

# Installation and Operation Manual

**18k -48k BTU  
Single Zone  
Indoor Air Handler Unit  
230 Volts  
R-454B Refrigerant**




Indoor AHU Model	For use with Condenser Model
FPHFA18A3D	FPHFR24A3D
FPHFA24A3D	
FPHFA36A3D	FPHFR36A3D
FPHFA48A3D	FPHFR48A3D





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## Safety Precautions

### Alert Symbols:

 **DANGER** : The symbol refers to a hazard which can result in severe personal injury or death.

 **WARNING** : The symbol refers to a hazard or an unsafe practice which may result in severe personal injury or death.

 **CAUTION** : The symbol refers to a hazard or an unsafe practice which may result in minor personal injury, product or property damage.

**NOTE** : It refers to the remarks and instruction to the operation, maintenance and service.

- Installation, maintenance and repair of this unit must be performed by a qualified, licensed service personnel.
- Read these instructions thoroughly before installation or operation. Failure to follow these instructions may result in improper installation, service or maintenance, possibly resulting in fire, electrical shock, property damage, personal injury or death.
- Before installation, check if the voltage of the power supply at installation site is the same as the voltage shown on the nameplate.

 **DANGER**

- Do not perform any alteration to this product, otherwise, it may cause water leakage, breakdown, short circuit, electric shock, fire, etc.
- An unventilated area where the appliance using FLAMMABLE REFRIGERANTS is installed shall be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard.
- Piping, welding and other such work should be carried out far away from the flammable and explosive materials, including the air conditioner refrigerant, to guarantee the security of the site.
- To protect the air conditioner from heavy corrosion, avoid installing the outdoor unit in the place, where sea water can splash directly onto it or in sulphurous air near a spa.

 **WARNING**

- The appliance shall be installed in accordance with national wiring regulations;
- This unit must only be connected to other units that have been confirmed by the manufacturer.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.  
Children should be supervised to ensure that they do not play with the appliance.
- The place where this product is installed must have the reliable electrical grounding facilities and protections. Please do not connect the grounding of this product to various kinds of air feeding ducts, drain pipes, lightning protection facilities as well as other piping lines to avoid electric shock and damage caused by other factors.
- Wiring must be done by the qualified electrician. All the wiring operations must be conducted according to the local electrical codes.
- You should consider the capacity of the electric current of your electrical meter and socket before installation.
- The power wire where this product is installed should have the independent leakage protection device and the electric current over-load protection device provided for this product.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.  
The appliance shall be stored in a room without continuously operating ignition sources(for example: open flames, an operating gas appliance or operating electric heater.) Do not pierce or burn.
- Be aware that refrigerants may not contain an odour.
- For duct connected appliances, false ceilings or drop ceilings can't be used as a return air plenum.

## Safety Precautions

### WARNING

- Never use gasoline or other flammable gas near the air conditioner to avoid danger. When any abnormality like burnt smell, deformation, fire, smoke, etc. is found, you should stop using the air conditioner, immediately cut off the main power supply and contact the dealer.
- The first 6 inches of supply air plenum and duct work must be constructed of sheet metal as required by NFPA 90B.
- The supply air plenum or duct must have a solid sheet metal bottom piece directly after the air handler unit with no opening, registers or flexible air ducts located in it. If flexible supply air ducts are used, they may be located only in the side walls of the rectangular plenum, a minimum of 6 inches from the solid bottom.
- Do not install the air conditioner where excessively high heat-generating objects are placed.
- Auxiliary devices which may be a POTENTIAL IGNITION SOURCE shall not be installed in the duct work. Examples of such POTENTIAL IGNITION SOURCES are hot surfaces with a temperature exceeding 600°C and electric switching devices.
- Only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork. You can contact the manufacturer for the detail.

### WARNING

#### PROPOSITION 65:

- This appliance contains fiberglass insulation. Respirable particles of fiberglass are known to State of California to cause cancer.
- All manufacturer products meet current federal OSHA Guidelines for safety. California Proposition 65 warnings are required for certain products, which are not covered by the OSHA standards.
- California's Proposition 65 requires warnings for products sold in California that contain or produce any of over 600 listed chemicals known to the State of California to cause cancer or birth defects such as fiberglass insulation, lead in brass, and combustion products from natural gas.
- All "new equipment" shipped for sale in California will have labels stating that the product contains and /or produces Proposition 65 chemicals. Although we have not changed our processes, having the same label on all our products facilitates manufacturing and shipping. We cannot always know "when, or if" products will be sold in the California market.
- You may receive inquiries from customers about chemicals found in, or produced by, some of our heating and air conditioning equipment, or found in natural gas used with some of our products. Listed below are those chemicals and substances commonly associated with similar equipment in our industry and other manufacturers.
  - Glass Wool (Fiberglass) Insulation
  - Carbon Monoxide(CO)
  - Formaldehyde
  - Benzene
- More details are available at the websites for OSHA (Occupational Safety and Health Administration), at [www.osha.gov](http://www.osha.gov) and the State of California's OEHHA (Office of Environmental Health Hazard Assessment), at [www.oehha.org](http://www.oehha.org). Consumer education is important since the chemicals and substances on the list are found in our daily lives. Most consumers are aware that products present safety and health risks, when improperly used, handled and maintained.

### CAUTION

- Do not turn the air conditioner on and off from the main power switch. Use the ON/OFF operation button.
- Do not stick anything into the air inlet and air outlet of both the indoor and outdoor units. This is dangerous because the fan is rotating at a high speed.
- Do not cool or heat the room too much if babies or invalids are present.
- Means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under over voltage category III conditions must be incorporated in the fixed wiring in accordance with the wiring rules.
- Type and rating of circuit breakers / ELB are detailed below.
- The method of connection of the appliance to the electrical supply and interconnection of separate components are detailed below.
- The information of dimensions of the space necessary for correct installation of the appliance including the minimum permissible distances to adjacent structures is detailed below.
- The range of external static pressures for ducted appliances is detailed below.
- Make sure the blower motor support is tight (3-motor mounting bolts). Then check to see if wheel is tightly secured to motor shaft before operation unit.

### NOTE:

- **Storage condition:**      Temperature -13~140°F (-25~60°C)  
   Humidity      30%~80%
- Heating and electric heater function are only valid for heat pump types.
- This air conditioner uses new refrigerant HFC (R454B). R454B refrigerant is flammable.
- Read this manual carefully before using this air conditioner. If you still have any difficulties or problems, consult your dealer for help.
- The air conditioner is designed to provide you with comfortable room conditions. Use this unit only for its intended purpose as described in this instruction manual.
- **The minimum rated airflow:**

Model	Min. rated airflow required CFM(gph)
18K/24K	238.4(1.07×10 <sup>5</sup> )
36K	327.5(1.47×10 <sup>5</sup> )
48K	479.0(2.15×10 <sup>5</sup> )

### Precautions for using R454B refrigerant

The basic installation work procedures are the same as the conventional refrigerant (R22 or R410A). However, pay attention to the following points:

#### **WARNING**

##### **1. Transportation equipment containing flammable refrigerants.**

Pay attention to the fact that additional transportation regulations may exist with respect to equipment containing flammable gas. The maximum number of pieces of equipment or the configuration of the equipment, permitted to be transported together will be determined by the applicable transport regulations.

##### **2. Equipment signs**

Signs for similar appliances (containing flammable refrigerants) used in a work area generally are addressed by local regulations and give the minimum requirements for the provision of safety and/or health signs for a work location. All required signs are to be maintained and employers should ensure that employees receive suitable and sufficient instruction and training on the meaning of appropriate safety signs and the actions that need to be taken in accordance with these signs.

The effectiveness of signs should not be diminished by too many signs being placed together. Any pictograms used should be as simple as possible and contain only essential details.

##### **3. Disposal of equipment containing flammable refrigerants**

In compliance with national regulations.

##### **4. Storage of equipment/appliances**

The storage of equipment should be in accordance with the manufacturer's instructions.

##### **5. Storage of packed (unsold) equipment**

- Storage package protection should be constructed so that mechanical damage to the equipment inside the package will not cause a leak of the refrigerant.
- The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.
- The storage temperature should not exceed 140°F (60°C), as the refrigerant leakage may occur above 140°F (60°C), which can cause danger.

##### **6. Information on servicing**

###### **6-1 Checks to the area**

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. To repair the refrigerating system, the following precautions should be complied with prior to conducting work on the system.

###### **6-2 Work procedure**

Work shall be undertaken following a controlled procedure so as to minimise the risk of flammable gas or vapour being leaked while the work is being performed.

###### **6-3 General working area**

- All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
- The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by controlling flammable material.

###### **6-4 Checking for leakage of refrigerant**

- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potential flammable atmospheres.
- Ensure that the leak detection equipment being used is suitable for flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

###### **6-5 Fire extinguisher**

- If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand.
- Have a dry powder or CO<sub>2</sub> fire extinguisher adjacent to the charging area.

###### **6-6 No ignition sources**

- No person carrying out work in relation to a refrigeration system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion.
- All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the surrounding space.
- Prior to working, the area around the equipment should be checked to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

###### **6-7 Ventilated area**

- Ensure that the area is in the open air or that it is adequately ventilated before tearing down the system or conducting any hot work.

### **WARNING**

- A degree of ventilation shall be kept during the period that the work is carried out.
- The ventilation should safely disperse any released refrigerant and preferably discharge it externally into the atmosphere.

#### **6-8 Checks of the refrigeration equipment**

- Where electrical components are being changed, they shall be fit for the purpose and the correct specification.
- At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.
- The following checks shall be applied to installations using flammable refrigerants:
  - The charge amount is in accordance with the room size within which the refrigerant containing parts are installed;
  - The ventilation machinery and outlets are operating adequately and are not obstructed;
  - If an indirect refrigerating circuit is used, the secondary circuit shall be checked for the leak of refrigerant;
  - Marking of the equipment should be visible and legible. Illegal markings and signs shall be corrected;
  - Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

#### **6-9 Checks of electrical devices**

- Repair and maintenance of electrical components shall include initial safety checks and component inspection procedures.
- If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with.
- If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used.
- This shall be reported to the owner of the equipment so all parties are advised.
- Initial safety checks shall include:
  - Do not discharge capacitors. Remove power from the unit and check that the LEDs on all PCBs are out before working on the unit.
  - That there no live electrical components and wiring are exposed while charging, recovering or purging the system;
  - That there is continuity of earth bonding.

#### **7. Repairs of sealed components**

Sealed electrical components shall be replaced.

#### **8. Repairs of intrinsically safe components**

Intrinsically safe components must be replaced.

#### **9. Cabling**

- Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects.
- The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

#### **10. Detection of flammable refrigerants**

- Under no circumstances shall potential sources of ignition be used in the searching or detection of refrigerant leaks.
- A halide torch (or any other detector using a naked flame) shall not be used.

