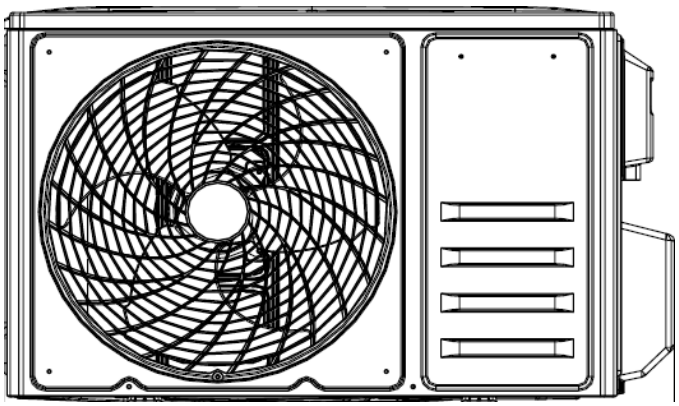
# Installation Manual

## ZDAS Multi Split

*EN*



26.AW.ZDAS.IM.R32.EN.11.05

# WARNINGS AND PRECAUTIONS

Read this manual carefully before installing or servicing the unit.

| | |
|---|---|
|  | This unit uses a flammable refrigerant. In the event of a refrigerant leak and exposure to an external ignition source, there is a risk of fire. |
| **A2L** | A2L refrigerants are low-GWP refrigerants designed to reduce environmental impact while maintaining high energy efficiency. As they are classified as slightly flammable, installation and maintenance must be carried out using approved equipment and in strict compliance with applicable safety regulations. |
|  | This symbol indicates that qualified personnel must handle this equipment in accordance with the installation instructions. |
|  | Installation, commissioning, maintenance, and servicing must be performed exclusively by qualified personnel in accordance with local regulations and this installation manual. |
|  | Always follow the instructions and recommendations provided in this document and in the user manual. |

# WARNINGS AND PRECAUTIONS

## Regulatory requirements for installation and maintenance

Installation and maintenance of the unit must be carried out by an approved professional in accordance with current regulations and recognized best practices, including but not limited to:
France:

- Regulations governing the handling of refrigerants: Decree No. 2007-737 and its implementing orders.
- Commissioning of this air conditioner must be performed by a qualified installer holding a valid certificate of competence in accordance with Articles R.543-75 to R.543-123 of the French Environmental Code.
- NF C 15-100 standard and amendments: Low-voltage electrical installations.

## R32 refrigerant

- When installing the unit, use only R32 refrigerant in the event of additional charging. Tools, components, and piping must be specifically approved for use with R32.
- As R32 is a flammable refrigerant, minimum room surface areas and volumes must be respected in accordance with the installed refrigerant charge. Ensure that the installation complies with the requirements of EN 378.
- Do not introduce any substance other than the specified refrigerant into the refrigeration circuit. The presence of air or non-condensable gases may cause abnormal pressure increase, resulting in equipment damage.
- Do not release refrigerant into the atmosphere. In the event of a leak during installation, ventilate the area immediately. After installation, ensure that no refrigerant leaks are present. Exposure of leaking refrigerant to flames may produce toxic combustion gases.
- Avoid direct contact with refrigerant in the event of leakage, as this may cause frostbite.
- Do not install or store the unit near heat sources.
- Comply with all safety instructions related to the use of R32 refrigerant and applicable national gas regulations.
- Do not pierce or burn the unit.

## General safety instructions

- Dispose of packaging materials in accordance with local regulations. Tear plastic packaging to prevent suffocation hazards and keep it out of reach of children.
- This unit contains no user-serviceable parts. All servicing must be carried out by a qualified installer.
- This appliance may be used by children aged 8 years and older and by persons with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, provided they are supervised or have received instructions concerning safe use of the appliance and understand the associated risks.
- Children must not play with the unit. Cleaning and maintenance by the user must not be carried out by children without supervision.

## Handling

- The outdoor unit must not be transported in a horizontal position. Transporting the unit laid down may cause damage due to refrigerant displacement and deformation of compressor mounts. Damage resulting from improper transport is not covered by the warranty.
- If necessary, the outdoor unit may be temporarily tilted during manual handling (for example when passing through doorways or staircases). This operation must be performed with care, and the unit must be returned to the vertical position immediately.

## Refrigerant connections

- All refrigeration circuits are susceptible to contamination by dust and humidity. If such pollutants enter the refrigeration circuit, they can contribute to degrading the reliability of the units. It is necessary to ensure the correct containment of the unit's refrigeration connections and circuits. In the event of a subsequent failure and on the basis of an expert opinion, the finding of moisture or foreign bodies in the compressor oil may result in exclusion from warranty coverage.
- Check upon receipt that the refrigeration circuit fittings and plugs mounted on the indoor and outdoor units are securely in place and blocked (cannot be loosened with bare hands). If this is not the case, block them using a counter lock.
- Check that the refrigeration connections are well sealed (plastic caps or tubes crushed at the ends and brazed). If the caps need to be removed during work (e.g. recut tubes), reassemble them as quickly as possible to avoid contamination of the tube.
- Do not use thread sealant or sealant for refrigerated connections as it clogs them. Its use will result in the device being taken out of warranty.
- Do not use regular mineral oil on the "Flare" fittings. Use POE refrigerant oil to avoid it entering the circuit as much as possible, as this can reduce the longevity of the equipment.
- Use dry nitrogen to remove filings from pipes and to prevent the introduction of moisture that is harmful to the operation of the appliance.
- The flare connection of the refrigeration connections must be made outdoors.

## Batteries

- Do not leave batteries within reach of children.
- If the remote control is not used for a long time, remove the batteries to prevent possible leaks that could damage the device.
- If liquid leaking from the batteries comes into contact with the skin, eyes, or mouth, rinse immediately with plenty of water and consult your doctor.
- Used batteries should be removed immediately and recycled appropriately.
- Do not attempt to recharge batteries.

## Installation

- Before any intervention, make sure that the general power supply is cut off.
- The installation must be carried out in accordance with the standards in force at the place of installation and the manufacturer's installation instructions.
- The installer should install the unit using the recommendations given in this manual. A poorly carried out installation can cause serious damage such as refrigerant or water leaks, electric shocks or fire hazards. If the unit is not installed in accordance with this manual, the manufacturer's warranty will not be valid.
- Only qualified personnel are authorized to handle, charge, recover, and dispose of refrigerant.
- These air conditioners are intended for residential and tertiary use within normal comfort air-conditioning applications, to ensure the thermal comfort of users. They are not intended to be used in places where humidity is excessive (florist, indoor greenhouse, wine cellar, etc.), where the ambient air is dusty and where electromagnetic interference is significant (computer room, proximity to television antennas or relays).
- The devices are not explosion-proof and therefore should not be installed in potentially explosive atmospheres.
- Take appropriate measures to prevent the outdoor unit from being used as a shelter by small animals. Animals that come into contact with electrical parts are likely to cause breakdowns or fires. Instruct the customer to keep the area around the unit clean.
- Install the units in a location where gas, liquid, and condensate drainpipes will be easy to install.
- Install the air conditioner on a foundation that is strong enough to support the weight of the unit. An inadequate foundation can cause the device to fall and cause injury.
- Install the indoor unit, outdoor unit, power cables, interconnect cables, and remote-control cables at least 1 m from a television or radio receiver. This precaution is intended to avoid interference on the television reception signal or noise on the radio signal (however, even at more than 1 m the signals can still be disturbed).
- If you are moving, call an installer to disconnect and install the appliance.
- Be sure to use the parts provided or specified in the instructions during installation.
- Properly secure the electrical box cover and service panel of the units. If the unit's electrical box cover or

service panel is loosely attached, there is a risk of fire, electric shock due to the presence of dust, water, etc.

## Electrical connections

- Electrical installation must be carried out in accordance with all applicable local regulations and standards, in particular the NF C 15-100 standard.
- If the power supply cable is damaged, it must be replaced with a special cable or assembly supplied by the manufacturer or its authorized service department.
- The indoor unit operates at a nominal voltage of 230 V – 50 Hz. At no time, including during start-up, shall the supply voltage fall below 198 V or exceed 264 V at the unit terminals.
- The maximum permissible cable length depends on the allowable voltage drop, which must not exceed 2%. If the cable length is excessive, use a conductor with a larger cross-section.
- Electrical connections must only be carried out after all mechanical installation work (fixing, mounting, and assembly) has been completed.
- Ensure that all wiring is protected from wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental conditions.
- AIRWELL air conditioning units are designed to operate with the following earthing systems: TT and TN.
  The IT earthing system is not suitable for these units and requires the use of an isolation transformer.
- Single-phase power supplies without neutral (phase-to-phase connection) are strictly prohibited. For three-phase units, the neutral conductor must always be provided (TT or TN system).
- The electrical power contract with the energy supplier must be sufficient to supply not only the rated power of the unit, but also the combined power of all appliances likely to operate simultaneously. If the available power is insufficient, verify the subscribed power level with the energy supplier.
- Obtain from the power distribution network operator the specifications relating to cable characteristics, harmonic current limits, and other applicable requirements.
- Never connect the unit using a power outlet.
- Use a dedicated electrical circuit exclusively for the air conditioner. Do not share the power supply with other equipment.
- The unit must be supplied by an independent power line protected by an omnipolar circuit breaker with a minimum contact separation of 3 mm.
- The electrical installation must be protected by a 30 mA residual current device (RCD).
- Install the circuit breaker in a location where users cannot unintentionally switch it on or off (for example, in an annex or technical room). If the electrical panel is installed outdoors, it must be closed and locked to prevent unauthorized access.
- Except in emergency situations, never switch off the main circuit breaker or the indoor unit circuit breaker while the system is operating. Doing so may cause compressor failure and water leakage. Always stop the indoor unit using the remote control or an external control device before switching off the circuit breaker.
- Do not touch electrical components immediately after power has been switched off. Risk of electric shock may remain. After disconnecting the power supply, wait at least 10 minutes before accessing electrical components.
- Static electricity carried by the human body may damage electronic components. Discharge static electricity before handling electrical parts.
- The unit must be properly grounded. Incorrect grounding may result in electric shock.
- Incorrect wiring may cause serious damage to the system.
- If the supply voltage is too low or drops significantly during unit start-up, starting difficulties may occur. In this case, contact your local power distribution operator.
- Ensure that all cables comply with applicable standards (in particular NF C 15-100), and that no mechanical stress is applied to terminal connections or wiring.

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# 1 PRODUCT SPECIFICATIONS

## 1.1 COMBINATIONS

**ZDAS-2050-09M25**

| Interior unit combinations | Cooling | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Capacity (kW) | | Total Capacity (kW) | | | Total Power Consumption (kW) | | | EER | SEER/Energy Class |
| | Unit A | Unit B | Min. | Nominal | Max. | Min. | Nominal | Max. | | |
| 25 | 2.60 | | 1.20 | 2.60 | 3.00 | 0.25 | 0.36 | 0.88 | 3.33 | 6.1/A++ |
| 35 | 3.50 | | 1.20 | 3.50 | 3.80 | 0.25 | 0.36 | 1.10 | 3.37 | 6.1/A++ |
| 25 + 25 | 2.60 | 2.60 | 1.23 | 5.20 | 5.60 | 0.28 | 0.37 | 2.05 | 3.29 | 6.1/A++ |
| 25 + 35 | 2.30 | 3.00 | 1.23 | 5.30 | 5.80 | 0.28 | 0.37 | 2.05 | 3.29 | 6.1/A++ |
| 35 + 35 | 2.65 | 2.65 | 1.95 | 5.30 | 5.90 | 0.30 | 0.59 | 2.25 | 3.29 | 6.1/A++ |
| 25 + 50 | 1.80 | 3.60 | 2.05 | 5.40 | 6.20 | 0.35 | 0.63 | 2.35 | 3.23 | 6.1/A++ |

| Interior unit combinations | Heating | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Capacity (kW) | | Total Capacity (kW) | | | Total Power Consumption (kW) | | | COP | SCOP/Energy Class |
| | Unit A | Unit B | Min. | Nominal | Max. | Min. | Nominal | Max. | | |
| 25 | 2.65 | | 1.20 | 2.65 | 3.30 | 0.20 | 0.70 | 0.85 | 3.80 | 4/A+ |
| 35 | 3.65 | | 1.20 | 3.65 | 4.18 | 0.20 | 0.95 | 0.93 | 3.83 | 4/A+ |
| 25 + 25 | 2.60 | 2.60 | 1.29 | 5.20 | 5.75 | 0.25 | 1.33 | 2.05 | 3.91 | 4/A+ |
| 25 + 35 | 2.26 | 3.01 | 1.29 | 5.27 | 5.85 | 0.25 | 1.38 | 2.05 | 3.82 | 4/A+ |
| 35 + 35 | 2.68 | 2.68 | 1.95 | 5.36 | 5.90 | 0.35 | 1.43 | 2.15 | 3.75 | 4/A+ |
| 25 + 50 | 1.89 | 3.79 | 2.10 | 5.68 | 6.30 | 0.50 | 1.53 | 2.20 | 3.71 | 4/A+ |

**ZDAS-3080-09M25**

| Interior unit combinations | Cooling | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Capacity (kW) | | | Total Capacity (kW) | | | Total Power Consumption (kW) | | | EER | SEER/Energy Class |
| | Unit A | Unit B | Unit C | Min. | Nominal | Max. | Min. | Nominal | Max. | | |
| 25 + 25 | 2.80 | 2.80 | | 2.80 | 5.60 | 8.80 | 0.30 | 1.71 | 1.90 | 3.27 | 6.1/A++ |
| 25 + 35 | 2.74 | 3.66 | | 2.80 | 6.40 | 8.80 | 0.30 | 1.95 | 2.22 | 3.28 | 6.1/A++ |
| 35 + 35 | 3.50 | 3.50 | | 3.00 | 7.00 | 8.80 | 0.35 | 2.10 | 2.22 | 3.33 | 6.1/A++ |
| 25 + 50 | 2.53 | 5.07 | | 2.80 | 7.60 | 8.80 | 0.35 | 2.20 | 2.53 | 3.45 | 6.1/A++ |
| 35 + 50 | 3.04 | 4.56 | | 3.00 | 7.60 | 8.80 | 0.35 | 2.25 | 2.55 | 3.38 | 6.1/A++ |
| 50 + 50 | 3.95 | 3.95 | | 3.00 | 7.90 | 8.80 | 0.40 | 2.40 | 2.60 | 3.29 | 6.1/A++ |
| 25 + 25 + 25 | 2.63 | 2.63 | 2.63 | 2.80 | 7.90 | 8.80 | 0.35 | 2.44 | 2.85 | 3.23 | 6.1/A++ |
| 25 + 25 + 35 | 2.40 | 2.40 | 3.20 | 2.80 | 8.00 | 8.80 | 0.35 | 2.47 | 2.75 | 3.24 | 6.1/A++ |
| 25 + 25 + 50 | 2.00 | 2.00 | 4.00 | 2.80 | 8.00 | 8.80 | 0.45 | 2.48 | 2.85 | 3.23 | 6.1/A++ |
| 25 + 35 + 35 | 2.18 | 2.91 | 2.91 | 2.80 | 8.00 | 8.80 | 0.40 | 2.48 | 2.85 | 3.23 | 6.1/A++ |
| 25 + 35 + 50 | 1.85 | 2.46 | 3.69 | 2.80 | 8.00 | 8.80 | 0.50 | 2.48 | 2.85 | 3.23 | 6.1/A++ |
| 35 + 35 + 35 | 2.67 | 2.67 | 2.67 | 3.00 | 8.00 | 8.80 | 0.45 | 2.48 | 2.85 | 3.23 | 6.1/A++ |

| Interior unit combinations | Heating | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Capacity (kW) | | | Total Capacity (kW) | | | Total Power Consumption (kW) | | | COP | SCOP/Energy Class |
| | Unit A | Unit B | Unit C | Min. | Nominal | Max. | Min. | Nominal | Max. | | |
| 25 + 25 | 2.80 | 2.80 | | 2.45 | 5.60 | 6.16 | 0.35 | 1.40 | 2.00 | 3.99 | 3.8/A |
| 25 + 35 | 2.74 | 3.66 | | 2.45 | 6.40 | 7.04 | 0.35 | 1.56 | 2.22 | 4.10 | 3.8/A |
| 35 + 35 | 3.50 | 3.50 | | 2.45 | 7.00 | 7.72 | 0.40 | 1.73 | 2.22 | 4.05 | 3.8/A |
| 25 + 50 | 2.53 | 5.07 | | 2.45 | 7.60 | 8.69 | 0.42 | 1.81 | 2.53 | 4.19 | 3.8/A |
| 35 + 50 | 3.04 | 4.56 | | 2.45 | 7.60 | 8.80 | 0.42 | 1.85 | 2.55 | 4.11 | 3.8/A |
| 50 + 50 | 3.95 | 3.95 | | 2.45 | 7.90 | 8.80 | 0.45 | 1.95 | 2.60 | 4.05 | 3.8/A |
| 25 + 25 + 25 | 2.60 | 2.60 | 2.60 | 2.45 | 7.80 | 8.80 | 0.42 | 1.93 | 2.85 | 4.05 | 3.8/A |
| 25 + 25 + 35 | 2.35 | 2.35 | 3.30 | 2.70 | 8.00 | 8.80 | 0.42 | 1.88 | 2.85 | 4.25 | 3.8/A |
| 25 + 25 + 50 | 2.05 | 2.05 | 4.10 | 2.70 | 8.20 | 8.80 | 0.45 | 2.02 | 2.85 | 4.05 | 3.8/A |
| 25 + 35 + 35 | 2.20 | 3.00 | 3.00 | 2.70 | 8.20 | 8.80 | 0.42 | 1.96 | 2.85 | 4.19 | 3.8/A |
| 25 + 35 + 50 | 1.90 | 2.50 | 3.90 | 2.70 | 8.30 | 8.80 | 0.50 | 2.02 | 2.85 | 4.11 | 3.8/A |
| 35 + 35 + 35 | 2.75 | 2.75 | 2.75 | 2.70 | 8.25 | 8.80 | 0.45 | 2.04 | 2.85 | 4.05 | 3.8/A |

