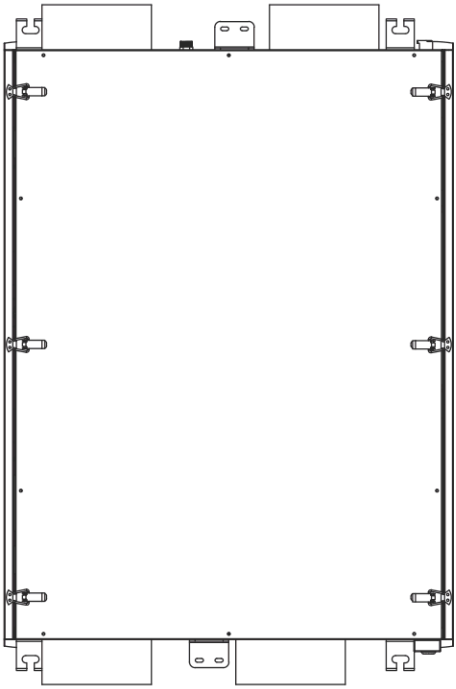
WESTON

CLIMATE

Ceiling-Mounted Heat Pump Energy Recovery Ventilator User Manual

Model

WESTON-AW-CTCL-HCVENT-350



- Please read this manual carefully before use
- The company reserves the right to interpret this manual
- Actual product appearance may vary
- Please retain this manual after reading
- Technical or software upgrades may occur without prior notice

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1. Packing List

The product packing list is shown in the figure below. After unpacking, please check if all items are complete. If incomplete, please contact the company dealer or after-sales service center.

Ⓐ Machine body Ⓑ User manual Ⓒ Included installation accessories: Remote controller ×1, Communication control cable ×1.

2. Safety Guidelines

1. This product is not intended for use by persons (including children) with physical, sensory, or mental disabilities, or those lacking experience and knowledge, unless they are under the supervision or instruction of a person responsible for their safety. Children should be supervised to ensure that they do not play with the product.
2. Some installation and operation labels are attached to the unit. Please read them carefully before installation and use.
3. R32 is mildly flammable. To avoid personal injury or property damage to users or others, please read and follow the "Installation and Operation Precautions" in this manual carefully. The following symbols classify the level of risk or injury that may result from improper use.

3. Installation and Operation Precautions

The following symbols classify the danger or injury degree caused by incorrect use:		The following symbols indicate recommended actions:	
⚠ **WARNING**	This symbol indicates content that may cause death or serious personal injury if not followed. This pattern means "do not" or "prohibited".	⃠	This symbol indicates "Do not" or "Prohibited."
⚠ **CAUTION**	This symbol indicates content that may cause minor personal injury or property damage if not followed. This pattern means "must be executed" or "mandatory".	ⓘ ⏚	This symbol indicates "Must be done" or "Mandatory."
⚠ **WARNING ITEMS**			
ⓘ	Installation should be performed by qualified professionals. Do not attempt to install, move, or reinstall the unit yourself. Improper installation may result in falling, electric shock, or fire. Install in a location that can bear the weight and follow this manual strictly.	ⓘ	Insufficient strength or insecure installation may easily cause injuries from electric shock, fire, or equipment falling.
	Insufficient power line capacity or improper construction may easily cause electric shock or fire accidents.		Electrical work must comply with national regulations and this manual. Dedicated power lines must be used.
ⓘ	All installation and maintenance work should be performed by qualified personnel. Work on the refrigeration system must be performed by personnel certified for R32 refrigerant handling.	ⓘ	The outdoor air intake should be installed far away from combustible gas exhaust vents. Otherwise, it may cause indoor oxygen deficiency.
ⓘ	During installation and maintenance of the ceiling-mounted heat pump energy recovery ventilator (using R32 refrigerant), there must be no ignition sources or potential fire sources (including static electricity). Do not disassemble the product or components for repair or modification, as this may cause fire, electric shock, or injury.	ⓘ	Special attention should be paid when welding pipes: First, recover the refrigerant. Then, purge the pipes with inert gas and perform at least two vacuum evacuation processes.
ⓘ	During installation, the R32 leak detector must be in normal working condition. If the detector sounds an alarm, immediately stop work (especially welding operations) and open windows and doors for ventilation. Do not enter the site until the alarm is cleared.		Do not use power sources other than the rated voltage (230V~50/60Hz), otherwise fire may result.
		⏚	The ground wire must not be connected to gas pipes, water pipes, lightning rods, telephone lines, etc. Incorrect grounding may cause electric shock.

