



User Manual

Gold **SERIES**

Models

AGO-O-AHU36 / AGO-O-AHU60

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This document is customer property and is to remain with this unit.
These instructions do not cover all the different variations systems nor does it provide for every possible contingency to be met in connection with installation.
All phases of this installation must comply with NATIONAL STATE AND LOCAL CODES. If additional information is required please contact your local distributor.

SAFETY

WARNING

Disconnect all power to unit before installing or servicing. More than one disconnect switch may be required to de-energize the equipment.
Hazardous voltage can cause severe personal injury or death.

WARNING

If removal of the blower assembly is required, all disconnect switches supplying power to the equipment must be de-energized and locked (if not in sight of unit) so the field power wires can be safely removed from the blower assembly. Failure to do so can cause electrical shock resulting in personal injury or death.

WARNING

Because of possible damage to equipment or personal injury, installation, service, and maintenance should be performed by a trained, qualified service personnel. Consumer service is recommended only for filter cleaning/replacement. Never operate the unit with the access panels removed.

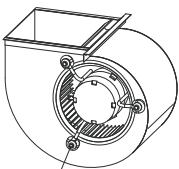
WARNING

These instructions are intended as an aid to qualified, licensed service personnel for proper installation, adjustment 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

The unit must be permanently grounded. Failure to do so can result in electrical shock causing personal injury or death.

WARNING



BLOWER MOTOR
SHIPPING BOLT

Make sure the blower motor support is tight (3-motor mount bolts) then check to see if wheel is secured to motor shaft before operating unit.

Fig.1 Checking motor fix status

GENERAL INFORMATION

This Regular Air Handler provides the flexibility for installation in Up-flow or horizontal-right application, See Figures 1. The drive AC motor offers a choice of air volume to match any application. The unit can be positioned for bottom return air in the up-flow position, left return in the horizontal position. Top and side power wiring and control Wiring, accessible screw terminals for control wiring all combine to make the installation easy, and minimize installation cost.

SAFETY REQUIREMENTS

1. This air handler should be installed in accordance with all national and local building/safety codes and requirements, local plumbing or waste water codes, and other applicable codes.
2. Refer to the unit rating plate for the air handler model number, and then see the dimensions page of this instruction for supply air plenum dimensions in Figure 2. The plenum must be installed according to the instructions.
3. Provide clearances from combustible materials as listed under Clearances to Combustibles.
4. Provide clearances for servicing ensuring that service access is allowed for both the burners and blower.
5. This air handler is not approved for installation in trailers or recreational vehicles.
6. Failure to carefully read and follow all instructions in this manual can result in air handler malfunction death personal injury and/or property damage.
7. Check the rating plate and power supply to be sure that the electrical characteristics match.
8. Air handler shall be installed so the electrical components are protected from water.
9. These instructions cover minimum requirements and conform to existing national standards and safety codes. In some instances these instructions exceed certain local codes and ordinances, especially those who have not kept up with changing residential and non-HUD modular home construction practices. These instructions are required as a minimum for a safe installation.

INSPECTION

As soon as a unit is received, it should be inspected for possible damage during transit. Also, before installation the unit should be checked for screws or bolts, which may have loosened in transit. There are no shipping or spacer brackets which need to be removed. Also check to be sure all accessories and coils are available. Installation of these accessories or field conversion of the unit should be accomplished before setting the unit in place or connecting any wiring electric heat, ducts or piping.

CLEARANCES

1. Refrigerant piping and connections-minimum 12" recommended.
2. Maintenance and servicing access-minimum 36" from front of unit recommended for blower motor/coil replacement.
3. Condensate drain line.
4. Filter removal- minimum 36" recommended.

LOCATION

Location is usually predetermined. Check with owner's or dealer's installation plans, if location has not been decided, consider the following in choosing a suitable location.

1. Select a location with adequate structural support, space for service access, clearance or air return and supply duct connections.
2. Use hanging brackets to waft mount unit as shown below.
3. Normal operating sound levels may be objectionable if the air handler is placed directly over some rooms such as bedrooms study etc.
4. Precautions should be taken to locate the unit and duct work so that supply air does not short circuit to the return air.

5. Select a location that will permit installation of condensate line to an open drain.

NOTE:When the coil is installed in a draw-thru application it is recommended to trap the primary and secondary drain line. If the secondary drain line is not used it must be capped. The coil is provided with a secondary drain it should be piped to a location that will give the occupant a visual warning that the primary drain is clogged. If the secondary drain is not used it must be capped.

