INSTALLATION MANAL

AIR CONDITIONER

CEILING AND FLOOR TYPE

- *Please read this installation manual carefully before installing your air conditioner.*
- *Please keep this manual in a safe place for future reference.*
- *This manual many be subject to change without notice for purpose of improvement.*

CONTENT

INSTALLATION PRECAUTION

- To install properly, please read this manual at first.
- The air conditioner must be installed by qualified persons.
- When installing the indoor unit or its tubing, please follow this manual as strictly as possible.
- When all the installation work is finished, please turn on the power only after a thorough check.
- No further announcement if there is any change of this manual caused by product improvement.

Note: The installor should illustrate to users how to correctly use and maintain the air-conditioner, as well as remind users to carefully read and keep both Installation Manual and Owner's Manual well.

INSTALLATION PLACE

■ The Indoor Unit

- There is enough room for installation and maintenance.
- The ceiling is horizontal, and its structure can endure the weight of the indoor unit.
- The air outlet and the air inlet are not impeded, and the influence of external air is the least.
- The air flow can reach throughout the room.
- The connecting pipe and drainpipe could be extracted out easily.
- There is no direct radiation from heaters

⚠ Cautions

Location in the following places may cause malfunction of the machine. (If unavoidable, please consult your local dealer.)

a. There exists petrolatum.
b. There is salty air surrounding(near the coast).
c. There is caustic gas(the sulfide, for example) existing in the air (near a hot spring).
d. The Volt vibrates violently(in the factories).
e. In buses or cabinets.
f. In kitchen where it is full of oil gas.
g. There is strong electromagnetic wave existing.
h. There are inflammable materials or gas.
i. There is acid or alkaline liquid evaporating.
j. Other special conditions.

■ Notes Before Installation

1. Select the correct carry-in path.
2. Move this unit as originally packaged as possible.
3. If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.

NOTE:

Remark per EMC Directive 89/336/EEC

For to prevent flicker impressions during the start of the compressor (technical process), following installation conditions apply.

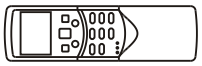
1. The power connection for the air conditioner has to be done at the main power distribution. The distribution has to be of a low impedance, normally the required impedance reaches at a 32A fusing point.
2. No other equipment has to be connected with this power line.
3. For detailed installation acceptance, please refer to your contract with the power supplier if restrictions do apply for products like washing machines, air conditioners or electrical ovens.
4. For power details of the air conditioner, refer to the rating plate of the product.
5. For any question contact your local dealer.

ACCESSORIES

Name of Accessories	Q'ty	Qutline	Usage
Owner's manual	1	——	——————————
Installation manual	1	(This manual)	——————————
Hook	2		For wall mounting installation
Hanging arm	2		For ceiling installation

Remote controller & Its Frame

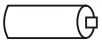
1. Remote controller.....1

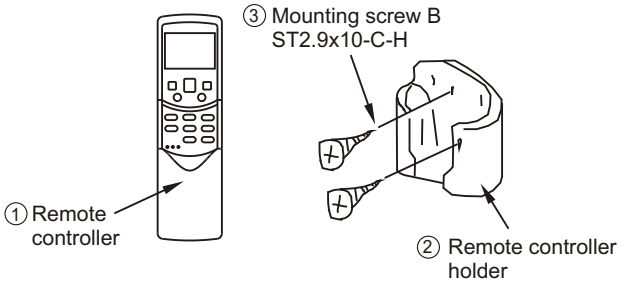


2. Frame.....1

3. Mounting screw
(ST2.9x10-C-H).....2

4. Alkaline dry batteries(AM4)
.....2





Cautions on remote controller installation

- Never throw or beat the controller.
- Before installation, operate the remote controller to determine its location in a reception range.
- Keep the remote controller at least 1m apart from the nearest TV set or stereo equipment. (It is necessary to prevent image disturbances or noise interferences.)
- Do not install the remote controller in a place exposed to direct sunlight or close to a heating source, such as a stove.
  Note that the positive and negative poles are in right positions when loading batteries.

INDOOR UNIT INSTALLATION

Installing 10 hanging screw bolts. (4 bolts)

- Please refer to the following figure for the distance measurement between the screw bolts.
- Please install with 10 hanging screw bolts.
- The handling to the ceiling varies from the constructions, consult the construction personnels for the specific procedures.

1. The size of the ceiling to be handled ... ... do keep the ceiling flat. Consolidate the roof beam for possible vibration.
2. Cut off the roof beam.
3. Strengthen the place cut off, and consolidate the roof beam.

- Carry out the pipe and line operation in the ceiling after finishing the installation of the main body. While choosing where to start the operation, determine the direction of the pipes to be drawn out. Especially in case there is a ceiling, position the refrigerant pipes, drain pipes, indoor & outdoor lines to the connection places before hanging up the machine.
- The installation of hanging screw bolts.

Wooden construction

Put the square timber traversely over the roof beam, then install the hanging screw bolts. (Refer to Chart 1)

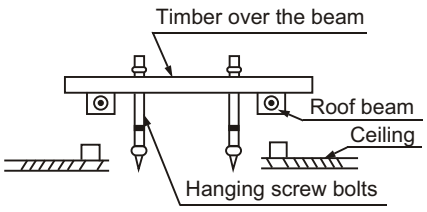


Chart 1

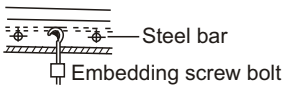
New concrete bricks

Inlaying or embedding the screw bolts. (Refer to Chart 2)

Chart 2

For Original concrete bricks

Use embedding screw bold, crock and stick harness. (Refer to Chart 3)



(Pipe hanging and embedding screw bolt)

Chart 3

Steel roof beam structre

Install and use directly the supporting angle steel. (Refer to chart 4)

