

Installation and Operation Manual



F R I E D R I C H



Models

Indoor Unit	FSHSW36A3A
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Outdoor Unit	FSHSR36A3A
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960-910-11

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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.

If it needs to install, move or maintain the air conditioner, please contact dealer or local service center to conduct it at first. Air conditioner must be installed, moved or maintained by appointed unit. Otherwise, it may cause serious damage or personal injury or death.

Explanation of Symbols



Indicates a hazardous situation that, if not avoided, will result in death or serious injury.



Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.



Indicates important but not hazard-related information, used to indicate risk of property damage.



Indicates a hazard that would be assigned a signal word WARNING or CAUTION.

Exception Clauses

Manufacturer will bear no responsibilities when personal injury or property loss is caused by the following reasons.

1. Damage to product due to improper use or misuse of the product.
2. Alter, change, maintain or use the product with other equipment without abiding by the instruction manual of manufacturer.
3. After verification, the defect of product is directly caused by corrosive gas.
4. After verification, defects are due to improper operation during transportation of product.
5. Operate, repair, maintain the unit without abiding by instruction manual or related regulations.
6. After verification, the problem or dispute is caused by the quality specification or performance of parts and components that produced by other manufacturers.
7. The damage is caused by natural disasters, improper installation environment or force majeure.

Precautions



WARNING

Operation and Maintenance

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.
- Do not connect air conditioner to multi-purpose socket. Otherwise, it may cause fire hazard.
- Do disconnect power supply when cleaning air conditioner. Otherwise, it may cause electric shock.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Do not spray water on indoor unit. It may cause electric shock or malfunction.
- After removing the filter, do not touch fins.
- Do not use fire or hair dryer to dry the filter to avoid deformation or fire hazard.

Precautions



WARNING

- Maintenance must be performed by qualified professionals. Otherwise, it may cause personal injury or damage.
- Do not repair air conditioner by yourself. It may cause electric shock or damage. Please contact dealer when you need to repair air conditioner.
- Do not extend fingers or objects into air inlet or air outlet. It may cause personal injury or damage.
- Do not block air outlet or air inlet. It may cause malfunction.
- Do not spill water on the remote controller, otherwise the remote controller may be broken.
- When below phenomenon occurs, please turn off air conditioner and disconnect power immediately, and then contact the dealer or qualified professionals for service.
 - Power cord is overheating or damaged.
 - There's abnormal sound during operation.
 - Circuit break trips off frequently.
 - Air conditioner gives off burning smell.
 - Indoor unit is leaking.
- If the air conditioner operates under abnormal conditions, it may cause malfunction, electric shock or fire hazard.
- When turning on or turning off the unit by emergency operation switch, please press this switch with an insulating object other than metal.
- Do not step on top panel of outdoor unit, or put heavy objects. It may cause damage or personal injury.

Precautions



WARNING

Attachment

- Installation must be performed by qualified professionals. Otherwise, it may cause personal injury or damage.
- Must follow the electric safety regulations when installing the unit.
- According to the local safety regulations, use qualified power supply circuit and circuit break.
- Do install the circuit break. If not, it may cause malfunction.
- An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- Including an circuit break with suitable capacity, please note the following table. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload.
- Air Conditioner should be properly grounded. Incorrect grounding may cause electric shock.
- Don't use unqualified power cord.
- Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock, fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.
- Properly connect the live wire, neutral wire and grounding wire of power socket.
- Be sure to cut off the power supply before proceeding any work related to electricity and safety.

Precautions



WARNING

- Do not power before finishing installation.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.
- The appliance shall be installed in accordance with national wiring regulations.
- Installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only.
- Air conditioner must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
- The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.
- The grounding resistance should comply with national electric safety regulations.
- All wires of indoor unit and outdoor unit should be connected by a professional.

Precautions



WARNING

- Caution: This equipment is not intended for use during construction. The use of equipment during construction could result in premature failure of the components and/or system and is in violation of our standard warranty guidelines and may result in the suspension or termination of the warranty.
- Ensure that proper N.E.C. code is followed.
- If you need to relocate the air conditioner to another place, only the qualified person can perform the work. Otherwise, it may cause personal injury or damage.
- Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add the fence for safety purpose.
- The indoor unit should be installed close to the wall.
- Instructions for installation and use of this product are provided by the manufacturer.

Working temperature range

	Indoor side WB/DB(°F/°C)	Outdoor side WB/DB(°F/°C)
Maximum cooling	81/66(27/19)	115/75(46/24)
Maximum heating	81/- (27/-)	75/64(24/18)

NOTICE:

For some models:

- The operating temperature range (outdoor temperature) for cooling only unit is 5 ~ 115°F (-15 ~ 46°C) ; for heat pump unit is -4 ~ 115°F (-20°C ~ 46°C).

For some models:

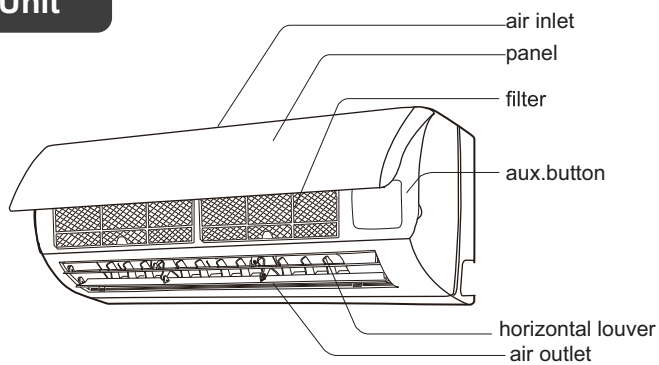
- The operating temperature range (outdoor temperature) for cooling only unit is 0 ~ 115°F (-18°C ~ 46°C) ; for heat pump unit is -4 ~ 115°F (-20°C ~ 46°C).

For some models:

- The operating temperature range (outdoor temperature) for cooling only unit is -4 ~ 115°F (-20°C ~ 46°C) ; for heat pump unit is -13 ~ 115°F (-25°C ~ 46°C).

Parts name

Indoor Unit

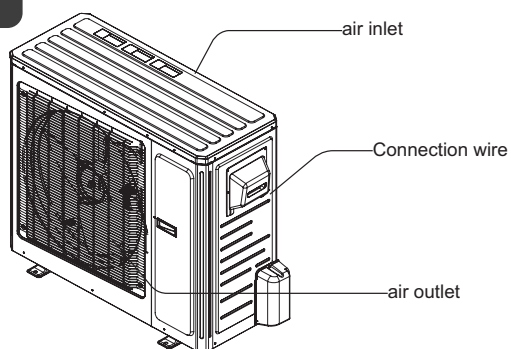


(Display content or position may be different from above graphics, please refer to actual products)



remote controller

Outdoor Unit

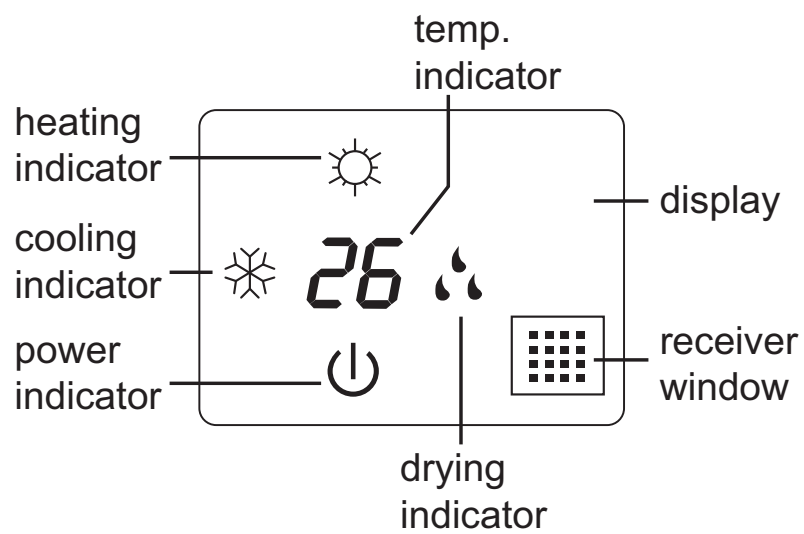


NOTICE:

Actual product may be different from above graphics, please refer to actual products.

Parts name

Display



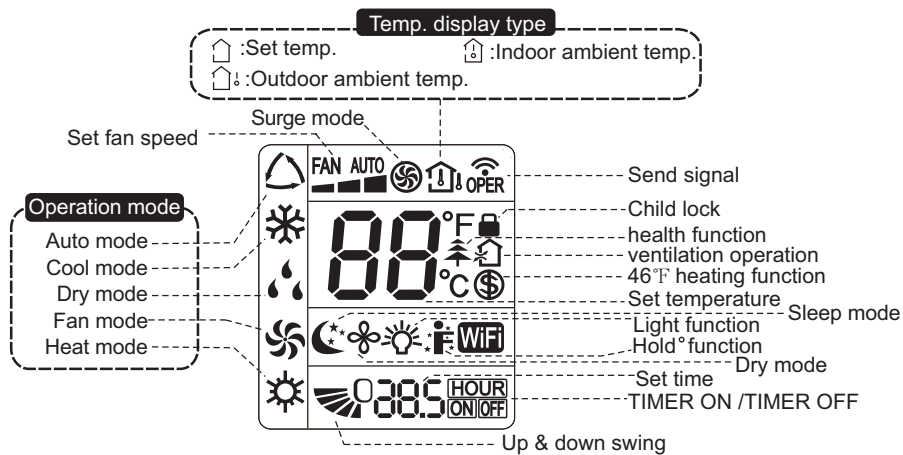
Display content or position may be different from above graphics, please refer to actual products.

Buttons on remote controller



- 1 On/Off button
- 2 Mode button
- 3 Fan button
- 4 ▲/ ▼ button
- 5 Swing button
- 6 Sleep button
- 7 Temp button
- 8 Surge button
- 9 Hold° button
- 10 Timer button
- 11 Dry button
- 12 Light button

Introduction for buttons on remote controller



NOTICE: "WIFI" This is a general remote controller. Some models have this function while some do not. Please refer to the actual models.

Introduction for buttons on remote controller

Note:

- Once power is supplied to unit, unit will chime.
Operation indicator "⏻" is ON (red indicator, the colour is different for different models). After that, you can operate the air conditioner by using remote controller.
- In operation mode, button presses on the remote will cause the "👁" to blink. This means that the remote is sending signals to the unit. The air conditioner responds to button presses with a chiming sound.
- In stand-by mode, set temperature and clock icon will be displayed on the display of remote controller (If timer on, timer off and light functions are set, the corresponding icons will be displayed on the display of remote controller at the same time); Under on status, the display will show the corresponding set function icons.

1 On/Off button

Press this button to turn on the unit. Press this button again to turn off the unit.



2 Mode button

Each time you press this button, a mode is selected in a sequence that goes from AUTO, COOL, DRY, FAN, and HEAT, as the following:

AUTO ► COOL ► DRY ► FAN ► HEAT*



3 Fan button

This button is used for setting Fan Speed in the sequence that goes from AUTO, , to , then back to Auto.

Note:

- In DRY mode fan speed is set only to low speed, for maximum dehumidification.

4 ▲ / ▼ button

Press ▲ / ▼ button to increase/decrease set temperature. In AUTO mode, set temperature is not adjustable. When setting Timer On or Timer Off, press "▲" or "▼" button to adjust the time.

