

MODEL NUMBER: _____

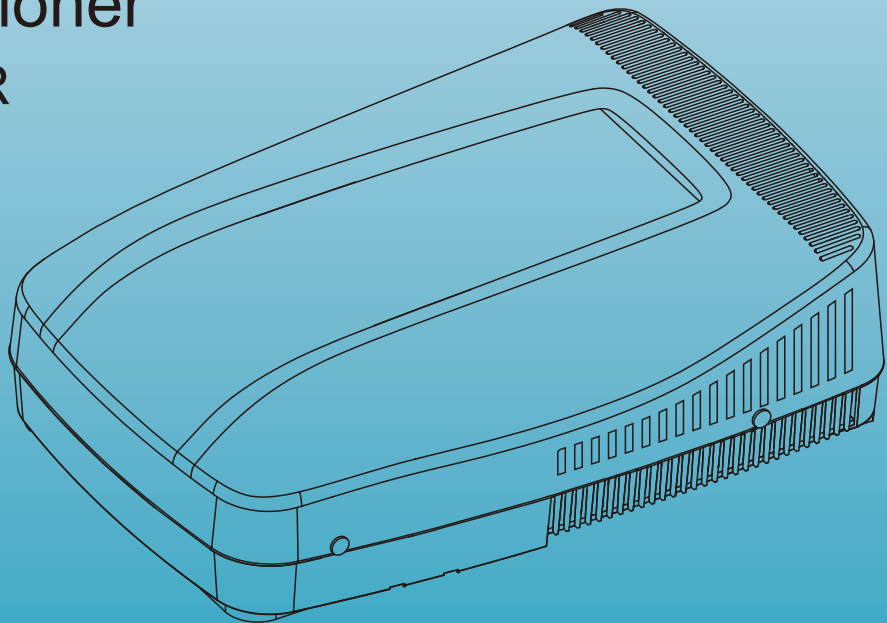
SERIAL NUMBER: _____

DATE PURCHASED: _____

OWNERS MANUAL

CARAVAN AIR-CONDITIONER


RV air conditioner
3J-KFBR2200-R



**For your safety, please read this manual
carefully before using the product.**

Safety Notices

Thank you for choosing this RV air-conditioner. For your ease of use and safety we have included the following symbols in this manual:

 All the contents with this “Warning” logo are about the safety of the user and the air-conditioner. The user shall operate the air-conditioner in strict compliance with the instructions.


 All the contents with this “Prohibition” logo are about the actions that shall be prohibited, or else the air-conditioner may be damaged or the user’s personal safety may be endangered.

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Safety Notes

- ⚠ Make sure the external electric supply socket of the caravan air-conditioner is effectively grounded in accordance with your local regulations.
- ⚠ Failure to ground the unit correctly may cause electric shock or fire.
- ⚠ The caravan air-conditioner shall be switched on for electric leakage detection after installation.
- ⚠ If you are not to use the air-conditioner for a long time, please isolate the power supply.
- ⚠ Clean the filter of the air-conditioner regularly. A dirty filter will decrease air flow and lead to poor heating and cooling performance.
- ⚠ Use the remote control to operate the air-conditioner.
- ⚠ Install the air-conditioner in compliance with the instructions of this manual.
- ⚠ Incorrect installation methods or alteration of the product may cause damage to the product or personal injuries to the user.
- ⚠ Be careful when installing the unit on the roof of the caravan, crawl boards may be required.
- ⚠ There may be wires between the roof and the ceiling. When cutting into the roof, make sure the power is isolated to prevent risk of electric shock.
- ⚠ Installation and maintenance of the air-conditioner must only be performed by personnel with appropriate trade qualifications and holding current licenses for such work.
- ⚠ Do not over-tighten the power connection terminals.
- ⚠ Ensure that your electrical supply and wiring is correctly sized for the power demand of the air-conditioner. Refer to the product specifications.
- ⚠ This appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge. Children are not to play with this appliance and should be supervised at all times.

- ⊘ Keep the air inlet and outlet of the inside and outside units of the air-conditioner clear.
- ⊘ Do not spray any paint or insecticide on the surface of the air-conditioner.
- ⊘ Immediately turn off the air-conditioner and isolate power supply if there is any unusual odour, smoke or fire detected. Contact after-sales service personnel in case of unit fault or fire.

Product Introduction

A. Purpose

RV air-conditioner is designed to provide a comfortable environment inside a recreational vehicle or caravan.

B. Achieving effective heating & cooling

Many factors will affect the total heat load within the caravan and many factors can also affect the working efficiency of the air-conditioner. Before purchasing RV air-conditioner, the user shall consult with the caravan manufacturer to understand the total heat load of the caravan and to choose the correct air-conditioner for the application.

The following measures are very useful to reduce the heat load within a caravan or RV and improve the performance of the air-conditioner.

- Close all the doors, skylights and windows, draw the curtains and open the sunshade or awning.
- Adjust the caravan's position to make sure the sunshade is on the southern side in the northern hemisphere or on the northern side in the southern hemisphere. This will reduce the exposure to direct sunshine.
- Turn off unnecessary electrical appliances within the caravan to reduce the heat load.
- Cook outside of the caravan when possible.
- Park the caravan in shade if possible.
- In case of exceptionally high temperatures, turn on the air-conditioner in advance during the morning.
- Adjust the set temperature of the remote control to prevent frequent starting or stopping of the unit.

C. Condensation

When warm, moist air within the caravan meets with a cold surface, condensation water may be formed. This is also known as "sweating". In this case, make sure the following measures are taken:

- Close and seal all the doors, skylights, windows to reduce the entry of warm, moist air.
- Operate the inside fan on high fan speed, avoid low and auto fan speeds.

During the operation of the air-conditioner, condensate water will be produced and allowed to drain onto the roof. This is normal. The amount of condensate water is a function of air humidity. High humidity inside the caravan will result in more condensate being generated. Close doors, windows and hatches to reduce this to a minimum.

Please note that losses or damage caused by the condensate water are not within warranty scope.

D. Choosing and using a generator

- The RV air-conditioner requires a mains quality AC power source for correct operation. If you decide to supply power using a generator then you are strongly recommended to consult with the generator supplier to confirm suitability and sizing of the generator for your application.

Please note that losses caused to the product by the using of a generator are not within warranty scope.

