

Airwell

■ *Just feel well*

SERVICE MANUAL

YUDA060 / CAD060

Outdoor unit
YUDA060



Indoor unit
CAD060



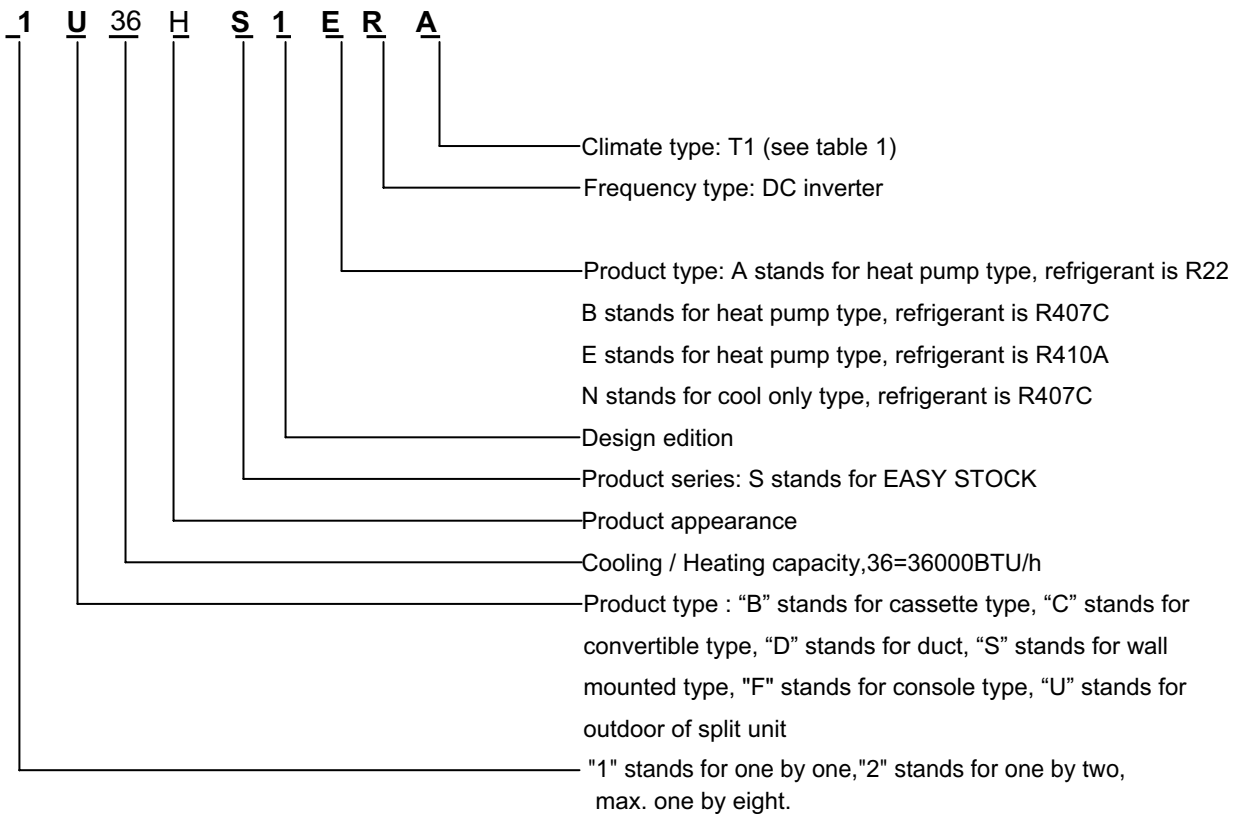
Airwell
Residential

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1. Description of products & features

1.1. Products code explanation



1.2 Brief Introduction for T1 working condition

| Type of Conditioner Cooling Only | Climate type |
|----------------------------------|--------------|
| | T1 (°C) |
| Cooling Only | 18°C ~46°C |
| Heat Pump | -15°C ~46°C |
| Electricity Heating | ~46 °C |

1.3 Operating Range of Air Conditioners

| Working temperature range | | | | |
|---------------------------|------|-------|---------|---------|
| | | rated | maximum | minimum |
| Cooling | DB°C | 27 | 32 | 18 |
| | WB°C | 19 | 23 | 14 |
| | DB°C | 35 | 46 | 18 |
| | WB°C | 24 | 24 | — |
| Heating | DB°C | 20 | 27 | 15 |
| | WB°C | 14.5 | — | — |
| | DB°C | 7 | 24 | -15 |
| | WB°C | 6 | 18 | — |

1.4 Product features

✧ By integrating intelligent technology of Airwell Residential, with universal indoor and outdoor units, make more intelligent and flexible choices on purchasing, easier inventory management to every customer.

✧ Good for choice

Multi-choice of capacity and appearance of indoor unit according to various rooms. ✧

DC scroll compressor

The highly efficient scroll compressor is equipped with a “flexible Mechanism” that allows movement in the axial direction of the frame supporting the cradle scroll. This greatly reduces both leakage and friction loss, ensuring very high efficiency throughout the speed range.

✧ DC inverter technology

Powerful startup: Airwell DC inverter system can startup and running at maximum frequency very quickly in order to reach the set temperature in the shorter time, which brings you great comfort experience.

Minimum running: Airwell DC inverter system will reduce the frequency and running smoothly according to the real load after reach the set temperature. The system running cost reduced drastically which brings you real benefit of money saving.

✧ Automatic control

Precise control: The temperature sensor can measure the temperature precisely with only 0.5°C tolerance, which transfers the exact requirement to the system to adjust the compressor frequency accordingly.

Once reach the set temperature, the system adjust the frequency smoothly according to the real time request and always maintain the temperature without fluctuation.

✧ Wider operation range

Airwell DC inverter system provide much wider working range that is suitable for special cooling, heating requirement.

The Unitary Smart DC inv. outdoor unit default production with AC fan motor, DC fan motor is for optional choice with additional cost.

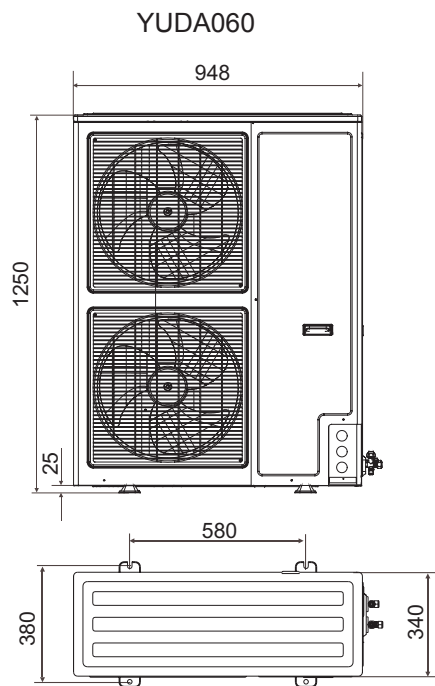
Commercial Air Conditioner

| Item | M | | | YUDA060 | |
|--|---------------------------------|---------------------------|----------|--------------------|--|
| Power cable | | | | H07RN-F 5G 4.0mm2 | |
| Communication cable | | | | / | |
| Connecting cable | | | | H05RN-F 4G 0.75mm2 | |
| Power source | | | N, V, Hz | 3N~,380~400, 50Hz | |
| Outdoor unit | Unit model (color) | | | YUDA060 (WHITE) | |
| | Compressor | Model / Manufacture/place | | | LNB42FUAMC(MITSUBISHI ELECTRIC COMPRESSOR CO.,LTD) |
| | | OIL model | | | FV50S |
| | | Oil charging | | | 1400CM3 |
| | | Type | | | Rotary |
| | Fan | Type × Number | | | axial×2 |
| | | Speed | | r/min | 930±40 |
| | | Fan motor input power | | kW | 0.80×2 |
| | | Fan motor output power | | kW | 0.150×2 |
| | | Air-flow(H-M-L) | | m³/h | 6500 |
| | Heat exchanger | Type / Diameter | | | TP2M/Φ7.94 |
| | | Row/Fin pitch | | | 2 1.5 |
| | | Total area | | m² | 1.17 |
| | Dimension | External | (L×W×H) | mm×mm×mm | 948×340×1250 |
| | | Package | (L×W×H) | mm×mm×mm | 1095×410×1400 |
| | Drainage pipe (material, ID/OD) | | | mm | / |
| | Refrigerant control method | | | mm/mm | ELECTRONIC VALVE 3.0MM |
| | Defrosting | | | | auto |
| | Volume of Accumulator | | | L | 4.0 |
| | Noise level | | | dB(A) | 60 |
| Type of Four way valve | | | | SHF-20A-46 | |
| material of reduce noise | | | | XPE | |
| crankcase heater power | | | W | 38 | |
| Weight(Net / Shipping) | | | kg / kg | 96/106 | |
| PIPING | Refrigerant | Type / Charge | g | R410A/3300 | |
| | | Recharge quantity | g/m | 45 | |
| | Pipe | Liquid | | mm | 9.52 |
| | | Gas | | mm | 19.05 |
| | Connecting Method | | | | flared |
| | Between I.D & O.D | MAX.Drop | | m | 30 |
| MAX.Piping length | | | m | 50 | |
| Norminal condition: indoor temperature (cooling): 27 DB/19 WB, indoor temperature (heating): 20 DB Outdoor temperature(cooling): 35 DB/24 WB, outdoor temperature(heating): 7 DB/6 WB The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level. | | | | | |

Commercial Air Conditioner

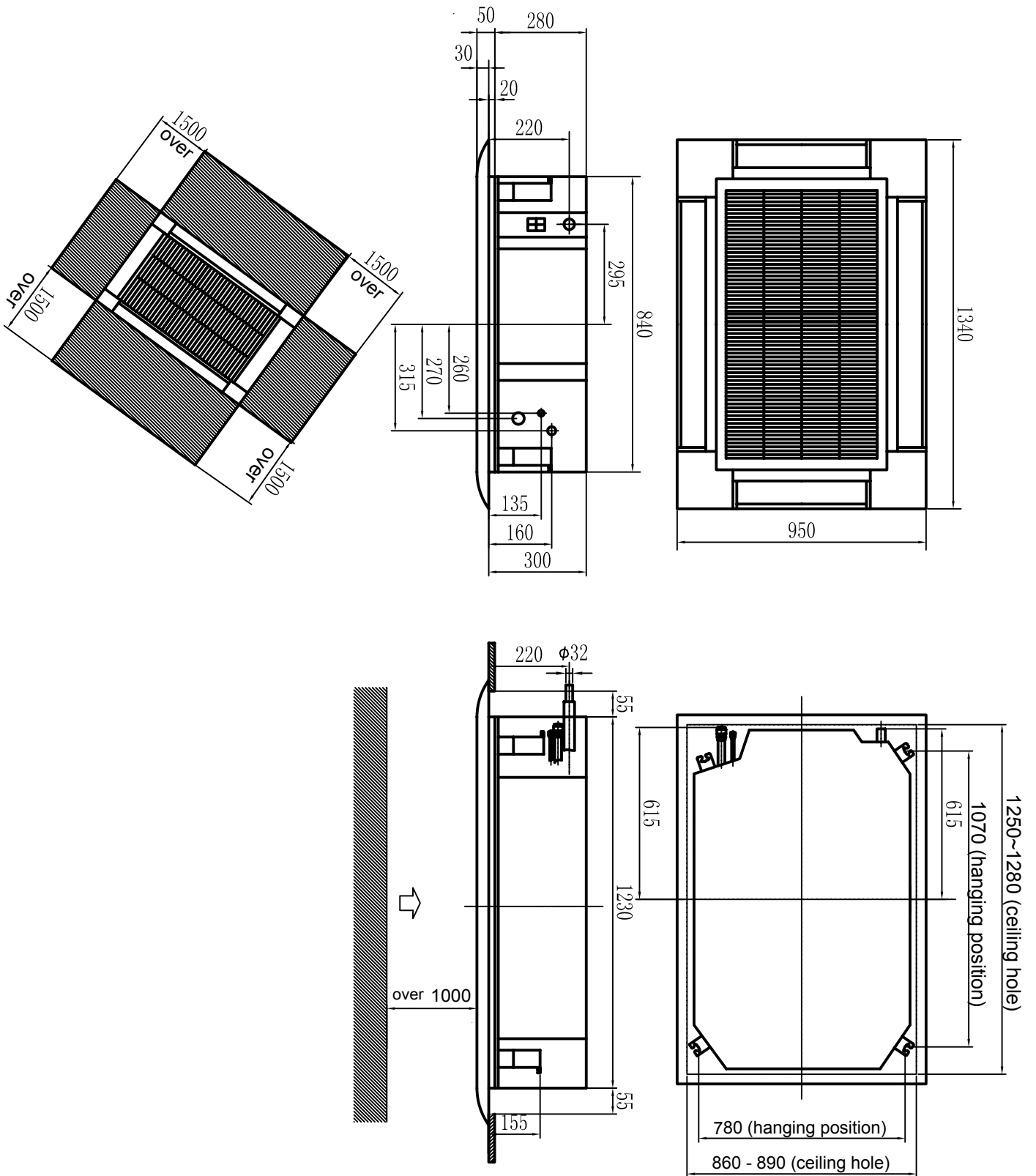
| Item | M | | CAD060 (AIRWELL) | | |
|--|-------------------------------------|------------------------|----------------------|-------------------------|-------|
| Function | | | cooling | heating | |
| Capacity | kW | | 14.0(4.0~15.5) | 15.0(4.0~17.5) | |
| Sensible heat ratio | | | 0.73 | | |
| Total power input | kW | | 4.36(2.0~6.5) | 4.4(2.0~6.5) | |
| Max. power input | W | | 6500 | 6500 | |
| EER or COP | W/W | | 3.21(A) | 3.41(B) | |
| Dehumidifying capacity | 10 ⁻³ ×m ³ /h | | 5.0 | | |
| Power cable | | | / | | |
| Power source | N, V, Hz | | 1, 220~230, 50 | | |
| Running /Max.Running current | A / A | | 7.3 (2.9-10.5) /10.5 | 7.3 (2.9-10.5) /10.5 | |
| Start Current | A | | / | | |
| Circuit breaker | A | | 3.15A | | |
| Indoor unit | Unit model (color) | | CAD060 | | |
| | Fan | Type × Number | | CENTRIFUGALX1 | |
| | | Speed(H-M-L) | r/min | 670/550/460±50 | |
| | | Fan motor input power | kW | 0.19 | |
| | | Fan motor output power | kW | 0.06 | |
| | | Air-flow(H-M-L) | m ³ /h | 1980/1750/1500 | |
| | Heat exchanger | Type / Diameter | mm | inner grooved pipe/φ7.0 | |
| | | Total Area | m ² | 0.576 | |
| | Dimension | External | (L×W×H) mm×mm×mm | 1230×840×280 | |
| | | Package | (L×W×H) mm×mm×mm | 1325×920×370 | |
| | Drainage pipe (material, I.D./O.D.) | | mm | PVC 26/32 | |
| | Controller (O-Optional,S-Standard) | | Wired | YR-E14 (option) | |
| | | | Infrared | YR-H71 (standard) | |
| | Fresh air hole dimension | | mm | / | |
| | Electricity Heater | | kW | 0 | |
| | Noise level (H-M-L) | | dB(A) | 50/45/42 | |
| | Weight (Net / Shi) | | kg / kg | 46/53 | |
| Panel | Model | | PB-1340IA | | |
| | External dimensions(W/D/H) | | mm | 1340/950/80 | |
| | Shipping dimensions(W/D/H) | | mm | 1400/995/115 | |
| | Net weight/Shipping weight | | kg | 8.4/12.0 | |
| PIPING | Refrigerant Type / Charge | | g | R410A/3300 | |
| | Recharge quantity | | g/m | 45 | |
| | Pipe | Liquid | | mm | 9.52 |
| | | Gas | | mm | 19.05 |
| Between I.D & O.D | MAX.Drop | | m | 30 | |
| | MAX.Piping length | | m | 50 | |
| <p>Normal condition: indoor temperature (cooling): 27°CDB/19°CWB, indoor temperature (heating): 20°CDB Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.</p> | | | | | |

3. Dimension



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CAD060



4. Outdoor Unit Installation

Safety Precautions

Carefully read the following information in order to operate the air conditioner correctly.

Below are listed three kinds of Safety Precautions and Suggestions.

⚠ WARNING Incorrect operations may result in severe consequences of death or serious injuries.

⚠ CAUTION Incorrect operations may result in injuries or machine damages; in some cases may cause serious consequences.

INSTRUCTIONS: These information can ensure the correct operation of the machine.

Symbols used in the illustrations

⊘:Indicates an action that must be avoided.

❗:Indicates that important instructions must be followed.

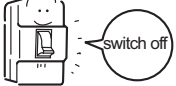
⚡:Indicates a part which must be grounded.


⚠:Beware of electric shock (This symbol is displayed on the main unit label.)

After reading this handbook, hand it over to those who will be using the unit.

The user of the unit should keep this manual at hand and make it available to those who will be performing repairs or relocating the unit. Also, make it available to the new user when the user changes hands.

Be sure to conform with the following important Safety Precautions.

| ⚠ WARNING | |
|---|---|
| <ul style="list-style-type: none"> • If any abnormal phenomena is found (e. g.smell of firing), please cut off the power supply immediately, and contact the dealer to find out the handling method. In such case, to continue using the conditioner will damage the conditioner, and may cause electrical shock or fire hazard. |  <ul style="list-style-type: none"> • Don't dismantle the outlet of the outdoor unit. The exposure of fan is very dangerous which may harm human beings. |
| <ul style="list-style-type: none"> • After a long time use of air-conditioner the base should be checked for any damages. If the damaged base is not repaired, the unit may fall down and cause accidents. | <ul style="list-style-type: none"> • When need maintenance and repairment, call dealer to handle it. Incorrect maintenance and repairment may cause water leak, electrical shock and fire hazard. |

| ⚠ WARNING | |
|---|--|
| <ul style="list-style-type: none"> • No goods or nobody is permitted to placed on or stand on outdoor unit.The falling of goods and people may cause accidents. | <ul style="list-style-type: none"> • Air-conditioner can't be installed in the environment with inflammable gases because the inflammable gases near air-conditioner may cause fire hazard. Please let the dealer be responsible for installing the conditioner. Incorrect installation may cause water leak, electrical shock and fire hazard. |
| <ul style="list-style-type: none"> • Don't operate the air-conditioner with damp hands.Otherwise it will be shocked. | <ul style="list-style-type: none"> • Call the dealer to take measures to prevent the refrigerant from leaking. If conditioner is installed in a small room, be sure to take every measure in order to prevent suffocation accident even in case of refrigerant leakage. |
| <ul style="list-style-type: none"> • Only use correctly-typed fuse. May not use wire or any other materials replacing fuse, otherwise it may cause faults or fire accidents. | <ul style="list-style-type: none"> • When conditioner is installed or reinstalled, the dealer should be responsible for them. Incorrect installation may cause water leaking, electrical shock and fire hazard. |
| <ul style="list-style-type: none"> • Use discharge pipe correctly to ensure efficient discharge. Incorrect pipe use may cause water leaking. | <ul style="list-style-type: none"> • Connect earthing wire. Earthing wire should not be connected to the gas pipe, water pipe, lightning rod or phone line, incorrect earthing may cause shock. |
| <ul style="list-style-type: none"> • Installed electrical-leaking circuit breaker. It easily cause electrical shock without circuit breaker. | <div style="text-align: right;">  Earthing </div> |

Commercial Air Conditioner

⚠ WARNING

- | | |
|---|--|
| <ul style="list-style-type: none"> • Have the unit professionally installed. Improper installation by an unqualified person may result in water leak, electric shock, or fire. • Place the unit on a stable, level surface that withstands the weight of the unit to prevent the unit from tipping over or falling causing injury as a result. • Only use specified cables for wiring. Securely connect each cable, and make sure that the cables are not straining the terminals. Cables not connected securely and properly may generate heat and cause fire. • Take necessary safety measures against typhoons and earthquakes to prevent the unit from falling over. • Do not make any changes or modifications to the unit. In case of problems, consult the dealer. If repairs are not made properly, the unit may leak water and present a risk of electric shock, or it may produce smoke or cause fire. | <ul style="list-style-type: none"> • Be sure to carefully follow each step in this handbook when installing the unit. Improper installation may result in water leak, electric shock, smoke or fire. • Have all electrical work performed by a licensed electrician according to the local regulations and the instructions given in this manual. Secure a circuit designated exclusively to the unit. Improper installation or a lack of circuit capacity may cause the unit to malfunction or present a risk of electric shock, smoke, and fire. • Securely attach the terminal cover (panel) on the unit. If installed improperly, dust and/or water may enter the unit and present a risk of electric shock, smoke or fire. • Only use refrigerant R410A as indicated on the unit when installing or relocating the unit. The use of any other refrigerant or an introduction of air into the unit circuit may cause the unit to run an abnormal cycle and abnormal cycle and cause the unit to burst. |
|---|--|

⚠ WARNING

- | | |
|--|---|
| <ul style="list-style-type: none"> • Do not touch the fins on the heat exchanger with bare hands, for they are sharp and dangerous. • In the event of a refrigerant gas leak, provide adequate ventilation to the room. If leaked refrigerant gas is exposed to a heat source, noxious gases may form. • With All-Fresh type air conditioners, outdoor air may be directly blown into the room upon thermo off. Take this into consideration when installing the unit. Direct exposure to outdoor air may present a health hazard, and it may also cause food items to deteriorate. • Do not try to defeat the safety features of the devices, and do not change the settings. Defeating the safety features on the unit such as the pressure switch and temperature switch or using parts other than the dealer or specialist may result in fire or explosion. • This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. | <ul style="list-style-type: none"> • When installing the unit in a small room, safeguard against hypoxia that results from leaked refrigerant reaching the threshold level. Consult the dealer for necessary measures to take. • When relocating the air conditioner, consult the dealer or a specialist. Improper installation may result in water leak, electric shock, or fire. • After completing the service work, check for a refrigerant gas leak. If leaked gas refrigerant is exposed to a heat source such as fan heater, stove, and electric grill, noxious gases may form. • Only use specified parts. Have the unit professionally installed. Improper installation may cause water leak, electric shock, smoke, or fire. • Children should be supervised to ensure that they do not play with the appliance. |
|--|---|

Precautions for Handling Units for Use with R410A

| ⚠ Caution | |
|---|---|
| <p>Do not use the existing refrigerant piping</p> <ul style="list-style-type: none"> • The old refrigerant and refrigerator oil in the existing piping contain a large amount of chlorine, which will cause the refrigerator oil in the new unit to deteriorate. • R410A is a high-pressure refrigerant, and the use of the existing piping may result in bursting. <p>Keep the inner and outer surfaces of the pipes clean and free of contaminants such as sulfur, oxides, dust/dirt shaving particles, oils, and moisture.</p> <ul style="list-style-type: none"> • Contaminants inside the refrigerant piping will cause the refrigerant oil to deteriorate. | <p>Use a vacuum pump with a reverse-flow check valve.</p> <ul style="list-style-type: none"> • If other types of valves are used, the vacuum pump oil will flow back into the refrigerant cycle and cause the refrigerator oil to deteriorate. <p>Do not use the following tools that have been used with the conventional refrigerants. Prepare tools that are for exclusive use with R410A. (Gauge manifold, charging hose, gas leak detector, reverse-flow check valve, refrigerant charge base, vacuum gauge, and refrigerant recovery equipment.)</p> <ul style="list-style-type: none"> • If refrigerant and/or refrigerant oil left on these tools are mixed in with R410, or if water is mixed with R410A, it will cause the refrigerant to deteriorate. • Since R410A does not contain chlorine, gas-leak detectors for conventional refrigerators will not work. |

| ⚠ Caution | |
|--|--|
| <p>Store the piping to be used during installation indoors, and keep both ends of the piping sealed until immediately before brazing. (keep elbows and other joints wrapped in plastic.)</p> <ul style="list-style-type: none"> • If dust, dirt, or water enters the refrigerant cycle, it may cause the oil in the unit to deteriorate or may cause the compressor to malfunction. <p>Use a small amount of ester oil, ether oil, or alkylbenzene to coat flares and flange connections.</p> <ul style="list-style-type: none"> • A large amount of mineral oil will cause the refrigerating machine oil to deteriorate. <p>Use liquid refrigerant to charge the system.</p> <ul style="list-style-type: none"> • Charge the unit with gas refrigerant will cause the refrigerant in the cylinder to change its composition and will lead to a drop in performance | <p>Do not use a charging cylinder.</p> <ul style="list-style-type: none"> • The use of charging cylinder will change the composition of the refrigerant and lead to power loss. <p>Exercise special care when handling the tools.</p> <ul style="list-style-type: none"> • An introduction of foreign objects such as dust, dirt or water into the refrigerant cycle will cause the refrigerating machine oil to deteriorate. <p>Only use R410A refrigerant.</p> <ul style="list-style-type: none"> • The use of refrigerants containing chlorine (i.e. R22) will cause the refrigerant to deteriorate. |

