Installation Manual

U-Match Systems (R410A)

18,000 to 60,000 BTU/h - 60 Hz

Cooling only:	**2MCC05-C / 4TTK05-D**	**Heat Pump:**	**2MWC05-C / 4TWK05-D**
	2MCXO5-C / 4TTK05-D		**2MX05-C / 4TWK05-D**
	2MZD05-C / 4TTK05-D		**2MZD05-C / 4TWK05-D**

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up and servicing of heating, ventilating and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

February 2018 **MS-SVN056C-EN**

Warnings, Precautions, Notices

Safety advisories appear throughout this manual are required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
PRECAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
NOTICE:	Indicates a situation that could result in equipment or property-damage only accidents.

Important
Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants including industry replacements for CFCs and HCFCs such as saturated or unsaturated CFCs and HCFCs.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠WARNING

Proper Field Wiring and Grounding Required

Failure to follow code could result in death or serious injury. All field wiring must be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

⚠WARNING

Personal Protective Equipment (PPE) Required

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical and chemical hazards, MUST follow precautions in this manual and on the tags, stickers and labels, as well as the instructions below:

- **Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (example: cut-resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate MSDS/SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.**
- **If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

Content

General Information

General

These instructions are offered as guidelines for the proper installation, start-up and operation for universal coupling systems 2MX/2MW. However, these do not contain all fully required procedures for a continued operation free of obstacles. Therefore, it is important to contract a professional service agency for such matters. Read these instructions carefully before installing the equipment.

Warranty

Warranty is based upon general terms and conditions of the manufacturer. Warranty may be nullified if the equipment were to be modified or repaired without the express approval of the manufacturer, or if operation limitations were to be exceeded, or if electrical wiring of the system were to be altered. Any damage to the equipment as a result of bad use of same, or lack of maintenance, or non-compliance with instructions offered by the manufacturer, will not be covered by the warranty. Warranty will be automatically cancelled if the user does not adhere to the rules described in this manual.

Reception

Upon arrival, inspect the unit before signing approval of delivery. Specify any damages observed at the time of delivery and report same in writing to the transportation company, within 72 hours of delivery. At the same time, notify your local sales representative of these damages. Inspect the unit within the first 7 days of delivery. If any concealed damage is detected, advise of same in writing to the transportation company within 7 days of delivery, as well as to your local sales representative.

About the Unit

Before shipping, the unit covered in this manual are assembled, dehydrated, charged and leak tested. This document contains information related to the units of Universal Coupling.

Refrigerant

Refrigerant provided by the manufacturer complies with all Trane unit requirements. When using recycled or reprocessed refrigerant, it is recommended to ensure that the quality is equivalent to new refrigerant. To do this, it will be necessary to order an analysis of said refrigerant by a specialized laboratory. Any action contrary to this measure, will compel the manufacturer to anull the warranty.

IMPORTANT:

The unit must be installed in accordance with national regulations for electrical installations.

These instructions do not cover all variations in the system, nor do they foresee all possible contingency. If further information were to be required or if problems should arise which are not covered sufficiently in this manual, the matter should be turned over to the local Trane Sales Office.

Model Numbers

U-Match Systems R410-A - 60 Hz

18,000 to 60,000 BTU/Hr

Single split system, cooling only, fixed speed

	Indoor Unit	Outdoor Unit
Cassette	2MCC05-C	4TTK05-D
Concealed	2MCZ05-C	4TTK05-D
Convertible	2MCX05-C	4TTK05-D

Heat pump, fixed speed

	Indoor Unit	Outdoor Unit
Cassette	2MWC05-C	4TWK05-D
Concealed	2MZD05-C	4TWK05-D
Convertible	2MWX05-C	4TWK05-D

Security Recommendations

NOTICE:

Air Flow Restriction

Ascertain that system incoming air flow and outgoing air flow is free of all obstructions. Otherwise, it could prevent the unit's good performance and could provoke damages to the equipment.

The following recommendations will help to obtain the best performance of your air-conditioning unit:

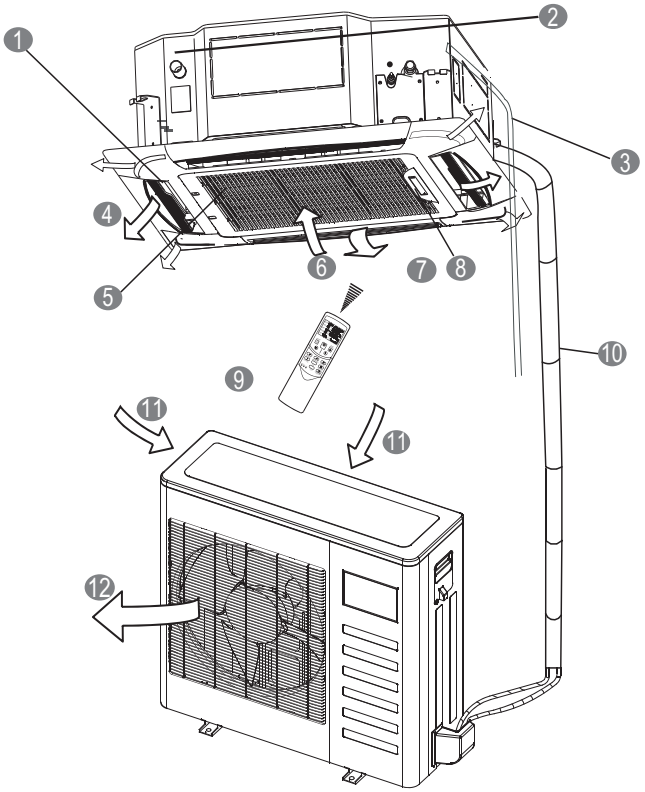
- Do not leave doors and windows open for a long period of time while the unit is in operation as it will reduce the unit's air-conditioning capacity.
- Do not place heat sources near the air conditioner as it will reduce the unit's air-conditioning capacity.
- When the unit is not used for an extended period of time, disconnect incoming power to the unit.
- If some smell of burning or smoke is detected, immediately disconnect all power supply to the unit and alert your authorized service agency of the situation. If this condition persists, it could be due to damages found in the unit which could possibly lead to electric shock or fire.
- Make sure the unit is not close to any type of fuel sprays (at least 1 meter in distance) in order to avoid fire or explosion hazards.
- Never try to repair the air conditioning unit by yourselves. An erroneous repair could lead to electrocution or fire. Always call your service agency for all repairs.
- Never splice or join electrical wiring, and never use an extension cord. This practice could lead to super-heating or fire.
- Electrical power supply should be of appropriate rated amperage and conform to all local codes.
- In order to prevent electric shock or fire, do not cut or damage power or control cords. If any of these cords are found to be damaged, request their replacement only to qualified personnel.
- Do not operate the unit without air filters installed. Otherwise, the penetration of debris or dirt could damage the unit. Filters must be removed and cleaned periodically to ensure their maximum efficiency.

System Appearance

Indoor Unit (Cassette)

UN. INTERIOR

UN. EXTERIOR

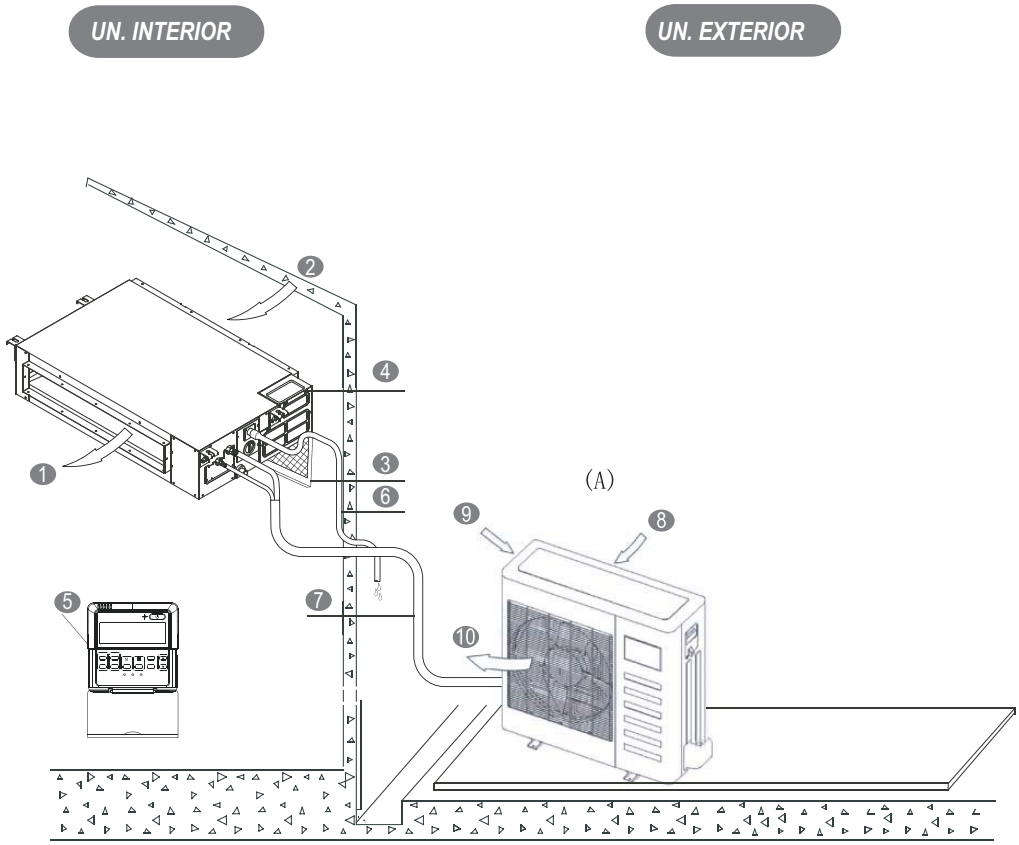


Indoor Unit	Outdoor Unit
(1) Air flow louver (outgoing air)	(7) Incoming air vents
(2) Drain pump (condensing water)	(8) Panel
(3) Drain pipe	(9) Remote controller
(4) Outgoing air	(10) Refrigerant piping
(5) Air filter (incoming air louvers)	(11) Incoming air
(6) Incoming air	(12) Outgoing air

Note: *All pictures in this manual are merely representative of their image since they may differ from the actual unit acquired by the customer.*

System Appearance

Indoor Unit (Concealed)

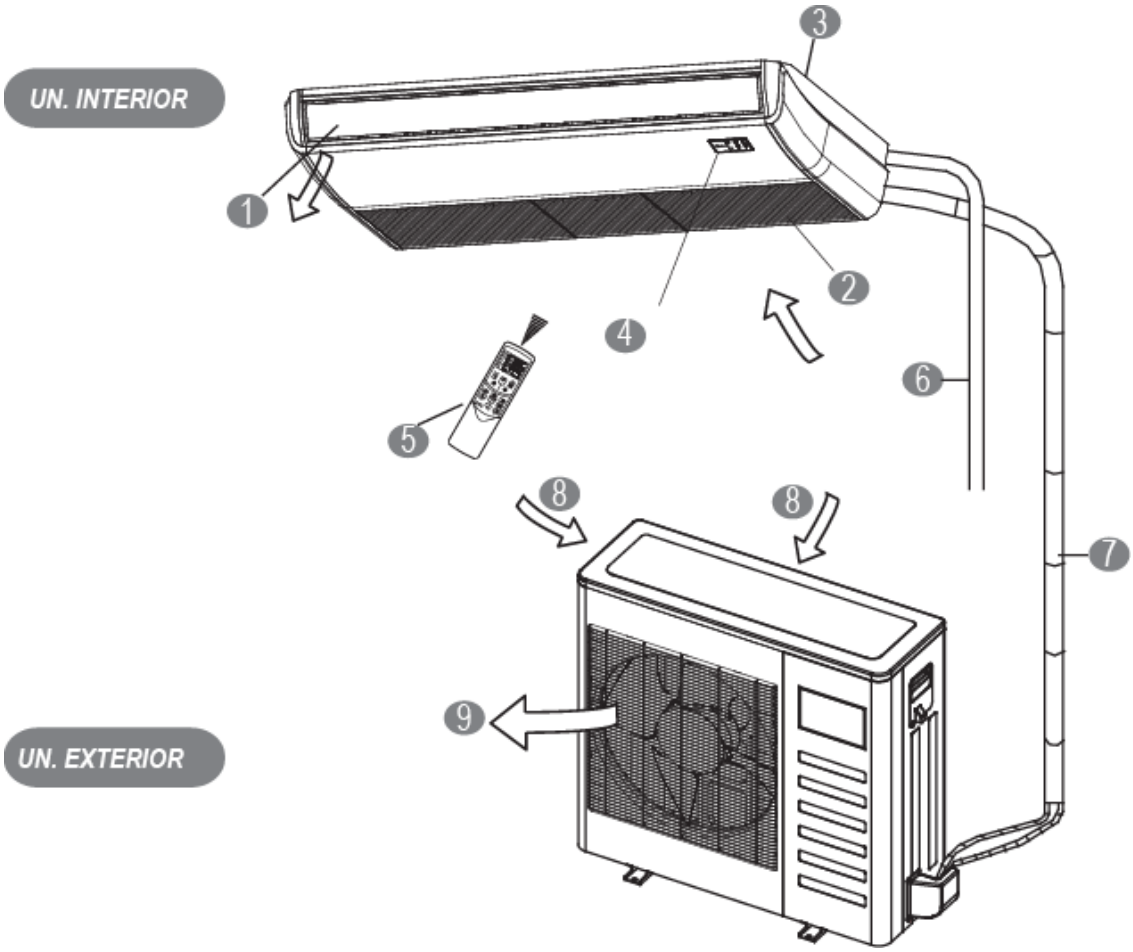


Indoor Unit	Outdoor Unit (A, B, C)
(1) Outgoing air	(7) Connecting piping
(2) Incoming air	(8) Incoming air
(3) Air filter	(9) Incoming air (sideways)
(4) Electric control cabinet	(10) Outgoing air
(5) Wired controller (in some models)	
(6) Drain pipe	

Note: *All pictures in this manual are merely representative of their image since they may differ from the actual unit acquired by the customer.*

System Appearance

Indoor Unit (Convertible)



Indoor Unit	Outdoor Unit (A, B, C)
(1) Outgoing air	(7) Connecting piping
(2) Mesh filter (nylon)	(8) Incoming air
(3) Unit support	(9) Outgoing air
(4) Electrical control cabinet	
(5) Wired controller (in some models)	
(6) Drain pipe	

Note: *All pictures in this manual are merely representative of their image since they may differ from the actual unit acquired by the customer.*

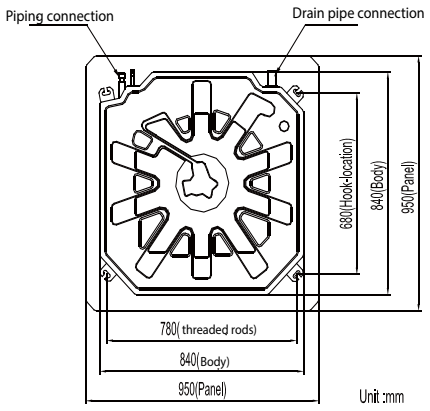
Cassette Unit Installation

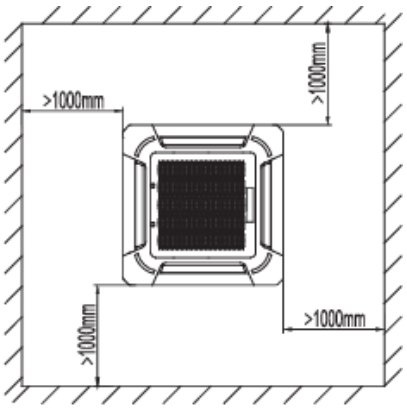
Location

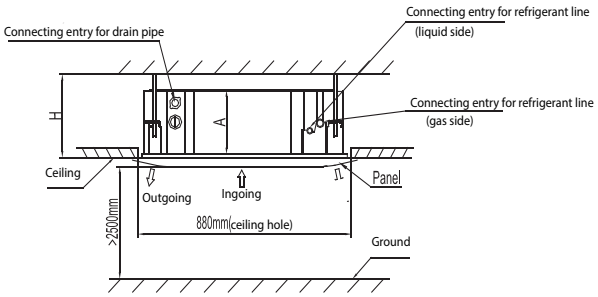
The unit must be installed in a place that complies with the following requirements:

- Full clearance for installation and maintenance procedures
- Unobstructed inlets and outlets and also free of outdoor air currents
- Appropriate capacity to allow the flow of air to reach the space designated for air conditioning
- Easy removal of all connecting and draining piping
- Space devoid of radiation and heat sources

Note: Keep the unit at a distance of at least 1 meter away from TV sets and radios to avoid interference from sound and images coming from these devices.







mm

MODEL	A	H
18	205	>235
24	205	>235
36	245	>275
48-60	287	>317

Drilling a hole in existing ceiling (horizontal)

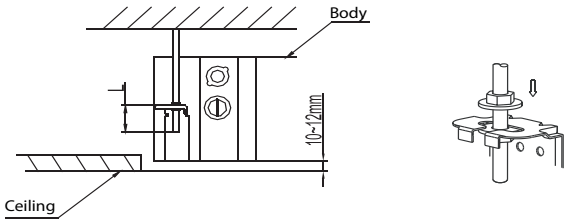
1. Drill a 880 x 880mm hole following the outline indicated on the mounting template.
   - The center of the hole must be placed in the same position corresponding to the body of the air-conditioning unit.
   - Determine the lengths and outlets of connecting piping, drain piping, and wiring cables.
   - In order to balance the installation in the ceiling and also to avoid vibrations, install wedges as may be deemed necessary.
2. Determine the position of the support rods following perforations for rods indicated on the mounting template.
   - Drill four holes of 12mm dia. and 45-50mm in depth at the places indicated on the ceiling. Insert expansible anchors.
   - Place the hollow side of the rods towards the expansible anchor. Determine the length of installation rods based on the height of the ceiling. Cut away any remaining and unnecessary extension. If ceiling height is taller, determine the length of installation rods according to the space available for installation.
3. Apply equal torque to hex nuts on all four hanging rods to ensure the correct balance of the unit.
   - Place the drain pipe in the right direction to allow it to adjust to the movement of the water level controller.
   - Center the unit in a manner that may ensure uniform spacing between the body of the unit and the four sides of the ceiling. The lower side of the body of the unit must penetrate the ceiling in approximately 10 to12 mm.
   - In general, the L distance represents half of the length of the installation rod.
   - Once the unit has been installed, apply final torque to all nuts.

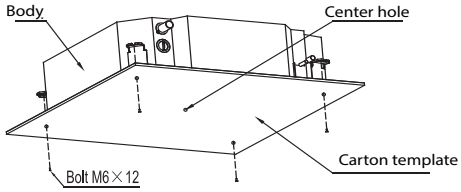
Drilling a hole in a ceiling of new construction

1. In the case of new construction, hanging rods may be inserted in advance (see point No. 2 in section above). Rods must have the capacity to support the weight of the indoor unit and must be unable to become loose due to the effects derived from concrete compression.
2. After installing the body of the unit, install the mounting template over the air conditioning unit using M6 x 12 screws in order to determine in advance the sizes and positions of ceiling holes.
   - Before the installation, make sure the ceiling maintains proper leveling.
   - Refer to point No. 1.
3. See point No. 3 in section above
4. Remove the installation template.

Note: In order to install the body of the unit, adjust all four screws (M6 x 12) to the air conditioning unit to ensure its grounding.

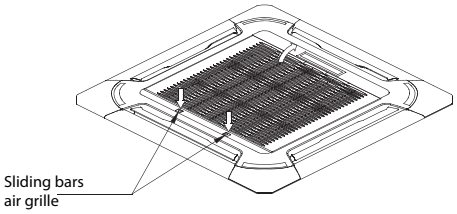
Panel Installation

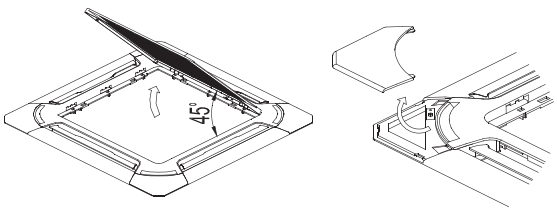




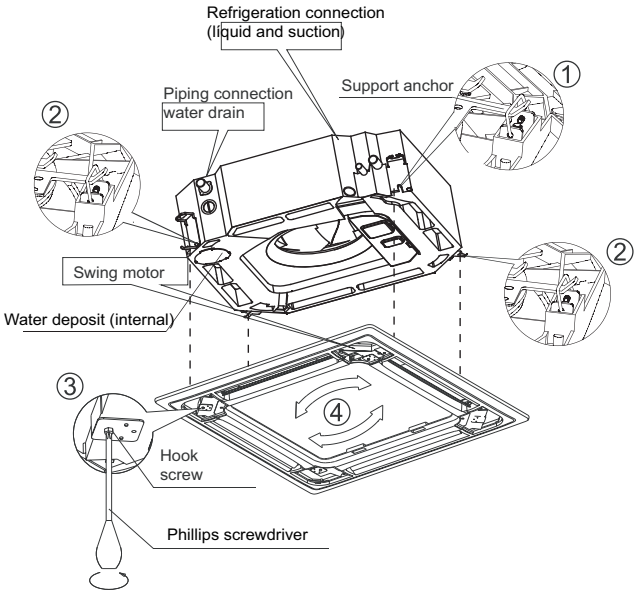
Note: Never place the panel face down on the floor or against a wall or heavy object. Protect it from being hit or being scratched.

1. Air grill removal
   - Slide both sliding bars simultaneously towards the center and then lift them.
   - Lift the air grill at an angle of 45 degrees and remove it.
2. Remove the 4 corner installation panels.
   - Remove the screws, loosen the cable/wiring from the four corner panels, and proceed to remove panels.





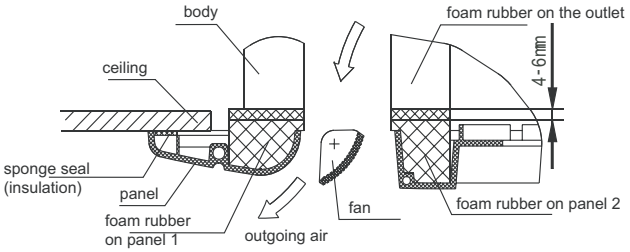
3. Panel placement
   - Align panel's swing motor with the refrigerant connections on the body of the unit.
   - Insert panel hooks into the swing motor and the opposite sides to the hooks of the corresponding water deposit. Hang the other two panel hooks to the corresponding sections on the body of the unit.

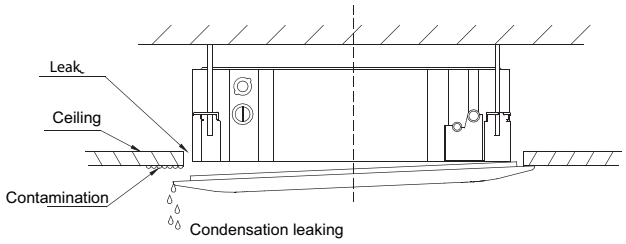


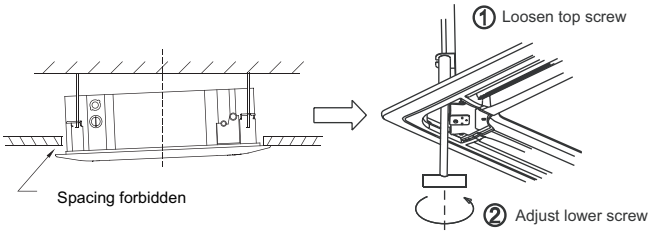
Note: Do not entangle the swing motor cable inside the insulation sponge material.

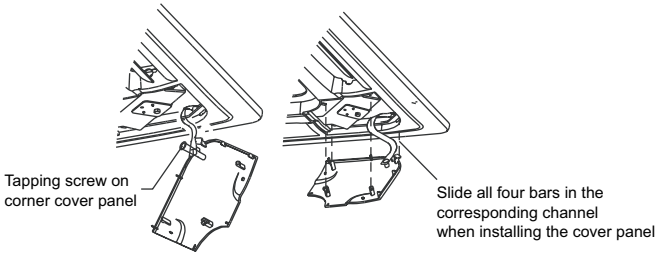
   - Adjust all four panel hanging rods to horizontal position; adjust them equally until they reach the ceiling.
   - Place the panel following the arrows in order to center it to the opening on the ceiling. Make sure that all four corner hooks are adjusted correctly.
   - Tighten the screws below the panel hooks until the width of the sponge between the body and panel outlet is reduced to approximately 4 to 6 mm. The edge of the panel must touch the ceiling. Failure in the operation of the unit may be due to inappropriate adjustment of the panel screw.
   - If after adjustment of the installation screws a spacing can be observed between the panel and the ceiling, the height of the indoor unit must be modified once more.
   - Modification of the unit's height can be done through the openings at the four corners of the panel, provided that the adjustment of the indoor unit and the drain pipe will not be affected.
4. Install the air grill inside the panel. Connect power leads to the swing motor and control box at their corresponding terminals.
5. Reinstall the air grille inverting the procedure employed to dismount it.
6. Reinstall the corner covers on the panel.
   - Connect the panel cable to the screw on same panel.
   - Carefully press the corner cover inside the panel.

