



Owner's Manual

Original Instructions

Commercial Air Conditioners

Multi Variable Air Conditioners Ducted Type Indoor Unit

Models:

| | | |
|--------------------|--------------------|--------------------|
| GMV-ND07PHS/B-T(U) | GMV-ND09PHS/B-T(U) | GMV-ND12PHS/B-T(U) |
| GMV-ND15PHS/B-T(U) | GMV-ND18PHS/B-T(U) | GMV-ND22PHS/B-T(U) |
| GMV-ND24PHS/B-T(U) | GMV-ND30PHS/B-T(U) | GMV-ND36PHS/B-T(U) |
| GMV-ND42PHS/B-T(U) | GMV-ND48PHS/B-T(U) | GMV-ND54PHS/B-T(U) |

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

If you have lost the Owner's Manual, please contact the local agent or visit www.gree.com or send an email to global@cn.gree.com for the electronic version.

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Preface

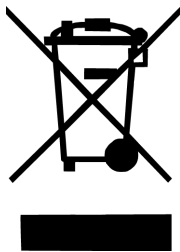
For correct installation and operation, please read all instructions carefully. Before reading the instructions, please be aware of the following items:

| | |
|------------------|--|
| ⚠ DANGER | This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death. |
| ⚠ WARNING | This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user. |
| ⚠ CAUTION | This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property. |
| NOTICE | NOTICE is used to address practices not related to personal injury. |

| ⚠ WARNING | |
|------------------|--|
| (1) | The design standard of multi VRF system conforms to related standard of sales countries. |
| (2) | To ensure safety when operating this system, please strictly follow the instructions in this manual. |
| (3) | The total capacity of running indoor units must not exceed that of the outdoor units. Otherwise, the cooling (heating) effect of each IDU would be poor. |
| (4) | Make sure that this manual is kept by direct operators and maintainers. |
| (5) | If the product needs to be installed, moved or maintained, please contact our designated dealer or local service center for professional support. Users should not disassemble or maintain the unit by themselves, otherwise it may cause relative damage, and our company will bear no responsibilities. |
| (6) | All the illustrations and information in the instruction manual are only for reference. In order to make the product better, we will continuously conduct improvement and innovation. If there is adjustment in the product, please subject to actual product. |
| (7) | Under the standby status, the unit will consume a little power for ensuring reliability of the complete unit, maintaining normal communication and preheating refrigerant. When the unit won't be used for a long time, please cut off the power of the complete unit. However, please preheat it when operating the unit next time. |

User Notice

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- DISPOSAL: Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.



| Exception Clauses | |
|--|--|
| Manufacturer will bear no responsibilities when personal injury or property loss is caused by the following reasons: | |
| (1) | Damage the product due to improper use or misuse of the product; |
| (2) | Alter, change, maintain or use the product with other equipment without abiding by the instruction manual of manufacturer; |
| (3) | After verification, the defect of product is directly caused by corrosive gas; |
| (4) | After verification, defects are due to improper operation during transportation of product; |
| (5) | Operate, repair, maintain the unit without abiding by instruction manual or related regulations; |
| (6) | After verification, the problem or dispute is caused by the quality specification or performance of parts and components that produced by other manufacturers; |
| (7) | The damage is caused by natural calamities, bad using environment or force majeure. |

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1 Safety Precautions

WARNING

- (1) This product can't be installed at corrosive, inflammable or explosive environment or the place with special requirements, such as kitchen. Otherwise, it will affect the normal operation or shorten the service life of the unit, or even cause fire hazard or serious injury. As for above special places, please adopt special air conditioner with anti-corrosive or anti-explosion function.
- (2) Follow this instruction to complete the installation work. Please carefully read this manual before unit startup and service.
- (3) Wire size of power cord should be large enough. The damaged power cord and connection wire should be replaced by exclusive cable.
- (4) After connecting the power cord, please fix the electric box cover properly in order to avoid accident.
- (5) Never fail to comply with the nitrogen charge requirements. Charge nitrogen when welding pipes.
- (6) Never short-circuit or cancel the pressure switch to prevent unit damage.
- (7) Please firstly connect the wired controller before energization, otherwise wired controller cannot be used.
- (8) Before using the unit, please check if the piping and wiring are correct to avoid water leakage, refrigerant leakage, electric shock, or fire etc.
- (9) Do not insert fingers or objects into air outlet/inlet grille.
- (10) Open the door and window and keep good ventilation in the room to avoid oxygen deficit when the gas/oil supplied heating equipment is used.
- (11) Never start up or shut off the air conditioner by means of directly plug or unplug the power cord.
- (12) Turn off the unit after it runs at least five minutes; otherwise it will influence oil return of the compressor.
- (13) Do not allow children operate this unit.
- (14) Do not operate this unit with wet hands.
- (15) Turn off the unit or cut off the power supply before cleaning the unit, otherwise electric shock or injury may happen.
- (16) Never spray or flush water towards unit, otherwise malfunction or electric shock may happen.
- (17) Do not expose the unit to the moist or corrosive circumstances.
- (18) Under cooling mode, please don't set the room temperature too low and keep the temperature difference between indoor and outdoor unit within 5°C(41°F).
- (19) User is not allowed to repair the unit. Fault service may cause electric shock or fire accidents. Please contact our designated dealer or local service center for help.
- (20) Before installation, please check if the power supply is in accordance with the requirements specified on the nameplate. And also take care of the power safety.
- (21) Installation should be conducted by dealer or qualified personnel. Please do not attempt to install the unit by yourself. Improper handling may result in water leakage, electric shock or fire disaster etc..
- (22) Be sure to use the exclusive accessory and part to prevent the water leakage, electric shock and fire accidents.
- (23) Make sure the unit can be earthed properly and soundly after plugging into the socket so as to avoid electric shock. Please do not connect the ground wire to gas pipe, water pipe, lightning rod or telephone line.
- (24) Electrify the unit 8 hours before operation. Please switch on for 8 hours before operation. Do not cut off the power when 24 hours short-time halting (to protect the compressor).
- (25) If refrigerant leakage happens during installation, please ventilate immediately. Poisonous gas will emerge if the refrigerant gas meets fire.
- (26) Volatile liquid, such as diluent or gas will damage the unit appearance. Only use soft cloth with a little neutral detergent to clean the outer casing of unit.
- (27) If anything abnormal happens (such as burning smell), please power off the unit and cut off the main power supply, and then immediately contact our designated dealer or local service center. If abnormality keeps going, the unit might be damaged and lead to electric shock or fire.

If the product needs to be installed, moved or maintained, please contact our designated dealer or local service center for professional support, otherwise our company would bear no legal reliability for the related damages arising therefrom.

2 Product Introduction

2.1 Names of Key Components

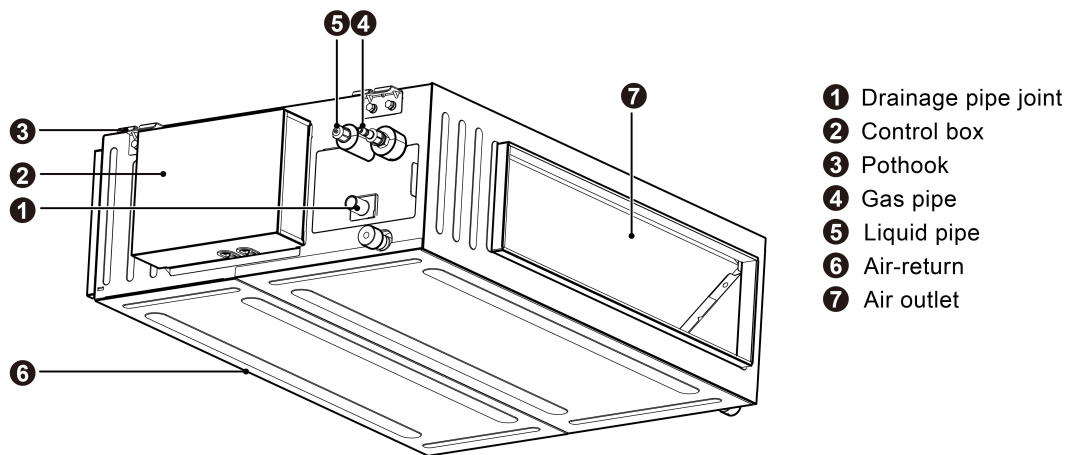


Fig.2.1.1

2.2 Rated Working Condition

| | Indoor Side Condition | | Outdoor Side Condition | |
|---------------|-----------------------|-----------------------|------------------------|-----------------------|
| | Dry Bulb Temp °C (°F) | Wet Bulb Temp °C (°F) | Dry Bulb Temp °C (°F) | Wet Bulb Temp °C (°F) |
| Rated Cooling | 26.7(80.0) | 19.4(67.0) | 35(95.0) | 23.9(75.0) |
| Rated Heating | 21.1(70.0) | 15.6(60.0) | 8.3(47.0) | 6.1(43.0) |


3 Preparations for Installation

NOTICE Product graphics are only for reference. Please refer to actual products.
Unspecified measure unit is mm (inch).

