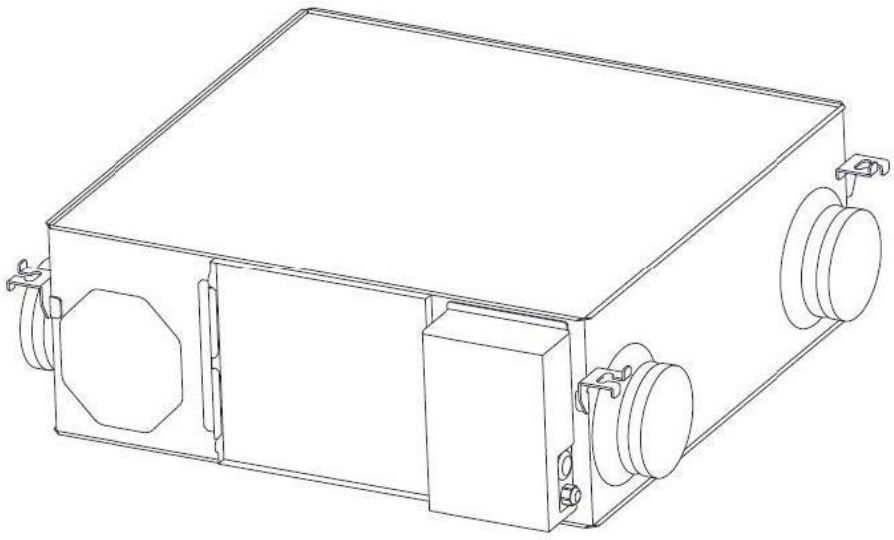
ENERGY RECOVERY VENTILATOR

PIONEER®

ECOasis Ducted Ceiling-Mounted



Installation & User Manual

IMPORTANT NOTICE:
Read this manual carefully before installing or operating your new energy recover ventilator.
Be sure to save this manual for future reference.

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Read this Manual

The manual provides helpful hints on using and maintaining the air conditioner properly. Performing preventive care can save time and money over the lifespan of the air conditioner. These instructions may not cover every possible condition of use, so common sense and attention to safety is required when installing, operating, and maintaining this product.

Safety Precautions

1

Failure to follow these precautions may result in serious injury or death.

Read the following safety instructions before performing the installation. Ensure the unit is installed correctly. Observe all instructions to avoid personal injury or damage to equipment or property.

The following symbols indicate potential levels of caution.

Warning	Situations with a risk of death or serious injury.
Attention	Situations with a risk of injury or equipment/property damage.

The following symbols indicate compliance and must be observed.

	Not allowed or stop
	Must follow
	Obliged

Warning

- Qualified personnel must carry out the installation. End users must not install, move, or reinstall this equipment themselves.
- Installation engineers must strictly follow this manual. Improper installation can create a safety hazard and reduce the efficiency of the unit.
- The unit must be installed in accordance with this manual and mounted on a surface capable of supporting its weight.
- Before performing maintenance or repairs, switch off the unit and the circuit breaker. Failure to do so may result in electric shock.
- Install a bird screen or similar device over the external vents. Ensure the ducts are free of obstructions.

Safety Precautions

1

Warning

- Ensure the fresh air vent is located at a safe distance from flue gas outlets and areas where hazardous vapors may be present.
- All electrical work must comply with national regulations and this manual. Use only the specified cables. Undersized cables or improper wiring may cause electric shock or fire.
- A means of disconnection must be incorporated into the fixed wiring in accordance with the wiring rules.
- Before cleaning or performing other maintenance, disconnect the unit from the power supply.
- Children aged 8 and above, as well as individuals with lack of experience or reduced physical, sensory, or mental capabilities can use the appliance if supervision or instruction is given. Do not allow children to play with or near the appliance. Children or untrained personnel should be restricted from cleaning and performing maintenance on the appliance, unless they're given supervision.
- Installation engineers must strictly follow this manual. Improper installation can create a safety hazard and reduce the efficiency of the unit.

Attention

- A qualified electrical engineer must install the power cable and wires. Improper connection may cause overheating, fire, and loss of efficiency.
- If the ducting penetrates the metal wall cladding, install insulation between the ducting and wall penetration to avoid the risk of electric shock or current leakage.
- Only use approved installation hardware and accessories. Failure to observe can result in fire risk, electric shock, and equipment failure.
- Install the outdoor ducts facing downwards to avoid rain water from entering. Improper installation can cause water leakage.
- To avoid condensation, insulation must be fitted to the fresh air ducts. Other ducting may also require insulation depending on the dew point conditions.
- The cover of the wiring box must be pressed down and closed to avoid dust and dirt from entering. Excess dust and dirt can cause overheating to the terminals and result in fire or electric shock.

Safety Precautions

1

Attention

- Ensure proper ventilation when installing the unit at a high level in hot, humid environments.
- Correctly sized MCBs must be fitted to the unit. Install suitable earth leakage protection to avoid risks of electric shock or fire.
- Do not install the unit in extremely humid locations, as this may result in electric shock or fire.
- Do not install the unit in environments containing toxic or corrosive gases.
- Acidic or alkaline environments can cause poisoning or fire.
- Do not use the unit for primary kitchen extraction. Grease and oil deposits can block the heat exchanger and filter, resulting in a fire risk.
- Do not install the unit near open flames, as this may result in overheating or fire.
- Connect the unit only to a power supply that matches the rated voltage; otherwise, fire may result.

Operating Precautions

2

Warning

- Improper wiring connections may cause an explosion or fire at startup. Use only the rated power supply voltage.
- Continuing to operate the unit under abnormal conditions may cause failure, electric shock, or fire.
- Turn off the power supply and the circuit breaker before cleaning the heat exchanger.

- Do not install, move, or reinstall the unit yourself. Contact your dealer or a qualified installer. Improper installation may cause the unit to fall, or result in electric shock or fire.
- Do not insert your fingers or any objects into the fresh air or exhaust air vents. The rotating impeller can cause injury.
- Do not modify, disassemble, or repair the unit yourself. Contact your dealer for repairs. Improper handling may cause electric shock or fire.

Attention

- Do not position the outdoor air intake vent where it will be exposed to high temperatures or high humidity. Doing so may cause failure, electrical leakage, or fire.
- Turn off the power supply if the unit will not be used for an extended period. Before cleaning the unit, turn off the power supply and use caution. Failure to do so may result in electric shock.
- Clean the filter regularly. A clogged filter may reduce airflow and result in poor indoor air quality.

- Do not place combustion appliances where the supply air outlet blows directly on them. Doing so may cause incomplete combustion.
- Follow all applicable safety regulations to prevent incomplete combustion when operating fuel-burning appliances.

Product Overview

3

Model Numbers

Model	Full System	CFM
100	ERV100AHCLCO2L	89
160	ERV160AHCLCO2L	147
200	ERV200AHCLCO2L	206
320	ERV320AHCLCO2L	294

Principle & Function

An energy recovery ventilator (ERV) is a device used for air energy recovery. The unit consists of a supply fan, an exhaust fan, a total heat exchanger, and primary filters for both fresh air and return air.

Purified fresh air is continuously supplied to the room through the supply air outlet, while stale indoor air is exhausted at the same time, improving indoor air quality.

The total heat exchanger recovers heat and moisture from the exhaust air and transfers them to the incoming fresh air, reducing energy consumption.

Product Overview

3

Specifications

Item		Content
Type		Ceiling Mounted
Ventilator	Speed	10
	Structure	Galvanized sheet shell + Integrated EPS foam structure + Internal insulation
	Heat Exchanger	Integrated resin frame + Efficient paper core
	Fan	DC Fan
	Controller	Machine body control + Remote intelligent controller + Wi-Fi (optional)
	Bypass	100% automatic control
	Filter	G4
Power		120V ~ 60Hz
Application		Temperature: -4-113°F (-20-45°C) Humidity: Below 85% RH

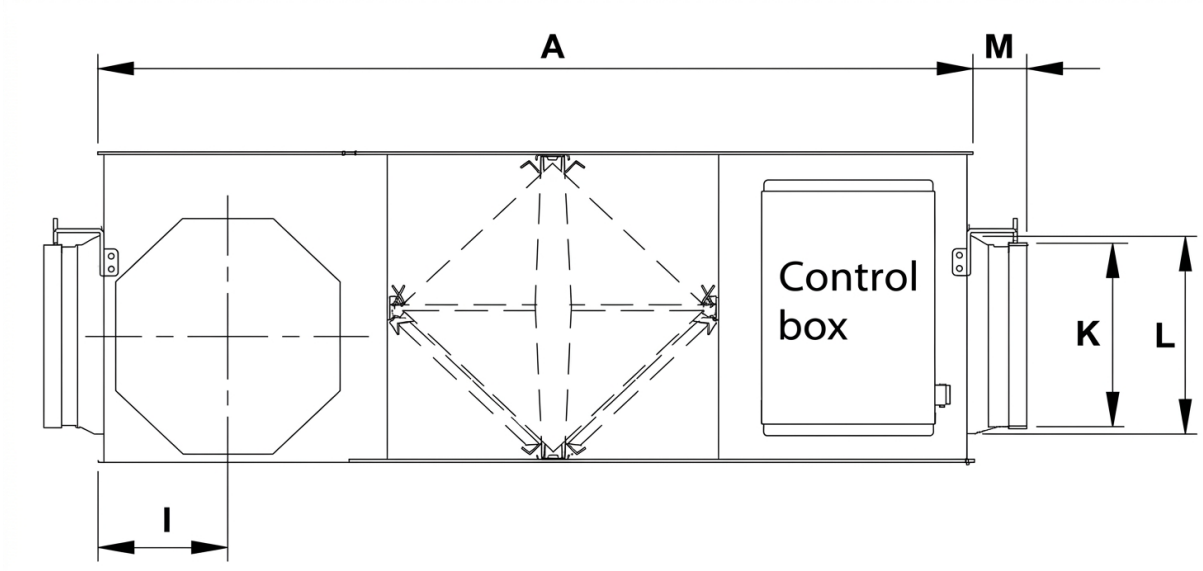
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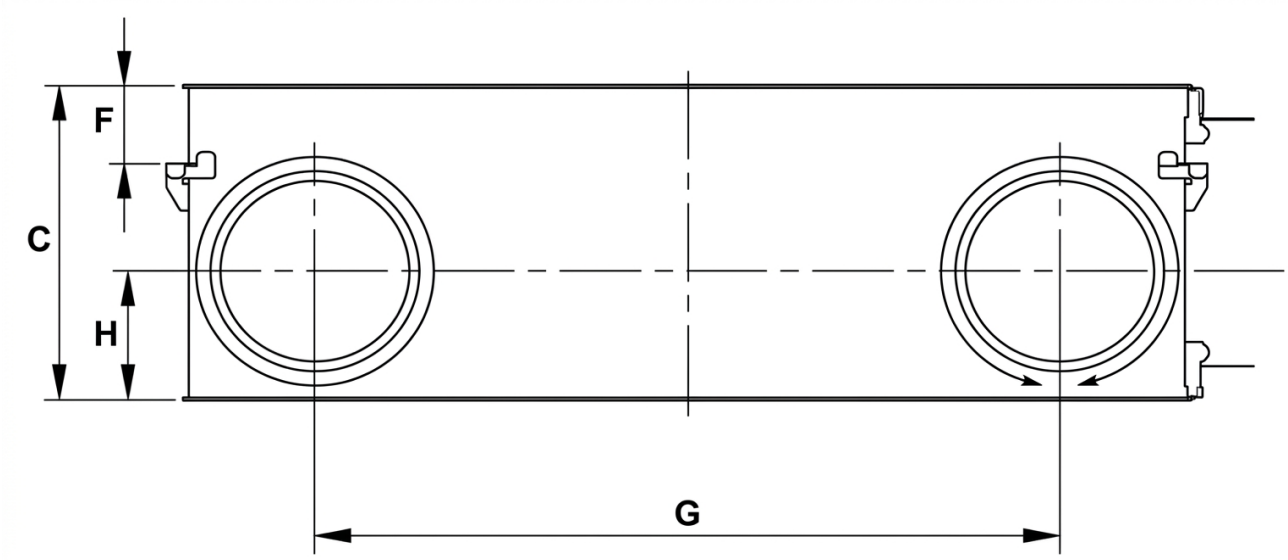
- These values apply during ventilation with the fan set to Fan Speed 10, at the rated pressure loss and 120 V/60 Hz.
- For specifications at other frequencies or voltages, contact your dealer.
- These products conform to Japanese Industrial Standards (JIS B 8628); therefore, Q-H curves are measured using the chamber method.
- This series of air exchangers is intended for residential use.