Cassette Unit Installation







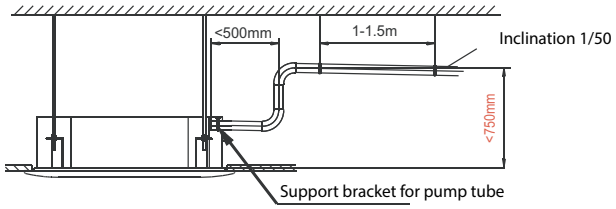


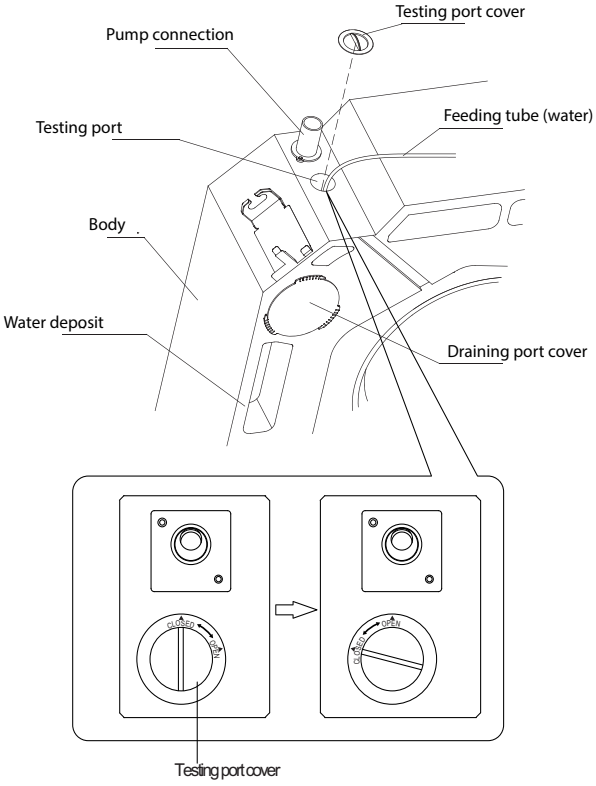
Drain test

Verify the integrity of the drain pipe. In cases of new construction, we recommend testing the drain before cementing the ceiling.

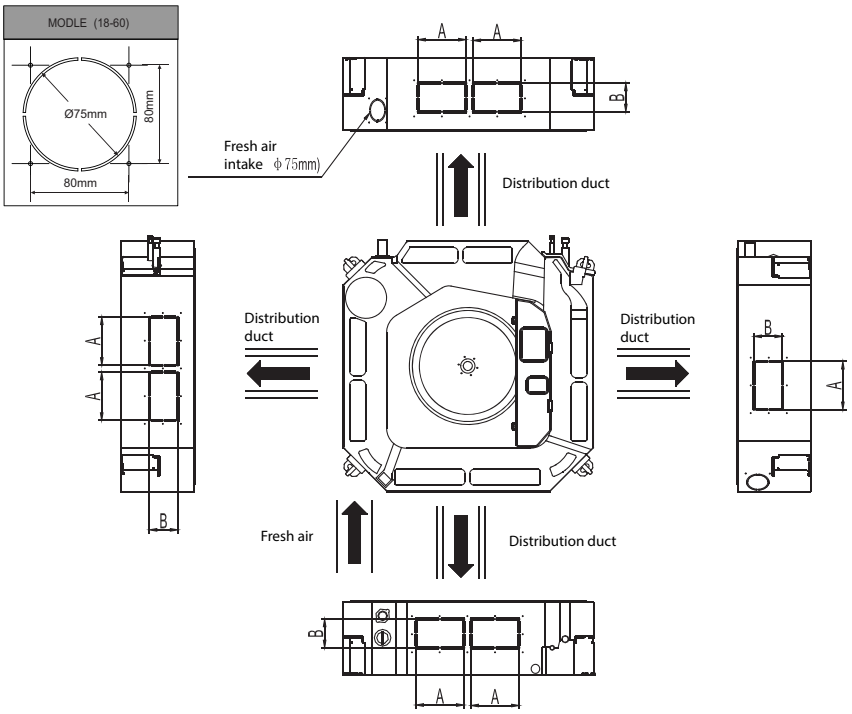
Units with water pump

1. Remove the testing port cover and pour 2000ml of water in the drain pan.
2. Operate the unit in cooling mode. The operation of the pump will be heard during testing. Verify that water drains correctly (1 minute delay, depending upon the length of the drain tube). Confirm that all pipe fittings are leak-free.
3. Shut the unit down and replace the testing port cover.





Distribution ductwork installation



Model 18 to 24 Series A = 160mm; Series B = 75mm

Model 36 to 60 Series A = 160mm; Series B = 95mm

Single duct connection

Ductwork air volume is approximately 300-360m3/h - Model 18 to 24

Ductwork air volume is approximately 400-640m3/h - Model 36 to 60

Maximum duct length is 2m.

In the case of double duct connection, the original opening for outgoing air with the same piping direction, must be sealed.

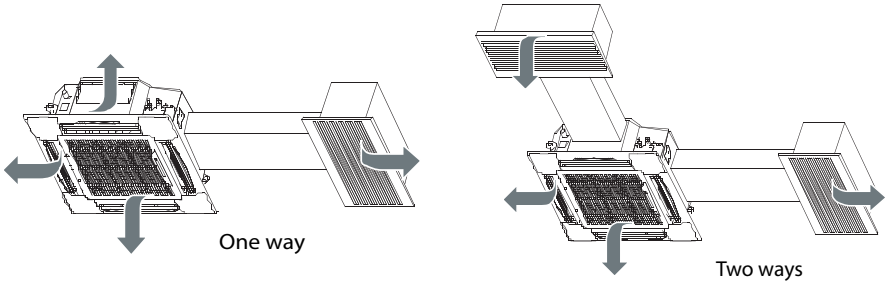
Double duct connection

Ductwork air volume is approximately 200-260m3/h - Model 18 to 24

Ductwork air volume is approximately 300-500m3/h - Model 36 to 60

Maximum duct length is 1.5m for a single duct.

The original opening for outgoing air with the same piping direction, must be sealed.



Concealed Unit Installation

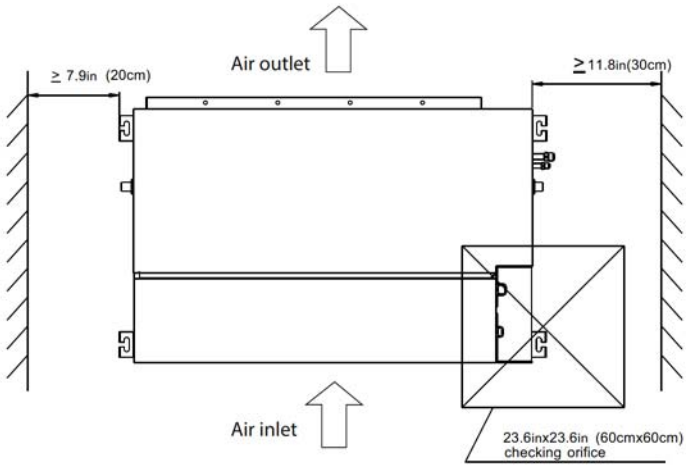
Location

The unit must be installed in a place that complies with the following requirements:

- Full clearance for installation and maintenance procedures
- Unobstructed inlets and outlets and also free of outdoor air currents
- Appropriate capacity to allow the flow of air to reach the space designated for air conditioning
- Easy removal of all connecting and draining piping
- Space devoid of radiation and heat sources

Note: Keep the unit at a distance of at least 1 meter away from TV sets and radios to avoid interference from sound and images coming from these devices.

Clearance for maintenance procedures



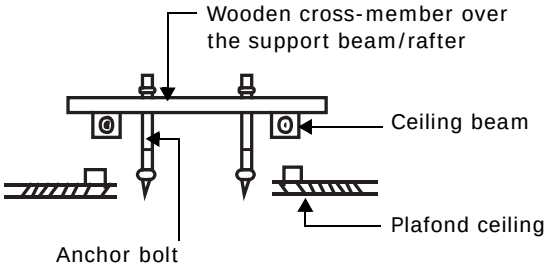
Hanging rods installation (4)

- Consult the following diagrams to determine the distance in between hanging rods. Use threaded rods of 10mm dia. / 0.394 in.
- Hanging ceiling rods/supports will vary according to each individual construction. Always maintain supports/rods perfectly leveled and reinforce them with wedges in order to prevent vibrations.
- Cut hanging supports/rods as deemed necessary and reinforce the cutting points.
- Install piping system after installing the body of the unit. Determine the direction of the piping with outlet towards the outside of the suspended ceiling. Before installing the machine, determine connecting points for refrigerant lines, drain piping, and indoor and outdoor unit lines.

Note: Confirm that minimum draining pitch is of 1/100 or more.

Wooden construction ceilings

Place a wooden cross-member over the plafond ceiling support. Insert hanging rods as is shown below.

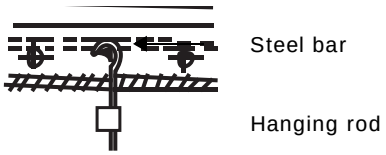


New concrete brick ceilings

Insertion or embedding of threaded hanging rods (with butterfly type rawl plugs)

Original concrete brick ceilings

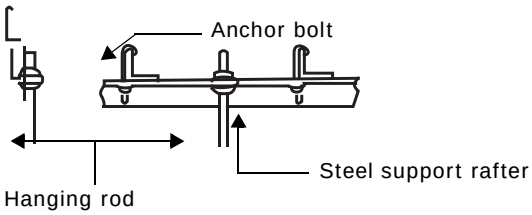
Use threaded rod, eye-bolt or reinforced lug



(Pipe and hanging rod)

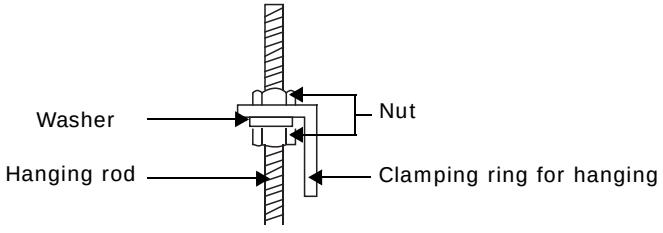
Steel beam ceilings

Install using a steel support angle



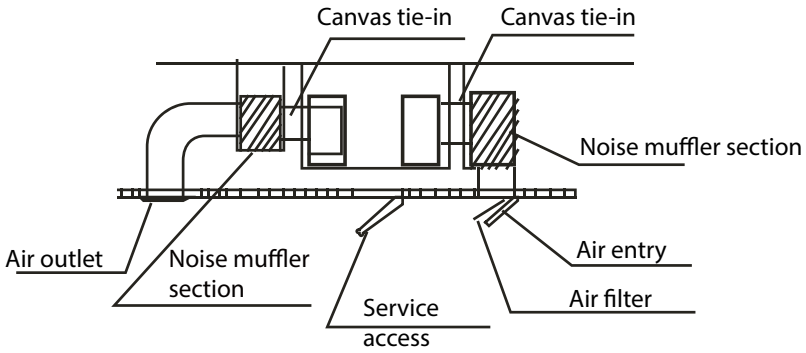
Hanging the unit

- Hang the unit from the threaded rods and fasten it with the corresponding nuts.
- Level the unit with the use of a level gauge



Ductwork and accesories installation

1. Install filter (optional) conforming to the size of the air inlet.
2. Install the canvas section between the body of the unit and the duct.
3. Ductwork for Incoming air and outgoing air must count with sufficient separation in order to prevent any short circuit from happening within the air passage.
4. Recommended ductwork connections.



Refer to the following high static pressure table:

Model (Btu/h)	High static pressure (Pa/in.wg)
18	0-100/0-0.4
24	0-160/0-0.64
36	0-160/0-0.64
48-60	0-160/0-0.64

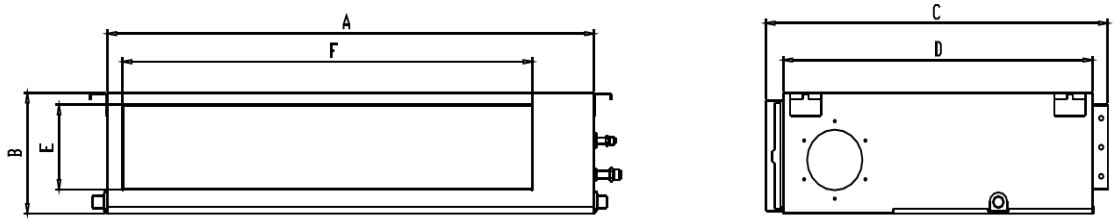
Change the motor static pressure of the ventilator so that it may correspond to the ductwork static pressure.

Note:

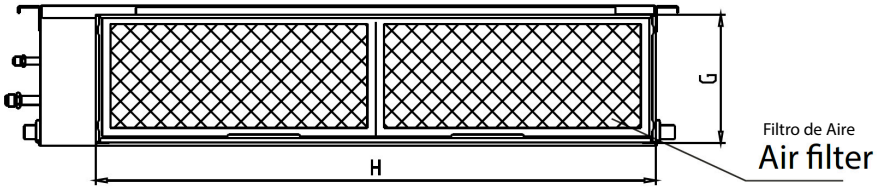
1. Avoid any weight of the canvas over the indoor unit
2. Use non-flammable canvas material to prevent vibrations
3. Wrap external sides of ductwork with insulation material to prevent the formation of condensation
4. Apply insulation material in the inside of the ductwork in order to reduce noise levels.

Unit placement

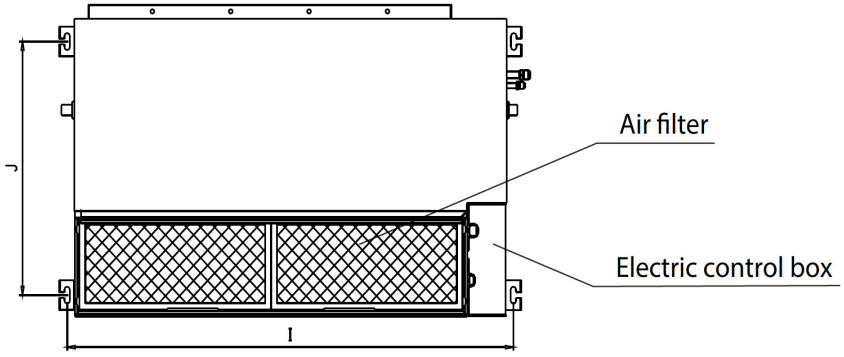
Dimensions and size of outgoing air outlet



Size of incoming air inlet



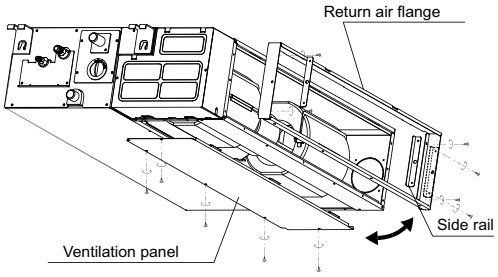
Size for vertical discharge



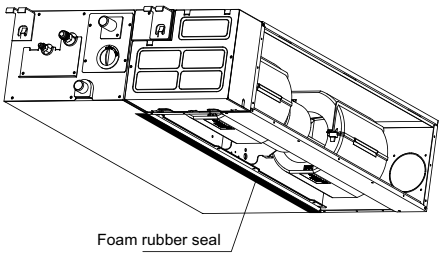
Unit size	Profile dimension (in/mm)				Opening size for outgoing air		Opening size for air return		Size of mounting tab	
	A	B	C	D	E	F	G	H	I	J
18	880/34.6	210/8.3	674/26.5	600/23.6	136/5.4	706/27.8	190/7.5	782/30.8	920/36.2	508/20
24-36	1100/43.3	249/9.8	774/30.5	700/27.6	175/6.9	926/36.5	228/8.9	1001/39.4	1140/44.9	598/23.5
48-60	1200/47.2	300/11.8	874/34.4	800/31.5	227/8.9	1044/41.1	280/11	1001/43.3	1240/48.8	697/27.4

Air direction adjustment (back section/bottom section)

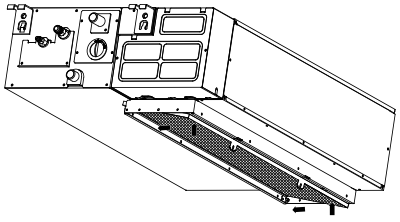
1. Remove ventilation panel and flanges and cut the clamps from the side rail.



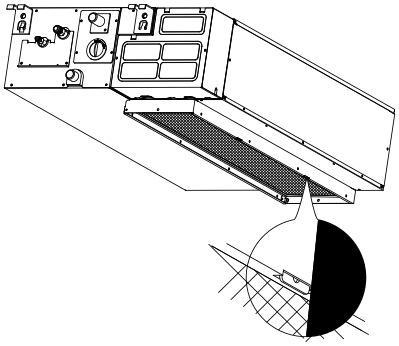
2. Paste the foam rubber protector in the place as shown in the diagram and switch return air panel and return air flange mounting positions.



3. When installing the filter screen, press the screen inside the flange at a pitched angle following the return opening and continue by pushing it upward.



4. Once installed, insert the filter screen adjustment clamps inside the holes provided on the flange.

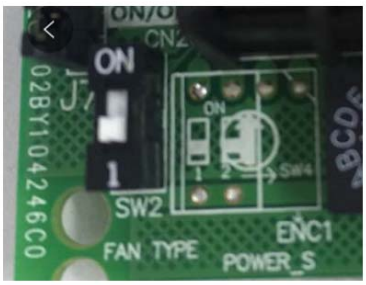


PCB board operational mode - Cooling Only/Heat Pump

Note: *Confirm the operational position of the switch on the PCB board to ensure that the unit will not suffer any damages.*

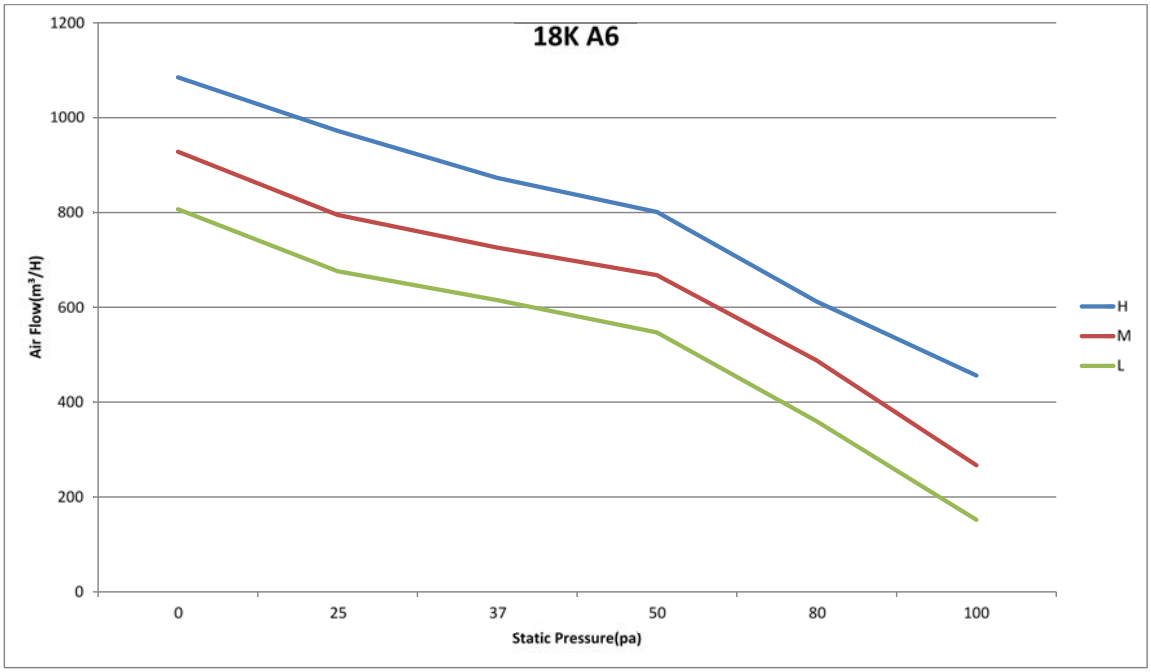
SW2 switch on the concealed unit is used to select mode of operation:

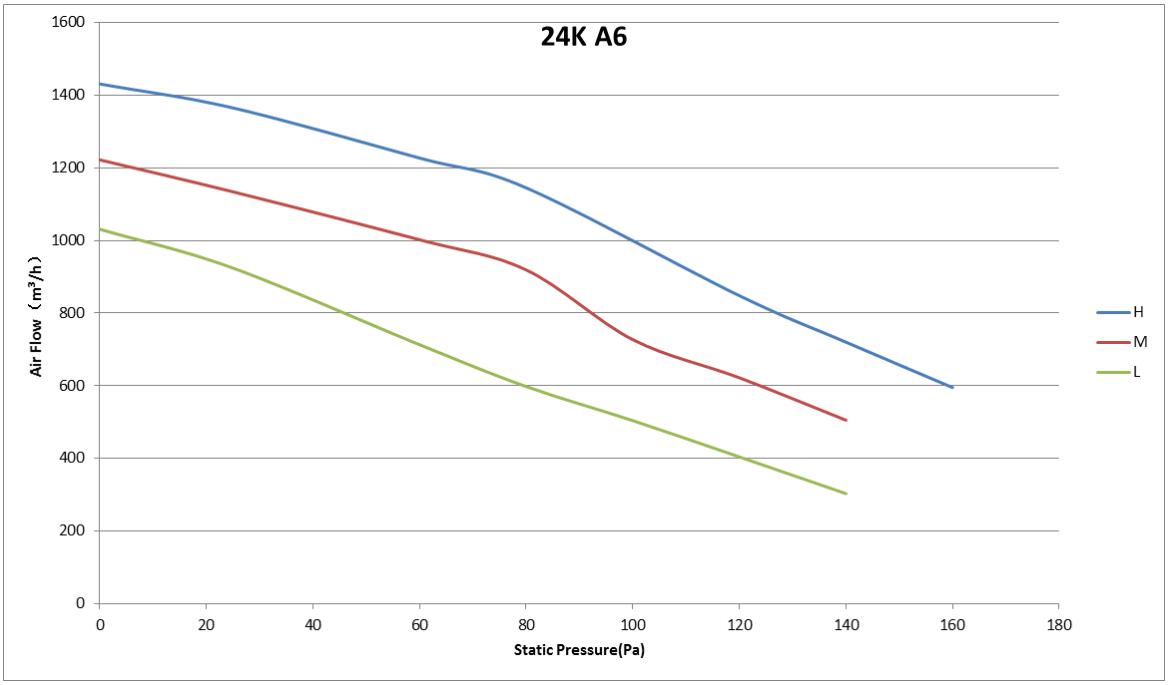
- Position 1 is the factory selection for heat pump mode
- Position ON is the field selection for cooling only mode