3.1 Standard Fittings

Please use the supplied standard fittings listed below as instructed.

| No. | Name | Appearance | Q'ty | Usage |
|-----|------------------------------------|------------|------|--|
| 1 | Wired Controller | | 1 | To control the indoor unit |
| 2 | Drain Hose Assembly | | 1 | To connect with the hard PVC drain pipe |
| 3 | Special Nut | | 2 | GMV-ND07~15PHS/B-T(U) |
| | | | 1 | GMV-ND18~54PHS/B-T(U) |
| 4 | Corrugated pipe | | 1 | GMV-ND18~54PHS/B-T(U) |
| 5 | M10×8 Nut with Washer | | 4 | To be used together with the hanger bolt for installing the unit |
| 6 | M10 Nut (M10×8.4 Nut) | | 4 | To be used together with the hanger bolt for installing the unit |
| 7 | M10 Washer (Spring Washer M10×2.6) | | 4 | To be used together with the hanger bolt for installing the unit |
| 8 | Insulation | | 1 | To insulate the gas pipe |
| 9 | Insulation | | 1 | To insulate the liquid pipe |
| 10 | Sponge | | 2 | To insulate the drain pipe |

| No. | Name | Appearance | Q'ty | Usage |
|-----|----------|---|------|----------------------|
| 11 | Fastener |  | 8 | To fasten the sponge |

3.2 Location for Installation

- (1) The appliance shall not be installed in the laundry.
- (2) The top holder must be strong enough to support unit's weight.
- (3) Drain pipe can drain water out easily.
- (4) There is no obstacle at inlet or outlet. Please ensure good air circulation.
- (5) In order to make sure the space for maintenance, please install the indoor unit according to the dimension described below.
- (6) Keep the unit away from heating source, inflammable gas or smoke.
- (7) This is a concealed ceiling type unit.
- (8) Indoor unit, outdoor unit, power cord and electric wire should stay at least 1m (39-3/8 inch) from the TV set and radio. Otherwise, these electrical appliances may have image interference and noise (Even if the distance is 1m (39-3/8 inch), when there is strong electric wave, noise may still occur).

Unit: mm (inch)

GMV-ND07~54PHS/B-T(U)

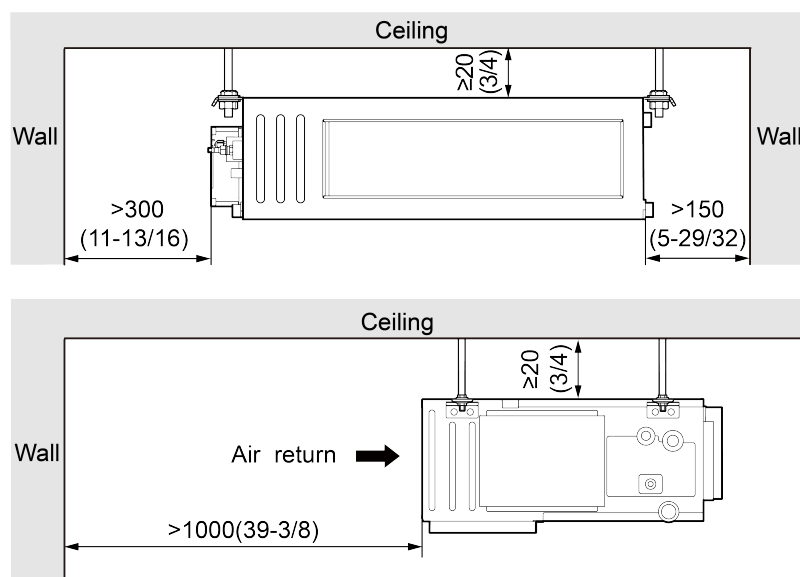


Fig.3.2.1

| NOTICE | |
|---------------|---|
| (1) | The unit shall be installed in accordance with national standards or local regulations. |
| (2) | Only qualified personnel can carry out installation work, please contact our designated dealer or local service center before installation. |
| (3) | Make sure all the installation work completed before energizing. |
| (4) | When installed in the narrow room, corresponding measures must be taken to prevent the concentration of refrigerant from exceeding the limit value when the refrigerant is leaking, which might lead to anoxia or asphyxia. |

3.3 Requirements for Communication Line

NOTICE If the unit is installed in the place with strong electromagnetic interference, shielded wire must be applied on the communication wire between indoor unit and wired controller. Twisted pair line with shielding function must be applied on the communication wire between indoor unit and indoor unit (outdoor unit).

3.3.1 Select communication line for indoor unit and wired controller

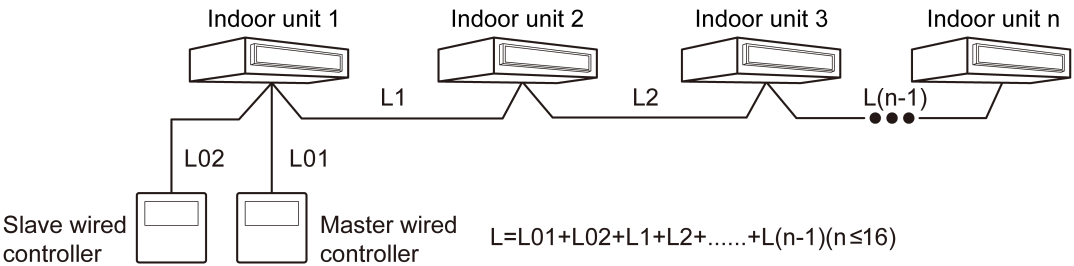


Fig.3.3.1

Multi Variable Air Conditioners Ducted Type Indoor Unit

| Wire type | Total length of communication line between indoor unit and wired controller L (m/ft.) | Numbers × size | Remarks |
|--|---|--|--|
| Light/Ordinary polyvinyl chloride sheathed cord. | $L \leq 250$ ($L \leq 820-1/4$) | $2 \times \text{AWG18} \sim 2 \times \text{AWG16}$ | 1. Total length of communication cable can't exceed 250m (820-1/4ft.). 2. The cord shall be Circular cord (the cores shall be twisted together). 3. If unit is installed in places with intense magnetic field or strong interference, it is necessary to use shielded wire. |

3.3.2 Select communication line for indoor unit and outdoor unit

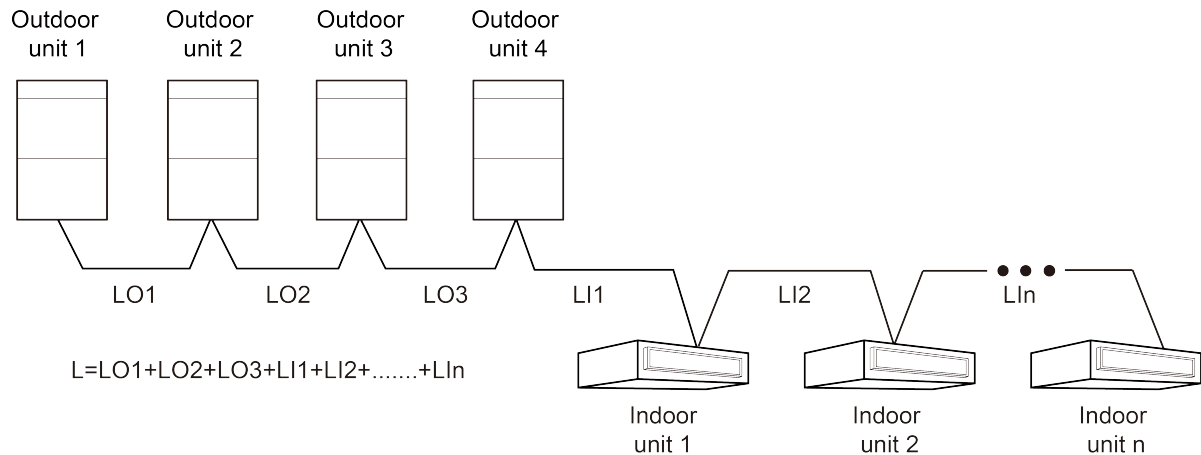


Fig.3.3.2

| Wire type | Total length L (m/ft.) of communication wire between indoor unit and indoor unit (outdoor unit) | Numbers × size | Remarks |
|--|---|------------------------------|---|
| Light/Ordinary polyvinyl chloride sheathed cord. | $L \leq 1000$ ($L \leq 3280-7/8$) | $\geq 2 \times \text{AWG18}$ | 1. If the wire diameter is enlarged to AWG16, the total communication cable length can reach 1500m (4921-1/4ft.). 2. The cord shall be Circular cord (the cores shall be twisted together). 3. If unit is installed in places with intense magnetic field or strong interference, it is necessary to use shielded wire. |

3.4 Wiring Requirements

Power Cord Size and Air Switch Capacity

| Model | Power Supply | Fuse Capacity(A) | Minimum Circuit Ampacity(A) | Maximum Overcurrent Protection(A) |
|--------------------|-------------------|------------------|-----------------------------|-----------------------------------|
| GMV-ND07PHS/B-T(U) | 208/230V-1ph-60Hz | 15 | 1 | 15 |
| GMV-ND09PHS/B-T(U) | | 15 | 1 | 15 |
| GMV-ND12PHS/B-T(U) | | 15 | 1 | 15 |
| GMV-ND15PHS/B-T(U) | | 15 | 1 | 15 |
| GMV-ND18PHS/B-T(U) | | 15 | 1 | 15 |
| GMV-ND22PHS/B-T(U) | | 15 | 1 | 15 |
| GMV-ND24PHS/B-T(U) | | 15 | 1.2 | 15 |
| GMV-ND30PHS/B-T(U) | | 15 | 1.7 | 15 |
| GMV-ND36PHS/B-T(U) | | 15 | 1.7 | 15 |
| GMV-ND42PHS/B-T(U) | | 15 | 1.7 | 15 |
| GMV-ND48PHS/B-T(U) | | 15 | 1.7 | 15 |
| GMV-ND54PHS/B-T(U) | | 15 | 1.7 | 15 |

NOTICE

- (1) Use copper wire only as unit's power cord. Operating temperature should be within its rated value.
- (2) If the power cord is more than 15m (49-1/4 ft.) long, please increase properly the sectional area of power cord to avoid overload, which may cause accident.
- (3) Above selection requirements: Power cord size is based on BV single-core wire (2~4pc) at 40 °C (104 °F) ambient temperature when laying across plastic pipe. Air switch is D type and used at 40 °C (104 °F). If actual installation condition varies, please lower the capacity appropriately according to the specifications of power cord and air switch provided by manufacturer.
- (4) Install cut-off device near the unit. The minimum distance between each stage of cut-off device should be 3mm(1/8 inch) (The same for both indoor unit and outdoor unit).

