ComfortStar®

Air Conditioning & Heating Products

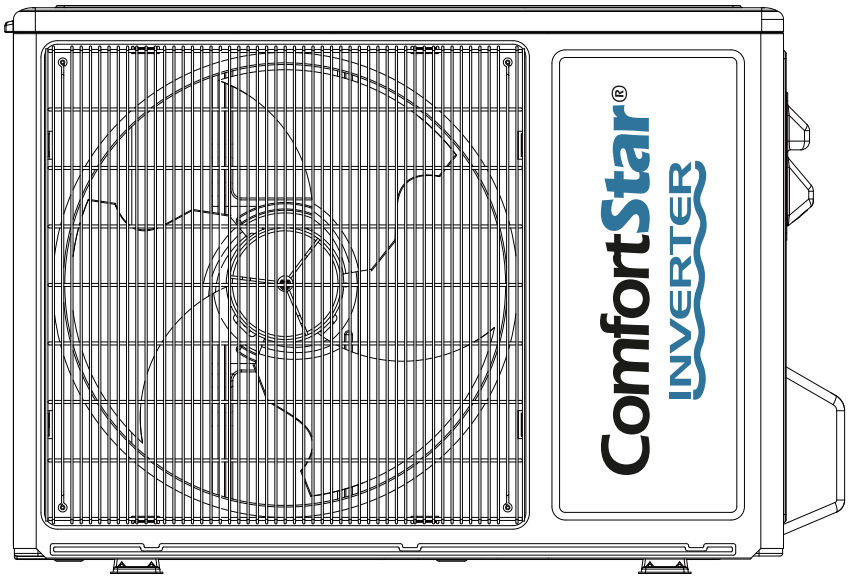
STAR PRO™ SERIES

EN

CONDENSING UNIT | AIR CONDITIONER

Installation Manual

Model	Service Code
CSS18CD(O)	29P
CSS24CD(O)	29Q
CSS30CD(O)	29R
CSS36CD(O)	29S
CSS48CD(O)	29T
CSS60CD(O)	29U
CHH32-24	45F
CHH32-36	45G
CHH32-48	45H
CHH32-60	45J



IMPORTANT NOTE:

Read this manual carefully before installing or operating your new air conditioning unit. Make sure to save this manual for future reference.

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RECOGNIZE THIS SYMBOL AS AN INDICATION OF IMPORTANT SAFETY INFORMATION

⚠ WARNING

These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjust-ment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in fire, electrical shock, property damage, personal injury or death.

⚠ WARNING

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.This unit is only used outdoor.

1 SAFETY

1.1 Safety signs



This is the general warning sign. It is used to alert the user to potential hazards. All safety messages that follow this sign shall be obeyed to avoid possible harm.

⚠ DANGER

indicates a hazardous situation which, if not avoided, will result in death or serious injury

⚠ WARNING

indicates a hazardous situation which, if not avoided, could result in death or serious injury

⚠ CAUTION

indicates a hazardous situation which, if not avoided, could result in minor or moderate injury

NOTICE

is used to address practices not related to physical injury

Explanation of symbols displayed on the unit

	**DANGER**	This symbol shows that this appliance uses a mildly flammable refrigerant. If the refrigerant gets leaked and exposed to an external ignition source, there is a risk of fire.
	**WARNING**	This symbol shows that appliance shall be installed, operated and stored in a room with a floor area not less than the minimum room area.
	**CAUTION**	This symbol shows that the operation manual should be read carefully.
	**CAUTION**	This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.
	**CAUTION**	This symbol shows that information is available such as in the operating manual or installation manual.

1.2 Safety precautions

Please read before proceeding

⚠ DANGER

ELECTRICAL HAZARD 380 VOLTS DC

Failure to follow this warning could result in property damage, severe personal injury, or death.

WAIT FIVE (5) MINUTES after disconnecting power prior to touching electrical components as they may hold a dangerous charge of 380 VDC,then verify DC Voltage is less than 42VDC at inverter TEST POINTS P-N.

NOTE

- This document is customer property and is to remain with this unit. Please return to service information pack upon completion of work.
- These instructions do not cover all variations in systems or provide for every possible contingency to be met in connection with the installation.
- Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to your installing dealer or local distributor.

NOTE

The manufacturer recommends installing only approved matched indoor and outdoor systems. Some of the benefits of installing approved matched indoor and outdoor split systems are maximum efficiency, optimum performance and the best overall system reliability.

This document contains a wiring diagram.
This is customer property and is to remain with this unit.

⚠ WARNING

This information is intended for use by individuals possessing adequate backgrounds of electrical and mechanical experience. Any attempt to repair air conditioning product may result in personal injury and/or property damage.

⚠ WARNING

HOT SURFACE

May cause minor to severe burning. Failure to follow this Caution could result in property damage or personal injury.
Do not touch the high-temperature components such as compressor .

⚠ DANGER

HAZARDOUS VOLTAGE

Failure to follow this warning could result in property damage, severe personal injury, or death.

Disconnect all electric power, Including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized.

⚠ WARNING

REFRIGERANT OIL

These units use R32 refrigerant. Use only R32 approved service equipment. These units use a POE oil that readily absorbs moisture from the atmosphere. To limit this 'hygroscopic" action, the system should remain sealed whenever possible. If a system has been open to the atmosphere for more than 4 hours, the compressor oil must be replaced. Never break a vacuum with air and always change the driers when opening the system for component replacement.

⚠ CAUTION

CONTAINS REFRIGERANT

Failure to follow proper procedures can result in personal illness or injury or severe equipment damage. System contains oil and refrigerant under high pressure. Recover refrigerant to relieve pressure before opening system.

Flammable refrigerant used.

⚠ WARNING

This product can expose you to chemicals including Lead and Lead components, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www. P65 Warnings.ca.gov.

⚠ CAUTION

ELETRICAL GROUNDING REQUIRED

Failure to inspect or use proper service tools may result in equipment damage or personal injury. All parts of this product that are capable of conducting electrical current are grounded. If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

⚠ WARNING

SERVICE VALVES

Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and/or property damage. Extreme caution should be exercised when opening the Liquid Line Service valve. Turn valve stem counterclockwise only until the stem contacts the rolled edge.

⚠ WARNING

BRAZING REQUIRED

Failure to inspect lines or use proper service tools may result in equipment damage or personal injury. If using existing refrigerant lines make certain that all joints are brazed, not soldered.

If refrigerant gas leaks during installation, ventilate the area immediately.

Comply with national gas regulations.

⚠ WARNING

HIGH CURRENT LEAKAGE

Proper grounding is required before connecting electrical supply.
Failure to follow this warning could result in property damage, severe personal injury, or death.

⚠ WARNING

RISK OF FIRE

Mild flammable refrigerant used.

Follow handling instructions carefully in compliance with national regulations.

⚠ DANGER

FIRE, EXPLOSION

Store in a well ventilated room without continuously operating flames or other potential ignition.

⚠ WARNING

Risk of electric shock. Can cause injury or death. Disconnect all remote electric power supplies before servicing.

Risk of fire mild. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.

Risk of fire. Dispose of properly in accordance with federal or local regulations.

Risk of fire. Consult repair manual/owner's guide before attempting to service this product. All safety precautions must be followed.

Risk of fire – auxiliary devices which may be ignition sources shall not be installed in the ductwork, other than auxiliary devices listed for use with the specific appliance. See instructions.

⚠ WARNING

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 that does not have continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).

Do not pierce/puncture refrigerant lines or burn the unit.

Be aware that refrigerants may not contain an odor.

⚠ WARNING

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or persons who lack experience and knowledge, unless they are supervised or have been given instructions concerning the 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.

Any person who is involved with working on or opening a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment credential.

Servicing 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 a person competent in the use of flammable refrigerants.

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to minimize the risk of ignition.

⚠ WARNING

When repairing the refrigerating system, comply with the following precautions prior to conducting work on the system:

– shall be undertaken according to controlled procedures so as to minimize the risk of the presence of flammable gases or vapors while the work is being performed.

– 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 shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable environment.

Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

– If any brazing/welding is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available and easily accessible. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

– When carrying out work in relation to a refrigerating system that involves exposing any pipe work, no sources of ignition shall be used 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, repair, or removal and disposal of the unit, during which refrigerant can possibly be released into the surrounding space. Prior to beginning work, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be clearly displayed.

Ensure that the area is in the open or that it is adequately ventilated before opening the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the surroundings.

Where electrical components are being changed, they shall be fit according to their purpose and to 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 actual refrigerant charge 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 being used, the secondary circuit shall be checked for the presence of refrigerant.

– Equipment marking must remain visible and legible. Markings and signs that are illegible shall be corrected.

Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substances which may corrode refrigerant containing components, unless the components are constructed of materials that are inherently resistant to corrosion or are suitably protected against corrosion.

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 the fault has been dealt with satisfactorily.

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 that all parties are advised. Initial safety checks shall include:

– That capacitors are discharged: this shall be done in a safe manner to avoid the possibility of sparking.

– That no live electrical components and wiring are exposed while charging, recovering or purging the system.

– That there is continuity of proper grounding.

⚠ WARNING

Sealed electrical components shall be replaced.

Intrinsically safe components must be replaced.

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.

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

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, 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 for the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant which requires brazing is found, 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.

Leak detection fluids are also 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.

NOTE：Examples of leak detection fluids are

-bubble method,

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 practices 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; and.

- open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen 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 oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

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 they contain.

When use a refrigerant tank with siphon to add refrigerant, the refrigerant tank should be placed upright. When use a refrigerant tank without siphon to add refrigerant, the refrigerant tank should be placed upside down. Ensure that the refrigeration system is grounded prior to charging the system with refrigerant.

In general, R32 doesn't have a siphon tube or dip tube into tank. For this situation, they must be charged in liquid form to prevent fractionation of the blended refrigerant and that requires the jug to be inverted during charging.

Label the system when charging is complete (if it is not already labeled).

Take extreme care not to overfill the refrigeration system.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. 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.

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

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 the cylinder is situated on the scales before recovery takes place.

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

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

i) Do not exceed the maximum working pressure of the cylinder, even temporarily.

j) When the cylinders have been filled correctly and the process has been 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.

Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended that all refrigerants are 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 occurs.

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 the flammable refrigerant. If in doubt，the manufacturer should be consulted. 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.

The recovered refrigerant shall be processed according to local legislation 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 compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Do not use the air conditioner for other purposes.

In order to avoid any quality deterioration, do not use the unit for the cooling of precision instruments, food, plants, animals or works of art.

Before cleaning, be sure to stop the operation, turn the breaker off or unplug the supply cord. Otherwise, electric shock and injury may occur.

In order to avoid electric shock or fire, make sure that an earth ground detector is installed.

Never touch the air outlet or the horizontal blades while the swing flap is in operation.Your fingers may become caught or the unit may break down.