6. When an evaporator coil is installed in an attic or above a finished ceiling an auxiliary drain pan should be provided under the coil as is specified by most local building codes.
7. Proper electrical supply must be available.
8. Clearances must also be taken into consideration, and provided for as follows:
 - A. Refrigerant piping and connections are located in the front.
 - B. Maintenance and servicing through the front or access side of unit with both sides and rear of unit having zero inch clearance.
 - C. Condensate drain lines are connected in the front (clear of filter).
 - D. Filter removal.
 - E. When no electric heat is used, the unit as well as all duct work and plenum are designed for zero clearance to combustible materials.

ACCESSORIES

Please check whether the following fittings are of full scope. If there are some spare fittings, please restore them carefully.

NO.	Part Name	Quantity	Illustrations
1	Seal ring	3	
2	Drain joint	1	
3	Drain plug	2	

FIGURE 1: Multiple types of typical air supply modes

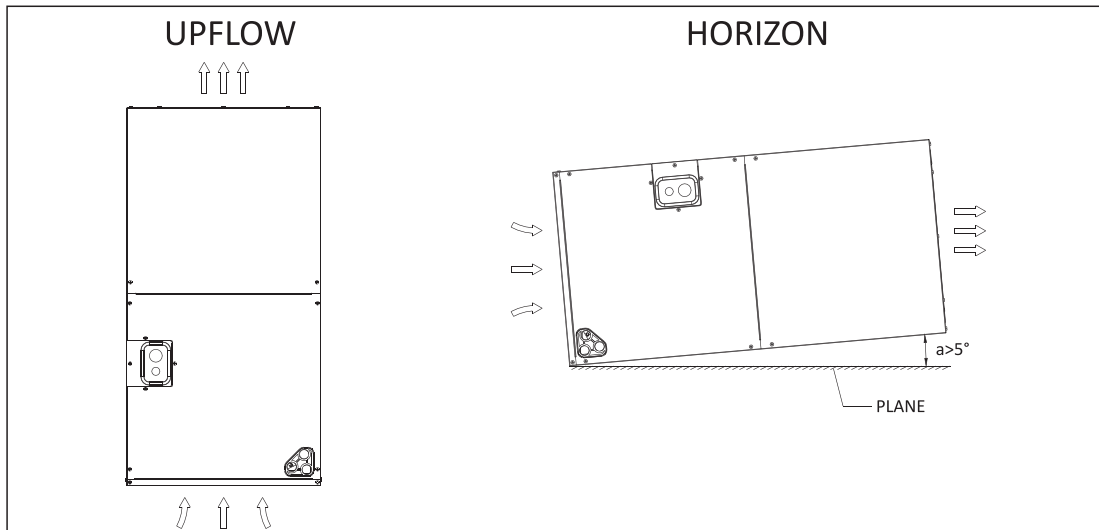


FIGURE 2: Plenum Clearances

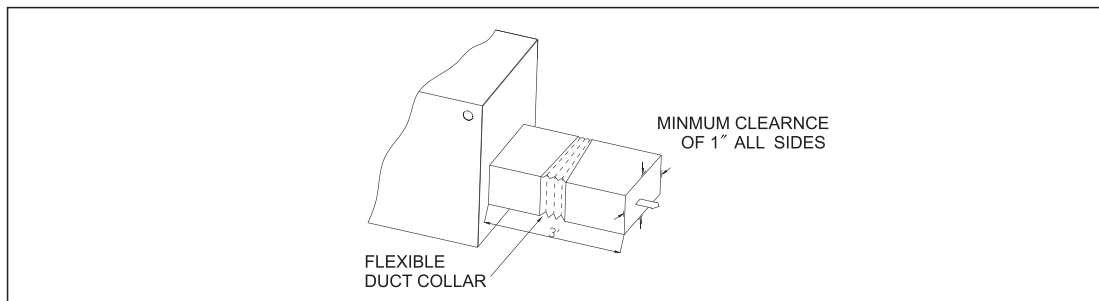


FIGURE 3:Dimensions and Duct Sizes

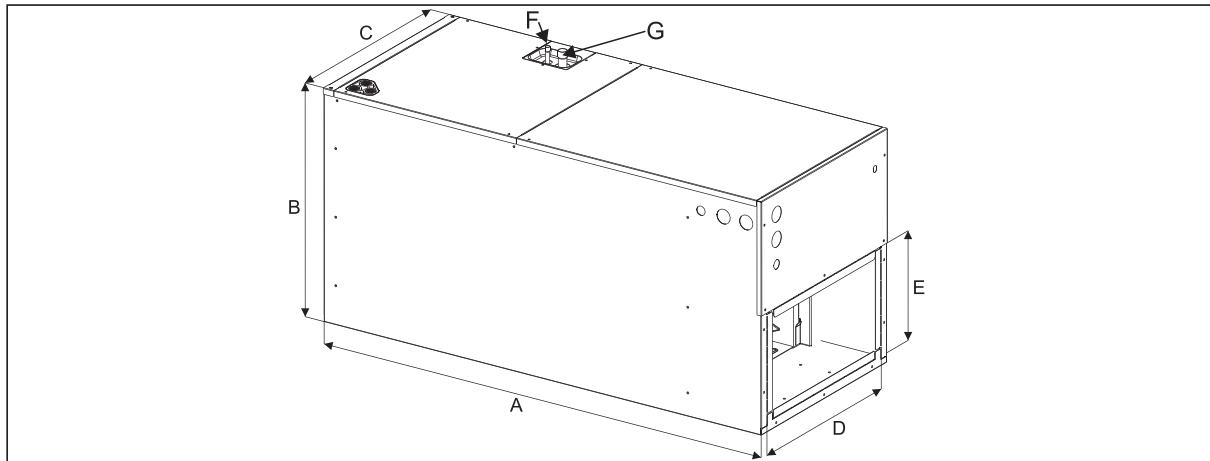


TABLE 1:Dimensions

MODEL	Dimensions(mm)						
	A(Height)	B(Depth)	C(Width)	D	E	F(Gas)	G(Liquid)
36	1160	560	500	454	265	Φ9.52	Φ19.05
60	1160	560	500	454	265	Φ9.52	Φ19.05

DUCT CONNECTIONS

Air supply and return may be handled in one of several ways best suited to the installation(See Figure 3 and table 1 for dimensions for duct inlet and outlet connections).

The vast majority of problems encountered with combination cooling systems can be linked to improperly designed or installed duct systems, it is therefore highly important to the success of an installation that the duct system be properly designed and installed. Use flexible duct collars to minimize the transmission of vibration/noise into the conditioned space.

Where-return air duct is short, or where sound is liable to be a problem, sound absorbing glass fiber should be used inside the duct. Insulation of duct work is a must where it runs through an uncooled space during the cooling season. The use of a vapor barrier is recommended to prevent absorption of moisture from the surrounding air into the insulation. The supply air duct should be properly sized by use of a transition to match unit opening. All ducts should be suspended using.

Flexible hangers and never fastened directly to the structure. This unit is not designed for non-ducted(freeblow)applications. Duct work should be fabricated and installed in accordance with local and/or national codes.

