/Low Pressure Gas Line | in (mm) | 1-1/8 (28.58) | 1-1/8 (28.58) | 1-1/8 (28.58) |
| | | Liquid Line | in (mm) | 1/2 (12.7) | 1/2 (12.7) | 1/2 (12.7) |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
 Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
 Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
 Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
 43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 External static pressure can be changed via DSW setting 0.24in.W.G.(60Pa).

*6 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

| Category | | Unit | 12RT (6RT+6RT) | 14RT (8RT+6RT) | 16RT (8RT+8RT) | |
|------------------------------|---|---------------------------|--|--|--|----------------|
| Model (Combination) | | | (H.Y)VAHP144B31S | (H.Y)VAHP168B31S | (H.Y)VAHP192B31S | |
| Model (Individual) | | Unit A | (H.Y)VAHP072B31S | (H.Y)VAHP096B31S | (H.Y)VAHP096B31S | |
| | | Unit B | (H.Y)VAHP072B31S | (H.Y)VAHP072B31S | (H.Y)VAHP096B31S | |
| | | Unit C | - | - | - | |
| | | Unit D | - | - | - | |
| Power Supply | | | 208/230V/ 3PH 60Hz | 208/230V/ 3PH 60Hz | 208/230V/ 3PH 60Hz | |
| Capacity (Nominal) *1 | Cooling | Capacity (Nominal) | Btu/h (kW) | 144,000 (42.2) | 168,000 (49.2) | 192,000 (56.3) |
| | | Power Input | kW | 12.16 | 13.69 | 15.22 |
| | | Current Input | A (208V/230V) | 36.6 / 33.2 | 41.3 / 37.4 | 46.0 / 41.6 |
| | Heating | Capacity (Nominal) | Btu/h (kW) | 162,000 (47.5) | 189,000 (55.4) | 216,000 (63.3) |
| | | Power Input | kW | 11.86 | 13.26 | 14.66 |
| | | Current Input | A (208V/230V) | 35.8 / 32.4 | 41.0 / 38.4 | 46.2 / 44.4 |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h (kW) | 138,000 (40.5) | 160,000 (46.9) | 182,000 (53.4) |
| | | EER | Btu/Wh (W/W) | 14.50 (4.25) | 11.40 (3.34) | 10.60 (3.11) |
| | | IEER | Btu/Wh (Wh/Wh) | 24.20 (7.10) | 19.70 (5.78) | 19.10 (5.60) |
| | Heating | Capacity (Rated) | Btu/h (kW) | 154,000 (45.2) | 178,000 (52.2) | 204,000 (59.8) |
| | | High COP | W/W | 4.11 | 3.69 | 3.64 |
| | | Low COP | W/W | 2.78 | 2.27 | 2.34 |
| Cooling Operating Range | | Indoor °F WB (°C WB) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | |
| | | Outdoor °F DB (°C DB) | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | |
| Heating Operating Range | | Indoor °F DB (°C DB) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | |
| | | Outdoor °F WB (°C WB) | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | |
| Cabinet Color (Munsell Code) | | | 2.5Y 8/2 | 2.5Y 8/2 | 2.5Y 8/2 | |
| Outer Dimensions | Height | in (mm) | 68-1/8 (1730) | 68-1/8 (1730) | 68-1/8 (1730) | |
| | Width *5 | in (mm) | 76-5/32 (1934) | 86-3/8 (2194) | 96-5/8 (2454) | |
| | Depth | in (mm) | 31-7/32 (793) | 31-7/32 (793) | 31-7/32 (793) | |
| Package Dimensions | Height | in (mm) | - | - | - | |
| | Width | in (mm) | - | - | - | |
| | Depth | in (mm) | - | - | - | |
| Weight | Net | lbs (kg) | 1080 (490) | 1270 (576) | 1460 (662) | |
| | Gross | lbs (kg) | 1173 (532) | 1374 (623) | 1574 (714) | |
| Connection Ratio | Total Indoor Unit Capacity | % | 150 - 75 | 140 - 65 | 135 - 65 | |
| | Max. (Recommendation) Indoor Units/System | | 36 (26) | 39 (32) | 43 (32) | |
| Heat Exchanger | Type | | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | |
| | Material | | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | |
| Compressor | Type | Inverter | DA65PHD×2 | DA65PHD×2 | DA65PHD×2 | |
| | | Fixed Speed | - | E655DH×1 | E655DH×2 | |
| | Motor Output (Pole) | kW (Pole) | 7.26(6) 7.26(6) | 4.8(6)+4.4(2) 7.26(6) | 4.8(6)+4.4(2) 4.8(6)+4.4(2) | |
| | Start Method | | inverter | inverter | inverter | |
| | Operation Range | % | 10 ~ 100 | 9 ~ 100 | 8 ~ 100 | |
| | Refrigeration Oil Type | | FVC68D | FVC68D | FVC68D | |
| Crank Case Heater | Type | W×Qty | 40.8 (230V) ×4 | 40.8 (230V) ×6 | 40.8 (230V) ×8 | |
| | Propeller Fan | | Propeller Fan | Propeller Fan | Propeller Fan | |
| Fan | Motor Output (Pole) | kW (Pole) | 0.49(8)×2 | 0.66(8)+0.49(8) | 0.66(8)×2 | |
| | Quantity | Q'ty | 2 | 2 | 2 | |
| | Airflow Rate | cfm (m ³ /min) | 6178+6178 (175+175) | 6884+6178 (195+175) | 6884+6884 (195+195) | |
| | External Static Pressure | in.WG (Pa) | 0 (0) *6 | 0 (0) *6 | 0 (0) *6 | |
| | Drive | | Direct-drive | Direct-drive | Direct-drive | |
| | Electrical | Min Circuit Amps | A | - | - | |
| | Recommended Fuse/Breaker Size | A | - | - | | |
| | Maximum Fuse Size | A | - | - | | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | dB (A) | 63 (58) | 65 (60) | 65 (60) | |
| | Heating | dB (A) | 63 | 65 | 65 | |
| Protection Devices | Cycle | | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | |
| | Inverter | | Over-current protection | Over-current protection | Over-current protection | |
| | Compressor | | Over-heat protection | Over-heat protection | Over-heat protection | |
| | PCB | | Over-current protection | Over-current protection | Over-current protection | |
| Refrigerant | Type | | R410A | R410A | R410A | |
| | Charge Amount | lbs (kg) | 16.1+16.1 (7.3+7.3) | 18.7+16.1 (8.5+7.3) | 18.7+18.7 (8.5+8.5) | |
| Refrigeration Oil | Charge Amount | gal/Unit (L/Unit) | 1.6+1.6 (6.0+6.0) | 2.1+1.6 (7.9+6.0) | 2.1+2.1 (7.9+7.9) | |
| Defrost Method | | | Reversed Refrigerant Cycle | Reversed Refrigerant Cycle | Reversed Refrigerant Cycle | |
| Main Refrigerant | High/Low Pressure Gas Line | in (mm) | 1-1/8 (28.58) | 1-3/8 (34.93) | 1-3/8 (34.93) | |
| Piping (Heat Pump) | Liquid Line | in (mm) | 5/8 (15.88) | 3/4 (19.05) | 3/4 (19.05) | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For the detail, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

| Category | | Ton | | 28RT (8RT+8RT+6RT+6RT) | | 30RT (10RT+8RT+6RT+6RT) | | |
|-------------------------------------|---|--------------------|----------------------------|--|----------------------------|--|----------------------|---------|
| Model (Combination) | | | | (H,Y)VAHP336B31S | | (H,Y)VAHP360B31S | | |
| Model (Individual) | | Unit A | | (H,Y)VAHP096B31S | | (H,Y)VAHP120B31S | | |
| | | Unit B | | (H,Y)VAHP096B31S | | (H,Y)VAHP096B31S | | |
| | | Unit C | | (H,Y)VAHP072B31S | | (H,Y)VAHP072B31S | | |
| | | Unit D | | (H,Y)VAHP072B31S | | (H,Y)VAHP072B31S | | |
| Power Supply | | | | 208/230V/ 3PH 60Hz | | 208/230V/ 3PH 60Hz | | |
| Capacity (Nominal) *1 | Cooling | Capacity (Nominal) | Btu/h | (kW) | 336,000 | (98.5) | 360,000 | (105.5) |
| | | Power Input | kW | | 27.38 | | 30.34 | |
| | | Current Input | A (208V/230V) | | 82.6 / 74.8 | | 92.6 / 85.6 | |
| | Heating | Capacity (Nominal) | Btu/h | (kW) | 378,000 | (110.8) | 405,000 | (118.7) |
| | | Power Input | kW | | 26.52 | | 28.92 | |
| Current Input | | A (208V/230V) | | 82.0 / 76.8 | | 89.2 / 83.3 | | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h | (kW) | 320,000 | (93.9) | 342,000 | (100.3) |
| | | EER | Btu/Wh | (W/W) | 11.10 | (3.26) | 9.50 | (2.79) |
| | | IEER | Btu/Wh | (Wh/Wh) | 21.20 | (6.22) | 18.50 | (5.43) |
| | Heating | Capacity (Rated) | Btu/h | (kW) | 360,000 | (105.6) | 386,000 | (113.2) |
| | | High COP | W/W | | 3.87 | | 3.88 | |
| | Heating | Low COP | Capacity | Btu/h | (kW) | 268,000 | (78.6) | 284,000 |
| | | W/W | | 2.60 | | 2.46 | | |
| Cooling Operating Range | | Indoor | °F WB (°C WB) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | |
| | | Outdoor | °F DB (°C DB) | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | |
| Heating Operating Range | | Indoor | °F DB (°C DB) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | |
| | | Outdoor | °F WB (°C WB) | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | |
| Outer Dimensions | Height | in | (mm) | 68-1/8 | (1730) | 68-1/8 | (1730) | |
| | Width *5 | in | (mm) | 173-5/32 | (4398) | 173-5/32 | (4398) | |
| | Depth | in | (mm) | 31-7/32 | (793) | 31-7/32 | (793) | |
| Package Dimensions | Height | in | (mm) | - | - | - | - | |
| | Width | in | (mm) | - | - | - | - | |
| | Depth | in | (mm) | - | - | - | - | |
| Weight | Net | lbs | (kg) | 2540 | (1152) | 2542 | (1153) | |
| | Gross | lbs | (kg) | 2747 | (1246) | 2750 | (1247) | |
| Connection Ratio | Total Indoor Unit Capacity | % | | 140 - 65 | | 135 - 65 | | |
| | Max. (Recommendation) Indoor Units/System | | | 64 (38) | | 64 (38) | | |
| Heat Exchanger | Type | | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | |
| | Material | | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | |
| Compressor | Type | Inverter | | | DA65PHD×4 | | DA65PHD×4 | |
| | | Fixed Speed | | | E655DH×2 | | E655DH×2 | |
| | Motor Output (Pole) | kW (Pole) | | 4.8(6)+4.4(2) | | 6.0(6)+4.4(2) | | |
| | Start Method | | | inverter | | inverter | | |
| | Operation Range | % | | 5 ~ 100 | | 5 ~ 100 | | |
| | Refrigeration Oil Type | | | FVC68D | | FVC68D | | |
| Crank Case Heater | W×Q'ty | | 40.8 (230V) ×12 | | 40.8 (230V) ×12 | | | |
| Fan | Type | | | Propeller Fan | | Propeller Fan | | |
| | Motor Output (Pole) | kW (Pole) | | 0.66(8)×2+0.49(8)×2 | | 0.91(8)+0.66(8)+0.49(8)×2 | | |
| | Quantity | Q'ty | | 4 | | 4 | | |
| | Airflow Rate | cfm | (m ³ /min) | 6884+6884 (195+195+6178+617) | (195+195+175+175) | 7413+6884 (210+195+6884+617) | (210+195+195+175) | |
| | External Static Pressure | in.WG | (Pa) | 0 (0) *6 | | 0 (0) *6 | | |
| | Drive | | | Direct-drive | | Direct-drive | | |
| Electrical | Min Circuit Amps | A | | - | | - | | |
| | Recommended Fuse/Breaker Size | A | | - | | - | | |
| | Maximum Fuse Size | A | | - | | - | | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | dB (A) | | 68 (63) | | 68 (63) | | |
| | Heating | dB (A) | | 68 | | 68 | | |
| Protection Devices | Cycle | | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | |
| | Inverter | | | Over-current protection | | Over-current protection | | |
| | Compressor | | | Over-heat protection | | Over-heat protection | | |
| | PCB | | | Over-current protection | | Over-current protection | | |
| Refrigerant | Type | | | R410A | | R410A | | |
| | Charge Amount | lbs | (kg) | 18.7+18.7 (8.5+8.5+16.1+16.1) | (7.3+7.3) | 20.9+18.7 (9.5+8.5+16.1+16.1) | (7.3+7.3) | |
| Refrigeration Oil | Charge Amount | gal/Unit | (L/Unit) | 2.1+2.1 (7.9+7.9+1.6+1.6) | (6.0+6.0) | 2.1+2.1 (7.9+7.9+1.6+1.6) | (6.0+6.0) | |
| Defrost Method | | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | | |
| Main Refrigerant Piping (Heat Pump) | High/Low Pressure Gas Line | in | (mm) | 1-5/8 | (41.28) | 1-5/8 | (41.28) | |
| | Liquid Line | in | (mm) | 3/4 | (19.05) | 3/4 | (19.05) | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in.(7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS

• Less Module Type

| Category | | Ton | | 20RT (10RT+10RT) | | 28RT (10RT+10RT+8RT) | | 30RT (10RT+10RT+10RT) | | |
|-------------------------------------|---|--------------------|---------------------|--|---------------------------------|--|---------------------------------|--|---------------|--|
| Model (Combination) | | | | (H,Y)VAHP240B31LM | | (H,Y)VAHP336B31LM | | (H,Y)VAHP360B31LM | | |
| Model (Individual) | | Unit A | | (H,Y)VAHP120B31S | | (H,Y)VAHP120B31S | | (H,Y)VAHP120B31S | | |
| | | Unit B | | (H,Y)VAHP120B31S | | (H,Y)VAHP120B31S | | (H,Y)VAHP120B31S | | |
| | | Unit C | | - | | (H,Y)VAHP096B31S | | (H,Y)VAHP120B31S | | |
| | | Unit D | | - | | - | | - | | |
| Power Supply | | | | 208/230V/ 3PH 60Hz | | 208/230V/ 3PH 60Hz | | 208/230V/ 3PH 60Hz | | |
| Capacity (Nominal) *1 | Cooling | Capacity (Nominal) | Btu/h (kW) | 240,000 (70.3) | | 336,000 (98.5) | | 360,000 (105.5) | | |
| | | Power Input | kW | 21.14 | | 28.75 | | 31.71 | | |
| | | Current Input | A (208V/230V) | 66.0 / 63.2 | | 89.0 / 84.0 | | 83.7 / 79.6 | | |
| | Heating | Capacity (Nominal) | Btu/h (kW) | 270,000 (79.1) | | 378,000 (110.8) | | 405,000 (118.7) | | |
| | | Power Input | kW | 19.46 | | 26.79 | | 29.19 | | |
| | | Current Input | A (208V/230V) | 60.6 / 57.4 | | 99.0 / 94.8 | | 90.9 / 86.1 | | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h (kW) | 228,000 (66.9) | | 320,000 (93.9) | | 342,000 (100.3) | | |
| | | EER | Btu/Wh (W/W) | 11.10 (3.26) | | 10.50 (3.08) | | 10.20 (2.99) | | |
| | | IEER | Btu/Wh (Wh/Wh) | 17.70 (5.19) | | 17.70 (5.19) | | 18.20 (5.34) | | |
| | Heating | Capacity (Rated) | Btu/h (kW) | 258,000 (75.7) | | 344,000 (100.9) | | 366,000 (107.4) | | |
| | | High COP | W/W | 3.53 | | 3.51 | | 3.35 | | |
| | | Low COP | Btu/h (kW) | 182,000 (53.4) | | 266,000 (78.0) | | 268,000 (78.6) | | |
| | | W/W | | 2.15 | | 2.12 | | 2.05 | | |
| Cooling Operating Range | | Indoor | °F WB (°C WB) | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | |
| | | Outdoor | °F DB (°C DB) | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | |
| Heating Operating Range | | Indoor | °F DB (°C DB) | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | |
| | | Outdoor | °F WB (°C WB) | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | | |
| Outer Dimensions | Height | in (mm) | 68-1/8 (1730) | | 68-1/8 (1730) | | 68-1/8 (1730) | | | |
| | Width *5 | in (mm) | 96-5/8 (2454) | | 144-21/32 (3674) | | 144-21/32 (3674) | | | |
| | Depth | in (mm) | 31-7/32 (793) | | 31-7/32 (793) | | 31-7/32 (793) | | | |
| Package Dimensions | Height | in (mm) | - | | - | | - | | | |
| | Width | in (mm) | - | | - | | - | | | |
| | Depth | in (mm) | - | | - | | - | | | |
| Weight | Net | lbs (kg) | 1464 (664) | | 2194 (995) | | 2196 (996) | | | |
| | Gross | lbs (kg) | 1578 (716) | | 2365 (1073) | | 2367 (1074) | | | |
| Connection Ratio | Total Indoor Unit Capacity | % | | 120 - 60 | | 120 - 60 | | 120 - 60 | | |
| | Max. (Recommendation) Indoor Units/System | | | 48 (32) | | 64 (38) | | 64 (38) | | |
| Heat Exchanger | Type | - | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | |
| | Material | - | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | |
| Compressor | Type | Inverter | - | | DA65PHD×2 | | DA65PHD×3 | | DA65PHD×3 | |
| | | Fixed Speed | - | | E655DH×2 | | E655DH×3 | | E655DH×3 | |
| | Motor Output (Pole) | kW (Pole) | 6.0(6)+4.4(2) | | 6.0(6)+4.4(2) | | 6.0(6)+4.4(2) | | 6.0(6)+4.4(2) | |
| | | | 6.0(6)+4.4(2) | | 6.0(6)+4.4(2) | | 6.0(6)+4.4(2) | | 6.0(6)+4.4(2) | |
| | Start Method | - | | inverter | | inverter | | inverter | | |
| | Operation Range | % | | 8 ~ 100 | | 5 ~ 100 | | 5 ~ 100 | | |
| Refrigeration Oil Type | - | | FVC68D | | FVC68D | | FVC68D | | | |
| Crank Case Heater | Type | W×Qty | | 40.8 (230V) ×8 | | 40.8 (230V) ×12 | | 40.8 (230V) ×12 | | |
| | Propeller Fan | - | | Propeller Fan | | Propeller Fan | | Propeller Fan | | |
| Fan | Motor Output (Pole) | kW (Pole) | | 0.91(8)×2 | | 0.91(8)×2+0.66(8) | | 0.91(8)×3 | | |
| | Quantity | Q'ty | | 2 | | 3 | | 3 | | |
| | Airflow Rate | cfm (m³/min) | 7413+7413 (210+210) | | 7413+7413 (210+210)+6884 (+195) | | 7413+7413 (210+210)+7413 (+210) | | | |
| | External Static Pressure | in.WG (Pa) | 0 (0) *6 | | 0 (0) *6 | | 0 (0) *6 | | | |
| | Drive | - | | Direct-drive | | Direct-drive | | Direct-drive | | |
| | Electrical | Min Circuit Amps | A | | - | | - | | - | |
| Recommended Fuse/Breaker Size | | A | | - | | - | | - | | |
| Maximum Fuse Size | | A | | - | | - | | - | | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | dB (A) | | 66 (60) | | 68 (62) | | 69 (62) | | |
| | Heating | dB (A) | | 66 | | 68 | | 69 | | |
| Protection Devices | Cycle | - | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | |
| | Inverter | - | | Over-current protection | | Over-current protection | | Over-current protection | | |
| | Compressor | - | | Over-heat protection | | Over-heat protection | | Over-heat protection | | |
| | PCB | - | | Over-current protection | | Over-current protection | | Over-current protection | | |
| Refrigerant | Type | - | | R410A | | R410A | | R410A | | |
| | Charge Amount | lbs (kg) | 20.9+20.9 (9.5+9.5) | | 20.9+20.9+18.7 (9.5+9.5+8.5) | | 20.9+20.9+20.9 (9.5+9.5+9.5) | | | |
| Refrigeration Oil | Charge Amount | gal/Unit (L/Unit) | 2.1+2.1 (7.9+7.9) | | 2.1+2.1+2.1 (7.9+7.9+7.9) | | 2.1+2.1+2.1 (7.9+7.9+7.9) | | | |
| Defrost Method | | - | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | |
| Main Refrigerant Piping (Heat Pump) | High/Low Pressure Gas Line | in (mm) | 1-3/8 (34.93) | | 1-5/8 (41.28) | | 1-5/8 (41.28) | | | |
| | Liquid Line | in (mm) | 3/4 (19.05) | | 3/4 (19.05) | | 3/4 (19.05) | | | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
 Outdoor Air Inlet Temperature: 67°F (19.4°C)WB
 Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
 Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
 Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
 Outdoor Air Inlet Temperature: 43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*6 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

(2) Heat Pump Type (460V)

• Standard Type

| Category | | Ton | | 6RT | | 8RT | | 10RT | | |
|-------------------------------------|---|--------------------|-------------------------|--|-------------------------|--|-------------------------|--|----------------------|--------|
| Model (Combination) | | | | (H,Y)VAHP072B41S | | (H,Y)VAHP096B41S | | (H,Y)VAHP120B41S | | |
| Model (Individual) | | | | Unit A | | - | | - | | |
| | | | | Unit B | | - | | - | | |
| | | | | Unit C | | - | | - | | |
| | | | | Unit D | | - | | - | | |
| Power Supply | | | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | |
| Capacity (Nominal) *1 | Cooling | Capacity (Nominal) | Btu/h | (kW) | 72,000 | (21.1) | 96,000 | (28.1) | 120,000 | (35.2) |
| | | Power Input | kW | | 6.08 | | 7.61 | | 10.57 | |
| | | Current Input | A | | 8.5 | | 10.6 | | 15.8 | |
| | Heating | Capacity (Nominal) | Btu/h | (kW) | 81,000 | (23.7) | 108,000 | (31.7) | 135,000 | (39.6) |
| | | Power Input | kW | | 5.93 | | 7.33 | | 9.73 | |
| | | Current Input | A | | 8.3 | | 11.1 | | 14.4 | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h | (kW) | 69,000 | (20.2) | 92,000 | (27.0) | 114,000 | (33.4) |
| | | EER | Btu/Wh | | 15.30 | | 13.10 | | 11.20 | |
| | | IEER | Btu/Wh (Wh/Wh) | | 24.80 | | 21.40 | | 19.80 | |
| | Heating | Capacity (Rated) | Btu/h | (kW) | 76,000 | (22.3) | 103,000 | (30.2) | 129,000 | (37.8) |
| | | COP | W/W | | 4.14 | | 3.88 | | 3.66 | |
| | | High | COP | | 55,000 | | 76,000 | | 89,000 | |
| Heating | Capacity | Btu/h | (kW) | 55,000 | (16.1) | 76,000 | (22.3) | 89,000 | (26.1) | |
| | Low | W/W | | 2.48 | | 2.31 | | 2.25 | | |
| Cooling Operating Range | | Indoor | °F WB (°C WB) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | |
| | | Outdoor | °F DB (°C DB) | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | |
| Heating Operating Range | | Indoor | °F DB (°C DB) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | |
| | | Outdoor | °F WB (°C WB) | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | | |
| Outer Dimensions | Height | in | (mm) | 68-1/8 | (1730) | 68-1/8 | (1730) | 68-1/8 | (1730) | |
| | Width | in | (mm) | 37-7/8 | (962) | 48-1/8 | (1222) | 48-1/8 | (1222) | |
| | Depth | in | (mm) | 31-7/32 | (793) | 31-7/32 | (793) | 31-7/32 | (793) | |
| Package Dimensions | Height | in | (mm) | 74-1/4 | (1886) | 74-1/4 | (1886) | 74-1/4 | (1886) | |
| | Width | in | (mm) | 40-5/8 | (1032) | 50-7/8 | (1292) | 50-7/8 | (1292) | |
| | Depth | in | (mm) | 34-1/32 | (864) | 34-1/32 | (864) | 34-1/32 | (864) | |
| Weight | Net | lbs | (kg) | 606 | (275) | 796 | (361) | 798 | (362) | |
| | Gross | lbs | (kg) | 653 | (296) | 853 | (387) | 856 | (388) | |
| Connection Ratio | Total Indoor Unit Capacity | | % | 150 - 70 | | 135 - 65 | | 130 - 60 | | |
| | Max. (Recommendation) Indoor Units/System | | | 18 (10) | | 21 (16) | | 25 (16) | | |
| Heat Exchanger | Type | | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | |
| | Material | | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | |
| Compressor | Type | Inverter | - | | DA65PHD×1 | | DA65PHD×1 | | DA65PHD×1 | |
| | | Fixed Speed | - | | - | | DA65PHC×1 | | DA65PHC×1 | |
| | Motor Output (Pole) | kW (Pole) | | 7.2(6) | | 4.8(6)+4.4(2) | | 6.0(6)+4.4(2) | | |
| | Start Method | | | inverter | | inverter | | inverter | | |
| | Operation Range | | | 20 ~ 100 | | 16 ~ 100 | | 15 ~ 100 | | |
| | Refrigeration Oil Type | | | FVC68D | | FVC68D | | FVC68D | | |
| Crank Case Heater | W×Q ^{ty} | | 40.8 (230V) ×2 | | 40.8 (230V) ×4 | | 40.8 (230V) ×4 | | | |
| Fan | Type | | | Propeller Fan | | Propeller Fan | | Propeller Fan | | |
| | Motor Output (Pole) | kW (Pole) | | 0.49(8) | | 0.66(8) | | 0.91(8) | | |
| | Quantity | Q ^{ty} | | 1 | | 1 | | 1 | | |
| | Airflow Rate | cfm | (m ³ /min) | 6178 | (175) | 6884 | (195) | 7413 | (210) | |
| | External Static Pressure | in.WG | (Pa) | 0 (0) *5 | | 0 (0) *5 | | 0 (0) *5 | | |
| | Drive | | | Direct-drive | | Direct-drive | | Direct-drive | | |
| Electrical | Min Circuit Amps | A | | 21 | | 21 | | 25 | | |
| | Recommended Fuse/Breaker Size | A | | 30 | | 30 | | 30 | | |
| | Maximum Fuse Size | A | | 30 | | 30 | | 30 | | |
| Sound Pressure Level *6 | Cooling (Night-Shift) | dB (A) | | 60 | | 62 | | 64 | | |
| | Heating | dB (A) | | 60 | | 62 | | 64 | | |
| Protection devices | Cycle | | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | |
| | Inverter | | | Over-current protection | | Over-current protection | | Over-current protection | | |
| | | | | Over-heat protection | | Over-heat protection | | Over-heat protection | | |
| | Compressor | | | Over-heat protection | | Over-heat protection | | Over-heat protection | | |
| PCB | | | Over-current protection | | Over-current protection | | Over-current protection | | | |
| Refrigerant | Type | | | R410A | | R410A | | R410A | | |
| | Charge Amount | lbs | (kg) | 16.1 | (7.3) | 18.7 | (8.5) | 20.9 | (9.5) | |
| Refrigeration Oil | Charge Amount | gal/Unit | (L/Unit) | 1.6 | (6.0) | 2.1 | (7.9) | 2.1 | (7.9) | |
| Defrost Method | | | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | |
| Main Refrigerant Piping (Heat Pump) | High/Low Pressure Gas Line | in | (mm) | 1-1/8 | (28.58) | 1-1/8 | (28.58) | 1-1/8 | (28.58) | |
| | Liquid Line | in | (mm) | 1/2 | (12.7) | 1/2 | (12.7) | 1/2 | (12.7) | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
 67°F (19.4°C)WB
 Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
 Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
 Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
 43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*6 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS

| Category | | Ton | | 12RT (6RT+6RT) | | 14RT (8RT+6RT) | | 16RT (8RT+8RT) | |
|-------------------------------------|-------------------------------|---|----------------|--|------------------------------|--|------------------------------|--|--|
| Model (Combination) | | | | (H,Y)VAHP144B41S | | (H,Y)VAHP168B41S | | (H,Y)VAHP192B41S | |
| Model (Individual) | | Unit A | | (H,Y)VAHP072B41S | | (H,Y)VAHP096B41S | | (H,Y)VAHP096B41S | |
| | | Unit B | | (H,Y)VAHP072B41S | | (H,Y)VAHP072B41S | | (H,Y)VAHP096B41S | |
| | | Unit C | | | | | | | |
| | | Unit D | | | | | | | |
| Power Supply | | | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | |
| Capacity (Nominal) *1 | Cooling | Capacity (Nominal) | Btu/h (kW) | 144,000 (42.2) | 168,000 (49.2) | 192,000 (56.3) | | | |
| | | Power Input | kW | 12.16 | 13.69 | 15.22 | | | |
| | | Current Input | A | 17.0 | 19.1 | 21.2 | | | |
| | Heating | Capacity (Nominal) | Btu/h (kW) | 162,000 (47.5) | 189,000 (55.4) | 216,000 (63.3) | | | |
| | | Power Input | kW | 11.86 | 13.26 | 14.66 | | | |
| | | Current Input | A | 16.6 | 19.4 | 22.2 | | | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h (kW) | 138,000 (40.5) | 160,000 (46.9) | 182,000 (53.4) | | | |
| | | EER | Btu/Wh (W/W) | 14.30 (4.19) | 10.80 (3.17) | 10.60 (3.11) | | | |
| | | IEER | Btu/Wh (Wh/Wh) | 23.80 (6.98) | 19.40 (5.69) | 18.60 (5.46) | | | |
| | Heating | Capacity (Rated) | Btu/h (kW) | 154,000 (45.2) | 178,000 (52.2) | 204,000 (59.8) | | | |
| | | High COP | W/W | 4.04 | 3.51 | 3.53 | | | |
| | | Low COP | W/W | 2.64 | 2.16 | 2.26 | | | |
| Cooling Operating Range | | Indoor | °F WB (°C WB) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | | | |
| | | Outdoor | °F DB (°C DB) | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | | | |
| Heating Operating Range | | Indoor | °F DB (°C DB) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | | | |
| | | Outdoor | °F WB (°C WB) | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | | | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | |
| Outer Dimensions | Height | in (mm) | | 68-1/8 (1730) | 68-1/8 (1730) | 68-1/8 (1730) | | | |
| | Width *5 | in (mm) | | 76-5/32 (1934) | 86-3/8 (2194) | 96-5/8 (2454) | | | |
| | Depth | in (mm) | | 31-7/32 (793) | 31-7/32 (793) | 31-7/32 (793) | | | |
| Package Dimensions | Height | in (mm) | | - | - | - | | | |
| | Width | in (mm) | | - | - | - | | | |
| | Depth | in (mm) | | - | - | - | | | |
| Weight | Net | lbs (kg) | | 1213 (550) | 1402 (636) | 1592 (722) | | | |
| | Gross | lbs (kg) | | 1305 (592) | 1506 (683) | 1707 (774) | | | |
| Connection Ratio | | Total Indoor Unit Capacity | | % | 150 - 75 | 140 - 65 | 135 - 65 | | |
| | | Max. (Recommendation) Indoor Units/System | | | 36 (26) | 39 (32) | 43 (32) | | |
| Heat Exchanger | | Type | | - | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | | |
| | | Material | | - | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | | |
| Compressor | Type | Inverter | - | DA65PHD×2 | DA65PHD×2 | DA65PHD×2 | | | |
| | | Fixed Speed | - | - | DA65PHC×1 | DA65PHC×2 | | | |
| | Motor Output (Pole) | kW (Pole) | | 7.26(6) 7.26(6) | 4.8(6)+4.4(2) 7.26(6) | 4.8(6)+4.4(2) 4.8(6)+4.4(2) | | | |
| | Start Method | - | - | inverter | inverter | inverter | | | |
| | Operation Range | % | | 10 ~ 100 | 9 ~ 100 | 8 ~ 100 | | | |
| | Refrigeration Oil Type | - | - | FVC68D | FVC68D | FVC68D | | | |
| Crank Case Heater | | W×Q ^{ty} | | | 40.8 (230V) ×4 | 40.8 (230V) ×6 | 40.8 (230V) ×8 | | |
| Fan | Type | - | | Propeller Fan | | Propeller Fan | | Propeller Fan | |
| | Motor Output (Pole) | kW (Pole) | | 0.49(8)×2 | | 0.66(8)+0.49(8) | | 0.66(8)×2 | |
| | Quantity | Q ^{ty} | | 2 | | 2 | | 2 | |
| | Airflow Rate | cfm (m ³ /min) | | 6178+6178 (175+175) | 6884+6178 (195+175) | 6884+6884 (195+195) | | | |
| | External Static Pressure | in.WG (Pa) | | 0 (0) *6 | 0 (0) *6 | 0 (0) *6 | | | |
| | Drive | - | | Direct-drive | | Direct-drive | | Direct-drive | |
| Electrical | Min Circuit Amps | A | | - | | - | | - | |
| | Recommended Fuse/Breaker Size | A | | - | | - | | - | |
| | Maximum Fuse Size | A | | - | | - | | - | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | dB (A) | | 63 (58) | | 65 (60) | | 65 (60) | |
| | Heating | dB (A) | | 63 | | 65 | | 65 | |
| Protection devices | Cycle | - | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | |
| | Inverter | - | | Over-current protection | | Over-current protection | | Over-current protection | |
| | Compressor | - | | Over-heat protection | | Over-heat protection | | Over-heat protection | |
| | PCB | - | | Over-current protection | | Over-current protection | | Over-current protection | |
| Refrigerant | Type | - | | R410A | | R410A | | R410A | |
| | Charge Amount | lbs (kg) | | 16.1+16.1 (7.3+7.3) | 18.7+16.1 (8.5+7.3) | 18.7+18.7 (8.5+8.5) | | | |
| Refrigeration Oil | Charge Amount | gal/Unit (L/Unit) | | 1.6+1.6 (6.0+6.0) | 2.1+1.6 (7.9+6.0) | 2.1+2.1 (7.9+7.9) | | | |
| Defrost Method | | - | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | |
| Main Refrigerant Piping (Heat Pump) | High/Low Pressure Gas Line | in (mm) | | 1-1/8 (28.58) | 1-3/8 (34.93) | 1-3/8 (34.93) | | | |
| | Liquid Line | in (mm) | | 5/8 (15.88) | 3/4 (19.05) | 3/4 (19.05) | | | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS

| Category | | Ton | | 28RT (8RT+8RT+6RT+6RT) | | 30RT (10RT+8RT+6RT+6RT) | | |
|-------------------------------------|----------------------------|---|-----------------------|----------------------------|--|--|-------------------------|-----------------------|
| Model (Combination) | | | | (H,Y)VAHP336B41S | | (H,Y)VAHP360B41S | | |
| Model (Individual) | | Unit A | | (H,Y)VAHP096B41S | | (H,Y)VAHP120B41S | | |
| | | Unit B | | (H,Y)VAHP096B41S | | (H,Y)VAHP096B41S | | |
| | | Unit C | | (H,Y)VAHP072B41S | | (H,Y)VAHP072B41S | | |
| | | Unit D | | (H,Y)VAHP072B41S | | (H,Y)VAHP072B41S | | |
| Power Supply | | | | 460V/3PH 60Hz | | 460V/3PH 60Hz | | |
| Capacity (Nominal) *1 | Cooling | Capacity (Nominal) | Btu/h | (kW) | 336,000 | (98.5) | 360,000 | (105.5) |
| | | Power Input | kW | | 27.38 | | 30.34 | |
| | | Current Input | A | | 38.2 | | 43.4 | |
| | Heating | Capacity (Nominal) | Btu/h | (kW) | 378,000 | (110.8) | 405,000 | (118.7) |
| | | Power Input | kW | | 26.52 | | 28.92 | |
| | | Current Input | A | | 38.8 | | 42.1 | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h | (kW) | 320,000 | (93.9) | 342,000 | (100.3) |
| | | EER | Btu/Wh | | 10.50 | | (3.08) | |
| | | IEER | Btu/Wh | | 20.20 | | (5.93) | |
| | Heating | Capacity (Rated) | Btu/h | (kW) | 360,000 | (105.6) | 386,000 | (113.2) |
| | | COP | W/W | | 3.68 | | 3.68 | |
| | | High | | | | | | |
| Heating | Capacity | Btu/h | (kW) | 268,000 | (78.6) | 284,000 | 83.3 | |
| | Low | W/W | | 2.52 | | 2.36 | | |
| Cooling Operating Range | | Indoor | °F WB (°C WB) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | |
| | | Outdoor | °F DB (°C DB) | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | |
| Heating Operating Range | | Indoor | °F DB (°C DB) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | |
| | | Outdoor | °F WB (°C WB) | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | |
| Outer Dimensions | Height | in | (mm) | 68-1/8 | (1730) | 68-1/8 | (1730) | |
| | Width *5 | in | (mm) | 173-5/32 | (4398) | 173-5/32 | (4398) | |
| | Depth | in | (mm) | 31-7/32 | (793) | 31-7/32 | (793) | |
| Package Dimensions | Height | in | (mm) | - | - | - | - | |
| | Width | in | (mm) | - | - | - | - | |
| | Depth | in | (mm) | - | - | - | - | |
| Weight | Net | lbs | (kg) | 2805 | (1272) | 2807 | (1273) | |
| | Gross | lbs | (kg) | 3012 | (1366) | 3014 | (1367) | |
| Connection Ratio | | Total Indoor Unit Capacity | | % | 140 - 65 | 135 - 65 | | |
| | | Max. (Recommendation) Indoor Units/System | | | 64 (38) | 64 (38) | | |
| Heat Exchanger | | Type | | - | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | | |
| | | Material | | - | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | | |
| Compressor | Type | Inverter | | | DA65PHD×4 | DA65PHD×4 | | |
| | | Fixed Speed | | | DA65PHC×2 | DA65PHC×2 | | |
| | Motor Output (Pole) | | | kW (Pole) | 4.8(6)+4.4(2) | 6.0(6)+4.4(2) | | |
| | | | | | 4.8(6)+4.4(2) | 4.8(6)+4.4(2) | | |
| | Start Method | | | | inverter | inverter | | |
| | Operation Range | | | % | 5 ~ 100 | 5 ~ 100 | | |
| Refrigeration Oil Type | | | | FVC68D | FVC68D | | | |
| Crank Case Heater | | Type | | W×Q'ty | 40.8 (230V) ×12 | 40.8 (230V) ×12 | | |
| | | Propeller Fan | | | | | | |
| Fan | Motor Output (Pole) | | kW (Pole) | 0.66(8)×2+0.49(8)×2 | 0.91(8)+0.66(8)+0.49(8)×2 | | | |
| | Quantity | | Q'ty | 4 | 4 | | | |
| | Airflow Rate | cfm | (m ³ /min) | 6884+6884 +6178+6178 | (195+195 +175+175) | 7413+6884 +6884+6178 | (210+195 +195+175) | |
| | External Static Pressure | in.WG | (Pa) | 0 (0) *6 | | 0 (0) *6 | | |
| | Drive | | | | Direct-drive | Direct-drive | | |
| | Electrical | | Min Circuit Amps | | A | - | - | |
| | | Recommended Fuse/Breaker Size | | A | - | - | | |
| | | Maximum Fuse Size | | A | - | - | | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | | dB (A) | 68 | (63) | 68 | (63) | |
| | Heating | | dB (A) | 68 | | 68 | | |
| Protection devices | Cycle | | | | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | | |
| | Inverter | | | | Over-current protection | Over-current protection | | |
| | Compressor | | | | Over-heat protection | Over-heat protection | | |
| | PCB | | | | Over-current protection | Over-current protection | | |
| Refrigerant | | Type | | R410A | R410A | | | |
| | | Charge Amount | lbs | (kg) | 18.7+18.7 +16.1+16.1 | (8.5+8.5 +7.3+7.3) | 20.9+18.7 +16.1+16.1 | (9.5+8.5 +7.3+7.3) |
| Refrigeration Oil | | Charge Amount | gal/Unit | (L/Unit) | 2.1+2.1 +1.6+1.6 | (7.9+7.9 +6.0+6.0) | 2.1+2.1 +1.6+1.6 | (7.9+7.9 +6.0+6.0) |
| Defrost Method | | | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | |
| Main Refrigerant Piping (Heat Pump) | High/Low Pressure Gas Line | in | (mm) | 1-5/8 | (41.28) | 1-5/8 | (41.28) | |
| | Liquid Line | in | (mm) | 3/4 | (19.05) | 3/4 | (19.05) | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

• Less Module Type

| Category | | Ton | | 20RT (10RT+10RT) | | 28RT (10RT+10RT+8RT) | | 30RT (10RT+10RT+10RT) | | |
|-------------------------------------|----------------------------|---|----------------|--|------------------------------|--|--------------|--|--------------|--|
| Model (Combination) | | | | (H,Y)VAHP240B41LM | | (H,Y)VAHP336B41LM | | (H,Y)VAHP360B41LM | | |
| Model (Individual) | | Unit A | | (H,Y)VAHP120B41S | | (H,Y)VAHP120B41S | | (H,Y)VAHP120B41S | | |
| | | Unit B | | (H,Y)VAHP120B41S | | (H,Y)VAHP120B41S | | (H,Y)VAHP120B41S | | |
| | | Unit C | | - | | (H,Y)VAHP096B41S | | (H,Y)VAHP120B41S | | |
| | | Unit D | | - | | - | | - | | |
| Power Supply | | | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | |
| Capacity (Nominal) *1 | Cooling | Capacity (Nominal) | Btu/h (kW) | 240,000 (70.3) | 336,000 (98.5) | 360,000 (105.5) | | | | |
| | | Power Input | kW | 21.14 | 28.75 | 31.71 | | | | |
| | | Current Input | A | 31.6 | 42.2 | 47.4 | | | | |
| | Heating | Capacity (Nominal) | Btu/h (kW) | 270,000 (79.1) | 378,000 (110.8) | 405,000 (118.7) | | | | |
| | | Power Input | kW | 19.46 | 26.79 | 29.19 | | | | |
| | | Current Input | A | 28.8 | 39.9 | 43.2 | | | | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h (kW) | 228,000 (66.9) | 320,000 (93.9) | 342,000 (100.3) | | | | |
| | | EER | Btu/Wh (W/W) | 10.60 (3.11) | 10.00 (2.93) | 9.70 (2.85) | | | | |
| | | IEER | Btu/Wh (Wh/Wh) | 17.40 (5.10) | 17.70 (5.19) | 17.50 (5.13) | | | | |
| | Heating | Capacity (Rated) | Btu/h (kW) | 258,000 (75.7) | 344,000 (100.9) | 366,000 (107.4) | | | | |
| | | High COP | W/W | 3.53 | 3.51 | 3.35 | | | | |
| | | Low COP | W/W | 2.11 | 2.10 | 2.01 | | | | |
| Cooling Operating Range | | Indoor | °F WB (°C WB) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | | | | |
| | | Outdoor | °F DB (°C DB) | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | | | | |
| Heating Operating Range | | Indoor | °F DB (°C DB) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | | | | |
| | | Outdoor | °F WB (°C WB) | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | | | | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | | |
| Outer Dimensions | Height | in (mm) | | 68-1/8 (1730) | 68-1/8 (1730) | 68-1/8 (1730) | | | | |
| | Width *5 | in (mm) | | 96-5/8 (2454) | 144-21/32 (3674) | 144-21/32 (3674) | | | | |
| | Depth | in (mm) | | 31-7/32 (793) | 31-7/32 (793) | 31-7/32 (793) | | | | |
| Package Dimensions | Height | in (mm) | | - | - | - | | | | |
| | Width | in (mm) | | - | - | - | | | | |
| | Depth | in (mm) | | - | - | - | | | | |
| Weight | Net | lbs (kg) | | 1596 (724) | 2392 (1085) | 2394 (1086) | | | | |
| | Gross | lbs (kg) | | 1712 (776) | 2565 (1163) | 2568 (1164) | | | | |
| Connection Ratio | | Total Indoor Unit Capacity | | 120 - 60 | | 120 - 60 | | 120 - 60 | | |
| | | Max. (Recommendation) Indoor Units/System | | 48 (32) | | 64 (38) | | 64 (38) | | |
| Heat Exchanger | | Type | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | |
| | | Material | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | |
| Compressor | Type | Inverter | | DA65PHD×2 | | DA65PHD×3 | | DA65PHD×3 | | |
| | | Fixed Speed | | DA65PHC×2 | | DA65PHC×3 | | DA65PHC×3 | | |
| | Motor Output (Pole) | kW (Pole) | | 6.0(6)+4.4(2) | | 6.0(6)+4.4(2) | | 6.0(6)+4.4(2) | | |
| | | | | 6.0(6)+4.4(2) | | 4.8(6)+4.4(2) | | 6.0(6)+4.4(2) | | |
| | Start Method | | | | inverter | | inverter | | inverter | |
| | Operation Range | | % | | 8 ~ 100 | | 5 ~ 100 | | 5 ~ 100 | |
| Refrigeration Oil Type | | | | FVC68D | | FVC68D | | FVC68D | | |
| Crank Case Heater | | W×Q'ty | | 40.8 (230V) ×8 | | 40.8 (230V) ×12 | | 40.8 (230V) ×12 | | |
| | | Type | | Propeller Fan | | Propeller Fan | | Propeller Fan | | |
| | | Motor Output (Pole) | | kW (Pole) | | 0.91(8)×2 | | 0.91(8)×2+0.66(8) | | |
| | | Quantity | | Q'ty | | 2 | | 3 | | |
| Fan | Airflow Rate | cfm (m³/min) | | 7413+7413 (210+210) | 7413+7413 (210+210) | 7413+7413 (210+210) | | | | |
| | External Static Pressure | in.WG (Pa) | | 0 (0) *6 | 0 (0) *6 | 0 (0) *6 | | | | |
| | Drive | | | | Direct-drive | | Direct-drive | | Direct-drive | |
| | Min Circuit Amps | | A | | - | | - | | - | |
| Recommended Fuse/Breaker Size | | A | | - | | - | | - | | |
| Maximum Fuse Size | | A | | - | | - | | - | | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | dB (A) | | 66 (60) | | 68 (62) | | 69 (62) | | |
| | Heating | dB (A) | | 66 | | 68 | | 69 | | |
| Protection devices | Cycle | | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | |
| | Inverter | | | Over-current protection | | Over-current protection | | Over-current protection | | |
| | Compressor | | | Over-heat protection | | Over-heat protection | | Over-heat protection | | |
| | PCB | | | Over-current protection | | Over-current protection | | Over-current protection | | |
| Refrigerant | Type | | | R410A | | R410A | | R410A | | |
| | Charge Amount | lbs (kg) | | 20.9+20.9 (9.5+9.5) | 20.9+20.9+18.7 (9.5+9.5+8.5) | 20.9+20.9+20.9 (9.5+9.5+9.5) | | | | |
| Refrigeration Oil | Charge Amount | gal/Unit (L/Unit) | | 2.1+2.1 (7.9+7.9) | 2.1+2.1+2.1 (7.9+7.9+7.9) | 2.1+2.1+2.1 (7.9+7.9+7.9) | | | | |
| Defrost Method | | | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | |
| Main Refrigerant Piping (Heat Pump) | High/Low Pressure Gas Line | in (mm) | | 1-3/8 (34.93) | 1-5/8 (41.28) | 1-5/8 (41.28) | | | | |
| | Liquid Line | in (mm) | | 3/4 (19.05) | 3/4 (19.05) | 3/4 (19.05) | | | | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS

(3) Heat Recovery Type (208/230V)

• Standard Type

| Category | | Ton | | 6RT | | 8RT | | 10RT | |
|---|---|---------------------------|--|--------------------|--|--------------------|--|--------------------|--|
| Model (Combination) | | | | (H,Y)VVAHR072B31S | | (H,Y)VVAHR096B31S | | (H,Y)VVAHR120B31S | |
| Model (Individual) | | Unit A | | - | | - | | - | |
| | | Unit B | | - | | - | | - | |
| | | Unit C | | - | | - | | - | |
| | | Unit D | | - | | - | | - | |
| Power Supply | | | | 208/230V/ 3PH 60Hz | | 208/230V/ 3PH 60Hz | | 208/230V/ 3PH 60Hz | |
| Capacity (Nominal) * | Cooling | Capacity (Nominal) | Btu/h (kW) | 72,000 (21.1) | 96,000 (28.1) | 120,000 (35.2) | | | |
| | | Power Input | kW | 6.08 | 7.61 | 10.57 | | | |
| | | Current Input | A (208V/230V) | 18.3 / 16.6 | 23.0 / 20.8 | 33.0 / 31.6 | | | |
| | Heating | Capacity (Nominal) | Btu/h (kW) | 81,000 (23.7) | 108,000 (31.7) | 135,000 (39.6) | | | |
| | | Power Input | kW | 5.93 | 7.33 | 9.73 | | | |
| | | Current Input | A (208V/230V) | 17.9 / 16.2 | 23.1 / 22.2 | 30.3 / 28.7 | | | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h (kW) | 69,000 (20.2) | 92,000 (27.0) | 114,000 (33.4) | | | |
| | | EER | Btu/Wh (W/W) | 15.60 (4.58) | 13.70 (4.02) | 11.60 (3.40) | | | |
| | | IEER | Btu/Wh (Wh/Wh) | 25.20 (7.39) | 21.80 (6.39) | 20.80 (6.10) | | | |
| | Heating High | Capacity (Rated) | Btu/h (kW) | 76,000 (22.3) | 103,000 (30.2) | 129,000 (37.8) | | | |
| | | COP | W/W | 4.21 | 4.01 | 3.74 | | | |
| | | Capacity | Btu/h (kW) | 55,000 (16.1) | 76,000 (22.3) | 89,000 (26.1) | | | |
| | Heating Low | COP | W/W | 2.60 | 2.43 | 2.36 | | | |
| | | Heat Recovery | SCHE | Btu/Wh | 23.30 | 27.10 | 26.80 | | |
| Cooling Operating Range | Indoor | °F WB (°C WB) | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | |
| | Outdoor | °F DB (°C DB) | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | |
| Heating Operating Range | Indoor | °F DB (°C DB) | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | |
| | Outdoor | °F WB (°C WB) | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | |
| Outer Dimensions | Height | in (mm) | 68-1/8 (1730) | | 68-1/8 (1730) | | 68-1/8 (1730) | | |
| | Width | in (mm) | 37-7/8 (962) | | 48-1/8 (1222) | | 48-1/8 (1222) | | |
| | Depth | in (mm) | 31-7/32 (793) | | 31-7/32 (793) | | 31-7/32 (793) | | |
| Package Dimensions | Height | in (mm) | 74-1/4 (1886) | | 74-1/4 (1886) | | 74-1/4 (1886) | | |
| | Width | in (mm) | 40-5/8 (1032) | | 50-7/8 (1292) | | 50-7/8 (1292) | | |
| | Depth | in (mm) | 34-1/32 (864) | | 34-1/32 (864) | | 34-1/32 (864) | | |
| Weight | Net | lbs (kg) | 540 (245) | | 730 (331) | | 732 (332) | | |
| | Gross | lbs (kg) | 587 (266) | | 787 (357) | | 789 (358) | | |
| Connection Ratio | Total Indoor Unit Capacity | % | 150 - 70 | | 135 - 65 | | 130 - 60 | | |
| | Max. (Recommendation) Indoor Units/System | | 18 (10) | | 21 (16) | | 25 (16) | | |
| Heat Exchanger | Type | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | |
| | Material | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | |
| Compressor | Type | Inverter | DA65PHD×1 | | DA65PHD×1 | | DA65PHD×1 | | |
| | | Fixed Speed | - | | E655DH×1 | | E655DH×1 | | |
| | Motor Output (Pole) | kW (Pole) | 7.2(6) | | 4.8(6)+4.4(2) | | 6.0(6)+4.4(2) | | |
| | Start Method | | inverter | | inverter | | inverter | | |
| | Operation Range | % | 20 ~ 100 | | 16 ~ 100 | | 15 ~ 100 | | |
| | Refrigeration Oil Type | | FVC68D | | FVC68D | | FVC68D | | |
| Crank Case Heater | | W×Q'ty | 40.8 (230V) ×2 | | 40.8 (230V) ×4 | | 40.8 (230V) ×4 | | |
| Fan | Type | | Propeller Fan | | Propeller Fan | | Propeller Fan | | |
| | Motor Output (Pole) | kW (Pole) | 0.49(8) | | 0.66(8) | | 0.91(8) | | |
| | Quantity | Q'ty | 1 | | 1 | | 1 | | |
| | Airflow Rate | cfm (m ³ /min) | 6178 (175) | | 6884 (195) | | 7413 (210) | | |
| | External Static Pressure | in.WG (Pa) | 0 (0) *5 | | 0 (0) *5 | | 0 (0) *5 | | |
| | Drive | | Direct-drive | | Direct-drive | | Direct-drive | | |
| Electrical | Min Circuit Amps | A | 41/37 | | 48/43 | | 56/50 | | |
| | Recommended Fuse/Breaker Size | A | 60/50 | | 60/60 | | 80/70 | | |
| | Maximum Fuse Size | A | 60/50 | | 60/60 | | 80/70 | | |
| Sound Pressure Level *6 | Cooling (Night-Shift) | dB (A) | 60 (55) | | 62 (57) | | 64 (57) | | |
| | Heating | dB (A) | 60 | | 62 | | 64 | | |
| Protection Devices | Cycle | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | |
| | Inverter | | Over-current protection | | Over-current protection | | Over-current protection | | |
| | Compressor | | Over-heat protection | | Over-heat protection | | Over-heat protection | | |
| | PCB | | Over-current protection | | Over-current protection | | Over-current protection | | |
| Refrigerant | Type-Qty | | R410A | | R410A | | R410A | | |
| Refrigeration Oil | Charge Amount | lbs (kg) | 16.1 (7.3) | | 18.7 (8.5) | | 20.9 (9.5) | | |
| Defrost Method | Charge Amount | gal/Unit (L/Unit) | 1.6 (6.0) | | 2.1 (7.9) | | 2.1 (7.9) | | |
| | | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | |
| Main Refrigerant Piping (Heat Recovery) | Low Pressure Gas Line | in (mm) | 1-1/8 (28.58) | | 1-1/8 (28.58) | | 1-1/8 (28.58) | | |
| | High/Low Pressure Gas Line | in (mm) | 7/8 (22.2) | | 7/8 (22.2) | | 7/8 (22.2) | | |
| | Liquid Line | in (mm) | 1/2 (12.7) | | 1/2 (12.7) | | 1/2 (12.7) | | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
 67°F (19.4°C)WB
 Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
 Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
 Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
 43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

| Category | | Ton | | 12RT (6RT+6RT) | | 14RT (8RT+6RT) | | 16RT (8RT+8RT) | | | |
|---|-------------------------------|--------------------|---------------|---|--|------------------------------|--|------------------------------|--|-------------|--|
| Model (Combination) | | | | (H.Y)VAHR144B31S | | (H.Y)VAHR168B31S | | (H.Y)VAHR192B31S | | | |
| Model (Individual) | | | | Unit A (H.Y)VAHR072B31S | | Unit B (H.Y)VAHR096B31S | | Unit C (H.Y)VAHR096B31S | | | |
| | | | | Unit B (H.Y)VAHR072B31S | | Unit C (H.Y)VAHR072B31S | | Unit D (H.Y)VAHR096B31S | | | |
| | | | | - | | - | | - | | | |
| Power Supply | | | | 208/230V/ 3PH 60Hz | | 208/230V/ 3PH 60Hz | | 208/230V/ 3PH 60Hz | | | |
| Capacity (Nominal) * | Cooling | Capacity (Nominal) | Btu/h | (kW) | 144,000 | (42.2) | 168,000 | (49.2) | 192,000 | (56.3) | |
| | | Power Input | kW | | | 12.16 | | 13.69 | | 15.22 | |
| | | Current Input | A (208V/230V) | | | 36.6 / 33.2 | | 41.3 / 37.4 | | 46.0 / 41.6 | |
| | Heating | Capacity (Nominal) | Btu/h | (kW) | 162,000 | (47.5) | 189,000 | (55.4) | 216,000 | (63.3) | |
| | | Power Input | kW | | | 11.86 | | 13.26 | | 14.66 | |
| | | Current Input | A (208V/230V) | | | 35.8 / 32.4 | | 41.0 / 38.4 | | 46.2 / 44.4 | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h | (kW) | 138,000 | (40.5) | 160,000 | (46.9) | 182,000 | (53.4) | |
| | | EER | Btu/Wh | (W/W) | 14.50 | (4.25) | 11.40 | (3.34) | 10.60 | (3.11) | |
| | | IEER | Btu/Wh | (Wh/Wh) | 24.20 | (7.10) | 19.70 | (5.78) | 19.10 | (5.60) | |
| | Heating High | Capacity (Rated) | Btu/h | (kW) | 154,000 | (45.2) | 178,000 | (52.2) | 204,000 | (59.8) | |
| | | COP | W/W | | | 4.11 | | 3.69 | | 3.64 | |
| | Heating Low | Capacity | Btu/h | (kW) | 109,000 | (32.0) | 129,000 | (37.8) | 150,000 | (44.0) | |
| | | COP | W/W | | | 2.78 | | 2.27 | | 2.34 | |
| | Heat Recovery | SCHE | Btu/Wh | | | 29.50 | | 26.80 | | 27.80 | |
| Cooling Operating Range | Indoor | °F WB (°C WB) | | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | |
| | Outdoor | °F DB (°C DB) | | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | |
| Heating Operating Range | Indoor | °F DB (°C DB) | | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | |
| | Outdoor | °F WB (°C WB) | | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | |
| Cabinet Color (Munsell Code) | | | | - | | 2.5Y 8/2 | | 2.5Y 8/2 | | | |
| Outer Dimensions | Height | in | (mm) | 68-1/8 | (1730) | 68-1/8 | (1730) | 68-1/8 | (1730) | | |
| | Width *5 | in | (mm) | 76-5/32 | (1934) | 86-3/8 | (2194) | 96-5/8 | (2454) | | |
| | Depth | in | (mm) | 31-7/32 | (793) | 31-7/32 | (793) | 31-7/32 | (793) | | |
| Package Dimensions | Height | in | (mm) | - | - | - | - | - | - | | |
| | Width | in | (mm) | - | - | - | - | - | - | | |
| | Depth | in | (mm) | - | - | - | - | - | - | | |
| Weight | Net | lbs | (kg) | 1080 | (490) | 1270 | (576) | 1460 | (662) | | |
| | Gross | lbs | (kg) | 1173 | (532) | 1374 | (623) | 1574 | (714) | | |
| Connection Ratio | | | | Total Indoor Unit Capacity | | % | | 150 - 75 | | | |
| | | | | Max. (Recommendation) Indoor Units/System | | | | 36 (26) | | | |
| | | | | 39 (32) | | | | 43 (32) | | | |
| Heat Exchanger | Type | | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | | |
| | Material | | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | | |
| Compressor | Type | | Inverter | | DA65PHD×2 | | DA65PHD×2 | | DA65PHD×2 | | |
| | Fixed Speed | | - | | - | | E655DH×1 | | E655DH×2 | | |
| | Motor Output (Pole) | | kW (Pole) | | 7.26(6) | | 4.8(6)+4.4(2) | | 4.8(6)+4.4(2) | | |
| | Start Method | | - | | inverter | | inverter | | inverter | | |
| | Operation Range | | % | | 10 ~ 100 | | 9 ~ 100 | | 8 ~ 100 | | |
| | Refrigerant Oil Type | | - | | FVC68D | | FVC68D | | FVC68D | | |
| Crank Case Heater | | | | W×Qty | | 40.8 (230V) ×4 | | 40.8 (230V) ×6 | | | |
| | | | | Type | | Propeller Fan | | Propeller Fan | | | |
| | | | | Motor Output (Pole) | | kW (Pole) | | 0.49(8)×2 | | | |
| | | | | 0.66(8)+0.49(8) | | 0.66(8)×2 | | 0.66(8)×2 | | | |
| Fan | Quantity | | Q'ty | | 2 | | 2 | | 2 | | |
| | Airflow Rate | | cfm | | (m ³ /min) | | 6178+6178 (175+175) | | 6884+6178 (195+175) | | |
| | External Static Pressure | | in.WG | | (Pa) | | 0 (0) *6 | | 0 (0) *6 | | |
| | Drive | | - | | Direct-drive | | Direct-drive | | Direct-drive | | |
| | Min Circuit Amps | | A | | - | | - | | - | | |
| Electrical | Recommended Fuse/Breaker Size | | | A | | - | | - | | | |
| | Maximum Fuse Size | | | A | | - | | - | | | |
| | Sound Pressure Level *7 | | | dB (A) | | 63 (58) | | 65 (60) | | | |
| Protection Devices | Cooling (Night-Shift) | | | dB (A) | | 63 | | 65 | | | |
| | Heating | | | dB (A) | | 63 | | 65 | | | |
| Refrigerant | Cycle | | - | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | |
| | Inverter | | - | | Over-current protection | | Over-current protection | | Over-current protection | | |
| | Compressor | | - | | Over-heat protection | | Over-heat protection | | Over-heat protection | | |
| | PCB | | - | | Over-current protection | | Over-current protection | | Over-current protection | | |
| Refrigerant | | | | Type | | R410A | | R410A | | | |
| | | | | Charge Amount | | lbs (kg) | | 16.1+16.1 (7.3+7.3) | | | |
| | | | | 18.7+16.1 (8.5+7.3) | | 18.7+18.7 (8.5+8.5) | | 18.7+18.7 (8.5+8.5) | | | |
| Refrigeration Oil | | | | Charge Amount | | gal/Unit (L/Unit) | | 1.6+1.6 (6.0+6.0) | | | |
| | | | | 2.1+1.6 (7.9+6.0) | | 2.1+1.6 (7.9+6.0) | | 2.1+2.1 (7.9+7.9) | | | |
| Defrost Method | | | | - | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | | |
| Main Refrigerant Piping (Heat Recovery) | Low Pressure Gas Line | | in (mm) | | 1-1/8 (28.58) | | 1-3/8 (34.93) | | 1-3/8 (34.93) | | |
| | High/Low Pressure Gas Line | | in (mm) | | 7/8 (22.2) | | 1-1/8 (28.58) | | 1-1/8 (28.58) | | |
| | Liquid Line | | in (mm) | | 5/8 (15.88) | | 3/4 (19.05) | | 3/4 (19.05) | | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

| Category | | Ton | | 28RT (8RT+8RT+6RT+6RT) | | 30RT (10RT+8RT+6RT+6RT) | | |
|---|---|--------------------|-----------------------|---|----------------------|---|----------------------|--|
| Model (Combination) | | | | (H,Y)VAHR336B31S | | (H,Y)VAHR360B31S | | |
| Model (Individual) | | Unit A | | (H,Y)VAHR096B31S | | (H,Y)VAHR120B31S | | |
| | | Unit B | | (H,Y)VAHR096B31S | | (H,Y)VAHR096B31S | | |
| | | Unit C | | (H,Y)VAHR072B31S | | (H,Y)VAHR072B31S | | |
| | | Unit D | | (H,Y)VAHR072B31S | | (H,Y)VAHR072B31S | | |
| Power Supply | | | | 208/230V/ 3PH 60Hz | | 208/230V/ 3PH 60Hz | | |
| Capacity (Nominal) | Cooling | Capacity (Nominal) | Btu/h | (kW) | 336,000 | (98.5) | 360,000 (105.5) | |
| | | Power Input | kW | | 27.38 | | 30.34 | |
| | | Current Input | A (208V/230V) | | 82.6 / 74.8 | | 92.6 / 85.6 | |
| | Heating | Capacity (Nominal) | Btu/h | (kW) | 378,000 (110.8) | 405,000 (118.7) | | |
| | | Power Input | kW | | 26.52 | | 28.92 | |
| | | Current Input | A (208V/230V) | | 82.0 / 76.8 | | 89.2 / 83.3 | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h | (kW) | 320,000 (93.9) | 342,000 (100.3) | | |
| | | EER | Btu/Wh | (W/W) | 11.10 (3.26) | 9.50 (2.79) | | |
| | | IEER | Btu/Wh | (Wh/Wh) | 21.20 (6.22) | 18.50 (5.43) | | |
| | Heating High | Capacity (Rated) | Btu/h | (kW) | 360,000 (105.6) | 386,000 (113.2) | | |
| | | COP | W/W | | 3.87 | | 3.88 | |
| | Heating Low | Capacity | Btu/h | (kW) | 268,000 (78.6) | 284,000 83.3 | | |
| | | COP | W/W | | 2.60 | | 2.46 | |
| | Heat Recovery | SCHE | Btu/Wh | | 26.90 | | 27.60 | |
| | Cooling Operating Range | Indoor | °F WB (°C WB) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | |
| | | Outdoor | °F DB (°C DB) | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | |
| Heating Operating Range | Indoor | °F DB (°C DB) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | |
| | Outdoor | °F WB (°C WB) | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | |
| Outer Dimensions | Height | in | (mm) | 68-1/8 (1730) | 68-1/8 (1730) | | | |
| | Width *5 | in | (mm) | 173-5/32 (4398) | 173-5/32 (4398) | | | |
| | Depth | in | (mm) | 31-7/32 (793) | 31-7/32 (793) | | | |
| Package Dimensions | Height | in | (mm) | - | - | | | |
| | Width | in | (mm) | - | - | | | |
| | Depth | in | (mm) | - | - | | | |
| Weight | Net | lbs | (kg) | 2540 (1152) | 2542 (1153) | | | |
| | Gross | lbs | (kg) | 2747 (1246) | 2750 (1247) | | | |
| Connection Ratio | Total Indoor Unit Capacity | | % | 140 - 65 | | 135 - 65 | | |
| | Max. (Recommendation) Indoor Units/System | | | 64 (38) | | 64 (38) | | |
| Heat Exchanger | Type | | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | |
| | Material | | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | |
| Compressor | Type | Inverter | - | DA65PHD*4 | | DA65PHD*4 | | |
| | | Fixed Speed | - | E655DH*2 | | E655DH*2 | | |
| | Motor Output (Pole) | | | kW (Pole) | 4.8(6)+4.4(2) | | 6.0(6)+4.4(2) | |
| | | | | | 4.8(6)+4.4(2) | | 4.8(6)+4.4(2) | |
| | Start Method | | | | inverter | | inverter | |
| | Operation Range | | | % | 5 ~ 100 | | 5 ~ 100 | |
| Refrigeration Oil Type | | | | FVC68D | | FVC68D | | |
| Crank Case Heater | | | W*Qty | 40.8 (230V) *12 | | 40.8 (230V) *12 | | |
| | Type | | | Propeller Fan | | Propeller Fan | | |
| Fan | Motor Output (Pole) | kW (Pole) | | 0.66(8)*2+0.49(8)*2 | | 0.91(8)+0.66(8)+0.49(8)*2 | | |
| | Quantity | Qty | | 4 | | 4 | | |
| | Airflow Rate | cfm | (m ³ /min) | 6884+6884 (195+195) +6178+6178 +175+175) | | 7413+6884 (210+195) +6884+6178 +195+175) | | |
| | External Static Pressure | in.WG | (Pa) | 0 (0) *6 | | 0 (0) *6 | | |
| | Drive | | | Direct-drive | | Direct-drive | | |
| | Electrical | Min Circuit Amps | A | | - | | - | |
| Recommended Fuse/Breaker Size | | A | | - | | - | | |
| Maximum Fuse Size | | A | | - | | - | | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | dB (A) | | 68 (63) | | 68 (63) | | |
| | Heating | dB (A) | | 68 | | 68 | | |
| Protection Devices | Cycle | | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | |
| | Inverter | | | Over-current protection Over-heat protection | | Over-current protection Over-heat protection | | |
| | Compressor | | | Over-heat protection | | Over-heat protection | | |
| | PCB | | | Over-current protection | | Over-current protection | | |
| Refrigerant | Type | | | R410A | | R410A | | |
| | Charge Amount | lbs | (kg) | 18.7+18.7 (8.5+8.5) +16.1+16.1 +7.3+7.3) | | 20.9+18.7 (9.5+8.5) +16.1+16.1 +7.3+7.3) | | |
| Refrigeration Oil | Charge Amount | gal/Unit | (L/Unit) | 2.1+2.1 (7.9+7.9) +1.6+1.6 +6.0+6.0) | | 2.1+2.1 (7.9+7.9) +1.6+1.6 +6.0+6.0) | | |
| Defrost Method | | | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | |
| Main Refrigerant Piping (Heat Recovery) | Low Pressure Gas Line | in | (mm) | 1-5/8 (41.28) | | 1-5/8 (41.28) | | |
| | High/Low Pressure Gas Line | in | (mm) | 1-3/8 (34.93) | | 1-3/8 (34.93) | | |
| | Liquid Line | in | (mm) | 3/4 (19.05) | | 3/4 (19.05) | | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS

• Less Module Type

| Category | | Ton | | 20RT (10RT+10RT) | | 28RT (10RT+10RT+8RT) | | 30RT (10RT+10RT+10RT) | | | |
|---|---|--------------------|-----------------------|---------------------|---|----------------------------|---|----------------------------|---|-----------------|--|
| Model (Combination) | | | | (H,Y)VAHR240B31LM | | (H,Y)VAHR336B31LM | | (H,Y)VAHR360B31LM | | | |
| Model (Individual) | | Unit A | | (H,Y)VAHR120B31S | | (H,Y)VAHR120B31S | | (H,Y)VAHR120B31S | | | |
| | | Unit B | | (H,Y)VAHR120B31S | | (H,Y)VAHR120B31S | | (H,Y)VAHR120B31S | | | |
| | | Unit C | | - | | (H,Y)VAHR096B31S | | (H,Y)VAHR120B31S | | | |
| | | Unit D | | - | | - | | - | | | |
| Power Supply | | | | 208/230V/ 3PH 60Hz | | 208/230V/ 3PH 60Hz | | 208/230V/ 3PH 60Hz | | | |
| Capacity (Nominal) | Cooling | Capacity (Nominal) | Btu/h | (kW) | 240,000 | (70.3) | 336,000 | (98.5) | 360,000 | (105.5) | |
| | | Power Input | kW | | | 21.14 | | 28.75 | | 31.71 | |
| | | Current Input | A (208V/230V) | | | 66.0 / 63.2 | | 89.0 / 84.0 | | 83.7 / 79.6 | |
| | Heating | Capacity (Nominal) | Btu/h | (kW) | 270,000 | (79.1) | 378,000 | (110.8) | 405,000 | (118.7) | |
| | | Power Input | kW | | | 19.46 | | 26.79 | | 29.19 | |
| | | Current Input | A (208V/230V) | | | 60.6 / 57.4 | | 99.0 / 94.8 | | 90.9 / 86.1 | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h | (kW) | 228,000 | (66.9) | 320,000 | (93.9) | 342,000 | (100.3) | |
| | | EER | Btu/Wh | (W/W) | 11.10 | (3.26) | 10.50 | (3.08) | 10.20 | (2.99) | |
| | | IEER | Btu/Wh | (Wh/Wh) | 17.70 | (5.19) | 17.70 | (5.19) | 18.20 | (5.34) | |
| | | COP | W/W | | | 3.53 | | 3.51 | | 3.35 | |
| | Heating High | Capacity (Rated) | Btu/h | (kW) | 258,000 | (75.7) | 344,000 | (100.9) | 366,000 | (107.4) | |
| | | COP | W/W | | | 2.15 | | 2.12 | | 2.05 | |
| | Heating Low | Capacity | Btu/h | (kW) | 182,000 | (53.4) | 266,000 | (78.0) | 268,000 | (78.6) | |
| | | COP | W/W | | | 2.15 | | 2.12 | | 2.05 | |
| | Heat Recovery | SCHE | Btu/Wh | | | 24.10 | | 24.20 | | 23.80 | |
| | Cooling Operating Range | Indoor | °F WB (°C WB) | | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | |
| Outdoor | | °F DB (°C DB) | | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | |
| Heating Operating Range | Indoor | °F DB (°C DB) | | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | |
| | Outdoor | °F WB (°C WB) | | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | |
| Cabinet Color (Munsell Code) | | | | - | | 2.5Y 8/2 | | 2.5Y 8/2 | | | |
| Outer Dimensions | Height | in | (mm) | 68-1/8 | (1730) | 68-1/8 | (1730) | 68-1/8 | (1730) | | |
| | Width *5 | in | (mm) | 96-5/8 | (2454) | 144-21/32 | (3674) | 144-21/32 | (3674) | | |
| | Depth | in | (mm) | 31-7/32 | (793) | 31-7/32 | (793) | 31-7/32 | (793) | | |
| Package Dimensions | Height | in | (mm) | - | - | - | - | - | - | | |
| | Width | in | (mm) | - | - | - | - | - | - | | |
| | Depth | in | (mm) | - | - | - | - | - | - | | |
| Weight | Net | lbs | (kg) | 1464 | (664) | 2194 | (995) | 2196 | (996) | | |
| | Gross | lbs | (kg) | 1578 | (716) | 2365 | (1073) | 2367 | (1074) | | |
| Connection Ratio | Total Indoor Unit Capacity | | | % | | 120 - 60 | | 120 - 60 | | | |
| | Max. (Recommendation) Indoor Units/System | | | % | | 48 (32) | | 64 (38) | | | |
| Heat Exchanger | Type | - | | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | |
| | Material | - | | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | |
| Compressor | Type | Inverter | - | | | DA65PHD*2 | | DA65PHD*3 | | DA65PHD*3 | |
| | | Fixed Speed | - | | | E655DH*2 | | E655DH*3 | | E655DH*3 | |
| | Motor Output (Pole) | kW (Pole) | | | 6.0(6)+4.4(2) 6.0(6)+4.4(2) | | 6.0(6)+4.4(2) 6.0(6)+4.4(2) | | 6.0(6)+4.4(2) 6.0(6)+4.4(2) | | |
| | Start Method | - | | | inverter | | inverter | | inverter | | |
| | Operation Range | % | | | 8 ~ 100 | | 5 ~ 100 | | 5 ~ 100 | | |
| | Refrigeration Oil Type | - | | | FVC68D | | FVC68D | | FVC68D | | |
| Crank Case Heater | W*Qty | | | 40.8 (230V) *8 | | 40.8 (230V) *12 | | 40.8 (230V) *12 | | | |
| | Type | - | | | Propeller Fan | | Propeller Fan | | Propeller Fan | | |
| Fan | Motor Output (Pole) | kW (Pole) | | | 0.91(8)*2 | | 0.91(8)*2+0.66(8) | | 0.91(8)*3 | | |
| | Quantity | Qty | | | 2 | | 3 | | 3 | | |
| | Airflow Rate | cfm | (m ³ /min) | 7413+7413 | (210+210) | 7413+7413 | (210+210+6884+195) | 7413+7413 | (210+210+7413+210) | | |
| | External Static Pressure | in.WG | (Pa) | 0 (0) *6 | | 0 (0) *6 | | 0 (0) *6 | | | |
| | Drive | - | | | Direct-drive | | Direct-drive | | Direct-drive | | |
| | Electrical | Min Circuit Amps | A | | | - | | - | | - | |
| | Recommended Fuse/Breaker Size | A | | | - | | - | | - | | |
| | Maximum Fuse Size | A | | | - | | - | | - | | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | dB (A) | | | 66 | | 68 | | 69 | | |
| | Heating | dB (A) | | | 66 | | 68 | | 69 | | |
| Protection Devices | Cycle | - | | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | |
| | Inverter | - | | | Over-current protection Over-heat protection | | Over-current protection Over-heat protection | | Over-current protection Over-heat protection | | |
| | Compressor | - | | | Over-heat protection | | Over-heat protection | | Over-heat protection | | |
| | PCB | - | | | Over-current protection | | Over-current protection | | Over-current protection | | |
| Refrigerant | Type | - | | | R410A | | R410A | | R410A | | |
| | Charge Amount | lbs | (kg) | 20.9+20.9 | (9.5+9.5) | 20.9+20.9 | (9.5+9.5+18.7+8.5) | 20.9+20.9 | (9.5+9.5+20.9+9.5) | | |
| Refrigeration Oil | Charge Amount | gal/Unit | (L/Unit) | 2.1+2.1 | (7.9+7.9) | 2.1+2.1+2.1 | (7.9+7.9+7.9) | 2.1+2.1+2.1 | (7.9+7.9+7.9) | | |
| Defrost Method | | | | - | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | | |
| Main Refrigerant Piping (Heat Recovery) | Low Pressure Gas Line | in | (mm) | 1-3/8 | (34.93) | 1-5/8 | (41.28) | 1-5/8 | (41.28) | | |
| | High/Low Pressure Gas Line | in | (mm) | 1-1/8 | (28.58) | 1-3/8 | (34.93) | 1-3/8 | (34.93) | | |
| | Liquid Line | in | (mm) | 3/4 | (19.05) | 3/4 | (19.05) | 3/4 | (19.05) | | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

(4) Heat Recovery Type (460V)

• Standard Type

| Category | | Ton | | 6RT | | 8RT | | 10RT | |
|---|---|---------------------------|--|--|--|------------------|--|------------------|--|
| Model (Combination) | | | | (H,Y)VAHR072B41S | | (H,Y)VAHR096B41S | | (H,Y)VAHR120B41S | |
| Model (Individual) | | Unit A | | - | | - | | - | |
| | | Unit B | | - | | - | | - | |
| | | Unit C | | - | | - | | - | |
| | | Unit D | | - | | - | | - | |
| Power Supply | | | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | |
| Capacity (Nominal) * | Cooling | Capacity (Nominal) | Btu/h (kW) | 72,000 (21.1) | 96,000 (28.1) | 120,000 (35.2) | | | |
| | | Power Input | kW | 6.08 | 7.61 | 10.57 | | | |
| | | Current Input | A | 8.5 | 10.6 | 15.8 | | | |
| | Heating | Capacity (Nominal) | Btu/h (kW) | 81,000 (23.7) | 108,000 (31.7) | 135,000 (39.6) | | | |
| | | Power Input | kW | 5.93 | 7.33 | 9.73 | | | |
| | | Current Input | A | 8.3 | 11.1 | 14.4 | | | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h (kW) | 69,000 (20.2) | 92,000 (27.0) | 114,000 (33.4) | | | |
| | | EER | Btu/Wh (W/W) | 15.30 (4.49) | 13.10 (3.84) | 11.20 (3.29) | | | |
| | | IEER | Btu/Wh (Wh/Wh) | 24.80 (7.27) | 21.40 (6.28) | 19.80 (5.81) | | | |
| | Heating High | Capacity (Rated) | Btu/h (kW) | 76,000 (22.3) | 103,000 (30.2) | 129,000 (37.8) | | | |
| | | COP | W/W | 4.14 | 3.88 | 3.66 | | | |
| | Heating Low | Capacity | Btu/h (kW) | 55,000 (16.1) | 76,000 (22.3) | 89,000 (26.1) | | | |
| | | COP | W/W | 2.48 | 2.31 | 2.25 | | | |
| | Heat Recovery | SCHE | Btu/Wh | 22.60 | 26.30 | 26.00 | | | |
| Cooling Operating Range | Indoor | °F WB (°C WB) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | | | | |
| | Outdoor | °F DB (°C DB) | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | | | | |
| Heating Operating Range | Indoor | °F DB (°C DB) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | | | | |
| | Outdoor | °F WB (°C WB) | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | | | | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | |
| Outer Dimensions | Height | in (mm) | 68-1/8 (1730) | 68-1/8 (1730) | 68-1/8 (1730) | | | | |
| | Width | in (mm) | 37-7/8 (962) | 48-1/8 (1222) | 48-1/8 (1222) | | | | |
| | Depth | in (mm) | 31-7/32 (793) | 31-7/32 (793) | 31-7/32 (793) | | | | |
| Package Dimensions | Height | in (mm) | 74-1/4 (1886) | 74-1/4 (1886) | 74-1/4 (1886) | | | | |
| | Width | in (mm) | 40-5/8 (1032) | 50-7/8 (1292) | 50-7/8 (1292) | | | | |
| | Depth | in (mm) | 34-1/32 (864) | 34-1/32 (864) | 34-1/32 (864) | | | | |
| Weight | Net | lbs (kg) | 606 (275) | 796 (361) | 798 (362) | | | | |
| | Gross | lbs (kg) | 653 (296) | 853 (387) | 856 (388) | | | | |
| Connection Ratio | Total Indoor Unit Capacity | % | 150 - 70 | 135 - 65 | 130 - 60 | | | | |
| | Max. (Recommendation) Indoor Units/System | | 18 (10) | 21 (16) | 25 (16) | | | | |
| Heat Exchanger | Type | | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | | | | |
| | Material | | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | | | | |
| Compressor | Type | Inverter | DA65PHD×1 | DA65PHD×1 | DA65PHD×1 | | | | |
| | | Fixed Speed | - | DA65PHC×1 | DA65PHC×1 | | | | |
| | Motor Output (Pole) | kW (Pole) | 7.2(6) | 4.8(6)+4.4(2) | 6.0(6)+4.4(2) | | | | |
| | Start Method | | inverter | inverter | inverter | | | | |
| | Operation Range | % | 20 ~ 100 | 16 ~ 100 | 15 ~ 100 | | | | |
| | Refrigeration Oil Type | | FVC68D | FVC68D | FVC68D | | | | |
| Crank Case Heater | Type | | Propeller Fan | Propeller Fan | Propeller Fan | | | | |
| | Motor Output (Pole) | kW (Pole) | 0.49(8) | 0.66(8) | 0.91(8) | | | | |
| Fan | Quantity | Q'ty | 1 | 1 | 1 | | | | |
| | Airflow Rate | cfm (m ³ /min) | 6178 (175) | 6884 (195) | 7413 (210) | | | | |
| | External Static Pressure | in.WG (Pa) | 0 (0) *5 | 0 (0) *5 | 0 (0) *5 | | | | |
| | Drive | | Direct-drive | Direct-drive | Direct-drive | | | | |
| | Min Circuit Amps | A | 21 | 21 | 25 | | | | |
| Electrical | Recommended Fuse/Breaker Size | A | 30 | 30 | 30 | | | | |
| | Maximum Fuse Size | A | 30 | 30 | 30 | | | | |
| Sound Pressure Level *6 | Cooling (Night-Shift) | dB (A) | 60 (55) | 62 (57) | 64 (57) | | | | |
| | Heating | dB (A) | 60 | 62 | 64 | | | | |
| Protection devices | Cycle | | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | | | | |
| | Inverter | | Over-current protection | Over-current protection | Over-current protection | | | | |
| | Compressor | | Over-heat protection | Over-heat protection | Over-heat protection | | | | |
| | PCB | | Over-current protection | Over-current protection | Over-current protection | | | | |
| Refrigerant | Type-Qty | | R410A | R410A | R410A | | | | |
| | Charge Amount | lbs (kg) | 16.1 (7.3) | 18.7 (8.5) | 20.9 (9.5) | | | | |
| Refrigeration Oil | Charge Amount | gal/Unit (L/Unit) | 1.6 (6.0) | 2.1 (7.9) | 2.1 (7.9) | | | | |
| Defrost Method | | | Reversed Refrigerant Cycle | Reversed Refrigerant Cycle | Reversed Refrigerant Cycle | | | | |
| Main Refrigerant Piping (Heat Recovery) | Low Pressure Gas Line | in (mm) | 1-1/8 (28.58) | 1-1/8 (28.58) | 1-1/8 (28.58) | | | | |
| | High/Low Pressure Gas Line | in (mm) | 7/8 (22.2) | 7/8 (22.2) | 7/8 (22.2) | | | | |
| | Liquid Line | in (mm) | 1/2 (12.7) | 1/2 (12.7) | 1/2 (12.7) | | | | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
 67°F (19.4°C)WB
 Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
 Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
 Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
 43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*6 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS

| Category | | Ton | | 12RT (6RT+6RT) | | 14RT (8RT+6RT) | | 16RT (8RT+8RT) | |
|---|-------------------------------|---|--|--|----------------------|--|--|--|--|
| Model (Combination) | | | | (H,Y)VAHR144B41S | | (H,Y)VAHR168B41S | | (H,Y)VAHR192B41S | |
| Model (Individual) | | Unit A | | (H,Y)VAHR072B41S | | (H,Y)VAHR096B41S | | (H,Y)VAHR096B41S | |
| | | Unit B | | (H,Y)VAHR072B41S | | (H,Y)VAHR072B41S | | (H,Y)VAHR096B41S | |
| | | Unit C | | - | | - | | - | |
| | | Unit D | | - | | - | | - | |
| Power Supply | | | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | |
| Capacity (Nominal) * | Cooling | Capacity (Nominal) | Btu/h (kW) | 144,000 (42.2) | 168,000 (49.2) | 192,000 (56.3) | | | |
| | | Power Input | kW | 12.16 | 13.69 | 15.22 | | | |
| | | Current Input | A | 17.0 | 19.1 | 21.2 | | | |
| | Heating | Capacity (Nominal) | Btu/h (kW) | 162,000 (47.5) | 189,000 (55.4) | 216,000 (63.3) | | | |
| | | Power Input | kW | 11.86 | 13.26 | 14.66 | | | |
| | | Current Input | A | 16.6 | 19.4 | 22.2 | | | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h (kW) | 138,000 (40.5) | 160,000 (46.9) | 182,000 (53.4) | | | |
| | | EER | Btu/Wh (W/W) | 14.30 (4.19) | 10.80 (3.17) | 10.80 (3.11) | | | |
| | | IEER | Btu/Wh (Wh/Wh) | 23.80 (6.98) | 19.40 (5.69) | 18.60 (5.46) | | | |
| | Heating High | Capacity (Rated) | Btu/h (kW) | 154,000 (45.2) | 178,000 (52.2) | 204,000 (59.8) | | | |
| | | COP | W/W | 4.04 | 3.51 | 3.53 | | | |
| | Heating Low | Capacity (Rated) | Btu/h (kW) | 109,000 (32.0) | 129,000 (37.8) | 150,000 (44.0) | | | |
| | | COP | W/W | 2.64 | 2.16 | 2.26 | | | |
| | Heat Recovery | SCHE | Btu/Wh | 28.60 | 26.00 | 27.00 | | | |
| Cooling Operating Range | Indoor | °F WB (°C WB) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | | | | |
| | Outdoor | °F DB (°C DB) | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | | | | |
| Heating Operating Range | Indoor | °F DB (°C DB) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | | | | |
| | Outdoor | °F WB (°C WB) | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | | | | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | |
| Outer Dimensions | Height | in (mm) | 68-1/8 (1730) | 68-1/8 (1730) | 68-1/8 (1730) | | | | |
| | Width *5 | in (mm) | 76-5/32 (1934) | 86-3/8 (2194) | 96-5/8 (2454) | | | | |
| | Depth | in (mm) | 31-7/32 (793) | 31-7/32 (793) | 31-7/32 (793) | | | | |
| Package Dimensions | Height | in (mm) | - | - | - | | | | |
| | Width | in (mm) | - | - | - | | | | |
| | Depth | in (mm) | - | - | - | | | | |
| Weight | Net | lbs (kg) | 1213 (550) | 1402 (636) | 1592 (722) | | | | |
| | Gross | lbs (kg) | 1305 (592) | 1506 (683) | 1707 (774) | | | | |
| Connection Ratio | | Total Indoor Unit Capacity | | 150 - 75 | | 140 - 65 | | 135 - 65 | |
| | | Max. (Recommendation) Indoor Units/System | | 36 (26) | | 39 (32) | | 43 (32) | |
| Heat Exchanger | Type | - | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | |
| | Material | - | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | |
| Compressor | Type | Inverter | - | DA65PHD×2 | | DA65PHD×2 | | DA65PHD×2 | |
| | | Fixed Speed | - | - | | DA65PHC×1 | | DA65PHC×2 | |
| | Motor Output (Pole) | kW (Pole) | 7.26(6) | 4.8(6)+4.4(2) | | 4.8(6)+4.4(2) | | 4.8(6)+4.4(2) | |
| | Start Method | - | inverter | inverter | | inverter | | inverter | |
| | Operation Range | % | 10 ~ 100 | 9 ~ 100 | | 8 ~ 100 | | 8 ~ 100 | |
| | Refrigeration Oil Type | - | FVC68D | FVC68D | | FVC68D | | FVC68D | |
| Crank Case Heater | | W×Q'ty | | 40.8 (230V) ×4 | | 40.8 (230V) ×6 | | 40.8 (230V) ×8 | |
| Fan | Type | - | | Propeller Fan | | Propeller Fan | | Propeller Fan | |
| | Motor Output (Pole) | kW (Pole) | 0.49(8)×2 | 0.66(8)+0.49(8) | | 0.66(8)×2 | | 0.66(8)×2 | |
| | Quantity | Q'ty | 2 | 2 | | 2 | | 2 | |
| | Airflow Rate | cfm (m ³ /min) | 6178+6178 (175+175) | 6884+6178 (195+175) | | 6884+6884 (195+195) | | 6884+6884 (195+195) | |
| | External Static Pressure | in.WG (Pa) | 0 (0) *6 | 0 (0) *6 | | 0 (0) *6 | | 0 (0) *6 | |
| | Drive | - | Direct-drive | Direct-drive | | Direct-drive | | Direct-drive | |
| Electrical | Min Circuit Amps | A | - | - | | - | | - | |
| | Recommended Fuse/Breaker Size | A | - | - | | - | | - | |
| | Maximum Fuse Size | A | - | - | | - | | - | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | dB (A) | 63 (58) | 65 (60) | | 65 (60) | | 65 (60) | |
| | Heating | dB (A) | 63 | 65 | | 65 | | 65 | |
| Protection devices | Cycle | - | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | |
| | Inverter | - | Over-current protection | Over-current protection | | Over-current protection | | Over-current protection | |
| | Compressor | - | Over-heat protection | Over-heat protection | | Over-heat protection | | Over-heat protection | |
| | PCB | - | Over-current protection | Over-current protection | | Over-current protection | | Over-current protection | |
| Refrigerant | Type | - | R410A | R410A | | R410A | | R410A | |
| | Charge Amount | lbs (kg) | 16.1+16.1 (7.3+7.3) | 18.7+16.1 (8.5+7.3) | | 18.7+18.7 (8.5+8.5) | | 18.7+18.7 (8.5+8.5) | |
| Refrigeration Oil | Charge Amount | gal/Unit (L/Unit) | 1.6+1.6 (6.0+6.0) | 2.1+1.6 (7.9+6.0) | | 2.1+2.1 (7.9+7.9) | | 2.1+2.1 (7.9+7.9) | |
| Defrost Method | | - | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | |
| Main Refrigerant Piping (Heat Recovery) | Low Pressure Gas Line | in (mm) | 1-1/8 (28.58) | 1-3/8 (34.93) | | 1-3/8 (34.93) | | 1-3/8 (34.93) | |
| | High/Low Pressure Gas Line | in (mm) | 7/8 (22.2) | 1-1/8 (28.58) | | 1-1/8 (28.58) | | 1-1/8 (28.58) | |
| | Liquid Line | in (mm) | 5/8 (15.88) | 3/4 (19.05) | | 3/4 (19.05) | | 3/4 (19.05) | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

| Category | | Ton | 18RT (6RT+6RT+6RT) | | 20RT (8RT+6RT+6RT) | | 22RT (10RT+6RT+6RT) | | 24RT (10RT+8RT+6RT) | | 26RT (10RT+10RT+6RT) | | | |
|---|----------------------------|---|-----------------------|--|--|--|--|--|------------------------------|----------------------|-------------------------|----------------------|----------------|---------|
| Model (Combination) | | | (H,Y)VAHR216B41S | | (H,Y)VAHR240B41S | | (H,Y)VAHR264B41S | | (H,Y)VAHR288B41S | | (H,Y)VAHR312B41S | | | |
| Model (Individual) | | Unit A | (H,Y)VAHR072B41S | | (H,Y)VAHR096B41S | | (H,Y)VAHR120B41S | | (H,Y)VAHR120B41S | | (H,Y)VAHR120B41S | | | |
| | | Unit B | (H,Y)VAHR072B41S | | (H,Y)VAHR072B41S | | (H,Y)VAHR072B41S | | (H,Y)VAHR096B41S | | (H,Y)VAHR120B41S | | | |
| | | Unit C | (H,Y)VAHR072B41S | | (H,Y)VAHR072B41S | | (H,Y)VAHR072B41S | | (H,Y)VAHR072B41S | | (H,Y)VAHR072B41S | | | |
| | | Unit D | | | | | | | | | | | | |
| Power Supply | | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | | |
| Capacity (Nominal) | Cooling | Capacity (Nominal) | Btu/h | (kW) | 216,000 | (63.3) | 240,000 | (70.3) | 264,000 | (77.4) | 288,000 | (84.4) | | |
| | | Power Input | kW | | 18.24 | 19.77 | | 22.73 | | 24.26 | | 27.22 | | |
| | | Current Input | A | | 25.5 | 27.6 | | 32.8 | | 34.9 | | 40.1 | | |
| | Heating | Capacity (Nominal) | Btu/h | (kW) | 243,000 | (71.2) | 270,000 | (79.1) | 297,000 | (87.0) | 324,000 | (95.0) | 351,000 | (102.9) |
| Power Input | | kW | | 17.79 | 19.19 | | 21.59 | | 22.99 | | 25.39 | | | |
| Current Input | | A | | 24.9 | 27.7 | | 31.0 | | 33.8 | | 37.1 | | | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h | (kW) | 206,000 | (60.4) | 228,000 | (66.9) | 252,000 | (73.9) | 274,000 | (80.4) | 296,000 | (86.8) |
| | | EER | Btu/Wh | (W/W) | 10.60 | (3.11) | 10.90 | (3.20) | 10.00 | (2.93) | 9.50 | (2.79) | 9.50 | (2.79) |
| | | IEER | Btu/Wh | (Wh/Wh) | 18.80 | (5.51) | 19.80 | (5.81) | 18.20 | (5.34) | 17.70 | (5.19) | 17.90 | (5.25) |
| | Heating High | Capacity (Rated) | Btu/h | (kW) | 232,000 | (68.1) | 258,000 | (75.7) | 280,000 | (82.1) | 308,000 | (90.3) | 334,000 | (98.0) |
| | | COP | W/W | | 3.32 | 3.68 | | 3.50 | | 3.58 | | 3.45 | | |
| | | Heating Low | Capacity | Btu/h | (kW) | 164,000 | (48.1) | 182,000 | (53.4) | 200,000 | (58.7) | 216,000 | (63.4) | 236,000 |
| COP | W/W | | 2.23 | 2.32 | | 2.30 | | 2.34 | | 2.30 | | | | |
| Heat Recovery | SCHE | | Btu/Wh | | 25.10 | 27.00 | | 26.20 | | 24.40 | | 25.20 | | |
| Cooling Operating Range | Indoor | °F WB (°C WB) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) | | |
| | Outdoor | °F DB (°C DB) | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 | | |
| Heating Operating Range | Indoor | °F DB (°C DB) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | | |
| | Outdoor | °F WB (°C WB) | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | | |
| Cabinet Color (Munsell Code) | | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | | | |
| Outer Dimensions | Height | in | (mm) | 68-1/8 | (1730) | 68-1/8 | (1730) | 68-1/8 | (1730) | 68-1/8 | (1730) | 68-1/8 | (1730) | |
| | Width *5 | in | (mm) | 114-13/32 | (2906) | 124-21/32 | (3166) | 124-21/32 | (3166) | 134-7/8 | (3426) | 134-7/8 | (3426) | |
| | Depth | in | (mm) | 31-7/32 | (793) | 31-7/32 | (793) | 31-7/32 | (793) | 31-7/32 | (793) | 31-7/32 | (793) | |
| Package Dimensions | Height | in | (mm) | - | - | - | - | - | - | - | - | - | | |
| | Width | in | (mm) | - | - | - | - | - | - | - | - | - | | |
| | Depth | in | (mm) | - | - | - | - | - | - | - | - | - | | |
| Weight | Net | lbs | (kg) | 1819 | (825) | 2009 | (911) | 2011 | (912) | 2201 | (998) | 2203 | (999) | |
| | Gross | lbs | (kg) | 1958 | (888) | 2159 | (979) | 2161 | (980) | 2362 | (1071) | 2364 | (1072) | |
| Connection Ratio | | Total Indoor Unit Capacity | % | | 150 - 70 | 150 - 70 | 140 - 65 | 135 - 65 | 130 - 65 | | | | | |
| | | Max. (Recommendation) Indoor Units/System | | | 54 (32) | 60 (38) | 61 (38) | 64 (38) | 64 (38) | | | | | |
| Heat Exchanger | | Type | - | | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | | | | | |
| | | Material | - | | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | | | | | |
| Compressor | Type | Inverter | - | | DA65PHD×3 | DA65PHD×3 | DA65PHD×3 | DA65PHD×3 | DA65PHD×3 | | | | | |
| | | Fixed Speed | - | | - | DA65PHC×1 | DA65PHC×1 | DA65PHC×2 | DA65PHC×2 | | | | | |
| | Motor Output (Pole) | kW (Pole) | | 7.26(6) | 4.8(6)+4.4(2) | 6.0(6)+4.4(2) | 6.0(6)+4.4(2) | 6.0(6)+4.4(2) | | | | | | |
| | Start Method | - | | inverter | inverter | inverter | inverter | inverter | | | | | | |
| | Operation Range | % | | 7 ~ 100 | 6 ~ 100 | 6 ~ 100 | 6 ~ 100 | 6 ~ 100 | | | | | | |
| | Refrigeration Oil Type | - | | FVC68D | FVC68D | FVC68D | FVC68D | FVC68D | | | | | | |
| Crank Case Heater | | W×Qty | 40.8 (230V) ×6 | | 40.8 (230V) ×8 | 40.8 (230V) ×8 | 40.8 (230V) ×10 | 40.8 (230V) ×10 | | | | | | |
| | | Type | - | | Propeller Fan | Propeller Fan | Propeller Fan | Propeller Fan | | | | | | |
| Fan | | Motor Output (Pole) | kW (Pole) | | 0.49(8)×3 | 0.66(8)+0.49(8)×2 | 0.91(8)+0.49(8)×2 | 0.91(8)+0.66(8)+0.49(8) | | | | | | |
| | | Quantity | Q'ty | | 3 | 3 | 3 | 3 | | | | | | |
| | | Airflow Rate | cfm | (m ³ /min) | 6178+6178 (175+175 +6178) | 6884+6178 (195+175 +6178) | 7413+6178 (210+175 +6178) | 7413+6884 (210+195 +6178) | | | | | | |
| | | External Static Pressure | in.WG | (Pa) | 0 (0) *6 | 0 (0) *6 | 0 (0) *6 | 0 (0) *6 | | | | | | |
| | | Drive | - | | Direct-drive | Direct-drive | Direct-drive | Direct-drive | | | | | | |
| Electrical | | Min Circuit Amps | A | | - | - | - | - | | | | | | |
| | | Recommended Fuse/Breaker Size | A | | - | - | - | - | | | | | | |
| | | Maximum Fuse Size | A | | - | - | - | - | | | | | | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | dB (A) | | 65 | (60) | 66 | (61) | 67 | (61) | 67 | (62) | 68 | (62) | |
| | Heating | dB (A) | | 65 | | 66 | | 67 | | 67 | | 68 | | |
| Protection devices | Cycle | - | | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | | | | | | |
| | Inverter | - | | Over-current protection | Over-current protection | Over-current protection | Over-current protection | Over-current protection | | | | | | |
| | Compressor | - | | Over-heat protection | Over-heat protection | Over-heat protection | Over-heat protection | Over-heat protection | | | | | | |
| | PCB | - | | Over-current protection | Over-current protection | Over-current protection | Over-current protection | Over-current protection | | | | | | |
| Refrigerant | Type | - | | R410A | R410A | R410A | R410A | R410A | | | | | | |
| | Charge Amount | lbs | (kg) | 16.1+16.1 +16.1 | (7.3+7.3 +7.3) | 18.7+16.1 +16.1 | (8.5+7.3 +7.3) | 20.9+16.1 +16.1 | (9.5+7.3 +7.3) | 20.9+16.7 +16.1 | (9.5+8.5 +7.3) | 20.9+20.9 +16.1 | (9.5+9.5 +7.3) | |
| Refrigeration Oil | Charge Amount | gal/Unit | (L/Unit) | 1.6+1.6+1.6 | (6.0+6.0 +6.0) | 2.1+1.6+1.6 | (7.9+6.0 +6.0) | 2.1+1.6+1.6 | (7.9+6.0 +6.0) | 2.1+2.1+1.6 | (7.9+7.9 +6.0) | 2.1+2.1+1.6 | (7.9+7.9 +6.0) | |
| Defrost Method | | - | | Reversed Refrigerant Cycle | Reversed Refrigerant Cycle | Reversed Refrigerant Cycle | Reversed Refrigerant Cycle | Reversed Refrigerant Cycle | | | | | | |
| Main Refrigerant Piping (Heat Recovery) | Low Pressure Gas Line | in | (mm) | 1-3/8 | (34.93) | 1-5/8 | (41.28) | 1-5/8 | (41.28) | 1-5/8 | (41.28) | 1-5/8 | (41.28) | |
| | High/Low Pressure Gas Line | in | (mm) | 1-1/8 | (28.58) | 1-3/8 | (34.93) | 1-3/8 | (34.93) | 1-3/8 | (34.93) | 1-3/8 | (34.93) | |
| | Liquid Line | in | (mm) | 3/4 | (19.05) | 3/4 | (19.05) | 3/4 | (19.05) | 3/4 | (19.05) | 3/4 | (19.05) | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS

| Category | | Ton | | 28RT (8RT+8RT+6RT+6RT) | | 30RT (10RT+8RT+6RT+6RT) | |
|---|---|--------------------|---------------|--|----------------------|--|----------------------|
| Model (Combination) | | | | (H,Y)VAHR336B41S | | (H,Y)VAHR360B41S | |
| Model (Individual) | | Unit A | | (H,Y)VAHR096B41S | | (H,Y)VAHR120B41S | |
| | | Unit B | | (H,Y)VAHR096B41S | | (H,Y)VAHR096B41S | |
| | | Unit C | | (H,Y)VAHR072B41S | | (H,Y)VAHR072B41S | |
| | | Unit D | | (H,Y)VAHR072B41S | | (H,Y)VAHR072B41S | |
| Power Supply | | | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | |
| Capacity (Nominal) | Cooling | Capacity (Nominal) | Btu/h | (kW) | 336,000 | (98.5) | 360,000 (105.5) |
| | | Power Input | kW | | 27.38 | | 30.34 |
| | | Current Input | A | | 38.2 | | 43.4 |
| | Heating | Capacity (Nominal) | Btu/h | (kW) | 378,000 | (110.8) | 405,000 (118.7) |
| | | Power Input | kW | | 26.52 | | 28.92 |
| | | Current Input | A | | 38.8 | | 42.1 |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h | (kW) | 320,000 | (93.9) | 342,000 (100.3) |
| | | EER | Btu/Wh | (W/W) | 10.50 | (3.08) | 9.50 (2.79) |
| | | IEER | Btu/Wh | (Wh/Wh) | 20.20 | (5.93) | 17.50 (5.13) |
| | Heating High | Capacity (Rated) | Btu/h | (kW) | 360,000 | (105.6) | 386,000 (113.2) |
| | | COP | W/W | | 3.68 | | 3.68 |
| | Heating Low | Capacity | Btu/h | (kW) | 268,000 | (78.6) | 284,000 83.3 |
| | | COP | W/W | | 2.52 | | 2.36 |
| | Heat Recovery | SCHE | Btu/Wh | | 26.10 | | 26.80 |
| | Cooling Operating Range | Indoor | °F WB (°C WB) | | 59(15) ~ 73(23) | | 59(15) ~ 73(23) |
| | | Outdoor | °F DB (°C DB) | | 14(-10) ~ 118(48) *3 | | 14(-10) ~ 118(48) *3 |
| Heating Operating Range | Indoor | °F DB (°C DB) | | 59(15) ~ 80(27) | | 59(15) ~ 80(27) | |
| | Outdoor | °F WB (°C WB) | | -4(-20) ~ 59(15) *4 | | -4(-20) ~ 59(15) *4 | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | |
| Outer Dimensions | Height | in | (mm) | 68-1/8 | (1730) | 68-1/8 | (1730) |
| | Width *5 | in | (mm) | 173-5/32 | (4398) | 173-5/32 | (4398) |
| | Depth | in | (mm) | 31-7/32 | (793) | 31-7/32 | (793) |
| Package Dimensions | Height | in | (mm) | - | - | - | - |
| | Width | in | (mm) | - | - | - | - |
| | Depth | in | (mm) | - | - | - | - |
| Weight | Net | lbs | (kg) | 2805 | (1272) | 2807 | (1273) |
| | Gross | lbs | (kg) | 3012 | (1366) | 3014 | (1367) |
| Connection Ratio | Total Indoor Unit Capacity | | % | 140 - 65 | | 135 - 65 | |
| | Max. (Recommendation) Indoor Units/System | | | 64 (38) | | 64 (38) | |
| Heat Exchanger | Type | | | Multi-Pass Cross-Finned Tube | | Multi-Pass Cross-Finned Tube | |
| | Material | | | Cu-Al (Anti-corrosion) | | Cu-Al (Anti-corrosion) | |
| Compressor | Type | Inverter | | DA65PHD×4 | | DA65PHD×4 | |
| | | Fixed Speed | | DA65PHC×2 | | DA65PHC×2 | |
| | Motor Output (Pole) | kW (Pole) | | 4.8(6)+4.4(2) | | 6.0(6)+4.4(2) | |
| | Start Method | | | inverter | | inverter | |
| | Operation Range | % | | 5 ~ 100 | | 5 ~ 100 | |
| | Refrigeration Oil Type | | | FVC68D | | FVC68D | |
| Crank Case Heater | | | W×Q'ty | 40.8 (230V) ×12 | | 40.8 (230V) ×12 | |
| Fan | Type | | | Propeller Fan | | Propeller Fan | |
| | Motor Output (Pole) | kW (Pole) | | 0.66(8)×2+0.49(8)×2 | | 0.91(8)+0.66(8)+0.49(8)×2 | |
| | Quantity | Q'ty | | 4 | | 4 | |
| | Airflow Rate | cfm | (m³/min) | 6884+6884 (195+195) | | 7413+6884 (210+195) | |
| | External Static Pressure | in.WG | (Pa) | +6178+6178 +175+175 | | +6884+6178 +195+175 | |
| | Drive | | | Direct-drive | | Direct-drive | |
| Electrical | Min Circuit Amps | A | | - | | - | |
| | Recommended Fuse/Breaker Size | A | | - | | - | |
| | Maximum Fuse Size | A | | - | | - | |
| Sound Pressure Level *7 | Cooling (Night-Shift) | dB (A) | | 68 (63) | | 68 (63) | |
| | Heating | dB (A) | | 68 | | 68 | |
| Protection devices | Cycle | | | High pressure switch at 601psi (4.15MPa) | | High pressure switch at 601psi (4.15MPa) | |
| | Inverter | | | Over-current protection | | Over-current protection | |
| | Compressor | | | Over-heat protection | | Over-heat protection | |
| | PCB | | | Over-current protection | | Over-current protection | |
| Refrigerant | Type | | | R410A | | R410A | |
| | Charge Amount | lbs | (kg) | 18.7+18.7 (8.5+8.5) | | 20.9+18.7 (9.5+8.5) | |
| Refrigeration Oil | Charge Amount | gal/Unit | (L/Unit) | 2.1+2.1 (7.9+7.9) | | 2.1+2.1 (7.9+7.9) | |
| | | | | +1.6+1.6 +6.0+6.0 | | +1.6+1.6 +6.0+6.0 | |
| Defrost Method | | | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | |
| Main Refrigerant Piping (Heat Recovery) | Low Pressure Gas Line | in | (mm) | 1-5/8 | (41.28) | 1-5/8 | (41.28) |
| | High/Low Pressure Gas Line | in | (mm) | 1-3/8 | (34.93) | 1-3/8 | (34.93) |
| | Liquid Line | in | (mm) | 3/4 | (19.05) | 3/4 | (19.05) |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
 67°F (19.4°C)WB
 Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
 Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
 Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
 43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

• Less Module Type

| Category | | Ton | | 20RT (10RT+10RT) | | 28RT (10RT+10RT+8RT) | | 30RT (10RT+10RT+10RT) | |
|---|---|--------------------|---|---|---|----------------------------|--|----------------------------|--|
| Model (Combination) | | | | (H,Y)VAHR240B41LM | | (H,Y)VAHR336B41LM | | (H,Y)VAHR360B41LM | |
| Model (Individual) | | Unit A | | (H,Y)VAHR120B41S | | (H,Y)VAHR120B41S | | (H,Y)VAHR120B41S | |
| | | Unit B | | (H,Y)VAHR120B41S | | (H,Y)VAHR120B41S | | (H,Y)VAHR120B41S | |
| | | Unit C | | - | | (H,Y)VAHR096B41S | | (H,Y)VAHR120B41S | |
| | | Unit D | | - | | - | | - | |
| Power Supply | | | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | | 460V/ 3PH 60Hz | |
| Capacity (Nominal) | Cooling | Capacity (Nominal) | Btu/h (kW) | 240,000 (70.3) | 336,000 (98.5) | 360,000 (105.5) | | | |
| | | Power Input | kW | 21.14 | 28.75 | 31.71 | | | |
| | | Current Input | A | 31.6 | 42.2 | 47.4 | | | |
| | Heating | Capacity (Nominal) | Btu/h (kW) | 270,000 (79.1) | 378,000 (110.8) | 405,000 (118.7) | | | |
| | | Power Input | kW | 19.46 | 26.79 | 29.19 | | | |
| | | Current Input | A | 28.8 | 39.9 | 43.2 | | | |
| Efficiency Ratings *2 | Cooling | Capacity (Rated) | Btu/h (kW) | 228,000 (66.9) | 320,000 (93.9) | 342,000 (100.3) | | | |
| | | EER | Btu/Wh (W/W) | 10.50 (3.08) | 10.00 (2.93) | 9.70 (2.85) | | | |
| | | IEER | Btu/Wh (Wh/Wh) | 17.40 (5.10) | 17.70 (5.19) | 17.50 (5.13) | | | |
| | Heating High | Capacity (Rated) | Btu/h (kW) | 258,000 (75.7) | 344,000 (100.9) | 366,000 (107.4) | | | |
| | | COP | W/W | 3.53 | 3.51 | 3.35 | | | |
| | Heating Low | Capacity | Btu/h (kW) | 182,000 (53.4) | 266,000 (78.0) | 268,000 (78.6) | | | |
| | | COP | W/W | 2.11 | 2.10 | 2.01 | | | |
| | Heat Recovery | SCHE | Btu/Wh | 23.40 | 23.50 | 23.10 | | | |
| | Cooling Operating Range | Indoor | °F WB (°C WB) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | 59(15) ~ 73(23) | | | |
| | | Outdoor | °F DB (°C DB) | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | 14(-10) ~ 118(48) *3 | | | |
| Heating Operating Range | Indoor | °F DB (°C DB) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | 59(15) ~ 80(27) | | | | |
| | Outdoor | °F WB (°C WB) | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | -4(-20) ~ 59(15) *4 | | | | |
| Cabinet Color (Munsell Code) | | | | 2.5Y 8/2 | | 2.5Y 8/2 | | 2.5Y 8/2 | |
| Outer Dimensions | Height | in (mm) | 68-1/8 (1730) | 68-1/8 (1730) | 68-1/8 (1730) | | | | |
| | Width *5 | in (mm) | 96-5/8 (2454) | 144-21/32 (3674) | 144-21/32 (3674) | | | | |
| | Depth | in (mm) | 31-7/32 (793) | 31-7/32 (793) | 31-7/32 (793) | | | | |
| Package Dimensions | Height | in (mm) | - | - | - | | | | |
| | Width | in (mm) | - | - | - | | | | |
| | Depth | in (mm) | - | - | - | | | | |
| Weight | Net | lbs (kg) | 1596 (724) | 2392 (1085) | 2394 (1086) | | | | |
| | Gross | lbs (kg) | 1712 (776) | 2565 (1163) | 2568 (1164) | | | | |
| Connection Ratio | Total Indoor Unit Capacity | % | 120 - 60 | 120 - 60 | 120 - 60 | | | | |
| | Max. (Recommendation) Indoor Units/System | | 48 (32) | 64 (38) | 64 (38) | | | | |
| Heat Exchanger | Type | | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | Multi-Pass Cross-Finned Tube | | | | |
| | Material | | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | Cu-Al (Anti-corrosion) | | | | |
| Compressor | Type | Inverter | DA65PHD*2 | DA65PHD*3 | DA65PHD*3 | | | | |
| | | Fixed Speed | DA65PHC*2 | DA65PHC*3 | DA65PHC*3 | | | | |
| | Motor Output (Pole) | kW (Pole) | 6.0(6)+4.4(2) 6.0(6)+4.4(2) | 6.0(6)+4.4(2) 6.0(6)+4.4(2) | 6.0(6)+4.4(2) 6.0(6)+4.4(2) | | | | |
| | Start Method | | inverter | inverter | inverter | | | | |
| | Operation Range | % | 8 ~ 100 | 5 ~ 100 | 5 ~ 100 | | | | |
| | Refrigeration Oil Type | | FVC68D | FVC68D | FVC68D | | | | |
| Crank Case Heater | Type | W*Qty | 40.8(230V)*8 | 40.8(230V)*12 | 40.8(230V)*12 | | | | |
| | Propeller Fan | | Propeller Fan | Propeller Fan | Propeller Fan | | | | |
| Fan | Motor Output (Pole) | kW (Pole) | 0.91(8)*2 | 0.91(8)*2+0.66(8) | 0.91(8)*3 | | | | |
| | Quantity | Q'ty | 2 | 3 | 3 | | | | |
| | Airflow Rate | cfm (m³/min) | 7413+7413 (210+210) | 7413+7413 (210+210) +6884 +195 | 7413+7413 (210+210) +210 | | | | |
| | External Static Pressure | in.WG (Pa) | 0 (0) *6 | 0 (0) *6 | 0 (0) *6 | | | | |
| | Drive | | Direct-drive | Direct-drive | Direct-drive | | | | |
| | Min Circuit Amps | A | - | - | - | | | | |
| Electrical | Recommended Fuse/Breaker Size | A | - | - | - | | | | |
| | Maximum Fuse Size | A | - | - | - | | | | |
| | Sound Pressure Level *7 | | | | | | | | |
| Cooling (Night-Shift) | | dB (A) | 66 (60) | 68 (62) | 69 (62) | | | | |
| | Heating | dB (A) | 66 | 68 | 69 | | | | |
| Protection devices | Cycle | | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | High pressure switch at 601psi (4.15MPa) | | | | |
| | Inverter | | Over-current protection Over-heat protection | Over-current protection Over-heat protection | Over-current protection Over-heat protection | | | | |
| | Compressor | | Over-current protection Over-heat protection | Over-current protection Over-heat protection | Over-current protection Over-heat protection | | | | |
| | PCB | | Over-current protection | Over-current protection | Over-current protection | | | | |
| Refrigerant | Type | | R410A | R410A | R410A | | | | |
| | Charge Amount | lbs (kg) | 20.9+20.9 (9.5+9.5) | 20.9+20.9 (9.5+9.5) +18.7 +8.5 | 20.9+20.9 (9.5+9.5) +20.9 +9.5 | | | | |
| Refrigeration Oil | Charge Amount | gal/Unit (L/Unit) | 2.1+2.1 (7.9+7.9) | 2.1+2.1+2.1 (7.9+7.9) +7.9 | 2.1+2.1+2.1 (7.9+7.9) +7.9 | | | | |
| Defrost Method | | | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | | Reversed Refrigerant Cycle | |
| Main Refrigerant Piping (Heat Recovery) | Low Pressure Gas Line | in (mm) | 1-3/8 (34.93) | 1-5/8 (41.28) | 1-5/8 (41.28) | | | | |
| | High/Low Pressure Gas Line | in (mm) | 1-1/8 (28.58) | 1-3/8 (34.93) | 1-3/8 (34.93) | | | | |
| | Liquid Line | in (mm) | 3/4 (19.05) | 3/4 (19.05) | 3/4 (19.05) | | | | |

NOTES:

*1 Rating Conditions:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB
Piping Length: 24 ft. 7-3/16 in. (7.5m), Piping Lift: 0ft (0m)

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB

*2 Efficiency ratings are based on the AHRI 1230 test standard.

*3 There are some exceptions and notes for cooling operation ranges. For details, refer to "FEATURES".

*4 There are some exceptions and notes for heating operation ranges. For details, refer to "FEATURES".

*5 The table shows an example where there is 7/8in.(22mm) clearance between the base units.

*6 External static pressure can be changed using the DSW setting 0.24in.W.G.(60Pa).

*7 The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

2.4 Dimensional Data and Weights

2.4.1 Overall Dimensional and Weight Data

- Heat Pump System

208V/230V

| Model | Height [in (mm)] | Width * [in (mm)] | Depth [in (mm)] | Weight [lbs (kg)] |
|-------------------|---------------------|----------------------|--------------------|----------------------|
| (H,Y)VAHP072B31S | 68-1/8 (1730) | 37-7/8 (962) | 31-7/32 (793) | 540 (245) |
| (H,Y)VAHP096B31S | 68-1/8 (1730) | 48-1/8 (1222) | 31-7/32 (793) | 730 (331) |
| (H,Y)VAHP120B31S | 68-1/8 (1730) | 48-1/8 (1222) | 31-7/32 (793) | 732 (332) |
| (H,Y)VAHP144B31S | 68-1/8 (1730) | 76-5/32 (1934) | 31-7/32 (793) | 1080 (490) |
| (H,Y)VAHP168B31S | 68-1/8 (1730) | 86-3/8 (2194) | 31-7/32 (793) | 1270 (576) |
| (H,Y)VAHP192B31S | 68-1/8 (1730) | 96-5/8 (2454) | 31-7/32 (793) | 1460 (662) |
| (H,Y)VAHP216B31S | 68-1/8 (1730) | 114-13/32 (2906) | 31-7/32 (793) | 1621 (735) |
| (H,Y)VAHP240B31S | 68-1/8 (1730) | 124-21/32 (3166) | 31-7/32 (793) | 1810 (821) |
| (H,Y)VAHP240B31LM | 68-1/8 (1730) | 96-5/8 (2454) | 31-7/32 (793) | 1464 (664) |
| (H,Y)VAHP264B31S | 68-1/8 (1730) | 124-21/32 (3166) | 31-7/32 (793) | 1813 (822) |
| (H,Y)VAHP288B31S | 68-1/8 (1730) | 134-7/8 (3426) | 31-7/32 (793) | 2002 (908) |
| (H,Y)VAHP312B31S | 68-1/8 (1730) | 134-7/8 (3426) | 31-7/32 (793) | 2004 (909) |
| (H,Y)VAHP336B31S | 68-1/8 (1730) | 173-5/32 (4398) | 31-7/32 (793) | 2540 (1152) |
| (H,Y)VAHP336B31LM | 68-1/8 (1730) | 144-21/32 (3674) | 31-7/32 (793) | 2194 (995) |
| (H,Y)VAHP360B31S | 68-1/8 (1730) | 173-5/32 (4398) | 31-7/32 (793) | 2542 (1153) |
| (H,Y)VAHP360B31LM | 68-1/8 (1730) | 144-21/32 (3674) | 31-7/32 (793) | 2196 (996) |

460V

| Model | Height [in (mm)] | Width * [in (mm)] | Depth [in (mm)] | Weight [lbs (kg)] |
|-------------------|---------------------|----------------------|--------------------|----------------------|
| (H,Y)VAHP072B41S | 68-1/8 (1730) | 37-7/8 (962) | 31-7/32 (793) | 606 (275) |
| (H,Y)VAHP096B41S | 68-1/8 (1730) | 48-1/8 (1222) | 31-7/32 (793) | 796 (361) |
| (H,Y)VAHP120B41S | 68-1/8 (1730) | 48-1/8 (1222) | 31-7/32 (793) | 798 (362) |
| (H,Y)VAHP144B41S | 68-1/8 (1730) | 76-5/32 (1934) | 31-7/32 (793) | 1213 (550) |
| (H,Y)VAHP168B41S | 68-1/8 (1730) | 86-3/8 (2194) | 31-7/32 (793) | 1402 (636) |
| (H,Y)VAHP192B41S | 68-1/8 (1730) | 96-5/8 (2454) | 31-7/32 (793) | 1592 (722) |
| (H,Y)VAHP216B41S | 68-1/8 (1730) | 114-13/32 (2906) | 31-7/32 (793) | 1819 (825) |
| (H,Y)VAHP240B41S | 68-1/8 (1730) | 124-21/32 (3166) | 31-7/32 (793) | 2009 (911) |
| (H,Y)VAHP240B41LM | 68-1/8 (1730) | 96-5/8 (2454) | 31-7/32 (793) | 1596 (724) |
| (H,Y)VAHP264B41S | 68-1/8 (1730) | 124-21/32 (3166) | 31-7/32 (793) | 2011 (912) |
| (H,Y)VAHP288B41S | 68-1/8 (1730) | 134-7/8 (3426) | 31-7/32 (793) | 2201 (998) |
| (H,Y)VAHP312B41S | 68-1/8 (1730) | 134-7/8 (3426) | 31-7/32 (793) | 2203 (999) |
| (H,Y)VAHP336B41S | 68-1/8 (1730) | 173-5/32 (4398) | 31-7/32 (793) | 2805 (1272) |
| (H,Y)VAHP336B41LM | 68-1/8 (1730) | 144-21/32 (3674) | 31-7/32 (793) | 2392 (1085) |
| (H,Y)VAHP360B41S | 68-1/8 (1730) | 173-5/32 (4398) | 31-7/32 (793) | 2807 (1273) |
| (H,Y)VAHP360B41LM | 68-1/8 (1730) | 144-21/32 (3674) | 31-7/32 (793) | 2394 (1086) |

• Heat Recovery System

208V/230V

| Model | Height [in (mm)] | Width * [in (mm)] | Depth [in (mm)] | Weight [lbs (kg)] |
|-------------------|---------------------|----------------------|--------------------|----------------------|
| (H,Y)VAHR072B31S | 68-1/8 (1730) | 37-7/8 (962) | 31-7/32 (793) | 540 (245) |
| (H,Y)VAHR096B31S | 68-1/8 (1730) | 48-1/8 (1222) | 31-7/32 (793) | 730 (331) |
| (H,Y)VAHR120B31S | 68-1/8 (1730) | 48-1/8 (1222) | 31-7/32 (793) | 732 (332) |
| (H,Y)VAHR144B31S | 68-1/8 (1730) | 76-5/32 (1934) | 31-7/32 (793) | 1080 (490) |
| (H,Y)VAHR168B31S | 68-1/8 (1730) | 86-3/8 (2194) | 31-7/32 (793) | 1270 (576) |
| (H,Y)VAHR192B31S | 68-1/8 (1730) | 96-5/8 (2454) | 31-7/32 (793) | 1460 (662) |
| (H,Y)VAHR216B31S | 68-1/8 (1730) | 114-13/32 (2906) | 31-7/32 (793) | 1621 (735) |
| (H,Y)VAHR240B31S | 68-1/8 (1730) | 124-21/32 (3166) | 31-7/32 (793) | 1810 (821) |
| (H,Y)VAHR240B31LM | 68-1/8 (1730) | 96-5/8 (2454) | 31-7/32 (793) | 1464 (664) |
| (H,Y)VAHR264B31S | 68-1/8 (1730) | 124-21/32 (3166) | 31-7/32 (793) | 1813 (822) |
| (H,Y)VAHR288B31S | 68-1/8 (1730) | 134-7/8 (3426) | 31-7/32 (793) | 2002 (908) |
| (H,Y)VAHR312B31S | 68-1/8 (1730) | 134-7/8 (3426) | 31-7/32 (793) | 2004 (909) |
| (H,Y)VAHR336B31S | 68-1/8 (1730) | 173-5/32 (4398) | 31-7/32 (793) | 2540 (1152) |
| (H,Y)VAHR336B31LM | 68-1/8 (1730) | 144-21/32 (3674) | 31-7/32 (793) | 2194 (995) |
| (H,Y)VAHR360B31S | 68-1/8 (1730) | 173-5/32 (4398) | 31-7/32 (793) | 2542 (1153) |
| (H,Y)VAHR360B31LM | 68-1/8 (1730) | 144-21/32 (3674) | 31-7/32 (793) | 2196 (996) |

460V

| Model | Height [in (mm)] | Width * [in (mm)] | Depth [in (mm)] | Weight [lbs (kg)] |
|-------------------|---------------------|----------------------|--------------------|----------------------|
| (H,Y)VAHR072B41S | 68-1/8 (1730) | 37-7/8 (962) | 31-7/32 (793) | 606 (275) |
| (H,Y)VAHR096B41S | 68-1/8 (1730) | 48-1/8 (1222) | 31-7/32 (793) | 796 (361) |
| (H,Y)VAHR120B41S | 68-1/8 (1730) | 48-1/8 (1222) | 31-7/32 (793) | 798 (362) |
| (H,Y)VAHR144B41S | 68-1/8 (1730) | 76-5/32 (1934) | 31-7/32 (793) | 1213 (550) |
| (H,Y)VAHR168B41S | 68-1/8 (1730) | 86-3/8 (2194) | 31-7/32 (793) | 1402 (636) |
| (H,Y)VAHR192B41S | 68-1/8 (1730) | 96-5/8 (2454) | 31-7/32 (793) | 1592 (722) |
| (H,Y)VAHR216B41S | 68-1/8 (1730) | 114-13/32 (2906) | 31-7/32 (793) | 1819 (825) |
| (H,Y)VAHR240B41S | 68-1/8 (1730) | 124-21/32 (3166) | 31-7/32 (793) | 2009 (911) |
| (H,Y)VAHR240B41LM | 68-1/8 (1730) | 96-5/8 (2454) | 31-7/32 (793) | 1596 (724) |
| (H,Y)VAHR264B41S | 68-1/8 (1730) | 124-21/32 (3166) | 31-7/32 (793) | 2011 (912) |
| (H,Y)VAHR288B41S | 68-1/8 (1730) | 134-7/8 (3426) | 31-7/32 (793) | 2201 (998) |
| (H,Y)VAHR312B41S | 68-1/8 (1730) | 134-7/8 (3426) | 31-7/32 (793) | 2203 (999) |
| (H,Y)VAHR336B41S | 68-1/8 (1730) | 173-5/32 (4398) | 31-7/32 (793) | 2805 (1272) |
| (H,Y)VAHR336B41LM | 68-1/8 (1730) | 144-21/32 (3674) | 31-7/32 (793) | 2392 (1085) |
| (H,Y)VAHR360B41S | 68-1/8 (1730) | 173-5/32 (4398) | 31-7/32 (793) | 2807 (1273) |
| (H,Y)VAHR360B41LM | 68-1/8 (1730) | 144-21/32 (3674) | 31-7/32 (793) | 2394 (1086) |

NOTE:

With a combination model, the above tables show an example width that has a 7/8 in. (22mm) clearance between the base units.

OUTDOOR UNITS

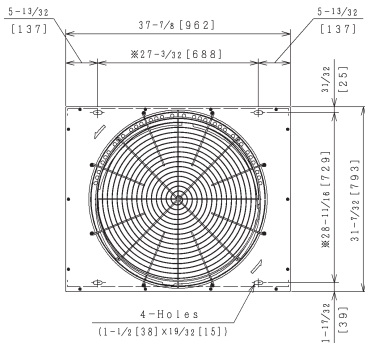
2.4.2 Outdoor Units

(1) Heat Pump System

● Standard Type

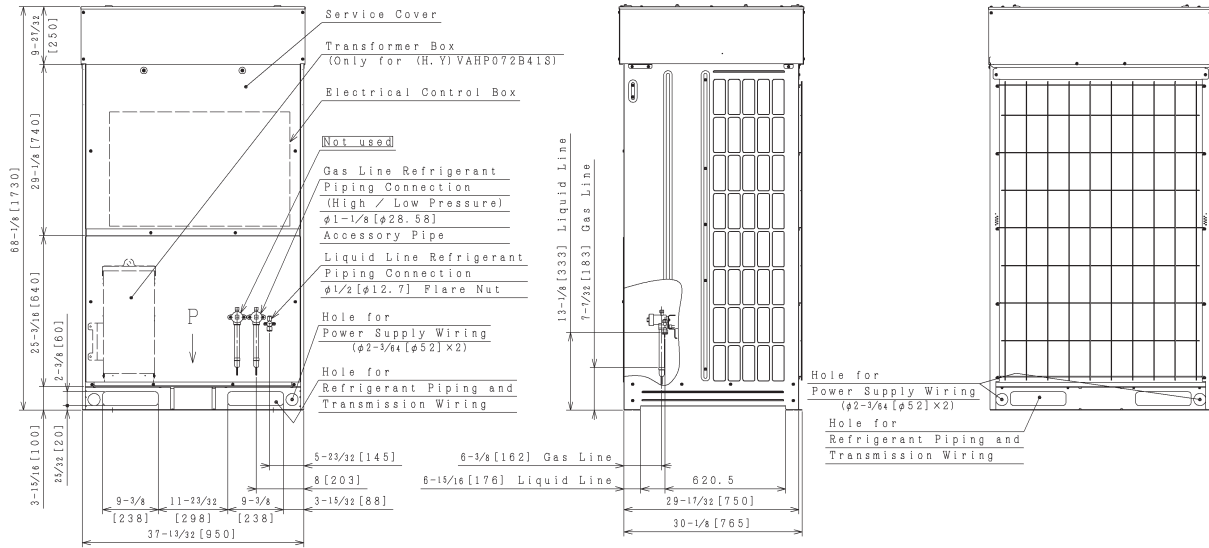
Model: (H,Y)VAHP072B(3,4)1S

inch (mm)

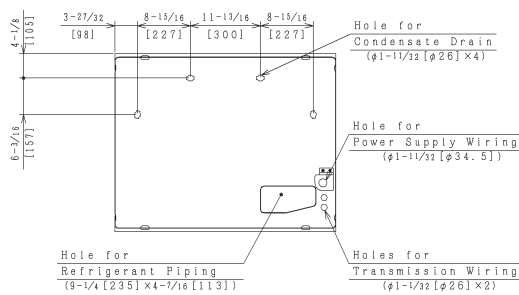


Drain = Condensate

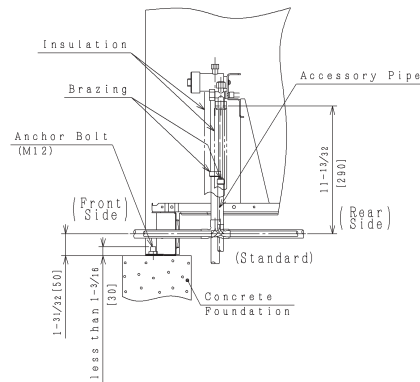
Transmission Wiring = Communication Cabling



Viewed from P



Field Installation (Example)

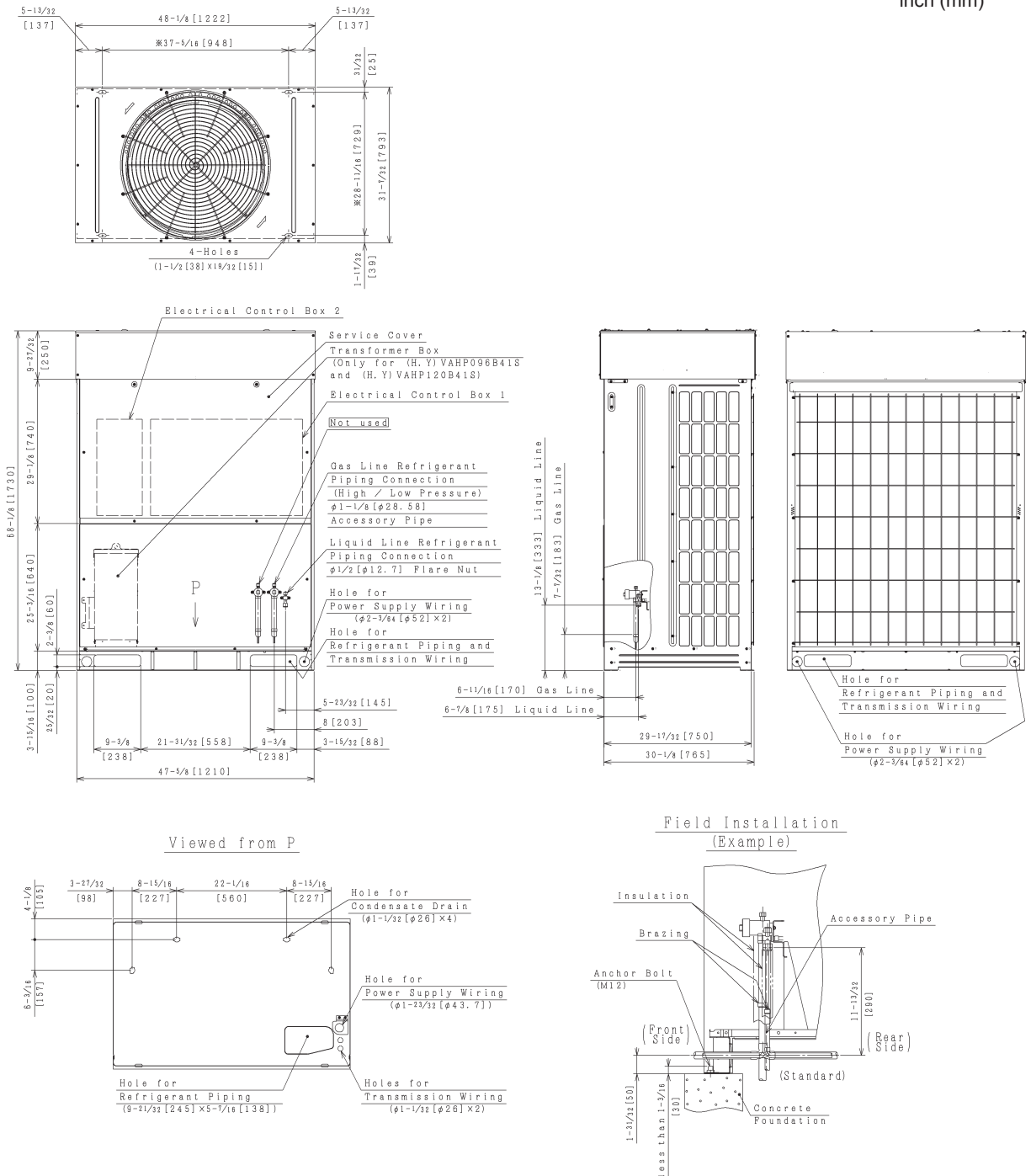


NOTES:

- Drain water is discharged from the unit during the operation.
 - Choose a place where well drainage is available. Provide a groove for drain.
 - Do not provide an upward slope from the unit to avoid reverse flow of the drain. Provide a second drainpan under the outdoor unit, to collect drain water securely.
 - Do not use the drain boss (optional) in a cold area. (Drain water in the drain pipe may be frozen and the drain pipe may crack.)
- The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.

Model: (H,Y)VAHP096B(3,4)1S and (H,Y)VAHP120B(3,4)1S

inch (mm)



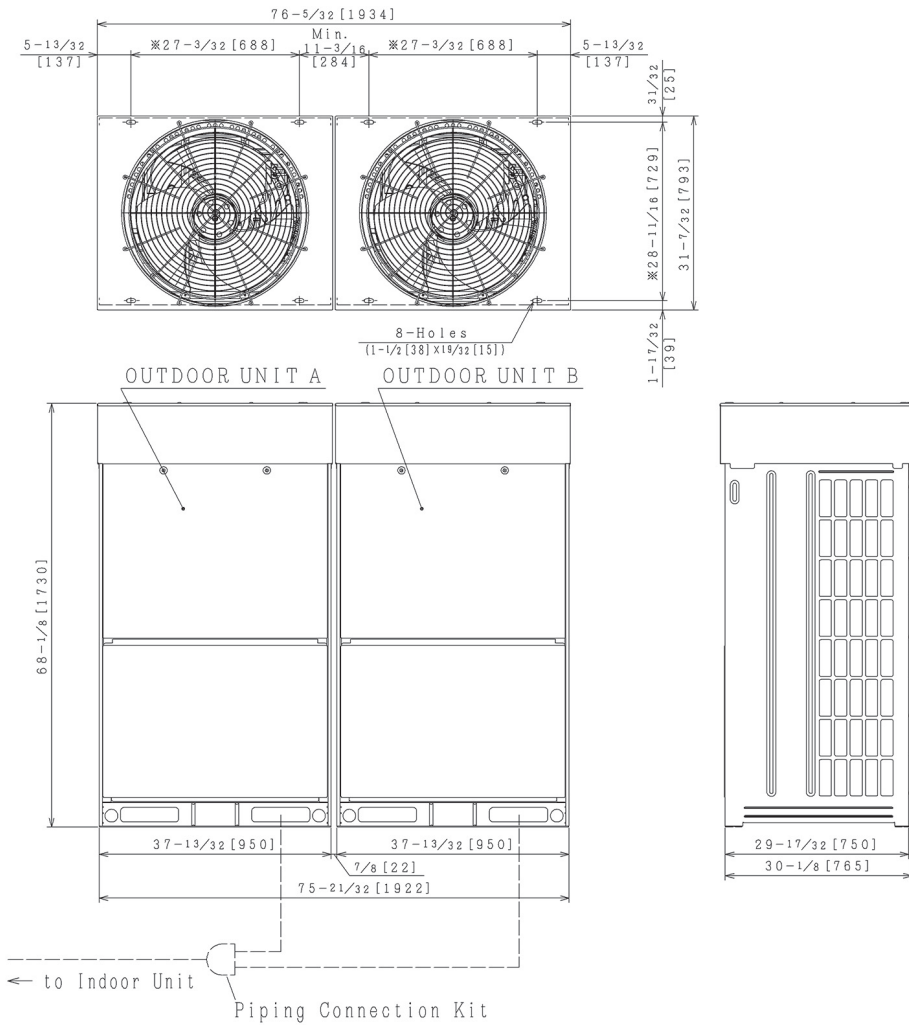
NOTES:

1. Drain water is discharged from the unit during the operation.
 - Ⓞ Choose a place where well drainage is available. Provide a groove for drain.
 - Ⓞ Do not provide an upward slope from the unit to avoid reverse flow of the drain.
 - Provide a second drainpan under the outdoor unit, to collect drain water securely.
 - Ⓞ Do not use the drain boss (optional) in a cold area.
 - (Drain water in the drain pipe may be frozen and the drain pipe may crack.)
2. The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.

OUTDOOR UNITS

Model: (H,Y)VAHP144B(3,4)1S

inch (mm)



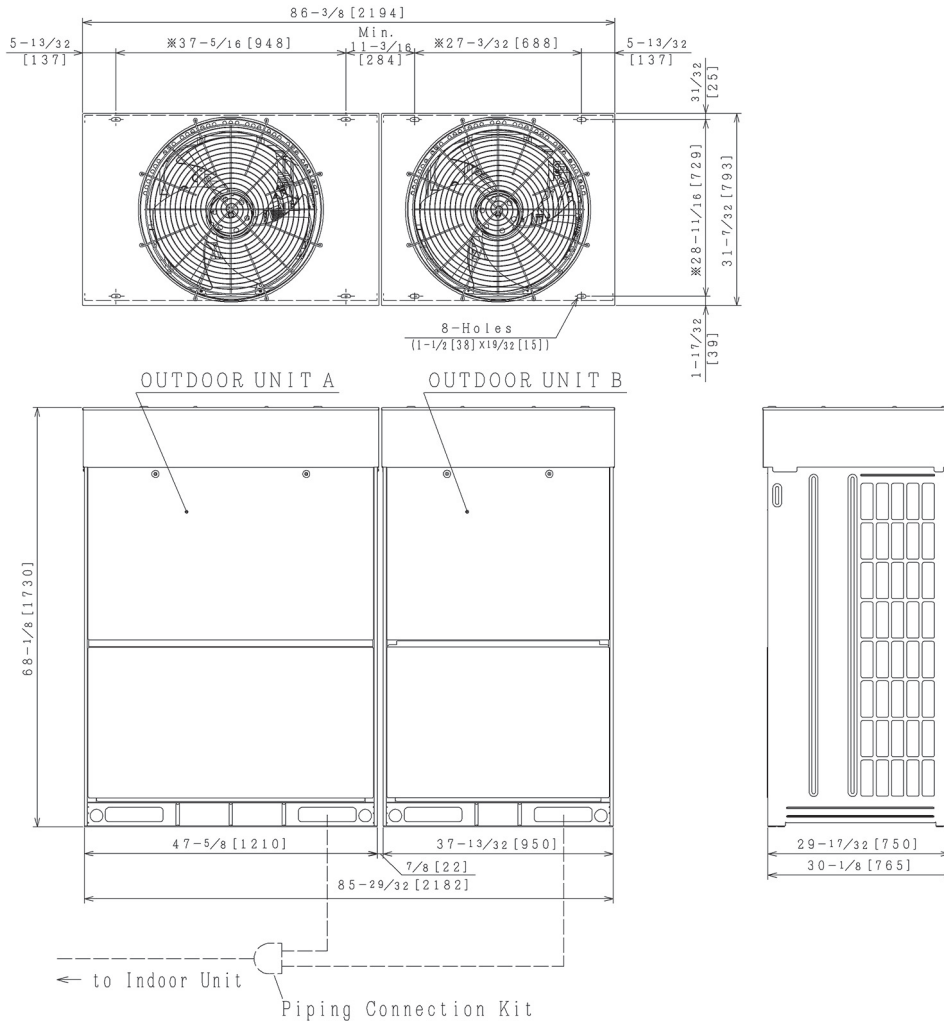
NOTES:

1. Make sure that the outdoor unit A is placed on the indoor unit side. Arrange the outdoor units according to the capacity, A≥B.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units. In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | |
|--------------------|---------------------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B |
| (H, Y) VAHP144B31S | (H, Y) VAHP072B31S | (H, Y) VAHP072B31S |
| (H, Y) VAHP144B41S | (H, Y) VAHP072B41S | (H, Y) VAHP072B41S |

Model: (H,Y)VAHP168B(3,4)1S

inch (mm)



NOTES:

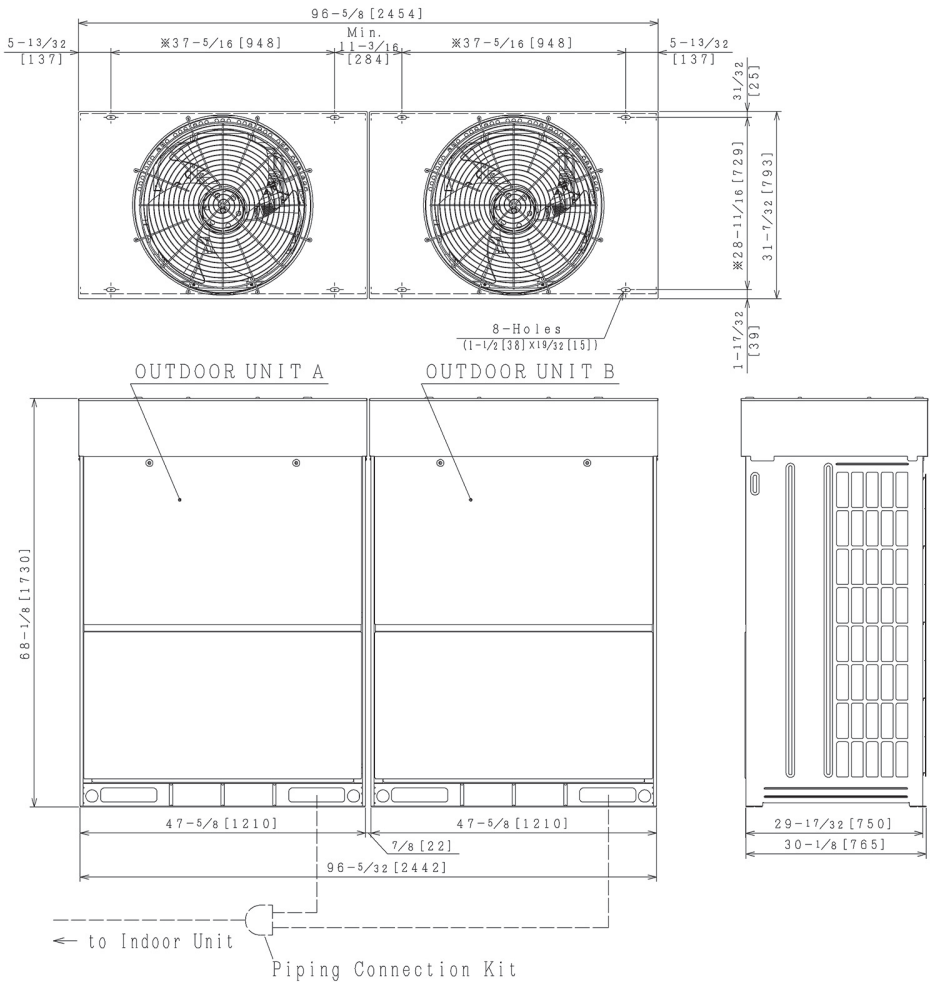
1. Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity, A≥B.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | |
|--------------------|---------------------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B |
| (H, Y) VAHP168B31S | (H, Y) VAHP096B31S | (H, Y) VAHP072B31S |
| (H, Y) VAHP168B41S | (H, Y) VAHP096B41S | (H, Y) VAHP072B41S |

OUTDOOR UNITS

Model: (H,Y)VAHP192B(3,4)1S

inch (mm)



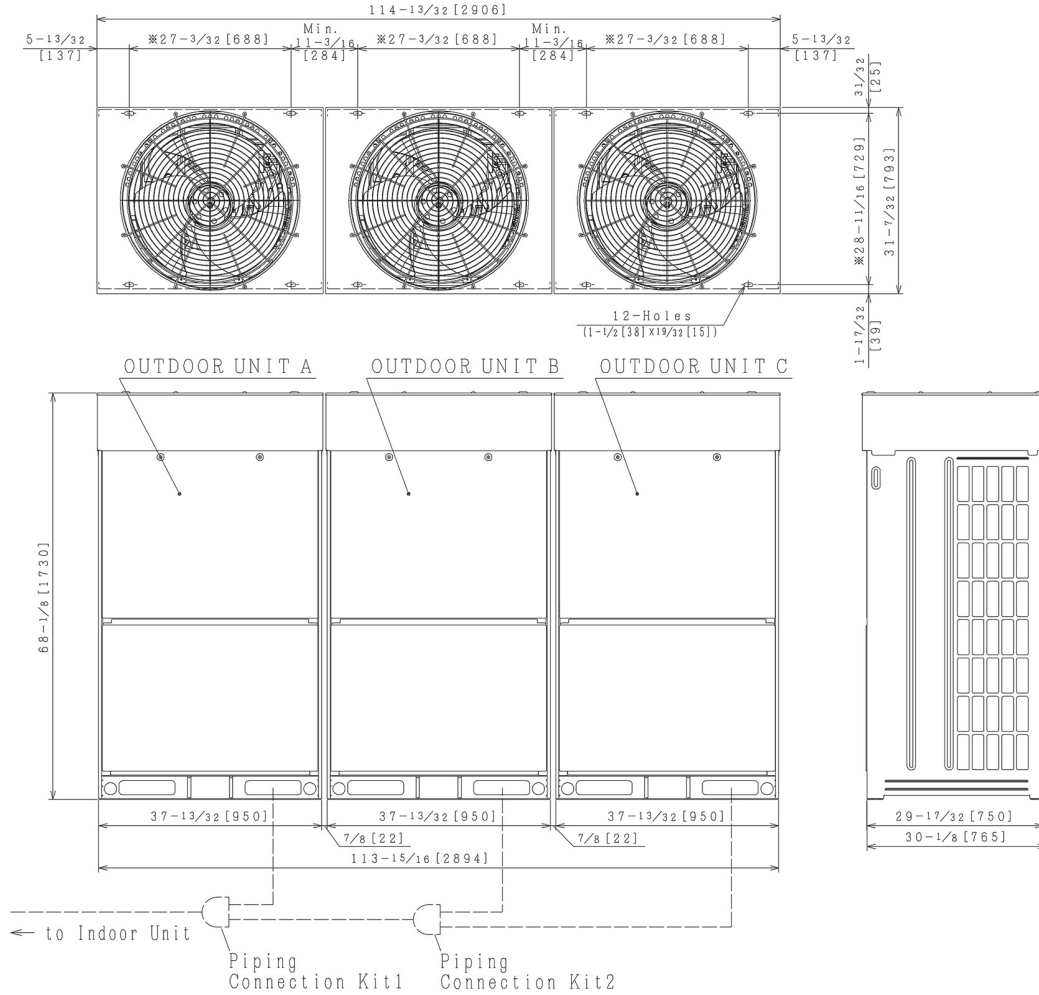
NOTES:

1. Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity, A≥B.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | |
|--------------------|---------------------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B |
| (H, Y) VAHP192B31S | (H, Y) VAHP096B31S | (H, Y) VAHP096B31S |
| (H, Y) VAHP192B41S | (H, Y) VAHP096B41S | (H, Y) VAHP096B41S |

Model: (H,Y)VAHP216B(3,4)1S

inch (mm)



NOTES:

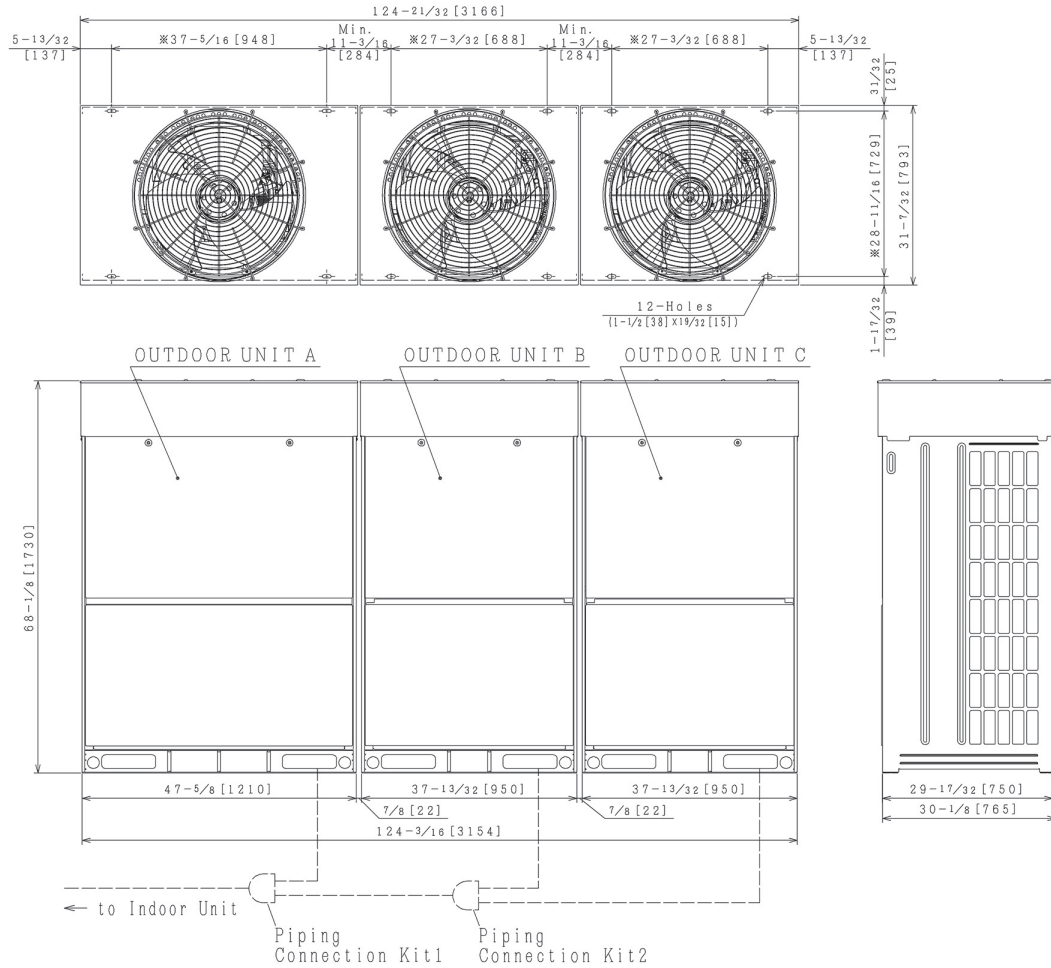
1. Make sure that the outdoor unit A is placed on the indoor unit side. Arrange the outdoor units according to the capacity, $A \geq B \geq C$.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units. In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | | |
|--------------------|---------------------------------|--------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B | OUTDOOR UNIT C |
| (H, Y) VAHP216B31S | (H, Y) VAHP072B31S | (H, Y) VAHP072B31S | (H, Y) VAHP072B31S |
| (H, Y) VAHP216B41S | (H, Y) VAHP072B41S | (H, Y) VAHP072B41S | (H, Y) VAHP072B41S |

OUTDOOR UNITS

Model: (H,Y)VAHP240B(3,4)1S and (H,Y)VAHP264B(3,4)1S

inch (mm)



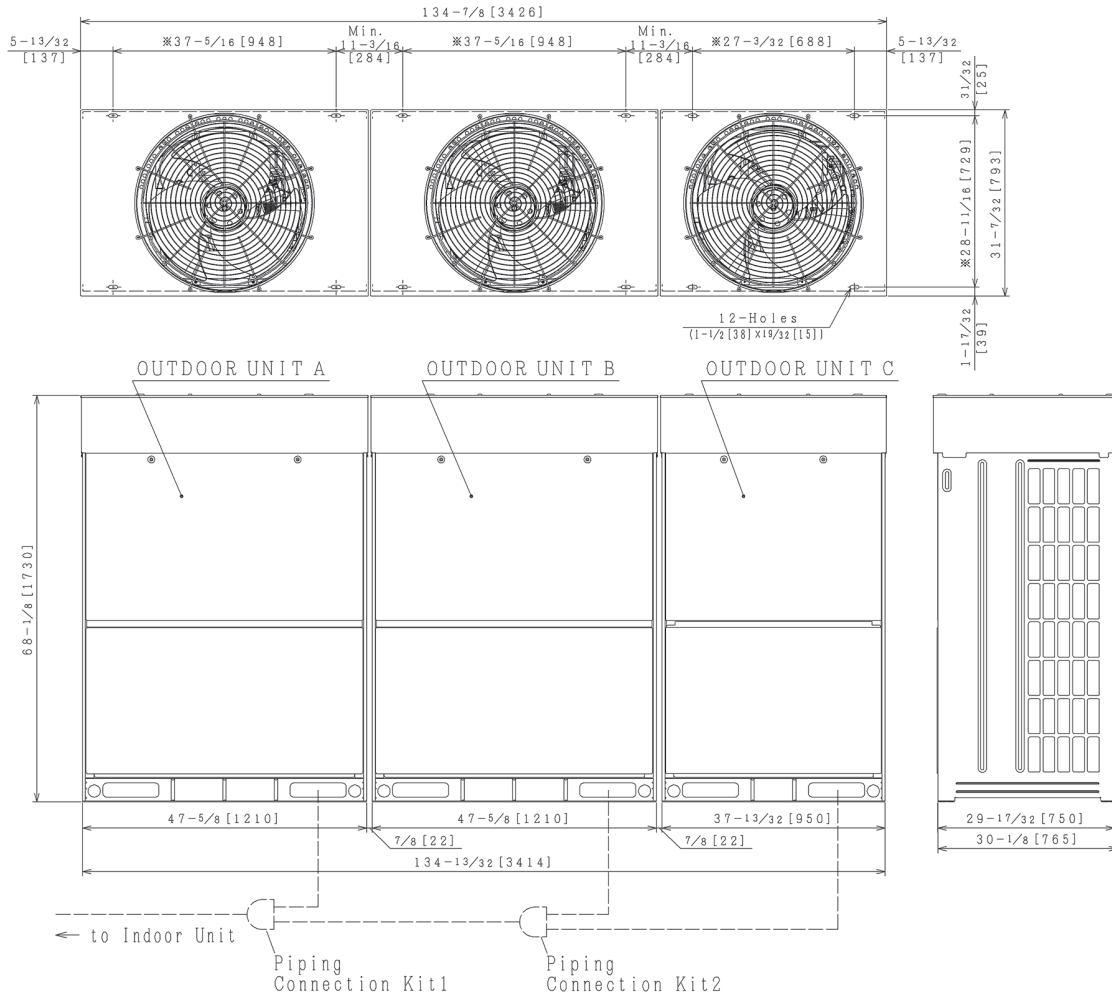
NOTES:

1. Make sure that the outdoor unit A is placed on the indoor unit side. Arrange the outdoor units according to the capacity. A≥B≥C.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units. In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | | |
|--------------------|---------------------------------|--------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B | OUTDOOR UNIT C |
| (H, Y) VAHP240B31S | (H, Y) VAHP096B31S | (H, Y) VAHP072B31S | (H, Y) VAHP072B31S |
| (H, Y) VAHP240B41S | (H, Y) VAHP096B41S | (H, Y) VAHP072B41S | (H, Y) VAHP072B41S |
| (H, Y) VAHP264B31S | (H, Y) VAHP120B31S | (H, Y) VAHP072B31S | (H, Y) VAHP072B31S |
| (H, Y) VAHP264B41S | (H, Y) VAHP120B41S | (H, Y) VAHP072B41S | (H, Y) VAHP072B41S |

Model: (H,Y)VAHP288B(3,4)1S and (H,Y)VAHP312B(3,4)1S

inch (mm)



NOTES:

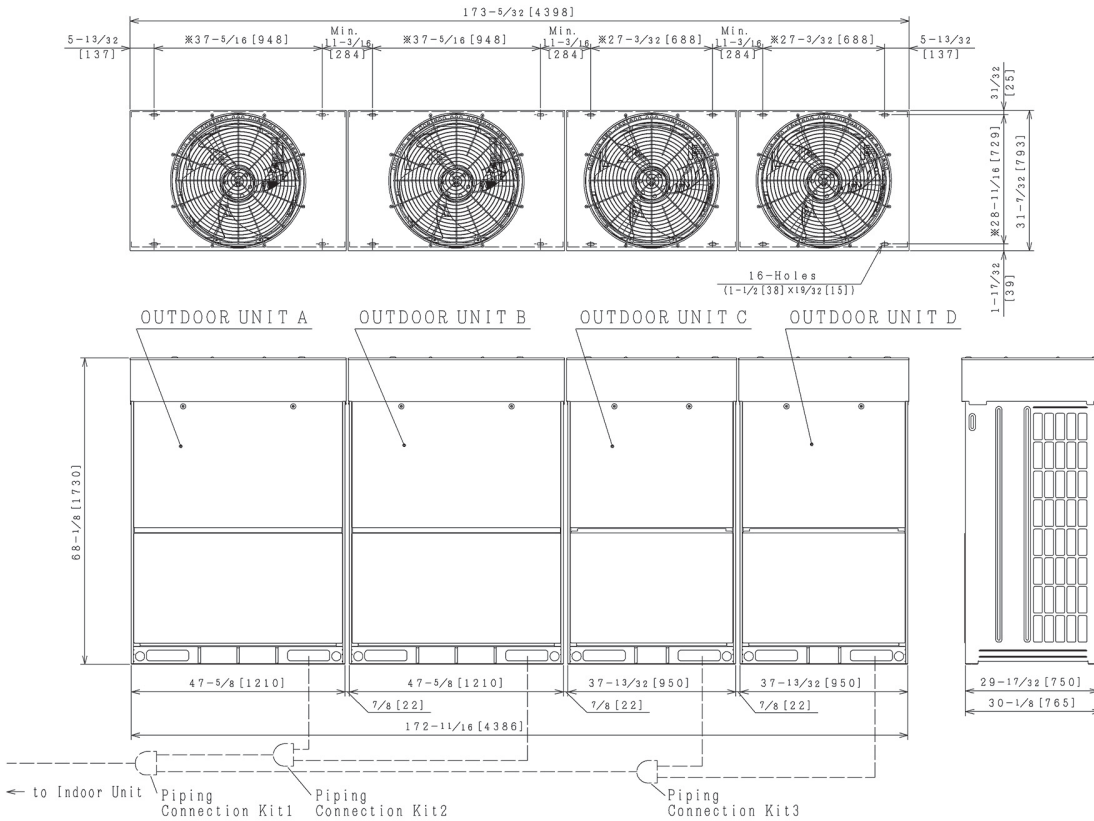
1. Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity. $A \geq B \geq C$.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is $7/8$ inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than $1\text{-}31/32$ inch [50mm] is required.
4. The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | | |
|--------------------|---------------------------------|--------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B | OUTDOOR UNIT C |
| (H, Y) VAHP288B31S | (H, Y) VAHP120B31S | (H, Y) VAHP096B31S | (H, Y) VAHP072B31S |
| (H, Y) VAHP288B41S | (H, Y) VAHP120B41S | (H, Y) VAHP096B41S | (H, Y) VAHP072B41S |
| (H, Y) VAHP312B31S | (H, Y) VAHP120B31S | (H, Y) VAHP120B31S | (H, Y) VAHP072B31S |
| (H, Y) VAHP312B41S | (H, Y) VAHP120B41S | (H, Y) VAHP120B41S | (H, Y) VAHP072B41S |

OUTDOOR UNITS

Model: (H,Y)VAHP336B(3,4)1S and (H,Y)VAHP360B(3,4)1S

inch (mm)



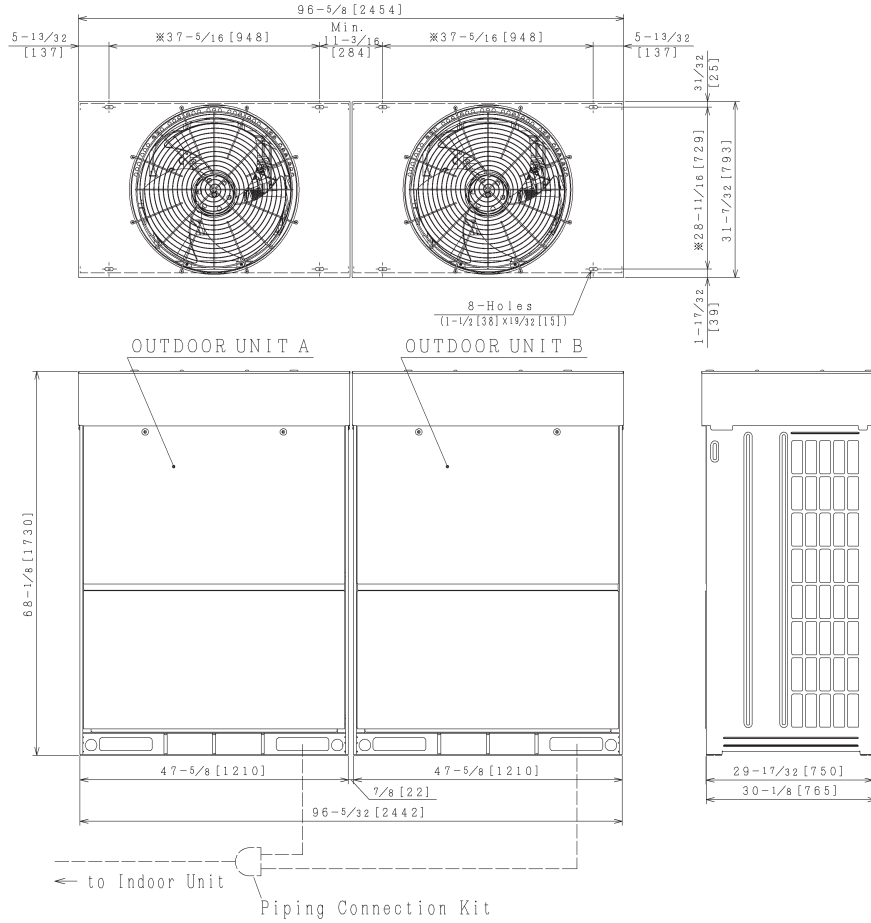
| Outdoor Unit Model | Combination of Base Unit Models | | | |
|--------------------|---------------------------------|--------------------|--------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B | OUTDOOR UNIT C | OUTDOOR UNIT D |
| (H, Y) VAHP336B31S | (H, Y) VAHP096B31S | (H, Y) VAHP096B31S | (H, Y) VAHP072B31S | (H, Y) VAHP072B31S |
| (H, Y) VAHP336B41S | (H, Y) VAHP096B41S | (H, Y) VAHP096B41S | (H, Y) VAHP072B41S | (H, Y) VAHP072B41S |
| (H, Y) VAHP360B31S | (H, Y) VAHP120B31S | (H, Y) VAHP096B31S | (H, Y) VAHP072B31S | (H, Y) VAHP072B31S |
| (H, Y) VAHP360B41S | (H, Y) VAHP120B41S | (H, Y) VAHP096B41S | (H, Y) VAHP072B41S | (H, Y) VAHP072B41S |

NOTES:

- Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity. $A \geq B \geq C \geq D$.
- Check "Installation Manual" for the piping connection kit and piping connection size.
- This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
- The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
- The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

• Less Module Type

Model: (H,Y)VAHP240B(3,4)1LM



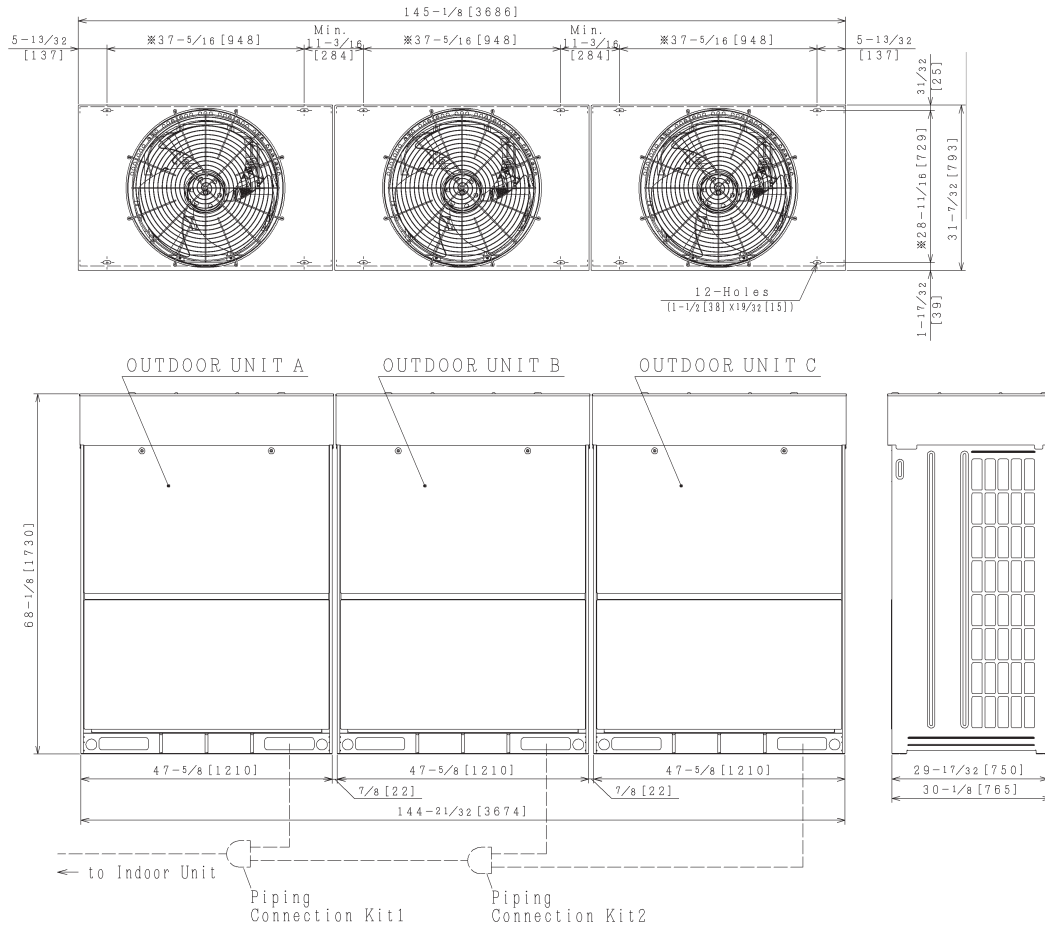
| Outdoor Unit Model | Combination of Base Unit Models | |
|---------------------|---------------------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B |
| (H, Y) VAHP240B31LM | (H, Y) VAHP120B31S | (H, Y) VAHP120B31S |
| (H, Y) VAHP240B41LM | (H, Y) VAHP120B41S | (H, Y) VAHP120B41S |

NOTES:

1. Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity. A≥B.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

OUTDOOR UNITS

Model: (H,Y)VAHP336B(3,4)1LM and (H,Y)VAHP360B(3,4)1LM



| Outdoor Unit Model | Combination of Base Unit Models | | |
|---------------------|---------------------------------|--------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B | OUTDOOR UNIT C |
| (H, Y) VAHP336B31LM | (H, Y) VAHP120B31S | (H, Y) VAHP120B31S | (H, Y) VAHP096B31S |
| (H, Y) VAHP336B41LM | (H, Y) VAHP120B41S | (H, Y) VAHP120B41S | (H, Y) VAHP096B41S |
| (H, Y) VAHP360B31LM | (H, Y) VAHP120B31S | (H, Y) VAHP120B31S | (H, Y) VAHP120B31S |
| (H, Y) VAHP360B41LM | (H, Y) VAHP120B41S | (H, Y) VAHP120B41S | (H, Y) VAHP120B41S |

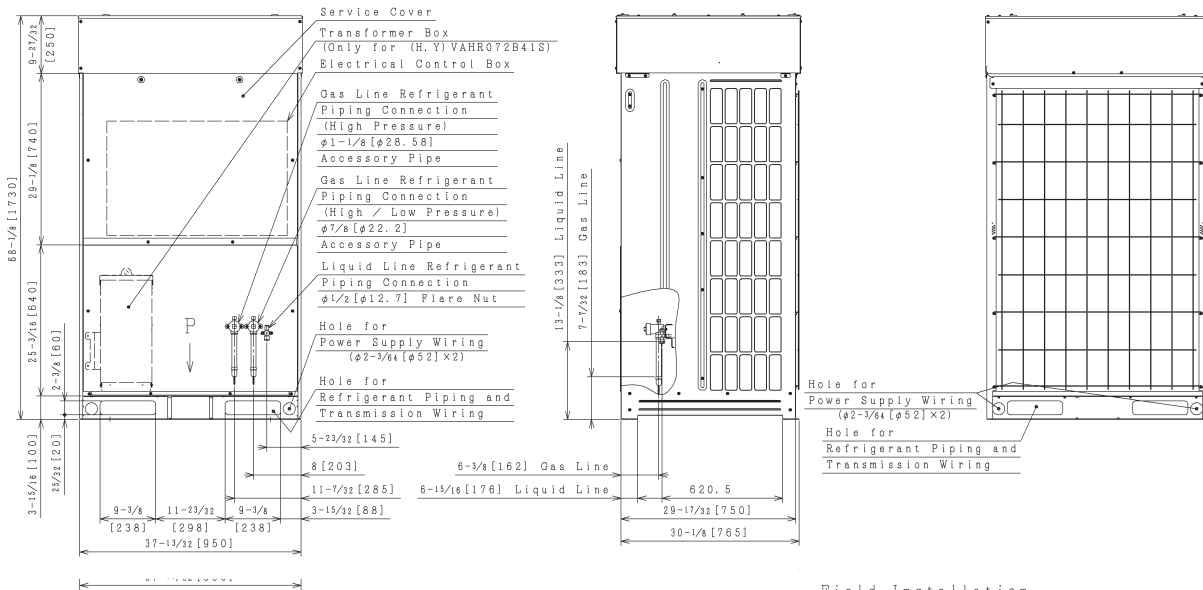
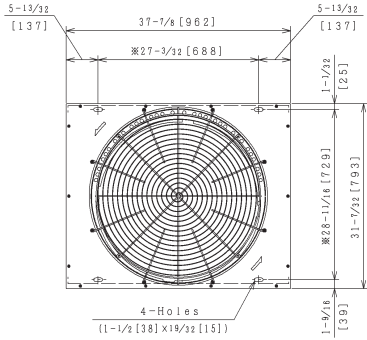
NOTES:

1. Make sure that the outdoor unit A is placed on the indoor unit side. Arrange the outdoor units according to the capacity, A≧B≧C.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units. In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

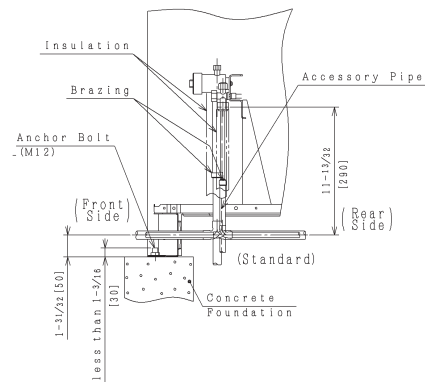
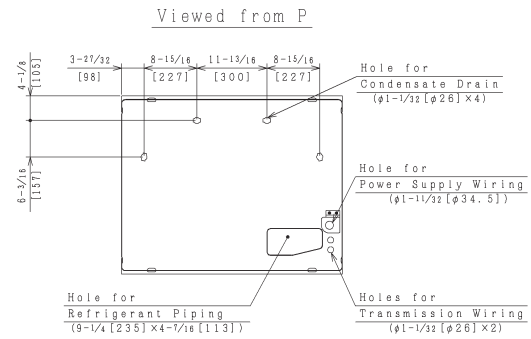
(2) Heat Recovery System
 ● Standard Type

Model: (H,Y)VAHR072B(3,4)1S

inch (mm)



Field Installation (Example)



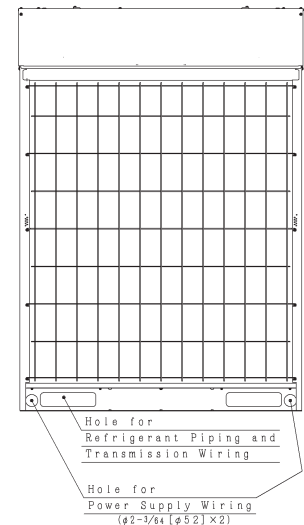
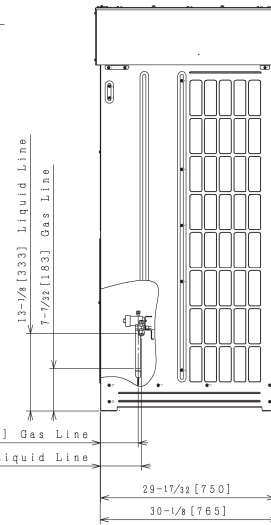
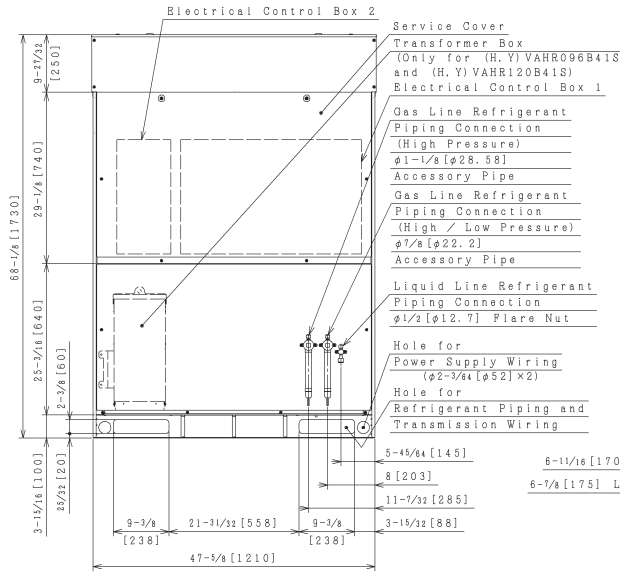
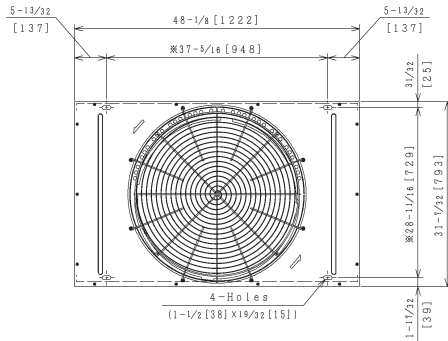
NOTES:

1. Drain water is discharged from the unit during the operation.
 - Choose a place where well drainage is available. Provide a groove for drain.
 - Do not provide an upward slope from the unit to avoid reverse flow of the drain.
 - Provide a second drainpan under the outdoor unit, to collect drain water securely.
 - Do not use the drain boss (optional) in a cold area. (Drain water in the drain pipe may be frozen and the drain pipe may crack.)
2. The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.

OUTDOOR UNITS

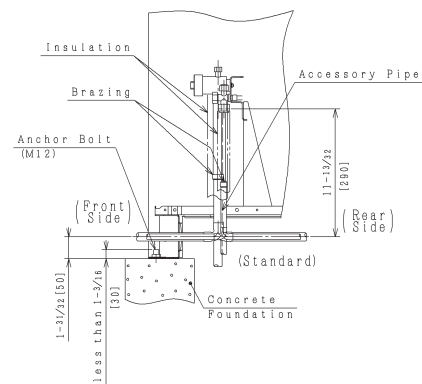
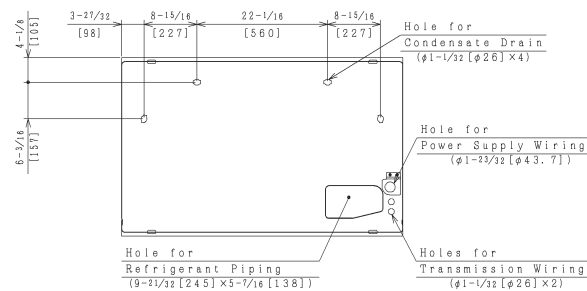
Model: (H,Y)VAHR096B(3,4)1S and (H,Y)VAHR120B(3,4)1S

inch (mm)



Viewed from P

Field Installation (Example)

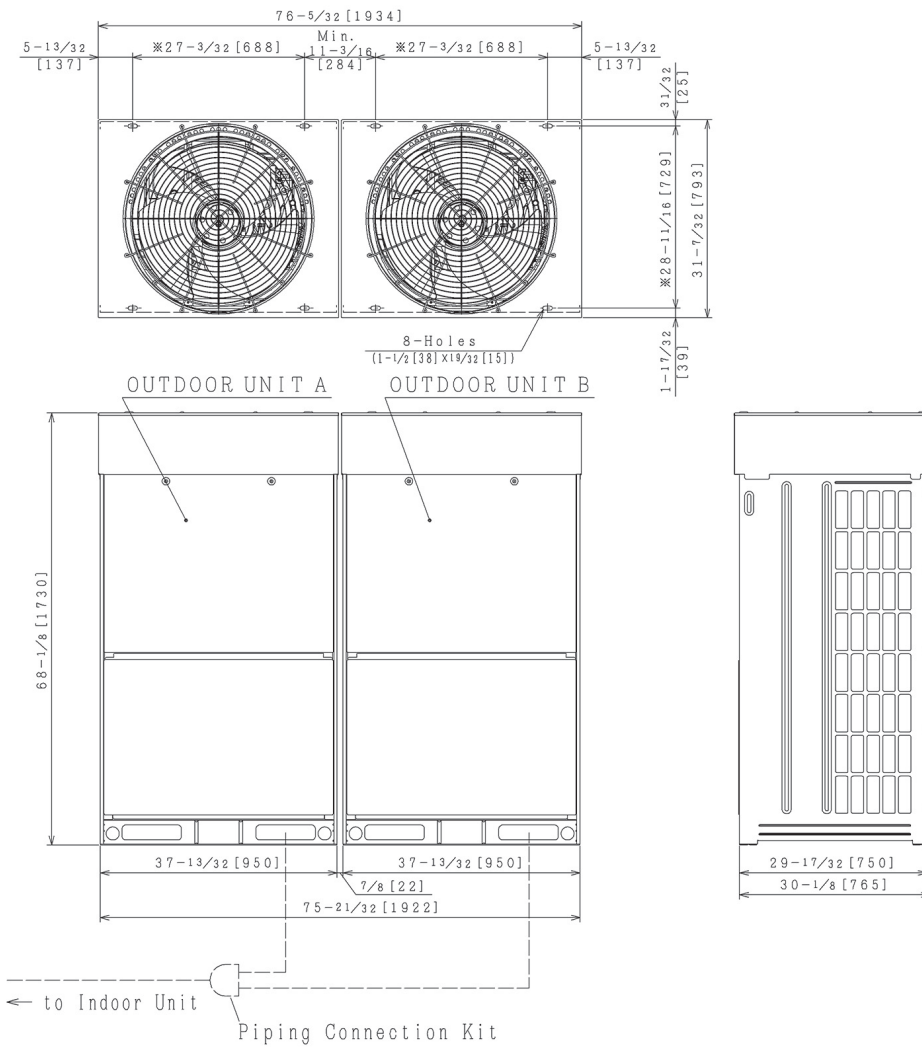


NOTES:

1. Drain water is discharged from the unit during the operation.
 - ① Choose a place where well drainage is available. Provide a groove for drain.
 - ② Do not provide an upward slope from the unit to avoid reverse flow of the drain. Provide a second drainpan under the outdoor unit, to collect drain water securely.
 - ③ Do not use the drain boss (optional) in a cold area. (Drain water in the drain pipe may be frozen and the drain pipe may crack.)
2. The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.

Model: (H,Y)VAHR144B(3,4)1S

inch (mm)



NOTES:

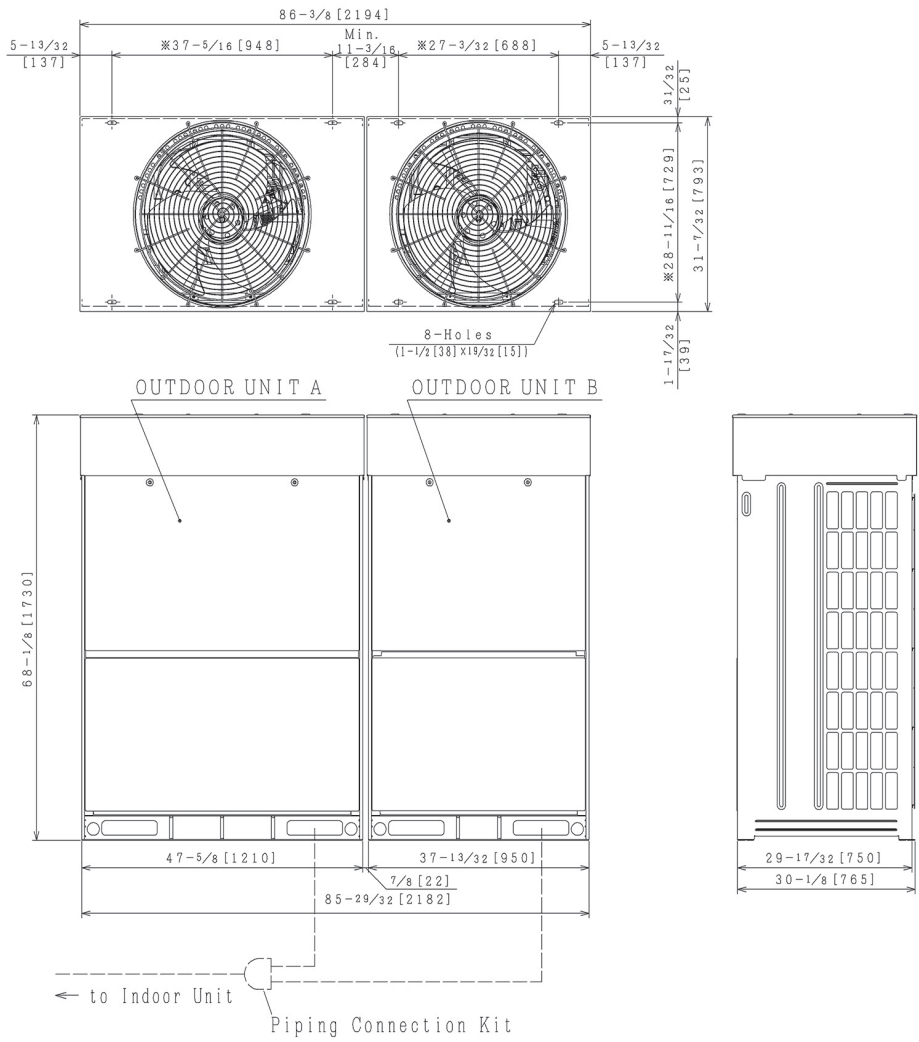
1. Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity, A≥B.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | |
|--------------------|---------------------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B |
| (H, Y) VAHR144B31S | (H, Y) VAHR072B31S | (H, Y) VAHR072B31S |
| (H, Y) VAHR144B41S | (H, Y) VAHR072B41S | (H, Y) VAHR072B41S |

OUTDOOR UNITS

Model: (H,Y)VAHR168B(3,4)1S

inch (mm)



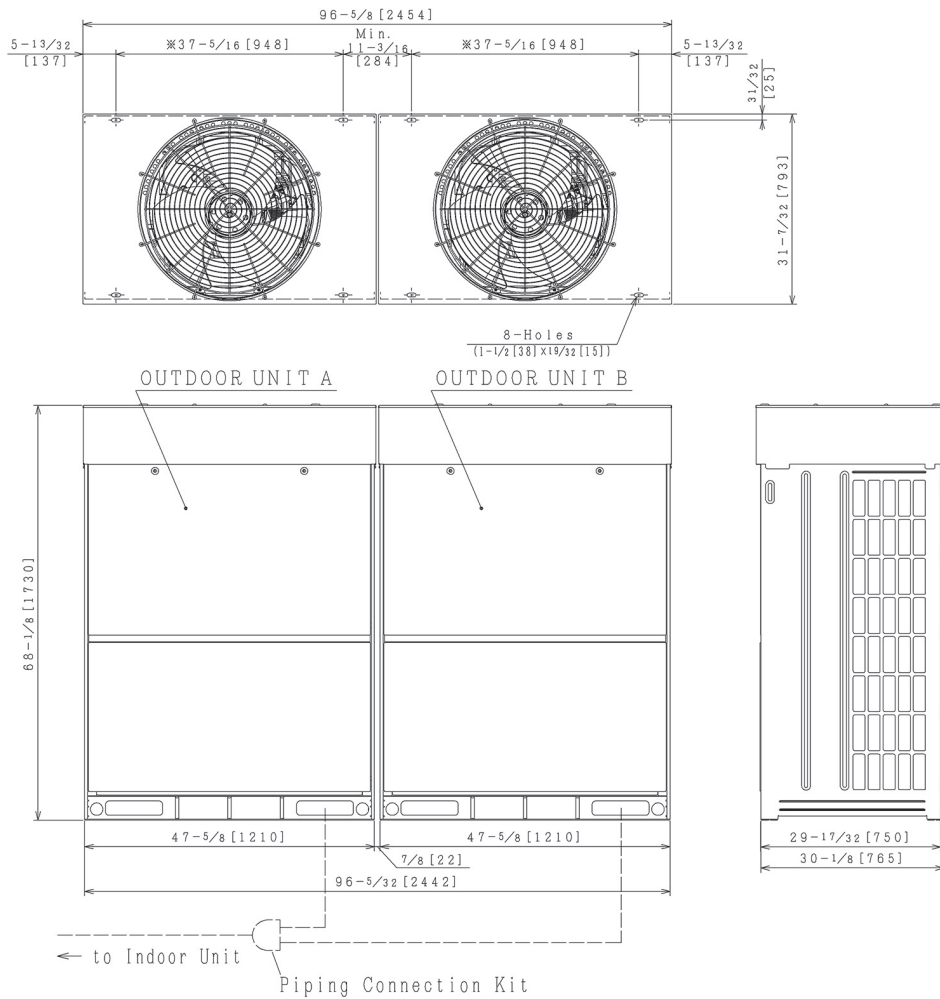
NOTES:

1. Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity, A≥B.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | |
|--------------------|---------------------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B |
| (H, Y) VAHR168B31S | (H, Y) VAHR096B31S | (H, Y) VAHR072B31S |
| (H, Y) VAHR168B41S | (H, Y) VAHR096B41S | (H, Y) VAHR072B41S |

Model: (H,Y)VAHR192B(3,4)1S

inch (mm)



NOTES:

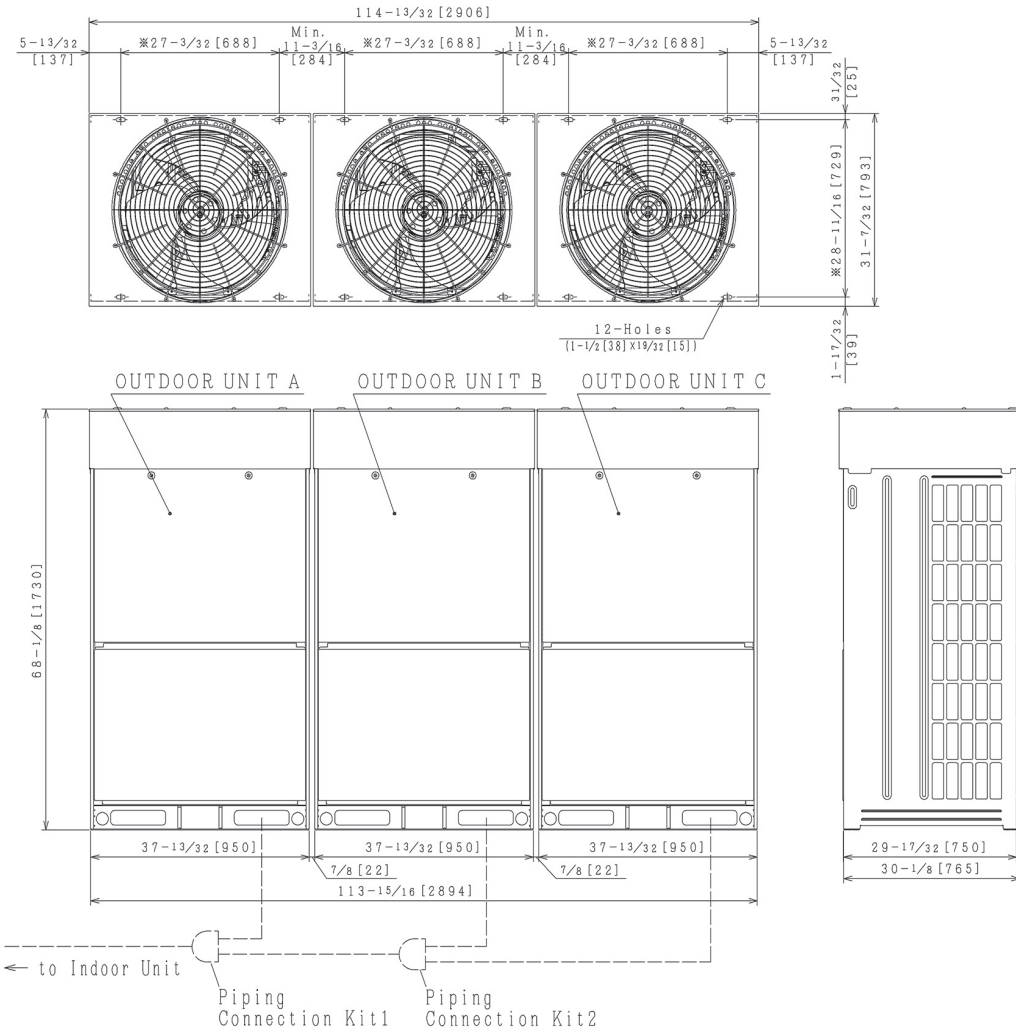
1. Make sure that the outdoor unit A is placed on the indoor unit side. Arrange the outdoor units according to the capacity. A ≥ B.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units. In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | |
|--------------------|---------------------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B |
| (H, Y) VAHR192B31S | (H, Y) VAHR096B31S | (H, Y) VAHR096B31S |
| (H, Y) VAHR192B41S | (H, Y) VAHR096B41S | (H, Y) VAHR096B41S |

OUTDOOR UNITS

Model: (H,Y)VAHR216B(3,4)1S

inch (mm)



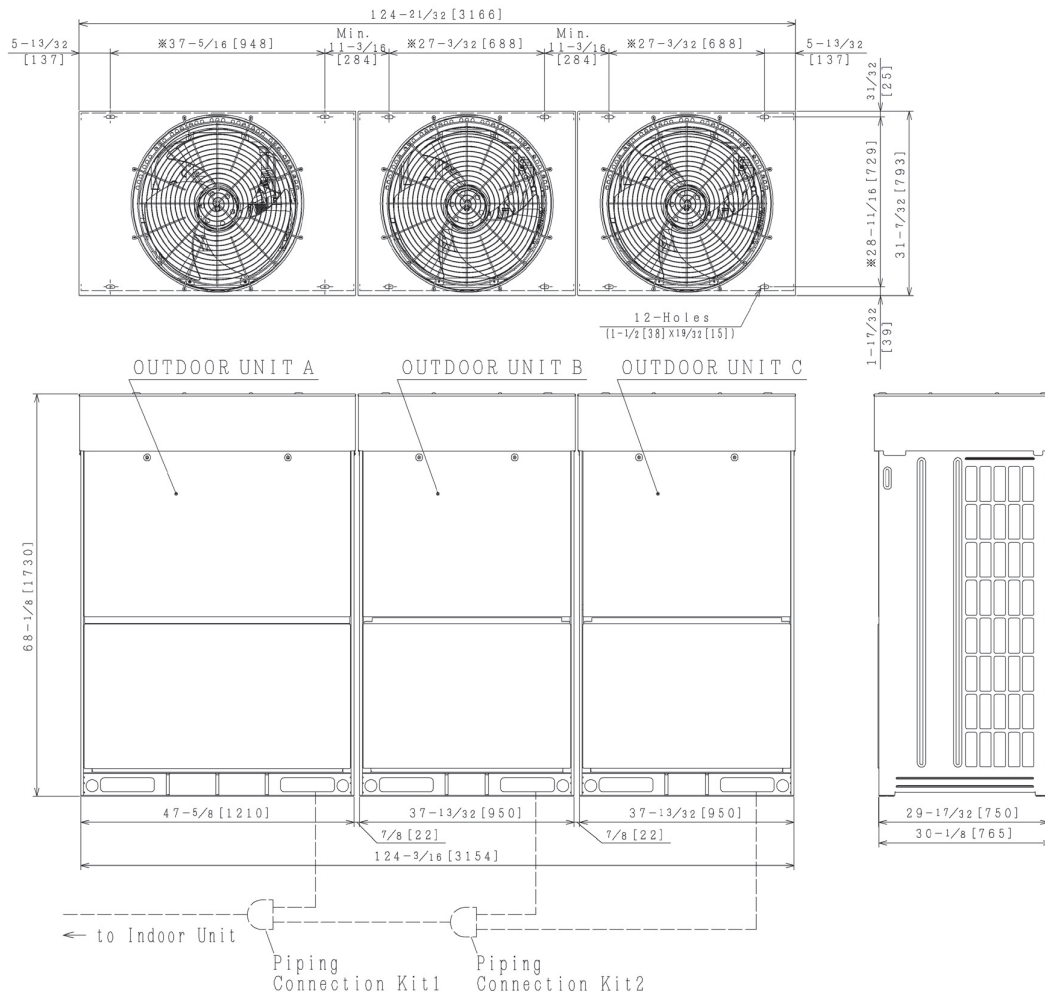
NOTES:

1. Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity, A≥B≥C.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | | |
|--------------------|---------------------------------|--------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B | OUTDOOR UNIT C |
| (H, Y) VAHR216B31S | (H, Y) VAHR072B31S | (H, Y) VAHR072B31S | (H, Y) VAHR072B31S |
| (H, Y) VAHR216B41S | (H, Y) VAHR072B41S | (H, Y) VAHR072B41S | (H, Y) VAHR072B41S |

Model: (H,Y)VAHR240B(3,4)1S and (H,Y)VAHR264B(3,4)1S

inch (mm)



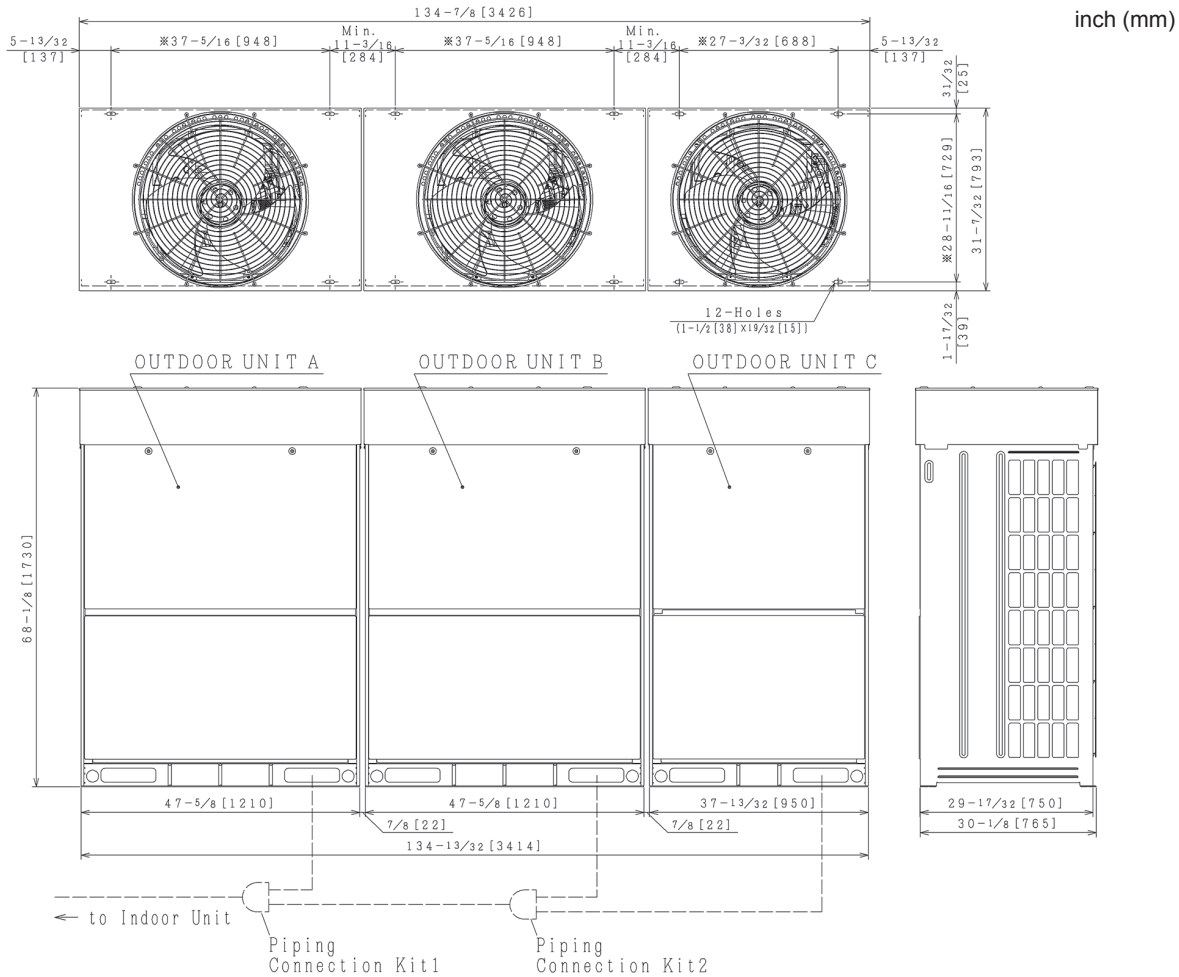
NOTES:

1. Make sure that the outdoor unit A is placed on the indoor unit side. Arrange the outdoor units according to the capacity, $A \geq B \geq C$.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | | |
|--------------------|---------------------------------|--------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B | OUTDOOR UNIT C |
| (H, Y) VAHR240B31S | (H, Y) VAHR096B31S | (H, Y) VAHR072B31S | (H, Y) VAHR072B31S |
| (H, Y) VAHR240B41S | (H, Y) VAHR096B41S | (H, Y) VAHR072B41S | (H, Y) VAHR072B41S |
| (H, Y) VAHR264B31S | (H, Y) VAHR120B31S | (H, Y) VAHR072B31S | (H, Y) VAHR072B31S |
| (H, Y) VAHR264B41S | (H, Y) VAHR120B41S | (H, Y) VAHR072B41S | (H, Y) VAHR072B41S |

OUTDOOR UNITS

Model: (H,Y)VAHR288B(3,4)1S and (H,Y)VAHR312B(3,4)1S



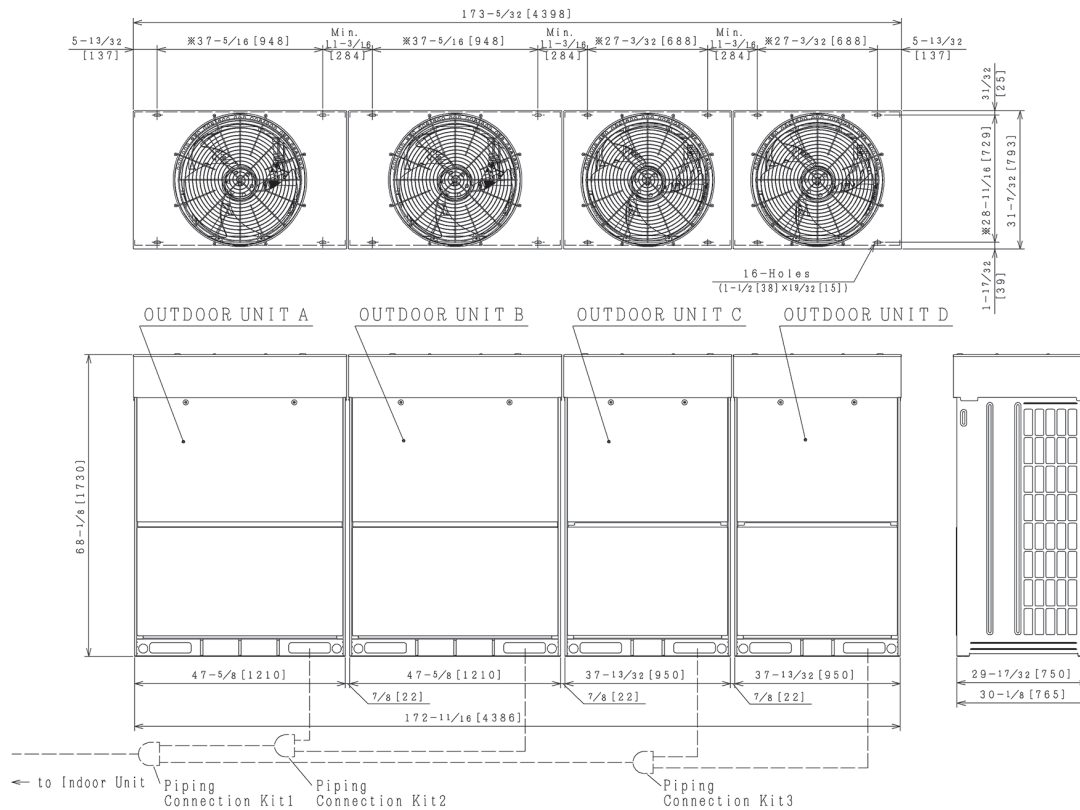
NOTES:

1. Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity. $A \geq B \geq C$.
2. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

| Outdoor Unit Model | Combination of Base Unit Models | | |
|--------------------|---------------------------------|--------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B | OUTDOOR UNIT C |
| (H, Y) VAHR288B31S | (H, Y) VAHR120B31S | (H, Y) VAHR096B31S | (H, Y) VAHR072B31S |
| (H, Y) VAHR288B41S | (H, Y) VAHR120B41S | (H, Y) VAHR096B41S | (H, Y) VAHR072B41S |
| (H, Y) VAHR312B31S | (H, Y) VAHR120B31S | (H, Y) VAHR120B31S | (H, Y) VAHR072B31S |
| (H, Y) VAHR312B41S | (H, Y) VAHR120B41S | (H, Y) VAHR120B41S | (H, Y) VAHR072B41S |

Model: (H,Y)VAHR336B(3,4)1S and (H,Y)VAHR360B(3,4)1S

inch (mm)



| Outdoor Unit Model | Combination of Base Unit Models | | | |
|--------------------|---------------------------------|--------------------|--------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B | OUTDOOR UNIT C | OUTDOOR UNIT D |
| (H, Y) VAHR336B31S | (H, Y) VAHR096B31S | (H, Y) VAHR096B31S | (H, Y) VAHR072B31S | (H, Y) VAHR072B31S |
| (H, Y) VAHR336B41S | (H, Y) VAHR096B41S | (H, Y) VAHR096B41S | (H, Y) VAHR072B41S | (H, Y) VAHR072B41S |
| (H, Y) VAHR360B31S | (H, Y) VAHR120B31S | (H, Y) VAHR096B31S | (H, Y) VAHR072B31S | (H, Y) VAHR072B31S |
| (H, Y) VAHR360B41S | (H, Y) VAHR120B41S | (H, Y) VAHR096B41S | (H, Y) VAHR072B41S | (H, Y) VAHR072B41S |

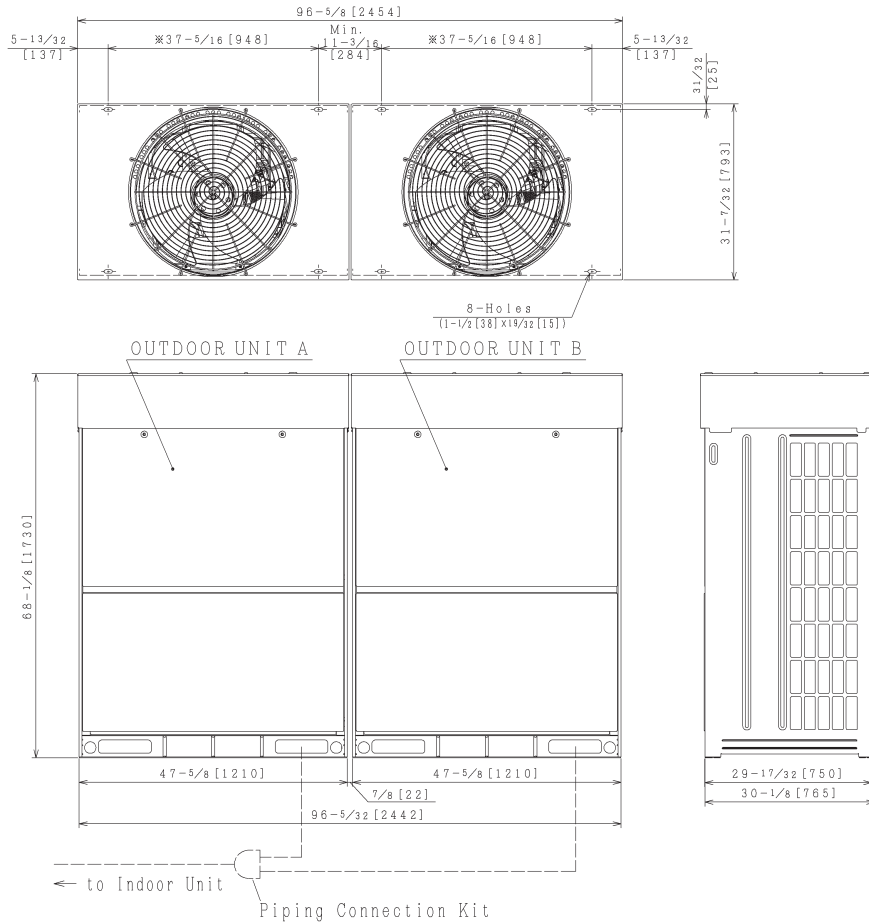
NOTES:

- Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity. $A \geq B \geq C \geq D$.
- Check "Installation Manual" for the piping connection kit and piping connection size.
- This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
- The dimensions marked with ※ indicates the mounting pitch dimension for anchor bolts.
- The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

OUTDOOR UNITS

- Less Module Type

Model: (H,Y)VAHR240B(3,4)1LM

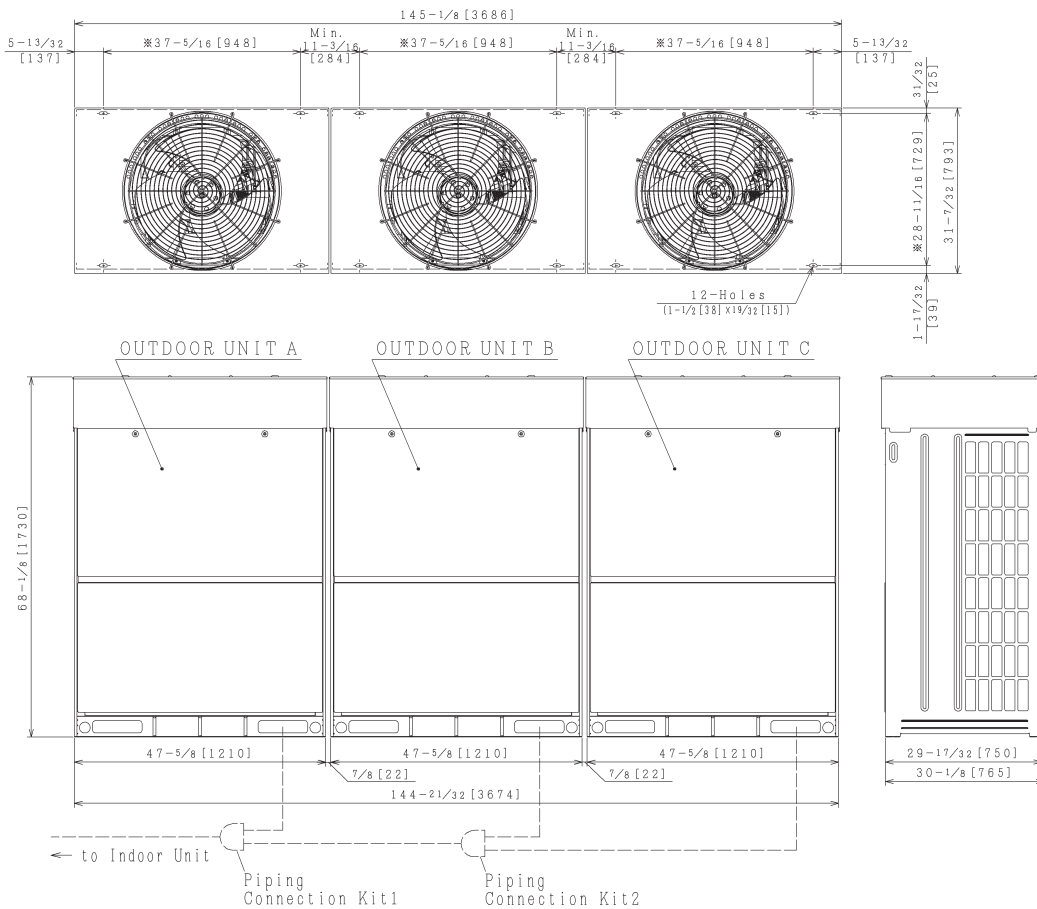


| Outdoor Unit Model | Combination of Base Unit Models | |
|---------------------|---------------------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B |
| (H, Y) VAHR240B31LM | (H, Y) VAHR120B31S | (H, Y) VAHR120B31S |
| (H, Y) VAHR240B41LM | (H, Y) VAHR120B41S | (H, Y) VAHR120B41S |

NOTES:

1. Make sure that the outdoor unit A is placed on the indoor unit side.
2. Arrange the outdoor units according to the capacity, A≥B.
3. Check "Installation Manual" for the piping connection kit and piping connection size.
3. This drawing shows that there is 1/8 inch [22mm] clearance between the base units. In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
4. The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.
5. The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

Model: (H,Y)VAHR336B(3,4)1LM and (H,Y)VAHR360B(3,4)1LM



| Outdoor Unit Model | Combination of Base Unit Models | | |
|---------------------|---------------------------------|--------------------|--------------------|
| | OUTDOOR UNIT A | OUTDOOR UNIT B | OUTDOOR UNIT C |
| (H, Y) VAHR336B31LM | (H, Y) VAHR120B31S | (H, Y) VAHR120B31S | (H, Y) VAHR096B31S |
| (H, Y) VAHR336B41LM | (H, Y) VAHR120B41S | (H, Y) VAHR120B41S | (H, Y) VAHR096B41S |
| (H, Y) VAHR360B31LM | (H, Y) VAHR120B31S | (H, Y) VAHR120B31S | (H, Y) VAHR120B31S |
| (H, Y) VAHR360B41LM | (H, Y) VAHR120B41S | (H, Y) VAHR120B41S | (H, Y) VAHR120B41S |

NOTES:

- Make sure that the outdoor unit A is placed on the indoor unit side.
Arrange the outdoor units according to the capacity. $A \geq B \geq C$.
- Check "Installation Manual" for the piping connection kit and piping connection size.
- This drawing shows that there is 7/8 inch [22mm] clearance between the base units.
In case of the outdoor unit with "Snow Protection Hood (Optional Parts)" or "Air Outlet Duct (Field-Supplied)", the clearance between the base units of more than 1-31/32 inch [50mm] is required.
- The dimensions marked with * indicates the mounting pitch dimension for anchor bolts.
- The width of outer dimension and anchor bolt mounting position are changed by clearance between the base units.

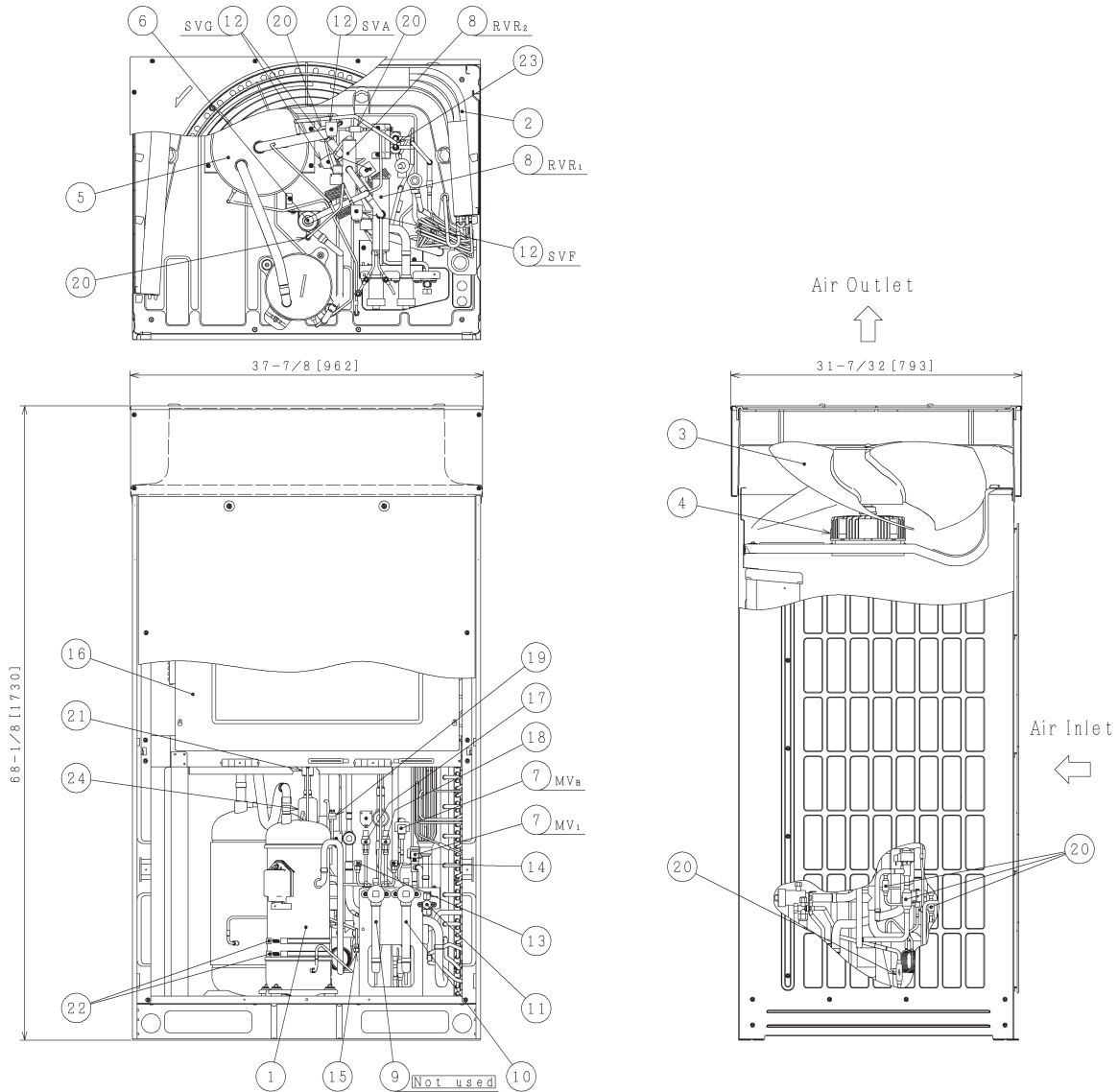
2.5 Structure

2.5.1 Heat Pump System

208 / 230V

Model: (H,Y)VAHP072B31S

inch (mm)

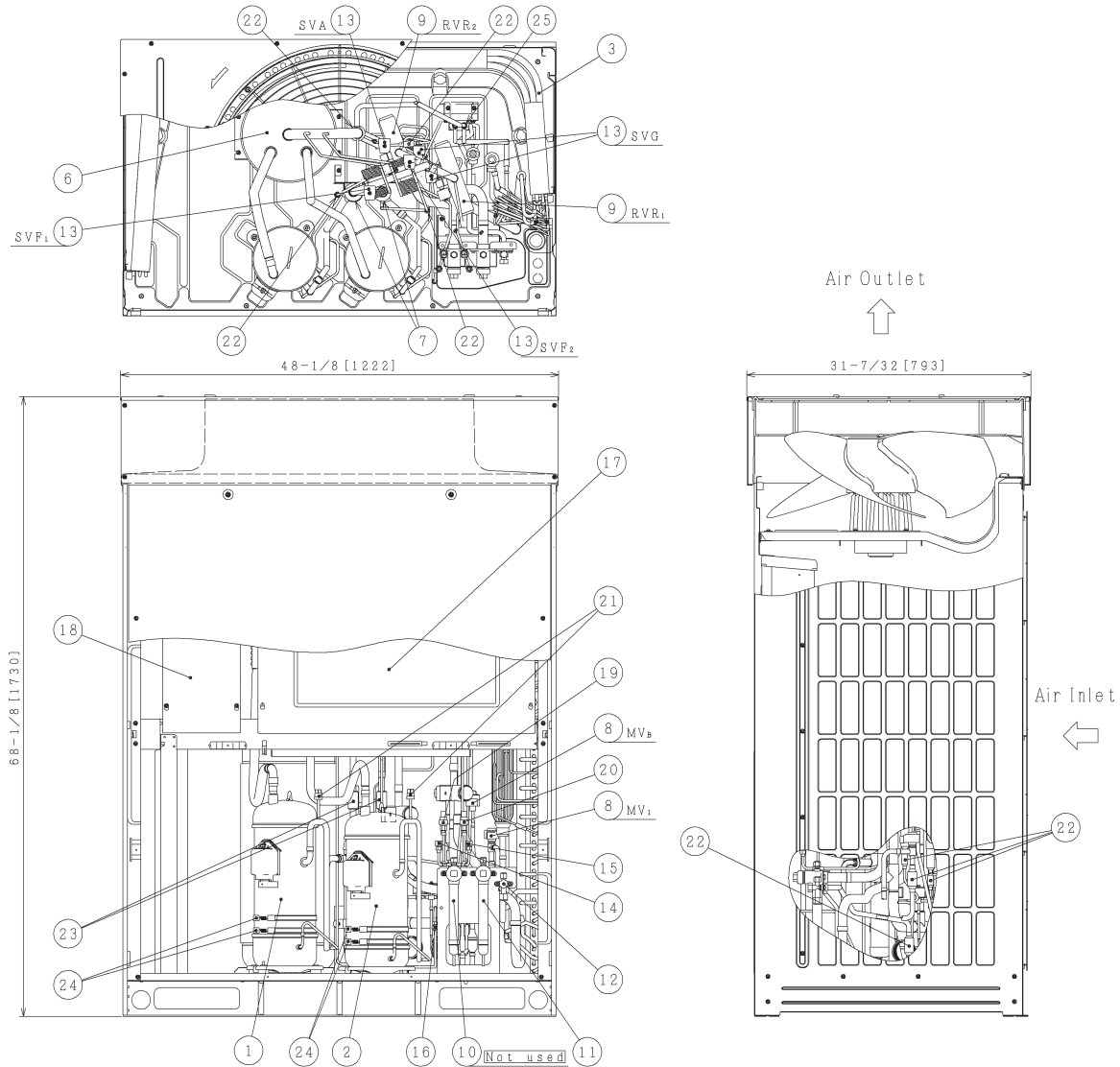


| No. | Part Name |
|-----|---|
| 1 | Compressor (Inverter) |
| 2 | Heat Exchanger |
| 3 | Propeller Fan |
| 4 | Fan Motor |
| 5 | Accumulator |
| 6 | Oil Separator |
| 7 | Electronic Expansion Valve (two pieces) |
| 8 | Reversing Valve (two pieces) |
| 9 | Stop Valve (Low Pressure Gas) |
| 10 | Stop Valve (High/Low Pressure Gas) |
| 11 | Stop Valve (Liquid) |
| 12 | Solenoid Valve (four pieces) |

| No. | Part Name |
|-----|-------------------------------------|
| 13 | Check Joint (Low) |
| 14 | Check Joint (High) |
| 15 | Check Joint (for Oil) |
| 16 | Electrical Control Box |
| 17 | Low Pressure Sensor |
| 18 | High Pressure Sensor |
| 19 | High Pressure Switch for Protection |
| 20 | Strainer (seven pieces) |
| 21 | Check Valve |
| 22 | Crankcase Heater (two pieces) |
| 23 | Double Tube Type Heat Exchanger |
| 24 | Silencer |

Model: (H,Y)VAHP096B31S and (H,Y)VAHP120B31S

inch (mm)



| No. | Part Name |
|-----|---|
| 1 | Compressor (Inverter) |
| 2 | Compressor (Fixed Speed) |
| 3 | Heat Exchanger |
| 4 | Propeller Fan |
| 5 | Fan Motor |
| 6 | Accumulator |
| 7 | Oil Separator |
| 8 | Electronic Expansion Valve (two pieces) |
| 9 | Reversing Valve (two pieces) |
| 10 | Stop Valve (Low Pressure Gas) |
| 11 | Stop Valve (High/Low Pressure Gas) |
| 12 | Stop Valve (Liquid) |

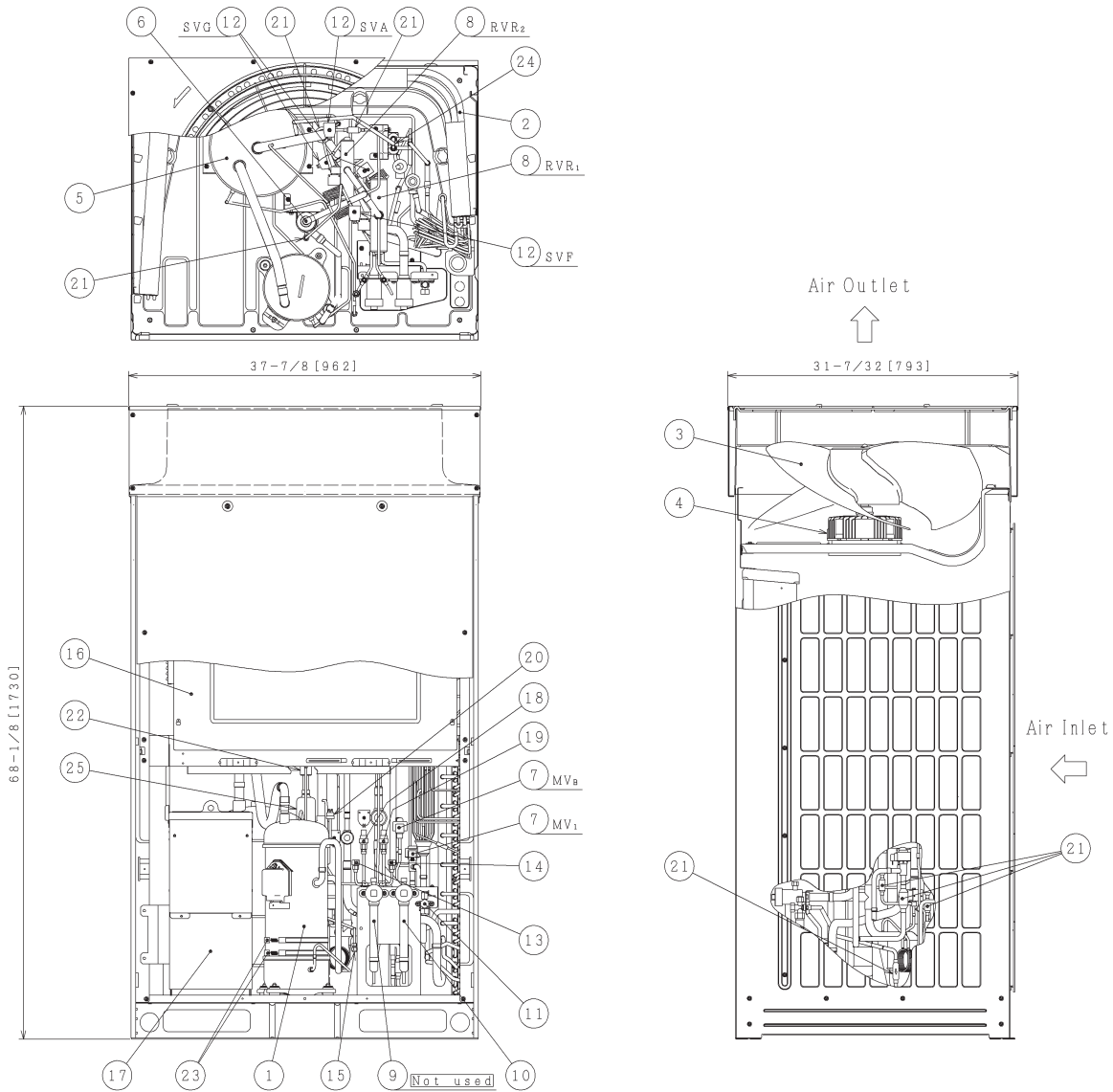
| No. | Part Name |
|-----|-------------------------------------|
| 13 | Solenoid Valve (five pieces) |
| 14 | Check Joint (Low) |
| 15 | Check Joint (High) |
| 16 | Check Joint (for Oil) |
| 17 | Electrical Control Box 1 |
| 18 | Electrical Control Box 2 |
| 19 | Low Pressure Sensor |
| 20 | High Pressure Sensor |
| 21 | High Pressure Switch for Protection |
| 22 | Strainer |
| 23 | Check Valve |
| 24 | Crankcase Heater (two pieces) |
| 25 | Double Tube Type Heat Exchanger |

OUTDOOR UNITS

460V

Model: (H,Y)VAHP072B41S

inch (mm)

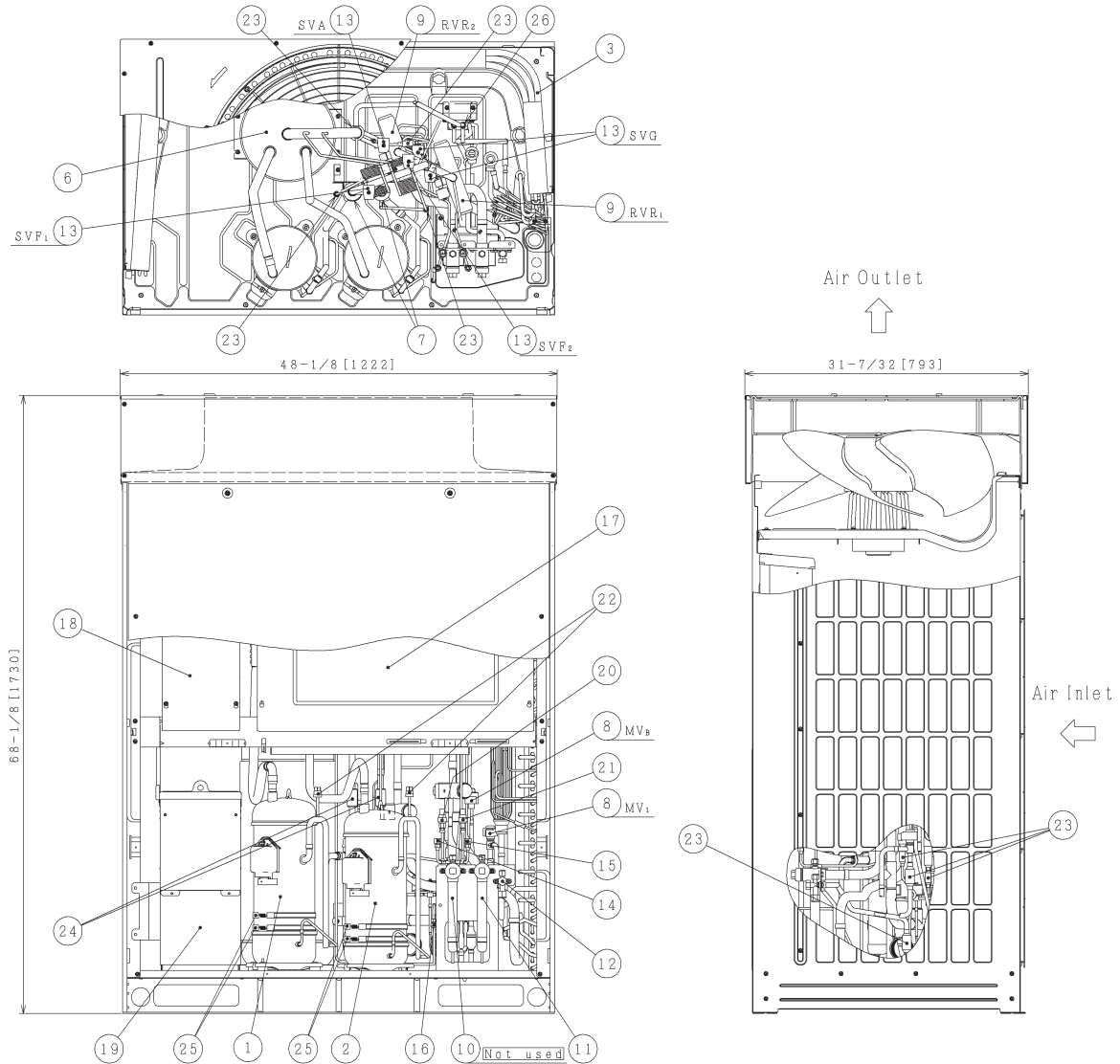


| No. | Part Name |
|-----|---|
| 1 | Compressor (Inverter) |
| 2 | Heat Exchanger |
| 3 | Propeller Fan |
| 4 | Fan Motor |
| 5 | Accumulator |
| 6 | Oil Separator |
| 7 | Electronic Expansion Valve (two pieces) |
| 8 | Reversing Valve (two pieces) |
| 9 | Stop Valve (Low Pressure Gas) |
| 10 | Stop Valve (High/Low Pressure Gas) |
| 11 | Stop Valve (Liquid) |
| 12 | Solenoid Valve (four pieces) |

| No. | Part Name |
|-----|-------------------------------------|
| 13 | Check Joint (Low) |
| 14 | Check Joint (High) |
| 15 | Check Joint (for Oil) |
| 16 | Electrical Control Box |
| 17 | Transformer Box |
| 18 | Low Pressure Sensor |
| 19 | High Pressure Sensor |
| 20 | High Pressure Switch for Protection |
| 21 | Strainer (seven pieces) |
| 22 | Check Valve |
| 23 | Crankcase Heater (two pieces) |
| 24 | Double Tube Type Heat Exchanger |
| 25 | Silencer |

Model: (H,Y)VAHP096B41S and (H,Y)VAHP120B41S

inch (mm)



| No. | Part Name |
|-----|---|
| 1 | Compressor (Inverter) |
| 2 | Compressor (Fixed Speed) |
| 3 | Heat Exchanger |
| 4 | Propeller Fan |
| 5 | Fan Motor |
| 6 | Accumulator |
| 7 | Oil Separator |
| 8 | Electronic Expansion Valve (two pieces) |
| 9 | Reversing Valve (two pieces) |
| 10 | Stop Valve (Low Pressure Gas) |
| 11 | Stop Valve (High/Low Pressure Gas) |
| 12 | Stop Valve (Liquid) |
| 13 | Solenoid Valve (five pieces) |

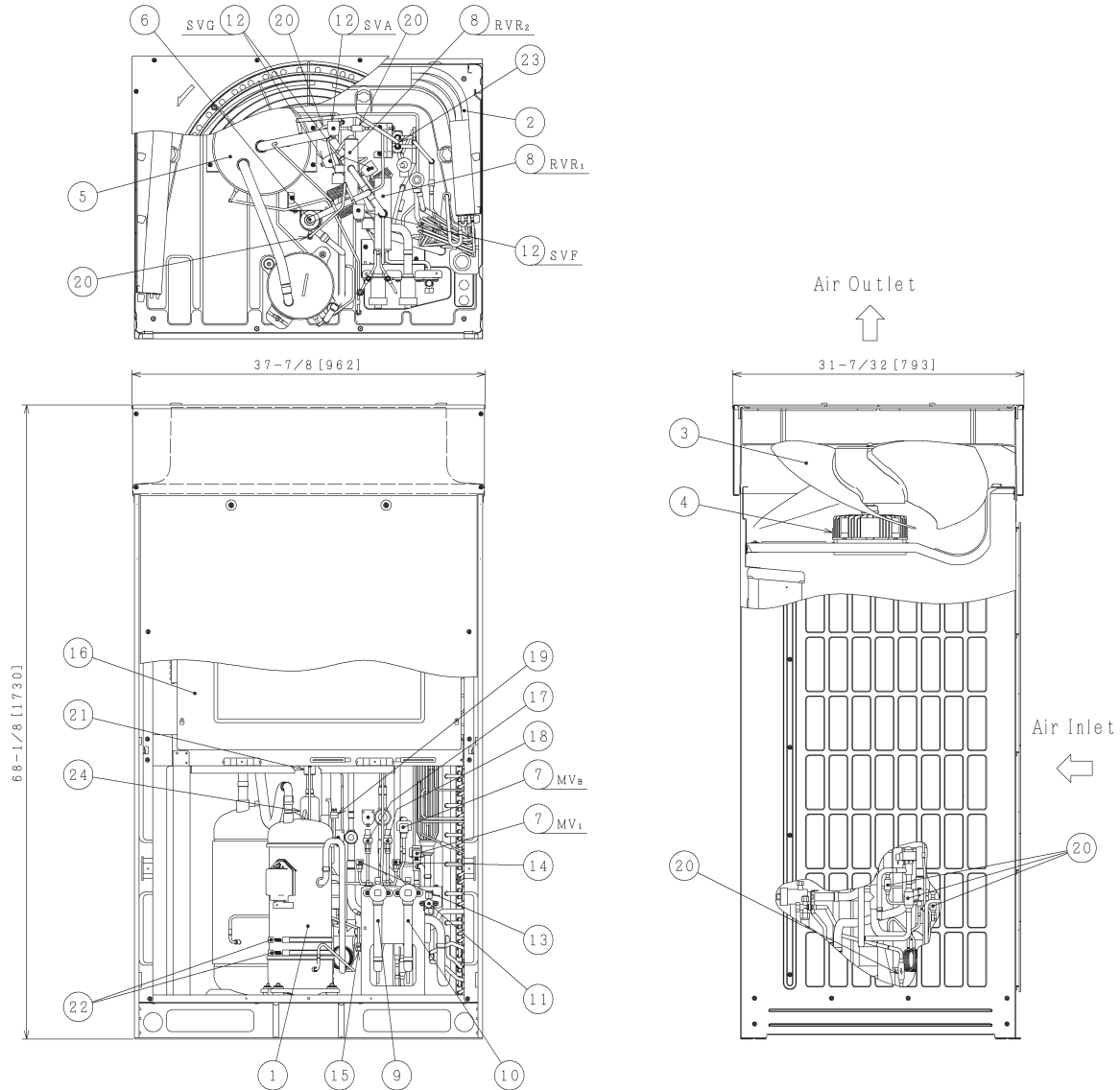
| No. | Part Name |
|-----|--|
| 14 | Check Joint (Low) |
| 15 | Check Joint (High) |
| 16 | Check Joint (for Oil) |
| 17 | Electrical Control Box 1 |
| 18 | Electrical Control Box 2 |
| 19 | Transformer Box |
| 20 | Low Pressure Sensor |
| 21 | High Pressure Sensor |
| 22 | High Pressure Switch for Protection (two pieces) |
| 23 | Strainer (eight pieces) |
| 24 | Check Valve (two pieces) |
| 25 | Crankcase Heater (four pieces) |
| 26 | Double Tube Type Heat Exchanger |

2.5.2 Heat Recovery System

208 / 230V

Model: (H,Y)VAHR072B31S

inch (mm)

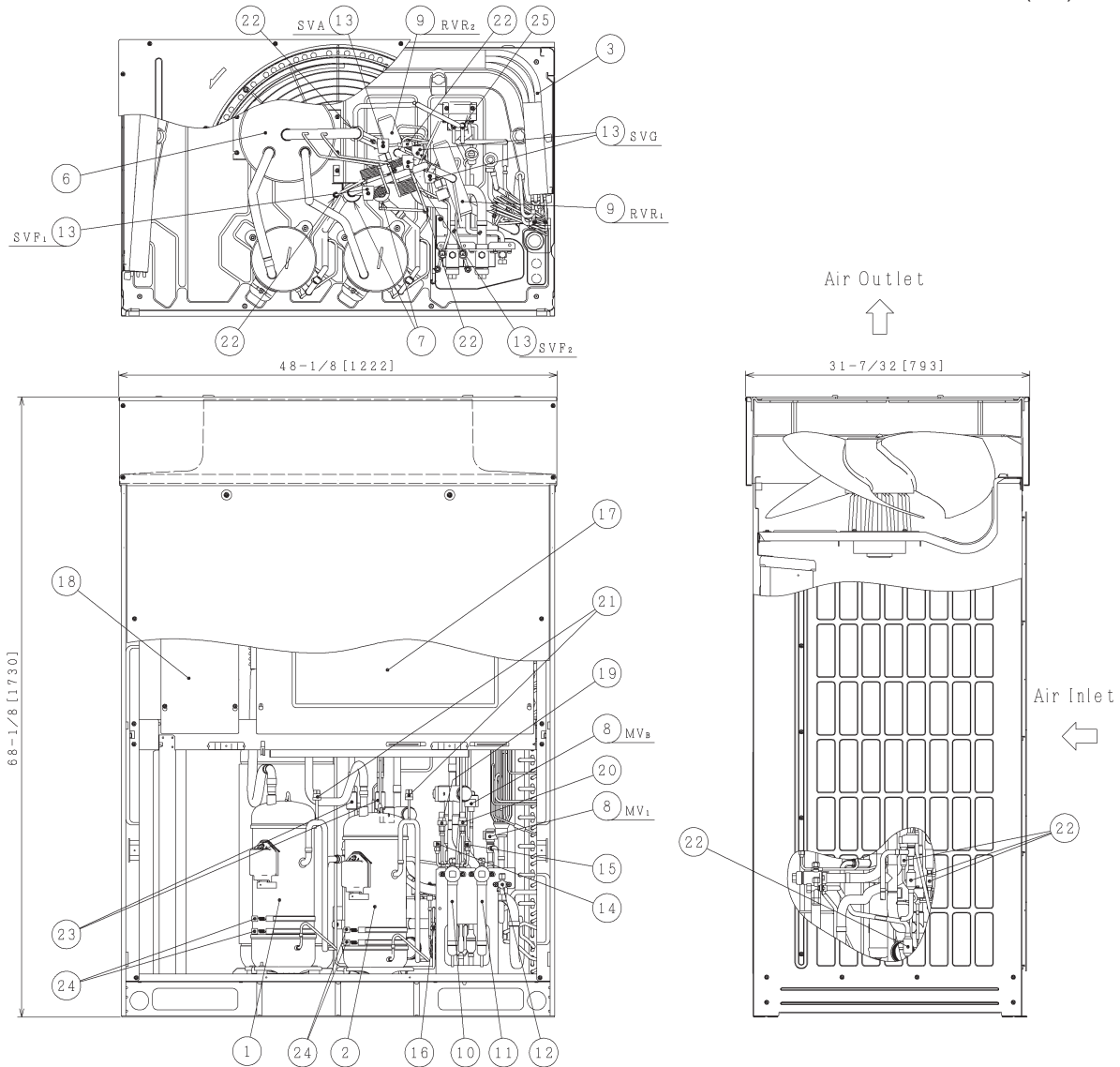


| No. | Part Name |
|-----|---|
| 1 | Compressor (Inverter) |
| 2 | Heat Exchanger |
| 3 | Propeller Fan |
| 4 | Fan Motor |
| 5 | Accumulator |
| 6 | Oil Separator |
| 7 | Electronic Expansion Valve (two pieces) |
| 8 | Reversing Valve (two pieces) |
| 9 | Stop Valve (Low Pressure Gas) |
| 10 | Stop Valve (High/Low Pressure Gas) |
| 11 | Stop Valve (Liquid) |
| 12 | Solenoid Valve (four pieces) |

| No. | Part Name |
|-----|-------------------------------------|
| 13 | Check Joint (Low) |
| 14 | Check Joint (High) |
| 15 | Check Joint (for Oil) |
| 16 | Electrical Control Box |
| 17 | Low Pressure Sensor |
| 18 | High Pressure Sensor |
| 19 | High Pressure Switch for Protection |
| 20 | Strainer (seven pieces) |
| 21 | Check Valve |
| 22 | Crankcase Heater (two pieces) |
| 23 | Double Tube Type Heat Exchanger |
| 24 | Silencer |

Model: (H,Y)VAHR096B31S and (H,Y)VAHR120B31S

inch (mm)



| No. | Part Name |
|-----|---|
| 1 | Compressor (Inverter) |
| 2 | Compressor (Fixed Speed) |
| 3 | Heat Exchanger |
| 4 | Propeller Fan |
| 5 | Fan Motor |
| 6 | Accumulator |
| 7 | Oil Separator |
| 8 | Electronic Expansion Valve (two pieces) |
| 9 | Reversing Valve (two pieces) |
| 10 | Stop Valve (Low Pressure Gas) |
| 11 | Stop Valve (High/Low Pressure Gas) |
| 12 | Stop Valve (Liquid) |

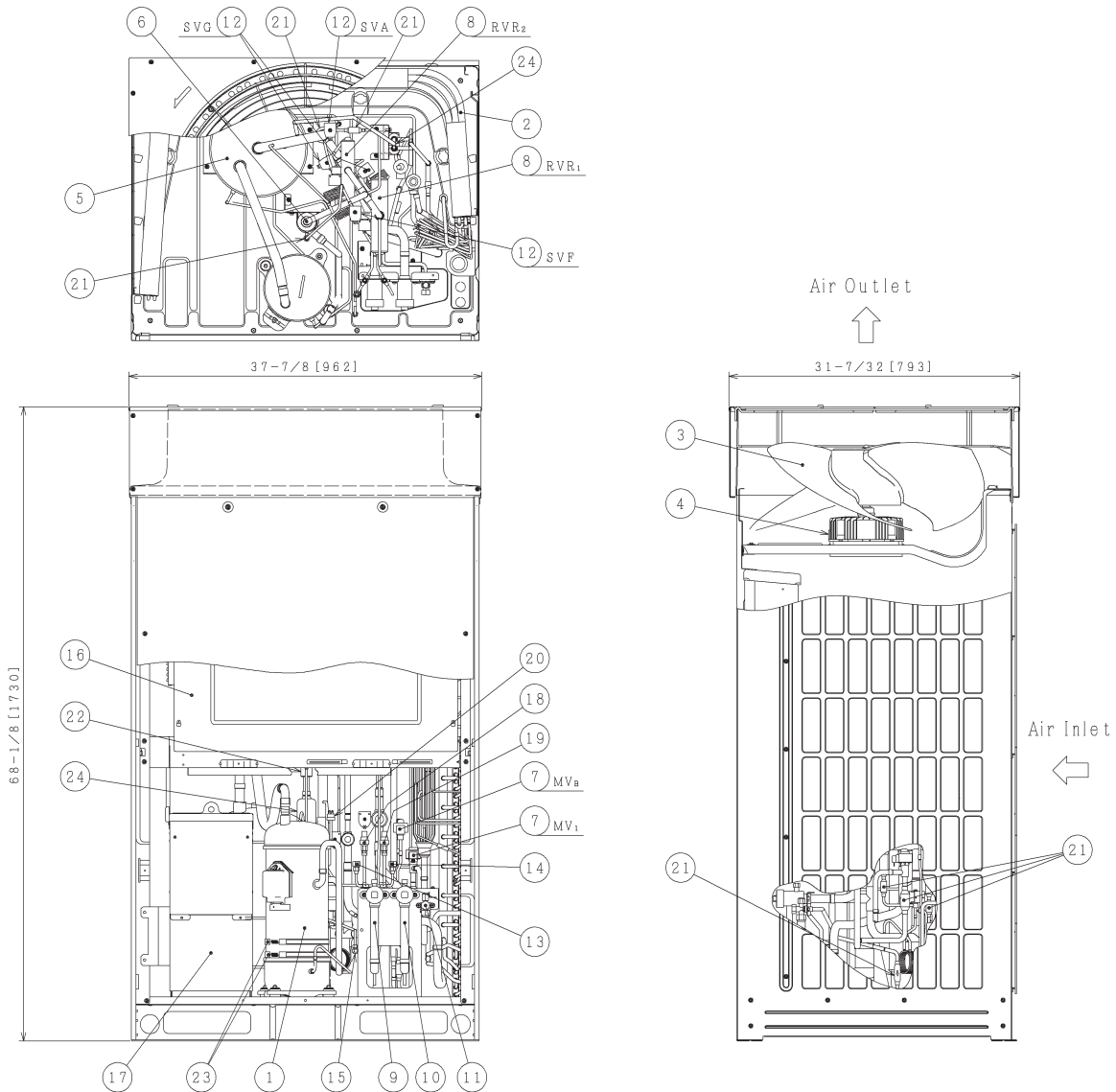
| No. | Part Name |
|-----|--|
| 13 | Solenoid Valve (five pieces) |
| 14 | Check Joint (Low) |
| 15 | Check Joint (High) |
| 16 | Check Joint (for Oil) |
| 17 | Electrical Control Box 1 |
| 18 | Electrical Control Box 2 |
| 19 | Low Pressure Sensor |
| 20 | High Pressure Sensor |
| 21 | High Pressure Switch for Protection (two pieces) |
| 22 | Strainer (eight pieces) |
| 23 | Check Valve (two pieces) |
| 24 | Crankcase Heater (four pieces) |
| 25 | Double Tube Type Heat Exchanger |

OUTDOOR UNITS

460V

Model: (H,Y)VAHR072B41S

inch (mm)

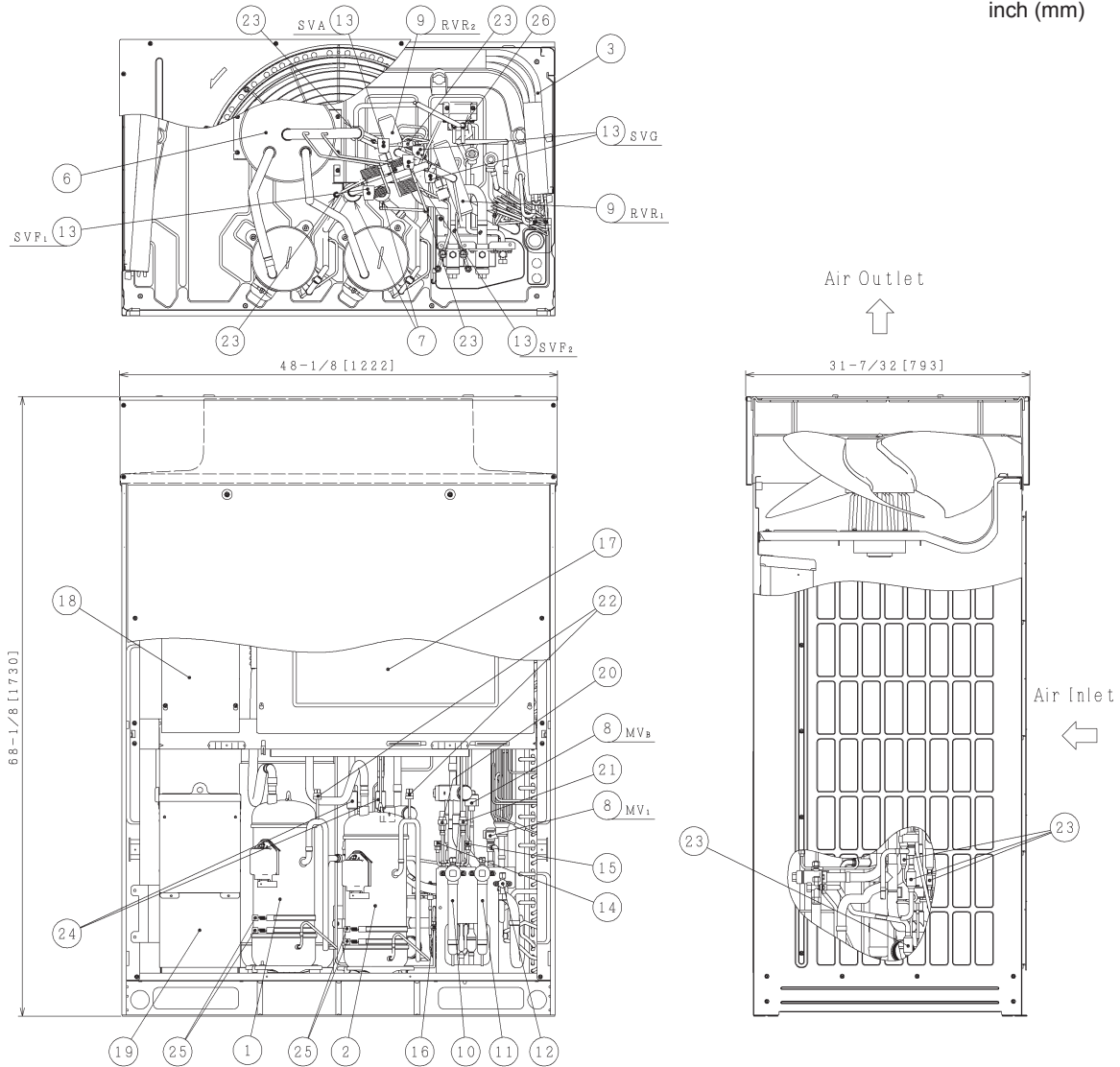


| No. | Part Name |
|-----|---|
| 1 | Compressor (Inverter) |
| 2 | Heat Exchanger |
| 3 | Propeller Fan |
| 4 | Fan Motor |
| 5 | Accumulator |
| 6 | Oil Separator |
| 7 | Electronic Expansion Valve (two pieces) |
| 8 | Reversing Valve (two pieces) |
| 9 | Stop Valve (Low Pressure Gas) |
| 10 | Stop Valve (High/Low Pressure Gas) |
| 11 | Stop Valve (Liquid) |
| 12 | Solenoid Valve (four pieces) |

| No. | Part Name |
|-----|-------------------------------------|
| 13 | Check Joint (Low) |
| 14 | Check Joint (High) |
| 15 | Check Joint (for Oil) |
| 16 | Electrical Control Box |
| 17 | Transformer Box |
| 18 | Low Pressure Sensor |
| 19 | High Pressure Sensor |
| 20 | High Pressure Switch for Protection |
| 21 | Strainer (seven pieces) |
| 22 | Check Valve |
| 23 | Crankcase Heater (two pieces) |
| 24 | Double Tube Type Heat Exchanger |
| 25 | Silencer |

Model: (H,Y)VAHR096B41S and (H,Y)VAHR120B41S

inch (mm)



| No. | Part Name |
|-----|---|
| 1 | Compressor (Inverter) |
| 2 | Compressor (Fixed Speed) |
| 3 | Heat Exchanger |
| 4 | Propeller Fan |
| 5 | Fan Motor |
| 6 | Accumulator |
| 7 | Oil Separator |
| 8 | Electronic Expansion Valve (two pieces) |
| 9 | Reversing Valve (two pieces) |
| 10 | Stop Valve (Low Pressure Gas) |
| 11 | Stop Valve (High/Low Pressure Gas) |
| 12 | Stop Valve (Liquid) |
| 13 | Solenoid Valve (five pieces) |

| No. | Part Name |
|-----|--|
| 14 | Check Joint (Low) |
| 15 | Check Joint (High) |
| 16 | Check Joint (for Oil) |
| 17 | Electrical Control Box 1 |
| 18 | Electrical Control Box 2 |
| 19 | Transformer Box |
| 20 | Low Pressure Sensor |
| 21 | High Pressure Sensor |
| 22 | High Pressure Switch for Protection (two pieces) |
| 23 | Strainer (eight pieces) |
| 24 | Check Valve (two pieces) |
| 25 | Crankcase Heater (four pieces) |
| 26 | Double Tube Type Heat Exchanger |

2.6 Component Data

2.6.1 Heat Pump System

- Standard Type

Outdoor Heat Exchanger and Fan

| Model | | (H,Y)VAHP072B(3,4)1S | (H,Y)VAHP096B(3,4)1S | (H,Y)VAHP120B(3,4)1S |
|----------------------------|--------------------------------------|------------------------------------|----------------------------|----------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | |
| Tube Material | | Copper Tube | | |
| Outer Diameter | φin (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3 | 3 | 3 |
| Number of Tube/Coil | | 204 | 204 | 204 |
| Fin Material | | Aluminum | | |
| Pitch | in (mm) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 26.59 (2.47) | 30.57 (2.84) | 30.57 (2.84) |
| Number of Coil/Unit | | 1 | 1 | 1 |
| Outdoor Fan | | Large Diameter Fan (Propeller Fan) | | |
| Number/Unit | | 1 | 1 | 1 |
| Outer Diameter | φin (mm) | 25-11/32 (644) | 25-11/32 (644) | 25-11/32 (644) |
| Nominal Airflow | cfm (m ³ /min) | 6178 (175) | 6884 (195) | 7413 (210) |
| Outdoor Fan Motor | | Drip-Proof Type Enclosure | | |
| Starting Method | | Inverter | | |
| Nominal Output | W | 409 | 660 | 910 |
| Quantity | | 1 | 1 | 1 |
| Insulation Class | | E | E | E |
| Model | | (H,Y)VAHP144B(3,4)1S | (H,Y)VAHP168B(3,4)1S | (H,Y)VAHP192B(3,4)1S |
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | |
| Tube Material | | Copper Tube | | |
| Outer Diameter | φin (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3+3 | 3+3 | 3+3 |
| Number of Tube/Coil | | 204+204 | 204+204 | 204+204 |
| Fin Material | | Aluminum | | |
| Pitch | in (mm) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 26.59+26.59 (2.47+2.47) | 30.57+26.59 (2.84+2.47) | 30.57+30.57 (2.84+2.84) |
| Number of Coil/Unit | | 2 | 2 | 2 |
| Outdoor Fan | | Large Diameter Fan (Propeller Fan) | | |
| Number/Unit | | 2 | 2 | 2 |
| Outer Diameter | φin (mm) | 25-11/32 + 25-11/32 (644 + 644) | | |
| Nominal Airflow | cfm (m ³ /min) | 6178+6178 (175+175) | 6884+6178 (195+175) | 6884+6884 (195+195) |
| Outdoor Fan Motor | | Drip-Proof Type Enclosure | | |
| Starting Method | | Inverter | | |
| Nominal Output | W | 409+409 | 660+409 | 660+660 |
| Quantity | | 2 | 2 | 2 |
| Insulation Class | | E+E | E+E | E+E |

• Standard Type

Outdoor Heat Exchanger and Fan

| Model | | (H,Y)VAHP216B(3,4)1S | (H,Y)VAHP240B(3,4)1S | (H,Y)VAHP264B(3,4)1S | (H,Y)VAHP288B(3,4)1S | (H,Y)VAHP312B(3,4)1S |
|----------------------------|--------------------------------------|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | | | |
| Tube Material | | Copper Tube | | | | |
| Outer Diameter | φin (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3+3+3 | 3+3+3 | 3+3+3 | 3+3+3 | 3+3+3 |
| Number of Tube/Coil | | 204+204+204 | 204+204+204 | 204+204+204 | 204+204+204 | 204+204+204 |
| Fin Material | | Aluminum | | | | |
| Pitch | in (mm) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 26.59+26.59+26.59 (2.47+2.47+2.47) | 30.57+26.59+26.59 (2.84+2.47+2.47) | 30.57+26.59+26.59 (2.84+2.47+2.47) | 30.57+30.57+26.59 (2.84+2.84+2.47) | 30.57+30.57+30.57 (2.84+2.84+2.84) |
| Number of Coil/Unit | | 3 | 3 | 3 | 3 | 3 |
| Outdoor Fan | | Large Diameter Fan (Propeller Fan) | | | | |
| Number/Unit | | 3 | 3 | 3 | 3 | 3 |
| Outer Diameter | φin (mm) | 25-11/32 + 25-11/32 + 25-11/32 (644 + 644 + 644) | | | | |
| Nominal Airflow | cfm (m ³ /min) | 6178+6178+6178 (175+175+175) | 6884+6178+6178 (195+175+175) | 7413+6178+6178 (210+175+175) | 7413+6884+6178 (210+195+175) | 7413+7413+6884 (210+210+195) |
| Outdoor Fan Motor | | Drip-Proof Type Enclosure | | | | |
| Starting Method | | Inverter | | | | |
| Nominal Output | W | 409+409+409 | 660+409+409 | 910+409+409 | 910+660+409 | 910+910+660 |
| Quantity | | 3 | 3 | 3 | 3 | 3 |
| Insulation Class | | E+E+E | E+E+E | E+E+E | E+E+E | E+E+E |

| Model | | (H,Y)VAHP336B(3,4)1S | (H,Y)VAHP360B(3,4)1S |
|----------------------------|--------------------------------------|---|--|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | |
| Tube Material | | Copper Tube | |
| Outer Diameter | φin (mm) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3+3+3+3 | 3+3+3+3 |
| Number of Tube/Coil | | 204+204+204+204 | 204+204+204+204 |
| Fin Material | | Aluminum | |
| Pitch | in (mm) | 0.067 (1.7) | 0.067 (1.7) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 30.57+30.57+26.59+26.59 (2.84+2.84+2.47+2.47) | 30.57+30.57+26.59+26.59 (2.84+2.84+2.47+2.47) |
| Number of Coil/Unit | | 4 | 4 |
| Outdoor Fan | | Large Diameter Fan (Propeller Fan) | |
| Number/Unit | | 4 | 4 |
| Outer Diameter | φin (mm) | 25-11/32 + 25-11/32 + 25-11/32 + 25-11/32 (644 + 644 + 644 + 644) | |
| Nominal Airflow | cfm (m ³ /min) | 6884+6884+6178+6178 (195+195+175+175) | 7413+6884+6178+6178 (210+195+175+175) |
| Outdoor Fan Motor | | Drip-Proof Type Enclosure | |
| Starting Method | | Inverter | |
| Nominal Output | W | 660+660+409+409 | 910+660+409+409 |
| Quantity | | 4 | 4 |
| Insulation Class | | E+E+E+E | E+E+E+E |

OUTDOOR UNITS

- Less Module Type

Outdoor Heat Exchanger and Fan

| Model | | (H,Y)VAHP240B(3,4)1LM | (H,Y)VAHP336B(3,4)1LM | (H,Y)VAHP360B(3,4)1LM |
|----------------------------|--------------------------------------|------------------------------------|---|---------------------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | |
| Tube Material | | Copper Tube | | |
| Outer Diameter | φ in (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3+3 | 3+3+3 | 3+3+3 |
| Number of Tube/Coil | | 204+204 | 204+204+204 | 204+204+204 |
| Fin Material | | Aluminum | | |
| Pitch | in (mm) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 30.57+30.57 (2.84+2.84) | 30.57+30.57+30.57 (2.84+2.84+2.84) | 30.57+30.57+30.57 (2.84+2.84+2.84) |
| Number of Coil/Unit | | 2 | 3 | 3 |
| Outdoor Fan | | Large Diameter Fan (Propeller Fan) | | |
| Number/Unit | | 2 | 3 | 3 |
| Outer Diameter | φ in (mm) | 25-11/32 + 25-11/32 (644 + 644) | 25-11/32 + 25-11/32 + 25-11/32 (644 + 644 + 644) | |
| Nominal Air Flow | cfm (m ³ /min) | 7413+7413 (210+210) | 7413+7413+6884 (210+210+195) | 7413+7413+7413 (210+210+210) |
| Outdoor Fan Motor | | Drip-Proof Type Enclosure | | |
| Starting Method | | Inverter | | |
| Nominal Output | W | 910+910 | 910+910+660 | 910+910+910 |
| Quantity | | 2 | 3 | 3 |
| Insulation Class | | E+E | E+E+E | E+E+E |

2.6.2 Heat Recovery System

- Standard Type

Outdoor Heat Exchanger and Fan

| Model | | (H,Y)VAHR072B(3,4)1S | (H,Y)VAHR096B(3,4)1S | (H,Y)VAHR120B(3,4)1S |
|----------------------------|--------------------------------------|------------------------------------|----------------------------|----------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | |
| Tube Material | | Copper Tube | | |
| Outer Diameter | φin (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3 | 3 | 3 |
| Number of Tube/Coil | | 204 | 204 | 204 |
| Fin Material | | Aluminum | | |
| Pitch | in (mm) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 26.59 (2.47) | 30.57 (2.84) | 30.57 (2.84) |
| Number of Coil/Unit | | 1 | 1 | 1 |
| Outdoor Fan | | Large Diameter Fan (Propeller Fan) | | |
| Number/Unit | | 1 | 1 | 1 |
| Outer Diameter | φin (mm) | 25-11/32 (644) | 25-11/32 (644) | 25-11/32 (644) |
| Nominal Airflow | cfm (m ³ /min) | 6178 (175) | 6884 (195) | 7413 (210) |
| Outdoor Fan Motor | | Drip-Proof Type Enclosure | | |
| Starting Method | | Inverter | | |
| Nominal Output | W | 409 | 660 | 910 |
| Quantity | | 1 | 1 | 1 |
| Insulation Class | | E | E | E |
| Model | | (H,Y)VAHR144B(3,4)1S | (H,Y)VAHR168B(3,4)1S | (H,Y)VAHR192B(3,4)1S |
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | |
| Tube Material | | Copper Tube | | |
| Outer Diameter | φin (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3+3 | 3+3 | 3+3 |
| Number of Tube/Coil | | 204+204 | 204+204 | 204+204 |
| Fin Material | | Aluminum | | |
| Pitch | in (mm) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 26.59+26.59 (2.47+2.47) | 30.57+26.59 (2.84+2.47) | 30.57+30.57 (2.84+2.84) |
| Number of Coil/Unit | | 2 | 2 | 2 |
| Outdoor Fan | | Large Diameter Fan (Propeller Fan) | | |
| Number/Unit | | 2 | 2 | 2 |
| Outer Diameter | φin (mm) | 25-11/32 + 25-11/32 (644 + 644) | | |
| Nominal Airflow | cfm (m ³ /min) | 6178+6178 (175+175) | 6884+6178 (195+175) | 6884+6884 (195+195) |
| Outdoor Fan Motor | | Drip-Proof Type Enclosure | | |
| Starting Method | | Inverter | | |
| Nominal Output | W | 409+409 | 660+409 | 660+660 |
| Quantity | | 2 | 2 | 2 |
| Insulation Class | | E+E | E+E | E+E |

• Standard Type

Outdoor Heat Exchanger and Fan

| Model | | (H,Y)VAHR216B(3,4)1S | (H,Y)VAHR240B(3,4)1S | (H,Y)VAHR264B(3,4)1S | (H,Y)VAHR288B(3,4)1S | (H,Y)VAHR312B(3,4)1S |
|----------------------------|--------------------------------------|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | | | |
| Tube Material | | Copper Tube | | | | |
| Outer Diameter | φin (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3+3+3 | 3+3+3 | 3+3+3 | 3+3+3 | 3+3+3 |
| Number of Tube/Coil | | 204+204+204 | 204+204+204 | 204+204+204 | 204+204+204 | 204+204+204 |
| Fin Material | | Aluminum | | | | |
| Pitch | in (mm) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 26.59+26.59+26.59 (2.47+2.47+2.47) | 30.57+26.59+26.59 (2.84+2.47+2.47) | 30.57+26.59+26.59 (2.84+2.47+2.47) | 30.57+30.57+26.59 (2.84+2.84+2.47) | 30.57+30.57+30.57 (2.84+2.84+2.84) |
| Number of Coil/Unit | | 3 | 3 | 3 | 3 | 3 |
| Outdoor Fan | | Large Diameter Fan (Propeller Fan) | | | | |
| Number/Unit | | 3 | 3 | 3 | 3 | 3 |
| Outer Diameter | φin (mm) | 25-11/32 + 25-11/32 + 25-11/32 (644 + 644 + 644) | | | | |
| Nominal Airflow | cfm (m ³ /min) | 6178+6178+6178 (175+175+175) | 6884+6178+6178 (195+175+175) | 7413+6178+6178 (210+175+175) | 7413+6884+6178 (210+195+175) | 7413+7413+6884 (210+210+195) |
| Outdoor Fan Motor | | Drip-Proof Type Enclosure | | | | |
| Starting Method | | Inverter | | | | |
| Nominal Output | W | 409+409+409 | 660+409+409 | 910+409+409 | 910+660+409 | 910+910+660 |
| Quantity | | 3 | 3 | 3 | 3 | 3 |
| Insulation Class | | E+E+E | E+E+E | E+E+E | E+E+E | E+E+E |

| Model | | (H,Y)VAHR336B(3,4)1S | (H,Y)VAHR360B(3,4)1S |
|----------------------------|--------------------------------------|---|--|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | |
| Tube Material | | Copper Tube | |
| Outer Diameter | φin (mm) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3+3+3+3 | 3+3+3+3 |
| Number of Tube/Coil | | 204+204+204+204 | 204+204+204+204 |
| Fin Material | | Aluminum | |
| Pitch | in (mm) | 0.067 (1.7) | 0.067 (1.7) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 30.57+30.57+26.59+26.59 (2.84+2.84+2.47+2.47) | 30.57+30.57+26.59+26.59 (2.84+2.84+2.47+2.47) |
| Number of Coil/Unit | | 4 | 4 |
| Outdoor Fan | | Large Diameter Fan (Propeller Fan) | |
| Number/Unit | | 4 | 4 |
| Outer Diameter | φin (mm) | 25-11/32 + 25-11/32 + 25-11/32 + 25-11/32 (644 + 644 + 644 + 644) | |
| Nominal Airflow | cfm (m ³ /min) | 6884+6884+6178+6178 (195+195+175+175) | 7413+6884+6178+6178 (210+195+175+175) |
| Outdoor Fan Motor | | Drip-Proof Type Enclosure | |
| Starting Method | | Inverter | |
| Nominal Output | W | 660+660+409+409 | 910+660+409+409 |
| Quantity | | 4 | 4 |
| Insulation Class | | E+E+E+E | E+E+E+E |

• Less Module Type

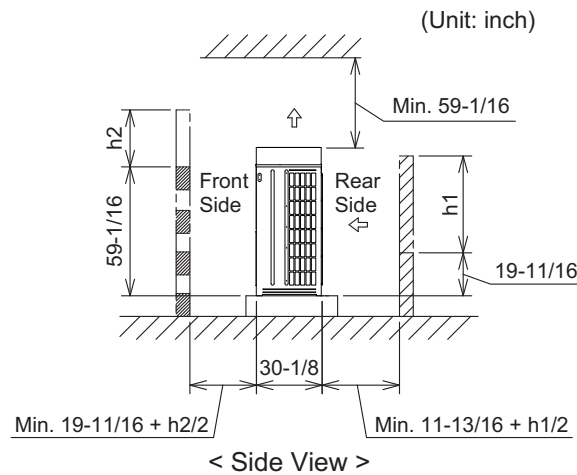
Outdoor Heat Exchanger and Fan

| Model | | (H,Y)VAHR240B(3,4)1LM | (H,Y)VAHR336B(3,4)1LM | (H,Y)VAHR360B(3,4)1LM |
|----------------------------|--------------------------------------|------------------------------------|---|---------------------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | |
| Tube Material | | Copper Tube | | |
| Outer Diameter | φ in (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3+3 | 3+3+3 | 3+3+3 |
| Number of Tube/Coil | | 204+204 | 204+204+204 | 204+204+204 |
| Fin Material | | Aluminum | | |
| Pitch | in (mm) | 0.067 (1.7) | 0.067 (1.7) | 0.067 (1.7) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 30.57+30.57 (2.84+2.84) | 30.57+30.57+30.57 (2.84+2.84+2.84) | 30.57+30.57+30.57 (2.84+2.84+2.84) |
| Number of Coil/Unit | | 2 | 3 | 3 |
| Outdoor Fan | | Large Diameter Fan (Propeller Fan) | | |
| Number/Unit | | 2 | 3 | 3 |
| Outer Diameter | φ in (mm) | 25-11/32 + 25-11/32 (644 + 644) | 25-11/32 + 25-11/32 + 25-11/32 (644 + 644 + 644) | |
| Nominal Air Flow | cfm (m ³ /min) | 7413+7413 (210+210) | 7413+7413+6884 (210+210+195) | 7413+7413+7413 (210+210+210) |
| Outdoor Fan Motor | | Drip-Proof Type Enclosure | | |
| Starting Method | | Inverter | | |
| Nominal Output | W | 910+910 | 910+910+660 | 910+910+910 |
| Quantity | | 2 | 3 | 3 |
| Insulation Class | | E+E | E+E+E | E+E+E |

2.7 Service Space

When the outdoor unit is installed, create a service space as follows.