## 1.2 COOLING AND HEATING CAPACITIES

| | Power | | |
|---|---|---|---|
| | Nominal refrigeration (Mini / Maxi) W | Nominal Heat (Mini / Maxi) W | |
| HDLS-025N-09M25 | 2500 (940/3300) | 2750 (940/3500) | HDLS-025N-09M25-BK |
| HDLS-035N-09M25 | 3500 (1000/4100) | 3760 (1000/4200) | HDLS-035N-09M25-BK |
| HDLS-050N-09M25 | 5050 (1250/5300) | 5110 (1250/6070) | HDLS-050N-09M25-BK |

## 1.3 ELECTRICAL SIZING

| | Power Cable | Circuit breaker Caliber |
|---|---|---|
| ZDAS-2050-09M25 | 3×1.5mm² | 16 A |
| ZDAS-3080-09M25 | 3×2.5mm² | 20 A |

| | Interconnection Cable | |
|---|---|---|
| HDLS-025N-09M25 | 4×1 mm² | HDLS-025N-09M25-BK |
| HDLS-035N-09M25 | 4×1 mm² | HDLS-035N-09M25-BK |
| HDLS-050N-09M25 | 4×1 mm² | HDLS-050N-09M25-BK |

## 1.4 REFRIGERATED CONNECTIONS

| | Liquid tube diameter | Gas tube diameter | |
|---|---|---|---|
| HDLS-025N-09M25 | 1/4" (6.35mm) | 3/8" (9.53mm) | HDLS-025N-09M25-BK |
| HDLS-035N-09M25 | 1/4" (6.35mm) | 3/8" (9.53mm) | HDLS-035N-09M25-BK |
| HDLS-050N-09M25 | 1/4" (6.35mm) | 3/8" (9.53mm) | HDLS-050N-09M25-BK |

| | Liquid tube diameter | Gas tube diameter |
|---|---|---|
| ZDAS-2050-09M25 | 2x 1/4" (6.35mm) | 2x 3/8" (9.53mm) |
| ZDAS-3080-09M25 | 3x 1/4" (6.35mm) | 3x 3/8" (9.53mm) |

| | Preload (m) | Length Mini / Maxi (m) | Max elevation gain (m) |
|---|---|---|---|
| ZDAS-2050-09M25 | 10 | 10 / 40 | 15 |
| ZDAS-3080-09M25 | 15 | 15 / 60 | 15 |

## 1.5 PIPING LENGTH AND ADDITIONAL REFRIGERANT CHARGE

| Capacity / Models Outdoor Unit (ODU) | ZDAS-2050-09M25 | ZDAS-3080-09M25 |
|---|---|---|
| Maximum equivalent piping length for all indoor units | 40 m | 60 m |
| Maximum piping length to the farthest indoor unit | 25 m | 25 m |
| Maximum height difference between indoor and outdoor unit | 15 m | 15 m |
| Maximum height difference between indoor units | 10 m | 10 m |
| Standard piping length | 20 m | 20 m |
| Additional refrigerant charge (depending on indoor unit) | 15 g/m | 15 g/m |

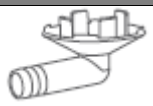
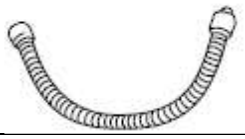
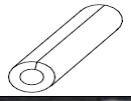
## 1.6 TUBE SIZE – TIGHTENING TORQUE

| Tube Size | Newton-meter (N·m) | Pound-foot (lbf·ft) | Kilogram-force meter (kgf·m) |
|---|---|---|---|
| 1/4" (Φ 6.35mm) | 15 – 20 | 11.1 – 14.8 | 1.5 – 2.0 |
| 3/8" (Φ 9.52mm) | 31 – 35 | 22.9 – 25.8 | 3.2 – 3.6 |
| 1/2" (Φ 12mm) | 45 – 50 | 33.2 – 36.9 | 4.6 – 5.1 |
| 5/8" (Φ 15.88mm) | 60 – 65 | 44.3 – 48.0 | 6.1 – 6.6 |

# 2 STANDARD ACCESSORIES

## 2.1 OUTDOOR UNIT

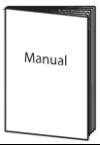
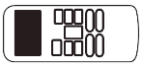
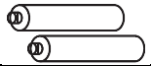
Standard accessories are always present in the packaging. Collect accessories and instructions before disposing of packaging. Use accessories as directed.

| Designation | Visual | Quantity |
|---|---|---|
| Condensate outlet |  | 1 |
| Drain hose |  | 2 |
| Insulating material |  | 1 |
| Sealant (for wall drilling) |  | 1 |
| Pipe tape |  | 1 |

## 2.2 INDOOR UNIT

Standard accessories are always present in the packaging.
Collect accessories and instructions before disposing of packaging.
Use accessories as directed.

**Below quantity per unit;**

| Accessories | Visual | Quantity |
|---|---|---|
| Installation instructions<br>User manual |  | 2 |
| Flare fitting |  | 4 |
| Screw |  | 6-10 |
| Infrared remote control |  | 1 |
| Remote Control Stand |  | 1 |
| Batteries |  | 2 |
| Rubber |  | 4 |

# 3 MOVING THE OUTDOOR UNIT



- Do not touch the fins, otherwise you will cut yourself.
- Carry the unit carefully, holding it by the right and left handles.

# 4 IMPLANTATION

## 4.1 OUTDOOR UNIT

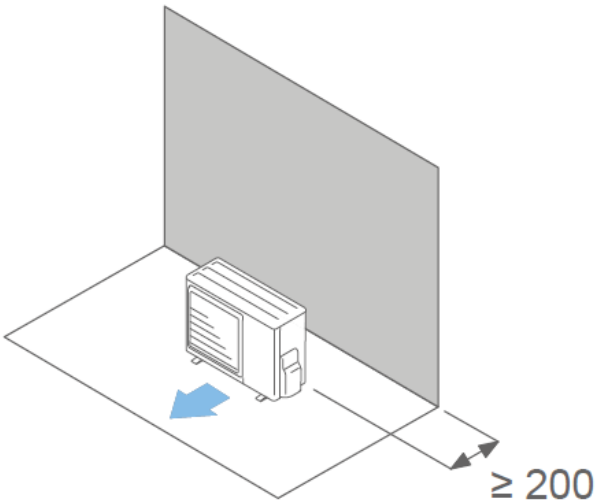
The selection of the installation location is particularly important, as any subsequent relocation is a delicate operation that must be carried out by qualified personnel.
Determine the installation location in consultation with the customer.

- Install the outdoor unit in a location capable of supporting its weight and that does not transmit vibration.
- Install the unit on a level surface in a horizontal position.
- Ensure that the required clearances are maintained to allow proper air circulation. The air inlet and outlet must not be obstructed under any circumstances.
- Avoid installing the unit in direct sunlight.
- Do not install the unit near sources of heat, steam, or flammable gases.
- During heating operation, condensate water may drain from the outdoor unit. Take all necessary measures to ensure proper drainage without causing damage to surrounding structures.
- Do not install the unit in locations exposed to strong winds or excessive dust.
- Do not install the unit in high-traffic areas.
- Install the unit in a location where airflow, noise, or vibration will not cause disturbance to the surrounding area. If installation near neighbouring properties is unavoidable, ensure prior agreement has been obtained.
- Avoid installing the unit in areas subject to dirt accumulation or significant water runoff (for example, beneath a defective gutter).
- Ensure that routing of refrigerant piping and electrical connections to the indoor unit is possible and easily accessible.
- Consider accessibility for inspection, servicing, and maintenance when selecting the installation location. Leave sufficient space around the unit to allow safe and convenient access.

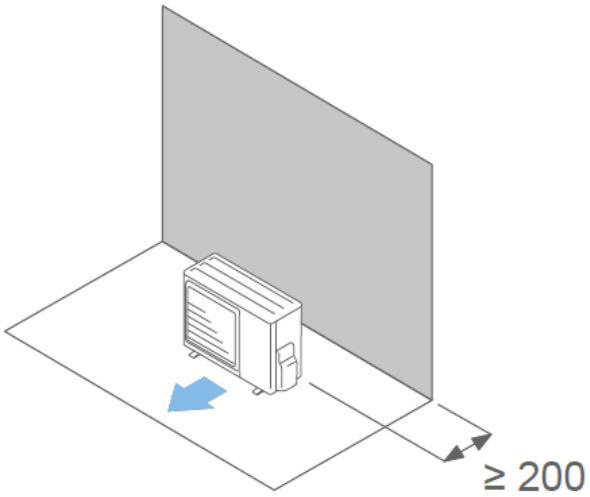
### 4.1.1 A SINGLE OUTDOOR UNIT

**Top of outdoor unit not covered.**

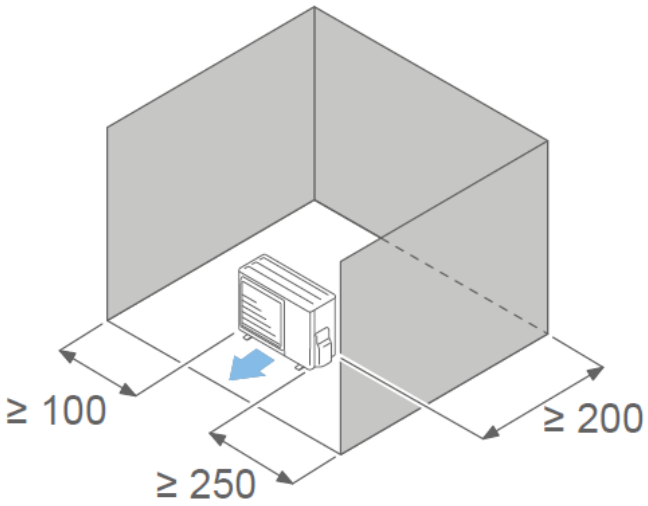
Obstacle only behind



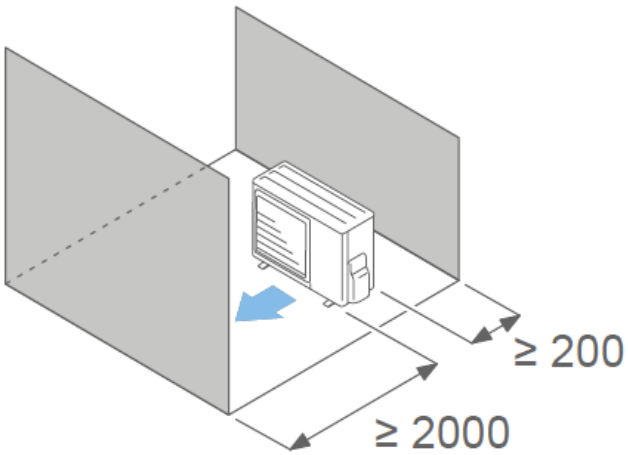

Obstacle only in front




Obstacles behind and on the sides



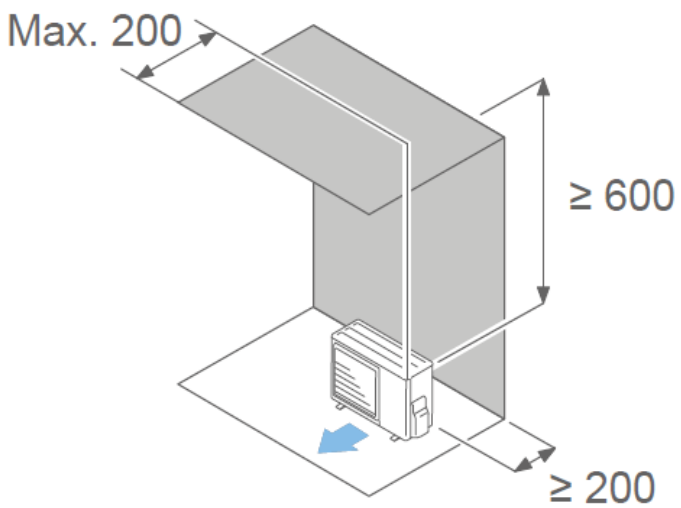

Obstacles in front and behind



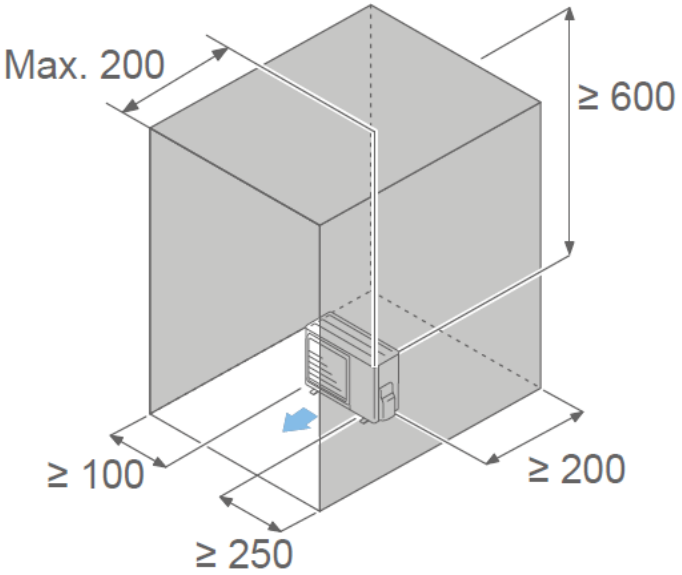

Unit: mm

**Covered outdoor unit top.**

Obstacle behind and above




Obstacle behind, on the sides and above



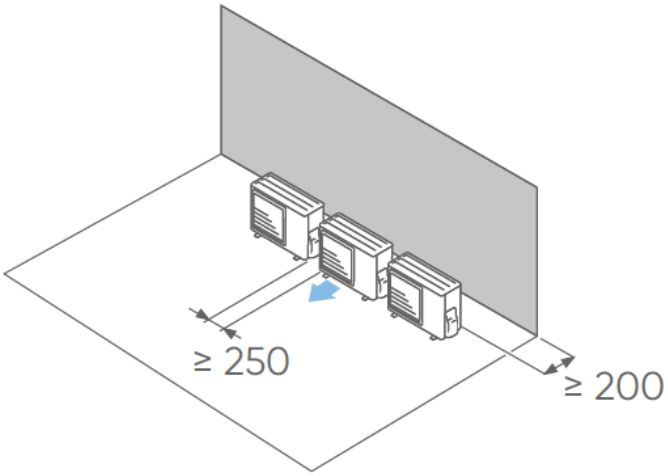

Unit: mm

### 4.1.2 MULTIPLE OUTDOOR UNITS

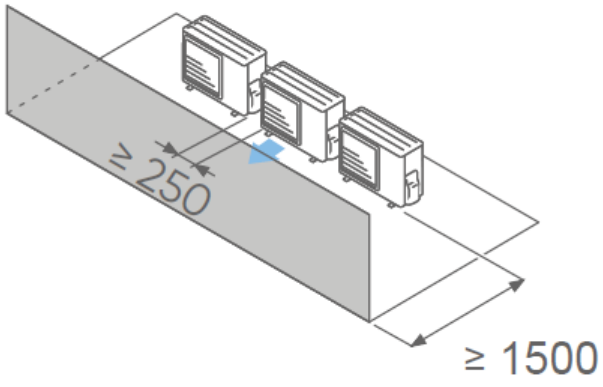
1. Leave a minimum of 250 mm of space between outdoor units if they are installed side-by-side.
2. When routing linkages on the side of an outdoor unit, allow sufficient space for installation and maintenance of the linkages.
3. No more than 3 units should be installed side by side. When more than 3 units are to be installed in a line, leave sufficient space as shown in the example (when an obstacle is also present above).