Before Installing the Unit

| ⚠ Caution | |
|---|---|
| <p>Do not install the unit in a place where there is a possibility of flammable gas leak.</p> <ul style="list-style-type: none"> • Leaked gas accumulated around the unit may start a fire. <p>Do not use the unit to preserve food, animals, plants, artifacts, or for other special purposes.</p> <ul style="list-style-type: none"> • The unit is not designed to provide adequate conditions to preserve the quality of these items. <p>Do not use the unit in an unusual environment</p> <ul style="list-style-type: none"> • The use of the unit in the presence of a large amount of oil, steam, acid, alkaline solvents or special types of sprays may lead to a remarkable drop in performance and/or malfunction and presents a risk of electric shock, smoke, or fire. • The presence of organic solvents, corroded gas (such as ammonia, sulfur compounds, and acid may cause gas or water leak.) | <p>When installing the unit in a hospital, take necessary measures against noise.</p> <ul style="list-style-type: none"> • High-frequency medical equipment may interfere with the normal operation of the air conditioning unit or the air conditioning unit may interfere with the normal operation of the medical equipment <p>Do not place the unit on or over things that may not get wet.</p> <ul style="list-style-type: none"> • When humidity level exceeds 80% or when the drainage system is clogged, indoor units may drip water. • Installation of a centralized drainage system for the outdoor unit may also need to be considered to prevent water drips from the outdoor units. |

Before Installing (Relocating) the Unit or Performing Electric

| ⚠ Caution | |
|--|---|
| <p>Ground the unit.</p> <ul style="list-style-type: none"> Do not connect the grounding on the unit to gas pipes, water pipes, lightning rods, or the grounding terminals of telephones. Improper grounding presents a risk of electric shock, smoke, fire, or the noise caused by improper grounding may cause the unit to malfunction. <p>Make sure the wires are not subject to tension.</p> <ul style="list-style-type: none"> If the wires are too taut, they may break or generate heat and/or smoke and cause fire. <p>Install a breaker for current leakage at the power source to avoid the risk of electric shock.</p> <ul style="list-style-type: none"> Without a breaker for current leakage, there is a risk of electric shock, smoke or fire. <p>Use breakers and fuses (electrical current breaker, remote switch<switch+Type-B fuse>, molded case circuit breaker) with a proper current capacity.</p> <ul style="list-style-type: none"> The use of large-capacity fuses, steel wire, or copper wire may damage the unit or cause smoke or fire. | <p>Do not spray water on the air conditioners or immerse the air conditioners in water.</p> <ul style="list-style-type: none"> Water on the unit presents a risk of electric shock. <p>Periodically check the platform on which is placed for damage to prevent the unit from falling.</p> <ul style="list-style-type: none"> If the unit is left on a damaged platform, it may topple over, causing injury. <p>When installing draining pipes, follow the instructions in the manual, and make sure that they properly drain water so as to avoid dew condensation.</p> <ul style="list-style-type: none"> If not installed properly, they may cause water leaks and damage the furnishings. <p>Properly dispose of the packing materials.</p> <ul style="list-style-type: none"> Things such as nails may be included in the package. Dispose of them properly to prevent injury. Plastic bags present a choking hazard to children. Tear up the plastic bags before disposing of them to prevent accidents. |

Before the Test Run

| ⚠ Caution | |
|---|---|
| <p>Do not operate switches with wet hands to avoid electric.</p> <p>Do not touch the refrigerant pipes with bare hands during and immediately after operation.</p> <ul style="list-style-type: none"> Depending on the state of the refrigerant in the system, certain parts of the unit such as the pipes and compressor may become very cold or hot and may subject the person to frost bites or burning. <p>Do not operated the unit without panels and safety guards in their proper places.</p> <ul style="list-style-type: none"> They are there to keep the users from injury from accidentally touching rotating, high-temperature or high-voltage parts. | <p>Do not turn off the power immediately after stopping the unit.</p> <ul style="list-style-type: none"> Allow for at least five minutes before turning off the unit, otherwise the unit may leak water or experience other problems. <p>Do not operate the unit without air filters.</p> <ul style="list-style-type: none"> Dust particles in the air may clog the system and cause malfunction. |

Read Before Installation

Items to Be Checked

- (1). Verify the type of refrigerant used by the unit to be serviced. Refrigerant Type: R410A
- (2). Check the symptom exhibited by the unit to be serviced. Look in this service handbook for symptoms relating to the refrigerant cycle.
- (3). Be sure to carefully read the safety precautions at the beginning of this document.
- (4). If there is a gas leak or if the remaining refrigerant is exposed to an open flame, a noxious gas hydrofluoric acid may form. Keep workplace well ventilated.

CAUTION

- Install new pipes immediately after removing old ones to keep moisture out of the refrigerant circuit.
- Chloride in some types of refrigerants such as R22 will cause the refrigerating machine oil to deteriorate.

Necessary Tools and Materials

Prepare the following tools and materials necessary for installing and servicing the unit.

Necessary tools for use with R410A(Adaptability of tools that are for use with R22 and R407C).

1. To be used exclusively with R410A (Not to be used if used with R22 or R407C)

| Tools/Materials | Use | Notes |
|------------------------------------|----------------------------------|--|
| Gauge Manifold | Evacuating,refrigerant charging | 5.09MPa on the High-pressure side. |
| Charging Hose | Evacuating, refrigerant charging | Hose diameter larger than the concentional ones. |
| Refrigerant Recovery Equipment | Refrigerant recovery | |
| Refrigerant Cylinder | Refrigerant charging | Write down the refrigerant type. Pink in color at the top of the cylinder. |
| Refrigerant Cylinder Charging Port | Refrigerant charging | Hose diameter larger than the conventional ones. |
| Flare Nut | Connecting the unit to piping | Use Type-2 Flare nuts. |

2. Tools and materials that may be used with R410 with some restrictions

| Tools/Materials | Use | Notes |
|--------------------------------|---------------------------|--|
| Gas leak detector | Detection of gas leaks | The ones for HFC type refrigerant may be used. |
| Vacuum Pump | Vacuum drying | May be used if a reverse flow check adaptor is attached. |
| Flare Tool | Flare machining of piping | Chages have been made in the flare machining dimension.Refer to the next page. |
| Refrigerant Recovery Equipment | Recovery of refrigerant | May be used if designed for use with R410A. |

3. Tools and materials that are used with R22 or R407C that can also be used with R410A

| Tools/Materials | Use | Notes |
|--------------------------------|------------------------|---|
| Vacuum Pump with a Check Valve | Vacuum drying | |
| Bender | Bending pipes | |
| Torque Wrench | Tightening flare nuts | Only $\Phi 12.70$ (1/2") and $\Phi 15.88$ (5/8") have a larger flare machining dimension. |
| Pipe Cutter | Cutting pipes | |
| Welder and Nitrogen Cylinder | Welding pipes | |
| Refrigerant Charging Meter | Refrigerant charging | |
| Vacuum Gauze | Checking vacuum degree | |

4. Tool and materials that must not used with R410A

| Tools/Materials | Use | Notes |
|-------------------|----------------------|--|
| Charging Cylinder | Refrigerant Charging | Must not be used with R410-type units. |

Tools for R410A must be handled with special care, and keep moisture and dust from entering the cycle.

Piping Materials

Types of Copper Pipes (Reference)

| Maximum Operation Pressure | Applicable Refrigerants |
|----------------------------|-------------------------|
| 3.4MPa | R22, R407C |
| 4.15MPa | R410A |

- Use pipes that meet the local standards.

Piping Materials/Radial Thickness

Use pipes made of phosphorus deoxidized copper.

Since the operation pressure of the units that use R410A is higher than that of the units for use with R22, use pipes with at least the radial thickness specified in the chart below. (Pipes with a radial thickness of 0.7mm or less may not be used.)

| Size(mm) | Size(inch) | Radial Thickness(mm) | Type |
|----------|------------|----------------------|---------------------|
| Φ 6.35 | 1/4" | 0.8t | Type-O pipes |
| Φ 9.52 | 3/8" | 0.8t | |
| Φ 12.7 | 1/2" | 0.8t | |
| Φ 15.88 | 5/8" | 1.0t | Type-1/2H or Hpipes |
| Φ 19.05 | 3/4" | 1.0t | |

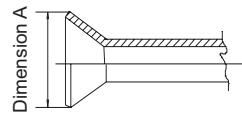
- Although it was possible to use type-O for pipes with a size of up to Φ 19.05(3/4") with conventional refrigerants, use type-1/2H pipes for units that use R410A.(Type-O pipes may be used if the pipe size is Φ19.05 and the radial thickness is 1.2t.)
- The table shows the standards in Japan. Using this table as a reference, choose pipes that meet the local standards.

Flare Machining (type-O and OL only)

The flare machining dimensions for units that use R410A is larger than those for units that use R22 in order to increase air tightness.

Flare Machining Dimension(mm)

| External dimension of pipes | Size | Dimension A | |
|-----------------------------|------|-------------|------|
| | | R410A | R22 |
| Φ6.35 | 1/4" | 9.1 | 9.0 |
| Φ9.52 | 3/8" | 13.2 | 13.0 |
| Φ12.7 | 1/2" | 16.6 | 16.2 |
| Φ15.88 | 5/8" | 19.7 | 19.4 |
| Φ19.05 | 3/4" | 24.0 | 23.3 |



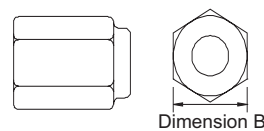
If a clutch type flare tool is used to machine flares on units that use R410A, make the protruding part of the pipe between 1.0 and 1.5mm. Copper pipe gauge for adjusting the length of pipe protrusion is useful.

Flare Nut

Type-2 flare nuts instead of type-1 nuts are used to increase the strength. The size of some of the flare nuts have also been changed.

Flare nut dimension(mm)

| External dimension of pipes | Size | Dimension B | |
|-----------------------------|------|--------------|------------|
| | | R410A(Type2) | R22(Type1) |
| Φ6.35 | 1/4" | 17.0 | 17.0 |
| Φ9.52 | 3/8" | 22.0 | 22.0 |
| Φ12.7 | 1/2" | 26.0 | 24.0 |
| Φ15.88 | 5/8" | 29.0 | 27.0 |
| Φ19.05 | 3/4" | 36.0 | 36.0 |



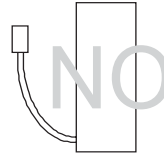
- The table shows the standards in Japan. Using this table as a reference, choose pipes that meet the local standards.

Air Tightness Test

No changes from the conventional method. Note that a refrigerant leakage detector for R22 or R407C cannot detect R410A leakage.



Halide torch



R22 or R407C leakage detector

Items to be strictly observed :

1. Pressurize the equipment with nitrogen up to the design pressure and then judge the equipment's air tightness, taking temperature variations into account.
2. When investigating leakage locations using a refrigerant, be sure to use R410A.
3. Ensure that R410A is in a liquid state when charging.

Reasons:

Use of oxygen as the pressurized gas may cause an explosion.

Charging with R410A gas will lead the composition of the remaining refrigerant in the cylinder to change and then this refrigerant can not be used.

Vacuumping

1. Vacuum pump with check valve

A vacuum pump with a check valve is required to prevent the vacuum pump oil from flowing back into the refrigerant circuit when the vacuum pump power is turned off (power failure). It is also possible to attach a check valve to the actual vacuum pump afterwards.

2. Standard degree of vacuum for the vacuum pump

Use a pump which reaches 65Pa or below after 5 minutes of operation.

In addition, be sure to use a vacuum pump that has been properly maintained and oiled using the specified oil. If the vacuum pump is not properly maintained, the degree of vacuum may be too low.

3. Required accuracy of the vacuum gauge

Use a vacuum gauge that can measure up to 650Pa. Do not use a general gauge manifold since it cannot measure a vacuum of 650Pa.

4. Evacuating time

Evacuate the equipment for 1 hour after 650Pa has been reached.

After evacuating, leave the equipment for 1 hour and make sure the that vacuum is not lost.

5. Operating procedure when the vacuum pump is stopped

In order to prevent a backflow of the vacuum pump oil, open the relief valve on the vacuum pump side or loosen the charge hose to draw in air before stopping operation. The same operating procedure should be used when using a vacuum pump with a check valve.

Charging Refrigerant

R410A must be in a liquid state when charging.

Reasons:

R410A is a pseudo-azeotropic refrigerant (boiling point R32= -52°C , R125= -49°C) and can roughly be handled in the same way as R22; however, be sure to fill the refrigerant from the liquid side, for doing so from the gas side will somewhat change the composition of the refrigerant in the cylinder.

Note

- In the case of a cylinder with a syphon, liquid R410A is charged without turning the cylinder up side down. Check the type of cylinder before charging.

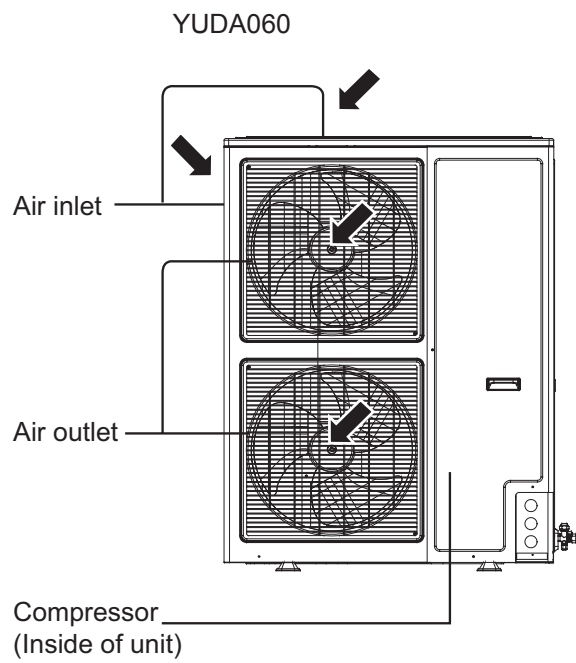
Remedies to be taken in case of a refrigerant leak

When refrigerant leaks, additional refrigerant may be charged. (Add the refrigerant from the liquid side)

Characteristics of the Conventional and the New Refrigerants

- Because R410A is a simulated azeotropic refrigerant, it can be handled in almost the same manner as a single refrigerant such as R22. However, if the refrigerant is removed in the vapor phase, the composition of the refrigerant in the cylinder will somewhat change.
- Remove the refrigerant in the liquid phase. Additional refrigerant may be added in case of a refrigerant leak.

Name of Parts



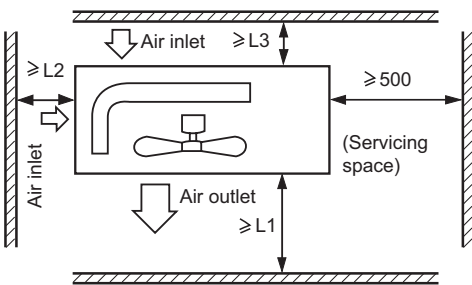
Installation of Outdoor Unit

1. Selection of the place of installation

Select the place of installation satisfying the following conditions and, at the same time, obtain a consent from the client or user.

- Place where air circulates.
- Place free from heat radiation from other heat sources.
- Place where drain water may be discharged.
- Place where noise and hot air may not disturb the neighborhood.
- Place where there is not heavy snowfall in the winter time.
- Place where obstacles do not exist near the air inlet and air outlet .
- Place where the air outlet may not be exposed to a strong wind.
- Place surrounded at four sides are not suitable for installation. A 1m or more of overhead space is needed for the unit.
- Avoid mounting guide-louvers to the place where short-circuit is a possibility.
- When installing several units, secure sufficient suction space to avoid short circuiting.

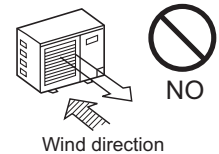
Open space requirement around the unit



| Distance | Case I | Case II | Case III |
|----------|--------|---------|----------|
| L1 | open | open | 500 mm |
| L2 | 300 mm | 300 mm | open |
| L3 | 150 mm | 300 mm | 150 mm |

Note :

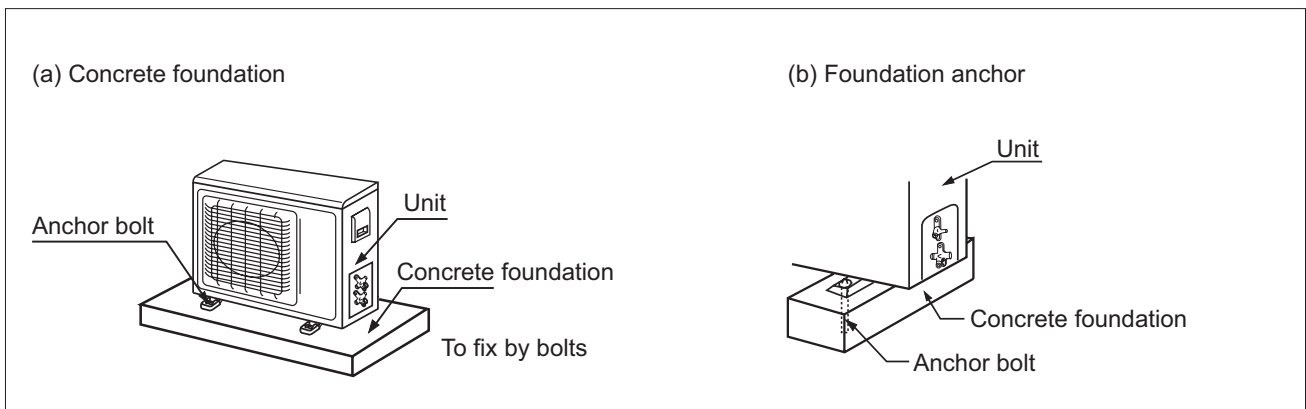
- (1) Fix the parts with screws.
- (2) Don't intake the strong wind directly to the outlet air-flow hole.
- (3) A one meter distance should be kept from the unit top.
- (4) Don't block the surroundings of the unit with sundries.
- (5) If the outdoor unit is installed in a place that is exposed to the wind, install the unit so that the outlet grid is NOT pointing in the direction of the wind.



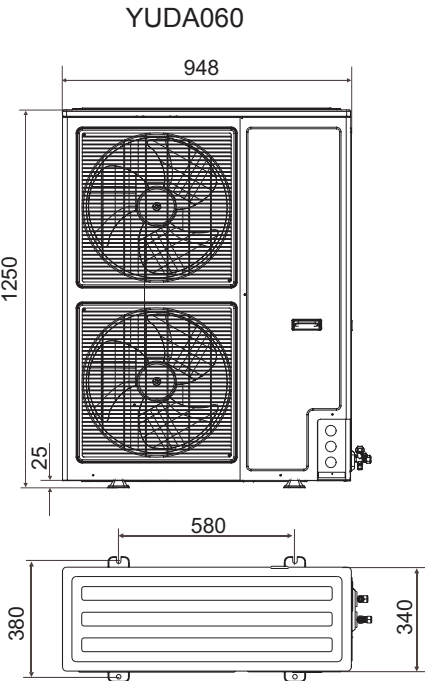
2. Installation of outdoor unit

Fix the unit on the foundation in a proper way according to the condition of the installation place, referring to the following information.

- Give enough room for the concrete foundation to fix by anchor bolts.
- Place the concrete foundation deep enough.
- Install the unit so that the angle of inclination must be less than 3 degrees.



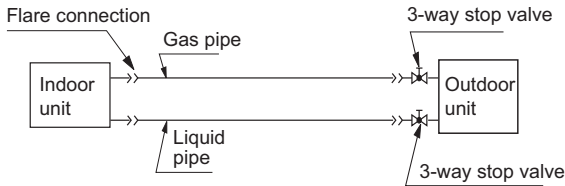
3. Installation dimension (Unit:mm)



Piping Connection

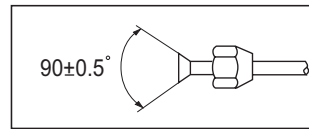
1. Piping diagram

YUDA060



2. Piping size

| | | |
|---------|-------------|--------------------|
| YUDA060 | Liquid pipe | ϕ 9.52x0.8mm |
| | Gas pipe | ϕ 19.05x1.0mm |



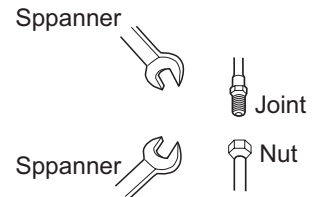
- Install the removed flare nuts to the pipes to be connected, then flare the pipes.

3. Limitations for one way piping length and vertical height difference

| Model | One way piping length | Vertical height difference (between indoor and outdoor) |
|---------|-----------------------|---|
| YUDA060 | less than 50 m | less than 20 m |

Precautions for refrigerant piping

- Do not twist or crush piping.
- Be sure that no dust is mixed in piping.
- Bend piping with as wide angle as possible.
- Keep insulating both gas and liquid piping.
- Check flare-connected area for gas leakage.



4. Piping connection method

- Apply refrigerant oil to the joint and the flange.
- To bend a pipe, give the roundness as possible not to crush the pipe.
- When connecting pipe, hold the pipe centre to centre and then screw nut on by hand, refer to Fig.
- Be careful not to let foreign matters, such as sands enter the pipe.

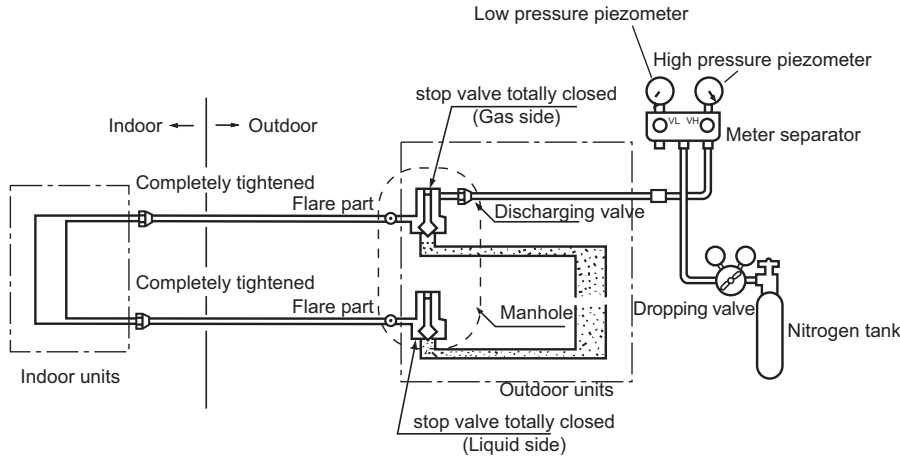
| Pipe diameter | Fastening torque (N.m) |
|---------------------------|------------------------|
| Liquid pipe ϕ 6.35mm | 14.2-17.2 |
| Liquid pipe ϕ 9.52mm | 32.7-39.9 |
| Gas pipe ϕ 12.7mm | 49.5-60.3 |
| Gas pipe ϕ 15.88mm | 61.8-75.4 |
| Gas pipe ϕ 19.05mm | 97.2-118.6 |

Forced fastening without centering may damage the threads and cause a gas leakage.

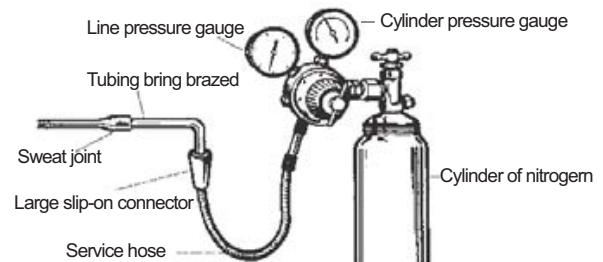
Air Tightness Test

After finishing connection of refrigerant pipe, it shall perform air tightness test.

- The air tightness test adopts nitrogen tank to give pressure according to the pipe connection mode as the following figure shown.
- The gas and liquid valve are all in close state. In order to prevent the nitrogen entering the circulation system of outdoor unit, tighten the valve rod before giving pressure (both gas and liquid valve rods).



- 1) Pressurize for over 3 minutes at 0.3MPa (3.0 kg/cm²g).
- 2) Pressurize for over 3 minutes at 1.5MPa (15 kg/cm²g). A large leakage will be found.
- 3) Pressurize for about 24 hours at 3.0MPa (30 kg/cm²g). A small leakage will be found.



- Check if the pressure drops
If the pressure does not drop, then pass.
If the pressure drops, then please check the leaking point.
When pressurizing for 24 hours, a variation of 1°C in the ambient temperature will cause a variation of 0.01MPa(0.1kg/cm²g) in pressure. It shall be corrected during test.
- Checking the leaking point
In 1) to 3) steps, if the pressure drops, check the leakage in each joint by listening, touching and using soap water etc. to identify the leaking point. After confirming the leaking point, welding it again or tighten the nut tightly again.

Installation Procedure

Additional Refrigerant Charge

When the total length (L) of the two indoor units' connecting pipe is less than 5m, it is unnecessary to charge additional refrigerant.

If the connecting pipe (L) exceeds 5m, it shall charge M(g) additional refrigerant per meter.

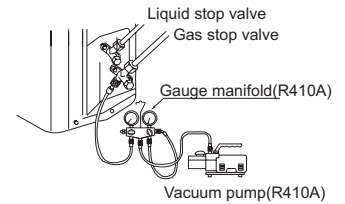
That is: Refrigerant charging amount = (L-5m) x 45 (g/m)

- Only in COOLING operation can charge the additional refrigerant.
- When charging, the refrigerant shall be charged from the charging nozzle of low pressure valve.
- Be carefull when charging refrigerant, do not let the air mix into the system, and must charge the additional refrigerant in liquid state.

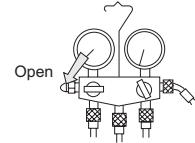
Vacuuuming

Piping vavuuum method: to use vacuum pump

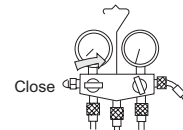
1. Detach the service port's cap of gas stop valve, the valve rod's cap for liquid stop valve and gas stop valve, and connect the service port into the projection of charge hose (low) for gaugemanifold. Then connect the projection of charge hose (center) for gaugemanifold into vacuum pump.