#### **11. Leak detection methods**

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants:

- Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.)
- Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
- Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (maximum 25%) is confirmed.
- Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
- If a leak is suspected, all naked flames shall be removed/ extinguished.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.
- Removal of refrigerant shall be according to the manual.



### 12. Removal and evacuation

- When breaking into the refrigerant circuit to make repairs – or for any other purpose –conventional procedures shall be used.
- However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration.
- The following procedure shall be adhered to:
  - Safely remove refrigerant following local and national regulations;
  - Evacuate;
  - Purge the circuit with inert gas;
  - Evacuate;
  - Continuously flush or purge with inert gas when using flame to open circuit;
  - Open the circuit.
- The refrigerant charge shall be recovered into the correct recovery cylinders.
- The system shall be “flushed” with OFN to render the unit safe.
- This process may need to be repeated for several times.
- Compressed air or oxygen shall not be used for this task.
- Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum.
- This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable working.
- This operation is absolutely vital if brazing operations on the pipe-work are to take place.
- Ensure that the outlet for the vacuum pump is not close to any ignition sources and there is ventilation available.

### 13. Charging procedures

- In addition to conventional charging procedures, the following requirements shall be followed:
  - Ensure that contamination of different refrigerants does not occur when using charging equipment.
  - Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
  - Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
  - Label the system when charging is complete (if not already).
  - Extreme care shall be taken not to overfill the refrigeration system.
  - Prior to recharging the system pressure shall be tested with OFN.
- The system shall be leak tested on completion of charging but prior to commissioning.
- A follow up leak test shall be carried out prior to leaving the site.

### 14. Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail.

It is recommended that all refrigerants are recovered safely.

Prior to the task, an oil and refrigerant sample shall be taken in case that an analysis is required prior to the re-use of recovered refrigerant. It is essential that electrical power is available before the task.

a) Become familiar with the equipment and its operation.

b) Isolate system electrically.

c) Before attempting the procedure ensure that:

- Mechanical handling equipment is available, if required, for handling refrigerant cylinders;
- All personal protective equipment is available and being used correctly;
- The recovery process is supervised at all times by a competent person;
- Recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.

e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f) Make sure that cylinder is situated on the scales before recovery.

g) Start the recovery machine and operate in accordance with manufacturer's instructions.

h) Do not overfill cylinders. (No more than 80 % volume liquid charge).

### **WARNING**

- i ) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j ) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

#### 15. **Labelling**

Equipment shall be labelled stating that it has been de-commissioned and empty of refrigerant. The label shall be dated and signed.

For appliances containing FLAMMABLE REFRIGERANTS, ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANTS.

#### 16. **Recovery**

- When removing refrigerant from a system, either for servicing or decommissioning, it is recommended that all refrigerant is removed safely.
- When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed.
- Ensure that the correct number of cylinders for holding the total system charge is available.
- All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant).
- Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order.
- Empty recovery cylinders are evacuated and, if possible, cooled before recovery.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants.
- In addition, a set of calibrated weighing scales shall be available and in good working order.
- Hoses shall be complete with leak-free disconnect couplings and in good condition.
- Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release.
- Consult manufacturer if in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged.
- Do not mix refrigerants in recovery units and especially not in cylinders.
- If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant.
- The evacuation process shall be carried out prior to returning the compressor to the suppliers.
- Only electric heating to the compressor body shall be employed to accelerate this process.
- When oil is drained from a system, it shall be carried out safely.

#### 17. **Competence of service personnel**

Information and training

The training should include the substance of the following:

Information about the explosion potential of flammable refrigerants to show that flammables may be dangerous when handled without care.

Information about potential ignition sources, especially those that are not obvious, such as lighters, light switches, vacuum cleaners, electric heaters.

Information about the concept of sealed components and sealed enclosures according to UL 60335.

Information about the correct working procedures:

##### a) Commissioning

- Ensure that the floor area is sufficient for the refrigerant charge or that the ventilation duct is assembled in a correct manner.
- Connect the pipes and carry out a leak test before charging with refrigerant.
- Check safety equipment before putting into service.

### WARNING

#### b) Maintenance

- Portable equipment shall be repaired outside or in a workshop specially equipped for servicing units with flammable refrigerants.
- Ensure sufficient ventilation at the repair place.
- Be aware that malfunction of the equipment may be caused by refrigerant loss and a refrigerant leak is possible.
- Discharge capacitors in a way that won't cause any spark. The standard procedure to short circuit the capacitor terminals usually creates sparks.
- Reassemble sealed enclosures accurately. If seals are worn, replace them.
- Check safety equipment before putting into service.

#### c) Repair

- Portable equipment shall be repaired outside or in a workshop specially equipped for servicing units with flammable refrigerants.
- Ensure sufficient ventilation at the repair place.
- Be aware that of the equipment may be caused by refrigerant loss and a refrigerant leak is possible.
- Do not discharge capacitors. Remove power from the unit and check that the LEDs on all PCBs are out before working on the unit.
- When brazing is required the following procedures shall be carried out in the right order.
  - Remove the refrigerant.
  - Evacuate the refrigerant circuit.
  - Purge the refrigerant circuit with nitrogen for 5 min.
  - Evacuate again
  - Remove parts to be replaced by cutting, not by flame.
  - Purge the braze point with nitrogen during the brazing procedure.
  - Carry out a leak test before charging with refrigerant.
- Reassemble sealed enclosures accurately. If seals are worn, replace them.
- Check safety equipment before putting into service.

#### d) Decommissioning

- If the safety is affected when the equipment is put out of service, the refrigerant charge shall be removed before decommissioning.
- Ensure sufficient ventilation at the equipment location.
- Be aware that malfunction of the equipment may be caused by refrigerant loss and a leak is possible.
- Do not discharge capacitors. Remove power from the unit and check that the LEDs on all PCBs are out before working on the unit.
- Remove the refrigerant

#### e) Disposal

- Ensure sufficient ventilation at the working place.
- Remove the refrigerant.
- Evacuate the refrigerant circuit
- Purge the refrigerant circuit with nitrogen for 5 min.
- Evacuate again.
- Cut out the compressor and drain the oil.

### WARNING

- The pipe-work shall be complied with national gas regulations.
- Appliance shall be installed, operated and stored in a room with a floor area larger than Y (Y see below).
- The installation of pipe-work shall be kept to a room with a floor area larger than Y (Y see below).
- When moving or relocating the air conditioner, consult experienced service technicians for disconnection and reinstallation of the unit.
- Do not place any other electrical products or household belongings under indoor unit or outdoor unit.
- Condensation dripping from the unit might get them wet, and may cause damage or malfunction of your property.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.
- To keep ventilation openings clear of obstruction.
- The appliance shall be stored in a well-ventilated area where the room size meets requirements as specified for operation.
- The appliance shall be stored in a room without continuously operating open flames (for example an operating gas appliance) and ignition sources (for example an operating electric heater).
- Any person involved with a refrigerant circuit should hold a valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with required specification.
- Service shall only be performed as recommended by the equipment manufacturer.
- Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
- The appliance shall be installed and stored so as to prevent mechanical damage.
- Mechanical connectors used indoors shall comply with ISO 14903. When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be re-fabricated.
- The installation of pipe-work shall be kept to a minimum.
- Mechanical connections shall be accessible for maintenance purposes.
  - That pipe-work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed;
  - That after completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements;  
The minimum test pressure for the low side: 414psig (2.86MPa)  
The minimum test pressure for the high side: 600psig (4.14MPa)
  - Field-made refrigerant pipe joints shall be tightness Tested. The Test method shall be Nitrogen pressure of at least 550psi for 30 minutes. The joints must be welded, brazed, or press-fit tight and hold maximum allowable system pressure. No Leak shall be detected.
  - The appliances are equipped a REFRIGERANT DETECTION SYSTEM.  
The indoor unit must be powered except for service.  
And the selected controller shall be connected to this symbol wire and can display the caution information if the REFRIGERANT leakage is detected.  
When REFRIGERANT leakage is detected, the fan shall work. And the compressor shall stop.  
You must contact qualified personnel to repair.
  - REFRIGERANT DETECTION SYSTEM include a means for self-testing to determine if a REFRIGERANT SENSOR or SENSING ELEMENT malfunction has occurred. If occurs, the fan shall work, and the compressor shall stop. The controller displays the caution information.  
You must contact qualified personnel to repair.  
REFRIGERANT DETECTION SYSTEM shall only be replaced by the appliance manufacture

## ⚠ WARNING

### Note:






- The indoor unit shall be installed in the room whose area Y bigger than the below requirements;  
Or installed in a room, naturally ventilated to outdoors;  
Or installed in a room without continuously operating open flames (e.g. an operating gas appliance) or other POTENTIAL IGNITION SOURCES (for e.g. an operating electric heater, hot surfaces).  
A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest.
- If the duct system meet the below requirement, the minimum room area of conditioned space (equal to Y) can be calculated by all the rooms.
  - 1) The appliances shall be connected via an air duct system to one or more rooms, the supply and return air shall be directly ducted to the space.
  - 2) If no refrigerant detection system is provided, then, spaces where the airflow may be limited by zoning dampers shall not be included in the determination of Y. Y shall not less than below requirement.
- If the duct system doesn't meet the below requirement, any one room shall meet below minimum room area. And any duct outlet(the supply and return air) shall be 7.2ft.(2.2m) high.