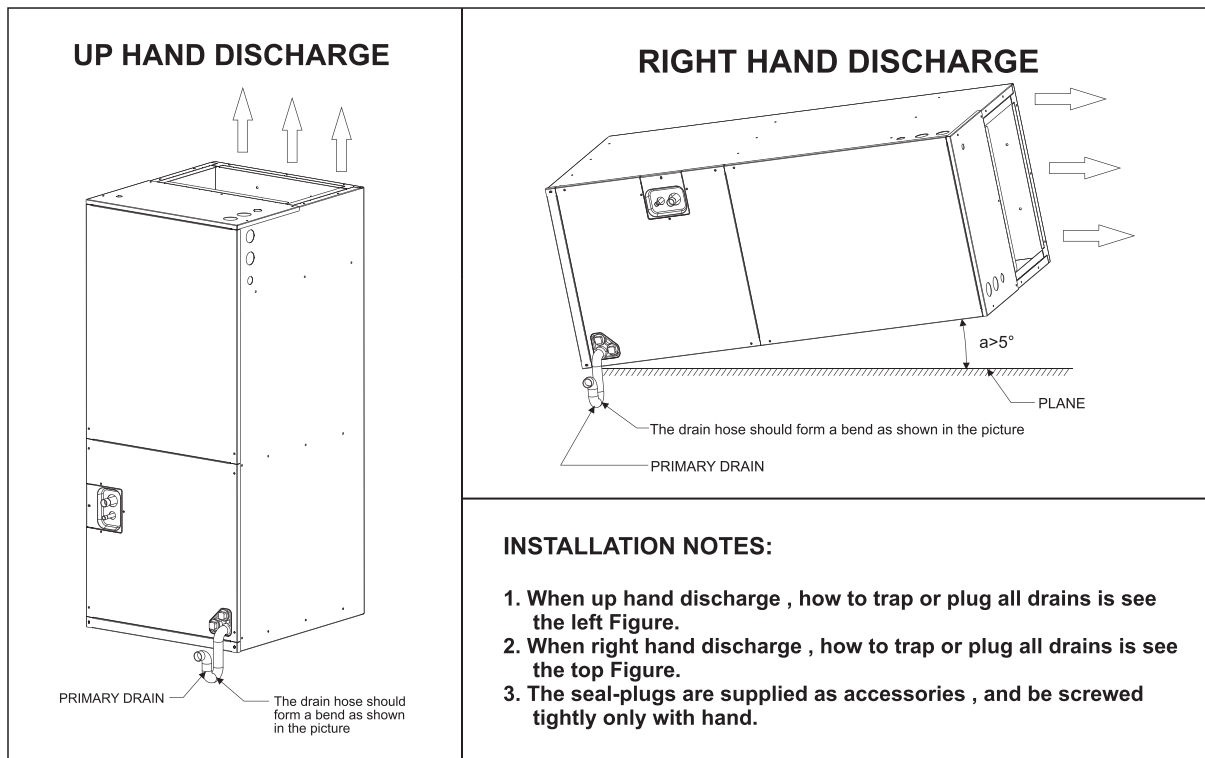
DRAIN CONNECTIONS

All drain lines should be trapped a minimum of three inches, should be pitched away from unit drain Pan and Should be no smaller than the coil drain connection.

CAUTION

Drain connection should be hand-tightened,plus no more than 1/16 turn.

FIGURE4: Drain connection

**⚠ CAUTION**

Horizontal drain cutout in the center access panel should be removed by using a utility knife. Do not try to knock out.

Route the drain line so that it does not interfere with accessibility to the coil, air handling system or filter and will not be exposed to freezing temperatures. See Figures 1, 2 and 3.

NOTE: When the coil is installed in an attic or above a finished ceiling, an auxiliary drain pan should be provided under the coil as is specified by most local building codes.

Coils Should be installed level or pitched slightly toward the drain end. Suggested pitch should not exceed 1/4 inch per foot of coil. The coil is provided with a secondary drain that should be trapped and piped to a location that will give the occupant a visual warning that the primary drain is clogged. If the secondary drain is not used it must be capped. The drain pan connections are designed to ASTM Standard D 2466 Schedule 40, Use 3/4" PVC or steel threaded pipe. Since the drains are not subject to any pressure it is not necessary to use Schedule 40 pipe for drain lines. It is recommended that all drain connections be sealed with teflon tape or equivalent.

ORIFICE INSTALLATION

A standard orifice is preinstalled in the unit and is marked on the unit data plate. Refer to the outdoor unit instruction and application data to determine the proper orifice required for your particular system combination and piping conditions.

If the orifice sizes match, nothing further is required and the refrigerant lines may be connected per the outdoor unit instruction. However, If another orifice should be used, change the orifice in the coil with the following procedure:

⚠ CAUTION

This fitting is a right-hand thread, turn counter-clockwise to remove.

1. Remove the liquid line fitting using 3/4" wrenches, and remove the preinstalled orifice with a small diameter wire or paper clip.
2. Remove the new orifice from the packet and verify that it is the correct number required. Install this orifice with the rounded end toward the coil and the flat end outward.
3. Thread the liquid line fitting back in place on the coil. Tighten the fitting hand tight and turn an additional 1/8 turn to seal.

⚠ CAUTION

Use wrenches to turn fittings. Using pliers will cause internal damage to the fitting.

NOTE: This procedure should be done within 2 minutes to keep air and contaminants from entering the coil. If the orifice cannot be replaced and the coil resealed within 2 minutes, then it should be temporarily closed to air using masking tape (short term delay) or plugging/capping (long term delay). There is no need to purge the coil if this procedure is done within the time limit.