Introduction for buttons on remote controller

5 Swing button

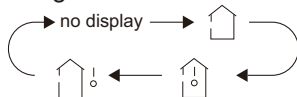
Press this button to set up & down swing angle.

6 Sleep button

Under Cool or Heat mode, press this button to turn on Sleep function. Press this button again to cancel Sleep function. Under Fan、Dry and Auto modes, this function is unavailable.

7 Temp button

Press this button, you can see indoor set temperature, indoor ambient temperature on indoor unit's display. The setting on remote controller is selected circularly as below:



Note:

- Outdoor temperature display is not available for some models. At that time, indoor unit receives "°" signal, while it displays indoor set temperature.

8 Surge button

Under COOL or HEAT mode, press this button to activate / deactivate the Surge function.
Note: Not applicable for this unit.

9 Hold ° button

Press this button to start Hold ° function and "°" will be displayed on the remote controller. After this function is set, the remote controller will send the detected ambient temperature to the controller and the unit will automatically adjust the indoor temperature according to the detected temperature. Press this button again to close Hold ° function and "°" will disappear. When Hold ° function is turned on, the remote controller should be put within the area where indoor unit can receive the signal sent by the remote controller.

10 Timer button

- Under ON status, press this button to set timer OFF; Under OFF status, press this button to set timer ON.
- Press this button once and the characters of HOUR ON (OFF) will flash to be displayed. Meanwhile, press "▲" button or "▼" button to adjust timer setting (time will change quickly if holding "▲" or "▼" button). Time setting range is 0.5~24hours. Press this button again to confirm timer setting and the characters of HOUR ON (OFF) will stop flashing.
If the characters are flashing but you haven't press timer button, timer setting status will be quit after 5s. If timer is confirmed, press this button again to cancel timer.

11 Dry button

Press this button in COOL or DRY mode to turn on Dry function.
When this function is started up, indoor fan will still operate at low fan speed for a while after turning off the unit by remote controller.



Introduction for buttons on remote controller

12 Light button

Press this button to turn on the display's light and press this button again to turn off the display's light.

Function introduction for combination buttons

Combination of "▲" and "▼" buttons: Remote Control lock

Press "▲" and "▼" buttons simultaneously 3s to lock or unlock the keypad. If the remote controller is locked,  is displayed. In this case, pressing any button,  blinks three times.

Combination of "MODE" and "▼" buttons: About switch between F° and C°

At unit OFF, press "MODE" and "▼" buttons simultaneously to switch between °C and °F.

Combination of "TEMP" and "TIMER" buttons: Energy-saving Function

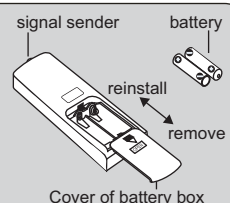
Press "TEMP" and "TIMER" simultaneously in COOL mode to start energy-saving function. Indoor unit displays "SE". Repeat the operation to quit the function.

Combination of "TEMP" and "TIMER" buttons: About 46° F Heating Function

Press "TEMP" and "TIMER" simultaneously in HEAT mode to start 46° F Heating Function indoor unit displays "⌘" and a selected temperature of "46° F". (8° C if Celsius is adopted). Repeat the operation to quit the function.

Replacement of batteries in remote controller

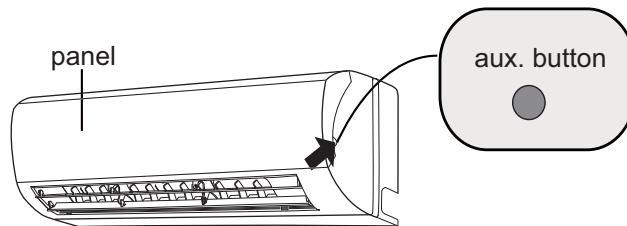
1. Press the back side of remote controller marked with "⌘", as shown in the fig, and then push out the cover of battery box along the arrow direction.
2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar are correct.
3. Reinstall the cover of battery box.



Emergency operation

If remote controller is lost or damaged, please use aux. button to turn on or turn off the air conditioner. The operation in details is as below:

As shown in the fig. Open panel, press aux. button to turn on or turn off the air conditioner. When the air conditioner is turned on, it will operate under auto mode.



WARNING:

Use insulated object to press the auto button

Clean and Maintenance

WARNING

- Turn off the air conditioner and disconnect the power before cleaning the air conditioner to avoid electric shock.
- Do not wash the air conditioner with water to avoid electric shock.
- Do not use volatile liquid to clean the air conditioner.
- Do not use liquid or corrosive detergent clean the appliance and do not splash water or other liquid onto it, otherwise, it may damage the plastic components, even cause electric shock.

Clean surface of indoor unit

When the surface of indoor unit is dirty, it is recommended to use a soft dry cloth or wet cloth to wipe it.

NOTICE:

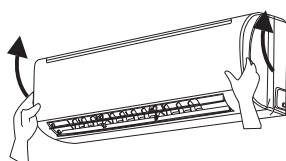
- Do not remove the panel when cleaning it.

Clean and maintenance

Clean filter

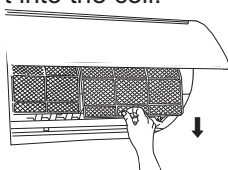
1 Open panel

Pull panel out from below to locked position.



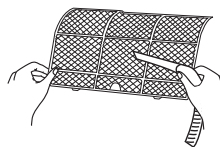
2 Remove filter

Pull filter down to remove careful to not get dust and dirt into the coil.



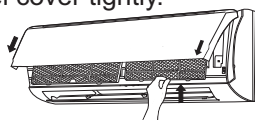
3 Clean filter

- Use vacuum or clean filter in sink with water.
- If filter is very soiled, use hot water (113°F) to clean and disinfect. Allow filter to dry before placing back in unit.



4 Install filter

Install the filter and then close the panel cover tightly.



WARNING

- The filter should be cleaned every three months. If there is much dust in the operation environment, clean frequency can be increased.
- After removing the filter, do not touch fins to avoid injury.
- Do not use fire or hair dryer to dry the filter to avoid deformation or fire hazard.

Troubleshooting

General troubleshooting

Please check below items before asking for maintenance. If the issue still can't be eliminated, please contact local dealer or qualified professionals.

Issue	Check items	Solution
Indoor unit can't receive remote controller's signal or remote controller has no action.	<ul style="list-style-type: none"> Whether it's interfered severely (such as static electricity, stable voltage)? 	<ul style="list-style-type: none"> Pull out the plug. Reinsert the plug after about 3min, and then turn on the unit again.
	<ul style="list-style-type: none"> Whether remote controller is within the signal receiving range? 	<ul style="list-style-type: none"> Signal receiving range is 8m.
	<ul style="list-style-type: none"> Whether there are obstacles? 	<ul style="list-style-type: none"> Remove obstacles.
	<ul style="list-style-type: none"> Whether remote controller is pointing at the receiving window? 	<ul style="list-style-type: none"> Select proper angle and point the remote controller at the receiving window on indoor unit.
	<ul style="list-style-type: none"> Is sensitivity of remote controller low; fuzzy display and no display? 	<ul style="list-style-type: none"> Check the batteries. If the power of batteries is too low, please replace them.
	<ul style="list-style-type: none"> No display when operating remote controller? 	<ul style="list-style-type: none"> Check whether remote controller appears to be damaged. If yes, replace it.
	<ul style="list-style-type: none"> Fluorescent lamp in room? 	<ul style="list-style-type: none"> Take the remote controller close to indoor unit. Turn off the fluorescent lamp and then try it again.
No air emitted from indoor unit	<ul style="list-style-type: none"> Air inlet or air outlet of indoor unit is blocked? 	<ul style="list-style-type: none"> Eliminate obstacles.
	<ul style="list-style-type: none"> Under heating mode, indoor temperature is reached to set temperature? 	<ul style="list-style-type: none"> After reaching to set temperature, indoor unit will stop blowing out air.
	<ul style="list-style-type: none"> Heating mode is turned on just now? 	<ul style="list-style-type: none"> In order to prevent blowing out cold air, indoor unit will be started after delaying for several minutes, which is a normal phenomenon.

Malfunction analysis

Phenomenon	Check items	Solution
Air conditioner can't operate	• Power failure?	• Wait until power recovery.
	• Is plug loose?	• Reinsert the plug.
	• Circuit break trips off or fuse is burnt out?	• Ask professional to replace circuit break or fuse.
	• Wiring has malfunction?	• Ask professional to replace it.
	• Unit has restarted immediately after stopping operation?	• Wait for 3min, and then turn on the unit again.
	• Whether the function setting for remote controller is correct?	• Reset the function.
Mist is emitted from indoor unit's air outlet	• Indoor temperature and humidity is high?	• Because indoor air is cooled rapidly. After a while, indoor temperature and humidity will be decrease and mist will disappear.
Set temperature can't be adjusted	• Unit is operating under auto mode?	• Temperature can't be adjusted under auto mode. Please switch the operation mode if you need to adjust temperature.
	• Your required temperature exceeds the set temperature range?	• Set temperature range: 16°C ~30°C .
Cooling (heating) effect is not good.	• Voltage is too low?	• Wait until the voltage resumes normal.
	• Filter is dirty?	• Clean the filter.
	• Set temperature is in proper range?	• Adjust temperature to proper range.
	• Door and window are open?	• Close door and window.

Malfuction analysis

Phenomenon	Check items	Solution
Odours are emitted	<ul style="list-style-type: none"> Whether there's odour source, such as furniture and cigarette, etc. 	<ul style="list-style-type: none"> Eliminate the odour source. Clean the filter.
Air conditioner operates abnormally	<ul style="list-style-type: none"> Whether there's interference, such as thunder, wireless devices, etc. 	<ul style="list-style-type: none"> Disconnect power, put back power, and then turn on the unit again.
Outdoor unit has vapor	<ul style="list-style-type: none"> Heating mode is turned on? 	<ul style="list-style-type: none"> During defrosting under heating mode, it may generate vapor, which is a normal phenomenon.
"Water flowing" noise	<ul style="list-style-type: none"> Air conditioner is turned on or turned off just now? 	<ul style="list-style-type: none"> The noise is the sound of refrigerant flowing inside the unit, which is a normal phenomenon.
Cracking noise	<ul style="list-style-type: none"> Air conditioner is turned on or turned off just now? 	<ul style="list-style-type: none"> This is the sound of friction caused by expansion and/or contraction of panel or other parts due to the change of temperature.

Malfuction analysis

Error Code

- If an error is present, lights will flash and an error code should be displayed.



Above indicator diagram is only for reference. Please refer to actual product for the actual indicator and position.

Error code	Troubleshooting
H1 ^(Heating indicator ON 10s OFF 0.5s)	Means defrosting status. It's the normal phenomenon.
E5	It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.
H6	It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.
C5	Please contact qualified professionals for service.
F1	Please contact qualified professionals for service.
F2	Please contact qualified professionals for service.
E6	It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.
F0	Please contact qualified professionals for service.