If the service spaces for air inlet and outlet are insufficient, there may be a slump in performance and some irregularities due to insufficient air intake. Additionally, the service space is required for facilitating maintenance.

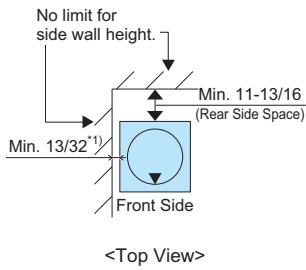


- If there are no walls on the front side and the rear side, the service space required is as follows.
 - * Front Side: Min. 19-11/16 inches (500mm)
 - * Rear Side: Min. 11-13/16 inches (300mm)
 - * Right and Left Sides: Min. 13/32 inch (10mm)
(If the field-supplied snow protection hood or the air outlet duct is applied to the unit, minimum spacing required is 1-31/32 inch (50mm) are required.)
- If the wall on the front side is over 59-1/16 inches (1,500mm) high, a space of (19-11/16 inch (500mm) + $h_2/2$) for the front side is required.
- If the wall on the rear side is over 19-11/16 inches (500mm) high, a space of (11-13/16 inch (300mm) + $h_1/2$) for the rear side is required.
- When the units are surrounded by walls on more than two sides, the figure above indicates required spacing.
- For walls on more than two sides, secure the service space as shown in the following figures.
- If the space between the unit and an obstacle above the unit is less than 59-1/16 inch (1,500mm) or the space above the unit is closed, set up the duct at the air outlet side in order to prevent a short circuit.
- When there are obstacles above the unit, it is imperative to follow the guidelines for minimum clearances for the front, rear, right, and left sides of the unit.

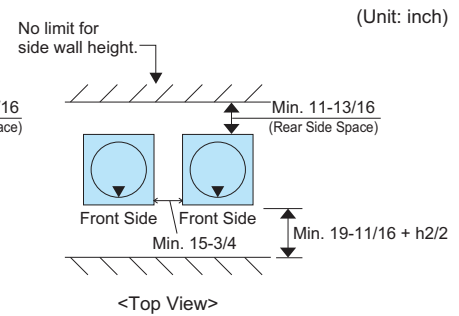
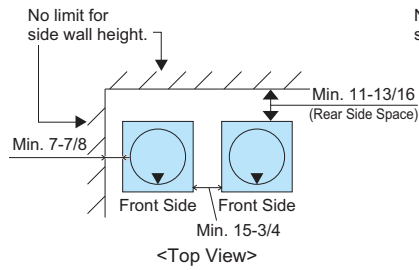
2.7.1 Walls on Two Sides

When the units are installed adjacent to tall buildings and there are no walls on two sides, the minimum rear side space must be 11-13/16 inches (300mm).

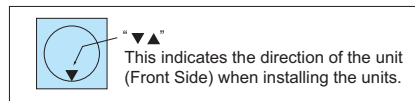
• Single Installation



• Multiple / Serial Installation

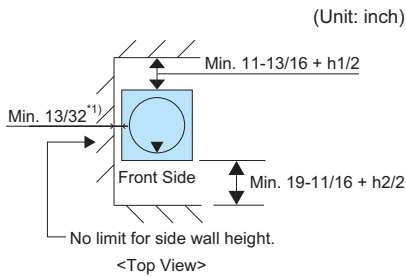


*1): If the field-supplied snow protection hood or the air outlet duct is adopted, the space of minimum 1-31/32 inch is required.



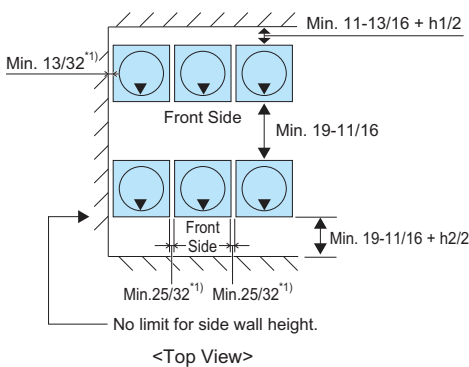
2.7.2 Walls on Three Sides

• Single Installation

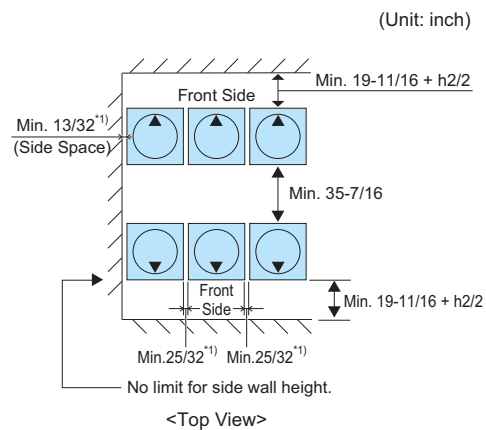


• Multiple / Serial Installation

< Installation in the Same Direction >



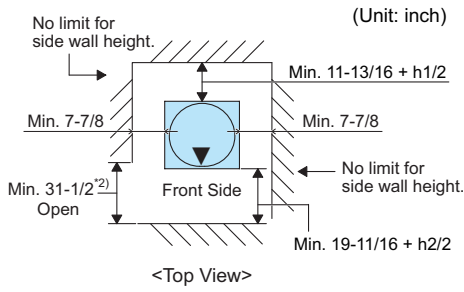
< Rear to Rear Installation >



*1): If the field-supplied snow protection hood or the air outlet duct is adopted, the space of minimum 1-31/32 inch is required.

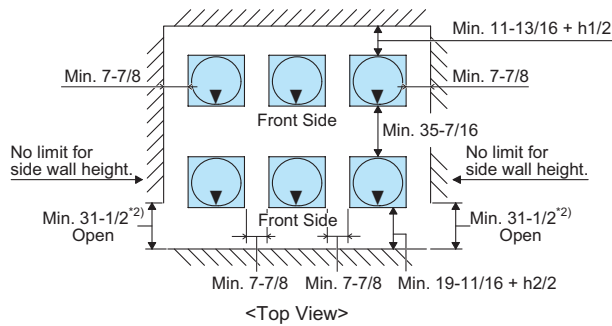
2.7.3 Walls on Four Sides

• Single Installation

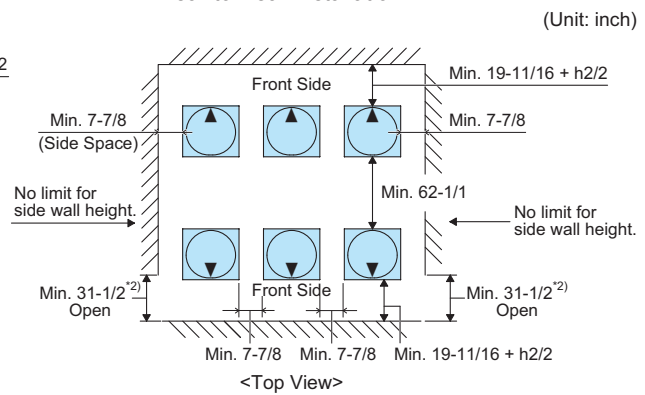


• Multiple / Serial Installation

< Installation in the Same Direction >



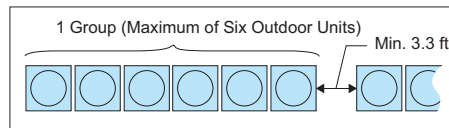
< Rear to Rear Installation >



*2): Partly open a wall if the unit is surrounded by walls on four sides.

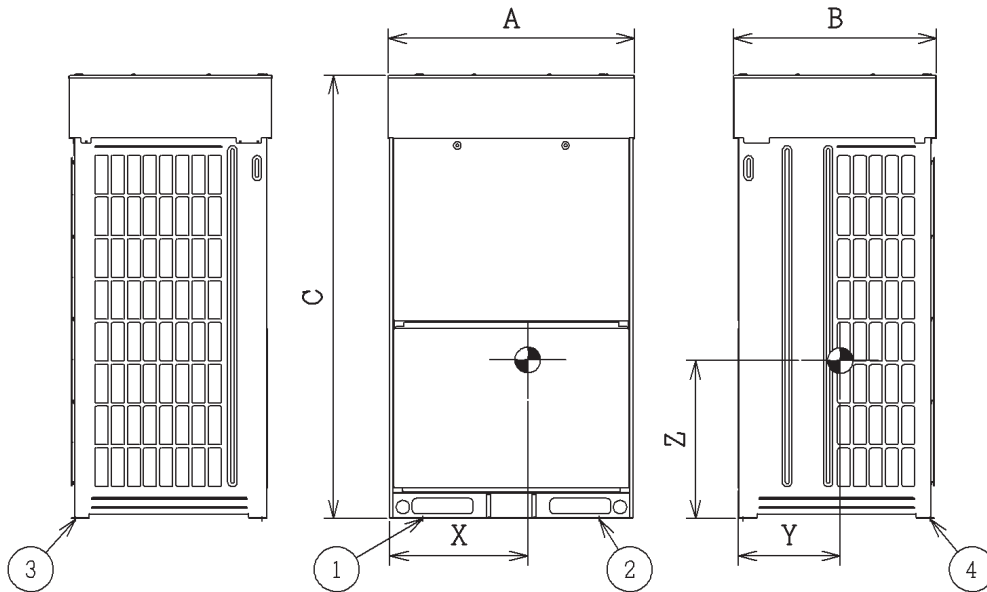
NOTE

1. Keep the upper side open to prevent interference between the inlet and outlet air of each outdoor unit.
2. The figure dimensions indicate sufficient spaces around outdoor units for operation and maintenance at typical installation conditions as follows. [Operation Mode: Cooling Operation, Outside Temp.: 95°F (35°C)]
If the outdoor unit ambient temperature is higher than installation limits, a short circuit is likely to occur.
Find an appropriate dimension by calculating airflow current.
3. For multiple installations, one group should consist of six outdoor units (maximum).
Keep an interval of 3 ft. 3-19/32 in. (1m) between each unit group.



2.8 Center of Gravity

2.8.1 Heat Pump Type



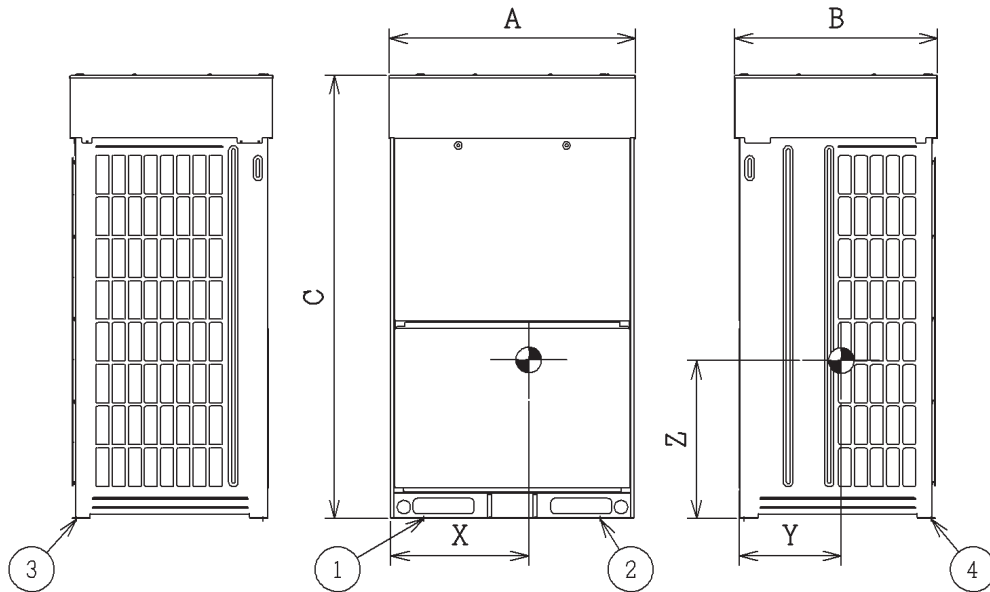
208 / 230V

| Model | Net Weight (lbs[kg]) | Center of Gravity (inch[mm]) | | | Outer Dimensions (inch[mm]) | | |
|------------------|----------------------|------------------------------|-----------------|-------------------|-----------------------------|------------------|------------------|
| | | X | Y | Z | A | B | C |
| (H,Y)VAHP072B31S | 540 [245] | 18-1/2 [470] | 13-3/8 [340] | 26-25/32 [680] | 37-7/8 [962] | 31-7/32 [793] | 68-1/8 [1730] |
| (H,Y)VAHP096B31S | 730 [331] | 20-7/8 [530] | 12 [305] | 22-27/32 [580] | 48-1/8 [1222] | 31-7/32 [793] | 68-1/8 [1730] |
| (H,Y)VAHP120B31S | 732 [332] | | | | | | |

460V

| Model | Net Weight (lbs[kg]) | Center of Gravity (inch[mm]) | | | Outer Dimensions (inch[mm]) | | |
|------------------|----------------------|------------------------------|-------------------|-------------------|-----------------------------|------------------|------------------|
| | | X | Y | Z | A | B | C |
| (H,Y)VAHP072B41S | 606 [275] | 16-15/16 [430] | 13 [330] | 24-13/32 [620] | 37-7/8 [962] | 31-7/32 [793] | 68-1/8 [1730] |
| (H,Y)VAHP096B41S | 796 [361] | 19-11/16 [500] | 11-13/16 [300] | 21-21/32 [550] | 48-1/8 [1222] | 31-7/32 [793] | 68-1/8 [1730] |
| (H,Y)VAHP120B41S | 798 [362] | | | | | | |

2.8.2 Heat Recovery Type



208 / 230V

| Model | Net Weight (lbs[kg]) | Center of Gravity (inch[mm]) | | | Outer Dimensions (inch[mm]) | | |
|------------------|----------------------|------------------------------|-----------------|-------------------|-----------------------------|------------------|------------------|
| | | X | Y | Z | A | B | C |
| (H,Y)VAHR072B31S | 540 [245] | 18-1/2 [470] | 13-3/8 [340] | 26-25/32 [680] | 37-7/8 [962] | 31-7/32 [793] | 68-1/8 [1730] |
| (H,Y)VAHR096B31S | 730 [331] | 20-7/8 [530] | 12 [305] | 22-27/32 [580] | 48-1/8 [1222] | 31-7/32 [793] | 68-1/8 [1730] |
| (H,Y)VAHR120B31S | 732 [332] | | | | | | |

460V

| Model | Net Weight (lbs[kg]) | Center of Gravity (inch[mm]) | | | Outer Dimensions (inch[mm]) | | |
|------------------|----------------------|------------------------------|-------------------|-------------------|-----------------------------|------------------|------------------|
| | | X | Y | Z | A | B | C |
| (H,Y)VAHR072B41S | 606 [275] | 16-15/16 [430] | 13 [330] | 24-13/32 [620] | 37-7/8 [962] | 31-7/32 [793] | 68-1/8 [1730] |
| (H,Y)VAHR096B41S | 796 [361] | 19-11/16 [500] | 11-13/16 [300] | 21-21/32 [550] | 48-1/8 [1222] | 31-7/32 [793] | 68-1/8 [1730] |
| (H,Y)VAHR120B41S | 798 [362] | | | | | | |

2.9 Electrical Data

2.9.1 Heat Pump Type

<208/230V 60Hz>

| Model | Unit Main Power | | | Applicable Voltage | | Power Supply | | | Compressor | Fan Motor | |
|-------------------|-----------------|----|----|--------------------|------|-----------------------------|-----------------------------|---------|---|-------------------|-------------------------------------|
| | VOL | PH | Hz | Max. | Min. | MCA [A] | MFA [A] | STC [A] | RLA [A] | OPT [kW] | FLA [A] |
| (H,Y)VAHP072B31S | 208/230 | 3 | 60 | 253 | 188 | 41/37 | 60/50 | 15/14 | 34/30.5 | 0.75 | 4.8/4.4 |
| (H,Y)VAHP096B31S | | | | | | 48/43 | 60/60 | 162/176 | 15.7+28.8/14.5+26 | 1.2 | 5.6/5.1 |
| (H,Y)VAHP120B31S | | | | | | 56/50 | 80/70 | 162/176 | 23.2+28.8/21+26 | 1.2 | 5.6/5.1 |
| (H,Y)VAHP144B31S | | | | | | 41+41/37+37 | 60+60/50+50 | 30/28 | 34+34/30.5+30.5 | 0.75+0.75 | 4.8+4.8/4.4+4.4 |
| (H,Y)VAHP168B31S | | | | | | 48+41/43+37 | 60+60/60+50 | 180/193 | 15.7+28.8+34 /14.5+26+30.5 | 1.2+0.75 | 5.6+4.8/5.1+4.4 |
| (H,Y)VAHP192B31S | | | | | | 48+48/43+43 | 60+60/60+60 | 200/213 | 15.7+28.8+15.7+28.8 /14.5+26+14.5+26 | 1.2+1.2 | 5.6+5.6/5.1+5.1 |
| (H,Y)VAHP216B31S | | | | | | 41+41+41 /37+37+37 | 60+60+60 /50+50+50 | 45/42 | 34+34+34 /30.5+30.5+30.5 | 0.75+0.75+0.75 | 4.8+4.8+4.8 /4.4+4.4+4.4 |
| (H,Y)VAHP240B31S | | | | | | 48+41+41 /43+37+37 | 60+60+60 /60+50+50 | 198/210 | 15.7+28.8+34+34 /14.5+26+30.5+30.5 | 1.2+0.75+0.75 | 5.6+4.8+4.8 /5.1+4.4+4.4 |
| (H,Y)VAHP240B31LM | | | | | | 56+56/50+50 | 80+80/70+70 | 200/213 | 23.2+28.8+23.2+28.8 /21+26+21+26 | 1.2+1.2 | 5.6+5.6/5.1+5.1 |
| (H,Y)VAHP264B31S | | | | | | 56+41+41 /50+37+37 | 80+60+60 /70+50+50 | 198/210 | 23.2+28.8+34+34 /21+26+30.5+30.5 | 1.2+0.75+0.75 | 5.6+4.8+4.8 /5.1+4.4+4.4 |
| (H,Y)VAHP288B31S | | | | | | 56+48+41 /50+43+37 | 80+60+60 /70+60+50 | 218/230 | 23.2+28.8+15.7+28.8+34 /21+26+14.5+26+30.5 | 1.2+1.2+0.75 | 5.6+5.6+4.8 /5.1+5.1+4.4 |
| (H,Y)VAHP312B31S | | | | | | 56+56+41 /50+50+37 | 80+80+60 /70+70+50 | 218/230 | 23.2+28.8+23.2+28.8+34 /21+26+21+26+30.5 | 1.2+1.2+0.75 | 5.6+5.6+4.8 /5.1+5.1+4.4 |
| (H,Y)VAHP336B31S | | | | | | 48+48+41+41 /43+37+37 | 60+60+60+60 /60+60+50+50 | 236/247 | 15.7+28.8+15.7+28.8+34+34 /14.5+26+14.5+26+30.5+30.5 | 1.2+1.2+0.75+0.75 | 5.6+5.6+4.8+4.8 /5.1+5.1+4.4+4.4 |
| (H,Y)VAHP336B31LM | | | | | | 56+56+48 /50+50+43 | 80+80+60 /70+70+60 | 238/250 | 23.2+28.8+23.2+28.8+15.7+28.8 /21+26+21+26+14.5+26 | 1.2+1.2+1.2 | 5.6+5.6+5.6 /5.1+5.1+5.1 |
| (H,Y)VAHP360B31S | | | | | | 56+48+41+41 /50+43+37+37 | 80+60+60+60 /70+60+50+50 | 236/247 | 23.2+28.8+15.7+28.8+34+34 /21+26+14.5+26+30.5+30.5 | 1.2+1.2+0.75+0.75 | 5.6+5.6+4.8+4.8 /5.1+5.1+4.4+4.4 |
| (H,Y)VAHP360B31LM | | | | | | 56+56+56 /50+50+50 | 80+80+80 /70+70+70 | 238/250 | 23.2+28.8+23.2+28.8+23.2+28.8 /21+26+21+26+21+26 | 1.2+1.2+1.2 | 5.6+5.6+5.6 /5.1+5.1+5.1 |

<460V 60Hz>

| Model | Unit Main Power | | | Applicable Voltage | | Power Supply | | | Compressor | Fan Motor | |
|-------------------|-----------------|----|----|--------------------|------|--------------|-------------|---------|-----------------------|-------------------|-----------------|
| | VOL | PH | Hz | Max. | Min. | MCA [A] | MFA [A] | STC [A] | RLA [A] | OPT [kW] | FLA [A] |
| (H,Y)VAHP072B41S | 460 | 3 | 60 | 506 | 414 | 21 | 30 | 7 | 17.5 | 0.75 | 8.7 |
| (H,Y)VAHP096B41S | | | | | | 21 | 30 | 84 | 11+12 | 1.2 | 8.7 |
| (H,Y)VAHP120B41S | | | | | | 25 | 30 | 84 | 15+12 | 1.2 | 8.7 |
| (H,Y)VAHP144B41S | | | | | | 21+21 | 30+30 | 14 | 17.5+17.5 | 0.75+0.75 | 8.7+8.7 |
| (H,Y)VAHP168B41S | | | | | | 21+21 | 30+30 | 93 | 11+12+17.5 | 1.2+0.75 | 8.7+8.7 |
| (H,Y)VAHP192B41S | | | | | | 21+21 | 30+30 | 103 | 11+12+11+12 | 1.2+1.2 | 8.7+8.7 |
| (H,Y)VAHP216B41S | | | | | | 21+21+21 | 30+30+30 | 21 | 17.5+17.5+17.5 | 0.75+0.75+0.75 | 8.7+8.7+8.7 |
| (H,Y)VAHP240B41S | | | | | | 21+21+21 | 30+30+30 | 102 | 11+12+17.5+17.5 | 1.2+0.75+0.75 | 8.7+8.7+8.7 |
| (H,Y)VAHP240B41LM | | | | | | 25+25 | 30+30 | 103 | 15+12+15+12 | 1.2+1.2 | 8.7+8.7 |
| (H,Y)VAHP264B41S | | | | | | 25+21+21 | 30+30+30 | 102 | 15+12+17.5+17.5 | 1.2+0.75+0.75 | 8.7+8.7+8.7 |
| (H,Y)VAHP288B41S | | | | | | 25+21+21 | 30+30+30 | 112 | 15+12+11+12+17.5 | 1.2+1.2+0.75 | 8.7+8.7+8.7 |
| (H,Y)VAHP312B41S | | | | | | 25+25+21 | 30+30+30 | 112 | 15+12+15+12+17.5 | 1.2+1.2+0.75 | 8.7+8.7+8.7 |
| (H,Y)VAHP336B41S | | | | | | 21+21+21+21 | 30+30+30+30 | 121 | 11+12+11+12+17.5+17.5 | 1.2+1.2+0.75+0.75 | 8.7+8.7+8.7+8.7 |
| (H,Y)VAHP336B41LM | | | | | | 25+25+21 | 30+30+30 | 122 | 15+12+15+12+11+12 | 1.2+1.2+1.2 | 8.7+8.7+8.7 |
| (H,Y)VAHP360B41S | | | | | | 25+21+21+21 | 30+30+30+30 | 121 | 15+12+11+12+17.5+17.5 | 1.2+1.2+0.75+0.75 | 8.7+8.7+8.7+8.7 |
| (H,Y)VAHP360B41LM | | | | | | 25+25+25 | 30+30+30 | 122 | 15+12+15+12+15+12 | 1.2+1.2+1.2 | 8.7+8.7+8.7 |

VOL: Rated Unit Power Supply Voltage (V)
 PH: Phase (φ)
 HZ: Frequency (Hz)
 MCA: Minimum Circuit Ampacity (A)
 MFA: Maximum Fuse Ampacity (A)

STC: Starting Current (A)
 RLA: Rated Load Ampacity (A)
 OPT: Rated Motor Output (kW)
 FLA: Full Load Ampacity (A)

NOTES:

- Power supply voltage should be satisfied with the following.
 Supply Voltage: Rated Voltage within ±10%
 Starting Voltage: Rated Voltage within -15%
 Operating Voltage: Rated Voltage within ±10%
 Imbalance between Phases: Within 3%
- The compressor is started by an inverter, resulting in extremely low starting current.

2.9.2 Heat Recovery Type

<208/230V 60Hz>

| Model | Unit Main Power | | | Applicable Voltage | | Power Supply | | | Compressor | Fan Motor | |
|-------------------|-----------------|----|----|--------------------|------|-----------------------------|-----------------------------|---------|---|-------------------|-------------------------------------|
| | VOL | PH | Hz | Max. | Min. | MCA [A] | MFA [A] | STC [A] | RLA [A] | OPT [kW] | FLA [A] |
| (H,Y)VAHR072B31S | 208/230 | 3 | 60 | 253 | 188 | 41/37 | 60/50 | 15/14 | 34/30.5 | 0.75 | 4.8/4.4 |
| (H,Y)VAHR096B31S | | | | | | 48/43 | 60/60 | 162/176 | 15.7+28.8/14.5+26 | 1.2 | 5.6/5.1 |
| (H,Y)VAHR120B31S | | | | | | 56/50 | 80/70 | 162/176 | 23.2+28.8/21+26 | 1.2 | 5.6/5.1 |
| (H,Y)VAHR144B31S | | | | | | 41+41/37+37 | 60+60/50+50 | 30/28 | 34+34/30.5+30.5 | 0.75+0.75 | 4.8+4.8/4.4+4.4 |
| (H,Y)VAHR168B31S | | | | | | 48+41/43+37 | 60+60/60+50 | 180/193 | 15.7+28.8+34 /14.5+26+30.5 | 1.2+0.75 | 5.6+4.8/5.1+4.4 |
| (H,Y)VAHR192B31S | | | | | | 48+48/43+43 | 60+60/60+60 | 200/213 | 15.7+28.8+15.7+28.8 /14.5+26+14.5+26 | 1.2+1.2 | 5.6+5.6/5.1+5.1 |
| (H,Y)VAHR216B31S | | | | | | 41+41+41 /37+37+37 | 60+60+60 /50+50+50 | 45/42 | 34+34+34 /30.5+30.5+30.5 | 0.75+0.75+0.75 | 4.8+4.8+4.8 /4.4+4.4+4.4 |
| (H,Y)VAHR240B31S | | | | | | 48+41+41 /43+37+37 | 60+60+60 /60+50+50 | 198/210 | 15.7+28.8+34+34 /14.5+26+30.5+30.5 | 1.2+0.75+0.75 | 5.6+4.8+4.8 /5.1+4.4+4.4 |
| (H,Y)VAHR240B31LM | | | | | | 56+56/50+50 | 80+80/70+70 | 200/213 | 23.2+28.8+23.2+28.8 /21+26+21+26 | 1.2+1.2 | 5.6+5.6/5.1+5.1 |
| (H,Y)VAHR264B31S | | | | | | 56+41+41 /50+37+37 | 80+60+60 /70+50+50 | 198/210 | 23.2+28.8+34+34 /21+26+30.5+30.5 | 1.2+0.75+0.75 | 5.6+4.8+4.8 /5.1+4.4+4.4 |
| (H,Y)VAHR288B31S | | | | | | 56+48+41 /50+43+37 | 80+60+60 /70+60+50 | 218/230 | 23.2+28.8+15.7+28.8+34 /21+26+14.5+26+30.5 | 1.2+1.2+0.75 | 5.6+5.6+4.8 /5.1+5.1+4.4 |
| (H,Y)VAHR312B31S | | | | | | 56+56+41 /50+50+37 | 80+80+60 /70+70+50 | 218/230 | 23.2+28.8+23.2+28.8+34 /21+26+21+26+30.5 | 1.2+1.2+0.75 | 5.6+5.6+4.8 /5.1+5.1+4.4 |
| (H,Y)VAHR336B31S | | | | | | 48+48+41+41 /43+37+37 | 60+60+60+60 /60+60+50+50 | 236/247 | 15.7+28.8+15.7+28.8+34+34 /14.5+26+14.5+26+30.5+30.5 | 1.2+1.2+0.75+0.75 | 5.6+5.6+4.8+4.8 /5.1+5.1+4.4+4.4 |
| (H,Y)VAHR336B31LM | | | | | | 56+56+48 /50+50+43 | 80+80+60 /70+70+60 | 238/250 | 23.2+28.8+23.2+28.8+15.7+28.8 /21+26+21+26+14.5+26 | 1.2+1.2+1.2 | 5.6+5.6+5.6 /5.1+5.1+5.1 |
| (H,Y)VAHR360B31S | | | | | | 56+48+41+41 /50+43+37+37 | 80+60+60+60 /70+60+50+50 | 236/247 | 23.2+28.8+15.7+28.8+34+34 /21+26+14.5+26+30.5+30.5 | 1.2+1.2+0.75+0.75 | 5.6+5.6+4.8+4.8 /5.1+5.1+4.4+4.4 |
| (H,Y)VAHR360B31LM | | | | | | 56+56+56 /50+50+50 | 80+80+80 /70+70+70 | 238/250 | 23.2+28.8+23.2+28.8+23.2+28.8 /21+26+21+26+21+26 | 1.2+1.2+1.2 | 5.6+5.6+5.6 /5.1+5.1+5.1 |

<460V 60Hz>

| Model | Unit Main Power | | | Applicable Voltage | | Power Supply | | | Compressor | Fan Motor | |
|-------------------|-----------------|----|----|--------------------|------|--------------|-------------|---------|-----------------------|-------------------|-----------------|
| | VOL | PH | Hz | Max. | Min. | MCA [A] | MFA [A] | STC [A] | RLA [A] | OPT [kW] | FLA [A] |
| (H,Y)VAHR072B41S | 460 | 3 | 60 | 506 | 414 | 21 | 30 | 7 | 17.5 | 0.75 | 8.7 |
| (H,Y)VAHR096B41S | | | | | | 21 | 30 | 84 | 11+12 | 1.2 | 8.7 |
| (H,Y)VAHR120B41S | | | | | | 25 | 30 | 84 | 15+12 | 1.2 | 8.7 |
| (H,Y)VAHR144B41S | | | | | | 21+21 | 30+30 | 14 | 17.5+17.5 | 0.75+0.75 | 8.7+8.7 |
| (H,Y)VAHR168B41S | | | | | | 21+21 | 30+30 | 93 | 11+12+17.5 | 1.2+0.75 | 8.7+8.7 |
| (H,Y)VAHR192B41S | | | | | | 21+21 | 30+30 | 103 | 11+12+11+12 | 1.2+1.2 | 8.7+8.7 |
| (H,Y)VAHR216B41S | | | | | | 21+21+21 | 30+30+30 | 21 | 17.5+17.5+17.5 | 0.75+0.75+0.75 | 8.7+8.7+8.7 |
| (H,Y)VAHR240B41S | | | | | | 21+21+21 | 30+30+30 | 102 | 11+12+17.5+17.5 | 1.2+0.75+0.75 | 8.7+8.7+8.7 |
| (H,Y)VAHR240B41LM | | | | | | 25+25 | 30+30 | 103 | 15+12+15+12 | 1.2+1.2 | 8.7+8.7 |
| (H,Y)VAHR264B41S | | | | | | 25+21+21 | 30+30+30 | 102 | 15+12+17.5+17.5 | 1.2+0.75+0.75 | 8.7+8.7+8.7 |
| (H,Y)VAHR288B41S | | | | | | 25+21+21 | 30+30+30 | 112 | 15+12+11+12+17.5 | 1.2+1.2+0.75 | 8.7+8.7+8.7 |
| (H,Y)VAHR312B41S | | | | | | 25+25+21 | 30+30+30 | 112 | 15+12+15+12+17.5 | 1.2+1.2+0.75 | 8.7+8.7+8.7 |
| (H,Y)VAHR336B41S | | | | | | 21+21+21+21 | 30+30+30+30 | 121 | 11+12+11+12+17.5+17.5 | 1.2+1.2+0.75+0.75 | 8.7+8.7+8.7+8.7 |
| (H,Y)VAHR336B41LM | | | | | | 25+25+21 | 30+30+30 | 122 | 15+12+15+12+11+12 | 1.2+1.2+1.2 | 8.7+8.7+8.7 |
| (H,Y)VAHR360B41S | | | | | | 25+21+21+21 | 30+30+30+30 | 121 | 15+12+11+12+17.5+17.5 | 1.2+1.2+0.75+0.75 | 8.7+8.7+8.7+8.7 |
| (H,Y)VAHR360B41LM | | | | | | 25+25+25 | 30+30+30 | 122 | 15+12+15+12+15+12 | 1.2+1.2+1.2 | 8.7+8.7+8.7 |

VOL: Rated Unit Power Supply Voltage (V)
 PH: Phase (φ)
 HZ: Frequency (Hz)
 MCA: Minimum Circuit Ampacity (A)
 MFA: Maximum Fuse Ampacity (A)

STC: Starting Current (A)
 RLA: Rated Load Ampacity (A)
 OPT: Rated Motor Output (kW)
 FLA: Full Load Ampacity (A)

NOTES:

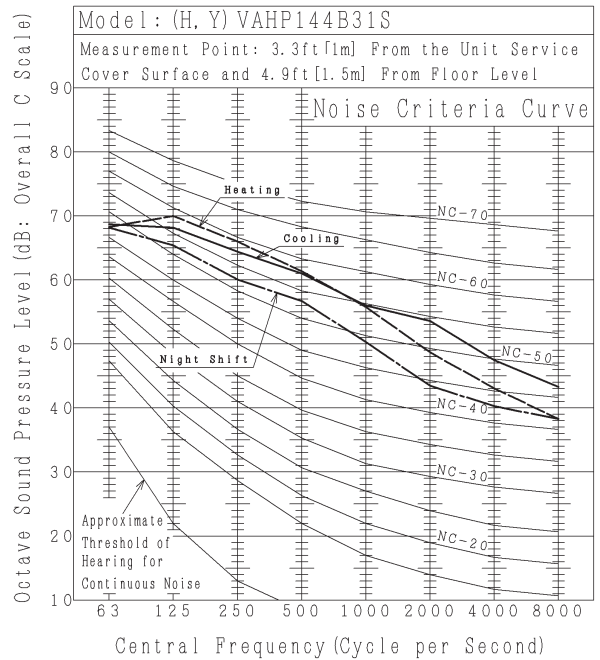
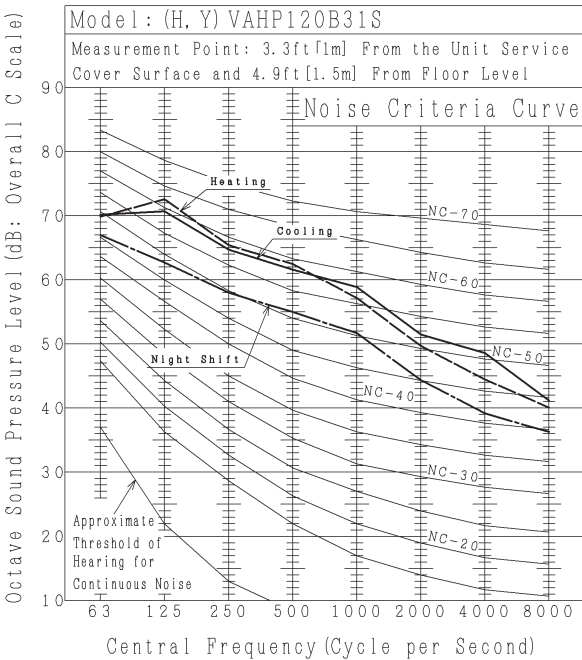
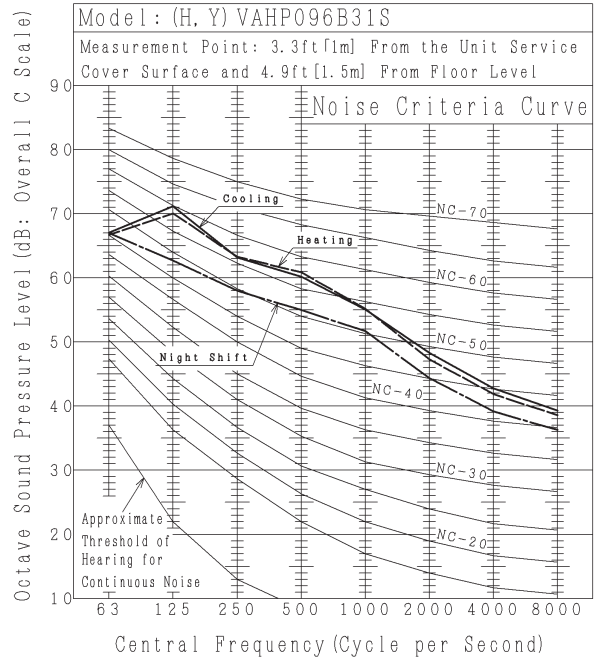
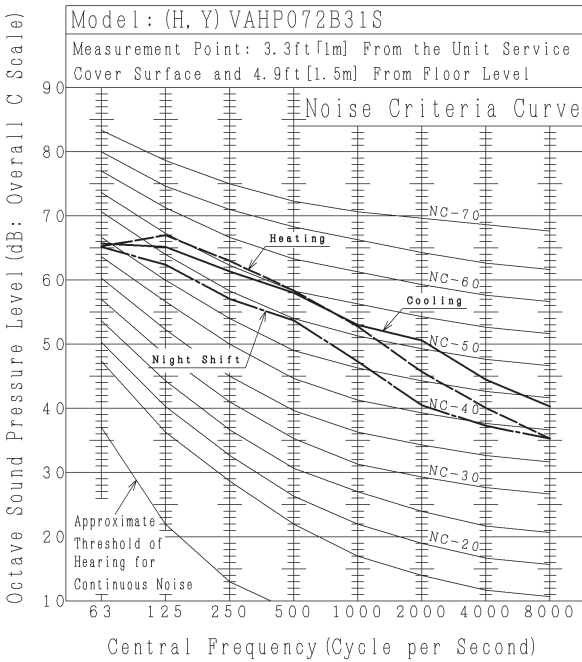
- Power supply voltage should be satisfied with the following.
 Supply Voltage: Rated Voltage within ±10%
 Starting Voltage: Rated Voltage within -15%
 Operating Voltage: Rated Voltage within ±10%
 Imbalance between Phases: Within 3%
- The compressor is started by an inverter, resulting in extremely low starting current.

2.10 Sound Data

2.10.1 Heat Pump Type

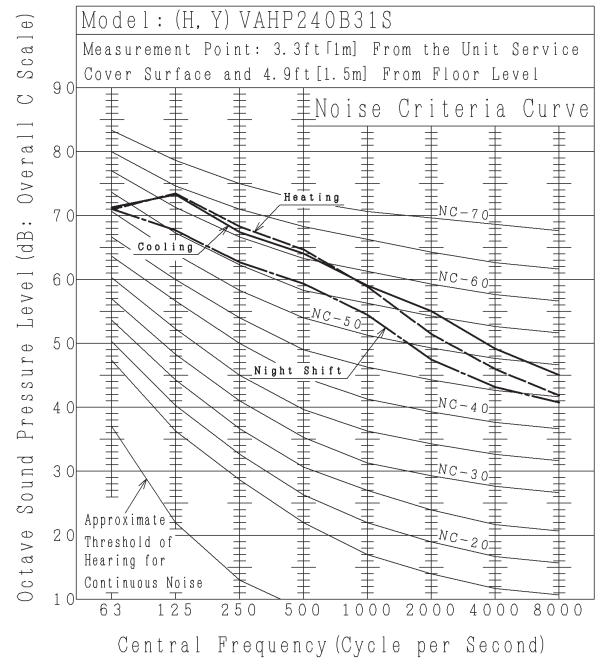
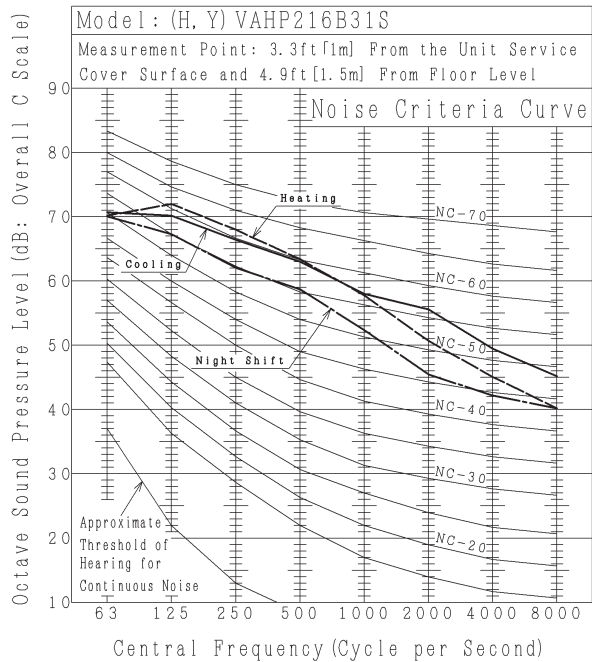
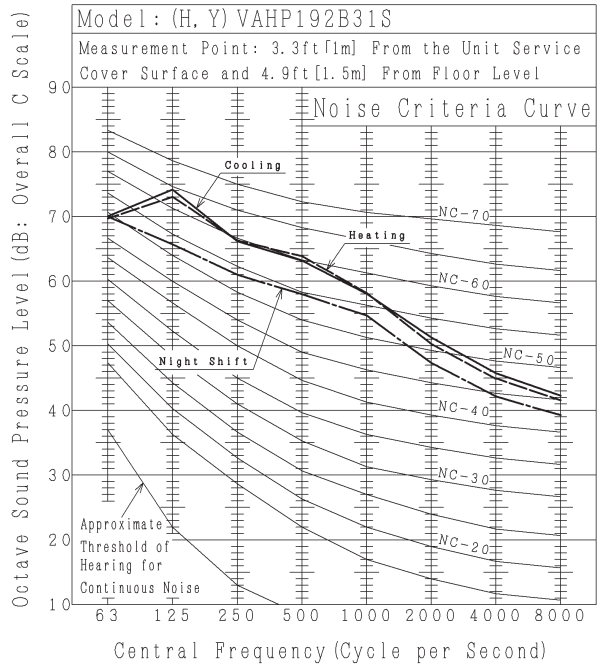
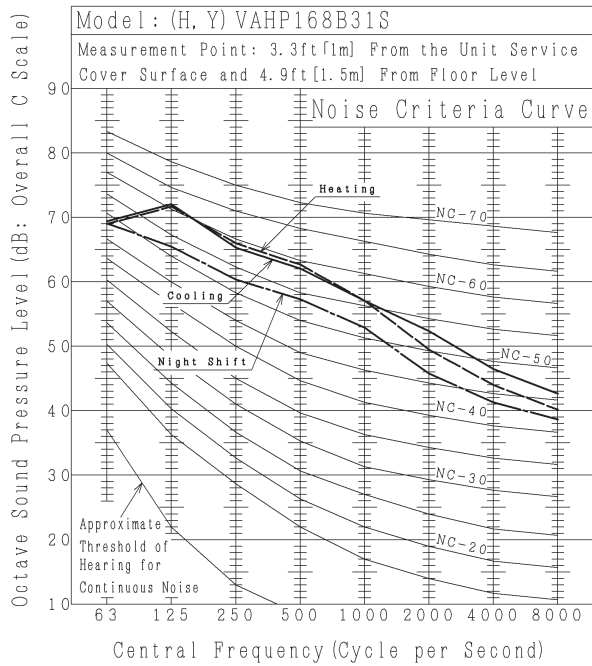
(1) 208 / 230V

- Standard Type



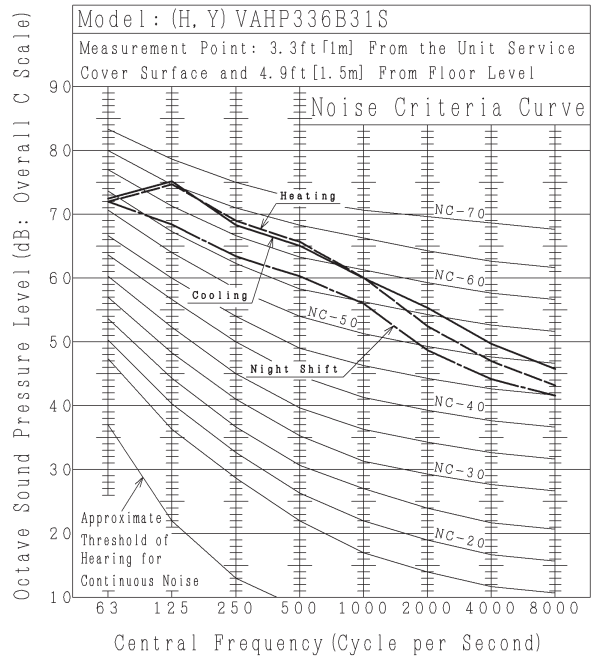
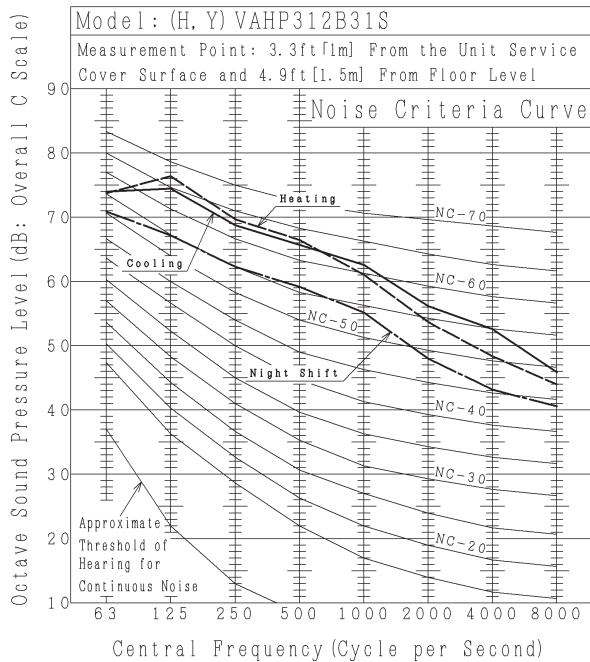
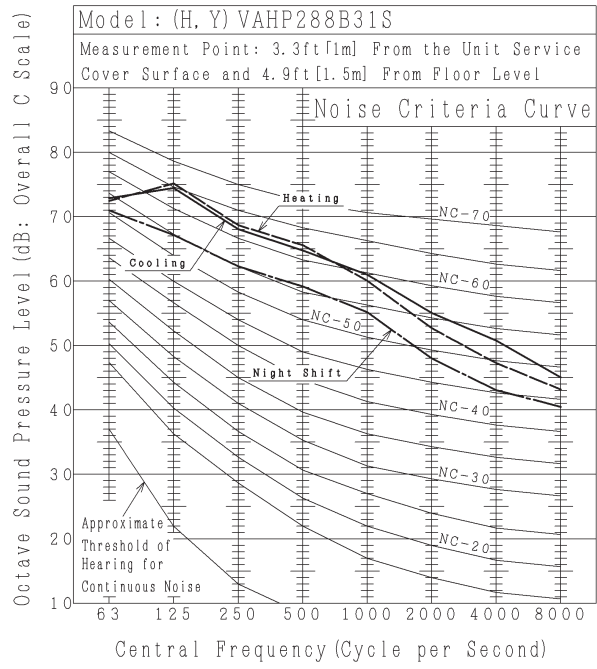
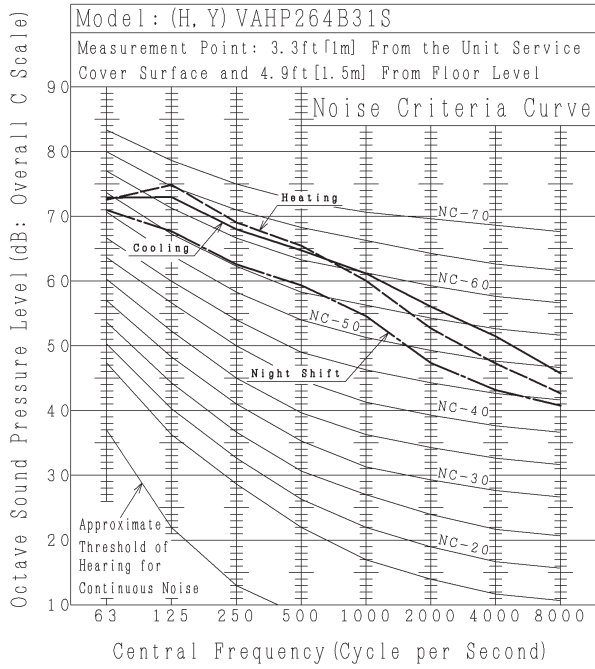
NOTE:

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.



NOTE:

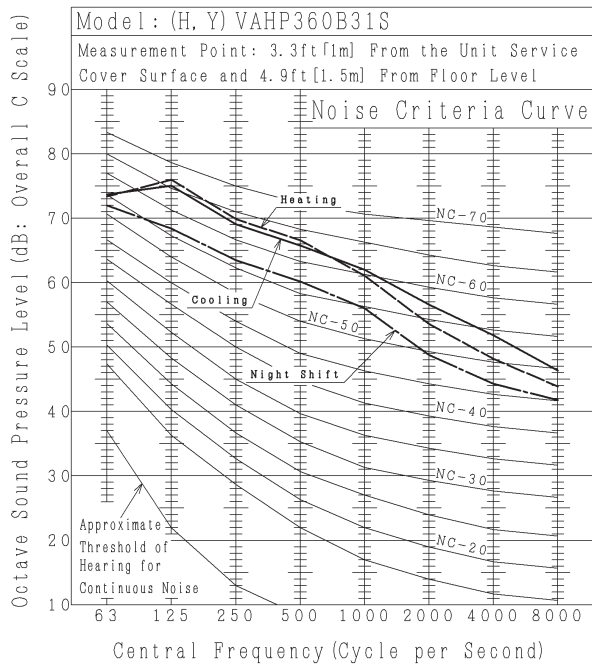
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.



NOTE:

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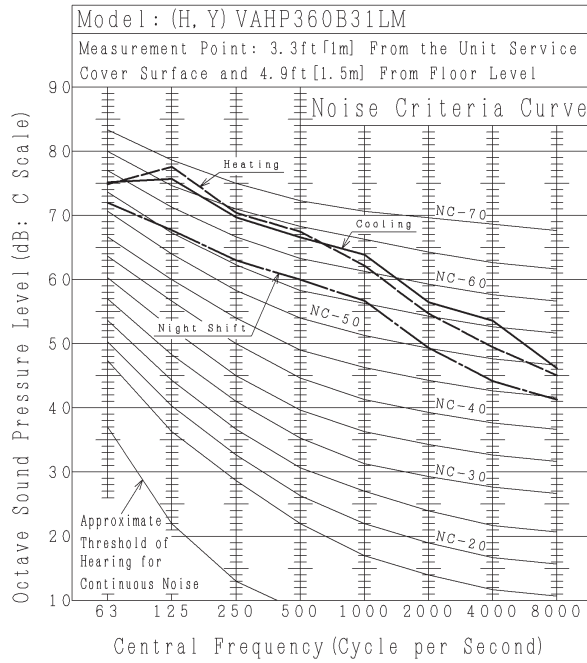
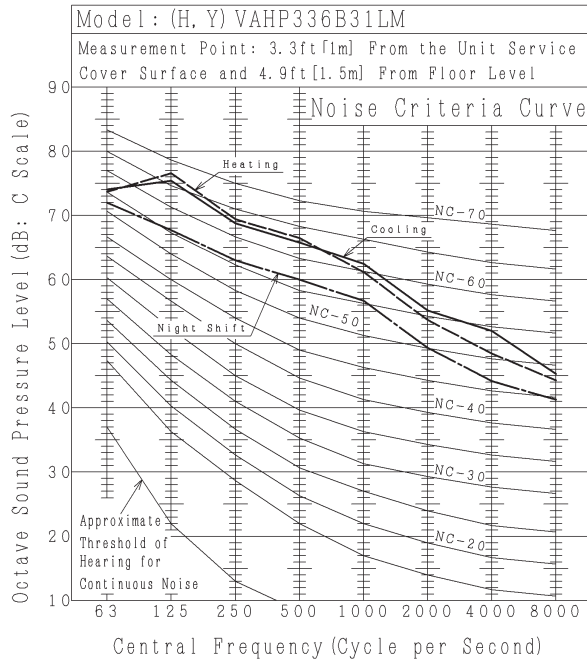
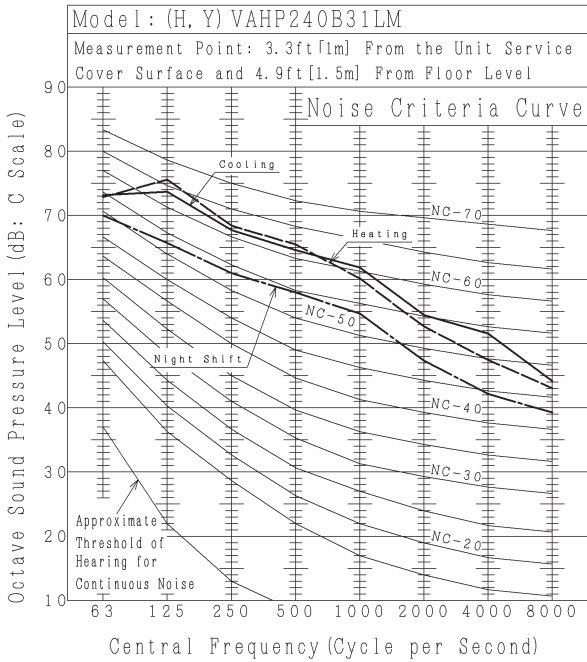
OUTDOOR UNITS



NOTE:

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

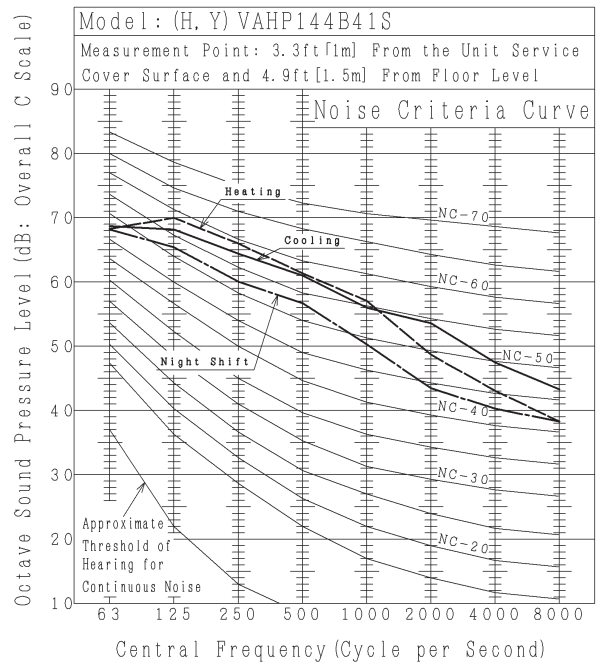
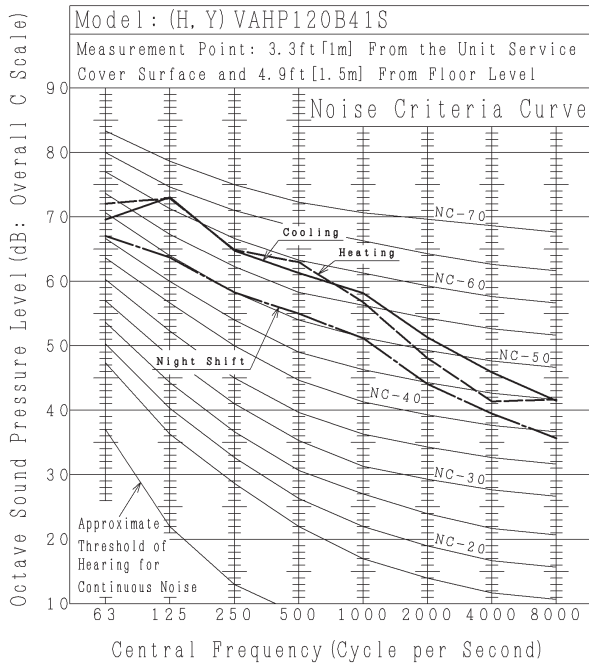
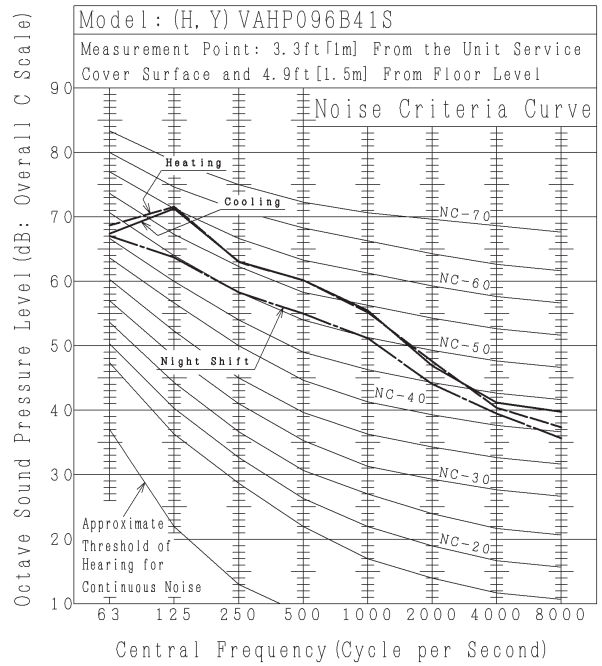
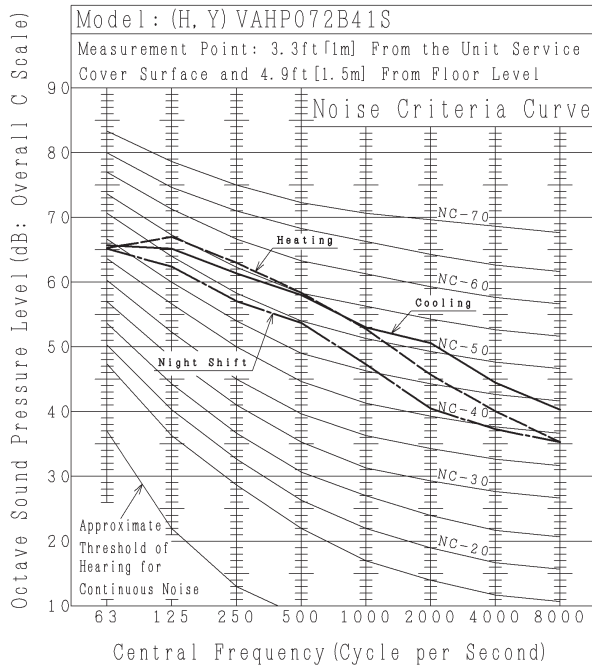
• Less Module Type



NOTE:

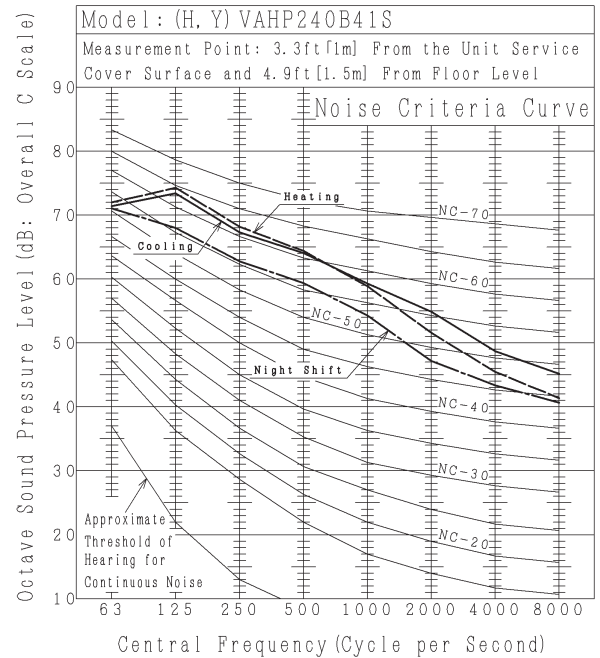
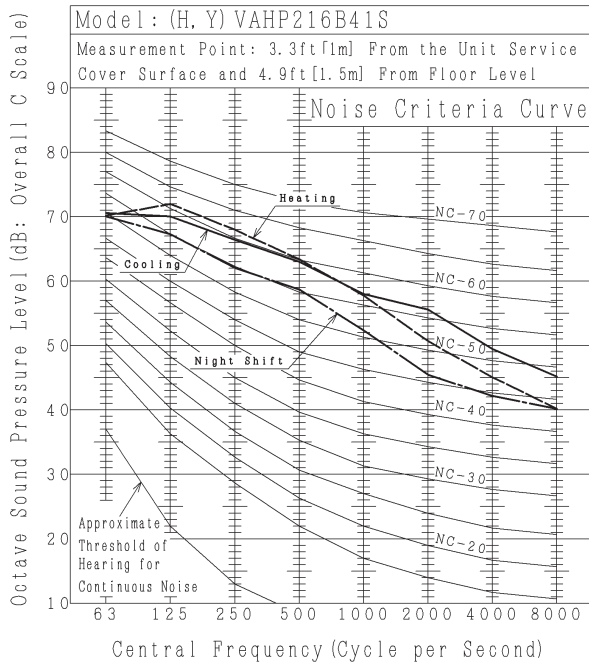
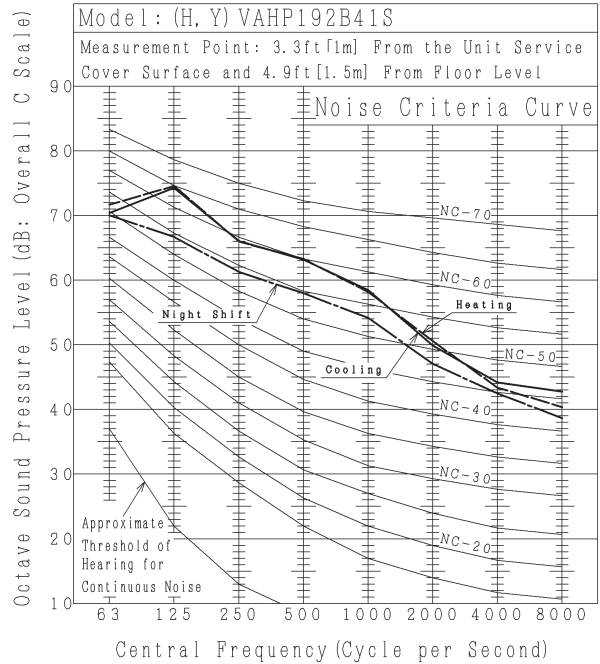
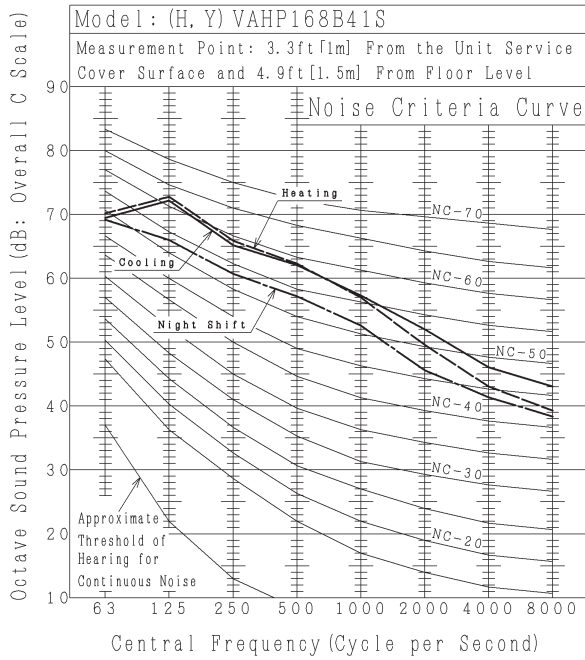
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

(2) 460V
 • Standard Type



NOTE:

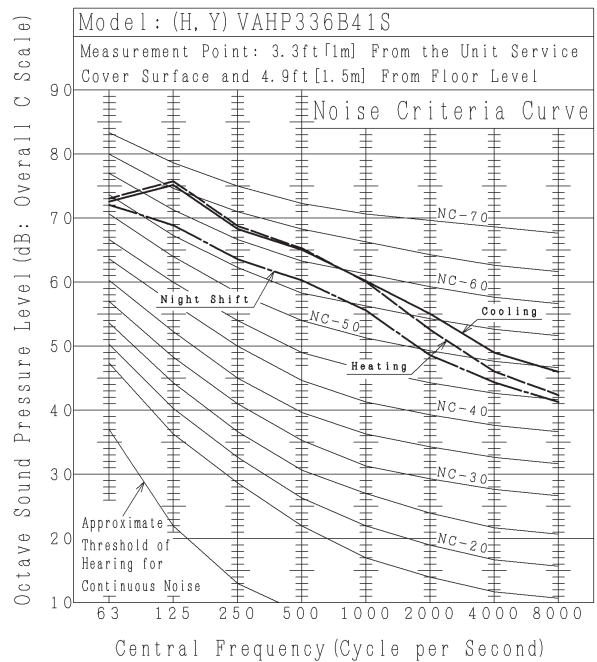
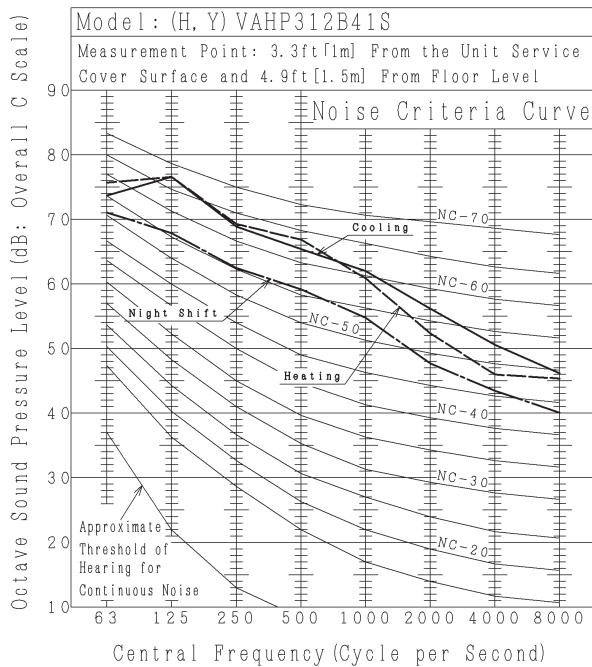
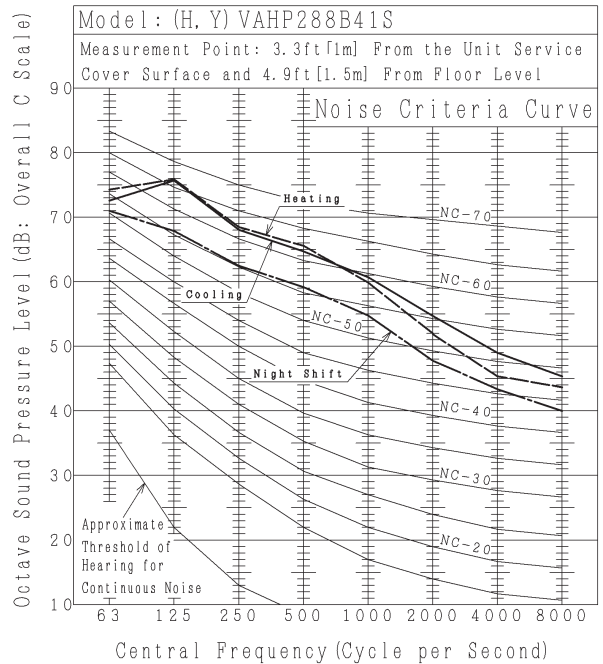
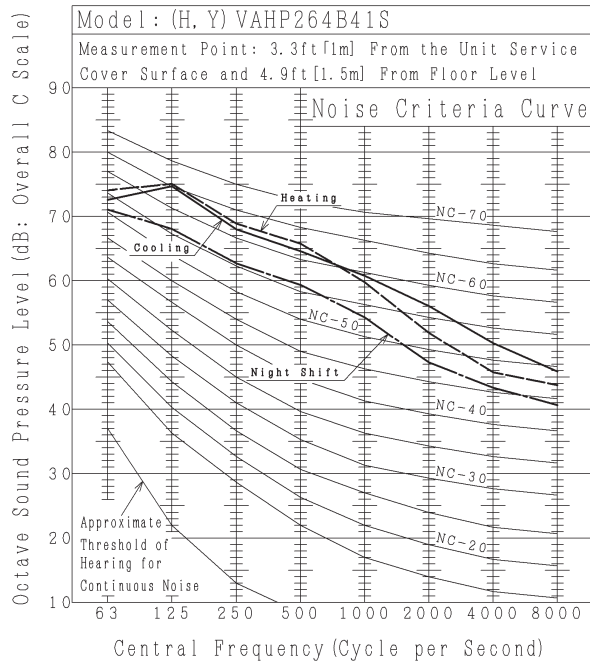
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.



NOTE:

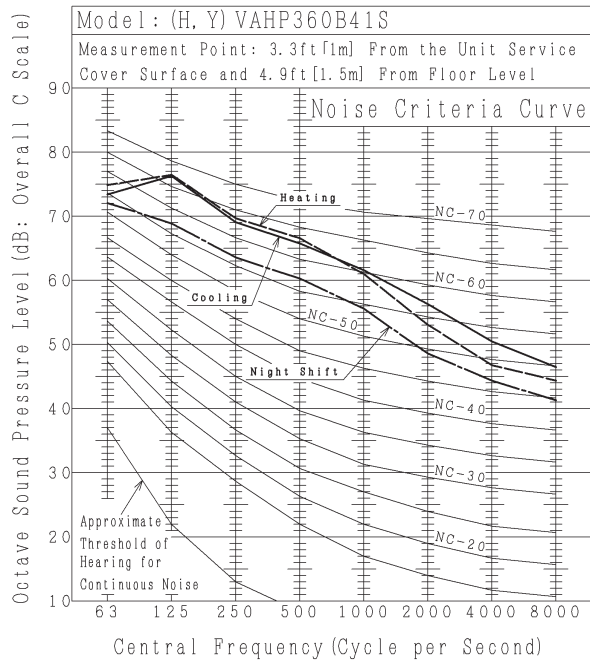
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS



NOTE:

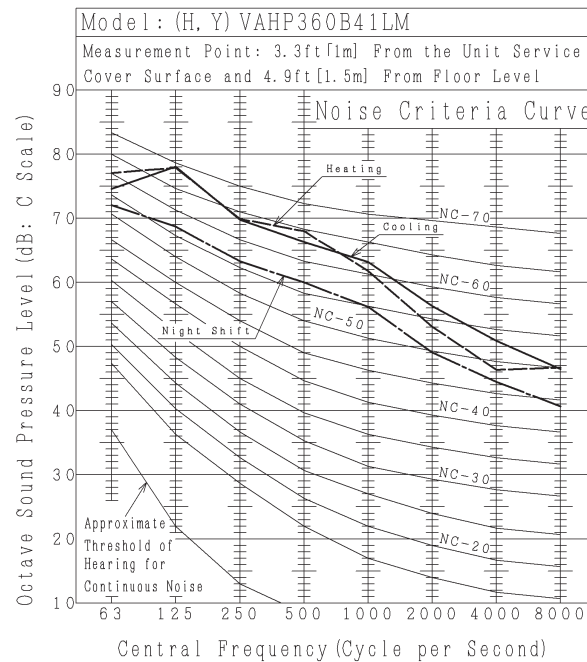
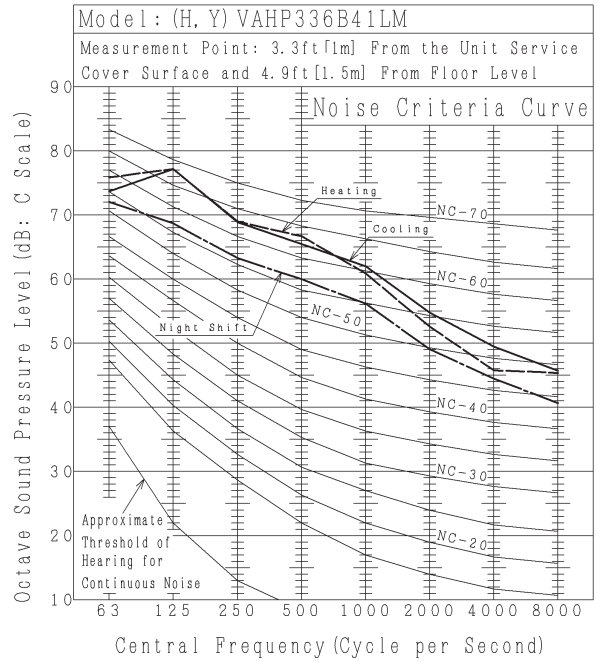
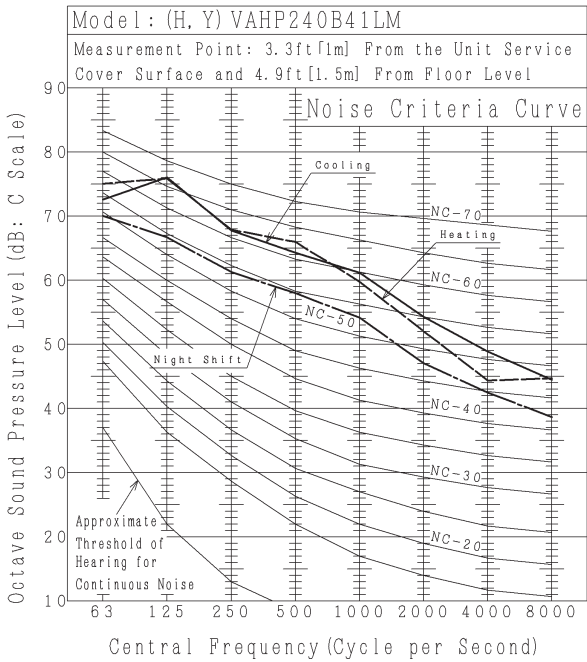
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.



NOTE:

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

● Less Module Type

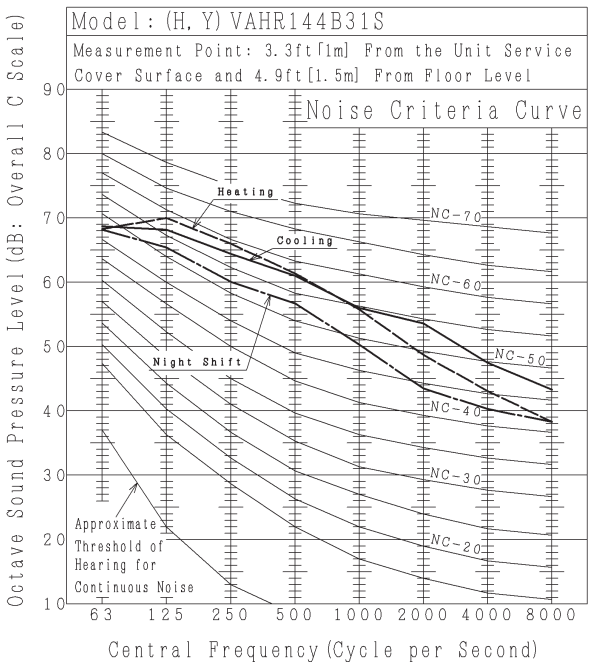
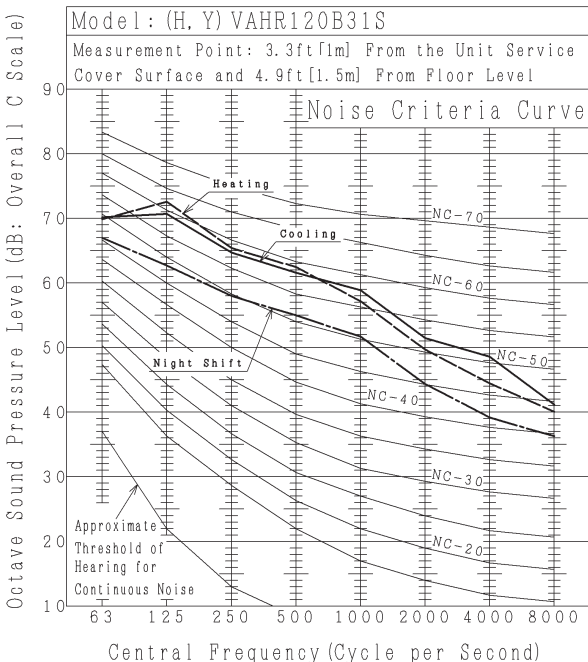
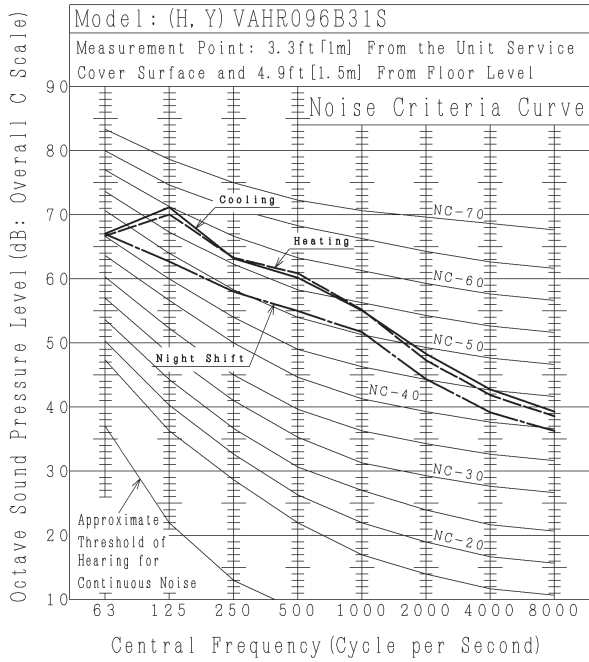
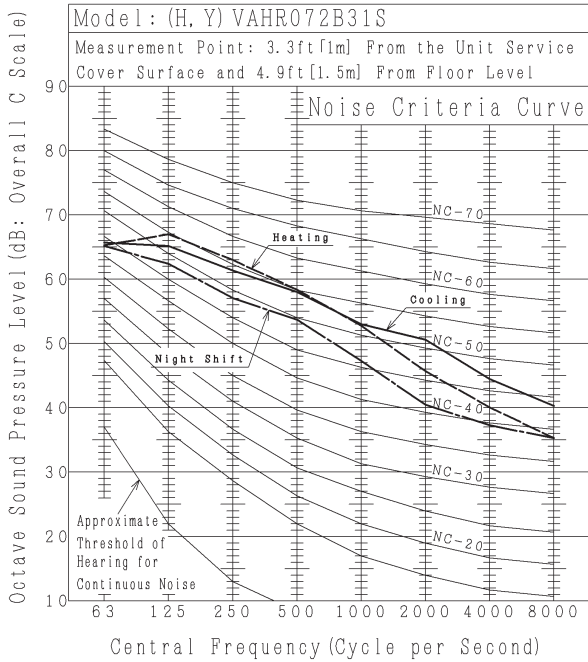


NOTE:

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

2.10.2 Heat Recovery Type

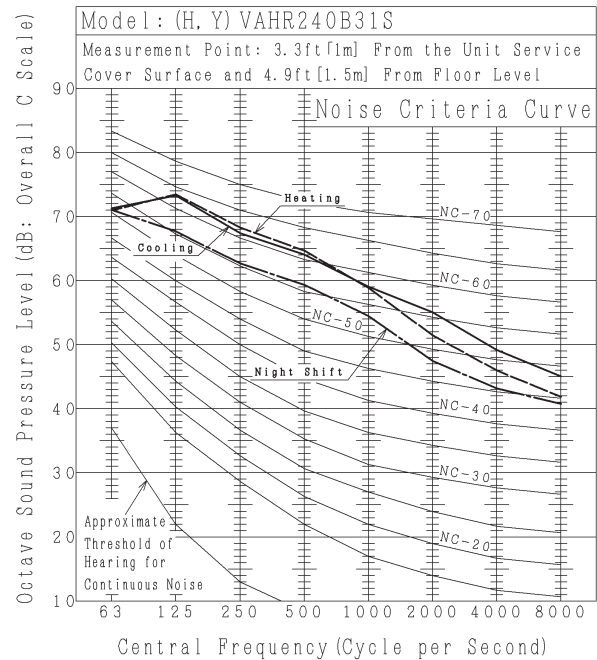
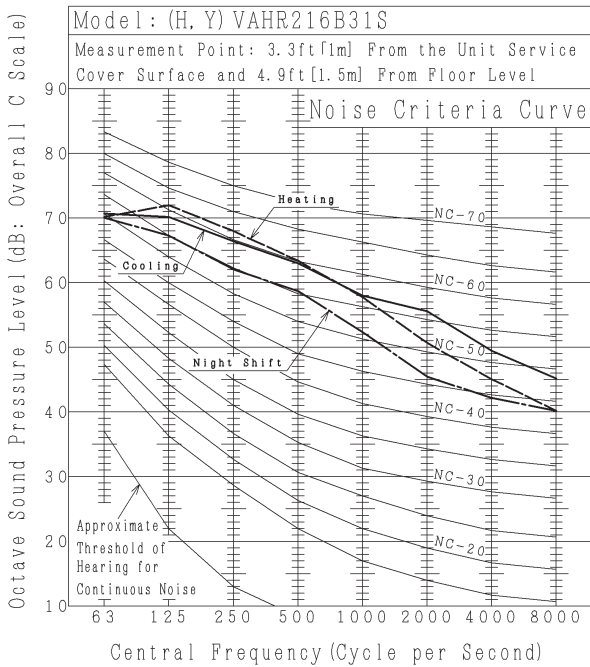
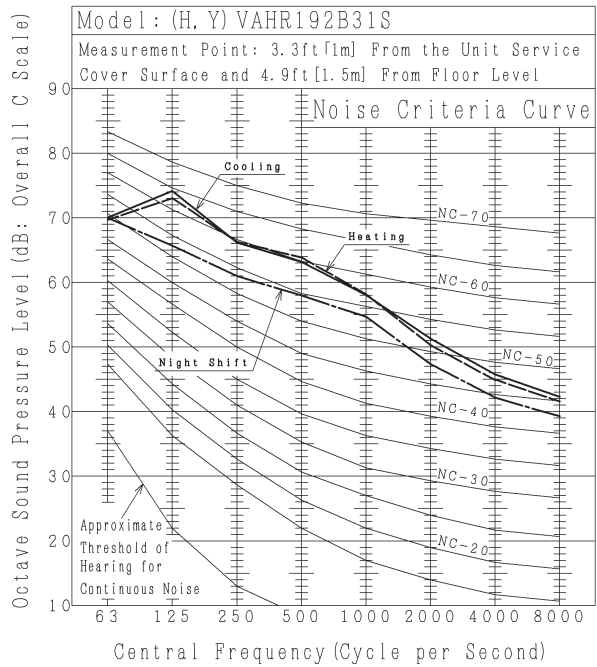
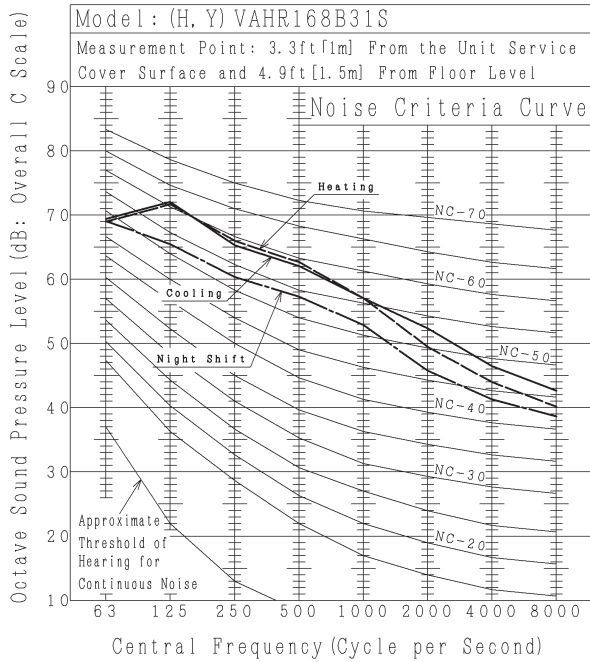
- (1) 208 / 230V
- Standard Type



NOTE:

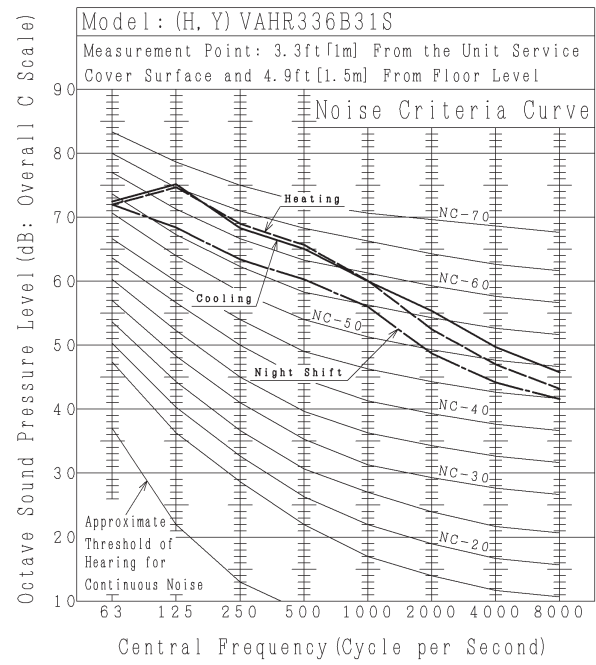
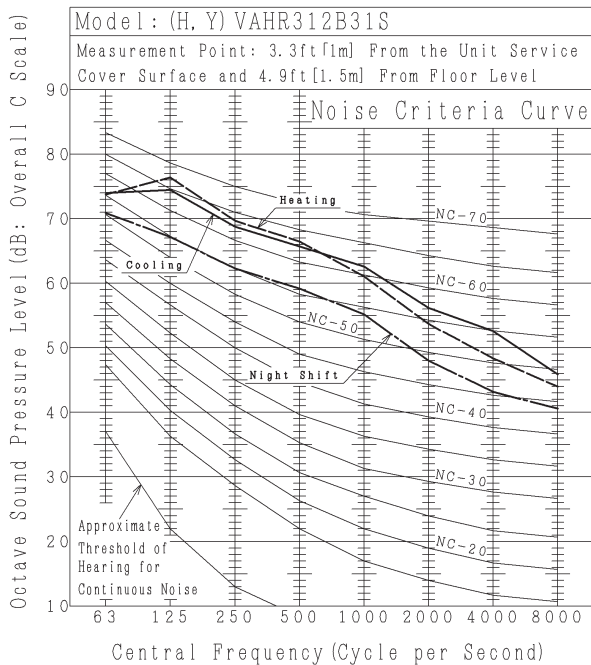
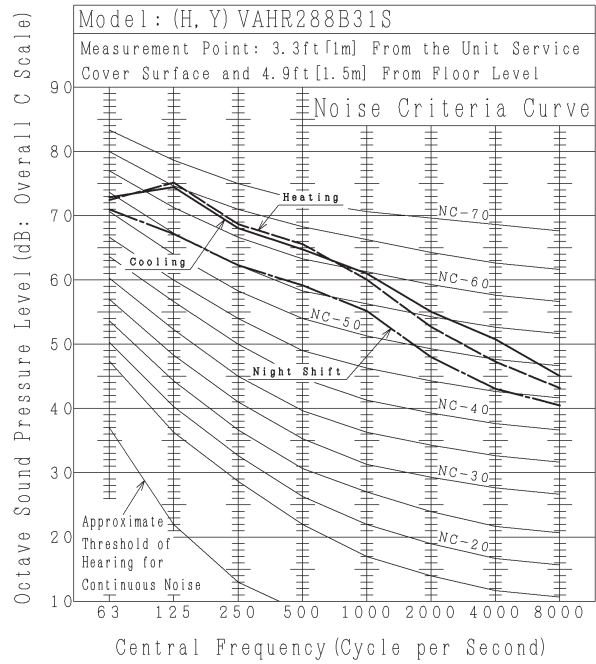
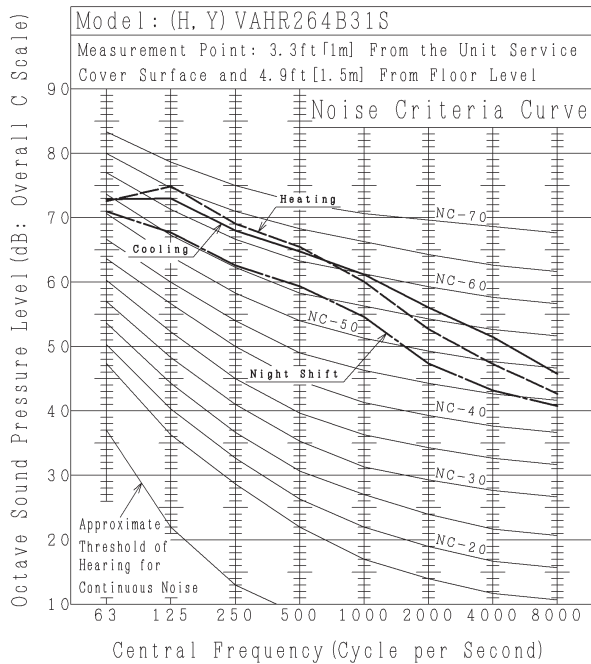
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS



NOTE:

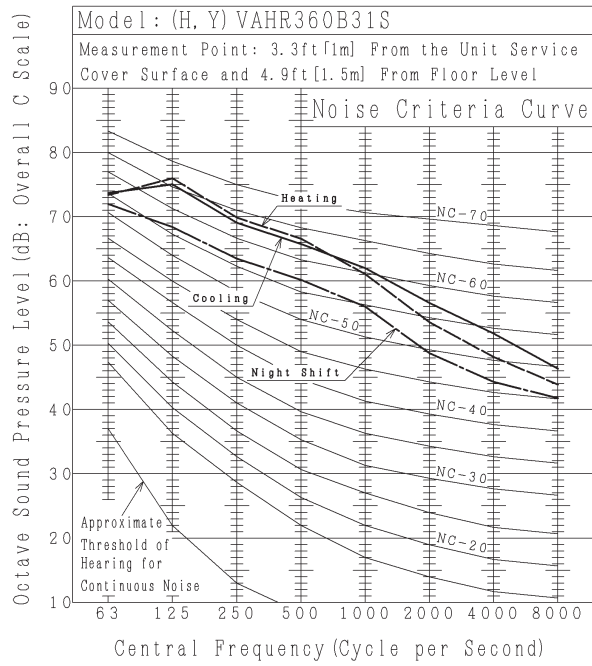
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.



NOTE:

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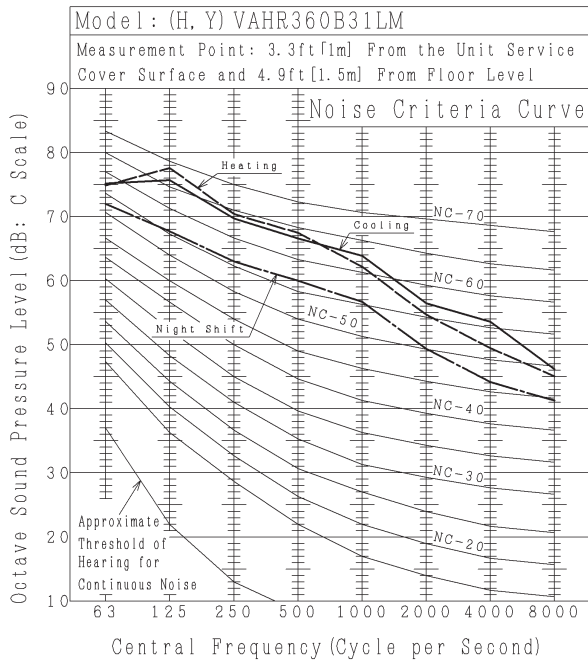
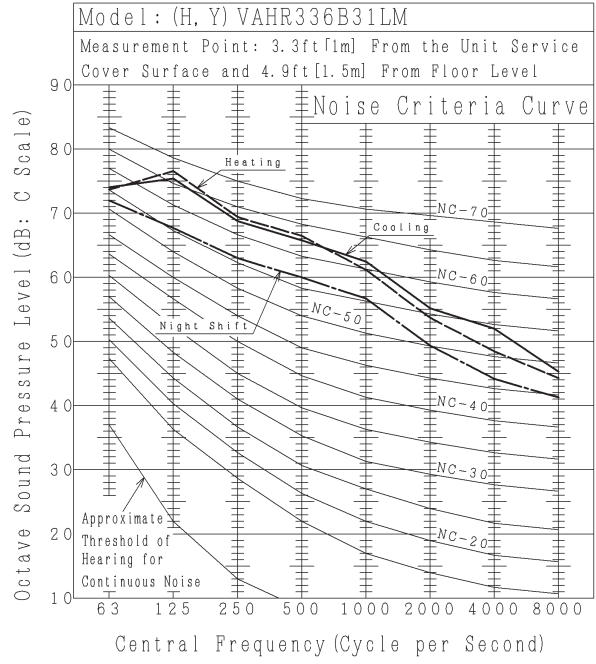
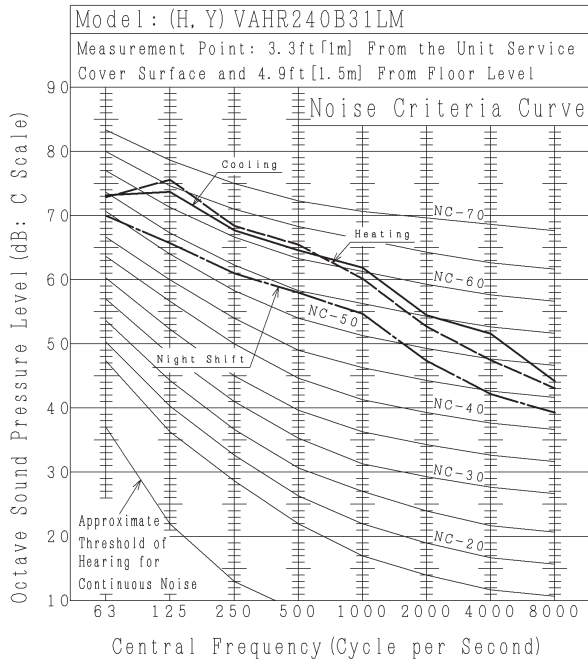
OUTDOOR UNITS



NOTE:

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

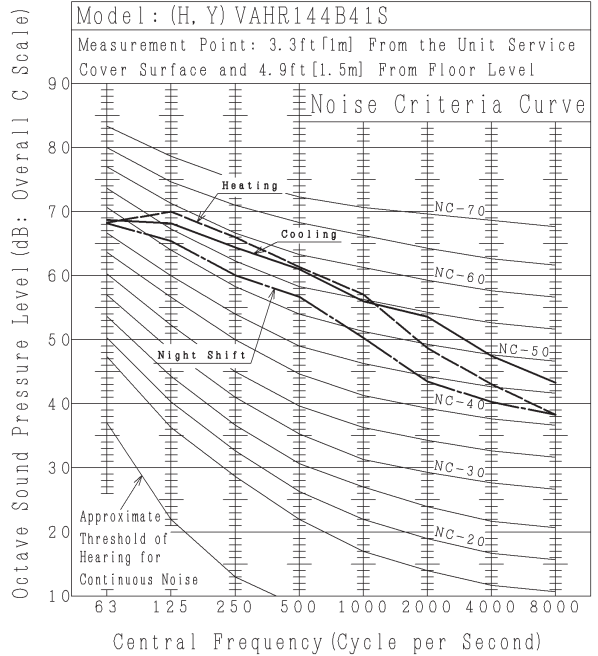
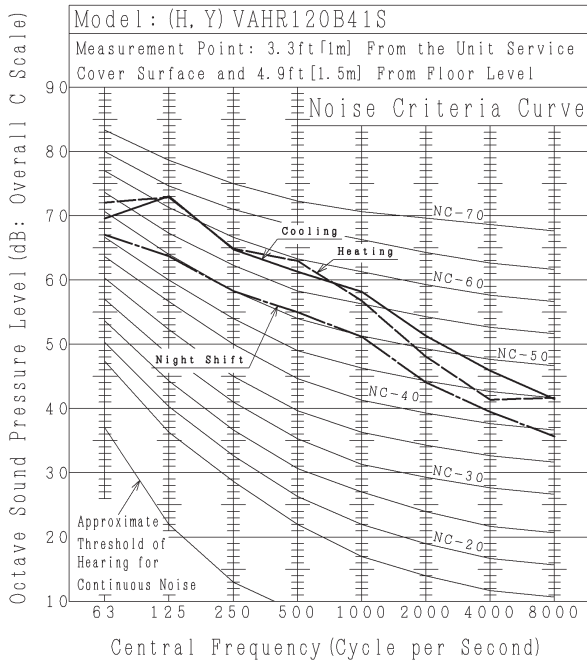
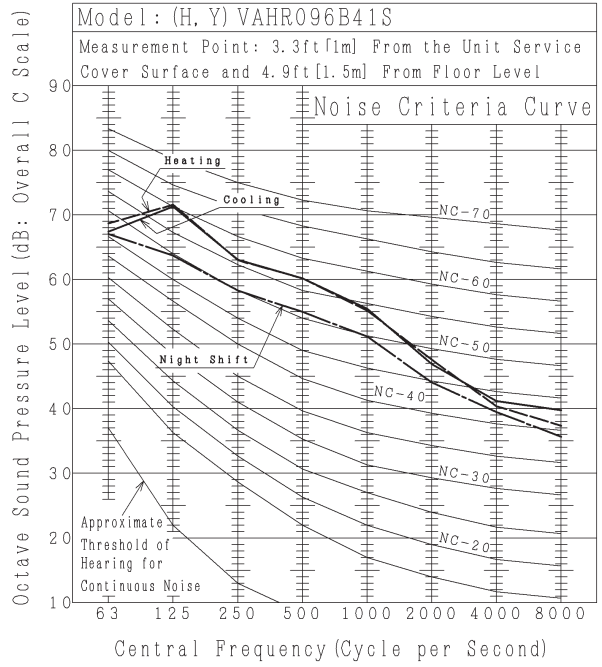
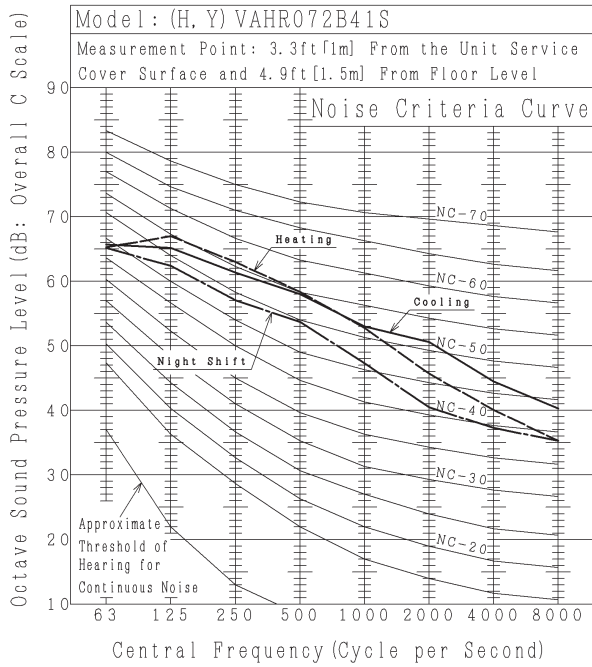
• Less Module Type



NOTE:

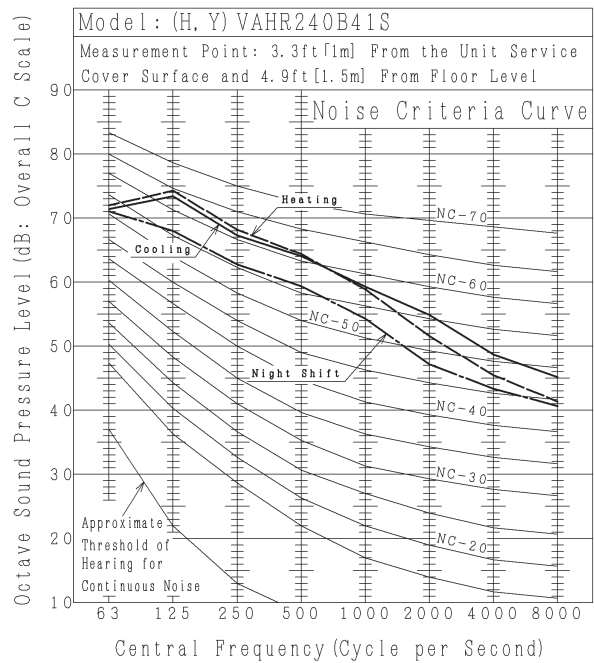
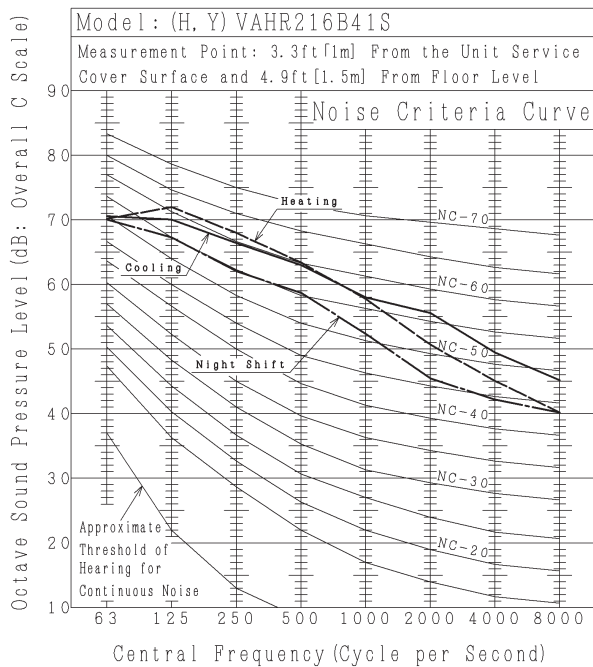
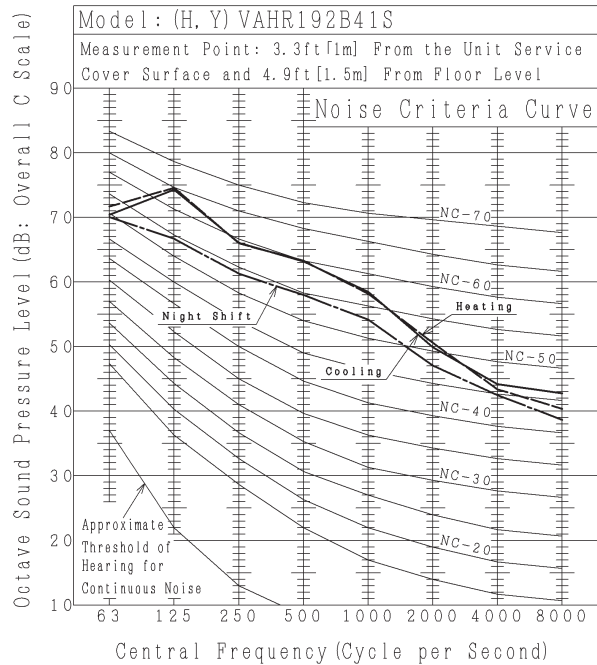
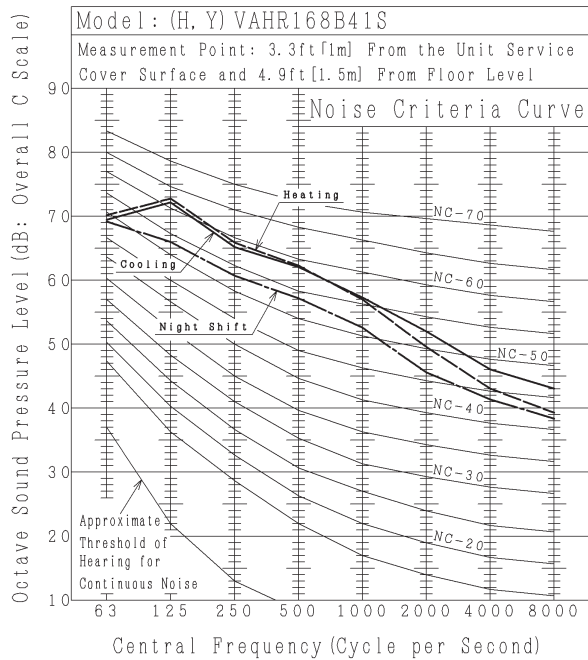
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

(2) 460V
 • Standard Type



NOTE:

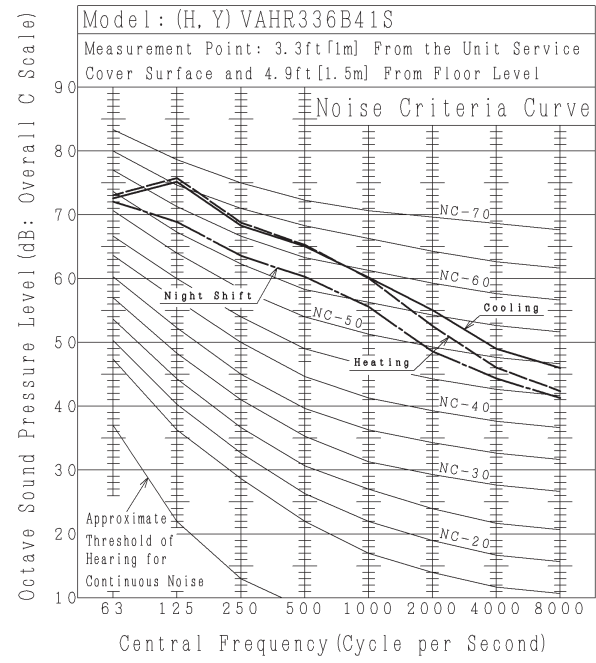
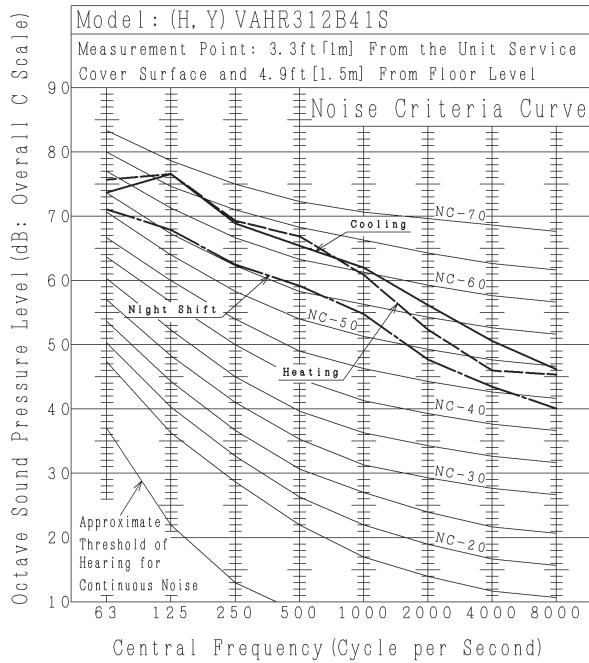
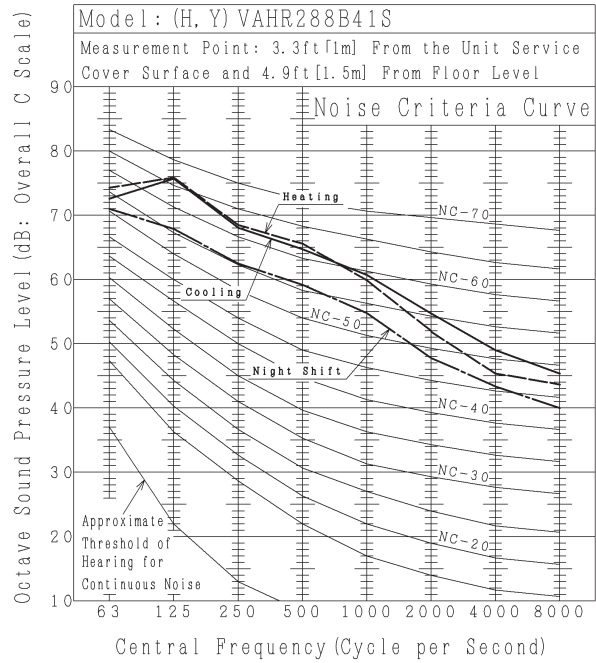
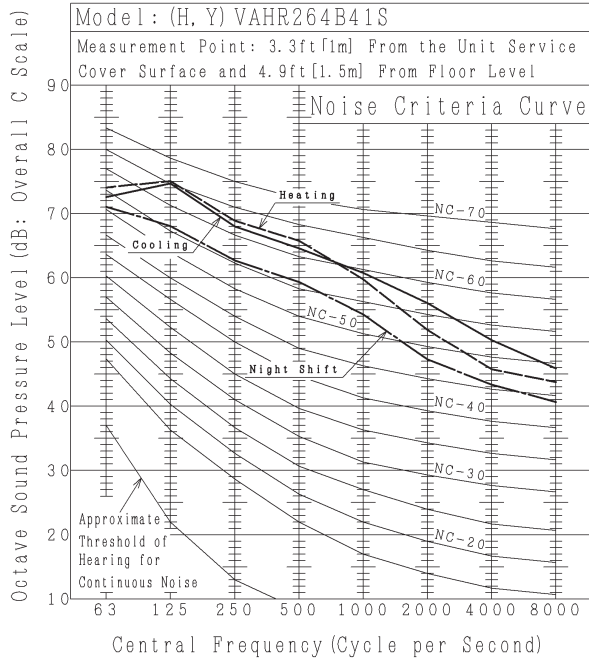
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.



NOTE:

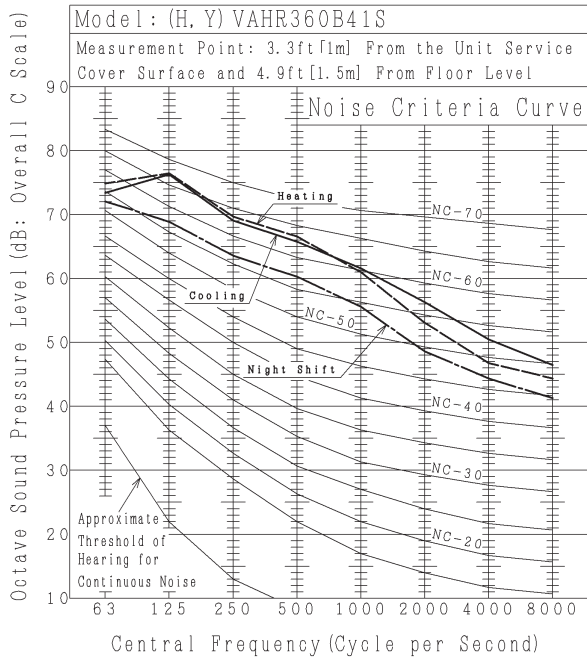
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS



NOTE:

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

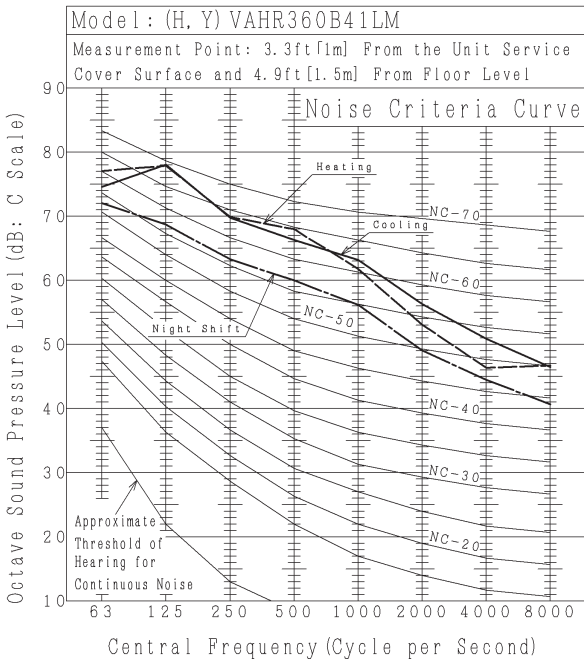
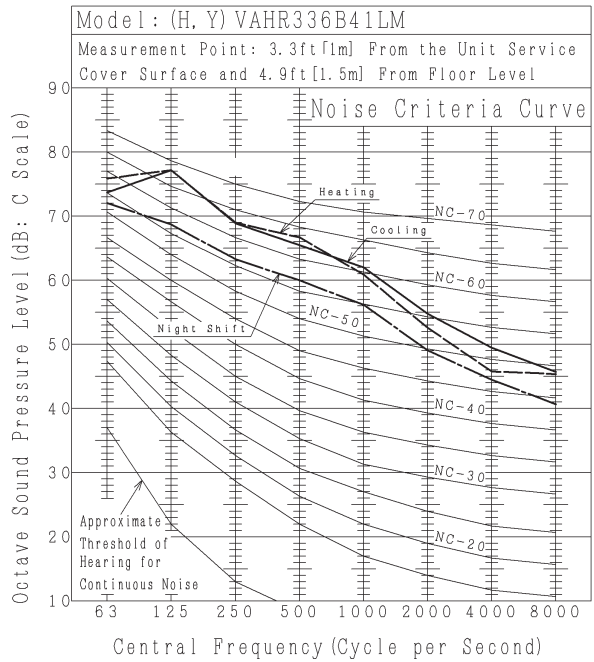
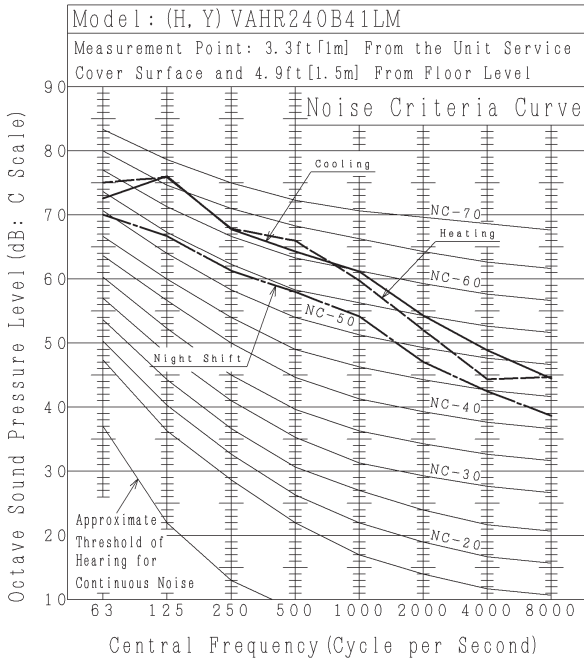


NOTE:

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

OUTDOOR UNITS

● Less Module Type



NOTE:

The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder because of ambient noise or echoing. Be sure to check ambient conditions before installation. The sound of the air inlet side is 8dB higher than that of the front side.

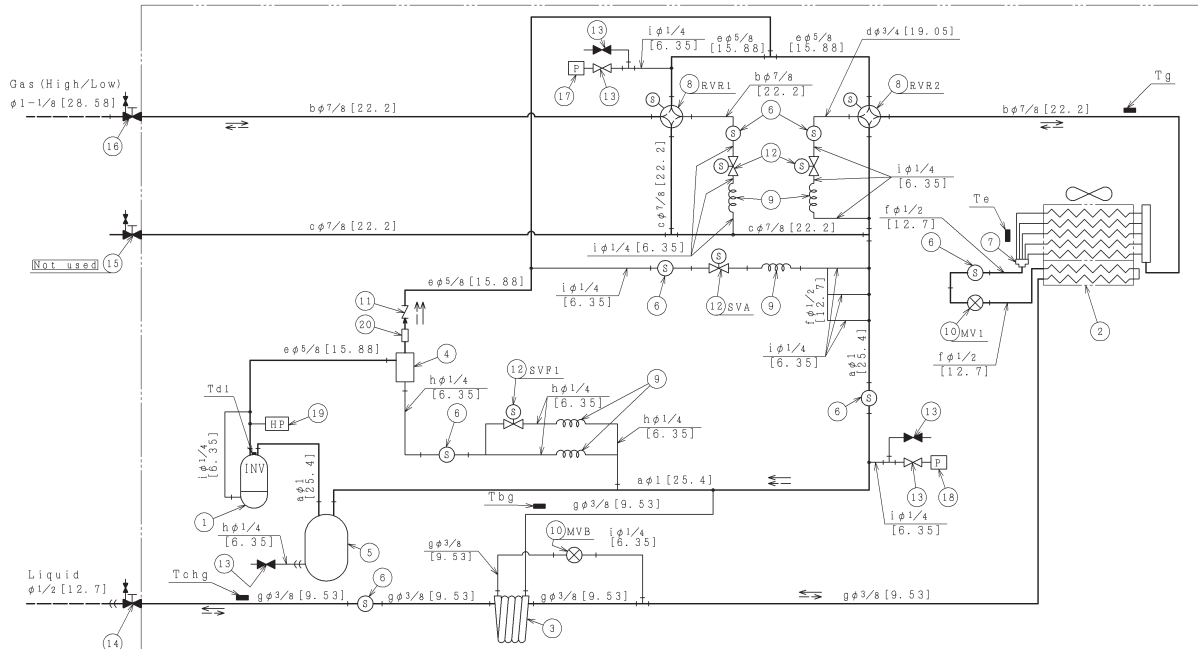
2.11 Control System

2.11.1 Refrigerant Cycle

(1) Heat Pump Type

Model: (H,Y)VAHP072B31S and (H,Y)VAHP072B41S

inch (mm)



- ← :Refrigerant Flow Direction (Cooling)
- ← - - - :Refrigerant Flow Direction (Heating)
- :Field Refrigerant Piping
-)) :Flare Connection
- + :Brazing Connection
- :Thermistor

| Mark | Name |
|------|---|
| Td1 | Thermistor for Upper Side of Compressor 1 |
| Tg | Thermistor for Heat Exchanger Gas Side |
| Te | Thermistor for Heat Exchanger Liquid Side |
| Tbg | Thermistor for Subcooler Bypass Side |
| Tchg | Thermistor for Auto Charge of Refrigerant |

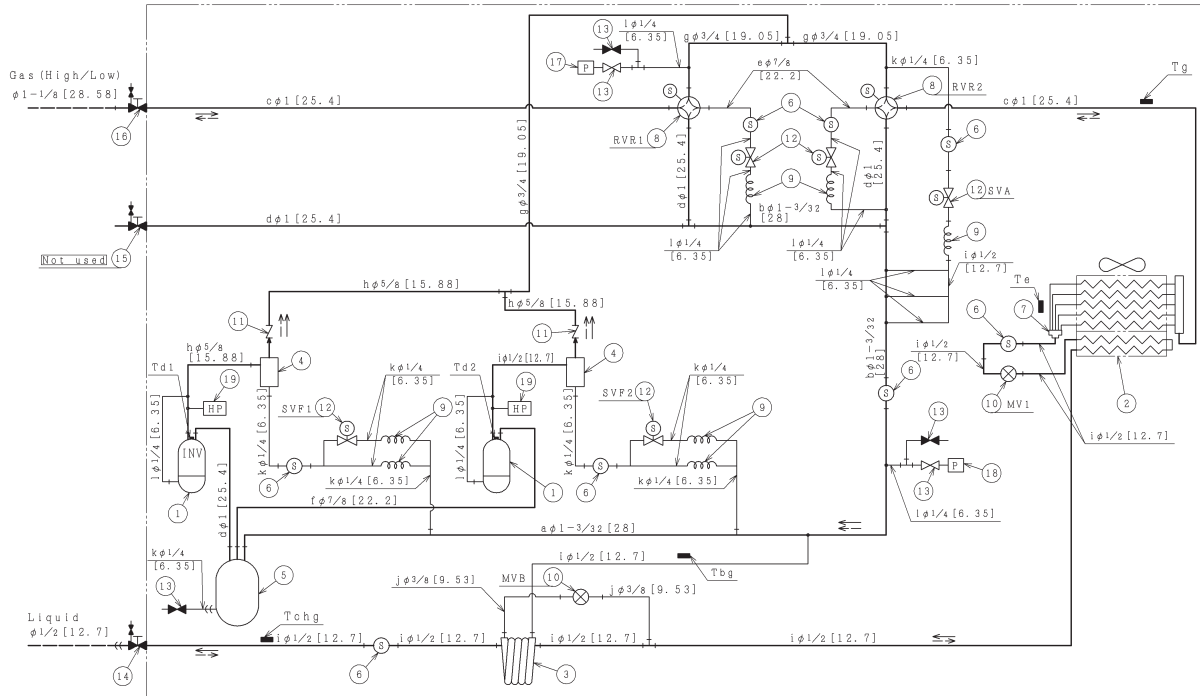
| Mark | Part Name |
|------|--|
| ① | Compressor |
| ② | Heat Exchanger |
| ③ | Double Tube Type Heat Exchanger |
| ④ | Oil Separator |
| ⑤ | Accumulator |
| ⑥ | Strainer |
| ⑦ | Distributor |
| ⑧ | Reversing Valve |
| ⑨ | Capillary Tube |
| ⑩ | Micro-Computer Control Expansion Valve |
| ⑪ | Check Valve |
| ⑫ | Solenoid Valve |
| ⑬ | Check Joint |
| ⑭ | Stop Valve for Liquid Line |
| ⑮ | Stop Valve for Gas (Low) Line |
| ⑯ | Stop Valve for Gas (High/Low) Line |
| ⑰ | Sensor for Refrigerant Pressure (High Pressure Sensor) |
| ⑱ | Sensor for Refrigerant Pressure (Low Pressure Sensor) |
| ⑲ | High Pressure Switch for Protection |
| ⑳ | Silencer |

| Mark | OD×T | Material |
|------|----------------------------|----------|
| a | 1×0.047 [25.4]×[1.2] | C1220T-0 |
| b | 7/8×0.059 [22.2]×[1.5] | |
| c | 7/8×0.047 [22.2]×[1.2] | |
| d | 3/4×0.047 [19.05]×[1.2] | |
| e | 5/8×0.047 [15.88]×[1.2] | |
| f | 1/2×0.039 [12.7]×[1.0] | |
| g | 3/8×0.031 [9.52]×[0.8] | |
| h | 1/4×0.042 [6.35]×[1.07] | |
| i | 1/4×0.028 [6.35]×[0.7] | |

OD:Outer diameter
T:Thickness

Model: (H,Y)VAHP096B31S, (H,Y)VAHP120B31S, (H,Y)VAHP096B41S and (H,Y)VAHP120B41S

inch (mm)



- ← :Refrigerant Flow Direction (Cooling)
- ← - - - :Refrigerant Flow Direction (Heating)
- :Field Refrigerant Piping
- ⌋ :Flare Connection
- ⊥ :Brazing Connection
- :Thermistor

| Mark | Name |
|------|---|
| Td1 | Thermistor for Upper Side of Compressor 1 |
| Td2 | Thermistor for Upper Side of Compressor 2 |
| Tg | Thermistor for Heat Exchanger Gas Side |
| Te | Thermistor for Heat Exchanger Liquid Side |
| Tbg | Thermistor for Subcooler Bypass Side |
| Tchg | Thermistor for Auto Charge of Refrigerant |

| Mark | Part Name |
|------|--|
| ① | Compressor |
| ② | Heat Exchanger |
| ③ | Double Tube Type Heat Exchanger |
| ④ | Oil Separator |
| ⑤ | Accumulator |
| ⑥ | Strainer |
| ⑦ | Distributor |
| ⑧ | Reversing Valve |
| ⑨ | Capillary Tube |
| ⑩ | Micro-Computer Control Expansion Valve |
| ⑪ | Check Valve |
| ⑫ | Solenoid Valve |
| ⑬ | Check Joint |
| ⑭ | Stop Valve for Liquid Line |
| ⑮ | Stop Valve for Gas (Low) Line |
| ⑯ | Stop Valve for Gas (High/Low) Line |
| ⑰ | Sensor for Refrigerant Pressure (High Pressure Sensor) |
| ⑱ | Sensor for Refrigerant Pressure (Low Pressure Sensor) |
| ⑲ | High Pressure Switch for Protection |

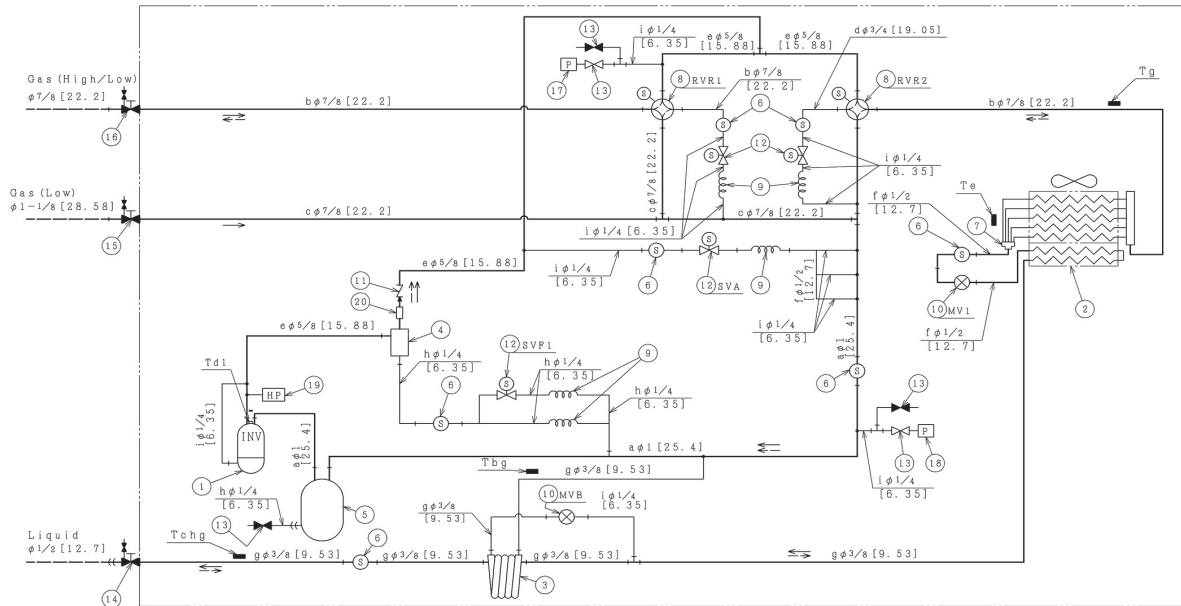
| Mark | OD×T | Material |
|------|------------------------------|----------|
| a | 1-3/32×0.075 [28.0]×[1.9] | C1220T-0 |
| b | 1-3/32×0.063 [28.0]×[1.6] | |
| c | 1×0.071 [25.4]×[1.8] | |
| d | 1×0.047 [25.4]×[1.2] | |
| e | 7/8×0.059 [22.0]×[1.5] | |
| f | 7/8×0.047 [22.0]×[1.2] | |
| g | 3/4×0.065 [19.05]×[1.65] | |
| h | 5/8×0.047 [15.88]×[1.2] | |
| i | 1/2×0.039 [12.7]×[1.0] | |
| j | 3/8×0.031 [9.52]×[0.8] | |
| k | 1/4×0.042 [6.35]×[1.07] | |
| l | 1/4×0.028 [6.35]×[0.7] | |

OD:Outer diameter
T:Thickness

(2) Heat Recovery Type

Model: (H,Y)VAHR072B31S and (H,Y)VAHR072B41S

inch (mm)



- ← :Refrigerant Flow Direction (Cooling)
- ← - - - :Refrigerant Flow Direction (Heating)
- :Field Refrigerant Piping
-)) :Flare Connection
- + :Brazing Connection
- :Thermistor

| Mark | Name |
|------|---|
| Td1 | Thermistor for Upper Side of Compressor 1 |
| Tg | Thermistor for Heat Exchanger Gas Side |
| Te | Thermistor for Heat Exchanger Liquid Side |
| Tbg | Thermistor for Subcooler Bypass Side |
| Tchg | Thermistor for Auto Charge of Refrigerant |

| Mark | Part Name |
|------|--|
| ① | Compressor |
| ② | Heat Exchanger |
| ③ | Double Tube Type Heat Exchanger |
| ④ | Oil Separator |
| ⑤ | Accumulator |
| ⑥ | Strainer |
| ⑦ | Distributor |
| ⑧ | Reversing Valve |
| ⑨ | Capillary Tube |
| ⑩ | Micro-Computer Control Expansion Valve |
| ⑪ | Check Valve |
| ⑫ | Solenoid Valve |
| ⑬ | Check Joint |
| ⑭ | Stop Valve for Liquid Line |
| ⑮ | Stop Valve for Gas (Low) Line |
| ⑯ | Stop Valve for Gas (High/Low) Line |
| ⑰ | Sensor for Refrigerant Pressure (High Pressure Sensor) |
| ⑱ | Sensor for Refrigerant Pressure (Low Pressure Sensor) |
| ⑲ | High Pressure Switch for Protection |
| ⑳ | Silencer |

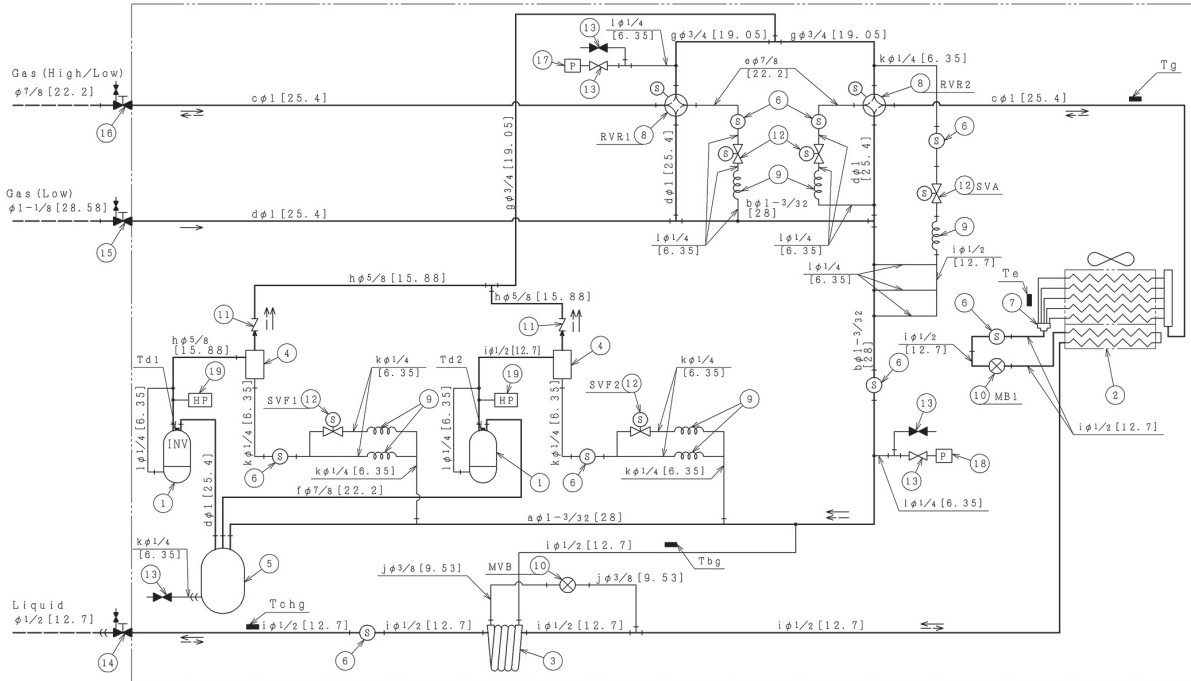
| Mark | OD×T | Material |
|------|-------------------------|----------|
| a | 1×0.047 [25.4]×[1.2] | C1220T-0 |
| b | 7/8×0.059 [22.2]×[1.5] | |
| c | 7/8×0.047 [22.2]×[1.2] | |
| d | 3/4×0.047 [19.05]×[1.2] | |
| e | 5/8×0.047 [15.88]×[1.2] | |
| f | 1/2×0.039 [12.7]×[1.0] | |
| g | 3/8×0.031 [9.52]×[0.8] | |
| h | 1/4×0.042 [6.35]×[1.07] | |
| i | 1/4×0.028 [6.35]×[0.7] | |

OD:Outer diameter
T:Thickness

OUTDOOR UNITS

Model: (H,Y)VAHR096B31S, (H,Y)VAHR120B31S, (H,Y)VAHR096B41S and (H,Y)VAHR120B41S

inch (mm)



- ← :Refrigerant Flow Direction (Cooling)
- ← - - - :Refrigerant Flow Direction (Heating)
- :Field Refrigerant Piping
- ⌋ :Flare Connection
- ⊥ :Brazing Connection
- :Thermistor

| Mark | Name |
|------|---|
| Td1 | Thermistor for Upper Side of Compressor 1 |
| Td2 | Thermistor for Upper Side of Compressor 2 |
| Tg | Thermistor for Heat Exchanger Gas Side |
| Te | Thermistor for Heat Exchanger Liquid Side |
| Tbg | Thermistor for Subcooler Bypass Side |
| Tchg | Thermistor for Auto Charge of Refrigerant |

| Mark | Part Name |
|------|--|
| ① | Compressor |
| ② | Heat Exchanger |
| ③ | Double Tube Type Heat Exchanger |
| ④ | Oil Separator |
| ⑤ | Accumulator |
| ⑥ | Strainer |
| ⑦ | Distributor |
| ⑧ | Reversing Valve |
| ⑨ | Capillary Tube |
| ⑩ | Micro-Computer Control Expansion Valve |
| ⑪ | Check Valve |
| ⑫ | Solenoid Valve |
| ⑬ | Check Joint |
| ⑭ | Stop Valve for Liquid Line |
| ⑮ | Stop Valve for Gas (Low) Line |
| ⑯ | Stop Valve for Gas (High/Low) Line |
| ⑰ | Sensor for Refrigerant Pressure (High Pressure Sensor) |
| ⑱ | Sensor for Refrigerant Pressure (Low Pressure Sensor) |
| ⑲ | High Pressure Switch for Protection |

| Mark | OD×T | Material |
|------|------------------------------|----------|
| a | 1-3/32×0.075 [28.0]×[1.9] | C1220T-0 |
| b | 1-3/32×0.063 [28.0]×[1.6] | |
| c | 1×0.071 [25.4]×[1.8] | |
| d | 1×0.047 [25.4]×[1.2] | |
| e | 7/8×0.059 [22.0]×[1.5] | |
| f | 7/8×0.047 [22.0]×[1.2] | |
| g | 3/4×0.065 [19.05]×[1.65] | |
| h | 5/8×0.047 [15.88]×[1.2] | |
| i | 1/2×0.039 [12.7]×[1.0] | |
| j | 3/8×0.031 [9.52]×[0.8] | |
| k | 1/4×0.042 [6.35]×[1.07] | |
| l | 1/4×0.028 [6.35]×[0.7] | |

OD:Outer diameter
T:Thickness

2.11.2 Control System

Cycle Control

| Control Device | Control | | | | |
|--|--|--|---|---|---|
| | Cooling Operation | | Heating Operation, Heat Recovery System | | Defrosting |
| | Control Category | Purpose of Control | Control Category | Purpose of Control | Condition |
| Inverter Frequency of Compressor | Total I.U. Operating Capacity | Capacity control is carried out to achieve the targeted value of evaporating temperature. | Total I.U. Operating Capacity | PI control is carried out to achieve the targeted value of Pd. | All of the compressors: ON |
| Electronic Expansion Valve for O.U. Heat Exchanger | Capacity Control | Fully open (Electronic expansion valve opening is dependent on the refrigerant cycle condition.) | Condenser <COND> Capacity Control | Condenser <COND> Fully Open (Electronic expansion valve opening is depending on the refrigerant cycle condition.) | Fully open |
| | | | Evaporator <EVAP> O.U. Heat Exchanger SH | Evaporator <EVAP> PI control is carried out to achieve the targeted value of O.U. heat exchanger SH. | |
| Electronic Expansion Valve for Supercooling Heat Exchanger | TsSH Control | Control TsSH of compressor to achieve the targeted value. | TsSH Control | Control TsSH of compressor to achieve the targeted value. | TsSH Control |
| Electronic Expansion Valve for I.U. Heat Exchanger | I.U. Heat Exchanger SH | PI control is carried out to achieve the targeted value of I.U. heat exchanger SH. | <Cooling Setting> (*) I.U. Heat Exchanger SH | <Cooling Setting> PI control is carried out to achieve the targeted value of I.U. heat exchanger SH. | I.U. Heat Exchanger SH Control |
| | | | <Heating Setting> I.U. Heat Exchanger SC | <Heating Setting> Controls supercooling of I.U. liquid thermistor to achieve the targeted value. | |
| Outdoor Fan | Pd Control | PI control is carried out to achieve the targeted value of Pd. | Condenser <COND> Pd Control | Condenser <COND> PI control is carried out to achieve the targeted value of Pd. | Stop |
| | | | Evaporator <EVAP> Stabilizing by Ambient Temperature and Operating Capacity | Evaporator <EVAP> Fan rotation is controlled by ambient temperature and I.U. operating capacity. | |
| Gas Bypass Valve (SVA) | 1. Pd Increase Protection 2. Ps Decrease Protection | 1. Pd>3.6MPa: Open 2. Ps<0.20MPa: Open | 1. Pd Increase Protection 2. Ps Decrease Protection | 1. Pd>3.5MPa: Open 2. Ps<0.1MPa: Open | Closed |
| High and Low Pressure Shut-off Valve (SVG) | Shut-off of High and Low Pressure inside Cycle during Stoppage | Compressor Run: Open Compressor Stop: Closed | Shut-off of High and Low Pressure inside Cycle during Stoppage | Compressor Run: Open Compressor Stop: Closed | Open |
| Oil Return Valve (SVF) | Prevention of Oil Decrease in Compressor | Depending on Ambient Temperature and Operating Conditions | Prevention of Oil Decrease in Compressor | Depending on Ambient Temperature and Operating Conditions | Depending on Ambient Temperature and Operating Conditions |

(*): Dry operation is included in the cooling operation.

- Pd: Discharge Pressure
- Ps: Suction Pressure
- SH Superheat
- SC: Supercool
- TsSH: Superheat of Suction Gas Temperature
- I.U.: Indoor Unit
- O.U.: Outdoor Unit

OUTDOOR UNITS

Compressor Operation Control

(1) Compressor Rotation Control

The compressor rotation control is performed in order to make the compressor operating time equal for each outdoor unit.

When the system power supply is turned ON, the inverter compressor rotation is determined in ascending order of accumulated operating time. The operating sequence of compressor rotation control is as follows.

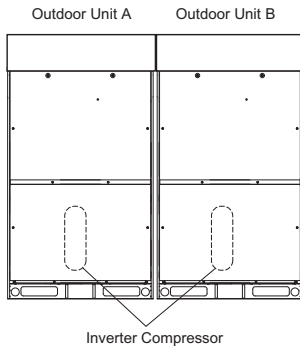
When the system is turned OFF or thermo-OFF, the first operated inverter compressor will be shifted to last rotation. This control function applies to systems comprised of two or more outdoor unit modules.

NOTE:

Thermo-ON: The outdoor unit and some indoor units are running.

Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

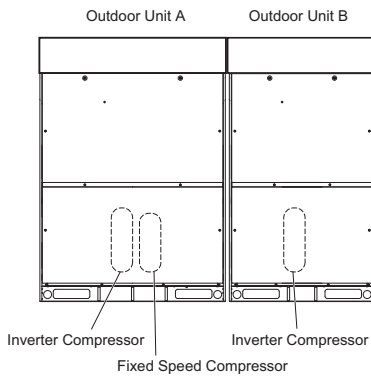
(H,Y)VAHP144B(3,4)1S / (H,Y)VAHR144B(3,4)1S



< Compressor Operating Sequence >

| | Outdoor Unit A | Outdoor Unit B |
|-----------|---------------------|----------------|
| | Inverter Compressor | |
| Last Time | 1 | 2 |
| This Time | 2 | 1 |
| Next Time | 1 | 2 |

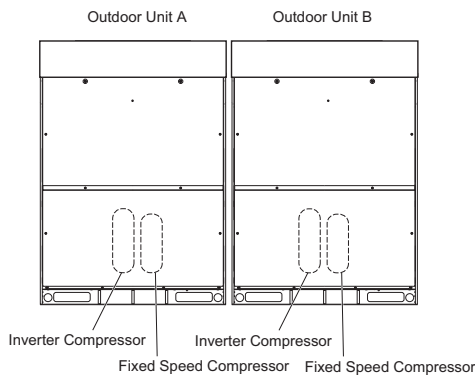
(H,Y)VAHP168B(3,4)1S / (H,Y)VAHR168B(3,4)1S



< Compressor Operating Sequence >

| | Outdoor Unit A | | Outdoor Unit B |
|-----------|---------------------|------------------------|---------------------|
| | Inverter Compressor | Fixed Speed Compressor | Inverter Compressor |
| Last Time | 1 | 3 | 2 |
| This Time | 2 | 3 | 1 |
| Next Time | 1 | 3 | 2 |

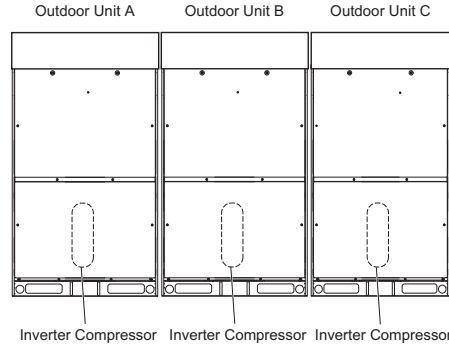
(H,Y)VAHP192B(3,4)1S / (H,Y)VAHR192B(3,4)1S (H,Y)VAHP240B(3,4)1LM / (H,Y)VAHR240B(3,4)1LM



< Compressor Operating Sequence >

| | Outdoor Unit A | | Outdoor Unit B | |
|-----------|---------------------|------------------------|---------------------|------------------------|
| | Inverter Compressor | Fixed Speed Compressor | Inverter Compressor | Fixed Speed Compressor |
| Last Time | 1 | 3 | 2 | 4 |
| This Time | 2 | 4 | 1 | 3 |
| Next Time | 1 | 3 | 2 | 4 |

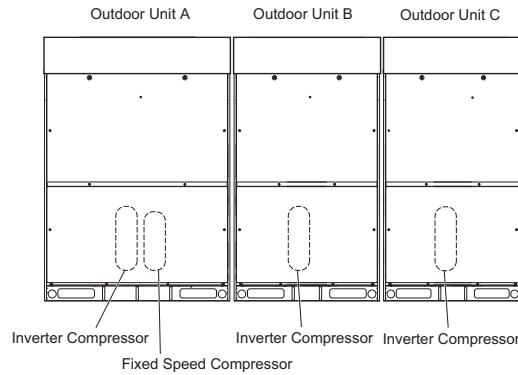
(H,Y)VAHP216B(3,4)1S / (H,Y)VAHR216B(3,4)1S



< Compressor Operating Sequence >

| | Outdoor Unit A | Outdoor Unit B | Outdoor Unit C |
|-----------|---------------------|---------------------|---------------------|
| | Inverter Compressor | Inverter Compressor | Inverter Compressor |
| Last Time | 1 | 2 | 3 |
| This Time | 3 | 1 | 2 |
| Next Time | 2 | 3 | 1 |

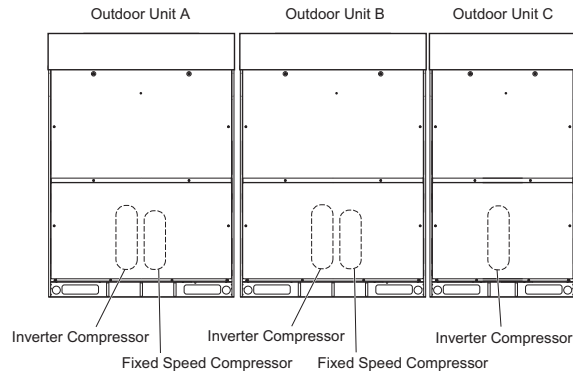
(H,Y)VAHP240,264B(3,4)1S / (H,Y)VAHR240,264B(3,4)1S



< Compressor Operating Sequence >

| | Outdoor Unit A | | Outdoor Unit B | Outdoor Unit C |
|-----------|---------------------|------------------------|---------------------|---------------------|
| | Inverter Compressor | Fixed Speed Compressor | Inverter Compressor | Inverter Compressor |
| Last Time | 1 | 4 | 2 | 3 |
| This Time | 3 | 4 | 1 | 2 |
| Next Time | 2 | 4 | 3 | 1 |

(H,Y)VAHP288,312B(3,4)1S / (H,Y)VAHR288,312B(3,4)1S

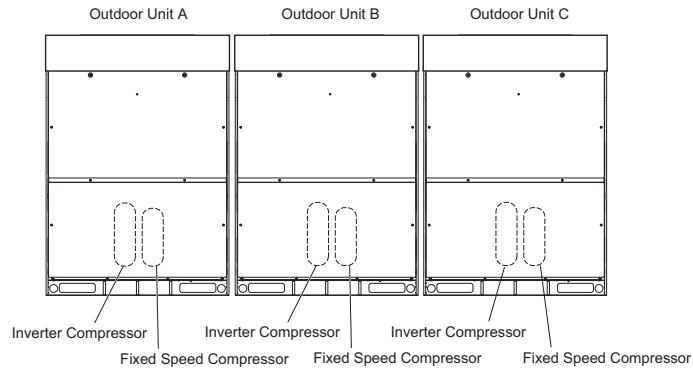


< Compressor Operating Sequence >

| | Outdoor Unit A | | Outdoor Unit B | | Outdoor Unit C |
|-----------|---------------------|------------------------|---------------------|------------------------|---------------------|
| | Inverter Compressor | Fixed Speed Compressor | Inverter Compressor | Fixed Speed Compressor | Inverter Compressor |
| Last Time | 1 | 4 | 2 | 5 | 3 |
| This Time | 3 | 5 | 1 | 4 | 2 |
| Next Time | 2 | 5 | 3 | 4 | 1 |

OUTDOOR UNITS

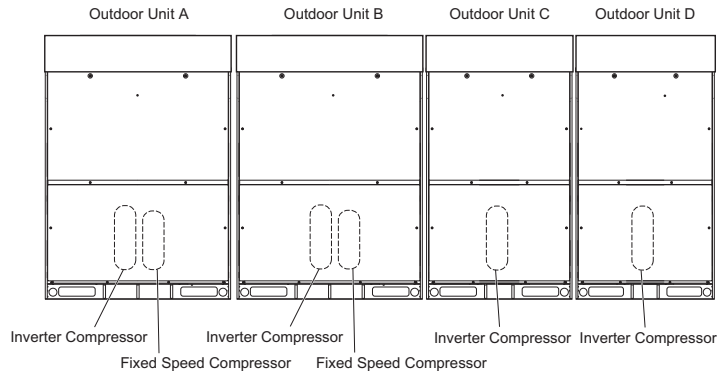
(H,Y)VAHP336,360B(3,4)1LM / (H,Y)VAHR336,360B(3,4)1LM



< Compressor Operating Sequence >

| | Outdoor Unit A | | Outdoor Unit B | | Outdoor Unit C | |
|-----------|---------------------|------------------------|---------------------|------------------------|---------------------|------------------------|
| | Inverter Compressor | Fixed Speed Compressor | Inverter Compressor | Fixed Speed Compressor | Inverter Compressor | Fixed Speed Compressor |
| Last Time | 1 | 4 | 2 | 5 | 3 | 6 |
| This Time | 3 | 6 | 1 | 4 | 2 | 5 |
| Next Time | 2 | 5 | 3 | 6 | 1 | 4 |

(H,Y)VAHP336,360B(3,4)1S / (H,Y)VAHR336,360B(3,4)1S



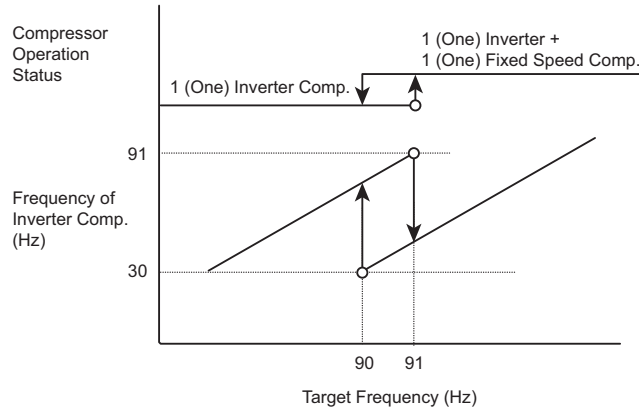
< Compressor Operating Sequence >

| | Outdoor Unit A | | Outdoor Unit B | | Outdoor Unit C | Outdoor Unit D |
|------------------|---------------------|------------------------|---------------------|------------------------|---------------------|---------------------|
| | Inverter Compressor | Fixed Speed Compressor | Inverter Compressor | Fixed Speed Compressor | Inverter Compressor | Inverter Compressor |
| Time Before Last | 1 | 5 | 2 | 6 | 3 | 4 |
| Last Time | 4 | 6 | 1 | 5 | 2 | 3 |
| This Time | 3 | 5 | 4 | 6 | 1 | 2 |
| Next Time | 2 | 5 | 3 | 6 | 4 | 1 |

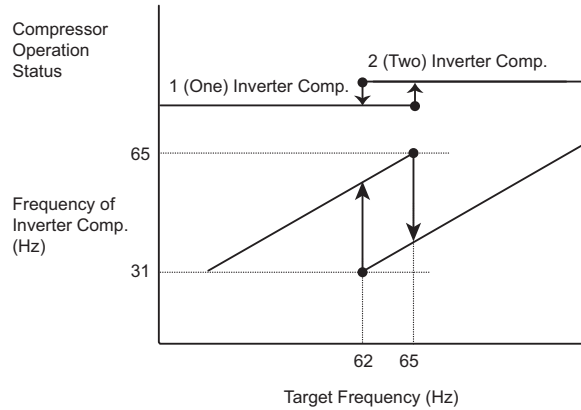
(2) Compressor Frequency Control

Compressor Operation Control is to perform the output frequency of an Inverter Compressor or run/stop of a fixed speed compressor according to Target Frequency.
 (Target Frequency is determined by PI calculation according to cooling and heating loads.)
 Therefore, when the load is smaller, the fixed speed compressor may not operate.

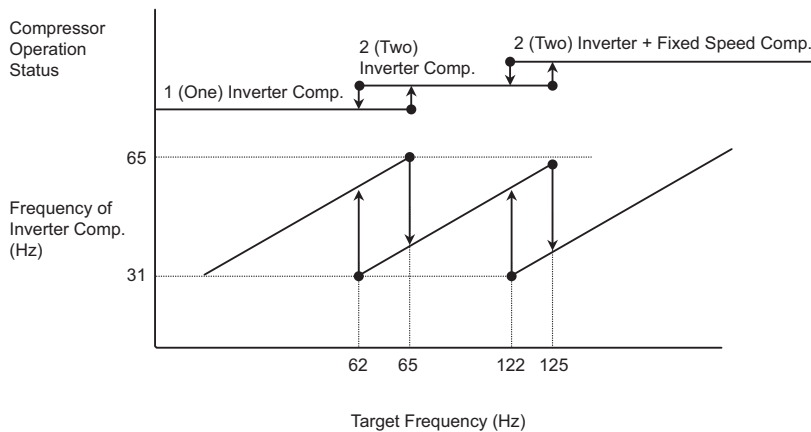
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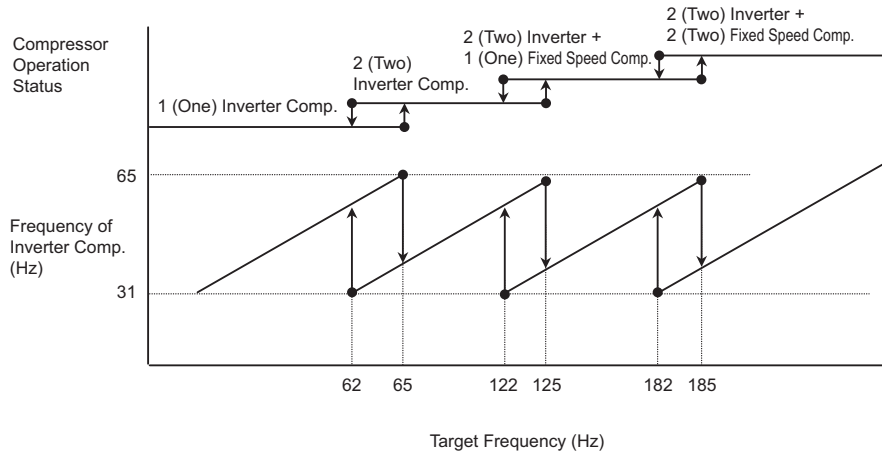
(H,Y)VAHP144B(3,4)1S / (H,Y)VAHR144B(3,4)1S



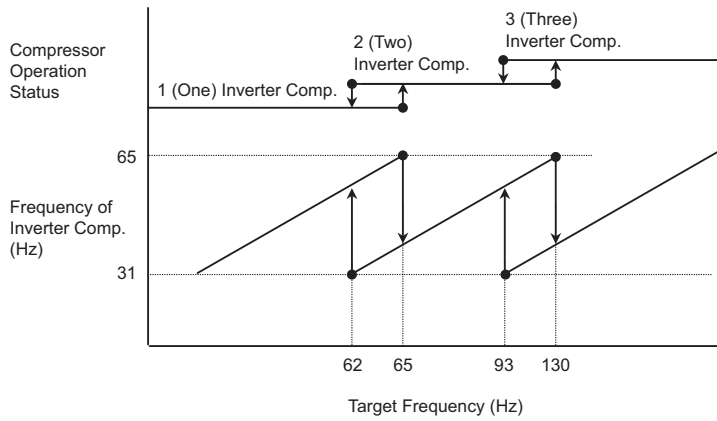
(H,Y)VAHP168B(3,4)1S / (H,Y)VAHR168B(3,4)1S



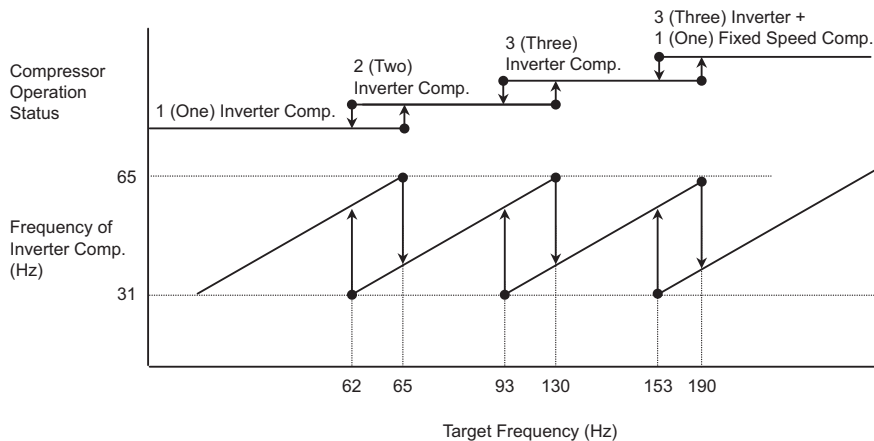
(H,Y)VAHP192B(3,4)1S / (H,Y)VAHR192B(3,4)1S
 (H,Y)VAHP240B(3,4)1LM / (H,Y)VAHR240B(3,4)1LM



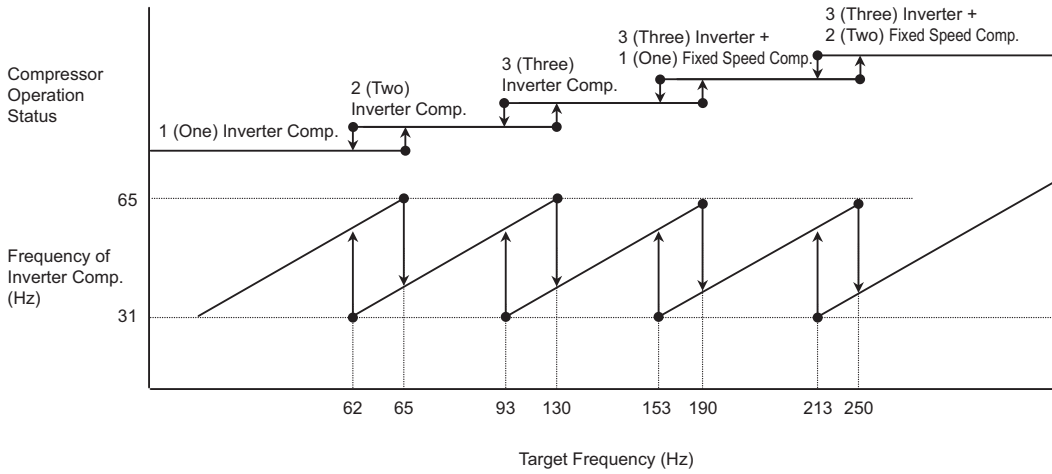
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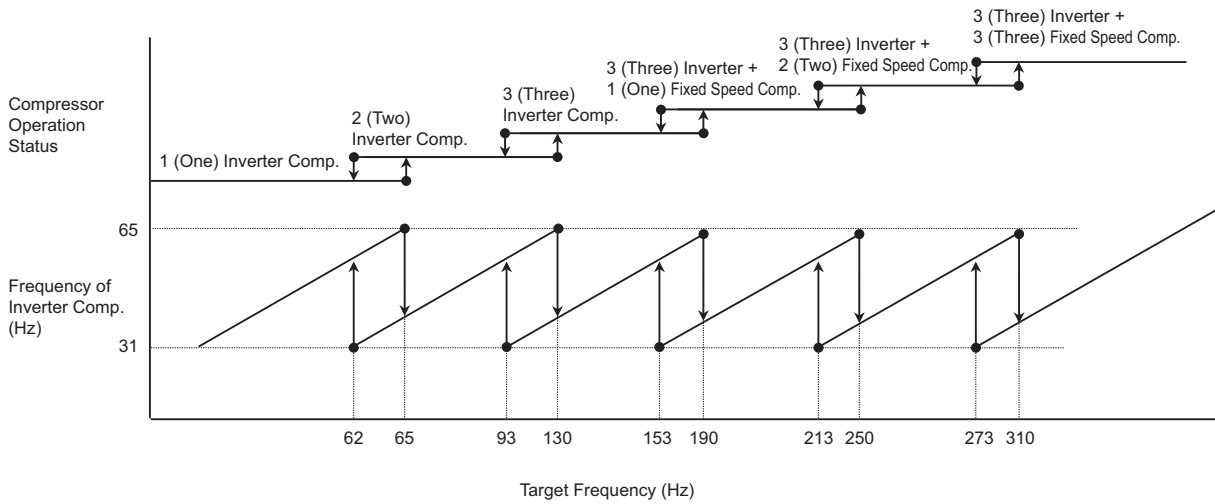
(H,Y)VAHP240,264B(3,4)1S / (H,Y)VAHR240,264B(3,4)1S



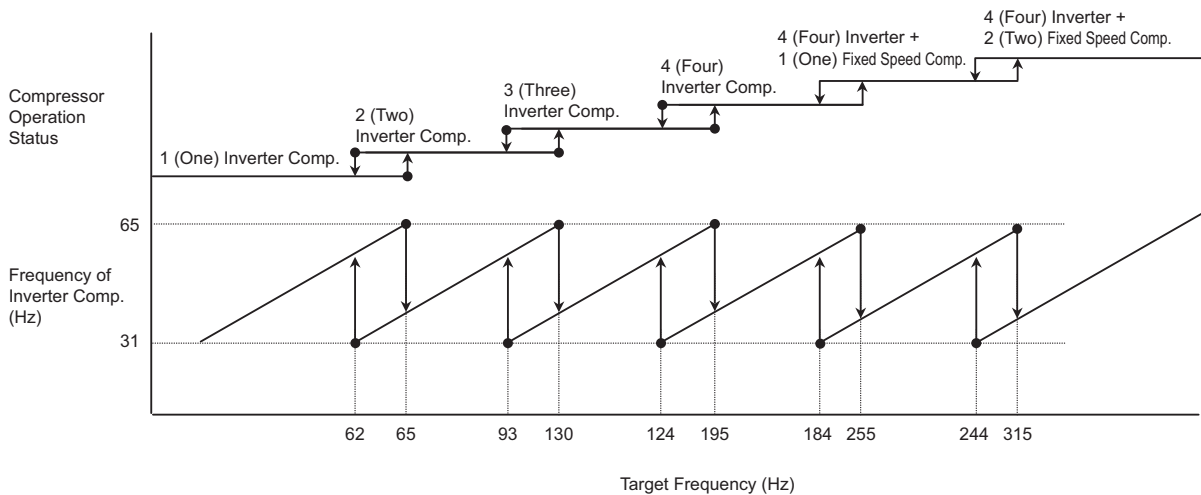
(H,Y)VAHP288,312B(3,4)1S / (H,Y)VAHR288,312B(3,4)1S



(H,Y)VAHP336,360B(3,4)1LM / (H,Y)VAHR336,360B(3,4)1LM



(H,Y)VAHP336,360B(3,4)1S / (H,Y)VAHR336,360B(3,4)1S



OUTDOOR UNITS

Heat Exchanger Mode Control

< Heat Recovery System >

Depending upon the connected indoor unit load, the outdoor unit heat exchangers are switched as shown in the table below.

< Heat Pump System >

Depending upon the connected indoor unit operation mode, the outdoor unit heat exchangers are switched as shown in the table below.

(O.U. Heat Exchanger Mode at Cooling: Condenser COND)
 (O.U. Heat Exchanger Mode at Heating: Evaporator EVAP)

(1) Number of Outdoor Units: One

| Heat Exchanger Mode | | Cooling Mode | Mainly Cooling Mode | | Mainly Heating Mode | Heating Mode | Defrosting Mode |
|--------------------------|------|--|--|--|--|--|--|
| | | COND | D1 | D1-1 | D4 | EVAP | DEF1 |
| Heat Exchanger Condition | | COND | COND | cond | EVAP | EVAP | COND |
| Reversing Valve | RVR2 | OFF | OFF | OFF | ON | ON | OFF |
| | RVR1 | ON | OFF | OFF | OFF | OFF | ON |
| Expansion Valve | MV1 | Pd | Pd | | Heat Exchanger SH | | Fully Open |
| | MVB | TsSH | TsSH | | | | |

(2) Number of Outdoor Units: Two

| Heat Exchanger Mode | | Cooling Mode | Mainly Cooling Mode | | Mainly Heating Mode | | Heating Mode | Defrosting Mode | | |
|---------------------|--------------------------|--|--|--|--|--|--|---|--|------------|
| | | COND | D1 | D2 | D3 | D4 | EVAP | DEF2 With Change-Over Box | DEF1 Without Change-Over Box | |
| Main Outdoor Unit | Heat Exchanger Condition | COND | COND | COND | cond | EVAP | EVAP | COND/EVAP | COND | |
| | Reversing Valve | RVR2 | OFF | OFF | OFF | OFF | ON | ON | ON/OFF | OFF |
| | | RVR1 | ON | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| | Expansion Valve | MV1 | Pd | Pd | | | Heat Exchanger SH | | Fully Open/ Heat Exchanger SH | Fully Open |
| MVB | | TsSH | TsSH | | | | | | | |
| Sub Outdoor Unit | Heat Exchanger Condition | COND | COND | evap | EVAP | EVAP | EVAP | COND/EVAP | COND | |
| | Reversing Valve | RVR2 | OFF | OFF | ON | ON | ON | ON | ON/OFF | OFF |
| | | RVR1 | ON | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| | Expansion Valve | MV1 | Pd | Pd | Fully Closed | Heat Exchanger SH | | | Fully Open/ Heat Exchanger SH | Fully Open |
| MVB | | TsSH | TsSH | | | | | | | |

NOTE:

1. Condition of Heat Exchanger

COND : Condenser Mode

cond : Avoid the use of Heat Exchanger (under a high pressure condition)

EVAP : Evaporator Mode

evap : Avoid the use of Heat Exchanger (under a low pressure condition)

2. Expansion Valve Control Method

Pd: Normally, fully open. (The opening is dependent upon the refrigerant cycle condition.)

PI control is performed to achieve the targeted value of discharge pressure when discharge pressure decreases.

TsSH: PI control is performed to achieve the targeted value of TsSH of the compressor.

Heat Exchanger SH: PI control is performed to achieve the targeted value of the outdoor heat exchanger SH.

3. D1, D1-1, D2, D2-1, D2-2, D2-3, D3, D3-1, D3-2, D4, EVAP, DEF1 and DEF2 are the reference numbers.

(3) Number of Outdoor Units: Three

| Heat Exchanger Mode | | Cooling Mode | Mainly Cooling Mode | | | Mainly Heating Mode | | | | Heating Mode | Defrosting Mode | | |
|---------------------|--------------------------|--------------|---------------------|------|--------------|---------------------|-------------------|------|-------------------|--------------|------------------------------|------------------------------|---------------------------------|
| | | | D1 | D2-1 | D2-2 | D2-3 | D3-1 | D3-2 | D4 | | EVAP | DEF2 With Change-Over Box | DEF1 Without Change-Over Box |
| Main Outdoor Unit | Heat Exchanger Condition | COND | COND | COND | COND | cond | cond | COND | EVAP | EVAP | COND/EVAP | COND | |
| | Reversing Valve | RVR2 | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON | ON | OFF/ON | OFF |
| | | RVR1 | ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| | Expansion Valve | MV1 | Pd | Pd | | | | | Heat Exchanger SH | | Fully Open/Heat Exchanger SH | Fully Open | |
| MVB | | TsSH | TsSH | | | | | | | | | | |
| Sub Outdoor Unit 1 | Heat Exchanger Condition | COND | COND | evap | evap | EVAP | EVAP | EVAP | EVAP | EVAP | COND/EVAP | COND | |
| | Reversing Valve | RVR2 | OFF | OFF | ON | ON | ON | ON | ON | ON | ON | OFF/ON | OFF |
| | | RVR1 | ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| | Expansion Valve | MV1 | Pd | Pd | Fully Closed | | Heat Exchanger SH | | | | Fully Open/Heat Exchanger SH | Fully Open | |
| MVB | | TsSH | TsSH | | | | | | | | | | |
| Sub Outdoor Unit 2 | Heat Exchanger Condition | COND | COND | COND | cond | evap | EVAP | EVAP | EVAP | EVAP | COND/EVAP | COND | |
| | Reversing Valve | RVR2 | OFF | OFF | OFF | OFF | ON | ON | ON | ON | ON | OFF/ON | OFF |
| | | RVR1 | ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| | Expansion Valve | MV1 | Pd | Pd | | Fully Closed | Heat Exchanger SH | | | | Fully Open/Heat Exchanger SH | Fully Open | |
| MVB | | TsSH | TsSH | | | | | | | | | | |

NOTE:

1. Condition of Heat Exchanger

COND : Condenser Mode

cond : Avoid the use of Heat Exchanger (under a high pressure condition)

EVAP : Evaporator Mode

evap : Avoid the use of Heat Exchanger (under a low pressure condition)

2. Expansion Valve Control Method

Pd: Normally, fully open. (The opening is depending on the refrigerant cycle condition.)

PI control is performed to achieve the targeted value of discharge pressure when discharge pressure decreases.

TsSH: PI control is performed to achieve the targeted value of TsSH of compressor.

Heat Exchanger SH: PI control is performed to achieve the targeted value of outdoor heat exchanger SH.

3. D1, D1-1, D2, D2-1, D2-2, D2-3, D3, D3-1, D3-2, D4, EVAP, DEF1 and DEF2 are the reference number.

OUTDOOR UNITS

(4) Number of Outdoor Units: Four

| Heat Exchanger Mode | | Cooling Mode | Mainly Cooling Mode | | | | Mainly Heating Mode | | | | Heating Mode | Defrosting Mode | |
|---------------------|--------------------------|--------------|---------------------|------|-------------------|--------------|---------------------|--------------|-------------------|-------------------|----------------------------------|---------------------------------|-----|
| | | COND | D1 | D2-1 | D2-2 | D2-3 | D3-1 | D3-2 | D4 | EVAP | DEF2 With Change-Over Box | DEF1 Without Change-Over Box | |
| Main Outdoor Unit | Heat Exchanger Condition | COND | COND | COND | COND | cond | cond | COND | EVAP | EVAP | COND/EVAP | COND | |
| | Reversing Valve | RVR2 | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON | ON | ON/OFF | OFF |
| | | RVR1 | ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| | Expansion Valve | MV1 | Pd | Pd | | | | | | Heat Exchanger SH | Fully Open/ Heat Exchanger SH | Fully Open | |
| MVB | | TsSH | TsSH | | | | | | | | | | |
| Sub Outdoor Unit 1 | Heat Exchanger Condition | COND | COND | EVAP | evap | EVAP | EVAP | EVAP | EVAP | EVAP | COND/EVAP | COND | |
| | Reversing Valve | RVR2 | OFF | OFF | ON | ON | ON | ON | ON | ON | ON | OFF/ON | OFF |
| | | RVR1 | ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| | Expansion Valve | MV1 | Pd | Pd | Heat Exchanger SH | Fully Closed | Heat Exchanger SH | | | | Fully Open/ Heat Exchanger SH | Fully Open | |
| MVB | | TsSH | TsSH | | | | | | | | | | |
| Sub Outdoor Unit 2 | Heat Exchanger Condition | COND | COND | COND | cond | cond | evap | EVAP | EVAP | EVAP | COND/EVAP | COND | |
| | Reversing Valve | RVR2 | OFF | OFF | OFF | OFF | OFF | ON | ON | ON | ON | ON/OFF | OFF |
| | | RVR1 | ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| | Expansion Valve | MV1 | Pd | Pd | | | | Fully Closed | Heat Exchanger SH | | Fully Open/ Heat Exchanger SH | Fully Open | |
| MVB | | TsSH | TsSH | | | | | | | | | | |
| Sub Outdoor Unit 3 | Heat Exchanger Condition | COND | COND | evap | evap | evap | evap | EVAP | EVAP | EVAP | COND/EVAP | COND | |
| | Reversing Valve | RVR2 | OFF | OFF | ON | ON | ON | ON | ON | ON | ON | ON/OFF | OFF |
| | | RVR1 | ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| | Expansion Valve | MV1 | Pd | Pd | Fully Closed | | | | Heat Exchanger SH | | Fully Open/ Heat Exchanger SH | Fully Open | |
| MVB | | TsSH | TsSH | | | | | | | | | | |

NOTE:

1. Condition of Heat Exchanger

- COND : Condenser Mode
- cond : Avoid the use of Heat Exchanger (under a high pressure condition)
- EVAP : Evaporator Moder
- evap : Avoid the use of Heat Exchanger (under a low pressure condition)

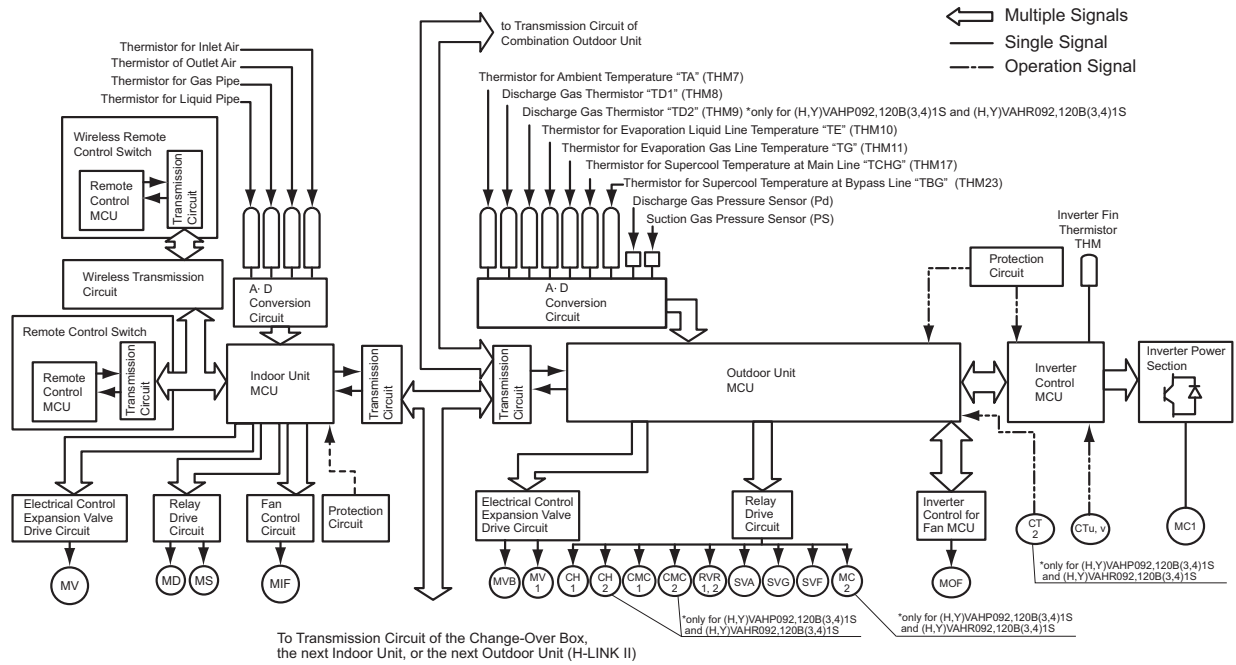
2. Expansion Valve Control Method

- Pd: Normally, fully open. (The opening is depending on the refrigerant cycle condition.)
PI control is performed to achieve the targeted value of discharge pressure when discharge pressure decreases.
- TsSH: PI control is performed to achieve the targeted value of TsSH of compressor.
- Heat Exchanger SH: PI control is performed to achieve the targeted value of outdoor heat exchanger SH.

3. D1, D1-1, D2, D2-1, D2-2, D2-3, D3, D3-1, D3-2, D4, EVAP, DEF1 and DEF2 are the reference number.

The figure below is a representation of the control system.

**(Example: Combination of Base Units, (H,Y)VAHP072~120B(3,4)1S + Indoor Unit
(H,Y)VAHR072~120B(3,4)1S + Indoor Unit)**



Indoor Unit

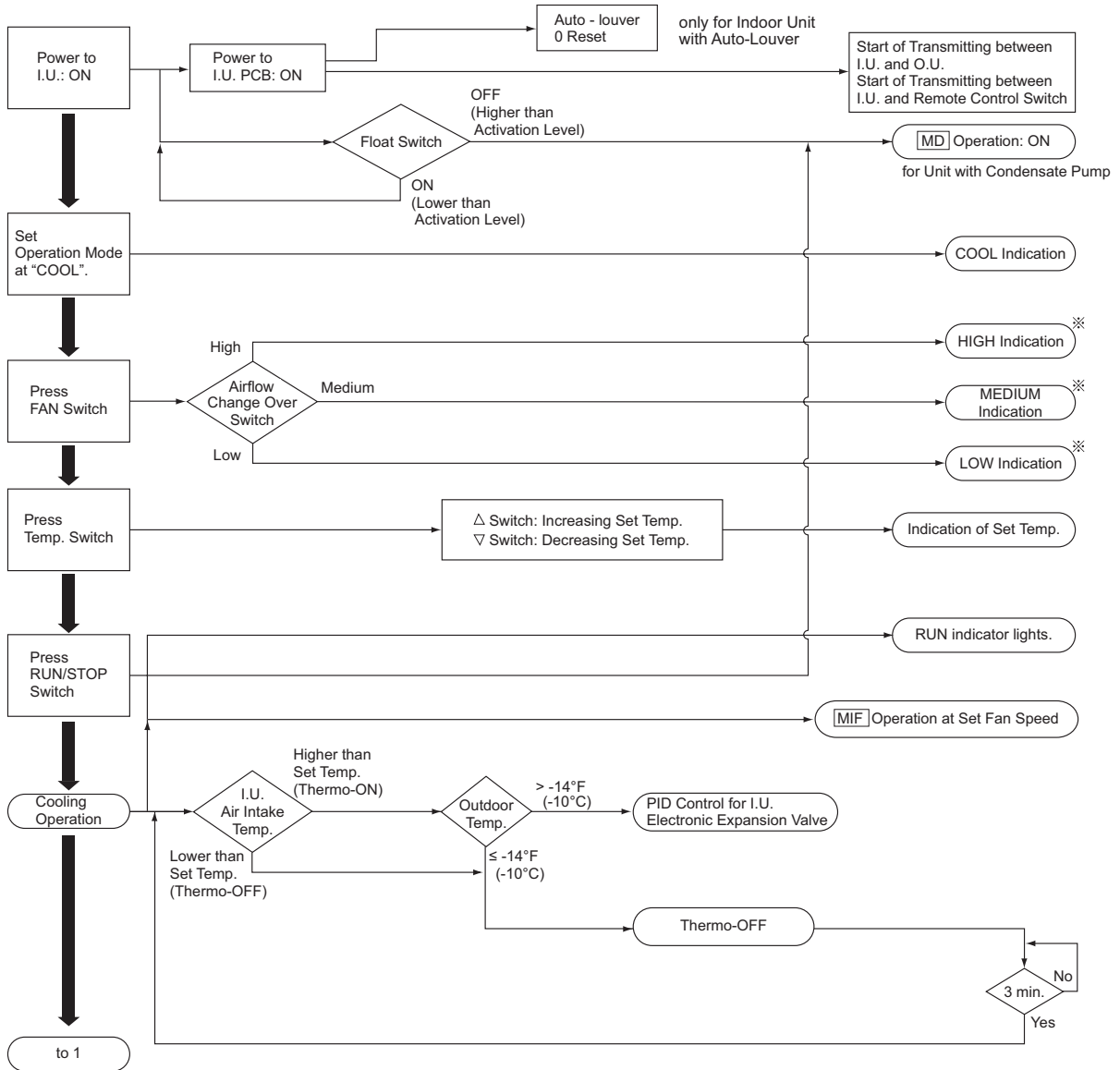
Outdoor Unit

| Symbol | Name |
|---------|--|
| THM | Thermistor |
| MCU | Microcontroller |
| MC1 | DC Motor (for Inverter Compressor) |
| MC2 | AC Motor (for Fixed Speed Compressor) |
| MOF | DC Motor (for Outdoor Fan) |
| MIF | Motor (for Indoor Fan) |
| MS | Motor (for Auto-Louver) |
| MD | Motor (for Drain Pump) |
| MV | Electronic Expansion Valve (for Indoor Unit) |
| MV1 | Electronic Expansion Valve (for Outdoor Unit) |
| MVB | Electronic Expansion Valve for Supercooling Heat Exchanger |
| CMC1, 2 | Magnetic Contactor for Compressor |
| SVA | Solenoid Valve |
| SVG | Solenoid Valve |
| SVF | Solenoid Valve |
| RVR1, 2 | Reversing Valve |
| CH1, 2 | Crankcase Heater |
| CTu, v | Current Sensor |
| CT | Current Transformer |

2.11.3 Standard Operation Sequence

Cooling Operation

I.U.: Indoor Unit
O.U.: Outdoor Unit

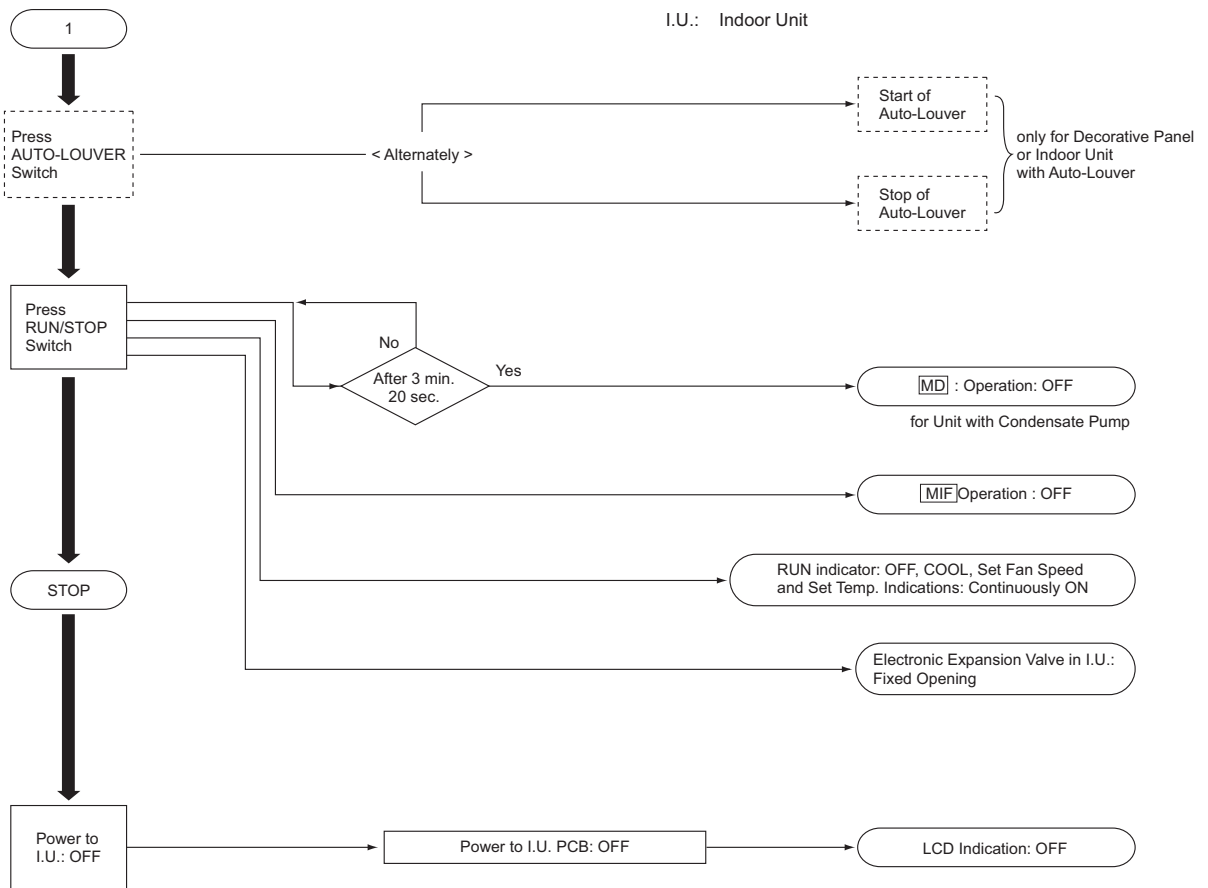


Note

※: For (H,Y)IDH018 ~ 048B21S, the fan speed is "HIGH" and "LOW" only.
By pressing the FAN SPEED SWITCH of Remote Control Switch, the indication of LCD is changed as \rightarrow Hi \rightarrow Me \rightarrow Lo \rightarrow , but the actual fan speed is as shown in the table right.

| LCD Indication | Actual Fan Speed |
|----------------|------------------|
| HIGH | HIGH |
| MED | HIGH |
| LOW | LOW |

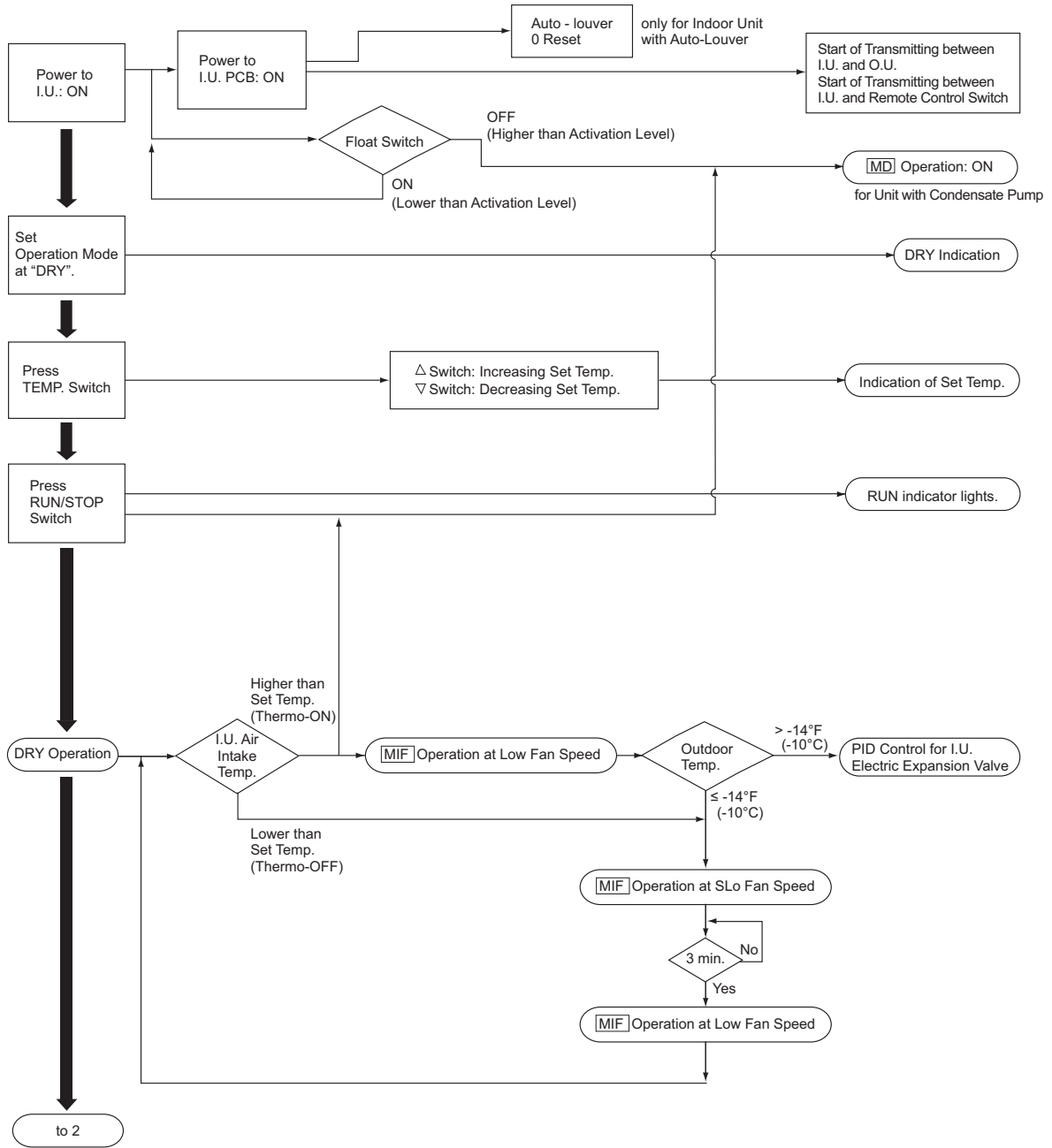
Cooling Operation



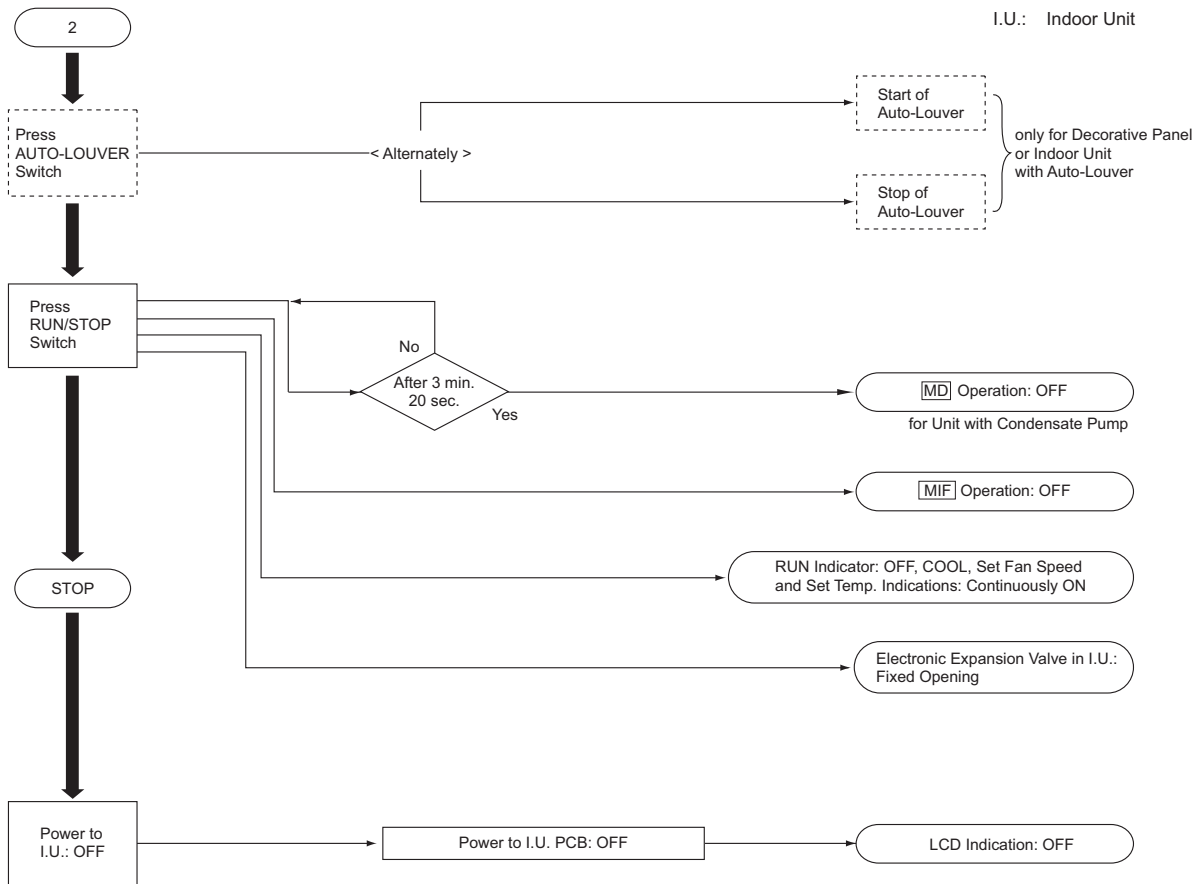
OUTDOOR UNITS

Dry Operation

I.U.: Indoor Unit
O.U.: Outdoor Unit



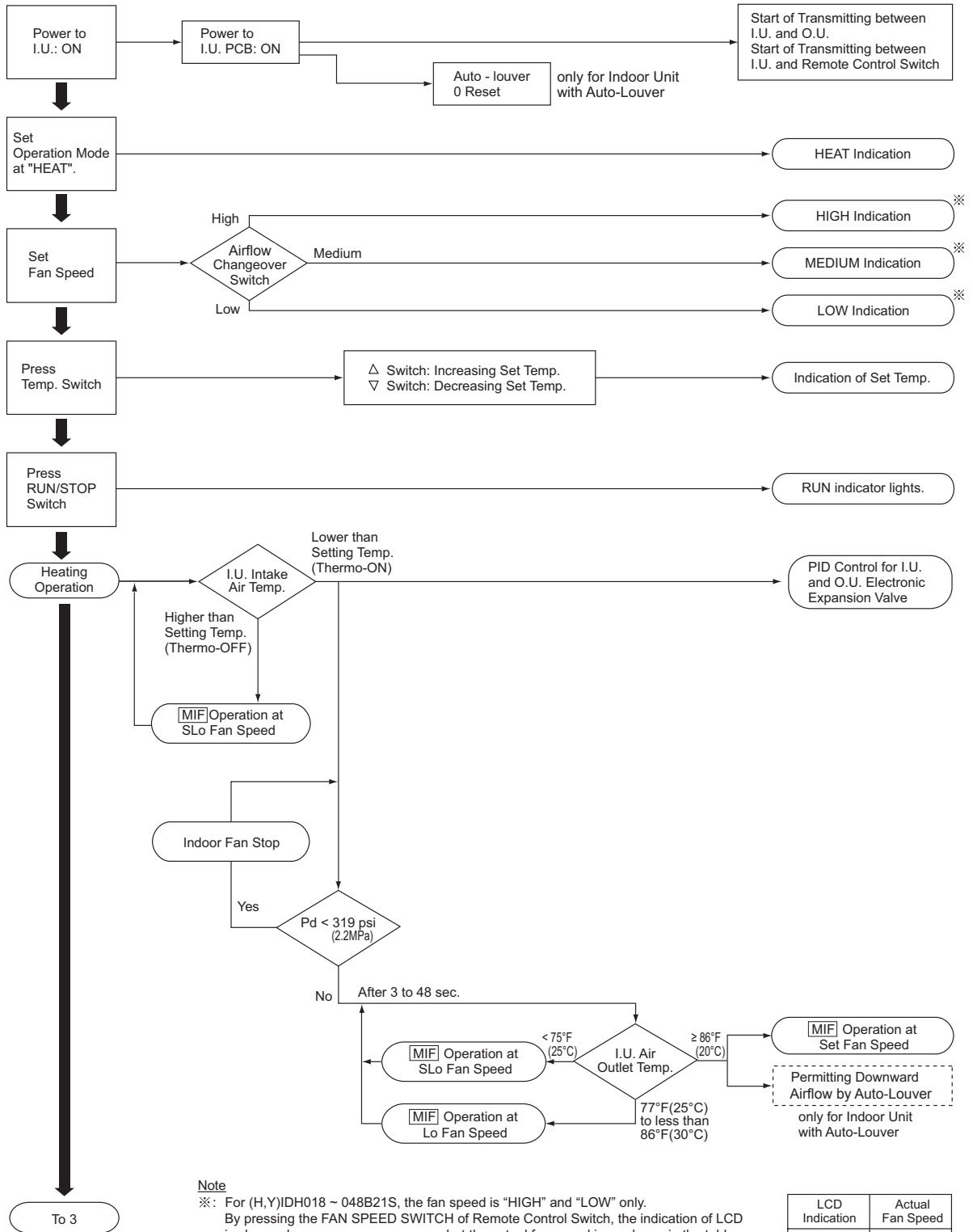
Dry Operation



OUTDOOR UNITS

Heating Operation

I.U.: Indoor Unit
O.U.: Outdoor Unit

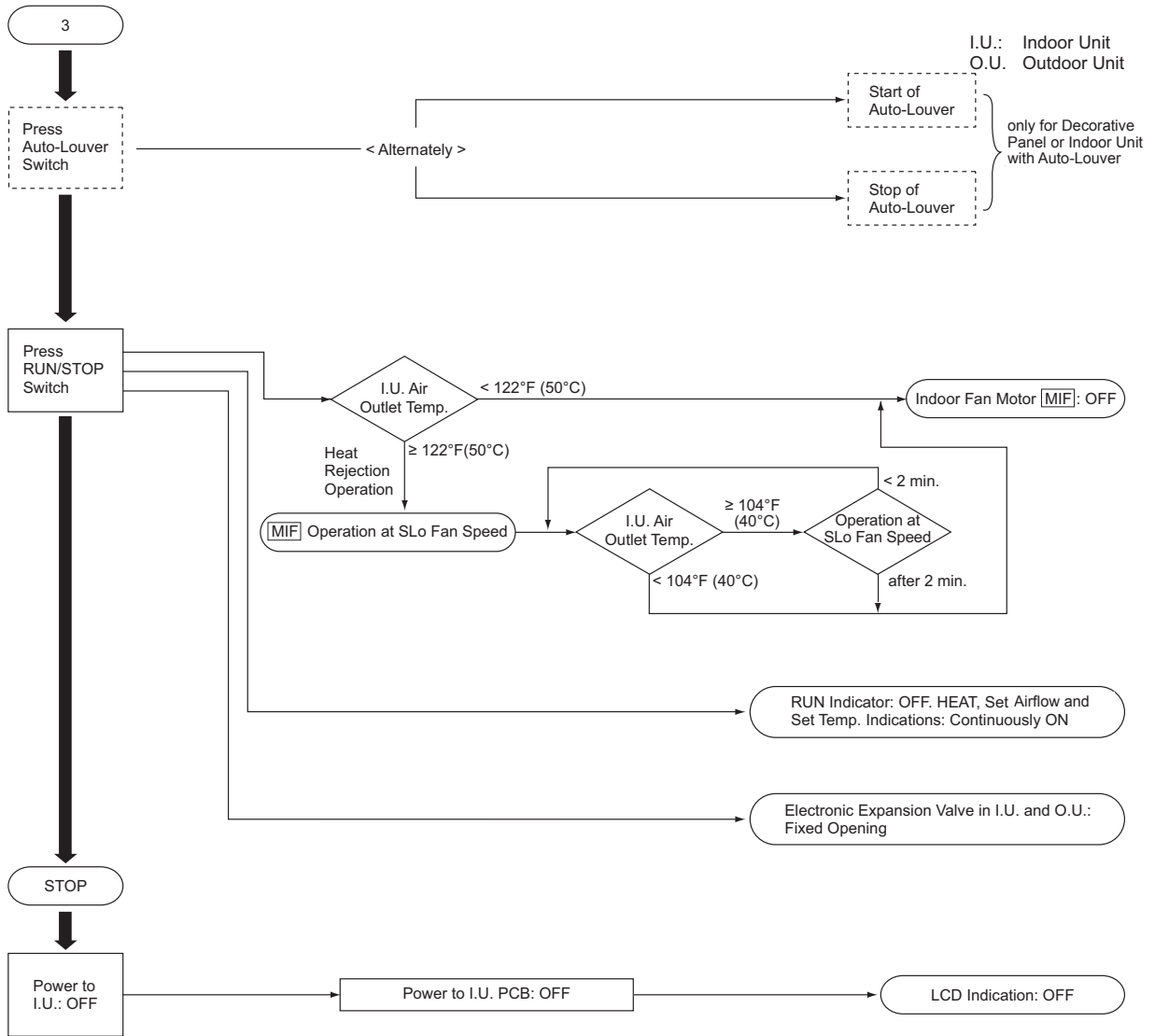


Note

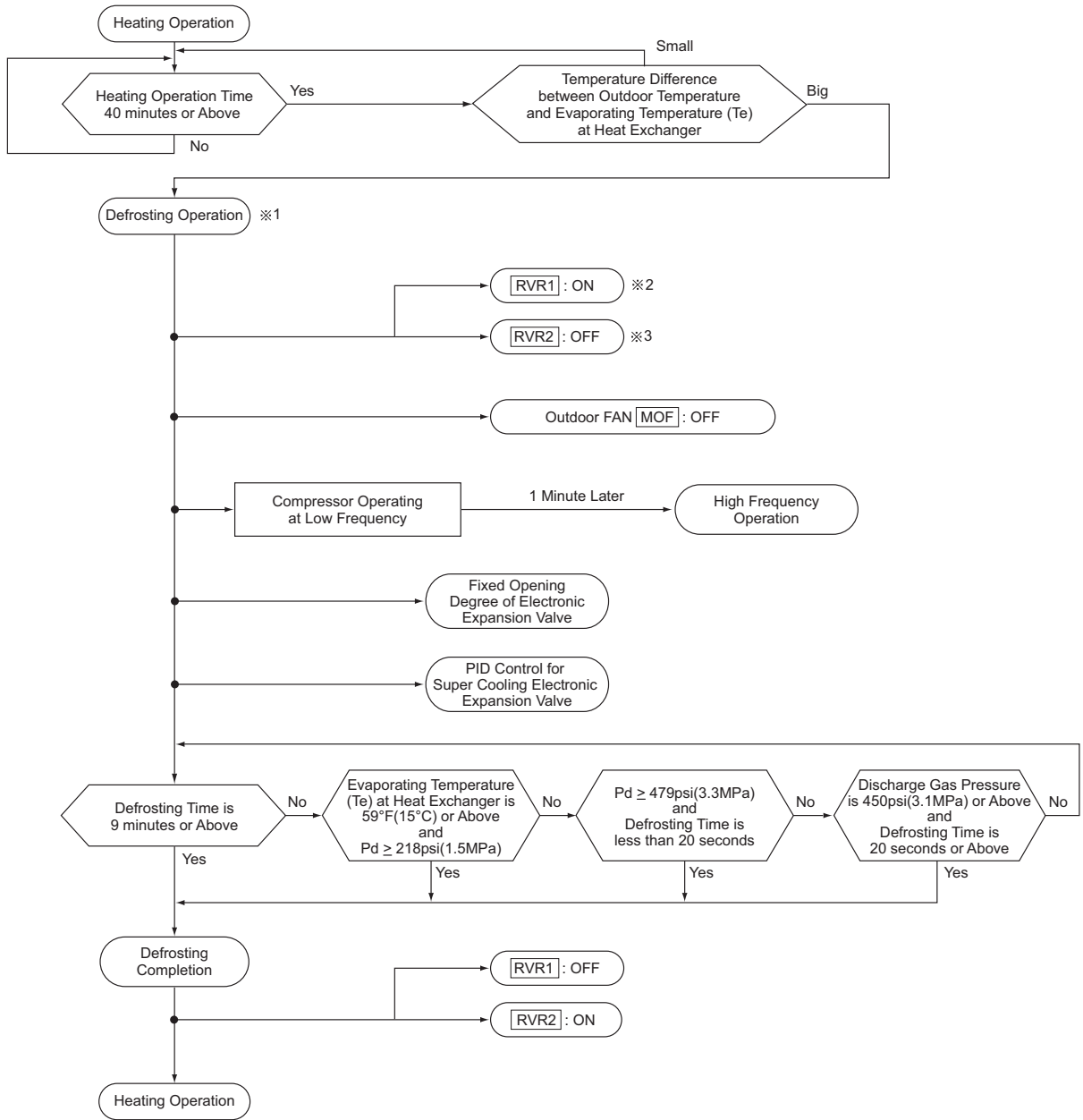
※: For (H,Y)IDH018 ~ 048B21S, the fan speed is "HIGH" and "LOW" only. By pressing the FAN SPEED SWITCH of Remote Control Switch, the indication of LCD is changed as \rightarrow Hi \rightarrow Me \rightarrow Lo \leftarrow , but the actual fan speed is as shown in the table at the right.

| LCD Indication | Actual Fan Speed |
|----------------|------------------|
| HIGH | HIGH |
| MED | HIGH |
| LOW | LOW |

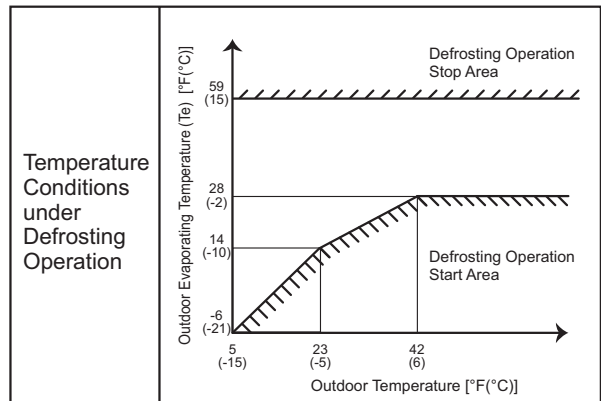
Heating Operation



Defrosting Operation



- ※1: Defrosting operation signal is transmitted to the indoor unit during the defrosting operation. After the signal is received, “DEFROST” will be indicated on the LCD of the remote control switch and the indoor fan will stop.
- ※2: For the heat recovery system of 144MBH or over, RVR1 will not be changed.
- ※3: For the heat recovery system of 144MBH or over, switching power ON/OFF of RVR2 will be performed sequentially by the outdoor unit number



Protection Control

- * Whenever protection control sequences are activated, the corresponding code is displayed on the 7-segment LED array of the main control board.
- * Protection control code is displayed while a function is working, and goes out when released.

< Indicated Contents >

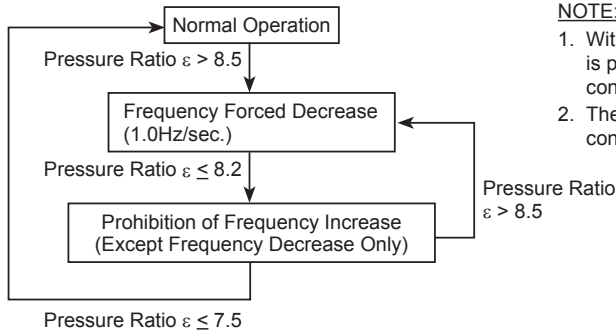
| Indication | Protection Control Contents | Code During Degeneration Control |
|------------|--|----------------------------------|
| P01 | Pressure Ratio Protection Control | Pc1 |
| P02 | High Pressure Increase Protection Control | Pc2 |
| P03 | Inverter Current Protection Control | Pc3 |
| P04 | Inverter Fin Temperature Increase Protection Control | Pc4 |
| P05 | Discharge Temperature Increase Protection Control | Pc5 |
| P06 | Low Pressure Decrease Protection Control | Without |
| P09 | High Pressure Decrease Protection Control | |
| P0A | Demand Current Control | |
| P0d | Low Pressure Increase Protection Control | |

(1) P01: Pressure Ratio Protection Control

(a) Pressure Ratio Increase Protection Control

Pressure Ratio Increase Protection Control is performed in order to protect the compressor from an increase of pressure ratio.

< Details of Control >



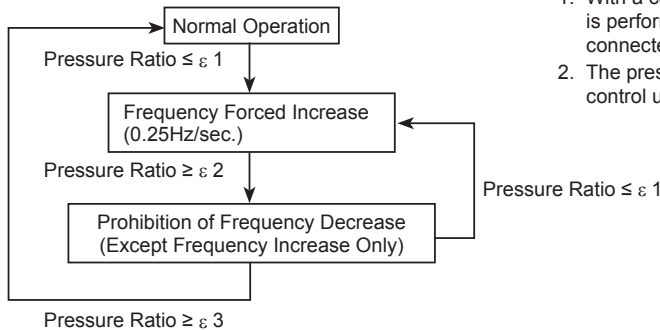
NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
 2. The pressure ratio is calculated in each outdoor unit, and this control uses the maximum value.
- $\epsilon = (Pd \text{ [psi]} + 15) / (Ps \text{ [psi]} + 9)$
 $\epsilon = (Pd \text{ [MPa]} + 0.1) / (Ps \text{ [MPa]} + 0.06)$
 Pd: Detected Value of High Pressure Sensor [psi]
 Ps: Detected Value of Low Pressure Sensor [psi]

(b) Low Compression Ratio Protection Function

This function is activated to protect the compressor during occurrences of low compression ratio.

< Details of Control >



NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. The pressure ratio is calculated in each outdoor unit, and this control uses the minimum value.

< Control Value >

| | ε 1 | ε 2 | ε 3 |
|------------------------------------|-----|-----|-----|
| During Fixed Speed Comp. Operation | 2.0 | 2.1 | 2.2 |
| Except Above Operation | 1.8 | 1.9 | 2.0 |

OUTDOOR UNITS

(2) P02: High Pressure Increase Protection Control

High Pressure Protection Control is performed in order to prevent activation of a protection device caused by a high pressure increase during an abnormality and to protect the compressor from an excessive increase of discharge pressure.

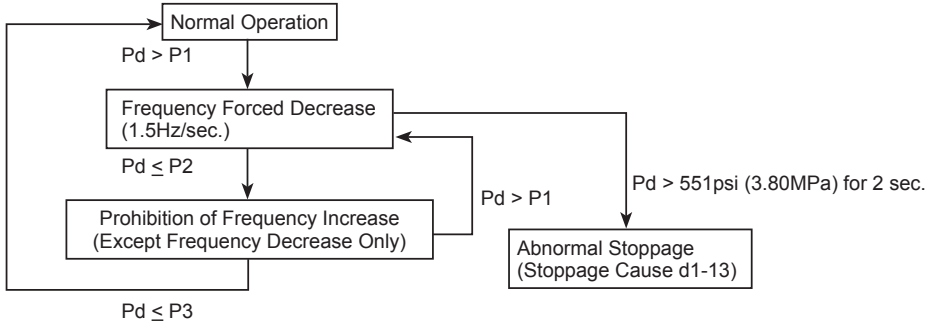
| < Control Value > | [psi(MPa)] | | |
|--|---------------|---------------|---------------|
| Operation Mode | P1 | P2 | P3 |
| Cooling | 500 (3.45) | 493 (3.40) | 464 (3.20) |
| Heating/ Cooling-Heating Simultaneous | 486 (3.35) | 479 (3.30) | 450 (3.10) |

NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. High pressure is detected in each outdoor unit, and this control uses the maximum value.

Pd: Detected Value of High Pressure Sensor [psi(MPa)]

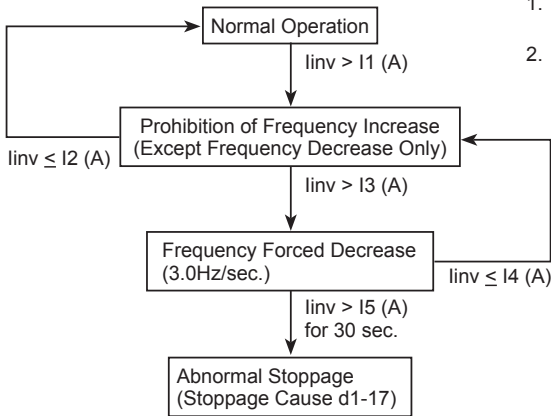
< Details of Control >



(3) P03: Inverter Current Protection Control

Inverter Current Protection Control is performed in order to prevent an inverter trip caused by an increase of inverter secondary current value.

< Details of Control >



NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. The inverter current value is detected in each outdoor unit, and this control uses the maximum value.

Iinv: Detected Value of Inverter Secondary Current Sensor[A]

< 208 / 230V >

| Model | I1 | I2 | I3 | I4 | I5 |
|----------------------|------|------|------|------|------|
| (H,Y)VAHP072~120B31S | 38.5 | 37.5 | 40.0 | 39.0 | 45.0 |
| (H,Y)VAHR072~120B31S | | | | | |

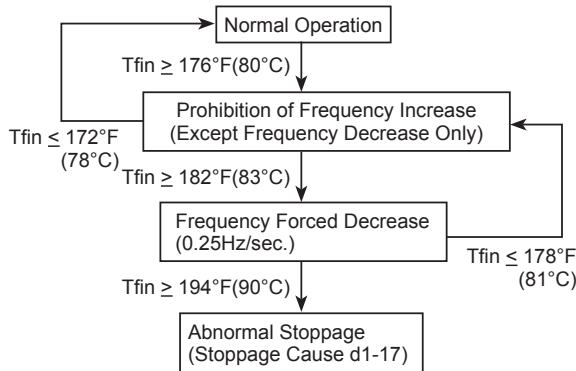
< 460V >

| Model | I1 | I2 | I3 | I4 | I5 |
|----------------------|------|------|------|------|------|
| (H,Y)VAHP072~120B41S | 19.0 | 18.5 | 20.0 | 19.5 | 23.5 |
| (H,Y)VAHR072~120B41S | | | | | |

(4) P04: Inverter Fin Temperature Increase Protection Control

Inverter Fin Temperature Increase Protection Control is performed in order to prevent an inverter trip caused by a temperature increase of the inverter fin.

< Details of Control >



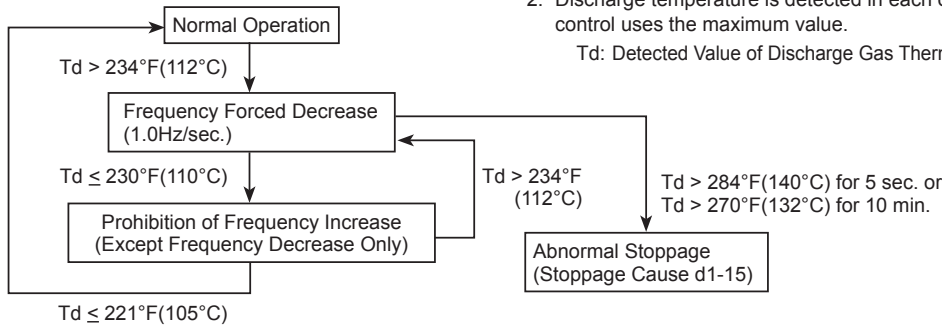
NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. The inverter fin temperature is detected in each outdoor unit, and this control uses the maximum value.
Tfin: Detected Value of Inverter Fin Thermistor [°F(°C)]

(5) P05: Discharge Temperature Increase Protection Control

Discharge Temperature Increase Protection Control is performed in order to protect the compressor motor coil from an increase of discharge temperature during an abnormality.

< Details of Control >



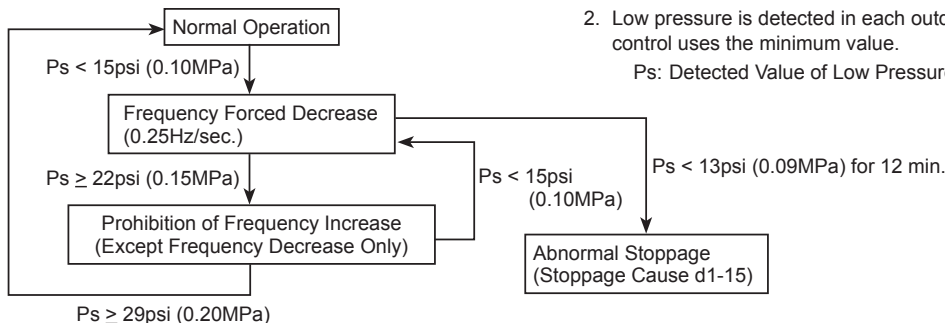
NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. Discharge temperature is detected in each outdoor unit, and this control uses the maximum value.
Td: Detected Value of Discharge Gas Thermistor [°F(°C)]

(6) P06: Low Pressure Decrease Protection Control

Low Pressure Decrease Protection Control is performed in order to protect the compressor from a transitional decrease of suction pressure.

< Details of Control >



NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. Low pressure is detected in each outdoor unit, and this control uses the minimum value.
Ps: Detected Value of Low Pressure Sensor [psi(MPa)]

(7) P09: High Pressure Decrease Protection Control

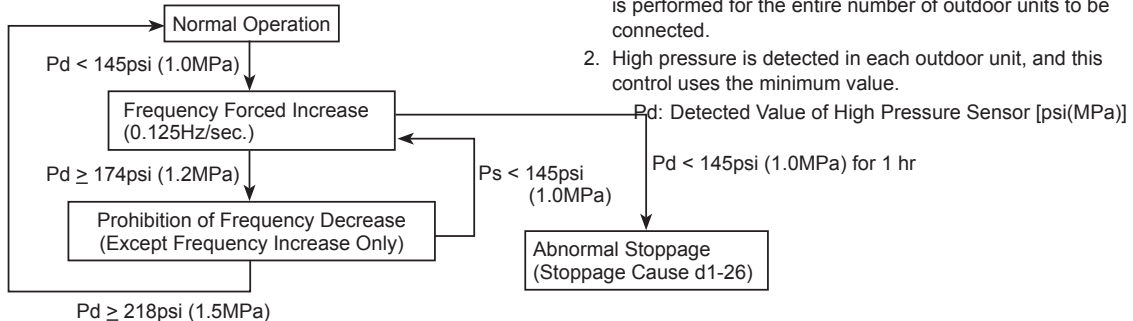
When decreasing high pressure, the compressor operation frequency is controlled by this protection control for the following purposes.

- To prevent insufficient refrigerant supply to indoor units installed at different height locations.
- To keep the refrigerant oil supply in the compressor.

NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. High pressure is detected in each outdoor unit, and this control uses the minimum value.

< Details of Control >



(8) P0A: Demand Current Control

The compressor operation frequency is controlled to set at the setting value of the outdoor unit inverter primary current (40% to 100% of rated current of cooling operation). This function is detailed in the “External Input and Output Setting”. Refer to the Service Manual for details.

< Operating Conditions >

The demand current control can be performed under the following conditions.

- (a) The demand signal is input from the centralized operation controller.
- (b) The demand signal is input at the external input terminals of the outdoor unit from external equipment such as a building management system or a utility with a smart meter.
- (c) The demand function settings are set from the outdoor unit PCB.
- (d) The wave function is set from the outdoor unit PCB.
- (e) The demand signal is input from the indoor unit (wired controller).

If the operation current exceeds each setting function value, the compressor operation frequency is controlled.

< Cancellation Condition >

The input signal is stopped at each condition (a) to (e).

NOTE:

This function is not available when the compressor starts or during a defrosting operation.

(9) P0d: Low Pressure Increase Protection Control

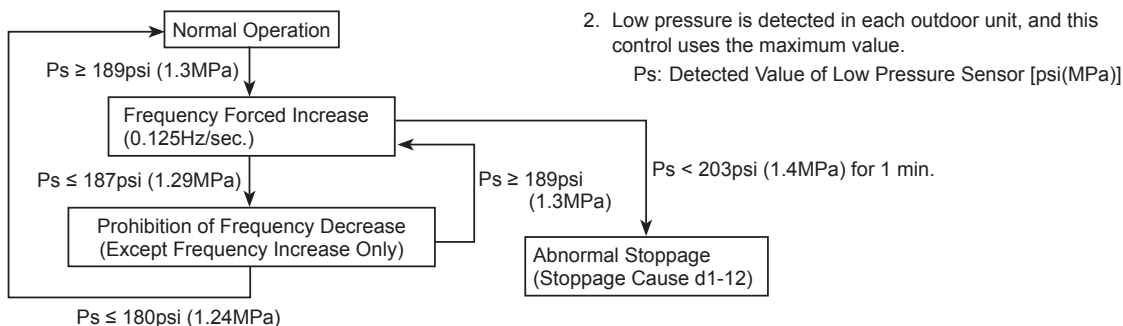
The compressor operation frequency is controlled to protect the compressor from suction pressure transitional increasing.

NOTE:

1. With a combination of base units, the control in the figure is performed for the entire number of outdoor units to be connected.
2. Low pressure is detected in each outdoor unit, and this control uses the maximum value.

Ps: Detected Value of Low Pressure Sensor [psi(MPa)]

< Details of Control >



(10) Priority of Protection Control

If two or more protection controls meet a condition, the protection controls perform according to the following.

| Rank Order. | Indication | Protection Control Performed |
|-------------|------------|--|
| 1 | P01 | Pressure Ratio Protection Control |
| 2 | P02 | High Pressure Increase Protection Control |
| 3 | P03 | Inverter Current Protection Control |
| 4 | P04 | Inverter Fin Temperature Increase Protection Control |
| 5 | P05 | Discharge Temperature Increase Protection Control |
| 6 | P06 | Low Pressure Decrease Protection Control |
| 7 | P0A | Demand Current Control |
| 8 | P0d | Low Pressure Increase Protection Control |
| 9 | P09 | High Pressure Decrease Protection Control |

| | | ② Lower Rank Order of Protection Control Function | | | |
|--|---------------------|---|-----------------|-------------------------|-------------------------|
| | | Forced Decrease | Forced Increase | Prohibition of Increase | Prohibition of Decrease |
| ① Higher Rank Order of Protection Control Function | Forced Decrease | ① | ① | ① | ① |
| | Forced Increase | ① | ① | ① | ① |
| | Prohibited Increase | ② | ① | ② *1 | ① |
| | Prohibited Decrease | ② | ② | ② | ② |

*1: Discharge Temperature Increase Protection Control (P05) is higher than the following protection controls.
 a) Low Pressure Decrease Protection Control (P06)
 b) Demand Current Control (P0A)

(11) Degeneration Control

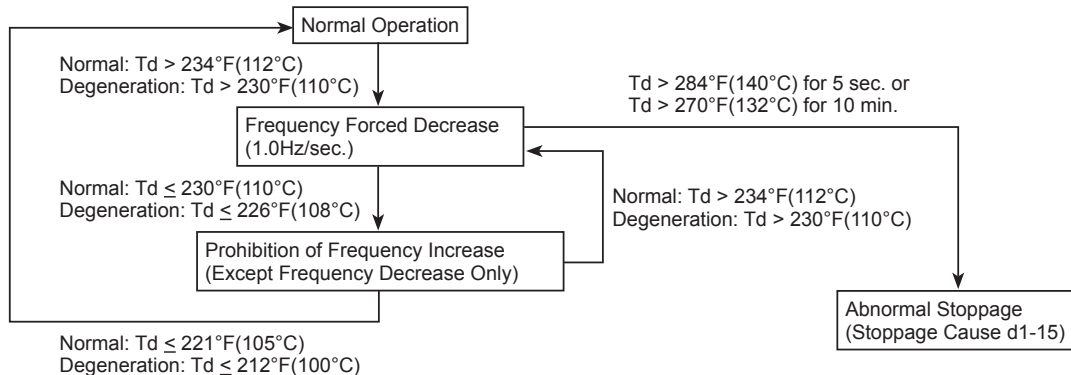
Degeneration Control is performed to change the protection control range.

This control sequence will suppress re-occurring alarms in response to repeated equipment restarts during protection control conditions listed below.

< Related Protection Control >

- (1) Pressure Ratio Decrease Protection Control (P01)
- (2) High Pressure Increase Protection Control (P02)
- (3) Inverter Current Protection Control (P03)
- (4) Inverter Fin Temperature Increase Protection Control (P04)
- (5) Discharge Temperature Increase Protection Control (P05)

< Example of Discharge Temperature Increase Protection Control >



OUTDOOR UNITS

■ Control of Change-Over Box (COBS048B21S, COBS096B21S)

The following table shows the expansion valve opening of the Change-Over box at the steady condition. The expansion valve opening right after the operation mode change (such as thermo-ON → thermo-OFF) may not match the table below. Make sure that the opening is checked after at least six minutes of mode change.

NOTE:

Thermo-ON: The outdoor unit and some indoor units are running.

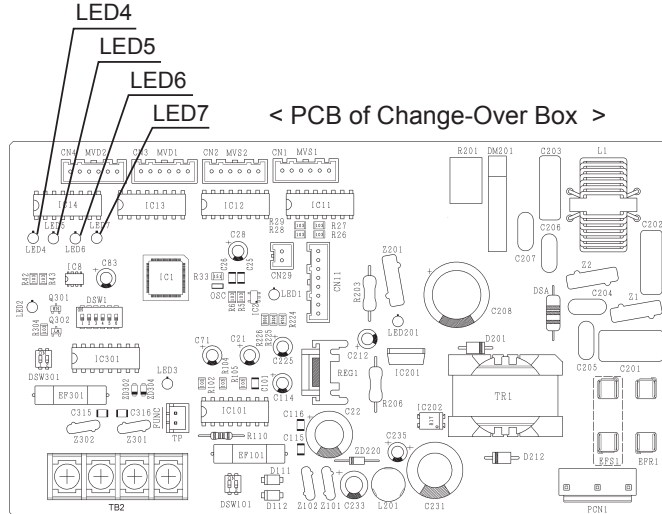
Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

(1) Checking Method of Change-Over Box Performance

Check the LED on the PCB of the Change-Over box to inspect the expansion valve opening.

Refer to the table below for the relationship between the expansion valve opening and the LEDs.

| LED | | Expansion Valve | |
|--------|-----------|-----------------|------------------|
| Number | Condition | Signal | Opening [Pulse] |
| LED4 | ON | MVD2 | 420 (Fully Open) |
| | OFF | | 0 |
| LED5 | ON | MVD1 | 600 (Fully Open) |
| | OFF | | 0 |
| LED6 | ON | MVS2 | 420 (Fully Open) |
| | OFF | | 0 |
| LED7 | ON | MVS1 | 600 (Fully Open) |
| | OFF | | 0 |



(a) When Outdoor Unit Compressor is Stopped (All Indoor Units are Stopped)

Refer to the table below for the expansion valve opening of the Change-Over box when all the indoor units are stopped (including thermo-OFF stoppage).

| Change-Over Box Expansion Valve | Indoor Unit Operation Mode (Remote Control Setting) | | |
|---------------------------------|---|------------------|------------------|
| | Cooling * | Heating | FAN Mode |
| MVS1 | 600 (Fully Open) | 0 | 600 (Fully Open) |
| MVS2 | 420 (Fully Open) | 0 | 420 (Fully Open) |
| MVD1 | 0 | 600 (Fully Open) | 0 |
| MVD2 | 0 | 420 (Fully Open) | 0 |

(Pulse)

*: Dry setting is included as cooling operation.

(b) When Outdoor Unit Compressor is Operated

Refer to the table below for the expansion valve opening of the Change-Over box when outdoor unit compressors are operated.

| Outdoor Unit Operation Condition | Change-Over Box Expansion Valve | Indoor Unit Operation Mode (Remote Control Setting) | | | | |
|----------------------------------|---------------------------------|---|------------------|----------------------|--------------------|------------------|
| | | Cooling * | Heating | Cooling Thermo-OFF * | Heating Thermo-OFF | FAN Mode |
| Cooling Mode | MVS1 | 600 (Fully Open) | - | 600 (Fully Open) | 600 (Fully Open) | 600 (Fully Open) |
| | MVS2 | 420 (Fully Open) | - | 420 (Fully Open) | 420 (Fully Open) | 420 (Fully Open) |
| | MVD1 | 600 (Fully Open) | - | 600 (Fully Open) | 0 | 600 (Fully Open) |
| | MVD2 | 420 (Fully Open) | - | 420 (Fully Open) | 0 | 420 (Fully Open) |
| Heating Mode | MVS1 | - | 0 | 600 (Fully Open) | 0 | 600 (Fully Open) |
| | MVS2 | - | 0 | 420 (Fully Open) | 0 | 420 (Fully Open) |
| | MVD1 | - | 600 (Fully Open) | 0 | 600 (Fully Open) | 0 |
| | MVD2 | - | 420 (Fully Open) | 0 | 420 (Fully Open) | 0 |
| Heat Recovery Mode | MVS1 | 600 (Fully Open) | 0 | 600 (Fully Open) | 0 | 600 (Fully Open) |
| | MVS2 | 420 (Fully Open) | 0 | 420 (Fully Open) | 0 | 420 (Fully Open) |
| | MVD1 | 0 | 600 (Fully Open) | 0 | 600 (Fully Open) | 0 |
| | MVD2 | 0 | 420 (Fully Open) | 0 | 420 (Fully Open) | 0 |

(Pulse)

*: Dry setting is included as cooling operation.

2.11.4 Safety and Control Device Setting

< 203/230V 60Hz >

| Model | Heat Pump System | | (H,Y)VAHP072B31S | (H,Y)VAHP096B31S | (H,Y)VAHP120B31S |
|---|----------------------|--------------|---|---|---|
| | Heat Recovery System | | (H,Y)VAHR072B31S | (H,Y)VAHR096B31S | (H,Y)VAHR120B31S |
| High Pressure Increase Protection | | | Automatic Reset, Non-Adjustable | | |
| High Pressure Increase Protection Control | psi (MPa) | | 551 (3.80) | 551 (3.80) | 551 (3.80) |
| Pressure Switch | Cut-Out | psi | (for each compressor) | | |
| | | (MPa) | 601 -7 -21 (4.15 -0.05) -0.15) | 601 -7 -21 (4.15 -0.05) -0.15) | 601 -7 -21 (4.15 -0.05) -0.15) |
| | Cut-In | psi (MPa) | 464 ±21 (3.20 ±0.15) | 464 ±21 (3.20 ±0.15) | 464 ±21 (3.20 ±0.15) |
| For Inverter Compressor | | | Automatic Reset, Non-Adjustable | | |
| Over Current | | | | | |
| Inverter Current Protection Control | A | | 45.0 | 45.0 | 45.0 |
| Breaker | A | | 50.0 | 50.0 | 50.0 |
| Over Heat | | | Automatic Reset, Non-Adjustable | | |
| Discharge Temperature Increase Protection Control | °F | | 284 for 5sec (140) | 284 for 5sec (140) | 284 for 5sec (140) |
| | °C | | 270 for 10min (132) | 270 for 10min (132) | 270 for 10min (132) |
| For Fixed Speed Compressor | | | Automatic Reset, Non-Adjustable | | |
| Over Current | | | | | |
| Abnormality Running Current Control | 208V 230V A | | - | 32 | 32 |
| Breaker | A | | - | 29 | 29 |
| | A | | - | 32 | 32 |
| Over Heat | | | Automatic Reset, Non-Adjustable | | |
| Discharge Temperature Increase Protection Control | °F | | - | 284 for 5sec (140) | 284 for 5sec (140) |
| | °C | | - | 270 for 10min (132) | 270 for 10min (132) |
| For Fan Motor | | | Automatic Reset, Non-Adjustable | | |
| Over Current Protection Control | A | | 7 | 7 | 7 |
| Fuse | A | | 16 | 16 | 16 |

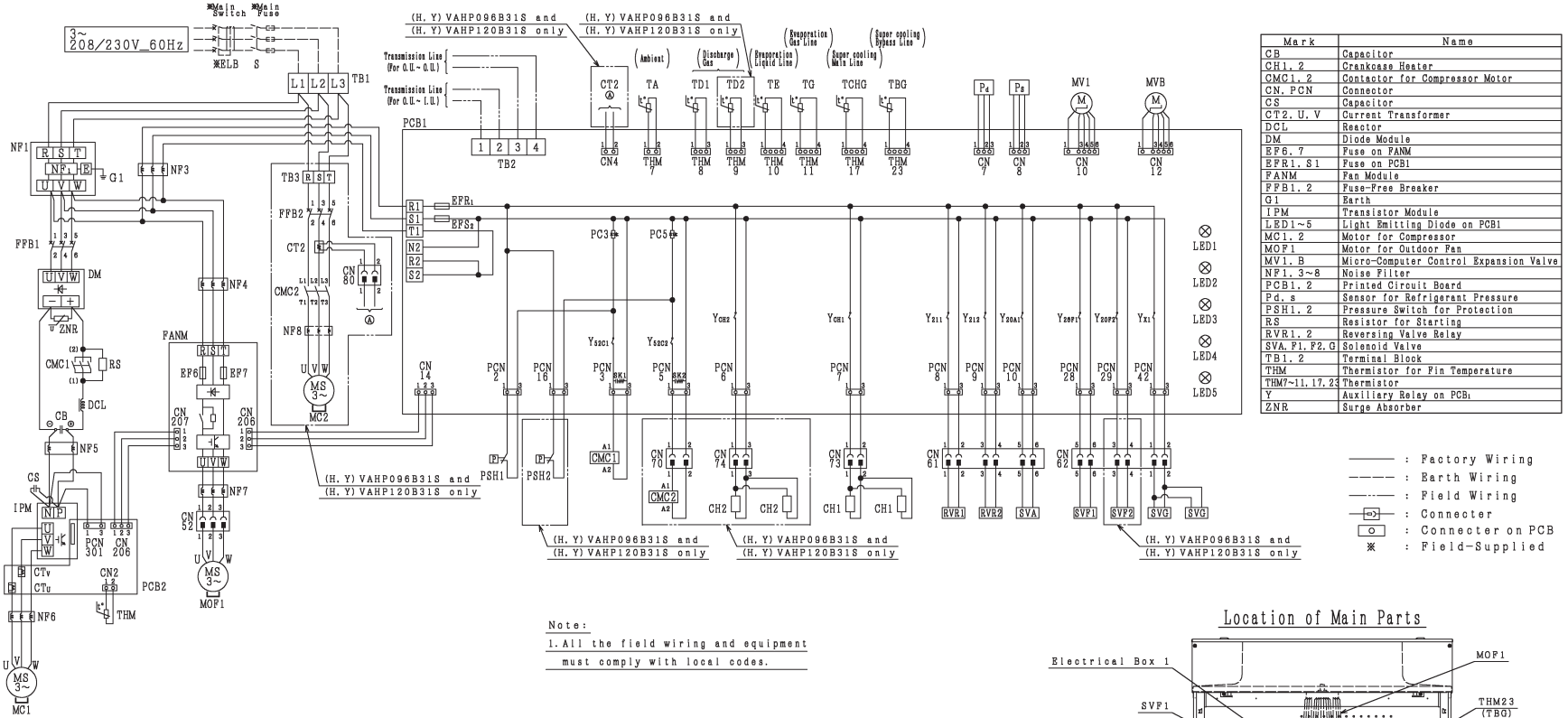
< 460V 60Hz >

| Model | Heat Pump System | | (H,Y)VAHP072B41S | (H,Y)VAHP096B41S | (H,Y)VAHP120B41S |
|---|----------------------|--------------|---|---|---|
| | Heat Recovery System | | (H,Y)VAHR072B41S | (H,Y)VAHR096B41S | (H,Y)VAHR120B41S |
| High Pressure Increase Protection | | | Automatic Reset, Non-Adjustable | | |
| High Pressure Increase Protection Control | psi (MPa) | | 551 (3.80) | 551 (3.80) | 551 (3.80) |
| Pressure Switch | Cut-Out | psi | (for each compressor) | | |
| | | (MPa) | 601 -7 -21 (4.15 -0.05) -0.15) | 601 -7 -21 (4.15 -0.05) -0.15) | 601 -7 -21 (4.15 -0.05) -0.15) |
| | Cut-In | psi (MPa) | 464 ±21 (3.20 ±0.15) | 464 ±21 (3.20 ±0.15) | 464 ±21 (3.20 ±0.15) |
| For Inverter Compressor | | | Automatic Reset, Non-Adjustable | | |
| Over Current | | | | | |
| Inverter Current Protection Control | A | | 23.5 | 23.5 | 23.5 |
| Breaker | A | | 30.0 | 30.0 | 30.0 |
| Over Heat | | | Automatic Reset, Non-Adjustable | | |
| Discharge Temperature Increase Protection Control | °F | | 284 for 5sec (140) | 284 for 5sec (140) | 284 for 5sec (140) |
| | °C | | 270 for 10min (132) | 270 for 10min (132) | 270 for 10min (132) |
| For Fixed Speed Compressor | | | Automatic Reset, Non-Adjustable | | |
| Over Current | | | | | |
| Abnormality Running Current Control | A | | - | 14.5 | 14.5 |
| Breaker | A | | - | 15 | 15 |
| Over Heat | | | Automatic Reset, Non-Adjustable | | |
| Discharge Temperature Increase Protection Control | °F | | - | 284 for 5sec (140) | 284 for 5sec (140) |
| | °C | | - | 270 for 10min (132) | 270 for 10min (132) |
| For Fan Motor | | | Automatic Reset, Non-Adjustable | | |
| Over Current Protection Control | A | | 7 | 7 | 7 |
| Breaker | A | | 10 | 10 | 10 |

OUTDOOR UNITS

2.11.5 Electrical Wiring Diagram
 2.11.5.1 Outdoor Units
 < Heat Pump System >
 (1) 208 / 230V 60Hz

MODEL: (H, Y) VAHP072B31S, (H, Y) VAHP096B31S and (H, Y) VAHP120B31S



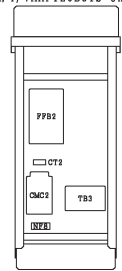
| Mark | Name |
|-----------------|--|
| CB | Capacitor |
| CH1, 2 | Crackcase Heater |
| CMC1, 2 | Contact for Compressor Motor |
| CN, PCN | Connector |
| CS | Capacitor |
| CT2, U, V | Current Transformer |
| DCL | Reactor |
| DM | Diode Module |
| EFB, 7 | Fuse on PANM |
| EPF1, S1 | Fuse on PCB1 |
| PANM | Fan Module |
| FPB1, 2 | Fuse-Free Breaker |
| G1 | Earth |
| IPM | Transistor Module |
| LED1-5 | Light Emitting Diode on PCB1 |
| MC1, 2 | Motor for Compressor |
| MOP1 | Motor for Outdoor Fan |
| MV1, B | Micro-Computer Control Expansion Valve |
| NF1, 3-8 | Noise Filter |
| PCB1, 2 | Printed Circuit Board |
| Pd, s | Sensor for Refrigerant Pressure |
| PSH1, 2 | Pressure Switch for Protection |
| RS | Resistor for Starting |
| RVR1, 2 | Reversing Valve Relay |
| SVA, P1, P2, G | Solenoid Valve |
| TB1, 2 | Terminal Block |
| THM | Thermistor for Pin Temperature |
| THM7-11, 17, 23 | Thermistor |
| Y | Auxiliary Relay on PCB |
| ZNR | Surge Absorber |

- : Factory Wiring
- : Earth Wiring
- : Field Wiring
- : Connector
- : Connector on PCB
- * : Field-Supplied

Electrical Control Box of Outdoor Unit

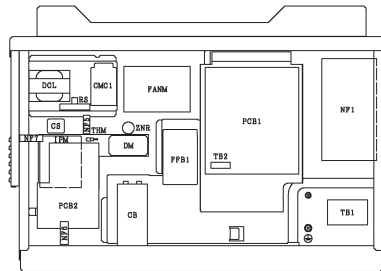
The Interior of the Electrical Control Box 2

(H, Y) VAHP096B31S and (H, Y) VAHP120B31S only

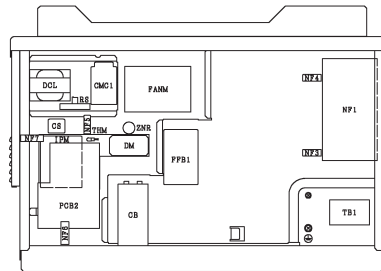


The Interior of the Electrical Control Box 1

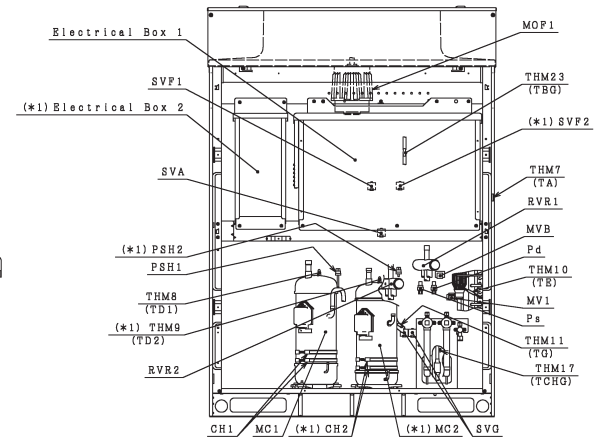
Front Side



Bottom Side



Location of Main Parts

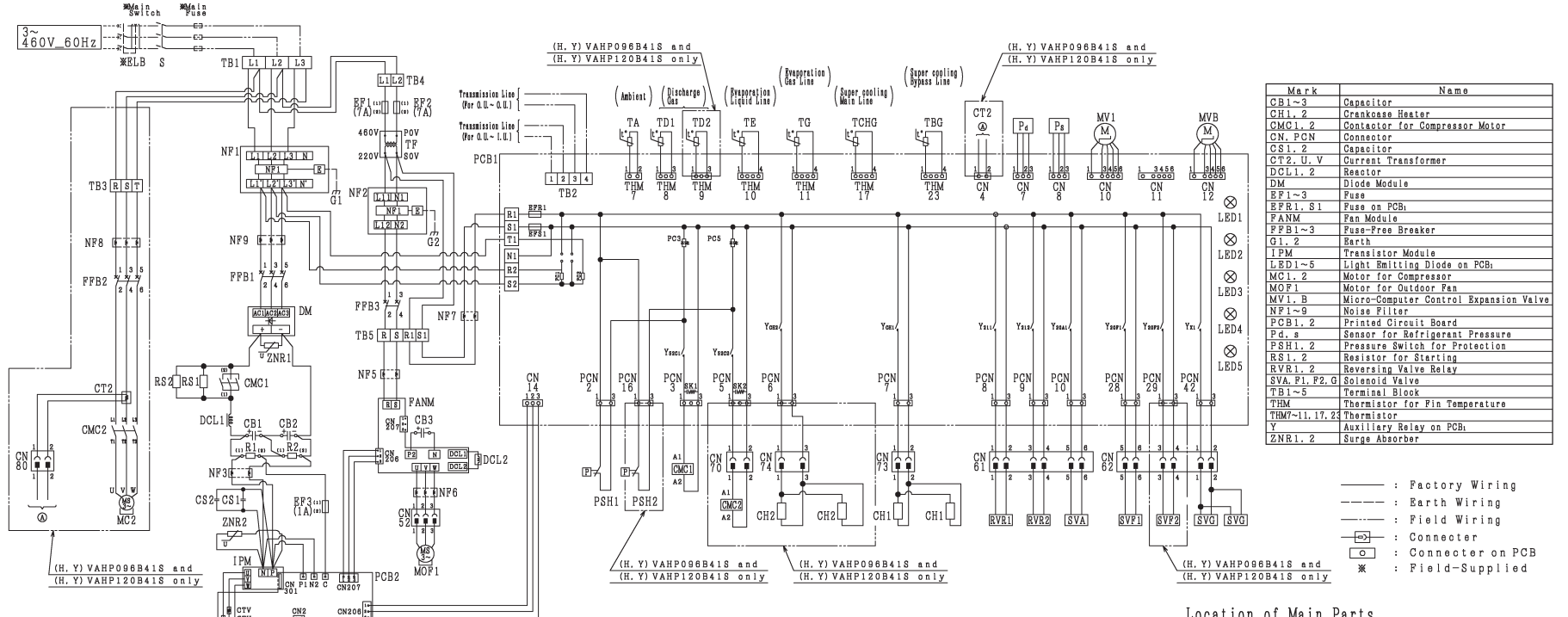


(*1): (H, Y) VAHP096B31S and (H, Y) VAHP120B31S only

OUTDOOR UNITS

(2) 460V 60Hz

MODEL: (H, Y) VAHP072B41S, (H, Y) VAHP096B41S and (H, Y) VAHP120B41S

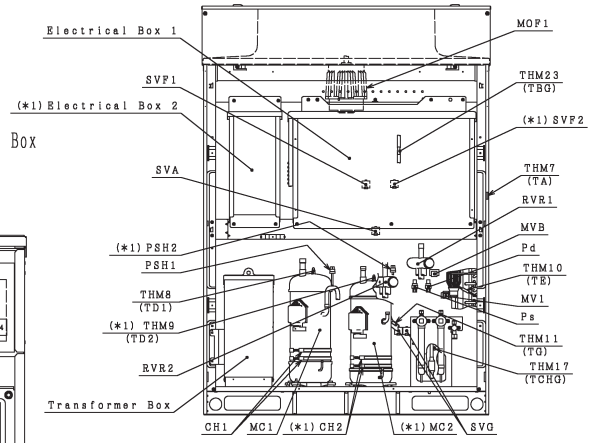


| Mark | Name |
|-----------------|--|
| CB1~3 | Capacitor |
| CH1.2 | Crankcase Heater |
| CMC1.2 | Contactor for Compressor Motor |
| CN. PCN | Connector |
| CS1.2 | Capacitor |
| CT2. U. V | Current Transformer |
| DCL1.2 | Reactor |
| DM | Diode Module |
| EF1~3 | Fuse |
| EF1. S1 | Fuse on PCB |
| FANM | Fan Module |
| FFB1~3 | Fuse-Free Breaker |
| G1.2 | Earth |
| IPM | Transistor Module |
| LED1~5 | Light Emitting Diode on PCB |
| MC1.2 | Motor for Compressor |
| MOP1 | Motor for Outdoor Fan |
| MV1. B | Micro-Computer Control Expansion Valve |
| NF1~9 | Noise Filter |
| PCB1 | Printed Circuit Board |
| Pd. s | Sensor for Refrigerant Pressure |
| PSH1.2 | Pressure Switch for Protection |
| RS1.2 | Resistor for Starting |
| RVR1.2 | Reversing Valve Relay |
| SVA. P1. P2. G | Solenoid Valve |
| TB1~5 | Terminal Block |
| THM | Thermistor for Fin Temperature |
| THM7~11. 17. 23 | Thermistor |
| Y | Auxiliary Relay on PCB |
| ZNR1.2 | Surge Absorber |

- : Factory Wiring
- - - : Earth Wiring
- : Field Wiring
- : Connector
- : Connector on PCB
- ⊗ : Field-Supplied

Note:
1. All the field wiring and equipment must comply with local codes.

Location of Main Parts



(*1) : (H, Y) VAHP096B41S and (H, Y) VAHP120B41S only

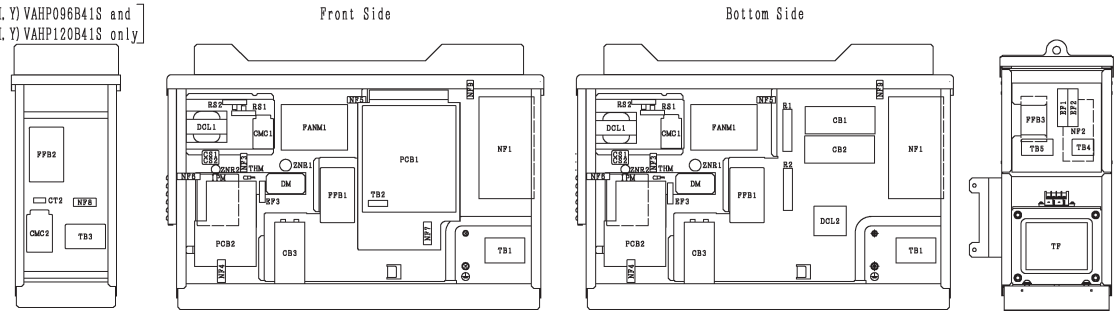
Electrical Control Box of Outdoor Unit

The Interior of the Electrical Control Box 2

The Interior of the Electrical Control Box 1

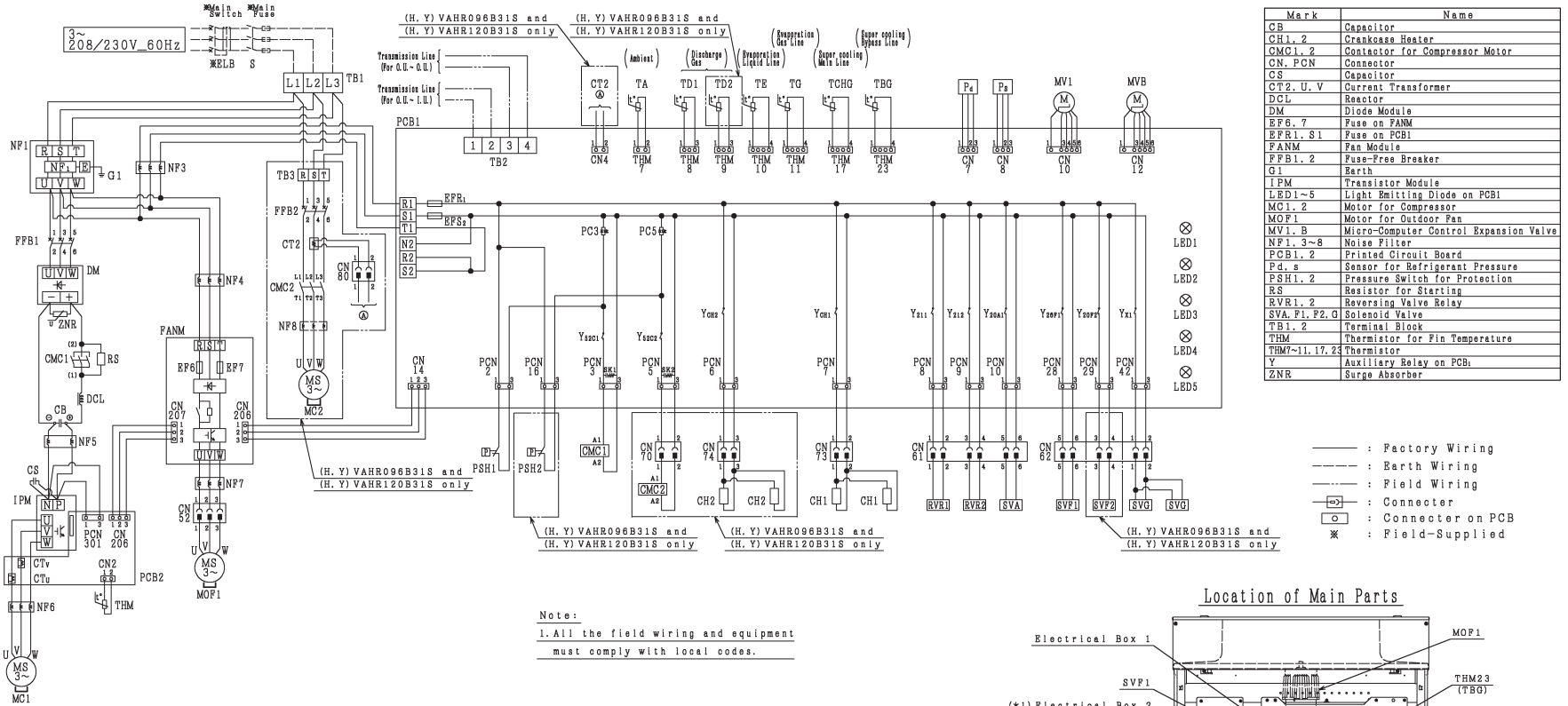
Transformer Box

(H, Y) VAHP096B41S and (H, Y) VAHP120B41S only



< Heat Recovery System >
 (1) 208 / 230V 60Hz

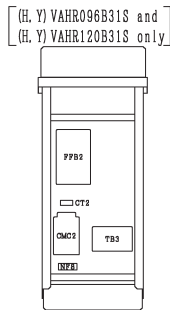
MODEL: (H,Y)VAHR072B31S, (H,Y)VAHR096B31S and (H,Y)VAHR120B31S



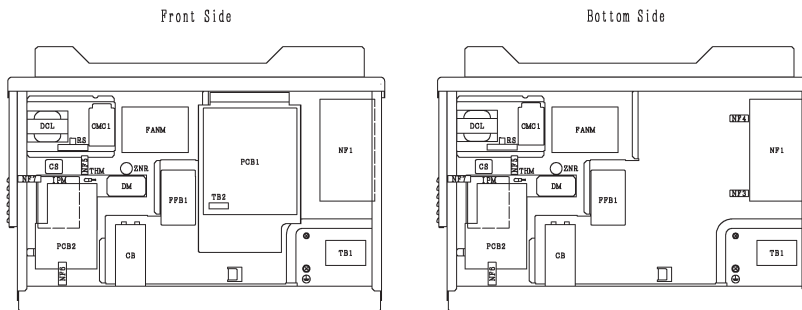
Note:
 1. All the field wiring and equipment must comply with local codes.