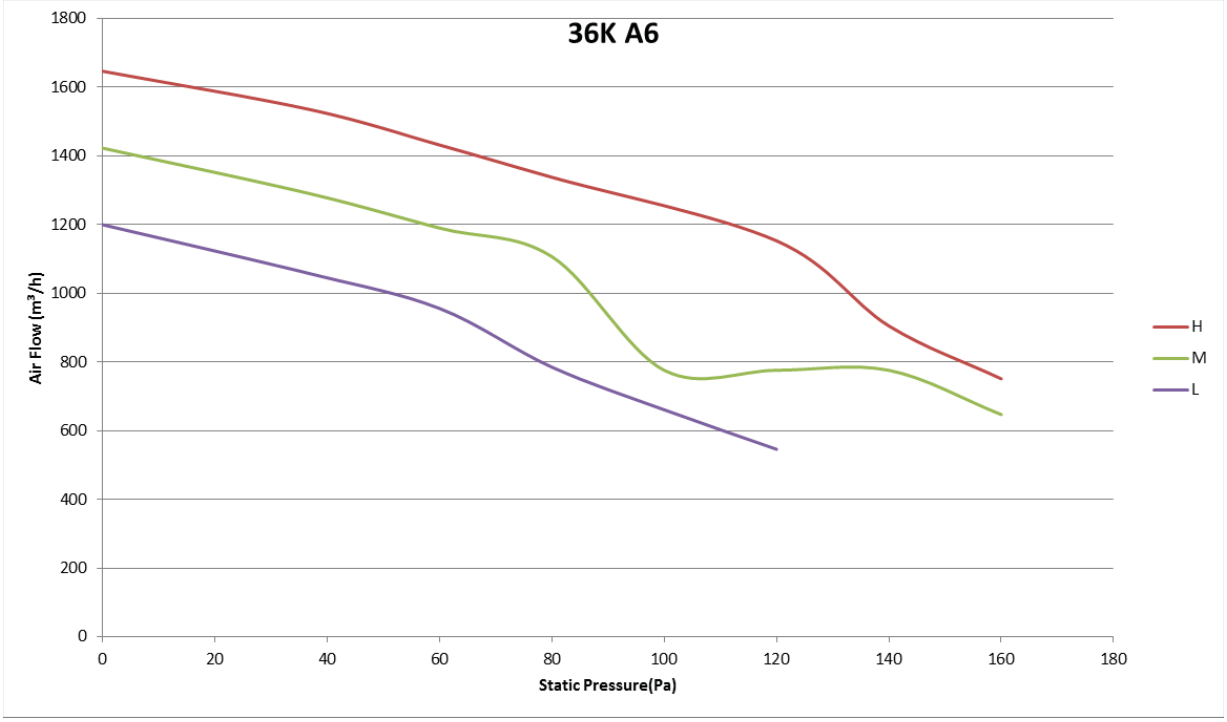


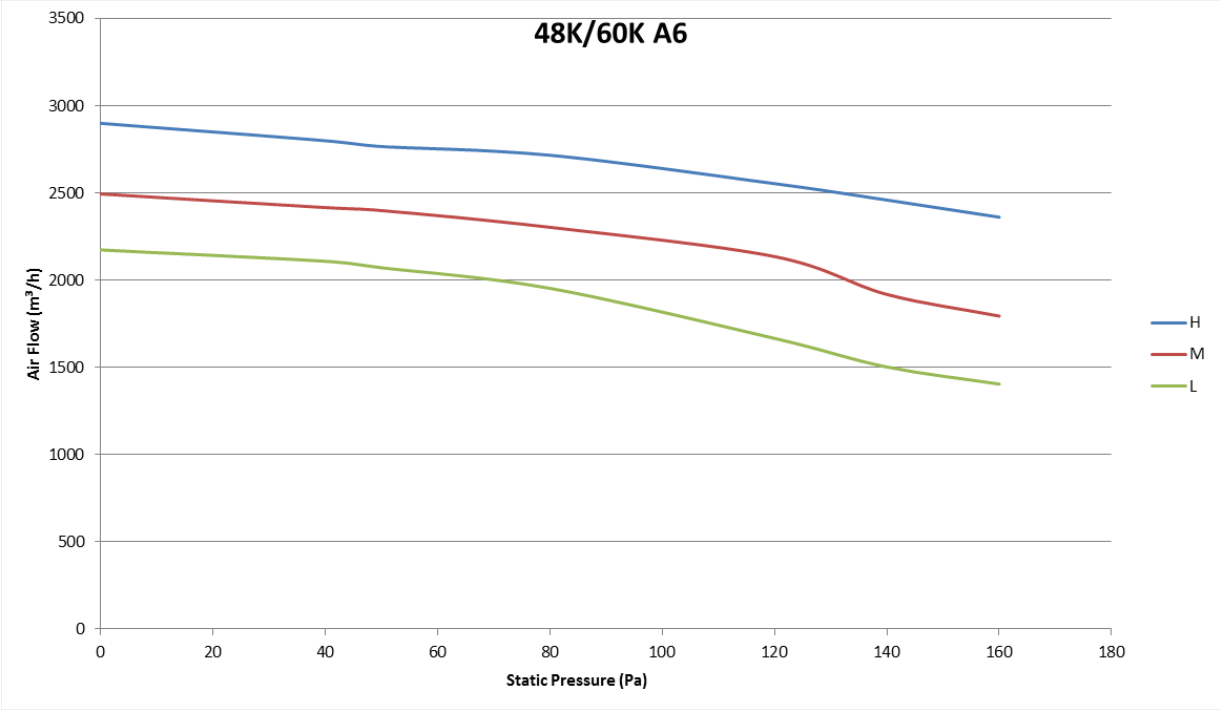
FOR COOLING&HEATING OR COOLING ONLY MODE SETTING		
SW2	ON 1	ON 1
MODE	COOLING&HEATING	COOLING ONLY
FACTORY SETTING	✓	

Performance Curves






36K A6
Air Flow (m³/h)
1800
1600
1400
1200
1000
800
600
400
200
0
0
20
40
60
80
100
120
140
160
180
Static Pressure(Pa)
H
M
L


48K/60K A6
Air Flow (m³/h)
3500
3000
2500
2000
1500
1000
500
0
0
20
40
60
80
100
120
140
160
180
Static Pressure (Pa)
H
M
L

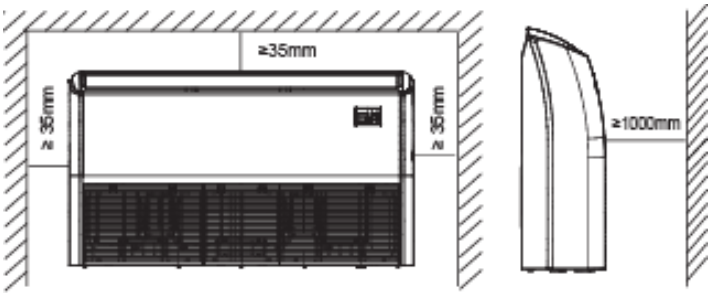
Convertible Unit Installation

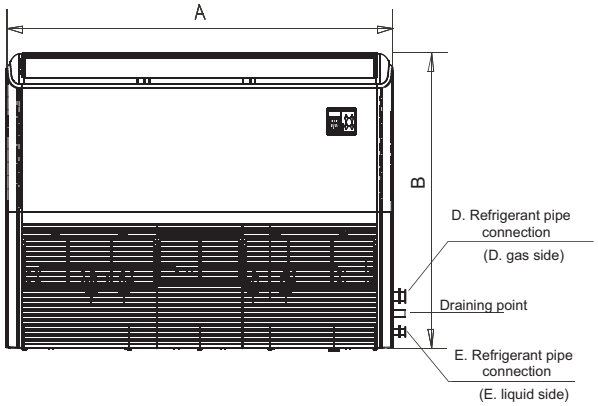
Location

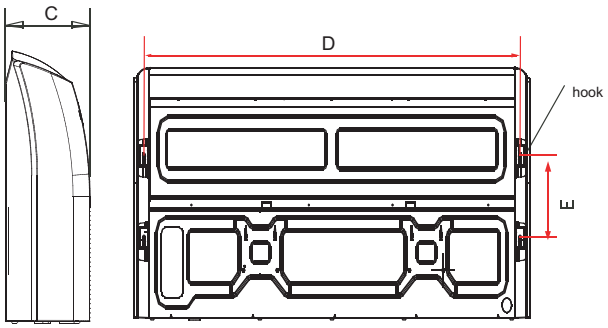
The unit must be installed in a place that complies with the following requirements:

- Full clearance for installation and maintenance procedures
- Unobstructed inlets and outlets and also free of outdoor air currents
- Appropriate capacity to allow the flow of air to reach the space designated for air conditioning
- Easy removal of all connecting and draining piping
- Space devoid of radiation and heat sources

Note: Keep the unit at a distance of at least 1 meter away from TV sets and radios to avoid interference from sound and images coming from these devices.





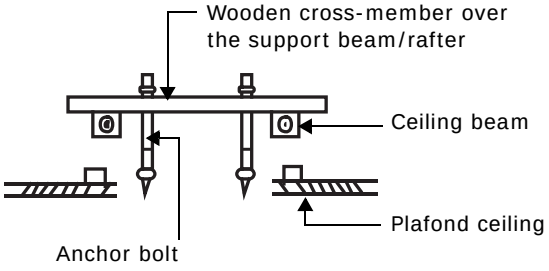


Hanging rods installation (4)

- Consult the following diagrams to determine the distance in between hanging rods. Use threaded rods of 10mm dia. / 0.394 in.
- Hanging ceiling rods/supports will vary according to each individual construction. Always maintain supports/rods perfectly leveled and reinforce them with wedges in order to prevent vibrations.
- Cut hanging supports/rods as deemed necessary and reinforce the cutting points.
- Install piping system after installing the body of the unit. Determine the direction of the piping with outlet towards the outside of the suspended ceiling. Before installing the machine, determine connecting points for refrigerant lines, drain piping, and indoor and outdoor unit lines.

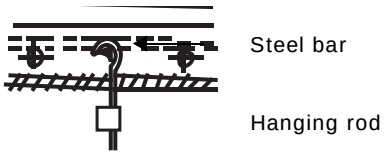
Wooden construction ceilings

Place a wooden cross-member over the plafond ceiling support. Insert hanging rods as is shown below.



New concrete brick ceilings

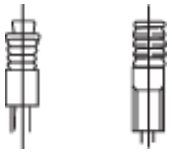
Insertion or embedding of threaded hanging rods (with butterfly type rawl plugs).



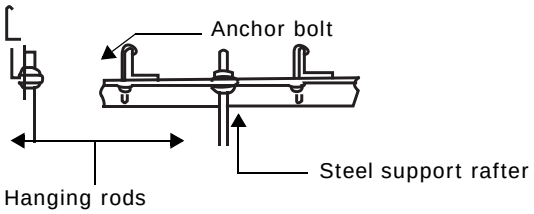
(Pipe and hanging rod)

Original concrete brick ceilings

Install the hanging rod using an expansion anchor inside the concrete at a depth of 40-50mm to prevent it from becoming loose.

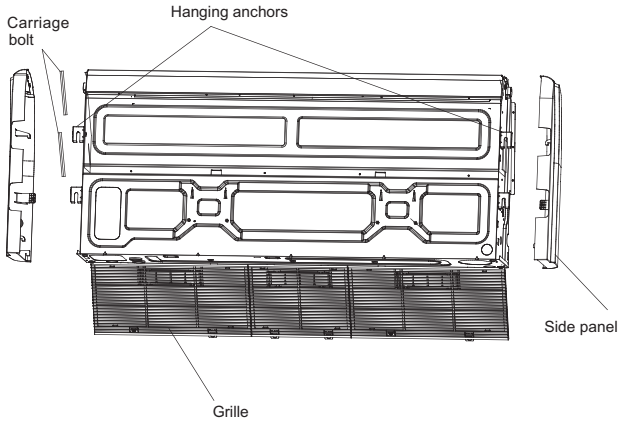


Steel beam ceilings
Install using a steel support rafter/beam.

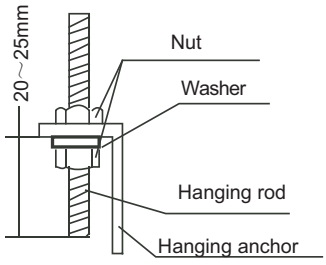


Unit installation

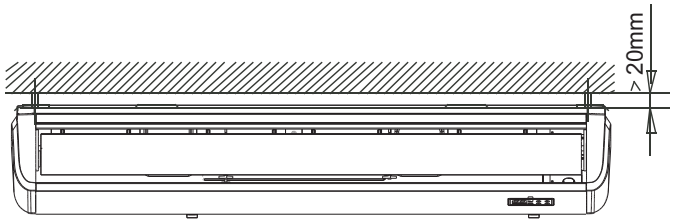
- Remove side panels and grille

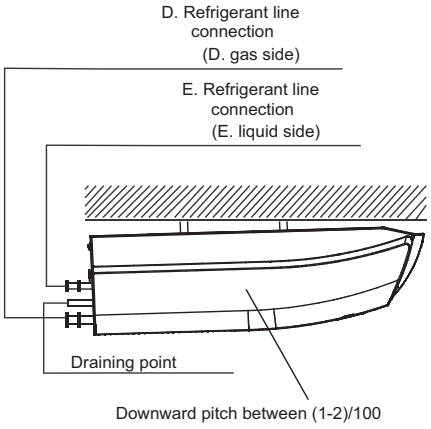


- Place hanging anchors over the hanging rods.

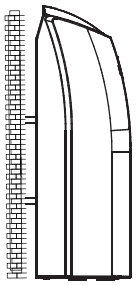


Ceiling installation





Wall installation



Unit dimensions

unit：mm

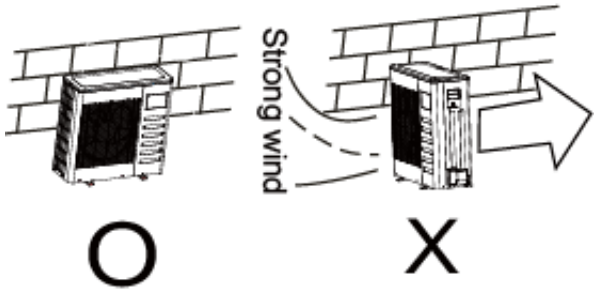
MODEL	A	B	C	D	E
18	1068	675	235	983	220
24	1285	675	235	1200	220
36-60	1650	675	235	1565	220

Outdoor Unit Installation

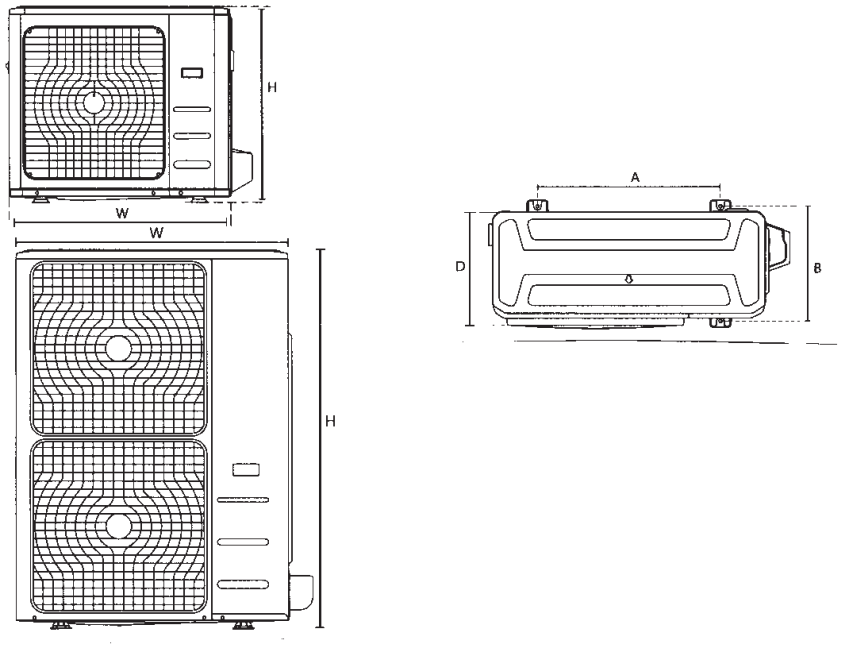
Location

The unit must be installed in a place that complies with the following requirements:

- Full clearance for installation and maintenance procedures
- Unobstructed inlets and outlets and also free of outdoor air currents
- Dry and well vented location
- Mounting foundation should be capable of supporting the weight of the outdoor unit and prevent the transmission of noise and vibrations
- Easy access to piping and wiring installations
- Unobstructed outlet for discharge air
- Free from fire hazard due to gas leaks
- Piping length between the outdoor unit and indoor unit not to exceed allowable dimensions
- If location is exposed to strong winds, the unit is to be installed against the wall or should be protected against strong winds.
- If possible, unit should not be exposed to direct sun rays
- Placing outdoor unit as close as possible to the indoor unit



Unit sizes

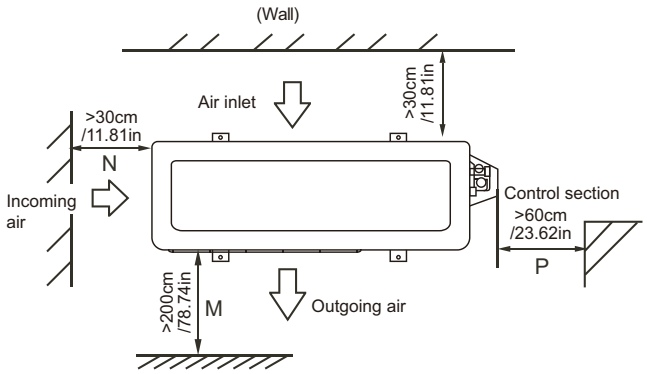


Installation and service clearance

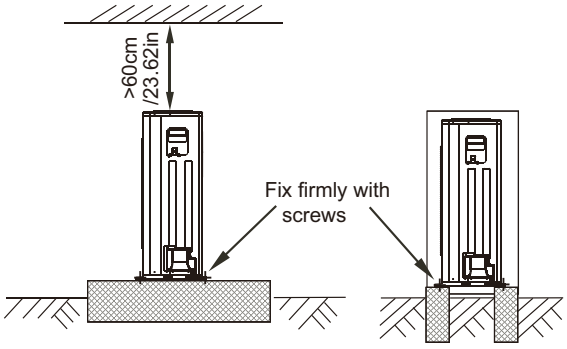
Length specifications

	Outdoor unit dimensions (mm)	Mounting dimensions (mm) (inch)	
Capacity	H x W x D	Distance A	Distance B
12K	770 x 555 x 300	487 (19.17)	298 (11.73)
18K - 24K	845 x 702 x 363	540 (21.26)	350 (13.8)
36K	946 x 810 x 410	673 (26.5)	403 (15.87)
48K	900 x 1170 x 350	590 (23.2)	378 (14.88)
60K	952 x 1333 x 415	634 (24.96)	404 (15.9)

Rigging and installation

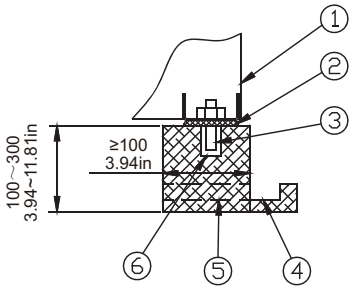


- Inasmuch as the center of gravity of the unit is not precisely its physical center, take care when lifting the unit with the use of slings
- Do not touch the fan with hands or with any other objects
- Do not pitch the unit more than 45° and do not place it on its side.
- Mount the unit on a concrete base following proper specifications
- Use screws to install the unit securely in order to prevent it from toppling over in case of strong winds or brusque movements



Concrete base

- Mounting base should be 100-300mm/3.94- 11.81 in height above the ground.
- Install a draining opening around the mounting base.
- Install the unit to the base with M10 anchor bolts.
- In installations on the roof or balcony, avoid draining the unit towards areas of human crossing.



No	Description
①	Outdoor unit
②	Rubber protection against vibrations
③	M10 anchor bolt
④	Drain (Width 100/3.94in x depth150/5.9in)
⑤	Drain
⑥	Orifice (Φ100/3.94in x depth 150/5.9in)

Connecting piping installation

Preparation

Before installing all piping, ensure that refrigerant lines report the height, the length and the amount of turns specified between the indoor unit and the outdoor unit to comply with the following pipe diameter requirements:

Condensing unit	Liquid line (mm/inch)	Gas line (mm(inch)
One stage outdoor units		
4TTK0512D1000AL	Φ6.35 (1/4”)	Φ12.7 (1/2”)
4TTK0518D1000AL	Φ6.35 (1/4”)	Φ12.7 (1/2”)
4TTK0524D1000AL	Φ9.52 (3/8”)	Φ15.9 (5/8”)
4TTK0536D1000AL	Φ9.52 (3/8”)	Φ19 (3/4”)
4TTK0548D1000AL	Φ9.52 (3/8”)	Φ22 (7/8”)
4TTK0560D1000AL	Φ9.52 (3/8”)	Φ22 (7/8”)
4TWK0512D1000AL	Φ6.35 (1/4”)	Φ12.7 (1/2”)
4TWK0518D1000AL	Φ6.35 (1/4”)	Φ12.7 (1/2”)
4TWK0524D1000AL	Φ9.52 (3/8”)	Φ15.9 (5/8”)
4TWK0536D1000AL	Φ9.52 (3/8”)	Φ19 (3/4”)
4TWK0548D1000AL	Φ9.52 (3/8”)	Φ22 (7/8”)
4TWK0560D1000AL	Φ9.52 (3/8”)	Φ22 (7/8”)
Three stage outdoor units		
4TTK0536D6000AL	Φ9.52 (3/8”)	Φ19.(3/4”)
4TTK0548D6000AL	Φ9.52 (3/8”)	Φ22 (7/8”)
4TTK0560D6000AL	Φ9.52 (3/8”)	Φ22 (7/8”)
4TWK0536D6000AL	Φ9.52 (3/8”)	Φ19 (3/4”)
4TWK0548D6000AL	Φ9.52 (3/8”)	Φ22 (7/8”)
4TWK0560D6000AL	Φ9.52 (3/8”)	Φ22 (7/8”)

The unit is factory charged with the appropriate amount of refrigerant. If additional charge is required, refer to the following table:

Liquid line diameter (mm)	Φ6.35	Φ9.52	Φ12.7
Formula	V = 15g/m x (L-5)	V = 30g/m x (L-5)	V = 65g/m x (L-5)

Note: The previous table refers to the liquid line.

Note: The amount of turns depends upon the length of maximum height. Normally a turn is required at each 10m/32.8 pies.

Piping connection

Note:

- Do no allow the entry of air, dust or other pollutants into the pipe lines during installation.
- The connecting pipe must not be installed until both indoor and outdoor units have been properly installed.
- Keep all piping dry and protected against any incoming humidity.
- To avoid leaks, apply insulation material on both sides of gas and liquid lines.

1. Drill a hole on the wall of sufficient size that allows the entry of conduit.
2. Join the connecting pipe plus electric cables firmly together forming a bundle with the use of appropriate tape. Insert this bundle through the drilled hole entering from the external side of the wall. Make sure the bundle will not be damaged.
3. Connect the pipe lines as indicated in the following section.
4. Use a vacuum pump to purge the air. Refer to the following corresponding section.
5. Open the shutoff valves in the outdoor unit to allow the flow of refrigerant into the indoor unit.
6. Verify the absence of any leaks. Check all couplings with a leak detector or with the use of soapy water.
7. Cover all line couplings with pipe a sleeve made of insulation material, and further cover these couplings with the appropriate insulation material to avoid leaks.

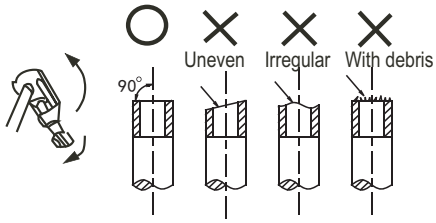
¡PRECAUTION!

Ensure that all exposed parts of the flare type couplings are properly covered with insulation material, as well as all refrigerant piping on the liquid side and on the gas side. Verify the absence of any visible spacing. The lack of insulating material could cause water condensation.

Piping connection

1. Flaring

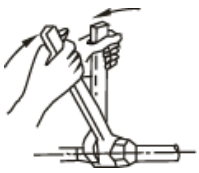
- With the use of a tube cutter, cut the pipe. See following graphic.



- Insert a flared nut over the pipe and proceed with pipe flaring.
- Refer to the following table to see spacing dimensions for the flared nuts.

2. Nut adjustment

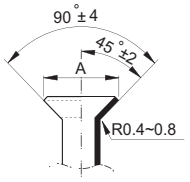
- Place connecting tubes in their appropriate places; tighten the nuts first with the hand, and then tighten them simultaneously using two open end wrenches. See next graphic.



¡PRECAUTION!

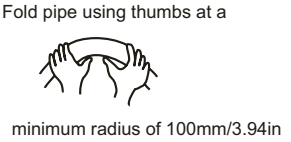
Excessive tightening torque *can damage the tube couplings and* ***insufficient tightening torque*** *can provoke leaking. Determine the tightening torque in the following table.*

Tube Diameter	Tightening Torque	Flare dimension (A) (mm/inch)		Flaring
		Min.	Max.	
ϕ 6.4	14.2 + 17.2 N.m. (144-176 kgf.cm)	8.3/0.3	8.3/0.3	
ϕ 9.5	32.7 + 39.9 N.M (333-407 kgf.cm)	12.4/0.48	12.4/0.48	
ϕ 12.7	49.5 + 60.3 N.M (504-616 kgf.cm)	15.4/0.6	15.8/0.6	
ϕ 15.9	61.8 + 75.4 N.M (630-770 kgf.cm)	18.6/0.7	19/0.74	
ϕ 19.1	97.2 + 118.6 N.M (990-1210 kgf.cm)	22.09/0.9	23.3/0.91	
ϕ 22	109.5 + 133.7 N.M (1117-1364 kgf.cm)	27/1.06	27.3/1.07	

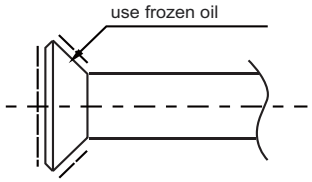


Procedure for pipe connection

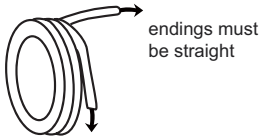
1. **Measure the required length of tube connection and proceed as follows. First connect the indoor unit; then connect the outdoor unit.**
   - Fold the pipe appropriately. Do not twist the tube.



   - Apply refrigerant oil on the surface of the flared pipe and on the union nuts; using hands, apply tightening torque for 3 to 4 turns, before using the wrench.