Packing List

Standard System installation parts list

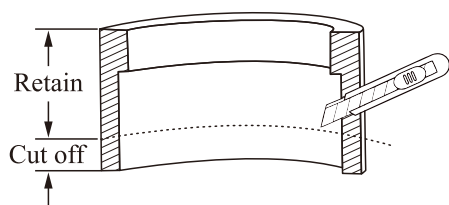
Main parts:

- 1 Rooftop air conditioner ×1
- 2 Fastening frame ×1
- 3 Air conditioning panel ×1
- 4 Seal ×1
- 5 Wind deflector ×2
- 6 Long fastening screws ×4
- 7 Short fastening screws ×4
- 8 Remote control ×1

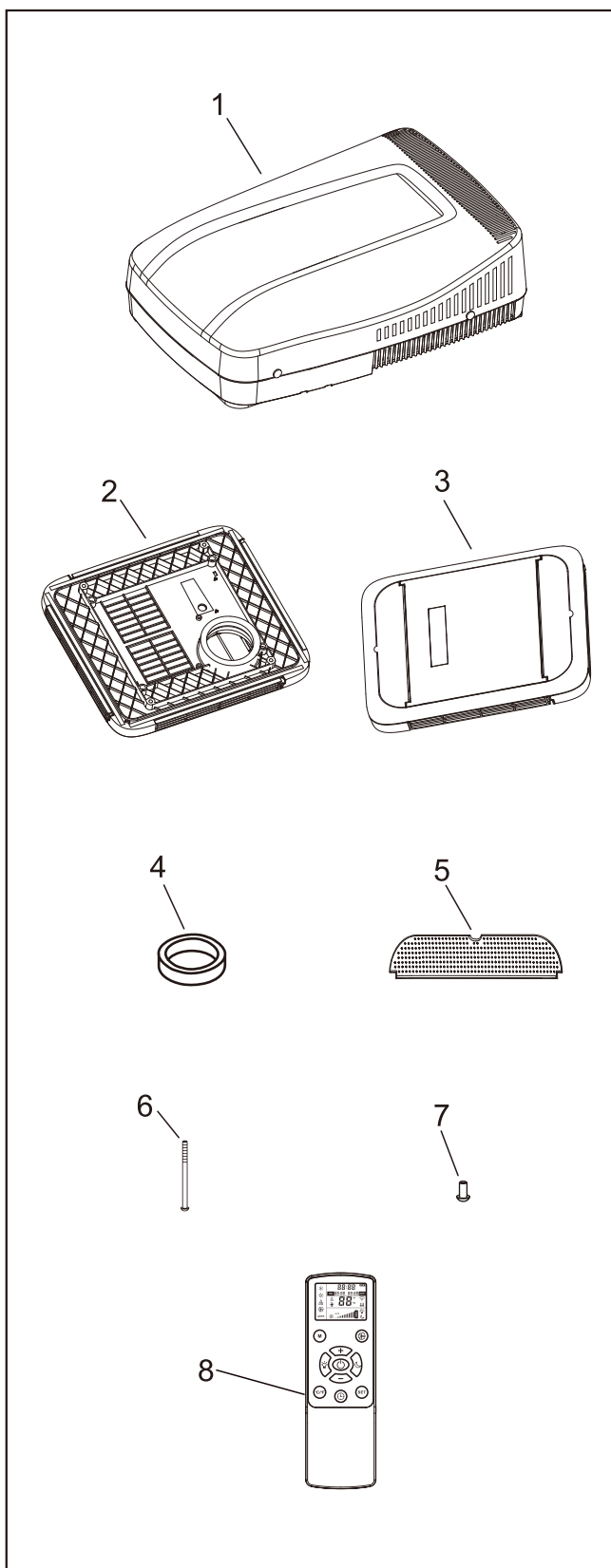
If you note that any items are missing or damaged then please contact the local distributor.

Note

The height of the seal needs to be adjusted according to the thickness of the RV roof



Roof thickness	Cut off	Retain
30mm(1.18")	25mm(0.98")	30mm(1.18")
40mm(1.57")	15mm(0.59")	40mm(1.57")
50mm(1.97")	5mm(0.20")	50mm(1.97")
60mm(2.36")	0mm	55mm(2.17")



Installation Guidance

Installation instructions

- Thoroughly read and understand this manual before installation.
- Abide by the national wiring rules in your country.
- Do not add any other parts or modify the product in the installation.
- The installers shall be equipped with refrigeration technician qualification certificates and/or suitable electrical trade qualifications.
- Consult with the local distributor in the case of unusual applications or installation conditions that are not specifically covered by this manual.

Installation requirements

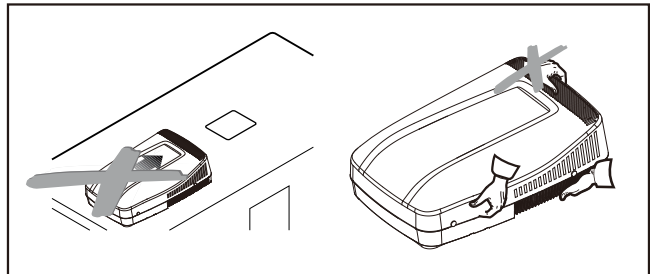
- The RV or caravan roof shall be able to support the air-conditioner's weight (24.6kg/54.2 lbs).

Model	Roof thickness	
	Minimum	Maximum
3J-KFBR2200-R	30mm/1.18"	60mm/2.36"

- If the roof's thickness is greater than the maximum specified, you can purchase a "Thick roof bolt kit" to suit your unit from the local distributor.

Note on transport

- Always have someone help you carry the rooftop air conditioner.
- Always lift the rooftop air conditioner to move it and never drag it over the roof.
- Do not use the rear ventilation slots to lift it.



Note on installation location

- Before installing the rooftop air conditioner, check whether any vehicle components could be damaged by the installation of the rooftop air conditioner (such as lamps, cupboards, doors).
- Before installation, find out (by consulting the manufacturer of the vehicle) whether the construction is designed for the static weight and the loads of the air conditioner when the vehicle is in motion. The manufacturer of the rooftop air conditioner assumes no liability whatsoever.
- The vehicle manufacturer may have already provided points where the opening for the installation of the rooftop air conditioner can be made without any risk of weakening the construction or cutting power cables.
- Select a flat and sufficiently level area at the centre of the vehicle roof between two longitudinal sections for installation.
- The roof inclination of the installation surface may not exceed 10°.

- Make sure no combustible objects are stored or installed near the air outlet. A distance of at least 50 cm should be kept.
- Make sure that there are no objects within the vehicle which could obstruct the attachment of the air outlet unit or the cooled air from flowing through the swivelling air distribution nozzles.
- For safety reasons, note the location of existing wiring harnesses, wires and other components within the installation area, in particular those which are not visible, when installing the rooftop air conditioner (when drilling or screwing etc.).