Never put any objects into the air inlet or outlet.

Objects touching the fan at high speed can be dangerous.

Never inspect or service the unit by yourself.

Ask a qualified service person to perform this task.

Do not dispose of this product as unsorted municipal waste. This waste should be collected separately for special treatment.

Do not dispose of electrical appliances as unsorted municipal waste. Use separate collection facilities. Contact your local government for information regarding the connection systems available.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, harming your health and well-being.

To prevent refrigerant leak, contact your dealer.

When the system is installed and operates in a small room, it is required to maintain the concentration of the refrigerant below the limit, in case a leak occurs. Otherwise, oxygen in the room may be affected, resulting in a serious accident.

The refrigerant in the air conditioner is safe and normally does not leak.

If the refrigerant leaks into the room and comes into contact with the fire of a burner, a heater or a cooker, a harmful gas could be released.

Turn off any combustible heating devices, ventilate the room, and contact the dealer where you purchased the unit.

Do not use the air conditioner until a service person confirms that the refrigerant leak is repaired.

Keep ventilation openings clear of obstruction.

⚠ CAUTION

Be sure the air conditioner is grounded. In order to avoid electric shock, make sure that the unit is grounded and that the ground wire is not connected to a gas or water pipe, lightning conductor or telephone ground wire.

Do not operate the air conditioner with a wet hands. An electric shock may happen.

Do not operate the air conditioner when using a room fumigation-type insecticide. Failure to observe this precaution could cause the chemicals to become deposited in the unit, which could endanger the health of those who are hypersensitive to chemicals. It may also cause the refrigerant sensor to alarm.

To avoid oxygen deficiency, ventilate the room sufficiently if equipment with a burner is used together with the air conditioner.

Arrange the drain hose to ensure smooth drainage. Incomplete drainage may cause damage to the building, furniture, etc.

Never touch the internal parts of the controller. Do not remove the front panel. Some parts inside are dangerous to touch, and machine troubles may occur.

Attention is drawn 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.

Signs for similar appliances used in a work area are generally addressed by local regulations and give the minimum requirements for the provision of safety and/or health signs for a work location.

Storage package protection should be constructed such a way that mechanical damage to the equipment inside the package will not cause a leak of the REFRIGERANT CHARGE.

The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

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 connection 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.

The storage of the appliance should be in accordance with the applicable regulations or instructions, whichever is more stringent.

Do not operate the air conditioner when using a room fumigation - type insecticide. Failure to observe this precaution could cause the chemicals to become deposited in the unit, which could endanger the health of those who are hypersensitive to chemicals.

Do not place appliances which produce open flame in places exposed to the air flow from the unit or under the indoor unit. It may cause incomplete combustion or deformation of the unit due to the heat.

Do not install the air conditioner in a location where flammable gas may leak out. If the gas leaks out and stays around the air conditioner, a fire may break out.

⚠ WARNING

The appliance uses R32 refrigerant.



⚠ WARNING

This outdoor unit must combine the indoor unit with a refrigerant leak detection device.

These instructions are exclusively intended for qualified contractors and authorized installers.

Work on the refrigerant circuit with mild flammable refrigerant in safety group A2L may only be carried out by authorized heating contractors. These heating contractors must be trained in accordance with UL 60335-2-40, Section HH. The certificate of competence from an industry accredited body is required.

Work on electrical equipment may only be carried out by a qualified electrician.

Before initial commissioning, all safety – related points must be checked by the particular certified heating contractors. The system must be commissioned by the system installer or a qualified person authorized by the installer.

NOTE

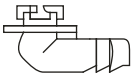
Recommend to use an aftermarket surge protector.

2 ABOUT THE PRODUCT

⚠WARNING

There must be an airtight seal between the bottom of the air handler and the return air plenum. Use fiberglass sealing strips, foil duct tape, caulking, or equivalent sealing method between the plenum and the air handler cabinet to ensure a tight seal. Return air must not be drawn from a room where this air handler or any gas-fueled appliance (i.e., water heater), or carbon monoxide-producing device (i.e., wood fireplace) is installed.

2.1 Accessories-optional (Packed with the outdoor unit)

Name	Picture	Quantity
Drain fitting (some models)		1
Gasket (some models)		1

NOTICE

The wired system control functions as an IR receiver for the handheld remote, if the remote is not used it must be retained with the indoor unit to adjust parameters, and for troubleshooting.

2.2 Outdoor unit installation

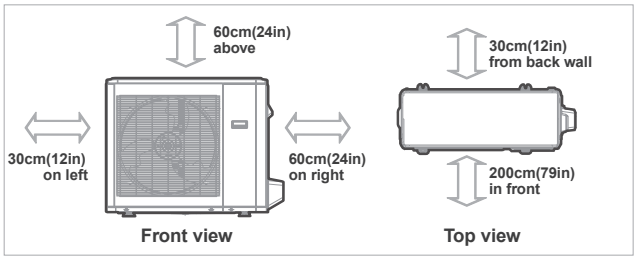
NOTICE

Install the unit by following local switchs and regulations , there may be differ slightly between different regions.

Select the installation location of outdoor units

Before installing the outdoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper installation locations meet the following standards:



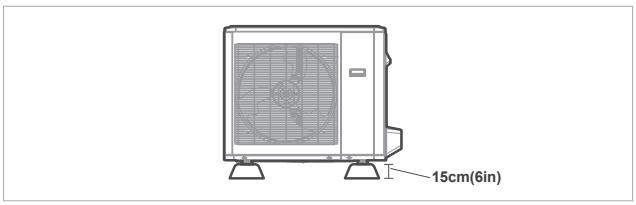
☑ **Meets all spatial requirements shown in Installation Space Requirements above.**



☑ **Firm and solid—the location can support the unit and will not vibrate.**



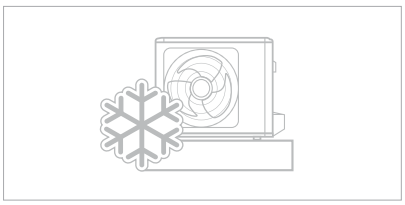
☑ **Noise from the unit will not disturb other people.**



☑ The outdoor unit must be installed on risers of at least 15cm(6in) in height or per local code to get unit above local mean snow fall.



☑ Good air circulation and ventilation.



☑ Where snowfall is anticipated, take appropriate measures to prevent ice buildup and coil damage.

DO NOT install unit in the following locations:

- ⊘ Near an obstacle that will block air inlets and outlets.
- ⊘ In a location that is exposed to large amounts of dust.
- ⊘ Near animals or plants that will be harmed by hot air discharge.
- ⊘ Near any source of combustible gas
- ⊘ Near a public street, crowded areas, or where noise from the unit will disturb others.

⚠ CAUTION:

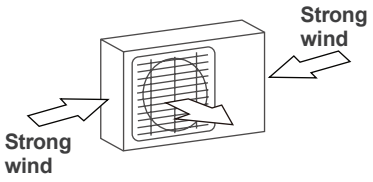
SPECIAL CONSIDERATIONS FOR EXTREME WEATHER

If the unit is exposed to heavy wind:

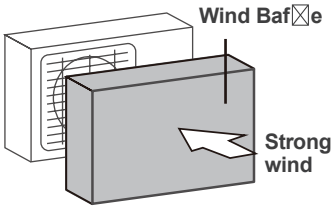
Install unit so that air outlet fan is at a 90° angle to the direction of the wind. If needed, build a barrier in front of the unit to protect it from extremely heavy winds. See Figures below.

If the unit is frequently exposed to heavy rain or snow:

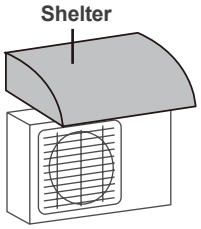
Build a shelter above the unit to protect it from the rain or snow. Be careful not to obstruct air flow around the unit.



90° angle to the direction of the wind

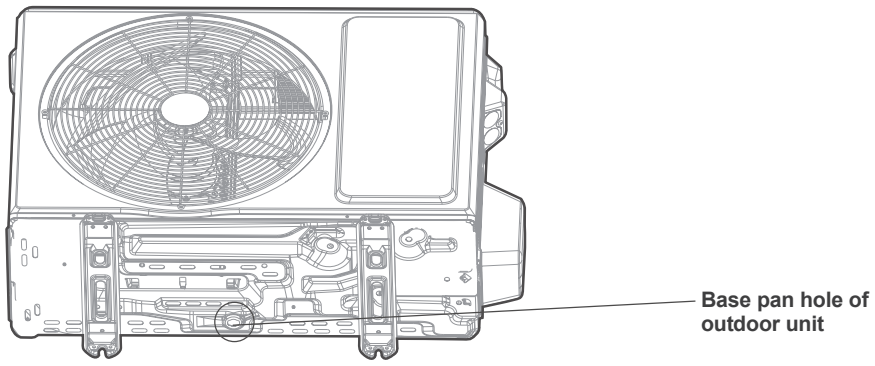


Build a wind Baffle to protect the unit



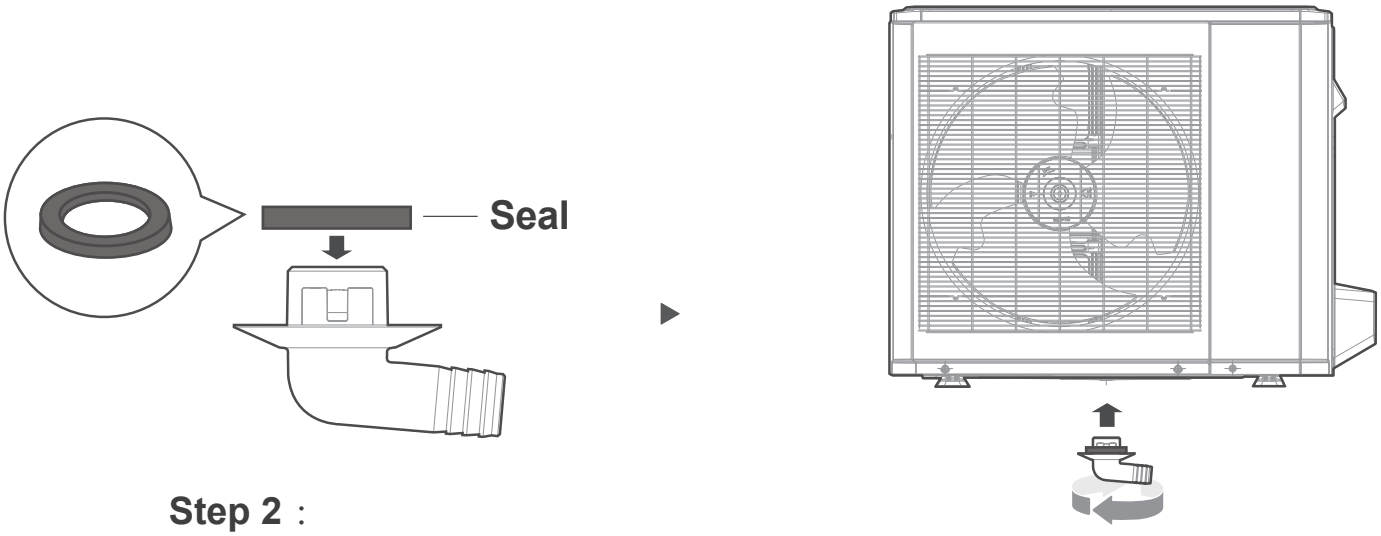
Build a shelter to protect the unit

2.3 Install drain fitting(Heat pump unit only)



Step 1 :

Find out the base pan hole of outdoor unit.



