



Owner's Manual

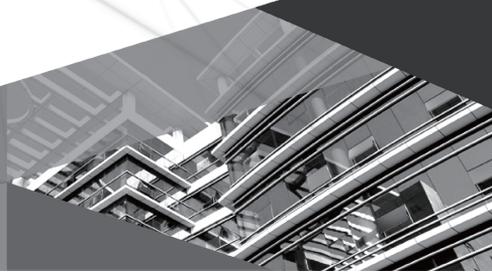
Original Instructions

DC Inverter Rooftop Packaged Air Conditioner

Models:

CP400A-X360AM6H1H

Thank you for choosing this product. Please read this Owner's Manual carefully before operation and retain it for future reference.



To Users

Thank you for selecting CIAC product. Please read this instruction manual carefully before installing and using the product, so as to master and correctly use the product. In order to guide you to correctly install and use our product and achieve expected operating effect, we hereby instruct as below:

- (1) 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.
- (2) In order to ensure reliability of product, the product may consume some power under stand-by status for maintaining normal communication of system and preheating refrigerant and lubricant. If the product is not to be used for long, cut off the power supply; please energize and preheat the unit in advance before reusing it.
- (3) Please properly select the model according to actual using environment, otherwise it may impact the using convenience.
- (4) This product has gone through strict inspection and operational test before leaving the factory. In order to avoid damage due to improper disassembly and inspection, which may impact the normal operation of unit, please do not disassemble the unit by yourself. You can contact with the special maintenance center of our company if necessary.
- (5) If the product needs to be installed, moved, or maintained, please contact our designated dealer or local service center for professional support. Users should not disassemble or maintain the unit by themselves, otherwise it may cause relative damage, and our company will bear no responsibilities.
- (6) All the illustrations and information in the instruction manual are only for reference. In order to make the product better, we will continuously conduct improvement and innovation. If there is adjustment in the product, please subject to actual product.

Exception Clauses

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

- (1) Damage the 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 calamities, bad using environment or force majeure.

Contents

1 Safety Notices (Please be sure to abide)	1
2 Product Introduction	4
2.1 Nominal Operating Condition	4
2.2 Operating Range.....	4
3 Pre-installation Instruction	4
3.1 Checking Product Received	4
3.2 Standard Accessory Parts	5
3.3 Before Beginning Installation.....	5
3.4 Codes & Regulations	5
3.5 Replacement Parts.....	5
4 Installation Instructions	6
4.1 Physical Dimension.....	6
4.2 General Information	7
4.3 Crane Way	7
4.4 Installation Positions and Clearances.....	8
4.5 Installation of Condensate Pipe.....	10
4.6 Adjust the Tightness of the Belt	11
5 Electrical Installation	13
5.1 Electrical Date and Wire Sizing	13
5.2 Connect Wiring to the Terminals.....	14
5.3 Electrical Connections-Supply Voltage	15
5.4 Wiring Diagram	16
5.5 Engineering Wiring Diagram	16
6 Trial Run	17
7 Troubleshooting	18
8 Maintenance	19

1 Safety Notices (Please be sure to abide)

SPECIAL WARNING:

- (1) Be sure to comply with national gas regulations.
- (2) Do not pierce or burn.
- (3) Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- (4) Be aware that refrigerants may not contain an odor.



PROHIBITED: This sign indicates that the operation must be prohibited. Improper operation may cause severe damage or death to people.



WARNING: If not abide strictly, it may cause severe damage to the unit or the people.



NOTICE: If not abide strictly, it may cause slight or medium damage to the unit or the people.



OBSERVED: This sign indicates that the items must be observed. Improper operation may cause damage to people or property.

Please read this operating manual carefully before operating the unit.



Before using the air conditioner, please read the instruction manual.



Before installing the air conditioner, please read the instruction manual.



Before repairing the air conditioner, please read the instruction manual.