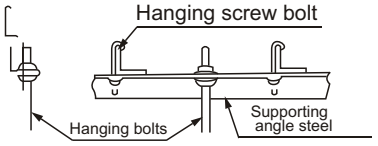


Chart 4

Wall Mounting Installtion

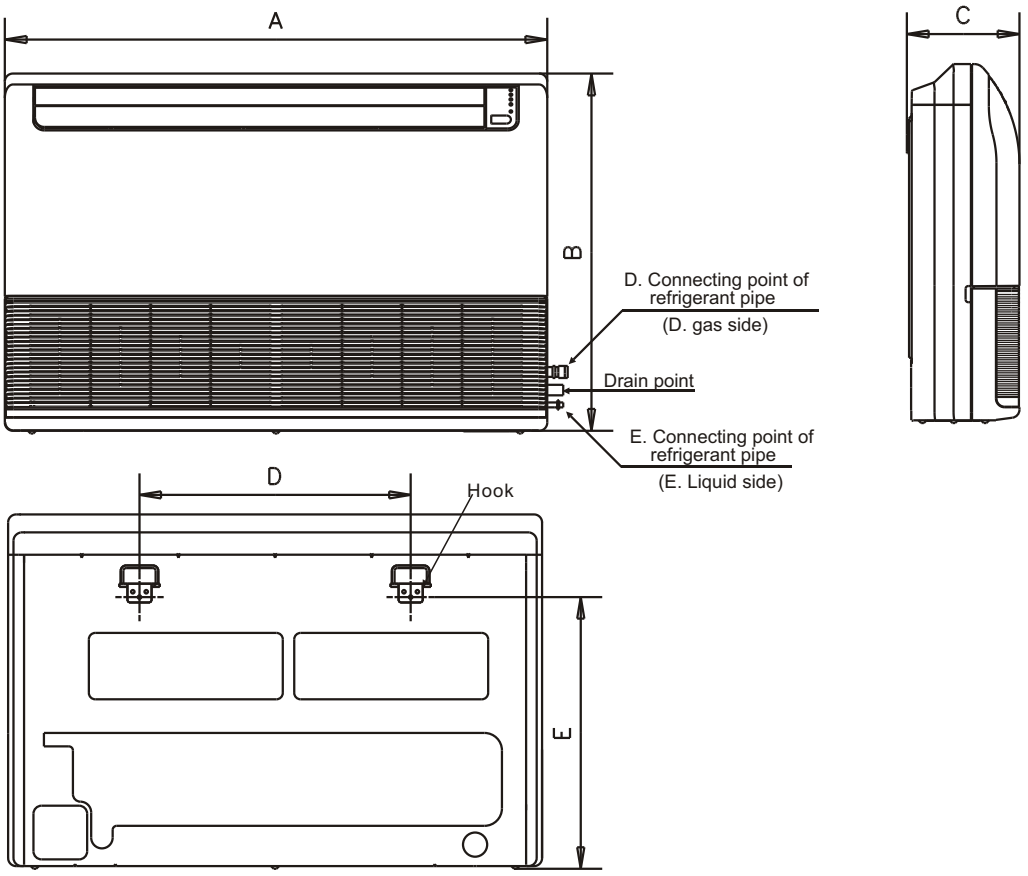


Chart 5

1.Fix the hook with tapping screw onto the wall.(Refer to Chart 6)

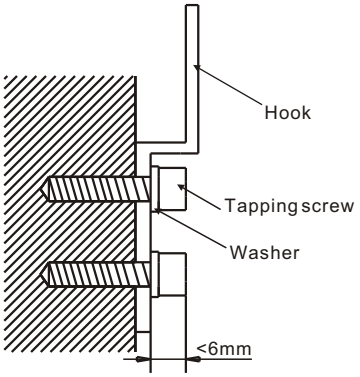


Chart 6

2.Hang the indoor unit on the hook.

Ceiling Installation

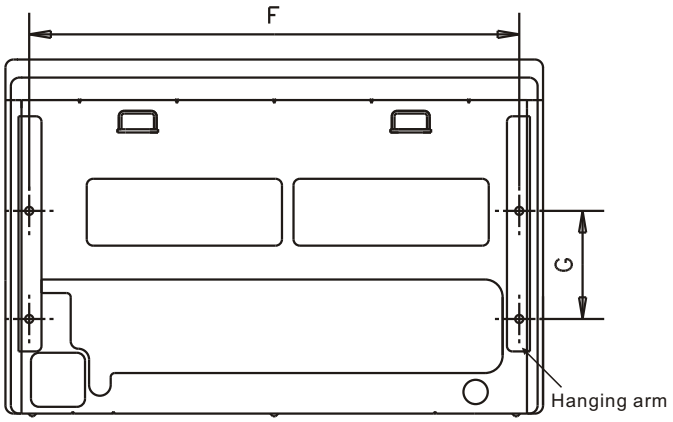


Chart 7

1.Remove the side board and the grille.(Refer to Chart 8)
(For models 11200-14000W type, do not remove the grille.)