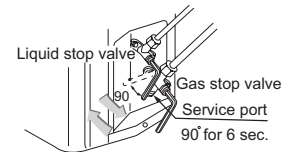
2. Open the handle at low in gaugemanifold, and operate vacuum pump. If the scale-moves of gause (low) reach vacuum condition in a moment, check the step 1 again.



3. Vacuumize for over 15min. And check the level gauge which should read - 0.1MPa (-76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in the vacuum pump. Check the condition of the scale and hold it for 1-2min. If the scale-moves back in spite of tightening, make flaring work again, then return to the beginning of the step 3.

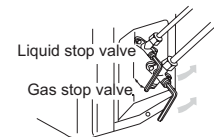


4. Open the valve rod for the liquid stop valve to an angle of anticlockwise 90 degree. After 6 seconds, close the liquid stop valve and make the inspection of gas leakage.

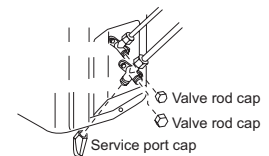


5. No gas leakage? In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed the step 6. If it does not stop gas leakage, discharge whole refrigerants from the service port. After flaring work again and vacuumize, fill up prescribed refrigerant from the gas cylinder.

6. Detach the charge hose from the service port, open liquid stop valve and gas stop valve. Turn the valve rod anticlockwise until hitting lightly.



7. To prevent the gas leakage, turn the service ports cap, the valve rod's cap for liquid stop valve and gas stop valve a little more than the point where the torque increases suddenly.



CAUTION:

If the refrigerant of the air conditioner leaks, it is necessary to make all the refrigerant out. Vacuumize first, then charge the liquid refrigerant into air conditioner according to the amount marked on the nameplate.

Commercial Air Conditioner

Electrical Wiring

WARNING!

DANGER OF BODILY INJURY OR DEATH

- TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS.
- GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

Precautions for Electrical wiring

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

Selection of size of power supply and interconnecting wires

Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

| Item Model | Phase | Circuit breaker | | Power source wire size (minimum) (mm ²) | Earth leakage breaker | |
|---------------|-------|-----------------------|---|--|-----------------------|---------------------|
| | | Switch breaker (A) | Overcurrent protector rated capacity (A) | | Switch breaker(A) | Leak current(mA) |
| YUDA060 | 3 | 30 | 20 | 4.0 | 30 | 30 |

- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
- If the fuse of control box is broken, please change it with the type of T25A/450VAC;
- If the fuse of control PC board is broken, please change it with the type of T3.15A/250VAC.
- The wiring method should be in line with the local wiring standard.
- The power cable and connecting cable should be self-provided.
- All the cables shall have got the European authentication certificate. During installation, when the connecting cables break off, it must be assured that the grounding wire is the last one to be broken off.
- The breaker of the air conditioner should be all-pole switch; and the distance between its two contacts should not be no less than 3mm. Such means for disconnection must be incorporation in the fixed wiring.
- The distance between its two terminal blocks of indoor unit and outdoor unit should not be over 5m. If exceeded, the diameter of the wire should be enlarged according to the local wiring standard.
- A leakage breaker must be installed.

The specification of power cable

The power cable should be H07RN-F 5G 4.0mm².

Commercial Air Conditioner

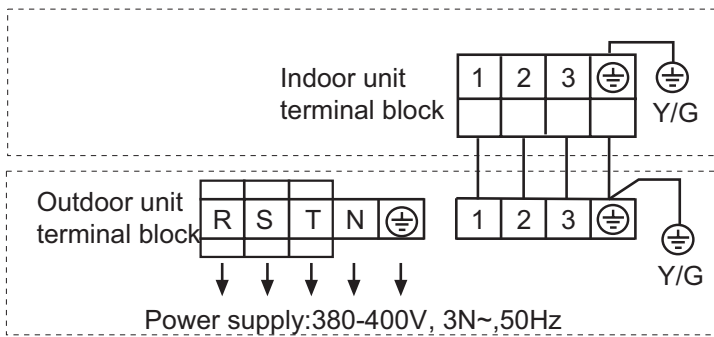
Wiring procedure

- 1) Remove set screws on the side before taking off the front panel toward the direction.
- 2) Connect wires to the terminal block correctly and fix the wires with a wire clamp equipped nearby the terminal block.
- 3) Route the wires in a proper way and penetrate the wires through the opening for electrical wiring on the side panel.

WARNING:

INTERCONNECTING WIRES MUST BE WIRED ACCORDING TO FIGURE BELOW. INCORRECT WIRING MAY CAUSE EQUIPMENT DAMAGE.

YUDA060



5. Installation

CAUTIONS:

To ensure proper installation, read "Cautions" carefully before working. After installation, start the unit correctly and show customers how to operate and maintain the unit.

Meanings of Warning and Cautions:

Warning! Serious injury or even death might happen, if it is not observed.

Caution! Injury to people or damages to machine might happen, if it is not observed.

WARNING!

- Installation shall be done by professional people, don't install unit by yourself. Incorrect installation will cause water leakage, electric shock or fire.
- Install unit as per the Manual. Incorrect installation will cause water leakage, electric shock or fire accident.
- Be sure to use specified accessories and parts. Otherwise, water leakage, electric shock, fire accident or unit falling down may happen.
- Unit should be placed on a place strong enough to hold the unit. Or, unit will fall down causing injuries.
- When install the unit, take in consideration of storms, typhoon, earthquake. Incorrect installation may cause unit to fall down.
- All electric work shall be done by experienced people as per local code, regulations and this Manual.
- Use exclusive wire for the unit. Incorrect installation or undersized electric wire may cause electric shock or fire accident.
- All the wires and circuit shall be safe. Use exclusive wire firmly fixed. Be sure that external force will not affect terminal block and electric wire. Poor contact and installation may cause fire accident.
- Arrange wire correctly when connecting indoor and outdoor power supply. Fix terminal cover firmly to avoid overheating, electric shock or even fire accident.
- In case refrigerant leakage occurred during unit installation, keep a good ventilation in the room.
- Poisonous gas will occur when meet with fire.
- Check the unit upon installation. Be sure there is no leakage. Refrigerant will induce poisonous gas when meet heat source as heater, oven, etc.
- Cut power supply before touching terminal block.

CAUTION!

- Unit shall be grounded. But grounding shall not be connected to gas pipe, water pipe, telephone line. Poor grounding will cause electric shock.
- Be sure to install a leakage breaker to avoid electric shock.
- Arrange water drainage according to this Manual. Cover pipe with insulation materials in case dew may occur. Unproper installation of water drainage will cause water leakage and wet your furniture.
- To maintain good picture or reduce noise, keep at least 1 m from T.V. radio, when install indoor and outdoor unit, connecting wire and power line. (If the radio wave is relatively strong, 1 m is not enough to reduce noise).
- Don't install unit in following places:
 - (a) Oil mist or oil gas exists, such as kitchen, or, plastic parts may get aged, or water leakage.
 - (b) Where there is corrosive gas. Copper tube and welded part may be damaged due to corrosion, causing leakage.
 - (c) Where there is strong radiation. This will affect unit's control system, causing malfunction of the unit
 - (d) Where flammable gas, dirt, and volatile matter (thinner, gasoline) exist, These matter might cause fire accident.
- Refer to paper pattern when installing unit.



Earthing

Cautions for the installation personnel

- Don't fail to show customers how to operate unit.

Before installation <Don't discard any accessories until comp>

- Determine the way to carry unit to installation place.
- Don't remove packing until unit reaches installation place.
- If unpacking is unavoidable, protect unit properly.

Selection of installation place

(1) Installation place shall meet the following and agreed by customers:

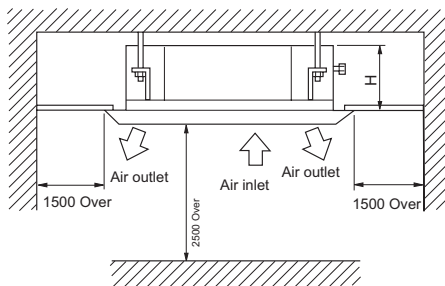
- Place where proper air flow can be ensured.
- No block to air flow.
- Water drainage is smooth.
- Place strong enough to support unit weight.
- Place where inclination is not evident on ceiling.
- Enough space for maintenance.
- Indoor and outdoor unit piping length is within limit. (Refer to Installation Manual for outdoor unit.)
- Indoor and outdoor unit, power cable, inter unit cable are at least 1 m away from T.V. radop. This is helpful to avoid picture disturbance and noise. (Even if 1 m is kept, noise can still appear if radio wave is strong)

(2) Ceiling height

Indoor unit can be installed on ceiling of 2.5-3m in height. (Refer to Field setting and Installation Manual of ornament panel.)

(3) Install suspending bolt. Check if the installation place is strong enough to hold weight. Take necessary measures in case it is not safe. (Distance between holes are marked on paper pattern. Refer to paper pattern for place need be reinforced)

Installation space



| Model | H |
|--------|-----|
| CAD060 | 310 |

Preparation for the installation

(1) Position of ceiling opening between unit and suspending bolt.

Please refer to the dimension part.

(2) Cut an opening in ceiling for installation if necessary. (when ceiling already exists.)

- Refer to paper pattern for dimension of ceiling hole.
- Connect all pipings (refrigerant, water drainage), wirings (inter unit cable) to indoor unit, before installation.
- Cut a hole in ceiling, may be a frame should be used to ensure a smooth surface and to prevent vibration. Contact your real estate dealer

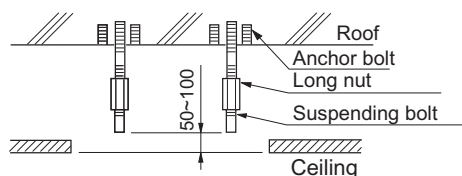
(3) Install a suspending bolt.

(Use a M10 bolt)

To support the unit weight, anchor bolt shall be used in the case of already exists ceiling. For new ceiling, use built-in type bolt or parts prepared in the field.

Before going on installing adjust space between ceiling.

<Installation example>



Note: All the above mentioned parts shall be prepared in field.

Installation of indoor unit

In the case of new ceiling

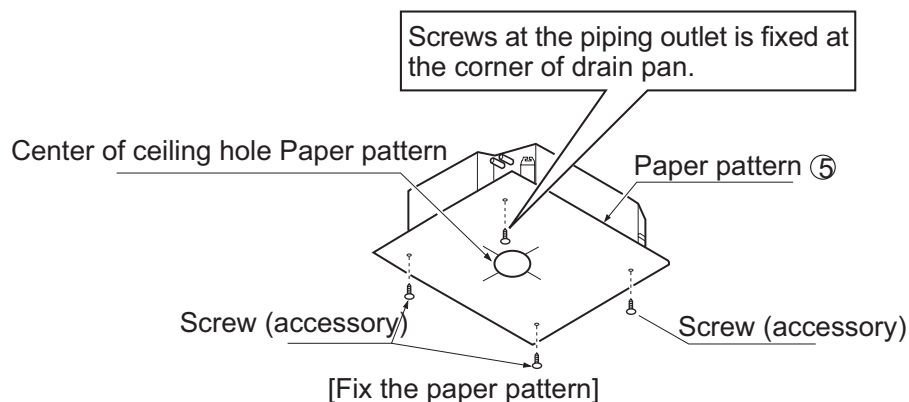
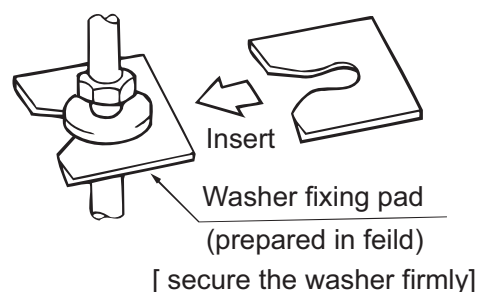
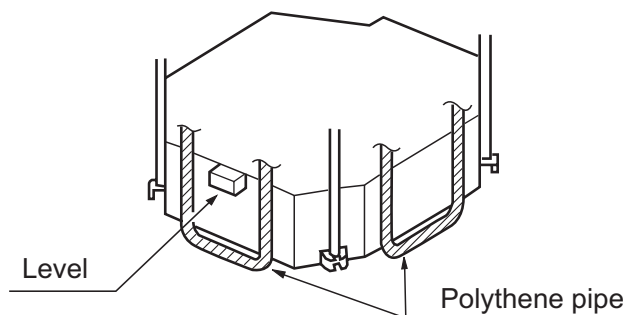
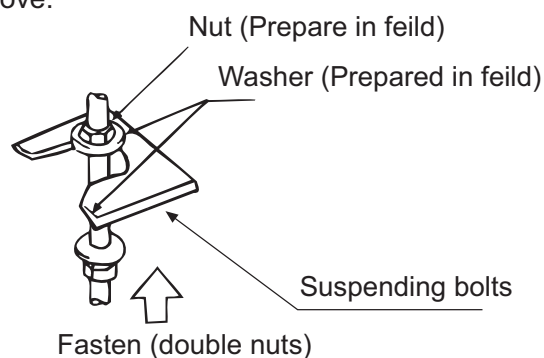
- (1) Install unit temporarily
 - Put suspending bracket on the suspending bolt. Be sure to use nut and washer at both ends of the bracket.
- (2) ● As for the dimensions of ceiling hole, see paper pattern. Ask your real estate dealer for details.
 - Center of the hole is marked on the paper pattern.
 - Center of the unit is marked on the card in the unit and on the paper pattern.
 - Mount paper pattern ⑤ onto unit using 3 screws ⑥. Fix the corner of the drain pan at piping outlet.

< After installation on the ceiling >

- (3) Adjust unit to its right position. (Refer to preparation for the installation-(1))
- (4) Check unit's horizontal level.
 - Watert pump and flating switch is installed inside indoor unit, check four corners of the unit for its level using horizontal comparator or PVC tube with water. (If unit is tilting against the direction of water drainage, problem may occur on floating switch, causing water leakage.)
- (5) Remove the washer moulnting ②, and tighten the nut above.
- (6) Remove the paper pattern.

In the case of ceiling already exists

- (1) Install unit temporarily
 - Put suspending bracket on the suspending bolt. Be sure to use nut and washer at both ends of the bracket. Fix the bracket firmly.
- (2) Adjust the height and position of the unit. (Refer to preparation for the installation (1)).
- (3) Proceed with "In the case of new ceiling".



Refrigerant piping (As for outdoor piping, please refer to installation of outdoor unit)

- Outdoor is precharged with refrigerant.
- Be sure to see the Fig.1, when connecting and removing piping from unit.
- For the size of the flare nut, please refer to Table 1.
- Apply refrigerant oil at both inside and outside of flare nut. Tighten it band tight 3-4 turns then tighten it.
- Use torque specified in Table 1. (Too much force may damage flare nut, causing gas leakage).
- Check piping joints for gas leakage. Insulate piping as shown in Fig. below.
- Cover joint of gas piping and insulator ⑦ with seal.

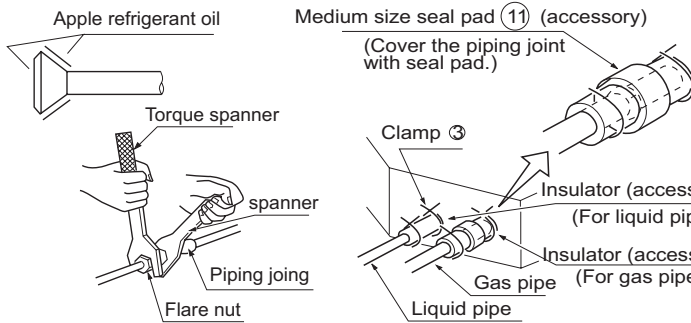


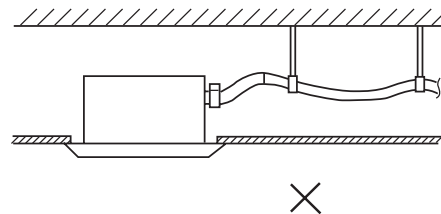
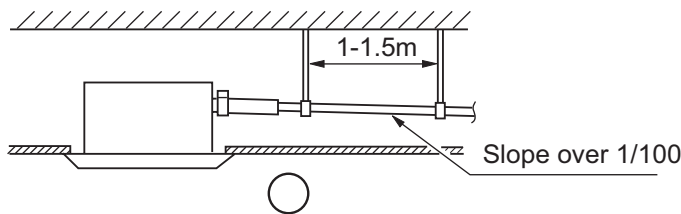
Table 1

| Pipe size | Tighten torque | A(mm) | Flare shape |
|-----------|------------------------------------|-----------|-------------|
| φ6.35 | 1420~1720N·cm (144~176kgf·cm) | 8.3~8.7 | |
| φ9.52 | 3270~3990N·cm (333~407kgf·cm) | 12.0~12.4 | |
| φ15.88 | 6180~7540N·cm (630~770kgf·cm) | 18.6~19.0 | |
| φ19.05 | 9720~11860N·cm (990~1210kgf·cm) | 22.9~23.3 | |

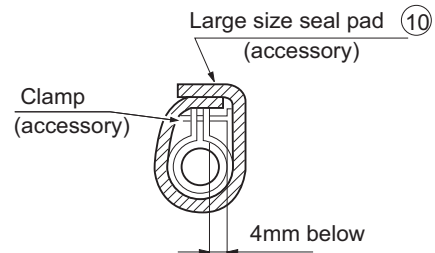
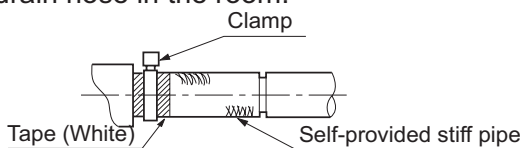
Installation of water drainage pipe

(1) Install water drainage pipe

- Pipe dia, shall be equal or larger than that of unit piping. (pipe of polyethylen; size: 25mm; O.D:32mm)
- Drain pipe should be short, with a downward slope at least 1/100 to prevent air bag from happening.
- If downward slope can't be made, take other measures to lift it up.
- Keep a distance of 1-1.5m between suspending brackets, to make water hose straight.

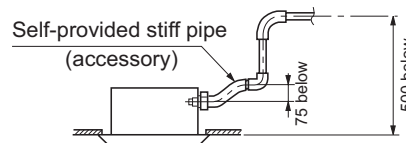
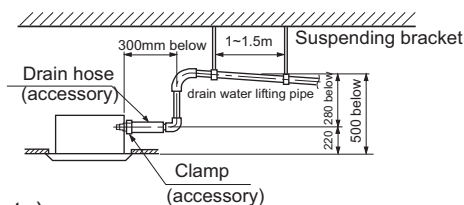


- Use the self-provided stiff pipe and clamp ① with unit. Insert water pipe into water plug until it reaches the white tape. Tighten the clip until head of the screw is less than 4mm from hose.
- Wind the drain hose to the clip using seal pad ⑨. Insulate drain hose in the room.



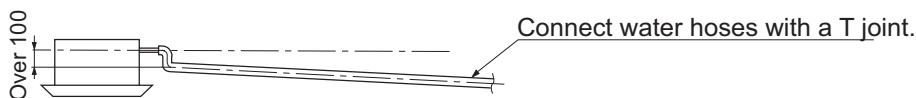
<Cautions for the drain water lifting pipe>

- Installation height shall be less than 280mm.
- There should be a right angle with unit, 300mm from unit.



(Note)

- The slope of water drain hose (1) shall be within 75mm, don't apply too much force on it.
- If several water hoses join together, do as per following procedures.



Specifications of the water hoses shall meet the requirements for the unit running.

(2) Check if water drainage is smooth after installation.

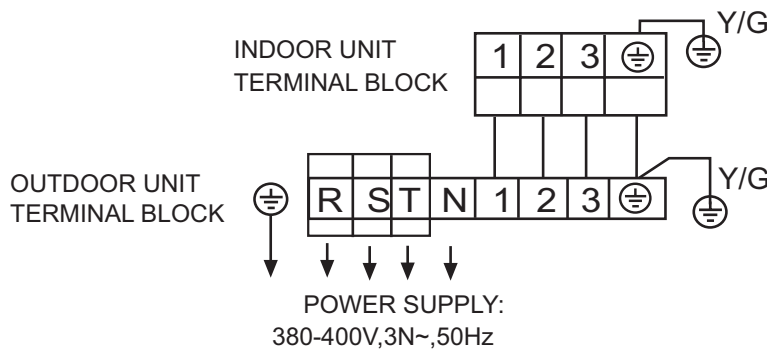
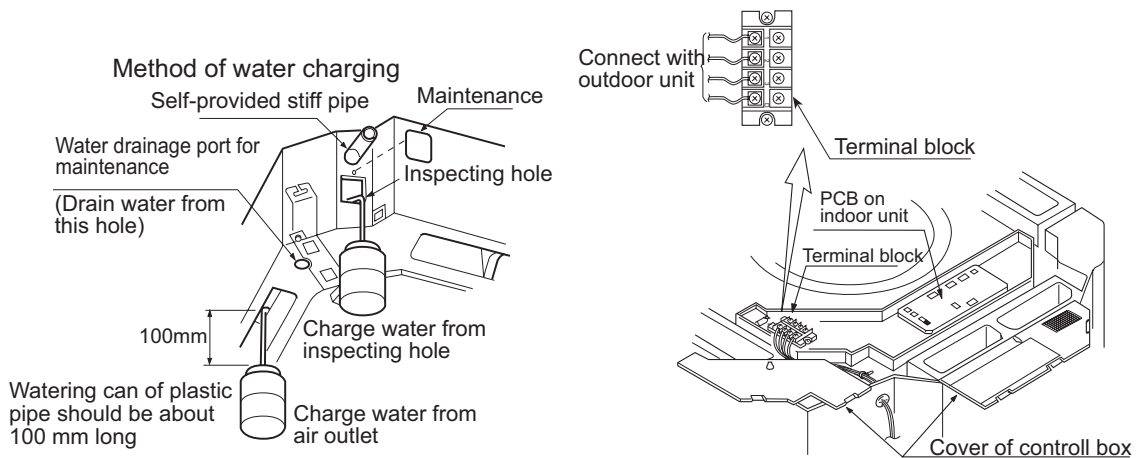
- Charge, through air outlet or inspecting hole, 1200ccd water to see water drainage.

After wiring

Check water drainage in cooling operation.

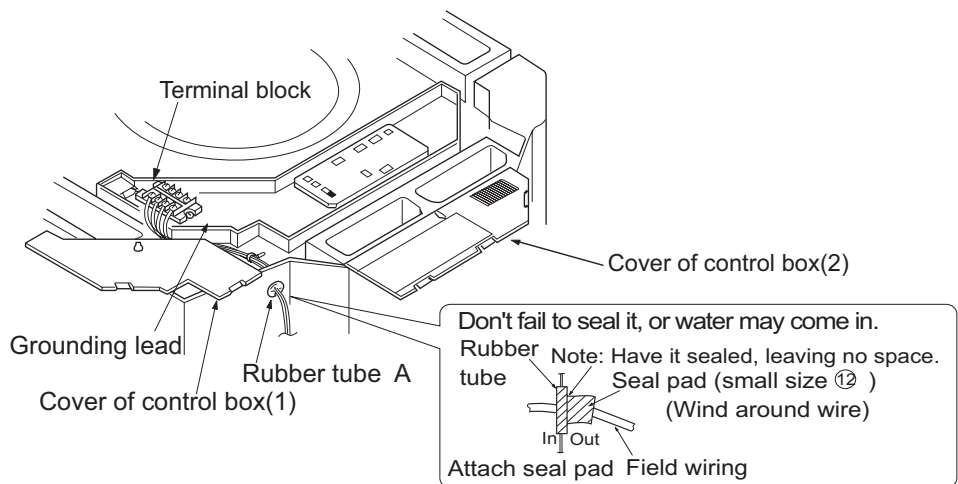
When wiring is not complete

- Remove cover of control box, connect 1PH power to terminal 1 and 2 on terminal block, use remote controller to operate the unit.
- Note, in this operation, fan will be running.
- Upon confirmation of a smooth water drainage, be sure to cut off power supply.



Wiring

- All supplied parts, materials and wiring operation must in appliance with local code and regulations.
- Use copper wire only.
- When make wiring, please refer to wiring diagram also.
- All wiring work must be done by qualified electricians.
- A circuit breaker must be installed, which can cut power supply to all system.
- See Installation Manual of outdoor unit for specifications of wires, circuit breaker, switches and wiring etc.
- Connecting of unit
Remove cover of switch box (1) , drag wires into rubber tube A, then, after proper wiring with other wires, tighten clamp A. Connect wires of correct pole to the terminal block inside.
- Wind seal ⑫ around wires. (Be sure to do that, or, dew may occur).
- Upon connecting, replace control box cover (1) and (2).

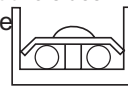


<<WARNING>>

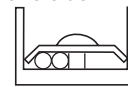
Observe the following when connecting power supply terminal block:

- Don't connect wires of different specifications to the same terminal block.
(Loose wire may cause overheating of circuit)
- Connect wires of same specifications as shown in right Fig.

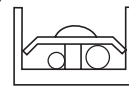
Connect wires of the same specifications at two sides.



Don't connect wires of the same specifications at one side.



Don't connect wires of different specifications.



Wiring example

As for outdoor unit circuit, please see Installation Manual of outdoor unit.

Note: All electric wires have their own poles, poles must match that on terminal block.