**Top of outdoor units not covered.**

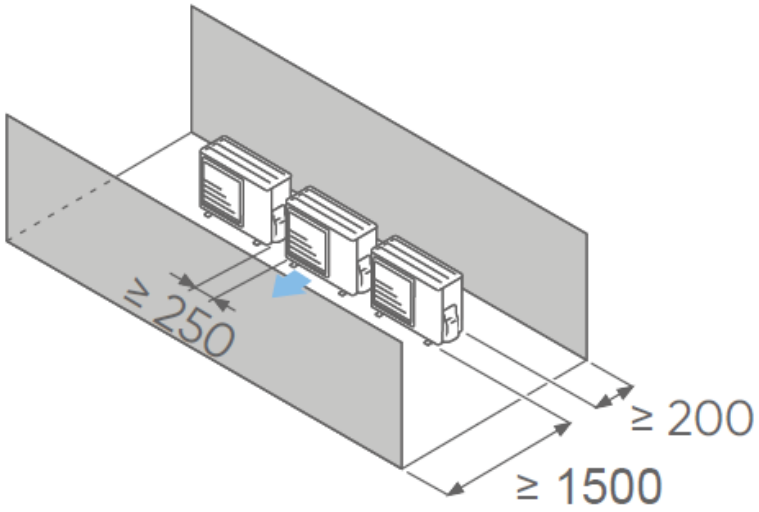
Obstacle only behind




Obstacle only in front

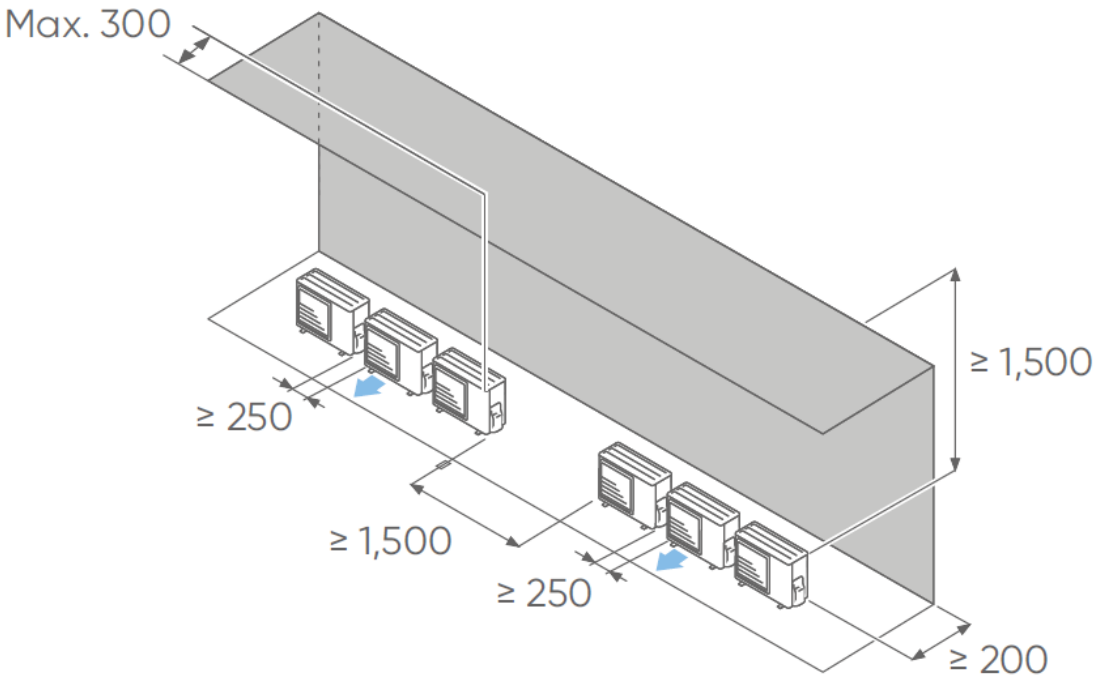


**Obstacles in front and behind**

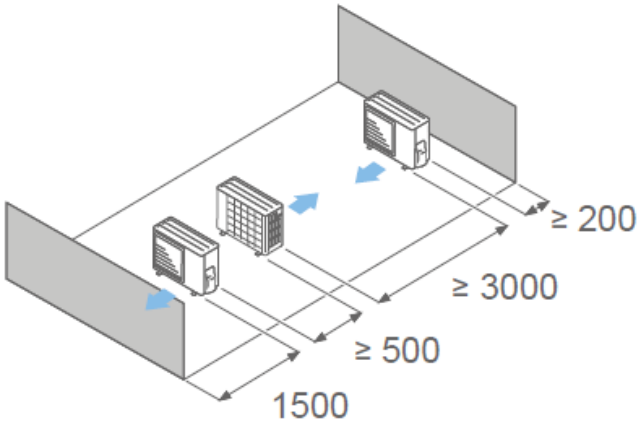


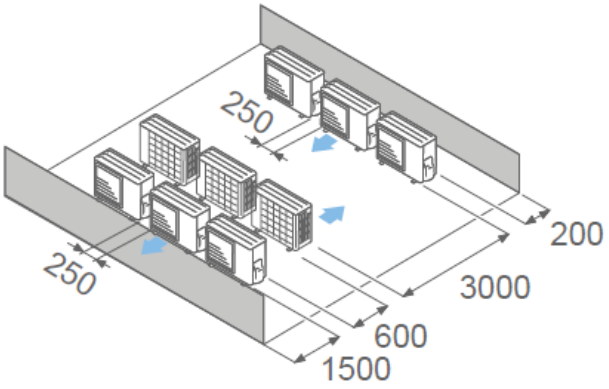

Unit: mm

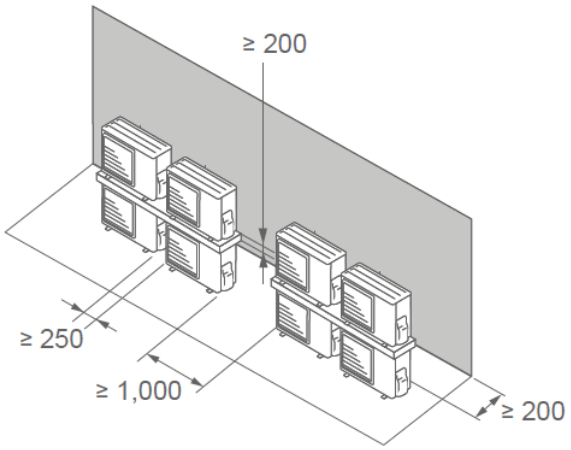
**Covered outdoor units' top.**



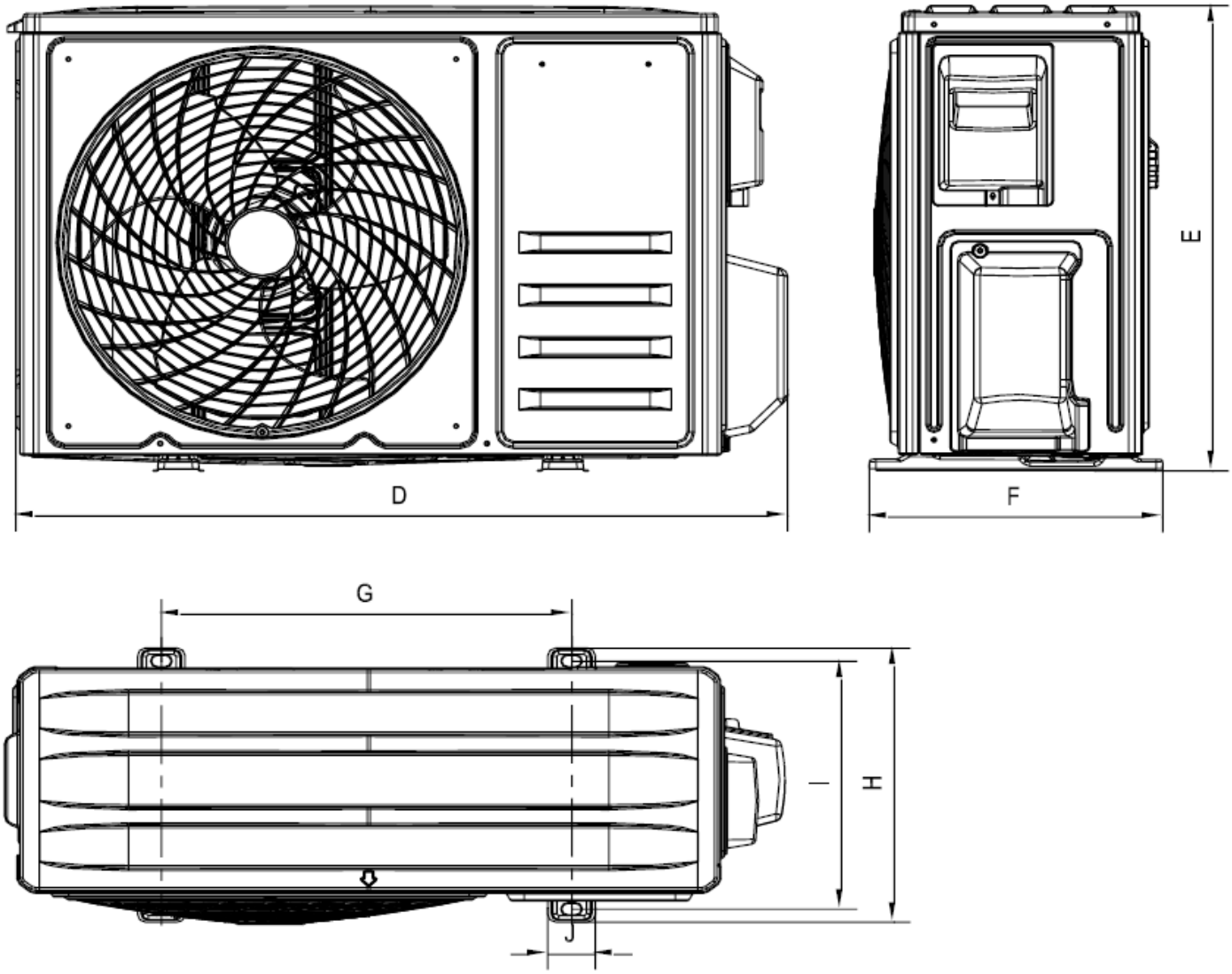
**Multiple outdoor units in parallel**



### 4.1.3 DIMENSIONS – ZDAS

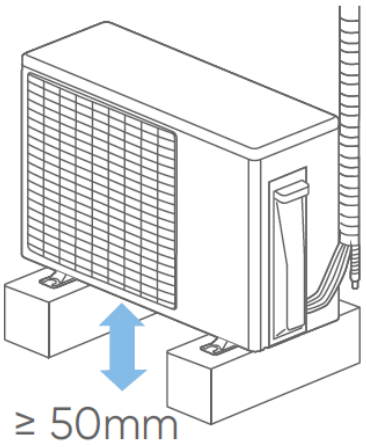


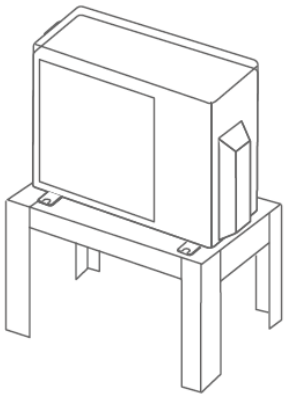

| Model | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|
| **ZDAS-2050-09M25** | 863 | 602 | 288 | 516 | 349 | 314 | 53.9 |
| **ZDAS-3080-09M25** | 927 | 699 | 375 | 586 | 375 | 347.5 | 58.6 |

*(mm)*

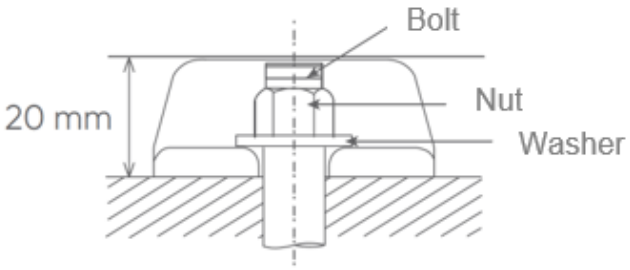
### 4.1.4 GROUND ANCHORING

- Do not install the outdoor unit directly on the ground. Doing so may cause malfunction. Condensate water may freeze between the ground and the base of the unit, preventing proper drainage.
- In regions subject to heavy snowfall, snow accumulation may obstruct the air inlet and outlet and reduce heating performance. In such cases, install the unit on a raised support or pedestal, or provide a protective shelter, depending on site conditions.



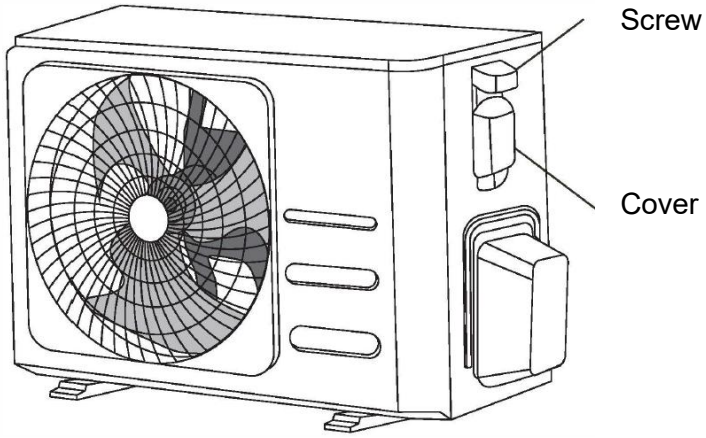



1. Install the unit on a level surface in a horizontal position. The unit must not be tilted by more than 3 degrees.
2. When constructing the foundation, ensure sufficient space is provided for installation of the refrigerant piping and connections.
3. Depending on installation conditions, vibration may be transmitted during operation and generate noise. To reduce vibration, install the unit on suitable supports such as concrete blocks or approved anti-vibration mounts (air-conditioning accessories).
4. Install the four anchor bolts at the positions indicated by the arrows in the figure below.
5. The foundation must support the outdoor unit base frame and have a minimum total thickness of 50 mm.
6. Secure the unit using four anchor bolts, washers, and nuts (M10).
7. The anchor bolts must protrude by approximately 20 mm above the foundation surface.



### 4.1.5 DISMANTLING THE COVERS

1. Remove the self-tapping screws.
2. Slide the cover down and pull it out.




## 4.2 INDOOR UNIT

The selection of the installation location is particularly important, as any subsequent relocation is a delicate operation that must be carried out by qualified personnel.
Determine the installation location in consultation with the customer.

- Consider accessibility for inspection, maintenance, and servicing when selecting the installation location.
- Ensure sufficient clearance around the unit to allow easy access, particularly for filter removal.
- Verify that the wall structure is capable of supporting the weight of the indoor unit in order to prevent falling and possible injury.
- Install the unit in a location that can support its weight and does not transmit vibration or unwanted noise.
- Select a location that allows easy connection to the outdoor unit.
- Install the unit in a location where installation of refrigerant piping, condensate drainage, and electrical connections can be carried out easily.
- Ensure that the air inlet and outlet are not obstructed under any circumstances. Airflow must be distributed throughout the room.

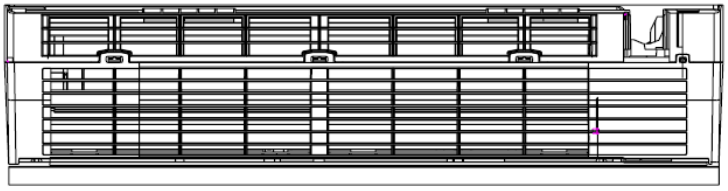


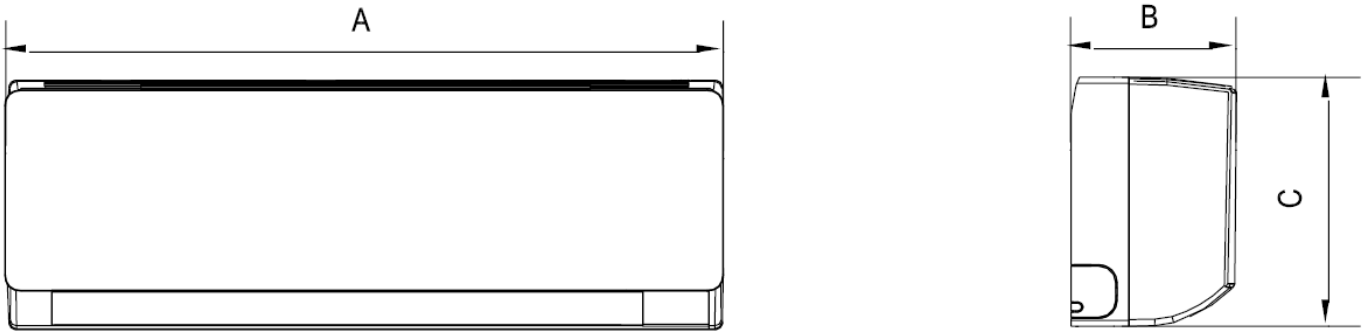
Do not install the indoor unit in the following areas:

- Rooms containing mineral oil or subject to oil mist or steam (for example, kitchens). Such conditions may deteriorate plastic components and cause parts to fall or lead to water leakage.
- Locations where corrosive substances such as sulphur gas, chlorine gas, acids, or alkalis are present, as these may corrode copper piping and joints, resulting in refrigerant leakage.
- Areas with combustible gas leakage, carbon fibres, flammable dust, or volatile flammable substances such as paint thinner or gasoline. Accumulation of such substances may result in ignition.
- Areas where ammonia is present.
- Near sources of heat, steam, or flammable gases.
- Locations where there is a risk of hazardous gas leakage.
- Applications not intended for comfort air conditioning, such as food storage, plant cultivation, or similar special-purpose uses.
- Locations directly exposed to sunlight.
- Areas accessible to children under 10 years of age, unless appropriate protective measures are taken to prevent contact with the unit.

- If the unit is secured using the front panel only, there is a risk that the unit will come loose.
- Confirm the return and exhaust directions prior to installation of the unit.