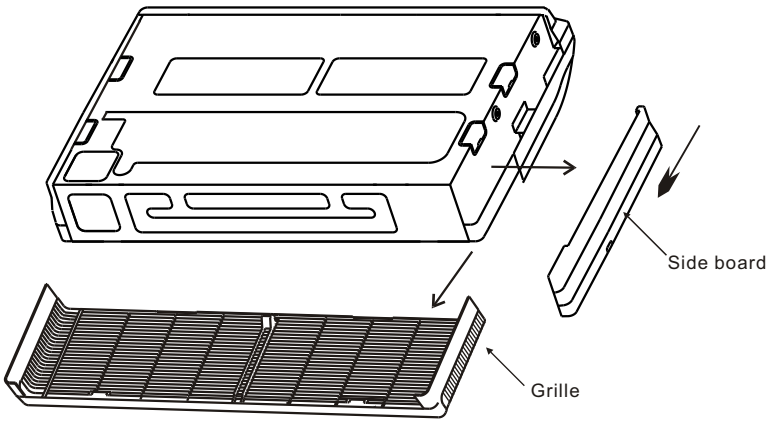


Chart 8

2.Locate the hanging arm on the hanging screw bolt.(Refer to Chart 9)
Prepare the mounting bolts on the unit.(Refer to Chart 10)

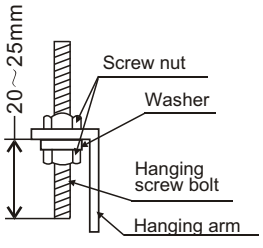


Chart 9

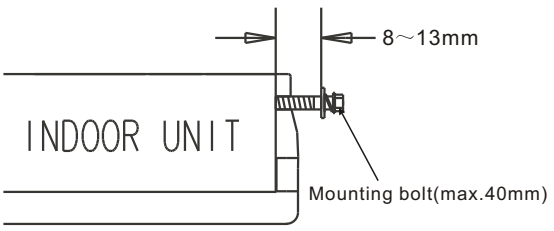


Chart 10

3.Hang the unit on the hanging arm by sliding backward. Securely tighten the mounting bolts on both sides.(Refer to Chart 11)

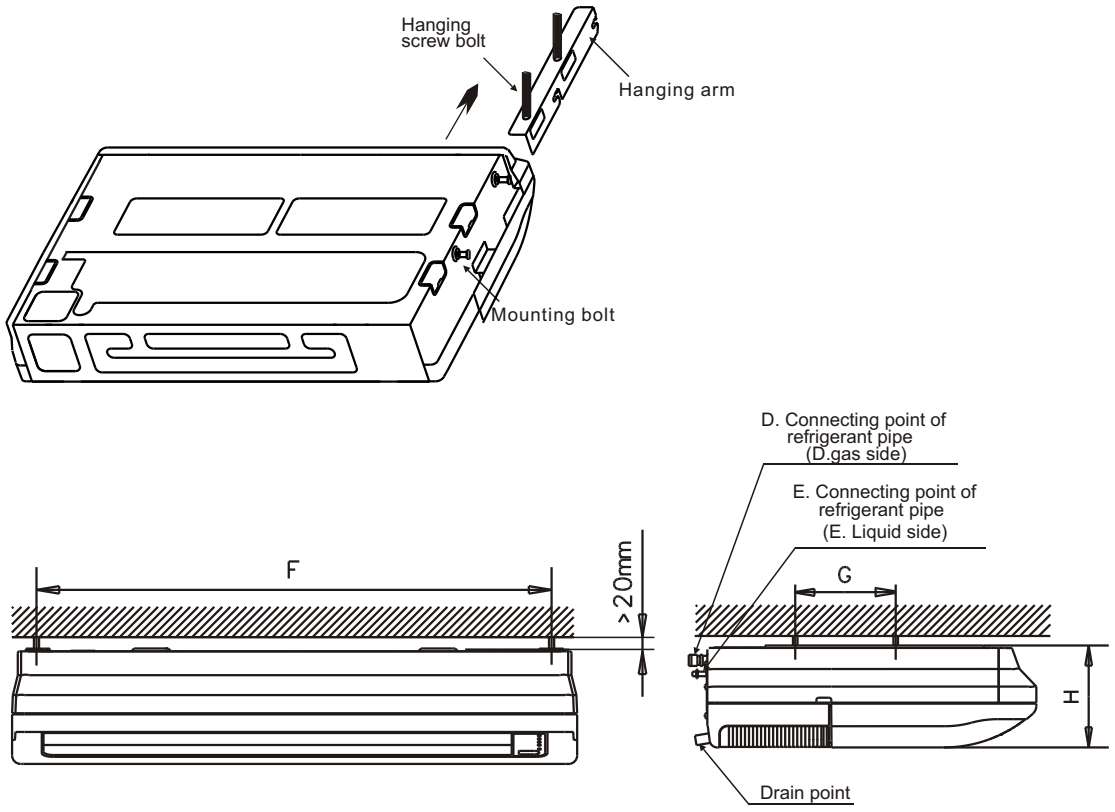


Chart 11

⚠ **ATTENTION:** The figures above are based on model with 3600-7100W type as rated capacity, which may differ from the unit you purchased.

The dimension of the unit

Capacity(Btu/h)	A	B	C	D	E	F	G	H
18000-24000	990	660	206	505	506	907	200	203
36000	1280	660	206	795	506	1195	200	203
48000-60000	1670	680	244	1070	450	1542	200	240

INSTALL THE CONNECTING PIPE

Check whether the height drop between the indoor unit and outdoor unit,the length of refrigerant pipe,and the number of the bends meet the following requirements:

Capicity(Btu/h)		18000	24000	36000	48000	60000
The max height drop(m)	When outdoor unit is top	15	15	20	30	30
	When outdoor unit is bottom	9	9	12	20	20
The length of refrigerant pipe(m)		25	25	30	50	50
The number of bends(m)		Less than 15				

The outdoor unit is factory charged with refrigerant. Some systems require additional charging of regrigerant depending on pipe lengths. The additional refrigerant to be cahrged can be calculated from the following formule:

R = T X (L-5)m

R(g): Additional regrigerant to be carged
T(g): The quantity of the charged refrigerant per meter
L(m):The length of the liquid pipe

Capicity(Btu/h)	18000	24000	36000	48000	60000
T(g)	11	30	30	30	30

- Do not let air, dust, or other impurities fall in the pipe system during the time of installation.
- The connecting pipe should not be installed until the indoor and outdoor units have been fixed already.
- Keep the connecting pipe dry, and do not let moisture in during installation.