The figures in this manual may be different with the material objects, please refer to the material objects for reference.



PROHIBITED

- (1) The air conditioner should be grounded to avoid electric shock. Do not connect the ground wire to gas pipe, water pipe, lightning arrester, or telephone wire.
- (2) According to federal/state/local laws and regulations, all packages and transportation materials, including nails, metal or wooden parts, and plastic packing material, must be treated in a safe way.

**WARNING**

- (1) This product can't be installed at corrosive, inflammable or explosive environment or the place with special requirements, such as kitchen. Otherwise, it will affect the normal operation or shorten the service life of the unit, or even cause fire hazard or serious injury. As for above special places, please adopt special air conditioner with anti-corrosive or anti-explosion function.
- (2) Do not use or store flammable, explosive, poisonous or other dangerous substances beside the air conditioner.
- (3) Any person who is involved with working on or breaking into 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 specification.
- (4) 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 the person competent in the use of flammable refrigerants.
- (5) The appliance shall be installed in accordance with national wiring regulations.
- (6) An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- (7) Air conditioner should be stored with protective measures against mechanical damage caused by accident.
- (8) During installation, use the specialized accessories and components, otherwise water leakage, electric shock or fire hazard may occur.
- (9) Please install the air conditioner in a secure place that can withstand the weight of air conditioner. Insecure installation may cause the air conditioner falling down and lead to injury.
- (10) Be sure to adopt independent power circuit. If the power cord is damaged, it must be repaired by the manufacturer, service agent or other professional agents.
- (11) In case of trouble (e.g., burnt smell), please immediately cut off the main power of air conditioner unit.
- (12) The air conditioner can be cleaned only after it is turned off and power-disconnected, otherwise electric shock may occur.
- (13) The air conditioner is not intended to be cleaned or maintained by children without supervision.
- (14) Do not alter the setting of pressure sensor or other protective devices. If the protective devices are short-circuited or changed against rules, fire hazard or even explosion may occur.



WARNING

- (15) Do not operate the air conditioner with wet hands. Do not wash or sprinkle water on the air conditioner, otherwise malfunction or electric shock will occur.
- (16) Do not dry the filter with naked flame or an air blower, otherwise the filter will be out of shape.
- (17) When installing or re-installing the air conditioner, please keep the refrigerant circuit away from substances other than the specified refrigerant, such as air. Any presence of foreign substances will cause abnormal pressure change or even explosion, resulting in injury.



NOTICE

- (1) Do not put a finger or other objects into the air inlet or air return grill.
- (2) Please do not foot on or place any goods on air conditioner unit.
- (3) Before installation, please check the power supply for compliance with the ratings on nameplate. Check the power safety as well.
- (4) Please adopt safety protection measures before touching the refrigerant pipe, otherwise your hands may be hurt.
- (5) Please arrange the drain pipe according to the instruction manual.
- (6) Never stop the air conditioner by directly cutting off the power.
- (7) Never install the air conditioner in the following places:
 - a) Places with oil smoke or volatile liquid: plastic parts may deteriorate and fall off or even cause water leakage.
 - b) Places with corrosive gas: copper pipe or the welding parts may be corroded and cause refrigerant leakage. Places with oil smoke or volatile liquid: plastic parts may deteriorate and fall off or even cause water leakage.
- (8) Adopt proper measures to protect the unit from small animals because they may damage the electric components and cause malfunction of the air conditioner.
- (9) The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.



OBSERVED

- (1) If wired control is to be used, it should be connected first before powering up the unit, otherwise the wired control may not be able to use.
- (2) Before operating the unit under low temperature, connect it to power for 8 hours. If it is stopped for a short time, for example, one night, do not cut off the power (This is to protect the compressor).

**OBSERVED**

- (3) Once started, the air conditioner shall not be stopped at least after 5 minutes or longer, otherwise the oil return to compressor may be affected.
- (4) Please disconnect the main power if to put the air conditioner unit out of use for a long period.