Step 2 :

- **Fit the rubber seal on the end of the drain fitting that will connect to the outdoor unit.**
- **Insert the drain fitting into the hole in the base pan of the unit. The drain fitting will click in place.**
- **Connect a drain hose extension (not included) to the drain fitting to redirect water from the unit during heating mode.**

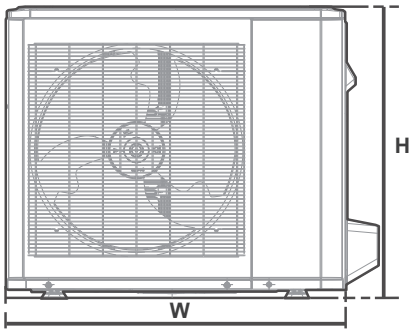
IN COLD CLIMATES

In cold climates, make sure that the drain hose is as vertical as possible to ensure swift water drainage. If water drains too slowly, it can freeze in the hose and flood the unit.

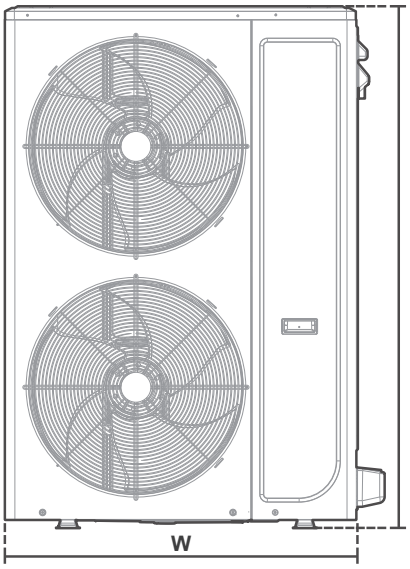
2.4 Anchor outdoor unit

The outdoor unit can be anchored to the ground or to a wall-mounted bracket with bolt(M10). Prepare the installation base of the unit according to the dimensions below.

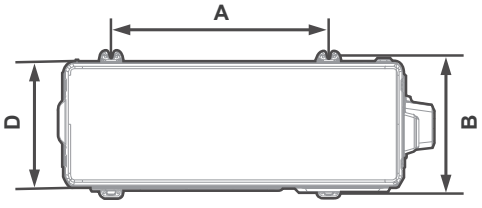
Outdoor Unit Types and Specifications



Front view



Front view

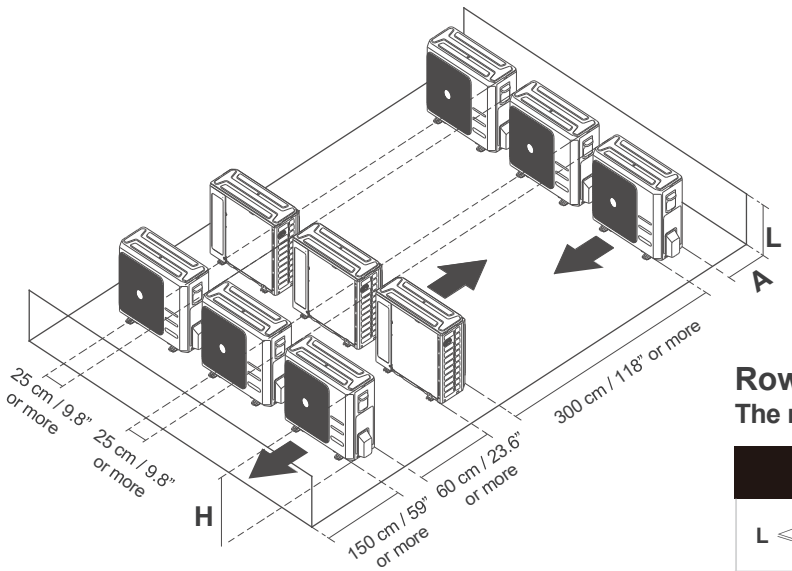


Top view

● Models In North America

Outdoor Unit Dimensions						Mounting Dimensions			
W		H		D		A		B	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
915	36-1/32	650	25-19/32	345	13-37/64	605	23-13/16	335	13-3/16
965	37-63/64	810	31-57/64	400	15-3/4	635	25	405	15-15/16
1030	40-11/20	860	33-43/50	440	17-8/25	660	25-22/25	462	18-19/100
965	37-63/64	1395	54-29/32	400	15-3/4	635	25	405	15-15/16

(unit: mm/inch)



Rows of series installation

The relations between H, A and L are as follows.

	L	A
L ⩽ H	L ⩽ 1/2H	25 cm / 9-13/16in or more
	1/2H < L ⩽ H	30 cm / 11-13/16in or more
L > H	Can not be installed	

If you will install the unit on the ground or on a concrete mounting platform, DO THE FOLLOWING:

- Mark the positions for four expansion bolts based on dimensions chart.
- Pre-drill holes for expansion bolts.
- Place a nut on the end of each expansion bolt.
- Hammer expansion bolts into the pre-drilled holes.
- Remove the nuts from expansion bolts, and place outdoor unit on bolts.
- Put washer on each expansion bolt, then replace the nuts.
- Using a wrench, tighten each nut until snug.

⚠ WARNING

WHEN DRILLING INTO CONCRETE, EYE PROTECTION IS RECOMMENDED AT ALL TIMES.

Front view

If you will install the unit on a wall-mounted bracket, DO THE FOLLOWING:

- Mark the position of bracket holes based on dimensions chart.
- Pre-drill the holes for the expansion bolts.
- Place a washer and nut on the end of each expansion bolt.
- Thread expansion bolts through holes in mounting brackets, put mounting brackets in position, and hammer expansion bolts into the wall.
- Check that the mounting brackets are level.
- Carefully lift unit and place its mounting feet on brackets.
- Bolt the unit firmly to the brackets.
- If allowed, install the unit with rubber isolator pads o reduce vibrations and noise.

⚠ CAUTION

Make sure that the wall is made of solid brick, concrete, or of similarly strong material. The wall must be able to support at least four times the weight of the unit.

2.5 Connecting to Refrigerant Lines

⚠ WARNING

Pipe work and installation shall be in compliance with national codes ASHRAE15.

The installation of pipe-work shall be kept to a minimum.

It is recommended to install a filter dryer, the filter drier should be installed in the liquid line between the outdoor unit's liquid line service valve and the indoor coil's metering device. The filter dryer should compatible with R32 refrigerant.

All joints made in the installation between parts of the refrigerating system, with at least one part charged, shall be made in accordance with the following:

- A brazed, welded, or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the refrigerating system parts. A vacuum valve shall be provided to evacuate the interconnecting pipe or any uncharged refrigerating system part.
- 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 refabricated.
- Refrigerant tubing shall be protected or enclosed to avoid damage.
- Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that may be displaced during normal operation shall be protected against mechanical damage.

Compliance is checked according to the installation instructions and a trial installation, if necessary.

Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure. No leak shall be detected.

For installations with field applied joints that are exposed in the occupied space, these joints shall be at least one of the following:

- Mechanical joints in compliance with ISO 14903 or UL 207 (U.S. only).
- Welded or brazed joints.
- Joints in enclosures that vent to the unit or to the outside.

Compliance is checked by inspection and tests.

⚠ WARNING

The 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. Inspection prior to being covered or enclosed,or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.

Check for Leaks

1. Pressurize the refrigerant lines and evaporator coil to 600 psig and hold the pressure for 1 hour using dry nitrogen.

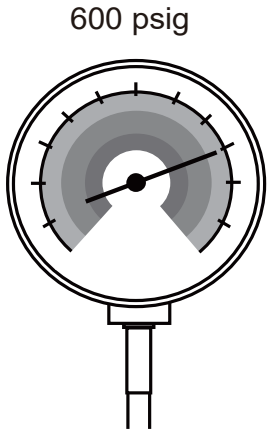


Figure 2.5.1

2. Check for leaks by using bubbles or refrigerant leak detector at each brazed location.

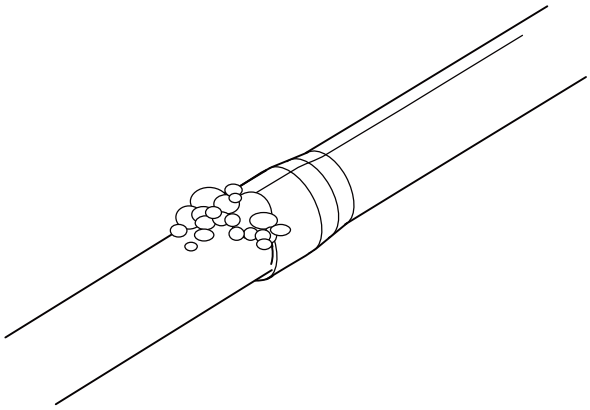


Figure 2.5.2

Remove nitrogren pressure and repair any leaks before continuing.

⚠ WARNING

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.
Entire line set and evaporator coil should hold 600 psig for 1 hour.
Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected.

3 AIR EVACUATION

NOTICE

When opening valve stems, turn the hexagonal wrench until it hits against the stopper. Do not try to force the valve to open further.

Preparations and precautions

Air and foreign matter in the refrigerant circuit can cause abnormal rises in pressure, which can damage the air conditioner, reduce its efficiency, **and cause injury. Use a vacuum pump and manifold gauge to evacuate the refrigerant circuit, removing any non-condensable gas and moisture from the system. Evacuation should be performed upon initial installation and when unit is relocated.**

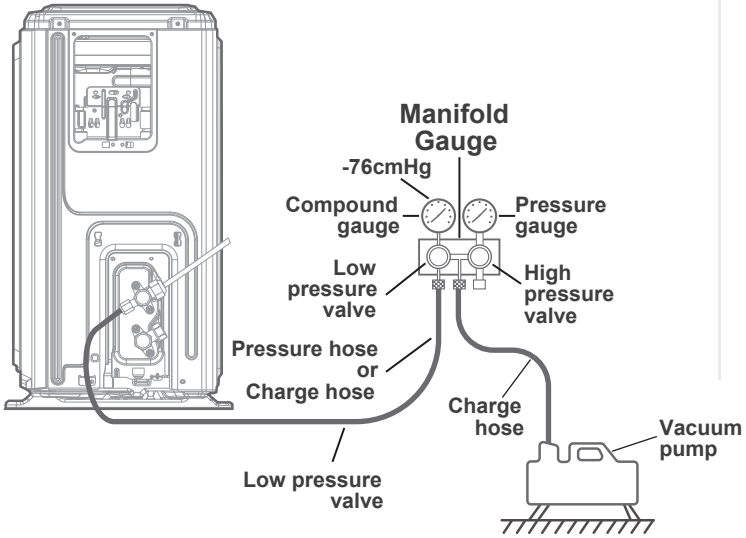
BEFORE PERFORMING EVACUATION

- ☑ Check to make sure the connective pipes between the indoor and outdoor units are connected properly .
- ☑ Check to make sure all wiring is connected properly.