Required minimum room area Y [ft.<sup>2</sup>(m<sup>2</sup>)]

Refrigerant charge amount X[oz.(g)]	Air handler unit					
	Return air outlet height [ft.(m)]	Y[ft. <sup>2</sup> (m <sup>2</sup> )]	Return air outlet height [ft.(m)]	Y[ft. <sup>2</sup> (m <sup>2</sup> )]	Return air outlet height [ft.(m)]	Y[ft. <sup>2</sup> (m <sup>2</sup> )]
70.54(2000)	2(0.6)	401(37.3)	5.9(1.8)	80(7.5)	7.2(2.2)	65(6.1)
81.13(2300)		530(49.3)		92(8.6)		76(7.1)
88.88(2500)		628(58.3)		101(9.4)		83(7.7)
91.71(2600)		678(63)		105(9.8)		86(8)
98.77(2800)		787(73.1)		113(10.5)		93(8.6)
105.82(3000)		903(83.9)		122(11.3)		99(9.2)
112.88(3200)		1028(95.5)		129(12)		105(9.8)
119.93(3400)		1160(107.8)		138(12.8)		112(10.4)
126.99(3600)		1328(123.4)		147(13.7)		121(11.2)
134.04(3800)		1449(134.6)		161(15)		126(11.7)
141.10(4000)		1606(149.2)		179(16.6)		132(12.3)
148.15(4200)		1771(164.5)		197(18.3)		139(12.9)
155.21(4400)		1943(180.5)		216(20.1)		145(13.5)
162.26(4600)		2124(197.3)		236(21.9)		158(14.7)
169.32(4800)		2312(214.8)		257(23.9)		172(16)
176.37(5000)		2509(233.1)		279(25.9)		186(17.3)
183.42(5200)		2714(252.1)		301(28)		202(18.8)
190.48(5400)		2927(271.9)		325(30.2)		217(20.2)
197.53(5600)		3147(292.4)		350(32.5)		236(21.7)
204.59(5800)		3376(313.6)		375(34.8)		251(23.3)
211.64(6000)		3613(335.7)		402(37.3)		269(25)
218.7(6200)		3858(358.4)		428(39.8)		287(26.7)
225.75(6400)		4111(381.9)		456(42.4)		306(28.4)
232.81(6600)		4371(406.1)		485(45.1)		325(30.2)
239.86(6800)		4640(431.1)		516(47.9)		346(32.1)
246.92(7000)		4918(456.9)		547(50.8)		366(34)
253.97(7200)		5202(483.3)		578(53.7)		388(36)
261.03(7400)		5496(510.6)		610(56.7)		409(38)

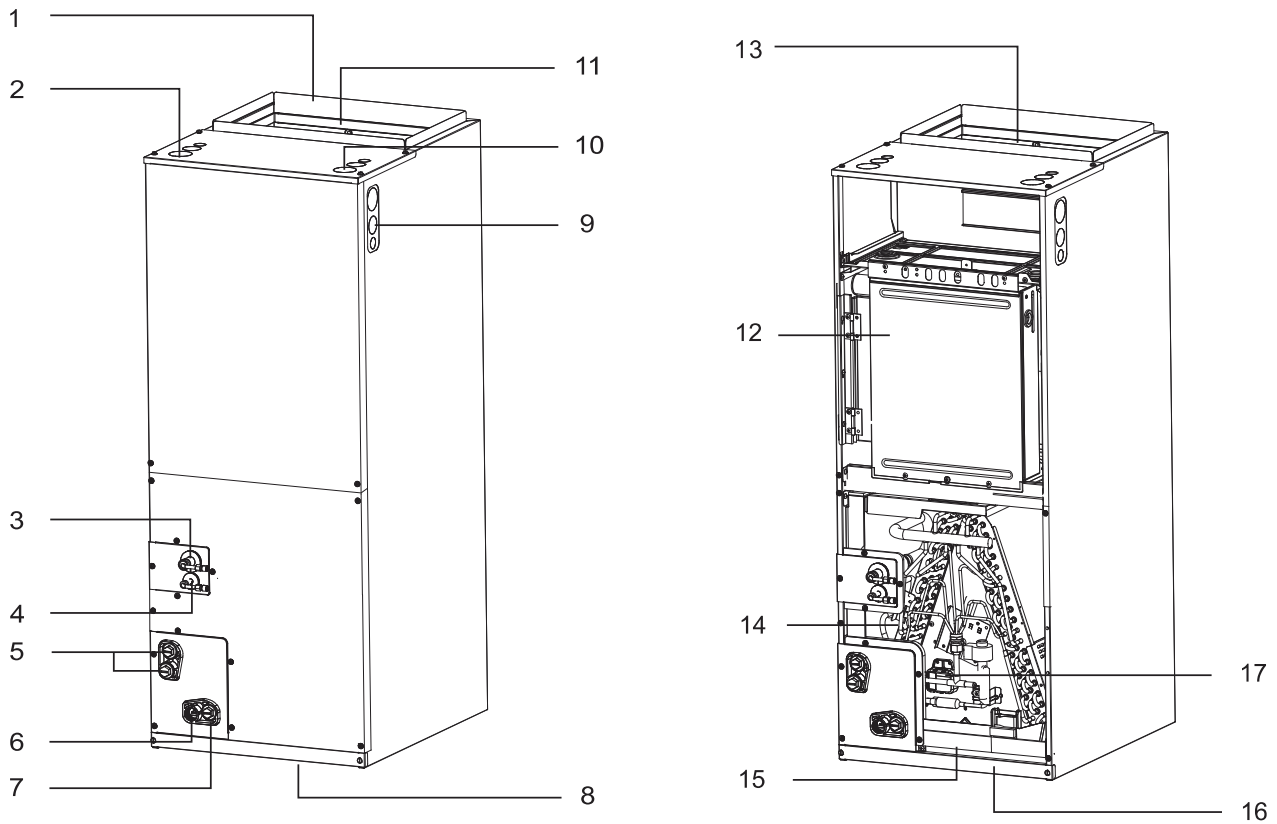
## Safety Precautions

Explanation of symbols displayed on the indoor unit or outdoor unit.

  <div>Refrigerant safety group <b>A2L</b></div>	<b>WARNING</b>	This symbol shows that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	<b>CAUTION</b>	This symbol shows that the operation manual should be read carefully.
	<b>CAUTION</b>	This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.
	<b>CAUTION</b>	This symbol shows that information is available such as the operating manual or installation manual.

## Composition of the Air conditioner

### Indoor unit (18K/24K)

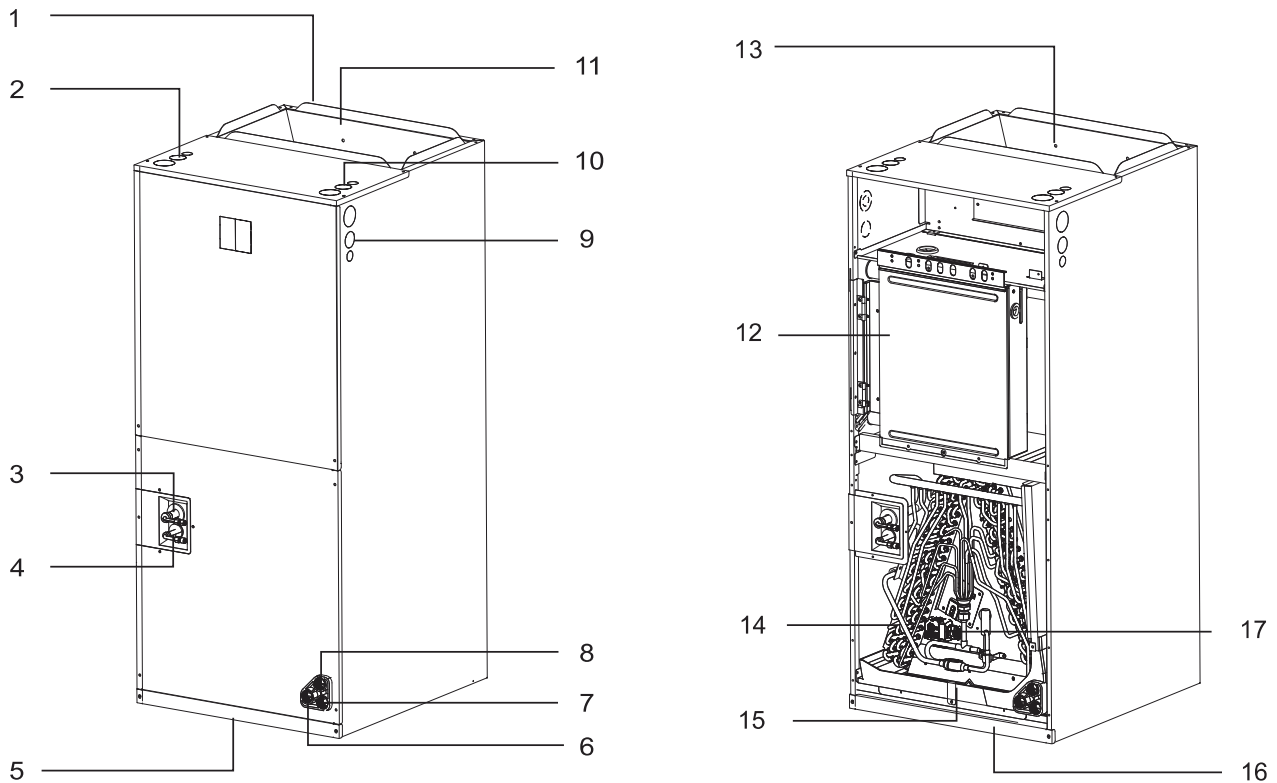


1. Supply air outlet flange
2. Low voltage connection (for 24V)
3. Refrigerant pipe (Gas)
4. Refrigerant pipe (Liquid)
5. Auxiliary drainage hole
6. Primary drain connection
7. Auxiliary drainage connection
8. Return air inlet
- 9,10. Knockout for power cable & To outdoor control
11. Supply air outlet
12. Electrical enclosure
13. Auxiliary heater (Optional)
14. Evaporator
15. Condensate drain pan
16. Filter cover
17. Refrigerant detection sensor

NOTE: The figures are based on the external views of the standard model.  
Consequently, the shape may differ for the air conditioner model you have selected.

## Composition of the Air conditioner

### Indoor unit (36K/48K)



1. Supply air outlet flange
2. Low voltage connection (for 24V)
3. Refrigerant pipe (Gas)
4. Refrigerant pipe (Liquid)
5. Return air inlet
6. Auxiliary drainage hole
7. Primary drain connection
8. Auxiliary drainage connection
- 9,10. Knockout for power cable & To outdoor control
11. Supply air outlet
12. Electrical enclosure
13. Auxiliary heater (Optional)
14. Evaporator
15. Condensate drain pan
16. Filter cover
17. Refrigerant detection sensor

NOTE: The figures are based on the external views of the standard model.  
Consequently, the shape may differ for the air conditioner model you have selected.

## Trouble Shooting

### ⚠ CAUTION

**When drain water overflows from the indoor unit, stop the operation and contact your dealer.**  
**When you smell or see white smoke coming out of the unit, turn OFF the main power supply and contact your dealer.**

#### 1. If Trouble still Exists

If the trouble still exists even after checking the following, contact your dealer and inform them of the following items.

- (1) Unit Model Name
- (2) Content of Trouble

#### 2. No Operation

Check whether the SET TEMP is set at the correct temperature.  
 Inspect outdoor unit for error codes displayed.

#### 3. Not Cooling or Heating Properly

- Check for obstruction of air flow of outdoor or indoor units.
- Check if there are too many heating sources in the room.
- Check if the air filter is clogged with dust.
- Check if the doors or windows are open.
- Check if the temperature condition is within the operation range.

#### 4. This is Not Abnormal

##### • Odour from Indoor Unit

Unpleasant odour diffuses from indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.

##### • Sound from Deforming Parts

When start or stop the system, a sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.

##### • Steam from Outdoor Heat Exchanger

During defrosting operation, ice on the outdoor heat exchanger melts resulting in steam.

##### • Dew on Air Panel

When the cooling operation continues for a long period of time under high humidity conditions, dew can form on the air panel.

##### • Refrigerant Flow Sound

While the system is being started or stopped, the refrigerant flow sound may be heard.