⚠ **CAUTION ITEMS**			
ⓘ	If bird nets or similar items are installed at ventilation openings, remove bird nests or other foreign objects, otherwise indoor oxygen deficiency may occur.	ⓘ	Power and connection wires must be firmly installed, the electrical control box must be secured, and the control cover plate must not be warped. Improper installation of the electrical box may cause terminal connections to overheat due to dust, leading to fire or electric shock.
	When metal pipes pass through metal plates or mesh in wooden buildings, an insulation layer must be made between the pipe and wall. Otherwise, electric shock or leakage may occur.		The unit and components must be firmly installed. Otherwise, the product may fall and cause injury.
	During maintenance and inspection, the switch must be turned off and the dedicated circuit breaker must be disconnected. Otherwise, electric shock may occur.During maintenance and inspection, the switch must be turned off and the dedicated circuit breaker must be disconnected. Otherwise, electric shock may occur.		Use dedicated installation hardware. Otherwise, the product may fall and cause injury.
	Outdoor pipes should be installed with a downward slope to prevent rainwater from entering. Improper installation may cause water leakage and damage to indoor belongings.		Power and connection wires must use specified cables and be firmly connected. Control connection points should be firmly secured and not affected by external forces. Loose connections or fixation may easily cause overheating or fire.
	To prevent condensation, install insulation on outdoor pipes (and indoor pipes if necessary).		
ⓘ	A leakage circuit breaker must be installed. Without it, electric shock may occur.	⃠	Do not install in places where flammable gas leakage may occur. If leaked gas accumulates, it may cause fire.
	When moving the product, pay attention to its center of gravity and weight. Improper hoisting or lifting may cause the product to fall and result in injury.		Do not install in places such as chemical plants where harmful gases such as acids, alkalis, organic solvents, paints, and corrosive gases are generated. Otherwise, poisoning or fire may occur.
	When drilling or cutting walls or ceilings, be careful not to damage wires or pipes inside the walls. Otherwise, safety accidents may occur.		Do not place plants or animals directly in the airflow. Otherwise, animals may become uncomfortable or plants may dry out.
	The wall where the product is installed must be sturdy, ensuring at least 5 times the weight capacity of the product. Otherwise, the product may fall and cause injury.		Do not install air intake and components near pollution sources. Otherwise, indoor air may be polluted and harm health.
	Wear protective equipment such as gloves during construction. Otherwise, injury may occur.		Do not use installation methods other than those specified in this manual. Otherwise, injury, electric shock, or fire may occur.
	After installation, the distance from the bottom of the product to the floor must be greater than 2.3m.		Do not insert hands or sticks into the unit or supply air vents. The fan blades inside rotate at high speed and may cause injury.
	When installing the product, avoid dusty or high-pollution areas. Otherwise, excessive dirt or dust on the filter may cause indoor oxygen deficiency.		Do not press the smart controller forcefully. Otherwise, faults, electric shock, or screen breakage may occur.
	When the inside of the ceiling is hot and humid, install dedicated ventilation equipment. Otherwise, fire or electric leakage may occur.		Do not use for ventilation of open combustion appliances (such as gas or oil heaters). Use dedicated ventilation equipment.
	Install on the interior side of insulated spaces. If installed on the exterior side of insulated spaces (closer to outdoor air conditions), the unit interior may condense in winter, easily causing electric shock or water dripping, heat exchange efficiency may decrease.		Do not install the unit and exhaust air inlet in locations where high-temperature or high-humidity air can be drawn in. Otherwise, condensation may occur inside the unit, causing electric shock or water dripping and property damage.
	Filters must be used.		Do not install the unit and exhaust air inlet in high-temperature areas (ambient temperature exceeding 50℃) or where it directly contacts heat sources. Otherwise, fire may occur.
	Before installation, confirm that the controller installation location can properly receive Wi-Fi signals. If the product cannot receive signals, change the installation location or add a Wi-Fi signal amplifier to ensure proper signal reception.		Do not install the product in environments where indoor temperature is significantly lower than outdoor temperature, such as cold storage. Otherwise, electric shock and faults may occur.
			Do not twist the product or apply excessive load during construction. Falling may cause injury.