The Procedure of Connecting Pipes

1. Measure the necessary length of the connecting pipe, and make it by the following way.

1) Connect the indoor unit at first, then the outdoor unit.

- Bend the tubing in proper way. Don’t harm them.

⚠ Cautions

- Daub the surfaces of the flare pipe and the joint nuts with frozen oil, and wrench it for 3~4 rounds with hands before fasten the flare nuts. (Refer to chart 12)
- Be sure to use two wrenches simultaneously when you connect or disconnect the pipes.

2) The stop valve of the outdoor unit should be closed absolutely (as original state). Every time you connect it, first loosen the nuts at the part of stop valve, then connect the flare pipe immediately (in 5 minutes). If the nuts have been loosened for a long time, dusts and other impurities may enter the pipe system and may cause malfunction later. So please expel the air out of the pipe with refrigerant before connection.

3) Expel the air (refer to the "Expel The Air") after connecting the refrigerant pipe with the indoor unit and the outdoor unit.
Then fasten the nuts at the repair-points.

■ Notices For Benable pipe.

- The bending angle should not exceed 90°C
- Bending position is preferably in the bendable pipe. The larger the better it is .
- Do not bend the pipe more than three times.

■ Bend the connecting pipe of small wall thickness.

- Cut out a desired concave at the bending part of the insulating pipe.
- Then expose the pipe(cover it with tapes after bending).
- To prevent collapsing of deforming, please bend the pipe at its biggest radius.
- Use bender to get a small radius pipes.

■ Use the market brass pipe.

Be sure to use the same insulating materials when you buy the brass pipe. (More than 9mm thick)

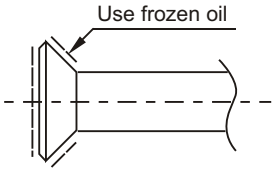


Chart 12

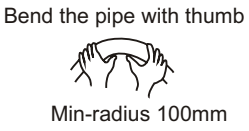


Chart 13

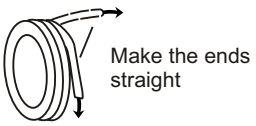


Chart 14

2. Locate The Pipe

1) Drill a hole in the wall (suitable just for the size of the wall conduit, 90mm in general), then set on the fittings such as the wall conduit and its cover.
2) Bind the connecting pipe and the cables together tightly with binding tapes. Do not let air in, which will cause water leakage by condensation.
3) Pass the bound connecting pipe through the wall conduit from outside. Be careful of the pipe allocation to do no damage to the tubing.
3. Connect the pipes.
4. Then, open the stem of stop valves of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit fluently flow.
5. Be sure of no leakage by checking it with leak detector or soap water.
6. Cover the joint of the connecting pipe to the indoor unit with the soundproof/insulating sheath (fittings), and bind it well with the tapes to prevent leakage.

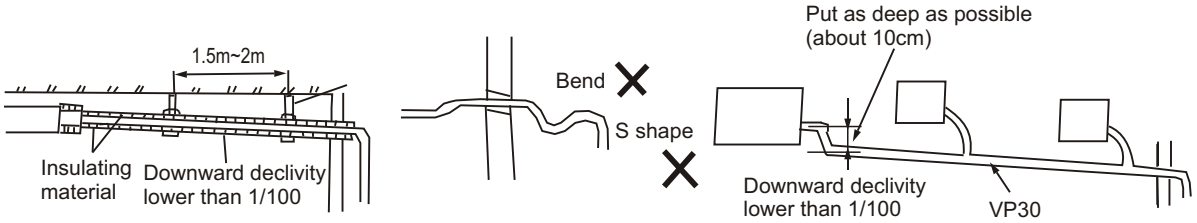
CONNECT THE DRAIN PIPE

1. Install indoor unit drain pipe

The outlet has PTI screw bread, Please use sealing materials and pipe sheath (fitting) when connecting PVC pipes.

CAUTIONS

- The drain pipe of indoor unit must be heat insulated, or it will condense dew, as well as the connections of the indoor unit.
- Hard PVC binder must be used for pipe connection, and make sure there is no leakage.
- With the connection part to the indoor unit, please be noted not to impose pressure on the side of indoor unit pipes.
- When the declivity of the drain pipe downwards is over 1/100, there should not be any win ding.
- The total length of the drain pipe when pulled out traversely shall not exceed 20m, when the pipe is over long, a prop stand must be installed to prevent winding.
- Refer to the figures on the right for the installation of the pipes.



2. Drainage test

- Check whether the drainpipe is unhindered
- New built house should have this test done before paving the ceiling.

ELECTRIC WIRING

WARNING

Specified power cables should be used. Do not apply any pressure on the terminals used to connect.

Improper connection may cause fire.

Grounding must be properly done.

The grounding wire should be away from gas pipes, water pipes, telephone, lightening rods or other grounding wires. Improper grounding may cause electric shock.

Electric Wiring must be done by professionals. Use a separate circuit according to national regulations.

If the wiring capacity is not enough, electric shock or fire may occur.

CAUTION

Be sure to Install Current Leakage Protection Switch, Or electric shock may occur.

CAUTION

- Power cord is to be selected according to national regulations.
- Outdoor unit power cord should be selected and connected according to the outdoor unit installation manual.
- Wiring should be away from high temperature components, or the insulation layer of the wires may melt down.
- Use wire clamp to fix the wires and terminal block after connection.
- Control wire should be wrapped together with heat insulated refrigerant pipes.
- Connect the indoor unit to power only after the refrigerant has been vacuumed.
- Don’t connect the power wire to the signal wire connection end.