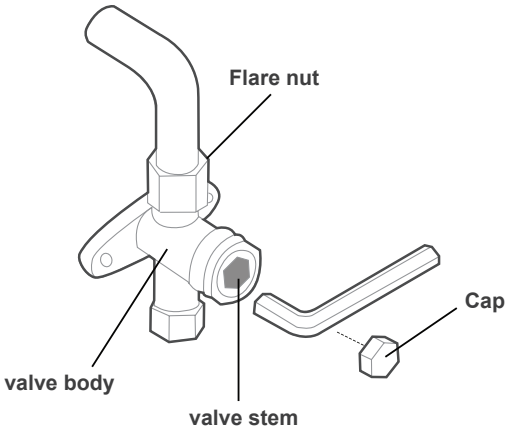
Evacuation Instructions

1. **Connect the charge hose of the manifold gauge to service port on the outdoor unit's low pressure valve.**
2. **Connect another charge hose from the manifold gauge to the vacuum pump.**
3. **Open the Low Pressure side of the manifold gauge. Keep the High Pressure side closed.**
4. **Turn on the vacuum pump to evacuate the system.**
5. **Run the vacuum for at least 15 minutes, or until the Compound Meter reads -750 Microns(-10 ^{5}Pa).**

Outdoor unit



6. **Close the Low Pressure side of the manifold** gauge, and turn off the vacuum pump.
7. **Wait for 5 minutes, then check that there has been no change in system pressure.**
8. **If there is a change in system pressure, refer to Gas Leak Check section for information on how to check for leaks. If there is no change in system pressure, unscrew the cap from the packed valve (high pressure valve).**
9. **Insert hexagonal wrench into the packed valve (high pressure valve) and open the valve by turning the wrench in a 1/4 counterclockwise turn. Listen for gas to exit the system, then close the valve after 5 seconds.**
10. **Watch the Pressure Gauge for one minute to make sure that there is no change in pressure. The Pressure Gauge should read slightly higher than atmospheric pressure.**
11. **Remove the charge hose from the service port.**



12. **Using hexagonal wrench, fully open both the high pressure and low pressure valves.**
13. **Tighten valve caps on all three valves (service port, high pressure, low pressure) by hand. You may tighten it further using a torque wrench if needed.**

4.Unit wiring

4.1 Wiring precautions

⚠ WARNING

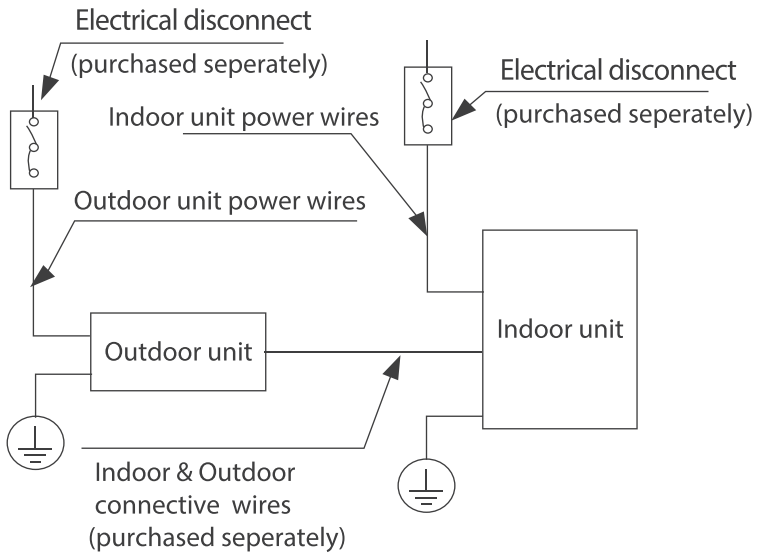
BEFORE PERFORMING ANY ELECTRICAL WORK, READ THESE WARNINGS.
the appliance shall be installed in accordance with national wiring regulations

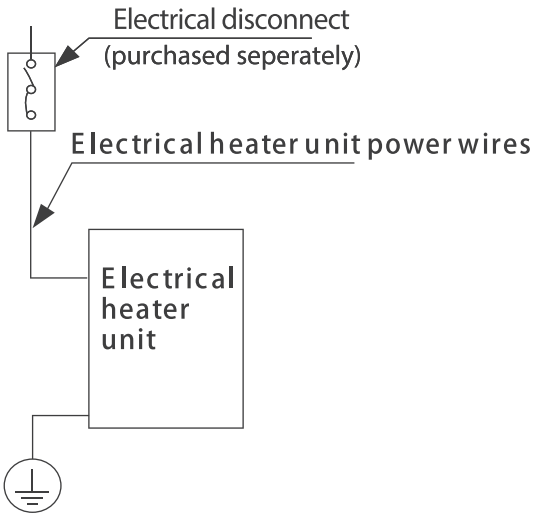
- **All wiring must comply with local and national electrical codes, regulations and must be installed by a licensed electrician.**
- **All electrical connections must be made according to the Electrical Connection Diagramlocated on the panels of the indoor and outdoor units.**
- **If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client, and refuse to install the unit until the safety issue is properly resolved.**
- **Power voltage should be within 90-110% of rated** voltage. Insufficient power supply can cause **malfunction, electrical shock, or fire.**
- **Installation of an external surge suppressor at the outdoor disconnect is recommended.**
- **If connecting power to fixed wiring, a switch or circult breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated in the fixed wiring. The qualified technician must use an approved circuit breaker or switch.**
- **Only connect the unit to an individual branch circuit. Do not connect another appliance to that Circuit.**
- **Make sure to properly ground the air conditioner.**
- **Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.**
- **Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.**
- **To avoid getting an electric shock, never touch the electrical components soon after the power supply has been turned** off. After turning off the power, always **wait 10 minutes or more before you touch the electrical components.**
- **Make sure that you do not cross your electrical wiring with your signal wiring. This may cause distortion, interference or**
- **possibly damage to circuit boards.**
- **No other equipment should be connected to the same power circuit.**
- **Connect the outdoor wires before connecting the indoor wires.**

⚠ WARNING

BEFORE PERFORMING ANY ELECTRICAL OR WIRING WORK, TURN OFF THE MAIN POWER TO THE SYSTEM.
HIGH VOLTAGE AND LOW VOLTAGE ELECTRICITY NEED TO BE SEPARATED BY SEPARATE CONDUIT

Wiring overview





NOTICE

The diagrams are for explanation purpose only. Your machine may be slightly different. The acyual **diagram shall prevail.**

4.2 Outdoor unit wiring

⚠ WARNING

Before performing any electrical or wiring work, turn off the main power to the system.

Step 1: Prepare the cable for connection.

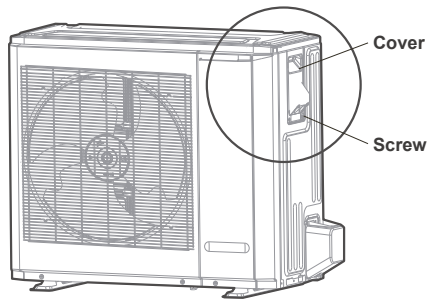
1. **You must first choose the right cable size.**
2. **Using wire strippers, strip the rubber jacketfrom both ends of the signal cable to reveal approximately 15cm (5.9”) of wire.**
3. **Strip the insulation from the ends.**
4. **Stranded wire requires u-lugs or ring terminals to be crimped onto the ends of the wire.**

NOTICE

- **When connecting the wires, strictly follow the wiring diagram found inside the electrical box cover.**
- **Choose the cable type according to the local electrical switchs and regulations.**
- **Please choose the right cable size according to the Minimum Circuit Ampacity indicated on the nameplateof the unit.**

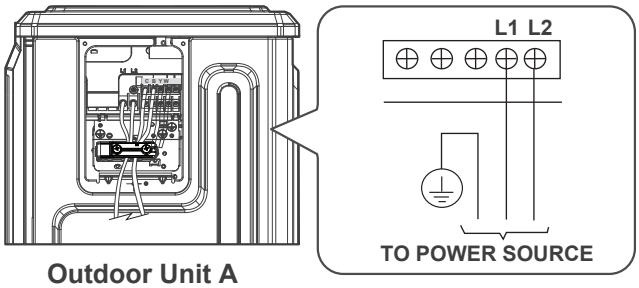
Step 2: Remove the electric cover.

Remove the electric cover of the outdoor unit.
If there is no cover on the outdoor unit, take off **the bolts from the maintenance board and remove the protection board.**

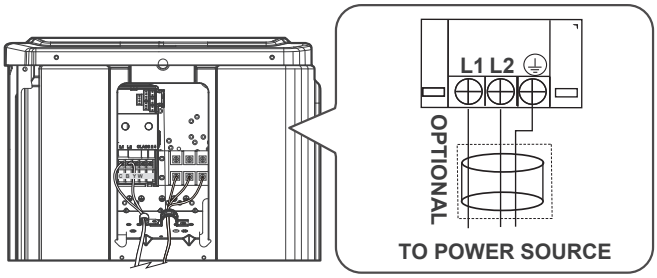


Step 3: Connect the u-lugs to the terminals

Match the wire colors/labels with the labels on the terminal block. Firmly screw the u-lug of each wire to its corresponding terminal.