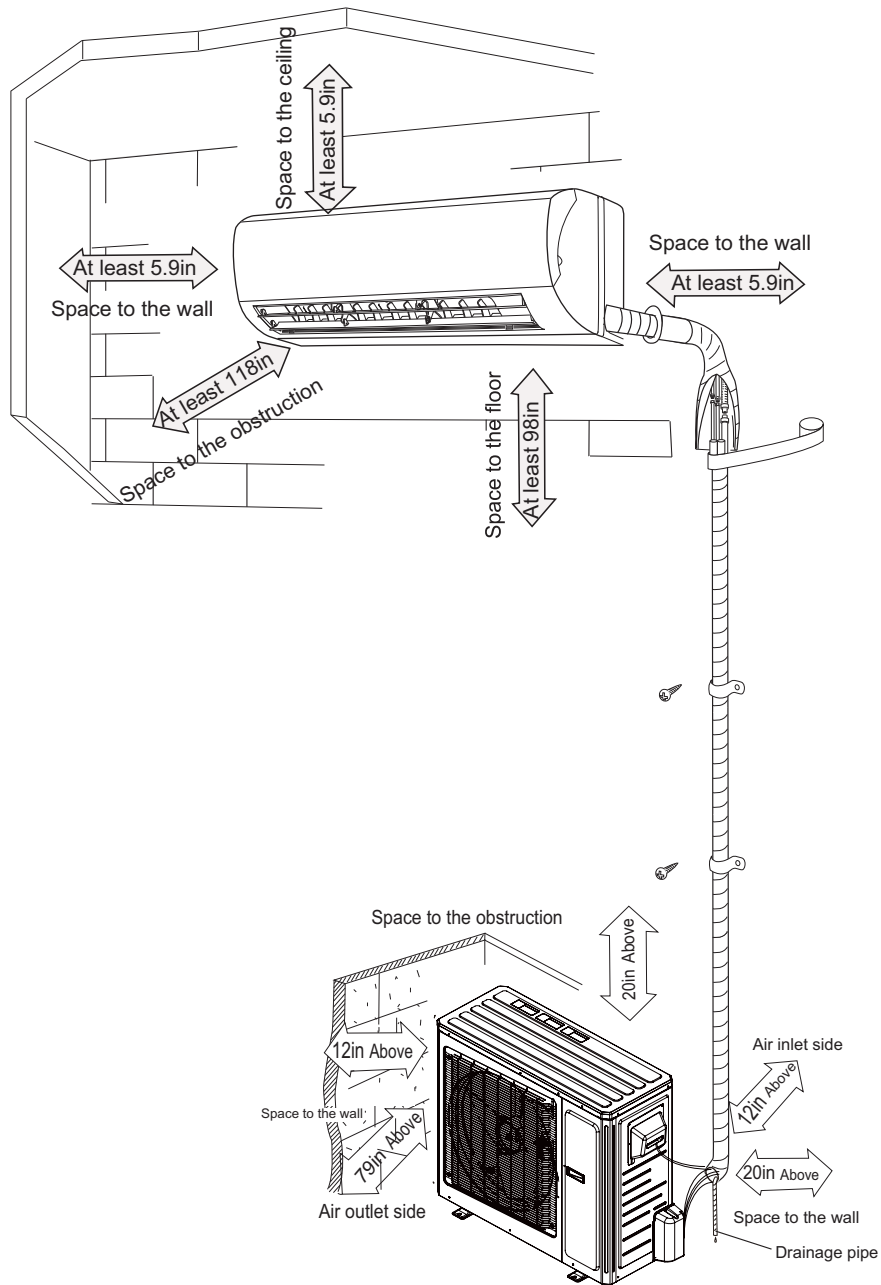
Note: If there're other error codes, please contact qualified professionals for service.



WARNING

- If any of the below errors occur, please turn off air conditioner and contact a certified Technician.
 - There's abnormal sound during operation.
 - Circuit break trips off frequently.
 - Air conditioner gives off burning smell.
 - Indoor unit is leaking.
- Do not repair product yourself. Please contact a certified HVAC company.
- If the air conditioner operates under abnormal conditions, it may cause malfunction, electric shock or fire hazard.

Installation dimension diagram



Safety precautions for installing and relocating the unit

To ensure safety, please be mindful of the following precautions.

Warning

- **When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.**
Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.
- Only qualified technicians, should install, move or service this equipment.
Please follow the units nameplate and installation instruction to ensure safe and accurate operation of product.
- If there is a need to recover refrigerant during installation, ensure system is running in cooling mode. Fully close high pressure service valve (Liquid valve) and allow to pump-down for 30-40 seconds, then fully close the low pressure service valve (Gas valve) and immediately remove power from unit. Do not exceed 1 minute in pump-down otherwise system contamination or breakage can occur.
- Ensure unit is leak free by applying 500psig of dry nitrogen and check all flares with a liquid bubble solution. Watch carefully for small bubbles indicating a leak.
- Do not install unit in a area where corrosive gases or flammable gases exist. Otherwise premature failure of product can occur, or fire.
- Do not use supply (power) cords or extension cords with equipment. This product must be installed by a certified installer. Wired per NEC codes.
- Follow local and national codes for interconnection between indoor and outdoor units.

Tools for installation

1 Level	2 Screw driver	3 Impact drill
4 Drill	5 Pipe expander	6 Torque wrench
7 Wrench	8 Pipe cutter	9 Leakage detector
10 Vacuum pump	11 HVAC manifold	12 Multi-Meter
13 Allen wrenches		14 Measuring tape

Note:

- Please contact a license installer.
- Install following all local and national codes.

Selection of installation location

Basic requirement	Indoor unit
<p>Installation in the following locations can cause system failures prematurely. If location is questionable, please contact the manufacturer for assistance.</p> <ol style="list-style-type: none"> 1. Any location with excessive heat, vapors or flammable gases. 2. Areas that utilize High frequency or variable frequency devices, such as welding equipment or medical equipment such as X-Ray 3. Coastal regions- If installed in coastal locations care to keep equipment out of direct exposure should be made. Regular cleaning should be done more frequently in these areas. 	<ol style="list-style-type: none"> 1. Ensure no obstructions near the air inlet/outlet of unit. 2. Be sure condensation management is considered when choosing installation location. 3. Do not install indoor unit above heat sources such as cook tops and electric appliances which also generate heat. 4. Keep unit away from fluorescent lamps and neon.
Outdoor unit	
<ol style="list-style-type: none"> 1. Installation location must be clear of obstructions of inlet/outlet of unit to ensure proper operations. 2. Location should be able to support the weight of the unit. 	

Requirements for electric connection

Safety precaution

1. Follow local and national electrical codes when wiring.
2. Ensure proper wire sizing.
3. Follow wiring diagrams
4. Be sure to disconnect power before performing installation or maintenance.
5. Refrigerant can operate at very high temperatures. Please be sure to keep wires separate from piping.

Grounding requirement

1. Ensure proper grounding
2. Yellow/Green wire is reserved for Ground only
3. Grounding should comply with Local and National codes

Installation of indoor unit

Step one: choosing installation location

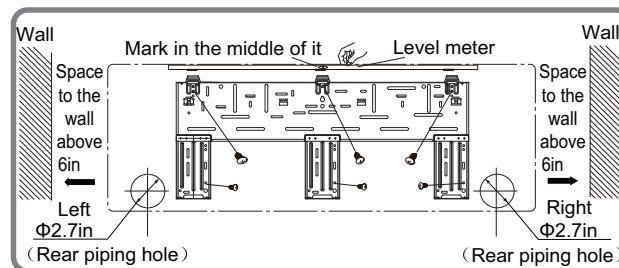
Provide recommendation to customer for the most ideal location to install unit.

Step two: install wall-mounting frame

1. When hanging wall mounting plate, be sure to set level, once level is set mark all locations for mounting screws.
 2. Drill holes and use appropriate mounting hardware. (Example: Wall Anchors, Self Tapping Screws or other)
 3. Affix wall mounting plate and ensure no flex from the wall surface to guarantee secure mounting.
-

Step three: open piping hole

1. Choose the position of piping hole according to the direction of outlet pipe. The position of piping hole should be a little lower than the wall-mounted frame, shown as below.

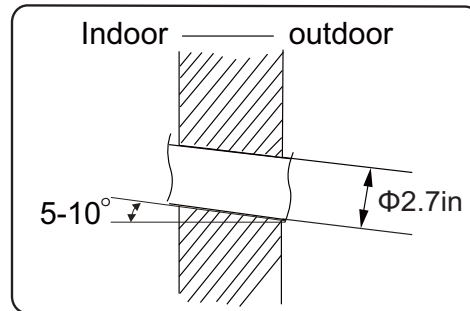


2. Open a piping hole with the diameter of $\Phi 2.7\text{in}$ on the selected outlet pipe position. In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°.

Installation of indoor unit

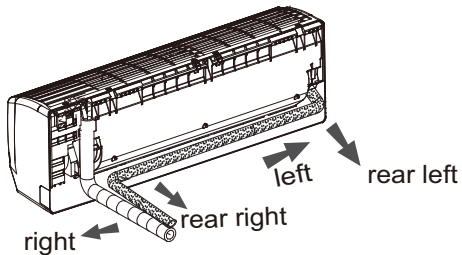
Note:

- Dust prevention is recommended when drilling hole for piping.
- It is recommended to purchase a PVC sleeve to protect piping in the wall. (Supplied by after-market suppliers)

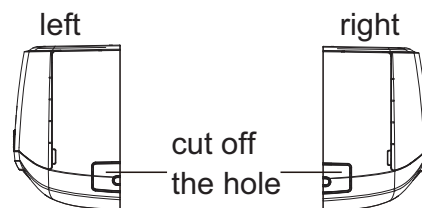


Step four: outlet pipe

1. The pipe can be led out in the direction of right, rear right, left or rear left.

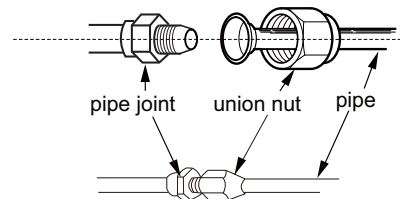


2. Choose which locations piping must go, if left, right or bottom cut off ABS plate to access.

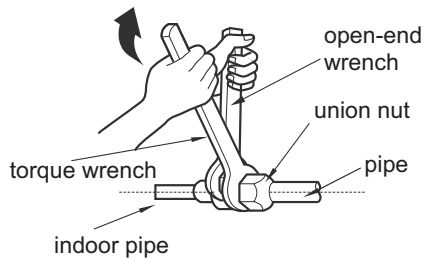


Step five: connect the pipe of indoor unit

1. Position flare and fitting together.
2. Tighten flare by hand.
3. Use torque wrench to finalize mechanical connection between flare and fitting.

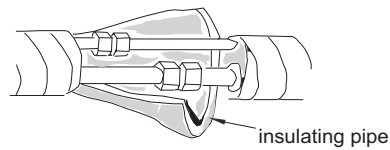


Installation of indoor unit



Hex nut diameter	Tightening torque (N·m)
1/4"	15~20
3/8"	30~40
1/2"	45~55
5/8"	60~65
3/4"	70~75

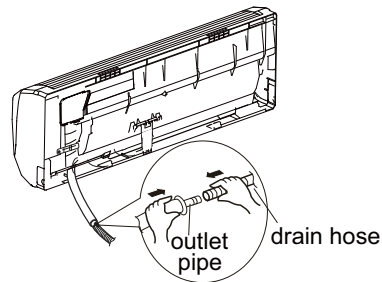
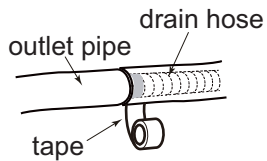
4. Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape.