### 4.2.1 DIMENSIONS – HDLS



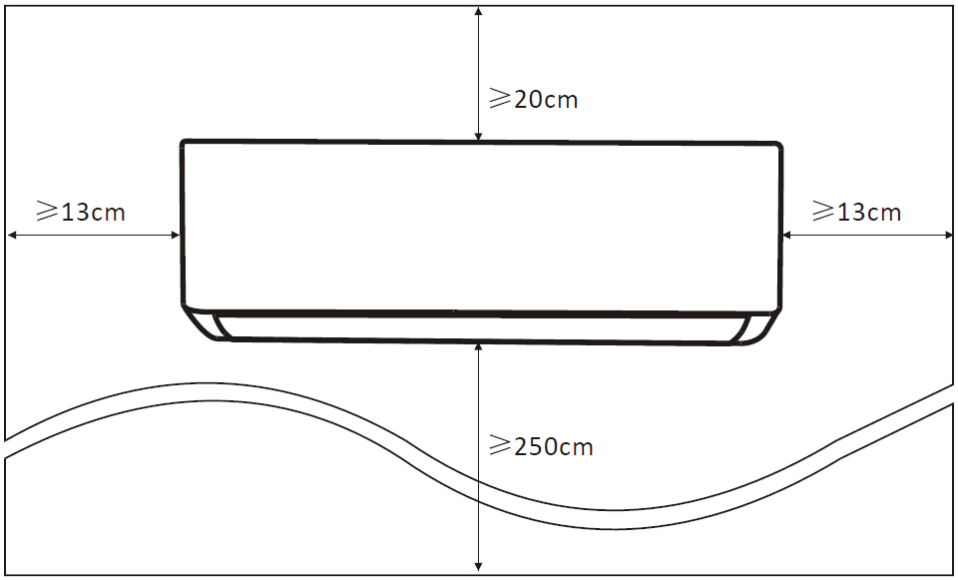



| | A | B | C |
|---|---|---|---|
| HDLS-025N-09M25 | 778 | 192 | 272 |
| HDLS-035N-09M25 | 811 | 195 | 305 |
| HDLS-050N-09M25 | 910 | 195 | 305 |
| HDLS-070N-09M25 | 1005 | 220 | 321.5 |

*(mm)*

# 5 INSTALLATION

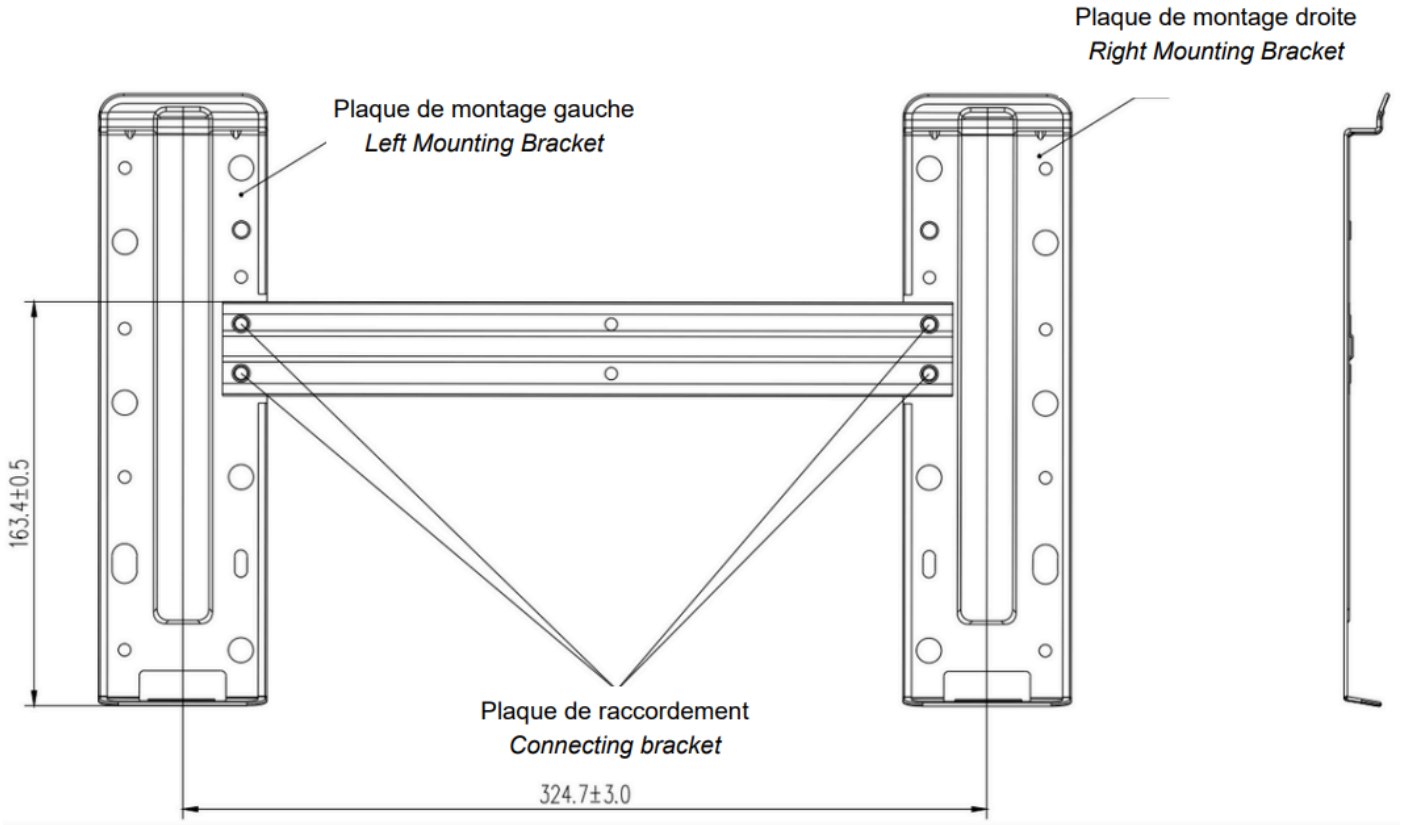
- Select the location and drill the mounting holes for the plate as well as the hole for the passage of the links.
- Prepare the refrigeration connections, the condensate drainpipe, and the electrical cables.
- Install the air conditioner on a stand that is strong enough to hang it up.
- Confirm return and exhaust directions prior to installation of the unit.



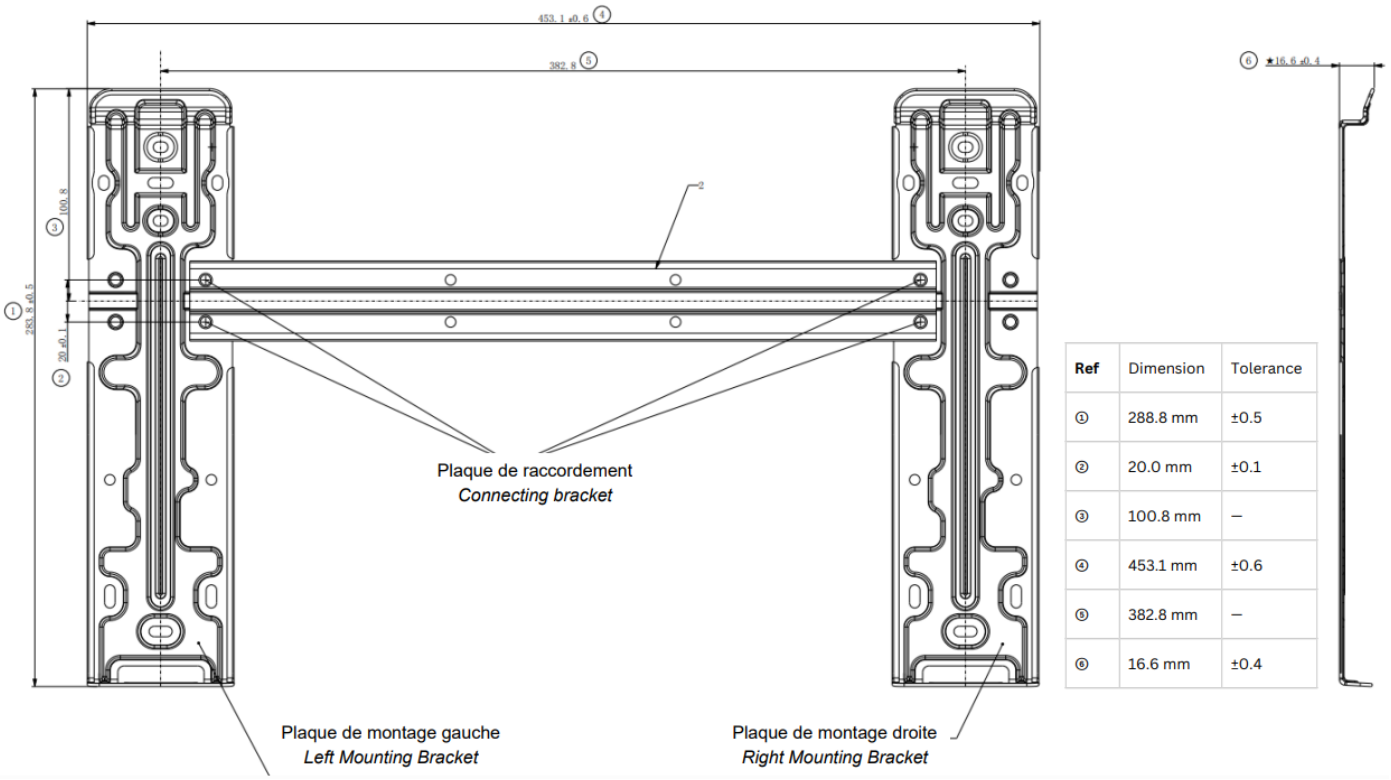
## 5.1 MOUNTING BRACKET ATTACHMENT

Remove the mounting plate from the back of the indoor unit. Please note that these dimensions mentioned below might slightly differ from one unit to another. (Units = mm)

### 5.1.1 Bracket - HDLS-025N-09M25.

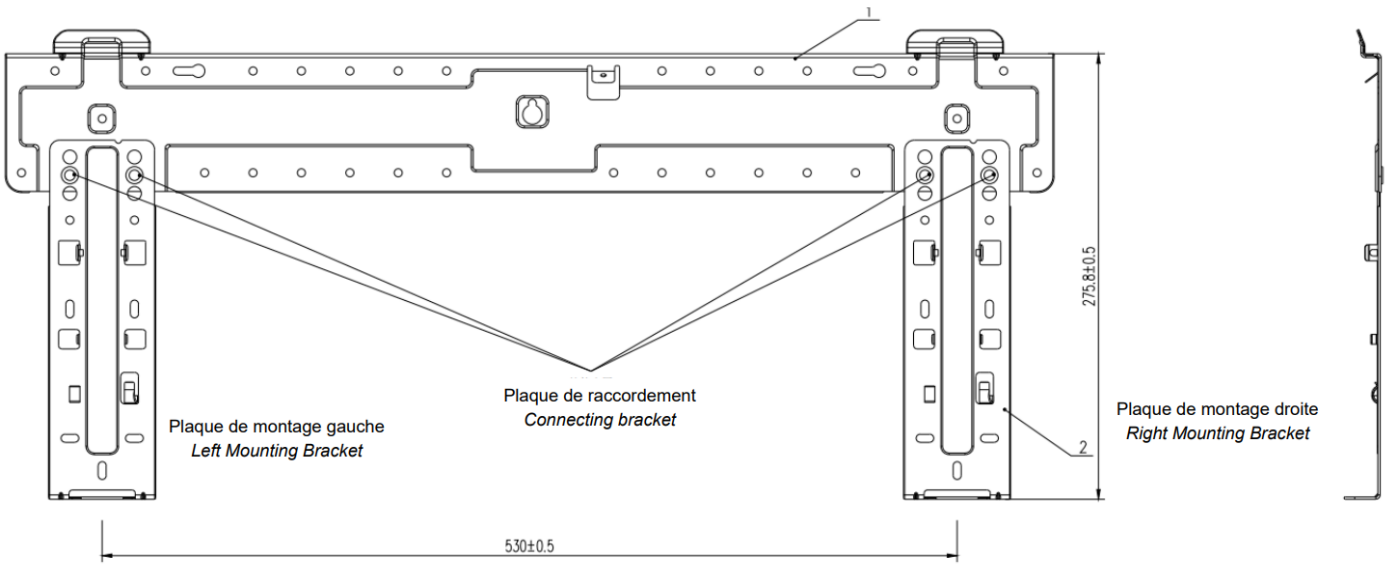



### 5.1.2 Bracket - HDLS-035N-09M25 & HDLS-050N-09M25

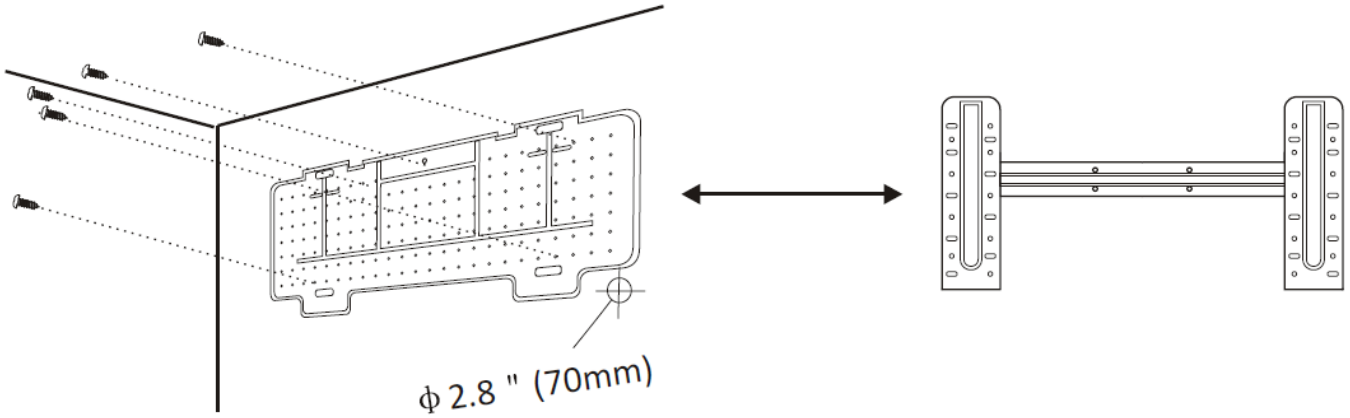



| Ref | Dimension | Tolerance |
|---|---|---|
| ① | 288.8 mm | ±0.5 |
| ② | 20.0 mm | ±0.1 |
| ③ | 100.8 mm | – |
| ④ | 453.1 mm | ±0.6 |
| ⑤ | 382.8 mm | – |
| ⑥ | 16.6 mm | ±0.4 |

### 5.1.3 Bracket – HDLS-070N-09M25.




1. Make sure you meet the minimum installation dimensions listed in Step 1. Depending on the size of the mounting plate, determine the position and temporarily attach the mounting plate against the wall.
2. Adjust the mounting plate horizontally using a spirit level, then mark the locations of the screw holes on the wall.
3. Remove the mounting plate and drill holes in the marked locations.
4. Insert the anchor plugs into the holes, then hang the mounting plate and secure it with screws.

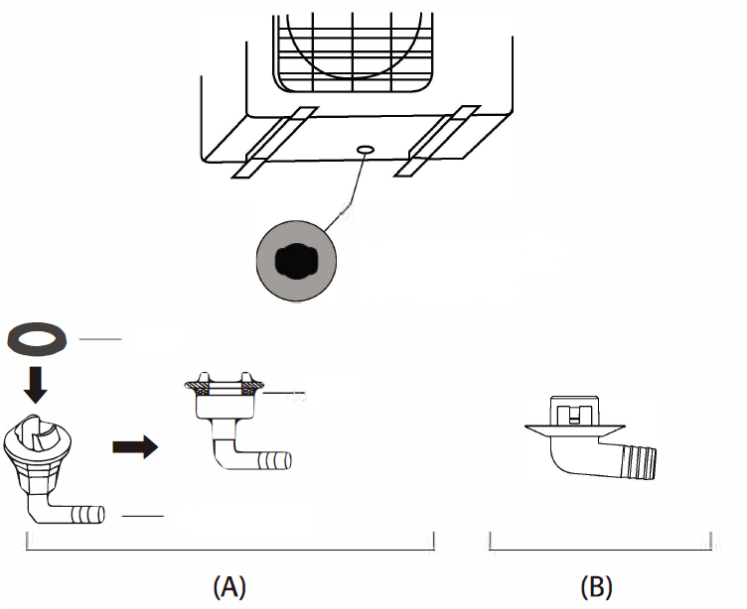



Remark:
(I) Make sure the mounting plate is securely fastened and perfectly flat against the wall after installation.
(II) The diagram shown may differ from the actual object; Please refer to the latter as a standard reference.

# 6 CONDENSATE REMOVAL

## 6.1 OUTDOOR UNIT

- On reversible appliances, condensation water flows out during the use of the heating mode. Connect the condensate drain to a 16mm diameter PVC pipe, taking all precautions to prevent the drain from freezing into ice.
- Perform the condensate drainage installation according to the instructions and ensure that it drains properly. If the installation is not completed, water may drip down from the unit.
- In cold areas, do not use the condensate cap and drain hose. Cold weather use (outside temperature less than or equal to 0°) of the plug and drainpipe can freeze the condensate at the end of the pipes (reversible model only). In addition, the holes in the base of the outdoor unit should never be blocked. It may be necessary to provide antifreeze resistance for the flow.
- When the condensate outlet is connected, plug the unused holes at the base of the outdoor unit with the rubber plugs and finish with sealant to avoid any risk of leakage.



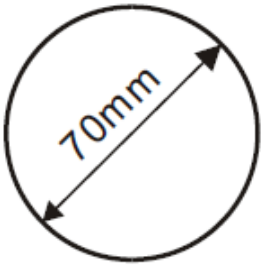
## 6.2 INDOOR UNIT

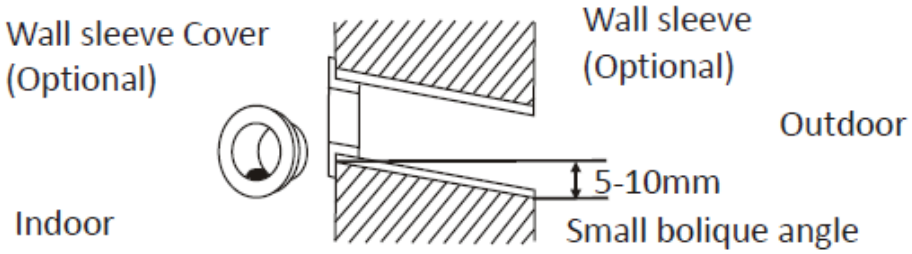
- Take appropriate precautions to prevent condensate water from freezing at low ambient temperatures. A drainpipe blocked by frozen water may cause water leakage from the indoor unit.
- Carry out installation of the condensate drainpipe in a sufficiently temperate environment to prevent condensation-related water leaks during installation.
- Install the condensate drainpipe with a continuous downward slope of **1/50 to 1/100**, without upward sections or siphons.
- Provide suitable pipe supports when long drain hoses are used.
- Ensure that all connections are airtight.
- Do not connect the condensate drainpipe to the sewer system, as sulphur gases generated by exchanger corrosion may escape.
- Properly insulate all drain fittings to prevent water leakage.
- Use rigid PVC piping for drainage (**VP25, outer diameter 32 mm**). Secure the pipe to the unit outlet using PVC adhesive.
- Do not apply adhesive directly to the condensate outlet. Use the supplied flexible hose and connect it to the outlet.
- Insulate all drain piping installed inside the building using an insulating sleeve to prevent condensation

- To verify correct condensate drainage after installation, use transparent piping sections at the outlet and at the end of the drainpipe exiting the indoor unit.

### 6.2.1 Wall Penetration

- A hole must be drilled through the wall for routing the refrigerant pipes, condensate drainpipe, and interconnecting cables.
- Determine the wall hole position based on the location of the mounting plate.
- The hole must have a minimum diameter of 70 mm and be slightly inclined toward the outside to facilitate condensate drainage.
- Drill the hole using a 70 mm hole saw, maintaining a downward slope of approximately 5 to 10 mm from the indoor side toward the outdoor side.
- Install the wall sleeve and wall sleeve cover (both optional) to protect the piping and cables.