   - Employ two open-end wrenches simultaneously to connect or disconnect piping



- Outdoor unit service valves must be totally closed (original state). In order to connect them, loosen the nuts and connect flared tubes in a timing not to exceed 5 minutes. If nuts remain loose during extended time, it could lead to dust and other debris entering the system and consequently causing a system malfunction. Therefore, before the final connection, purge air from the refrigerant line.
- Purge air after connecting the refrigerant line to both indoor unit and outdoor unit. Tighten nuts on the service valves.
- Fold the thin-walled connecting tube.
  - Cut the insulation material insulating material all over the pipe on the section to be folded.
  - Expose the pipe. Proceed to fold it. Once folded, cover it completely with insulating material
  - In order to prevent pipe from deforming or twisting, fold it at a suitable radius.

Note:

- Folding angle should not exceed 90°.
- It is preferable to fold the pipe in its middle section.
- Do not fold pipe more than three times.
- Ensure you use the same insulation material when you acquire piping (thickness to be more than 9mm/0.35 in).

2. Piping installation

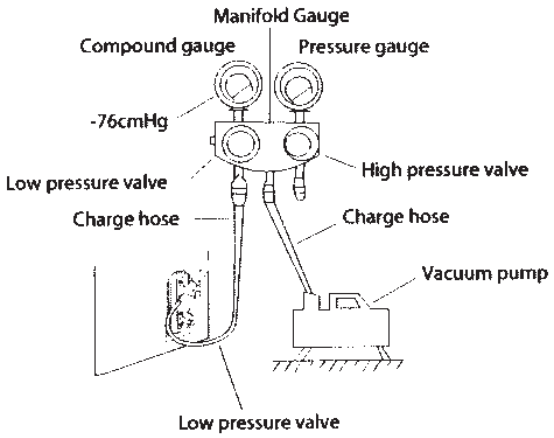
- Make a hole in the wall large enough to allow the introduction of conduit.
- Join the connecting pipe plus electric cables firmly together forming a bundle with the use of appropriate tape. From the external side of the wall, insert this bundle through the drilled hole. Make sure the bundle will not be hampered.

3. Piping connection

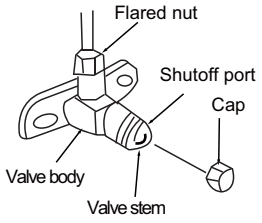
- Purge air using a vacuum pump. See the following corresponding section.
- Open the outdoor unit shutoff valves to allow the flow of refrigerant towards the indoor unit.
- Verify the absence of leaks. Check all couplings with a leak detector o with soapy water.
- Cover all line couplings with pipe a sleeve made of insulation material, and further cover these couplings with the appropriate insulation material to avoid leaks.

4. Air purging

- Loosen and remove nuts from A and B shutoff valves and connect the manifold to the charging port of shutoff valve A. Verify that both A and B valves are closed.
- Connect charging hose to the vacuum pump.
- Totally open manifold low pressure valve.
- Activate vacuum pump. As pumping is starting, partly loosen nut on valve B to verify if air is penetrating (a change in the operation of the pump will be heard and gauge indicator will move below zero). Tighten nut once more.
- Once pumping has ended, close manifold low pressure valve and shut off the vacuum pump. After 15 minutes of pumping have elapsed, confirm that manifold indicator reads -1.0X105 Pa (-76cmHg).
- In order to open valves, loosen and remove caps on A and B shutoff valves. Replace caps once more.
- Disconnect hose from A valve charging port and tighten nut once again.



Note: Both shutoff valves must be opened before the operation test. Each air conditioning unit will show two different sized shutoff valves.



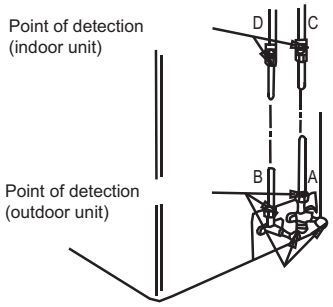
5. Leak detection

Check all couplings with leak detector or with soapy water. See next graphic.

A ..... Low pressure valve

B ..... High pressure valve

C, D....Connecting pipe coupling to indoor unit

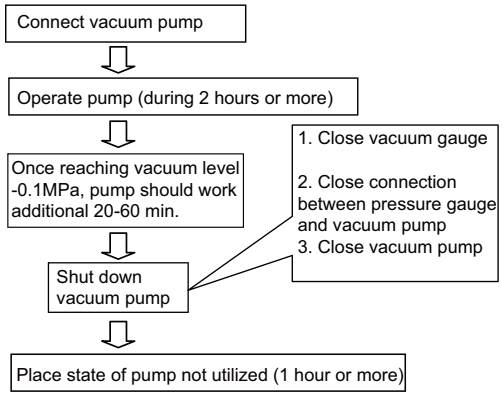


Note: Isolate entire surface of all exposed parts on flared piping.

Note: Incomplete isolation may cause leaks due to condensation.

6. Vacuum test

- Use a vacuum pump that reaches a level below -0.1MPa and with capacity for discharge above 40L/min.
- Outdoor unit does not require a vacuum test. Therefore both gas and liquid shutoff valves should be maintained in closed position.
- After 2 hours or more of operation, ensure that the pump reaches a -0.1MPa reading or less. If after 3 hours of operation the pump did not reach the -0.1MPa reading or less, test to verify the presence of water or gas leaks in the piping.



Drain pipe connection

1. Drain pipe installation in indoor unit

- For the drain line, use PVC piping of outside dia. 37-39mm and indoor dia. int. 32mm.
- Join the drain pipe connector to the pipe coming from the condensate pump; join the drain pipe to the outgoing pipe and firmly apply insulation material around both tubes to prevent the formation of condensation caused by incoming air.
- To avoid water return during unit shutdown, place the drain pipe in a manner that it may drain water to the outside. Drain line dip should be superior to 1/50. Prevent the return of stagnant water to the indoor unit.
- While connecting drain pipe to the unit, do not apply excessive force to prevent tension over the unit. To avoid sagging, support drain line at each 1m to 1.5m or apply ties to the connection pipe.
- Should it be necessary to install a longer drain line, employ a nipple to ensure coupling integrity.
- If a riser is required for draining, employ a vertical riser as it relates to the unit which height should be less than 200mm. If height is superior to 200mm, water return will take place during the shut off cycle of the unit which consequently will provoke condensate overflow.
- Drain pipe height from the ground to the end of the tube should be more than 50mm. Do not place the end of the drain pipe in water. For condensate draining, fold the tube in U shape in order to avoid the return of standing water to the indoor unit.

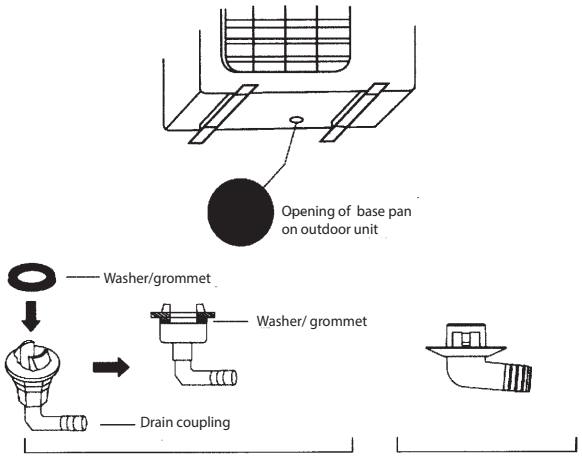
2. Draining system test

- Verify the integrity and appropriate sealing of all couplings.
- Remove water access cap. Pour 2000ml of water into the drain pan through the water level opening.
- Energize the unit and operate in cooling mode. Verify that drain pump operation sounds normal and that water is properly drained. Verify the absence of leaks in all couplings.
- Stop the unit, cancel power supply, and replace the cap on the water access receptor.

Note: The cap on the bottom part of the drain pan may be used to aid in draining. During normal unit operation, ascertain that this cap is properly placed in order to prevent leaking.

3. Drain cap on outdoor unit

- Place washer ring inside the sealing cap and then place this cap inside the opening of the base pan on the outdoor unit. Turn this cap 90° to ensure it has hermetically sealed. If condensate water is observed to be draining during the heating mode operation, connect the sealing cap to a drain hose extension acquired locally.



Maintenance recommendations

All technical personnel must be duly qualified and trained for all maintenance tasks.

Before starting maintenance procedures, cancel all power supply to the system. In some sections of these procedures, control of the unit will be carried out with the equipment in operation. It is therefore important that all technical personnel be properly qualified for these functions.

It is recommended to observe the following:

- Visual inspection and detection of any oil spots that may indicate possible refrigerant leaks.
- Checking proper anchoring of the outdoor unit. Verification of any type of vibrations and confirmation that the unit is properly balanced.
- Confirmation that appropriate elevation of the unit from the ground up was taken into consideration during installation procedures, in order to prevent any corrosion on the bottom of the equipment.
- Ascertain that outdoor unit is able to drain condensate water appropriately in heating and cooling modes.
- Proper adjustment of electrical connection terminals for power wiring and control wiring.
- Visual inspection of outdoor unit heat exchanger in search of dirt build-up. If dirt build-up is observed, this should be removed by hydroelectric cleansing (using neutral PH cleaning agent) and controlling pressure and water direction to prevent harming aluminum fins in the heat exchanger.
- Checking and cleaning indoor unit air filters. Before starting, cancel all power supply to the system.

It is recommended to conduct annual control of operating pressures and of energy consumption of the outdoor unit.

Operating temperatures

Mode	Outdoor temperature	Room temperature
Cooling	18ºC - 43ºC / 64ºF - 109ºF	17ºC - 32ºC / 62ºF - 90ºF
Heating (only heat pump model)	-7ºC - 24ºC / 20ºF - 76ºF	0ºC - 30ºC / 32ºF - 86ºF

Electrical Wiring

WARNING

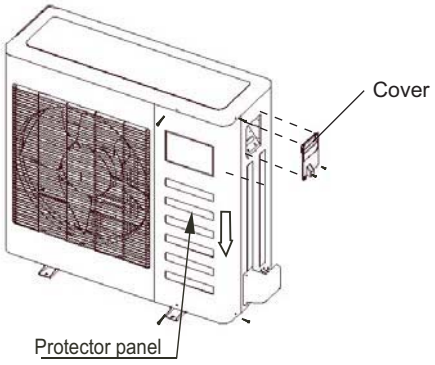
Danger of High Voltage

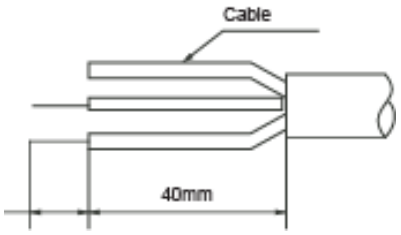
Failure to comply with this warning code could result in death or serious injury. Disconnect all electrical supply, including remote disconnects, before servicing the unit. Follow all lockout and labeling procedures to ensure that power supply cannot be applied inadvertently.

- **Power supply shall be maintained within nominal voltage range. All external power supply to the unit must be grounded and linked to indoor unit grounding as well as to outdoor unit grounding.**
- **All installation of electrical wiring shall be performed by qualified personnel and in accordance with the unit's electrical diagram.**
- **Wiring circuit installation must have a disconnect at a minimum distance of 3mm.**
- **Install fault current protector conforming to local and national electrical appliances.**
- **All electrical supply wiring and communication wiring shall be organized in such a way that they many not interfere or enter into contact with refrigerant lines and valves.**
- **Do not apply power without having carefully verified all wiring installations.**
- **If supply cord is damaged, and to avoid any risks, this cord it must be replaced by the manufacturer or by its service agent, or by qualified personnel.**

Electrical wiring connection

1. Remove screws from the electrical cover. Should there be no electrical cover on the outdoor unit, remove screws from the maintenance protector panel and lay it aside.
2. Connect wiring to corresponding terminals identified by numbers on the terminal block of indoor unit and of outdoor unit.
3. Adjust wiring inside the control panel with the use of tie-backs. Replace cover or protector panel.
4. Wrap remaining unused cable terminals with PVC isolating tape to prevent their contact with other electric or metallic components. Due to incoming heat from the refrigerant circuit, keep all interconnecting wiring away from any copper tubing.





Power sepcifications

Refer to following pages for electrical specifications of the entire system.

Note: Any wrong wiring may cause malfunction of some electrical parts.

Operating test

Once the installation has finalized, and before perfoming the operating test, verify the following aspects of the installation:

- Appropriate installation of indoor unit and outdoor unit
- Appropriate connection of piping and wiring
- All leaking tests performed
- Drain system free of obstructions
- Insulation integrity of the system
- Grounding integrity of electrical system
- Logging of piping length and additional refrigerant
- Specified voltage matches nominal voltage for the air-conditioning unit
- Indoor/outdoor unit air inlets and outlets free of obstructions
- Valves in open position on gas and liquid sides
- Air-conditioning unit preheated through supply of electric heat

Install remote controller support in appropriate place from which spot the signal can easily reach the indoor unit.

Using the remote controller, place the unit in Cooling Mode. Verify the correctness of the following functions. If malfunction is detected, consult indications in the Troubleshooting section of the unit's Operation Manual:

Indoor unit

- Remote controller switch functionality
- Remote controller buttons functionality
- Air louver normal operation
- Room temperature well adjusted
- Indicating lights light up normally
- Manual button normal operation
- Unit draining system functionality
- Vibration and noise not detected during operation
- Heating mode normal operation (if available)

Oudoor unit

- Vibration and noise not detected during operation
- Refrigerant leaks not detected

Note: A protection device on the unit will display a 3 minute compressor delay during start-up as well as during re-start.

Power Specifications

Cassette unit

Power specification (power supply to indoor unit)

36Model		18	24	36	48	60
Voltage	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	Voltage	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		20/16	40/25	50/30	60/45	60/50

Power specification (power supply to outdoor unit)

Model		18	24	36	48	60	36	48-60
Voltage	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase	3 Phase	3 Phase
	Voltage	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		20/16	40/30	60/40	70/55	70/60	32/25	45/35

Power specification (independent power supply)

Model		18	24	36	48	60	36	48-60
Power (indoor)	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	Voltage	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		20/16	20/16	20/16	20/16	20/16	20/16	20/16
Power (outdoor)	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase	3 Phase	3 Phase
	Voltage	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		20/16	40/25	50/30	60/45	60/50	32/25	45/35

Concealed unit

Power specification (power supply to indoor unit)

Model		18	24	36	48	60
Voltage	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	Voltage	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		25/20	32/25	50/40	70/55	70/60

Power specification (power supply to outdoor unit)

Model		12 - 18	24	36	48	60
Voltage	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	Voltage	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		25/20	32/25	50/40	70/55	70/60

Power specification (independent power supply)

Model		12 - 18	24	36	48	60
Power (indoor)	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	Voltage	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		15/10	15/10	15/10	15/10	15/10

Convertible unit

Power specification (power supply to indoor unit)

Model		18	24	36	48	60
Voltage	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	Voltage	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		20/16	40/25	50/30	60/45	60/50

Power specification (power supply to outdoor unit)

Model		18	24	36	48	60	36	48-60
Voltage	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase	3 Phase	3 Phase
	Voltage	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		20/16	40/30	60/40	70/55	70/60	32/25	45/35

Power specification (independent power supply)

Model		18	24	36	48	60	36	48-60
Power (indoor)	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	Voltage	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		20/16	20/16	20/16	20/16	20/16	20/16	20/16
Power (outdoor)	Phase	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase	3 Phase	3 Phase
	Voltage	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V	208 - 240V
Circuit breaker / fuse (A)		20/16	40/25	50/30	60/45	60/50	32/25	45/35

Wired Controller

WARNING

Note: Read these instructions carefully before operating the remote controller.

- Remote controller should be installed by authorized technicians. Omitting this warning could lead to electrocution or fire.
- Do not spray flammable liquids on the remote control unit
- Do not place the unit in hot or humid places
- Do not allow the unit to be dampened nor exposed to direct sun rays
- Omitting this warning could lead to danger of electrocution
- Should it be necessary to relocate or to reinstall the remote control unit, consult your local representative to perform the task since only authorized technicians should perform this task.
- Do not dismount nor open the remote controller panel for it could cause malfunction of the equipment and further to expose personnel to the risk of fire. Consult your local representative to perform these tasks.
- Avoid installing the remote control unit in filthy atmospheres (grease saturation), vapor or gas (sulphuric, etc.) to prevent the malfunction or deformity of the remote control unit.

Verify that you have availability to the following required materials:

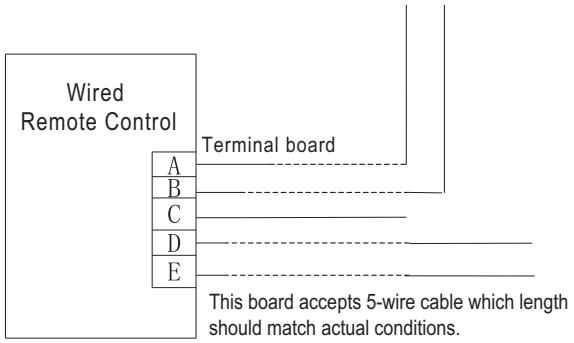
Remote control unit	1	
Wooden screws	3	GB950-86 M4X20 (wall mounting)
Screws	3	GB823-88 M4X25 (mounting inside junction box)
Terminal block (5 pole)	1	RS9005E
Screws for installing terminal block	2	GB845-85 ST3.9x12-F-H
Screws for installing terminal box	2	ST3.9 x 12-F-H GB8845-85
Shielded cable - 5 wires	1	RVVP-0.5mm^2 x 5
Switch	1	
Wire conduit	1	

NOTICE:

- **This document shows the procedure for installing the wired remote controller. Refer to the indoor unit Installation Manual for interconnecting the remote controller and the indoor unit.**
- **Install the 5-wire cable in the proper input indicated in the electric junction box.**
- **Remote control circuit is of low voltage. Never connect this item to a standard 220V circuit, and never place it inside the same conduit that transports this signal. The distance between the cable or communication link and the power supply should surpass 300-500 mm.**
- **Shielded wiring must be properly grounded to avoid transmission failure.**
- **Do not try to extend shielded wiring. If necessary, use a connection terminal for your connection.**
- **Once connection has been finalized, do not use a meghommeter to verify the communication signal.**

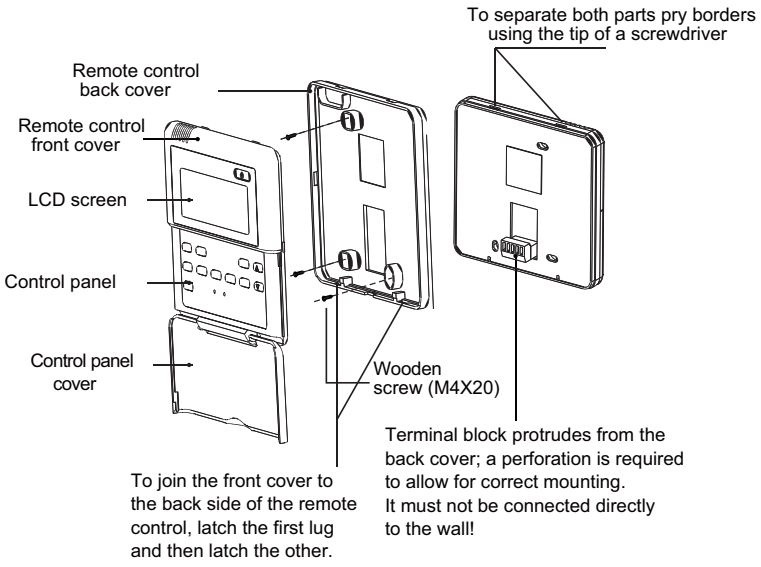
Installation procedure

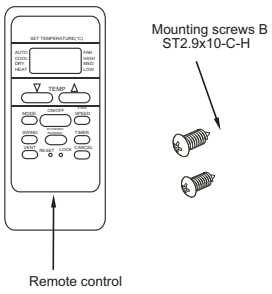
Wiring technique:



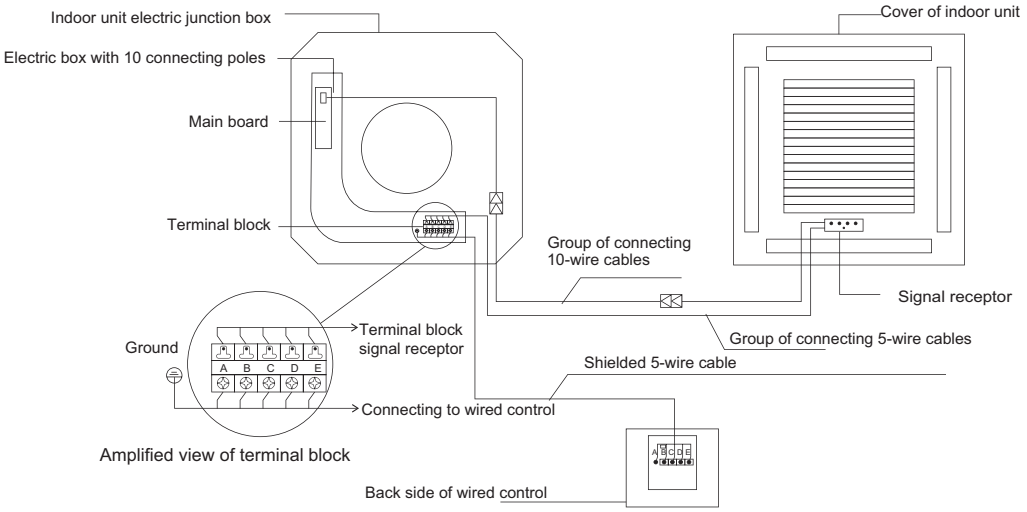
Installation instructions

To use the remote control unit, install a 5-wire terminal block and adhere an infrarred emitter close to the switch receiver. Connect anode and cathode to A, B on the terminal board; connect +5V, GND, RUN coming from the switch independently from C, D, E of the 5-wire terminal block.