Outdoor Unit A

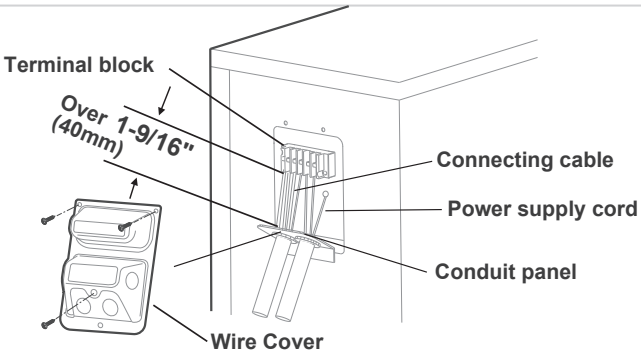


Outdoor Unit B

4. **Clamp down the cable with the cable clamp.**
5. **Insulate unused wires with electrical tape. Keep them away from any electrical or metal parts.**
6. **Reinstall the cover of the electric control box.**

In North America

1. **Remove the wire cover from the unit by loosening the 3 screws.**
2. **Remove caps on the conduit panel.**
3. **Mount the conduit tubes(not included) on the conduit panel.**
4. **Properly connect both the power supply and low voltage lines to the corresponding terminals on the terminal block.**
5. **Ground the unit in accordance with local switchs.**
6. **Be sure to size each wire allowing several inches longer than the required length for wiring.**



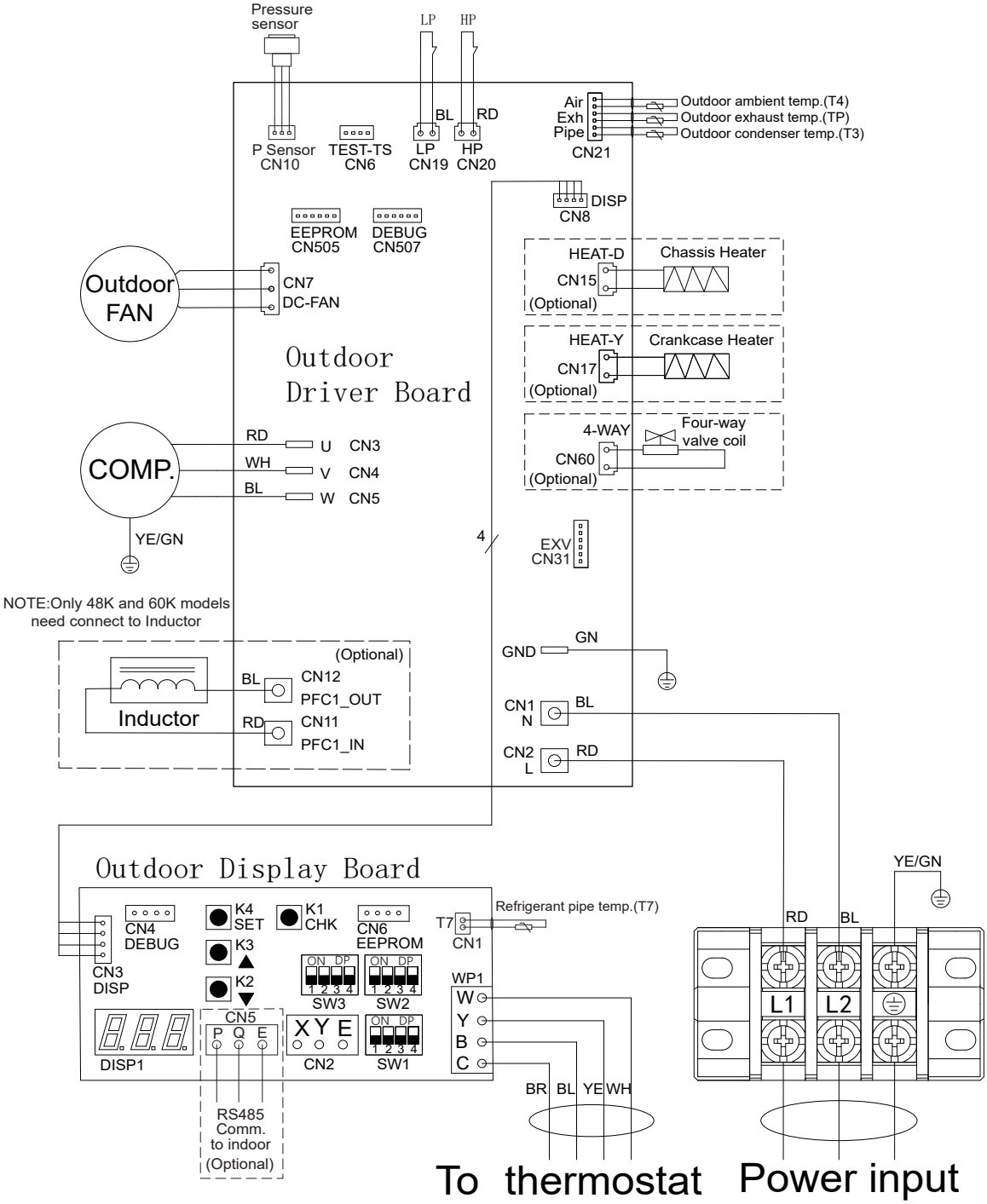
Please select the appropriate through-hole according to the diameter of the wire.

⚠ WARNING

ISOLATE THE POWER SUPPLY LEADS AND COMMUNICATION LEADS BY THE STRAIN RELIF AND KEEP POWER SUPPLY LEADS AWAY FROM COMMUNICATION LEADS. DISCONNECTION MUST BE INCORPORATED IN THE FIXED WIRING IN ACCORDANCE WITH THE WIRING RULES .

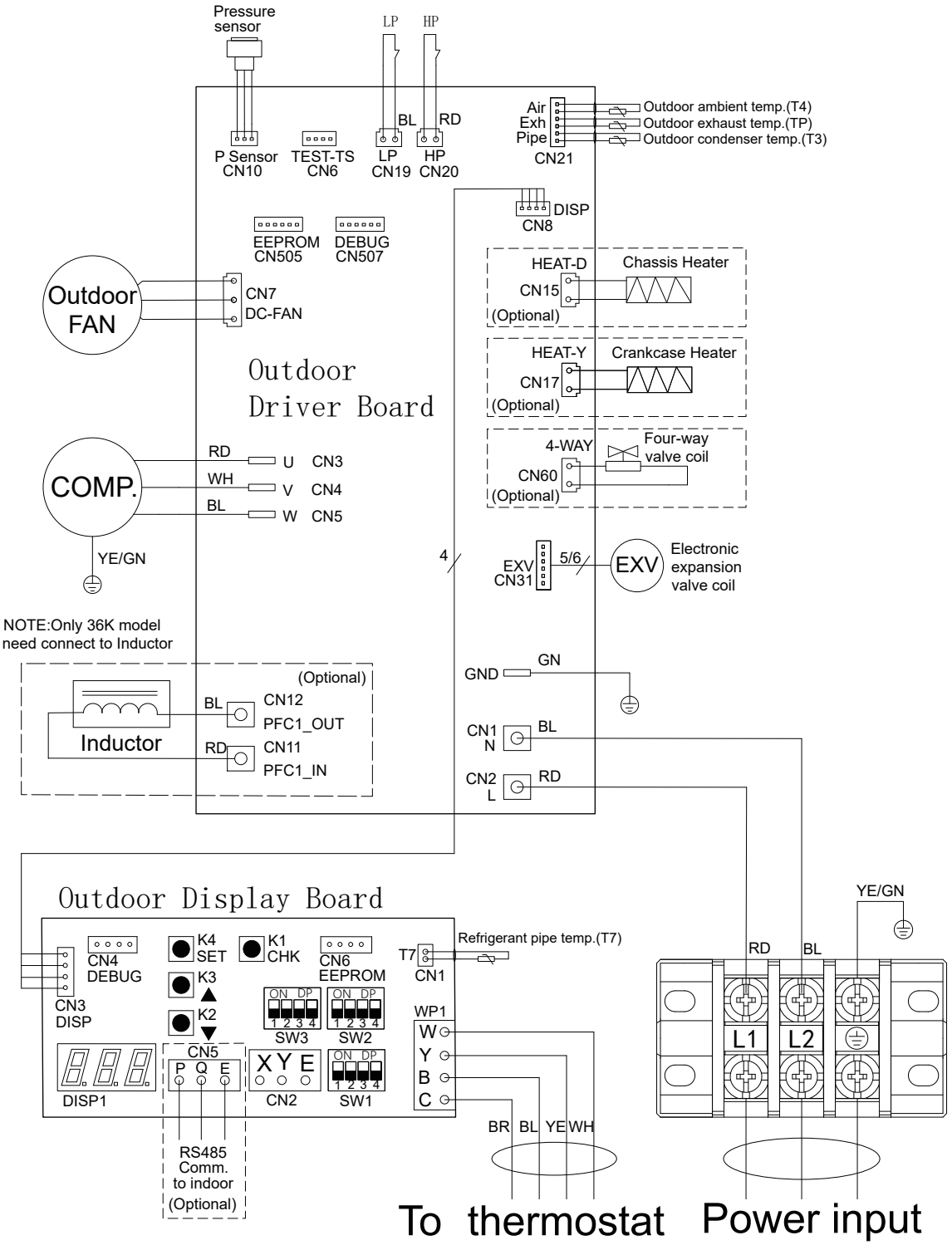
4.3 Wiring diagrams

18-60K For SE18(1-motor)



Wire Color Code		DIP switch status Indicate		Outdoor Display Board SW1 DIP switch selection			Outdoor Display Board SW2 DIP switch selection			Outdoor Display Board SW3 DIP switch selection			
										SW3.1	SW3.2	SW3.3	Models
RD RED	OR ORANGE	ON □ OFF ■ 1	This Indicate OFF (The DIP switch is dialed to the digital side)	SW1.1	OFF	24V Control(Default)	SW2.1	OFF	Auto Defrosting(Default)	OFF	OFF	OFF	18K
BL BLUE	GN GREEN				ON	RS485 Comm. Mode		ON	Periodically Defrosting	OFF	OFF	ON	24K
BR BROWN	GY GRAY			SW1.2	OFF	°F for Fahrenheit(Default)	SW2.2	OFF	Defrost interval 60 minutes(Default)	OFF	ON	OFF	30K
BK BLACK	YE YELLOW				ON	°C for Celsius		ON	Defrost interval 30 minutes	OFF	ON	ON	36K
WH WHITE	PR PURPLE	ON ■ OFF □ 1	This Indicate ON (The DIP switch is dialed to the non-digital side)	SW1.3	OFF	Heating and cooling	SW2.3	OFF	Normal Defrosting(Default)	ON	OFF	OFF	48K
					ON	Single-cooled		ON	Accelerate Defrosting	ON	OFF	ON	60K
				SW1.4	OFF	Normal Cooling(Default)	SW2.4	OFF	Normal Thermostat(Default)	SW3.4	OFF	Normal Heating(Default)	
					ON	Accelerate Cooling		ON	O/B Thermostat		ON	Accelerate Heating	

18-36K For SE18H(1-motor)