4 Installation Instructions

NOTICE These duct type indoor units are limited to be installed for one room.

4.1 Installation of Indoor Unit

4.1.1 Outline Dimension and Installation Spots

Equip with an inspection hatch after lifting the unit. For the convenience of maintenance, the service port should be on one side of the electric box and below unit's lower level.

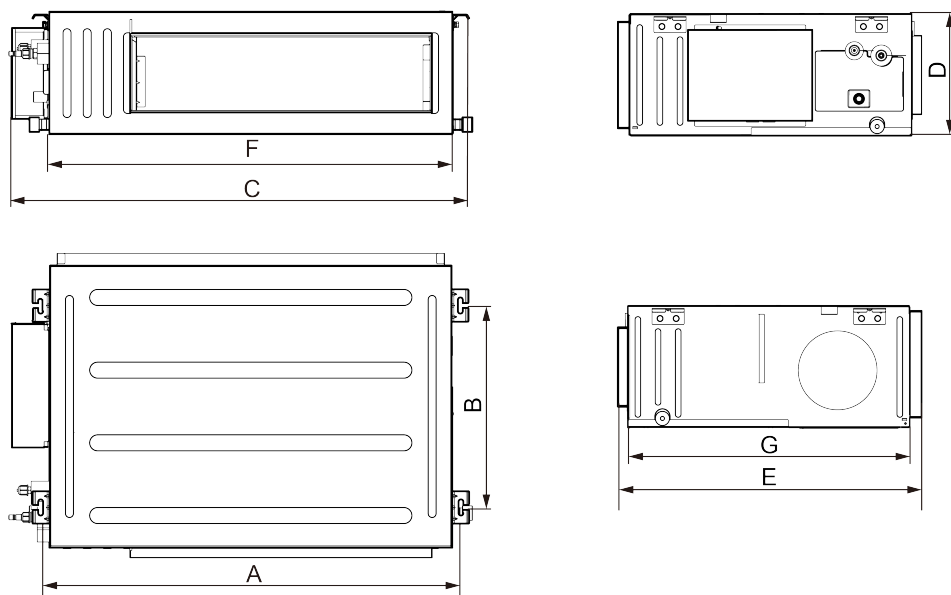


Fig.4.1.1

Below are dimensions of A, B, C, etc. for different models:

Unit: mm (inch)

| Model | A | B | C | D | E | F | G |
|--|--------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|
| GMV-ND07PHS/B-T(U) GMV-ND09PHS/B-T(U) | 740 (29-1/8) | 500 (19-11/16) | 830 (32-11/16) | 300 (11-13/16) | 754 (29-11/16) | 700 (27-9/16) | 700 (27-9/16) |
| GMV-ND12PHS/B-T(U) GMV-ND15PHS/B-T(U) GMV-ND18PHS/B-T(U) GMV-ND22PHS/B-T(U) GMV-ND24PHS/B-T(U) | 1040 (40-15/16) | 500 (19-11/16) | 1130 (44-1/2) | 300 (11-13/16) | 754 (29-11/16) | 1000 (39-3/8) | 700 (27-9/16) |
| GMV-ND30PHS/B-T(U) GMV-ND36PHS/B-T(U) GMV-ND42PHS/B-T(U) | 1440 (56-11/16) | 500 (19-11/16) | 1530 (60-1/4) | 300 (11-13/16) | 754 (29-11/16) | 1400 (55-1/8) | 700 (27-9/16) |
| GMV-ND48PHS/B-T(U) GMV-ND54PHS/B-T(U) | 1440 (56-11/16) | 500 (19-11/16) | 1580 (62-1/4) | 300 (11-13/16) | 754 (29-11/16) | 1400 (55-1/8) | 700 (27-9/16) |

4.1.2 Suspend the indoor unit

(1) Drill bolt holes and install bolts.

- 1) Stick the reference cardboard on the installation position; drill 4 holes according to the hole site on the cardboard as shown in Fig.4.1.3; diameter of drilling hole is according to the diameter of expansion bolt and the depth is 60-70mm(2-3/8~2-3/4 inch), as shown in Fig.4.1.4.

Unit: mm (inch)

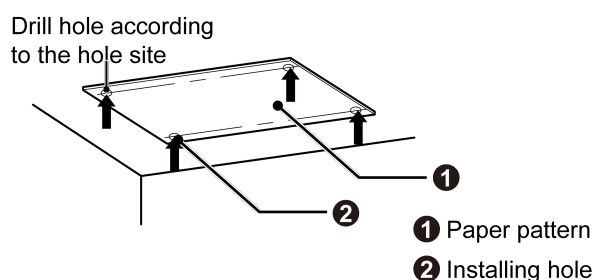


Fig. 4.1.3

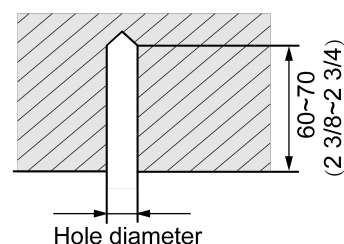


Fig. 4.1.4

- 2) Insert the M10 expansion bolt into the hole and then knock the nail into the bolt, as shown in Fig.4.1.5, and then remove the paper pattern.

NOTICE The length of bolt depends on the installation height of the unit, bolts are field supplied.

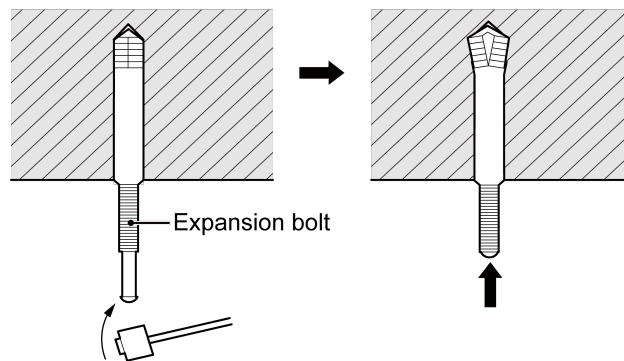


Fig.4.1.5

(2) Install the indoor unit temporarily.

Assemble suspension bolt on the expansion bolt, attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer from upper and lower sides of the hanger bracket. The washer fixing plate will prevent the washer from falling.

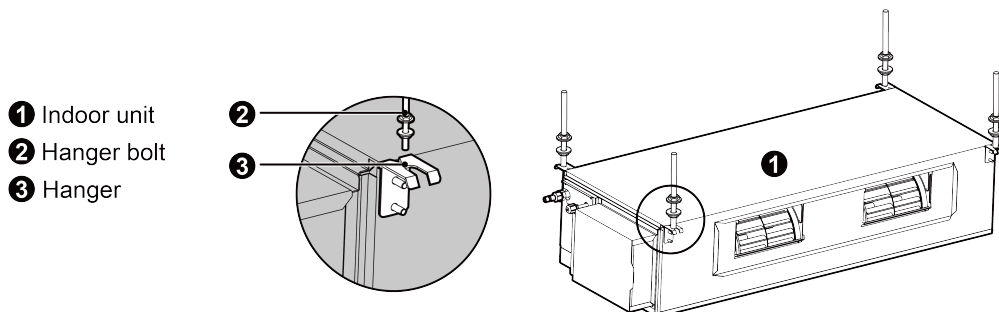


Fig.4.1.6

NOTICE Before operation, please prepare all pipelines (connection pipe, drainage hose) and wires (connection wire for wired controller, connection wire for indoor unit).

- 1) When drilling holes on ceiling (air return outlet or air outlet), you can need to reinforce the ceiling to prevent vibration. For details, please consult user or builder.
- 2) If the strength of the ceiling is not good, please install a beam bracket, and then put the unit on the beam bracket.
- (3) Adjust the unit to the right position.
- (4) Check the level of the unit.

After the indoor unit is installed, remember to check the horizontal status of the whole unit. It should be horizontal from front to back and slant 1% from left to right, following the drainage direction.

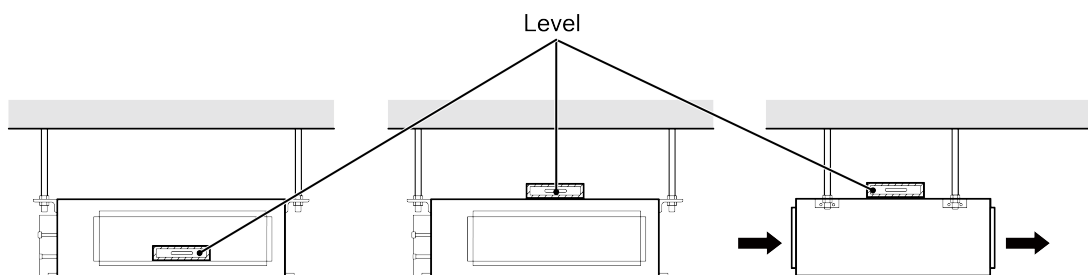


Fig.4.1.7

- (5) Remove the washer locating plate and then tighten the nut on it.