CAUTION ITEMS

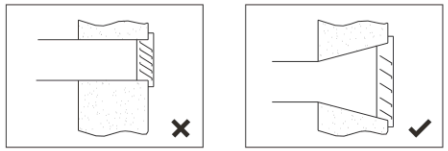
Regardless of any reason for delay in installing the ceiling-mounted heat pump energy recovery ventilator, or for short-term or long-term placement on-site, appropriate protective measures must be taken to prevent construction dust and debris from entering the main unit and other accessories.

The following conditions should be avoided during duct installation:



Excessive bending | Multiple bends | Reducing the diameter of connected pipes

Decorative air outlets on outdoor walls and indoor ceilings should have minimal airflow resistance. For commercial high-airflow applications, rectangular aluminum alloy diffusers or double-layer louvers are recommended, with a diameter of no less than 200×200 mm. If the outdoor air outlet is a weatherproof louver, its opening area should be 3-4 times the crosssectional area of the connected duct, and the blade shape should facilitate airflow.

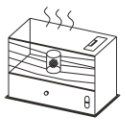


Outdoor Air Outlet Types

If users want to minimize indoor noise, silencer devices should be installed in the ductwork.

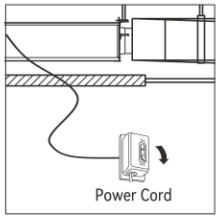
!	When the ceiling-mounted variable-frequency fresh air heat pump is started, sparks from electrical contacts may cause explosions or fires.	⊘	Do not insert fingers or foreign objects into the vents of the ceiling-mounted heat pump energy recovery ventilator. High-speed rotating blades may cause personal injury.
	Continuous operation under abnormal conditions may cause malfunction, electric shock, or fire.		Never modify, disassemble, or repair the unit by yourself. Improper repairs may lead to electric shock or fire hazards.
	When cleaning or replacing the filter, turn off the power and disconnect the circuit breaker.		Do not install, relocate, or reinstall the unit by yourself. Improper handling may cause falls, electric shock, fire, or other safety accidents.
	Do not locate the exhaust air inlet where it may draw in high-temperature or high-humidity air. This may adversely affect the internal components of the fresh air unit, potentially causing malfunction, electric leakage, or fire.	⊘	Do not place combustion appliances directly within the main unit's airflow path. This may result in incomplete combustion of the appliances.
	For safety, turn off the dedicated circuit breaker if the unit will not be used for an extended period.		Do not use flammable aerosol sprays near the main unit. This may cause a fire.
	Regularly clean or replace the filter. Excessive dust accumulation on the filter may cause indoor oxygen deficiency.		Do not wash the main unit with water. Doing so may cause electric shock.
⊘	Operate only at the rated voltage. Failure to comply may cause fire or electric shock.		

⊘ Do not use this unit for ventilation with open-flame heating appliances (e.g., stoves).
When gas or oil heaters are used in a room, dedicated ventilation equipment must be installed.



DETAILED INSTALLATION PRECAUTIONS

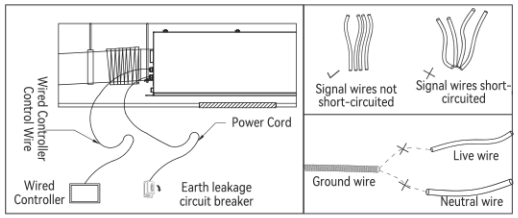
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Power Shutdown for Inspection:

Ensure the power is disconnected during installation or inspection. The company shall not be liable for any direct or indirect injury, electric shock, or personal harm arising from failure to disconnect the power supply.