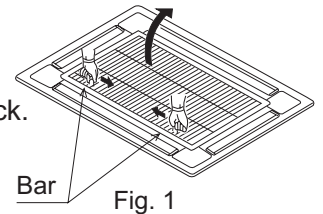


Fig. 1

Installation of ornament panel

Cautions for the installation

- Be sure to show customers Operation Manual and guide them how to operate unit correctly. Before installation, read also the Installation Manual of indoor unit.
- With this ornament, 2 or 3 air flow direction is not available.
Suitable height is 3 m.

Accessory Pad  Pad

1. Prepare ornament panel Handling of ornament panel

- Ornament panel shall not be placed face down or against wall, neither on an uneven object.
- Don't bend carelessly the swing flap, or, problem may occur.

(1) Remove air inlet grill from ornament panel:

- Push in the bar on inlet grill and lift it up. (Refer to Fig. 1)
- Lift it up for about 45 degree and remove it from ornament. Tear off adhesive tape fixing air filter on the back of the air inlet grill. (Refer to Fig. 2)

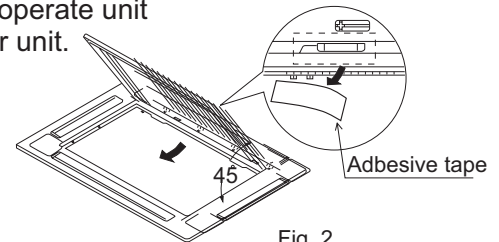


Fig. 2

(2) Remove cover plate at corner

Tear off the adhesive tape, and slide it off. (Refer to Fig. 3)

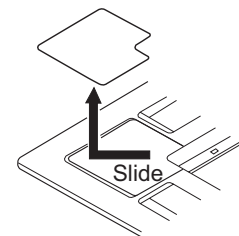


Fig. 3

2. Mounting on high ceiling

- Ornament panel can be mounted on ceiling as high as 3 m.
- Please install pad as accessory.

- Cut open the pad along cutting line. Use part (a) only and discard part (b). (Refer to Fig. 4)
- Install part a of the pad on the place shown in Fig. 5. Refer to Fig. 6.

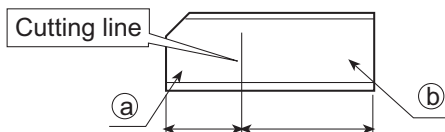


Fig. 4

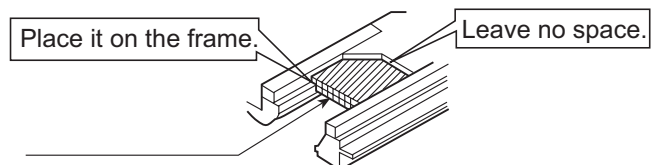


Fig. 6

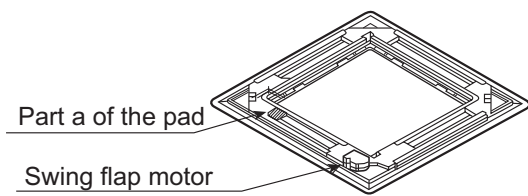


Fig. 5

- (3)Wiring on ornament panel
Connecting of wiring of the swing flap motor on ornament panel. (2 places)
(Refer to Fit . 10)

If connecting is not made, error code (A7) appears on remote controller. So, make proper connecting.

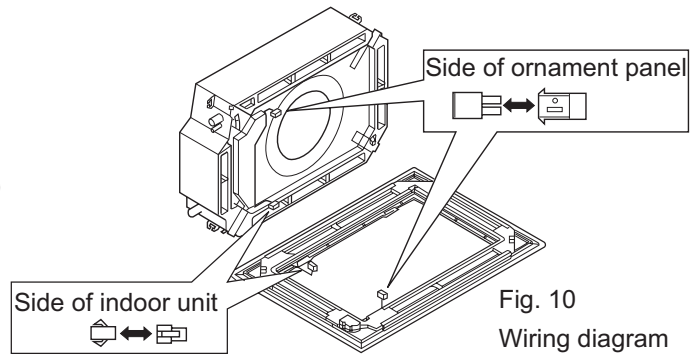


Fig. 10
Wiring diagram

3. Install ornament panel on indoor unit.

- (1) As shown in Fig.7,match the position of swing flap motor with that of the indoor unit piping hole , so that ornament panel can be placed on to indoor unit.
- (2) Installation of ornament panel
 - ① Place the holding ring on swing flao motor side temporarily on hooks of the indoor unit. (2 pcs)
 - ② Put the other two holding rings on the hooks at both side of the indoor unit. (Care should be taken not to push wiring of swing flap motor into seals).
 - ③ Screw in all 4 screws under holding ring for about 15mm. (Panel will rise).
 - ④ Adjust the ornament panel as per Fig. 7 to cover opening on the ceiling.
 - ⑤ Tighten screws to redcne the thickness of seals between ornament and indoor unit to 5-8mm.

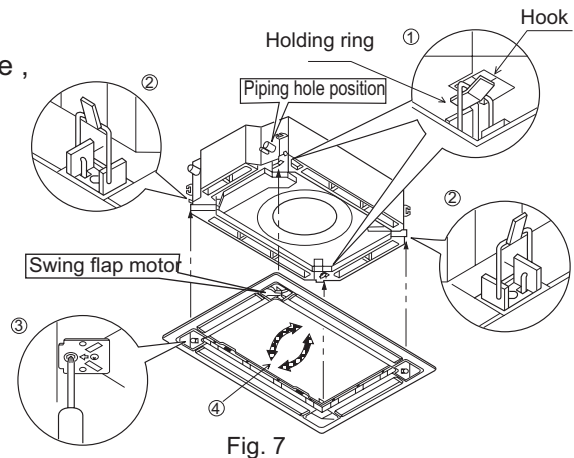
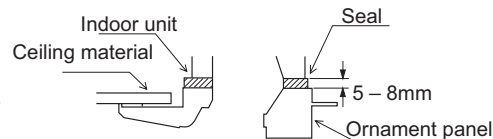


Fig. 7



Caution

If screws are not tighten tight, problems in Fig. 8 might occur. Tighten screws properly.

If there are still space after tightening of screws, please readjust the height of indoor unit. (Refer to Fig. 9)

If indoor unit is at horizontal level and water drainage is smooth, then, indoor unit height can be adjusted throrh holes at corners of ornament panel.

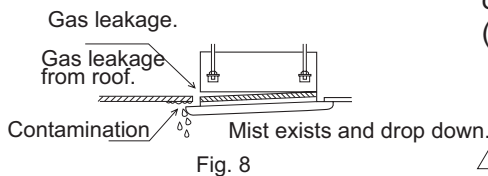


Fig. 8

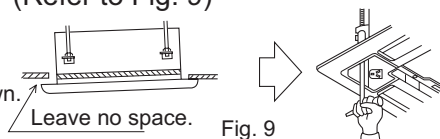


Fig. 9

4. Installation of inlet grill and cover plate

- (1)Installation of inlet grill
Install in reversed order of "Prepare ornament pandl".
Inlet grill can be adjusted into four directions by turning inlet grill. Inlet grill position can be adjusted as per customers request.

When installing inlet grill, take care not to twist wiring of swing flap motor.

- (2) Install cover plate on the corner
- ① As shown in Fig. 11 tie the cover plate onto the bolt on ornament plate.
 - ② Install cover plate onto ornament plate.
(Refer to Fig. 12)

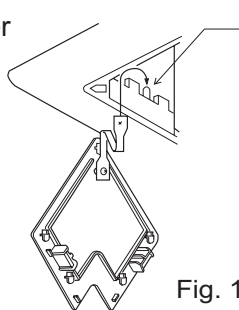
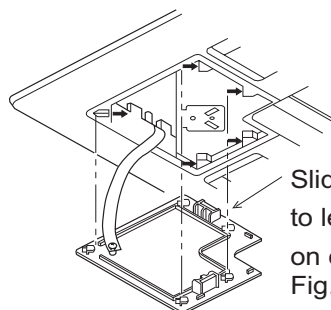


Fig. 11



Slide all five hold rings to let them drop in holes on ornament plate, Fig. 12

Pay special care to the following and check after installation

| Item to be checked | Unproper installation may cause | Check |
|---|--|-------|
| Is indoor unit firmly installed? | Unit might fall down, make vibration or noise. | |
| Is gas leakage check performed? | This may lead to gas shortage. | |
| Is unit properly insulated? | Dew or water drop may occur. | |
| Is water drainage smooth? | Dew or water drop may occur. | |
| Is power voltage meet that stipulated on the nameplate? | Problem may occur or parts got burned. | |
| Is wiring and piping correctly arranged? | Problem may occur or parts got burned. | |
| Is unit safely grounded? | There might be a danger of electric shock. | |
| Is wire size correct? | Problem may occur or parts got burned. | |
| Are there any obstacles on air inlet and outlet grill of indoor and outdoor unit? | This may cause poor cooling. | |
| Is record made for piping length and refrigerant charging amount? | It is hard to control refrigerant charging amount. | |

ATTENTION: after finishing installation, confirm no refrigerant leakage.

5. PCB photo,Wiring diagram and function description

5.1 Outdoor unit

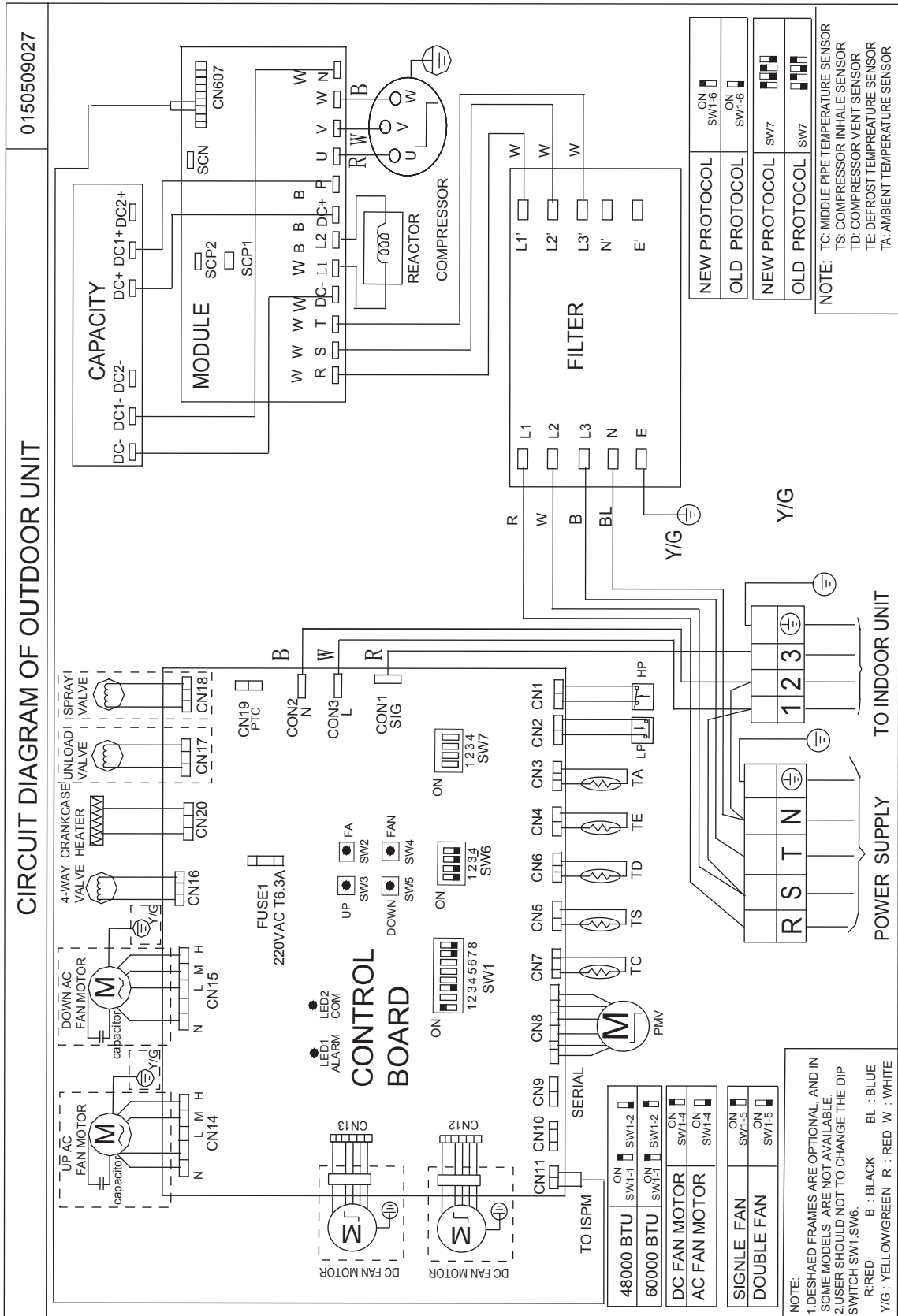
5.1. 1. Outdoor PCB photo

YUDA060 PCB



5.1.2. Wiring diagram

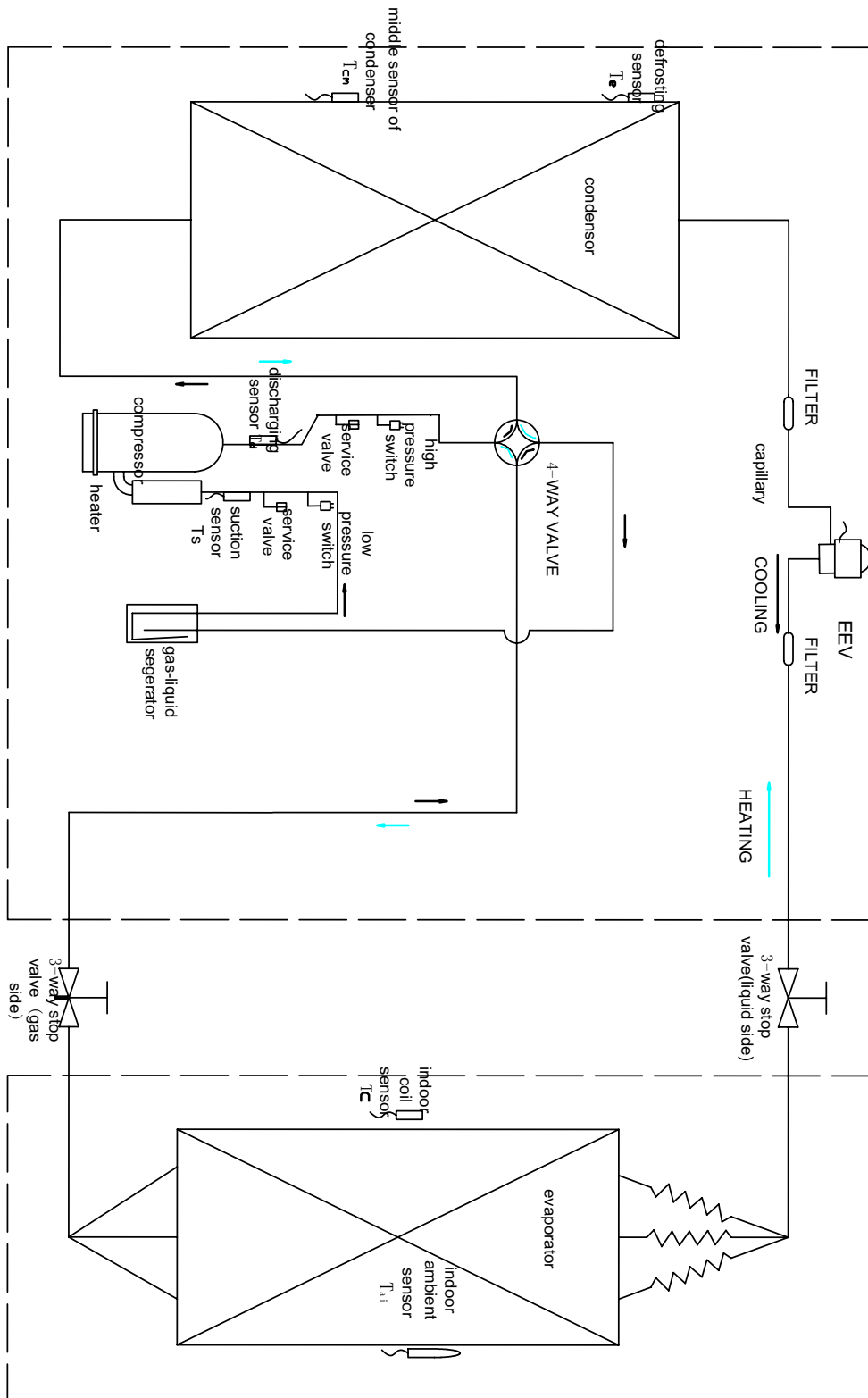
YUDA060



3. Main control functions

3.1 Refrigerant diagram

YUDA060



3.2 Outdoor frequency control

3.2.1 Compressor running frequency range: 30-91RPS.

3.3 Electronic expansion valve (EEV) control:

3.3.1 Electronic characteristic:

| | |
|-----------------|-----------|
| Max. open angle | 500 Pulse |
| Driving speed | PPS |

3.3.2 Initialization of EEV

EEV driving speed: open direction: 32MS; close direction: 32MS

3.3.3 Open angle limit of EEV

| | Unit stop | Adjustable upper limit |
|----------|-----------|------------------------|
| Cool/dry | 250 (E) | 480 (E) |
| heat | 250 (E) | 480 (E) |

3.3.4 6、Standard open angle control

In Cool/Dry mode, standard open angle: outdoor ambient temp. $\geq 22^{\circ}\text{C}$, 260pulse (E)

Outdoor ambient temp. $\leq 22^{\circ}\text{C}$, 210pulse (E)

In heat mode, standard open angle: outdoor ambient temp. $\geq 6^{\circ}\text{C}$, 240pulses (E)

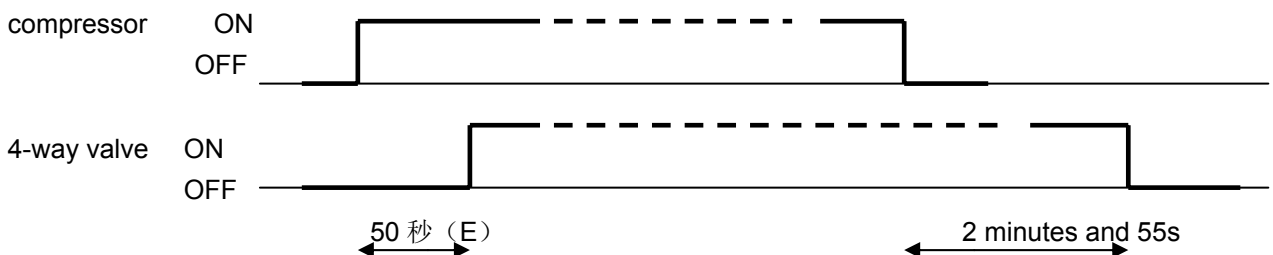
Outdoor ambient temp. $\leq 6^{\circ}\text{C}$, 160pulse (E)

3.3.5 When discharging temp. Td is too high or too low, modify the EEV angle

| mode | Modification process | Max. modification |
|---------|---|-------------------|
| Cooling | If TD > 106 degree and -1 degree / 2 minutes, open angle keeps between 106-50 . | -3 |
| Cooling | If TD < 50 degree and +1 degree / 2 minutes, open angle keeps between 50-106. | +3 |
| Heating | If TD > 100 degree and -1 degree / 2 minutes, open angle keeps between 100-50 . | -3 |
| Heating | If TD < 50 degree and +1 degree / 2 minutes, open angle keeps between 50-100 | +3 |

3.4 4-way valve control in heating

50s later after compressor start up, the 4-way valve start to operate. When compressor stops or unit is not in heating mode, the 4-way valve is closed after compressor stop for 2 minutes and 55s.



3.5 Control of defrosting in heating

In heating mode, defrosting temp. sensor Te will check the frosting condition of outdoor heat

exchanger and make defrosting control.

3.5.1 Enter condition:

After the unit is in heating for 10 minutes and compressor run for 45 minutes in all, according to check the defrosting temp. sensor T_e and outdoor ambient temp. sensor T_{ao} , if they can meet the following condition, entering in defrosting operation.

- 1、 $5^{\circ}\text{C (E)} < T_{ao}$, $T_e \leq -6^{\circ}\text{C (E)}$;
- 2、 $-6^{\circ}\text{C (E)} \leq T_{ao} \leq 5^{\circ}\text{C}$, $T_e \leq C \times T_{ao} - \alpha$;

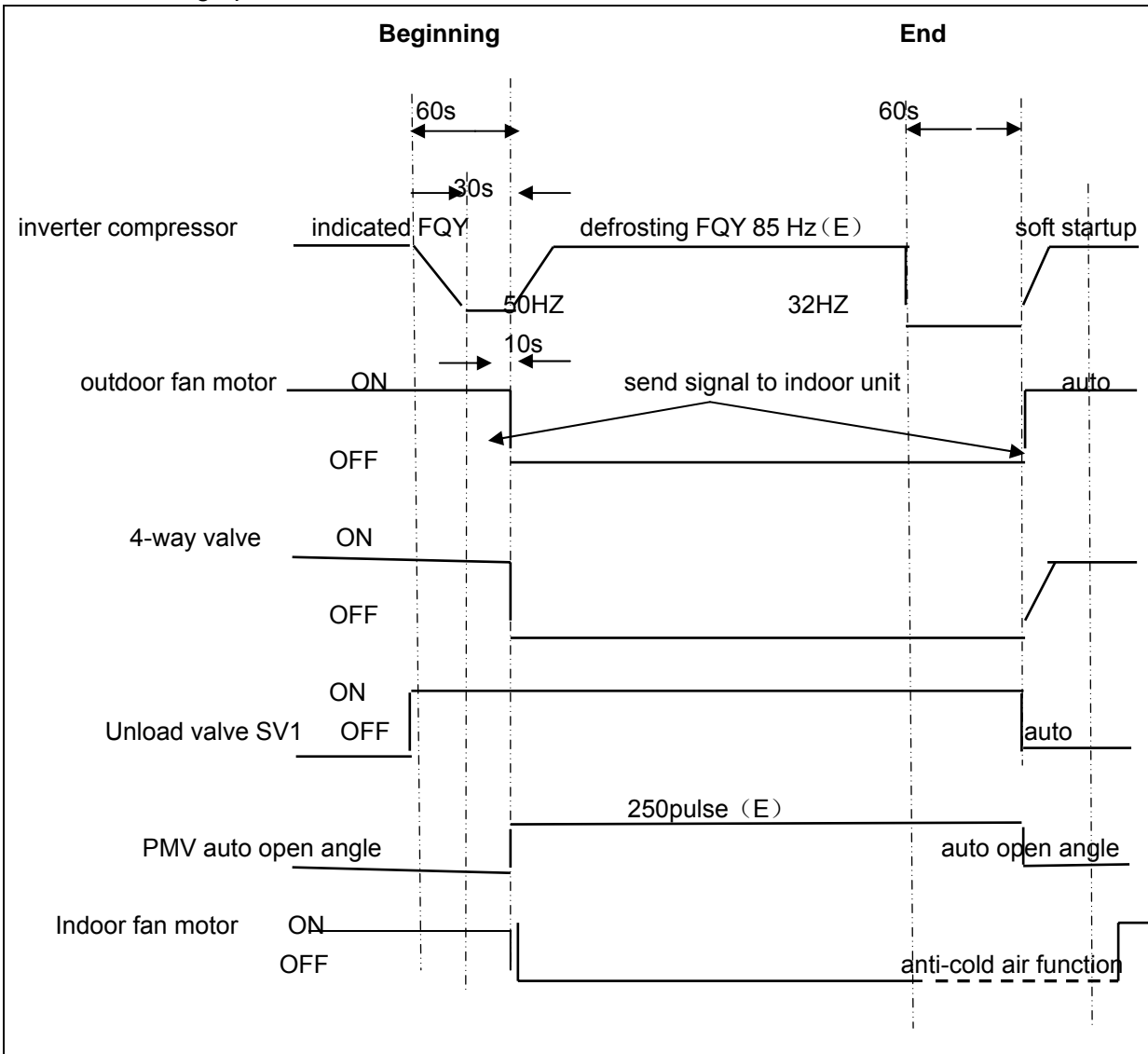
Herein : $\alpha = 8^{\circ}\text{C (E)}$; C : $T_{ao} < 0^{\circ}\text{C}$, $C = 0.8$; $T_{ao} \geq 0^{\circ}\text{C}$, $C = 0.6$

3. $T_{ao} < -6^{\circ}\text{C}$, $T_e \leq -15^{\circ}\text{C (E)}$ and defrosting compressor run for 48 minutes in all.

3.5.2 Cancel condition:

It will take max. 10 minutes from beginning defrosting to quit it. T_e sensor will measure the condition of outdoor heat exchanger, if the temp. is over 10°C for 60s or is up to 14°C for 30s, the defrosting will be over.