4.2 Refrigerant Pipe Connection

- (1) Aim the flaring port of copper pipe at the center of screwed joint and then tighten the flaring nut with hand as shown in Fig.4.2.1.
- (2) Tighten the flaring nut with torque wrench.

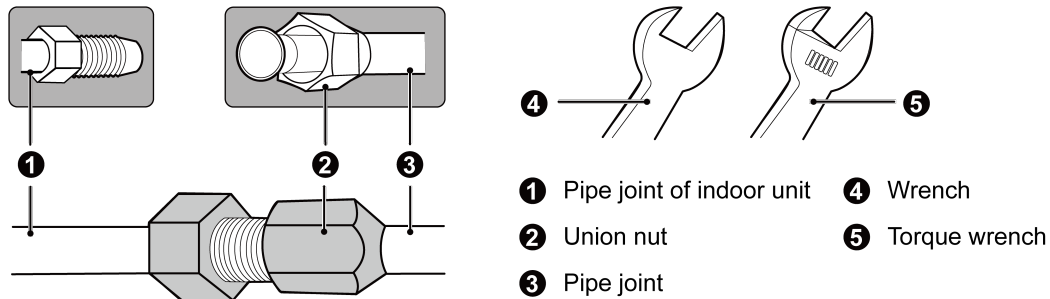


Fig.4.2.1

Torque for tightening nut

| Pipe diameter mm(inch) | Torque(N•m) |
|------------------------|-------------|
| Φ6.35(1/4) | 15~30 |
| Φ9.52(3/8) | 35~40 |
| Φ12.7(1/2) | 45~50 |
| Φ15.9(5/8) | 60~65 |
| Φ19.05(3/4) | 70~75 |

- (3) Use pipe bend when bending the pipe and the bending angle should not be too small.
- (4) Wrap the connection pipe and joint with sponge and then tie them firmly with tape.
- (5) For the model which the diameter of gas pipe is $\geq 15.9\text{mm}(5/8 \text{ inch})$, we recommend choosing the bellows to avoid any problems.

4.3 Drainage Pipe Installation and Drainage System Testing

4.3.1 Notice for Installation of Drain Pipe

- (1) It is not allowed to connect the condensate drain pipe into waste pipe or other pipelines which are likely to produce corrosive or peculiar smell to prevent the smell from entering indoors or corrupt the unit.
- (2) It is not allowed to connect the condensate drain pipe into rain pipe to prevent rain water from pouring in and cause property loss or personal injury.
- (3) Condensate drain pipe should be connected into special drain system for air conditioner.
- (4) The drainage pipe should be short and the gradient downwards should be at least 1%~2% in order to drain condensation water smoothly.
- (5) The diameter of drainage hose should be bigger or equal to the diameter of drainage pipe joint.
- (6) Install drainage pipe according to the following Fig. and arrange insulation to the drainage pipe (Fig.4.3.1). Improper installation may lead to water leakage and damp the furniture and other things in the room.

- (7) You can buy normal hard PVC pipe used as the drainage pipe. During connection, insert the end of PVC pipe into the drainage hole and then tighten it with drainage hole and wire binder. Can't connect the drainage hole and drainage hole with glue.
- (8) When the drainage pipelines are used for several units, the position of pipeline should be about 100mm (4inch) lower than the drainage port of each unit. In this case, thicker pipes should be applied.

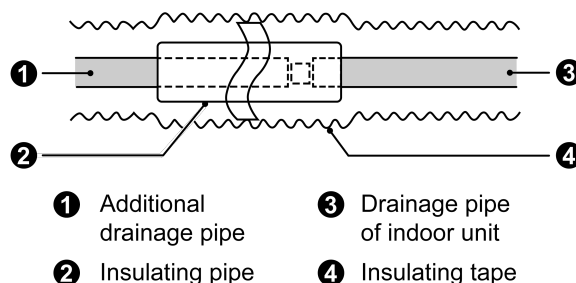


Fig.4.3.1

4.3.2 Drainage pipe installation

- (1) Insert the drain hose into the drain hole and tighten it with tapes, as shown in Fig.4.3.2. Model with water pump will be provided with drain hose, while other models please prepare the drain hose by yourself.
- (2) Tighten the pipe clamp, with the distance between screw nut and hose smaller than 4mm (3/16inch).

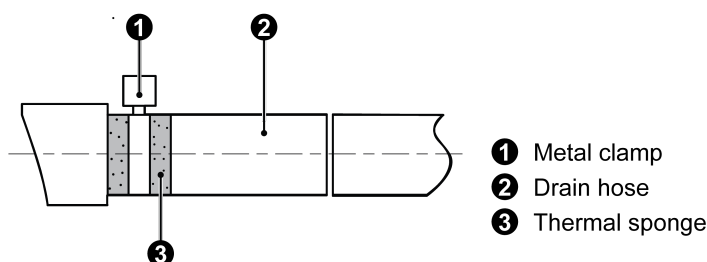


Fig.4.3.2

- (3) Use sealing plate to make the pipe clamp and hose insulated, as shown in Fig.4.3.3.

Unit: mm (inch)

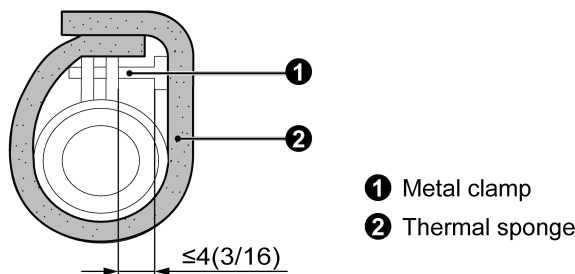


Fig.4.3.3

- (4) When connecting several drain pipes, follow the instruction as indicated in Fig.4.3.4. Choose the drain collecting pipe that matches with unit capacity.

Unit: mm (inch)

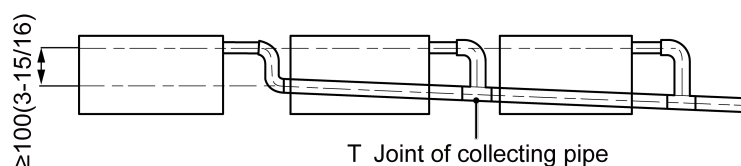


Fig.4.3.4

- (5) Install the trap as shown in following Fig.4.3.5.
 (6) Install one trap for each unit.
 (7) Convenience for cleaning trap in the future should be considered when installing it.

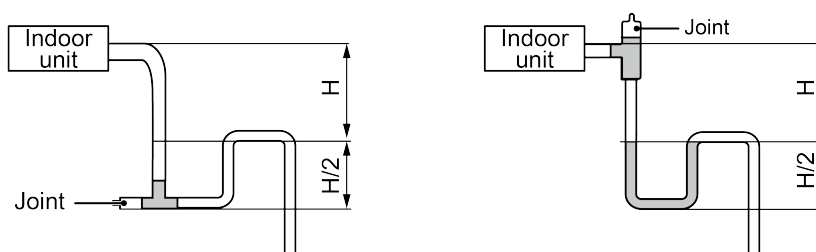


Fig.4.3.5

- (8) The horizontal pipe can be connected to vertical pipe in the same level; please select the connection way as shown in following Fig.

No.1: Connection of drainage pipe joints (Fig.4.3.6).

No.2: Connection of downspout elbow (Fig.4.3.7).

No.3: Inserting pipe connection (Fig.4.3.8).

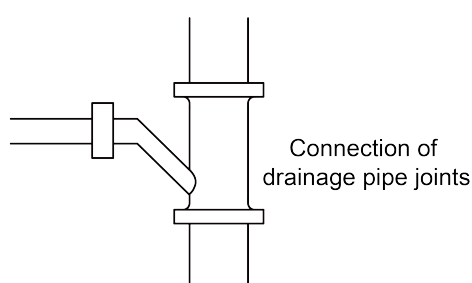


Fig.4.3.6

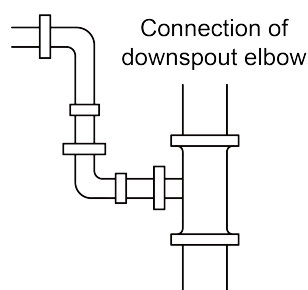


Fig.4.3.7

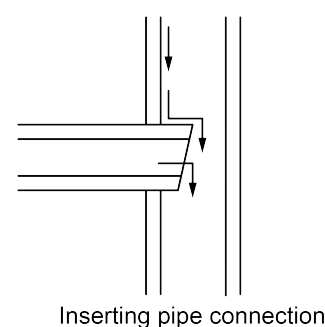


Fig.4.3.8

- (9) The installation height of raising pipe for drainage should be lower than B. The gradient from raising pipe towards drainage direction should be at least 1%~2%. If the raising pipe is vertical with the unit, the raising height should be less than C.