Product Overview

3

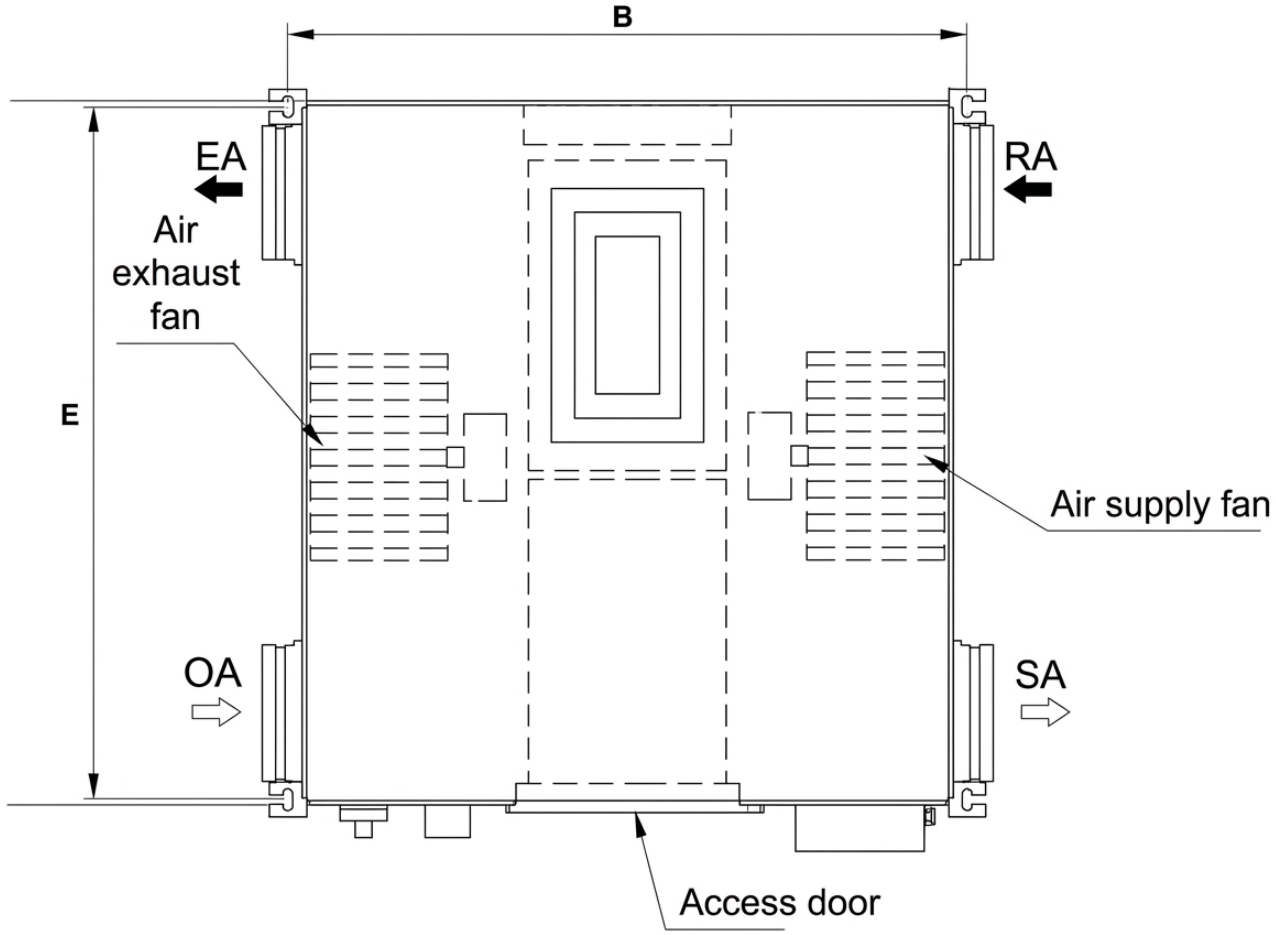
Dimensions



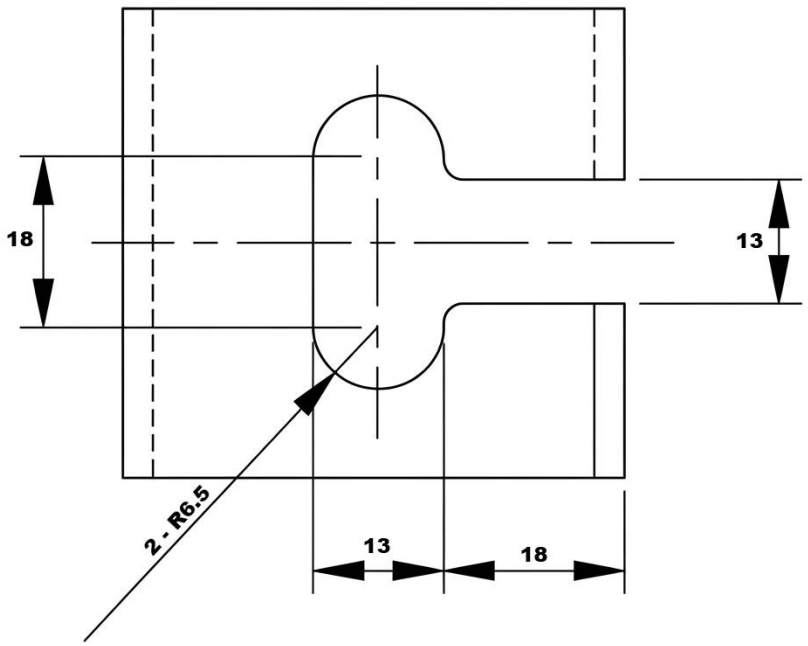


Product Overview

3



Ceiling Suspension Fixture



Product Overview

3

Model	Dimensions			Ceiling Suspension Fixture Pitch		
	A	B	C	D	E	F
ERV100AHCLCO2L	30-3/4 in	24 in	11-3/8 in	32-1/4 in	23-3/8 in	3-1/8 in
	780 mm	610 mm	289 mm	819 mm	594 mm	78 mm
ERV160AHCLCO2L	30-3/4 in	28-7/8 in	11-3/8 in	32-1/4 in	28-1/4 in	3-1/8 in
	780 mm	735 mm	289 mm	819 mm	719 mm	78 mm
ERV200AHCLCO2L	34-3/4 in	34-3/8 in	13 in	36-1/4 in	37-3/4 in	3-1/4 in
	884 mm	874 mm	331 mm	922 mm	958 mm	81 mm
ERV320AHCLCO2L	34-3/4 in	40 in	13 in	36-1/4 in	39-3/8 in	3-1/4 in
	884 mm	1,016 mm	331 mm	922 mm	1,000 mm	81 mm

Model	Duct Pitch			Duct Connecting Flange		
	G	H	I	K	L	M
ERV100AHCLCO2L	17-3/4 in	3-3/4 in	4-1/2 in	3-3/4 in	4-3/8 in	2-1/8 in
	450 mm	95 mm	116 mm	95 mm	110 mm	53 mm
ERV160AHCLCO2L	20-3/4 in	3-3/4 in	4-1/2 in	5-5/8 in	6-1/4 in	2-1/4 in
	526 mm	95 mm	116 mm	144 mm	160 mm	58 mm
ERV200AHCLCO2L	25-5/8 in	5-3/8 in	4-1/4 in	5-5/8 in	6-1/4 in	2-1/4 in
	650 mm	135 mm	132 mm	144 mm	160 mm	58 mm
ERV320AHCLCO2L	29-1/2 in	5-3/8 in	4-1/4 in	7-5/8 in	8-1/4 in	2-3/8 in
	750 mm	135 mm	132 mm	195 mm	211 mm	61 mm

Model	Weight
ERV100AHCLCO2L	44.1 lbs
	20 kgs
ERV160AHCLCO2L	50.7 lbs
	23 kgs
ERV200AHCLCO2L	66.1 lbs
	30 kgs
ERV320AHCLCO2L	72.75 lbs
	33 kgs

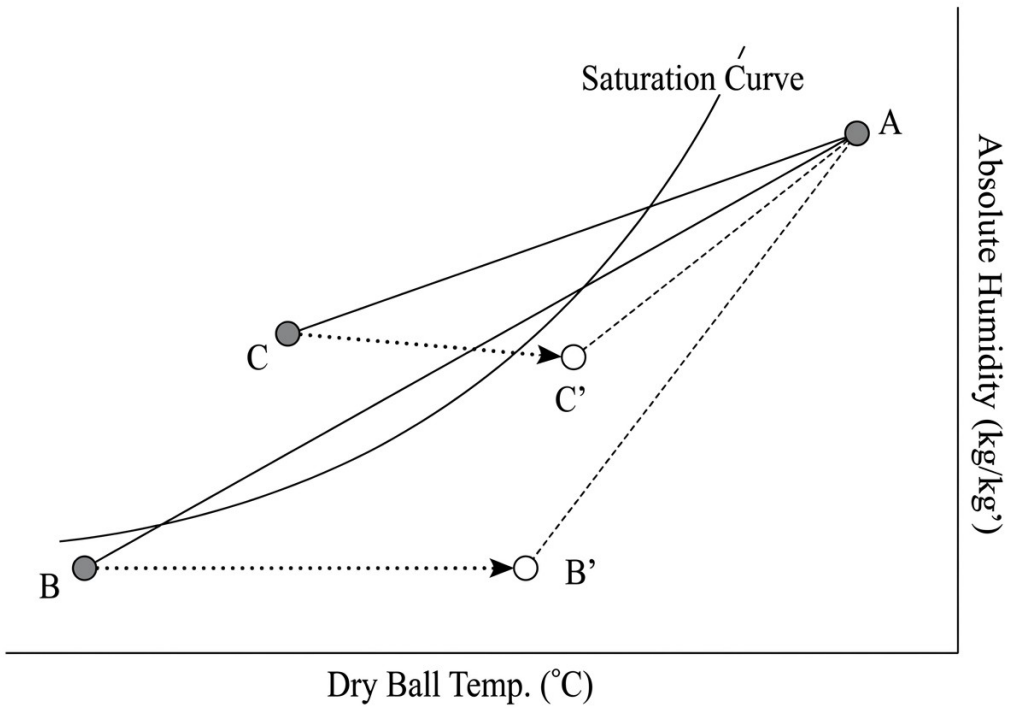
Model	Nominal Diameter
ERV100AHCLCO2L	Ø 100
ERV160AHCLCO2L	Ø 150
ERV200AHCLCO2L	Ø 150
ERV320AHCLCO2L	Ø 200

Installation Considerations

4

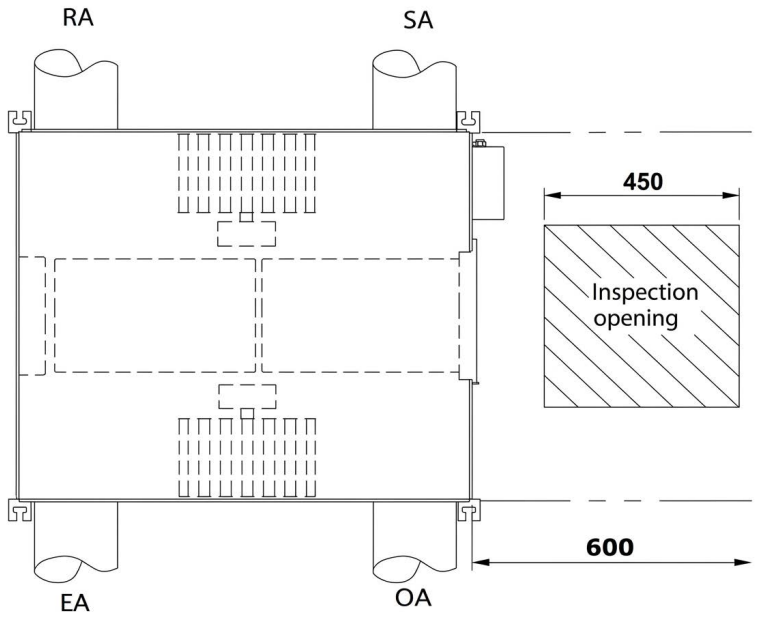
Notes

- Do not install the unit near boiler flues.
- Avoid excessive use of flexible duct and long flexible duct runs.
- Fire dampers must be installed in accordance with national and local fire regulations.
- Do not expose the unit to ambient temperatures above 104°F (40°C) or to open flames.
- To prevent exhaust air from re-entering the building, keep the two outdoor vents at least 39-3/8 inches (1,000 mm) apart.
- The heater must be operated in sync with the unit, ensuring it only starts when the unit does.
- To reduce indoor noise, consider installing a duct muffler.
- Take measures to prevent condensation and frost. As shown in the drawing below, condensation or frost will form in the unit when the line from A to C crosses the saturation curve. Use a pre-heater to keep conditions to the right of the saturation curve (moving B to B′ and C to C′), preventing condensation or frost formation.