Step six: install drain hose

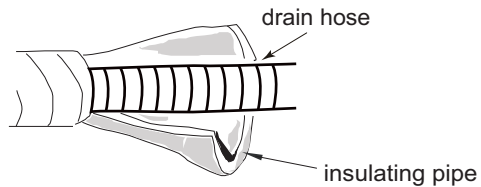
1. Connect the drain hose to the outlet pipe of indoor unit.

2. Bind the joint with tape.



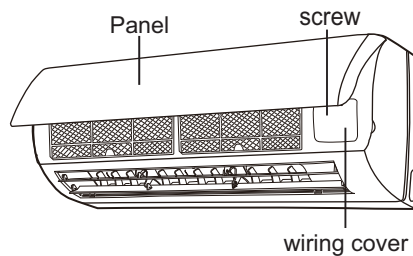
Note:

- Add insulating pipe in the indoor drain hose in order to prevent condensation.



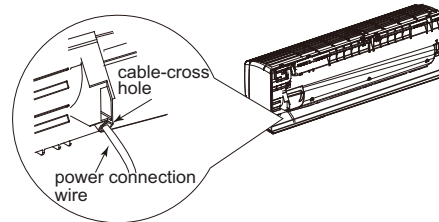
Step seven: connect wire of indoor unit

1. Open the panel, remove the screw on the wiring cover and then take down the cover.

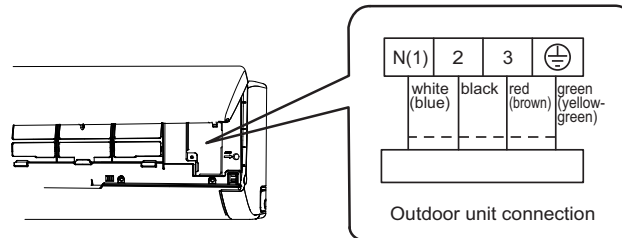


Installation of indoor unit

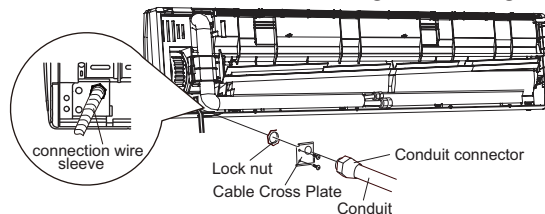
2. Ensure that power wires are routed through the proper opening behind the unit.



3. Remove wire strain relief. Connect each wire to the corresponding terminal. Tighten the terminals to ensure solid connections.



4. Put wiring cover back and then tighten the screw.
5. Close the panel.
6. Install the Conduit assy.
 - 1) Fix the conduit assy on the conduit board and then let the connection wire between indoor unit and outdoor unit go through the conduit.
 - 2) Fix the conduit assy on the chassis with 3 screws.
 - Conduit assy consists of conduit, conduit connector and lock nut. (Part to be purchased from after market supplier).
 - The length of conduit can be calculated according to the length of connection wire.



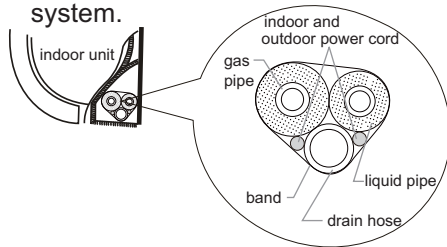
Note:

1. All wiring should be done by a certified technician.

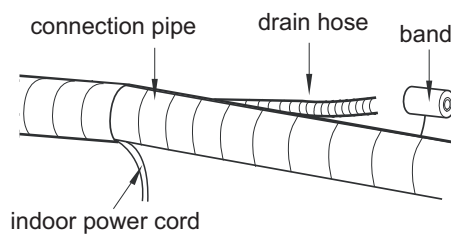
Installation of indoor unit

Step eight: bind up pipe

1. Combine pipes, wires and drain line in a UV rated line set covering system.



2. Be sure to allow for extra line set, wire and drain to connect to outdoor unit.



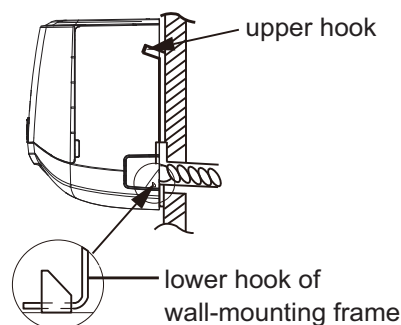
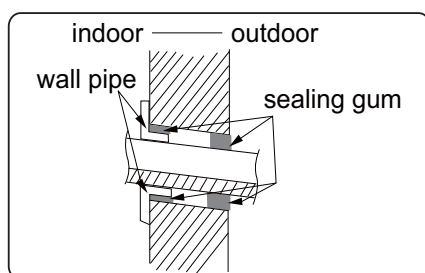
3. Bind them evenly.

4. The liquid pipe and gas pipe should be bound separately at the end.

Be sure that drain pipe is routed at the bottom of the banded pipe. To ensure proper drainage.

Step nine: hang the indoor unit

1. Put the bound pipes in the wall pipe and then make them pass through the wall hole.
2. Hang the indoor unit on the wall-mounting frame.
3. Stuff the gap between pipes and wall hole with sealing gum.
4. Fix the wall pipe.
5. Check if the indoor unit is installed firmly and closed to the wall.



Note:

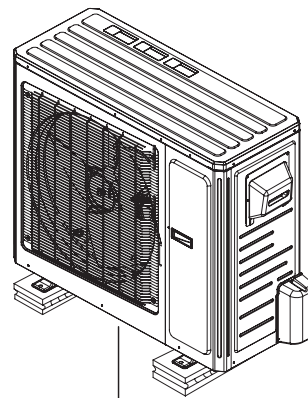
- Do not bend the drain hose too excessively in order to prevent blocking.

Installation of outdoor unit

Step one: Mounting of the outdoor unit

1. Select installation base on building material.
2. Choose the correct mounting hardware for application.

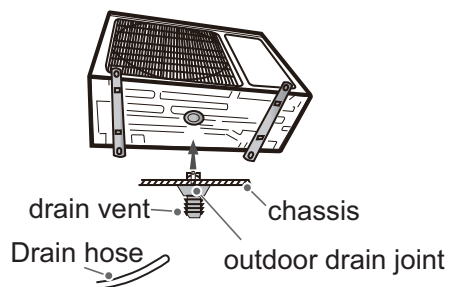
1. Take care to mount outdoor unit in a safe and operable manner.
2. Unit mounting if above ground must be able to support 4 times the unit weight.
3. Outdoor unit must be installed at least 1" above the ground for heat pump operation, this will allow proper water drainage.
4. Based on unit weight choose the best anchors for your mounting material.



at least 3cm above the floor

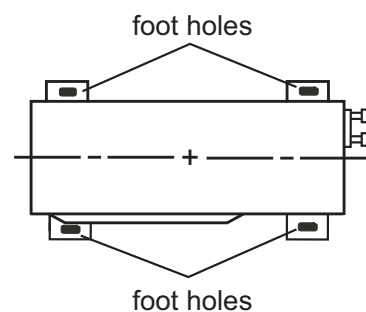
Step two: install drain joint

1. Connect the outdoor drain joint into the hole on the chassis, as shown in the picture below.
2. Connect the drain hose into the drain vent.



Step three: fix outdoor unit

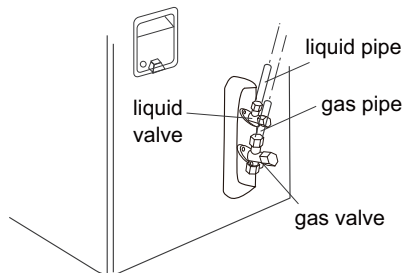
1. Place the outdoor unit on the support.
2. Fix the foot holes of outdoor unit with bolts.



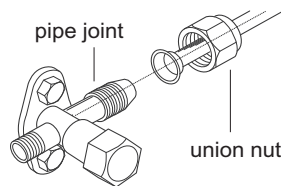
Installation of outdoor unit

Step four: connect indoor and outdoor pipes

1. Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.



2. Pretighten the union nut with hand.



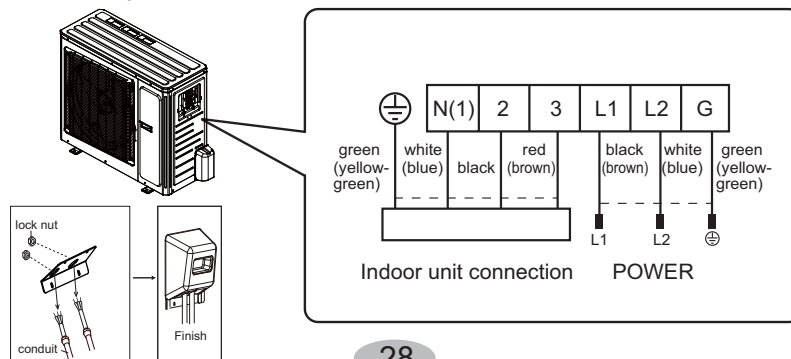
3. Tighten the union nut with torque wrench by referring to the sheet below.

Hex nut diameter	Tightening torque (N·m)
1/4"	15~20
3/8"	30~40
1/2"	45~55
5/8"	60~65
3/4"	70~75

Step five: connect outdoor electric wire

1. Remove the handle from the outdoor unit.
2. Fasten the power supply cord and the connection cord to the retaining plate using the lock nut. (open the knock out holes if necessary)
3. Connect the power supply cord and the connection cord to terminal.
4. Fasten the power supply cord and connection cord with cord clamp.
5. Install the handle.

The screws are packed with the terminal board.



Installation of outdoor unit

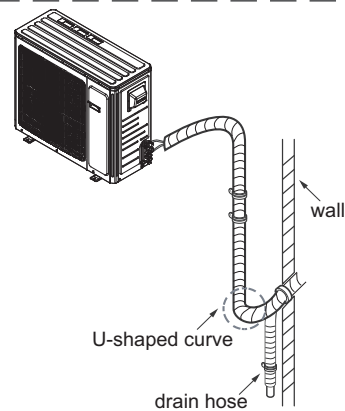
2. Fix the power connection wire and signal control wire with wire clip.

Note:

After tightening terminal screw, pull on power cord to ensure that wires hold firm.

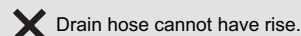
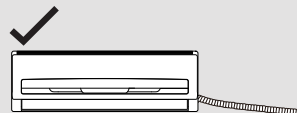
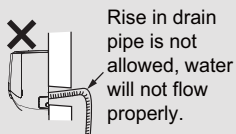
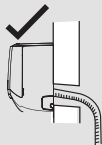
Step six: Arrange piping

1. The pipes should be placed along the wall, bent reasonably and hidden.
2. If outdoor unit placement is higher than wall penetration, create a drip loop in the line-set to keep water from entering the building.

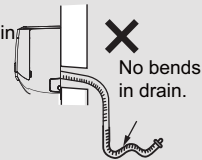
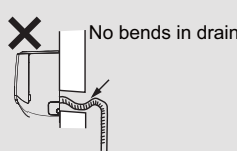
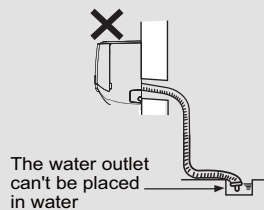


Note:

- Drain hose cannot have high spots, or rise. This will cause drain to back up into occupied space.
- Slant drain hose, no curves or rises. This will cause a drainage issue.