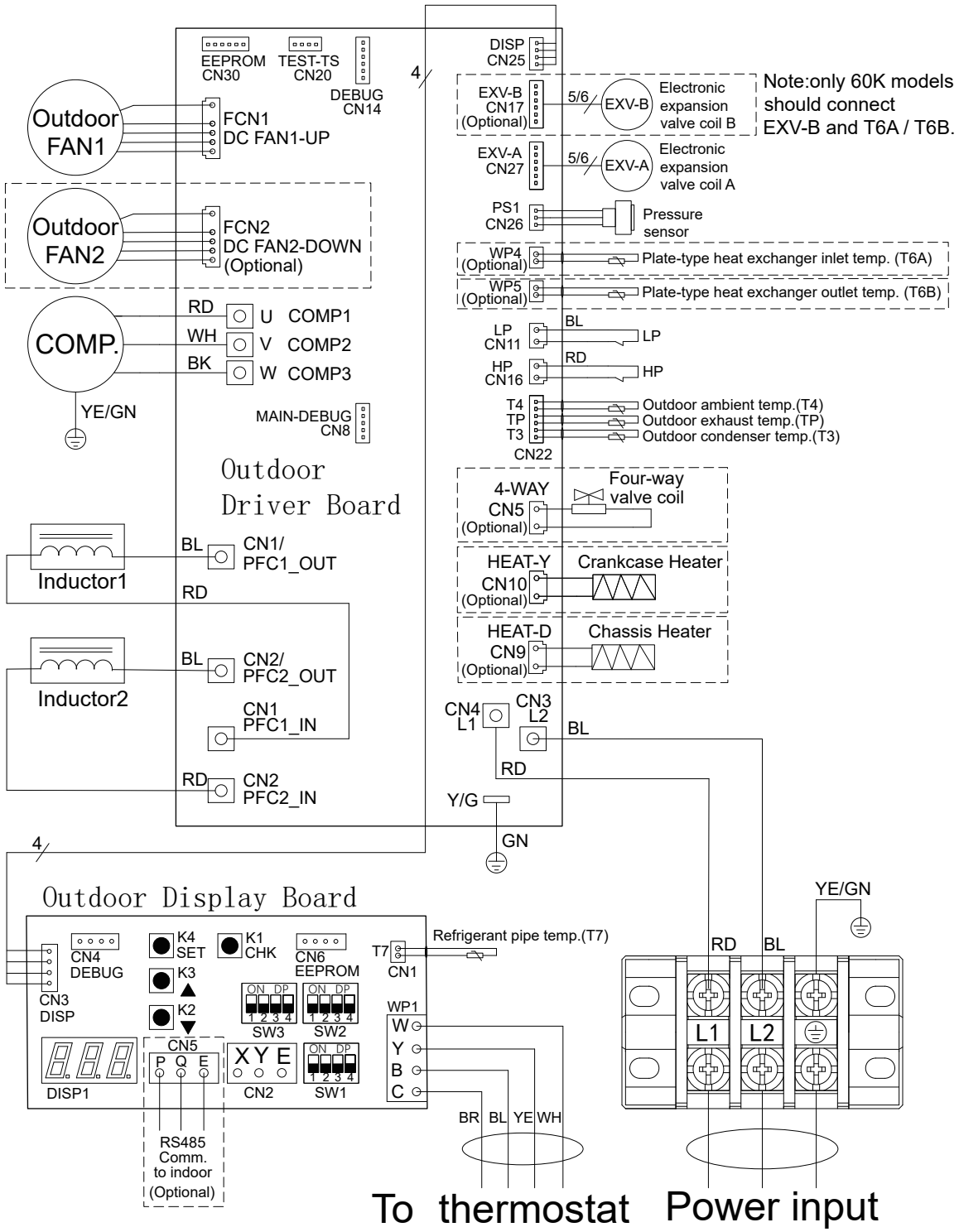
Wire Color Code				DIP switch status Indicate		
RD RED	OR ORANGE			ON / OFF 1	This Indicate OFF (The DIP switch is dialed to the digital side)	
BL BLUE	GN GREEN					
BR BROWN	GY GRAY					
BK BLACK	YE YELLOW			ON / OFF 1	This Indicate ON (The DIP switch is dialed to the non-digital side)	
WH WHITE	PR PURPLE					

Outdoor Display Board SW1 DIP switch selection		
SW1.1	OFF	24V Control(Default)
	ON	RS485 Comm. Mode
SW1.2	OFF	°F for Fahrenheit(Default)
	ON	°C for Celsius
SW1.3	OFF	Heating and cooling
	ON	Single-cooled
SW1.4	OFF	Normal Cooling(Default)
	ON	Accelerate Cooling

Outdoor Display Board SW2 DIP switch selection		
SW2.1	OFF	Auto Defrosting(Default)
	ON	Periodically Defrosting
SW2.2	OFF	Defrost interval 60 minutes(Default)
	ON	Defrost interval 30 minutes
SW2.3	OFF	Normal Defrosting(Default)
	ON	Accelerate Defrosting
SW2.4	OFF	Normal Thermostat(Default)
	ON	O/B Thermostat

Outdoor Display Board SW3 DIP switch selection			
SW3.1	SW3.2	SW3.3	Models
OFF	OFF	OFF	18K
OFF	OFF	ON	24K
OFF	ON	OFF	30K
OFF	ON	ON	36K
ON	OFF	OFF	48K
ON	OFF	ON	60K (single FAN)
ON	ON	OFF	Reserved
ON	ON	ON	60K (double FAN)
SW3.4	OFF	Normal Heating(Default)	
	ON	Accelerate Heating	

48-60K for SE18H(1-rotor or 2-motor)



Wire Color Code			DIP switch status Indicate		Outdoor Display Board SW1 DIP switch selection			Outdoor Display Board SW2 DIP switch selection			Outdoor Display Board SW3 DIP switch selection			
											SW3.1	SW3.2	SW3.3	Models
RD RED	OR ORANGE		ON □ OFF ■ 1	This Indicate OFF (The DIP switch is dialed to the digital side)	SW1.1	OFF	24V Control(Default)	SW2.1	OFF	Auto Defrosting(Default)	OFF	OFF	OFF	18K
BL BLUE	GN GREEN					ON	RS485 Comm. Mode		ON	Periodically Defrosting	OFF	OFF	ON	24K
BR BROWN	GY GRAY				SW1.2	OFF	°F for Fahrenheit(Default)	SW2.2	OFF	Defrost interval 60 minutes(Default)	OFF	ON	OFF	30K
BK BLACK	YE YELLOW		ON ■ OFF □ 1	This Indicate ON (The DIP switch is dialed to the non-digital side)		ON	°C for Celsius		ON	Defrost interval 30 minutes	OFF	ON	ON	36K
WH WHITE	PR PURPLE				SW1.3	OFF	Heating and cooling	SW2.3	OFF	Normal Defrosting(Default)	ON	OFF	OFF	48K
						ON	Single-cooled		ON	Accelerate Defrosting	ON	OFF	ON	60K (single FAN)
					SW1.4	OFF	Normal Cooling(Default)	SW2.4	OFF	Normal Thermostat(Default)	ON	ON	OFF	Reserved
						ON	Accelerate Cooling		ON	O/B Thermostat	ON	ON	ON	60K (double FAN)
											SW3.4	OFF	Normal Heating(Default)	
												ON	Accelerate Heating	

4.4 Low voltage wiring methods

When using a 24v thermostat, please refer to the non-communicating wiring diagrams that follow:

Connection method

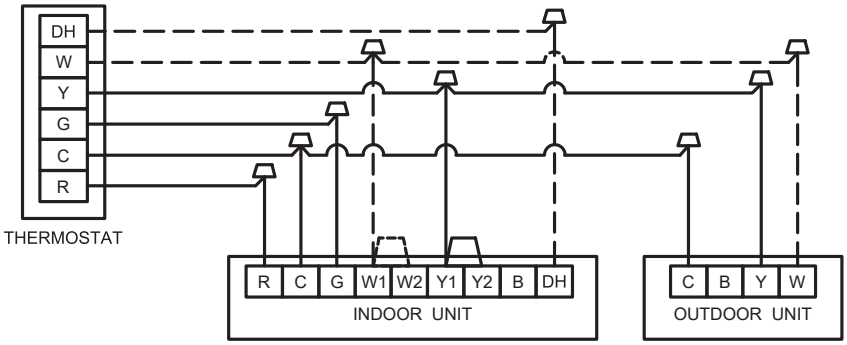
The following wiring diagram are suitable for the AHU and ODU with 24V thermostat.

No Heat Pump System Model

Wiring for 1H and 1C thermostat (no heat pump system model)

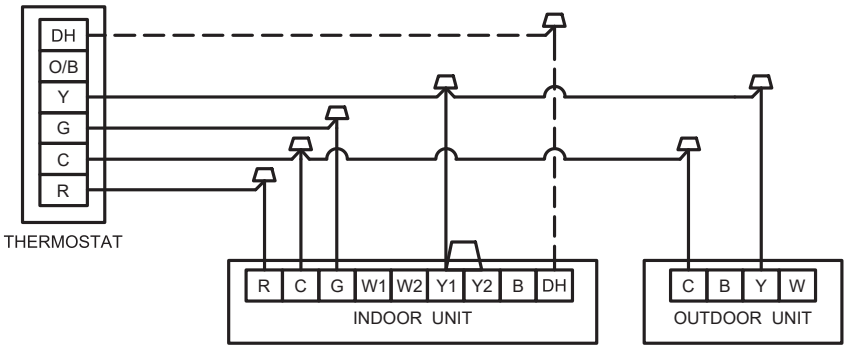
Note:Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.

Note: Any time the electric heat elements are active. the indoor fan will run in high stage.



Wiring for 1H and 1C thermostat (no heat pump system model)

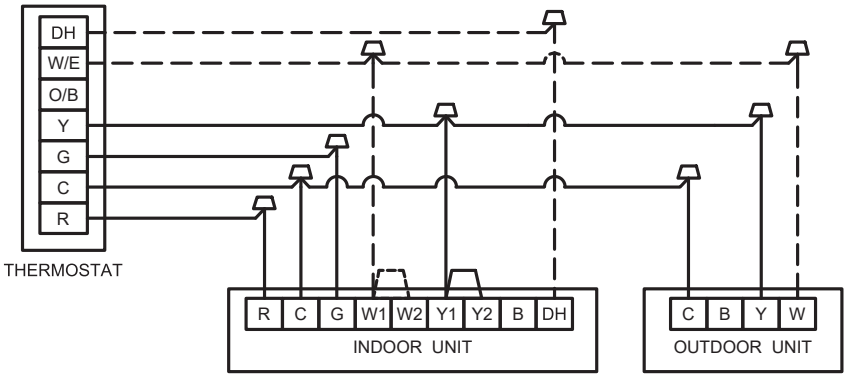
Note:Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.