2 Product Introduction

The unit is completely assembled, piped, and wired at the factory to provide one-piece shipment and rigging. Each unit is pressurized with a holding charge of R410A for storage and shipping.

The compact design, attractive appearance, outstanding anti-rust cabinet and quiet operation make these units suitable for almost any manufactured or modular homes, offices, restaurants, residences, or similar places.

2.1 Nominal Operating Condition

Mode	Outdoor Condition		Indoor Condition	
	DB Temperatrue(°C)	WB Temperatrue(°C)	DB Temperatrue(°C)	WB Temperatrue(°C)
Cooling	35	—	26.7	19.4

2.2 Operating Range

Model	Mode	Outdoor Condition (DB °C)
CP400A-X360AM6H1H	Cooling	18~52

3 Pre-installation Instruction

3.1 Checking Product Received

Upon receiving the product, check any damage from transportation. Shipping damage is the responsibility of the carrier. Verify the model number, specifications and accessories are correct prior to installation. The distributor or manufacturer will

not accept claims from dealers for transportation damage or installation of incorrectly shipped units.

3.2 Standard Accessory Parts

The standard accessory parts listed below are furnished and should be used as required.

No.	Name	Appearance	Q'ty	Usage
1	Wired Controller		1	To control the unit
2	Pulley		1	NOTE: Only applicable to 30ton

3.3 Before Beginning Installation

Carefully read all instructions for the installation prior to installing product. Make sure each step or procedure is understood and any special considerations are taken into account before starting installation. Assemble all tools, hardware and supplies needed to complete the installation. Some items may need to be purchased locally. Make sure everything needed to install the product is on hand before starting.

3.4 Codes & Regulations

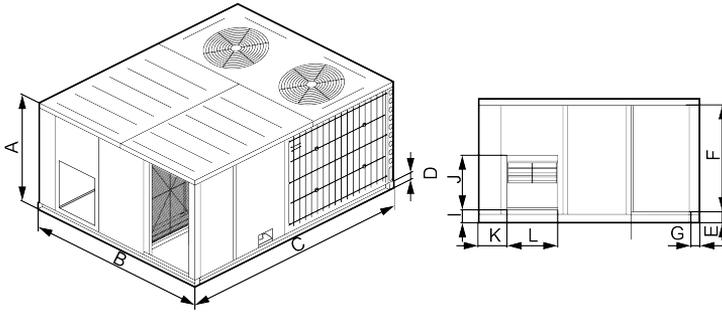
This product is designed and manufactured to comply with national codes. It is installer's responsibilities to install the product in accordance with such codes and/or any prevailing local codes/regulations. The manufacturer assumes no responsibilities for equipment installed in violation of any codes or regulations.

3.5 Replacement Parts

When reporting shortages or damages, or ordering repair parts, give the complete product model and serial numbers as stamped on the product. Replacement parts for this product are available through your contractor or local distributor.

4 Installation Instructions

4.1 Physical Dimension



CP400A-X360AM6H1H

Dimension(mm)	A	B	C	D	E	F	G	H	I	J	K	L	M
0Úİ €œŸ Ĩ €œ Ĩ PFP	1240	2240	2850	80	111	1081	90	—	129	553	293	513	—

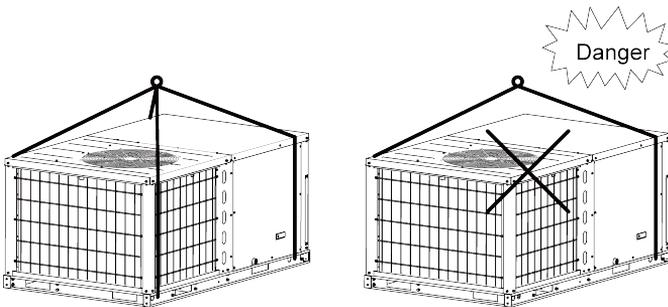
NOTE: Above diagrams may be different from actual mode.