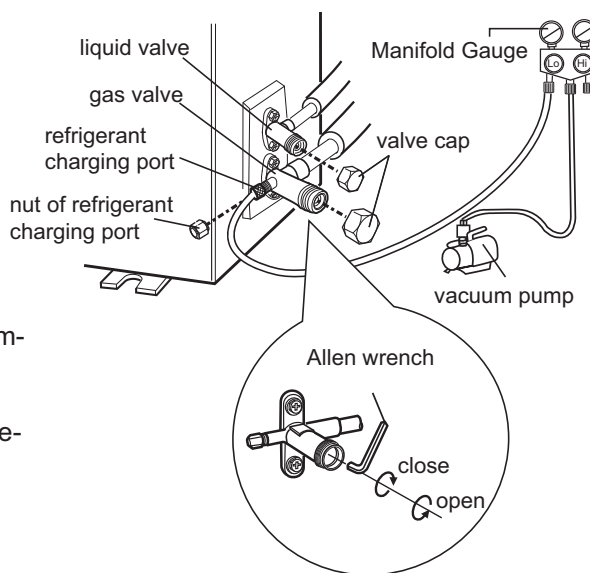
- Do not submerge drain into water. This will not allow water to adequately drain.



Vacuum pumping

Use vacuum pump

1. Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
2. Connect the charging hose Manifold Gauge to the refrigerant charging port of gas valve and then connect the other charging hose to the vacuum pump.
3. Open the Manifold Gauge completely and operate for 10-15min to check if the pressure of Manifold Gauge remains in -0.1MPa .
4. Close the vacuum pump and maintain for 1-2min to check if the pressure of Manifold Gauge remains in -0.1MPa . If the pressure decreases, there may be leakage.
5. Remove the Manifold Gauge, open the valve core of liquid valve and gas valve completely with Allen wrench.
6. Tighten the screw caps of valves and refrigerant charging port.
7. Reinstall the handle.



Leakage detection

1. With leakage detector:
Check if there is leakage with leakage detector.
2. With soap water:
If leakage detector is not available, please use soap water for leakage detection. Apply soap water at the suspected position and keep the soap water for more than 3min. If bubbles are present at flare joints, re-torque flare nuts.

Check after installation

- Check according to the following requirement after finishing installation.

Items to be checked	Possible malfunction
Has the unit been installed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
Is water drained well?	It may cause condensation and water dripping.
Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damaging the parts.
Is electric wiring and pipeline installed correctly?	It may cause malfunction or damaging the parts.
Is the unit grounded securely?	It may cause electric leakage.
Does the power cord follow the specification?	It may cause malfunction or damaging the parts.
Is there any obstruction in the air inlet and outlet?	It may cause insufficient cooling (heating) capacity.
The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.
Is the inlet and outlet of piping hole been covered?	It may cause insufficient cooling (heating) capacity or waster eletricity.

Test operation

1. Preparation of test operation

- The client approves the air conditioner.
- Specify the important notes for air conditioner to the client.

2. Method of test operation

- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
- If the ambient temperature is lower than 16°C(61°F), the air conditioner can't start cooling.

Configuration of connection pipe

1. Standard length of connection pipe
 - 15ft, 22.5ft, 24ft
2. Min. length of connection pipe is 9Ft.
3. Max. length of connection pipe.

Max. length of connection pipe

Unit: ft

Cooling capacity	Max. length of connection pipe	Cooling capacity	Max. length of connection pipe
5000Btu/h	45	24000Btu/h	75
7000Btu/h	45	28000Btu/h	90
9000Btu/h	45	36000Btu/h	90
12000Btu/h	60	42000Btu/h	90
18000Btu/h	75	48000Btu/h	90

4. Additional refrigerant may be required when extending the line-set.
 - After the line-set has been extended 33ft past standard length of 25ft, adding additional 5ml of refrigerant oil for each additional 16ft.
 - The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):
 Additional refrigerant charge amount = extended length of liquid line x required additional amount per foot.
 - Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per foot is different according to the diameter of liquid pipe. See the following sheet.

Configuration of connection pipe

Additional charge amount for R410A

Diameter of connection pipe		Outdoor unit charge
Liquid pipe	Gas pipe	Cooling and heating(oz/g)
1/4"	3/8" or 1/2"	0.71
1/4" or 3/8"	5/8" or 3/4"	1.76
1/2"	3/4" or 7/8"	4.23
5/8"	1 1/8" or 1 1/4"	4.23
3/4"	—	8.82
7/8"	—	12.35

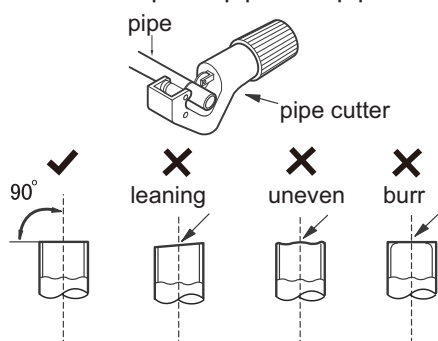
Pipe expanding method

Note:

Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

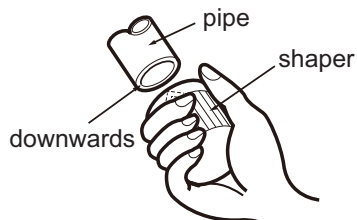
A: Cut the pipe

- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



B: Remove the burrs

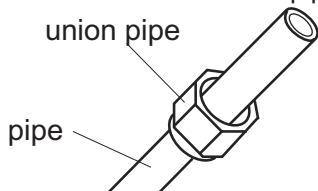
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C: Put on suitable insulating pipe

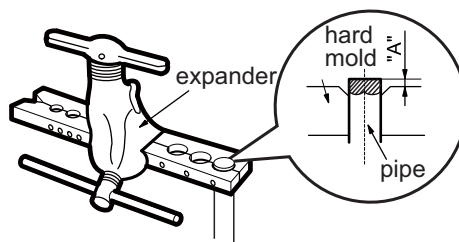
D: Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



E: Expand the port

- Expand the port with expander.



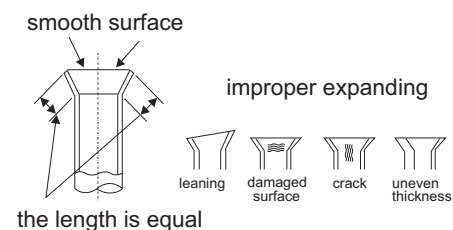
Note:

- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter	A(in)	
	Max	Min
(1/4")Φ6-6.35	0.05	0.03
(3/8")Φ9.52	0.06	0.04
(1/2")Φ12-12.7	0.07	0.04
(5/8")Φ15.8-16	0.94	0.09

F: Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



Wired Controller(Optional)

If the product you bought is equipped with wired controller, please refer to the following introductions of wired controller.

1 Displaying Part

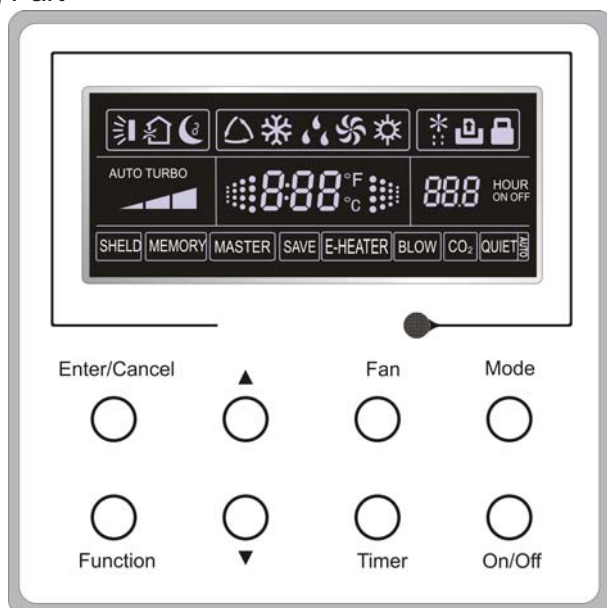


Fig1.1.1 Outline of wired controller

1.1 LCD Display of Wired Controller

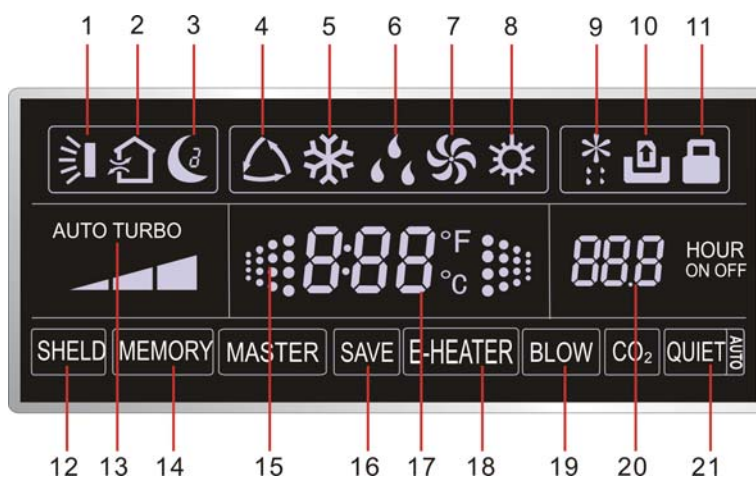
















Fig.1.1.2 LCD display

Wired Controller(Optional)

1.2 Instruction to LCD Display

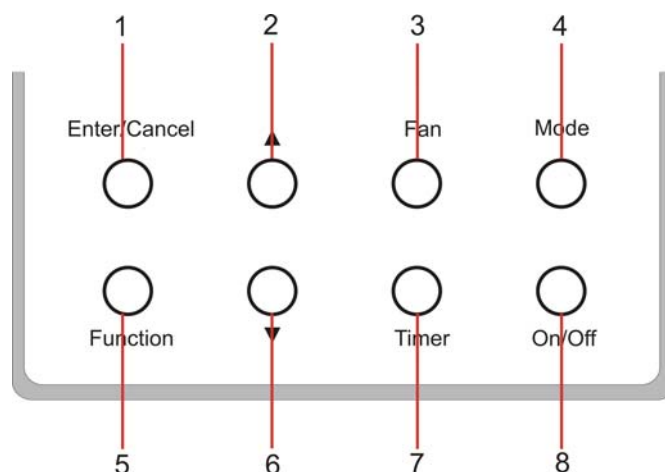
Table 1.1

No.	Symbols	Description
1		Swing function
2		Air exchange function (this function is yet unavailable for this unit).
3		Sleep function (Only sleep 1).
4		Each kind of running mode of indoor unit (auto mode)
5		Cooling mode
6		Dry mode
7		Fan mode
8		Heating mode
9		Defrosting function for the outdoor unit.
10		Gate-control function (this function is yet unavailable for this unit).
11		Lock function.
12	SHIELD	Shield functions (Button operation, temperature setting, On/Off operation, Mode setting are disabled by the remote monitoring system.)
13	Turbo	Turbo function state
14	MEMORY	Memory function (The indoor unit resumes the original setting state after power failure and then power recovery).
15		It blinks under on state of the unit without operation of any button.
16	SAVE	Energy-saving function.
17		Ambient/setting temperature value
18	E-HEATER	Electric auxiliary heating function (this function is yet unavailable for this unit).
19	BLOW	Blow function.
20		Timing value.
21	QUIET	Quiet function (two types: quiet and auto quiet)

Wired Controller(Optional)

2 Buttons

2.1 Layout of Buttons



2.2 Functions of Buttons

Table 2.1

No.	Name	Function
1	Enter/Cancel	Function selection and cancellation.
2	▲	① . Running temperature setting of the indoor unit, range:16~30°C. ② . Timer setting, range:0.5-24 hr.
6	▼	
3	Fan	Setting of the high/middle/low/auto fan speed.
4	Mode	Setting of the Cooling/Heating/Fan/Dry/Auto mode of the indoor unit.
5	Function	Switchover among the functions of Turbo/Save/E-heater/Blow etc..
7	Timer	Timer setting.
8	On/Off	Turn on/off the indoor unit
4+2	▲+Mode	Press them for 5s under off state of the unit to enter/cancel the Memory function(If memory is set, indoor unit after power failure and then power recovery will resume the original setting state. If not, the indoor unit is defaulted to be off after power recovery. Memory off is default before delivery.).
3+6	Fan+▼	By pressing them at the same time under off state of the unit, ❄️ will be displayed on the wired controller for the cooling only unit, while 🔥 will be displayed on the wired controller for the cooling and heating unit.
2+6	▲+▼	Upon startup of the unit without malfunction or under off state of the unit,press them at the same time for 5s to enter the lock state, in which case,any other buttons won't respond the press. Repress them for 5s to quit this state.