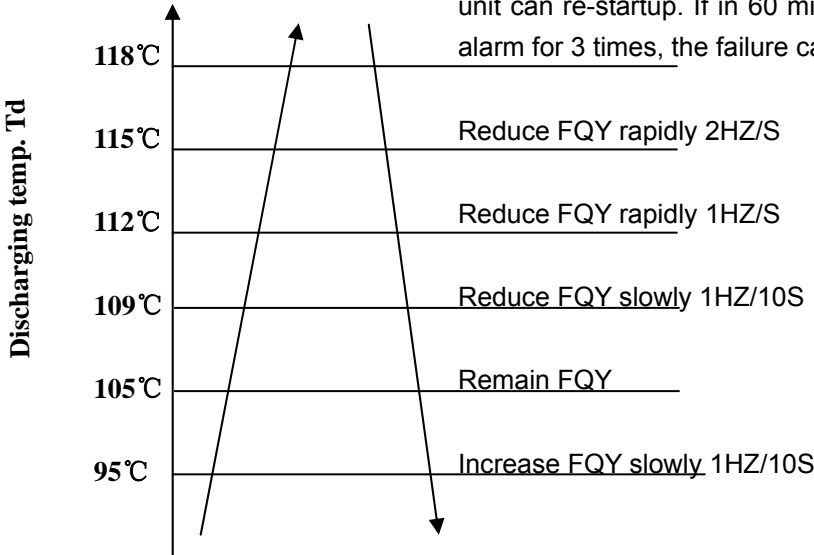
3.5.3 Defrosting operation flow chart:



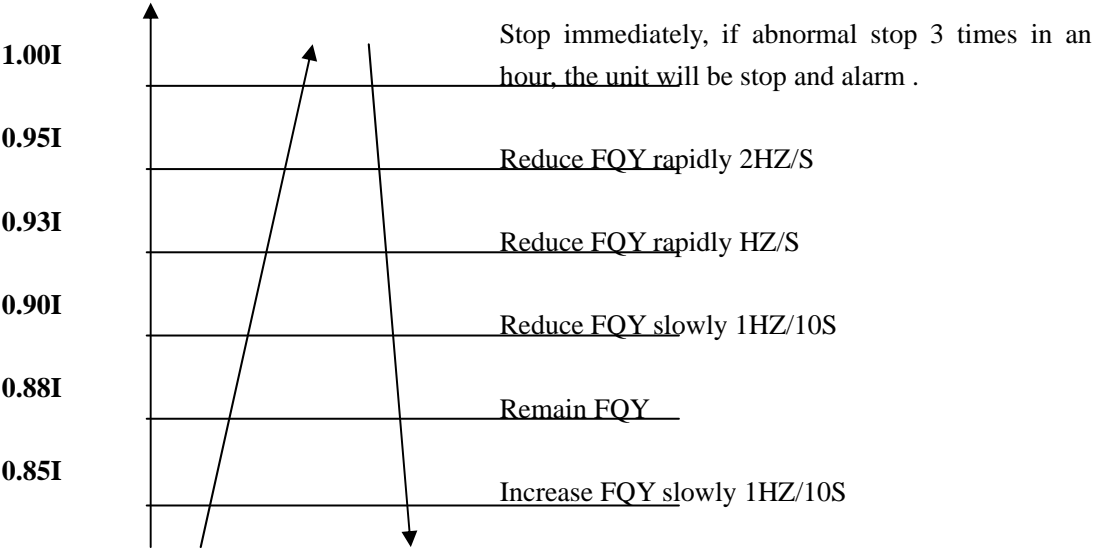
3.6 Frequency control when Td is too high

Purpose : make compressor frequency control if the discharging temp. is too high, to low the discharging temp. efficiency and ensure the system can run normally.

If keeps for 10s, the unit stops. 3 minutes later, the unit can re-startup. If in 60 minutes the unit occurs alarm for 3 times, the failure can be eliminated



3.7、 Frequency control when there is CT over current



Stop immediately, if abnormal stop 3 times in an hour, the unit will be stop and alarm .

3.8 Oil return operation control

3.8.1 Entering condition

When the compressor running frequency is lower than 58Hz continuously in all and outdoor unit Tcm is lower than 50 degree for 5 hours, the system will enter oil return operation. In the course of mode changeover, manual unit stop or protective unit stop, the time will be accumulative. After compressor restarts up, the time will counted continuously. In counting time for 5 hour, if the compressor running frequency is over 80Hz for 10 minutes continuously, the time will be cleared. Also after the heating defrosting , the time will be cleared.

3.8.2 Procedure

Cooling mode: refer to “the oil return procedure in cooling mode”

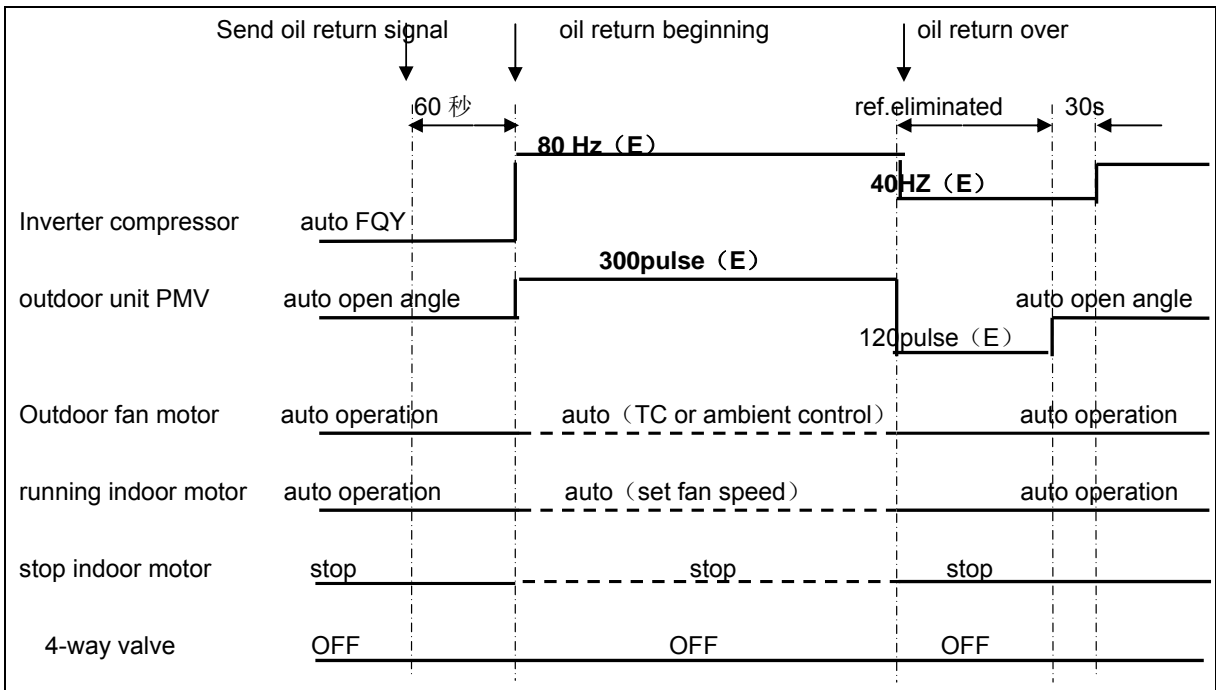
Heating mode: refer to “the oil return procedure in heating mode”

3.8.3 The protection treatment in oil return operation:

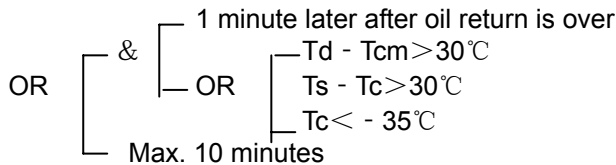
In the course of cooling oil return, because of all kinds of protection or abnormal unit stop, after the unit restart, the time will not be cleared, the system need another oil return operation. In the refrigerant flow course in oil return of cooling mode or after oil return, and within 5 minutes after the refrigerant being eliminated is over, the anti-freeze protection and low pressure protection are invalid, other protection is valid.

In the course of heating oil return ,because of all kinds of protection or abnormal unit stop, the system need not another oil return operation after the unit stop for 3 minutes and enter in heating mode directly. In the course of changing to cooling oil return, the anti-freeze protection and low pressure protection are invalid, other protection is valid.

Oil return procedure in cooling mode:

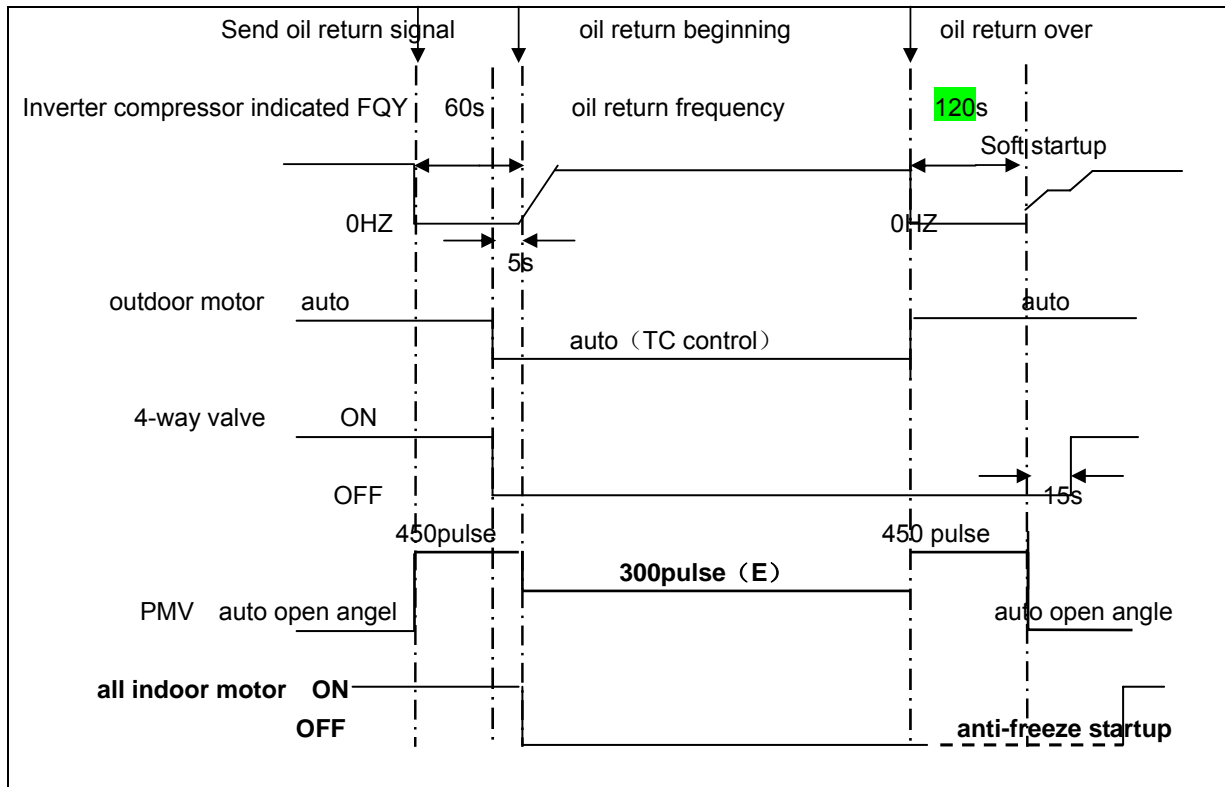


Quit condition of oil return:



Oil return procedure in heating mode:

Commercial Air Conditioner

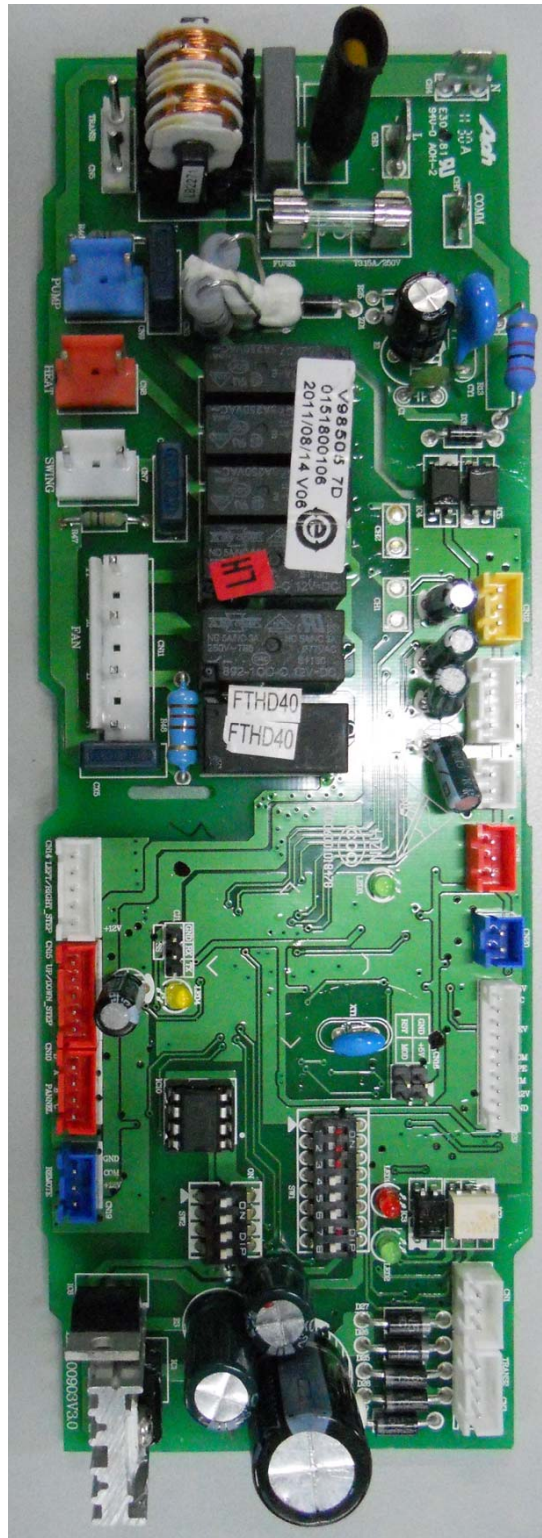


Quit condition of oil return

- OR
- Max. 9 minutes (E)
 - &
 - OR
 - $T_d - T_{cm} < 20^\circ\text{C}$ for 30s (5 minutes later, begin to count)
 - $T_s - T_c < 15^\circ\text{C}$ for 30秒 (5 minutes later, begin to count)
 - Running for min. 5 minutes (E)

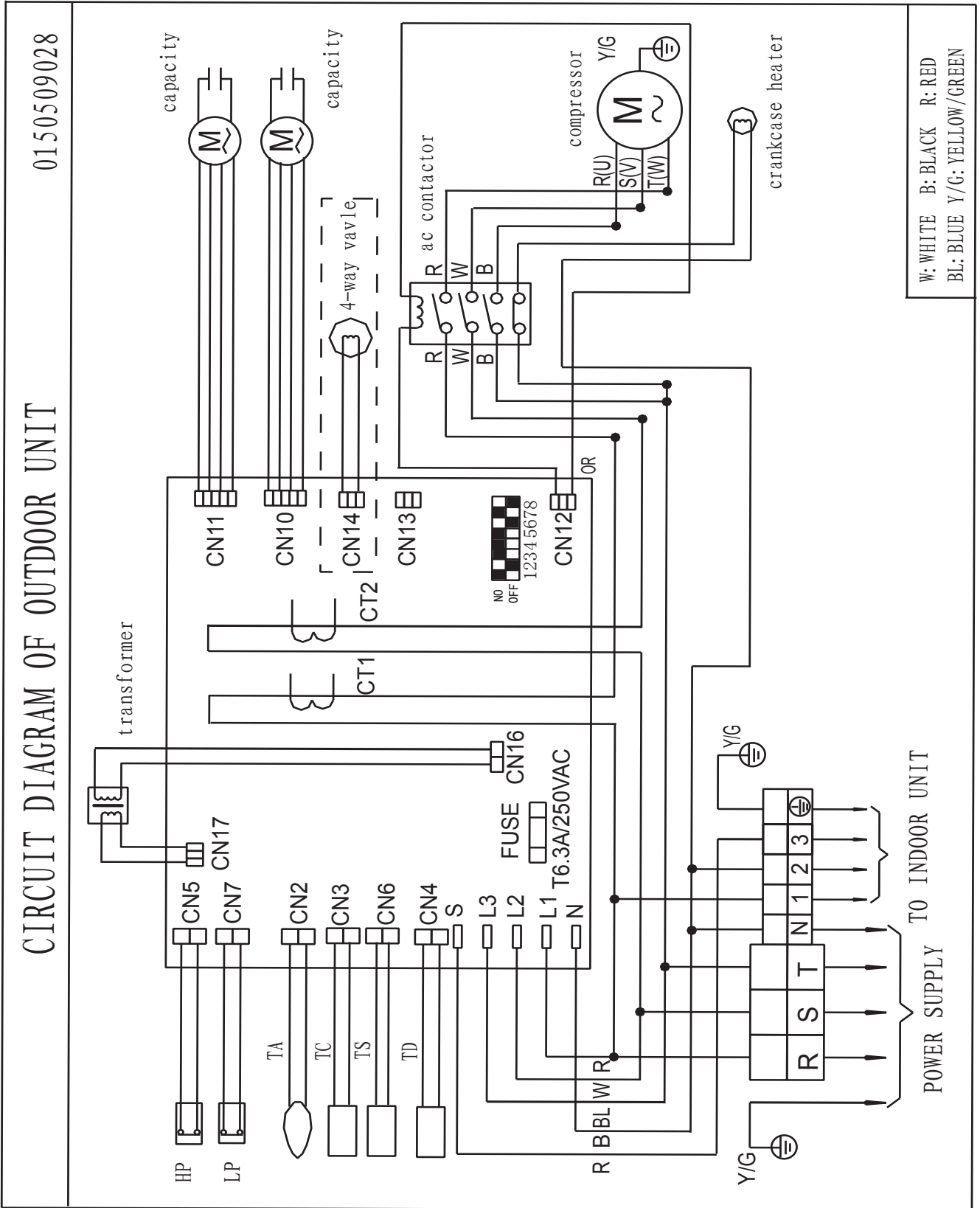
5.2 Indoor unit

5.2.1 PCB for indoor unit



5.2.2.

YUDA060



2. Sign definition:

| Indoor | | | | outdoor | | | | | |
|--------------------|-------------------|------------------|----------------|---------------|------------------------------|---------------------|---------------|--------------------------|------------------------------|
| Tai | Tc1 | Tc2 | Tm | Tao | Toci | Tc | Te | Ts | Td |
| Ambient temp. | Outlet pipe temp. | Inlet pipe temp. | mid coil temp. | Ambient temp. | Thick pipe of heat exchanger | mid condenser temp. | Defrost temp. | Compressor suction temp. | Compressor discharging temp. |
| Tcomp1,2 | | | Tset | | | | | | |
| Temp. compensation | | | Set temp. | | | | | | |

3. Dry operation

$T_{ai} < 16^{\circ}\text{C}$, indoor unit stops running and sends stop-unit signal to outdoor.

$T_{ai} \leq T_{set}$, indoor motor runs at low speed and sends stop-unit signal to outdoor.

4. Fan operation

Indoor fan motor will run as the fan speed set on the remote controller or the wired controller and indoor unit will send the stop-unit signal to outdoor.

5. Auto operation

5.1 If the unit enters Auto mode for the first time, the system will adjust the operation mode according to the room temp. and the set temp.

When $T_{ai} \geq T_{set}$, entering auto cooling mode;

When $T_{ai} < T_{set}$, entering auto heating mode.

5.2 Auto cooling mode is as the same as the cooling mode. After the thermostat is OFF for 15 minutes, if $T_{ai} + 1 + T_{comp2} < T_{set}$, the unit will enter auto heating mode, or the unit will still stay at auto cooling mode and stop when it reaches the set temperature; while the indoor motor will be at low speed.

5.3 Auto heating mode is as the same as the heating mode. After the thermostat is OFF for 15 minutes, if $T_{ai} \geq T_{set} + 1 + T_{comp1}$, the unit will enter auto cooling mode, or the unit will still stay at auto heating mode;

5.4 In this mode, the Sleep function is available, run as cooling sleep in cooling mode and as heating sleep in heating mode. Once sleep mode is set, the mode will not change after the unit stops for 15 minutes when it arrives T_{set} .

5.5 Mode conversion will be confirmed after compressor has stopped for 10 minutes.

6. Abnormal operation

6.1 When outdoor modes from the request of indoor unit conflict, the one entering firstly will take priority.

6.2 After indoor receives the ON command from wired controller, it will firstly confirm the outdoor current operation mode. If they are the same modes, indoor unit will run as the request of remote controller. If they are different modes, the system will forbid to operate, and indoor will keep the OFF mode and send the "standby" signal to wired controller until outdoor stops or outdoor mode the requested mode of wired controller are the same, the unit will run as the requested mode of wired controller.

6.3 After indoor receives the ON command from remote controller, it will firstly confirm the outdoor current operation mode. If they are the same mode, indoor unit will run as the request of remote controller. If they are different modes, the system will forbid to operate, and indoor will keep the OFF mode. After setting on remote controller, if the buzzer sounds two times, that shows abnormal operation. Indoor will run until the outdoor mode and the requested mode of remote controller are the same.

6.4 In AUTO mode, when the indoor unit occurs abnormal operation, the indoor unit will keep OFF state, and the buzzer will not sound until the outdoor mode and the requested mode of indoor unit are the same.

6.5 COOL (included AUTO COOL), DRY, FAN are not abnormal mode.

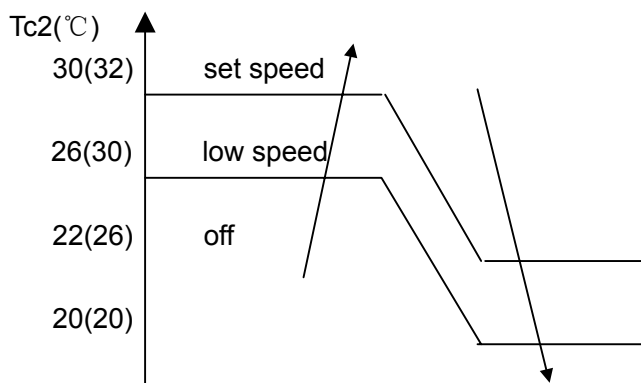
6.6 HEAT and FAN are not abnormal mode.

7. Control for discontinuous operation

After the unit starts up in cooling/heating mode, in 5 minutes, the compressor run/stop will not be controlled by the room temp., but after changing the set temp., if compressor stop condition can be met, the system will stop compressor immediately.

8. Anti-cold air control

In heating mode, after compressor startup, the system will control indoor fan motor according to indoor coil temperature. Detailed operation is as below:



Note:

- 1) The data in the parentheses is the control point when $T_{ao} > 10^{\circ}\text{C}$;
- 2) Indoor unit will send "pre-heat" signal to wired controller in anti-cold air period.

9. Fan motor control in defrosting

9.1 On receiving outdoor defrosting signal, indoor unit will stop after blowing remaining heat at slow speed for 20 seconds.

9.2 In defrosting period, indoor fan motor stops running.

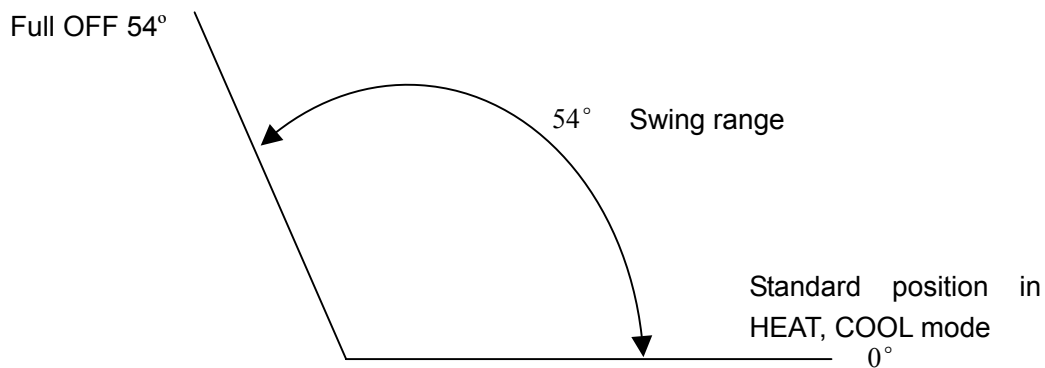
9.3 Defrosting is over, and indoor motor will run as anti-cold air state.

10. Blowing remaining heat operation

When the unit shuts off in heating mode or the thermostat is OFF, indoor motor will stop running after running at low speed for 30 seconds.

11. Swing motor control

Indoor unit will control the swing motor according to the swing signal from the wired controller.



12. Water pump control

12.1 Water pump will be electrified when indoor unit enters non-heating mode until indoor unit stops. 5 minutes later after indoor unit stops, water pump will stop.

12.2 When indoor unit is in heating mode, water pump will not operate.

12.3 In OFF state and in any mode, once float switch signal is measured, indoor unit will send OFF signal to outdoor and send the failure code of drainage system to the wired controller, then the water pump will work until the float switch signal is cancelled. After water pump is forced to run for 5 minutes, indoor unit will be back to normal state.

13. Compulsory defrosting operation

13.1 After indoor receives the compulsory defrosting signal, it will send continuously the signal to outdoor for 10 times, in this period, indoor unit will work normally and it will enter defrosting operation until it receives the enter-defrost signal from outdoor unit.

13.2 Wired control type: In heating mode, make a jumper for D2 to enter compulsory defrosting.

13.3 Remote control type: In heating mode, high speed, 30°C, press SLEEP button 6 times, and the buzzer will sound 3 times, then enter the manual defrosting.

14. Trial operation

14.1 Enter condition

A. Wired control type: In OFF state of COOL or HEAT mode, press ON/OFF button for over 5 seconds to enter the cooling or heating trial operation;

B. Remote control type: In OFF state, keep pressing ON/OFF button until 5 seconds later, the buzzer sounds twice, then enter the cooling or heating trial operation;

14.2 Response in trial operation

A. Cooling trial operation: indoor sends S-CODE=SD to outdoor, indoor: at high speed, set temp: 16°C;

B. Heating trial operation: indoor sends S-CODE=SF to outdoor, indoor: at high speed, set temp: 30°C;

C. In this period, anti-freezed and overheat functions are invalid.

14.3 Quit condition

A. Receiving the signal of cancelling trial operation from wired controller or remote controller;

B. After trial operation has run for 20 minutes, it will quit trial operation automatically and enter the normal mode with the set temp.: 24°C.