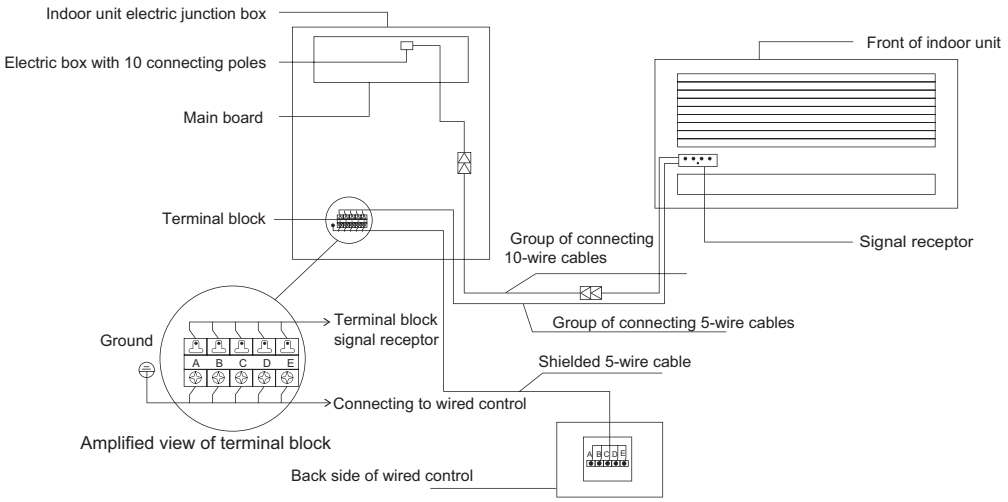




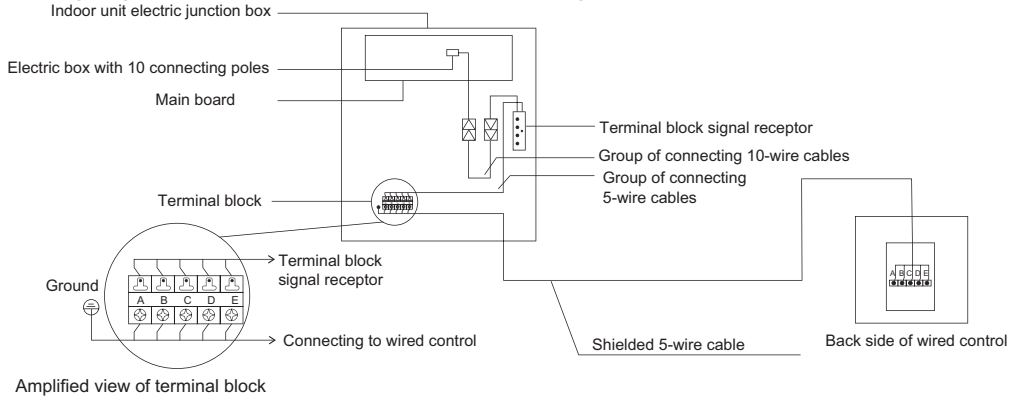
1. Wiring diagram between wired controller and cassette indoor unit



2. Wiring diagram between wired controller and concealed indoor unit

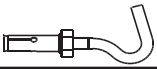
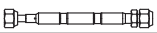


3. Wiring diagram between wired controller and concealed high pressure indoor unit



Accessories provided for installation

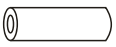
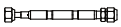
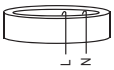
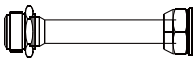
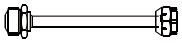
Cassette unit

NAME	DRAWING	QUANTITY
1. Monting template (in some models)		1
2. Tubular insulation (in some models)		1
3. Protector for external piping (in some models)		1
4. Support ring for external pipe (in some models)		1
5. Drain cap (in some models)		1
6. Gasket (in some models)		1
7. Remote control unit		1
8. Remote control housing		1
9.Mounting screw (ST2.9×10-C-H)		2
10. Battery AAA 1.5V		2
11. User Manual		1
12. Installation Manual		1
13. Expansion anchor		4
14. Hanging ord		4
15. Orifice plate		1

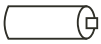
- Protect the remote control unit from falling.
- Verify the appropriate range of signal reception.
- Maintain the remote control unit at a distance of at least 1 m from radio or similar equipment.
- Do not expose the remote control unit to direct sun rays or heat source.
- When charging batteries, verify proper polarity

Accessories provided for installation

Concealed unit

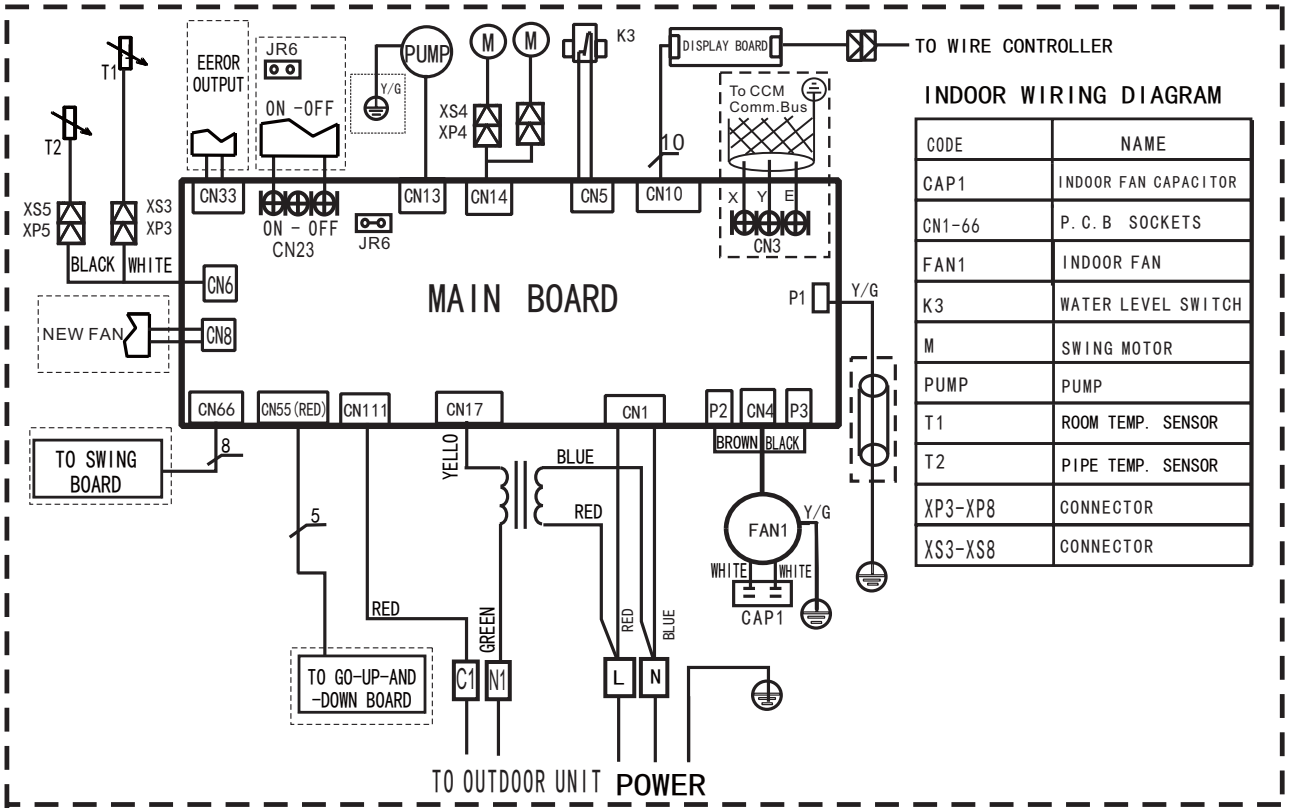
NAME	DRAWING	QUANTITY
1. Tubular insulation		2
2. Insulating tape		1
3. Protective sponge		1
4. Orifice plate		1 (some models)
5. Drain cap		1
6. Grommet		1
7. Remote control unit (in some models)		1
8. Remote control housing		1 (some models)
9.Mounting screws (ST2.9×10-C-H)		2
10.Battery AAA 1.5V		2
11. Remote control manual		1
12. Wired controller		1
13. Magnetic ring (twist electric wires L and N around magnetic ring performing 5 turns)		1
14. User Manual		1
15. Installation Manual		1
16. Connector transfer. Φ12.7-Φ15.9)/ (Φ0.5in-Φ0.63in) (packed together with unit) (NOTE: Tube size differs depending on model. Connector is needed to comply with tube size requirements for outdoor unit installation).		1 (some models)
17 .Connector transfer.(Φ6.35-Φ9.52)/ （Φ0.25in-Φ0.375in ） (packed together with unit) (NOTE: Tube size differs depending on model. Connector is needed to comply with tube size requirements for outdoor unit installation).		1 (some models)
18 .Connector transfer. (Φ9.52-Φ12.7)/ (Φ0.375in-Φ0.5in) (packed together with unit, used only on multi-type models) (NOTE: Tube size differs depending on model. Connector is needed to comply with tube size requirements for outdoor unit installation).		1 (some models)
19. Screen connecting cable (2M)		1 (some models)
20. Cable protecting sheath		1 (some models)

Convertible unit

NAME	DRAWING	QUANTITY
Remote control unit (in some models)		1
2. Remote control housing (in some models)		1
3.Mounting screw (ST2.9×10-C-H)		2
4. Battery AAA 1.5V		2
5. User Manual	———	1
6. Installation Manual	———	1
7. Remote Control Manual	———	1

Wiring Diagrams

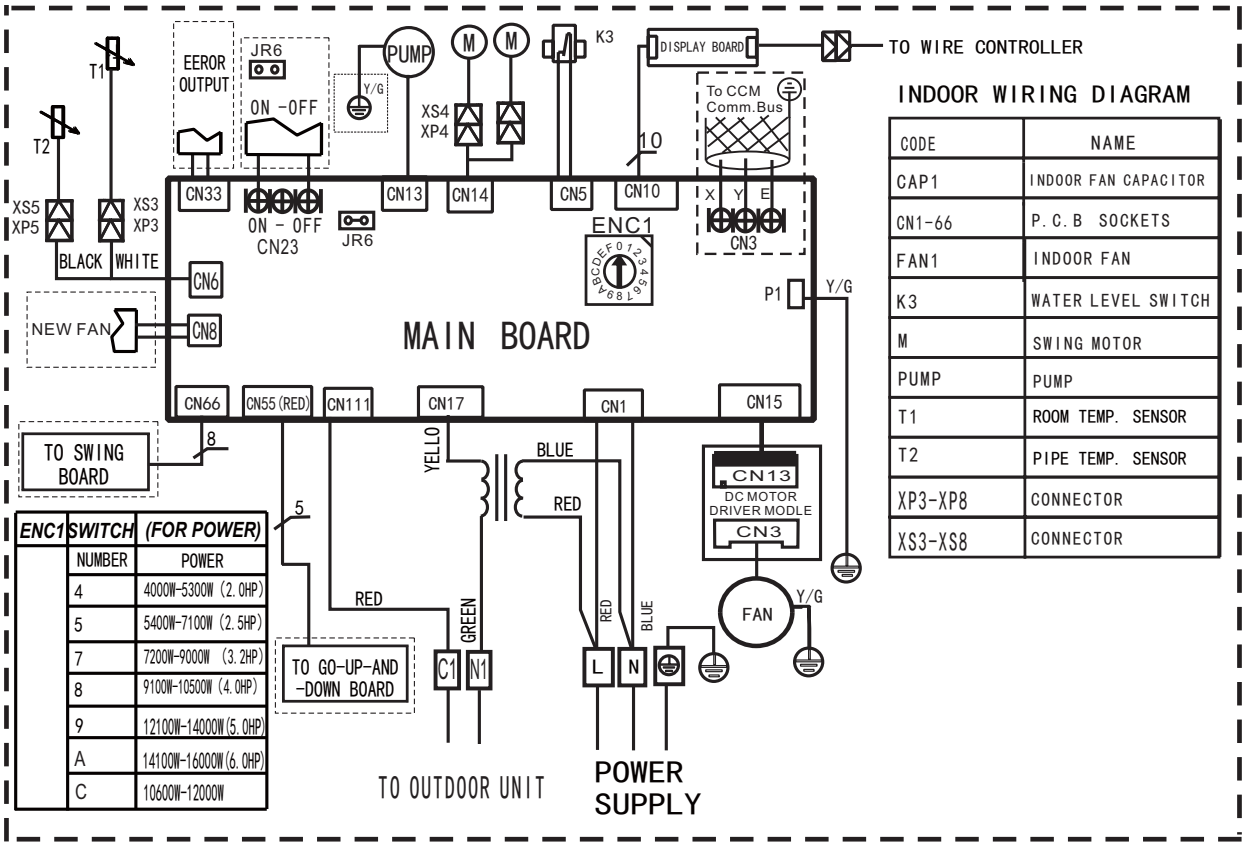
Cassette Indoor Unit - Cooling Only- 2MCC05-C (18, 24, 36, 48K)



INDOOR WIRING DIAGRAM

CODE	NAME
CAP1	INDOOR FAN CAPACITOR
CN1-66	P.C.B SOCKETS
FAN1	INDOOR FAN
K3	WATER LEVEL SWITCH
M	SWING MOTOR
PUMP	PUMP
T1	ROOM TEMP. SENSOR
T2	PIPE TEMP. SENSOR
XP3-XP8	CONNECTOR
XS3-XS8	CONNECTOR

Cassette Indoor Unit - Cooling Only - 2MCC05-C (60K)

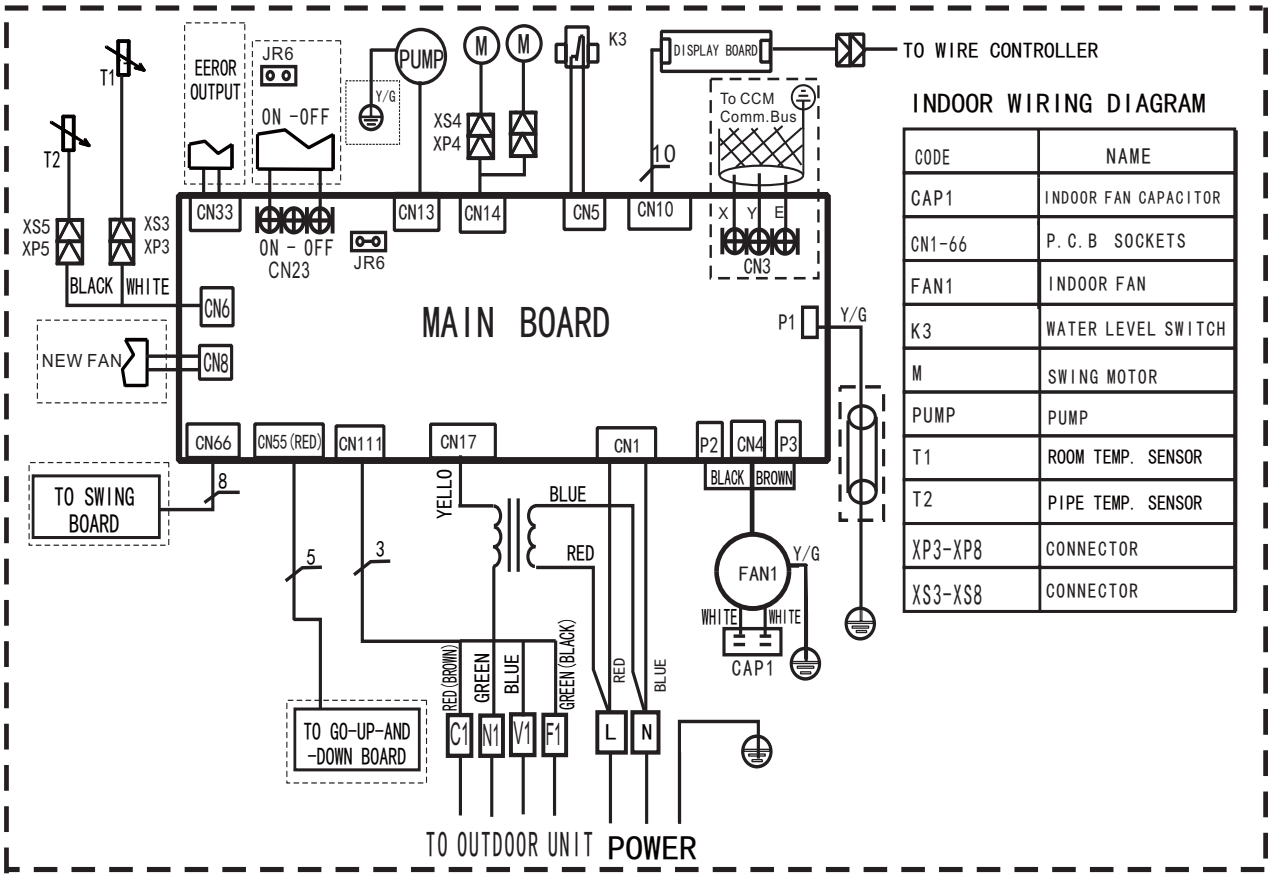


ENC1 SWITCH (FOR POWER)		
	NUMBER	POWER
	4	4000W-5300W (2.0HP)
	5	5400W-7100W (2.5HP)
	7	7200W-9000W (3.2HP)
	8	9100W-10500W (4.0HP)
	9	12100W-14000W (5.0HP)
	A	14100W-16000W (6.0HP)
	C	10600W-12000W

INDOOR WIRING DIAGRAM

CODE	NAME
CAP1	INDOOR FAN CAPACITOR
CN1-66	P.C.B SOCKETS
FAN1	INDOOR FAN
K3	WATER LEVEL SWITCH
M	SWING MOTOR
PUMP	PUMP
T1	ROOM TEMP. SENSOR
T2	PIPE TEMP. SENSOR
XP3-XP8	CONNECTOR
XS3-XS8	CONNECTOR

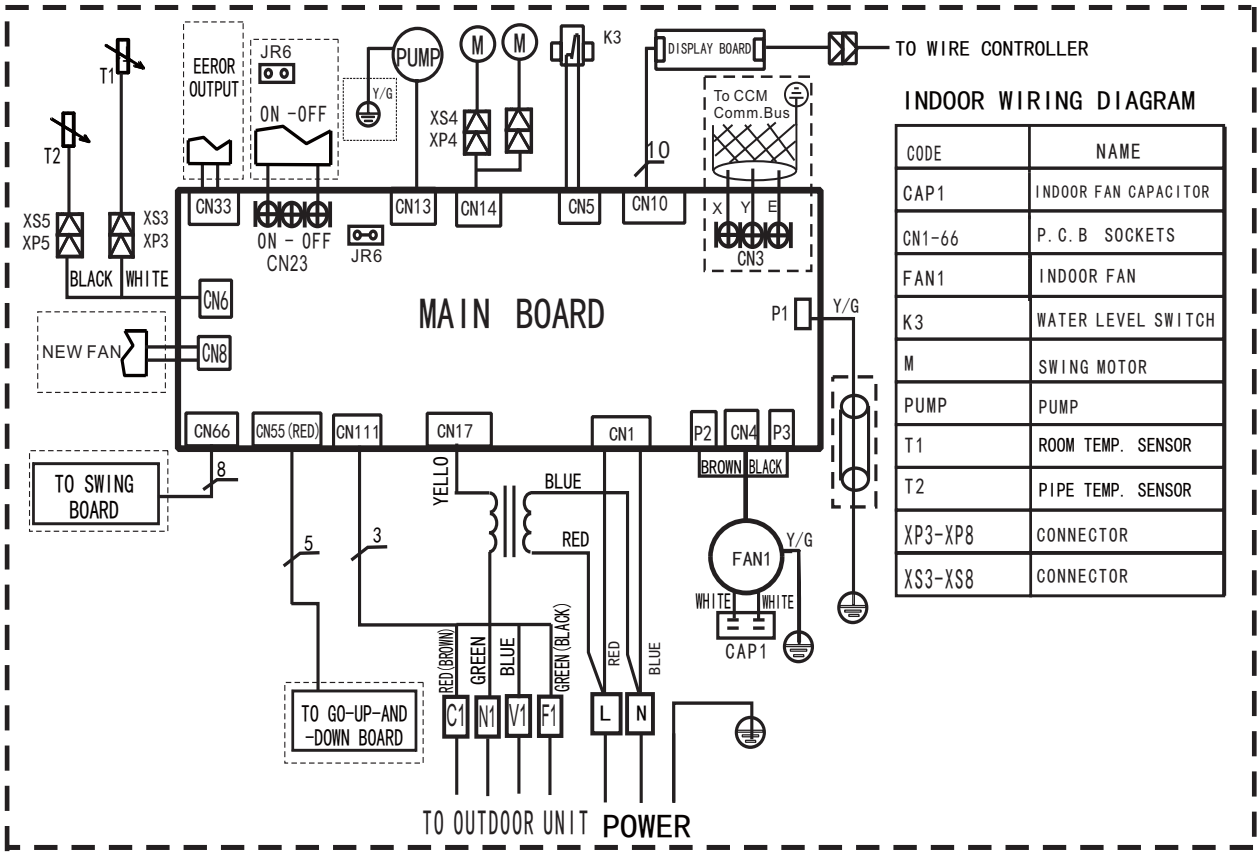
Cassette Indoor Unit - Cooling Only/Heat Pump - 2MCC05-C (18, 24K)



INDOOR WIRING DIAGRAM

CODE	NAME
CAP1	INDOOR FAN CAPACITOR
CN1-66	P.C.B SOCKETS
FAN1	INDOOR FAN
K3	WATER LEVEL SWITCH
M	SWING MOTOR
PUMP	PUMP
T1	ROOM TEMP. SENSOR
T2	PIPE TEMP. SENSOR
XP3-XP8	CONNECTOR
XS3-XS8	CONNECTOR

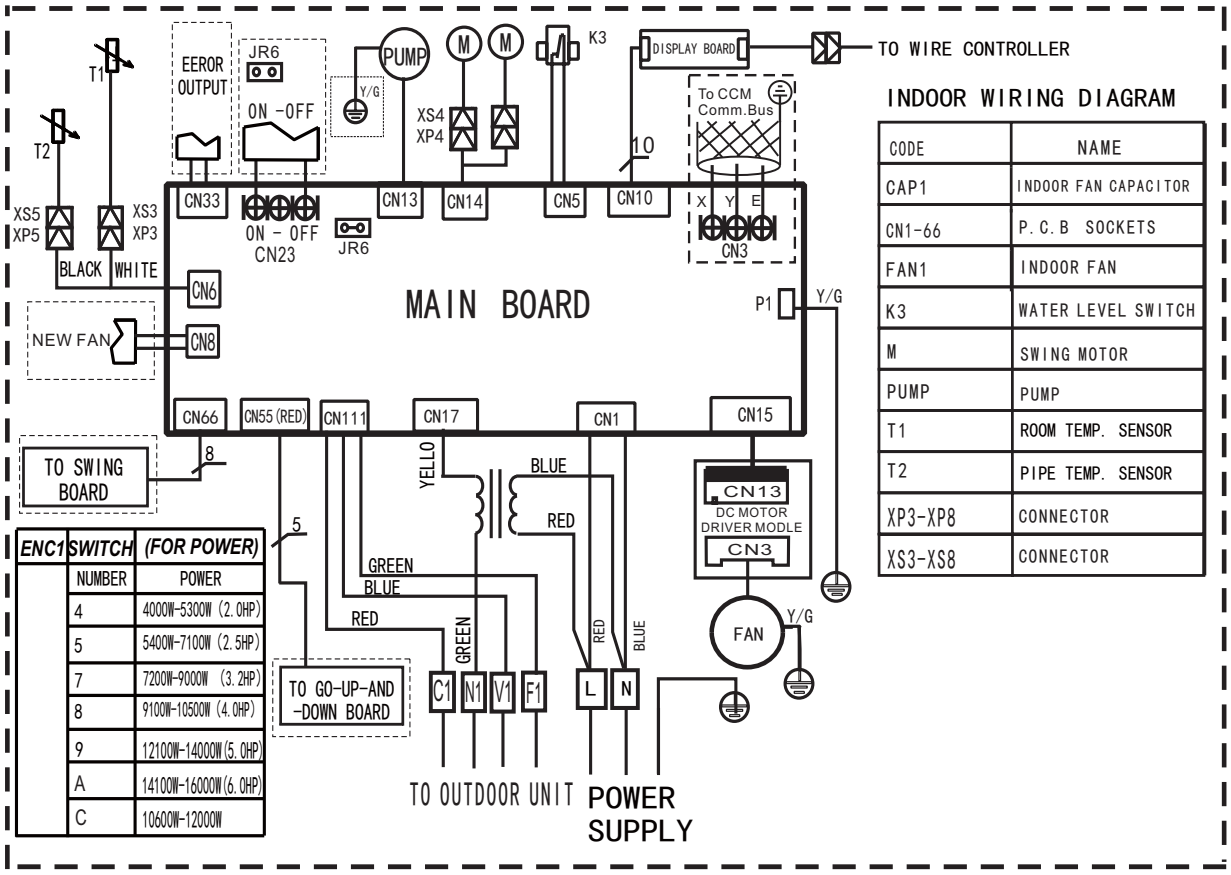
Cassette Indoor Unit - Cooling Only/Heat Pump - 2MCC05-C (36, 48K)



INDOOR WIRING DIAGRAM

CODE	NAME
CAP1	INDOOR FAN CAPACITOR
CN1-66	P.C.B SOCKETS
FAN1	INDOOR FAN
K3	WATER LEVEL SWITCH
M	SWING MOTOR
PUMP	PUMP
T1	ROOM TEMP. SENSOR
T2	PIPE TEMP. SENSOR
XP3-XP8	CONNECTOR
XS3-XS8	CONNECTOR

Cassette Indoor Unit - Cooling Only/Heat Pump - 2MCC05-C (60K)

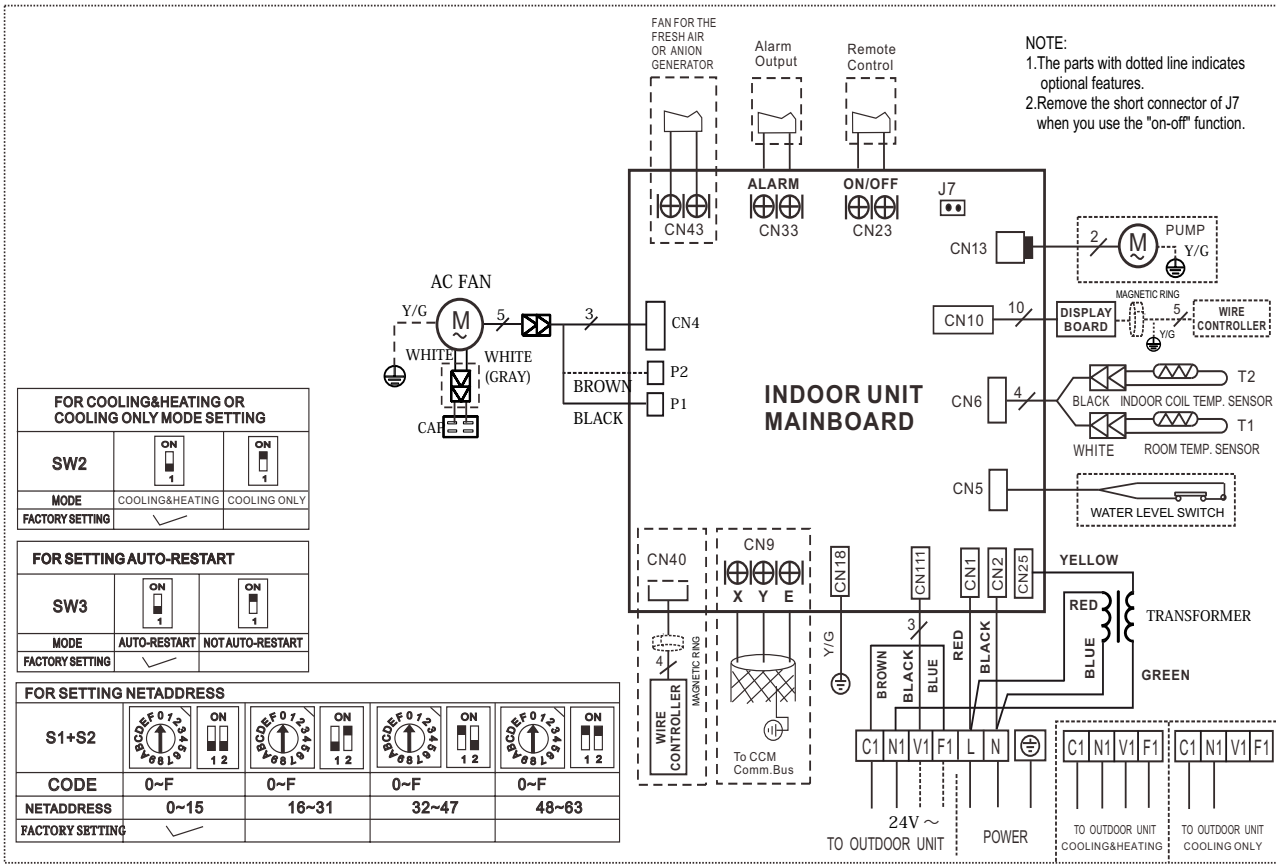


ENC1 SWITCH	(FOR POWER)
NUMBER	POWER
4	4000W-5300W (2.0HP)
5	5400W-7100W (2.5HP)
7	7200W-9000W (3.2HP)
8	9100W-10500W (4.0HP)
9	12100W-14000W(5.0HP)
A	14100W-16000W(6.0HP)
C	10600W-12000W