■ The Specification of Power

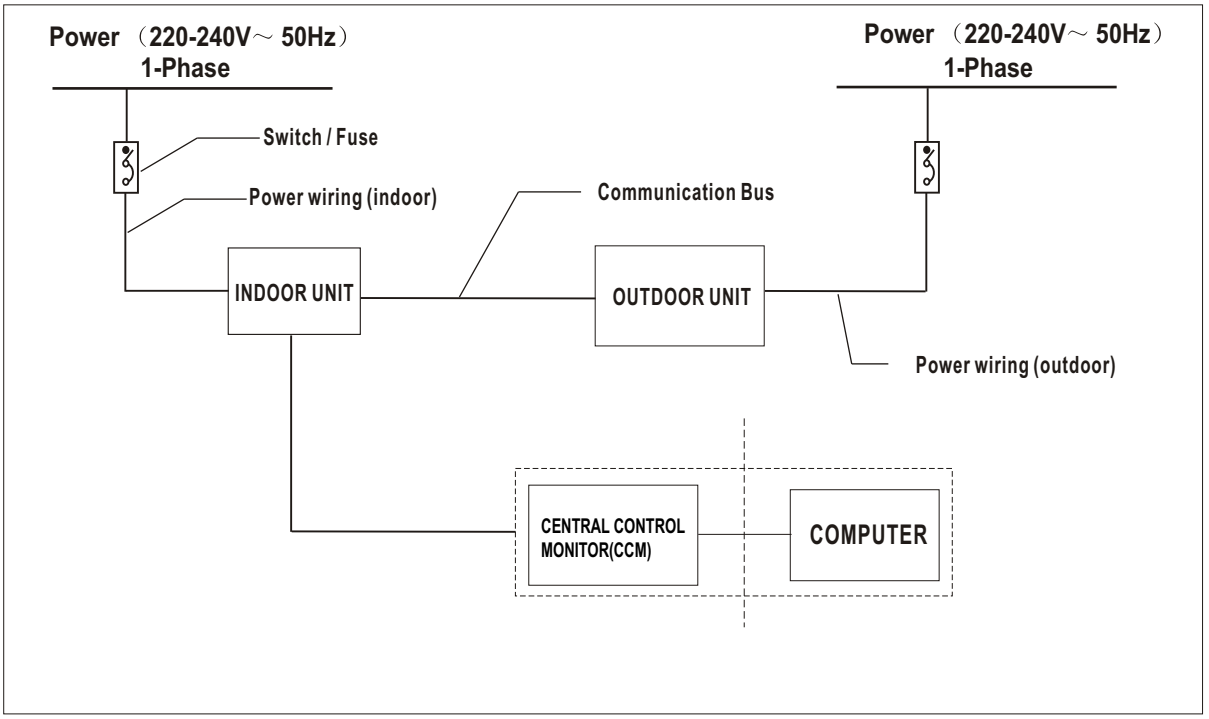
Capicity(Btu/h)		18000	24000	36000-60000
INDOOR UNIT POWER	PHASE	1-PHASE	1-PHASE	1-PHASE
	FREQUENCY AND VOLT	220-240V~ 50Hz	220-240V~ 50Hz	220-240V~ 50Hz
	POWER WIRING (mm^2)	3X1.0	3X1.0	3X1.0
OUTDOOR UNIT POWER	PHASE	1-PHASE	1-PHASE	3-PHASE
	FREQUENCY AND VOLT	220-240V~ 50Hz	220-240V~ 50Hz	380-415V~ 50Hz
	POWER WIRING (mm^2)	3X2.5	3X2.5	5X2.5
CIRCUIT BREAKER/FUSE (A)		30/25	40/25	40/25
INDOOR/OUTDOOR CONNECTING WIRING (WEAK ELECTRIC SIGNAL)		3-core shielded wire	3-core shielded wire	3-core shielded wire

Table 3

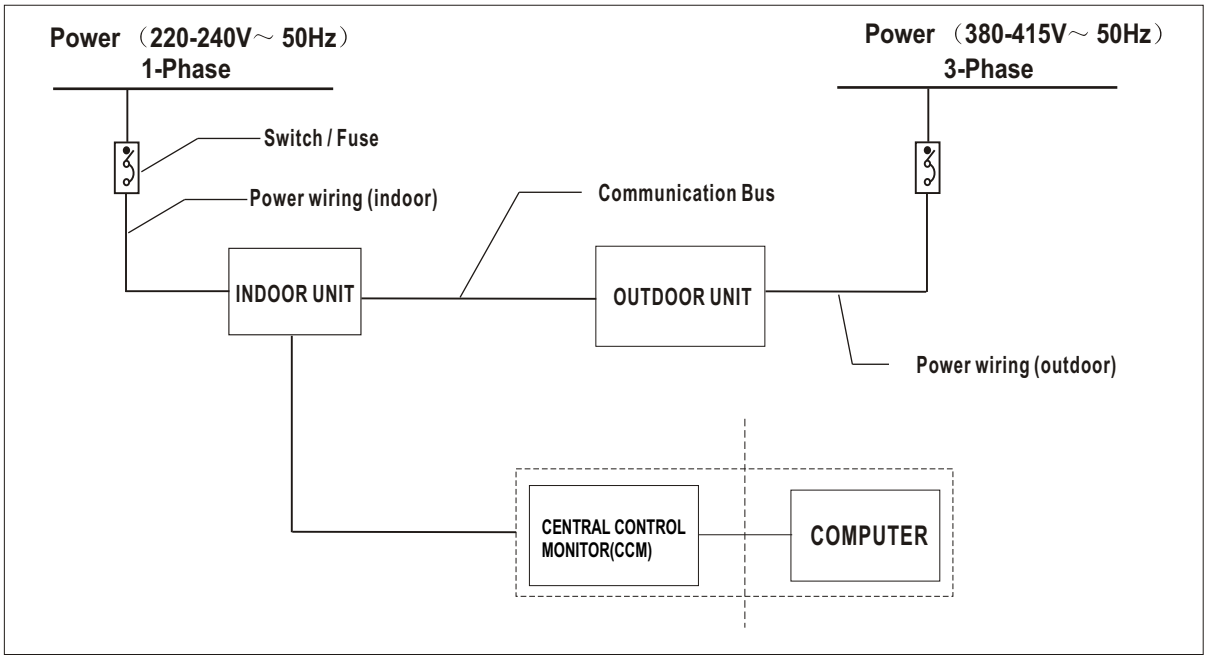
Caution:

A disconnection device having an air gap contact separation in all active conductors should be incorporated in the fixed wiring according to the National Wiring Regulation.

■ Wiring Chart



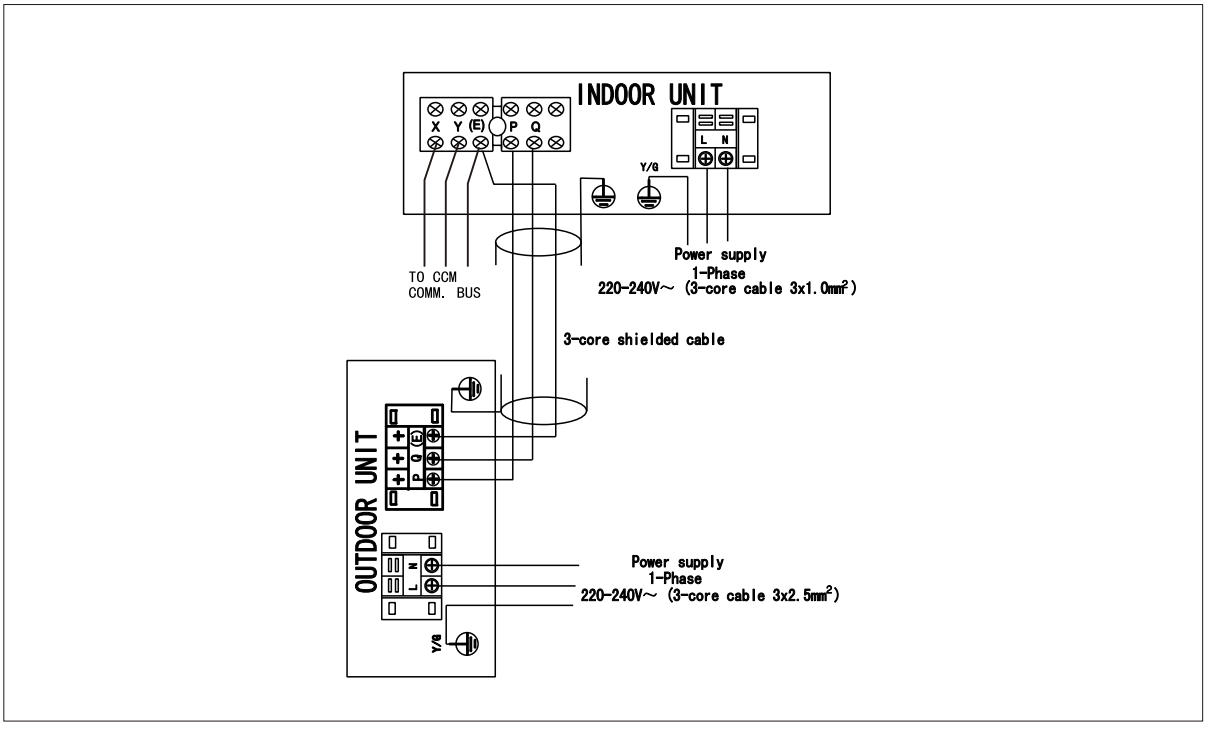
For 18000-24000 Btu/h



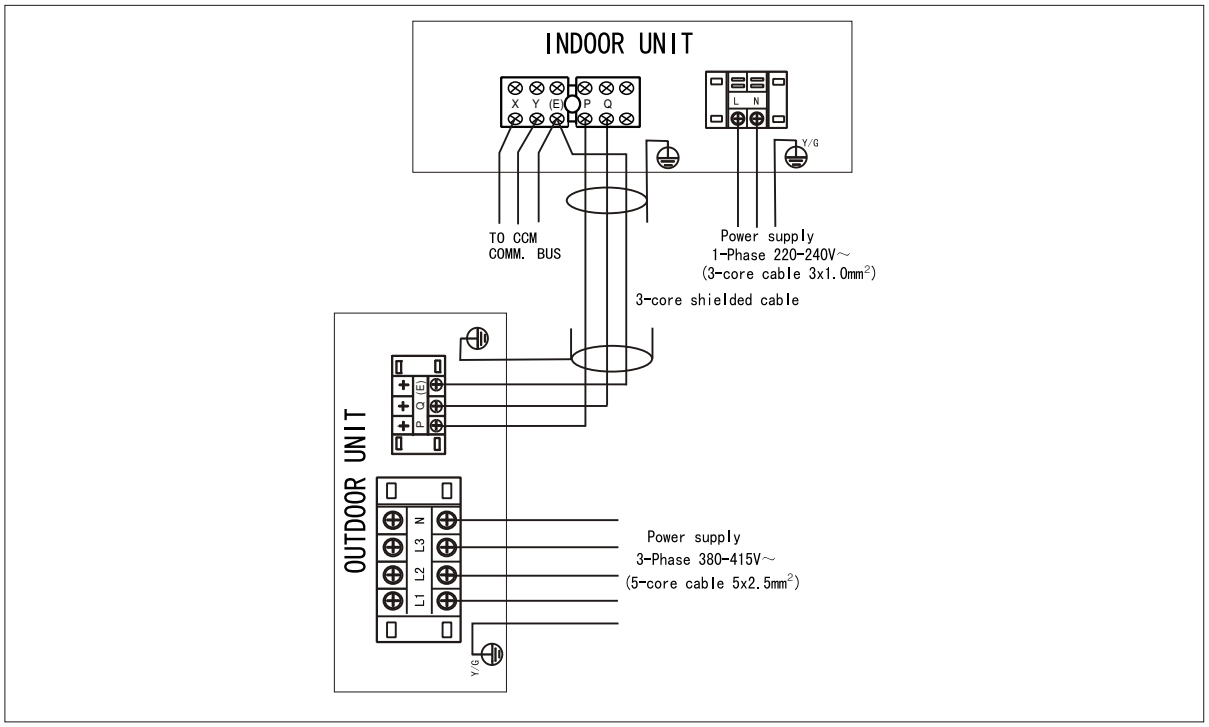
For 36000-60000 Btu/h

Caution:

The reserved function is indicated in broken line table,users can select it when necessary



For 18000-24000 Btu/h



For 36000-60000 Btu/h

Indoor/Outdoor Unit Signal Wire

Connect the wire according to their numbers.
Wrong connection may cause malfunction .

Wiring Connection

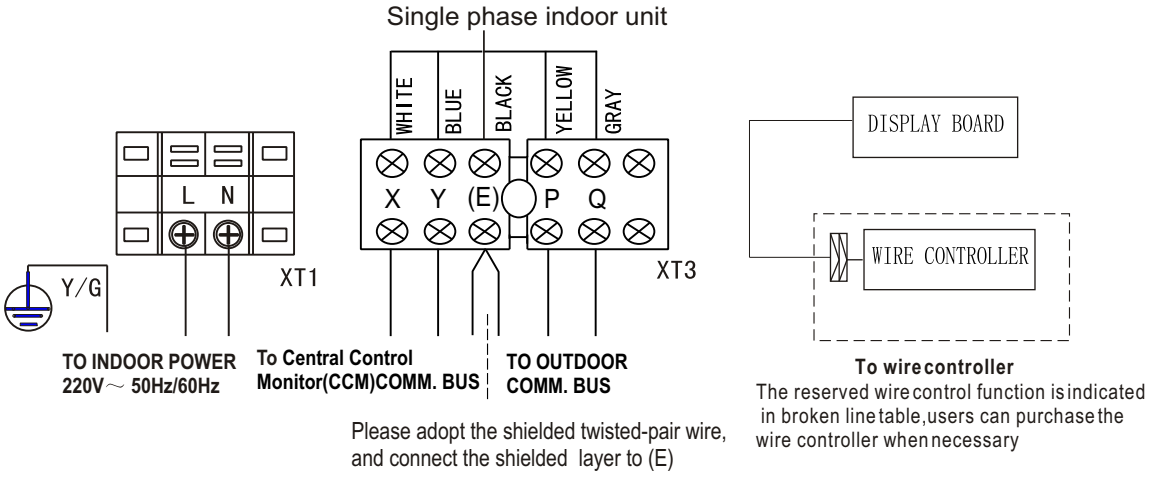
Seal the wiring connection with the insulation material , or the condensing dew will be caused.

Panel Wiring

Connect the Swing Motor terminal block according to the Panel Installation Manual.

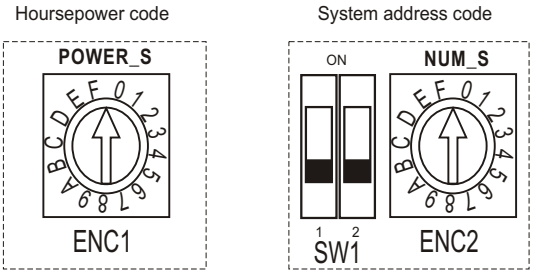