4.2 General Information

Ton	Refrigerant	Model Name	Function	Climate Type
30	R410A	0Úİ €œŸ Ĩ €œ Ĩ PFP	Cooling Only	T3

NOTE: 1Ton =12000Btu/h = 3.517kW

4.3 Crane Way



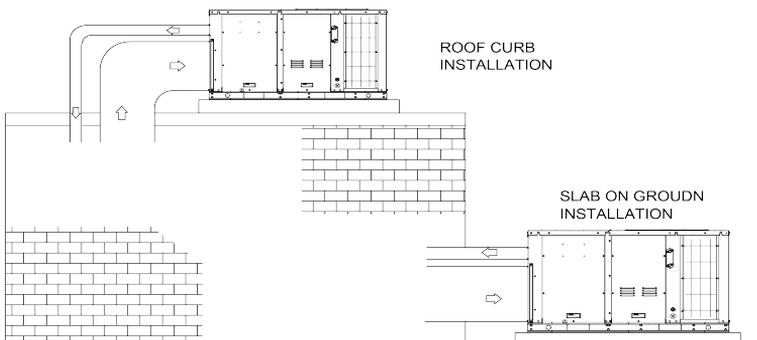
- (1) When removing the unit, two ropes are needed to hang the unit along the four ways.

- (2) In order to avoid the extrusion, between the ropes should be add something to protect the unit (e.g., batten).

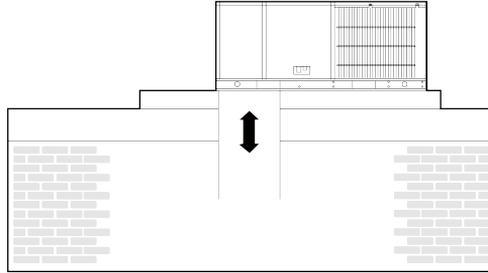
4.4 Installation Positions and Clearances

To ensure the unit in proper function, selection of installation location must be in accordance with following principles.

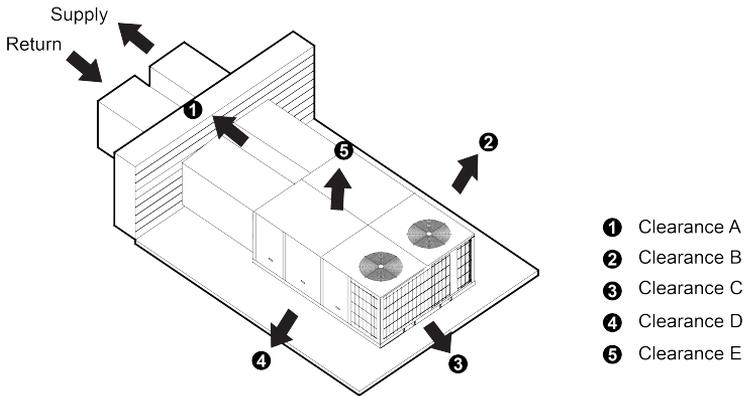
- (1) Unit shall be installed so that the air discharged by outdoor fan will not return and that sufficient space for repair shall be provided around the unit.
- (2) The installation site must have good ventilation, so that the unit can take in and exhaust enough air.
- (3) Place of installation shall be strong enough to support the weight of unit, and it shall be able to insulate noise and prevent vibration. Ensure that the wind and noise from the unit will not affect your neighbors.
- (4) Avoid direct sunshine over the unit. It is better to set up a sun shield as the protection.
- (5) Place of installation must be able to drain the rainwater and defrosting water.
- (6) Place of installation must ensure the unit will not subject to the influence of rubbish or oil fog.
- (7) The installation site must be at a place where the air exhaust outlet does not face strong wind.
- (8) Unit must be fixed on stable and solid surface of floor. Please use M12 to tight the support fundus.