Wired Controller(Optional)

3 Operation Instructions

3.1 On/Off

Press On/Off to turn on the unit and turn it off by another press.

Note: The state shown in Fig.3.1.1 indicates the "Off" state of the unit after power on. The state shown in Fig.3.1.2 indicates the "On" state of the unit after power on.

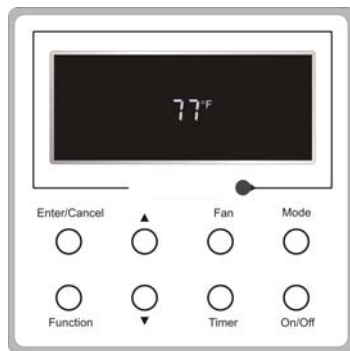


Fig.3.1.1 "Off" State

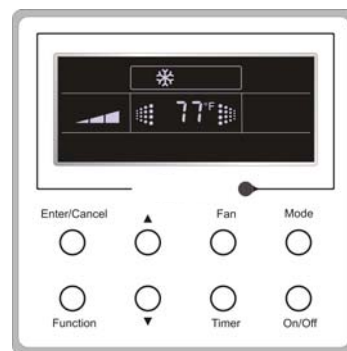
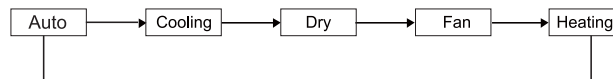


Fig.3.1.2 "On" State

3.2 Mode Setting

Under ON state of the unit, press the Mode to switch the operation modes as the following sequence: Auto–Cooling–Dry–Fan–Heating.



3.3 Temperature Setting

Press ▲ or ▼ to increase/decrease the preset temperature. If pressing either of them continuously, the temperature will be increased or decreased by 1°C every 0.5s, as shown in Fig.3.3.1.

In the Cooling, Dry, Fan or Heating mode, the temperature setting range is 16°C~30°C.

In the Auto mode, the setting temperature is unadjustable.

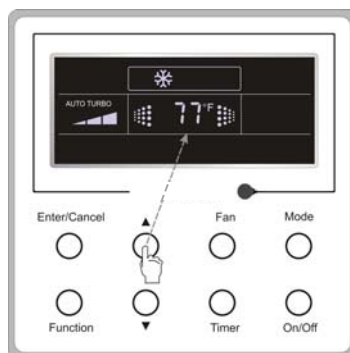


Fig.3.3.1

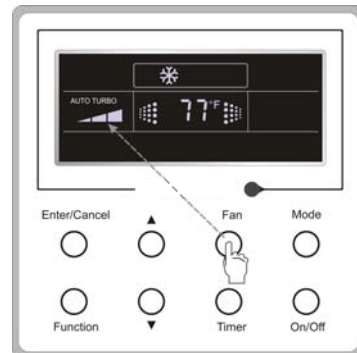
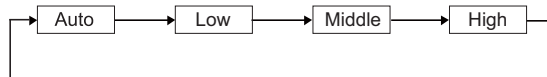


Fig.3.4.1

Wired Controller(Optional)

3.4 Fan Setting

Under the “On” state of the unit, press Fan and then fan speed of the indoor unit will change circularly as shown in Fig.3.4.1.



3.5 Timer Setting

Under on-state of the unit, Press Timer button to set timer off of the unit. Under off-state of the unit, press Timer button to set timer on of the unit in the same way.

• Timer on setting:

Under off-state of the unit without timer setting, if Timer button is pressed, LCD will display xx. Hour, with ON blinking. In this case, press ▲ or ▼ button to adjust timer on and then press Timer to confirm.

• Timer off setting:

Under on-state of the unit without timer setting, if Timer button is pressed, LCD will display xx. Hour, with OFF blinking. In this case, press ▲ or ▼ button to adjust timer on and then press Timer to confirm.

• Cancel timer:

After setting of timer, if Timer button is pressed, LCD won't display xx. Hour so that timer setting is canceled.

Timer off setting under the “On” state of the unit is shown as Fig.3.5.1.

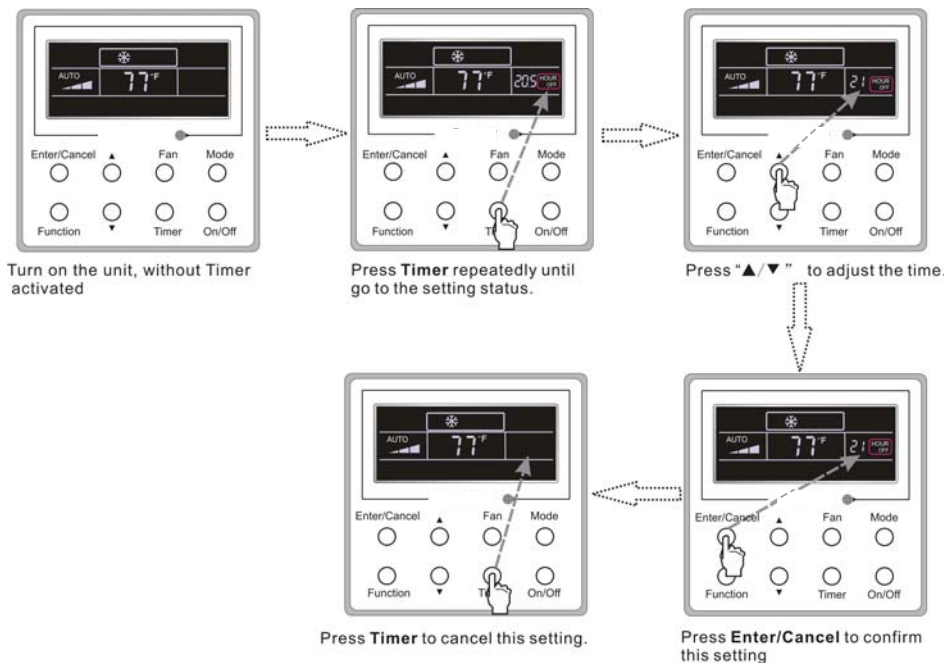


Fig.3.5.1 Timer off Setting under the “On” State of the Unit

Wired Controller(Optional)

Timer on setting under the "Off" state of the unit is shown as Fig.3.5.2.

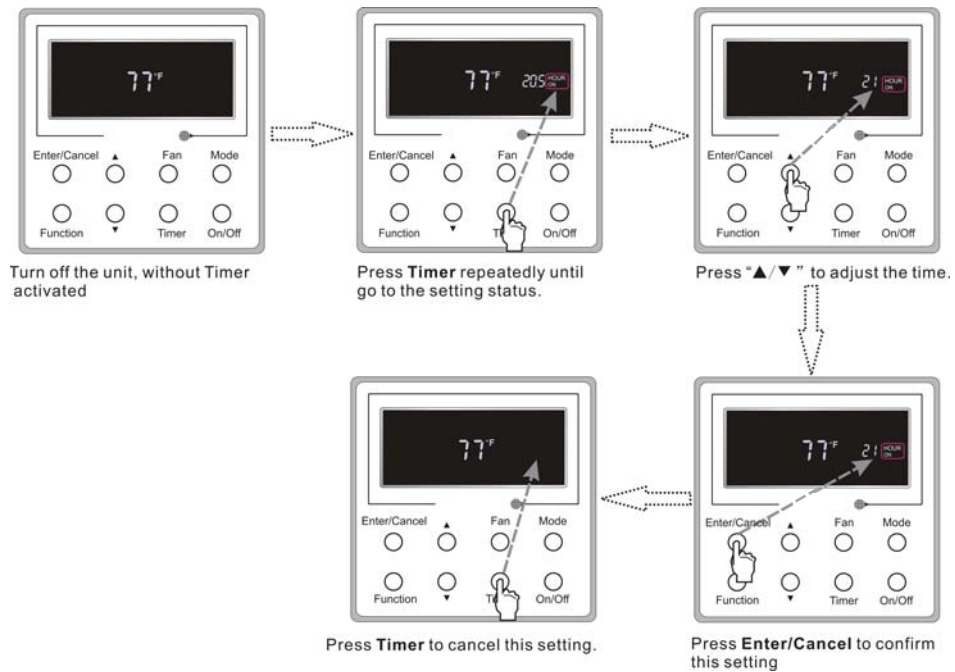




Fig.3.5.2 Timer on Setting under the "Off" State of the Unit

Timer range: 0.5-24hr. Every press of **▲** or **▼** will make the set time increased or decreased by 0.5hr. If either of them is pressed continuously, the set time will increase/ decrease by 0.5hr every 0.5s.

Wired Controller(Optional)

3.6 Swing Setting

Swing On: Press **Function** under on state of the unit to activate the swing function. In this case,  will blink. After that, press **Enter/Cancel** to make a confirmation.

Swing Off: When the Swing function is on, press **Function** to enter the Swing setting interface, with  blinking. After that, press **Enter/Cancel** to cancel this function. Swing setting is shown as Fig.3.6.1.