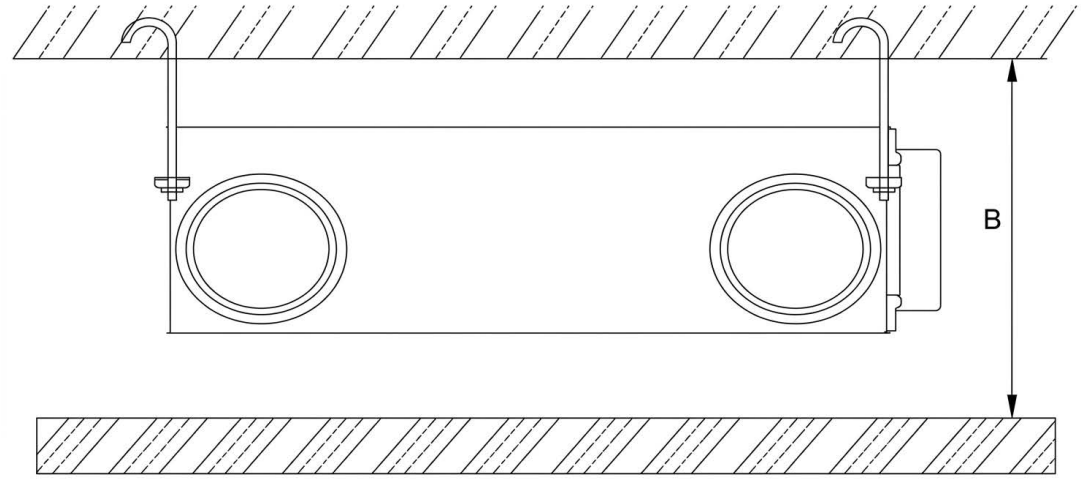


Installation Considerations 4

Protect the unit and its accessories from dust and debris during installation and on-site storage. Install service ports to allow access for filter maintenance.



Ensure the ceiling height is no less than the figures in the table column.

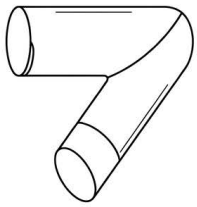


Model	Inner Ceiling Height
ERV100AHCLCO2L	340
ERV160AHCLCO2L	340
ERV200AHCLCO2L	390
ERV320AHCLCO2L	390

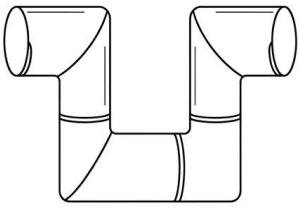
Installation Considerations

4

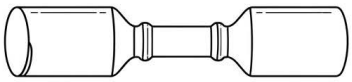
Avoid the following scenarios during the ducting installation.



Serve bends



Multiple direction changes

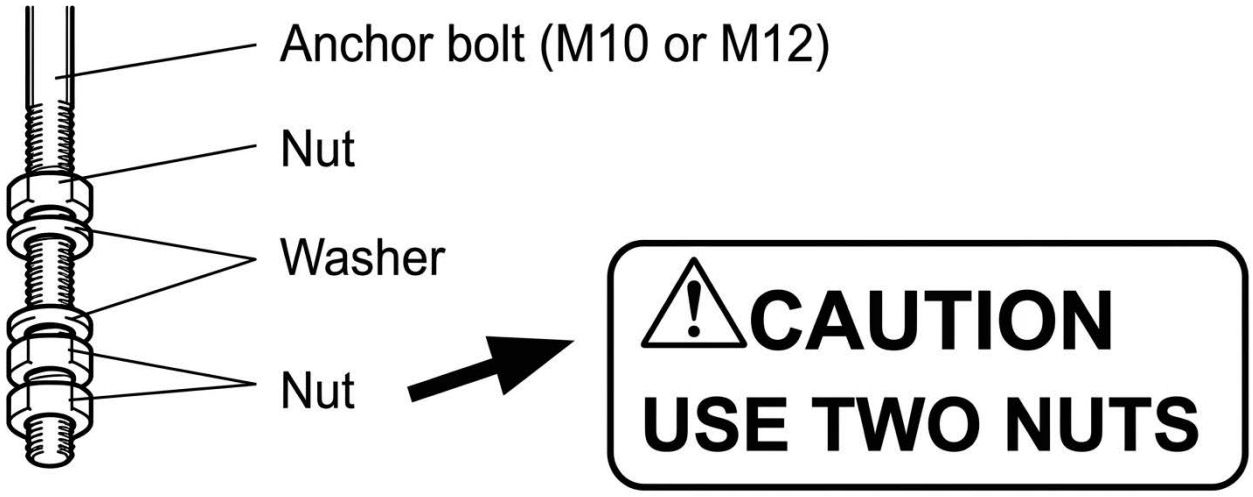


Multiple reducers/ crimped duct

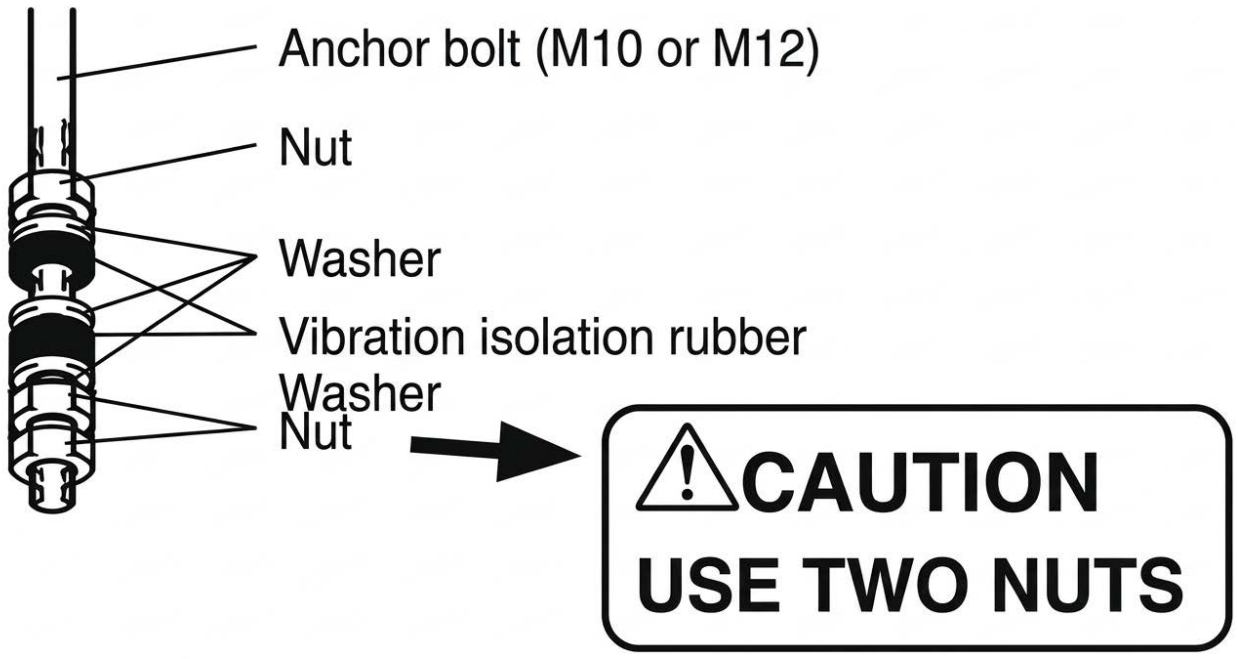
Installation 5

Preparing the Anchor Bolts

Fit the washers and nuts onto the pre-installed M10 or M12 anchor bolts. For M10 anchor bolts, the outer diameter must be at least 7/8 inch (21 mm); for M12 anchor bolts, it must be at least 1 inch (24 mm).



Using customer-supplied vibration isolation rubber may reduce mounting strength. We recommend the following installation method.