Wiring for 2H and 1C thermostat (no heat pump system model)

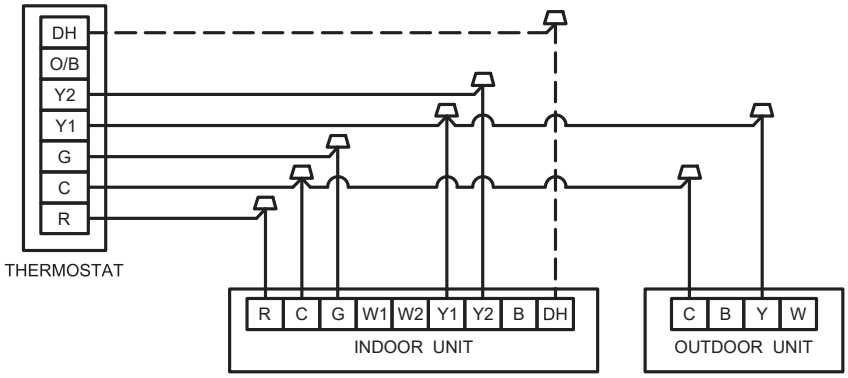
Note:Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.

Note: Any time the electric heat elements are active. the indoor fan will run in high stage.



Wiring for 2H and 2C thermostat (no heat pump system model)

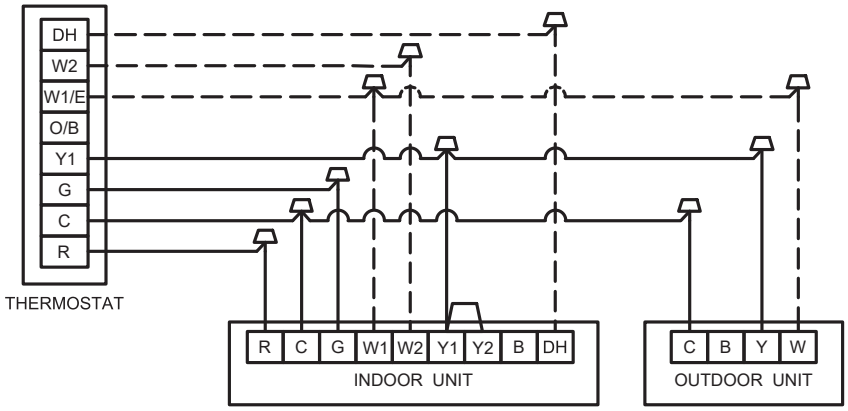
Note:Y1 and Y2
here represents 2 stages of fan
cooling only, the compressor
modulates separately from the fan.



Wiring for 3H and 1C thermostat (no heat pump system model)

Note:Because Y1 and Y2
are jumped, the indoor fan
will only run in high stage.

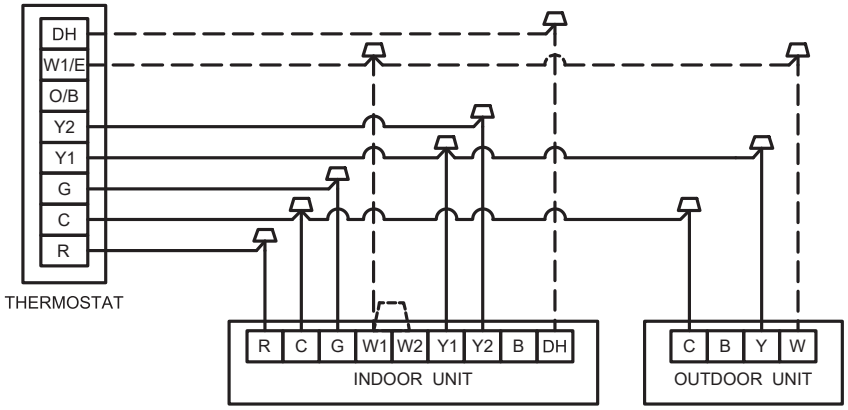
Note: Any time the electric heat
elements are active. the indoor
fan will run in high stage.



Wiring for 3H and 2C thermostat (no heat pump system model)

Note:Y1 and Y2
here represents 2 stages of fan
cooling only, the compressor
modulates separately from the fan.

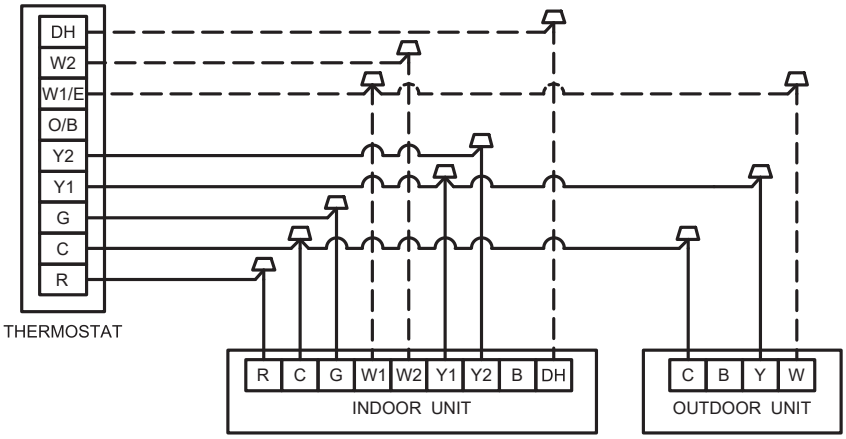
Note: Any time the electric heat
elements are active. the indoor
fan will run in high stage.



Wiring for 4H and 2C thermostat (no heat pump system model)

Note:Y1 and Y2 here represents 2 stages of fan cooling only, the compressor modulates separately from the fan.

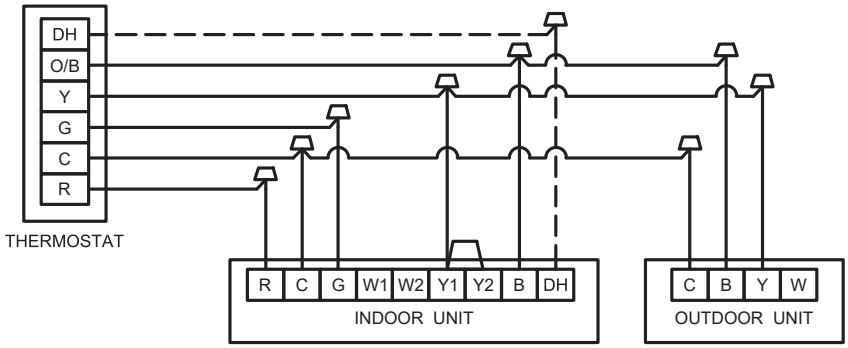
Note: Any time the electric heat elements are active. the indoor fan will run in high stage.



Heat Pump System Model

Wiring for 1H and 1C thermostat (heat pump system model)

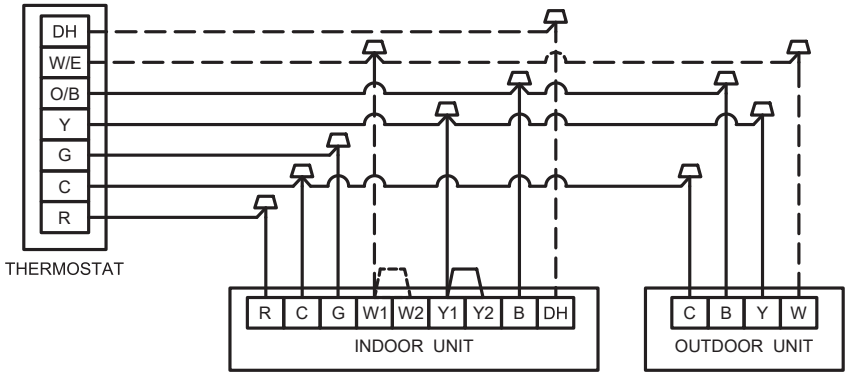
Note:Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.



Wiring for 2H and 1C thermostat (heat pump system model)

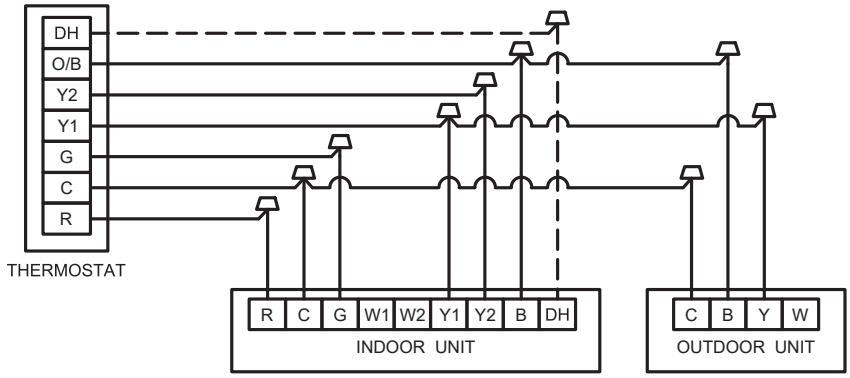
Note:Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.

Note: Any time the electric heat elements are active. the indoor fan will run in high stage.



Wiring for 2H and 2C thermostat (heat pump system model)

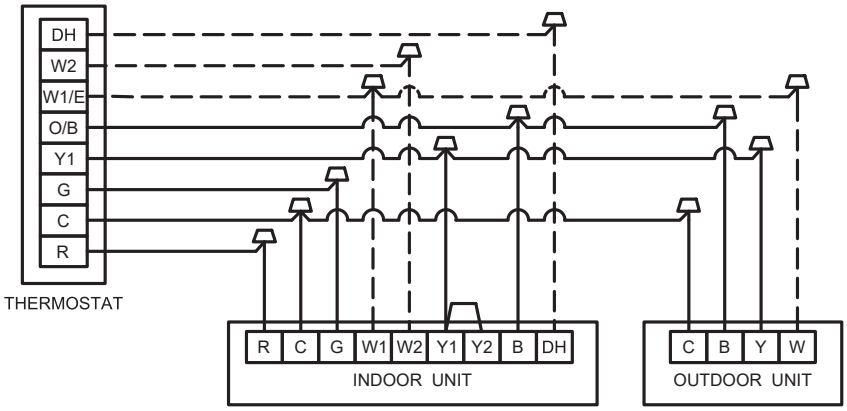
Note:Y1 and Y2
here represents 2 stages of fan
cooling only, the compressor
modulates separately from the fan.



Wiring for 3H and 1C thermostat (heat pump system model)

Note:Because Y1 and Y2
are jumped, the indoor fan
will only run in high stage.