15. Timer operation

15.1 Wired control type: wired controller will control the unit ON/OFF;

15.2 Remote control type: indoor unit will confirm the unit ON or OFF according to the current clock and the timer clock set by remote controller. When setting timer function, the timer LED will be ON.

16. SLEEP function

16.1 Wired control type unit is without sleep function;

16.2 Remote control type unit consists of cooling sleep and heating sleep, after the sleep is set, the unit will change mode; the sleep will begin to count.

A. In cooling/dry mode, after running for 1 hour, the set temp. will increase 1°C, another 1 hour later, the set temp. will increase 1°C again, then 6 hours (or set time-2) later, it will stop.

B. In heating mode, after running for 1 hour, the set temp. will reduce 2°C, another 1 hour later, the set temp. will reduce 2°C again, then 3 hours later, the set temp. will increase 1°C, and another 3 hours(or set time-5), it will stop.

C. When setting sleep function, indoor motor is forced at low speed.

17. Healthy negative ion function

When receiving the healthy signal from the wired controller or remote controller, if fan motor is running, the negative ion will work;

If the fan motor stops, the negative ion generator will stop.

18. Auto-restart function

18.1 Wired control type: jumper J07 at high level, auto-restart is available, if at low level, auto-restart is cancelled; when out of factory, the unit is with auto-restart function.

18.2 Remote control type: In 5 seconds, press SLEEP button (press SWING if without SLEEP button) 10 times continuously, the buzzer will sound 4 times and enter auto-restart function. In 5 seconds, press SLEEP 10 times continuously, the buzzer will sound twice and quit auto-restart function.

18.3 Memory information: ON/OFF state, mode, fan speed, set temp., health, swing position;

18.4 If the memory includes timer or sleep function, when being electrified again, timer and sleep will be cancelled;

18.5 If the memory includes auto mode, when the jumper shows cooling only type, auto mode will change to cooling mode.

19. Room card function

The unit adopts room card function (220VAC input), which only make ON/OFF control. When it is connected, the unit is ON; when it is disconnected, the unit is OFF, and the other parameters will be as default or the data in memory.

19.1 When room card function is available

The central control, remote control/wired control and the room card are "AND" logical relationship. On the condition that the room card is connected, the unit can be controlled by remote controller or wired controller; indoor unit will run at the set state by the central controller, remote controller or wired controller; otherwise, if room card is not connected, the unit can not be controlled.

19.2 When room card function is not available

The unit will be controlled by the remote controller, the wired controller or the central controller.

20. Setting method of temperature compensation Tcomp

A. Wired control type unit: this function is not available

B. Remote control type unit:

In cooling or heating mode, there is always with the temp. compensation.

In heating mode: In 24°C heating mode, press SLEEP(or SWING) button 7 times continuously within 5 seconds, indoor buzzer sounds twice, that shows temp. compensation works. Switch on the unit in heating mode by the remote controller, press TEMP button to set the set temp., so temperature compensation=the current set temp. - 24°C. For example, if the set temp. is 24°C, the temp. compensation is 0°C; if the set temp. is 25°C, the temp. compensation is 1°C. The max. compensation temp. is 6°C (the set temp. is 30°C). If you want to cancel it, set the temp. as 24°C.

In cooling mode: In 24°C cooling mode, press SLEEP(or SWING) button 7 times continuously within 5 seconds, indoor buzzer sounds twice, that shows temp. compensation works. Switch on the unit in heating mode by the remote controller, press TEMP button to set the set temp., so temperature compensation=24°C-the current set temp. . For example, if the set temp. is 24°C, the temp. compensation is 0°C; if the set temp. is 23°C, the temp. compensation is -1°C. The max. compensation temp. is -8°C (the set temp. is 16°C). If you want to cancel it, set the temp. as 24°C.

So the temp. compensation range is +8°C~-6°C.

21. Anti-freezed protection

When compressor has run for over 5 minutes, to prevent indoor evaporator freezing (in cooling/dry mode), if indoor mid-coil temp. is below -1 degree for over 5 minutes, indoor EEV will close, and compressor will stop. When indoor mid-coil temp. is over about 10 degree, the unit will be normal.

22. Overload protection in heating mode

It is valid only in heating mode, if indoor mid-coil temp. is over about 65 degree continuously for 10 seconds, indoor will stop; while when indoor mid-coil temp. is below 52 degree for 3 seconds, indoor will resume.

6. Diagnostic code and trouble shooting

6.1.1. Diagnostic code for outdoor unit

YUDA060

| PRODUCT DIAGNOSIS PROCEDURE | | | |
|--|---|--|-------------------------|
| Malfunction Code | Trouble Description | Analyze and diagnose | Remark |
| 1 | EEPROM faulty | | Non-resumable |
| 2 | Over current protection in course of compressor frequency going down detected by software | If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm | Non-resumable resumable |
| 3 | protection of over current in course of compressor fixed speed operation | Module abnormal, if it occurs 3 times in 1 hour, confirm the failure | Non-resumable |
| 4 | Communication abnormal between connecting board and module | It can not get the feedback from module after communicating for 4 minutes | resumable |
| 5 | Compressor overcurrent | If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm | Non-resumable |
| 7 | Compressor blocked or abnormal operation | If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm | Non-resumable |
| 8 | Protection of discharging temp. too high | After compressor starts up, if TD is over 115 μ , 10 seconds later compressor stops, if it occurs 3 times in 1 hour, confirm the failure | Non-resumable |
| 9 | DC fan motor faulty | If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm | Non-resumable |
| 10 | Outdoor defrosting temp. sensor abnormal | Sensor is detected below 20 or over 1000 for 60 seconds, but in cooling mode, this sensor failure will not be dealt with, and in defrosting or within 6 minutes after defrosting, it will not alarm. | resumable |
| 11 | Suction temp. sensor abnormal | If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm | resumable |
| 12 | Ambient temp. sensor abnormal | Sensor is detected below 20 or over 1000 for 60 seconds, but in frosting or within 6 minutes after defrosting, it will not alarm | resumable |
| 13 | Discharging temp. sensor abnormal | After compressor running for 3 minutes, Sensor is detected below 20 or over 1000 for 60 seconds | resumable |
| 15 | communication between indoor and outdoor abnormal | Indoor unit can not be inspected for 4 minutes continuously | resumable |
| 16 | Lack of refrigerant or discharging pipe blocked | If it occurs 3 times in 1 hour, confirm the failure. | Non-resumable |
| 17 | 4-way vavle converse abnormal | If it occurs 3 times in 1 hour, confirm the failure. | Non-resumable |
| 18 | Over current in course of compressor frequency going down | If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm | Non-resumable |
| 19 | Over current protection in course of compressor fixed speed operation detected by software | If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm | Non-resumable |
| 23 | Module temp. too high or module temp. sensor abnormal | If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm | Non-resumable |
| 24 | Over current protection in course of compressor frequency going up /down detected by software | If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm | Non-resumable |
| 27 | Without connection to compressor | If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm | Non-resumable |
| 28 | High voltage protection for module | From module board | resumable |
| 29 | Low voltage protection for module | From module board | resumable |
| 38 | Communication abnormal among modules | It can not detect the input signal for 2 minutes | Non-resumable |
| 39 | Mid-condenser temp. sensor abnormal | Sensor is detected below 20 or over 1000 for 60 seconds, but in defrosting or within 6 minutes after defrosting, it will not alarm | resumable |
| 43 | Low pressure switch abnormal | After compressor running for 3 minutes, if switch is detected unconnected for 30seconds, it alarms, if it occurs 3 times in 1 hour, confirm this failure, if it occurs 3 times in 1 hour, confirm the failure, but in defrosting or within 6 minutes after defrosting, it will not alarm | Non-resumable |
| 44 | High pressure switch abnormal | After compressor running for 3 minutes, if switch is detected unconnected for 30seconds, it alarms, if it occurs 3 times in 1 hour, confirm this failure, or if Tcm is over 68 degree for 10 seconds for 3 times | Non-resumable |
| <p>Note: The flash times of outdoor mainboard(ECU) LED1 indicates the malfunction code. for example, LED1 flash 3 times, the malfunction code is 3. The flash times or malfunction code of indoor unit can also indicates the malfunction code too.the method to confirm please refer to indoor unit manual.</p> | | | |

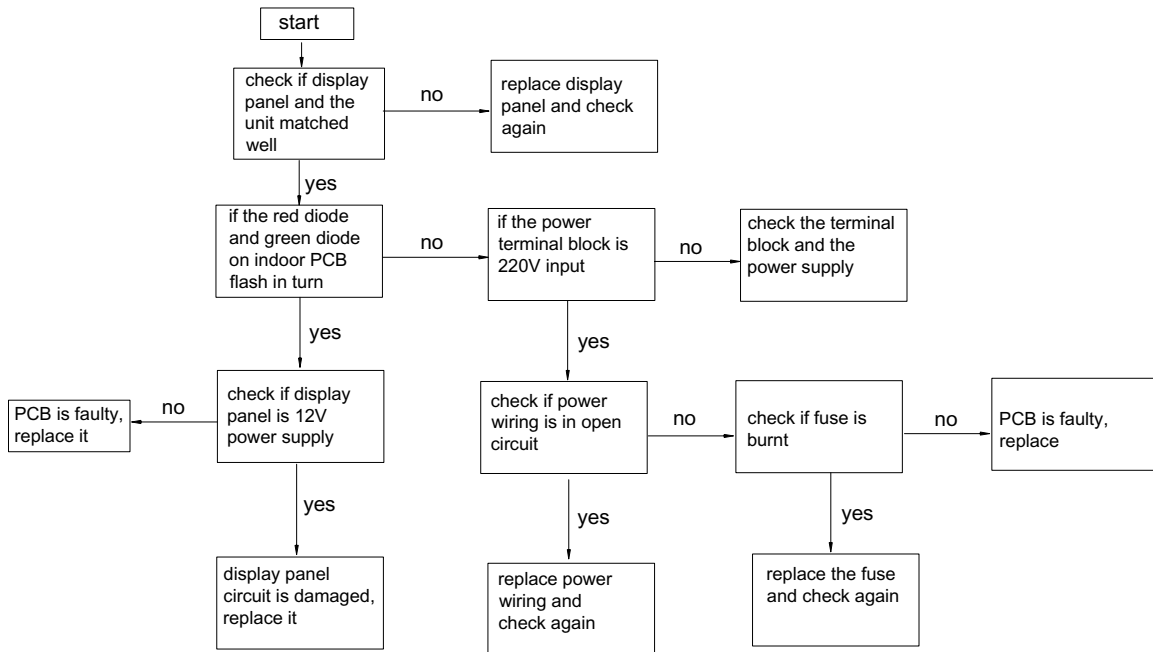
6.1.2. Diagnostic code for indoor unit

| Failure code(from receive board) | | Failure code(from wired controller) | Failure code(from panel controller) | trouble shooting | Possible reasons |
|--|----------------------------|-------------------------------------|--------------------------------------|--|---|
| Flash times of timing LED(or indoor PCB) | Flash times of Running LED | | | | |
| 0 | 1 | 01 | E1 | temperature sensor Ta faulty | Sensor disconnected, or broken, or at wrong position, or short circuit |
| 0 | 2 | 02 | E2 | temperature sensor Te faulty | Sensor disconnected, or broken, or at wrong position, or short circuit |
| 0 | 4 | 04 | F8 | EEPROM WRONG | Faulty indoor unit PCB |
| 0 | 7 | 07 | E9 | Abnormal communication between indoor and outdoor units | Wrong connection, or the wires be disconnected, or wrong address setting of indoor unit, or faulty power supply or faulty PCB |
| 0 | 8 | 08 | E8 | Abnormal communication between indoor wired controller and indoor unit PCB | Abnormal communication between indoor wired controller and indoor unit PCB |
| 0 | 12 | 0C | E0 | Drainage system abnormal | Pump motor disconnected, or at wrong position, or the float switch broken down, or the float switch disconnected, or at wrong |
| 0 | 13 | 0D | EF | zero cross sigal wrong | zero cross sigal detected wrong |
| 0 | 16 | 10 | F3 | indoor mode abnormal | different from outdoor unit mode |
| 2 | 1 | 15 | / | outdoor unit abnormal | refer to the outdoor unit trouble shooting list |
| 2 | 2 | 16 | / | outdoor unit abnormal | |
| 2 | 4 | 18 | / | outdoor unit abnormal | |
| 2 | 5 | 19 | / | outdoor unit abnormal | |
| 2 | 7 | 1B | / | outdoor unit abnormal | |
| 2 | 8 | 1C | / | outdoor unit abnormal | |
| 2 | 9 | 1D | / | outdoor unit abnormal | |
| 3 | 0 | 1E | / | outdoor unit abnormal | |
| 3 | 1 | 1F | / | outdoor unit abnormal | |
| 3 | 2 | 20 | / | outdoor unit abnormal | |
| 3 | 3 | 21 | / | outdoor unit abnormal | |
| 3 | 5 | 23 | / | outdoor unit abnormal | |
| 3 | 6 | 24 | / | outdoor unit abnormal | |
| 3 | 7 | 25 | / | outdoor unit abnormal | |
| 3 | 8 | 26 | / | outdoor unit abnormal | |
| 3 | 9 | 27 | / | outdoor unit abnormal | |
| 4 | 3 | 2B | / | outdoor unit abnormal | |
| 4 | 4 | 2C | / | outdoor unit abnormal | |
| 4 | 7 | 2F | / | outdoor unit abnormal | |
| 4 | 8 | 30 | / | outdoor unit abnormal | |
| 4 | 9 | 31 | / | outdoor unit abnormal | |
| 5 | 8 | 3A | / | outdoor unit abnormal | |
| 5 | 9 | 3B | / | outdoor unit abnormal | |
| 6 | 3 | 3F | / | outdoor unit abnormal | |
| 6 | 4 | 40 | / | outdoor unit abnormal | |

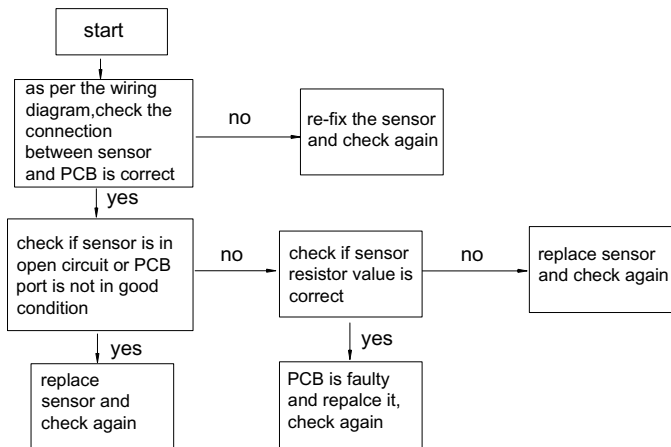
1. For the indoor failure, only running LED of remote receiver will indicate.
 2. For the outdoor failure, timer LED and running LED will indicate.timer LED of remote receiver stands for ten's place,and running LED stands for one's place.timer LED will flash firstly,2 seconds later,running LED will flash too. Afer that,4 seconds later,they will flash in turns again.Flash times equals to the failure code of outdoor plus
 20.For example,failure code of outdoor is 2,the indoor unit should display 22.As a result,timer LED flashes twice firstly,then running LED flashes twice.
 3.To get much more details of outdoor unit failure,Please refer to the the outdoor unit trouble shooting list

6.2. Trouble Shooting:

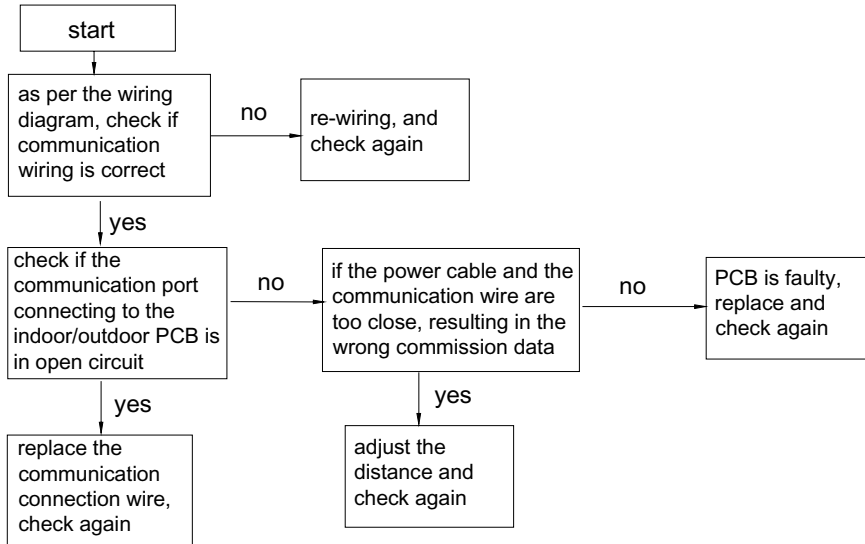
Trouble 1: No display on the operation panel



Trouble 2: Sensor failure



Trouble 3: Communication failure between indoor and outdoor



Trouble 4: Indoor PCB EEPROM data is wrong

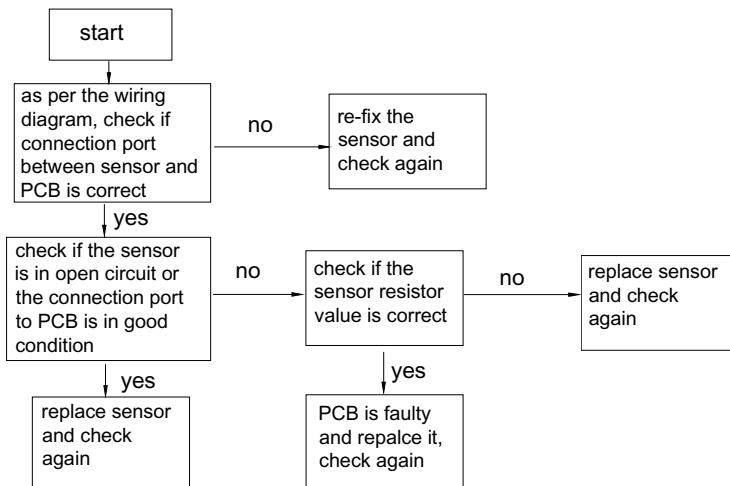
- 1.If the failure occurs when being electrified for the first time, that shows EEPROM (8-bit pin) not fixed firmly or damaged.
- 2.If the failure occurs when running, that shows EEPROM is faulty and need to be replaced.

Trouble 5: Indoor repeated unit number

Trouble 5: Outdoor unit failure

Check the failure code on outdoor indicator board (5-lamp)

Trouble 6: Outdoor unit alarms sensor failure



Trouble 7: AC current over current protection or current transducer damaged, or compressor blocked rotor, compressor great vibration, compressor abnormal startup, state detecting circuit abnormal or compressor damaged.

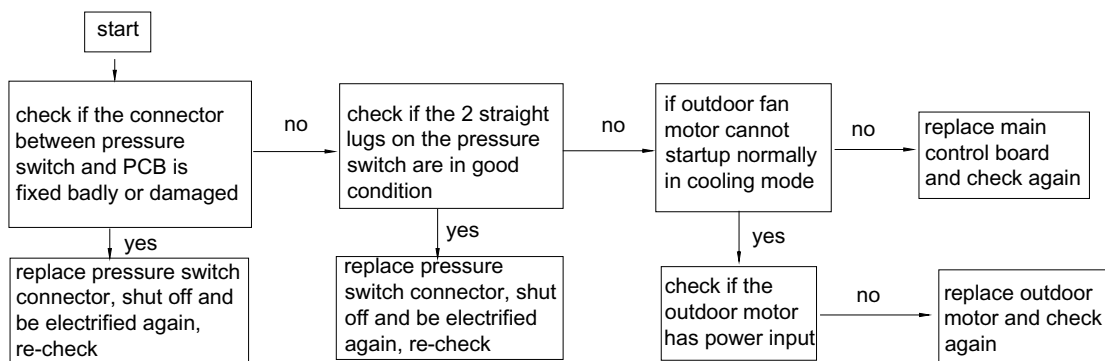
The former twice failure can be resumed automatically, if outdoor board occurs this failure always, and can not be resumed for a long time, that shows:

1. Power module (SPDU) damaged, please replace the power module, then re-wiring as per the wiring diagram (70% possibility)
2. Short circuit in power board results in the power module damaged (15% possibility)
3. Damaged compressor results in this failure (10% possibility)
4. Main control board is faulty, replace it (5% possibility)

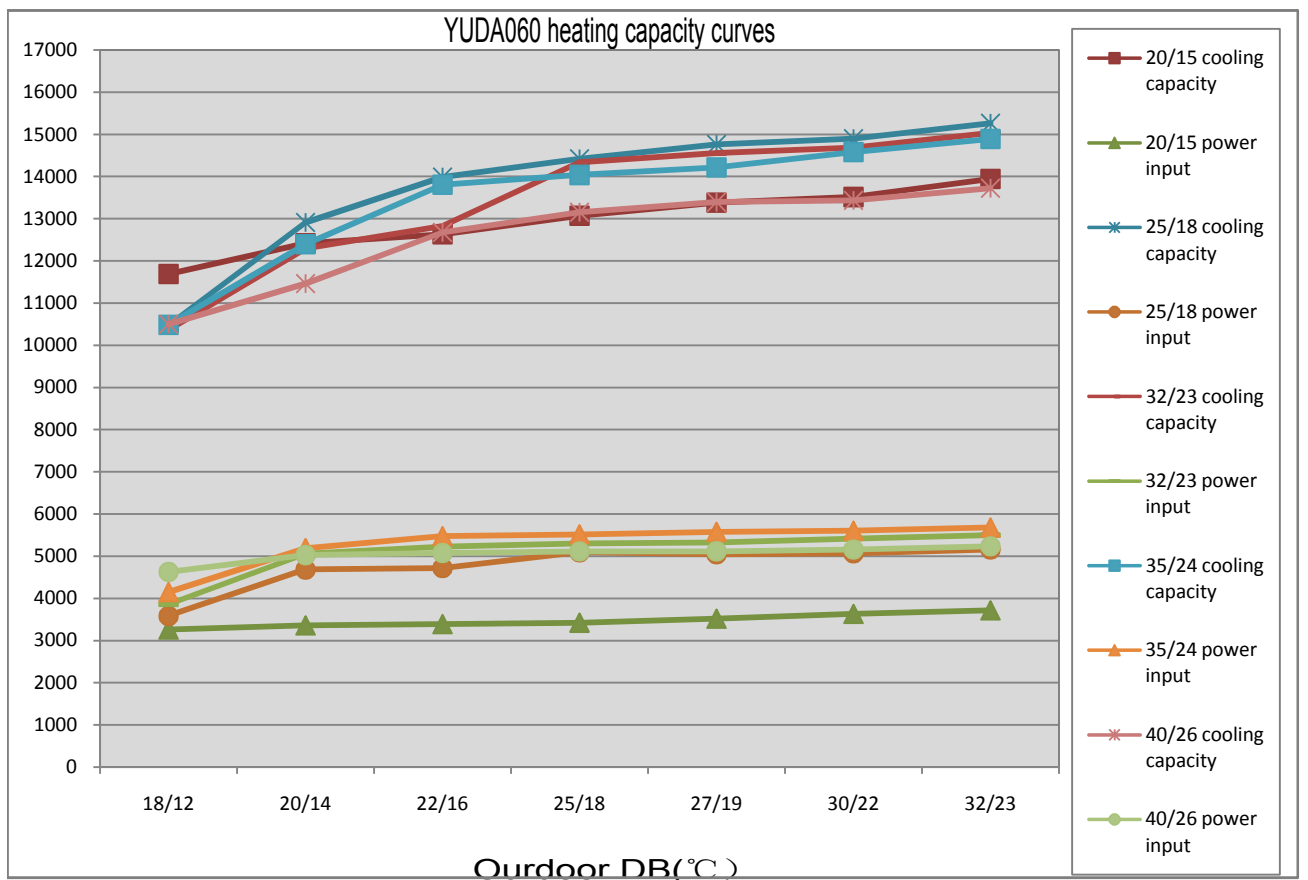
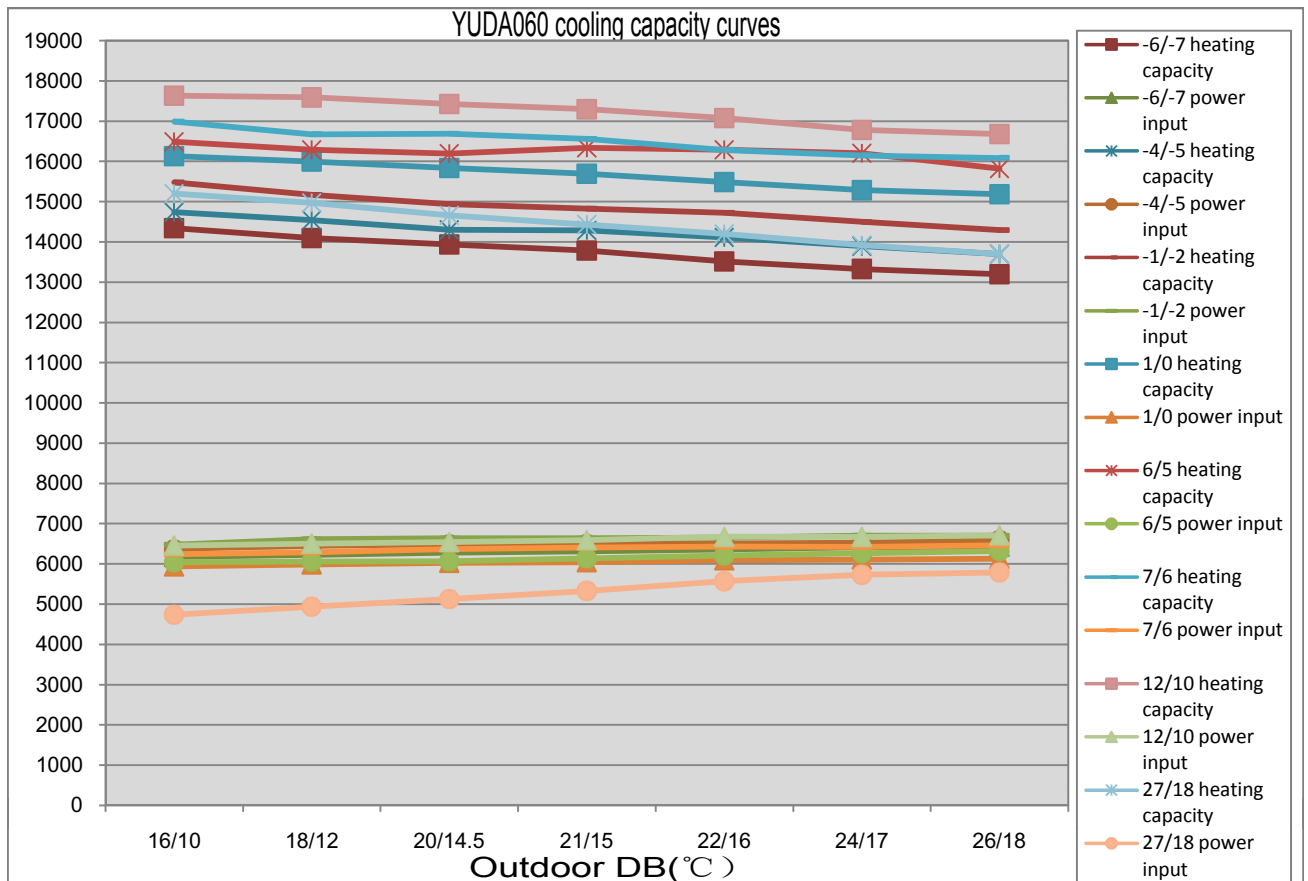
Trouble 10: High pressure failure

Reasons:

1. Over high system pressure results that the unit stop, and the compressor protection will work. The failure can be resumed.
2. Pressure switch wire is not fixed well or in open circuit.