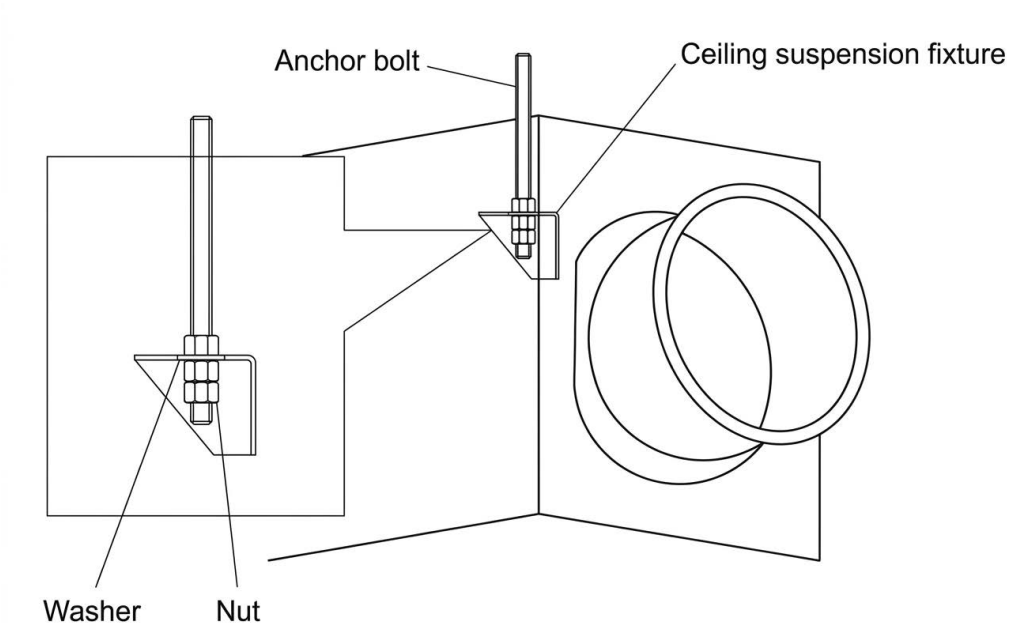
Installation

5

Installing the Equipment

1. Hang the ceiling suspension fixture on the anchor bolts and adjust the nuts until the unit is level.

2. Secure the ceiling suspension fixtures with double nuts.



Installation

5

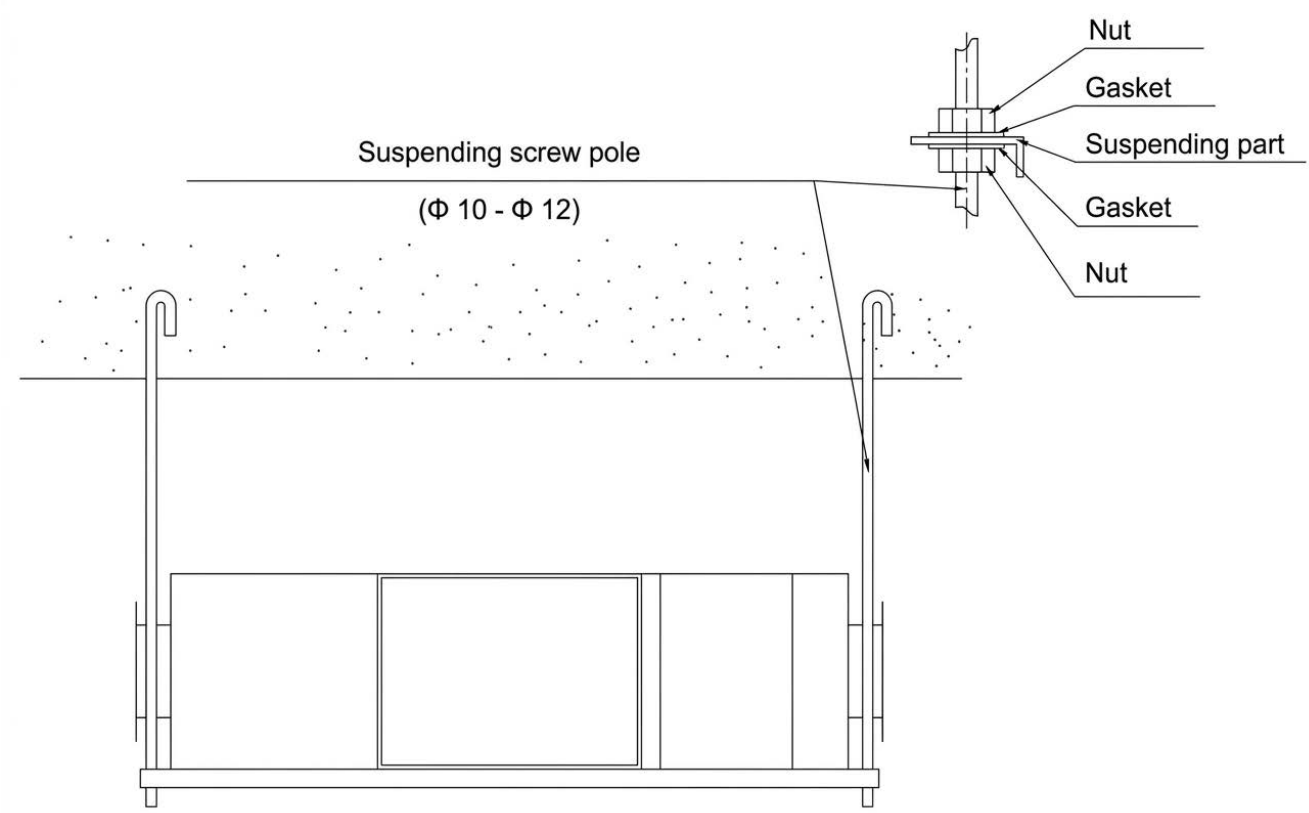
Physical Installation

1. Prepare suitable threaded hangers with adjustable nuts and gaskets.

2. Install the unit as shown in the image below. The unit must be level and securely fastened.

3. Improper installation may result in injury, equipment damage, or excessive vibration. An uneven installation will affect the unit's performance.

4. If the labels on the unit appear upside down, the unit has been installed upside down.

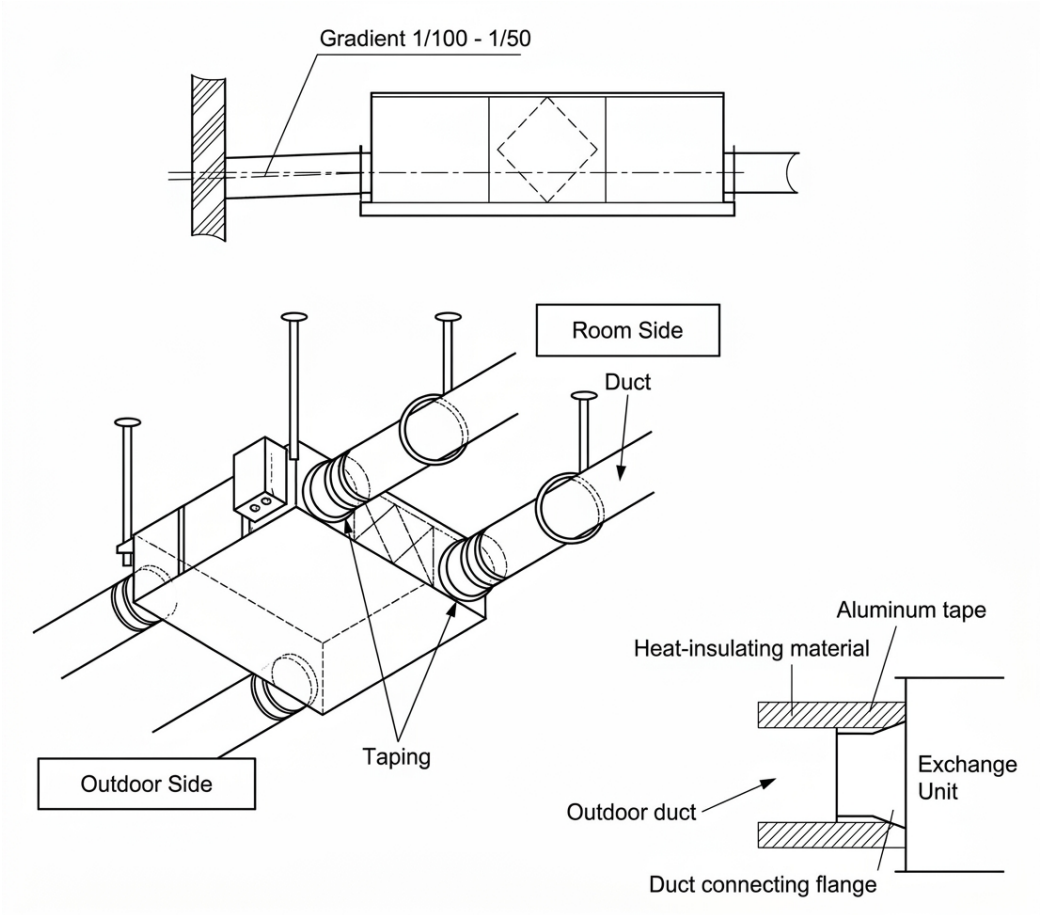


Duct Connections

6

Notes

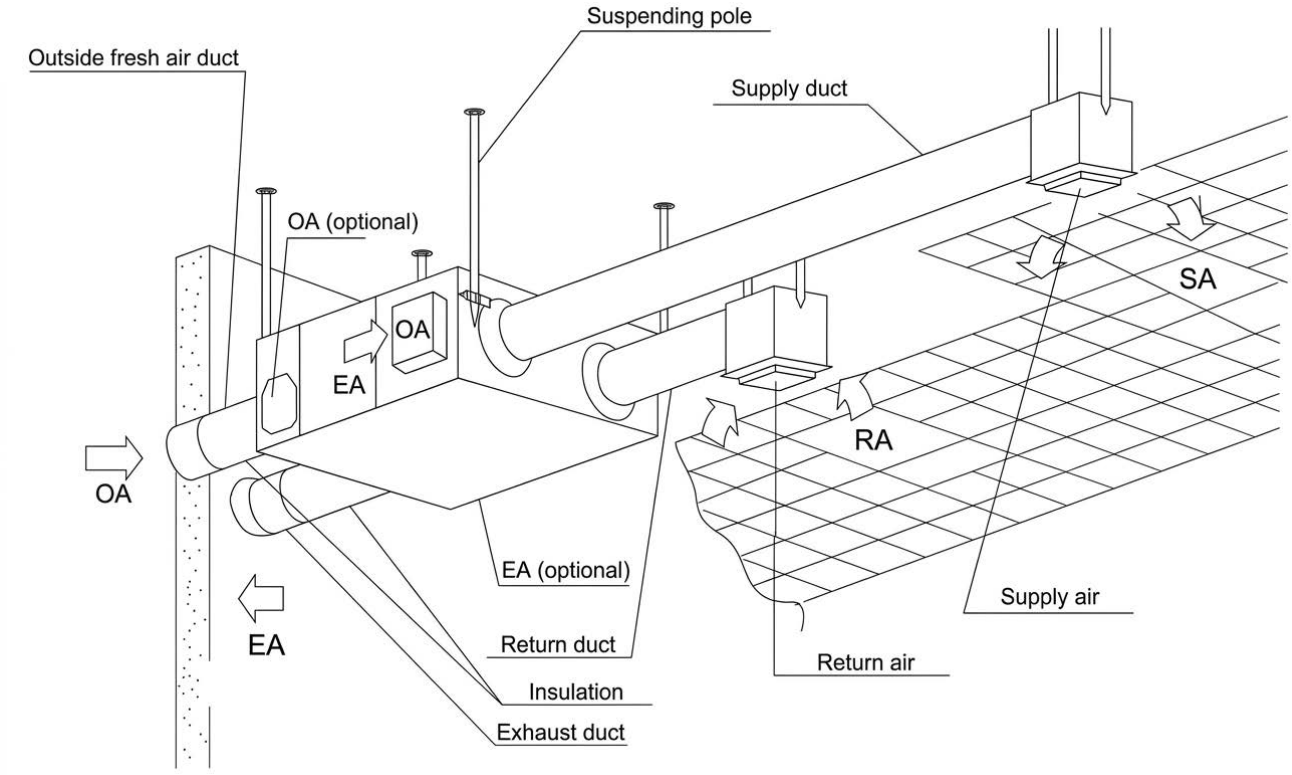
- Fasten the duct securely to the connecting flange and apply aluminum tape (field-supplied) around the joints to prevent air leakage.
- Support the ducts from the ceiling so their weight does not rest on the unit.
- Slope the two outdoor ducts downward toward the outside (slope of 1/100–1/50) to prevent rainwater from entering.
- Insulate the two outdoor ducts to prevent condensation. Material: glass wool; thickness: 1 inch (25 mm).



Duct Connections

6

Standard Installation Examples



Electrical Installation 7

Warning

- To avoid electric shock, make sure the power supply is turned off during installation and before maintenance.
- Use cables that meet the specified requirements. Cables that do not meet these requirements may cause malfunction, electric shock, or fire.
- We accept no liability for any problems caused by unauthorized modifications to the electrical or control systems.

The power supply is 120 V AC, 60 Hz, single-phase. We recommend using a cable clamp to secure the power cable to the wall or the unit.

1. Remove the electrical box cover and connect the three wires (L, N, and GND) to their corresponding terminals as shown in the wiring diagram.