### 6.2.2 Condensate drainpipe reassembled

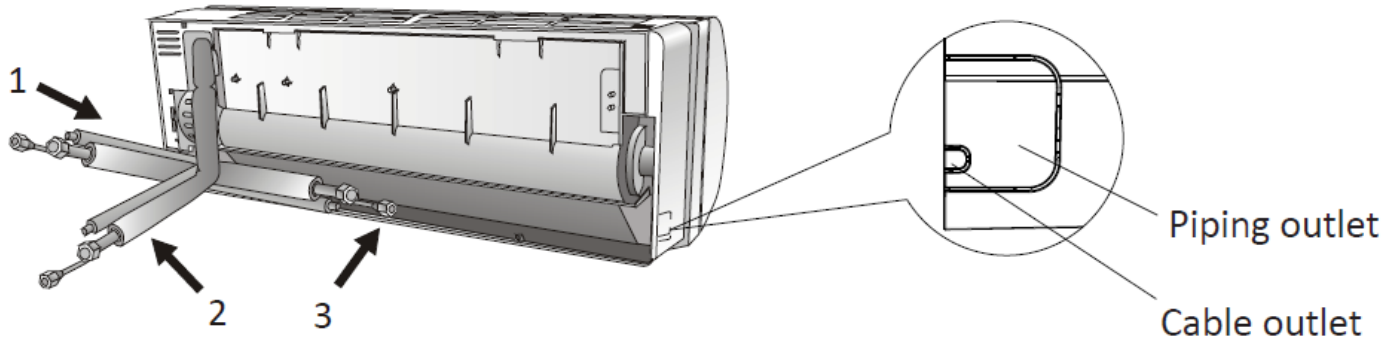
- If a drainpipe rise is required, install it within 300 mm from the unit outlet and no more than 700 mm from the false ceiling. Exceeding these limits may result in water leakage.
- Install a condensate lift pump when required.
- If the entire drainpipe is installed 100 mm lower than the condensate outlet, use VP30 PVC piping or larger, maintaining a minimum slope of 1/100.

### 6.2.3 Refrigeration piping connection

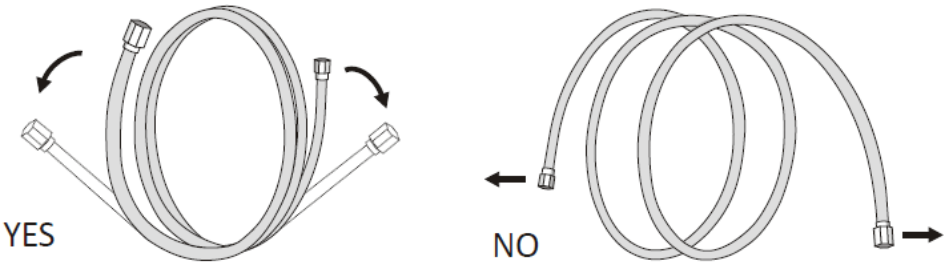
- Depending on the position of the wall penetration, select the appropriate piping routing method.
- Three piping connection configurations are available for the indoor unit, as illustrated below.
- For routing method 1 or 3, cut the plastic piping and cable outlet panel on the corresponding side of the

indoor unit using scissors.

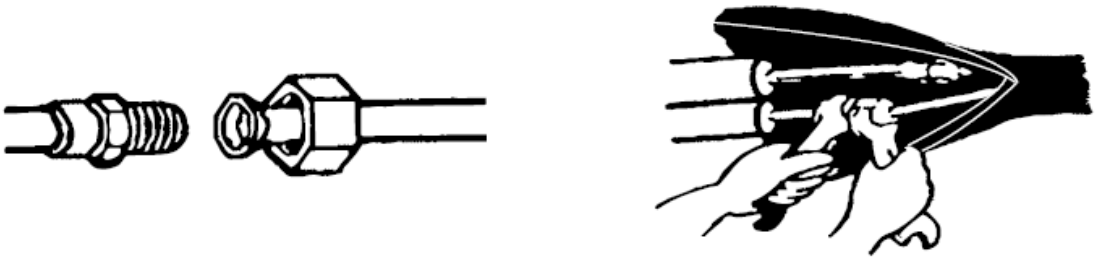
Note: When cutting the plastic outlet panel, ensure that the cut edges are smooth and clean.




1. Carefully bend the refrigerant pipes so that the pipe openings are facing upward, as shown in the illustration.



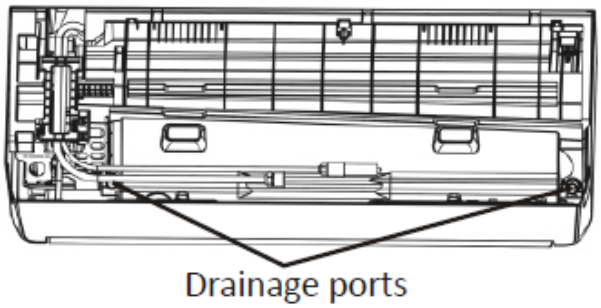

2. Remove the protective plastic caps from the refrigerant pipe ports and remove the protective covers from the fittings.
3. Inspect the pipe openings to ensure they are clean and free from dust, moisture, or foreign matter.
4. Align the pipe and fitting centres accurately, then tighten the flare nut by hand until resistance is felt.
5. Using a calibrated torque wrench, tighten the connection in accordance with the torque values specified in the torque table.
6. After tightening, insulate the connection using the supplied insulation sleeve.



Note: For R32 refrigerant, the fitting must be installed outdoors.

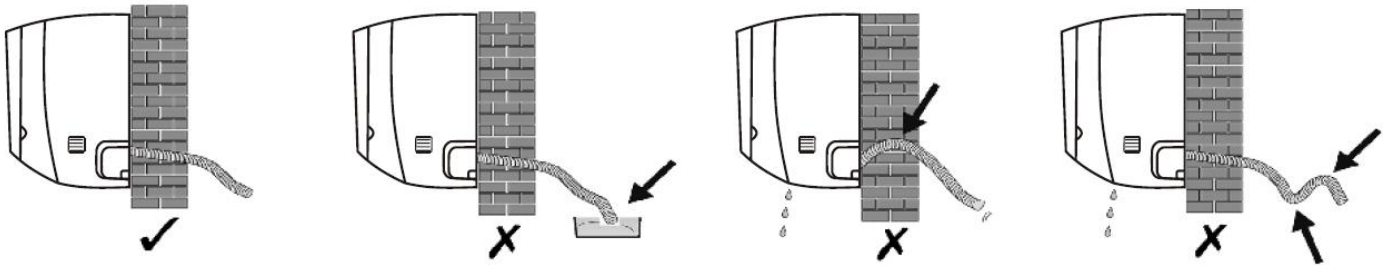
### 6.2.4 Installation procedure

1. Attach the condensate drain adapter to the drain outlet of the indoor unit and secure it using the hose clamp.




2. Insert the drain hose fully onto the drain outlet.
3. Tighten the hose clamp securely.
4. Using vinyl tape or suitable adhesive tape, secure the condensate drain hose (VP25 PVC pipe) to the drain adapter.
5. Wrap the condensate drain adapter with the supplied insulation material.

Note:
Ensure that the drain hose is not twisted, bent, or kinked.
The piping must be routed with a continuous downward slope to prevent blockage and ensure proper condensate drainage.



## 6.3 REFRIGERATED CONNECTIONS

Use only refrigeration-grade copper piping with the following characteristics:

- Annealed copper with a minimum copper content of 99%
- Internally cleaned and dehydrated
- Factory sealed with protective caps
- Minimum pressure resistance: 50 bar
- Minimum pipe wall thickness: 0.8 mm
- Maximum pipe wall thickness: 1.0 mm

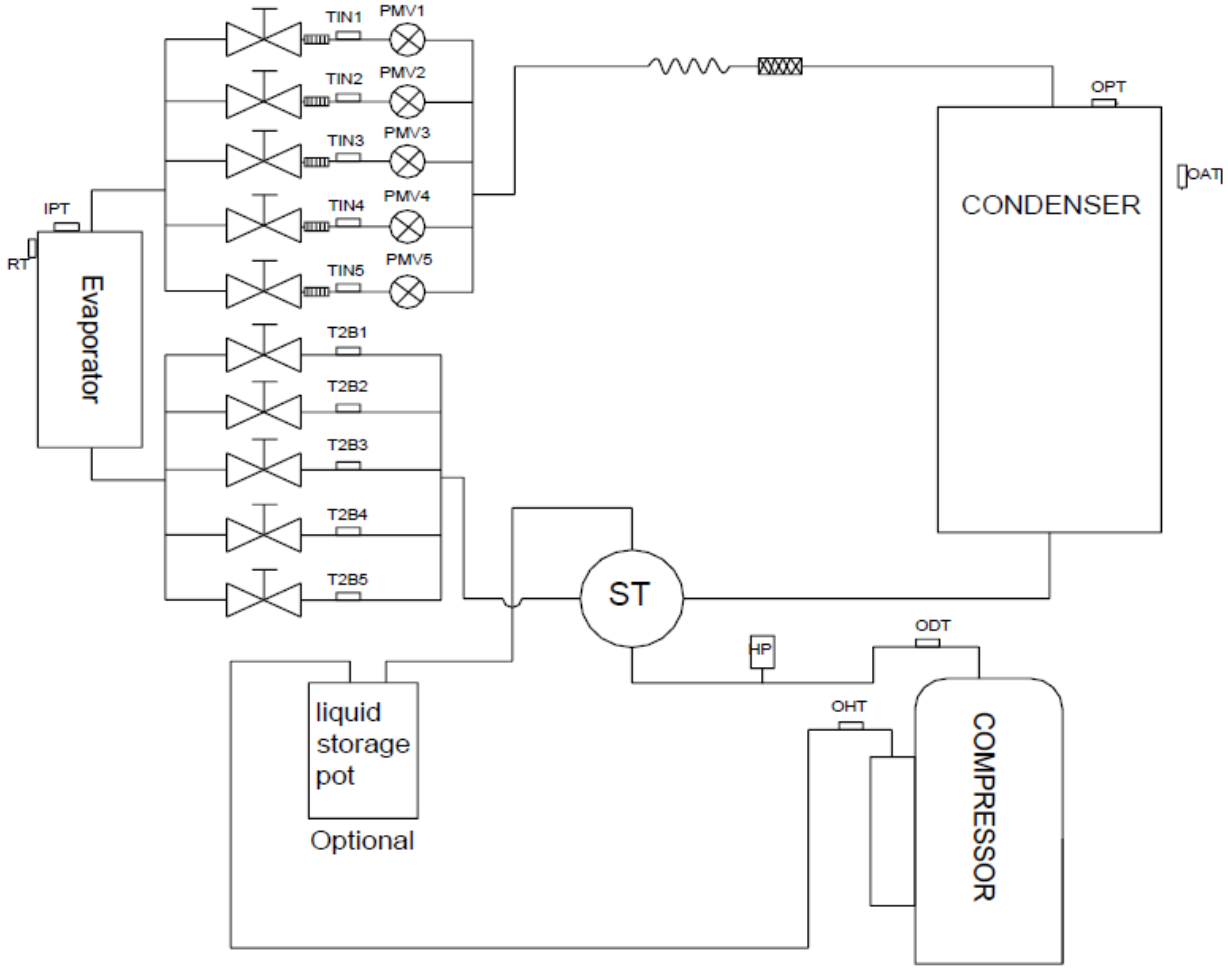
Refrigerant piping sets meeting these requirements are available as AIRWELL-approved accessories.

| | Liquid tube diameter | Gas tube diameter | |
|---|---|---|---|
| HDLS-025N-09M25 | 1/4" (6.35mm) | 3/8" (9.53mm) | HDLS-025N-09M25-BK |
| HDLS-035N-09M25 | 1/4" (6.35mm) | 3/8" (9.53mm) | HDLS-035N-09M25-BK |
| HDLS-050N-09M25 | 1/4" (6.35mm) | 3/8" (9.53mm) | HDLS-050N-09M25-BK |

| | Liquid tube diameter | Gas tube diameter |
|---|---|---|
| ZDAS-2050-09M25 | 2x 1/4" (6.35mm) | 2x 3/8" (9.53mm) |
| ZDAS-3080-09M25 | 3x 1/4" (6.35mm) | 3x 3/8" (9.53mm) |

| | Preload (m) | Length Mini / Maxi (m) | Max elevation gain (m) |
|---|---|---|---|
| ZDAS-2050-09M25 | 10 | 10 / 40 | 15 |
| ZDAS-3080-09M25 | 15 | 15 / 60 | 15 |

### 6.3.1 Refrigeration Cycle Diagram

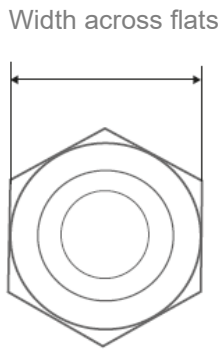


### 6.3.2 Pipe forming

- Refrigerant pipes must be formed exclusively using a pipe bender or bending spring in order to prevent flattening or cracking.
- Maintain a minimum bending radius of 70 mm.
- Do not bend the copper pipe at an angle greater than 90°.
- Do not bend the same section more than three times, as this may cause metal fatigue or cracking.
- Remove insulation from the piping before bending to ensure correct forming.
- After bending, reinstall the insulation and seal joints using neoprene adhesive and insulating tape.

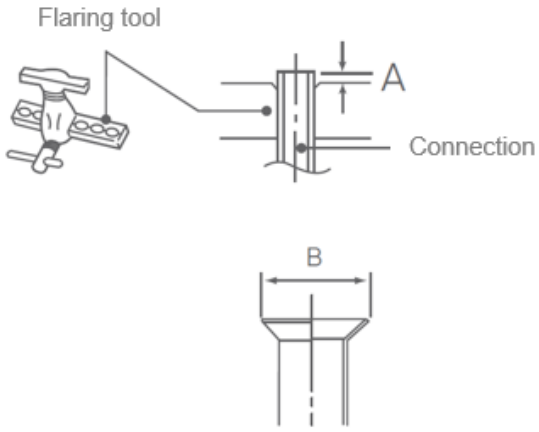
### 6.3.3 Flared connection

1. Cut the copper piping to the required length using a pipe cutter. Take care not to deform the pipe.
2. Deburr the pipe carefully while holding the pipe end downward to prevent metal filings from entering the tubing.
3. Remove the flare nuts from the indoor and outdoor unit connections.




| Diameters of refrigeration connections | Width of the flared nut |
|---|---|
| 1/4" (6.35 mm) | 17 mm |
| 3/8" (9.52 mm) | 22 mm |
| 1/2" (12.70 mm) | 26 mm |
| 5/8" (15.88 mm) | 29 mm |
| 3/4" (19.05 mm) | 36 mm |

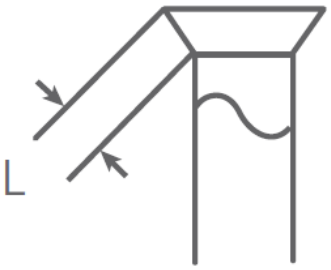
4. Slide the flare nuts onto the pipes before flaring.
5. Perform the flaring operation using an approved flaring tool. Allow the pipe to protrude by the dimension indicated in the table below.




| Diameters of refrigeration connections | A Rating | B Rating |
|---|---|---|
| 1/4" (6.35 mm) | 0 to 0.5 mm | 9.1 mm |
| 3/8" (9.52 mm) | | 13.2 mm |
| 1/2" (12.70 mm) | | 16.6 mm |
| 5/8" (15.88 mm) | | 19.7 mm |
| 3/4" (19.05 mm) | | 24.0 mm |

6. After flaring, inspect the flare surface. It must be smooth, evenly formed, and free from cracks, scratches, or deformation.

Also verify that the flare dimension (**L dimension**) complies with the specified values.



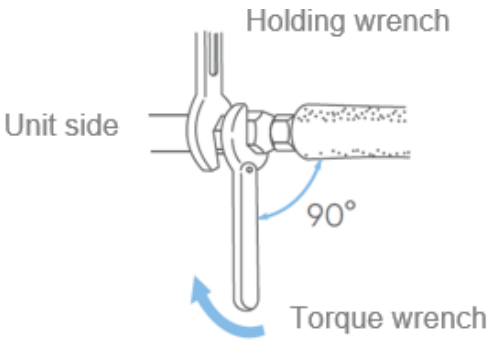

**Pre-Connection Verification**

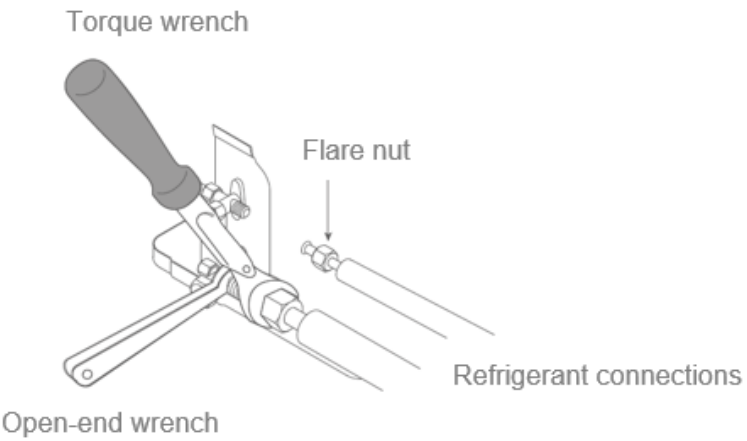
- The refrigeration circuit is highly sensitive to dust and moisture.
- Before removing the protective caps, ensure that the area around the refrigerant connections is clean and completely dry.