Besides, CP400A-X360AM6H1H also have following return air way.



Units installation clearance are show as below:



NOTE: Above diagrams may be different from actual model.

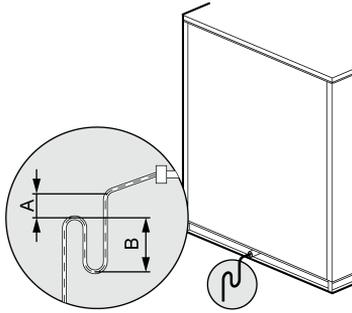
Installation Clearances			
DIMENSION(Minimum)		mm	inch
3ton 5.5ton	A	600	24
	B	1100	43
	C	860	34
	D	1100	43
	E	3000	118
10ton 15ton 20ton	A	1000	39
	B	1500	59
	C	1100	43
	D	1100	43
	E	3000	118

Installation Clearances			
DIMENSION(Minimum)		mm	inch
30ton	A	1000	39
	B	1500	59
	C	1100	43
	D	1100	43
	E	3000	118

4.5 Installation of Condensate Pipe

After the unit is installed, it is required to check the level of the whole unit. The unit must be placed horizontally to ensure the unit in proper function.

- (1) When shipped out from factory, both the condensate outlets are blocked by rubber plug. So, before installation, please take the rubber plug out.
- (2) Condensate removal is performed by attaching a PVC pipe to the drain pan and terminated in accordance with local or state Plumbing/HVAC codes.
- (3) The condensate pipe shall be installed with an inclining angel of 5~10°, so as to facilitate the drainage of condensate.
- (4) As the inside of the unit is in the negative pressure status, it is required to set up a backwater elbow. The requirement is: $A=B \geq P/10+20(\text{mm})$. P is the absolute pressure inside the unit. The unit of the pressure is Pa.
- (5) After the electrical installation is completed, carry out the testing of the drainage system.
- (6) It is not allowed to connect the condensate drain pipe into waste pipe or other pipelines which are likely to produce corrosive or peculiar smell to prevent the smell from entering indoors or corrupt the unit.
- (7) It is not allowed to connect the condensate drain pipe into rain pipe to prevent rain water from pouring in and cause property loss or personal injury.
- (8) Condensate drain pipe should be connected into special drain system for air conditioner.



Model	Drain connection size(inch)
CP400A-X360AM6H1H	3/4"(NPT)

4.6 Adjust the Tightness of the Belt

This product indoor fan use belt transmission. The rotation of the fan is achieved by the transmission of the belt. The velocity and stability of the fan is associated with the tightness of the belt and the tightness should be adjusted after a period of time. For a new belt, the tightness should be adjusted for at least twice within 24 hours.

After one week running, the tightness of the belt should be adjusted again, we should routinely check it every 1-2 months; also ensure the test results complying with the Table.

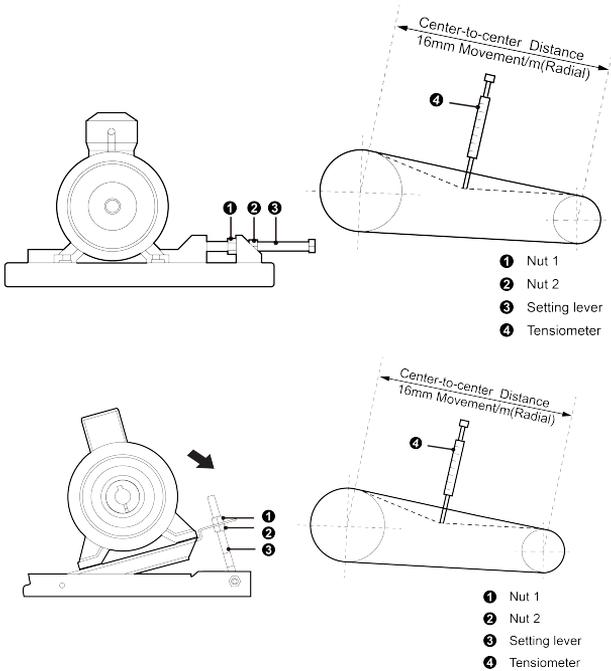
The adjustment of the tightness of the belt is shown in the following figure. Loosen screws fixing motor on the base, move motor along the direction of arrow as shown in the picture, then fix the screw again.