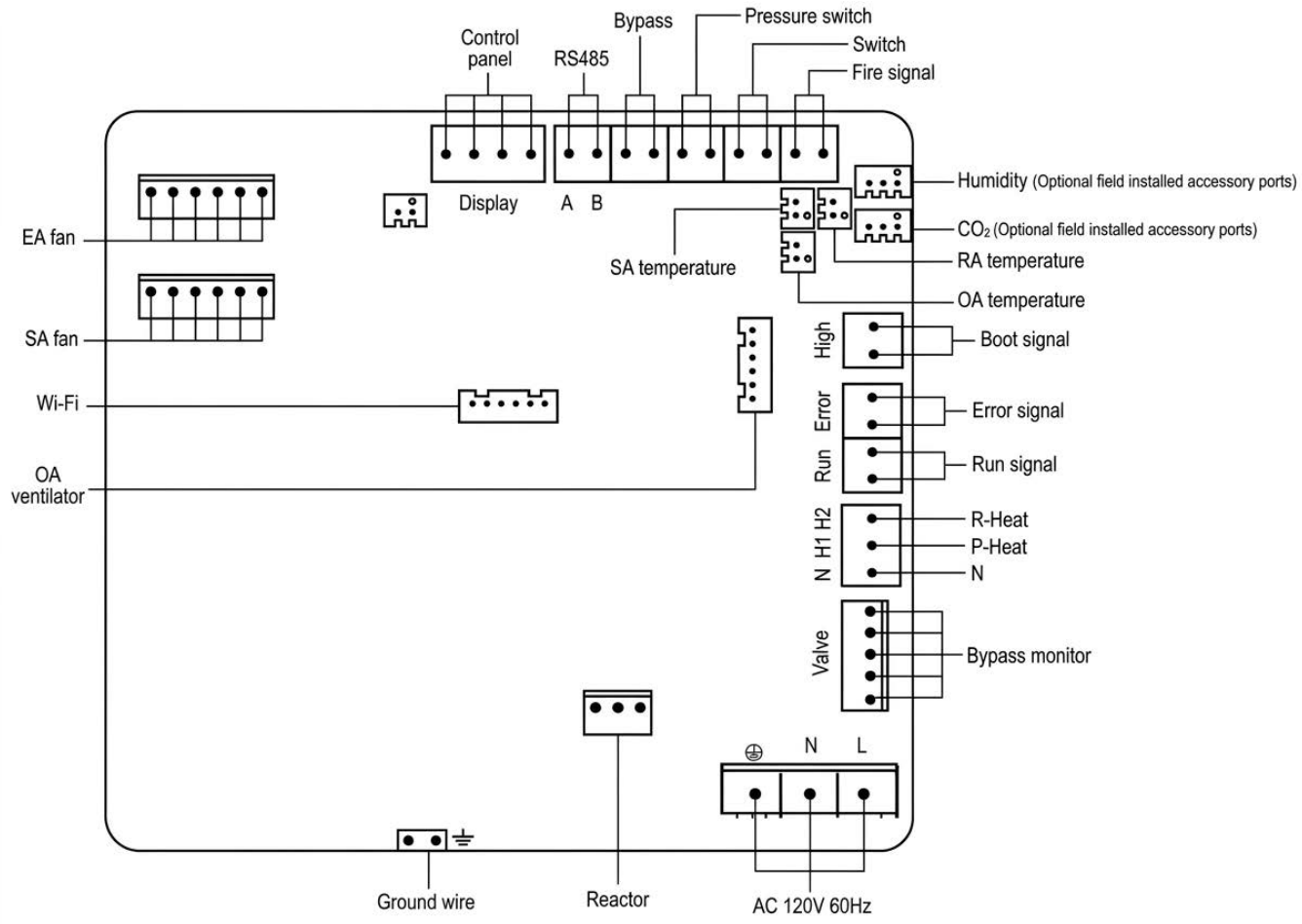
2. Connect the control panel cable to the circuit board, then secure the cable to the control panel.

Model	Spec. of Power Supply Cable	Spec. of Normal Controller Cable
ERV100AHCLCO2L to ERV320AHCLCO2L	3 x AWG #14 conductor	4 x AWG #22 conductor
	Power Supply	Panel Type
	120V~60Hz	HDK-CK23C2 / HDK-CK23C1 (Optional)

Electrical Installation

7

Wiring Diagrams



Commissioning

8

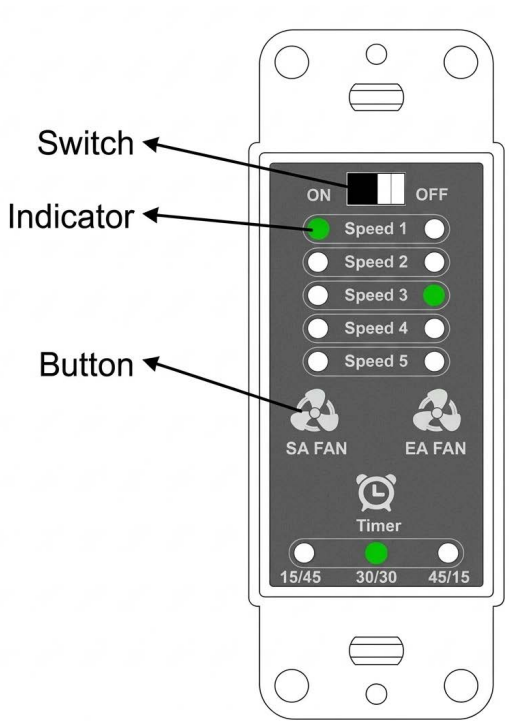
Notes

- Check the wiring after installation is complete. The unit must be commissioned before use.
- Turn on the power supply, then commission and operate the unit according to the controller instructions. Check that the blower, exhaust fan, and bypass damper are operating correctly. Note that the motors will stop for more than 10 seconds while the bypass damper is operating.
- If any abnormality occurs during commissioning, the wiring may be incorrect. Immediately turn off the dedicated circuit breaker and correct the wiring to prevent electric shock.

Controller Instructions

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HDK-CK23C2



No.	Function	Instructions
1	On/Off button	On - Turn on / Off - Turn off
2	SA fan control	Supply air fan: 5 speeds
3	EA fan control	Exhaust air fan: 5 speeds
4	SA speed indicator	Indicates the set speed
5	EA speed indicator	Indicates the set speed
6	Constant operation	The unit operates continuously at the set speed
7	Intermittent operation (15 mins)	The unit operates at the set speed for 15 mins, then stops for 45 mins and continues the cycle according to this process.
8	Intermittent operation (30 mins)	The unit operates at the set speed for 30 mins, then stops for 30 mins and continues the cycle according to this process.
9	Intermittent operation (45 mins)	The unit operates at the set speed for 45 mins, then stops for 15 mins and continues the cycle according to this process.
10	Controller communication failure	All the 13 indicators lamps flash
11	Failure display 1	SA fan failure, all the SA fan indicator lamps flash
12	Failure display 2	EA fan failure, all the EA fan indicator lamps flash

Controller Instructions 9

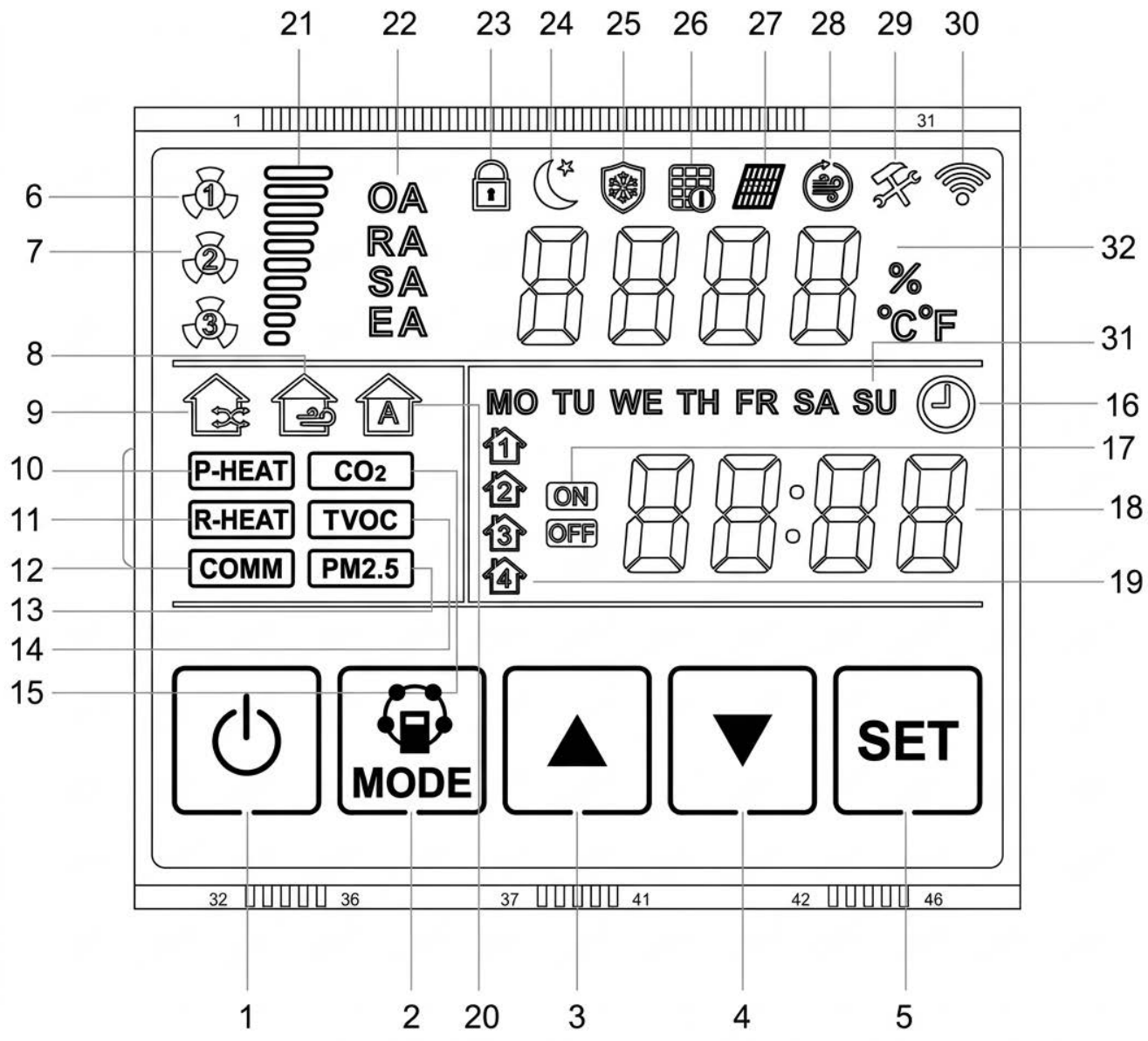
Operating Instructions

- **On/Off:** On - Turns on the unit; Off - Turns off the unit.
- **Set Fan Speeds:** Press “SA FAN” to set the supply air (SA) fan speed. Press “EA FAN” to set the exhaust air (EA) fan speed.
- **Set Intermittent Operation (15 minutes):** Press the “Timer” button. When the “15/45” indicator lights up, the unit will run at the set speed for 15 minutes, stop for 45 minutes, and then repeat this cycle.
- **Set Intermittent Operation (30 minutes):** Press the “Timer” button. When the “30/30” indicator lights up, the unit will run at the set speed for 30 minutes, stop for 30 minutes, and then repeat this cycle.
- **Set Intermittent Operation (45 minutes):** Press the “Timer” button. When the “45/15” indicator lights up, the unit will run at the set speed for 45 minutes, stop for 15 minutes, and then repeat this cycle.
- **Constant Operation:** When all timer indicators are off, the unit runs continuously at the set speed. Press the "Timer" button to set the indicator lamps.

Controller Instructions

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HDK-CK23C1



Controller Instructions

9

No.	Name
1	On/Off button
2	Up button
3	MODE button
4	Down button
5	SET button
6	Supply Air Fan on/off
7	Exhaust Air Fan on/off
8	Bypass mode on/off
9	Heat exchange mode on/off
10	Preheating
11	Heating
12	Communication
13	PM2.5
14	TOVC
15	CO_2
16	Clock

No.	Name
17	Timed power on/off
18	Time
19	Time period
20	Automatic mode
21	Fan speed
22	Temperature type
23	Lock
24	Sleep mode
25	Defrost
26	Filter alarm
27	Heat exchanger alarm
28	High speed
29	Error
30	Wi-Fi
31	Week
32	Temperature & humidity

Controller Instructions

9

Operating Instructions

- **On/Off:** Turns the unit on or off.
    - When the unit is turned on, the display backlight turns on.
    - If no button is pressed for 30 seconds, the backlight turns off.
    - If the backlight is off while the unit is on, press any button to turn it back on.
    - When the unit is turned off, the display turns off.
    - When the unit is turned on again, it resumes the operating mode it was in before it was turned off.
- **Time Setting Function:** With the unit on, press and hold the “SET” button for 3 seconds from any screen to enter clock setting mode. When the hour flashes, press the “Up” or “Down” button to set the hour. Press “SET” again to move to the minute and day-of-week settings, and use the “Up” or “Down” button to set each one. Press “MODE” to exit, or wait 15 seconds for the system to exit automatically.
- **Screen Lock Setting (Lock the Controller Screen):** With the unit on, press and hold the “On/Off” button for 5 seconds to lock the controller. The lock icon appears on the display. While the controller is locked, the other buttons do not respond. To unlock, press and hold the “On/Off” button for 5 seconds again. The lock icon disappears.