4. Mark the data plate with the orifice installed.

REFRIGERANT LINE CONNECTION

See the outdoor unit installation instructions for the procedure to install field supplied tubing for systems with sweat fittings. Connect lines as follows:

NOTE: Route the refrigerant lines to the coil in a manner that will not obstruct service access to the coil, air handling system or filter.

1. Removing the bottom cover, push up the front cover of pipe.
2. Braze the suction line and the liquid line. See figure 5.
3. Attach the front cover of pipe to bottom cover, reattach the bottom cover.
4. Paste the black sponge onto the pipeline panel to complete the sealing process.

Line should be sound isolated by using appropriate hangers or strapping. When field supplied lines are used be sure to insulate the liquid line under any conditions where the ambient temperature is greater than the liquid line temperature.

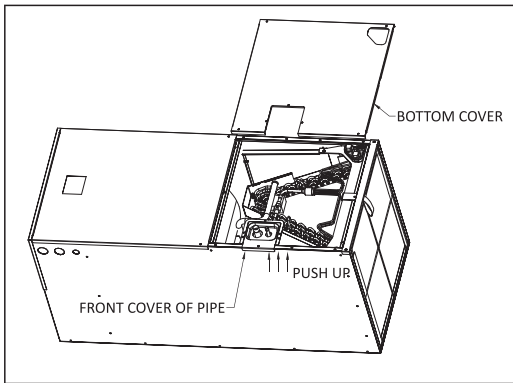


FIGURE 5: Connect the Refrigerant line

CLEANING THE AIR FILTER

1. The air filter can prevent the dust or other particulate from going inside. In case of blockage of the filter, the working efficiency of the air conditioner may greatly decrease. Therefore, the filter must be cleaned once two weeks during long time usage.
2. If the air conditioner is positioned in a dust place, the cleaning frequency of the air filter must be increased.
3. If the accumulated dust is too heavy to be cleaned, please replace the filter with a new one (replaceable air filter is an optional fitting).

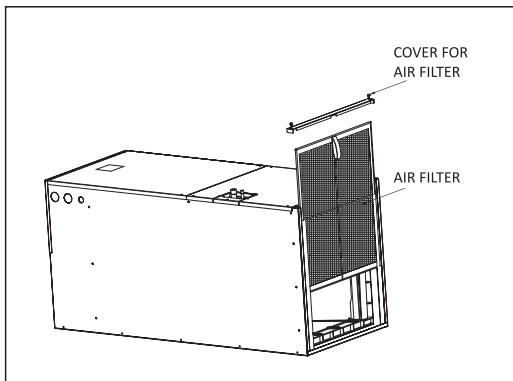


FIGURE 6: Remove The Air Filter

1. Tear down the two bolts signed A and B, take down the cover for air filter, see in Figure 6.
2. Hold the edge of the air filter and extract out.
3. Clean the air filter (Vacuum cleaner or pure water may be used to clean the air filter. If the dust accumulation is too heavy, please use soft brush and mild detergent to clean it and dry out in cool place).

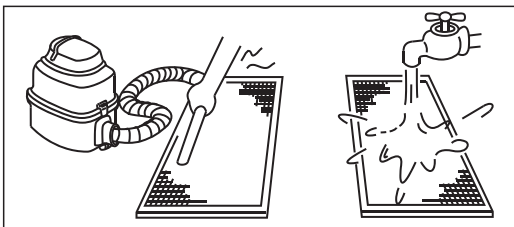


FIGURE 7: Clean The Air Filter

4. Install the air filter in the reverse order of step 1 and 2.

⚠ CAUTION

Do not dry out the air filter under direct sunshine or with fire.