Electrical Control Box of Outdoor Unit

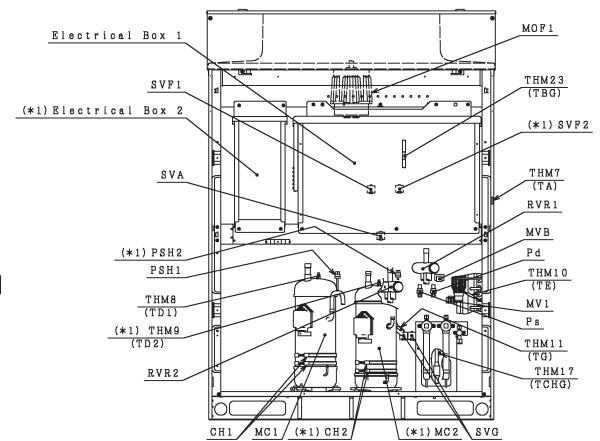
The Interior of the Electrical Control Box 2



The Interior of the Electrical Control Box 1



Location of Main Parts

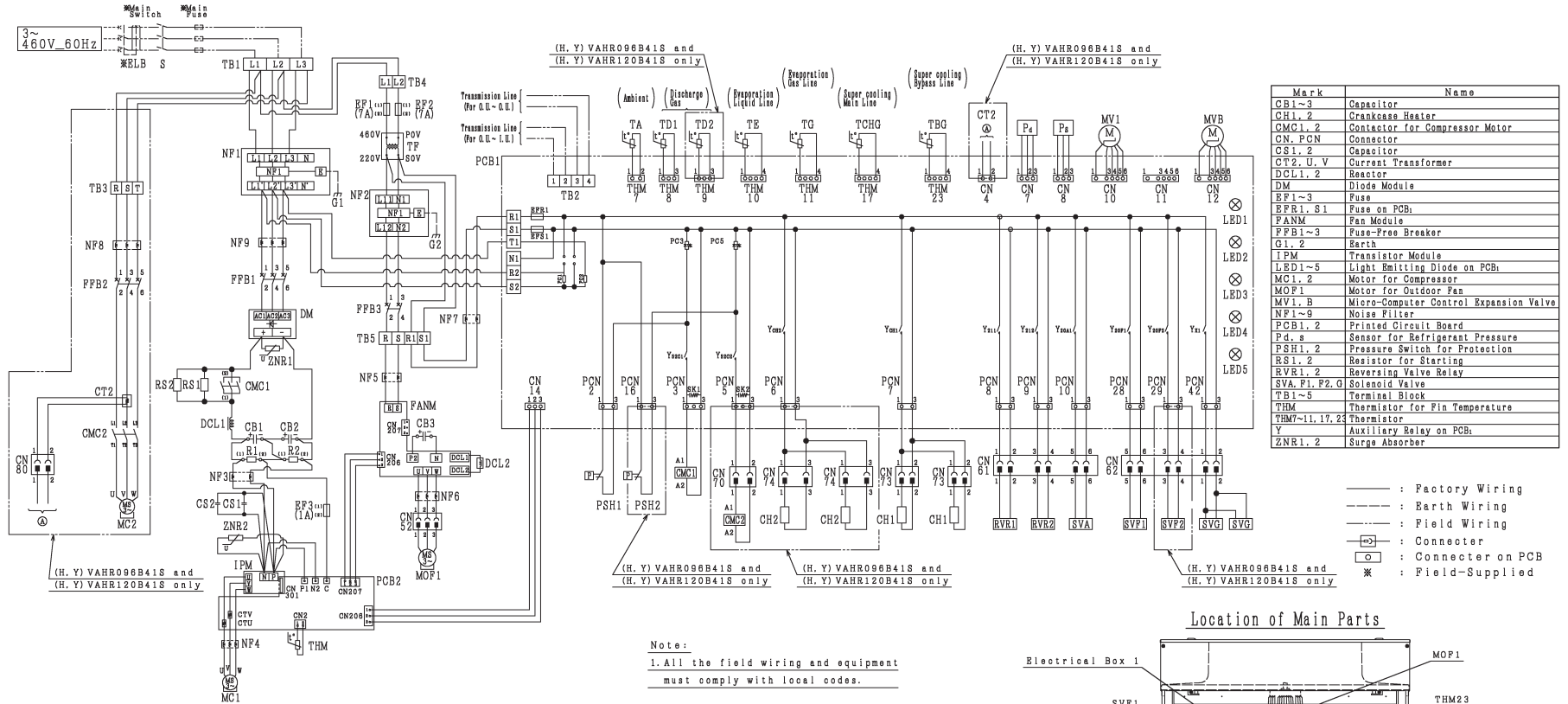


(*1): (H,Y)VAHR096B31S and (H,Y)VAHR120B31S only

OUTDOOR UNITS

(2) 460V 60Hz

MODEL: (H,Y)VAHR072B41S, (H,Y)VAHR096B41S and (H,Y)VAHR120B41S



| Mark | Name |
|-----------------|--|
| CB1-3 | Capacitor |
| CH1, 2 | Crankcase Heater |
| CMC1, 2 | Contactor for Compressor Motor |
| CN, PCN | Connector |
| CS1, 2 | Capacitor |
| CT2, U, V | Current Transformer |
| DCL1, 2 | Reactor |
| DM | Diode Module |
| EF1-3 | Fuse |
| EF1-3, S1 | Fuse on PCB |
| FANM | Fan Module |
| FFB1-3 | Fuse-Free Breaker |
| G1, 2 | Earth |
| IPM | Transistor Module |
| LED1-5 | Light Emitting Diode on PCB |
| MC1, 2 | Motor for Compressor |
| MOF1 | Motor for Outdoor Fan |
| MV1, B | Micro-Computer Control Expansion Valve |
| NF1-9 | Noise Filter |
| PCB1, 2 | Printed Circuit Board |
| Pd, s | Sensor for Refrigerant Pressure |
| PSH1, 2 | Pressure Switch for Protection |
| RS1, 2 | Resistor for Starting |
| RVR1, 2 | Reversing Valve Relay |
| SVA, P1, P2, G | Solenoid Valve |
| TB1-5 | Terminal Block |
| THM | Thermistor for Fin Temperature |
| THM7-11, 17, 23 | Thermistor |
| Y | Auxiliary Relay on PCB |
| ZNR1, 2 | Surge Absorber |

- : Factory Wiring
- - - : Earth Wiring
- : Field Wiring
- ⊠ : Connector
- ⊙ : Connector on PCB
- * : Field-Supplied

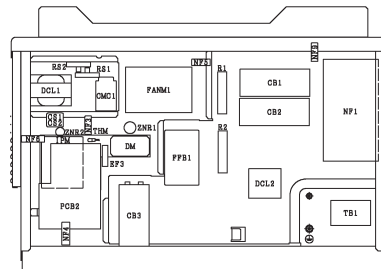
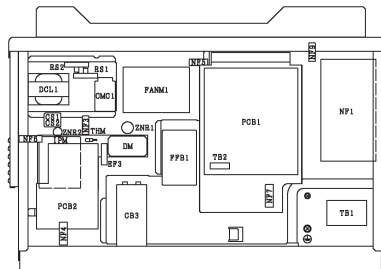
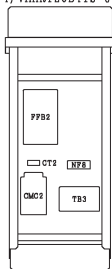
Note:
1. All the field wiring and equipment must comply with local codes.

Electrical Control Box of Outdoor Unit

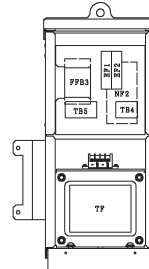
The Interior of the Electrical Control Box 2

The Interior of the Electrical Control Box 1

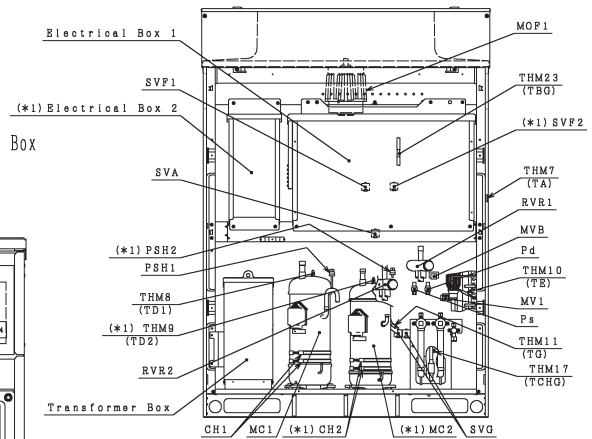
(H, Y) VAHR096B41S and (H, Y) VAHR120B41S only



Transformer Box



Location of Main Parts



(*) : (H, Y) VAHR096B41S and (H, Y) VAHR120B41S only

3. Indoor Units

3.1 Ducted

3.1.1 Unit Nomenclature

Model Descriptions

Example

| Nomenclature Description | | H | I | DH | 018 | B | 2 | 1 | S |
|---|-----|---|---|----|-----|---|---|---|---|
| H = Hitachi Brand Y = York Brand | H | | | | | | | | |
| Indoor Unit | I | | | | | | | | |
| Indoor Unit Type DH = High Static DM = Medium Static DS = Slim | DH | | | | | | | | |
| Capacity (MBH) | 018 | | | | | | | | |
| Refrigerant Type B = R410A | B | | | | | | | | |
| Voltage 2 = 208/230Volts - 1Phase - 60Hz | 2 | | | | | | | | |
| 1 = 1st Generation | 1 | | | | | | | | |
| S = Standard Type | S | | | | | | | | |

3.1.2 Line-up

| Type | | Capacity | | Model |
|-------------|----------------------|----------|-----|-----------------|
| | | RT | MBH | |
| Indoor Unit | Ducted High Static | 1.5 | 18 | (H,Y)IDH018B21S |
| | | 2.0 | 24 | (H,Y)IDH024B21S |
| | | 2.5 | 30 | (H,Y)IDH030B21S |
| | | 3.0 | 36 | (H,Y)IDH036B21S |
| | | 4.0 | 48 | (H,Y)IDH048B21S |
| | Ducted Medium Static | 0.5 | 6 | (H,Y>IDM006B21S |
| | | 0.7 | 8 | (H,Y)IDM008B21S |
| | | 1.0 | 12 | (H,Y)IDM012B21S |
| | | 1.3 | 15 | (H,Y)IDM015B21S |
| | | 1.5 | 18 | (H,Y)IDM018B21S |
| | | 2.0 | 24 | (H,Y)IDM024B21S |
| | | 2.5 | 30 | (H,Y)IDM030B21S |
| | | 3.0 | 36 | (H,Y)IDM036B21S |
| | Ducted Slim | 0.5 | 6 | (H,Y)IDS006B21S |
| | | 0.7 | 8 | (H,Y)IDS008B21S |
| | | 1.0 | 12 | (H,Y)IDS012B21S |
| | | 1.3 | 15 | (H,Y)IDS015B21S |
| | | 1.5 | 18 | (H,Y)IDS018B21S |

3.1.3 Ducted High Static

3.1.3.1 General Data

| Indoor Unit Type | | Ducted High Static | | | | |
|---|-----------------------|--|--------------------|--------------------|--------------------|--------------------|
| Model | | (H,Y)IDH018B21S | (H,Y)IDH024B21S | (H,Y)IDH030B21S | (H,Y)IDH036B21S | (H,Y)IDH048B21S |
| Indoor Unit Power Supply | | AC 1Phase, 208/230V, 60Hz | | | | |
| Nominal Cooling Capacity *1 | Btu/h | 18,000 | 24,000 | 30,000 | 36,000 | 48,000 |
| | (kW) | (5.3) | (7.0) | (8.8) | (10.5) | (14.1) |
| Nominal Heating Capacity *1 | Btu/h | 20,000 | 27,000 | 34,000 | 40,000 | 54,000 |
| | (kW) | (5.9) | (7.9) | (10.0) | (11.7) | (15.8) |
| Sound Pressure Level *2 (Overall A Scale) [Fan Speed (Hi-Lo) 208V/ Fan Speed (Hi-Lo) 230V] | dB | 38-29/44-37 | 39-30/42-34 | 39-30/42-34 | 43-34/46-37 | 44-35/47-40 |
| Outer Dimensions | | | | | | |
| Height | in.(mm) | 10-5/8 (270) | 13-25/32 (350) | 13-25/32 (350) | 13-25/32 (350) | 13-25/32 (350) |
| Width | in.(mm) | 35-7/16 (900) | 35-7/16 (900) | 35-7/16 (900) | 51-3/16 (1300) | 51-3/16 (1300) |
| Depth | in.(mm) | 28-11/32 (720) | 31-1/2 (800) | 31-1/2 (800) | 31-1/2 (800) | 31-1/2 (800) |
| Net Weight | lbs(kg) | 75 (34) | 106 (48) | 106 (48) | 128 (58) | 132 (60) |
| Refrigerant | | R410A | | | | |
| Indoor Fan | | | | | | |
| Airflow Rate *3 (Hi-Lo) | cfm | 547-388 | 883-618 | 883-618 | 1190-830 | 1236-890 |
| | (m ³ /min) | (15.5-11) | (25-17.5) | (25-17.5) | (33.7-23.5) | (35-25.2) |
| External Pressure (208/230V) | | | | | | |
| High Pressure | in.W.G(Pa) | 0.6/0.74 (150/185) | 0.6/0.74 (150/185) | 0.6/0.74 (150/185) | 0.6/0.74 (150/185) | 0.6/0.74 (150/185) |
| | Standard | in.W.G(Pa) | 0.20/0.40 (50/100) | 0.20/0.40 (50/100) | 0.20/0.40 (50/100) | 0.20/0.40 (50/100) |
| Motor Nominal Output | W | 130 | 150 | 150 | 250 | 280 |
| Connections | | | | | | |
| Refrigerant Piping | | Flare-Nut Connection (with Flare Nuts) | | | | |
| Liquid Line | in.(mm) | 3/8 (9.52) | 3/8 (9.52) | 3/8 (9.52) | 3/8 (9.52) | 3/8 (9.52) |
| Gas Line | in.(mm) | 5/8 (15.88) | 5/8 (15.88) | 5/8 (15.88) | 5/8 (15.88) | 5/8 (15.88) |
| Condensate Drain | | VP25 | | | | |
| OD | in.(mm) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) |
| ID | in.(mm) | 31/32 (25) | 31/32 (25) | 31/32 (25) | 31/32 (25) | 31/32 (25) |

NOTES:

*1. Nominal capacity is based on combinations within the VRF system under the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 70°F DB (21.1°C DB)
Outdoor Air Inlet Temperature: 47°F DB (8.3°C DB)
43°F WB (6.1°C WB)

Piping Length: 24 ft. 7-3/16 in. (7.5m) Piping Lift: 0ft. (0m)

*2. The sound pressure level is based on the following conditions.

4.9 ft. (1.5m) beneath the units.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

*3. For the (H,Y)IDH series, the fan speeds are only "High" and "Low". Therefore, the fan speed indication of the LCD is changed as **High → Low**, by pressing the fan speed key "Δ" or "∇".

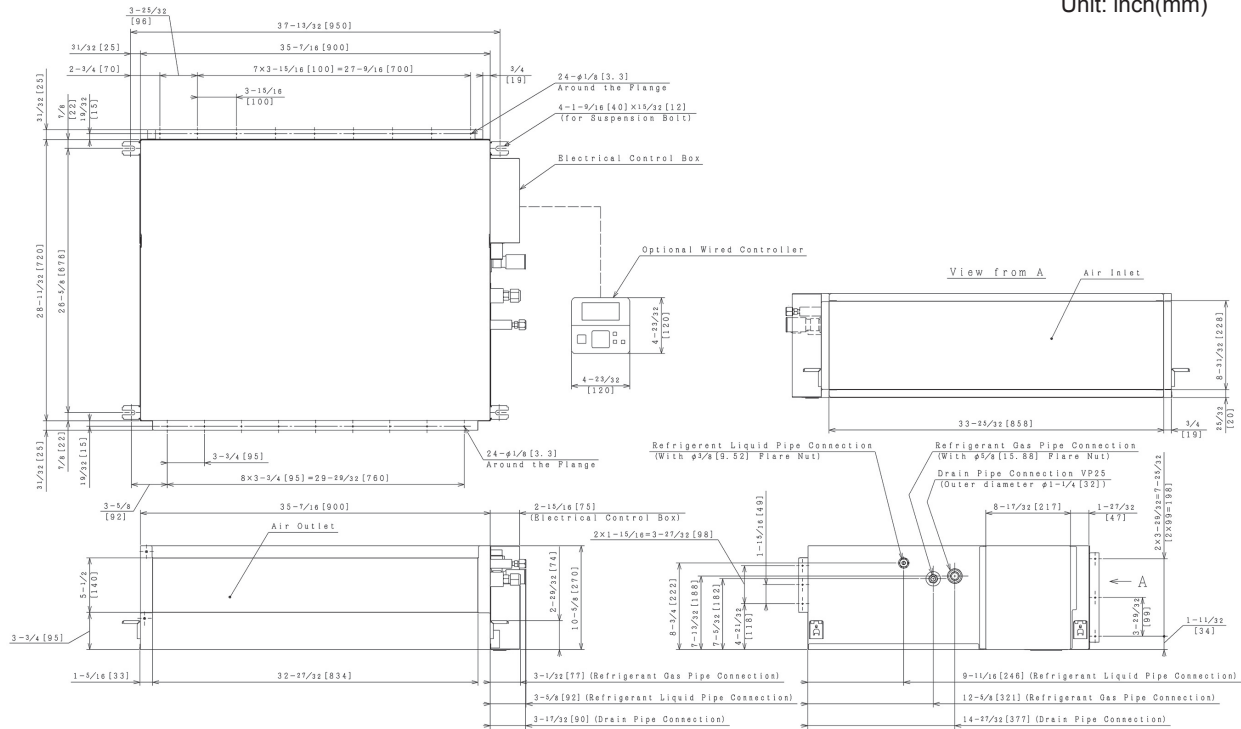
If one wired controller is connected to multiple indoor units (included with 3 or 4 taps speed of the indoor unit), the fan speed indication of LCD is changed as **High 2 → High → Medium → Low**. However, the actual fan speed is as shown in the table below.

| LCD Indication | Actual Fan Speed |
|----------------|------------------|
| High 2 | High |
| High | High |
| Medium | High |
| Low | Low |

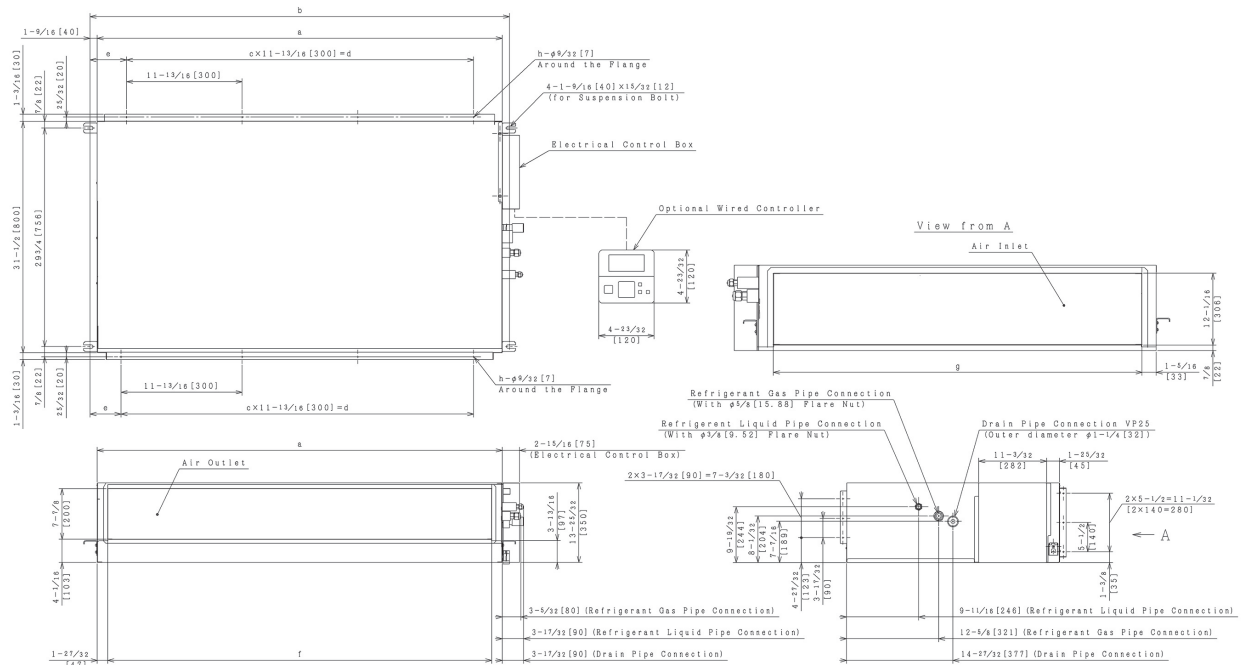
3.1.3.2 Dimensional Data

Model: (H,Y)IDH018B21S

Unit: inch(mm)



Models: (H,Y)IDH024B21S, (H,Y)IDH030B21S, (H,Y)IDH036B21S and (H,Y)IDH048B21S

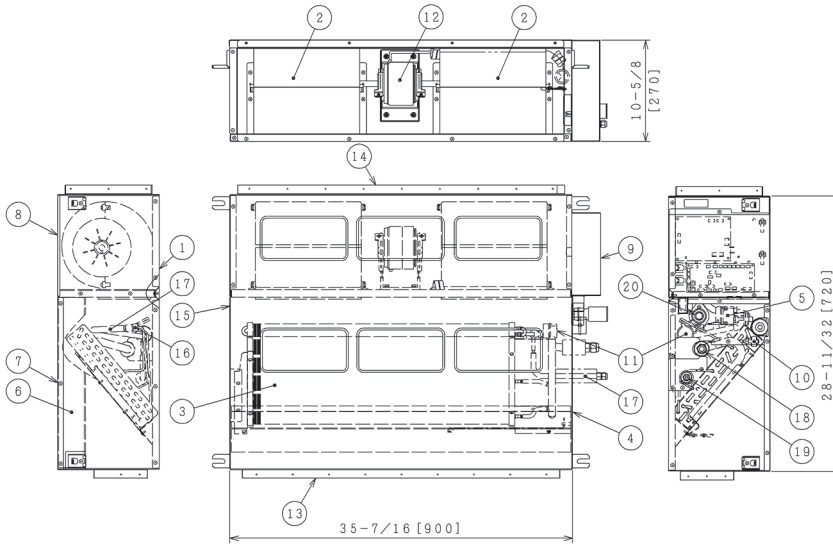


INDOOR UNITS

3.1.3.3 Structure

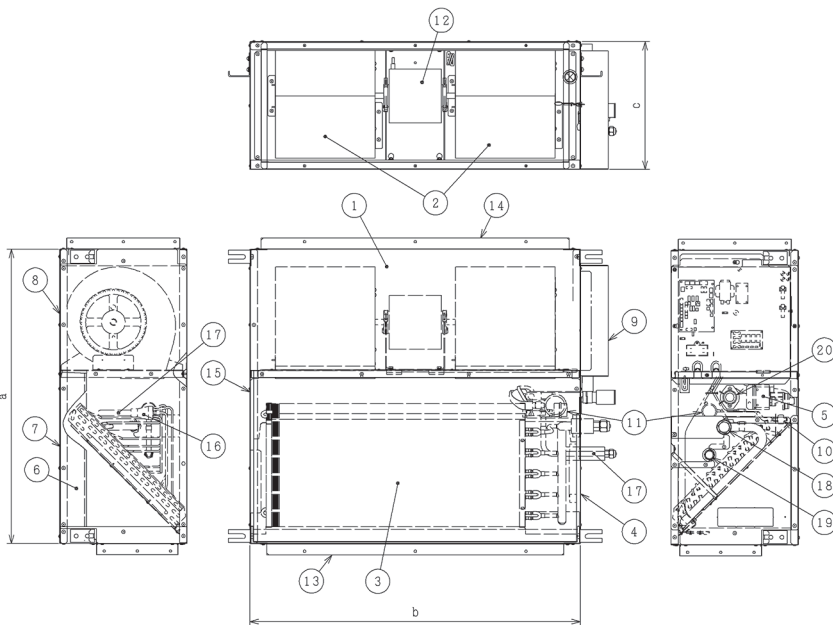
Model: (H,Y)IDH018B21S

Unit: inch(mm)



| No. | Name | Remarks |
|-----|--|-----------------------------------|
| 1 | Top Enclosure | |
| 2 | Fan | |
| 3 | Heat Exchanger | |
| 4 | Right Side Enclosure | |
| 5 | Drain Pump | |
| 6 | Drain Pan | |
| 7 | Bottom Enclosure (Front) | |
| 8 | Bottom Enclosure (Back) | |
| 9 | Electrical Control Box | |
| 10 | Float Switch | |
| 11 | Micro-Computer Control Expansion Valve | |
| 12 | Fan Motor | AC |
| 13 | Air Outlet | |
| 14 | Air Inlet | |
| 15 | Left Side Enclosure | |
| 16 | Distributor | |
| 17 | Strainer | |
| 18 | Refrigerant Gas Pipe Connection | With $\phi 5/8$ [15.88] Flare Nut |
| 19 | Refrigerant Liquid Pipe Connection | With $\phi 3/8$ [9.52] Flare Nut |
| 20 | Drain Pipe Connection | |

Models: (H,Y)IDH024B21S, (H,Y)IDH030B21S, (H,Y)IDH036B21S and (H,Y)IDH048B21S



| No. | Name | Remarks |
|-----|--|-----------------------------------|
| 1 | Top Enclosure | |
| 2 | Fan | |
| 3 | Heat Exchanger | |
| 4 | Right Side Enclosure | |
| 5 | Drain Pump | |
| 6 | Drain Pan | |
| 7 | Bottom Enclosure (Front) | |
| 8 | Bottom Enclosure (Back) | |
| 9 | Electrical Control Box | |
| 10 | Float Switch | |
| 11 | Micro-Computer Control Expansion Valve | |
| 12 | Fan Motor | AC |
| 13 | Air Outlet | |
| 14 | Air Inlet | |
| 15 | Left Side Enclosure | |
| 16 | Distributor | |
| 17 | Strainer | |
| 18 | Refrigerant Gas Pipe Connection | With $\phi 5/8$ [15.88] Flare Nut |
| 19 | Refrigerant Liquid Pipe Connection | With $\phi 3/8$ [9.52] Flare Nut |
| 20 | Drain Pipe Connection | |

| Dimension | a | b | c |
|-------------------|--------------|----------------|----------------|
| Model | | | |
| (H, Y) IDH024B21S | 31-1/2 [800] | 35-7/16 [900] | 13-25/32 [350] |
| (H, Y) IDH030B21S | | | |
| (H, Y) IDH036B21S | 31-1/2 [800] | 51-3/16 [1300] | 13-25/32 [350] |
| (H, Y) IDH048B21S | | | |

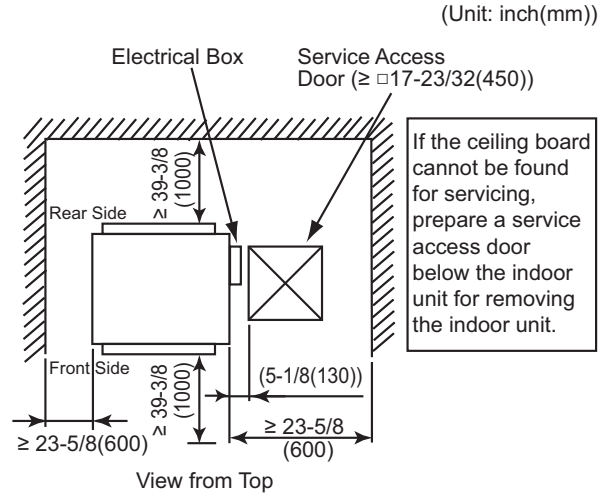
3.1.3.4 Component Data

Indoor Heat Exchanger and Fan

| Model | | (H,Y)IDH018B21S | (H,Y)IDH024B21S | (H,Y)IDH030B21S | (H,Y)IDH036B21S | (H,Y)IDH048B21S |
|----------------------------|--------------------------------------|---------------------------------|----------------------|----------------------|-------------------------|-----------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | | | |
| Tube Material | | Copper Tube | | | | |
| Outer Diameter | φ in (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3 | 2 | 3 | 3 | 3 |
| Number of Tube/Coil | | 44 | 42 | 62 | 62 | 62 |
| Fin Material | | Aluminum | | | | |
| Pitch | in (mm) | 0.071 (1.8) | 0.071 (1.8) | 0.071 (1.8) | 0.071 (1.8) | 0.063 (1.6) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 2.26 (0.21) | 3.12 (0.29) | 3.12 (0.29) | 4.95 (0.46) | 4.95 (0.46) |
| Number of Coil/Unit | | 1 | 1 | 1 | 1 | 1 |
| Indoor Fan | | Multi-Blade Centrifugal Fan | | | | |
| Number/Unit | | 2 | 2 | 2 | 2 | 2 |
| Outer Diameter | φ in (mm) | 7-3/32 (180) | 7-7/8 (200) | 7-7/8 (200) | 7-7/8 (200) | 7-7/8 (200) |
| Nominal Airflow (Hi-Lo) | cfm (m ³ /min) | 547-388 (15.5-11) | 883-618 (25-17.5) | 883-618 (25-17.5) | 1190-830 (33.7-23.5) | 1236-890 (35-25.2) |
| Indoor Fan Motor | | Drip-Proof Type Enclosure | | | | |
| Starting Method | | PSC (Permanent Split Capacitor) | | | | |
| Nominal Output | W | 130 | 150 | 150 | 250 | 280 |
| Quantity | | 1 | 1 | 1 | 1 | 1 |
| Insulation Class | | F | B | B | B | B |

3.1.3.5 Operation Space

Models: (H,Y)IDH018B21S, (H,Y)IDH024B21S, (H,Y)IDH030B21S, (H,Y)IDH036B21S and (H,Y)IDH048B21S



3.1.3.6 Sensible Heat Factor (SHF)

| Model | SHF* |
|-----------------|------|
| (H,Y)IDH018B21S | 0.83 |
| (H,Y)IDH024B21S | 0.85 |
| (H,Y)IDH030B21S | 0.83 |
| (H,Y)IDH036B21S | 0.83 |
| (H,Y)IDH048B21S | 0.84 |

NOTE:

1. SHF is based on combinations within the VRF system and the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)

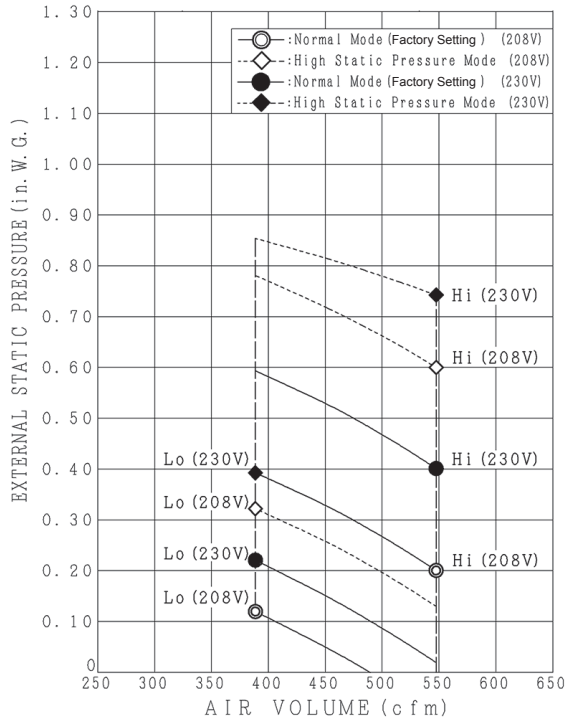
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Piping Length: 24 ft. 7-3/16 in. (7.5m)

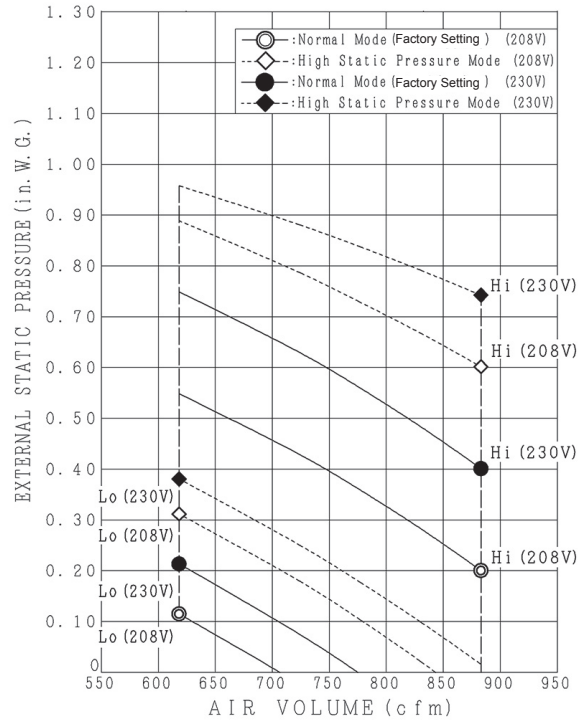
Piping Lift: 0 ft. (0m)

3.1.3.7 Fan Performance

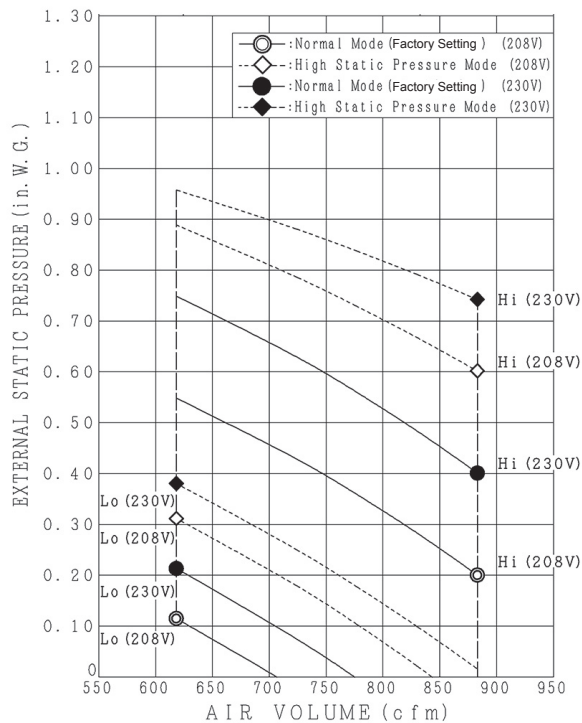
(H,Y)IDH018B21S



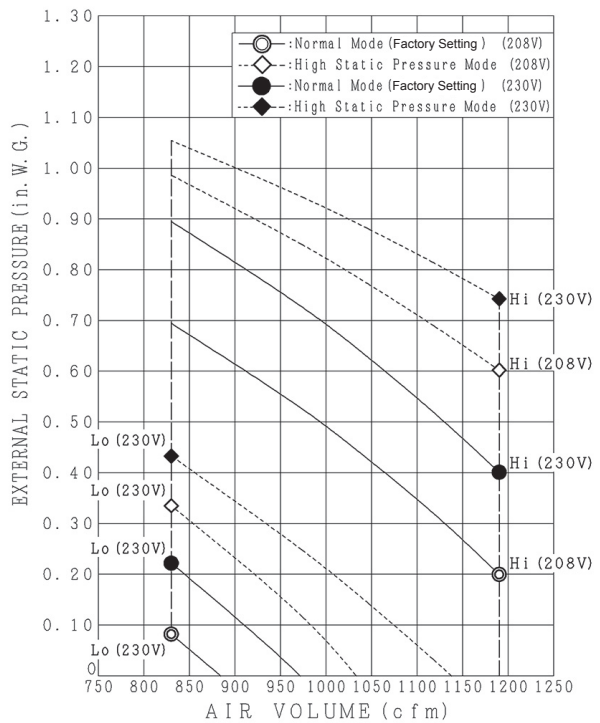
(H,Y)IDH024B21S



(H,Y)IDH030B21S



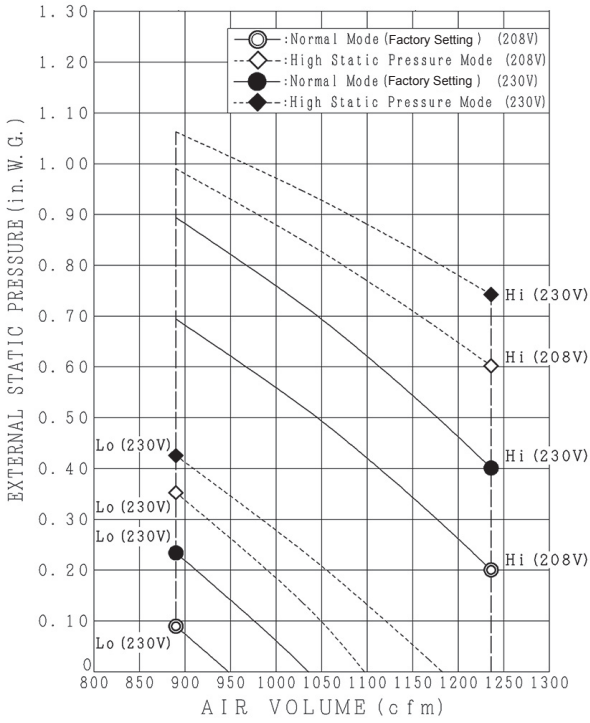
(H,Y)IDH036B21S



NOTE:

The settings for Normal and High Static Pressure Mode can be changed by changing the position of the connector inside of the indoor unit.

(H,Y)IDH048B21S



NOTE:

The settings for Normal and High Static Pressure Mode can be changed by changing the position of the connector inside of the indoor unit.

3.1.3.8 Electrical Data

| Model | Unit Main Power | | | Applicable Voltage | | Power Supply | | Indoor Fan Motor | Unit |
|-----------------|-----------------|----|----|--------------------|---------|--------------|-----|------------------|------|
| | VOL | PH | HZ | Maximum | Minimum | MCA | MFA | OPT | FLA |
| (H,Y)IDH018B21S | 208/230 | 1 | 60 | 253 | 188 | 1.45 | 5 | 0.13 | 1.13 |
| (H,Y)IDH024B21S | | | | | | 2.10 | 5 | 0.15 | 1.56 |
| (H,Y)IDH030B21S | | | | | | 2.10 | 5 | 0.15 | 1.52 |
| (H,Y)IDH036B21S | | | | | | 2.88 | 5 | 0.25 | 2.13 |
| (H,Y)IDH048B21S | | | | | | 3.12 | 5 | 0.28 | 2.31 |

VOL: Rated Unit Power Supply Voltage (V)

PH: Phase

HZ: Frequency (Hz)

MCA: Minimum Circuit Ampacity (A)

MFA: Maximum Fuse Ampacity (A)

OPT: Rated Motor Output (kW)

FLA: Full Load Ampacity (A)

NOTE:

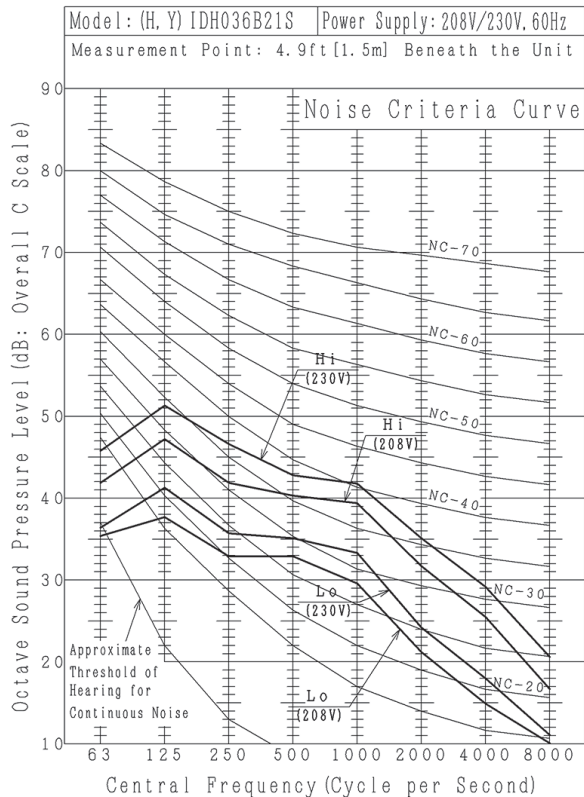
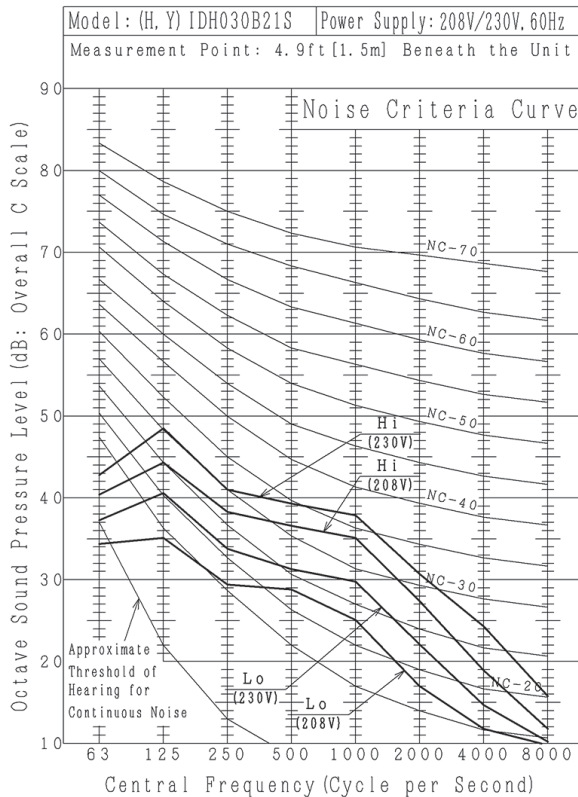
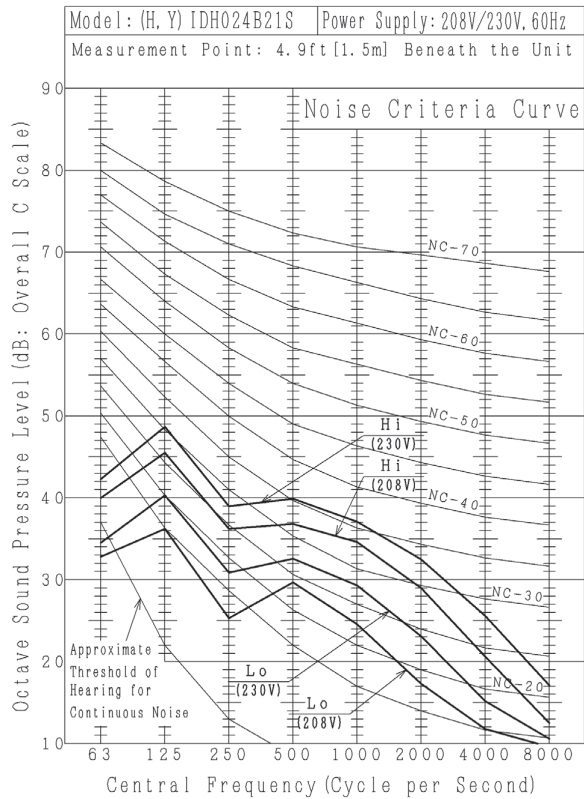
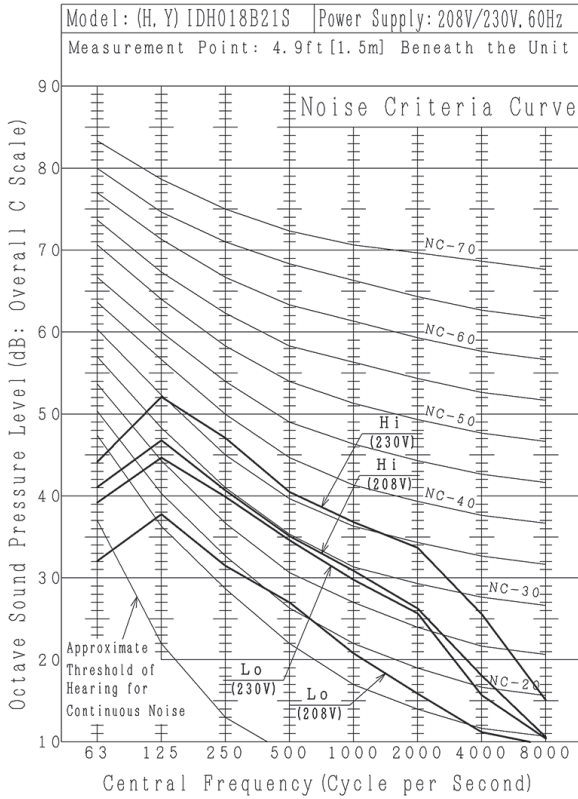
Power supply voltage should be satisfied with the following.

Supply Voltage: Rated Voltage within $\pm 10\%$

Starting Voltage: Rated Voltage within -15%

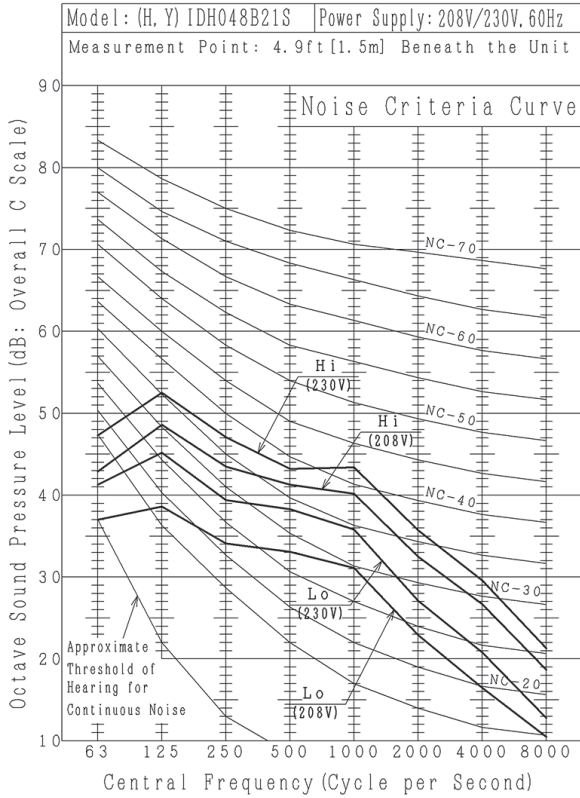
Operating Voltage: Rated Voltage within $\pm 10\%$

3.1.3.9 Sound Data



NOTES:

1. The sound pressure level is based on the following:
 Measurement Point: 4.9 ft. (1.5m) beneath the unit.
2. The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.



NOTES:

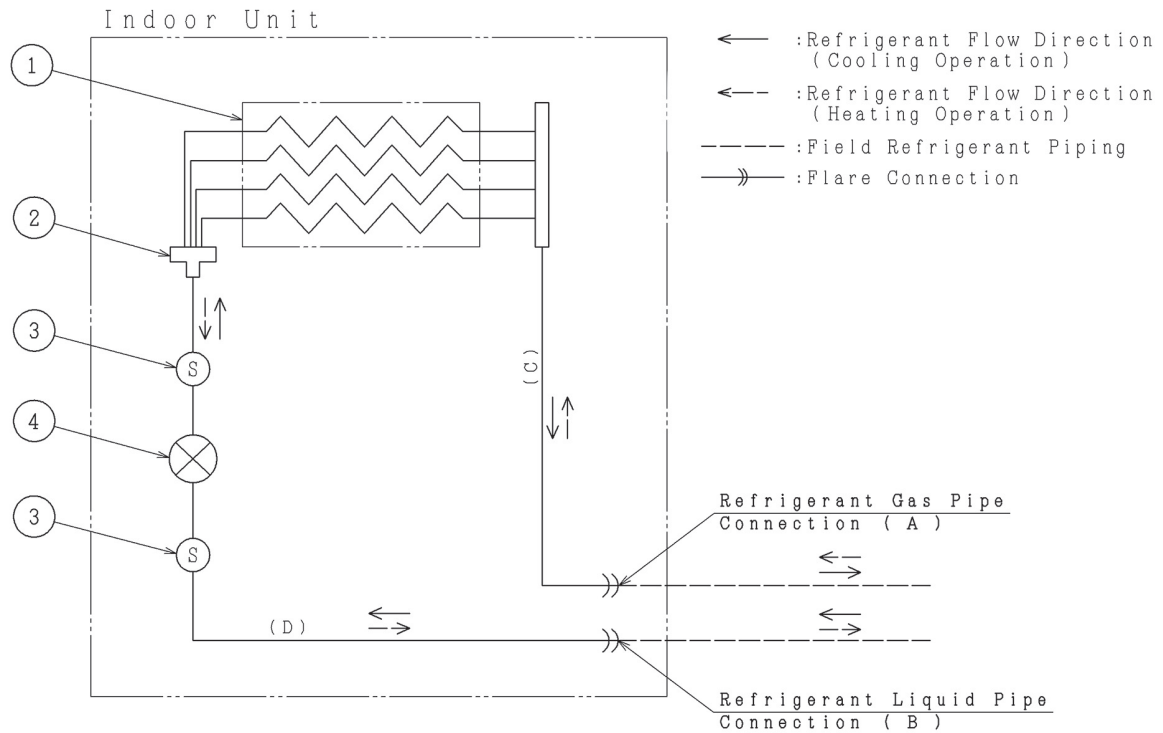
1. The sound pressure level is based on the following:
Measurement Point: 4.9 ft. (1.5m) beneath the unit.
2. The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

INDOOR UNITS

3.1.3.10 Control System

3.1.3.10.1 Refrigerant System

Models: (H,Y)IDH018B21S, (H,Y)IDH024B21S, (H,Y)IDH030B21S, (H,Y)IDH036B21S
and (H,Y)IDH048B21S



| Mark | Part Name |
|------|----------------------------|
| ① | Heat Exchanger |
| ② | Distributor |
| ③ | Strainer |
| ④ | Electronic Expansion Valve |

Unit: inch (mm)

| Model | Distributor | (A) Gas Pipe Connection | (B) Liquid Pipe Connection | (C) (OD×T) | (D) (OD×T) |
|-----------------|-------------|-------------------------|----------------------------|----------------------------|---------------------------|
| (H,Y)IDH018B21S | 6 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ5/8×t0.039 (15.88×1.0) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDH024B21S | 10 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ3/4×t0.047 (19.05×1.2) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDH030B21S | 10 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ3/4×t0.047 (19.05×1.2) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDH036B21S | 10 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ3/4×t0.047 (19.05×1.2) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDH048B21S | 10 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ3/4×t0.047 (19.05×1.2) | φ1/2×t0.031 (12.7×0.8) |

3.1.3.10.2 Standard Operation Sequence

■ Cooling Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Engineering Manual” for details.

■ Dry Operation

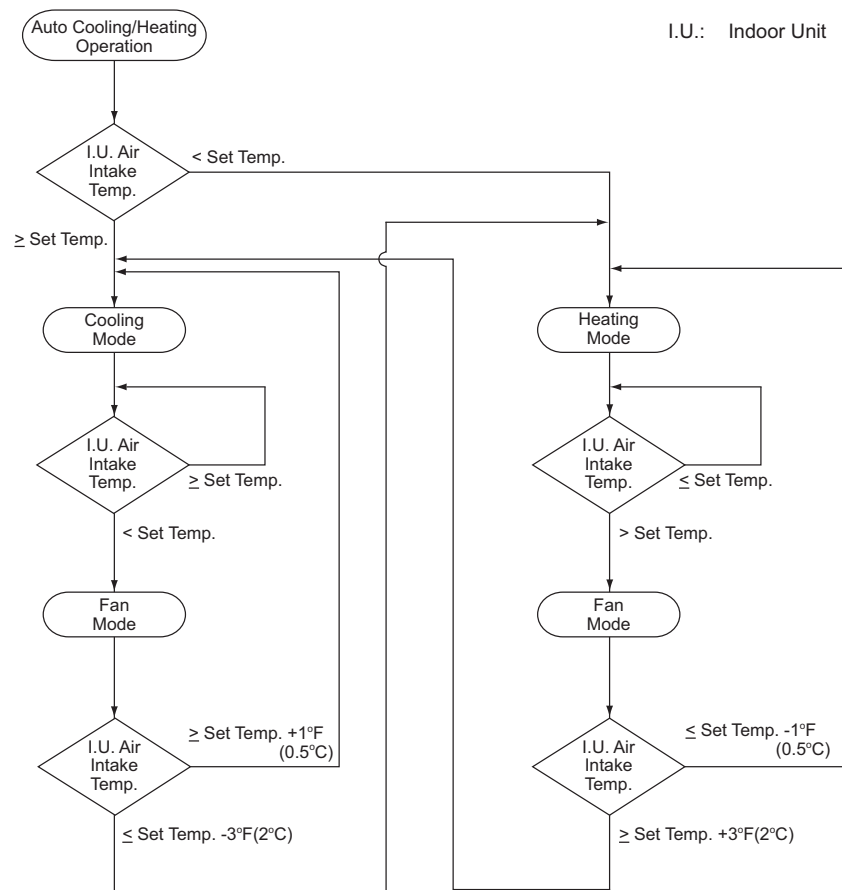
The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Engineering Manual” for details.

■ Heating Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Engineering Manual” for details.

■ Automatic Cooling and Heating Operation

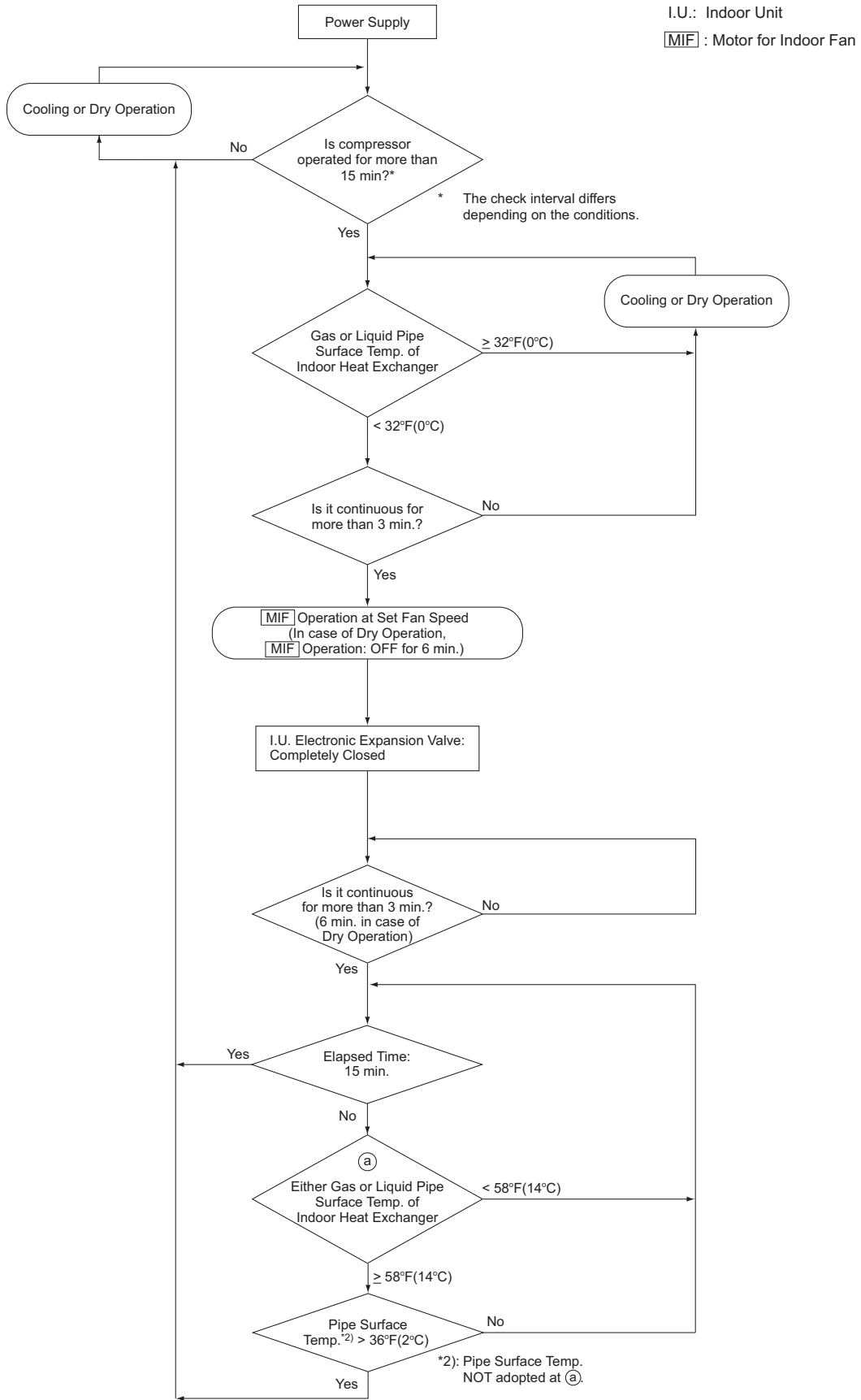
It is applicable only for the Heat Recovery System.



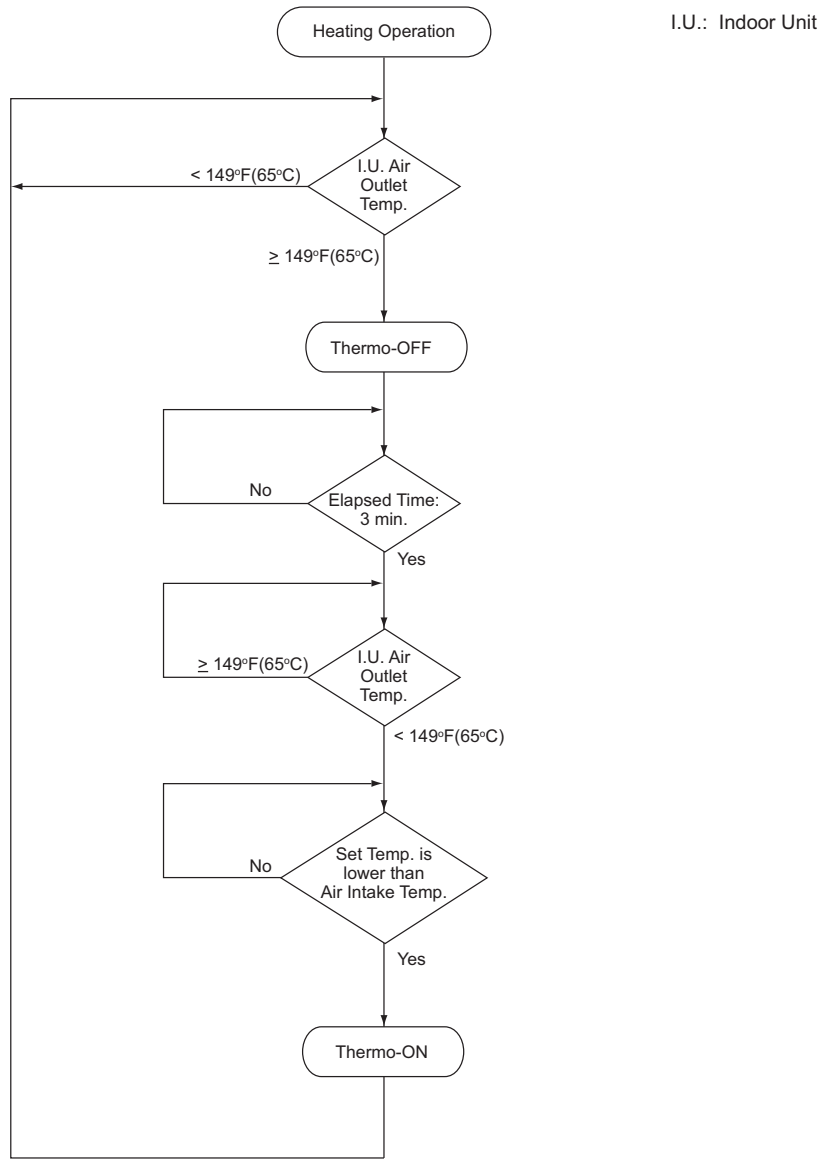
■ Defrosting Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Engineering Manual” for details.

■ Freeze Protection Control during Cooling or Dry Operation



■ Prevention Control for Excessively High Outlet Air Temperature
(High Outlet Air Temperature Heat Lockout)



Thermo-ON/OFF Control for Indoor Unit

NOTE:

Thermo-ON: The outdoor unit and some indoor units are running.

Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

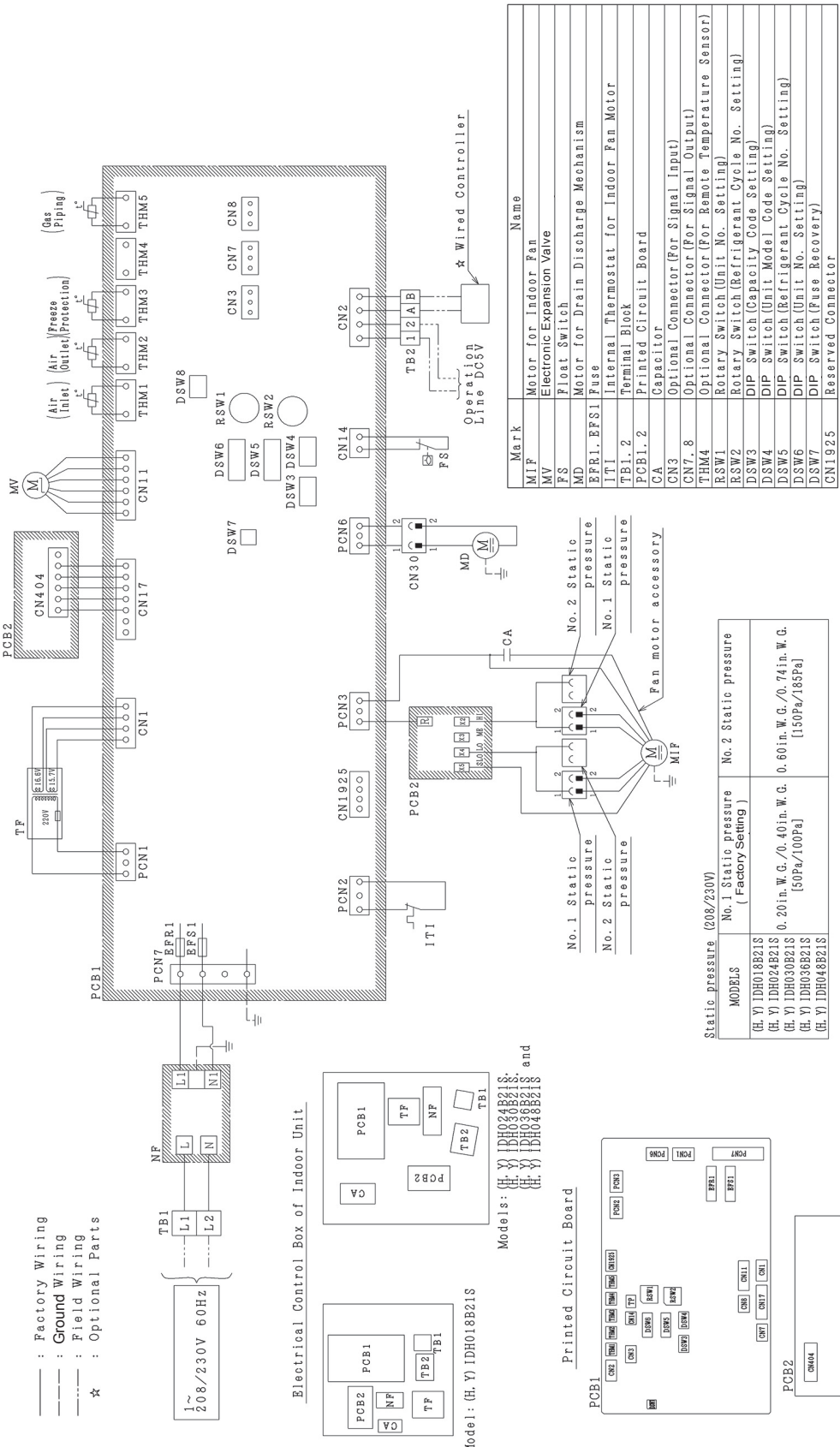
INDOOR UNITS

3.1.3.10.3 Safety and Control Device Setting

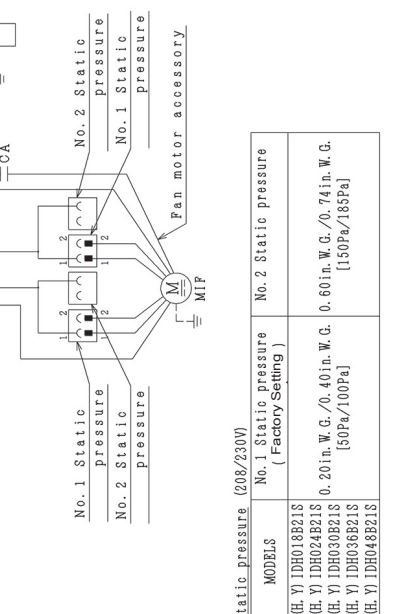
| Model | | (H,Y)IDH018B21S | (H,Y)IDH024B21S | (H,Y)IDH030B21S | (H,Y)IDH036B21S | (H,Y)IDH048B21S |
|--|------|---------------------------------|-----------------|-----------------|-----------------|-----------------|
| For Evaporator Fan Motor Internal Thermostat | | Automatic Reset, Non-Adjustable | | | | |
| Cut-Out | °F | 302±9 | 275±9 | 275±9 | 275±9 | 275±9 |
| | (°C) | 150±5 | 135±5 | 135±5 | 135±5 | 135±5 |
| Cut-In | °F | 212±36 | 194±27 | 194±27 | 194±27 | 194±27 |
| | (°C) | 100±20 | 90±15 | 90±15 | 90±15 | 90±15 |
| For Control Circuit Fuse Capacity | | A 5 | | | | |

3.1.3.10.4 Wiring Diagram

ELECTRICAL WIRING DIAGRAM OF DUCT (HIGH STATIC) TYPE INDOOR UNIT
(MODELS: (H. Y) IDH018B21S, (H. Y) IDH024B21S, (H. Y) IDH030B21S, (H. Y) IDH036B21S and (H. Y) IDH048B21S)

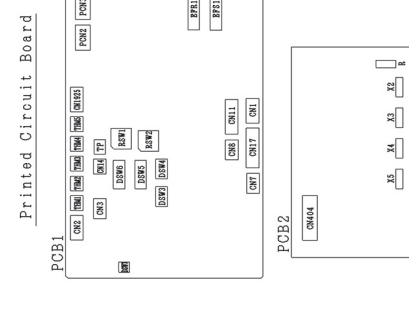
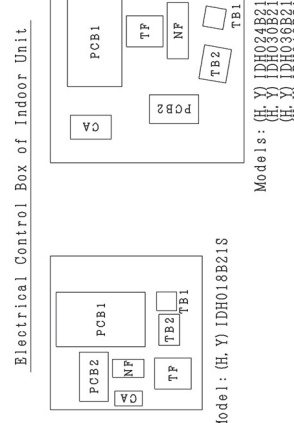


| Mark | Name |
|------------|--|
| MIF | Motor for Indoor Fan |
| MV | Motor for Indoor Fan |
| FS | Electronic Expansion Valve |
| FS | Fuse |
| MD | Motor for Drain Discharge Mechanism |
| EFR1, EFS1 | Fuse |
| ITI | Internal Thermostat for Indoor Fan Motor |
| TB1, 2 | Terminal Block |
| PCB1, 2 | Printed Circuit Board |
| CA | Capacitor |
| CN3 | Optional Connector (For Signal Input) |
| CN7, 8 | Optional Connector (For Signal Output) |
| THM4 | Optional Connector (For Remote Temperature Sensor) |
| RSW1 | Rotary Switch (Unit No. Setting) |
| RSW2 | Rotary Switch (Refrigerant Cycle No. Setting) |
| DSW3 | DIP Switch (Capacity Code Setting) |
| DSW4 | DIP Switch (Unit Model Code Setting) |
| DSW5 | DIP Switch (Refrigerant Cycle No. Setting) |
| DSW6 | DIP Switch (Unit No. Setting) |
| DSW7 | DIP Switch (Fuse Recovery) |
| CN1925 | Reserved Connector |



| Model | No. 1 Static pressure (Factory Setting) | No. 2 Static pressure |
|-------------------|--|---|
| (H. Y) IDH018B21S | 0.20 in. W.G. / 0.40 in. W.G. (50Pa/100Pa) | 0.60 in. W.G. / 0.74 in. W.G. (150Pa/185Pa) |
| (H. Y) IDH024B21S | | |
| (H. Y) IDH030B21S | | |
| (H. Y) IDH036B21S | | |
| (H. Y) IDH048B21S | | |

Note:
1. All the field wiring and equipment must comply with local codes.



3.1.4 Ducted Medium Static

3.1.4.1 General Data

| Indoor Unit Type | | Ducted Medium Static | | | | | |
|--|-------------|---------------------------|--|---------------------------------|---------------------------------|---------------------------------|-------------|
| Model | | (H,Y)IDM006B21S | (H,Y)IDM008B21S | (H,Y)IDM012B21S | (H,Y)IDM015B21S | (H,Y)IDM018B21S | |
| Indoor Unit Power Supply | | AC 1Phase, 208/230V, 60Hz | | | | | |
| Nominal Cooling Capacity *1 | Btu/h | 6,000 | 8,000 | 12,000 | 15,000 | 18,000 | |
| | (kW) | (1.8) | (2.3) | (3.5) | (4.4) | (5.3) | |
| Nominal Heating Capacity *1 | Btu/h | 6,700 | 9,000 | 13,500 | 17,000 | 20,000 | |
| | (kW) | (2.0) | (2.6) | (4.0) | (5.0) | (5.9) | |
| Sound Pressure Level *2 (Overall A Scale) (Hi2-Hi-Me-Lo) | | dB | 34-32-29-26 | 34-32-29-26 | 38-36-34-30 | 39-36-33-28 | 42-40-37-29 |
| Outer Dimensions | | | | | | | |
| | Height | in.(mm) | 10-5/8 (270) | 10-5/8 (270) | 10-5/8 (270) | 10-5/8 (270) | |
| | Width | in.(mm) | 25-19/32 (650) | 25-19/32 (650) | 25-19/32 (650) | 35-7/16 (900) | |
| | Depth | in.(mm) | 28-11/32 (720) | 28-11/32 (720) | 28-11/32 (720) | 28-11/32 (720) | |
| Net Weight | | lbs(kg) | 53 (24) | 53 (24) | 53 (24) | 66 (30) | |
| Refrigerant | | | R410A | | | | |
| Indoor Fan | | | | | | | |
| Airflow Rate (Hi2-Hi-Me-Lo) | cfm | 318-282-240-205 | 318-282-240-205 | 424-388-353-282 | 512-459-406-335 | 671-600-530-388 | |
| | (m³/min) | (9-8-6.8-5.8) | (9-8-6.8-5.8) | (12-11-10-8) | (14.5-13-11.5-9.5) | (19-17-15-11) | |
| External Pressure *3 | | in.W.G (Pa) | 0.2 (0.32-0.14) (50 (80-35)) | 0.2 (0.32-0.14) (50 (80-35)) | 0.2 (0.32-0.14) (50 (80-35)) | 0.2 (0.32-0.14) (50 (80-35)) | |
| Motor Nominal Output | | W | 150 | 150 | 150 | 150 | |
| Connections | | | Flare-Nut Connection (with Flare Nuts) | | | | |
| Refrigerant Piping | | | | | | | |
| | Liquid Line | in.(mm) | 1/4 (6.35) | 1/4 (6.35) | 1/4 (6.35) | 1/4 (6.35) | |
| | Gas Line | in.(mm) | 1/2 (12.70) | 1/2 (12.70) | 1/2 (12.70) | 1/2 (12.70) | |
| Condensate Drain | | | VP25 | VP25 | VP25 | VP25 | |
| | OD | in.(mm) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) | |
| | ID | in.(mm) | 31/32 (25) | 31/32 (25) | 31/32 (25) | 31/32 (25) | |

| Indoor Unit Type | | Ducted Medium Static | | | | |
|--|-------------|---------------------------|--|---------------------------------|---------------------------------|-------------|
| Model | | (H,Y)IDM024B21S | (H,Y)IDM030B21S | (H,Y)IDM036B21S | (H,Y)IDM048B21S | |
| Indoor Unit Power Supply | | AC 1Phase, 208/230V, 60Hz | | | | |
| Nominal Cooling Capacity *1 | Btu/h | 24,000 | 30,000 | 36,000 | 48,000 | |
| | (kW) | (7.0) | (8.8) | (10.5) | (14.1) | |
| Nominal Heating Capacity *1 | Btu/h | 27,000 | 34,000 | 40,000 | 54,000 | |
| | (kW) | (7.9) | (10.0) | (11.7) | (15.8) | |
| Sound Pressure Level *2 (Overall A Scale) (Hi2-Hi-Me-Lo) | | dB | 38-35-33-29 | 42-39-36-32 | 44-41-39-33 | 46-44-40-34 |
| Outer Dimensions | | | | | | |
| | Height | in.(mm) | 11-13/16 (300) | 11-13/16 (300) | 11-13/16 (300) | |
| | Width | in.(mm) | 43-5/16 (1100) | 43-5/16 (1100) | 55-1/8 (1400) | |
| | Depth | in.(mm) | 31-1/2 (800) | 31-1/2 (800) | 31-1/2 (800) | |
| Net Weight | | lbs(kg) | 93 (42) | 93 (42) | 108 (49) | |
| Refrigerant | | | R410A | | | |
| Indoor Fan | | | | | | |
| Airflow Rate (Hi2-Hi-Me-Lo) | cfm | 883-812-741-600 | 1094-988-883-741 | 1253-1147-1041-830 | 1377-1236-1094-847 | |
| | (m³/min) | (25-23-21-17) | (31-28-25-21) | (35.5-32.5-29.5-23.5) | (39-35-31-24) | |
| External Pressure *3 | | in.W.G (Pa) | 0.2 (0.32-0.14) (50 (80-35)) | 0.2 (0.32-0.14) (50 (80-35)) | 0.2 (0.32-0.14) (50 (80-35)) | |
| Motor Nominal Output | | W | 250 | 250 | 250 | |
| Connections | | | Flare-Nut Connection (with Flare Nuts) | | | |
| Refrigerant Piping | | | | | | |
| | Liquid Line | in.(mm) | 3/8 (9.52) | 3/8 (9.52) | 3/8 (9.52) | |
| | Gas Line | in.(mm) | 5/8 (15.88) | 5/8 (15.88) | 5/8 (15.88) | |
| Condensate Drain | | | VP25 | VP25 | VP25 | |
| | OD | in.(mm) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) | |
| | ID | in.(mm) | 31/32 (25) | 31/32 (25) | 31/32 (25) | |

NOTES:

*1. Nominal capacity is based on combinations within the VRF system and the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 70°F DB (21.1°C DB)
Outdoor Air Inlet Temperature: 47°F DB (8.3°C DB)
43°F WB (6.1°C WB)

Piping Length: 24 ft. 7-3/16 in. (7.5m)

Piping Lift: 0 ft. (0m)

*2. The sound pressure level is based on the following conditions.

4.9 ft. (1.5m) beneath the unit.

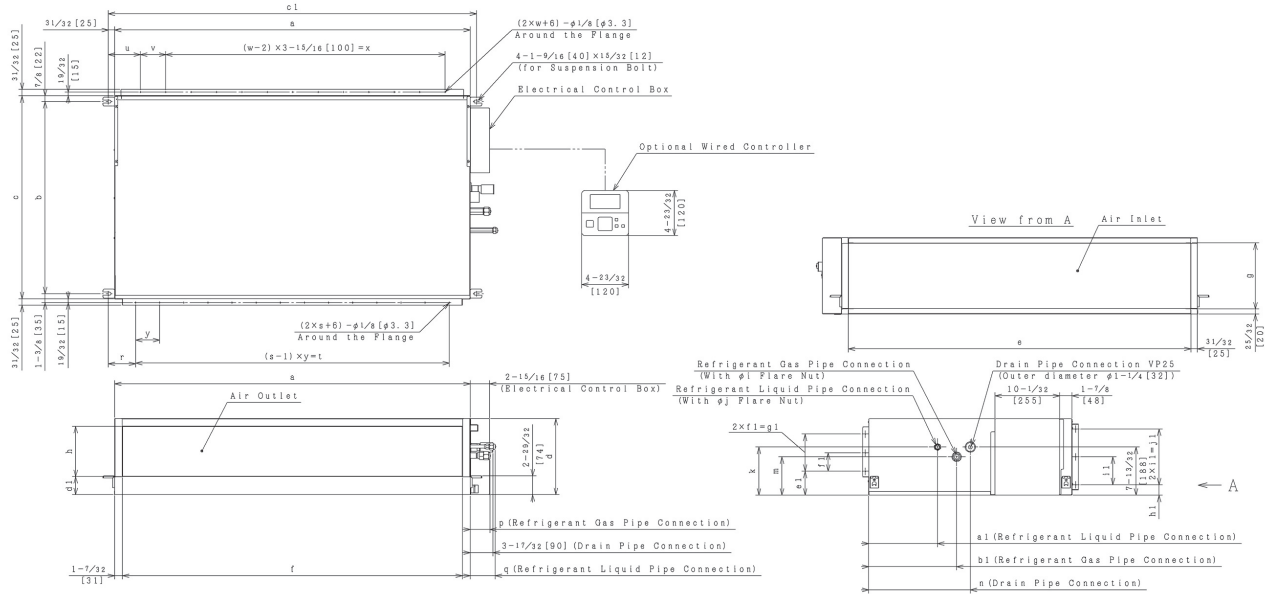
The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

*3. The data for external pressure *3) indicates Standard Pressure Setting (High Pressure Setting - Low Pressure Setting) values when a filter is not used. The sound pressure level is based on the Standard Pressure Setting.

3.1.4.2 Dimensional Data

Models: (H,Y)IDM006B21S, (H,Y)IDM008B21S, (H,Y)IDM012B21S, (H,Y)IDM015B21S, (H,Y)IDM018B21S, (H,Y)IDM024B21S, (H,Y)IDM030B21S, (H,Y)IDM036B21S and (H,Y)IDM048B21S

Unit: inch(mm)



| Dimension Model | a | b | c | d | e | f | g | h | i | j | k | m | n | p | q | r | s |
|---|-------------------|-----------------|-------------------|-------------------|-------------------|--------------------|------------------|----------------|----------------|---------------|------------------|------------------|-------------------|----------------|------------------|----------------|----|
| (H, Y) IDM006B21S (H, Y) IDM008B21S (H, Y) IDM012B21S | 25-19/32 [650] | 26-5/8 [676] | 28-11/32 [720] | 10-5/8 [270] | 23-15/16 [608] | 23-5/32 [588] | 8-31/32 [228] | 5-1/2 [140] | 1/2 [12.7] | 1/4 [6.35] | 8-3/4 [222] | 7-5/32 [182] | 14-27/32 [377] | 2-3/4 [70] | 3-5/8 [92] | 3-3/4 [95] | 6 |
| (H, Y) IDM015B21S | 35-7/16 [900] | 26-5/8 [676] | 28-11/32 [720] | 10-5/8 [270] | 33-25/32 [858] | 33 [838] | 8-31/32 [228] | 5-1/2 [140] | 1/2 [12.7] | 1/4 [6.35] | 8-3/4 [222] | 7-5/32 [182] | 16-1/16 [408] | 3-1/32 [77] | 3-5/8 [92] | 3-5/8 [92] | 9 |
| (H, Y) IDM018B21S | 35-7/16 [900] | 26-5/8 [676] | 28-11/32 [720] | 10-5/8 [270] | 33-25/32 [858] | 33 [838] | 8-31/32 [228] | 5-1/2 [140] | 5/8 [15.88] | 3/8 [9.52] | 8-3/4 [222] | 7-5/32 [182] | 16-17/32 [420] | 3-1/32 [77] | 3-5/8 [92] | 3-5/8 [92] | 9 |
| (H, Y) IDM024B21S (H, Y) IDM030B21S | 43-5/16 [1100] | 29-3/4 [756] | 31-1/2 [800] | 11-13/16 [300] | 41-5/16 [1049] | 40-7/8 [1038] | 10-1/4 [260] | 7-3/4 [197] | 5/8 [15.88] | 3/8 [9.52] | 7-15/32 [190] | 5-29/32 [150] | 16-31/32 [431] | 3-5/32 [80] | 3-15/16 [100] | 4-1/4 [108] | 11 |
| (H, Y) IDM036B21S (H, Y) IDM048B21S | 55-1/8 [1400] | 29-3/4 [756] | 31-1/2 [800] | 11-13/16 [300] | 55-1/8 [1349] | 52-11/16 [1338] | 10-1/4 [260] | 7-3/4 [197] | 5/8 [15.88] | 3/8 [9.52] | 7-15/32 [190] | 5-29/32 [150] | 16-31/32 [431] | 3-5/32 [80] | 3-15/16 [100] | 4-1/4 [108] | 14 |

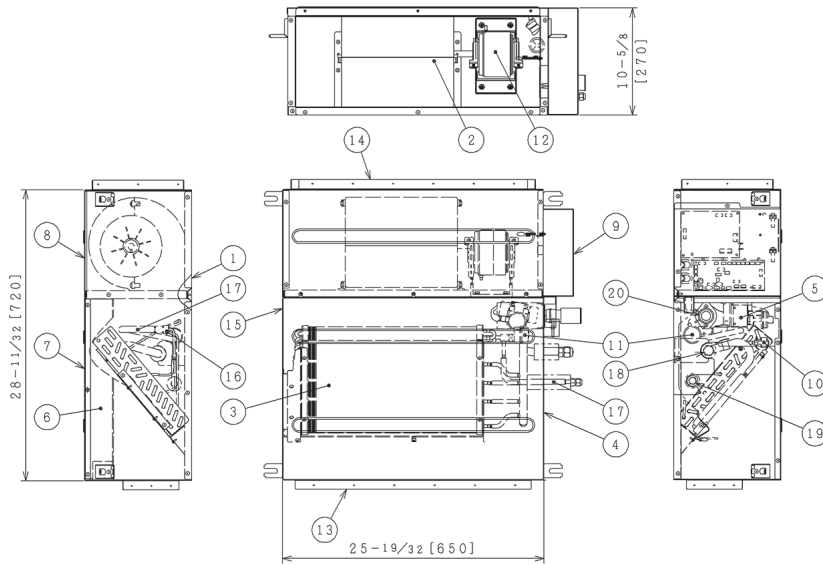
| Dimension Model | t | u | v | w | x | y | a1 | b1 | c1 | d1 | e1 | f1 | g1 | h1 | i1 | j1 |
|---|-------------------|-----------------|------------------|----|-------------------|------------------|------------------|-------------------|-------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|------------------|
| (H, Y) IDM006B21S (H, Y) IDM008B21S (H, Y) IDM012B21S | 19-11/16 [500] | 3-27/32 [98] | 3-15/16 [100] | 6 | 15-3/4 [400] | 3-15/16 [100] | 9-11/16 [246] | 12-5/8 [321] | 27-9/16 [700] | 3-3/4 [95] | 4-21/32 [118] | 1-15/16 [49] | 3-27/32 [98] | 1-11/32 [34] | 3-29/32 [99] | 7-25/32 [198] |
| (H, Y) IDM015B21S | 29-29/32 [760] | 2-3/4 [70] | 3-25/32 [96] | 9 | 27-9/16 [700] | 3-3/4 [95] | 9-11/16 [246] | 12-5/8 [321] | 37-13/32 [950] | 3-3/4 [95] | 4-21/32 [118] | 1-15/16 [49] | 3-27/32 [98] | 1-11/32 [34] | 3-29/32 [99] | 7-25/32 [198] |
| (H, Y) IDM018B21S | 29-29/32 [760] | 2-3/4 [70] | 3-25/32 [96] | 9 | 27-9/16 [700] | 3-3/4 [95] | 9-11/16 [246] | 12-5/8 [321] | 37-13/32 [950] | 3-3/4 [95] | 4-21/32 [118] | 1-15/16 [49] | 3-27/32 [98] | 1-11/32 [34] | 3-29/32 [99] | 7-25/32 [198] |
| (H, Y) IDM024B21S (H, Y) IDM030B21S | 37-13/32 [950] | 4-7/8 [124] | 3-15/16 [100] | 11 | 35-7/16 [900] | 3-3/4 [95] | 10-5/8 [270] | 13-19/32 [345] | 45-9/32 [1150] | 2-27/32 [72] | 3-11/16 [94] | 3-1/16 [78] | 4-17/32 [115] | 13/16 [21] | 4-11/32 [110] | 8-21/32 [220] |
| (H, Y) IDM036B21S (H, Y) IDM048B21S | 48-5/8 [1235] | 4-7/8 [124] | 3-15/16 [100] | 13 | 43-5/16 [1100] | 3-3/4 [95] | 3-3/4 [95] | 3-3/4 [95] | 57-3/32 [1450] | 2-27/32 [72] | 3-11/16 [94] | 3-1/16 [78] | 4-17/32 [115] | 13/16 [21] | 4-11/32 [110] | 8-21/32 [220] |

INDOOR UNITS

3.1.4.3 Structure

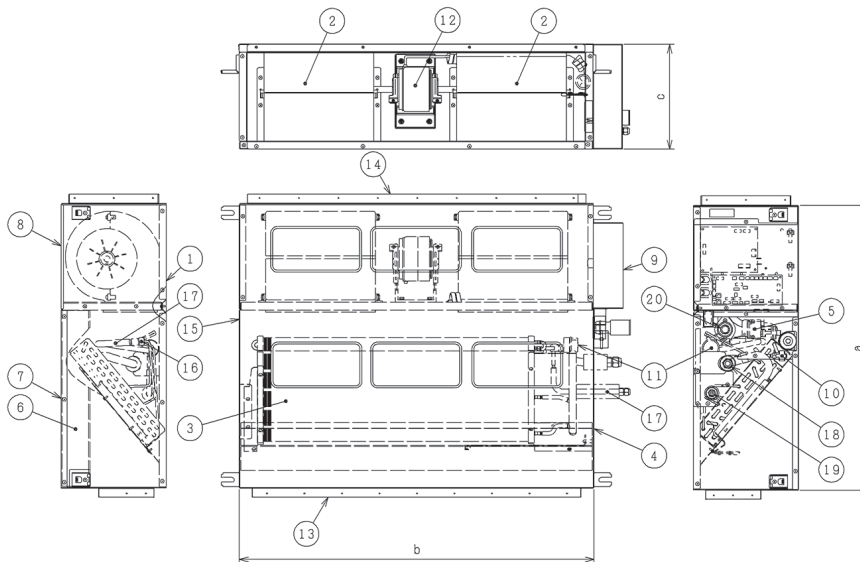
Models: (H,Y)IDM006B21S, (H,Y)IDM008B21S and (H,Y)IDM012B21S

Unit: inch(mm)



| No. | Name | Remarks |
|-----|------------------------------------|----------------------------------|
| 1 | Top Enclosure | |
| 2 | Pan | |
| 3 | Heat Exchanger | |
| 4 | Right Side Enclosure | |
| 5 | Drain Pump | |
| 6 | Drain Pan | |
| 7 | Bottom Enclosure (Front) | |
| 8 | Bottom Enclosure (Back) | |
| 9 | Electrical Control Box | |
| 10 | Float Switch | |
| 11 | Electronic Expansion Valve | |
| 12 | Pan Motor | DC |
| 13 | Air Outlet | |
| 14 | Air Inlet | |
| 15 | Left Side Enclosure | |
| 16 | Distributor | |
| 17 | Strainer | |
| 18 | Refrigerant Gas Pipe Connection | With $\phi 1/2$ [12.7] Flare Nut |
| 19 | Refrigerant Liquid Pipe Connection | With $\phi 1/4$ [6.35] Flare Nut |
| 20 | Drain Pipe Connection | |

Models: (H,Y)IDM015B21S, (H,Y)IDM018B21S, (H,Y)IDM024B21S, (H,Y)IDM030B21S
(H,Y)IDM036B21S and (H,Y)IDM048B21S



| No. | Name | Remarks |
|-----|------------------------------------|--|
| 1 | Top Enclosure | |
| 2 | Pan | |
| 3 | Heat Exchanger | |
| 4 | Right Side Enclosure | |
| 5 | Drain Pump | |
| 6 | Drain Pan | |
| 7 | Bottom Enclosure (Front) | |
| 8 | Bottom Enclosure (Back) | |
| 9 | Electrical Control Box | |
| 10 | Float Switch | |
| 11 | Electronic Expansion Valve | |
| 12 | Pan Motor | DC |
| 13 | Air Outlet | |
| 14 | Air Inlet | |
| 15 | Left Side Enclosure | |
| 16 | Distributor | |
| 17 | Strainer | |
| 18 | Refrigerant Gas Pipe Connection | With $\phi 1/2$ [12.7] (Only for 015 Type) or $\phi 5/8$ [15.88] Flare Nut |
| 19 | Refrigerant Liquid Pipe Connection | With $\phi 1/4$ [6.35] (Only for 015 Type) or $\phi 3/8$ [9.52] Flare Nut |
| 20 | Drain Pipe Connection | |

| Model | Dimension a | b | c |
|-------------------|----------------|----------------|----------------|
| (H, Y) IDM015B21S | 28-11/32 [720] | 35-7/16 [900] | 10-5/8 [270] |
| (H, Y) IDM018B21S | | | |
| (H, Y) IDM024B21S | 31-1/2 [800] | 43-5/16 [1100] | 11-13/16 [300] |
| (H, Y) IDM030B21S | | | |
| (H, Y) IDM036B21S | 31-1/2 [800] | 55-1/8 [1400] | 11-13/16 [300] |
| (H, Y) IDM048B21S | | | |

3.1.4.4 Component Data

Indoor Heat Exchanger and Fan

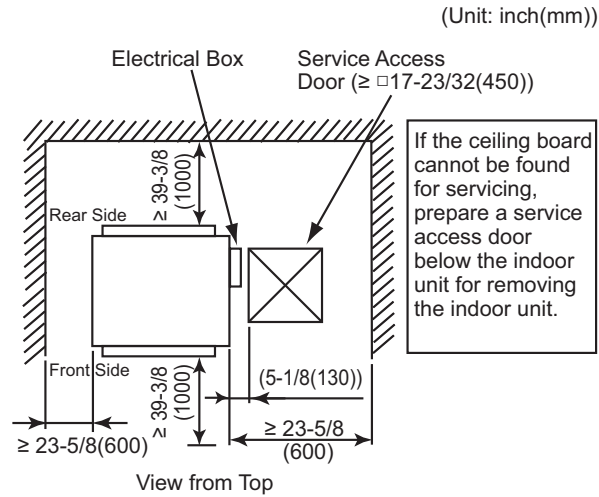
| Model | | (H,Y)IDM006B21S | (H,Y)IDM008B21S | (H,Y)IDM012B21S | (H,Y)IDM015B21S | (H,Y)IDM018B21S |
|-----------------------------------|--------------------------------------|----------------------------------|----------------------------------|---------------------------------|---------------------------------------|----------------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | | | |
| Tube Material | | Copper Tube | | | | |
| Outer Diameter | φ in (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 2 | 2 | 3 | 3 | 3 |
| Number of Tube/Coil | | 30 | 30 | 44 | 44 | 44 |
| Fin Material | | Aluminum | | | | |
| Pitch | in (mm) | 0.071 (1.8) | 0.071 (1.8) | 0.071 (1.8) | 0.071 (1.8) | 0.071 (1.8) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 1.51 (0.14) | 1.51 (0.14) | 1.51 (0.14) | 2.26 (0.21) | 2.26 (0.21) |
| Number of Coil/Unit | | 1 | 1 | 1 | 1 | 1 |
| Indoor Fan | | Multi-Blade Centrifugal Fan | | | | |
| Number/Unit | | 1 | 1 | 1 | 2 | 2 |
| Outer Diameter | φ in (mm) | 7-3/32 (180) | 7-3/32 (180) | 7-3/32 (180) | 7-3/32 (180) | 7-3/32 (180) |
| Nominal Airflow (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 318-282-240-205 (9-8-6.8-5.8) | 318-282-240-205 (9-8-6.8-5.8) | 424-388-353-282 (12-11-10-8) | 512-459-406-335 (14.5-13-11.5-9.5) | 671-600-530-388 (19-17-15-11) |
| Indoor Fan Motor | | Drip-Proof Type Enclosure | | | | |
| Starting Method | | DC Motor | | | | |
| Nominal Output | W | 150 | 150 | 150 | 150 | 150 |
| Quantity | | 1 | 1 | 1 | 1 | 1 |
| Insulation Class | | E | E | E | E | E |

| Model | | (H,Y)IDM024B21S | (H,Y)IDM030B21S | (H,Y)IDM036B21S | (H,Y)IDM048B21S |
|-----------------------------------|--------------------------------------|----------------------------------|-----------------------------------|---|-------------------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | | |
| Tube Material | | Copper Tube | | | |
| Outer Diameter | φ in (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 3 | 3 | 3 | 3 |
| Number of Tube/Coil | | 50 | 50 | 50 | 54 |
| Fin Material | | Aluminum | | | |
| Pitch | in (mm) | 0.071 (1.8) | 0.071 (1.8) | 0.071 (1.8) | 0.063 (1.6) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 3.44 (0.32) | 3.44 (0.32) | 4.63 (0.43) | 4.63 (0.43) |
| Number of Coil/Unit | | 1 | 1 | 1 | 1 |
| Indoor Fan | | Multi-Blade Centrifugal Fan | | | |
| Number/Unit | | 2 | 2 | 2 | 2 |
| Outer Diameter | φ in (mm) | 7-7/8 (200) | 7-7/8 (200) | 7-7/8 (200) | 7-7/8 (200) |
| Nominal Airflow (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 883-812-741-600 (25-23-21-17) | 1094-988-883-741 (31-28-25-21) | 1253-1147-1041-830 (35.5-32.5-29.5-23.5) | 1377-1236-1094-847 (39-35-31-24) |
| Indoor Fan Motor | | Drip-Proof Type Enclosure | | | |
| Starting Method | | DC Motor | | | |
| Nominal Output | W | 250 | 250 | 250 | 250 |
| Quantity | | 1 | 1 | 1 | 1 |
| Insulation Class | | E | E | E | E |

INDOOR UNITS

3.1.4.5 Operation Space

Models: (H,Y)IDM006B21S, (H,Y)IDM008B21S, (H,Y)IDM012B21S, (H,Y)IDM015B21S, (H,Y)IDM018B21S, (H,Y)IDM024B21S, (H,Y)IDM030B21S, (H,Y)IDM036B21S and (H,Y)IDM048B21S



3.1.4.6 Sensible Heat Factor (SHF)

| Model | SHF* |
|-----------------|------|
| (H,Y)IDM006B21S | 0.79 |
| (H,Y)IDM008B21S | 0.79 |
| (H,Y)IDM012B21S | 0.82 |
| (H,Y)IDM015B21S | 0.83 |
| (H,Y)IDM018B21S | 0.83 |
| (H,Y)IDM024B21S | 0.84 |
| (H,Y)IDM030B21S | 0.83 |
| (H,Y)IDM036B21S | 0.85 |
| (H,Y)IDM048B21S | 0.85 |

NOTE:

1. SHF is based on combinations within the VRF system and the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)

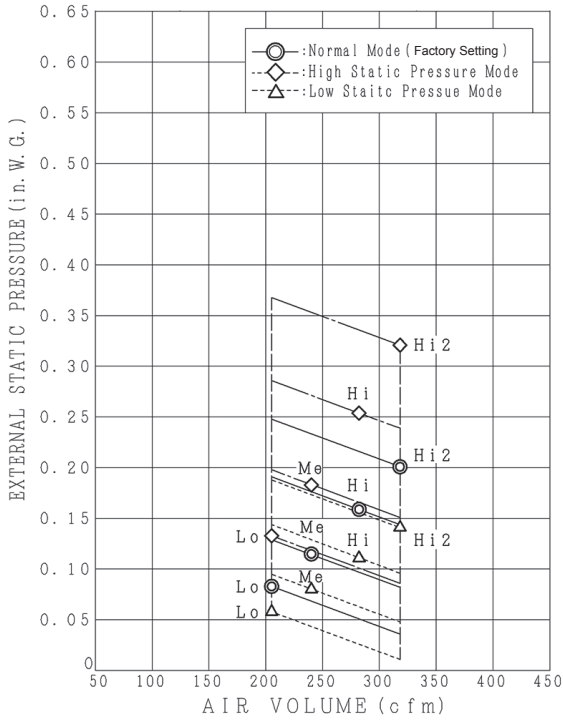
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Piping Length: 24 ft. 7-3/16 in.(7.5m)

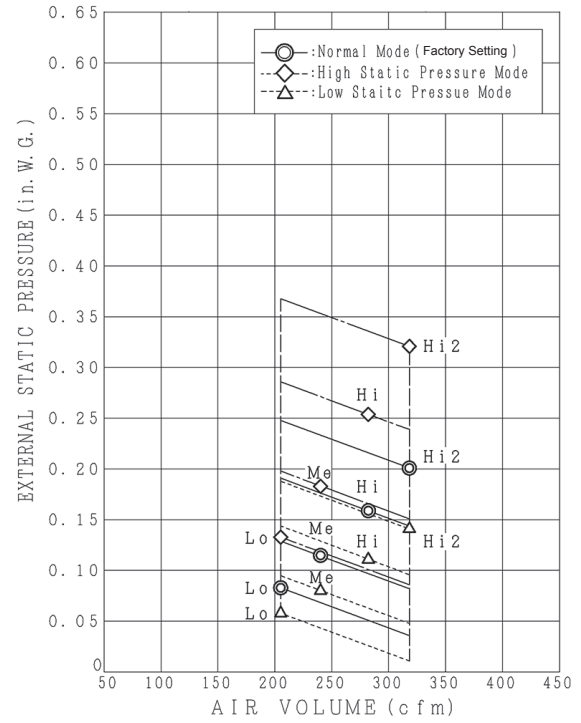
Piping Lift: 0 ft. (0m)

3.1.4.7 Fan Performance

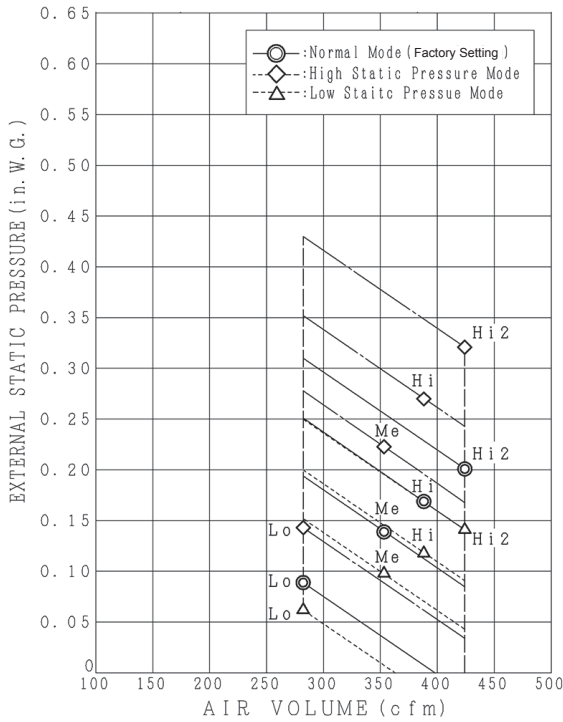
(H,Y)IDM006B21S



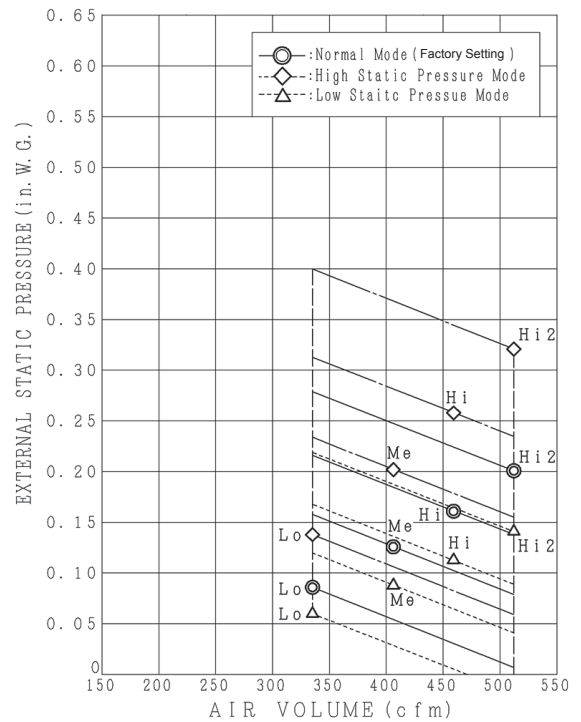
(H,Y)IDM008B21S



(H,Y)IDM012B21S



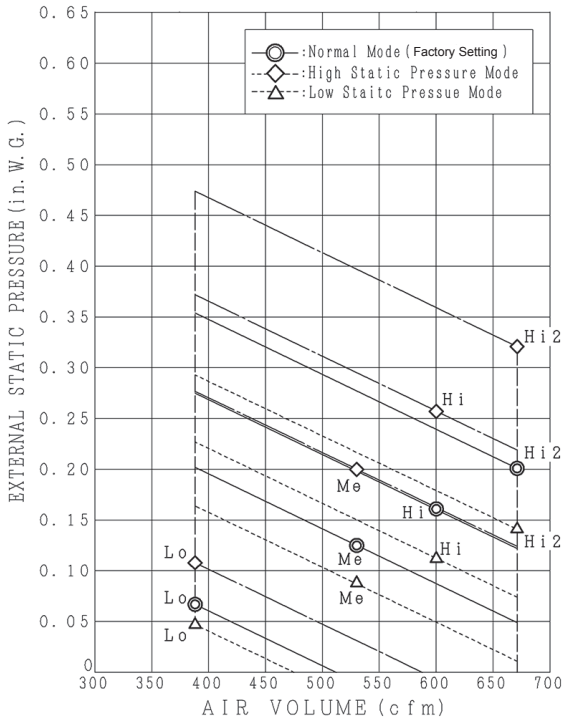
(H,Y)IDM015B21S



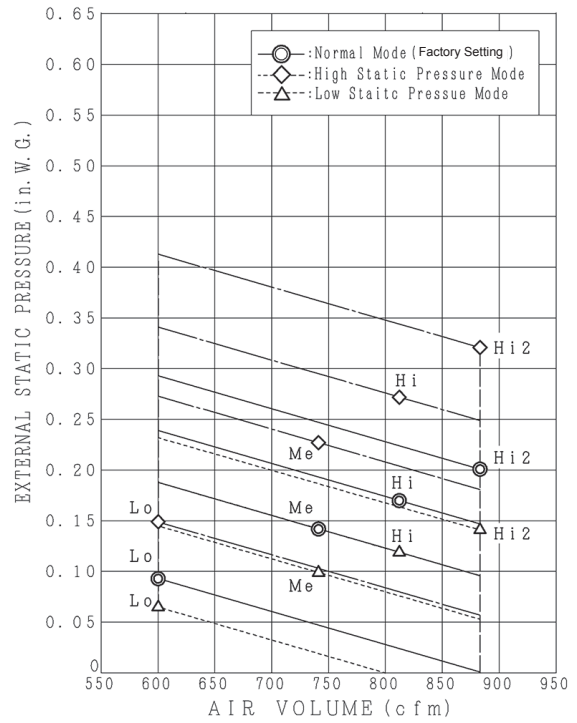
NOTE:

The settings of Normal, High Static Pressure and Low Static Pressure Mode can be changed using the Wired Controller.

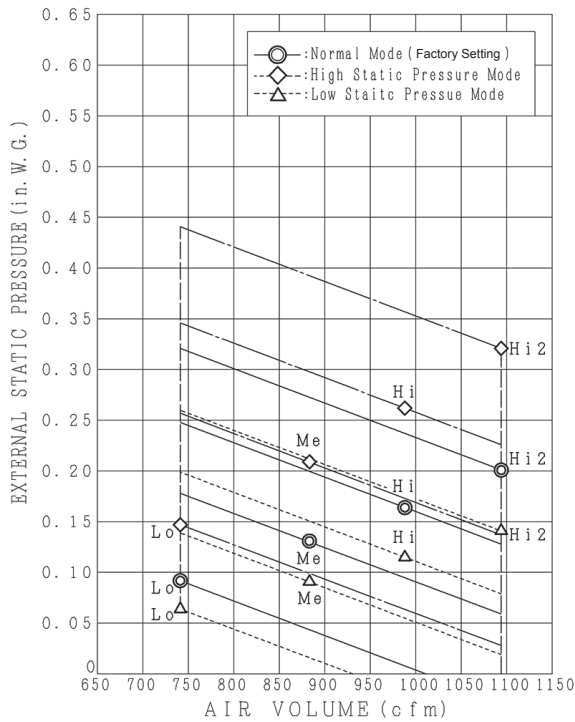
(H,Y)IDM018B21S



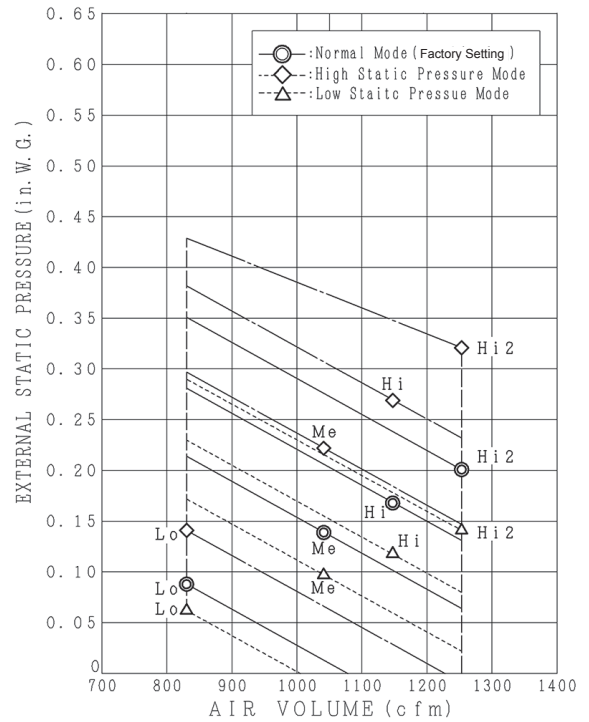
(H,Y)IDM024B21S



(H,Y)IDM030B21S



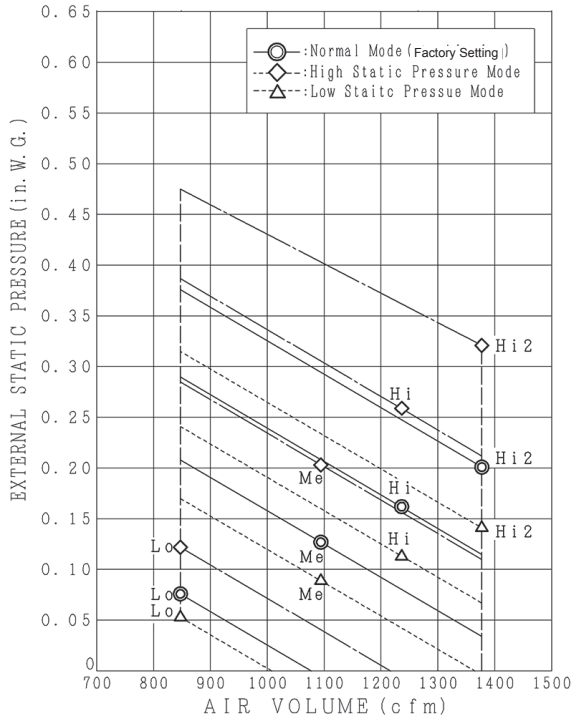
(H,Y)IDM036B21S



NOTE:

The settings of Normal, High Static Pressure and Low Static Pressure Mode can be changed using the Wired Controller.

(H,Y)IDM048B21S



NOTE:

The settings of Normal, High Static Pressure and Low Static Pressure Mode can be changed using the Wired Controller.

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3.1.4.8 Electrical Data

| Model | Unit Main Power | | | Applicable Voltage | | Power Supply | | Indoor Fan Motor | Unit |
|-----------------|-----------------|----|----|--------------------|---------|--------------|-----|------------------|------|
| | VOL | PH | HZ | Maximum | Minimum | MCA | MFA | OPT | FLA |
| (H,Y)IDM006B21S | 208/230 | 1 | 60 | 253 | 188 | 0.60 | 5 | 0.15 | 0.67 |
| (H,Y)IDM008B21S | | | | | | 0.60 | 5 | 0.15 | 0.67 |
| (H,Y)IDM012B21S | | | | | | 0.60 | 5 | 0.15 | 0.67 |
| (H,Y)IDM015B21S | | | | | | 0.60 | 5 | 0.15 | 1.03 |
| (H,Y)IDM018B21S | | | | | | 0.60 | 5 | 0.15 | 1.03 |
| (H,Y)IDM024B21S | | | | | | 1.01 | 5 | 0.25 | 1.17 |
| (H,Y)IDM030B21S | | | | | | 1.01 | 5 | 0.25 | 1.38 |
| (H,Y)IDM036B21S | | | | | | 1.01 | 5 | 0.25 | 1.98 |
| (H,Y)IDM048B21S | | | | | | 1.01 | 5 | 0.25 | 2.19 |

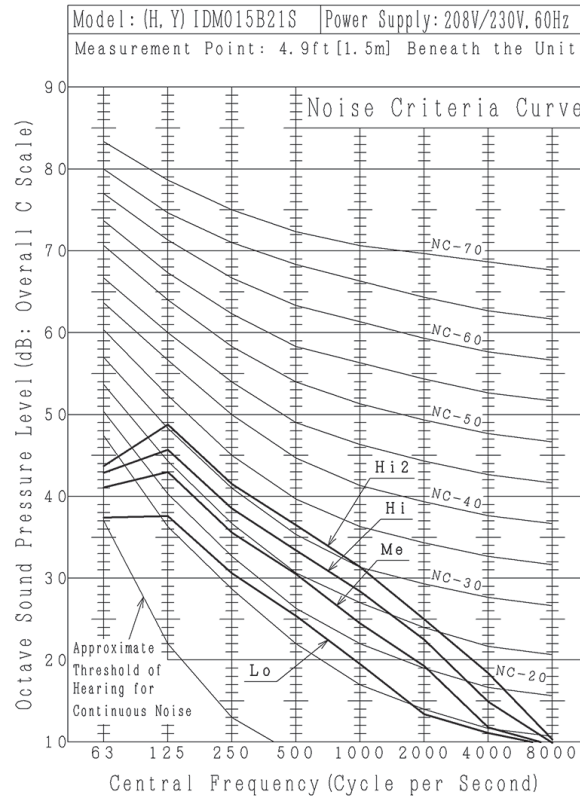
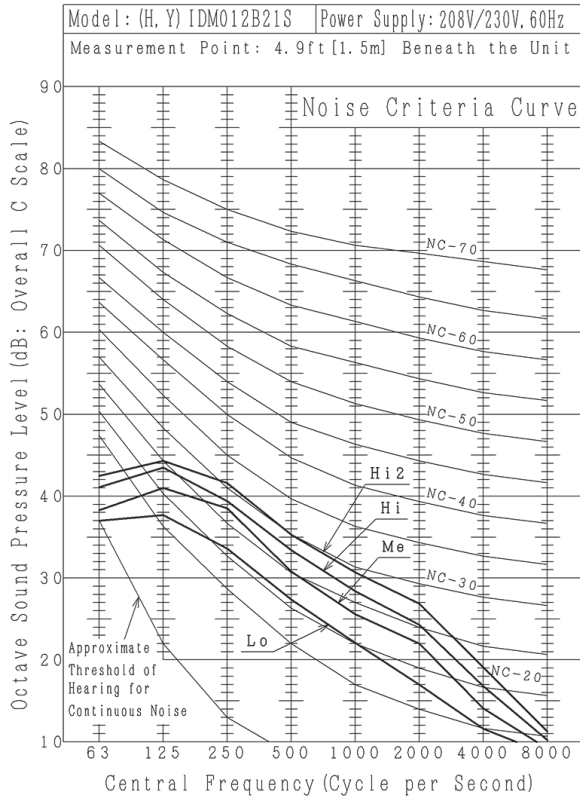
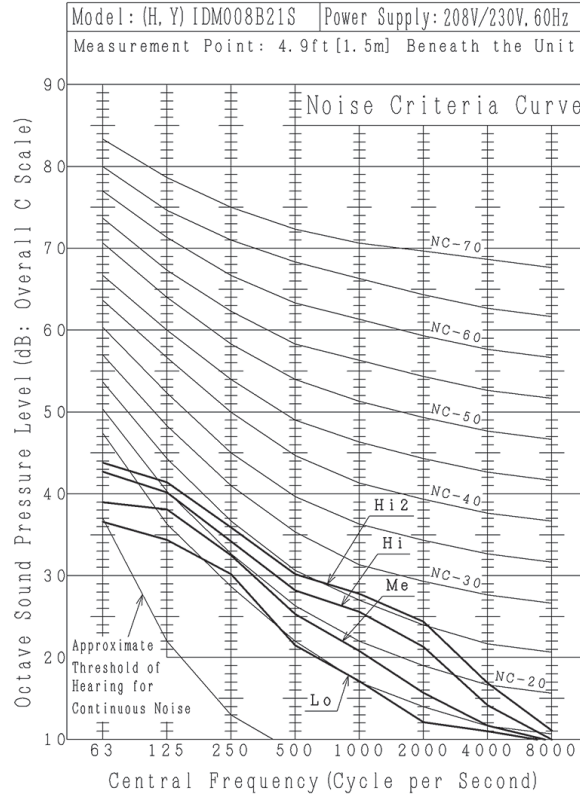
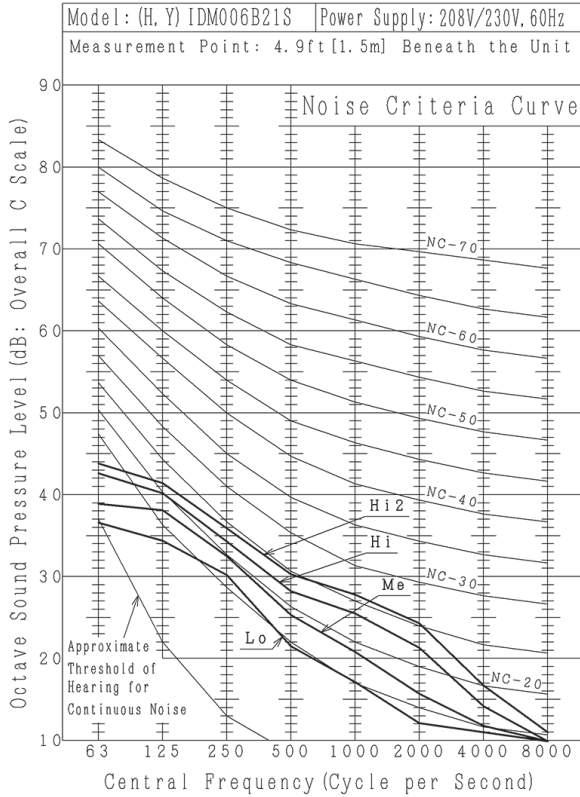
VOL: Rated Unit Power Supply Voltage (V)
 PH: Phase
 HZ: Frequency (Hz)
 MCA: Minimum Circuit Ampacity (A)
 MFA: Maximum Fuse Ampacity (A)
 OPT: Rated Motor Output (kW)
 FLA: Full Load Ampacity (A)

NOTE:

Power supply voltage should be satisfied with the following.

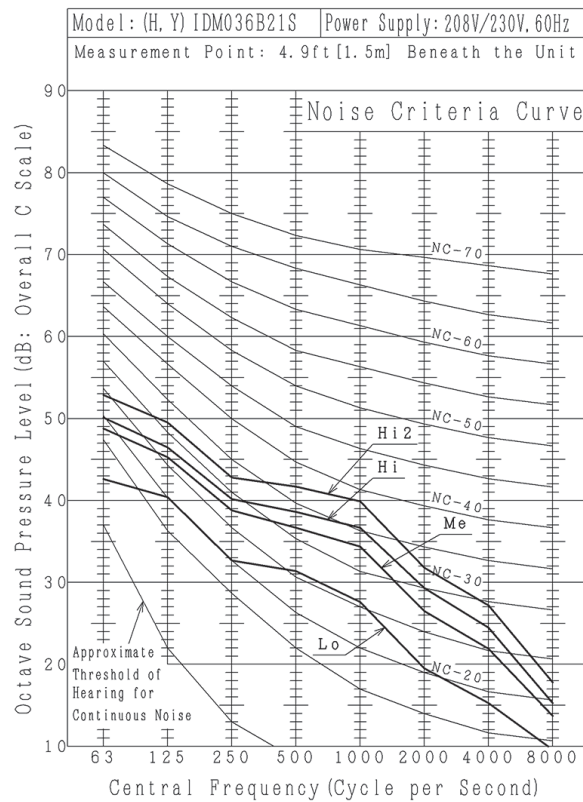
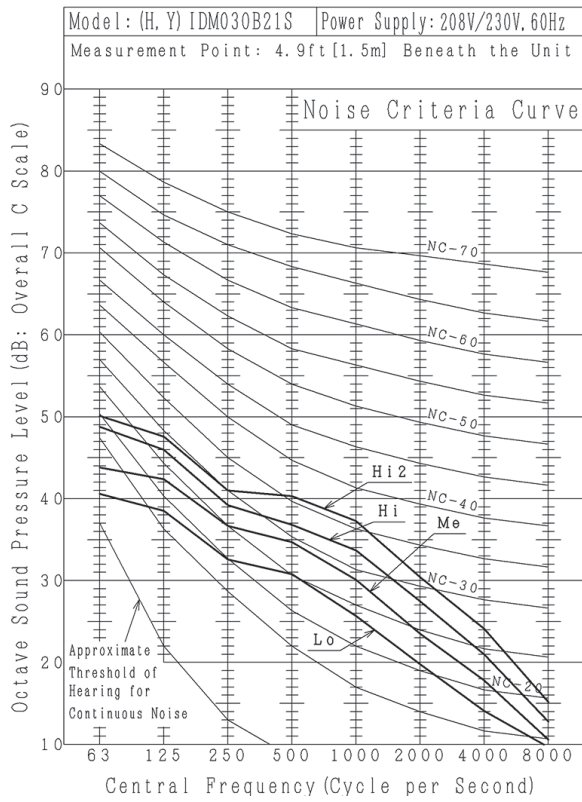
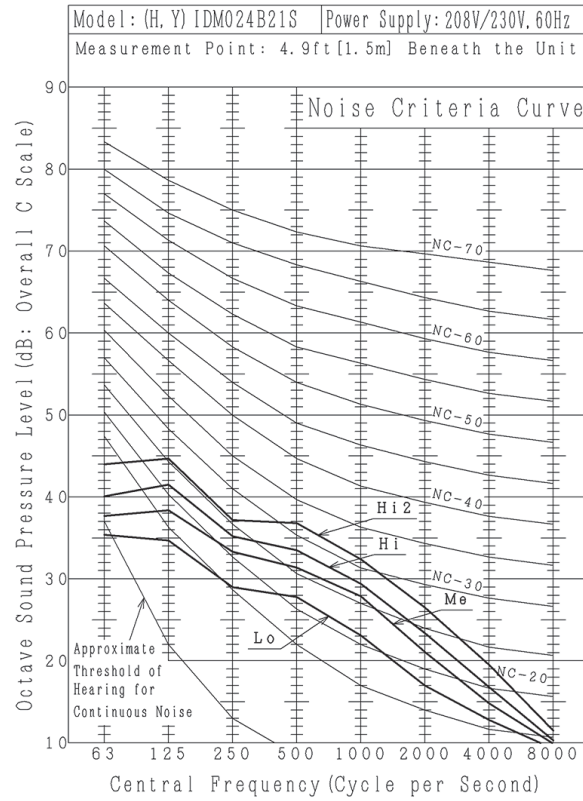
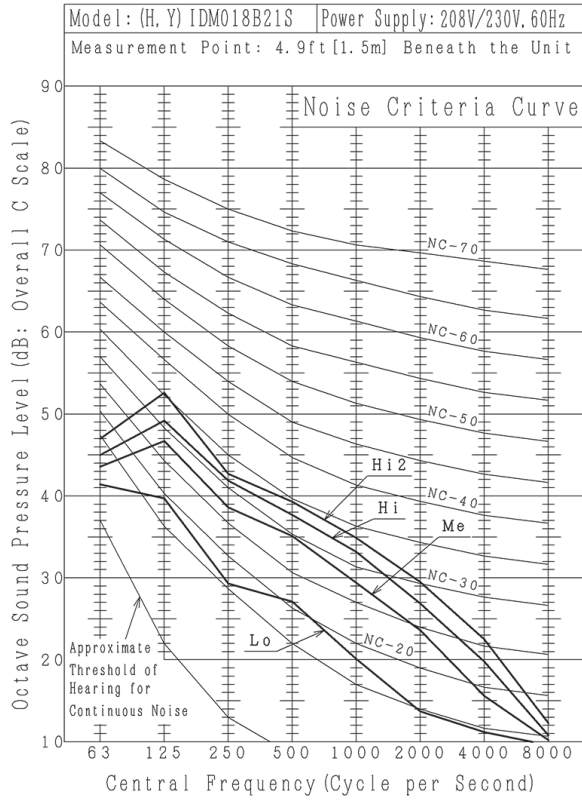
- Supply Voltage: Rated Voltage within $\pm 10\%$
- Starting Voltage: Rated Voltage within -15%
- Operating Voltage: Rated Voltage within $\pm 10\%$

3.1.4.9 Sound Data



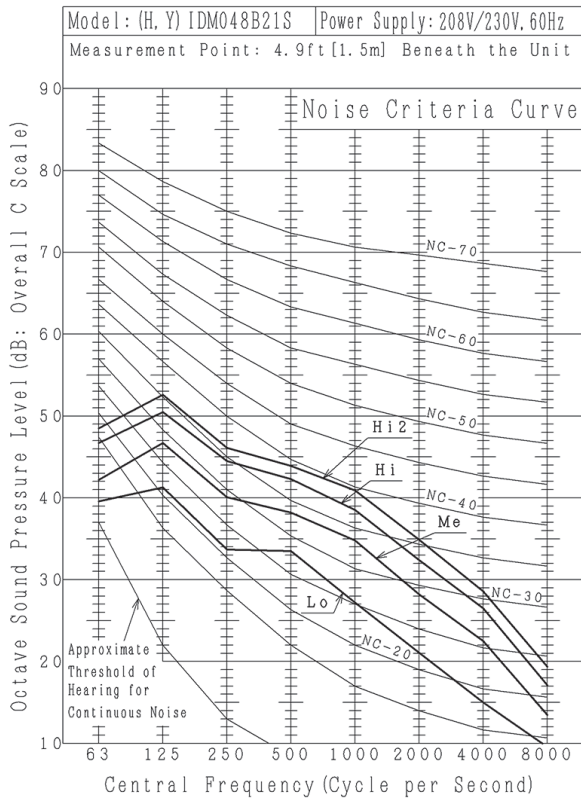
1. The sound pressure level is based on the following:
 Measurement Point: 4.9 ft. (1.5m) beneath the unit.
2. The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

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NOTES:

1. The sound pressure level is based on the following:
 Measurement Point: 4.9 ft. (1.5m) beneath the unit.
2. The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.



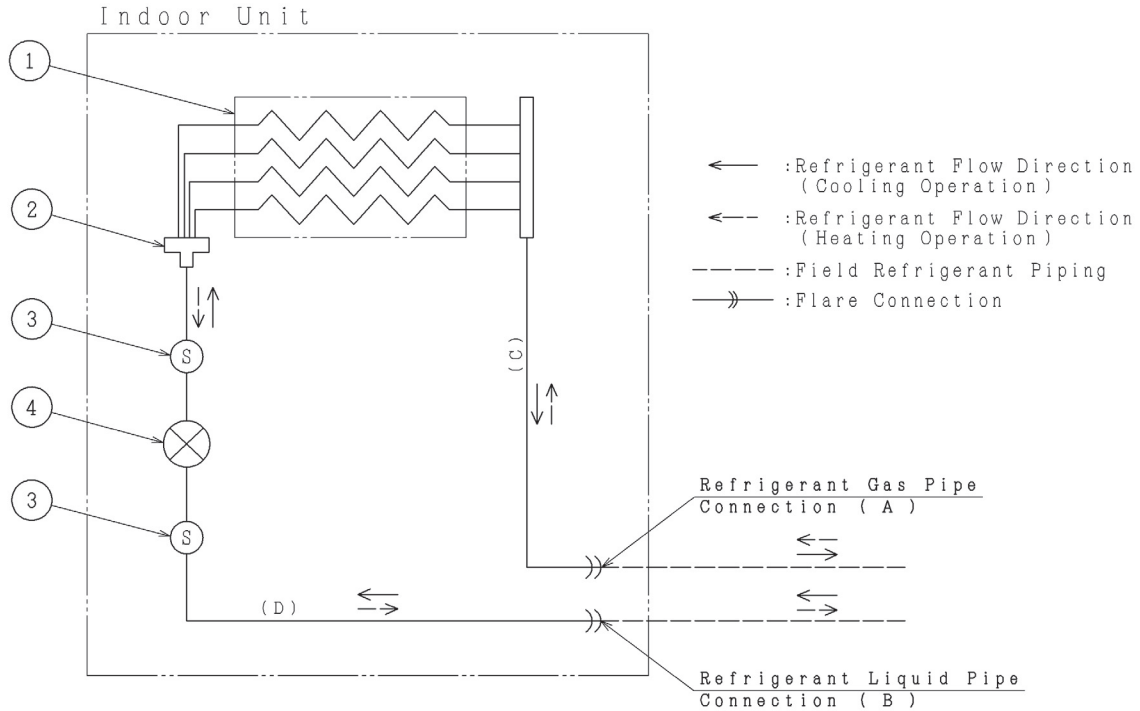
NOTES:

1. The sound pressure level is based on the following:
 Measurement Point: 4.9 ft. in. (1.5m) beneath the unit.
2. The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3.1.4.10 Control System

3.1.4.10.1 Refrigerant System

Models: (H,Y)IDM006B21S, (H,Y)IDM008B21S, (H,Y)IDM012B21S, (H,Y)IDM015B21S,
 (H,Y)IDM018B21S, (H,Y)IDM024B21S, (H,Y)IDM030B21S, (H,Y)IDM036B21S
 and (H,Y)IDM048B21S



| Mark | Part Name |
|------|----------------------------|
| ① | Heat Exchanger |
| ② | Distributor |
| ③ | Strainer |
| ④ | Electronic Expansion Valve |

Unit: inch(mm)

| Model | Distributor | (A) Gas Pipe Connection | (B) Liquid Pipe Connection | (C) (OD×T) | (D) (OD×T) |
|-----------------|-------------|-------------------------|----------------------------|----------------------------|---------------------------|
| (H,Y)IDM006B21S | 2 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ5/8×t0.039 (15.88×1.0) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDM008B21S | 2 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ5/8×t0.039 (15.88×1.0) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDM012B21S | 4 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ5/8×t0.039 (15.88×1.0) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDM015B21S | 6 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ5/8×t0.039 (15.88×1.0) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDM018B21S | 6 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ5/8×t0.039 (15.88×1.0) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDM024B21S | 8 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ3/4×t0.047 (19.05×1.2) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDM030B21S | 8 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ3/4×t0.047 (19.05×1.2) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDM036B21S | 8 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ3/4×t0.047 (19.05×1.2) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IDM048B21S | 10 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ3/4×t0.047 (19.05×1.2) | φ1/2×t0.031 (12.7×0.8) |

3.1.4.10.2 Standard Operation Sequence

■ Cooling Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Units” section of the Engineering Manual for details.

■ Dry Operation

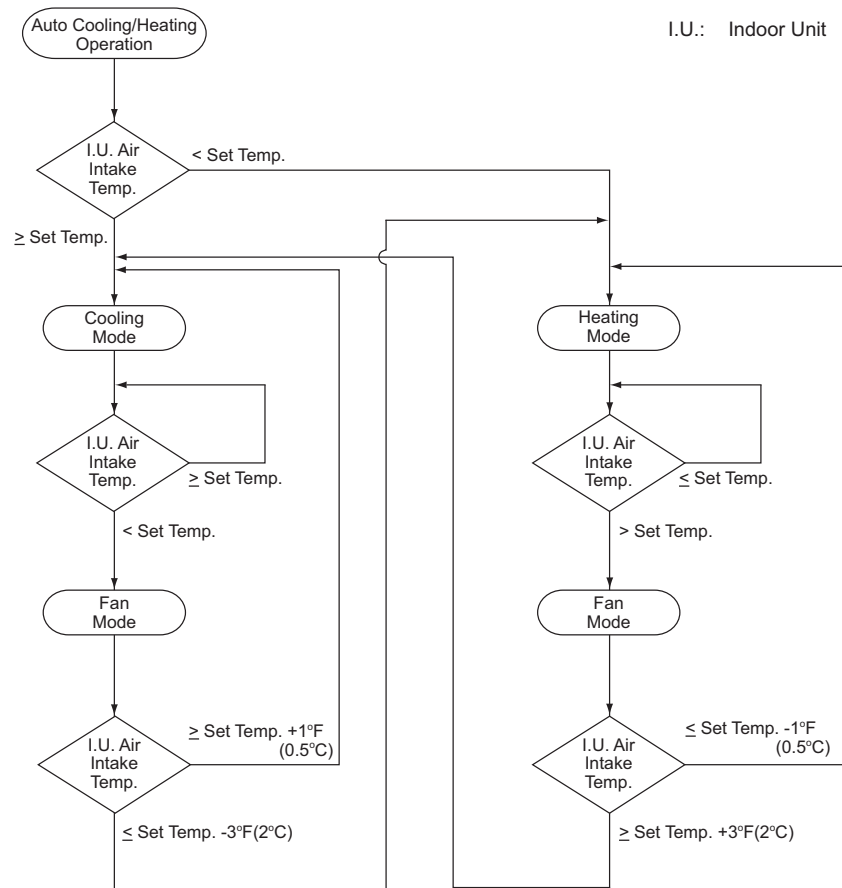
The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Units” section of the Engineering Manual for details.

■ Heating Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Units” section of the Engineering Manual for details.

■ Automatic Cooling and Heating Operation

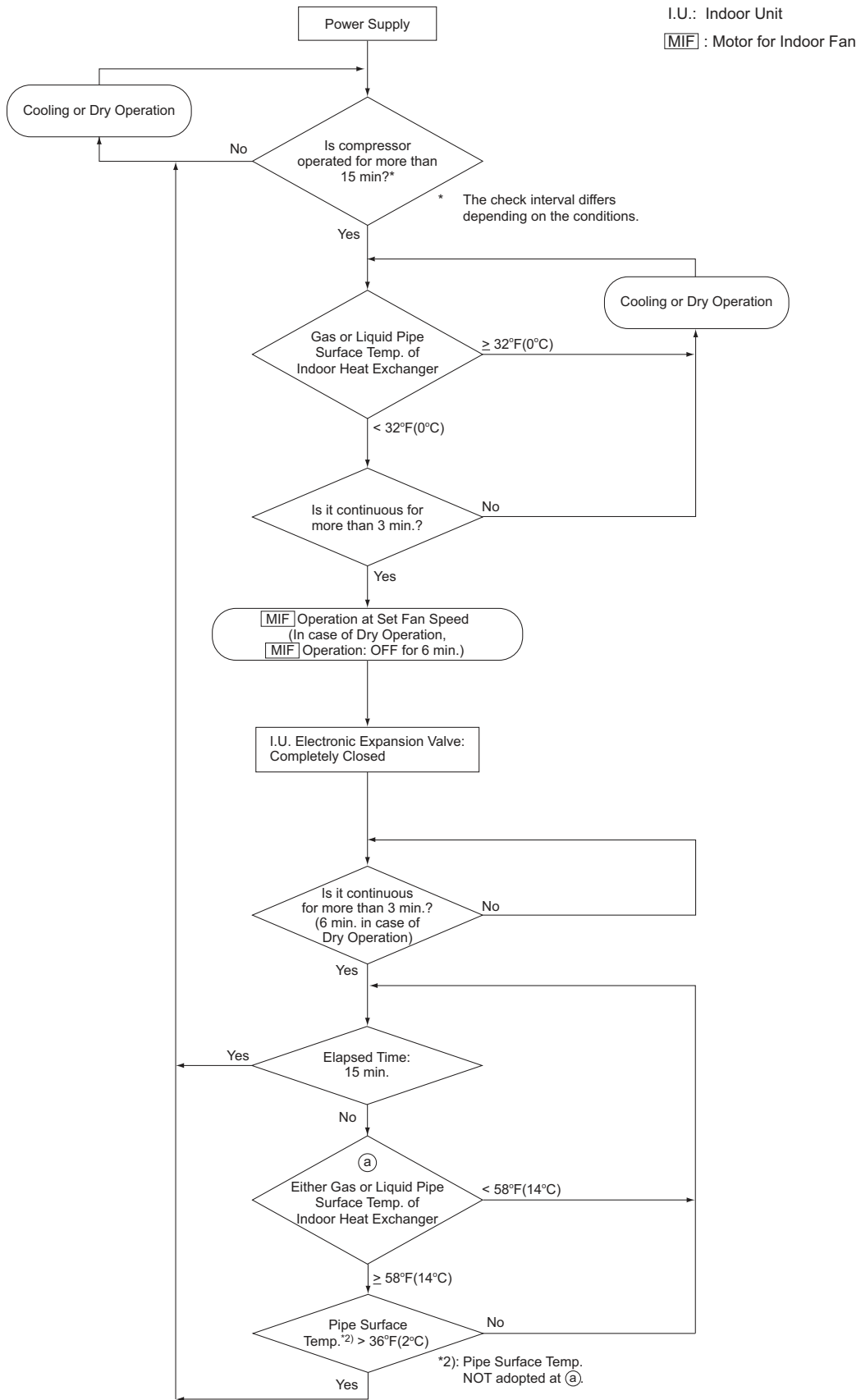
This is applicable only to the Heat Recovery System.



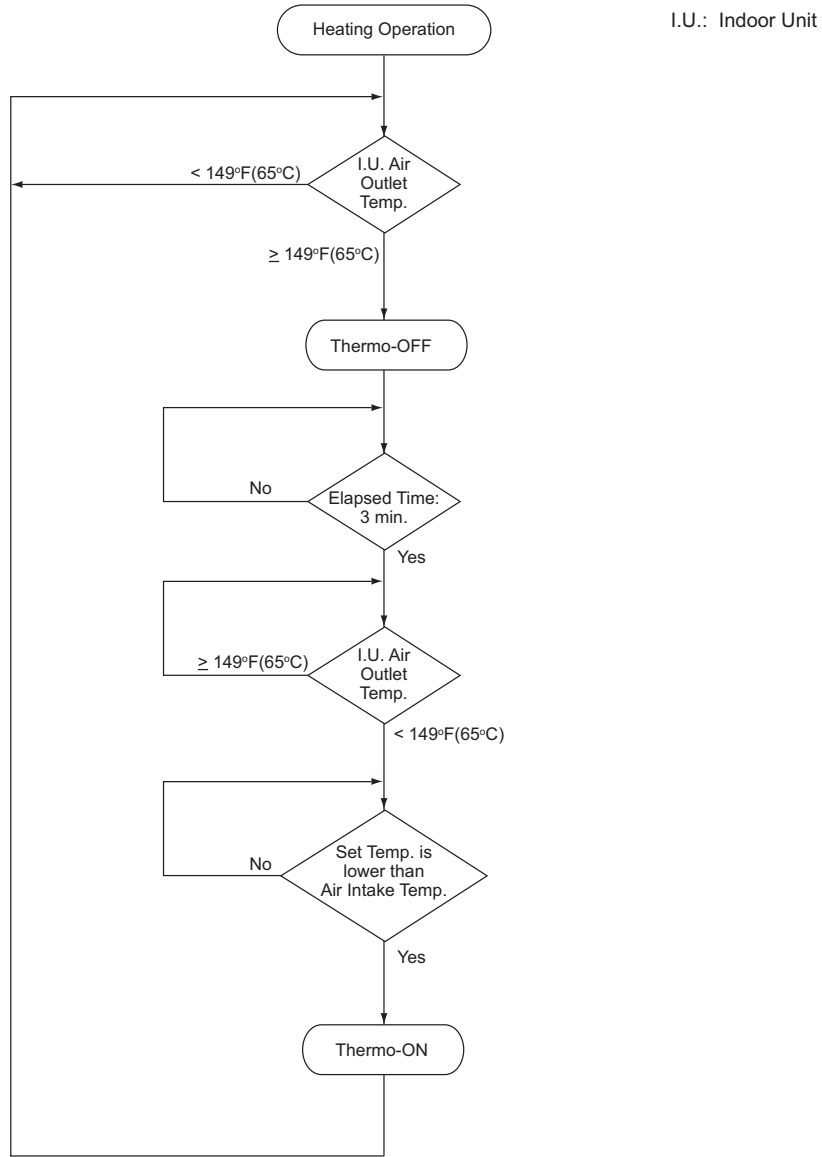
■ Defrosting Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Units” section of the Engineering Manual for details.

■ Freeze Protection Control during Cooling or Dry Operation



■ Prevention Control for Excessively High Outlet Air Temperature (High Outlet Air Temperature Heat Lockout)



Thermo-ON/OFF Control for Indoor Unit

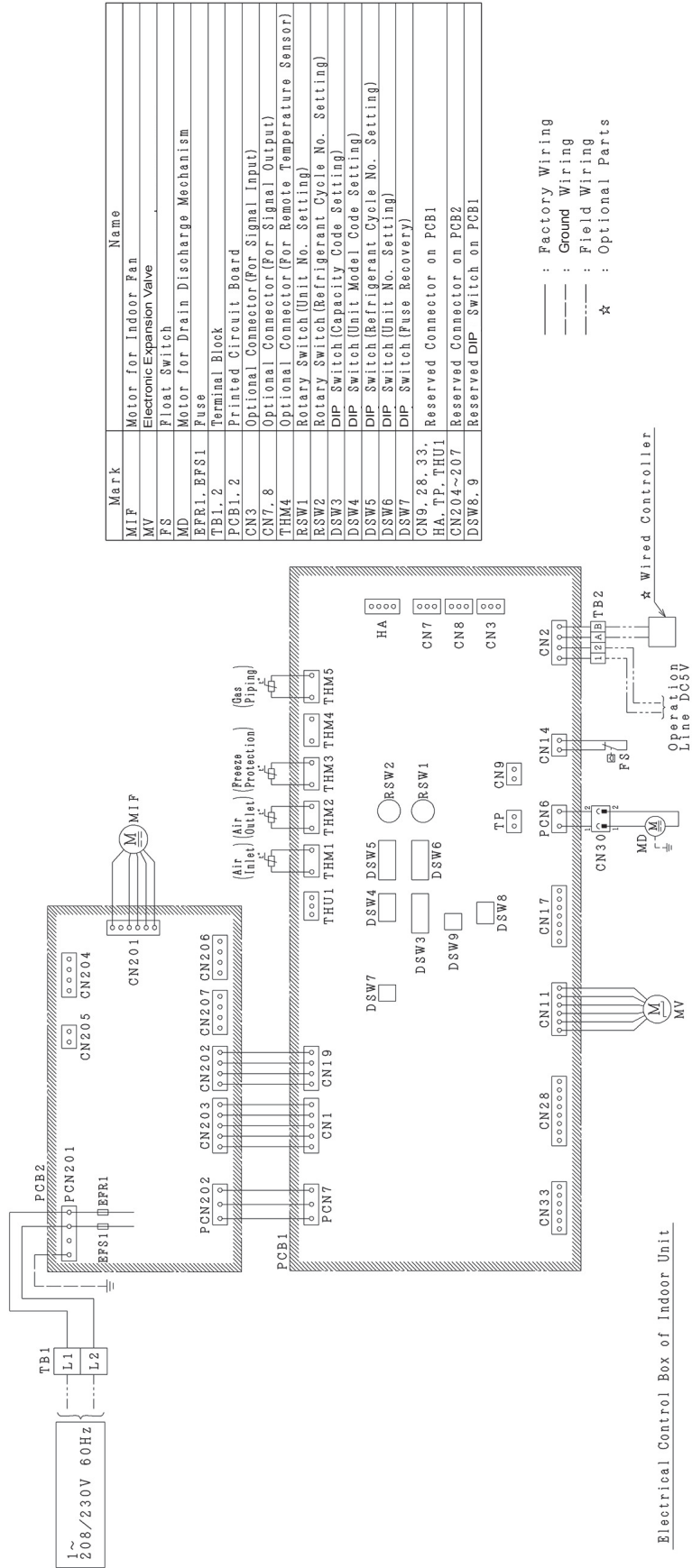
NOTE:
 Thermo-On: The outdoor unit and some indoor units are running.
 Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

INDOOR UNITS

3.1.4.10.3 Safety and Control Device Setting

| | | |
|---|------|---|
| Model | | (H,Y)IDM006B21S, (H,Y)IDM008B21S, (H,Y)IDM012B21S (H,Y)IDM015B21S, (H,Y)IDM018B21S, (H,Y)IDM024B21S (H,Y)IDM030B21S, (H,Y)IDM036B21S, (H,Y)IDM048B21S |
| For Evaporator Fan Motor Internal Thermostat | | Automatic Reset, Non-Adjustable |
| Cut-Out | °F | 248±13 |
| | (°C) | (120±7) |
| Cut-In | °F | 230±13 |
| | (°C) | (110±7) |
| For Control Circuit Fuse Capacity | | A 5 |

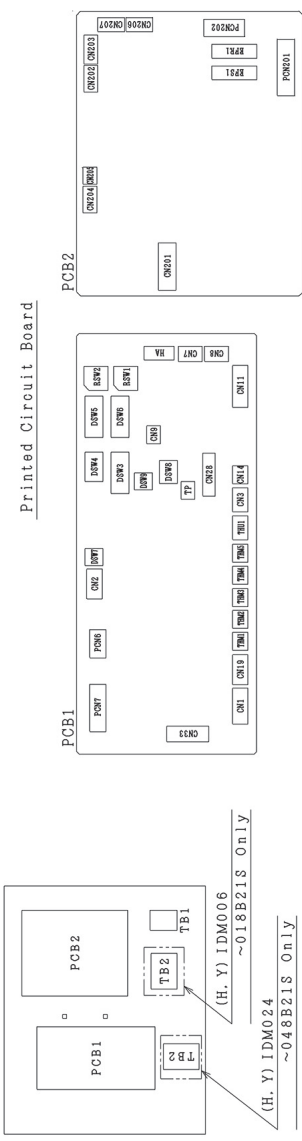
3.1.4.10.4 Wiring Diagram



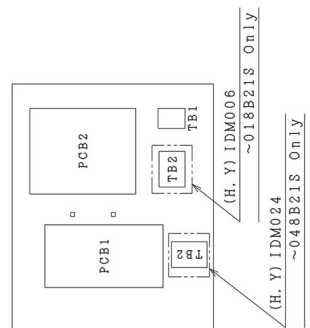
| Mark | Name |
|-----------------------------|--|
| M.I.P | Motor for Indoor Fan |
| E.V | Electronic Expansion Valve |
| F.S | Float Switch |
| M.D | Motor for Drain Discharge Mechanism |
| BFPI, EFS1 | Fuse |
| TB1, 2 | Terminal Block |
| PCB1, 2 | Printed Circuit Board |
| CN3 | Optional Connector (For Signal Input) |
| CN7, 8 | Optional Connector (For Remote Temperature Sensor) |
| THM4 | Optional Connector (For Remote Temperature Sensor) |
| RSW1 | Rotary Switch (Unit No. Setting) |
| RSW2 | Rotary Switch (Refrigerant Cycle No. Setting) |
| DSW3 | DIP Switch (Capacity Code Setting) |
| DSW4 | DIP Switch (Unit Model Code Setting) |
| DSW5 | DIP Switch (Refrigerant Cycle No. Setting) |
| DSW6 | DIP Switch (Unit No. Setting) |
| DSW7 | DIP Switch (Fuse Recovery) |
| CN9, 28, 33, H.A, T.P, THU1 | Reserved Connector on PCB1 |
| CN204~207 | Reserved Connector on PCB2 |
| DSW8, 9 | Reserved DIP Switch on PCB1 |

_____ : Factory Wiring
 - - - - - : Ground Wiring
 - · - · - : Field Wiring
 ☆ : Optional Parts

Note:
 1. All the field wiring and equipment must comply with local codes.



Electrical Control Box of Indoor Unit



3.1.5 Ducted Slim

3.1.5.1 General Data

| Indoor Unit Type | | Ducted Slim | | | | | |
|--|-----------------------|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Model | | (H,Y)IDS006B21S | (H,Y)IDS008B21S | (H,Y)IDS012B21S | (H,Y)IDS015B21S | (H,Y)IDS018B21S | |
| Indoor Unit Power Supply | | AC 1Phase, 208/230V, 60Hz | | | | | |
| Nominal Cooling Capacity *1 | Btu/h | 6,000 | 8,000 | 12,000 | 15,000 | 18,000 | |
| | (kW) | (1.8) | (2.3) | (3.5) | (4.4) | (5.3) | |
| Nominal Heating Capacity *1 | Btu/h | 6,700 | 9,000 | 13,500 | 17,000 | 20,000 | |
| | (kW) | (2.0) | (2.6) | (4.0) | (5.0) | (5.9) | |
| Sound Pressure Level *2 (Overall A Scale) (Hi2-Hi-Me-Lo) | | dB | 32-30-29-27 | 32-30-29-27 | 34-33.5-33-32 | 36-35-33-32 | 40-38-36-34 |
| Outer Dimensions | | | | | | | |
| Height | in.(mm) | 7-9/16 (192) | 7-9/16 (192) | 7-9/16 (192) | 7-9/16 (192) | 7-9/16 (192) | |
| Width | in.(mm) | 35-3/4 (908) | 35-3/4 (908) | 35-3/4 (908) | 46-3/8 (1178) | 46-3/8 (1178) | |
| Depth | in.(mm) | 17-19/32 (447) | 17-19/32 (447) | 17-19/32 (447) | 17-19/32 (447) | 17-19/32 (447) | |
| Net Weight | lbs(kg) | 44 (20) | 44 (20) | 46 (21) | 57 (26) | 57 (26) | |
| Refrigerant | | R410A | | | | | |
| Indoor Fan | | | | | | | |
| Airflow Rate (Hi2-Hi-Me-Lo) | cfm | 318-289-244-205 | 318-289-244-205 | 346-318-300-268 | 512-477-441-381 | 582-530-494-424 | |
| | (m ³ /min) | (9-8-7-6) | (9-8-7-6) | (10-9-9-8) | (15-14-13-11) | (17-15-14-12) | |
| External Pressure *3 | | in.W.G (Pa) | 0.04 (0.12-0.00) (10 (30-0)) | 0.04 (0.12-0.00) (10 (30-0)) | 0.04 (0.12-0.00) (10 (30-0)) | 0.04 (0.20-0.00) (10 (50-0)) | 0.04 (0.20-0.00) (10 (50-0)) |
| Motor Nominal Output | | W | 40 | 40 | 60 | 60 | |
| Connections | | | | | | | |
| Refrigerant Piping | | Flare-Nut Connection (with Flare Nuts) | | | | | |
| Liquid Line | in.(mm) | 1/4 (6.35) | 1/4 (6.35) | 1/4 (6.35) | 1/4 (6.35) | 3/8 (9.52) | |
| Gas Line | in.(mm) | 1/2 (12.70) | 1/2 (12.70) | 1/2 (12.70) | 1/2 (12.70) | 5/8 (15.88) | |
| Condensate Drain | | VP25 | | | | | |
| OD | in.(mm) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) | |
| ID | in.(mm) | 31/32 (25) | 31/32 (25) | 31/32 (25) | 31/32 (25) | 31/32 (25) | |

NOTES:

*1. Nominal capacity is based on combinations within the VRF system and the following:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 70°F DB (21.1°C DB)
Outdoor Air Inlet Temperature: 47°F DB (8.3°C DB)
43°F WB (6.1°C WB)

Piping Length: 24 ft. 7-3/16 in. (7.5m)

Piping Lift: 0 ft. (0m)

*2. The sound pressure level is based on the following.

4.9 ft. (1.5m) beneath the unit.

With Discharge Duct 6.6 ft. (2.0m) and Return Duct 3.3 ft. (1.0m)

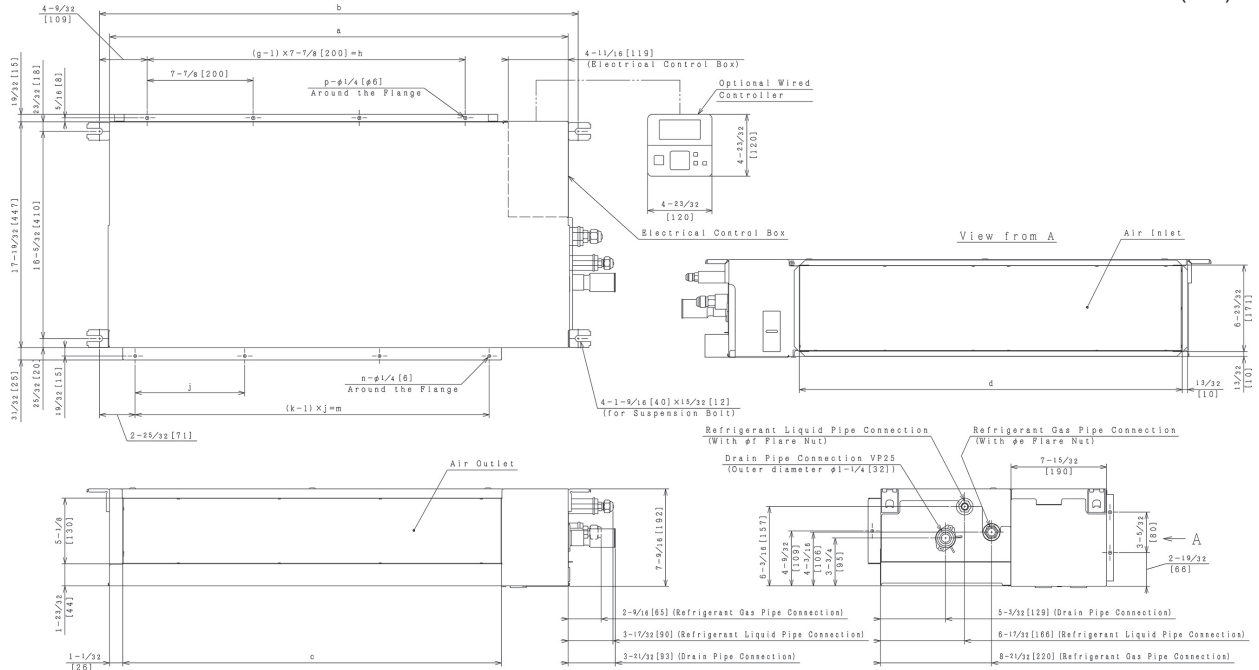
The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

*3. The data for external pressure *3) indicates "Standard Pressure Setting (High Pressure Setting - Low Pressure Setting)" values when a filter is not used. The sound pressure level is based on the Standard Pressure Setting.

3.1.5.2 Dimensional Data

Models: (H,Y)IDS006B21S, (H,Y)IDS008B21S, (H,Y)IDS012B21S, (H,Y)IDS015B21S and (H,Y)IDS018B21S

Unit: inch(mm)



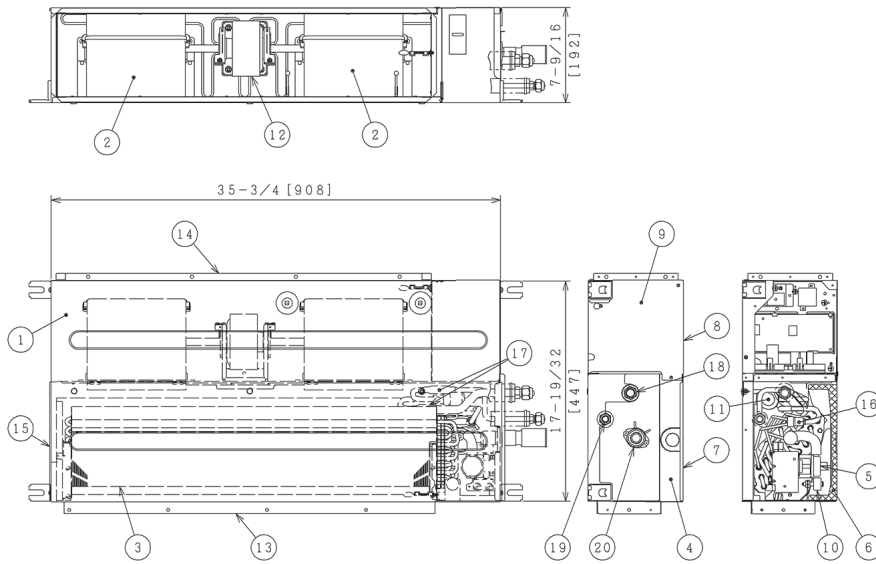
| Dimension | a | b | c | d | e | f | g | h | j | k | m | n | p |
|-------------------|--------|----------|----------|--------|---------|--------|---|--------|-------|---|---------|----|----|
| (H, Y) IDS006B21S | 35-3/4 | 37-5/16 | 29-17/32 | 29-7/8 | 1/2 | 1/4 | 3 | 15-3/4 | 6-7/8 | 5 | 27-9/16 | 10 | 12 |
| (H, Y) IDS008B21S | [908] | [948] | [750] | [759] | [12.7] | [6.35] | | [400] | [175] | | [700] | | |
| (H, Y) IDS012B21S | | | | | | | | | | | | | |
| (H, Y) IDS015B21S | 46-3/8 | 47-15/16 | 40-5/32 | 40-1/2 | 1/2 | 1/4 | 4 | 23-5/8 | 7-5/8 | 6 | 38-3/16 | 14 | 16 |
| (H, Y) IDS018B21S | [1178] | [1218] | [1020] | [1029] | [12.7] | [6.35] | | [600] | [194] | | [970] | | |
| (H, Y) IDS018B21S | 46-3/8 | 47-15/16 | 40-5/32 | 40-1/2 | 5/8 | 3/8 | 4 | 23-5/8 | 7-5/8 | 6 | 38-3/16 | 14 | 16 |
| (H, Y) IDS018B21S | [1178] | [1218] | [1020] | [1029] | [15.88] | [9.52] | | [600] | [194] | | [970] | | |

INDOOR UNITS

3.1.5.3 Structure

Models: (H,Y)IDS006B21S, (H,Y)IDS008B21S and (H,Y)IDS012B21S

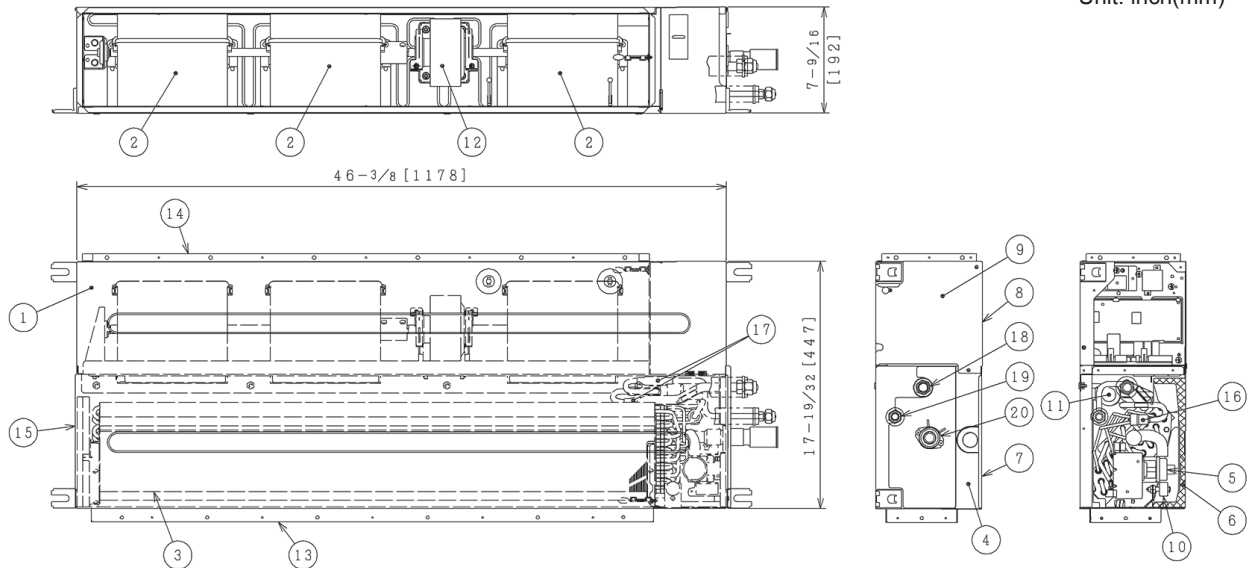
Unit: inch(mm)



| No. | Name | Remarks |
|-----|------------------------------------|----------------------------------|
| 1 | Top Enclosure | |
| 2 | Fan | |
| 3 | Heat Exchanger | |
| 4 | Right Side Enclosure | |
| 5 | Drain Pump | |
| 6 | Drain Pan | |
| 7 | Bottom Enclosure(Front) | |
| 8 | Bottom Enclosure(Back) | |
| 9 | Electrical Control Box | |
| 10 | Float Switch | |
| 11 | Electronic Expansion Valve | |
| 12 | Fan Motor | DC |
| 13 | Air Outlet | |
| 14 | Air Inlet | |
| 15 | Left Side Enclosure | |
| 16 | Distributor | |
| 17 | Strainer | |
| 18 | Refrigerant Gas Pipe Connection | With $\phi 1/2$ [12.7] Flare Nut |
| 19 | Refrigerant Liquid Pipe Connection | With $\phi 1/4$ [6.35] Flare Nut |
| 20 | Drain Pipe Connection | |

Models: (H,Y)IDS015B21S and (H,Y)IDS018B21S

Unit: inch(mm)



| No. | Name | Remarks | No. | Name | Remarks | No. | Name | Remarks |
|-----|-------------------------|---------|-----|----------------------------|---------|-----|------------------------------------|---|
| 1 | Top Enclosure | | 10 | Float Switch | | 18 | Refrigerant Gas Pipe Connection | With $\phi 1/2$ [12.7] Flare Nut (015 Type) With $\phi 5/8$ [15.88] Flare Nut (018 Type) |
| 2 | Fan | | 11 | Electronic Expansion Valve | | 19 | Refrigerant Liquid Pipe Connection | With $\phi 1/4$ [6.35] Flare Nut (015 Type) With $\phi 3/8$ [9.52] Flare Nut (018 Type) |
| 3 | Heat Exchanger | | 12 | Fan Motor | DC | 20 | Drain Pipe Connection | |
| 4 | Right Side Enclosure | | 13 | Air Outlet | | | | |
| 5 | Drain Pump | | 14 | Air Inlet | | | | |
| 6 | Drain Pan | | 15 | Left Side Enclosure | | | | |
| 7 | Bottom Enclosure(Front) | | 16 | Distributor | | | | |
| 8 | Bottom Enclosure(Back) | | 17 | Strainer | | | | |
| 9 | Electrical Control Box | | | | | | | |

3.1.5.4 Component Data

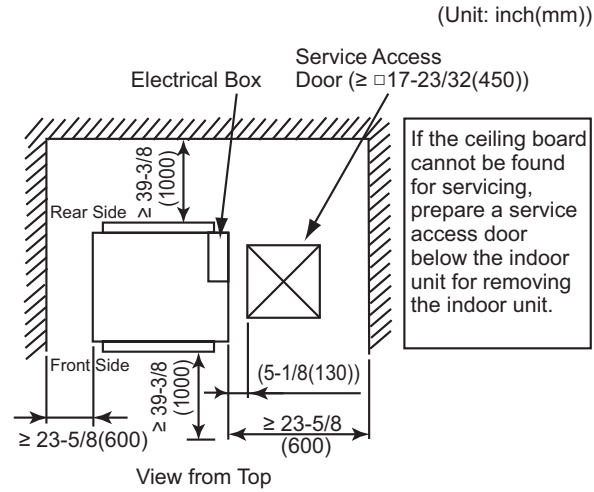
Indoor Heat Exchanger and Fan

| Model | | (H,Y)IDS006B21S | (H,Y)IDS008B21S | (H,Y)IDS012B21S | (H,Y)IDS015B21S | (H,Y)IDS018B21S |
|-----------------------------------|-----------------------|------------------------------|-----------------|-----------------|-----------------|-----------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | | | |
| Tube Material | | Copper Tube | | | | |
| Outer Diameter | φ in (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 2 | 2 | 3 | 3 | 3 |
| Number of Tube/Coil | | 16 | 16 | 26 | 26 | 28 |
| Fin Material | | Aluminum | | | | |
| Pitch | in (mm) | 0.063 (1.6) | 0.063 (1.6) | 0.063 (1.6) | 0.063 (1.6) | 0.063 (1.6) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² | 1.61 | 1.61 | 1.61 | 2.15 | 2.15 |
| | (m ²) | (0.15) | (0.15) | (0.15) | (0.20) | (0.20) |
| Number of Coil/Unit | | 1 | 1 | 1 | 1 | 1 |
| Indoor Fan | | Multi-Blade Centrifugal Fan | | | | |
| Number/Unit | | 2 | 2 | 2 | 3 | 3 |
| Outer Diameter | φ in | 5-1/8 | 5-1/8 | 5-1/8 | 5-1/8 | 5-1/8 |
| | (mm) | (130) | (130) | (130) | (130) | (130) |
| Nominal Airflow (Hi2-Hi-Me-Lo) | cfm | 318-289-244-205 | 318-289-244-205 | 346-318-300-268 | 512-477-441-381 | 582-530-494-424 |
| | (m ³ /min) | (9-8-7-6) | (9-8-7-6) | (10-9-9-8) | (15-14-13-11) | (17-15-14-12) |
| Indoor Fan Motor | | Drip-Proof Type Enclosure | | | | |
| Starting Method | | DC Motor | | | | |
| Nominal Output | W | 40 | 40 | 40 | 60 | 60 |
| Quantity | | 1 | 1 | 1 | 1 | 1 |
| Insulation Class | | E | E | E | E | E |

INDOOR UNITS

3.1.5.5 Operation Space

Models: (H,Y)IDS006B21S, (H,Y)IDS008B21S, (H,Y)IDS012B21S, (H,Y)IDS015B21S
and (H,Y)IDS018B21S



3.1.5.6 Sensible Heat Factor (SHF)

| Model | SHF* |
|-----------------|------|
| (H,Y)IDS006B21S | 0.80 |
| (H,Y)IDS008B21S | 0.80 |
| (H,Y)IDS012B21S | 0.84 |
| (H,Y)IDS015B21S | 0.85 |
| (H,Y)IDS018B21S | 0.85 |

NOTE:

1. SHF is based on combinations within VRF system and the following:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)

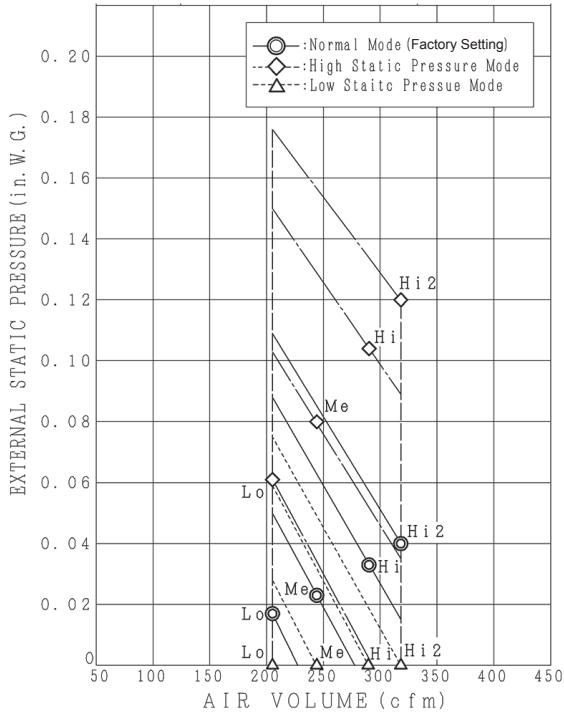
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Piping Length: 24 ft. 7-3/16 in. (7.5m)

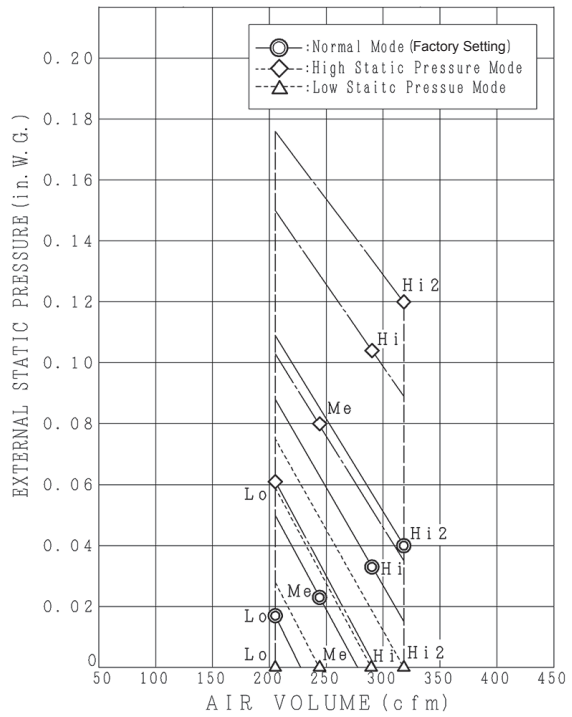
Piping Lift: 0 ft. (0m)

3.1.5.7 Fan Performance

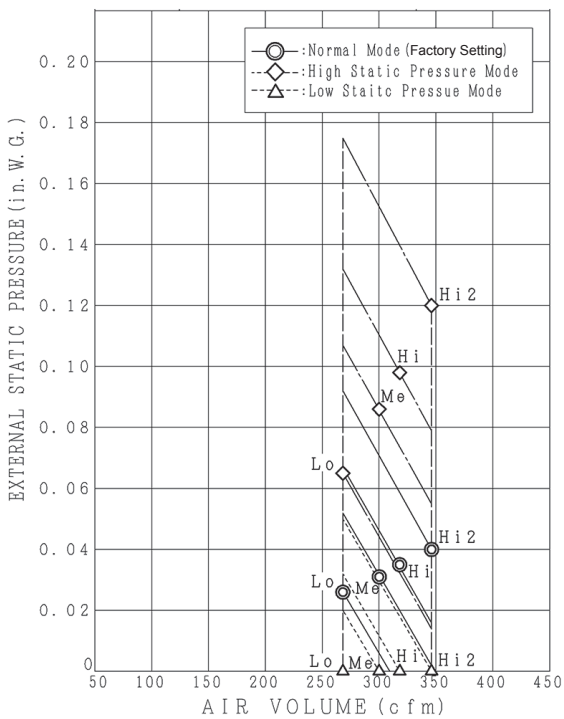
(H,Y)IDS006B21S



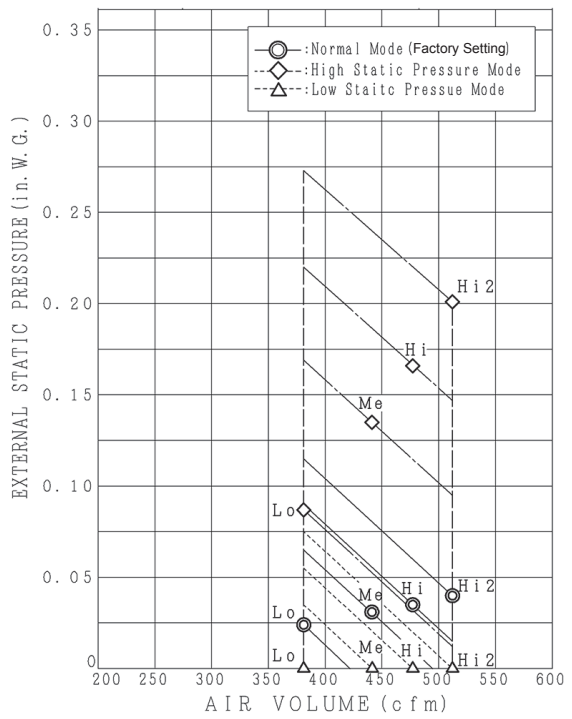
(H,Y)IDS008B21S



(H,Y)IDS012B21S



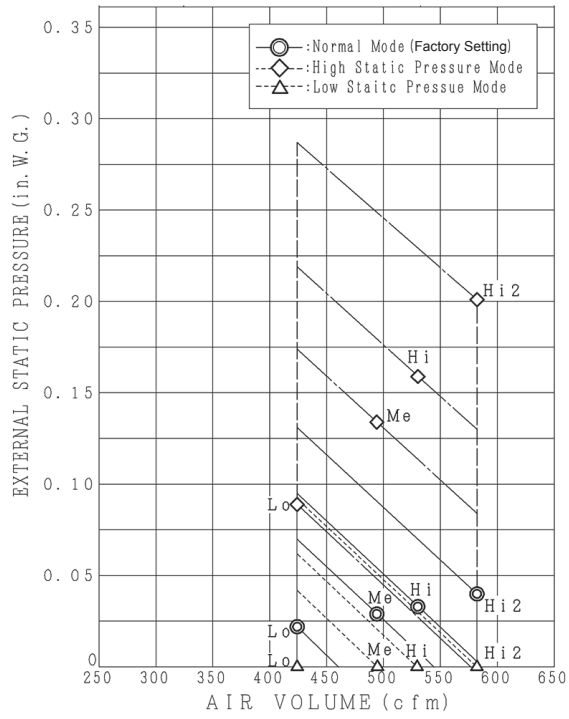
(H,Y)IDS015B21S



NOTE:

The settings of Normal, High Static Pressure and Low Static Pressure Mode can be changed using the Wired Controller.

(H,Y)IDS018B21S



NOTE:

The settings of Normal, High Static Pressure, and Low Static Pressure Mode can be changed using the Wired Controller.

3.1.5.8 Electrical Data

| Model | Unit Main Power | | | Applicable Voltage | | Power Supply | | Indoor Fan Motor | Unit |
|-----------------|-----------------|----|----|--------------------|---------|--------------|-----|------------------|------|
| | VOL | PH | HZ | Maximum | Minimum | MCA | MFA | OPT | FLA |
| (H,Y)IDS006B21S | 208/230 | 1 | 60 | 253 | 188 | 0.20 | 5 | 0.04 | 0.16 |
| (H,Y)IDS008B21S | | | | | | 0.20 | 5 | 0.04 | 0.16 |
| (H,Y)IDS012B21S | | | | | | 0.20 | 5 | 0.04 | 0.16 |
| (H,Y)IDS015B21S | | | | | | 0.29 | 5 | 0.06 | 0.23 |
| (H,Y)IDS018B21S | | | | | | 0.29 | 5 | 0.06 | 0.23 |

VOL: Rated Unit Power Supply Voltage (V)

PH: Phase

HZ: Frequency (Hz)

MCA: Minimum Circuit Ampacity (A)

MFA: Maximum Fuse Ampacity (A)

OPT: Rated Motor Output (kW)

FLA: Full Load Ampacity (A)

NOTE:

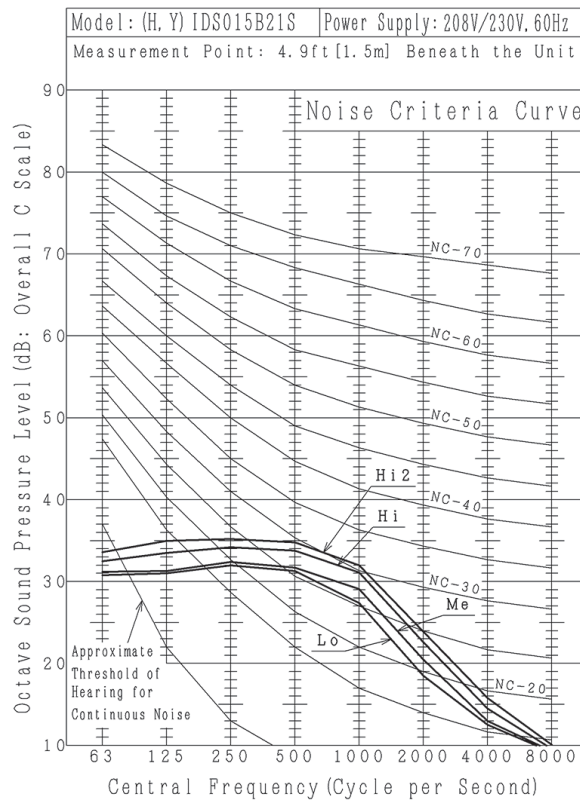
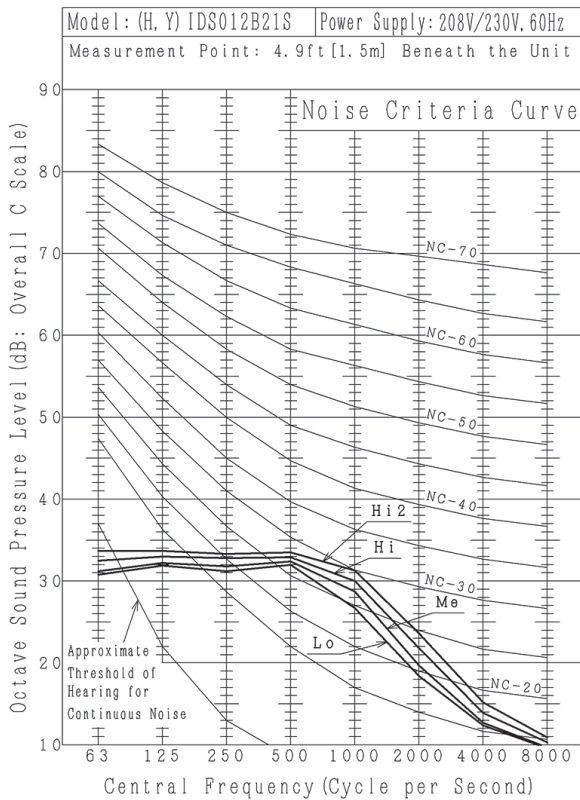
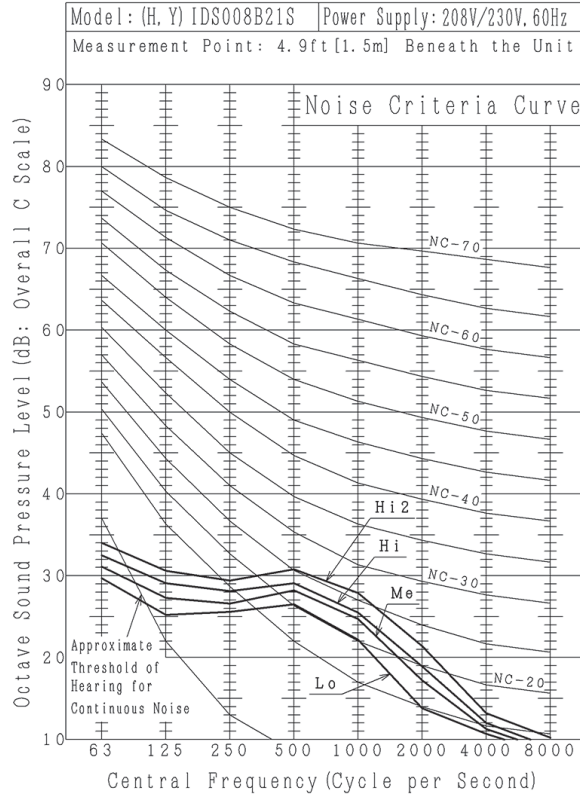
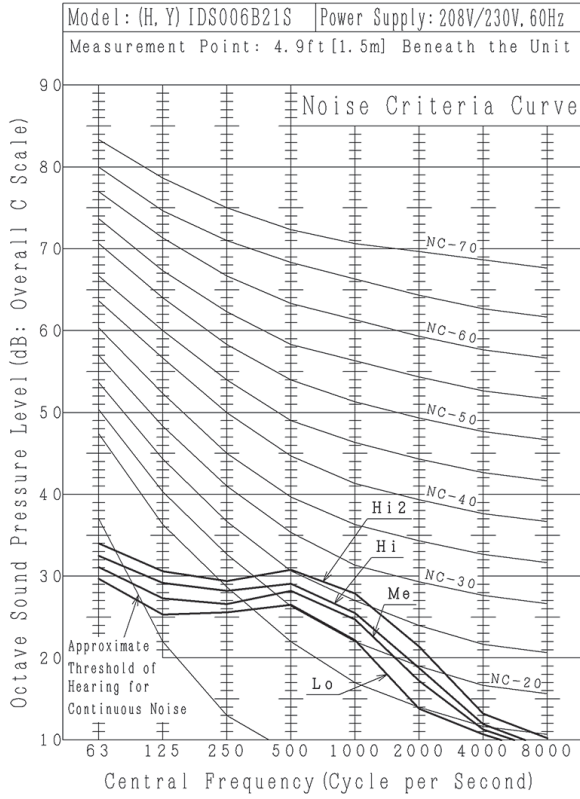
Power supply voltage should be satisfied with the following.

Supply Voltage: Rated Voltage within $\pm 10\%$

Starting Voltage: Rated Voltage within -15%

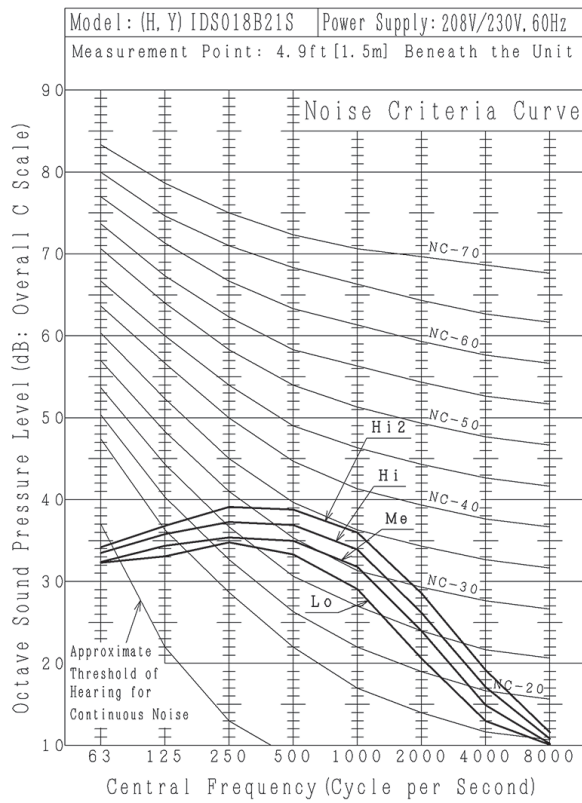
Operating Voltage: Rated Voltage within $\pm 10\%$

3.1.5.9 Sound Data



NOTES:

1. The sound pressure level is based on the following:
 Measurement Point: 4.9 ft. (1.5m) beneath the unit.
2. The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.



NOTES:

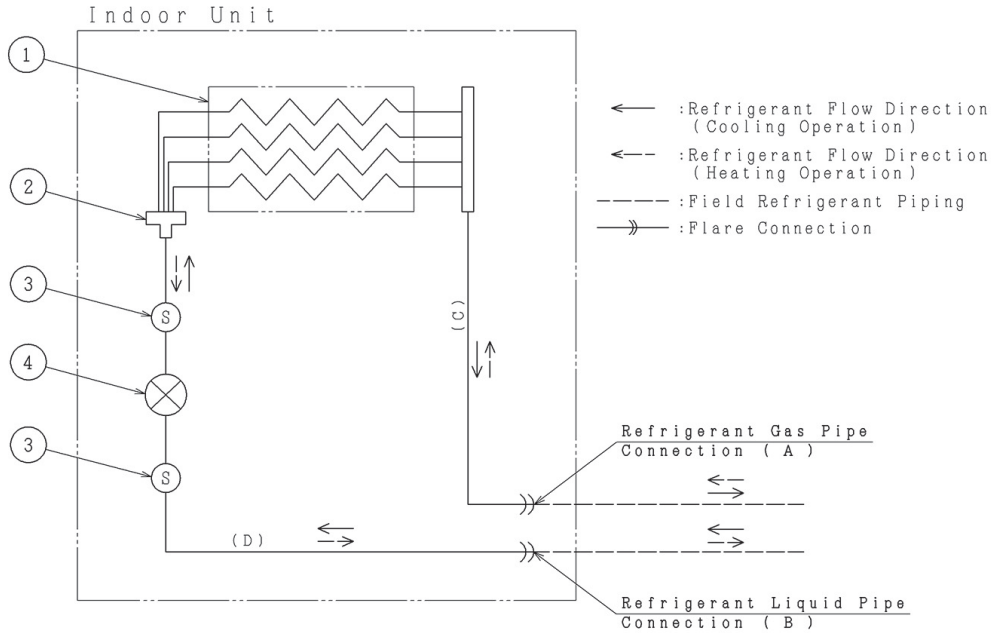
1. The sound pressure level is based on the following:
 Measurement Point: 4.9 ft. (1.5m) beneath the unit.
2. The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

INDOOR UNITS

3.1.5.10 Control System

3.1.5.10.1 Refrigerant System

Models: (H,Y)IDS006B21S, (H,Y)IDS008B21S, (H,Y)IDS012B21S, (H,Y)IDS015B21S and (H,Y)IDS018B21S



| Mark | Part Name |
|------|----------------------------|
| ① | Heat Exchanger |
| ② | Distributor |
| ③ | Strainer |
| ④ | Electronic Expansion Valve |

Unit: inch (mm)

| Model | Distributor | (A) Gas Pipe Connection | (B) Liquid Pipe Connection | (C) (OD×T) | (D) (OD×T) |
|-----------------|-------------|-------------------------|----------------------------|----------------------------|---------------------------|
| (H,Y)IDS006B21S | 2 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ5/8×t0.039 (15.88×1.0) | φ3/8×t0.031 (9.52×0.8) |
| (H,Y)IDS008B21S | 2 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ5/8×t0.039 (15.88×1.0) | φ3/8×t0.031 (9.52×0.8) |
| (H,Y)IDS012B21S | 4 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ5/8×t0.039 (15.88×1.0) | φ3/8×t0.031 (9.52×0.8) |
| (H,Y)IDS015B21S | 4 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ5/8×t0.039 (15.88×1.0) | φ3/8×t0.031 (9.52×0.8) |
| (H,Y)IDS018B21S | 6 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ5/8×t0.039 (15.88×1.0) | φ3/8×t0.031 (9.52×0.8) |

3.1.5.10.2 Standard Operation Sequence

■ Cooling Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Engineering Manual” for details.

■ Dry Operation

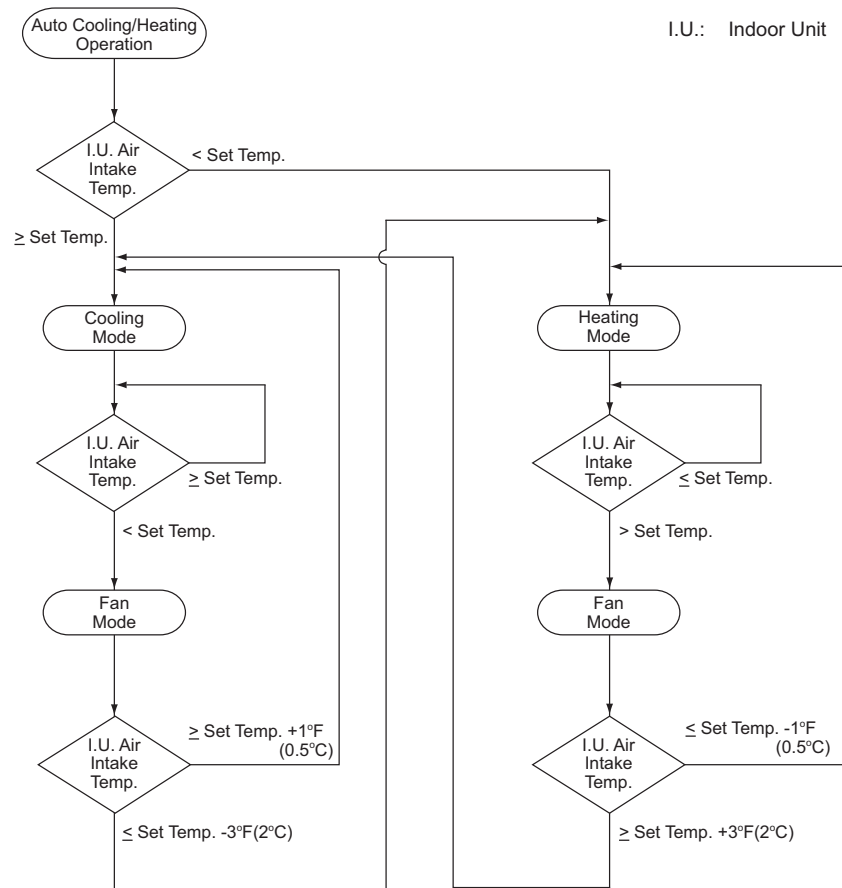
The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Engineering Manual” for details.

■ Heating Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Engineering Manual” for details.

■ Automatic Cooling and Heating Operation

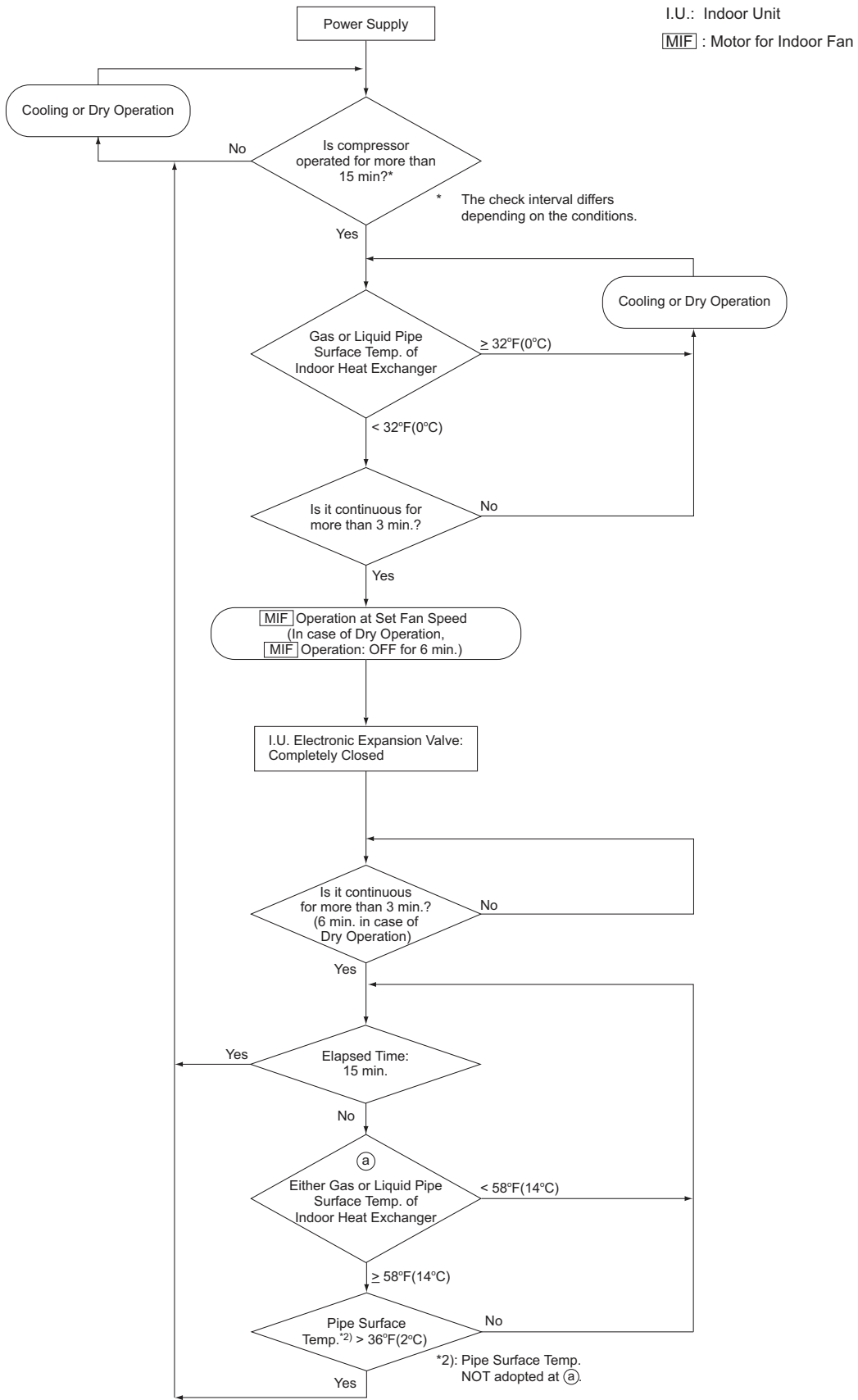
It is applicable only to the Heat Recovery System.



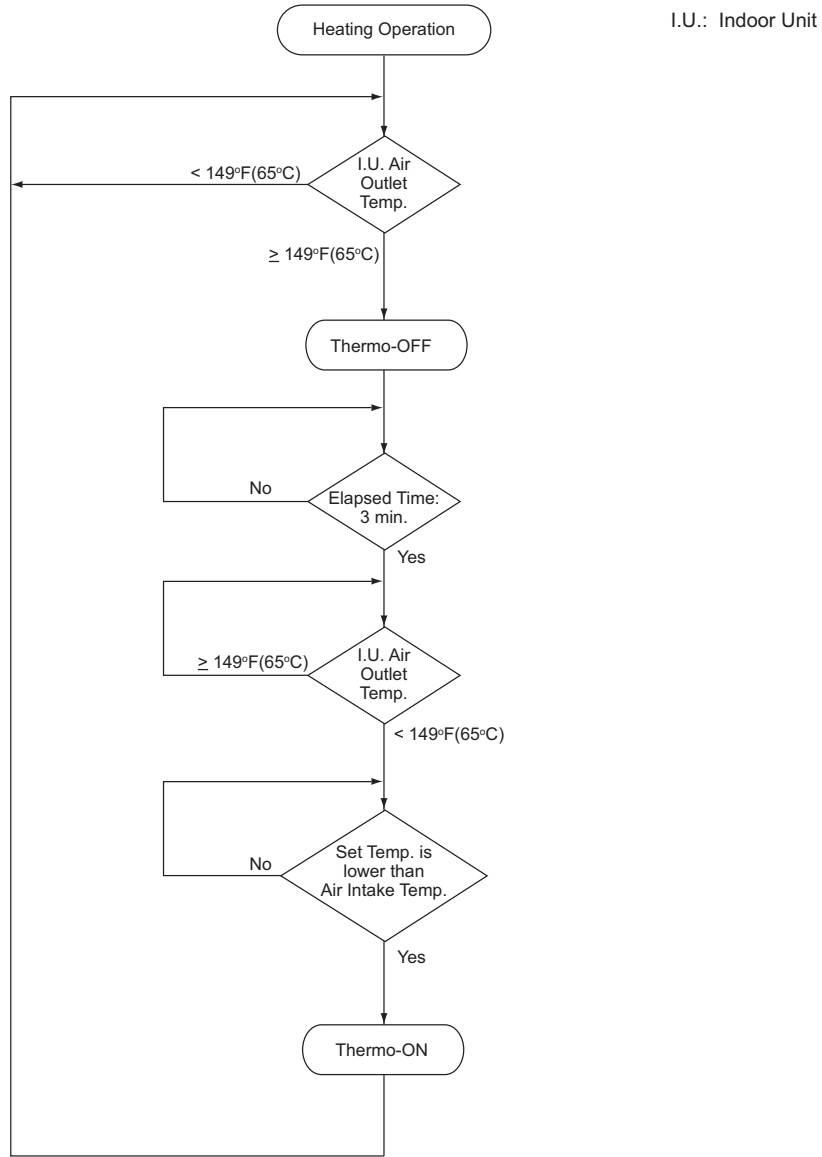
■ Defrosting Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the “Outdoor Unit Engineering Manual” for details.

■ Freeze Protection Control during Cooling or Dry Operation



■ Prevention Control for Excessively High Outlet Air Temperature
(High Outlet Air Temperature Heat Lockout)



Thermo-ON/OFF Control for Indoor Unit

NOTE:

Thermo-ON: The outdoor unit and some indoor units are running.

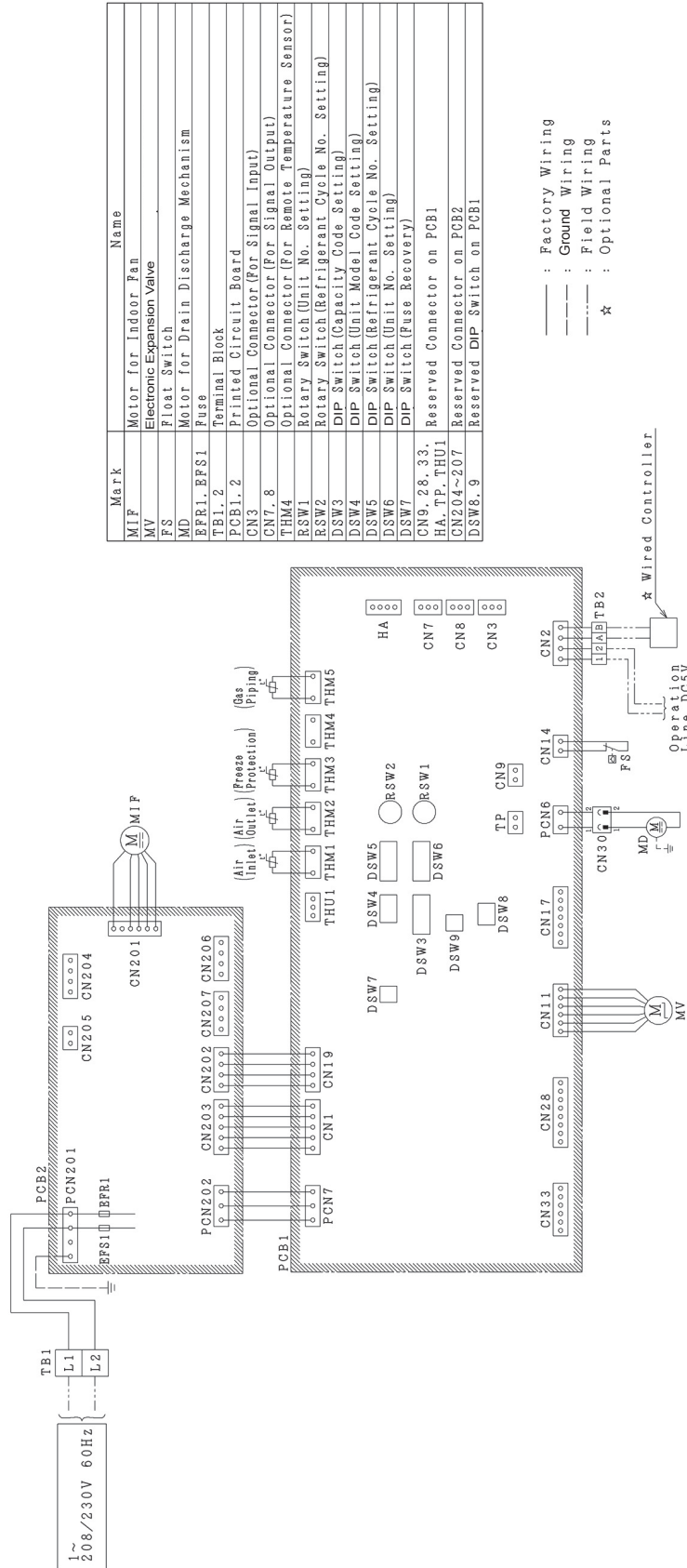
Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

3.1.5.10.3 Safety and Control Device Setting

| | | |
|--|------------|---|
| Model | | (H,Y)IDS006B21S, (H,Y)IDS008B21S, (H,Y)IDS012B21S (H,Y)IDS015B21S, (H,Y)IDS018B21S |
| For Evaporator Fan Motor Internal Thermostat | | Automatic Reset, Non-Adjustable |
| Cut-Out | °F (°C) | 212±36 (100±20) |
| Cut-In | °F (°C) | 194±36 (90±20) |
| For Control Circuit Fuse Capacity | | A 5 |

3.1.5.10.4 Wiring Diagram

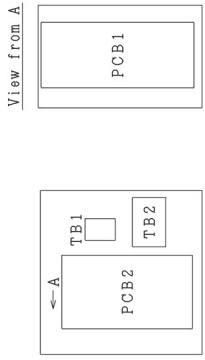
ELECTRICAL WIRING DIAGRAM OF DUCT (SLIM) TYPE INDOOR UNIT
 (MODELS: (H, Y) IDS006B21S, (H, Y) IDS008B21S, (H, Y) IDS012B21S, (H, Y) IDS015B21S and (H, Y) IDS018B21S)



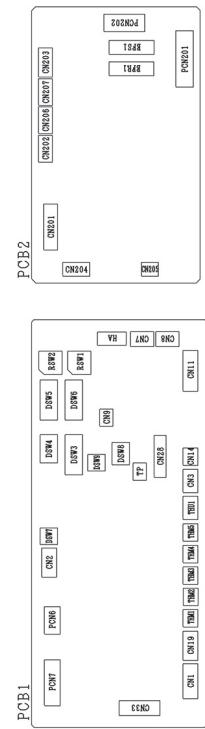
| Mark | Name |
|--------------|--|
| MIF | Motor for Indoor Fan |
| MV | Electronic Expansion Valve |
| FS | Float Switch |
| MD | Motor for Drain Discharge Mechanism |
| EPF1, EPF1 | Fuse |
| TB1, 2 | Terminal Block |
| PCB1, 2 | Printed Circuit Board |
| CN3 | Optional Connector (for Signal Input) |
| CN7, 8 | Optional Connector (for Signal Output) |
| THM4 | Optional Connector (for Remote Temperature Sensor) |
| RSW1 | Rotary Switch (Unit No. Setting) |
| RSW2 | Rotary Switch (Refrigerant Cycle No. Setting) |
| DSW3 | DIP Switch (Capacity Code Setting) |
| DSW4 | DIP Switch (Unit Model Code Setting) |
| DSW5 | DIP Switch (Refrigerant Cycle No. Setting) |
| DSW6 | DIP Switch (Unit No. Setting) |
| DSW7 | DIP Switch (Fuse Recovery) |
| CN9, 28, 33, | Reserved Connector on PCB1 |
| HA, TP, THU1 | Reserved Connector on PCB2 |
| CN204~207 | Reserved Connector on PCB2 |
| DSW8, 9 | Reserved DIP Switch on PCB1 |

— : Factory Wiring
 - - - : Ground Wiring
 ····· : Field Wiring
 ☆ : Optional Parts

Electrical Control Box of Indoor Unit



Printed Circuit Board



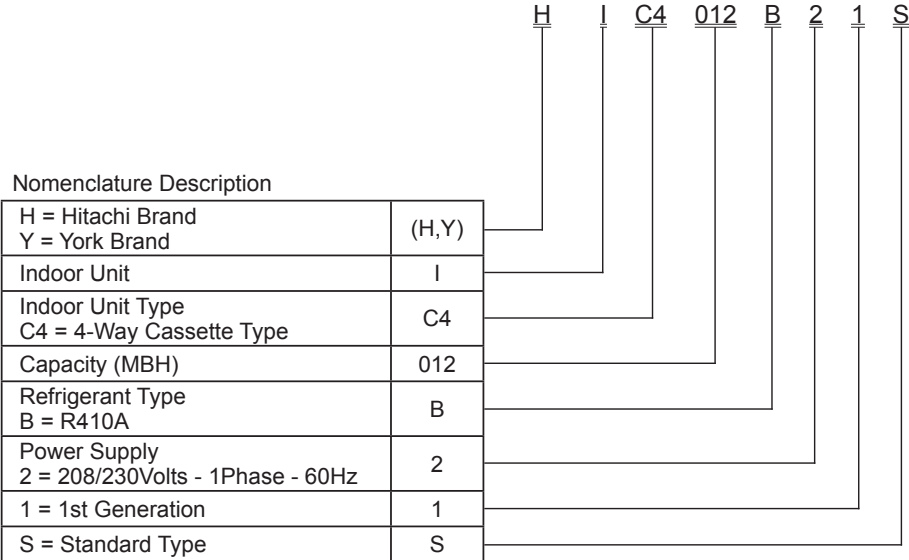
Note:
 1. All the field wiring and equipment must comply with local codes.

3.2 4-Way Cassette Type

3.2.1 Unit Nomenclature

Model Descriptions

Example



3.2.2 Line-up

| Type | | Capacity | | Model |
|-------------|----------------|----------|-----|-----------------|
| | | RT | MBH | |
| Indoor Unit | 4-Way Cassette | 1.0 | 12 | (H,Y)IC4012B21S |
| | | 1.3 | 15 | (H,Y)IC4015B21S |
| | | 1.5 | 18 | (H,Y)IC4018B21S |
| | | 2.0 | 24 | (H,Y)IC4024B21S |
| | | 2.5 | 30 | (H,Y)IC4030B21S |
| | | 3.0 | 36 | (H,Y)IC4036B21S |

3.2.3 General Data

| Indoor Unit Type | | 4-Way Cassette Type | | |
|---|------------------------------|--|----------------------------------|----------------------------------|
| Model | | (H,Y)IC4012B21S | (H,Y)IC4015B21S | (H,Y)IC4018B21S |
| Indoor Unit Power Supply | | AC 1Phase, 208/230V, 60Hz | | |
| Nominal Cooling Capacity*1 | Btu/h (kW) | 12,000 (3.5) | 15,000 (4.4) | 18,000 (5.3) |
| Nominal Heating Capacity*1 | Btu/h (kW) | 13,500 (4.0) | 17,000 (5.0) | 20,000 (5.8) |
| Sound Pressure Level*2 (Overall A Scale) (Hi2-Hi-Me-Lo) | dB | 35-31-30-27 | 37-32-30-27 | 42-36-32-28 |
| Outer Dimensions | | | | |
| Height | in.(mm) | 9-3/4 (248) | 9-3/4 (248) | 9-3/4 (248) |
| Width | in.(mm) | 33-1/16 (840) | 33-1/16 (840) | 33-1/16 (840) |
| Depth | in.(mm) | 33-1/16 (840) | 33-1/16 (840) | 33-1/16 (840) |
| Net Weight | lbs(kg) | 46 (21) | 46 (21) | 49 (22) |
| Refrigerant | | R410A | | |
| Indoor Fan | | | | |
| Airflow Rate (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 741-600-494-388 (21-17-14-11) | 777-600-494-388 (22-17-14-11) | 953-777-635-494 (27-22-18-14) |
| External Pressure | in.W.G (Pa) | 0.0 (0) | 0.0 (0) | 0.0 (0) |
| Motor Nominal Output | W | 57 | 57 | 57 |
| Connections | | Flare-Nut Connection (with Flare Nuts) | | |
| Refrigerant Piping | | | | |
| Liquid Line | in.(mm) | 1/4 (6.35) | 1/4 (6.35) | 3/8 (9.52) |
| Gas Line | in.(mm) | 1/2 (12.70) | 1/2 (12.70) | 5/8 (15.88) |
| Condensate Drain | | VP25 | VP25 | VP25 |
| OD | in.(mm) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) |
| ID | in.(mm) | 31/32 (25) | 31/32 (25) | 31/32 (25) |

NOTES:

*1. Nominal capacity is based on combinations within the VRF system and the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 70°F DB (21.1°C DB)
Outdoor Air Inlet Temperature: 47°F DB (8.3°C DB)
43°F WB (6.1°C WB)

Piping Length: 24 ft. 7-3/16 in. (7.5m)

Piping Lift: 0 ft. (0m)

*2. Sound pressure level is based on following conditions.

4.9 ft. (1.5m) beneath the unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

INDOOR UNITS

| Indoor Unit Type | | 4-Way Cassette Type | | |
|---|------------------------------|--|------------------------------------|------------------------------------|
| Model | | (H,Y)IC4024B21S | (H,Y)IC4030B21S | (H,Y)IC4036B21S |
| Indoor Unit Power Supply | | AC 1Phase, 208/230V, 60Hz | | |
| Nominal Cooling Capacity*1 | Btu/h (kW) | 24,000 (7.0) | 30,000 (8.8) | 36,000 (10.5) |
| Nominal Heating Capacity*1 | Btu/h (kW) | 27,000 (7.9) | 34,000 (10.0) | 40,000 (11.7) |
| Sound Pressure Level*2 (Overall A Scale) (Hi2-Hi-Me-Lo) | dB | 42-36-32-28 | 48-43-39-33 | 48-45-40-35 |
| Outer Dimensions | | | | |
| Height | in.(mm) | 11-23/32 (298) | 11-23/32 (298) | 11-23/32 (298) |
| Width | in.(mm) | 33-1/16 (840) | 33-1/16 (840) | 33-1/16 (840) |
| Depth | in.(mm) | 33-1/16 (840) | 33-1/16 (840) | 33-1/16 (840) |
| Net Weight | lbs(kg) | 57 (26) | 57 (26) | 57 (26) |
| Refrigerant | | R410A | | |
| Indoor Fan | | | | |
| Airflow Rate (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 953-812-635-494 (27-23-18-14) | 1306-1094-847-706 (37-31-24-20) | 1306-1165-918-741 (37-33-26-21) |
| External Pressure | | | | |
| | in.W.G (Pa) | 0.0 (0) | 0.0 (0) | 0.0 (0) |
| Motor Nominal Output | | 57 | 127 | 127 |
| Connections | | Flare-Nut Connection (with Flare Nuts) | | |
| Refrigerant Piping | | | | |
| Liquid Line | in.(mm) | 3/8 (9.52) | 3/8 (9.52) | 3/8 (9.52) |
| Gas Line | in.(mm) | 5/8 (15.88) | 5/8 (15.88) | 5/8 (15.88) |
| Condensate Drain | | VP25 | VP25 | VP25 |
| OD | in.(mm) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) |
| ID | in.(mm) | 31/32 (25) | 31/32 (25) | 31/32 (25) |

NOTES:

*1. Nominal capacity is based on combinations within the VRF system and the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 70°F DB (21.1°C DB)
Outdoor Air Inlet Temperature: 47°F DB (8.3°C DB)
43°F WB (6.1°C WB)

Piping Length: 24 ft. 7-3/16 in. (7.5m)

Piping Lift: 0 ft. (0m)

*2. Sound pressure level is based on following conditions.

4.9 ft. (1.5m) beneath the unit.

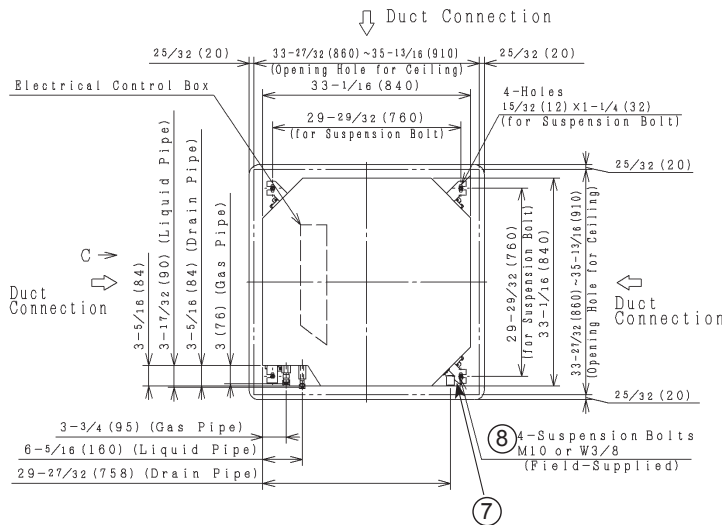
The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

| Adaptable Panel Model | | P-AP160NA2 | P-AP160NAE1 |
|-----------------------|---------|--|-------------------------------------|
| | | (without Motion and Radiation Sensors) | (with Motion and Radiation Sensors) |
| Color | | Neutral White | |
| Outer Dimensions | | | |
| Height | in.(mm) | 1-9/16 (40) | 1-9/16 (40) |
| Width | in.(mm) | 37-13/32 (950) | 37-13/32 (950) |
| Depth | in.(mm) | 37-13/32 (950) | 37-13/32 (950) |
| Net Weight | lbs(kg) | 14 (6.5) | 14 (6.5) |

3.2.4 Dimensional Data

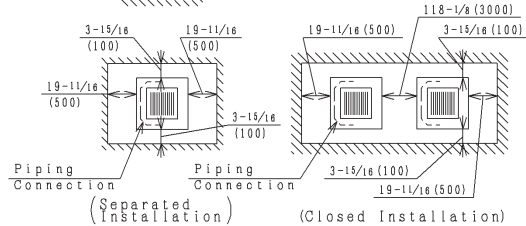
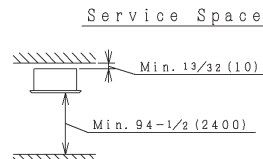
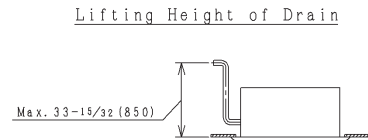
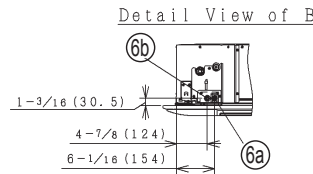
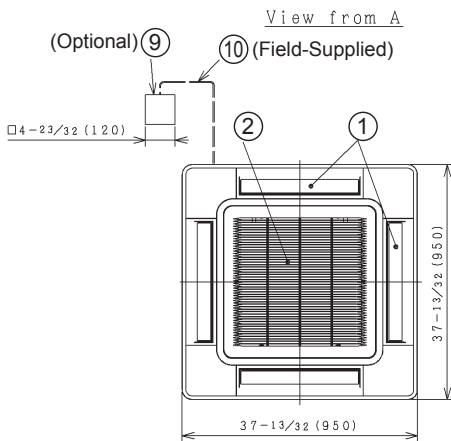
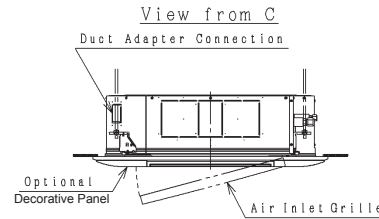
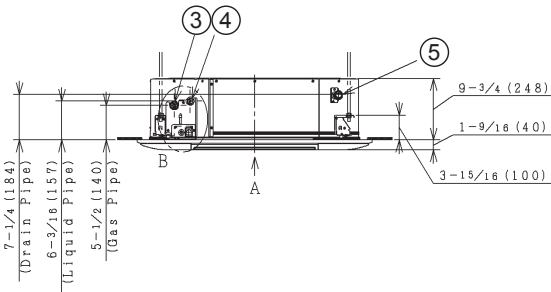
Models: (H,Y)IC4012B21S, (H,Y)IC4015B21S and (H,Y)IC4018B21S
with Decorative Panel P-AP160NA2

Unit: inch (mm)



| Mark | Name | Remark |
|------|------------------------------------|---|
| 1 | Air Outlet | 4-Way |
| 2 | Air Inlet | |
| 3 | Refrigerant Gas Pipe Connection | with φa Flare Nut |
| 4 | Refrigerant Liquid Pipe Connection | with φb Flare Nut |
| 5 | Drain Pipe Connection | VP25 |
| 6a | Wiring Hole for Conduit Tube | φ7/8 (22.2) Hole |
| 6b | Wiring Hole | φ1/2 (13) Hole |
| 7 | Suspension Bracket | |
| 8 | Suspension Bolt | 4-M10 or W3/8 |
| 9 | Wired Controller | without Cable |
| 10 | Shielded Communication Cable | Min. AWG18 (0.82mm ²), Field-Supplied |

| Model | Dimension | |
|-----------------|-------------|------------|
| | a | b |
| (H,Y)IC4012B21S | 1/2 (12.7) | 1/4 (6.35) |
| (H,Y)IC4015B21S | 1/2 (12.7) | 1/4 (6.35) |
| (H,Y)IC4018B21S | 5/8 (15.88) | 3/8 (9.52) |

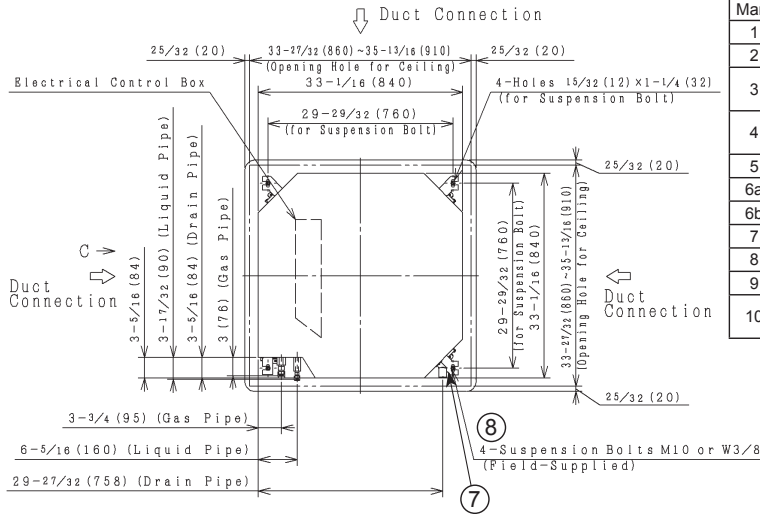


NOTES:

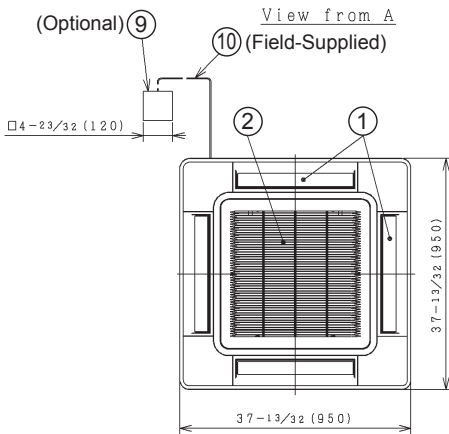
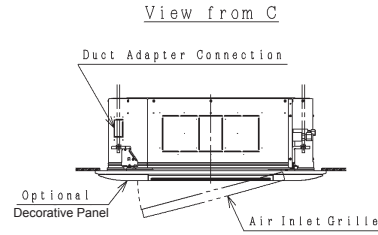
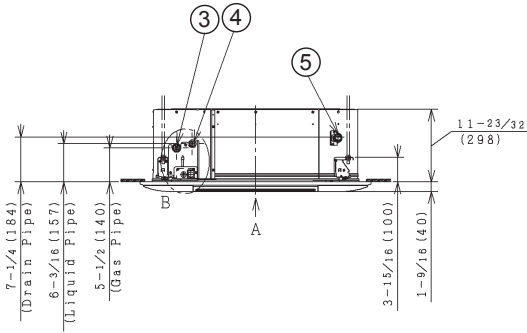
- Distance between the wall and panel edge must be a min. 59-1/16 inch (1500mm) to prevent short circuiting.

Models: (H,Y)IC4024B21S, (H,Y)IC4030B21S and (H,Y)IC4036B21S
with Decorative Panel P-AP160NA2

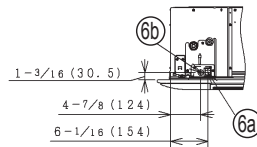
Unit: inch (mm)



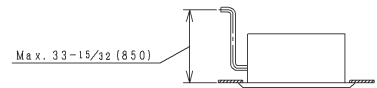
| Mark | Name | Remark |
|------|------------------------------------|---|
| 1 | Air Outlet | 4-Way |
| 2 | Air Inlet | |
| 3 | Refrigerant Gas Pipe Connection | with $\phi 5/8$ (15.88) Flare Nut |
| 4 | Refrigerant Liquid Pipe Connection | with $\phi 3/8$ (9.52) Flare Nut |
| 5 | Drain Pipe Connection | VP25 |
| 6a | Wiring Hole for Conduit Tube | $\phi 7/8$ (22.2) Hole |
| 6b | Wiring Hole | $\phi 1/2$ (13) Hole |
| 7 | Suspension Bracket | |
| 8 | Suspension Bolt | 4-M10 or W3/8 |
| 9 | Wired Controller | without Cable |
| 10 | Shielded Communication Cable | Min. AWG18 (0.82mm ²), Field-Supplied |



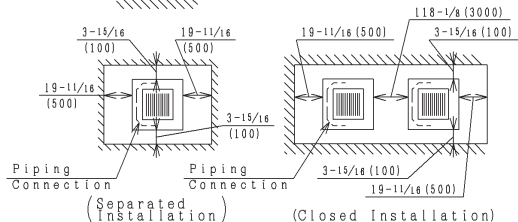
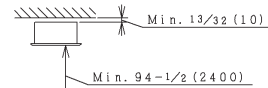
Detail View of B



Lifting Height of Drain



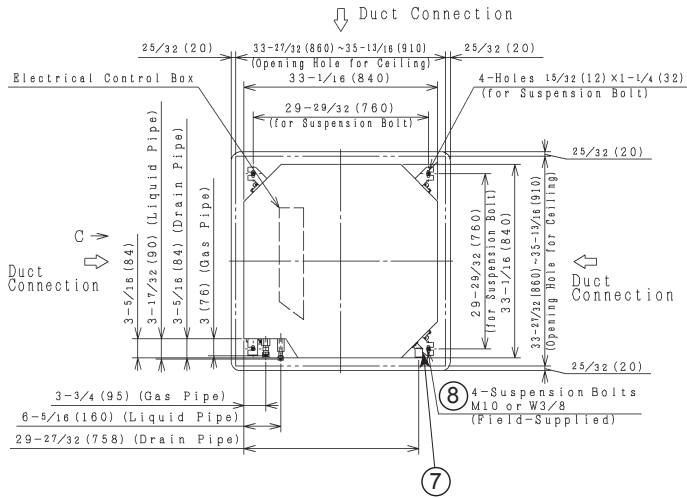
Service Space



NOTES:
1. Distance between the wall and panel edge must be a min. 59-1/16inch (1500mm) to prevent short circuiting.

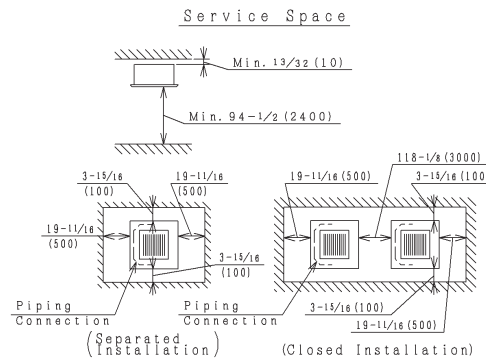
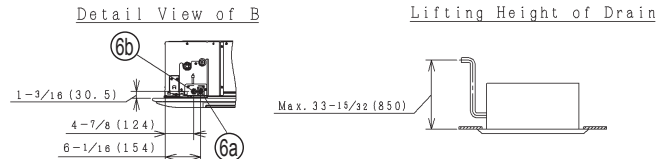
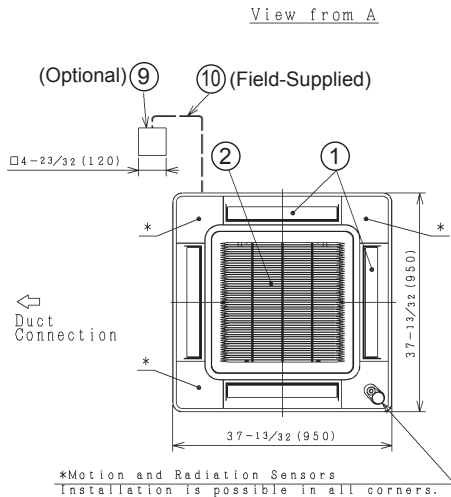
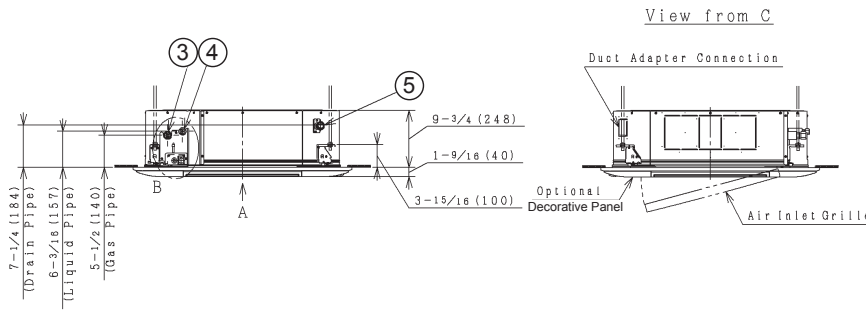
Models: (H,Y)IC4012B21S, (H,Y)IC4015B21S and (H,Y)IC4018B21S
with Decorative Panel P-AP160NAE1

Unit: inch (mm)



| Mark | Name | Remark |
|------|------------------------------------|---|
| 1 | Air Outlet | 4-Way |
| 2 | Air Inlet | |
| 3 | Refrigerant Gas Pipe Connection | with ϕ a Flare Nut |
| 4 | Refrigerant Liquid Pipe Connection | with ϕ b Flare Nut |
| 5 | Drain Pipe Connection | VP25 |
| 6a | Wiring Hole for Conduit Tube | ϕ 7/8 (22.2) Hole |
| 6b | Wiring Hole | ϕ 1/2 (13) Hole |
| 7 | Suspension Bracket | |
| 8 | Suspension Bolt | 4-M10 or W3/8 |
| 9 | Wired Controller | without Cable |
| 10 | Shielded Communication Cable | Min. AWG18 (0.82mm ²), Field-Supplied |

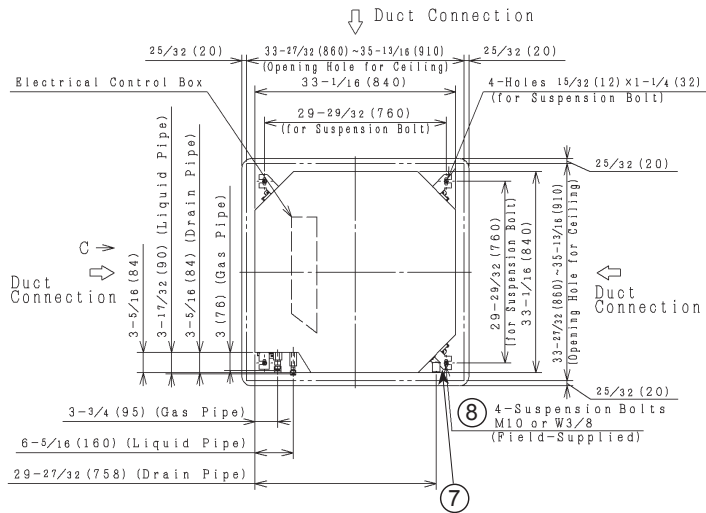
| Model | Dimension | |
|-----------------|-------------|------------|
| | a | b |
| (H,Y)IC4012B21S | 1/2 (12.7) | 1/4 (6.35) |
| (H,Y)IC4015B21S | 1/2 (12.7) | 1/4 (6.35) |
| (H,Y)IC4018B21S | 5/8 (15.88) | 3/8 (9.52) |



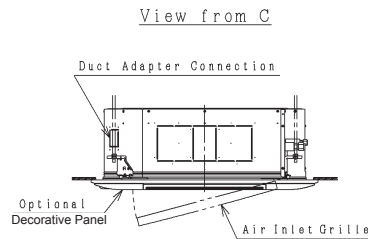
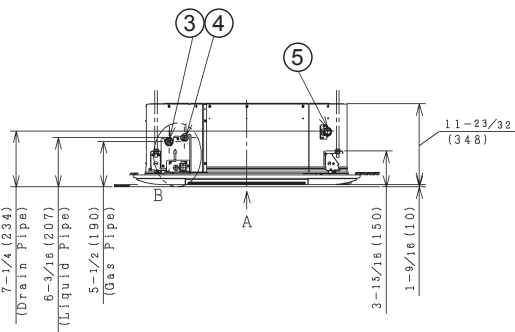
- NOTES:
- Distance between the wall and panel edge must be a min. 59-1/16inch (1500mm) to prevent short circuiting.
 - In case the position of corner panel with motion and radiation sensors is changed from the initial position, then the setting on the wired controller must be changed.

Models: (H,Y)IC4024B21S, (H,Y)IC4030B21S and (H,Y)IC4036B21S
with Decorative Panel P-AP160NAE1

Unit: inch (mm)



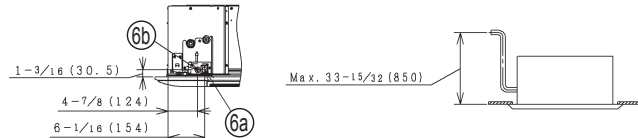
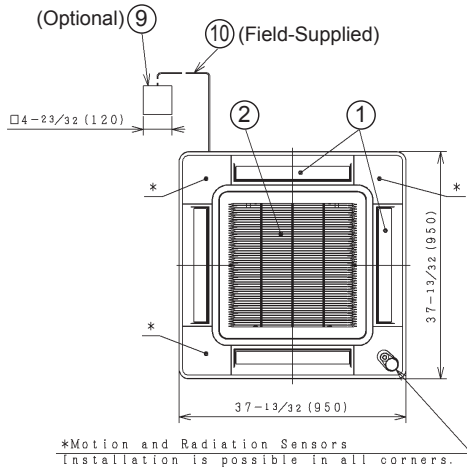
| Mark | Name | Remark |
|------|------------------------------------|---|
| 1 | Air Outlet | 4-Way |
| 2 | Air Inlet | |
| 3 | Refrigerant Gas Pipe Connection | with $\phi 5/8$ (15.88) Flare Nut |
| 4 | Refrigerant Liquid Pipe Connection | with $\phi 3/8$ (9.52) Flare Nut |
| 5 | Drain Pipe Connection | VP25 |
| 6a | Wiring Hole for Conduit Tube | $\phi 7/8$ (22.2) Hole |
| 6b | Wiring Hole | $\phi 1/2$ (13) Hole |
| 7 | Suspension Bracket | |
| 8 | Suspension Bolt | 4-M10 or W3/8 |
| 9 | Wired Controller | without Cable |
| 10 | Shielded Communication Cable | Min. AWG18 (0.82mm ²), Field-Supplied |



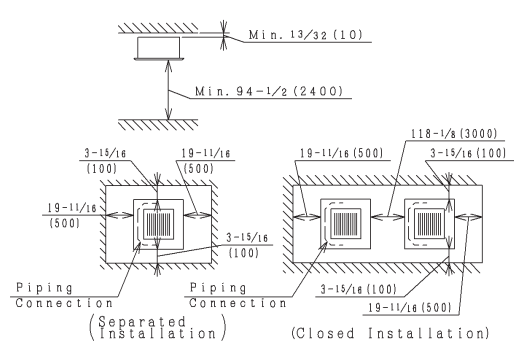
View from A

Detail View of B

Lifting Height of Drain



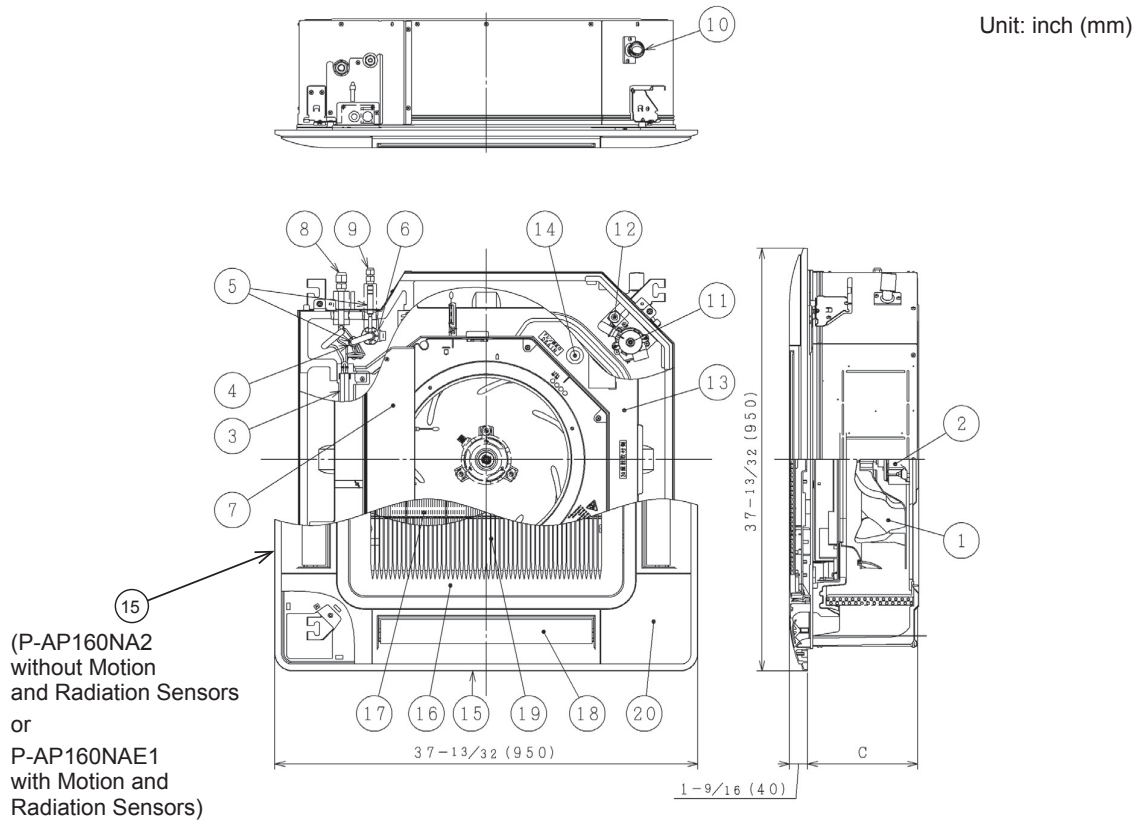
Service Space



NOTES :

- Distance between the wall and panel edge must be a min. 59-1/16inch (1500mm) to prevent short circuiting.
- In case the position of corner panel with motion and radiation sensors is changed from the initial position, then the setting on the wired controller must be changed.

3.2.5 Structure



| No. | Part Name | Remarks |
|-----|--|-------------------------------|
| 1 | Fan | |
| 2 | Fan Motor | DC |
| 3 | Heat Exchanger | |
| 4 | Distributor | |
| 5 | Strainer | |
| 6 | Electronic Expansion Valve | |
| 7 | Electrical Control Box | |
| 8 | Refrigerant Gas Pipe Connection | with ϕ_a Flare Nut |
| 9 | Refrigerant Liquid Pipe Connection | with ϕ_b Flare Nut |
| 10 | Condensate Pipe Connection | VP25 |
| 11 | Condensate Mechanism | |
| 12 | Float Switch | |
| 13 | Condensate Pan | |
| 14 | Rubber Plug for Drain | |
| 15 | Decorative Panel (P-AP160NA2, P-AP160NAE1) | Optional |
| 16 | Air Inlet Grille | |
| 17 | Air Filter | |
| 18 | Air Outlet | |
| 19 | Air Inlet | |
| 20 | Cover for Corner Pocket | (P-AP160NA2) (P-AP160NAE1) |

| Model | a | b | c |
|-----------------|----------------|---------------|-------------------|
| (H,Y)IC4012B21S | 1/2 (12.7) | 1/4 (6.35) | 9-3/4 (248) |
| (H,Y)IC4015B21S | 1/2 (12.7) | 1/4 (6.35) | 9-3/4 (248) |
| (H,Y)IC4018B21S | 5/8 (15.88) | 3/8 (9.52) | 9-3/4 (248) |
| (H,Y)IC4024B21S | 5/8 (15.88) | 3/8 (9.52) | 11-23/32 (298) |
| (H,Y)IC4030B21S | 5/8 (15.88) | 3/8 (9.52) | 11-23/32 (298) |
| (H,Y)IC4036B21S | 5/8 (15.88) | 3/8 (9.52) | 11-23/32 (298) |

3.2.6 Component Data

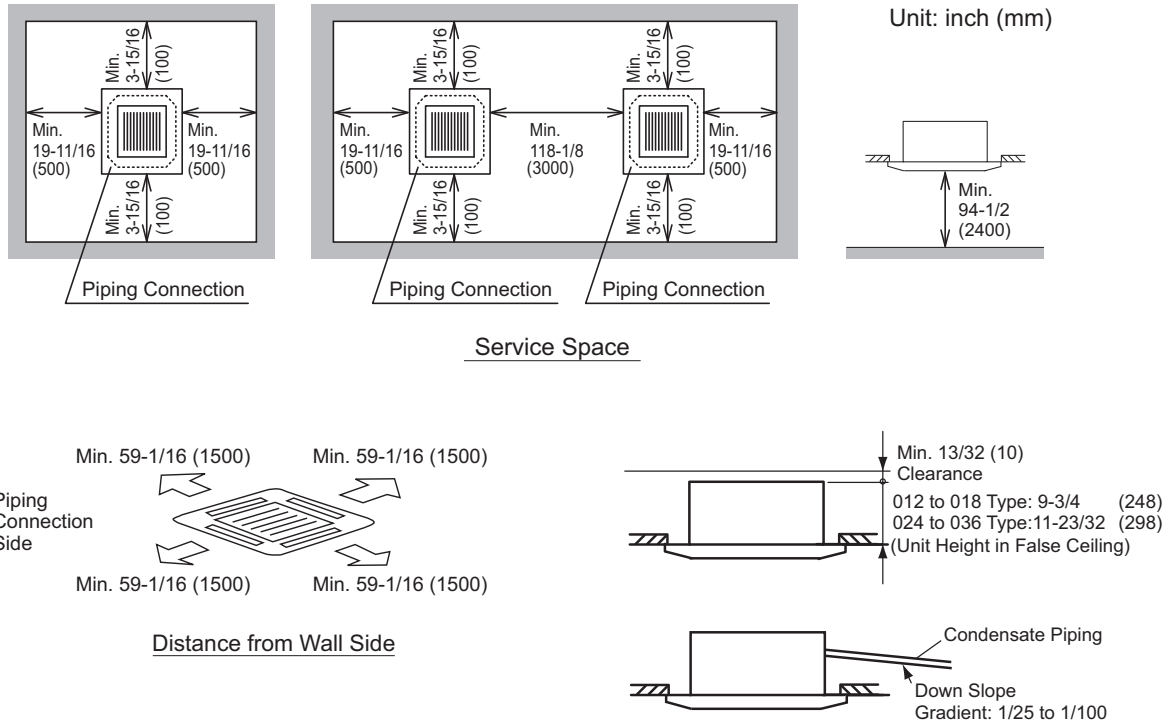
Indoor Heat Exchanger and Fan

| Model | | (H,Y)IC4012B21S | (H,Y)IC4015B21S | (H,Y)IC4018B21S |
|--------------------------------|---------------------------|-------------------------------|-------------------------------|-------------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | |
| Tube Material | | Copper Tube | | |
| Outer Diameter | φ in (mm) | 3/16 (5.0) | 3/16 (5.0) | 3/16 (5.0) |
| Rows | | 2 | 2 | 3 |
| Number of Tube/Coil | | 28 | 28 | 42 |
| Fin Material | | Aluminum | | |
| Pitch | in (mm) | 0.063 (1.3) | 0.063 (1.3) | 0.063 (1.3) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² | 35.80 | 35.80 | 53.20 |
| | (m ²) | (10.90) | (10.90) | (16.20) |
| Number of Coil/Unit | | 1 | 1 | 1 |
| Indoor Fan | | Multi-Blade Centrifugal Fan | | |
| Number/Unit | | 1 | 1 | 1 |
| Outer Diameter | φ in (mm) | 19-9/32 (490) | 19-9/32 (490) | 19-9/32 (490) |
| Nominal Airflow (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 741-600-494-388 (21-17-14-11) | 777-600-494-388 (22-17-14-11) | 953-777-635-494 (27-22-18-14) |
| Indoor Fan Motor | | Drip-Proof Type Enclosure | | |
| Starting Method | | DC Motor | | |
| Nominal Output | W | 57 | 57 | 57 |
| Quantity | | 1 | 1 | 1 |
| Insulation Class | | E | E | E |

| Model | | (H,Y)IC4024B21S | (H,Y)IC4030B21S | (H,Y)IC4036B21S |
|--------------------------------|---------------------------|-------------------------------|---------------------------------|---------------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | |
| Tube Material | | Copper Tube | | |
| Outer Diameter | φ in (mm) | 3/16 (5.0) | 3/16 (5.0) | 3/16 (5.0) |
| Rows | | 3 | 3 | 3 |
| Number of Tube/Coil | | 54 | 54 | 54 |
| Fin Material | | Aluminum | | |
| Pitch | in (mm) | 0.063 (1.3) | 0.063 (1.3) | 0.063 (1.3) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² | 68.20 | 68.20 | 68.20 |
| | (m ²) | (20.80) | (20.80) | (20.80) |
| Number of Coil/Unit | | 1 | 1 | 1 |
| Indoor Fan | | Multi-Blade Centrifugal Fan | | |
| Number/Unit | | 1 | 1 | 1 |
| Outer Diameter | φ in (mm) | 19-9/32 (490) | 19-9/32 (490) | 19-9/32 (490) |
| Nominal Airflow (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 953-812-635-494 (27-23-18-14) | 1306-1094-847-706 (37-31-24-20) | 1306-1165-918-741 (37-33-26-21) |
| Indoor Fan Motor | | Drip-Proof Type Enclosure | | |
| Starting Method | | DC Motor | | |
| Nominal Output | W | 57 | 127 | 127 |
| Quantity | | 1 | 1 | 1 |
| Insulation Class | | E | E | E |

3.2.7 Operation Space

Models: (H,Y)IC4012B21S, (H,Y)IC4015B21S, (H,Y)IC4018B21S, (H,Y)IC4024B21S, (H,Y)IC4030B21S and (H,Y)IC4036B21S



3.2.8 Sensible Heat Factor (SHF)

| Model | SHF *1 |
|-----------------|--------|
| (H,Y)IC4012B21S | 0.77 |
| (H,Y)IC4015B21S | 0.78 |
| (H,Y)IC4018B21S | 0.89 |
| (H,Y)IC4024B21S | 0.81 |
| (H,Y)IC4030B21S | 0.83 |
| (H,Y)IC4036B21S | 0.83 |

NOTE:

1. SHF is based on combinations within the VRF system and the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)

Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Piping Length: 24 ft. 7-3/16 in. (7.5m)

Piping Lift: 0 ft. (0m)

3.2.9 Electrical Data

| Model | Unit Main Power | | | Applicable Voltage | | Power Supply | | Indoor Fan Motor | Unit |
|-----------------|-----------------|----|----|--------------------|---------|--------------|-----|------------------|------|
| | VOL | PH | HZ | Maximum | Minimum | MCA | MFA | OPT | FLA |
| (H,Y)IC4012B21S | 208/230 | 1 | 60 | 253 | 188 | 0.4 | 15 | 0.057 | 0.3 |
| (H,Y)IC4015B21S | | | | | | 0.5 | 15 | 0.057 | 0.4 |
| (H,Y)IC4018B21S | | | | | | 0.9 | 15 | 0.057 | 0.7 |
| (H,Y)IC4024B21S | | | | | | 0.9 | 15 | 0.057 | 0.7 |
| (H,Y)IC4030B21S | | | | | | 1.1 | 15 | 0.127 | 0.9 |
| (H,Y)IC4036B21S | | | | | | 1.2 | 15 | 0.127 | 1.0 |

VOL: Rated Unit Power Supply Voltage (V)
 PH: Phase
 HZ: Frequency (Hz)
 MCA: Minimum Circuit Ampacity (A)
 MFA: Maximum Fuse Ampacity (A)
 OPT: Rated Motor Output (kW)
 FLA: Full Load Ampacity (A)

NOTE:

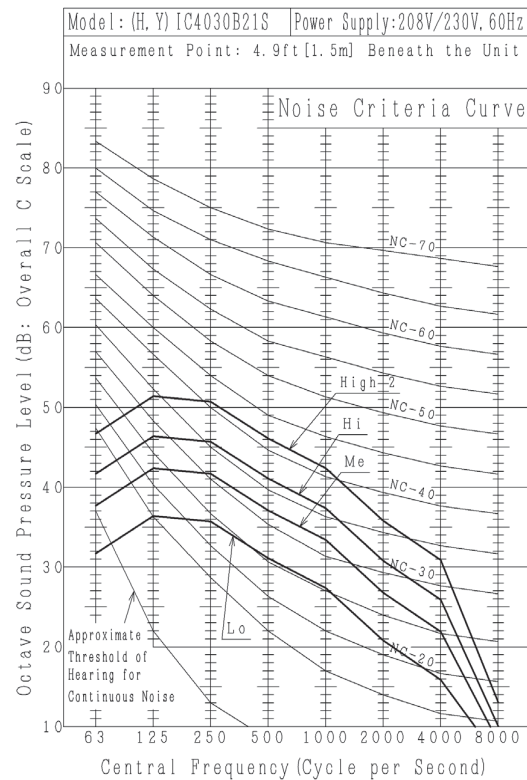
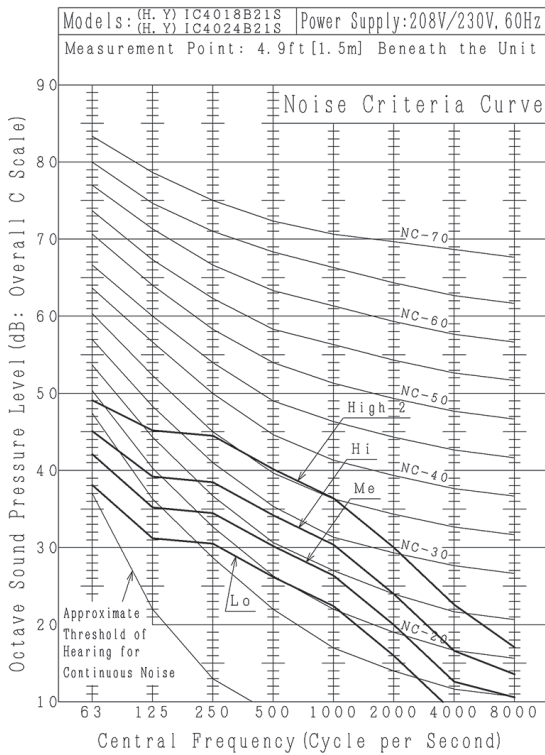
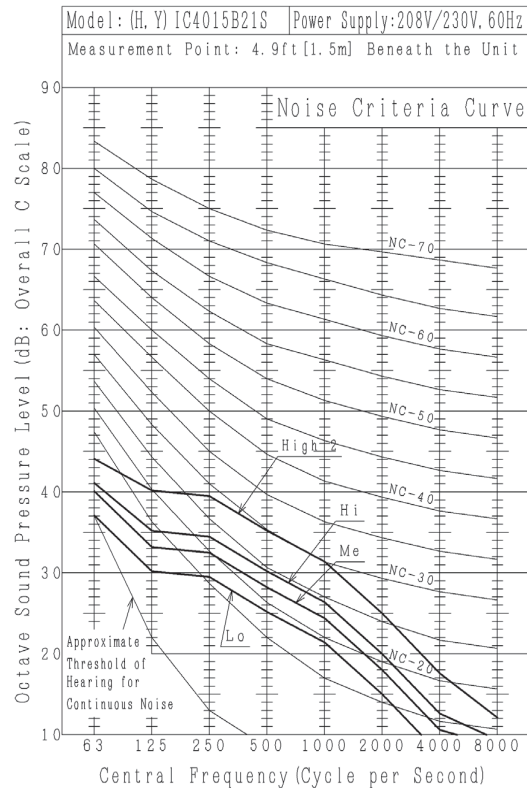
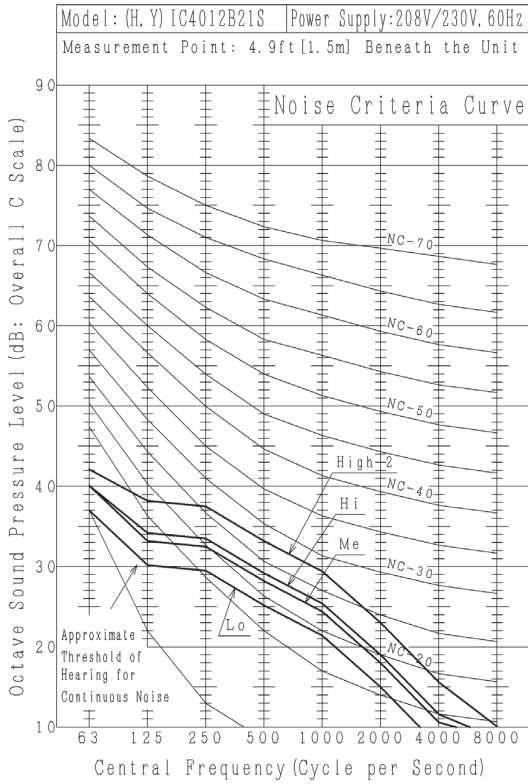
Power supply voltage should be satisfied with the following.

Supply Voltage: Rated Voltage within $\pm 10\%$

Starting Voltage: Rated Voltage within -15%

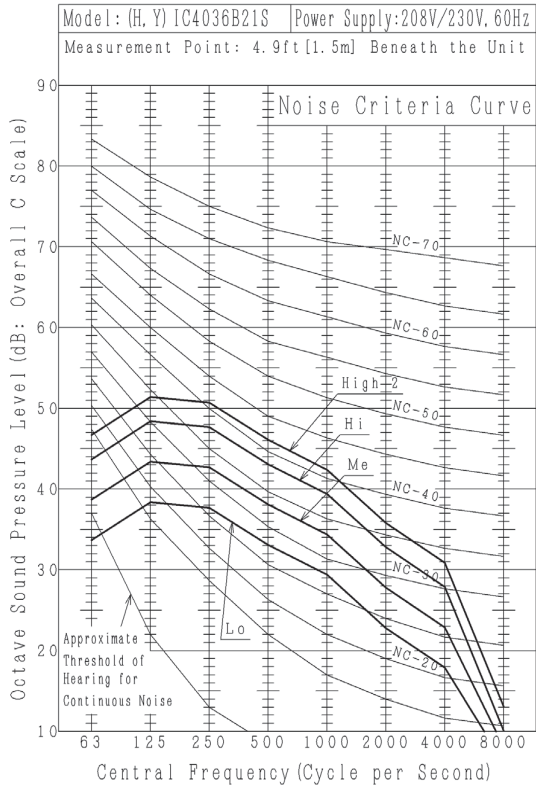
Operating Voltage: Rated Voltage within $\pm 10\%$

3.2.10 Sound Data



NOTE:
 Operation sound is equivalent to an anechoic chamber (free space).
 Noise level will be increased by the surrounding noise and echoes.

INDOOR UNITS



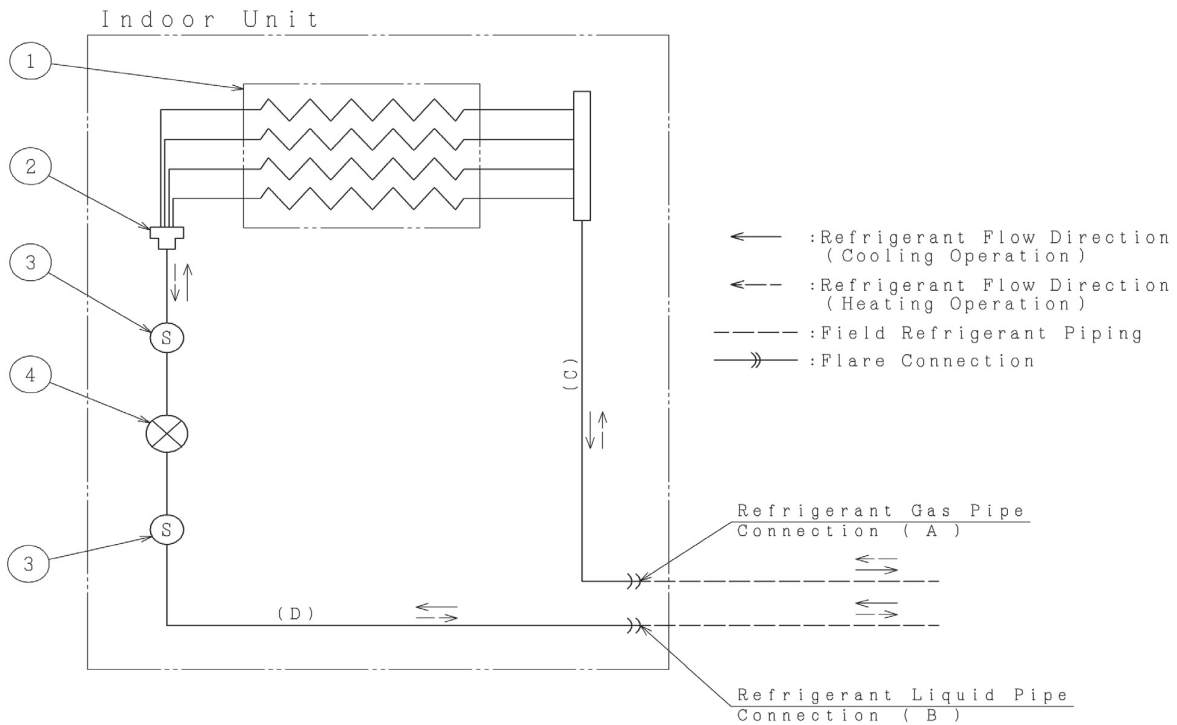
NOTE:

Operation sound is equivalent to an anechoic chamber (free space).
 Noise level will be increased by the surrounding noise and echoes.

3.2.11 Control System

3.2.11.1 Refrigerant System

Models: (H,Y)IC4012B21S, (H,Y)IC4015B21S, (H,Y)IC4018B21S, (H,Y)IC4024B21S,
(H,Y)IC4030B21S and (H,Y)IC4036B21S



| Mark | Part Name |
|------|----------------------------|
| 1 | Heat Exchanger |
| 2 | Distributor |
| 3 | Strainer |
| 4 | Electronic Expansion Valve |

| Model | Distributor | (A) Gas Pipe Connection | (B) Liquid Pipe Connection | (C) (OD×T) | Unit: inch (mm) (D) (OD×T) |
|-----------------|-------------|-------------------------|----------------------------|----------------------------|-------------------------------|
| (H,Y)IC4012B21S | 7 Pass | φ1/2 (12.70) | φ1/4 (6.35) | φ1/2×t0.031 (12.7×0.8) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IC4015B21S | 7 Pass | φ1/2 (12.70) | φ1/4 (6.35) | φ1/2×t0.031 (12.7×0.8) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IC4018B21S | 7 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ5/8×t0.039 (15.88×1.0) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IC4024B21S | 9 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ5/8×t0.039 (15.88×1.0) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IC4030B21S | 9 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ5/8×t0.039 (15.88×1.0) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IC4036B21S | 9 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ5/8×t0.039 (15.88×1.0) | φ1/2×t0.031 (12.7×0.8) |

3.2.11.2 Standard Operation Sequence

■ Cooling Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Dry Operation

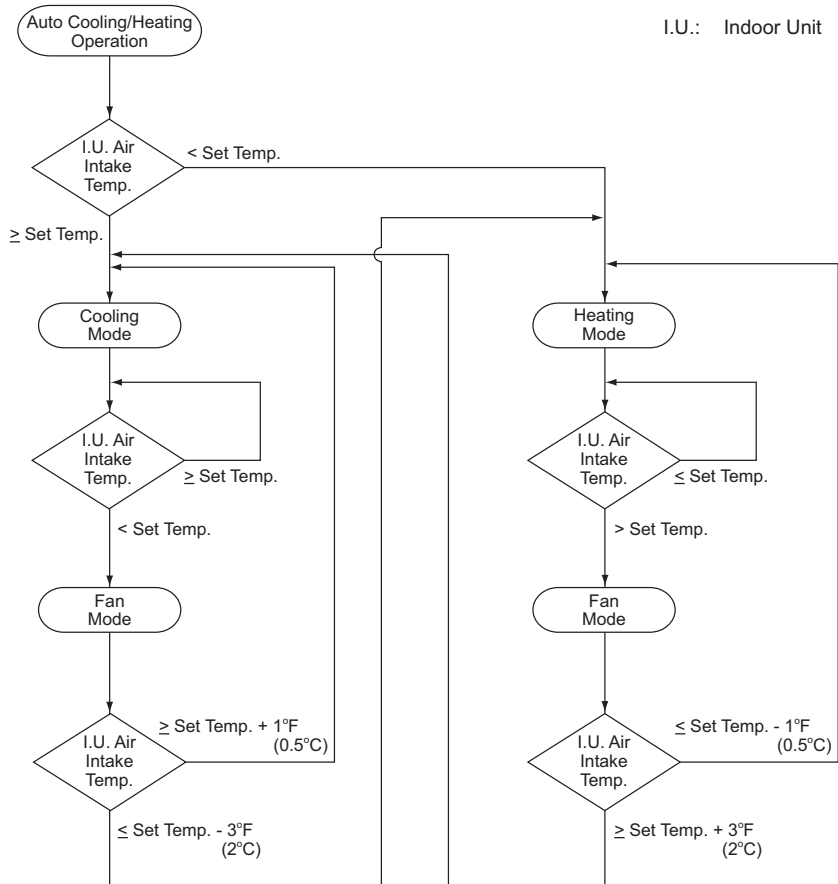
The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Heating Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Automatic Cooling and Heating Operation

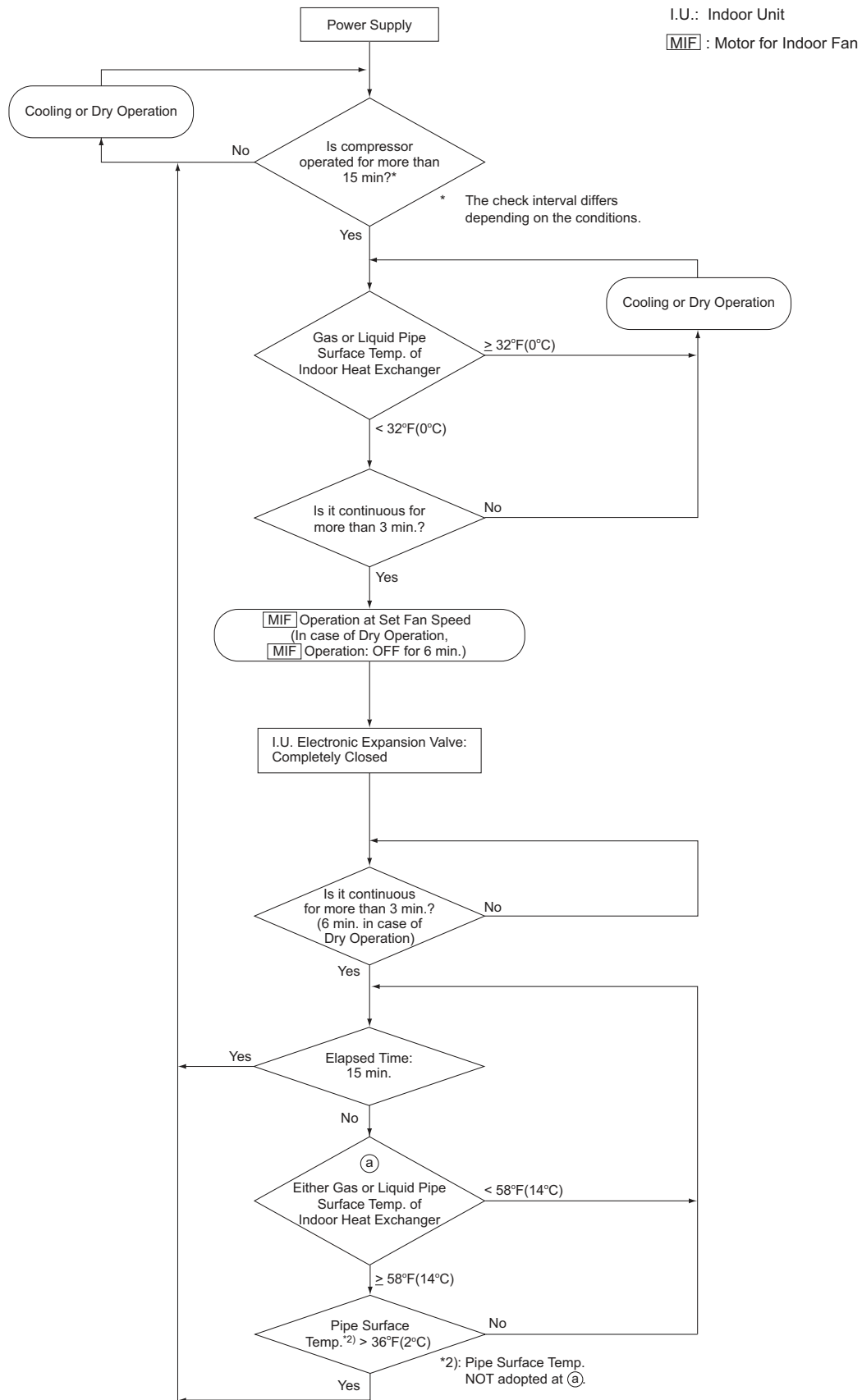
It is applicable only for a heat recovery system.