Operating Modes

10

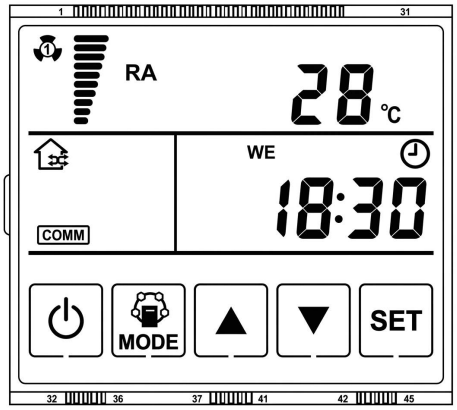
When the unit is turned on, it starts in heat exchange mode. Press the “MODE” button to change the operating mode. Each press cycles through the four modes in this order: heat exchange, bypass, automatic (four-period), and sleep.

1. Heat Exchange Mode

In heat exchange mode, the display alternates between the supply and exhaust fan speeds. It also shows the return air (RA) temperature, the heat exchange icon, and the current time.

Press the “Up” or “Down” button to adjust the supply fan speed.

Press the “SET” button to switch to the exhaust fan speed setting, then press the “Up” or “Down” button to adjust it. Press “MODE” to exit, or wait 15 seconds for the system to exit automatically.

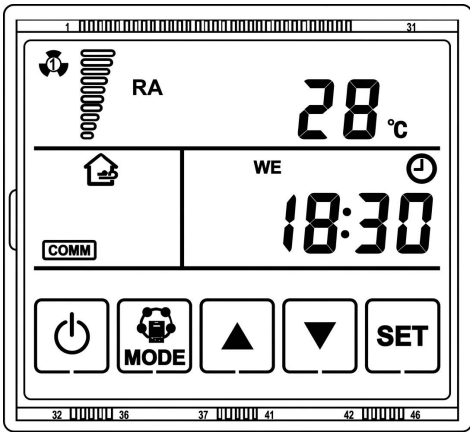


2. Bypass Mode

In bypass mode, the display alternates between the supply and exhaust fan speeds. It also shows the return air (RA) temperature, the bypass icon, and the current time.

Press the “Up” or “Down” button to adjust the supply fan speed.

Press the “SET” button to switch to the exhaust fan speed setting, then press the “Up” or “Down” button to adjust it. Press “MODE” to exit, or wait 15 seconds for the system to exit automatically. Turn off bypass mode before switching to another mode.



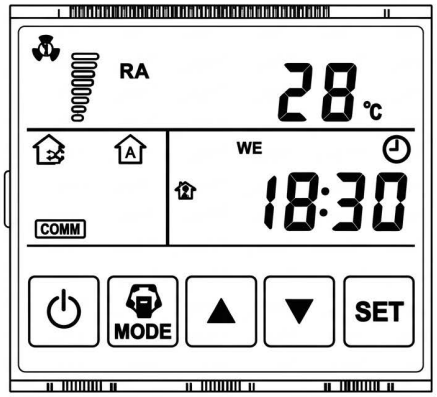
Operating Modes

10

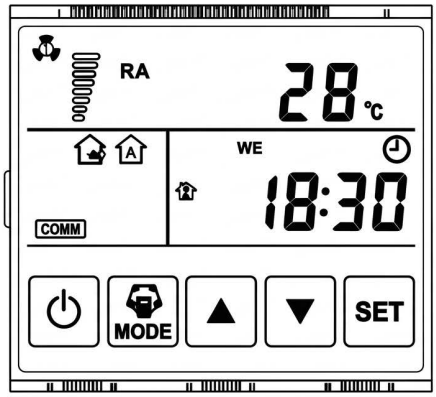
3. Automatic Mode (Four Period Timing)

In automatic mode, the unit operates according to the four-period timer. The display alternates between the supply and exhaust fan speeds. It also shows the return air (RA) temperature, the automatic mode icon, the current time period, and the current time.

If automatic bypass is enabled but the bypass conditions are not met, the unit operates in heat exchange mode, and the automatic mode and heat exchange icons both appear. When the bypass conditions are met, the unit switches to bypass mode, and the automatic mode and bypass icons both appear. If automatic bypass is disabled, the unit operates in heat exchange mode.



Heat Exchanger

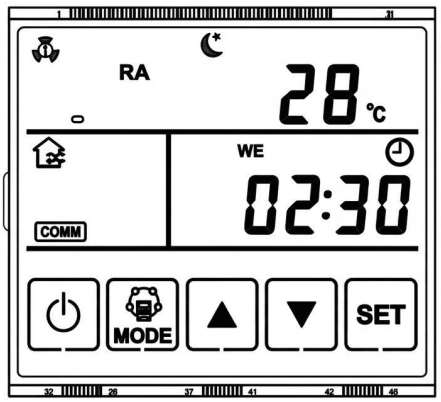


Automatic Bypass

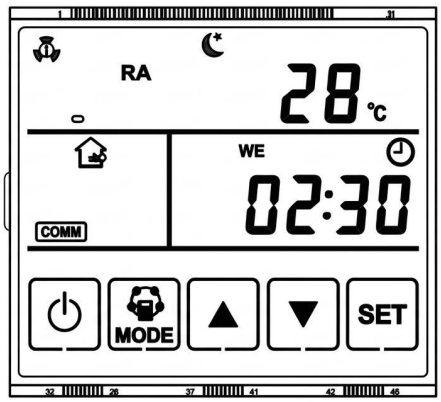
4. Sleep Mode

In sleep mode, the supply and exhaust fans run at Speed 1. After 30 seconds, the display dims and enters standby. If automatic bypass is disabled, or the bypass conditions are not met, the sleep mode and heat exchange icons stay lit. If automatic bypass is enabled and the bypass conditions are met, the sleep mode and bypass icons stay lit. To wake the display, press any button.

Note: When the display turns on, it alternates between the supply and exhaust fan speeds. It also shows the return air (RA) temperature and the current time.



Heat Exchanger



Automatic Bypass

Operating Modes

10

5. Automatic Bypass

When automatic bypass is enabled, the bypass opens when the outdoor air (OA) temperature is within the range of X ± Y, where X is the set temperature and Y is the temperature deviation. For example, if X is set to 20°C and Y to 5°C, the bypass opens automatically when the outdoor air temperature is between 59°F and 77°F (15°C and 25°C). Otherwise, the bypass closes automatically.

Note: The X and Y values can be set in the parameter item.

6. Four Period Timing Setting

The 24 hours in a day are divided into four time periods. Users can set a start time and fan speed for each period, and the unit runs at that speed until the next period begins. Settings can be made separately for each day from Monday to Sunday. Before the first period of the day begins, the unit continues running at the speed set for the fourth period.

1. In automatic mode, press the “SET” button to enter the four-period timer settings.
2. The “Week” icon flashes. Press the “Up” or “Down” button to select the day of the week.
3. Press “SET” again to move to the hour setting for the first period of the selected day. Press the “Up” or “Down” button to set the hour.
4. Press “SET” again to move to the minute setting. Press the “Up” or “Down” button to set the minutes.
5. Press “SET” again to move to the supply fan speed setting. The Supply Air Fan icon flashes. Press the “Up” or “Down” button to set the supply fan speed.
6. Press “SET” again to move to the exhaust fan speed setting. The Exhaust Air Fan icon flashes. Press the “Up” or “Down” button to set the exhaust fan speed.
7. Press “MODE” to exit, or wait 15 seconds for the system to exit automatically.

7. Time On/Off Function

1. With the unit on, press and hold the “Up” button for 3 seconds from any screen to enter the Time On-Off settings. If the unit is on, the Off icon appears; if the unit is off, the On icon appears.
2. Press the “Down” button to turn on the Time On-Off function, or press the “Up” button to turn it off.
3. The On icon flashes. Press the “Up” or “Down” button to set the hour.
4. Press “SET” to move to the minutes, then press the “Up” or “Down” button to set the minutes.
5. Press “SET” again. The Off icon flashes.
6. Repeat steps 1 and 2 to set the off time.
7. Press “MODE” to exit, or wait 15 seconds for the system to exit automatically.

Operating Modes

10

8. Setting Positive & Negative Pressure

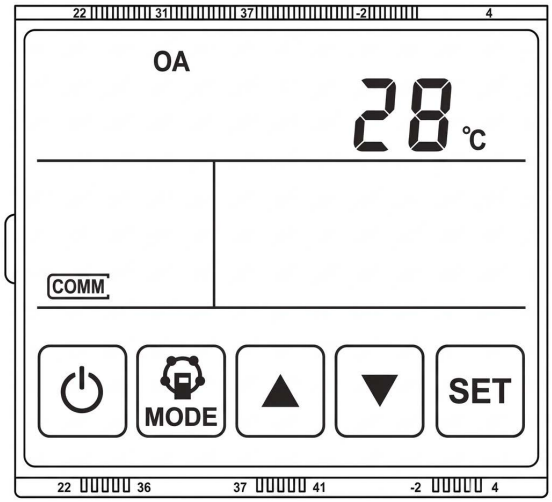
Users can set the supply and exhaust fan speeds separately. For positive indoor pressure, set the supply fan speed higher than the exhaust fan speed. For negative indoor pressure, set the exhaust fan speed higher than the supply fan speed. Adjust the speed difference to suit the specific installation.

9. Display Original Air Temperature, Supply Air Temperature, CO_2 Concentration, & Humidity

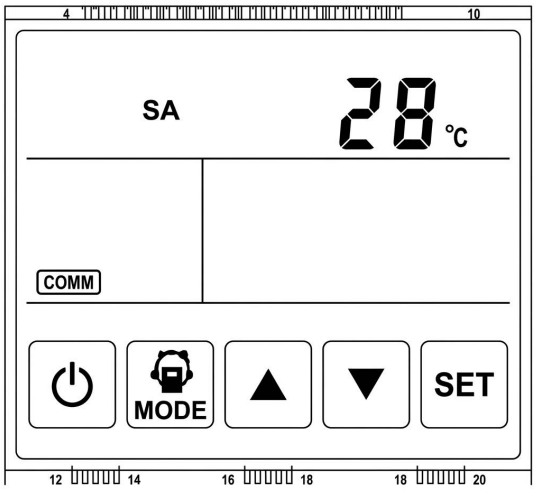
With the unit running in any mode, press and hold the “MODE” button for 3 seconds to cycle through the outdoor air (OA) temperature, supply air (SA) temperature, return air (RA) humidity, and RA CO_2 concentration. On the standard screen, the RA temperature is shown.

Press “MODE” to exit, or wait 60 seconds for the standard screen to return automatically.

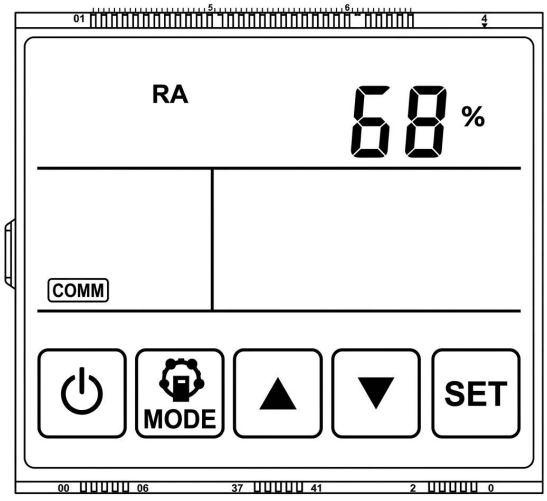
These are the display interfaces:



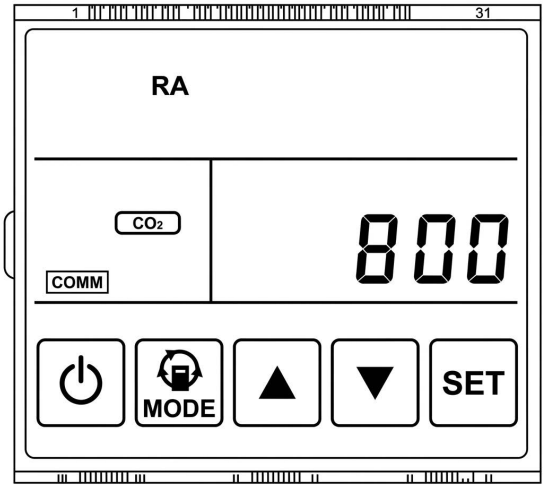
OA Temperature



SA Temperature



Indoor Humidity



Indoor Humidity

Operating Modes

10

10. Cleaning Alarm for the Filter & Heat Exchanger

The system alerts users to clean or replace the filter and heat exchanger based on either a countdown timer or a differential pressure switch. When the differential pressure switch function is turned off, the countdown timer is used. When the differential pressure switch function is turned on, the alert is triggered by the differential pressure switch instead.