**Connection**

- Remove protective caps from pipes and service ports only immediately before making the connection.
- Always connect the small-diameter pipe before the large-diameter pipe.
- Carefully align the pipe and fitting before tightening. If the pipe is misaligned, tightening will be difficult and thread damage may occur.
- Use two wrenches when tightening flare connections: one to hold the fitting body and one to tighten the flare nut.
- Do not apply force to protective caps or fittings, as this may cause leakage.
- Tighten flare nuts using a torque wrench in accordance with the specified tightening procedure.
- Improper tightening may result in refrigerant leakage and, if exposed to flame, may generate toxic gases.
- Do not use thread sealant or sealing compounds on refrigerant connections, as this may block the circuit. Use of such products will void the warranty.
- Flared connections installed inside the building must not be reused. If a connection is disassembled, the pipe end must be cut and re-flared.
- After completing the connections, ensure that the refrigerant pipes do not come into contact with the compressor or the service panel.
- Operation of the system cannot be guaranteed if piping size, length, thickness, or valve connections differ from those specified in this manual.
- Ensure that refrigerant piping is securely connected to both the indoor and outdoor units.
- To avoid deformation of panels or components, support the fitting with a holding wrench while tightening.

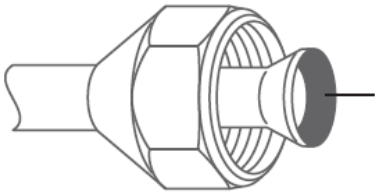
1. Remove the protective caps from the refrigerant connections.
2. Align the mating surfaces correctly, then tighten the flare nuts by hand until resistance is felt.
3. Using a torque wrench, tighten the flare nuts to the values specified in the table below.



| Diameters of refrigeration connections | Tightening torque |
|---|---|
| 1/4" (6.35 mm) | 15 to 20 N.m |
| 3/8" (9.52 mm) | 31 to 35 N.m |
| 1/2" (12.70 mm) | 45 to 50 N.m |
| 5/8" (15.88 mm) | 63 to 75 N.m |
| 3/4" (19.05 mm) | 90 to 110 N.m |

1. For improved sealing, perform a double-tightening procedure: tighten once with torque, loosen, then retighten to the specified torque value.
2. To reduce the risk of gas leakage and ensure smooth tightening, lightly coat the flare seat and threads with POE refrigerant oil suitable for R32.
3. Do not use mineral oil.




Final verification:

After completing the connections, ensure that the refrigerant pipes do not come into contact with the compressor or the service panel.

### 6.3.4 Insulation

- Apply insulation to all refrigerant piping to prevent condensation and water seepage.
- Select insulation thickness according to the table below.
- Insufficient insulation may result in condensation forming on the pipe surface.
- The insulation material must have a thermal conductivity of 0.045 W/(m·K) or lower (at 20°C).

| | | Minimum Insulation Thickness (mm) | | | |
|---|---|---|---|---|---|
| | | Humidity> 70% | Humidity> 75% | Humidity> 80% | Humidity> 85% |
| Bond diameters | 1/4" (6.35 mm) | 8 | 10 | 13 | 17 |
| | 3/8" (9.52 mm) | 9 | 11 | 14 | 18 |
| | 1/2" (12.70 mm) | 10 | 12 | 15 | 19 |
| | 5/8" (15.88 mm) | 10 | 12 | 16 | 20 |
| | 3/4" (19.05 mm) | 10 | 13 | 16 | 21 |

If the ambient temperature and relative humidity exceed 32°C, increase the thickness of the insulation accordingly.

# 7 ELECTRICAL CONNECTION

- The power supply must comply with all applicable regulations and standards in force, in particular NF C 15-100.
- Power supply cables must be of type H07RN-F.
- The electrical installation must be protected by a 30 mA residual current device (RCD).
- Do not connect the unit using a power outlet.
- This unit is designed to operate at a nominal voltage of 230 V – 50 Hz.

## 7.1 ELECTRICAL SIZING

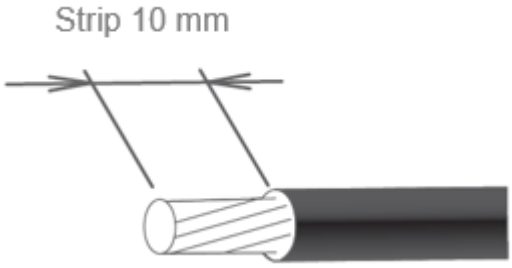
The cable cross-sections provided in the tables below are given for guidance only.
The installer is responsible for verifying that the selected cable sizes comply with installation conditions and applicable standards.

| | Power Cable | Circuit breaker Caliber |
|---|---|---|
| ZDAS-2050-09M25 | 3×1.5mm² | 16 A |
| ZDAS-3080-09M25 | 3×2.5mm² | 20 A |

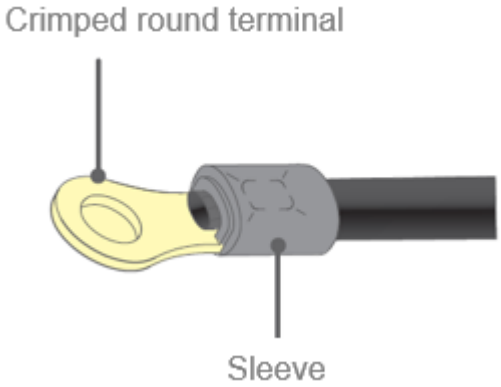
| | Interconnection Cable | |
|---|---|---|
| HDLS-025N-09M25 | 4×1 mm² | HDLS-025N-09M25-BK |
| HDLS-035N-09M25 | 4×1 mm² | HDLS-035N-09M25-BK |
| HDLS-050N-09M25 | 4×1 mm² | HDLS-050N-09M25-BK |

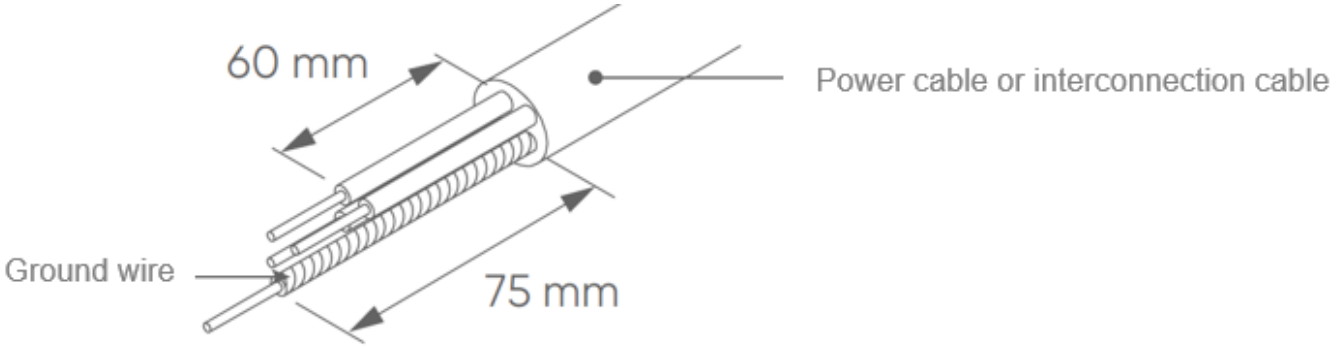
### 7.1.1 Cable preparation

1. Strip the cable insulation by approximately 10 mm.

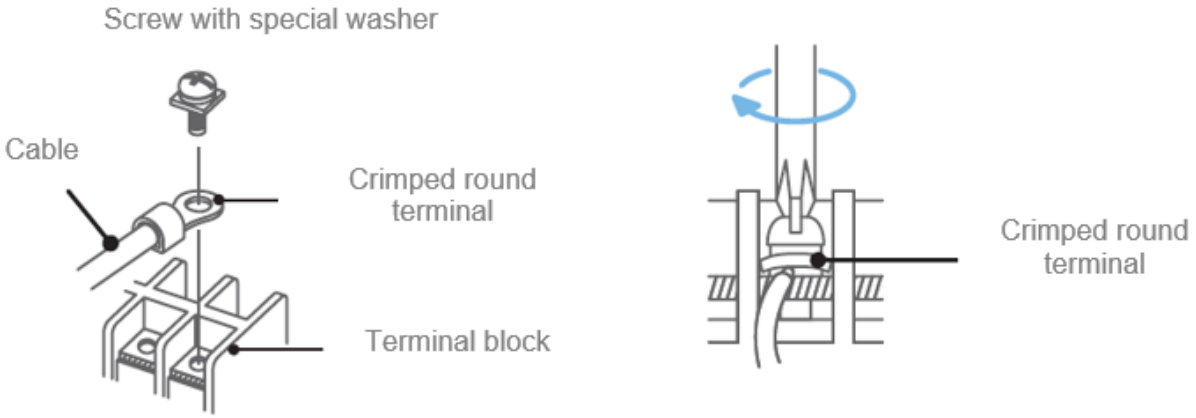



2. Using suitable crimping pliers, crimp a round terminal lug onto each conductor, ensuring that the lug size corresponds to the terminal block screw diameter.



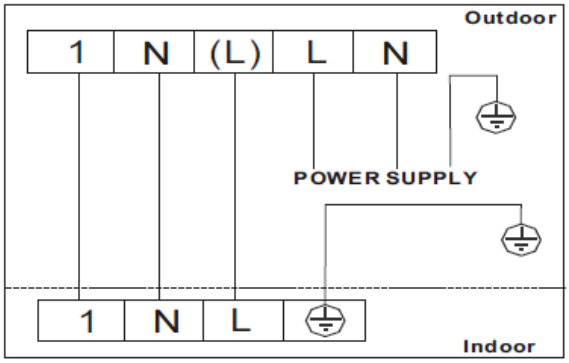



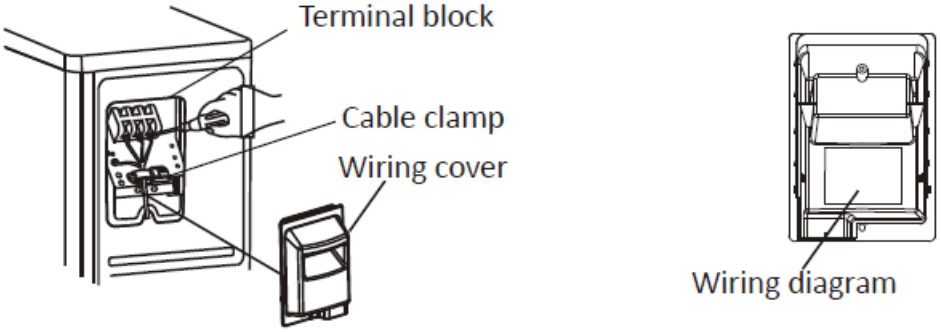
- Do not overtighten terminal screws, as this may damage the terminal block or cause screw breakage.
- The use of flexible conductors without crimped round terminals is not permitted.
- Tighten terminal screws in accordance with the torque values specified in the table below.
- Do not connect two conductors to a single terminal screw.




| Tightening torque | |
|---|---|
| M4 Screws | 1.2 to 1.8 N.m |
| M5 Screws | 2.0 to 3.0 N.m |

### 7.1.2 Schematic diagram

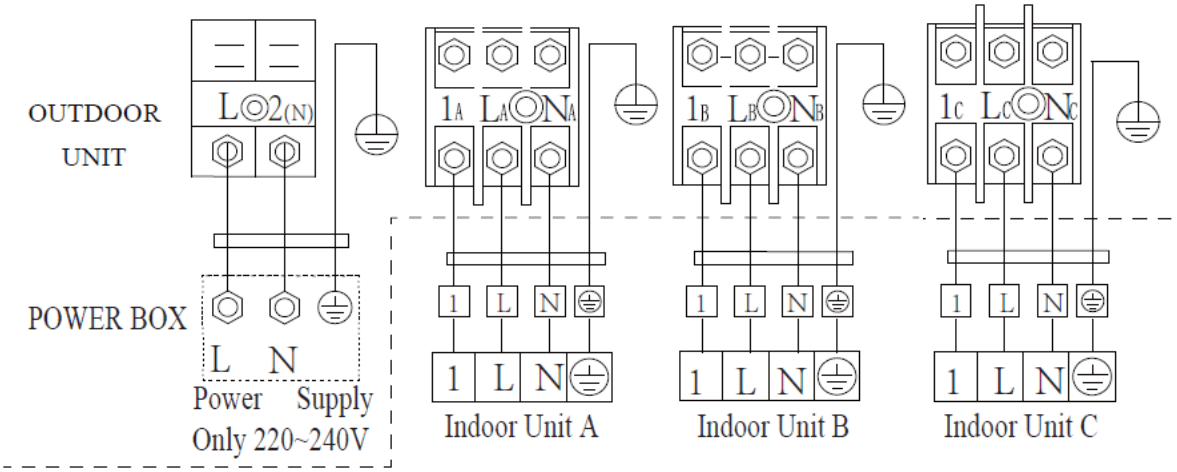



**Wiring access**

- Remove the terminal block cover using a Phillips screwdriver.
- Loosen and remove the cable clamp.
- Route the power and interconnection cables through the designated openings.
- Secure all cables using the cable clamp.
- Reinstall the wiring cover and ensure it is properly fastened.

### 7.1.3 Terminals



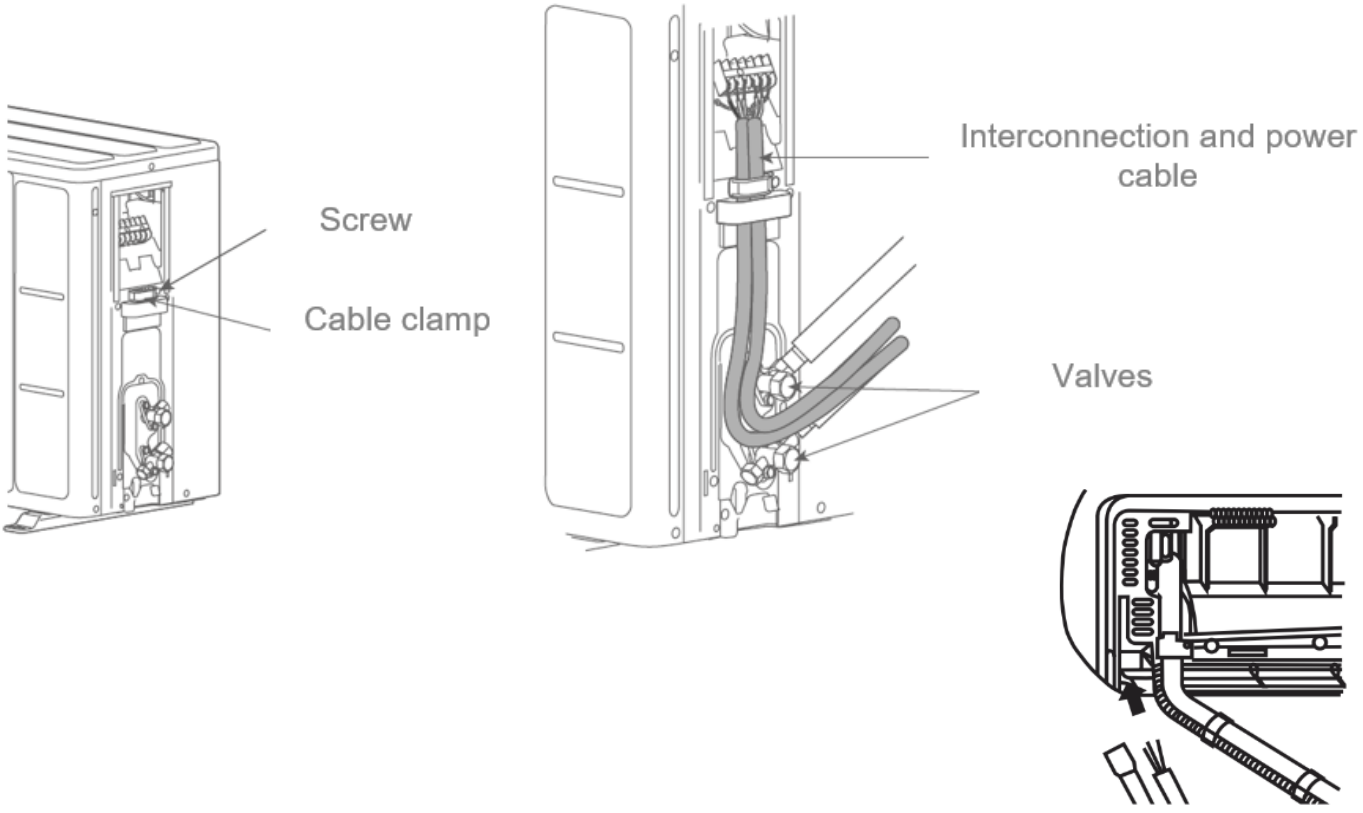

**Notice**

The same indoor unit must be connected to the piping and to the electrical connectors bearing the same identification marking.

(Example: A connected to A.)

- Match the terminal numbers of the indoor unit connection cables with the corresponding terminal numbers on the outdoor unit.
- Securely connect all interconnection cables to the terminal blocks. Improper installation may cause equipment malfunction.
- Ensure that conductors are fully inserted into the terminal block. Poor contact may result in overheating or failure.
- Do not omit the grounding connection during installation.
- Use the grounding conductor for interconnection between the indoor and outdoor units.
- Do not use rigid conductors without crimped round terminals. Excessive pressure on the conductor may cause abnormal heating and malfunction.

### 7.1.4 Cable Routing



- Route power supply and interconnection cables as shown in the diagrams.
- Secure all cables using the provided cable clamps.
- Ensure that cables are protected against sharp edges, vibration, and mechanical stress.
- Confirm that cable routing does not interfere with valves, piping, or moving components.