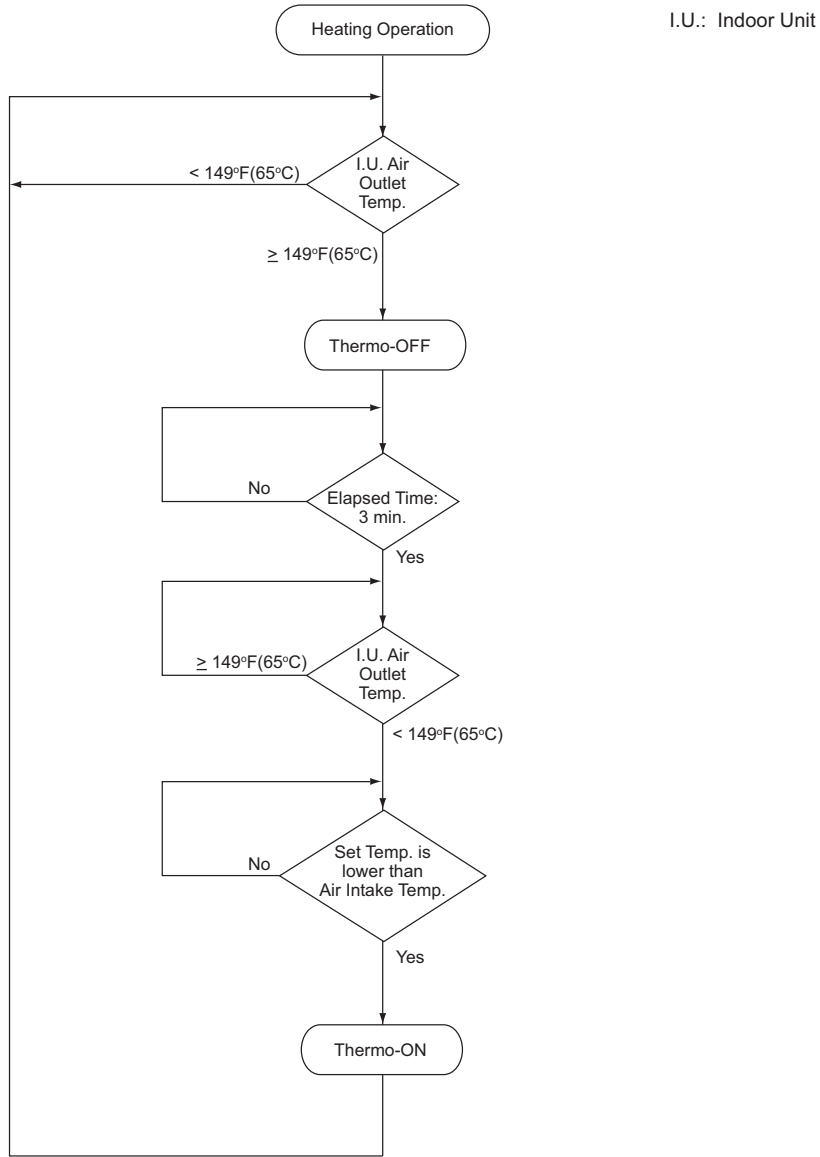
■ Defrosting Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Freeze Protection Control during Cooling or Dry Operation



■ Prevention Control for Excessively High Outlet Air Temperature (High Outlet Air Temperature Heat Lockout)



Thermo-ON/OFF Control for Indoor Unit

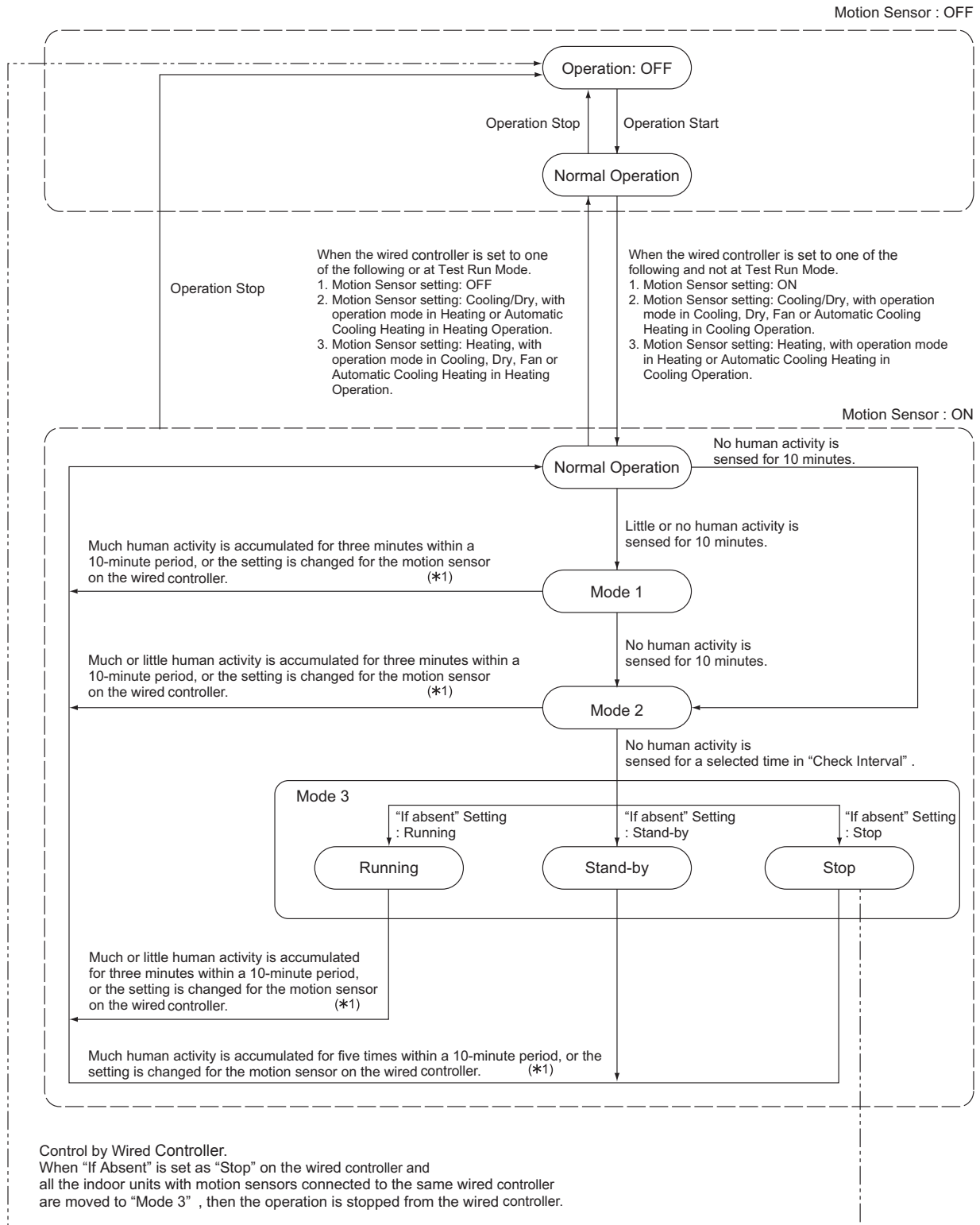
NOTE:

Thermo-ON: The outdoor unit and some indoor units are running.
 Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

■ Activating Protections

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Control for Motion Sensor (with Decorative Panel P-AP160NAE1)



(*1) Motion sensor settings on the wired controller are "Sensor", "If Absent", "Check Interval" and "Simultaneous Operation / Individual Operation".

The amount of human activity is according to the following information detected by the motion sensor.

None: No Human Activity (Absent)

Small: Little Human Activity

Large: Much Human Activity

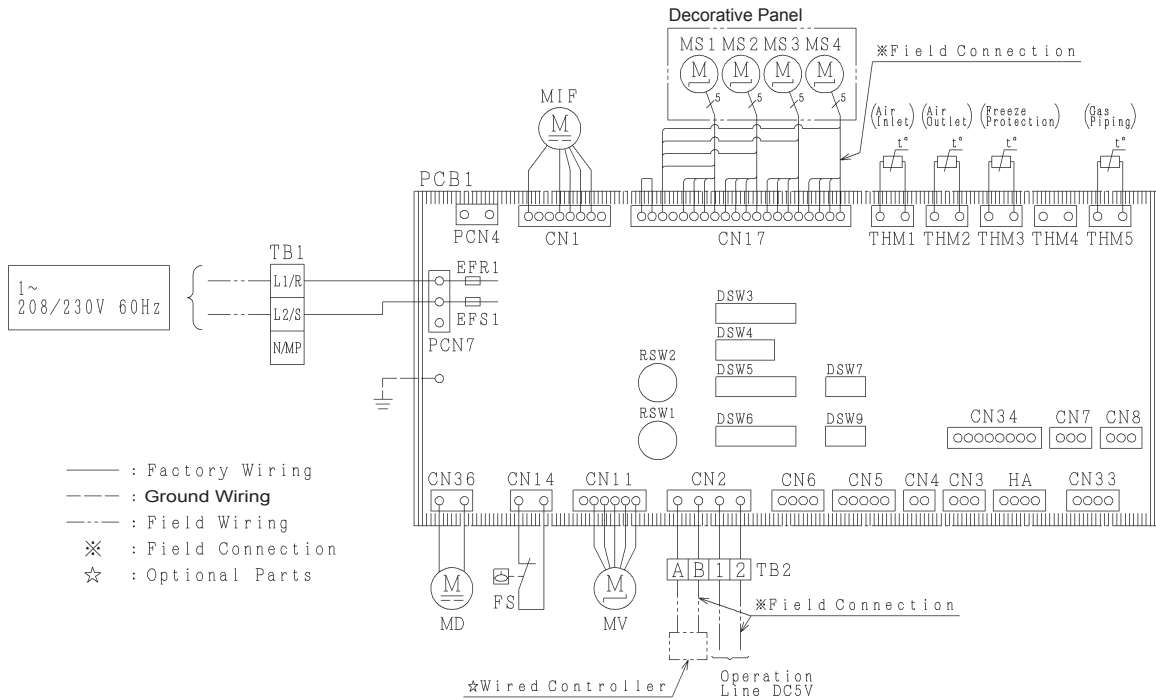
INDOOR UNITS

3.2.11.3 Safety and Control Device Setting

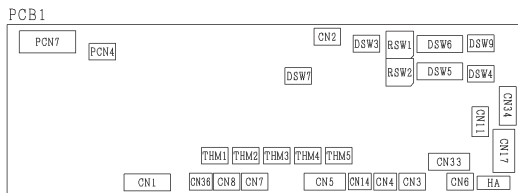
| Model | | (H,Y)IC4012B21S (H,Y)IC4015B21S (H,Y)IC4018B21S (H,Y)IC4024B21S | (H,Y)IC4030B21S (H,Y)IC4036B21S |
|-----------------------------------|---------|--|---|
| For Evaporator Fan Motor | | | |
| Thermostat | Cut-Out | °F | 212 ± 7 |
| | | (°C) | (100 ± 4) |
| | | | 212 $\begin{matrix} +27 \\ -18 \end{matrix}$ (100 $\begin{matrix} +15 \\ -10 \end{matrix}$) |
| | Cut-In | °F | 194 ± 7 |
| | | (°C) | (90 ± 4) |
| | | | 203 $\begin{matrix} +27 \\ -18 \end{matrix}$ (95 $\begin{matrix} +15 \\ -10 \end{matrix}$) |
| For Control Circuit Fuse Capacity | | A | 5 |

3.2.11.4 Wiring Diagram

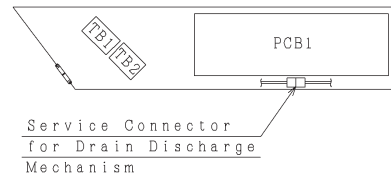
Models: (H,Y)IC4012B21S, (H,Y)IC4015B21S, (H,Y)IC4018B21S, (H,Y)IC4024B21S
(H,Y)IC4030B21S and (H,Y)IC4036B21S with Decorative Panel P-AP160NA2



Printed Circuit Board



Electrical Control Box of Indoor Unit

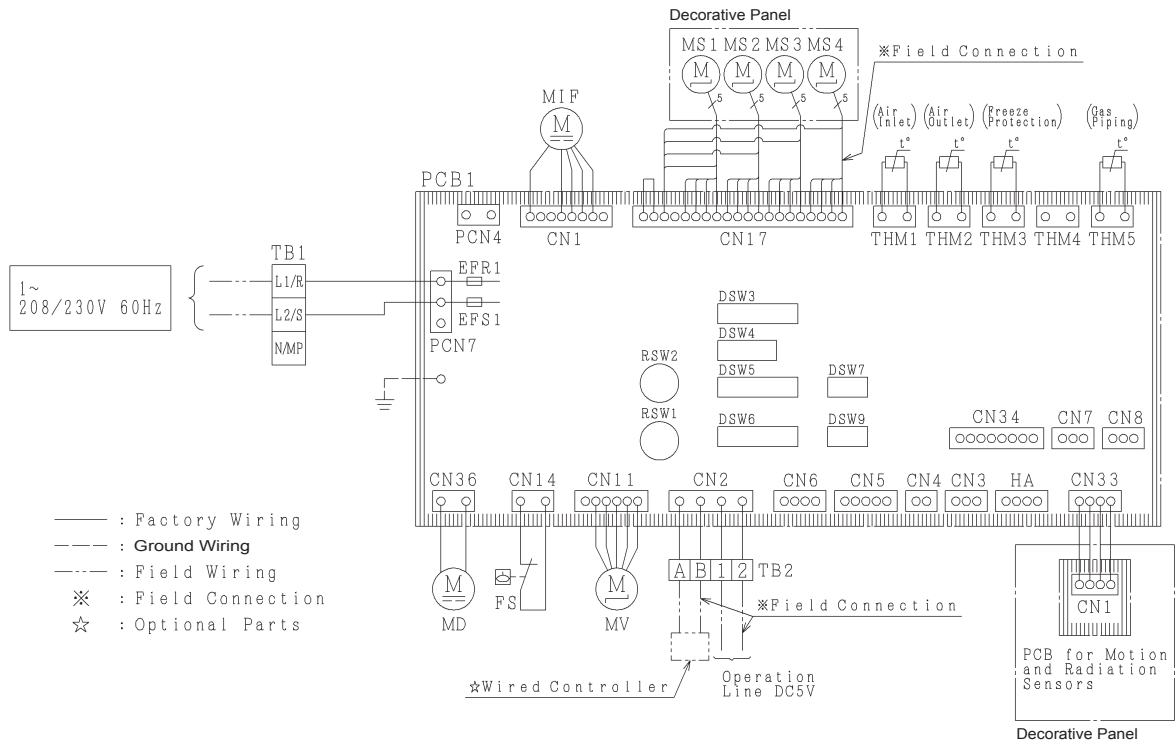


Note:
1. All the field wiring and equipment must comply with local codes.

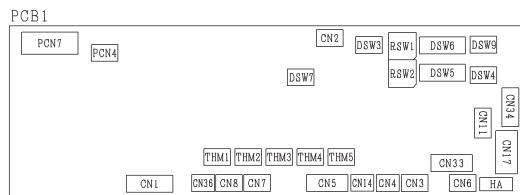
| Mark | Name |
|---------------------|--|
| CN3 | Optional Connector (For Signal Input) |
| CN7, 8 | Optional Connector (For Signal Output) |
| CN33 | Optional Connector (For Motion and Radiation Sensors) |
| DSW3, 4, 7, 9 | DIP Switch for Setting |
| EPR1, EFS1 | Fuse |
| FS | Float Switch |
| MD | Motor for Drain Discharge Mechanism |
| MIF | Motor for Indoor Fan |
| MS1~4 | Motor for Automatic Swing Louver |
| MV | Electronic Expansion Valve |
| PCB1 | Printed Circuit Board |
| RSW1 | Rotary Switch for Unit No. Setting (Ones Digit) |
| DSW6 | DIP Switch for Unit No. Setting (Tens Digit) |
| RSW2 | Rotary Switch for Refrigerant Cycle No. Setting (Ones Digit) |
| DSW5 | DIP Switch for Refrigerant Cycle No. Setting (Tens Digit) |
| TB1.2 | Terminal Block |
| THM1~3, 5 | Thermistor |
| THM4 | Optional Connector (For Remote Temperature Sensor) |
| CN4~6, 34, HA, PCN4 | Reserved Connector on PCB |

INDOOR UNITS

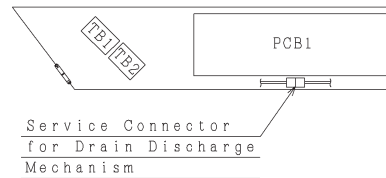
Models: (H,Y)IC4012B21S, (H,Y)IC4015B21S, (H,Y)IC4018B21S, (H,Y)IC4024B21S
 (H,Y)IC4030B21S and (H,Y)IC4036B21S with Decorative Panel P-AP160NAE1



Printed Circuit Board



Electrical Control Box of Indoor Unit



Note:

1. All the field wiring and equipment must comply with local codes.

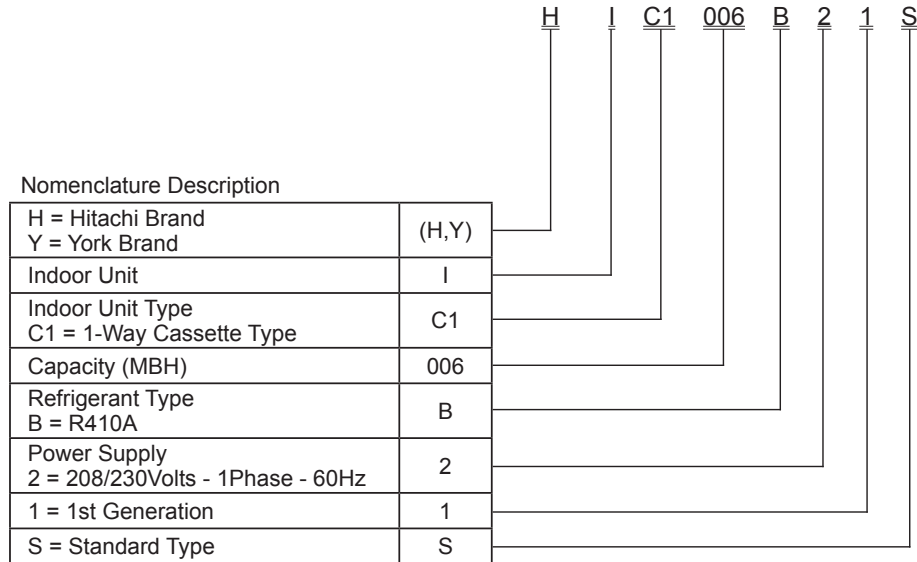
| Mark | Name |
|---------------------|--|
| CN3 | Optional Connector (For Signal Input) |
| CN7, 8 | Optional Connector (For Signal Output) |
| DSW3, 4, 7, 9 | DIP Switch for Setting |
| EFR1, EFS1 | Fuse |
| FS | Float Switch |
| MD | Motor for Drain Discharge Mechanism |
| MIF | Motor for Indoor Fan |
| MS1~4 | Motor for Automatic Swing Louver |
| MV | Electronic Expansion Valve |
| PCB1 | Printed Circuit Board |
| RSW1 | Rotary Switch for Unit No. Setting (Ones Digit) |
| DSW6 | DIP Switch for Unit No. Setting (Tens Digit) |
| RSW2 | Rotary Switch for Refrigerant Cycle No. Setting (Ones Digit) |
| DSW5 | DIP Switch for Refrigerant Cycle No. Setting (Tens Digit) |
| TB1, 2 | Terminal Block |
| THM1~3, 5 | Thermistor |
| THM4 | Optional Connector (For Remote Temperature Sensor) |
| CN4~6, 34, HA, PCN4 | Reserved Connector on PCB |

3.3 1-Way Cassette Type

3.3.1 Unit Nomenclature

Model Descriptions

Example



3.3.2 Line-up

| Type | | Capacity | | Model |
|-------------|----------------|----------|-----|-----------------|
| | | RT | MBH | |
| Indoor Unit | 1-Way Cassette | 0.5 | 6 | (H,Y)IC1006B21S |
| | | 0.7 | 8 | (H,Y)IC1008B21S |
| | | 1.0 | 12 | (H,Y)IC1012B21S |
| | | 1.3 | 15 | (H,Y)IC1015B21S |

3.3.3 General Data

| Indoor Unit Type | | 1-Way Cassette Type | | | |
|---|------------------------------|--|--------------------------------------|-------------------------------------|-------------------------------------|
| Model | | (H,Y)IC1006B21S | (H,Y)IC1008B21S | (H,Y)IC1012B21S | (H,Y)IC1015B21S |
| Indoor Unit Power Supply | | AC 1Phase, 208/230V, 60Hz | | | |
| Nominal Cooling Capacity*1 | Btu/h (kW) | 6,000 (1.8) | 8,000 (2.3) | 12,000 (3.5) | 15,000 (4.4) |
| Nominal Heating Capacity*1 | Btu/h (kW) | 6,700 (2.0) | 9,000 (2.6) | 13,500 (4.0) | 17,000 (5.0) |
| Sound Pressure Level*2 (Overall A Scale) (Hi2-Hi-Me-Lo) | dB | 34-32-29-27 | 36-34-31-28 | 40-37-33-31 | 42-38-35-31 |
| Outer Dimensions | | | | | |
| Height | in.(mm) | 9-1/4 (235) | 9-1/4 (235) | 9-1/4 (235) | 9-1/4 (235) |
| Width | in.(mm) | 35-7/16 (900) | 35-7/16 (900) | 35-7/16 (900) | 35-7/16 (900) |
| Depth | in.(mm) | 27-15/16 (710) | 27-15/16 (710) | 27-15/16 (710) | 27-15/16 (710) |
| Net Weight | lbs(kg) | 55 (25) | 55 (25) | 57 (26) | 57 (26) |
| Refrigerant | | R410A | | | |
| Indoor Fan | | | | | |
| Airflow Rate (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 300-265-229-212 (8.5-7.5-6.5-6) | 335-300-265-229 (9.5-8.5-7.5-6.5) | 459-406-353-300 (13-11.5-10-8.5) | 512-459-388-335 (14.5-13-11-9.5) |
| External Pressure | in.W.G (Pa) | 0.0 (0) | 0.0 (0) | 0.0 (0) | 0.0 (0) |
| Motor Nominal Output | W | 50 | 50 | 50 | 50 |
| Connections | | | | | |
| Refrigerant Piping | | Flare-Nut Connection (with Flare Nuts) | | | |
| Liquid Line | in.(mm) | 1/4 (6.35) | 1/4 (6.35) | 1/4 (6.35) | 1/4 (6.35) |
| Gas Line | in.(mm) | 1/2 (12.70) | 1/2 (12.70) | 1/2 (12.70) | 1/2 (12.70) |
| Condensate Drain | | VP25 | | | |
| OD | in.(mm) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) | 1-1/4 (32) |
| ID | in.(mm) | 31/32 (25) | 31/32 (25) | 31/32 (25) | 31/32 (25) |

NOTES:

*1. Nominal capacity is based on combinations within the VRF system and the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 70°F DB (21.1°C DB)
Outdoor Air Inlet Temperature: 47°F DB (8.3°C DB)
43°F WB (6.1°C WB)

Piping Length: 24 ft. 7-3/16 in. (7.5m)

Piping Lift: 0 ft. (0m)

*2. Sound pressure level is based on following conditions:

4.9 ft. (1.5m) beneath the unit.

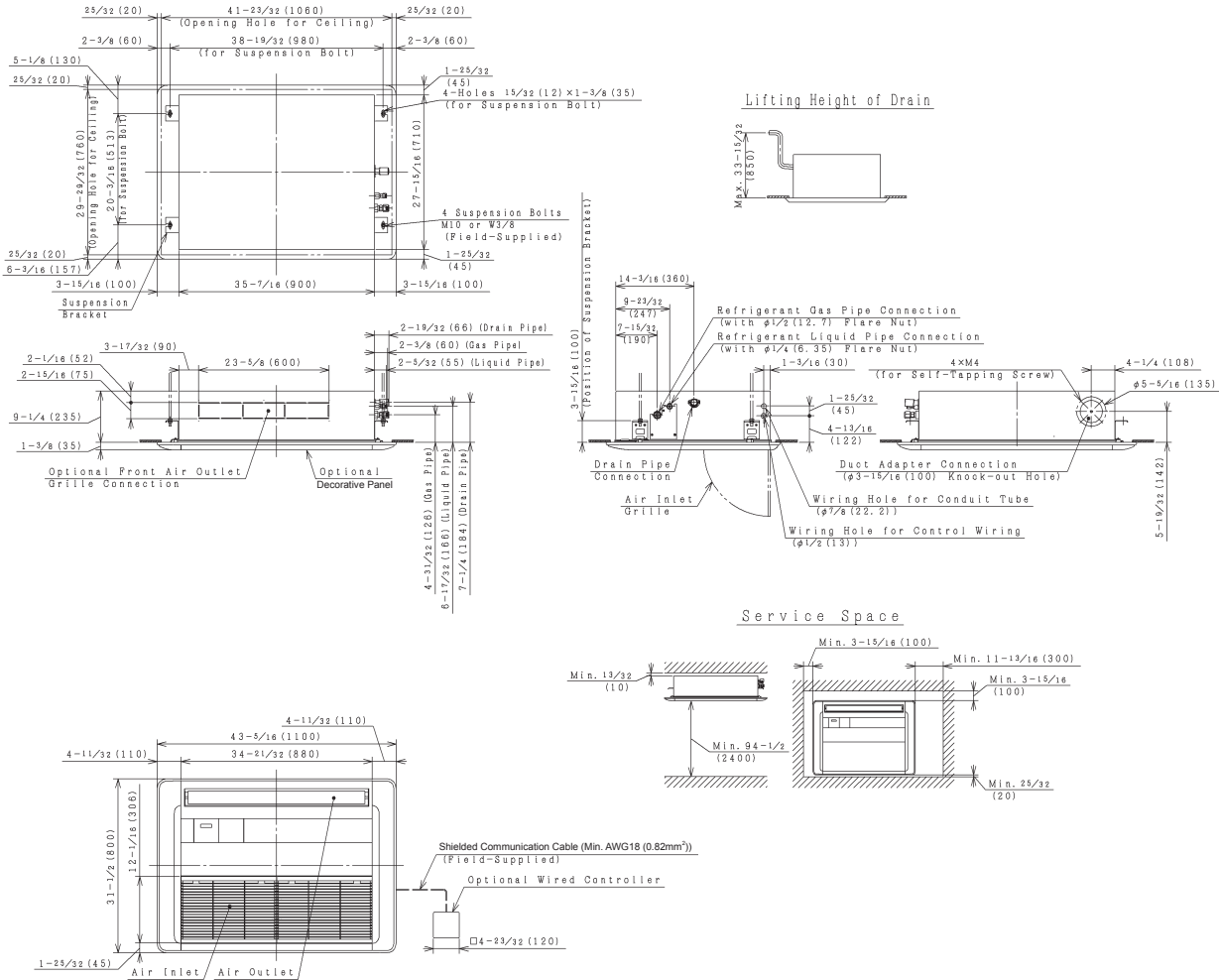
Above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

| Adaptable Panel Model | | P-AP36CNA | P-AP56CNA |
|------------------------------|---------|-------------------------------------|-------------------------------------|
| Applicable Indoor Unit Model | | (H,Y)IC1006B21S and (H,Y)IC1008B21S | (H,Y)IC1012B21S and (H,Y)IC1015B21S |
| Color | | Neutral White | |
| Outer Dimensions | | | |
| Height | in.(mm) | 1-3/8 (35) | 1-3/8 (35) |
| Width | in.(mm) | 43-5/16 (1100) | 43-5/16 (1100) |
| Depth | in.(mm) | 31-1/2 (800) | 31-1/2 (800) |
| Net Weight | lbs(kg) | 10 (4.5) | 10 (4.5) |

3.3.4 Dimensional Data

Models: (H,Y)IC1006B21S and (H,Y)IC1008B21S with Decorative Panel P-AP36CNA
 (H,Y)IC1012B21S and (H,Y)IC1015B21S with Decorative Panel P-AP56CNA

Unit: inch(mm)

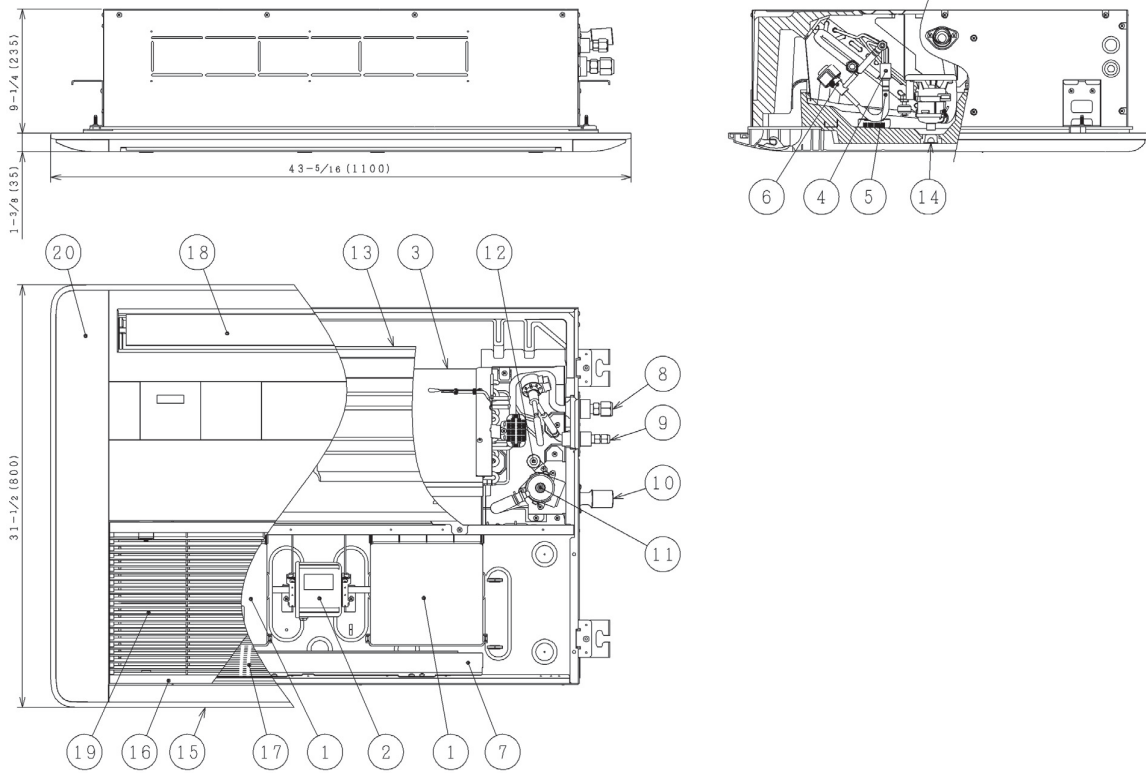


NOTE:

Distance between the wall and lower side panel edge must be a minimum of 59-1/16 inch (1500mm) to prevent short circuiting.

3.3.5 Structure

Unit: inch(mm)



| No. | Part Name | Remarks |
|-----|--|----------------------------|
| 1 | Fan | |
| 2 | Fan Motor | DC |
| 3 | Heat Exchanger | |
| 4 | Distributor | |
| 5 | Strainer | |
| 6 | Electronic Expansion Valve | |
| 7 | Electrical Control Box | |
| 8 | Refrigerant Gas Pipe Connection | with ϕa Flare Nut |
| 9 | Refrigerant Liquid Pipe Connection | with ϕb Flare Nut |
| 10 | Condensate Pipe Connection | VP25 |
| 11 | Condensate Mechanism | |
| 12 | Float Switch | |
| 13 | Condensate Pan | |
| 14 | Rubber Plug for Drain | |
| 15 | Decorative Panel (P-AP36CNA, P-AP56CNA) | Optional |
| 16 | Air Inlet Grille | |
| 17 | Air Filter | |
| 18 | Air Outlet | |
| 19 | Air Inlet | |
| 20 | Cover for Corner Pocket | (P-AP36CNA) (P-AP56CNA) |

| Model | a | b |
|-----------------|------------|------------|
| (H,Y)IC1006B21S | 1/2 (12.7) | 1/4 (6.35) |
| (H,Y)IC1008B21S | 1/2 (12.7) | 1/4 (6.35) |
| (H,Y)IC1012B21S | 1/2 (12.7) | 1/4 (6.35) |
| (H,Y)IC1015B21S | 1/2 (12.7) | 1/4 (6.35) |

3.3.6 Component Data

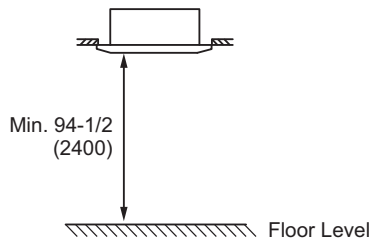
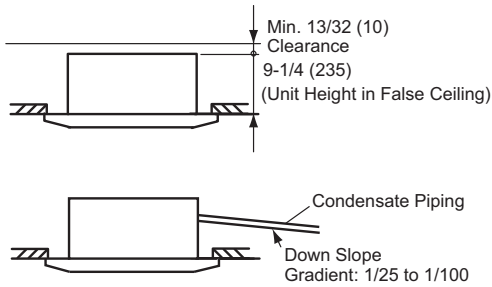
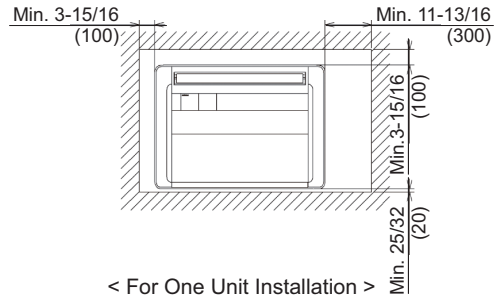
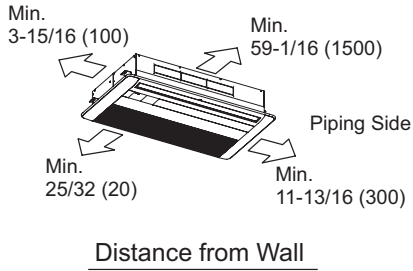
Indoor Heat Exchanger and Fan

| Model | | (H,Y)IC1006B21S | (H,Y)IC1008B21S | (H,Y)IC1012B21S | (H,Y)IC1015B21S |
|--------------------------------|-----------------------|------------------------------|-------------------|------------------|------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | | |
| Tube Material | | Copper Tube | | | |
| Outer Diameter | φ in (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 2 | 2 | 3 | 3 |
| Number of Tube/Coil | | 22 | 22 | 40 | 40 |
| Fin Material | | Aluminum | | | |
| Pitch | in (mm) | 0.078 (1.8) | 0.078 (1.8) | 0.078 (1.8) | 0.078 (1.8) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² | 22.00 | 22.00 | 32.80 | 32.80 |
| | (m ²) | (6.70) | (6.70) | (10.00) | (10.00) |
| Number of Coil/Unit | | 1 | 1 | 1 | 1 |
| Indoor Fan | | Multi-Blade Centrifugal Fan | | | |
| Number/Unit | | 2 | 2 | 2 | 2 |
| Outer Diameter | φ in (mm) | 6-11/32 (161) | 6-11/32 (161) | 6-11/32 (161) | 6-11/32 (161) |
| Nominal Airflow (Hi2-Hi-Me-Lo) | cfm | 300-265-229-212 | 335-300-265-229 | 459-406-353-300 | 512-459-388-335 |
| | (m ³ /min) | (8.5-7.5-6.5-6) | (9.5-8.5-7.5-6.5) | (13-11.5-10-8.5) | (14.5-13-11-9.5) |
| Indoor Fan Motor | | Drip-Proof Type Enclosure | | | |
| Starting Method | | DC Motor | | | |
| Nominal Output | W | 50 | 50 | 50 | 50 |
| Quantity | | 1 | 1 | 1 | 1 |
| Insulation Class | | E | E | E | E |

3.3.7 Operation Space

Models: (H,Y)IC1006B21S, (H,Y)IC1008B21S, (H,Y)IC1012B21S and (H,Y)IC1015B21S

Unit: inch (mm)



NOTE:
This figure indicates the minimum service space. There are no obstacles which may hamper incoming and discharged air.

3.3.8 Sensible Heat Factor (SHF)

| Model | SHF*1 |
|-----------------|-------|
| (H,Y)IC1006B21S | 0.79 |
| (H,Y)IC1008B21S | 0.80 |
| (H,Y)IC1012B21S | 0.83 |
| (H,Y)IC1015B21S | 0.83 |

NOTE:

1. SHF is based on combinations within the VRF system and the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Piping Length: 24 ft. 10-13/16 in. (7.5m)
Piping Lift: 0 ft. (0m)

3.3.9 Electrical Data

| Model | Unit Main Power | | | Applicable Voltage | | Power Supply | | Indoor Fan Motor | Unit |
|-----------------|-----------------|----|----|--------------------|---------|--------------|-----|------------------|------|
| | VOL | PH | HZ | Maximum | Minimum | MCA | MFA | OPT | FLA |
| (H,Y)IC1006B21S | 208/230 | 1 | 60 | 253 | 188 | 0.2 | 15 | 0.050 | 0.2 |
| (H,Y)IC1008B21S | | | | | | 0.3 | 15 | 0.050 | 0.2 |
| (H,Y)IC1012B21S | | | | | | 0.4 | 15 | 0.050 | 0.3 |
| (H,Y)IC1015B21S | | | | | | 0.5 | 15 | 0.050 | 0.4 |

VOL: Rated Unit Power Supply Voltage (V)

PH: Phase (ϕ)

HZ: Frequency (Hz)

MCA: Minimum Circuit Ampacity (A)

MFA: Maximum Fuse Ampacity (A)

OPT: Rated Motor Output (kW)

FLA: Full Load Ampacity (A)

NOTE:

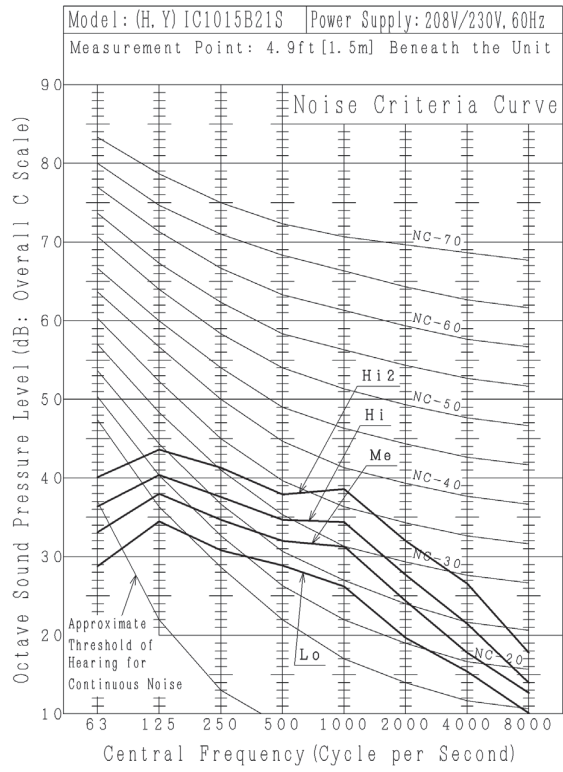
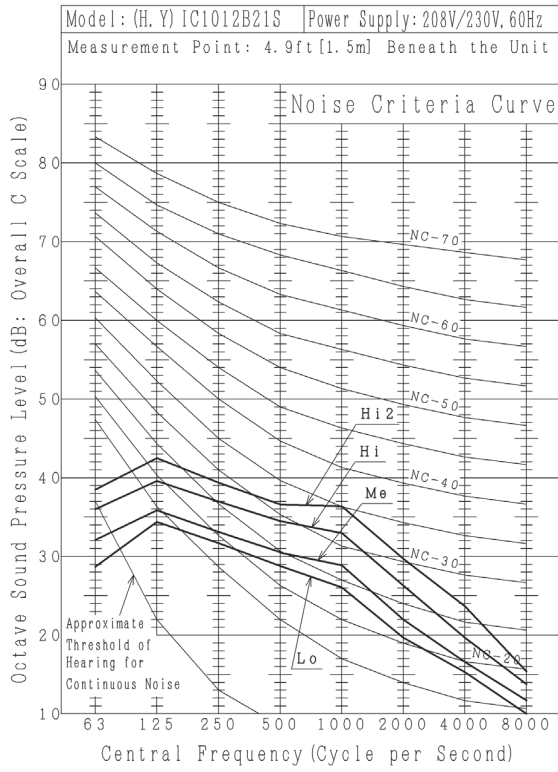
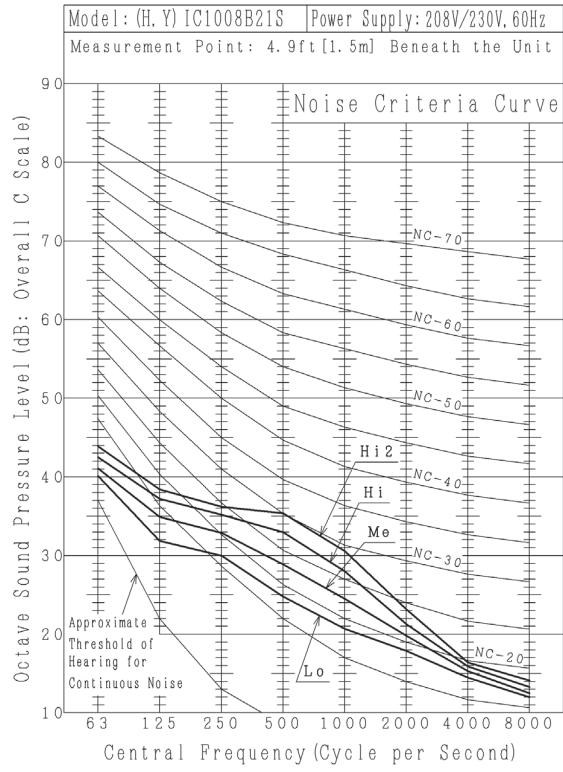
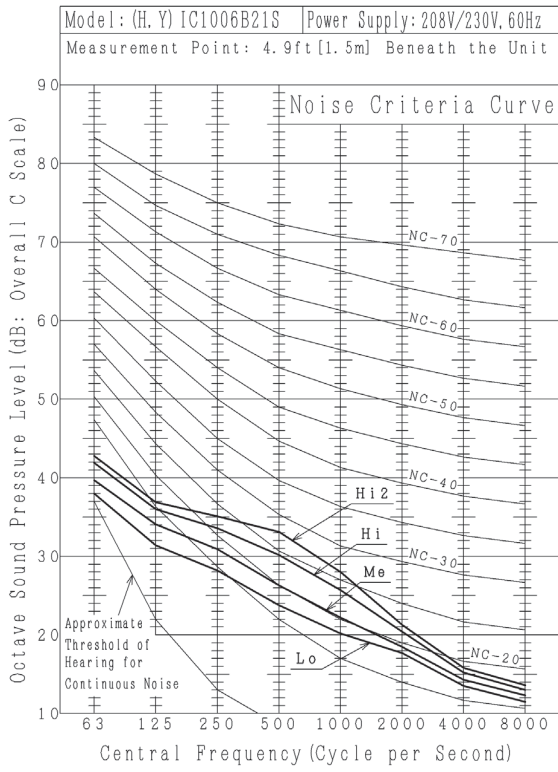
Power supply voltage should be satisfied with the following.

Supply Voltage: Rated Voltage within $\pm 10\%$

Starting Voltage: Rated Voltage within -15%

Operating Voltage: Rated Voltage within $\pm 10\%$

3.3.10 Sound Data

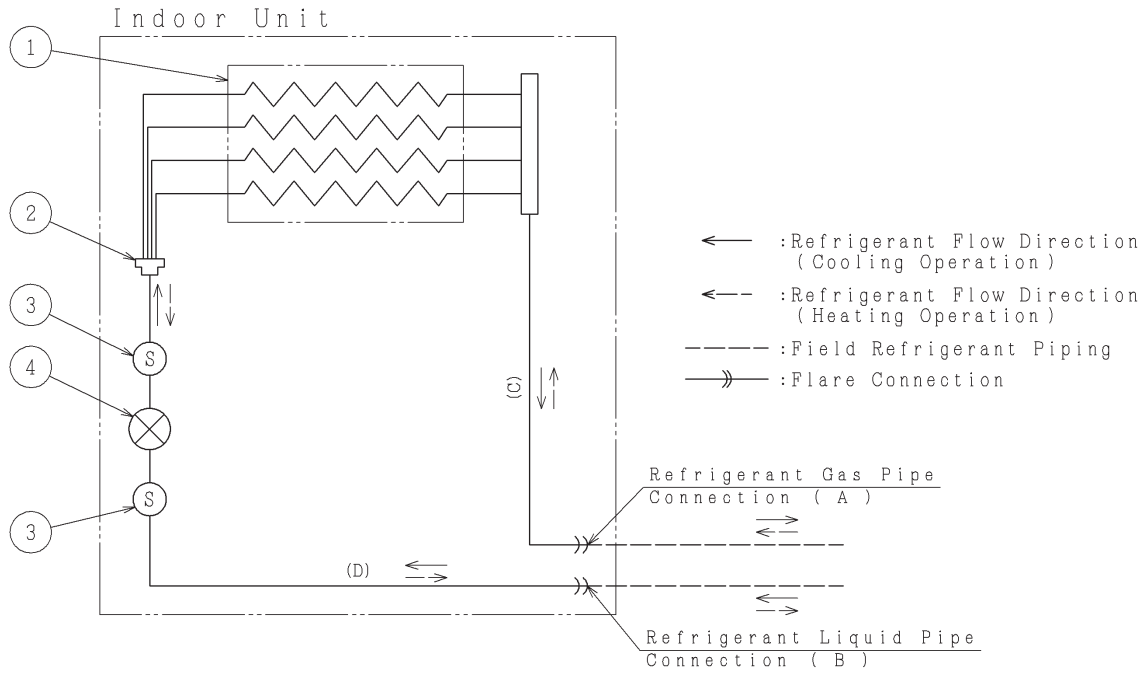


NOTE:
 Operation sound is equivalent to an anechoic chamber (free space).
 Noise level will be increased by the surrounding noise and echoes.

3.3.11 Control System

3.3.11.1 Refrigerant System

Models: (H,Y)IC1006B21S, (H,Y)IC1008B21S, (H,Y)IC1012B21S and (H,Y)IC1015B21S



| Mark | Part Name |
|------|----------------------------|
| 1 | Heat Exchanger |
| 2 | Distributor |
| 3 | Strainer |
| 4 | Electronic Expansion Valve |

Unit: inch (mm)

| Model | Distributor | (A) Gas Pipe Connection | (B) Liquid Pipe Connection | (C) (OD×T) | (D) (OD×T) |
|-----------------|-------------|-------------------------|----------------------------|---------------------------|---------------------------|
| (H,Y)IC1006B21S | 3 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ1/2×t0.031 (12.7×0.8) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IC1008B21S | 3 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ1/2×t0.031 (12.7×0.8) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IC1012B21S | 5 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ1/2×t0.031 (12.7×0.8) | φ1/2×t0.031 (12.7×0.8) |
| (H,Y)IC1015B21S | 5 Pass | φ1/2 (12.7) | φ1/4 (6.35) | φ1/2×t0.031 (12.7×0.8) | φ1/2×t0.031 (12.7×0.8) |

3.3.11.2 Standard Operation Sequence

■ Cooling Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Dry Operation

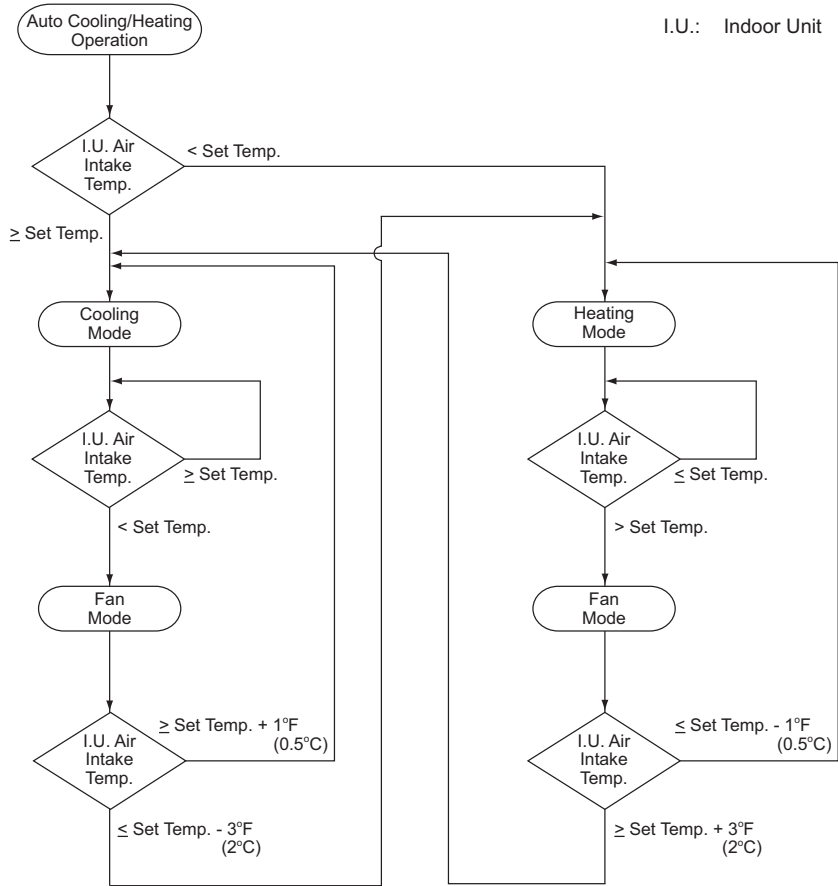
The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Heating Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Automatic Cooling and Heating Operation

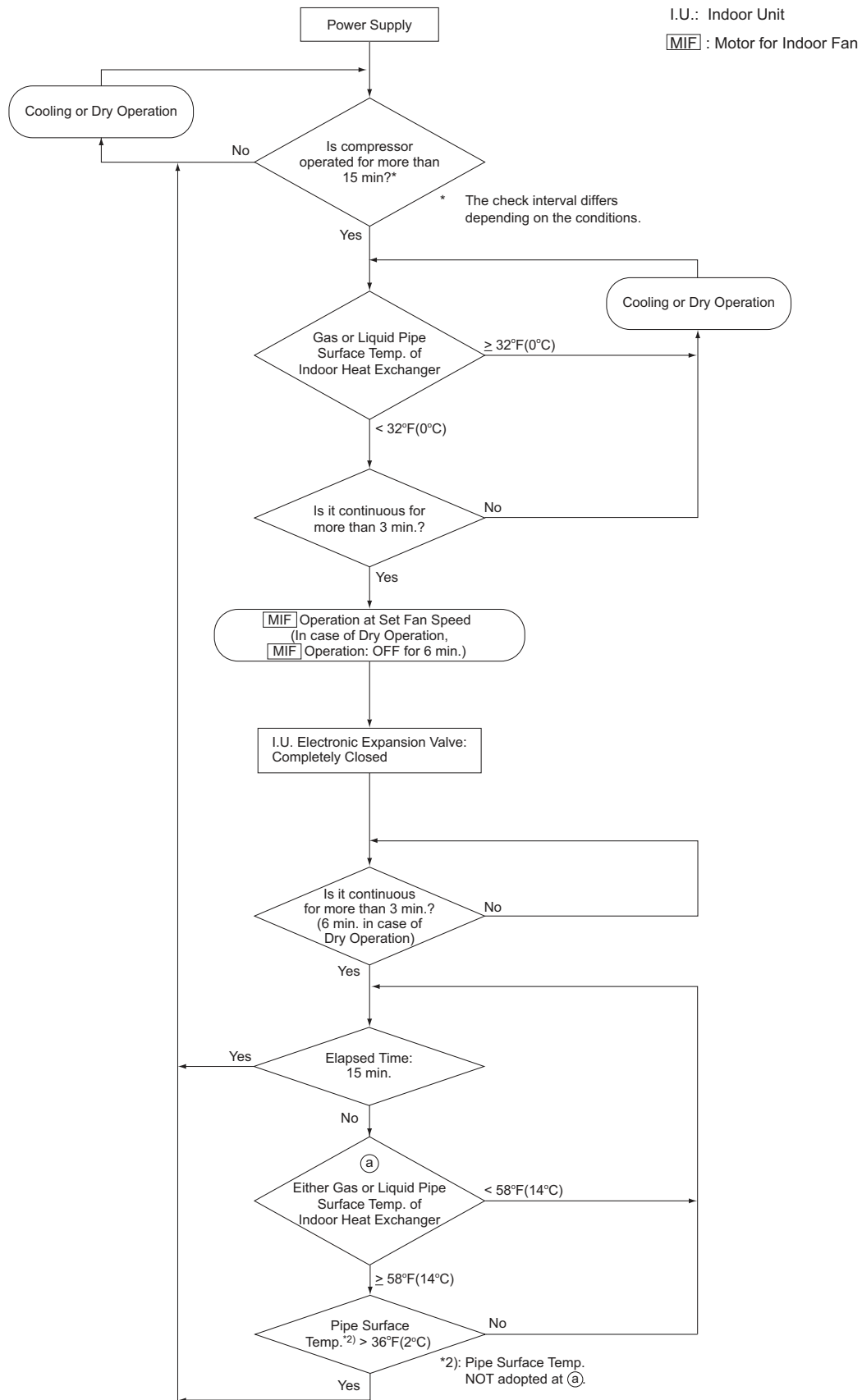
It is applicable only for heat recovery system.



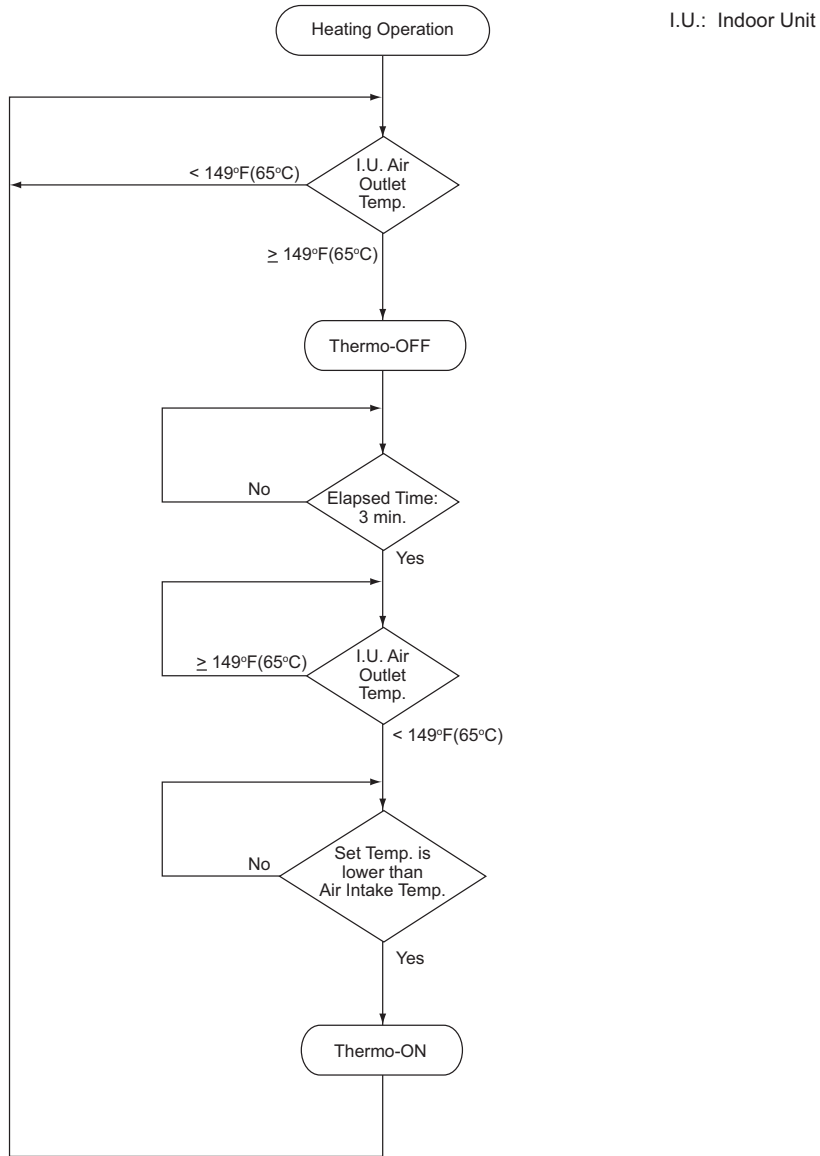
■ Defrosting Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Freeze Protection Control during Cooling or Dry Operation



■ Prevention Control for Excessively High Outlet Air Temperature (High Outlet Air Temperature Heat Lockout)



Thermo-ON/OFF Control for Indoor Unit

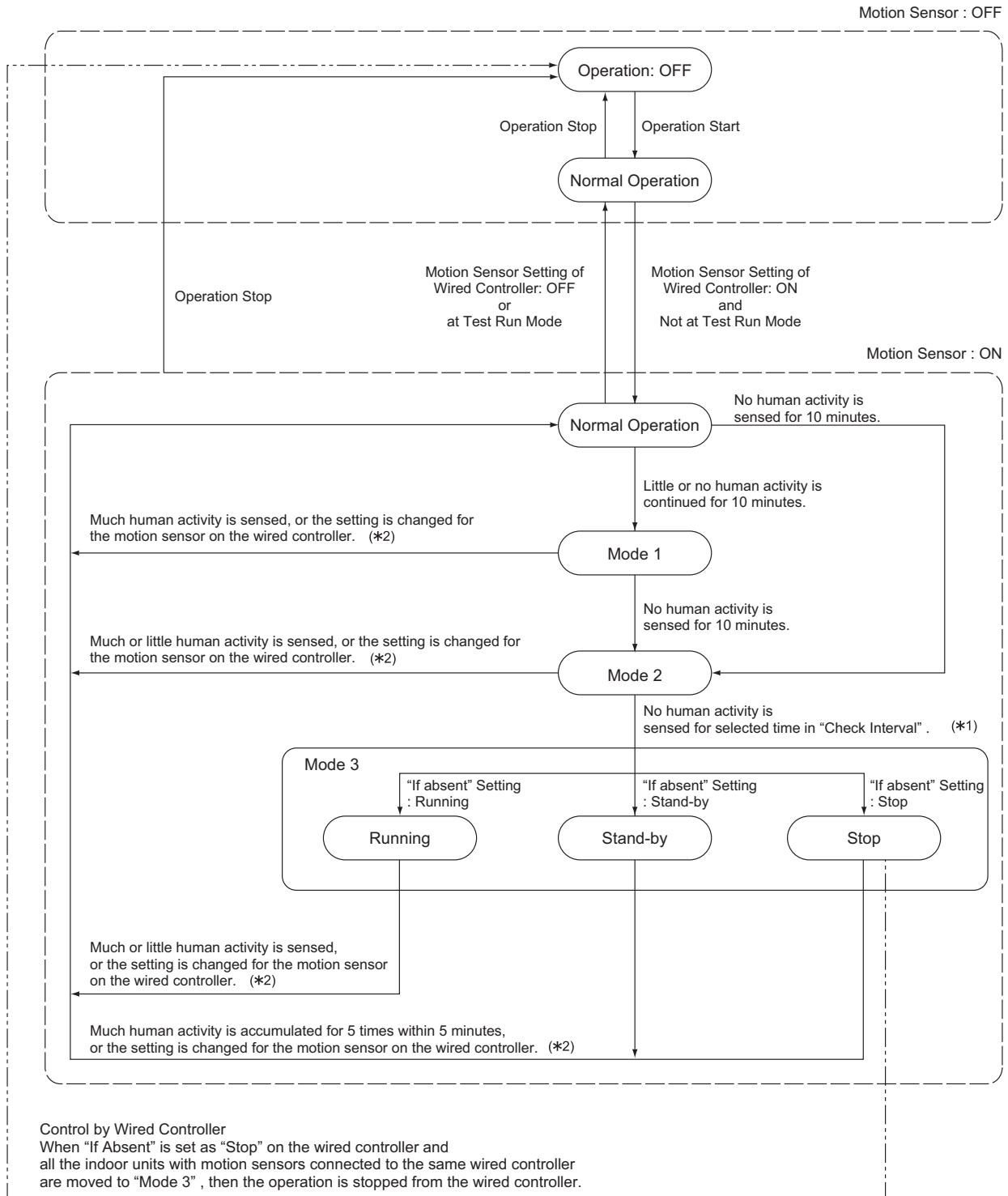
NOTE:

Thermo-ON: The outdoor unit and some indoor units are running.
 Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

■ Activating Protections

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Control for Motion Sensor (Optional Part)



(*1) If no human activity is detected before moving to the next mode, this accumulated interval will be included in the next mode. (If there is no action for 10 minutes, do not reset the time.)

(*2) Motion sensor settings on the wired controller are "Sensor", "If Absent", "Check Interval" and "Simultaneous Operation / Individual Operation".

The amount of human activity is according to the following information by the motion sensor.

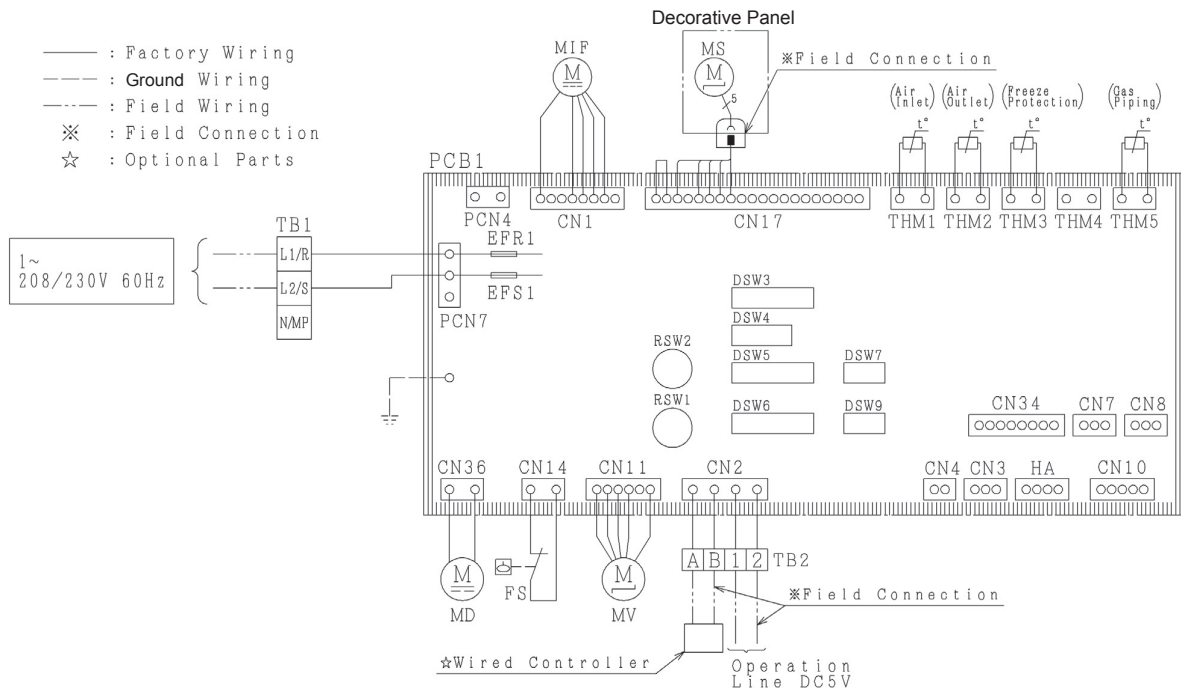
- None: No Human Activity (Absent)
- Small: Little Human Activity
- Large: Much Human Activity

3.3.11.3 Safety and Control Device Setting

| Model | | (H,Y)IC1006B21S, (H,Y)IC1008B21S (H,Y)IC1012B21S, (H,Y)IC1015B21S | |
|--------------------------|---------|--|----------|
| For Evaporator Fan Motor | | | |
| Thermostat | Cut-Out | °F | 212 ±7 |
| | | (°C) | (100 ±4) |
| | Cut-In | °F | 203 ±7 |
| | | (°C) | (95 ±4) |
| For Control Circuit | | | |
| Fuse | | | |
| Capacity | A | | 5 |

3.3.11.4 Wiring Diagram

Models: (H,Y)IC1006B21S, (H,Y)IC1008B21S, (H,Y)IC1012B21S and (H,Y)IC1015B21S

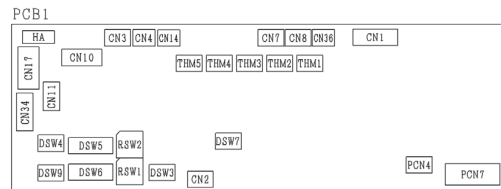


| Mark | Name |
|-------------------|--|
| CN3 | Optional Connector (For Signal Input) |
| CN7, 8 | Optional Connector (For Signal Output) |
| CN10 | Optional Connector (For Motion Sensor) |
| DSW3, 4, 7, 9 | DIP Switch for Setting |
| EFR1, EFS1 | Fuse |
| FS | Float Switch |
| MD | Motor for Drain Discharge Mechanism |
| MIF | Motor for Indoor Fan |
| MS1~4 | Motor for Automatic Swing Louver |
| MV | Electronic Expansion Valve |
| PCB1 | Printed Circuit Board |
| RSW1 | Rotary Switch for Unit No. Setting (Ones Digit) |
| DSW6 | DIP Switch for Unit No. Setting (Tens Digit) |
| RSW2 | Rotary Switch for Refrigerant Cycle No. Setting (Ones Digit) |
| DSW5 | DIP Switch for Refrigerant Cycle No. Setting (Tens Digit) |
| TB1, 2 | Terminal Block |
| THM1~3, 5 | Thermistor |
| THM4 | Optional Connector (For Remote Temperature Sensor) |
| CN4, 34, HA, PCN4 | Reserved Connector on PCB |

Electrical Control Box of Indoor Unit



Printed Circuit Board



Note:

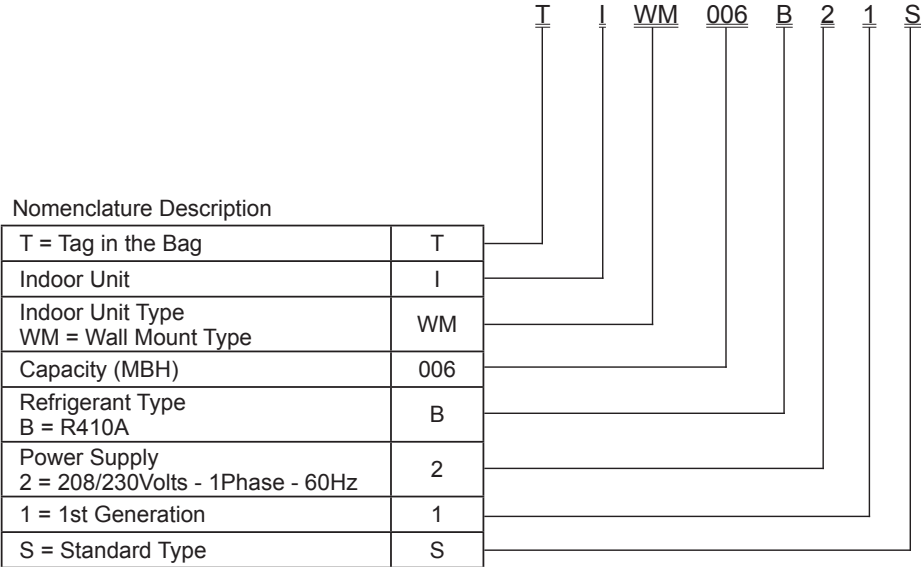
- All the field wiring and equipment must comply with local codes.

3.4 Wall Mounted

3.4.1 Unit Nomenclature

Means of Model Name

Example



3.4.2 Line-up

| Type | | Capacity | | Model |
|-------------|--------------|----------|-----|-------------|
| | | RT | MBH | |
| Indoor Unit | Wall Mounted | 0.5 | 6 | TIWM006B21S |
| | | 0.7 | 8 | TIWM008B21S |
| | | 1.0 | 12 | TIWM012B21S |
| | | 1.3 | 15 | TIWM015B21S |
| | | 1.5 | 18 | TIWM018B21S |
| | | 2.0 | 24 | TIWM024B21S |

3.4.3 General Data

| Indoor Unit Type | | Wall Mount Type | | |
|--|------------------------------|--|---------------------------------|----------------------------------|
| Model | | TIWM006B21S | TIWM008B21S | TIWM012B21S |
| Indoor Unit Power Supply | | AC 1Phase, 208/230V, 60Hz | | |
| Nominal Cooling Capacity *1 | Btu/h (kW) | 6,000 (1.8) | 8,000 (2.3) | 12,000 (3.5) |
| Nominal Heating Capacity *1 | Btu/h (kW) | 6,700 (2.0) | 9,000 (2.6) | 13,500 (4.0) |
| Sound Pressure Level *2 (Overall A Scale) (Hi2-Hi-Me-Lo) | dB | 39-35-32-30 | 39-35-32-30 | 46-40-36-33 |
| Outer Dimensions | | | | |
| Height | in.(mm) | 11-13/16 (300) | 11-13/16 (300) | 11-13/16 (300) |
| Width | in.(mm) | 31-3/32 (790) | 31-3/32 (790) | 35-7/16 (900) |
| Depth | in.(mm) | 9-1/16 (230) | 9-1/16 (230) | 9-1/16 (230) |
| Net Weight | lbs(kg) | 22 (10) | 22 (10) | 24 (11) |
| Refrigerant | | R410A | | |
| Indoor Fan | | | | |
| Airflow Rate (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 353-282-247-229 (10-8-7-6.5) | 353-282-247-229 (10-8-7-6.5) | 494-388-318-265 (14-11-9-7.5) |
| External Pressure | in.W.G (Pa) | 0.0 (0) | 0.0 (0) | 0.0 (0) |
| Motor Nominal Output | W | 38 | 38 | 38 |
| Connections | | Flare-Nut Connection (with Flare Nuts) | | |
| Refrigerant Piping | | | | |
| Liquid Line | in.(mm) | 1/4 (6.35) | 1/4 (6.35) | 1/4 (6.35) |
| Gas Line | in.(mm) | 1/2 (12.70) | 1/2 (12.70) | 1/2 (12.70) |
| Condensate Drain | | VP16 | VP16 | VP16 |
| OD | in.(mm) | 7/8 (22) | 7/8 (22) | 7/8 (22) |
| ID | in.(mm) | 5/8 (16) | 5/8 (16) | 5/8 (16) |

| Indoor Unit Type | | Wall Mount Type | | |
|--|------------------------------|--|----------------------------------|----------------------------------|
| Model | | TIWM015B21S | TIWM018B21S | TIWM024B21S |
| Indoor Unit Power Supply | | AC 1Phase, 208/230V, 60Hz | | |
| Nominal Cooling Capacity *1 | Btu/h (kW) | 15,000 (4.4) | 18,000 (5.3) | 24,000 (7.0) |
| Nominal Heating Capacity *1 | Btu/h (kW) | 17,000 (5.0) | 20,000 (5.8) | 27,000 (7.9) |
| Sound Pressure Level *2 (Overall A Scale) (Hi2-Hi-Me-Lo) | dB | 42-40-38-33 | 49-43-40-36 | 51-49-46-41 |
| Outer Dimensions | | | | |
| Height | in.(mm) | 13-1/8 (333) | 13-1/8 (333) | 13-1/8 (333) |
| Width | in.(mm) | 45-9/32 (1150) | 45-9/32 (1150) | 45-9/32 (1150) |
| Depth | in.(mm) | 9-21/32 (245) | 9-21/32 (245) | 9-21/32 (245) |
| Net Weight | lbs(kg) | 37 (17) | 40 (18) | 40 (18) |
| Refrigerant | | R410A | | |
| Indoor Fan | | | | |
| Airflow Rate (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 530-494-459-353 (15-14-13-10) | 671-600-494-424 (19-17-14-12) | 777-671-600-530 (22-19-17-15) |
| External Pressure | in.W.G (Pa) | 0.0 (0) | 0.0 (0) | 0.0 (0) |
| Motor Nominal Output | W | 38 | 38 | 38 |
| Connections | | Flare-Nut Connection (with Flare Nuts) | | |
| Refrigerant Piping | | | | |
| Liquid Line | in.(mm) | 1/4 (6.35) | 3/8 (9.52) | 3/8 (9.52) |
| Gas Line | in.(mm) | 1/2 (12.70) | 5/8 (15.88) | 5/8 (15.88) |
| Condensate Drain | | VP16 | VP16 | VP16 |
| OD | in.(mm) | 7/8 (22) | 7/8 (22) | 7/8 (22) |
| ID | in.(mm) | 5/8 (16) | 5/8 (16) | 5/8 (16) |

NOTES:

*1. Nominal capacity is based on combinations within the VRF system and the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
67°F WB (19.4°C WB)
Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 70°F DB (21.1°C DB)
Outdoor Air Inlet Temperature: 47°F DB (8.3°C DB)
43°F WB (6.1°C WB)

Piping Length: 24.6ft. (7.5m) Piping Lift: 0ft. (0m)

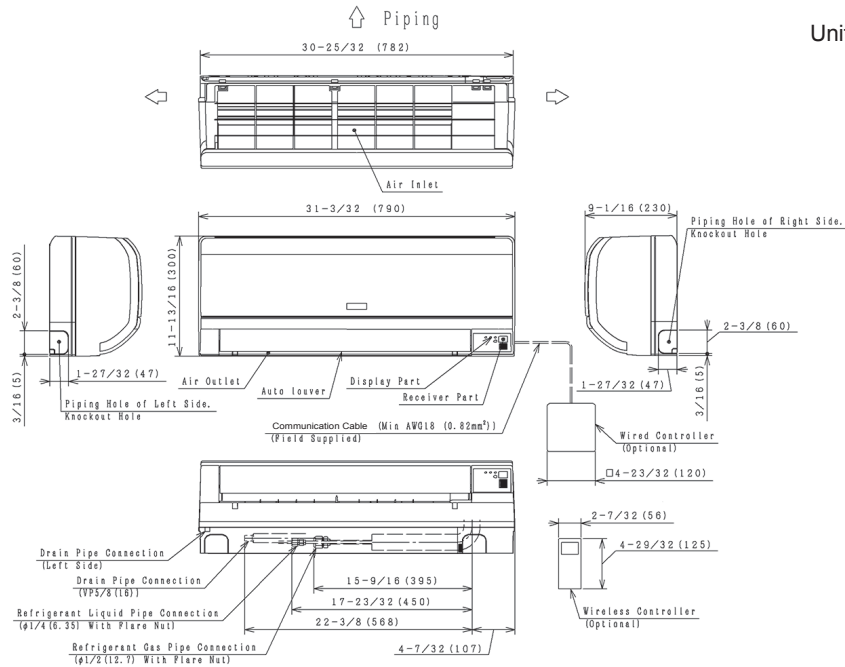
*2. Sound pressure level is based on the following conditions.
3.3 ft. (1m) Front of the Unit and 3.3 ft. (1m) Below the Unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3.4.4 Dimensional Data

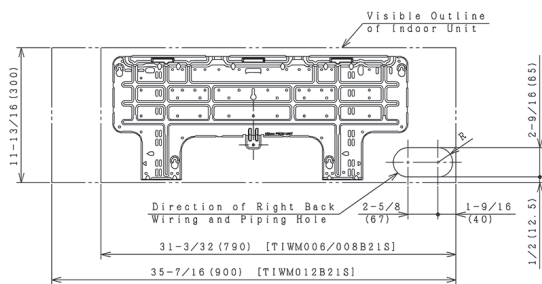
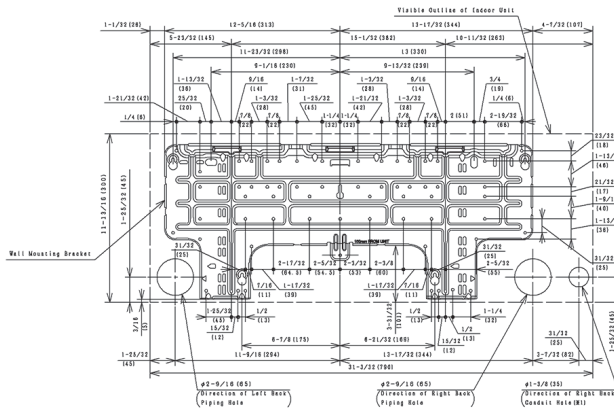
Models: TIWM006B21S and TIWM008B21S

Unit: inch(mm)

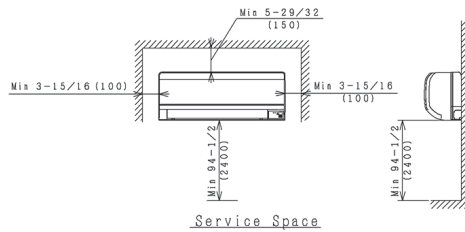


Opening Direction Option 1:

Opening Direction Option 2:



Dimensional of Wall Mounting Bracket

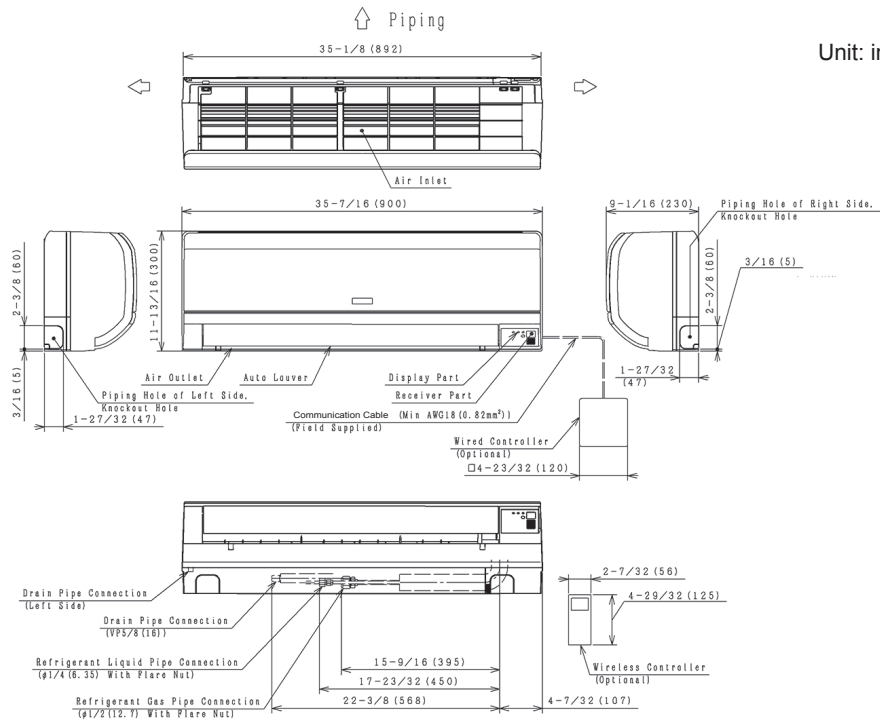


NOTES:

1. Removal of the drain pipe is possible from either side of the knockout holes. If using the left side, install a drain hose to the drain pipe drain at the left side.
2. Make sure there is no gap at the center position of the bracket and the unit. Mount them according to the figure above.

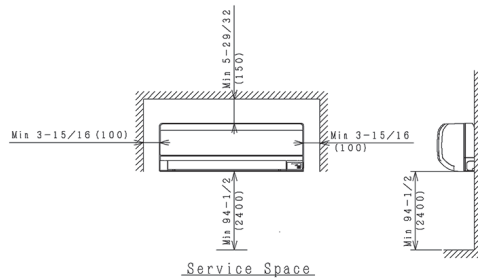
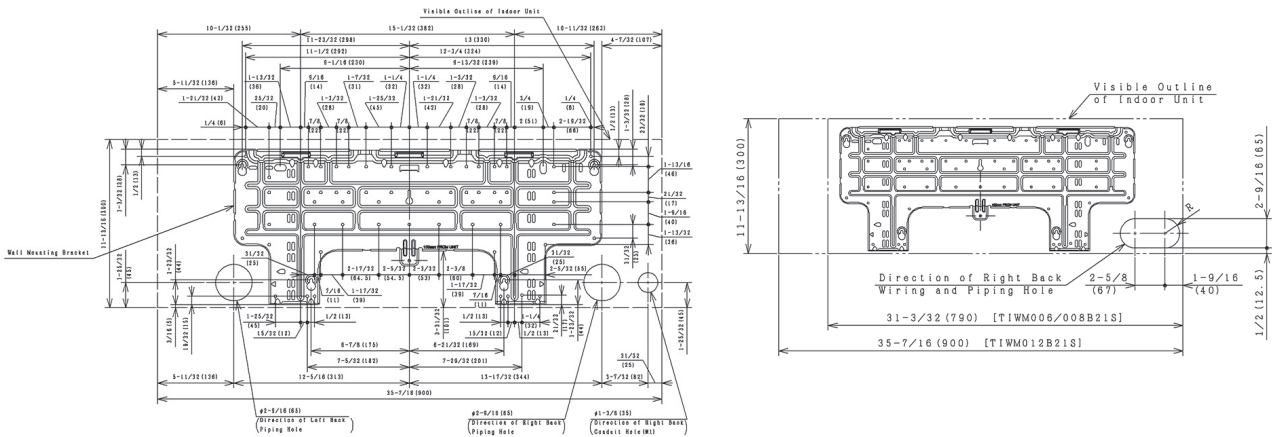
Model: TIWM012B21S

Unit: inch(mm)



Opening Direction Option 1:

Opening Direction Option 2:



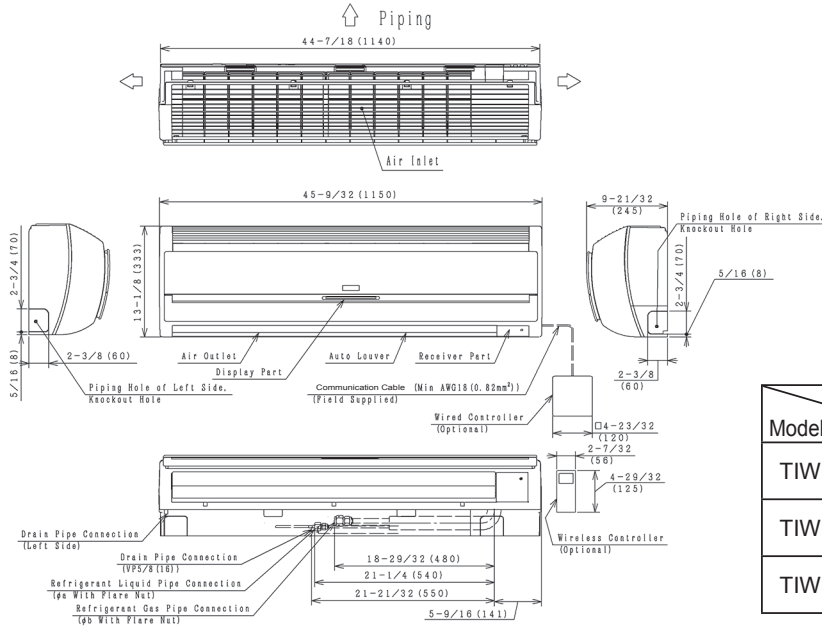
NOTES:

1. Removal of the drain pipe is possible from either side of the knockout holes. If using the left side, install a drain hose to the drain pipe connection at the left side.

INDOOR UNITS

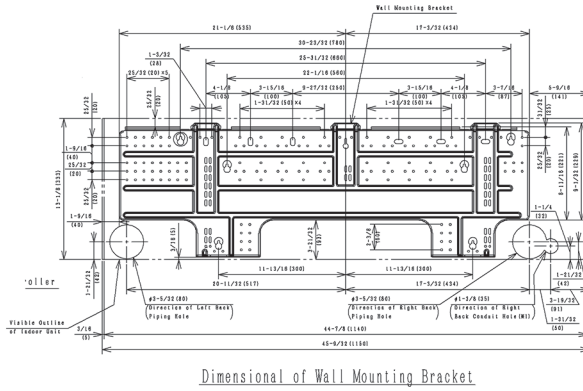
Models: TIWM015B21S, TIWM018B21S and TIWM024B21S

Unit: inch(mm)



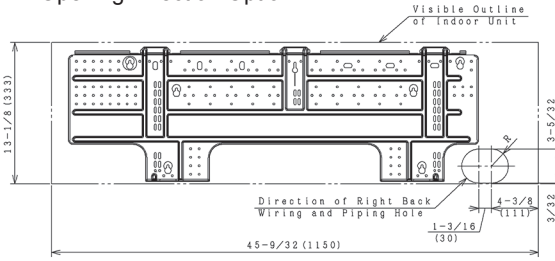
| Model | Dimension a | Dimension b |
|-------------|-------------|-------------|
| TIWM015B21S | 1/4 (6.35) | 1/2 (12.7) |
| TIWM018B21S | 3/8 (9.52) | 5/8 (15.88) |
| TIWM024B21S | 3/8 (9.52) | 5/8 (15.88) |

Opening Direction Option 1:

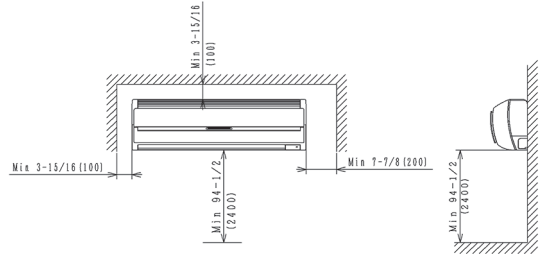
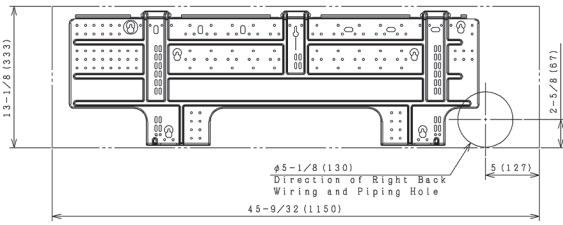


Dimensional of Wall Mounting Bracket

Opening Direction Option 2:



Opening Direction Option 3:



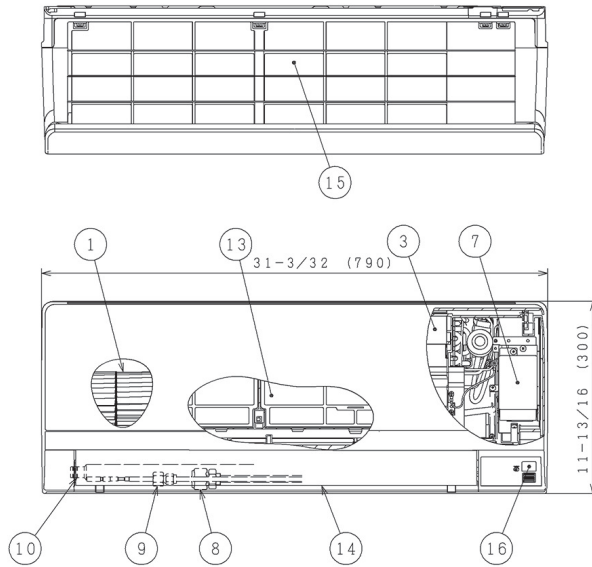
NOTES:

1. Removal of the drain pipe is possible from either side of the knockout holes. If using the left side, install a drain hose to the drain pipe connection at the left side.

3.4.5 Structure

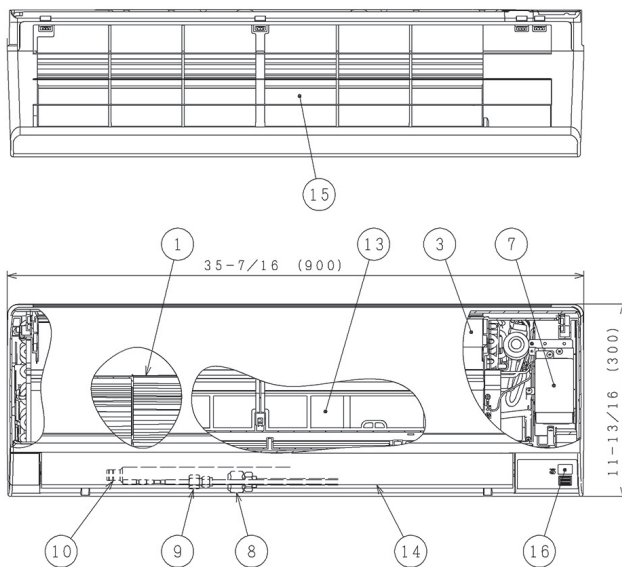
< TIWM006B21S and TIWM008B21S >

Unit: inch(mm)



| No. | Part Name | Remark |
|-----|----------------------------|----------------------------------|
| 1 | Pan | |
| 2 | Pan Motor | |
| 3 | Heat Exchanger | |
| 4 | Distributor | |
| 5 | Strainer | |
| 6 | Electronic Expansion Valve | |
| 7 | Electrical Control Box | |
| 8 | Refrigerant Gas Pipe | With $\phi 1/2$ (12.7) Flare Nut |
| 9 | Refrigerant Liquid Pipe | With $\phi 1/4$ (6.35) Flare Nut |
| 10 | Drain Pipe | VP5/8 (16) |
| 11 | Motor for Auto Swing | |
| 12 | Drain Pan | |
| 13 | Air Filter | |
| 14 | Air Outlet | |
| 15 | Air Inlet | |
| 16 | Receiver Part | |

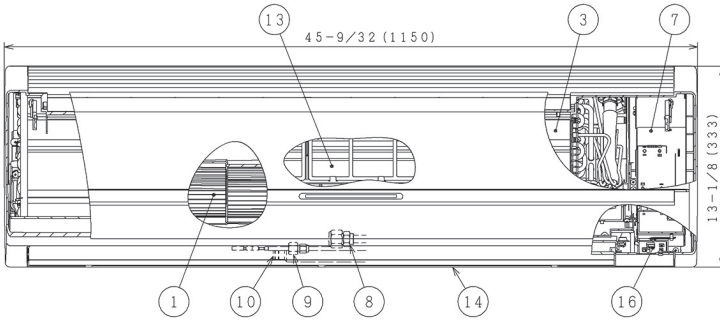
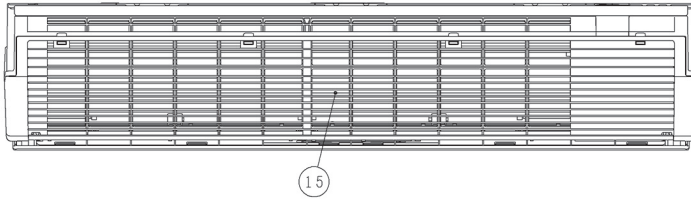
< TIWM012B21S >



| No. | Part Name | Remark |
|-----|----------------------------|----------------------------------|
| 1 | Pan | |
| 2 | Pan Motor | |
| 3 | Heat Exchanger | |
| 4 | Distributor | |
| 5 | Strainer | |
| 6 | Electronic Expansion Valve | |
| 7 | Electrical Control Box | |
| 8 | Refrigerant Gas Pipe | With $\phi 1/2$ (12.7) Flare Nut |
| 9 | Refrigerant Liquid Pipe | With $\phi 1/4$ (6.35) Flare Nut |
| 10 | Drain Pipe | VP5/8 (16) |
| 11 | Motor for Auto Swing | |
| 12 | Drain Pan | |
| 13 | Air Filter | |
| 14 | Air Outlet | |
| 15 | Air Inlet | |
| 16 | Receiver Part | |

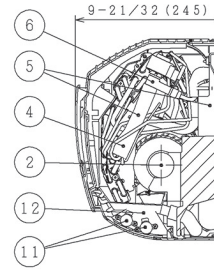
< TIWM015B21S, TIWM018B21S and TIWM024B21S >

Unit: inch(mm)



| No. | Part Name | Remark |
|-----|----------------------------|-------------------------|
| 1 | Pan | |
| 2 | Pan Motor | |
| 3 | Heat Exchanger | |
| 4 | Distributor | |
| 5 | Strainer | |
| 6 | Electronic Expansion Valve | |
| 7 | Electrical Control Box | |
| 8 | Refrigerant Gas Pipe | With ϕ a Flare Nut |
| 9 | Refrigerant Liquid Pipe | With ϕ b Flare Nut |
| 10 | Drain Pipe | VPS/8 (16) |
| 11 | Motor for Auto Swing | |
| 12 | Drain Pan | |
| 13 | Air Filter | |
| 14 | Air Outlet | |
| 15 | Air Inlet | |
| 16 | Receiver Part | |

| Model | Mark | a | b |
|-------------|------|-------------|------------|
| TIWM015B21S | | 1/2 (12.7) | 1/4 (6.35) |
| TIWM018B21S | | 5/8 (15.88) | 3/8 (9.52) |
| TIWM024B21S | | | |



3.4.6 Component Data

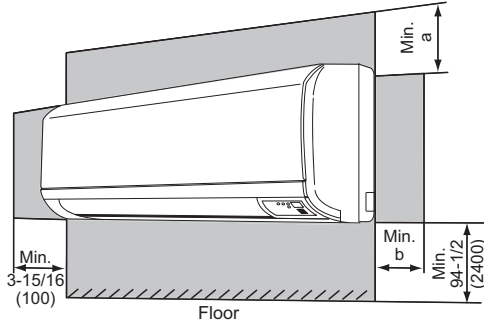
Indoor Heat Exchanger and Fan

| Model | | TIWM006B21S | TIWM008B21S | TIWM012B21S |
|-----------------------------------|--------------------------------------|---------------------------------|---------------------------------|----------------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | |
| Tube Material | | Copper Tube | | |
| Outer Diameter | φ in (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 2 | 2 | 2 |
| Number of Tube/Coil | | 34 | 34 | 34 |
| Fin Material | | Aluminum | | |
| Pitch | in (mm) | 0.047 (1.3) | 0.047 (1.3) | 0.047 (1.3) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 23.60 (7.20) | 23.60 (7.20) | 27.90 (8.50) |
| Number of Coil/Unit | | 1 | 1 | 1 |
| Indoor Fan | | Multi-Blade Centrifugal Fan | | |
| Number/Unit | | 1 | 1 | 1 |
| Outer Diameter | φ in (mm) | 4-1/8 (105) | 4-1/8 (105) | 4-1/8 (105) |
| Nominal Airflow (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 353-282-247-229 (10-8-7-6.5) | 353-282-247-229 (10-8-7-6.5) | 494-388-318-265 (14-11-9-7.5) |
| Indoor Fan Motor | | Drip-Proof Type Enclosure | | |
| Starting Method | | DC Motor | | |
| Nominal Output | W | 38 | 38 | 38 |
| Quantity | | 1 | 1 | 1 |
| Insulation Class | | E | E | E |

| Model | | TIWM015B21S | TIWM018B21S | TIWM024B21S |
|-----------------------------------|--------------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Heat Exchanger Type | | Multi-Pass Cross Finned Tube | | |
| Tube Material | | Copper Tube | | |
| Outer Diameter | φ in (mm) | 9/32 (7.0) | 9/32 (7.0) | 9/32 (7.0) |
| Rows | | 2 | 2 | 2 |
| Number of Tube/Coil | | 46 | 52 | 52 |
| Fin Material | | Aluminum | | |
| Pitch | in (mm) | 0.047 (1.3) | 0.047 (1.3) | 0.047 (1.3) |
| Maximum Operating Pressure | psi (MPa) | 601 (4.15) | 601 (4.15) | 601 (4.15) |
| Total Face Area | ft ² (m ²) | 47.90 (14.60) | 47.90 (14.60) | 47.90 (14.60) |
| Number of Coil/Unit | | 1 | 1 | 1 |
| Indoor Fan | | Multi-Blade Centrifugal Fan | | |
| Number/Unit | | 1 | 1 | 1 |
| Outer Diameter | φ in (mm) | 4-1/8 (105) | 4-1/8 (105) | 4-1/8 (105) |
| Nominal Airflow (Hi2-Hi-Me-Lo) | cfm (m ³ /min) | 530-494-459-353 (15-14-13-10) | 671-600-494-424 (19-17-14-12) | 777-671-600-530 (22-19-17-15) |
| Indoor Fan Motor | | Drip-Proof Type Enclosure | | |
| Starting Method | | DC Motor | | |
| Nominal Output | W | 38 | 38 | 38 |
| Quantity | | 1 | 1 | 1 |
| Insulation Class | | E | E | E |

3.4.7 Operation Space

Models: TIWM006B21S, TIWM008B21S, TIWM012B21S, TIWM015B21S
 TIWM018B21S and TIWM024B21S



Unit: inch(mm)

| Model | a | b |
|---|---------------|---------------|
| TIWM006B21S TIWM008B21S TIWM012B21S | 5-29/32 (150) | 3-15/16 (100) |
| TIWM015B21S TIWM018B21S TIWM024B21S | 3-15/16 (100) | 7-7/8 (200) |

* The above figure shows TIWM006B21S and TIWM008B21S units.

3.4.8 Sensible Heat Factor (SHF)

| Model | SHF*1 |
|-------------|-------|
| TIWM006B21S | 0.73 |
| TIWM008B21S | 0.73 |
| TIWM012B21S | 0.74 |
| TIWM015B21S | 0.75 |
| TIWM018B21S | 0.73 |
| TIWM024B21S | 0.73 |

NOTE:

1. SHF is based on combinations within the VRF system and the following conditions:

Cooling Operation Conditions

Indoor Air Inlet Temperature: 80°F DB (26.7°C DB)
 67°F WB (19.4°C WB)

Outdoor Air Inlet Temperature: 95°F DB (35.0°C DB)

Piping Length: 24 ft. 7-3/16 in. (7.5m)

Piping Lift: 0 ft. (0m)

3.4.9 Electrical Data

| Model | Unit Main Power | | | Applicable Voltage | | Power Supply | | Indoor Fan Motor | Unit |
|-------------|-----------------|----|----|--------------------|---------|--------------|-----|------------------|------|
| | VOL | PH | HZ | Maximum | Minimum | MCA | MFA | OPT | FLA |
| TIWM006B21S | 208/230 | 1 | 60 | 253 | 188 | 0.3 | 15 | 0.038 | 0.2 |
| TIWM008B21S | | | | | | 0.3 | 15 | 0.038 | 0.2 |
| TIWM012B21S | | | | | | 0.5 | 15 | 0.038 | 0.4 |
| TIWM015B21S | | | | | | 0.4 | 15 | 0.038 | 0.3 |
| TIWM018B21S | | | | | | 0.6 | 15 | 0.038 | 0.5 |
| TIWM024B21S | | | | | | 0.7 | 15 | 0.038 | 0.6 |

VOL: Rated Unit Power Supply Voltage (V)

PH: Phase

HZ: Frequency (Hz)

MCA: Minimum Circuit Ampacity (A)

MFA: Maximum Fuse Ampacity (A)

OPT: Rated Motor Output (kW)

FLA: Full Load Ampacity (A)

NOTE:

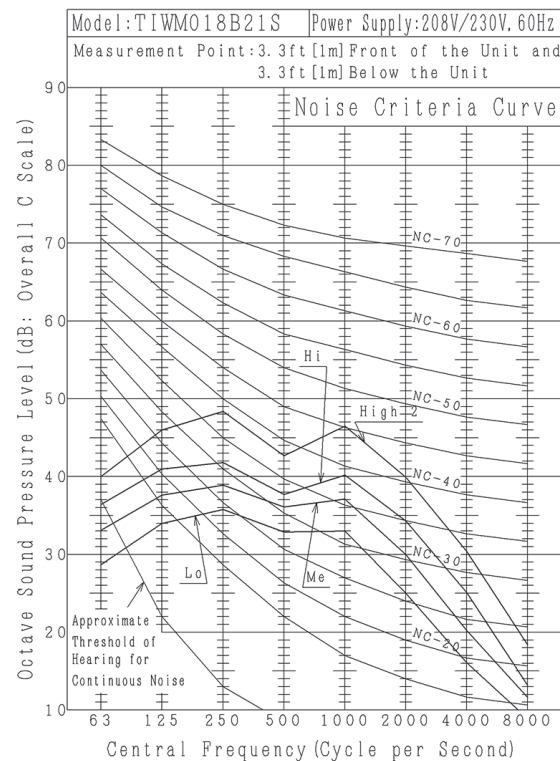
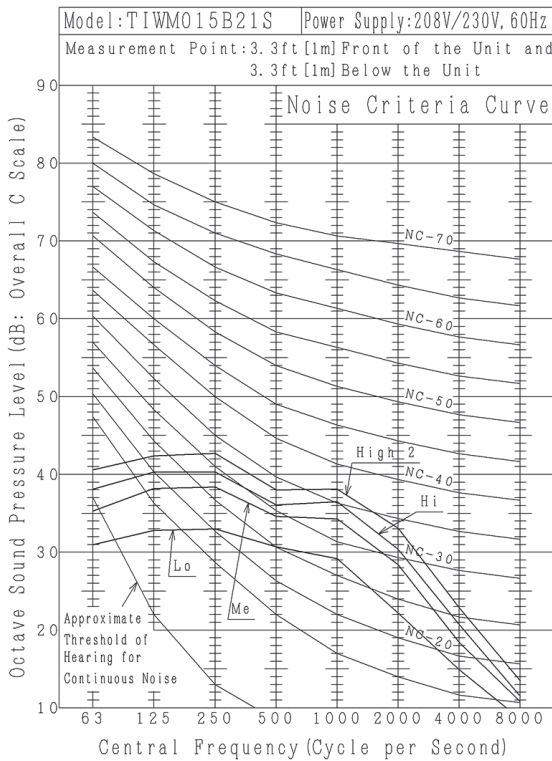
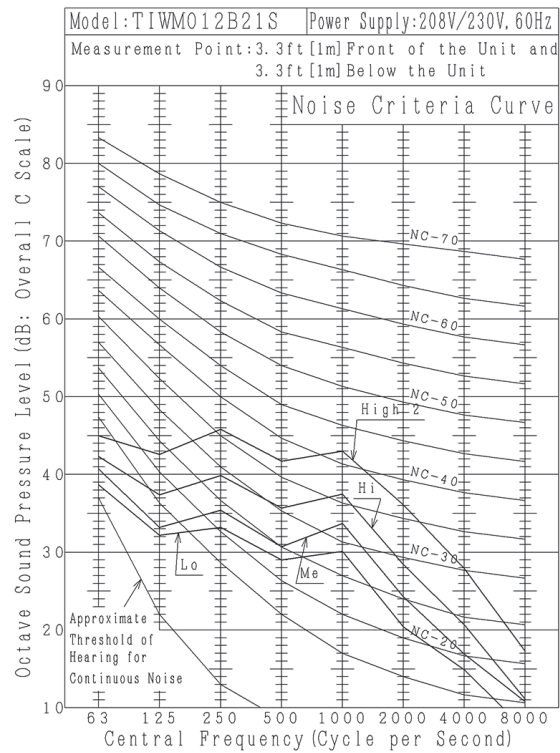
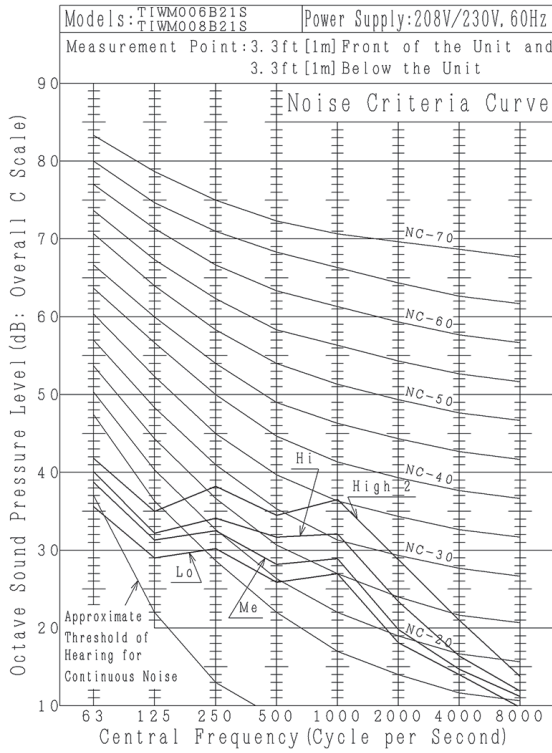
Power supply voltage should be satisfied with the following.

Supply Voltage: Rated Voltage within $\pm 10\%$

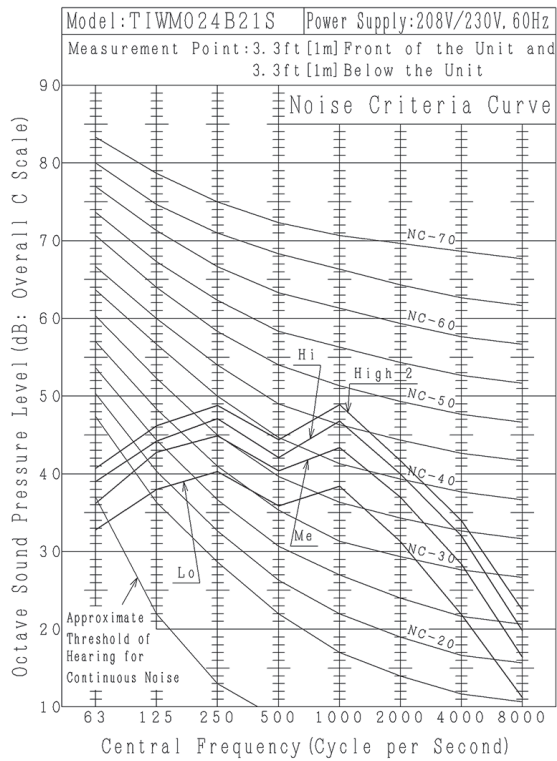
Starting Voltage: Rated Voltage within -15%

Operating Voltage: Rated Voltage within $\pm 10\%$

3.4.10 Sound Data



NOTE:
 Operation sound is equivalent to anechoic chamber (free space).
 Noise level shall be increased by the surrounding noise and echos.



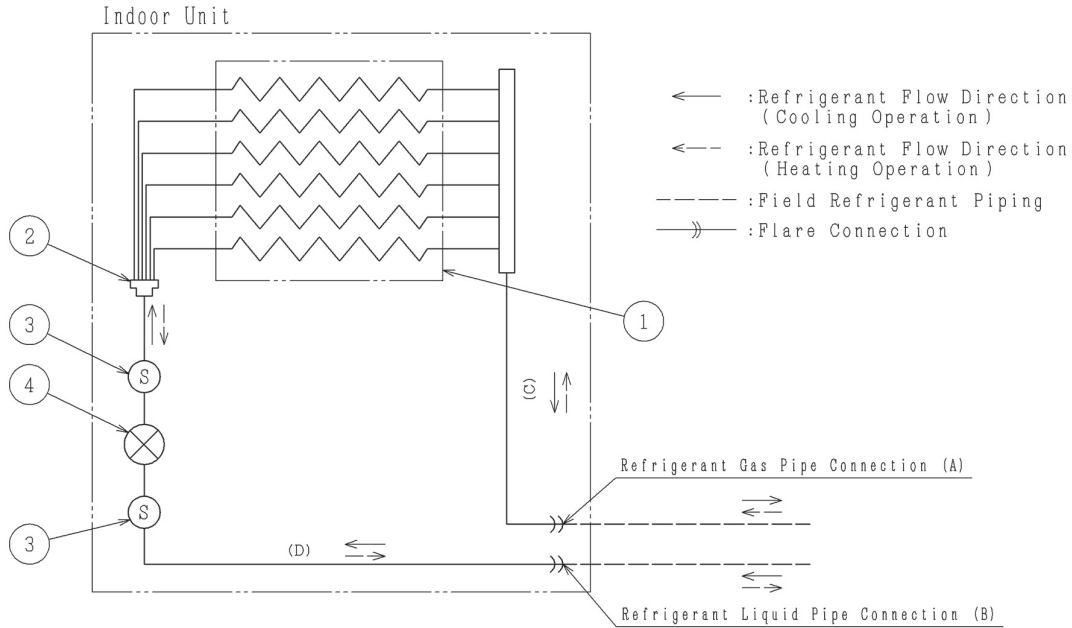
NOTE:

Operation sound is equivalent to anechoic chamber (free space).
 Noise level shall be increased by the surrounding noise and echos.

3.4.11 Control System

3.4.11.1 Refrigerant System

Models: TIWM006B21S, TIWM008B21S, TIWM012B21S, TIWM015B21S
TIWM018B21S and TIWM024B21S



| Mark | Part Name |
|------|----------------------------|
| 1 | Heat Exchanger |
| 2 | Distributor |
| 3 | Strainer |
| 4 | Electronic Expansion Valve |

Unit: inch (mm)

| Model | Distributor | (A) Gas Pipe Connection | (B) Liquid Pipe Connection | (C) (OD×T) | (D) (OD×T) |
|-------------|-------------|-------------------------|----------------------------|---------------------------|----------------------------|
| TIWM006B21S | 3 Pass | φ1/2 (12.70) | φ1/4 (6.35) | φ3/8×t0.031 (9.52×0.7) | φ1/4×t0.031 (6.35×0.7) |
| TIWM008B21S | 3 Pass | φ1/2 (12.70) | φ1/4 (6.35) | φ3/8×t0.031 (9.52×0.7) | φ1/4×t0.031 (6.35×0.7) |
| TIWM012B21S | 3 Pass | φ1/2 (12.70) | φ1/4 (6.35) | φ3/8×t0.031 (9.52×0.7) | φ1/4×t0.031 (6.35×0.7) |
| TIWM015B21S | 4 Pass | φ1/2 (12.70) | φ1/4 (6.35) | φ1/2×t0.031 (12.7×0.7) | φ1/4×t0.031 (6.35×0.7) |
| TIWM018B21S | 5 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ1/2×t0.031 (12.7×0.7) | φ5/16×t0.031 (7.94×0.7) |
| TIWM024B21S | 6 Pass | φ5/8 (15.88) | φ3/8 (9.52) | φ1/2×t0.031 (12.7×0.7) | φ5/16×t0.031 (7.94×0.7) |

3.4.11.2 Standard Operation Sequence

■ Cooling Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Dry Operation

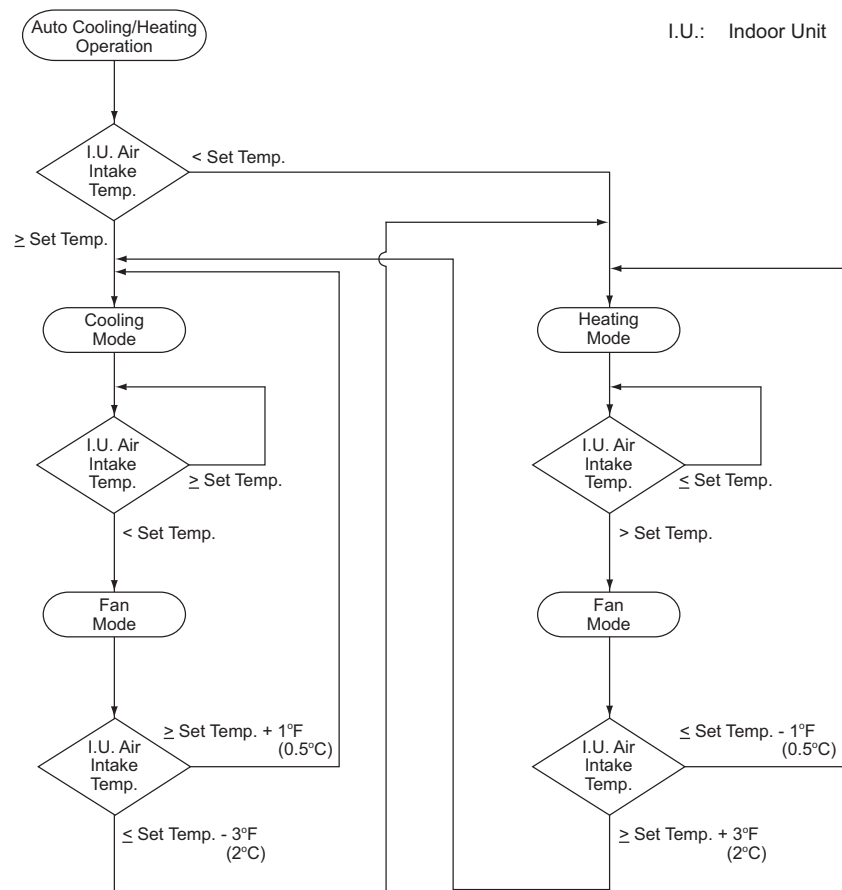
The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Heating Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Automatic Cooling and Heating Operation

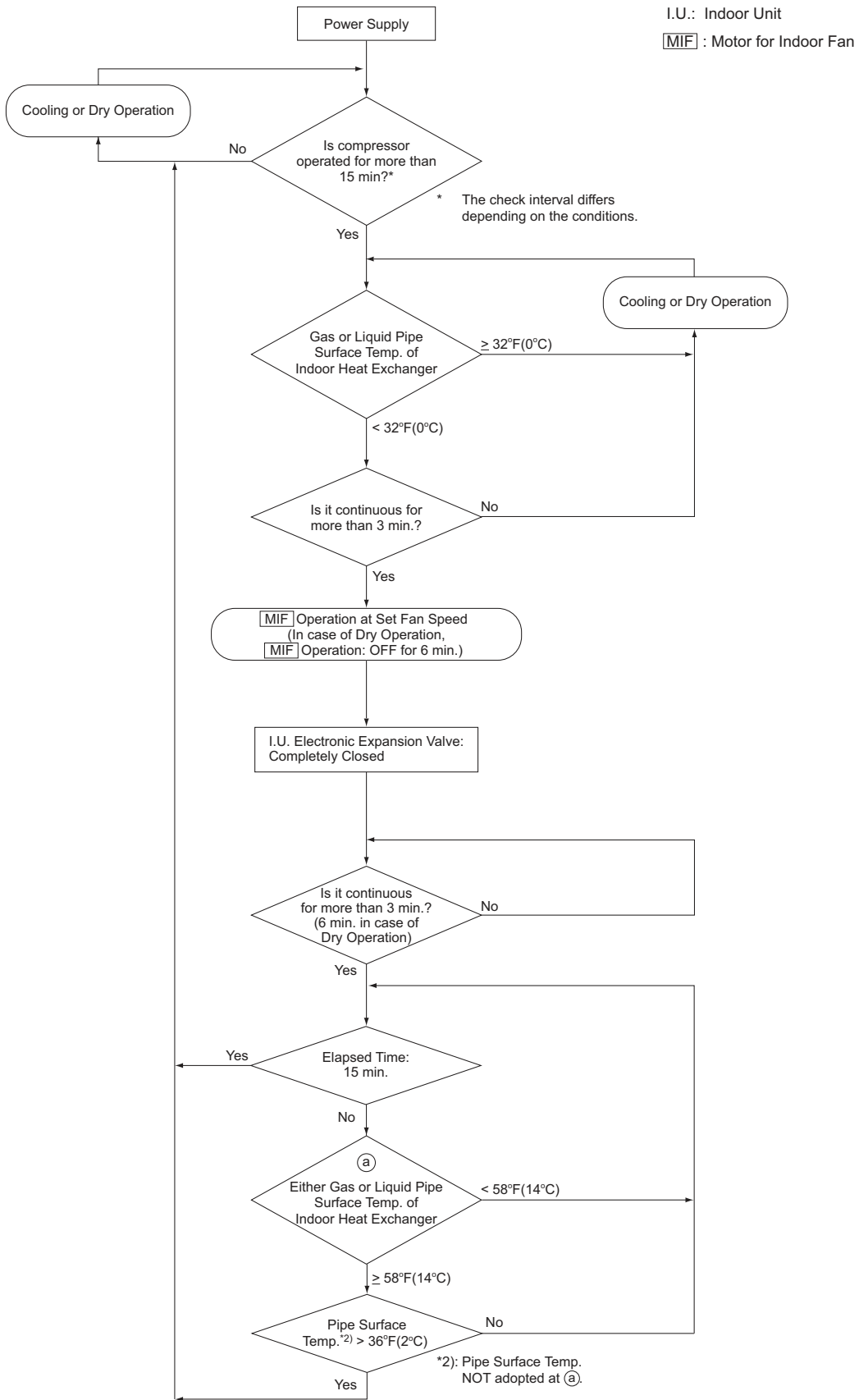
It is applicable only for the Heat Recovery System.



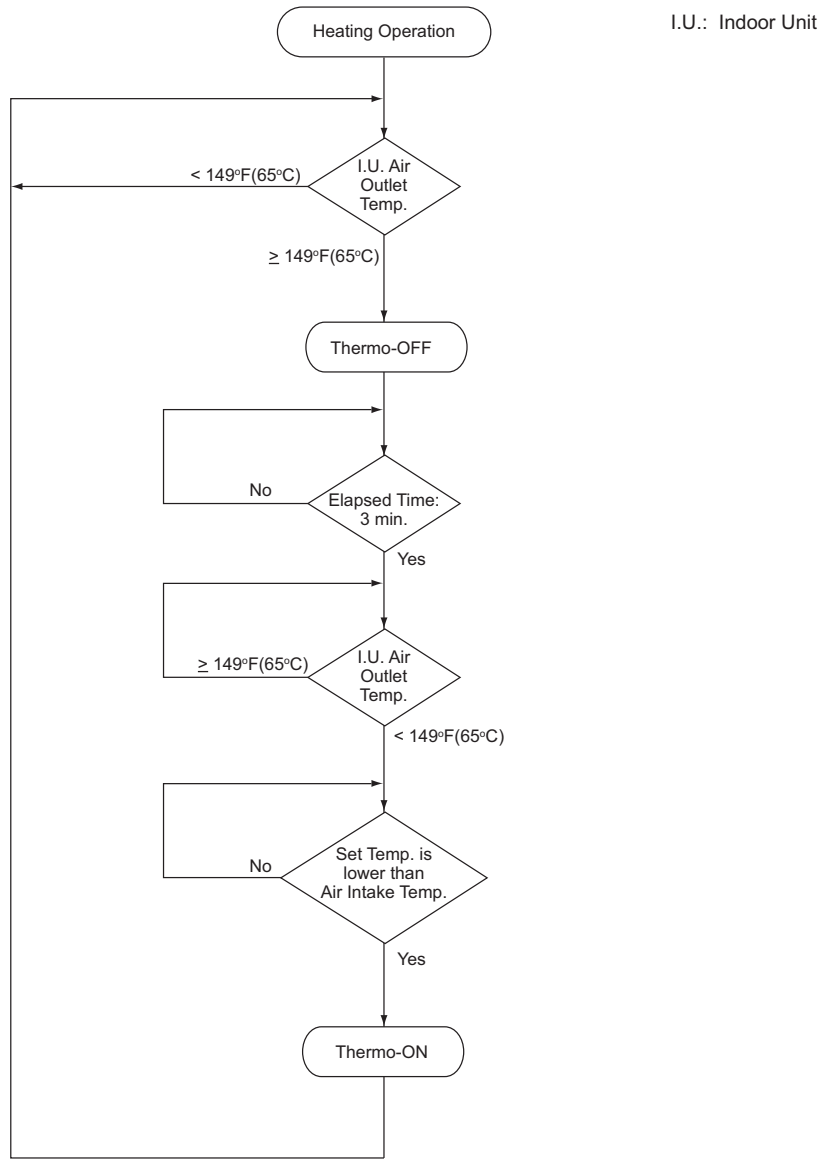
■ Defrosting Operation

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

■ Freeze Protection Control during Cooling or Dry Operation



■ Prevention Control for Excessively High Outlet Air Temperature (High Outlet Air Temperature Heat Lockout)



Thermo-ON/OFF Control for Indoor Unit

Thermo-ON: The outdoor unit and some indoor units are running.

Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

■ Activating Protections

The sequence may be different depending on the outdoor unit model to be connected. Refer to the section on outdoor units for details.

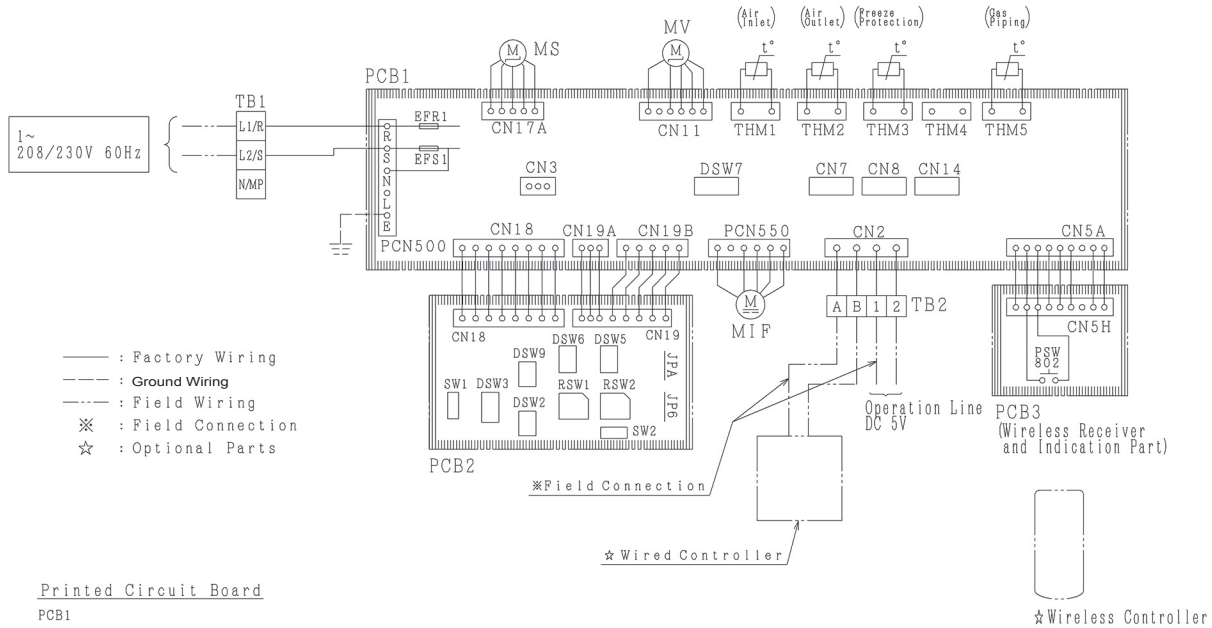
INDOOR UNITS

3.4.11.3 Safety and Control Device Setting

| | | | |
|--|------------|---|-------------|
| Model | | TIWM006B21S, TIWM008B21S TIWM012B21S, TIWM015B21S TIWM018B21S | TIWM024B21S |
| For Evaporator Fan Motor Chip Ceramic PTC Thermistor | °F (°C) | 176 (80) | 140 (60) |
| For Control Circuit Fuse Capacity | A | 5 | |

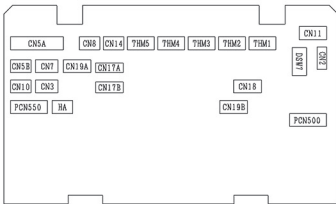
3.4.11.4 Wiring Diagram

Models: TIWM006B21S, TIWM008B21S and TIWM012B21S

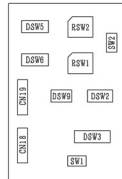


Printed Circuit Board

PCB1



PCB2

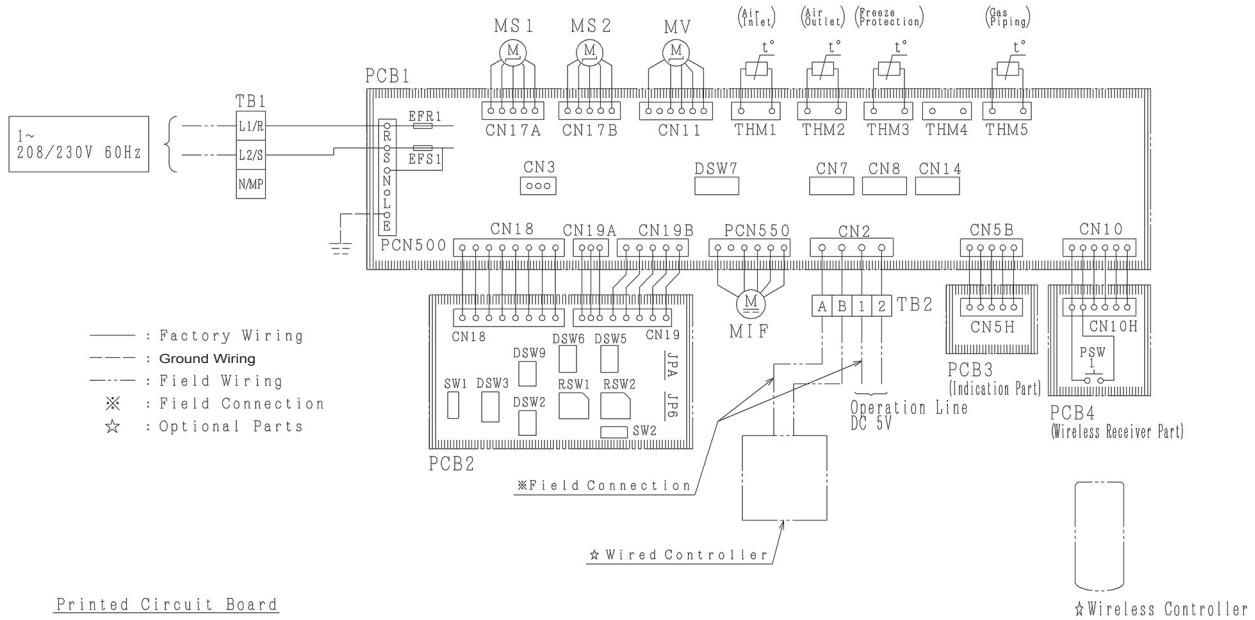


Notes:

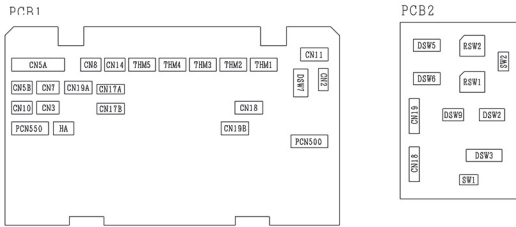
1. All the field wiring and equipment must comply with local codes.
2. In case of using Wired Controller, set SW2 to "Wired" position.

| Mark | Name |
|------------|--|
| CN3 | Optional Connector (For Signal Input) |
| CN5A, 5H | Connector for PCB3 Connection |
| CN7, 8 | Optional Connector (For Signal Output) |
| DSW3, 7 | DIP Switch for Setting |
| EFR1, EFS1 | Fuse |
| MIF | Motor for Indoor Fan |
| MS | Motor for Automatic Swing Louver |
| MV | Electronic Expansion Valve |
| PCB1~3 | Printed Circuit Board |
| PSW802 | Switch for Emergency Operation |
| RSW1 | Rotary Switch for Unit No. Setting (Ones Digit) |
| DSW6 | DIP Switch for Unit No. Setting (Tens Digit) |
| RSW2 | Rotary Switch for Refrigerant Cycle No. Setting (Ones Digit) |
| DSW5 | DIP Switch for Refrigerant Cycle No. Setting (Tens Digit) |
| SW2 | Switch for Changing Wired / Wireless Controller |
| TB1, 2 | Terminal Block |
| THM1~3, 5 | Thermistor |
| THM4 | Optional Connector (For Remote Temperature Sensor) |
| CN14, HA | Reserved Connector on PCB |
| DSW2, 9 | Reserved DIP Switch on PCB |
| SW1 | Reserved Switch on PCB (Keep 「2」 Position) |

Models: TIWM015B21S, TIWM018B21S and TIWM024B21S



Printed Circuit Board



Notes:

1. All the field wiring and equipment must comply with local codes.
2. In case of using Wired Controller, set SW2 to "Wired" position.

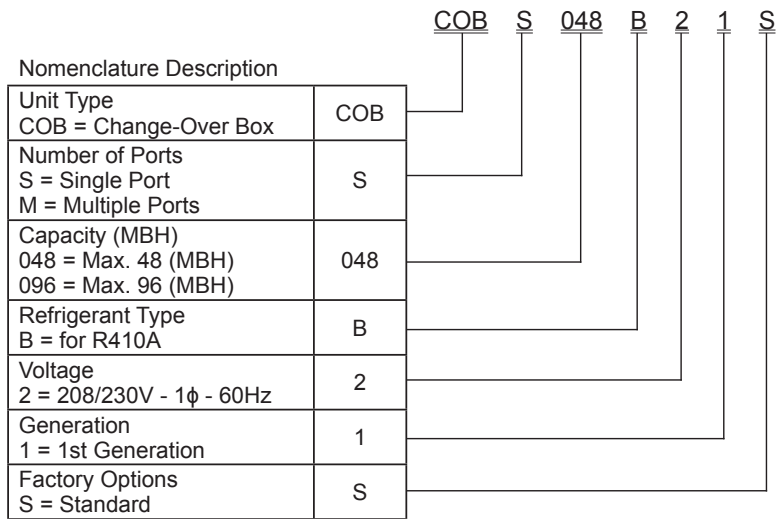
| Mark | Name |
|------------|--|
| CN3 | Optional Connector (For Signal Input) |
| CN5B, 5H | Connector for PCB3 Connection |
| CN7, 8 | Optional Connector (For Signal Output) |
| CN10, 10H | Connector for PCB4 Connection |
| DSW3, 7 | DIP Switch for Setting |
| EFR1, EFS1 | Fuse |
| MIF | Motor for Indoor Fan |
| MS1, 2 | Motor for Automatic Swing Louver |
| MV | Electronic Expansion Valve |
| PCB1~4 | Printed Circuit Board |
| PSW1 | Switch for Emergency Operation |
| RSW1 | Rotary Switch for Unit No. Setting (Ones Digit) |
| DSW6 | DIP Switch for Unit No. Setting (Tens Digit) |
| RSW2 | Rotary Switch for Refrigerant Cycle No. Setting (Ones Digit) |
| DSW5 | DIP Switch for Refrigerant Cycle No. Setting (Tens Digit) |
| SW2 | Switch for Changing Wired / Wireless Controller |
| TB1, 2 | Terminal Block |
| THM1~3, 5 | Thermistor |
| THM4 | Optional Connector (For Remote Temperature Sensor) |
| CN14, HA | Reserved Connector on PCB |
| DSW2, 9 | Reserved DIP Switch on PCB |
| SW1 | Reserved Switch on PCB (Keep 「2線」 Position) |

4. Change-Over Box

4.1 Unit Nomenclature

Unit Nomenclature

Example



4.2 Line-up

| Type | Capacity | | Model |
|-----------------|----------|-----|-------------|
| | RT | MBH | |
| Change-Over Box | 4 | 48 | COBS048B21S |
| | 8 | 96 | COBS096B21S |

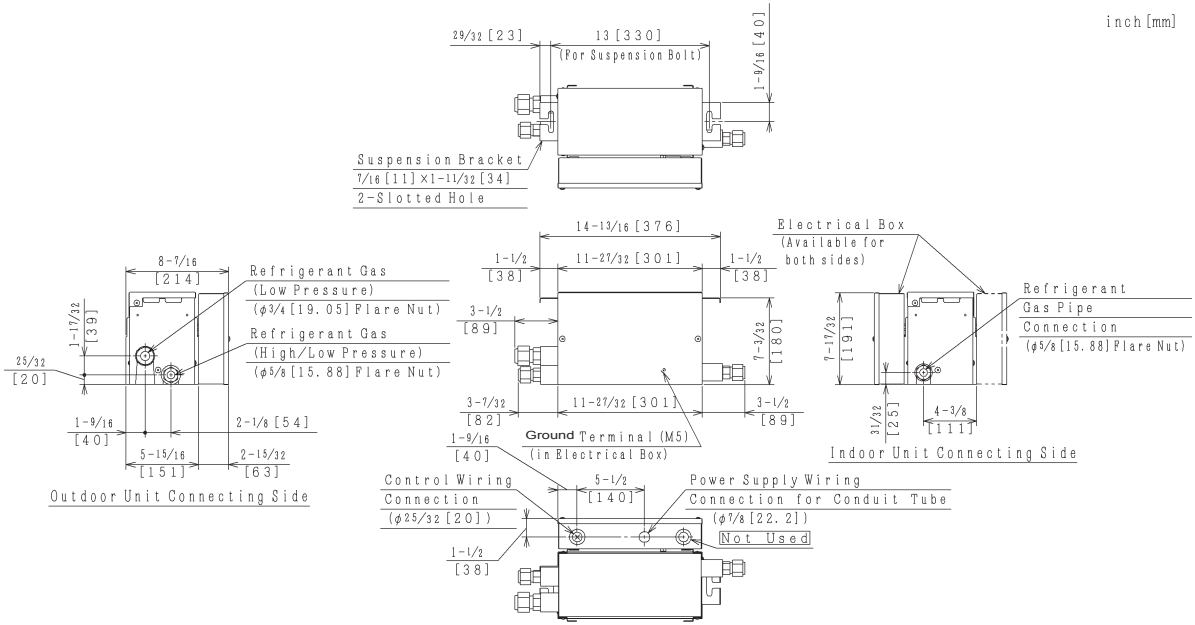
4.3 General Data

Specifications

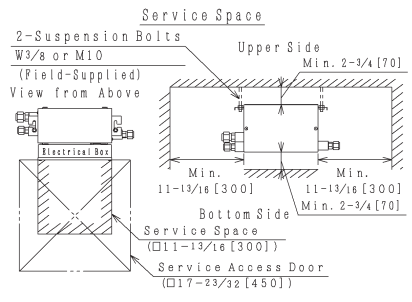
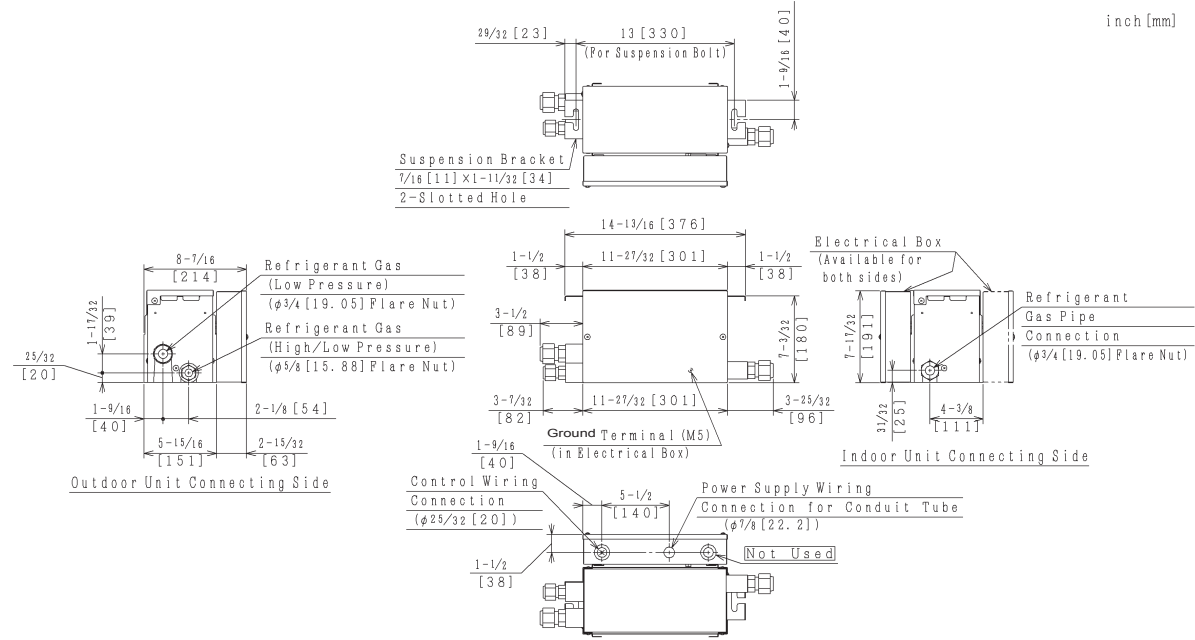
| Model Name | | | COBS048B21S | COBS096B21S |
|--|------------------------------|-----------|-------------------|-------------------|
| Power Supply | | | 208/230V 1PH 60Hz | 208/230V 1PH 60Hz |
| Power Consumption | | | 20 | 20 |
| Connectable Indoor Unit Total Capacity | more than 2 Units | MBH | ≤ 41 | 42 - 71 |
| | 1 Unit | MBH | ≤ 48 | 49 - 96 |
| Number of Connectable Indoor Unit | | | 1 - 7 | 1 - 8 |
| Dimension | Height | in (mm) | 7-17/32 (191) | 7-17/32 (191) |
| | Width | in (mm) | 11-27/32 (301) | 11-27/32 (301) |
| | Depth | in (mm) | 8-7/16 (214) | 8-7/16 (214) |
| Net Weight | | lb (kg) | 15 (7) | 15 (7) |
| Refrigerant | | – | R410A | R410A |
| Min Circuit Amps | | A | 0.1 | 0.1 |
| Recommended Fuse/Breaker Size | | A | 15 | 15 |
| Maximum Fuse Size | | A | 15 | 15 |
| Refrigerant Piping (from Outdoor Unit) | Gas Line (Low Pressure) | φin (φmm) | 3/4 (19.05) | 3/4 (19.05) |
| | Gas Line (High/Low Pressure) | φin (φmm) | 5/8 (15.88) | 5/8 (15.88) |
| | Liquid Line | φin (φmm) | – | – |
| Refrigerant Piping (from Indoor Unit) | Gas Line | φin (φmm) | 5/8 (15.88) | 3/4 (19.05) |
| | Liquid Line | φin (φmm) | – | – |

4.4 Dimensional Data

< COBS048B21S >



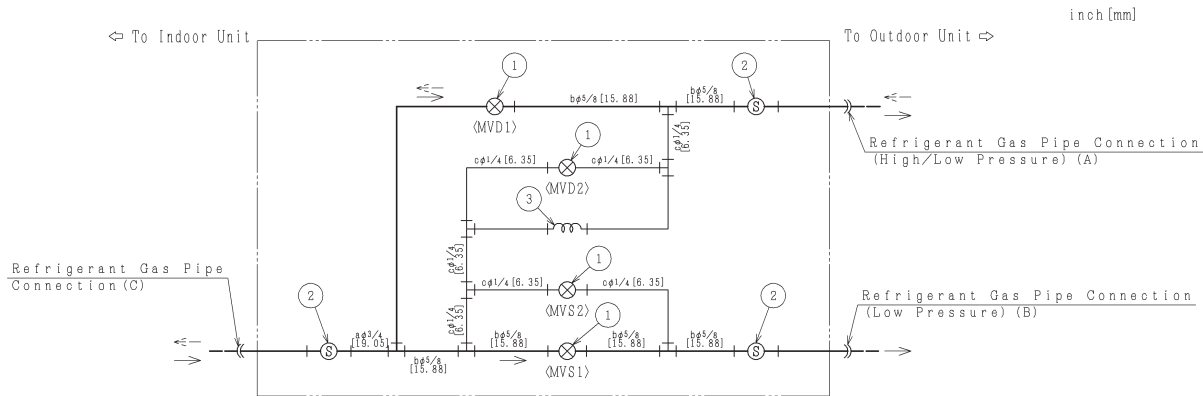
< COBS096B21S >



- Notes:
- Change-over box consists of mechanical parts such as electronic expansion valves. Ensure the service access door is below the electrical box.
 - Refrigerant flow sound may be heard from the change-over box when the micro-computer control expansion valve in the change-over box is activated. Therefore, take the following action to minimize the sound.
 - (A) Install the change-over box inside the ceiling. As for the ceiling material, select a material like a plaster board which minimizes operation sound.
 - (B) Do not install the change-over box in a place that may be noise sensitive.
 - Do not connect the liquid piping to other units.

CHANGE-OVER BOX

4.5 Refrigeration Cycle



- Refrigerant Flow Direction (Cooling Operation)
- ← Refrigerant Flow Direction (Heating Operation)
- ⋈ Flare Connection
- ⊕ Brazing Connection
- Field Refrigerant Piping

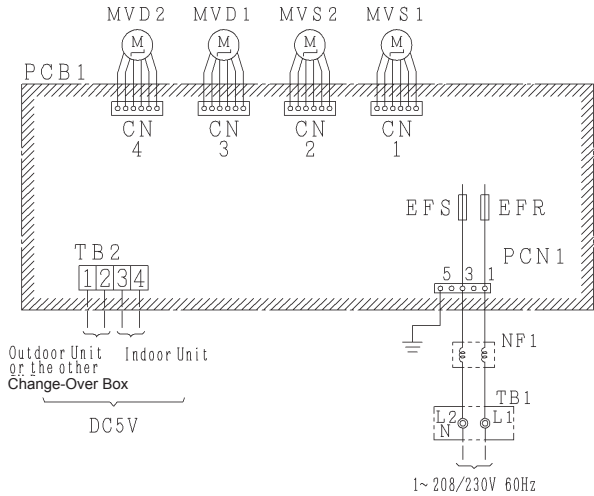
| Mark | Part Name |
|------|----------------------------|
| ① | Electronic Expansion Valve |
| ② | Strainer |
| ③ | Capillary Tube |

| Symbol (Outer diameter × Thickness) | Model | | |
|---|-------------------------|--------------------------|--------------------------|
| | (A) | (B) | (C) |
| | 5/8×3/64 [15.88×1.2] | 3/4×1/16 [19.05×1.65] | 5/8×3/64 [15.88×1.2] |
| | 5/8×3/64 [15.88×1.2] | 3/4×1/16 [19.05×1.65] | 3/4×1/16 [19.05×1.65] |

| Mark | Material Size O.D.×Thickness | Material |
|------|---------------------------------|-------------------------|
| a | 3/4×1/16 [19.05×1.65] | Copper Tube C1220T-0 |
| b | 5/8×3/64 [15.88×1.2] | |
| c | 1/4×1/32 [6.35×0.7] | |

Note:
Reference the wiring diagram below for additional details on <MVS1>, <MVS2>, <MVD1>, and <MVD2>.

4.6 Wiring Diagram

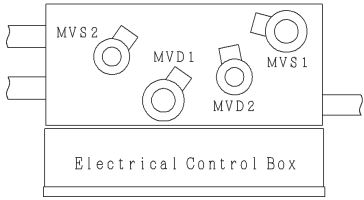


| Mark | Name | Remark |
|------------|----------------------------|----------------|
| PCB1 | Printed Circuit Board | |
| TB1 | Terminal Block | Main Power |
| TB2 | Terminal Block | Operating Line |
| MVD1, MVS1 | Electronic Expansion Valve | |
| MVD2, MVS2 | Valve | |
| NF1 | Noise Filter | |
| EFR, EFS | Fuse | |

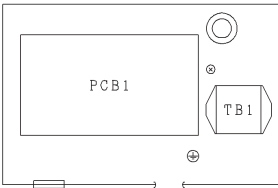
| Mark | Torque to tighten the terminal | |
|------|--------------------------------|-----------------|
| TB1 | 0.7~1.0 (lbf·ft) | [1.0~1.3 (N·m)] |
| TB2 | 0.7~1.0 (lbf·ft) | [1.0~1.3 (N·m)] |

—: Factory Wiring
 - - -: Field Wiring

Note:
 1. All the field wiring and equipment must comply with local codes.



Electronic Expansion Valve
 (View of the Top)



Electrical Control Box

5. Optional Parts

5.1 Line Up




| Item No. | Type | Adopting Model Name | Item No. | Optional Parts | Optional Parts Model Name | Adapting | |
|-----------------------------|----------------|-------------------------------|--------------------------|---|------------------------------|-----------------|-----------------|
| 5.2 | Outdoor Unit | (H,Y)VAHR072 ~120B(3)(4)1S | 5.2.1 | Drain Adapter | DBS-TP10A | | |
| | | | 5.2.2 | Protection Net | Protection Net (Rear) | PN-TP10BA | For 072 |
| | | | | | Protection Net (Rear) | PN-TP10BB | For 096 and 120 |
| | | | | | Protection Net (Right) | PN-TP10R | For 072 to 120 |
| | | | | | Protection Net (Left) | PN-TP10L | For 072 to 120 |
| | | | 5.2.3 | Snow Protection Hood | Snow Protection Hood (Upper) | ASG-TP20FAS1 | For 072 |
| | | | | | Snow Protection Hood (Upper) | ASG-TP20FBS1 | For 096 and 120 |
| | | | | | Snow Protection Hood (Rear) | ASG-TP20BAS1 | For 072 |
| | | | | | Snow Protection Hood (Rear) | ASG-TP20BBS1 | For 096 and 120 |
| | | | | | Snow Protection Hood (Right) | ASG-TP20RS2 | |
| Snow Protection Hood (Left) | ASG-TP20LS2 | | | | | | |
| 5.3 | Ducted | Ducted High Static | (H,Y)IDH018B ~048B21S | 5.3.1 | Air Filter | KW-PP8Q | For 018 |
| | | Ducted Medium Static | (H,Y>IDM006 ~048B21S | | | KW-PP3Q | For 024 to 030 |
| | | Ducted Slim | (H,Y)IDS006 ~018B21S | | | KW-PP4Q | For 036 to 048 |
| | KW-PP7Q | For 006 to 012 | | | | | |
| | KW-PP8Q | For 015 to 018 | | | | | |
| | KW-PP9Q | For 024 to 030 | | | | | |
| | KW-PP10Q | For 036 to 048 | | | | | |
| 5.4 | 4-Way Cassette | (H,Y)IC4012 ~036B21S | 5.4.1 | Anti-bacterial Air Filter | F-71M-K2 | For 012 to 018 | |
| | | | 5.4.2 | Filter Box | F-160M-K2 | For 024 to 036 | |
| | | | 5.4.3 | Air Outlet Shutter Plate | B-160H3 | | |
| | | | 5.4.4 | Fresh Air Intake Kit | PI-160LS2 | | |
| | | | 5.4.5 | T-Tube Connecting Kit | OACI-160K3 | | |
| | | | 5.4.6 | Duct Adapter | TKCI-160K | | |
| 5.5 | 1-Way Cassette | (H,Y)IC1006 ~015B21S | 5.5.1 | Anti-bacterial Air Filter | PD-75A | | |
| | | | 5.5.2 | Motion Sensor Kit | MSF-NP63A | For 006 to 015 | |
| | | | 5.5.3 | Duct Adapter | MSF-NP112A | For 018 and 024 | |
| | | | 5.5.4 | Grille for Front Discharge | MC-NP21A1 | For 2 Module | |
| | | | 5.5.5 | Air Outlet Shutter Plate | MC-NP30A1 | For 3 Module | |
| 5.7 | Piping Kit | — | 5.7.1 | Piping Connection Kit for Heat Pump System (2-Pipes Connection) | MC-NP40A1 | For 4 Module | |
| | | | | | MC-NP21X1 | For 2 Module | |
| | | | | | MC-NP30X1 | For 3 Module | |
| | | | 5.7.2 | Piping Connection Kit for Heat Recovery System (3-Pipes Connection) | MC-NP40X1 | For 4 Module | |
| | | | | | MW-NP282A2 | | |
| | | | | | MW-NP452A2 | | |
| | | | 5.7.3 | Multi-Kit (Line Branch) for Heat Pump System (2-Pipes Connection) | MW-NP692A2 | | |
| | | | | | MW-NP902A2 | | |
| | | | | | MW-NP142X2 | | |
| | | | 5.7.4 | Multi-Kit (Line Branch) for Heat Recovery System (3-Pipes Connection) | MW-NP282X2 | | |
| | | | | | MW-NP452X2 | | |
| | | | | | MW-NP562X2 | | |
| | | | | | MW-NP692X2 | | |
| | | | 5.7.5 | Multi-Kit (Header Branch) for Heat Pump System (2-Pipes Connection) | MW-NP902X2 | | |
| | | | | | MH-NP224A | | |
| | | | 5.7.6 | Multi-Kit (Header Branch) for Heat Recovery System (3-Pipes Connection) | MH-NP288A | | |
| MH-NP288X | | | | | | | |
| 5.8 | Control | — | 5.8.1 | 3 Pin Connector Cable | PCC-1A | | |
| | | | 5.8.2 | Remote Sensor | THM-R2A | | |
| | | | 5.8.3 | Relay and 3 Pin Connector Kit | PSC-5RA | | |

5.2 Outdoor Unit

5.2.1 Drain Adapter DBS-TP10A

The drain adapter is for the drain pipe connection in order to use the outdoor unit bottom base as a drain pan.

Unit: inch (mm)

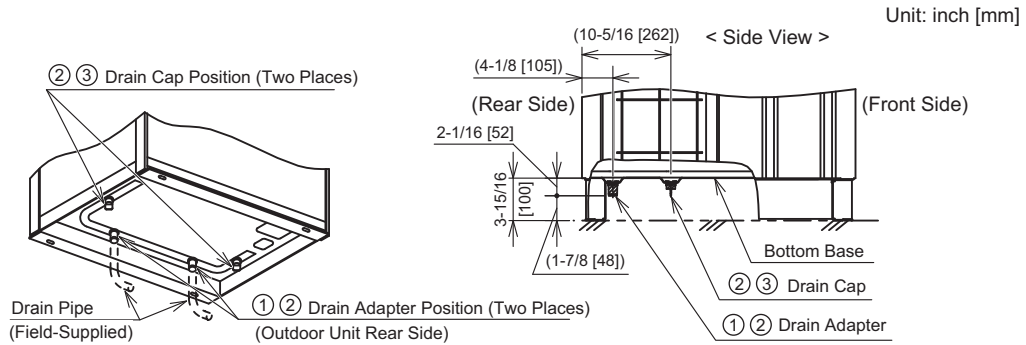
| No. | Accessory | Qty | Remarks |
|-----|--|-----|---------------------------------|
| ① | Drain Adapter (VP20 Equivalent)  Outer Diameter φ31/32 (φ25) (Inner Diameter φ25/32 (φ20)) | 2 | Connection for Drain Piping |
| ② | Rubber Cap  | 4 | Fitting for ① Adapter and ③ Cap |
| ③ | Drain Cap  | 2 | Plug for Future Use |

CAUTION

Place the outdoor unit on a flat foundation or block and place it at least 4 inches (100mm) higher than the ground. For smooth drainage, install the outdoor unit with a slight incline on the drainage side (rear side).

< Installation Position >

[Example] Capacity: 72,000 Btu/h



< Condensate Treatment >

Condensate is discharged during heating and defrosting operation. (Rain water is also discharged.)
 Note the following.

- (1) Choose a place that is well drained or provide a drain ditch.
- (2) Do not install the unit over walkways. Condensation may drip on people.
 If installing the unit in such a place, provide an additional drain pan.
- (3) Do not use a drain adapter in a cold area. The condensate in the drain pipe may freeze resulting in a cracked pipe.

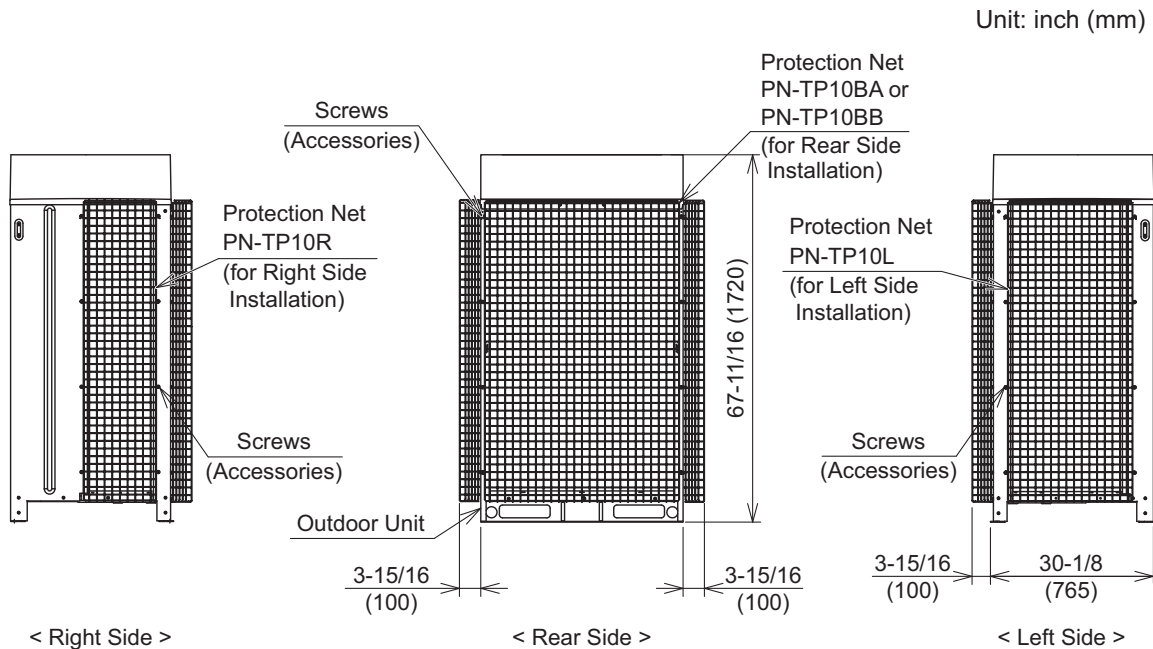
5.2.2 Protection Net

The protection net is to protect the outdoor unit heat exchanger from external damages such as being hit by a ball.

Components of Protection Net

| Model | PN-TP10BA | PN-TP10BB | PN-TP10R | PN-TP10L |
|-------------------------|-------------------------------|---|---|---|
| Applicable Outdoor Unit | Top Flow Type 72,000 Btu/h | Top Flow Type 96,000 to 120,000 Btu/h | Top Flow Type 72,000 to 120,000 Btu/h | Top Flow Type 72,000 to 120,000 Btu/h |
| Required Qty | 1 | 1 | 1 | 1 |
| Accessory | Protection Net | 1 | 1 | 1 |
| | Screw Spare = () | 10 (1) | 10 (1) | 9 (1) |
| | Drill Screw | — | — | 2 2 |

< Installation Position >



< Installation Notice >

- (1) Secure enough service space with consideration for attaching/detaching the protection net.
- (2) Do not step on the protection net or the outdoor unit in order to prevent falls and injuries.
- (3) Fallen leaves or other objects may get caught in the protection net. Be sure to clean the net periodically.
- (4) Be sure to securely tighten the protection net with the supplied screws (accessories).
(If the screws are not tightened securely, there may be noise caused by vibration. If they are over-tightened, the screw thread will be broken.)
- (5) Apply touch-up coating at the screw holes of the outdoor unit in order to prevent rusting.
(field-supplied)
- (6) The protection net may become frozen in cold weather.
- (7) It is not possible to use the snow-protection hood (for rear side inlet and air outlet) along with the protection net.

OPTIONAL PARTS

5.2.3 Snow Protection Hood

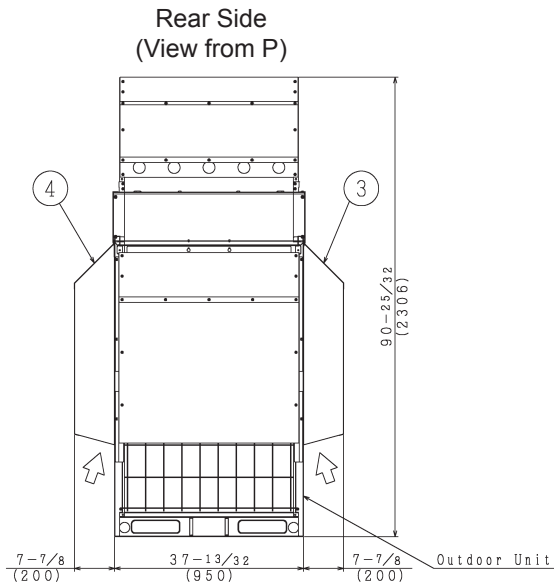
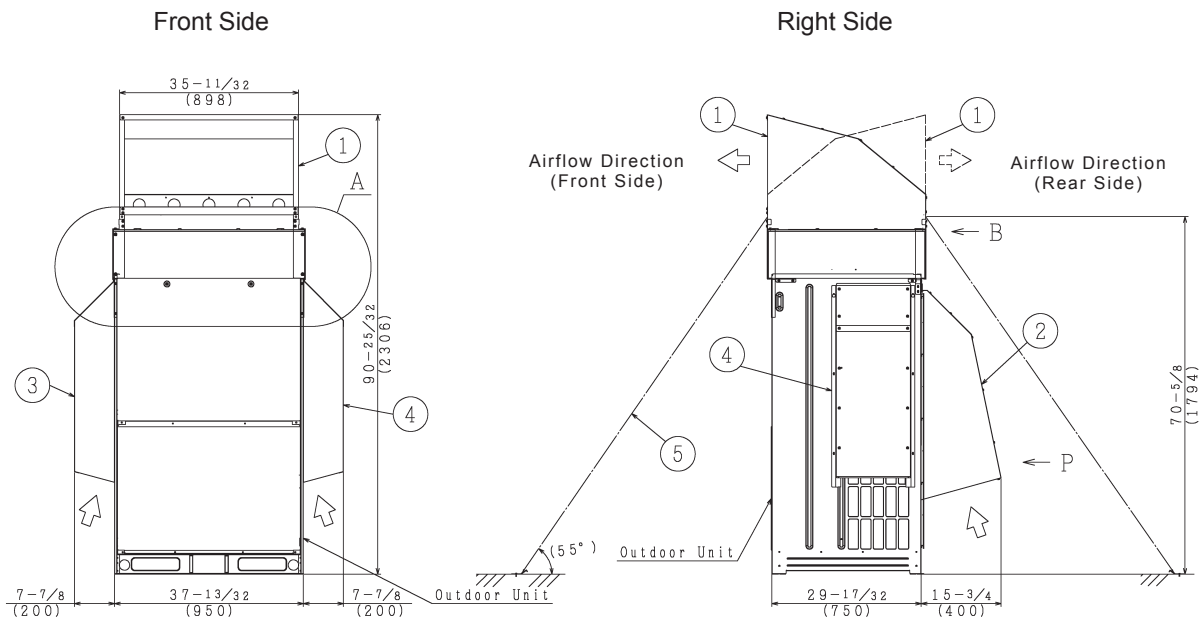
Available Combinations

| Applicable Outdoor Unit | Model | |
|-------------------------------|-------------------------------|---|
| | Top Flow Type 72,000 Btu/h | Top Flow Type 96,000 and 120,000 Btu/h |
| Hood for Air Outlet | ASG-TP20FAS1 | ASG-TP20FBS1 |
| Hood for Rear Side Air Inlet | ASG-TP20BAS1 | ASG-TP20BBS1 |
| Hood for Left Side Air Inlet | ASG-TP20LS2 | |
| Hood for Right Side Air Inlet | ASG-TP20RS2 | |

• Installation Appearance

- Top Flow Type 72,000 Btu/h

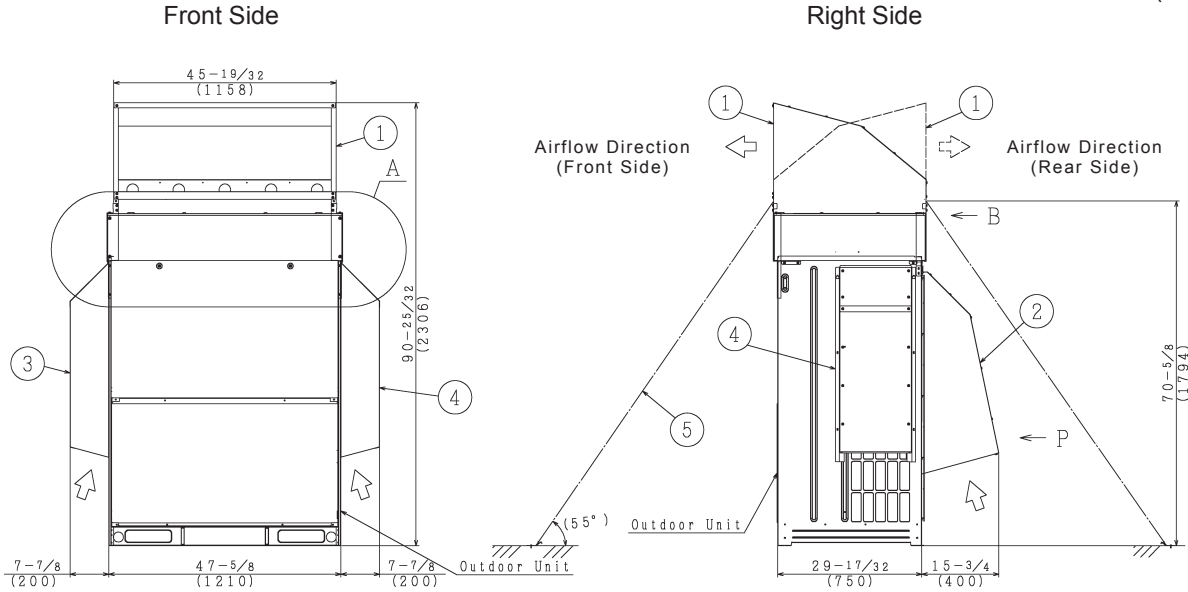
Unit: inch (mm)



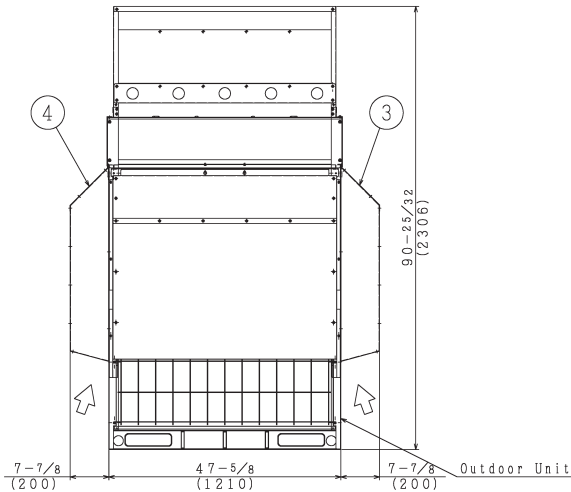
| No. | Item | Model |
|-----|--|--------------|
| 1 | Hood for Air Outlet | ASG-TP20FAS1 |
| 2 | Hood for Rear Side Air Inlet | ASG-TP20BAS1 |
| 3 | Hood for Left Side Air Inlet | ASG-TP20LS2 |
| 4 | Hood for Right Side Air Inlet | ASG-TP20RS2 |
| 5 | Safety Wire Rope to Prevent Overturning (Field-Supplied) | - |

• Top Flow Type 96,000 and 120,000 Btu/h

Unit: inch (mm)



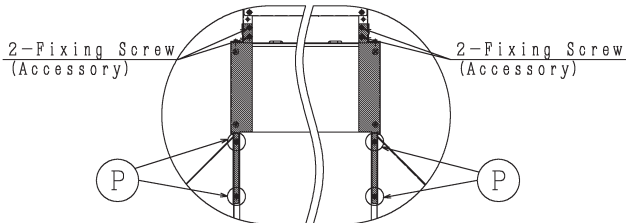
**Rear Side
(View from P)**



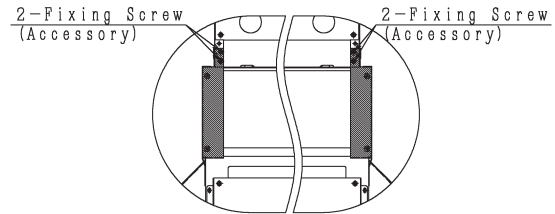
| No. | Item | Model |
|-----|--|--------------|
| 1 | Hood for Air Outlet | ASG-TP20FBS1 |
| 2 | Hood for Rear Side Air Inlet | ASG-TP20BBS1 |
| 3 | Hood for Left Side Air Inlet | ASG-TP20LS2 |
| 4 | Hood for Right Side Air Inlet | ASG-TP20RS2 |
| 5 | Safety Wire Rope to Prevent Overturning (Field-Supplied) | - |

< Detailed Views of A and B >

Detail A



Detail B



Detail P

Punch Mark (four places)

Drill a pilot hole into the punch mark and mount the fixing plate.

• Installation Work

- (1) After the snow protection hood is installed, the noise at the air outlet side may slightly increase. Therefore, it is necessary to carefully consider the air discharge direction when installing.
- (2) Be sure to tighten the snow protection hood securely to the top panel and side panel of the outdoor unit with the supplied screws (accessories). Not doing so may lead to noise caused by vibrations.
- (3) There must be no obstacles blocking the air discharge direction of the snow protection hood. If there are obstacles, it may cause a short circuit or an insufficient airflow rate.
- (4) Do not install other outdoor units in the direction of air outlet. If the air blown out of the snow protection hood is sucked into the other outdoor unit, it may cause a malfunction.
- (5) The wind loads which the outdoor unit receives change by attaching the snow protection hood. The required installation strength will also change in a strong wind. Therefore, recheck the strength of the anchor bolts of the outdoor unit.
- (6) When a snow protection hood is installed, cooling/heating performance may be slightly lower depending on the usage conditions.

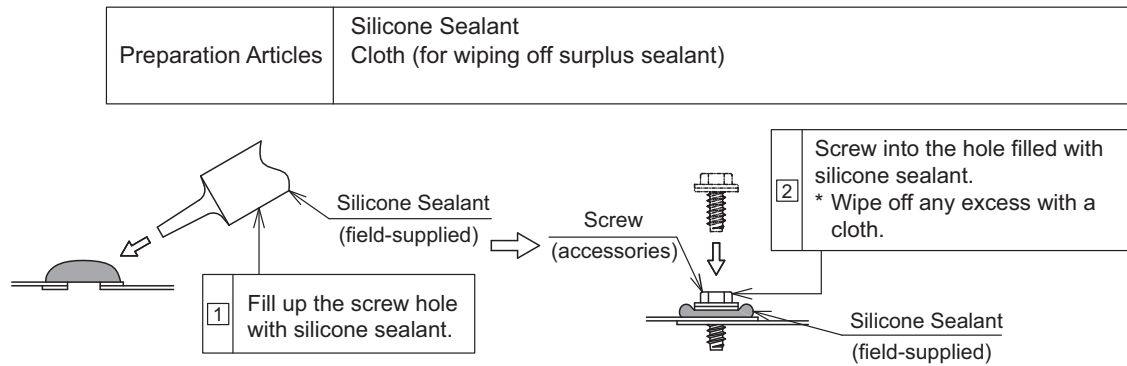
WARNING

To hold the snow protection hood securely on the outdoor unit against a strong wind or earthquake, a safety rope should be used for reinforced installation of the hood. Use the field-supplied safety wire rope to prevent the outdoor unit from overturning.

CAUTION

- Install the snow protection hood to avoid facing the direction of a seasonal or strong wind.
- Apply touch-up coating or silicone sealant (field-supplied) at the screw holes of the outdoor unit in order to prevent rusting.
- Even though the units are comprised of stainless steel and other corrosion-resistant metals, they may rust if they are exposed to a salty environment, such as near a coastal region. Be attentive when installing or maintaining the units.
- The snow protection hood is of a heavy weight. More than two persons are required for installation. Be sure to wear protective equipment (such as gloves).
- The screws and the snow protection hood must be protected from scratches or scrapes. These may be the cause of rusting. Handle the snow protection hood with care when installing or assembling.

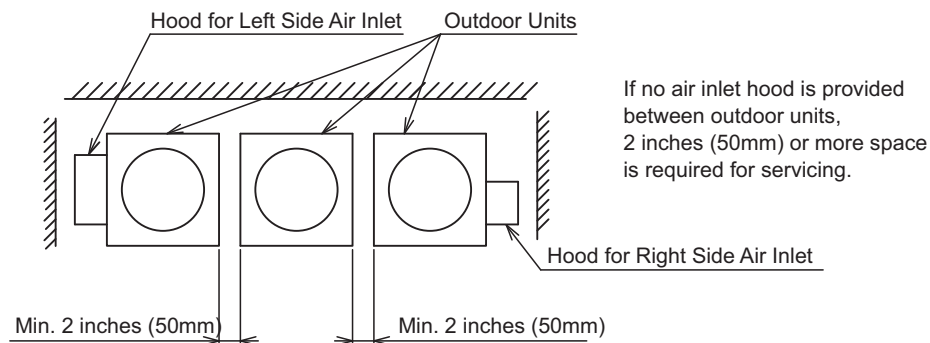
< Sealing Procedures (Example) >



● Selection of Installation Place

- (1) Install the outdoor unit at a suitable height with consideration for snow accumulation. Increase the base height or additionally provide a frame under the unit (higher than snow accumulation), and install the outdoor unit securely with anchor bolts.
- (2) Secure enough service space with consideration for snow accumulation height and snow removal operations.
- (3) There must be no obstacles in the air discharge direction.
- (4) Be sure to apply touch-up coating or caulking agent for rustproofing where there are screws.
- (5) When multiple units are installed, provide service space as shown below.

< Service Space for Multiple Outdoor Units Installation >

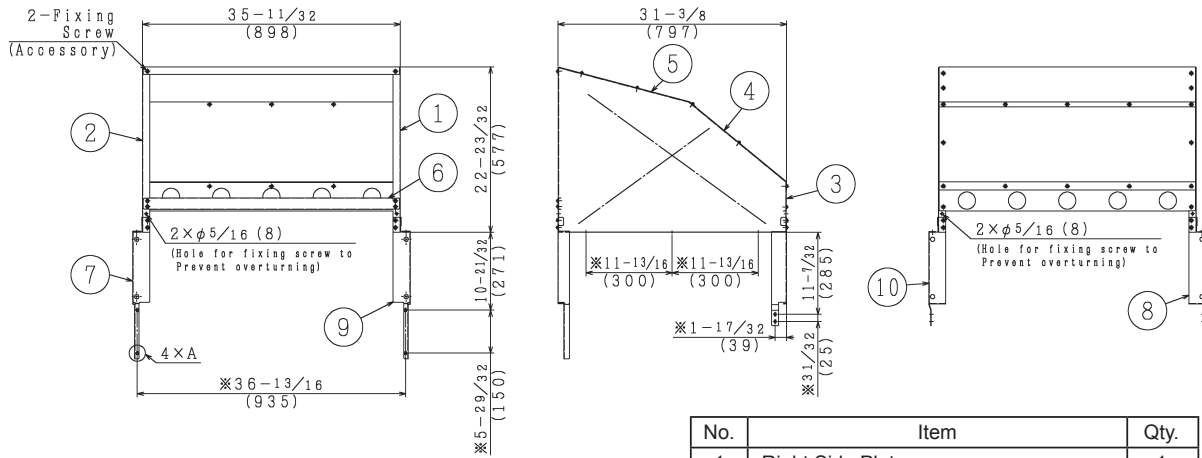


OPTIONAL PARTS

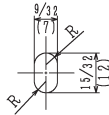
- Structure of Each Hood
< Hood for Air Outlet and Rear Side Air Inlet (72,000 Btu/h) >

- Hood for Air Outlet

Unit: inch (mm)

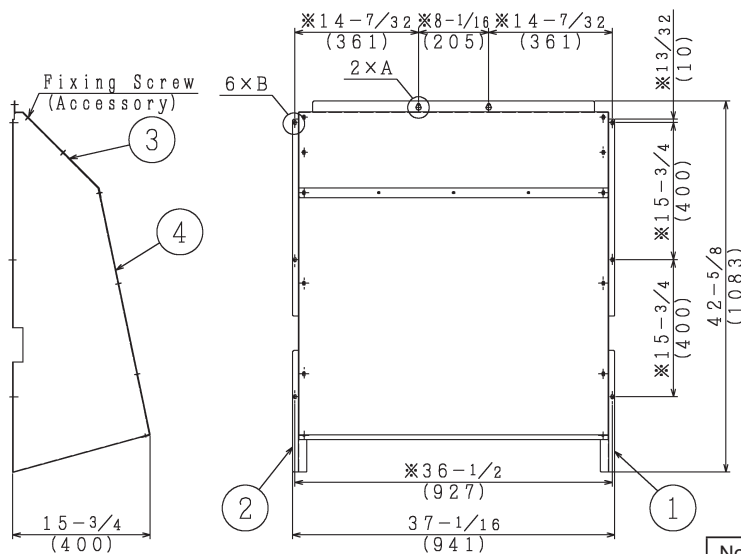


Details of A

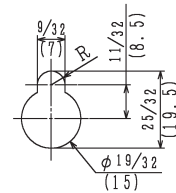


| No. | Item | Qty. |
|-----|--|------|
| 1 | Right Side Plate | 1 |
| 2 | Left Side Plate | 1 |
| 3 | Faceplate (1) | 1 |
| 4 | Faceplate (2) | 1 |
| 5 | Faceplate (3) | 1 |
| 6 | Horizontal Plate | 1 |
| 7 | Fixing Plate for Left Side (Front Side) | 1 |
| 8 | Fixing Plate for Left Side (Rear Side) | 1 |
| 9 | Fixing Plate for Right Side (Front Side) | 1 |
| 10 | Fixing Plate for Right Side (Rear Side) | 1 |

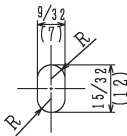
- Hood for Rear Side Air Inlet



Details of A



Details of B



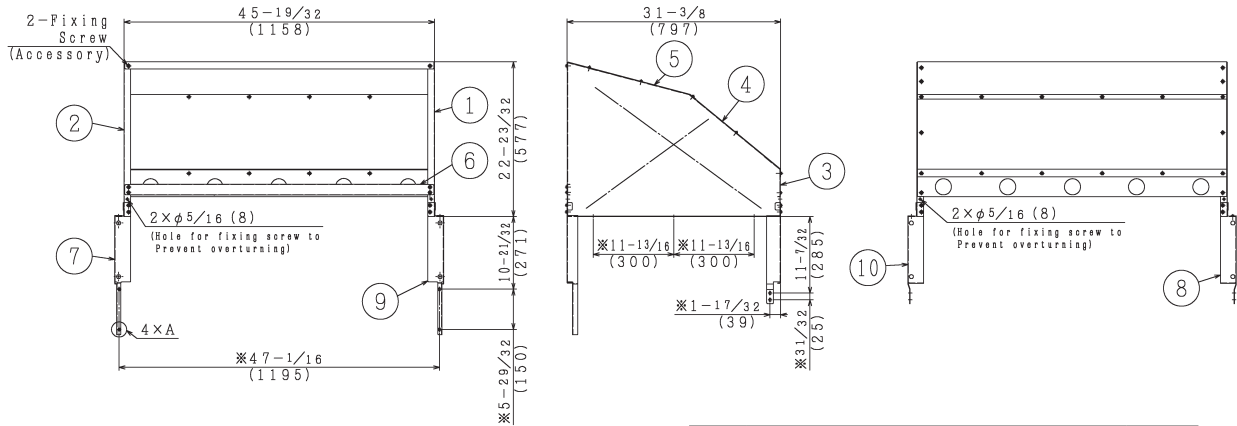
| No. | Item | Qty. |
|-----|-------------------------|------|
| 1 | Right Side Plate | 1 |
| 2 | Left Side Plate | 1 |
| 3 | Faceplate (Top Side) | 1 |
| 4 | Faceplate (Bottom Side) | 1 |

※ : Installation Dimension

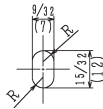
< Hood for Air Outlet and Rear Side Air Inlet (96,000 and 120,000 Btu/h) >

Unit: inch (mm)

• Hood for Air Outlet

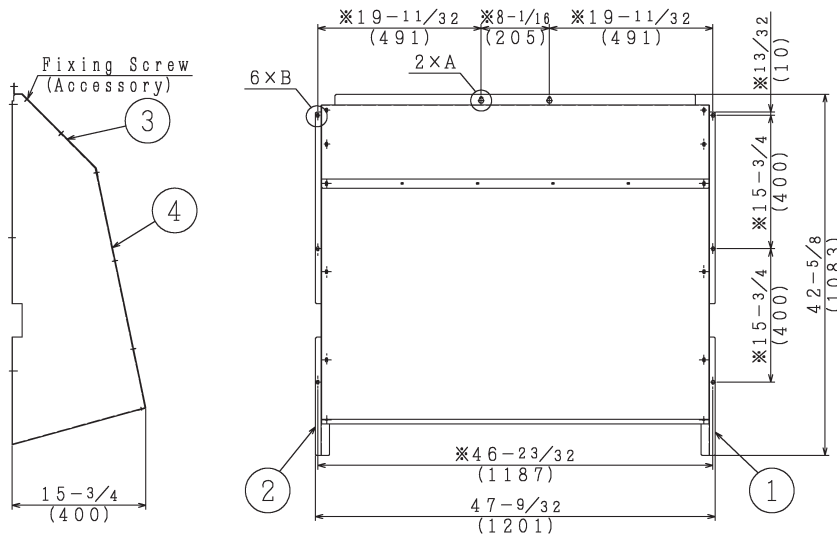


Details of A

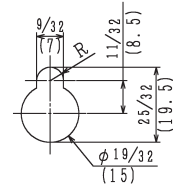


| No. | Item | Qty. |
|-----|--|------|
| 1 | Right Side Plate | 1 |
| 2 | Left Side Plate | 1 |
| 3 | Faceplate (1) | 1 |
| 4 | Faceplate (2) | 1 |
| 5 | Faceplate (3) | 1 |
| 6 | Horizontal Plate | 1 |
| 7 | Fixing Plate for Left Side (Front Side) | 1 |
| 8 | Fixing Plate for Left Side (Rear Side) | 1 |
| 9 | Fixing Plate for Right Side (Front Side) | 1 |
| 10 | Fixing Plate for Right Side (Rear Side) | 1 |

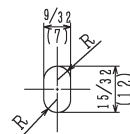
• Hood for Rear Side Air Inlet



Details of A



Details of B



| No. | Item | Qty. |
|-----|-------------------------|------|
| 1 | Right Side Plate | 1 |
| 2 | Left Side Plate | 1 |
| 3 | Faceplate (Top Side) | 1 |
| 4 | Faceplate (Bottom Side) | 1 |

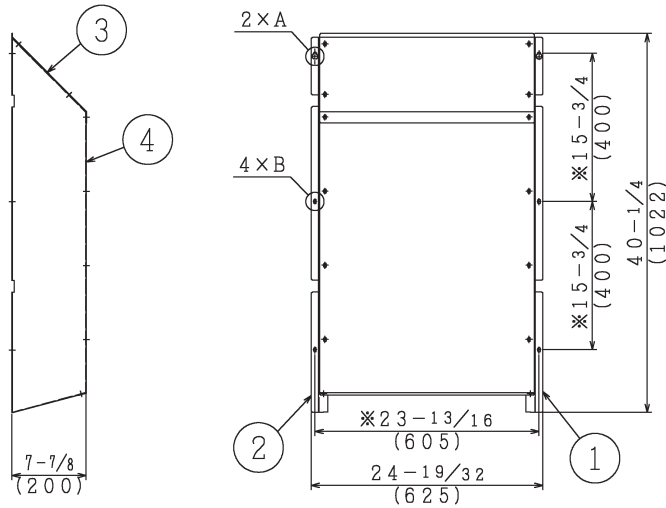
※ : Installation Dimension

OPTIONAL PARTS

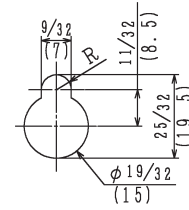
< Hood for Left Side Air Inlet and Right Side Air Inlet (72,000 ~ 120,000 Btu/h) >

Unit: inch (mm)

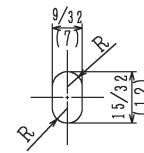
• Hood for Left Side Air Inlet



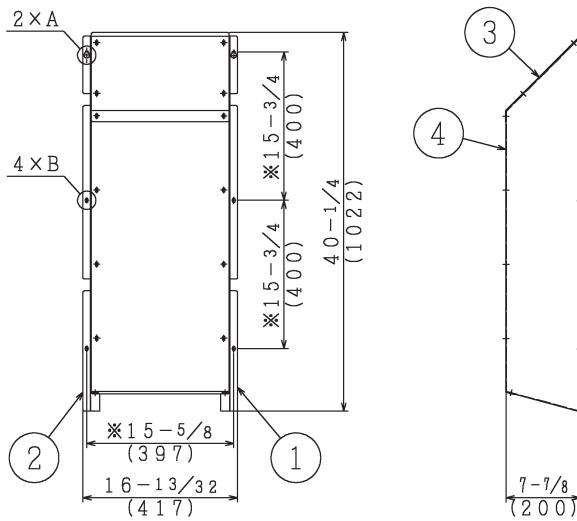
Details of A



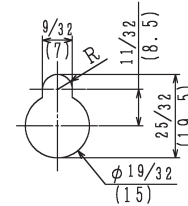
Details of B



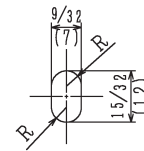
• Hood for Right Side Air Inlet



Details of A



Details of B



| No. | Item | Qty. |
|-----|-------------------------|------|
| 1 | Right Side Plate | 1 |
| 2 | Left Side Plate | 1 |
| 3 | Faceplate (Top Side) | 1 |
| 4 | Faceplate (Bottom Side) | 1 |

※ : Installation Dimension

5.3 Ducted Models

5.3.1 Air Filter

- Ducted High Static

| Model | Applicable Model |
|---------|-----------------------|
| KW-PP8Q | (H,Y)IDH018B21S |
| KW-PP3Q | (H,Y)IDH024 ~ 030B21S |
| KW-PP4Q | (H,Y)IDH036 ~ 048B21S |

- Ducted Medium Static

| Model | Applicable Model |
|----------|-----------------------|
| KW-PP7Q | (H,Y>IDM006 ~ 012B21S |
| KW-PP8Q | (H,Y)IDM015 ~ 018B21S |
| KW-PP9Q | (H,Y)IDM024 ~ 030B21S |
| KW-PP10Q | (H,Y)IDM036 ~ 048B21S |

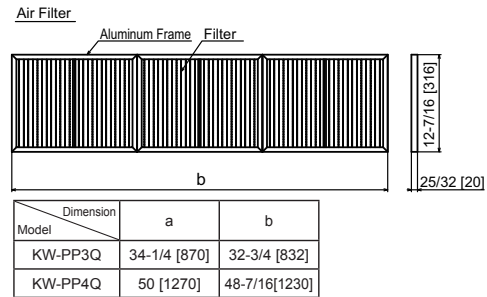
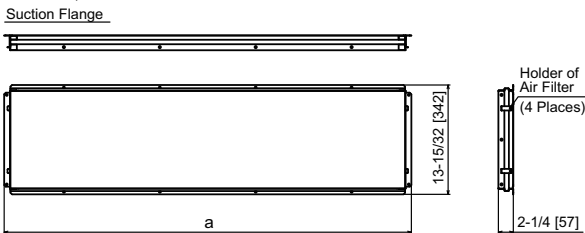
- Ducted Slim

| Model | Applicable Model |
|---------|-----------------------|
| KW-PP5Q | (H,Y)IDS006 ~ 012B21S |
| KW-PP6Q | (H,Y)IDS015 ~ 018B21S |

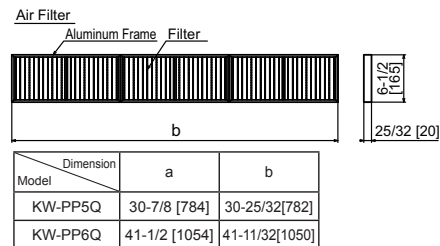
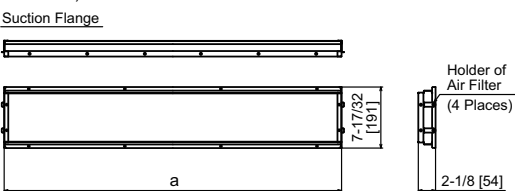
Dimensional Data

Unit: inch [mm]

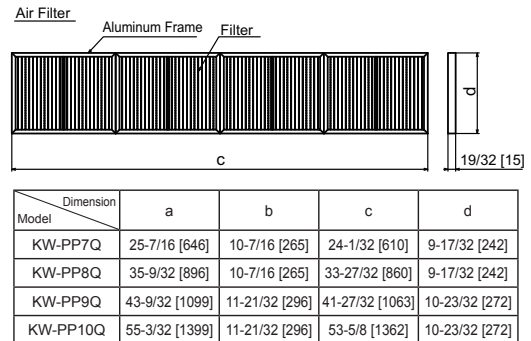
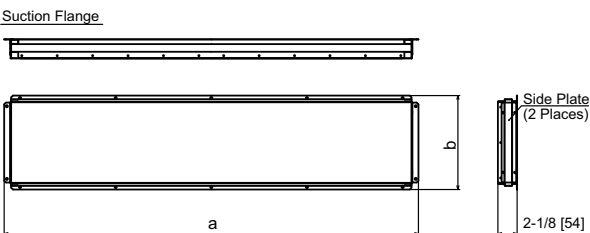
< KW-PP3Q, KW-PP4Q >



< KW-PP5Q, KW-PP6Q >



< KW-PP7Q, KW-PP8Q, KW-PP9Q, KW-PP10Q >



OPTIONAL PARTS

Specifications

| Model | | KW-PP3Q | KW-PP4Q | KW-PP5Q | KW-PP6Q |
|------------------------|------------------------------|---|---|--|--|
| Item | | | | | |
| Applicable Indoor Unit | MBH | Duct High Static Type [(H,Y)IDH**B21S] 024 to 030 | Duct High Static Type [(H,Y)IDH**B21S] 036 to 048 | Duct Slim Type [(H,Y)IDS**B21S] 006 to 012 | Duct Slim Type [(H,Y)IDS**B21S] 015 to 018 |
| Quantity per unit | | 1 | | | |
| Airflow | cfm (m ³ /min) | 741 (21) | 741 (21) | 741 (21) | 741 (21) |
| Initial Pressure Loss | in.W.G (Pa) | 0.02 (5.8) | 0.02 (5.8) | 0.02 (5.8) | 0.02 (5.8) |
| Filter Box | Material | Galvanized Steel Sheets | | | |
| | Color | White | | | |
| Filter | Material | P. P / Aluminum | | | |
| | Color | Black / Silver | | | |

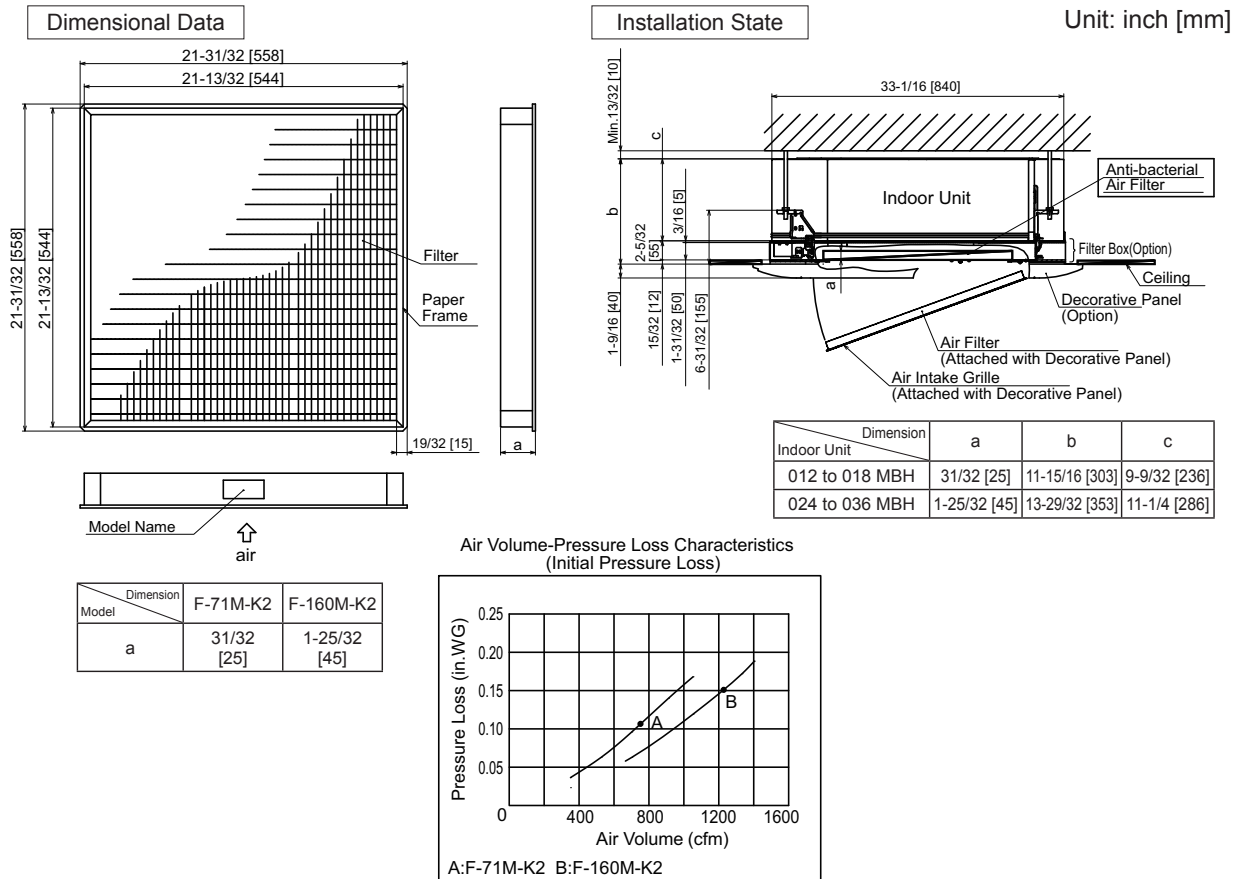
| Model | | KW-PP7Q | KW-PP8Q | KW-PP9Q | KW-PP10Q |
|------------------------|------------------------------|---|--|---|---|
| Item | | | | | |
| Applicable Indoor Unit | MBH | Duct Medium Static Type [(H,Y)IDM**B21S] 006 to 012 | Duct High Static Type [(H,Y)IDH**B21S] Duct Medium Static Type [(H,Y)IDM**B21S] 015 to 018 | Duct Medium Static Type [(H,Y)IDM**B21S] 024 to 030 | Duct Medium Static Type [(H,Y)IDM**B21S] 036 to 048 |
| Quantity per unit | | 1 | | | |
| Airflow | cfm (m ³ /min) | 741 (21) | 741 (21) | 741 (21) | 741 (21) |
| Initial Pressure Loss | in.W.G (Pa) | 0.02 (5.8) | 0.02 (5.8) | 0.02 (5.8) | 0.02 (5.8) |
| Filter Box | Material | Galvanized Steel Sheets | | | |
| | Color | White | | | |
| Filter | Material | P. P / Aluminum | | | |
| | Color | Black / Silver | | | |

NOTES:

1. Remove the mounting flange on the indoor unit. Then install the suction flange with the air filter.
2. When servicing or maintaining, remove the holder or side plate. Then remove the air filter.
3. Clean the air filter by vacuuming dust, or clean with water or a neutral detergent.

5.4 4-Way Cassette Models

5.4.1 Anti-bacterial Air Filter: F-71M-K2 and F-160M-K2



Specifications

| Model | | F-71M-K2 | F-160M-K2 |
|---|------------------------------|--|--------------|
| Item | | | |
| Applicable Indoor Unit Model ((H,Y)IC4**B21S) | MBH | 012 to 018 | 024 to 036 |
| Quantity per unit | | 1 | |
| Dust Collection Efficiency | % | 65 (Colorimetric Method) | |
| Airflow | cfm (m ³ /min) | 777 (22) | 1236 (35) |
| Initial Pressure Loss | in. WG (Pa) | 0.13 (32.0) | 0.15 (38.0) |
| End Pressure Loss | in. WG (Pa) | 0.37 (91.8) | 0.46 (113.8) |
| Material | Filter | Synthetic Fiber-Containing Nonwoven Fabric | |
| | Color | White/Gray (Filter / Frame) | |
| Operating Time | hour | 2500 | |
| Weight | lbs (kg) | 1.8 (0.8) | 2.2 (1.0) |
| Regulation | | Not be re-used | |
| Applicable Filter Box | | B-160H3 | |

NOTES:

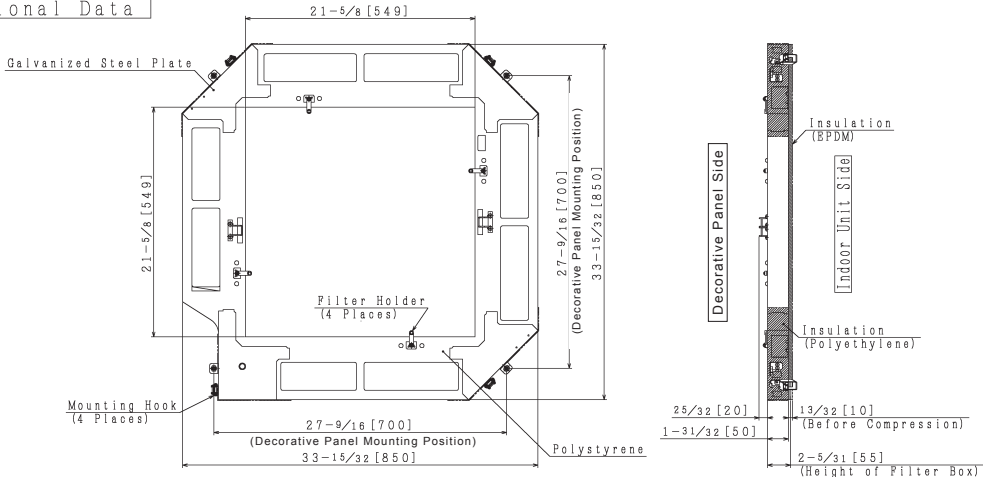
- Filter performance depends upon application and operating environment.
- The filter's longevity is impacted by airborne pollutants, dust, and pet dander.
- Change the filter if its operating time appears to be no longer useful.
- Select the function selection mode with the wired controller and set the high speed mode to "High Speed 1" before using this antibacterial air filter.
Refer to the "Installation and Maintenance Manual" for high-speed mode details.
- Refer to the "Installation Manual for Anti-bacterial Air Filter" for installation details.

OPTIONAL PARTS

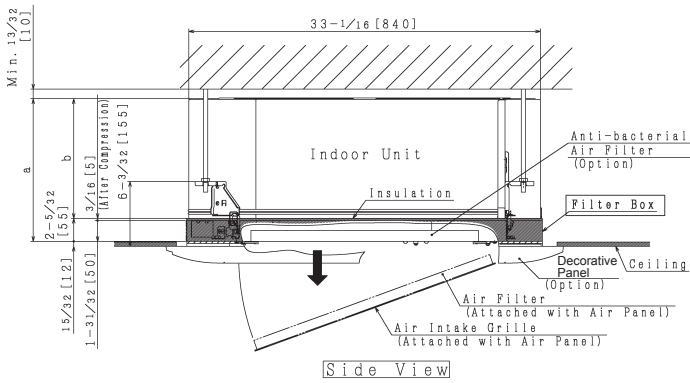
5.4.2 Filter Box: B-160H3

Unit: inch [mm]

Dimensional Data



Installation State



| Indoor Unit | Dimension | a | b |
|----------------|-----------|----------------|--------------|
| 012 to 018 MBH | | 11-15/32 [291] | 9-9/32 [236] |
| 024 to 036 MBH | | 13-7/16 [341] | 11-1/4 [286] |

Specifications

| Item | | Model | B-160H3 |
|---|--|-----------|------------|
| Applicable Indoor Unit Model ((H,Y)IC4**B21S) | | MBH | 012 to 036 |
| Material | Polyethylene, Galvanized Steel Plate, EPDM-FO, Polystyrene | | |
| Color of Foam | Bluish Gray | | |
| Weight | lbs (kg) | 5.5 (2.5) | |
| Applicable Air Filter | | F-71M-K2 | F-160M-K2 |

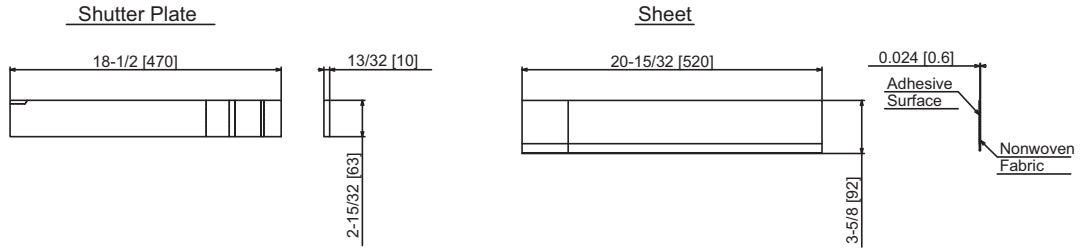
NOTES:

1. The total height of the unit is increased by approximately 2-5/32inch (55mm) when the filter box is installed. Pay attention to the amount of space needed for installation.
2. Refer to the "Installation Manual for Filter Box" for installation details.

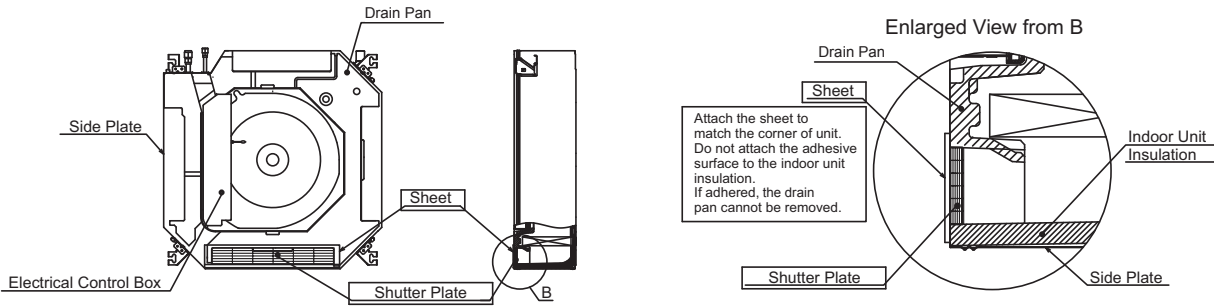
5.4.3 Air Outlet Shutter Plate: PI-160K3

Unit: inch [mm]

Dimensional Data

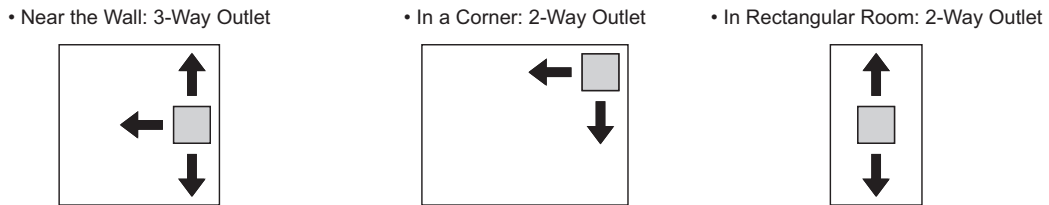


Installation State



< Blockable Portion and Components >

Example:



Specifications

| | | |
|---|---------------|----------------------------|
| Model | | PI-160K3 |
| Item | | |
| Applicable Indoor Unit Model ((H,Y)IC4**B21S) | MBH | 012 to 036 |
| Quantity per Unit | | 1 |
| Material | Shutter Plate | Polyethylenes |
| | Sheet | Non-woven Fabric (UL94V-0) |

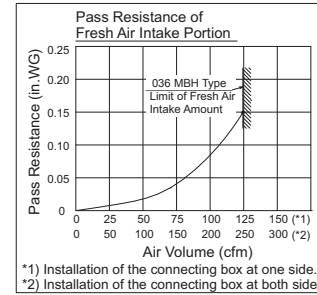
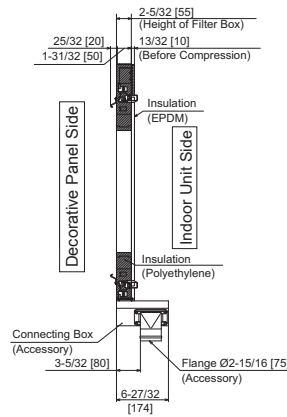
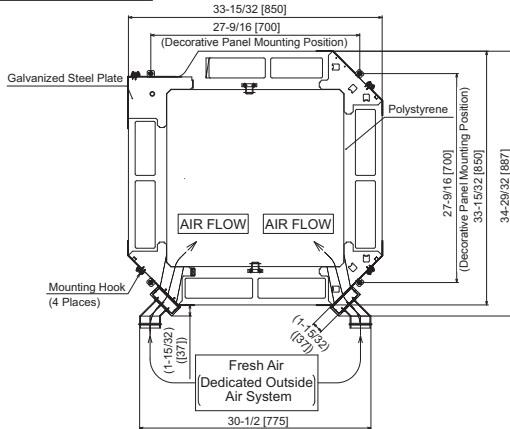
NOTES:

1. If 3-way outlets are used, air quality will be decreased by about 3 to 5%, and within the operation range of the unit, there will be no major difference in particular, in comparison with the 4-way outlet. However, the electromagnetic interference (EMI) will increase by about 1 to 5dB(A).
2. Refer to the "Installation Manual for Air Outlet Shutter Plate" for installation details.

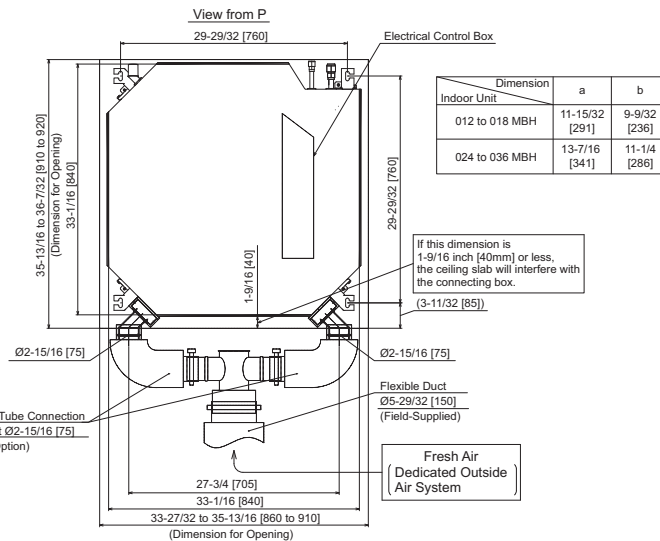
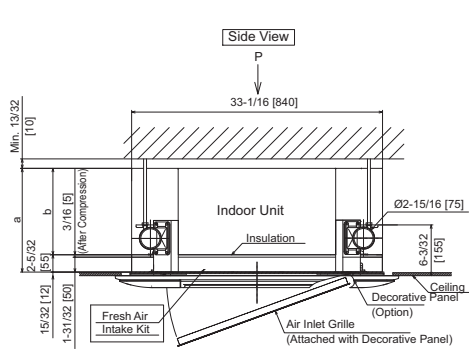
5.4.4 Fresh Air Intake Kit: OACI-160K3

Unit: inch [mm]

Dimensional Data



Installation State



Specifications

| Model | | OACI-160K3 |
|---|----------|--|
| Item | | |
| Applicable Indoor Unit Model ((H,Y)IC4**B21S) | MBH | 012 to 036 |
| Material | | Polyethylene, Galvanized Steel Plate, EPDM-FO, Polystyrene |
| Color of Frame | | Bluish Gray |
| Weight | lbs (kg) | 5.1 (2.3) |
| Applicable T-Tube Connecting Kit (Option) | | TKCI-160K |

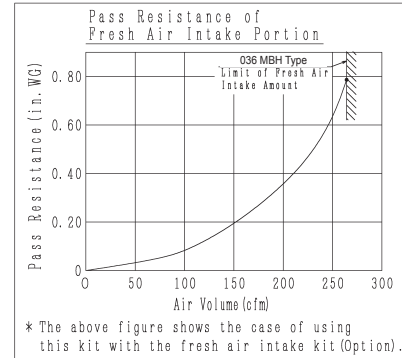
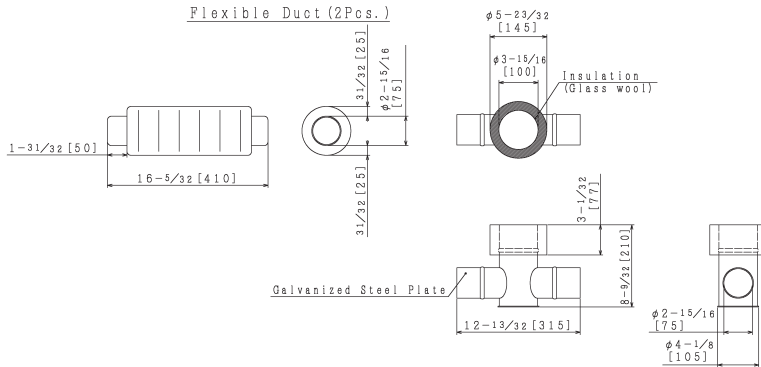
NOTES:

1. This kit cannot supply fresh air without connecting a duct from a dedicated outside air system or duct fan.
2. When using this kit with the dedicated outside air system, the maximum fresh air intake volume should be within 20% of the rated airflow volume of the indoor unit. In addition, when using this kit without the dedicated outside air system, care should be taken to not cause condensation inside this kit, the duct, and indoor unit.
3. The total height of the unit is increased by approximately 2-5/32inch (55mm) when the fresh air inlet kit is installed. Pay attention to the amount of space needed for installation.
4. When fresh air is taken from one side, cover the gap with insulation for the other side to prevent air leakage and condensation.
5. Air flowing through the duct does not pass through the air filter of the indoor unit. Therefore, install an air filter (field-supplied) at the supply side of the fresh air.
6. Insulate the duct and the duct connection (including the plate band and the T-tube connection). The materials for the duct and the insulation should be nonflammable.
7. The curve "Pass Resistance of Fresh Air Intake Portion" shows the value when the kit is used by itself. If the kit is installed along with the T-tube connecting kit, refer to the "T-Tube Connecting Kit" for details.
8. Refer to the "Installation Manual for Fresh Air Intake Kit" for installation details.

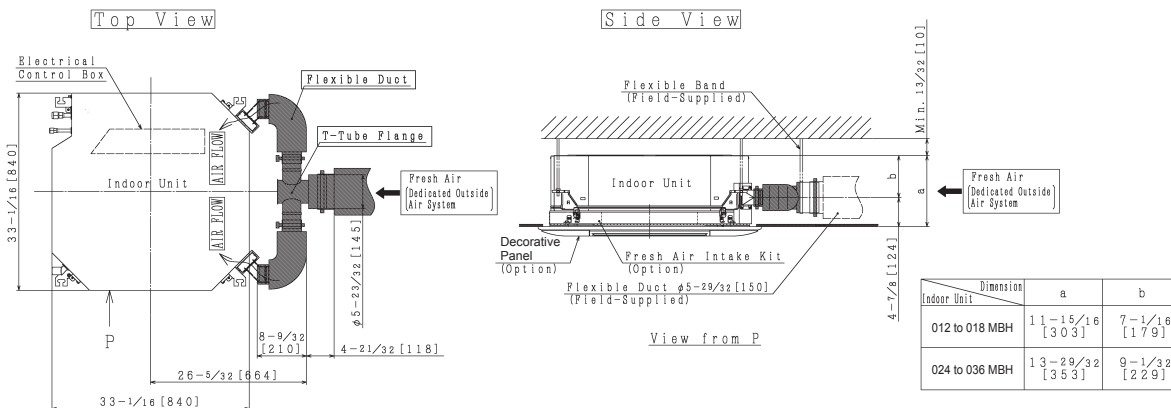
5.4.5 T-Tube Connecting Kit: TKCI-160K

Unit: inch [mm]

Dimensional Data



Installation State



Specifications

| Model | | TKCI-160K |
|---|---------------|--|
| Item | | |
| Applicable Indoor Unit Model ((H,Y)IC4**B21S) | MBH | 012 to 036 |
| Purpose | | Ducted Connection Parts for "Fresh Air Intake Kit" |
| Material | T-Tube Flange | Galvanized Steel Box |
| | Flexible Duct | PVC Tube, Glass Wool |
| Weight | lbs (kg) | 4.4 (2.0) |
| Applicable Fresh Air Intake Kit (Option) | | OACI-160K3 |

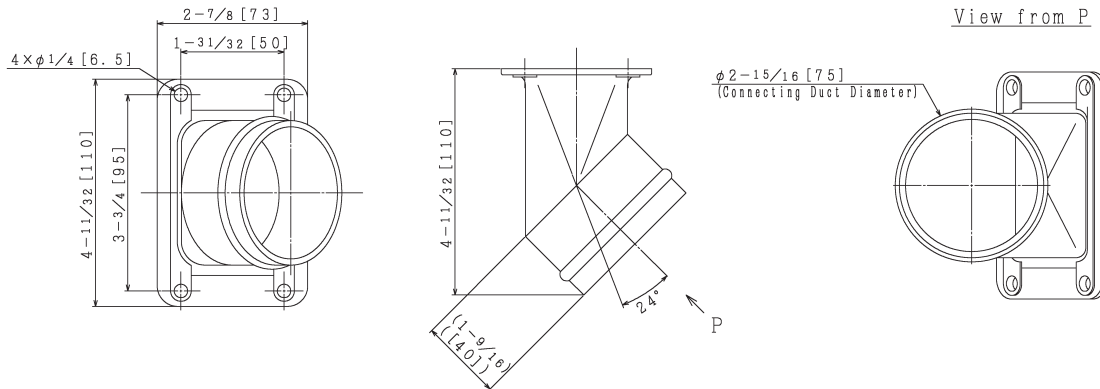
NOTES:

1. This kit must be used with a Fresh Air Intake Kit.
2. This kit cannot supply fresh air without connecting a duct to supply fresh air with a dedicated air system or the duct fan.
3. When using this kit with a dedicated outside air system, the maximum fresh air intake volume should be within 20% of the rated airflow volume of the indoor unit. In addition, when using this kit without the dedicated outside air system, be careful not to cause condensation inside this kit, the duct, and indoor unit.
4. The curve "Pass Resistance of Fresh Air Intake Portion" shows the value when this kit is used with the fresh air inlet kit.
5. Refer to the "Installation Manual for T-tube Connecting Kit" for more details.

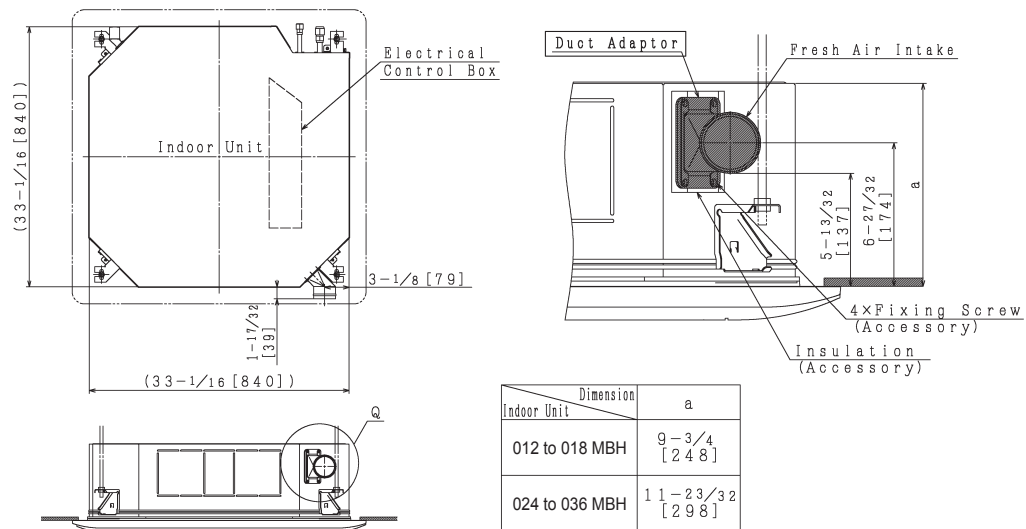
5.4.6 Duct Adapter: PD-75A

Unit: inch [mm]

Dimensional Data



Installation State



Specifications

| Model | | PD-75A | |
|---|----------------------------|----------------------|------------|
| Item | | | |
| Applicable Indoor Unit Model ((H,Y)IC4**B21S) | MBH | 012 to 018 | 024 to 036 |
| Max. Capacity of Fresh Air Intake | cfm (m ³ /min.) | 35 (1) | 71 (2) |
| Purpose | | for Fresh Air Intake | |
| Connecting Duct Diameter | inch(mm) | phi 2-15/16 (phi 75) | |
| Material | | ABS Resin (UL94V-0) | |

NOTES:

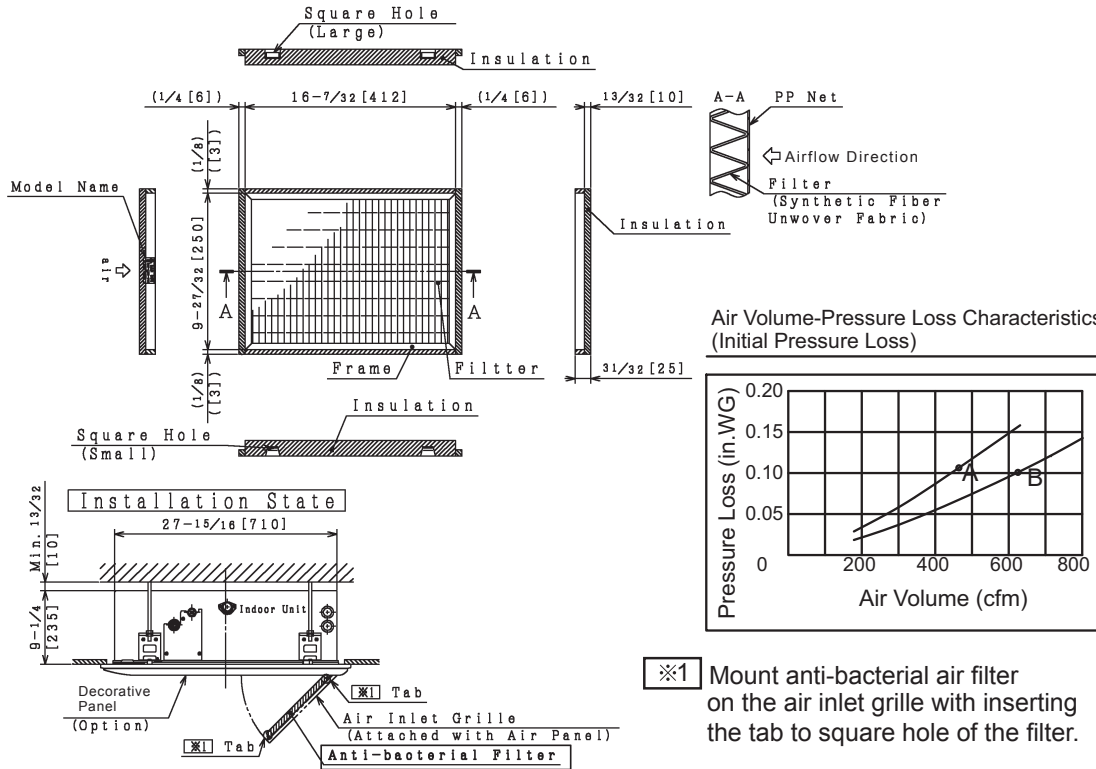
1. This duct adapter is used as the connection flange to attach the fresh air intake outlet (for connecting the flexible duct phi 2-15/16inch (phi 75mm).)
2. The limit amount for fresh air intake is shown above. Do not exceed the limit amount. (If the amount is exceeded, it can cause condensation.) Do not install the unit where abnormal odors are in the atmosphere.
3. The duct adapter provides a maximum quantity of fresh air intake of approximately 18cfm (0.5m³/min) (for 3.3ft (1m) straight pipe duct). In this instance, do not utilize the duct fan. If the requirement is for more of an intake, be sure to install the duct fan (field-supplied).
4. Refer to the "Installation Manual for Duct Adapter" for more details.

5.5 1-Way Cassette Models

5.5.1 Anti-bacterial Air Filter: F-56MS-PK2

Unit: inch [mm]

Dimensional Data



※1 Mount anti-bacterial air filter on the air inlet grille with inserting the tab to square hole of the filter.

Specifications

| Model | | F-56MS-PK2 |
|---|---------------------------|--|
| Item | | |
| Applicable Indoor Unit Model ((H,Y)IC1**B21S) | MBH | 006 to 015 |
| Quantity per unit | | 2 |
| Dust Collection Efficiency | % | 65 (Colorimetric Method) |
| Airflow | cfm (m ³ /min) | 459 (13) |
| Initial Pressure Loss | in. WG (Pa) | 0.11 (26.5) |
| End Pressure Loss | in. WG (Pa) | 0.36 (90.0) |
| Material | Filter | Synthetic Fiber-Containing Nonwoven Fabric |
| | Net | P.P |
| | Color | White/Black (Filter / Net) |
| Operating Time | hours | about 1800 |
| Weight | lbs(kg) | 0.7 (0.3) |
| Regulation | | Do not use with other air filters. |

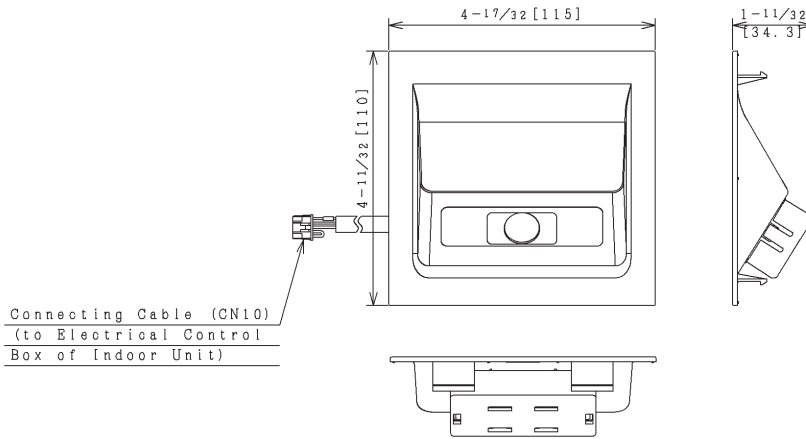
NOTES:

1. Dust collection efficiency depends on the general airborne dust (Dust Concentration: 0.15mg/m³).
2. The air filter's longevity is dependent on environmental factors, such as oil or salt.
3. The air filter net needs to be maintained periodically. If dust accumulates on the net, vacuum the net.
4. Change the filter if its operating time appears to be no longer useful.
5. Select the function selection mode with the wired controller and set the high speed mode to "High Speed 1" before using this antibacterial air filter.
Refer to the "Installation Manual for Anti-bacterial Air Filter" for high-speed mode details.
6. When the high speed mode "HIGH" or "HIGH 2" is used, there may be a noise level increase.
7. For this antibacterial long-life air filter, the airflow volume "HIGH 2" will be equal to "HIGH".
8. Refer to the "Installation Manual for Anti-bacterial Air Filter" for more details.

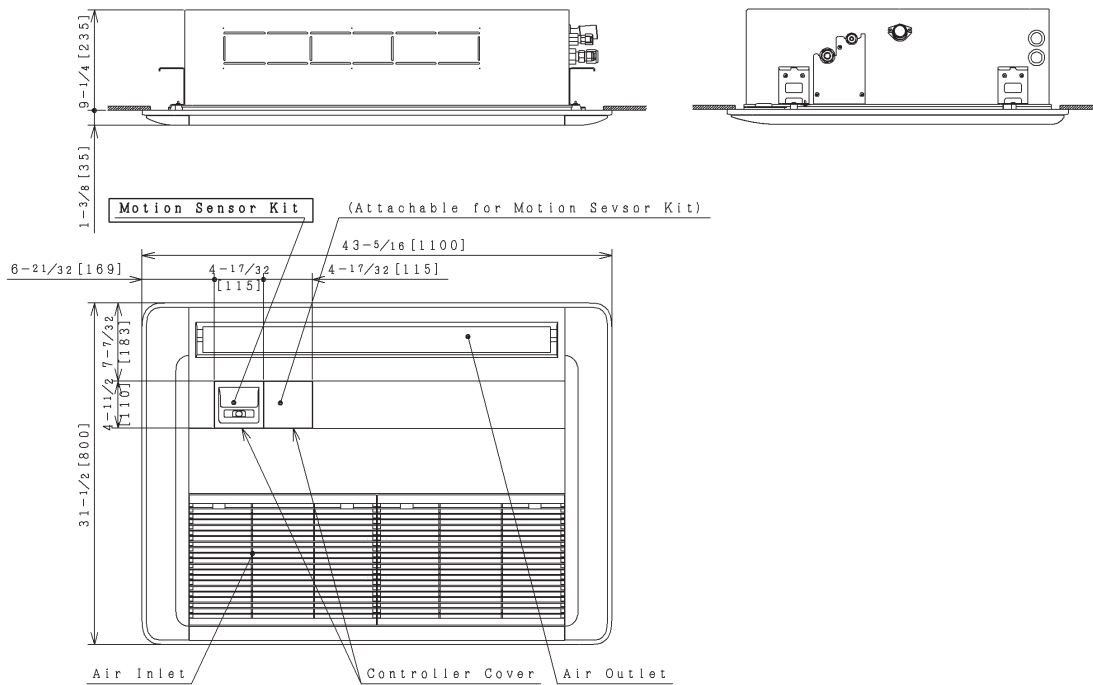
5.5.2 Motion Sensor Kit: SOR-NES

Unit: inch [mm]

Dimensional Data



Installation State

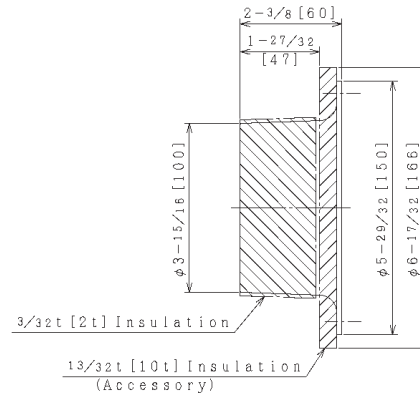
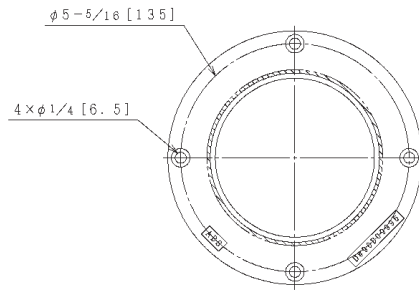


NOTES:

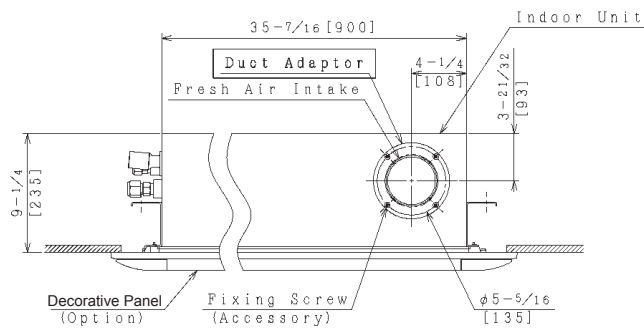
1. Remove the controller cover and attach the motion sensor kit to the cover. It can be attached to both sides of the controller cover.
2. Connect the wiring for the motion sensor kit to the connector CN10 on the indoor unit PCB in the electrical control box. Do not run the connecting cable for the motion sensor kit and the power source cable (208/230V) in parallel. This could cause electromagnetic interference (EMI) resulting in a malfunction of the motion sensor kit.
3. Refer to the "Installation Manual for Motion Sensor Kit" for installation and setting details.

5.5.3 Duct Adapter: PD-100

Unit: inch [mm]



Installation State



Specifications

| Model | | PD-100 |
|---|----------------------------|----------------------|
| Item | | |
| Applicable Indoor Unit Model ((H,Y)IC1**B21S) | MBH | 006 to 015 |
| Max. Capacity of Fresh Air Intake | cfm (m ³ /min.) | 35 (1) |
| Purpose | | for Fresh Air Intake |
| Connecting Duct Diameter | inch(mm) | φ3-15/16 (φ100.0) |
| Material | | ABS Resin (UL94V-0) |

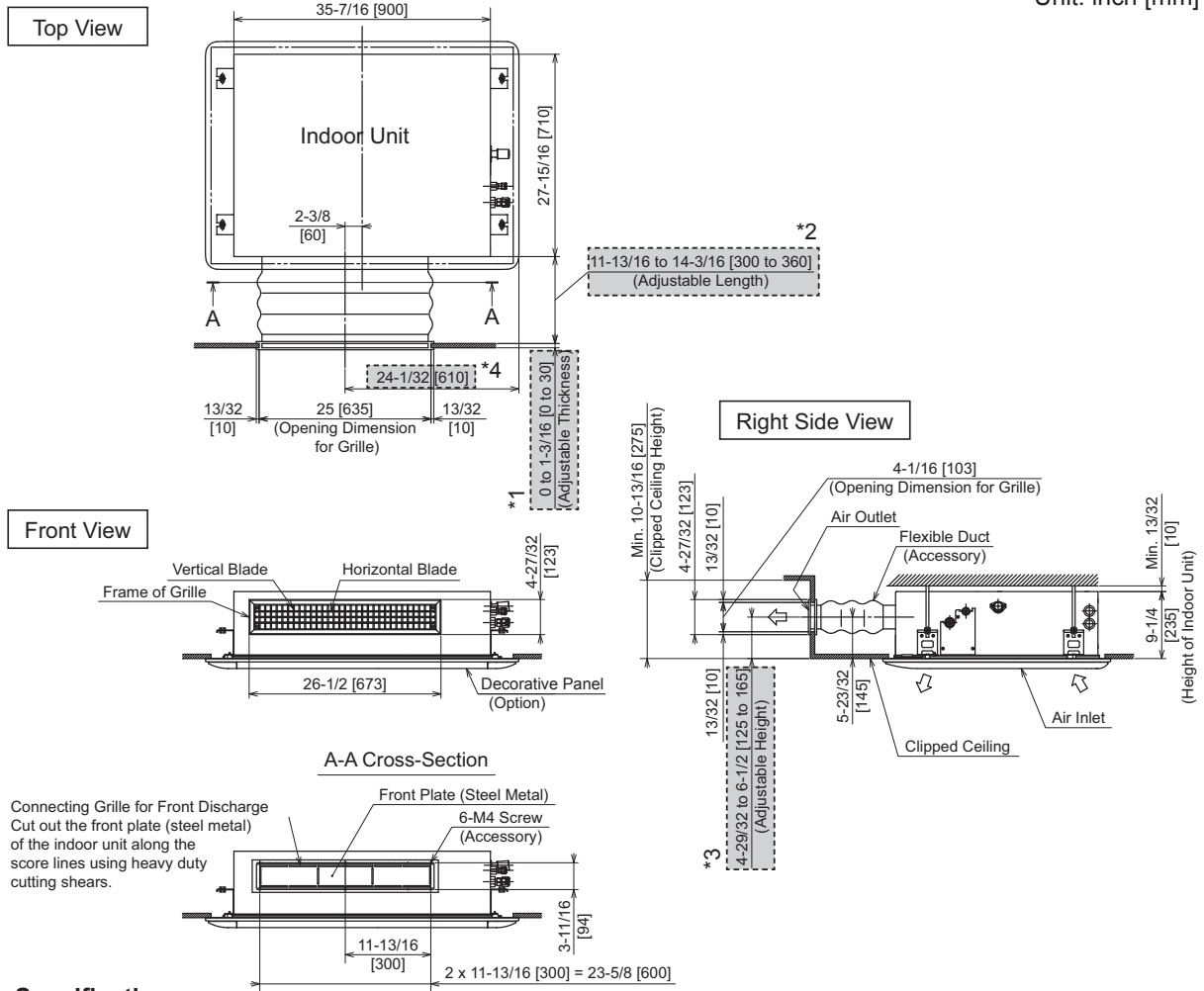
NOTES:

1. The maximum capacity for fresh air intake is shown above. Do not exceed the limit amount. (Doing so could cause condensation.)
2. Do not install the unit where abnormal odors are in the atmosphere.
3. The duct adapter provides a maximum quantity of fresh air intake of approximately 18cfm (0.5m³/min) (for 3 ft. 3-19/32 in. (1m) straight pipe duct). When more fresh air intake is required, be sure to install the dedicated outside air system. In this case, do not utilize the dedicated outside air system.
4. Insulate the duct and the duct connection to prevent air leakage and condensation. The duct and insulation materials should be nonflammable.
5. Refer to the "Installation Manual for Duct Adapter" for more details.

OPTIONAL PARTS

5.5.4 Grille for Front Discharge: DG-56SW1

Unit: inch [mm]



Specifications

| Item | | Model | DG-56SW1 |
|---|----------|-------|---|
| Applicable Indoor Unit Model ((H,Y)IC1**B21S) | MBH | | 006 to 015 |
| Grille | Material | | Wood |
| | Color | | White (5.5Y9.5/0.5) |
| Horizontal Blade | Material | | Steel Plate |
| | Color | | Gray |
| Vertical Blade | Material | | Steel Plate |
| | Color | | White |
| Flexible Duct | Material | | Special PVC Tube, Glass Wool, Glass Cloth |
| Weight | lbs (kg) | | 12.1 (5.5) |

NOTES:

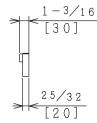
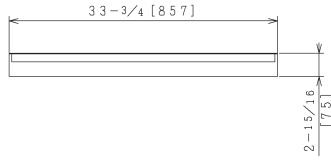
1. Make sure to use the factory-supplied duct (flexible duct). A field-supplied duct is not available.
2. This grille can be adjusted in the following ways during installation.
 - Wall Thickness (*1)
 - Duct Length (*2)
 - Duct Height (*3)
3. Install this grille with an adjustable dimension. However, it can not be adjusted in the left and right directions. (dimension of *4)
4. Refer to "Installation Manual for Grille for Front Discharge" for more details.

5.5.5 Air Outlet Shutter Plate: PIS-56LS

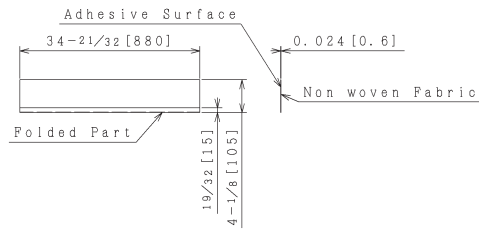
Unit: inch [mm]

Dimensional Data

[Shutter Plate]

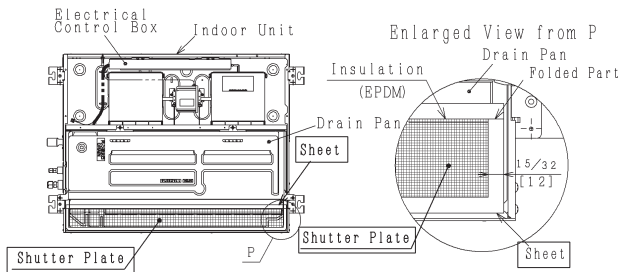


[Sheet]

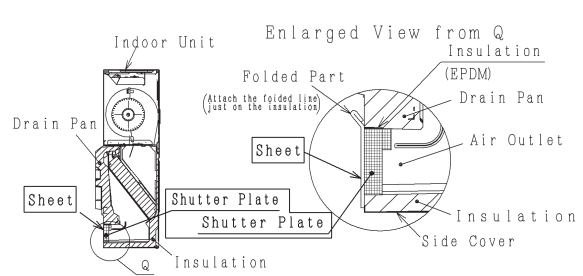


Installation State

<Bottom View>



<Side View>



Specifications

| | | | |
|---|---------------|---|-------------------|
| | | Model | PI-160LS1 |
| Item | | | |
| Applicable Indoor Unit Model ((H,Y)IC1**B21S) | MBH | | 006 to 015 |
| Quantity per unit | | | 1 |
| Material | Shutter Plate | Polyethylenes | |
| | Sheet | Non-woven Fabric (Flame Resistance: UL94V-0) | |

NOTES:

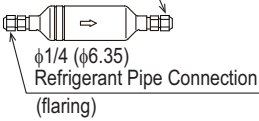
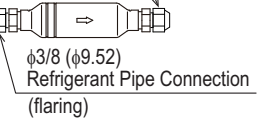
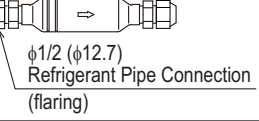
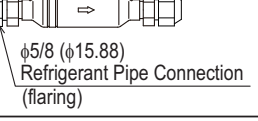
1. When the indoor unit is installed with a clipped ceiling, the air outlet shutter plate must be used.
2. Refer to the "Installation Manual for Air Outlet Shutter Plate" for more details.

5.6 Wall Mounted Models

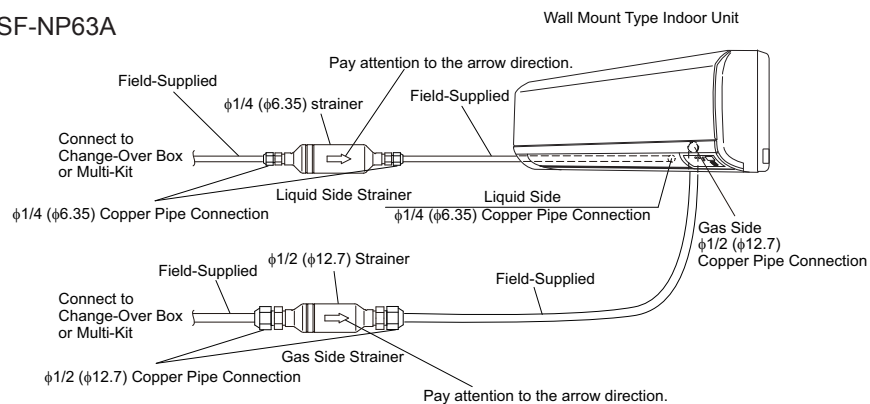
5.6.1 Strainer Kit: MSF-NP63A and MSF-NP112A

When connecting a wall mount type indoor unit to the VRF system, make sure to attach the strainer kit to the refrigerant piping close to the indoor unit. This prevents solid particles from entering into the electronic expansion valve inside the unit.

Unit: inch (mm)

| No. | Accessory | Figure | Qty. | | Remarks |
|-----|--|--|-----------|------------|---|
| | | | MSF-NP63A | MSF-NP112A | |
| 1 | $\phi 1/4$ ($\phi 6.35$) Strainer | $\phi 1/4$ ($\phi 6.35$) Refrigerant Pipe Connection (flaring)  | 1 | - | Attach the strainer close to the indoor unit at the liquid side of refrigerant piping to facilitate replacement work. |
| 2 | $\phi 3/8$ ($\phi 9.52$) Strainer | $\phi 3/8$ ($\phi 9.52$) Refrigerant Pipe Connection (flaring)  | - | 1 | |
| 3 | $\phi 1/2$ ($\phi 12.7$) Strainer | $\phi 1/2$ ($\phi 12.7$) Refrigerant Pipe Connection (flaring)  | 1 | - | Attach the strainer close to the indoor unit at the gas side of refrigerant piping to facilitate replacement work. |
| 4 | $\phi 5/8$ ($\phi 15.88$) Strainer | $\phi 5/8$ ($\phi 15.88$) Refrigerant Pipe Connection (flaring)  | - | 1 | |

Example: MSF-NP63A



NOTES:

1. Attach the strainer close to the indoor unit to facilitate replacement work.
2. When the strainer is attached to an inside wall or roof space, provide a service access door for maintenance.
3. When on-site piping has a buried joint such as a pipe elbow socket, provide a service access door to facilitate checking for connecting parts.
4. In order to prevent condensation, apply tape over the insulation material (accessory) and secure with plastic bands.
5. Refer to the "Installation Manual for Strainer Kit" for more details.

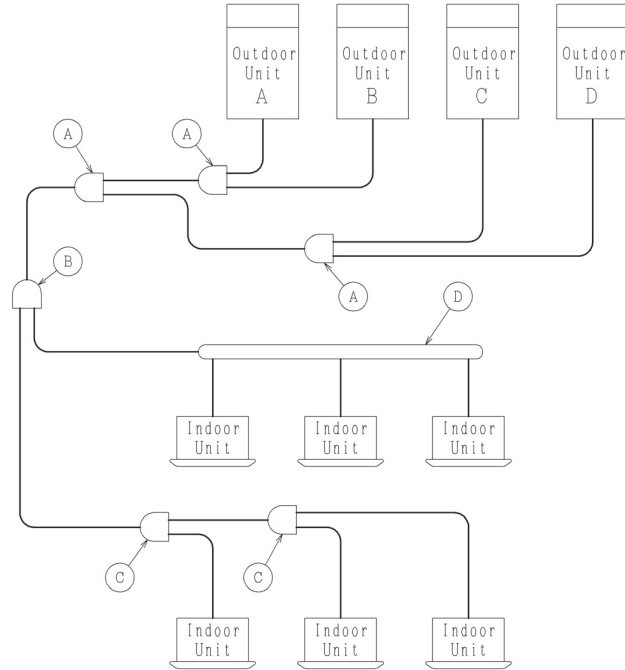
5.7 Piping Kit

| Item | | Model |
|-----------------------|---|------------|
| Piping Connection Kit | for Heat Pump System (2-Pipes Connection) | MC-NP21A1 |
| | | MC-NP30A1 |
| | | MC-NP40A1 |
| | for Heat Recovery System (3-Pipes Connection) | MC-NP21X1 |
| | | MC-NP30X1 |
| | | MC-NP40X1 |
| Multi-Kit | Line Branch for Heat Pump System (2-Pipes Connection) | MW-NP282A2 |
| | | MW-NP452A2 |
| | | MW-NP692A2 |
| | | MW-NP902A2 |
| | Line Branch for Heat Recovery System (3-Pipes Connection) | MW-NP142X2 |
| | | MW-NP282X2 |
| | | MW-NP452X2 |
| | | MW-NP562X2 |
| | | MW-NP692X2 |
| | | MW-NP902X2 |
| | Header Branch for Heat Pump System (2-Pipes Connection) | MH-NP224A |
| | | MH-NP288A |
| | Header Branch for Heat Recovery System (3-Pipes Connection) | MH-NP288X |

OPTIONAL PARTS

■ Piping Kit Selection

Piping Kit for Heat Pump System



• Piping Connection Kit

Ⓐ Piping Connection Kit

| Outdoor Unit Capacity (MBH) | Model |
|-----------------------------|-----------|
| 144 - 192 | MC-NP21A1 |
| 216 - 312 | MC-NP30A1 |
| 336 - 360 | MC-NP40A1 |

• Multi-Kit (Header Branch)

Ⓓ Header Branch

| Total Indoor Unit Capacity (MBH) | No. of Header Branches | Model |
|----------------------------------|------------------------|-----------|
| 36-60 | 4 | MH-NP224A |
| 36-72 | 8 | MH-NP288A |

• Multi-Kit (Line Branch)

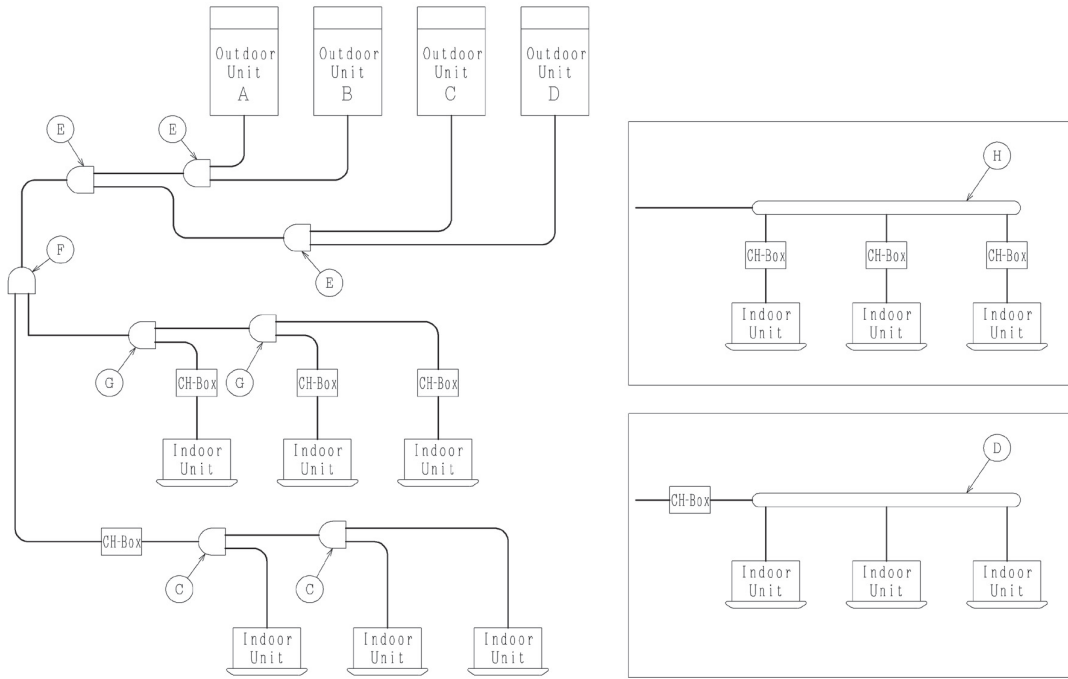
Ⓑ First Branch

| Outdoor Unit Capacity (MBH) | Model |
|-----------------------------|------------|
| 72 - 120 | MW-NP452A2 |
| 144 | MW-NP692A2 |
| 168 - 360 | MW-NP902A2 |

Ⓒ Line Branch after First Branch

| Total Indoor Unit Capacity (MBH) | Model |
|----------------------------------|------------|
| ≤ 86 | MW-NP282A2 |
| 87 - 125 | MW-NP452A2 |
| 126 - 185 | MW-NP692A2 |
| ≥ 186 | MW-NP902A2 |

Piping Kit for Heat Recovery System



• Piping Connection Kit

Ⓔ Piping Connection Kit

| Outdoor Unit Capacity (MBH) | Model |
|-----------------------------|-----------|
| 144 - 192 | MC-NP21X1 |
| 216 - 312 | MC-NP30X1 |
| 336 - 360 | MC-NP40X1 |

• Multi-Kit (Header Branch)

Ⓕ Header Branch (3 Pipes Connection)

| Total Indoor Unit Capacity (MBH) | No. of Header Branches | Model |
|----------------------------------|------------------------|-----------|
| 36-72 | 8 | MH-NP288X |

• Multi-Kit (Line Branch)

Ⓖ First Branch

| Outdoor Unit Capacity (MBH) | Model |
|-----------------------------|------------|
| 72 - 120 | MW-NP452X2 |
| 144 | MW-NP692X2 |
| 168 - 360 | MW-NP902X2 |

Ⓖ Header Branch (2 Pipes Connection)

Refer to (D) for Heat Pump System.

Ⓖ Line Branch after First Branch

| Total Indoor Unit Capacity (MBH) | Model |
|----------------------------------|------------|
| ≤ 41 | MW-NP142X2 |
| 42 - 86 | MW-NP282X2 |
| 87 - 113 | MW-NP452X2 |
| 114 - 155 | MW-NP562X2 |
| 156 - 185 | MW-NP692X2 |
| ≥ 186 | MW-NP902X2 |

Ⓖ Line Branch after First Branch (2 Pipes Connection)

Refer to (C) for Heat Pump System.

OPTIONAL PARTS

5.7.1 Piping Connection Kit for Heat Pump System (2-Pipes Connection)

MC-NP21A1, MC-NP30A1 and MC-NP40A1

5.7.1.1 Piping Connection Size

The ends of the piping connection kits are finished as shown in the following figures. Cut the end of the pipe to meet with the pipe size.

| Model | Branch Pipe for High/Low Pressure Gas Line | Branch Pipe for Liquid Line | Reducer for High/Low Pressure Gas Line | Reducer for Liquid Line |
|-----------|--|-----------------------------|--|-------------------------|
| MC-NP21A1 | | | | |
| MC-NP30A1 | Piping Connection Kit 1 | | | |
| | Piping Connection Kit 2 | | | |

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

| Model | | Branch Pipe for High/Low Pressure Gas Line | Branch Pipe for Liquid Line | Reducer for High/Low Pressure Gas Line | Reducer for Liquid Line |
|-----------|-------------------------|--|-----------------------------|--|-------------------------|
| MC-NP40A1 | Piping Connection Kit 1 | | | | — |
| | Piping Connection Kit 2 | <p>(※)</p> | | <p>(※)</p> | |
| | Piping Connection Kit 3 | <p>(※)</p> | | <p>(※)</p> | |

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

NOTES:

- When installing “Branch Pipe for High/Low Pressure Gas Line” of “Piping Connection Kit 2” and “Piping Connection Kit 3”, install “Long Reducer” at “To Piping Connection Kit 1” side of “Piping Connection Kit 2” and “Piping Connection Kit 3”. Otherwise, it will cause an abnormal oil distribution between each of the outdoor units. (Shown in the (※) above.)
- Refer to the “Installation Manual for Piping Connection Kit” for more details.

OPTIONAL PARTS

5.7.2 Piping Connection Kit for Heat Recovery System (3-Pipes Connection) MC-NP21X1, MC-NP30X1 and MC-NP40X1

5.7.2.1 Piping Connection Size

The ends of the piping connection kits are finished as shown in the following figures. Cut the end of the pipe to meet with the pipe size.

| Model | Branch Pipe for Low Pressure Gas Line | Branch Pipe for High/Low Pressure Gas Line | Branch Pipe for Liquid Line | Reducer for Low Pressure Gas Line | Reducer for High/Low Pressure Gas Line | Reducer for Liquid Line |
|-----------|---------------------------------------|--|-----------------------------|-----------------------------------|--|-------------------------|
| MC-NP21X1 | | | | | | |
| MC-NP30X1 | | | | | | |
| | | | | | | |

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

| Model | Branch Pipe for Low Pressure Gas Line | Branch Pipe for High/Low Pressure Gas Line | Branch Pipe for Liquid Line | Reducer for Low Pressure Gas Line | Reducer for High/Low Pressure Gas Line | Reducer for Liquid Line |
|-----------|---------------------------------------|--|-----------------------------|-----------------------------------|--|-------------------------|
| MC-NP40X1 | Piping Connection Kit 1 | Piping Connection Kit 2 | Piping Connection Kit 2 | | | — |
| | Piping Connection Kit 2 | Piping Connection Kit 2 | Piping Connection Kit 1 | | | |
| | Piping Connection Kit 3 | Piping Connection Kit 3 | Piping Connection Kit 1 | | | |

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

NOTES:

- When installing "Branch Pipe for Low Pressure Gas Line", install "Long Reducer" at "To Indoor Unit" side. Otherwise, it will cause an abnormal oil distribution between each of the outdoor units. (Shown (⊗) in the above table.)
- Refer to the "Installation Manual for Piping Connection Kit" for more details.

OPTIONAL PARTS

5.7.3 Multi-Kit (Line Branch) for Heat Pump System (2-Pipes Connection) MW-NP282A2, MW-NP452A2, MW-NP692A2 and MW-NP902A2

5.7.3.1 Piping Connection Size

The ends of the multi-kits are finished as shown in the following figures. Cut the end of the pipe to meet with the pipe size.

| Model | Branch Pipe for High/Low Pressure Gas Line | Branch Pipe for Liquid Line | Reducer for High/Low Pressure Gas Line | Reducer for Liquid Line |
|------------|--|-----------------------------|--|-------------------------|
| MW-NP282A2 | | | — | |
| MW-NP452A2 | | | | |
| MW-NP692A2 | | | | |
| MW-NP902A2 | | | | |

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

NOTE:

Refer to the "Installation Manual for Multi-Kit" for more details.

5.7.4 Multi-Kit (Line Branch) for Heat Recovery System (3-Pipes Connection)

MW-NP142X2, MW-NP282X2, MW-NP452X2, MW-NP562X2, MW-NP692X2 and MW-NP902X2



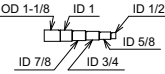

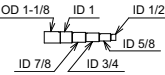


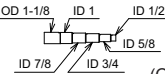



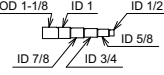
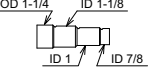
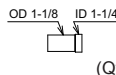
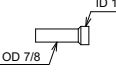


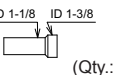
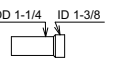
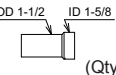
5.7.4.1 Piping Connection Size

The ends of the multi-kits are finished as shown in the following figures. Cut the end of the pipe to meet with the pipe size.

| Model | Branch Pipe for Low Pressure Gas Line | Branch Pipe for High/Low Pressure Gas Line | Branch Pipe for Liquid Line |
|------------|---------------------------------------|--|-----------------------------|
| MW-NP142X2 | | | |
| MW-NP282X2 | | | |
| MW-NP452X2 | | | |
| MW-NP562X2 | | | |
| MW-NP692X2 | | | |
| MW-NP902X2 | | | |

Unit: inch, ID: Inner Diameter

OPTIONAL PARTS

| Model | Reducer for Gas Line | | | Reducer for Liquid Line | | |
|------------|--|--|---|--|---|---|
| MW-NP142X2 | — | — | — |  (Qty.: 2) | | |
| MW-NP282X2 | — | — | — |  | | |
| MW-NP452X2 |  | — | — |  | | |
| MW-NP562X2 |  | — | — |  |  | |
| MW-NP692X2 |  (Qty.: 2) |  |  (Qty.: 2) |  | | |
| MW-NP902X2 |  (Qty.: 2) |  |  (Qty.: 2) |  |  |  |
| | |  (Qty.: 3) |  |  (Qty.: 2) | | |

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

NOTE:
Refer to the "Installation Manual for Multi-Kit" for more details.

5.7.5 Multi-Kit (Header Branch) for Heat Pump System (2-Pipes Connection)
MH-NP224A and MH-NP288A

5.7.5.1 Piping Connection Size

The ends of the multi-kits are finished as shown in the following figures. Cut the end of the pipe to meet with the pipe size.

| Models | Gas Line | Liquid Line | Expander | Closing Pipe | | |
|-----------|----------|-------------|-------------------|----------------|-------------------|----------------|
| MH-NP224A | | | (For Gas Line) | <p>Qty.: 2</p> | | |
| | | | (For Liquid Line) | <p>Qty.: 4</p> | (For Liquid Line) | <p>Qty.: 2</p> |
| MH-NP288A | | | (For Gas Line) | <p>Qty.: 2</p> | (For Gas Line) | <p>Qty.: 6</p> |
| | | | (For Liquid Line) | <p>Qty.: 8</p> | (For Liquid Line) | <p>Qty.: 6</p> |

Unit: inch, ID: Inner Diameter, OD: Outer Diameter

NOTE:
Refer to "Installation Manual for Multi-Kit" for more details.

OPTIONAL PARTS

5.7.6 Multi-Kit (Header Branch) for Heat Recovery System (3-Pipes Connection) MH-NP288X

5.7.6.1 Piping Connection Size

The ends of the multi-kits are finished as shown in the following figures. Cut the end of the pipe to meet with the pipe size.

| Name of Parts | MH-NP288X | | |
|----------------------------|---|---|---|
| Low Pressure Gas Line | | | |
| High/Low Pressure Gas Line | | | |
| Liquid Line | | | |
| Expander | <p>(For Low Pressure Gas Line)</p> <p>Qty.: 2 (For End of Multi-Kit Connection)</p> | <p>(For High/Low Pressure Gas Line)</p> <p>Qty.: 8 (For End of Multi-Kit Connection)</p> <p>Qty.: 1 (For End of Multi-Kit Connection)</p> | <p>(For Liquid Line)</p> <p>Qty.: 10 (2: For End of Multi-Kit Connection) (8: For Unit Piping Connection)</p> |
| Closing Pipe | <p>(For Low Pressure Gas Line)</p> <p>Qty.: 6</p> | <p>(For High/Low Pressure Gas Line)</p> <p>Qty.: 6</p> | <p>(For Liquid Line)</p> <p>Qty.: 6</p> |

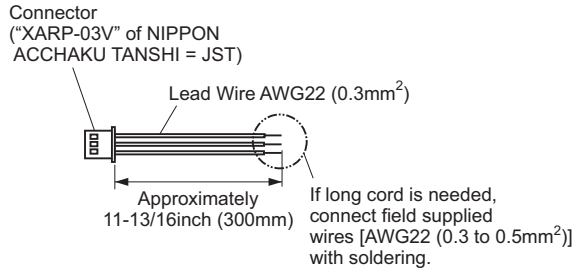
NOTE:

Refer to the "Installation Manual for Multi-Kit" for more details.

5.8 Control

5.8.1 3P Connector Cable (PCC-1A)

This accessory connector is utilized to provide remote start/stop capability (binary input) to an indoor unit and provide operating status (binary output) of an indoor unit's functions. (System Parts: One set contains five 3P cords.)

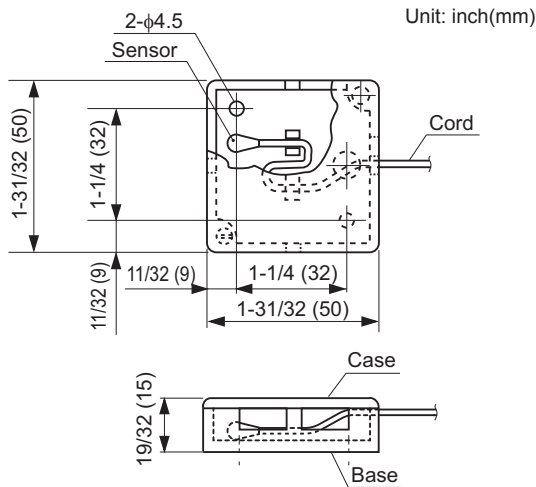


| | |
|---------|--|
| Name | 3P Connector Cable |
| Model | PCC-1A |
| Remarks | One set contains five 3P connector cables. |

3P Connector Cable

5.8.2 Remote Sensor (THM-R2A)

When a remote temperature sensor is installed with an indoor unit, the indoor unit is configurable to use the temperature at the location of the remote sensor OR the average of the unit's return air temperature and the temperature at the location of the remote sensor to control that unit. (reference the specific controller Installation Manual for function configuration details)



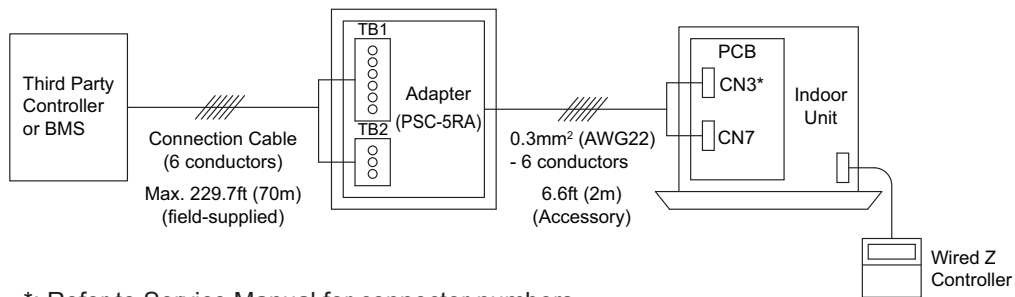
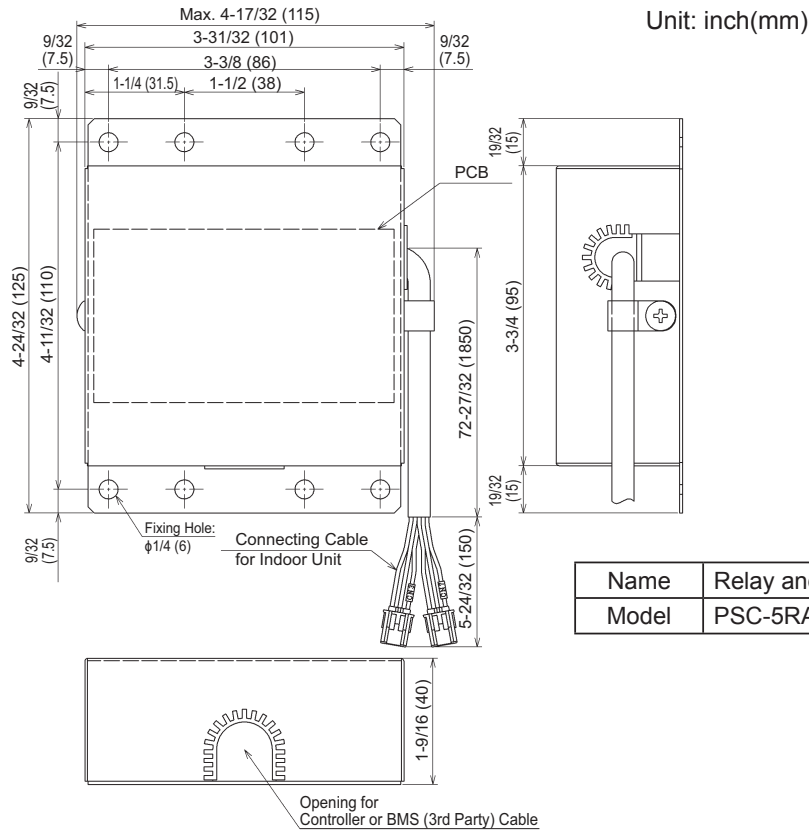
Specifications

| Item | Specification | |
|--------|---------------|--------------------|
| Model | THM-R2A | |
| Case | Material | ABS Resin |
| | Color | Silky White |
| Base | Material | ABS Resin |
| | Color | Silky White |
| Sensor | Part Name | Thermistor |
| | Cord Length | approx. 26 ft (8m) |

OPTIONAL PARTS

5.8.3 Relay and 3 Pin Connector Kit (PSC-5RA)

This relay kit provides for basic input/output integration functionality (indoor unit ON/OFF, operating mode, alarm status) to third party controllers and Building Management Systems (BMS).



| Item | Signal | Description | Specifications |
|-------------------------------|----------|---|--|
| Third Party Controller or BMS | Input 1 | Input level signal or pulse signal for voltage from the third party controller or BMS | Voltage: 12VDC, 10mA Voltage: 24VDC, 10mA Pulse Range: 500ms or more |
| | Input 2 | | |
| Third Party Controller or BMS | Output 1 | Output signal from the wired controller | 24VDC From 10mA to 1A |
| | Output 2 | | |

Refer to the Indoor Unit Manual for Input/Output mode setting by the wired controller.

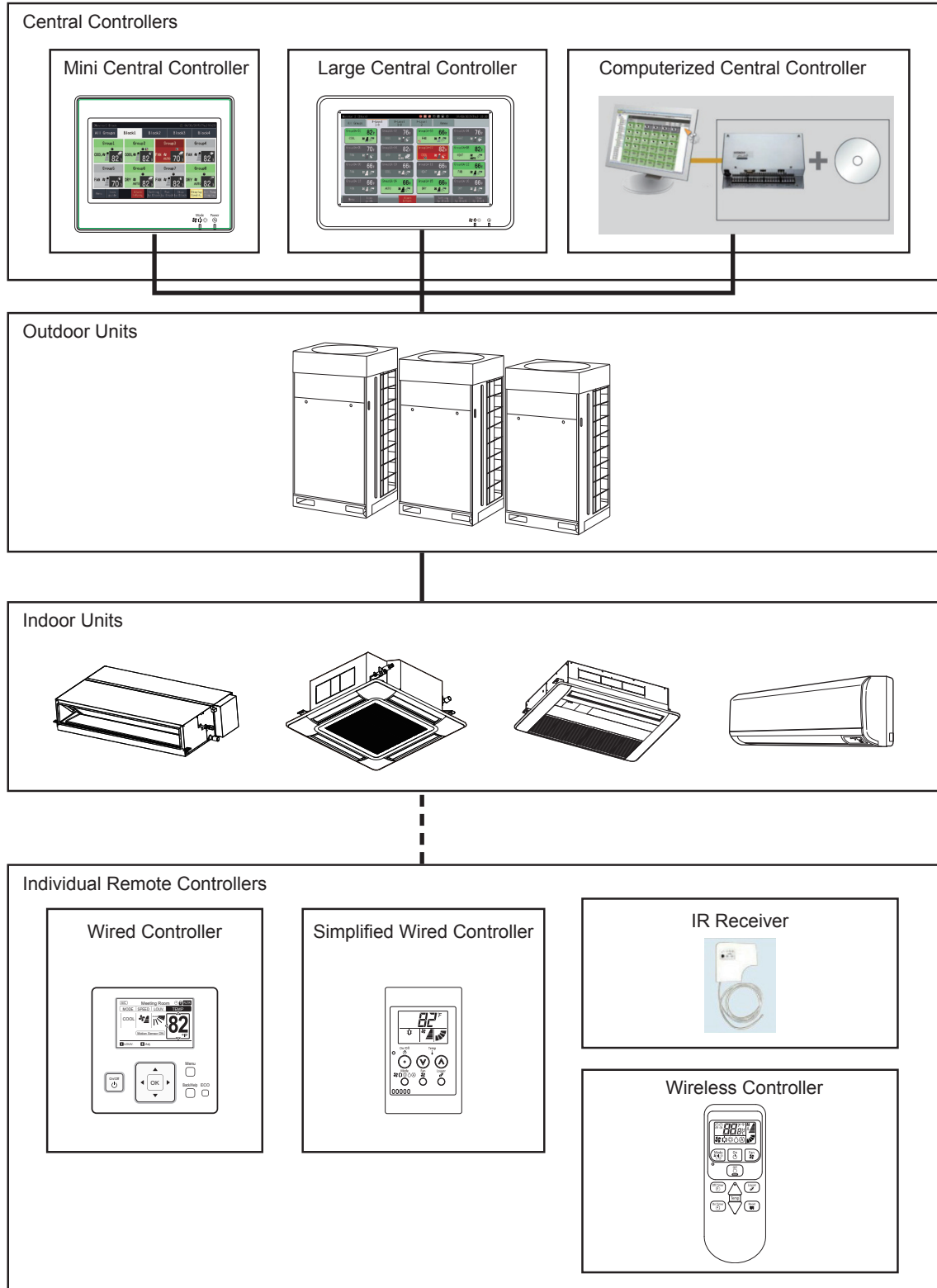
6. Control Device

6.1 Line Up

6.1.1 Introduction

Refer to the illustrations below showing the VRF control system components.