Unit: mm (inch)

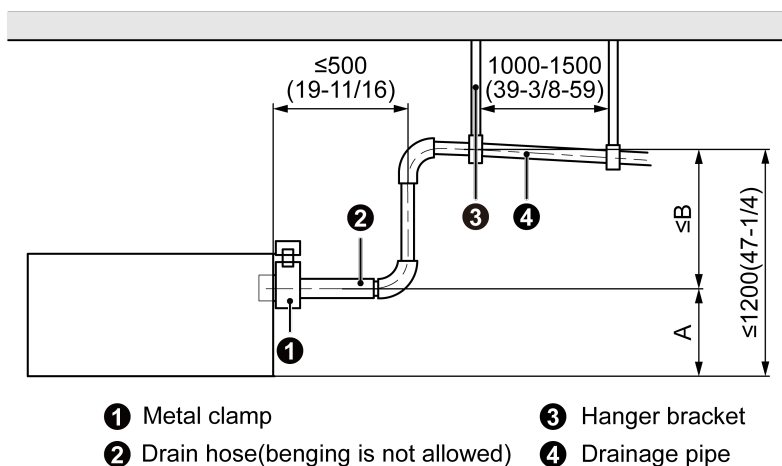


Fig.4.3.9

| Model | A | B | C |
|--------------------|------------|---------------|--------------|
| GMV-ND07PHS/B-T(U) | 150(5-7/8) | 1050(41-5/16) | 1000(39-3/8) |
| GMV-ND09PHS/B-T(U) | | | |
| GMV-ND12PHS/B-T(U) | | | |
| GMV-ND15PHS/B-T(U) | | | |
| GMV-ND18PHS/B-T(U) | | | |
| GMV-ND22PHS/B-T(U) | | | |
| GMV-ND24PHS/B-T(U) | | | |
| GMV-ND30PHS/B-T(U) | | | |
| GMV-ND36PHS/B-T(U) | | | |
| GMV-ND42PHS/B-T(U) | | | |
| GMV-ND48PHS/B-T(U) | | | |
| GMV-ND54PHS/B-T(U) | | | |

(10) Drain pipes should have a downward slope of at least 1%~2%, in order to prevent pipes from sagging, install hanger bracket at intervals of 1000~1500mm (39-3/8~59 inch).

Unit: mm (inch)

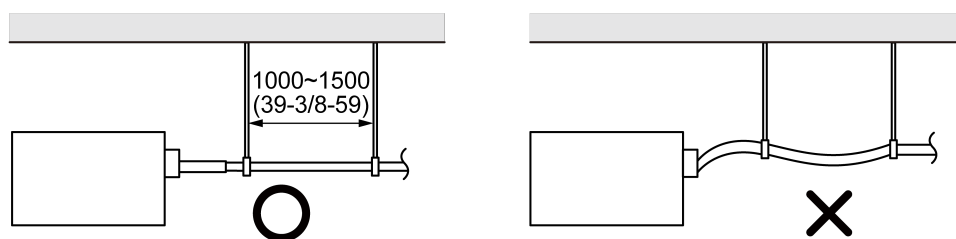


Fig.4.3.10

4.3.3 Test of Drainage System

◆Models with water pump

(1) Please test drainage system after electric work is finished.

Inject approximately 1L purified water to drain pan from air vent, ensure that not to splash the water over the electrical components (e.g. water pump. etc.).

- 1) Spray 1L water on evaporator with sprayer.
- 2) In case of commissioning finished, please energize the IDUs and switch to cooling or dry mode, meanwhile, the water pump operates, you can check the draining through the transparent part of drain socket.
- 3) If communication wire is not connected, communication malfunction "C0" will occur after 60s of energizing. In this case, the water pump operates automatically. Check if the water pump drains normally through drainage port. The water pump will stop automatically after running for 10minch
- (2) During the test, please carefully check the drainage joint, make sure no any leakage occur.
- (3) It is strongly recommend to do the drain test before ceiling decoration.

◆Models without water pump

(1) Inject some water to the water tray of indoor unit as following:

- 1) Connect the drain hose to the other drain connection pipe of water tray and inject approximately 1L water. (Remove the drain hose after finishing testing and then put on the plug of water tray) .
- 2) Spray 1L water on evaporator with sprayer.

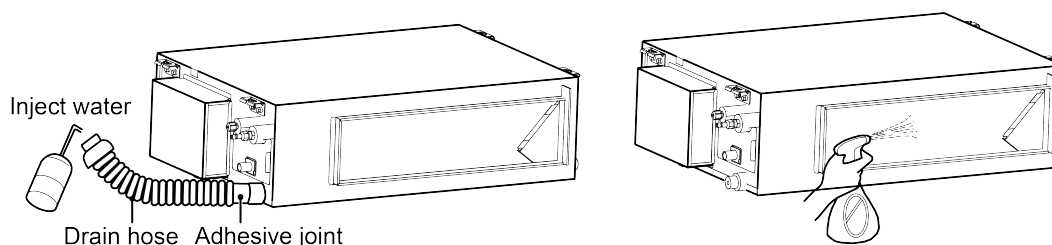


Fig.4.3.11

- (2) Check if the water drains smoothly from the drain pipe and check if there is water leakage on the connection pipe.
- (3) Arrange insulation of drain hose and pipe clamp after checking the drain system.

4.4 Installation of Air Duct

NOTICE

- ① There should be insulating layer on air-out duct, air-return duct and fresh air duct to avoid heat loss and moisture. Adhere a nail on the air duct and then add thermal sponge with a layer of tin. Fasten it with a nail cover and then seal the junction with tin tapes. You can also use other materials that have good insulation quality.
- ② Each air-out duct and air-return duct should be fixed on a pre-made board with iron frame. The junction of air duct should be well-sealed in order to prevent air leakage.
- ③ The design and construction of air duct should comply with national requirements.
- ④ The edge of air-return duct is suggested to be more than 150mm (5-7/8 inch) away from the wall. Add a filter to the air-return opening.
- ⑤ Please consider noise-damping and vibration damping for the design and construction of air duct. Besides, noise source must be away from people. For instance, do not have the air-return opening installed on top of the user (Offices, rest area, etc.).
- ⑥ When the air pipes or engineering grilles have been installed well, internal parts are forbidden to be touched with hands.

4.4.1 Shape and Size of Air Outlet and Air-return Opening

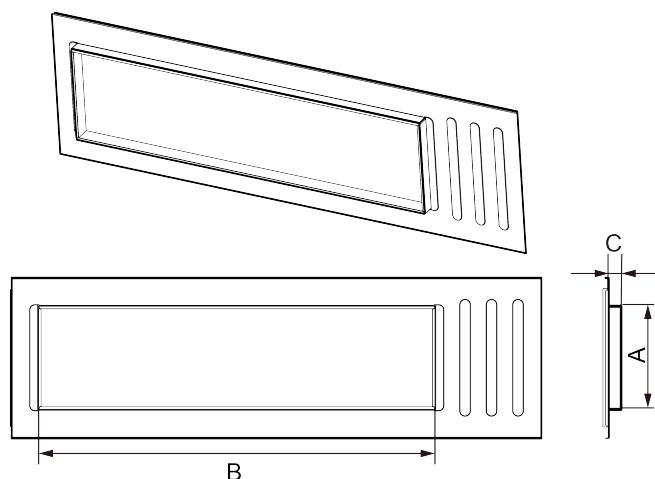


Fig.4.4.1 Air Outlet

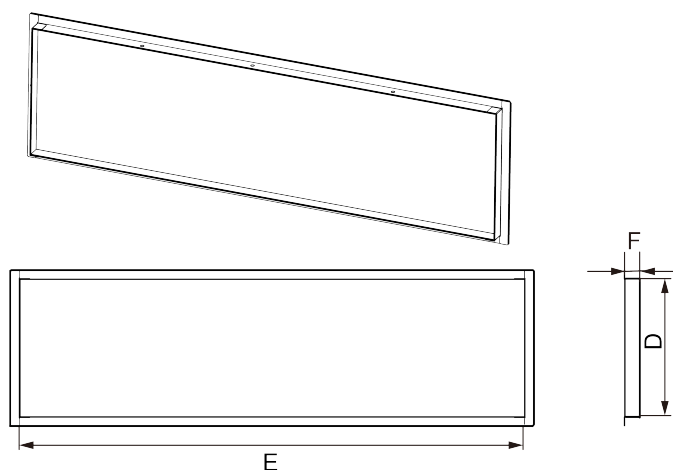


Fig.4.4.2 Air-return Opening

Unit: mm (inch)

| Model | Size of Air Outlet | | | Size of Air-return Opening | | |
|--|--------------------|-------------------|-----------|----------------------------|------------------|---------------|
| | A | B | C | D | E | F |
| GMV-ND07PHS/B-T(U) GMV-ND09PHS/B-T(U) | 195 (7-5/8) | 451 (17-3/4) | 25 (1) | 264 (10-3/8) | 660 (26) | 29 (1-1/8) |
| GMV-ND12PHS/B-T(U) GMV-ND15PHS/B-T(U) GMV-ND18PHS/B-T(U) GMV-ND22PHS/B-T(U) GMV-ND24PHS/B-T(U) | 195 (7-5/8) | 751 (29-9/16) | 25 (1) | 264 (10-3/8) | 960 (37-3/4) | 29 (1-1/8) |
| GMV-ND30PHS/B-T(U) GMV-ND36PHS/B-T(U) GMV-ND42PHS/B-T(U) GMV-ND48PHS/B-T(U) GMV-ND54PHS/B-T(U) | 195 (7-5/8) | 1151 (45-5/16) | 25 (1) | 264 (10-3/8) | 1360 (53-1/2) | 29 (1-1/8) |