## Air Filter

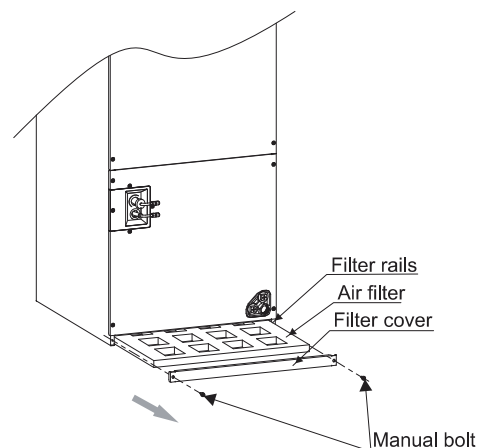
### Air Filter (Not Factory-installed)

Please replace or clean the filter regularly, because there will be lots of dust accumulated on the surface of the filter after a period of time.

#### Follow these steps to properly replace the filter:

After removing the two manual bolts, take down the filter cover and pull out the filter from the case, then insert the new one into the case along the filter rail, at last fix the filter cover with manual bolts.

Model	Filter size (L×W×H) in.
18K/24K	20×16×1
36K	20×18×1
48K	22×20×1



## 1. Safety Notice

### ⚠ WARNING

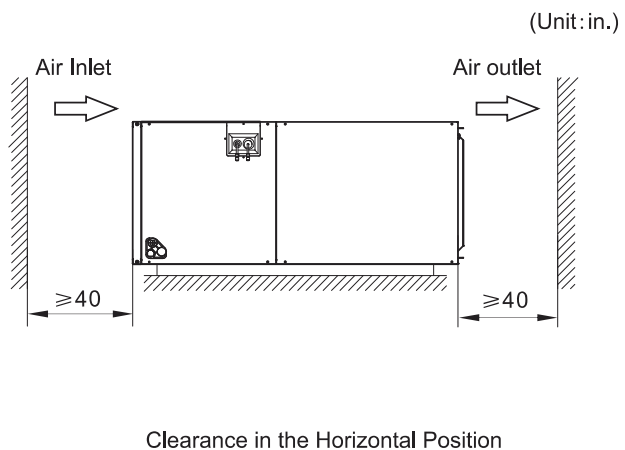
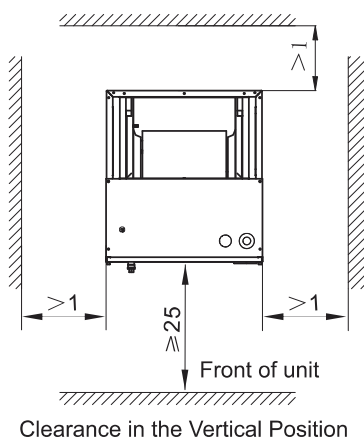
- Install the air conditioner on a solid base that can support the unit weight. (An inadequate base or incomplete installation may cause injury due to falling off from the base.)
- Electrical work should be carried out in accordance with the installation manual and the local and national electrical wiring rules or code.  
(Insufficient capacity or incomplete electrical work may cause electrical shock or fire.)
- Be sure to use a dedicated power circuit. (Never use the power supply shared by another appliance.)
- For wiring, use a cable long enough for the entire distance, and do not use an extension cord.
- Do not put other loads on the power supply, and please use a dedicated power circuit.
- Use the specified types of wires for electrical connections between the indoor and outdoor units. (Firmly clamp the interconnecting wires so that the terminals receive no external stress.)
- Incomplete connections or clamping may cause terminal overheating or fire.
- After establishing connection between all the wires, fix the cables to prevent undue force on the electrical covers or panels. (Install covers over the wires, incomplete cover installation may cause terminal overheating, electrical shock or fire.)
- There is **100PSIG** high pressure nitrogen in the evaporator, please release it first before installation. It proves the evaporator to be in good state if there is nitrogen out, otherwise, it indicates the evaporator leaks.
- When installing or relocating the system, be sure to keep the refrigerant circuit free from air (Air in the refrigerant circuit may cause an abnormal pressure rise or rupture, resulting in injury.)
- If any refrigerant leakage occurs during the installation work, ventilate the room.
- After all installations are completed, make sure that no refrigerant leaks. (The refrigerant produces, toxic gas if exposed to flames.)
- When carrying out piping connection, do not let air substances other than the specified refrigerant get into refrigeration cycle. (Otherwise, it will cause decreased performance, abnormal high pressure in the refrigeration cycle, explosion and injury.)
- Make sure that the installation has a proper earth connection. Do not ground the unit to a utility pipe, arrester, or telephone grounding. Incomplete grounding may cause electrical shock. (A high surge current from lightning or other sources may cause damage to the air conditioner.)
- An earth leakage circuit breaker may be required depending on the site condition to prevent electrical shock.
- Disconnect the power supply before wiring, piping, or checking the unit.

## 2. Installation of the Indoor Unit

### 2.1 Initial Check

### ⚠ CAUTION

- When moving the unit after unpacking, make sure not to exert any pressure on other parts, especially the refrigerant piping, drain piping and flange parts.
- Wear protective gears when installing the unit.



### 2.2 Installation Location

Before choosing the installation site, obtain the user's approval

- Optimum air distribution is ensured.
- The air path is not blocked.
- Condensation can drain properly.
- Ensure sufficient clearance for maintenance and servicing.
- Piping between the indoor and outdoor units should be within the allowable limits. (Refer to the installation of the outdoor unit )
- The indoor unit, outdoor unit, power supply wiring and transmission wiring should be kept at least 3.3 feet away from televisions and radio, which prevents image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if a one-meter distance is maintained.)
- Do not install the indoor unit in a machinery shop or kitchen where vapor from oil or its mist flows to the indoor unit. The oil will deposit on the heat exchanger, thereby reducing the performance of the indoor unit, and may deform and in the worst case, break the plastic parts of the indoor unit.
- When the unit is installed in a hot and humid place, it is recommended to insulate the cabinet exterior and to use auxiliary drain pans.
- If installed above a finished living space, a auxiliary drain pan(as required by many building codes), must be installed under the entire unit and its condensate drain line must be routed to a location such that the user will see the condensate discharge.

### 2.3 Installation

**NOTE:**

These appliances are designed for indoor installation only.

The indoor units can be installed in one of the upflow, horizontal left, horizontal right or vertical downflow orientations as shown in Figures below.

## Installation and Maintenance

### 18K/24K

- Up-flow installation

Up-flow installation method is selected by default.

- Horizontal left installation

When the unit is horizontal left mounted, Place the air outlet facing the left.

- Vertical downflow installation and Horizontal right installation

When the unit is vertical downflow installation or horizontal right hand installation, the following steps are required. The treatment is the same for both installation methods.

- (1) Remove the lower panel and pipe cover (including two rubber ring), then remove the drainage hole cover. Unscrew screws. (Refer to Fig.1)

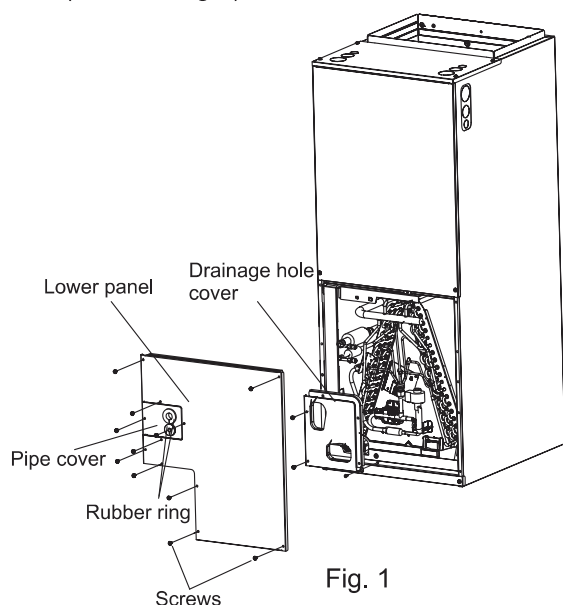


Fig. 1

- (2) Remove the upper panel. (Refer to Fig.2)

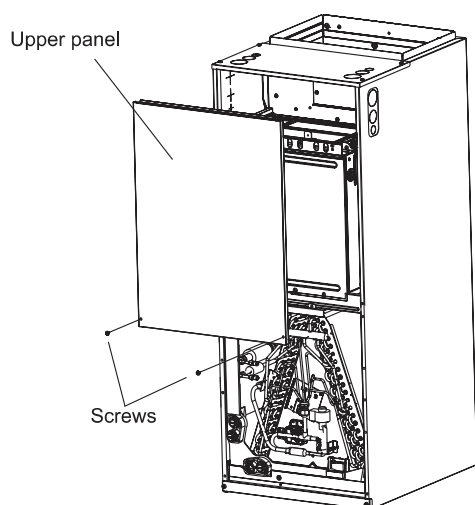


Fig. 2

- (3) Remove the electrical box cover and fixing screws of the electrical box. (Refer to Fig.3)

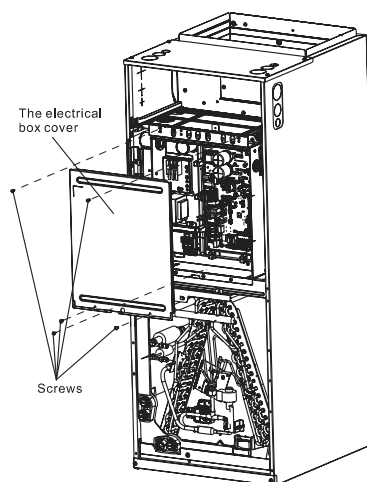
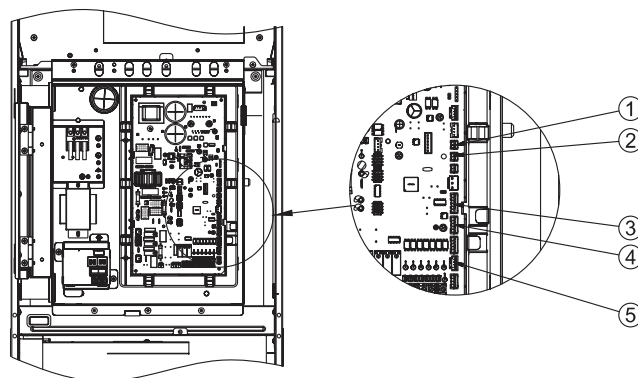


Fig. 3

- (4) Remove the wiring clamps, Ti(Air inlet temperature sensor), Tc(Coil temperature sensor), EVI(Micro-Computer Control Expansion Valve), Tr(Refrigerant sensor) and humidity sensor from the socket. Take out the wires from the electrical box plugs, and put them together with the evaporator (Take care not to damage the wires and plugs). (Refer to Fig.4)



- ① — Ti (yellow)
- ② — Tc (black)
- ③ — EVI (white)
- ④ — Tr (blue)
- ⑤ — Humidity sensor (red)

Fig. 4

## Installation and Maintenance

- (5) Extract the evaporator with the removed wires. (Refer to Fig.5)

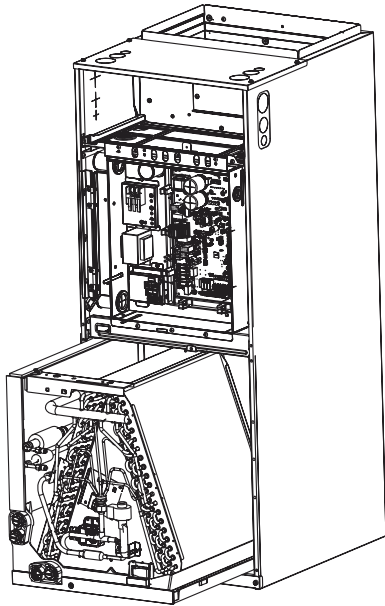


Fig. 5

- (7) Follow the steps in Fig. 7 for the installation of the sensor, the plate, and the two deflectors (which need to be obtained from the dealer).