Note on electrical system

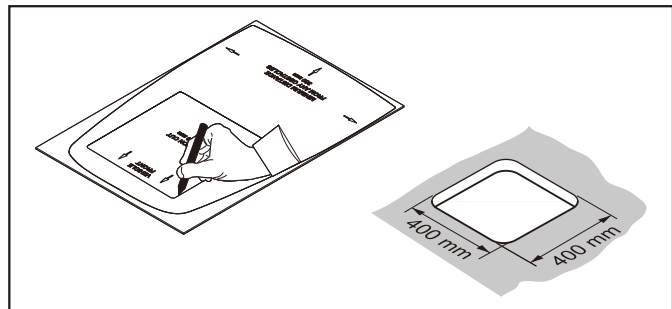
- Only a qualified electrician should connect the rooftop air conditioner to the electrical power.
- Check that the voltage specification on the type plate is the same as that of the power supply.
- Do not lay cables which are loose or bent next to electrically conductive material (metal).
- Install an all-pole switch with a contact opening width of at least 3 mm on the installation side.

There are two ways of installing the roof air conditi

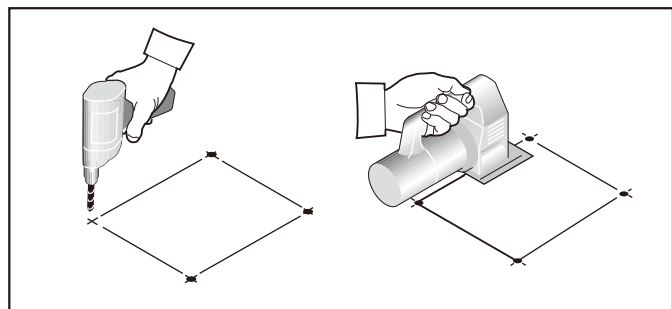
- Making a new opening. In this case the opening must be reinforced by an appropriate frame.
- Using the existing roof hatch openings (ventilation hatch) in the vehicle.

Making a new opening

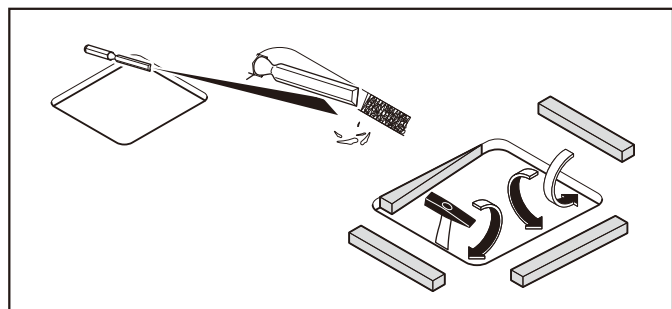
- Select an area at the centre on the roof between two longitudinal supports.
- Mark the position and size of the opening using the template included in the packaging.



- Drill out the corners.
- Carefully cut out the opening on the roof using a keyhole saw or a similar tool.
- Make sure no electrical power cables are damaged.



- Before installation, check whether the roof hole needs reinforcing.
- Remove the foam according to the width of your reinforcing rails (not in scope of delivery).
- Fit the reinforcing rails.



Installing in a roof hatch opening already provided

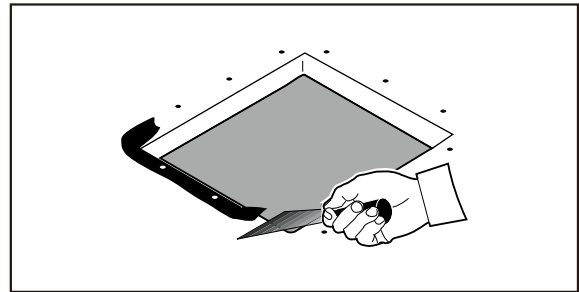
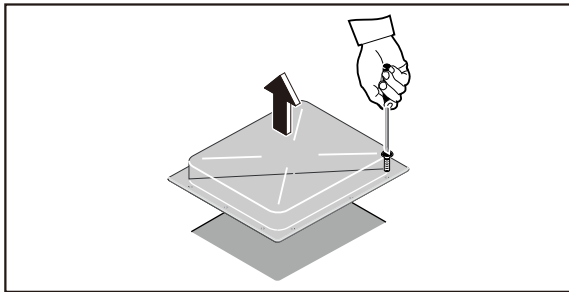
Note

Existing roof hatch openings in accordance are suitable for installing the rooftop air conditioner.

Dispose of all waste material, glue, silicone and seals separately. Observe the disposal guidelines.

The manufacturer only assumes liability for parts included in the scope of delivery. The validity of the warranty expires if the device is installed together with third-party parts.

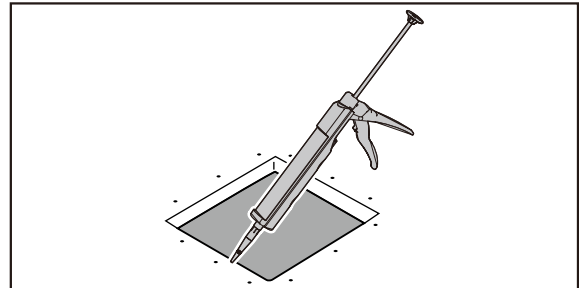
- Remove all screws and fixtures of the existing roof hatch.
- Take out the roof hatch.
- Remove the sealant around the opening using a scraper or similar tool.



- Seal the screw holes and recesses with a flexible non-hardening butyl sealing compound (e.g. SikaLastomer-710).

NOTICE!

Observe the sealant manufacturer's instructions.

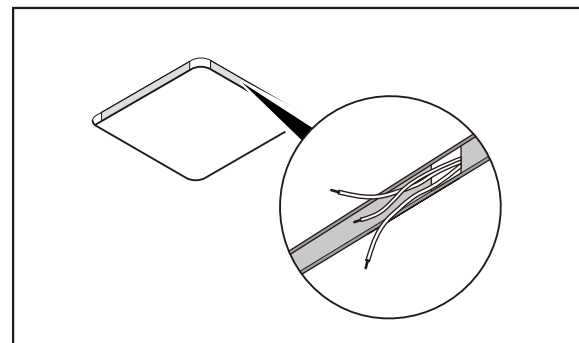


Laying the connecting cables

The rooftop air conditioner must be connected to an electric circuit which is able to supply the required current.