Terminal Board Diagram

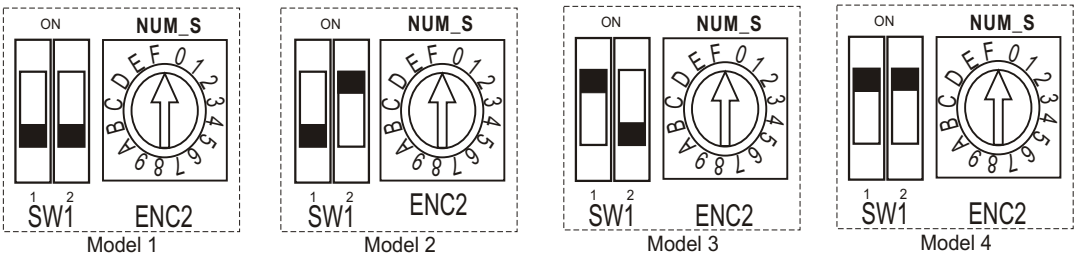
Please refer to the indoor unit wiring diagram for the wiring.
Note: The air-conditioners can connect with Central Control Monitor (CCM). Before operation, please wiring correctly and set system address and network address of indoor units.



CONTROL

Please number the indoor units during the installation . For example, for the first outdoor unit ,the number of the first indoor unit is 1-1, the second indoor unit is 1-2, and the set address is 1 and 2 respectively , the others is analogical.





Model 1 show the address `0-F` respectively, that is, `0-15` indoor unit;
Model 2 show the address `0-F` respectively, that is, `16-31` indoor unit;
Model 3 show the address `0-F` respectively, that is, `32-47` indoor unit;
Model 4 show the address `0-F` respectively, that is, `48-63` indoor unit.