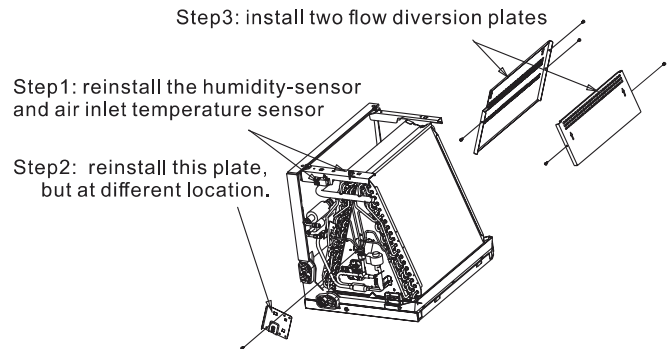


Fig. 7

**NOTE:**

When reinstalling the plate, the position of the plate is different from the original installation, and a hole position needs to be shifted to the right relative to the original position, and the position of the installation completion is shown in Fig. 8

- (6) Remove the wiring clamps and remove the plate from the evaporator, then remove Ti(Air inlet temperature) and Humidity sensor. (Refer to Fig.6)

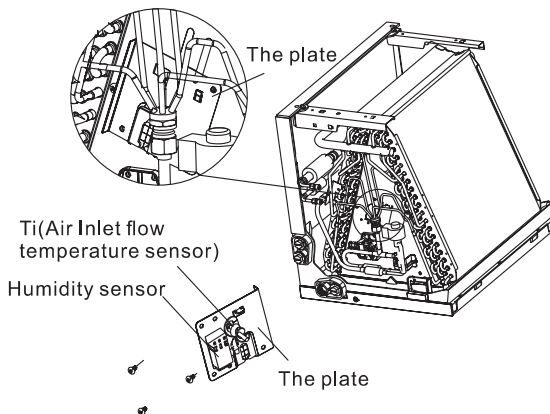


Fig. 6

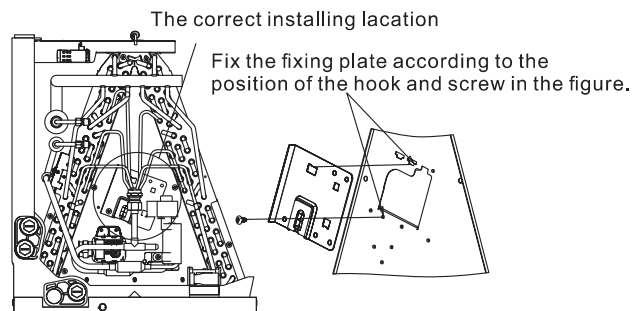
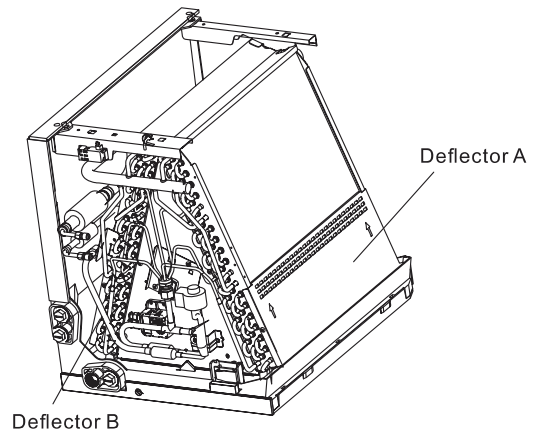


Fig. 8

## Installation and Maintenance

(8) The wire should be arranged again. As shown in Fig. 9, first use the wire tie to fix all the sensor wire harness on the copper pipe, and then the wire harness extends down to the bottom of the water receiving tray, and forms a waterproof bend through the wire clamp, please strictly follow the step and the path in the figure to route the wire, otherwise there will be a small amount of condensation flowing out of the connecting tray along the wire harness.

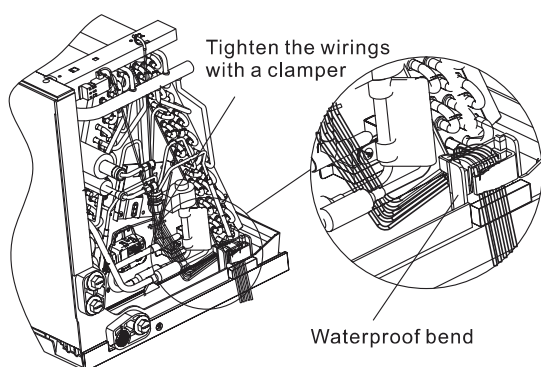


Fig. 9

(9) Rotate the evaporator for 180° and insert into the upper side of the lead rail. Pay attention to protecting the wires during the process. (Refer to Fig.10)

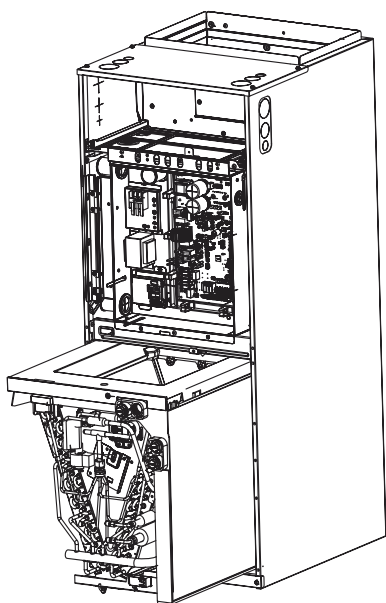


Fig. 10

(10) Rotate to open the electrical box, according to Fig. 11, pass the sensor harness through the wire hole of the middle cross beam, and then enter the inside of the electrical box through the rubber ring of the electrical box. After the wiring is completed, thermal insulation sponge should be adhered the surface of the wire harness as shown in Fig.12.

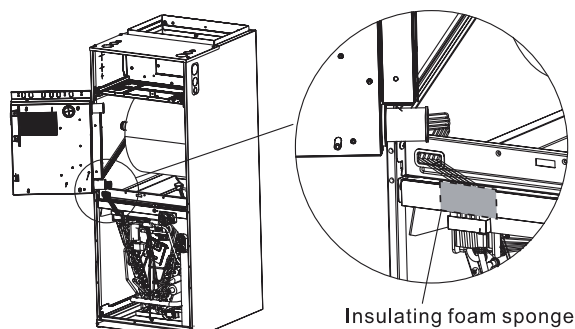


Fig. 11

(11) Insert the wires into the electrical box in its original position (Fig.4). And then refit the wires with wire clamps.

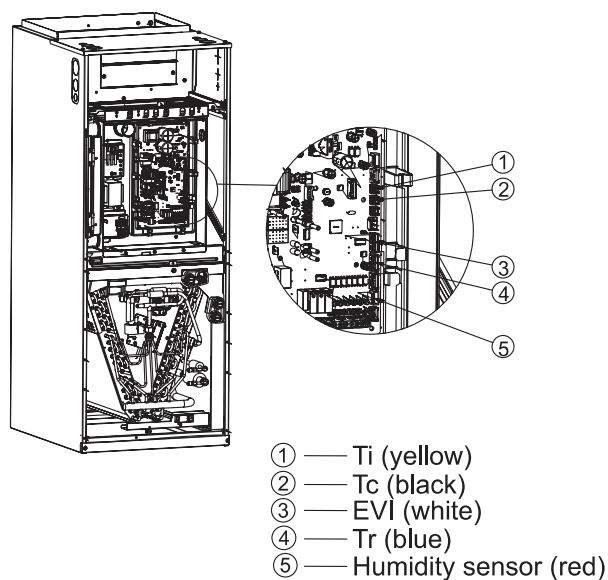


Fig. 12

## Installation and Maintenance

- (12) Reinstall electrical box cover, the lower panel, pipe and drainage hole cover and the upper panel.  
(Refer to Fig.13)

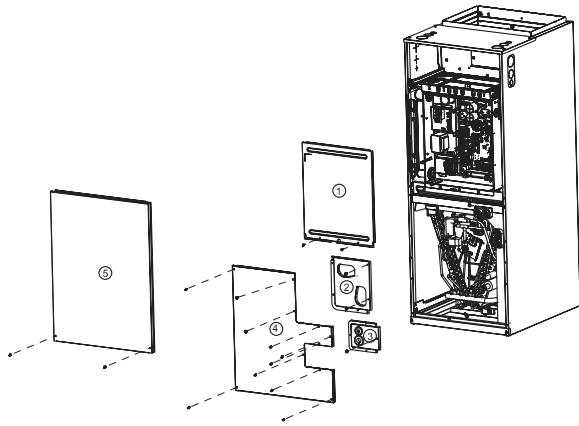


Fig. 13

Rotate the machine 90° clockwise so that the air outlet is facing to the right, which is a horizontal right side installation. (Refer to Fig.15)

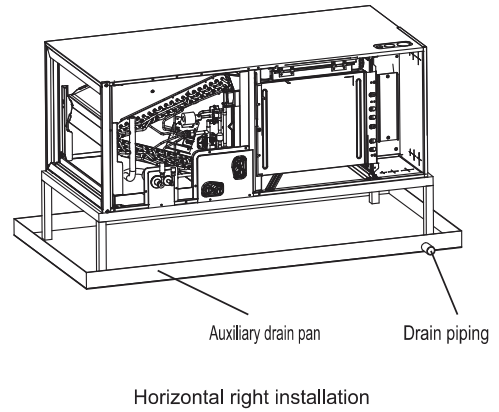


Fig. 15

After the above operations, rotate the machine 180° so that the air outlet is downward, that is it is installed vertically downstream.  
(Refer to Fig.14)