- **Alarm operation:** When a countdown ends, the corresponding filter or heat exchanger alarm icon flashes. If the differential pressure switch is triggered, both alarm icons flash at the same time. You can choose between the countdown timer and the differential pressure switch in the parameter settings.
- **Filter alarm countdown:** Set this in the parameter settings. The range is 60–180 days. Press the “Up” or “Down” button to adjust the time in 10-day increments.
- **Heat exchanger alarm countdown:** Set this in the parameter settings. The range is 120–360 days. Press the “Up” or “Down” button to adjust the time in 20-day increments.
- **Resetting the countdown:** Press and hold the “On/Off” and “MODE” buttons together for 3 seconds. The alarm icon disappears and the countdown restarts.
- **Differential pressure switch:** When the switch is no longer triggered, the alarm icons disappear.

11. Intelligent Air Volume Compensation (Only Available in the Highest Speed)

Over time, dust builds up on the filters and gradually clogs them, which increases airflow resistance and reduces air volume. To compensate, the air volume increases along with the regular pressurization of the supply and exhaust fans. The pressurization percentage can be set in the parameter setting.

The supply fan speed pressurizes every 40 days, and the exhaust fan speed every 80 days. When the filters are cleaned and the filter alarm icon disappears, the air volume compensation is reset. The cumulative pressurization cannot exceed the fan's maximum control voltage.

12. Temperature Calibration

Note: If the temperature sensors are not calibrated, the anti-frost and automatic bypass functions may not operate correctly.

If a sensor reading differs from the actual value, users can calibrate it manually. Temperature and humidity readings for the three air vents can be calibrated in the parameter settings.

Operating Modes

10

13. Advanced Sleep Function (Only Available in Sleep Mode)

When the advanced sleep function is enabled, the unit runs at a set speed in sleep mode. Users can configure this speed in the parameter settings. The default is Speed 2.

Advanced sleep starts when both of the following conditions are met:

- The indoor temperature minus the outdoor temperature is greater than the set temperature difference.
- The outdoor temperature is greater than the set temperature.

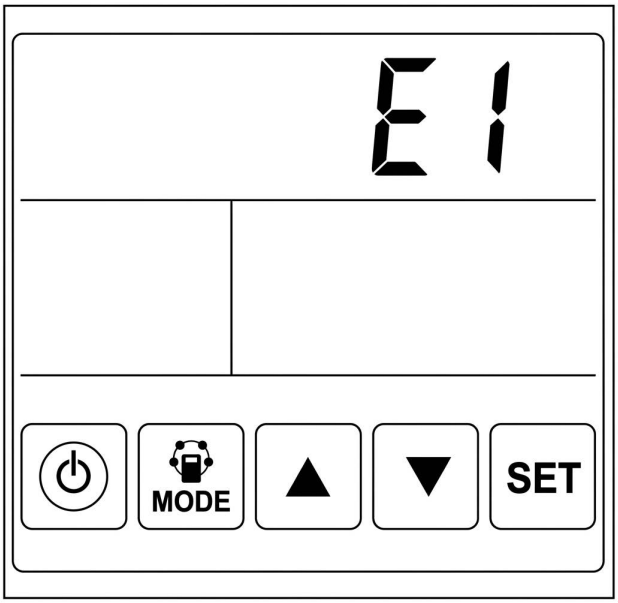
Users can configure both values in the parameter settings. If the conditions are not met, the unit continues to operate in normal sleep mode.

In summer, night purification mode draws cooler outdoor air into the room at night. This energy-saving feature reduces the cooling load on the air conditioner the next morning.

14. Wi-Fi Function

15. Fault Display

When a fault occurs, the fault icon appears. To view the fault code, press the “Up” and “Down” buttons at the same time in any mode. The code is shown in the temperature and humidity display area. If there are multiple faults, the codes are shown one after another in a continuous cycle.



Code	Error
E0	Reserve
E1	SA fan error
E2	EA fan error
E3	OA temperature sensor error
E4	RA temperature sensor error
E5	SA temperature sensor error
E6	Fire fighting linkage error
E7	Humidity sensor error
E8	CO_2 error
E9	Connection PCB board error

Operating Modes

10

16. One Button High Speed

A rocker switch installed in a kitchen or bathroom can be used to turn on the unit remotely. The main board has a dedicated terminal for connecting the remote rocker switch. When the switch is turned on, the supply and exhaust fans run at maximum speed, and the High Speed icon flashes.

When the interface is disconnected, one-button high-speed mode stops and the unit returns to its previous operating mode. While one-button high-speed mode is active, the fan speed cannot be adjusted manually or automatically.

17. CO_2 Strong Exhaust

Whether the unit is on or off, if the CO_2 sensor detects a CO_2 concentration above the set value for more than 5 seconds, the unit runs at maximum speed. When the CO_2 concentration falls 200 ppm below the set value, the unit returns to its previous operating mode.

During CO_2 exhaust operation, the CO_2 icon flashes and the High Speed icon appears. The fan speed cannot be adjusted manually or automatically during this operation.

Users can configure the CO_2 set value in the parameter settings. CO_2 exhaust operation does not activate while the unit is in sleep mode.

18. Forced Dehumidification

Whether the unit is on or off, if the humidity sensor detects humidity above the set value for more than 5 seconds, the unit runs at maximum speed. When the humidity falls 5% RH below the set value, the unit returns to its previous operating mode.

During Forced Dehumidification, the humidity value flashes and the High Speed icon appears. The fan speed cannot be adjusted manually or automatically during this operation.

Users can configure the humidity set value in the parameter settings. Humidity exhaust operation does not activate while the unit is in sleep mode.

19. Anti-Frost

The anti-frost function activates when the outdoor air (OA) temperature stays below 23°F (−5°C) for at least one minute and at least 30 minutes have passed since the last anti-frost cycle. During anti-frost operation, the exhaust fan runs at maximum speed, the supply fan stops, and the anti-frost icon appears. Anti-frost operation lasts 10 minutes, after which the unit returns to its previous operating mode.

20. Ultra Low Temperature Operation

When the outdoor air (OA) temperature is between 5°F and 14°F (−15°C and −10°C), the unit runs the following cycle:

1. The supply and exhaust fans run for 5 minutes.
2. The supply fan stops, and the exhaust fan runs alone for 10 minutes.
3. The supply and exhaust fans run at minimum speed for 60 minutes.
4. The supply fan stops, and the exhaust fan runs alone for 10 minutes.

Operating Modes 10

21. Temperature Adjustment Function

In the parameter settings, press the “Up” or “Down” button to set the electric heating start temperature. The range is 61–86°F (16–30°C).

- If the supply air (SA) temperature is above the set temperature, both preheating and heating stop, and their icons turn off.
- If the SA temperature stays 2°F (1°C) or more below the set temperature for 1 minute, preheating turns on and its icon appears.
- If the SA temperature stays 4°F (2°C) or more below the set temperature for 1 minute, heating turns off and its icon disappears.
- If the SA temperature stays 9°F (5°C) or more below the set temperature for 1 minute, both preheating and heating turn on and both icons appear.
- When the SA temperature is above the set temperature, both preheating and heating stop, and their icons turn off.

Note: This function is only available when a ducted electric heater is connected.

Electric Heating Protection Logic

- When the unit is turned off, the electric heater turns off first, and the fans continue running for 2 minutes before stopping.
- When the unit is turned on, the fans run for 1 minute to stabilize before the electric heater turns on.
- If the fans are turned off while the unit is operating normally, the electric heater turns off first, and the fans stop after a 2-minute delay.
- If a fan motor fails, the electric heater turns off.

For example, when the bypass conditions are met in automatic bypass, the unit first checks whether the electric heater is on. If it is, the electric heater turns off first, and the bypass opens after a 2-minute delay.

When manual bypass is selected, the electric heater turns off first, and the bypass opens after a 2-minute delay.

22. Power Off Memory

If a power failure occurs, the unit automatically restarts and resumes its previous operating mode once power is restored.

23. Restore Factory Settings

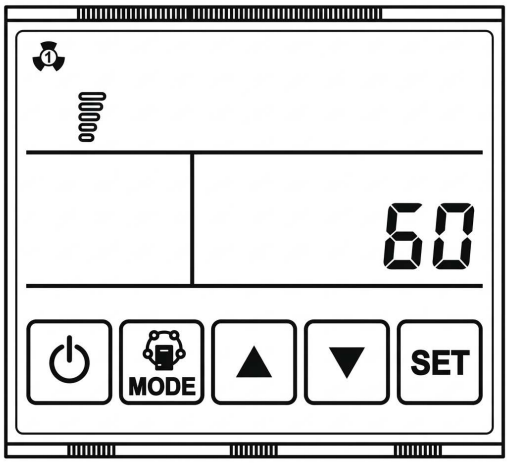
To restore most parameter settings to their factory defaults, press and hold the “On/Off” and “SET” buttons together. Some parameters are configured at the factory and cannot be restored this way: model, sensor selection, heating selection, and auxiliary heating selection.

Operating Modes

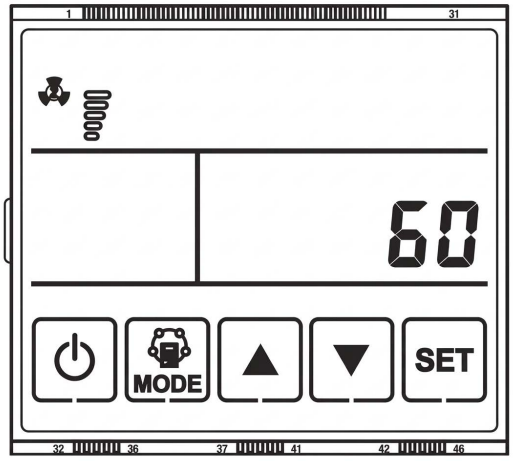
10

24. Engineering Mode

Press and hold the “On/Off” and “Down” buttons together to access the supply and exhaust fan motor voltage settings. The screen appears as follows:



SA Fan Control Voltage
Adjustment Interface



EA Fan Control Voltage
Adjustment Interface

From the voltage settings screen, go to the supply air fan motor control voltage setting. The supply air fan icon flashes.

Press the "SET" button to switch between speeds 1–10. Press the "Up" or "Down" button to adjust the voltage for each speed.

After setting speed 10 for the supply air fan, press "SET" again to go to the exhaust air fan motor control voltage setting. The exhaust air fan icon flashes. Set the voltages the same way as for the supply air fan.

After setting speed 10 for the exhaust air fan, press "SET" again to return to the supply air fan motor control voltage setting.

Press "MODE" to save your settings and exit. If no button is pressed for 15 seconds, the system exits automatically.

25. Parameter Table Setting

With the power on, press and hold the "On/Off" and "Up" buttons together for more than 6 seconds, then press "SET". Each press of "SET" moves to the next parameter number. After parameter 19, the display returns to the first parameter.

When the parameter you want is displayed, press "Up" or "Down" to adjust its value. Then press "SET" to go to the next parameter.

Press "On/Off" to exit the parameter settings. If no button is pressed for 10 seconds, the system exits automatically.

CAUTION: Saving the parameters takes about 15 seconds. Do not turn off the power during this time.