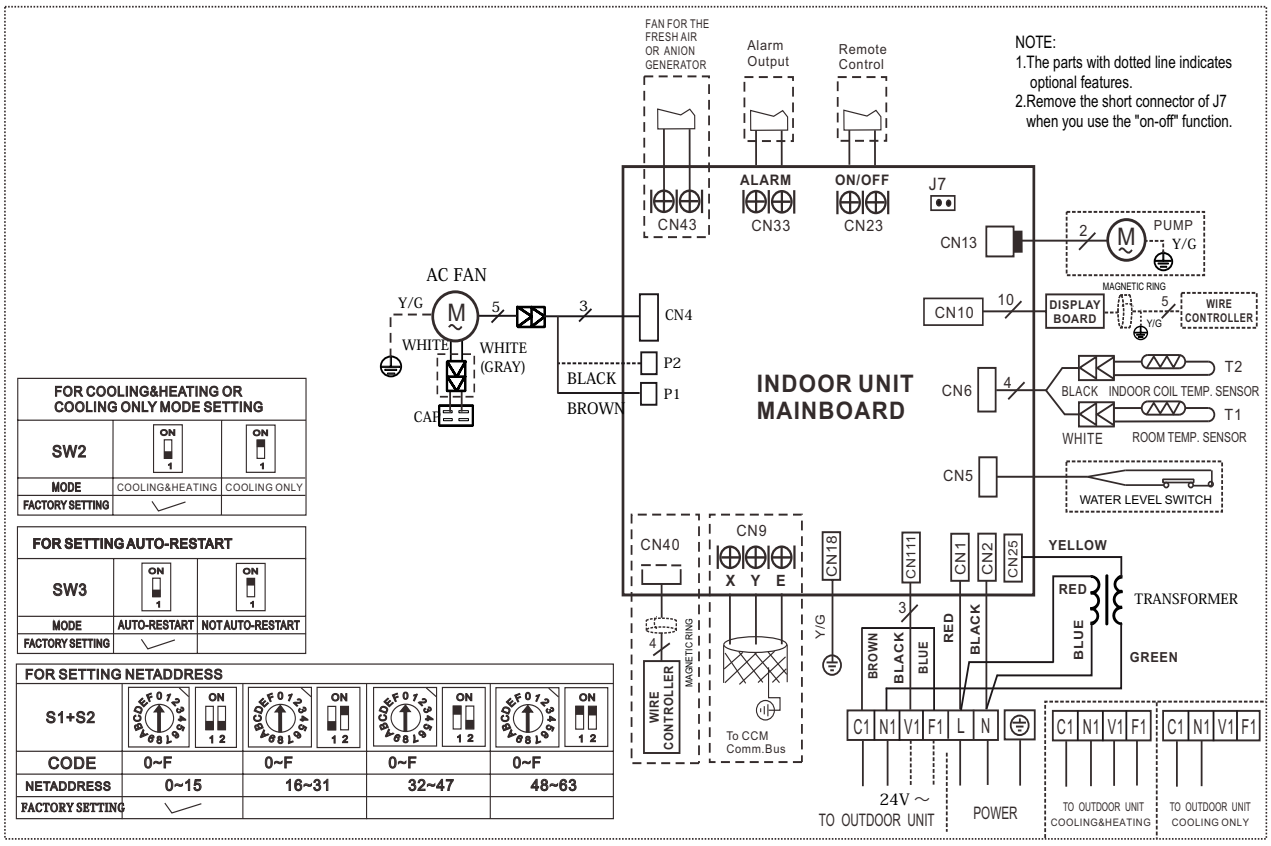
INDOOR WIRING DIAGRAM

CODE	NAME
CAP1	INDOOR FAN CAPACITOR
CN1-66	P.C.B SOCKETS
FAN1	INDOOR FAN
K3	WATER LEVEL SWITCH
M	SWING MOTOR
PUMP	PUMP
T1	ROOM TEMP. SENSOR
T2	PIPE TEMP. SENSOR
XP3-XP8	CONNECTOR
XS3-XS8	CONNECTOR

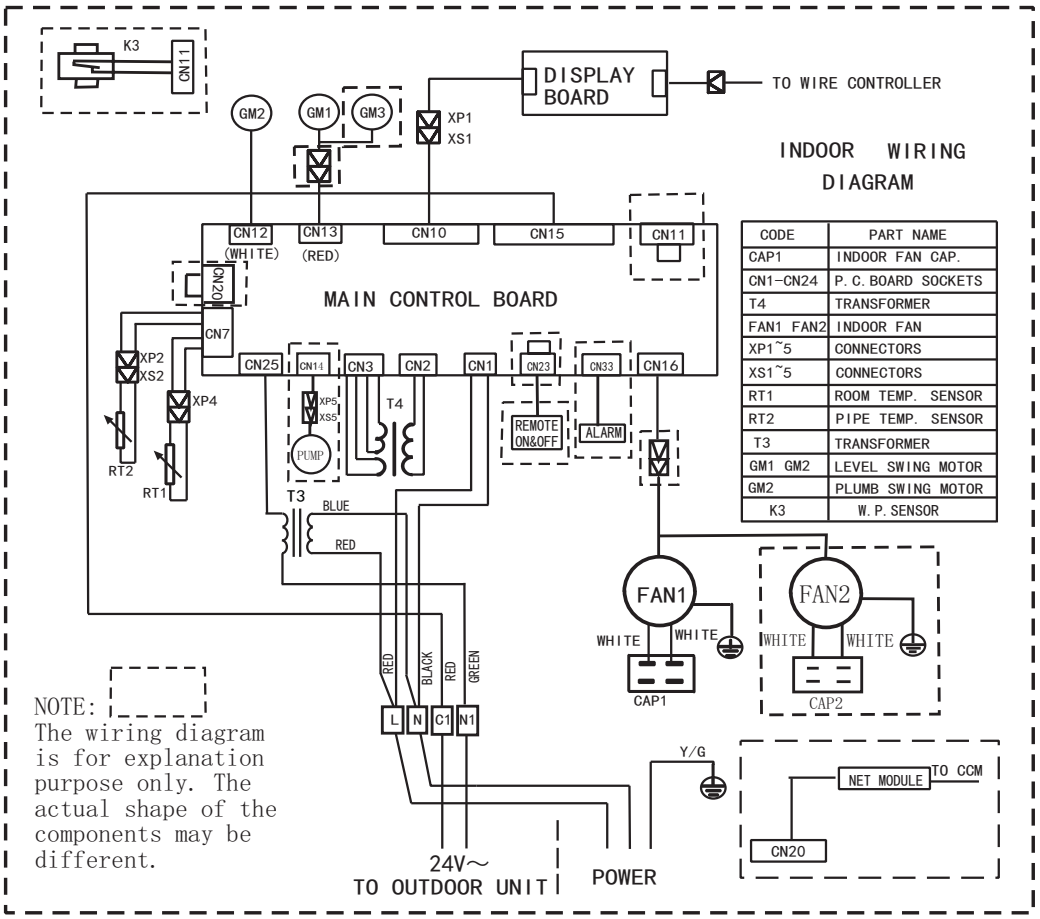
Concealed Indoor Unit - 4MZD05-C (18, 24, 48, 60K)



Concealed Indoor Unit - 4MZD05-C (36K)

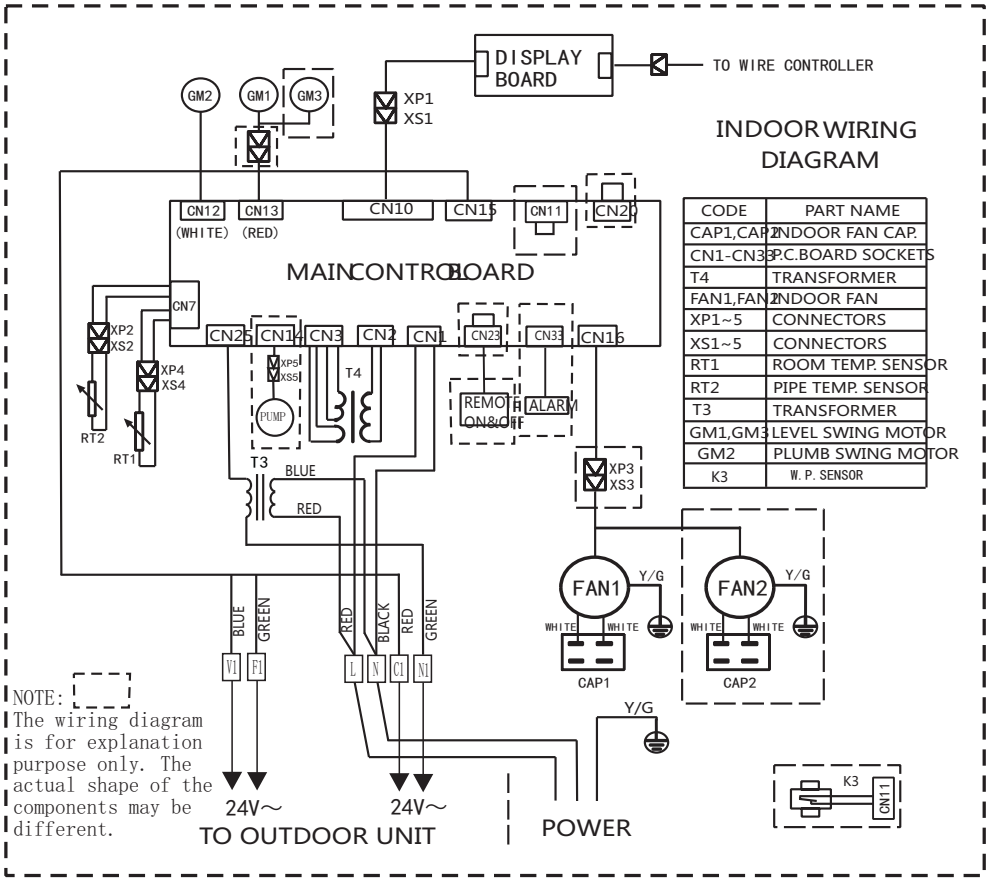


Convertible Indoor Unit - Cooling Only - 2MCX05-C

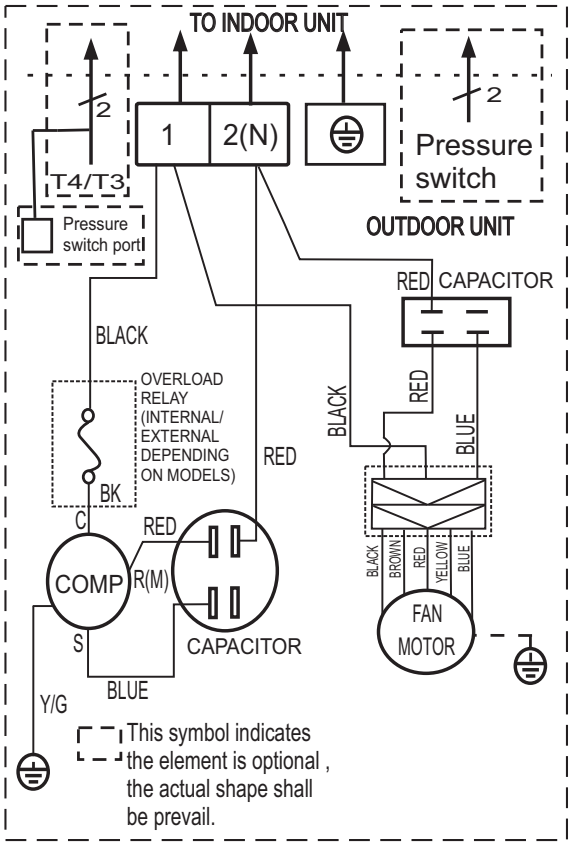


CODE	PART NAME
CAP1	INDOOR FAN CAP.
CN1–CN24	P. C. BOARD SOCKETS
T4	TRANSFORMER
FAN1 FAN2	INDOOR FAN
XP1~5	CONNECTORS
XS1~5	CONNECTORS
RT1	ROOM TEMP. SENSOR
RT2	PIPE TEMP. SENSOR
T3	TRANSFORMER
GM1 GM2	LEVEL SWING MOTOR
GM2	PLUMB SWING MOTOR
K3	W. P. SENSOR

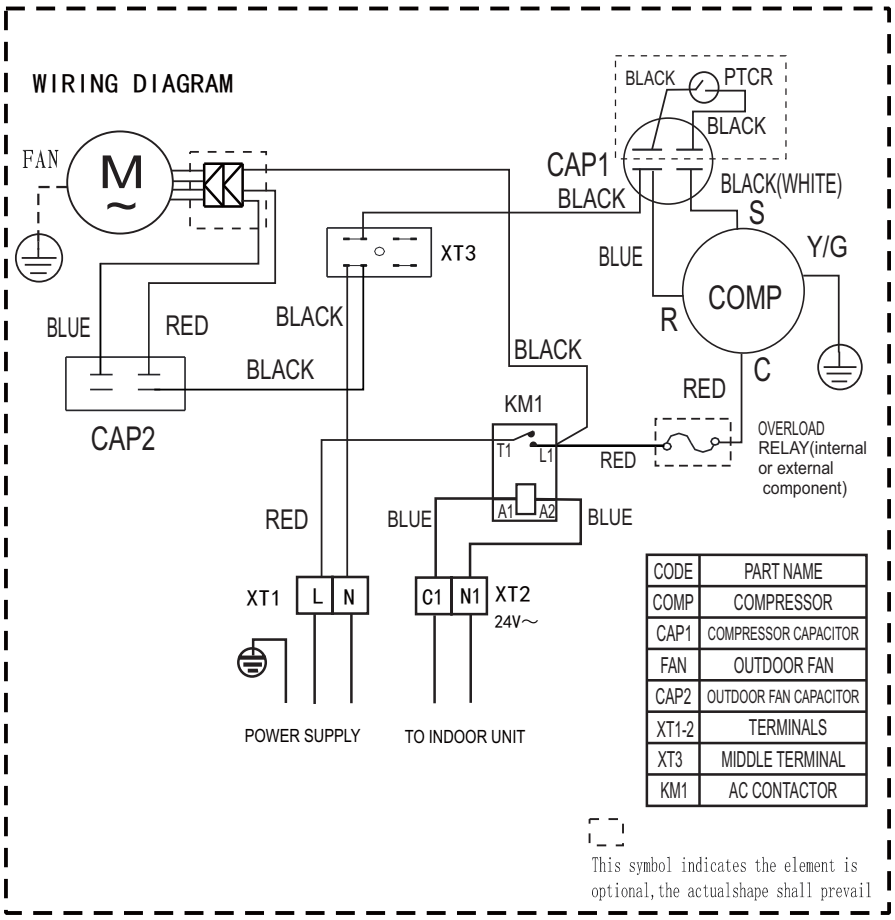
Convertible Indoor Unit - Cooling Only/Heat Pump - 2MCX05-C



Outdoor Unit - Cooling Only - 4TTK05-D (12K) - 1 Phase

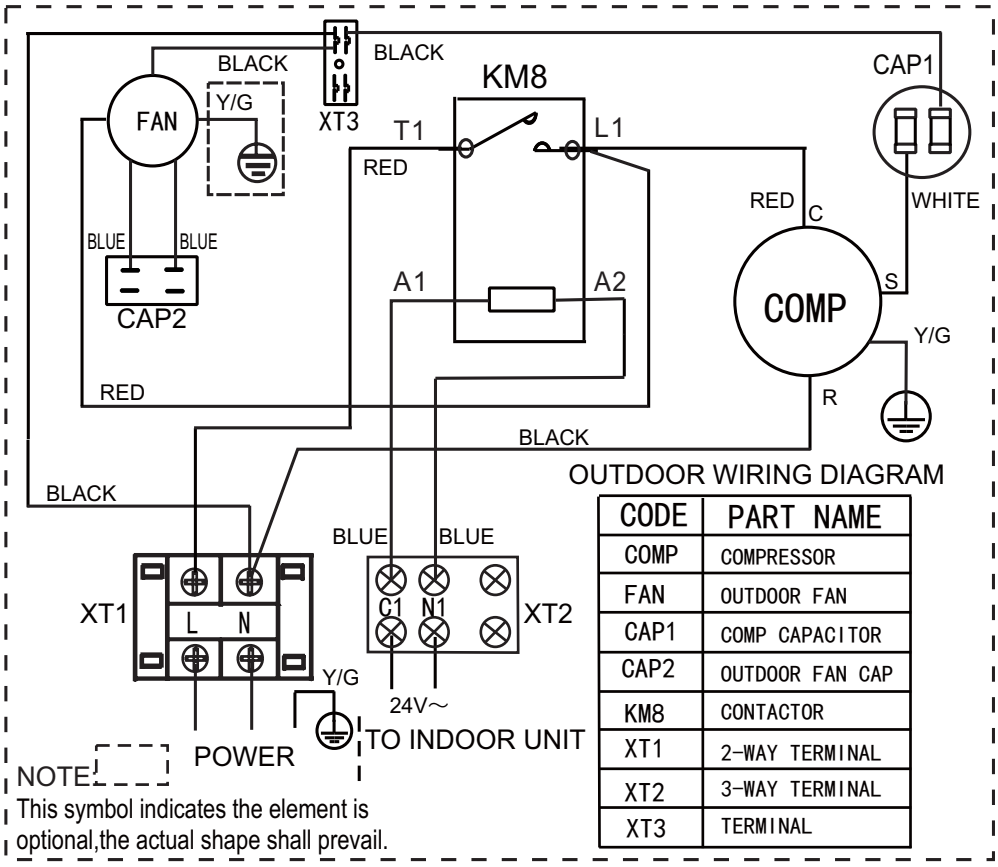


Outdoor Unit - Cooling Only - 4TTK05-D (18, 24K) - 1 Phase



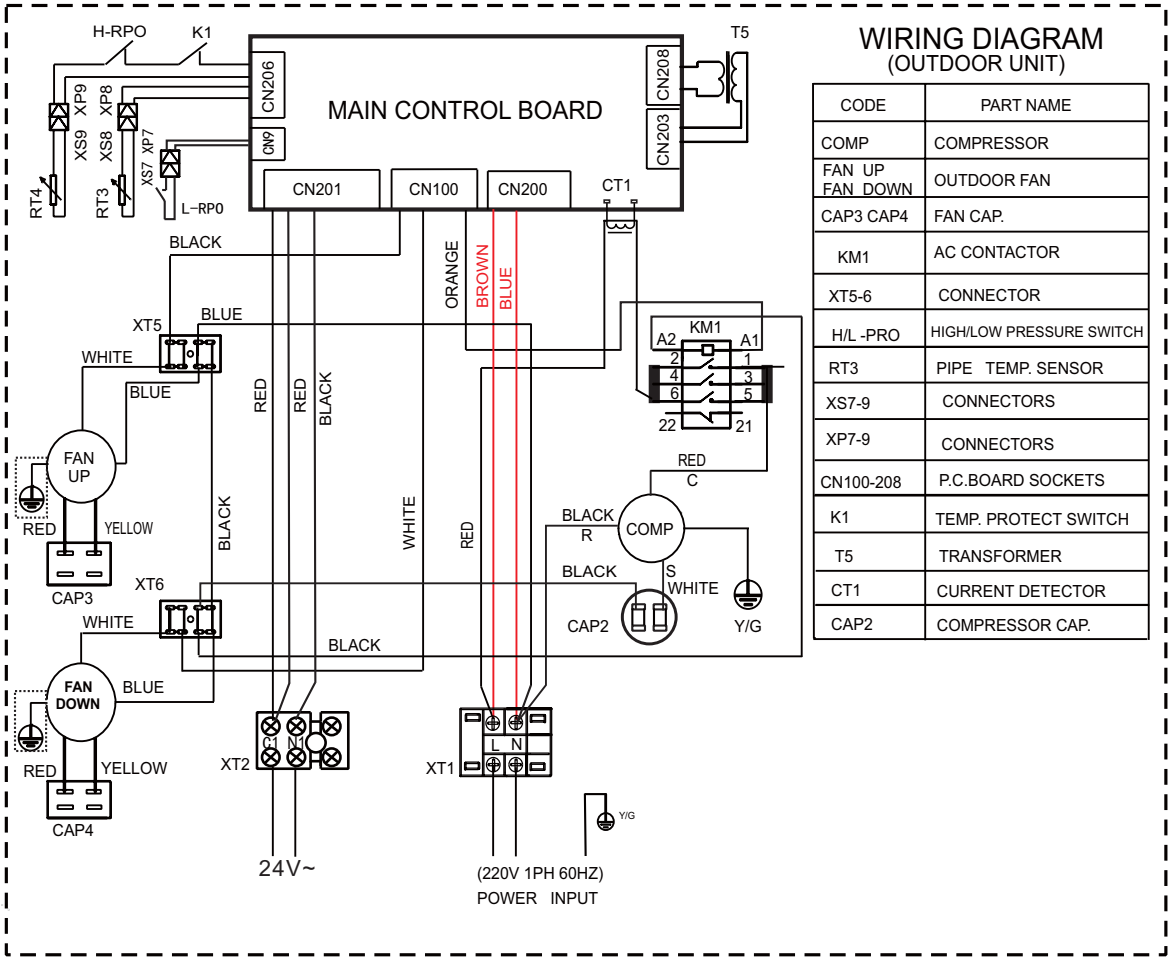
CODE	PART NAME
COMP	COMPRESSOR
CAP1	COMPRESSOR CAPACITOR
FAN	OUTDOOR FAN
CAP2	OUTDOOR FAN CAPACITOR
XT1-2	TERMINALS
XT3	MIDDLE TERMINAL
KM1	AC CONTACTOR

Outdoor Unit - Cooling Only - 4TTK05-D (36K) - 1 Phase



CODE	PART NAME
COMP	COMPRESSOR
FAN	OUTDOOR FAN
CAP1	COMP CAPACITOR
CAP2	OUTDOOR FAN CAP
KM8	CONTACTOR
XT1	2-WAY TERMINAL
XT2	3-WAY TERMINAL
XT3	TERMINAL

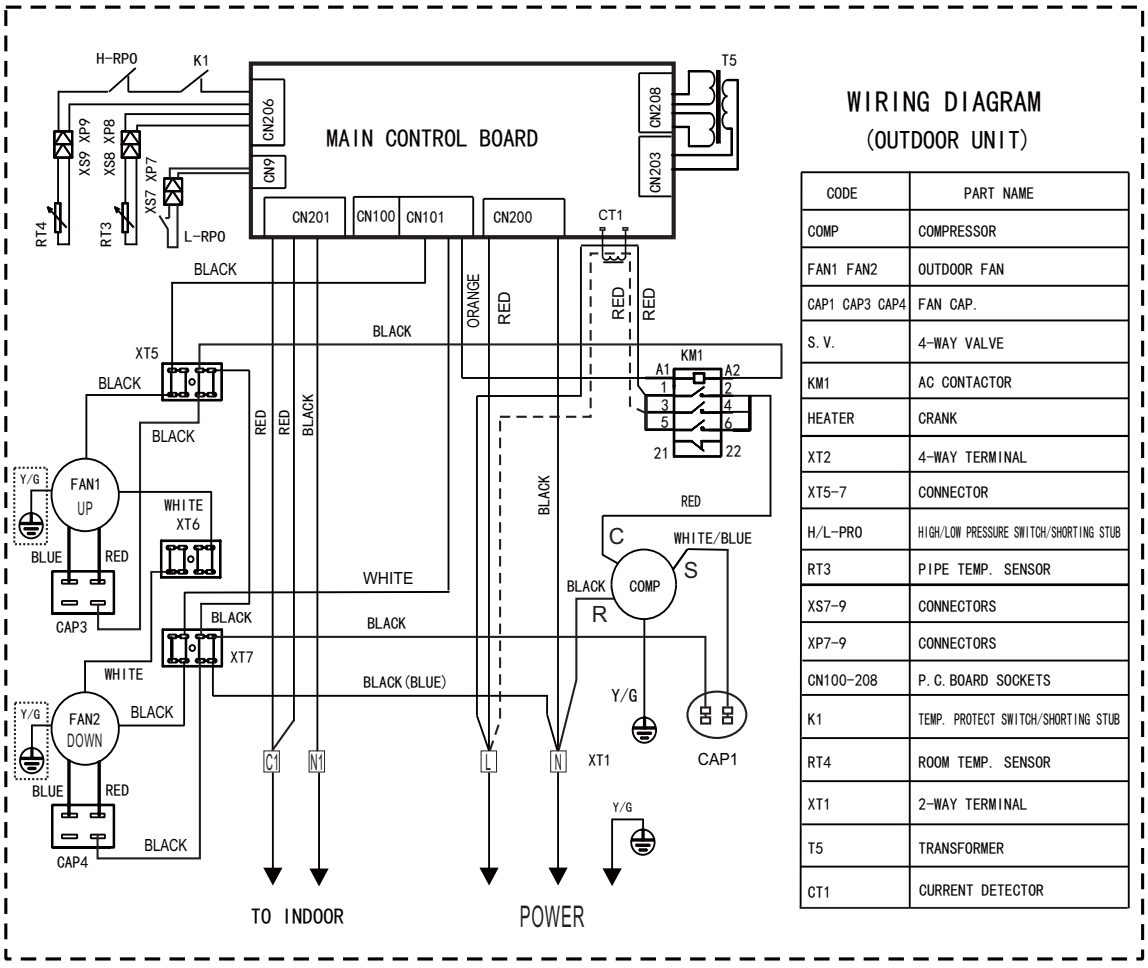
Outdoor Unit - Cooling Only - 4TTK05-D (48K) - 1 Phase



WIRING DIAGRAM
(OUTDOOR UNIT)

CODE	PART NAME
COMP	COMPRESSOR
FAN UP FAN DOWN	OUTDOOR FAN
CAP3 CAP4	FAN CAP.
KM1	AC CONTACTOR
XT5-6	CONNECTOR
H/L -PRO	HIGH/LOW PRESSURE SWITCH
RT3	PIPE TEMP. SENSOR
XS7-9	CONNECTORS
XP7-9	CONNECTORS
CN100-208	P.C.BOARD SOCKETS
K1	TEMP. PROTECT SWITCH
T5	TRANSFORMER
CT1	CURRENT DETECTOR
CAP2	COMPRESSOR CAP.