# 8 COMMISSIONING OF THE SYSTEM

## 8.1 PRECAUTIONS

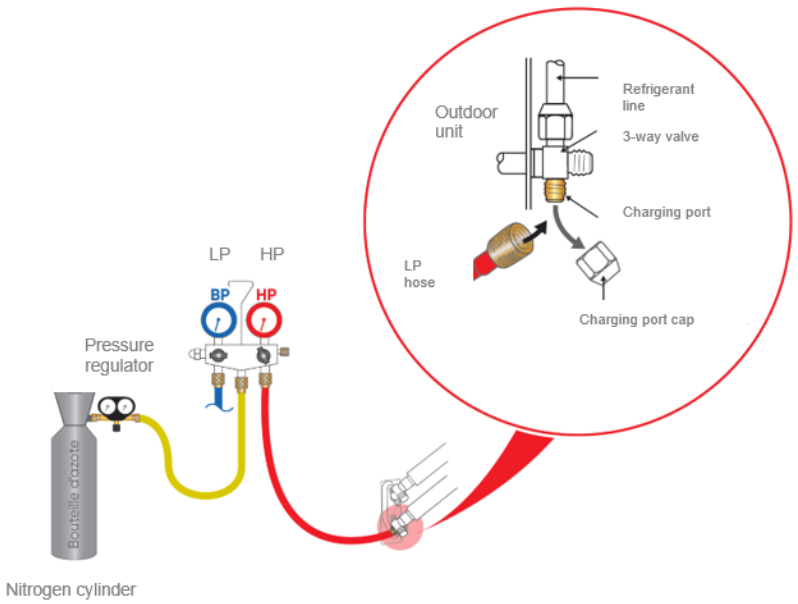
- Commissioning of this air conditioner must be carried out by a qualified installer holding a valid certificate of competence in accordance with Articles R.543-75 to R.543-123 of the Environmental Code and its implementing regulations.
- This requirement also applies to all operations involving the handling of refrigerant.

## 8.2 EQUIPMENT TO BE PURCHASED

| | |
|---|---|
| Manifolds (Pressure Gauge) | The pressure is high and cannot be measured using standard pressure gauges. It is recommended to use a manifold with pressure gauges with a measuring range of -0.1 to 5.3 MPa (HP) and -0.1 to 3.8 MPa (LP). |
| Schrader (Charging Hose) | The use of hoses with 1/4 turn valves facilitates handling during commissioning (no purging of the hoses because it is possible to draw them out in a vacuum and isolate them).<br>The valves are to be positioned opposite the set of pressure gauges. |
| Leak detector | Use a leak detector dedicated to HFCs (R32 compatible). |
| Vacuum pump | Use a suitable vacuum pump (containing POE synthetic oil). |

### 8.2.1 Leak check (no leakage)

1. Remove the Schrader charging port cap located on the gas valve (large valve). Connect the red hose to the high-pressure (HP) port and the opposite end to the HP valve of the manifold gauge set.
2. Connect the yellow hose to the nitrogen cylinder equipped with a pressure regulator.
3. Ensure that the HP and LP valves on the manifold gauge set are fully closed.
4. Slowly open the nitrogen cylinder valve and adjust the regulator to an outlet pressure of approximately 10 to 15 bar.
   Open the HP valve on the manifold gauge set to introduce nitrogen into the refrigeration circuit until the desired test pressure is reached.
5. Close the nitrogen cylinder valve.
6. Check all flare connections and brazed joints (indoor and outdoor units) using a leak detection solution. Ensure that no bubbles appear.
7. Verify that the pressure indicated on the manifold gauge remains stable.
   If the pressure does not drop, the circuit can be considered leak-free.
   After verification, release the nitrogen, leaving the circuit at a pressure slightly above atmospheric pressure.



## 8.2.2 Vacuum draw

### *8.2.2.1 Preparation*

1. Check the condition of the vacuum pump and verify the oil level.
2. Remove the protective caps from the service ports on the outdoor unit using a flat wrench.
3. Connect the manifold gauge set (three-way pressure gauge) to the low-pressure (LP) service port of the outdoor unit.
4. Connect the centre hose of the manifold gauge set to the vacuum pump.
5. Close the high-pressure (HP) valve on the manifold gauge and open the low-pressure (LP) valve.

### *8.2.2.2 Vacuum packing*

6. Start the vacuum pump to remove air and moisture from the refrigeration circuit.
7. Maintain vacuum for a minimum of 15 minutes, or until the compound pressure gauge indicates a pressure of –0.1 MPa (–76 cmHg).
8. The final pressure reached must be equal to or lower than the values indicated in the table below, depending on ambient temperature:

| Temperature | 5°C < T < 10°C | 10°C < T < 15°C | T≥ 15°C |
|---|---|---|---|
| Pressure (bar) | 0,009 | 0,015 | 0,020 |
| Pressure (mbar) | 9 | 15 | 20 |

9. If the required pressure cannot be achieved, check the hoses, fittings, and vacuum pump seals for leaks.

### *8.2.2.3 Leak check*

10. Close the LP valve on the manifold gauge and stop the vacuum pump.
11. Maintain the vacuum for at least 5 minutes and ensure that the pressure does not rise by more than 0.05 MPa.
12. If the pressure increases, locate and repair the leak, then repeat the evacuation procedure.

### *8.2.2.4 Refrigerant commissioning*

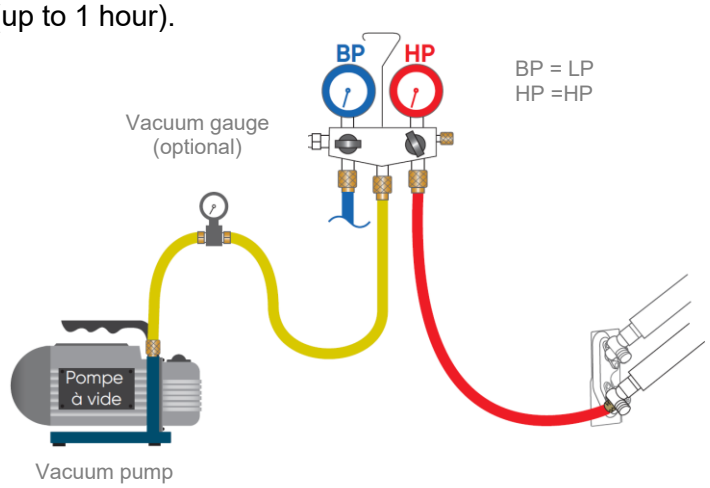
13. Slowly open the LP service valve by approximately one quarter turn using a hex wrench to allow refrigerant to enter the circuit gradually.
14. After approximately 5 seconds, close the LP valve and quickly disconnect the hose from the manifold gauge to prevent refrigerant leakage.
15. Check all indoor and outdoor flare connections for leaks using soapy water or an electronic leak detector.

### *8.2.2.5 Finalizing*

16. Fully open both the LP and HP service valves on the outdoor unit using a hex wrench.
17. Reinstall the service port caps on both LP and HP valves.
18. Tighten the valve caps securely.

Notes

- For systems using R32 refrigerant, all service connections must be installed outdoors only.
- In installations with long piping lengths or high ambient humidity, it is recommended to extend the vacuum duration (up to 1 hour).



## 8.3 ADDITIONAL CHARGE (IF NECESSARY)

Additional refrigerant charging must be carried out after vacuum evacuation and before system start-up.

| | ZDAS-2050-09M25 | ZDAS-3080-09M25 |
|---|---|---|
| Factory-Charged Quantity (g) / $CO_2$ Equivalent (t) | 1100 / 0,743 | 1500 / 1,013 |
| Refrigerant Type (Global Warming Potential) | R32 (675) | R32 (675) |

1. Calculate the required additional refrigerant charge based on the refrigerant piping length.

The table below allows you to quickly determine the additional load of R32 to be introduced, depending on the length of the refrigeration connection.

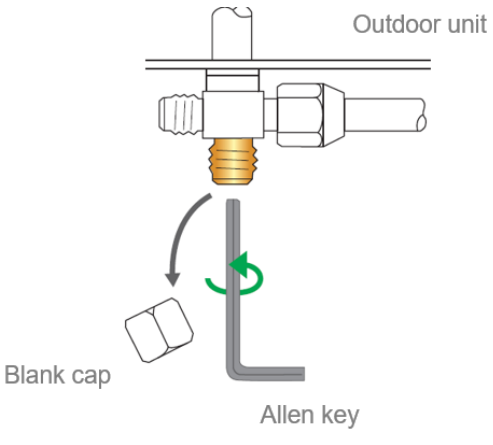
| Capacity / Models Outdoor Unit (ODU) | ZDAS-2050-09M25 | ZDAS-3080-09M25 |
|---|---|---|
| Maximum equivalent piping length for all indoor units | 40 m | 60 m |
| Maximum piping length to the farthest indoor unit | 25 m | 25 m |
| Maximum height difference between indoor and outdoor unit | 15 m | 15 m |
| Maximum height difference between indoor units | 10 m | 10 m |
| Standard piping length | 20 m | 20 m |
| Additional refrigerant charge (depending on indoor unit) | 15 g/m | 15 g/m |

2. Disconnect the vacuum pump (yellow hose) and connect an R32 refrigerant cylinder in the liquid withdrawal position.
3. Place the refrigerant cylinder on an electronic weighing scale and zero (tare) the scale.
4. Slowly open the cylinder valve.
5. Carefully open the HP valve on the manifold gauge while monitoring the weight displayed on the scale.
6. When the measured weight corresponds to the calculated charge minus approximately 50 g, close the HP valve and then close the cylinder valve.
7. Proceed with refrigerant recovery into the outdoor unit (pump-down) to allow disconnection of the hoses without refrigerant loss.
   (If required, leave the HP valve open).

Note:
If the required additional charge cannot be introduced due to insufficient pressure in the cylinder, continue the procedure with the system running in refrigeration test mode, opening the HP valve gradually to prevent liquid refrigerant from entering the compressor suddenly.

## 8.4 GAS RELEASE

1. Remove the protective caps from the service valves of the outdoor unit.
2. Using a hex (Allen) wrench, fully open the liquid valve (small valve) first, followed by the gas valve (large valve).
3. Turn counter-clockwise and do not force beyond the mechanical stop.



## 8.5 CHECKING THE REFRIGERATION CIRCUIT FOR LEAKS

After gas release has been completed as described above, check all refrigerant connections and brazed joints using an electronic leak detector.
No leaks must be detected.

In the event of a leak:

- Recover the refrigerant to the outdoor unit (pump-down).
- Ensure that circuit pressure does not fall below atmospheric pressure in order to prevent air or moisture ingress.
- Repair the defective connection.
- Repeat the leak test and vacuum evacuation procedure.

## 8.6 SYSTEM TESTING

1. Set the unit to COOLING mode and activate TEST mode, then carry out all required operating checks and measurements.
2. Set the unit to HEATING mode and activate TEST mode, then repeat all required checks and measurements.

## 8.7 REFRIGERANT RECOVERY TO THE OUTDOOR UNIT (PUMP-DOWN)

1. Set the air conditioner to COOLING mode and activate TEST mode.
2. Close the liquid valve completely, then partially close the gas valve (approximately half a turn from the fully open position).
3. Monitor the pressure gauge carefully. When the pressure approaches 0 bar, fully close the gas valve.
4. Stop the unit and remove the manifold hoses.
5. Open the liquid valve (small valve) and then the gas valve (large valve).
6. Reinstall the service port caps and tighten them using a wrench in accordance with the specified torque values.

| Model | Tube diameter | Torque (Newton meter) [N×m] | Torque (pound-foot) [lbf·ft] | Torque (kilogram-force meter) [kgf·m] |
|---|---|---|---|---|
| HDLS 25-70 | 1/4" (Ø 6.35 mm) | 15 – 20 | 11,1 – 14,8 | 1,5 – 2,0 |
| HDLS 25-50 | 3/8" (Ø 9.52 mm) | 31 – 35 | 22,9 – 25,8 | 3,2 – 3,6 |
| HDLS 70 | 1/2" (Ø 12 mm) | 45 – 50 | 33,2 – 36,9 | 4,6 – 5,1 |

7. Restart the air conditioner.
8. Provide the customer with all required explanations and documentation.

# 9 EXTERNAL INPUTS AND OUTPUTS

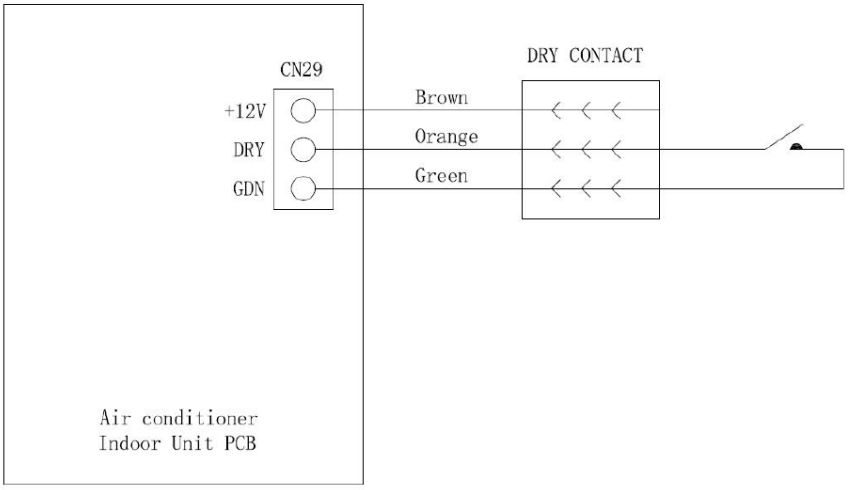
## 9.1 DRY CONTACT – ON/OFF FUNCTION

- The indoor unit is equipped with a "Dry Contact" cable already connected to the main electronic board (CN29 terminal).
- This cable allows you to control the start-up and shutdown of the unit using an external contact (access card, window opening detector, fire alarm, etc.).
    - Brown: +12 V
    - Orange: Signal On/Off
    - Green: GND (ground)
- The 3-pin connector (blue) is intended for the connection of the dry contact.

### 9.1.1 Method 1 – Direct Use of Dry Contact

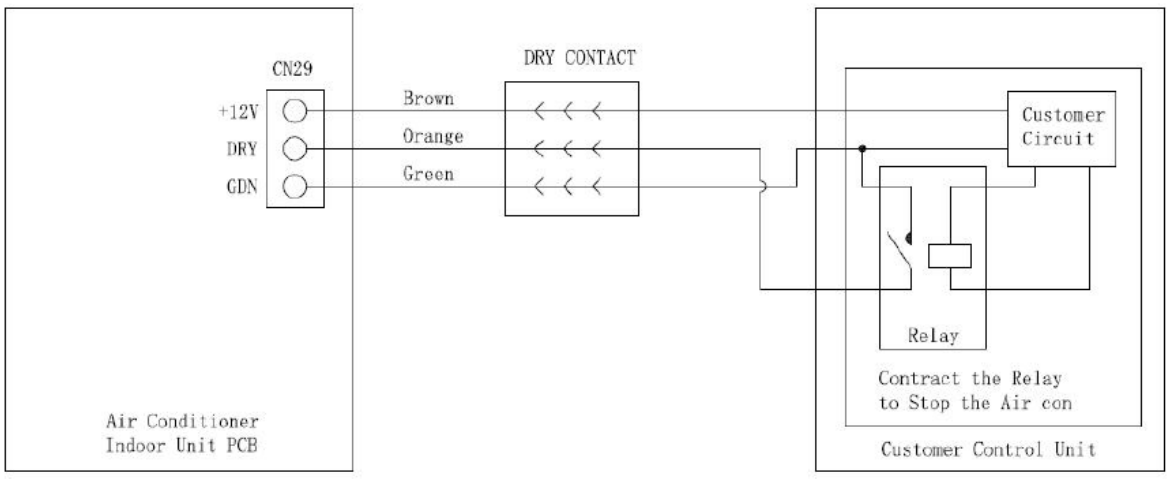
Use only the Green (GND) and Orange (On/Off signal) wires.

1. Cut the "Dry Contact" cable or use an HX connector for the connection.
2. Connect the two wires to an external control device (e.g., door contact, window switch, alarm).
3. When the external contact is turned off (ON) → the air conditioner is operating.
4. When the external contact is turned OFF → the air conditioner will shut down.




### 9.1.2 Method 2 – Use with 12 VDC Power Supply + Relay

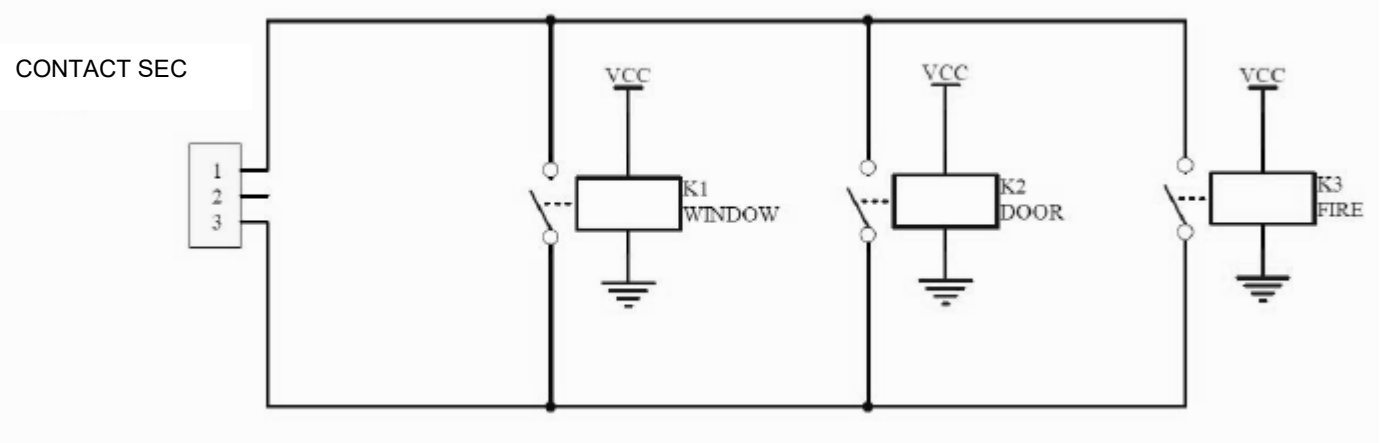
1. Connect the 12 V output (brown wire) to the control relay of the customer circuit.
2. The relay then controls the "DRY" (orange) signal to allow or block the air conditioner from operating.
3. The wiring diagram must conform to the specifications below,




4. The relay must be normally open (NO) and support the voltage of 12 VDC.

### 9.1.3 Dry contact operating logic

| Door | Window | Fire | Air conditioner status |
|---|---|---|---|
| ON | ON | ON | The unit is operating normally |
| OFF | OFF | OFF | Unit shuts down after 0-6 min delay (adjustable via engineering remote) |
| OFF | ON | OFF | Unit stops |
| ON | OFF | OFF | Unit stops |
| OFF | OFF | ON | Unit shuts down immediately |




## 9.2 WIRED REMOTE CONTROL CONNECTION

A cable labelled "Wiring Remote Controller" is already connected to the main electronic board (PCB) of the indoor unit.
One end of this cable is plugged into the "CN12" connector of the PCB, and the other end is equipped with a red 4-pin connector for connecting the wired controller.