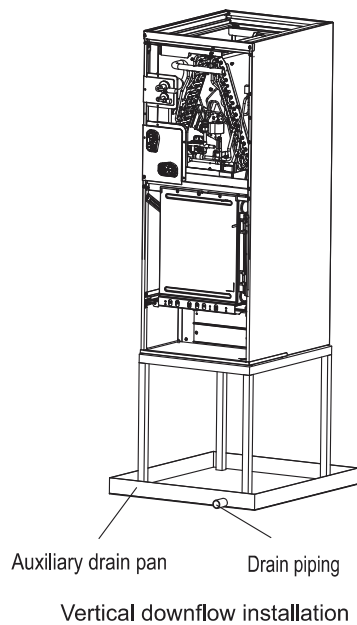


Fig. 14

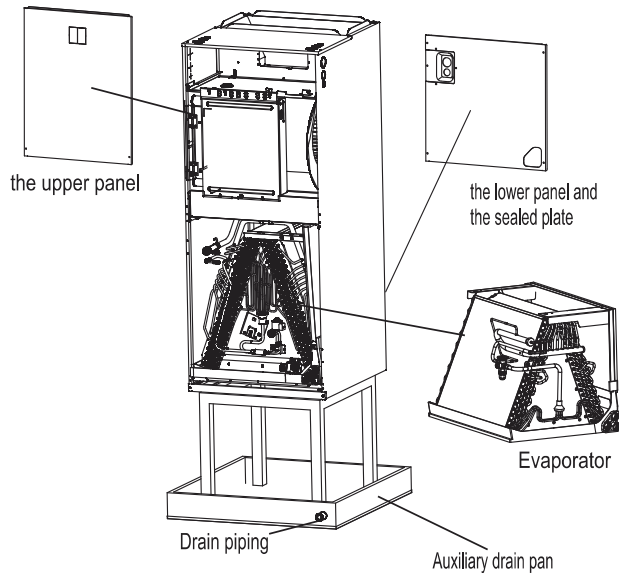
### 36K/48K

- Up-flow installation

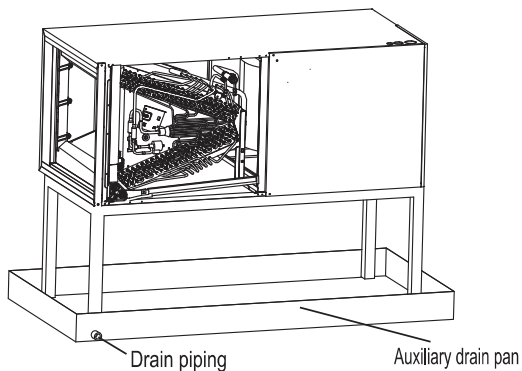
Up-flow installation method is selected by default.

- Horizontal right installation

When the unit is horizontal right mounted, Place the air outlet facing the right.



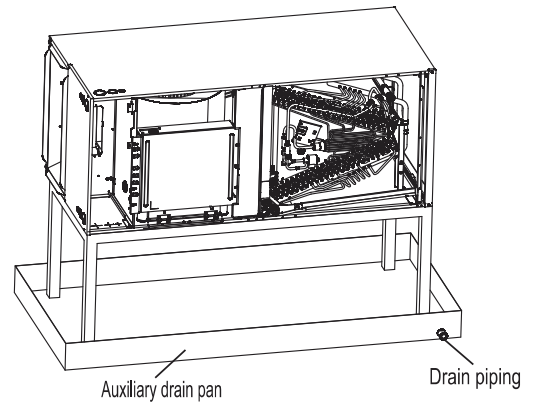
Upflow installation



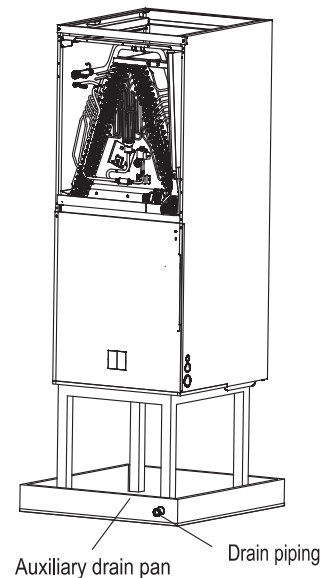
Horizontal right installation

- Vertical downflow installation and Horizontal right hand installation

When the unit is vertical downflow installation or horizontal left hand installation, the following steps are required. The vertical downflow installation modification method is the same as the horizontal right hand installation.



Horizontal left installation



Vertical downflow installation

- (1) Remove the lower panel and pipe cover (including two rubber ring), then remove the drainage hole cover. Remove the upper panel. Remove the electrical box cover. Unscrew screws. (Refer to Fig. 1)

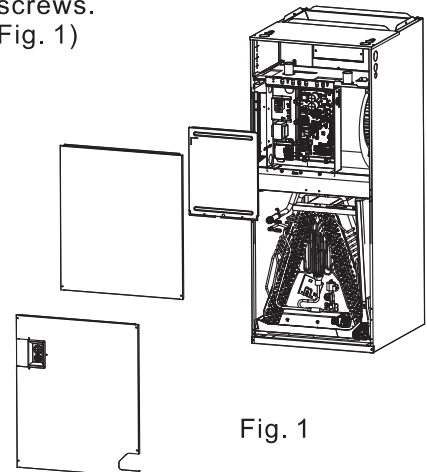


Fig. 1

## Installation and Maintenance

(2) Remove the wiring clamps, Ti(Air inlet temperature sensor), Tc(Coil temperature sensor), EVI(Micro-Computer Control Expansion Valve), Tr(Refrigerant sensor) and humidity sensor from the socket. Take out the wires from the electrical box plugs, and put them together with the evaporator (Take care not to damage the wires and plugs). (Refer to Fig.2)

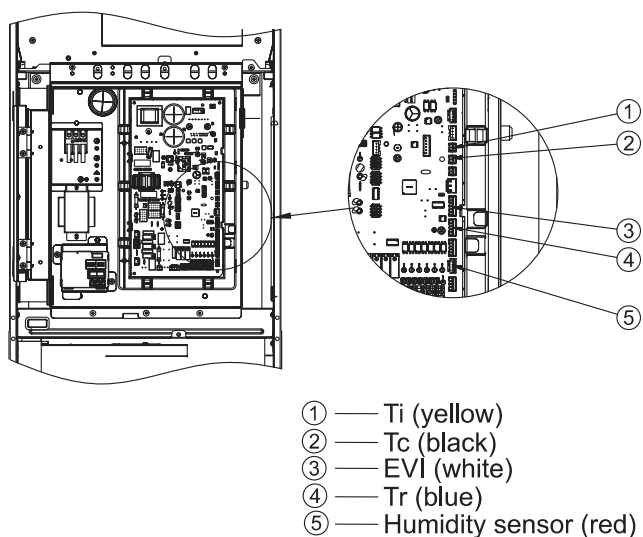


Fig. 2

(3) Extract the evaporator with the removed wirings. (Refer to Fig. 3)

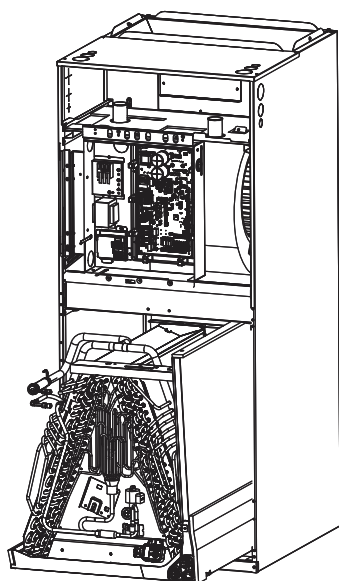


Fig. 3

(4) Remove the wiring clamps. Remove the plate from the evaporator, then remove Ti (Air inlet temperature sensor) and Humidity sensor. (Refer to Fig. 4)

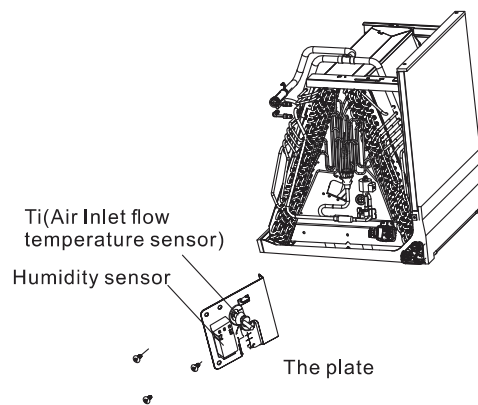


Fig. 4

(5) Install the removed Ti (Air inlet temperature sensor) and Humidity sensor. Meanwhile, add two flow diversion plates (which are got from the distributor or dealer of Hisense.). (Refer to Fig. 5)

Step3: install two flow diversion plates

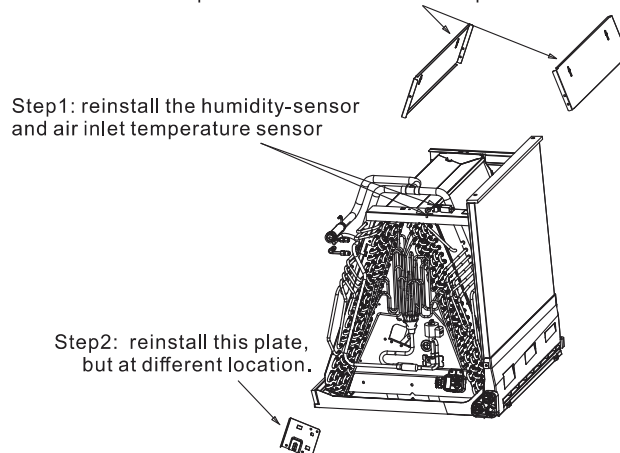


Fig. 5

### NOTE:

When restall the plate, pay attention to at the correct location.