7. Outdoor performance curves



8. Indoor air velocity and temperature distribution curves

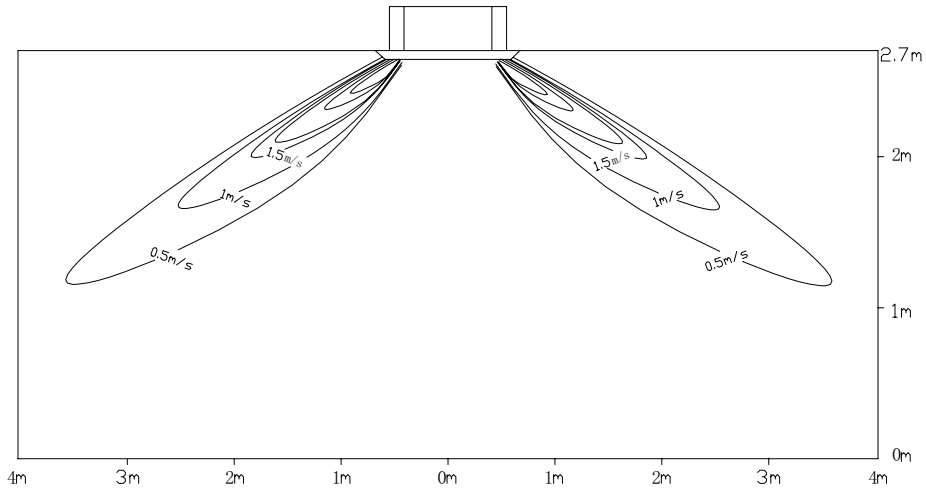
8.1 AB

a. Cooling / Air Velocity Distribution

Cooling

Blow angle:40

Air Velocity Distribution

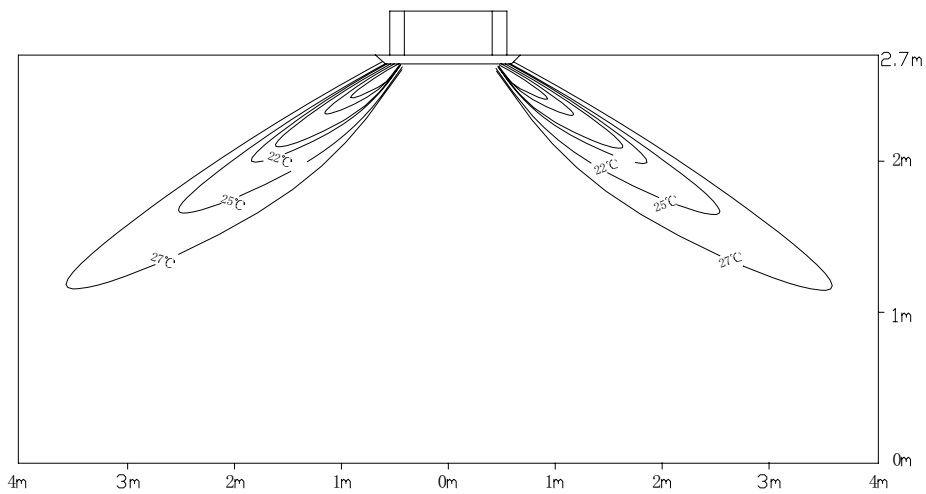


b. Cooling / Temperature Distribution

Cooling

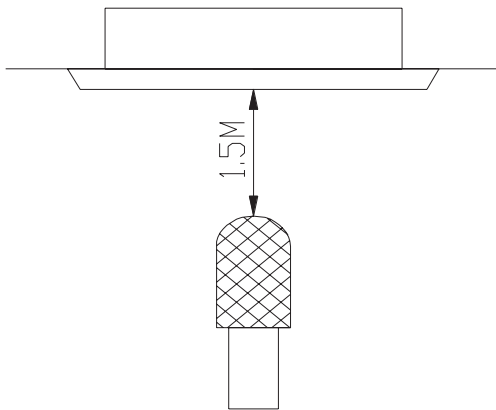
Blow angle:40

Temperature Distribution



9. Noise level

a. Casset type indoor unit



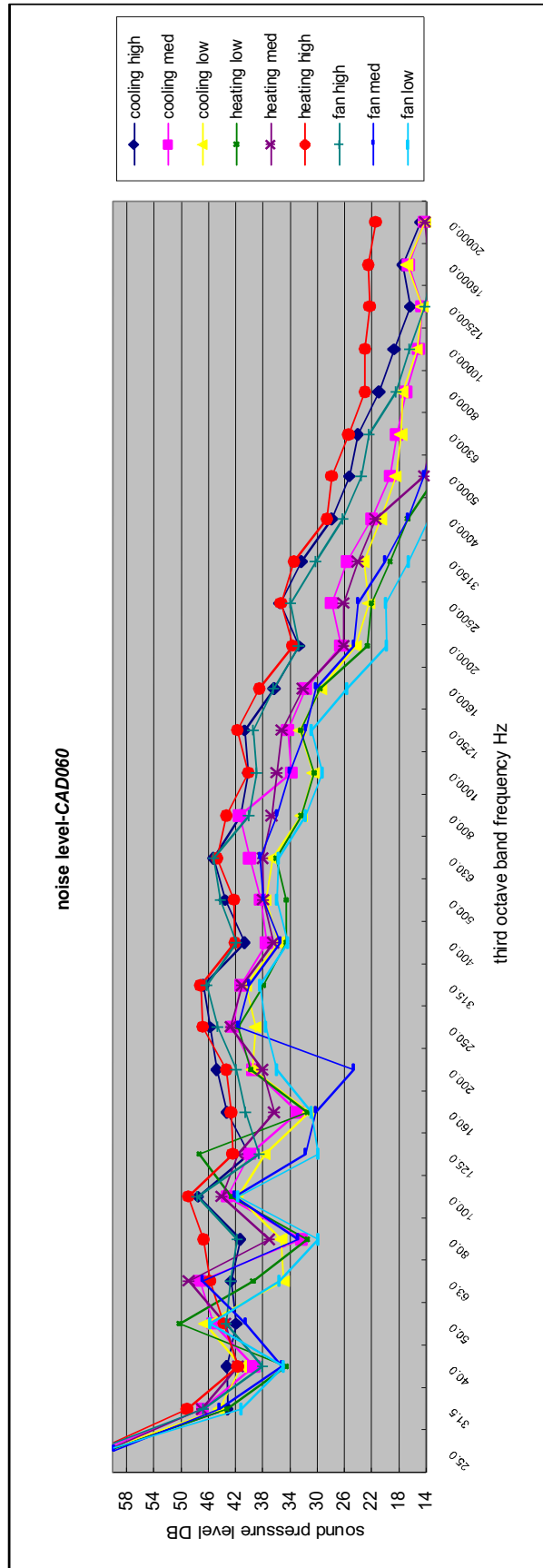
(1) Testing illustrate:

(2) Testing condition:

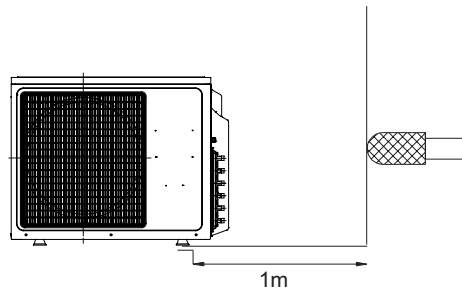
- a. Unit running in the nominal condition
- b. Test in the semi-anechoic chamber
- c. Noise level varies from the actual factors such as room structure, etc.

(3) Test method

According to the testing illustrate, the microphones wearing sponge style cover should be placed in the right position



(1) Testing illustration:

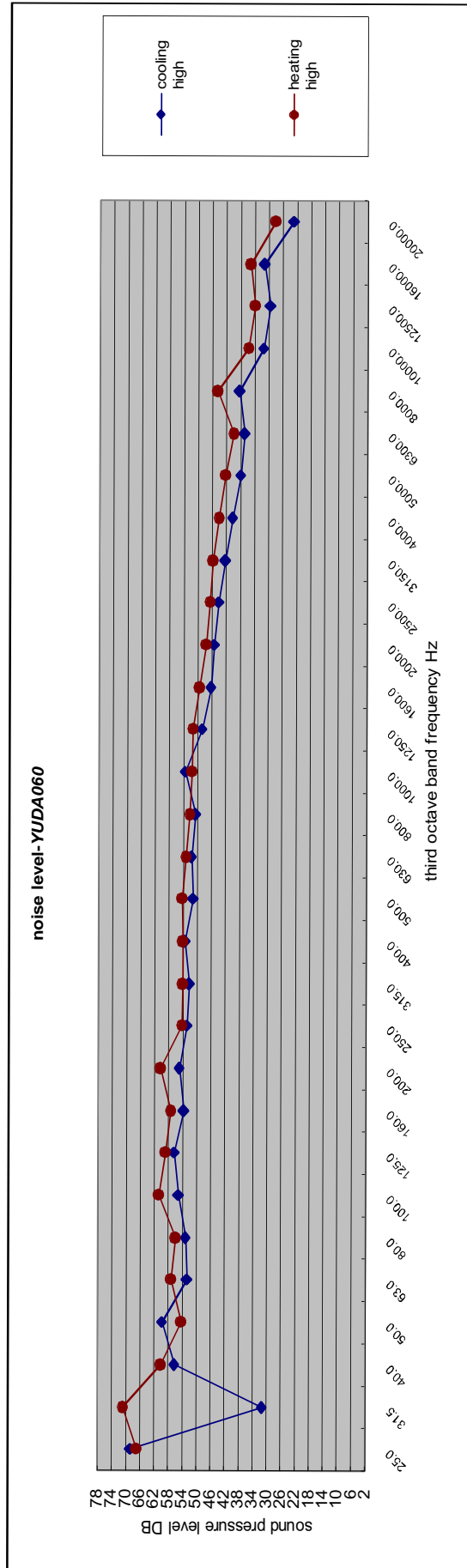


(2) Testing condition:

- a. Unit running in the nominal condition
- b. Test in the semi-anechoic chamber
- c. Noise level varies from the actual factors such as room structure, etc.

(3) Test method

1. Set the unit: 1) the unit is placed on the rubber whose thickness is 5mm; 2) if the height between the air outlet and ground is less than 1m, block the unit up to 1m far from ground
2. Test position: After setting the unit, the test position for the noise is 1m far from the front panel



10. Sensor characteristic

| 1. Sensor characteristic | | | |
|--------------------------|------------------------------------|------------|----------------------------------|
| model | name | code | characteristic |
| YUDA060 | Outdoor ambient temperature sensor | 0010450192 | R25°C=10KΩ±3% B25/50=3700K±3% |
| | Defrost temperature sensor | 0010450194 | R25°C=10KΩ±3% B25/50=3700K±3% |
| | Discharge temperature sensor | 0010451303 | R80°C=50KΩ±3% B25/50=4450K±3% |
| | Suction temperature sensor | 0010451307 | R25=10KΩ±3%, B25/50=3700K±3% |
| | Piping temperature sensor | 0010451329 | R25=10KΩ±3%, B25/50=3700K±3% |

Commercial Air Conditioner

| R80=50KΩ±3% B25/80=4450K±3% | | R80=50KΩ±3% B25/80=4450K±3% | |
|--------------------------------|----------|--------------------------------|----------|
| T(°C) | Rnom(KΩ) | T(°C) | Rnom(KΩ) |
| -30 | 11600 | 24 | 536.6 |
| -29 | 10860 | 25 | 511.1 |
| -28 | 10170 | 26 | 486.9 |
| -27 | 9529 | 27 | 464 |
| -26 | 8932 | 28 | 442.3 |
| -25 | 8375 | 29 | 421.7 |
| -24 | 7856 | 30 | 402.1 |
| -23 | 7372 | 31 | 383.6 |
| -22 | 6920 | 32 | 366 |
| -21 | 6498 | 33 | 349.3 |
| -20 | 6104 | 34 | 333.5 |
| -19 | 5736 | 35 | 318.4 |
| -18 | 5392 | 36 | 304.1 |
| -17 | 5071 | 37 | 290.5 |
| -16 | 4770 | 38 | 277.6 |
| -15 | 4488 | 39 | 265.3 |
| -14 | 4225 | 40 | 253.6 |
| -13 | 3978 | 41 | 242.5 |
| -12 | 3747 | 42 | 232 |
| -11 | 3531 | 43 | 221.9 |
| -10 | 3328 | 44 | 212.3 |
| -9 | 3138 | 45 | 203.2 |
| -8 | 2960 | 46 | 194.5 |
| -7 | 2793 | 47 | 186.3 |
| -6 | 2636 | 48 | 178.4 |
| -5 | 2489 | 49 | 170.9 |
| -4 | 2351 | 50 | 163.7 |
| -3 | 2221 | 51 | 155.9 |
| -2 | 2099 | 52 | 150.4 |
| -1 | 1984 | 53 | 144.2 |
| 0 | 1877 | 54 | 138.3 |
| 1 | 1775 | 55 | 132.7 |
| 2 | 1680 | 56 | 127.3 |
| 3 | 1590 | 57 | 122.1 |
| 4 | 1506 | 58 | 117.2 |
| 5 | 1426 | 59 | 112.5 |
| 6 | 1351 | 60 | 108 |
| 7 | 1280 | 61 | 103.8 |
| 8 | 1214 | 62 | 99.68 |
| 9 | 1151 | | |
| 10 | 1092 | | |
| 11 | 1036 | | |
| 12 | 983.2 | | |
| 13 | 933.4 | | |
| 14 | 886.4 | | |
| 15 | 841.9 | | |
| 16 | 800 | | |
| 17 | 760.8 | | |
| 18 | 722.8 | | |
| 19 | 687.3 | | |
| 20 | 653.8 | | |
| 21 | 622 | | |

| R25=10KΩ±3% B25/50=3700K±3% | | R25=10KΩ±3% B25/50=3700K±3% | |
|--------------------------------|----------|--------------------------------|----------|
| T(°C) | Rnom(KΩ) | T(°C) | Rnom(KΩ) |
| -20°C | 90.79 | 34 | 6.95 |
| -19 | 85.72 | 35 | 6.68 |
| -18 | 80.96 | 36 | 5.43 |
| -17 | 76.51 | 37 | 5.6 |
| -16 | 72.33 | 38 | 5.59 |
| -15 | 68.41 | 39 | 5.73 |
| -14 | 64.73 | 40 | 5.52 |
| -13 | 61.27 | 41 | 5.32 |
| -12 | 58.02 | 42 | 5.12 |
| -11 | 54.97 | 43 | 4.93 |
| -10 | 52.1 | 44 | 4.9 |
| -9 | 49.4 | 45 | 4.58 |
| -8 | 46.86 | 46 | 4.42 |
| -7 | 44.46 | 47 | 4.26 |
| -6 | 42.21 | 48 | 4.11 |
| -5 | 40.08 | 49 | 3.97 |
| -4 | 38.08 | 50 | 3.83 |
| -3 | 36.19 | 51 | 3.7 |
| -2 | 34.41 | 52 | 3.57 |
| -1 | 32.73 | 53 | 3.45 |
| 0 | 31.14 | 54 | 3.33 |
| 1 | 29.64 | 55 | 3.22 |
| 2 | 28.22 | 56 | 3.11 |
| 3 | 26.4 | 57 | 3.11 |
| 4 | 25.61 | 58 | 2.9 |
| 5 | 24.41 | 59 | 2.81 |
| 6 | 23.27 | 60 | 2.72 |
| 7 | 22.2 | 61 | 2.63 |
| 8 | 21.18 | 62 | 2.54 |
| 9 | 20.21 | 63 | 2.49 |
| 10 | 19.3 | 64 | 2.38 |
| 11 | 18.43 | 65 | 2.3 |
| 12 | 17.61 | 66 | 2.23 |
| 13 | 16.83 | 67 | 2.16 |
| 14 | 16.09 | 68 | 2.09 |
| 15 | 15.38 | 69 | 2.03 |
| 16 | 14.71 | 70 | 1.96 |
| 17 | 14.08 | 71 | 1.9 |
| 18 | 13.48 | 72 | 1.85 |
| 19 | 12.9 | 73 | 1.79 |
| 20 | 12.36 | 74 | 1.73 |
| 21 | 11.84 | 75 | 1.68 |
| 22 | 11.34 | 76 | 1.63 |
| 23 | 10.87 | 77 | 1.58 |
| 24 | 10.43 | 78 | 1.54 |
| 25 | 10 | 79 | 1.49 |
| 26 | 9.59 | 80 | 1.45 |
| 27 | 9.21 | | |
| 28 | 8.84 | | |
| 29 | 8.48 | | |
| 30 | 8.15 | | |
| 31 | 7.83 | | |
| 32 | 7.52 | | |
| 33 | 7.23 | | |

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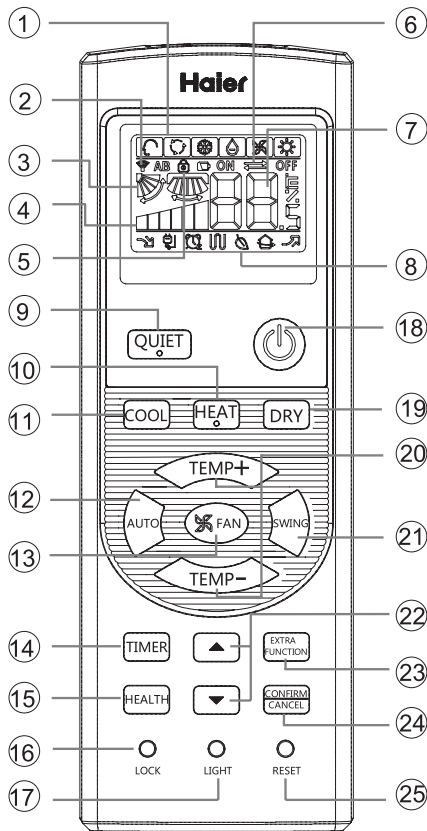
| R25=23KΩ±3% | | | |
|-----------------|----------|-------|----------|
| B25/50=4200K±3% | | | |
| T(°C) | Rnom(KΩ) | T(°C) | Rnom(KΩ) |
| -20°C | 266.905 | 31°C | 17.442 |
| -19°C | 250.866 | 32°C | 16.674 |
| -18°C | 235.895 | 33°C | 15.943 |
| -17°C | 221.911 | 34°C | 15.249 |
| -16°C | 208.838 | 35°C | 14.588 |
| -15°C | 196.609 | 36°C | 13.96 |
| -14°C | 185.163 | 37°C | 13.362 |
| -13°C | 174.443 | 38°C | 12.794 |
| -12°C | 164.399 | 39°C | 12.252 |
| -11°C | 154.983 | 40°C | 11.736 |
| -10°C | 146.153 | 41°C | 11.244 |
| -9°C | 137.87 | 42°C | 10.776 |
| -8°C | 130.096 | 43°C | 10.329 |
| -7°C | 122.799 | 44°C | 9.904 |
| -6°C | 115.946 | 45°C | 9.497 |
| -5°C | 109.51 | 46°C | 9.11 |
| -4°C | 103.462 | 47°C | 8.74 |
| -3°C | 97.779 | 48°C | 8.387 |
| -2°C | 92.437 | 49°C | 8.05 |
| -1°C | 87.415 | 50°C | 7.728 |
| 0°C | 82.691 | 51°C | 7.421 |
| 1°C | 78.248 | 52°C | 7.127 |
| 2°C | 74.067 | 53°C | 6.846 |
| 3°C | 70.133 | 54°C | 6.578 |
| 4°C | 66.43 | 55°C | 6.322 |
| 5°C | 62.943 | 56°C | 6.077 |
| 6°C | 59.659 | 57°C | 5.842 |
| 7°C | 56.566 | 58°C | 5.618 |
| 8°C | 53.651 | 59°C | 5.404 |
| 9°C | 50.904 | 60°C | 5.199 |
| 10°C | 48.314 | 61°C | 5.003 |
| 11°C | 45.872 | 62°C | 4.815 |
| 12°C | 43.569 | 63°C | 4.636 |
| 13°C | 41.395 | 64°C | 4.464 |
| 14°C | 39.343 | 65°C | 4.3 |
| 15°C | 37.406 | 66°C | 4.143 |
| 16°C | 35.577 | 67°C | 3.992 |
| 17°C | 33.848 | 68°C | 3.848 |
| 18°C | 32.215 | 69°C | 3.71 |
| 19°C | 30.671 | 70°C | 3.578 |
| 20°C | 29.21 | 71°C | 3.452 |
| 21°C | 27.828 | 72°C | 3.331 |
| 22°C | 26.521 | 73°C | 3.215 |
| 23°C | 25.283 | 74°C | 3.104 |

Commercial Air Conditioner

| | | | |
|------|--------|------|-------|
| 24°C | 24.111 | 75°C | 2.997 |
| 25°C | 23 | 76°C | 2.895 |
| 26°C | 21.947 | 77°C | 2.798 |
| 27°C | 20.949 | 78°C | 2.704 |
| 28°C | 20.003 | 79°C | 2.614 |
| 29°C | 19.104 | 80°C | 2.528 |
| 30°C | 18.252 | 81°C | 2.446 |

11. Controller functions

Remote controller



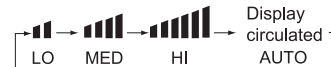
1. Mode display

| | | | | | |
|-------------------|------|------|-----|------|-----|
| Operation mode | AUTO | COOL | DRY | HEAT | FAN |
| Remote controller | | | | | |

2. Signal sending display

3. SWING display

4. FAN SPEED display



5. LOCK display

6. TIMER OFF display

TIMER ON display

7. TEMP display

8. Additional functions display

| | | | | | |
|-------------------|-------|-------|---------------------------------|--------|-------|
| Operation mode | QUIET | SLEEP | Supplemental electrical heating | HEALTH | POWER |
| Remote controller | | | | | |

Electrical heating is not available.

9. QUIET button

10. HEAT button

11. COOL button

12. AUTO button

13. FAN button

14. TIMER button

15. HEALTH button

(This model has not this function.)

16. LOCK button

Used to lock buttons and LCD display.

17. LIGHT button

(This model has not this function.)

Control the lightening and extinguishing of the indoor LED display board.

18. POWER ON/OFF button

19. DRY button

20. TEMP button

21. SWING button

22. HOUR button

23. EXTRA FUNCTION button

Function: Fan only function ,health airflow

upwards and downwards sending

function,sleep function,

air-refresh(reserved function)

Fahrenheit Celsius conversion

Power setting function

left and right swing function ,10°C heating function

24. CANCEL/CONFIRM button

Function: Setting and cancel to the

timer and other additional functions.