⚠ Cautions:

1.The system together have 64units(0-63),everyone has only system addresscode, If two addresses are the same in one system , the abnormal operation will occur.

2.Please switch off the power before setting,otherwise the unexpected error will occur.

ENC1	Toggle switch Code	Capacity(Btu/h)
Note: The capicity has been set before leaving the factory , anyone can't modify it except the maintenance person.	4	18000
	5	24000
	8	36000
	9	48000
	9	60000

ENC2	TOGGLE SWITCH	FOR SETTING ADDRESS
'0-F' show the address '0-F' respectively, that is, '0-15' indoor unit (together 16 units), and the others follow the analogy. If two addresses are the same in one system , the abnormal operation will occur.		

Network address set

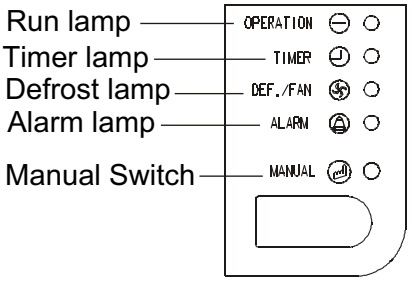
Every air-conditioner in network has only one network address to distinguish each other. Address code of air-conditioner in LAN is set by code switch on Network Interface Module (**NIM**), and the set range is 0-63.

Toggle switch set		Network address code
S1	S2	
		00~15
		16~31
		32~47
		48-63

TROUBLE SHOOTING

The timer lamp flashes quickly.

No.	Type	Contents	LED Lamp flash	Remarks
1	Malfunction	The evaporator sensor check point is abnomal , or room temp.sensor is abnormal.	Run lamp flashes quickly.	After the malfunctions disappear, it restores automatically.
2	Malfunction	Indoor/outdoor unit communication is abnormal.	The timer lamp flashes quickly.	After the malfunctions disappear, it restores automatically.
3	Malfunction	Condenser sensor check point is abnormal or outdoor temp. sensor is abnormal.	All the indoor alarm lamps flash slowly.	After the malfunctions disappear, it restores automatically.
4	Malfunction	Water level switch is abnormal	Alarm lamp flashes quickly.	If the malfunctions can't be solved in three min. all the indoor alarm lamps flash at 0.5Hz. Turn off the power to restore.
5	Alarm	Mode conflict	Defrost lamp flashes quickly.	When the indoor unit turns to heating mode or is turned off, the alarm will disappear.



TEST OPERATION

1. The test operation must be carried out after the entire installation has been completed.
2. Please confirm the following points before the test operation:
- The indoor unit and outdoor unit are installed properly.
- Tubing and wiring are correctly completed.
- The refrigerant pipe system is leakage-checked.
- The drainage is unimpeded.
- The heating insulation works well.
- The ground wiring is connected correctly.
- The length of the tubing and the added stow capacity of the refrigerant have been recorded.
- The power voltage fits the rated voltage of the air conditioner.
- There is no obstacle at the outlet and inlet of the outdoor and indoor and indoor units.
- The gas-side and liquid-side stop values are both opened.
- The air conditioner is pre-heated by turning on the power.

3. According to the user's requirement, install the remote controller frame where the remote controller's signal can reach the indoor unit smoothly.
4. Test operation
- Set the air conditioner under the mode of "COOLING" with the remote controller, and check the following points per the "Owner's Manual" If there is any malfunction, please resolve it through chapter "Troubles And Causes".

1) The indoor unit
a. Whether the switch on the remote controller works well.
b. Whether the buttons on the remote controller works well.
c. Whether the air flow louver moves normally.
d. Whether the room temperature is adjusted well.
e. Whether the indicator lights normally.
f. Whether the temporary buttons works well.
g. Whether the drainage is normal.
h. Whether there is vibration or abnormal noise during operation.
I. Whether the air conditioner heats well in the case of the HEATING/COOLING type.

2) The outdoor unit
a. Whether there is vibration or abnormal noise during operation.
b. Whether the generated wind, noise, or condensed water by the air conditioner have influenced your neighborhood.
c. Whether any of the refrigerant is leaked.

⚠ Cautions

Protection function will delay the startup of compressor for 3 minutes in case the unit is turned on immediately after power on or restarted after shutdown.

Point Check Instruction

0,Normally display
1,Running mode:
0---Stand by;
2---Cooling;
3---Heating;
4---Forced cooling;
2,Runnig fan speed:
0---Turn off;
1---Low speed;
2---High speed;
3,Capacity demand
4,T3-Outdoor pipe temp.(Actual value)
5,TP-Discharge temp.(Actual value,if over 100degree,only display hundreds digit and tens digit)
6,T4-Ambient temp.(Actual value)
7,Current of compressor
8,PMv opening degree
9,The last error or protection code (Display "00" if no error)
10,Display "----"

Display Function Instruction:

1,When stand by,LED displaying the amount of indoor units online which communicate with outdoor units
2,When operation,LED displaying frequecny value of compressor
3,When defrost,LED displaying "dF"

Malfunction Code of Outdoor unit

Display	Malfunction or Protection
E0	EEPROM malfunction
E2	Communication malfunction between indoor/outdoor units
E3	Communication malfunction between DSP/outdoor units
E4	T4 temperature sensor malfunction
E5	Compressor Voltage protection
P0	Compressor top temperature protection
P1	High pressure protection
P2	Low pressure protection
P3	Compressor current protection
P4	Compressor discharge temperature protection
P5	Condenser high temperature protection
P6	Module protection

⚠ Cautions

Please cut off the power supply when appearing the above malfunction, check if the voltage provided is out of range, check if the installation of air-conditioner is correct, then electrify again after 3 minutes power off. If the problem is still existent, please contact the local service station or the equipment provider.

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