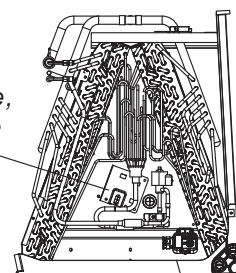
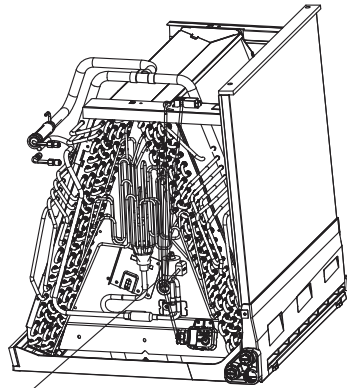


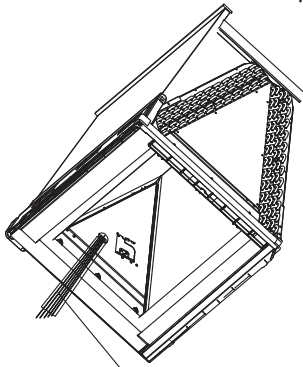
Fig. 6

## Installation and Maintenance



*The wirings should be arranged again.*

Fig. 6



*Paste the insulations around wirings.*

Fig. 7

- (6) Rotate the evaporator for 180 degrees and insert into the upper side of the lead rail. Pay attention to protecting the wirings during the process. (Refer to Fig. 8)

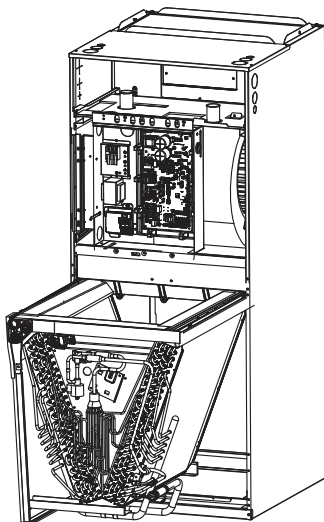


Fig. 8

- (7) Remove the screws of the the electrical box and rotate it. Tighten the wirings with a clumper. Insert the wirings through the rubber ring into the electrical box. (Refer to Fig. 9)

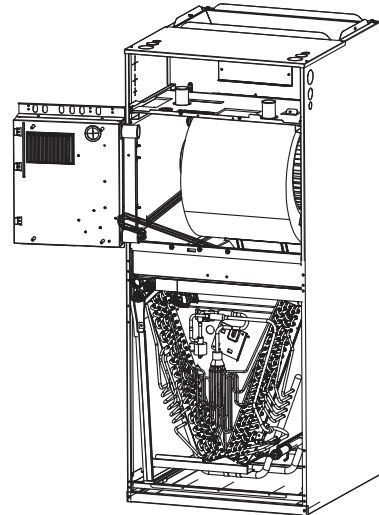


Fig. 9

- (8) Insert the wirings into the electrical box in its original position (refer to Fig. 4). And then refix the wirings with wire clamps.  
(9) Reinstall electrical box cover, the lower panel, pipe and drainage hole cover and the upper panel. (Refer to Fig. 10)

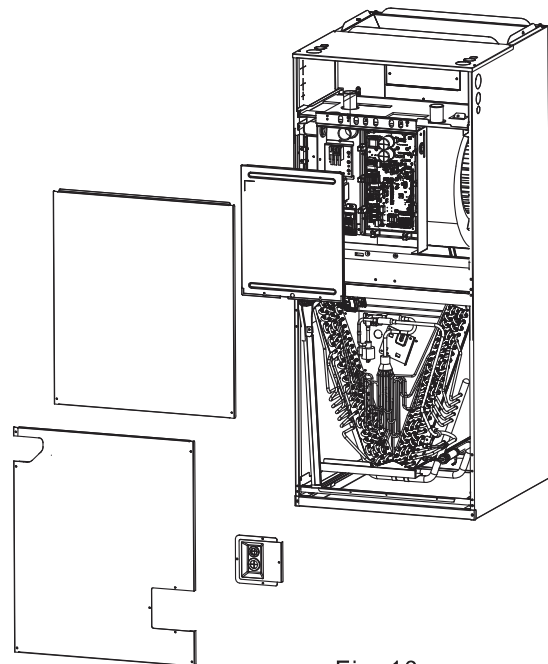


Fig. 10

## 2.4 Air duct

### ⚠ WARNING

Field duct work must comply with the **National Fire Protection Association NFPA 90** and any applicable local ordinance.

Do not, under any circumstances, connect return duct work to any other heat producing device such as fireplace insert, stove, etc. Unauthorized use of such devices may result in fire, carbon monoxide poisoning, explosion, personal injury or property damage.

Sheet metal duct work run in unconditioned spaces must be insulated and covered with a vapor barrier. Fibrous duct work may be used if constructed and installed in accordance with **SMACNA Construction Standard on Fibrous Glass Ducts**. Duct work must comply with National Fire Protection Association as tested by U/L Standard 181 for Class I Air Ducts. Check local codes for requirements on duct work and insulation.

Duct system must be designed within the range of external static pressure the unit is designed to operate against. It is important that the system airflow be adequate. Make sure supply and return duct work, grills, special filters, accessories, etc, are accounted for in total resistance.

## 3. Refrigerant Pipe

### ⚠ DANGER

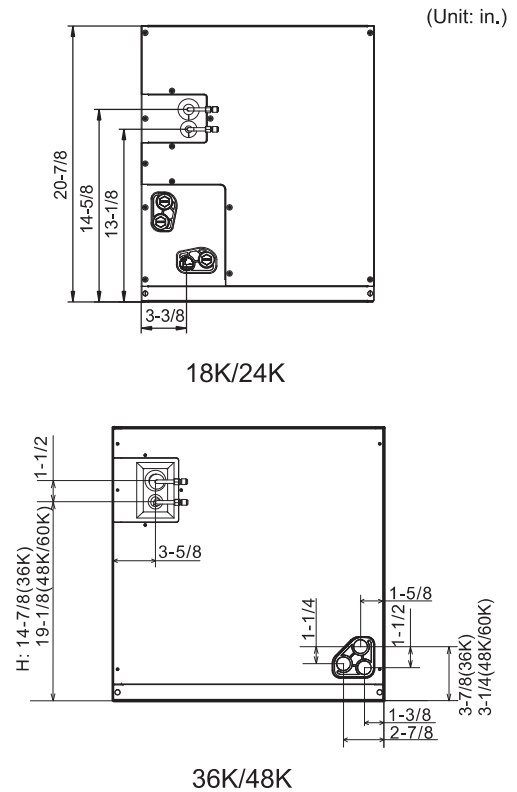
Use the refrigerant according to outdoor nameplate. When carrying out the leakage check and test, do not mix in the oxygen, the acetylene and the flammable and the reactive gas, because these gases may result in explosion. It is suggested to use nitrogen to perform these experiments.

### 3.1 Pipe Material

- (1) Prepare the copper pipe on the spot.
- (2) Choose dustless, non-humid, clean copper pipe. Before installing the pipe, use nitrogen or dry air to below away the dust and impurity on the pipe.
- (3) Choose the copper pipe according to outdoor manual.

### 3.2 Pipe Connection

- (1) The connection positions of the pipe are shown below.



Connection positions of the pipe

## Installation and Maintenance

Refer to the outdoor unit Installation Instructions for details on piping size selection, piping installation, and charging information.

Coil is shipped filled with Nitrogen. Evacuate the system before charging with refrigerant.

Install refrigerant lines so that it does not block service access to the front of the unit.

Nitrogen should flow through the refrigerant lines while brazing.

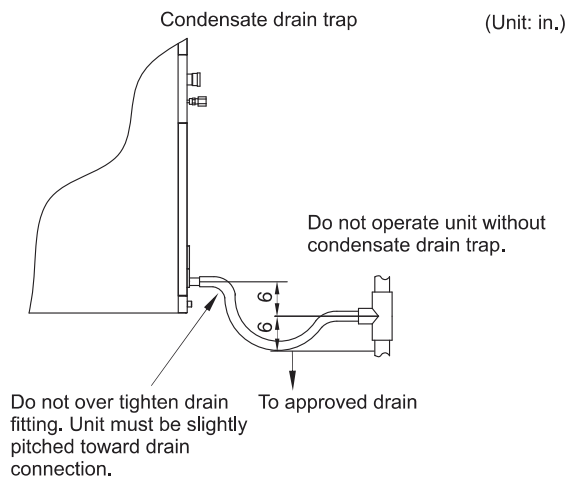
Use a wet rag or an approved heat paste to protect the TXV sensing bulb during the brazing process.

(The joints must be welded or brazed.)

### 4. Drain Piping

The coil drain pan has a primary and a secondary drain with 3/4" NPT female connections. The connectors required are 3/4" NPT male, either PVC or metal pipe. To prevent damage of the drain pan connection, it is recommended to seal the connector with Teflon tape, and should be hand-tightened with a torque less than 37 in-lbs. An insertion depth of approximately 3/8" to 1/2" (5-8 turns) should be expected at this torque.

All horizontal drain pipes must be pitched downward away from the unit a minimum of 1/8" per foot to provide free drainage.



Do not connect the drain pipes directly to sewage pipes to avoid ammonia odour. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger. Do not twist or bend the drain hose, because excessive force is applied during twisting or bending and may also cause leakage.

The drain line should be insulated where necessary to prevent sweating and damage due to condensate forming on the outside surface of the pipe. Test condensate drain pan and drain pipe after installation is complete. Keep the case horizontal

(horizontal left or horizontal right) to ensure a smooth drainage, or incline the case 0.5° to the drainage hole, making it the lowest point for draining. Pour water into drain pan, enough to fill drain trap and line. Check to make sure drain pan is draining completely, no leaks are found in drain pipe fittings, and water is draining from the termination of the primary drain pipe.

#### NOTES:

If unit is located in or above a living space where damage may result from condensate overflow, a field-supplied, external condensate pan should be installed underneath the entire unit, and a secondary condensate line (with appropriate trap) should be run from the unit into the pan. Any condensate in this external condensate pan should be drained to a noticeable place. The owner of the structure must be informed that when condensate flows from the secondary drain or external condensate pan, the unit requires servicing or water damage will occur. Install traps in the condensate lines as close to the coil as possible.

### 5. Electrical Wiring

#### 5.1 Electrical Installation

##### ⚠ CAUTION

- Before proceeding with electrical connections, make certain that power supply are as specified on the unit rating plate. See unit wiring label for proper field high and low-voltage wiring. Make all electrical connections in accordance with the NEC and any local codes or ordinances that may apply. Refer to the NEC(USA) or CSA(Canada) for wire sizing. Use copper wire only.
- Every installation must include an NEC(USA) or CSA (Canada) approved over-current protection device.

##### ⚠ WARNING

Disconnect all power before servicing or installing this unit.

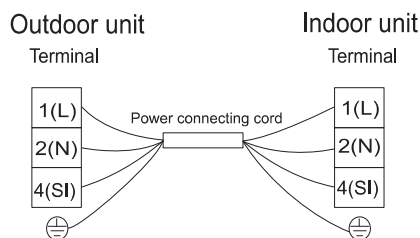
To avoid the electrical shock, please ensure the air conditioner is proper grounded.

All routing of electrical wiring must be made through provided electrical knockouts. Do not cut, puncture or alter the cabinet for electrical wiring.

Knockouts are provide on the indoor unit top panel and sides of the cabinet to allow for the entry of the supply voltage conductors. If the knockouts on the cabinet sides are used for electrical conduit, an adapter ring must be used in order to meet **UL 60335** safety requirements. An MEC or CEC approved strain relief is to be used at this entry point. Some codes/municipalities require the supply wire to be enclosed in conduit. Consult your local codes.