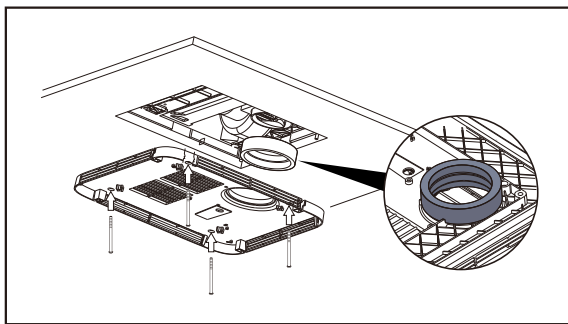
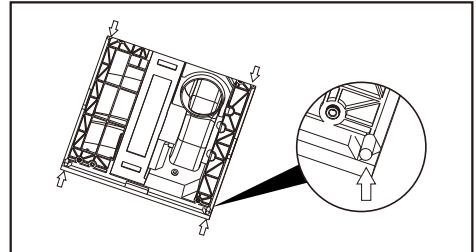
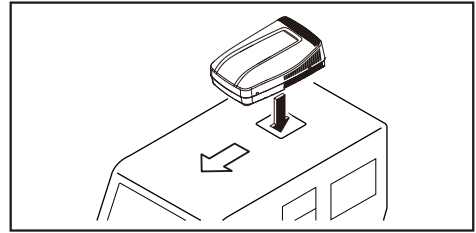
- Select the cross-section of the cable corresponding to the length:
 - Length < 7.5 m: 1.5 mm²
 - Length > 7.5 m: 2.5 mm²

- Make an opening on one side in order to feed through the electrical power supply cable.
- Feed the 230V~ cable through the opening into the vehicle interior.

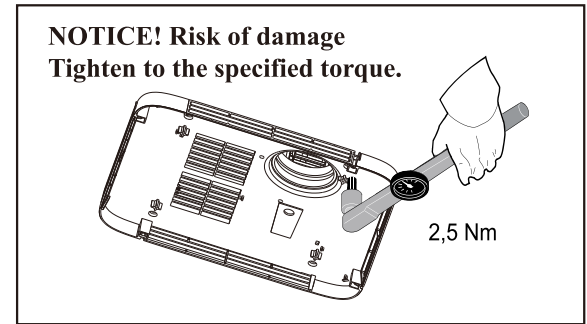


Attaching the rooftop air conditioner

- Lift the rooftop air conditioner onto the roof of the vehicle.
- Position the rooftop air conditioner over the installation opening.
- Observe the direction of travel.
- Position the rooftop air conditioner into the mounting opening using the conical noses.
- Position the seal on the mounting frame.
- Fasten the mounting frame on the underside of the rooftop air conditioner with the 4 screws supplied.

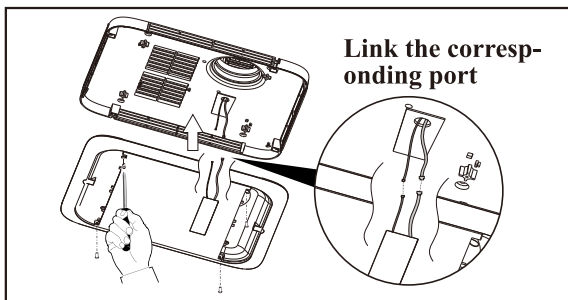


- Tighten the screws using a torque spanner and a fastening torque of 2.5 Nm.

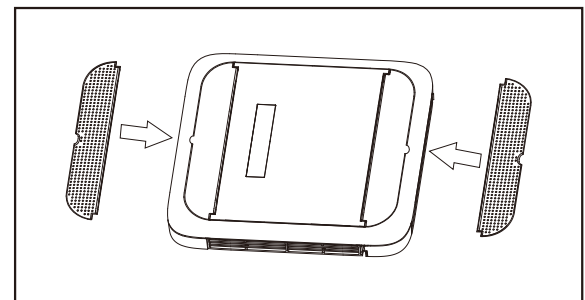


Installing the air outlet unit

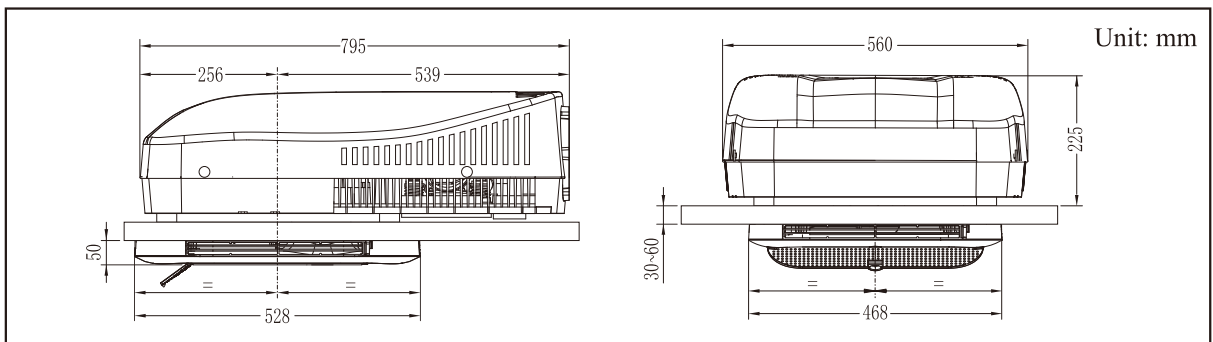
- Attach the air outlet unit to the fastening brackets using the short fastening screws.





- Clamp the air conditioner deflector to both ends of the panel.



Outline dimensions



Quick Start Guide

- Switch on the power to the air-conditioner at the isolation breaker.
- Using the remote control , start the air-conditioner by pressing “” button and then select fan function by pressing the “” button.
- Operate in low FAN, medium FAN and high FAN in turn to check normal operation.
- Select COOL mode, adjust the set point temperature to three degrees lower than the room temperature, the unit will start to blow cool air after the compressor starts.
- Select HEAT mode, adjust the setting temperature to three degrees higher than the room temperature, the unit will start to blow warm air after the compressor starts.(Valid only for heat pump units)