Keep belt pulleys of the fan and the motor during installation at the same level (refer to the figure below) and then adjust tightness of the belt within proper range.

Proper tension is a key factor for its service life. Being excessively tight will bring extra load to the belt and the bearing and shorten their service life. Being excessively loose will make the belt skid and the resultant heat also will shorten the service life of the belt.

The tension of the belt can be measured by a measuring tool, which can measure the tension based on the center-to-center distance and sectional areas of the belt pulls.

Tension range of the belt			
Belt section	Force required for the belt moving 16mm downward or 1m radial distance		
	Smaller pulley diameter(mm)	N	kgf
SPA	80-132	23-35	2.5-3.6
	140-200	35-45	3.6-4.6



NOTE: Above diagrams may be different from actual model.

5 Electrical Installation

5.1 Electrical Data and Wire Sizing

Unit model designation	Power supply	Capability of circuit breaker(A)	Min. sectional area of earth wire(mm ²)	Min. sectional area of power cord(mm ²)
ÔÚÍ €€€ŸĤ Ć€Ţ Ĩ PFP	460V 3~ 60Hz	80	16.0	25.0



NOTICE:

- (1) Selection of circuit breaker and power cord is based upon unit's maximum power (maximum current).
- (2) Specification of power cord is based on the working condition where ambient temperature is 40°C and multi-core copper cable with working temperature of 90°C is lying on the surface of slot. If working condition changes, please adjust the specification according to national standard.
- (3) Copper-core cable which complies with local regulations must be applied.
- (4) The engineering wiring should meet IEC 60364-5-52 regulations. Ensure that the circuit voltage drop meets the requirements and the voltage of the equipment is not lower than the lower declared limit of the equipment.
- (5) Specification of circuit breaker is based on the working condition where ambient temperature of circuit breaker is 40°C. If working condition changes, please adjust according to the circuit breaker specification.

- (6) The circuit breaker should include magnetic trip function and thermal trip function so that system can be protected from short circuit and overload.

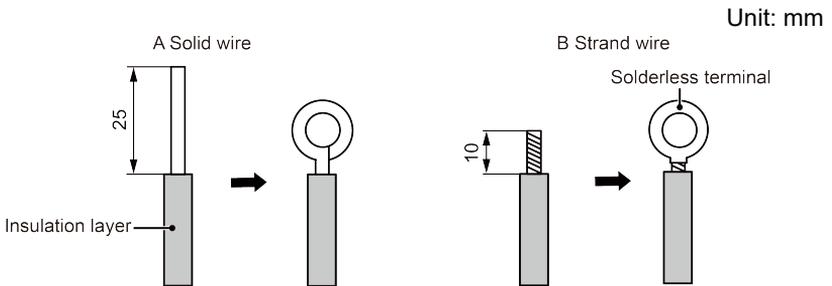
5.2 Connect Wiring to the Terminals



NOTICE!

Please note the following items before installing the electric appliance.

- (1) Check if the power supply accords with its value on the nameplate.
- (2) The capacity of the power supply must be large enough.
- (3) The circuit should be installed by the professional technician.
- (4) Single wire connection.
 - a) Peel off the insulation for 25mm with pliers.
 - b) Remove the screw from the terminal board.
 - c) Bend the peeled wire into circle with pliers.
 - d) Screw crosses the circle and fix it on the terminal board.
- (5) Strand wires connection.
 - a) Peel off the insulation for 10mm with pliers.
 - b) Remove the screw from the terminal board.
 - c) Clamp a round terminal of the peeled wires.
 - d) Screw crosses the circle and fix it on the terminal board.