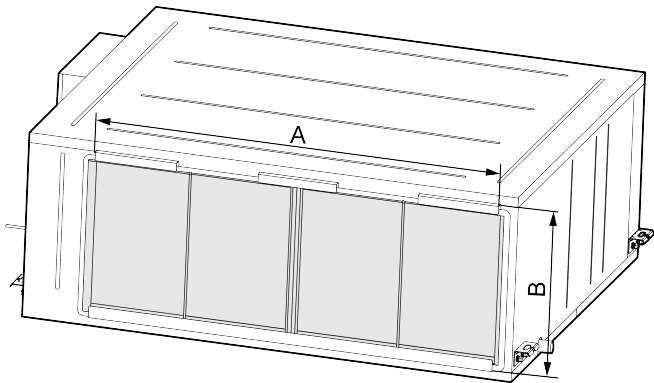


Fig.4.4.3 Air-return Opening

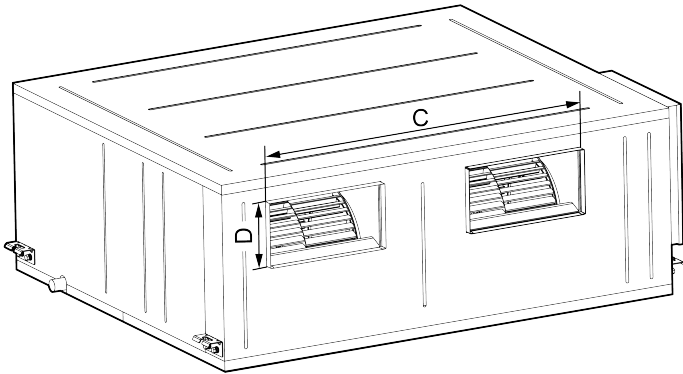


Fig.4.4.4 Air Outlet

Unit: mm (inch)

4.4.2 Installation of Air-out Duct

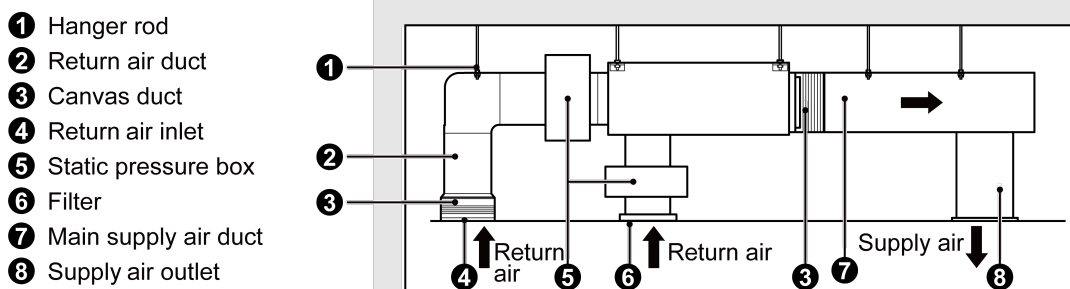


Fig.4.4.5

4.4.3 Installation of the Return Air Duct

- (1) The default installation location of the rectangular flange is at the back and the return air cover plate is at the bottom, as shown in Fig.4.4.6.

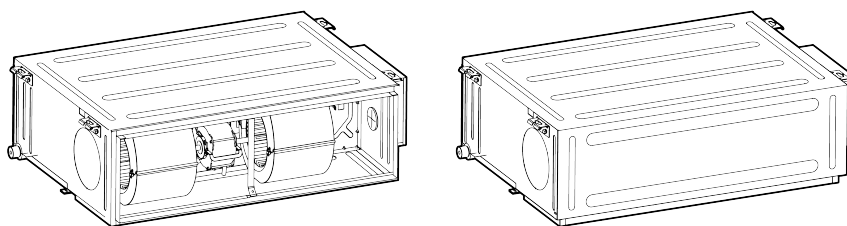


Fig.4.4.6

- (2) If the bottom return air is desired, just change the place of the rectangular flange and the return air cover plate. The bottom return air is only apply to GMV-ND07~54PHS/B-T(U).
- (3) Connect one end of the return air duct to the return air outlet of the unit by rivets and the other to the return air louver. For the sake of the convenience to freely adjust the height, a cutting of canvas duct will be helpful, which can be reinforced and folded by 8# iron wire.
- (4) More noise is likely to be produced in the bottom return air mode than the rear return air mode, so it is suggestive to install a silencer and a static pressure box to minimize the noise.
- (5) The installation method can be chosen with considering the conditions of the building and maintenance etc., as shown in Fig.4.4.7.

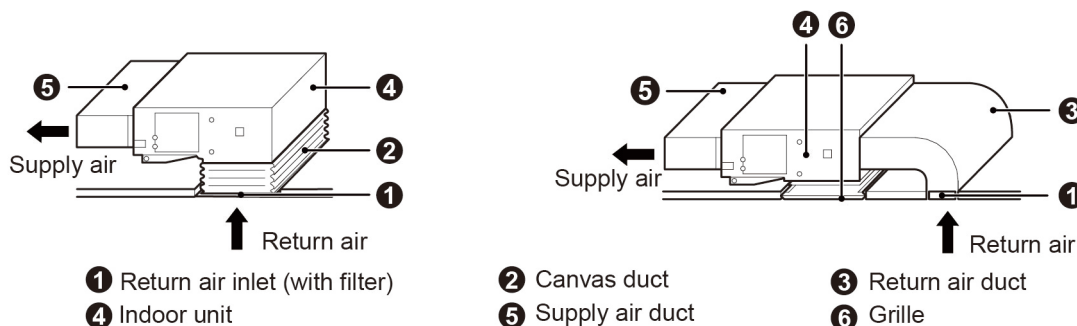


Fig.4.4.7

4.4.4 Installation of the Fresh Air Pipe

- (1) When the fresh air pipe is needed to be connected, cut the fresh air baffle as Fig.4.4.8. Plug up the gap of the fresh air baffle by sponge if the fresh air duct is not be used.
- (2) Install the round flange so that the fresh air duct can be connected as Fig.4.4.9.
- (3) Sealing and heat preservation should be done for both the air pipe and round flange pipe.

- (4) Fresh air should be treated via the air filter.

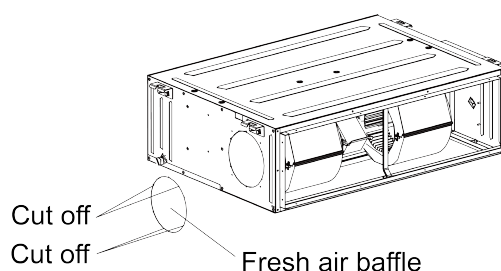


Fig.4.4.8

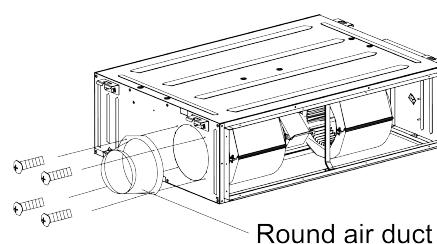


Fig.4.4.9

4.5 Installation of Wired Controller

Please refer to User Manual of Wired Controller for the installation details.

NOTICE When installation is finished, the unit must be tested and debugged before operation. Please refer to Instruction Manual of ODU for auto addressing and debugging details.

5 Wiring Work

| ⚠ WARNING | |
|---|--|
| Before obtaining access to terminals, all supply circuits must be disconnected. | |
| NOTICE | |
| (1) | Units must be earthed securely, or it may cause electric shock. |
| (2) | Please carefully read the wiring diagram before carry out the wiring work, incorrect wiring could cause malfunction or even damage the unit. |
| (3) | The unit should be powered by independent circuit and specific socket. |
| (4) | The capacity of power supply must be sufficient and the sectional area of wires in the room should be above 2.5mm ² . |
| (5) | The wiring should be in accordance with related regulations in order to ensure the units reliable running. |
| (6) | Install circuit breaker for branch circuit according to related regulations and electrical standards. |
| (7) | All wiring must use pressure terminal or single wire. Multi-twisted wire that connects directly to the wiring board may cause fire hazard. |
| (8) | Keep cable away from refrigerant pipings, compressor and fan motor. |
| (9) | Do not change the internal wiring of the air conditioner; otherwise, our company will not bear relevant legal responsibilities for the related damages. |
| (10) | If the unit is installed in places with strong electromagnetic interference, it's recommended to use twin-twisted shield wire. During wire connection, please pay attention that the metal shield layer of the twin-twisted wire must be grounded (outer case) in order to prevent the unit from electromagnetic interference. |
| (11) | The communication wires should be separated from power cord and connection wire between indoor unit and outdoor unit. |
| (12) | The electric wire can't be expanded by connecting another electric wire. When the length of the electric wire is not enough, please contact our designated dealer or local service center for a special electric wire. |
| (13) | Adjust the static pressure via wired controller according to site circumstance. |

5.1 Connection of Wire and Patch Board Terminal

- (1) The connection of wire (as shown in Fig.5.1.1)
 - 1) Strip about 25mm (1inch) insulation of the wire end by stripping and cutting tool.
 - 2) Remove the wiring screws on the terminal board.
 - 3) Shape the tail of wire into ring by needle nose plier, and keep the gauge of ring in accordance with screw.
 - 4) Use the screwdriver for tightening the terminal.

(2) The connection of stranded wire (as shown in Fig.5.1.2)

- 1) Strip about 10mm (3/8inch) insulation of the end of stranded wire by stripping and cutting tool.
- 2) Loosen the wiring screws on terminal board.
- 3) Insert the wire into the ring tongue terminal and tighten by crimping tool.
- 4) Use the screwdriver for tightening the terminal.