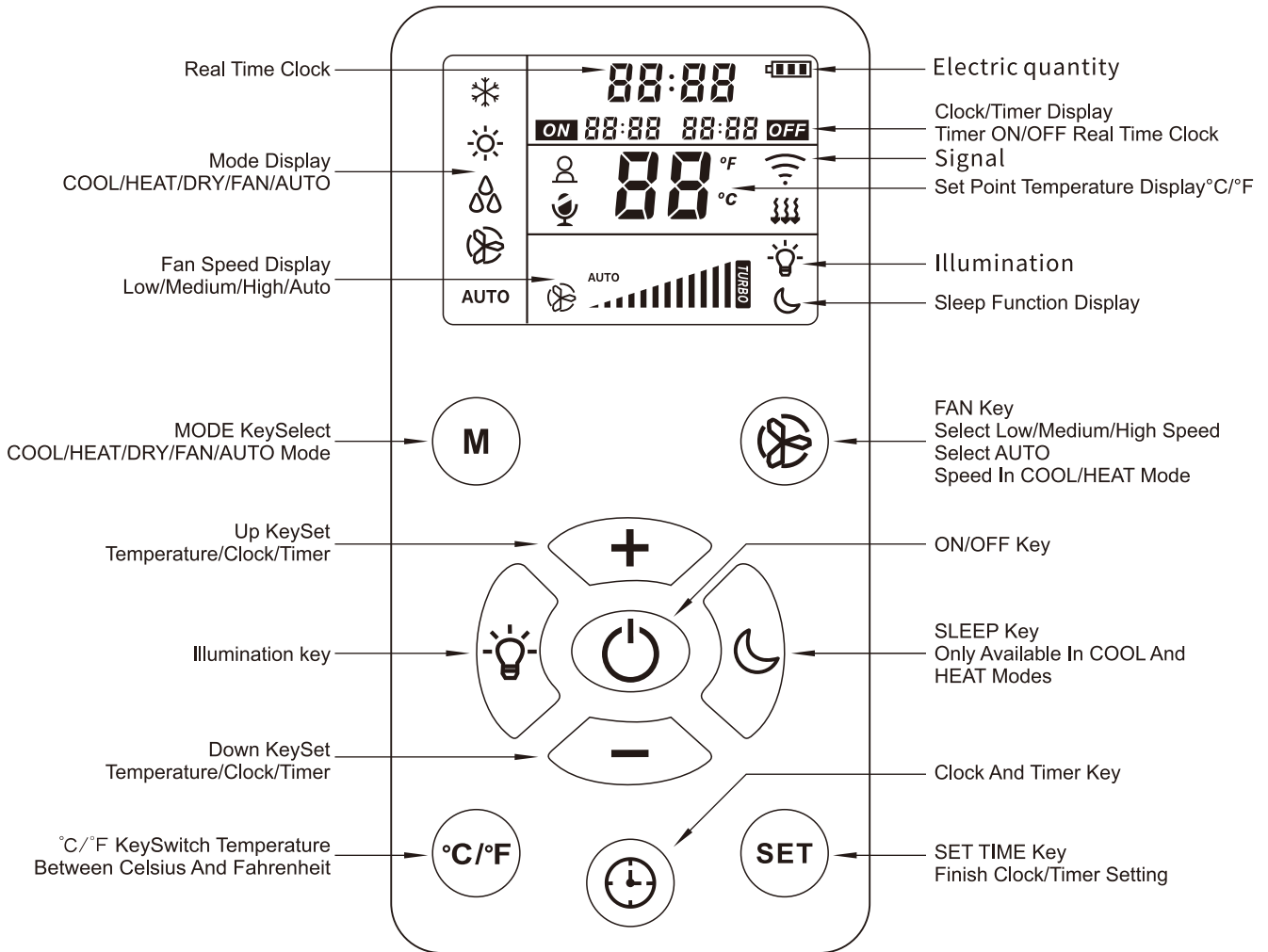
Note

After selecting the COOL or HEAT mode, the compressor may delay starting for 3 minutes. This is a feature to protect the compressor.

In order to ensure the stable operation of the air conditioning system, it is recommended not to turn on the lighting mode within 5-10 minutes after the air conditioning has been turned on.

Remote control operation

Non-ducted and Ducted Air Conditioning System Remote Control



Reserve display:

Somatosensory

Electric auxiliary heating

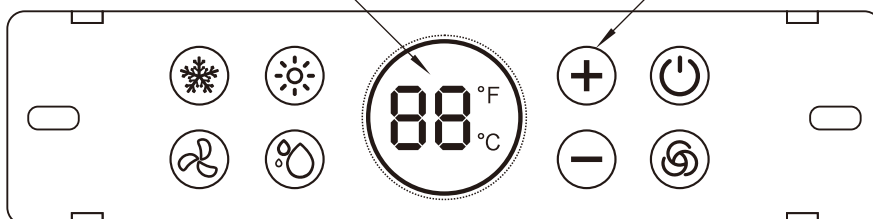
Microphone

The system does not respond when in TURBO mode.

Plenum display

Set point temperature display





Touch screen key



Note


For first-time use, you need to pair the remote control with the air conditioner receiver.

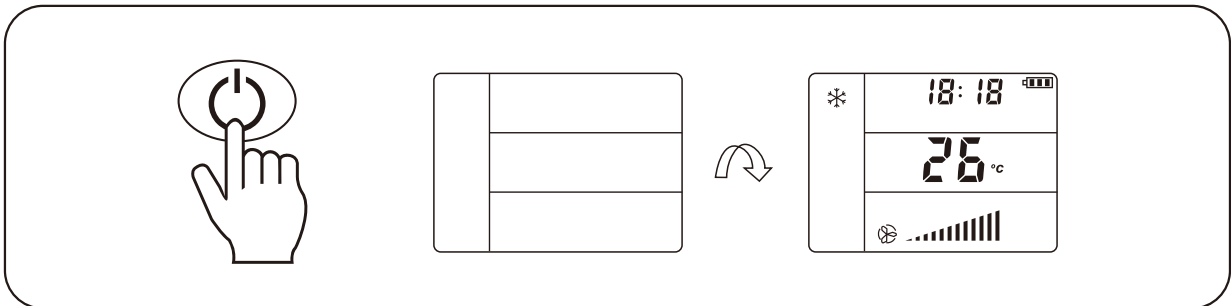
Pairing Method:

- Power on the air conditioner and press and hold the  and  buttons simultaneously. After 3 seconds, the  indicator will start to flash, indicating that it has entered the pairing mode.
- Once the  indicator remains lit for 5 seconds and then goes off, the pairing is successful.