Operating Modes

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No.	Contents	Range	Default	Unit
P1	Centralized Control PC Address	1-99	1	
P2	Power to Auto Restart	0 - Invalid, 1 - Valid	1	
P3	Auto Bypass	0 - Invalid, 1 - Valid	0	
P4	Bypass Opening Temperature X	5-30	19	°C
P5	Temperature Deviation Y	2-15	3	°C
P6	Electric Heating	0 - Invalid, 1 - Valid	0	
P7	Temperature of Electric Heating On	16-30	16	°C
P8	Frost Protection	0 - Invalid, 1 - Valid	1	
P9	Defrost Interval	15-99	30	Minute
P10	Defrost Entering Temperature	+5 ~ -9	-1	°C
P11	Defrost Duration Time	2-20	10	Minute
P12	CO_2 Sensor	0 - Invalid, 1 - Valid	0	
P13	CO_2 Threshold	800-2,000	1,500	PPM
P14	Humidity Sensor	0 - Invalid, 1 - Valid	0	
P15	Humidity Threshold	50-100	70	%
P16	DC Type Selection	150, 250, 350, 500, 650, 800, 1,000	150	
P17	Filter & Heat Exchanger Alarm	1 - Differential pressure switch 2 - Countdown	2	
P18	Filter Alarm Setting	60-180	60	Day
P19	Heat Exchanger Alarm Setting	120-360	120	Day
P20	Original Air Temperature Correction	± 9	0	°C
P21	Supply Air Temperature Correction	± 9	0	°C
P22	Return Air Temperature Correction	± 9	0	°C

Operating Modes

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No.	Contents	Contents	Default	Unit
P23	Sleep Mode	1-10	1	
P24	Temperature Difference Between the Indoor & Outdoor	0-7	5	°C
P25	Set Temperature Setting	15-30	17	°C
P26	Percent Boost	1-10	0	%

Communication Protocol

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Centralized Control Modbus - RTU

Parameters: Baud Rate: 9,600 | No Check | 1 Digit Stop Position | 8 Bit Data
Support Function Code: Read 03, Write 06
Communication Data Interval > = 200 ms

Register Address	Readable	Writable	Value Range	Function Description	Remark
0 (0x0000)	03	06	0-1	On-Off State: 0 - Off / 1 - On	
1 (0x0001)	03	06	0-3	Mode: 0 - Heat Exchanger / 1 - Bypass 2 - Timing Auto / 3 - Sleep Mode	This parameter cannot be configured for a single dehumidifier
2 (0x0002)	03	06	0-10	Supply Fan Speed 1-20	
3 (0x0003)	03	06	0-10	Exhaust Fan Speed	It may be reserved because of a different model
4 (0x0004)	03		0	Reserve	
5 (0x0005)	03		0	Reserve	
6 (0x0006)	03	06	0-1	Humidity: 1 - On / 0 - Off	Some models do not support automatic
7 (0x0007)	03	06	50-100	Humidity Critical Value	O cannot be written
8 (0x0008)	03		0-99	Humidity Value	
9 (0x0009)	03	06	0-1	CO_2 Sensor: 1 - On / 0 - Off	
10 (0x000a)	03	06	800-2,000	CO_2 Critical Value	

Communication Protocol

11

Register Address	Readable	Writable	Value Range	Function Description	Remark
11 (0x000b)	03		0-0xffff	• Bit 0: Fire Alarm Protection • Bit 1: Humidity Sensor Error • Bit 2: RA Temperature Sensor Error • Bit 3: SA Temperature Sensor Error • Bit 4: OA Temperature Sensor Error • Bit 5: Motherboard Forced Start Signal • Bit 6: Motherboard Differential Pressure Signal • Bit 7: Filter Alarm • Bit 8: Air Supply Fan Error • Bit 9: Air Exhaust Fan Error • Bit 10: Replacing Filter Alarm • Bit 11: Mainboard Forced High-Speed Signal • Bit 12: CO_2 Error • Bit 13: Motherboard Forced Bypass Signal • Bit 14: --- • Bit 15: Not Connected Panel	
12 (0x000c)	03		0-0xffff	• Bit 0: Preheating function for the PCB board is enabled. • Bit 1: Preheating function for the PCB board is enabled. • Bit 2: Ultra-Low Temperature Logic 1 • Bit 3: Bypass function for the PCB board is enabled. • Bit 4: OA Temperature Error • Bit 5: Running signal of the motherboard is on. • Bit 6: Error signal of the motherboard is on. • Bit 7: Active power supply function for the PCB board is enabled. • Bit 8: Motherboard's defrosting function runs. • Bit 9: The fan is in a state of delayed shutdown after the mainboard is heated. • Bit 10: Humidity exceeds the standard. • Bit 11: CO_2 exceeds the standard. • Bit 12: Software bypass is enabled. • Bit 13: --- • Bit 14: --- • Bit 15: ---	

Communication Protocol

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Register Address	Readable	Writable	Value Range	Function Description	Remark
13 (0x000d)	03		0-5,000	CO_2 Data	O cannot be written
14 (0x000e)	03	06	0-1	Electric Heating: 1 - On / 0 - Off	
15 (0x000f)	03	06	16-30	Setting Electric Heating Temperature	
16 (0x0010)	03		-30 ~ +99	Supply Air Temperature	
17 (0x0011)	03		-30 ~ +99	Return Air Temperature	
18 (0x0012)	03		-30 ~ +99	Original Air Temperature	
19 (0x0013)	03	06	-9 ~ +9	Supply Air Temperature Correction	
20 (0x0014)	03	06	-9 ~ +9	Return Air Temperature Correction	
21 (0x0015)	03	06	-9 ~ +9	Original Air Temperature Correction	
22 (0x0016)	03	06	0-1	Auto Bypass: 1 - On / 2 - Off	
23 (0x0017)	03	06	2-15	Bypass Return Difference	
24 (0x0018)	03	06	5-30	Bypass Opening Temperature	
25 (0x0019)	03	06	0-1	Frost Prevention: 1 - On / 0 - Off	
26	03	06	-9 ~ +5	Defrost Entering Temperature	Use temperature control for defrosting detection. Use timing, from xx time after the start of defrosting
27	03	06	10-99	Defrost Interval	
28	03	06	2-20	Defrosting Duration Time	
29	03	06	0-250	Filter usage time/day (Current time will be cleared when writing 1)	Forced timed defrosting when the exit temperature is set to 0
30	03	06	0-375	Heat exchanger time/day (Current time will be cleared when writing 1)	

Communication Protocol

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Register Address	Readable	Writable	Value Range	Function Description	Remark
31	03	06	60-180	Filter Alarm Setting	
32	03	06	120-360	Heat Exchanger Alarm Setting	
33	03		1-2	Use differential pressure or timing 1 - Use differential pressure 2 - Use timing	
34	03	06	0-7	Difference between indoor and outdoor	
35	03	06	1-10	Sleep Mode	
36	03	06	15-30	Setting Sleep Temperature	
37	03	06	0-1	Power for Auto Restart Option 0 - Power off for auto restart 1 - Power on for auto restart	
38	03	06	0-1	Child Lock: 1 - Lock / 0 - Unlock	
39	03	06	1-99	Address	
40	03			Model: 150, 250, 350, 500, 650, 800, 1,000	
41	03	06	0-10	Intelligent Boost Coefficient: 0 - Off	

Maintenance

12

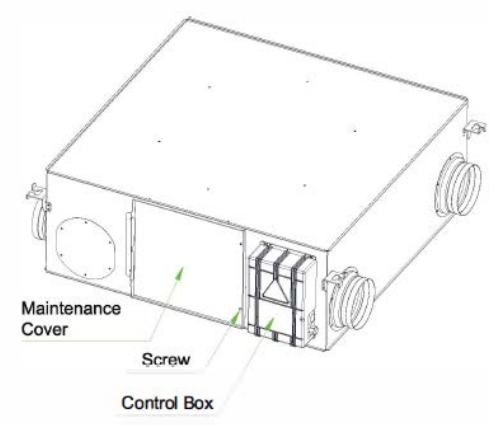
Warning

- Disconnect the power supply before performing maintenance. Wait until the device has stopped completely to avoid injury or damage.

The energy recovery ventilator (with air purification) requires regular cleaning and maintenance. If it is not cleaned and maintained regularly, the efficiency of the filter and heat exchanger will be significantly reduced. Clean or replace the filter and clean the heat exchanger regularly to keep the unit working efficiently.

Clean the Primary Filter & PM2.5 Filter (Optional)

We recommend cleaning the filters 2–4 times a year, depending on the air quality where the unit is installed and how often it is used.



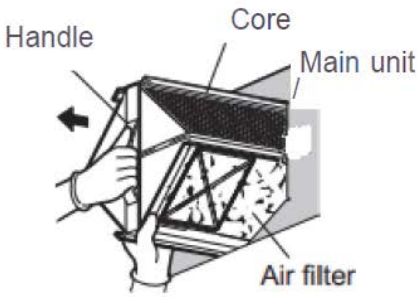
Remove the Heat Exchanger & Primary Filter

1. Access the ceiling space through the ceiling inspection opening for the energy recovery ventilator.

2. Remove the screws from the access door and open the door.

3. Hold the heat exchanger by its handle and pull it out of the unit.

4. Slide the filter baffle out of the guide rail on the heat exchanger, then remove the primary filter.





Maintenance

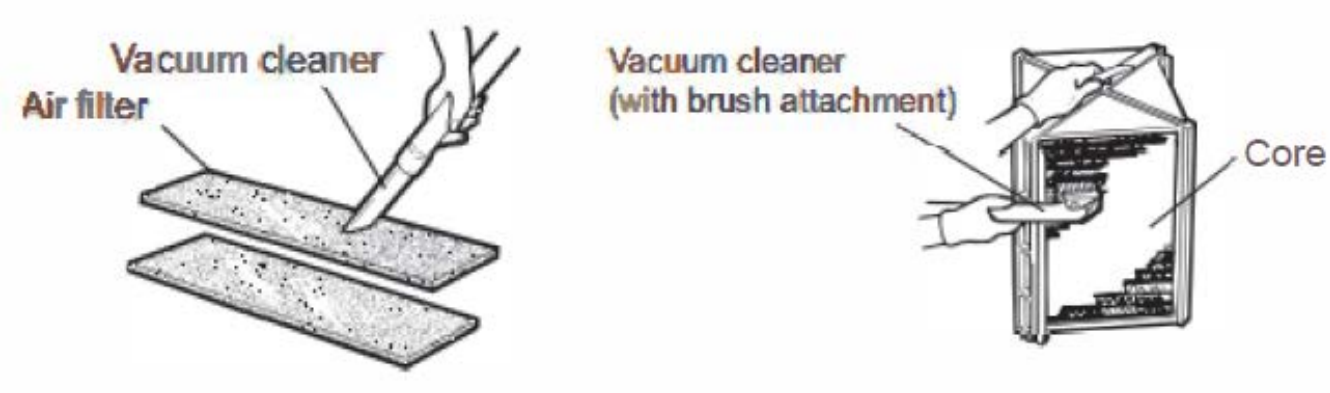
12

Remove the Heat Exchanger & Primary Filter

1. Use a vacuum cleaner to remove dirt and dust from the primary filter. If the filter is very dirty, soak it in warm water (below 104°F / 40°C) with a neutral detergent, then let it dry completely. If the filter is too dirty to clean, replace it.

2. Use a vacuum cleaner with a nozzle attachment to remove dirt and dust from the surface of the heat exchanger. Do not use water to clean the heat exchanger.

3. When cleaning is complete, reinstall the primary filter and filter baffle, slide the heat exchanger back into its original position, and close the access door.



Troubleshooting 13

Before contacting support, use the self troubleshooting chart below:

Issue	Issue	Issue
Airflow from both the indoor and outdoor vents drops significantly after running for a while	Dust and dirt blocking the filter	Replace or clean the filter
Noise comes from the vents	Vents installation are loosing	Re-tighten the vent connections
Unit doesn't work	1. No electricity 2. Protection breaker is cut	1. Guarantee power is on 2. Connect the breaker