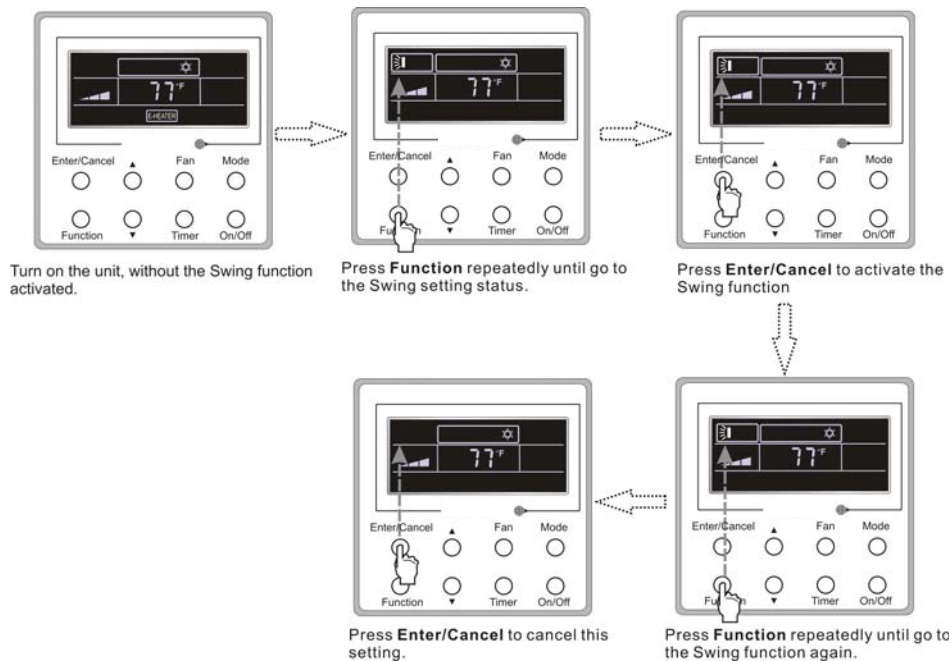


Fig.3.6.1 Swing Setting

Notes:

- ① . Sleep, Turbo or Blow setting is the same as the Swing setting.
- ② . After the setting has been done, it has to press the key "Enter/Cancel" to back to the setting status or quit automatically five seconds later.

Wired Controller(Optional)

3.7 Sleep Setting

Sleep on: Press **Function** under the **On** state of the unit till the unit enters the Sleep setting state. After that, press **Enter/Cancel** to confirm this setting.

Sleep off: When the Sleep function is activated, press **Function** to enter the Sleep setting status. After that, press **Enter/Cancel** to cancel this function.

In the Cooling or Dry mode, the temperature will increase by 1°C after the unit runs under Sleep1 for 1hr and 1°C after another 1hr. After that, the unit will run at this temperature.

In the Heating mode, the temperature will decrease by 1°C after the unit runs under Sleep 1 for 1hr and 1°C after another 1hr. After that, the unit will run at this temperature.

Sleep setting is shown as Fig.3.7.1.

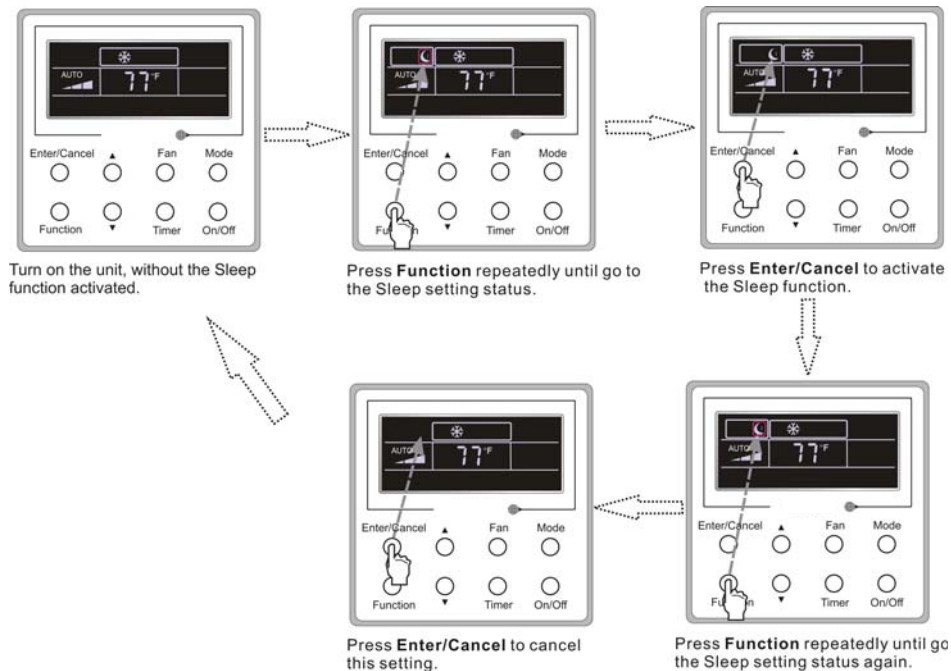


Fig.3.7.1. Sleep Setting

Wired Controller(Optional)

3.8 Turbo Setting

Turbo function: The unit at the high fan speed can realize quick cooling or heating so that the room temperature can quickly approach the setting value.

In the Cooling or Heating mode, press **Function** till the unit enters the Turbo setting status and then press **Enter/Cancel** to confirm the setting.

When the Turbo function is activated, press **Function** to enter the Turbo setting status and then press **Enter/Cancel** to cancel this function.

Turbo function setting is as shown in Fig.3.8.1.

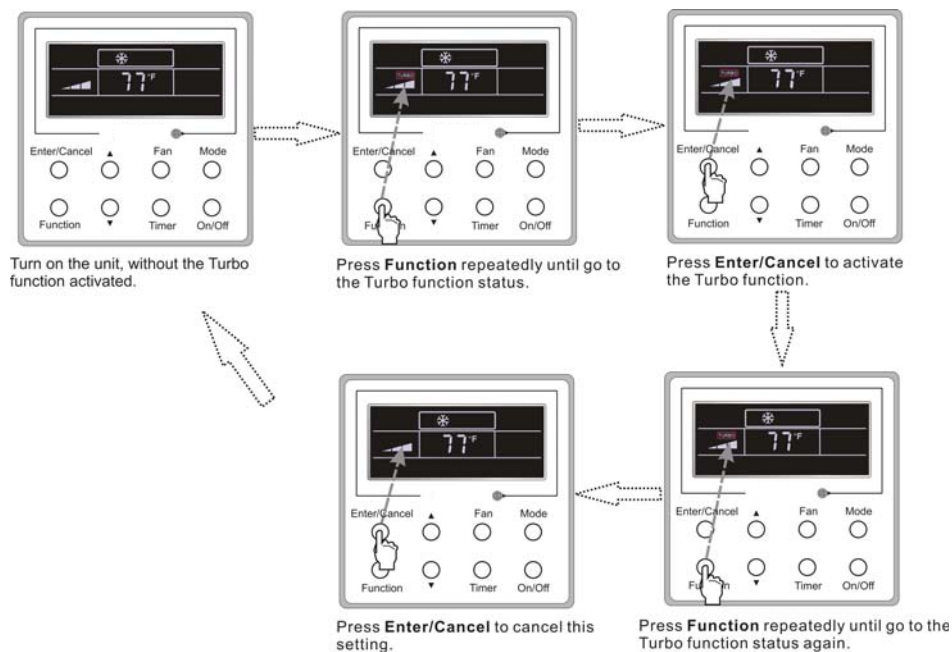


Fig.3.8.1 Turbo Setting

Wired Controller(Optional)

3.9 E-heater Setting

E-heater (auxiliary electric heating function): In the Heating mode, E-heater is allowed to be turned on for improvement of efficiency.

Once the wired controller or the remote controller enters the Heating mode, this function will be turned on automatically.

Press **Function** in the Heating mode to enter the E-heater setting interface and then press **Enter/Cancel** to cancel this function.

Press **Function** to enter the E-heater setting status, if the E-heater function is not activated, and then press **Enter/Cancel** to activate it.

The setting of this function is shown as Fig.3.9.1 below:

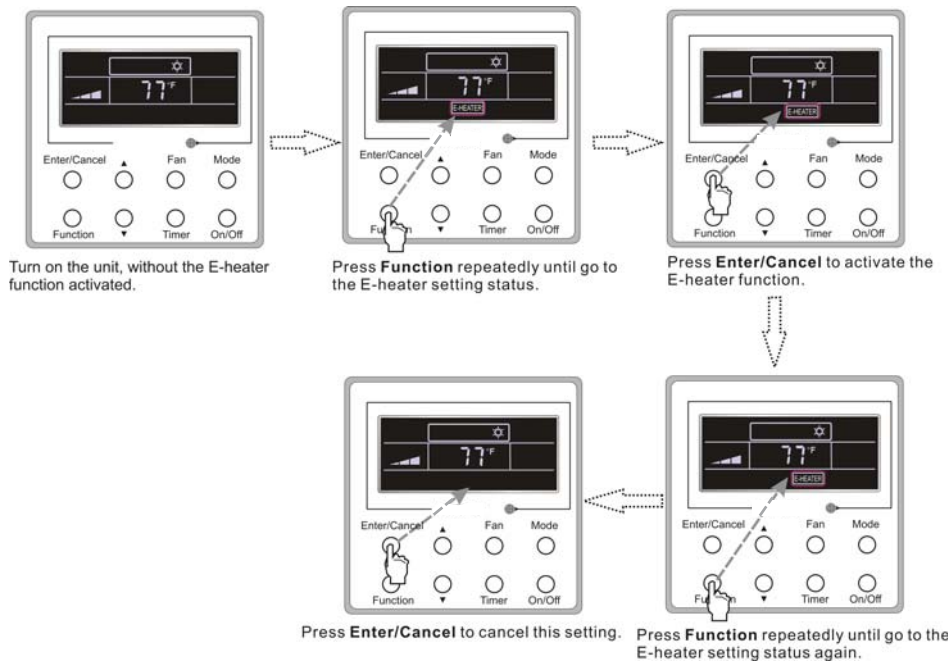


Fig.3.9.1 E-heater Setting

Wired Controller(Optional)

3.10 Blow Setting

Blow function: After the unit is turned off, the water in evaporator of indoor unit will be automatically evaporated to avoid mildew.

In the Cooling or Dry mode, press Function till the unit enters the Blow setting status and then press Enter/Cancel to activate this function.

When the Blow function is activated, press Function to the Blow setting status and then press Enter/Cancel to cancel this function.

Blow function setting is as shown in Fig.3.10.1

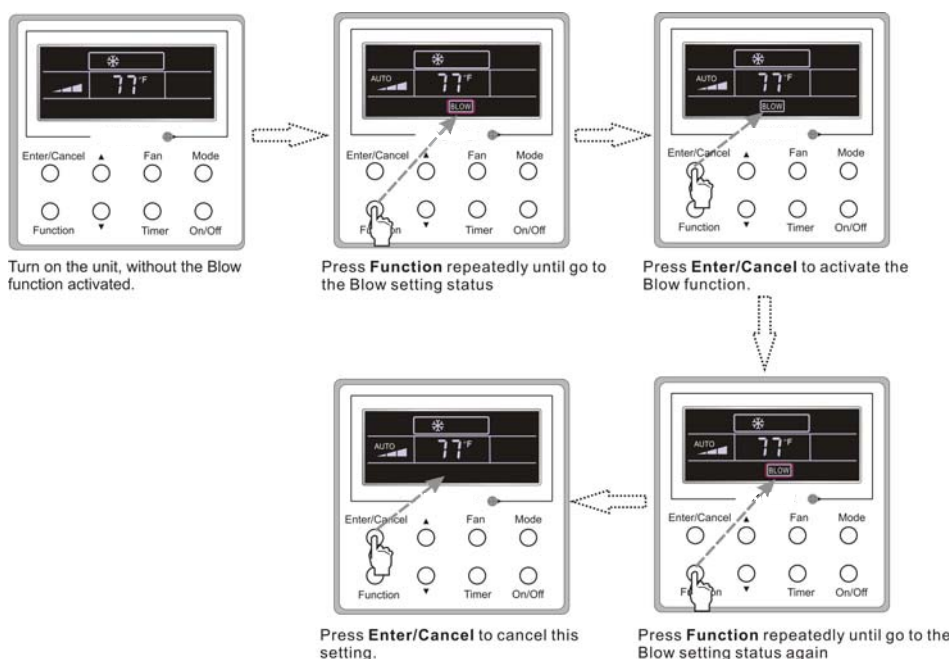


Fig.3.10.1 Blow Setting

Notes:


① . When the Blow function is activated, if turning off the unit by pressing On/Off or by the remote controller, the indoor fan will run at the low fan speed for 2 min, with "BLOW" displayed on the LCD. While, if the Blow function is deactivated, the indoor fan will be turned off directly.