#### Electrical wiring diagram

Indoor unit connected to an outdoor unit of the same brand

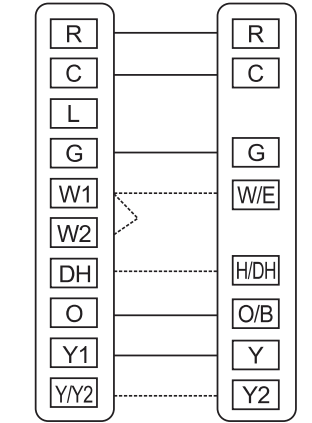


**Note:**

\*Since there may be differences in some model's terminal blocks, wiring connection should be done according to letters on the terminal block. Please disregard numbers in this case.

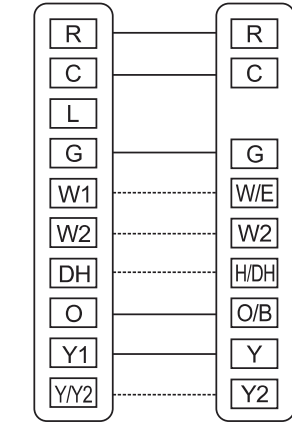
### Indoor unit connected to a thermostat

Support 3H and 2C thermostat



unit control board terminal strip      thermostat

Support 4H and 2C thermostat



unit control board terminal strip      thermostat

### Indoor unit main control board 24V interface definition:

Terminal	Definition
R	AC 24V power supply
C	AC 24V common
L	Fault terminal
G	Fan signal
W1/W2	Electric auxiliary heat signal
DH	Dehumidification
O	4-Way valve
Y1	Cool1/ Heat 1
Y/Y2	Cool 2/ Heat 2

#### Note:

1. The "L" terminal displays fault information. If the thermostat has a terminal with function corresponding to "L", it needs to be connected to the "L" terminal of the unit.
2. When the machine does not have auxiliary electric heating, the machine only supports 2H2C and 1H1C working modes.
3. Mode Interfere  
Multi-zone outdoor units can only support a single mode at one time (cooling or heating). When the mode set at one or more indoor unit is different from the mode that outdoor unit is using, mode interfere will occur.

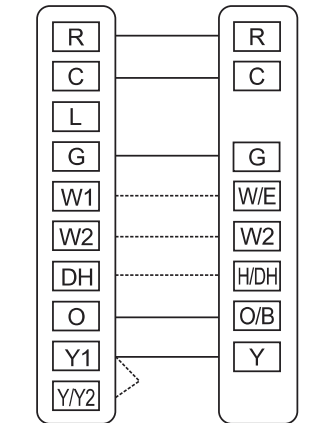
Driven choice	Cooling	Dry	Heating	fan
Active mode				
Cooling	√	√	×	√
Dry	√	√	×	√
Heating	×	×	√	×
Fan	√	√	×	√

√ --- Normal

X --- Mode interfere

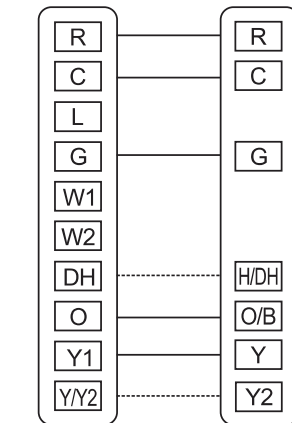
Outdoor unit always run with the mode of first indoor unit that turned on. When the setting mode of following indoor unit is interfered with it, 3 beeps would be heard, and the indoor unit interfered with the normal running units would turn off automatically. If auto mode is selected, the actual running mode of the unit will be dominated by the unit of which first select auto mode. (Auto mode is invalid for some models.)

Support 3H and 1C thermostat



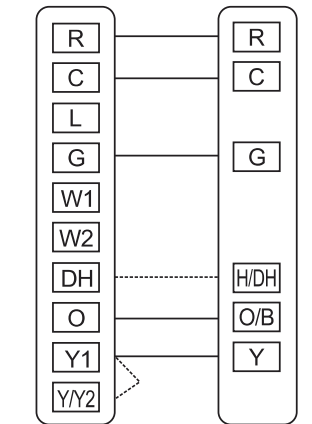
unit control board terminal strip      thermostat

Support 2H and 2C thermostat



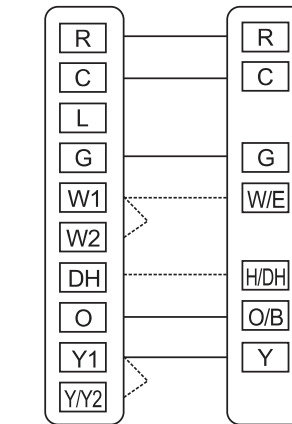
unit control board terminal strip      thermostat

Support 1H and 1C thermostat



unit control board terminal strip      thermostat

Support 2H and 1C thermostat



unit control board terminal strip      thermostat

### 5.2 Electrical Data

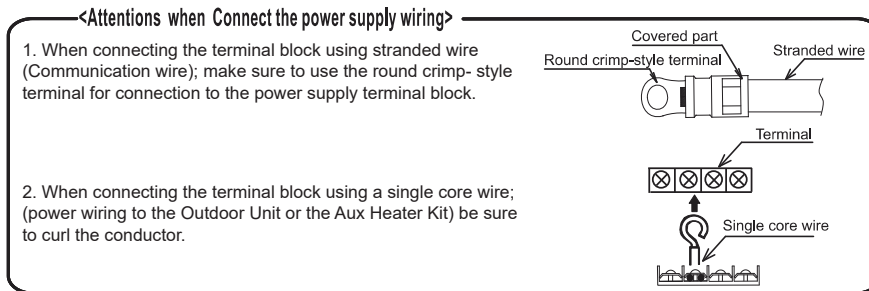
#### ! WARNING

- This product must be installed on a single dedicated electrical circuit. Circuit breaker protection must be installed in accordance with this manual. In moist and humid locations, and ELB type circuit breaker must be used.  
When the Electric Heater Kit is installed, a separate power supply must be used to power the electric heater kit. Refer to the Heater Kit Selection kit table, and the heater kit instructions. All wiring shall be installed in accordance with local and national codes.
- Do not operate the system until all the check points have been cleared.
  - (A) Check to ensure that the insulation resistance is more than  $2M\Omega$ , by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
  - (B) Check to ensure that the stop valves of the outdoor unit are fully opened and then start the system.
- Pay attention to the following items while the system is running.  
Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than  $194^{\circ}\text{F}$  ( $90^{\circ}\text{C}$ ).

Capacity (Btu/h)	Transmitting Cable Size	Thermostat Signal Size
18K/24K/36K/48K	4x14AWG stranded THHN	18AWG

Note:

- (1) Follow local codes and regulations when select field wires, and all the above are the minimum wire size.
- (2) Use copper supply wires.
- (3) Install main switch and ELB for each system separately. Select the high response type ELB that is acted within 0.1second.



### 5.3 Change of Static Pressure

The static pressure can be selected by setting Dip Switches on Checker board, and the DIP switches adjustment method of the Checker board is as follows:

Capacity (Btu/h)	The Range of Static Pressure	Function Code Set
18K/24K/36K/48K	0-0.80 in. H <sub>2</sub> O (0-200Pa)	0-200 function code value equals static pressure value, more than 145 is 0.58 in. H <sub>2</sub> O (145Pa). [default: 0.58 in. H <sub>2</sub> O (145Pa)]

Note: The pressure loss of filter is included in the data above.

Pa	in.H <sub>2</sub> O	Pa	in.H <sub>2</sub> O
5	0.02	105	0.42
10	0.04	110	0.44
15	0.06	115	0.46
20	0.08	120	0.48
25	0.10	125	0.50
30	0.12	130	0.52
35	0.14	135	0.54
40	0.16	140	0.56
45	0.18	145	0.58
50	0.20	150	0.60
55	0.22	155	0.62
60	0.24	160	0.64
65	0.26	165	0.66
70	0.28	170	0.68
75	0.30	175	0.70
80	0.32	180	0.72
85	0.34	185	0.74
90	0.36	190	0.76
95	0.38	195	0.78
100	0.40	200	0.80

### 5.4 Digital display

There are 3 buttons on the digital display board:

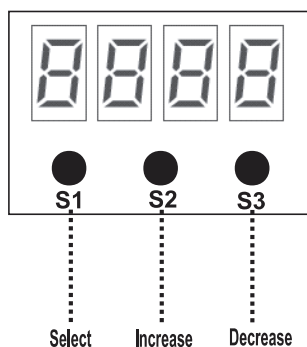
1) Select button: Select to display outdoor/indoor unit parameter.

"P.", "A." -- Parameter of indoor unit

2) INCREASE button: Each time it is pressed, the number rises by 1.

3) DECREASE button: Each time it is pressed, the number lowers by 1.

The parameter content will automatically display after the parameter code is selected for 3s.



Parameter	Parameter
P.1	Display Static Pressure
P.3	Set Static Pressure
P.13	Monitor Indoor Fan RPM
P.19	Adjust Indoor Fan RPM
A.1	Unit A Fault Code
A.2	Unit A Valve Actual Opening
A.3	The opening of the A valve is set
A.6	Unit A Coil Temperature
A.7	Unit A Ambient Temperature

### 6. Test Run

Please perform test run according to installation manual of outdoor unit.

### 7. Electric Heat Kit Selection Table

Electric Heat Kit Model	Air Handler Model	Electric Heat (kW)	MIN. Circuit Ampacity		MAX. Fuse or Breaker (HACR) Ampacity		Fan Speed Tap
			230VAC	208VAC	230VAC	208VAC	High
AUX5KWA	18K/24K	5	25	22.6	30	30	●
AUX7KWA		7.5	37.4	33.9	40	40	●
AUX10KWA		10	49.9	45.2	60	50	●
AUX5KWA	36K	5	25	22.6	30	30	●
AUX7KWA		7.5	37.4	33.9	40	40	●
AUX10KWA		10	49.9	45.2	60	50	●
AUX15KWA		15	37.4+37.4	33.9+33.9	40+40	40+40	●
AUX5KWA	48K	5	25	22.6	30	30	●
AUX7KWA		7.5	37.4	33.9	40	40	●
AUX10KWA		10	49.9	45.2	60	50	●
AUX15KWA		15	37.4+37.4	33.9+33.9	40+40	40+40	●
AUX20KWA		20	49.9+49.9	45.2+45.2	60+60	50+50	●

●: available

×: unavailable

#### NOTE:

When electric heat is operating, the unit will automatically run at highest fan speed.

Heat kit is an optional part, and it must be connected to the power supply separately.

It is recommended that electric heater kit should be installed in low temperature area or when long piping is used.

Check if heat kit suitable for AHU 4-way position installation.

Heat pump systems require a specified airflow. Each ton of cooling requires between 350 and 400 cubic feet of air per minute(CFM).

A 4 pin to 6 pin adapter, or a 6 pin to 4 pin adapter may need to be installed to connect to the indoor control board.