— H-LINK II or H-LINK Cable
 - - - Controller Cable

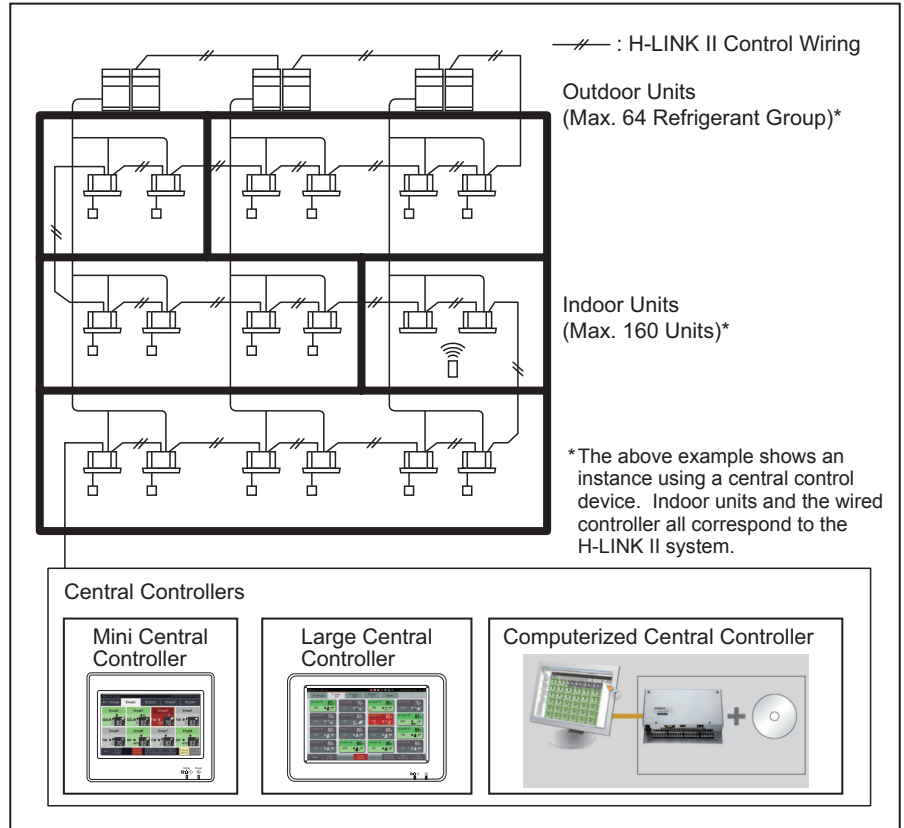


CONTROL SYSTEM

| | Item No. | Option Parts Name | Model Name |
|-----------------|----------|---|-----------------|
| Control Devices | 6.2 | Wired Controller | CIW01 |
| | 6.3 | Simplified Wired Controller | CIS01 |
| | 6.4 | Wireless Controller | CIR01 |
| | 6.5 | IR(Infrared) Receiver Kit for 4-Way Cassette | C4IRK01 |
| | 6.6 | IR(Infrared) Receiver Kit for 1-Way Cassette | C1IRK01 |
| | 6.7 | IR(Infrared) Receiver Kit for Wall Mounted and Ducted | CWDIRK01 |
| | 6.8 | Mini Central Controller | CCM01 |
| | 6.9 | Large Central Controller | CCL01 |
| | 6.10 | Computerized Central Controller Software / Adapter | CCCS01 / CCCA01 |

H-LINK II

The H-LINK transmission system for connection between outdoor and indoor units provides an extended system configuration and improved functions without sacrificing workability and flexibility.



| Item | H-LINK II |
|---|-------------------------|
| Max. Number of Refrigerant Groups / System | 64 |
| Address Setting Range of Indoor Units / Refrigerant Group | 0 to 63 |
| Max. Number of Indoor Units / System | 160 |
| Total Number of Devices in the same H-LINK | 200 |
| Max. Wiring Length | Total 3,281feet(1,000m) |

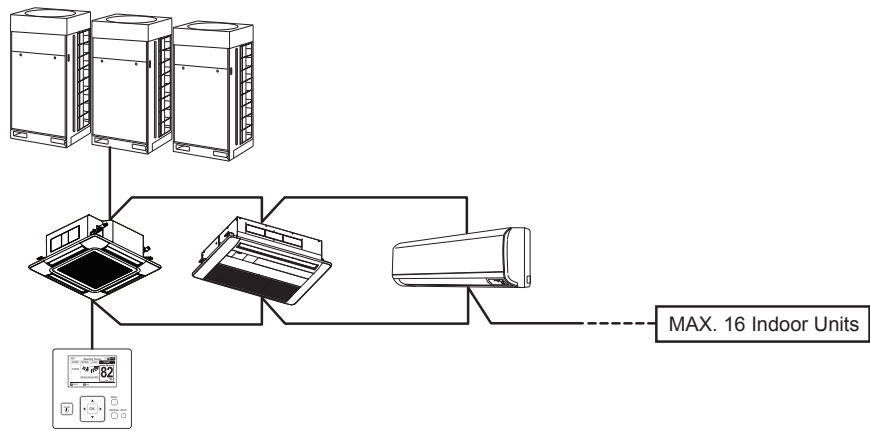
| Control System Device | Outdoor Unit/ Indoor Unit | 1 (One) H-LINK II System | |
|-----------------------|------------------------------|--|--------------|
| | | Outdoor Units (Number of Ref. Groups) | Indoor Units |
| H-LINK II | H-LINK II | 64 | 160 |

CONTROL SYSTEM

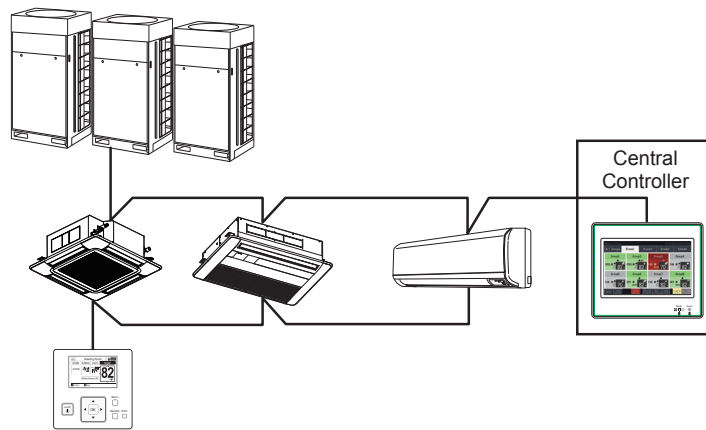
6.1.2 System Configuration

6.1.2.1 Individual Remote Controller Configuration Example




Below are illustrations of configured individual remote controllers.



6.1.2.2 Central Controller Configuration Example









6.1.3 Controller Line Up

| | | CCM01 | CCL01 | CCCS01 CCCA01 |
|------------------------------|---------------------------|---|--|---|
| Overview | |  |  |  |
| Remote Control Group Numbers | | 32 | 64 | CCCS01: 2048 (CCCA01×16) CCCA01: 128 |
| Monitor | On/Off | O | O | O |
| | Mode | O | O | O |
| | Set Temp. | O | O | O |
| | Fan Speed | O | O | O |
| | Louver Angle | O | O | O |
| | Remote Control Prohibited | O | O | O |
| | Alarm | O | O | O |
| Operation | On/Off | O | O | O |
| | Mode | O | O | O |
| | Set Temp. | O | O | O |
| | Fan Speed | O | O | O |
| | Louver Angle | O | O | O |
| | Remote Control Prohibited | O | O | O |
| | Filter Sign Clear | O | O | O |
| Schedule | Weekly | O | O | O |
| | Numbers per day | 10 | 10 | 16 |
| | Special Day | × | × | O |
| | On/Off | O | O | O |
| | Mode | × | × | O |
| | Set Temp. | O | O | O |
| | Fan Speed | × | × | O |
| | Louver Angle | × | × | O |
| Remote Control Prohibited | × | × | O | |
| Option | Digital Input | 4 | 4 | 3 × 16 |
| | Digital Output | 2 | 2 | 3 × 16 |
| | Memory Card | × | O | use PC |

O: Available ×: Not Available

6.1.4 Remote Controller Physical Data Reference Table

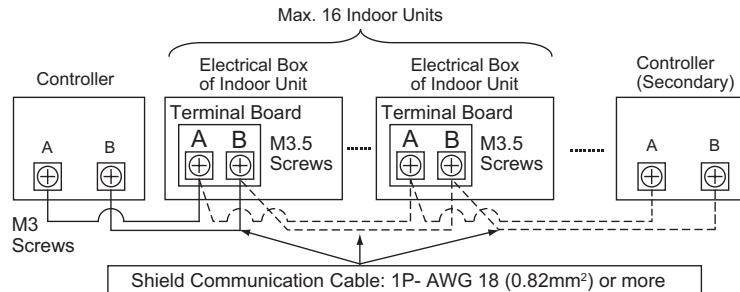
| | | CIW01 | CIS01 | CIR01 | CCM01 | CCL01 | CCCS01 CCCA01 |
|-----------|----------------------------|---|---|---|--|---|---|
| Overview | |  |  |  |  |  |  |
| Dimension | Weight (lbs) | 0.4 | 0.2 | 0.2 | 1.1 | 3.3 | 3.1 |
| | Height (in.) | 4-23/32 | 4-23/32 | 5-33/64 | 4-23/32 | 6-11/16 | 6-1/16 |
| | Width (in.) | 4-23/32 | 2-3/4 | 2-11/64 | 5-33/64 | 9-27/32 | 9-1/8 |
| | Depth (in.) | 45/64 | 43/64 | 21/32 | 55/64 | 31/32 | 2-11/16 |
| | Display Size (H×W) (in.) | 1-23/22 × 2-21/32 | 1-5/32 × 1-51/64 | 3/4 × 1-15/32 | 5 inch | 8.5 inch | depend on PC |
| | Display LCD or Touchscreen | Display LCD | Display LCD | Display LCD | Touchscreen | Touchscreen | depend on PC |

6.1.5 Materials Specification for Anti-Corrosion

Controller Cable

ATTENTION:

Always make sure to turn OFF the power of the indoor unit when performing electrical wiring work. Performing electrical wiring work with the power on can damage the circuit boards of the indoor unit and the controller.

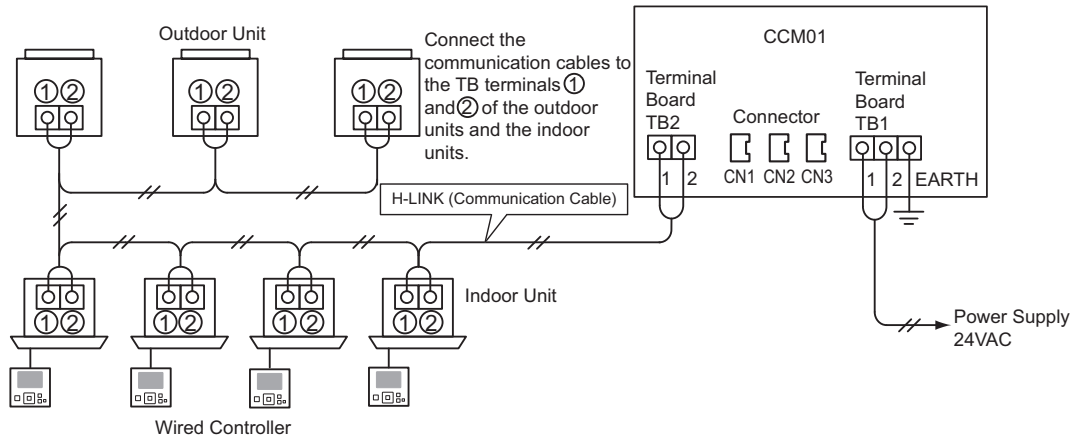


NOTICE

- A. Use a AWG 22(0.12mm²) to AWG 18(0.82mm²) cable for connections. Communication cabling shall be a minimum of 18-Gauge, 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements. The maximum total cable length is 98 ft. 4-13/16 in. (30m). If the total cable length exceeds 98 ft. 4-13/16 in. (30m), use a communication cable with a shield tube. (1P - AWG 18 (0.82mm²)). In this case, the maximum total cable length is 1640 ft. 6 in. (500m). The use of a cable other than that specified above can cause malfunction because of effects of Electromagnetic Interference (EMI).
- B. Keep a distance of more than 11-13/16 inches (30cm) between the transmission line (controller cable and communication cables) and power source of the indoor units. If that distance is not kept, the air-conditioner may not operate properly or malfunction may occur because of effects of power source noise.
- C. When simultaneously controlling multiple indoor units, set the system numbers and addresses of the indoor units without overlapping.
- D. Refer to the Technical Manual provided with each indoor unit when performing electrical wiring work between the controller and indoor units for setting the system number and the indoor unit address.
- E. Ensure there is no gap between the controller cable and the opening of the controller case. If there is a gap, cover the gap with vinyl tape. If not covered correctly, water droplets or insects may cause a malfunction.
- F. When operating with two controllers (primary and secondary), set the primary and secondary controllers by selecting the appropriate function with the controllers. After setting it, turn OFF the power supply of all the indoor units connected to the controllers.
- G. The control timer cannot be used along with this controller.

H-LINK Cable

- (1) The mini central controller requires wiring work of the power supply cable, air conditioner, and control wiring (H-LINK).
- (2) Wiring Method



| Type of Wiring | Specification | Length of Wiring | Cable Specification | Recommended Cable Model |
|--------------------------------------|---|---------------------|--|---------------------------------------|
| Power Supply Cable | 24VAC | - | AWG 16(1.25mm ²) to AWG 14(2mm ²) | 600V CV, CCV, CEV |
| Ground Wiring | - | - | - | - |
| H-LINK (Control Wire) | 5VDC | 3281 feet (1000m) ≥ | AWG 18(0.75mm ²) to AWG 16(1.25mm ²) | JKPEV-S, JKEV-S, CVV-S, CVV, 600V VCT |
| Wiring for External Input and Output | Input: Non-voltage Normal Open Output: 12VDC, 75mA ≥ | 984.3 feet (300m) ≥ | AWG 20(0.5mm ²) to AWG 16(1.25mm ²) | |

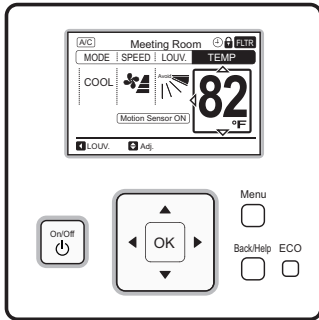
* If wire length specification on the signal transmission side for the external input is mentioned, use shorter wiring, either ① transmission side wire length specification or ② 984 ft. 3-19/32 in. (300m).

NOTE

- * The mini central controller can malfunction if incorrect wiring is used.
- * If performing wiring work with the main power ON, it may cause a breakdown of the controller. Turn OFF the main power of the air conditioner and the controller before performing wiring work.
- * The communication cables are required to be separated from the power supply wiring and other electrical device wiring. Keep at least 11-13/16 inches (30cm) between communication cable and the power supply wiring. If the wiring is not secured, put the power supply wirings and communication cabling separately into metal conduit tubes. One side of the metal conduit tubes should be grounded for Electromagnetic Interference (EMI) reduction.
- * Do not connect the power supply wiring to the terminals for transmission of the mini central controller. If the power supply wires are connected incorrectly, the fuse of the printed circuit board will blow for protection. If this happens, turn on the DSW2-2 pin on the printed circuit board for unfused emergency operation.
- * Remove the ground wiring of the "EARTH" terminal when performing the insulating capacity test or voltage test. If the above is not secured, it can cause breaking down of the mini central controller.

6.2 Wired Controller

6.2.1 Features and Functions

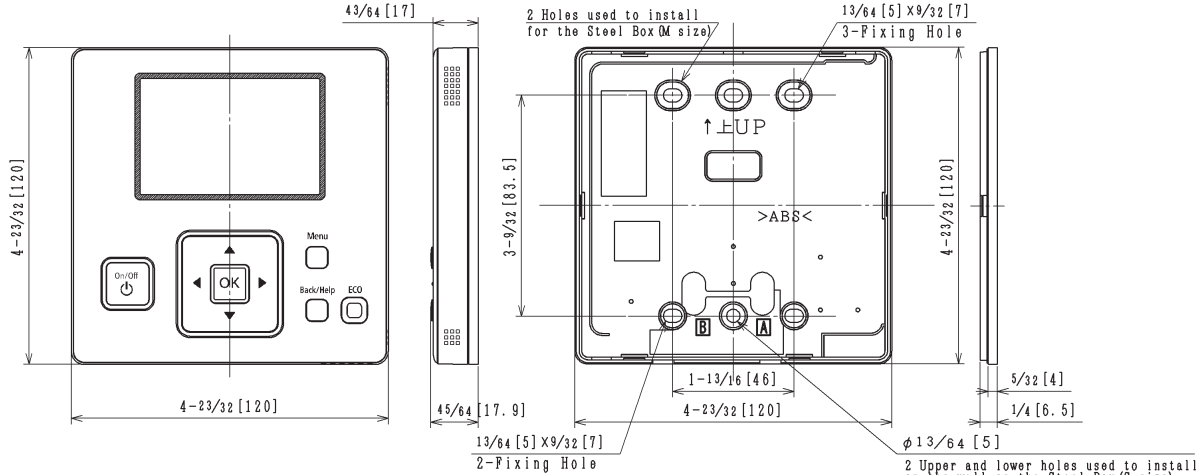


| | |
|--------------|---|
| Model Number | CIW01 |
| Model Type | Wired Controller |
| Setting | On/Off |
| | Mode |
| | Temp. |
| | Fan Speed |
| | Louver Angle |
| | Lock Function |
| | On/Off Timer |
| | Weekly Schedule |
| | Holiday Off |
| | Filter Sign Reset |
| | Power Saving |
| | Operation Noise Reduction |
| | Quick Function |
| | Comfort Setting |
| | Power Saving/Operation Noise Reduction Schedule |
| | Individual Louver |
| | Motion Sensor |
| | Adjusting Date/Time |
| | Daylight Saving Time |
| | Display Adjustment |
| | Language |
| | Temperature Unit |
| | Room Name Registration |
| | Contact Information |
| | Automatic Reset of Setting Temperature |
| | Limit for Setting Temperature |
| | Priority Setting |
| | Cancel Preheating Control |

6.2.2 Specifications

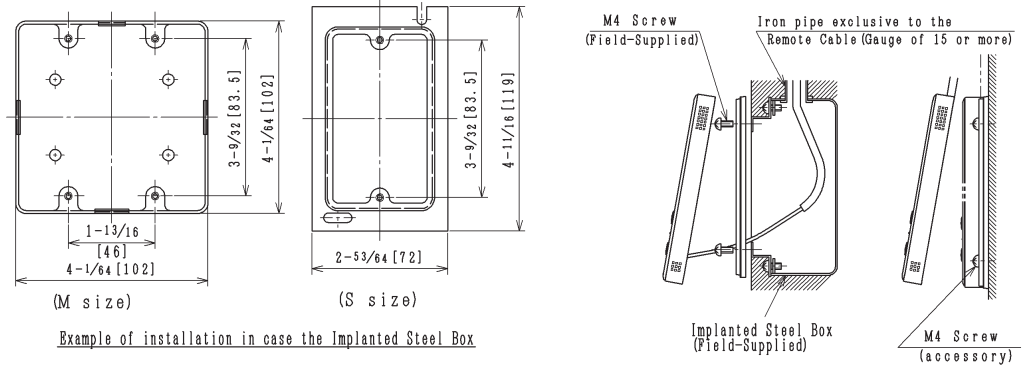
| | |
|--------------------------------|---|
| Model | CIW01 |
| Outer Dimension <W × H × D> | 4-23/32 × 4-23/32 × 45/64 inch (120 × 120 × 17 mm) |
| Net Weight | 0.4 LBS (0.2 kg) (Approx.) |
| Installation Location | Indoor Use |
| Installation Method | Wall-embedded using steel box (option) |
| Ambient Temperature | 41 - 95°F (5 - 35°C) |
| Ambient Humidity | 35 - 90% |

6.2.3 Dimensions



The Mounting holes such as the wall's Attaching base are shown on this figure. Other holes cannot be drilled.

Mounting Dimension of the Attaching base



Example of installation in case the Implanted Steel Box

Notes:

1. In case of using an Implanted Steel Box (Option), install it, taking attention on the top and bottom direction.
2. The LCD Display will be indicated according to the operation status.
3. Accessories (Q'ty): Screw M4x5/8 [16] (2)

6.2.4 Applicable Models

| Model Number | Model Type |
|--|--|
| C4IRK01 | IR Receiver Kit for 4-way Cassette |
| C2IRK01 | IR Receiver Kit for 2-way Cassette (coming soon) |
| C1IRK01 | IR Receiver Kit for 1-way Cassette |
| CWDIRK01 | IR Receiver Kit for Wall and Ducted Units |
| TIWM006B21S TIWM008B21S TIWM012B21S TIWM015B21S TIWM018B21S TIWM024B21S | Indoor Unit (Wall Mount type) |

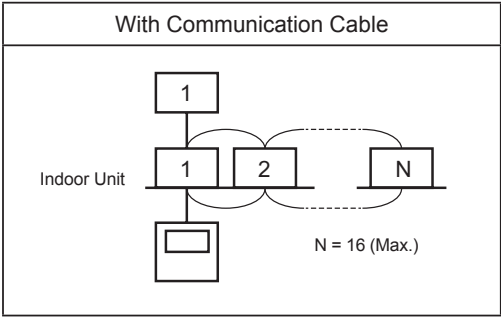
6.2.5 Accessories / Options

- Steel Box S size
- Steel Box M size

CONTROL SYSTEM

6.2.6 Installation

One controller can control up to 16 units.



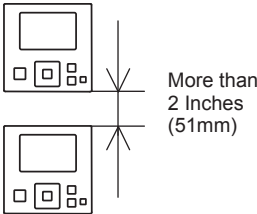
6.2.6.1 Selection of Installation Location

- 1) With the customer's approval, determine a suitable installation location for the controller. Do not install the remote control switch in the following places:
 - where children can touch
 - where the air from the air conditioner is directly discharged

6.2.6.2 Before Installation

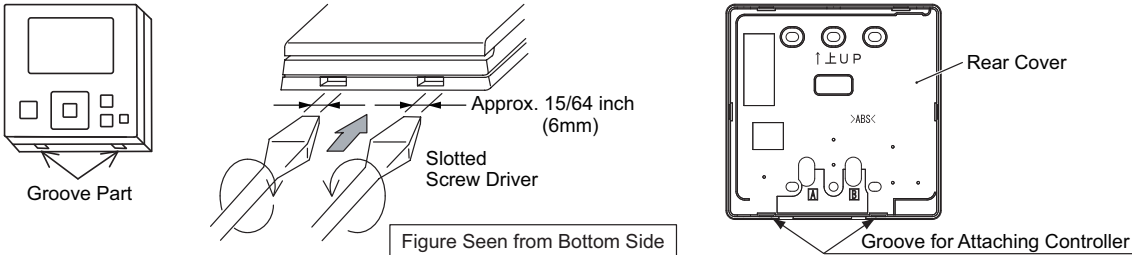
This packing contains the following parts.

- [A] Wired Controller (Qty: One for operation control)
- [B] Screw <M4x16L> (Qty: Two for installing the holding bracket onto the wall)
- [C] Operation Manual (Qty: One)



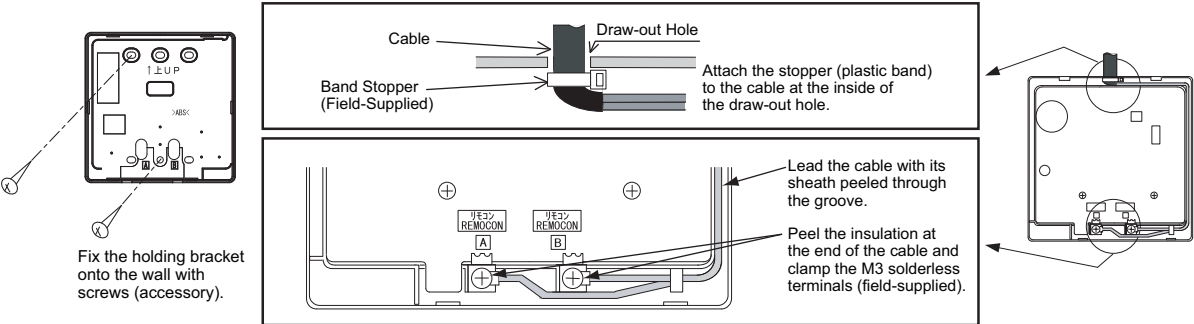
6.2.6.3 Installation Procedures

- 1) Insert the edge of the slotted screwdriver into the groove at the bottom of the holding bracket, push and turn the slotted screwdriver and then remove the controller from the holding bracket.



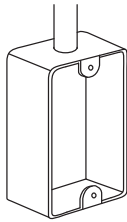
- 2) Attach the controller to the holding bracket and connect the cable as follows.

A. When Exposing Controller Cable

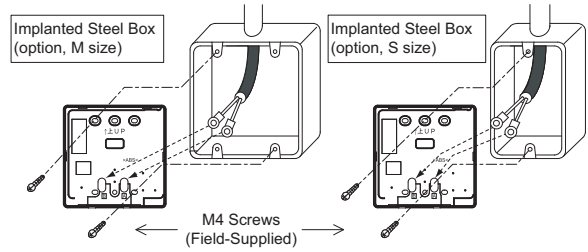


B. When Using Steel Box

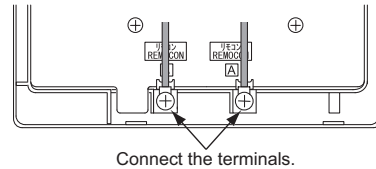
1. Prepare field-supplied steel box (option).



2. Lead the cable through the conduit tube in the wall.

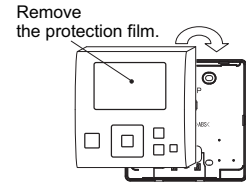


3. Peel the insulation at the end of the cable and clamp the M3 solderless terminals (field-supplied).



3) Attach the controller to the holding bracket. Be careful not to pinch the cable when attaching it.

4) Remove the protection film from the liquid crystal display (LCD).

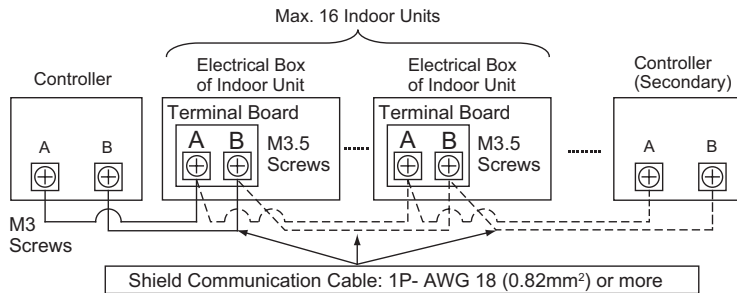


6.2.6.4 Electrical Wiring

Wiring Example (Using a shielded communication cable)

ATTENTION:

Always make sure to turn OFF the power of the indoor unit when performing electrical wiring work. Performing electrical wiring work with the power on can damage the circuit boards of the indoor unit and the controller.



NOTICE

A. Use a AWG 22(0.12mm²) to AWG 18(0.82mm²) cable for connections. Communication cabling shall be a minimum of 18-Gauge, 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements. The maximum total cable length is 98 ft. 4-13/16 in. (30m). If the total cable length exceeds 98 ft. 4-13/16 in. (30m), use a communication cable with a shield tube. (1P - AWG 18 (0.82mm²)). In this case, the maximum total cable length is 1640 ft. 6 in. (500m).

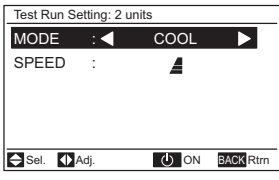
The use of a cable other than that specified above can cause malfunction because of effects of Electromagnetic Interference (EMI).

B. Keep a distance of more than 11-13/16 inches (30cm) between the transmission line (controller cable and communication cables) and power source of the indoor units. If that distance is not kept, the air-conditioner may not operate properly or malfunction may occur because of effects of power source noise.

CONTROL SYSTEM

- C. When simultaneously controlling multiple indoor units, set the system numbers and addresses of the indoor units without overlapping.
- D. Refer to the Technical Manual provided with each indoor unit when performing electrical wiring work between the controller and indoor units for setting the system number and the indoor unit address.
- E. Ensure there is no gap between the controller cable and the opening of the controller case. If there is a gap, cover the gap with vinyl tape.
If not covered correctly, water droplets or insects may cause a malfunction.
- F. When operating with two controllers (primary and secondary), set the primary and secondary controllers by selecting the appropriate function with the controllers. After setting it, turn OFF the power supply of all the indoor units connected to the controllers.

6.2.6.5 Checking Procedures

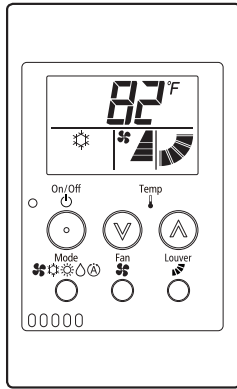
| | |
|--|--|
| <p>1) Turn ON the power supply for all the indoor units.</p> | <p>5) Test Run</p> <ul style="list-style-type: none"> • The test run screen is displayed.  <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">NOTE</p> <p>When "00" is indicated, the auto-address function may be operating. Cancel "Test Run" mode and set it again.</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>* The total number of the indoor units connected is indicated on the liquid crystal display (LCD).</p> <p>* If the indicated number is not equal to the actual connected number of the indoor unit, the auto-address function is not performed correctly due to incorrect wiring or EMI. Turn OFF the power supply and correct the wiring after checking the following points. (Do not turn both ON and OFF within 10 seconds.)</p> <ol style="list-style-type: none"> 1. Power supply for indoor unit is not turned ON or incorrect wiring. 2. Incorrect connection of cable between indoor units or incorrect connection of controller cable. 3. Incorrect setting of rotary switch or DIP switch on the indoor units' printed circuit board (PCB). (The setting is overlapped.) </div> <ul style="list-style-type: none"> • Press "⏻" (On/Off) to start the test run. • Press "△ ▽ ◀ ▶" and set each item. |
| <p>2) For the models with the auto-address function, wait for approximately three minutes. The address is automatically performed. (There may be a case where the setting condition requires up to five minutes.) After that, select the language from the "Menu". Refer to the Operation Manuals for details.</p> | |
| <p>3) Press and hold "Menu" and "Back/Help" simultaneously for at least three seconds. The test run menu will be displayed.</p> | |
| <p>4) Select "Test Run" by pressing "△ ▽" and press "OK". The Test Run screen displays.</p> | |
| <p>6) Canceling "Test Run" Mode</p> <ol style="list-style-type: none"> (1) When the unit is not operating, press "Back/Help". (2) When the unit is not operating, press "⏻" (On/Off). | |

6.2.7 Operation

Refer to the Operation Manual for details.

6.3 Simplified Wired Controller

6.3.1 Features and Functions

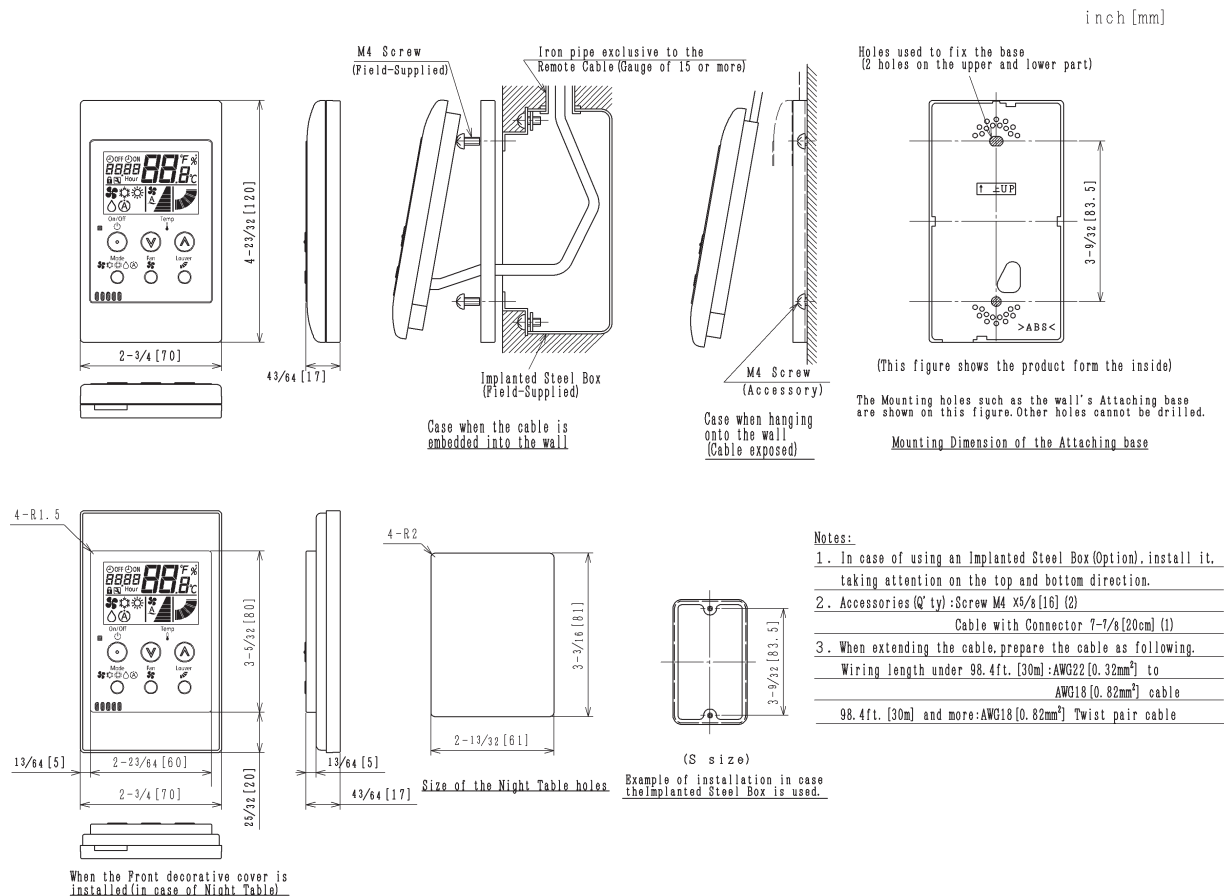


| | |
|--------------|--|
| Model Number | CIS01 |
| Model Type | Simplified Wired Controller |
| Setting | On/Off |
| | Mode |
| | Temp. |
| | Fan Speed |
| | Louver Angle |
| | Automatic Reset of Setting Temperature |
| | Limit for Setting Temperature |

6.3.2 Specifications

| | |
|--------------------------------|--|
| Model | CIS01 |
| Outer Dimension <W × H × D> | 2-3/4 × 4-23/32 × 43/64 inch (70 × 120 × 17 mm) |
| Net Weight | 0.2 LBS (0.1 kg) (Approx.) |
| Installation Location | Indoor Use |
| Installation Method | Wall-embedded using steel box (option) |
| Ambient Temperature | 41 to 95°F (5 to 35°C) |
| Ambient Humidity | 35 to 90% |

6.3.3 Dimensions



6.3.4 Applicable Models

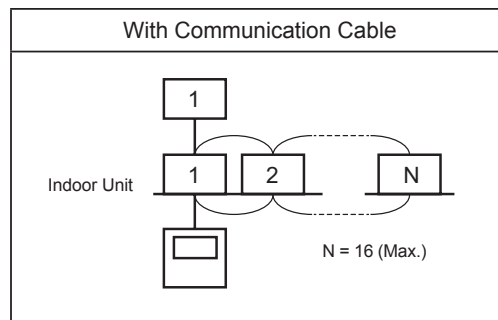
| Model Number | Model Type |
|--|---|
| C4IRK01 | IR Receiver Kit for 4-way Cassette |
| C2IRK01 | IR Receiver Kit for 2-way Cassette (<i>coming soon</i>) |
| C1IRK01 | IR Receiver Kit for 1-way Cassette |
| CWDIRK01 | IR Receiver Kit for Wall and Ducted Units |
| TIWM006B21S TIWM008B21S TIWM012B21S TIWM015B21S TIWM018B21S TIWM024B21S | Indoor Unit (Wall Mount type) |

6.3.5 Accessories / Options

- Steel Box S size

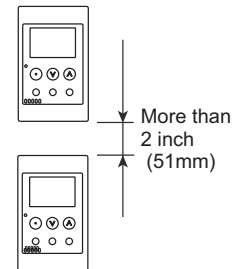
6.3.6 Installation

One controller can control up to 16 units.



6.3.6.1 Selection of Installation Location

- 1) With the customer's approval, determine a suitable installation location for the controller. Do not install the controller in such places as:
 - where children can touch
 - where the air from the air conditioner is directly discharged



6.3.6.2 Before Installation

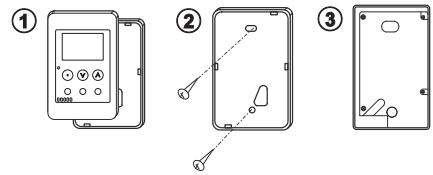
This packing contains the following parts.

- Simplified Wired Controller (Qty: One for operation control)
- Screw <M4x16L> (Qty: Two for securing the holding bracket onto the wall)
- Cable with Connector (8 inches (20cm))

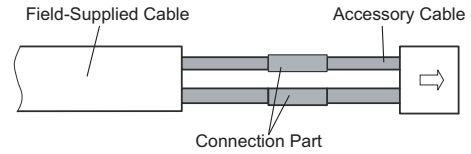
CONTROL SYSTEM

6.3.6.3 Installation Procedures

1) Remove the controller from the holding bracket.



2) Connection of cable:
Connect the accessory cable to the field-supplied cable by soldering. Insulate the connecting part using vinyl tape.



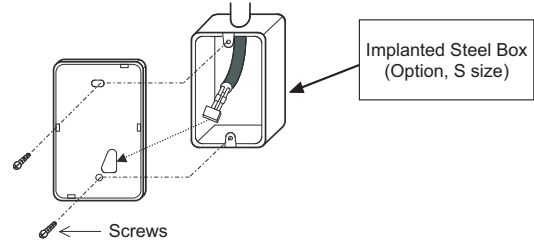
3) Attach the controller to the holding bracket and connect the cable as follows.

A. When Exposing Controller Cable

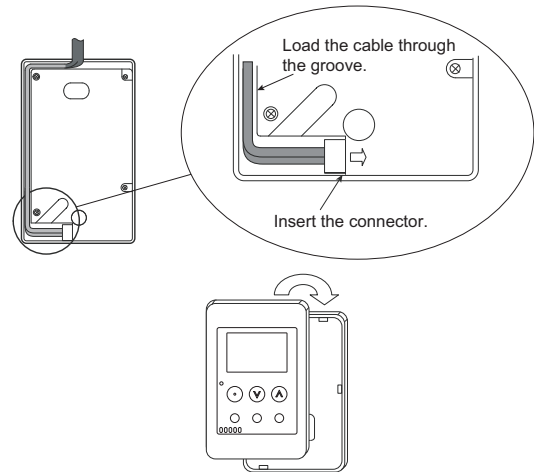
Secure the holding bracket with the cable (accessory) onto the wall using 2-M4 screws (accessory).

B. When Using Steel Box

Prepare steel box (option).
Secure the holding bracket (accessory) on the wall with 2-M4 screws (field-supplied).



4) Attach the controller to the holding bracket and connect the cable as shown in the figure.



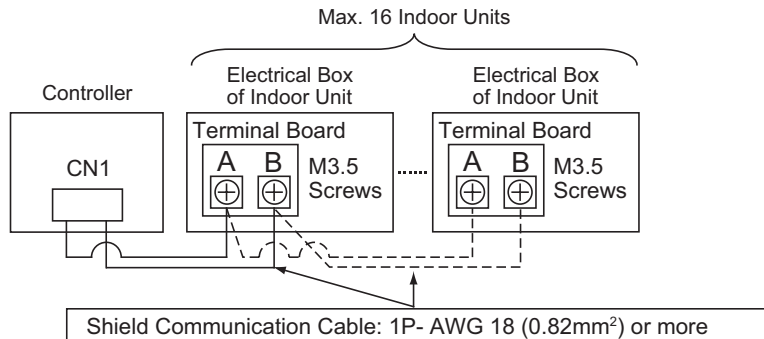
5) Attach the controller onto the holding bracket.
First, attach the upper side, and then the lower side.

6.3.6.4 Electrical Wiring

Wiring Example (using a shielded communication cable)

ATTENTION:

Always make sure to turn OFF the power of the indoor unit when performing electrical wiring work. Performing electrical wiring work with the power on can damage the circuit boards of the indoor units and the controller.

**NOTICE**

- A. Use AWG 22 (0.32mm²) to AWG 18 (0.82mm²) cable (Max. total cable length 98 ft. 4-13/16 in. (30m)). If the total cable length is longer than 98 ft. 4-13/16 in. (30m), use communication cable (1P to AWG 18 (0.82mm²)) (Max. total cable length 1,640 ft. 6 in. (500m)). Communication cabling shall be a minimum of 18-Gauge, 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.
- B. Keep a distance of more than 11-13/16 in. (30cm) between the controller / indoor unit communication cables and the power wiring.
- C. If installed within 11-13/16 in. (30cm), put the cables in a conduit tube and ground (type-D; $\leq 100\Omega$) one end of the pipe. Without this procedure, malfunction or failure of the indoor unit because of Electromagnetic Interference (EMI) may occur.
- D. When multiple indoor units are simultaneously controlled, set addresses for refrigerant cycle and indoor units. Especially when indoor units from multiple refrigerant cycles are simultaneously controlled, transmission abnormality may occur because of address duplication.
- E. For more information about wiring controller-indoor unit and setting indoor units addresses, refer to the indoor units' "Installation Manual".
- F. Do not leave any spaces at the cable opening of the remote controller case. If there is any space, cover it with vinyl tape to avoid trouble caused by condensate or insects entering the controller case.

6.3.6.5 Checking Procedures

This controller does not have a Test Run mode.

The test running should be performed from the outdoor units.

1. Turn ON the power for all the indoor units.
2. Models with automatic addressing will take three to five minutes to complete the setting.
3. Set the Test Run mode from the outdoor units.
4. Cancellation of the Test Run mode.

The Test Run mode can be cancelled when:

- The Test Run will be finished automatically after two hours of running.
- Cancellation of the Test Run from the outdoor units.
- Stop the Test Run by pressing the ON/OFF switch of the controller.

The total number of the indoor units connected will be indicated on the temperature display.

● **Example when one unit is connected.**

If the indicated number of connected units is incorrect, any transmission abnormality because of incorrect wiring or addressing may result in electromagnetic noise. In such a case, turn OFF the power supply and check the following. (Do NOT repeat the ON/OFF operation of the main switch within 10 seconds).

- (1) Indoor unit's power supply not turned ON, or incorrect wiring
- (2) Incorrect wiring connection between indoor units or of controllers
- (3) Incorrect setting of rotary switch (overlapped setting)

ATTENTION:

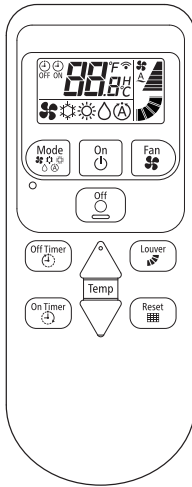
This controller retains a Test Run operation mode. The units will start in the Test Run mode if the mode of operation is not changed from the central control equipment (used with the unit after the Test Run) or from the controller. Change the mode of operation using these devices. Function Selection and Input/Output Setting from Controller" (H3 Operation Mode Change Restriction - 02: Unlimited Operation) in the Installation Manual after the Test Run.

6.3.7 Operation

Refer to the Operation Manual for details.

6.4 Wireless Controller

6.4.1 Features and Functions

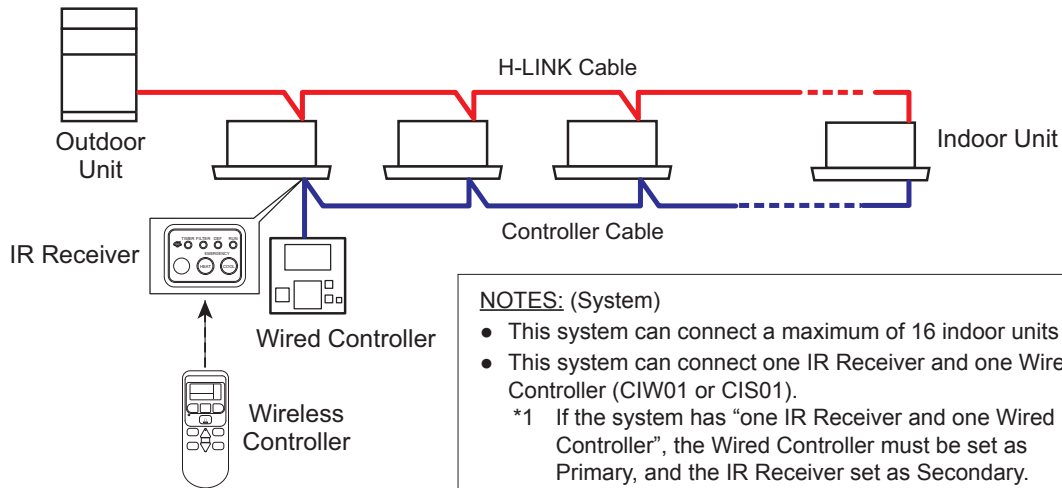


| | |
|--------------|---------------------|
| Model Number | CIR01 |
| Model Type | Wireless Controller |
| Setting | On/Off |
| | Mode |
| | Temp. |
| | Fan Speed |
| | Louver Angle |
| | On Timer |
| | Off Timer |
| | Filter Sign Reset |

6.4.2 Specifications

| Menu | Item | Features |
|-------------------|------------|---|
| On/Off | On | "On" dedicated button |
| | Off | "Off" dedicated button |
| Mode | FAN | |
| | COOL | |
| | HEAT | |
| | DRY | |
| | AUTO | |
| Temp. | 62-86°F | Can select view "°C" or "°F" |
| | 17-30°C | |
| Fan Speed | 1-4 | |
| Louver Angle | 1-7, AUTO | |
| On Timer | 0.5 ~ 23hr | 0.5-9.5hr(per 0.5hr), 10-23(per 1hr) *Can't simultaneously set ON Timer and OFF Timer. |
| Off Timer | 0.5 ~ 23hr | 0.5-9.5hr(per 0.5hr), 10-23(per 1hr) *Can't simultaneously set ON Timer and OFF Timer. |
| Filter Sign Reset | Clear | |

6.4.3 System Configuration



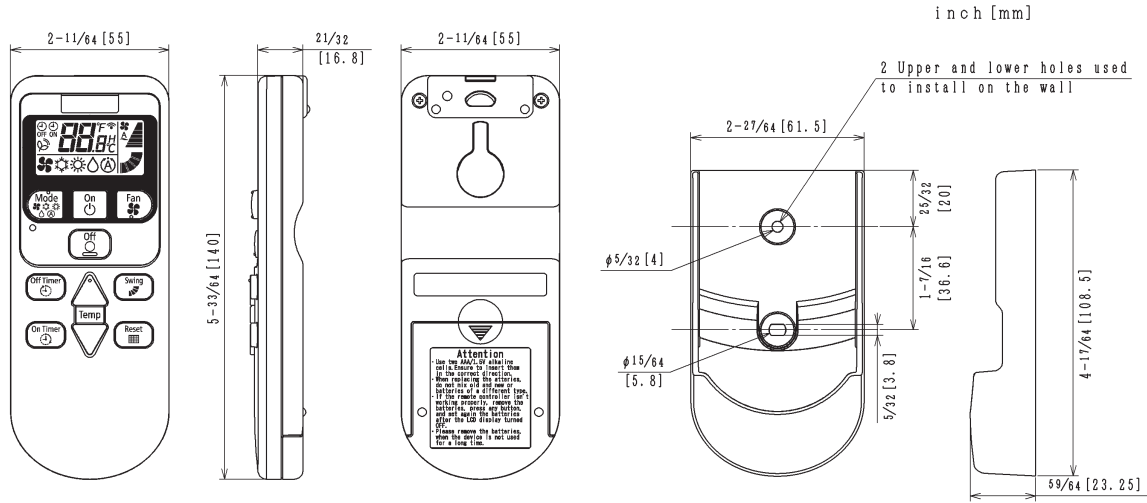
NOTES: (System)

- This system can connect a maximum of 16 indoor units
- This system can connect one IR Receiver and one Wired Controller (CIW01 or CIS01).
 - *1 If the system has "one IR Receiver and one Wired Controller", the Wired Controller must be set as Primary, and the IR Receiver set as Secondary.
 - *2 Indoor Unit (Wall Mount type) can't connect using the Wired Controller (CIW01 or CIS01).

NOTES: (Controller Cable):

- Use a AWG 22(0.12mm²) to AWG 18(0.82mm²) cable for connection. The maximum total cable length is 98 ft. 4-13/16 in. (30m). If the total cable length exceeds 98 ft. 4-13/16 in. (30m), use a shielded communication cable (1P - AWG 18 (0.82mm²)). Communication cabling shall be a minimum of 18-Gauge, 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.
In this case, the maximum total cable length is 1,640 ft. 6 in. (500m).
The use of a cable other than that specified above can cause a malfunction due to EMI affects.
- Keep a distance of more than 11-13/16 inches (30cm) between the transmission line (controller cable and communication cables) and power source of the indoor units.
If not, the air-conditioner may not operate properly or malfunction may occur due to effect of power source noise.
- When simultaneously controlling multiple indoor units, set the system numbers and addresses of the indoor units without overlapping.
- Refer to the Technical Manual provided with each indoor unit when performing electrical wiring work between the controller and indoor units for setting the system number and the indoor unit address.
- Ensure there is no gap between the controller cable and the opening of the controller case. If there is a gap, cover the gap with vinyl tape.
If the gap is not covered, a malfunction may occur because of water droplets or insects.
- When operating with two controllers (primary and secondary), set the primary and secondary controllers using the appropriate function with the controllers.
After setting, turn off the power supply of all the indoor units connected to the controllers.
- The control timer cannot be used simultaneously with this controller.

6.4.4 Dimensions



Notes:

1. The LCD display shows the case light.
When used, it is indicated according to the operation content.
2. Accessories (Qty): Holding Bracket (1), Battery [AAA/1.5V Dry Cell] (2)
Screw M3x5/8 [16] (2)

Holding Bracket

6.4.5 Applicable Models

| Model Number | Model Type |
|--|---|
| C4IRK01 | IR Receiver Kit for 4-way Cassette |
| C2IRK01 | IR Receiver Kit for 2-way Cassette (<i>coming soon</i>) |
| C1IRK01 | IR Receiver Kit for 1-way Cassette |
| CWDIRK01 | IR Receiver Kit for Wall and Ducted Units |
| TIWM006B21S TIWM008B21S TIWM012B21S TIWM015B21S TIWM018B21S TIWM024B21S | Indoor Unit (Wall Mount type) |

6.4.6 Accessories / Options

| Name | Qty | Remarks |
|---------|-----|---------------------|
| Battery | 2 | AAA / 1.5V Dry Cell |

CONTROL SYSTEM

6.4.7 Installation

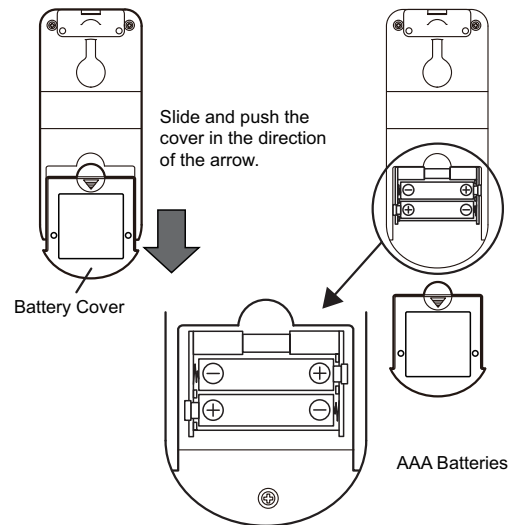
6.4.7.1 Setting Batteries

Set the batteries (AAA/1.5V × 2) for the controller as follows.

- (1) Remove the battery cover by sliding and pushing the cover in the direction of the arrow as shown in the figure at the right..
- (2) Set the batteries. (Insert the batteries according to the marks of + and - on the case.)

ATTENTION:

Do not press the “⏻ On” and “On Timer” switches until the preparation for Test Run is completed.

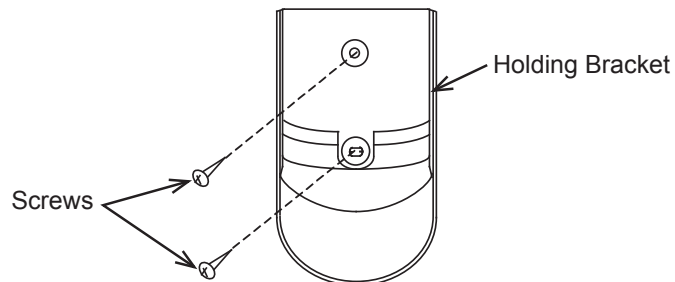


6.4.7.2 Installation of Holding Bracket

When installing the wireless controller onto a wall or a pillar, secure the holding bracket onto the wall and attach the controller where the receiver can receive the commands.


ATTENTION:

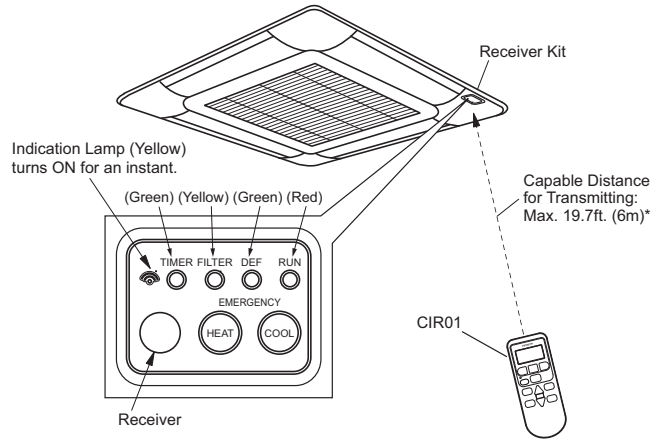
Keep a distance of more than 11-13/16 inches (30 cm) away from power wiring.



6.4.7.3 Sending

The operation commands are sent by pressing each button while pointing the transmitter of the controller toward the receiver of the receiver kit.

- (1) When the commands are sent, the indication “” on the LCD of the controller flashes once.
- (2) When the receiver kit receives the commands, the indication light (yellow) on the receiver kit turns ON for an instant, and the buzzer sounds.

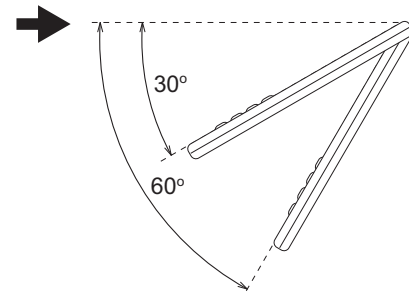


ATTENTION:

* The capable distance for transmitting using the wireless remote controller is a maximum of 19 ft. 8-13/32 in. (6m). (The distance may differ depending on the type of receiver. Check the receiver kit, or refer to the Operations Manual supplied with the indoor unit.) The transmitting distance will be shorter if the transmitting angle is not vertical to the receiver or there is an electronic device light in the room.

Liquid Crystal Display (LCD) Indication

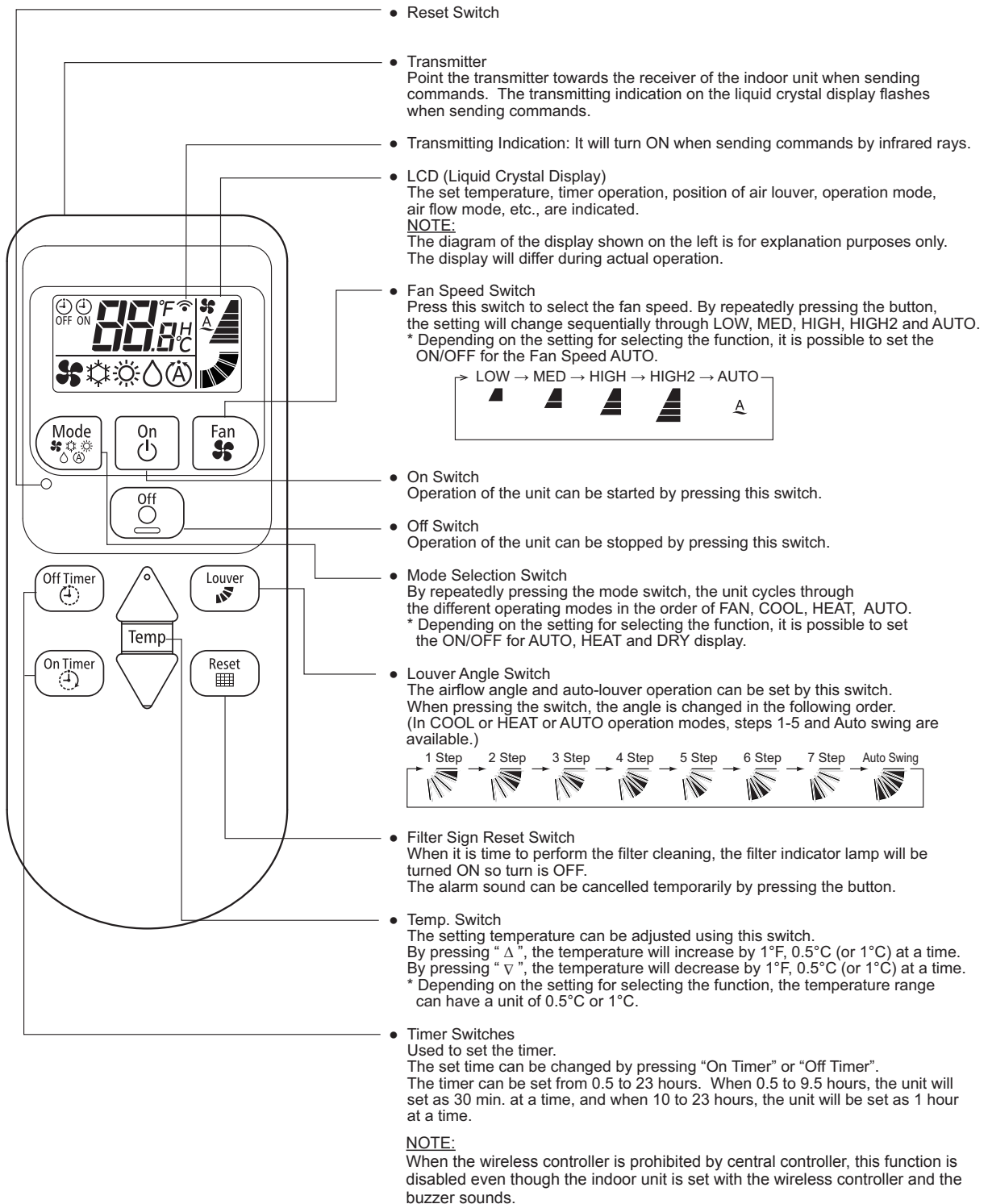
When viewed from certain angles the LCD can be difficult to read. The viewing angle ranges from an optimal of 60° down to 30°, as shown in the diagram on the right. If the viewing angle is below 30°, the indications appear slightly faded and barely visible. This is a characteristic of the LCD, not an abnormality.



6.4.8 Operation

6.4.8.1 Operation

- This controller is used to send commands in regard to the operation mode, timer setting, and so forth to the indoor unit.
Point the transmitter of the controller toward the receiver of the indoor unit and press the switch of the required operation so that commands (by infrared rays) are sent to the indoor unit.
- The maximum distance for transmitting is approximately 20 ft. (6m) maximum. The transmitting distance will be shorter if the transmitting angle is not vertical to the receiver or there is an electronic device light in the room.
- Use the combination of the receiver kit and the indoor unit which are supported by this controller.



6.4.8.2 Optional Function Setting

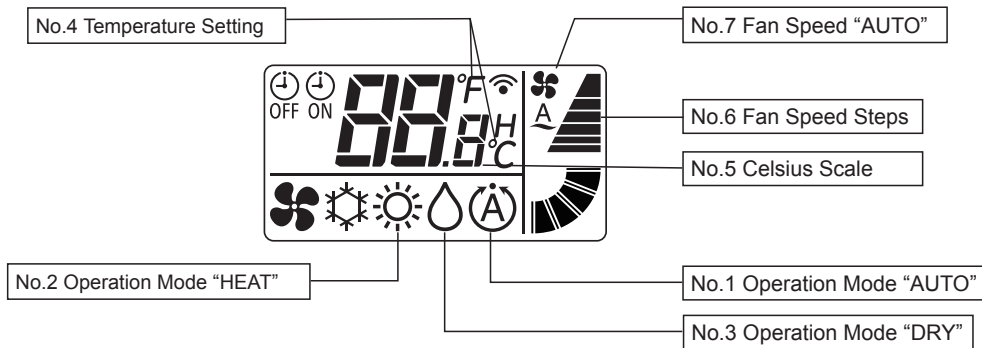
The display range of the wireless controller can be set, following functions to set the indoor unit.

ATTENTION:
 The following settings are only valid for the functions that can be set to the indoor unit.
 The function that cannot be set to the indoor unit is invalid. For further information regarding the function that can be set to the indoor unit, please refer to the manual for each corresponding indoor unit.

| | | Switching | “ ⏻ On ” switch | |
|--|---|-----------------------|--------------------|--------------------------------|
| | 1 | Operation Mode “AUTO” | Display | / Non-display |
| | 2 | Operation Mode “HEAT” | Display | / Non-display |
| | 3 | Operation Mode “DRY” | Display | / Non-display |
| | 4 | Temperature Setting | °C | / °F |
| | 5 | Celsius Scale | 1°C | / 0.5°C |
| | 6 | Fan Speed Steps | 3 steps | / 4 steps / 6 steps |
| | 7 | Fan Speed “AUTO” | Display | / Non-display |

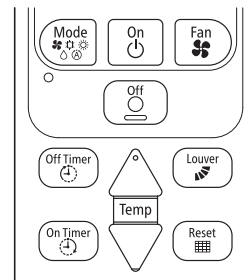
NOTE: The selected items are set when restoring a setting.

Press the “ ⏻ Off ” button to exit the function selection.



■ Optional Function Setting Procedures

(1) Press both “Off Timer” and “Filter Sign Reset” three seconds.



(2) If the current setting is “Non-display”, the selected item will flash 0.5 seconds; then it will turn OFF. If the setting is “Display”, it will light continuously.

(3) The setting information “Display” or “Non-display” can be changed by pressing “ ⏻ On ” button.

(4) Press “∇” to change the function number in ascending order. (No. → 1 → 2 → 3 ... 7 →)
 Press “Δ” to change the function number in descending order. (No. → 1 → 7 → 6 ... 2 →)

(5) Select the item number with “∇” or “Δ”, and change the setting content by pressing the “ ⏻ On ” button and finally exit the optional function setting by pressing the “ ⏻ Off ” button to reset.

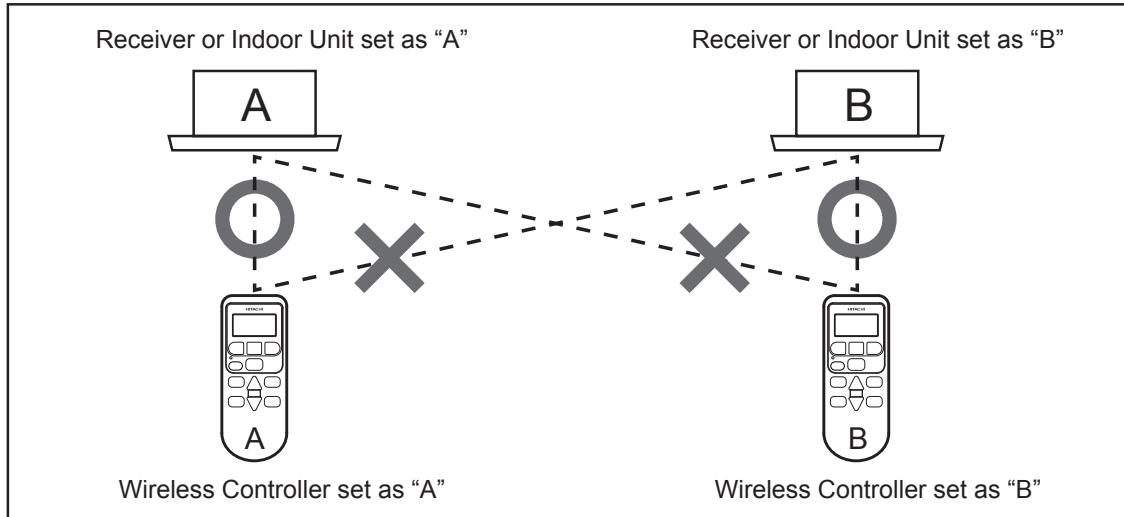
NOTES:

1. The optional function setting will automatically end and reset if no operation is performed 60 seconds after it is displayed.
2. The setting will be recorded each time the “ ⏻ On ” button is pressed.

6.4.8.3 Identifying Indoor Units Installed in a Side-by-Side Operation

• Purpose

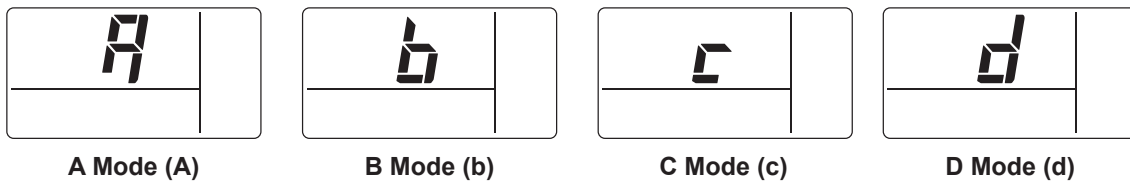
This function is used when operating several receivers or indoor units side by side, to prevent a malfunction when receiving incorrect signals from the wireless remote controllers used in other areas. Only the communication between a paired setting is possible, and four pairs (A, B, C, D) are available. For example, the receiver set as “A” can only receive signals from the wireless controller set as “A”. It cannot receive signals from the wireless controller set as B, C, or D.



Refer to the Installation and Maintenance manual or the Operations manual for each receiver kit or indoor unit setting. Depending on the type of the receiver kit or the indoor unit, only A and B settings are available and not C and D. In that case, set the wireless controller as A or B too.

• Procedures for this function

- (1) Press both the “On Timer” and “Filter Sign Reset” three seconds.
- (2) The current value set for this function will be displayed (A, B, C or D).



- (3) Press “∇” to change the setting in ascending order. ($\Rightarrow A \rightarrow B \rightarrow C \rightarrow D \rightarrow$)
- Press “Δ” to change the setting in descending order. ($\leftarrow A \leftarrow B \leftarrow C \leftarrow D \leftarrow$)

NOTE:


The setting will be recorded each time the “On” button is pressed.

- (4) Press the “○ Off” button to exit this function and reset.

NOTE:

If no operation is performed 30 seconds after this function is displayed, it will automatically end and reset.

6.4.8.4 Test Running by Controller

- 1) Turn ON the power supply for the indoor units.
The “” light (yellow) on the receiver kit of the indoor unit flashes (0.25 seconds ON ↔ 0.25 seconds OFF), and then turns OFF. While the light is flashing, the unit will not operate because it is initializing.

- 2) Set the Test Run mode by pressing the “Louver” button and “On Timer” button three seconds at OFF. The LCD should be as shown in the figure on the right.





Test Run Mode is under suspension.

- 3) Set the operation mode by pressing the “Mode” button.



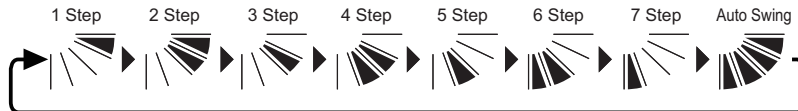
Test Run Mode is under operating.


- 4) Operate the Test Run by pressing the “ On” button. When the commands are received by the indoor unit, the “” light (yellow) of the receiver kit will come on briefly. Check that commands are received well and the mode selected by procedure 3 above is set correctly. In the Test Run mode, the red light (RUN) of the receiver kit is turned ON and the green light (TIMER) flashes (0.5 seconds ON ↔ 0.5 seconds OFF). And then the timer off for two hours.
- 5) Adjust the angle of the air louver as follows.
Check that commands are received correctly using the light and buzzer of the receiver kit. Use the wireless remote controller pointing the transmitter toward the receiver.

ATTENTION:

The air louver has a mechanism for the auto-swing function. Do not forcefully move the louver by hand.

- (1) Select the FAN mode by pressing the “Mode” button.
- (2) Set the louver angle by pressing the “Louver” button.
The louver direction is changed as follows.



- 6) Stop the Test Run.
 - (1) Test Run is stopped automatically after two hours.
 - (2) Test Run is stopped by pressing the “ Off” button.
After the test run is finished, check that the red light (RUN) and the green light (TIMER) are turned OFF.

CONTROL SYSTEM

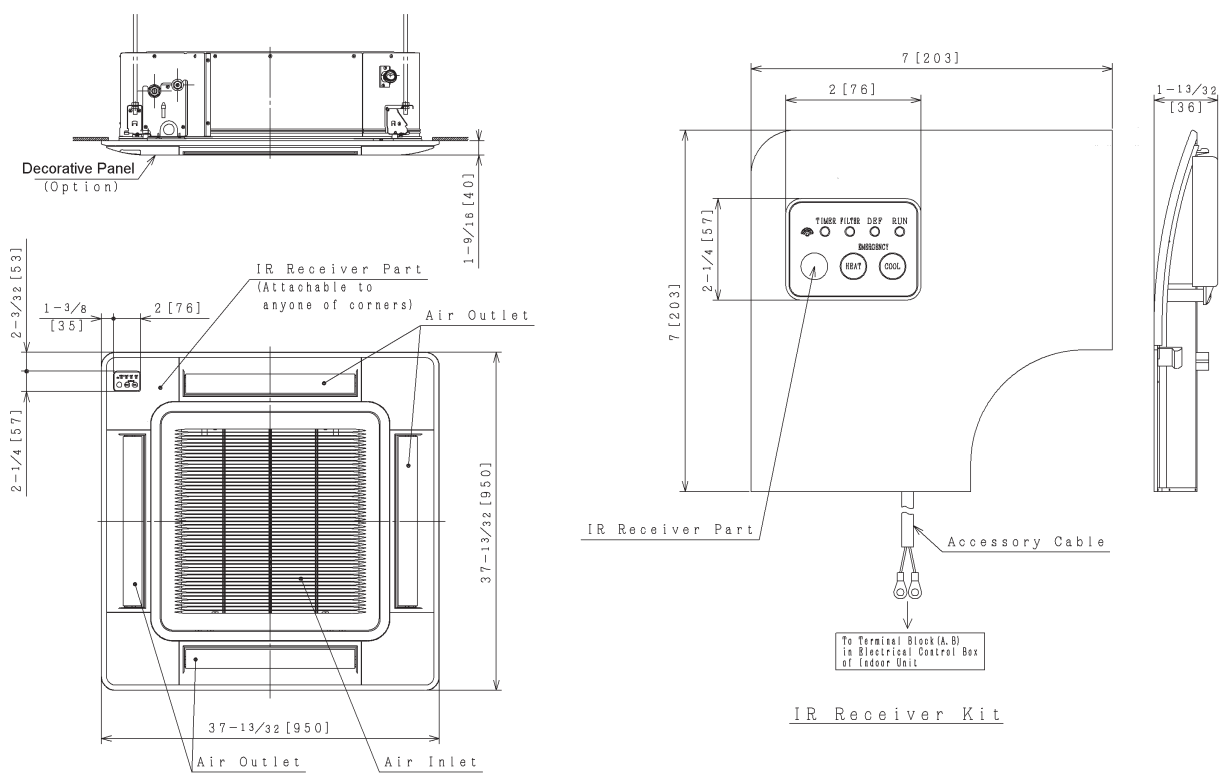
6.5 IR (Infrared) Receiver Kit for 4-Way Cassette

This IR receiver kit is installed with a 4-way cassette to use with the wireless controller.

6.5.1 Specifications

| | |
|----------------------------------|---|
| Model | C4IRK01 |
| Outer Dimension < W × H × D > | 7 × 7 × 1-13/32 inch (203 × 203 × 36 mm) |

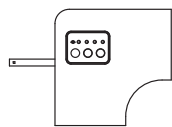

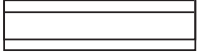

6.5.2 Dimensions



6.5.3 Applicable Models

| | |
|--------------------------------|---------------------|
| Model | C4IRK01 |
| Applicable Indoor Unit Model | 4-Way Cassette Type |
| Applicable Wireless Controller | CIR01 |

6.5.4 Accessories / Options

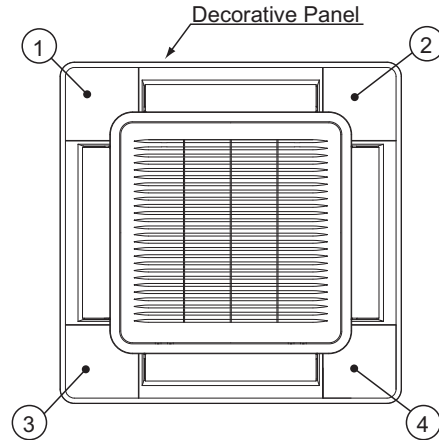
| No. | Accessory | Qty | Remarks |
|-----|--|-----|--|
| ① | IR Receiver Kit C4IRK01  | 1 | With Connecting Cable |
| ② | Connecting Cable  | 1 | - |
| ③ | Wiring Cover  | 1 | For Protection of Connecting Cable |
| ④ | Plastic Band  | 3 | For Securing Wiring Cover and Connecting Cable |
| ⑤ | Installation Manual | 1 | - |
| ⑥ | Operation Manual | 1 | - |

6.5.5 Installation

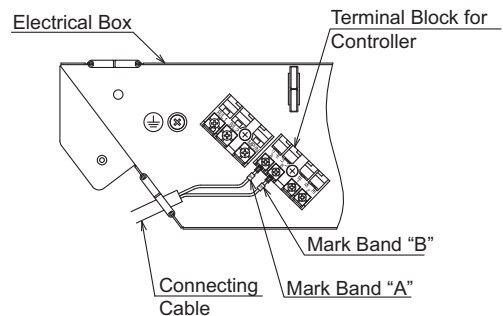
- 1 Perform the installation work for the IR receiver kit while the optional decorative panel is being attached to the indoor unit.
- 2 When the IR receiver kit is attached after the decorative panel is attached to the indoor unit, turn OFF the power source of the indoor unit, and remove the decorative panel. Removing the decorative panel should be performed according to the Installation Manual for the decorative panel or the Service Manual.
- 3 This IR receiver kit can be attached to any of four corners: ①, ②, ③ and ④. Determine the attachment location according to the purchaser's request.

NOTE:

The DIP switch setting for the IR receiver kit is possible at more than one function. If the optional function selection is required, perform work according to the section, "Optional Functions" before the IR receiver kit is attached to the decorative panel.

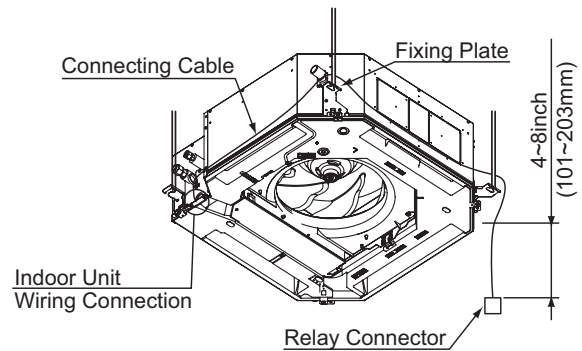


- 4 Connect the accessory connecting cable to the terminal block. Open the electrical box cover of the indoor unit. Attach the connecting cable to terminals A and B in the electrical box. (There is no polarity with terminals A and B.)



CONTROL SYSTEM

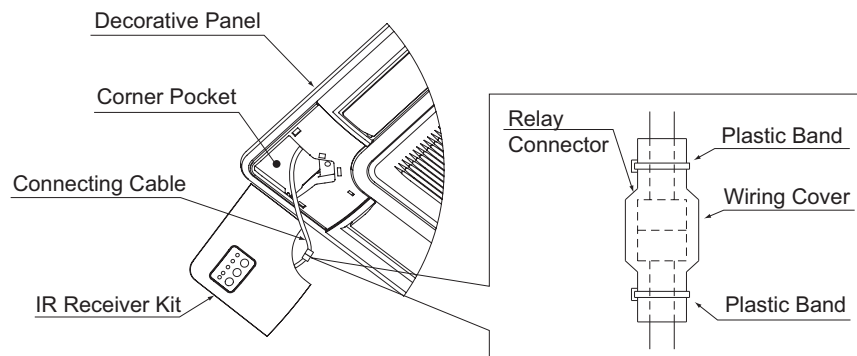
- 5 After attaching the connecting cable to each terminal, take it out to inside the false ceiling or outside of the unit. Connect it to the IR receiver kit. Refer to the "Installation and Maintenance Manual" of the indoor unit for indoor unit wiring instruction. When running the connecting cable, run it to the installation position of the IR receiver kit through the top of the fixing plate for the indoor unit. After running the connecting cable, take the distance (from 4 inches to 8 inches (from 101mm to 203mm) from the indoor unit undersurface to the connecting cable as shown in the figure at the right. After running the connecting cable, clamp the extra length of the connecting cable using the plastic band and store it inside the ceiling.



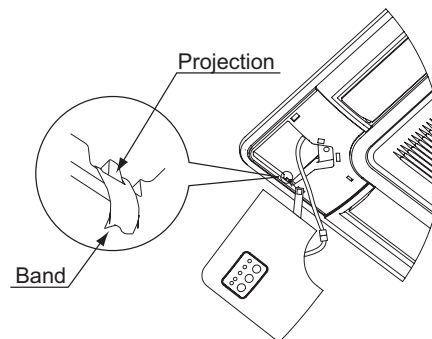
- 6 Attach the decorative panel.
Refer to the Installation Manual for the decorative panel.

- 7 After the installation work for the decorative panel is completed, attach the IR receiver kit.

- (1) Take the connecting cable out from the corner pocket of the decorative panel. Connect the wiring for the IR receiver kit to the relay connector as shown below. After connecting, cover the relay connector connection with the wiring cover, and attach the wiring cover with the plastic bands.



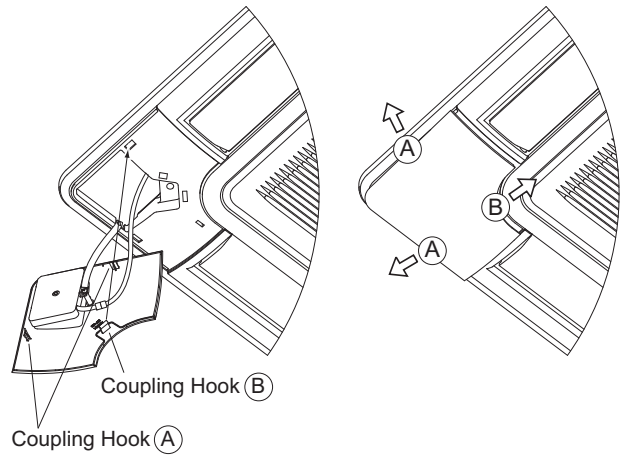
- (2) Affix the band at the rear side of the IR receiver kit onto the projection at the decorative panel as shown in the figure at the right.



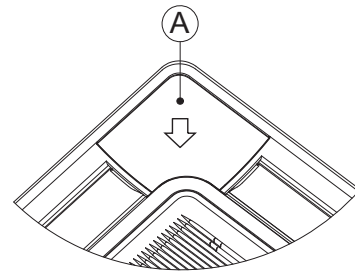
- (3) While pushing the wiring into the corner pocket, insert two coupling hooks at (A) to the square hole of the decorative panel, and push the IR receiver kit in the direction of the arrow (A) shown at the far right. Then, insert the fixing hook at (B) to the square hole of the air panel.

NOTE:

Securely affix the coupling hooks of the IR receiver kit to the decorative panel to avoid damage to the fixing hooks.



- (4) Removing Corner Pocket Cover
The corner pocket covers can be removed pulling the (A) part toward the arrow direction.



- 8 After the installation work for the IR receiver kit is completed, attach the corner pocket covers (three parts).

For details, refer to the Installation Manual for the decorative panel.

NOTE:

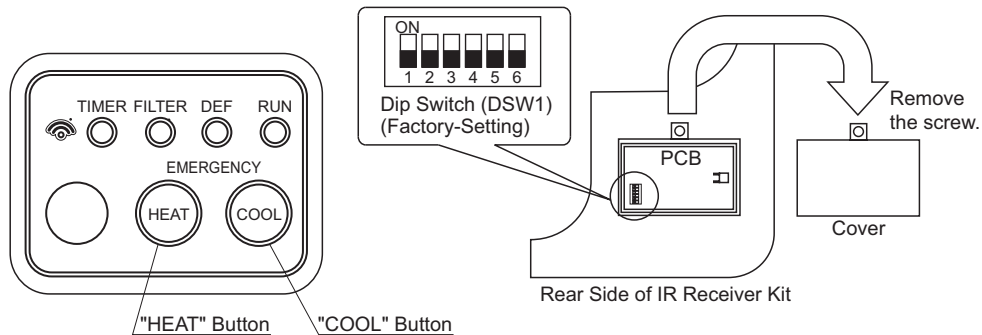
After the IR receiver kit is attached to the decorative panel, the one corner pocket cover (attached with the decorative panel) becomes unnecessary.

6.5.6 Optional Functions

WARNING

Turn OFF the power source completely before setting the DIP switch for the IR receiver kit. Not turning off the power may cause an electric shock.

- 1 The following switches are on the IR receiver kit.



CONTROL SYSTEM

2] Emergency Operation Setting

“COOL” and “HEAT” switches are used for emergency operation when the batteries for the wireless controller are low.

(1) Switch “COOL”: Press “COOL” so that the cooling operation is started.

Press “COOL” again so that the cooling operation is stopped.

(2) Switch “HEAT”: Press “HEAT” so that the heating operation is started.

Press “HEAT” again so that the heating operation is stopped.

NOTE:

During an emergency operation, a yellow light “” flashes (0.5 second ON/0.5 second OFF).

The temperature setpoint and the fan speed for the cooling/heating operation are the same as before starting an emergency operation.

3] The DIP switch (DSW1) is for the optional function selection. If the optional function selection is required, set the DIP switch as follows.

| Optional Function | Dip Switch Setting (DSW1) | | | | | | Details |
|-----------------------------------|---------------------------|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| Main/Sub Setting | O | X | X | X | X | X | Change main (OFF setting)/ sub (ON setting) wireless controller for a two-wireless controller system. |
| Identifying of Indoor Unit | X | O | X | X | X | X | It functions as B Mode (identification of indoor unit) of the wireless controller when it is “ON”. |
| Invalidity of Emergency Operation | X | X | X | O | X | X | The switches for emergency operation are invalid. |

O: ON

X: OFF

NOTICE

Review the following settings when a function for the IR receiver kit is selected from the wireless controller or the centralized controller.

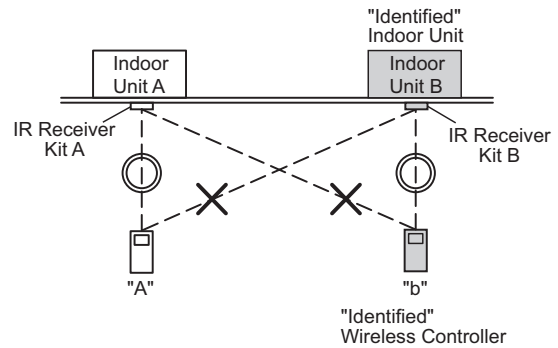
- The cooling lower limit for temperature setpoint and the heating upper limit for temperature setpoint are not available. The setting is available beyond the upper and lower limit for temperature setpoint from the wireless controller.
- The optional function setting “Fixing of Setting Temperature” is not available. When the operation mode is changed from the wireless controller, the indicated temperature on the wireless controller becomes the set temperature of the wired controller.

6.5.7 Identifying Indoor Units Installed for a Side-by-Side Operation

WARNING

Turn OFF the power source completely before setting the DIP switch for the IR receiver kit. Not doing so may cause an electric shock.

If two indoor units are installed side by side, the commands from the wireless controller may be received by both indoor units. The function, "Identifying of Indoor Units Installed Side by Side" enables operation of the individual unit correctly without interfering with the other unit's operation. As shown in the figure, the indoor units of A and B are set side by side. In this instance, unit B is set as "Identifying Indoor Units Installed Side by Side".



< Setting of Identifying of Indoor Units Installed Side by Side >

- 1 IR Receiver Kit Setting
Set the number 2 pin of the IR receiver kit DIP switch (DSW1) at the "Identified" Unit B "ON" side.
- 2 Wireless Controller
Set the wireless controller according to the Installation and Maintenance Manual for the Wireless Controller.

< Cancellation of Identifying of Indoor Units Installed Side by Side >

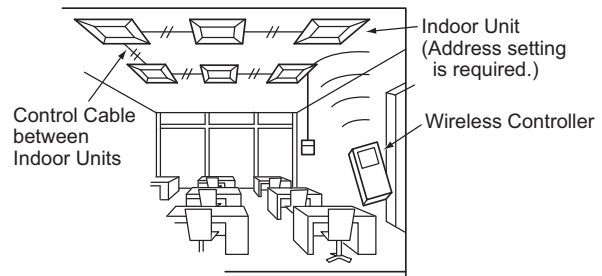
- 1 IR Receiver Kit Setting
Set the number 2 pin of the IR receiver kit DIP switch (DSW1) "OFF" side for cancellation.
- 2 Wireless Controller
Cancel the wireless controller setting according to the Installation and Maintenance Manual for the Wireless Controller.

6.5.8 Simultaneous Operation

Up to 16 indoor units can be simultaneously controlled using one wireless controller. When multiple indoor units are installed in a large room, all the indoor units can be controlled to start/stop with only one wireless controller.

NOTE:

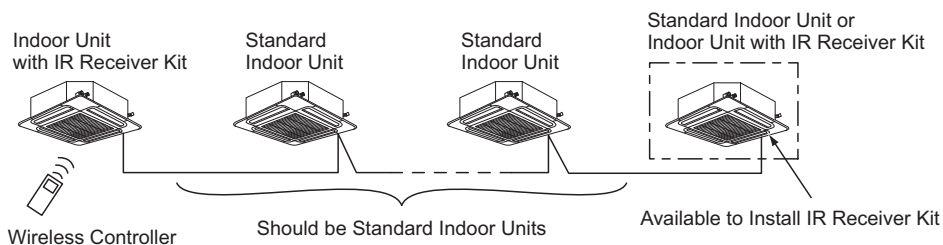
Do not apply a simultaneous operation for the indoor units installed separately in different rooms. Some units may be left without turning OFF the power source.



Control Example of Simultaneous Operation of Multiple Units

< Installation of IR Receiver Kit >

In an instance of simultaneous operation of multiple (up to 16) indoor units by the wireless controller, install the IR receiver kit only to the unit to be operated. Other units should be standard units without the IR receiver kit. If multiple IR receiver kits are required to be installed, two IR receiver kits are the maximum.

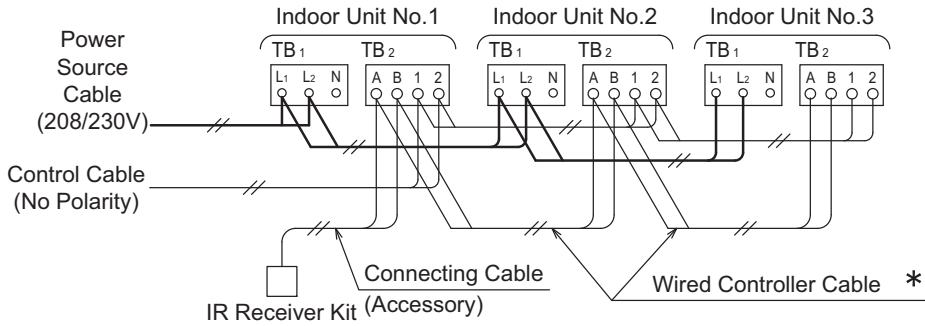


CONTROL SYSTEM

< Electrical Wiring Connecting and Setting >

- 1 Connection between Indoor Units
Perform the connection work as shown below.

< Power Source Cable 208/230V >



* For twin, triple or quad combinations, a communication cable for the wireless controller is not required.

Use the field-supplied communication cable (AWG18) for the wired controller cable. The total length should be within 1640ft (500m). If the total length is less than 98ft (30m), AWG22 cables can be used.

- 2 Do not run the connected wireless controller cable and the power source cable (208/230V) in parallel in the indoor units.
Stabilize the cable with plastic bands. Along with the wiring outside the indoor units, the control cables should not run with the power source cable (208/230V). Keep a separation of more than 12 inches or run the cable through a grounded metal conduit.
- 3 Unit Number Setting
The indoor unit numbers are set by the auto-address function. Therefore, an indoor unit number setting is not required. If the indoor unit number is fixed, set the unit numbers of all indoor units respectively and serially. It is recommended that the unit number settings begin with "1". The setting is set not to overlap the unit number.

Unit Number Setting

| DSW6 (Tens Digit) | RSW1 (Units Digit) | Ex.: Set for No. 16 Unit |
|--|--|--|
| | <p>Setting Position</p> <p>Set by inserting slotted screwdriver into the groove.</p> | <p>Set No.1 pin ON. Set at "6".</p> |
| <p>Factory setting for DSW6 and RSW1 were set to "0". Max. 63 units are available for setting.</p> | | |

6.5.9 Test Run by Wireless Controller (CIR01)

After all installations are completed, a test run should be performed.

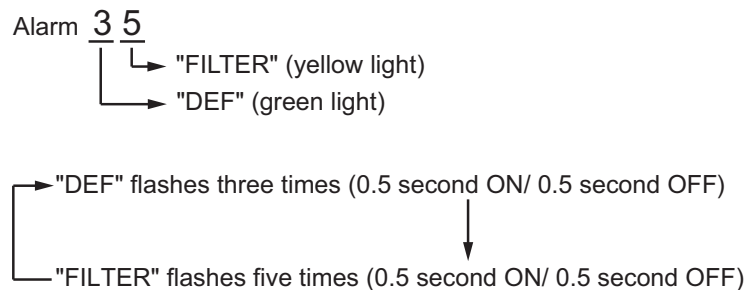
- (1) Perform the test run according to the installation manual for the wireless controller.
- (2) The test run for the wireless controller will be completed in two hours. If the TIMER indicator (green) is flashing (0.5 second ON/0.5 second OFF) after two hours, an alarm may occur. Operate the indoor unit and check for abnormality.

6.5.10 Alarm Indication

NOTICE

- If a malfunction occurs such as a safety device actuation, during the run test or the normal operation, "RUN" (red light) flashes (0.5 second ON/0.5 second OFF).
- The alarm codes are indicated by the flashing of "DEF" (green light) and "FILTER" (yellow light).
The first LED light is green. The number of times this LED flashes (0.5 second ON and OFF) will tell you the "DEF" Alarm Code.
The second LED light is yellow. The number of times this LED flashes (0.5 second ON and OFF) will tell you the "FILTER" Alarm Code.

< Example >



These signals are repeated until the alarm is reset.

- "RUN" (red light) flashing (1 second ON/1 second OFF) indicates an abnormal transmission (connector loose, connector disconnection, broken wire, or incorrect wiring, or something similar) between the indoor unit and the IR receiver kit.
- When the IR receiver kit is connected to multiple indoor units, the alarm code is indicated for each indoor unit in order.

< Alarm Code Table >

Further details for alarm codes can be found in the Installation and Maintenance Manual for the indoor units.

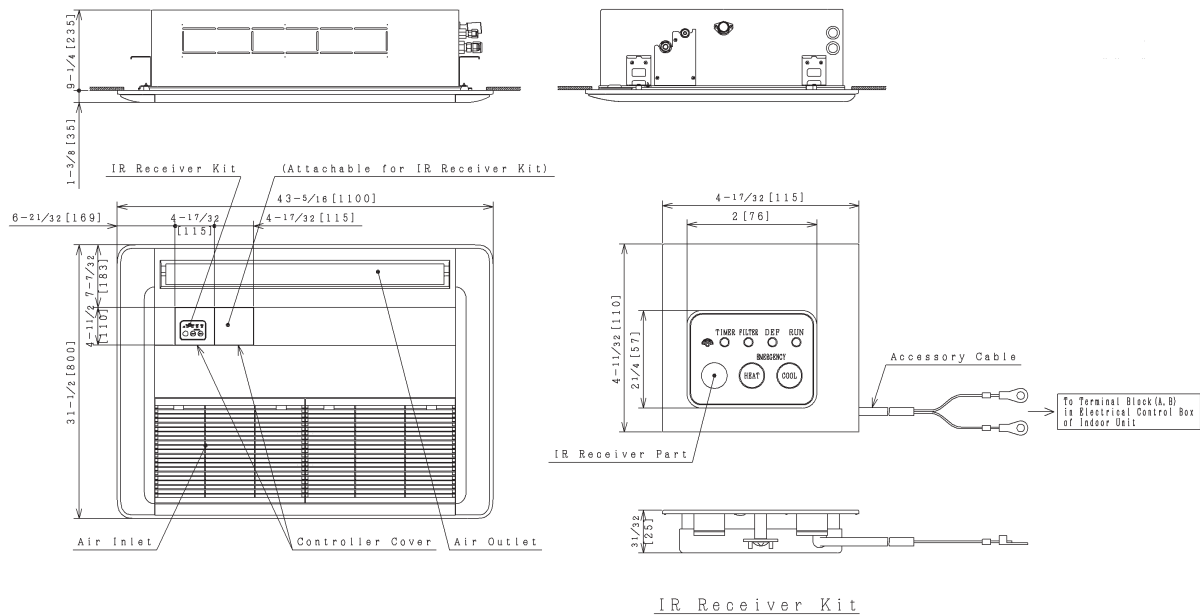
6.6 Infrared (IR) Receiver Kit for 1-Way Cassette

This IR receiver kit is installed with the 1-way cassette for use with the wireless controller.

6.6.1 Specifications

| | |
|----------------------------------|---|
| Model | C1IRK01 |
| Outer Dimension < W × H × D > | 4-17/32 × 4-11/32 × 31/32 inch (115 × 110 × 25 mm) |

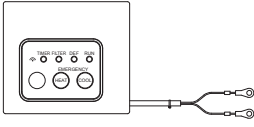


6.6.2 Dimensions



6.6.3 Applicable Models

| | |
|--------------------------------|---------------------|
| Model | C1IRK01 |
| Applicable Indoor Unit Model | 1-Way Cassette Type |
| Applicable Wireless Controller | CIR01 |

6.6.4 Accessories / Options

| No. | Accessory | Q'ty | Remarks |
|-----|---|------|-----------------------|
| ① | IR Receiver Kit C1IRK01  | 1 | With Connecting Cable |
| ② | Clamp  | 1 | For Fixing Cable |
| ③ | Tie-Wrap  | 3 | For Fixing Cable |
| ④ | Installation Manual | 1 | - |
| ⑤ | Operation Manual | 1 | - |

6.6.5 Installation

WARNING

- Turn OFF the power source completely before setting the DIP switch, installation work and electrical wiring work for IR receiver kit.
If not, it may cause an electric shock.
- Perform securely the installation work referring to this installation manual.
If the installation is not completed, it may cause injury by falling down the IR receiver kit.
- Do not install the IR receiver kit where the flammable gases may generate or enter.
It may cause heat generation or a fire.
- Perform securely the electrical wiring work.
If the electrical work is not completed, heat generation at the connection, a fire or an electric shock may occur.
- Make sure that the electrical wires are securely fixed in order not to apply an external force to the terminal connections of the wirings. Not doing so may cause heat generation or a fire.

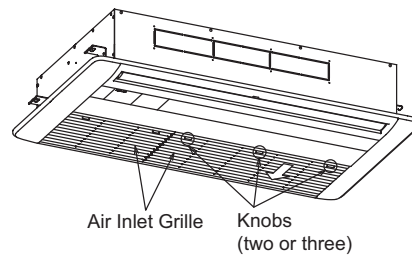
NOTICE

- When the IR receiver kit is near ambient lighting, it may not receive a signal from the wireless controller. Therefore, pay particular attention to the installation position of the IR receiver kit.
- Do not run the connecting cable for the IR receiver kit and the power source cable (208/230V) in parallel. It may cause a malfunction of the IR receiver kit.
- When the IR receiver kit is installed with the indoor units' installation, start from procedure [3](#).
- When the IR receiver kit is installed after the indoor units' installation, be sure to turn OFF the power source completely before starting installation.

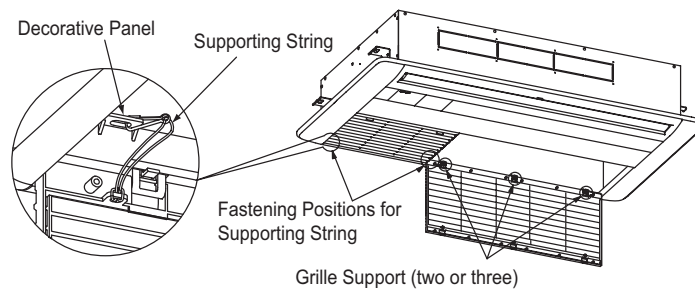
CONTROL SYSTEM

1 Air Inlet Grille Removal

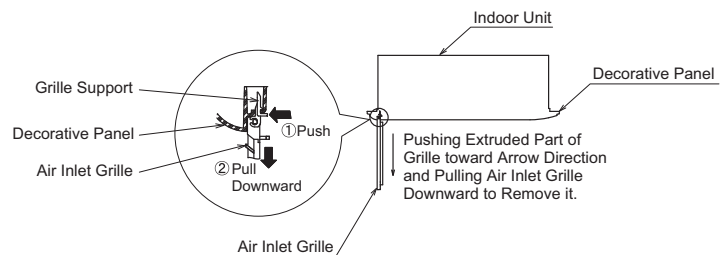
(1) The air inlet grille can be opened by pushing the knob of the air inlet grille backward.



(2) Remove the hook of the supporting string from the decorative panel.



(3) Open the air inlet grille. The air inlet grille can be removed by pushing the extruded part of the grille in the direction of the arrow, and pulling the air inlet grille downward as shown in the figure at the right.



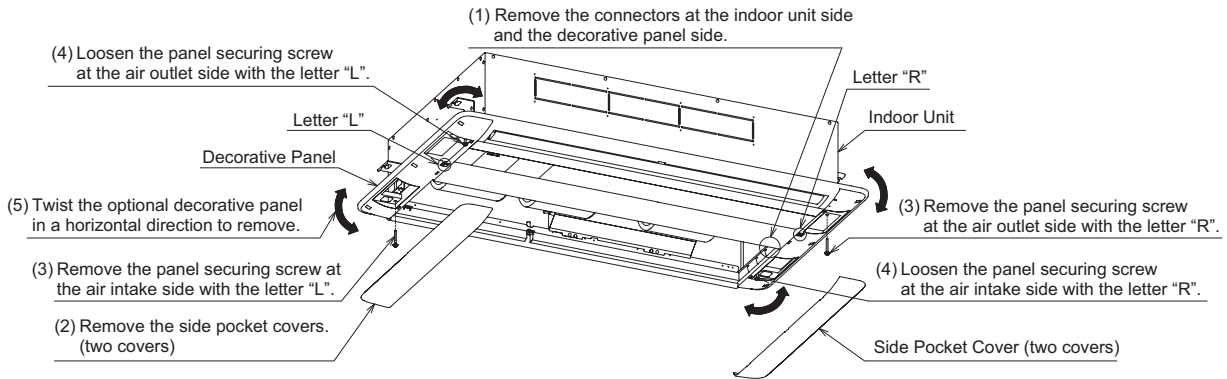
NOTICE

Be careful not to drop the air inlet grille or air filter when removing them.

2 Optional Air Panel Removal

Follow the procedures from (1) to (5).

At least two (2) people are required for removing.



CAUTION

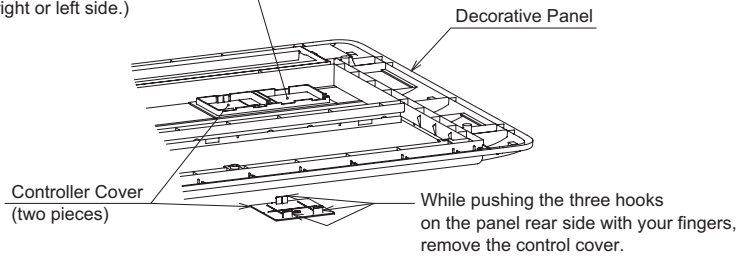
- Do not apply excessive force removing the side pocket covers. Doing so may cause damage of the coupling hooks of the side pocket covers, or may result in injury.
- Hold the decorative panel securely to prevent it from falling when it is removed.

3 Controller Cover Removal

CAUTION

Do not apply excessive force when removing the controller cover. Doing so cause of damage of the coupling hooks of the controller cover, or may result in injury.

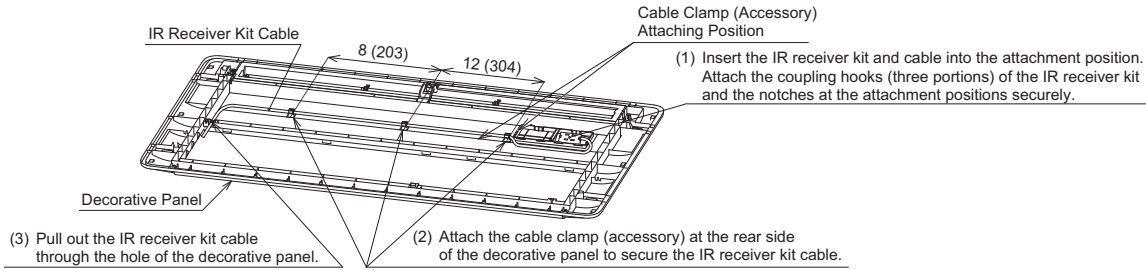
Attaching Position of Wireless Controller IR Receiver Kit
(Can be fixed on either right or left side.)



CONTROL SYSTEM

4 Follow the procedures from (1) to (3) to attach the IR receiver kit on the decorative panel..

Unit: inch (mm)

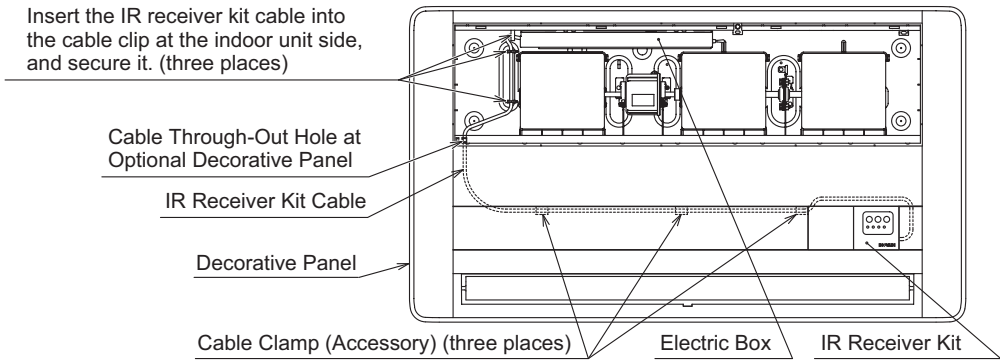


NOTICE

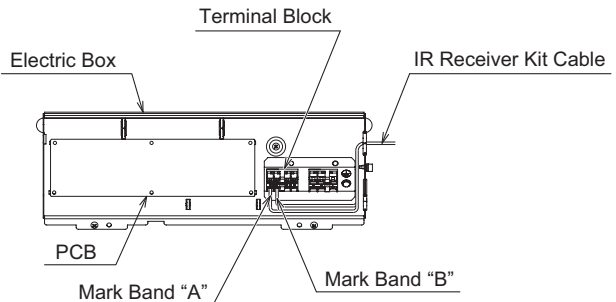
- Pay particular attention to the installation direction of the IR receiver kit. Number of coupling hooks of the IR receiver should match the notches at the installation position.
- Check to ensure that the IR receiver kit is securely installed.
- Be sure to attach the cable clamp (accessory) according to the required position. If not, condensation may occur because of a space between decorative panel and the indoor unit.

5 Install the decorative panel to the indoor unit according to the "Installation and Maintenance Manual" for the decorative panel.

6 Secure the IR receiver kit cable with the cable clamp of the indoor unit.



7 Remove the electric box cover of the indoor unit. Connect the IR receiver kit cable to the terminal blocks (A, B) in the electric box as shown at the right. (Terminals A and B have no polarity.)

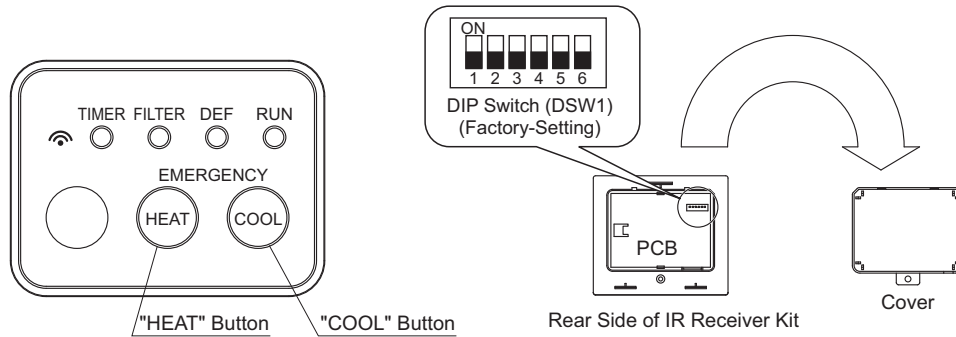


6.6.6 Optional Functions

WARNING

Turn OFF the power source completely before setting the DIP switch for the IR receiver kit. Not doing so may result in an electric shock.

1 The following switches are on the IR receiver kit.



2 Emergency Operation Setting

“COOL” and “HEAT” switches are used for emergency operation when the batteries for the wireless controller are low.

- (1) Switch “COOL”: Press “COOL” so that the cooling operation is started.
Press “COOL” again so that the cooling operation is stopped.
- (2) Switch “HEAT”: Press “HEAT” so that the heating operation is started.
Press “HEAT” again so that the heating operation is stopped.

NOTE:

During an emergency operation, a yellow light “” flashes (0.5 second ON/0.5 second OFF). The temperature set-point and the fan speed for the cooling/heating operation are the same as before starting an emergency operation.

3 The DIP switch (DSW1) is for the optional function selection. If the optional function selection is required, set the DIP switch as follows.

| Optional Function | DIP Switch Setting (DSW1) | | | | | | Details |
|-----------------------------------|---------------------------|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| Main/Sub Setting | O | X | X | X | X | X | Change main (OFF setting)/sub (ON setting) wireless controller for a two-wireless controller system. |
| Identification of Indoor Unit | X | O | X | X | X | X | It functions as B Mode (identification of indoor unit) of the wireless controller when it sets to “ON”. |
| Invalidity of Emergency Operation | X | X | X | O | X | X | The switches for emergency operation are invalid. |

O: ON
X: OFF

NOTICE

Review the following settings when the function for the IR receiver kit is selected from the wireless controller or the centralized controller.

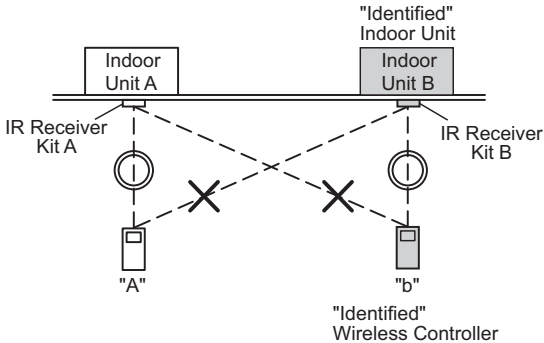
- The cooling lower limit for the temperature set-point and the heating upper limit for temperature set-point are not available. The setting is available beyond the upper and lower limit for temperature set-point from the wireless controller.
- The optional function setting “Fixing of Setting Temperature” is not available. When the operation mode is changed from the wireless controller, the indicated temperature on the wired controller becomes the set temperature of the wireless controller.

6.6.7 Identifying Indoor Units Installed in a Side-by-Side Operation

WARNING

Turn OFF the power source completely before setting the DIP switch for the IR receiver kit. Not doing so can cause an electric shock.

When two indoor units are installed side by side, the commands from the wireless controller may be received by both indoor units. The function, "Identifying of Indoor Units Installed Side by Side" enables operation of the individual unit correctly without interfering with the other unit's operation. As shown in the figure at the right, the indoor units of A and B are set side by side. In this instance, unit B is set as "Identifying Indoor Units Installed Side by Side".



< Setting of Identifying of Indoor Units Installed Side by Side >

- 1 IR Receiver Kit Setting
Set the Number 2 pin of the IR receiver kit DIP switch (DSW1) at the "Identified" Unit B "ON" side.
- 2 Wireless Controller
Set the wireless controller according to the Installation and Maintenance Manual for the Wireless Controller.

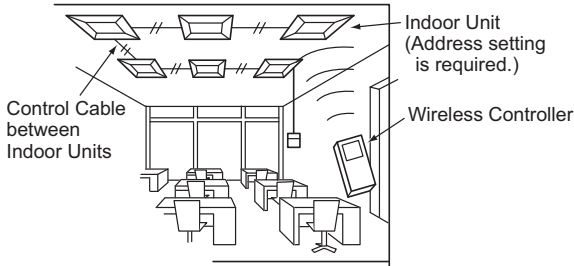
< Cancellation of Identifying of Indoor Units Installed Side by Side >

- 1 IR Receiver Kit Setting
Set the Number 2 pin of the IR receiver kit DIP switch (DSW1) "OFF" side for cancellation.
- 2 Wireless Controller
Cancel the wireless controller setting according to the Installation and Maintenance Manual for the Wireless Controller.

6.6.8 Simultaneous Operation

Up to 16 indoor units can be simultaneously controlled using one wireless controller. When multiple indoor units are installed in a large room, all the indoor units can be controlled to start/stop with only one wireless controller.

NOTE:
Do not apply a simultaneous operation for the indoor units installed separately in different rooms. Some units may be left without turning OFF the power source.

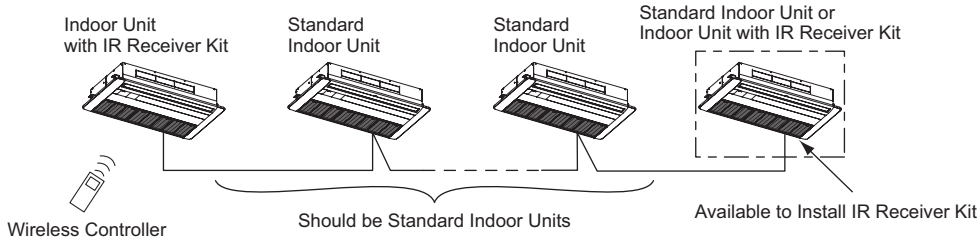


Control Example of Simultaneous Operation of Multiple Units

(The figure shows for 4-way cassette type indoor units.)

< Installation of IR Receiver Kit >

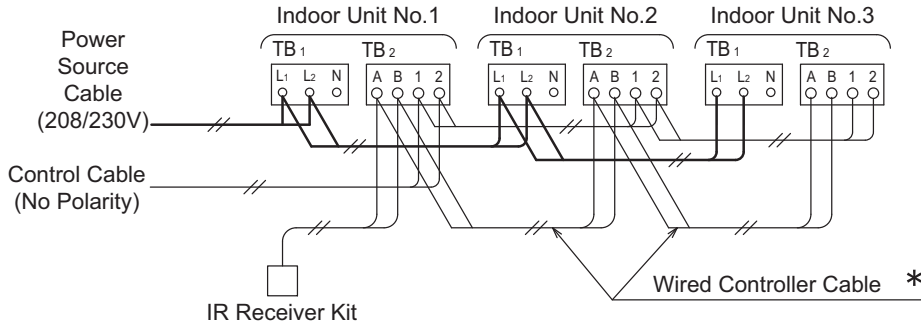
In an instance of simultaneous operation of multiple (up to 16) indoor units by the wireless controller, install the IR receiver kit only to the unit to be operated. Other units should be standard units without the IR receiver kit. If multiple IR receiver kits are required be installed, two IR receiver kits are the maximum.



< Electrical Wiring Connecting and Setting >

- 1 Connection between Indoor Units
Perform the connection work as shown.

< Power Source Cable 208/230V >



* For twin, triple or quad combinations, a communication cable for the wireless controller is not required.

Use the field-supplied communication cable (AWG18) for the wired controller cable. The total length should be within 1640ft (500m). If the total length is less than 98ft (30m), AWG22 cable can be used.

- 2 Do not run the connected wireless controller cable and the power source cable (208/230V) in parallel in the indoor units.
Stabilize the cable with plastic bands. Along with the wiring outside the indoor units, the control cables should not run with the power source cable (208/230V). Keep a separation of more than 12 inches, or run the cable through a grounded metal conduit and ground the tube end.

- 3 Unit Number Setting
The indoor unit numbers are set by the auto-address function. Therefore, the indoor unit number setting is not required. If the indoor unit number is fixed, set the unit numbers of all indoor units respectively and serially. It is recommended that the unit number settings begin with "1". The setting is set not to overlap the unit number.

Unit Number Setting

| DSW6 (Tens Digit) | RSW1 (Units Digit) | Ex.: Set for No. 16 Unit |
|--|-------------------------|--|
| | <p>Setting Position</p> | <p>DSW6 RSW1</p> |
| <p>Factory setting for DSW6 and RSW1 were set to "0". Max. 63 units are available for setting.</p> | | <p>Set No.1 pin ON. Set at "6".</p> |

6.6.9 Test Run for Wireless Controller (CIR01)

After all installations are completed, a test run should be performed.

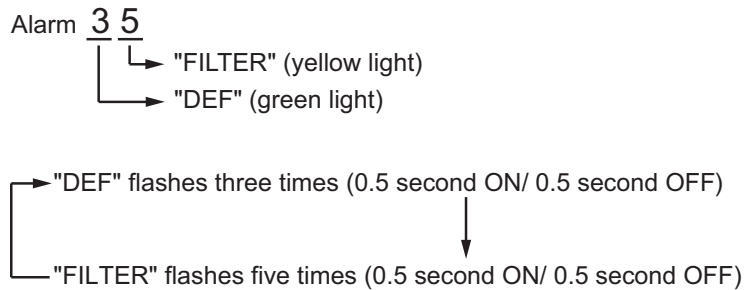
- (1) Perform the test run according to the installation manual for the wireless controller.
- (2) The test run for the wireless controller will take two hours to complete. If the TIMER indicator (green) is flashing (0.5 second ON/0.5 second OFF) after two hours, an alarm may occur. Operate the indoor unit and check for abnormality.

6.6.10 Alarm Indication

NOTICE

- If a malfunction occurs, such as safety device actuation, during the run test or the normal operation, "RUN" (red light) flashes (0.5 second ON / 0.5 second OFF).
- The alarm codes are indicated by the flashing of "DEF" (green light) and "FILTER" (yellow light).
 The first LED light is green. The number of times this LED flashes (0.5 second ON and OFF) will tell you the "DEF" Alarm Code.
 The second LED light is yellow. The number of times this LED flashes (0.5 second ON and OFF) will tell you the "FILTER" Alarm Code.

< Example >



These signals are repeated until the alarm is reset.

- "RUN" (red light) flashing (1 second ON/1 second OFF) indicates an abnormal transmission (connector loose, connector disconnection, broken wire, or incorrect wiring, or something similar) between the indoor unit and the IR receiver kit.
- When the IR receiver kit is connected to multiple indoor units, the alarm code is indicated for each indoor unit in order.

< Alarm Code Table >

For alarm code details, refer to the Installation and Maintenance Manual for the indoor units.

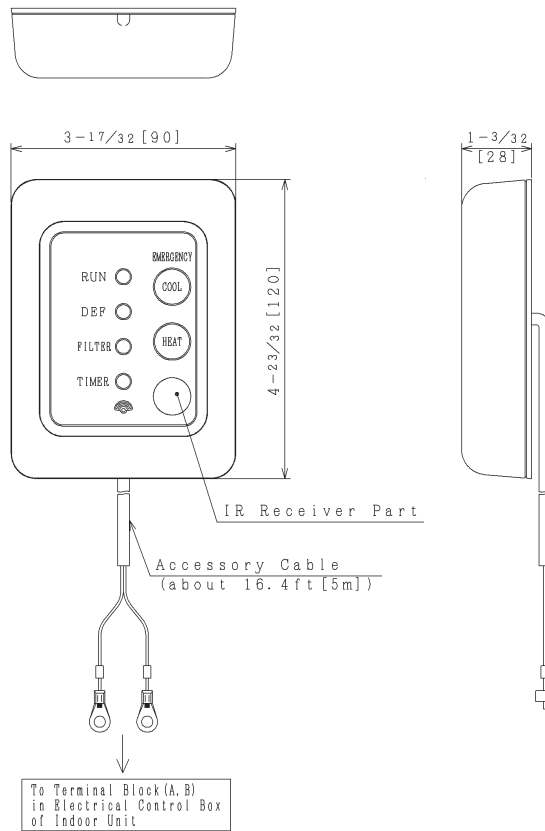
6.7 Infrared (IR) Receiver Kit for Ducted and Wall Mounted

This IR receiver kit is installed with the ducted and wall mount types to use with the wireless controller.

6.7.1 Specifications

| | |
|----------------------------------|---|
| Model | CWDIRK01 |
| Outer Dimension < W × H × D > | 3-17/32 × 4-23/32 × 1-3/32 inch (90 × 120 × 28 mm) |

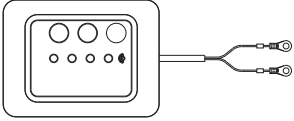




6.7.2 Dimensions



6.7.3 Applicable Models

| | |
|--------------------------------|---|
| Model | CWDIRK01 |
| Applicable Indoor Unit Model | General-Purpose (Ducted and Wall Mounted Type) |
| Applicable Wireless Controller | CIR01 |

6.7.4 Accessories / Options

| No. | Accessory | Qty | Remarks |
|-----|---|-----|--------------------------------|
| ① | IR Receiver Kit CWDIRK01  | 1 | With Connecting Cable |
| ② | Plastic Band  | 1 | For Clamping Cable |
| ③ | Securing Screw  | 4 | For Installing IR Receiver Kit |
| ④ | Securing Screw  | 2 | For Fixing Cable Clamp |
| ⑤ | Cable Clamp  | 2 | For Clamping Cable |

6.7.5 Installation

WARNING

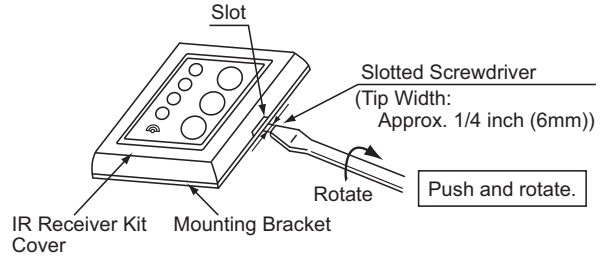
- Turn OFF the power source completely before setting the DIP switch, installation work, and electrical wiring work for the IR receiver kit. If not, it may cause an electric shock.
- Perform securely the installation work referring to this manual. If the installation is not completed correctly, the IR receiver kit may fall and cause injury.
- Do not install the IR receiver kit where flammable gases may generate or enter. It may cause heat generation or a fire.
- Correctly perform the electrical wiring work. If electrical work is not completed correctly, heat generation at the connection, a fire or an electric shock may occur.
- Make sure that the electrical wires are securely fixed so that no external force affects the terminal connections of the wiring. Not doing so may cause heat generation or a fire.

NOTICE

- When the IR receiver kit is installed near ambient lighting, it may not receive a signal from the wireless controller. Therefore, pay particular attention to the installation position of the IR receiver kit.
- Do not run the connecting cable for the IR receiver kit and the power source cable (208/230V) in parallel. It may cause a malfunction of the IR receiver kit.
- To ensure correct performance, read this manual together with the “Installation and Maintenance Manual” for the indoor unit and the wireless controller. Forward this information to the building owner and request that they maintain all the equipment manuals.
- CWDIRK01 is for a general-purpose IR receiver kit. It is applied for ducted, cassette, wall mount, ceiling-suspended, and floor type indoor units.

- 1 Perform the installation work for the IR receiver kit while the indoor unit is being installed.
- 2 Turn OFF the power source for the indoor unit if the IR receiver kit is attached after the indoor unit is installed.

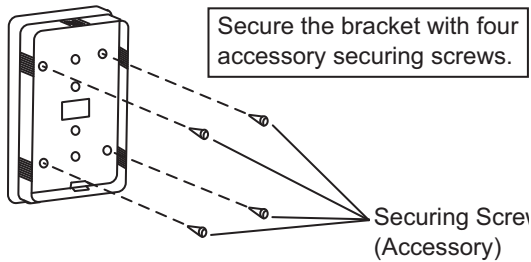
- 3 Install the IR receiver kit using the length of connecting cable (accessory).
The cable length is approximately 17 ft. (5m).
- 4 Open the cover of the IR receiver kit.
Push the slotted screwdriver with a tip width of approximately 1/4 inch (6mm) into the slot of the IR receiver kit cover and rotate it to open the cover as shown in the figure at the right.



- 5 Mount the IR receiver kit onto the wall or the ceiling surface as shown below.

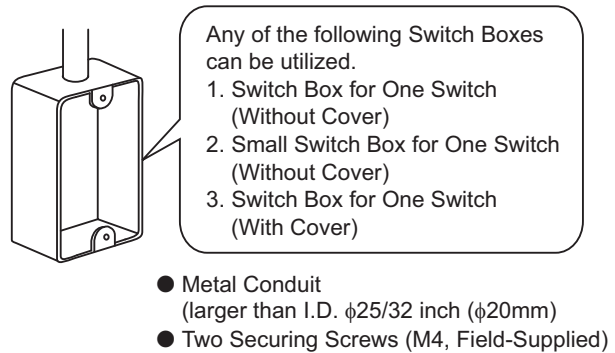
< Situation A >

- (1) Secure the bracket.



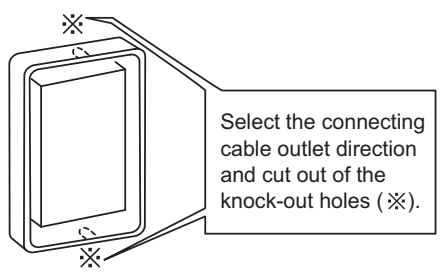
< Situation B >

- (1) Prepare the field-supplied switch box (JIS Box). (JIS C8340)

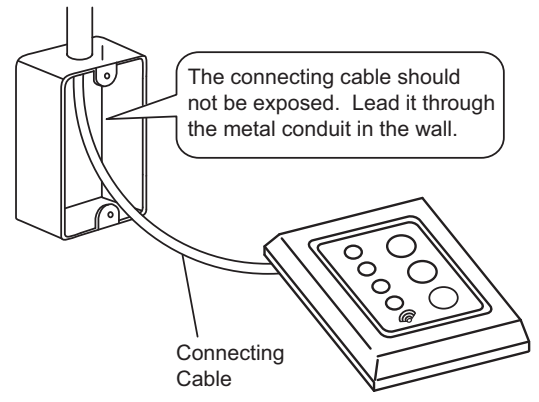


CONTROL SYSTEM

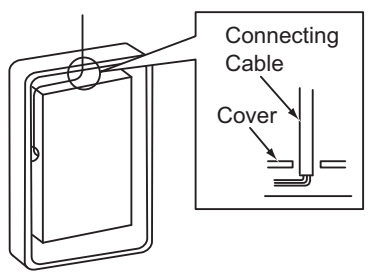
(2) Select the connecting cable outlet direction and cut out one of the knock-out holes on the cover.



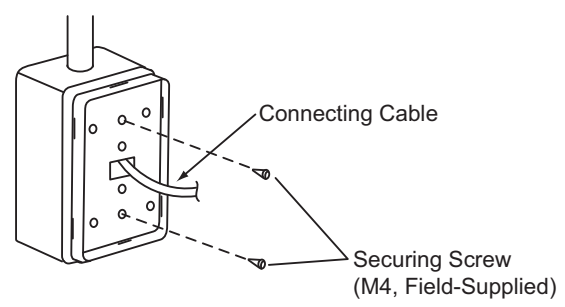
(2) Run the connecting cable into the metal conduit.



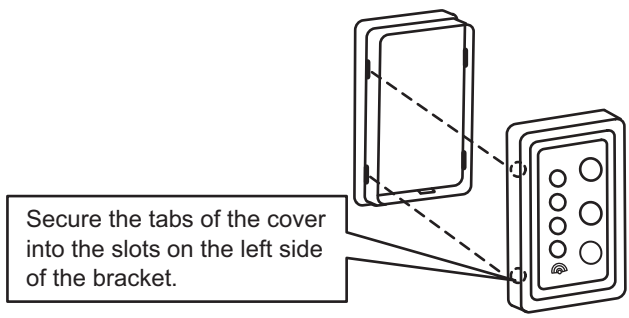
(3) Lead the connecting cable through the knock-out hole.



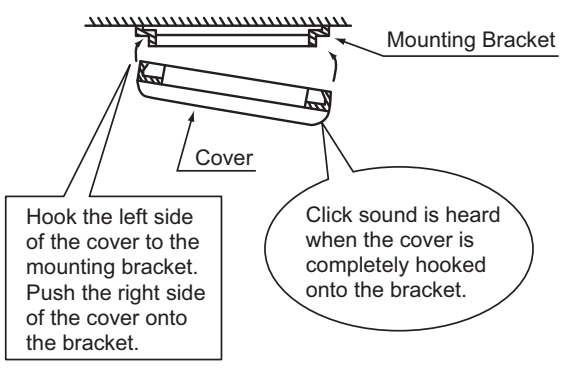
(3) Secure the bracket.



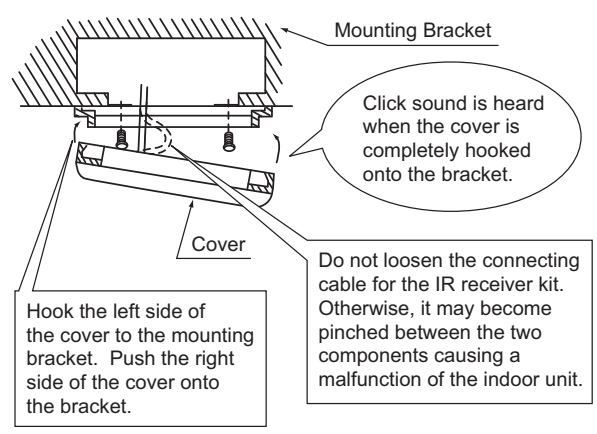
(4) Attach the IR receiver kit.
Do not pinch the cable between the bracket and the IR receiver kit cover when attaching the IR receiver kit. Attach the IR receiver kit cover following these directions.



< Situation A >



< Situation B >



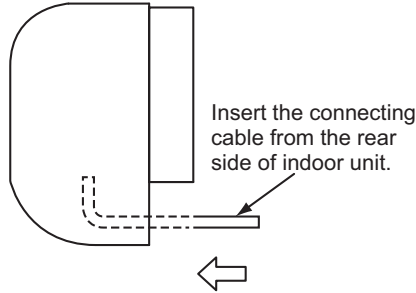
6.7.6 Electrical Wiring

The terminal block (TB2) for the controller cable is located as shown in the figure below. Connect the connecting cable for the IR receiver kit to terminals A and B at TB2. (There is no polarity between terminals A and B.) The details for wiring methods can be found in the "Installation and Maintenance Manual" for the indoor unit.

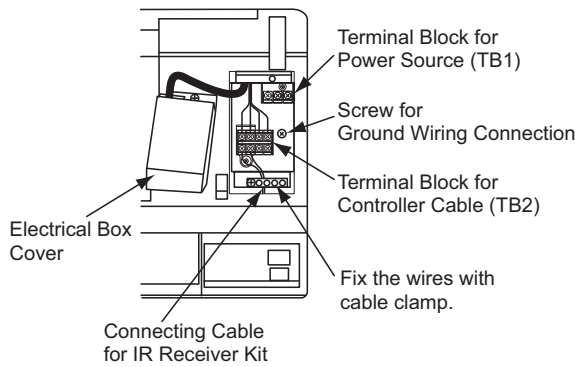
The following wiring method is an example for wall mount indoor units

NOTE:

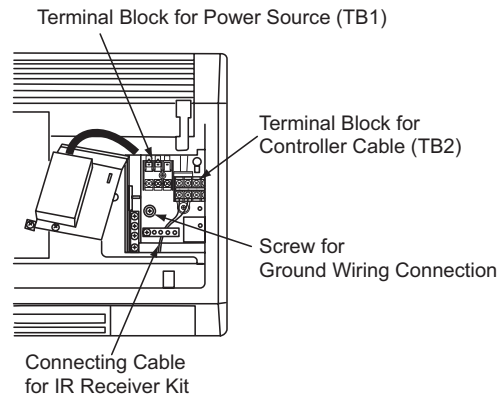
After running the connecting cable, clamp the extra length of the connecting cable using the accessory plastic band and place it in the electrical box.



< TIWM006 - 012B21S >



< TIWM015 - 024B21S >

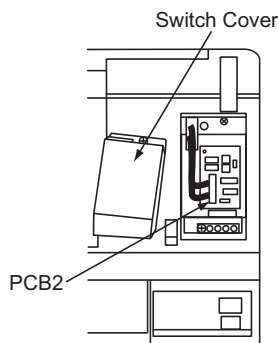


6.7.7 Setting DIP Switches on Indoor Unit Side

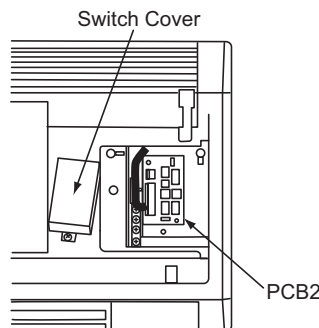
Instructions for setting DIP switches for other indoor units can be found in the Installation and Maintenance Manual for indoor units. The following DIP switch setting is an example for wall mount indoor units.

- 1 The factory setting of SW2 before shipment is "Wireless". When using an IR receiver kit (CWDIRK01), set the SW2 to "Wired". If not doing so, the operation is not available.
- 2 Turn OFF the power source of the indoor and outdoor units completely before setting the DIP switch. If not turning off the power, the setting becomes invalid.
- 3 The positions of the DIP switches are shown below.
Open the switch cover. After the DIP switch is set, re-attach the switch cover. The details for setting DIP switches for an indoor unit can be found in the Installation and Maintenance Manual for indoor units.

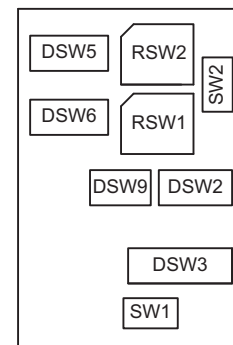
< TIWM006 - 012B21S >



< TIWM015 - 024B21S >



< DIP Switch PCB (PCB2) >



6.7.8 Setting DIP Switch on IR Receiver Kit Side

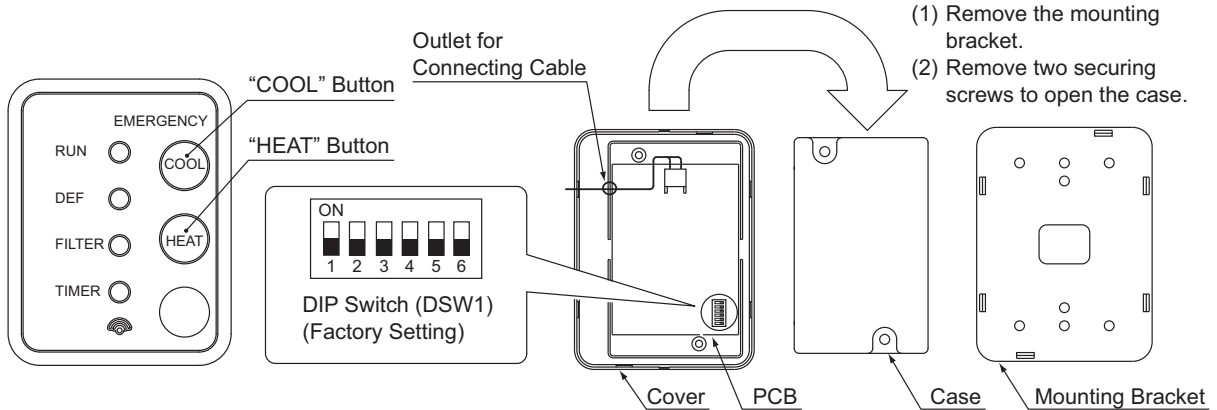
WARNING

Turn OFF the power source completely before setting the DIP switch for an IR receiver kit. Not doing so may cause an electric shock.

1 The following switches are on the IR receiver kit.

NOTE:

When the case is closed, pay particular attention to the outlet position for connecting cable.



2 Emergency Operation Setting

“COOL” and “HEAT” switches are used for emergency operation when the batteries for wireless controller are low.

- (1) Switch “COOL”: Press “COOL” so that the cooling operation is started.
Press “COOL” again so that the cooling operation is stopped.
- (2) Switch “HEAT”: Press “HEAT” so that the heating operation is started.
Press “HEAT” again so that the heating operation is stopped.

NOTE:

During an emergency operation, a yellow light “” flashes (0.5 second ON/0.5 second OFF). The temperature set-point and the fan speed for the cooling/heating operation are the same as before starting an emergency operation.

3 The DIP switch (DSW1) is for the optional function selection. If the optional function selection is required, set the DIP switch as follows.

| Optional Function | DIP Switch Setting (DSW1) | | | | | | Details |
|-----------------------------------|---------------------------|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| Main/Sub Setting | O | X | X | X | X | X | Change main (OFF setting)/sub (ON setting) wireless controller for a two-wireless controller system. |
| Identification of Indoor Unit | X | O | X | X | X | X | It functions as B Mode (identification of indoor unit) of the wireless controller when it sets to “ON”. |
| Invalidity of Emergency Operation | X | X | X | O | X | X | The switches for emergency operation are invalid. |

O: ON
X: OFF

NOTICE

Review the following optional function settings when a function for the IR receiver kit is selected from the wireless controller or the centralized controller.

- The optional functions “Cooling Lower Limit for Setting Temperature” and “Heating Upper Limit for Setting Temperature” are not available with the wireless controller.
- The optional function setting “Fixing of Setting Temperature” is not available. When the operation mode is changed from the wireless controller, the indicated temperature on the wired controller becomes the set temperature of the wireless controller.

6.7.9 Identifying Indoor Units Installed in a Side-by-Side Operation

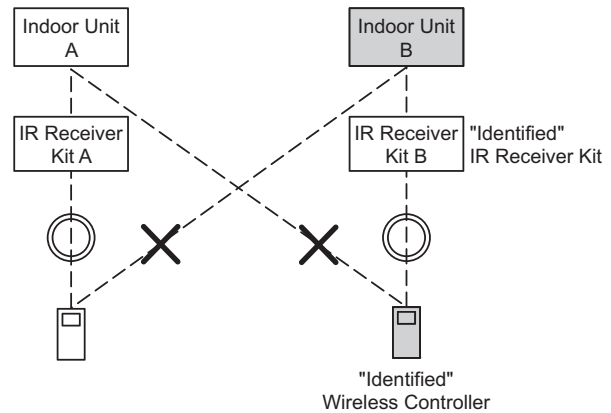
WARNING

Turn OFF the power source completely before setting the DIP switch for the IR receiver kit. Not doing so can cause an electric shock.

When two indoor units are installed side by side, the commands from the wireless controller may be received by both indoor units. The function, "Identifying of Indoor Units Installed Side by Side" enables operation of the individual unit correctly without interfering with the other unit's operation. As shown in the figure at the right, the IR receiver kit of A and B are set side by side. In this instance, unit B is set as "Identifying Indoor Units Installed Side by Side".

NOTE:

This function setting is required at the receiver side. It should be set according to the Installation Manual for indoor units. Contact your distributor for details.

**< Setting of Identifying of Indoor Units Installed Side by Side >**

- 1 IR Receiver Kit Setting
Set the Number 2 pin of the IR receiver kit DIP switch (DSW1) at the "Identified" Unit B "ON" side.
- 2 Wireless Controller
Set the wireless controller according to the Installation and Maintenance Manual for the Wireless Controller.

< Cancellation of Identifying of Indoor Units Installed Side by Side >

- 1 IR Receiver Kit Setting
Set the Number 2 pin of the IR receiver kit DIP switch (DSW1) "OFF" side for cancellation.
- 2 Wireless Controller
Cancel the wireless controller setting according to the Installation and Maintenance Manual for the Wireless Controller.

CONTROL SYSTEM

6.7.10 Simultaneous Operation

⚠ WARNING

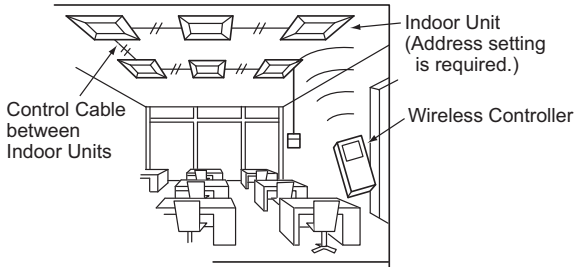
- Turn OFF the power source completely before setting the DIP switch and electrical wiring work for the IR receiver kit. Not doing so can cause an electric shock.
- Accurately perform the electrical wiring work. If the electrical work is not completed correctly, heat generation at the connection, a fire, or an electric shock may occur.
- Make sure that the electrical wires are adequately clamped with a cable clamp and not in a manner that applies too much external force to the terminal connections of the wirings. If done correctly, the result could cause heat generation or a fire.

NOTICE

- Do not run the connecting cable for IR receiver kit and the power source cable (208/230V) in parallel. It may cause a malfunction of the IR receiver kit.

Up to 16 indoor units can be simultaneously controlled using one wireless controller. When multiple indoor units are installed in a large room, all the indoor units can be controlled to start/stop with only one wireless controller.

NOTE:
Do not apply a simultaneous operation for the indoor units installed separately in different rooms. Some units may be left without turning OFF the power source.

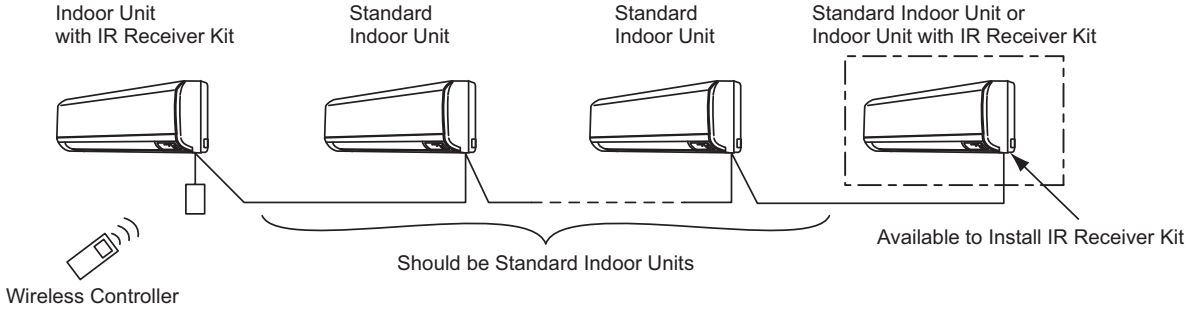


Control Example of Simultaneous Operation of Multiple Units

(Example of 4-way cassette type indoor units.)

< Installation of IR Receiver Kit >

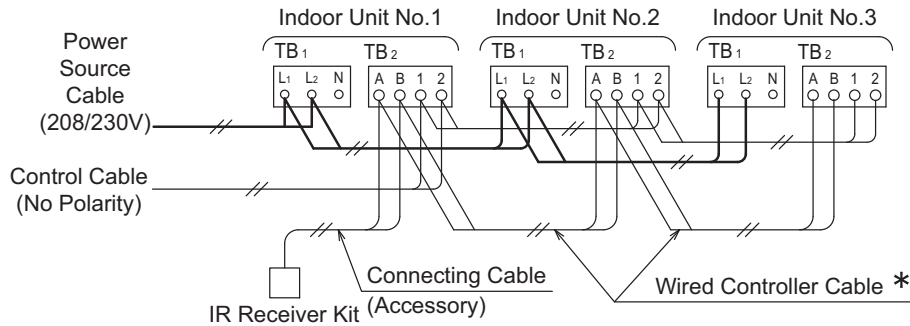
In an instance of simultaneous operation of multiple (up to 16) indoor units by the wireless controller, install the IR receiver kit only to the unit to be operated. Other units should be the standard units without the IR receiver kit. If multiple IR receiver kits are required to be installed, two IR receiver kits are the maximum.



< Electrical Wiring Connecting and Setting >

- 1** Connection between Indoor Units
 Perform the connection work as shown below.

< Power Source Cable 208/230V >



* For twin, triple or quad combinations, a communication cable for the wireless controller is not required.

Use the field-supplied communication cable (AWG18) for the wired controller cable. The total length should be within 1640ft (500m). If the total length is less than 98ft (30m), AWG22 cable can be used.

- 2** Do not run the connected wireless controller cable and the power source cable (208/230V) in parallel in the indoor units.
 Stabilize the cable with plastic bands. Along with the wiring outside the indoor units, the control cables should not run with the power source cable (208/230V). Keep a separation of more than 12 inches (30cm) or run the cable through a grounded metal conduit.
- 3** Unit Number Setting
 The indoor unit numbers are set by the auto-address function. Therefore, an indoor unit number setting is not required. If the indoor unit number is fixed, set the unit number of all indoor units respectively and serially. It is recommended that the unit number settings begin with "1". The setting is set not to overlap the unit number.

Unit Number Setting

| | | |
|---|--|---|
| <p>DSW6 (Tens Digit)</p> | <p>RSW1 (Units Digit)</p> <p>Setting Position</p> | <p>Ex.: Set for No. 16 Unit</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>DSW6</p> <p>Set No.1 pin ON.</p> </div> <div style="text-align: center;"> <p>RSW1</p> <p>Set at "6".</p> </div> </div> |
| <p>Factory setting for DSW6 and RSW1 were set to "0". Max. 63 units are available for setting.</p> | | |

6.7.11 Test Run by Wireless Controller (CIR01)

After all installations are completed, a test run should be performed.

- (1) Perform the test run according to the Installation Manual of the wireless controller.
- (2) The test run from the wireless controller switch takes two hours to complete.

NOTE:

For the wall mount indoor units, if the TIMER indicator (green) is flashing (0.5 second ON/0.5 second OFF) after two hours, an alarm may occur. Operate the indoor unit ,and check for abnormality.

6.7.12 Alarm Indication

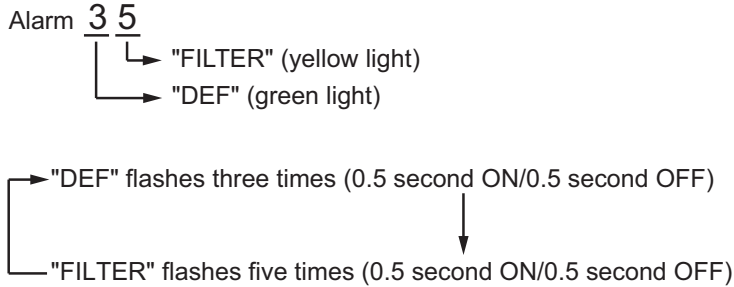
NOTICE

- If a malfunction occurs, such as safety device actuation, during the test run or the normal operation, "RUN" (red light) flashes (0.5 second ON / 0.5 second OFF).
- The alarm codes are indicated by the number of LED flashes of "DEF" (green light) and "FILTER" (yellow light).

The first LED light is green. The number of times this LED flashes (0.5 second ON and OFF) will tell you the "DEF" Alarm Code.

The second LED light is yellow. The number of times this LED flashes (0.5 second ON and OFF) will tell you the "FILTER" Alarm Code.

< Example >



These signals are repeated until the alarm is reset.

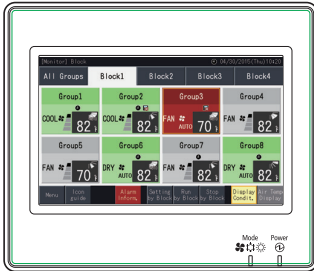
- "RUN" (red light) flashing (1 second ON/1 second OFF) indicates an abnormal transmission (connector loose, connector disconnection, broken wire, or incorrect wiring, or something similar) between the indoor unit and the IR receiver kit.
- When the IR receiver kit is connected to multiple indoor units, the alarm code is indicated for each indoor unit in order.

< Alarm Code Table >

Further details for alarm codes can be found in the "Installation and Maintenance Manual" for the indoor unit.

6.8 Mini Central Controller

6.8.1 Features and Functions



| | |
|--------------|--|
| Model Number | CCM01 |
| Model Type | Mini Central Controller |
| Setting | Run/Stop |
| | Mode |
| | Temp. |
| | Fan Speed |
| | Louver Angle |
| | Permitting/Prohibiting Operation from Wired Controller |
| | Filter Sign Reset |
| | Schedule Timer Setting |
| | Holiday Setting |
| | Schedule Timer ON/OFF Setting |
| | Setting temp. range of the remote control |
| | Date and time Settings |
| | Display of screen for cleaning |
| | Touchscreen Calibration |
| | Group Name Register |
| | Brightness |
| | Language |
| | Temperature Unit |
| | Accumulated Operation Time |
| | Contact Information |
| | Daylight Saving Time Setting |

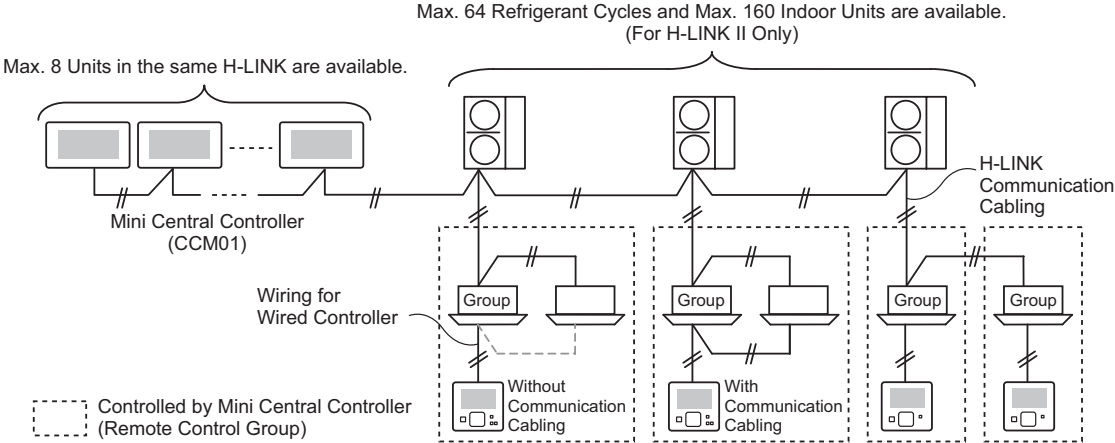
6.8.2 Specifications

| | |
|--|---|
| Model | CCM01 |
| Outer Dimension <W × H × D + (Built-in Part)> | 5-33/64 × 4-23/32 × 55/64 + (2-5/64 for wall embedding) inch (140 × 120 × 22 + (52.7 for wall embedding) mm) |
| Net Weight | 1.1 LBS (0.5 kg) (Approx.) |
| Installation Location | Indoor Use |
| Installation Method | Wall embeded using Steel Box (option) |
| Connected Indoor Unit (Q'ty) | 160 (Max.) |
| Clock Accuracy | + 70 Seconds/Month (at Normal Temperature) |
| Ambient Temperature | 41 - 95°F (5 - 35°C) |
| Ambient Humidly | 35 - 90% |
| Display | 5.0" TFT Color Liquid Crystal Display (800 × 480 dots) |
| Rated Power Supply | 24VAC, 60Hz |
| Electrical Power Consumption | 10W (Max.) |

6.8.3 System Configuration

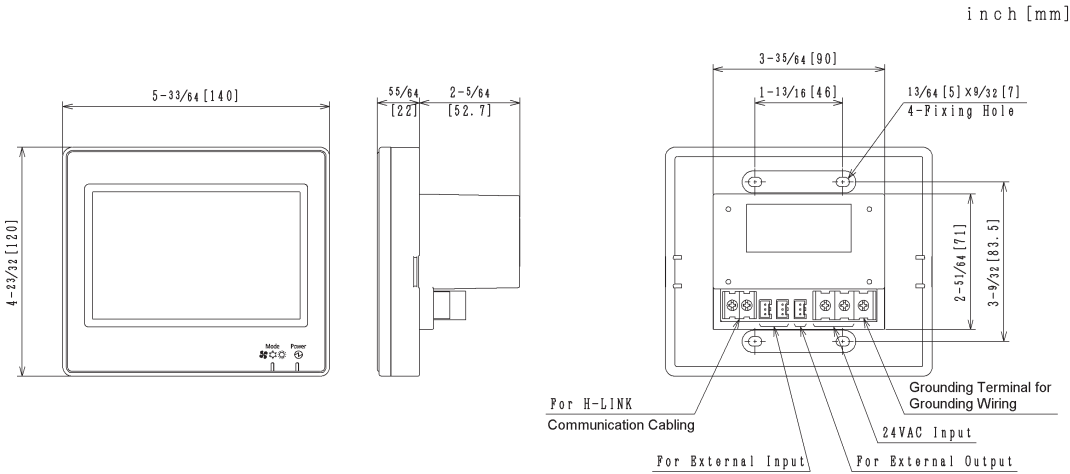
This mini central controller (CCM01) is connected to H-LINK and used for the central control and monitoring of air conditioners.

< Example >



* When an indoor unit without a wired controller is connected, the mini central controller cannot be used at the same time.

6.8.4 Dimensions



- Notes:
1. This Figure Shows the Dimension of the Mini Central Controller.
 2. Please use a Steel Box (Option).
 3. Install it, taking attention on the top and bottom direction.
 4. Accessories (Q'ty): Touch pen (2), Touch Pen Holder (1),
Screw M4x5/8 [16] (4), Connector Code (3),
Closed End Connector (9), Nylon Band (3)

6.8.5 Applicable Models

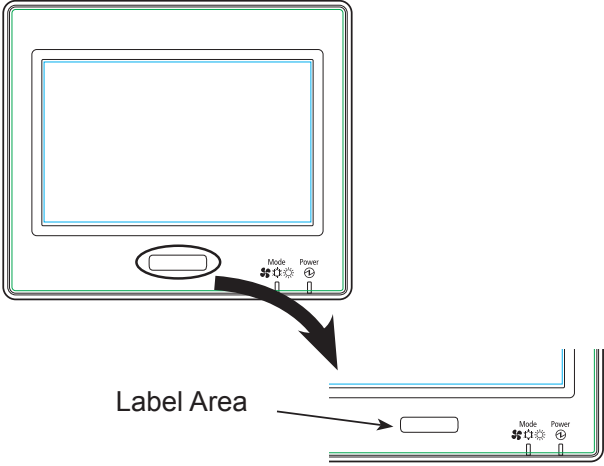
| No. | OD/ID | Model Type | RT | JCI Model Name |
|-----|--------------|--|------------------|-------------------|
| 1 | Outdoor Unit | Top Flow (208/230V) Heat Pump and Heat Recovery | 6 | (H,Y)TVAHR072B31S |
| 2 | | | 8 | (H,Y)TVAHR096B31S |
| 3 | | | 10 | (H,Y)TVAHR120B31S |
| 4 | | Top Flow (460V) Heat Pump and Heat Recovery | 6 | (H,Y)TVAHR072B41S |
| 5 | | | 8 | (H,Y)TVAHR096B41S |
| 6 | | | 10 | (H,Y)TVAHR120B41S |
| 7 | Indoor Unit | Duct (High Static) | 1.5 | (H,Y)TIDH018B21S |
| 8 | | | 2.0 | (H,Y)TIDH024B21S |
| 9 | | | 2.5 | (H,Y)TIDH030B21S |
| 10 | | | 3.0 | (H,Y)TIDH036B21S |
| 11 | | | 4.0 | (H,Y)TIDH048B21S |
| 12 | | Duct (Medium Static) | 0.5 | (H,Y)TIDM006B21S |
| 13 | | | 0.7 | (H,Y)TIDM008B21S |
| 14 | | | 1.0 | (H,Y)TIDM012B21S |
| 15 | | | 1.3 | (H,Y)TIDM015B21S |
| 16 | | | 1.5 | (H,Y)TIDM018B21S |
| 17 | | | 2.0 | (H,Y)TIDM024B21S |
| 18 | | | 2.5 | (H,Y)TIDM030B21S |
| 19 | | | 3.0 | (H,Y)TIDM036B21S |
| 20 | | 4.0 | (H,Y)TIDM048B21S | |
| 21 | | Duct (Slim) | 0.5 | (H,Y)TIDS006B21S |
| 22 | | | 0.7 | (H,Y)TIDS008B21S |
| 23 | | | 1.0 | (H,Y)TIDS012B21S |
| 24 | | | 1.3 | (H,Y)TIDS015B21S |
| 25 | | | 1.5 | (H,Y)TIDS018B21S |
| 26 | | 4-way Cassette | 1.0 | (H,Y)TIC4012B21S |
| 27 | | | 1.3 | (H,Y)TIC4015B21S |
| 28 | | | 1.5 | (H,Y)TIC4018B21S |
| 29 | | | 2.0 | (H,Y)TIC4024B21S |
| 30 | | | 2.5 | (H,Y)TIC4030B21S |
| 31 | | | 3.0 | (H,Y)TIC4036B21S |
| 32 | | 1-way Cassette | 0.5 | (H,Y)TIC1006B21S |
| 33 | | | 0.7 | (H,Y)TIC1008B21S |
| 34 | | | 1.0 | (H,Y)TIC1012B21S |
| 35 | | | 1.3 | (H,Y)TIC1015B21S |
| 36 | | Wall Mount | 0.5 | TIWM006B21S |
| 37 | | | 0.7 | TIWM008B21S |
| 38 | | | 1.0 | TIWM012B21S |
| 39 | | | 1.3 | TIWM015B21S |
| 40 | | | 1.5 | TIWM018B21S |
| 41 | | | 2.0 | TIWM024B21S |

6.8.6 Accessories / Options

- Steel Box (TYPE 2)

6.8.7 Installation

Select the applicable brand label (York or Hitachi). Apply the brand label in the designated area as shown in the illustration below.



6.8.7.1 Before Installation

Check to ensure that the following parts are packed with the mini central controller.

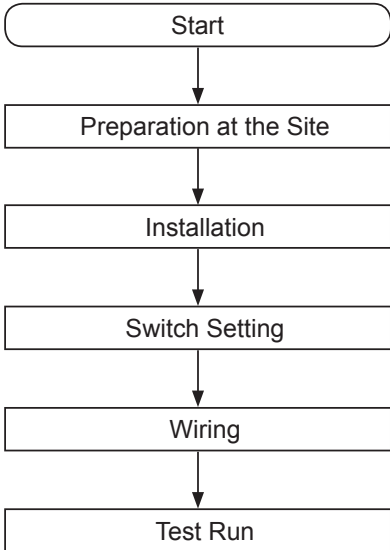
| Item | Mini Central Controller | Operation Manual | Installation & Maintenance Manual | Touch Pen | Touch Pen Holder | Screw | Connector Code | Closed End Connector | Nylon Band |
|------------|-------------------------|------------------|-----------------------------------|-----------|------------------|-------|----------------|----------------------|------------|
| Appearance | | | | | | | | | |
| Qty | 1 | 1 | 1 | 2 | 1 | 4 | 3 | 9 | 3 |

Select a suitable place for handling and determine the installation place of the wired controller with the customer's acceptance. Do not install a wired controller:

- Where accessible to children.
- Where the direct air discharge from the air conditioner is directed to toward people or pets.

6.8.7.2 Installation Procedure

Installation procedures are as shown below.



6.8.7.3 Preparation at the Site

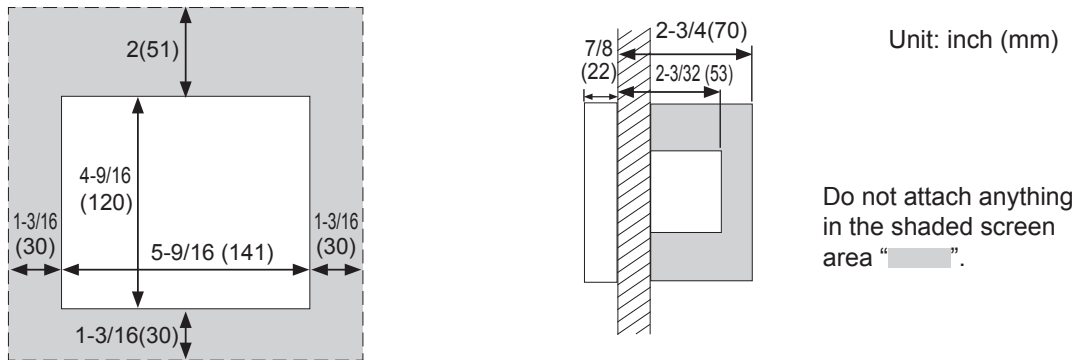
Before installing a controller, prepare the following items.

| Parts | Specification |
|----------------------------|--|
| Steel Box | Option |
| Power Supply Cable | Cable SPEC: AWG 16(1.25mm ²) to AWG 14(2mm ²) Recommended Cable: 600V CV, CCV, CEV |
| H-LINK Cable (For Control) | Cable SPEC: AWG 18(0.75mm ²) to AWG 16(1.25mm ²) Recommended Cable: JKEPV-S, JKEV-S, CVV-S, CVV, 600V VCT |

Note: Communication cabling shall be a minimum of 18-Gauge, 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.

[Installation Space]

Provide the installation space for the mini central controller as shown below.

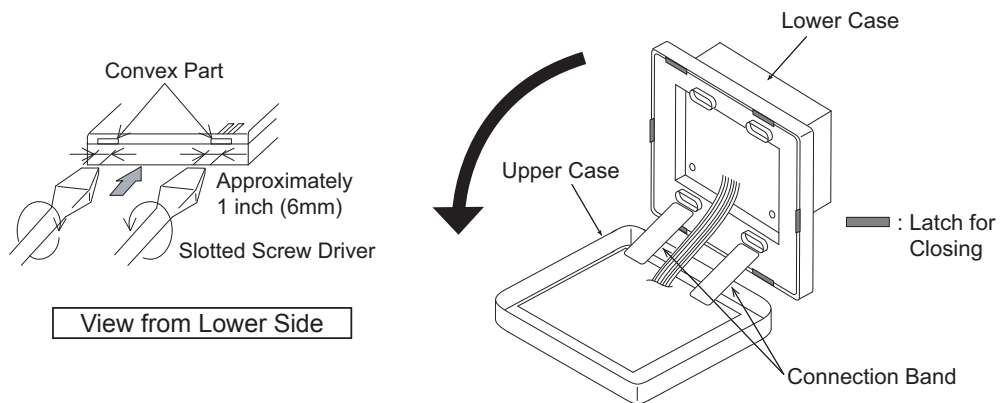


When installing more than two mini central controllers in a row or in line, keep the space between each.

- Vertical Direction: 2 inches (51mm)
- Horizontal Direction: 1-3/16 inch (30mm)

[Installation Method]

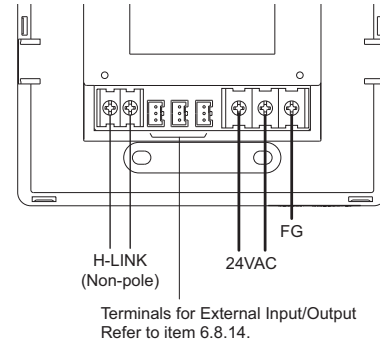
- 1) Install the steel box (option) into the wall.
- 2) Open the unit body. (The factory ships the unit open.)
If the unit is closed, open it as shown below.
 - (a) Remove the convex part of the case by pressing and rotating a screwdriver in the cut-out portions (two cut-out portions on the convex part).
 - (b) When pulling up the convex part of the case, the copper will separate from the upper side and lateral side so the cover will open. The upper and lower case will be fixed with a connection band. Do not use excessive force to open the case.



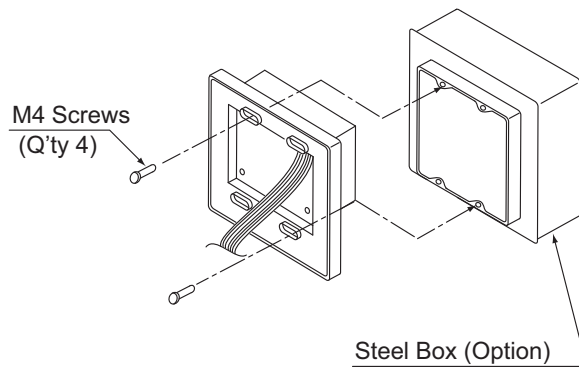
CONTROL SYSTEM

3) Connect the wiring to the terminal board of the mini central controller.

| Terminal Board | Use | Connection Procedure |
|----------------|---------------------------|---|
| TB1 | For Power Supply | M3 Screw-on terminal Round Terminal Connection |
| TB2 | For H-LINK Communication | Tightening Torque 0.4 ft-lbs |
| CN1 ~ 3 | For External Input/Output | Connector, three pin Insert connector cords (accessory) until hearing clicking sound. |



4) Attach the steel box (option) with the accessory mounting screw (M4 x 5/8 inch).



6.8.8 Switch Setting Procedures

Switch settings of the mini central controller are indicated in the following table.

1) Use the settings below.

| Switch | Switch No. | Usage | Factory Setting | Remarks |
|---------------------------------|------------|---|-----------------|--|
| RSW1 (Rotary Switch 16-pole) | - | For address setting of mini central controller | 0 | When using multiple units. |
| DSW1 (DIP Switch 4-pole) | 1 | OFF (Fixed) | OFF | |
| | 2 | OFF (Fixed) | OFF | Not Used |
| | 3 | OFF (Fixed) | OFF | Not Used |
| | 4 | ON (Fixed) | ON | |
| DSW2 (DIP Switch 2-pole) | 1 | ON: Terminating Resistance Enable OFF: Terminating Resistance Disable | OFF | Make sure no other terminating resistance exists on the same H-LINK when enabling the terminating resistance from the mini central controller. |
| | 2 | ON: Protection Fuse for H-LINK ... Disable (short-circuited) OFF: Protection Fuse for H-LINK ... Enable (normal) | OFF | |
| SW1 | | ON: Turn ON Mini Central Controller OFF: Turn OFF Mini Central Controller | ON | |

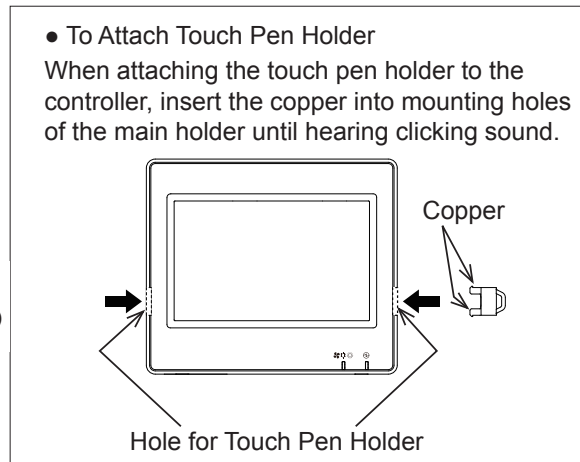
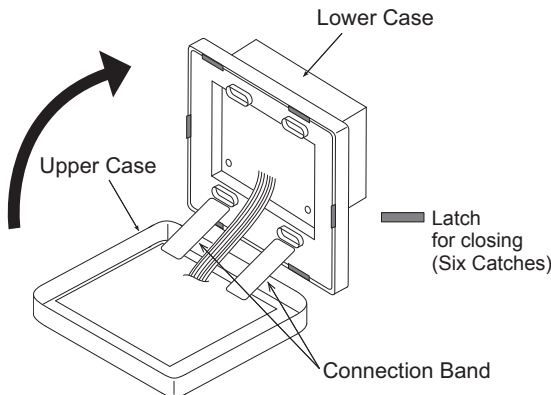
NOTICE

- * Turn OFF the power supply when setting the DIP switches and rotary switch. Do not touch the printed circuit board and metal part to avoid a mini central controller malfunction.
- * Alarm 63 will be displayed on an H-LINK II compliant central controller if a misconfigured DSW1-1 is connected. In this case, turn OFF the power supply for all central control devices and correct the settings of each central control device. Then, restart central control devices.
- * When using several mini central controller at the same time, set "RSW1" so as not to overlap.

2) Close the unit body until it snaps, making sure it is completely closed.

Make sure the connection wiring is not caught between the case top and bottom.

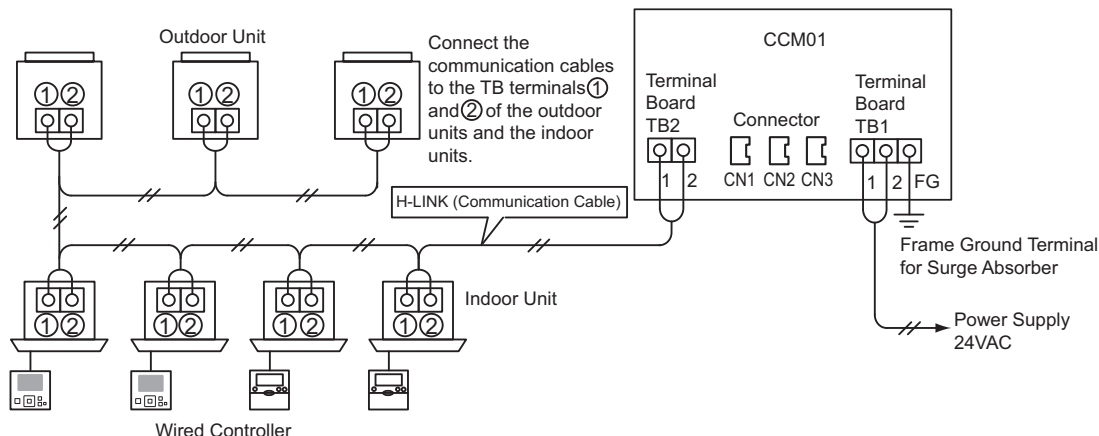
- (a) Hook the copper to the upper side of the case.
- (b) The upper side of the case will close when placing the copper of the lateral and lower side.



CONTROL SYSTEM

6.8.9 Electrical Wiring

- 1) The mini central controller requires wiring work of the power supply cable, air conditioner, and control wiring (H-LINK).
- 2) Wiring Method




| Type of Wiring | Specification | Length of Wiring | Cable Specification | Recommended Cable Model |
|--------------------------------------|---|---------------------|--|---------------------------------------|
| Power Supply Cable | 24VAC | - | AWG 16(1.25mm ²) to AWG 14(2mm ²) | 600V CV, CCV, CEV |
| Ground Wiring | - | - | - | - |
| H-LINK (Control Wire) | 5VDC | 3281 feet (1000m) ≥ | AWG 18(0.75mm ²) to AWG 16(1.25mm ²) | JKPEV-S, JKEV-S, CVV-S, CVV, 600V VCT |
| Wiring for External Input and Output | Input: Non-voltage Normal Open Output: 12VDC, 75mA ≥ | 984.3 feet (300m) ≥ | AWG 20(0.5mm ²) to AWG 16(1.25mm ²) | |

- In case wire length specification on the signal communication side for external input is mentioned, use shorter wiring either ① communication side wire length specification or ② 984.3 feet (300m).

NOTICE

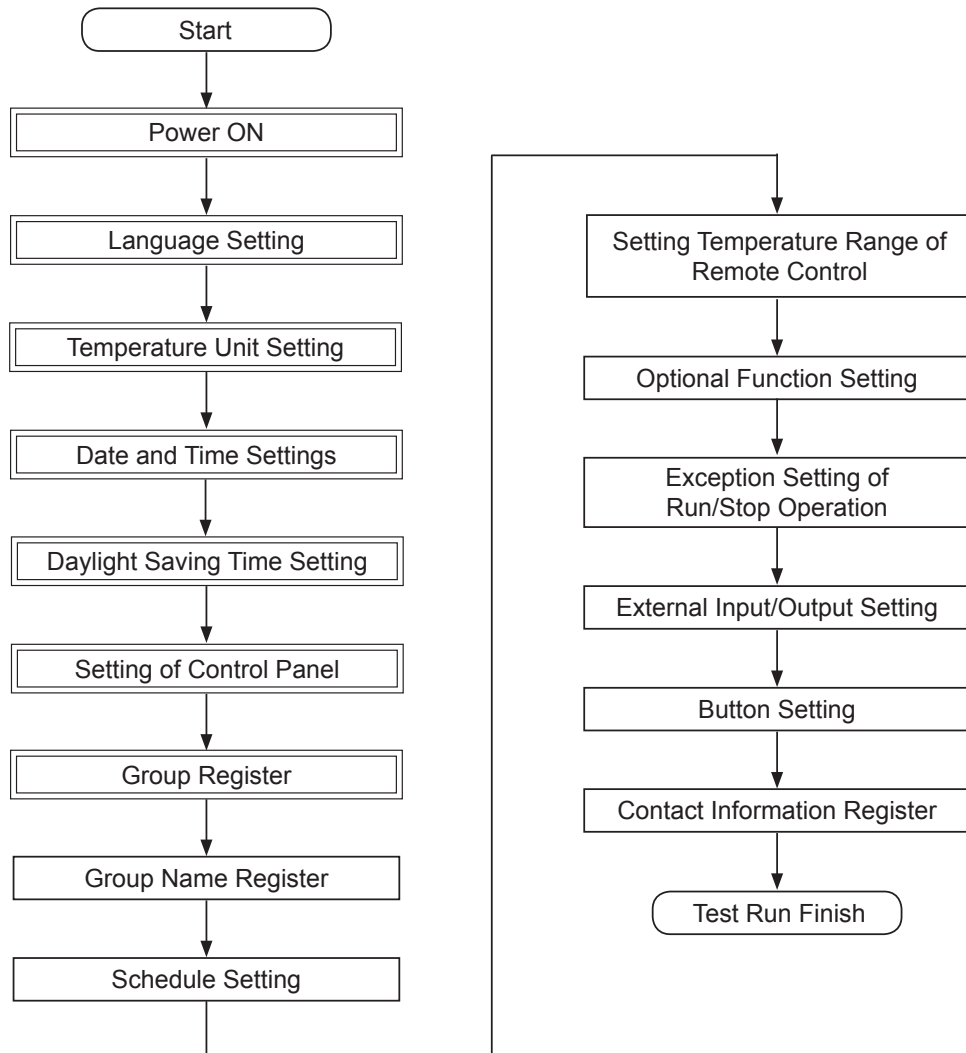
- * The mini central controller may break down if wiring is correct.
- * Communication cabling shall be a minimum of 18-Gauge, two-conductor, stranded copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication
- * Cables must be considered per application and local code requirements.
- * If wiring work is performed with the main power ON, it may cause a breakdown of the controller. Turn OFF the main power of the air conditioner and the controller before performing wiring work.
- * Communication cables are required to be separated from the power supply wiring and other electrical device wiring. Keep at least 12 inches (31cm) between communication cabling and the power supply wiring. If the above is not secured, put the power supply wirings and communication cabling into the each metal conduit tube separately. One side of the metal conduit tubes should be grounded for noise reduction.
- * Do not connect the power supply wiring to the terminals for transmission of the mini central controller. If the power supply wires are connected incorrectly, the fuse of the printed circuit board will short-circuit. If this happens, turn on the DSW2-pin on the printed circuit board to enable emergency operation without benefit of protective fuse safeguards.
- * Remove the ground wiring for the frame ground (FG) terminal when the insulating capacity test or the withstand voltage test is performed. It may prevent operation of the mini central controller.

6.8.10 Test Run Procedure

The flow diagram below outlines test run procedures. The process rectangles below “” are required procedures.

Refer to the Operation Manual of the mini central controller for the Control Method settings.

NOTE: The screen image may be different from the actual screen.



6.8.10.1 Features and Functions

| Item | Function |
|---|--|
| Language Setting | This function is used for language selection. |
| Date and Time Settings | This function is used for adjusting the date and time. |
| Group Register | The connected indoor units are checked by the mini central controller in the same H-LINK. This function is used for the group or block registration of them. |
| Main Unit Register | This function is used for the main unit registration in the each remote control group. (The main unit is the only one for each remote control group.) The control command is sent from the mini central controller to the main unit for the remote control group. |
| Sub Unit Register | This function is used for registration of the sub units except the main unit in the same remote control group. If using the wired controllers or the receiver kits as follows, the sub units are registered automatically by the mini central controller after the main unit registration. <ul style="list-style-type: none"> • Infrared Receiver (IR) |
| Group Name Register | This function is used for registering the naming of a Block and Group. The registrable number of letters are a maximum 20 letters for the name of each block or group. It is also available to copy group names. If the group/block is registered without a name, it will be registered as "Group 1" or "Block 1" automatically. |
| Schedule Settings | This function is used for scheduled timer operation which can be set by each group or block. |
| Schedule Timer Setting | This function is used for setting the time (by the minute), "Run/Stop" and temperature (66~86°F (19~30°C)). For weekly schedule setting, up to 10 schedule items can be set per day. It is also possible to copy the setting information. |
| Holiday Setting | This function is used for suspending the scheduled operation temporarily. The scheduled operation will not be available when this function is set. This function is used for setting irregular holidays such as national holidays. |
| Schedule Timer ON/OFF Setting | "Schedule Timer OFF Setting" is used for suspending the scheduled operation for the target group. The scheduled operation will not be available when Schedule Timer is OFF. This function is used for a long holiday, sudden holidays, and national holidays. |
| Optional Function Setting | This function is used for setting and changing of the function for air conditioners and the mini central controller. |
| Exception Setting for Run/Stop Operation | This function is used to specify exceptional Groups/Blocks for All Run/Stop commands. <ul style="list-style-type: none"> • The All Run/Stop command will not affect to the specified group/block. |
| Selecting Exceptions; Operations to be Excluded | This function is used to select which the following will be excluded: <ul style="list-style-type: none"> • Run • Stop • Run and Stop |
| Selecting Group and Block Exceptions | This function is used to select All Run/Stop commands, but the following are excluded: <ul style="list-style-type: none"> * All Groups Run/Stop * Run/Stop by Block * All Groups Setting * Setting by Block |
| External Input/Output Setting | Two external input terminals and two external output terminals are equipped in the mini central controller. These terminals are used for "All Groups Run/Stop" and "Demand Function" operations for the connected air conditioners. The external output terminals are used for the operation signal output or alarm signal output of the air conditioners which are connected to the mini central controller. |
| Exception to External Input | This function is used for cancelling operation commands such as "All Groups Run/Stop", using the external input signal. "Exception External Input" is available for each external input (Input 1 and Input 2). |
| Selecting Groups of Exception External Input 1 | This function is used for selecting a group to cancel an operation command from external input 1. |
| Selecting Groups of Exception External Input 2 | This function is used for selecting a group to cancel an operation command from external input 2. |
| Demand Function Setting | This function is used for setting of "Demand Function" to the terminal of "Input 1". The operating condition is changed by the demand signal such as the operation to stop and Thermo-OFF. "Demand Function" is available when you do the following: <ol style="list-style-type: none"> 1. Select "Demand Function" at "Input 1" on the "External Input/Output Setting" screen. ("Demand Function" will not be available without this setting.) 2. Select one of "Demand Function" No.1 to No.4 at "Demand Function Setting" screen. |
| Demand Function Setting | This function is to select the action at "Demand Function" control. |
| Selecting Group for Demand Function | This function is to select the target group for "Demand Function" control. |
| Button Setting | This function specifies each button to be shown/hidden. This function also includes a specification/setting for "one-tap operation" or "press-and-hold" operation. |
| Contact Information Register | This function is used for editing the contents of contact information registration. |

*Thermo-ON: The outdoor unit and some indoor units are running.
Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

6.8.10.2 Supply Power to the Unit

- (1) Apply power to the outdoor unit(s) at least 12 hours prior to operation of the system for preheating of the compressor oil.
 - * Perform after a Test Run on each air conditioner and confirm that each one operates normally.
- (2) Turn on the power supply of the mini central controller.

6.8.10.3 Language Setting

After turning ON the power supply, the language setting is displayed on the touchscreen as shown at right.
(When the power supply is turned ON at the first time.)
Select the using appropriate language for operation and touch "Set".

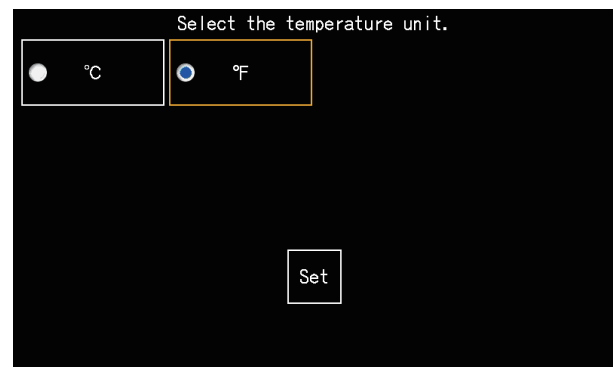
Refer to the Operation Manual for details.



6.8.10.4 Temperature Unit Setting

After the language is set, the screen will be displayed as shown on the right.
Select the appropriate temperature unit, then touch "Set".

Refer to the Operation Manual for details.



6.8.10.5 Date and Time Settings

After the temperature unit, the Date and Time settings screen is displayed on the touchscreen as shown at right.
Tap "Set" on the touchscreen display, and set the date and time according to the indicated procedure.

Refer to the Operation Manual for details.



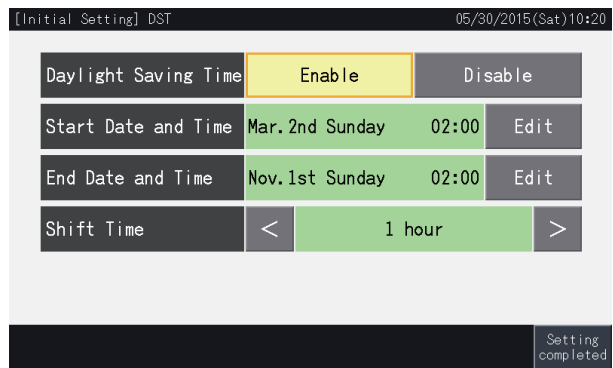
CONTROL SYSTEM

6.8.10.6 Daylight Saving Time Setting

After the Date/Time function is set, the screen will be displayed as shown on the right.

Set each item, then touch "Setting Completed" in the lower-right corner.

Refer to the Operation Manual for details.



6.8.10.7 Setting of Control Patterns

- (1) After adjusting date and time settings, the control pattern screen is displayed as shown in the figure on the right. Touch "Set" on the touchscreen to display the setting screen.
- (2) When tapping on the control pattern button, to register a group the selected button is rimmed with an orange outline. Touch "Register Main Unit" to set the selected control pattern and the group register screen is displayed.

Refer to Section 6.8.11.3 below for details.



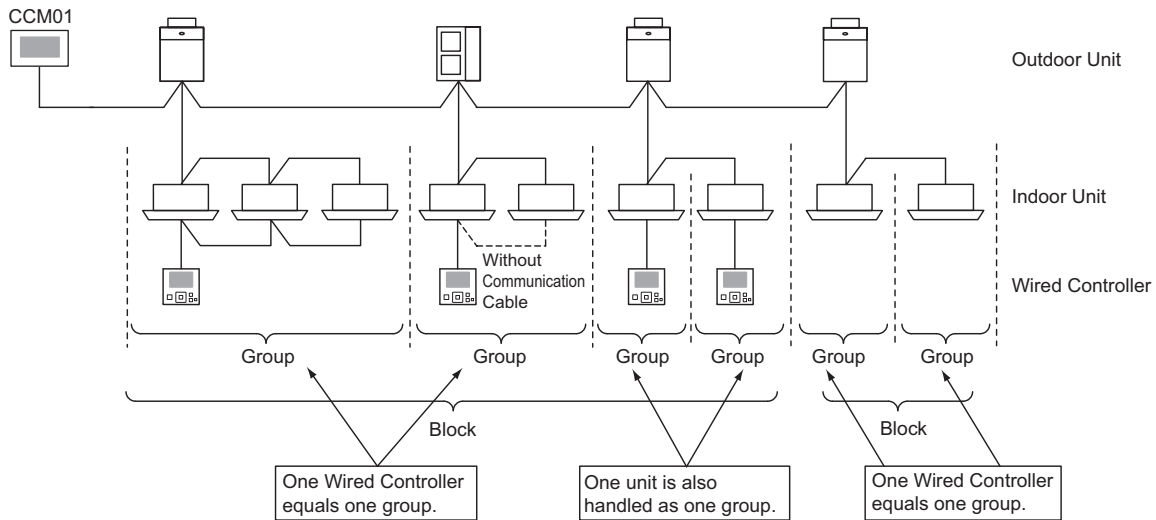
6.8.10.8 Group Register

Register the indoor units confirmed for connection to the group (block) of the mini central controller.

Refer to Section 6.8.11.3 below for details.

[Group and Block]

- * **Group :**
Indicates the minimum number of operational units controlled by one mini central controller. One remote control group is considered as one group, and the same setting will be applied. A maximum of 32 groups (4 blocks x 8 groups, 8 blocks x 4 groups, 2 blocks x 16 groups, 16 blocks x 2 groups) can be controlled by one mini central controller.)
- * **Block:**
Indicates the number of operational units combining groups into one. The mini central controller can regulate indoor units depending on the control patterns (4 blocks x 8 groups, 8 blocks x 4 groups, 2 blocks x 16 groups, 16 blocks x 2 groups).
- * **Remote Control Group:**
Indicates multiple indoor units (a maximum of 16) connected by communication line to the wired controller. Indoor units registered as same the remote control group are applied using the same settings.
- * **Main Unit:**
Indicates the representative unit of the remote control group. The mini central controller transmits control commands to this representative unit.
- * **Sub Unit:**
Indicates indoor units other than the main unit.



NOTICE

<Main Unit Registration>

- * The main unit registration is available for only 1 indoor unit per 1 group. Thus, duplicate registration of the main unit is not possible for the same group. If the main unit registration is changed for something reason, cancel the current main unit registration, and register the new main unit again.
- * When the indoor units with fan speeds of “4-touch” and “3-touch” are intermixed in the same remote control group, register the indoor unit with a fan speed of “4-touch” as the main unit. If an indoor unit with a “3-touch” fan speed is registered as the main unit, a “4-touch” fan speed setting cannot be applied for this group. In other words, designate the main unit as a “4-touch” fan speed unit.
- * When the indoor unit with the automatic louver swing and the indoor unit without the automatic louver swing are mixed in same remote control group, register the indoor unit with the auto-louver as the main unit. If the indoor unit without auto-louver is registered as the main unit, the auto-louver setting cannot be applied for this group.
- * If the group with the communication cable connected to the wired controller is not used, the indoor unit without the wired controller is not registered as the main unit.

<Sub Unit Registration>

- * A maximum 15 sub units can be registered in the same remote group with the main unit.
- * Indoor units without a wired controller cannot be registered as sub units.
- * When changing the registration of the indoor unit which is already registered as a sub unit, cancel the registration setting first. Then, change the registration.

6.8.10.9 Registering Groups/Blocks Names

Register the names of groups and the blocks for the registered groups. .

The registrable number of letters are a maximum of 20 for the name of the group (block).

Set by Monitor → Menu → Group Name Register.

Refer to the Operation Manual for details.

NOTE

* When touching "Enter" at the name registration, the name of the group or the block will be displayed in one or two lines. A maximum of eight letters or characters can be entered on one line.

6.8.10.10 Schedule Timer Operation

This function is used for the timer operation.

The schedule setting command allows for settings for each block and group.

Holiday settings that do not activate the schedule are also available.

Set by Monitor → Menu → Schedule Setting.

Refer to the Operation Manual for details.

6.8.10.11 Setting Temperature Range of Remote Control

This is the function for adjusting temperature range of the wired controller operation.

Minimum/Maximum temperature of cooling or heating can be set depending in the RUN mode.

Set by Monitor → Menu → Setting Temperature Range of Remote Control.

Refer to the Operation Manual for details.

6.8.11 Service Menu

The Service Menu functions and detailed contents are described as follows.

- Group Register
- Optional Function Setting
- Exception Setting of Run/Stop Operation
- External Input/Output Setting
- Exception External Input
- Button Setting
- Contact Information Register
- Memo
- Restore Setting
- Checking Connection
- Alarm History

| Function | Contents |
|---|--|
| Group Register | The connected indoor units are checked by the mini central controller in the same H-LINK. This function is used for the group or block registration of these indoor units. |
| Setting of control patterns | Sets the control pattern. |
| Main Unit Register | This function is used for the main unit registration in the each remote control group. (The main unit is the only one in the remote control group.) The control command is sent from the mini central controller to the main unit for the remote control group. |
| Sub Unit Register | This function is used for registration of the sub units except the main unit in the same remote control group. When using wired controllers or receiver kits, the sub units are registered automatically by the mini central controller after the main unit registration. <ul style="list-style-type: none"> • IR Receiver Kit |
| Displays a List of Registers | Displays the location of those Indoor Units which were registered in each group. |
| Optional Function Setting | This function is used for setting and changing optional functions for air conditioner units and the mini central controller. |
| Air Conditioner, Wired Controller Setting | Set or change the optional function of the air conditioner and wired controller. |
| Mini Central Controller Setting | Sets or changes the operational mode, color of the operation indicator, or the mini central controller. |
| Exception Setting for Run/Stop Operation | The factory-set group is "All Group Run (stop)", "Block run (stop)" or when "All Groups (Blocks)" operate as "Run(Stop)". This operation is not accepted. |
| External to Input/Output Setting | There are four inputs and two outputs for the external Input/Output function in the mini central controller. |
| Button Setting | This function specifies each button to be shown/hidden. This function also includes the specification/setting for "one-touch operation" or "press and hold" operation. |
| Contact Information Register | This function is used for editing the contents of contact information registration. |
| Memo | Record and Browse the Test Run and Maintenance Information. |
| Restore Setting | This function is used for restoring all the settings such as registered Groups (Blocks) and schedules. |
| Checking Connection | This function is used for checking the connected indoor unit numbers in the same H-LINK. When this function is used, the confirmation for retention of registered information such as the group names, schedules, and so forth will be indicated. If "OK" is touched, the connected indoor unit numbers are updated with the registered information. If "Cancel" is touched, the setting of the mini central controller is restored. |
| Alarm History | This function is a compilation and display list of alarm history events over the service life of the air conditioner and the controller. (Maximum 100 records) |

6.8.12 Optional Function Setting

This function is used for setting and changing the function selection of the air conditioner and mini central controller in the following table.

Set by Monitor → Menu → Service Menu → Optional Function Setting.

Refer to Section 6.8.11.5 for details.

| Function | Description |
|--|--|
| Setting Operation Mode | Tap "Enable" of "Fixing Operation Mode" to set the present operation mode. The operation mode is set as the present setting which cannot be changed from the wired controller and the mini central controller. |
| Setting Temperature Setpoint | Tap "Enable" of "Fixing Temperature Setting" to set the present temperature. The temperature setpoint is set as the present setting which cannot be changed from the wired controller and the mini central controller. |
| Cooling Only | Tap "Enable" of "Cooling Only" to set the operation mode as cooling. This function is used for heat pump models which can be operated as the cooling only models. The operation mode "HEAT" and "AUTO" cannot be selected from the wired controller and the mini central controller. |
| Auto | Tap "Enable" of "Auto" to use the cooling/heating automatic operation. It is possible to set this mode from the wired controller and the mini central controller. However, in the following instances, "AUTO" cannot be selected. *Connected to the model of Cooling Only. *The function "Cooling Only" is enabled. |
| Setting Fan Speed | Tap "Enable" of "Fixing Fan Speed" to set the fan speed. The fan speed is set as the present setting which cannot be changed by the wired controller and the mini central controller. |
| Control Mode | This function is used for changing the control mode of the mini central controller. When setting this function, tap "All Groups" as the target groups, and select the control mode from "Normal" or "Run/Stop Only". *Normal: "Setting" is displayed when tapping the group button. This mode is the factory setting. The "Normal" setting is available for each group. *Run/Stop Only: The control mode at "Monitor 1 or 2" is changed to only "Run and Stop" for each group. |
| Operation Indicator | Switch color of operation indicator green ↔ red. When an error occurs, the indicator will flash on and off in red regardless of the setting. |
| All groups display automatic switch | When setting the all group's display at the beginning of the operation, set "Enable". On the Block display screen, if a mini central controller does not operate in a given time, the screen will automatically switch to the All Groups display. |
| Wired controller operation is prohibited to set OFF time | In the case to set "Stop command for the Remote Control by OFF time" and "Remote Operation Prohibited (All Items)", set the schedule function of the mini central controller to "Enable". In this case, when ON Time cancels Remote Operation Prohibited (All Items), the operation cannot be commanded. When Remote Operation Prohibited is set(by item), this function cannot be set. Set is as "Disable". |
| Display Graph for Numerical Value | When displaying the graph of operation time or Thermo On time (Without display numeric value), set the Operation Time display as "Disable". |
| Thermo-ON* Time display | When running the time display, set the Thermo-on time as "Enable" to display it. |

*Thermo-ON: The outdoor unit and some indoor units are running.
Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

NOTE

- * When using the Optional Function Setting (Air Conditioner, Wired Controller setting), set the same content to the Remote Control Groups. In the same way, use the wired controller to set from the mini central controller at the Optional Function Setting (Fixed, Auto).
- * Fixed operation mode of optional function setting and demand of external input output setting: The group which set both of the operation mode shifts will stop regardless of the operation mode when the demand signal is ON.
- * When the Power ON/OFF (d1, d3) of the optional function is set, DO NOT set the prohibition of the remote control operation. In that instance, the operation of the local remote control is not restricted when using the Power ON/OFF, DO NOT use the lock function of the local remote control.

6.8.13 Exception Setting of Run/Stop Operation

When the group is set as All Run (all groups, all blocks) “RUN” and “STOP” cannot be accepted.

When using the exception setting Run/Stop, select from the following:

- * None
- * Run + Stop
- * Stop
- * Run

Set by Monitor → Menu → Service Menu → Exception Setting of Run/Stop Operation.

Refer to Section 6.8.11.6 for details.

NOTE

- * “All of the Run/Stop” and “Run/Stop by Block” commands will not be affected when they are set to groups/blocks. However, these commands are accepted as follows within this function.
 - Scheduled Timer Operation
 - “All Run/Stop” and “Run/Stop by Block” by External Input command
- * “Run/Stop” operation is available when the group is selected individually.

6.8.14 External Input/Output Setting

In the principal mini central controller, there is an external Input/Output function of four inputs and two outputs.

Set by Monitor → Menu → Service Menu → External Input and Output Setting.

Refer to Section 6.8.11.7 for details.

| Input and Output | Connection | Function | |
|------------------|-------------|-------------------------------|--------------------------------|
| Input 1 | CN1 1-2 Pin | *All Run/Stop (Level) | *Emergency Stop (Level) |
| Input 2 | CN1 2-3 Pin | *All Run (Pulse) | *Demand (Stop/Run mode |
| Input 3 | CN2 1-2 Pin | Shift/ | |
| Input 4 | CN2 2-3 Pin | *All Stop (Pulse) | Outdoor Unit Capacity Control) |
| Output 1 | CN3 1-2 Pin | *No Setting (Factory Setting) | |
| Output 2 | CN3 1-3 Pin | *All Run | *No Setting (Factory Setting) |
| | | *All Alarm | |

■ External Input Function

- (1) All Run/Stop (Level)
All groups simultaneously affect the Run/Stop operation through the external input signal.
 - (2) All Run (Pulse)
All groups simultaneously affect the Run operation through the external input signal.
 - (3) All Stop (Pulse)
All groups simultaneously affect the Stop operation through the external pulse signal input.
 - (4) Emergency Stop (Level)
All groups simultaneously affect the Stop operation through the external emergency stop signal.
When the “Emergency Stop” is activated, the wired controller LCD displays “Central Control” and the operation cannot be performed from the wired controller.
- * When using with another mini central controller, the “Run/Stop” operation is available from the other mini central controller even if during an emergency stop.

CONTROL SYSTEM

(5) Demand Control Function (*1)

At peak demand, electrical consumption is cut by the external demand control signal.

Only the input terminal 1 is available for the external demand signal.

The operation mode of a selected group will be changed by the demand signal as follows.

| | Demand Signal ON | Demand Signal OFF |
|--|--|--|
| Stop (*2) | Indoor Unit will stop (Remote Control Operation Prohibited) | Return to the previous operation condition. (*3) |
| Run Mode Shift (*2) (*4) | COOL or DRY switch to FAN (Remote Control Operation Prohibited) HEAT switch to STOP (Remote Control Operation Prohibited) | |
| Operation Unit Capacity Control (*5) (*6) (*7) | Control the value of outdoor unit capacity in the setting value. (Setting Value: 100/90/80/70/60/50/40/0%) | Cancel the capacity control. |

(*1): Do not set "STOP" or "Run Mode Shift" when using simultaneously with another mini central controller. When setting outdoor unit capacity control, set one of the mini central controllers and do not set the others.

(*2): Setting is only possible for Stop or Run Mode Shift. It is not possible to set multiple contact points.

(*3): Do this when "AUTO" operation is carried out, or "Fixing Operation Mode" is enabled at "Optional Function Setting".

(*4): It will stop regardless of the operating mode as in "AUTO" or when the "operating mode fixed" in the optional function setting is enabled.

(*5): The outdoor unit capacity control can be set to multiple contact points. When there is a signal input in multiple contact points, the control with the most contact points will have the highest priority as follows (Input 1 > Input 2 > Input 3 > Input 4).

(*6): The control capacity target applies to outdoor units only. If the desired target is different than the one selected, contact you contractor for adjustments..

(*7): It is possible to control using a schedule without using demand control.

■ External Output Function

(1) All Run Output

This is an external output for an indoor unit operation signal in the target group.
The operation signal outputs even if only one indoor unit in the target group is operated.

(2) External Output Alarm

This is an external output alarm signal for an indoor unit in the target group.
The alarm signals output even if only one indoor unit abnormality occurs in the target group.

■ External Input/Output Terminals Specification

Input Terminal: Non-voltage contact (normal open) for demand signal Input 12VDC, 10mA
Switching of the contact is available.
Pulse width is 300ms or more for pulse signal input.

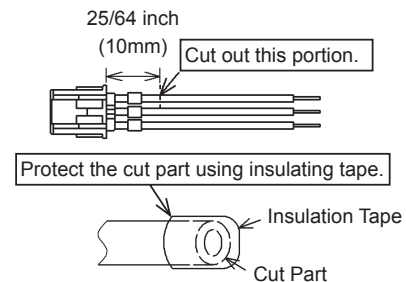
Output Terminal: Contact (voltage is applied) for signal Output 12VDC
Recommended Relay: MY Relay manufactured by Omron Corporation
(Do not use a diode built-in type.)

Input/Output connection : Use the connector cord accessory.

Connection procedure:

- (1) When the cord is not used for some reason, check the connector number and cut out a portion as shown in the figure.

Protect the cut part using insulating tape according to local code.



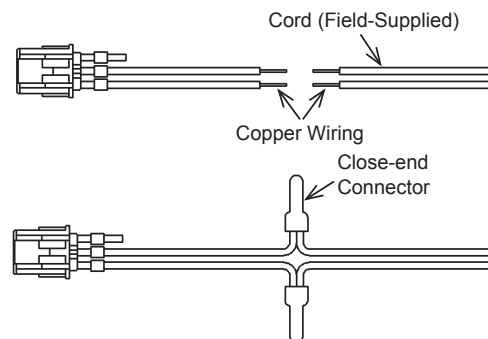
- (2) To connect a relay or timer using local codes cord, connect using one of the following procedures.

(a) When Soldering

Twist and solder copper wires together and insulate with electric tape.

(b) When caulking with a closed-end connector accessory

Insert the closed-end connector after twisting and soldering copper wires together. Then caulk with a clamping tool. (Make sure the connection is secure by pulling up on the connection.)



6.8.15 Button Setting

The operating button indication selection

The operating button indication can be selected to show or hide when restricting operation.

Set by Monitor → Menu → Service Menu → Button setting.

Refer to Section 6.8.11.8 for details.

6.8.16 Contact Information Register

The contractor contact information for editing or registering for “Contact Information” indication function. This function is used when there is an issue in the system and an alarm code is displayed.

Set by Monitor → Menu → Service Menu → Contact Information Register.

Refer to Section 6.8.11.9 for details.

6.8.17 Alarm History

The alarm history record of the air conditioner and the mini central controller

The time of alarm occurrence, abnormal unit and alarm code are recorded. The alarm history record of deletions is performed by this function.

Set by Monitor → Menu → Service Menu → Alarm History.

Refer to Section 6.8.11.13 for details.

6.8.18 Service Menu Procedure

6.8.18.1 Display of Service Menu Screen

The diagram illustrates the steps to reach the Service Menu. It begins with the 'Monitor (All Groups)' or 'Monitor (Block)' screen. A 'Menu' button is located at the bottom left of both. Pressing this button leads to the 'Menu' screen, where the 'Service Menu' button is at the bottom right. Pressing 'Service Menu' leads to the 'Service Menu' screen, which contains various settings options. A red dashed box highlights these options.

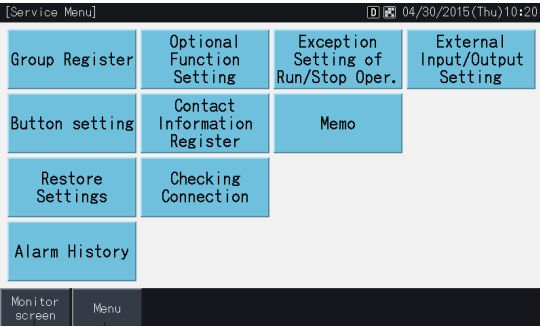
1. Touch "Menu" on the "Monitor (All Groups)" or "Monitor (Block)" screen.
2. The "Menu" screen is displayed.
3. Press and hold "Service Menu" for at least three seconds. The "Service Menu" is displayed.
4. Select the "Service Menu" function by touching each item button. The setting screen of selected function will be displayed.

NOTICE

Depending on the operating condition of the air conditioner unit and the mini central controller (listed as 1 through 4 below), the following functions cannot be selected.

- Group Register (1)
- A/C unit and Wired Controller setting (Optional Function Setting) (2)
- External Input/Output Setting (1, 2)
- Restore Settings (1, 3, 4)
- Checking Connection (1, 2)
 1. When the External Input signal is ON
 2. When one air conditioner unit is operating
 3. When one air conditioner unit Wired Controller is restricted (Without Wired Controller not included).
 4. When one outdoor unit is operating at capacity control.

6.8.18.2 Exit Service Menu Screen

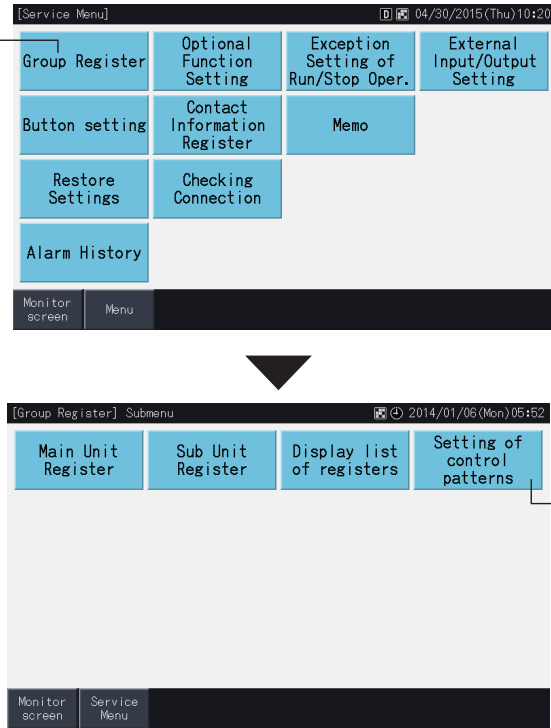


The screenshot shows the 'Service Menu' screen with a title bar containing '[Service Menu]' and a date/time '04/30/2015(Thu)10:20'. The screen contains several menu items: Group Register, Optional Function Setting, Exception Setting of Run/Stop Oper., External Input/Output Setting, Button setting, Contact Information Register, Memo, Restore Settings, Checking Connection, and Alarm History. At the bottom, there is a navigation bar with 'Monitor screen' and 'Menu' buttons. A line labeled '1' points to the 'Menu' button, and a line labeled '2' points to the 'Monitor screen' button.

1. Touch "Menu" to return to the Menu screen.
2. Touch on "Monitor screen" to return to the Monitor screen.

6.8.18.3 Group/Block Pattern Register

6.8.18.3.1 How to Register Control Pattern



The first screenshot shows the 'Service Menu' screen with a title bar containing '[Service Menu]' and a date/time '04/30/2015(Thu)10:20'. The 'Group Register' button is highlighted with a line labeled '1'. A downward arrow points to the second screenshot, which shows the '[Group Register] Submenu' screen with a title bar containing '[Group Register] Submenu' and a date/time '2014/01/06(Mon)05:52'. The 'Setting of control patterns' button is highlighted with a line labeled '2'. A second downward arrow points to the text 'Continue to Next Page'.

1. Select "Group Register" on the "Service Menu" screen.
2. Select "Setting of control patterns" on the "Group Register" screen.

Continue to Next Page

3

4

5

6

7

3. Set the Control Pattern.

- When touching on the Control Pattern button, the selected button is trimmed in an orange outline.

4. Touch “Setting completed”.

- Touch “Cancel”, and the screen will return to Group Register.
- The Group Register can be deleted when modifying the Control Pattern.

5. Initialize Group Registration? Touch “Yes” on the confirmation screen.

- Touch “No” to return to the “Setting of Control Patterns” screen.

6. Touch “Yes”, and it will confirm the Control Pattern selected and cancel all the Group Registration.

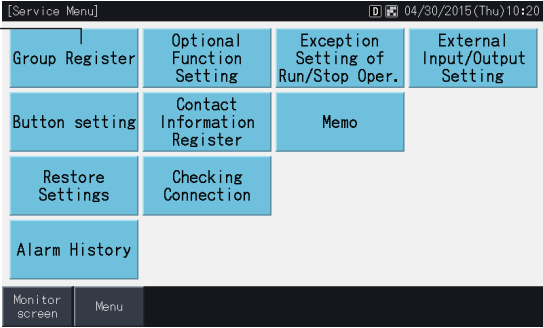
- Touch “No”, and it will confirm the Control Pattern selected and even after the Control Pattern is modified, the Group within the Control range will retain the Main/Sub Unit registration.

7. The Control Pattern up-dating screen is displayed.

After up-dating the Control Pattern, the Group Register screen will display when registering the Main Unit. If the Main Unit is not to be registered, the Unregister Group screen will display.

6.8.18.4 Group Register

6.8.18.4.1 How to Register Group (Main Unit)



1


[Service Menu] 04/30/2015 (Thu) 10:20

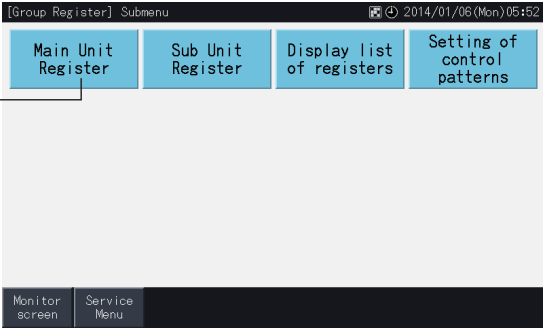
| | | | |
|------------------|------------------------------|-------------------------------------|-------------------------------|
| Group Register | Optional Function Setting | Exception Setting of Run/Stop Oper. | External Input/Output Setting |
| Button setting | Contact Information Register | Memo | |
| Restore Settings | Checking Connection | | |
| Alarm History | | | |

Monitor screen Menu

1. Select "Group Register" on the "Service Menu" screen.

NOTE:
This function cannot be selected when the external input signal is connected to the external input terminal 1 or 2.






2

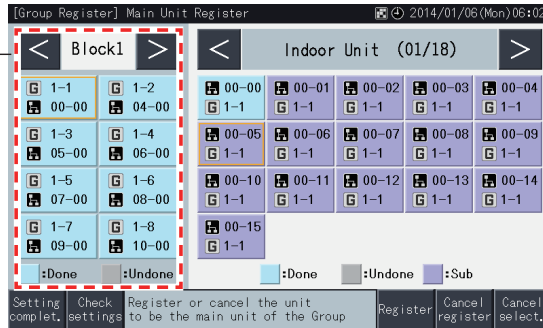
[Group Register] Submenu 2014/01/06 (Mon) 05:52

| | | | |
|--------------------|-------------------|---------------------------|-----------------------------|
| Main Unit Register | Sub Unit Register | Display list of registers | Setting of control patterns |
|--------------------|-------------------|---------------------------|-----------------------------|

Monitor screen Service Menu

2. Select "Main Unit Register" on the "Group Register" screen.





3

[Group Register] Main Unit Register 2014/01/06 (Mon) 06:02

< Block1 > Indoor Unit (01/18) >


| | | | | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| G 1-1 00-00 | G 1-2 04-00 | G 00-00 1-1 | G 00-01 1-1 | G 00-02 1-1 | G 00-03 1-1 | G 00-04 1-1 |
| G 1-3 05-00 | G 1-4 06-00 | G 00-05 1-1 | G 00-06 1-1 | G 00-07 1-1 | G 00-08 1-1 | G 00-09 1-1 |
| G 1-5 07-00 | G 1-6 08-00 | G 00-10 1-1 | G 00-11 1-1 | G 00-12 1-1 | G 00-13 1-1 | G 00-14 1-1 |
| G 1-7 09-00 | G 1-8 10-00 | G 00-15 1-1 | | | | |

:Done :Undone :Done :Undone :Sub

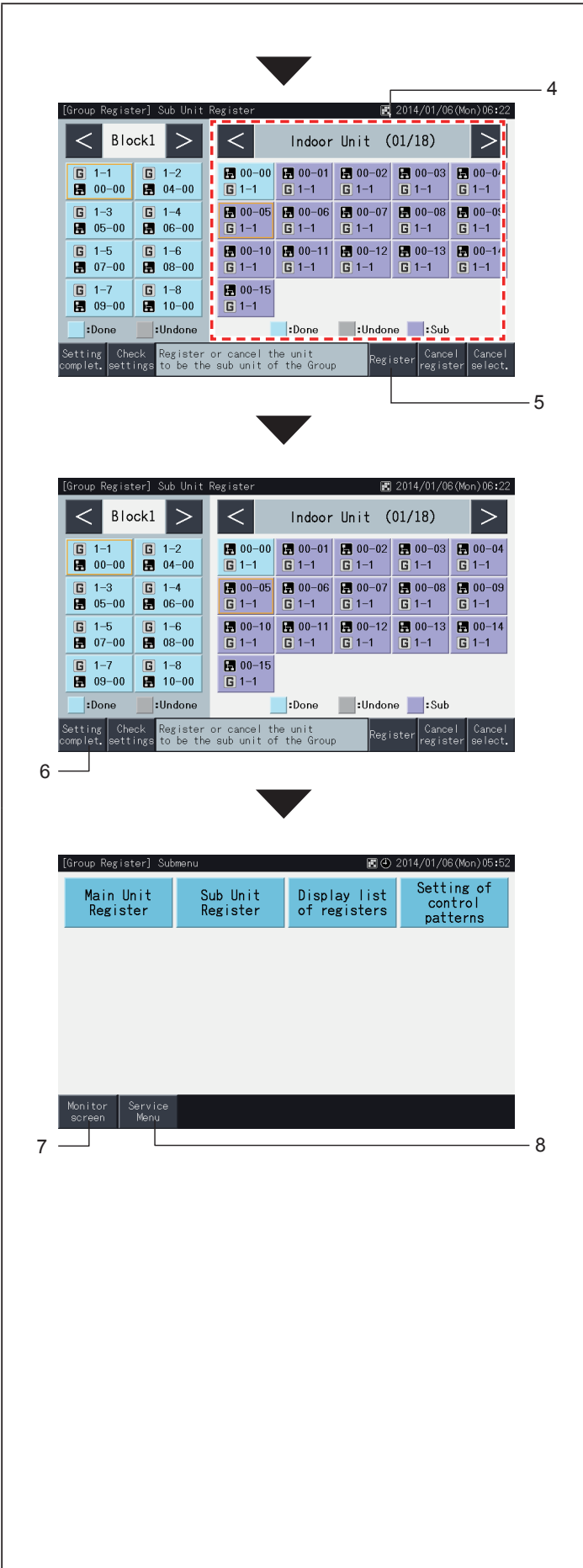
Setting complet. Check settings Register or cancel the unit to be the main unit of the Group Register Cancel register Cancel select.

3. Select a Group for the main unit to register.

- Touch "<" or ">" on the upper left of the touchscreen, to switch the block display.
- The information of Block number and Group number are indicated in the button as "Block No. - Group Name".
- Select the group button by touch. The selected button is trimmed with an orange outline. Touch the selected group button again and the group selection will be canceled.
- The Main Unit screen may be different depending on the Control Pattern. The screen on the left indicates the Setting of control patterns when Pattern A is selected (4 Blocks x 8 Groups).



Continue to Next Page



4. Select the indoor unit for “Main Unit Register”.
 - Touch “<” or “>” on the upper right area of the touchscreen and the indoor units display is changed.
 - The information of the refrigerant cycle numb and indoor unit address are indicated in the indoor unit button as “Refrigerant Cycle No. - Indoor Unit Address”.
 - Select the indoor unit button by touch. The selected button is trimmed with an orange outline. If the selected button is touched again, the indoor unit selection is canceled.
 - The indoor unit that is already registered as the main unit cannot be selected. (The button color is blue.)
- < About the Indoor Unit Selecting >
- The indoor unit which letters are highlighted in red cannot be registered as the main unit. In this case, the indoor unit is registered as the sub unit automatically.
 - When the indoor unit with a fan speed of Four, and fan speed setting Three becomes intermixed in the same Remote Control group, register the indoor unit with a fan speed of Four as a Main Unit.
 - When the indoor units such as “with auto louver function” and “without auto louver function” are mix-installed in the same H-LINK, register the indoor unit “with auto louver function” on the priority basis as the main unit. If the unit “without auto louver function” is registered as the main unit, the auto louver function cannot be used in this H-LINK. (The same applies to the other functions.)
5. Touch “Register” to register the main unit while the group and indoor unit are selected.
 - If the group and indoor unit for the main unit are not selected, “Register” will be displayed in gray but cannot be selected.
 - The button color of the registered group and indoor unit are changed to blue and the information is displayed in the button group shown below.
- < Group Button >
- | | |
|----------------|--------------|
| Block No. | Group No. |
| G 1-1 | 00-00 |
| Main Unit | I.U. Address |
| Ref. Cycle No. | I.U. Address |
- < Indoor Unit Button >
- | | |
|----------------|--------------|
| Ref. Cycle No. | I.U. Address |
| 00-00 | G 1-1 |
| Block No. | Group No. |
- Proceed to the main unit register, depending on the setting.
- Continue “Main Unit Register” ... (3)
 - Exit “Main Unit Register”. (6)
6. Touch “Setting Complete” to register the group and return to the Group Register menu screen.
 7. Touch “Monitor screen” to return to Monitor screen.
 8. Touch “Service Menu” to return to Service Menu screen.

6.8.18.4.2 How to Register Group (Sub Unit)

1

[Service Menu] 04/30/2015(Thu)10:20

| | | | |
|------------------|------------------------------|-------------------------------------|-------------------------------|
| Group Register | Optional Function Setting | Exception Setting of Run/Stop Oper. | External Input/Output Setting |
| Button setting | Contact Information Register | Memo | |
| Restore Settings | Checking Connection | | |
| Alarm History | | | |

Monitor screen Menu

2

[Group Register] Submenu 2014/01/06(Mon)05:52

| | | | |
|--------------------|-------------------|---------------------------|-----------------------------|
| Main Unit Register | Sub Unit Register | Display list of registers | Setting of control patterns |
|--------------------|-------------------|---------------------------|-----------------------------|

Monitor screen Service Menu

3

[Group Register] Main Unit Register 2014/01/06(Mon)06:02

< Block1 >

| | | | | | | |
|-------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| < Indoor Unit (01/18) > | | | | | | |
| 1-1 00-00 | 1-2 04-00 | 00-00 1-1 | 00-01 1-1 | 00-02 1-1 | 00-03 1-1 | 00-04 1-1 |
| 1-3 05-00 | 1-4 06-00 | 00-05 1-1 | 00-06 1-1 | 00-07 1-1 | 00-08 1-1 | 00-09 1-1 |
| 1-5 07-00 | 1-6 08-00 | 00-10 1-1 | 00-11 1-1 | 00-12 1-1 | 00-13 1-1 | 00-14 1-1 |
| 1-7 09-00 | 1-8 10-00 | 00-15 1-1 | | | | |

:Done :Undone :Done :Undone :Sub

Setting complet. Check settings Register or cancel the unit to be the main unit of the Group Register Cancel register Cancel select.

1. Select "Group Register" on the "Service Menu" screen.

NOTE:
This function cannot be selected when the external input signal is connected at external input terminal (1 or 2).

2. Select "Sub Unit Register" on the "Group Register" screen.

3. Select the group for the "Sub Unit Register".

- Touch "<" or ">" at the upper left of the touchscreen, to change the block array display.
- Touch the group button to select. The selected button is trimmed with an orange outline.
- Touch again to deselect or cancel.
- Unregistered groups appear in gray and cannot be selected. Thus, the main unit cannot be selected for an unregistered group.
- The sub unit register screen may be different, depending on the control pattern. The screen on the left indicates the setting of control patterns when pattern A is selected (4 blocks x 8 groups).

Continue to Next Page

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4. Select the indoor unit for the “Sub Unit Register”.
 - Touch “<” or “>” at the upper right of the touchscreen, to change the block display for indoor units.
 - The information of the refrigerant cycle number and indoor unit address are indicated in the indoor unit button as “Refrigerant Cycle No. - Indoor Unit Address”.
5. Select the indoor unit button by touch. The selected button is trimmed with an orange outline. Touch again to deselect or cancel the indoor unit selection.
6. An indoor unit that is already registered as the main unit cannot be selected. (The button color is blue.)
7. Touch “Register” to register sub units when group and indoor units are selected.
 - If group and indoor units for sub units are not selected, the “Register” display is grayed-out and cannot be selected or deleted.
 - The button color of the registered group and indoor unit are changed over to purple.
8. Proceed on to registering the sub unit depending on the setting.
 - Continue with “Sub Unit Register” (3)
 - Exit the “Sub Unit Register” (6)
 - It is possible to register up to 15 Sub Units in the same Remote Control Group Main Unit.
 - An indoor unit without a wired controller cannot be registered as a Sub Unit.
9. Touch “Setting Complete” on the “Group Register (Sub Unit Register)” to return to the “Group Register” screen.
10. Touch “Monitor screen” to return to the Monitor screen.
11. Touch “Service Menu” to return to the “Service Menu” screen.

6.8.18.4.3 How to Cancel Group Register

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1. Select "Group Register" on the screen of "Service Menu". Refer to item 6.8.18.3.1 (1).
NOTE:
This function cannot be selected when the external input signal is connected at external terminal (1 or 2).
2. Select "Main Unit Register (or Sub Unit Register)" on the screen of "Group Register".
3. Select a registered group to cancel.
 - Touch "<" or ">" at the upper left of the touchscreen, to change the block array display.
 - Touch to select a group. The selected button is trimmed with an orange outline. If the selected group button is tapped again, the group selection will be canceled.
4. Touch "Cancel Register" to delete the Group Register. The Group or Indoor Unit Button turns gray.
 - Touch "Cancel Register" on the "Main Unit Register" screen, to deregister the main unit and any associated sub units.
 - Touch "Cancel Register" on the "Sub Unit Register" screen, and sub units are deregistered.

Proceeding to the following step to deregister a group will open the following options.

- Continue with deregistration of Group Register..... (3)
- Exit deregistration of Group Register..... (5)

5. Touch "Setting Complete" to return to the "Group Register" screen.
6. Touch "Monitor screen" to return to the Monitor screen.
7. Touch "Service Menu" to return to "Service Menu" screen.

6.8.18.4.4 How to Check Group Register (Check Main Unit Register)

The process is shown through seven sequential screenshots:

- Step 1:** The "[Group Register] Submenu" is displayed. The "Main Unit Register" option is highlighted with a red dashed box.
- Step 2:** The "Main Unit Register" screen is shown, displaying a grid of registers for "Block1" and "Indoor Unit (01/18)".
- Step 3:** The "Check All Group settings" screen is shown, displaying a grid of registers for "Block1", "Block2", "Block3", and "Block4".
- Step 4:** A "Setting completed" message is displayed at the bottom right of the screen.
- Step 5:** The screen returns to the "[Group Register] Submenu".
- Step 6:** The "Monitor screen" button is touched to return to the Monitor screen.
- Step 7:** The "Service Menu" button is touched to return to the Service Menu screen.

1. Select "Group Register" on the screen of "Service Menu". Refer to item 6.8.18.4.1 (1).

NOTE:

This function cannot be selected when the external input signal is joined to the external input terminal (1 or 2).

2. Select "Main Unit Register (or Sub Unit Register)" on the "Group Register" screen.

3. Touch "Check Settings" at the lower corner left of the touchscreen.

4. The screen will switch to the "Group Register" Check screen.
 • The screen will switch to Group Register when "Main Unit Register" is selected.

5. Touch "Setting Completed" to register a Group. The screen will return to the "Group Register" Menu screen.

6. Touch "Monitor screen" to return to Monitor screen.

7. Touch on "Service Menu" to return to Service Menu screen.

6.8.18.4.5 How to Check Group Register (Check Register Details)

The diagram illustrates the following steps:

- Select "Group Register" on the screen of "Service Menu". Refer to item 6.8.18.4.1 (1).
- Select "Display list of Registers" in the Group Register screen.
- Select the target displayed (All Groups/Blocks).
- Addresses for all registered indoor units are displayed for each group.
 - Black = Main Unit
 - (Other designated color) = Sub Unit
 - Move to another page by touching on "△" or "▽".
- Touch "Sub menu" to return to the Group Register screen.
- Touch "Monitor screen" to return to the Monitor screen.
- Touch on "Service Menu" to return to the "Service Menu" screen.

NOTE:
This function cannot be selected when the external input signal is connected with external input terminals (1 and 2).

6.8.18.5 Optional Function Setting

6.8.18.5.1 Air Conditioner Remote Control Settings

1. When the air conditioner is not operating, select "Optional Function Setting" on the "Service Menu" screen.

2. Select "Remote control setting" on the "Menu" screen.

- Cannot be selected if the air conditioner is operating.

3. Select the Optional Function target (All Groups/Block/Group).

4. Select the function concerning each option.

- The selected function button will change color.

5. Touch "Setting Completed" to confirm. Return to the "Menu" screen of the target group.

6. Touch "Cancel" to cancel the content setting. Return to the Optional Function target selection screen.

NOTE:
Depending on the unit, the setting may not apply. Please, check the installation and maintenance manual, and the operation manual of each indoor unit or remote control for more details.

6.8.18.5.2 Mini Central Controller Setting

1. Select "Optional Function Setting" on the "Service Menu" screen.

2. Select "Controller setting" on the "Optional Function Setting" screen.

3. Select a function concerning each item.

- The color of the selected function button will change.

< Concerning OFF Time Remote control prohibition >

- When setting as Enable, the Remote Operation Prohibited (by item) cannot be set. The Remote Operation Prohibited (by item) can be set but, if operating simultaneously with other controllers, then do not perform any settings.
- When all groups have Remote Operation permitted (all items) only, It is possible to switch back and forth between Enable and Disable.

4. Touch on "Setting Completed" to confirm the setting. Return to the "Optional Function Setting Menu" screen.

- After selecting Enable or Disable in the OFF time Remote Control Prohibition, touch on "Setting Completed". The confirmation screen is displayed as below.

5. Touch on "Service Menu" to complete the Optional Function Setting and return to the "Service Menu" screen.

6.8.18.6 Exception Setting of Run/Stop Operation

1

| | | | |
|------------------|------------------------------|-------------------------------------|-------------------------------|
| Group Register | Optional Function Setting | Exception Setting of Run/Stop Oper. | External Input/Output Setting |
| Button setting | Contact Information Register | Memo | |
| Restore Settings | Checking Connection | | |
| Alarm History | | | |

2

| | |
|-------------|--------------|
| No Settings | Run and Stop |
| Run | Stop |

3

| Block1 | | Block2 | | Block3 | | Block4 | |
|--|--------|--------|--------|--------|--------|--------|--------|
| Group1 <input checked="" type="checkbox"/> | Group2 | Group1 | Group2 | Group1 | Group2 | Group1 | Group2 |
| Group3 | Group4 | Group3 | Group4 | Group3 | Group4 | Group3 | Group4 |
| Group5 | Group6 | Group5 | Group6 | Group5 | Group6 | Group5 | Group6 |
| Group7 | Group8 | Group7 | Group8 | Group7 | Group8 | Group7 | Group8 |

4

1. Select the "Exception Setting of the service menu Run/Stop Oper." on the "Service Menu" screen.

2. Select the operation to exclude settings.

- The color of the selected function button changes.

3. Select the exception operation target (group/block)

- Touch on the Group button to switch between "Select" and "Cancel".
- Touch the Block button to switch between "Select" and "Cancel" for all groups in a block.
- A check mark as shown will be displayed on the selected group.

4. Touch on "Setting Completed" to confirm the setting. Return to the Exception setting for the Run/Stop Operation.

6.8.18.7 External Input/Output Setting

6.8.18.7.1 External Input Setting

1. Select the “External Input/Output setting” on the “Service Menu” screen.

- If the air conditioner is operating, or if the external input signal contact point is ON, this cannot be selected.

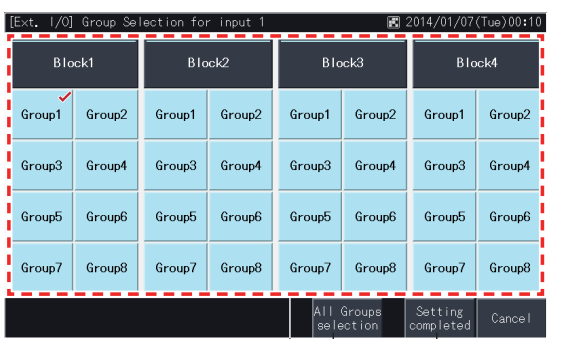
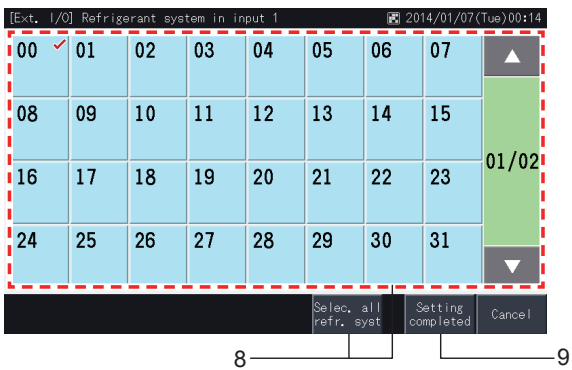
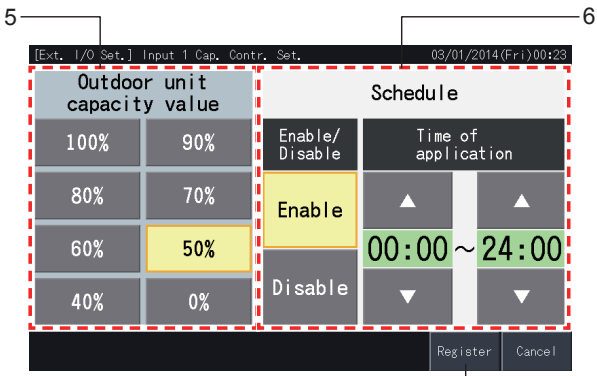
2. Select the input target (from input 1 to 4) for the external input.

3. Select a function in the external input.

- The selected function button color changes. Here are the steps displayed when a function is selected.
- If “No Setting” selected, go on to step four.
- If “Demand Capacity Control” is selected, go on to step five.
- If other than those above, go on to step 10.

< “No Setting” >

4. Touch “Service Menu” to complete the External Input/Output setting. Return to the “Service Menu” screen.



- <Outdoor Unit Capacity Control>
- Select the outdoor unit capacity value.
 - The selected capacity value button changes color.
 - Control capacity can be selected in the central station schedule without using a contact point. In the schedule, select Enable and the applicable time.
 - Select "Enable" or "Disable".
 - Tap "Δ" or "∇" to set the applicable starting time and the ending time. The time adjusts for every 30 minutes.
 - When the Ending time is earlier than the Starting time, Ending time will continue on into the following day.

For example:
 Starting Time 15:00
 Ending Time 08:00,
 The capacity control will start at 15:00 and will end the next day at 08:00.
 - Touch "Register".
 - Select the capacity control target (Refrigerant system).
 - The buttons of the Refrigerant system of the registered outdoor unit numbers will be displayed in blue.
 - Unregistered outdoor units will be displayed in gray. This means that these refrigerant units cannot be selected.
 - Touch the refrigerant system number button to toggle back and forth between "Select" and "Cancel".
 - Touch "Select all refr. syst" to toggle back and forth between "Select" and "Cancel" for all refrigerant systems.
 - A check mark will display for the refrigerant selected.
 - Touch "Setting Completed" to confirm the setting. Return to the External Input/Output Setting screen.
- < Other settings >
- Select the External Input Control target (All Groups/Block/Group).
 - Touch the Group button to toggle between "Select" and "Cancel".
 - Touch the Block button to toggle between "Select" and "Cancel" Blocks in all Groups.
 - Touch "Select All Groups" to toggle between "Select" and "Cancel" all Groups.
 - A red check mark (shown at left) will display for the selected Group.
 - Touch "Setting Completed" to confirm the setting. Return to the external Input/Output Setting screen.

6.8.18.7.2 External Output Setting

The diagram illustrates the process of setting external output through four sequential screens:

- Service Menu:** The 'External Input/Output Setting' option is selected.
- External I/O Setting] Settings List:** The 'Output 1' and 'Output 2' settings are highlighted.
- External Input/Output Setting] Output 1:** The 'No Settings' option is selected.
- External I/O Setting] Settings List:** The 'Service Menu' option is selected to return to the main settings list.

1. Select "External Input/Output Setting" on the Service Menu screen.

- When the air conditioner is operating, or when the external input signal contact point is ON, this cannot be operated.

2. Select the Output target of the External Output (Output 1, and 2).

3. Select the function used in the External Input.

- The selected function button will change color.

Touch the "Optional Function button" to confirm the setting. Return to the External Input/Output Setting screen.

4. Touch "Service Menu" to complete the external Input/Output Setting and return to the "Service Menu" screen.

6.8.18.8 Button Setting

The image contains two screenshots of a control system interface. The first screenshot, labeled '1', shows the 'Service Menu' screen with the date '04/30/2015(Thu)10:20'. The menu items are: Group Register, Optional Function Setting, Exception Setting of Run/Stop Oper., External Input/Output Setting, Button setting, Contact Information Register, Memo, Restore Settings, Checking Connection, and Alarm History. The 'Button setting' option is highlighted in blue. The second screenshot, labeled '2', shows the 'Button setting' screen with the date '2014/01/01(Wed)07:58'. It lists four groups: 'All Groups Run', 'All Groups Stop', 'All Groups Setting', and 'Menu'. Each group has 'Show' and 'Hide' buttons. The 'Show' buttons are highlighted in yellow. At the bottom, there are 'Setting completed' and 'Cancel' buttons. A red dashed box highlights the 'Show' and 'Hide' buttons for the 'All Groups Run' group. A black arrow points from the 'Button setting' option in the first screenshot to the second screenshot. A line connects the number '1' to the 'Button setting' option, and another line connects the number '2' to the 'Show' buttons. A line connects the number '3' to the 'Setting completed' button.

1. Select "Button setting" on the "Service Menu" screen.
2. Select the function concerning each group.
 - The button of the selected function will change color.
3. Touch "Setting Completed" to confirm the setting control and return to "Service Menu" screen.

6.8.18.9 Contact Information Register

1. Select "Contact Information Register" on the "Service Menu" screen.

2. Select the "Contact Information (1 or 2) Name Edition" or the "Contact Information (1 or 2) TEL. No. Edition" to register the information.

3. Type in the telephone number.

NOTE:
Only the keyboard of numeric characters and symbols can be selected when "Contact Information (1 or 2) TEL. No. Edition" is selected.

4. The maximum allowable number of characters is 60 for the name of a company and 30 characters for a phone number.

5. Touch "Register" when the character information is completed. Confirm the Contact Information and return to the Contact Information Edit screen. Proceed with the contact information register, depending on the setting.

- Continue to register or edit contact information. (2)
- Finish this setting. (7)

6. Touch "Service Menu" to complete this setting. The screen reverts back to the "Service Menu".

6.8.18.10 Memo

6.8.18.10.1 Register Memo

The process is shown in four sequential screenshots:

- Service Menu:** A grid of menu items including 'Group Register', 'Optional Function Setting', 'Exception Setting of Run/Stop Oper.', 'External Input/Output Setting', 'Button setting', 'Contact Information Register', 'Memo', 'Restore Settings', 'Checking Connection', and 'Alarm History'. The 'Memo' item is highlighted with a blue box and labeled '1'.
- Memo List:** A grid of memo entries, each with a date and time placeholder (e.g., --/--/---- --:--). One entry is highlighted with a red dashed box and labeled '2'.
- Memo Input:** A character selection screen with a keyboard layout. The 'ABC' key is highlighted with a red dashed box and labeled '4'. The 'Register' button is labeled '6'. A 'Delete' button is labeled '5'.
- Memo List:** The same grid as in step 2, but now with a new memo entry registered, labeled '7'.

1. Select "Memo" on the "Service Menu" screen.

2. Select the target to register.

3. The character input screen is displayed.

4. Select a registered character or symbol from the character list.

5. Input characters. Touch "Delete" to erase the character on the left side of the cursor.

- The number of characters possible to enter is 52 characters maximum.

6. Touch "Register" when character input is completed. Confirm the memo and return to the Memo display screen.

7. Touch "Service Menu" to return to "Service Menu" screen.

6.8.18.10.2 Delete Memo

1. Select "Memo" on the "Service Menu" screen.

2. Touch "Delete Memo" to select a memo to delete.

3. Select the memo to delete.

- Touch the Memo button to toggle back and forth from "Select" and "Cancel".
- It is possible to select multiple Memos.
- A red check mark is appears on the selected memo(s).

4. Touch "Proceed" to clear the memo.

Continue to Next Page

5

6

5. Touch "Return to List" to return to the Memo screen.

6. Touch "Service Menu" to return to "Service Menu" screen.

6.8.18.11 Restore Settings

1. Select "Restore Settings" on the "Service Menu" screen.

NOTE:
This function cannot be selected when the wired controller operation is prohibited, the external input contact point is ON, or outdoor unit capacity control is not cancelled. Cancel these parameters when performing "Restore settings".

2. Touch "Yes" at the confirmation screen.

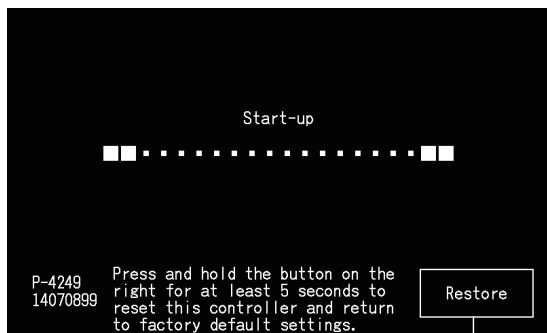
NOTE:
If "No" is selected, the screen will returned to the "Service Menu".

3. The confirmation screen is displayed again, touch "Yes" to restore the setting. After several seconds, the screen is changed and the connection check of the system is started.

NOTE:
If "No" is selected, the screen will returned to the "Service Menu".

Information

The Restore Settings option can be set when the Start-up screen is displayed.



Restore Setting

1. To restore factory default settings, touch the "Restore" button in the lower right corner of the "Start-up" screen, maintaining contact for more than five seconds.
 - The "Restore settings" option is not displayed when the wired controller operation is prohibited, the external input contact point is ON, or that the outdoor unit capacity control is not cancelled.
2. In a few seconds, the connection check process begins.
3. When the connection verification process is complete, the "Date and Time Settings" screen is displayed. (Refer to "Date and Time Settings" in item 6.8.10.5.)

6.8.18.12 Checking Connections

1. Select "Checking Connection" on the "Service Menu" screen.

NOTE:
This function cannot be selected when the air conditioner(s) is operating or that the external input signal is directed to external input terminal (1 or 2.)

2. Touch "Yes" at the confirmation screen.

NOTE:
Touch on the "No" button and the screen will return to the "Service Menu". Proceed with the connection information update depending upon what is to be set later.

- Update connection information by retaining Group register and settings such as schedule setting, and so on. (Item 3 below.)
- Perform reconnection check by initializing each setting. (It is the same as the restore setting command.) (Item 7, next page.)

< Keeping the setting >

3. Touch "Yes" at the confirmation screen to save the current the setting.

4. When the process for checking connections is complete, the number of connected indoor units is displayed on the confirmation screen. Touch "Yes" if the number of connected units is indicated correctly. The "Main Unit Register" screen will be displayed. Refer to item 6.8.18.4.1 (3).

5. If the number of connected units indicates something different from actual number, touch "No".

4
P-424q
14110601
Press and hold the button on the right for at least 5 seconds to reset this controller and return to factory default settings. Restore

Continue to Next Page

6

Check

Check the unit settings:
•The units are powered on
•DSW and RSW settings are correct.
•H-LINK transmission wiring is properly connected..
Check connections again?

Yes No

P-4249
14070199

Press and hold the button on the right for at least 5 seconds to reset this controller and return to factory default settings.

Restore

8

[Service Menu] 04/20/2018 (Thu) 10:20

Group Register Optional Function Exception Setting of External Input/Output Setting

Button set

Restore Settings

Alarm Hist

Monitor screen Menu

Check

Initialise all settings and start connection checking?

Yes No

6. Because the Confirmation screen is displayed again, check the air conditioner and touch on "Yes".

NOTE:
Touch "No" to return to the "Service Menu" screen.

- This function cannot be selected when the wired controller operation is prohibited, external input contact point is ON, or the outdoor unit capacity control is not cancelled. Cancel these parameters when performing "Restore Settings".

< Not keeping the setting >

7. Touch "No" at the confirmation screen.

8. Touch "Yes" on the initialization screen display.

- The initialization for each model setting and connection confirmation processing will start.
- The RCS operation can not be selected when set as prohibited.
- Please cancel the "RCS operation prohibited" setting.

NOTE:
Touch "No" to return to the "Service Menu" screen.

6.8.18.13 Alarm History

The diagram illustrates the process of viewing and deleting alarm history. It starts with the 'Service Menu' screen where 'Alarm History' is selected. This leads to the 'Alarm History' screen displaying a table of records. From there, the user can delete a record or return to the 'Service Menu'.

| Date | Time | Block Name | Group Name | Indoor Address | Alarm Code |
|------------|-------|------------|------------|----------------|------------|
| 2014/01/01 | 06:14 | Block1 | Group5 | 04 - 00 | 05 |
| 2014/01/01 | 06:14 | Block1 | Group4 | 03 - 00 | 04 |
| 2014/01/01 | 06:14 | Block1 | Group3 | 02 - 00 | 03 |
| 2014/01/01 | 06:13 | Block1 | Group2 | 01 - 00 | 02 |
| 2014/01/01 | 06:13 | Block1 | Group1 | 00 - 00 | 01 |

1. Select "Alarm History" on the "Service Menu" screen.

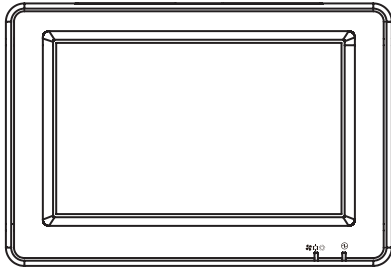
2. The "Alarm History" screen is displayed. If there are more than 11 alarm records, touch "△" or "▽" to go onto the next page.
 - If the alarm records number less than 10, it is not possible to advance to the next page.
 - A maximum of 100 records can be stored in the memory.

3. Touch "Delete History" to delete an alarm history record, Touch "Yes" at the confirmation screen, and all alarm history records are deleted.
 - Touch "No" to restore deleted files and return to the "Alarm History" screen.

4. Touch "Service Menu" to terminate Alarm History display and return to the Service Menu Screen.

6.9 Large Central Controller

6.9.1 Features and Functions



| | |
|------------------------------|--|
| Model Number | CCL01 |
| Model Type | Large Central Controller |
| Setting | Run/Stop |
| | Mode |
| | Temp. |
| | Fan Speed |
| | Louver Angle |
| | Permitting/Prohibiting Operation from Wired Controller |
| | Filter Sign Reset |
| | Schedule Timer Setting |
| | Holiday Setting |
| | Schedule Timer ON/OFF Setting |
| | Temperature Setpoint Range of Remote Control |
| | Date and Time Settings |
| | Screen Display for Cleaning |
| | Touchscreen Calibration |
| | Group Name Register |
| | Brightness |
| | Language |
| | Temperature Unit |
| | Accumulated Operation Time |
| | Contact Information |
| Daylight Saving Time Setting | |

6.9.2 Specifications

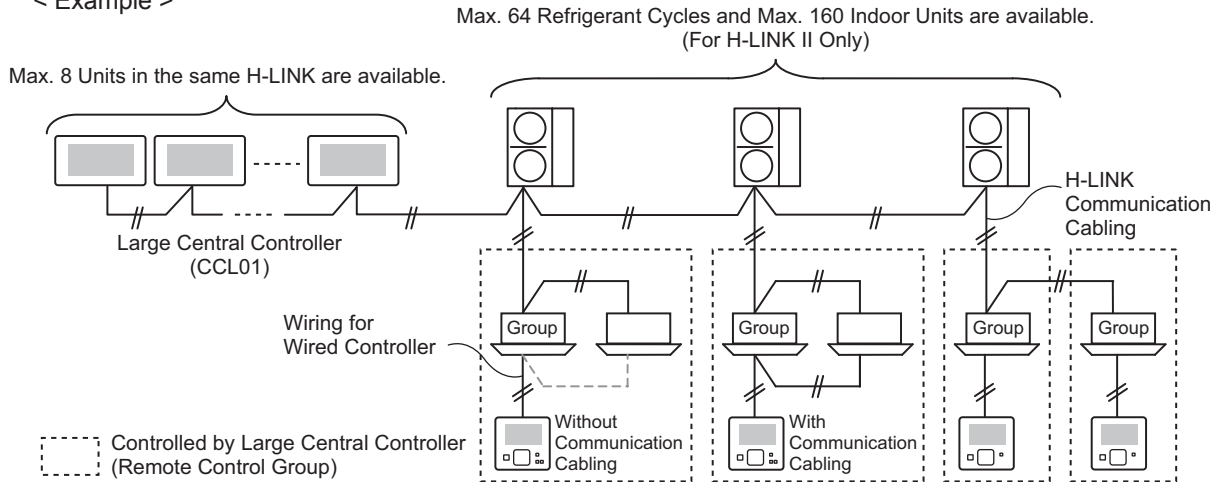
| | |
|--|---|
| Model | CCL01 |
| Outer Dimension <W × H × D + (Built-in Part)> | 9-27/32 × 6-11/16 × 31/32 + (2-5/32 for wall embedding) inch (250 × 170 × 25 + (55 for wall embedding) mm) |
| Net Weight | 3.3 LBS (1.5 kg) (Approx.) |
| Installation Location | Indoor Use |
| Installation Method | Wall-embedded using steel box (option) |
| Connected Indoor Unit (Qty) | 160 (Max.) |
| Clock Accuracy | + 70 Seconds/Month (at Normal Temperature) |
| Ambient Temperature | 41 - 95°F (5 - 35°C) |
| Ambient Humidity | 35 - 90%(no condensation) |
| Display | 8.5" TFT Color Liquid Crystal Display (800 × 480 dots) |
| Rated Power Supply | 24VAC, 60Hz |
| Electrical Power Consumption | 30W (Max.) |

CONTROL SYSTEM

6.9.2.1 System Configuration

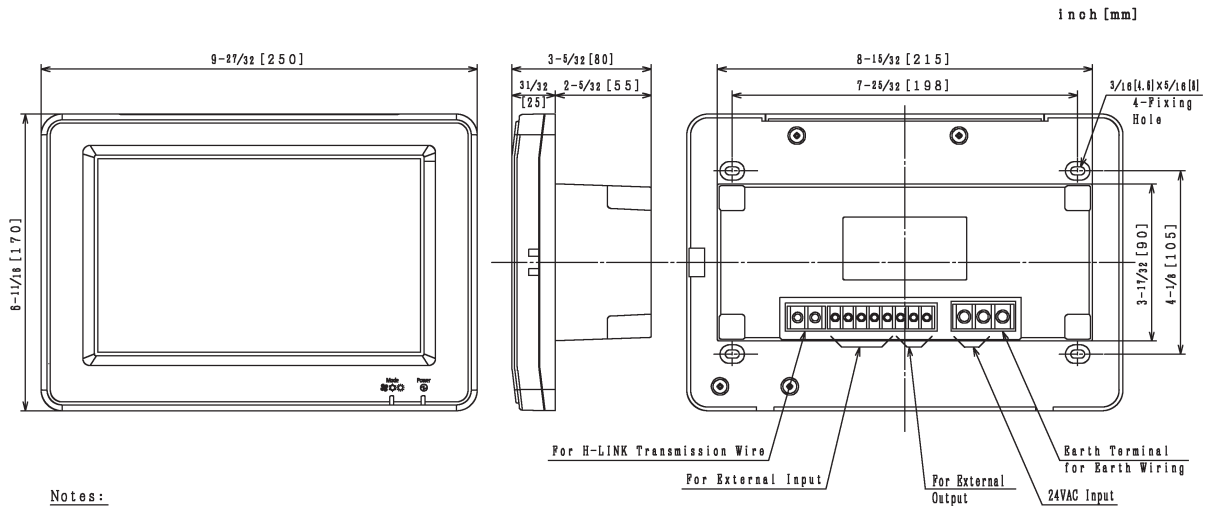
This large central controller (CCL01) is connected to H-LINK and used for the central control and monitoring of air conditioners. The system configuration example is shown below.

< Example >



* When an indoor unit without a wired controller is connected, the controller cannot be simultaneously used.

6.9.3 Dimensions



Notes:

1. This Figure Shows the Dimension of the Large Central Controller.
2. Please use a Steel Box (Option).
3. Install it, taking attention on the top and bottom direction.
4. Accessories (Q'ty): Touch pen (2). Touch Pen Holder (1).

Screw M4x5/8 [16] (4)

6.9.4 Applicable Models

| No. | OD/ID | Model Type | RT | JCI Model Name |
|-----|--------------|--|----------------------|-------------------|
| 1 | Outdoor Unit | Top Flow (208/230V) Heat Pump and Heat Recovery | 6 | (H,Y)TVAHR072B31S |
| 2 | | | 8 | (H,Y)TVAHR096B31S |
| 3 | | | 10 | (H,Y)TVAHR120B31S |
| 4 | | Top Flow (460V) Heat Pump and Heat Recovery | 6 | (H,Y)TVAHR072B41S |
| 5 | | | 8 | (H,Y)TVAHR096B41S |
| 6 | | | 10 | (H,Y)TVAHR120B41S |
| 7 | Indoor Unit | Duct (High Static) | 1.5 | (H,Y)TIDH018B21S |
| 8 | | | 2.0 | (H,Y)TIDH024B21S |
| 9 | | | 2.5 | (H,Y)TIDH030B21S |
| 10 | | | 3.0 | (H,Y)TIDH036B21S |
| 11 | | | 4.0 | (H,Y)TIDH048B21S |
| 12 | | | Duct (Medium Static) | 0.5 |
| 13 | | 0.7 | | (H,Y)TIDM008B21S |
| 14 | | 1.0 | | (H,Y)TIDM012B21S |
| 15 | | 1.3 | | (H,Y)TIDM015B21S |
| 16 | | 1.5 | | (H,Y)TIDM018B21S |
| 17 | | 2.0 | | (H,Y)TIDM024B21S |
| 18 | | 2.5 | | (H,Y)TIDM030B21S |
| 19 | | 3.0 | | (H,Y)TIDM036B21S |
| 20 | | 4.0 | | (H,Y)TIDM048B21S |
| 21 | | Duct (Slim) | | 0.5 |
| 22 | | | 0.7 | (H,Y)TIDS008B21S |
| 23 | | | 1.0 | (H,Y)TIDS012B21S |
| 24 | | | 1.3 | (H,Y)TIDS015B21S |
| 25 | | | 1.5 | (H,Y)TIDS018B21S |
| 26 | | 4-way Cassette | 1.0 | (H,Y)TIC4012B21S |
| 27 | | | 1.3 | (H,Y)TIC4015B21S |
| 28 | | | 1.5 | (H,Y)TIC4018B21S |
| 29 | | | 2.0 | (H,Y)TIC4024B21S |
| 30 | | | 2.5 | (H,Y)TIC4030B21S |
| 31 | | | 3.0 | (H,Y)TIC4036B21S |
| 32 | | 1-way Cassette | 0.5 | (H,Y)TIC1006B21S |
| 33 | | | 0.7 | (H,Y)TIC1008B21S |
| 34 | | | 1.0 | (H,Y)TIC1012B21S |
| 35 | | | 1.3 | (H,Y)TIC1015B21S |
| 36 | | Wall Mount | 0.5 | TIWM006B21S |
| 37 | | | 0.7 | TIWM008B21S |
| 38 | | | 1.0 | TIWM012B21S |
| 39 | | | 1.3 | TIWM015B21S |
| 40 | | | 1.5 | TIWM018B21S |
| 41 | | | 2.0 | TIWM024B21S |

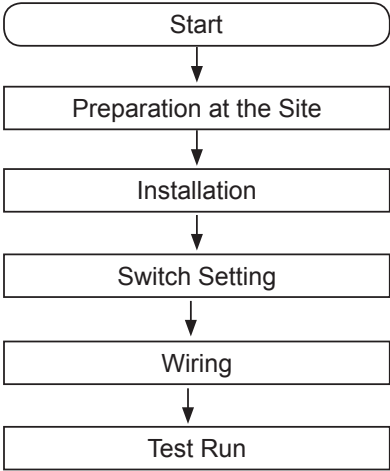
CONTROL SYSTEM

6.9.5 Accessories

- Steel Box (Type 4)

6.9.6 Installation

This manual provide information on installation for a test run of the large central controller. The installation procedures should be performed as shown below.



6.9.6.1 Preparation at the site

Before installing a controller, prepare the following items.

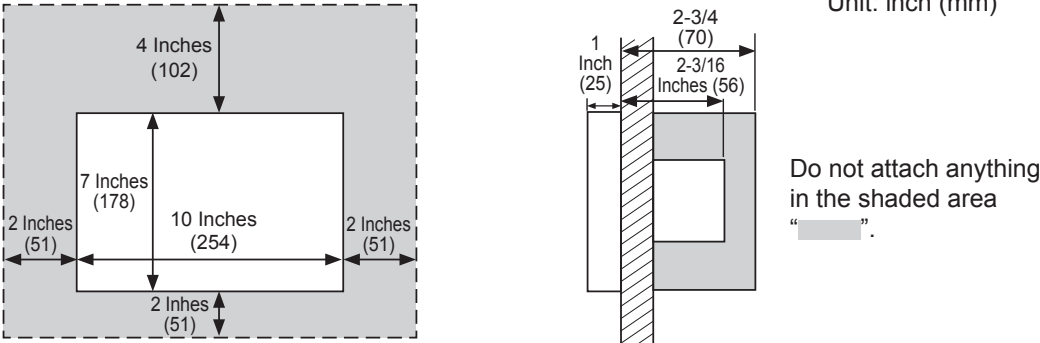
| Parts | Specification |
|----------------------------|---|
| Steel Box | Option |
| Power Supply Cable | Cable SPEC: AWG 16(1.25mm ²) to AWG 14(2mm ²) Recommended Cable: 600V CV, CCV, CEV |
| H-LINK Cable (For Control) | Cable SPEC: AWG 18(0.75mm ²) to AWG 16(1.25mm ²) Recommended Cable: Shielded Communication Cable Over AWG 18(0.75mm ²) (Equivalent to KPEV-S) |

NOTE:
Communication cabling shall be a minimum of 18-Gauge, 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.

6.9.6.2 Installation

[Installation Space]

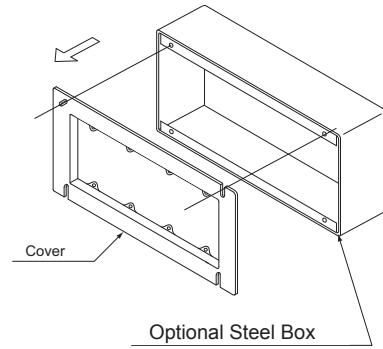
Maintain sufficient space for the installation of the large central controller as shown below.



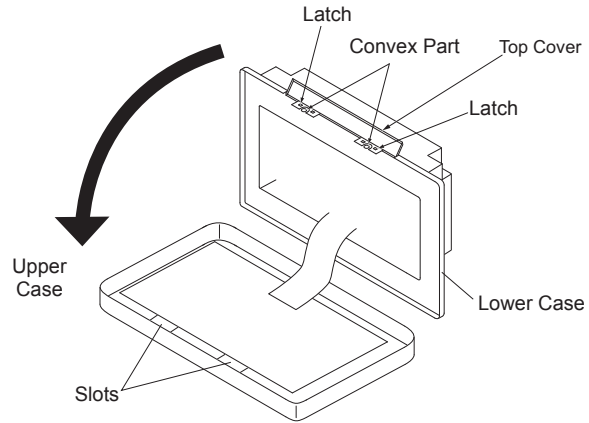
When installing more than two large central controllers in row or in line, maintain adequate spacing between each.
 * Vertical Direction: 4 Inches (102mm)
 * Horizontal Direction: 2 Inches (51mm)

[Installation Method]

- (1) Remove the cover attached to the optional steel box.
- (2) Install the optional steel box into the wall.

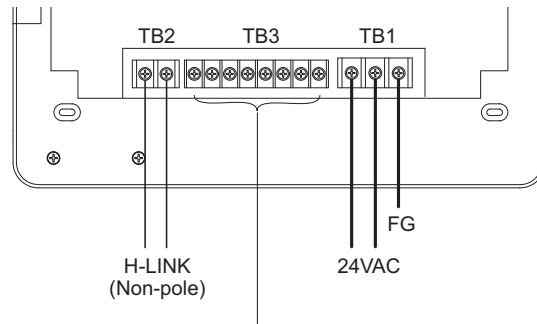


- (3) The factory ships the unit body open.
If the unit is closed, open it as shown at right.
 - (a) Open the lid of unit body.
 - (b) While pressing both latches, the top of the case can be opened since the catches for mounting have been removed.



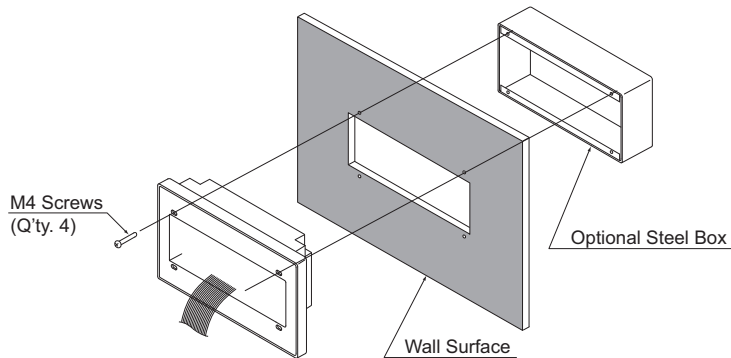
- (4) Connect the wiring to the terminal board of the large central controller.

- TB1: Terminal Board for Power Supply
- TB2: Terminal Board for H-LINK
- TB3: Terminal Board for External Input and Output



Terminals for external input/output
Refer to item 6.9.10.13.

- (5) Mount the optional steel box with the M4 x 5/8 inch accessory mounting screws.



6.9.7 Switch Setting Procedure

The list for switch settings of large central controllers is indicated in the following table.

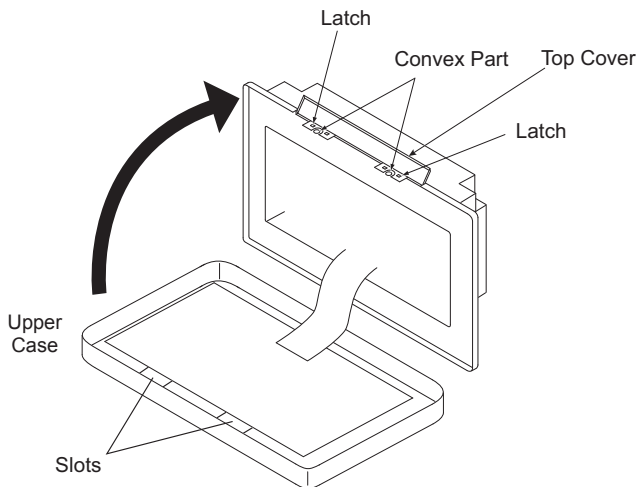
(1) Use the settings below.

| Switch | Switch No. | Usage | Factory Setting | Remarks |
|-------------------------------------|------------|---|-----------------|---|
| RSW1 (Rotary Switch 16-poles) | - | For address setting of large central controller | 0 | When using multiple units of the large central controllers. |
| DSW1 (DIP Switch 4-poles) | 1 | OFF (Fixed) | OFF | |
| | 2 | OFF (Fixed) | OFF | Not Used |
| | 3 | OFF (Fixed) | OFF | Not Used |
| | 4 | OFF (Fixed) | OFF | Not Used |
| DSW2 (DIP Switch 2-poles) | 1 | ON: Terminating Resistance Enable OFF: Terminating Resistance Disable | OFF | Make sure no other terminating resistance exists on the same H-LINK when enabling the terminating resistance from the large central controller. |
| | 2 | ON: Protection Fuse for H-LINK ... Disable (Short-circuited) OFF: Protection Fuse for H-LINK ... Enable (Normal) | OFF | |
| SW1 | | ON: Turn ON Large Central Controller OFF: Turn OFF Large Central Controller | ON | |

NOTICE

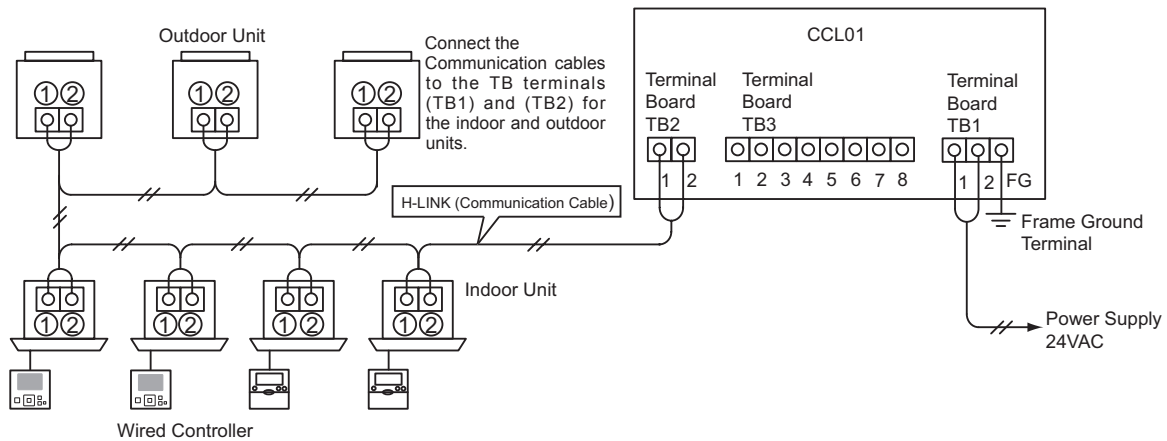
- Turn OFF the power supply when setting the DIP switches and rotary switch. Do not touch the printed circuit board (PCB) or the metal to avoid a malfunction of the large central controller.
- Alarm 63 will be displayed on a H-LINK II compliant central controller if a mis-configured DSW1-1 is connected. In this case, turn OFF the power supply for all central control devices and correct the settings of each central control device. Then, restart central control devices.
- When using several mini central controllers at the same time, set "RSW1" so as not to overlap.

(2) Close the unit body until it snaps, making sure it is tightly closed.



6.9.8 Electrical Wiring

- (1) The large central controller requires wiring of the power supply cable, air conditioner, and control wiring (H-LINK).
- (2) Wiring Method



| Type of Wiring | Specification | Length of Wiring | Cable Specification | Recommended Cable Model |
|--------------------------------------|---|--------------------|--|--|
| Power Supply Cable | 24VAC | - | AWG16(1.25mm ²) to AWG14(2mm ²) | 600V CV, CCV, CEV |
| Ground Cabling | --- | --- | --- | --- |
| H-LINK (Control Cable) | 5VDC | 3281feet (1000m) ≥ | AWG18 (0.75mm ²) to AWG16 (1.25mm ²) | Communication Cable with Shield ≥ AWG18(0.75mm ²) (Equivalent to KPEV-S) |
| Wiring for External Input and Output | Input: Non-voltage Normal Open Output: 12VDC, 75mA _≥ | 230 feet (70m) ≥ | AWG18 (0.75mm ²) to AWG16 (1.25mm ²) | JKPEV-S, JKEV-S, CVV-S, CVV, 600V VCT |

NOTICE

- The large central controller may break down by an incorrect wiring.
- Communication cabling shall be a minimum of 18-Gauge, two-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.
- It is a requirement that communication cables be separated from the power supply wiring and other electrical device wiring. Maintain at least 12 inches (30cm) separation between communication cables and wiring from the power supply. If wiring and cables are not secured separately, they should be run through separate metal conduit tubing. One side of the metal conduit tubing should be grounded for noise reduction.
- Do not connect the power supply wiring to the large terminals for communication at of large central controller. If the power supply wires are connected incorrectly, the fuse of the printed circuit board will blow out for protection. If this happens, turn ON DIP switch (DSW2-pin) on the printed circuit board (PCB), to proceed with unprotected (no fuse) emergency operation.
- When an insulating capacity test or voltage test is performed, firmly remove the ground wiring of the ground fault terminal.

6.9.9 Use of Memory Card

Use a memory card to write setting data to the memory card.

■ Usable Memory card

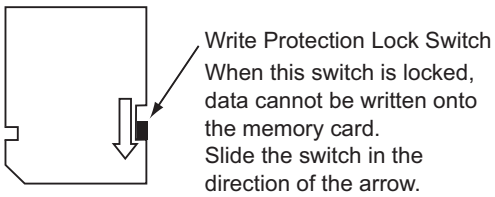
SD memory cards or SDHC memory cards based on the SD Standard are acceptable. However, some cards may not operate properly.



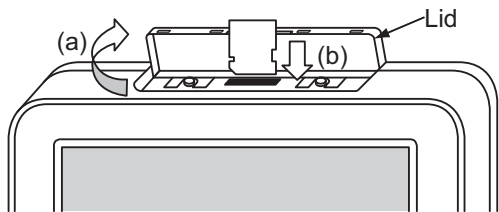
- These memory cards are considered acceptable by Johnson Controls.
 - SanDisk Ultra® SD™/SDHC™ card
 - SanDisk® SD™/SDHC™ card (standard type)

■ Insert the memory card.

1. Unlock the write protection lock of the memory card.



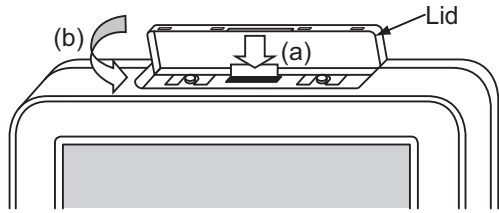
2. Open cover/lid (a). Then insert memory card (b).



■ Remove the memory card.