COIL ASSEMBLY

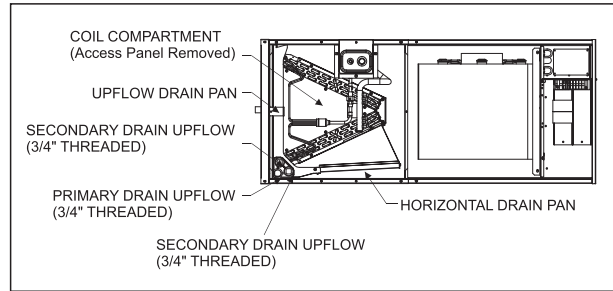


FIGURE 8: Coil Assembly

MAINTENANCE

1. Filters must be cleaned or replaced when they become dirty. Inspect at least once per month. The frequency of cleaning depends upon the hours of operation and the local atmospheric conditions. Clean filters keep unit efficiency high.
2. If the coil needs to be cleaned or replaced, it should be washed with Calgon coilclean (mix one part coilclean to seven parts water). Allow solution to remain on coil for 30 minutes before rinsing with clean water. Solution should not be permitted to come in contact with painted surfaces.
3. The bearings of the blower motor are permanently lubricated.
4. During the cooling season check the condensate drain lines to be sure that condensate is flowing from the primary drain but not from the secondary drain, if condensate ever flows from the secondary drain the unit should be promptly shut off and the condensate pan and drains cleaned to insure a free flowing primary drain.

Wire

1. To avoid the electric shock, please link the air conditioner with the ground. The plug in the air conditioner has joined the ground wiring, please don't change it freely.
2. The power socket is used as the air conditioner specially.
3. Don't pull the power wiring hard.
4. When linking the air conditioner with the ground observe the local rules.
5. If necessary, use the power fuse or the circuit, breaker or the corresponding scale ampere.

When installing or repair the air condition, relate to system wiring, please operating as follows:

1. Tear down the seven bolts in the Upper cover and The top
2. Hold the edge of the top condenser and extract out.
3. Install the top condenser in the reverse order of step 1 and 2.

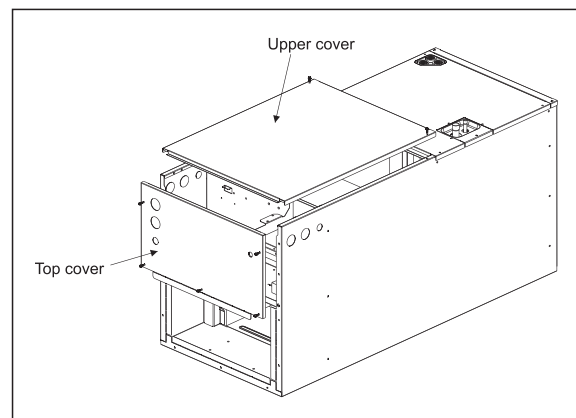


FIGURE 9: Remove The Upper cover and The Top cover

ADDITIONAL REFRIGERANT CHARGE

After the vacuum drying process is carried out, the additional refrigerant charge process need to be performed.

The outdoor unit is factory charged with refrigerant. The additional refrigerant charge volume is decided by the diameter and length of the liquid pipe between indoor and outdoor unit. Refer the following formula to calculate the charge volume.

Diameter of liquid pipe (IN[mm])	1/4 [6.35]	3/8[9.52]	1/2[12.7]
Formula	$V=0.22\text{oz} \times (L-16)$	$V=0.43\text{oz} \times (L-16)$	$V=0.64\text{oz} \times (L-16)$

V: Additional refrigerant charge volume (oz).

L : The length of the liquid pipe (ft).

Note:

Refrigerant may only be charged after performed the vacuum drying process.

Always use gloves and glasses to protect your hands and eyes during the charge work.

Use electronic scale or fluid infusion apparatus to weight refrigerant to be recharged.

Be sure to avoid extra refrigerant charged, it may cause liquid hammer of the compressor or protections.