Unit: mm (inch)

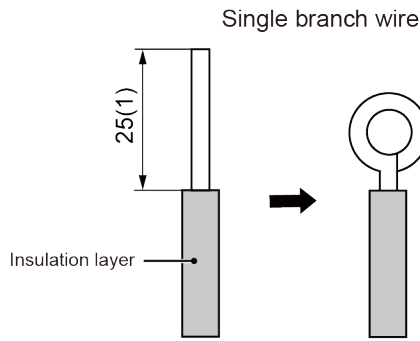


Fig.5.1.1

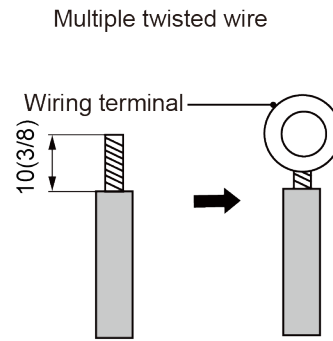


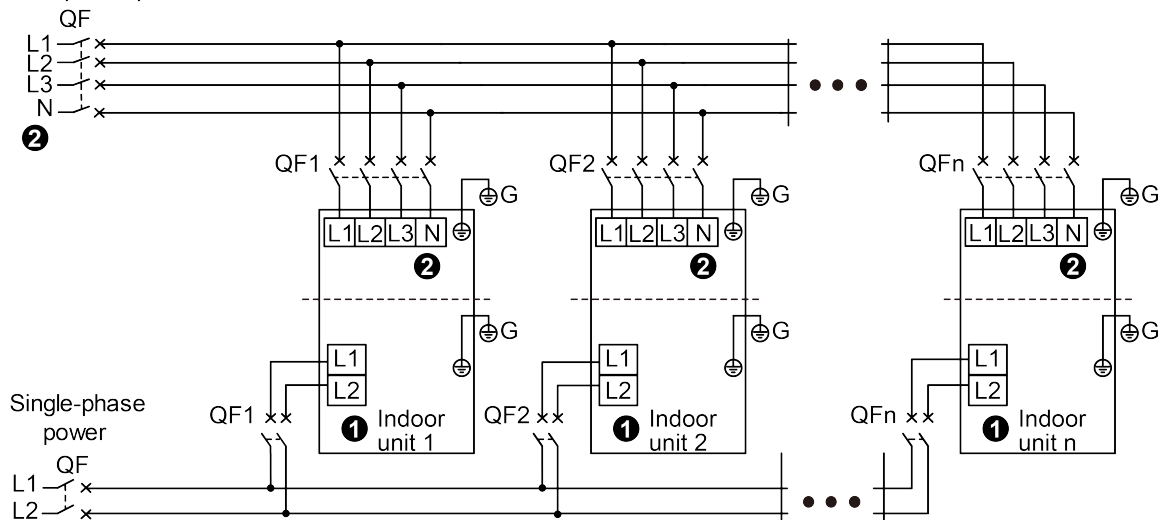
Fig.5.1.2

5.2 Power Cord Connection

NOTICE

- ① Every unit should be equipped with a circuit breaker for short-circuit and overload protection.
- ② During operation, all indoor units connected to the same outdoor unit system must be kept energized status. Otherwise, the unit can't operate normally.

Three-phase power



- ① NOTICE**
- (1) Connect wires for single-phase unit according to figure ① and connect wires for three-phase unit according to figure ②. As for some areas where there's no neutral wire, please refer to the wiring diagram of unit for details.
 - (2) The maximum connection quantity "n" for indoor unit is decided by the capacity of outdoor unit. Please refer to the unit capacity of unit for details.

Fig.5.2.1

- (1) Detach the electric box lid.
- (2) Let the power cord pass through the wiring through-holes.
- (3) Connect wires according to Fig. 5.2.1.
- (4) Fix the power cord with wiring clamp.
- (5) The wire diameter of power cord can't be less than 18AWG.

5.3 Connection of Communication Wire between Indoor Unit and Outdoor Unit (or indoor unit)

- (1) Detach the electric box lid.
- (2) Let the Communication cable pass through the wiring through-holes.
- (3) Connect the communication wire to terminal D1 and D2 of indoor 4-bit wiring board, as shown in Fig.5.3.1.

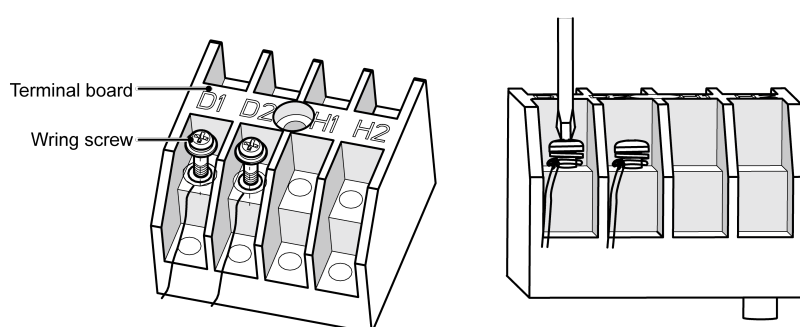
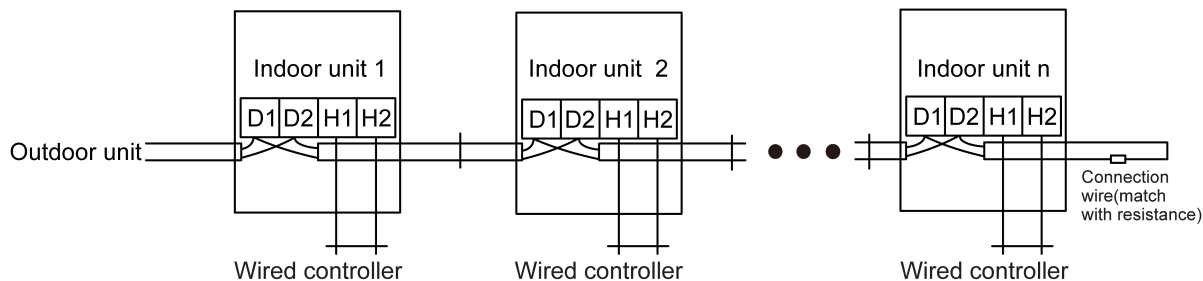


Fig.5.3.1



NOTICE Indoor unit quantity n is according to the outdoor unit capacity.

Fig.5.3.2

- (4) Fix the communication cable with clamp of electric box.
- (5) For more reliable communication, make sure connect the terminal resistor to the most downstream IDU of the communication bus (terminal D1 and D2), as shown in Fig.5.3.2, terminal resistor is provided with each ODU.

5.4 Connect Communication Wire of Wired Controller

- (1) Open electric box cover of indoor unit.
- (2) Let the communication wire go through the rubber ring.
- (3) Connect the communication wire to terminal H1 and H2 of indoor 4-bit wiring board.
- (4) Fix the communication wire with wire clip on the electric box.
- (5) Wiring instructions of remote receiving light board and wired controller:
 - 1) Fig.5.4.1 shows the installation of wired controller.

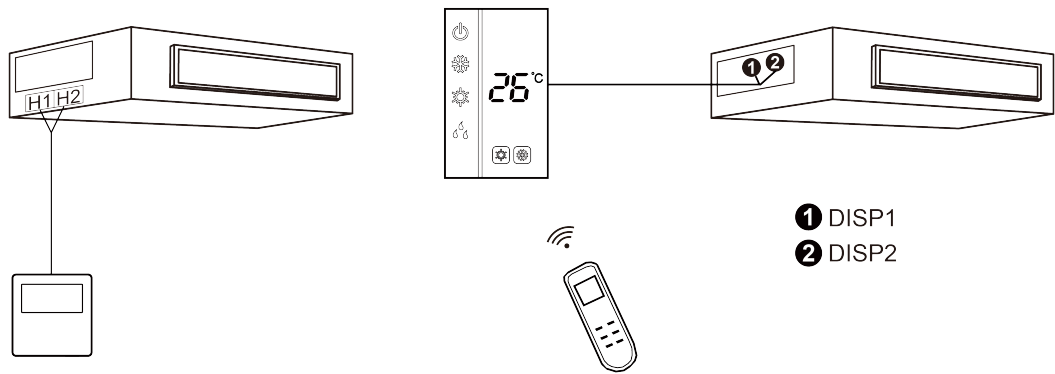


Fig.5.4.1

Fig.5.4.2

- 2) Fig.5.4.2 shows the installation of remote controller.
- 3) Wired controller and receiving light board can be installed at the same time. When operating through a remote controller, both wired controller and the receiving light board can receive the signals, as shown in Fig.5.4.3.

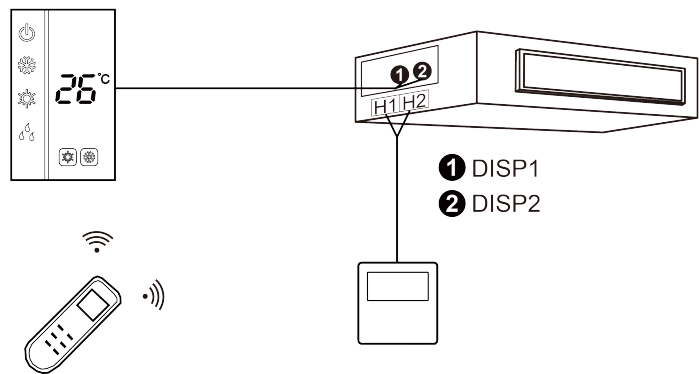


Fig.5.4.3

5.5 Illuminate for Connection of Wired Controller and Indoor Units Network

- (1) Communication wire of indoor unit and outdoor unit (or indoor unit) is connected to D1, D2.
- (2) Wired controller is connected to H1, H2.
- (3) One indoor unit can connect two wired controllers that must be set as master one and slave one.
- (4) One wired controller can control 16 indoor units in maximum at the same time. (as shown in Fig.5.5.1)

| NOTICE | |
|---------------|--|
| (1) | The type of indoor units must be the same if they are controlled by the same wired controller. |
| (2) | When the indoor unit is controlled by two wired controllers, the addresses of the two wired controllers should be different through address setting. Address 1 is for main controller; Address 2 is for slave controller. Detailed setting please refer to the instruction manual of wired controller. |