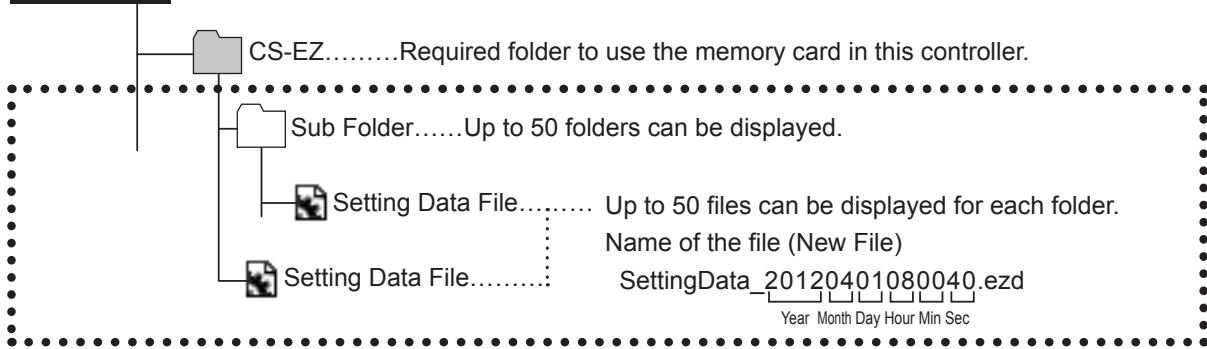
1. Push the memory card (a) down until you hear the "click". The card is released and can be removed.

2. Close the lid (b).



■ Folders and Files

Memory Card



- If unavailable characters are included in the name, the character will be replaced by "?". In that case, the file or folder may not be accessible.
- Enter the name of the subfolder or the file within 240 characters. File names are limited to 240 characters.
- File setting data is saved as a ".ezd" file. There is no need to include ".ezd" in the characters.
- When the number of files in each sub-folder exceed 50, a warning message will be displayed and the screen will return to the Memory Card menu.

■ Notes for using the memory card

- The recommendation is to use the SD formatter when using the memory card for the first time. (See items 1 and 2 below.) Note that all data in the memory card will be erased by formatting the card.

NOTICE:

*1: Download the SD formatter software from the SD association site. (<http://www.sdcard.org/home>)

*2: When formatting the memory card improperly, it may fail to read/write data or take a long time for reading.

- When formatting the memory card, it may not completely erase the data on the memory card. If disposing of, or transferring information, it is recommended that the data-erasing program on your PC be used to completely erase the data.
- Do NOT remove the memory card or turn OFF the power while the memory card is reading or writing information. It will most likely damage the memory card surfaces, cause loss of data, or become unable to function under the following conditions:


NOTICE:

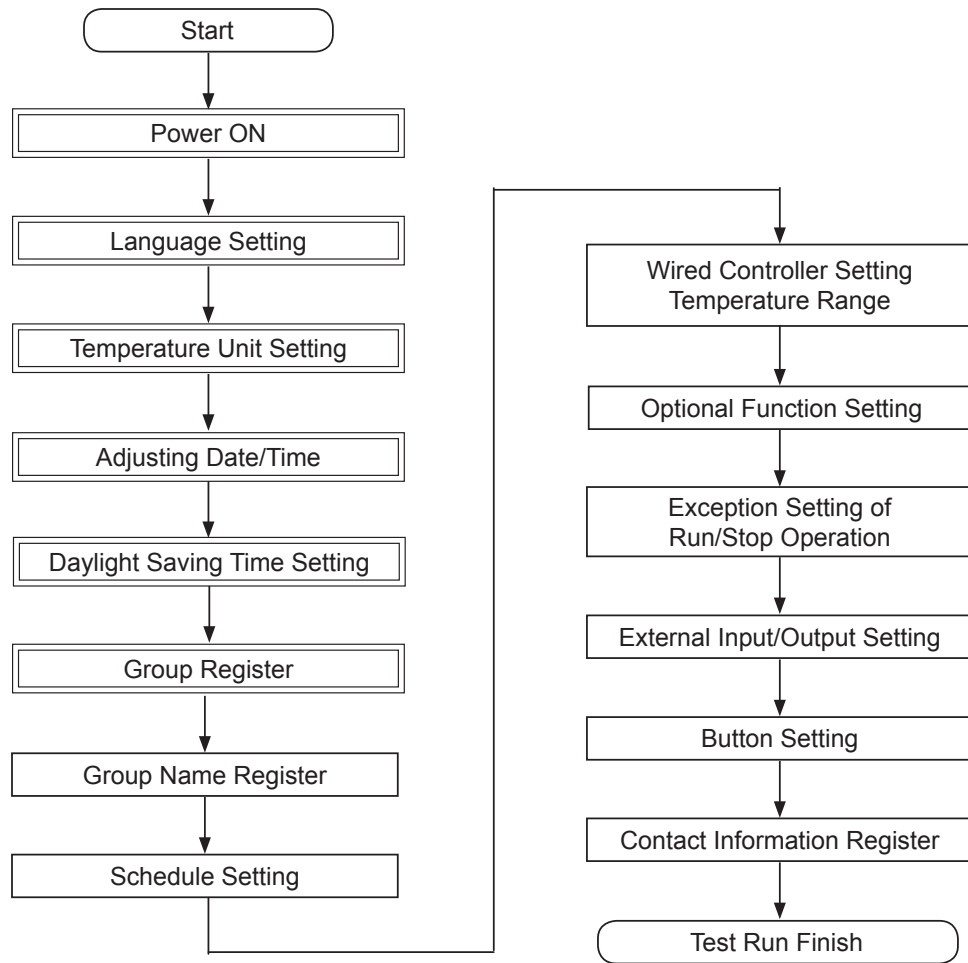
1. While the memory card icon is flickering.
 2. While the message "Recognizing Memory Card" is displayed.
 3. Immediately following "Read", "Write", or "Yes" messages after reading or writing data; (Immediately after the "Read" "Write" operation and the "Yes" buttons under the item 10.9.2.)
- When carrying or storing the memory card, do NOT leave it where static or electronic noise can be directly radiated to memory card. If affected, it may ruin the data on the memory card.
 - It is recommended that you back up important data to other storage media regularly. Hitachi or York cannot be held responsible for loss of data due to a damaged memory card.



DO NOT insert into this slot any memory card other than the specified memory card. Doing so may lead to failure of the unit, electric shock, or fire.

6.9.10 Test Run Procedures

The procedures for the test run are shown below.
Those procedures displayed within a dual border “” are required items.



6.9.10.1 List of Features and Functions

| Feature | Function |
|--|---|
| Language Setting | This function is used for language selection. |
| Temperature Unit Setting | This function is used for changing the temperature unit. |
| Adjusting Date/Time | This function is used for adjusting the date and time. |
| Daylight Saving Time Setting | This function is used for setting daylight savings time operations. |
| Group Register | The connected indoor units are checked by the large central controller in the same H-LINK. This function is used for the group or block registration of them. |
| Main Unit Register | This function is used for the main unit registration in each remote controlled group. (There is one main unit for each remote controlled group.) A control command is sent from the large central controller to the main unit for the remote control group. |
| Sub Unit Register | This function is used for registration of the sub units except the main unit in the same remote control group. If using wired controllers or the receiver kits in the following scenario, sub units are registered automatically by the large central controller after the main unit registration. <ul style="list-style-type: none"> • IR Receiver Kit |
| Display List of Registers | Displays the addresses for the indoor units which were registered in each group. |
| Group Name Register | This function is used for registering names of blocks and groups. The registrable number of letters are maximum of 20 letters for the name of each block or group. The name can also be copied. If the group/block is registered without a name, it will be registered as "Group 1" or "Block 1" automatically. |
| Schedule Setting | This function is used for scheduled timer operation which can be set for each group or block. |
| Schedule Timer Setting | This function is used for setting the time (by the minute), "Run/Stop" and temperature (66~86°F) (19~30°C)). For weekly schedule settings, up to 10 scheduled items can be set per day. It is also possible to copy the settings information. |
| Holiday Setting | This function is used for suspending the schedule operation temporarily. The schedule operation will not be available when this function is set. This function is used for setting irregular holidays such as national holidays. |
| Schedule Timer ON/OFF Setting | "Schedule Timer OFF Setting" is used for suspending the schedule operation for the target group. The schedule operation will not be available when Schedule Timer is OFF. This function is used for a long holiday, sudden holidays, national holidays, etc. |
| Optional Function Setting | This function is used for setting and changing of the function for air conditioners and large central controllers. |
| Air Conditioner, Wired Controller Setting | Set or modify the optional function of the air conditioner and wired controller. |
| Central Controller Setting | Set or modify the operational mode or the color of the operation indicator of the central controller. |
| Exception to Setting of Run/Stop Operation | This function is used to specify an exception setting of Groups/Blocks for the "All Run/Stop" command. The All Run/Stop command will not be affected to the specified group/block. |
| External Input/Output Setting | Four external input terminals and two external output terminals are available in the large central controller. These terminals are used for "All Groups Run/Stop" and "Demand Function" operations for the connected air conditioners. The external output terminals are used for the operation signal output or alarm signal output of the air conditioners which are connected to the large central controller. |
| Button Setting | This function specifies each button to be shown/hidden. This function also includes specification/setting for "one-touch operation" or the "press and hold" operation. |
| Contact Information Register | This function is used for editing contact information registration. |

CONTROL SYSTEM

6.9.10.2 Supply Power to the Unit

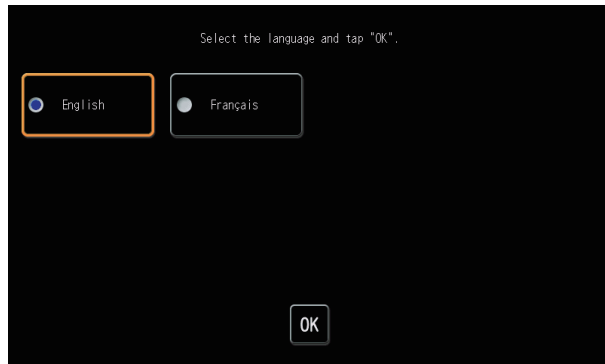
1. Apply power to the outdoor unit(s) at least 12 hours prior to operation of the system for preheating of the compressor oil.
 - Perform after the test run for each air conditioner and confirming that all the air conditioners operate normally.
2. Turn the power supply ON to the large central controller.

6.9.10.3 Language Setting

Several minutes after turning ON the power supply, the language setting screen is displayed on the touchscreen as shown at right.

(When the power supply is turned ON at the first time.)

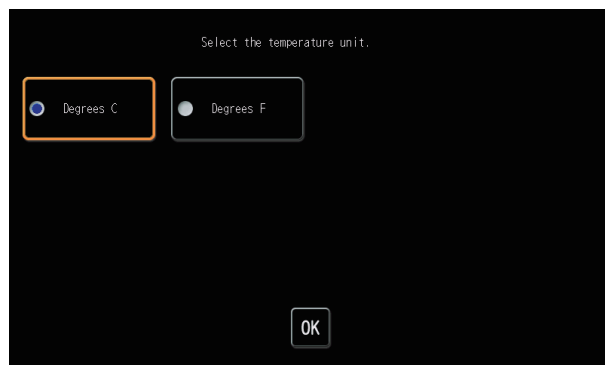
Select the appropriate language for operation and touch “OK”.



6.9.10.4 Temperature Unit Setting

After the language is set, the screen displays as shown at right.

Select the appropriate temperature unit and touch “OK”.



6.9.10.5 Adjusting Date/Time

After language setting, the “Setting Date/Time” screen is displayed on the touchscreen as shown at right.

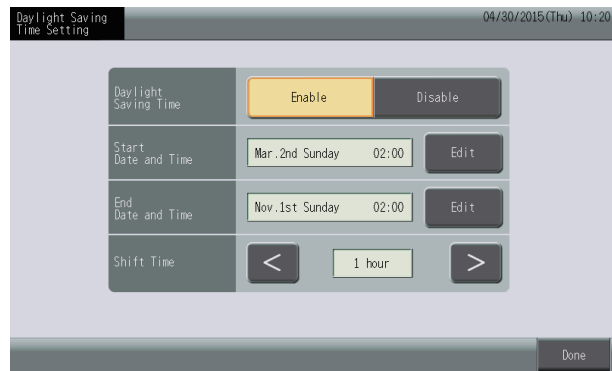
Touch “Set” on the touchscreen display, and set the date and time in accordance with designated procedure.

Refer to the Operation Manual for details.



6.9.10.6 Daylight Saving Time Setting

After the Date/Time function is set, the screen will be displayed as shown on the right. Set each time and touch “Done” in the lower right corner.

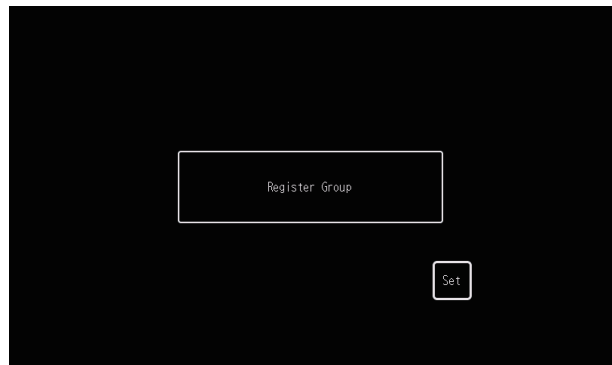


“Done” Button

6.9.10.7 Group Register

Register the indoor units confirmed for connection to the group (block) of the large central controller. Touch “Set” on the touchscreen and the Settings Screen is displayed (when the power supply is turned ON for the first time).

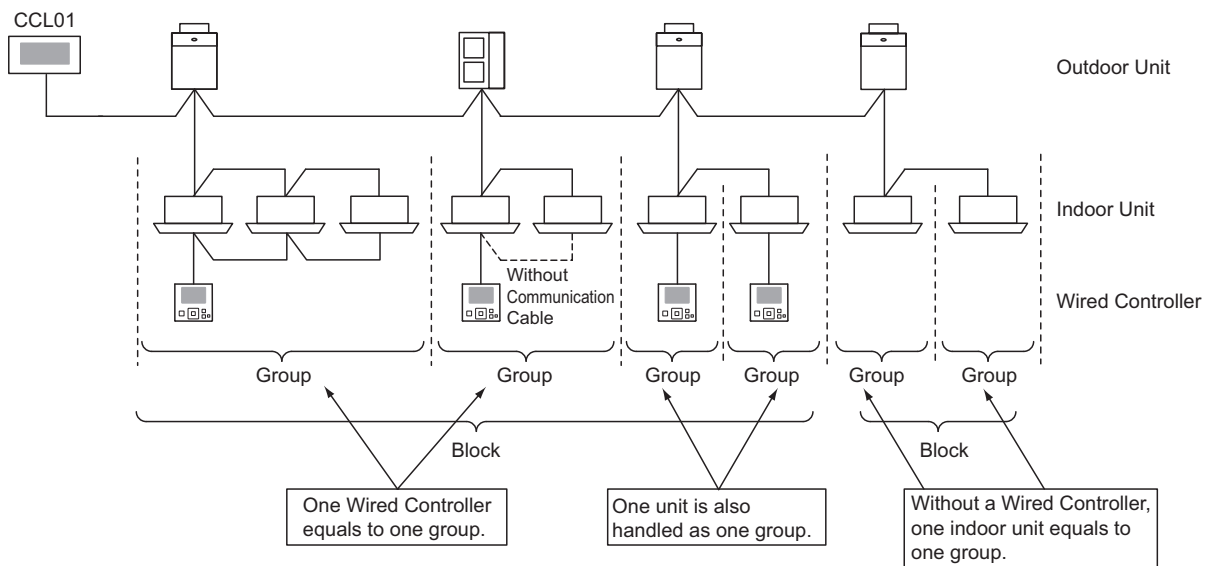
Refer to Section 6.9.11.3 for details.



CONTROL SYSTEM

[Group and Block]

- **Group (Remote Control Group):**
A group indicates the minimum number of operating units controlled by the large central controller, with multiple indoor units, with a maximum of 16 units, are connected by way of communication cables. The indoor units in the same group are controlled in the same operation with a maximum of 64 groups (4 blocks x 16 groups), controlled by a single large central controller.
- **Block:**
A block is an operation unit for a group. A maximum of 16 groups can be registered within one block. A maximum of four blocks can be controlled by the one large central controller.
- **Main Unit:**
The main unit registration is available for only one indoor unit per one group. A control command is sent from the large central controller to the main unit for the group.
- **Sub Unit:**
The sub unit is an indoor unit except the main unit in the same group. Sub units are controlled by the same operation with the main unit.



NOTICE

<Main Unit Registration>

- The main unit registration is available for only one indoor unit for one group. Thus, duplicate registration of the main unit is not possible in the same group. If the main unit registration is changed for some reason, cancel the current main unit registration, and register the main unit again.
- When the indoor unit with a fan speed of 4-touch and 3-touch are paired together in the remote control group, register as the main unit, that indoor unit equipped with a 4-touch fan speed. Note that if a 3-touch is registered as main unit, the group fan speed setting will be 3-touch only.
- When an indoor unit equipped with automatic louver swing and an indoor unit not equipped with automatic louver swing are co-mingled into the same group, do not register the indoor unit without automatic louver swing as the main unit. If it is registered as the main unit, this group cannot utilize the louver setting function.
- If a group in which the communication cabling connecting a wired controller is not used, the indoor unit without a wired controller should not be registered as the main unit.

<Sub Unit Registration>

- It is possible to register up to 15 sub units in the same remote control group with a main unit. (It is not possible to register more than 16 sub units.)
- The indoor unit not equipped with a wired controller cannot be registered as a sub unit. Always register it as a main unit only.
- If a sub unit is registered in another group, cancel the registration of target sub unit and register it again to a different group.

6.9.10.8 Registering Groups/Blocks Name

Register the names of the groups and the blocks for the registered groups.
 The registrable number of letters are a maximum of 20 for the name of the group (block).
 Set by Monitor 1 or 2 > Menu > Group Name Register.

Refer to the Operation Manual for details.

NOTICE

If you touch "Enter" at name registration, the name of the group or the block can be input in two lines using a total of 20 characters (10 characters for each line).

6.9.10.9 Schedule Operation

This function is used for the timer operation.
 It is possible to schedule a setting for a block and each group.
 Holiday settings that do not activate the schedule are also an option.
 Set by Monitor 1 or 2 > Menu > Schedule Settings.

Refer to the Operation Manual for details.

6.9.10.10 Wired Controller Temperature Setpoint Range

This function is used for restricting the temperature setpoint range of the local remote control operation.
 For RUN mode, it is possible to set a minimum cooling temperature or maximum heating temperature.
 Set by Monitor 1 or 2 > Menu > Setting Temp. range of the remote control.

Refer to the Operation Manual for details.

6.9.10.11 Optional Function Setting

This display is used for setting and changing the function selection for an air conditioner and a large central controller in the following table.
 Set by Monitor 1 or 2 > Menu > Service Menu > Optional Function Setting.

Refer to Section 6.9.11.4 for details.

| Function | | Description |
|---|------------------------------|---|
| Air Conditioner; Wired Controller Setting | Setting Operational Mode | Touch "Enable" in "Setting Operation Mode" to set the present operational mode. Operation mode is established as the present setting which cannot be changed from the wired controller and the large central controller. |
| | Setting Temperature Setpoint | Touch "Enable" of "Setting Temperature Setpoint" to set the present set temperature. The setting temperature is established as the present setting and which cannot be changed from the wired controller or the large central controller. |
| | Cooling Only | Touch "Enable" of "Cooling Only" to fix the operation mode as cooling. This function is used for heat pump models which can be operated such as the cooling only models. The operational modes "HEAT" and "AUTO" cannot be selected from the wired controller or the large central controller. |
| | Auto | Touch "Enable" in "Auto" to access and utilize the cooling/heating automatic operation. It is possible to set this mode from the wired controller and the large central controller. However, in the following cases, "AUTO" can no longer be selected: <ul style="list-style-type: none"> • Connected to the model of Cooling Only. • The function "Cooling Only" is enabled. |
| | Setting Fan Speed | Touch "Enable" in "Setting Fan Speed" to set fan speed. Fan speed set to the present setting by the wired controller and the large central controller cannot be changed. |

CONTROL SYSTEM

| | | |
|----------------------------|--|---|
| Central Controller Setting | Control Mode | <p>This function is used for changing the control mode for the large central controller.</p> <p>When setting this function, touch “All Groups” as the target group, and select the control mode from “Normal” or “Run/Stop Only”.</p> <ul style="list-style-type: none"> • Normal: “Setting” is displayed when tapping the group button. This mode is the factory setting which normal setting is available by each group. • Run/Stop Only: The control mode at “Monitor 1 or 2” is changed to only “Run and Stop” by each group. |
| | Operation Indicator | <p>It is possible to set this indicator in green or red.</p> <p>When an error occurs, this indicator will flash ON and OFF in red, regardless of the setting.</p> |
| | All Groups Display Automatic Switch | <p>Touch “Enable” to start from the “All Groups” display when initiating the operation.</p> <p>On the Block display screen, if a controller does not start within a given amount of time, the screen automatically switches to “All Groups” display.</p> |
| | Remote Control Switch (RCS) Operation Prohibited to Set OFF Time | <p>Touch “Enable” to set “Prohibited Remote Control Operation (All items)” and “Stop” simultaneously during the “OFF time” phase.</p> <p>At this time, the “Prohibited Remote Control Operation (All items)” command is cancelled and a “Run” command will not be sent.</p> <p>This function is not an option when setting the “Prohibited Remote Control Operation (By item)”. Touch “Disable”.</p> |
| | Display Graph for Numerical Values | <p>Touch “Disable” to display the graph for Operation Time or the Thermo-ON Time (without a numerical value displayed).</p> |
| | Thermo-ON Time Display | <p>Touch “Enable” to display the Thermo-ON Time in the Operation Time display.</p> |

NOTICE

- “Optional Function Setting” information is set to the group by the large central controller. Check the setting from the wired controller in the same group. If this setting is not displayed, set the same information by the wired controller. In the same way, “Optional Function Setting” information such as “Setting Operation Mode”, “Setting Temperature Setpoint”, “Cooling Only”, “Fixing Fan Speed”, or “Auto” are set to the group by the wired controller. Check the setting from the large central controller. If this setting is not displayed, reset this same information at the large central controller.
- Demand of the operation mode fixed of optional function setting and external input/output setting: the group which set both of the operation mode shift will stop regardless the operation mode when the demand signal is ON.
- When the power ON/OFF (d1, d3) of the optional function is set, DO NOT set the “Prohibit” on of the remote control operation. If the operation of the local remote control is not restricted when using the power ON/OFF, DO NOT use the lock function of the local remote control.

6.9.10.12 Exception to Setting of Run/Stop Operation

This function is used as an exception to the command: “All Groups Run/Stop” and “Run/Stop by Block” operations for those selected Groups or Blocks.

Selecting Exception Settings for the Run/Stop Operation (All Groups/Block) are available as follows.

- Run and Stop
- Run
- Stop

Set by Monitor 1 or 2 > Menu > Service Menu > Exception Setting Run/Stop Operation.

Refer to Section 6.9.11.5 for details.

NOTICE

- None of the “All Run/Stop” and “Run/Stop by Block” commands will be affected when they are set to the groups/blocks. However, these commands are accepted as follows even if this function is set.
 - Scheduled Timer Operation
 - “All Run/Stop” and “Run/Stop by Block” by External Input command
- The “Run/Stop” operation is available when the group is selected individually.

6.9.10.13 External Input/Output Setting

The external input/output of each of two terminals are optional.

Their assigned functions are shown below.

Set by Monitor 1 or 2 > Menu > Service Menu > External Input/Output Setting.

Refer to Section 6.9.11.6 for details.

| Input and Output | Connection | Function | |
|------------------|-------------|-------------------------------|---------------------------------|
| Input 1 | TB3 1-5 Pin | *All Run/Stop (Level) | *Emergency Stop (Level) |
| Input 2 | TB3 2-5 Pin | *All Run (Pulse) | *Demand Function (Input 1 only) |
| Input 3 | TB3 3-5 Pin | *All Stop (Pulse) | *No Setting (Factory Setting) |
| Input 4 | TB3 4-5 Pin | | |
| Output 1 | TB3 6-8 Pin | *All Run | |
| Output 2 | TB3 7-8 Pin | *All Alarm | |
| | | *No Setting (Factory Setting) | |

■ External Input Function

1. All Run/Stop (Level)
All groups simultaneously execute the Run/Stop operation by way of the external input signal.
2. All Run (Pulse)
All groups simultaneously execute the Run operation by way of an external input signal.
3. All Stop (Pulse)
All groups simultaneously Stop operation by the external pulse signal input
4. Emergency Stop (Level)
All groups simultaneously execute the Stop operation by way of an external emergency stop signal. While “Emergency Stop” is performed, the wired controller LCD displays “Central Control” and the operation can not be controlled from the wired controller.
 - When in use with other large central controllers, the “Run/Stop” operation is available from other large central controllers even if it is during an emergency stop.
 - Do not set Emergency Stop when using simultaneously with other central controllers.

CONTROL SYSTEM

5. Demand Control Function

At peak demand, electrical consumption is reduced by the external demand control signal.

Only input terminal 1 is now available from the external demand signal.

The operation mode of a selected group will be changed by the demand signal as follows:

| | Demand Signal ON (*1) | Demand Signal OFF (*2) |
|--|---|---|
| Stop (2) (See list below) | Indoor Unit Operation Stop with RCS Operation Prohibited Mode | The operating condition returns to previous status. (3) |
| Run Mode Shift (2) (4) | Cooling or Dry Operation ↓ Fan Operation with RCS Operation Prohibited Mode Heat Operation ↓ Operation Stop with RCS Operation Prohibited Mode | |
| Outdoor Unit Capacity Control (5) (6) (7) | Control the value of outdoor unit capacity in the setting value. (Setting value: 100/90/80/70/60/50/40/0%). | Cancel the capacity control. |

1. Do not set "STOP" or "Run Mode Shift" when used simultaneously with another central controller. When setting outdoor unit capacity control, set one of the central controllers but do not set the others.
2. Setting is only possible for Stop or Run Mode Shift. It is not possible to set multiple contacts.
3. The target group: "Demand Function" is controlled, starting from a small, numbered group at intervals of 15 seconds.
4. It will stop, regardless of the operating mode as in Auto or when the "Operating Mode Fixed" in the optional function setting is enabled.
5. Outdoor unit capacity control can be set to multiple contacts. When there is a signal input in multiple contacts, the control with the highest contact will be done in the order of priority as follows: (Input 1 > Input 2 > Input 3 > Input 4).
6. The control target is only the outdoor unit corresponding to the outdoor unit capacity control. Because the outdoor unit like compliant/non-compliant or settings available to capacity value may be different, contact your distributor for detailed information.
7. It is possible to control by way of a schedule without having to use demand control.

■ External Output Function

1. All Run Output

External output for indoor unit operation signal in the target group:

The operational output signal displays, even if only one indoor unit in the target group is in operation.

2. External Output Alarm

External output alarm signal for indoor unit in the target group

The alarm signal outputs even if one indoor unit abnormality occurs in the target group.

■ External Input/Output Terminals Specification

Input Terminal: The non-voltage contact (normally open) for the demand signal Input 12VDC, 10mA

Switching the contact is optional.

Pulse width is 300ms or more for pulse signal input.

Output Terminal: Contact (voltage is applied) for signal Output 12VDC

NOTE: Recommended Relay: MY Relay manufactured by Omron Corporation
(Do not use a diode built-in type.)

6.9.10.14 Button Setting

The operating button indicator selection

The operating button can be selected to show or hide restricting operations.

Set by: Monitor 1 or 2 > Menu > Service Menu > Button Setting.

Refer to Section 6.9.11.7 for details.

6.9.10.15 Contact Information Register

The contact information editing or registering for “Contact Information” function:

Set by: Monitor 1 or 2 > Menu > Service Menu > Contact Information Register.

Refer to Section 6.9.11.8 for details.

6.9.10.16 Alarm History

The alarm history record of the air conditioner unit and the large central controller:

The time of alarm occurrence, suspect unit and alarm code information are recorded, and the alarm history record can be initiated using this function.

Set by Monitor 1 or 2 > Menu > Service Menu > Alarm History.

Refer to Section 6.9.11.13 for details.

6.9.11 Service Menu

Service Menu functions and detailed information are described as follows.

- Group Register
- Optional Function Setting
- Exception Setting of Run/Stop Operation
- External Input/Output Setting
- Exception External Input
- Demand Function Setting
- Button Setting
- Contact Information Register
- Restore Setting
- Checking Connection
- Alarm History

| Function | Information |
|---|---|
| Group Register | The connected indoor units are verified by the large central controller within the same H-LINK. This function is used for group or block registration of these units. |
| Main Unit Register | This function is used for the main unit registration in the each remote control group. (The main unit is the only one in the one remote control group.) A control command is sent from the large central controller to the main unit for the remote control group. |
| Sub Unit Register | This function is used for registration of sub units except for the main unit within the same remote control group. When using the wired controllers or the receiver kits as follows; sub units are registered automatically by the large central controller after main unit registration. <ul style="list-style-type: none"> ● IR Receiver Kit |
| Display List of Registers | Displays the address of the indoor units which were registered in each group. |
| Optional Function Setting | This function is used for setting and changing of the optional functions for the air conditioners and the large central controllers. |
| Air Conditioner, Wired Controller Setting | Set or modify the optional function of the air conditioner and wired controller. |
| Central Controller Setting | Set or modify the operational mode or color of the operational display indicator for the central controller. |
| Exception Setting of Run/Stop Operation | This function is used to specify exceptional Groups/Blocks for All Run/Stop command. <ul style="list-style-type: none"> ● The All Run/Stop command will not affected specified groups/blocks. |
| External Input/Output Setting | The central controller has four external input terminals and two external output terminals. These terminals are used for "All Groups Run/Stop" and "Demand Function" operations for connected air conditioners. The external output terminals are used for the operation signal output of the air conditioner units connected to the large central controller. |
| Button Setting | This function specifies each button to be shown/hidden. This function also includes specification/setting for "one-touch operation" or the "press and hold" operation. |
| Contact Information Register | This function is used for editing the contents of contact information registration. |
| Memory Card | Save or restore the setting of each group/block from the controller using the memory card. |
| Write to the Memory Card | Save the data "Group Name" "Schedule" "Contact Information" and "Memo" on the memory card. |
| Read from the Memory Card | Restore the data for "Group Name", "Schedule", "Contact Information", and "Memo" from the memory card. |
| Memo | Record and browse through Test Run and Maintenance information. |
| Restore Setting | This function is used for restoring all the settings such as registered Groups (Blocks) and schedules. |
| Checking Connection | This function is used for checking those connected indoor unit numbers within the same H-LINK. When this function is used, the confirmation for saving registered information such as the group names, schedules, and so forth is indicated. Touch "OK" and those connected indoor unit numbers are updated with registered information. Touch "Cancel" and the setting for the large central controller is all restored. |
| Alarm History | This function, when activated, displays the complete alarm history of this air conditioner unit and the controller (maximum of 100 records). |

6.9.11.1 Display of Service Menu Screen

The diagram illustrates the steps to access the Service Menu:

- Touch "Menu" on the "Monitor 1" or "Monitor 2" screen.
- The "Menu" screen is displayed.
- Press and hold "Service Menu" for at least three seconds. The "Service Menu" screen is displayed.
- Select the service menu function by touching each function button. The settings screen of selected function will be displayed.

NOTICE

Depending on the operating condition of the air conditioner unit and the central controller, the following items cannot be selected. The number in parenthesis indicates the circumstances listed below.

- Group Register (1)
- A/C Unit and Wired Controller Setting (Optional Function Setting) (2)
- External Input/Output Setting (1) (2)
- Memory Card (3)
- Restore Setting (1) (4) (5)
- Checking Connection (1) (2)
 1. When the external Input signal is ON.
 2. When an air conditioner unit is operating.
 3. When a memory card is not inserted.
 4. When an air conditioner unit wired controller is restricted. (Without wired controller not included.)
 5. When an outdoor unit is operating at capacity control.

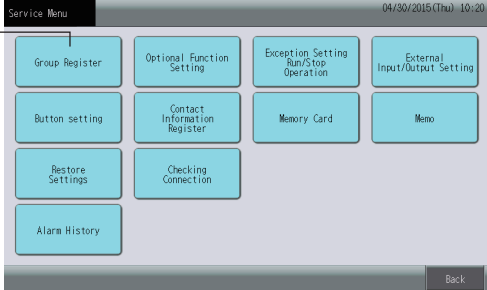
6.9.11.2 Exit Service Menu Screen

1. Touch "Back" on "Service Menu" to return to the "Menu" screen.

2. Touch "Back" to return to the "Monitor 1 (All Groups)" or "Monitor 2 (Block)" screen.


6.9.11.3 Group Register

6.9.11.3.1 How to Register Group (Main Unit)



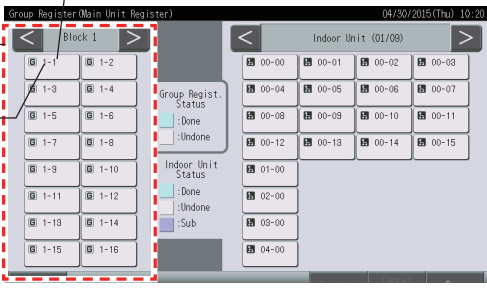
1

▼



2

▼



3

Block No.

Group No.

▼

Continue on to Next Page

1. Select "Group Register" on the "Service Menu" screen.

NOTE:
This function cannot be selected when the external input signal is input to external input terminal 1 or 2.

2. Select "Main Unit Register" on the "Group Register" screen.
3. Select a group for main unit to register.
 - When touching "<" or ">" at the upper left of the touchscreen, the block display is switched.
 - The information for Block No. and Group number is indicated on the button as "Block No. - Group Name".
 - Select the group button by touch. The selected button is trimmed with an orange outline. If the selected group button is touched again, the group selection is cancelled.

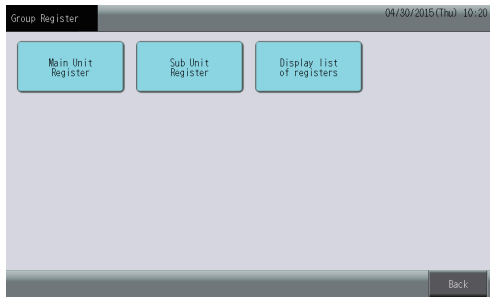
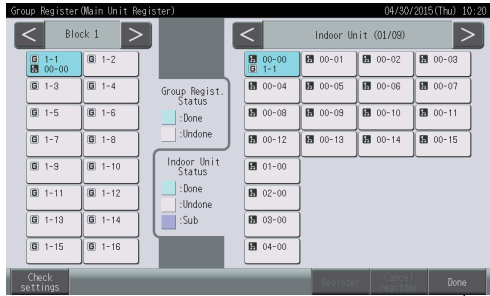
Continue on to Next Page

4. Select the indoor unit for "Main Unit Register".
 - Touch "<" or ">" at the upper right of the touchscreen, to switch the indoor unit display.
 - Information on the system number and indoor unit addresses are indicated on the Indoor Unit button as "Refrigerant Cycle No. - Indoor Unit Address".
 - Select the Indoor Unit button by touch. The selected button is trimmed with orange outline. If the selected button is touched again, the indoor unit selection is cancelled.
 - The indoor unit that is already registered as the main unit cannot be selected. (The button color is blue.)
- < About the Indoor Unit Selecting >
- The indoor unit which letters are (red) cannot be registered as the main unit. In this case, the indoor unit is registered as the sub unit automatically.
 - When the indoor unit with a fan speed of 4-touch and 3-touch are co-mingled into the same remote control group, register as the main unit, the indoor unit with a 4-touch fan speed.
 - When the indoor units such as "with auto louver function" and "without auto louver function" are both installed within the same H-LINK, register the indoor unit "with the auto louver function" as the main unit. If the unit "without auto louver function" is registered as the main unit, the auto louver function is lost and cannot be used in this H-LINK. (This applies to the other functions.)
5. Touch "Register" at the bottom of the touchscreen to register the main unit when the group and indoor unit are selected.
 - If the group and indoor unit for the main unit are not selected, the "Register" indication is grayed-out and cannot be touched.
 - The button color of the registered group and indoor unit change to blue and the information is indicated in the buttons shown below.
- < Group Button >
- Block No. Group No.

Main Unit I.U. Address

Ref. Cycle No. I.U. Address
- < Indoor Unit Button >
- Ref. Cycle No. I.U. Address

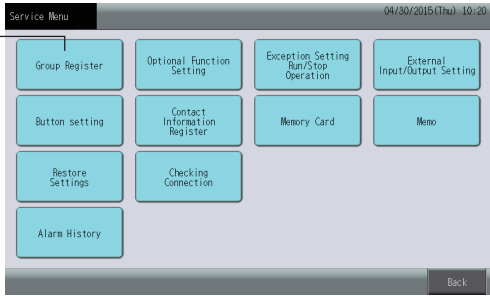
Block No. Group No.
- Proceed with the main unit registration depending on the next setting.
- Continue "Main Unit Register"(step 3).
 - Exit "Main Unit Register" (step 6).



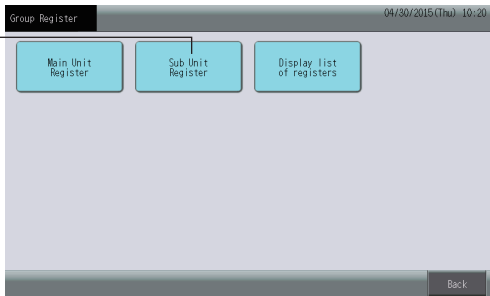
6. Touch "Done" on "Group Register (Main Unit Register)" to return to the "Group Register" screen.

7. Touch "Back" on "Group Register" to return to the "Service Menu" screen.

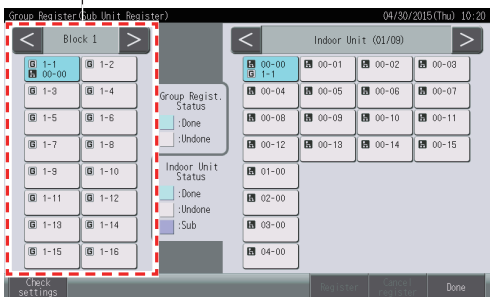
6.9.11.3.2 How to Register Groups: (Sub Unit)



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Continue on to Next Page

1. Select "Group Register" on the "Service Menu" screen.

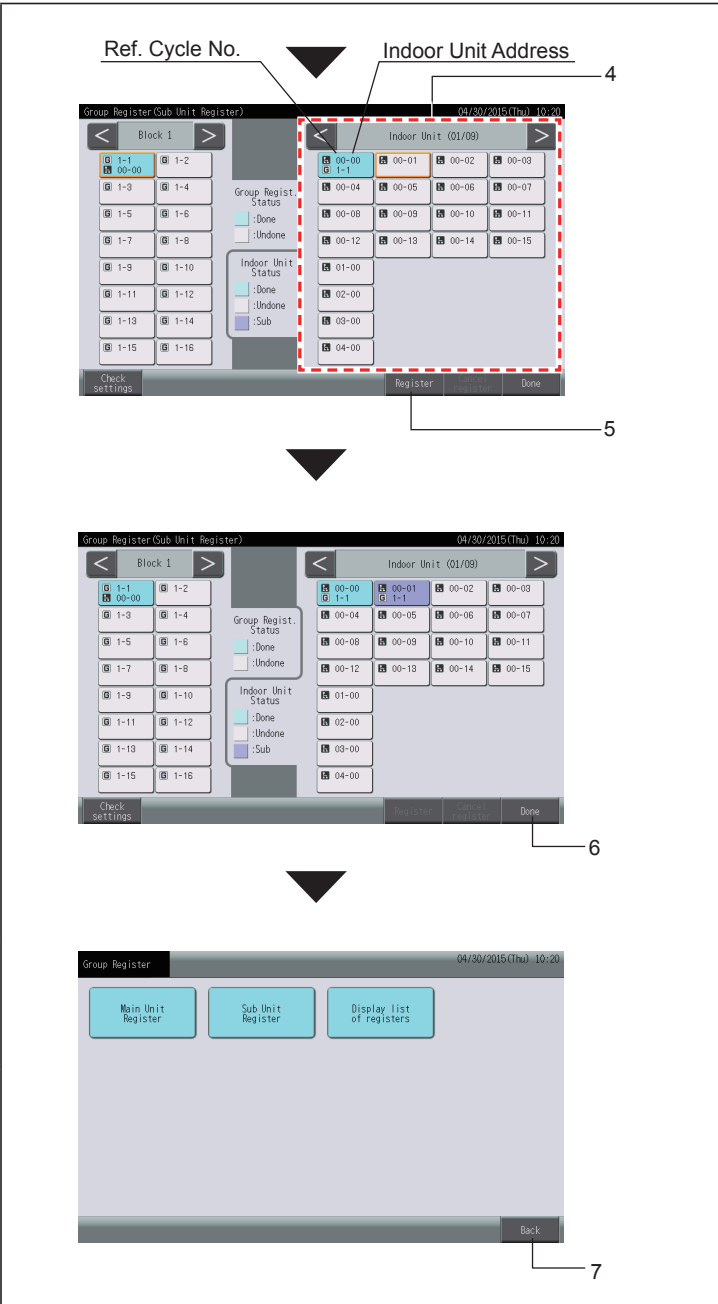
NOTE:
This function cannot be selected when the external input signal is input to the external input terminal 1 or 2.

2. Select the "Sub Unit Register" button on the "Group Register" screen.

3. Select the group for the "Sub Units Register".

- Touch "<" or ">" at the upper left of the touchscreen to switch the block display.
- Touch to select the group button. The selected button is trimmed in an orange outline.
- Touched the selected group button again and the selection will be canceled.

NOTE:
A white colored button indicates that the unit has not been registered, therefore it cannot be selected.



4. Select the indoor unit from the "Sub Unit Register".
 - Touch "<" or ">" at the upper right of the touchscreen to change the display of indoor units.
 - The information for the refrigerant cycle number and indoor unit address are indicated on the indoor unit button as: "Refrigerant Cycle No. - Indoor Unit Address".
 - Select the indoor unit button by touch. The selected button is trimmed with an orange outline. Touch the selected button again, and the indoor unit selection is cancelled.
 - The indoor unit that is already registered as main unit cannot be selected. (The button color is blue.)
 5. Touch "Register" to register the sub units when group and indoor units are selected.
 - If the group and indoor units for the sub units are not selected, the "Register" field is grayed-out which cannot be touched.
 - The button color of the registered group and indoor unit are changed to purple.
- Proceed with sub unit registration, depending on the setting afterwards.
- Continue "Sub Unit Register" (step 3).
 - Exit "Sub Unit Register"(step 6).
6. Touch "Done" on the "Group Register (Sub Unit Register)" to return to the "Group Register" screen.
 7. Touch "Back" to return to the "Service Menu" screen.

NOTICE

It is possible to register up to 15 sub units in the same remote control group with the main unit. (It is not possible to register more than 16 sub units.) The indoor unit without a wired controller cannot be registered as a sub unit.

6.9.11.3.3 How to Unregister Group

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1. Select "Group Register" on the "Service Menu" screen. Refer to item 6.9.11.3.1 (1).

NOTE:
This function cannot be selected when the external input signal is connected to external input at terminal 1 or terminal 2.

2. Select "Main Unit Register (or Sub Unit Register)" on the "Group Register" screen.
3. Select a registered group to cancel.
 - Touch "<" or ">" at upper left of the touchscreen and the block selection is switched.
 - Select the group button by touch and the selected button is trimmed with an orange outline.
 - Touch the selected group button again and the group selection will be cancelled.
4. Touch "Cancel Register" and a registered group is now unregistered. The button color for this group and the indoor unit change to white.
 - Touch "Unregister" on the "Main Unit Register" screen and the main unit and associated sub units are now unregistered.
 - Touch "Unregister" on the "Sub Unit Register" screen and sub units are now unregistered.

Proceeding on to the next step to unregister, the group provides the following options:

 - Continue Unregister; Group Register (step 3)
 - Exit Unregister; Group Register (step 5)
5. Touch "Done" to return to the "Group Register" screen.
6. Touch "Back" on the "Group Register" to return to "Service Menu" screen.

6.9.11.3.4 How to Check Group Register (Check of Registration Details)

Group Register 04/30/2015(Thu) 10:20

Main Unit Register Sub Unit Register Display list of registers

Back

2

▼

Display list of registers 04/30/2015(Thu) 10:20

| All Groups | Block 1 | Block 2 | Block 3 | Block 4 |
|------------------------|---------|---------|---------|---------|
| (G1-1) Block 1 Group 1 | 00-00 | 00-01 | 00-02 | 00-03 |
| (G1-2) Block 1 Group 2 | 01-00 | | | |
| (G1-3) Block 1 Group 3 | 02-00 | | | |
| (G1-4) Block 1 Group 4 | 03-00 | | | |
| (G1-5) Block 1 Group 5 | 04-00 | | | |
| (G1-6) Block 1 Group 6 | 05-00 | | | |
| (G1-7) Block 1 Group 7 | 06-00 | | | |
| (G1-8) Block 1 Group 8 | 07-00 | | | |

01/04

Done

3

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Group Register 04/30/2015(Thu) 10:20

Main Unit Register Sub Unit Register Display list of registers

Back

6

1. Select "Group Register" on the Service Menu screen. (Refer to Section 6.9.11.3.1.)
NOTE:
This function cannot be selected when the external input signal is ON.
2. Select "Display list of registers" on the Group Register screen.
3. Select the target to display (All Groups/Blocks).
4. All the Refrigerant system addresses for the indoor unit, registered in each group, are displayed:
Black : Main Unit
Others : Sub Unit
• Change the screen by touching on "△" or "▽".
5. Touch "Done" to return to the Group Register screen.
6. Touch "Back" to return to the Service Menu screen.

6.9.11.4 Optional Function Setting

6.9.11.4.1 Air Conditioner/Remote Control Setting

The screenshots show the following sequence:

- Service Menu:** A grid of options including 'Optional Function Setting', 'Exception Setting', 'External Input/Output Setting', 'Button setting', 'Contact Information Register', 'Memory Card', 'Memo', 'Restore Settings', 'Checking Connection', and 'Alarm History'. A 'Back' button is at the bottom right.
- Optional Function Setting:** Two options: 'Aircon remote setting' and 'Controller setting'. A 'Back' button is at the bottom right.
- Aircon remote setting:** A grid of blocks (Block 1 to Block 4) and groups (Group 1 to Group 16). A red dashed box highlights the 'All Groups' button at the bottom. A 'Back' button is at the bottom right.
- Aircon remote setting Group 1:** A list of settings for Group 1: 'Fixing Operation Mode', 'Fixing Setting Temperature', 'Cooling Only', 'Auto', and 'Fixing Fan Speed'. Each setting has 'Enable' and 'Disab.' buttons. A red dashed box highlights these settings. 'Back' and 'Done' buttons are at the bottom.

1. Select "Optional Function Setting" on the "Service Menu" screen.

2. Select "Aircon remote setting" on the Menu screen.

NOTE:
This function cannot be selected while air conditioners are operating.

3. Select the target groups or block for "Optional Function Setting". Touch "All Groups", "Block", or "Group".

- Select "All Groups" for optional function settings when the following item settings are changed:
- Operation mode
- Display of Accumulated Operating Time

4. Select "Enable" or "Disable" for the each function.

- The button color of any selected function changes to yellow with an orange outline.

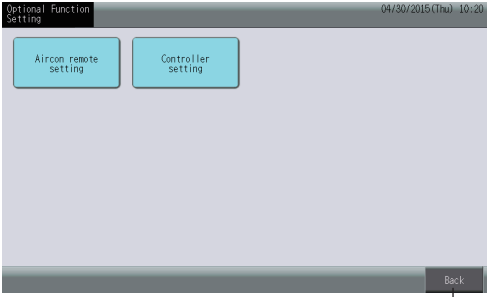
Proceeding to the next step provides the following options:

- Set the optional function of other group; step (4).
- Exit the optional function setting; step (5).

5. Touch "Back" to return to the "Optional Function Setting" screen. Repeat steps (2) and (3) to set an "Optional Function Setting".

6. Touch "Done" to return to "Optional Function Setting" Menu screen.

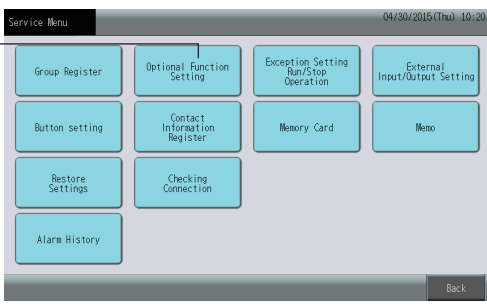
Continue on to Next Page



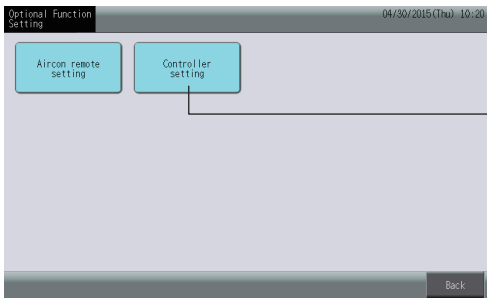
The screenshot shows a touch-screen interface for 'Optional Function Setting'. At the top, there is a status bar with 'Optional Function Setting' on the left and '04/20/2015 (Thu) 10:20' on the right. Below the status bar, there are two light blue buttons: 'Aircon remote setting' and 'Controller setting'. At the bottom right of the screen, there is a dark grey button labeled 'Back'. A white line points from the number '7' to the 'Back' button.

- 7. Touch "Back" to finish this setting. The screen returns to the "Service Menu" screen.

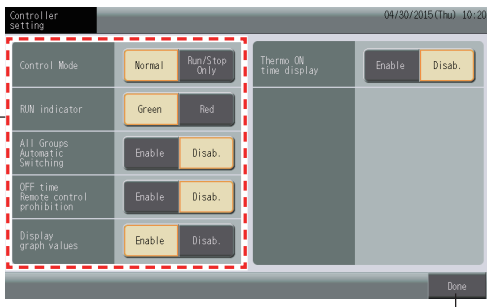
6.9.11.4.2 Setting Related to Central Controller




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1. Select "Optional Function Setting" on the screen of "Service Menu".

2. Select "Controller Setting" on the "Optional Function Setting" screen.

3. Select "Enable" or "Disab." for each function.
 - The button color of any selected function changes to yellow with orange outline.

<Concerning the OFF time Remote control Prohibition setting>

 - When set to "Enable", the Remote Operation Prohibited (by item), cannot be set. The Remote Operation Prohibited (all items), can be set. However, do NOT set the "Remote Operation Prohibited" (all items), when operating simultaneously with other controllers.
 - When all groups show only "Remote Operation Permitted" (all items), it is possible to change "Enable" ↔ "Disab.".

4. Touch "Done" to return to "Optional Function Setting" Menu screen.

NOTE:
When switching between "Enable" ↔ "Disab." on the OFF time Remote prohibition setting, touch "Setting completed" and the confirmation screen will be displayed. Touch: "OK" to restart.

5. Touch "Back" to finish this setting. The screen returns to the "Service Menu".

6.9.11.5 Exception Setting of Run/Stop Operation

The diagram illustrates the process of setting Run/Stop exceptions through three sequential screens:

- Service Menu:** The user selects "Exception Setting Run/Stop Operation" from the menu. The screen also includes options like Group Register, Optional Function Setting, External Input/Output Setting, Button setting, Contact Information Register, Memory Card, Memo, Restore Settings, Checking Connection, and Alarm History.
- Exception Set. Run/Stop Oper.:** The user selects the "Run and Stop" button, which is highlighted with an orange border. Other buttons shown are "Run" and "Stop".
- Exception of Run/Stop Op.:** The user selects specific groups and blocks. The screen displays a grid with columns for Block 1, Block 2, Block 3, and Block 4, and rows for Group 1 through Group 16. Checkmarks are visible in the "Group 1" and "Group 2" columns of Block 1 and Block 2.

1. Select "Exception Setting Run/Stop Operation" on the "Service Menu" screen.
2. Select the operation button for exception.
 - The selected button is trimmed with an orange outline.

NOTE:
None of the operation buttons have factory settings.
3. Touch "Next".

NOTE:
When the exception operation is not set, "Next" cannot be selected.
4. Select the exception operation target (group/block).
 - Touch the Group button to switch back and forth between "Select" ↔ "Cancel".
 - Touch the Block button to switch back and forth between "Select" ↔ "Cancel" of all groups in a block.
 - A checkmark symbol "✓" will be displayed on the selected group.
5. Touch "Done" to end the Exception Setting of the Run/Stop Operation and return to the "Service Menu" screen.

6.9.11.6 External Input/Output Setting

6.9.11.6.1 External Input Setting

1. Select "External Input/Output Setting" on the "Service Menu" screen.

NOTE:
When the air conditioner is operating, or when the external input signal contact light is ON, this cannot be selected.

2. Select the input target (from Input options 1 to 4) for the external input.

3. Select the function using external input.

- The selected function button changes color.

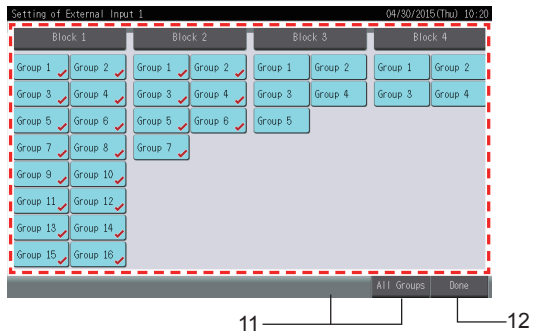
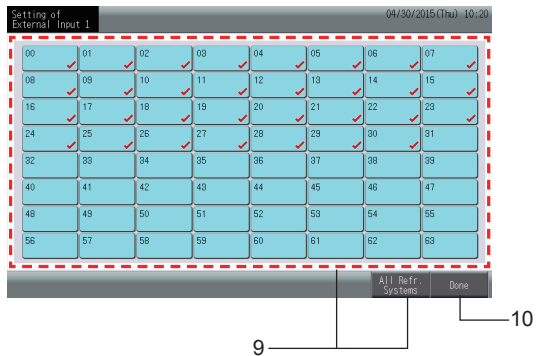
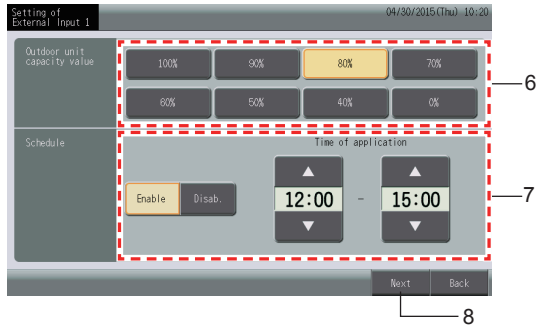
4. Touch "Next" and proceed, according to the steps below when selecting a function.

- If "No Settings" is selected, go to step (5).
- If "Outdoor unit Capacity Control" is selected, go to step (6).
- If other than those above, go to step (11).

<No Setting>

5. Return to the External Input/Output Setting screen. Touch "Back" to end the External Input/Output Setting and return to the "Service Menu" screen.

Continue on to Next Page



<Outdoor Unit Capacity Control>

6. Select the outdoor unit capacity value.
 - The selected capacity value button changes color.
7. Control capacity value can be selected in the central station schedule without using contact point. In the schedule, select Enable and the applicable time.
 - Select "Enable" or "Disab."
 - Touch "Δ" or "▽" to set the applicable starting time and ending time. The time adjusts for each 30 minutes.

NOTE:
When the ending time is earlier than the starting time, the ending time will continue until the next day. For example: Starting Time 15:00 Ending Time 08:00. Capacity control will start at 15:00 and will end the next day at 08:00.

8. Touch "Next".
9. Select the capacity control target (refrigerant system).
 - The button of the refrigerant system number of the registered outdoor unit will be indicated in blue.
 - The button of the system number of the unregistered outdoor unit will be displayed in white. This refrigerant system cannot be selected.
 - Touch the refrigerant system number button to change between "Select" ↔ "Cancel".
 - Touch "All Refr. Systems" to change "Select" ↔ "Cancel" of all refrigerant system.
 - A checkmark "✓" will be displayed in the number of the selected refrigerants.
10. Touch "Done" to return to the External Input/Output Setting screen.

<Other Settings>

11. Select the External Input Control target (All Groups/Block/Group).
 - Touch a Group button to switch between "Select" ↔ "Cancel".
 - Touch a Block button to switch between "Select" ↔ "Cancel" for all Groups in the Block.
 - Touch "All Groups" to switch between "Select" ↔ "Cancel" for all Groups.
 - A checkmark "✓" will be displayed in the selected Group.
12. Touch "Done" to return to the External Input/Output Setting screen.

6.9.11.6.2 External Output Setting

1. Select "External Input/Output Setting" from the "Service Menu" screen.

NOTE:
When the air conditioner is operating, or when the external input signal contact is ON, this cannot be selected.

2. Select the Output target of the External Output (Output 1, Output 2).

3. Select the function used in External Input.

- The selected function button changes color.

4. Touch "Done" to return to the External Input/Output Setting screen.

5. Touch "Back" to exit the External Input/Output Setting and return to the "Service Menu" screen.

6.9.11.7 Button Setting

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1. Select "Button setting" on the "Service Menu" screen.
2. Select "Show" or "Hide" for the operating button indication of each function. The selected button color is changed.
3. Touch "Done" to finish this setting. The screen is returned to "Service Menu".

6.9.11.8 Contact Information Register

1. Select "Contact Information Register" on the "Service Menu" screen.
2. Select "Contact Information 1(or 2)", "Name Edition" or "Contact Information 1(or 2) TEL. No. Edition" to register the information.
3. Select the type of characters from "Upper Case", "Lower Case", "Symbol 1", and "Symbol 2".

NOTE:
Only numbers and symbols can be used for "Contact Information 1(or 2) TEL. No. Edition".
4. Input the information.
Enter up to a maximum of 50 characters. Touch "Delete" to erase a character on the left side of the cursor.
5. Touch "Close" to finish.
The screen is returned to "Contact Information Register".
6. Proceed with the contact information register, depending on the setting.
 - Continue to register or edit the contact information; step (2)
 - Finish this setting; step (7)
7. Touch "Done" to finish this setting.
The screen returns to the "Service Menu".

6.9.11.9 Memory Card

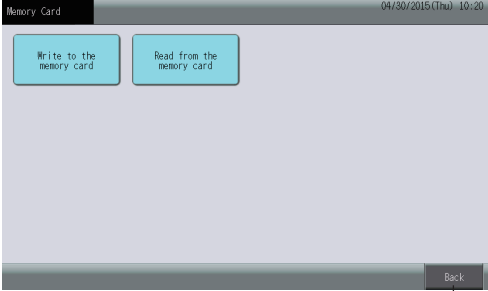
6.9.11.9.1 Save Setting in New File

The screenshots illustrate the following steps:

- Service Menu:** The 'Memory Card' option is selected from the Service Menu.
- Memory Card Menu:** The 'Write to the memory card' option is selected.
- File Selection:** The '/CS-EZ' folder is selected in the folder field. A 'New file' button is visible at the bottom.
- Confirmation:** A 'Check' dialog box appears with the message: 'Setting data has been written to memory card. /CS-EZ/Office A102 SettingData_01042014032926.ezd Press Completed to return to memory card menu.' A 'Completed' button is shown.

1. Insert the memory card into the Controller. Refer to "6.9.9 Use of Memory Card".
2. Select "Memory Card" from the Service Menu screen.
NOTE: This function is not available when the memory card has not been inserted.
3. Select "Write to the memory card" from the Memory Card Menu.
 - If there is no /CS-EZ folder in the memory card, a confirmation screen will be displayed. Select "Yes" to create a /CS-EZ folder.
4. Select the folder to save.
 - In the folder field, a folder under the /CS-EZ folder of the memory card that will be displayed.
5. Touch "New file".
6. Touch "Write" to start saving the data. Refer to 6.9.9 "Use of Memory Card".
7. Touch "Completed" from the confirmation screen to return to the "Memory Card Menu" screen.

Continue on to Next Page

| | |
|--|--|
|  <p>8</p> | <ol style="list-style-type: none">8. Touch "Back" to return to the Service Menu screen.9. Remove the memory card out from the controller. (Refer to 6.9.9 Use of the Memory Card".) |
|--|--|

6.9.11.9.2 Save Setting in Existing File

The screenshots illustrate the following steps:

- Insert the memory card into the controller. (Refer to 6.9.9 "Use of Memory Card".)
- Select "Memory Card" from the "Service Menu" screen.

NOTE:
This function is not available if the memory card has not been inserted.
- Select "Write to the memory card" from the "Memory Card Menu".
 - If there is no /CS-EZ folder in the memory card, a confirmation screen will be displayed. Select "Yes" to create a /CS-EZ folder.
- Select the folder to save.
 - In the folder field, the folder right under the /CS-EZ folder of the memory card will be displayed.
- Select the file to save.
 - In the folder field, the setting data file (extension file ezd) right under the folder selected will be displayed.
 - Touch "File name" to rearrange the order depending on the name of the file. "▽" is for descending order and "△" is for ascending order.
 - Touch "Update" to rearrange the order depending on the date of modification. "▽" is for descending order and "△" is for ascending order.
- Touch "Write".
- Touch "Yes" on the confirmation screen to save the data.

Continue on to Next Page

The image contains two screenshots of a control system interface, connected by downward-pointing arrows. The top screenshot shows a 'Check' dialog box with the following text: 'Setting data has been written to memory card.', '/CS-EZ/Office A102', 'SettingData_01042014032826.ezd', and 'Press Completed to return to memory card menu.' A 'Completed' button is visible at the bottom of the dialog. A line labeled '8' points to this button. The bottom screenshot shows the 'Memory Card' menu with two buttons: 'Write to the memory card' and 'Read from the memory card'. A 'Back' button is located at the bottom right of the screen. A line labeled '9' points to this button.

8. Touch "Completed" on the confirmation screen to return to "Memory Card Menu" screen.

9. Touch "Back" to return to the "Service Menu" screen.

10. Remove the memory card out from the controller. (Refer to 6.9.9 "Use of Memory Card".)

6.9.11.9.3 Restore Setting (Read from Existing File)

1. Insert the memory card into the controller. (Refer to 6.9.9 “Use of Memory Card”.)

2. Select “Memory Card” from the “Service Menu” screen.

NOTE:
This function is not available when the memory card has not been inserted.

3. Select “Read from the memory card” from the “Memory Card Menu”.

NOTE:
Put the file to read in the memory card.

- Under the /CS-EZ folder
- Under the subfolder of the /CS-EZ folder. (This function is not an option if the /CS-EZ folder does not exist.)

4. Select the folder to read.

- In the folder field, the folder right under the /CS-EZ folder of the memory card will be displayed.

5. Select the file to read:

- In the folder field, the settings data file under the folder selected will be displayed.
- Touch “File name” to rearrange the order depending on the name of the file. The “▽” denotes descending order and “△” denotes ascending order.
- Touch “Update” to rearrange the order depending on the date of modification. The “▽” denotes descending order and the “△” denotes ascending order.

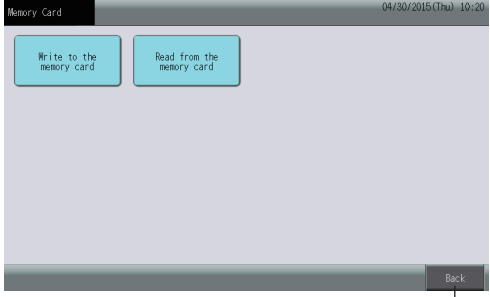
<Automatic Backup>

- * The setting data will be saved in the memory card just before reading. If incorrect data is read, the setting can be restored to the previous data. (Refer to Section 6.9.11.9.4.)
- * Only one instance of settings data will be saved on each memory card as an Automatic Backup file. Note that all settings data will be deleted except the latest data.
- * If the Automatic Backup failed, the confirmation screen will be displayed. Touch “Yes” to continue or “No” to quit.

6. Touch “Read” to start to read the data.

7. Touch “Completed” on the confirmation screen to return to “Memory Card Menu” screen.

Continue on to Next Page

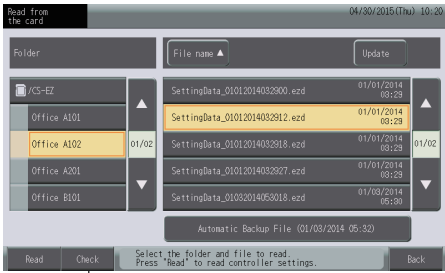


8. Touch "Back" to return to the "Service Menu" screen.

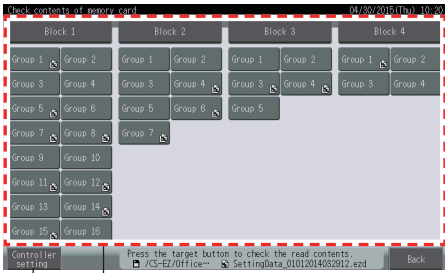
9. Remove the memory card from the Controller. (Refer to 6.9.9 "Use of the Memory Card".)

Information

It is possible to check the content of the file to read when restoring the setting.

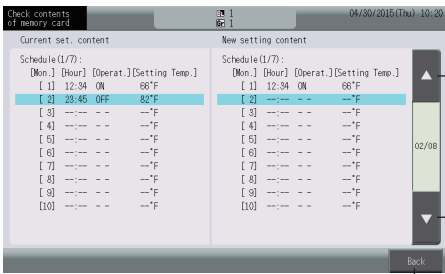


a. After selecting the files in step (5), (from the previous page), touch the "Check" button.



b. Select the display target (Block/Group/Controller setting).

- If the content of the current setting differs from the content of the file to read, a "≠" icon will be displayed.



c. Setting content is displayed. The part that differs will be displayed in Blue. Touch "△" or "▽" to change the page.

d. Touch "Back" to return to the "Check Target Selection" screen.

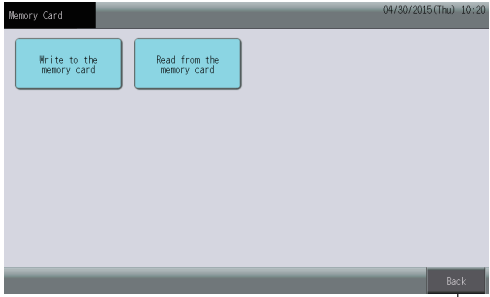
6.9.11.9.4 Restore Setting (Read from Automatic Backup File)

The screenshots show the following steps:

- Service Menu:** A grid of menu items including Group Register, Optional Function Setting, Exception Setting, External Input/Output Setting, Button setting, Contact Information Register, Memory Card, Memo, Restore Settings, Checking Connection, and Alarm History. The 'Memory Card' option is highlighted.
- Memory Card:** Two options: 'Write to the memory card' and 'Read from the memory card'. The 'Read from the memory card' option is highlighted.
- Read from the card:** A file browser showing folders like /CS-E2, Office A101, Office A102, Office A201, and Office B101. A list of files named 'SettingData_...' is shown with dates and times. The 'Automatic Backup File (01/03/2014 05:32)' is highlighted.
- Check Dialog:** A modal dialog box with the text: 'Setting data has been read from the memory card. Press Finish to return to the memory card menu. The memory card cannot be accessed.' A 'Completed' button is at the bottom.

1. Insert the memory card into the controller. (Refer to 6.9.9 “Use of Memory Card”.)
2. Select “Memory Card” from the “Service Menu” screen.
NOTE:
This function is not available when the memory card is not inserted.
3. Select “Read from the memory card” from the “Memory Card Menu.”
4. Touch “Automatic Backup File”.
5. Touch “Read” to start reading the file. (Refer to the previous page for checking content in the file to read.)
<Automatic Backup>
 - The setting data will be saved in the memory card just before reading. If incorrect data is read, settings can be restored to the previous data.
 - Only one data setting will be saved on each memory card as an Automatic Backup file. Note that all the data will be deleted except the latest saved data.
 - If the Automatic Backup failed, the confirmation screen will be displayed. Touch “Yes” to continue or “No” to quit.**NOTE:**
If no automatic backup was performed on data on the memory card, the file will not be readable. Be careful not to erase the backup file (AutoBackupSettingData.ezdb).
6. Touch “Completed” from the confirmation screen to return to the “Memory Card Menu” screen.

Continue on to Next Page

| | |
|--|--|
|  <p>7</p> | <ol style="list-style-type: none">7. Touch "Back" to return to the "Service Menu" screen.8. Remove the memory card out from the controller. (Refer to 6.9.9 "Use of Memory Card") |
|--|--|

■ Message Displayed on the Screen

| Message | Status |
|---|--|
| The memory card cannot be accessed. | The memory card cannot be accessed. Please insert it again. |
| Data cannot be written because the memory card is locked. | The memory card is locked as read-only. Unlock it to write data. |
| Data cannot be written because the capacity of the memory card is insufficient. | The data cannot be written because there is not enough space for the data in the memory card. Try again after increasing space on the memory card by deleting unnecessary data using a computer. |
| Error writing data to the memory card. | <ul style="list-style-type: none"> • The memory card is not compatible with the controller. (Refer to "Usable Memory Card" in item 6.9.9.) • The memory card may be damaged. Please try again with another memory card. • The memory card may not be formatted correctly. Format the memory card correctly. |
| Error reading data from the memory card. | |
| There are no /CS-EZ folders in the memory card. | A "/CS-EZ" folder does not exist in the memory. This folder is required for reading data. Save the data in the /CS-EZ folder or its subfolder. |
| The data is wrong and cannot be read. | The file is not in the right format, which can read by this controller. Please use correct data or data written by this controller. |
| Cannot open because there are more than 51 subfolders in the /CS-EZ folder. | If the number of subfolder exceed 50 in the /CS-EZ folder, it will not be displayed. Please try again after decreasing the number of file via computer. |
| Cannot open because there are more than 51 files in the folder. | If the number of files exceed 50 in a folder, they will not display. Please try again after decreasing the number of files and folders using a computer. |
| Unknown error | <ul style="list-style-type: none"> • It is possible that a SDXC memory card has been inserted instead of an SD or SDHC memory card. (Refer to "Usable Memory Card" in item 6.9.9.) • A file named CS-EZ may already exists in the memory card. Transfer the file to another place. • The name of the subfolder or the file may exceed 240 characters. Please shorten the name of the subfolder or the name of the file. |

6.9.11.10 Register/Edit Memo

6.9.11.10.1 Register Memo

1. Select "Memo" on the "Service Menu" screen.

2. The Memo is displayed.

3. Select the target to register.

4. The "Memo Input: screen opens.

5. Select different types of characters from the tabs (5) along the bottom of the screen: "Upper Case", "Lower Case", "Symbol 1", and "Symbol 2".

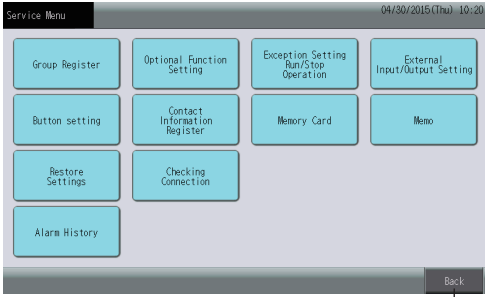
6. Select a registered character from the keyboard.

7. Follow the procedures in steps (5) and (6) above and insert characters. Touch "Delete" to erase any undesired character to the left of the cursor.

NOTE:
The maximum allowable number of characters is 50.

8. Touch "Close" when the character input is completed. Return to the "Memo Display" screen.

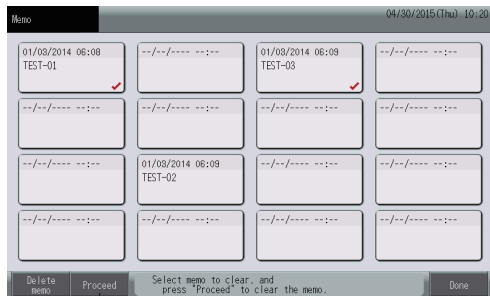
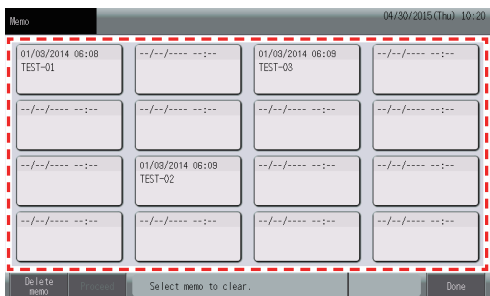
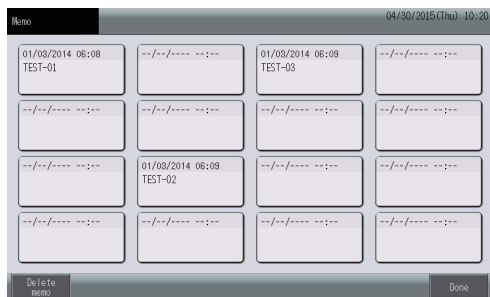
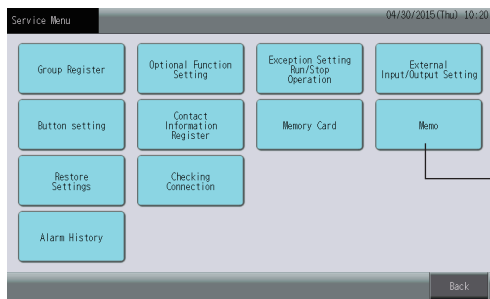
Continue on to Next Page



The screenshot shows a 'Service Menu' interface. At the top left, it says 'Service Menu' and at the top right, it shows the date and time '04/30/2015 (Thu) 10:20'. Below this is a grid of buttons: 'Group Register', 'Optional Function Setting', 'Exception Setting Run/Stop Operation', 'External Input/Output Setting', 'Button setting', 'Contact Information Register', 'Memory Card', and 'Memo'. Below these are 'Restore Settings' and 'Checking Connection'. At the bottom left is 'Alarm History'. At the bottom right, there is a 'Back' button. A callout line with the number '9' points to the 'Back' button.

9. Touch "Back" to return to the "Service Menu" screen.

6.9.11.10.2 Delete Memo



Continue on to Next Page

1. Select "Memo" on the "Service Menu" screen.

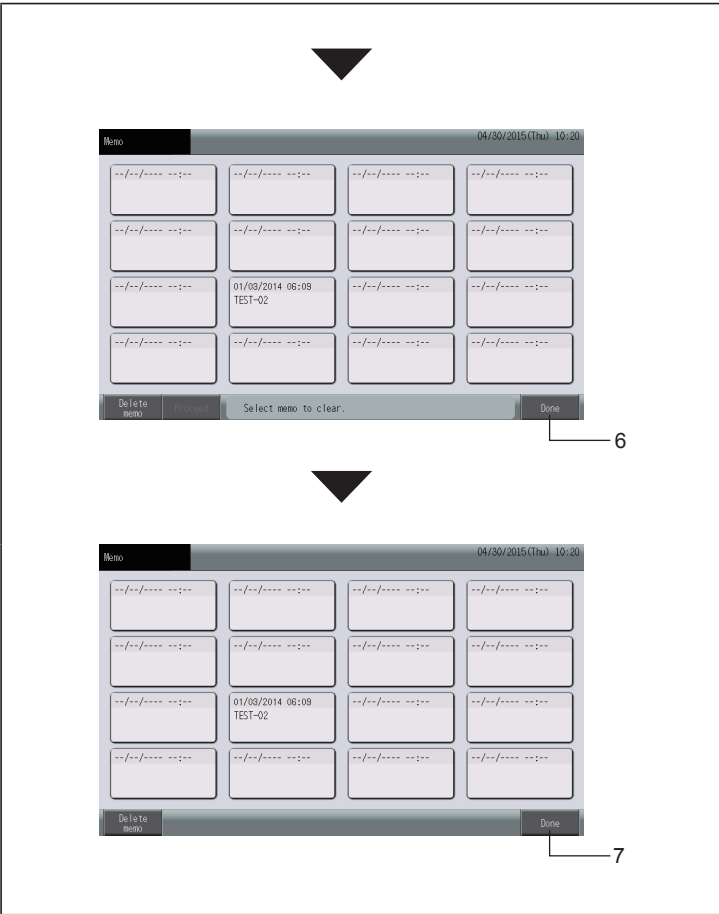
2. The memo is displayed.

3. Touch "Delete memo".

4. Select a memo to delete.

- Touch the Memo button to switch between "Select" ↔ "Cancel".
- It is possible to select multiple memos.
- A checkmark symbol "✓" is displayed on the selected memo.

5. Touch "Proceed" to delete the memo.



6. Touch "Done" to return to the "Memo Display" screen.

7. Touch "Done" to return to the "Service Menu" screen.

6.9.11.11 Restore Settings

1. Select "Restore Settings" on the "Service Menu" screen.

NOTE:
This function cannot be selected when the wired controller operation is prohibited.

2. Touch "Yes" at the confirmation screen.

NOTE:
Touching "No" returns you to the "Service Menu" screen.

3. The confirmation screen is displayed again. Touch "Yes" to restore the setting. After several seconds, the screen is changed and the connection check of the system is started.

NOTE:
Touching "No" returns you to the "Service Menu" screen.

Information

Restore settings can be set when the screen of "Starting" displayed.



Restore

1. Press "Restore" for more than 5 seconds in the lower right corner of the "Starting" screen.
2. In a few seconds, the connection check process starts.
3. When the process for the connection check is complete, "Adjusting Date/Time" screen is displayed. (Refer to "Adjusting Date/Time" in item 6.9.10.5.)

6.9.11.12 Checking Connections

1. Select "Checking Connection" on the "Service Menu" screen.

NOTE:
This function cannot be selected while the air conditioner(s) are in operation or while an external input signal is being transmitted to the external input terminals 1 or 2.

2. Touch "Yes" at the confirmation screen.

NOTE:
If "No", the screen returns to the "Service Menu".
Proceed the connection information updating process, depending upon what is to be set later.

- Update with connection information by retaining the Group register and settings, such as schedule setting, and so forth; step (3).
- Perform reconnection checking by initializing each setting. (It is the same as restore settings; step (7)).

< Keeping the setting >

3. Touch "Yes" at the confirmation screen for keeping the setting.

4. When the checking connections process is complete, the number of connected units are indicated on the confirmation screen.
If the number of connected indoor units is, correct, touch "Yes".
The "Main Unit Register" screen will be displayed.
Refer to Section 6.9.11.3.1 (3).

5. If the number of connected units indicated are different from actual number, touch "No".

2

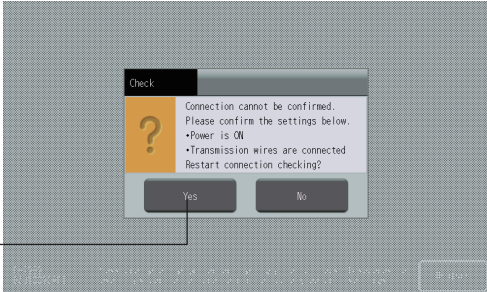
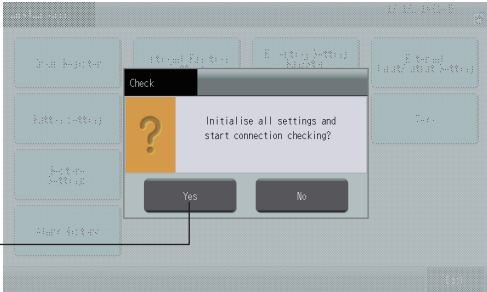
3

7

4

5

Continue on to the Next Page

| | |
|--|--|
|  <p>6</p> | <p>6. The confirmation screen is displayed again. Check the settings in the confirmation screen for those air conditioners, and touch "Yes". The checking connections process will start again.</p> <p>NOTE: Touch "No", and the screen returns to the "Service Menu" screen.</p> |
|  <p>8</p> | <p>< Not keeping the setting ></p> <p>7. Touch "No" at the confirmation screen.</p> <p>8. Display the confirmation screen of initialization; touch "Yes". Initialize all settings and begin checking connections.</p> <p>If "Yes" cannot be selected when the "RCS Operation Prohibited" is set, set "RCS Operation Permitted".</p> <p>NOTE: Touch "No", and the screen returns to the "Service Menu" screen.</p> |

6.9.11.13 Alarm History

The figure illustrates the steps to access and manage alarm history. The top screenshot shows the 'Service Menu' with various options. A '1' points to the 'Alarm History' button. The bottom screenshot shows the 'Alarm History' screen with a table of records. A '2' points to the table, a '3' points to the 'Delete History' button, and a '4' points to the 'Done' button.

| Date | Time | Block Name | Group Name | Indoor Address | Alarm Code |
|------------|-------|------------|------------|----------------|------------|
| 01/01/2014 | 00:18 | Block 1 | Group 1 | 00-00 | 01 |
| 01/01/2014 | 00:12 | Block 2 | Group 4 | 15-14 | 05 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

1. Select “Alarm History” on the “Service Menu” screen.

2. The “Alarm History” screen is displayed.
If the alarm records are more than 11, touch “△” or “▽” to go to the next page.

- A maximum of 100 records can be stored in the memory.

3. When deleting an alarm history record, touch “Delete History”. When touching “Yes” at the confirmation screen, all alarm history records are deleted.

- Touch “No”, and the screen returns to the “Alarm History” screen.

4. Touch “Done” to finish this setting. The screen returns to the “Service Menu” screen.

6.9.12 Important Notice

■ Demand Setting (Setting of an External Input)

Give careful attention to the following when using the demand function of the external input setting.

- Concerning Stop or Operation Mode Shift
Either the stop or the operation mode shift can be set. In addition, note that it is not possible to set multiple contacts.
- Concerning Outdoor Capacity Control
This function is used to save on power consumption and keep it near the set value (%). The level of power consumption conservation is not guaranteed. Power consumption theoretically cannot be zero because of standby power, even if the set value is 0%. Capacity control is not available when the outdoor unit is in start-up control or in a defrosting operation.
- After inputting the contact signal, it will require a maximum of six minutes until control begins to respond.
If there is multiple signal input into multiple contacts, control will begin from the highest priority in order of: (input 1 > input 2 > input 3 > input 4).
- The control target will only be the one outdoor unit compatible with outdoor unit capacity control. The adjustable capacity value setting or compliance/non-compliance for this function may differ depending on the type of outdoor unit. Contact your distributor for detailed information.

■ OFF Time Remote Control Prohibition

Observe the following: When setting the OFF Time Remote Control Prohibition as "Enable":

- When setting as "Enable", the Remote Operation Prohibited (By function), cannot be set. The Remote Operation Prohibited (All functions) can be set but, DO NOT set it when operating simultaneously with other controllers. (Refer to "Using Simultaneously with Other Central Controller" in the below item.)

■ Remote Operation Prohibited (by function)

This function is used to restrict the operation of the local remote control.

When the Remote Operation is prohibited (by function), the selected functions cannot operate (RUN/ STOP, Operation Mode, Fan Speed, Louver, and Temperature Setting). Both the indoor unit and the local remote control can be used together only if they are compatible and interconnected with this function. Pay close attention to the following groups compatible with the remote operation prohibited (by function).

- The lock function of the local remote control cannot be used when prohibition of the remote control operation is set.
- When prohibition of the remote control operation and the lock function are used at the same time, prohibition of the remote control operation assumes priority. Therefore, the lock function of the local remote control cannot be set.
- When the prohibition of the remote control operation (by function), is change to the prohibition of the remote control operation (all functions), the lock operation setting of the local remote control is cancelled.
- When a communication failure has occurred, prohibition of the remote control operation (by function), can be cancelled. If this happens, perform the setting again.

■ When Connecting an additional Wired Controller:

When using additional wired controllers, select "Checking Connection" from the Service Menu and perform the Group Register. Then, switch the power OFF and ON.

■ Using simultaneously with Other Central Controller

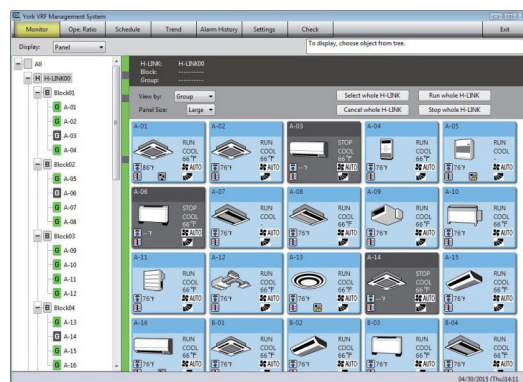
Observe the following when using other central controllers:

- Do not set the External Input as Emergency STOP, STOP, (Demand Function setting), or Operation Mode Shift (Demand Function setting).
- Concerning the outdoor unit capacity control for the setting of External Input, perform the settings for ONLY one central controller (DO NOT perform settings for the other central controllers).
- An indoor unit without a remote control cannot be connected.

6.10 Computerized Central Controller

6.10.1 Features and Functions

- Maximum 2560 indoor units and maximum 2048 groups can be controlled
- Choose from two displays (panel and layout) in controlling and monitoring
- Trend graph of running time and temperature setpoint
- Various power-saving modes
- Calculation of air-conditioner operation ratio



6.10.2 Specifications

[Specification for monitoring and controlling]

| Item | Specification |
|--------------------------------|--|
| Control | On/Off, Set Temp., Mode, Louver, Fan Speed, RC Prohibition, Capacity Control (Outdoor Units), Lower noise (Outdoor Units) |
| Monitor | On/Off, Set Temp., Mode, Louver, Fan Speed, RC Prohibition, Alarm, Filter Sign, Ambient Temp./Air intake Temp., Thermo-ON* |
| Display Floor Layout | Support |
| Managing Range | 16 H-LINK IDU per 1H-LINK : 160 ODU per 1H-LINK : 64 IDU + ODU + central controllers per 1H-LINK : 200 Groups per 1H-LINK : 128 Groups Blocks per 1H-LINK : 64 Blocks 128 layout for each system |
| Schedule | Weekly : 16 patterns / day Annual : 3 patterns / year On/Off, Set Temp., Mode, Louver, Fan Speed, Capacity Control (Outdoor Units), Lower noise (Outdoor Units) |
| Visualization | Graphical display of (hour/day/week/month) Running time, Thermo-ON* time, Average of set Temp., Average of suction Temp., Average of ambient Temp., Average of air intake Temp., *All items may or may not be available, depending on RC settings. Multi targets comparison |
| External Interface | Using interface of PC back up data |
| External Signal Input / Output | For one CCCA01 Input 3 points (Level signal/Pulse signal) Output 3 points (Voltage / Non-Voltage) Function [Energy-Saving Function] On/Off, RC all prohibited, Switching mode (*1) Switching Temp. (only for Celsius) Capacity Control (Outdoor Units) (*1 *2) [Facility unit monitor items] (*1) On/Off, Mode (Cool/Heat), Alarm [Facility unit monitor items] (*1) On/Off, Mode (Cool/Heat) [Others] Emergency stop (*1 *3) Lower noise (Outdoor Units) (*1) *1 For level input signal only *2 Signal of capacity control need to input to adapter of this system *3 Not possible when multiple central controllers are in use. |
| Language | English |
| Fee Calculation | Calculation of operation ratio only |
| Daylight Saving Time | Support |
| Alarm History | Support |

*Thermo-ON: The outdoor unit and some indoor units are running.
Thermo-OFF: The outdoor unit and some indoor units stay on, but don't run.

CONTROL SYSTEM

[Specification for CCCA01 Hardware]

| Feature | Specification |
|--------------------------------|--|
| Outer Dimension <W × D × H> | 9-1/8 × 6-1/16 × 2-11/16 inches (240 × 154 × 68 mm) |
| Net Weight | 3.1lbs (1.4kg) |
| Installation Condition | For Indoor Installation Only Applicable for Horizontal (Stationary) and Vertical (Attached to Wall) Installation. |
| Rated Power Supply | 24VAC ± 10%, 60Hz |
| Electrical Power Consumption | 10W (Max.) |
| Ambient Temperature | 32-104°F (0-40°C) |
| Ambient Humidity | 20-85% (No Condensation) |

[Communication Specification for H-LINK]

| Feature | Specification |
|----------------------------------|---|
| Communication Unit | Indoor Unit, Outdoor Unit |
| Communication Line | Nonpolar Two Wires |
| Communication Speed | 9600 bps |
| Total Length of Connecting Cable | Total 3281 feet (1000m) (Max.) |
| Connected Units (Qty) | Indoor Unit: Max. 160 Units, Outdoor Unit: Max. 64 Units. * Max. 200 Units total on a single H-LINK. |

[Communication Specification for LAN (Ethernet)]

| Feature | Specification |
|----------------------------------|----------------------------------|
| Communication Unit | Management Computer |
| Communication Line | LAN (Ethernet) |
| Communication Method | IEEE 802.3 (10BASE-T/100BASE-TX) |
| Total Length of Connecting Cable | 3281 feet (100m) (Max.) |

[Specifications for Management Computer]

| Requirements | When connecting 4 adapters or more When performing layout display | Other Requirement |
|--------------------|--|------------------------------|
| OS | Windows® 7 (64 bit) Professional English Version | |
| CPU | Intel® Core™2 Duo 1.8GHz or more | Intel® Celeron® 1GHz or more |
| Memory | 2GB or more | |
| Display Resolution | 1024 × 768/1280 × 1024/1600 × 1200 | |
| Browser | Internet Explorer 8, Internet Explorer 9, Internet Explorer 10 | |
| Hard Disk Drive | Minimum 5GB for each adapter • If performing ope. ratio, +0.25GB for each additional REFGN Cycle. • If collecting check - Unit Trend, +16GB for each additional adapter. | |
| Drive | CD-ROM Drive (for installation only) | |
| Interface | IEEE802.3 (10BASE-T/100BASE-TX)(With Wake on LAN function *1) | |
| | USB | |
| | RS-232C*2 | |
| Application | Microsoft Excel® or other spreadsheet software for displaying & editing the CSV file output from each of [Operation Ratio], [Trend], [Schedule], [Alarm History], and [Check] functions. | |

- The official name for Windows is Microsoft Windows Operating System.
- Microsoft, Windows and Microsoft Excel are trademark or trademark registered in numerous countries of Microsoft Corporation in United States.
- Intel® Core™ 2 Duo are Trademarks or trademark registered in numerous countries of Intel Corporation in United States.
- Ethernet® is a trademark or trademark registered in numerous countries of Xerox Corporations in United States.

*1: Utilize the management computer exclusively with this software.

*2: LAN with wake on LAN function or RS-232C Interface is required for UPS.

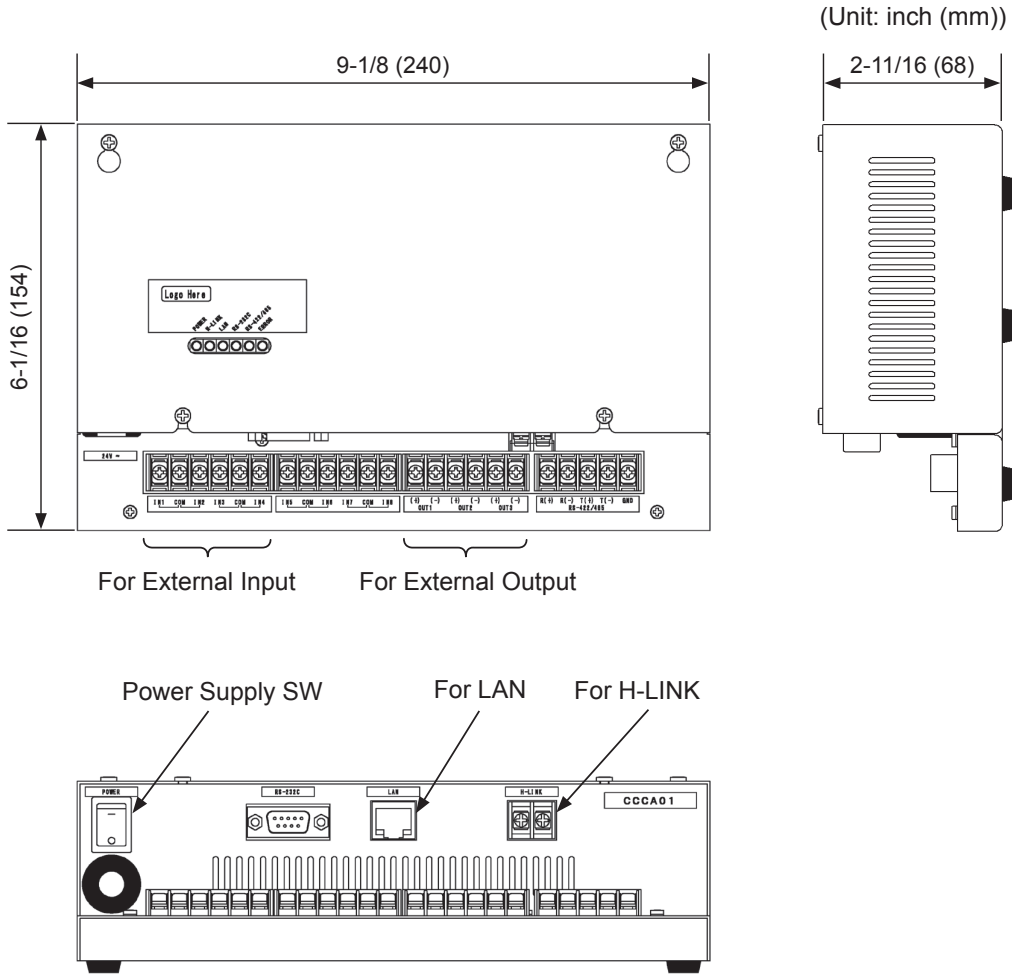
*3: Management computer is assumed to be always ON. It is strongly recommended to use the computer for server or industrial use and/or to create a hard disk mirror.

*4: Utilize OS installed [C:Drive].

*5: Durable period for the management computer may differ from that of air conditioners. Upload periodically and discuss uploading procedure in advance.

*6: Mouse must be a two-button type mouse.

6.10.3 Dimensions



6.10.4 Applicable Models

| Item | Model Type | JCI Model Name |
|---|--|-------------------|
| Outdoor Unit | Top Flow (208/230V) Heat Pump and Heat Recovery | (H,Y)TVAHR***B31S |
| | Top Flow (460V) Heat Pump and Heat Recovery | (H,Y)TVAHR***B41S |
| Indoor Unit | Duct (High Static) | (H,Y)TIDH***B21S |
| | Duct (Medium Static) | (H,Y)TIDM***B21S |
| | Duct (Slim) | (H,Y)TIDS***B21S |
| | 4-way Cassette | (H,Y)TIC4***B21S |
| | 1-way Cassette | (H,Y)TIC1***B21S |
| | Wall Mount | TIWM***B21S |
| Applicable Central Controller for Combined Use | Mini Central Controller | CCM01 *1 *2 |
| | Large Central Controller | CCL01 *1 *2 |

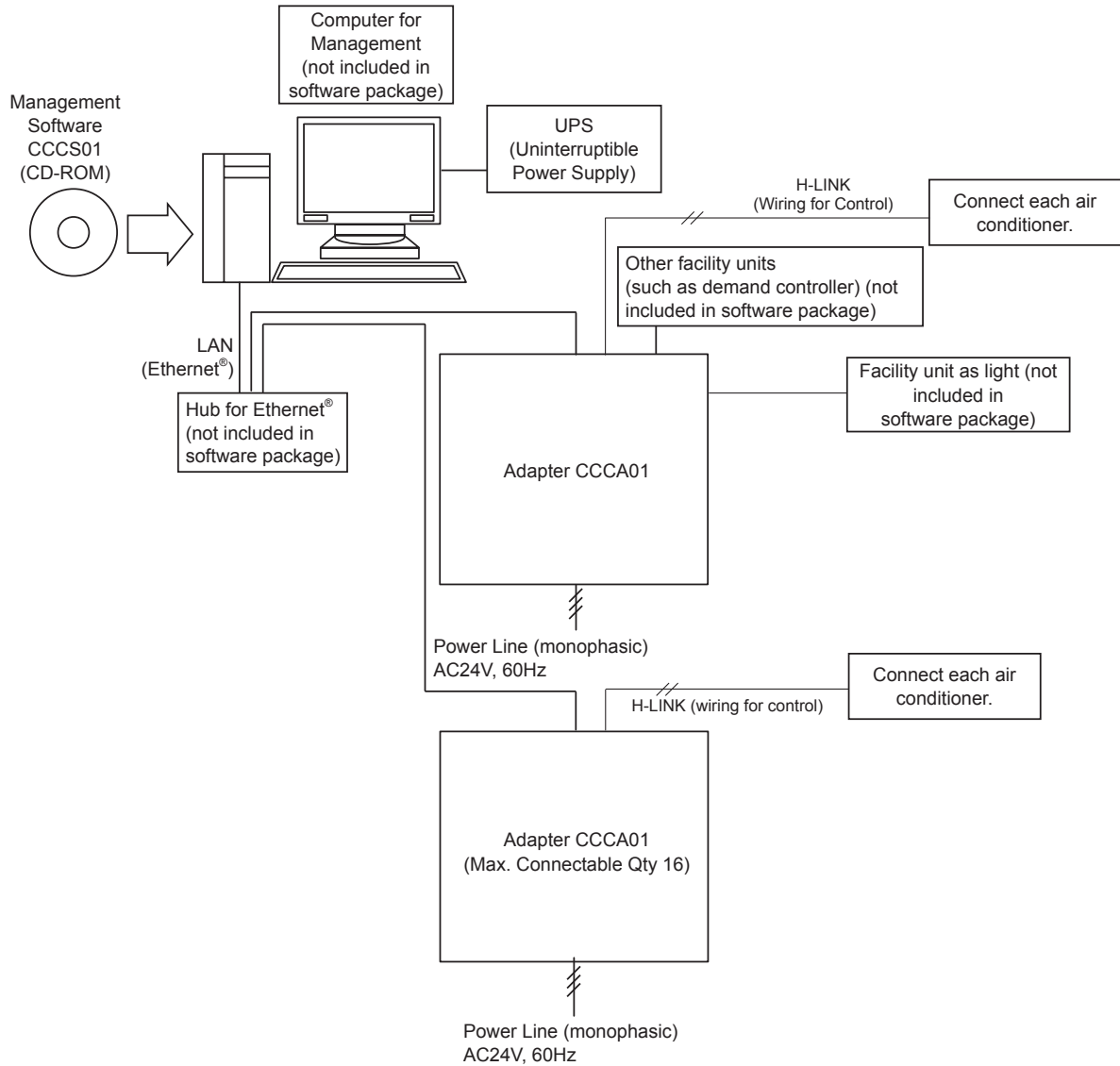
*1: RC-less IDU cannot be connected.
 *2: Only eight central controllers, including this controller, can be connected to a single H-LINK.

6.10.5 Accessories/Options

No accessories or options.

6.10.6 Installation

6.10.6.1 System Configuration

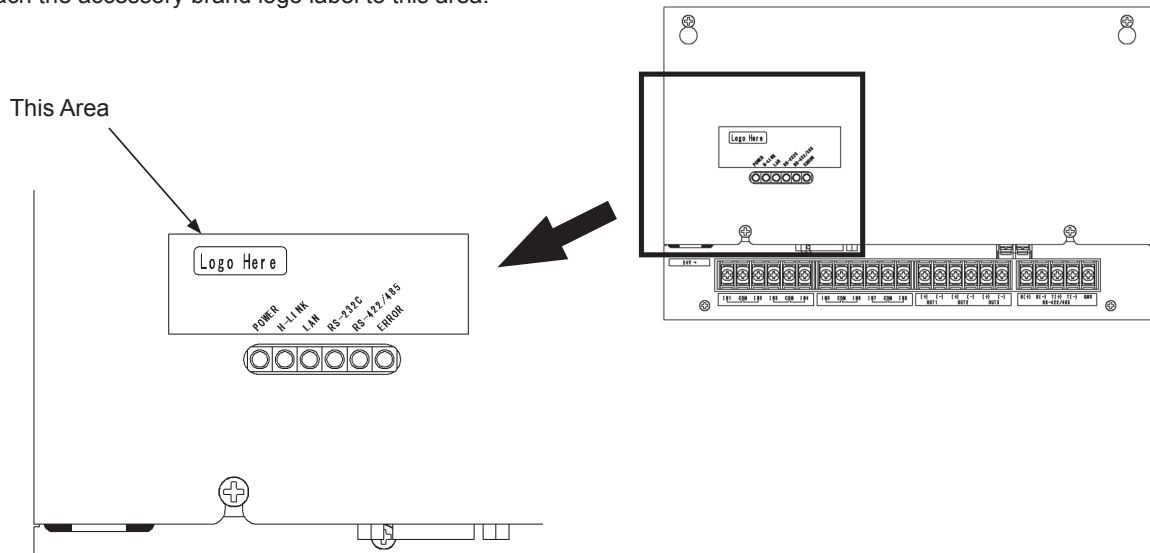


- *1: UPS (Uninterruptible Power Supply) is recommended for management computer connection.
- *2: Single management computer can be connected for each system.
- *3: Utilize the management computer exclusively with this system.
- *4: Management software is assumed to be always ON.
Some data can not be recorded while management software is OFF.
- *5: Upon adapter utilization (CCA01), up to 16 adapters may be connected for each system.
- *6: Use a straight cable for the LAN cable and connect the management computer and adapter using a hub for the Ethernet.

6.10.6.2 Adapter Installation

6.10.6.2.1 Brand Label

Select the accessory brand label according to the production order. (HITACHI or YORK)
Attach the accessory brand logo label to this area.



6.10.6.2.2 Installation Work

In this manual, the installation procedure from CCA01 installation to turning the power ON is described. The installation procedure is shown in Table 6.1.

Table 6.1 Installation Steps

| Step | Item | Check |
|------|----------------------------------|--|
| 1 | Selection for Installation Place | Note for Installation Place Selection |
| 2 | Installation Procedure | Installation Procedure and Note |
| 3 | Electrical Wiring Connection | Connection Procedure for Wiring Each Cable |
| 4 | Switch Setting Procedure | Each Switch and Setting Procedure |
| 5 | Test Run | Checking Item |

[Selection for Installation Place]

Select the compatible place for CCA01 in the following conditions :

- (1) Refer to the clause "1. Safety Summary" of the installation manual.
- (2) On the table/desk or other stable place if installing horizontally.
On the firm wall where CCA01 can be stably fixed with M5 screws (if installing on the wall, vertically.)

[Installation Procedure]

- (1) Clear the installation space for the CCA01 as shown in Fig. 6.1.

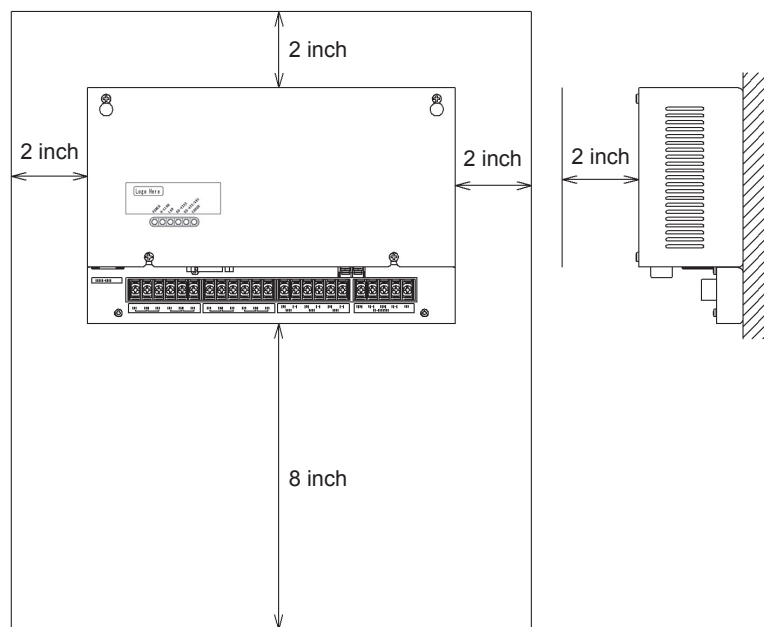


Fig. 6.1 Installation Space

(2) Vertical Installation (On the Wall)

(a) When installing vertically (on the wall), install the Terminal block on the down side.

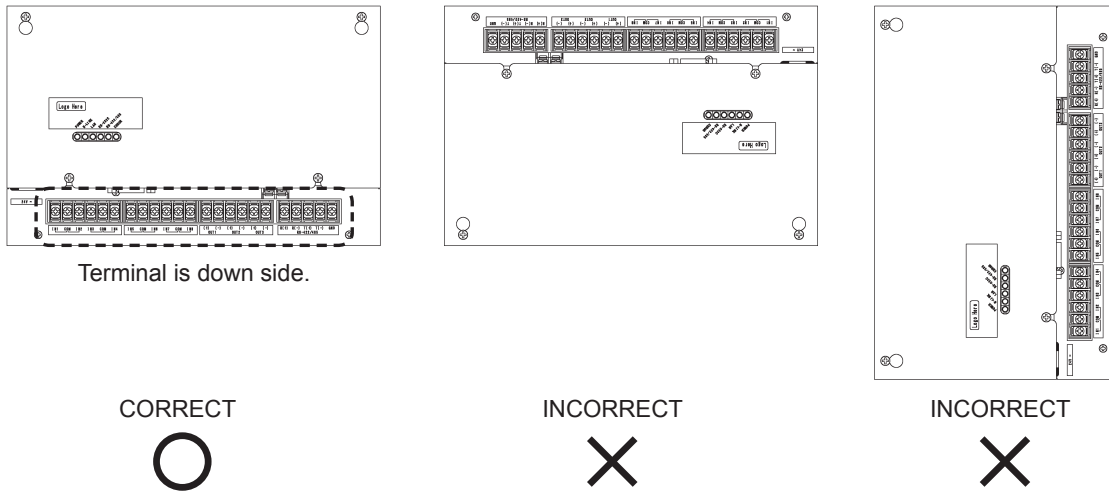


Fig. 6.2 Direction for Installing CCCA01

(b) Remove all the rubber stands (6 pcs.).

(c) If the head of the upper cover fixed screws are loosened up about 1/4 inch, it will be possible to remove the top cover.

(d) Firmly fix CCCA01 to the wall by M5 screws (Field-Supplied) from inside CCCA01.

(e) Attach the top cover removed in step (c).

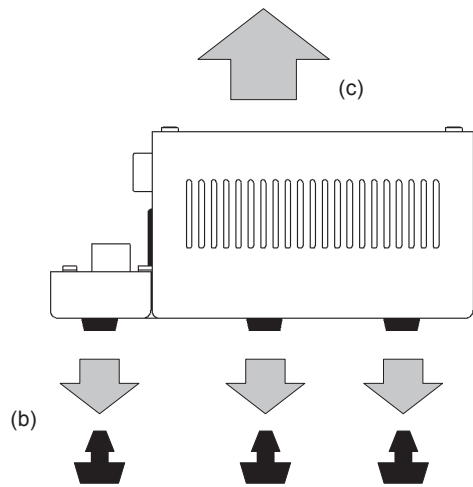


Fig. 6.3 Removing Rubber Stands and Top Cover

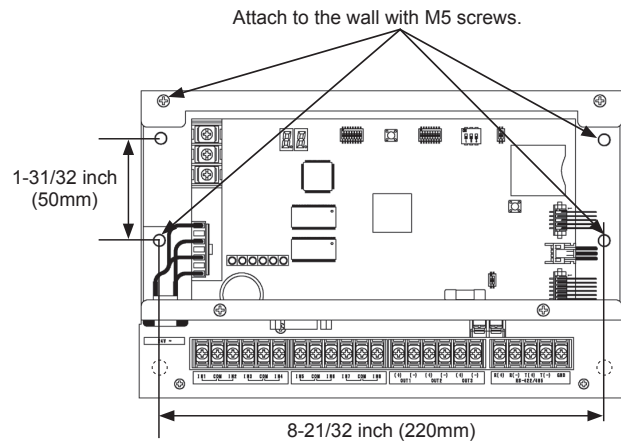
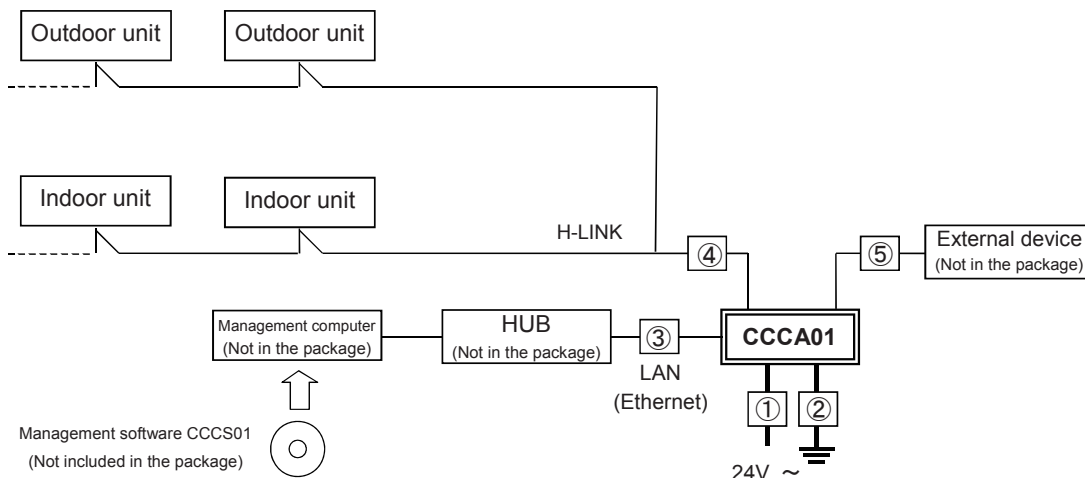


Fig. 6.4 Dimension for M5 Screw Position

[Electric Wiring Connection]

(1) The following wiring works are required for this adapter. Power wiring, control wiring (H-LINK) to air conditioners, control wiring (LAN) to the management computer. The wiring work such as the control wiring (External Input/Output) to external device is necessary when connecting external device. Always ensure that the power supply is OFF upon operation.

(2) Wiring Method



* Management computer, HUB, wires and cables are not in the package. They need to be purchased separately.

Fig. 6.5 Wiring Method

Table 6.2 Electrical Wiring Connection Specifications

| No. | Type of Wiring | Specification | Length of Wiring | Cable Specification | Recommended Cable Model |
|-----|--------------------|--|----------------------|--|--------------------------------------|
| ① | Power Supply Cable | 24VAC | — | AGW 16 (1.25mm ²) to AGW 14 (2mm ²) | CVV, CEV, CCV |
| ② | Earth Wiring | — | | | |
| ③ | LAN Cable | IEEE802.3 Compliance | 328.1 feet (100m) ≥ | LAN Cable Category 5 or more | |
| ④ | H-LINK | 5VDC | 3281 feet (1000m) ≥ | AGW 18 (0.75mm ²) to AGW 16 (1.25mm ²) | JKPEV-S, JKEV-S, CVV-S, CVV 600V VCT |
| ⑤ | External I/O | Input :DC24V 5mA Output :DC24V 40mA ≥ | 1640.5 feet (500m) ≥ | AGW 20 (0.5mm ²) to AGW 16 (1.25mm ²) | |

(3) Before performing the electrical wiring connection, turn OFF the power supply of UPS and all the other controlling devices.

(4) To remove the top cover, loose 4 screws fixing the cover. If the head of the upper cover fixed screws are loosened up about 1/4 inch until they float, it will be possible to remove the top cover.

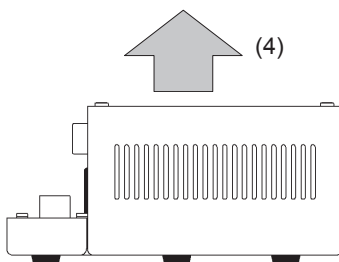
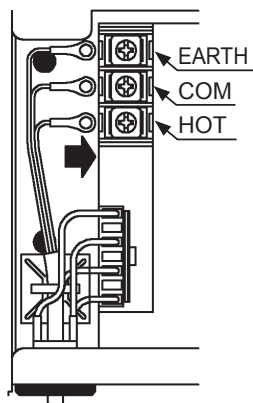

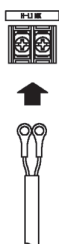
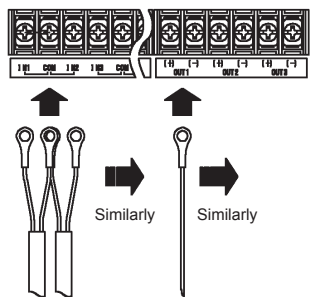


Fig. 6.6 Removing Top Cover

CONTROL SYSTEM

(5) Connect each wiring according to Table 6.3.
 The screw's size of each Terminal is M3 and the tightening torque is 0.4lbf·ft.
 In addition, the item "No." in Table 6.3 corresponds to the number in Table 6.2 from the previous page.

Table 6.3 Electrical Wiring Connection Procedures

| Type | Other End for connection | No. | Electrical Wiring Connection Procedure | Remarks |
|---------------------|-----------------------------|-----|--|---|
| Power Line | Power Supply (24V ~) | ① | <p>Screw tightening Torque: 0.4lbf·ft</p>  | Connect the power source cable to HOT and COM terminals. |
| | Earthing | ② | | <p>Secure Wiring with a Cable Tie and Cable Tie Mount included with this package.</p> |
| Communication Cable | Management computer (LAN) | ③ |  <p>Insert cable until the fitting locks.</p> | Use a straight cable and connect to the management computer by way of a HUB. |
| | Air conditioners (H-LINK) | ④ | <p>Non-Polar</p>  <p>Screw tightening Torque: 0.4lbf·ft</p> | Connect the H-LINK communication cable to the H-LINK terminals for the air conditioners. |
| | External I/O (IN1~3/OUT1~3) | ⑤ |  <p>Screw tightening Torque: 0.4lbf·ft</p> | <ul style="list-style-type: none"> • Connect to External Device. • Terminals IN4~IN8 are not used in this device. |

NOTICE

Wire the H-LINK cable as short as possible, keep a distance of 6 inches or more with a Power Supply cable and do not wire them in parallel (However in cross line is possible).
 If the cables have to run in parallel, insert one of them into a metal conduit tube (with one end earthed) or, perform a procedure to prevent noise such as using shielded cable for H-LINK (with one end earthed).

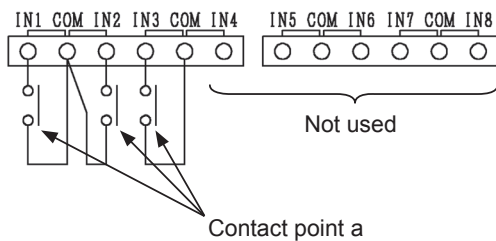
NOTE

Connection with External Device

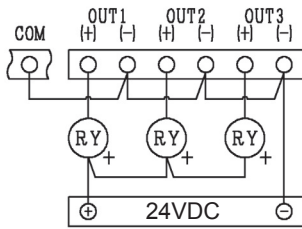
- *1) External input circuit is 24VDC applicable by using the pull-up resistor in CCA01. The maximum allowable amount of current from the CCA01 is 5mA. Pulse duration and pulse interval need to be set to 500ms or longer when using external input with pulse input.
- *2) When connecting to external output, apply relay with following specifications.
 - Rated voltage: 24VDC
 - Rated current: 40mA or less
- *3) Turn ON SW9 "OUTPUT" setting when using external output using a wet contact setting (item 3).
- *4) Terminals IN4-IN8 will not be used in this product.

<Sample diagram>

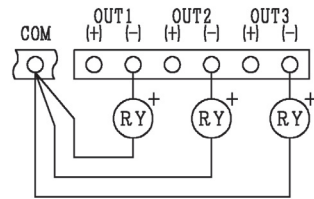
① External Input



② External Output (dry contact setting)



③ External Output (wet contact setting)



Recommended Relay for External Output connection.

- (1) OMRON Corporation Terminal Relay G6D-F4B (24VDC)
- (2) Fuji Electric Terminal Relay RS4N-DE

- (6) Attach the top cover after completing the wiring connection. When attaching the top cover, ensure that the direction of the top cover is correct as shown in Figure 7.7.

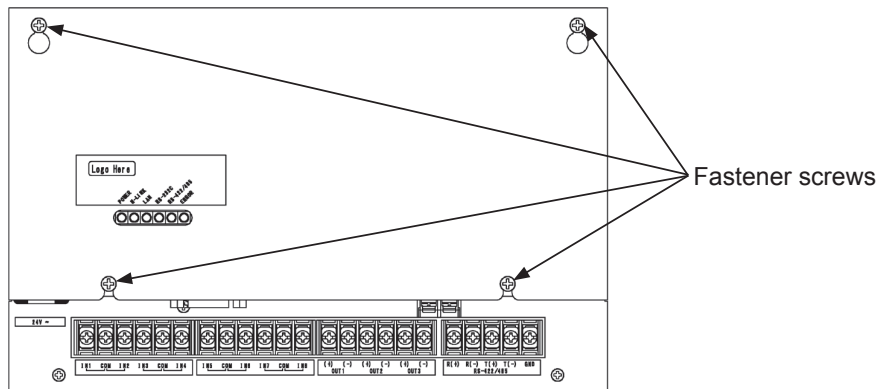


Fig. 6.7 Attaching Top Cover

[Switch Setting Procedure]

(1) Set modification of switch before turning ON CCCA01.

The switch setting is described in the Table 6.4. Some of the switches may require modification as on site demand (external output with wet contact setting, etc) arises.

Table 6.4 Switch Setting

| Switch | | Usage | Factory Setting | Remarks |
|---|---|--|-----------------|--|
| SW2 (8 poles DSW) "OPTION" | 1 | ON: Normal Operation Mode OFF: Self-Checking Mode (With all the other Pins OFF) | ON | Refer to 6.10.6.2.3 [Self-Checking Mode] for more details. |
| | 2 | OFF Fixed | OFF | Do not change it. |
| | 3 | OFF Fixed | OFF | Do not change it. |
| | 4 | OFF Fixed | OFF | Do not change it. |
| | 5 | OFF Fixed | OFF | Do not change it. |
| | 6 | OFF Fixed | OFF | Do not change it. |
| | 7 | OFF Fixed | OFF | Do not change it. |
| | 8 | ON: IP Address Initialization | OFF | Refer to 6.10.6.2.3 [Initialization of IP Address Setting]. |
| SW6 (8 poles DSW) "MODE" | 1 | ON Fixed | ON | Do not change it. |
| | 2 | OFF Fixed | OFF | Do not change it. |
| | 3 | OFF Fixed | OFF | Do not change it. |
| | 4 | OFF Fixed | OFF | Do not change it. |
| | 5 | OFF Fixed | OFF | Do not change it. |
| | 6 | OFF Fixed | OFF | Do not change it. |
| | 7 | OFF Fixed | OFF | Do not change it. |
| | 8 | OFF Fixed | OFF | Do not change it. |
| SW7 (2 poles DSW) "H-LINK" | 1 | ON: Terminating resistance on H-LINK circuit: Active OFF: Terminating resistance on H-LINK circuit: Inactive | OFF | When activating terminal resistance on this adapter, ensure no other terminating resistance exists on the same H-LINK. |
| | 2 | ON: Protection Fuse for H-LINK transmission is available (Short-Circuit) OFF: Protection Fuse for H-LINK transmission is unavailable (Normal) | OFF | Refer to the notice described below. |
| SW8 (2 poles DSW) "RS-422/485" | 1 | OFF Fixed | OFF | Do not change it. |
| | 2 | OFF Fixed | OFF | Do not change it. |
| SW9 (3 poles DSW) "External Output" | 1 | ON: External output 1 Wet Contact (24VDC ON) Setting OFF: External output 1 Dry Contact (24VDC OFF) Setting | OFF | Set ON when applying wet contact setting. |
| | 2 | ON: External output 2 Wet Contact (24VDC ON) Setting OFF: External output 2 Dry Contact (24VDC OFF) Setting | OFF | Set ON when applying wet contact setting. |
| | 3 | ON: External output 3 Wet Contact (24VDC ON) Setting OFF: External output 3 Dry Contact (24VDC OFF) Setting | OFF | Set ON when applying wet contact setting. |
| SW5 (PSW) switch "OPTION" | | This switch is used for self-checking mode | -- | -- |

The procedure for setting each switch is as follows:

- (a) Turn OFF the power switch of CCCA01, and remove the top cover after checking that the LED is turned OFF.
- (b) Modify the Switch setting.
- (c) Reinstall the top cover and turn ON the power to CCCA01.

NOTE

In the case that an H-LINK fuse blows, a connection among an H-LINK fuse will be possible by turning ON the pin 2 of SW7.

[Test Run]

Turn ON the CCCA01 after the installation of electrical wiring operation, and the switch settings are completed. The CCCA01 will complete startup within approximately one minute to start checking connections.

- (1) Turn all the air conditioners ON. Check that Test Run for each unit is completed to ensure proper operation.
- (2) Turn ON the Power Supply.
- (3) Turn ON the CCCA01.
POWER LED indicator will illuminate.
The CCCA01 will complete start up within approximately one minute to start checking connections. While checking connections, the 7-segment LED will indicate "C0" and ERROR LED will flash every five seconds.
- (4) Wait for completing connection check.
This step will take approximately 20 minutes, the 7-segment LED will indicate "00" and the ERROR LED will be OFF.

Concerning further operations, refer to the installation and operation manual for the management software (CCCS01).

NOTICE

- Before turning the adapter ON, make sure that the insulation resistance between the power terminal and the earth is 1MΩ or more on DC500V. If less than 1MΩ, because there may be an insulation failure, DO NOT turn the power ON.
- Turn the power OFF immediately if you see fire or smoke.

6.10.6.2.3 Maintenance and Service
















[LED Indicator]

In this chapter are described how each of the LED indicators are shown to indicate normal/abnormal conditions.

Table 6.5 Conditions for each LED indicator

| LED | Conditions | Condition for LED ON | Condition for LED OFF | Remarks |
|------------|--------------------------|--|---|----------|
| POWER | Power | - Power ON - In Process of data back up | - Power OFF - After data back up process completion | |
| H-LINK | H-LINK Communication | - When data is being received on H-LINK - When data is being transmitted on H-LINK | - When data is not being received on H-LINK - When data is not being transmitted on H-LINK | |
| RS-422/485 | RS-422/485 Communication | - When data is being received on RS-422/485 - When data is being transmitted on RS-422/485 | - When data is not being received on RS-422/485 - When data is not being transmitted on RS-422/485 | Not used |
| RS-232C | RS-232C Communication | - When data is being received on RS-232C - When data is being transmitted on RS-232C | - When data is not being received on RS-232C - When data is not being transmitted on RS-232C | Not used |
| LAN | LAN Communication | - Upon establishment of communication on LAN - When data is being received/transmitted on LAN | - When data is not being received/transmitted on LAN | |
| ERROR | Software in Process | Refer to Table 8.2. | | |

Table 6.6 Contents and Indication of ERROR LED and 7-segment LED

| Condition | Condition for LED ON and its contents | Condition for indicator OFF | ERROR LED | 7-Segment LED | Priority for indication |
|---|--|--|---|---|-------------------------|
| Software Start up Error | Error is detected on the software | No error is detected on the software. | ON |  | 1 |
| Memory Check Error (FlashROM) | Error is detected during FlashROM check | FlashROM Check is properly completed. | ON |  | 2 |
| Checking Memory (FlashROM) | While FlashROM checking | FlashROM Check is completed. | OFF |  | 3 |
| Memory Check Error (SDRAM) | Error is detected during SDRAM check | SDRAM Check is properly completed. | ON |  | 4 |
| Checking Memory (SDRAM) | While SDRAM checking | SDRAM Check is completed. | OFF |  | 5 |
| Memory Check Error (EEPROM) | Error is detected during EEPROM check | EEPROM Check is properly completed. | ON |  | 6 |
| File System Error | Error is detected during file system check | File System Check is properly completed. | ON |  | 7 |
| Application Startup | Immediately after startup of the application by turning the power ON with self check mode or normal mode. | 1 second after the condition on the left occurred. | ON for 1 second |  | 8 |
| H-LINK Initialization Error | Error is detected while H-LINK communication port initialization after application startup by turning the power ON. | Initialization of H-LINK Communication port is properly completed. | ON |  | 9 |
| Inner Database Error | Error is detected during inner database check while system initialization after application startup by turning power ON. | Inner data base checking is properly completed. | Repeated ON/OFF for 1 second each |  | 10 |
| System Initialization | While system initialization process after application startup by turning the power ON. | System initialization is completed. | OFF |  | 11 |
| Air Conditioners Connection Check Error | Communication check cannot be completed within 20 minutes after application start up by turning power ON with normal mode setting. | Connection check with air conditioners is completed. | 1 time flashing after OFF for 1 second |  | 12 |
| Checking Connection with Air Conditioners | While checking connection with Air Conditioners after application startup by turning power ON with normal mode setting. | Connection check with air conditioners is completed. | 1 time flashing after OFF for 5 seconds |  | 13 |
| Air Conditioners Connection Error | Error is detected in communication with one or more air conditioners after connection checking. | Communication with all detected air conditioners is in a stable state. | 1 time flashing after OFF for 3 seconds |  | 14 |
| In Proper Operation* | None of the above meets the condition of the adapter after application startup by turning power ON with normal/self-checking mode setting. | Condition of this adapter meets one or more conditions above. | OFF |  | 15 |

Refer to [Troubleshooting].





















* After indicating “C0” for checking connection, the 7-segment LED will display “00” upon entering the normal operation state. If one or more air conditioners identified on previous connection verification are not detected in the current status check (upon recovery from power failure), “OE” will be displayed on the 7-segment LED indicating a connection error after displaying “00” for three minutes.

[Self-Checking Mode]

In this section is described the procedure for checking each function item in self-checking mode.

- (1) Turn OFF the power of CCCA01.
- (2) Remove all the cable and wiring connected to CCCA01, air conditioners, management computer and other external devices.
- (3) Set all pins of SW2 "OPTION" OFF, and turn the power ON. (Refer to Item No.1 in Table 5.3 of the installation manual CCCA01.)
- (4) Self-checking will be initiated. (Check if 7-segment LED is indicating self-check mode in Table 5.3 of the installation manual CCCA01.)
- (5) Check each functionality by switching pin settings of SW2 "OPTION" as shown in Table 6.7.
- (6) Each checking procedure will start upon pressing down SW5 "OPTION" switch after setting SW2 "OPTION".
- (7) Upon completing self-checking, turn the power of CCCA01 OFF, and set SW2 "OPTION" as set before self-checking, and turn ON CCCA01.

Table 6.7 DSW Setting and Checking Contents in Self-Checking Mode

| No. | SW2 "OPTION" DSW Setting | Setting Condition | 7-Segment LED Display | | | Checking Item | Description |
|-----|---|-------------------|---|---|--|------------------------|--|
| | | | Begining | Normal | Error detected | | |
| 1 |  | Pin 1 and 2 ON |  |  |  | H-LINK Communication | Check the communication status on H-LINK |
| 2 |  | Only Pin 3 ON |  |  |  | Ethernet Communication | Check the communication status on Ethernet. Select the IP Address of this device 192.168.0.3 then check. |
| 3 |  | Pin 1, 2 and 3 ON |  |  |  | SW2 "OPTION" Read | Check if SW2 "OPTION" is read correctly. After starting diagnosis, turn all the Pin OFF, then turn them ON one after another (1 Pin ON→1 Pin OFF→2 Pin ON→2 Pin OFF... 8 Pin ON→8 Pin OFF). If 30 seconds after starting diagnosis, all the Pin don't turn ON, 7E will be indicated. |
| 4 |  | Only Pin 4 ON |  |  |  | SW5 "MODE" Read | Check if SW5 "MODE" is read correctly. After starting diagnosis, turn all the Pin OFF, then turn them ON one after another (1 Pin ON→1 Pin OFF→2 Pin ON→2 Pin OFF... 8 Pin ON→8 Pin OFF). If 30 seconds after starting diagnosis, all the Pin don't turn ON, 8E will be indicated. |
| 5 |  | Pin 2 and 4 ON |  |  |  | LED light Check | Check if LED and 7-segment LED lit correctly. |

*1: When performing the Read check of DSW, take a memo of the setting condition to be able to go back to the original condition.

*2: Do not conduct self-checking with setting other than specified above.

[Initialization of IP Address Setting]

In case you forget the IP Address which has been changed, in [Settings] > [Network register] from the management software in normal mode, it is possible to restore it to the factory setting (default setting).

Factory-Setting (Default value)

IP address : 192.168.0.3
Subnet mask : 255.255.255.0
Default gateway : 192.168.0.1

<Procedure>

- (1) Remove the top cover of the adapter and set Pin 8 of the SW2 "OPTION" as shown in the figure below.
* In normal operation mode, Pin 1 is already ON. Set Pin 8 to ON.



- (2) Wait for the 7-segment LED to display the indication below.



- (3) Turn the Power OFF and check that all the LED indicators are turned OFF. Switch SW2 "OPTION" Pin 8 to OFF, then turn the Power ON again and reinstall the top cover of the CCCA01.
- (4) Set IP address from [Settings] > [Network register] in the management software (CCCS01) again.

[Periodic Check]

To maintain the healthy operation of the air conditioning control system, periodically check the following items:

- (1) Environment
 - Ensure that the temperature of the CCCA01 is not abnormally or extremely high.
 - Ensure that the ambient temperature, where the CCCA01 is located, is not abnormally high.
 - Ensure that the CCCA01 is kept free of dust, debris and wire clippings.
- (2) Display
 - Ensure that the POWER LED is ON.
 - Ensure that the ERROR LED display indicates normal operation.
 - Ensure that the H-LINK LED and the LAN LED indications are normal.
 - Ensure that the 7-segment LED is indicating "00".
- (3) Installing
 - Ensure that the screws are properly tightened and fastened.
 - Ensure that all wires are correctly connected.

NOTICE

- Because this adapter is equipped with the POWER Back-up function, even if the Power to the device is turned OFF, the POWER LED light may continue to illuminate for a moment. Check that POWER LED light is OFF before performing any more work.
- In the case that a fault has occurred accompanied by flames or smoke, turn the Power OFF immediately.
- DO NOT perform any modifications to the inner electronics of the adapter. It will cause a malfunction.

[Troubleshooting]

This chapter describes methods for troubleshooting. Do not proceed unless the power is turned OFF.

Table 6.8 Troubleshooting

| No. | Condition | Check Items | Action | | | | | | |
|-----------------------------------|--|---|--|--|-----------|-------------------|-----------------------------------|----|--|
| 1 | The CCCA01 does not operate even after turning the power ON. | Is the power line connected to the CCCA01? | Connect power line to the CCCA01. Ensure that the power supply to the UPS is OFF before doing any wiring. | | | | | | |
| | | Is the power supply for the UPS ON? | Turn the power of UPS back ON. | | | | | | |
| | | Is the power to the CCCA01 turned ON? | Turn the power of the CCCA01 back ON. | | | | | | |
| | | Is the supplied voltage adequate? | Measure the power voltage. If the value is out of the range of 24VAC±10%, check the writing and wiring method. | | | | | | |
| | | Are both power fuses in proper condition? | Replace with new fuses if they are blown. | | | | | | |
| | | Is POWER LED illuminated? | There can be a defect in the CCCA01 if the POWER LED is not illuminated without meeting conditions described above. Contact your distributor or dealer. | | | | | | |
| | | Does ERROR LED and/or 7-Segment LED show one of the following? | The CCCA01 module could be defective. Contact your distributor or dealer. | | | | | | |
| | | <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">ERROR LED</td> <td style="width: 50%;">7-Segment LED</td> </tr> <tr> <td>ON</td> <td>E0/E1/E2/E5/E6/HE</td> </tr> <tr> <td>Repeated ON/OFF for 1 second each</td> <td>tE</td> </tr> </table> | ERROR LED | 7-Segment LED | ON | E0/E1/E2/E5/E6/HE | Repeated ON/OFF for 1 second each | tE | |
| ERROR LED | 7-Segment LED | | | | | | | | |
| ON | E0/E1/E2/E5/E6/HE | | | | | | | | |
| Repeated ON/OFF for 1 second each | tE | | | | | | | | |
| 2 | The CCCA01 does not complete connection check. | Is H-LINK wiring connected to the CCCA01? | Connect H-LINK wiring to the CCCA01. | | | | | | |
| | | Is the setting for terminal resistance on the H-LINK wiring adequate? | Use single terminal resistance on H-LINK wiring. | | | | | | |
| | | Is the address setting for the air conditioners consistent? | Modify the address setting according to the installation and operation manual of air conditioner. | | | | | | |
| | | Is H-LINK wiring connected properly? | Ensure that all wiring is properly completed. | | | | | | |
| | | Are all air conditioners connected to the CCCA01 turned ON? | Turn ON all the air conditioners connected to the CCCA01. | | | | | | |
| | | Is the specified cable (refer to Table 7.2) in use? | Use the following cable: - Recommended Size: AGW18~16 - Total length: 3281 feet (Max) | | | | | | |
| | | Does ERROR LED and/or 7-Segment LED show one of the following? | Wait for completing connection checks. If the 7-segment LED shows "CE", which indicates a communication error, then check the wiring and address setting to perform the connection check again. | | | | | | |
| | | | | <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">ERROR LED</td> <td style="width: 50%;">7-Segment LED</td> </tr> <tr> <td>One flashing per 5 seconds</td> <td>CO</td> </tr> </table> | ERROR LED | 7-Segment LED | One flashing per 5 seconds | CO | |
| ERROR LED | 7-Segment LED | | | | | | | | |
| One flashing per 5 seconds | CO | | | | | | | | |
| | | Is the H-LINK LED remained ON/OFF? | <ul style="list-style-type: none"> - Check if the H-LINK wiring is correctly connected. - If the H-LINK circuit protection fuse is blown, after clearing the fault, set Pin 2 ON SW7 "H-LINK". - If the condition does not meet the conditions described above, there can be a defect in the adapter. Contact your distributor or dealer. | | | | | | |

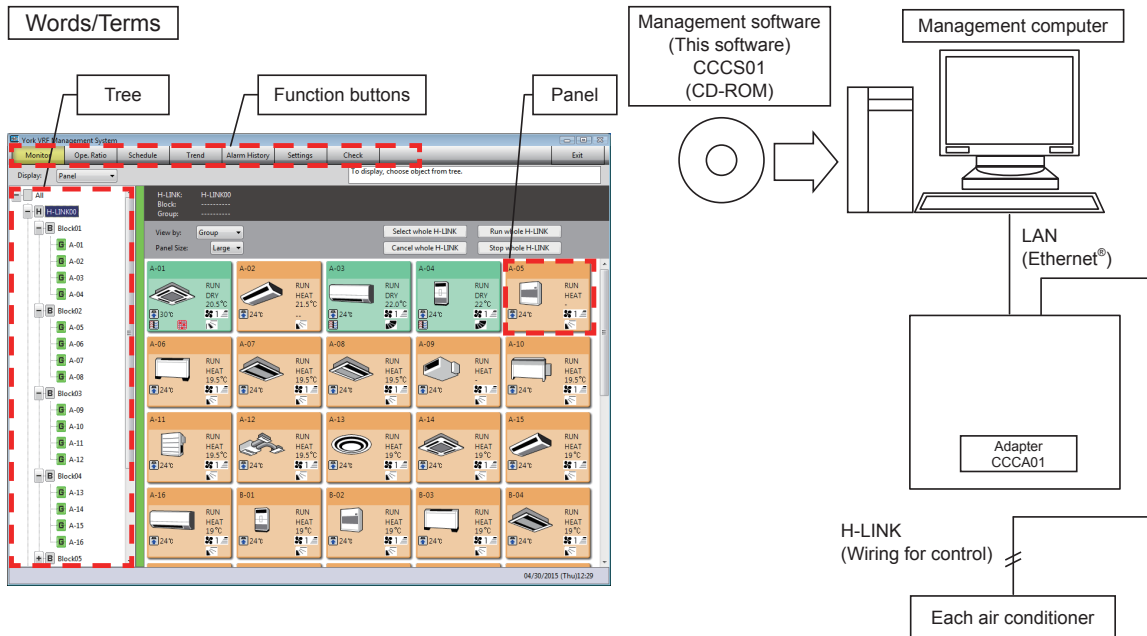
Table 6.8 Troubleshooting (Continuous)

| No. | Condition | Check Items | Action | | | |
|---------------------------------|--|--|--|-----------|---------------|----------------------------|
| 3 | The CCCA01 does not connect with the management computer. | Is the LAN cable connected to CCCA01? | Connect LAN cable to CCCA01. Check the connector fit. | | | |
| | | Is the LAN cable connected to the management computer? | Connect LAN cable to the management computer. Check the connector fit. | | | |
| | | Is the IP address of CCCA01 specified in CCCS01 in the management computer? | The default IP address is 192.168.0.3. Adapt the default address by following Clause 8.3 when the modified address is lost. | | | |
| | | Is the power of HUB ON? | Turn the HUB ON. | | | |
| | | Is LAN wiring using the specified method (refer to Table 7.2) ? | Use the following cable. - Category 5 or more - Total length: 328.1 feet or less Use the straight cable and connect to the management computer via HUB. | | | |
| | | Does the LAN wiring appear to be in normal condition? (This is to mean, is there any unusual wear or damage?) | Replace with new Cable. | | | |
| | | Is the management computer in normal condition? | Replace with new computer. | | | |
| | | Does the LAN cables run in close proximately to the power cable? | Maintain a distance of at least 6 inches between the LAN cable and the power source cables. | | | |
| | | Is the LAN LED OFF? | If the management computer and LAN wiring appear in the normal condition, there could be a defect in CCCA01. Contact your distributor or dealer. | | | |
| | | Is there an incorrect DSW (DIP Switch) setting? | If DSW setting was modified, check again by referring to Table 7.4. | | | |
| 4 | Air conditioners cannot be controlled by management computer (CCCS01). | Does the ERROR LED and/or 7-Segment LED show one of the following ? | Communication is not properly established. Check the wiring connection for air conditioners and H-LINK. | | | |
| | | <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">ERROR LED</td> <td style="width: 50%;">7-Segment LED</td> </tr> <tr> <td>One flashing per 3 seconds</td> <td>OE</td> </tr> </table> | | ERROR LED | 7-Segment LED | One flashing per 3 seconds |
| | | ERROR LED | 7-Segment LED | | | |
| | | One flashing per 3 seconds | OE | | | |
| | | Are all of air conditioners connected to CCCA01 turned ON? | Turn ON all of air conditioners connected to CCCA01. | | | |
| | | Is the setting for terminal resistance on H-LINK wiring adequate? | Use single terminal resistance on H-LINK wiring. | | | |
| | | Is the address setting of the air conditioners consistent? | Modify address setting according to the installation and operation manual of air conditioner. | | | |
| | | Is H-LINK wiring connected properly? | Check H-LINK wiring connection. | | | |
| | | Is H-LINK wiring running along the power line? | Maintain a distance of at least 6 inches between the H-LINK wiring and the power cable from the main power source. | | | |
| | | Is the specified cable (refer to Table 7.2) in use? | Use the following cable: - Recommended Size: AWG 18~16 - Total length: 3281 feet (Max) | | | |
| Does the H-LINK LED remain OFF? | Check H-LINK wiring connection. | | | | | |
| Does the H-LINK LED remain ON? | There could be a defect in the CCCA01. Contact your distributor or dealer. | | | | | |

6.10.6.3 Management Software Installation

6.10.6.3.1 Important Notice

- Proper control and/or monitoring may not be available due to a device failure or other unexpected conditions. Discuss an alternative plan how to react in such cases (another control monitor method by other than this system, such as by remote controller), in advance.
- Be sure to conduct a test run on all indoor units upon starting daily operation. Also, check the operation on the following day.
- When the entire air conditioning system is not running properly, perform a system reset to regain control.
- Use of this software is restricted to the management computer. Suspend operation of the DX software application if the PC will be used to run other programs or execute other computing tasks.
- Management computer, this software and the adapter are assumed to be always ON. Trend data, alarm history and check data cannot be recorded while the computer is in standby status or OFF.
- Time management is important in overall monitoring and control. If unnecessary or unauthorized changes are made to these settings, critical operations will be degraded.
- Computer management differs from air conditioning management. Upload periodically and discuss the uploading procedure in advance.
- The management computer is not included in the software package. Expenses for installation and data migration are not included with this system.
- Use the correct screen resolution to maximize screen visibility.
- This windows software application supports TOOLTIP (group name and block name are revealed as the mouse hovers) system in a prioritized tree format view. Note that a software upgrade may be required to allow TOOLTIP display all items or work on all computer terminals.
- Upon utilizing CCCS01, up to 16 adapters can be connected and controlled by one management computer terminal.
- Use the keyboard only to input characters.
- When an alarm code 60, 61, 64 or 65 is generated, a communication error between each air conditioner and this system is displayed. Therefore, each setting value of one, some, or all air conditioners may be invalid.
- The reference images printed in this manual are only examples. That which is displayed may differ from what is shown in the actual window.
- In case a pop-up window like the control window cannot appear entirely on the screen, change the size of the taskbar using the mouse so that the hidden portion of the pop-up window can be revealed.



| Terms | Definitions |
|---------------------------------------|--|
| Non RC; (Remote controller-less) unit | Non RC equipped units display indoor units without a remote controller connected. This does not include cases where multiple indoor units are connected or set to be controlled and monitored by a single remote controller. |
| Facility unit | These units are monitored and controlled by this software by way of contact point(s). |
| UPS | UPS stands for Uninterruptible Power Supply |

6.10.6.3.2 Before Installation

1. Fill in the "System Information" of the attached the item 6.10.6.3.7 "Addenda" to determine each network address for each device.
2. In case of performing monitoring and controlling on the layout, it is possible to continue the setup smoothly by creating a new data for the layout before Test Run. Concerning the fabrication method for the layout data, refer to the item 6.10.6.3.4 Initial Setting " Layout Register".
In the case that the layout is displayed, prepare the picture's layout (BMP, PNG, JPEG format) for the ground plan or air view plan.
3. To install this software, installation of the adapter must be completed. Refer to the installation manual for adapter installation.

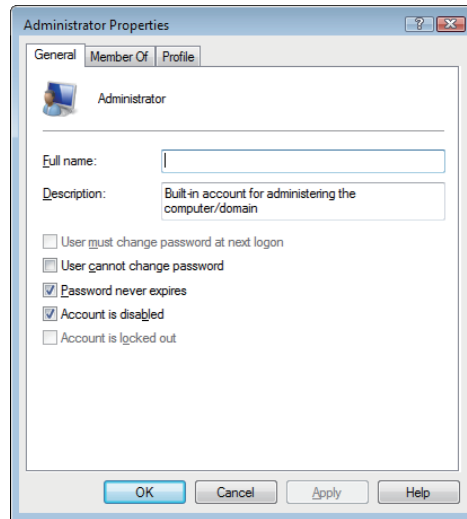
* No signal shall be input at the contact point before installation and initial settings are completed.

NOTE:

Users Accounts Setting

1. Make changes to your user account

- Open “Administrative Tools” then “Computer Management”. Double-click on “Administrator” from “Local User and Group”, “User”.



- Uncheck “Disable the Account” from the Administrator Property then click “OK”.
- Double-click on the User Account other than “Administrator”.
- If “Account is disabled” is unchecked in the User Account Property, check it and then click “OK”.

NOTE:

Check that the setting for **All** the Users Accounts (Except Administrator) are done as explained above.

- Re-start the Management Computer. Click the Start button and see that the User Account name reads “Administrator”, then perform the operation discussed above.

2. User Account Control Settings

- Set “Never notify” for “Change User Account Control settings” of “User Account” in the Control Panel. If these settings are not performed, the system will not work.

NOTE:

Perform the following setting for the control panel.

If the settings are incorrect, monitoring and controlling functions may not operate correctly.

1. Control Panel

Set the control panel display in “Small Icon”.

2. “Personalization”

Set the theme in “Windows 7 Basic”.

3 Taskbar and “Start” Menu

For the “Taskbar appearance” of the “Taskbar”, select “Bottom” for “Using a small icon” or “Taskbar location on screen”.

- Monitoring and Controlling are dependent on the clock in the management computer. Proper operation can not be expected in case unnecessary changes are made to the clock.
- The Taskbar is displayed in the lower part up to one paragraph.

4. Power Options

Set the “Power Option” when the following items are present:

- 1) Select “High Performance” for the power plan. If “High Performance” is not displayed, click on “Show additional plans”.
- 2) Set the following items for “Change plan settings” - “Change advanced power settings”.

| Items | | On Battery | Plugged in |
|-----------------------|--------------------------|------------|------------|
| Hard disk | Turn off hard disk after | Never | Never |
| Sleep | Sleep after | Never | Never |
| | Hibernate after | Never | Never |
| Power buttons and lid | Lid close action | Do nothing | Do nothing |
| | Power button action | Shut down | Shut down |
| | Sleep button action | Do nothing | Do nothing |

* The setting may differ depending on the computer. Check in the computer’s manual for further details.

5. Region and Language set the “First day of week” in “Monday”.

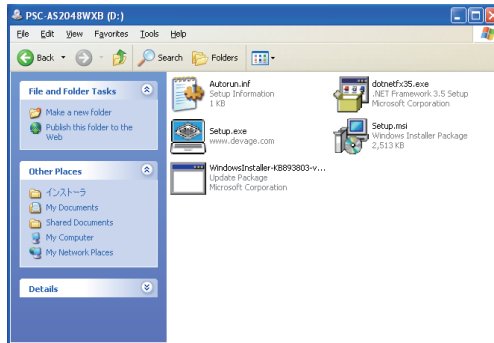
6.10.6.3.3 Installation

1 Installation

- (1) Management computer meeting requirements in the item 6.10.2 Specifications [Specification for Management Computer] is required.
- (2) Insert the management CD into CD drive of the management computer. Installation software will boot automatically.

NOTE:

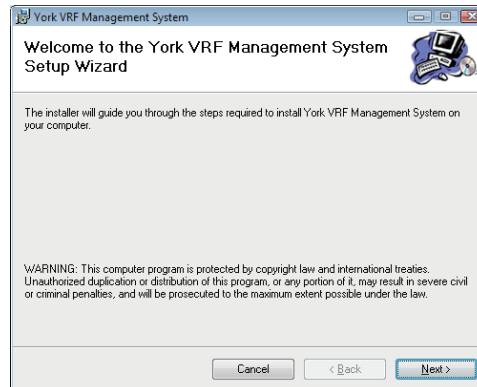
- Double-click on “Setup.exe” to manually start installation if the software does not boot.



NOTICE:

- This software must run in the .NET Framework 3.5 environment. Enable .NET Framework 3.5. The term, “.NET Framework”, is a trademark registered in numerous countries on behalf of Microsoft Corporation in the United States.

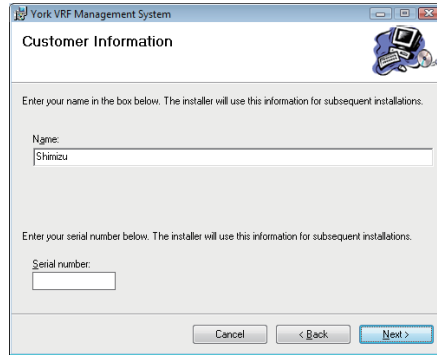
- (3) Click [Next] to install the management software onto the computer.



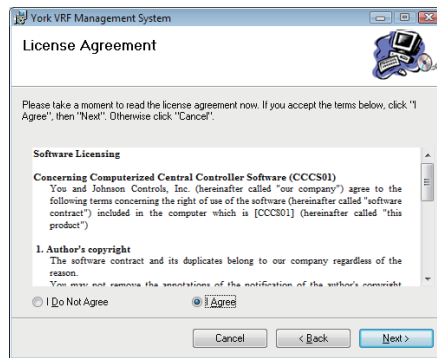
(4) Enter the name and serial number of the product and click [Next].

NOTE:

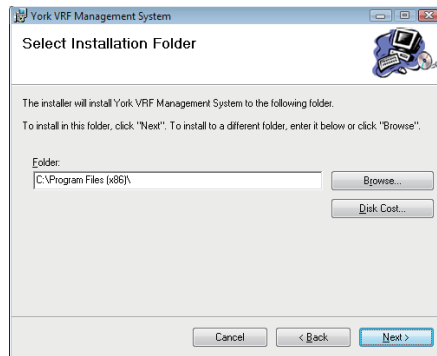
- In the “Serial number” box, enter the “CODE” printed on the label attached to the box it came in.



(5) Confirm the license and restrictions, and select [I Agree] to click [Next].



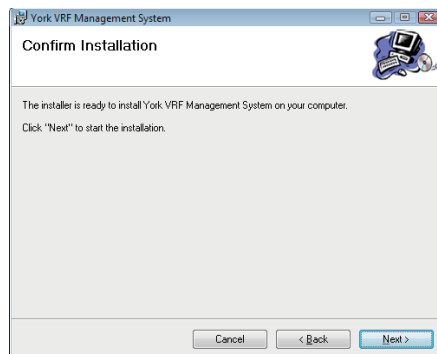
(6) Select the folder for software installation, and click [Next].



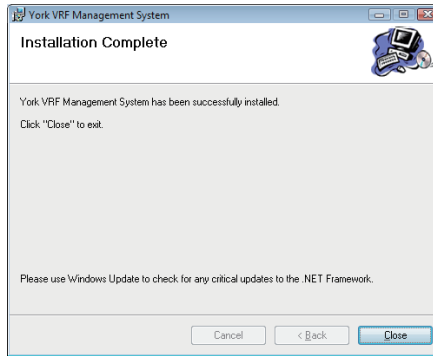
NOTICE:

- Do not change the Installation Folder if not necessary. If necessary, use C:Driver.

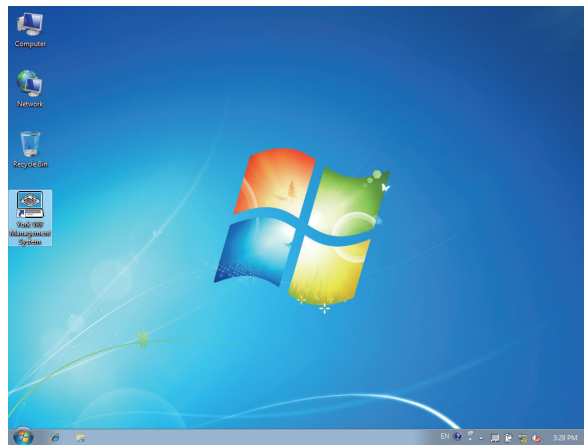
(7) Installation will be initiated upon clicking on [Next].



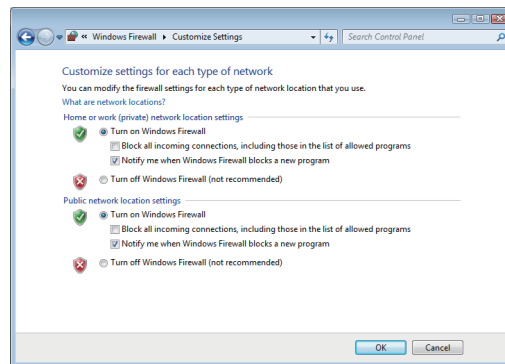
(8) Click [Close] to complete the installation,



(9) Check the box (at left) if the shortcut to the VRF Management System is created on the desktop display.



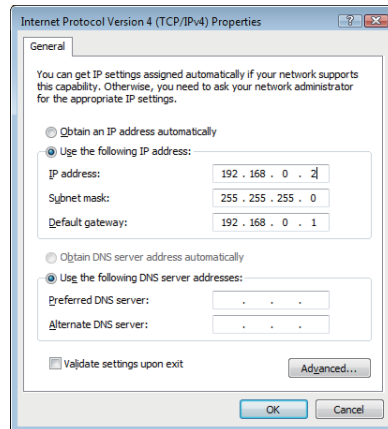
(10) Set Windows Firewall (Go to: [Start] - [Control Panel]) OFF.



NOTICE:

- Disable all the firewall functions if commercial security software is installed. Secure network by firewall of routers.

(11) Change the IP address of the management computer to the specified address. (for example, 192.168.0.2)



NOTICE:

- To change IP address, go to [Start] > [Control Panel] > [Network and Sharing Center] > [Local Area Connection] > [Properties] > [Internet Protocol Version 4 (TCP/IPV4)].

(12) If the automatic shutdown function of the UPS is used, perform the following settings:

- Open "manager_info.ini" in the folder "/centralstation/manager".
- Change "0" to "1" for "ForceCloseOnWindowsSessionEnd=0" in [Other].
- Overwrite: "manager_info.ini" and then close.
- Start Management Software.
- Check that Management Software or Management Computer ends correctly depending on the automatic shutdown function of the UPS.

NOTE:

- To show the screen saver, set the computer as follows:
Setting the items, alarm information such as "In alarm **" (** is for Alarm Code), can be shown on screen. In the event that no error has been detected, "VRF management system operating" shall be displayed.

Screen Saver "Photos"
Settings - Use pictures from "Pictures"
Slideshow speed "Medium"

- * Ensure no picture exists in this folder. Delete or copy all pictures to other folder before installation.

NOTICE:

- To change screen saver, go to [Start] - [Control Panel] - [Personalization].

6.10.6.3.4 Initial Setting

1 Daylight Savings Time is required to be set.

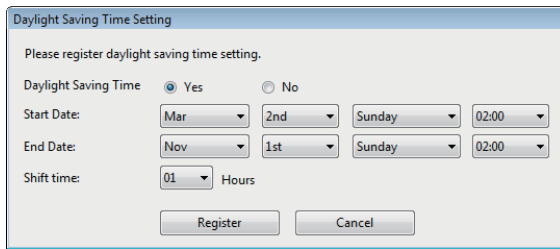
NOTE:

- To proceed, perform the Test Run operation for all air conditioners and installation of the adapter must be completed, and management computer, adapter, and all air conditioners must be turned ON.

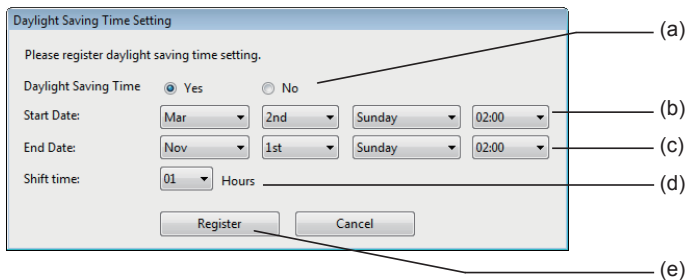
1 Daylight Saving Time Setting

This chapter describes the procedure for setting Daylight Saving Time. This display is shown only first start up.

- (1) Start up the management software.
 [Daylight saving time setting] is displayed.



- (2) Input the required setting for daylight saving time.
 (a) Select [Yes] or [No] for daylight saving time.
 (b) Select Start date.
 (c) Select End date.
 (d) Select Shut time.
 (e) When completing to set 1 to 4, click [Register].



NOTE:

- When registering daylight saving time by management software, this system specific time zone will be set to the OS. Do not change the time zone setting of the OS directly, otherwise this system cannot work normally. When changing the daylight saving time setting, register it by this management software.

NOTICE:

- When selecting [Cancel], management software will shut down.

2 Network Register is required to be set.

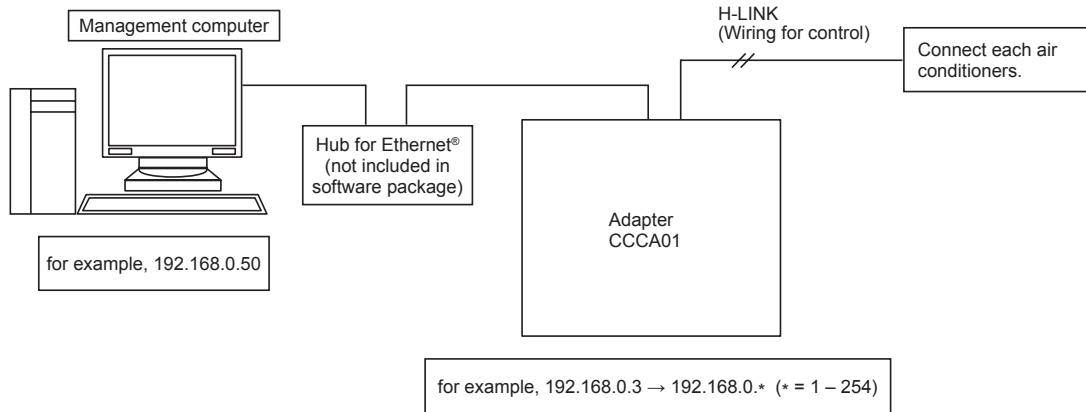
2 Network Register

This chapter discusses the procedure for setting adapter's address, and setup of availability for communication with the adapter.

- (1) When changing the default address for the configuration, connect the management computer only to the adapter by way of a LAN (Ethernet®) cable as shown below.

Default Address for Adapter

| Address Item | Default Values |
|-----------------|----------------|
| IP address | 192.168.0.3 |
| Subnet mask | 255.255.255.0 |
| Default gateway | 192.168.0.1 |



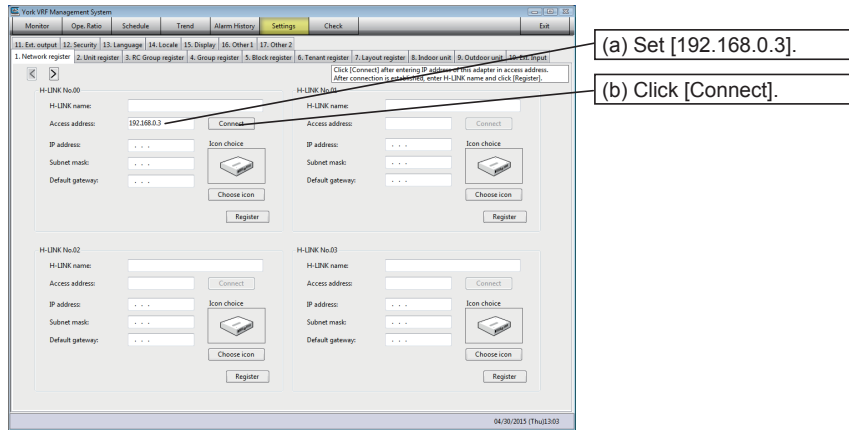
- * **Default IP address of the adapter is 192.168.0.3. Devices can not communicate on the LAN when a duplicated address exists on the same network. Set each adapter's address when connecting multiple adapters.**
- * **Use a straight cable for the LAN cable and connect management computer and adapter by way of a hub for the Ethernet®.**

NOTICE:

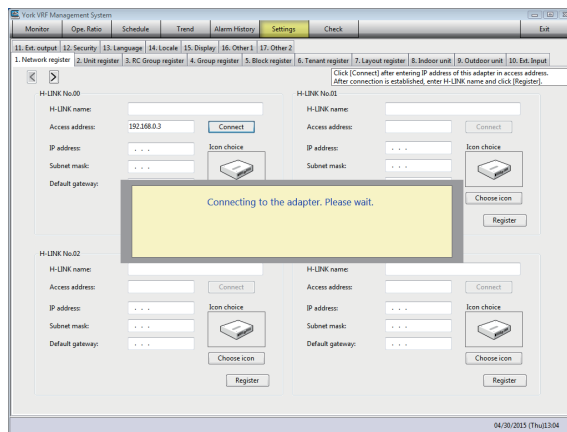
- Upon connecting single adapter only to a single adapter, the adapter with the default address: (192.168.0.3) and management computer with the adapter's default address with last digit modified (for example, 192.168.0.50) can establish a connection.

(2) Go to [Settings] > [Network register], set [192.168.0.3] to the empty box with the smallest H-LINK number for access address and click [Connect].

**Set [192.168.0.3] to the IP address and check that there is one adapter ON.
Do not click on the “connection” button when two or more adapters are ON.**



(3) Wait for the pop-up window to disappear.



NOTICE:

[On communication failure]

In case a pop-up message indicating that connection is not properly established is shown, check the following items and attempt to reconnect.

- If the adapter turned ON
- If the access address specifies the address of connecting adapter. (Adapter's default address is 192.168.0.3)
- Is the LAN cable correctly connected? The LAN cable is a straight cable and the Management Computer is connected to the adapter by way of a hub for the Ethernet.

[When an IP Address, Subnet Mask, or Default Gateway are not displayed],

Check the following items and perform these connections again.

- Is the setting of the adapter DSW (SW2) connection correct?
Are the adapter DSW (SW2) (1-pin and 3-pin) both ON?
(The "1-pin" is ON for Normal Mode.)
- Is the adapter connected? (Operation Control Mode)

- (4) Wait until the error pop-up message disappears, then enter H-LINK name and the desired IP address.
 (for example, 192.168.0.5)
 Change the subnet mask and default gateway when needed.

(a) Input H-LINK name
 (b) Input desired IP address
 (c) Input desired subnet mask
 (d) Input desired default gateway
 (e) Select desired icon.

NOTE:

- **H-LINK name is a required item.**
- The following characters may not be used in the H-LINK name: “ , ”, “ ; ” and “ & ”.

NOTICE:

- Contact the network administrator for setting the IP address, subnet mask and default gateway. No default gateway is required to connect LAN to this system. Regarding issues of network security, contact the network administrator.

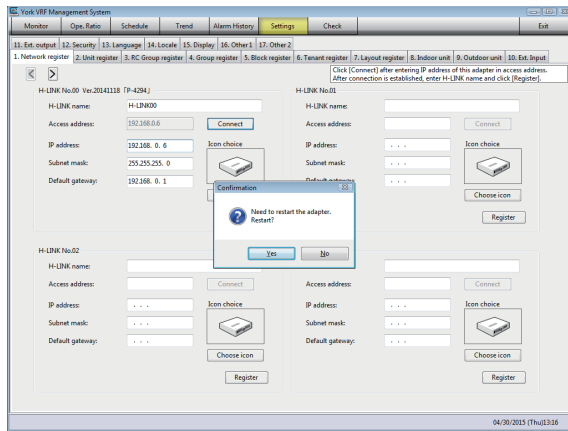
- (5) Click on [Register].
 To ensure normal operation, click on the [Register] button even if no part of the H-LINK name, IP Address, Subnet mask, or default gateway is in any way changed.

(a) Click [Register].

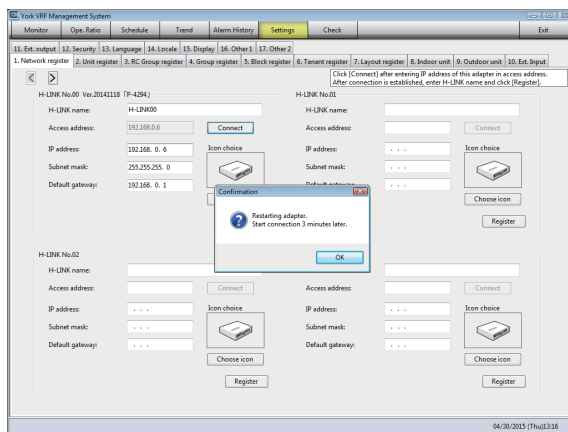
NOTICE:

- If registration isn't completed, follow item No.10 of [Service] > [3] Troubleshooting > [Initiating], then perform a clock correction of the Adapter.

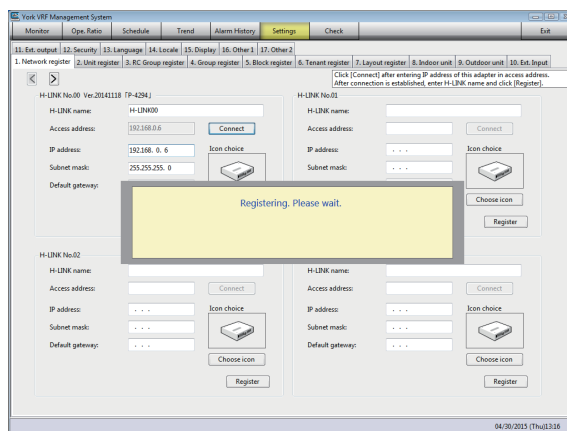
(6) Click [Yes] in the pop-up window indicating that the adapter will restart.



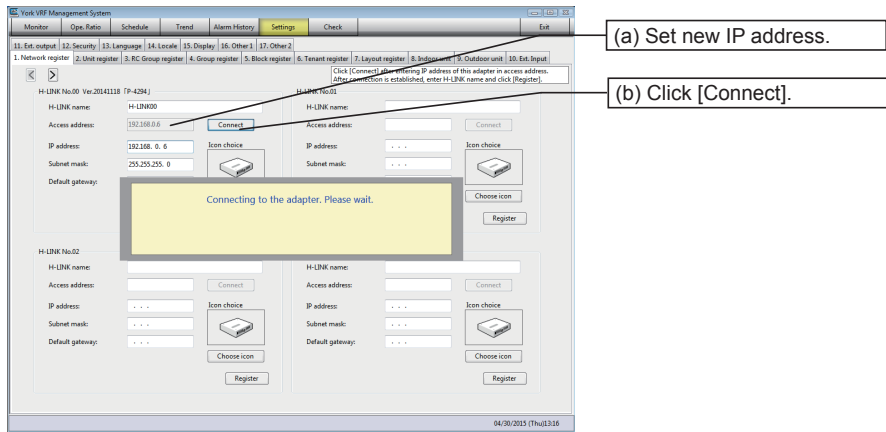
(7) Click [OK] in the confirmation pop-up.



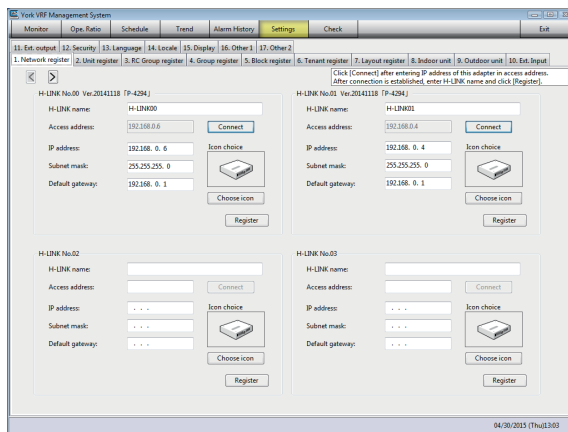
(8) Click on [Connect] again, to actually terminate the connection with the adapter.



(9) Wait three minutes and set the new IP address (for example, 192.168.0.5), and then click [Connect].



(10) The address for the adapter has now been set. For connection with two or more adapters, repeat steps one through nine, issuing H-LINK numbers, beginning with the smallest number. When all the configuration work is done, connect all adapters to the Ethernet® hub and click [Connect] to check communication with the adapters.



NOTICE:
 It is possible to check if the adapter and the Management Computer are connected by way of a LAN by following the steps below:
 1. Select [Start] > [Program] > [Accessory] > [Command Prompt] from the Management Computer.
 2. Enter the IP address to connect following the “ping”. (for example, ping 192.168.0.3)
 3. A LAN connection will be indicated if the request “Reply from ...” is displayed.
 If not, “Request timed out” will be displayed.

NOTE:
 When changing the settings for Subnet mask and Default Gateway, the IP address is required.
 After changing the unused IP address, the desired Subnet mask and the desired Default Gateway by way of steps (1 through 9), change to the desired IP address following the steps (1 through 9).

3 Unit Register is required to be set.

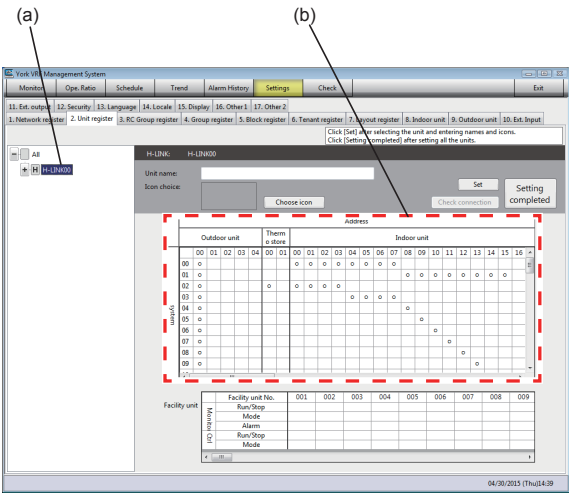
3 Unit Register

(1) Go to [Settings] > [Unit register] and check if the refrigerant cycle, address, and the number of outdoor and indoor units, and thermal unit (shown displayed from the top to bottom in level of importance in a prioritized tree format) are all correct.

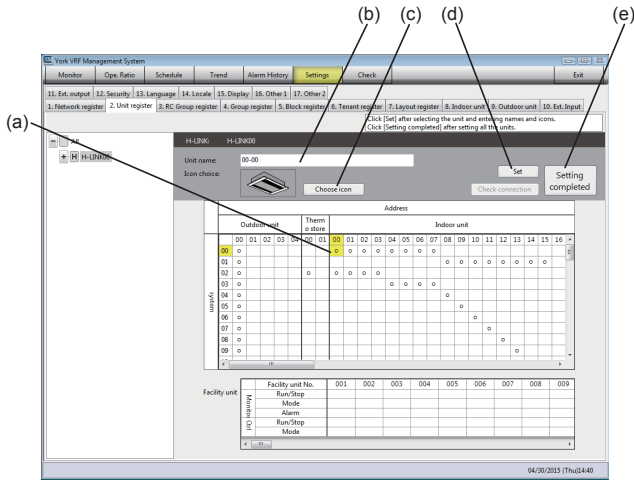
NOTICE:

- In case the number of the unit or address are not shown correctly, there may be misconfiguration of units or improper wiring. Correct the setting or wiring and select [Check connection].
- When performing changes or corrections to the constituent structure of the unit or to the wired controller, click on [Check connection] and perform a recheck of the unit.
- Select [Unit] from [View by] in [Monitor] Display and check if the icon "Without Wired Controller" is indicated in the units with wired controllers. If indicated, check [Service] > 3 Troubleshooting > [Monitor (Controlling)].
- When leaving the information and check the connection, perform a backup of [/centralstation/rcv/H-LINK**/mnt/ram/harcweb1/download/] (** is for H-LINK number), then check the connection.

- (a) Choose H-LINK.
- (b) Verify the constituent indoor and outdoor units.



- (2) Select indoor unit to set name and icon.
- (a) Choose indoor unit.
 - (b) Set unit name.
 - (c) Select icon.
 - (d) Click [Set].
 - (e) Click on [Setting completed] when all items are set.



NOTICE:

- Each cell color denotes as follows.
 Yellow: Selected
 Blue: Set
 Green: Set completed

- (3) Confirm with item 2 for the entire H-LINK.

NOTICE:

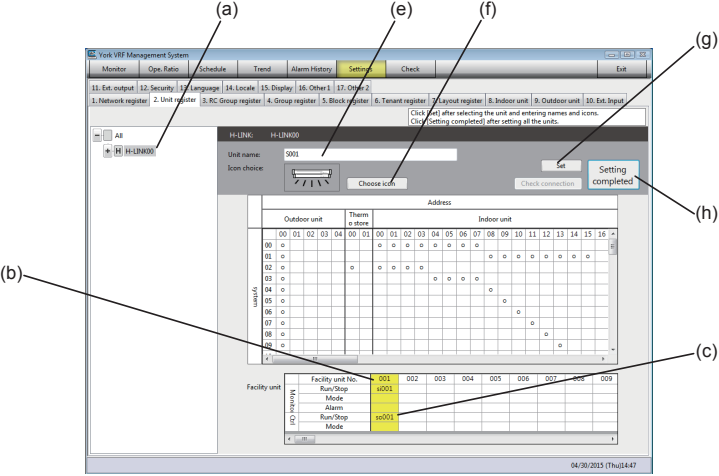
- The maximum limit for each unit name is 64 characters.
- Unit name may or may not have model number or (zero) "0" as a default value.
- The following characters cannot be used in unit name: " , " , " ; " and "&"
- The name and icon for the Outdoor Unit and Thermo Store Unit cannot be changed.

NOTE:

- Items (4) - (6) need to be set if only monitoring and controlling other facility units such as lighting by way of external inputs. When registering the facility unit, input data sequentially beginning at the far left. Verify that the units are registered in sequence. Skipping by one number can cause defects. Also, when deleting a unit, delete data in reverse sequence, moving left from far right.

- (4) Select what to monitor and control by way of an external input and output.
- (5) Select the signal from the external input 1-3 (si001-si003) for monitoring.
- (6) Select the signal from the external output 1-3 (so001-so003) for controlling.

- (a) Choose H-LINK.
- (b) Select facility unit number.
- (c) Select what to monitor or control.
- (d) Select signal.
- (e) Set unit name.
- (f) Select icon.
- (g) Click [Set].
- (h) Click [Setting completed] when all items are set.



NOTICE:

- Each cell color denotes as follows.
Yellow: Selected
Blue: Set
Green: Set completed

NOTICE:

- Each cell color denotes as follows.
Yellow: Selected
Blue: Set
Green: Set completed
Orange: Canceled

- (7) Refer to items (4) to (6) for all H-LINK(s).

NOTE:

- When using facility units, do not use refrigerant system numbers 62-63, for they are reserved as "blank".
- Do not register more than 200 units (total of Indoor units and Facility units) per a single adapter.
- Up to six facility units can be registered.
- The facility units will be displayed after existing units starting from 006 to 001.

4 RC Group, Group, Block, and Tenant

(1) RC Group

- An RC group is a set of wired units controlled by a single wired controller.
- A single H-LINK can consist up to 160 RC groups.
- On units not equipped with RC capabilities, a single indoor unit can constitute one RC group.
- To monitor or control indoor units, these units must be registered in an RC group.

(2) Group

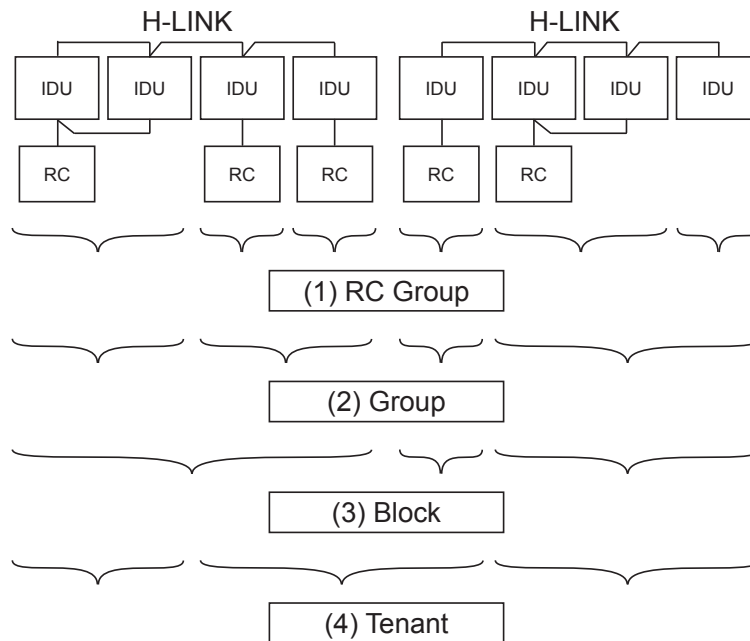
- A group is a set of units that can be monitored or controlled (or both) by this system.
- One or more RC Groups can be registered.
- Up to 128 Groups can be registered to a single H-LINK.
- Up to 160 RC Groups can be registered in a single Group.
- To monitor or Control indoor units and facility units, the units must be registered into a Group.

(3) Block

- A Block is a set of units that can be monitored or controlled (or both) by this system.
- One or more Groups can be registered.
- Up to 64 Blocks can be registered into a single H-LINK.
- Up to 128 Groups can be registered into a single Block.
- To monitor or control indoor units and facility units, the units must be registered into a Block.

(4) Tenant

- A Tenant is defined as a set of units used for operation of the ratio function of this system.
- Up to 256 Tenants can be registered by the entire system.
- Up to 128 Groups can be registered across an H-LINK within a single Tenant.
- It is necessary to register the Tenant when using the operation ratio function in Grouping across an H-LINK.



5 RC Group Register is required to be set.

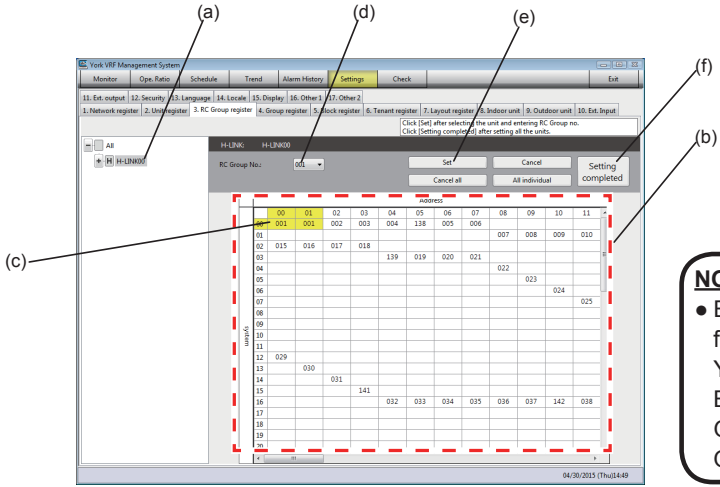
5 RC Group Register

An RC group is a set of wired units controlled by a single remote controller. (Those units may or may not be physically “wired”.) Up to 160 RC groups can be consisted within a single H-LINK. For units not equipped with RC, one indoor unit will constitute a single RC group.

To monitor or control indoor units, the units must be registered in an RC group.

(1) Go to [Settings] > [RC Group register] and check if the group information entries for the indoor unit (top to bottom) shown in the tree are all correct. If a modification is needed or a (letter O) is displayed, select the indoor unit to set the RC group number.

- (a) Choose H-LINK.
- (b) Check the contents.
- (c) Choose indoor unit (if modification is needed).
- (d) Choose the RC group number.
- (e) Click [Set].
- (f) Click [Setting completed] when all items are set.
- (g) Check items from (a) to (f) for all of H-LINK.



NOTICE:

- Each cell color denotes as follows.
 Yellow: Selected
 Blue: Set
 Green: Set completed
 Orange: Canceled

NOTICE:

- If an RC group consists of multiple indoor units, all units within that RC group will be in control of the same command content.
- If a change is made; from the system, to a unit that belongs to an RC group, the change will affect all units in that same RC group. To control indoor units, the system sends control commands only to a single “main unit” that represents the RC group.
- The main unit of the RC group will be automatically selected by this system. The criterion is a number of configurable items, and the unit with most items within the RC group will be determined as the main unit. For example, If an indoor unit with louver and one without a louver are in the same RC group, the unit with the louver will be recognized as the main unit.
- When no difference exists in the number of control items among units, the units with the earliest refrigerant system number and address will be selected as the main unit. If the communication cables within indoor units are not in use, the unit that is connected to a remote controller will be designated as the main unit.

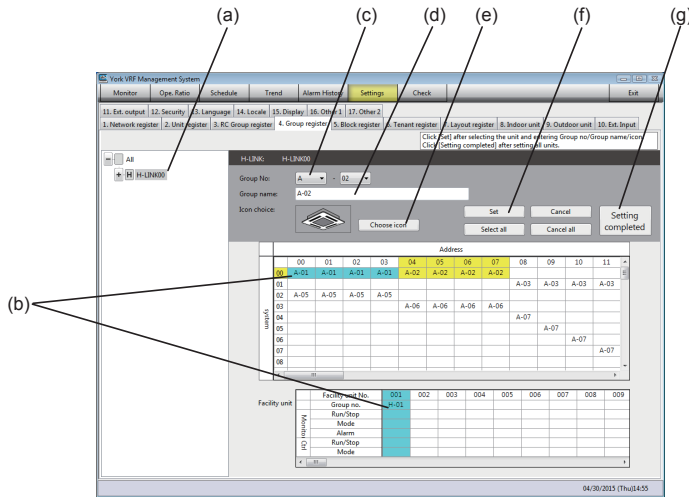
6 Group Register is required to be set.

6 Group Register

A “Group” is defined as a set of units that can be monitored or controlled (or both) by this system. One or more RC groups within a single H-LINK can be registered as Group. Up to 128 Groups can be incorporated within a single H-LINK, and up to 160 RC groups can be incorporated within a single Group. To monitor or control indoor units, these units must be registered within the Group.

(1) Go to [Settings] > [Group register] and allocate an RC group number of indoor units in **[H]** from top to bottom to register the group name and icons.

- (a) Choose H-LINK.
- (b) Choose units. (Indoor unit or Facility unit)
- (c) Choose RC group number.
- (d) Enter group name.
- (e) Select icon.
- (f) Click [Set].
- (g) Click [Setting completed] when all items are set.
- (h) Verify all settings (a to g) for the local H-LINK environment.



NOTICE:

- Each cell color denotes as follows.
 Yellow: Selected
 Blue: Set
 Green: Set completed
 Orange: Canceled

NOTICE:

- The maximum allowable number of characters in a group name is 64.
- The following characters cannot be used in unit name: “ ”, “ ”, “ ” and “&”.

NOTE:

- Erase the schedule of the Group before making any changes. Then, make those changes for the Group in the screen.

7 Block Register is required to be set.

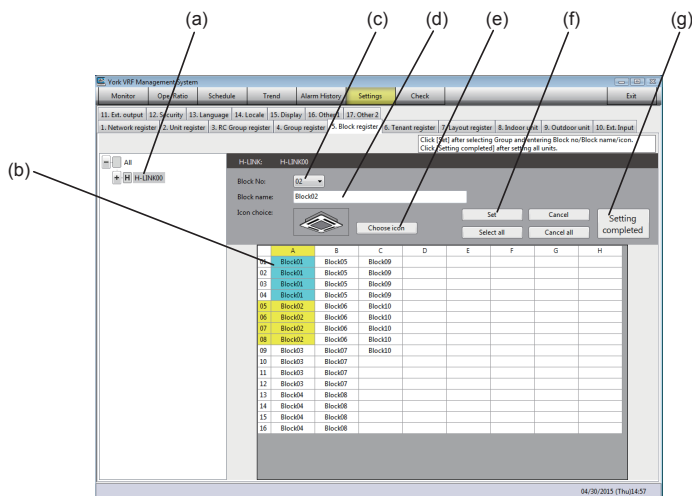
7 Block Register

A “Block” is a set of units that can be monitored or controlled (or both) by this system. One or more groups in a single H-LINK can be registered as a Block.

To monitor or control indoor units, the units must be registered within a RC group.

(1) Go to [Settings] > [Block register] and allocate a group number for indoor units in **H** from top to bottom to register block name and icons.

- (a) Choose H-LINK.
- (b) Choose group.
- (c) Choose a block number.
- (d) Enter block name.
- (e) Select icon.
- (f) Click [Set].
- (g) Click [Setting completed] when all items are set.
- (h) Verify all settings (a to g) for the local H-LINK environment.



NOTICE:

- Each cell color denotes as follows.
 Yellow: Selected
 Blue: Set
 Green: Set completed
 Orange: Canceled

NOTICE:

- The maximum allowable number of characters in a block name is 64.
- The following characters cannot be used in unit name: “ , ” , “ . ” and “&”.

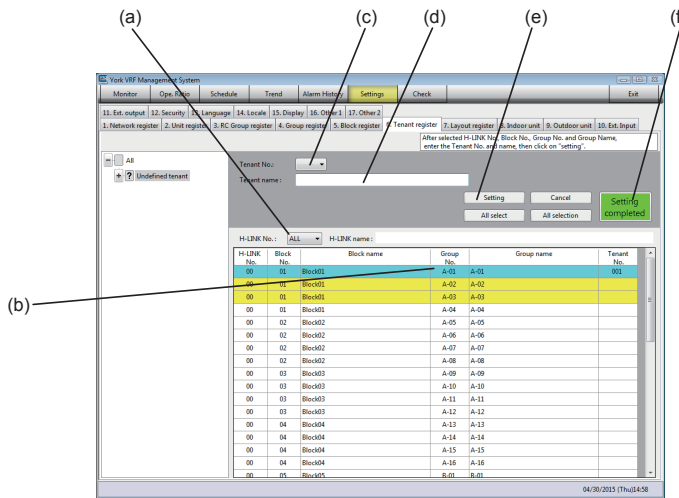
Setting of **8** Tenant Register is a local matter. Set the following items as necessary.

8 Tenant Register

A Tenant is a set of units used for an operation ratio function for this system. Up to 256 Tenant sets can be registered by the whole system. Up to 128 Groups can be registered across the H-LINK within a single Tenant. It is necessary to register the Tenant when using an operation ratio function in Grouping across an H-LINK.

(1) Display [Setting] > [Tenant register] and allow the group indicated in the table of the tenant and register the tenant name.

- (a) Choose H-LINK.
- (b) Choose units. (Indoor unit or Facility unit)
- (c) Choose tenant number.
- (d) Enter tenant name.
- (e) Click [Set].
- (f) Click [Setting completed] when all items are set.



NOTICE:

- Each cell color denotes as follows.
 Yellow: Selected
 Blue: Set
 Green: Set completed
 Orange: Canceled

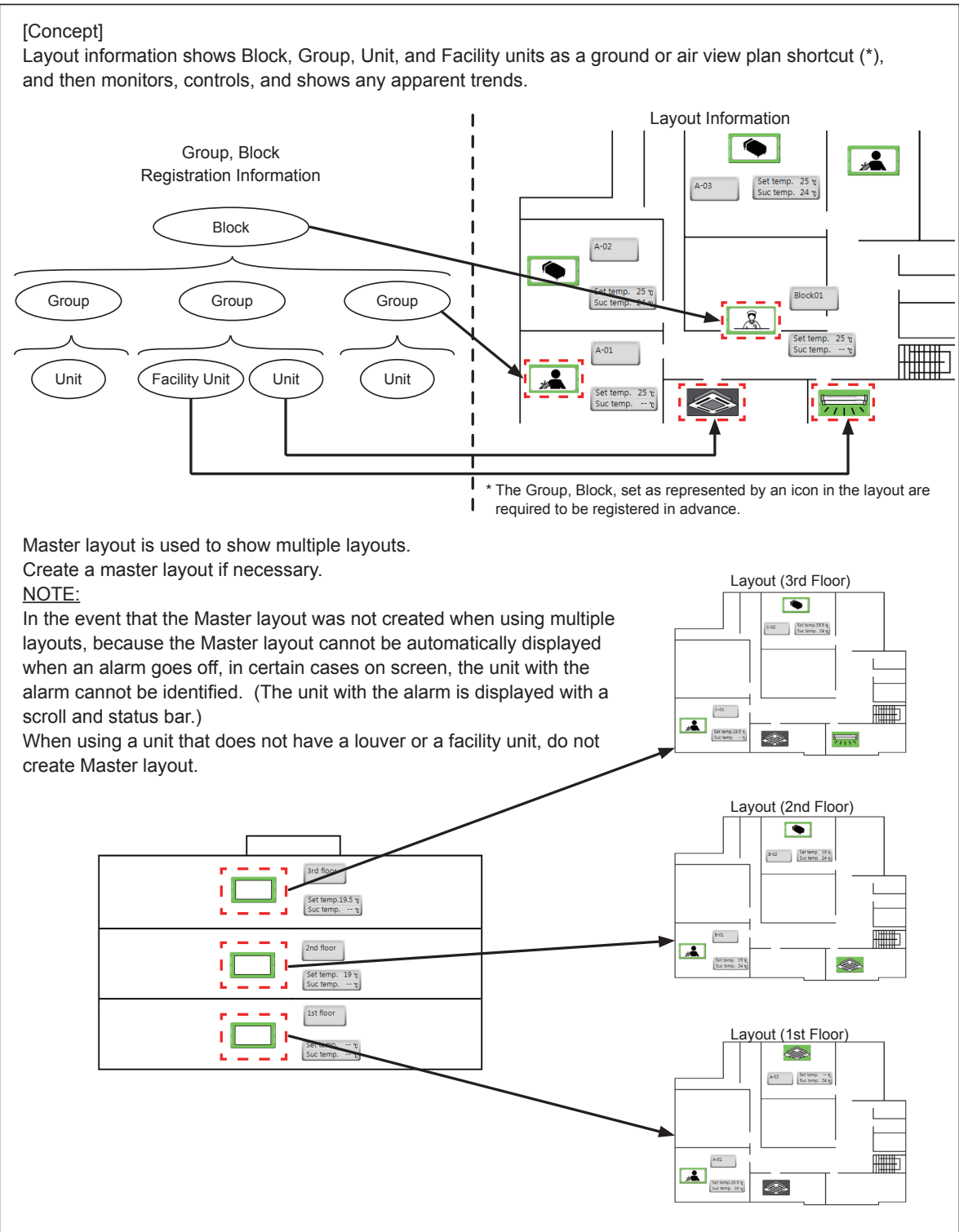
NOTICE:

- The maximum allowable number of characters in a tenant name is 64.
- The following characters cannot be used in unit name: “ , ” ; ” and “&”.

Setup of the Layout Register, 9 is a local matter. Set the following items as necessary.

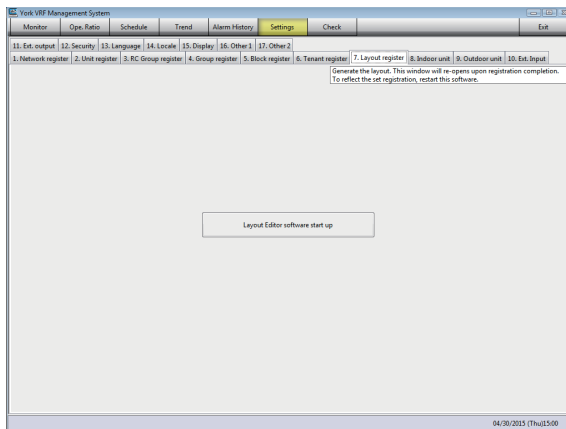
9 Layout Register

Layout is a set of units that can be monitored or controlled (or both) by this system. Total up to 256 icons for Block, Group, Unit (IU), facility unit can be located within a single layout. To monitor or control the unit and facility unit on the Layout screen, the units must be registered into a layout.

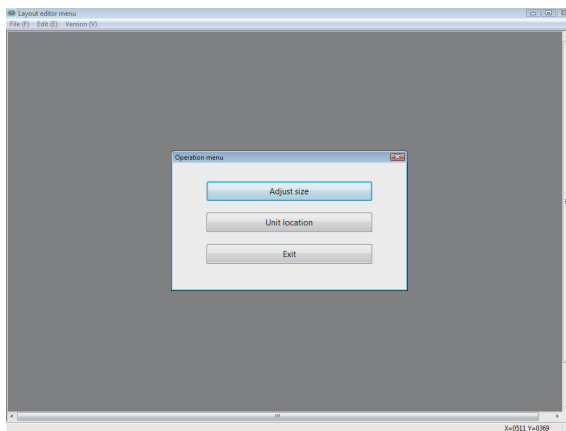


[Start up]

(1) Go to [Settings] > [Layout register].



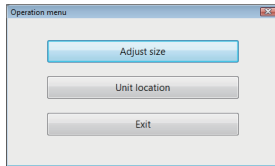
(2) Click on [Layout Editor software start up] to boot up the software.



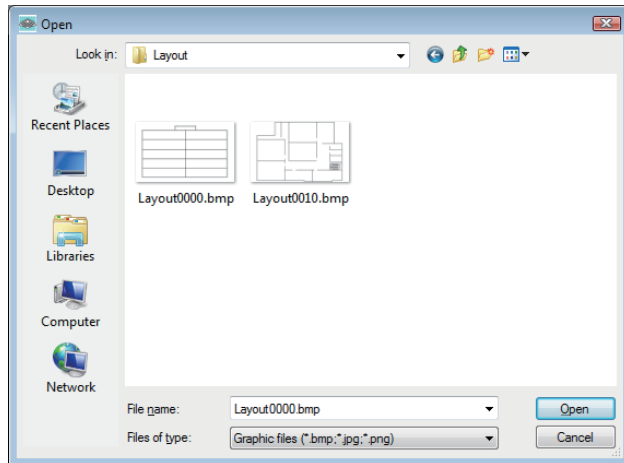
[Adjust Layout Image Size]

It is used to change the size of an image in the Layout.

- (1) Select [Adjust size] in the operation menu.



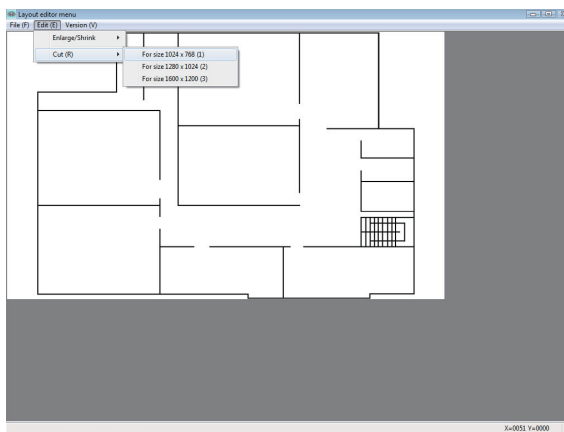
- (2) Select the image used in the Layout.



- (3) Select [Enlarge/Shrink] or [Cut] from menu [Edit].

[Enlarge/Shrink] is used to change the size of the entire image selected.

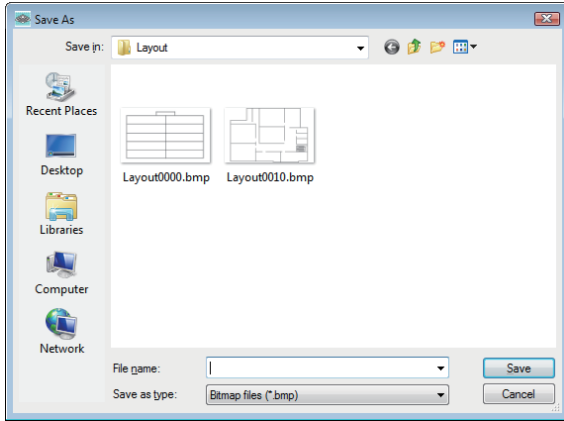
[Cut] is used to select data from a specific location and repaste it in a converted size and resolution.



NOTICE:

- Click the right mouse button and select [Cancel] when you want to cancel [Cut].

(4) Select [Save adjusted plan] from the [File] menu, then enter the file name.



(5) Select [Exit] from menu [File], then return to the Operation menu.

NOTE:

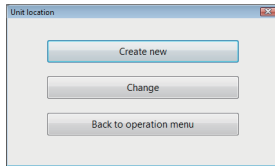
- Perform modification of image size before creating Layout data. If the size of the image has changed after the layout data is created, the reason may be is that the panel located cannot be displayed on screen.

CONTROL SYSTEM

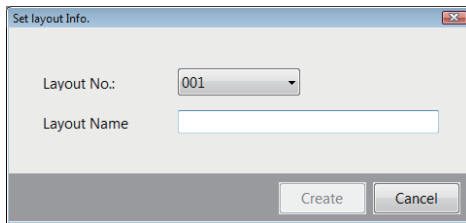
[Unit location - New File]

It is used to create a new file of Layout data to be displayed on screen. Up to 256 icons can be loaded into one single Layout for an individual Layout and up to 128 layouts can be loaded into a Master Layout.

(1) Select [Unit location] from the operation menu to show the unit location menu.



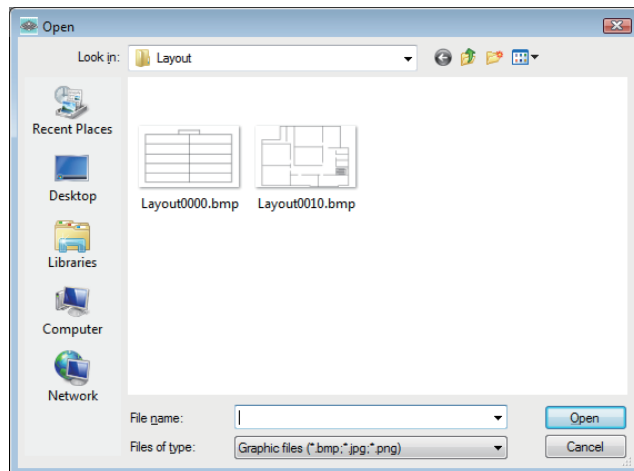
(2) Select [Create new], select [Master layout] or [Individual layout], set the Layout number and name then click on the [create] Button. The Master Layout is used to display multiple Layouts. It can be created if needed.



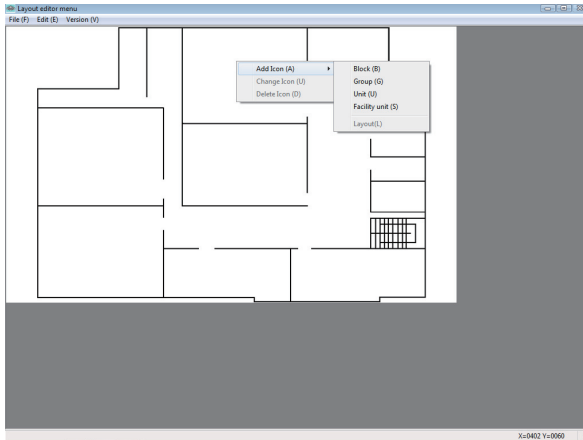
NOTICE:

- The maximum allowable number of characters in a layout name is 64.
- The following characters cannot be used in the Layout name: "&", ":", "/", "*", "?", " ", "<", ">", "|".

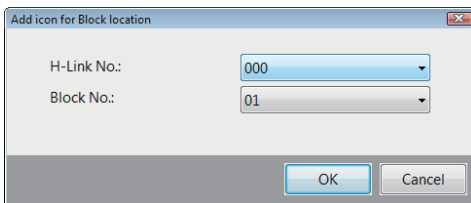
(3) Select the image to use in the Layout data.



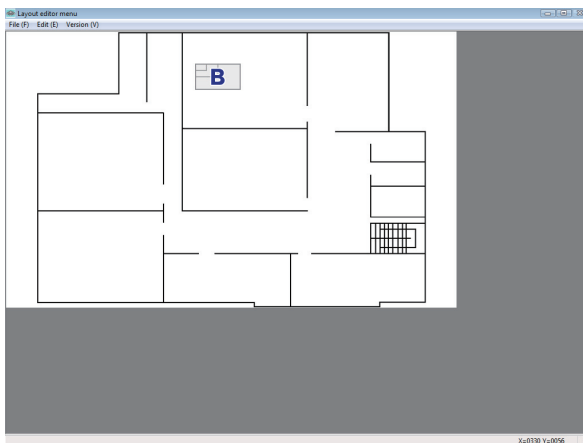
- (4) Right-click to select [Edit] or [Add Icon] and then select the type of icon to insert into the Layout data. It is possible to select Block (B), Group (G), Unit (U), and Facility unit (S) if editing an Individual Layout. If editing a Master Layout, Layout (L) can be selected.



- (5) Select the information of the icon to add.



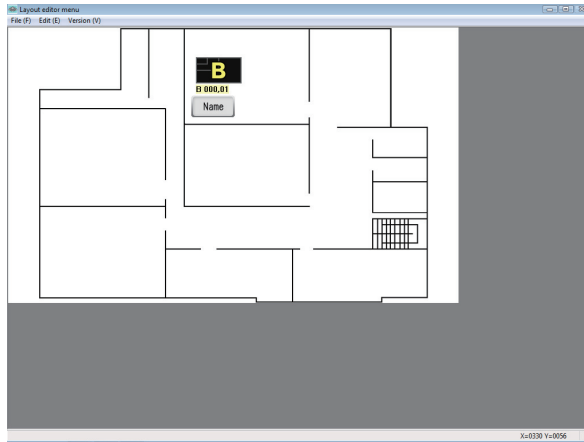
- (6) Select the location of the icon.



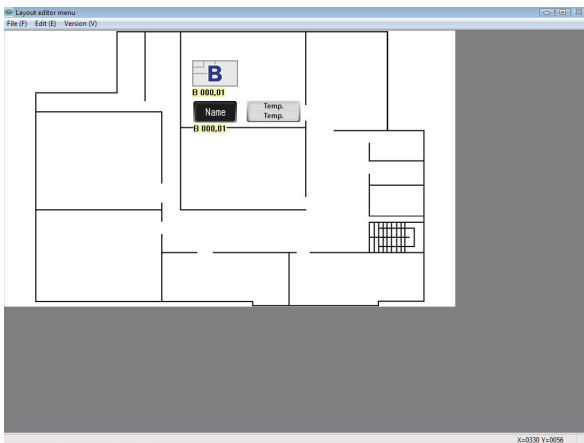
NOTICE:

- The actual icon shown in Management software is an icon set in each registration menu inside the Settings Menu. In the event that a small size icon is set, locate the icon located at the upper left.

(7) Select the location for the icon Name. Select [Skip locating] (right-click) if not found.



(8) Select the location of the Temperature icon. Select [Skip locating] (right-click) if not found. In the event that the Facility unit is selected, the Temperature icon cannot be located.

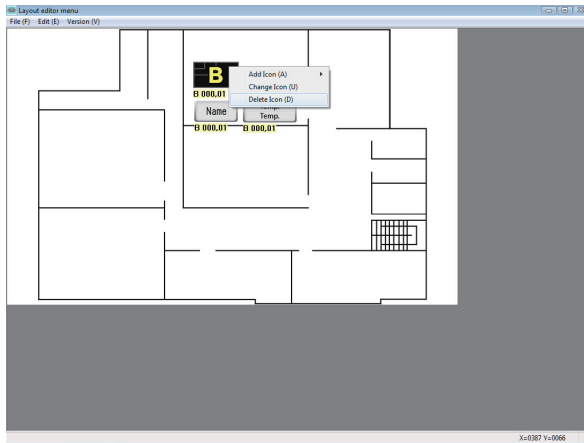


(9) Repeat steps (4 to 8) if you want to add an icon.

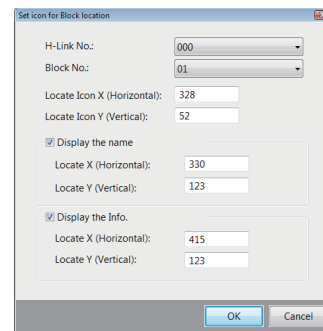
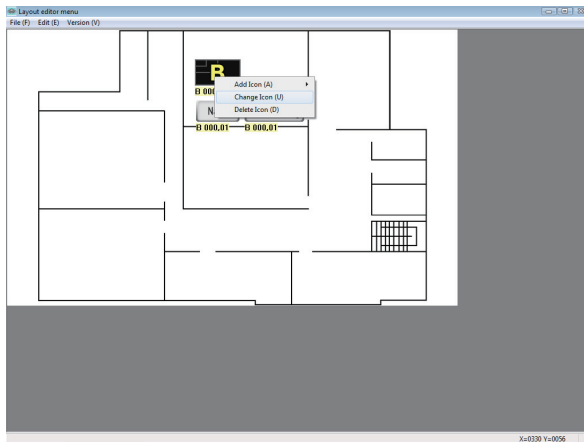
NOTICE:

- When all the icons are shown on the monitor layout screen, position as such so as not to overlap them. When a small-sized icon is set inside Unit, Group, or Block, the possibility exists that icons can become overlapped in the registration screen. Locate the icon that displays an additional line as a reference.

(10) To delete an icon, select the icon and do a right mouse click. Select “Delete Icon” (D) from the list of options. In the instance of the Icon Name or Icon Temperature, only selected icons will be deleted, but if icons B, G, U, S, and L are selected, the Icon Name and Icon Temperature will also be deleted.

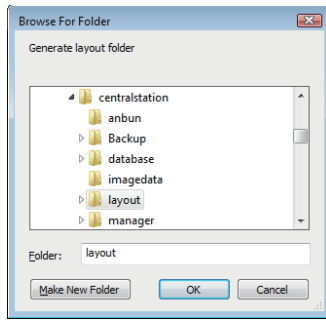


(11) When changing the location of an icon, select it and do a right mouse click. Select [Change icon] and click on [OK] to change the settings of this icon.



(12) To change the location of the icon, click on and drag the icon to the new location.

(13) Select [Save the layout] from the [File] menu, select the [/centralstation/layout] folder, then click [OK].



NOTE:

- Always save in the [/centralstation/layout] folder. If not, the layout will not be displayed.
- Do not create another folder or file within the [/centralstation/layout] folder, otherwise the layout will not display correctly.
- When changing or creating from the layout editor software, always reboot this software. After rebooting, the setting will be displayed.

[Unit location - Modification]

It is for changing the layout data created.

- (1) Select [Unit location] from the operation menu to display in the Unit location menu.
- (2) Click on [Change] and then select the Layout data folder to change.
- (3) Change the Layout data after steps (4 to 12) of the [Unit location - New file]
- (4) Select [Save the layout] from the [File] Menu and then select the [/centralstation/layout] folder and click [OK].

NOTE:

- Always save in the [/centralstation/layout] folder. If not, the layout will not be displayed.
- Do not create another folder or file within the [/centralstation/layout] folder, otherwise the layout will not display correctly.
- When changing or creating from layout editor software, always reboot this software. After rebooting it, the setting will be displayed.

Setting of **10** Indoor Unit Setting is a local matter. Set the following items as necessary.

10 Indoor Unit Setting

Select function for indoor units. To change items in this section, ensure that all indoor units are turned OFF, or proper operation may not be expected.

(1) Go to [Settings] > [Indoor unit] and select functions in **H** from top to bottom.

- (a) Choose H-LINK.
- (b) Click [Update].
- (c) Select indoor units and make modifications.
(When changing the value, the item cell will turn in green.)
- (d) Click [Set].
- (e) When setting multiple Indoor units into the same H-LINK, repeat the steps: (c) and (d).
- (f) Click [Setting Completed] when all items are set.
- (g) Click [Update] and then check if the content set is correctly displayed.
- (h) Follow steps: (a) to (g) to set all values for H-LINK.

NOTICE:

- Each cell color is denotes as follows.
Yellow: Selected
Blue: Set
Green: Set completed

NOTICE:

- It is possible to set the Indoor Unit function selection items b1~FF, i1~i2 and o1~o3 from this system. For other items, perform this setting from the wired controller.
- There exists a condition when settings will not be applied, depending on what particular indoor unit. Refer to the installation and operation manuals for each indoor unit or wired controller.
- Configurable items may vary, depending on each unit type. Refer to the installation manual for each indoor unit.
- If items associated with control functions were changed, check connections, with “utilizing registered data”, according to [3] Unit Register.
- With [Setting Completed] selected (on indoor units), any particular settings for that selected unit will not be displayed.

NOTE:

- Reset again when the control board or remote controller needs to be replaced.
- When multiple central devices are in use, ensure that these items are set from this system. Item b8, (auto cool/heat) needs to be set for all central devices so enabled to be configured.
- When using RC control prohibited, do not set the control lock for the local remote. And, do not change the setting for F8~Fb (control lock) in the function selection.
- When using the RC control prohibited function, do not set the function selections: d1, d3, (Power ON/OFF).
- None of the items including settings b5-b9 will be available when utilizing one of the following.
(a) (non RC equipped units).
- To set item b4 from this system, reset the filter sign and verify that the filter sign is NOT displayed on the wired controller.

Setting of **11** The Outdoor Unit Setting is a local matter. Set following items as necessary.

11 Outdoor Unit Setting

Select functions for outdoor units.

(1) Go to [Settings] > [Outdoor unit] and select those functions in **H** from top to bottom.

- (a) Choose H-LINK.
- (b) Click [Update].
- (c) Select outdoor units and make modifications.
(When changing a value, the item's cell will illuminate in green.)
- (d) Select the check-box when controlling: capacity or noise from the operation of the monitor, (or both), and by either schedule or external input (or both).
- (e) Click [Set].
- (f) When setting up multiple Indoor units in the same H-LINK, repeat the steps: (c) and (e).
- (g) Click [Setting completed] when all items are set.
- (h) Click [Update] and then check if the content set is properly displayed.
- (i) Follow steps: (a) to (h) to set all values for H-LINK.

NOTICE:

- Each cell color denotes as follows.
Yellow: Selected
Blue: Set
Green: Set completed

NOTICE:

- It is possible to set outdoor unit function selection items: HT, Hc, Hh, SC, SH, db, dE, F2 from this system. For other items, create these settings from the outdoor unit.
- There exists a condition when settings will not be applied, depending on the particular outdoor unit. Refer to the installation and operation manuals for each outdoor unit.
- Those items that can be configured may vary, depending on every unit type. Refer to the installation manual for each outdoor unit.
- The checkbox next to Capacity Control will automatically be selected when Lower Noise is selected.
- The checkbox next to Lower Noise will automatically be deselected whenever Capacity Control is not selected.

NOTE:

- There is a possibility that the capacity control function will not work correctly if an outdoor unit which cannot support the Lower Noise function is set to [Lower Noise].
- Both Capacity Control and Lower Noise functions will take affect 15 minutes after being set.

Setting of **12** External Input Setting is a local matter. Set following items as necessary.

12 External Input Setting

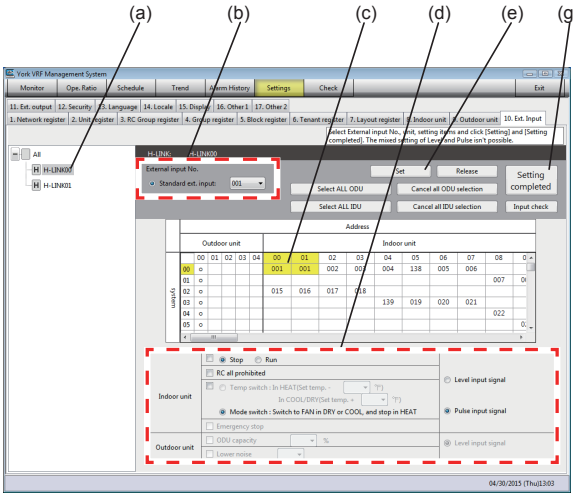
Configuration for control through the input signal from external inputs.

NOTE:

- When performing outdoor unit control, check the content [Settings] - [Outdoor unit].

(1) Go to [Settings] > [External Input] and set the command upon signal transmission on external inputs in **H** from top to bottom.

- (a) Choose H-LINK.
- (b) Select the external input number.
- (c) Select unit to configure.
- (d) Select the control command.
- (e) Click [Set].
- (f) When changing over multiple units, repeat steps (a) - (e) until all desired units are reset.
- (g) Click [Setting Completed] when all items are set.
- (h) Follow steps: (a) to (g) to set all values for H-LINK.



NOTICE:

- If [Input Check] is selected, the input signal status can be checked. The color of each cell is as follows:
 White: Input is OFF
 Green: Input is ON

NOTICE:

- Each cell color denotes as follows:
 Yellow: Selected
 Blue: Set
 Green: Set completed
 Orange: Canceled

NOTE:

- Intervals of five minutes or longer should be set between each input signal from external inputs.
- The standard input signal from external inputs will be controlled according to the following priority. Register urgent signals such as "Emergency Stop" in Standard Input signal from (Priority 1) as it has the highest priority level.
 Priority 1 - Standard Input signal from external Input 1
 Priority 2 - Standard Input signal from external Input 2
 Priority 3 - Standard Input signal from external Input 3

NOTE:

- Set all external inputs to OFF in the following cases:
 1. Changing the content of the external input setting.
 2. Changing the content of RC group setting.
 3. Check the connection.
 When external input is ON in the above cases, correct control cannot be achieved.
- A case exists that when it takes about five minutes until the command to all AC units is extracted, depending on the number of AC units connected and the state of communication because the external input function sent a command to AC units from this device.
 Therefore, like the function for Fire Emergency Stop, it is not possible to use like the condition that is to stop absolutely all the AC devices within a designated time (for example, within one minute).
- Reestablish control again from this system in the following cases:
 1. Whenever the external input condition changed while the adapter and AC devices were OFF.
 2. Whenever the POWER to the adapter or AC device is OFF, then ON while in external input processing.
 3. Whenever the condition of the external input changes during a communication error between the adapter and the AC device: (alarm 60, 61, 64, or 65) activated.
 4. When a communication error between the adapter and the AC device (Alarm: 60, 61, 64, or 65) occurs, then restores itself while in the external input processing mode.

Emergency Stop**NOTICE:**

- [Emergency stop] is a function designed to immediately close down all indoor unit operation, those units connected to an adapter configured with the following settings:
 - Running state: Stop
 - Running mode: Fan
 - Set Temp: 82°F (28°C)
 - Fan speed: 1
 - Louver: 1
 - RC operation: All prohibited
 All the above settings will be restored upon recovery from emergency stop, but RC operation will continue.
 Any control can be suspended for a maximum of 15 minutes after emergency stop is canceled.
 All indoor units will instantly switch running mode to Fan, and then the emergency stop signal will self-cancel.
 In the event that an emergency stop has occurred (on a single unit or a network of locally controlled indoor units), check settings after the emergency stop condition has been canceled.

NOTE:

- Emergency stop applies only to Indoor Units corresponding with H-LINKII.
- Set the external input signal for emergency stop from this section of software. Though indoor units themselves can be directly set, this setting can be invalidated as to the according to scheduled timer, or other issues.
- Engage the external input signal for emergency stop for one minute or longer.
- Emergency Stop in this system is controlled over communication cables. In case of communication cable disconnection, the system cannot be controlled as expected. Turn OFF the air conditioners to cease operation in such cases.

Mode switch and Temperature switch

NOTICE:

- The [Temp switch] setting can only be used when the Temperature Display reads in degrees Celsius.
- In [Mode switch] and [Temp switch], electrical consumption is lowered when any subsequent control is manually overridden externally.

The [Mode switch] is a function command to stop when it is in "Heat" mode and to switch over to "Fan" mode when in any other running mode than "Heat".

The [Temp switch] is a function used to set "Set temp" (-X°C) when in "Heat" mode and (+Y°C) when in any other running mode than in "Heat".

- Neither the [Mode switch] or [Temp switch] are designed to guarantee lowered electricity consumption.

NOTE:

- The [Mode switch] and the [Temp switch] cannot be used at the same time.
- In the event that the [Temp switch] is activated and engaged in multiple external inputs, the change of temperature is made following an order of priority of external inputs when those external inputs are multiple and in such case that all those external inputs concerning temperature control are canceled, the temperature will return back to the last temperature setting for the external input.
- If the [Mode switch] and the "RUN" mode are set in the same external input, the unit will continue running in "HEAT" mode because the "RUN" mode has a higher priority.

Level input signal and Pulse input signal

NOTICE:

- Input signal

If the Level input signal is selected, the signal shall remain in effect only while receiving that signal.

If the Pulse input signal is selected, the signal shall remain in effect even after this signal stops.

Only Level input signal can be applicable to the Mode switch, Emergency stop, ODU capacity, and lower noise levels.

NOTE:

- If using the pulse signal in an external input, it is required that the pulse width and the pulse interval of the external input are more than 500m/sec.
 - A Level input signal and pulse input signal can NOT be set at the same time in a single adapter.
 - It is impossible to set any content which may differ with any one of the external inputs.
- Even during level signal input, modification of a setting is possible if the condition is not prohibited in this setting item.
- Even during level signal input, if a setting is set as disabled, when the level signal cancellation is done, it is not possible to return to the previous setting.
- In the event that multiple signals are input simultaneously (If the setting is a [Level input signal]), the control setup will follow the established order of precedence for external input from 1 to 3, and commands are executed accordingly.
- If [RC all prohibited] and [Level input signal] are combined, the operation direction for the indoor unit from this system will be disabled during the external input.

NOTE:

- Setting Outdoor Units
 - To activate “ODU capacity” in [Monitor], [Schedule], or [External input], (or in both Schedule and External input), go to [Settings] > [Outdoor unit] and check “Capacity control”.
 - The [ODU capacity] is a function regarding energy consumption at the COOL rating and which is saved by near designated percent of level of energy consumption.
 - The setting takes effect within around 15 minutes after external input is entered.
 - Even if the capacity control performs at 0%, because the standby power consumption (*) is generated, and the consumption of power cannot amount to zero (“0”).
The symbol (*): indicates that standby power consumption is a power used when an AC unit has stopped running and to prepare for the next operation.
 - The [ODU capacity] is unable to function when the outdoor unit is starting control or defrosting.
 - This control does not guarantee any definite power consumption amount as in the setting.
 - To activate “Lower noise” from [Monitor], [Schedule], or [External input], (or both Schedule and External input), go to [Setting] > [Outdoor unit] and select “Lower noise”.
 - As [ODU capacity] or “Lower noise” control are performed, they are done so always set to one central controller.
 - When ODU capacity or lower noise are performed, depending on the external input, ODU capacity or lower noise depending on the schedule will be disabled.

NOTE:

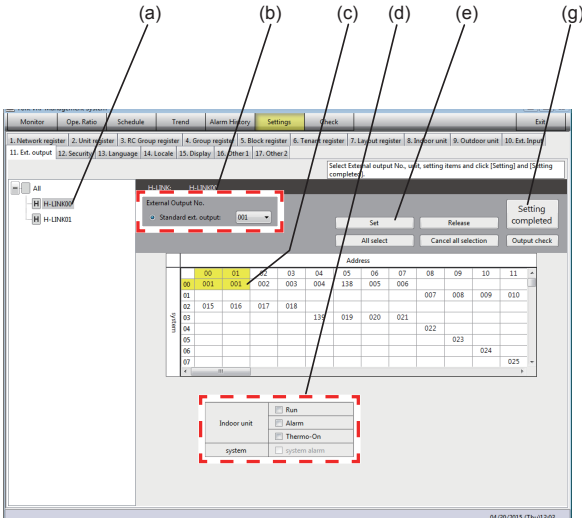
- ODU capacity follows the set order of priority for the external input and when an input is canceled, ODU capacity which is set to the other highest external input in order of priority will be performed.

Setting of **13 External Output Setting** is a local matter. Set following items as necessary.

13 External Output Setting

Configuration for outputting the external output signal to transmit the signal to other devices.

- (1) Go to [Settings] > [External output] and set the command upon signal transmission on external outputs in **H** from top to bottom.
 - (a) Choose H-LINK.
 - (b) Select external output number.
 - (c) Select the unit to configure.
 - (d) Select control command.
 - (e) Click [Set].
 - (f) When changing multiple units, repeat steps (a) - (e) until all desired units are set.
 - (g) Click [Setting completed] when all items are set.
 - (h) Follow steps: (a) to (g) to set all values for H-LINK.



NOTICE:

- If [Output check], is selected, the output signal status can be checked. The color for each cell is as follows:
White: Input is OFF
Green: Input is ON

NOTICE:

- Each cell color denotes as follows.
Yellow: Selected
Blue: Set
Green: Set completed
Orange: Canceled

NOTICE:

- When selecting the alarm in the output condition, perform an external output when detecting an alarm for the outdoor unit connected to this system.
- It is impossible to set the content, which can differ in one signal.

14 Security Setting is required to be set.

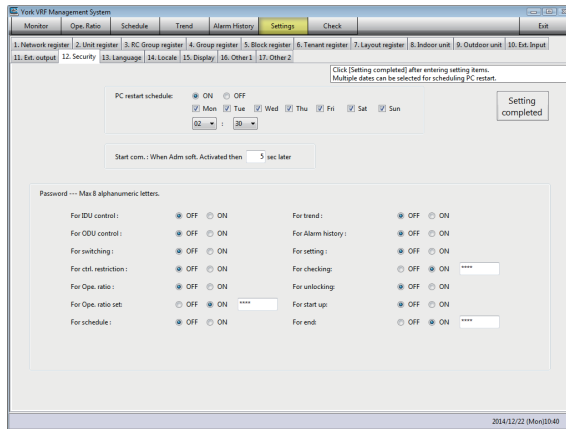
14 Security Setting

Setting a schedule for computer restart and password for control item and display.

(1) Go to [Settings] > [Security] to set schedule for management computer to restart itself.

A frequency of once a week or more is strongly recommended for restarting. Set Schedule 10 minutes after current time to check if the computer properly completes restarting process before the practical use of this function.

Set the time for restart during the overnight hours when system monitoring is inactive.



NOTICE:

- To properly complete the restarting process, unlock the password if security is set in BIOS.
- The Operation ratio will be calculated within one hour after midnight. Please avoid setting any schedule during this particular one-hour interlude.

(2) Set the waiting time until the communication of the management software and the adapter activates.

It is possible to set from zero (0) seconds to 999 seconds.

CONTROL SYSTEM

(3) Set a password for each display and management of controlling items. The maximum length for the password is eight characters. Passwords can be set for each item, respectively.

| Passwords | When to use | Notes |
|------------------------|---|---|
| For IDU control | To authorize certain users to control indoor unit. | |
| For ODU control | To authorize certain users to control outdoor unit. | |
| For Switching | To authorize certain users to switch display. The following functions will be protected by this password. <ul style="list-style-type: none"> • Selecting the monitoring layout • Changing "View by" section to monitor units • Changing the panel size in the monitor • Selecting items from tree | A prompt for a password for each display is requested upon switching display for changing display layout, panel size, and trees, or all. It is strongly recommended to set a password for each display. |
| For ctrl. restriction | To authorize certain users to switch control restriction. | The default password is "2468". |
| For Ope. ratio | To authorize certain users to display Operation ratio window. | |
| For Ope. ratio setting | To authorize certain users to check or change the setting for Operation ratio. | The default password is "2468". |
| For Schedule | To authorize certain users to display Schedule window. | |
| For Trend | To authorize certain users to display Trend window. | |
| For Alarm history | To authorize certain users to display Alarm history. | |
| For Settings | To authorize certain users to display Setting window. (Including password setting) | It is strongly recommended to set this password for security purposes. |
| For Check | To authorize certain users to display Check window. | The default password is "1357". |
| For Unlocking | To authorize certain users to unlock the display after inactivation period is passed. | |
| For Start up | To authorize certain users for restarting this system. | This password will not be asked upon restarting of the scheduled restart. |
| For Exit | To authorize certain users for closing this system. | The default password is "2468". |

NOTE:

- As the password can be changed or canceled in the Security Setting display, it is strongly recommended to register the [Set display password] when setting password.

(4) Click [Setting completed] when all items are set.

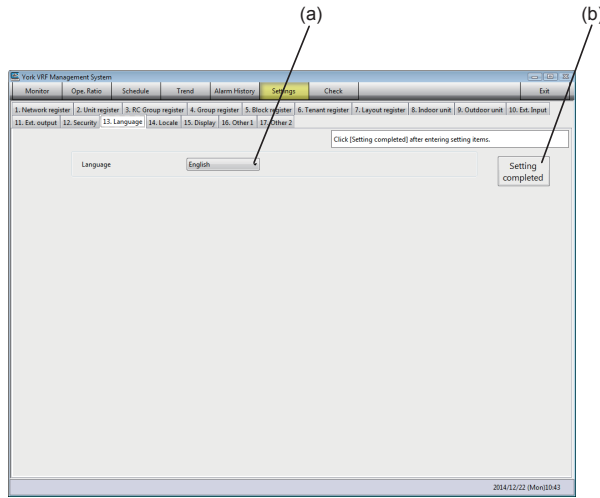
Setting of 15 Language Setting is a local matter. Set following items as necessary.

15 Language Setting

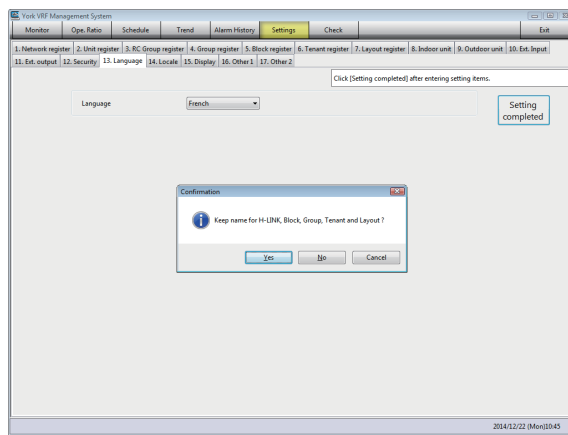
Set a language for display. This setting can be used in English and French versions. Note that it is impossible to change languages when using the English-only version.

(1) Go to [Settings] > [Language] to set the language for display.

- (a) Choose language.
- (b) Click on [Setting completed].



(2) Choose to keep or delete name data.



(3) Management system will restart automatically. It takes a few minutes.

NOTE:

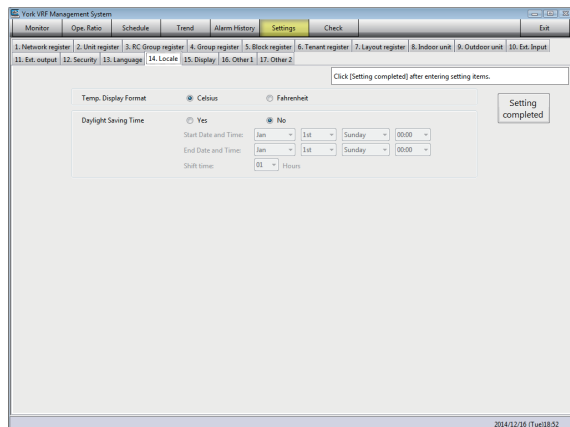
- If choosing to retain name data, some characters may not display correctly.
- When choosing to delete data, the following will be deleted:
Names of IDU, Facility unit, Layout, H-LINK, Schedule running pattern, Information about RC Group, Group, Block, Tenant, and Alarm history

Setting of **16** Locale Setting is a local matter. Set following items as necessary.

16 Locale Setting

Setting the temperature display format and daylight saving time.

(1) Go to [Settings] > [Locale].



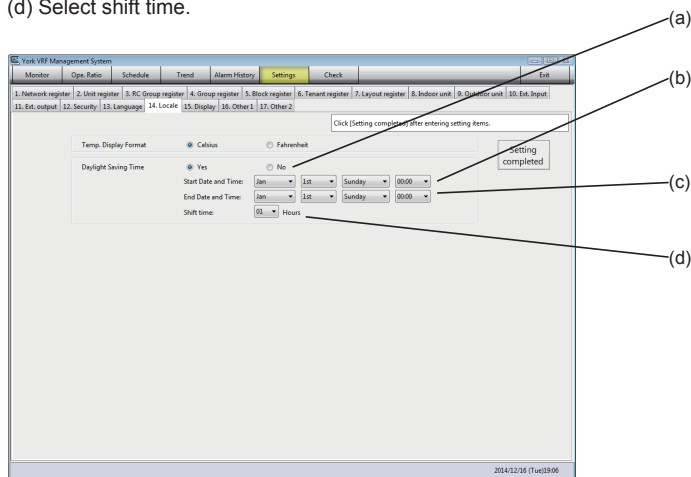
(2) Set the temperature display format.

NOTICE:

- If [Fahrenheit] is chosen, temperature switch (external input) cannot be used.

(3) Input the required setting for daylight savings time.

- Select [Yes] or [No] for daylight savings time.
- Select start date.
- Select end date.
- Select shift time.



NOTE:

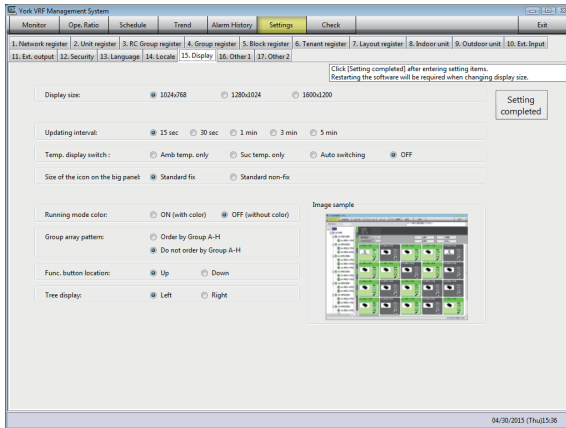
- When registering daylight savings time by way of management software, the system-specific time zone will be set to the OS. Do not change the time zone setting for the OS directly, otherwise this system cannot work normally. When changing the daylight savings time setting, register it by using this management software.

(4) Click [Setting completed] when all items are set.

17 is required to be set.

17 Display Setting

Configuration of display for the management computer.



(1) Go to [Settings] > [Display].

(2) Set display size of this software.

The window cannot display correctly if the set size is larger than the size of the Management Computer screen. Some screens can be displayed smaller when clicking on the small rectangle (between the “dash” and the “X” on the windows title bar in the extreme upper right corner). It will alternate from half-size to full-screen view. Proportion each window to size in this section.

Resolution is not an important factor when scrolling to show the content that follows:

| Display | Maximum number of panel display | | |
|--------------|---------------------------------|-----------------|-----------------|
| Display Size | 1024×768 | 1280×1024 | 1600×1200 |
| Large | 5×4=20 | 6×6=36 | 8×7=56 |
| Small | 10×13=130 | 13×20=260 | 17×24=408 |
| Layout | 10-30 (approx.) | 20-40 (approx.) | 30-60 (approx.) |

* If setting [Order by Group A-H] in the group pattern array, the number of available displays may be small.

NOTICE:

- The display size above is a standard window size. They are shown in full-window when the (rectangular box) maximize button in the far upper right corner is selected.

(3) In the updating interval, set the update cycle to the current status.






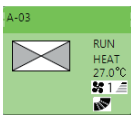
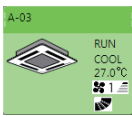
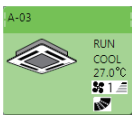
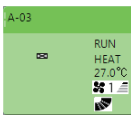
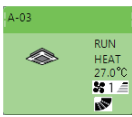
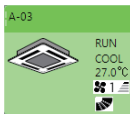
(4) Set the temperature display switch for the monitor.

NOTE:

- To display the ambient air temperature, perform the wired controller setting (Function selection C8).
- Some units cannot display the ambient air temperature or the air suction temperature.
- When using the save power function of the remote controller, the displayed ambient air temperature may differ with the actual air temperature.

CONTROL SYSTEM

(5) Select the icon size for the large panel. To fix the standard size or use the original size when registered.

| | | [Standard fix] | | | [Standard non-fix] | | |
|-------------|------|---|---|---|--|---|---|
| Layout | Size | Extra small | Small | Standard | Extra small | Small | Standard |
| | | Icon |  |  |  |  |  |
| Large Panel | |  |  |  |  |  |  |

NOTICE:

- Select [Standard fix] when using a small size icon in the layout display.

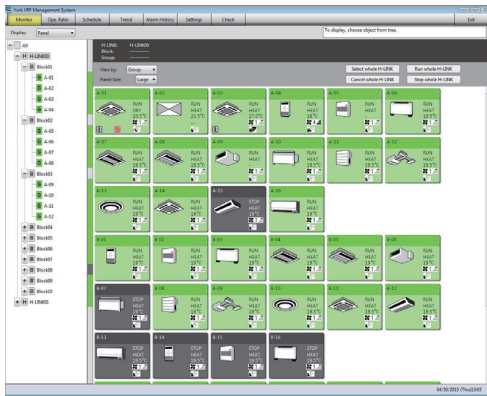
(6) Select whether or not the panels shall show the running mode by color or not.

| Running mode color setting | RUN (Cool) | RUN (Heat) | RUN (Dry) | RUN (Fan) | RUN (Auto) | RUN (In multiple mode) | Alarm | Stop |
|----------------------------|------------|------------|-----------|------------|-----------------------|------------------------|-------|------|
| ON (with color) | Light Blue | Orange | Sea Green | Light Grey | Light Blue and Orange | Light Purple | Red | Grey |
| OFF (without mode color) | Lime Green | | | | | | Red | Grey |

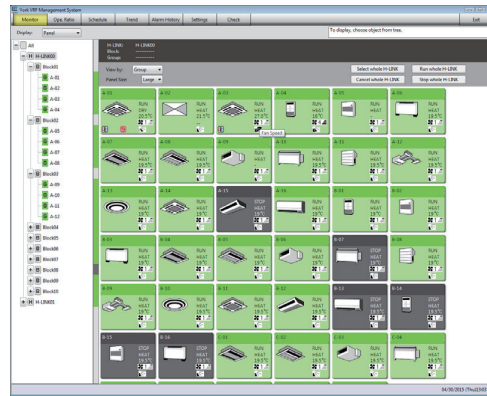
NOTICE:

- The display size above is a standard window size. They are shown in full-window mode when the rectangular maximize button in the far upper right corner is selected.
- In case of simultaneous occurrence, the color will assume its assigned attributes according to the priority for "Alarm" > "Other status".
- In displaying a group or block (or both) that contains multiple units, the color will conform in accordance with the following priorities.
 - (a) Displays in red (alarm) if one or more units are in a alarm condition.
 - (b) Displays in a running condition of the units that is not in an alarm condition, and one or more air conditioners are running.

(7) Select whether or not to insert line feed alphabetically.

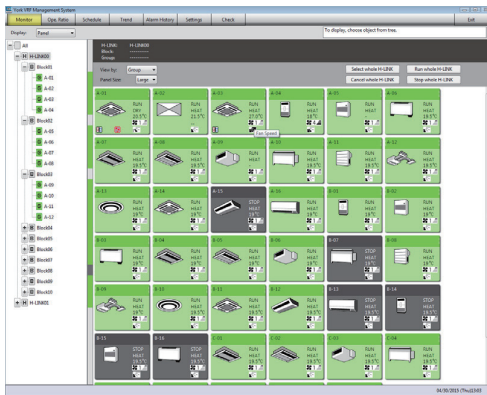


Set [Order by Group A-H]

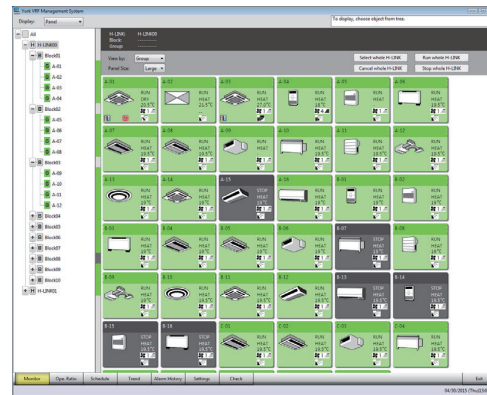


Set [Do not order by Group A-H]

(8) Select the location of the function buttons.

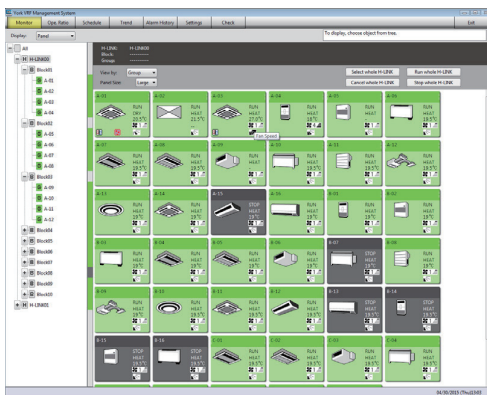


Set [Up]

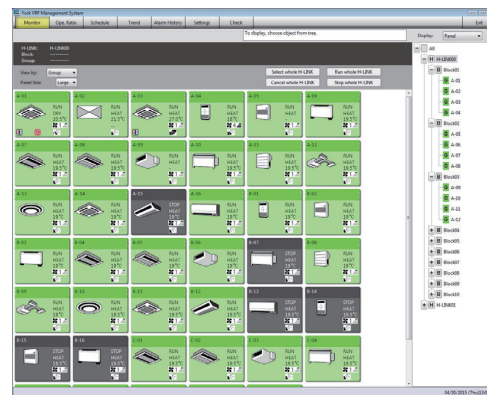


Set [Down]

(9) Select the location of the tree.



Set [Left]



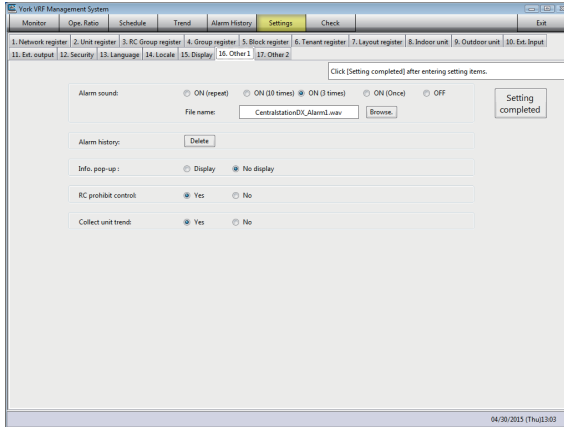
Set [Right]

(10) Click [Setting completed] when all items are set.

Setting of [18] Other Setting 1 is a local matter. Set the following items as necessary.

[18] Other Setting 1

Set miscellaneous settings related to management software.



- (1) Go to: [Settings] > [Other 1].
- (2) Select the desired sound effect and the number of the alarm upon occurrence.
- (3) Delete alarm history.

NOTICE:

- This function will be used before handing over to the customer after Test Run is completed.

- (4) Select whether or not to display any pop-up information. It will be displayed during processing external input or output.
- (5) Select whether or not to prohibit operation from the wired controller.
- (6) Select whether or not to collect unit trend data.

NOTICE:

- It is possible to display the trend without collecting unit trend data.

- (7) Click [Setting completed] when all items are set.

Setting of [19] Other Setting 2 is a local matter. Set following items as necessary.

[19] Other Setting 2

Miscellaneous setting for all [H].

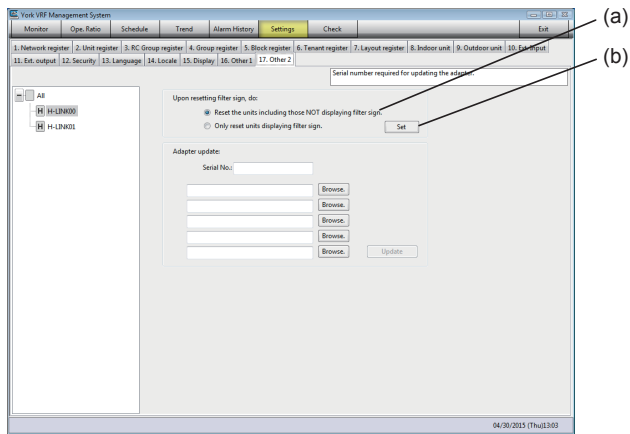
Go to: [Settings] > [Other 2] and set each item in the [H] that is currently displayed.

[Modifying the operation on filter sign reset]

(a) Select the operation on resetting the filter sign.

(b) Click on the [Set] button.

(c) This setting performs steps from (a) to (b) regarding all the necessary H-LINK.



***This functionality is intended for serviceman's use only. (Reserved for future use).**

[Updating adapter]

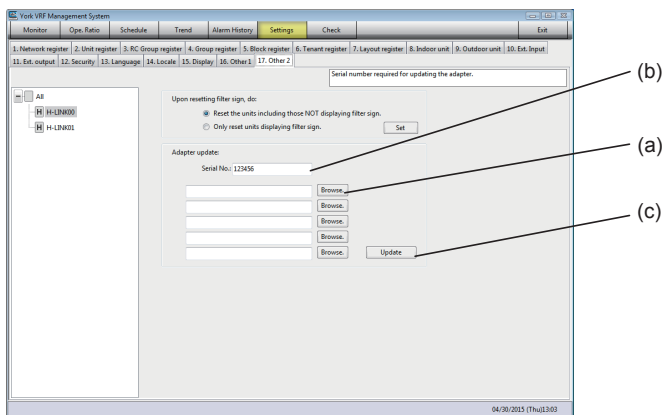
(a) Click [Browse..] and select update file.

(b) Enter serial number.

(c) Click [Update].

(d) Restart the adapter according to the instructions on the windows.

(e) This setting performs steps from (a) to (d) regarding all that is needed for H-LINK.



1 Monitor and Control Check**NOTICE:**

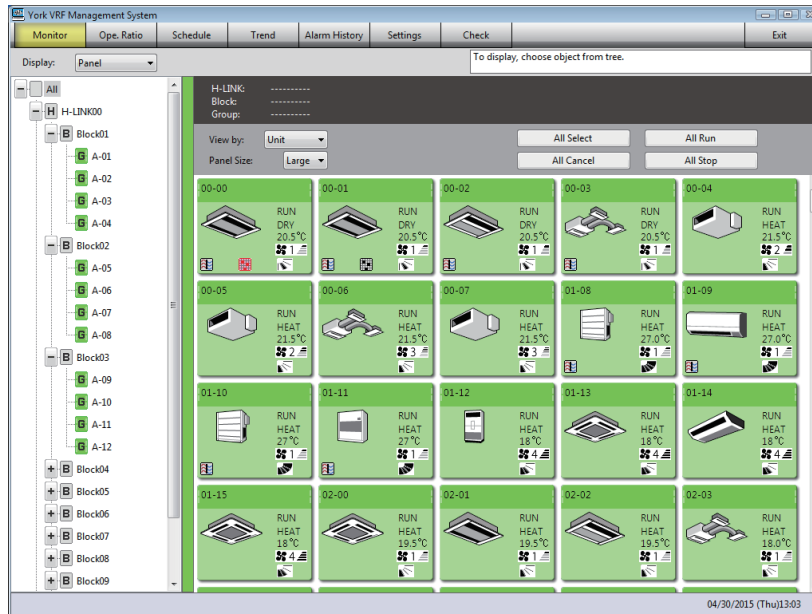
- When controlling from the monitor screen, the content of the control functions performed remain displayed for a moment (control hold time). During this time, even if controlling from the RC or other controllers, the content shown on the monitor screen will not be updated.
- The initial hold-time settings that this information is displayed is seven minutes.
- If changing this hold-time value, follow the procedure below.
 - (1) Close the management software.
 - (2) Open [manager_info.ini] in the [/centralstation/manager] folder.
 - (3) Change the time setting value [7] (choose between values from 3 to 20) of [ProvisionalResTime=7] in [Display].
 - (4) Overwrite, save, and close [manager_info.ini].
 - (5) Restart the management software.
- If the control hold time value is shortened, the possibility exists that the displayed value on the monitor and the set control content value may differ. Run the entire control procedure to adjust time for the Test Run phase.

***Refer to operation manual for how to control these items.**

Monitoring and controlling by each unit

(1) The priority setup in the monitor display will be as follows:

| | |
|------------|-------|
| Tree | All |
| Display | Panel |
| View by | Unit |
| Panel size | Large |



(2) The system will attempt to control from the remote controller, all captive AC units and verify that their status (displayed), matches the commands sent from the remote controller.

NOTICE:
 • To avoid any control failure or mistaken identity, inspect all air conditioners one by one, respectively.

(3) The system will attempt to control all captive air conditioner unit members and to verify that their status (displayed), agrees with the commands sent from the system.

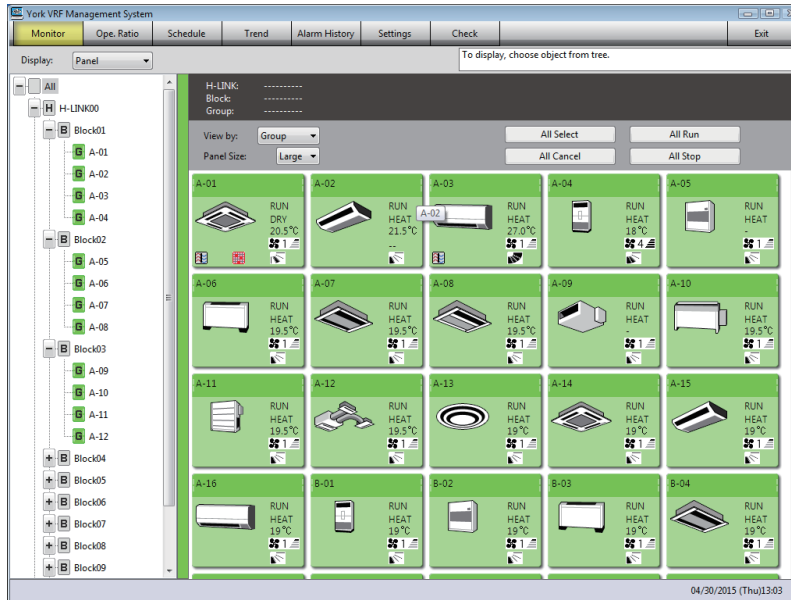
NOTICE:
 • To avoid any control failure or mistaken identity, inspect all air conditioners one by one, respectively.

CONTROL SYSTEM

Monitoring and controlling by each group

(4) The priority setup in the monitor display will be as follows:

| | |
|------------|-------|
| Tree | All |
| Display | Panel |
| View by | Group |
| Panel size | Large |



(5) The system will attempt to control all captive air conditioner group(s) and to verify that their status (displayed), agrees with the commands sent from the system.

NOTICE:

- To avoid any control failure or mistaken identity, inspect all air conditioners group by group respectively.

(6) The system will attempt to control all captive air conditioner group(s) and to verify that their group status (displayed), agrees with the commands sent from the system.

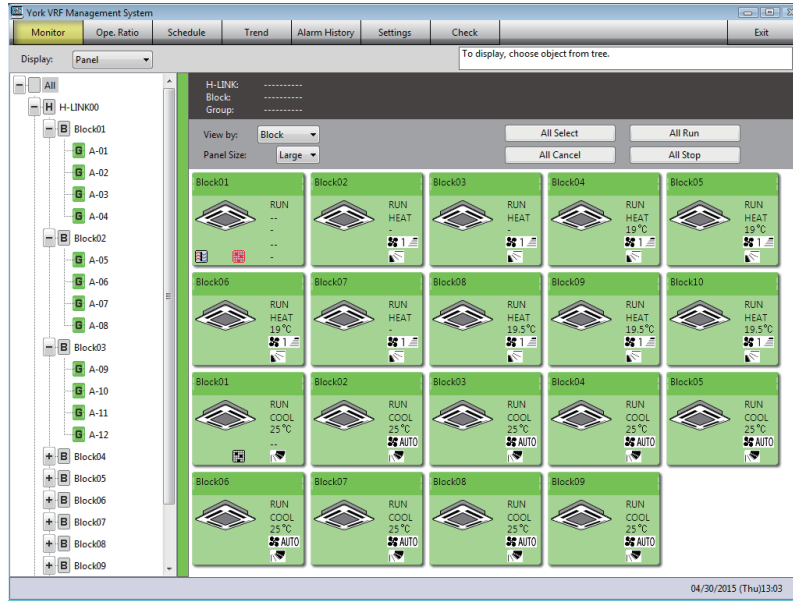
NOTICE:

- To avoid any control failure or mistaken identity, inspect all air conditioners group by group respectively.

Monitoring and controlling by each block

(7) The priority setup in the monitor display will be as follows:

| | |
|------------|-------|
| Tree | All |
| Display | Panel |
| View by | Block |
| Panel size | Large |



(8) The system will attempt to control all blocks of air conditioner units by way of remote control from the remote controller and to verify that their status (displayed), agrees with the commands sent from the system.

NOTICE:

- To avoid any control failure or mistaken identity, inspect all air conditioners block by block, respectively.

(9) The system will attempt to control all block(s) of air conditioner units by way of remote control from the remote controller and verify that the block of air conditioner units status (displayed), agrees with the commands sent from the system.

NOTICE:

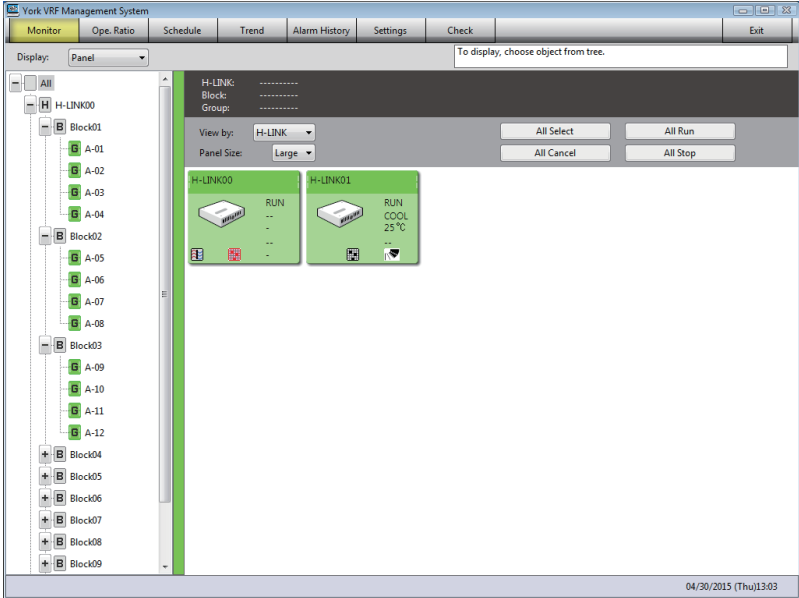
- To avoid any control failure or mistaken identity, inspect all air conditioners block by block, respectively.

CONTROL SYSTEM

Monitoring and controlling by each H-LINK

(10) The priority setup in the monitor display will appear as follows:

| | |
|------------|--------|
| Tree | All |
| Display | Panel |
| View by | H-LINK |
| Panel size | Large |



(11) The system will attempt to control all air conditioner units in all H-LINK(s) by way of the remote controller and verify that air conditioner status across those H-LINKS agree with the commands sent from the system.

NOTICE:

- To avoid any control failure or mistaken identity, inspect all air conditioners in the H-LINK one by one, respectively.

(12) The system will attempt to control all air conditioner units in all H-LINK(s) and verify that these units are operating in agree with the commands sent from the system.

NOTICE:

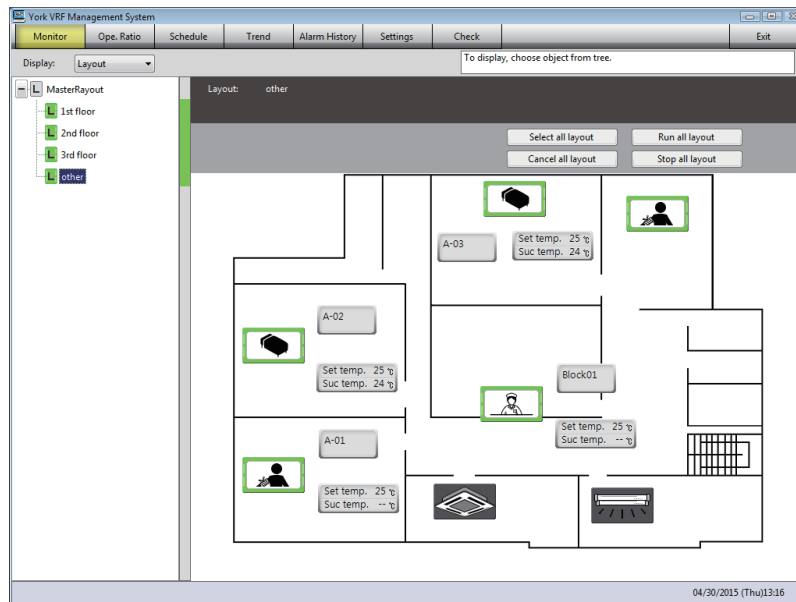
- To avoid any control failure or mistaken identity, inspect all air conditioners in the H-LINK one by one, respectively.

Monitoring and controlling by each layout

This check is required only when using a layout.

(13) The priority setup in the monitor display will appear as follows:

| | |
|------------|-------------|
| Tree | Each layout |
| Display | Layout |
| View by | — |
| Panel size | — |



(14) The system will attempt to control all air conditioner units represented in all icons from the remote controller and verify that these air conditioning units are operating as they were programmed.

NOTICE:

- To avoid any control failure or mistaken identity, inspect all air conditioners in the icons one by one, respectively.

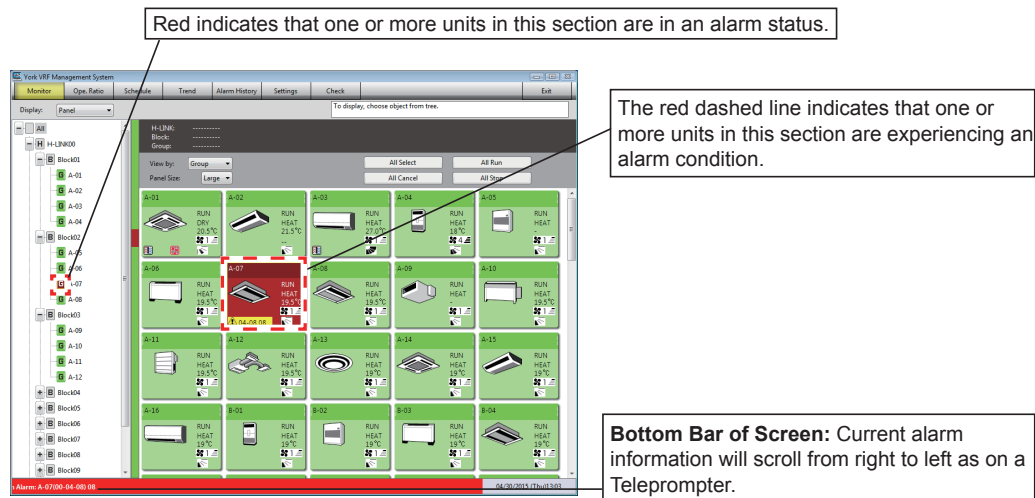
(15) The system will attempt to control all air conditioner units represented in all icons from this system and verify that these air conditioning units are operating as they were programmed by the system.

NOTICE:

- To avoid any control failure or mistaken identity, inspect all the air conditioners in the icons one by one, respectively.

2 Alarm and Errors

This section deals with alarm codes and their descriptions.



Alarm Codes

| Alarm Codes | Contents | Action to Take |
|---|---|---|
| 00~FF (except 60,61,63, 64,65) | Alarm from air conditioners | Refer to Installation Manual and Operation Manual for each air conditioner. |
| 60 | Central controller - outdoor unit communication error (when more than 1 unit(s) are operating) | A communication error occurred on the H-LINK between the adapter for this system and the outdoor unit. Check H-LINK wiring. |
| 61 | Indoor unit - central controller communication error (when the indoor unit is operating) | A communication error occurred on the H-LINK between the adapter of this system and the indoor unit. Check H-LINK wiring. |
| 64 | Central controller - outdoor unit communication error (when all indoor units are not operating) | A communication error occurred on the H-LINK between the adapter for this system and the outdoor unit. Check H-LINK wiring. |
| 65 | Indoor unit - central controller communication error (when the indoor unit are not operating) | A communication error occurred on the H-LINK between the adapter for this system and the indoor unit. Check H-LINK wiring. |
| S20 | Hard disk capacity shortage | Free space is less than 1GB. Clear the memory to assure that more than 1GB of free space or substitute the computer for another with larger space. |
| S21 | Data could not be written | This error may be caused by a memory shortage or a device failure. Substitute the hard disk with another if this error frequently occurs. |
| S22 | Data could not be read | This error may be caused by device failure. Substitute the hard disk with another if this error frequently occurs. |
| S23 | Adapter communication failure | Check if the power to the adapter is ON, LAN is properly wired between the adapter and the management computer, and the power to the hub is ON. |
| S24 | DST setting failure | Check if the power to the adapter is ON, LAN is properly wired between the adapter and the management computer, and the power to the hub is ON. |
| S41 | Calculated file access error | This error may be caused by memory shortage or device failure. Substitute the hard disk with another if this error frequently occurs. |
| S42 | Download wrong data | This error may be caused by memory shortage or device failure. Substitute the hard disk with another if this error frequently occurs. Check if the power to the adapter is ON, LAN is properly wired between the adapter and the management computer, and the power to the hub is ON. |
| S43 | Failure of reading and writing setting data | This error may be caused by device failure. Substitute the hard disk with another if this error frequently occurs. |

3 Data Backup

IMPORTANT: Perform a back-up of your data immediately after completing Test Run. Data back-up guarantees fast recovery in the event of a computer crash. Perform a data backup after creating settings, completion of Test Run, and periodically during other operation as well.

- (1) Connect the USB flash device or other external hard drive to the management computer.
- (2) Exit the management software.
- (3) The [/centralstation] folder is saved under the drive letter where the software is installed. Copy the file to a USB flash drive or any other external hard drive connected to the computer.
- (4) To remove the USB flash drive or other external hard drive, first select [Safely remove hardware] from the task bar. Then, remove the flash drive.

4 How to Restore with Backup Data

When restoring the computer with backup data saved in 3 after a computer crash or internal error, or other faults, please follow the procedure described below.

- (1) Install the management software to the new management computer and set IP address. As for the installation procedure, please refer to the item 6.10.6.3.3 Installation.
- (2) Connect the USB flash drive device or other external hard drive with backup data saved in 3 (central station folder) to the new management computer.
- (3) Overwrite the [/centralstation] folder, with data from the USB flash memory or other external hard drive, in the drive in which the existing software is installed.
- (4) To remove the USB flash drive or other external hard drive, first select [Safely remove hardware] from the task bar. Then, remove the flash drive.

5 Check Items before Handing Over

Check the following before handing over.

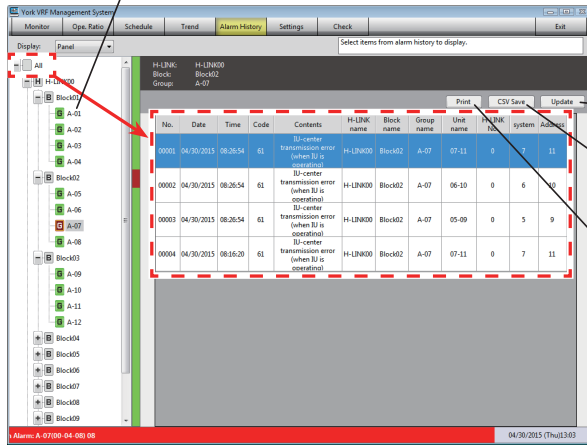
- (1) Check functions for controlling and monitoring of each unit according to the Test Run procedure in this manual.
- (2) The customer needs to realize that the service life of the management computer differs with that of the air conditioning unit. The customer should also be informed as to how to upload the computer in advance.
- (3) Management computer: this software and the adapter are assumed to be always ON. Explain to your customer that Trend data, alarm history, and check data cannot be recorded while this software is either OFF or in a hibernation state.
(The exception being for software reboot during the PC restart process)
- (4) Monitor and control functions are lost with device failure or other catastrophic events. Formulate a recovery strategy with the customer before the system enters service.
- (5) Periodically copy [centralstation] in the management computer and back up to a USB flash device or other external memory device as backup resource.
- (6) Explain (to the customer) how to operate and how to maintain this software.
- (7) Device failure for any reason will severely impact capabilities. Discuss an alternative recovery strategy that allows you to address problems with the computer and adapter with the customer/tenant before the system enters service.

6.10.6.3.6 Service and Maintenance

1 Alarm History

A historical record (log) of system faults and alarms will be displayed.

This area (bounded in red) displays all alarms that have occurred in all selected H-LINKS / blocks / groups selected on the tree.



Reload the alarm history log.

Output for the current alarm history log in .CSV file format.

Print out the current alarm history log.

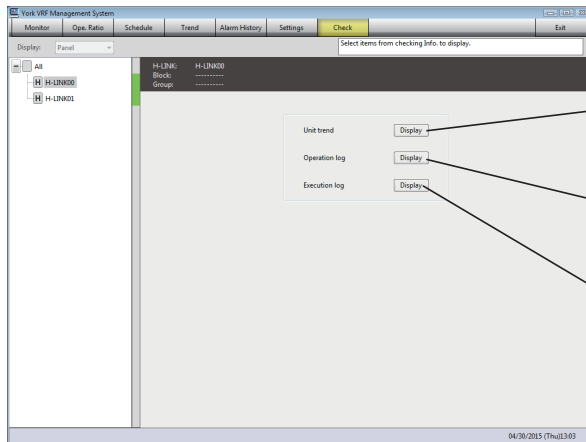
For alarm codes, refer to the item 6.10.6.3.5 Test Run “ 2 Alarms and Errors”.

NOTE:

- Any alarm that was triggered and resolved while this software was inactive will not be recorded into the alarm history log.

2 Check

This functional is restricted for use by service personnel only. Each and every check-off item can be saved as a separate file from this screen.



Displays trend data output of the selected H-LINK.

Displays the operational log for this system.

Displays the logged output of control between the selected H-LINK and this system.

3 Troubleshooting

The following table is a breakdown of symptoms, items to closely examine, and recommended courses of action.