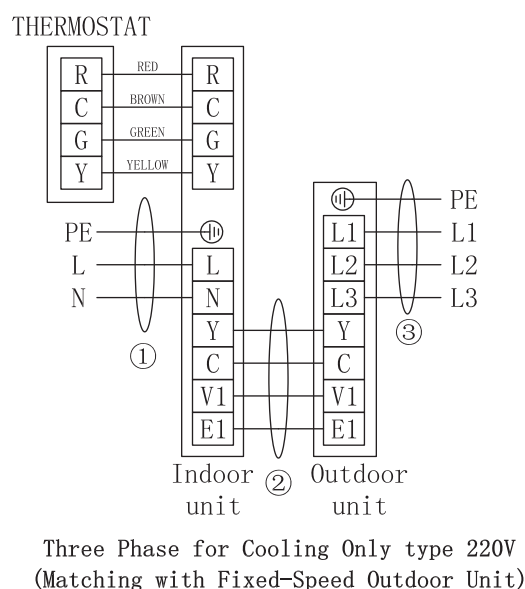
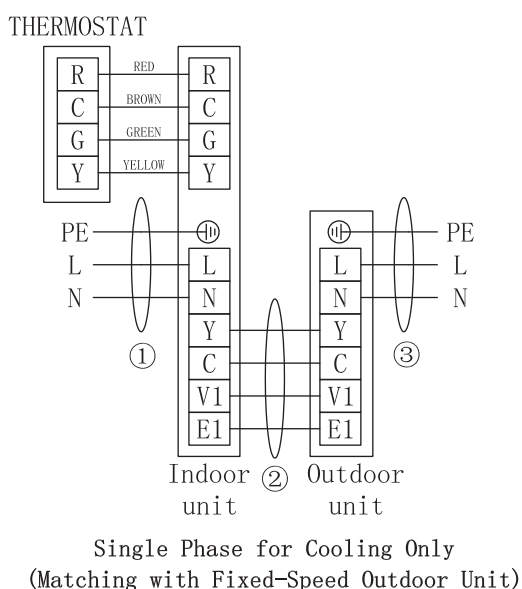
Use a supplementing flexible pipe to connect refrigerant cylinder, pressure gauge and outdoor unit.

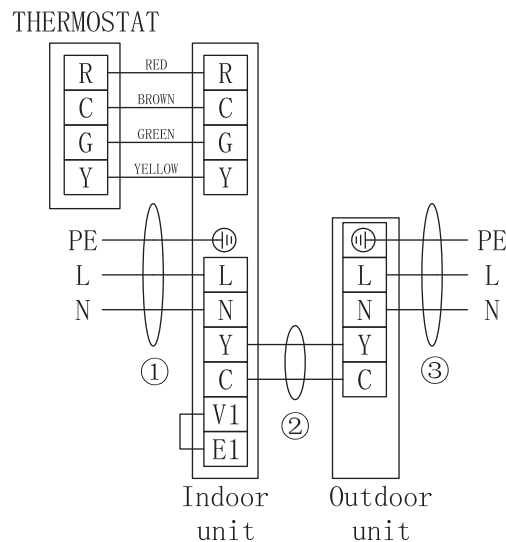
The refrigerant should be charged in liquid state. Before recharging, The air in the flexible pipe and manifold gauge should be exhausted.

After finished refrigerant recharge process, check whether there is refrigerant leakage at the connection joint part.(Using gas leakage detector or soap water to detect).

Power wiring diagram

There are many kinds of power wiring diagram for different user powers and models, take double-temperature units for examples:





Wiring for Inverter-Driven Outdoor Unit

COOLING ONLY ELECTRIC WIRING GAUGE

COOLING ONLY ELECTRIC WIRING GAUGE					
Capacity(Btu/h)			36000 Btu/h	60000 Btu/h	
Power	Indoor	Phase	Single		Single
		Frequency/Voltage	220V,60Hz 1PH		220V,60Hz 1PH
	Outdoor	Phase	Single		Three
		Frequency/Voltage	220V,60Hz 1PH		220V,60Hz 3PH
Lines Gauge	Input Current Fuse	Indoor unit(A)	5A	5A	5A
	Indoor Unit	Line Quantity	3	3	3
	Power Line	Line Diameter(AWG)	16/1.5mm ²	16/1.5mm ²	16/1.5mm ²
	Outdoor Unit	Line Quantity	3	3	4
	Power Line	Line Diameter(AWG)	12/4.0mm ²	8/10.0mm ²	12/4.0mm ²
	Outdoor-Indoor	Line Quantity	4	4	4
	Signal Line	Line Diameter(AWG)	18/1.0mm ²	18/1.0mm ²	18/1.0mm ²
	Thermostat	Line Quantity	4	4	4
	Signal Line	Line Diameter(AWG)	18/1.0mm ²	18/1.0mm ²	18/1.0mm ²

FAULT CODE

The red light flashes at a frequency of 1Hz, and the green light lights is indicate normal operation.

Fault: The red light lights, and the greenlight flashes every 8 seconds, indicating a fault.Variousfaults are shown in the table below:

TYPES	LED STATUS
Green light flashing at 1Hz(slow flashing)	Standby mode
Green light alawys on	Startup and operation
T2 sensor malfunction	The green light flashes 9 times every 8 seconds, while the red light remains on
External feedback protection	The green light flashes 11 times every 8 seconds, while the red light remains on