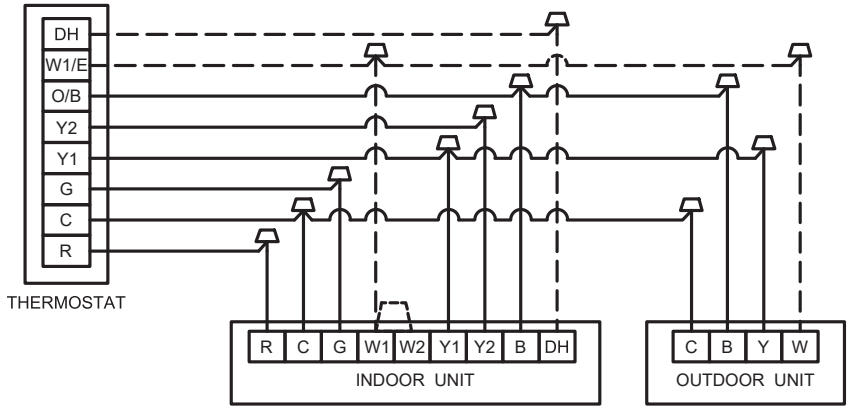
Note: Any time the electric heat
elements are active. the indoor
fan will run in high stage.



Wiring for 3H and 2C thermostat (heat pump system model)

Note:Y1 and Y2
here represents 2 stages of fan
cooling only, the compressor
modulates separately from the fan.

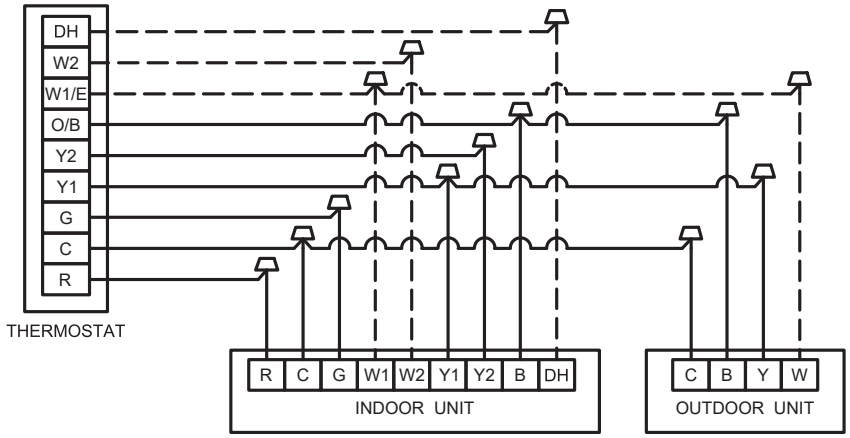
Note: Any time the electric heat
elements are active. the indoor
fan will run in high stage.



Wiring for 4H and 2C thermostat (heat pump system model)

Note:Y1 and Y2 here represents 2 stages of fan cooling only, the compressor modulates separately from the fan.

Note: Any time the electric heat elements are active. the indoor fan will run in high stage.



Dh wiring is optional and requires a thermostat with a humidistat. Dh functions as Passive Dehumidifi cation and will downstage the indoor fan to first stage. System will operate according to normal sequence of operations if Dh wiring is absent.

Dashed lines in the above thermostat wiring diagrams refer to optional wiring (wiring for Passive Dehumidifi cation Function and/OR Electric Heat). For thermostat wiring please refer to the Owner's Manual of the thermostat.

B wire must be used with heat pump system only, the reversing valve energizes in heating.

Control logic

Indoor unit connector

Connector	Purpose
R	24V Power Connection
C	Common
G	Fan Control
Y1	Low Cooling
Y2	High Cooling
B	Heating Reversing Valve
W1	Stage 1 Electric Heating
W2	Stage 2 Electric Heating
DH	Dehumidification

Outdoor unit connector

Connector	Purpose
C	Common
Y	Cooling
B	Heating Reversing Valve
W	Defrost control

Low Voltage Maximum Wire Length

Table defines the maximum total length of low voltage wiring from the outdoor unit to the indoor unit and to the thermostat.

24 Volts - Wire size	Max. Wire Length
18 AWG	150 Ft.
16 AWG	225 Ft.
14 AWG	300 Ft.

Table

4.5 Self diagnosis function error code table (Outdoor unit display)

Error Code Table and Troubleshooting

Error code	Error definition
FA	EEPROM fault (on main PCB)
FB	EEPROM fault (on inverter module)
H1	P5 protection appears 3 times in 180 minutes，can't be recovered until re-power on
H2	FF protection appears 3 times in 150 minutes，can't be recovered until re-power on
H3	PD protection appears 3 times in 180 minutes，can't be recovered until re-power on
H4	P8 protection appears 3 times in 120 minutes，can't be recovered until re-power on
H5	P2 protection appears 3 times in 240 minutes，can't be recovered until re-power on
H6	P4 protection appears 3 times in 100 minutes，can't be recovered until re-power on
H7	PC protection appears 3 times in 200 minutes，can't be recovered until re-power on
H8	FE protection appears 3 times in 120 minutes，can't be recovered until re-power on
H9	139 Chip to 24T Chip Commnunication Fault (Applicable to Select Models)
HC	F7 protection appears 3 times in 180 minutes，can't be recovered until re-power on
HE	F8 protection appears 3 times in 60 minutes，can't be recovered until re-power on
H0	Inverter module and main PCB communication error
L0	DC bus low voltage protection
L1	DC bus high voltage protection
FF	High pressure switch fault for 20 minutes
P1	High pressure switch fault for 4 senconds
P2	Low pressure protection in cooling mode
P3	Over current protection
P4	Discharge temperature protection
P5	T3 high temperature protection in cooling mode
P6	Compressor inverter module protection
P7	Indoor unit anti-freezing protection
P8	IPM high temperature protection
P9	Fan motor inverter module protection
PA	DC Fan 2 Falut (Applicable to Select Models)
PC	Overwet operation protection
PD	High pressure protection in heating mode
F0	Outdoor unit and indoor unit communication error（From Outdoor unit）
F2	T6A sensor fault
F3	T6B sensor fault
F4	T4 temperature sensor fault
F5	Discharge temperature sensor fault
F6	T3 temperature sensor fault
F7	T7 temperature sensor fault
F8	Condensation of the refrigerant pipe protection
F9	AC voltage is too high or too low protection
FC	IPM temperature sensor fault
FD	Pressure sensor fault
FE	T3/TP temperature sensor loose protection
E1	Outdoor unit and indoor unit communication error (from Indoor unit)
E2	Indoor unit T1 temperature sensor fault
E3	Indoor unit T2 temperature sensor fault
E4	Refrigerant concentration sensor fault
E6	Refrigerant leakage protection (from Indoor unit)
E8	Indoor fan motor current fault
E9	Wired controller communication fault
ATL	Ambient temperature out of bounds protection
PRH	Crankcase forced preheating for 1 hour, can not start up the system during this time

5 NOTE ON ADDING REFRIGERANT

⚠ CAUTION

DO NOT mix refrigerant types.

	Liquid Side Diameter		
	ϕ6.35(1/4″)	ϕ9.52(3/8″)	ϕ12.7(1/2″)
R32 :	(Total pipe length - standard pipe length)x 20g(0.22oZ)/m(ft)	(Total pipe length - standard pipe length)x 48g(0.52oZ)/m(ft)	(Total pipe length - standard pipe length)x 80g(0.84oZ)/m(ft)

Some systems require additional charging depending on pipe lengths. The standard pipe length varies according to local regulations. For example, in North America, the standard pipe length is 7.5m (25'). In other areas, the standard pipe length is 5m (16'). The refrigerant should be charged from the service port on the outdoor unit's low pressure valve. The additional refrigerant to be charged can be calculated using the following formula:

Refrigerant Piping		Capacity (Btu/h)					
		18K	24K	30K	36K	48K	60K
Liquid-Vapor	**In.**	**3/8-3/4**					
Max. Refrigerant Line Length*	**Ft.**	98	164	164	246	246	246
Max. Vertical Lift	**Ft.**	66	82	82	98	98	98
Max. Refrigerant Charge	**kg/oz**	2.68/94.5	3.69/130.2	4.44/156.6	5.64/198.9	6.24/220.1	6.24/220.1

*It is recommended to adopt standard pipeline size;
*The maximum refrigerant recharge cannot be greater than the value in the table.

The appliance uses R32 refrigerant.



⚠ CAUTION

Annex CC
(informative)

Transportation, marking and storage for units that employ flammable refrigerants

CC.1 General
The following information is provided for units that employ FLAMMABLE REFRIGERANTS.
CC.2 Transport of equipment containing flammable refrigerants
Attention is drawn 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 transported together will be determined by the applicable transport regulations.
CC.3 Marking of equipment using signs
Signs for similar appliances used in a work area are generally 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 connection 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.
CC4 Disposal of equipment using flammable refrigerants
See national regulations.
CC.5 Storage of equipment/appliances
The storage of the appliance should be in accordance with the applicable regulations or instructions, whichever is more stringent.
CC.6 Storage of packed (unsold) equipment
Storage package protection should be constructed in such a way that mechanical damage to the equipment inside the package will not cause a leak of the REFRIGERANT CHARGE.
The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

6.TEST RUN

⚠ CAUTION

Failure to perform the test run may result in unit damage, property damage, or personal injury.

Before test run

A test run must be performed after the entire system has been completely installed. Confirm the following points before performing the test:

a) Indoor and outdoor units are properly installed.

b) Piping and wiring are properly connected.

c) No obstacles near the inlet and outlet of the unit that might cause poor performance or product malfunction.

d) Refrigeration system does not leak.

e) Drainage system is unimpeded and draining to a safe location.

f) Insulation of piping and duct is properly installed.

g) Grounding wires are properly connected.

h) Length of the piping and additional refrigerant capacity have been recorded.

i) Power voltage is the correct voltage for the air conditioner

Test run instryctions

1. Open both the liquid and gas service valves.
2. Turn on the main power switch and allow the unit to warm up.
3. Set the air conditioner to COOL mode.
4. For the Indoor Unit
   a. Double check to see if the room temperature is being registered correctly.
   b. Ensure the manual buttons on the indoor unit works properly.
   c. Check to see that the drainage system is unimpeded and draining smoothly.
   d. Ensure there is no vibration or abnormal noise during operation.
5. For the Outdoor Unit
   a. Check to see if the refrigeration system is leaking.
   b. Make sure there is no vibration or abnormal noise during operation.
   c. Ensure the wind, noise, and water generated by the unit do not disturb your neighbors or pose a safety hazard.
6. Drainage Test
   a. Ensure the drainpipe flows smoothly. New buildings should perform this test before finishing the ceiling.
   b. Turn on the main power switch and run the air conditioner in COOL mode.
   c. Check to see that the water is discharged. It may take up to one minute before the unit begins to drain depending on the drainpipe.
   d. Make sure that there are no leaks in any of the piping.
   e. Stop the air conditioner. Turn off the main power switch and reinstall the test cover.

NOTICE

If the unit malfunctions or does not operate according to your expectations, please refer to the Troubleshooting section of Service Manual before calling customer service.

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The design and specifications are subject to change without prior notice for product improvement. Consult with the sales agency or manufacturer for details. Any updates to the manual will be uploaded to the service website, please check for the latest version.