WARNING!

If the power line or the signal line is defective, use the special coil to replace it.

- (1) Before connecting lines, read the voltages of the relevant parts on the nameplate. Then carry out line connection according to the schematic diagram.

- (2) The air-conditioning unit shall have special power supply line which shall be equipped with electricity leakage switch and circuit breaker, so as to deal with overload conditions.
- (3) The air-conditioning unit must have grounding to avoid hazard owing to insulation failure.
- (4) All fitting lines must use crimp terminals or single wire. If multiple twisted wires are connected to terminal board, arc may arise.
- (5) All line connections must conform to the schematic diagram of lines. Wrong connection may cause abnormal operation or damage of the air-conditioning unit.
- (6) Do not let any cable contact the refrigerant pipe, the compressor and moving parts such as fan.
- (7) Do not change the internal line connections inside the air-conditioning unit. The manufacturer shall not be liable for any loss or abnormal operation arising from wrong line connections.
- (8) If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.
- (9) All the supplied components, material, and electric operation should be accorded with the local principles.

5.3 Electrical Connections-Supply Voltage

- (1) Air-conditioning unit with 3-phase power supply
 - a) Remove the Electric Box Cover of the unit.
 - b) Pass the cable through rubber ring.
 - c) Connect the power supply cable to terminals and the grounding screw according to wiring diagram.
 - d) Use cable fastener to bundle and fix the cable.
- (2) Low voltage connections

Low voltage wiring is to be copper conductors. A minimum of 18AWG must be used for installations up to 50' and 16AWG for installations over 50'.

- a) Remove the Electric Box Cover of the unit.
- b) Pass the signal cable of the wire controller through rubber ring.
- c) Connect the signal cable to terminals according to wiring diagram.

d) Use cable fastener to bundle and fix the cable.

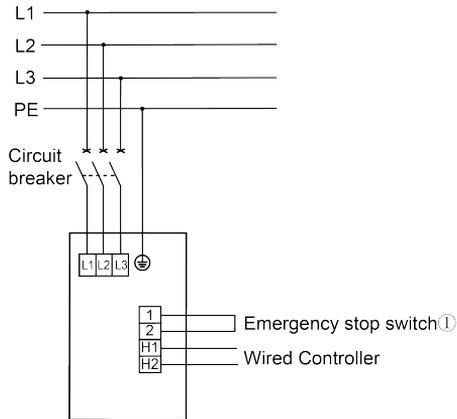


NOTICE!

Take great care when carrying out the following connections, so as to avoid malfunction of the air-conditioning unit because of electromagnetic interference.

- (1) The signal line of the wire controller must be separated from the power line.
- (2) In case the unit is installed in a place vulnerable by electromagnetic interference, it is better to use shielded cable or double-twisted cable as the signal line of the wire controller.

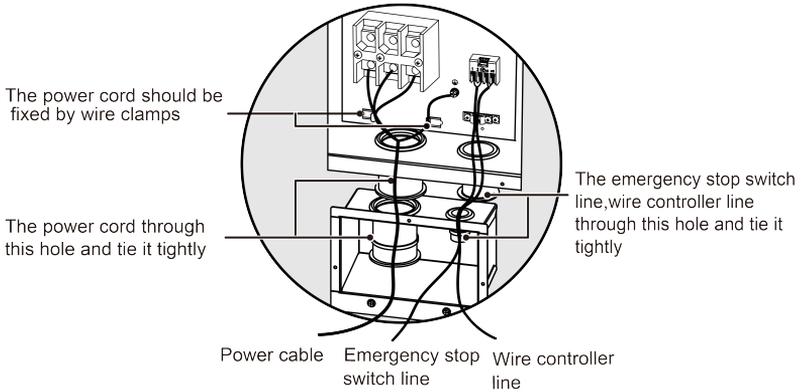
5.4 Wiring Diagram



Note: ① The factory has been short-circuited, when the user needs to connect the emergency stop switch, please remove the corresponding short-circuit wire

© 2011 PFP

5.5 Engineering Wiring Diagram



CP400A-X360AM6H1H

NOTE: If there is no emergency stop switch, please ignore its wiring.