The 5-meter cable required to connect the wired controller is provided in the box of the indoor unit.

### 9.2.1 Connection procedure

1. Locate the CN12 connector on the Indoor electronic board, labelled *Wiring Remote Controller*.
2. Plug the red 4-pin connector of the communication cable into CN12.
3. Connect the other end of the cable to the AIRWELL wired wall controller.
4. Make sure the connection is secure and the wires are not pinched or damaged.
5. Mount the wall controller in the desired location (recommended height: 1.2 to 1.5 m from the floor), away from sources of heat, humidity and direct sunlight.

Important notes

- Use only the supplied cable (5 m) or a shielded extension cable (recommended cross-section: 0.75 mm²) if a greater distance is required.
- The total length of the cable must not exceed 20 m.
- Avoid running the control cable near the power supply cables to prevent interference.
- Check that the wired controller and the indoor unit are properly communicated before commissioning.

# 9.3 CONNECTION TO BMS AND CENTRAL CONTROLLER

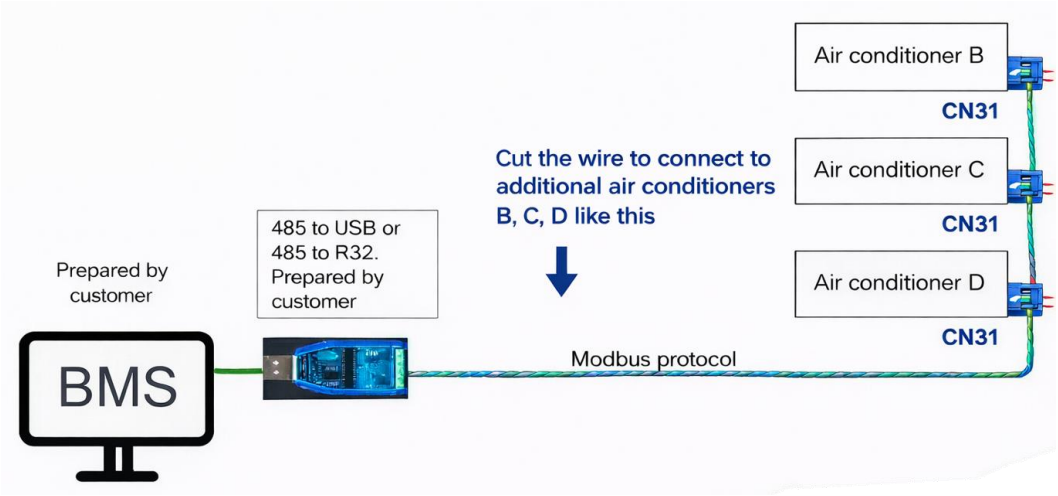
A cable labelled "BMS" is already connected to the main electronic board (PCB) of the indoor unit.
One end of the cable is plugged into the board's "CN31" connector, while the other end is equipped with a white 3-pin connector for connection to the Central Management System (BMS) or AIRWELL Central Controller.

The cabling allows communication via the Modbus RS-485 protocol.

| **Wire colour** | **Function** |
|---|---|
| **Grey** | GND (ground) |
| **Blue** | B |
| **Violet** | Has |

## 9.3.1 Connection procedure

1. Locate the CN31 connector on the indoor unit's circuit board.
2. Plug the BMS connector (3 white pins) into CN31.
3. Connect the other end of the cable to the communication input of the AIRWELL controller hub or BMS system.
4. To connect multiple indoor units:
   - Cut the cable and daisy chain it between the units (A → B → C → D), as shown in the diagram.
   - Respect the polarity of the A/B/GND terminals on each unit.
5. If necessary, use an RS-485 to USB or RS-485 to R32 converter, supplied or prepared by the customer.




Remarks

- Make sure all units are properly addressed according to the BMS plan.
- Never plug in or unplug the BMS cable while the unit is powered on.
- Wiring must be done by a qualified automation or HVAC technician.

## 9.3.2 How to Set the BMS Address

**Entering Engineering Mode**

1. Install the batteries in the remote controller.
2. Within the first 20 seconds after powering on:
   - Turn the unit OFF using the ON/OFF button.
   - Press and hold the [FAN] and [▼] buttons simultaneously for 5 seconds.
3. The remote controller will enter the Hotel Menu / Engineering Mode.
4. The LCD display will show E1.

**Setting the BMS Modbus Address**

| Item | Description |
|---|---|
| Function Code | F1 |
| Function Name | BMS (Modbus) Address Setting |
| Default Value | 0 |

| | |
|---|---|
| Adjustable Range | 0 – FF (Hexadecimal) |
| Description | Sets the communication address for Modbus (RS-485) BMS control |

**Operation Procedure**

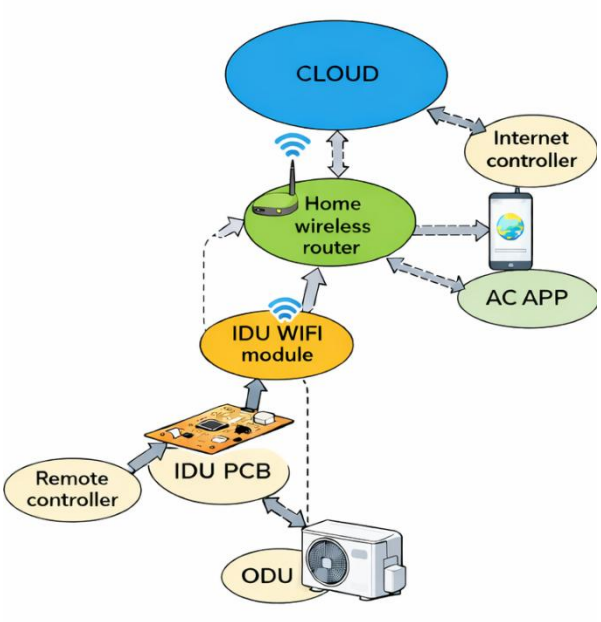
1. Press [▼] or [▲] to select F1.
2. Press [FAN] to enter the parameter setting.
3. Press [▼] or [▲] to select the desired address (0–FF).
4. Press [MODE] to confirm and send the address to the air conditioner.
5. Press [FAN] to return to the previous menu.

**Important Notes**

- Each indoor unit connected to the same RS-485 network must have a unique address.
- Address format is hexadecimal (00–FF).
- After configuration, power cycle the unit if communication does not start immediately.

# 10 WI-FI FUNCTION (OPTIONAL)

The Wi-Fi control architecture is illustrated in the diagrams below. The system enables remote control of the indoor unit (IDU) via a home wireless router, connecting to a cloud server and accessible through a smartphone application.




## 10.1 Application download and installation

To control your air conditioning unit remotely, download the SmartLife-SmartHome or Tuya application from the App Store or Google Play. Scan the QR code below for direct access to the download page.

Once the application is installed, follow the in-app setup instructions to pair your device and configure your Wi-Fi connection.

# 11 VERIFICATION BEFORE POWERING ON

| | Consequences |
|---|---|
| Is the indoor unit properly installed? | Vibrations, noises, falling... |
| Is there a refrigerant leak? | No cold, no heat |
| Is the insulation well done? | Risk of condensation |
| Is the power source the one that corresponds to the indoor unit? | No operation ... |
| Are the cables and links well connected? | No operation ... |
| Is the cross-section of the interconnecting cable the right one? | No operation ... |
| Is the condensate drained correctly? | Water leaks |
| Are the air inlets and outlets blocked? | No cold, no heat |
| After the installation is complete, has the working principle been explained to the user? | |

# 12 FUNCTION TEST

Check the following before running a test run:

- Indoor Unit

☐ The buttons of the remote control

☐ The lights of the indoor unit

☐ Air deflection flaps

☐ The normal flow of condensation water (if necessary, pour a little water into the exchanger of the device with a wash bottle to check the proper flow)

☐ Absence of noise and vibration during operation.

- Outdoor Unit

☐ Absence of noise and vibration during operation

☐ Absence of draft, water or ice at the outlet of the outdoor unit, disturbing the neighbourhood.

☐ Normal condensation water flow

☐ No gas leakage

Start the function test by turning on the device and choosing the cool mode. Leave the device running while you check all points.

# 13 TROUBLESHOOTING

| Dysfunction | Possible causes |
|---|---|
| The device is not working | - Power outage / unplugged outlet.<br>- Damaged indoor or outdoor unit fan motor.<br>- Thermomagnetic circuit breaker of the defective compressor.<br>- Defective protection device or fuse.<br>- Loose connections or unplugged outlet.<br>- The device temporarily shuts down to protect itself.<br>- Supply voltage too high or too low.<br>- TIMER-ON function activated. - Damaged electronic board. |
| Strange smell | - Dirty air filter. |
| Water Flow Sound | - Liquid backflow into the refrigeration circuit. |
| Light mist coming out of the air vent | - Normal when the ambient air becomes very cold, especially in COOLING or DEHUMIDIFICATION mode. |
| Strange audible noise | - Noise due to the expansion or contraction of the front panel due to temperature variations. This phenomenon is normal. |
| Insufficient airflow, either low or cold | - Inadequate temperature setting.<br>- Clogged air inlets or outlets.<br>- Dirty air filter.<br>- Fan speed set to minimum.<br>- Heat sources present in the room.<br>- Absence of refrigerant. |
| The device does not respond to commands | - The remote control is too far away from the indoor unit.<br>- The batteries in the remote control are discharged.<br>- Obstacles between the remote control and the receiver of the indoor unit. |
| The display is off | - DISPLAY function disabled.<br>- Power outage. |
| Unusual noises during operation | - Abnormal mechanical noise or vibrations.<br>- Defective electronic board.<br>- Faulty fuses or switches. |
| Immediately turn off the air conditioner and turn off the power if: | - Splashing water or objects inside the device.<br>- Overheated cables or plugs.<br>- Strong odours emanating from the device. |

# 14 ERROR CODES

- The following table shows the indoor unit's flashing sequences and error codes. An error display is displayed only during operation.
- When using a wired remote control, error codes are displayed on the remote-control screen.
- When using an infrared remote control, error codes are displayed via the LEDs near the infrared sensor in a series of flashes.

| Code | Reason | Remark |
|---|---|---|
| E0 | IDU & ODU communication failure | Check IDU & ODU wiring connection |
| E1 | IDU room temperature sensor failure (RT failure) | Check IDU sensor and PCB |
| E2 | IDU coil temperature sensor failure (IPT failure) | Check IDU sensor and PCB |
| E3 | ODU coil temperature sensor failure (OPT) | Check ODU coil sensor and ODU PCB |
| E4 | AC cooling system abnormal | Possible gas leakage, 2-way or 3-way valve blockage |
| E5 | IDU/ODU mismatch failure (production test mode) | — |
| E6 | IDU PG fan motor / DC fan motor abnormal | Check fan motor, fan blade and PCB |
| E7 | ODU ambient temperature sensor failure | Check ODU ambient sensor and ODU PCB |
| E8 | ODU discharge temperature sensor failure | Check ODU discharge sensor and ODU PCB |
| E9 | IPM / compressor driving control abnormal | Check ODU PCB and compressor |
| EA | ODU current test circuit failure | ODU PCB may be faulty |
| Eb | Communication abnormal between main PCB and display board (IDU) | Check display board and main PCB |
| EE | ODU EEPROM failure | 1. Check ODU PCB 2. Try repowering the unit |
| EF | ODU DC fan motor failure | Check fan motor and ODU PCB |
| EU | ODU voltage test circuit abnormal | Check ODU PCB |
| P0 | IPM module protection | ODU PCB |
| P1 | Over / under voltage protection | 1. ODU PCB 2. Check power supply |
| P2 | Over current protection | 1. ODU PCB 2. Check power supply |
| P4 | ODU discharge pipe over-temperature protection | Refer to troubleshooting section in the service manual |
| P5 | Sub-cooling protection (Cooling mode) | Refer to troubleshooting section in the service manual |
| P6 | Overheating protection (Cooling mode) | Refer to troubleshooting section in the service manual |
| P7 | Overheating protection (Heating mode) | Refer to troubleshooting section in the service manual |
| P8 | Outdoor over/under temperature protection | Refer to troubleshooting section in the service manual |
| P9 | Compressor driving protection (load abnormal) | Refer to troubleshooting section in the service manual |
| PA | Communication failure for TOP flow unit / preset mode conflict (IDU failure) | Refer to troubleshooting section in the service manual |
| F0 | Infrared customer feeling test sensor failure (IDU) | Query via remote controller |
| F1 | Electric power test module failure (IDU) | Query via remote controller |
| F2 | Discharge temperature sensor failure protection | Refer to troubleshooting section in the service manual |
| F3 | ODU coil temperature failure protection | Refer to troubleshooting section in the service manual |
| F4 | Cooling system gas flow abnormal protection | Refer to troubleshooting section in the service manual |
| F5 | PFC protection | Refer to troubleshooting section in the service manual |
| F6 | Compressor lack of phase / anti-phase protection | Refer to troubleshooting section in the |

| | | |
|---|---|---|
| | | service manual |
| F7 | IPM module temperature protection | Refer to troubleshooting section in the service manual |
| F8 | 4-way valve reversing abnormal | Refer to troubleshooting section in the service manual |
| F9 | Module temperature test circuit failure | ODU PCB |
| FA | Compressor phase-current test circuit failure | ODU PCB |
| Fb | Frequency limiting – overload protection (Cooling/Heating) | Query via remote controller |
| FC | Frequency limiting – high power consumption protection | Query via remote controller |
| FE | Frequency limiting – module current protection (compressor phase current) | Query via remote controller |
| FF | Frequency limiting – module temperature protection | Query via remote controller |
| FH | Frequency limiting – compressor driving protection | Query via remote controller |
| FP | Frequency limiting – anti-condensation protection | Query via remote controller |
| FU | Frequency limiting – anti-frost protection | Query via remote controller |
| Fj | Frequency limiting – discharge over-temperature protection | Query via remote controller |
| Fn | Frequency limiting – ODU AC current protection | Query via remote controller |
| Fy | Gas leakage protection | Refer to troubleshooting section in the service manual |
| bf | TVOC sensor failure (IDU, optional) | Query via remote controller |
| bc | PM2.5 sensor failure (IDU, optional) | Query via remote controller |
| bj | Humidity sensor failure (IDU) | Query via remote controller |

Remark:
In some cases of failure, some codes (Fb~bj) require the use of the remote control for inspection. While the unit is operating, press the ECO key 8 times in less than 8 seconds: the buzzer will beep 2 times, allowing you to display the special error code (e.g.: Fb ~ Fn, bj, etc.).

Important note: If these codes are displayed while the air conditioner is in use, it does not necessarily mean a breakdown, but simply an operating or maintenance reminder.

| Code | Reason / Meaning |
|---|---|
| **CL** | Filter cleaning reminder. |
| **AC** | Self-cleaning function. |
| **0A** | In **GEN** mode, the external compressor current value was not detected. |
| ***A** | In **GEN mode**, the current is limited to * amperes (* represents a value from 1 to 20). |
| **CF** | Wi-Fi preset: CF mode, waiting for network connection. |
| **PP** | Wi-Fi Preset: Search for the router. |
| SA | Wi-Fi Preset: Connected to the router. |
| **AP** | Wi-Fi Preset: Connected to the server/AP mode, waiting for network connection. |
| **d3** | DRED **(Energy Demand Reduction)** function. |

# 15 MAINTENANCE

These operations, which are within everyone's reach, should be carried out at the frequencies recommended below.

| Every month (more often in a dusty atmosphere) |
|---|
| Cleaning the indoor unit air filter (The air filter is easily accessible on the indoor unit and can be cleaned either with a vacuum cleaner or with water below 40°C). |

| Every 3 months |
|---|
| Clean the bodywork of the interior unit, especially the air intake grille, with a soft, damp cloth (avoid aggressive detergents). |

# 16 SERVICE

These operations are to be carried out exclusively by competent personnel.
Your approved installer is of course at your service for these interventions.
He can offer you a maintenance contract that includes periodic visits (see below).

**Seasonal maintenance**

- Checking and cleaning air filters
- Verification of the perfect tightness of the refrigeration circuit (mandatory for certain appliances*)
- Cleaning of the condensate tray of the indoor unit: cleaning and disinfection of the exchanger of the indoor unit with a suitable product
- Checking and possibly cleaning the condensate drain (especially if a lift pump is used)
- Checking the general condition of the device).

** Articles R 543-75 to 123 of the Environmental Code and its implementing decrees require all owners of appliances containing an HFC load of more than five tonnes of CO2 equivalent (plate; signage) to have the watertightness of their installation checked every year by a company duly registered with the prefecture and authorised for this type of intervention.*

**Comprehensive maintenance**

Operations described for seasonal maintenance, supplemented by:

- Possible dusting of the heat exchanger of the outdoor unit
- Measurement of the performance of the device (inlet/outlet temperature difference, evaporation and condensation temperature, absorbed current)
- Checking the tightness of electrical connections
- Measurement of electrical insulation
- Checking the condition of exterior bodies and refrigeration line insulation
- Checking various fasteners



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