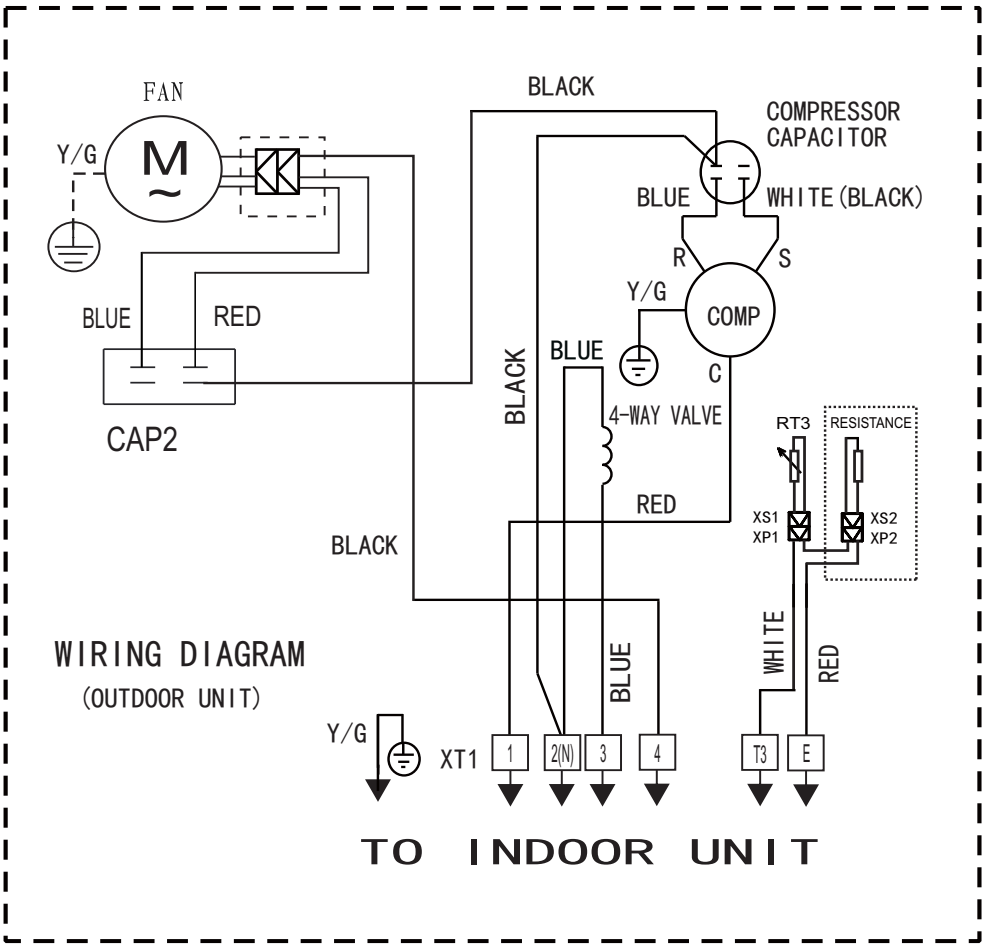
Outdoor Unit - Cooling Only - 4TTK05-D (60K) - 1 Phase



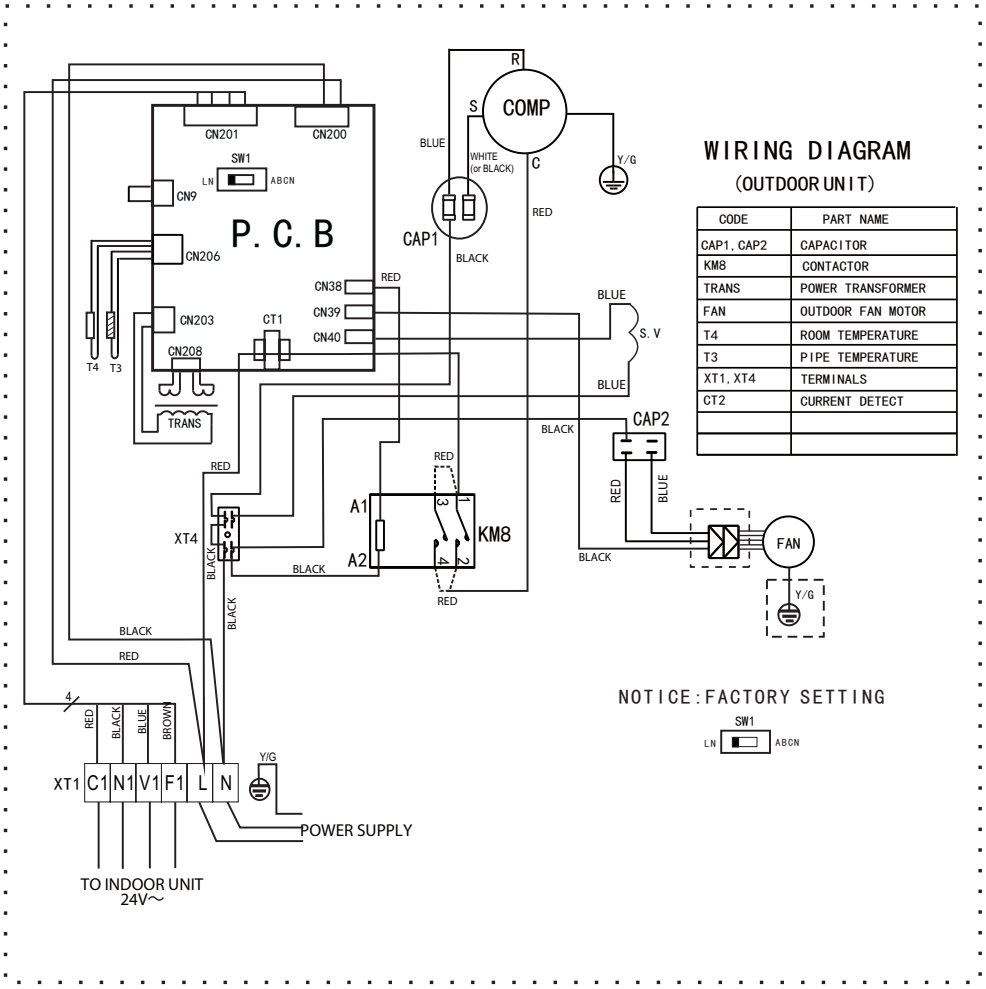
WIRING DIAGRAM
(OUTDOOR UNIT)

CODE	PART NAME
COMP	COMPRESSOR
FAN1 FAN2	OUTDOOR FAN
CAP1 CAP3 CAP4	FAN CAP.
S.V.	4-WAY VALVE
KM1	AC CONTACTOR
HEATER	CRANK
XT2	4-WAY TERMINAL
XT5-7	CONNECTOR
H/L-PRO	HIGH/LOW PRESSURE SWITCH/SHORTING STUB
RT3	PIPE TEMP. SENSOR
XS7-9	CONNECTORS
XP7-9	CONNECTORS
CN100-208	P.C.BOARD SOCKETS
K1	TEMP. PROTECT SWITCH/SHORTING STUB
RT4	ROOM TEMP. SENSOR
XT1	2-WAY TERMINAL
T5	TRANSFORMER
CT1	CURRENT DETECTOR

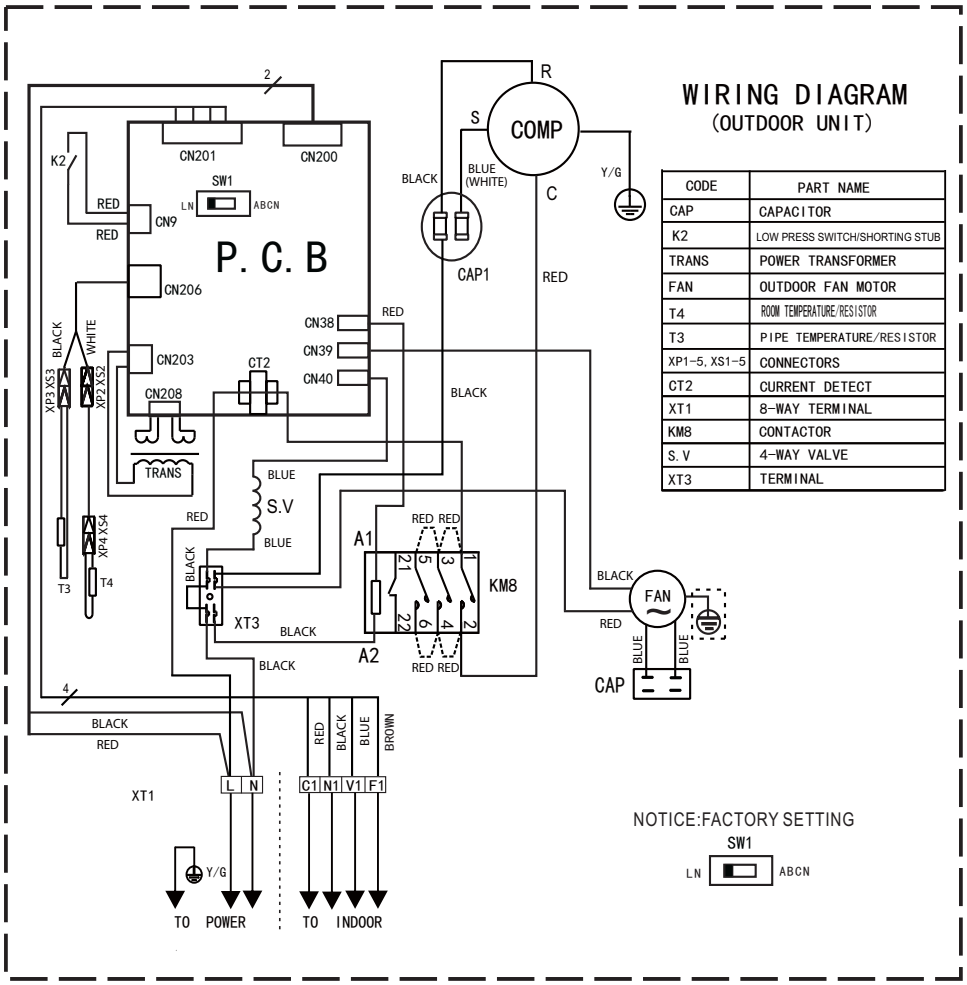
Outdoor Unit - Cooling Only/Heat Pump - 4TWK05-D (12K) - 1 Phase



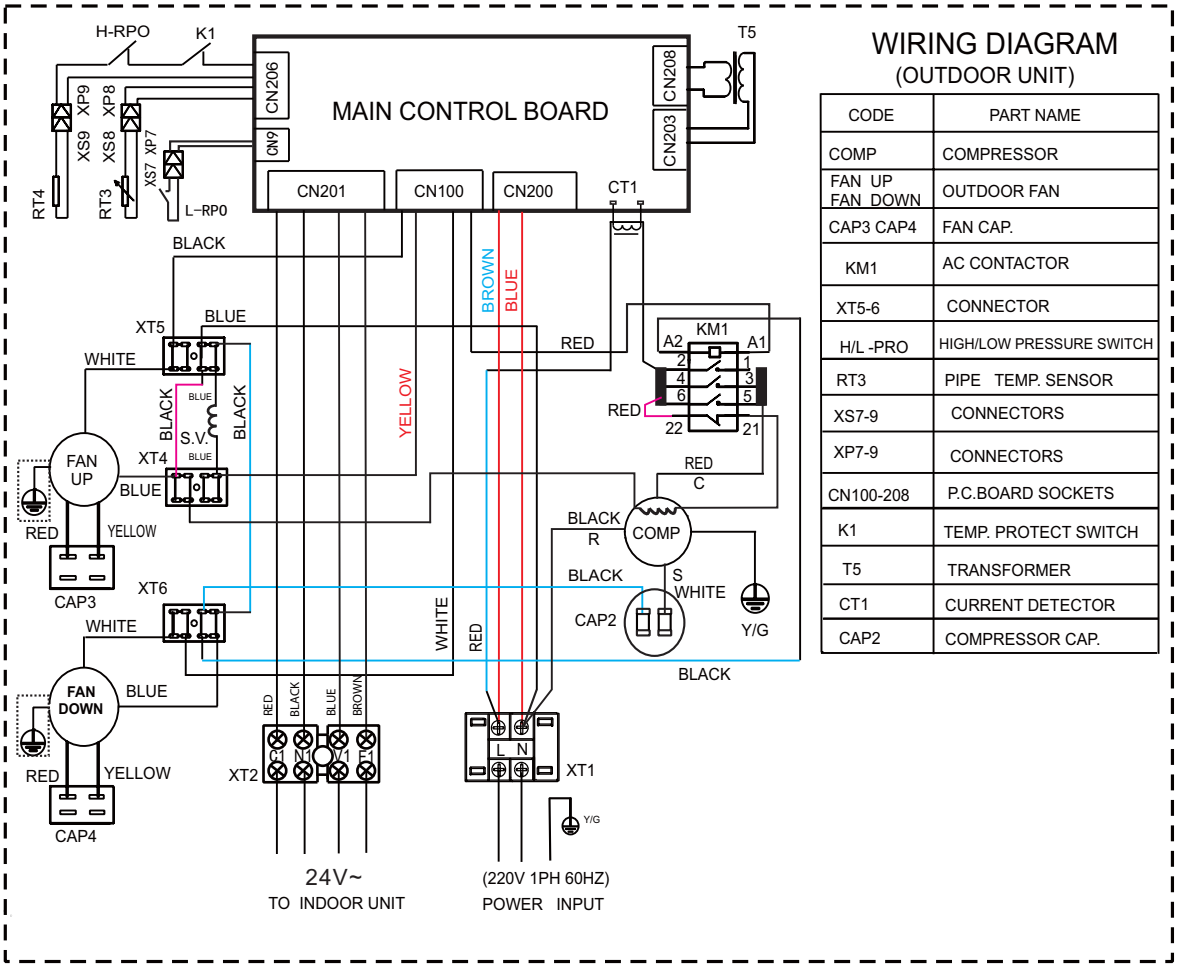
Outdoor Unit - Cooling Only/Heat Pump - 4TWK05-D (18, 24K) - 1 Phase



Outdoor Unit - Cooling Only/Heat Pump - 4TWK05-D (36K) - 1 Phase



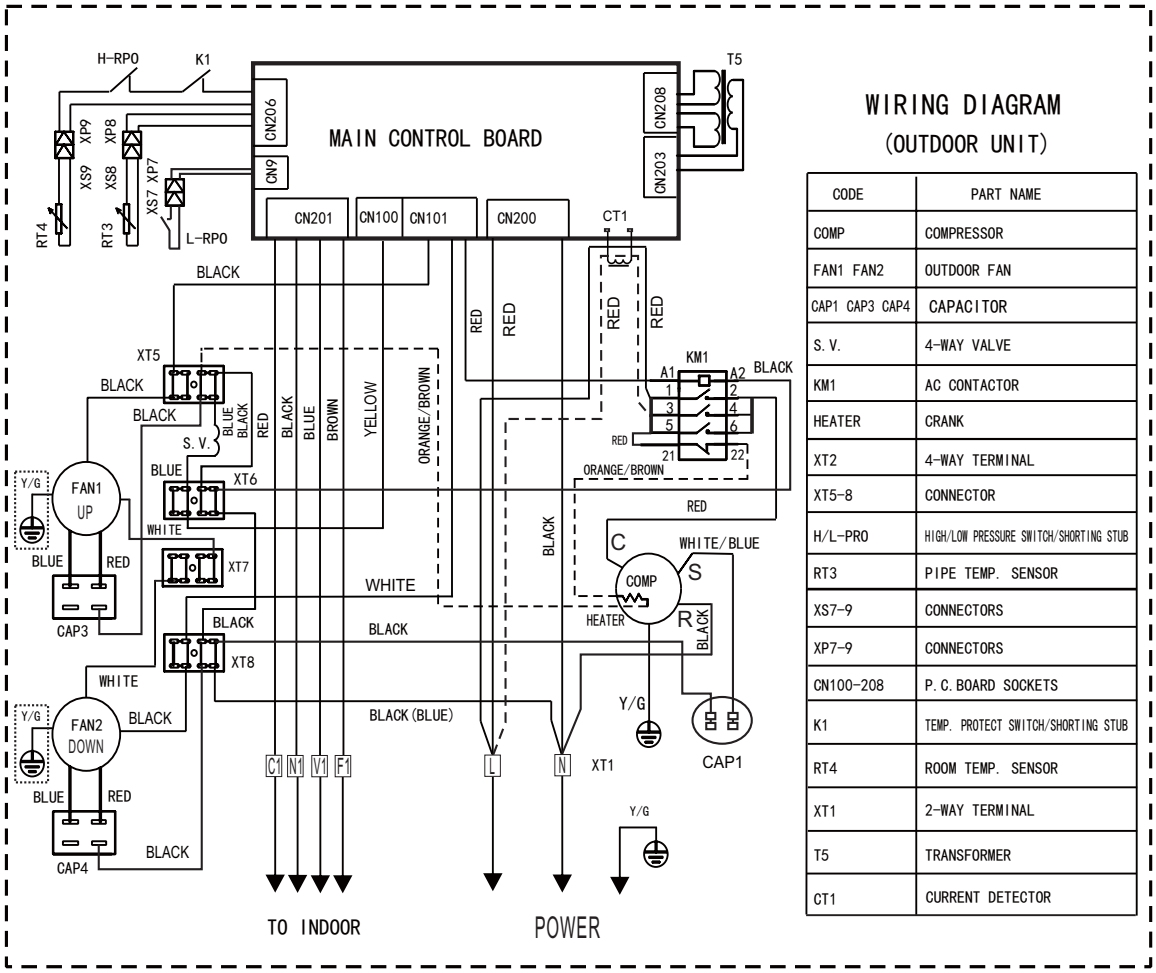
Outdoor Unit - Cooling Only/Heat Pummp - 4TWK05-D (48K) - 1 Phase



WIRING DIAGRAM
(OUTDOOR UNIT)

CODE	PART NAME
COMP	COMPRESSOR
FAN UP FAN DOWN	OUTDOOR FAN
CAP3 CAP4	FAN CAP.
KM1	AC CONTACTOR
XT5-6	CONNECTOR
H/L -PRO	HIGH/LOW PRESSURE SWITCH
RT3	PIPE TEMP. SENSOR
XS7-9	CONNECTORS
XP7-9	CONNECTORS
CN100-208	P.C.BOARD SOCKETS
K1	TEMP. PROTECT SWITCH
T5	TRANSFORMER
CT1	CURRENT DETECTOR
CAP2	COMPRESSOR CAP.