Initiating

| No. | Condition | Items to be Checked | Action |
|-----|---|--|---|
| 1 | The system does not boot after double-clicking on the icon. | Check if the installation was done properly. | Install this system according to the procedure described in this manual. |
| | | Check if the computer meets system requirements. | Install this system with the specified computer that meets system requirements in accordance with this manual. |
| | | Is there a margin of 1GB of free memory space on the management computer? | Clear the memory to create the more than 1GB of free space required or substitute the computer with another one with larger memory space. |
| | | Is the user account control [Never notify]? | Substitute [Never notify] for [Change User Account Control settings]. |
| 2 | Connection evaluation time takes too long. | Verify that the indoor units are running. | System connection evaluation time may last up to 20 minutes after startup. System evaluation time can be reduced by turning OFF indoor units from the remote controller. |
| 3 | No units show up on the display after startup, or an Adapter communication failure (S23) is detected. (If a system restart does not resolve the problem). | Verify that the commercial security software is active. | Disable all firewall barriers if any commercial security software is installed. Secure the network with a firewall of routers. |
| | | Are all the adapters turned ON? | Turn all the adapters ON. |
| | | Verify that LAN is properly wired between the adapter and the management computer, and the power to the hub is ON. | Ensure that LAN is properly wired between the adapter and management computer. Also, ensure that power to the hub is ON. [NOTICE] Follow the procedure below to check connections between the adapter and the management computer. (a) Go to [Start] > [All programs] > [Accessories] > [Command Prompt] on the management computer. (b) Type in and [ping] the IP address of the adapter. (for example, ping 192.168.0.3) If [Reply from 192.168.0.3: bytes=32 time=ims TTL=64] (192.168.0.3 is the address that had been typed in step (b).) This indicates that the adapter is connected. If [Request timed out] is displayed, the LAN connection between the management computer and the adapter has <u>not</u> been established. |
| | | Is the specified LAN cable in use? | Use a category five LAN cable up to 100m in length. Use a straight LAN cable and connect the management computer and adapter to an Ethernet hub. |
| 4 | No units show up on the display after startup. (If restarting the system does not solve this condition) | Did you click on the [Connect] button? | Go to [Settings] > [Network register] and press the [Connect] button. |

| No. | Condition | Items to be Checked | Action |
|-----|---|--|---|
| 5 | No units show up after startup of the management computer or restart by the scheduled restarting, or an adapter communication failure (S23) is displayed. (When this can be solved by rebooting this software.) | Is the time period for initiating network communication on the management computer short enough? | Other software (for example, virtual environment software) can delay initiation of network communication on the management computer. This can result in no units showing up on the display for connection data that cannot be acquired. To solve this problem, disable all network communication functional on other software or uninstall all unnecessary software. Set start communication time for [Settings] > [Security] to exceed the network start time. |
| 6 | Data acquisition does not start even after entering the correct address and pressing the [Connect] button in the [Network register] section. | Is the Proxy correctly set? | If the Proxy is set, go to [Control Panels] > [Internet Properties] > [Connections] > [Local Area Network Settings] > [Advanced] > [Exceptions] and examine the contents. As for setting the Proxy, contact your network administrator. |
| 7 | Even if the [Connect] button is selected in the [Network register] section just after installation, the adapter cannot be connected. | Is the add-on software for the browser installed? | Uninstall the add-on software. |
| 8 | Even if the [Connect] button is selected in the [Network register] section, the IP address, subnet mask, or the default gateway is not displayed. | Is the DSW setting for the adapter correct? | Is DSW (SW2) are (pins 1 and 3) for the adapter ON? DSW (SW2): Is only pin-1 in the ON position for H-LINKII, compliant mode? Change settings only after referring to the adapter installation manual. |
| 9 | Just after turning ON the management computer or when doing a scheduled reboot, "Impossible to connect with communication software.." is displayed. [Impossible to connect with adapter Com. software.] is indicated. | Does it take too long time to start the adapter communication software? | Change the value for [manager_info.ini] > [Network Common] > [AdpcomStartTimeout] in the folder [/centralstation/manager]. |
| 10 | Even if the [Register] button inside the [Network register] section is selected, the register action does not complete. | Is there a time setting discrepancy between the adapter and the management computer? | Reset the clock to reduce the time discrepancy to under five minutes. (a) Go to [Start] > [All programs] > [Accessories] > [Command Prompt]. (b) Enter [telnet] and the IP address of the adapter (for example, telnet 192.168.0.3). (c) Enter [root] next to login:. (d) Enter [harc] next to Password:. (e) Enter date [MMDDhhmmYYYY]. (MM for month, DD for day, hh for hour, mm for minutes, yyyy for year) (f) Enter [date] to check the current time setting for the adapter, (g) Enter [hwclock -w]. (h) Enter [hwclock] to check the current time for the adapter, (i) To exit the program, enter [exit]. |

CONTROL SYSTEM

| No. | Condition | Items to be Checked | Action |
|-----|--|--|--|
| 11 | The icon for units, groups and blocks has changed. | Has the H-LINK number been modified? | Follow the content below and connect the new H-LINK number to the icon. (a) Exit the management software. (b) Change the H-LINK number after changing the ** of [webcon**_data.csv] in the folder [/centralstation/manager/data]. (** is the H-LINK number before modification.) (c) Boot the management software and check if the icon has the correct content. |
| 12 | When booting the management software Communication with the adapter can't start. Verify that the adapter 7 segment LED and wiring is indicated. | Is the power to the adapter OFF or in the process of connecting? | Turn the power ON to the adapter. When the 7-segment LED for the adapter displays "00", communication starts automatically. After communication is completed, (after the pop-up shown at bottom right part of the screen disappears), go to the monitor screen and verify that all H-LINKs are displayed. |
| | | Is the LAN cable between the adapter and the management computer disconnected? Is there power to the hub? | Check the LAN cabling between the adapter and the management computer. After communication is completed (after the pop-up shown at bottom right part of the screen disappears), go to the monitor screen and check if all H-LINKs are displayed. |
| 13 | The pop-up Error has occurred on the PC. Management software rebooted. Check PC status is displayed. | Has an error or fault occurred in the system for this computer? | Check the system for the computer. |
| | | Does the restart schedule start while the pop-up screen is displayed? | The management software cannot be exited correctly because a pop-up screen is displayed. Do not use while the pop-up screen is visible. |
| 14 | The pop-up [Error has displayed on this PC. Management software rebooted. Check the PC status. Click on [Acquire untaken data] to acquire and calculate data. Avoid specifying data capture within the first 03 minutes of the hour. | Has an error or fault occurred in the system for this computer? | Check the system for the computer. Check each setting from [Operation ratio setting], then click on [Acquire untaken data] to acquire and calculate data. Avoid specifying data capture within the first 03 minutes of the hour. |
| | | Does the restart sequence start while the pop-up screen is displayed? | The management software cannot be exited correctly because the pop-up screen is visible. Do not use while the pop-up screen is displayed. |

Monitor (Controlling)

| No. | Condition | Items to be Checked | Action |
|-----|---|--|--|
| 1 | Any Run command issued from this system does not affect the air conditioners or remote controllers. | Is the S23 alarm on? | A communication error has occurred on the LAN between the management computer and the adapter. Check if the LAN is wired correctly, and power to the hub and adapter. |
| | | Is the S20 alarm on? | Free space is less than 1GB. Clear the memory to ensure there is a margin of 1GB of space or substitute the computer with another with larger memory space. |
| | | Is the S21 alarm on? | There is a data-writing failure on the management computer hard drive. Substitute this computer for a different one if this error reoccurs. |
| | | Are any of the following alarms tripped? 60, 61, 64, 65 | A communication failure has been occurred on the H-LINK. Check to see that the power to the air conditioners is ON, and that wiring and, communication status is normal. |
| | | Is the air conditioner in [Stop] or in [Emergency Stop] mode by the external input from the adapter? | Deactivate the external input signal. |
| | | Is the RC group correctly registered? | RC groups must be allocated to one group number between "1-160". If "O" is shown, allocate one number from "1-160". |
| | | Did the connection of the RC change such as in the removal of the RC? | To modify the connection to the RC, execute it while the power to the AC is OFF. If the modification is performed while the AC is ON, turn the power OFF once, then turn the power back ON. Then click [Connection check] in [Settings] > [Unit register] of the management software. |
| | | Is [Stop] or [Emergency stop] set in [Ext. input] AND the adapter is receiving either signal? | The external input signal has a precedence when the stop signal is transmitted and received. Deactivate the external input signal. |
| | | Is the management computer clock more than one hour ahead or behind the clock for the adapter? | Set the clock so that the time difference shall fall within 5 minutes. Go to [Settings] > [Network register], to synchronize the clock on the adapter with that of the management computer. NOTICE: To check the adapter clock, follow the procedure described below. (a) Go to [Start] > [All programs] > [Accessories] > [Command Prompt] (b) Enter [telnet] and IP address of the adapter (for example, telnet 192.168.0.3). (c) Enter [root] next to login: (d) Enter [harc] next to Password: (e) To display the current time and date setting for the adapter, type in [date]. (f) To exit the program, click [exit]. |

CONTROL SYSTEM

| No. | Condition | Items to be Checked | Action |
|-----|---|--|--|
| 2 | Even operating from this system, it will stop within a certain time. | Did the connection to the RC change such as removal of the RC ? | To modify the connection to the RC, perform while the power to the AC is OFF. If this modification was performed while power to the AC was ON, shut OFF and turn back ON. Then click [Connection check] in [Settings] > [Unit register] for the management software. |
| 3 | [All run] is not affected on certain units. | Does [All run] have any effect on the unit? | Select [No control restricted] or [Whole Stop non-avail.] at the control window. |
| 4 | [All stop] is not affected on certain units. | Does [All stop] have any effect on the unit? | Select [No control restricted] or [Whole Stop not-available] at the control window. |
| 5 | RC operation prohibited is not available when the functionality is desired. | Did you select [Detail Settings>]? | Click [Detail Settings>]. |
| 6 | Filter sign reset is not available when the functionality is desired. | Did you select [Detail Settings>]? | Select [Detail Settings>]. |
| 7 | Control content for the control window cannot be selected when displayed in gray. | Is the item for the control restricted [All Control non-available]? | Set the item for the control restricted at the control window other than [All Control non-available]. |
| 8 | RC Operational items displayed in gray are not editable and not available. | Is RC prohibition control set as Yes in [Settings] - [Other 1]? | Signify the RC prohibition control as Yes in [Settings] > [Other 1]. |
| 9 | How do I close the control window? | Did you click on the [x] on the upper right corner of the window? | Click on the [x] on the upper right corner of the window. |
| | | Did you click on the unit panel that is currently selected? | Click on the unit panel that is currently selected. |
| 10 | Capacity control items shown in gray are not accessible and are uneditable. | Did you set [Capacity control] in [Outdoor unit] for the outdoor unit? | Set [Capacity control] in [Settings] > [Outdoor unit] for the outdoor unit. |
| 11 | Electricity usage is not reduced as much as set in capacity control. | Are the outdoor unit(s) defrosting? | Capacity control will not be applied when the outdoor unit(s) is defrosting. |
| | | Is electricity usage reduced after minutes? | The setting contents take effect within approximately 15 minutes. |
| | | Electricity usage is reduced, but does not match the target rate. | Actual electricity usage should never be at zero even if capacity is set to 0% as stand-by electricity is always required. Supported effective range may be varied depending on outdoor unit types. As for the supported contents, contact your distributor or York/Johnson Controls customer service. |
| | | | The set value in capacity is a targeted value that does not guarantee aimed reduction. |
| 12 | Items for lower noise are displayed in gray and are unavailable. | Did you set [Lower noise] in [Outdoor unit] for the outdoor unit? | Check if the unit supports the functionality, and set [Lower noise] in [Settings] > [Outdoor unit] for the outdoor unit. |
| 13 | Operation noise is not reduced as much as set in Lower noise. | Operation noise is reduced, but does not match the target rate. | The set value in lower noise is a targeted value that does not guarantee character reduction. |

| No. | Condition | Items to be Checked | Action |
|-----|---|--|--|
| 14 | Unit names on the panel do not show in full length. | Isn' t the unit name too long? | The character length for unit names is limited. Point the cursor over the panel and the full name will be revealed in tool tip. |
| 15 | “Central control” is displayed and control from the remote controller is unavailable though RC operation is not prohibited from the system. | Was the power to this system ON before installing the remote controller for indoor units? | The system may determine that the unit is not RC equipped. Check the connection again, allow RC operation and observe whether “Central Control” is not indicated. Note that this system always shows [RC operation prohibited] for units not equipped with RC. |
| | | Was the existing non RC equipped unit modified into one that is RC equipped? | Perform [Method handling when modification from non RC to RC] on page 74. |
| 16 | The unit intended to control is different than the unit actually indicating control command. | Are RC groups registered correctly? | RC group registration on the system may be misconfigured, which is different than the actual RC groups. Each RC groups must be allocated to one of group number between“1-160”. If “O” is shown, allocate one number from “1-160”. |
| 17 | The control window does not display even after selecting the panel. | Did you change display size, or make any change to the display? | Shut down the management software, and set “0” to “PosX=” and “PosY=” in [monitor_info.ini] in [/centralstation/manager] folder. |
| 18 | Even if the settings are changed from the RC, it will return to its preceeding setting. | Is the RC prohibited function being used? Is control performed from the central device? | In the event that an RC prohibited function is used, do not operate the RC for 10 seconds afterward. In the event that the control is managed from the central device, do not execute the operation for the RC for about 10 seconds. |

CONTROL SYSTEM

Monitor (Monitoring)

| No. | Condition | Items to be Checked | Action |
|-----|---|--|--|
| 1 | System readings do not change even after the air conditioner operation by a remote controller. | What is set for update interval in [Settings] > [Display] > [Updating Interval]? | The shortest interval that can be set is 15 seconds. |
| | | Is the S23 alarm on? | A communication error has occurred on the LAN between management the computer and the adapter. Check if the LAN is properly wired, and the power of hub and adapter. |
| | | Is the S20 alarm on? | Free space is less than 1GB. Clear the memory to more than a margin of 1GB of free space or substitute the computer with another with larger memory space. |
| | | Is the S21 alarm on? | There is a data-writing failure on the management computer hard drive. Substitute this computer for a different one if this error reoccurs. |
| | | Are any of the following alarms tripped? 60, 61, 64, 65 | A communication failure has been occurred on the H-LINK. Check to see that the power to the air conditioners is ON, and that wiring and communication status is normal. |
| | | Are the RC group, Group and Block correctly registered? | Correct the RC group registry, Group and Block according to the Installation and Operation manual. |
| 2 | What is indicated on the control display does not match what is indicated on the remote controller. | Is only a single panel selected on the monitoring window? | The contents of any panel at upper left will display if multiple panels are selected. |
| 3 | What is indicated on the remote controller does not match what is indicated on the control display. | Was the air conditioner controlled by this system? | If the air conditioner is controlled by this system, it may take up to five minutes for actual status to comply with these results. |
| 4 | The window does not show panel(s). | Has the connection check procedure been completed? | Go to [Settings] > [Unit register] and check connection. |
| | | Is the adapter connected? | Go to [Settings] > [Network register] and check connection. |
| 5 | All of the layout icons indicate [?]. | Has the connection check procedure been completed? | Go to [Settings] > [Unit register] and check connection. |
| | | Is the adapter connected? | Go to [Settings] > [Network register] and check connection. |
| 6 | One or more layout icons are [?]. | Are there units, groups, blocks, or facility units that are not presently set ? | Check if the panel set is present in [Settings] > [Unit register] / [Group register] / [Block register]. |
| 7 | The displayed units: ([Group], [Block], [Units]) are changed. | Is any group in the tree selected? | Units in the group will be automatically revealed when the group is selected in the priority tree. |
| | | Is any of All, H-LINK, or block selected in the tree? | Groups in the block, H-LINK, or in All will be automatically revealed when one of the above is selected in the tree. |
| | | Is any alarm on? | When an alarm is triggered, the priority tree display will be automatically collapsed to [All], and the connected H-LINK will be shown on the display. |
| 8 | The priority tree display changed. | Is any alarm on? | When an alarm is triggered, the priority tree display will automatically collapsed into [All], and the connected H-LINK will be shown on the display. When in layout format, it will switch automatically in master layout. Check the alarm history. |

| No. | Condition | Items to be Checked | Action |
|-----|--|--|---|
| 9 | The control panel is always illuminated in green when air conditioners are running. | Is the running mode color set in [Settings] > [Display]? | Check the running mode color in [Settings] > [Display]. |
| 10 | The system has turned the air conditioner unit ON, but after time has passed, the display reads OFF. | Was remote controller removed after turning the air conditioner ON? Is the air conditioner set as [RC operation permitted] when the air conditioner unit itself is non RC equipped? | The system recognized the unit as equipped with a remote controller, remote controller, but is unable to monitor air conditioner status. Reset the air conditioner and check connections from [Settings] > [Unit register] again. Run the air conditioner from the system again to verify that the display indicator remains as ON. |
| 11 | When the [Monitor] button is selected, the display format will switch automatically. | Does [Tenant] switch to [Panel]? | Because the monitor only displays output identified on the control panel, the monitor button setting, if altered to indicate [Tenant], will automatically switch control panel readings. |
| 12 | There is a wide temperature discrepancy between what is displayed and the actual temperature. | Is the power saving function of the RC activated? | The potential exists for a discrepancy between displayed and actual temperature readings if an RC equipped unit is in power-save. |
| 13 | Set values for the monitor screen are: “ - ” or “ - - ”. | Is [Group], [Block], or [H-LINK] selected and displayed inside in [View by]? | If other than [Unit] is selected in [View by], and individual unit settings values are not uniform, values are displayed will appear as: (“-” or “- -”). |
| | | When the adapter activates, is it disconnected from the unit or is the main power to the unit shut OFF? | When the adapter can no longer detect all units after startup, it will require about a 30 minute recovery time to indicate correct status. |

Schedule

| No. | Condition | Items to be Checked | Action |
|-----|---------------------------|--|--|
| 1 | Schedule is not executed. | Has the indoor schedule been disabled over the span of a day? | Deselect [Disable IU schedule for 1 day] in the unit control panel. |
| | | Did you click on [Done] upon completing settings? | Click on the [Done] button to apply changes and settings. The button will stop blinking after all values are set. |
| | | Is the schedule registered on “Group”? | A schedule will be applied by each Group. Check to see if each group is set to execute that schedule. |
| | | Is any specific schedule registered? | Specific schedule contents will be performed, even when the daily schedule is set if the current date is registered as specific in the schedule. |
| | | Is [Overwrite only where changed] set for [Setting update mode]? | Set [Overwrite all], or re-schedule the groups. |
| | | Have all connections been verified? | Go to [Settings] > [Unit register] and check connections. |
| | | Is the adapter connected? | Go to [Settings] > [Network register] and check connections. |
| | | Is the adapter turned ON? | Turn ON the adapter. |

Schedule

| No. | Condition | Items to be Checked | Action |
|-----|--|---|---|
| 2 | Date settings (for the exception schedule) shown in gray are not accessible nor editable. | Is the desired date included for the Summer/Winter season? | One of the normal, summer or winter season settings may be set. Exceptions to normal seasonal scheduling cannot be set while the date is set as summer or winter. Check the season setting. |
| 3 | Exceptions for summer or winter scheduling cannot be set if the entire calendar year is displayed in gray. Anything displayed in gray is not accessible or editable. | Is Summer/Winter season set? | Click [Summer/Winter Set] to set the season. |
| 4 | Modification to schedule is denied, unavailable. | Did you click on the [Add] or [Duplicate] button? | Click on the [Modify] button to modify the existing schedule. |
| 5 | Schedule cannot be added. | Did you click on the [Modify] button? | Click [Add] to add schedule items. |
| | | Are there 16 items already set for the date? | The maximum number of schedule items for a day is 16. |
| 6 | Operation on individual groups are not consistent with the schedule items set from the All section. | Is [Overwrite only where changed] set for [Setting update mode]? | [Specific schedule] and [Running menu] will not be changed even after changing schedule items for each day of the week if these items were [Overwrite only where changed]. Set items again and [Overwrite all] or set items for each group. |
| 7 | When the [Schedule] button is selected, the display format will switch automatically. | Does [Layout] or [Tenant] switch to [Panel]? | Because the schedule only supports what is displayed on the panel, if the [Schedule] button is selected, it will automatically return to what is displayed on that panel. |
| 8 | Specific schedule items are not executed. | Are specific schedules set every year? | A specific schedule needs to be set once a year. Erroneous entries for date: (year/month/day) if entered for the year past will not be registered and not take affect. Entries must be made affective for the following year. |
| 9 | The schedule for a specific unit is usually not executed. | Is the previous group deleted when changing the group? | Register the group previously present again and delete the schedule for the group. Complete group modifications and create settings for that schedule. |
| 10 | When creating a CSV file, a pop-up message is displayed: "CSV generation has failed" . | Does overwriting of the file fail? | When overwriting the file, check that the data being overwritten is closed. |
| | | Is there a sufficient margin of free space on the disk for the management computer? | Delete unnecessary files to increase free space on the disk. |
| | | Is there a "save to" disk inserted? | Check if the media to save is connected. |
| | | Is there permission to write to this disk? | Cancel writing prohibitions to the disk or use another disk. |

Trend

| No. | Condition | Items to be Checked | Action |
|-----|---|---|--|
| 1 | All values in trending graphics are shown as "0". | Is the period correctly specified? | Specify the time period in which the units were up and running. |
| 2 | Elapsed running time is the only data shown. | Is the unit facility unit? | For facility units, trend type graphics: of "Thermo ON time", and "Temperature" are unavailable. Elapsed running time is the only item shown in the graphic. |
| 3 | The window does not show panel(s). | Are all connections verified? | Go to [Settings] > [Unit register] and check the connection. |
| | | Is the adapter connected? | Go to [Settings] > [Network register] and check the connection. |
| 4 | All of the layout icons indicate [?]. | Are all connections verified? | Go to [Settings] > [Unit register] and check the connection. |
| | | Is the adapter connected? | Go to [Settings] > [Unit register] and check the connection. |
| 5 | One or more layout icons appear as [?]. | Are units, groups, blocks, or facility units that are not present set ? | Check if the panel set is present in [Settings] > [Unit register] / [Group register] / [Block register]. |
| 6 | Unit names on the panel do not show in full length. | Isn't the unit name too long? | The window for viewing unit names has limited space. Put mouse pointer on the panel and the name will be revealed in its full length in tool tip. |
| 7 | The pop-up: [No available data.] is shown. | Is the time period specified correct? | Specify the time period where the unit has been in operation. |
| | | Is the mode [Single select]? | In the case of a single selection mode, select one or more types from temperature and one or more types from running time or thermo-ON time. |
| 8 | Only one of the type in the bar graph and the line graph each can be selectable. | Is the mode [Multi select]? | In the case of a multiple selection mode, only one of the items in the bar and linear graphs is selectable. Select [Single sel.] for multiple indications for the bar graph or the linear graph. |
| 9 | When [Trend] button is selected, the display format will switch automatically. | Does [Tenant] switch to [Panel]? | Because the trend only supports the what is displayed in the panel or in the layout, if the [Trend] button is selected in the tenant data field, it will automatically switch to panel indication. |
| 10 | The displayed temperature differs greatly with the actual temperature. | Is the power saving function for the RC used? | If the power-save function for the RC is activated, a potential temperature discrepancy can exist between that what is registered and the actual temperature. |
| 11 | When creating a CSV file, a pop-up message is displayed: "CSV generation has failed". | Does overwriting the file fail? | When overwriting the file, check that the data being overwritten is closed. |
| | | Is there a sufficient margin of free space on the disk for the management computer? | Delete unnecessary files to increase free space on the disk. |
| | | Is there a "destination save to" disk inserted? | Check if the media to save is connected. |
| | | Is there permission to write to this disk? | Cancel the writing prohibitions for the disk or use another disk. |
| 12 | A pop-up message reads: [Could not be printed], while attempting to print. | Is the printer connected ? | Check the connection between the management computer and the printer. |
| | | Is power to the printer turned ON? | Turn ON the power to the printer. |
| | | Is data output set to PDF? | When designating the printing destination for data output and the overwriting of data, check to see if the previous overwritten data was closed. |

CONTROL SYSTEM

Alarm History

| No. | Condition | Items to be Checked | Action |
|-----|--|---|---|
| 1 | Alarm(s) is not recorded in alarm history. | Did you click on the [Delete] button in [Setting] > [Other1] > [Alarm history]? | Click on the Delete button to clear all alarm history. |
| | | Did the number of alarms exceed 50,000? | When the number of alarms reach this threshold, the oldest alarm record is deleted to accommodate the new alarm. |
| | | Is the desired Group, Block, H-LINK, or All selected? | Select one desired Group, Block, H-LINK, or All to show the alarm history. Some alarm records appear only when "All" is selected. |
| | | Did you click on the [Update] button? | Alarm history does not automatically update alarm information. To display the most current alarm while inside the alarm display, click on the (Update) button. |
| 2 | When [Alarm history] button is selected, the display format will switch automatically. | Does [Tenant] switch to [Panel]? | Alarm history is only what is displayed on the control panel. If the Alarm History button is selected (from inside the tenant registry), it will automatically revert back to control panel readings. |
| 3 | When creating a CSV file, a pop-up message is displayed: "CSV generation has failed". | Does the file overwrite operation fail? | When overwriting the file, check that the file being overwritten is closed. |
| | | Is there a sufficient margin of free space on the disk for the management computer? | Delete any unnecessary files to maximize free space on the disk. |
| | | Is the disk for saving presented? | Check if the media to save is connected. |
| | | Is there permission to write to this disk? | Cancel the writing prohibitions for the disk or use another disk. |
| 4 | A pop-up message reads: (Could not be printed), while attempting to print. | Is the printer connected? | Check the connection between the management computer and the printer. |
| | | Is power to the printer turned ON? | Turn ON the power to the printer. |
| | | Is data output set to PDF? | When setting the printing destination for data output and overwriting of data, check to see if the previous overwritten data was closed. |

Setting

| No. | Condition | Items to be Checked | Action |
|-----|--|---|--|
| 1 | Even though the layout register and setting modification were performed, the layout cannot be selected on the monitor screen. Or, the setting isn't yet updated. | Was the management software restarted after layout register ? | Restart the management software. |
| 2 | There is an unnecessary layout. | Was the layout deleted? | Delete the layout data following the steps: (a) Exit the management software. (b) Open the folder [/centralstation/layout]. (c) Delete any unnecessary layout data in this folder. (d) Restart the management software. (e) If this layout is registered in the master layout, delete the individual layout from the master layout following the procedure for "Initial Settings" [9] Layout Register [Unit Location - Modification], then restart the management software. |
| 3 | H-LINK information does not display in the following section(s) even after clicking H-LINK: • Unit register • RC Group register • Group register • Block register • Tenant register • Indoor unit • Outdoor unit • External input • External output | Did you click on [Cancel] while checking the connection? | Click on [Check connection]. |
| | | Was the [Connect] button in [Network register] turned OFF? | Click on [Connect] in [Network register]. |
| 4 | Settings items are not shown in [Indoor unit]. | Did you select units? | Select indoor units to complete the configuration process. |
| 5 | Settings items are not shown in [Outdoor unit]. | Did you select units? | Select outdoor units to complete the configuration process. |
| 6 | [Settings completed] button is blinking. | Did you click on the [Setting completed] button? | Click on [Setting completed] to complete settings. |
| 7 | After clicking on the [Setting completed] button, the [Setting completed] button is still blinking in a different H-LINK. | Did you click on the [Setting completed] button in the selected H-LINK? | The [Setting completed] button needs to be selected for each H-LINK, every time any change is made. Click on the [Setting completed] button to stop blinking. |

Miscellaneous

| No. | Condition | Items to be Checked | Action |
|-----|--|--|---|
| 1 | The management software doesn't exit when the UPS requests the computer to shutdown. | Is the management software NOT set to quit the current session of Windows? | Change the settings for the management software to exit the current Windows session as shown below: (a) Exit the management software. (b) Open manager_info.ini in the [centralstation/manager] folder. (c) Change: [ForceCloseOnWindowsSessionEnd=0] to [ForceCloseOnWindowsSessionEnd=1] in [Others] section. (d) Overwrite, save and close manager_info.ini. (e) Restart the management software. (f) Check that the management software exits correctly when the UPS requests the computer to shutdown. |
| 2 | [No response] indicated on the management software title bar. | Is the process lengthy and time consuming in its execution? | If the process becomes overly time consuming, the message "No Response" will display. This is normal. Be patient and do not attempt to back out of the command. When "No Response" disappears, the process is concluded. |

Modification from Non RC equipped to RC equipped units.

In any of the following procedures, cancel recognition of "Non RC equipped" and the remote control (Central Control display).

The nature of this procedure is complex. Proceed by first selecting on the check box next to the number.

<When the emergency stop is available>

- (1) Repeat the connection verification procedure for this H-LINK in [Settings] > [Unit Register].
- (2) Display each unit status in [Monitor], and verify that icons (representing non RC equipped units) are not shown.
- (3) Activate the emergency stop command to exceed one minute elapsed time and then cancel out of it.
- (4) Verify that the [Central control] setting for the RC is canceled. (Verify for all indoor units of this H-LINK.)

NOTE:

Indoor Units: When performing control function selections, repeat again after canceling settings for emergency stop. The control status will display: "Stop", FAN, 82°F (28°C), LOW (fan speed) and (1), (Louver). Assume control again if necessary.

<When the emergency stop is not available>

- (1) Copy Connection_Ininfo_###.dat, Connection_Block.dat, and Connection_Group.dat in [centralstation/rcv/H-LINK**/mnt/ram/harcweb1/download] folder to C drive.

NOTE:

1. "***" of "H-LINK**" is H-LINK No.(00-15) (that is indicated in the RC central control display).
2. "###" of Connection_Ininfo_###.dat is 01-64 is in the folder.

- (2) Copy webcon**_data.csv in [centralstation/manager/data] to the C drive.

NOTE:

"***" of Webcon** is H-LINK No.(00~15) (that is indicated in the RC central control display).

- (3) Copy Unit_restore.bat and BlockGroup_restore.bat (that are found on the installation CD). Copy to C: Drive.
- (4) After three minute's time, remove the wire from the adapter to the H-LINK.
- (5) Verify that displayed values (in Central Control) have vanished from the RC panel screen. Verify for all indoor units in this H-LINK.
- (6) Click on [Connection check] in [Settings] > [Unit register] in the management software.
- (7) Select [No] on the [Utilize registered data?] pop-up message.
- (8) Select [Yes] in the [Deleting the registered data to start checking connection.] pop-up message.
- (9) Connect the wire from H-LINK after 10 seconds.

- (10) Execute Unit_restore.bat after all connections have been checked and verified. Enter the IP address following the message.
- (11) Execute BlockGroup_restore.bat. Enter the IP address following the message.
- (12) Click on [Connection check] in [Settings] > [Unit register] for the management software, and execute connection verification using the registered data.
- (13) Exit the management software after all connections have been verified.
- (14) Overwrite the webcon**_data.csv (copied in C Drive) in (2) to [/centralstation/manager/data].
- (15) Activate management software and verify content for all settings.

4 Periodic Check

To maintain sound operation of the entire air conditioning system, including the management computer, periodically inspect the following items:

- (1) Environment
 - Ensure that the computer (with this software) does not overheat under normal operating conditions.
 - Do not install this computer and adapter (with this software) in hot and hostile environments.
 - Ensure that the computer and adapter are kept free of dust, debris, and leftover wire clippings.
- (2) Display
 - Ensure that the data output display shows consistent results.
- (3) Installing
 - Ensure that devices and adapters are correctly wired and connected.

5 Uninstall

- (1) Go to [Start] > [Settings] > [Control Panel].
- (2) Click [Add / Remove Programs].
- (3) Select [VRF management system] and click on [Remove]
- (4) Select on the installed folder (usually in [/C:/Program Files(x64)/centralstation]) and delete.

CONTROL SYSTEM

6.10.6.3.7 Addenda

Data Sheet for Test Run

Location information

| | |
|------------------------|-----|
| Information | |
| Building/Location Name | |
| Location | |
| Date for Test Run | / / |

System information

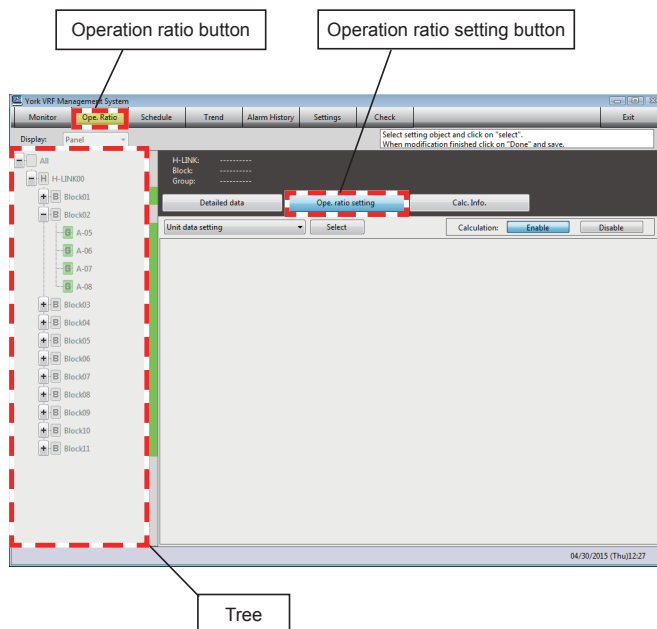
| Device name | Address items | Address | Device name | Address items | Address |
|---------------------|------------------|---------|-------------|------------------|---------|
| Management Computer | IP address | . . . | | | |
| | Subnet mask | . . . | | | |
| | Default gateway | . . . | | | |
| Adapter 1 | IP address | . . . | Adapter 2 | IP address | . . . |
| | Subnet mask | . . . | | Subnet mask | . . . |
| | Default gateway | . . . | | Default gateway | . . . |
| | Software version | | | Software version | |
| Adapter 3 | IP address | . . . | Adapter 4 | IP address | . . . |
| | Subnet mask | . . . | | Subnet mask | . . . |
| | Default gateway | . . . | | Default gateway | . . . |
| | Software version | | | Software version | |
| Adapter 5 | IP address | . . . | Adapter 6 | IP address | . . . |
| | Subnet mask | . . . | | Subnet mask | . . . |
| | Default gateway | . . . | | Default gateway | . . . |
| | Software version | | | Software version | |
| Adapter 7 | IP address | . . . | Adapter 8 | IP address | . . . |
| | Subnet mask | . . . | | Subnet mask | . . . |
| | Default gateway | . . . | | Default gateway | . . . |
| | Software version | | | Software version | |
| Adapter 9 | IP address | . . . | Adapter 10 | IP address | . . . |
| | Subnet mask | . . . | | Subnet mask | . . . |
| | Default gateway | . . . | | Default gateway | . . . |
| | Software version | | | Software version | |
| Adapter 11 | IP address | . . . | Adapter 12 | IP address | . . . |
| | Subnet mask | . . . | | Subnet mask | . . . |
| | Default gateway | . . . | | Default gateway | . . . |
| | Software version | | | Software version | |
| Adapter 13 | IP address | . . . | Adapter 14 | IP address | . . . |
| | Subnet mask | . . . | | Subnet mask | . . . |
| | Default gateway | . . . | | Default gateway | . . . |
| | Software version | | | Software version | |
| Adapter 15 | IP address | . . . | Adapter 16 | IP address | . . . |
| | Subnet mask | . . . | | Subnet mask | . . . |
| | Default gateway | . . . | | Default gateway | . . . |
| | Software version | | | Software version | |

6.10.6.4 Operation Ratio Function Setup

6.10.6.4.1 Important Notice

- Carefully read and review this installation and operation manual before putting this equipment into service.
- The system can perform normally when all its constituent parts are connected as designed. Device failure for any reason will severely impact performance capabilities. Discuss an alternative recovery strategy that allows you to address problems with the computer and adapter, with your customer/tenant before the system enters service.
- Operational functions cannot be performed when the management computer and software are OFF. With management computer ON and software launched, select “ENABLE” before entering the operational mode.
- IMPORTANT! This system performs control and save functions as governed by its internal settings for each day and hour. When set for each day, calculation data will be saved over the time period beginning at midnight to 01:30am (local time). If the management software crashes during the calculation period or while attempting to save, data is lost for that period and will not be saved. Perform and save the next day’s calculation. When set to occur each hour, the calculation will be saved each hour from 00 minutes to 30 minutes after the hour. If the management software crashes during calculating during the calculation period or while attempting to save, data is lost for that period and will not be saved. In that case, perform and save the next hours calculation.
- Supported calculation methodology can vary on different adapter devices. Refer to the item 6.10.6.4.5 Operation Ratio Setting “ 3 Operation Ratio Mode Setting”.
- This software supports Tooltip (reminder information). It will reveal when the mouse cursor hovers over items (group and block name) inside windows (status tree view). Please note that Tooltip might not appear on all items or displays depending on operational state.
- The reference photos printed in this manual are only a sample. The display might differ from that shown in the actual window.
- In case a pop-up window like the control window does not appear entirely on the screen, change the windows taskbar size with the point of the mouse so that the hidden part of the pop-up window can be displayed.

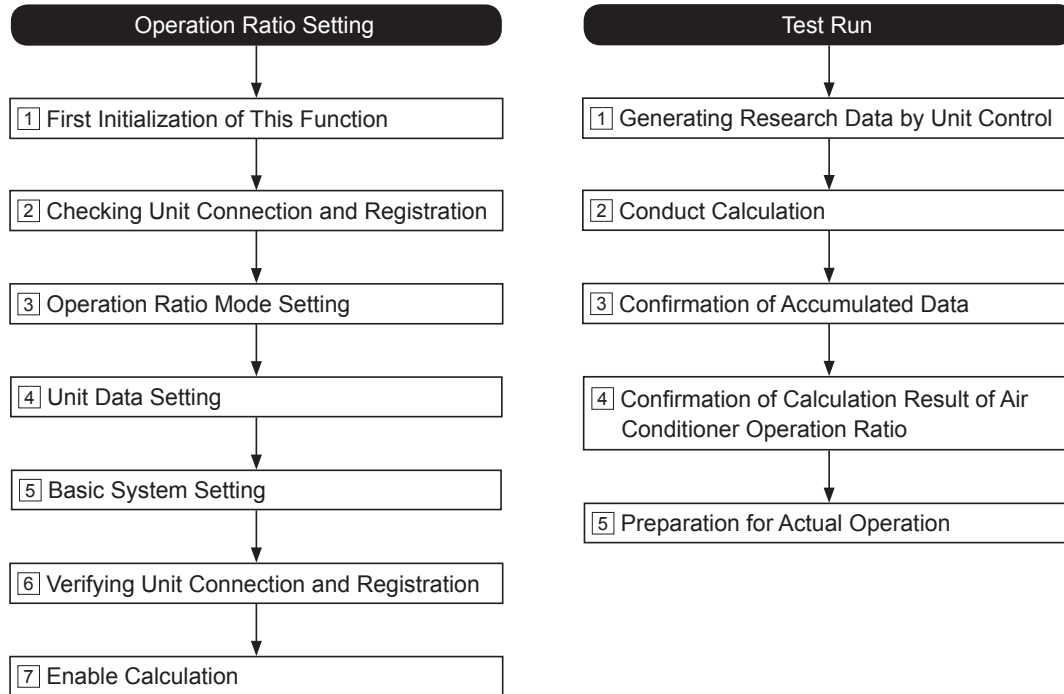
▪ Functions



- GHP: Stands for Gas Heat Pump air conditioner
- EHP: Stands for Electric Heat Pump air conditioner
- Facility unit: Abbreviation of the target device when monitoring and controlling facility device using external input/output of this system.

6.10.6.4.2 Software

This chapter describes how to perform operational ratio setting and to perform Test Run.
 The setup procedure is as follows:
 Adapter and management software need to be setup before this procedure can be run.
 Read and carefully follow “Before Installation” ahead of setup.



6.10.6.4.3 Before Installation

Setting the following before Test Run simplify the completion of this procedure.
 In preparation, system configuration information and reference for calculation methods will be needed.
 Fill-in the data sheet of the item 6.10.6.4.8 “Addenda” to refer to during the test run.

1. Fill-in the operation ratio mode to data sheet (1/4).
2. Fill-in setting values for unit data setting to data sheet (2/4-4/4).
 Refer to the the item 6.10.6.4.5 Operation Ratio Setting “ 4 Unit Data Setting” for how to set up and acquire values and data.

6.10.6.4.4 System Configuration

1 System Configuration

Refer to **System Configuration** 1 System configuration information from the installation manual for management software.

2 Device Specification

Refer to **System Configuration** 2 Device specification from the installation manual for management software.

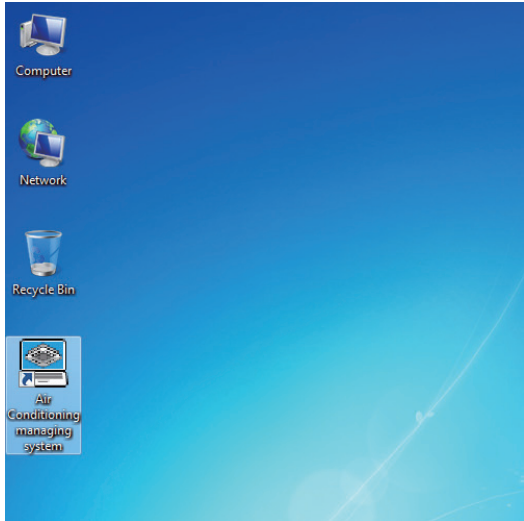
6.10.6.4.5 Operation Ratio Setting

Perform Test Run before initiating any of the following proceedings.
Do not perform any other operations while setting the following functions.

1 First Initialization of This Function

Click on the “Ope.ratio” button to begin the initialization procedure.

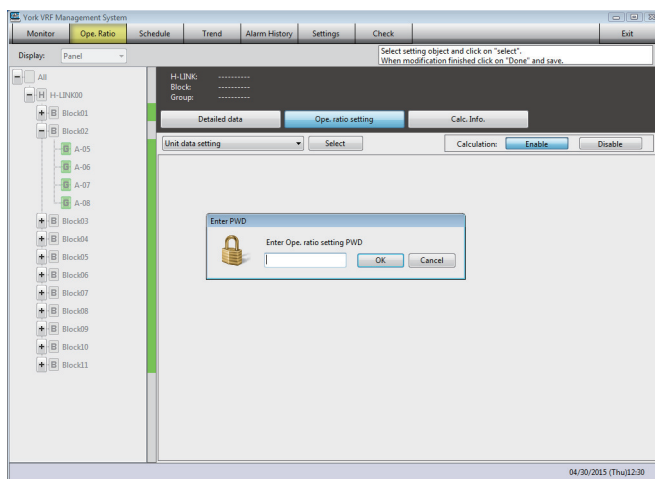
- (1) Double-click the VRF System (Shortcut) on the desktop of the management computer to boot the management software.



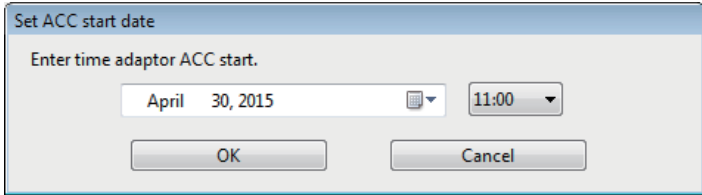
- (2) Click on the [Ope.Ratio] function button.

NOTICE:

- A password is pre-set for the operation ratio setting. The initial password is “2468”.



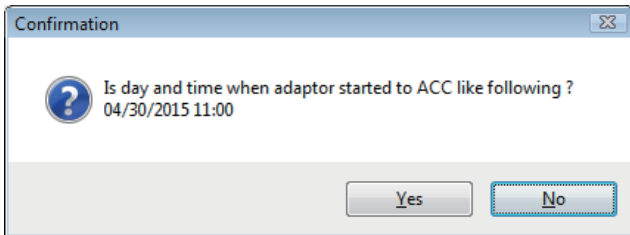
(3) Enter the date when the adapter initiated data accumulation and click on the [OK] button.



NOTICE:

- The start date of data acquisition will be confirmed as the date the adapter was connected to the system.

(4) Check the input date and click [Yes].



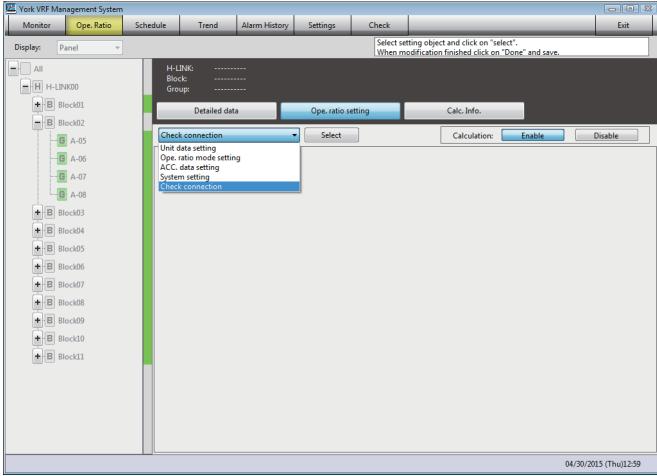
NOTE:

- Information indicating incomplete data will be displayed when a date earlier than the actual starting date is set.
- To modify incorrect date and time, go to: [Ope. Ratio] > [Ope. ratio setting] > [Accumulated data setting] > [Accumulation starting date].

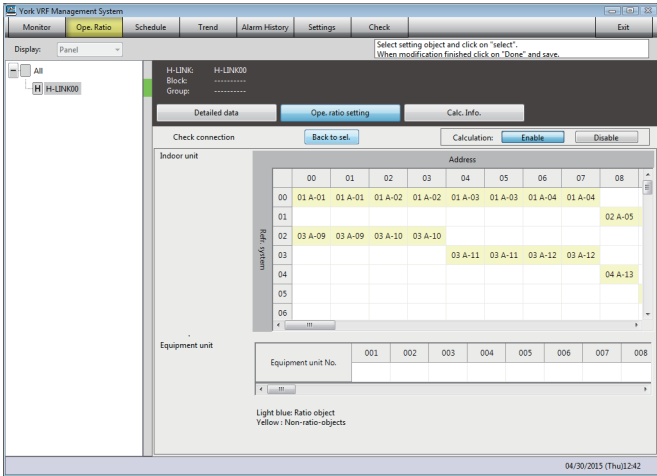
2 Checking Unit Connection and Registration

Check unit connection and registration.
 Those units depicted in yellow mean (calculation not affected), because their settings profile is not complete.

(1) Click [Ope.Ratio] > [Ope.ratio setting] > [Check connection].



(2) Select each H-LINK from the tree and check the constitution, group, and block information.



| | | |
|--------------------------|--|--|
| Back ground color \ Item | Block No. (01 to 64) Group No. (A-01 to H-16) | ○ |
| Blue | Units exist Registered in group/block Affects calculation | Units exist Not registered in group/block Affects calculation |
| Yellow | Units exist Registered in group/block Not affect calculation | Units exist Not registered in group/block Not affect calculation |

* Blank indicates "No unit exist".

NOTICE:

- Switch the H-LINK from the tree. Scroll to display all refrigerant systems and address information.
- When the symbol (○) is indicated, the system might not operate correctly. Register all units to groups and blocks.

3 Operation Ratio Mode Setting

NOTE:

- When changing settings, this function should be done while the [Disable] condition is set.

• **Characteristics of the Operation Ratio Mode (Calculation for AC Operation Ratio)**

(1) Calculation for air conditioner operation ratio mode
 Select a method to apply for calculating the ratio of indoor unit operation.

[Mode 1]

Calculate the ratio using the thermo-ON time and the heating/cooling capacity of the indoor unit.

<Characteristics>

- Calculate using the ratio by thermo-ON time × capacity.
- The ratio may not be as close to the actual operation capacity as Mode 2.

[Mode 2]

Calculate the ratio value from the accumulated electrical load on the outdoor unit(s) and the amount of refrigerant flow.

<Characteristics>

- Calculate the ratio by the accumulated expansion valve aperture × expansion valve coefficient.
- The ratio will likely be very close to the actual ratio.

[Mode 3]

Calculate the ratio from running time and not necessarily cooling capacity of the indoor unit.

<Characteristics>

- Calculate the ratio by running time × capacity.
- The ratio may not be as close to the actual operational capacity as Mode 1 and Mode 2.

NOTICE:

- AC operation ratio output includes the ratio calculated by AC operation of indoor units in a certain refrigerant system and the ratio calculated by AC operation for all indoor units. Either one with most appropriate ratio may be used.

• **Sample case**

Each mode has different characteristic.

Set the calculation mode referencing the table below.

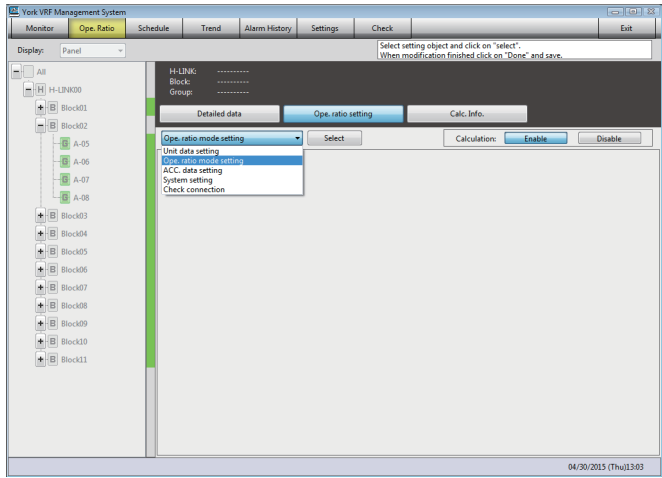
| Condition | AC operational ratio calculation mode | | |
|--|---------------------------------------|-------------|-------------|
| | Mode 1 | Mode 2 | Mode 3 |
| Calculation by thermo-ON time | Recommended | Unsuitable | Unsuitable |
| Calculation by actual operational capacity | Applicable | Recommended | Unsuitable |
| Calculation by running time | Unsuitable | Unsuitable | Recommended |

NOTE:

- It is not necessary to choose a calculation mode from the table above. Select whatever is most practical for each user.

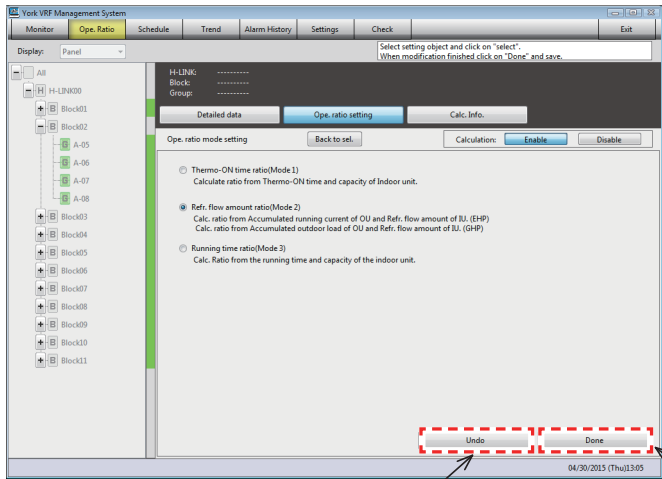
• **Setting Operation Ratio Mode**

(1) Click [Ope.Ratio] > [Ope. ratio setting] > [Ope. ratio mode setting].



(2) Register calculation mode.

- Select the ratio button for the desired calculation mode.



Undo the setting.

After completed input of all items, click on [Done] to lock in the setting.

NOTE:

- Changes in operation ratio mode setting will be affected by calculations and are applied across the duration of the calculated period.
- Operation ratio of the following types will always be 0% when the thermo-ON time ratio (Mode 1) or refrigerant flow amount ratio (Mode 2) is selected.
 - Facility unit

4 Unit Data Setting

NOTE:

- Settings should be made and changed while in the [Disable] condition.
- Changes in the unit data setting will be affected by the following calculations which are applied across the extent of the period.

All data needed for ratio calculation will be registered in unit data settings.
Unit data includes the following.

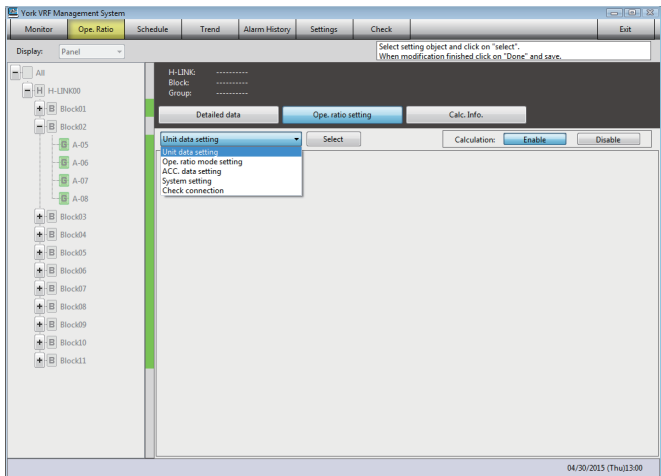
| No. | Outdoor unit Setting item | Calculation for air conditioner operation ratio |
|-----|------------------------------|--|
| (a) | ODU type | Required |

| No. | Indoor unit Setting item | Calculation for air conditioner operation ratio |
|-----|-----------------------------|--|
| (a) | Ope. ratio object | Required |
| (b) | Expansion valve coefficient | Required |
| (c) | Capacity | Required |
| (d) | Total heat exchanger usage | Required |

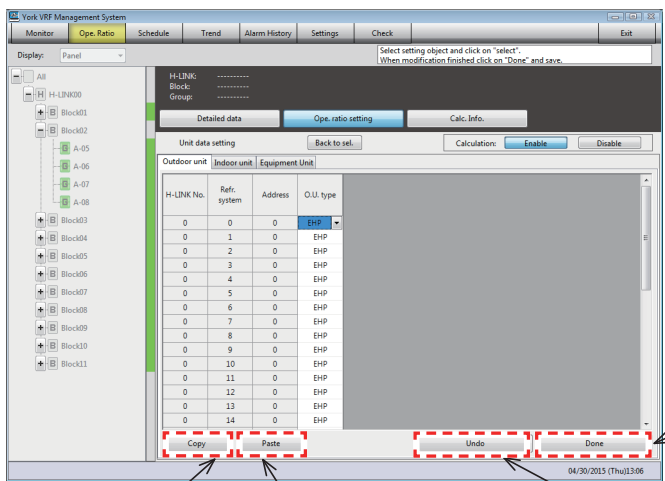
| No. | Facility unit Setting item | Calculation for air conditioner operation ratio |
|-----|-------------------------------|--|
| (a) | Ope. ratio object | Required |
| (b) | Capacity | Required |

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(1) Click on [Ope.Ratio] > [Ope. ratio setting] > [Unit data setting].



(2) Click on [Outdoor unit].



After all item input has been entered, click on [Done] to lock in the setting.

Copy the cell or row selected.

Paste the copied cell or row. If the cell is copied, only the cell within the same row will be pasted-in. If the row is copied, paste it for the row selected.

Undo the setting.

NOTICE:

- H-LINK number, refrigerant system and outdoor unit address of identified outdoor units will be automatically displayed.

(3) Set each outdoor units as follows:

(a) ODU type

- To indicate the type of outdoor unit identified.
- Verify that the identities of the outdoor unit type identified and the outdoor unit connected are the same.
- If the identified outdoor unit type is not correct, select the correct unit type from: EHP/GHP.

(4) Check the input content data and click on [Done].

(5) Click on [Indoor unit].

Copy the cell or row selected.

Paste the copied cell or row. If the cell is copied, only the cell within the same row will be pasted-in. If the row is copied, paste it for the row selected.

Undo the setting.

After all item input has been entered, click on [Done] to lock in the setting.

NOTICE:

- H-LINK number, refrigerant system, and indoor unit address of identified indoor units will be automatically displayed.

(6) Set each indoor unit as follows:

(a) Ope. ratio object

- Select whether the indoor unit value should be calculated or not (Yes/No).
- Select [Y] when calculation result for the AC operation ratio for the indoor unit is desired.
- Select [N] when calculation result for the AC operation ratio for the indoor unit is NOT desired.
- (b) ~ (d) for the indoor unit may be omitted when selecting [N].

(b) Expansion valve coefficient:

- Data will be according to the table below.

| Capacity (kBtu/h) | Expansion valve coefficient |
|-------------------|-----------------------------|
| 0 | 0 |
| 001 to 015 | 1 |
| 018 to 030 | 2.12 |
| 036 or more | 2.52 |

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(c) Capacity

- The identified values will be shown.
- Check if the value matches capacity of the unit.
- Correct the capacity if the value is incorrect.
- Set the correct capacity when blank is shown.
- Set the correct capacity if the value contains “ / ” or “-”.

NOTE:

- Unit corresponding set capacitance values are shown here.

| Capacity (kBtu/h) | Value to set in Capacity |
|-------------------|--------------------------|
| 006 | 22 |
| 008 | 28 |
| 012 | 40 |
| 015 | 56 |
| 018 | 71 |
| 024 | 90 |
| 030 | 112 |
| 036 | 140 |
| 048 | 160 |

(d) Total heat exchanger usage

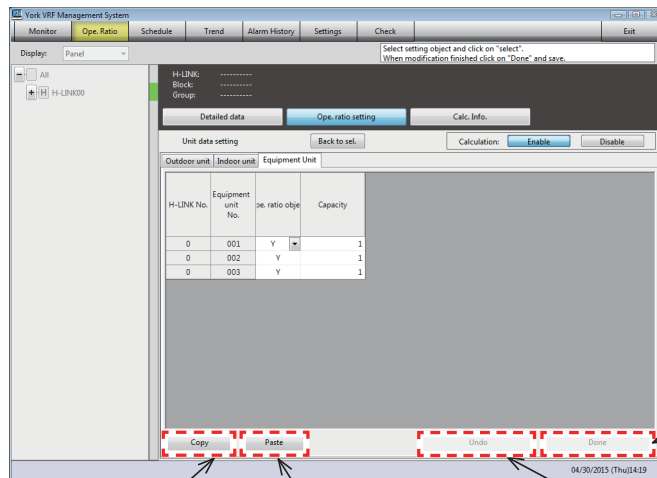
- Select [Y] if the indoor unit is a total heat exchanger.
- Select [N] if the indoor unit is not total heat exchanger.

(7) Check input data content and click [Done].

NOTE:

- Changes in unit data setting will be affected by the following calculations which are applied over the length of the calculation period.

(8) Click on [Facility unit].



After all item input has been entered, click on [Done] to lock in the setting.

Copy the cell or row selected.

Paste the copied cell or row. If the cell is copied, only the cell within the same row will be pasted-in. If the row is copied, paste it for the row selected.

Undo the setting.

NOTICE:

- H-LINK number, facility unit number of identified outdoor units will be automatically displayed.

(9) Set each facility unit as follows:

(a) Ope. ratio object

- Select whether the facility unit value should be calculated or not (Yes/No).
- Select [Y] when calculation result for the AC operation ratio for the facility unit is desired.
- Select [N] when calculation result for the AC operation ratio for the facility unit is NOT desired.
- Step (b) for the facility unit may be omitted when selecting [N].

(b) Capacity

- Input the value to indicate the ratio of power consumed by each facility unit.

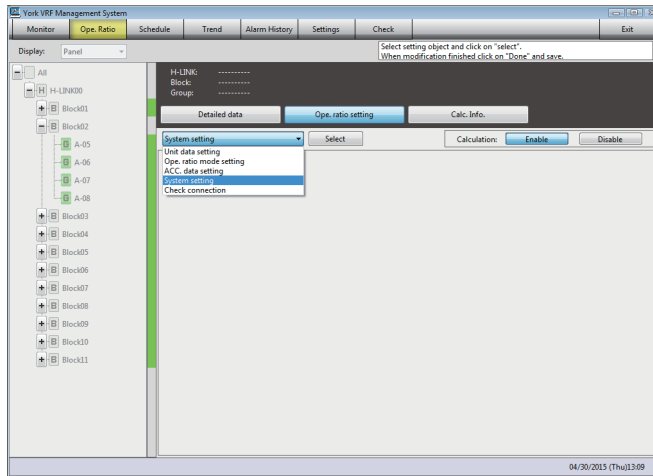
(10) Check the input content data and click [Done].

5 Basic System Settings

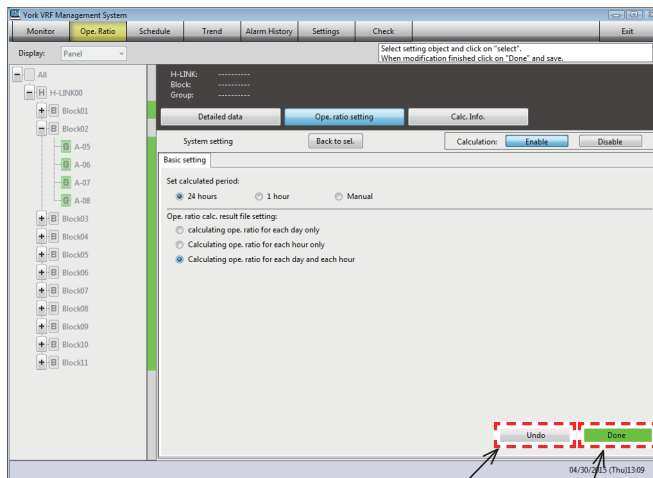
NOTE:

- When changing settings, this function should be done while the [Disable] condition is set.

(1) Click on [Ope. Ratio] > [Ope. ratio setting] > [System setting].



(2) Click on [Basic setting] and specify settings values as shown.



Undo the setting.

After all settings values have been entered, click [Done] to enter and lock-in the setting.

(a) Calculated period setting:

Select the calculation period for the system.

- If [1 hour] is selected, the calculation is performed each hour.
- If [24 hours] is selected, the calculation is performed once a day after midnight.
- If [Manual] is selected, the calculation cannot be performed.

Calculate manually in [Accumulated data setting] > [Acquire untaken data].

(b) Ope. ratio calc. result file setting

Select the file output mode of operation ratio calculation.

- If [Calculating ope. ratio for each day only] is selected, record the ope. ratio result file each day.
- If [Calculating ope. ratio for each hour only] is selected, record the ope. ratio result file each hour.
- If [Calculating ope. ratio for each day and each hour] is selected, record the ope. ratio result file for each day and each hour.

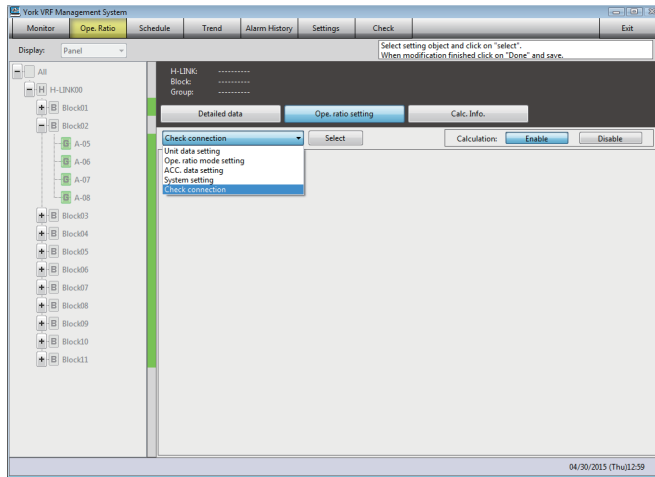
(3) Check the input content data and click [Done].

6 Verifying Unit Connection and Registration

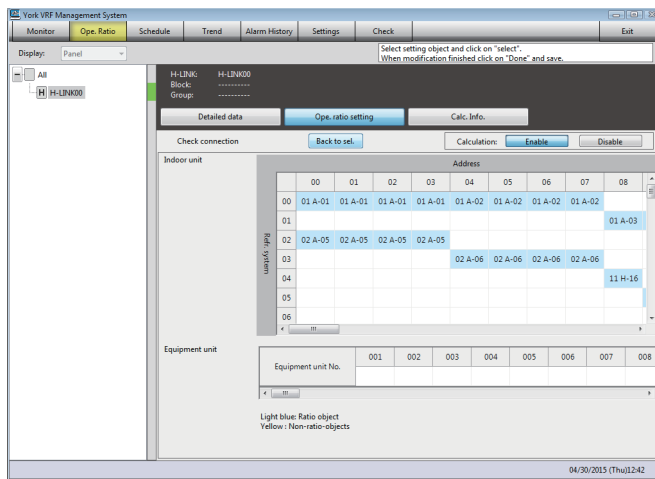
Verify unit connections and registration.

Verify that the registered units are highlighted in blue (affects calculation).

(1) Click on [Ope.Ratio] > [Ope. ratio setting] > [Check connection].



(2) Select the desired H-LINK to verify the contents.



| Back ground color \ Item | Block No. (01 to 64) Group No. (A-01 to H-16) | ○ |
|--------------------------|--|--|
| Blue | Units exist Registered in group/block Affects calculation | Units exist Not registered in group/block Affects calculation |
| Yellow | Units exist Registered in group/block Not affect calculation | Units exist Not registered in group/block Not affect calculation |

NOTE:

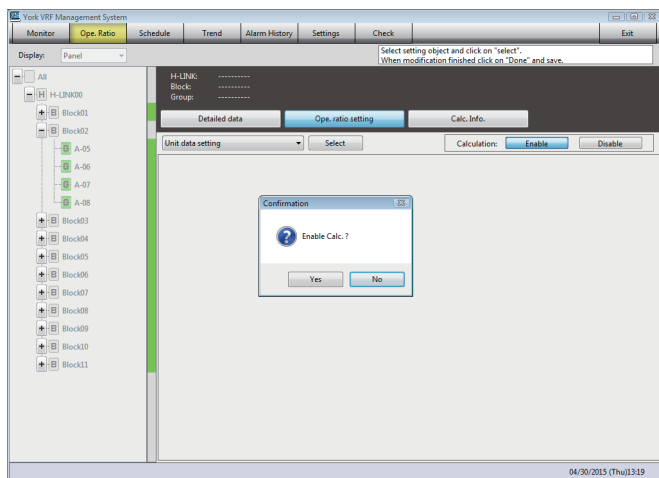
- Switch the H-LINK from the tree.
- Scroll to display all refrigerant system and address information.

7 Enable Calculation

Activating the function for operation ratio calculation.

Accumulated data collection and ratio calculation wis performed by activating the function for ratio calculation.

- (1) Click on [Ope. Ratio] > [Ope. ratio setting].
- (2) Click on calculation [Enable] button located toward the upper right corner of the screen.



- (3) The function for operation ratio calculation is now activated.

NOTICE:

- When changed, each item will take effect in following conditions.

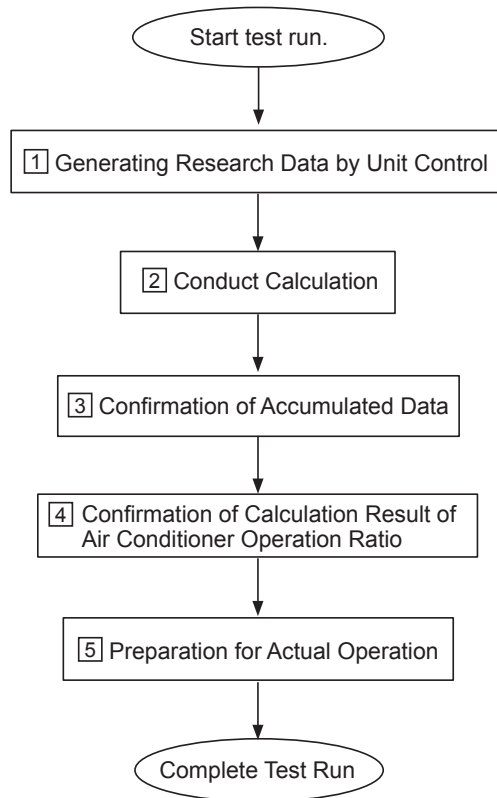
| | |
|--------------------------|--|
| Unit data setting | Will be affected in the next calculation |
| Accumulated data setting | Upon registration |
| Ope. ratio mode setting | Will be affected in the next calculation |
| System setting | Upon registration |

- If [Disable] is selected, the calculation cannot be performed. After completing all settings, click on [Enable].

CONTROL SYSTEM

6.10.6.4.6 Test Run

- Test Run Flow Chart



1 Generating Research Data by Unit Control

Operating data acquisition exceeding one hour will be required for the operation ratio function test run. Each unit needs to have specific data on operation time to simplify analysis of ratio calculation results. In the following steps, operate each unit so that they have specific data.

* Exercise operational control from the management display monitor.

(1) [RUN] all units [COOL 66°F] or [HEAT 86°F] to start the thermo.

NOTICE:

- [Run] all units [COOL 66°F] or [HEAT 86°F] to calculate the accumulated value for operation time, thermo-ON time, and level of refrigerant flow.

(2) Wait until the clock signals the exact completed minute or hour.

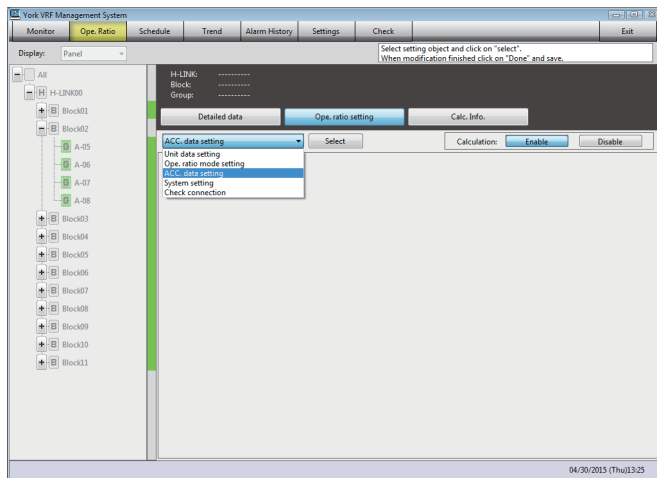
(3) The command, [Stop] will shut down each unit sequentially, beginning with the lowest refrigerant system number and address.

NOTICE:

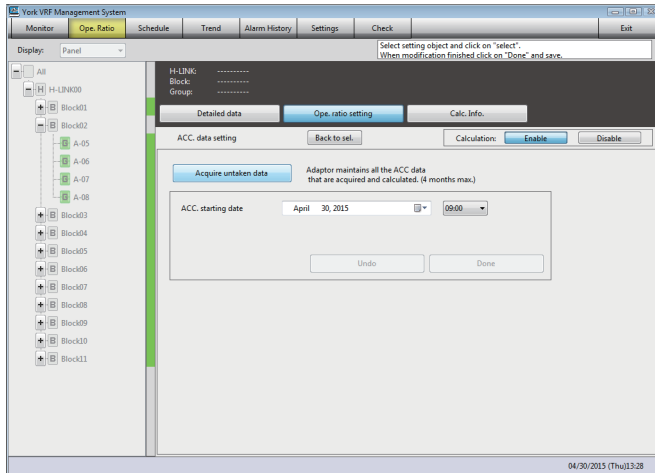
- Shutting down units one-by-one can generate and collect operational data for each unit.

2 Conduct Calculation

(1) Click on [Ope. Ratio] > [Ope. ratio setting] > [Accumulated data setting].



(2) Click on [Acquire untaken data] to start the calculation sequence.



NOTE:

- Calculation might take minutes, depending on the amount of data.
- In case of calculation information output, refer to the item 6.10.6.4.7 Service and Maintenance 8 Troubleshooting.

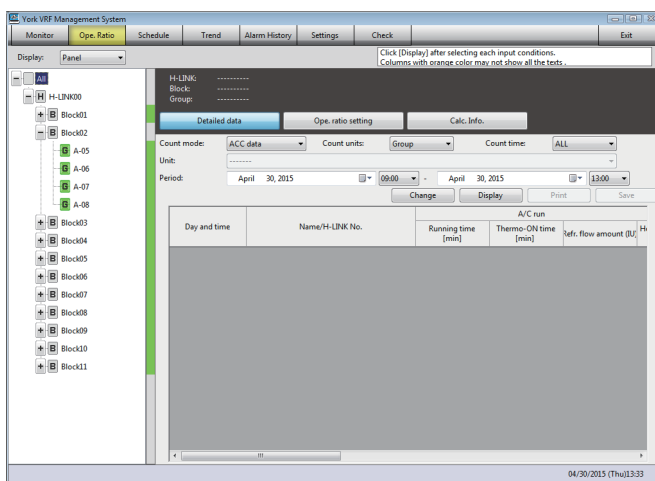
NOTICE:

- When selecting [Calculating ope. ratio for each day only], an ope. ratio result file is generated from the previous day.
When selecting [Calculating ope. ratio for each hour only] or [Calculating ope. ratio for each day and each hour], ope. ratio result file is generated for the previous hour.

3 Confirmation of Accumulated Data

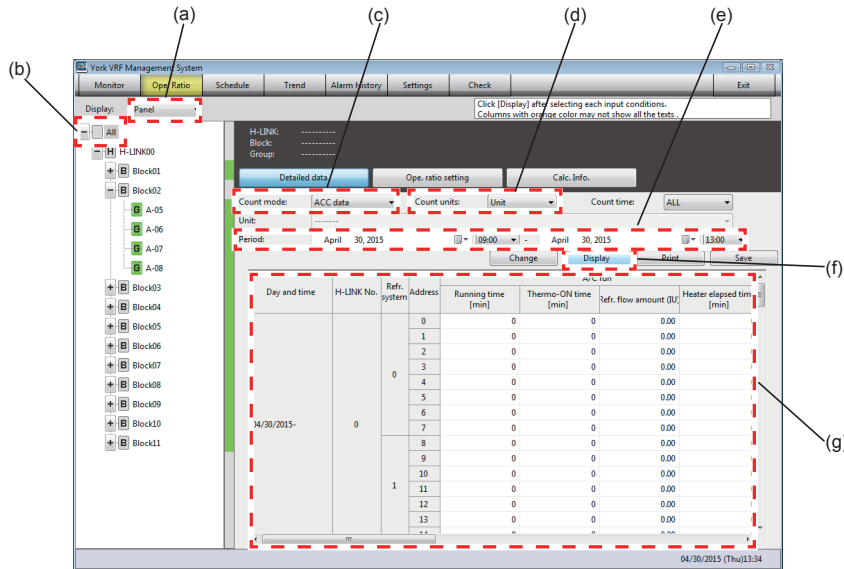
Check the operation and status of the operation ratio function.

(1) Click on [Ope. Ratio] > [Detailed data].



(2) Display the accumulated data to verify the consistency.

- (a) Select [Panel] in [Display].
- (b) Select "All" from the tree.
- (c) Select [Accumulated data] in [Count mode].
- (d) Select [Units] to be shown.
- (e) Specify the period as from the time when the operation was started in
 1 Generating Research Data by Unit Control (3) and to the current time.
- (f) Click [Display].
- (g) Check on the accumulated data.



Check item (example)

- Operation time increases with the refrigerant system number and address.
- If using units of the same capacity, also check if thermo-ON time and refrigerant flow rate increase with the refrigerant system number and address.

NOTE:

- It can take a maximum of 45 minutes to fully display the data.
- Only the thermo-ON time and refrigerant flow rate are shown as the default settings. To display the other data, select those items by way of the [Change] button.

4 Confirmation of Calculation Result of Air Conditioner Operation Ratio

- (1) Check the calculation results from CSV file in the “/anbun/DriveRatio/Result” folder in the installed folder.

Check item (sample case)

Check if the same thermo-ON time or refrigerant flow rate ratio data as in **3** Confirmation of Accumulated Data are shown.

NOTE:

- Refer to **Calculating Air Conditioner Operation Ratio** **1** Calculation Result Reference in the operation manual for the contents of the CSV file.

5 Preparation for Actual Operation

Delete Test Run data to prepare for actual operation.

■ Data Backup

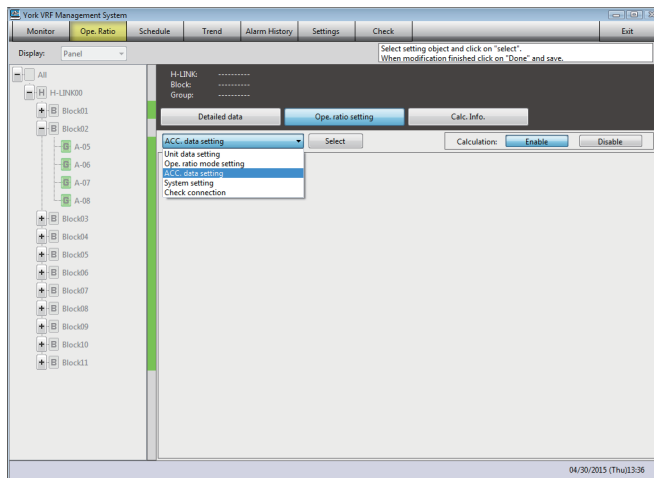
- (1) Connect a USB flash drive or other external memory device to the management computer.
- (2) Close the management software.
- (3) The “/centralstation” folder is saved under the drive in which the software is installed. Copy the file to a USB flash drive or other external memory device connected to the computer.
- (4) To remove the USB flash drive or other external memory device, select “Safety remove hardware” from the task bar.

■ Delete Test Run Data

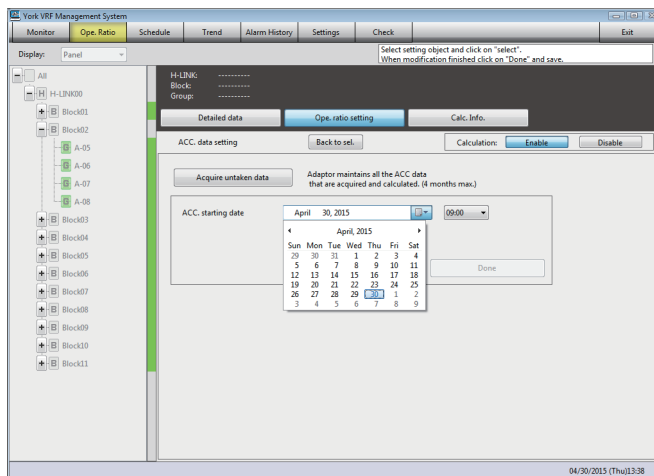
- (5) Delete all the files in the “/centralstation/anbun/DriveRatio” folder under the drive in which the software is installed.
- (6) Reboot the software.

■ Changing Start Date for Data Accumulation

- (7) Click on [Ope.Ratio] > [Ope ratio setting] > [Accumulated data setting].



- (8) Change [Accumulation starting date] to actual operation starting date and time.



This is the end of setup.
Refer to the operation manual for software operation.

6 Checking Items before Handing Over

Check the following items before handover.

- (1) Check all control and monitoring functions for each unit in accordance with the Test Run procedure in this manual.
- (2) The service life of the management computer will differ from that of the air conditioning unit. Explain to the customer in advance how to update the management computer.
- (3) It is assumed that management software is always running. Explain to your customer that trend data, alarm history, and check data cannot be recorded while software is OFF or in a state of hibernation. The exception to this would be a restart triggered by a timer function.
- (4) Device failure for any reason will severely impact all capabilities. Discuss an alternative recovery strategy that allows you to address and work around problems with the unit or by way of a remote controller monitor outside the system.
- (5) Periodically copy the "/centralstation" file inside the management computer to a USB flash drive or other external memory device as backup data.
- (6) Explain how to operate and maintain this software.
- (7) Accurate calculation may not be available upon device failure or other unexpected conditions. Please discuss the alternative plan (another calculation method independent from the computer and adapter condition) with your tenant before putting the system into service.

6.10.6.4.6 Service and Maintenance

1 Setting and Updating the Management Computer

[Procedure]

- (1) Exit the managing software
- (2) Backup data
- (3) Install to the new management computer
- (4) Extracting backup data
- (5) Reboot the management software

NOTICE:

For all other hours of the day, do not attempt to start this procedure within 15 minutes prior to the stroke of the next hour. If the calculation period is set for a 24 hour span, do not perform this procedure within the hours of midnight and 2:00am, local time. If the calculation period is set for a one hour time window, the operation ratio calculation (ope. ratio cal function) will take effect for the following hour of operation.

- (1) Exit the management software

NOTICE:

Once exited, trend information and check data will not be recorded until the initiation is completed for the next time. (Operation ratio data will be recorded.)

- (2) Backup data
Copy the file folder “/centralstation” to a USB flash drive or other external memory device.
- (3) Install to the new management computer
Install the updated managing software to the new management computer.

NOTICE:

Use the same structure (example: “/C:/Program Files(x86)/centralstation”) for the drive and folder you are installing to.

- (4) Extract backup data
Overwrite data in “/centralstation” file with the backup data.
- (5) Reboot the management software
 - Boot the managing software in the new management computer.
 - Check each control, monitor, and calculation operation by referencing “Test Run” in this manual and in the other installation and maintenance manual (P5415508).

2 Add, Change, and Delete Units

[Procedure]

- (1) Current result acquisition in operation ratio function
- (2) Stop operation ratio function
- (3) Exit the management software
- (4) Backup data
- (5) Confirm connection and add, change, and delete units
- (6) Restart the adapter
- (7) Restart the management software
- (8) Add and change remote controller groups
- (9) Add and change groups
- (10) Add and change blocks
- (11) Add and change tenants
- (12) Check controlling and monitoring settings
- (13) Set of operation ratio function
- (14) Restart operation ratio function

NOTICE:

For all other hours of the day, do not attempt to start this procedure within 15 minutes prior to the stroke of the next hour. If the calculation period is set for a 24 hour span, do not perform this procedure within the hours of midnight and 2:00am, local time. If the calculation period is set for a one hour time window, the operation ratio calculation (ope. ratio cal function) will take effect for the following hour of operation.

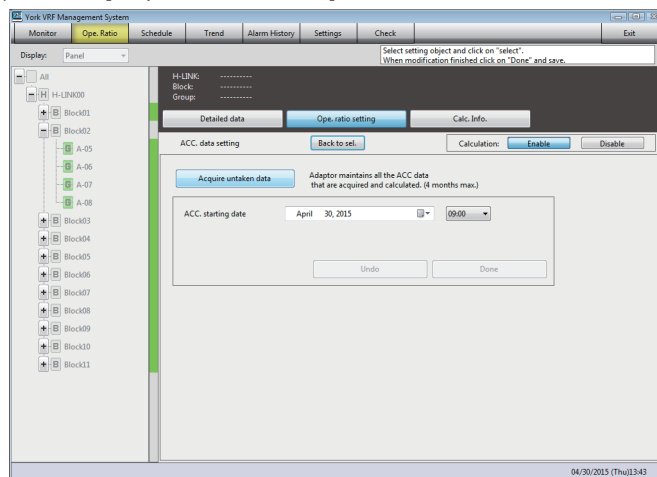
- (1) Current result acquisition in operation ratio function
Calculate the operation ratio using current settings in cases where unit settings become modified or changed.

NOTICE:

For all other hours of the day, do not attempt to start this procedure within 15 minutes prior to the stroke of the next hour. If the calculation period is set for a 24 hour span, do not perform this procedure within the hours of midnight and 2:00am, local time. If the calculation period is set for a one hour time window, the operation ratio calculation (ope. ratio cal function) will take effect for the following hour of operation.

(a) Click on [Ope.Ratio] > [Ope. ratio setting] > [Accumulated data setting].

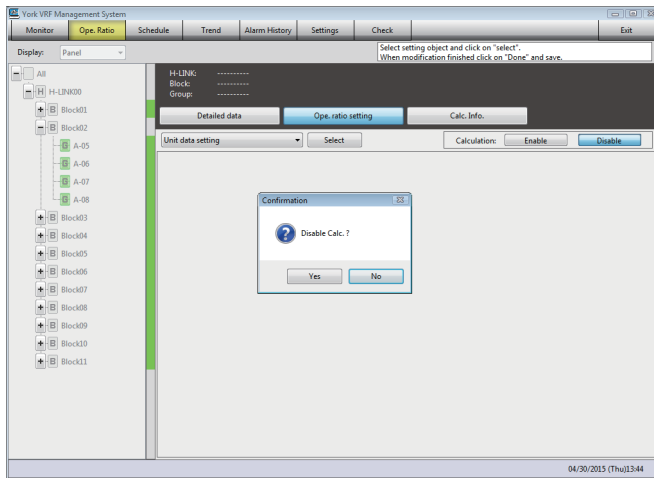
(b) Click on [Acquire untaken data] to activate calculation.



NOTE:

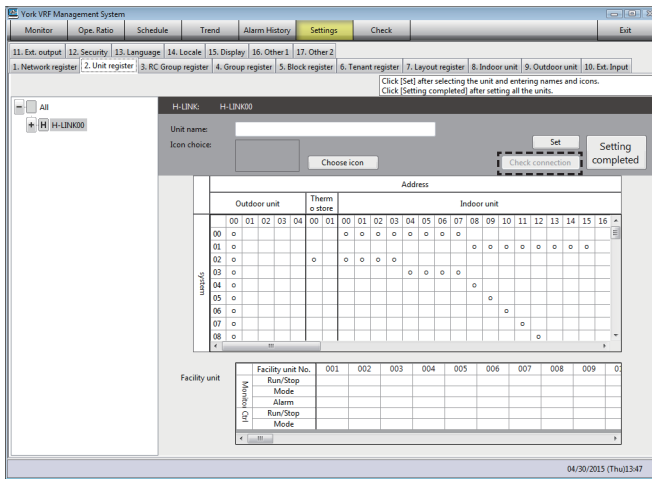
- Calculation might require some time, depending on the amount of data.
- In cases of calculation information output, refer to [8](#) Troubleshooting.

- (2) Halt the operation ratio function:
Click on calculation [Disable] in [Ope. Ratio] > [Ope. ratio setting] to disable, halt the operation ratio function.



- (3) Exit the management software.
- (4) Backup Data
Copy the file folder "/centralstation" folder to the external USB memory device.

- (5) Confirm the connection and add, change, or delete units
 - Select [Settings] > [Unit register].
 - Select an H-LINK that needs to be updated from the tree.
 - Click on [Check connection] and click on [Yes] to [Utilize registered data?].
 - Verify the connection.



When registering the facility unit, enter data sequentially beginning at the far left. Verify that the units are registered sequentially. Skipping any number can cause defects. Similarly, when deleting the unit, delete data in reverse order, starting from the far right and working left.

NOTE:

- When using facility units, do not enter refrigerant system number 63, for this number is reserved as blank.
- Facility units can be registered up to six units.

- (6) Restart the adapter
 - Turn OFF power to the adapter. After verifying that all lights are turned OFF, turn the power back ON.
- (7) Restart the management software.
- (8) Add and change remote controller groups:
 - Go to [Settings] > [RC Group register] to check modified remote controller groups of units.
 - Modify settings when needed.
- (9) Add and change groups
 - Go to [Settings] > [Group register] to check the modified groups of units.
 - Modify settings when needed.
- (10) Add and check blocks:
 - Go to [Settings] > [Block register] to check modified blocks of units.
 - Modify settings when needed.

(11) Add and change tenants

- Go to [Settings] > [Tenant register] to check on the modified tenants of units.
- Modify settings when needed.

(12) Check control and monitoring settings

- Check the control and monitoring operation in accordance with the “Test Run” section of another installation and maintenance manual (P5415508).

(13) Set for the operation ratio function

- Set and verify each of the unit items in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

- 2** Check Unit Connection and Registration
- 4** Unit Data Setting
- 6** Verify Unit Connection and Registration

(14) Restart the ratio function operation

- Restart the operation ratio function in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

- 7** Enable Calculation

3 Add, Change, and Delete Groups and Blocks

[Procedure]

- (1) Current result acquisition in operation ratio function
- (2) Halt the operation ratio function
- (3) Exit the management software
- (4) Backup data
- (5) Add and change remote controller groups
- (6) Add and change groups
- (7) Add and change blocks
- (8) Add and change tenants
- (9) Check controlling and monitoring setting
- (10) Set the operation ratio function
- (11) Restart the operation ratio function

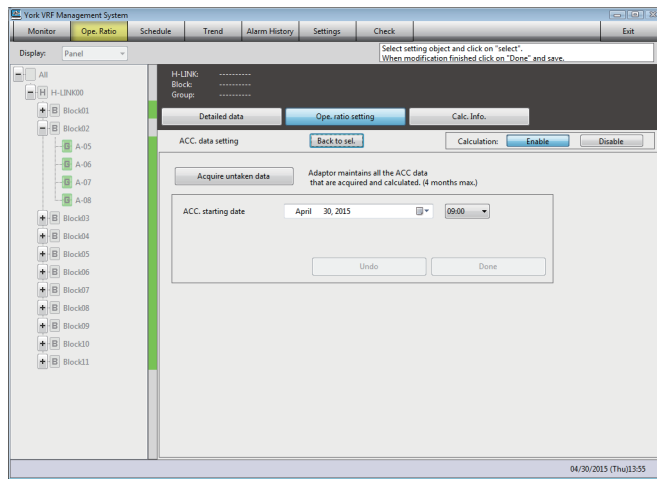
- (1) Current result acquisition in operation ratio function
Calculate the current values with current settings in cases where group/blocks are modified or changed.

NOTICE:

For all other hours of the day, do not attempt to start this procedure within 15 minutes prior to the stroke of the next hour. If the calculation period is set for a 24 hour span, do not perform this procedure within the hours of midnight and 2:00am, local time. If the calculation period is set for a one hour time window, the operation ratio calculation (ope. ratio cal function) will take effect for the following hour of operation.

(a) Click on [Ope.Ratio] > [Ope. ratio setting] > [Accumulated data setting].

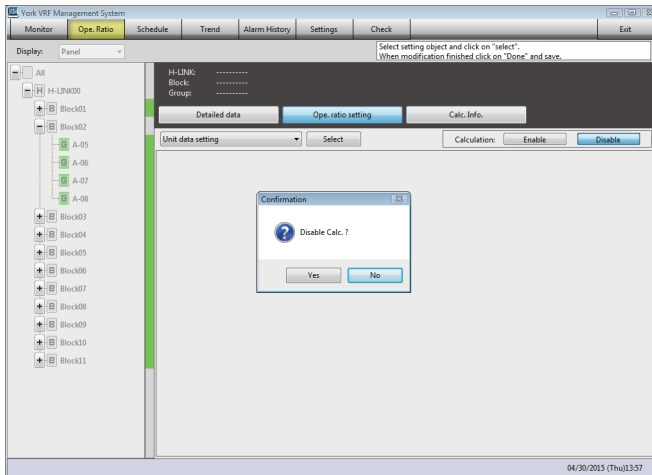
(b) Click on [Acquire untaken data] to start calculation.



NOTE:

- Calculation can take minutes depending on the amount of data.
- In case of calculation information output, refer to **8** Troubleshooting.

- (2) Halt the operation ratio function
- Click on calculation [Disable] in [Ope. Ratio] > [Ope. Ratio setting] to disable the operation ratio function.



- (3) Exit the management software.
- (4) Backup data:
- Copy the file folder "/centralstation" to a USB flash drive or other external memory device.
- (5) Add or change remote controller groups:
- Go to: [Settings] > [RC Group register] to check on modified remote controller groups of units.
 - Modify settings as needed.
- (6) Add and change groups:
- Go to: [Settings] > [Group register] to check modified groups of units.
 - Modify as needed.
- (7) Add and change blocks:
- Go to: [Settings] > [Block register] to check on modified blocks of units.
 - Modify as needed.
- (8) Add and change tenants:
- Go to: [Settings] > [Tenant register] to check on modified tenants of units.
 - Modify settings as needed.
- (9) Check control and monitoring settings:
- Check control and monitoring operation in accordance with the "Test Run" section of another installation and maintenance manual (P5415508).
- (10) Set of operation ratio function:
- Set or check each unit item in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

- 2 Checking Unit Connection and Registration
- 4 Unit Data Setting
- 6 Verifying Unit Connection and Registration

- (11) Restart the operation ratio function:
- Restart the operation ratio function in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

- 7 Enable Calculation

4 Add, Change, and Delete Tenants

[Procedure]

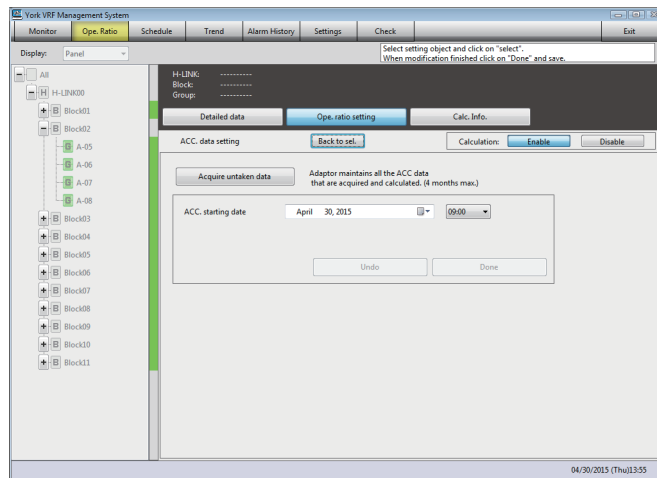
- (1) Current result acquisition in operation ratio function
- (2) Halt the operation ratio function
- (3) Exit the management software
- (4) Backup data
- (5) Add and change tenants
- (6) Set the operation ratio function
- (7) Restart the operation ratio function

- (1) Current result acquisition in the operation ratio function
Calculate current values with current settings in cases where tenants are modified or changed.

NOTICE:

For all other hours of the day, do not attempt to start this procedure within 15 minutes prior to the stroke of the next hour. If the calculation period is set for a 24 hour span, do not perform this procedure within the hours of midnight and 2:00am, local time. If the calculation period is set for a one hour time window, the operation ratio calculation (ope. ratio cal function) will take effect for the following hour of operation.

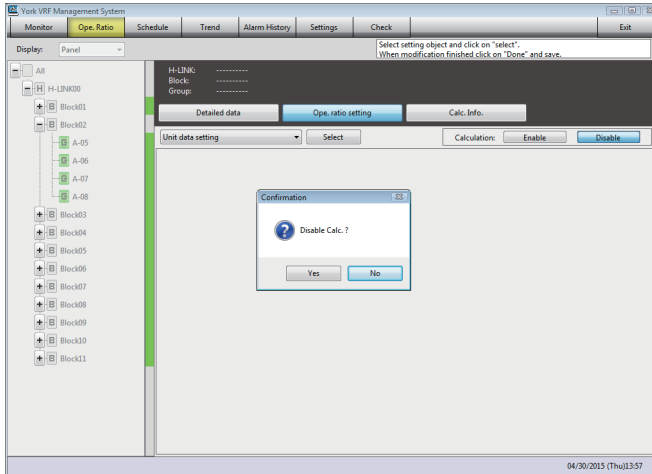
- (a) Click on [Ope.Ratio] > [Ope. ratio setting] > [Accumulated data setting].
- (b) Click on [Acquire untaken data] to start calculation.



NOTE:

- Calculation can take minutes depending on the amount of data.
- In case of calculation information output, refer to the [8](#) Troubleshooting.

- (2) Stop operation ratio function:
- Click on the calculation [Disable] button, YES button, in [Ope. Ratio] > [Ope. Ratio setting] to halt the operation ratio function.



- (3) Exit the management software.
- (4) Backup data:
- Copy “/centralstation” folder to a USB flash drive or other external memory device.
- (5) Add and change tenants:
- Go to: [Settings] > [Tenant register] to check modified tenants.
- (6) Set the operation ratio function
- Set or check each of the unit items in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

- 2 Checking Unit Connection and Registration
- 4 Unit Data Setting
- 6 Verifying Unit Connection and Registration

- (7) Restart the operation ratio function:
- Restart the operation ratio function in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

- 7 Enable Calculation

5 Add, Change, and Delete Layouts

5 -1 Edit Layout

[Procedure]

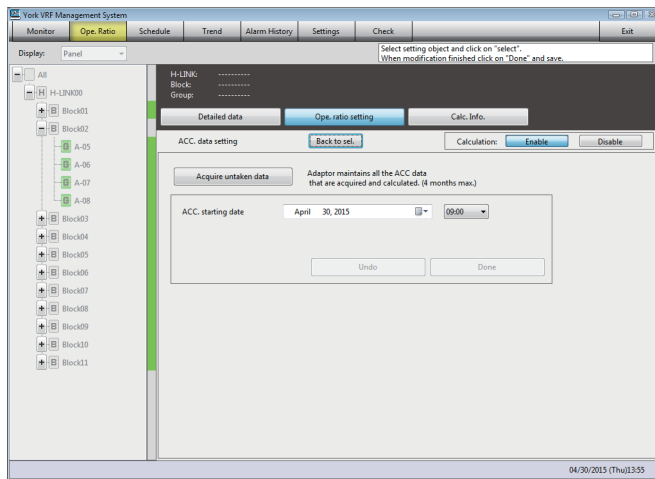
- (1) Current result acquisition in operation ratio function
- (2) Halt the operation ratio function
- (3) Exit the management software
- (4) Backup data
- (5) Edit the layout data
- (6) Restart the management software
- (7) Check controlling and monitoring setting
- (8) Restart the operation ratio function

- (1) Current result acquisition in operation ratio function:
Calculate the current values with current settings in cases where layouts are modified or changed.

NOTICE:

For all other hours of the day, do not attempt to start this procedure within 15 minutes prior to the stroke of the next hour. If the calculation period is set for a 24 hour span, do not perform this procedure within the hours of midnight and 2:00am, local time. If the calculation period is set for a one hour time window, the operation ratio calculation (ope. ratio cal function) will take effect for the following hour of operation.

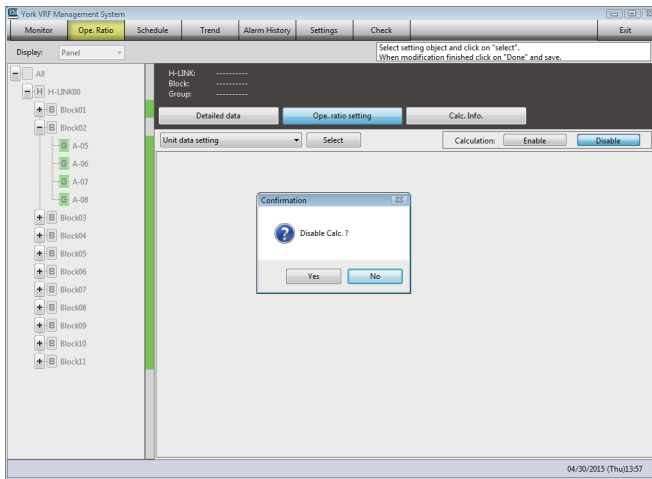
- (a) Click on [Ope.Ratio] > [Ope. ratio setting] > [Accumulated data setting].
- (b) Click on [Acquire untaken data] to start calculation.



NOTE:

- Calculation can take minutes depending on the amount of data.
- In cases of calculation information output, refer to the **8** Troubleshooting.

- (2) Halt the operation ratio function:
- Click on calculation [Disable] button in [Ope. Ratio] > [Ope. Ratio setting] to halt the operation ratio function.



- (3) Exit the management software.
- (4) Backup data:
- Copy the file folder “/centralstation” to a USB flash drive or other external memory device.
- (5) Edit the layout data:
- Go to: [Settings] > [Layout register] to edit layout data.
- (6) Reboot the management software:
- Reboot the management software to read the edited layout data.

NOTICE:

Setting or modification of layout data will not be validated until the management software is rebooted; such that it differs with group and block.

- (7) Check control and monitoring setting:
- Check control and monitoring operation in accordance with the “Test Run” section in another installation and maintenance manual (P5415508).
- (8) Restart the ratio function operation:
- Restart the operation ratio function in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

7 Enable Calculation

5 -2 Delete Layout

[Procedure]

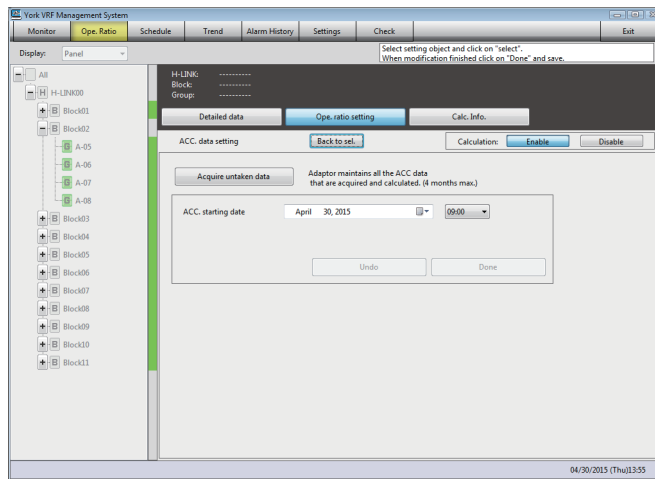
- (1) Current result acquisition in operation ratio function
- (2) Halt the operation ratio function
- (3) Exit the management software
- (4) Backup data
- (5) Delete the layout data
- (6) Edit the layout data
- (7) Restart the management software
- (8) Check controlling and monitoring setting
- (9) Restart the operation ratio function

- (1) Current result acquisition in the operation ratio function
Calculate current values with the current settings in cases where layouts are deleted.

NOTICE:

For all other hours of the day, do not attempt to start this procedure within 15 minutes prior to the stroke of the next hour. If the calculation period is set for a 24 hour span, do not perform this procedure within the hours of midnight and 2:00am, local time. If the calculation period is set for a one hour time window, the operation ratio calculation (ope. ratio cal function) will take effect for the following hour of operation.

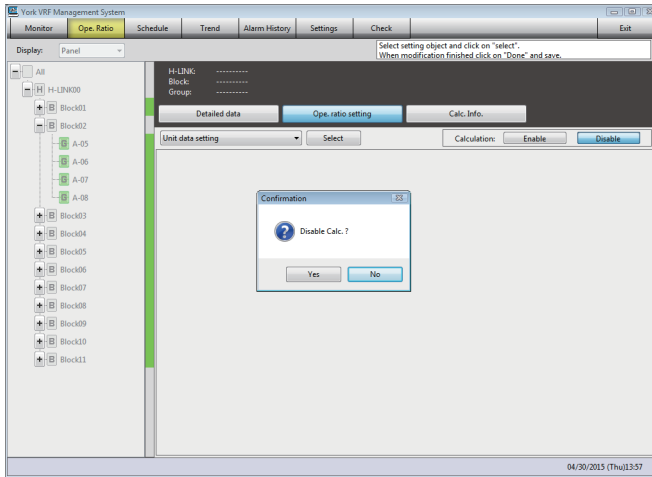
- (a) Click on [Ope.Ratio] > [Ope. ratio setting] > [Accumulated data setting].
- (b) Click on [Acquire untaken data] to start calculation.



NOTE:

- Calculation can take minutes depending on the amount of data.
- In cases of calculation information output, refer to the [8] Troubleshooting.

- (2) Halt the operation ratio function
- Click on calculation [Disable] button in [Ope. Ratio] > [Ope. Ratio setting] to halt the operation ratio function.



- (3) Exit the management software.
- (4) Backup data:
- Copy the file folder “/centralstation” to a USB flash drive or other external memory device.
- (5) Delete the layout data:
- Open the folder [/centralstation/layout].
 - Delete the layout data folder desired.
 - Boot the management software.

NOTICE:

Only individual layouts can be deleted.

- (6) Edit the layout data
- Go to [Settings] > [Layout register] to edit layout data.
- (7) Restart the management software:
- Reboot the management software to read the edited layout data.

NOTICE:

Setting or modification of layout data will not be validated until the management software is rebooted; such that it differs with group and block.

- (8) Check the control and monitoring setting
- Check control and monitoring operation in accordance with the “Test Run” section of another installation and maintenance manual (P5415508).
- (9) Restart the operation ratio function:
- Restart the operation ratio function in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Setup** section.

[Operation Ratio Setting]

7 Enable Calculation

6 Add Adapters

[Procedure]

- (1) Installation of adapter
- (2) Current result acquisition in operation ratio function
- (3) Halt the operation ratio function
- (4) Exit the management software
- (5) Backup data
- (6) Change IP address of the adapter and establish connection
- (7) Confirm connection information
- (8) Add and change remote controller groups
- (9) Add groups
- (10) Add blocks
- (11) Check controlling and monitoring setting
- (12) Set the operation ratio function
- (13) Restart the operation ratio function

NOTICE:

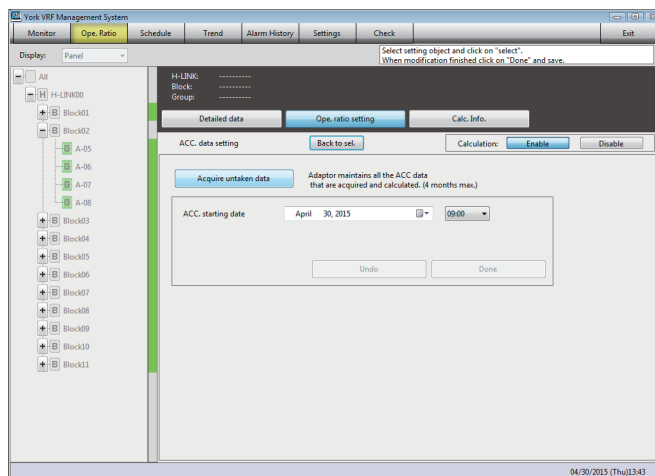
For all other hours of the day, do not attempt to start this procedure within 15 minutes prior to the stroke of the next hour. If the calculation period is set for a 24 hour span, do not perform this procedure within the hours of midnight and 2:00am, local time. If the calculation period is set for a one hour time window, the operation ratio calculation (ope. ratio cal function) will take effect for the following hour of operation.

- (1) Installation of adapter:
Install the adapter according to the installation manual for the adapter.
- (2) Current result acquisition in ratio function
Calculate the ratio with current settings in cases where units are modified or changed.

NOTICE:

Avoid conducting this procedure between 0:00-1:00 or in 10 minutes from :55 every hour.

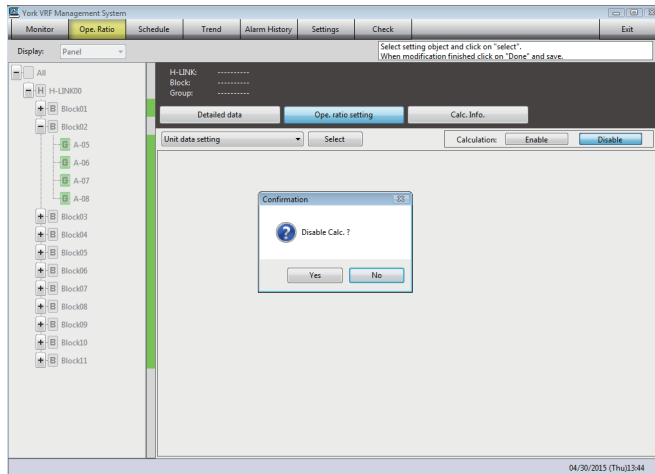
- (a) Click on [Ope.Ratio] > [Ope. ratio setting] > [Accumulated data setting].
- (b) Click on [Acquire untaken data] to start calculation.



NOTE:

- Calculation can take minutes depending on the amount of data.
- In cases of calculation information output, refer to the [8](#) Troubleshooting.

- (3) Halt the operation ratio function
Click the calculation [Disable] in [Ope. Ratio] > [Ope. ratio setting] to disable or halt the ratio function operation.

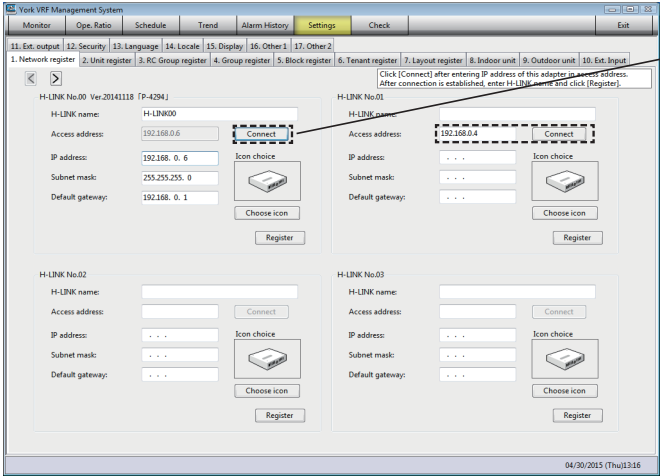


- (4) Exit the management software.
- (5) Backup data:
Copy the file folder "/centralstation" to a USB flash drive or external memory device.

CONTROL SYSTEM

- (6) Change the adapter IP address and establish connection:
 - Change the adapter IP address so that it will assume its own unique system identification, and eliminate duplication across the system.

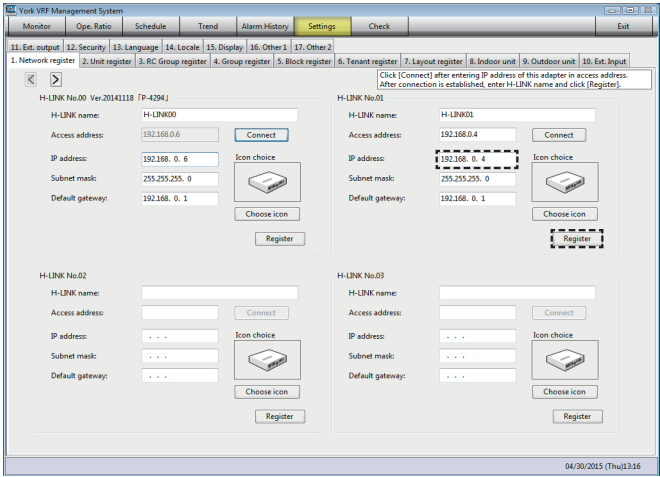
- (a) Select [Settings] > [Network register] to enter the IP address for the adapter in the empty Access Address box for whose H-LINK No. is the earliest, and click on the [Connect] button.



Whenever an IP address temporarily overlaps with another, click on the [Connect] button to disconnect the overlapping adapter. This action physically disconnects the LAN connection.

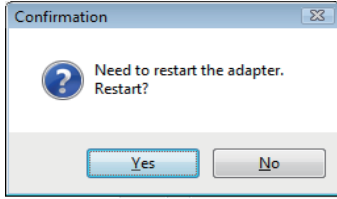
* The Convex [Connect] button indicates that the adapter is disconnected.

- (b) Wait until the window that reads: “Connecting to the adapter. Please wait” closes. Enter H-LINK Name and modify the current IP address to the desired address (for example: 192.168.0.4). Modify the subnet mask and default gateway if necessary.

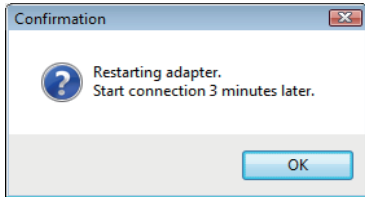


- (c) Click on the [Register] button.

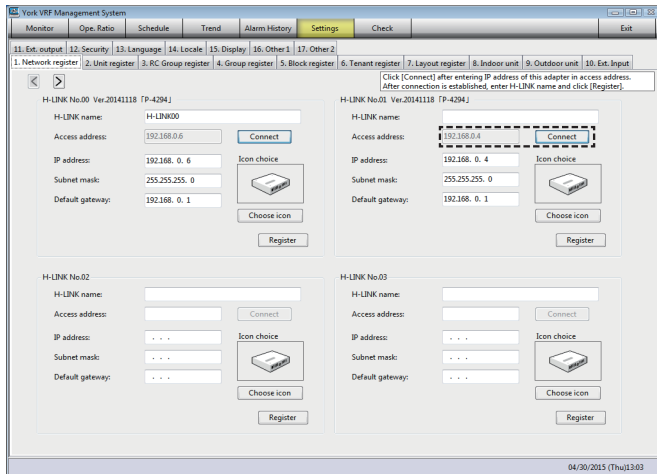
(d) Click on [Yes] on the pop-up window.



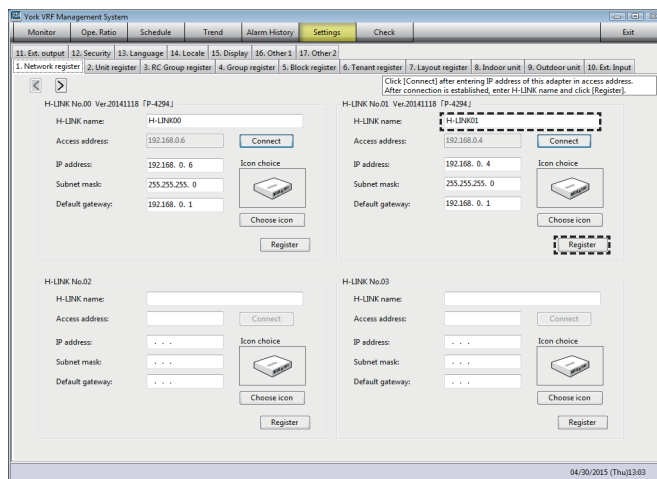
(e) The adapter will restart. Wait three minutes for the adapter to complete the restart process.



(f) Click on the [Connect] button to temporarily disconnect the adapter. Wait for three minutes to enter the desired IP address (for example: 192.168.0.4) into the access address box and click on the [Connect] button.

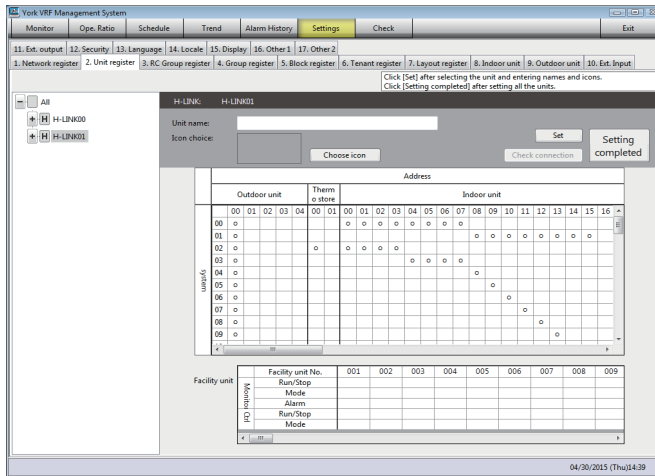


(g) Enter the H-LINK name and click on the [Register] button.



CONTROL SYSTEM

- (7) Confirm connection information:
- Select [Settings] > [Unit register].
 - Select newly added H-LINK from the tree.
 - Check the refrigerant system and the address of the air conditioners.



- (8) Add and change remote controller groups:
- Select [Settings] > [RC Group register] to check on the modified remote controller groups of units.
 - Modify settings when needed.
- (9) Add groups:
- Select [Settings] > [Group register] to register current groups of units in the H-LINK.
- (10) Add blocks:
- Select [Settings] > [Block register] to register current blocks of units in the H-LINK.
- (11) Check controlling and monitoring setting:
- Check controlling and monitoring operation in accordance with the “Test Run” phase in the installation manual for management software.
- (12) Set the operation ratio function
- Set and check each of the unit items in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

- 2 Checking Unit Connection and Registration
- 4 Unit Data Setting
- 6 Verifying Unit Connection and Registration

- (13) Restart the operation ratio function:
- Restart the operation ratio function in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

- 7 Enable Calculation

7 Delete Adapters

[Procedure]

- (1) Current result acquisition in operation ratio function
- (2) Stop operation ratio function
- (3) Exit the management software
- (4) Backup data
- (5) Delete adapter
- (6) Reboot the management software
- (7) Check control and monitoring setting
- (8) Set the operation ratio function
- (9) Restart the operation ratio function

NOTICE:

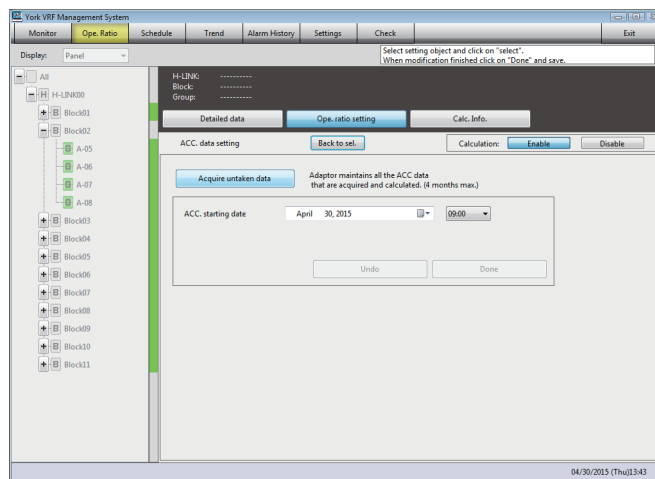
For all other hours of the day, do not attempt to start this procedure within 15 minutes prior to the stroke of the next hour. If the calculation period is set for a 24 hour span, do not perform this procedure within the hours of midnight and 2:00am, local time. If the calculation period is set for a one hour time window, the operation ratio calculation (ope. ratio cal function) will take effect for the following hour of operation.

- (1) Current result acquisition in the operation ratio function:
Calculate the operation ratio with current settings in cases where units are modified or changed.

NOTICE:

Do not perform this procedure between the hours of midnight and 1:00am. For all other hours of the day, do not attempt to start this procedure within 15 minutes prior to the stroke of the next hour.

- (a) Click on [Ope.Ratio] > [Ope. ratio setting] > [Accumulated data setting].
- (b) Click on [Acquire untaken data] to start calculation.

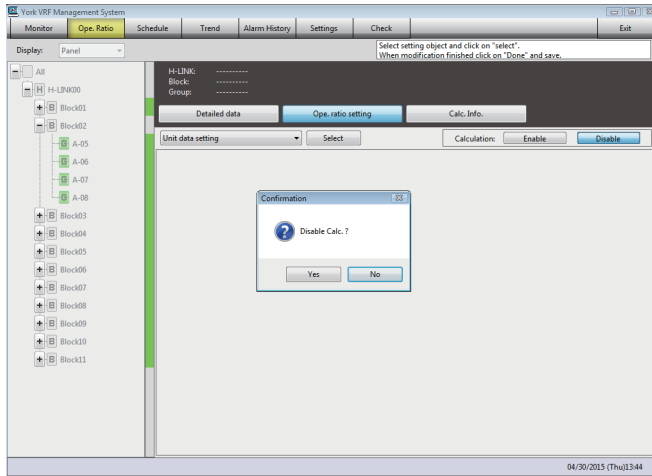


NOTE:

- Calculation can take minutes depending on the amount of data.
- In cases of calculation information output, refer to the [8](#) Troubleshooting.

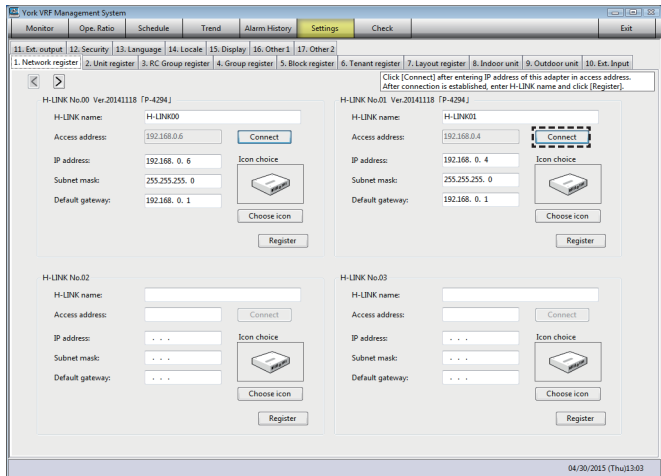
CONTROL SYSTEM

- (2) Halt the operation ratio function:
Click on the calculation [Disable] button in [Ope. Ratio] > [Ope. ratio setting] to disable or halt the operation ratio function.



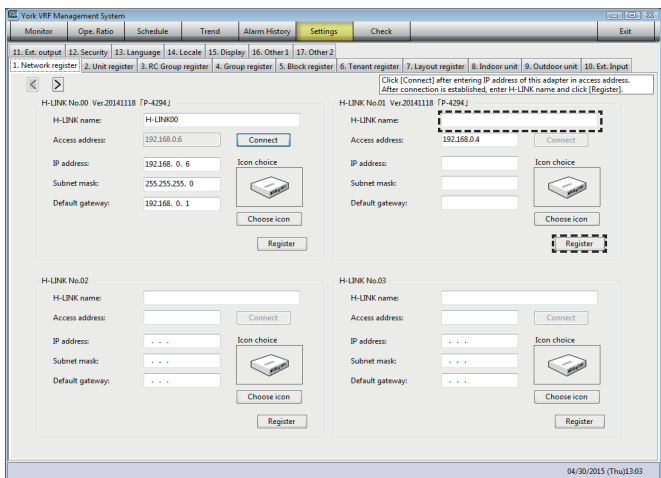
- (3) Exit the management software.
- (4) Backup data:
Copy the file folder: "/centralstation" folder to a USB flash drive or USB memory device.

- (5) Delete adapter:
 - Click on [Settings] > [Network register].
 - Disconnect the adapter to delete it if connected (*), click on the [Connect] button.



* When the adapter is connected to the system, clicking on the [Connect] button disconnects the adapter.

- Delete the H-LINK Name and click on the [Register] button. (All the boxes except for Access Address will go blank.)



- (6) Reboot the management software.
- (7) Check controlling and monitoring setting:
 - Check the control and monitoring operation in accordance with the “Test Run” section of another installation and maintenance manual (P5415508).

CONTROL SYSTEM

- (8) Set the operation ratio function:
- Set and check each of the unit items in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

- 2** Checking Unit Connection and Registration
- 4** Unit Data Settings
- 6** Verifying Unit Connection and Registration

- (9) Restart the operation ratio function:
- Restart the operation ratio function in accordance with the item 6.10.6.4.5 Operation Ratio Setting in the **How to Set Up** section.

[Operation Ratio Setting]

- 7** Enable Calculation

8 Troubleshooting

The following table identifies possible troubleshooting solutions for abnormal conditions.

| No. | Condition | Items to be Checked | Action |
|-----|--|---|---|
| 1 | Communication information is displayed. | Are all the adapters turned ON? | Turn all adapters ON. |
| | | Is the Test Run phase in the management software completed? | Please verify connections and register groups and names. |
| | | Is LAN wiring, connections to computers and adapters indicating normal status? Is the hub turned ON? | Check the wiring and hub to ensure that everything is turned ON. |
| | | Did the adapter shut down for any period of time due to power failure or other circumstances? | Data acquisition cannot occur while the adapter is OFF, disconnected, or down. This software application continues to collect communication data over the period for which the adapter was OFF, disconnected, deleted, or for any reason-not functioning. |
| | | Is there a 1GB margin of free memory space available on the management computer? | Clear the hard drive to ensure a margin of 1GB of free space or substitute with another computer with larger memory space. |
| | | Isn't the management computer set to standby or hibernation state? | Go to the [Start] > [Control Panel] > [Power Options]. Go to the [Change plan settings] > [Change advanced power settings] of the Power Plan selected. • Check that all the items [Sleep] > [Sleep after] > [Hibernate after] are set as [Never]. Check the following setting when using a laptop: • Click [Power buttons and lid]. Check that the [Lid close action] is [Do nothing]. |
| | | Have all the settings been performed? | Check the setting content following the [Ope. ratio setting] for this manual. |
| 2 | The operation ratio calculation results file was not generated. | Is the current date displayed before the set accumulation start date? | Check the captured start date in [Ope. ratio setting] > [Accumulated data setting] > [Accumulation starting date]. |
| | | Is accumulated data present? | Check if captured data is present in [/anbun/Data/H-LINKxx/OneHour] folder in the installation folder. NOTE: xx indicates H-LINK No. +1. |
| | | Is calculation enabled? | Click calculation: [Enable] in [Ope. ratio setting]. |
| 3 | Pop-up reading "Ope. ratio software cannot start. Restart management software after checking on the condition of the adapter connection" is shown. | Is the adapter connected? | Check the connection and restart for the management software. Also check all setting items in [Ope. ratio setting]. |

CONTROL SYSTEM

| No. | Condition | Items to be Checked | Action |
|-----|---|--|--|
| 4 | Pop-up reading "Error occurred when calculating. Reset the Ope. ratio setting after checking connection with adapter and restarting the management software." is displayed. | Is the adapter connected? Are settings for ratio function correct? | Check connection and restart the management software. Also check all settings in [Ope. ratio setting]. |
| 5 | Pop-up reading "An error has occurred on the PC. Management software restarted. Check PC status. Click on [Acquire untaken data] (to capture and analyze untaken free data). Avoid specifying data capture within the first 03 minutes of the hour. | Did an error occur on the computer? | Check the computer system. Click [Acquire untaken data] (to capture and analyze untaken free data). Avoid specifying data capture within the first 03 minutes of the hour. |
| | | Did the PC restart schedule initiate when the pop-up screen was displayed? | Management software cannot close down properly when a pop-up screen is displayed. Do not allow pop-up screens to remain open during normal operation. |
| 6 | [No Response] is displayed on management software title bar. | Does the software continue to behave normally? | A temporary message reading: [No Response] will display when there is a delayed response. This is normal behavior. Do not attempt to hurry the process along. The [No Response] message will vanish. |

9 Periodic Checks

Periodically inspect the following to maintain sound operation and system integrity.

(1) Environment

- During normal operation, frequently check the management computer to see that it does not overheat.
- Ensure that sensitive electronics and monitoring devices are not installed in a hot or inhospitable environment.
- Inspect the computer to see it is free of wire fragments, dust, and airborne debris.

(2) Display

- Ensure that high quality resolution technical data is displayed consistently and that the monitor is working normally.

(3) Installing

- Ensure that all system adapters and electronic devices are connected and wired properly.

6.10.6.4.8 Addenda

■ **Addenda: Data Sheet (1/4)**

Operation Ratio Mode Setting

*Select after data input.

| Operation Ratio Mode | | Check |
|---|------|-------|
| Calculation for air conditioner operation ratio | Mode | |

CONTROL SYSTEM

■ **Addenda: Data Sheet (2/4)**

Unit Data Setting Outdoor unit data

*Select after data input.

*Make copies for each outdoor unit.

| | Check | | | | | | | | | | | | | | | |
|-------------------|-------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| H-LINK number | | | | | | | | | | | | | | | | |
| System | | | | | | | | | | | | | | | | |
| Address | | | | | | | | | | | | | | | | |
| Outdoor unit type | | | | | | | | | | | | | | | | |

■ Addenda: Data Sheet (3/4)

Unit Data Setting Indoor unit data

*Select after data input.

*Make copies for each Indoor unit.

| | Check | | | | | | | | | | | | | | | |
|-----------------------------|-------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| H-LINK number | | | | | | | | | | | | | | | | |
| System | | | | | | | | | | | | | | | | |
| Address | | | | | | | | | | | | | | | | |
| Ope. ratio object | | | | | | | | | | | | | | | | |
| Expansion valve coefficient | | | | | | | | | | | | | | | | |
| Capacity | | | | | | | | | | | | | | | | |
| Total heat exchanger usage | | | | | | | | | | | | | | | | |

CONTROL SYSTEM

■ **Addenda: Data Sheet (4/4)**

Unit Data Setting Facility unit data

*Select after data input.

*Make copies for each facility unit.

| | Check | | | | | | | | | | | | | | | |
|----------------------|-------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| H-LINK number | | | | | | | | | | | | | | | | |
| Facility unit number | | | | | | | | | | | | | | | | |
| Ope. ratio object | | | | | | | | | | | | | | | | |
| Capacity | | | | | | | | | | | | | | | | |

7. Selection Data

7.1 Selection Guide

(1) Key for Terms Used for Indoor Units

| Nomenclature Description | | H | I | C4 | 012 | B | 2 | 1 | S |
|---|-----|---|---|----|-----|---|---|---|---|
| H = Hitachi Brand Y = York Brand T = Tag in the Bag | H | | | | | | | | |
| Indoor Unit | I | | | | | | | | |
| Indoor Unit Type C4 = 4-Way Cassette Type C1 = 1-Way Cassette Type DH = Ducted High Static Type DM = Ducted Medium Static Type DS = Ducted Slim Type WM = Wall Mount Type | C4 | | | | | | | | |
| Capacity (MBH) | 012 | | | | | | | | |
| Refrigerant Type B = R410A | B | | | | | | | | |
| Power Supply 2 = 208/230Volts - 1Phase - 60Hz | 2 | | | | | | | | |
| 1 = 1st Generation | 1 | | | | | | | | |
| S = Standard Type | S | | | | | | | | |

NOTE:

Select the indoor units and outdoor unit so the total indoor capacity is near the outdoor capacity.

(2) Nominal Capacity of Indoor Units

| Capacity | | 006 | 008 | 012 | 015 | 018 | 024 | 030 | 036 | 048 |
|--------------------------|---------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| Nominal Cooling Capacity | Btu/h (kW) | 6,000 (1.8) | 8,000 (2.3) | 12,000 (3.5) | 15,000 (4.4) | 18,000 (5.3) | 24,000 (7.0) | 30,000 (8.8) | 36,000 (10.5) | 48,000 (14.1) |
| Nominal Heating Capacity | Btu/h (kW) | 6,700 (2.0) | 9,000 (2.6) | 13,500 (4.0) | 17,000 (5.0) | 20,000 (5.9) | 27,000 (7.9) | 34,000 (10.0) | 40,000 (11.7) | 54,000 (15.8) |

SELECTION DATA

(3) Key for Terms Used for Outdoor Unit

| Nomenclature Description | | H | V | A | HR | 072 | B | 4 | 1 | S |
|---|-----|---|---|---|----|-----|---|---|---|---|
| H = Hitachi Brand Y = York Brand | H | | | | | | | | | |
| VRF | V | | | | | | | | | |
| A = Air Source | A | | | | | | | | | |
| HR = Heat Recovery HP = Heat Pump | HR | | | | | | | | | |
| 072 = 72 MBH 096 = 96 MBH 120 = 120 MBH 144 = 144 MBH 168 = 168 MBH 192 = 192 MBH 216 = 216 MBH 240 = 240 MBH 264 = 264 MBH 288 = 288 MBH 312 = 312 MBH 336 = 336 MBH 360 = 360 MBH | 072 | | | | | | | | | |
| B = R410A | B | | | | | | | | | |
| 3 = 208/230Volts - 3Phase - 60Hz 4 = 460Volts - 3Phase - 60Hz | 4 | | | | | | | | | |
| 1 = 1st Generation | 1 | | | | | | | | | |
| S = Standard (Factory Options) LM = Less Modules | S | | | | | | | | | |

(4) Nominal Capacity of Outdoor Unit

| | | | | | | |
|--------------------------|---------------|--|--|--|--|--|
| Model | | (H,Y)VAHP072B31S (H,Y)VAHP072B41S (H,Y)VAHR072B31S (H,Y)VAHR072B41S | (H,Y)VAHP096B31S (H,Y)VAHP096B41S (H,Y)VAHR096B31S (H,Y)VAHR096B41S | (H,Y)VAHP120B31S (H,Y)VAHP120B41S (H,Y)VAHR120B31S (H,Y)VAHR120B41S | (H,Y)VAHP144B31S (H,Y)VAHP144B41S (H,Y)VAHR144B31S (H,Y)VAHR144B41S | (H,Y)VAHP168B31S (H,Y)VAHP168B41S (H,Y)VAHR168B31S (H,Y)VAHR168B41S |
| Nominal Cooling Capacity | Btu/h (kW) | 72,000 (21.1) | 96,000 (28.1) | 120,000 (35.2) | 144,000 (42.2) | 168,000 (49.2) |
| Nominal Heating Capacity | Btu/h (kW) | 81,000 (23.7) | 108,000 (31.7) | 135,000 (39.6) | 162,000 (47.5) | 189,000 (55.4) |
| Model | | (H,Y)VAHP192B31S (H,Y)VAHP192B41S (H,Y)VAHR192B31S (H,Y)VAHR192B41S | (H,Y)VAHP216B31S (H,Y)VAHP216B41S (H,Y)VAHR216B31S (H,Y)VAHR216B41S | (H,Y)VAHP240B31(S,LM) (H,Y)VAHP240B41(S,LM) (H,Y)VAHR240B31(S,LM) (H,Y)VAHR240B41(S,LM) | (H,Y)VAHP264B31S (H,Y)VAHP264B41S (H,Y)VAHR264B31S (H,Y)VAHR264B41S | (H,Y)VAHP288B31S (H,Y)VAHP288B41S (H,Y)VAHR288B31S (H,Y)VAHR288B41S |
| Nominal Cooling Capacity | Btu/h (kW) | 192,000 (56.3) | 216,000 (63.3) | 240,000 (70.3) | 264,000 (77.4) | 288,000 (84.4) |
| Nominal Heating Capacity | Btu/h (kW) | 216,000 (63.3) | 243,000 (71.2) | 270,000 (79.1) | 297,000 (87.0) | 342,000 (100.2) |
| Model | | (H,Y)VAHP312B31S (H,Y)VAHP312B41S (H,Y)VAHR312B31S (H,Y)VAHR312B41S | (H,Y)VAHP336B31(S,LM) (H,Y)VAHP336B41(S,LM) (H,Y)VAHR336B31(S,LM) (H,Y)VAHR336B41(S,LM) | (H,Y)VAHP360B31(S,LM) (H,Y)VAHP360B41(S,LM) (H,Y)VAHR360B31(S,LM) (H,Y)VAHR360B41(S,LM) | | |
| Nominal Cooling Capacity | Btu/h (kW) | 312,000 (91.4) | 336,000 (98.5) | 360,000 (105.5) | | |
| Nominal Heating Capacity | Btu/h (kW) | 351,000 (102.9) | 378,000 (110.8) | 405,000 (118.7) | | |

Nominal Capacity of Outdoor Unit is under the condition that the total indoor unit capacity is same as outdoor unit capacity.

(5) Given Condition (Example)

• Estimated Load

| Item | | Room (1) | Room (2) | Room (3) | Room (4) |
|------------------------|-------|----------|----------|----------|----------|
| Estimated Cooling Load | Btu/h | 18,000 | 22,000 | 22,000 | 24,000 |
| | (kW) | (5.3) | (6.4) | (6.4) | (7.0) |
| Estimated Heating Load | Btu/h | 18,000 | 22,000 | 22,000 | 27,000 |
| | (kW) | (5.3) | (6.4) | (6.4) | (7.9) |

| Item | | Room (5) | Room (6) | Room (7) |
|------------------------|-------|----------|----------|----------|
| Estimated Cooling Load | Btu/h | 30,000 | 32,000 | 34,000 |
| | (kW) | (8.8) | (9.4) | (10.0) |
| Estimated Heating Load | Btu/h | 34,000 | 36,000 | 36,000 |
| | (kW) | (10.0) | (10.6) | (10.6) |

• Temperature Condition

| Cooling | | Heating | |
|------------------------|--|------------------------|--|
| Outdoor Coil Air Inlet | | Outdoor Coil Air Inlet | |
| Dry Bulb: 100°F (38°C) | | Dry Bulb: 37°F (2.8°C) | |
| Indoor Coil Air Inlet | | Wet Bulb: 35°F (1.7°C) | |
| Dry Bulb: 75°F (24°C) | | Indoor Coil Air Inlet | |
| Wet Bulb: 63°F (17°C) | | Dry Bulb: 68°F (20°C) | |

• Altitude Condition: 1000 ft (305m)

< Heat Pump System (2 Pipes) >

Equivalent Piping Length between Indoor Units and Outdoor Unit: 200 ft (61m)

Piping Lift: 50 ft (15m)

Power Source: 60Hz

(6) Selecting Matching Indoor Units and Nominal Capacity

Select Ducted Medium Type Indoor Units (Example)

| Item | | Room (1) | Room (2) | Room (3) | Room (4) |
|--------------------------|-------|-------------|-------------|-------------|-------------|
| Selected Model | | HIDM024B21S | HIDM030B21S | HIDM030B21S | HIDM036B21S |
| Nominal Cooling Capacity | Btu/h | 24,000 | 30,000 | 30,000 | 36,000 |
| | (kW) | (7.0) | (8.8) | (8.8) | (10.6) |
| Nominal Heating Capacity | Btu/h | 27,000 | 34,000 | 34,000 | 40,000 |
| | (kW) | (7.9) | (10.0) | (10.0) | (11.7) |

| Item | | Room (5) | Room (6) | Room (7) | Total |
|--------------------------|-------|-------------|-------------|-------------|-----------|
| Selected Model | | HIDM048B21S | HIDM048B21S | HIDM048B21S | (1) ~ (7) |
| Nominal Cooling Capacity | Btu/h | 48,000 | 48,000 | 48,000 | 264,000 |
| | (kW) | (14.1) | (14.1) | (14.1) | (77.4) |
| Nominal Heating Capacity | Btu/h | 54,000 | 54,000 | 54,000 | 297,000 |
| | (kW) | (15.8) | (15.8) | (15.8) | (87.0) |

| Item | | Outdoor Unit |
|--------------------------|-------|--------------|
| Selected Model | | HVAHP240B31S |
| Nominal Cooling Capacity | Btu/h | 240,000 |
| | (kW) | (70.3) |
| Nominal Heating Capacity | Btu/h | 270,000 |
| | (kW) | (79.1) |

Connected Indoor Unit Capacity Ratio = 110%

SELECTION DATA

(7) Actual Capacity

In the example, the total indoor unit capacity is 264MBH
 (= 24MBH + 30MBH + 30MBH + 36MBH + 48MBH + 48MBH + 48MBH),
 and outdoor unit capacity is 240MBH.
 Therefore, the connected indoor unit capacity ratio is 110%.

a) Actual Capacity of Outdoor Unit

Maximum Actual Capacity of Outdoor Unit

- = ① Outdoor Unit Capacity According to Temperature Condition and Connected IDU Capacity Ratio
- × ② Correction Factor According to Piping Length and Lift
- × ③ Correction Factor According to Defrosting Operation (only heating)
- × ④ Correction Factor According to Altitude

| | ① | ② | ③ | ④ |
|---------|-------------|-------------|-------------|-------------|
| Cooling | 219 MBH | 0.94 | - | 0.97 |
| Heating | 252 MBH | 0.955 | 0.86 | 0.97 |
| Note | Section 7.2 | Section 7.3 | Section 7.4 | Section 7.5 |

Maximum Actual Capacity of Outdoor Unit

Cooling = 219,000Btu/h × 0.94 × 0.97 = 199,684Btu/h

Heating = 252,000Btu/h × 0.955 × 0.86 × 0.97 = 200,759Btu/h

b) Actual Capacity of Each Indoor Unit

Actual Capacity of Each Indoor Unit

= Actual Capacity of Outdoor Unit × Each Indoor Unit Capacity ÷ Summation of Indoor Units Capacity

< Result >

| Item | | | Room (1) | Room (2) | Room (3) | Room (4) |
|-----------------|---------------------------------|---------------|-----------------|-----------------|-----------------|-----------------|
| Selected Model | | | HIDM024B21S | HIDM030B21S | HIDM030B21S | HIDM036B21S |
| Actual Capacity | Actual Maximum Cooling Capacity | Btu/h (kW) | 18,153 (5.3) | 22,691 (6.7) | 22,691 (6.7) | 27,230 (8.0) |
| | Actual Maximum Heating Capacity | Btu/h (kW) | 18,251 (5.3) | 22,813 (6.7) | 22,813 (6.7) | 27,376 (8.0) |
| Design Load | Estimated Cooling Load | Btu/h (kW) | 18,000 (5.3) | 22,000 (6.4) | 22,000 (6.4) | 24,000 (7.0) |
| | Estimated Heating Load | Btu/h (kW) | 18,000 (5.3) | 22,000 (6.4) | 22,000 (6.4) | 27,000 (7.9) |

| Item | | | Room (5) | Room (6) | Room (7) | Total |
|-----------------|---------------------------------|---------------|------------------|------------------|------------------|-------------------|
| Selected Model | | | HIDM048B21S | HIDM048B21S | HIDM048B21S | (1) ~ (7) |
| Actual Capacity | Actual Maximum Cooling Capacity | Btu/h (kW) | 36,306 (10.6) | 36,306 (10.6) | 36,306 (10.6) | 199,684 (58.5) |
| | Actual Maximum Heating Capacity | Btu/h (kW) | 36,502 (10.7) | 36,502 (10.7) | 36,502 (10.7) | 200,759 (58.8) |
| Design Load | Estimated Cooling Load | Btu/h (kW) | 30,000 (8.8) | 32,000 (9.4) | 34,000 (10.0) | 182,000 (53.3) |
| | Estimated Heating Load | Btu/h (kW) | 34,000 (10.0) | 36,000 (10.6) | 36,000 (10.6) | 195,000 (57.1) |

7.2 Outdoor Unit Capacity According to Temperature Condition and Connected IDU Capacity Ratio

(1) Cooling Capacity

- Standard Type

(H,Y)VAHP072B(3,4)1S
(H,Y)VAHR072B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °F/WB | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | 59 | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| 150 | 14 | 49 | 4.14 | 51 | 3.85 | 54 | 3.77 | 57 | 3.66 | 60 | 3.58 | 61 | 3.24 | 61 | 2.91 | 63 | 2.84 |
| | 18 | 45 | 4.66 | 58 | 4.26 | 62 | 4.16 | 68 | 4.06 | 69 | 3.77 | 70 | 3.48 | 72 | 3.37 | 74 | 3.37 |
| | 23 | 69 | 5.32 | 70 | 5.00 | 73 | 4.88 | 76 | 4.78 | 79 | 4.66 | 80 | 4.43 | 82 | 4.19 | 84 | 4.06 |
| | 32 | 89 | 6.42 | 90 | 6.12 | 93 | 6.02 | 96 | 5.92 | 99 | 5.81 | 100 | 5.61 | 103 | 5.66 | 105 | 5.55 |
| | 42 | 89 | 6.84 | 90 | 6.65 | 93 | 6.46 | 95 | 6.26 | 97 | 6.07 | 100 | 5.95 | 103 | 5.82 | 105 | 5.75 |
| | 50 | 88 | 6.91 | 90 | 6.75 | 93 | 6.56 | 95 | 6.34 | 97 | 6.14 | 100 | 6.03 | 103 | 5.91 | 105 | 5.85 |
| | 58 | 88 | 6.98 | 90 | 6.87 | 93 | 6.66 | 95 | 6.43 | 97 | 6.21 | 100 | 6.10 | 103 | 5.98 | 105 | 5.95 |
| | 62 | 89 | 7.07 | 90 | 6.98 | 93 | 6.75 | 95 | 6.52 | 97 | 6.30 | 100 | 6.18 | 103 | 6.07 | 105 | 6.07 |
| | 66 | 89 | 7.14 | 90 | 7.10 | 93 | 6.85 | 94 | 6.48 | 96 | 6.16 | 99 | 6.14 | 102 | 6.27 | 104 | 6.37 |
| | 70 | 89 | 6.77 | 88 | 6.81 | 90 | 6.44 | 91 | 6.06 | 92 | 6.03 | 95 | 6.15 | 96 | 6.32 | 100 | 6.68 |
| | 74 | 88 | 6.28 | 88 | 6.36 | 88 | 6.23 | 88 | 6.08 | 89 | 6.02 | 92 | 6.10 | 95 | 6.25 | 99 | 6.61 |
| | 78 | 81 | 6.08 | 82 | 6.35 | 83 | 6.20 | 85 | 6.02 | 86 | 5.95 | 89 | 6.02 | 91 | 6.12 | 95 | 6.42 |
| | 82 | 76 | 6.16 | 76 | 6.29 | 80 | 6.12 | 81 | 5.94 | 83 | 5.84 | 85 | 5.88 | 88 | 5.96 | 91 | 6.18 |
| | 86 | 74 | 6.16 | 76 | 6.15 | 77 | 5.98 | 78 | 5.80 | 79 | 5.68 | 82 | 5.69 | 84 | 5.74 | 87 | 5.88 |
| | 90 | 71 | 6.09 | 73 | 5.97 | 74 | 5.79 | 75 | 5.62 | 76 | 5.46 | 78 | 5.46 | 80 | 5.46 | 82 | 5.53 |
| | 95 | 68 | 5.90 | 69 | 5.64 | 70 | 5.47 | 71 | 5.30 | 72 | 5.12 | 74 | 5.08 | 75 | 5.04 | 77 | 5.00 |
| | 100 | 64 | 5.79 | 66 | 5.62 | 66 | 5.41 | 67 | 5.22 | 68 | 5.04 | 69 | 4.94 | 71 | 4.85 | 72 | 4.76 |
| | 106 | 59 | 5.67 | 61 | 5.58 | 62 | 5.36 | 62 | 5.14 | 63 | 4.92 | 64 | 4.78 | 65 | 4.63 | 66 | 4.47 |
| 110 | 54 | 5.59 | 56 | 5.36 | 56 | 5.22 | 57 | 5.04 | 57 | 4.84 | 58 | 4.67 | 59 | 4.49 | 60 | 4.33 | |
| 114 | 51 | 5.11 | 53 | 5.17 | 53 | 4.95 | 54 | 4.73 | 54 | 4.51 | 55 | 4.34 | 56 | 4.16 | 56 | 3.98 | |
| 118 | 49 | 4.64 | 49 | 4.78 | 49 | 4.57 | 49 | 4.38 | 49 | 4.18 | 49 | 4.00 | 50 | 3.82 | 50 | 3.66 | |
| 140 | 14 | 47 | 3.86 | 49 | 3.59 | 52 | 3.51 | 55 | 3.42 | 58 | 3.34 | 58 | 3.03 | 59 | 2.72 | 61 | 2.65 |
| | 18 | 45 | 4.35 | 57 | 4.07 | 60 | 3.97 | 63 | 3.88 | 66 | 3.78 | 67 | 3.51 | 68 | 3.24 | 70 | 3.15 |
| | 23 | 67 | 4.96 | 68 | 4.66 | 71 | 4.55 | 73 | 4.46 | 76 | 4.35 | 77 | 4.13 | 79 | 3.91 | 81 | 3.78 |
| | 32 | 86 | 6.05 | 87 | 5.73 | 89 | 5.61 | 92 | 5.47 | 94 | 5.35 | 96 | 5.23 | 99 | 5.09 | 101 | 4.93 |
| | 42 | 86 | 6.23 | 87 | 5.98 | 89 | 5.84 | 92 | 5.68 | 94 | 5.54 | 96 | 5.41 | 99 | 5.28 | 101 | 5.18 |
| | 50 | 86 | 6.38 | 87 | 6.20 | 89 | 6.03 | 92 | 5.84 | 94 | 5.66 | 96 | 5.55 | 99 | 5.43 | 101 | 5.36 |
| | 54 | 86 | 6.45 | 87 | 6.30 | 89 | 6.12 | 92 | 5.92 | 94 | 5.73 | 96 | 5.62 | 99 | 5.51 | 101 | 5.46 |
| | 58 | 86 | 6.51 | 87 | 6.41 | 89 | 6.22 | 92 | 6.00 | 94 | 5.80 | 96 | 5.69 | 99 | 5.58 | 101 | 5.55 |
| | 62 | 86 | 6.59 | 87 | 6.51 | 89 | 6.30 | 92 | 6.08 | 94 | 5.88 | 96 | 5.77 | 99 | 5.66 | 101 | 5.66 |
| | 66 | 86 | 6.66 | 87 | 6.62 | 89 | 6.39 | 92 | 6.16 | 94 | 5.95 | 96 | 5.84 | 99 | 5.85 | 101 | 5.95 |
| | 70 | 86 | 6.73 | 87 | 6.72 | 89 | 6.49 | 91 | 6.13 | 92 | 6.10 | 95 | 6.16 | 97 | 6.16 | 99 | 6.23 |
| | 74 | 84 | 6.37 | 85 | 6.45 | 86 | 6.32 | 88 | 6.16 | 89 | 6.10 | 92 | 6.18 | 95 | 6.33 | 98 | 6.53 |
| | 78 | 81 | 6.19 | 82 | 6.45 | 83 | 6.31 | 85 | 6.13 | 86 | 6.05 | 88 | 6.12 | 91 | 6.22 | 95 | 6.51 |
| | 82 | 76 | 6.29 | 76 | 6.42 | 80 | 6.25 | 81 | 6.07 | 83 | 5.96 | 85 | 5.99 | 88 | 6.07 | 91 | 6.29 |
| | 86 | 74 | 6.32 | 76 | 6.30 | 77 | 6.13 | 78 | 5.95 | 79 | 5.83 | 82 | 5.83 | 84 | 5.87 | 87 | 6.01 |
| | 90 | 71 | 6.28 | 73 | 6.15 | 74 | 5.96 | 75 | 5.79 | 76 | 5.63 | 78 | 5.62 | 80 | 5.62 | 82 | 5.68 |
| | 95 | 68 | 6.12 | 69 | 5.86 | 70 | 5.67 | 71 | 5.50 | 72 | 5.32 | 74 | 5.27 | 75 | 5.23 | 77 | 5.19 |
| | 100 | 64 | 6.01 | 66 | 5.83 | 66 | 5.62 | 67 | 5.42 | 68 | 5.23 | 69 | 5.13 | 71 | 5.04 | 72 | 4.94 |
| 106 | 59 | 5.89 | 61 | 5.79 | 62 | 5.57 | 62 | 5.33 | 63 | 5.11 | 64 | 4.96 | 65 | 4.81 | 66 | 4.64 | |
| 110 | 56 | 5.80 | 58 | 5.77 | 59 | 5.53 | 59 | 5.27 | 60 | 5.03 | 61 | 4.84 | 62 | 4.68 | 62 | 4.44 | |
| 114 | 51 | 5.31 | 53 | 5.37 | 53 | 5.14 | 54 | 4.91 | 54 | 4.68 | 55 | 4.50 | 56 | 4.32 | 56 | 4.13 | |
| 118 | 49 | 4.82 | 49 | 4.96 | 49 | 4.75 | 49 | 4.55 | 49 | 4.34 | 49 | 4.15 | 50 | 3.97 | 50 | 3.80 | |
| 130 | 14 | 46 | 3.60 | 47 | 3.35 | 50 | 3.27 | 53 | 3.18 | 56 | 3.11 | 56 | 2.82 | 57 | 2.53 | 59 | 2.47 |
| | 18 | 44 | 4.05 | 53 | 3.79 | 56 | 3.70 | 61 | 3.61 | 64 | 3.52 | 64 | 3.27 | 65 | 3.02 | 67 | 2.93 |
| | 23 | 64 | 4.62 | 66 | 4.34 | 68 | 4.24 | 71 | 4.15 | 73 | 4.05 | 75 | 3.85 | 76 | 3.63 | 78 | 3.52 |
| | 32 | 83 | 5.63 | 84 | 5.33 | 86 | 5.22 | 88 | 5.09 | 90 | 4.98 | 93 | 4.87 | 95 | 4.74 | 98 | 4.59 |
| | 42 | 83 | 5.80 | 84 | 5.57 | 86 | 5.43 | 88 | 5.28 | 90 | 5.14 | 93 | 5.03 | 95 | 4.92 | 98 | 4.82 |
| | 50 | 83 | 5.94 | 84 | 5.77 | 86 | 5.61 | 88 | 5.43 | 90 | 5.27 | 93 | 5.17 | 95 | 5.06 | 98 | 4.99 |
| | 54 | 83 | 6.01 | 84 | 5.86 | 86 | 5.70 | 88 | 5.51 | 90 | 5.33 | 93 | 5.23 | 95 | 5.13 | 98 | 5.08 |
| | 58 | 83 | 6.06 | 84 | 5.96 | 86 | 5.79 | 88 | 5.58 | 90 | 5.40 | 93 | 5.29 | 95 | 5.19 | 98 | 5.17 |
| | 62 | 83 | 6.14 | 84 | 6.06 | 86 | 5.86 | 88 | 5.66 | 90 | 5.47 | 93 | 5.37 | 95 | 5.27 | 98 | 5.27 |
| | 66 | 83 | 6.20 | 84 | 6.16 | 86 | 5.95 | 88 | 5.73 | 90 | 5.53 | 93 | 5.43 | 95 | 5.45 | 97 | 5.53 |
| | 70 | 83 | 6.26 | 84 | 6.25 | 86 | 6.04 | 88 | 5.81 | 89 | 5.71 | 92 | 5.73 | 94 | 5.73 | 95 | 5.80 |
| | 74 | 83 | 6.34 | 84 | 6.35 | 86 | 6.26 | 87 | 6.15 | 88 | 6.02 | 90 | 6.02 | 92 | 6.02 | 94 | 6.07 |
| | 78 | 81 | 6.30 | 83 | 6.56 | 83 | 6.41 | 85 | 6.24 | 86 | 6.15 | 88 | 6.22 | 91 | 6.30 | 93 | 6.34 |
| | 82 | 76 | 6.42 | 76 | 6.55 | 80 | 6.37 | 81 | 6.19 | 83 | 6.08 | 85 | 6.11 | 88 | 6.18 | 91 | 6.39 |
| | 86 | 76 | 6.48 | 76 | 6.46 | 77 | 6.28 | 78 | 6.10 | 79 | 5.97 | 82 | 5.97 | 84 | 6.01 | 87 | 6.14 |
| | 90 | 71 | 6.46 | 73 | 6.33 | 74 | 6.14 | 75 | 5.96 | 76 | 5.79 | 78 | 5.78 | 80 | 5.78 | 82 | 5.84 |
| | 95 | 68 | 6.34 | 69 | 6.07 | 70 | 5.88 | 71 | 5.70 | 72 | 5.51 | 74 | 5.46 | 75 | 5.42 | 77 | 5.38 |
| | 100 | 64 | 6.23 | 66 | 6.05 | 66 | 5.82 | 67 | 5.62 | 68 | 5.42 | 69 | 5.32 | 71 | 5.22 | 72 | 5.12 |
| 106 | 59 | 6.10 | 61 | 6.01 | 62 | 5.77 | 62 | 5.53 | 63 | 5.29 | 64 | 5.14 | 65 | 4.98 | 66 | 4.81 | |
| 110 | 56 | 6.01 | 58 | 5.98 | 59 | 5.73 | 59 | 5.46 | 60 | 5.21 | 61 | 5.02 | 62 | 4.83 | 62 | 4.60 | |
| 114 | 51 | 5.50 | 53 | 5.56 | 53 | 5.33 | 54 | 5.09 | 54 | 4.85 | 55 | 4.67 | 56 | 4.47 | 56 | 4.28 | |
| 118 | 49 | 4.97 | 49 | 5.14 | 49 | 4.95 | 49 | 4.73 | 49 | 4.53 | 49 | 4.33 | 50 | 4.13 | 50 | 3.94 | |
| 120 | 14 | 44 | 3.34 | 45 | 3.14 | 48 | 3.04 | 51 | 2.95 | 54 | 2.88 | 54 | 2.62 | 55 | 2.35 | 56 | 2.29 |
| | 18 | 42 | 3.76 | 53 | 3.51 | 56 | 3.43 | 59 | 3.35 | 61 | 3.27 | 62 | 3.04 | 63 | 2.80 | 65 | 2.72 |
| | 23 | 63 | 4.29 | 64 | 4.03 | 66 | 3.94 | 68 | 3.85 | 70 | 3.76 | 72 | 3.57 | 73 | 3.37 | 75 | 3.27 |
| | 32 | 80 | 5.23 | 81 | 4.95 | 83 | 4.85 | 85 | 4.73 | 87 | 4.62 | 89 | 4.52 | 92 | 4.40 | 94 | 4.26 |
| | 42 | 80 | 5.38 | 81 | 5.17 | 83 | 5.04 | 85 | 4.90 | 87 | 4.78 | 89 | 4.67 | 92 | 4.57 | 94 | 4.47 |
| | 50 | 80 | 5.51 | 81 | 5.36 | 83 | 5.21 | 85 | 5.04 | 87 | 4.89 | 89 | 4.80 | 92 | 4.69 | 94 | 4.64 |
| | 54 | 80 | 5.57 | 81 | 5.44 | 83 | 5.29 | 85 | 5.11 | 87 | 4.95 | 89 | 4.86 | 92 | 4.76 | 94 | 4.72 |
| | 58 | 80 | 5.63 | 81 | 5.56 | 83 | 5.41 | 85 | 5.23 | 87 | 5.01 | 89 | 4.92 | 92 | 4.82 | 94 | 4.80 |
| | 62 | 80 | 5.70 | 81 | 5.63 | 83 | 5.44 | 85 | 5.25 | 87 | 5.08 | 89 | 4.99 | 92 | 4.89 | 94 | 4.89 |
| | 66 | 80 | 5.76 | 81 | 5.72 | 83 | 5.52 | 85 | 5.32 | 87 | 5.14 | 89 | 5.04 | 91 | 5.06 | 93 | 5.14 |
| | 70 | 80 | 5.82 | 81 | 5.80 | 83 | 5.61 | 85 | 5.39 | 86 | 5.30 | 88 | 5.32 | 90 | 5.32 | 92 | 5.38 |
| | 74 | 80 | 5.89 | 81 | 5.90 | 82 | 5.82 | 84 | 5.71 | 85 | 5.59 | 87 | 5.59 | 89 | 5.59 | 91 | 5.64 |
| | 78 | 79 | 6.14 | 80 | 6.26 | 81 | 6.15 | 83 | 6.01 | 83 | 5.87 | 85 | 5.87 | 88 | 5.85 | 89 | 5.89 |
| | 82 | 76 | 6.55 | 79 | 6.63 | 80 | 6.49 | 81 | 6.31 | 82 | 6.17 | 83 | 6.14 | 86 | 6.12 | 88 | 6.13 |
| | 86 | 76 | 6.63 | 76 | 6.60 | 77 | 6.43 | 78 | 6.24 | 79 | 6.10 | 82 | 6.11 | 84 | 6.14 | 87 | 6.26 |
| | 90 | 71 | 6.58 | 73 | 6.52 | 74 | 6.31 | 75 | 6.12 | 76 | 5.95 | 78 | 5.94 | 80 | 5.94 | 82 | 5.99 |
| | 95 | 68 | 6.57 | 69 | 6.29 | 70 | 6.09 | 71 | 5.90 | 72 | 5.70 | 74 | 5.66 | 75 | 5.61 | 77 | 5.57 |
| | | | | | | | | | | | | | | | | | |

SELECTION DATA

**(H,Y)VAHP096B(3,4)1S
(H,Y)VAHR096B(3,4)1S**

| Connection ratio | Outdoor air temp | Indoor air temp. °F/WB | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | 59 | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| % | °F/DB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW |
| 135 | 14 | 59 | 3.00 | 63 | 2.74 | 61 | 2.74 | 60 | 2.74 | 62 | 2.93 | 64 | 3.13 | 66 | 2.87 | 68 | 3.63 |
| | 18 | 70 | 3.91 | 73 | 3.70 | 73 | 3.66 | 74 | 3.61 | 74 | 3.57 | 76 | 3.69 | 78 | 3.81 | 80 | 4.58 |
| | 23 | 85 | 5.07 | 88 | 4.92 | 89 | 4.81 | 90 | 4.72 | 91 | 4.62 | 93 | 4.64 | 96 | 4.67 | 99 | 5.45 |
| | 32 | 112 | 7.13 | 114 | 7.09 | 116 | 6.89 | 116 | 6.69 | 121 | 6.48 | 124 | 6.35 | 126 | 6.21 | 131 | 6.29 |
| | 42 | 112 | 7.28 | 114 | 7.26 | 116 | 7.05 | 116 | 6.85 | 121 | 6.62 | 124 | 6.57 | 126 | 6.51 | 131 | 6.52 |
| | 50 | 112 | 7.38 | 114 | 7.39 | 116 | 7.19 | 116 | 6.98 | 121 | 6.75 | 124 | 6.74 | 127 | 6.74 | 130 | 6.70 |
| | 54 | 112 | 7.45 | 114 | 7.46 | 116 | 7.25 | 116 | 7.03 | 121 | 6.81 | 124 | 6.83 | 127 | 6.86 | 130 | 6.79 |
| | 58 | 112 | 7.50 | 114 | 7.52 | 116 | 7.32 | 116 | 7.09 | 121 | 6.87 | 124 | 6.92 | 127 | 6.98 | 130 | 6.89 |
| | 62 | 112 | 7.55 | 114 | 7.60 | 116 | 7.38 | 116 | 7.15 | 121 | 6.92 | 124 | 7.00 | 126 | 7.09 | 130 | 6.99 |
| | 66 | 112 | 7.60 | 114 | 7.61 | 116 | 7.45 | 116 | 7.21 | 121 | 6.99 | 124 | 7.09 | 126 | 7.32 | 129 | 7.07 |
| | 70 | 112 | 7.67 | 114 | 7.73 | 116 | 7.51 | 116 | 7.28 | 119 | 7.24 | 122 | 7.47 | 124 | 7.67 | 127 | 7.75 |
| | 74 | 112 | 7.72 | 114 | 7.80 | 116 | 7.80 | 117 | 7.75 | 119 | 7.67 | 121 | 7.86 | 124 | 8.01 | 127 | 8.12 |
| | 78 | 110 | 7.85 | 110 | 8.37 | 111 | 8.32 | 111 | 8.22 | 111 | 8.10 | 111 | 8.24 | 121 | 8.36 | 122 | 8.49 |
| | 82 | 105 | 7.95 | 106 | 8.35 | 111 | 8.73 | 111 | 8.68 | 111 | 8.53 | 111 | 8.63 | 121 | 8.70 | 122 | 8.87 |
| | 86 | 101 | 7.95 | 103 | 8.19 | 106 | 8.38 | 109 | 8.54 | 113 | 8.69 | 119 | 8.64 | 124 | 8.58 | 119 | 8.90 |
| | 90 | 96 | 7.83 | 98 | 7.90 | 100 | 7.92 | 100 | 7.93 | 100 | 7.92 | 100 | 7.87 | 110 | 7.82 | 112 | 8.03 |
| | 95 | 90 | 7.52 | 92 | 7.39 | 93 | 7.18 | 95 | 6.98 | 96 | 6.78 | 96 | 6.74 | 100 | 6.70 | 102 | 6.89 |
| | 100 | 84 | 7.40 | 86 | 7.19 | 86 | 6.94 | 86 | 6.68 | 87 | 6.42 | 89 | 6.38 | 92 | 6.35 | 93 | 6.39 |
| | 106 | 77 | 6.26 | 78 | 6.78 | 79 | 6.63 | 79 | 6.32 | 79 | 5.99 | 78 | 5.96 | 81 | 5.91 | 82 | 5.81 |
| | 110 | 73 | 7.16 | 73 | 6.80 | 74 | 6.44 | 70 | 6.07 | 67 | 5.71 | 71 | 5.67 | 73 | 5.63 | 74 | 5.40 |
| 114 | 63 | 6.08 | 64 | 5.89 | 64 | 5.73 | 63 | 5.56 | 62 | 5.40 | 63 | 5.27 | 65 | 5.12 | 66 | 4.91 | |
| 118 | 54 | 5.05 | 54 | 4.38 | 55 | 4.16 | 55 | 4.04 | 55 | 3.94 | 56 | 3.82 | 58 | 3.62 | 59 | 3.42 | |
| 122 | 45 | 2.89 | 60 | 2.64 | 60 | 2.64 | 59 | 2.64 | 61 | 2.83 | 63 | 3.02 | 64 | 2.77 | 65 | 2.77 | |
| 18 | 69 | 3.77 | 72 | 3.57 | 72 | 3.53 | 72 | 3.48 | 72 | 3.45 | 74 | 3.56 | 77 | 3.67 | 79 | 3.50 | |
| 23 | 84 | 4.89 | 86 | 4.74 | 87 | 4.64 | 88 | 4.55 | 89 | 4.45 | 92 | 4.48 | 94 | 4.50 | 97 | 4.41 | |
| 32 | 110 | 6.88 | 116 | 6.84 | 116 | 6.64 | 116 | 6.45 | 116 | 6.25 | 121 | 6.12 | 124 | 5.99 | 126 | 6.06 | |
| 42 | 110 | 7.02 | 116 | 7.01 | 116 | 6.80 | 116 | 6.60 | 119 | 6.39 | 124 | 6.34 | 126 | 6.28 | 129 | 6.29 | |
| 50 | 110 | 7.12 | 116 | 7.13 | 116 | 6.93 | 116 | 6.72 | 116 | 6.51 | 121 | 6.50 | 125 | 6.50 | 126 | 6.46 | |
| 54 | 110 | 7.18 | 116 | 7.19 | 116 | 6.99 | 116 | 6.78 | 116 | 6.58 | 121 | 6.59 | 125 | 6.62 | 126 | 6.55 | |
| 58 | 110 | 7.24 | 116 | 7.25 | 116 | 7.04 | 116 | 6.83 | 116 | 6.62 | 121 | 6.63 | 125 | 6.66 | 126 | 6.59 | |
| 62 | 110 | 7.28 | 116 | 7.33 | 116 | 7.12 | 116 | 6.89 | 116 | 6.68 | 121 | 6.75 | 124 | 6.84 | 127 | 6.74 | |
| 66 | 110 | 7.33 | 116 | 7.40 | 116 | 7.18 | 116 | 6.95 | 116 | 6.74 | 121 | 6.84 | 123 | 7.06 | 126 | 7.11 | |
| 70 | 110 | 7.40 | 116 | 7.46 | 116 | 7.24 | 116 | 7.02 | 116 | 6.98 | 121 | 7.21 | 122 | 7.40 | 124 | 7.47 | |
| 74 | 110 | 7.45 | 116 | 7.52 | 116 | 7.52 | 116 | 7.47 | 116 | 7.40 | 116 | 7.58 | 122 | 7.72 | 124 | 7.84 | |
| 78 | 109 | 7.80 | 111 | 8.07 | 111 | 8.02 | 111 | 7.92 | 111 | 7.81 | 111 | 7.95 | 121 | 8.06 | 124 | 8.19 | |
| 82 | 105 | 8.02 | 106 | 8.42 | 111 | 8.53 | 111 | 8.38 | 111 | 8.23 | 111 | 8.33 | 119 | 8.39 | 122 | 8.55 | |
| 86 | 100 | 8.03 | 102 | 8.27 | 106 | 8.46 | 106 | 8.61 | 111 | 8.64 | 116 | 8.69 | 119 | 8.65 | 119 | 8.87 | |
| 90 | 90 | 7.94 | 92 | 7.78 | 93 | 7.62 | 93 | 7.46 | 93 | 7.30 | 93 | 7.15 | 101 | 7.11 | 103 | 7.32 | |
| 95 | 80 | 7.66 | 82 | 7.52 | 83 | 7.31 | 85 | 7.11 | 86 | 6.90 | 86 | 6.86 | 90 | 6.82 | 92 | 7.01 | |
| 100 | 84 | 7.53 | 86 | 7.32 | 86 | 7.06 | 86 | 6.80 | 87 | 6.54 | 89 | 6.50 | 92 | 6.46 | 93 | 6.51 | |
| 106 | 77 | 6.39 | 78 | 7.08 | 79 | 6.75 | 79 | 6.43 | 79 | 6.10 | 78 | 6.06 | 81 | 6.02 | 82 | 5.91 | |
| 110 | 73 | 7.29 | 73 | 6.92 | 74 | 6.55 | 70 | 6.18 | 68 | 5.81 | 71 | 5.77 | 73 | 5.73 | 74 | 5.50 | |
| 114 | 63 | 6.19 | 64 | 6.00 | 64 | 5.84 | 63 | 5.66 | 62 | 5.50 | 63 | 5.36 | 65 | 5.22 | 65 | 5.00 | |
| 118 | 54 | 5.08 | 56 | 5.07 | 56 | 5.11 | 56 | 5.15 | 56 | 5.19 | 56 | 4.98 | 56 | 4.70 | 56 | 4.50 | |
| 14 | 59 | 2.89 | 59 | 2.45 | 59 | 2.45 | 59 | 2.45 | 59 | 2.45 | 59 | 2.63 | 61 | 2.80 | 62 | 2.57 | |
| 18 | 69 | 3.50 | 69 | 3.32 | 69 | 3.28 | 69 | 3.23 | 69 | 3.20 | 71 | 3.30 | 74 | 3.41 | 76 | 3.25 | |
| 23 | 80 | 4.54 | 83 | 4.40 | 84 | 4.31 | 85 | 4.23 | 85 | 4.13 | 88 | 4.16 | 90 | 4.18 | 93 | 4.10 | |
| 32 | 106 | 6.39 | 106 | 6.35 | 110 | 6.17 | 110 | 5.99 | 110 | 5.80 | 110 | 5.69 | 121 | 5.56 | 124 | 5.63 | |
| 42 | 106 | 6.52 | 106 | 6.50 | 110 | 6.32 | 110 | 6.13 | 110 | 5.93 | 110 | 5.89 | 120 | 5.83 | 124 | 5.84 | |
| 50 | 106 | 6.61 | 106 | 6.62 | 110 | 6.43 | 110 | 6.24 | 110 | 6.05 | 110 | 6.04 | 120 | 6.04 | 124 | 6.00 | |
| 54 | 106 | 6.67 | 106 | 6.68 | 110 | 6.49 | 110 | 6.29 | 110 | 6.10 | 110 | 6.12 | 120 | 6.14 | 124 | 6.08 | |
| 58 | 106 | 6.71 | 106 | 6.74 | 110 | 6.55 | 110 | 6.35 | 110 | 6.15 | 110 | 6.20 | 119 | 6.25 | 121 | 6.17 | |
| 62 | 106 | 6.78 | 106 | 6.81 | 106 | 6.61 | 110 | 6.40 | 110 | 6.20 | 110 | 6.27 | 119 | 6.35 | 120 | 6.28 | |
| 66 | 106 | 6.83 | 106 | 6.87 | 106 | 6.67 | 110 | 6.46 | 110 | 6.25 | 110 | 6.35 | 119 | 6.55 | 120 | 6.50 | |
| 70 | 106 | 6.87 | 106 | 6.92 | 106 | 6.73 | 110 | 6.52 | 110 | 6.48 | 110 | 6.69 | 117 | 6.87 | 120 | 6.94 | |
| 74 | 106 | 6.91 | 106 | 6.98 | 106 | 6.98 | 110 | 6.94 | 110 | 6.87 | 114 | 7.04 | 116 | 7.17 | 119 | 7.27 | |
| 78 | 105 | 7.24 | 106 | 7.50 | 107 | 7.45 | 107 | 7.36 | 110 | 7.25 | 110 | 7.38 | 115 | 7.49 | 117 | 7.60 | |
| 82 | 103 | 7.86 | 103 | 8.01 | 106 | 7.92 | 106 | 7.78 | 106 | 7.64 | 110 | 7.73 | 111 | 7.79 | 116 | 7.94 | |
| 86 | 100 | 8.21 | 103 | 8.44 | 106 | 8.37 | 106 | 8.21 | 106 | 8.02 | 110 | 8.07 | 113 | 8.09 | 115 | 8.28 | |
| 90 | 96 | 8.15 | 99 | 8.21 | 100 | 8.22 | 100 | 8.20 | 100 | 8.18 | 100 | 8.13 | 110 | 8.08 | 112 | 8.30 | |
| 95 | 90 | 7.93 | 92 | 7.99 | 93 | 7.86 | 95 | 7.66 | 95 | 7.44 | 95 | 7.10 | 100 | 7.06 | 102 | 7.26 | |
| 100 | 84 | 7.79 | 86 | 7.58 | 86 | 7.31 | 86 | 7.04 | 87 | 6.77 | 89 | 6.73 | 92 | 6.69 | 93 | 6.74 | |
| 106 | 77 | 6.65 | 78 | 7.33 | 79 | 7.09 | 79 | 6.66 | 79 | 6.31 | 78 | 6.28 | 81 | 6.23 | 82 | 6.12 | |
| 110 | 73 | 7.54 | 73 | 7.17 | 74 | 6.78 | 70 | 6.40 | 68 | 6.01 | 71 | 5.98 | 73 | 5.93 | 74 | 5.69 | |
| 114 | 63 | 6.41 | 64 | 6.21 | 64 | 6.04 | 63 | 5.86 | 62 | 5.69 | 63 | 5.55 | 65 | 5.40 | 65 | 5.17 | |
| 118 | 54 | 5.26 | 56 | 5.24 | 56 | 5.29 | 56 | 5.33 | 56 | 5.38 | 56 | 5.12 | 56 | 4.87 | 56 | 4.65 | |
| 14 | 59 | 2.49 | 56 | 2.27 | 56 | 2.27 | 56 | 2.27 | 56 | 2.27 | 56 | 2.43 | 58 | 2.60 | 59 | 2.38 | |
| 18 | 64 | 3.25 | 66 | 3.07 | 66 | 3.04 | 66 | 3.00 | 66 | 2.96 | 66 | 3.06 | 70 | 3.16 | 72 | 3.01 | |
| 23 | 76 | 4.21 | 78 | 4.08 | 80 | 3.99 | 81 | 3.92 | 81 | 3.83 | 84 | 3.85 | 87 | 3.87 | 90 | 3.80 | |
| 32 | 101 | 5.92 | 103 | 5.88 | 105 | 5.71 | 105 | 5.55 | 105 | 5.38 | 110 | 5.27 | 116 | 5.15 | 119 | 5.21 | |
| 42 | 101 | 6.04 | 103 | 6.03 | 105 | 5.85 | 107 | 5.68 | 107 | 5.50 | 110 | 5.45 | 115 | 5.40 | 118 | 5.41 | |
| 50 | 101 | 6.12 | 103 | 6.13 | 105 | 5.96 | 107 | 5.78 | 107 | 5.60 | 110 | 5.59 | 115 | 5.59 | 118 | 5.56 | |
| 54 | 101 | 6.18 | 103 | 6.19 | 105 | 6.01 | 107 | 5.83 | 107 | 5.65 | 110 | 5.67 | 115 | 5.69 | 117 | 5.64 | |
| 58 | 101 | 6.22 | 103 | 6.24 | 105 | 6.07 | 107 | 5.88 | 107 | 5.70 | 110 | 5.74 | 114 | 5.79 | 117 | 5.71 | |
| 62 | 101 | 6.26 | 103 | 6.31 | 105 | 6.12 | 107 | 5.93 | 107 | 5.74 | 111 | 5.81 | 114 | 5.88 | 117 | 5.80 | |
| 66 | 101 | 6.31 | 103 | 6.36 | 105 | 6.18 | 107 | 5.98 | 107 | 5.80 | 110 | 5.88 | 113 | 6.07 | 116 | 6.11 | |
| 70 | 101 | 6.36 | 103 | 6.41 | 105 | 6.23 | 107 | 6.04 | 107 | 6.00 | 110 | 6.20 | 112 | 6.36 | 115 | 6.43 | |
| 74 | 101 | 6.40 | 103 | 6.47 | 105 | 6.47 | 107 | 6.43 | 107 | 6.36 | 110 | 6.52 | 111 | 6.64 | 113 | 6.74 | |
| 78 | 100 | 6.71 | 103 | 6.94 | 105 | 6.90 | 107 | 6.81 | 107 | 6.72 | 108 | 6.84 | 110 | 6.93 | 112 | 7.04 | |
| 82 | 99 | 7.28 | 101 | 7.42 | 103 | 7.33 | 105 | 7.20 | 107 | 7.07 | 1 | | | | | | |

**(H,Y)VAHP120B(3,4)1S
(H,Y)VAHR120B(3,4)1S**

| Connection ratio | Outdoor air temp | Indoor air temp. °F/WB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|------|-------|------|-------|------|-------|-------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|-----|------|
| | | 59 | | | 61 | | | 63 | | | 65 | | | 67 | | | 69 | | | 71 | | | 73 | | | | | | | | | | | | | | | |
| | | TC | IP | WBH | TC | IP | WBH | TC | IP | WBH | TC | IP | WBH | TC | IP | WBH | TC | IP | WBH | TC | IP | WBH | TC | IP | WBH | | | | | | | | | | | | | |
| 130 | 14 | 60 | 3.06 | 62 | 2.72 | 62 | 2.78 | 63 | 2.85 | 64 | 2.92 | 64 | 3.04 | 65 | 3.17 | 66 | 3.28 | 66 | 3.41 | 67 | 3.54 | 68 | 3.67 | 68 | 3.80 | 69 | 3.93 | 70 | 4.06 | 71 | 4.19 | 72 | 4.32 | 73 | 4.45 | | | |
| 18 | 77 | 4.50 | 80 | 4.25 | 81 | 4.25 | 82 | 4.25 | 83 | 4.25 | 84 | 4.25 | 85 | 4.33 | 86 | 4.40 | 87 | 4.40 | 88 | 4.40 | 89 | 4.40 | 90 | 4.40 | 91 | 4.40 | 92 | 4.40 | 93 | 4.40 | 94 | 4.40 | 95 | 4.40 | | | | |
| 23 | 99 | 6.33 | 100 | 6.19 | 100 | 6.10 | 100 | 6.01 | 100 | 5.92 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | 110 | 5.94 | | |
| 32 | 138 | 9.58 | 144 | 9.65 | 144 | 9.41 | 144 | 9.17 | 150 | 8.93 | 150 | 8.82 | 160 | 8.69 | 160 | 8.69 | 160 | 8.69 | 160 | 8.69 | 160 | 8.69 | 160 | 8.69 | 160 | 8.69 | 160 | 8.69 | 160 | 8.69 | 160 | 8.69 | 160 | 8.69 | 160 | 8.69 | | |
| 42 | 138 | 9.76 | 144 | 9.85 | 144 | 9.82 | 144 | 9.39 | 150 | 9.17 | 150 | 9.17 | 160 | 9.16 | 160 | 9.16 | 160 | 9.16 | 160 | 9.16 | 160 | 9.16 | 160 | 9.16 | 160 | 9.16 | 160 | 9.16 | 160 | 9.16 | 160 | 9.16 | 160 | 9.16 | 160 | 9.16 | | |
| 50 | 138 | 9.91 | 144 | 10.02 | 144 | 9.80 | 144 | 9.57 | 150 | 9.34 | 150 | 9.44 | 160 | 9.52 | 160 | 9.52 | 160 | 9.52 | 160 | 9.52 | 160 | 9.52 | 160 | 9.52 | 160 | 9.52 | 160 | 9.52 | 160 | 9.52 | 160 | 9.52 | 160 | 9.52 | 160 | 9.52 | | |
| 54 | 138 | 9.97 | 144 | 10.10 | 144 | 9.89 | 144 | 9.66 | 150 | 9.44 | 150 | 9.58 | 160 | 9.71 | 160 | 9.71 | 160 | 9.71 | 160 | 9.71 | 160 | 9.71 | 160 | 9.71 | 160 | 9.71 | 160 | 9.71 | 160 | 9.71 | 160 | 9.71 | 160 | 9.71 | 160 | 9.71 | | |
| 58 | 138 | 10.05 | 144 | 10.19 | 144 | 9.97 | 144 | 9.75 | 150 | 9.53 | 150 | 9.72 | 160 | 9.90 | 160 | 9.90 | 160 | 9.90 | 160 | 9.90 | 160 | 9.90 | 160 | 9.90 | 160 | 9.90 | 160 | 9.90 | 160 | 9.90 | 160 | 9.90 | 160 | 9.90 | 160 | 9.90 | | |
| 62 | 138 | 10.12 | 144 | 10.26 | 144 | 10.05 | 144 | 9.85 | 150 | 9.63 | 150 | 9.86 | 160 | 10.07 | 160 | 10.07 | 160 | 10.07 | 160 | 10.07 | 160 | 10.07 | 160 | 10.07 | 160 | 10.07 | 160 | 10.07 | 160 | 10.07 | 160 | 10.07 | 160 | 10.07 | 160 | 10.07 | | |
| 66 | 138 | 10.20 | 144 | 10.35 | 144 | 10.14 | 144 | 9.94 | 150 | 9.72 | 150 | 10.00 | 160 | 10.39 | 160 | 10.39 | 160 | 10.39 | 160 | 10.39 | 160 | 10.39 | 160 | 10.39 | 160 | 10.39 | 160 | 10.39 | 160 | 10.39 | 160 | 10.39 | 160 | 10.39 | 160 | 10.39 | | |
| 70 | 138 | 10.26 | 144 | 10.43 | 144 | 10.22 | 144 | 10.02 | 150 | 10.04 | 150 | 10.46 | 160 | 10.82 | 160 | 10.82 | 160 | 10.82 | 160 | 10.82 | 160 | 10.82 | 160 | 10.82 | 160 | 10.82 | 160 | 10.82 | 160 | 10.82 | 160 | 10.82 | 160 | 10.82 | 160 | 10.82 | | |
| 74 | 138 | 10.34 | 144 | 10.51 | 144 | 10.31 | 144 | 10.10 | 150 | 10.59 | 150 | 10.55 | 160 | 11.23 | 160 | 11.23 | 160 | 11.23 | 160 | 11.23 | 160 | 11.23 | 160 | 11.23 | 160 | 11.23 | 160 | 11.23 | 160 | 11.23 | 160 | 11.23 | 160 | 11.23 | 160 | 11.23 | | |
| 78 | 138 | 10.78 | 144 | 11.19 | 144 | 11.21 | 144 | 11.16 | 144 | 11.08 | 150 | 11.39 | 150 | 11.66 | 150 | 11.66 | 150 | 11.66 | 150 | 11.66 | 150 | 11.66 | 150 | 11.66 | 150 | 11.66 | 150 | 11.66 | 150 | 11.66 | 150 | 11.66 | 150 | 11.66 | 150 | 11.66 | | |
| 82 | 134 | 11.57 | 136 | 11.87 | 136 | 11.82 | 136 | 11.82 | 144 | 11.72 | 144 | 11.72 | 144 | 11.80 | 144 | 11.80 | 144 | 11.80 | 144 | 11.80 | 144 | 11.80 | 144 | 11.80 | 144 | 11.80 | 144 | 11.80 | 144 | 11.80 | 144 | 11.80 | 144 | 11.80 | 144 | 11.80 | | |
| 86 | 128 | 11.82 | 132 | 12.12 | 132 | 12.44 | 132 | 12.29 | 141 | 12.12 | 141 | 12.34 | 150 | 12.50 | 150 | 12.50 | 150 | 12.50 | 150 | 12.50 | 150 | 12.50 | 150 | 12.50 | 150 | 12.50 | 150 | 12.50 | 150 | 12.50 | 150 | 12.50 | 150 | 12.50 | 150 | 12.50 | | |
| 90 | 120 | 11.13 | 122 | 11.37 | 122 | 11.52 | 122 | 11.62 | 131 | 11.70 | 131 | 11.70 | 144 | 11.98 | 144 | 11.98 | 144 | 11.98 | 144 | 11.98 | 144 | 11.98 | 144 | 11.98 | 144 | 11.98 | 144 | 11.98 | 144 | 11.98 | 144 | 11.98 | 144 | 11.98 | 144 | 11.98 | | |
| 95 | 110 | 10.20 | 110 | 10.15 | 110 | 9.96 | 110 | 9.77 | 120 | 9.58 | 120 | 9.64 | 120 | 9.70 | 120 | 9.70 | 120 | 9.70 | 120 | 9.70 | 120 | 9.70 | 120 | 9.70 | 120 | 9.70 | 120 | 9.70 | 120 | 9.70 | 120 | 9.70 | 120 | 9.70 | 120 | 9.70 | | |
| 100 | 100 | 9.57 | 100 | 9.41 | 100 | 9.15 | 100 | 8.88 | 100 | 8.63 | 100 | 8.58 | 111 | 8.51 | 111 | 8.51 | 111 | 8.51 | 111 | 8.51 | 111 | 8.51 | 111 | 8.51 | 111 | 8.51 | 111 | 8.51 | 111 | 8.51 | 111 | 8.51 | 111 | 8.51 | 111 | 8.51 | | |
| 106 | 88 | 8.80 | 89 | 8.52 | 89 | 8.18 | 88 | 7.82 | 88 | 7.48 | 89 | 7.29 | 91 | 7.08 | 92 | 6.94 | | | | | | | | | | | | | | | | | | | | | | |
| 110 | 88 | 8.29 | 81 | 7.92 | 79 | 7.52 | 79 | 7.17 | 76 | 6.72 | 77 | 6.43 | 77 | 6.13 | 78 | 5.84 | | | | | | | | | | | | | | | | | | | | | | |
| 114 | 88 | 6.80 | 68 | 6.46 | 67 | 6.29 | 67 | 6.10 | 66 | 5.93 | 66 | 5.67 | 67 | 5.40 | 67 | 5.15 | | | | | | | | | | | | | | | | | | | | | | |
| 118 | 55 | 5.10 | 55 | 5.00 | 55 | 5.00 | 55 | 5.15 | 59 | 5.45 | 59 | 5.45 | 62 | 5.83 | 63 | 5.94 | 63 | 5.94 | 63 | 5.94 | 63 | 5.94 | 63 | 5.94 | 63 | 5.94 | 63 | 5.94 | 63 | 5.94 | 63 | 5.94 | 63 | 5.94 | 63 | 5.94 | | |
| 14 | 52 | 2.84 | 60 | 2.52 | 60 | 2.58 | 61 | 2.65 | 61 | 2.71 | 62 | 2.83 | 63 | 2.94 | 64 | 3.06 | 64 | 3.18 | 64 | 3.30 | 64 | 3.42 | 64 | 3.54 | 64 | 3.66 | 64 | 3.78 | 64 | 3.90 | 64 | 4.02 | 64 | 4.14 | 64 | 4.26 | | |
| 18 | 74 | 4.18 | 76 | 3.95 | 76 | 3.95 | 76 | 3.95 | 76 | 3.95 | 81 | 4.02 | 83 | 4.09 | 86 | 3.96 | | | | | | | | | | | | | | | | | | | | | | |
| 23 | 96 | 5.87 | 96 | 5.75 | 96 | 5.66 | 100 | 5.58 | 100 | 5.50 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 | 100 | 5.51 |
| 32 | 128 | 8.90 | 133 | 8.96 | 133 | 8.73 | 144 | 8.51 | 144 | 8.29 | 144 | 8.19 | 154 | 8.07 | 154 | 8.22 | | | | | | | | | | | | | | | | | | | | | | |
| 42 | 132 | 9.06 | 134 | 9.14 | 134 | 8.93 | 144 | 8.72 | 144 | 8.51 | 144 | 8.51 | 154 | 8.50 | 154 | 8.58 | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 132 | 9.20 | 136 | 9.31 | 136 | 9.10 | 144 | 8.89 | 144 | 8.68 | 144 | 8.77 | 154 | 8.84 | 154 | 8.89 | | | | | | | | | | | | | | | | | | | | | | |
| 54 | 132 | 9.26 | 136 | 9.38 | 136 | 9.18 | 144 | 8.97 | 144 | 8.77 | 144 | 8.90 | 154 | 9.01 | 154 | 9.03 | | | | | | | | | | | | | | | | | | | | | | |
| 58 | 132 | 9.33 | 136 | 9.46 | 136 | 9.26 | 144 | 9.05 | 144 | 8.85 | 144 | 9.03 | 154 | 9.19 | 154 | 9.18 | | | | | | | | | | | | | | | | | | | | | | |
| 62 | 132 | 9.40 | 136 | 9.53 | 136 | 9.33 | 144 | 9.14 | 144 | 8.94 | 144 | 9.15 | 154 | 9.35 | 154 | 9.32 | | | | | | | | | | | | | | | | | | | | | | |
| 66 | 132 | 9.47 | 136 | 9.61 | 136 | 9.41 | 144 | 9.22 | 144 | 9.03 | 144 | 9.28 | 153 | 9.65 | 153 | 9.75 | | | | | | | | | | | | | | | | | | | | | | |
| 70 | 132 | 9.53 | 136 | 9.68 | 136 | 9.49 | 144 | 9.31 | 144 | 9.32 | 144 | 9.72 | 153 | 10.04 | 153 | 10.17 | | | | | | | | | | | | | | | | | | | | | | |
| 74 | 132 | 9.60 | 136 | 9.76 | 136 | 9.83 | 144 | 9.83 | 144 | 9.80 | 144 | 10.15 | 150 | 10.43 | 150 | 10.60 | | | | | | | | | | | | | | | | | | | | | | |
| 78 | 131 | 10.01 | 133 | 10.39 | 133 | 10.40 | 133 | 10.36 | 133 | 10.29 | 144 | 10.58 | 144 | 10.82 | 151 | 11.02 | | | | | | | | | | | | | | | | | | | | | | |
| 82 | 129 | 10.74 | 133 | 11.02 | 133 | 10.98 | 133 | 10.88 | 133 | 10.77 | 144 | 11.01 | 146 | 11.22 | 144 | 11.46 | | | | | | | | | | | | | | | | | | | | | | |
| 86 | 126 | 11.48 | 122 | 11.65 | 122 | 11.55 | 133 | 11.41 | 133 | 11.26 | 144 | 11.46 | 144 | 11.61 | 144 | 11.89 | | | | | | | | | | | | | | | | | | | | | | |
| 90 | 120 | 11.40 | 123 | 11.63 | 123 | 11.76 | 133 | 11.85 | 133</ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SELECTION DATA

(H,Y)VAHP144B(3,4)1S
(H,Y)VAHR144B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °FWB | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|------|-------|-----|----|-----|----|-----|----|-----|----|-----|----|--|--|
| | | 59 | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | | | | | | | | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | | | | | | | | | | |
| % | °F/DB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | |
| 150 | 14 | 98 | 8.28 | 101 | 7.71 | 108 | 7.53 | 114 | 7.33 | 120 | 7.16 | 121 | 6.49 | 122 | 5.82 | 126 | 5.68 | | | | | | | | | | | | |
| | 18 | 116 | 9.33 | 119 | 8.72 | 126 | 8.52 | 131 | 8.31 | 137 | 8.11 | 139 | 7.53 | 141 | 6.95 | 144 | 6.75 | | | | | | | | | | | | |
| | 23 | 138 | 10.63 | 141 | 9.99 | 146 | 9.76 | 150 | 9.56 | 155 | 9.33 | 160 | 8.86 | 164 | 8.37 | 166 | 8.11 | | | | | | | | | | | | |
| | 32 | 178 | 12.98 | 181 | 12.28 | 186 | 12.02 | 190 | 11.73 | 194 | 11.47 | 200 | 11.21 | 205 | 10.92 | 210 | 10.57 | | | | | | | | | | | | |
| | 42 | 178 | 13.35 | 181 | 12.83 | 186 | 12.51 | 190 | 12.17 | 194 | 11.85 | 200 | 11.59 | 205 | 11.33 | 210 | 11.07 | | | | | | | | | | | | |
| | 50 | 178 | 13.67 | 181 | 13.30 | 185 | 13.92 | 190 | 12.51 | 194 | 12.14 | 200 | 11.91 | 205 | 11.64 | 210 | 11.50 | | | | | | | | | | | | |
| | 54 | 178 | 13.82 | 181 | 13.50 | 185 | 13.12 | 190 | 12.69 | 194 | 12.28 | 200 | 12.05 | 205 | 11.82 | 210 | 11.70 | | | | | | | | | | | | |
| | 58 | 178 | 13.96 | 181 | 13.73 | 185 | 13.33 | 190 | 12.86 | 194 | 12.43 | 200 | 12.20 | 205 | 11.96 | 210 | 11.91 | | | | | | | | | | | | |
| | 62 | 178 | 14.14 | 181 | 13.96 | 185 | 13.50 | 190 | 13.04 | 194 | 12.60 | 200 | 12.37 | 205 | 12.14 | 210 | 12.14 | | | | | | | | | | | | |
| | 66 | 178 | 14.28 | 181 | 14.19 | 185 | 13.70 | 190 | 12.97 | 194 | 12.32 | 200 | 12.28 | 204 | 12.54 | 208 | 12.75 | | | | | | | | | | | | |
| | 70 | 173 | 13.54 | 176 | 13.61 | 179 | 13.87 | 180 | 12.12 | 182 | 12.06 | 191 | 12.30 | 197 | 12.65 | 200 | 13.35 | | | | | | | | | | | | |
| | 74 | 167 | 12.56 | 170 | 12.72 | 172 | 12.45 | 175 | 12.15 | 177 | 12.03 | 184 | 12.19 | 190 | 12.51 | 199 | 13.22 | | | | | | | | | | | | |
| | 78 | 161 | 12.16 | 166 | 12.69 | 167 | 12.40 | 168 | 12.05 | 177 | 11.90 | 177 | 12.04 | 180 | 12.25 | 189 | 12.84 | | | | | | | | | | | | |
| | 82 | 155 | 12.31 | 159 | 12.58 | 161 | 12.24 | 163 | 11.89 | 166 | 11.75 | 170 | 11.75 | 175 | 11.92 | 181 | 12.36 | | | | | | | | | | | | |
| | 86 | 149 | 12.32 | 152 | 12.30 | 154 | 11.96 | 156 | 11.61 | 159 | 11.37 | 163 | 11.39 | 168 | 11.47 | 173 | 11.76 | | | | | | | | | | | | |
| | 90 | 143 | 12.19 | 146 | 11.94 | 148 | 11.58 | 150 | 11.24 | 152 | 10.93 | 155 | 10.91 | 160 | 10.93 | 165 | 11.05 | | | | | | | | | | | | |
| | 95 | 135 | 11.79 | 139 | 11.29 | 140 | 10.93 | 142 | 10.60 | 144 | 10.24 | 147 | 10.16 | 151 | 10.08 | 155 | 10.01 | | | | | | | | | | | | |
| | 100 | 128 | 11.58 | 131 | 11.24 | 133 | 10.82 | 134 | 10.44 | 136 | 10.08 | 138 | 9.89 | 142 | 9.70 | 144 | 9.52 | | | | | | | | | | | | |
| 106 | 119 | 11.34 | 122 | 11.16 | 123 | 10.72 | 124 | 10.27 | 126 | 9.84 | 128 | 9.55 | 131 | 9.27 | 133 | 8.94 | | | | | | | | | | | | | |
| 110 | 113 | 11.17 | 116 | 11.12 | 117 | 10.65 | 118 | 10.16 | 120 | 9.69 | 121 | 9.33 | 123 | 8.98 | 124 | 8.56 | | | | | | | | | | | | | |
| 114 | 101 | 10.23 | 106 | 10.34 | 107 | 9.91 | 108 | 9.46 | 109 | 9.02 | 111 | 8.68 | 111 | 8.32 | 112 | 7.95 | | | | | | | | | | | | | |
| 118 | 90 | 9.23 | 96 | 9.35 | 97 | 8.76 | 98 | 8.26 | 99 | 8.38 | 99 | 8.00 | 100 | 7.65 | 100 | 7.33 | | | | | | | | | | | | | |
| 140 | 14 | 90 | 7.73 | 96 | 7.73 | 104 | 7.03 | 110 | 6.54 | 116 | 6.58 | 117 | 6.08 | 119 | 5.43 | 122 | 5.30 | | | | | | | | | | | | |
| | 18 | 112 | 8.70 | 115 | 8.13 | 121 | 7.95 | 127 | 7.76 | 133 | 7.57 | 138 | 7.03 | 143 | 6.49 | 147 | 6.30 | | | | | | | | | | | | |
| | 23 | 133 | 9.92 | 136 | 9.32 | 141 | 9.11 | 147 | 8.92 | 152 | 8.70 | 156 | 8.27 | 159 | 7.81 | 162 | 7.57 | | | | | | | | | | | | |
| | 32 | 172 | 12.11 | 176 | 11.46 | 179 | 11.22 | 180 | 10.95 | 182 | 10.70 | 190 | 10.46 | 196 | 10.19 | 200 | 9.82 | | | | | | | | | | | | |
| | 42 | 172 | 12.46 | 176 | 11.97 | 179 | 11.68 | 180 | 11.35 | 181 | 11.05 | 190 | 10.81 | 196 | 10.57 | 200 | 10.35 | | | | | | | | | | | | |
| | 50 | 172 | 12.76 | 175 | 12.40 | 179 | 12.05 | 180 | 11.68 | 181 | 11.32 | 190 | 11.11 | 196 | 10.86 | 200 | 10.73 | | | | | | | | | | | | |
| | 54 | 172 | 12.89 | 175 | 12.59 | 179 | 12.24 | 180 | 11.84 | 181 | 11.46 | 190 | 11.24 | 196 | 11.03 | 200 | 11.32 | | | | | | | | | | | | |
| | 58 | 171 | 13.20 | 175 | 12.81 | 179 | 12.43 | 180 | 12.06 | 181 | 11.76 | 190 | 11.54 | 196 | 11.32 | 200 | 11.91 | | | | | | | | | | | | |
| | 62 | 172 | 13.19 | 175 | 13.03 | 179 | 12.59 | 180 | 12.16 | 181 | 11.76 | 190 | 11.54 | 196 | 11.32 | 200 | 11.92 | | | | | | | | | | | | |
| | 66 | 172 | 13.32 | 175 | 13.24 | 179 | 12.78 | 180 | 12.32 | 181 | 11.89 | 190 | 11.68 | 197 | 11.70 | 200 | 11.89 | | | | | | | | | | | | |
| | 70 | 172 | 13.46 | 175 | 13.43 | 179 | 12.97 | 180 | 12.26 | 180 | 12.20 | 190 | 12.32 | 194 | 12.32 | 196 | 12.46 | | | | | | | | | | | | |
| | 74 | 167 | 12.75 | 170 | 12.90 | 171 | 12.63 | 172 | 12.33 | 172 | 12.20 | 184 | 12.36 | 190 | 12.66 | 196 | 13.05 | | | | | | | | | | | | |
| | 78 | 161 | 12.38 | 166 | 12.91 | 167 | 12.61 | 168 | 12.26 | 170 | 12.10 | 177 | 12.24 | 180 | 12.44 | 189 | 13.02 | | | | | | | | | | | | |
| | 82 | 155 | 12.58 | 160 | 12.84 | 161 | 12.49 | 162 | 12.14 | 164 | 11.93 | 170 | 11.99 | 175 | 12.14 | 181 | 12.57 | | | | | | | | | | | | |
| | 86 | 149 | 12.64 | 152 | 12.61 | 154 | 12.26 | 156 | 11.90 | 158 | 11.65 | 167 | 11.67 | 168 | 11.75 | 170 | 12.02 | | | | | | | | | | | | |
| | 90 | 143 | 12.56 | 146 | 12.81 | 148 | 11.93 | 150 | 11.57 | 151 | 11.26 | 155 | 11.24 | 160 | 11.25 | 165 | 11.37 | | | | | | | | | | | | |
| | 95 | 135 | 12.24 | 139 | 11.72 | 140 | 11.35 | 142 | 11.00 | 144 | 10.63 | 147 | 10.54 | 151 | 10.46 | 155 | 10.39 | | | | | | | | | | | | |
| | 100 | 128 | 12.02 | 131 | 11.67 | 133 | 11.24 | 134 | 10.84 | 136 | 10.46 | 140 | 10.26 | 142 | 10.07 | 144 | 9.88 | | | | | | | | | | | | |
| 106 | 119 | 11.77 | 122 | 11.59 | 123 | 11.13 | 123 | 10.66 | 124 | 10.21 | 129 | 9.91 | 131 | 9.62 | 132 | 9.28 | | | | | | | | | | | | | |
| 110 | 113 | 11.59 | 116 | 11.54 | 117 | 11.05 | 118 | 10.54 | 120 | 10.05 | 121 | 9.69 | 122 | 9.32 | 124 | 8.88 | | | | | | | | | | | | | |
| 114 | 101 | 10.61 | 106 | 10.74 | 107 | 10.28 | 108 | 9.82 | 109 | 9.37 | 110 | 9.01 | 111 | 8.63 | 112 | 8.25 | | | | | | | | | | | | | |
| 118 | 90 | 9.64 | 96 | 9.91 | 96 | 9.50 | 97 | 9.09 | 98 | 8.67 | 99 | 8.31 | 100 | 7.94 | 100 | 7.61 | | | | | | | | | | | | | |
| 130 | 14 | 81 | 7.19 | 87 | 6.89 | 90 | 6.58 | 92 | 6.38 | 97 | 6.21 | 100 | 5.83 | 103 | 5.08 | 117 | 4.83 | | | | | | | | | | | | |
| | 18 | 108 | 8.10 | 111 | 7.57 | 116 | 7.40 | 122 | 7.22 | 127 | 7.04 | 129 | 6.54 | 131 | 6.04 | 135 | 5.96 | | | | | | | | | | | | |
| | 23 | 129 | 9.23 | 133 | 8.68 | 136 | 8.48 | 141 | 8.30 | 146 | 8.10 | 149 | 7.70 | 152 | 7.27 | 156 | 7.04 | | | | | | | | | | | | |
| | 32 | 166 | 11.27 | 169 | 10.66 | 172 | 10.44 | 176 | 10.19 | 181 | 9.96 | 186 | 9.73 | 191 | 9.48 | 196 | 9.18 | | | | | | | | | | | | |
| | 42 | 166 | 11.60 | 168 | 11.14 | 172 | 10.87 | 176 | 10.56 | 181 | 10.29 | 186 | 10.06 | 191 | 9.83 | 196 | 9.63 | | | | | | | | | | | | |
| | 50 | 166 | 11.87 | 168 | 11.55 | 172 | 11.22 | 176 | 10.87 | 181 | 10.54 | 186 | 10.34 | 191 | 10.11 | 196 | 9.99 | | | | | | | | | | | | |
| | 54 | 166 | 12.00 | 168 | 11.72 | 172 | 11.39 | 176 | 11.02 | 181 | 10.66 | 186 | 10.46 | 191 | 10.26 | 196 | 10.16 | | | | | | | | | | | | |
| | 58 | 166 | 12.12 | 168 | 11.92 | 172 | 11.57 | 176 | 11.17 | 181 | 10.79 | 186 | 10.59 | 191 | 10.39 | 196 | 10.34 | | | | | | | | | | | | |
| | 62 | 166 | 12.27 | 168 | 12.12 | 172 | 11.74 | 176 | 11.32 | 181 | 10.94 | 186 | 10.74 | 191 | 10.54 | 196 | 10.54 | | | | | | | | | | | | |
| | 66 | 166 | 12.40 | 168 | 12.33 | 172 | 11.96 | 176 | 11.51 | 181 | 11.10 | 186 | 10.87 | 191 | 10.68 | 196 | 10.77 | | | | | | | | | | | | |
| | 70 | 166 | 12.53 | 168 | 12.50 | 172 | 12.07 | 176 | 11.62 | 177 | 11.42 | 187 | 11.47 | 187 | 11.47 | 191 | 11.60 | | | | | | | | | | | | |
| | 74 | 166 | 12.68 | 168 | 12.70 | 171 | 12.53 | 174 | 12.30 | 176 | 12.05 | 181 | 12.05 | 185 | 12.05 | 189 | 12.15 | | | | | | | | | | | | |
| | 78 | 161 | 12.60 | 166 | 13.12 | 167 | 12.82 | 168 | 12.47 | 172 | 12.30 | 177 | 12.43 | 182 | 12.60 | 186 | 12.68 | | | | | | | | | | | | |
| | 82 | 155 | 12.84 | 159 | 13.09 | 161 | 12.75 | 163 | 12.38 | 166 | 12.16 | 170 | | | | | | | | | | | | | | | | | |

(H,Y)VAHP168B(3,4)1S
(H,Y)VAHR168B(3,4)1S

Table with columns for Connection ratio, Outdoor air temp, Indoor air temp (59-73), and various performance metrics (MBH, kW, etc.) for units 140, 130, 120, and 110.

Table with columns for Connection ratio, Outdoor air temp, Indoor air temp (59-73), and various performance metrics (MBH, kW, etc.) for units 90, 80, 70, and 65.

TC: Total Capacity
IP: Input Power

NOTES:

- 1. The table shows the normal value of a cooling operation. In some cases, the value may change due to the compressor protection control.
2. The value on the table shows when the system is operated under the following conditions. The total piping length: 24.6ft (7.5m). The height difference: 0ft (0m)
3. In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in cooling mode.

SELECTION DATA

(H,Y)VAHP192B(3,4)1S

(H,Y)VAHR192B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °FWB | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|--|--|--|--|--|
| | | 59 | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | | | | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | | | | | | |
| % | °F/DB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | | | | | | | |
| 135 | 14 | 117 | 6.00 | 123 | 5.48 | 127 | 5.48 | 121 | 5.48 | 120 | 5.48 | 124 | 5.87 | 127 | 6.26 | 131 | 5.74 | | | | | | | | |
| | 18 | 117 | 8.82 | 147 | 7.41 | 147 | 7.33 | 147 | 7.22 | 147 | 7.15 | 156 | 7.38 | 156 | 7.62 | 160 | 7.25 | | | | | | | | |
| | 23 | 117 | 10.15 | 170 | 9.83 | 170 | 9.62 | 170 | 9.44 | 181 | 9.23 | 181 | 9.28 | 199 | 9.34 | 199 | 9.15 | | | | | | | | |
| | 32 | 124 | 14.27 | 216 | 14.19 | 233 | 13.77 | 233 | 13.38 | 242 | 12.96 | 242 | 12.70 | 256 | 12.41 | 262 | 12.57 | | | | | | | | |
| | 42 | 224 | 14.55 | 228 | 14.53 | 230 | 14.11 | 237 | 13.69 | 243 | 13.25 | 249 | 13.14 | 256 | 13.01 | 262 | 13.04 | | | | | | | | |
| | 50 | 224 | 14.76 | 228 | 14.79 | 233 | 14.37 | 237 | 13.93 | 241 | 13.51 | 246 | 13.48 | 254 | 13.48 | 261 | 13.41 | | | | | | | | |
| | 54 | 224 | 14.88 | 228 | 14.92 | 233 | 14.50 | 237 | 14.06 | 241 | 13.61 | 247 | 13.67 | 254 | 13.72 | 263 | 13.58 | | | | | | | | |
| | 58 | 224 | 15.00 | 228 | 15.05 | 232 | 14.63 | 236 | 14.19 | 241 | 13.74 | 247 | 13.85 | 253 | 13.95 | 260 | 13.77 | | | | | | | | |
| | 62 | 224 | 15.10 | 228 | 15.10 | 232 | 14.76 | 236 | 14.29 | 244 | 13.85 | 247 | 14.01 | 253 | 14.19 | 259 | 13.98 | | | | | | | | |
| | 66 | 224 | 15.20 | 228 | 15.34 | 234 | 14.89 | 238 | 14.42 | 244 | 13.98 | 244 | 14.19 | 251 | 14.63 | 257 | 14.74 | | | | | | | | |
| | 70 | 224 | 15.34 | 228 | 15.47 | 234 | 15.02 | 238 | 14.55 | 244 | 14.14 | 244 | 14.94 | 249 | 15.34 | 255 | 15.49 | | | | | | | | |
| | 74 | 224 | 15.44 | 228 | 15.60 | 233 | 15.60 | 233 | 15.49 | 239 | 15.34 | 241 | 15.73 | 241 | 16.01 | 251 | 16.25 | | | | | | | | |
| | 78 | 220 | 15.70 | 226 | 16.24 | 228 | 16.64 | 231 | 16.43 | 233 | 16.20 | 233 | 16.48 | 244 | 16.72 | 249 | 16.98 | | | | | | | | |
| | 82 | 210 | 15.90 | 216 | 16.71 | 224 | 17.46 | 228 | 17.37 | 231 | 17.06 | 231 | 17.27 | 242 | 17.40 | 246 | 17.73 | | | | | | | | |
| | 86 | 201 | 15.89 | 206 | 16.38 | 213 | 16.76 | 219 | 17.08 | 222 | 17.39 | 230 | 17.28 | 234 | 17.16 | 239 | 17.81 | | | | | | | | |
| | 90 | 192 | 15.67 | 196 | 15.81 | 201 | 15.85 | 206 | 15.85 | 211 | 15.85 | 211 | 15.73 | 220 | 15.64 | 224 | 16.06 | | | | | | | | |
| | 95 | 180 | 15.05 | 184 | 14.78 | 186 | 14.37 | 189 | 13.96 | 192 | 13.55 | 197 | 13.48 | 201 | 13.41 | 205 | 13.78 | | | | | | | | |
| | 100 | 168 | 14.79 | 171 | 14.38 | 172 | 13.88 | 173 | 13.36 | 174 | 12.84 | 177 | 12.77 | 183 | 12.70 | 186 | 12.78 | | | | | | | | |
| 106 | 155 | 14.52 | 156 | 13.92 | 159 | 13.27 | 156 | 12.63 | 151 | 11.98 | 150 | 11.91 | 161 | 11.83 | 163 | 11.61 | | | | | | | | | |
| 110 | 145 | 14.32 | 146 | 13.60 | 143 | 12.87 | 140 | 12.14 | 133 | 11.41 | 134 | 11.41 | 147 | 11.25 | 148 | 11.01 | | | | | | | | | |
| 114 | 126 | 13.16 | 129 | 11.78 | 127 | 11.47 | 126 | 11.12 | 126 | 10.81 | 127 | 10.53 | 129 | 10.25 | 130 | 9.82 | | | | | | | | | |
| 118 | 107 | 9.89 | 111 | 9.85 | 111 | 10.11 | 110 | 10.11 | 110 | 10.11 | 112 | 9.72 | 112 | 9.24 | 113 | 8.83 | | | | | | | | | |
| 130 | 14 | 115 | 5.79 | 121 | 5.28 | 120 | 5.28 | 116 | 5.28 | 116 | 5.28 | 121 | 5.66 | 126 | 6.04 | 129 | 5.53 | | | | | | | | |
| | 18 | 138 | 7.55 | 144 | 7.14 | 144 | 7.07 | 144 | 6.97 | 144 | 6.89 | 144 | 7.12 | 153 | 7.34 | 159 | 6.93 | | | | | | | | |
| | 23 | 167 | 9.78 | 170 | 9.48 | 174 | 9.28 | 176 | 9.11 | 178 | 8.90 | 180 | 8.95 | 186 | 9.00 | 194 | 8.83 | | | | | | | | |
| | 32 | 220 | 13.76 | 223 | 13.68 | 223 | 13.26 | 230 | 12.90 | 230 | 12.50 | 242 | 12.25 | 250 | 11.97 | 259 | 12.12 | | | | | | | | |
| | 42 | 220 | 14.04 | 220 | 14.01 | 220 | 13.61 | 233 | 13.21 | 237 | 12.78 | 244 | 12.68 | 251 | 12.55 | 257 | 12.58 | | | | | | | | |
| | 50 | 220 | 14.24 | 224 | 14.26 | 228 | 13.86 | 232 | 13.43 | 237 | 13.03 | 243 | 13.00 | 250 | 13.00 | 256 | 13.29 | | | | | | | | |
| | 54 | 220 | 14.36 | 224 | 14.39 | 228 | 13.99 | 233 | 13.56 | 238 | 13.13 | 243 | 13.18 | 249 | 13.23 | 255 | 13.10 | | | | | | | | |
| | 58 | 220 | 14.48 | 224 | 14.51 | 228 | 14.13 | 233 | 13.70 | 238 | 13.27 | 243 | 13.32 | 249 | 13.37 | 255 | 13.04 | | | | | | | | |
| | 62 | 220 | 14.56 | 224 | 14.66 | 228 | 14.24 | 233 | 13.78 | 238 | 13.36 | 243 | 13.41 | 249 | 13.88 | 254 | 13.48 | | | | | | | | |
| | 66 | 220 | 14.66 | 224 | 14.79 | 228 | 14.36 | 233 | 13.91 | 238 | 13.48 | 244 | 13.68 | 247 | 14.11 | 252 | 14.21 | | | | | | | | |
| | 70 | 220 | 14.76 | 224 | 14.92 | 228 | 14.49 | 233 | 14.04 | 238 | 13.62 | 244 | 13.81 | 244 | 14.79 | 249 | 14.94 | | | | | | | | |
| | 74 | 220 | 14.89 | 224 | 15.04 | 228 | 14.60 | 234 | 14.23 | 239 | 13.79 | 245 | 14.00 | 244 | 15.44 | 247 | 15.67 | | | | | | | | |
| | 78 | 218 | 15.59 | 221 | 16.15 | 224 | 16.05 | 224 | 15.85 | 224 | 15.62 | 234 | 15.90 | 240 | 16.12 | 244 | 16.37 | | | | | | | | |
| | 82 | 210 | 16.04 | 216 | 16.84 | 221 | 17.05 | 224 | 16.75 | 224 | 16.45 | 233 | 16.65 | 237 | 16.78 | 242 | 17.10 | | | | | | | | |
| | 86 | 201 | 16.07 | 206 | 16.55 | 213 | 16.91 | 217 | 17.22 | 222 | 17.28 | 229 | 17.38 | 233 | 17.29 | 239 | 17.74 | | | | | | | | |
| | 90 | 192 | 15.88 | 196 | 16.16 | 201 | 16.05 | 206 | 16.04 | 211 | 16.02 | 216 | 15.91 | 220 | 15.82 | 224 | 16.24 | | | | | | | | |
| | 95 | 180 | 15.32 | 184 | 15.04 | 186 | 14.63 | 189 | 14.21 | 193 | 13.79 | 197 | 13.72 | 203 | 13.65 | 205 | 13.03 | | | | | | | | |
| | 100 | 168 | 15.06 | 171 | 14.64 | 172 | 14.13 | 173 | 13.60 | 173 | 13.07 | 173 | 13.00 | 183 | 12.93 | 186 | 13.01 | | | | | | | | |
| 106 | 155 | 14.78 | 156 | 14.17 | 154 | 13.51 | 150 | 12.86 | 151 | 12.20 | 152 | 12.13 | 161 | 12.04 | 163 | 11.82 | | | | | | | | | |
| 110 | 145 | 14.57 | 146 | 13.85 | 143 | 13.10 | 140 | 12.36 | 136 | 11.62 | 141 | 11.55 | 147 | 11.46 | 148 | 11.00 | | | | | | | | | |
| 114 | 126 | 13.28 | 129 | 11.99 | 127 | 11.67 | 126 | 11.32 | 126 | 11.00 | 127 | 10.72 | 129 | 10.43 | 130 | 10.00 | | | | | | | | | |
| 118 | 107 | 10.17 | 111 | 10.13 | 111 | 10.22 | 112 | 10.30 | 112 | 10.39 | 112 | 9.90 | 112 | 9.41 | 112 | 8.99 | | | | | | | | | |
| 120 | 14 | 110 | 5.37 | 116 | 4.80 | 115 | 4.80 | 110 | 4.80 | 110 | 4.80 | 116 | 5.25 | 120 | 5.61 | 123 | 5.14 | | | | | | | | |
| | 18 | 133 | 7.01 | 138 | 6.63 | 138 | 6.56 | 139 | 6.47 | 139 | 6.40 | 143 | 6.61 | 147 | 6.82 | 151 | 6.49 | | | | | | | | |
| | 23 | 161 | 9.08 | 166 | 8.80 | 167 | 8.62 | 169 | 8.45 | 171 | 8.27 | 173 | 8.31 | 181 | 8.36 | 186 | 8.20 | | | | | | | | |
| | 32 | 211 | 12.77 | 215 | 12.70 | 220 | 12.33 | 224 | 11.98 | 228 | 11.61 | 236 | 11.37 | 242 | 11.12 | 246 | 11.26 | | | | | | | | |
| | 42 | 211 | 13.03 | 215 | 13.01 | 219 | 12.63 | 224 | 12.26 | 228 | 11.86 | 234 | 11.77 | 241 | 11.65 | 247 | 11.68 | | | | | | | | |
| | 50 | 211 | 13.22 | 216 | 13.24 | 221 | 12.87 | 227 | 12.47 | 232 | 12.10 | 240 | 12.07 | 246 | 12.07 | 252 | 12.00 | | | | | | | | |
| | 54 | 211 | 13.34 | 216 | 13.36 | 221 | 12.98 | 227 | 12.59 | 233 | 12.24 | 239 | 12.28 | 245 | 12.17 | | | | | | | | | | |
| | 58 | 211 | 13.43 | 216 | 13.48 | 221 | 13.10 | 227 | 12.70 | 233 | 12.31 | 240 | 12.24 | 246 | 12.13 | | | | | | | | | | |
| | 62 | 211 | 13.52 | 216 | 13.52 | 221 | 13.18 | 227 | 12.80 | 233 | 12.40 | 240 | 12.32 | 246 | 12.52 | | | | | | | | | | |
| | 66 | 211 | 13.61 | 216 | 13.73 | 221 | 13.38 | 227 | 12.98 | 233 | 12.58 | 240 | 12.50 | 246 | 12.42 | 252 | 13.20 | | | | | | | | |
| | 70 | 211 | 13.73 | 216 | 13.85 | 221 | 13.45 | 227 | 13.03 | 233 | 12.62 | 240 | 12.54 | 246 | 12.43 | 252 | 13.87 | | | | | | | | |
| | 74 | 211 | 13.83 | 216 | 13.97 | 221 | 13.57 | 227 | 13.13 | 233 | 12.73 | 240 | 12.68 | 246 | 12.57 | 252 | 14.55 | | | | | | | | |
| | 78 | 210 | 14.48 | 210 | 14.99 | 215 | 14.90 | 214 | 14.71 | 220 | 14.50 | 224 | 14.76 | 230 | 14.97 | 235 | 15.20 | | | | | | | | |
| | 82 | 207 | 15.72 | 210 | 16.02 | 212 | 15.83 | 215 | 15.55 | 217 | 15.27 | 221 | 15.46 | 226 | 15.58 | 232 | 15.88 | | | | | | | | |
| | 86 | 201 | 16.41 | 206 | 16.88 | 210 | 16.75 | 213 | 16.42 | 216 | 16.04 | 221 | 16.14 | 226 | 16.18 | 230 | 16.56 | | | | | | | | |
| | 90 | 192 | 16.31 | 196 | 16.43 | 201 | 16.43 | 206 | 16.40 | 211 | 16.36 | 216 | 16.25 | 220 | 16.16 | 224 | 16.60 | | | | | | | | |
| | 95 | 180 | 15.86 | 184 | 15.57 | 186 | 15.14 | 189 | 14.71 | 193 | 14.28 | 197 | 14.20 | 203 | 14.15 | 209 | 14.52 | | | | | | | | |
| | 100 | 168 | 15.59 | 171 | 15.16 | 172 | 14.62 | 173 | 14.08 | 173 | 13.53 | 173 | 13.45 | 183 | 13.38 | 186 | 13.47 | | | | | | | | |
| 106 | 155 | 15.30 | 156 | 14.67 | 154 | 13.98 | 150 | 13.31 | 151 | 12.63 | 150 | 12.55 | 161 | 12.46 | 163 | 12.24 | | | | | | | | | |
| 110 | 145 | 15.09 | 146 | 14.34 | 143 | 13.57 | 140 | 12.80 | 136 | 12.03 | 141 | 11.95 | 147 | 11.86 | 148 | 11.39 | | | | | | | | | |
| 114 | 126 | 13.81 | 129 | 12.41 | 127 | 12.08 | 126 | 11.72 | 126 | 11.39 | 127 | 11.10 | 129 | 10.80 | 130 | 10.35 | | | | | | | | | |
| 118 | 107 | 10.53 | 111 | 10.49 | 111 | 10.58 | 112 | 10.66 | 112 | 10.75 | 112 | 10.25 | 112 | 9.74 | 112 | 9.31 | | | | | | | | | |
| 110 | 14 | 106 | 4.98 | 111 | 4.54 | 110 | 4.54 | 106 | 4.54 | 112 | 4.87 | 116 | 5.19 | 119 | 4.78 | | | | | | | | | | |
| | 18 | 127 | 6.49 | 132 | 6.14 | 132 | 6.08 | 133 | 5.99 | 133 | 5.93 | 137 | 6.12 | 141 | 6.32 | 145 | 6.01 | | | | | | | | |
| | 23 | 154 | 8.42 | 159 | 8.16 | 160 | 7.98 | 162 | 7.83 | 166 | 7.66 | 169 | 7.70 | 173 | 7.75 | 178 | 7.59 | | | | | | | | |
| | 32 | 202 | 11.83 | 206 | 11.77 | 210 | 11.42 | 215 | 11.10 | 219 | 10.75 | 224 | 10.54 | 232 | 10.30 | 238 | 10.43 | | | | | | | | |
| | 42 | 202 | 12.07 | 206 | 12.05 | 210 | 11.70 | 214 | 11.36 | 219 | 10.99 | 224 | 10.80 | 230 | 10.80 | 237 | 10.82 | | | | | | | | |
| | 50 | 202 | 12.25 | 206 | 12.27 | 210 | 11.92 | 214 | 11.55 | 218 | 11.21 | 224 | 11.18 | 230 | 11.18 | 236 | 11.12 | | | | | | | | |
| | 54 | 202 | 12.35 | 206 | 12.37 | 210 | 12.03 | 214 | 11.66 | 219 | 11.29 | 224 | 11.34 | 229 | 11.38 | 235 | 11.27 | | | | | | | | |
| | 58 | 202 | 12.44 | 206 | 12.48 | 210 | 12.14 | 214 | 11.77 | 219 | 11.40 | 224 | 11.49 | 229 | 11.57 | 234 | 11.42 | | | | | | | | |
| | 62 | 202 | 12.53 | 206 | 12.61 | 210 | 12.25 | 214 | 11.86 | 219 | 11.49 | 224 | 11.62 | 229</ | | | | | | | | | | | |

SELECTION DATA

(H,Y)VAHP216B(3,4)1S (H,Y)VAHR216B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °FWB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|-----------------------|-----|--------|-----|--------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|--------|-----|--------|-----|--------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| | | 59 | | | 61 | | | 63 | | | 65 | | | 67 | | | 69 | | | 71 | | | 73 | | | | | | | | | | | | | |
| | | TC | IP | MBH | TC | IP | MBH | TC | IP | MBH | TC | IP | MBH | TC | IP | MBH | TC | IP | MBH | TC | IP | MBH | TC | IP | MBH | | | | | | | | | | | |
| 150 | % | °FDB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | | | | | | | | | |
| 14 | 127 | 143.23 | 152 | 111.56 | 161 | 111.30 | 171 | 10.99 | 180 | 10.73 | 182 | 9.73 | 183 | 8.73 | 189 | 8.52 | 18 | 14 | 127 | 143.23 | 152 | 111.56 | 161 | 111.30 | 171 | 10.99 | 180 | 10.73 | 182 | 9.73 | 183 | 8.73 | 189 | 8.52 | | |
| 18 | 174 | 133.99 | 176 | 133.08 | 187 | 12.77 | 196 | 12.47 | 206 | 12.17 | 200 | 11.30 | 211 | 10.43 | 217 | 10.12 | 23 | 23 | 169 | 11.01 | 173 | 10.35 | 179 | 10.11 | 186 | 9.90 | 192 | 9.66 | 196 | 9.18 | 200 | 8.67 | 206 | 8.40 | | |
| 23 | 207 | 159.25 | 211 | 144.99 | 220 | 14.64 | 229 | 14.34 | 236 | 13.99 | 241 | 13.30 | 245 | 12.56 | 252 | 12.17 | 32 | 32 | 267 | 19.47 | 271 | 18.42 | 276 | 18.03 | 284 | 17.60 | 291 | 17.21 | 299 | 16.82 | 306 | 16.38 | 315 | 15.86 | | |
| 42 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 42 | 42 | 218 | 13.83 | 221 | 13.29 | 227 | 12.96 | 232 | 12.60 | 238 | 12.27 | 244 | 12.00 | 251 | 11.73 | 257 | 11.49 | | |
| 50 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 50 | 50 | 218 | 13.83 | 221 | 13.29 | 227 | 12.96 | 232 | 12.60 | 238 | 12.27 | 244 | 12.00 | 251 | 11.73 | 257 | 11.49 | | |
| 54 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 54 | 54 | 218 | 13.83 | 221 | 13.29 | 227 | 12.96 | 232 | 12.60 | 238 | 12.27 | 244 | 12.00 | 251 | 11.73 | 257 | 11.49 | | |
| 58 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 58 | 58 | 218 | 13.83 | 221 | 13.29 | 227 | 12.96 | 232 | 12.60 | 238 | 12.27 | 244 | 12.00 | 251 | 11.73 | 257 | 11.49 | | |
| 62 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 62 | 62 | 218 | 13.83 | 221 | 13.29 | 227 | 12.96 | 232 | 12.60 | 238 | 12.27 | 244 | 12.00 | 251 | 11.73 | 257 | 11.49 | | |
| 66 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 66 | 66 | 218 | 13.83 | 221 | 13.29 | 227 | 12.96 | 232 | 12.60 | 238 | 12.27 | 244 | 12.00 | 251 | 11.73 | 257 | 11.49 | | |
| 70 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 70 | 70 | 218 | 13.83 | 221 | 13.29 | 227 | 12.96 | 232 | 12.60 | 238 | 12.27 | 244 | 12.00 | 251 | 11.73 | 257 | 11.49 | | |
| 74 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 74 | 74 | 218 | 13.83 | 221 | 13.29 | 227 | 12.96 | 232 | 12.60 | 238 | 12.27 | 244 | 12.00 | 251 | 11.73 | 257 | 11.49 | | |
| 78 | 242 | 184.24 | 246 | 194.04 | 250 | 18.60 | 254 | 18.07 | 257 | 17.85 | 260 | 18.06 | 274 | 18.37 | 284 | 18.27 | 82 | 82 | 213 | 17.78 | 216 | 17.04 | 220 | 16.68 | 223 | 16.26 | 226 | 15.84 | 232 | 15.50 | 237 | 15.12 | 242 | 14.75 | 247 | 14.38 |
| 86 | 223 | 184.49 | 228 | 184.45 | 232 | 17.95 | 236 | 17.41 | 240 | 17.05 | 245 | 17.08 | 251 | 17.21 | 260 | 17.64 | 90 | 90 | 210 | 16.24 | 214 | 15.97 | 217 | 15.52 | 220 | 15.07 | 223 | 14.63 | 228 | 14.25 | 234 | 13.81 | 239 | 13.38 | | |
| 90 | 214 | 182.28 | 219 | 171.91 | 227 | 17.37 | 232 | 16.85 | 236 | 16.39 | 241 | 16.37 | 240 | 16.39 | 247 | 16.58 | 90 | 90 | 210 | 16.24 | 214 | 15.97 | 217 | 15.52 | 220 | 15.07 | 223 | 14.63 | 228 | 14.25 | 234 | 13.81 | 239 | 13.38 | | |
| 95 | 203 | 176.69 | 206 | 169.31 | 211 | 16.40 | 215 | 15.90 | 216 | 15.37 | 221 | 15.24 | 226 | 15.11 | 232 | 15.01 | 100 | 100 | 192 | 15.77 | 197 | 15.66 | 199 | 15.24 | 201 | 14.83 | 203 | 14.46 | 211 | 14.28 | 217 | 13.82 | 222 | 13.42 | | |
| 100 | 192 | 157.37 | 197 | 146.89 | 199 | 15.24 | 201 | 14.83 | 203 | 14.46 | 211 | 14.28 | 217 | 13.82 | 222 | 13.42 | 106 | 106 | 178 | 15.10 | 183 | 14.85 | 185 | 14.43 | 187 | 14.01 | 190 | 13.60 | 193 | 13.20 | 196 | 12.80 | 200 | 12.40 | | |
| 110 | 169 | 136.76 | 174 | 126.68 | 176 | 15.97 | 177 | 15.24 | 180 | 14.83 | 181 | 14.00 | 185 | 13.47 | 186 | 12.84 | 114 | 114 | 152 | 15.92 | 159 | 15.61 | 160 | 15.42 | 162 | 15.00 | 165 | 14.58 | 167 | 14.16 | 171 | 13.74 | 174 | 13.32 | | |
| 118 | 136 | 114.45 | 143 | 114.45 | 144 | 14.14 | 147 | 13.45 | 148 | 12.91 | 150 | 12.34 | 150 | 11.83 | 14 | 14 | 137 | 10.79 | 141 | 10.34 | 150 | 9.81 | 159 | 9.35 | 168 | 8.85 | 170 | 7.58 | 176 | 7.40 | 180 | 7.40 | 184 | 7.40 | | |
| 14 | 142 | 111.56 | 147 | 101.78 | 156 | 10.54 | 165 | 10.26 | 174 | 10.01 | 179 | 9.08 | 177 | 8.15 | 182 | 7.95 | 23 | 23 | 193 | 13.85 | 197 | 13.02 | 204 | 12.71 | 212 | 12.45 | 220 | 12.15 | 228 | 11.85 | 236 | 11.56 | 244 | 11.27 | | |
| 18 | 168 | 130.05 | 172 | 122.01 | 181 | 11.92 | 189 | 11.63 | 198 | 11.35 | 201 | 10.54 | 200 | 9.73 | 210 | 9.45 | 32 | 32 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 23 | 207 | 159.25 | 211 | 144.99 | 220 | 14.64 | 229 | 14.34 | 236 | 13.99 | 241 | 13.30 | 245 | 12.56 | 252 | 12.17 | 42 | 42 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 32 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 50 | 50 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 42 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 54 | 54 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 50 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 58 | 58 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 54 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 62 | 62 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 58 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 66 | 66 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 62 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 70 | 70 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 66 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 74 | 74 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 70 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 78 | 78 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 74 | 267 | 220.03 | 271 | 192.25 | 276 | 18.77 | 284 | 18.25 | 291 | 17.77 | 299 | 17.38 | 308 | 16.99 | 316 | 16.64 | 82 | 82 | 249 | 16.90 | 252 | 16.00 | 259 | 15.66 | 265 | 15.28 | 271 | 14.94 | 277 | 14.60 | 286 | 14.22 | 293 | 13.77 | | |
| 78 | 242 | 184.24 | 246 | 194.04 | 250 | 18.60 | 254 | 18.07 | 257 | 17.85 | 260 | 18.06 | 274 | 18.37 | 284 | 18.27 | 86 | 86 | 223 | 18.49 | 228 | 18.45 | 232 | 17.95 | 236 | 17.41 | 240 | 17.05 | 245 | 17.08 | 251 | 17.21 | 260 | 17.64 | | |
| 86 | 223 | 184.49 | 228 | 184.45 | 232 | 17.95 | 236 | 17.41 | 240 | 17.05 | 245 | 17.08 | 251 | 17.21 | 260 | 17.64 | 90 | 90 | 214 | 18.54 | 219 | 18.45 | 225 | 17.95 | 230 | 17.46 | 235 | 16.97 | 240 | 16.48 | 245 | 16.00 | 250 | 15.51 | 255 | 15.03 |
| 90 | 214 | 182.28 | 219 | 171.91 | 227 | 17.37 | 232 | 16.85 | 236 | 16.39 | 241 | 16.37 | 240 | 16.39 | 247 | 16.58 | 95 | 95 | 203 | 18.36 | 208 | 18.27 | 211 | 18.02 | 215 | 17.77 | 219 | 17.52 | 223 | 17.27 | 227 | 17.02 | 231 | 16.77 | 235 | 16.52 |
| 95 | 203 | 176.69 | 206 | 169.31 | 211 | 16.40 | 215 | 15.90 | 216 | 15.37 | 221 | 15.24 | 226 | 15.11 | 232 | 15.01 | 100 | 100 | 192 | 18.03 | 197 | 17.57 | 199 | 17.15 | 201 | 16.73 | 203 | 16.31 | 211 | 16.14 | 217 | 15.95 | 222 | 15.76 | 227 | 15.57 |
| 100 | 192 | 157.37 | 197 | 146.89 | 199 | 15.24 | 201 | 14.83 | 203 | 14.46 | 211 | 14.28 | 217 | 13.82 | 222 | 13.42 | 106 | 106 | 178 | 18.16 | 183 | 17.70 | 185 | 17.28 | 187 | 16.86 | 190 | 16.44 | 193 | 16.02 | 196 | 15.60 | 200 | 15.19 | 204 | 14.78 |
| 110 | 169 | 136.76 | 174 | 126.68 | 176 | 15.97 | 177 | 15.24 | 180 | 14.83 | 181 | 14.00 | 185 | 13.47 | 186 | 12.84 | 114 | 114 | 152 | 18.03 | 159 | 17.57 | 160 | 17.15 | 162 | 16.73 | 165 | 16.31 | 167 | 15.90 | 171 | 15.49 | 174 | 15.08 | | |
| 118 | 136 | 114.45 | 143 | 114.45 | 144 | 14.14 | 147 | 13.45 | 148 | 12.91 | 150 | 12.34 | 150 | 11.83 | 14 | 14 | 137 | 17.08 | 143 | 17.59 | 148 | 18.24 | 153 | 18.89 | 158 | 19.54 | 163 | 20.19 | 168 | 20.84 | 173 | 21.49 | 178 | 22.14 | | |
| 14 | 127 | 143.23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(H,Y)VAHP264B(3,4)1S

(H,Y)VAHR264B(3,4)1S

Table with columns for Connection ratio, Outdoor air temp, Indoor air temp, and various performance metrics (MBH, kW) for different indoor air temperatures (59-73) and connection ratios (14-118).

Table with columns for Connection ratio, Outdoor air temp, Indoor air temp, and various performance metrics (MBH, kW) for different indoor air temperatures (59-73) and connection ratios (14-118).

TC: Total Capacity
IP: Input Power

NOTES:

- 1. The table shows the normal value of a cooling operation.
In some cases, the value may change due to the compressor protection control.
2. The value on the table shows when the system is operated under the following conditions.
The total piping length: 24.6ft (7.5m). The height difference: 0ft (0m)
3. In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in cooling mode.

SELECTION DATA

(H,Y)VAHP288B(3,4)1S
(H,Y)VAHR288B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °FWB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | 59 | | | 61 | | | 63 | | | 65 | | | 67 | | | 69 | | | 71 | | | 73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | TC | IP | °C | TC | IP | °C | TC | IP | °C | TC | IP | °C | TC | IP | °C | TC | IP | °C | TC | IP | °C | TC | IP | °C | TC | IP | °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| % | °F/DB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 140 | 14 | 169 | 110.26 | 176 | 9.35 | 179 | 9.34 | 182 | 9.32 | 185 | 9.31 | 188 | 9.31 | 191 | 9.30 | 194 | 9.29 | 198 | 9.28 | 201 | 9.27 | 204 | 9.26 | 207 | 9.25 | 210 | 9.24 | 213 | 9.23 | 216 | 9.22 | 219 | 9.21 | 222 | 9.20 | 225 | 9.19 | 228 | 9.18 | 231 | 9.17 | 234 | 9.16 | 237 | 9.15 | 240 | 9.14 | 243 | 9.13 | 246 | 9.12 | 249 | 9.11 | 252 | 9.10 | 255 | 9.09 | 258 | 9.08 | 261 | 9.07 | 264 | 9.06 | 267 | 9.05 | 270 | 9.04 | 273 | 9.03 | 276 | 9.02 | 279 | 9.01 | 282 | 9.00 | 285 | 8.99 | 288 | 8.98 | 291 | 8.97 | 294 | 8.96 | 297 | 8.95 | 300 | 8.94 | 303 | 8.93 | 306 | 8.92 | 309 | 8.91 | 312 | 8.90 | 315 | 8.89 | 318 | 8.88 | 321 | 8.87 | 324 | 8.86 | 327 | 8.85 | 330 | 8.84 | 333 | 8.83 | 336 | 8.82 | 339 | 8.81 | 342 | 8.80 | 345 | 8.79 | 348 | 8.78 | 351 | 8.77 | 354 | 8.76 | 357 | 8.75 | 360 | 8.74 | 363 | 8.73 | 366 | 8.72 | 369 | 8.71 | 372 | 8.70 | 375 | 8.69 | 378 | 8.68 | 381 | 8.67 | 384 | 8.66 | 387 | 8.65 | 390 | 8.64 | 393 | 8.63 | 396 | 8.62 | 399 | 8.61 | 402 | 8.60 | 405 | 8.59 | 408 | 8.58 | 411 | 8.57 | 414 | 8.56 | 417 | 8.55 | 420 | 8.54 | 423 | 8.53 | 426 | 8.52 | 429 | 8.51 | 432 | 8.50 | 435 | 8.49 | 438 | 8.48 | 441 | 8.47 | 444 | 8.46 | 447 | 8.45 | 450 | 8.44 | 453 | 8.43 | 456 | 8.42 | 459 | 8.41 | 462 | 8.40 | 465 | 8.39 | 468 | 8.38 | 471 | 8.37 | 474 | 8.36 | 477 | 8.35 | 480 | 8.34 | 483 | 8.33 | 486 | 8.32 | 489 | 8.31 | 492 | 8.30 | 495 | 8.29 | 498 | 8.28 | 501 | 8.27 | 504 | 8.26 | 507 | 8.25 | 510 | 8.24 | 513 | 8.23 | 516 | 8.22 | 519 | 8.21 | 522 | 8.20 | 525 | 8.19 | 528 | 8.18 | 531 | 8.17 | 534 | 8.16 | 537 | 8.15 | 540 | 8.14 | 543 | 8.13 | 546 | 8.12 | 549 | 8.11 | 552 | 8.10 | 555 | 8.09 | 558 | 8.08 | 561 | 8.07 | 564 | 8.06 | 567 | 8.05 | 570 | 8.04 | 573 | 8.03 | 576 | 8.02 | 579 | 8.01 | 582 | 8.00 | 585 | 7.99 | 588 | 7.98 | 591 | 7.97 | 594 | 7.96 | 597 | 7.95 | 600 | 7.94 | 603 | 7.93 | 606 | 7.92 | 609 | 7.91 | 612 | 7.90 | 615 | 7.89 | 618 | 7.88 | 621 | 7.87 | 624 | 7.86 | 627 | 7.85 | 630 | 7.84 | 633 | 7.83 | 636 | 7.82 | 639 | 7.81 | 642 | 7.80 | 645 | 7.79 | 648 | 7.78 | 651 | 7.77 | 654 | 7.76 | 657 | 7.75 | 660 | 7.74 | 663 | 7.73 | 666 | 7.72 | 669 | 7.71 | 672 | 7.70 | 675 | 7.69 | 678 | 7.68 | 681 | 7.67 | 684 | 7.66 | 687 | 7.65 | 690 | 7.64 | 693 | 7.63 | 696 | 7.62 | 699 | 7.61 | 702 | 7.60 | 705 | 7.59 | 708 | 7.58 | 711 | 7.57 | 714 | 7.56 | 717 | 7.55 | 720 | 7.54 | 723 | 7.53 | 726 | 7.52 | 729 | 7.51 | 732 | 7.50 | 735 | 7.49 | 738 | 7.48 | 741 | 7.47 | 744 | 7.46 | 747 | 7.45 | 750 | 7.44 | 753 | 7.43 | 756 | 7.42 | 759 | 7.41 | 762 | 7.40 | 765 | 7.39 | 768 | 7.38 | 771 | 7.37 | 774 | 7.36 | 777 | 7.35 | 780 | 7.34 | 783 | 7.33 | 786 | 7.32 | 789 | 7.31 | 792 | 7.30 | 795 | 7.29 | 798 | 7.28 | 801 | 7.27 | 804 | 7.26 | 807 | 7.25 | 810 | 7.24 | 813 | 7.23 | 816 | 7.22 | 819 | 7.21 | 822 | 7.20 | 825 | 7.19 | 828 | 7.18 | 831 | 7.17 | 834 | 7.16 | 837 | 7.15 | 840 | 7.14 | 843 | 7.13 | 846 | 7.12 | 849 | 7.11 | 852 | 7.10 | 855 | 7.09 | 858 | 7.08 | 861 | 7.07 | 864 | 7.06 | 867 | 7.05 | 870 | 7.04 | 873 | 7.03 | 876 | 7.02 | 879 | 7.01 | 882 | 7.00 | 885 | 6.99 | 888 | 6.98 | 891 | 6.97 | 894 | 6.96 | 897 | 6.95 | 900 | 6.94 | 903 | 6.93 | 906 | 6.92 | 909 | 6.91 | 912 | 6.90 | 915 | 6.89 | 918 | 6.88 | 921 | 6.87 | 924 | 6.86 | 927 | 6.85 | 930 | 6.84 | 933 | 6.83 | 936 | 6.82 | 939 | 6.81 | 942 | 6.80 | 945 | 6.79 | 948 | 6.78 | 951 | 6.77 | 954 | 6.76 | 957 | 6.75 | 960 | 6.74 | 963 | 6.73 | 966 | 6.72 | 969 | 6.71 | 972 | 6.70 | 975 | 6.69 | 978 | 6.68 | 981 | 6.67 | 984 | 6.66 | 987 | 6.65 | 990 | 6.64 | 993 | 6.63 | 996 | 6.62 | 999 | 6.61 | 1002 | 6.60 | 1005 | 6.59 | 1008 | 6.58 | 1011 | 6.57 | 1014 | 6.56 | 1017 | 6.55 | 1020 | 6.54 | 1023 | 6.53 | 1026 | 6.52 | 1029 | 6.51 | 1032 | 6.50 | 1035 | 6.49 | 1038 | 6.48 | 1041 | 6.47 | 1044 | 6.46 | 1047 | 6.45 | 1050 | 6.44 | 1053 | 6.43 | 1056 | 6.42 | 1059 | 6.41 | 1062 | 6.40 | 1065 | 6.39 | 1068 | 6.38 | 1071 | 6.37 | 1074 | 6.36 | 1077 | 6.35 | 1080 | 6.34 | 1083 | 6.33 | 1086 | 6.32 | 1089 | 6.31 | 1092 | 6.30 | 1095 | 6.29 | 1098 | 6.28 | 1101 | 6.27 | 1104 | 6.26 | 1107 | 6.25 | 1110 | 6.24 | 1113 | 6.23 | 1116 | 6.22 | 1119 | 6.21 | 1122 | 6.20 | 1125 | 6.19 | 1128 | 6.18 | 1131 | 6.17 | 1134 | 6.16 | 1137 | 6.15 | 1140 | 6.14 | 1143 | 6.13 | 1146 | 6.12 | 1149 | 6.11 | 1152 | 6.10 | 1155 | 6.09 | 1158 | 6.08 | 1161 | 6.07 | 1164 | 6.06 | 1167 | 6.05 | 1170 | 6.04 | 1173 | 6.03 | 1176 | 6.02 | 1179 | 6.01 | 1182 | 6.00 | 1185 | 5.99 | 1188 | 5.98 | 1191 | 5.97 | 1194 | 5.96 | 1197 | 5.95 | 1200 | 5.94 | 1203 | 5.93 | 1206 | 5.92 | 1209 | 5.91 | 1212 | 5.90 | 1215 | 5.89 | 1218 | 5.88 | 1221 | 5.87 | 1224 | 5.86 | 1227 | 5.85 | 1230 | 5.84 | 1233 | 5.83 | 1236 | 5.82 | 1239 | 5.81 | 1242 | 5.80 | 1245 | 5.79 | 1248 | 5.78 | 1251 | 5.77 | 1254 | 5.76 | 1257 | 5.75 | 1260 | 5.74 | 1263 | 5.73 | 1266 | 5.72 | 1269 | 5.71 | 1272 | 5.70 | 1275 | 5.69 | 1278 | 5.68 | 1281 | 5.67 | 1284 | 5.66 | 1287 | 5.65 | 1290 | 5.64 | 1293 | 5.63 | 1296 | 5.62 | 1299 | 5.61 | 1302 | 5.60 | 1305 | 5.59 | 1308 | 5.58 | 1311 | 5.57 | 1314 | 5.56 | 1317 | 5.55 | 1320 | 5.54 | 1323 | 5.53 | 1326 | 5.52 | 1329 | 5.51 | 1332 | 5.50 | 1335 | 5.49 | 1338 | 5.48 | 1341 | 5.47 | 1344 | 5.46 | 1347 | 5.45 | 1350 | 5.44 | 1353 | 5.43 | 1356 | 5.42 | 1359 | 5.41 | 1362 | 5.40 | 1365 | 5.39 | 1368 | 5.38 | 1371 | 5.37 | 1374 | 5.36 | 1377 | 5.35 | 1380 | 5.34 | 1383 | 5.33 | 1386 | 5.32 | 1389 | 5.31 | 1392 | 5.30 | 1395 | 5.29 | 1398 | 5.28 | 1401 | 5.27 | 1404 | 5.26 | 1407 | 5.25 | 1410 | 5.24 | 1413 | 5.23 | 1416 | 5.22 | 1419 | 5.21 | 1422 | 5.20 | 1425 | 5.19 | 1428 | 5.18 | 1431 | 5.17 | 1434 | 5.16 | 1437 | 5.15 | 1440 | 5.14 | 1443 | 5.13 | 1446 | 5.12 | 1449 | 5.11 | 1452 | 5.10 | 1455 | 5.09 | 1458 | 5.08 | 1461 | 5.07 | 1464 | 5.06 | 1467 | 5.05 | 1470 | 5.04 | 1473 | 5.03 | 1476 | 5.02 | 1479 | 5.01 | 1482 | 5.00 | 1485 | 4.99 | 1488 | 4.98 | 1491 | 4.97 | 1494 | 4.96 | 1497 | 4.95 | 1500 | 4.94 | 1503 | 4.93 | 1506 | 4.92 | 1509 | 4.91 | 1512 | 4.90 | 1515 | 4.89 | 1518 | 4.88 | 1521 | 4.87 | 1524 | 4.86 | 1527 | 4.85 | 1530 | 4.84 | 1533 | 4.83 | 1536 | 4.82 | 1539 | 4.81 | 1542 | 4.80 | 1545 | 4.79 | 1548 | 4.78 | 1551 | 4.77 | 1554 | 4.76 | 1557 | 4.75 | 1560 | 4.74 | 1563 | 4.73 | 1566 | 4.72 | 1569 | 4.71 | 1572 | 4.70 | 1575 | 4.69 | 1578 | 4.68 | 1581 | 4.67 | 1584 | 4.66 | 1587 | 4.65 | 1590 | 4.64 | 1593 | 4.63 | 1596 | 4.62 | 1599 | 4.61 | 1602 | 4.60 | 1605 | 4.59 | 1608 | 4.58 | 1611 | 4.57 | 1614 | 4.56 | 1617 | 4.55 | 1620 | 4.54 | 1623 | 4.53 | 1626 | 4.52 | 1629 | 4.51 | 1632 | 4.50 | 1635 | 4.49 | 1638 | 4.48 | 1641 | 4.47 | 1644 | 4.46 | 1647 | 4.45 | 1650 | 4.44 | 1653 | 4.43 | 1656 | 4.42 | 1659 | 4.41 | 1662 | 4.40 | 1665 | 4.39 | 1668 | 4.38 | 1671 | 4.37 | 1674 | 4.36 | 1677 | 4.35 | 1680 | 4.34 | 1683 | 4.33 | 1686 | 4.32 | 1689 | 4.31 | 1692 | 4.30 | 1695 | 4.29 | 1698 | 4.28 | 1701 | 4.27 | 1704 | 4.26 | 1707 | 4.25 | 1710 | 4.24 | 1713 | 4.23 | 1716 | 4.22 | 1719 | 4.21 | 1722 | 4.20 | 1725 | 4.19 | 1728 | 4.18 | 1731 | 4.17 | 1734 | 4.16 | 1737 | 4.15 | 1740 | 4.14 | 1743 | 4.13 | 1746 | 4.12 | 1749 | 4.11 | 1752 | 4.10 | 1755 | 4.09 | 1758 | 4.08 | 1761 | 4.07 | 1764 | 4.06 | 1767 | 4.05 | 1770 | 4.04 | 1773 | 4.03 | 1776 | 4.02 | 1779 | 4.01 | 1782 | 4.00 | 1785 | 3.99 | 1788 | 3.98 | 1791 | 3.97 | 1794 | 3.96 | 1797 | 3.95 | 1800 | 3.94 | 1803 | 3.93 | 1806 | 3.92 | 1809 | 3.91 | 1812 | 3.90 | 1815 | 3.89 | 1818 | 3.88 | 1821 | 3.87 | 1824 | 3.86 | 1827 | 3.85 | 1830 | 3.84 | 1833 | 3.83 | 1836 | 3.82 | 1839 | 3.81 | 1842 | 3.80 | 1845 | 3.79 | 1848 | 3.78 | 1851 | 3.77 | 1854 | 3.76 | 1857 | 3.75 | 1860 | 3.74 | 1863 | 3.73 | 1866 | 3.72 | 1869 | 3.71 | 1872 | 3.70 | 1875 | 3.69 | 1878 | 3.68 | 1881 | 3.67 | 1884 | 3.66 | 1887 | 3.65 | 1890 | 3.64 | 1893 | 3.63 | 1896 | 3.62 | 1899 | 3.61 | 1902 | 3.60 | 1905 | 3.59 | 1908 | 3.58 | 1911 | 3.57 | 1914 | 3.56 | 1917 | 3.55 | 1920 | 3.54 | 1923 | 3.53 | 1926 | 3.52 | 1929 | 3.51 | 1932 | 3.50 | 1935 | 3.49 | 1938 | 3.48 | 1941 | 3.47 | 1944 | 3.46 | 1947 | 3.45 | 1950 | 3.44 | 1953 | 3.43 | 1956 | 3.42 | 1959 | 3.41 | 1962 | 3.40 | 1965 | 3.39 | 1968 | 3.38 | 1971 | 3.37 | 1974 | 3.36 | 1977 | 3.35 | 1980 | 3.34 | 1983 | 3.33 | 1986 | 3.32 | 1989 | 3.31 | 1992 | 3.30 | 1995 | 3.29 | 1998 | 3.28 | 2001 | 3.27 | 2004 | 3.26 | 2007 | 3.25 | 2010 | 3.24 | 2013 | 3.23 | 2016 | 3.22 | 2019 | 3.21 | 2022 | 3.20 | 2025 | 3.19 | 2028 | 3.18 | 2031 | 3.17 | 2034 | 3.16 | 2037 | 3.15 | 2040 | 3.14 | 2043 | 3.13 | 2046 | 3.12 | 2049 | 3.11 | 2052 | 3.10 | 2055 | 3.09 |

SELECTION DATA

(H,Y)VAHP312B(3,4)1S
(H,Y)VAHR312B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °F/WB | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| | | 59 | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| % | °F/DB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW |
| 130 | 14 | 165 | 19.71 | 171 | 8.78 | 175 | 8.83 | 178 | 8.89 | 183 | 8.94 | 185 | 8.90 | 187 | 8.87 | 194 | 8.35 |
| | 18 | 206 | 13.05 | 215 | 12.29 | 216 | 12.20 | 224 | 12.11 | 229 | 12.02 | 234 | 11.92 | 236 | 11.82 | 241 | 11.36 |
| | 23 | 262 | 17.27 | 269 | 16.71 | 270 | 16.64 | 284 | 16.17 | 287 | 15.90 | 294 | 15.72 | 300 | 15.51 | 311 | 15.42 |
| | 32 | 358 | 12.80 | 367 | 12.62 | 375 | 12.43 | 380 | 12.43 | 391 | 12.24 | 404 | 12.20 | 416 | 12.12 | 429 | 12.30 |
| | 42 | 358 | 12.80 | 367 | 12.62 | 375 | 12.43 | 380 | 12.43 | 391 | 12.24 | 404 | 12.20 | 416 | 12.12 | 429 | 12.30 |
| | 50 | 358 | 12.80 | 367 | 12.62 | 375 | 12.43 | 380 | 12.43 | 391 | 12.24 | 404 | 12.20 | 416 | 12.12 | 429 | 12.30 |
| | 54 | 358 | 12.80 | 367 | 12.62 | 375 | 12.43 | 380 | 12.43 | 391 | 12.24 | 404 | 12.20 | 416 | 12.12 | 429 | 12.30 |
| | 58 | 358 | 12.80 | 367 | 12.62 | 375 | 12.43 | 380 | 12.43 | 391 | 12.24 | 404 | 12.20 | 416 | 12.12 | 429 | 12.30 |
| | 62 | 358 | 12.80 | 367 | 12.62 | 375 | 12.43 | 380 | 12.43 | 391 | 12.24 | 404 | 12.20 | 416 | 12.12 | 429 | 12.30 |
| | 66 | 358 | 12.80 | 367 | 12.62 | 375 | 12.43 | 380 | 12.43 | 391 | 12.24 | 404 | 12.20 | 416 | 12.12 | 429 | 12.30 |
| | 74 | 358 | 12.80 | 367 | 12.62 | 375 | 12.43 | 380 | 12.43 | 391 | 12.24 | 404 | 12.20 | 416 | 12.12 | 429 | 12.30 |
| 120 | 14 | 159 | 9.01 | 164 | 8.15 | 168 | 8.20 | 172 | 8.26 | 176 | 8.30 | 178 | 8.27 | 180 | 8.23 | 187 | 7.75 |
| | 18 | 200 | 12.12 | 206 | 11.41 | 211 | 11.33 | 216 | 11.25 | 220 | 11.16 | 224 | 11.07 | 229 | 10.98 | 237 | 10.64 |
| | 23 | 252 | 16.03 | 259 | 15.52 | 264 | 15.27 | 270 | 15.02 | 276 | 14.76 | 280 | 14.60 | 290 | 14.40 | 299 | 14.34 |
| | 32 | 344 | 12.03 | 352 | 11.86 | 360 | 12.22 | 366 | 12.15 | 376 | 12.21 | 389 | 12.09 | 400 | 12.04 | 412 | 12.07 |
| | 42 | 344 | 12.03 | 352 | 11.86 | 360 | 12.22 | 366 | 12.15 | 376 | 12.21 | 389 | 12.09 | 400 | 12.04 | 412 | 12.07 |
| | 50 | 344 | 12.03 | 352 | 11.86 | 360 | 12.22 | 366 | 12.15 | 376 | 12.21 | 389 | 12.09 | 400 | 12.04 | 412 | 12.07 |
| | 54 | 344 | 12.03 | 352 | 11.86 | 360 | 12.22 | 366 | 12.15 | 376 | 12.21 | 389 | 12.09 | 400 | 12.04 | 412 | 12.07 |
| | 58 | 344 | 12.03 | 352 | 11.86 | 360 | 12.22 | 366 | 12.15 | 376 | 12.21 | 389 | 12.09 | 400 | 12.04 | 412 | 12.07 |
| | 62 | 344 | 12.03 | 352 | 11.86 | 360 | 12.22 | 366 | 12.15 | 376 | 12.21 | 389 | 12.09 | 400 | 12.04 | 412 | 12.07 |
| | 66 | 344 | 12.03 | 352 | 11.86 | 360 | 12.22 | 366 | 12.15 | 376 | 12.21 | 389 | 12.09 | 400 | 12.04 | 412 | 12.07 |
| | 74 | 344 | 12.03 | 352 | 11.86 | 360 | 12.22 | 366 | 12.15 | 376 | 12.21 | 389 | 12.09 | 400 | 12.04 | 412 | 12.07 |
| 110 | 14 | 152 | 8.35 | 157 | 7.55 | 161 | 7.59 | 165 | 7.63 | 169 | 7.68 | 172 | 7.63 | 175 | 7.58 | 179 | 7.18 |
| | 18 | 191 | 11.23 | 197 | 11.07 | 202 | 11.49 | 206 | 11.42 | 211 | 11.34 | 216 | 11.25 | 219 | 11.17 | 227 | 9.85 |
| | 23 | 241 | 14.85 | 247 | 13.86 | 253 | 14.14 | 259 | 13.91 | 264 | 13.67 | 271 | 13.52 | 278 | 13.34 | 287 | 13.18 |
| | 32 | 330 | 12.13 | 337 | 12.18 | 345 | 12.67 | 352 | 12.15 | 360 | 19.64 | 370 | 19.35 | 383 | 19.03 | 394 | 19.16 |
| | 42 | 330 | 12.13 | 337 | 12.18 | 345 | 12.67 | 352 | 12.15 | 360 | 19.64 | 370 | 19.35 | 383 | 19.03 | 394 | 19.16 |
| | 50 | 330 | 12.13 | 337 | 12.18 | 345 | 12.67 | 352 | 12.15 | 360 | 19.64 | 370 | 19.35 | 383 | 19.03 | 394 | 19.16 |
| | 54 | 330 | 12.13 | 337 | 12.18 | 345 | 12.67 | 352 | 12.15 | 360 | 19.64 | 370 | 19.35 | 383 | 19.03 | 394 | 19.16 |
| | 58 | 330 | 12.13 | 337 | 12.18 | 345 | 12.67 | 352 | 12.15 | 360 | 19.64 | 370 | 19.35 | 383 | 19.03 | 394 | 19.16 |
| | 62 | 330 | 12.13 | 337 | 12.18 | 345 | 12.67 | 352 | 12.15 | 360 | 19.64 | 370 | 19.35 | 383 | 19.03 | 394 | 19.16 |
| | 66 | 330 | 12.13 | 337 | 12.18 | 345 | 12.67 | 352 | 12.15 | 360 | 19.64 | 370 | 19.35 | 383 | 19.03 | 394 | 19.16 |
| | 74 | 330 | 12.13 | 337 | 12.18 | 345 | 12.67 | 352 | 12.15 | 360 | 19.64 | 370 | 19.35 | 383 | 19.03 | 394 | 19.16 |

| Connection ratio | Outdoor air temp | Indoor air temp. °F/WB | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| | | 59 | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| % | °F/DB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW |
| 80 | 14 | 145 | 8.23 | 150 | 7.44 | 154 | 7.48 | 157 | 7.54 | 161 | 7.58 | 162 | 7.54 | 164 | 7.51 | 170 | 7.08 |
| | 18 | 169 | 8.86 | 174 | 9.29 | 178 | 9.22 | 182 | 9.16 | 186 | 9.09 | 189 | 8.99 | 192 | 8.90 | 199 | 8.63 |
| | 23 | 198 | 11.77 | 204 | 11.41 | 208 | 11.22 | 213 | 11.04 | 218 | 10.85 | 223 | 10.71 | 228 | 10.54 | 236 | 10.42 |
| | 32 | 251 | 15.01 | 257 | 14.91 | 263 | 14.55 | 269 | 14.18 | 275 | 13.83 | 283 | 13.62 | 292 | 13.39 | 301 | 13.50 |
| | 42 | 251 | 15.01 | 257 | 14.91 | 263 | 14.55 | 269 | 14.18 | 275 | 13.83 | 283 | 13.62 | 292 | 13.39 | 301 | 13.50 |
| | 50 | 251 | 15.01 | 257 | 14.91 | 263 | 14.55 | 269 | 14.18 | 275 | 13.83 | 283 | 13.62 | 292 | 13.39 | 301 | 13.50 |
| | 54 | 251 | 15.01 | 257 | 14.91 | 263 | 14.55 | 269 | 14.18 | 275 | 13.83 | 283 | 13.62 | 292 | 13.39 | 301 | 13.50 |
| | 58 | 251 | 15.01 | 257 | 14.91 | 263 | 14.55 | 269 | 14.18 | 275 | 13.83 | 283 | 13.62 | 292 | 13.39 | 301 | 13.50 |
| | 62 | 251 | 15.01 | 257 | 14.91 | 263 | 14.55 | 269 | 14.18 | 275 | 13.83 | 283 | 13.62 | 292 | 13.39 | 301 | 13.50 |
| | 66 | 251 | 15.01 | 257 | 14.91 | 263 | 14.55 | 269 | 14.18 | 275 | 13.83 | 283 | 13.62 | 292 | 13.39 | 301 | 13.50 |
| | 74 | 251 | 15.01 | 257 | 14.91 | 263 | 14.55 | 269 | 14.18 | 275 | 13.83 | 283 | 13.62 | 292 | 13.39 | 301 | 13.50 |
| 70 | 14 | 145 | 8.23 | 150 | 7.44 | 154 | 7.48 | 157 | 7.54 | 161 | 7.58 | 162 | 7.54 | 164 | 7.51 | 170 | 7.08 |
| | 18 | 162 | 8.66 | 167 | 9.10 | 171 | 9.04 | 174 | 8.97 | 178 | 8.90 | 181 | 8.80 | 184 | 8.70 | 191 | 8.44 |
| | 23 | 182 | 10.94 | 188 | 10.60 | 192 | 10.42 | 196 | 10.26 | 200 | 10.08 | 205 | 9.94 | 210 | 9.78 | 217 | 9.67 |
| | 32 | 220 | 12.96 | 225 | 12.87 | 230 | 12.56 | 235 | 12.24 | 240 | 11.93 | 246 | 11.78 | 256 | 11.56 | 263 | 11.65 |
| | 42 | 220 | 12.96 | 225 | 12.87 | 230 | 12.56 | 235 | 12.24 | 240 | 11.93 | 246 | 11.78 | 256 | 11.56 | 263 | 11.65 |
| | 50 | 220 | 12.96 | 225 | 12.87 | 230 | 12.56 | 235 | 12.24 | 240 | 11.93 | 246 | 11.78 | 256 | 11.56 | 263 | 11.65 |
| | 54 | 220 | 12.96 | 225 | 12.87 | 230 | 12.56 | 235 | 12.24 | 240 | 11.93 | 246 | 11.78 | 256 | 11.56 | 263 | 11.65 |
| | 58 | 220 | 12.96 | 225 | 12.87 | 230 | 12.56 | 235 | 12.24 | 240 | 11.93 | 246 | 11.78 | 256 | 11.56 | 263 | 11.65 |
| | 62 | 220 | 12.96 | 225 | 12.87 | 230 | 12.56 | 235 | 12.24 | 240 | 11.93 | 246 | 11.78 | 256 | 11.56 | 263 | 11.65 |
| | 66 | 220 | 12.96 | 225 | 12.87 | 230 | 12.56 | 235 | 12.24 | 240 | 11.93 | 246 | 11.78 | 256 | 11.56 | 263 | 11.65 |
| | 74 | 220 | 12.96 | 225 | 12.87 | 230 | 12.56 | 235 | 12.24 | 240 | 11.93 | 246 | 11.78 | 256 | 11.56 | 263 | 11.65 |

TC: Total Capacity
IP: Input Power

NOTES:

- The table shows the normal value of a cooling operation. In some cases, the value may change due to the compressor protection control.
- The value on the table shows when the system is operated under the following conditions.
The total piping length: 24.6ft (7.5m), The height difference: 0ft (0m)
- In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in cooling mode.