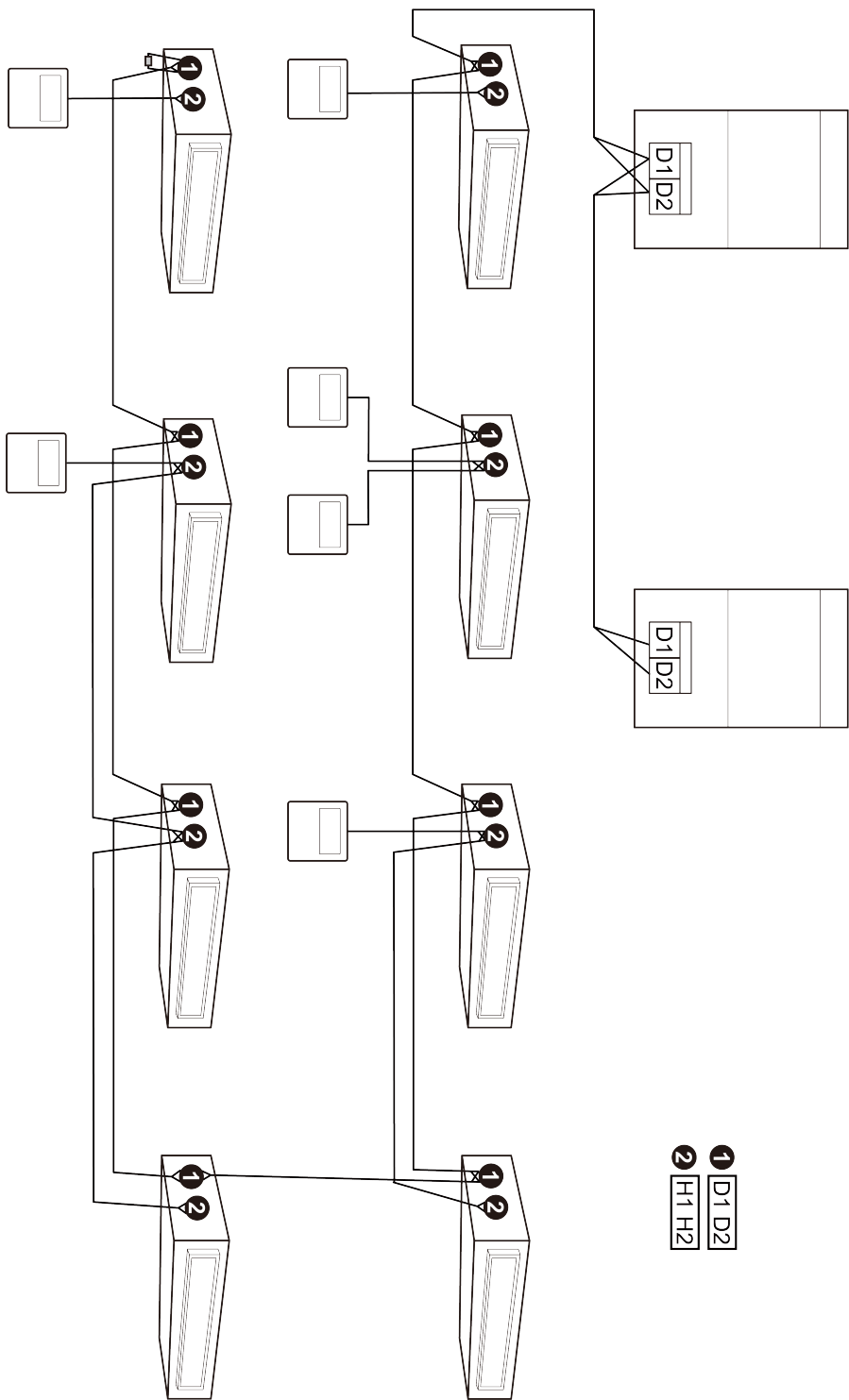


Fig.5.5.1

6 Setting of External Static Pressure

Working range for external static pressure of this series of duct type unit is 0 Pa~275 Pa. For corresponding external static pressure to the respective static pressure notch please see as below. The setting of static pressure for indoor fan can be done via wired controller and Gree debugging software. For specific setting method please see the Wired Controller Instruction Manual or Gree Debugging Software Instruction Manual.

| Applicable to: GMV-ND07~15PHS/B-T(U) | | | | | | | | |
|--------------------------------------|---|----|----|----|-----|-----|-----|-----|
| Static pressure notch for indoor fan | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| External static pressure (Pa) | 0 | 20 | 40 | 60 | 80 | 100 | 120 | 150 |
| Applicable to: GMV-ND18~54PHS/B-T(U) | | | | | | | | |
| Static pressure notch for indoor fan | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| External static pressure (Pa) | 0 | 30 | 60 | 90 | 120 | 150 | 180 | 200 |

7 Routine Maintenance

| NOTICE |
|---|
| (1) Do turn off the unit and cut off the main power supply when cleaning the air conditioner to avoid electric shock or injury. |
| (2) Stand at solid table when cleaning the unit. |
| (3) Do not clean the unit with hot water whose temperature is higher than 45°C to prevent fade or deformation. |
| (4) Do not dry the filters by fire, or it may catch fire or become deformed. |
| (5) Clean the filter with a wet cloth dipped in neutral detergent. |
| (6) Please contact our designated dealer or local service center if there is abnormal situation. |

7.1 Cleaning of Filter

- (1) Remove the filters from inlet of IDU. Use a vacuum cleaner to remove dust. If the filters are dirty, wash them with warm water and mild detergent, and dry the filters in the shade.
- (2) If the unit used in the environment with much dust, please clean it regularly. (Usually once every two weeks).

7.2 Maintenance before the Seasonal Use

- (1) Check if the air inlet and air outlet of indoor and outdoor unit are blocked.
- (2) Check if securely grounded.
- (3) Check if all the power cord and communication cable are securely connected.
- (4) Check if any error code displayed after energized.

7.3 Maintenance after the Seasonal Use

- (1) Set the unit in fan mode for half a day in a sunny day to dry the inner part of unit.
- (2) When the unit won't be used for a long time, please cut off power supply for energy saving; the characters on the wired controller screen will disappear after cutting off the power supply.

8 Table of Error Codes for Indoor Unit

| Error Code | Content | Error Code | Content | Error Code | Content |
|------------|---|------------|--|------------|---|
| L0 | Indoor Unit Error | LA | Indoor Units Incompatibility Error | d9 | Jumper Cap Error |
| L1 | Indoor Fan Protection | LH | Low Air Quality Warning | dA | Indoor Unit Network Address Error |
| L2 | E-heater Protection | LC | ODU-IDU Incompatibility Error | dH | Wired Controller PCB Error |
| L3 | Water Full Protection | d1 | Indoor Unit PCB Error | dC | Capacity DIP Switch Setting Error. |
| L4 | Wired Controller Power Supply Error | d3 | Ambient Temperature Sensor Error | dL | Outlet Air Temperature Sensor Error |
| L5 | Freeze protection | d4 | Inlet Pipe Temperature Sensor Error | dE | Indoor Unit CO ₂ Sensor Error |
| L7 | No Master Indoor Unit Error | d6 | Outlet Pipe Temperature Sensor Error | C0 | Communication Error |
| L8 | Power Insufficiency Protection | d7 | Humidity Sensor Error | AJ | Filter Cleaning Reminder |
| L9 | Quantity Of Group Control Indoor Units Setting Error | d8 | Water Temperature Error | o1 | Low bus bar voltage of indoor unit |
| o2 | High bus bar voltage of indoor unit | o3 | IPM Module Protection of Indoor Unit | o4 | Failure Startup of Indoor Unit |
| o5 | Overcurrent Protection of Indoor Unit | o6 | Current Detection Circuit Malfunction of Indoor Unit | o7 | Desynchronizing Protection of Indoor Unit |
| o8 | Communication Malfunction of Indoor Unit's Drive | o9 | Communication Malfunction of Main Mater of Indoor Unit | oA | High temperature of Indoor Unit's Module |
| ob | Malfunction of Temperature Sensor of Indoor Unit's Module | oC | Charging Circuit Malfunction of Indoor Unit | o0 | Other Drive Malfunction |
| db | Special Code: Field Debugging Code | | | - | |

9 Troubleshooting

The air conditioner is not expected to be serviced by users. Incorrect repair may cause electric shock or fire, so please contact an authorized service center for professional service. The following checks prior to contact may save your time and money.

| Phenomenon | Troubleshooting |
|--|--|
| The unit can't start | ① Power supply is not connected. ② Circuit breaker tripping caused by leakage of electricity. ③ Input voltage is too low. ④ Defect of main PC-board. |
| The unit stops after running for a while. | ① The inlet or outlet of ODU or IDU are blocked by obstacle. |
| Poor cooling effect | ① The filter is dirty. ② Too heavy heat load of room (e.g. too many people). ③ Door or windows is open. ④ Inlet and outlet of IDU are blocked. ⑤ Setting temperature is too high. ⑥ Refrigerant is insufficient (e.g. refrigerant leakage). |
| Poor heating effect | ① The filter is dirty. ② Door or window is open. ③ Setting temperature is too low. ④ Refrigerant is insufficient (e.g. refrigerant leakage). |
| Indoor fan doesn't start up during heating | ① At starting, the IDU fan could not operate till the heat exchange become hot, for preventing delivering the cool air. ② At defrosting, the IDU fan stopped due to system switch to cooling mode. for preventing delivering the cool air, and resume operating after defrosting. |

NOTICE If air conditioner still fails to work normally after checking and handling as described above, please stop using it immediately and contact local service center for assistance.



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