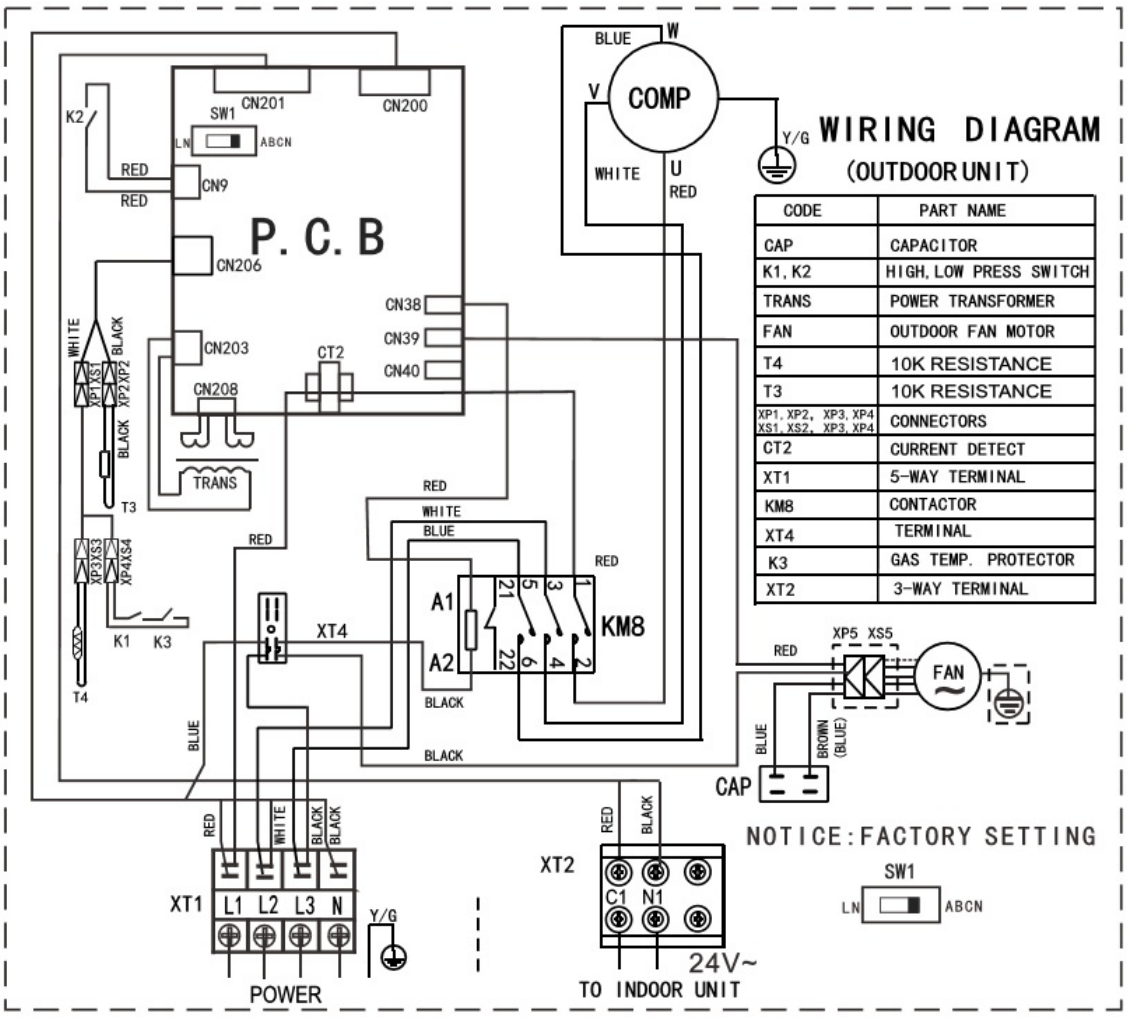
Outdoor Unit - Cooling Only/Heat Pump - 4TWK05-D (60K) - 1 Phase



WIRING DIAGRAM
(OUTDOOR UNIT)

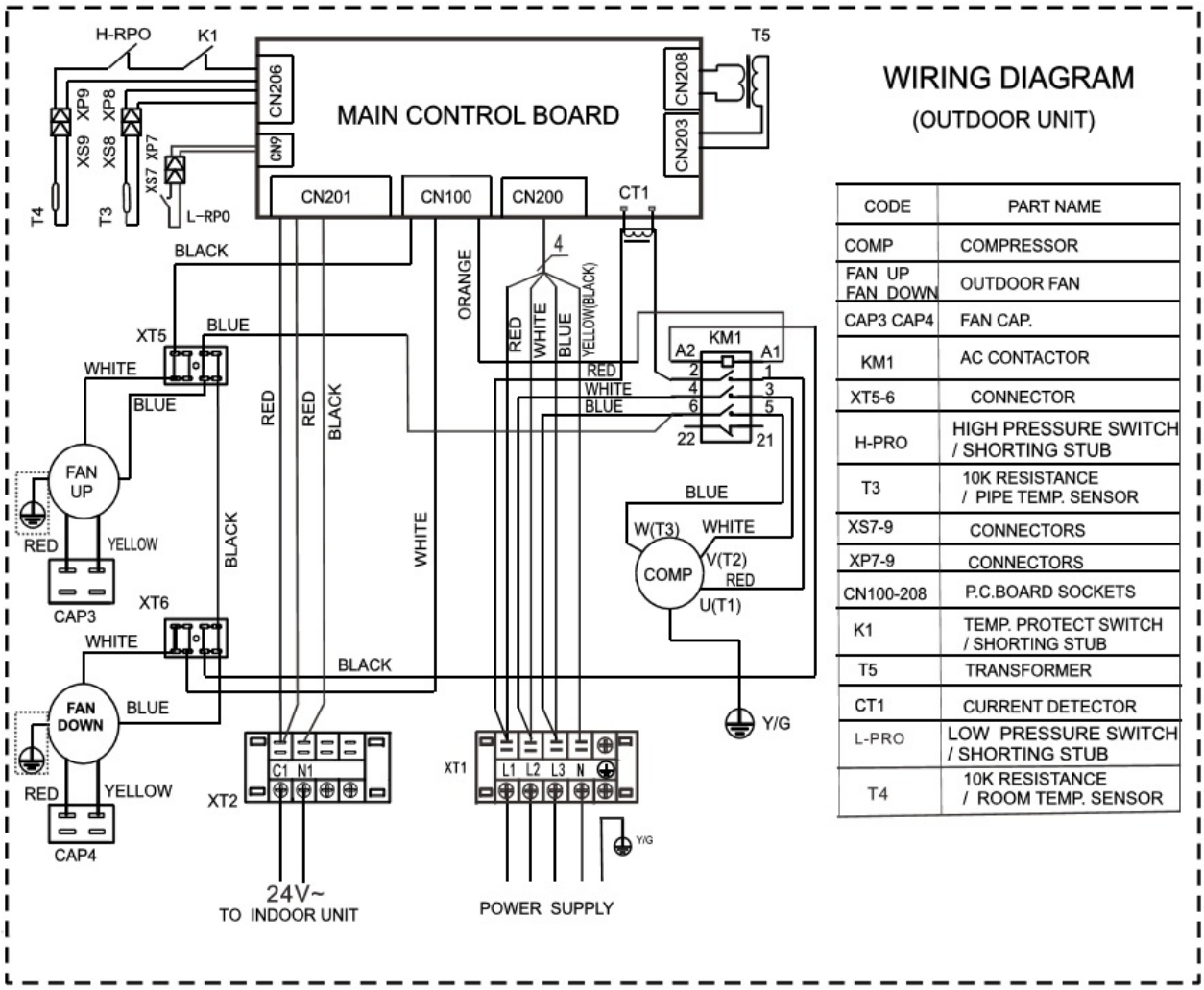
CODE	PART NAME
COMP	COMPRESSOR
FAN1 FAN2	OUTDOOR FAN
CAP1 CAP3 CAP4	CAPACITOR
S.V.	4-WAY VALVE
KM1	AC CONTACTOR
HEATER	CRANK
XT2	4-WAY TERMINAL
XT5-8	CONNECTOR
H/L-PRO	HIGH/LOW PRESSURE SWITCH/SHORTING STUB
RT3	PIPE TEMP. SENSOR
XS7-9	CONNECTORS
XP7-9	CONNECTORS
CN100-208	P.C.BOARD SOCKETS
K1	TEMP. PROTECT SWITCH/SHORTING STUB
RT4	ROOM TEMP. SENSOR
XT1	2-WAY TERMINAL
T5	TRANSFORMER
CT1	CURRENT DETECTOR

Outdoor Unit - Cooling Only - 4TTK05-D (36K) - 3 Phase



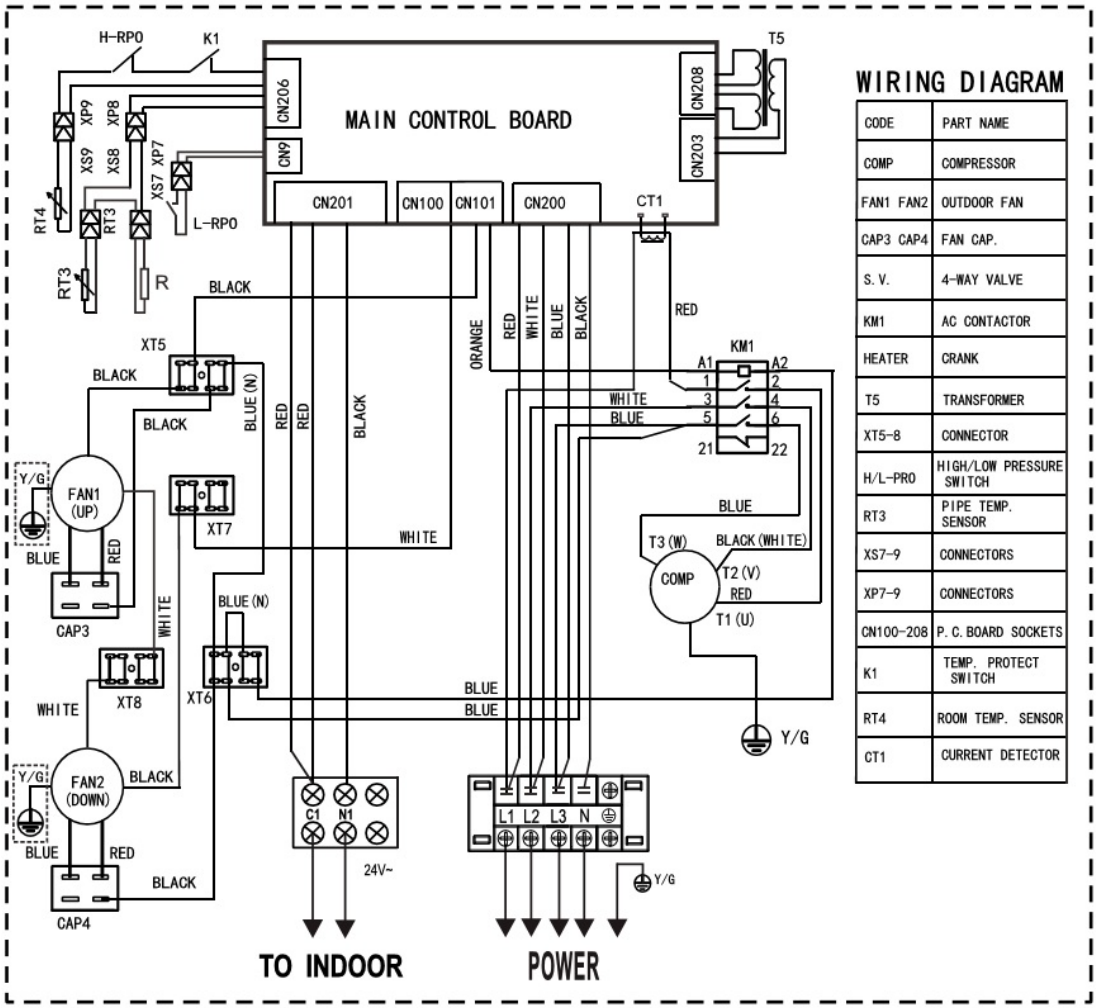
CODE	PART NAME
CAP	CAPACITOR
K1, K2	HIGH, LOW PRESS SWITCH
TRANS	POWER TRANSFORMER
FAN	OUTDOOR FAN MOTOR
T4	10K RESISTANCE
T3	10K RESISTANCE
XP1, XP2, XP3, XP4 XS1, XS2, XP3, XP4	CONNECTORS
CT2	CURRENT DETECT
XT1	5-WAY TERMINAL
KM8	CONTACTOR
XT4	TERMINAL
K3	GAS TEMP. PROTECTOR
XT2	3-WAY TERMINAL

Outdoor Unit - Cooling Only - 4TTK05-D (48K) - 3 Phase



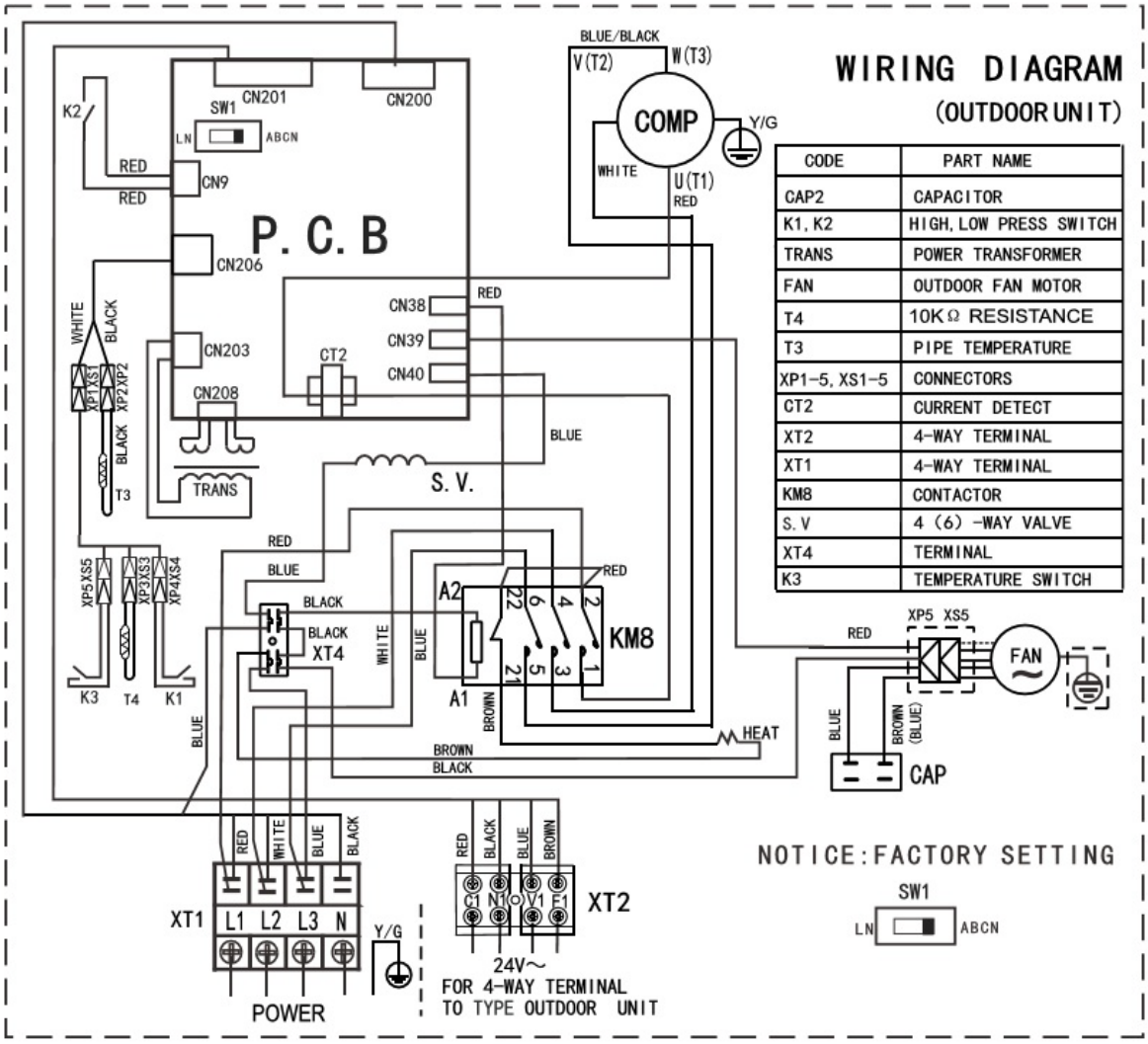
CODE	PART NAME
COMP	COMPRESSOR
FAN UP FAN DOWN	OUTDOOR FAN
CAP3 CAP4	FAN CAP.
KM1	AC CONTACTOR
XT5-6	CONNECTOR
H-PRO	HIGH PRESSURE SWITCH / SHORTING STUB
T3	10K RESISTANCE / PIPE TEMP. SENSOR
XS7-9	CONNECTORS
XP7-9	CONNECTORS
CN100-208	P.C.BOARD SOCKETS
K1	TEMP. PROTECT SWITCH / SHORTING STUB
T5	TRANSFORMER
CT1	CURRENT DETECTOR
L-PRO	LOW PRESSURE SWITCH / SHORTING STUB
T4	10K RESISTANCE / ROOM TEMP. SENSOR

Outdoor Unit - Cooling Only - 4TTK05-D (60K) - 3 Phase



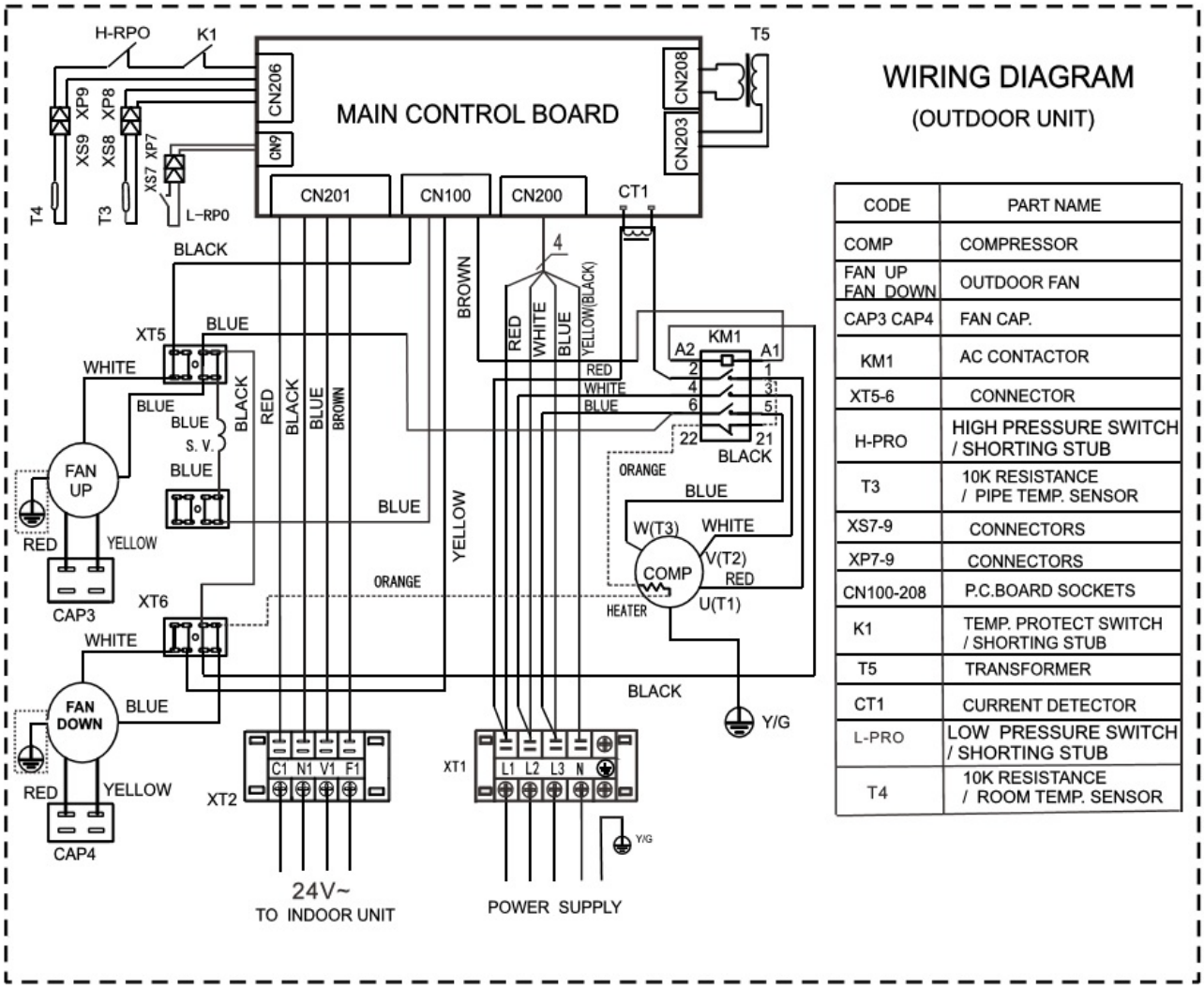
WIRING DIAGRAM	
CODE	PART NAME
COMP	COMPRESSOR
FAN1 FAN2	OUTDOOR FAN
CAP3 CAP4	FAN CAP.
S. V.	4-WAY VALVE
KM1	AC CONTACTOR
HEATER	CRANK
T5	TRANSFORMER
XT5-8	CONNECTOR
H/L-PRO	HIGH/LOW PRESSURE SWITCH
RT3	PIPE TEMP. SENSOR
XS7-9	CONNECTORS
XP7-9	CONNECTORS
CN100-208	P. C. BOARD SOCKETS
K1	TEMP. PROTECT SWITCH
RT4	ROOM TEMP. SENSOR
CT1	CURRENT DETECTOR

Outdoor Unit - Cooling Only/Heat Pump - 4TWK05-D (36K) - 3 Phase



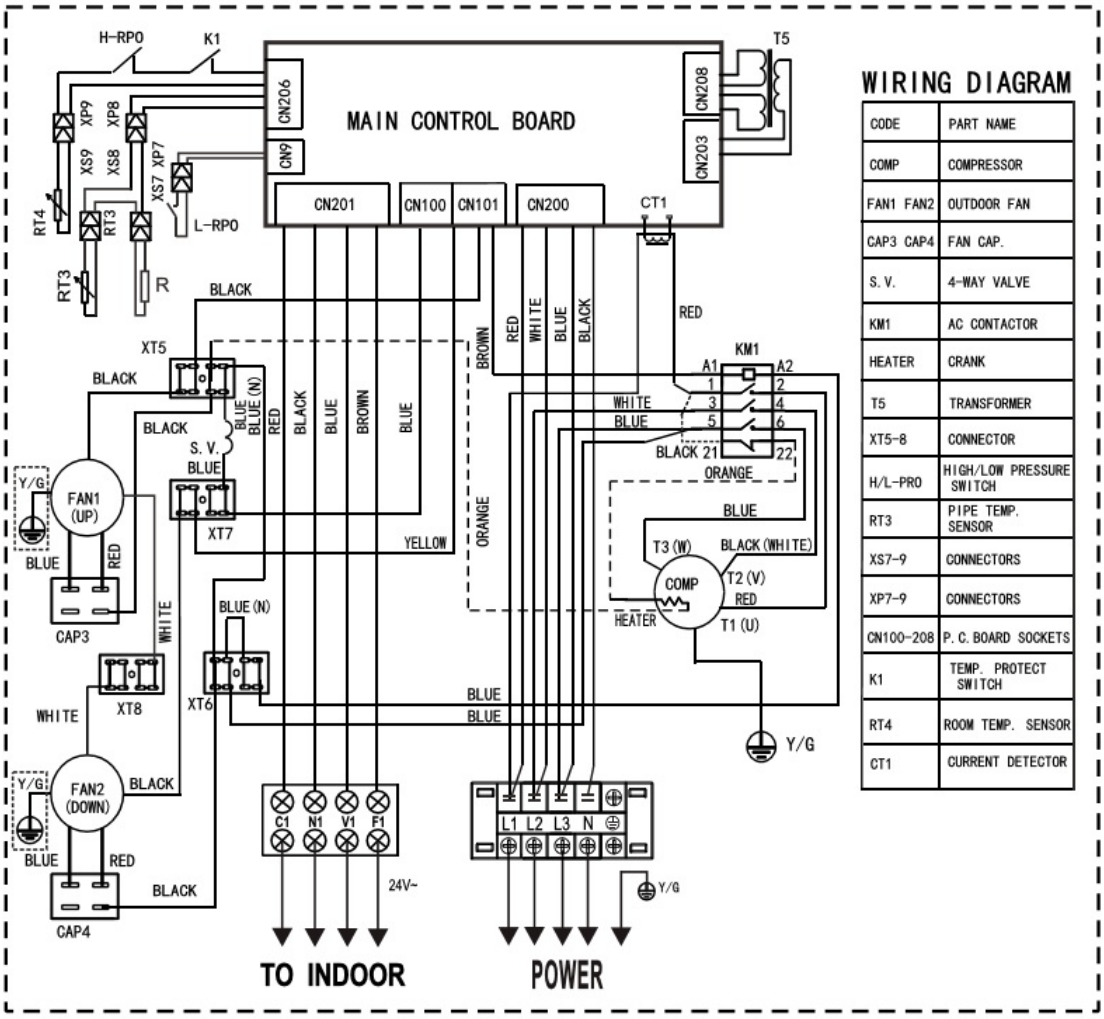
CODE	PART NAME
CAP2	CAPACITOR
K1, K2	HIGH, LOW PRESS SWITCH
TRANS	POWER TRANSFORMER
FAN	OUTDOOR FAN MOTOR
T4	10KΩ RESISTANCE
T3	PIPE TEMPERATURE
XP1-5, XS1-5	CONNECTORS
CT2	CURRENT DETECT
XT2	4-WAY TERMINAL
XT1	4-WAY TERMINAL
KM8	CONTACTOR
S.V	4 (6) -WAY VALVE
XT4	TERMINAL
K3	TEMPERATURE SWITCH

Outdoor Unit - Cooling Only/Heat Pump - 4TWK05-D (48K) - 3 Phase



CODE	PART NAME
COMP	COMPRESSOR
FAN UP FAN DOWN	OUTDOOR FAN
CAP3 CAP4	FAN CAP.
KM1	AC CONTACTOR
XT5-6	CONNECTOR
H-PRO	HIGH PRESSURE SWITCH / SHORTING STUB
T3	10K RESISTANCE / PIPE TEMP. SENSOR
XS7-9	CONNECTORS
XP7-9	CONNECTORS
CN100-208	P.C.BOARD SOCKETS
K1	TEMP. PROTECT SWITCH / SHORTING STUB
T5	TRANSFORMER
CT1	CURRENT DETECTOR
L-PRO	LOW PRESSURE SWITCH / SHORTING STUB
T4	10K RESISTANCE / ROOM TEMP. SENSOR

Outdoor Unit - Cooling Only/Heat Pump - 4TWK05-D (60K) - 3 Phase



Interconnecting U-Match Systems

U-Match HP Interconexión

Descripción Bornes

C1: Compresor
N1: Cómun de 24 VAC
V1: Válvula de 4 vías
F1: Señal para ventilador exterior
Puesta a tierra

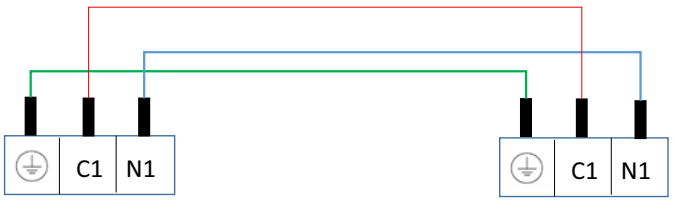
Unidad Interior

Unida Exterior

U-Match Interconexión FRIO SOLO

Descripción Bornes

C1: Compresor
N1: Cómun de 24 VAC
C: Cómun de 24 VAC
Puesta a Tierra



Unidad Interior

Unidad Exterior

Ingersoll Rand (NYSE:IR) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands - including Club Car®, Ingersoll Rand®, Thermo King®, and Trane® - work together to enhance the quality and confort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a global business committed to a world of sustainable progress and enduring results.

MS-SVN056C-EN February 20, 2018
Replaces: MS-SVN056B-EN - November 2016

We are committed to using environmentally conscious printing practices that reduce waste.