SELECTION DATA

(H, Y) VAHP336B(3, 4) 1S
(H, Y) VAHR336B(3, 4) 1S

| Connection ratio | Outdoor air temp | Indoor air temp. °F/WB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | 59 | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| % | °F/DB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | | | | | | | | | | | | | | | |
| 140 | 14 | 214 | 133.96 | 223 | 132.96 | 228 | 132.70 | 233 | 132.51 | 238 | 132.36 | 243 | 132.23 | 248 | 132.12 | 253 | 132.02 | 258 | 131.94 | 263 | 131.87 | 268 | 131.81 | 273 | 131.76 | 278 | 131.71 | 283 | 131.66 | 288 | 131.61 | 293 | 131.56 | | | | | | | | | | | | |
| | 18 | 255 | 161.81 | 264 | 161.81 | 270 | 161.54 | 276 | 161.24 | 282 | 160.97 | 288 | 160.72 | 294 | 160.48 | 300 | 160.25 | 306 | 160.02 | 312 | 159.79 | 318 | 159.56 | 324 | 159.33 | 330 | 159.10 | 336 | 158.87 | 342 | 158.64 | 348 | 158.41 | 354 | 158.18 | 360 | 157.95 | 366 | 157.72 | | | | | | |
| | 23 | 307 | 204.43 | 315 | 204.51 | 320 | 204.08 | 325 | 203.62 | 330 | 203.17 | 335 | 202.72 | 340 | 202.27 | 345 | 201.82 | 350 | 201.37 | 355 | 200.92 | 360 | 200.47 | 365 | 200.02 | 370 | 199.57 | 375 | 199.12 | 380 | 198.67 | 385 | 198.22 | 390 | 197.77 | 395 | 197.32 | 400 | 196.87 | 405 | 196.42 | 410 | 195.97 | 415 | 195.52 |
| | 28 | 360 | 226.89 | 367 | 226.16 | 371 | 225.49 | 375 | 224.82 | 380 | 224.15 | 385 | 223.48 | 390 | 222.81 | 395 | 222.14 | 400 | 221.47 | 405 | 220.80 | 410 | 220.13 | 415 | 219.46 | 420 | 218.79 | 425 | 218.12 | 430 | 217.45 | 435 | 216.78 | 440 | 216.11 | 445 | 215.44 | 450 | 214.77 | 455 | 214.10 | 460 | 213.43 | 465 | 212.76 |
| | 32 | 400 | 258.89 | 407 | 256.16 | 411 | 255.49 | 415 | 254.82 | 420 | 254.15 | 425 | 253.48 | 430 | 252.81 | 435 | 252.14 | 440 | 251.47 | 445 | 250.80 | 450 | 250.13 | 455 | 249.46 | 460 | 248.79 | 465 | 248.12 | 470 | 247.45 | 475 | 246.78 | 480 | 246.11 | 485 | 245.44 | 490 | 244.77 | 495 | 244.10 | 500 | 243.43 | 505 | 242.76 |
| | 37 | 440 | 291.89 | 447 | 289.16 | 451 | 288.49 | 455 | 287.82 | 460 | 287.15 | 465 | 286.48 | 470 | 285.81 | 475 | 285.14 | 480 | 284.47 | 485 | 283.80 | 490 | 283.13 | 495 | 282.46 | 500 | 281.79 | 505 | 281.12 | 510 | 280.45 | 515 | 279.78 | 520 | 279.11 | 525 | 278.44 | 530 | 277.77 | 535 | 277.10 | 540 | 276.43 | 545 | 275.76 |
| | 42 | 480 | 324.89 | 487 | 322.16 | 491 | 321.49 | 495 | 320.82 | 500 | 320.15 | 505 | 319.48 | 510 | 318.81 | 515 | 318.14 | 520 | 317.47 | 525 | 316.80 | 530 | 316.13 | 535 | 315.46 | 540 | 314.79 | 545 | 314.12 | 550 | 313.45 | 555 | 312.78 | 560 | 312.11 | 565 | 311.44 | 570 | 310.77 | 575 | 310.10 | 580 | 309.43 | 585 | 308.76 |
| | 47 | 520 | 357.89 | 527 | 355.16 | 531 | 354.49 | 535 | 353.82 | 540 | 353.15 | 545 | 352.48 | 550 | 351.81 | 555 | 351.14 | 560 | 350.47 | 565 | 349.80 | 570 | 349.13 | 575 | 348.46 | 580 | 347.79 | 585 | 347.12 | 590 | 346.45 | 595 | 345.78 | 600 | 345.11 | 605 | 344.44 | 610 | 343.77 | 615 | 343.10 | 620 | 342.43 | 625 | 341.76 |
| | 52 | 560 | 390.89 | 567 | 388.16 | 571 | 387.49 | 575 | 386.82 | 580 | 386.15 | 585 | 385.48 | 590 | 384.81 | 595 | 384.14 | 600 | 383.47 | 605 | 382.80 | 610 | 382.13 | 615 | 381.46 | 620 | 380.79 | 625 | 380.12 | 630 | 379.45 | 635 | 378.78 | 640 | 378.11 | 645 | 377.44 | 650 | 376.77 | 655 | 376.10 | 660 | 375.43 | 665 | 374.76 |
| | 57 | 600 | 423.89 | 607 | 421.16 | 611 | 420.49 | 615 | 419.82 | 620 | 419.15 | 625 | 418.48 | 630 | 417.81 | 635 | 417.14 | 640 | 416.47 | 645 | 415.80 | 650 | 415.13 | 655 | 414.46 | 660 | 413.79 | 665 | 413.12 | 670 | 412.45 | 675 | 411.78 | 680 | 411.11 | 685 | 410.44 | 690 | 409.77 | 695 | 409.10 | 700 | 408.43 | 705 | 407.76 |
| | 62 | 640 | 456.89 | 647 | 454.16 | 651 | 453.49 | 655 | 452.82 | 660 | 452.15 | 665 | 451.48 | 670 | 450.81 | 675 | 450.14 | 680 | 449.47 | 685 | 448.80 | 690 | 448.13 | 695 | 447.46 | 700 | 446.79 | 705 | 446.12 | 710 | 445.45 | 715 | 444.78 | 720 | 444.11 | 725 | 443.44 | 730 | 442.77 | 735 | 442.10 | 740 | 441.43 | 745 | 440.76 |
| 67 | 680 | 489.89 | 687 | 487.16 | 691 | 486.49 | 695 | 485.82 | 700 | 485.15 | 705 | 484.48 | 710 | 483.81 | 715 | 483.14 | 720 | 482.47 | 725 | 481.80 | 730 | 481.13 | 735 | 480.46 | 740 | 479.79 | 745 | 479.12 | 750 | 478.45 | 755 | 477.78 | 760 | 477.11 | 765 | 476.44 | 770 | 475.77 | 775 | 475.10 | 780 | 474.43 | 785 | 473.76 | |
| 72 | 720 | 522.89 | 727 | 520.16 | 731 | 519.49 | 735 | 518.82 | 740 | 518.15 | 745 | 517.48 | 750 | 516.81 | 755 | 516.14 | 760 | 515.47 | 765 | 514.80 | 770 | 514.13 | 775 | 513.46 | 780 | 512.79 | 785 | 512.12 | 790 | 511.45 | 795 | 510.78 | 800 | 510.11 | 805 | 509.44 | 810 | 508.77 | 815 | 508.10 | 820 | 507.43 | 825 | 506.76 | |
| 77 | 760 | 555.89 | 767 | 553.16 | 771 | 552.49 | 775 | 551.82 | 780 | 551.15 | 785 | 550.48 | 790 | 549.81 | 795 | 549.14 | 800 | 548.47 | 805 | 547.80 | 810 | 547.13 | 815 | 546.46 | 820 | 545.79 | 825 | 545.12 | 830 | 544.45 | 835 | 543.78 | 840 | 543.11 | 845 | 542.44 | 850 | 541.77 | 855 | 541.10 | 860 | 540.43 | 865 | 539.76 | |
| 82 | 800 | 588.89 | 807 | 586.16 | 811 | 585.49 | 815 | 584.82 | 820 | 584.15 | 825 | 583.48 | 830 | 582.81 | 835 | 582.14 | 840 | 581.47 | 845 | 580.80 | 850 | 580.13 | 855 | 579.46 | 860 | 578.79 | 865 | 578.12 | 870 | 577.45 | 875 | 576.78 | 880 | 576.11 | 885 | 575.44 | 890 | 574.77 | 895 | 574.10 | 900 | 573.43 | 905 | 572.76 | |
| 87 | 840 | 621.89 | 847 | 619.16 | 851 | 618.49 | 855 | 617.82 | 860 | 617.15 | 865 | 616.48 | 870 | 615.81 | 875 | 615.14 | 880 | 614.47 | 885 | 613.80 | 890 | 613.13 | 895 | 612.46 | 900 | 611.79 | 905 | 611.12 | 910 | 610.45 | 915 | 609.78 | 920 | 609.11 | 925 | 608.44 | 930 | 607.77 | 935 | 607.10 | 940 | 606.43 | 945 | 605.76 | |
| 92 | 880 | 654.89 | 887 | 652.16 | 891 | 651.49 | 895 | 650.82 | 900 | 650.15 | 905 | 649.48 | 910 | 648.81 | 915 | 648.14 | 920 | 647.47 | 925 | 646.80 | 930 | 646.13 | 935 | 645.46 | 940 | 644.79 | 945 | 644.12 | 950 | 643.45 | 955 | 642.78 | 960 | 642.11 | 965 | 641.44 | 970 | 640.77 | 975 | 640.10 | 980 | 639.43 | 985 | 638.76 | |
| 97 | 920 | 687.89 | 927 | 685.16 | 931 | 684.49 | 935 | 683.82 | 940 | 683.15 | 945 | 682.48 | 950 | 681.81 | 955 | 681.14 | 960 | 680.47 | 965 | 679.80 | 970 | 679.13 | 975 | 678.46 | 980 | 677.79 | 985 | 677.12 | 990 | 676.45 | 995 | 675.78 | 1000 | 675.11 | 1005 | 674.44 | 1010 | 673.77 | 1015 | 673.10 | 1020 | 672.43 | 1025 | 671.76 | |
| 100 | 960 | 720.89 | 967 | 718.16 | 971 | 717.49 | 975 | 716.82 | 980 | 716.15 | 985 | 715.48 | 990 | 714.81 | 995 | 714.14 | 1000 | 713.47 | 1005 | 712.80 | 1010 | 712.13 | 1015 | 711.46 | 1020 | 710.79 | 1025 | 710.12 | 1030 | 709.45 | 1035 | 708.78 | 1040 | 708.11 | 1045 | 707.44 | 1050 | 706.77 | 1055 | 706.10 | 1060 | 705.43 | 1065 | 704.76 | |

| Connection ratio | Outdoor air temp | Indoor air temp. °F/WB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|------|
| | | 59 | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | | | | | | | | | | | | | | | | | | | | | | | | |
| % | °F/DB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | | | | | | | | | | | | | |
| 140 | 14 | 181 | 10.67 | 189 | 9.84 | 193 | 9.72 | 197 | 9.57 | 201 | 9.45 | 205 | 9.29 | 209 | 9.12 | 216 | 8.80 | 223 | 8.48 | 228 | 8.36 | 233 | 8.24 | 238 | 8.12 | 243 | 8.00 | 248 | 7.88 | 253 | 7.76 | 258 | 7.64 | 263 | 7.52 | | | | | | | | |
| | 18 | 208 | 12.18 | 216 | 11.47 | 220 | 11.27 | 225 | 11.05 | 230 | 10.86 | 235 | 10.63 | 240 | 10.41 | 247 | 10.01 | 254 | 9.61 | 261 | 9.21 | 268 | 8.81 | 275 | 8.41 | 282 | 8.01 | 289 | 7.61 | 296 | 7.21 | 303 | 6.81 | 310 | 6.41 | 317 | 6.01 | 324 | 5.61 | | | | |
| | 23 | 243 | 14.06 | 249 | 13.46 | 255 | 13.15 | 260 | 12.90 | 266 | 12.66 | 273 | 12.33 | 279 | 12.05 | 287 | 11.75 | 294 | 11.45 | 301 | 11.15 | 308 | 10.85 | 315 | 10.55 | 322 | 10.25 | 329 | 9.95 | 336 | 9.65 | 343 | 9.35 | 350 | 9.05 | 357 | 8.75 | 364 | 8.45 | 371 | 8.15 | | |
| | 28 | 304 | 17.42 | 310 | 16.95 | 316 | 16.51 | 323 | 16.08 | 330 | 15.64 | 337 | 15.31 | 344 | 14.94 | 351 | 14.58 | 358 | 14.22 | 365 | 13.86 | 372 | 13.50 | 379 | 13.14 | 386 | 12.78 | 393 | 12.42 | 400 | 12.06 | 407 | 11.70 | 414 | 11.34 | 421 | 10.98 | 428 | 10.62 | 435 | 10.26 | 442 | 9.90 |
| | 32 | 304 | 17.84 | 310 | 17.51 | 316 | 17.04 | 323 | 16.58 | 330 | 16.06 | 337 | 15.53 | 344 | 15.01 | 351 | 14.48 | 358 | 13.95 | 365 | 13.42 | 372 | 12.89 | 379 | 12.36 | 386 | 11.83 | 393 | 11.30 | 400 | 10.77 | 407 | 10.24 | 414 | 9.71 | 421 | 9.18 | 428 | 8.65 | 435 | 8.12 | 442 | 7.59 |
| | 37 | 304 | 18.18 | 310 | 17.97 | 316 | 17.46 | 323 | 16.92 | 330 | 16.39 | 337 | 15.86 | 344 | 15.33 | 351 | 14.80 | 358 | 14.27 | 365 | 13.74 | 372 | 13.21 | 379 | 12.68 | 386 | 12.15 | 393 | 11.62 | 400 | 11.09 | 407 | 10.56 | 414 | 10.03 | 421 | 9.50 | 428 | 8.97 | 435 | 8.44 | 442 | 7.91 |
| | 42 | 304 | 18.51 | 310 | 18.40 | 316 | 17.82 | 323 | 17.30 | 330 | 16.78 | 337 | 16.27 | 344 | 15.76 | 351 | 15.25 | 358 | 14.74 | 365 | 14.23 | 372 | 13.72 | 379 | 13.21 | 386 | 12.70 | 393 | 12.19 | 400 | 11.68 | 407 | 11.17 | 414 | 10.66 | 421 | 10.15 | 428 | 9.64 | 435 | 9.13 | 442 | 8.62 |
| | 47 | 304 | 18.89 | 310 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(H, Y) VAHR360B(3,4)1S
(H, Y) VAHR360B(3,4)1S

Table with columns for Connection ratio, Outdoor air temp, Indoor air temp, and various performance metrics (MBH, kW, etc.) for different indoor air temperatures and connection ratios.

Table with columns for Connection ratio, Outdoor air temp, Indoor air temp, and various performance metrics (MBH, kW, etc.) for different indoor air temperatures and connection ratios.

TC: Total Capacity
IP: Input Power

- NOTES:
1. The table shows the normal value of a cooling operation.
2. The value on the table shows when the system is operated under the following conditions.
3. In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in cooling mode.

SELECTION DATA

(H,Y)VAHP360B(3,4)1LM
(H,Y)VAHR360B(3,4)1LM

| Connection ratio | Outdoor air temp | Indoor air temp. °FWB | | | | | | | | | | | | | | | | | | | | | | | | Connection ratio | Outdoor air temp | Indoor air temp. °FWB | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|-----------------------|--------|-----|--------|------|--------|-------|--------|------|------|------|------|------|------|------|------|------|--------|------|--------|-----|------|--------|-----|------------------|------------------|-----------------------|------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|--|--|--|--|--|
| | | 59 | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | | 59 | | 61 | | 63 | | 65 | | | | 67 | | 69 | | 71 | | 73 | | | | | | | | | | | | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | TC | IP | TC | IP | TC | IP | | | | | | | | | | | | | | | | | | |
| 120 | % °FDB | 14 | 172 | 185 | 179 | 7.57 | 180 | 177.4 | 182 | 7.95 | 183 | 8.13 | 185 | 8.48 | 188 | 8.83 | 195 | 8.20 | % °FDB | 14 | 157 | 160 | 163 | 7.11 | 164 | 7.28 | 166 | 7.48 | 167 | 7.64 | 169 | 7.97 | 171 | 8.30 | 178 | 7.71 | | | | | | | | | | | | | | | |
| | | 110 | % °FDB | 14 | 157 | 163 | 6.84 | 163 | 6.83 | 166 | 6.81 | 167 | 6.96 | 169 | 7.26 | 171 | 7.58 | 176 | | 7.02 | % °FDB | 14 | 157 | 164 | 6.3 | 166 | 6.32 | 169 | 6.3 | 171 | 6.54 | 173 | 6.86 | 176 | 7.18 | 181 | 6.54 | | | | | | | | | | | | | | |
| | | | | 100 | % °FDB | 14 | 157 | 163 | 6.31 | 163 | 6.31 | 166 | 6.29 | 167 | 6.44 | 169 | 6.74 | 171 | | 7.06 | | 176 | 6.50 | % °FDB | 14 | 157 | 164 | 5.8 | 166 | 5.82 | 169 | 5.8 | 171 | 6.02 | 173 | 6.34 | 176 | 6.66 | 181 | 6.02 | | | | | | | | | | | |
| | | | | | | 90 | % °FDB | 14 | 157 | 163 | 5.84 | 163 | 5.84 | 166 | 5.82 | 167 | 5.97 | 169 | | 6.27 | | 171 | 6.59 | | 176 | 6.03 | % °FDB | 14 | 157 | 164 | 5.3 | 166 | 5.32 | 169 | 5.3 | 171 | 5.52 | 173 | 5.84 | 176 | 6.16 | 181 | 5.52 | | | | | | | | |
| | | | | | | | | 80 | % °FDB | 14 | 157 | 163 | 5.37 | 163 | 5.37 | 166 | 5.35 | 167 | | 5.50 | | 169 | 5.80 | | 171 | 6.12 | | 176 | 5.56 | % °FDB | 14 | 157 | 164 | 4.8 | 166 | 4.82 | 169 | 4.8 | 171 | 5.02 | 173 | 5.34 | 176 | 5.66 | 181 | 5.02 | | | | | |

TC: Total Capacity
IP: Input Power

- NOTES:**
- The table shows the normal value of a cooling operation.
In some cases, the value may change due to the compressor protection control.
 - The value on the table shows when the system is operated under the following conditions.
The total piping length: 24.6ft (7.5m), The height difference: 0ft (0m)
 - In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in cooling mode.

(2) Heating Capacity

- Standard Type

(H,Y)VAHP072B(3,4)1S
(H,Y)VAHR072B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °F DB | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|----|--|--|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | | |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | |
| 150 | -4 | 52 | 5.60 | 52 | 5.76 | 51 | 5.88 | 51 | 6.01 | 51 | 6.15 | 50 | 6.27 | 48 | 7.14 | 47 | 7.64 | | | | |
| | -1 | 53 | 5.50 | 53 | 5.67 | 53 | 5.80 | 53 | 5.93 | 53 | 6.06 | 51 | 6.57 | 50 | 6.94 | 50 | 7.38 | | | | |
| | 3 | 55 | 5.37 | 55 | 5.56 | 55 | 5.70 | 55 | 5.82 | 55 | 5.95 | 54 | 6.37 | 53 | 6.67 | 52 | 7.03 | | | | |
| | 7 | 57 | 5.24 | 57 | 5.45 | 57 | 5.60 | 57 | 5.71 | 57 | 5.84 | 56 | 6.16 | 56 | 6.40 | 55 | 6.68 | | | | |
| | 11 | 59 | 5.10 | 59 | 5.33 | 59 | 5.50 | 59 | 5.61 | 59 | 5.72 | 59 | 5.96 | 58 | 6.14 | 58 | 6.34 | | | | |
| | 15 | 61 | 4.97 | 61 | 5.22 | 62 | 5.40 | 62 | 5.50 | 62 | 5.61 | 61 | 5.76 | 61 | 5.87 | 61 | 5.99 | | | | |
| | 19 | 64 | 4.88 | 64 | 5.13 | 64 | 5.30 | 64 | 5.40 | 64 | 5.51 | 64 | 5.66 | 64 | 5.78 | 63 | 5.88 | | | | |
| | 23 | 67 | 4.80 | 67 | 5.03 | 67 | 5.21 | 67 | 5.31 | 67 | 5.41 | 67 | 5.57 | 67 | 5.68 | 66 | 5.76 | | | | |
| | 27 | 70 | 4.71 | 70 | 4.94 | 70 | 5.11 | 70 | 5.21 | 70 | 5.31 | 70 | 5.47 | 70 | 5.59 | 69 | 5.65 | | | | |
| | 31 | 73 | 4.62 | 73 | 4.85 | 73 | 5.02 | 73 | 5.11 | 73 | 5.21 | 73 | 5.37 | 72 | 5.49 | 72 | 5.53 | | | | |
| 35 | 76 | 4.53 | 76 | 4.76 | 76 | 4.92 | 76 | 5.01 | 75 | 5.11 | 75 | 5.27 | 75 | 5.40 | 74 | 5.42 | | | | | |
| 39 | 78 | 4.45 | 78 | 4.66 | 78 | 4.83 | 78 | 4.92 | 78 | 5.01 | 78 | 5.18 | 78 | 5.30 | 77 | 5.30 | | | | | |
| 43 | 81 | 4.36 | 81 | 4.57 | 81 | 4.73 | 81 | 4.82 | 81 | 4.91 | 81 | 5.08 | 81 | 5.21 | 80 | 5.19 | | | | | |
| 47 | 84 | 4.31 | 84 | 4.51 | 84 | 4.67 | 84 | 4.76 | 84 | 4.84 | 84 | 4.98 | 84 | 4.91 | 82 | 5.07 | | | | | |
| 51 | 88 | 4.25 | 88 | 4.46 | 88 | 4.61 | 88 | 4.69 | 88 | 4.78 | 88 | 4.87 | 87 | 4.81 | 85 | 4.95 | | | | | |
| 55 | 91 | 4.20 | 91 | 4.40 | 91 | 4.55 | 91 | 4.63 | 91 | 4.71 | 89 | 4.47 | 89 | 4.31 | 88 | 4.43 | | | | | |
| 59 | 95 | 4.18 | 95 | 4.39 | 94 | 4.54 | 94 | 4.62 | 94 | 4.70 | 92 | 4.27 | 92 | 4.01 | 91 | 4.71 | | | | | |
| 140 | -4 | 52 | 5.68 | 52 | 5.84 | 51 | 5.96 | 51 | 6.10 | 51 | 6.24 | 50 | 6.81 | 48 | 7.24 | 47 | 7.75 | | | | |
| | -1 | 53 | 5.58 | 53 | 5.75 | 53 | 5.88 | 53 | 6.02 | 53 | 6.15 | 51 | 6.66 | 50 | 7.04 | 50 | 7.49 | | | | |
| | 3 | 55 | 5.45 | 55 | 5.64 | 55 | 5.78 | 55 | 5.91 | 55 | 6.04 | 54 | 6.46 | 53 | 6.77 | 52 | 7.14 | | | | |
| | 7 | 57 | 5.32 | 57 | 5.53 | 57 | 5.68 | 57 | 5.80 | 57 | 5.93 | 56 | 6.25 | 56 | 6.50 | 55 | 6.79 | | | | |
| | 11 | 59 | 5.18 | 59 | 5.41 | 59 | 5.58 | 59 | 5.70 | 59 | 5.81 | 59 | 6.05 | 58 | 6.24 | 58 | 6.46 | | | | |
| | 15 | 61 | 5.05 | 61 | 5.30 | 62 | 5.48 | 62 | 5.59 | 62 | 5.70 | 61 | 5.85 | 61 | 5.97 | 61 | 6.10 | | | | |
| | 19 | 64 | 4.96 | 64 | 5.21 | 64 | 5.38 | 64 | 5.49 | 64 | 5.60 | 64 | 5.75 | 64 | 5.88 | 63 | 5.99 | | | | |
| | 23 | 67 | 4.88 | 67 | 5.11 | 67 | 5.29 | 67 | 5.40 | 67 | 5.50 | 67 | 5.66 | 67 | 5.78 | 66 | 5.87 | | | | |
| | 27 | 70 | 4.79 | 70 | 5.02 | 70 | 5.19 | 70 | 5.30 | 70 | 5.40 | 70 | 5.56 | 70 | 5.69 | 69 | 5.76 | | | | |
| | 31 | 73 | 4.70 | 73 | 4.93 | 73 | 5.10 | 73 | 5.20 | 73 | 5.30 | 73 | 5.46 | 72 | 5.59 | 72 | 5.64 | | | | |
| 35 | 76 | 4.61 | 76 | 4.84 | 76 | 5.00 | 76 | 5.10 | 75 | 5.20 | 75 | 5.36 | 75 | 5.50 | 74 | 5.53 | | | | | |
| 39 | 78 | 4.53 | 78 | 4.74 | 78 | 4.91 | 78 | 5.01 | 78 | 5.10 | 78 | 5.27 | 78 | 5.40 | 77 | 5.41 | | | | | |
| 43 | 81 | 4.44 | 81 | 4.65 | 81 | 4.81 | 81 | 4.91 | 81 | 5.00 | 81 | 5.11 | 81 | 5.31 | 80 | 5.30 | | | | | |
| 47 | 84 | 4.39 | 84 | 4.59 | 84 | 4.75 | 84 | 4.85 | 84 | 4.93 | 84 | 4.97 | 84 | 5.01 | 82 | 5.18 | | | | | |
| 51 | 88 | 4.33 | 88 | 4.54 | 88 | 4.69 | 88 | 4.78 | 88 | 4.87 | 88 | 4.76 | 87 | 4.71 | 85 | 5.06 | | | | | |
| 55 | 91 | 4.28 | 91 | 4.48 | 91 | 4.63 | 91 | 4.72 | 91 | 4.80 | 89 | 4.56 | 89 | 4.41 | 88 | 4.94 | | | | | |
| 59 | 95 | 4.26 | 95 | 4.47 | 94 | 4.62 | 94 | 4.71 | 94 | 4.79 | 92 | 4.36 | 92 | 4.11 | 91 | 4.82 | | | | | |
| 130 | -4 | 52 | 5.81 | 52 | 5.97 | 51 | 6.10 | 51 | 6.24 | 51 | 6.38 | 50 | 6.97 | 48 | 7.40 | 47 | 7.93 | | | | |
| | -1 | 53 | 5.71 | 53 | 5.88 | 53 | 6.02 | 53 | 6.15 | 53 | 6.29 | 51 | 6.82 | 50 | 7.20 | 50 | 7.67 | | | | |
| | 3 | 55 | 5.58 | 55 | 5.77 | 55 | 5.92 | 55 | 6.05 | 55 | 6.18 | 54 | 6.62 | 53 | 6.93 | 52 | 7.32 | | | | |
| | 7 | 57 | 5.45 | 57 | 5.66 | 57 | 5.82 | 57 | 5.94 | 57 | 6.07 | 56 | 6.41 | 56 | 6.66 | 55 | 6.97 | | | | |
| | 11 | 59 | 5.31 | 59 | 5.54 | 59 | 5.72 | 59 | 5.84 | 59 | 5.96 | 59 | 6.21 | 58 | 6.40 | 58 | 6.63 | | | | |
| | 15 | 61 | 5.18 | 61 | 5.43 | 62 | 5.62 | 62 | 5.73 | 62 | 5.84 | 61 | 6.01 | 61 | 6.13 | 61 | 6.28 | | | | |
| | 19 | 64 | 5.09 | 64 | 5.34 | 64 | 5.52 | 64 | 5.63 | 64 | 5.74 | 64 | 5.91 | 64 | 6.04 | 63 | 6.17 | | | | |
| | 23 | 67 | 5.01 | 67 | 5.24 | 67 | 5.43 | 67 | 5.54 | 67 | 5.64 | 67 | 5.82 | 67 | 5.94 | 66 | 6.05 | | | | |
| | 27 | 70 | 4.92 | 70 | 5.15 | 70 | 5.33 | 70 | 5.44 | 70 | 5.54 | 70 | 5.72 | 70 | 5.85 | 69 | 5.94 | | | | |
| | 31 | 73 | 4.83 | 73 | 5.06 | 73 | 5.24 | 73 | 5.34 | 73 | 5.44 | 73 | 5.62 | 72 | 5.75 | 72 | 5.82 | | | | |
| 35 | 76 | 4.74 | 76 | 4.97 | 76 | 5.14 | 76 | 5.24 | 75 | 5.34 | 75 | 5.52 | 75 | 5.66 | 74 | 5.71 | | | | | |
| 39 | 78 | 4.66 | 78 | 4.87 | 78 | 5.05 | 78 | 5.15 | 78 | 5.24 | 78 | 5.43 | 78 | 5.56 | 77 | 5.59 | | | | | |
| 43 | 81 | 4.57 | 81 | 4.78 | 81 | 4.95 | 81 | 5.05 | 81 | 5.14 | 81 | 5.33 | 81 | 5.47 | 80 | 5.48 | | | | | |
| 47 | 84 | 4.52 | 84 | 4.72 | 84 | 4.89 | 84 | 4.99 | 84 | 5.07 | 84 | 5.13 | 84 | 5.17 | 82 | 5.36 | | | | | |
| 51 | 88 | 4.46 | 88 | 4.67 | 88 | 4.83 | 88 | 4.92 | 88 | 5.01 | 88 | 4.92 | 87 | 4.87 | 85 | 5.24 | | | | | |
| 55 | 91 | 4.41 | 91 | 4.61 | 91 | 4.77 | 91 | 4.86 | 91 | 4.94 | 89 | 4.72 | 89 | 4.57 | 88 | 5.12 | | | | | |
| 59 | 95 | 4.39 | 95 | 4.60 | 94 | 4.76 | 94 | 4.85 | 94 | 4.93 | 92 | 4.52 | 92 | 4.27 | 91 | 5.00 | | | | | |
| 120 | -4 | 52 | 6.00 | 52 | 6.17 | 51 | 6.30 | 51 | 6.44 | 51 | 6.59 | 50 | 7.20 | 48 | 7.65 | 47 | 8.19 | | | | |
| | -1 | 53 | 5.90 | 53 | 6.08 | 53 | 6.22 | 53 | 6.36 | 53 | 6.50 | 51 | 7.05 | 50 | 7.45 | 50 | 7.93 | | | | |
| | 3 | 55 | 5.77 | 55 | 5.97 | 55 | 6.12 | 55 | 6.25 | 55 | 6.39 | 54 | 6.85 | 53 | 7.10 | 52 | 7.58 | | | | |
| | 7 | 57 | 5.64 | 57 | 5.86 | 57 | 6.02 | 57 | 6.14 | 57 | 6.28 | 56 | 6.64 | 56 | 6.91 | 55 | 7.23 | | | | |
| | 11 | 59 | 5.50 | 59 | 5.74 | 59 | 5.92 | 59 | 6.04 | 59 | 6.16 | 59 | 6.44 | 58 | 6.65 | 58 | 6.89 | | | | |
| | 15 | 61 | 5.37 | 61 | 5.63 | 62 | 5.82 | 62 | 5.93 | 62 | 6.05 | 61 | 6.24 | 61 | 6.38 | 61 | 6.54 | | | | |
| | 19 | 64 | 5.28 | 64 | 5.54 | 64 | 5.72 | 64 | 5.83 | 64 | 5.95 | 64 | 6.14 | 64 | 6.29 | 63 | 6.43 | | | | |
| | 23 | 67 | 5.20 | 67 | 5.44 | 67 | 5.63 | 67 | 5.74 | 67 | 5.85 | 67 | 6.05 | 67 | 6.19 | 66 | 6.31 | | | | |
| | 27 | 70 | 5.11 | 70 | 5.35 | 70 | 5.53 | 70 | 5.64 | 70 | 5.75 | 70 | 5.95 | 70 | 6.10 | 69 | 6.20 | | | | |
| | 31 | 73 | 5.02 | 73 | 5.26 | 73 | 5.44 | 73 | 5.54 | 73 | 5.65 | 73 | 5.85 | 72 | 6.00 | 72 | 6.08 | | | | |
| 35 | 76 | 4.93 | 76 | 5.17 | 76 | 5.34 | 76 | 5.44 | 75 | 5.55 | 75 | 5.75 | 75 | 5.91 | 74 | 5.97 | | | | | |
| 39 | 78 | 4.85 | 78 | 5.07 | 78 | 5.25 | 78 | 5.35 | 78 | 5.45 | 78 | 5.66 | 78 | 5.81 | 77 | 5.85 | | | | | |
| 43 | 81 | 4.76 | 81 | 4.98 | 81 | 5.15 | 81 | 5.25 | 81 | 5.35 | 81 | 5.56 | 81 | 5.72 | 80 | 5.74 | | | | | |
| 47 | 84 | 4.71 | 84 | 4.92 | 84 | 5.09 | 84 | 5.19 | 84 | 5.28 | 84 | 5.36 | 84 | 5.42 | 82 | 5.62 | | | | | |
| 51 | 88 | 4.65 | 88 | 4.87 | 88 | 5.03 | 88 | 5.12 | 88 | 5.22 | 88 | 5.15 | 87 | 5.12 | 85 | 5.50 | | | | | |
| 55 | 91 | 4.60 | 91 | 4.81 | 91 | 4.97 | 91 | 5.06 | 91 | 5.15 | 89 | 4.95 | 89 | 4.82 | 87 | 5.38 | | | | | |
| 59 | 95 | 4.58 | 95 | 4.80 | 94 | 4.96 | 94 | 5.05 | 94 | 5.14 | 92 | 4.75 | 92 | 4.52 | 91 | 4.90 | | | | | |
| 110 | -4 | 52 | 6.24 | 52 | 6.41 | 51 | 6.54 | 51 | 6.69 | 51 | 6.85 | 50 | 7.48 | 48 | 7.95 | 47 | 8.51 | | | | |
| | -1 | 53 | 6.14 | 53 | 6.32 | 53 | 6.46 | 53 | | | | | | | | | | | | | |

SELECTION DATA

(H,Y)VAHP096B(3,4)1S
(H,Y)VAHR096B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °FDB | | | | | | | | | | | | | | | |
|------------------|------------------|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW |
| 135 | -4 | 69 | 7.25 | 69 | 7.46 | 69 | 7.62 | 69 | 7.78 | 69 | 7.94 | 68 | 8.54 | 68 | 9.00 | 67 | 9.73 |
| | -1 | 71 | 7.02 | 71 | 7.25 | 71 | 7.42 | 71 | 7.58 | 71 | 7.74 | 71 | 8.41 | 70 | 8.92 | 70 | 9.56 |
| | 3 | 74 | 6.72 | 74 | 6.96 | 74 | 7.15 | 74 | 7.31 | 74 | 7.47 | 74 | 8.23 | 73 | 8.81 | 73 | 9.34 |
| | 7 | 77 | 6.41 | 77 | 6.68 | 77 | 6.88 | 77 | 7.04 | 77 | 7.20 | 77 | 8.05 | 77 | 8.70 | 76 | 9.12 |
| | 11 | 80 | 6.11 | 80 | 6.39 | 80 | 6.62 | 80 | 6.78 | 80 | 6.94 | 80 | 7.88 | 80 | 8.59 | 80 | 8.90 |
| | 15 | 83 | 5.80 | 83 | 6.11 | 83 | 6.35 | 83 | 6.51 | 83 | 6.67 | 83 | 7.70 | 83 | 8.48 | 83 | 8.68 |
| | 19 | 86 | 5.75 | 86 | 6.06 | 86 | 6.30 | 86 | 6.45 | 86 | 6.61 | 86 | 7.49 | 86 | 8.16 | 86 | 8.37 |
| | 23 | 89 | 5.72 | 89 | 6.02 | 89 | 6.25 | 89 | 6.40 | 89 | 6.55 | 89 | 7.28 | 89 | 7.84 | 89 | 8.07 |
| | 27 | 94 | 5.68 | 94 | 5.97 | 94 | 6.20 | 94 | 6.34 | 94 | 6.49 | 93 | 7.07 | 92 | 7.52 | 93 | 7.76 |
| | 31 | 97 | 5.65 | 97 | 5.93 | 97 | 6.14 | 97 | 6.29 | 97 | 6.42 | 96 | 6.87 | 95 | 7.20 | 96 | 7.46 |
| | 35 | 100 | 5.61 | 100 | 5.88 | 100 | 6.09 | 100 | 6.23 | 100 | 6.36 | 99 | 6.66 | 98 | 6.88 | 100 | 7.15 |
| | 39 | 105 | 5.57 | 105 | 5.84 | 105 | 6.04 | 105 | 6.18 | 105 | 6.30 | 105 | 6.45 | 105 | 6.56 | 106 | 6.85 |
| | 43 | 108 | 5.53 | 108 | 5.79 | 108 | 5.99 | 108 | 6.12 | 108 | 6.24 | 108 | 6.24 | 108 | 6.24 | 106 | 6.55 |
| | 47 | 112 | 5.41 | 112 | 5.61 | 112 | 5.77 | 112 | 5.87 | 112 | 5.97 | 110 | 6.04 | 110 | 5.92 | 110 | 6.25 |
| | 51 | 116 | 5.28 | 116 | 5.44 | 116 | 5.55 | 116 | 5.62 | 116 | 5.69 | 112 | 5.84 | 110 | 5.60 | 113 | 5.95 |
| | 55 | 119 | 5.16 | 119 | 5.26 | 119 | 5.33 | 119 | 5.36 | 119 | 5.41 | 116 | 5.64 | 115 | 5.28 | 115 | 5.65 |
| 59 | 123 | 5.04 | 123 | 5.08 | 123 | 5.10 | 123 | 5.13 | 123 | 5.14 | 119 | 5.44 | 117 | 4.96 | 116 | 5.06 | |

| Connection ratio | Outdoor air temp | Indoor air temp. °FDB | | | | | | | | | | | | | | | |
|------------------|------------------|-----------------------|------|------|------|------|------|------|------|------|------|------|-------|------|-------|------|-------|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW |
| 90 | -4 | 69 | 8.69 | 69 | 8.94 | 69 | 9.13 | 69 | 9.32 | 69 | 9.51 | 68 | 10.24 | 68 | 10.78 | 67 | 11.66 |
| | -1 | 71 | 8.37 | 71 | 8.64 | 71 | 8.83 | 71 | 9.02 | 71 | 9.20 | 70 | 9.94 | 69 | 10.49 | 69 | 11.14 |
| | 3 | 73 | 7.97 | 73 | 8.24 | 73 | 8.45 | 73 | 8.62 | 73 | 8.80 | 72 | 9.57 | 72 | 10.12 | 71 | 10.52 |
| | 7 | 76 | 7.58 | 76 | 7.86 | 76 | 8.08 | 76 | 8.24 | 76 | 8.42 | 75 | 9.21 | 74 | 9.79 | 72 | 9.94 |
| | 11 | 78 | 7.20 | 78 | 7.49 | 78 | 7.73 | 78 | 7.90 | 78 | 8.06 | 77 | 8.89 | 76 | 9.46 | 74 | 9.40 |
| | 15 | 81 | 6.83 | 81 | 7.14 | 81 | 7.38 | 80 | 7.54 | 80 | 7.70 | 79 | 8.56 | 78 | 9.17 | 76 | 8.91 |
| | 19 | 83 | 6.61 | 83 | 6.91 | 83 | 7.15 | 83 | 7.30 | 83 | 7.46 | 81 | 8.20 | 81 | 8.73 | 78 | 8.37 |
| | 23 | 86 | 6.41 | 86 | 6.71 | 86 | 6.93 | 85 | 7.08 | 85 | 7.23 | 84 | 7.85 | 83 | 8.31 | 80 | 8.07 |
| | 27 | 88 | 6.22 | 88 | 6.51 | 88 | 6.73 | 88 | 6.87 | 88 | 7.02 | 86 | 7.52 | 85 | 7.90 | 82 | 7.80 |
| | 31 | 90 | 6.06 | 90 | 6.33 | 90 | 6.54 | 90 | 6.68 | 90 | 6.81 | 88 | 7.22 | 87 | 7.51 | 83 | 7.55 |
| | 35 | 93 | 5.90 | 93 | 6.16 | 93 | 6.36 | 92 | 6.50 | 92 | 6.62 | 91 | 6.92 | 89 | 7.13 | 85 | 7.28 |
| | 39 | 95 | 5.74 | 95 | 6.00 | 95 | 6.19 | 95 | 6.33 | 95 | 6.45 | 93 | 6.64 | 92 | 6.77 | 87 | 7.02 |
| | 43 | 98 | 5.60 | 97 | 5.85 | 97 | 6.04 | 97 | 6.17 | 97 | 6.29 | 95 | 6.36 | 94 | 6.41 | 89 | 6.77 |
| | 47 | 100 | 5.50 | 100 | 5.69 | 100 | 5.85 | 100 | 5.95 | 100 | 6.05 | 97 | 6.19 | 94 | 5.87 | 89 | 6.18 |
| | 51 | 102 | 5.39 | 102 | 5.55 | 102 | 5.66 | 102 | 5.74 | 102 | 5.81 | 97 | 5.84 | 94 | 5.43 | 89 | 5.59 |
| | 55 | 105 | 5.28 | 105 | 5.39 | 105 | 5.47 | 105 | 5.51 | 102 | 5.33 | 97 | 5.18 | 94 | 5.06 | 89 | 5.16 |
| 59 | 107 | 5.18 | 106 | 5.24 | 105 | 5.36 | 103 | 5.27 | 102 | 5.26 | 97 | 4.96 | 94 | 4.86 | 89 | 4.79 | |

TC: Total Capacity
IP: Input Power

NOTES:

- The table shows the normal value of a heating operation.
In some cases, the value may change due to the compressor protection control.
- The heating capacity on the table indicates the peak value, which does not include the capacity decrease caused by frost.
- The value on the table shows when the system is operated under the following conditions.
The total piping length: 24.6ft (7.5m), The height difference: 0ft (0m)
- In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in heating mode.

SELECTION DATA

**(H,Y)VAHP120B(3,4)1S
(H,Y)VAHR120B(3,4)1S**

| Connection ratio | Outdoor air temp | Indoor air temp. °F/DB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | | 74 | | | | 77 | | | | 80 | | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | | |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW |
| 130 | -4 | 79 | 8.78 | 79 | 9.02 | 79 | 9.20 | 79 | 9.38 | 79 | 9.56 | 77 | 10.21 | 76 | 10.69 | 75 | 11.46 | | | | | | | | | | | | | | | | |
| | -1 | 82 | 8.66 | 82 | 8.93 | 82 | 9.14 | 82 | 9.33 | 82 | 9.51 | 81 | 10.10 | 80 | 10.54 | 79 | 11.22 | | | | | | | | | | | | | | | | |
| | 3 | 86 | 8.51 | 86 | 8.82 | 86 | 9.06 | 86 | 9.25 | 86 | 9.45 | 85 | 9.96 | 84 | 10.33 | 83 | 10.89 | | | | | | | | | | | | | | | | |
| | 7 | 90 | 8.35 | 90 | 8.71 | 90 | 8.97 | 90 | 9.18 | 90 | 9.39 | 89 | 9.81 | 89 | 10.12 | 88 | 10.57 | | | | | | | | | | | | | | | | |
| | 11 | 94 | 8.20 | 94 | 8.59 | 94 | 8.89 | 94 | 9.11 | 94 | 9.32 | 94 | 9.67 | 93 | 9.92 | 93 | 10.24 | | | | | | | | | | | | | | | | |
| | 15 | 98 | 8.04 | 98 | 8.48 | 98 | 8.81 | 98 | 9.04 | 98 | 9.26 | 96 | 9.52 | 96 | 9.71 | 97 | 9.92 | | | | | | | | | | | | | | | | |
| | 19 | 103 | 7.98 | 103 | 8.40 | 103 | 8.72 | 103 | 8.95 | 103 | 9.16 | 103 | 9.36 | 102 | 9.51 | 102 | 9.67 | | | | | | | | | | | | | | | | |
| | 23 | 109 | 7.91 | 109 | 8.33 | 109 | 8.64 | 109 | 8.85 | 109 | 9.06 | 109 | 9.20 | 108 | 9.31 | 107 | 9.42 | | | | | | | | | | | | | | | | |
| | 27 | 114 | 7.85 | 114 | 8.25 | 114 | 8.55 | 114 | 8.76 | 114 | 8.96 | 114 | 9.04 | 111 | 9.11 | 111 | 9.16 | | | | | | | | | | | | | | | | |
| | 31 | 120 | 7.79 | 119 | 8.18 | 119 | 8.46 | 119 | 8.66 | 119 | 8.85 | 117 | 8.89 | 117 | 8.91 | 116 | 8.91 | | | | | | | | | | | | | | | | |
| | 35 | 125 | 7.73 | 125 | 8.10 | 125 | 8.37 | 125 | 8.57 | 125 | 8.75 | 125 | 8.73 | 119 | 8.71 | 121 | 8.66 | | | | | | | | | | | | | | | | |
| | 39 | 130 | 7.66 | 130 | 8.03 | 130 | 8.29 | 130 | 8.47 | 130 | 8.65 | 128 | 8.57 | 124 | 8.51 | 128 | 8.40 | | | | | | | | | | | | | | | | |
| | 43 | 136 | 7.60 | 136 | 7.95 | 136 | 8.20 | 136 | 8.38 | 136 | 8.55 | 133 | 8.41 | 129 | 8.31 | 130 | 8.14 | | | | | | | | | | | | | | | | |
| | 47 | 142 | 7.62 | 142 | 7.87 | 142 | 8.05 | 142 | 8.18 | 142 | 8.30 | 139 | 8.16 | 134 | 8.11 | 134 | 7.88 | | | | | | | | | | | | | | | | |
| | 51 | 149 | 7.63 | 149 | 7.90 | 149 | 7.91 | 149 | 7.98 | 149 | 8.05 | 140 | 8.30 | 137 | 7.91 | 138 | 7.47 | | | | | | | | | | | | | | | | |
| | 55 | 156 | 7.65 | 156 | 7.72 | 156 | 7.76 | 156 | 7.78 | 156 | 7.79 | 144 | 8.24 | 141 | 7.71 | 138 | 6.90 | | | | | | | | | | | | | | | | |
| 59 | 162 | 7.67 | 162 | 7.64 | 162 | 7.58 | 162 | 7.53 | 162 | 7.51 | 150 | 8.18 | 148 | 7.51 | 139 | 6.35 | | | | | | | | | | | | | | | | | |
| 120 | -4 | 79 | 9.06 | 79 | 9.31 | 79 | 9.50 | 79 | 9.69 | 79 | 9.87 | 77 | 10.54 | 76 | 11.04 | 75 | 11.84 | | | | | | | | | | | | | | | | |
| | -1 | 82 | 8.94 | 82 | 9.22 | 82 | 9.44 | 82 | 9.64 | 82 | 9.82 | 81 | 10.43 | 80 | 10.89 | 79 | 11.60 | | | | | | | | | | | | | | | | |
| | 3 | 86 | 8.79 | 86 | 9.11 | 86 | 9.36 | 86 | 9.56 | 86 | 9.76 | 85 | 10.29 | 84 | 10.68 | 83 | 11.27 | | | | | | | | | | | | | | | | |
| | 7 | 90 | 8.63 | 90 | 9.00 | 90 | 9.27 | 90 | 9.49 | 90 | 9.70 | 89 | 10.14 | 89 | 10.47 | 88 | 10.95 | | | | | | | | | | | | | | | | |
| | 11 | 94 | 8.48 | 94 | 8.95 | 94 | 9.19 | 94 | 9.42 | 94 | 9.63 | 93 | 10.00 | 93 | 10.27 | 93 | 10.52 | | | | | | | | | | | | | | | | |
| | 15 | 98 | 8.32 | 98 | 8.77 | 98 | 9.11 | 98 | 9.35 | 98 | 9.57 | 98 | 9.85 | 98 | 10.06 | 97 | 10.30 | | | | | | | | | | | | | | | | |
| | 19 | 103 | 8.26 | 103 | 8.69 | 103 | 9.02 | 103 | 9.26 | 103 | 9.47 | 103 | 9.69 | 103 | 9.86 | 102 | 10.05 | | | | | | | | | | | | | | | | |
| | 23 | 109 | 8.19 | 109 | 8.62 | 109 | 8.94 | 109 | 9.16 | 109 | 9.37 | 109 | 9.53 | 109 | 9.66 | 107 | 9.80 | | | | | | | | | | | | | | | | |
| | 27 | 114 | 8.13 | 114 | 8.54 | 114 | 8.85 | 114 | 9.07 | 114 | 9.27 | 114 | 9.37 | 111 | 9.46 | 111 | 9.54 | | | | | | | | | | | | | | | | |
| | 31 | 120 | 8.07 | 119 | 8.47 | 119 | 8.76 | 119 | 8.97 | 119 | 9.16 | 119 | 9.22 | 115 | 9.26 | 116 | 9.29 | | | | | | | | | | | | | | | | |
| | 35 | 125 | 8.01 | 125 | 8.39 | 125 | 8.67 | 125 | 8.88 | 125 | 9.06 | 122 | 9.06 | 119 | 9.06 | 121 | 9.04 | | | | | | | | | | | | | | | | |
| | 39 | 130 | 7.94 | 130 | 8.32 | 130 | 8.59 | 130 | 8.78 | 130 | 8.96 | 126 | 8.90 | 123 | 8.86 | 125 | 8.78 | | | | | | | | | | | | | | | | |
| | 43 | 136 | 7.88 | 136 | 8.24 | 136 | 8.50 | 136 | 8.69 | 136 | 8.86 | 131 | 8.74 | 128 | 8.66 | 129 | 8.52 | | | | | | | | | | | | | | | | |
| | 47 | 142 | 7.90 | 142 | 8.16 | 142 | 8.35 | 142 | 8.49 | 142 | 8.61 | 138 | 8.69 | 135 | 8.46 | 137 | 7.93 | | | | | | | | | | | | | | | | |
| | 51 | 149 | 7.91 | 149 | 8.09 | 149 | 8.21 | 149 | 8.29 | 149 | 8.36 | 140 | 8.63 | 137 | 8.26 | 138 | 7.34 | | | | | | | | | | | | | | | | |
| | 55 | 156 | 7.93 | 156 | 8.01 | 156 | 8.05 | 156 | 8.09 | 156 | 8.10 | 146 | 8.57 | 144 | 8.06 | 136 | 6.80 | | | | | | | | | | | | | | | | |
| 59 | 162 | 7.95 | 162 | 7.93 | 162 | 7.92 | 162 | 7.89 | 162 | 7.84 | 148 | 8.51 | 146 | 7.30 | 130 | 6.31 | | | | | | | | | | | | | | | | | |
| 110 | -4 | 79 | 9.42 | 79 | 9.67 | 79 | 9.87 | 79 | 10.07 | 79 | 10.26 | 77 | 10.95 | 76 | 11.47 | 75 | 12.30 | | | | | | | | | | | | | | | | |
| | -1 | 82 | 9.30 | 82 | 9.58 | 82 | 9.81 | 82 | 10.02 | 82 | 10.21 | 81 | 10.84 | 80 | 11.32 | 79 | 12.06 | | | | | | | | | | | | | | | | |
| | 3 | 86 | 9.15 | 86 | 9.47 | 86 | 9.73 | 86 | 9.94 | 86 | 10.15 | 85 | 10.70 | 84 | 11.11 | 83 | 11.73 | | | | | | | | | | | | | | | | |
| | 7 | 90 | 8.99 | 90 | 9.36 | 90 | 9.64 | 90 | 9.87 | 90 | 10.09 | 89 | 10.59 | 89 | 10.85 | 88 | 11.41 | | | | | | | | | | | | | | | | |
| | 11 | 94 | 8.84 | 94 | 9.24 | 94 | 9.56 | 94 | 9.80 | 94 | 10.02 | 94 | 10.41 | 93 | 10.70 | 93 | 11.08 | | | | | | | | | | | | | | | | |
| | 15 | 98 | 8.68 | 98 | 9.13 | 98 | 9.48 | 98 | 9.73 | 98 | 9.96 | 98 | 10.26 | 98 | 10.49 | 97 | 10.76 | | | | | | | | | | | | | | | | |
| | 19 | 103 | 8.62 | 103 | 9.05 | 103 | 9.39 | 103 | 9.64 | 103 | 9.86 | 103 | 10.10 | 103 | 10.29 | 102 | 10.51 | | | | | | | | | | | | | | | | |
| | 23 | 109 | 8.55 | 109 | 8.98 | 109 | 9.31 | 109 | 9.54 | 109 | 9.76 | 109 | 9.94 | 109 | 10.09 | 107 | 10.26 | | | | | | | | | | | | | | | | |
| | 27 | 114 | 8.49 | 114 | 8.90 | 114 | 9.22 | 114 | 9.45 | 114 | 9.66 | 114 | 9.78 | 111 | 9.89 | 111 | 10.00 | | | | | | | | | | | | | | | | |
| | 31 | 120 | 8.43 | 119 | 8.83 | 119 | 9.13 | 119 | 9.35 | 119 | 9.55 | 119 | 9.63 | 116 | 9.69 | 116 | 9.75 | | | | | | | | | | | | | | | | |
| | 35 | 125 | 8.37 | 125 | 8.75 | 125 | 9.04 | 125 | 9.26 | 125 | 9.45 | 122 | 9.47 | 119 | 9.49 | 121 | 9.50 | | | | | | | | | | | | | | | | |
| | 39 | 130 | 8.30 | 130 | 8.68 | 130 | 8.96 | 130 | 9.16 | 130 | 9.35 | 127 | 9.31 | 124 | 9.29 | 124 | 9.24 | | | | | | | | | | | | | | | | |
| | 43 | 136 | 8.24 | 136 | 8.60 | 136 | 8.87 | 136 | 9.07 | 136 | 9.25 | 133 | 9.15 | 129 | 9.09 | 129 | 8.63 | | | | | | | | | | | | | | | | |
| | 47 | 142 | 8.26 | 142 | 8.52 | 142 | 8.74 | 142 | 8.87 | 142 | 9.00 | 139 | 9.10 | 136 | 8.89 | 124 | 8.02 | | | | | | | | | | | | | | | | |
| | 51 | 149 | 8.27 | 149 | 8.45 | 149 | 8.58 | 149 | 8.67 | 149 | 8.75 | 140 | 9.04 | 134 | 8.40 | 124 | 7.45 | | | | | | | | | | | | | | | | |
| | 55 | 156 | 8.29 | 156 | 8.37 | 156 | 8.43 | 156 | 8.47 | 156 | 8.49 | 146 | 8.52 | 134 | 7.61 | 124 | 6.95 | | | | | | | | | | | | | | | | |
| 59 | 162 | 8.31 | 162 | 8.29 | 162 | 8.29 | 162 | 8.27 | 162 | 8.27 | 150 | 8.20 | 142 | 7.80 | 134 | 7.09 | 124 | 6.50 | | | | | | | | | | | | | | | |
| 100 | -4 | 79 | 9.86 | 79 | 10.13 | 79 | 10.34 | 79 | 10.54 | 79 | 10.74 | 77 | 11.47 | 76 | 12.01 | 75 | 12.88 | | | | | | | | | | | | | | | | |
| | -1 | 82 | 9.74 | 82 | 10.04 | 82 | 10.26 | 82 | 10.49 | 82 | 10.69 | 81 | 11.36 | 80 | 11.86 | 79 | 12.64 | | | | | | | | | | | | | | | | |
| | 3 | 86 | 9.59 | 86 | 9.93 | 86 | 10.20 | 86 | 10.41 | 86 | 10.63 | 85 | 11.22 | 84 | 11.65 | 83 | 12.31 | | | | | | | | | | | | | | | | |
| | 7 | 90 | 9.43 | 90 | 9.82 | 90 | 10.11 | 90 | 10.34 | 90 | 10.57 | 89 | 11.07 | 89 | 11.44 | 88 | 11.99 | | | | | | | | | | | | | | | | |
| | 11 | 94 | 9.28 | 94 | 9.70 | 94 | 10.03 | 94 | 10.27 | 94 | 10.50 | 94 | 10.93 | 93 | 11.24 | 93 | | | | | | | | | | | | | | | | | |

SELECTION DATA

(H,Y)VAHP144B(3,4)1S
(H,Y)VAHR144B(3,4)1S

| Comme- sion ratio | Outdoor air temp °F | Indoor air temp. °F DB | | | | | | | | | | | | | | | | Comme- sion ratio | Outdoor air temp °F | Indoor air temp. °F DB | | | | | | | | | | | | | | | | | |
|-------------------------|---------------------------|------------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------|---------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|----|
| | | 59 | | | | 63 | | | | 66 | | | | 68 | | | | | | 70 | | | | 74 | | | | 77 | | | | 80 | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| | % | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW | MtBt | KW |
| 150 | -4 | 103 | 11.21 | 103 | 11.51 | 103 | 11.76 | 103 | 12.03 | 102 | 12.30 | 99 | 13.44 | 97 | 14.28 | 95 | 15.29 | -4 | 103 | 13.08 | 103 | 13.42 | 103 | 13.70 | 103 | 14.02 | 102 | 14.34 | 99 | 15.66 | 97 | 16.64 | 95 | 17.82 | | | |
| | -1 | 106 | 11.01 | 106 | 11.33 | 106 | 11.59 | 106 | 11.87 | 106 | 12.12 | 100 | 13.14 | 101 | 13.88 | 99 | 14.77 | -1 | 106 | 12.86 | 106 | 13.24 | 106 | 13.54 | 106 | 13.86 | 106 | 14.16 | 103 | 15.36 | 101 | 16.24 | 99 | 17.30 | | | |
| | 3 | 110 | 10.75 | 110 | 11.11 | 110 | 11.39 | 110 | 11.65 | 110 | 11.90 | 100 | 12.74 | 100 | 13.34 | 100 | 14.07 | 3 | 110 | 12.60 | 110 | 13.02 | 110 | 13.34 | 110 | 13.64 | 110 | 13.94 | 108 | 14.96 | 106 | 15.70 | 105 | 16.60 | | | |
| | 7 | 114 | 10.49 | 114 | 10.89 | 114 | 11.19 | 114 | 11.43 | 114 | 11.68 | 113 | 12.32 | 111 | 12.80 | 110 | 13.37 | 7 | 114 | 12.34 | 114 | 12.80 | 114 | 13.14 | 114 | 13.42 | 114 | 13.72 | 113 | 14.54 | 111 | 15.16 | 110 | 15.90 | | | |
| | 11 | 118 | 10.21 | 118 | 10.65 | 118 | 10.99 | 118 | 11.23 | 118 | 11.44 | 118 | 11.92 | 117 | 12.28 | 116 | 12.89 | 11 | 118 | 12.06 | 118 | 12.58 | 118 | 12.94 | 118 | 13.22 | 118 | 13.48 | 118 | 14.14 | 117 | 14.64 | 116 | 15.22 | | | |
| | 15 | 122 | 9.95 | 123 | 10.43 | 123 | 10.79 | 123 | 11.01 | 123 | 11.22 | 123 | 11.52 | 122 | 11.74 | 122 | 11.99 | 15 | 122 | 11.80 | 123 | 12.34 | 123 | 12.74 | 123 | 13.00 | 123 | 13.26 | 123 | 13.74 | 122 | 14.10 | 122 | 14.52 | | | |
| | 19 | 128 | 9.77 | 129 | 10.25 | 129 | 10.59 | 129 | 10.81 | 129 | 11.02 | 129 | 11.32 | 129 | 11.65 | 127 | 11.77 | 19 | 128 | 11.62 | 129 | 12.16 | 129 | 12.54 | 129 | 12.80 | 129 | 13.06 | 128 | 13.54 | 128 | 13.92 | 127 | 14.30 | | | |
| | 23 | 134 | 9.61 | 134 | 10.05 | 134 | 10.31 | 134 | 10.63 | 134 | 10.82 | 134 | 11.14 | 134 | 11.36 | 133 | 11.53 | 23 | 134 | 11.46 | 134 | 11.96 | 134 | 12.36 | 134 | 12.62 | 134 | 12.86 | 134 | 13.36 | 134 | 13.72 | 132 | 14.06 | | | |
| | 27 | 140 | 9.43 | 140 | 9.87 | 140 | 10.21 | 140 | 10.43 | 140 | 10.62 | 130 | 10.94 | 130 | 11.18 | 131 | 11.31 | 27 | 140 | 11.28 | 140 | 11.78 | 140 | 12.16 | 140 | 12.42 | 140 | 12.66 | 139 | 13.16 | 139 | 13.54 | 138 | 13.84 | | | |
| | 31 | 145 | 9.25 | 145 | 9.69 | 145 | 10.03 | 145 | 10.23 | 145 | 10.42 | 145 | 10.74 | 145 | 10.98 | 143 | 11.07 | 31 | 145 | 11.10 | 145 | 11.60 | 145 | 11.98 | 145 | 12.22 | 145 | 12.46 | 145 | 12.96 | 145 | 13.34 | 143 | 13.60 | | | |
| 35 | 151 | 9.07 | 151 | 9.51 | 151 | 9.83 | 151 | 10.03 | 151 | 10.22 | 151 | 10.54 | 150 | 10.80 | 149 | 10.85 | 35 | 151 | 10.92 | 151 | 11.42 | 151 | 11.78 | 151 | 12.02 | 151 | 12.26 | 151 | 12.76 | 150 | 13.16 | 148 | 13.38 | | | | |
| 39 | 157 | 8.91 | 157 | 9.31 | 157 | 9.65 | 157 | 9.85 | 157 | 10.02 | 156 | 10.36 | 156 | 10.60 | 154 | 10.61 | 39 | 157 | 10.76 | 157 | 11.22 | 157 | 11.60 | 157 | 11.84 | 156 | 12.06 | 156 | 12.56 | 156 | 12.96 | 154 | 13.14 | | | | |
| 43 | 162 | 8.73 | 162 | 9.13 | 162 | 9.45 | 162 | 9.65 | 162 | 9.82 | 162 | 10.16 | 162 | 10.42 | 160 | 10.39 | 43 | 162 | 10.58 | 162 | 11.04 | 162 | 11.40 | 162 | 11.64 | 162 | 11.86 | 162 | 12.38 | 162 | 12.78 | 159 | 12.92 | | | | |
| 47 | 169 | 8.63 | 169 | 9.01 | 169 | 9.33 | 169 | 9.53 | 169 | 9.76 | 167 | 9.76 | 167 | 9.82 | 166 | 10.15 | 47 | 169 | 10.48 | 169 | 10.92 | 169 | 11.28 | 169 | 11.52 | 169 | 11.76 | 167 | 11.98 | 167 | 12.18 | 165 | 11.88 | | | | |
| 51 | 176 | 8.51 | 176 | 8.91 | 176 | 9.21 | 176 | 9.39 | 176 | 9.56 | 173 | 9.34 | 173 | 9.22 | 170 | 9.91 | 51 | 176 | 10.36 | 176 | 10.82 | 176 | 11.16 | 176 | 11.38 | 175 | 11.60 | 173 | 11.56 | 170 | 11.56 | 169 | 10.98 | | | | |
| 55 | 183 | 8.41 | 183 | 8.79 | 182 | 9.09 | 182 | 9.27 | 182 | 9.42 | 178 | 9.24 | 178 | 9.12 | 176 | 9.67 | 55 | 183 | 10.26 | 183 | 10.70 | 182 | 11.04 | 182 | 11.26 | 182 | 11.44 | 178 | 11.16 | 176 | 11.02 | 175 | 10.92 | 169 | 10.28 | | |
| 59 | 190 | 8.37 | 189 | 8.77 | 189 | 9.07 | 189 | 9.25 | 189 | 9.40 | 183 | 8.54 | 183 | 8.62 | 181 | 9.43 | 59 | 189 | 10.22 | 189 | 10.68 | 189 | 11.02 | 189 | 11.24 | 189 | 11.46 | 187 | 10.98 | 187 | 11.50 | 185 | 10.97 | 178 | 9.74 | | |
| 140 | -4 | 103 | 11.36 | 103 | 11.68 | 103 | 11.92 | 103 | 12.20 | 102 | 12.48 | 99 | 13.62 | 97 | 14.48 | 95 | 15.50 | -4 | 103 | 13.75 | 103 | 14.13 | 103 | 14.43 | 103 | 14.76 | 102 | 15.10 | 99 | 16.49 | 97 | 17.52 | 95 | 18.77 | | | |
| | -1 | 106 | 11.16 | 106 | 11.50 | 106 | 11.76 | 106 | 12.04 | 100 | 12.30 | 100 | 13.32 | 101 | 14.08 | 99 | 14.98 | -1 | 106 | 13.48 | 106 | 13.86 | 106 | 14.14 | 105 | 14.48 | 105 | 14.78 | 102 | 15.95 | 100 | 16.82 | 98 | 17.83 | | | |
| | 3 | 110 | 10.90 | 110 | 11.28 | 110 | 11.56 | 110 | 11.82 | 110 | 12.08 | 100 | 12.92 | 100 | 13.54 | 100 | 14.28 | 3 | 110 | 13.12 | 110 | 13.52 | 109 | 13.80 | 109 | 14.09 | 109 | 14.39 | 106 | 15.29 | 104 | 16.50 | 102 | 16.68 | | | |
| | 7 | 114 | 10.64 | 114 | 11.06 | 114 | 11.36 | 114 | 11.60 | 114 | 11.86 | 111 | 12.50 | 111 | 13.00 | 110 | 13.58 | 7 | 114 | 12.78 | 114 | 13.18 | 113 | 13.48 | 113 | 13.73 | 112 | 14.00 | 110 | 14.62 | 108 | 15.06 | 106 | 15.58 | | | |
| | 11 | 118 | 10.36 | 118 | 10.82 | 118 | 11.16 | 118 | 11.40 | 118 | 11.62 | 116 | 12.10 | 116 | 12.48 | 115 | 12.90 | 11 | 118 | 12.42 | 117 | 12.86 | 117 | 13.16 | 116 | 13.41 | 116 | 13.63 | 114 | 14.28 | 112 | 14.58 | | | | | |
| | 15 | 122 | 10.10 | 123 | 10.60 | 123 | 10.96 | 123 | 11.18 | 123 | 11.40 | 122 | 11.70 | 122 | 11.94 | 122 | 12.20 | 15 | 122 | 12.09 | 121 | 12.54 | 120 | 12.86 | 120 | 13.08 | 120 | 13.28 | 118 | 13.43 | 116 | 13.53 | 114 | 13.63 | | | |
| | 19 | 128 | 9.92 | 129 | 10.42 | 129 | 10.76 | 129 | 10.98 | 129 | 11.20 | 129 | 11.50 | 129 | 11.76 | 127 | 11.98 | 19 | 128 | 11.55 | 128 | 12.00 | 128 | 12.31 | 128 | 12.53 | 128 | 12.75 | 127 | 12.94 | 125 | 13.10 | 123 | 13.11 | | | |
| | 23 | 134 | 9.76 | 134 | 10.22 | 134 | 10.58 | 134 | 10.80 | 134 | 11.00 | 134 | 11.32 | 134 | 11.56 | 133 | 11.74 | 23 | 134 | 11.08 | 134 | 11.50 | 134 | 11.83 | 134 | 12.05 | 132 | 12.24 | 130 | 12.51 | 128 | 12.68 | 126 | 12.80 | | | |
| | 27 | 140 | 9.58 | 140 | 10.04 | 140 | 10.38 | 140 | 10.60 | 140 | 10.80 | 139 | 11.12 | 139 | 11.38 | 138 | 11.52 | 27 | 140 | 10.61 | 140 | 11.04 | 140 | 11.35 | 140 | 11.58 | 139 | 11.78 | 138 | 12.08 | 136 | 12.20 | 134 | 12.43 | | | |
| | 31 | 145 | 9.40 | 145 | 9.86 | 145 | 10.20 | 145 | 10.40 | 145 | 10.60 | 145 | 10.92 | 145 | 11.18 | 143 | 11.28 | 31 | 145 | 10.19 | 145 | 10.62 | 145 | 10.94 | 145 | 11.14 | 144 | 11.33 | 143 | 11.51 | 141 | 11.63 | 139 | 11.74 | | | |
| 35 | 151 | 9.22 | 151 | 9.68 | 151 | 10.00 | 151 | 10.20 | 151 | 10.40 | 151 | 10.72 | 150 | 11.00 | 149 | 11.06 | 35 | 149 | 9.78 | 149 | 10.21 | 149 | 10.52 | 149 | 10.72 | 148 | 10.93 | 148 | 11.29 | 147 | 11.60 | 145 | 11.73 | | | | |
| 39 | 157 | 9.06 | 157 | 9.48 | 157 | 9.82 | 157 | 10.02 | 157 | 10.20 | 156 | 10.54 | 156 | 10.80 | 154 | 10.82 | 39 | 157 | 9.43 | 157 | 9.82 | 157 | 10.15 | 157 | 10.35 | 156 | 10.53 | 156 | 10.96 | 155 | 11.26 | 153 | 11.39 | | | | |
| 43 | 163 | 8.93 | 163 | 9.30 | 163 | 9.62 | 163 | 9.82 | 163 | 10.04 | 163 | 10.34 | 163 | 10.62 | 161 | 10.60 | 43 | 163 | 9.07 | 163 | 9.47 | 163 | 9.78 | 163 | 9.98 | 163 | 10.17 | 163 | 10.62 | 162 | 10.96 | 160 | 11.08 | | | | |
| 47 | 169 | 8.78 | 169 | 9.18 | 169 | 9.50 | 169 | 9.70 | 169 | 9.86 | 167 | 9.74 | 167 | 9.82 | 166 | 10.36 | 47 | 169 | 8.90 | 169 | 9.36 | 169 | 9.67 | 169 | 9.88 | 169 | 10.05 | 167 | 10.27 | 165 | 10.44 | 163 | 10.19 | | | | |
| 51 | 176 | 8.66 | 176 | 9.08 | 176 | 9.38 | 176 | 9.58 | 176 | 9.74 | 174 | 9.52 | 174 | 9.62 | 173 | 10.12 | 51 | 176 | 8.88 | 176 | 9.28 | 176 | 9.57 | 176 | 9.76 | 176 | 9.93 | 174 | 9.91 | 173 | 10.33 | 171 | 10.42 | | | | |
| 55 | 183 | 8.56 | 183 | 8.96 | 182 | 9.26 | 182 | 9.44 | 182 | 9.60 | 178 | 9.12 | 178 | 8.82 | 176 | 9.88 | 55 | 183 | 8.78 | 183 | 9.18 | 183 | 9.47 | 183 | 9.66 | 183 | 9.85 | 181 | 9.57 | 179 | 9.38 | 177 | 9.53 | | | | |
| 59 | 190 | 8.52 | 189 | 8.94 | 189 | 9.24 | 189 | 9.42 | 189 | 9.58 | 183 | 8.72 | 183 | 8.82 | 181 | 9.64 | 59 | 190 | 8.76 | 190 | 9.16 | 190 | 9.45 | 190 | 9.64 | 190 | 9.81 | 188 | 9.23 | 186 | 9.33 | 184 | 9.39 | | | | |
| 130 | -4 | 103 | 11.62 | 103 | 11.94 | 103 | 12.19 | 103 | 12.48 | 102 | 12.76 | 99 | 13.94 | 97 | 14.81 | 95 | 15.86 | -4 | 103 | 14.56 | 103 | 14.96 | 103 | 15.27 | 103 | 15.58 | 102 | 15.98 | 99 | 17.45 | 97 | 18.54 | 95 | 19.66 | | | |
| | -1 | 106 | 11.42 | 106 | 11.76 | 106 | 12.03 | 106 | 12.32 | 100 | 12.58 | 100 | 13.64 | 101 | 14.41 | 99 | 15.34 | -1 | 106 | 14.03 | 106 | 14.43 | 106 | 14.73 | 104 | 15.08 | 104 | 15.39 | 101 | 16.61 | 99 | 17.51 | 97 | 18.57 | | | |
| | 3 | 110 | 11.16 | 110 | 11.54 | 110 | 11.83 | 110 | 12.10 | 110 | 12.36 | 100 | 13.24 | 100 | 13.87 | 100 | 14.64 | 3 | 110 | 13.38 | 110 | 13.78 | 107 | 14.08 | 107 | 14.37 | 106 | 14.68 | 104 | 15.59 | 101 | 16.21 | 100 | 17.01 | | | |
| | 7 | 114 | 10.90 | 114 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SELECTION DATA

(H,Y)VAHP168B(3,4)1S
(H,Y)VAHR168B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °F/DB | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|--------|--------|--------|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-------|--|--|--|--|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | | | | |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | | | | | |
| 140 | -4 | 121 | 132.86 | 121 | 133.22 | 121 | 133.50 | 120 | 134.09 | 118 | 15.27 | 116 | 16.15 | 115 | 17.38 | | | | | | | | |
| | -1 | 125 | 123.53 | 124 | 123.92 | 124 | 124.22 | 124 | 13.82 | 124 | 14.99 | 121 | 15.87 | 119 | 16.95 | | | | | | | | |
| | 3 | 129 | 121.10 | 128 | 121.52 | 128 | 121.85 | 129 | 13.14 | 129 | 13.42 | 126 | 14.61 | 126 | 15.49 | 126 | 16.38 | | | | | | |
| | 7 | 134 | 111.66 | 133 | 112.13 | 133 | 112.48 | 134 | 12.76 | 134 | 13.04 | 133 | 14.22 | 132 | 15.11 | 132 | 15.81 | | | | | | |
| | 11 | 139 | 111.22 | 139 | 111.72 | 139 | 112.12 | 139 | 12.40 | 139 | 12.66 | 139 | 13.85 | 138 | 14.74 | 138 | 15.25 | | | | | | |
| | 15 | 144 | 107.78 | 144 | 108.33 | 144 | 108.88 | 144 | 12.02 | 144 | 12.28 | 144 | 13.47 | 144 | 14.36 | 144 | 14.88 | | | | | | |
| | 19 | 151 | 103.65 | 151 | 104.19 | 151 | 104.73 | 151 | 11.86 | 151 | 12.12 | 150 | 13.16 | 150 | 13.95 | 150 | 14.26 | | | | | | |
| | 23 | 157 | 103.53 | 157 | 104.05 | 157 | 104.57 | 157 | 11.72 | 157 | 11.96 | 156 | 12.86 | 156 | 13.53 | 156 | 13.84 | | | | | | |
| | 27 | 164 | 104.40 | 164 | 104.91 | 164 | 105.41 | 164 | 11.56 | 164 | 11.80 | 162 | 12.55 | 162 | 13.12 | 162 | 13.42 | | | | | | |
| | 31 | 170 | 102.28 | 170 | 102.78 | 170 | 103.28 | 170 | 11.41 | 170 | 11.63 | 169 | 12.25 | 169 | 12.70 | 169 | 13.00 | | | | | | |
| | 35 | 177 | 101.15 | 176 | 101.64 | 176 | 102.14 | 176 | 11.25 | 176 | 11.47 | 174 | 11.94 | 174 | 12.29 | 174 | 12.58 | | | | | | |
| | 39 | 183 | 103.03 | 183 | 103.50 | 183 | 103.97 | 183 | 11.11 | 183 | 11.31 | 181 | 11.64 | 181 | 11.87 | 180 | 12.16 | | | | | | |
| 43 | 190 | 99.90 | 189 | 100.36 | 189 | 100.82 | 189 | 10.95 | 189 | 11.15 | 187 | 11.33 | 187 | 11.46 | 186 | 11.75 | | | | | | | |
| 47 | 197 | 97.73 | 196 | 98.12 | 196 | 98.51 | 196 | 10.81 | 196 | 10.93 | 194 | 10.94 | 194 | 11.07 | 193 | 11.33 | | | | | | | |
| 51 | 204 | 95.54 | 203 | 95.90 | 203 | 96.26 | 203 | 10.66 | 203 | 10.77 | 199 | 10.82 | 199 | 10.94 | 198 | 11.19 | | | | | | | |
| 55 | 211 | 93.37 | 210 | 93.66 | 210 | 93.95 | 210 | 10.50 | 210 | 10.60 | 207 | 10.60 | 207 | 10.69 | 206 | 10.94 | | | | | | | |
| 59 | 218 | 91.23 | 217 | 91.47 | 217 | 91.71 | 217 | 10.33 | 217 | 10.43 | 214 | 10.43 | 214 | 10.52 | 213 | 10.77 | | | | | | | |
| 130 | -4 | 121 | 131.15 | 121 | 131.53 | 121 | 131.81 | 120 | 14.12 | 120 | 14.42 | 118 | 15.62 | 116 | 16.52 | 115 | 17.78 | | | | | | |
| | -1 | 125 | 122.82 | 124 | 123.23 | 124 | 123.53 | 124 | 13.84 | 124 | 14.13 | 121 | 15.34 | 121 | 16.24 | 119 | 17.20 | | | | | | |
| | 3 | 129 | 123.39 | 129 | 123.83 | 129 | 124.16 | 129 | 13.16 | 129 | 13.46 | 126 | 14.75 | 126 | 15.66 | 126 | 16.78 | | | | | | |
| | 7 | 134 | 111.95 | 134 | 112.44 | 134 | 112.79 | 134 | 12.79 | 134 | 13.07 | 133 | 14.57 | 132 | 15.48 | 132 | 16.21 | | | | | | |
| | 11 | 139 | 111.51 | 139 | 112.03 | 139 | 112.43 | 139 | 12.72 | 139 | 12.99 | 138 | 14.20 | 137 | 15.11 | 137 | 15.65 | | | | | | |
| | 15 | 144 | 111.07 | 144 | 111.64 | 144 | 112.06 | 144 | 12.54 | 144 | 12.81 | 143 | 14.32 | 142 | 15.14 | 142 | 15.69 | | | | | | |
| | 19 | 151 | 109.94 | 151 | 110.50 | 151 | 111.05 | 151 | 11.91 | 151 | 12.15 | 150 | 13.51 | 150 | 14.32 | 150 | 14.66 | | | | | | |
| | 23 | 157 | 102.87 | 157 | 103.35 | 157 | 103.82 | 157 | 11.77 | 157 | 12.04 | 155 | 12.29 | 155 | 13.21 | 155 | 13.90 | 155 | 14.24 | | | | |
| | 27 | 164 | 100.69 | 164 | 101.22 | 164 | 101.72 | 164 | 11.62 | 164 | 11.88 | 162 | 12.13 | 162 | 12.90 | 162 | 13.82 | | | | | | |
| | 31 | 170 | 100.57 | 170 | 101.09 | 170 | 101.47 | 170 | 11.73 | 170 | 11.96 | 169 | 12.60 | 169 | 13.07 | 169 | 13.40 | | | | | | |
| | 35 | 177 | 100.44 | 176 | 100.95 | 176 | 101.32 | 176 | 11.57 | 176 | 11.80 | 172 | 12.29 | 172 | 12.66 | 172 | 12.98 | | | | | | |
| | 39 | 183 | 100.32 | 183 | 100.81 | 183 | 101.18 | 183 | 11.43 | 183 | 11.64 | 181 | 11.99 | 181 | 12.24 | 180 | 12.56 | | | | | | |
| 43 | 190 | 100.19 | 189 | 100.67 | 189 | 101.13 | 189 | 11.27 | 189 | 11.48 | 187 | 11.88 | 187 | 12.13 | 186 | 12.49 | | | | | | | |
| 47 | 197 | 100.02 | 196 | 100.43 | 196 | 100.85 | 196 | 11.06 | 196 | 11.14 | 193 | 11.28 | 193 | 11.51 | 192 | 11.73 | | | | | | | |
| 51 | 204 | 97.83 | 203 | 98.21 | 203 | 98.57 | 203 | 10.89 | 203 | 10.97 | 199 | 10.87 | 199 | 10.99 | 198 | 11.31 | | | | | | | |
| 55 | 211 | 95.66 | 210 | 95.97 | 210 | 96.26 | 210 | 10.72 | 210 | 10.82 | 207 | 10.82 | 207 | 10.99 | 206 | 11.31 | | | | | | | |
| 59 | 218 | 93.52 | 217 | 93.77 | 217 | 94.01 | 217 | 10.55 | 217 | 10.65 | 214 | 10.65 | 214 | 10.77 | 213 | 11.02 | | | | | | | |
| 120 | -4 | 121 | 133.58 | 121 | 133.97 | 121 | 134.26 | 120 | 14.58 | 120 | 14.89 | 118 | 16.13 | 116 | 17.06 | 115 | 18.36 | | | | | | |
| | -1 | 125 | 123.25 | 124 | 123.67 | 124 | 123.98 | 124 | 14.30 | 124 | 14.60 | 121 | 15.85 | 121 | 16.78 | 119 | 17.93 | | | | | | |
| | 3 | 129 | 123.82 | 129 | 124.27 | 129 | 124.59 | 129 | 13.62 | 129 | 13.92 | 126 | 15.47 | 126 | 16.40 | 126 | 17.36 | | | | | | |
| | 7 | 134 | 112.36 | 134 | 112.84 | 134 | 113.24 | 134 | 13.54 | 134 | 13.84 | 133 | 15.08 | 132 | 16.02 | 132 | 16.79 | | | | | | |
| | 11 | 139 | 111.94 | 139 | 112.47 | 139 | 112.88 | 139 | 13.18 | 139 | 13.48 | 137 | 14.71 | 136 | 15.65 | 136 | 16.23 | | | | | | |
| | 15 | 144 | 111.50 | 144 | 112.06 | 144 | 112.51 | 144 | 12.80 | 144 | 13.08 | 144 | 14.33 | 144 | 15.27 | 144 | 15.66 | | | | | | |
| | 19 | 151 | 111.37 | 151 | 111.94 | 151 | 112.35 | 151 | 12.64 | 151 | 12.92 | 150 | 14.02 | 150 | 14.86 | 150 | 15.24 | | | | | | |
| | 23 | 157 | 111.25 | 157 | 111.80 | 157 | 112.22 | 157 | 12.50 | 157 | 12.76 | 156 | 13.72 | 156 | 14.44 | 156 | 14.82 | | | | | | |
| | 27 | 164 | 111.12 | 164 | 111.66 | 164 | 112.07 | 164 | 12.34 | 164 | 12.60 | 163 | 13.41 | 163 | 14.03 | 163 | 14.40 | | | | | | |
| | 31 | 170 | 111.00 | 170 | 111.53 | 170 | 111.92 | 170 | 12.19 | 170 | 12.43 | 169 | 13.11 | 169 | 13.61 | 169 | 13.98 | | | | | | |
| | 35 | 177 | 100.87 | 176 | 101.39 | 176 | 101.77 | 176 | 12.03 | 176 | 12.27 | 172 | 12.80 | 172 | 13.20 | 172 | 13.56 | | | | | | |
| | 39 | 183 | 100.75 | 183 | 101.25 | 183 | 101.73 | 183 | 11.89 | 183 | 12.11 | 181 | 12.50 | 181 | 12.78 | 180 | 13.14 | | | | | | |
| 43 | 190 | 100.62 | 189 | 101.11 | 189 | 101.59 | 189 | 11.73 | 189 | 11.95 | 187 | 12.19 | 187 | 12.37 | 186 | 12.73 | | | | | | | |
| 47 | 197 | 100.45 | 196 | 100.87 | 196 | 101.29 | 196 | 11.56 | 196 | 11.79 | 193 | 11.91 | 193 | 12.11 | 192 | 12.31 | | | | | | | |
| 51 | 204 | 100.26 | 203 | 100.65 | 203 | 101.02 | 203 | 11.20 | 203 | 11.27 | 199 | 11.38 | 199 | 11.53 | 198 | 11.94 | | | | | | | |
| 55 | 211 | 100.09 | 210 | 100.41 | 210 | 100.74 | 210 | 10.99 | 210 | 11.09 | 207 | 11.09 | 207 | 11.26 | 206 | 11.61 | | | | | | | |
| 59 | 218 | 97.95 | 217 | 98.22 | 217 | 98.49 | 217 | 10.81 | 217 | 10.93 | 214 | 10.93 | 214 | 11.07 | 213 | 11.44 | | | | | | | |
| 110 | -4 | 121 | 134.11 | 121 | 134.52 | 121 | 134.82 | 120 | 15.15 | 120 | 15.47 | 118 | 16.76 | 116 | 17.72 | 115 | 19.08 | | | | | | |
| | -1 | 125 | 123.78 | 124 | 124.22 | 124 | 124.54 | 124 | 14.87 | 124 | 15.18 | 121 | 16.48 | 121 | 17.44 | 119 | 18.65 | | | | | | |
| | 3 | 129 | 123.35 | 129 | 123.82 | 129 | 124.17 | 129 | 14.49 | 129 | 14.80 | 126 | 16.10 | 126 | 17.08 | 126 | 18.08 | | | | | | |
| | 7 | 134 | 121.91 | 134 | 122.43 | 134 | 122.83 | 134 | 14.11 | 134 | 14.42 | 133 | 15.71 | 132 | 16.68 | 132 | 17.51 | | | | | | |
| | 11 | 139 | 121.47 | 139 | 122.03 | 139 | 122.44 | 139 | 13.75 | 139 | 14.04 | 137 | 15.34 | 136 | 16.31 | 136 | 17.05 | | | | | | |
| | 15 | 144 | 120.03 | 144 | 120.64 | 144 | 121.24 | 144 | 13.37 | 144 | 13.66 | 144 | 14.96 | 144 | 15.93 | 144 | 16.38 | | | | | | |
| | 19 | 151 | 119.90 | 151 | 120.49 | 151 | 121.05 | 151 | 13.21 | 151 | 13.50 | 150 | 14.65 | 150 | 15.52 | 150 | 15.96 | | | | | | |
| | 23 | 157 | 111.78 | 157 | 112.35 | 157 | 112.78 | 157 | 13.07 | 157 | 13.34 | 156 | 14.35 | 156 | 15.10 | 156 | 15.54 | | | | | | |
| | 27 | 164 | 111.65 | 164 | 112.21 | 164 | 112.63 | 164 | 12.91 | 164 | 13.18 | 164 | 14.04 | 164 | 14.89 | 164 | 15.32 | | | | | | |
| | 31 | 170 | 111.53 | 170 | 112.08 | 170 | 112.48 | 170 | 12.76 | 170 | 13.01 | 169 | 13.74 | 169 | 14.27 | 169 | 14.70 | | | | | | |
| | 35 | 177 | 111.40 | 176 | 111.94 | 176 | 112.33 | 176 | 12.60 | 176 | 12.85 | 173 | 13.43 | 173 | 13.86 | 173 | 14.28 | | | | | | |
| | 39 | 183 | 111.28 | 183 | 111.80 | 183 | 112.19 | 183 | 12.46 | 183 | 12.69 | 181 | 13.13 | 181 | 13.44 | 180 | 13.86 | | | | | | |
| 43 | 190 | 111.15 | 189 | 111.66 | 189 | 112.04 | 189 | 12.30 | 189</ | | | | | | | | | | | | | | |

SELECTION DATA

(H,Y)VAHP192B(3,4)1S
(H,Y)VAHR192B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °F DB | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| % | °FWB | MtH | KW | MtH | KW | MtH | KW | MtH | KW | MtH | KW | MtH | KW | MtH | KW | MtH | KW |
| 135 | -4 | 138 | 14.50 | 138 | 14.93 | 138 | 15.24 | 138 | 15.56 | 138 | 15.87 | 137 | 15.07 | 136 | 18.00 | 135 | 19.46 |
| | -1 | 143 | 14.04 | 143 | 14.51 | 143 | 14.84 | 142 | 15.16 | 142 | 15.47 | 141 | 16.83 | 140 | 17.84 | 140 | 19.12 |
| | 3 | 148 | 13.44 | 148 | 13.93 | 148 | 14.30 | 148 | 14.62 | 148 | 14.93 | 147 | 16.47 | 147 | 17.62 | 146 | 18.68 |
| | 7 | 154 | 12.82 | 154 | 13.37 | 154 | 13.76 | 154 | 14.08 | 154 | 14.39 | 154 | 16.11 | 153 | 17.40 | 153 | 18.24 |
| | 11 | 160 | 12.22 | 160 | 12.79 | 160 | 13.24 | 160 | 13.56 | 160 | 13.87 | 160 | 15.77 | 160 | 17.18 | 159 | 17.80 |
| | 15 | 165 | 11.60 | 165 | 12.23 | 165 | 12.70 | 165 | 13.02 | 165 | 13.33 | 165 | 15.41 | 165 | 16.96 | 165 | 17.36 |
| | 19 | 173 | 11.52 | 173 | 12.13 | 173 | 12.60 | 173 | 12.90 | 173 | 13.21 | 172 | 14.99 | 172 | 16.32 | 172 | 16.74 |
| | 23 | 180 | 11.44 | 180 | 12.05 | 180 | 12.50 | 180 | 12.80 | 180 | 13.09 | 179 | 14.57 | 179 | 15.68 | 179 | 16.14 |
| | 27 | 187 | 11.36 | 187 | 11.95 | 187 | 12.40 | 187 | 12.68 | 187 | 12.97 | 186 | 14.15 | 184 | 15.04 | 186 | 15.52 |
| | 31 | 195 | 11.30 | 195 | 11.87 | 195 | 12.28 | 195 | 12.56 | 194 | 12.83 | 193 | 13.75 | 192 | 14.40 | 193 | 14.92 |
| | 35 | 202 | 11.22 | 202 | 11.77 | 202 | 12.18 | 202 | 12.46 | 202 | 12.71 | 199 | 13.33 | 196 | 13.76 | 199 | 14.30 |
| | 39 | 210 | 11.14 | 209 | 11.69 | 209 | 12.08 | 209 | 12.36 | 209 | 12.59 | 205 | 12.91 | 202 | 13.12 | 205 | 13.70 |
| | 43 | 217 | 11.06 | 216 | 11.59 | 216 | 11.98 | 216 | 12.24 | 216 | 12.47 | 212 | 12.49 | 209 | 12.48 | 213 | 13.10 |
| | 47 | 224 | 11.02 | 224 | 11.23 | 223 | 11.54 | 223 | 11.74 | 223 | 11.93 | 219 | 12.09 | 216 | 11.84 | 219 | 12.50 |
| | 51 | 231 | 11.06 | 231 | 11.09 | 231 | 11.10 | 231 | 11.24 | 230 | 11.37 | 226 | 11.69 | 221 | 11.20 | 226 | 11.90 |
| | 55 | 239 | 11.02 | 238 | 11.03 | 238 | 11.06 | 238 | 11.07 | 238 | 11.08 | 231 | 11.29 | 227 | 10.56 | 230 | 11.30 |
| 59 | 246 | 11.00 | 245 | 11.07 | 245 | 11.02 | 245 | 11.02 | 245 | 11.02 | 238 | 10.89 | 233 | 9.92 | 230 | 10.12 | |

| Connection ratio | Outdoor air temp | Indoor air temp. °F DB | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|------|-------|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| % | °FWB | MtH | KW | MtH | KW | MtH | KW | MtH | KW | MtH | KW | MtH | KW | MtH | KW | MtH | KW |
| 90 | -4 | 138 | 17.38 | 138 | 17.88 | 138 | 18.26 | 138 | 18.64 | 138 | 19.02 | 137 | 20.47 | 136 | 21.57 | 135 | 23.32 |
| | -1 | 142 | 16.74 | 142 | 17.28 | 142 | 17.66 | 142 | 18.04 | 141 | 18.40 | 141 | 19.88 | 139 | 20.99 | 137 | 22.28 |
| | 3 | 147 | 15.95 | 147 | 16.49 | 147 | 16.90 | 146 | 17.25 | 146 | 17.61 | 145 | 19.13 | 143 | 20.24 | 141 | 21.03 |
| | 7 | 152 | 15.16 | 152 | 15.73 | 151 | 16.16 | 151 | 16.49 | 151 | 16.83 | 149 | 18.41 | 148 | 19.57 | 145 | 19.88 |
| | 11 | 157 | 14.41 | 156 | 14.99 | 156 | 15.48 | 156 | 15.79 | 156 | 16.12 | 154 | 17.77 | 152 | 18.93 | 148 | 18.80 |
| | 15 | 161 | 13.66 | 161 | 14.29 | 161 | 14.77 | 161 | 15.08 | 161 | 15.40 | 158 | 17.13 | 157 | 18.34 | 152 | 17.82 |
| | 19 | 166 | 13.23 | 166 | 13.83 | 166 | 14.30 | 166 | 14.60 | 165 | 14.91 | 163 | 16.40 | 161 | 17.46 | 156 | 16.75 |
| | 23 | 171 | 12.82 | 171 | 13.41 | 171 | 13.86 | 170 | 14.16 | 170 | 14.48 | 168 | 15.70 | 166 | 16.61 | 160 | 16.14 |
| | 27 | 176 | 12.45 | 176 | 13.02 | 175 | 13.46 | 175 | 13.74 | 174 | 14.03 | 172 | 15.05 | 170 | 15.80 | 163 | 15.61 |
| | 31 | 181 | 12.11 | 180 | 12.66 | 180 | 13.07 | 180 | 13.36 | 180 | 13.62 | 177 | 14.45 | 174 | 15.02 | 167 | 15.09 |
| | 35 | 185 | 11.79 | 185 | 12.32 | 185 | 12.72 | 185 | 12.99 | 185 | 13.25 | 181 | 13.85 | 179 | 14.26 | 171 | 14.56 |
| | 39 | 190 | 11.48 | 190 | 12.00 | 190 | 12.39 | 190 | 12.66 | 190 | 12.90 | 186 | 13.28 | 183 | 13.53 | 174 | 14.05 |
| | 43 | 195 | 11.20 | 195 | 11.70 | 195 | 12.07 | 195 | 12.33 | 194 | 12.57 | 191 | 12.73 | 188 | 12.83 | 178 | 13.53 |
| | 47 | 200 | 10.95 | 200 | 11.39 | 199 | 11.70 | 199 | 11.90 | 199 | 12.11 | 194 | 12.38 | 188 | 11.75 | 178 | 12.37 |
| | 51 | 205 | 10.77 | 204 | 11.10 | 204 | 11.32 | 204 | 11.47 | 203 | 11.63 | 194 | 11.29 | 188 | 10.86 | 178 | 11.18 |
| | 55 | 210 | 10.56 | 209 | 10.79 | 209 | 10.94 | 207 | 11.03 | 203 | 10.67 | 194 | 10.36 | 188 | 10.12 | 178 | 10.32 |
| 59 | 214 | 10.36 | 212 | 10.48 | 210 | 10.72 | 207 | 10.53 | 203 | 10.51 | 194 | 9.91 | 188 | 9.72 | 178 | 9.59 | |

TC: Total Capacity
 IP: Input Power

NOTES:

- The table shows the normal value of a heating operation. In some cases, the value may change due to the compressor protection control.
- The heating capacity on the table indicates the peak value, which does not include the capacity decrease caused by frost.
- The value on the table shows when the system is operated under the following conditions.
 The total piping length: 24.6ft (7.5m), The height difference: 0ft (0m)
- In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in heating mode.

(H,Y)VAHP216B(3,4)1S
(H,Y)VAHR216B(3,4)1S

| Conne- ction ratio | Outdoor air temp | Indoor air temp. °F DB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------|---------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|--|--|
| | | 59 | | | | 63 | | | | 68 | | | | 70 | | | | 74 | | | | 77 | | | | 80 | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | |
| 150 | -4 | 155 | 16.81 | 155 | 17.27 | 154 | 17.63 | 154 | 18.04 | 153 | 18.46 | 149 | 20.15 | 145 | 21.42 | 142 | 22.93 | | | | | | | | | | | | | | |
| | -1 | 160 | 16.51 | 159 | 17.00 | 158 | 17.39 | 157 | 17.80 | 156 | 18.19 | 154 | 19.70 | 151 | 20.82 | 148 | 22.15 | | | | | | | | | | | | | | |
| | 3 | 166 | 16.12 | 166 | 16.67 | 166 | 17.09 | 166 | 17.47 | 166 | 17.86 | 166 | 19.10 | 165 | 20.01 | 157 | 21.10 | | | | | | | | | | | | | | |
| | 7 | 172 | 15.73 | 172 | 16.34 | 172 | 16.79 | 172 | 17.14 | 172 | 17.53 | 169 | 18.47 | 167 | 19.20 | 165 | 20.05 | | | | | | | | | | | | | | |
| | 11 | 178 | 15.31 | 178 | 15.98 | 178 | 16.49 | 178 | 16.84 | 178 | 17.17 | 176 | 17.87 | 175 | 18.42 | 174 | 19.03 | | | | | | | | | | | | | | |
| | 15 | 184 | 14.92 | 184 | 15.65 | 185 | 16.19 | 185 | 16.51 | 185 | 16.84 | 184 | 17.27 | 183 | 17.81 | 182 | 18.98 | | | | | | | | | | | | | | |
| | 19 | 192 | 14.65 | 193 | 15.38 | 193 | 15.89 | 193 | 16.21 | 193 | 16.54 | 192 | 16.97 | 192 | 17.34 | 190 | 17.65 | | | | | | | | | | | | | | |
| | 23 | 201 | 14.41 | 201 | 15.08 | 201 | 15.62 | 201 | 15.94 | 201 | 16.24 | 201 | 16.24 | 201 | 16.70 | 200 | 17.19 | | | | | | | | | | | | | | |
| | 27 | 209 | 14.14 | 210 | 14.81 | 210 | 15.32 | 210 | 15.64 | 210 | 15.94 | 200 | 16.40 | 200 | 16.77 | 200 | 16.96 | | | | | | | | | | | | | | |
| | 31 | 218 | 13.87 | 218 | 14.54 | 218 | 15.05 | 218 | 15.34 | 218 | 15.64 | 218 | 16.10 | 217 | 16.47 | 216 | 16.96 | | | | | | | | | | | | | | |
| 35 | 227 | 13.60 | 227 | 14.27 | 227 | 14.75 | 227 | 15.04 | 226 | 15.34 | 226 | 15.80 | 226 | 16.20 | 223 | 16.27 | | | | | | | | | | | | | | | |
| 39 | 235 | 13.36 | 235 | 13.97 | 236 | 14.48 | 236 | 14.77 | 236 | 15.04 | 234 | 15.53 | 234 | 15.90 | 231 | 15.91 | | | | | | | | | | | | | | | |
| 43 | 244 | 13.09 | 243 | 13.70 | 243 | 14.18 | 243 | 14.47 | 243 | 14.74 | 243 | 15.23 | 243 | 15.63 | 239 | 15.58 | | | | | | | | | | | | | | | |
| 47 | 254 | 12.94 | 254 | 13.52 | 253 | 14.00 | 253 | 14.29 | 253 | 14.53 | 253 | 14.63 | 253 | 14.73 | 249 | 15.22 | | | | | | | | | | | | | | | |
| 51 | 264 | 12.76 | 264 | 13.37 | 263 | 13.82 | 263 | 14.08 | 263 | 14.35 | 263 | 14.00 | 263 | 13.83 | 259 | 14.66 | | | | | | | | | | | | | | | |
| 55 | 274 | 12.61 | 274 | 13.19 | 273 | 13.64 | 273 | 13.90 | 274 | 14.14 | 267 | 13.40 | 268 | 12.93 | 264 | 14.50 | | | | | | | | | | | | | | | |
| 59 | 285 | 12.55 | 284 | 13.16 | 283 | 13.61 | 283 | 13.87 | 283 | 14.11 | 275 | 12.80 | 277 | 12.03 | 272 | 14.14 | | | | | | | | | | | | | | | |
| 140 | -4 | 155 | 17.04 | 155 | 17.51 | 154 | 17.88 | 154 | 18.30 | 153 | 18.71 | 149 | 20.44 | 145 | 21.72 | 142 | 23.26 | | | | | | | | | | | | | | |
| | -1 | 160 | 16.74 | 159 | 17.24 | 158 | 17.64 | 157 | 18.06 | 156 | 18.44 | 154 | 19.99 | 151 | 21.12 | 148 | 22.48 | | | | | | | | | | | | | | |
| | 3 | 166 | 16.35 | 166 | 16.91 | 166 | 17.34 | 166 | 17.73 | 166 | 18.11 | 166 | 19.39 | 165 | 20.31 | 157 | 21.43 | | | | | | | | | | | | | | |
| | 7 | 172 | 15.96 | 172 | 16.58 | 172 | 17.04 | 172 | 17.40 | 172 | 17.78 | 169 | 18.76 | 167 | 19.50 | 165 | 20.38 | | | | | | | | | | | | | | |
| | 11 | 178 | 15.54 | 178 | 16.22 | 178 | 16.74 | 178 | 17.10 | 178 | 17.42 | 177 | 18.16 | 176 | 18.72 | 174 | 19.36 | | | | | | | | | | | | | | |
| | 15 | 184 | 15.15 | 184 | 15.89 | 185 | 16.44 | 185 | 16.77 | 185 | 17.09 | 184 | 17.56 | 183 | 17.91 | 182 | 18.91 | | | | | | | | | | | | | | |
| | 19 | 192 | 14.88 | 193 | 15.62 | 193 | 16.14 | 193 | 16.47 | 193 | 16.79 | 192 | 17.26 | 191 | 17.64 | 190 | 17.98 | | | | | | | | | | | | | | |
| | 23 | 201 | 14.64 | 201 | 15.32 | 201 | 15.87 | 201 | 16.20 | 201 | 16.49 | 201 | 16.99 | 200 | 17.34 | 199 | 17.62 | | | | | | | | | | | | | | |
| | 27 | 209 | 14.37 | 210 | 15.05 | 210 | 15.57 | 210 | 15.90 | 210 | 16.19 | 209 | 16.69 | 208 | 17.07 | 207 | 17.29 | | | | | | | | | | | | | | |
| | 31 | 218 | 14.10 | 219 | 14.78 | 219 | 15.30 | 219 | 15.60 | 219 | 15.89 | 219 | 16.39 | 217 | 16.77 | 216 | 16.93 | | | | | | | | | | | | | | |
| 35 | 227 | 13.83 | 227 | 14.51 | 227 | 15.00 | 227 | 15.30 | 226 | 15.59 | 226 | 16.09 | 226 | 16.50 | 223 | 16.67 | | | | | | | | | | | | | | | |
| 39 | 235 | 13.59 | 235 | 14.21 | 236 | 14.73 | 236 | 15.03 | 236 | 15.29 | 234 | 15.82 | 234 | 16.20 | 231 | 16.24 | | | | | | | | | | | | | | | |
| 43 | 244 | 13.43 | 243 | 14.03 | 243 | 14.43 | 243 | 14.73 | 243 | 14.99 | 243 | 15.48 | 243 | 15.82 | 239 | 15.81 | | | | | | | | | | | | | | | |
| 47 | 254 | 13.17 | 254 | 13.75 | 253 | 14.25 | 253 | 14.55 | 253 | 14.78 | 253 | 14.92 | 253 | 15.03 | 247 | 15.55 | | | | | | | | | | | | | | | |
| 51 | 264 | 12.99 | 264 | 13.61 | 263 | 14.07 | 263 | 14.34 | 263 | 14.60 | 259 | 14.29 | 260 | 14.13 | 255 | 15.19 | | | | | | | | | | | | | | | |
| 55 | 274 | 12.84 | 274 | 13.43 | 273 | 13.89 | 273 | 14.16 | 274 | 14.39 | 267 | 13.69 | 268 | 13.23 | 264 | 14.83 | | | | | | | | | | | | | | | |
| 59 | 285 | 12.78 | 284 | 13.40 | 283 | 13.86 | 283 | 14.13 | 283 | 14.36 | 276 | 13.09 | 277 | 12.33 | 272 | 14.47 | | | | | | | | | | | | | | | |
| 130 | -4 | 155 | 17.44 | 155 | 17.92 | 154 | 18.29 | 154 | 18.72 | 153 | 19.14 | 149 | 20.91 | 145 | 22.21 | 142 | 23.79 | | | | | | | | | | | | | | |
| | -1 | 160 | 17.14 | 159 | 17.65 | 158 | 18.05 | 157 | 18.48 | 156 | 18.87 | 154 | 20.46 | 151 | 21.61 | 148 | 23.01 | | | | | | | | | | | | | | |
| | 3 | 166 | 16.75 | 166 | 17.32 | 166 | 17.75 | 166 | 18.15 | 166 | 18.54 | 166 | 19.86 | 165 | 20.80 | 157 | 21.96 | | | | | | | | | | | | | | |
| | 7 | 172 | 16.36 | 172 | 16.99 | 172 | 17.45 | 172 | 17.82 | 172 | 18.19 | 169 | 19.23 | 167 | 19.99 | 165 | 20.91 | | | | | | | | | | | | | | |
| | 11 | 178 | 15.94 | 178 | 16.63 | 178 | 17.15 | 178 | 17.52 | 178 | 17.89 | 176 | 18.63 | 175 | 19.21 | 174 | 19.89 | | | | | | | | | | | | | | |
| | 15 | 184 | 15.55 | 184 | 16.33 | 185 | 16.85 | 185 | 17.19 | 185 | 17.52 | 184 | 18.03 | 183 | 18.40 | 182 | 18.84 | | | | | | | | | | | | | | |
| | 19 | 192 | 15.28 | 193 | 16.03 | 193 | 16.55 | 193 | 16.89 | 193 | 17.22 | 192 | 17.73 | 191 | 18.13 | 190 | 18.51 | | | | | | | | | | | | | | |
| | 23 | 201 | 15.04 | 201 | 15.73 | 201 | 16.28 | 201 | 16.62 | 201 | 16.92 | 201 | 17.46 | 200 | 17.83 | 199 | 18.15 | | | | | | | | | | | | | | |
| | 27 | 209 | 14.77 | 210 | 15.46 | 210 | 15.98 | 210 | 16.32 | 210 | 16.62 | 209 | 17.16 | 208 | 17.56 | 207 | 17.82 | | | | | | | | | | | | | | |
| | 31 | 218 | 14.50 | 219 | 15.19 | 219 | 15.71 | 219 | 16.02 | 219 | 16.32 | 219 | 16.86 | 217 | 17.26 | 216 | 17.48 | | | | | | | | | | | | | | |
| 35 | 227 | 14.23 | 227 | 14.92 | 227 | 15.41 | 227 | 15.72 | 226 | 16.02 | 226 | 16.56 | 226 | 16.99 | 223 | 17.13 | | | | | | | | | | | | | | | |
| 39 | 235 | 13.99 | 235 | 14.62 | 236 | 15.14 | 236 | 15.45 | 236 | 15.72 | 234 | 16.29 | 234 | 16.69 | 231 | 16.77 | | | | | | | | | | | | | | | |
| 43 | 244 | 13.72 | 243 | 14.35 | 243 | 14.84 | 243 | 15.15 | 243 | 15.42 | 243 | 15.99 | 243 | 16.42 | 239 | 16.44 | | | | | | | | | | | | | | | |
| 47 | 254 | 13.57 | 254 | 14.17 | 253 | 14.66 | 253 | 14.97 | 253 | 15.21 | 251 | 15.39 | 251 | 15.52 | 247 | 16.08 | | | | | | | | | | | | | | | |
| 51 | 264 | 13.39 | 264 | 14.02 | 263 | 14.48 | 263 | 14.76 | 263 | 15.03 | 259 | 14.76 | 260 | 14.62 | 256 | 15.72 | | | | | | | | | | | | | | | |
| 55 | 274 | 13.24 | 274 | 13.84 | 273 | 14.30 | 273 | 14.58 | 273 | 14.82 | 267 | 14.16 | 268 | 13.72 | 264 | 15.36 | | | | | | | | | | | | | | | |
| 59 | 285 | 13.18 | 284 | 13.81 | 283 | 14.27 | 283 | 14.55 | 283 | 14.79 | 275 | 13.56 | 277 | 12.82 | 272 | 15.00 | | | | | | | | | | | | | | | |
| 120 | -4 | 155 | 18.00 | 155 | 18.50 | 154 | 18.89 | 154 | 19.33 | 153 | 19.77 | 149 | 21.59 | 145 | 22.94 | 142 | 24.96 | | | | | | | | | | | | | | |
| | -1 | 160 | 17.70 | 159 | 18.23 | 158 | 18.65 | 157 | 19.09 | 156 | 19.50 | 154 | 21.14 | 151 | 22.34 | 148 | 23.78 | | | | | | | | | | | | | | |
| | 3 | 166 | 17.31 | 166 | 17.90 | 166 | 18.35 | 166 | 18.79 | 166 | 19.17 | 166 | 20.54 | 165 | 21.53 | 157 | 22.79 | | | | | | | | | | | | | | |
| | 7 | 172 | 16.92 | 172 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(H,Y)VAHP312B(3,4)1S
(H,Y)VAHR312B(3,4)1S

| Comme- n- tion ratio | Outdoor air temp °F | Indoor air temp. °F DB | | | | | | | | | | | | | | | | Comme- n- tion ratio | Outdoor air temp °F | Indoor air temp. °F DB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|---------------------------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------------------------------|---------------------------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|
| | | 59 | | | | 63 | | | | 66 | | | | 68 | | | | | | 70 | | | | 74 | | | | 77 | | | | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 130 | -4 | 210 | 323.36 | 210 | 324.00 | 210 | 324.50 | 209 | 325.00 | 208 | 325.50 | 207 | 326.00 | 206 | 326.50 | 205 | 327.00 | 204 | 327.50 | 203 | 328.00 | 202 | 328.50 | 201 | 329.00 | 200 | 329.50 | 199 | 330.00 | 198 | 330.50 | 197 | 331.00 | 196 | 331.50 | 195 | 332.00 | 194 | 332.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -1 | 216 | 323.02 | 217 | 323.73 | 217 | 324.30 | 217 | 324.82 | 216 | 325.31 | 215 | 325.77 | 214 | 326.20 | 213 | 326.60 | 212 | 327.00 | 211 | 327.38 | 210 | 327.75 | 209 | 328.10 | 208 | 328.45 | 207 | 328.80 | 206 | 329.15 | 205 | 329.50 | 204 | 329.85 | 203 | 330.20 | 202 | 330.55 | 201 | 330.90 | 200 | 331.25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 228 | 322.59 | 228 | 323.40 | 227 | 324.04 | 227 | 324.55 | 227 | 325.08 | 226 | 325.54 | 225 | 326.00 | 224 | 326.46 | 223 | 326.90 | 222 | 327.32 | 221 | 327.73 | 220 | 328.12 | 219 | 328.50 | 218 | 328.88 | 217 | 329.25 | 216 | 329.62 | 215 | 330.00 | 214 | 330.38 | 213 | 330.75 | 212 | 331.12 | 211 | 331.48 | 210 | 331.85 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 7 | 238 | 322.14 | 238 | 323.07 | 238 | 323.76 | 238 | 324.30 | 238 | 324.85 | 237 | 325.33 | 236 | 325.80 | 235 | 326.26 | 234 | 326.70 | 233 | 327.12 | 232 | 327.53 | 231 | 327.93 | 230 | 328.32 | 229 | 328.70 | 228 | 329.08 | 227 | 329.45 | 226 | 329.82 | 225 | 330.19 | 224 | 330.56 | 223 | 330.93 | 222 | 331.30 | 221 | 331.67 | 220 | 332.04 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 11 | 247 | 321.70 | 248 | 322.71 | 248 | 323.50 | 248 | 324.06 | 248 | 324.59 | 247 | 325.05 | 246 | 325.50 | 245 | 325.95 | 244 | 326.40 | 243 | 326.84 | 242 | 327.27 | 241 | 327.69 | 240 | 328.10 | 239 | 328.50 | 238 | 328.90 | 237 | 329.30 | 236 | 329.70 | 235 | 330.10 | 234 | 330.50 | 233 | 330.90 | 232 | 331.30 | 231 | 331.70 | 230 | 332.10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 15 | 257 | 321.25 | 258 | 322.38 | 258 | 323.24 | 258 | 323.81 | 258 | 324.36 | 257 | 324.80 | 256 | 325.25 | 255 | 325.70 | 254 | 326.15 | 253 | 326.60 | 252 | 327.04 | 251 | 327.47 | 250 | 327.90 | 249 | 328.32 | 248 | 328.75 | 247 | 329.18 | 246 | 329.60 | 245 | 330.03 | 244 | 330.46 | 243 | 330.89 | 242 | 331.32 | 241 | 331.75 | 240 | 332.18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 19 | 271 | 321.04 | 271 | 322.13 | 271 | 322.96 | 272 | 323.53 | 272 | 324.06 | 271 | 324.53 | 270 | 325.00 | 269 | 325.47 | 268 | 325.94 | 267 | 326.40 | 266 | 326.85 | 265 | 327.30 | 264 | 327.75 | 263 | 328.20 | 262 | 328.65 | 261 | 329.10 | 260 | 329.55 | 259 | 330.00 | 258 | 330.45 | 257 | 330.90 | 256 | 331.35 | 255 | 331.80 | 254 | 332.25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 23 | 284 | 320.82 | 285 | 321.89 | 285 | 322.71 | 285 | 323.24 | 285 | 323.76 | 284 | 324.22 | 283 | 324.69 | 282 | 325.16 | 281 | 325.63 | 280 | 326.10 | 279 | 326.56 | 278 | 327.00 | 277 | 327.43 | 276 | 327.86 | 275 | 328.30 | 274 | 328.73 | 273 | 329.10 | 272 | 329.47 | 271 | 329.84 | 270 | 330.21 | 269 | 330.58 | 268 | 330.95 | 267 | 331.32 | 266 | 331.69 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 27 | 298 | 320.61 | 298 | 321.64 | 298 | 322.43 | 298 | 322.96 | 298 | 323.46 | 297 | 323.90 | 296 | 324.33 | 295 | 324.76 | 294 | 325.19 | 293 | 325.62 | 292 | 326.05 | 291 | 326.48 | 290 | 326.91 | 289 | 327.34 | 288 | 327.77 | 287 | 328.20 | 286 | 328.63 | 285 | 329.06 | 284 | 329.49 | 283 | 329.92 | 282 | 330.35 | 281 | 330.78 | 280 | 331.21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 31 | 312 | 320.40 | 312 | 321.41 | 311 | 322.16 | 311 | 322.66 | 311 | 323.14 | 310 | 323.60 | 309 | 324.06 | 308 | 324.52 | 307 | 324.98 | 306 | 325.44 | 305 | 325.90 | 304 | 326.36 | 303 | 326.81 | 302 | 327.26 | 301 | 327.71 | 300 | 328.16 | 299 | 328.61 | 298 | 329.06 | 297 | 329.51 | 296 | 329.96 | 295 | 330.41 | 294 | 330.86 | 293 | 331.31 | 292 | 331.76 | 291 | 332.21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | 325 | 320.19 | 325 | 321.16 | 325 | 321.88 | 325 | 322.38 | 325 | 322.84 | 324 | 323.28 | 323 | 323.72 | 322 | 324.16 | 321 | 324.60 | 320 | 325.04 | 319 | 325.48 | 318 | 325.92 | 317 | 326.36 | 316 | 326.80 | 315 | 327.24 | 314 | 327.68 | 313 | 328.12 | 312 | 328.56 | 311 | 328.99 | 310 | 329.43 | 309 | 329.87 | 308 | 330.31 | 307 | 330.75 | 306 | 331.19 | 305 | 331.63 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | 339 | 319.97 | 339 | 320.92 | 338 | 321.63 | 338 | 322.09 | 338 | 322.54 | 337 | 322.97 | 336 | 323.41 | 335 | 323.85 | 334 | 324.29 | 333 | 324.73 | 332 | 325.17 | 331 | 325.61 | 330 | 326.05 | 329 | 326.49 | 328 | 326.93 | 327 | 327.37 | 326 | 327.81 | 325 | 328.25 | 324 | 328.69 | 323 | 329.13 | 322 | 329.57 | 321 | 330.01 | 320 | 330.45 | 319 | 330.89 | 318 | 331.33 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 | 353 | 319.76 | 352 | 320.67 | 351 | 321.35 | 351 | 321.81 | 351 | 322.24 | 350 | 322.67 | 349 | 323.10 | 348 | 323.53 | 347 | 323.96 | 346 | 324.39 | 345 | 324.82 | 344 | 325.25 | 343 | 325.68 | 342 | 326.11 | 341 | 326.54 | 340 | 326.97 | 339 | 327.40 | 338 | 327.83 | 337 | 328.26 | 336 | 328.69 | 335 | 329.12 | 334 | 329.55 | 333 | 330.00 | 332 | 330.43 | 331 | 330.86 | 330 | 331.29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47 | 369 | 319.75 | 368 | 320.45 | 368 | 320.99 | 368 | 321.35 | 368 | 321.67 | 367 | 322.00 | 366 | 322.33 | 365 | 322.66 | 364 | 322.99 | 363 | 323.32 | 362 | 323.65 | 361 | 323.98 | 360 | 324.31 | 359 | 324.64 | 358 | 324.97 | 357 | 325.30 | 356 | 325.63 | 355 | 325.96 | 354 | 326.29 | 353 | 326.62 | 352 | 326.95 | 351 | 327.28 | 350 | 327.61 | 349 | 327.94 | 348 | 328.27 | 347 | 328.60 | 346 | 328.93 | 345 | 329.26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | 386 | 319.71 | 385 | 320.26 | 385 | 320.65 | 385 | 320.98 | 385 | 321.11 | 384 | 321.52 | 383 | 321.89 | 382 | 322.26 | 381 | 322.63 | 380 | 323.00 | 379 | 323.37 | 378 | 323.74 | 377 | 324.11 | 376 | 324.48 | 375 | 324.85 | 374 | 325.22 | 373 | 325.59 | 372 | 325.96 | 371 | 326.33 | 370 | 326.70 | 369 | 327.07 | 368 | 327.44 | 367 | 327.81 | 366 | 328.18 | 365 | 328.55 | 364 | 328.92 | 363 | 329.29 | 362 | 329.66 | 361 | 330.03 | 360 | 330.40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | 403 | 319.70 | 394 | 320.04 | 393 | 320.29 | 393 | 320.42 | 392 | 320.52 | 391 | 320.62 | 390 | 320.72 | 389 | 320.82 | 388 | 320.92 | 387 | 321.02 | 386 | 321.12 | 385 | 321.22 | 384 | 321.32 | 383 | 321.42 | 382 | 321.52 | 381 | 321.62 | 380 | 321.72 | 379 | 321.82 | 378 | 321.92 | 377 | 322.02 | 376 | 322.12 | 375 | 322.22 | 374 | 322.32 | 373 | 322.42 | 372 | 322.52 | 371 | 322.62 | 370 | 322.72 | 369 | 322.82 | 368 | 322.92 | 367 | 323.02 | 366 | 323.12 | 365 | 323.22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 59 | 420 | 319.72 | 408 | 320.00 | 407 | 320.00 | 406 | 320.00 | 406 | 320.00 | 405 | 320.00 | 404 | 320.00 | 403 | 320.00 | 402 | 320.00 | 401 | 320.00 | 400 | 320.00 | 399 | 320.00 | 398 | 320.00 | 397 | 320.00 | 396 | 320.00 | 395 | 320.00 | 394 | 320.00 | 393 | 320.00 | 392 | 320.00 | 391 | 320.00 | 390 | 320.00 | 389 | 320.00 | 388 | 320.00 | 387 | 320.00 | 386 | 320.00 | 385 | 320.00 | 384 | 320.00 | 383 | 320.00 | 382 | 320.00 | 381 | 320.00 | 380 | 320.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | -4 | 210 | 324.12 | 210 | 324.79 | 210 | 325.30 | 209 | 325.81 | 208 | 326.33 | 207 | 326.84 | 206 | 327.35 | 205 | 327.86 | 204 | 328.37 | 203 | 328.88 | 202 | 329.39 | 201 | 329.90 | 200 | 330.41 | 199 | 330.92 | 198 | 331.43 | 197 | 331.94 | 196 | 332.45 | 195 | 332.96 | 194 | 333.47 | 193 | 333.98 | 192 | 334.49 | 191 | 335.00 | 190 | 335.51 | 189 | 336.02 | 188 | 336.53 | 187 | 337.04 | 186 | 337.55 | 185 | 338.06 | 184 | 338.57 | 183 | 339.08 | 182 | 339.59 | 181 | 340.10 | 180 | 340.61 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -1 | 218 | 323.78 | 217 | 324.52 | 217 | 325.03 | 217 | 325.53 | 216 | 326.04 | 215 | 326.54 | 214 | 327.05 | 213 | 327.56 | 212 | 328.07 | 211 | 328.58 | 210 | 329.09 | 209 | 329.60 | 208 | 330.11 | 207 | 330.62 | 206 | 331.13 | 205 | 331.64 | 204 | 332.15 | 203 | 332.66 | 202 | 333.17 | 201 | 333.68 | 200 | 334.19 | 199 | 334.70 | 198 | 335.21 | 197 | 335.72 | 196 | 336.23 | 195 | 336.74 | 194 | 337.25 | 193 | 337.76 | 192 | 338.27 | 191 | 338.78 | 190 | 339.29 | 189 | 339.80 | 188 | 340.31 | 187 | 340.82 | 186 | 341.33 | 185 | 341.84 | 184 | 342.35 | 183 | 342.86 | 182 | 343.37 | 181 | 343.88 | 180 | 344.39 | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 228 | 323.35 | 228 | 324.19 | 227 | 324.84 | 227 | 325.36 | 227 | 325.91 | 226 | 326.43 | 225 | 326.95 | 224 | 327.47 | 223 | 327.99 | 222 | 328.51 | 221 | 329.03 | 220 | 329.55 | 219 | 330.07 | 218 | 330.59 | 217 | 331.11 | 216 | 331.63 | 215 | 332.15 | 214 | 332.67 | 213 | 333.19 | 212 | 333.71 | 211 | 334.23 | 210 | 334.75 | 209 | 335.27 | 208 | 335.79 | 207 | 336.31 | 206 | 336.83 | 205 | 337.35 | 204 | 337.87 | 203 | 338.39 | 202 | 338.91 | 201 | 339.43 | 200 | 339.95 | 199 | 340.47 | 198 | 340.99 | 197 | 341.51 | 196 | 342.03 | 195 | 342.55 | 194 | 343.07 | 193 | 343.59 | 192 | 344.11 | 191 | 344.63 | 190 | 345.15 | 189 | 345.67 | 188 | 346.19 | 187 | 346.71 | 186 | 347.23 | 185 | 347.75 | 184 | 348.27 | 183 | 348.79 | 182 | 349.31 | 181 | 349.83 | 180 | 350.35 |
| | 7 | 238 | 322.90 | 238 | 323.98 | 238 | 324.56 | 238 | 325.11 | 238 | 325.68 | 237 | 326.22 | 236 | 326.76 | 235 | 327.30 | 234 | 327.84 | 233 | 328.38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SELECTION DATA

(H,Y)VAHP336B(3,4)1S
(H,Y)VAHR336B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °F/DB | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|-------|-----|-------|-----|----|-----|----|-----|----|-----|----|-----|----|--|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | | 74 | | | | 80 | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | |
| % | °F/WB | MtH | kW | MtH | kW | MtH | kW | MtH | kW | MtH | kW | MtH | kW | MtH | kW | MtH | kW | MtH | kW | MtH | kW | MtH | kW | MtH | kW | MtH | kW | |
| 140 | -4 | 242 | 226.72 | 242 | 226.46 | 241 | 227.00 | 241 | 227.60 | 240 | 228.19 | 239 | 232.54 | 232 | 32.29 | 229 | 34.77 | | | | | | | | | | | |

TC: Total Capacity
IP: Input Power

NOTES:

- The table shows the normal value of a heating operation.
In some cases, the value may change due to the compressor protection control.
- The heating capacity on the table indicates the peak value, which does not include the capacity decrease caused by frost.
- The value on the table shows when the system is operated under the following conditions.
The total piping length: 24.6ft (7.5m), The height difference: 0ft (0m)
- In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in heating mode.

SELECTION DATA

(H,Y)VAHP360B(3,4)1S
(H,Y)VAHR360B(3,4)1S

| Connection ratio | Outdoor air temp | Indoor air temp. °F/DB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | | 74 | | | | 80 | | | | | | | | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | | | |
| % | °FWB | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | MtBh | Kw | | | | | |
| 135 | -4 | 252 | 227.40 | 252 | 228.16 | 251 | 228.76 | 250 | 229.37 | 250 | 229.98 | 249 | 230.59 | 248 | 231.20 | 247 | 231.81 | 246 | 232.42 | 245 | 233.03 | 244 | 233.64 | 243 | 234.25 | 242 | 234.86 | 241 | 235.47 | 240 | 236.08 | | | |
| | -1 | 260 | 226.85 | 260 | 227.68 | 260 | 228.33 | 259 | 228.96 | 258 | 229.59 | 257 | 230.22 | 256 | 230.85 | 255 | 231.48 | 254 | 232.11 | 253 | 232.74 | 252 | 233.37 | 251 | 234.00 | 250 | 234.63 | 249 | 235.26 | 248 | 235.89 | 247 | 236.52 | |
| | 3 | 271 | 226.14 | 271 | 227.06 | 271 | 227.78 | 270 | 228.39 | 270 | 229.00 | 269 | 229.61 | 268 | 230.22 | 267 | 230.83 | 266 | 231.44 | 265 | 232.05 | 264 | 232.66 | 263 | 233.27 | 262 | 233.88 | 261 | 234.49 | 260 | 235.10 | 259 | 235.71 | |
| | 7 | 282 | 225.41 | 282 | 226.45 | 282 | 227.22 | 282 | 227.83 | 282 | 228.45 | 281 | 229.06 | 280 | 229.67 | 279 | 230.28 | 278 | 230.89 | 277 | 231.50 | 276 | 232.11 | 275 | 232.72 | 274 | 233.33 | 273 | 233.94 | 272 | 234.55 | 271 | 235.16 | |
| | 11 | 292 | 224.68 | 290 | 225.80 | 289 | 226.68 | 289 | 227.30 | 289 | 227.88 | 289 | 228.47 | 288 | 229.06 | 287 | 229.65 | 286 | 230.24 | 285 | 230.83 | 284 | 231.42 | 283 | 232.01 | 282 | 232.60 | 281 | 233.19 | 280 | 233.78 | 279 | 234.37 | |
| | 15 | 303 | 223.95 | 304 | 225.19 | 304 | 226.13 | 304 | 226.74 | 303 | 227.33 | 303 | 227.93 | 302 | 228.52 | 301 | 229.11 | 300 | 229.70 | 299 | 230.29 | 298 | 230.88 | 297 | 231.47 | 296 | 232.06 | 295 | 232.65 | 294 | 233.24 | 293 | 233.83 | |
| | 19 | 318 | 223.67 | 318 | 224.88 | 319 | 225.79 | 319 | 226.39 | 319 | 226.97 | 317 | 227.57 | 317 | 228.16 | 316 | 228.75 | 315 | 229.34 | 314 | 229.93 | 313 | 230.52 | 312 | 231.11 | 311 | 231.70 | 310 | 232.29 | 309 | 232.88 | 308 | 233.47 | |
| | 23 | 333 | 223.40 | 333 | 224.57 | 333 | 225.48 | 333 | 226.08 | 333 | 226.67 | 331 | 227.27 | 331 | 227.86 | 330 | 228.45 | 329 | 229.04 | 328 | 229.63 | 327 | 230.22 | 326 | 230.81 | 325 | 231.40 | 324 | 231.99 | 323 | 232.58 | 322 | 233.17 | |
| | 27 | 347 | 223.12 | 348 | 224.26 | 348 | 225.14 | 348 | 225.71 | 348 | 226.28 | 347 | 226.85 | 347 | 227.42 | 346 | 228.00 | 345 | 228.57 | 344 | 229.14 | 343 | 229.71 | 342 | 230.28 | 341 | 230.85 | 340 | 231.42 | 339 | 231.99 | 338 | 232.56 | |
| | 31 | 362 | 222.85 | 362 | 223.97 | 362 | 224.81 | 362 | 225.36 | 362 | 225.92 | 361 | 226.47 | 361 | 227.02 | 360 | 227.57 | 359 | 228.12 | 358 | 228.67 | 357 | 229.22 | 356 | 229.77 | 355 | 230.32 | 354 | 230.87 | 353 | 231.42 | 352 | 231.97 | |
| 35 | 377 | 222.57 | 377 | 223.66 | 377 | 224.47 | 376 | 225.01 | 376 | 225.57 | 375 | 226.13 | 374 | 226.69 | 373 | 227.25 | 372 | 227.81 | 371 | 228.37 | 370 | 228.93 | 369 | 229.49 | 368 | 230.05 | 367 | 230.61 | 366 | 231.17 | 365 | 231.73 | | |
| 39 | 392 | 222.30 | 391 | 223.35 | 391 | 224.16 | 391 | 224.68 | 391 | 225.15 | 390 | 225.68 | 389 | 226.15 | 388 | 226.62 | 387 | 227.09 | 386 | 227.56 | 385 | 228.03 | 384 | 228.50 | 383 | 228.97 | 382 | 229.44 | 381 | 229.91 | 380 | 230.38 | | |
| 43 | 406 | 222.02 | 406 | 223.04 | 406 | 223.82 | 406 | 224.33 | 406 | 224.79 | 405 | 225.25 | 404 | 225.71 | 403 | 226.17 | 402 | 226.63 | 401 | 227.09 | 400 | 227.55 | 399 | 228.01 | 398 | 228.47 | 397 | 228.93 | 396 | 229.39 | 395 | 229.85 | | |
| 47 | 424 | 221.82 | 422 | 222.86 | 421 | 223.53 | 421 | 223.76 | 420 | 224.13 | 419 | 224.50 | 418 | 224.87 | 417 | 225.24 | 416 | 225.61 | 415 | 225.98 | 414 | 226.35 | 413 | 226.72 | 412 | 227.09 | 411 | 227.46 | 410 | 227.83 | 409 | 228.20 | | |
| 51 | 441 | 221.58 | 437 | 222.52 | 437 | 223.25 | 437 | 223.17 | 436 | 223.48 | 435 | 223.85 | 434 | 224.22 | 433 | 224.59 | 432 | 224.96 | 431 | 225.33 | 430 | 225.70 | 429 | 226.07 | 428 | 226.44 | 427 | 226.81 | 426 | 227.18 | 425 | 227.55 | | |
| 55 | 458 | 221.38 | 453 | 221.94 | 452 | 222.36 | 452 | 222.59 | 451 | 222.80 | 450 | 223.02 | 449 | 223.24 | 448 | 223.46 | 447 | 223.68 | 446 | 223.90 | 445 | 224.12 | 444 | 224.34 | 443 | 224.56 | 442 | 224.78 | 441 | 225.00 | 440 | 225.22 | | |
| 59 | 475 | 221.24 | 469 | 221.66 | 468 | 221.98 | 467 | 222.11 | 467 | 222.24 | 466 | 222.46 | 465 | 222.68 | 464 | 222.90 | 463 | 223.12 | 462 | 223.34 | 461 | 223.56 | 460 | 223.78 | 459 | 224.00 | 458 | 224.22 | 457 | 224.44 | 456 | 224.66 | | |
| -4 | 252 | 227.74 | 252 | 228.52 | 251 | 229.11 | 250 | 229.73 | 250 | 230.36 | 249 | 230.99 | 248 | 231.62 | 247 | 232.25 | 246 | 232.88 | 245 | 233.51 | 244 | 234.14 | 243 | 234.77 | 242 | 235.40 | 241 | 236.03 | 240 | 236.66 | 239 | 237.29 | 238 | 237.92 |
| -1 | 260 | 227.19 | 260 | 228.04 | 260 | 228.64 | 259 | 229.23 | 258 | 229.83 | 257 | 230.42 | 256 | 231.01 | 255 | 231.60 | 254 | 232.19 | 253 | 232.78 | 252 | 233.37 | 251 | 233.96 | 250 | 234.55 | 249 | 235.14 | 248 | 235.73 | 247 | 236.32 | 246 | 236.91 |
| 3 | 271 | 226.48 | 271 | 227.42 | 271 | 228.14 | 270 | 228.75 | 270 | 229.36 | 269 | 229.97 | 268 | 230.58 | 267 | 231.19 | 266 | 231.80 | 265 | 232.41 | 264 | 233.02 | 263 | 233.63 | 262 | 234.24 | 261 | 234.85 | 260 | 235.46 | 259 | 236.07 | 258 | 236.68 |
| 7 | 282 | 225.75 | 282 | 226.81 | 282 | 227.58 | 282 | 228.19 | 282 | 228.83 | 281 | 229.47 | 280 | 230.11 | 279 | 230.75 | 278 | 231.39 | 277 | 232.03 | 276 | 232.67 | 275 | 233.31 | 274 | 233.95 | 273 | 234.59 | 272 | 235.23 | 271 | 235.87 | 270 | 236.51 |
| 11 | 292 | 225.02 | 290 | 226.16 | 289 | 227.04 | 289 | 227.66 | 289 | 228.28 | 289 | 228.90 | 288 | 229.52 | 287 | 230.14 | 286 | 230.76 | 285 | 231.38 | 284 | 232.00 | 283 | 232.62 | 282 | 233.24 | 281 | 233.86 | 280 | 234.48 | 279 | 235.10 | 278 | 235.72 |
| 15 | 303 | 224.29 | 304 | 225.55 | 304 | 226.49 | 304 | 227.10 | 303 | 227.71 | 303 | 228.32 | 302 | 228.93 | 301 | 229.54 | 300 | 230.15 | 299 | 230.76 | 298 | 231.37 | 297 | 231.98 | 296 | 232.59 | 295 | 233.20 | 294 | 233.81 | 293 | 234.42 | 292 | 235.03 |
| 19 | 318 | 224.01 | 318 | 225.25 | 319 | 226.15 | 319 | 226.75 | 319 | 227.35 | 317 | 227.95 | 317 | 228.55 | 316 | 229.15 | 315 | 229.75 | 314 | 230.35 | 313 | 230.95 | 312 | 231.55 | 311 | 232.15 | 310 | 232.75 | 309 | 233.35 | 308 | 233.95 | | |
| 23 | 333 | 223.74 | 333 | 224.93 | 333 | 225.84 | 333 | 226.42 | 333 | 226.99 | 331 | 227.57 | 331 | 228.15 | 330 | 228.73 | 329 | 229.31 | 328 | 229.89 | 327 | 230.47 | 326 | 231.05 | 325 | 231.63 | 324 | 232.21 | 323 | 232.79 | 322 | 233.37 | | |
| 27 | 347 | 223.46 | 348 | 224.62 | 348 | 225.50 | 348 | 226.07 | 348 | 226.63 | 347 | 227.19 | 347 | 227.75 | 346 | 228.31 | 345 | 228.87 | 344 | 229.43 | 343 | 230.00 | 342 | 230.56 | 341 | 231.12 | 340 | 231.68 | 339 | 232.24 | 338 | 232.80 | | |
| 31 | 362 | 223.19 | 362 | 224.33 | 362 | 225.17 | 362 | 225.72 | 362 | 226.25 | 361 | 226.77 | 360 | 227.30 | 359 | 227.83 | 358 | 228.36 | 357 | 228.89 | 356 | 229.42 | 355 | 229.95 | 354 | 230.48 | 353 | 231.01 | 352 | 231.54 | 351 | 232.07 | | |
| 35 | 377 | 222.91 | 377 | 224.02 | 377 | 224.82 | 376 | 225.37 | 376 | 225.89 | 375 | 226.41 | 374 | 226.93 | 373 | 227.45 | 372 | 227.97 | 371 | 228.49 | 370 | 229.01 | 369 | 229.53 | 368 | 230.05 | 367 | 230.57 | 366 | 231.10 | 365 | 231.62 | | |
| 39 | 392 | 222.64 | 391 | 223.71 | 391 | 224.51 | 391 | 225.04 | 391 | 225.53 | 390 | 226.02 | 389 | 226.51 | 388 | 227.00 | 387 | 227.49 | 386 | 227.98 | 385 | 228.47 | 384 | 228.96 | 383 | 229.45 | 382 | 229.94 | 381 | 230.43 | 380 | 230.92 | | |
| 43 | 406 | 222.36 | 406 | 223.44 | 406 | 224.24 | 406 | 224.79 | 406 | 225.25 | 405 | 225.71 | 404 | 226.17 | 403 | 226.63 | 402 | 227.09 | 401 | 227.55 | 400 | 228.01 | 399 | 228.47 | 398 | 228.93 | 397 | 229.39 | 396 | 229.85 | 395 | 230.31 | | |
| 47 | 424 | 222.16 | 422 | 223.21 | 421 | 223.89 | 421 | 224.12 | 420 | 224.51 | 419 | 224.90 | 418 | 225.29 | 417 | 225.68 | 416 | 226.07 | 415 | 226.46 | 414 | 226.85 | 413 | 227.24 | 412 | 227.63 | 411 | 228.02 | 410 | 228.41 | 409 | 228.80 | | |
| 51 | 441 | 221.92 | 437 | 222.86 | 437 | 223.21 | 436 | 223.53 | 436 | 223.86 | 435 | 224.19 | 434 | 224.52 | 433 | 224.85 | 432 | 225.18 | 431 | 225.51 | 430 | 225.84 | 429 | 226.17 | 428 | 226.50 | 427 | 226.83 | 426 | 227.16 | 425 | 227.49 | | |
| 55 | 458 | 221.72 | 453 | 222.30 | 452 | 222.72 | 452 | 222.95 | 451 | 223.18 | 450 | 223.43 | 449 | 223.68 | 448 | 223.93 | 447 | 224.18 | 446 | 224.43 | 445 | 224.68 | 444 | 224.93 | 443 | 225.18 | 442 | 225.43 | 441 | 225.68 | 440 | 225.93 | | |
| 59 | 475 | 221.58 | 469 | 222.02 | 468 | 222.34 | 467 | 222.47 | 467 | 222.62 | 466 | 222.77 | 465 | 222.92 | 464 | 223.07 | 463 | 223.22 | 462 | 223.37 | 461 | 223.52 | 460 | 223.67 | 459 | 223.82 | 458 | 223.97 | 457 | 224.12 | 456 | 224.27 | | |
| -4 | 252 | 228.65 | 252 | 229.41 | 251 | 230.06 | 250 | 230.70 | 250 | 231.35 | 249 | 231.99 | 248 | 232.63 | 247 | 233.27 | 246 | | | | | | | | | | | | | | | | | |

SELECTION DATA

• Less Module Type

(H,Y)VAHP240B(3,4)1LM
(H,Y)VAHR240B(3,4)1LM

| Connection ratio | Outdoor air temp | Indoor air temp. °FDB | | | | | | | | | | | | | | | |
|------------------|------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW |
| 120 | -4 | 159 | 18.12 | 158 | 18.62 | 158 | 19.00 | 158 | 19.37 | 157 | 19.74 | 156 | 21.08 | 155 | 22.07 | 151 | 23.67 |
| | -1 | 165 | 17.88 | 164 | 18.44 | 164 | 18.88 | 164 | 19.27 | 164 | 19.64 | 161 | 20.86 | 160 | 21.77 | 156 | 23.19 |
| | 3 | 172 | 17.58 | 172 | 18.22 | 172 | 18.72 | 172 | 19.11 | 172 | 19.52 | 170 | 20.58 | 169 | 21.35 | 167 | 22.53 |
| | 7 | 180 | 17.26 | 180 | 18.00 | 180 | 18.54 | 180 | 18.97 | 180 | 19.40 | 178 | 20.28 | 176 | 20.93 | 174 | 21.89 |
| | 11 | 188 | 16.96 | 188 | 17.76 | 188 | 18.38 | 188 | 18.83 | 188 | 19.26 | 188 | 20.00 | 187 | 20.53 | 185 | 21.23 |
| | 15 | 196 | 16.64 | 196 | 17.54 | 196 | 18.22 | 197 | 18.69 | 197 | 19.14 | 196 | 19.70 | 196 | 20.11 | 195 | 20.59 |
| | 19 | 207 | 16.52 | 207 | 17.38 | 207 | 18.04 | 207 | 18.51 | 208 | 18.94 | 208 | 19.38 | 204 | 19.71 | 204 | 20.09 |
| | 23 | 217 | 16.38 | 217 | 17.24 | 218 | 17.88 | 218 | 18.31 | 218 | 18.74 | 218 | 19.06 | 213 | 19.31 | 213 | 19.59 |
| | 27 | 228 | 16.26 | 228 | 17.08 | 228 | 17.70 | 228 | 18.13 | 228 | 18.54 | 228 | 18.74 | 222 | 18.91 | 222 | 19.07 |
| | 31 | 239 | 16.14 | 239 | 16.94 | 239 | 17.52 | 239 | 17.93 | 239 | 18.32 | 234 | 18.44 | 230 | 18.51 | 233 | 18.57 |
| | 35 | 250 | 16.02 | 249 | 16.78 | 249 | 17.34 | 249 | 17.75 | 249 | 18.12 | 243 | 18.12 | 239 | 18.11 | 241 | 18.07 |
| | 39 | 261 | 15.88 | 260 | 16.64 | 260 | 17.18 | 260 | 17.55 | 260 | 17.92 | 253 | 17.80 | 248 | 17.71 | 250 | 17.55 |
| | 43 | 271 | 15.76 | 271 | 16.48 | 270 | 17.00 | 270 | 17.37 | 270 | 17.72 | 262 | 17.48 | 256 | 17.31 | 259 | 17.03 |
| | 47 | 285 | 15.60 | 281 | 16.32 | 281 | 16.76 | 281 | 17.12 | 277 | 16.97 | 267 | 17.22 | 261 | 16.91 | 259 | 15.86 |
| | 51 | 298 | 15.52 | 292 | 16.18 | 292 | 16.42 | 291 | 16.57 | 291 | 16.72 | 281 | 17.28 | 274 | 16.51 | 259 | 14.68 |
| | 55 | 311 | 15.46 | 303 | 16.02 | 302 | 16.12 | 302 | 16.17 | 301 | 16.20 | 290 | 17.14 | 281 | 16.11 | 250 | 13.60 |
| 59 | 325 | 15.90 | 313 | 15.86 | 313 | 15.84 | 312 | 15.77 | 311 | 15.68 | 296 | 17.02 | 281 | 14.61 | 250 | 12.62 | |

| Connection ratio | Outdoor air temp | Indoor air temp. °FDB | | | | | | | | | | | | | | | | | |
|------------------|------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|-----|-------|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | |
| 70 | -4 | 159 | 23.38 | 158 | 23.99 | 158 | 24.49 | 158 | 24.96 | 158 | 24.96 | 157 | 25.43 | 155 | 27.16 | 153 | 28.44 | 151 | 30.50 |
| | -1 | 161 | 22.23 | 160 | 22.89 | 160 | 23.41 | 160 | 23.87 | 160 | 23.87 | 159 | 24.30 | 157 | 25.69 | 155 | 26.71 | 152 | 28.17 |
| | 3 | 163 | 20.86 | 163 | 21.56 | 163 | 22.10 | 162 | 22.50 | 162 | 22.91 | 160 | 23.91 | 159 | 24.60 | 157 | 24.60 | 153 | 25.37 |
| | 7 | 166 | 19.60 | 166 | 20.34 | 165 | 20.88 | 165 | 21.27 | 165 | 21.66 | 161 | 22.28 | 159 | 22.72 | 154 | 22.93 | | |
| | 11 | 169 | 18.46 | 168 | 19.22 | 168 | 19.79 | 168 | 20.17 | 168 | 20.50 | 164 | 20.83 | 161 | 21.04 | 156 | 20.72 | | |
| | 15 | 171 | 17.40 | 171 | 18.20 | 171 | 18.80 | 170 | 19.14 | 170 | 19.47 | 166 | 19.50 | 164 | 19.50 | 157 | 18.50 | | |
| | 19 | 174 | 16.20 | 174 | 16.93 | 173 | 17.48 | 173 | 17.83 | 173 | 18.14 | 169 | 18.17 | 166 | 18.18 | 158 | 17.12 | | |
| | 23 | 177 | 15.11 | 176 | 15.80 | 176 | 16.32 | 176 | 16.63 | 176 | 16.93 | 171 | 16.96 | 168 | 16.98 | 159 | 15.64 | | |
| | 27 | 179 | 14.13 | 179 | 14.77 | 179 | 15.25 | 178 | 15.56 | 178 | 15.85 | 174 | 15.85 | 170 | 15.86 | 161 | 14.29 | | |
| | 31 | 182 | 13.25 | 182 | 13.84 | 181 | 14.29 | 181 | 14.57 | 181 | 14.85 | 176 | 14.85 | 173 | 14.84 | 162 | 13.11 | | |
| | 35 | 185 | 12.44 | 184 | 12.99 | 184 | 13.40 | 184 | 13.68 | 184 | 13.95 | 179 | 13.92 | 175 | 13.90 | 163 | 12.79 | | |
| | 39 | 187 | 11.69 | 187 | 12.22 | 187 | 12.60 | 186 | 12.86 | 186 | 13.11 | 181 | 13.07 | 177 | 13.03 | 165 | 12.46 | | |
| | 43 | 190 | 11.02 | 190 | 11.50 | 189 | 11.88 | 189 | 12.11 | 189 | 12.35 | 183 | 12.27 | 179 | 12.22 | 166 | 12.13 | | |
| | 47 | 193 | 11.04 | 192 | 11.40 | 192 | 11.66 | 192 | 11.85 | 192 | 12.03 | 186 | 12.21 | 179 | 11.18 | 166 | 11.32 | | |
| | 51 | 195 | 11.05 | 195 | 11.31 | 195 | 11.49 | 194 | 11.60 | 194 | 11.71 | 188 | 12.13 | 179 | 10.31 | 166 | 10.51 | | |
| | 55 | 198 | 11.08 | 198 | 11.21 | 197 | 11.30 | 197 | 11.35 | 197 | 11.38 | 189 | 11.44 | 179 | 9.61 | 166 | 9.76 | | |
| 59 | 201 | 11.11 | 200 | 11.11 | 200 | 11.12 | 200 | 11.09 | 200 | 11.05 | 189 | 10.48 | 179 | 9.24 | 166 | 9.09 | | | |

TC: Total Capacity
IP: Input Power

NOTES:

- The table shows the normal value of a heating operation.
In some cases, the value may change due to the compressor protection control.
- The heating capacity on the table indicates the peak value, which does not include the capacity decrease caused by frost.
- The value on the table shows when the system is operated under the following conditions.
The total piping length: 24.6ft (7.5m), The height difference: 0ft (0m)
- In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in heating mode.

(H,Y)VAHP336B(3,4)1LM
(H,Y)VAHR336B(3,4)1LM

| Connection ratio | Outdoor air temp | Indoor air temp. °FDB | | | | | | | | | | | | | | | |
|------------------|------------------|-----------------------|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|
| | | 59 | | | | 63 | | | | 66 | | | | 70 | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW |
| 120 | -4 | 228 | 126.70 | 228 | 126.42 | 227 | 126.97 | 227 | 127.51 | 226 | 128.04 | 223 | 130.01 | 221 | 131.48 | 218 | 133.85 |
| | -1 | 236 | 125.23 | 236 | 125.03 | 236 | 126.65 | 236 | 127.21 | 236 | 127.74 | 236 | 129.66 | 230 | 131.10 | 227 | 133.20 |
| | 3 | 247 | 124.63 | 246 | 125.52 | 246 | 126.22 | 246 | 126.78 | 246 | 127.35 | 244 | 129.20 | 242 | 130.57 | 240 | 132.32 |
| | 7 | 257 | 124.00 | 257 | 125.02 | 257 | 125.77 | 257 | 126.37 | 257 | 126.96 | 256 | 128.72 | 254 | 130.04 | 253 | 131.46 |
| | 11 | 268 | 123.40 | 268 | 124.49 | 268 | 125.35 | 269 | 125.97 | 269 | 126.56 | 267 | 128.27 | 266 | 129.53 | 265 | 130.98 |
| | 15 | 279 | 122.77 | 279 | 123.99 | 279 | 124.92 | 280 | 125.56 | 280 | 126.17 | 279 | 127.79 | 279 | 129.00 | 276 | 129.72 |
| | 19 | 293 | 122.61 | 293 | 123.78 | 293 | 124.69 | 294 | 125.32 | 294 | 125.91 | 292 | 127.26 | 290 | 128.28 | 289 | 129.91 |
| | 23 | 308 | 122.43 | 308 | 123.60 | 308 | 124.48 | 309 | 125.07 | 309 | 125.65 | 306 | 126.73 | 300 | 127.56 | 300 | 128.11 |
| | 27 | 322 | 122.27 | 322 | 123.39 | 322 | 124.25 | 322 | 124.83 | 322 | 125.39 | 317 | 126.20 | 314 | 126.84 | 313 | 127.28 |
| | 31 | 336 | 122.12 | 336 | 123.21 | 336 | 124.01 | 336 | 124.58 | 336 | 125.10 | 330 | 125.70 | 326 | 126.12 | 326 | 126.48 |
| 110 | -4 | 228 | 127.11 | 228 | 126.82 | 227 | 127.37 | 227 | 127.91 | 226 | 128.38 | 223 | 130.35 | 221 | 131.82 | 218 | 134.19 |
| | -1 | 236 | 126.24 | 236 | 127.07 | 236 | 127.71 | 236 | 128.28 | 236 | 128.84 | 232 | 130.84 | 230 | 132.34 | 227 | 134.52 |
| | 3 | 247 | 125.64 | 246 | 126.56 | 246 | 127.28 | 246 | 127.85 | 246 | 128.45 | 244 | 130.38 | 242 | 131.81 | 240 | 133.64 |
| | 7 | 257 | 125.01 | 257 | 126.06 | 257 | 126.83 | 257 | 127.44 | 257 | 128.06 | 256 | 129.90 | 254 | 131.28 | 253 | 132.78 |
| | 11 | 268 | 124.41 | 268 | 125.53 | 268 | 126.41 | 269 | 127.04 | 269 | 127.66 | 267 | 129.45 | 266 | 130.77 | 265 | 131.90 |
| | 15 | 279 | 123.78 | 279 | 125.03 | 279 | 125.98 | 280 | 126.63 | 280 | 127.27 | 279 | 129.07 | 276 | 130.24 | 276 | 131.04 |
| | 19 | 293 | 123.62 | 293 | 124.82 | 293 | 125.75 | 294 | 126.39 | 294 | 127.01 | 290 | 128.44 | 290 | 129.52 | 289 | 130.23 |
| | 23 | 308 | 123.44 | 308 | 124.64 | 308 | 125.54 | 308 | 126.14 | 308 | 126.75 | 306 | 127.91 | 302 | 128.80 | 300 | 129.43 |
| | 27 | 322 | 123.28 | 322 | 124.43 | 322 | 125.30 | 322 | 125.90 | 322 | 126.49 | 317 | 127.38 | 314 | 128.08 | 313 | 128.66 |
| | 31 | 336 | 123.13 | 336 | 124.25 | 336 | 125.07 | 336 | 125.65 | 336 | 126.20 | 330 | 126.88 | 326 | 127.36 | 326 | 127.80 |
| 100 | -4 | 228 | 127.97 | 228 | 128.75 | 227 | 129.35 | 227 | 129.93 | 226 | 130.51 | 223 | 132.66 | 221 | 134.26 | 218 | 136.83 |
| | -1 | 236 | 127.50 | 236 | 128.36 | 236 | 129.03 | 236 | 129.63 | 236 | 130.21 | 232 | 132.31 | 230 | 133.88 | 227 | 136.18 |
| | 3 | 247 | 126.90 | 246 | 127.85 | 246 | 128.60 | 246 | 129.20 | 246 | 129.82 | 244 | 131.85 | 242 | 133.35 | 240 | 135.30 |
| | 7 | 257 | 126.27 | 257 | 127.35 | 257 | 128.15 | 257 | 128.79 | 257 | 129.43 | 256 | 131.37 | 254 | 132.94 | 253 | 134.44 |
| | 11 | 268 | 125.67 | 268 | 126.82 | 268 | 127.73 | 269 | 128.39 | 269 | 129.03 | 267 | 130.92 | 266 | 132.31 | 265 | 133.56 |
| | 15 | 279 | 125.04 | 279 | 126.32 | 279 | 127.30 | 280 | 127.98 | 280 | 128.64 | 279 | 130.44 | 279 | 131.76 | 278 | 132.70 |
| | 19 | 293 | 124.88 | 293 | 126.11 | 293 | 127.07 | 294 | 127.74 | 294 | 128.38 | 292 | 129.91 | 290 | 131.06 | 290 | 131.89 |
| | 23 | 308 | 124.70 | 308 | 125.93 | 308 | 126.86 | 308 | 127.49 | 308 | 128.12 | 306 | 129.38 | 302 | 130.34 | 303 | 131.09 |
| | 27 | 322 | 124.54 | 322 | 125.72 | 322 | 126.63 | 322 | 127.25 | 322 | 127.86 | 317 | 128.85 | 314 | 129.62 | 316 | 130.26 |
| | 31 | 336 | 124.39 | 336 | 125.54 | 336 | 126.39 | 336 | 127.00 | 336 | 127.57 | 330 | 128.35 | 326 | 128.90 | 326 | 129.46 |
| 90 | -4 | 228 | 129.46 | 228 | 130.28 | 227 | 130.91 | 227 | 131.52 | 226 | 132.13 | 223 | 134.39 | 221 | 136.08 | 218 | 138.79 |
| | -1 | 236 | 128.78 | 236 | 129.67 | 236 | 130.33 | 236 | 130.94 | 236 | 131.51 | 232 | 133.49 | 230 | 135.35 | 227 | 138.63 |
| | 3 | 247 | 128.16 | 246 | 129.08 | 246 | 129.66 | 246 | 130.15 | 246 | 130.71 | 244 | 132.97 | 242 | 134.52 | 240 | 136.44 |
| | 7 | 257 | 127.12 | 254 | 128.13 | 254 | 128.88 | 253 | 129.43 | 253 | 129.97 | 248 | 131.29 | 245 | 132.23 | 238 | 132.31 |
| | 11 | 264 | 126.34 | 264 | 127.40 | 263 | 128.23 | 263 | 128.76 | 263 | 129.27 | 258 | 130.33 | 254 | 131.03 | 246 | 130.32 |
| | 15 | 274 | 125.55 | 273 | 126.71 | 273 | 127.58 | 273 | 128.10 | 272 | 128.60 | 267 | 129.39 | 263 | 129.90 | 252 | 128.52 |
| | 19 | 284 | 124.63 | 283 | 125.74 | 283 | 126.58 | 282 | 127.11 | 282 | 127.61 | 276 | 128.29 | 271 | 128.76 | 259 | 127.39 |
| | 23 | 293 | 123.78 | 293 | 124.88 | 292 | 125.69 | 292 | 126.19 | 292 | 126.68 | 286 | 127.27 | 280 | 127.69 | 266 | 126.66 |
| | 27 | 303 | 123.02 | 302 | 124.06 | 302 | 124.84 | 302 | 125.35 | 301 | 125.84 | 296 | 126.30 | 289 | 126.66 | 274 | 125.95 |
| | 31 | 313 | 122.32 | 312 | 123.32 | 312 | 124.07 | 311 | 124.57 | 311 | 125.03 | 304 | 125.42 | 296 | 125.67 | 281 | 125.25 |
| 80 | -4 | 228 | 131.17 | 228 | 132.04 | 227 | 132.71 | 227 | 133.36 | 226 | 134.00 | 223 | 136.40 | 221 | 138.18 | 218 | 141.05 |
| | -1 | 233 | 129.95 | 232 | 130.85 | 232 | 131.55 | 232 | 132.19 | 231 | 132.78 | 228 | 134.87 | 226 | 136.41 | 221 | 138.45 |
| | 3 | 239 | 128.45 | 239 | 129.40 | 238 | 130.13 | 238 | 130.70 | 238 | 131.27 | 234 | 133.01 | 231 | 134.22 | 226 | 135.30 |
| | 7 | 246 | 127.03 | 245 | 128.05 | 245 | 128.80 | 244 | 129.34 | 244 | 129.89 | 240 | 131.27 | 237 | 132.26 | 230 | 132.52 |
| | 11 | 252 | 125.73 | 252 | 126.78 | 251 | 127.59 | 251 | 128.12 | 251 | 128.62 | 246 | 129.72 | 242 | 130.47 | 234 | 129.97 |
| | 15 | 259 | 124.49 | 258 | 125.61 | 258 | 126.46 | 257 | 126.96 | 257 | 127.44 | 252 | 128.27 | 248 | 128.82 | 238 | 127.69 |
| | 19 | 266 | 123.22 | 266 | 124.27 | 264 | 125.07 | 264 | 125.56 | 263 | 126.04 | 258 | 126.73 | 254 | 127.22 | 243 | 126.55 |
| | 23 | 272 | 122.05 | 271 | 123.07 | 271 | 123.82 | 270 | 124.29 | 270 | 124.75 | 264 | 125.33 | 260 | 125.75 | 247 | 123.80 |
| | 27 | 278 | 121.00 | 277 | 121.95 | 277 | 122.67 | 277 | 123.13 | 276 | 123.58 | 270 | 124.02 | 266 | 124.37 | 251 | 122.39 |
| | 31 | 284 | 120.04 | 284 | 120.94 | 284 | 121.61 | 283 | 122.06 | 283 | 122.48 | 276 | 122.84 | 271 | 123.08 | 256 | 121.67 |

TC: Total Capacity
 IP: Input Power

NOTES:

- The table shows the normal value of a heating operation.
 In some cases, the value may change due to the compressor protection control.
- The heating capacity on the table indicates the peak value, which does not include the capacity decrease caused by frost.
- The value on the table shows when the system is operated under the following conditions.
 The total piping length: 24.6ft (7.5m), The height difference: 0ft (0m)
- In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in heating mode.

SELECTION DATA

**(H,Y)VAHP360B(3,4)1LM
(H,Y)VAHR360B(3,4)1LM**

| Connection ratio | Outdoor air temp | Indoor air temp. °F/DB | | | | | | | | | | | | | | | | Connection ratio | Outdoor air temp | Indoor air temp. °F/DB | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|------------------------|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|------------------|------------------|------------------------|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|
| | | 59 | | 63 | | 66 | | 69 | | 70 | | 74 | | 77 | | 80 | | | | 59 | | 63 | | 66 | | 69 | | 70 | | 74 | | 77 | | 80 | | | | | |
| | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | TC | IP | | | | | | |
| % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | % | °FWB | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | MBH | KW | | | | | | |
| 120 | -4 | 238 | 127.18 | 238 | 127.93 | 237 | 128.51 | 237 | 129.06 | 236 | 129.61 | 232 | 131.62 | 229 | 133.11 | 226 | 135.51 | 70 | -4 | 238 | 135.03 | 238 | 135.98 | 237 | 136.73 | 237 | 137.44 | 236 | 138.15 | 237 | 137.44 | 236 | 138.15 | 232 | 140.74 | 229 | 142.66 | 226 | 145.75 |

TC: Total Capacity
IP: Input Power

NOTES:

1. The table shows the normal value of a heating operation.
In some cases, the value may change due to the compressor protection control.
2. The heating capacity on the table indicates the peak value, which does not include the capacity decrease caused by frost.
3. The value on the table shows when the system is operated under the following conditions.
The total piping length: 24.6ft (7.5m), The height difference: 0ft (0m)
4. In an instance of a heat recovery system, the value on the table indicates when all the indoor units are operated in heating mode.

7.3 Correction Factor According to Piping Length

< Cooling Capacity >

Correction Factor for Cooling Capacity According to Piping Length

The cooling capacity should be corrected according to the following formula:

$$CCA = CC \times F$$

CCA: Actual Corrected Cooling Capacity

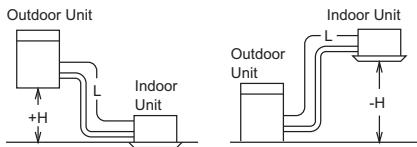
CC: Cooling Capacity in the Performance Table

F: Correction Factor Based on the Equivalent Piping Length

The correction factors are shown in the figure.

Equivalent Piping Length for

- One 90° Elbow is 1.6ft (0.5m).
- One 180° Bend is 4.9ft (1.5m).
- One Multi-Kit is 1.6ft (0.5m).



- H: Vertical Distance Between Indoor Unit and Outdoor Unit
- EL: Equivalent Total Distance Between Indoor Unit and Outdoor Unit (Equivalent One-Way Piping Length)
- H>0: Position of Outdoor Unit Higher Than Position of Indoor Unit
- L: Actual One-Way Piping Length Between Indoor Unit and Outdoor Unit

*Liquid piping size for EL < 328ft [100m] and EL ≥ 328ft [100m] are different. Refer to Installation Manual or Engineering Manual for details.

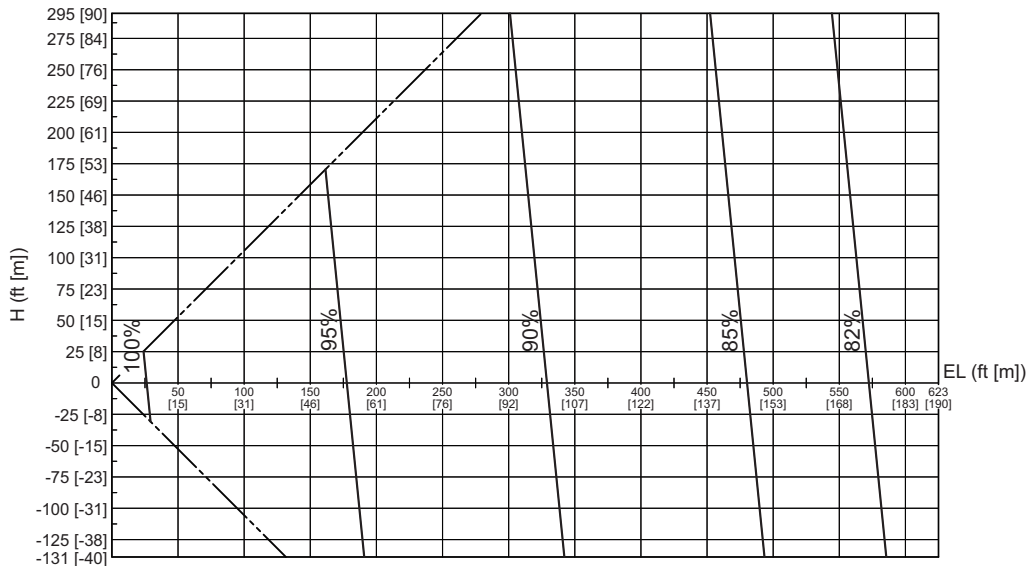
• Heat Pump System (2 Pipes)

MODELS: • Standard Type

(H,Y)VAHP072B(3,4)1S, (H,Y)VAHP096B(3,4)1S, (H,Y)VAHP240B(3,4)1S, (H,Y)VAHP264B(3,4)1S, (H,Y)VAHP288B(3,4)1S, (H,Y)VAHP312B(3,4)1S, (H,Y)VAHP336B(3,4)1S and (H,Y)VAHP360B(3,4)1S

• Less Module Type

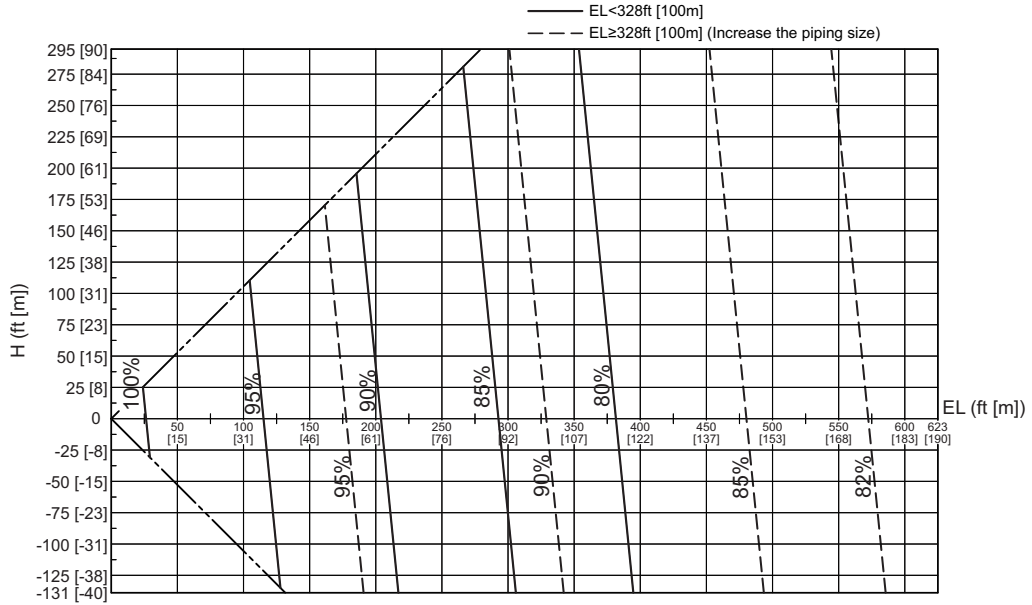
(H,Y)VAHP336B(3,4)1LM and (H,Y)VAHP360B(3,4)1LM



SELECTION DATA

MODELS: ● Standard Type
 (H,Y)VAHP120B(3,4)1S, (H,Y)VAHP144B(3,4)1S, (H,Y)VAHP168B(3,4)1S,
 (H,Y)VAHP192B(3,4)1S and (H,Y)VAHP216B(3,4)1S

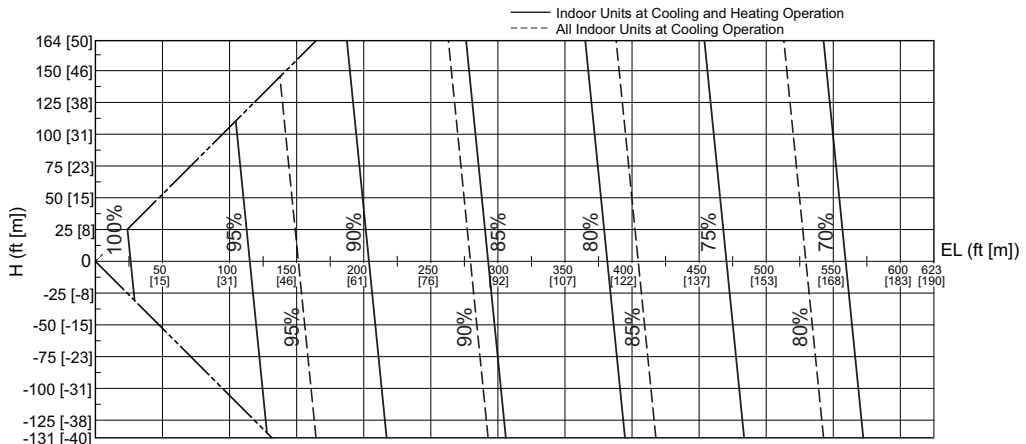
● Less Module Type
 (H,Y)VAHP240B(3,4)1LM



• Heat Recovery System (3 Pipes)

MODELS: ● Standard Type
 (H,Y)VAHR072B(3,4)1S, (H,Y)VAHR096B(3,4)1S, (H,Y)VAHR120B(3,4)1S,
 (H,Y)VAHR144B(3,4)1S, (H,Y)VAHR168B(3,4)1S, (H,Y)VAHR192B(3,4)1S,
 (H,Y)VAHR216B(3,4)1S, (H,Y)VAHR240B(3,4)1S, (H,Y)VAHR264B(3,4)1S,
 (H,Y)VAHR288B(3,4)1S, (H,Y)VAHR312B(3,4)1S, (H,Y)VAHR336B(3,4)1S,
 and (H,Y)VAHR360B(3,4)1S

● Less Module Type
 (H,Y)VAHR240B(3,4)1LM, (H,Y)VAHR336B(3,4)1LM, and (H,Y)VAHR360B(3,4)1LM



< Heating Capacity >

Correction Factor for Heating Capacity According to Piping Length

The heating capacity should be corrected according to the following formula:

$$HCA = HC \times F$$

HCA: Actual Corrected Heating Capacity

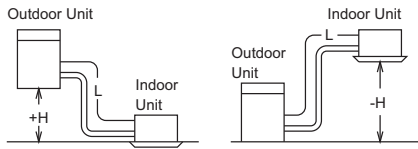
HC: Heating Capacity in the Performance Table

F: Correction Factor Based on the Equivalent Piping Length

The correction factors are shown in the figure.

Equivalent Piping Length for

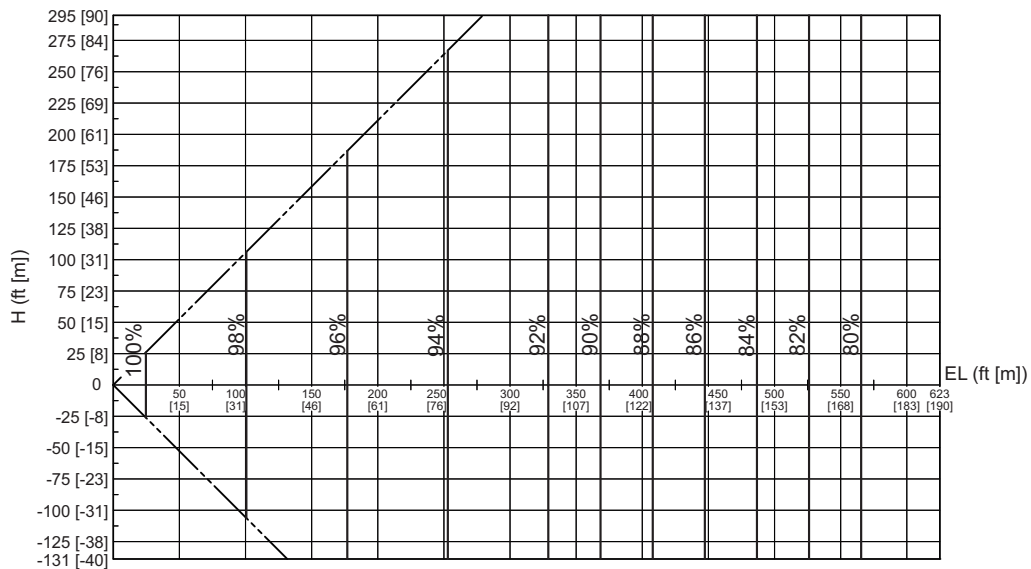
- One 90° Elbow is 1.6ft (0.5m).
- One 180° Bend is 4.9ft (1.5m).
- One Multi-Kit is 1.6ft (0.5m).



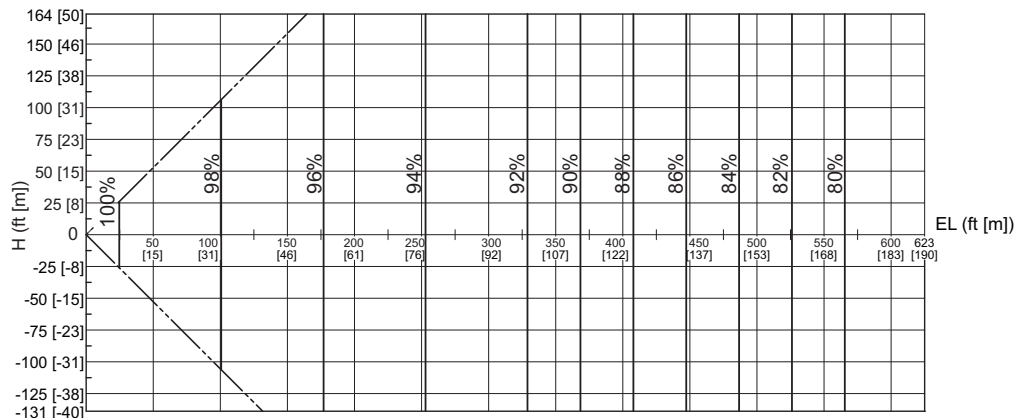
- H: Vertical Distance Between Indoor Unit and Outdoor Unit
- EL: Equivalent Total Distance Between Indoor Unit and Outdoor Unit in Meters (Equivalent One-Way Piping Length)
- H>0: Position of Outdoor Unit Higher Than Position of Indoor Unit
- L: Actual One-Way Piping Length Between Indoor Unit and Outdoor Unit in Meters

*Liquid piping size for EL < 328ft [100m] and EL ≥ 328ft [100m] are different. Refer to Installation Manual or Engineering Manual for details.

• Heat Pump System (2 Pipes)



• Heat Recovery System (3 Pipes)



SELECTION DATA

7.4 Correction Factor According to Defrosting Operation

The heating capacity in the preceding paragraph does not include defrost operation periods. Therefore, capacity should be corrected as follows:

Corrected Heating Capacity = Correction Factor x Heating Capacity

| | | | | | | | | | |
|---|--------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|
| Outdoor Air Temp. °F DB (°C DB) (Humidity=85% RH) | 19 (-7.2) | 23 (-5.0) | 27 (-2.8) | 31 (-0.6) | 35 (1.7) | 39 (3.9) | 41 (5.0) | 45 (7.2) | 47 (8.3) |
| Correction Factor | 0.95 | 0.93 | 0.88 | 0.85 | 0.86 | 0.88 | 0.90 | 1.0 | 1.0 |

NOTE:
The correction factor is not available for special conditions like snowfall or operation in a transitional period.

7.5 Correction Factor According to Altitude

The capacity is affected by the altitude.

Corrected Capacity = Correction Factor x Capacity

| | | | | | | | | | | | | |
|-------------------|-----------|----------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|
| Altitude | ft (m) | 0 (0) | 1000 (305) | 2000 (610) | 3000 (914) | 4000 (1219) | 5000 (1524) | 6000 (1829) | 7000 (2133) | 8000 (2438) | 9000 (2743) | 10000 (3048) |
| Correction Factor | | 1.00 | 0.97 | 0.93 | 0.90 | 0.87 | 0.83 | 0.80 | 0.77 | 0.75 | 0.72 | 0.69 |

7.6 Capacity Table for Indoor Unit

7.6.1 Cooling Capacity

(1) Ducted High Static (H,Y)IDH018-048B21S

| Indoor Unit Model | Indoor air Temp °FWB Outdoor air Temp °FDB | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | |
|-------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 018 | 70 | 18.6 | 15.3 | 19.0 | 15.4 | 19.4 | 15.5 | 19.6 | 15.7 | 20.2 | 15.8 | 20.7 | 15.9 | 21.2 | 16.1 |
| | 80 | 18.1 | 15.0 | 18.4 | 15.1 | 18.7 | 15.1 | 18.9 | 15.3 | 19.6 | 15.5 | 20.1 | 15.7 | 20.6 | 15.9 |
| | 95 | 16.9 | 14.4 | 17.3 | 14.5 | 17.6 | 14.6 | 18.0 | 14.8 | 18.6 | 15.1 | 19.2 | 15.4 | 19.6 | 15.5 |
| | 110 | 12.1 | 12.0 | 11.9 | 11.9 | 11.6 | 11.6 | 11.4 | 11.4 | 11.5 | 11.5 | 11.6 | 11.6 | 11.7 | 11.7 |
| | 114 | 10.2 | 10.2 | 10.1 | 10.1 | 10.0 | 10.0 | 9.9 | 9.9 | 9.9 | 9.9 | 10.0 | 10.0 | 10.0 | 10.0 |
| 024 | 70 | 24.8 | 20.8 | 25.3 | 21.0 | 25.9 | 21.2 | 26.1 | 21.1 | 26.9 | 21.5 | 27.7 | 21.6 | 28.3 | 21.8 |
| | 80 | 24.1 | 20.5 | 24.5 | 20.6 | 24.9 | 20.7 | 25.2 | 20.9 | 26.1 | 21.1 | 26.8 | 21.2 | 27.4 | 21.4 |
| | 95 | 22.6 | 19.9 | 23.0 | 20.0 | 23.5 | 20.2 | 24.0 | 20.4 | 24.8 | 20.6 | 25.6 | 20.7 | 26.1 | 20.9 |
| | 110 | 16.2 | 15.9 | 15.8 | 15.5 | 15.5 | 15.3 | 15.2 | 15.2 | 15.3 | 15.1 | 15.5 | 15.5 | 15.5 | 15.3 |
| | 114 | 13.6 | 13.6 | 13.5 | 13.5 | 13.3 | 13.3 | 13.2 | 13.2 | 13.2 | 13.2 | 13.3 | 13.3 | 13.4 | 13.4 |
| 030 | 70 | 31.0 | 25.4 | 31.6 | 25.6 | 32.3 | 25.8 | 32.6 | 26.1 | 33.7 | 26.3 | 34.6 | 26.6 | 35.4 | 26.9 |
| | 80 | 30.2 | 25.1 | 30.7 | 25.2 | 31.2 | 25.3 | 31.6 | 25.6 | 32.6 | 25.8 | 33.5 | 26.1 | 34.3 | 26.4 |
| | 95 | 28.2 | 24.0 | 28.8 | 24.2 | 29.4 | 24.4 | 30.0 | 24.6 | 31.0 | 25.1 | 32.0 | 25.3 | 32.6 | 25.8 |
| | 110 | 20.2 | 19.6 | 19.8 | 19.4 | 19.4 | 19.0 | 19.0 | 18.8 | 19.2 | 19.0 | 19.3 | 19.1 | 19.4 | 19.0 |
| | 114 | 17.0 | 17.0 | 16.8 | 16.8 | 16.6 | 16.6 | 16.5 | 16.5 | 16.6 | 16.6 | 16.7 | 16.7 | 16.7 | 16.7 |
| 036 | 70 | 37.2 | 30.9 | 38.0 | 31.2 | 38.8 | 31.0 | 39.1 | 31.3 | 40.4 | 31.9 | 41.5 | 32.0 | 42.5 | 32.3 |
| | 80 | 36.2 | 30.0 | 36.8 | 30.5 | 37.4 | 30.7 | 37.9 | 30.7 | 39.1 | 30.9 | 40.2 | 31.4 | 41.2 | 31.7 |
| | 95 | 33.8 | 28.7 | 34.6 | 29.4 | 35.3 | 29.7 | 36.0 | 29.9 | 37.2 | 30.5 | 38.4 | 30.7 | 39.2 | 31.0 |
| | 110 | 24.2 | 24.2 | 23.8 | 23.8 | 23.3 | 23.3 | 22.8 | 22.8 | 23.0 | 23.0 | 23.2 | 23.2 | 23.3 | 23.3 |
| | 114 | 20.4 | 20.4 | 20.2 | 20.2 | 20.0 | 20.0 | 19.7 | 19.7 | 19.9 | 19.9 | 20.0 | 20.0 | 20.1 | 20.1 |
| 048 | 70 | 49.5 | 41.1 | 50.6 | 41.5 | 51.7 | 41.9 | 52.1 | 41.7 | 53.9 | 42.6 | 55.3 | 43.1 | 56.6 | 43.6 |
| | 80 | 48.3 | 40.6 | 49.0 | 40.7 | 49.8 | 40.8 | 50.5 | 41.4 | 52.2 | 41.8 | 53.7 | 42.4 | 54.9 | 42.8 |
| | 95 | 45.1 | 38.8 | 46.1 | 39.2 | 47.0 | 39.5 | 48.0 | 40.3 | 49.6 | 40.7 | 51.2 | 41.5 | 52.2 | 41.8 |
| | 110 | 32.3 | 32.3 | 31.7 | 31.7 | 31.0 | 31.0 | 30.4 | 30.4 | 30.7 | 30.7 | 30.9 | 30.9 | 31.1 | 31.1 |
| | 114 | 27.2 | 27.2 | 26.9 | 26.9 | 26.6 | 26.6 | 26.3 | 26.3 | 26.5 | 26.5 | 26.7 | 26.7 | 26.8 | 26.8 |
| 118 | 22.1 | 22.1 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.3 | 22.3 | 22.4 | 22.4 | 22.5 | 22.5 | |

TC: Total capacity

SHC: Sensible heat capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

SELECTION DATA

(2) Ducted Medium Static (H,Y)IDM006-048B21S

| Indoor Unit Model | Outdoor air Temp °FDB | Indoor air Temp °FWB | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| | | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | |
| 006 | 70 | 6.2 | 4.9 | 6.3 | 4.9 | 6.5 | 4.9 | 6.5 | 4.9 | 6.7 | 5.0 | 6.9 | 5.0 | 7.1 | 5.0 | | | |
| | 80 | 6.0 | 4.7 | 6.1 | 4.8 | 6.2 | 4.8 | 6.3 | 4.8 | 6.5 | 4.9 | 6.7 | 4.9 | 6.9 | 5.0 | | | |
| | 95 | 5.6 | 4.5 | 5.8 | 4.6 | 5.9 | 4.7 | 6.0 | 4.7 | 6.2 | 4.7 | 6.4 | 4.7 | 6.5 | 4.8 | | | |
| | 110 | 4.0 | 3.8 | 4.0 | 3.8 | 3.9 | 3.7 | 3.8 | 3.6 | 3.8 | 3.6 | 3.9 | 3.7 | 3.9 | 3.7 | | | |
| | 114 | 3.4 | 3.4 | 3.4 | 3.4 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | | | |
| | 118 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.7 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | | | |
| 008 | 70 | 8.3 | 6.6 | 8.4 | 6.6 | 8.6 | 6.5 | 8.7 | 6.5 | 9.0 | 6.7 | 9.2 | 6.6 | 9.4 | 6.7 | | | |
| | 80 | 8.0 | 6.3 | 8.2 | 6.4 | 8.3 | 6.4 | 8.4 | 6.4 | 8.7 | 6.5 | 8.9 | 6.5 | 9.1 | 6.6 | | | |
| | 95 | 7.5 | 6.1 | 7.7 | 6.2 | 7.8 | 6.2 | 8.0 | 6.2 | 8.3 | 6.3 | 8.5 | 6.3 | 8.7 | 6.4 | | | |
| | 110 | 5.4 | 5.1 | 5.3 | 5.0 | 5.2 | 4.9 | 5.1 | 4.9 | 5.1 | 4.8 | 5.2 | 5.0 | 5.2 | 4.9 | | | |
| | 114 | 4.5 | 4.5 | 4.5 | 4.5 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.5 | 4.5 | | |
| | 118 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.6 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | | |
| 012 | 70 | 12.4 | 10.2 | 12.7 | 10.3 | 12.9 | 10.3 | 13.0 | 10.4 | 13.5 | 10.5 | 13.8 | 10.6 | 14.2 | 10.8 | | | |
| | 80 | 12.1 | 10.0 | 12.3 | 10.1 | 12.5 | 10.1 | 12.6 | 10.2 | 13.0 | 10.3 | 13.4 | 10.5 | 13.7 | 10.5 | | | |
| | 95 | 11.3 | 9.6 | 11.5 | 9.7 | 11.8 | 9.8 | 12.0 | 9.8 | 12.4 | 10.0 | 12.8 | 10.2 | 13.1 | 10.3 | | | |
| | 110 | 8.1 | 7.9 | 7.9 | 7.7 | 7.8 | 7.6 | 7.6 | 7.4 | 7.7 | 7.5 | 7.7 | 7.5 | 7.8 | 7.6 | | | |
| | 114 | 6.8 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 6.6 | 6.6 | 6.6 | 6.6 | 6.7 | 6.7 | 6.7 | 6.7 | | | |
| | 118 | 5.5 | 5.5 | 5.5 | 5.5 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | | | |
| 015 | 70 | 15.5 | 12.7 | 15.8 | 12.8 | 16.2 | 13.0 | 16.3 | 12.9 | 16.8 | 13.1 | 17.3 | 13.3 | 17.7 | 13.3 | | | |
| | 80 | 15.1 | 12.4 | 15.3 | 12.5 | 15.6 | 12.6 | 15.8 | 12.6 | 16.3 | 12.9 | 16.8 | 12.9 | 17.1 | 13.0 | | | |
| | 95 | 14.1 | 12.0 | 14.4 | 12.1 | 14.7 | 12.2 | 15.0 | 12.3 | 15.5 | 12.4 | 16.0 | 12.6 | 16.3 | 12.7 | | | |
| | 110 | 10.1 | 10.0 | 9.9 | 9.9 | 9.7 | 9.7 | 9.5 | 9.5 | 9.6 | 9.6 | 9.7 | 9.7 | 9.7 | 9.7 | | | |
| | 114 | 8.5 | 8.5 | 8.4 | 8.4 | 8.3 | 8.3 | 8.2 | 8.2 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.4 | 8.4 | | |
| | 118 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | | |
| 018 | 70 | 18.6 | 15.3 | 19.0 | 15.4 | 19.4 | 15.5 | 19.6 | 15.7 | 20.2 | 16.0 | 20.7 | 16.1 | 21.2 | 16.1 | | | |
| | 80 | 18.1 | 15.0 | 18.4 | 15.1 | 18.7 | 15.3 | 18.9 | 15.3 | 19.6 | 15.5 | 20.1 | 15.7 | 20.6 | 15.9 | | | |
| | 95 | 16.9 | 14.4 | 17.3 | 14.5 | 17.6 | 14.6 | 18.0 | 14.8 | 18.6 | 15.1 | 19.2 | 15.4 | 19.6 | 15.5 | | | |
| | 110 | 12.1 | 11.9 | 11.9 | 11.7 | 11.6 | 11.5 | 11.4 | 11.3 | 11.5 | 11.4 | 11.6 | 11.5 | 11.7 | 11.6 | | | |
| | 114 | 10.2 | 10.2 | 10.1 | 10.1 | 10.0 | 10.0 | 9.9 | 9.9 | 9.9 | 9.9 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | | |
| | 118 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.4 | 8.4 | 8.4 | 8.4 | 8.4 | 8.4 | | |
| 024 | 70 | 24.8 | 20.6 | 25.3 | 21.0 | 25.9 | 21.0 | 26.1 | 21.1 | 26.9 | 21.5 | 27.7 | 21.6 | 28.3 | 21.8 | | | |
| | 80 | 24.1 | 20.2 | 24.5 | 20.3 | 24.9 | 20.4 | 25.2 | 20.7 | 26.1 | 20.9 | 26.8 | 21.2 | 27.4 | 21.4 | | | |
| | 95 | 22.6 | 19.4 | 23.0 | 19.6 | 23.5 | 19.7 | 24.0 | 19.9 | 24.8 | 20.3 | 25.6 | 20.7 | 26.1 | 20.9 | | | |
| | 110 | 16.2 | 16.0 | 15.8 | 15.6 | 15.5 | 15.3 | 15.2 | 15.0 | 15.3 | 15.1 | 15.5 | 15.3 | 15.5 | 15.3 | | | |
| | 114 | 13.6 | 13.6 | 13.5 | 13.5 | 13.3 | 13.3 | 13.2 | 13.2 | 13.2 | 13.2 | 13.3 | 13.3 | 13.4 | 13.4 | | | |
| | 118 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.2 | 11.2 | 11.2 | 11.2 | 11.2 | 11.2 | | | |
| 030 | 70 | 31.0 | 25.7 | 31.6 | 25.9 | 32.3 | 26.2 | 32.6 | 26.1 | 33.7 | 26.6 | 34.6 | 27.0 | 35.4 | 27.3 | | | |
| | 80 | 30.2 | 25.1 | 30.7 | 25.5 | 31.2 | 25.6 | 31.6 | 25.6 | 32.6 | 26.1 | 33.5 | 26.5 | 34.3 | 26.8 | | | |
| | 95 | 28.2 | 24.0 | 28.8 | 24.2 | 29.4 | 24.7 | 30.0 | 24.9 | 31.0 | 25.4 | 32.0 | 25.6 | 32.6 | 26.1 | | | |
| | 110 | 20.2 | 19.6 | 19.8 | 19.2 | 19.4 | 18.8 | 19.0 | 18.6 | 19.2 | 18.8 | 19.3 | 18.9 | 19.4 | 19.0 | | | |
| | 114 | 17.0 | 17.0 | 16.8 | 16.8 | 16.6 | 16.6 | 16.5 | 16.5 | 16.6 | 16.6 | 16.7 | 16.7 | 16.7 | 16.7 | | | |
| | 118 | 13.8 | 13.8 | 13.8 | 13.8 | 13.9 | 13.9 | 13.9 | 13.9 | 13.9 | 13.9 | 14.0 | 14.0 | 14.0 | 14.0 | | | |
| 036 | 70 | 37.2 | 31.2 | 38.0 | 31.5 | 38.8 | 31.8 | 39.1 | 32.1 | 40.4 | 32.7 | 41.5 | 32.8 | 42.5 | 33.2 | | | |
| | 80 | 36.2 | 30.8 | 36.8 | 30.9 | 37.4 | 31.0 | 37.9 | 31.5 | 39.1 | 31.7 | 40.2 | 32.2 | 41.2 | 32.5 | | | |
| | 95 | 33.8 | 29.4 | 34.6 | 29.8 | 35.3 | 30.0 | 36.0 | 30.2 | 37.2 | 30.9 | 38.4 | 31.5 | 39.2 | 31.8 | | | |
| | 110 | 24.2 | 24.0 | 23.8 | 23.6 | 23.3 | 23.1 | 22.8 | 22.8 | 23.0 | 23.0 | 23.2 | 23.2 | 23.3 | 23.3 | | | |
| | 114 | 20.4 | 20.4 | 20.2 | 20.2 | 20.0 | 20.0 | 19.7 | 19.7 | 19.9 | 19.9 | 20.0 | 20.0 | 20.1 | 20.1 | | | |
| | 118 | 16.6 | 16.6 | 16.6 | 16.6 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.8 | 16.8 | 16.8 | 16.8 | | | |
| 048 | 70 | 49.5 | 41.6 | 50.6 | 42.0 | 51.7 | 42.4 | 52.1 | 42.2 | 53.9 | 43.1 | 55.3 | 43.7 | 56.6 | 44.1 | | | |
| | 80 | 48.3 | 40.6 | 49.0 | 41.2 | 49.8 | 41.3 | 50.5 | 41.4 | 52.2 | 42.3 | 53.7 | 43.0 | 54.9 | 43.4 | | | |
| | 95 | 45.1 | 39.2 | 46.1 | 39.6 | 47.0 | 40.0 | 48.0 | 40.3 | 49.6 | 41.2 | 51.2 | 41.5 | 52.2 | 41.8 | | | |
| | 110 | 32.3 | 32.0 | 31.7 | 31.7 | 31.0 | 31.0 | 30.4 | 30.4 | 30.7 | 30.7 | 30.9 | 30.9 | 31.1 | 31.1 | | | |
| | 114 | 27.2 | 27.2 | 26.9 | 26.9 | 26.6 | 26.6 | 26.3 | 26.3 | 26.5 | 26.5 | 26.7 | 26.7 | 26.8 | 26.8 | | | |
| | 118 | 22.1 | 22.1 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.3 | 22.3 | 22.4 | 22.4 | 22.5 | 22.5 | | | |

TC: Total capacity

SHC: Sensible heat capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

(3) Ducted Slim (H,Y)IDS006-018B21S

| Indoor Unit Model | Outdoor air Temp °FDB | Indoor air Temp °FWB | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| | | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | |
| 006 | 70 | 6.2 | 4.9 | 6.3 | 4.9 | 6.5 | 5.0 | 6.5 | 4.9 | 6.7 | 5.0 | 6.9 | 5.0 | 7.1 | 5.1 | | | |
| | 80 | 6.0 | 4.8 | 6.1 | 4.8 | 6.2 | 4.8 | 6.3 | 4.9 | 6.5 | 4.9 | 6.7 | 5.0 | 6.9 | 5.0 | | | |
| | 95 | 5.6 | 4.6 | 5.8 | 4.7 | 5.9 | 4.7 | 6.0 | 4.7 | 6.2 | 4.8 | 6.4 | 4.8 | 6.5 | 4.8 | | | |
| | 110 | 4.0 | 3.8 | 4.0 | 3.8 | 3.9 | 3.7 | 3.8 | 3.6 | 3.8 | 3.6 | 3.9 | 3.7 | 3.9 | 3.7 | | | |
| | 114 | 3.4 | 3.4 | 3.4 | 3.4 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | | | |
| | 118 | 2.8 | 2.7 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.8 | 2.8 | | | |
| 008 | 70 | 8.3 | 6.6 | 8.4 | 6.6 | 8.6 | 6.6 | 8.7 | 6.6 | 9.0 | 6.7 | 9.2 | 6.7 | 9.4 | 6.8 | | | |
| | 80 | 8.0 | 6.4 | 8.2 | 6.5 | 8.3 | 6.5 | 8.4 | 6.5 | 8.7 | 6.5 | 8.9 | 6.6 | 9.1 | 6.6 | | | |
| | 95 | 7.5 | 6.2 | 7.7 | 6.2 | 7.8 | 6.2 | 8.0 | 6.3 | 8.3 | 6.4 | 8.5 | 6.4 | 8.7 | 6.4 | | | |
| | 110 | 5.4 | 5.1 | 5.3 | 5.0 | 5.2 | 5.0 | 5.1 | 4.9 | 5.1 | 4.9 | 5.2 | 5.0 | 5.2 | 5.0 | | | |
| | 114 | 4.5 | 4.5 | 4.5 | 4.5 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.5 | 4.5 | | |
| | 118 | 3.7 | 3.6 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.6 | 3.7 | 3.7 | 3.7 | 3.6 | 3.7 | 3.7 | | | |
| 012 | 70 | 12.4 | 10.3 | 12.7 | 10.4 | 12.9 | 10.4 | 13.0 | 10.5 | 13.5 | 10.7 | 13.8 | 10.8 | 14.2 | 10.9 | | | |
| | 80 | 12.1 | 10.2 | 12.3 | 10.2 | 12.5 | 10.4 | 12.6 | 10.3 | 13.0 | 10.4 | 13.4 | 10.6 | 13.7 | 10.7 | | | |
| | 95 | 11.3 | 9.8 | 11.5 | 9.9 | 11.8 | 10.0 | 12.0 | 10.1 | 12.4 | 10.3 | 12.8 | 10.4 | 13.1 | 10.5 | | | |
| | 110 | 8.1 | 8.1 | 7.9 | 7.9 | 7.8 | 7.8 | 7.6 | 7.6 | 7.7 | 7.7 | 7.7 | 7.7 | 7.8 | 7.8 | | | |
| | 114 | 6.8 | 6.8 | 6.7 | 6.7 | 6.7 | 6.7 | 6.6 | 6.6 | 6.6 | 6.6 | 6.7 | 6.7 | 6.7 | 6.7 | | | |
| | 118 | 5.5 | 5.5 | 5.5 | 5.5 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | | | |
| 015 | 70 | 15.5 | 13.0 | 15.8 | 13.1 | 16.2 | 13.3 | 16.3 | 13.4 | 16.8 | 13.4 | 17.3 | 13.7 | 17.7 | 13.8 | | | |
| | 80 | 15.1 | 12.8 | 15.3 | 12.9 | 15.6 | 13.1 | 15.8 | 13.1 | 16.3 | 13.2 | 16.8 | 13.4 | 17.1 | 13.5 | | | |
| | 95 | 14.1 | 12.4 | 14.4 | 12.5 | 14.7 | 12.6 | 15.0 | 12.8 | 15.5 | 12.9 | 16.0 | 13.1 | 16.3 | 13.2 | | | |
| | 110 | 10.1 | 10.1 | 9.9 | 9.9 | 9.7 | 9.7 | 9.5 | 9.5 | 9.6 | 9.6 | 9.7 | 9.7 | 9.7 | 9.7 | | | |
| | 114 | 8.5 | 8.5 | 8.4 | 8.4 | 8.3 | 8.3 | 8.2 | 8.2 | 8.3 | 8.3 | 8.3 | 8.3 | 8.4 | 8.4 | | | |
| | 118 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | | | |
| 018 | 70 | 18.6 | 15.6 | 19.0 | 15.8 | 19.4 | 15.9 | 19.6 | 15.9 | 20.2 | 16.2 | 20.7 | 16.4 | 21.2 | 16.5 | | | |
| | 80 | 18.1 | 15.4 | 18.4 | 15.5 | 18.7 | 15.5 | 18.9 | 15.7 | 19.6 | 15.9 | 20.1 | 16.1 | 20.6 | 16.3 | | | |
| | 95 | 16.9 | 14.7 | 17.3 | 14.9 | 17.6 | 15.0 | 18.0 | 15.1 | 18.6 | 15.4 | 19.2 | 15.7 | 19.6 | 15.7 | | | |
| | 110 | 12.1 | 12.1 | 11.9 | 11.9 | 11.6 | 11.6 | 11.4 | 11.4 | 11.5 | 11.5 | 11.6 | 11.6 | 11.7 | 11.7 | | | |
| | 114 | 10.2 | 10.2 | 10.1 | 10.1 | 10.0 | 10.0 | 9.9 | 9.9 | 9.9 | 9.9 | 10.0 | 10.0 | 10.0 | 10.0 | | | |
| | 118 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.4 | 8.4 | 8.4 | 8.4 | 8.4 | 8.4 | | | |

TC: Total capacity

SHC: Sensible heat capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

SELECTION DATA

(4) 4-Way Cassette Type (H,Y)IC4012-036B21S

| Indoor Unit Model | Outdoor air Temp °FDB | Indoor air Temp °FWB | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 012 | 70 | 12.4 | 9.5 | 12.7 | 9.7 | 12.9 | 9.7 | 13.0 | 9.6 | 13.5 | 9.7 | 13.8 | 9.8 | 14.2 | 9.8 | | |
| | 80 | 12.1 | 9.4 | 12.3 | 9.5 | 12.5 | 9.5 | 12.6 | 9.5 | 13.0 | 9.5 | 13.4 | 9.6 | 13.7 | 9.7 | | |
| | 95 | 11.3 | 9.0 | 11.5 | 9.1 | 11.8 | 9.2 | 12.0 | 9.2 | 12.4 | 9.3 | 12.8 | 9.3 | 13.1 | 9.4 | | |
| | 110 | 8.1 | 7.5 | 7.9 | 7.3 | 7.8 | 7.5 | 7.6 | 7.4 | 7.7 | 7.0 | 7.7 | 7.4 | 7.8 | 7.4 | | |
| | 114 | 6.8 | 6.6 | 6.7 | 5.6 | 6.7 | 5.6 | 6.6 | 6.6 | 6.6 | 5.6 | 6.7 | 6.7 | 6.7 | 6.7 | | |
| | 118 | 5.5 | 5.5 | 5.5 | 5.0 | 5.6 | 4.8 | 5.6 | 5.6 | 5.6 | 4.8 | 5.6 | 5.6 | 5.6 | 5.6 | | |
| 015 | 70 | 15.5 | 12.1 | 15.8 | 12.2 | 16.2 | 12.2 | 16.3 | 12.2 | 16.8 | 12.3 | 17.3 | 12.3 | 17.7 | 12.4 | | |
| | 80 | 15.1 | 11.8 | 15.3 | 11.9 | 15.6 | 11.9 | 15.8 | 12.0 | 16.3 | 12.1 | 16.8 | 12.1 | 17.1 | 12.1 | | |
| | 95 | 14.1 | 11.4 | 14.4 | 11.5 | 14.7 | 11.5 | 15.0 | 11.6 | 15.5 | 11.8 | 16.0 | 11.8 | 16.3 | 11.9 | | |
| | 110 | 10.1 | 9.4 | 9.9 | 9.3 | 9.7 | 9.1 | 9.5 | 9.0 | 9.6 | 9.1 | 9.7 | 9.2 | 9.7 | 9.1 | | |
| | 114 | 8.5 | 8.4 | 8.4 | 8.4 | 8.3 | 8.3 | 8.2 | 7.1 | 8.3 | 7.2 | 8.3 | 8.3 | 8.4 | 7.2 | | |
| | 118 | 6.9 | 6.9 | 6.9 | 6.3 | 6.9 | 6.9 | 7.0 | 6.5 | 7.0 | 6.2 | 7.0 | 7.0 | 7.0 | 6.3 | | |
| 018 | 70 | 18.6 | 16.6 | 19.0 | 16.7 | 19.4 | 16.7 | 19.6 | 16.9 | 20.2 | 17.0 | 20.7 | 17.2 | 21.2 | 17.4 | | |
| | 80 | 18.1 | 16.1 | 18.4 | 16.2 | 18.7 | 16.3 | 18.9 | 16.4 | 19.6 | 16.7 | 20.1 | 16.9 | 20.6 | 17.1 | | |
| | 95 | 16.9 | 15.4 | 17.3 | 15.7 | 17.6 | 15.7 | 18.0 | 16.0 | 18.6 | 16.2 | 19.2 | 16.3 | 19.6 | 16.7 | | |
| | 110 | 12.1 | 12.1 | 11.9 | 11.9 | 11.6 | 11.6 | 11.4 | 11.4 | 11.5 | 11.5 | 11.6 | 11.6 | 11.7 | 11.7 | | |
| | 114 | 10.2 | 10.2 | 10.1 | 10.1 | 10.0 | 10.0 | 9.9 | 9.9 | 9.9 | 9.9 | 10.0 | 10.0 | 10.0 | 10.0 | | |
| | 118 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 | 8.4 | 8.4 | 8.4 | 8.4 | 8.4 | 8.4 | | |
| 024 | 70 | 24.8 | 19.8 | 25.3 | 20.0 | 25.9 | 20.2 | 26.1 | 20.1 | 26.9 | 20.4 | 27.7 | 20.5 | 28.3 | 20.7 | | |
| | 80 | 24.1 | 19.5 | 24.5 | 19.6 | 24.9 | 19.7 | 25.2 | 19.7 | 26.1 | 19.8 | 26.8 | 20.1 | 27.4 | 20.3 | | |
| | 95 | 22.6 | 18.8 | 23.0 | 18.9 | 23.5 | 19.0 | 24.0 | 19.2 | 24.8 | 19.6 | 25.6 | 19.7 | 26.1 | 19.8 | | |
| | 110 | 16.2 | 15.7 | 15.8 | 15.5 | 15.5 | 15.3 | 15.2 | 15.2 | 15.3 | 15.3 | 15.5 | 15.5 | 15.5 | 15.5 | | |
| | 114 | 13.6 | 13.6 | 13.5 | 13.5 | 13.3 | 13.3 | 13.2 | 13.2 | 13.2 | 13.2 | 13.3 | 13.3 | 13.4 | 13.4 | | |
| | 118 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.2 | 11.2 | 11.2 | 11.2 | 11.2 | 11.2 | | |
| 030 | 70 | 31.0 | 25.4 | 31.6 | 25.6 | 32.3 | 25.8 | 32.6 | 25.8 | 33.7 | 26.3 | 34.6 | 26.6 | 35.4 | 26.9 | | |
| | 80 | 30.2 | 25.1 | 30.7 | 25.2 | 31.2 | 25.3 | 31.6 | 25.6 | 32.6 | 25.8 | 33.5 | 26.1 | 34.3 | 26.4 | | |
| | 95 | 28.2 | 24.0 | 28.8 | 24.2 | 29.4 | 24.4 | 30.0 | 24.6 | 31.0 | 25.1 | 32.0 | 25.3 | 32.6 | 25.4 | | |
| | 110 | 20.2 | 20.0 | 19.8 | 19.8 | 19.4 | 19.4 | 19.0 | 19.0 | 19.2 | 19.2 | 19.3 | 19.3 | 19.4 | 19.4 | | |
| | 114 | 17.0 | 17.0 | 16.8 | 16.8 | 16.6 | 16.6 | 16.5 | 16.5 | 16.6 | 16.6 | 16.7 | 16.7 | 16.7 | 16.7 | | |
| | 118 | 13.8 | 13.8 | 13.8 | 13.8 | 13.9 | 13.9 | 13.9 | 13.9 | 13.9 | 13.9 | 13.9 | 14.0 | 14.0 | 14.0 | | |
| 036 | 70 | 37.2 | 30.5 | 38.0 | 30.8 | 38.8 | 31.0 | 39.1 | 30.9 | 40.4 | 31.5 | 41.5 | 32.0 | 42.5 | 32.3 | | |
| | 80 | 36.2 | 30.0 | 36.8 | 30.2 | 37.4 | 30.3 | 37.9 | 30.7 | 39.1 | 30.9 | 40.2 | 31.4 | 41.2 | 31.7 | | |
| | 95 | 33.8 | 28.7 | 34.6 | 29.1 | 35.3 | 29.3 | 36.0 | 29.5 | 37.2 | 30.1 | 38.4 | 30.3 | 39.2 | 30.6 | | |
| | 110 | 24.2 | 24.0 | 23.8 | 23.8 | 23.3 | 23.3 | 22.8 | 22.8 | 23.0 | 23.0 | 23.2 | 23.2 | 23.3 | 23.3 | | |
| | 114 | 20.4 | 20.4 | 20.2 | 20.2 | 20.0 | 20.0 | 19.7 | 19.7 | 19.9 | 19.9 | 20.0 | 20.0 | 20.1 | 20.1 | | |
| | 118 | 16.6 | 16.6 | 16.6 | 16.6 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.8 | 16.8 | 16.8 | 16.8 | | |

TC: Total capacity

SHC: Sensible heat capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

(5) 1-Way Cassette Type (H,Y)IC1006-015B21S

| Indoor Unit Model | Outdoor air Temp °FDB | Indoor air Temp °FWB | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| | | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | |
| 006 | 70 | 6.2 | 4.9 | 6.3 | 4.9 | 6.5 | 4.9 | 6.5 | 4.9 | 6.7 | 5.0 | 6.9 | 5.0 | 7.1 | 5.0 | 7.1 | 5.0 | |
| | 80 | 6.0 | 4.7 | 6.1 | 4.8 | 6.2 | 4.8 | 6.3 | 4.9 | 6.5 | 4.9 | 6.7 | 4.9 | 6.9 | 4.9 | 6.9 | 5.0 | |
| | 95 | 5.6 | 4.6 | 5.8 | 4.6 | 5.9 | 4.7 | 6.0 | 4.7 | 6.2 | 4.8 | 6.4 | 4.8 | 6.5 | 4.8 | 6.5 | 4.8 | |
| | 110 | 4.0 | 3.8 | 4.0 | 3.8 | 3.9 | 3.7 | 3.8 | 3.6 | 3.8 | 3.6 | 3.9 | 3.7 | 3.7 | 3.9 | 3.7 | 3.9 | 3.7 |
| | 114 | 3.4 | 3.4 | 3.4 | 3.4 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 |
| | 118 | 2.8 | 2.8 | 2.8 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.8 | 2.7 | 2.8 | 2.7 | 2.8 | 2.8 | 2.8 | 2.8 | 2.7 |
| 008 | 70 | 8.3 | 6.6 | 8.4 | 6.6 | 8.6 | 6.6 | 8.7 | 6.6 | 9.0 | 6.8 | 9.2 | 6.7 | 9.4 | 6.8 | 9.4 | 6.8 | |
| | 80 | 8.0 | 6.4 | 8.2 | 6.5 | 8.3 | 6.5 | 8.4 | 6.6 | 8.7 | 6.6 | 8.9 | 6.6 | 9.1 | 6.6 | 9.1 | 6.6 | |
| | 95 | 7.5 | 6.2 | 7.7 | 6.2 | 7.8 | 6.2 | 8.0 | 6.3 | 8.3 | 6.5 | 8.5 | 6.5 | 8.7 | 6.5 | 8.7 | 6.5 | |
| | 110 | 5.4 | 5.1 | 5.3 | 5.0 | 5.2 | 5.0 | 5.1 | 4.9 | 5.1 | 4.9 | 5.2 | 5.0 | 5.2 | 5.0 | 5.2 | 5.0 | |
| | 114 | 4.5 | 4.4 | 4.5 | 4.5 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.5 | 4.5 | 4.5 | 4.5 |
| | 118 | 3.7 | 3.6 | 3.7 | 3.6 | 3.7 | 3.7 | 3.7 | 3.6 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| 012 | 70 | 12.4 | 10.2 | 12.7 | 10.4 | 12.9 | 10.3 | 13.0 | 10.4 | 13.5 | 10.5 | 13.8 | 10.6 | 14.2 | 10.8 | 14.2 | 10.8 | |
| | 80 | 12.1 | 10.0 | 12.3 | 10.1 | 12.5 | 10.1 | 12.6 | 10.2 | 13.0 | 10.4 | 13.4 | 10.5 | 13.7 | 10.5 | 13.7 | 10.5 | |
| | 95 | 11.3 | 9.6 | 11.5 | 9.7 | 11.8 | 9.9 | 12.0 | 10.0 | 12.4 | 10.0 | 12.8 | 10.2 | 13.1 | 10.3 | 13.1 | 10.3 | |
| | 110 | 8.1 | 8.1 | 7.9 | 7.9 | 7.8 | 7.8 | 7.6 | 7.6 | 7.7 | 7.7 | 7.7 | 7.7 | 7.8 | 7.8 | 7.8 | 7.8 | |
| | 114 | 6.8 | 6.8 | 6.7 | 6.7 | 6.7 | 6.7 | 6.6 | 6.6 | 6.6 | 6.6 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | |
| | 118 | 5.5 | 5.5 | 5.5 | 5.5 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 |
| 015 | 70 | 15.5 | 12.9 | 15.8 | 13.0 | 16.2 | 13.1 | 16.3 | 13.0 | 16.8 | 13.3 | 17.3 | 13.5 | 17.7 | 13.6 | 17.7 | 13.6 | |
| | 80 | 15.1 | 12.5 | 15.3 | 12.7 | 15.6 | 12.8 | 15.8 | 12.8 | 16.3 | 13.0 | 16.8 | 13.1 | 17.1 | 13.3 | 17.1 | 13.3 | |
| | 95 | 14.1 | 12.0 | 14.4 | 12.2 | 14.7 | 12.3 | 15.0 | 12.5 | 15.5 | 12.7 | 16.0 | 12.8 | 16.3 | 12.9 | 16.3 | 12.9 | |
| | 110 | 10.1 | 10.0 | 9.9 | 9.8 | 9.7 | 9.7 | 9.5 | 9.5 | 9.6 | 9.6 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | |
| | 114 | 8.5 | 8.5 | 8.4 | 8.4 | 8.3 | 8.3 | 8.2 | 8.2 | 8.3 | 8.3 | 8.3 | 8.3 | 8.4 | 8.4 | 8.4 | 8.4 | |
| | 118 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 |

TC: Total capacity

SHC: Sensible heat capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

SELECTION DATA

(6) Wall Mounted TIWM006-024B21S

| Indoor Unit Model | Outdoor air Temp °FDB | Indoor air Temp °FWB | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | | 73 | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC | TC | SHC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 006 | 70 | 6.2 | 4.6 | 6.3 | 4.6 | 6.5 | 4.7 | 6.5 | 4.6 | 6.7 | 4.6 | 6.9 | 4.7 | 7.1 | 4.7 | | |
| | 80 | 6.0 | 4.5 | 6.1 | 4.5 | 6.2 | 4.5 | 6.3 | 4.5 | 6.5 | 4.6 | 6.7 | 4.6 | 6.9 | 4.6 | | |
| | 95 | 5.6 | 4.3 | 5.8 | 4.4 | 5.9 | 4.4 | 6.0 | 4.4 | 6.2 | 4.4 | 6.4 | 4.4 | 6.5 | 4.5 | | |
| | 110 | 4.0 | 3.2 | 4.0 | 3.4 | 3.9 | 3.0 | 3.8 | 2.9 | 3.8 | 3.2 | 3.9 | 2.8 | 3.9 | 3.3 | | |
| | 114 | 3.4 | 2.7 | 3.4 | 3.0 | 3.3 | 2.6 | 3.3 | 3.0 | 3.3 | 2.9 | 3.3 | 2.4 | 3.3 | 2.9 | | |
| | 118 | 2.8 | 2.2 | 2.8 | 2.5 | 2.8 | 2.2 | 2.8 | 2.6 | 2.8 | 2.6 | 2.8 | 2.1 | 2.8 | 2.4 | | |
| 008 | 70 | 8.3 | 6.1 | 8.4 | 6.1 | 8.6 | 6.2 | 8.7 | 6.2 | 9.0 | 6.2 | 9.2 | 6.3 | 9.4 | 6.2 | | |
| | 80 | 8.0 | 6.0 | 8.2 | 6.1 | 8.3 | 6.1 | 8.4 | 6.0 | 8.7 | 6.1 | 8.9 | 6.1 | 9.1 | 6.1 | | |
| | 95 | 7.5 | 5.7 | 7.7 | 5.8 | 7.8 | 5.8 | 8.0 | 5.8 | 8.3 | 5.9 | 8.5 | 5.9 | 8.7 | 6.0 | | |
| | 110 | 5.4 | 4.3 | 5.3 | 4.5 | 5.2 | 4.0 | 5.1 | 4.3 | 5.1 | 4.3 | 5.2 | 3.8 | 5.2 | 4.4 | | |
| | 114 | 4.5 | 3.5 | 4.5 | 4.0 | 4.4 | 3.4 | 4.4 | 4.0 | 4.4 | 3.8 | 4.4 | 3.3 | 4.5 | 3.9 | | |
| | 118 | 3.7 | 3.0 | 3.7 | 3.3 | 3.7 | 2.9 | 3.7 | 3.4 | 3.7 | 3.5 | 3.7 | 2.8 | 3.7 | 3.2 | | |
| 012 | 70 | 12.4 | 9.3 | 12.7 | 9.4 | 12.9 | 9.3 | 13.0 | 9.2 | 13.5 | 9.5 | 13.8 | 9.4 | 14.2 | 9.5 | | |
| | 80 | 12.1 | 9.2 | 12.3 | 9.2 | 12.5 | 9.1 | 12.6 | 9.1 | 13.0 | 9.2 | 13.4 | 9.2 | 13.7 | 9.3 | | |
| | 95 | 11.3 | 8.7 | 11.5 | 8.7 | 11.8 | 8.9 | 12.0 | 8.9 | 12.4 | 8.9 | 12.8 | 9.1 | 13.1 | 9.0 | | |
| | 110 | 8.1 | 7.1 | 7.9 | 7.0 | 7.8 | 6.9 | 7.6 | 6.8 | 7.7 | 6.9 | 7.7 | 6.8 | 7.8 | 6.9 | | |
| | 114 | 6.8 | 6.1 | 6.7 | 6.0 | 6.7 | 6.5 | 6.6 | 6.3 | 6.6 | 5.3 | 6.7 | 6.6 | 6.7 | 5.4 | | |
| | 118 | 5.5 | 5.5 | 5.5 | 4.7 | 5.6 | 5.6 | 5.6 | 4.9 | 5.6 | 4.6 | 5.6 | 5.6 | 5.6 | 4.7 | | |
| 015 | 70 | 15.5 | 11.9 | 15.8 | 12.0 | 16.2 | 12.0 | 16.3 | 11.9 | 16.8 | 12.1 | 17.3 | 12.3 | 17.7 | 12.2 | | |
| | 80 | 15.1 | 11.8 | 15.3 | 11.6 | 15.6 | 11.7 | 15.8 | 11.9 | 16.3 | 11.9 | 16.8 | 11.9 | 17.1 | 12.0 | | |
| | 95 | 14.1 | 11.1 | 14.4 | 10.4 | 14.7 | 10.7 | 15.0 | 11.3 | 15.5 | 11.3 | 16.0 | 11.0 | 16.3 | 11.2 | | |
| | 110 | 10.1 | 8.1 | 9.9 | 7.2 | 9.7 | 7.9 | 9.5 | 7.1 | 9.6 | 6.6 | 9.7 | 7.3 | 9.7 | 6.6 | | |
| | 114 | 8.5 | 6.9 | 8.4 | 6.1 | 8.3 | 6.7 | 8.2 | 6.2 | 8.3 | 5.8 | 8.3 | 6.3 | 8.4 | 5.7 | | |
| | 118 | 6.9 | 5.7 | 6.9 | 5.1 | 6.9 | 5.6 | 7.0 | 5.3 | 7.0 | 4.9 | 7.0 | 5.5 | 7.0 | 4.8 | | |
| 018 | 70 | 18.6 | 13.8 | 19.0 | 13.9 | 19.4 | 14.0 | 19.6 | 13.9 | 20.2 | 13.9 | 20.7 | 14.1 | 21.2 | 14.0 | | |
| | 80 | 18.1 | 13.6 | 18.4 | 13.6 | 18.7 | 13.7 | 18.9 | 13.6 | 19.6 | 13.7 | 20.1 | 13.7 | 20.6 | 13.8 | | |
| | 95 | 16.9 | 12.8 | 17.3 | 13.0 | 17.6 | 13.0 | 18.0 | 13.1 | 18.6 | 13.2 | 19.2 | 13.4 | 19.6 | 13.3 | | |
| | 110 | 12.1 | 10.3 | 11.9 | 10.1 | 11.6 | 9.0 | 11.4 | 9.7 | 11.5 | 9.8 | 11.6 | 8.6 | 11.7 | 9.8 | | |
| | 114 | 10.2 | 8.0 | 10.1 | 9.0 | 10.0 | 7.9 | 9.9 | 9.0 | 9.9 | 9.0 | 10.0 | 7.6 | 10.0 | 8.6 | | |
| | 118 | 8.3 | 6.7 | 8.3 | 7.6 | 8.3 | 6.6 | 8.3 | 8.0 | 8.4 | 6.4 | 8.4 | 6.4 | 8.4 | 7.6 | | |
| 024 | 70 | 24.8 | 18.4 | 25.3 | 18.5 | 25.9 | 18.6 | 26.1 | 18.5 | 26.9 | 18.6 | 27.7 | 18.8 | 28.3 | 18.7 | | |
| | 80 | 24.1 | 18.1 | 24.5 | 18.1 | 24.9 | 18.2 | 25.2 | 18.1 | 26.1 | 18.3 | 26.8 | 18.2 | 27.4 | 18.4 | | |
| | 95 | 22.6 | 17.4 | 23.0 | 17.3 | 23.5 | 17.4 | 24.0 | 17.5 | 24.8 | 17.6 | 25.6 | 17.9 | 26.1 | 17.7 | | |
| | 110 | 16.2 | 13.8 | 15.8 | 13.4 | 15.5 | 13.3 | 15.2 | 13.2 | 15.3 | 12.2 | 15.5 | 13.3 | 15.5 | 13.3 | | |
| | 114 | 13.6 | 12.2 | 13.5 | 12.3 | 13.3 | 10.5 | 13.2 | 12.5 | 13.2 | 10.3 | 13.3 | 12.0 | 13.4 | 12.6 | | |
| | 118 | 11.1 | 11.1 | 11.1 | 9.3 | 11.1 | 8.9 | 11.1 | 10.5 | 11.2 | 9.1 | 11.2 | 11.1 | 11.2 | 9.2 | | |

TC: Total capacity

SHC: Sensible heat capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

7.6.2 Heating Capacity

(1) Ducted High Static (H,Y)IDH018-048B21S

| Indoor Unit Model | Outdoor air Temp °FWB | Indoor air Temp °FDB | | | | | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|
| | | 63 | 66 | 68 | 70 | 74 | 77 |
| | | TC | TC | TC | TC | TC | TC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 018 | 21 | 15.7 | 15.7 | 15.7 | 15.8 | 15.6 | 15.5 |
| | 25 | 16.5 | 16.5 | 16.5 | 16.5 | 16.3 | 16.1 |
| | 29 | 17.3 | 17.3 | 17.3 | 17.3 | 17.0 | 16.7 |
| | 33 | 18.1 | 18.1 | 18.1 | 18.1 | 17.7 | 17.4 |
| | 37 | 18.9 | 18.9 | 18.9 | 18.8 | 18.4 | 18.0 |
| | 41 | 19.7 | 19.6 | 19.6 | 19.6 | 19.1 | 18.7 |
| | 43 | 20.1 | 20.0 | 20.0 | 20.0 | 19.4 | 19.0 |
| | 47 | 20.8 | 20.8 | 20.8 | 20.8 | 20.0 | 19.0 |
| | 51 | 21.6 | 21.6 | 21.6 | 21.4 | 20.0 | 19.0 |
| | 55 | 22.7 | 22.4 | 21.9 | 21.4 | 20.0 | 19.0 |
| 59 | 22.7 | 22.4 | 21.9 | 21.4 | 20.0 | 19.0 | |
| 024 | 21 | 21.2 | 21.2 | 21.3 | 21.3 | 21.0 | 20.9 |
| | 25 | 22.3 | 22.3 | 22.3 | 22.3 | 22.0 | 21.7 |
| | 29 | 23.4 | 23.3 | 23.4 | 23.4 | 22.9 | 22.6 |
| | 33 | 24.4 | 24.4 | 24.4 | 24.4 | 23.9 | 23.5 |
| | 37 | 25.5 | 25.5 | 25.4 | 25.4 | 24.8 | 24.3 |
| | 41 | 26.5 | 26.5 | 26.5 | 26.5 | 25.7 | 25.2 |
| | 43 | 27.1 | 27.0 | 27.0 | 27.0 | 26.2 | 25.6 |
| | 47 | 28.1 | 28.1 | 28.1 | 28.0 | 27.0 | 25.6 |
| | 51 | 29.2 | 29.2 | 29.1 | 28.8 | 27.0 | 25.6 |
| | 55 | 30.6 | 30.2 | 29.5 | 28.8 | 27.0 | 25.6 |
| 59 | 30.6 | 30.2 | 29.5 | 28.8 | 27.0 | 25.6 | |
| 030 | 21 | 26.7 | 26.7 | 26.8 | 26.8 | 26.5 | 26.3 |
| | 25 | 28.1 | 28.1 | 28.1 | 28.1 | 27.7 | 27.4 |
| | 29 | 29.4 | 29.4 | 29.4 | 29.4 | 28.9 | 28.5 |
| | 33 | 30.7 | 30.7 | 30.7 | 30.7 | 30.1 | 29.5 |
| | 37 | 32.1 | 32.1 | 32.0 | 32.0 | 31.2 | 30.6 |
| | 41 | 33.4 | 33.4 | 33.4 | 33.3 | 32.4 | 31.7 |
| | 43 | 34.1 | 34.0 | 34.0 | 34.0 | 33.0 | 32.3 |
| | 47 | 35.4 | 35.4 | 35.3 | 35.3 | 34.0 | 32.3 |
| | 51 | 36.8 | 36.7 | 36.7 | 36.3 | 34.0 | 32.3 |
| | 55 | 38.6 | 38.1 | 37.2 | 36.3 | 34.0 | 32.3 |
| 59 | 38.6 | 38.1 | 37.2 | 36.3 | 34.0 | 32.3 | |

| Indoor Unit Model | Outdoor air Temp °FWB | Indoor air Temp °FDB | | | | | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|
| | | 63 | 66 | 68 | 70 | 74 | 77 |
| | | TC | TC | TC | TC | TC | TC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 036 | 21 | 31.4 | 31.4 | 31.5 | 31.5 | 31.2 | 30.9 |
| | 25 | 33.0 | 33.0 | 33.0 | 33.1 | 32.6 | 32.2 |
| | 29 | 34.6 | 34.6 | 34.6 | 34.6 | 34.0 | 33.5 |
| | 33 | 36.2 | 36.1 | 36.1 | 36.1 | 35.4 | 34.7 |
| | 37 | 37.8 | 37.7 | 37.7 | 37.7 | 36.7 | 36.0 |
| | 41 | 39.3 | 39.3 | 39.2 | 39.2 | 38.1 | 37.3 |
| | 43 | 40.1 | 40.1 | 40.0 | 40.0 | 38.8 | 38.0 |
| | 47 | 41.7 | 41.6 | 41.6 | 41.5 | 40.0 | 38.0 |
| | 51 | 43.3 | 43.2 | 43.1 | 42.7 | 40.0 | 38.0 |
| | 55 | 45.4 | 44.8 | 43.8 | 42.7 | 40.0 | 38.0 |
| 59 | 45.4 | 44.8 | 43.8 | 42.7 | 40.0 | 38.0 | |
| 048 | 21 | 42.4 | 42.4 | 42.5 | 42.6 | 42.1 | 41.7 |
| | 25 | 44.6 | 44.6 | 44.6 | 44.6 | 44.0 | 43.5 |
| | 29 | 46.7 | 46.7 | 46.7 | 46.7 | 45.8 | 45.2 |
| | 33 | 48.8 | 48.8 | 48.8 | 48.8 | 47.7 | 46.9 |
| | 37 | 51.0 | 50.9 | 50.9 | 50.9 | 49.6 | 48.6 |
| | 41 | 53.1 | 53.0 | 53.0 | 53.0 | 51.5 | 50.4 |
| | 43 | 54.2 | 54.1 | 54.0 | 54.0 | 52.4 | 51.2 |
| | 47 | 56.3 | 56.2 | 56.1 | 56.1 | 54.0 | 51.2 |
| | 51 | 58.4 | 58.3 | 58.2 | 57.7 | 54.0 | 51.2 |
| | 55 | 61.2 | 60.5 | 59.1 | 57.7 | 54.0 | 51.2 |
| 59 | 61.2 | 60.5 | 59.1 | 57.7 | 54.0 | 51.2 | |

TC: Total capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

SELECTION DATA

(2) Ducted Medium Static (H,Y)IDM006-048B21S

| Indoor Unit Model | Outdoor air Temp °FWB | Indoor air Temp °FDB | 63 | 66 | 68 | 70 | 74 | 77 |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|-------|
| | | | TC | TC | TC | TC | TC | TC |
| | | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 006 | 21 | | 5.3 | 5.3 | 5.3 | 5.3 | 5.2 | 5.2 |
| | 25 | | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.4 |
| | 29 | | 5.8 | 5.8 | 5.8 | 5.8 | 5.7 | 5.6 |
| | 33 | | 6.1 | 6.1 | 6.1 | 6.1 | 5.9 | 5.8 |
| | 37 | | 6.3 | 6.3 | 6.3 | 6.3 | 6.2 | 6.0 |
| | 41 | | 6.6 | 6.6 | 6.6 | 6.6 | 6.4 | 6.3 |
| | 43 | | 6.7 | 6.7 | 6.7 | 6.7 | 6.5 | 6.4 |
| | 47 | | 7.0 | 7.0 | 7.0 | 7.0 | 6.7 | 6.4 |
| | 51 | | 7.2 | 7.2 | 7.2 | 7.2 | 6.7 | 6.4 |
| | 55 | | 7.6 | 7.5 | 7.3 | 7.2 | 6.7 | 6.4 |
| 59 | | 7.6 | 7.5 | 7.3 | 7.2 | 6.7 | 6.4 | |
| 008 | 21 | | 7.1 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 |
| | 25 | | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 7.2 |
| | 29 | | 7.8 | 7.8 | 7.8 | 7.8 | 7.6 | 7.5 |
| | 33 | | 8.1 | 8.1 | 8.1 | 8.1 | 8.0 | 7.8 |
| | 37 | | 8.5 | 8.5 | 8.5 | 8.5 | 8.3 | 8.1 |
| | 41 | | 8.8 | 8.8 | 8.8 | 8.8 | 8.6 | 8.4 |
| | 43 | | 9.0 | 9.0 | 9.0 | 9.0 | 8.7 | 8.5 |
| | 47 | | 9.4 | 9.4 | 9.4 | 9.3 | 9.0 | 8.5 |
| | 51 | | 9.7 | 9.7 | 9.7 | 9.6 | 9.0 | 8.5 |
| | 59 | | 10.2 | 10.1 | 9.8 | 9.6 | 9.0 | 8.5 |
| 012 | 21 | | 10.6 | 10.6 | 10.6 | 10.6 | 10.5 | 10.4 |
| | 25 | | 11.1 | 11.1 | 11.2 | 11.2 | 11.0 | 10.9 |
| | 29 | | 11.7 | 11.7 | 11.7 | 11.7 | 11.5 | 11.3 |
| | 33 | | 12.2 | 12.2 | 12.2 | 12.2 | 11.9 | 11.7 |
| | 37 | | 12.7 | 12.7 | 12.7 | 12.7 | 12.4 | 12.2 |
| | 41 | | 13.3 | 13.3 | 13.2 | 13.2 | 12.9 | 12.6 |
| | 43 | | 13.5 | 13.5 | 13.5 | 13.5 | 13.1 | 12.8 |
| | 47 | | 14.1 | 14.0 | 14.0 | 14.0 | 13.5 | 12.8 |
| | 51 | | 14.6 | 14.6 | 14.6 | 14.4 | 13.5 | 12.8 |
| | 59 | | 15.3 | 15.1 | 14.8 | 14.4 | 13.5 | 12.8 |
| 015 | 21 | | 13.4 | 13.4 | 13.4 | 13.4 | 13.3 | 13.1 |
| | 25 | | 14.0 | 14.0 | 14.0 | 14.1 | 13.8 | 13.7 |
| | 29 | | 14.7 | 14.7 | 14.7 | 14.7 | 14.4 | 14.2 |
| | 33 | | 15.4 | 15.4 | 15.4 | 15.4 | 15.0 | 14.8 |
| | 37 | | 16.0 | 16.0 | 16.0 | 16.0 | 15.6 | 15.3 |
| | 41 | | 16.7 | 16.7 | 16.7 | 16.7 | 16.2 | 15.9 |
| | 43 | | 17.0 | 17.0 | 17.0 | 17.0 | 16.5 | 16.1 |
| | 47 | | 17.7 | 17.7 | 17.7 | 17.7 | 17.0 | 16.1 |
| | 51 | | 18.4 | 18.4 | 18.3 | 18.2 | 17.0 | 16.1 |
| | 59 | | 19.3 | 19.0 | 18.6 | 18.2 | 17.0 | 16.1 |
| 018 | 21 | | 15.7 | 15.7 | 15.7 | 15.8 | 15.6 | 15.5 |
| | 25 | | 16.5 | 16.5 | 16.5 | 16.5 | 16.3 | 16.1 |
| | 29 | | 17.3 | 17.3 | 17.3 | 17.3 | 17.0 | 16.7 |
| | 33 | | 18.1 | 18.1 | 18.1 | 18.1 | 17.7 | 17.4 |
| | 37 | | 18.9 | 18.9 | 18.9 | 18.8 | 18.4 | 18.0 |
| | 41 | | 19.7 | 19.6 | 19.6 | 19.6 | 19.1 | 18.7 |
| | 43 | | 20.1 | 20.0 | 20.0 | 20.0 | 19.4 | 19.0 |
| | 47 | | 20.8 | 20.8 | 20.8 | 20.8 | 20.0 | 19.0 |
| | 51 | | 21.6 | 21.6 | 21.6 | 21.4 | 20.0 | 19.0 |
| | 59 | | 22.7 | 22.4 | 21.9 | 21.4 | 20.0 | 19.0 |

| Indoor Unit Model | Outdoor air Temp °FWB | Indoor air Temp °FDB | 63 | 66 | 68 | 70 | 74 | 77 |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|-------|
| | | | TC | TC | TC | TC | TC | TC |
| | | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 024 | 21 | | 21.2 | 21.2 | 21.3 | 21.3 | 21.0 | 20.9 |
| | 25 | | 22.3 | 22.3 | 22.3 | 22.3 | 22.0 | 21.7 |
| | 29 | | 23.4 | 23.3 | 23.4 | 23.4 | 22.9 | 22.6 |
| | 33 | | 24.4 | 24.4 | 24.4 | 24.4 | 23.9 | 23.5 |
| | 37 | | 25.5 | 25.5 | 25.4 | 25.4 | 24.8 | 24.3 |
| | 41 | | 26.5 | 26.5 | 26.5 | 26.5 | 25.7 | 25.2 |
| | 43 | | 27.1 | 27.0 | 27.0 | 27.0 | 26.2 | 25.6 |
| | 47 | | 28.1 | 28.1 | 28.1 | 28.0 | 27.0 | 25.6 |
| | 51 | | 29.2 | 29.2 | 29.1 | 28.8 | 27.0 | 25.6 |
| | 59 | | 30.6 | 30.2 | 29.5 | 28.8 | 27.0 | 25.6 |
| 030 | 21 | | 26.7 | 26.7 | 26.8 | 26.8 | 26.5 | 26.3 |
| | 25 | | 28.1 | 28.1 | 28.1 | 28.1 | 27.7 | 27.4 |
| | 29 | | 29.4 | 29.4 | 29.4 | 29.4 | 28.9 | 28.5 |
| | 33 | | 30.7 | 30.7 | 30.7 | 30.7 | 30.1 | 29.5 |
| | 37 | | 32.1 | 32.1 | 32.0 | 32.0 | 31.2 | 30.6 |
| | 41 | | 33.4 | 33.4 | 33.4 | 33.3 | 32.4 | 31.7 |
| | 43 | | 34.1 | 34.0 | 34.0 | 34.0 | 33.0 | 32.3 |
| | 47 | | 35.4 | 35.4 | 35.3 | 35.3 | 34.0 | 32.3 |
| | 51 | | 36.8 | 36.7 | 36.7 | 36.3 | 34.0 | 32.3 |
| | 59 | | 38.6 | 38.1 | 37.2 | 36.3 | 34.0 | 32.3 |
| 036 | 21 | | 31.4 | 31.4 | 31.5 | 31.5 | 31.2 | 30.9 |
| | 25 | | 33.0 | 33.0 | 33.0 | 33.1 | 32.6 | 32.2 |
| | 29 | | 34.6 | 34.6 | 34.6 | 34.6 | 34.0 | 33.5 |
| | 33 | | 36.2 | 36.1 | 36.1 | 36.1 | 35.4 | 34.7 |
| | 37 | | 37.8 | 37.7 | 37.7 | 37.7 | 36.7 | 36.0 |
| | 41 | | 39.3 | 39.3 | 39.2 | 39.2 | 38.1 | 37.3 |
| | 43 | | 40.1 | 40.1 | 40.0 | 40.0 | 38.8 | 38.0 |
| | 47 | | 41.7 | 41.6 | 41.6 | 41.5 | 40.0 | 38.0 |
| | 51 | | 43.3 | 43.2 | 43.1 | 42.7 | 40.0 | 38.0 |
| | 59 | | 45.4 | 44.8 | 43.8 | 42.7 | 40.0 | 38.0 |
| 048 | 21 | | 42.4 | 42.4 | 42.5 | 42.6 | 42.1 | 41.7 |
| | 25 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.0 | 43.5 |
| | 29 | | 46.7 | 46.7 | 46.7 | 46.7 | 45.8 | 45.2 |
| | 33 | | 48.8 | 48.8 | 48.8 | 48.8 | 47.7 | 46.9 |
| | 37 | | 51.0 | 50.9 | 50.9 | 50.9 | 49.6 | 48.6 |
| | 41 | | 53.1 | 53.0 | 53.0 | 53.0 | 51.5 | 50.4 |
| | 43 | | 54.2 | 54.1 | 54.0 | 54.0 | 52.4 | 51.2 |
| | 47 | | 56.3 | 56.2 | 56.1 | 56.1 | 54.0 | 51.2 |
| | 51 | | 58.4 | 58.3 | 58.2 | 57.7 | 54.0 | 51.2 |
| | 59 | | 61.2 | 60.5 | 59.1 | 57.7 | 54.0 | 51.2 |

TC: Total capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

(3) Ducted Slim (H,Y)IDS006-018B21S

| Indoor Unit Model | Outdoor air Temp °FWB | Indoor air Temp °FDB | | | | | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|
| | | 63 | 66 | 68 | 70 | 74 | 77 |
| | | TC | TC | TC | TC | TC | TC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 006 | 21 | 5.3 | 5.3 | 5.3 | 5.3 | 5.2 | 5.2 |
| | 25 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.4 |
| | 29 | 5.8 | 5.8 | 5.8 | 5.8 | 5.7 | 5.6 |
| | 33 | 6.1 | 6.1 | 6.1 | 6.1 | 5.9 | 5.8 |
| | 37 | 6.3 | 6.3 | 6.3 | 6.3 | 6.2 | 6.0 |
| | 41 | 6.6 | 6.6 | 6.6 | 6.6 | 6.4 | 6.3 |
| | 43 | 6.7 | 6.7 | 6.7 | 6.7 | 6.5 | 6.4 |
| | 47 | 7.0 | 7.0 | 7.0 | 7.0 | 6.7 | 6.4 |
| | 51 | 7.2 | 7.2 | 7.2 | 7.2 | 6.7 | 6.4 |
| | 55 | 7.6 | 7.5 | 7.3 | 7.2 | 6.7 | 6.4 |
| 59 | 7.6 | 7.5 | 7.3 | 7.2 | 6.7 | 6.4 | |
| 008 | 21 | 7.1 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 |
| | 25 | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 7.2 |
| | 29 | 7.8 | 7.8 | 7.8 | 7.8 | 7.6 | 7.5 |
| | 33 | 8.1 | 8.1 | 8.1 | 8.1 | 8.0 | 7.8 |
| | 37 | 8.5 | 8.5 | 8.5 | 8.5 | 8.3 | 8.1 |
| | 41 | 8.8 | 8.8 | 8.8 | 8.8 | 8.6 | 8.4 |
| | 43 | 9.0 | 9.0 | 9.0 | 9.0 | 8.7 | 8.5 |
| | 47 | 9.4 | 9.4 | 9.4 | 9.3 | 9.0 | 8.5 |
| | 51 | 9.7 | 9.7 | 9.7 | 9.6 | 9.0 | 8.5 |
| | 59 | 10.2 | 10.1 | 9.8 | 9.6 | 9.0 | 8.5 |
| 012 | 21 | 10.6 | 10.6 | 10.6 | 10.6 | 10.5 | 10.4 |
| | 25 | 11.1 | 11.1 | 11.2 | 11.2 | 11.0 | 10.9 |
| | 29 | 11.7 | 11.7 | 11.7 | 11.7 | 11.5 | 11.3 |
| | 33 | 12.2 | 12.2 | 12.2 | 12.2 | 11.9 | 11.7 |
| | 37 | 12.7 | 12.7 | 12.7 | 12.7 | 12.4 | 12.2 |
| | 41 | 13.3 | 13.3 | 13.2 | 13.2 | 12.9 | 12.6 |
| | 43 | 13.5 | 13.5 | 13.5 | 13.5 | 13.1 | 12.8 |
| | 47 | 14.1 | 14.0 | 14.0 | 14.0 | 13.5 | 12.8 |
| | 51 | 14.6 | 14.6 | 14.6 | 14.4 | 13.5 | 12.8 |
| | 59 | 15.3 | 15.1 | 14.8 | 14.4 | 13.5 | 12.8 |

| Indoor Unit Model | Outdoor air Temp °FWB | Indoor air Temp °FDB | | | | | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|
| | | 63 | 66 | 68 | 70 | 74 | 77 |
| | | TC | TC | TC | TC | TC | TC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 015 | 21 | 13.4 | 13.4 | 13.4 | 13.4 | 13.3 | 13.1 |
| | 25 | 14.0 | 14.0 | 14.0 | 14.1 | 13.8 | 13.7 |
| | 29 | 14.7 | 14.7 | 14.7 | 14.7 | 14.4 | 14.2 |
| | 33 | 15.4 | 15.4 | 15.4 | 15.4 | 15.0 | 14.8 |
| | 37 | 16.0 | 16.0 | 16.0 | 16.0 | 15.6 | 15.3 |
| | 41 | 16.7 | 16.7 | 16.7 | 16.7 | 16.2 | 15.9 |
| | 43 | 17.0 | 17.0 | 17.0 | 17.0 | 16.5 | 16.1 |
| | 47 | 17.7 | 17.7 | 17.7 | 17.7 | 17.0 | 16.1 |
| | 51 | 18.4 | 18.4 | 18.3 | 18.2 | 17.0 | 16.1 |
| | 59 | 19.3 | 19.0 | 18.6 | 18.2 | 17.0 | 16.1 |
| 018 | 21 | 15.7 | 15.7 | 15.7 | 15.8 | 15.6 | 15.5 |
| | 25 | 16.5 | 16.5 | 16.5 | 16.5 | 16.3 | 16.1 |
| | 29 | 17.3 | 17.3 | 17.3 | 17.3 | 17.0 | 16.7 |
| | 33 | 18.1 | 18.1 | 18.1 | 18.1 | 17.7 | 17.4 |
| | 37 | 18.9 | 18.9 | 18.9 | 18.8 | 18.4 | 18.0 |
| | 41 | 19.7 | 19.6 | 19.6 | 19.6 | 19.1 | 18.7 |
| | 43 | 20.1 | 20.0 | 20.0 | 20.0 | 19.4 | 19.0 |
| | 47 | 20.8 | 20.8 | 20.8 | 20.8 | 20.0 | 19.0 |
| | 51 | 21.6 | 21.6 | 21.6 | 21.4 | 20.0 | 19.0 |
| | 59 | 22.7 | 22.4 | 21.9 | 21.4 | 20.0 | 19.0 |

TC: Total capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

SELECTION DATA

(4) 4-Way Cassette Type (H,Y)IC4012-036B21S

| Indoor Unit Model | Outdoor air Temp °FWB | Indoor air Temp °FDB | | | | | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|
| | | 63 | 66 | 68 | 70 | 74 | 77 |
| | | TC | TC | TC | TC | TC | TC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 012 | 21 | 10.6 | 10.6 | 10.6 | 10.6 | 10.5 | 10.4 |
| | 25 | 11.1 | 11.1 | 11.2 | 11.2 | 11.0 | 10.9 |
| | 29 | 11.7 | 11.7 | 11.7 | 11.7 | 11.5 | 11.3 |
| | 33 | 12.2 | 12.2 | 12.2 | 12.2 | 11.9 | 11.7 |
| | 37 | 12.7 | 12.7 | 12.7 | 12.7 | 12.4 | 12.2 |
| | 41 | 13.3 | 13.3 | 13.2 | 13.2 | 12.9 | 12.6 |
| | 43 | 13.5 | 13.5 | 13.5 | 13.5 | 13.1 | 12.8 |
| | 47 | 14.1 | 14.0 | 14.0 | 14.0 | 13.5 | 12.8 |
| | 51 | 14.6 | 14.6 | 14.6 | 14.4 | 13.5 | 12.8 |
| | 55 | 15.3 | 15.1 | 14.8 | 14.4 | 13.5 | 12.8 |
| 59 | 15.3 | 15.1 | 14.8 | 14.4 | 13.5 | 12.8 | |
| 015 | 21 | 13.4 | 13.4 | 13.4 | 13.4 | 13.3 | 13.1 |
| | 25 | 14.0 | 14.0 | 14.0 | 14.1 | 13.8 | 13.7 |
| | 29 | 14.7 | 14.7 | 14.7 | 14.7 | 14.4 | 14.2 |
| | 33 | 15.4 | 15.4 | 15.4 | 15.4 | 15.0 | 14.8 |
| | 37 | 16.0 | 16.0 | 16.0 | 16.0 | 15.6 | 15.3 |
| | 41 | 16.7 | 16.7 | 16.7 | 16.7 | 16.2 | 15.9 |
| | 43 | 17.0 | 17.0 | 17.0 | 17.0 | 16.5 | 16.1 |
| | 47 | 17.7 | 17.7 | 17.7 | 17.7 | 17.0 | 16.1 |
| | 51 | 18.4 | 18.4 | 18.3 | 18.2 | 17.0 | 16.1 |
| | 55 | 19.3 | 19.0 | 18.6 | 18.2 | 17.0 | 16.1 |
| 59 | 19.3 | 19.0 | 18.6 | 18.2 | 17.0 | 16.1 | |
| 018 | 21 | 15.7 | 15.7 | 15.7 | 15.8 | 15.6 | 15.5 |
| | 25 | 16.5 | 16.5 | 16.5 | 16.5 | 16.3 | 16.1 |
| | 29 | 17.3 | 17.3 | 17.3 | 17.3 | 17.0 | 16.7 |
| | 33 | 18.1 | 18.1 | 18.1 | 18.1 | 17.7 | 17.4 |
| | 37 | 18.9 | 18.9 | 18.9 | 18.8 | 18.4 | 18.0 |
| | 41 | 19.7 | 19.6 | 19.6 | 19.6 | 19.1 | 18.7 |
| | 43 | 20.1 | 20.0 | 20.0 | 20.0 | 19.4 | 19.0 |
| | 47 | 20.8 | 20.8 | 20.8 | 20.8 | 20.0 | 19.0 |
| | 51 | 21.6 | 21.6 | 21.6 | 21.4 | 20.0 | 19.0 |
| | 55 | 22.7 | 22.4 | 21.9 | 21.4 | 20.0 | 19.0 |
| 59 | 22.7 | 22.4 | 21.9 | 21.4 | 20.0 | 19.0 | |

| Indoor Unit Model | Outdoor air Temp °FWB | Indoor air Temp °FDB | | | | | |
|-------------------|-----------------------|----------------------|-------|-------|-------|-------|-------|
| | | 63 | 66 | 68 | 70 | 74 | 77 |
| | | TC | TC | TC | TC | TC | TC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 024 | 21 | 21.2 | 21.2 | 21.3 | 21.3 | 21.0 | 20.9 |
| | 25 | 22.3 | 22.3 | 22.3 | 22.3 | 22.0 | 21.7 |
| | 29 | 23.4 | 23.3 | 23.4 | 23.4 | 22.9 | 22.6 |
| | 33 | 24.4 | 24.4 | 24.4 | 24.4 | 23.9 | 23.5 |
| | 37 | 25.5 | 25.5 | 25.4 | 25.4 | 24.8 | 24.3 |
| | 41 | 26.5 | 26.5 | 26.5 | 26.5 | 25.7 | 25.2 |
| | 43 | 27.1 | 27.0 | 27.0 | 27.0 | 26.2 | 25.6 |
| | 47 | 28.1 | 28.1 | 28.1 | 28.0 | 27.0 | 25.6 |
| | 51 | 29.2 | 29.2 | 29.1 | 28.8 | 27.0 | 25.6 |
| | 55 | 30.6 | 30.2 | 29.5 | 28.8 | 27.0 | 25.6 |
| 59 | 30.6 | 30.2 | 29.5 | 28.8 | 27.0 | 25.6 | |
| 030 | 21 | 26.7 | 26.7 | 26.8 | 26.8 | 26.5 | 26.3 |
| | 25 | 28.1 | 28.1 | 28.1 | 28.1 | 27.7 | 27.4 |
| | 29 | 29.4 | 29.4 | 29.4 | 29.4 | 28.9 | 28.5 |
| | 33 | 30.7 | 30.7 | 30.7 | 30.7 | 30.1 | 29.5 |
| | 37 | 32.1 | 32.1 | 32.0 | 32.0 | 31.2 | 30.6 |
| | 41 | 33.4 | 33.4 | 33.4 | 33.3 | 32.4 | 31.7 |
| | 43 | 34.1 | 34.0 | 34.0 | 34.0 | 33.0 | 32.3 |
| | 47 | 35.4 | 35.4 | 35.3 | 35.3 | 34.0 | 32.3 |
| | 51 | 36.8 | 36.7 | 36.7 | 36.3 | 34.0 | 32.3 |
| | 55 | 38.6 | 38.1 | 37.2 | 36.3 | 34.0 | 32.3 |
| 59 | 38.6 | 38.1 | 37.2 | 36.3 | 34.0 | 32.3 | |
| 036 | 21 | 31.4 | 31.4 | 31.5 | 31.5 | 31.2 | 30.9 |
| | 25 | 33.0 | 33.0 | 33.0 | 33.1 | 32.6 | 32.2 |
| | 29 | 34.6 | 34.6 | 34.6 | 34.6 | 34.0 | 33.5 |
| | 33 | 36.2 | 36.1 | 36.1 | 36.1 | 35.4 | 34.7 |
| | 37 | 37.8 | 37.7 | 37.7 | 37.7 | 36.7 | 36.0 |
| | 41 | 39.3 | 39.3 | 39.2 | 39.2 | 38.1 | 37.3 |
| | 43 | 40.1 | 40.1 | 40.0 | 40.0 | 38.8 | 38.0 |
| | 47 | 41.7 | 41.6 | 41.6 | 41.5 | 40.0 | 38.0 |
| | 51 | 43.3 | 43.2 | 43.1 | 42.7 | 40.0 | 38.0 |
| | 55 | 45.4 | 44.8 | 43.8 | 42.7 | 40.0 | 38.0 |
| 59 | 45.4 | 44.8 | 43.8 | 42.7 | 40.0 | 38.0 | |

TC: Total capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

(5) 1-Way Cassette Type (H,Y)IC1006-015B21S

| Indoor Unit Model | Indoor air Temp °FDB Outdoor air Temp °FWB | 63 | 66 | 68 | 70 | 74 | 77 |
|-------------------|---|-------|-------|-------|-------|-------|-------|
| | | TC | TC | TC | TC | TC | TC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 006 | 21 | 5.3 | 5.3 | 5.3 | 5.3 | 5.2 | 5.2 |
| | 25 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.4 |
| | 29 | 5.8 | 5.8 | 5.8 | 5.8 | 5.7 | 5.6 |
| | 33 | 6.1 | 6.1 | 6.1 | 6.1 | 5.9 | 5.8 |
| | 37 | 6.3 | 6.3 | 6.3 | 6.3 | 6.2 | 6.0 |
| | 41 | 6.6 | 6.6 | 6.6 | 6.6 | 6.4 | 6.3 |
| | 43 | 6.7 | 6.7 | 6.7 | 6.7 | 6.5 | 6.4 |
| | 47 | 7.0 | 7.0 | 7.0 | 7.0 | 6.7 | 6.4 |
| | 51 | 7.2 | 7.2 | 7.2 | 7.2 | 6.7 | 6.4 |
| | 55 | 7.6 | 7.5 | 7.3 | 7.2 | 6.7 | 6.4 |
| 59 | 7.6 | 7.5 | 7.3 | 7.2 | 6.7 | 6.4 | |
| 008 | 21 | 7.1 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 |
| | 25 | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 7.2 |
| | 29 | 7.8 | 7.8 | 7.8 | 7.8 | 7.6 | 7.5 |
| | 33 | 8.1 | 8.1 | 8.1 | 8.1 | 8.0 | 7.8 |
| | 37 | 8.5 | 8.5 | 8.5 | 8.5 | 8.3 | 8.1 |
| | 41 | 8.8 | 8.8 | 8.8 | 8.8 | 8.6 | 8.4 |
| | 43 | 9.0 | 9.0 | 9.0 | 9.0 | 8.7 | 8.5 |
| | 47 | 9.4 | 9.4 | 9.4 | 9.3 | 9.0 | 8.5 |
| | 51 | 9.7 | 9.7 | 9.7 | 9.6 | 9.0 | 8.5 |
| | 59 | 10.2 | 10.1 | 9.8 | 9.6 | 9.0 | 8.5 |

| Indoor Unit Model | Indoor air Temp °FDB Outdoor air Temp °FWB | 63 | 66 | 68 | 70 | 74 | 77 |
|-------------------|---|-------|-------|-------|-------|-------|-------|
| | | TC | TC | TC | TC | TC | TC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 012 | 21 | 10.6 | 10.6 | 10.6 | 10.6 | 10.5 | 10.4 |
| | 25 | 11.1 | 11.1 | 11.2 | 11.2 | 11.0 | 10.9 |
| | 29 | 11.7 | 11.7 | 11.7 | 11.7 | 11.5 | 11.3 |
| | 33 | 12.2 | 12.2 | 12.2 | 12.2 | 11.9 | 11.7 |
| | 37 | 12.7 | 12.7 | 12.7 | 12.7 | 12.4 | 12.2 |
| | 41 | 13.3 | 13.3 | 13.2 | 13.2 | 12.9 | 12.6 |
| | 43 | 13.5 | 13.5 | 13.5 | 13.5 | 13.1 | 12.8 |
| | 47 | 14.1 | 14.0 | 14.0 | 14.0 | 13.5 | 12.8 |
| | 51 | 14.6 | 14.6 | 14.6 | 14.4 | 13.5 | 12.8 |
| | 55 | 15.3 | 15.1 | 14.8 | 14.4 | 13.5 | 12.8 |
| 59 | 15.3 | 15.1 | 14.8 | 14.4 | 13.5 | 12.8 | |
| 015 | 21 | 13.4 | 13.4 | 13.4 | 13.4 | 13.3 | 13.1 |
| | 25 | 14.0 | 14.0 | 14.0 | 14.1 | 13.8 | 13.7 |
| | 29 | 14.7 | 14.7 | 14.7 | 14.7 | 14.4 | 14.2 |
| | 33 | 15.4 | 15.4 | 15.4 | 15.4 | 15.0 | 14.8 |
| | 37 | 16.0 | 16.0 | 16.0 | 16.0 | 15.6 | 15.3 |
| | 41 | 16.7 | 16.7 | 16.7 | 16.7 | 16.2 | 15.9 |
| | 43 | 17.0 | 17.0 | 17.0 | 17.0 | 16.5 | 16.1 |
| | 47 | 17.7 | 17.7 | 17.7 | 17.7 | 17.0 | 16.1 |
| | 51 | 18.4 | 18.4 | 18.3 | 18.2 | 17.0 | 16.1 |
| | 59 | 19.3 | 19.0 | 18.6 | 18.2 | 17.0 | 16.1 |

TC: Total capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

SELECTION DATA

(6) Wall Mounted TIWM006-024B21S

| Indoor Unit Model | Indoor air Temp °FDB Outdoor air Temp °FWB | 63 | 66 | 68 | 70 | 74 | 77 | Indoor Unit Model | Indoor air Temp °FDB Outdoor air Temp °FWB | 63 | 66 | 68 | 70 | 74 | 77 | |
|-------------------|---|-------|-------|-------|-------|-------|-------|-------------------|---|-------|-------|-------|-------|-------|-------|-------|
| | | TC | TC | TC | TC | TC | TC | | | TC | TC | TC | TC | TC | TC | TC |
| | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | | | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] | [MBH] |
| 006 | 21 | 5.3 | 5.3 | 5.3 | 5.3 | 5.2 | 5.2 | 015 | 21 | 13.4 | 13.4 | 13.4 | 13.4 | 13.3 | 13.1 | |
| | 25 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.4 | | 25 | 14.0 | 14.0 | 14.0 | 14.1 | 13.8 | 13.7 | |
| | 29 | 5.8 | 5.8 | 5.8 | 5.8 | 5.7 | 5.6 | | 29 | 14.7 | 14.7 | 14.7 | 14.7 | 14.4 | 14.2 | |
| | 33 | 6.1 | 6.1 | 6.1 | 6.1 | 5.9 | 5.8 | | 33 | 15.4 | 15.4 | 15.4 | 15.4 | 15.0 | 14.8 | |
| | 37 | 6.3 | 6.3 | 6.3 | 6.3 | 6.2 | 6.0 | | 37 | 16.0 | 16.0 | 16.0 | 16.0 | 15.6 | 15.3 | |
| | 41 | 6.6 | 6.6 | 6.6 | 6.6 | 6.4 | 6.3 | | 41 | 16.7 | 16.7 | 16.7 | 16.7 | 16.2 | 15.9 | |
| | 43 | 6.7 | 6.7 | 6.7 | 6.7 | 6.5 | 6.4 | | 43 | 17.0 | 17.0 | 17.0 | 17.0 | 16.5 | 16.1 | |
| | 47 | 7.0 | 7.0 | 7.0 | 7.0 | 6.7 | 6.4 | | 47 | 17.7 | 17.7 | 17.7 | 17.7 | 17.0 | 16.1 | |
| | 51 | 7.2 | 7.2 | 7.2 | 7.2 | 6.7 | 6.4 | | 51 | 18.4 | 18.4 | 18.3 | 18.2 | 17.0 | 16.1 | |
| | 55 | 7.6 | 7.5 | 7.3 | 7.2 | 6.7 | 6.4 | | 55 | 19.3 | 19.0 | 18.6 | 18.2 | 17.0 | 16.1 | |
| 59 | 7.6 | 7.5 | 7.3 | 7.2 | 6.7 | 6.4 | 59 | 19.3 | 19.0 | 18.6 | 18.2 | 17.0 | 16.1 | | | |
| 008 | 21 | 7.1 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 | 018 | 21 | 15.7 | 15.7 | 15.7 | 15.8 | 15.6 | 15.5 | |
| | 25 | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 7.2 | | 25 | 16.5 | 16.5 | 16.5 | 16.5 | 16.3 | 16.1 | |
| | 29 | 7.8 | 7.8 | 7.8 | 7.8 | 7.6 | 7.5 | | 29 | 17.3 | 17.3 | 17.3 | 17.3 | 17.0 | 16.7 | |
| | 33 | 8.1 | 8.1 | 8.1 | 8.1 | 8.0 | 7.8 | | 33 | 18.1 | 18.1 | 18.1 | 18.1 | 17.7 | 17.4 | |
| | 37 | 8.5 | 8.5 | 8.5 | 8.5 | 8.3 | 8.1 | | 37 | 18.9 | 18.9 | 18.9 | 18.8 | 18.4 | 18.0 | |
| | 41 | 8.8 | 8.8 | 8.8 | 8.8 | 8.6 | 8.4 | | 41 | 19.7 | 19.6 | 19.6 | 19.6 | 19.1 | 18.7 | |
| | 43 | 9.0 | 9.0 | 9.0 | 9.0 | 8.7 | 8.5 | | 43 | 20.1 | 20.0 | 20.0 | 20.0 | 19.4 | 19.0 | |
| | 47 | 9.4 | 9.4 | 9.4 | 9.3 | 9.0 | 8.5 | | 47 | 20.8 | 20.8 | 20.8 | 20.8 | 20.0 | 19.0 | |
| | 51 | 9.7 | 9.7 | 9.7 | 9.6 | 9.0 | 8.5 | | 51 | 21.6 | 21.6 | 21.6 | 21.4 | 20.0 | 19.0 | |
| | 59 | 10.2 | 10.1 | 9.8 | 9.6 | 9.0 | 8.5 | | 59 | 22.7 | 22.4 | 21.9 | 21.4 | 20.0 | 19.0 | |
| 012 | 21 | 10.6 | 10.6 | 10.6 | 10.6 | 10.5 | 10.4 | 024 | 21 | 21.2 | 21.2 | 21.3 | 21.3 | 21.0 | 20.9 | |
| | 25 | 11.1 | 11.1 | 11.2 | 11.2 | 11.0 | 10.9 | | 25 | 22.3 | 22.3 | 22.3 | 22.3 | 22.0 | 21.7 | |
| | 29 | 11.7 | 11.7 | 11.7 | 11.7 | 11.5 | 11.3 | | 29 | 23.4 | 23.3 | 23.4 | 23.4 | 22.9 | 22.6 | |
| | 33 | 12.2 | 12.2 | 12.2 | 12.2 | 11.9 | 11.7 | | 33 | 24.4 | 24.4 | 24.4 | 24.4 | 23.9 | 23.5 | |
| | 37 | 12.7 | 12.7 | 12.7 | 12.7 | 12.4 | 12.2 | | 37 | 25.5 | 25.5 | 25.4 | 25.4 | 24.8 | 24.3 | |
| | 41 | 13.3 | 13.3 | 13.2 | 13.2 | 12.9 | 12.6 | | 41 | 26.5 | 26.5 | 26.5 | 26.5 | 25.7 | 25.2 | |
| | 43 | 13.5 | 13.5 | 13.5 | 13.5 | 13.1 | 12.8 | | 43 | 27.1 | 27.0 | 27.0 | 27.0 | 26.2 | 25.6 | |
| | 47 | 14.1 | 14.0 | 14.0 | 14.0 | 13.5 | 12.8 | | 47 | 28.1 | 28.1 | 28.1 | 28.0 | 27.0 | 25.6 | |
| | 51 | 14.6 | 14.6 | 14.6 | 14.4 | 13.5 | 12.8 | | 51 | 29.2 | 29.2 | 29.1 | 28.8 | 27.0 | 25.6 | |
| | 55 | 15.3 | 15.1 | 14.8 | 14.4 | 13.5 | 12.8 | | 55 | 30.6 | 30.2 | 29.5 | 28.8 | 27.0 | 25.6 | |
| 59 | 15.3 | 15.1 | 14.8 | 14.4 | 13.5 | 12.8 | 59 | 30.6 | 30.2 | 29.5 | 28.8 | 27.0 | 25.6 | | | |

TC: Total capacity

Refer to Outdoor Unit Capacity Tables as actual performance data is affected by indoor and outdoor unit combination.