1. Operation of the remote control

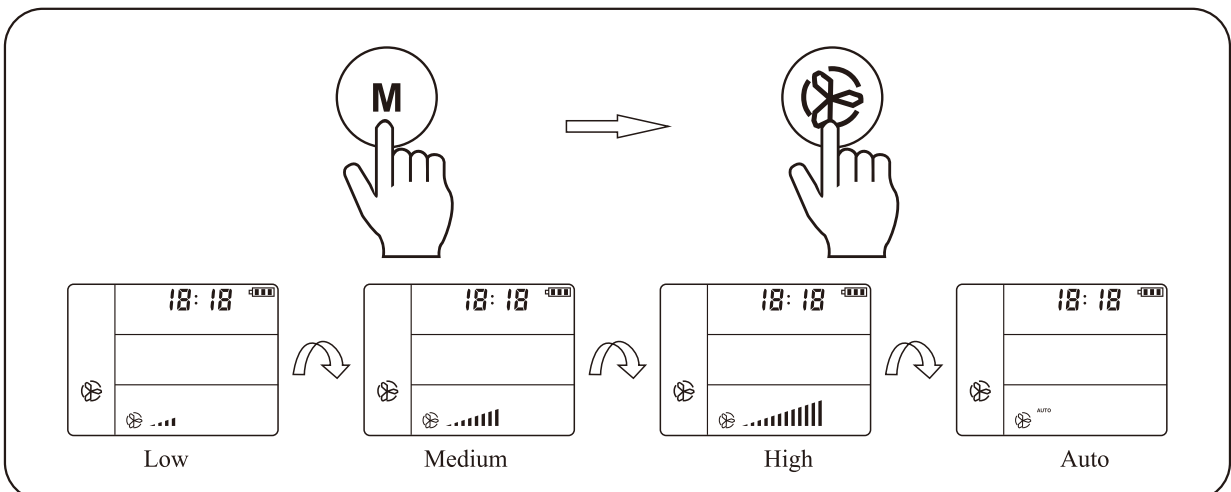
Turn on

- Press the “” key, the unit turns on, the plenum buzzer beeps once and the running mode and temperature will be displayed.



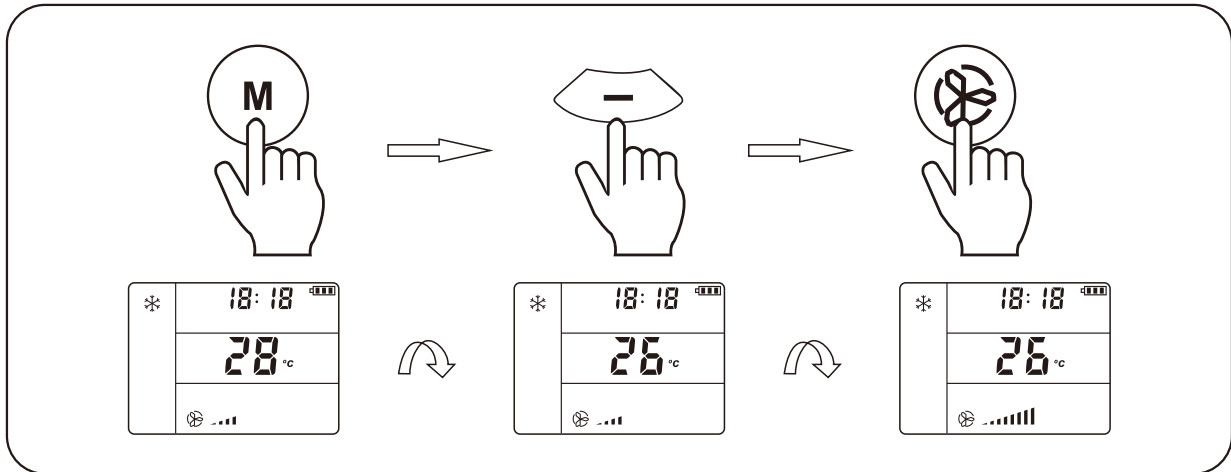
FAN mode

- Press the “” key, select the “” mode. Press the “” key to select Low/Medium/High/Auto fan speeds. The plenum will display “” and the indoor environment temperature.



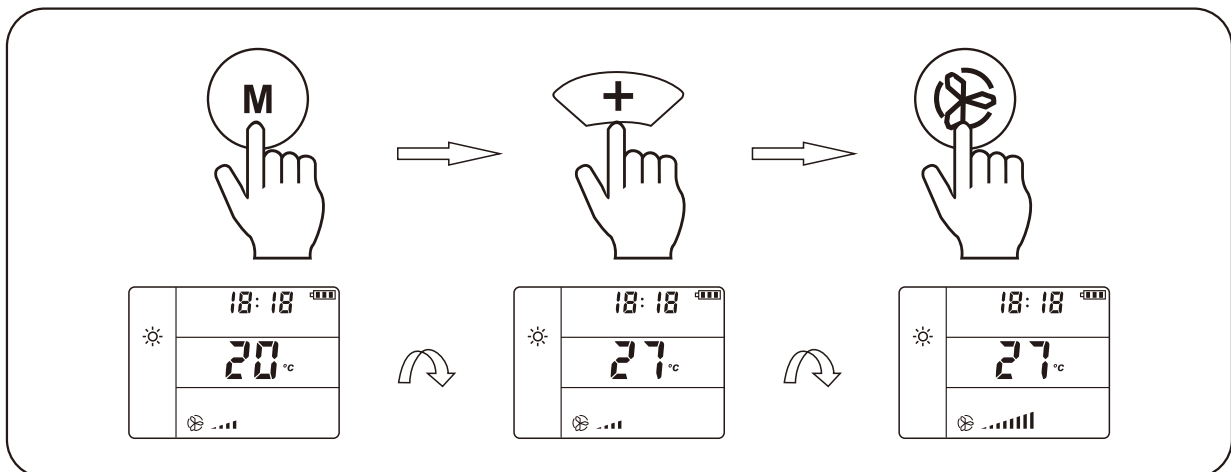
COOL mode

- Press the “M” key, select the “❄” mode. Press the down “-” key to decrease the set point temperature. Press the “⊗” key to select a different speed. The plenum will display “❄” and the set point temperature.



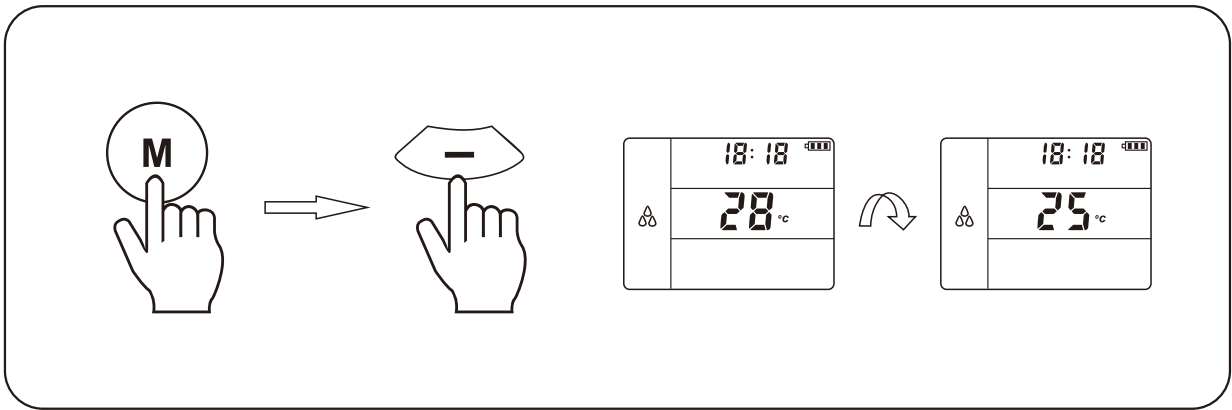
HEAT mode(Valid only for heat pump units)

- Press the “M” key, select the “☀” mode. Press the up “+” key to increase the set point temperature. Press the “⊗” key to select different speed. The plenum will display “☀” and the set point temperature.