25. RESET button

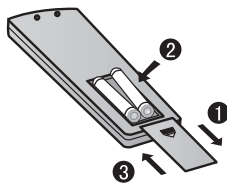
When the remote controller

appears abnormal, use a sharp

pointed article to press this button

to reset the remote

Loading of the battery



1 Remove the battery cover;

2 Load the batteries as illustrated.
2 R-03 batteries, resetting key (cylinder);

3 Be sure that the loading is in line with the "+" and "-";

4 Load the battery, then put on the cover again.

Note:

● The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.

● When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.

● Full display or unclear display during operation indicates the batteries have been used up. Please change batteries.

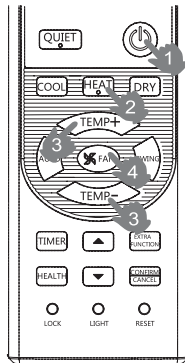
● If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

Hint:

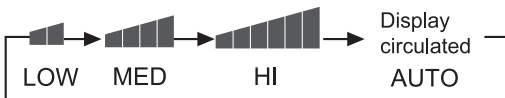
Remove the batteries in case won't be in use for a long period. If there is any display after taking-out, just press reset key.

Base Operation

Remote controller



- Unit start**
Press ON/OFF on the remote controller, unit starts.
- Select operation mode**
COOL button: Cooling mode
HEAT button: Heating mode
DRY button: Dehumidify mode
- Select temp.setting**
Press TEMP+ / TEMP- button
TEMP+ Every time the button is pressed, temp.setting increase 1°C, if kept depressed, it will increase rapidly
TEMP- Every time the button is pressed, temp.setting decrease 1°C, if kept depressed, it will decrease rapidly
Select a desired temperature.
- Fan speed selection**
Press FAN button. For each press, fan speed changes as follows:
Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

| Operation Mode | Remote Controller | Note |
|----------------|-------------------|---|
| AUTO | | Under the mode of auto operation air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO the air conditioner automatically adjusts the fan speed according to room temperature. |
| COOL | | |
| DRY | | In DRY mode, when room temperature becomes lower than temp.setting+2°C, unit will run intermittently at LOW speed regardless of FAN setting. |
| HEAT | | In HEAT mode, warm air will blow out after a short period of the time due to cold-draft prevention function. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature. |
| FAN | | In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode. AUTO is not available in FAN mode. And temp. setting is disabled. In FAN mode, sleep operation is not available. |

Sleep Operation

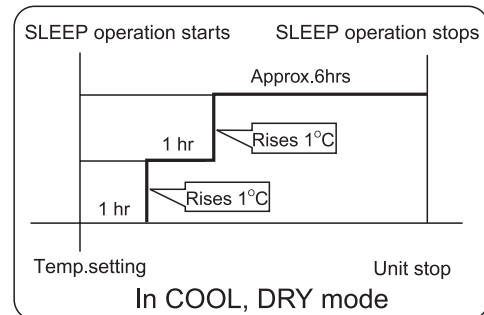
Press **EXTRA FUNCTION** button to enter additional options, when cycle display to , will flash. And then press **CONFIRM/CANCEL** enter to sleep function.



Operation Mode

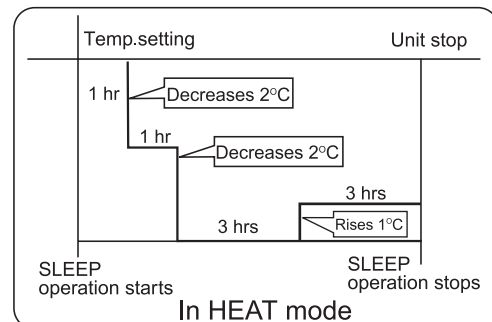
1. In COOL, DRY mode

1 hours after SLEEP mode starts, temp. will become 1°C higher than temp. setting. After another 1 hour, temp. rises by 1°C further. The unit will run for further 6 hours then stops. Temp. is higher than temp. setting so that room temperature won't be too low for your sleep.



2. In HEAT mode

1 hours after SLEEP mode starts, temp will become 2°C lower than temp. setting. After another 1 hour, temp decrease by 2°C further. After more another 3 hours, temp. rises by 1°C further. The unit will run for further 3 hours then stops. Temp. is lower than temp. setting so that room temperature won't be too high for your sleep.



3. In AUTO mode

The unit operates in corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5. Set the wind speed change when sleeping

If the wind speed is high or middle before setting for the sleep, set for lowering the wind speed after sleeping.

If it is low wind, no change.




Note

When TIMER function is set, the sleeping function can't be set up. After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

POWER/QUIET Operation


(1) POWER Operation

When you need rapid heating or cooling, you can use this function.

Press  button to enter additional options, when cycle display to  will flash, and then press , enter to power function. When cancel the function, please enter additional options again and to cancel power function.

(2) QUIET Operation

You can use this function when silence is needed for rest or reading.



Press QUIET button, the remote controller will show , and then achieve to the quiet function. Press again this QUIET button, the quiet function will be cancelled.

Note :

During POWER operation, in rapid HEAT or COOL mode, the room will show inhomogeneous temperature distribution. Long period QUIET operation will cause effect of not too cool or not too warm.

(3) 10°C HEAT function

10°C HEAT function: temp. setting is 10°C in heating mode.

Press  button to enter additional options, when cycle display to "10°C", "10°C" will flash and then press , enter to 10°C HEAT function.

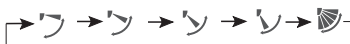
NOTE:

temp. setting is fixed. if press "TEMP+" or "TEMP-" button, and then 10°C HEAT function is be cancelled.

Air Flow Direction Adjustment

1. Status display of air flow

COOL/DRY:



HEAT:



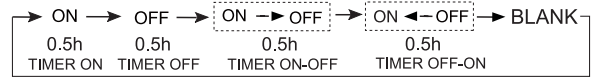
Initial state

2. Left and right air flow adjustment

(This model has not this function.)



Timer On/Off On-Off Operation

1. After unit starts, select your desired operation mode.
2. Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows: Remote controller:



Then select your desired TIMER mode (TIMER ON or TIMER OFF or TIMER ON-OFF). " ON " or " OFF " will flash.

3. Press  /  button to set time.

-  Press the button for each time, setting time in the first 12 hours increased by 0.5 hour every time, after 12 hours, increased by 1 hour every time.
-  Press the button for each time, setting time in the first 12 hours decreased by 0.5 hour every time, after 12 hours, decreased by 1 hour every time. It can be adjusted within 24 hours.

4. Confirm timer setting

After adjust the time, press  button and confirm the time ON or OFF button will not flash any more.

5. Cancel timer setting

Press the timer button by times until the time display eliminated.

Hints:

After replacing batteries or a power failure happens, time setting should be reset.



According to the Time setting sequence of TIMER ON or TIMER OFF, either Start-Stop or Stop-Start can be achieved.

Healthy airflow Operation

1. Press  to starting



Setting the comfort work conditions.

2. The setting of healthy airflow function

Press  button to enter additional options, Press this button continuously, the louvers location will cycle between in the following three locations, to choose the swing location what you needed, and then press  button to confirm.





3. The cancel of the healthy airflow function

Press  button to enter additional options, Press this button continuously, the louvers location will cycle between in the following three locations again, and then press  button to cancel.

Notice: Do not direct the flap by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

Note:

1. After setting the healthy airflow function, the position grill is fixed.
2. In heating, it is better to select the  mode.
3. In cooling, it is better to select the  mode.
4. In cooling and dry, using the air conditioner for a long time under the high air humidity, condensate water may occur at the grille.

Wired controller

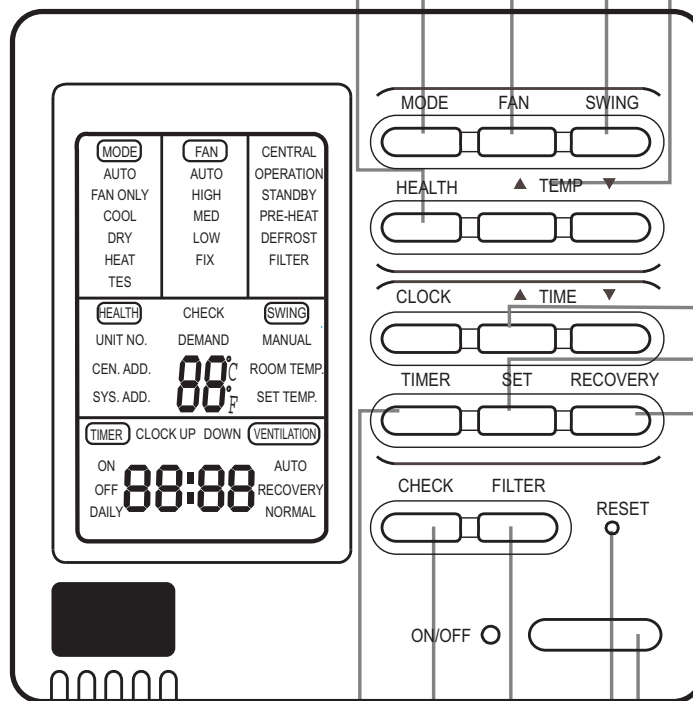
Mode switch
Choose running mode

Health switch
Used to control oxygen function and negative ion

Fan speed switch
Change wind speed

Swing switch
Open and close air flap

TEMP switch
Used for changing set temperature



Time switch
It is used to regulate setting time.

Clock, timing and address setting

Air change switch
It is used to open and close air change function. The mode is as follows:
No display-air change (automatic)-
air change (RECOVERY)-air
change (NORMAL)

Timing switch
It is used for choosing timing running

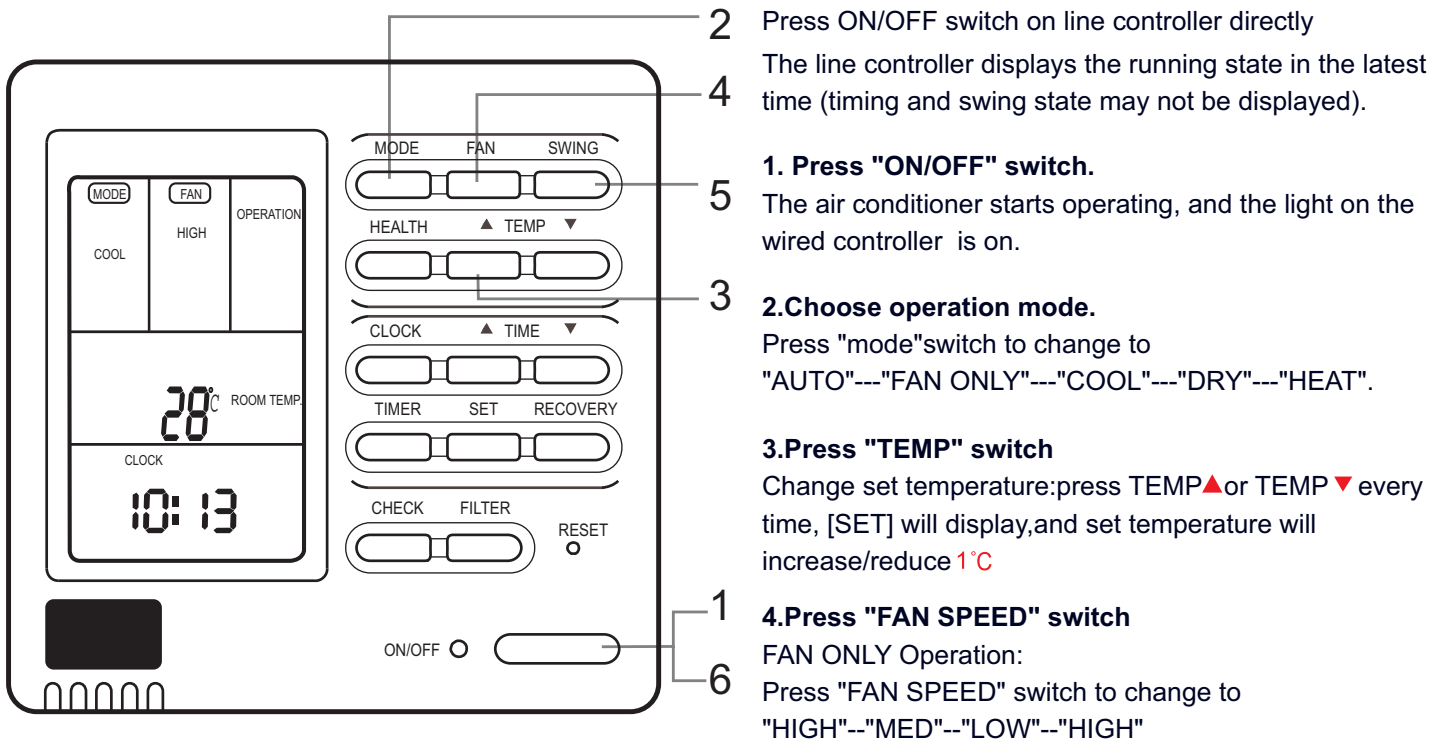
Self-inspection switch
It is used for inspection service

Filter reset
After cleaning air inlet and filter, press this switch. The unit begins to run

ON/OFF switch
Do on and off function. The unit is on when pressing it; and is off when pressing it again (needn't to open front cover)

Reset key
When in abnormal state, push the reset key with a spike, which may return the unit to normal

ON/OFF operation



5. Press "swing" switch on the line controller to swing the wind screen.

6. Press "ON/OFF" switch, off.
The light on the line controller is off.

Note

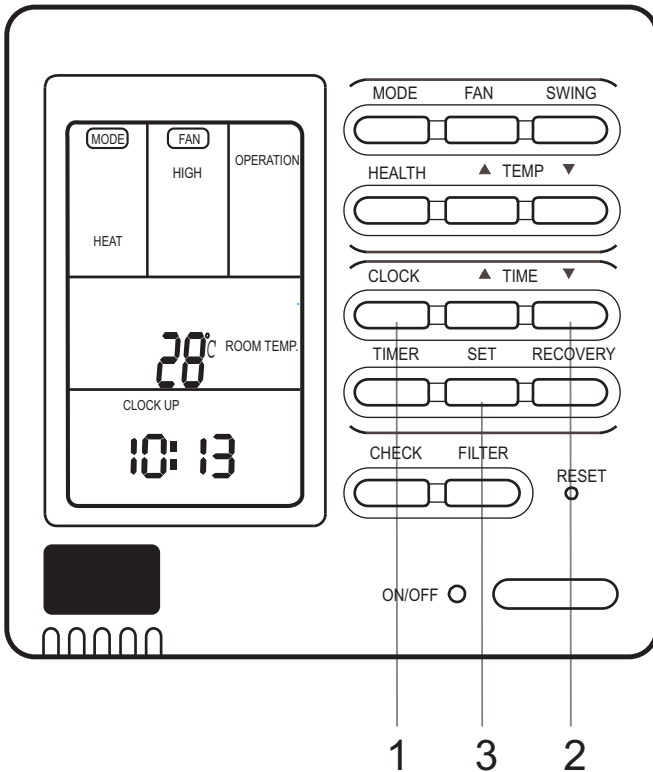
Several seconds after the operation of the line controller, the setting of the unit will change.

Remarks

- Avoid pressing "ON/OFF" switch frequently.
- Do not press line controller or switches by sharp objects.
- The temperature is on the basis of the setting value. The wind temperature may not reach the setting value because of the outer air conditioner and system protection.
- When the wired controller is power on, the screen fully displays it for two seconds. and clock zone "8888"- "888"- "88"- "8" flicker for 30 seconds. All the switches are invalid at the time.

Present time setting

- The timing is based on the real time. Thus, the real time should be regulated in advance.
- The clock regulation steps are as follows:



1. Press "CLOCK" switch

"CLOCK" flickers, and the time displayed is the real time.

2. Press "▲" and "▼" to regulate the time.

The time increases a minute each time you press "▲" switch.
The time decreases a minute each time you press "▼" switch.

3. Press "setting" switch. The setting is achieved.

Notes

- If not in timing, the screen displays the real time.
- If in timing, the screen displays the timing time.
- If you want to know the real time, go to the first step.

Setting of power failure compensation function

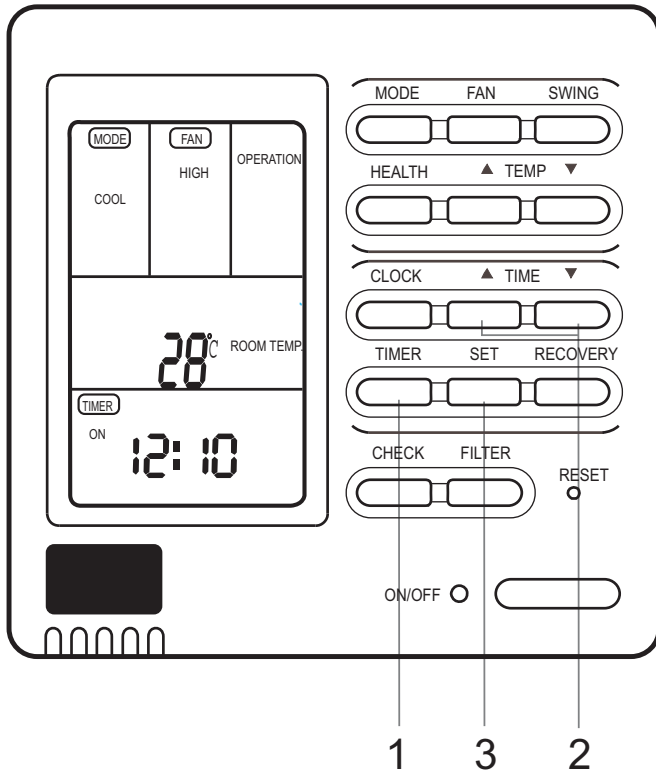
When SW1-6 on PCB of wire controller is OFF, it will be in power failure compensation. If the SW1-6 is ON, it has no compensation function.

When the power is on after blackout, the unit will return to the former state if compensation function is set. Otherwise, it will stop. When restarting the unit, press "ON/OFF" switch on wired controller.

Timing setting

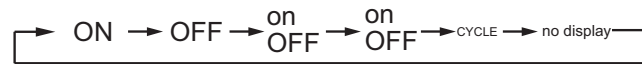
- OFF timing: when a set time has elapsed, the unit stops running.
- ON timing: when a set time has elapsed, the unit starts.

Press "ON/OFF" switch firstly, and set up operation mode. Please regulate the clock in advance before using the timing function.



1. Press "TIME" switch.

The display changes with the following sequence:



2. Set up "TIMER"

When timing ON or timing OFF flickers, press "▲" or "▼" to regulate the time

Press "▲" or "▼" set up ON/OFF time.

The setting time increases ten minutes each time you press "▲" switch.

The setting time decreases ten minutes each time you press "▼" switch.

When setting timing ON and timing OFF at the same time, press "timing" switch to change the setting item.

3. Time setting is achieved. Press "setting" switch.

Cancel timing

If you want to change the timing mode to normal operation, press "timing" until there is no timing display. When the timing is invalid, the mode is in normal operation.

parts of wired controller explanation :

1. The unit starts or stops at the setting time. Meanwhile, it displays the timing time.
2. "ON Timing, OFF timing and circulation" means that the unit is on and off at the setting time everyday.

Notes

- The shorter setting time will be carried out firstly.
- If the ON timing and OFF timing are the same, the setting is invalid.
- Even in timing condition, you may start or close the unit through pressing "ON/OFF" switch.

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Query indoor malfunction history:

In the state of power on or power off, press [CHECK] button, enter the malfunction-querying mode of all indoor units in the group. Then [CHECK] and [UNIT NO.] will display, and the actual indoor numbers will be displayed in some sequence (unit number is in decimals). At the same time, in the time region, there will be the current malfunction and the latest time malfunction, the displaying format is [XX:YY], in which XX stands for the current malfunction, if normal, it will display "--"; YY stands for the latest time malfunction. The failure code of every unit will display for 3 seconds. After the failure codes of all indoor units in the whole group are displayed, the mode will quit automatically.

How to change the function switches?

| No. | Type | State of switch | Function description |
|-------|---|-----------------|------------------------------|
| SW1-1 | Select the master or the slave controller | ON | set as the slave controller |
| | | OFF | set as the master controller |
| SW1-2 | Select the controller mode | ON | standard controller |
| | | OFF | air handler controller |
| SW1-3 | Room temperature display option | ON | visible room temperature |
| | | OFF | invisible room temperature |
| SW1-4 | 26° lock | ON | Unavailable 26° lock |
| | | OFF | available 26° lock |
| SW1-5 | Temperature sensor position option | ON | Sensor of the controller |
| | | OFF | Sensor in the unit |
| SW1-6 | Auto restart | ON | unavailable |
| | | OFF | available |
| SW1-7 | Factory Setting | ON | default setting |
| SW1-8 | Factory Setting | OFF | default setting |

Notes

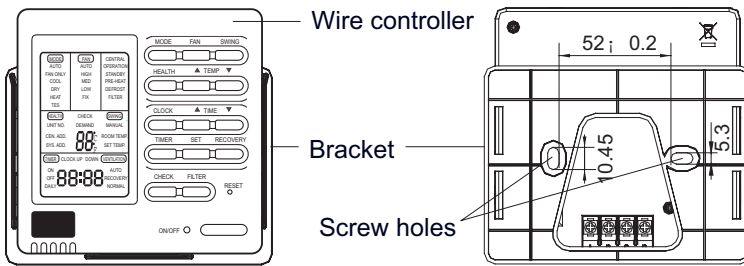
1. Switches or jumper wire must be adjusted when the wire controller is powered off. If the wire controller is powered on, the above operations will be invalid.

2. Function difference between master wire controller and slave one:

| Contrastive items | Master wire controller | Slave wire controller |
|-------------------|------------------------|--|
| Function | All of functions | Only with below functions: ON/OFF, MODE, FAN SPEED, SET TEMP., SWING |

Installation Manual For Wire Controller

1. Take down wire controller from the holder



2. Install the controller holder

According to the position of 2 screw holes on the holder, drill 2 holes on the wall, and strike the wood stopper to the holes respectively. Then align the 2 screw holes of wired controller holder to the wood stopper, fix the holder on the wall with wood screw.

Note: Try a wall as flat as possible for installation. Don't use excessive force to tighten screws, otherwise, the holder will be damaged.

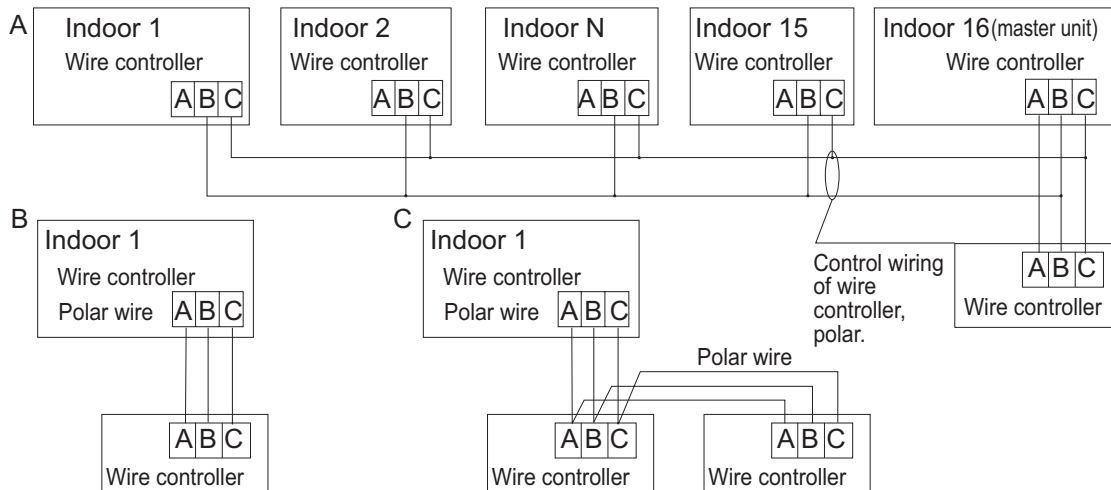
3. Wiring instruction

Use shielded wire between indoor and wire controller. And be earthed on one side, or the unit will not work normally because of interference.

Note: Confirm the terminal connection firmly, and do not get in touch with shielded wire.

4. Place wire controller on the holder, and pay attention not to pressing any wires.

5. Wiring connections of wire controller:



There are three methods to connection wire controller and the indoor units:

A. One wired controller can control max. up to 16 sets of indoor units, and 3 pieces of polar wire must connect the wire controller and the master unit (the indoor unit connected with wire controller directly), the others connect with the master unit through 2 pieces of polar wire.

B. One wire controller controls one indoor unit, and the indoor unit connects with the wire controller through 3 pieces of polar wire.

C. Two wired controllers control one indoor unit. The wire controller connected with indoor unit is called master one, the other is called slave one. Master wire controller and indoor unit; master and slave wire controllers are all connected through 3 pieces of polar wire.

6. Communication wiring:

The wire controller is equipped with special communication wiring in the accessories. 3-core terminal (1-white 2-yellow 3-red) is connected with the terminal A, B, C of wire controller respectively.

The communication wiring is 5 meter long; if the actual length is more than it, please distribute wiring according to below table:

| Communication wiring length(m) | Dimensions of wiring |
|--------------------------------|---|
| < 100 | 0.3mm ² x3-core shielded wire |
| ≥ 100 and <200 | 0.5mm ² x3-core shielded wire |
| ≥ 200 and <300 | 0.75mm ² x3-core shielded wire |
| ≥ 300 and <400 | 1.25mm ² x3-core shielded wire |
| ≥ 400 and <600 | 2mm ² x3-core shielded wire |

*One side of the shielded sheet of communication wire must be earthed.