6 Trial Run

Check the unit. Make sure all cables are wiring correctly, and all panels fixed securely. Switch on power supply and press the ON/OFF button to start operation.

7 Troubleshooting

If your air-conditioning unit suffers from abnormal operation or failure, please first check the following points before repair.

Failure	Possible cause	Solution
The unit doesn't work.	The power supply does not connect or improper phase sequence.	Connect the power supply or change two random phases.
	Electrical leakage of air-conditioning unit causes tripping of leakage switch.	Contact the nearest service center.
	The voltage is too low.	Contact the dealer.
	The control loop has failure.	Contact the nearest service center.
The unit operates for a while and then stops.	Air outlet port or intake port of the unit is blocked.	Remove the obstacles.
	There is obstacle in front of the condenser.	Remove the obstacles.
	The control loop is abnormal.	Contact the nearest service center.
Poor cooling effect.	Air filter is dirty.	Clean air filter.
	Air outlet port or intake port of indoor side or outdoor side is blocked.	Move the obstacles.
	Too many persons or a heat source in the Room.	If possible, clear heat sources.
	Doors or windows are open.	Close windows and doors.
	Refrigerant leakage.	Contact the nearest service center.
	Some model unit has a high-pressure switch which is welded on discharge pipe. When the switch goes into effect, the power supply of compressor will be shut off.	Find and manual reset the high-pressure switch which is welded on discharge pipe.

NOTE: After carrying out the check of the above items and taking relevant measures to solve the problems found but the air-conditioning unit still does not function well, please stop the operation of the unit immediately and contact the nearest service center. Only ask professional serviceman to check and repair the unit.

8 Maintenance

To protract the life of the air-conditioning unit, check and maintain the unit regularly with a qualified service person.

(1) Cleaning the Air Filter

Do not disassemble the air filter when cleaning it. Otherwise, failure may be caused.

If the air-conditioning unit is used in an environment with much dust, you should clean the air filter frequently (once every two weeks).

(2) Cleaning the Outdoor Heat Exchanger

Outdoor heat exchanger must be cleaned regularly, at least once every two months. You can clean the surface with vacuum cleaner or nylon brush, please do not wash it with water.

(3) Maintenance at the Beginning of Operating Season

Check the air inlet and outlet of the units to confirm there is no blockage.

Check to see if the grounding wire is in good condition.

Check to see if the line connection is in good condition.

Check the drainage pipe so as to confirm the fluency flow of condensate.

(4) Maintenance at the End of the Operational Season

When the weather is clear, operate the unit for half a day, so as to dry the inside of the unit.

If not to use the air-conditioning unit for a long time, please disconnect the power supply.



NOTICE!

You shall pay attention to the following matters when cleaning the air-conditioning unit.

- (1) Cut off all power supply before contacting the line connecting equipment.
- (2) Only clean the air-conditioning unit after the unit is shut off and the power supply is disconnected. Otherwise, electrical shock or injury may be caused.
- (3) Do not use water to clean the air-conditioning unit. Otherwise, there may be electrical shock.
- (4) Pay more attention to the place that the air conditioner should be installed firm.

Ôæ | a | Á | Q | c | | O | E | ^ | | a | a | Ó | [| : |] | [| : | a | e |] | }

Ôæ | a | e | | € | F | Á | Y | Á | € | H | Ú | d | ^ | ^ | d | Ú | ~ | a | Á | E | Á | a | e | a | e | Š | Á | H | F | i | }



66139913276