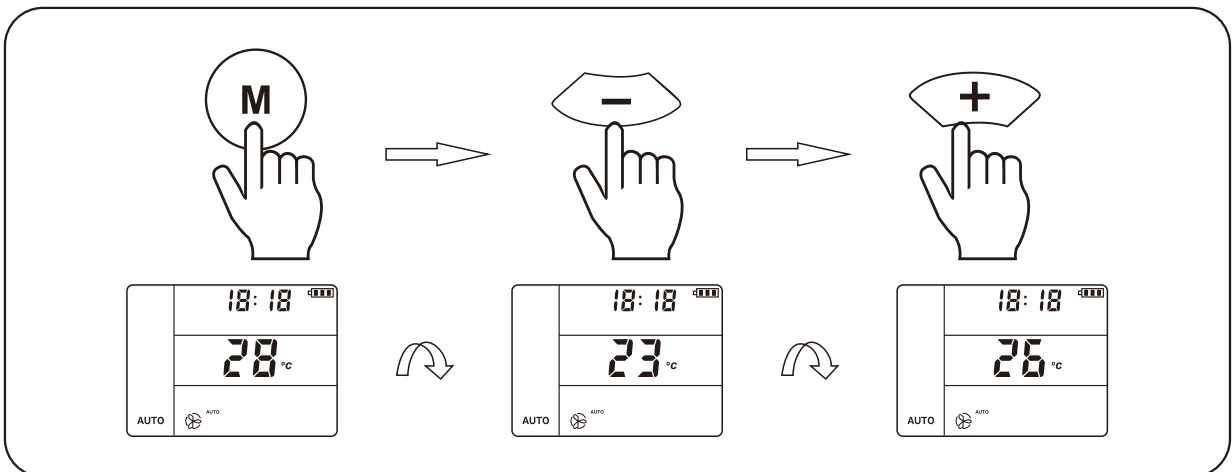
DRY mode

- Press the “M” key, select the “ΔΔ” mode, Press the down “-” key to set the set point temperature 1°C lower than the room temperature, and the plenum will display “ΔΔ” and the set point temperature.



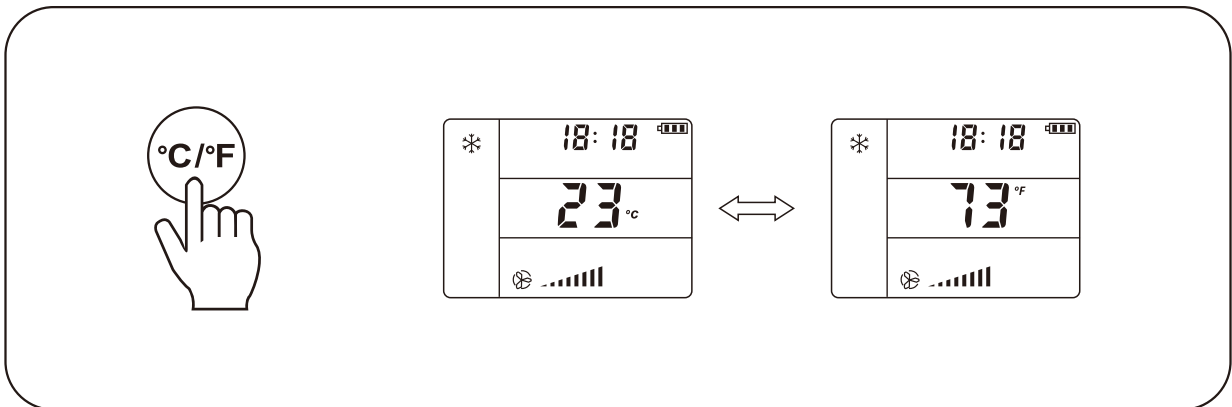
AUTO mode (Valid only for heat pump units)

- Press the “(M)” key, select the “AUTO” mode. Press the up “(+)” or down “(-)” key to adjust the set point temperature. The plenum will display “AUTO” and “(AUTO)” and the set point temperature.



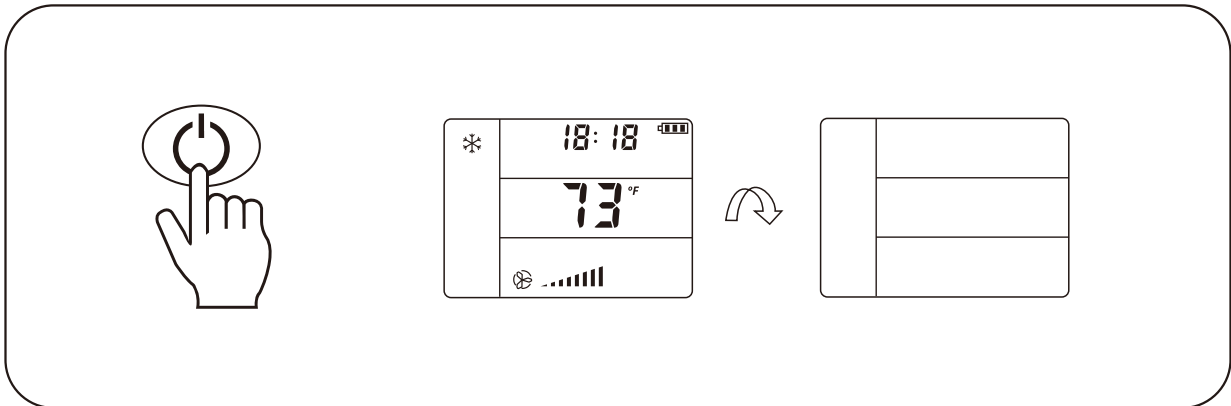
Celsius and Fahrenheit degree change

- In any mode, press the “(C/F)” key to select temperature units of Celsius or Fahrenheit.



Turn off

- Press the “⏻” key again, unit turns off and the plenum and remote control will be blank.



Timing function

• SET CLOCK AND TIMER

TO SET CLOCK

Press the “⊕” key and held for 3 seconds, the Minute digit will flash. Press “➡” or “⬅” key to set minute. Then press the “⊕” key, the Hour digit will flash. Press “➡” or “⬅” key to set hour. Finally press the “⊙” key, Clock setup is done.

TO SET ON TIMER

Press the “⊕” key once, until “ON” shows the time flashes. Then press the “➡” or “⬅” key to set time, finally press “⊙” key, ON timer set up is completed.