② . Blow function is unavailable in the Fan or Heating mode.

Wired Controller(Optional)

3.11 Other Functions

a. Lock

Upon startup of the unit without malfunction or under the "Off" state of the unit, press ▲ and ▼ at the same time for 5s till the wired controller enters the Lock function. In this case, LCD displays .

After that, repress these two buttons at the same time for 5s to quit this function.

Under the Lock state, any other button press won't get any response.

b. Memory

Memory switchover: Under the "Off" state of the unit, press Mode and ▲ at the same time for 5s to switch memory states between memory on and memory off. When this function is activated, Memory will be displayed. If this function is not set, the unit will be under the "Off" state after power failure and then power recovery.

Memory recovery: If this function has been set for the wired controller, the wired controller after power failure will resume its original running state upon power recovery. Memory contents: On/Off, Mode, set temperature, set fan speed and Lock function.

4 Installation and Dismantlement

4.1 Connection of the Signal Line of the Wired Controller

- Open the cover of the electric control box of the indoor unit.
- Let the single line of the wired controller through the rubber ring.
- Connect the signal line of the wired control to the 4-pin socket of the indoor unit PCB.
- Tighten the signal wire with ties.
- The communication distance between the main board and the wired controller can be up to 20 meters (the standard distance is 8 meters)

4.2 Installation of the Wired Controller

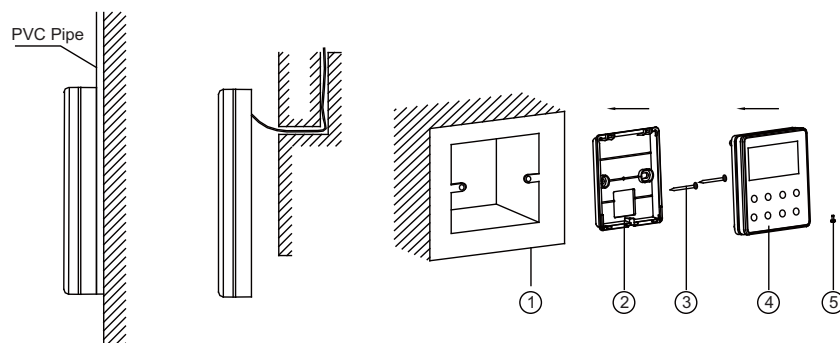


Fig.4.1 Accessories for the Installation of the Wired Controller

Table 4.1

No.	1	2	3	4	5
Name	Socket box embedded in the wall	Soleplate of the Wired Controller	Screw M4X25	Front Panel of the Wired Controller	Screw ST 2.9X6

Wired Controller(Optional)

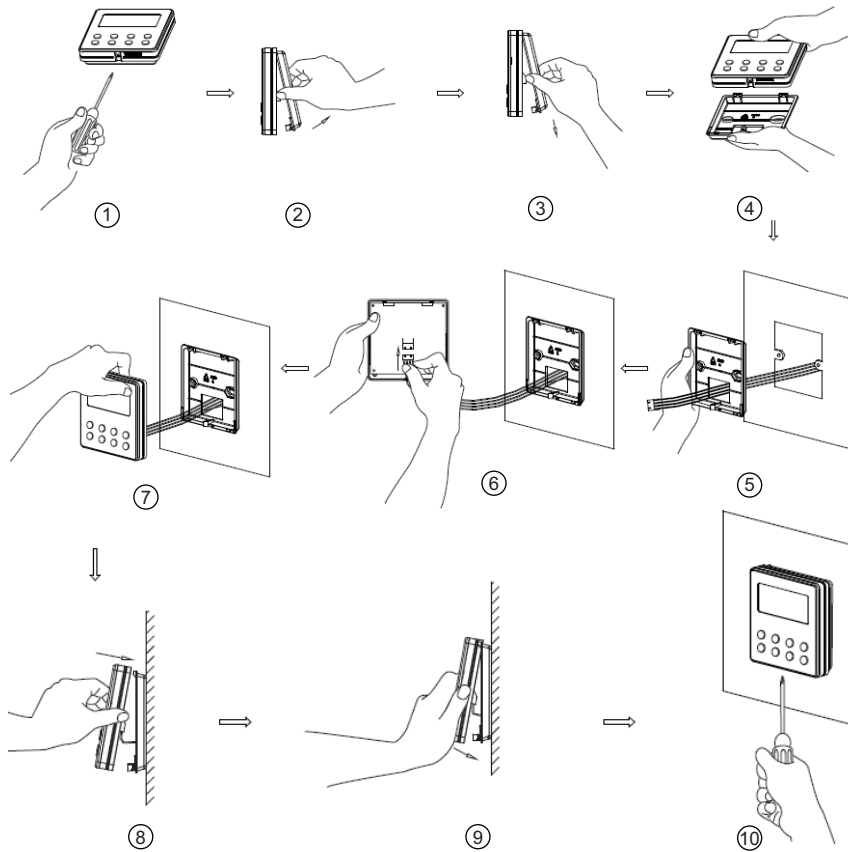


Fig.4.2

Fig.4.2 shows the installation steps of the wired controller, but there are some issues that need your attention.

1) Prior to the installation, please firstly cut off the power supply of the wire buried in the installation hole, that is, no operation is allowed with electricity during the whole installation.

2) Pull out the four-core twisted pair line from the installation holes and then let it go through the rectangular hole behind the soleplate of the wired controller.

3) Stick the soleplate of the wired controller to the wall over the installation hole and then fix it with screws M4X25.

4) Insert the four-core twisted pair line into the slot of the wired controller and then buckle the front panel and the soleplate of the wired controller together.

5) Finally, fix the front panel and the soleplate of the wired controller tightly by screws ST2.9X6.

CAUTION!

Please pay special attention to the followings during the connection to avoid the malfunction of the air conditioning unit due to electromagnetic interference.

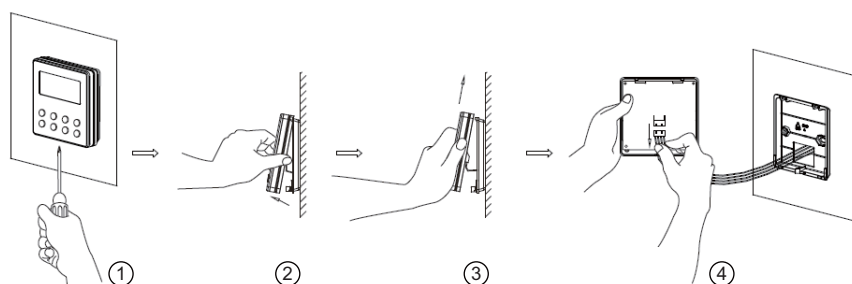
① . Separate the signal and communication lines of the wired controller from the power cord

Wired Controller(Optional)

and connection lines between the indoor and outdoor unit, with a minimum interval of 20cm, otherwise the communication of the unit will probably work abnormally.

②. If the air conditioning unit is installed where is vulnerable to electromagnetic interference, then the signal and communication lines of the wired controller must be the shielding twisted pair lines.

4.3 Dismantlement of the Wired Controller



5 Errors Display

If there is an error occurring during the operation of the system, the error code will be displayed on the LCD, as show in Fig.5.1. If multi errors occur at the same time, their codes will be displayed circularly.

Note: In event of any error, please turn off the unit and contact the professionally skilled personnel.

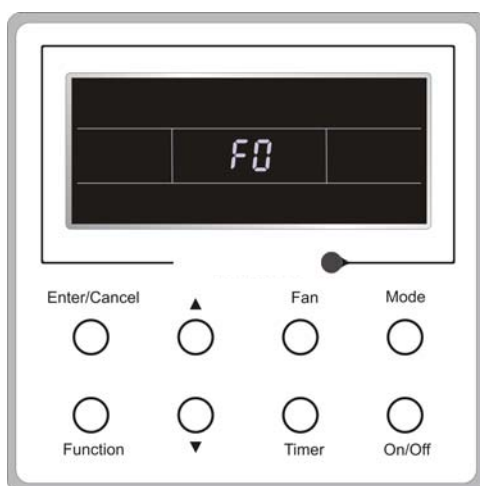


Fig.5.1

Wired Controller(Optional)

Table 5.1 Meaning of Each Error

Error	Error Code	Error	Error Code
Return air temperature sensor open/ short circuited	F1	Drive board communication error	P6
evaporator temperature sensor open/ short circuited	F2	Compressor overheating protection	H3
Indoor unit liquid valve temperature sensor open/short circuited	b5	Indoor and outdoor units unmatched	LP
Indoor gas valve temperature sensor open/ short circuited	b7	Communication line misconnected or expansion valve error	dn
IPM temperature sensor open/short circuited	P7	Running mode conflict	E7
Outdoor ambient temperature sensor open/ short circuited	F3	Pump-down	Fo
Outdoor unit condenser mid-tube temperature sensor open/short circuited	F4	Jumper error	C5
Discharge temperature sensor open/ short circuited	F5	Forced defrosting	H1
Indoor and outdoor communication error	E6	Compressor startup failure	Lc
DC bus under-voltage protection	PL	High discharge temperature protection	E4
DC bus over-voltage protection	PH	Overload protection	E8
Compressor phase current sensing circuit error	U1	Whole unit over-current protection	E5
Compressor demagnetization protection	HE	Over phase current protection	P5
PFC protection	Hc	Compressor desynchronizing	H7
IPM Temperature Protection	P8	IPM Current protection	H5
Over-power protection	L9	Compressor phase loss/reversal protection	Ld
System charge shortage or blockage protection	F0	Frequency restricted/reduced with whole unit current protection	F8
Capacitor charging error	PU	Frequency restricted/reduced with IPM current protection	En
High pressure protection	E1	Frequency restricted/reduced with high discharge temperature	F9
Low pressure protection	E3	Frequency restricted/reduced with anti-freezing protection	FH
Compressor stalling	LE	Frequency restricted/reduced with overload protection	F6
Over-speeding	LF	Frequency restricted/reduced with IPM temperature protection	EU
Drive board temperature sensor error	PF	Indoor unit full water error	E9
AC contactor protection	P9	Anti-freezing protection	E2
Temperature drift protection	PE	AC input voltage abnormal	PP
Sensor connection protection	Pd	Whole unit current sensing circuit error	U5
DC bus voltage drop error	U3	4-way valve reversing error	U7
Outdoor fan 1 error protection	L3	Motor stalling	H6
Outdoor fan 2 error protection	LA	PG motor zero-crossing protection	U8



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