TO SET OFF TIMER

Press the “⊕” key twice, until “OFF” shows the time flashes. Then press the “➡” or “⬅” key to set time, finally press “⊙” key to set the desired time to turn the unit off.

TO SET ON AND OFF TIMER

Press the “⊕” key three times, until “ON” and “OFF” timer are displayed. when the ON timer flashes, press the “➡” or “⬅” key to set ON timer. Then press the “⊕” key, until OFF timer flashes, press the “➡” or “⬅” key to set OFF timer. And finally press the “⊙” key, The ON and OFF timer set up are completed.









TURN OFF TIMING FUNCTION

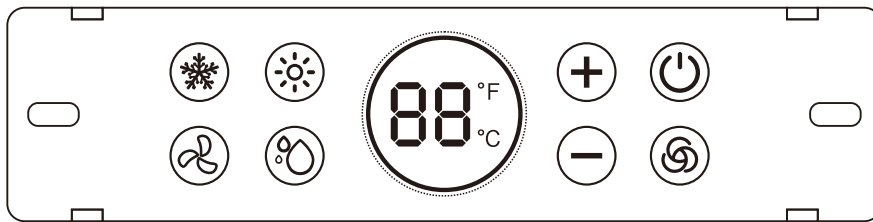
When the timing time is displayed, press the “⊕” key once, the ON timer flashes for 5 seconds and disappears, and the timer function is turned off.

2. Plenum operation

Basic air-conditioning features can be accessed via the plenum touch control. This is useful if the remote control has been lost or is not functioning.

Every time a button is clicked, there needs to be a buzz;


- Press the touch screen “” key on the plenum, press the “ /  /  /  / ” button to select the corresponding mode. Press the up “” or down “” key to adjust the set point temperature. The set point temperature is 24°C with high fan speed.



- The plenum display will show symbols for each function:

 COOL  HEAT  VENT  DRY  AUTO

Tips

- The remote control should be operated by directing it towards the plenum, which will beep once when a signal is received.
- When run on heating mode in low ambient temperatures the unit will periodically defrost the outside coil. Then return to heating once the defrost is completed.
- If the device is left unused for long time, remove the batteries from the remote control.
- The air-conditioner features power cut memory. After the power supply is restored, press the  button on the remote control to restart it, and it will display the working mode set before the power failure.
- When the ambient temperature is lower than 0°C/32°F, the heating capacity is reduced.

Product Maintenance

Filter

- The return air filter is the only component that needs periodic maintenance.
- Check and clean the filter each week when in use to prevent the filter from being blocked by dirt and lint.
- The filter should be washed frequently to ensure effective cooling and heating.
- Pull out the filter from the plenum before washing in warm water with a touch of detergent.
- Dry before replacing.

Bolt check

- It is recommended that the four bolts holding the unit to the roof are checked for tightness 3 months after the first installation of the product.
- These bolts should be regularly inspected every 12 months through out the air conditioner's life.

Maintenance

- It is recommended the air-conditioner is operated regularly to ensure good performance.
- In the case of a caravan that will not be used regularly then the unit should be operated for 20-30 minutes every 6 months.

Specifications

Model	3J-KFBR2200-R
Indoor unit dimensions	528 × 468 × 50mm
Outdoor unit dimensions	795 × 560 × 225mm
Input voltage	AC 220-240V/50Hz
Rated cooling/heating capacity	2000W
Consumption when cooling	4.4A
Consumption when heating	3.6A
Operating temperature range	0°C~52°C
Refrigerant	R32
Blower	3 blower levels 1 Automatic mode
Protection class	IP × 4
Max. volume of space in the vehicle (with insulated walls)	25m ³
Outdoor unit packaging dimensions	838 × 600 × 290mm
Indoor unit packaging dimensions	628 × 528 × 168mm
Net weight	24.6kg
Gross weight	27.5kg

Notes

1. All parameters listed are subject to change without notice and the specifications shown on unit data plates shall prevail.
2. E&OE. All values are approximate & subject to change.
3. Rated cooling test condition: indoor 27°C/19°C outdoor 35°C/24°C; Rated heating test condition: indoor 20°C/15°C outdoor 7°C/6°C.

Trouble Shooting Guide

No plenum display when unit turned ON

- Check whether the power is supplied to RV and circuit breakers are on?
- Check that the remote battery is OK?
- Check whether the remote control is off ?

Cooling not available

- Check that the cooling mode is selected and the plenum display shows "❄️".
- Use the remote control to set required temperature below the current room temperature.
- The compressor will delay a re-start for three minutes.

Heating not available

- Check that the heating mode is selected and the plenum display shows "🔥".
- Use the remote control to set required temperature above the current room temperature.
- More time would be needed for starting heating under extremely cold condition. When the unit is in heating mode and the outside temperature is very low the unit may automatically enter defrost mode. The heating will temporarily stop as the unit warms the outside coil to remove any frost & ice. Heating will resume once the outside coil has been cleared.

Poor cooling capacity

- To make sure the filter is clean.
- Turn on the fan to high FAN to obtain the maximum capacity.
- Make sure all the doors and windows and the sunroof are closed.
- Curtains and awnings can be used to decrease the heating load.

Fault codes displayed on the panel

The inner disk temperature sensor is faulty	E3
The outer disk temperature sensor is faulty	E4
The outer ring temperature sensor is faulty	E5
The exhaust temperature sensor is faulty	E6
The return air temperature is faulty. Procedure	E8
Compressor overload fault	E9
Exhaust pipe failure	P0
Inner disk icing failure	P1
The CI-BUS communication is faulty	C1
Frequency conversion communication failure	P2
The communication with the indicator board is faulty	P3
Frequency conversion overspeed fault	P4
Variable frequency stall failure	P5
Frequency conversion undervoltage fault	P6
Frequency conversion overvoltage fault	P7
Frequency conversion overcurrent fault	P8
Variable frequency overheating fault	P9

- If there are multiple faults, the fault code is displayed alternately.
- The fault code disappears automatically when no fault is reported.

Before contacting the local distributor for technical support please collect the following information.

- Are any error codes displayed ?
- Is the display panel in normal operation or not ? Does it display a temperature from 16 to 30°C?
- Can you adjust the setting temperature when in cool or heat mode?
- Is there a "0" shown in the display?
- Is the display showing a jumbled display?
- When in fan mode is there any air flow from the plenum outlets?
- Can you hear the compressor starting or stopping in heating or cooling mode?

Your help in collecting this information will greatly assist the Before contacting the local distributor for technical support please collect the following information. service team in correcting any problems - Thank you.

Circuit Diagram