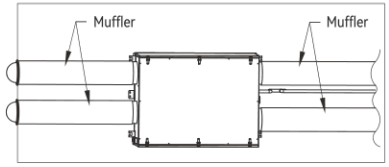
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Correct Wiring:

After installing the ceiling-mounted heat pump energy recovery ventilator, correctly connect the controller control wire and power neutral, live, and ground wires according to the electrical diagram. Check that all wiring is correct before powering on for testing.

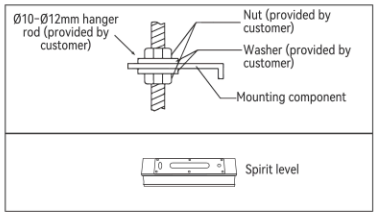
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Noise Reduction:

Professional silencer tubes or sound boxes should be installed to reduce equipment outlet noise.

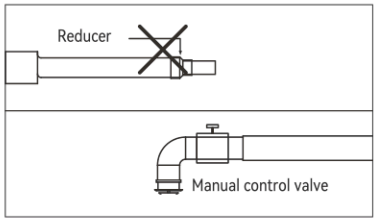
4



Main Unit Hoisting:

After hoisting is complete, use a level to confirm the equipment is level. Add flat washers, spring washers, and nuts when connecting the unit lifting ears to the hanging rods. Install rubber vibration pads on the lifting ears to reduce vibration.

5

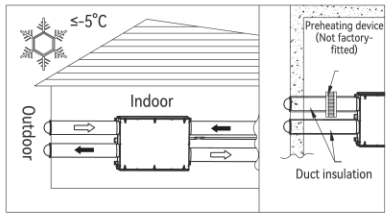


Avoid Airflow Imbalance:

Do not change pipe diameters, minimize elbow connections. Uneven airflow from each outlet is caused by not adding manual adjustment valves. Install air distribution boxes to ensure uniform air velocity at each supply air outlet.

DETAILED INSTALLATION PRECAUTIONS

6



Prevent Condensation and Overcooling:

In areas where average temperature is below -5°C, insulate the fresh air inlet pipe. Users can also add fresh air pre-heating measures according to their needs.

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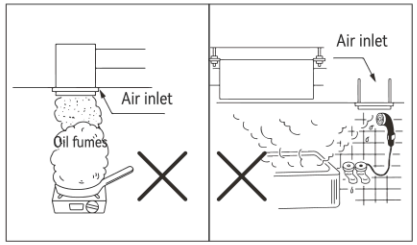
Selection Guide Parameters (Areas with Average Temperature ≤-5°C):

Model	Duct Diameter	Supply/Exhaust Air Velocity	Number of Supply Outlets	Number of Exhaust Outlets
WESTON-AW-CTCL-HCVENT-350	Ø200 mm	≤ 3 m/s	≥ 4 pcs	≥ 4 pcs

(1) Insufficient supply air outlets result in excessive air velocity at indoor supply vents, improper installation will increase noise. It is recommended to use Ø110 mm outlets instead of Ø75 mm outlets.

(2) If it is impossible to drill a Ø200 mm hole through the support beam, install a Ø200 mm-Ø110 mm-Ø110 mm Y-tee to bypass the beam.

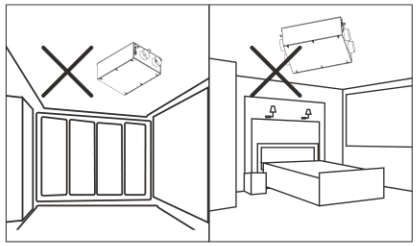
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Air Outlet Arrangement:

To avoid fire hazards and equipment damage, fresh air outlets and exhaust air inlets should not be installed in kitchens or bathrooms.

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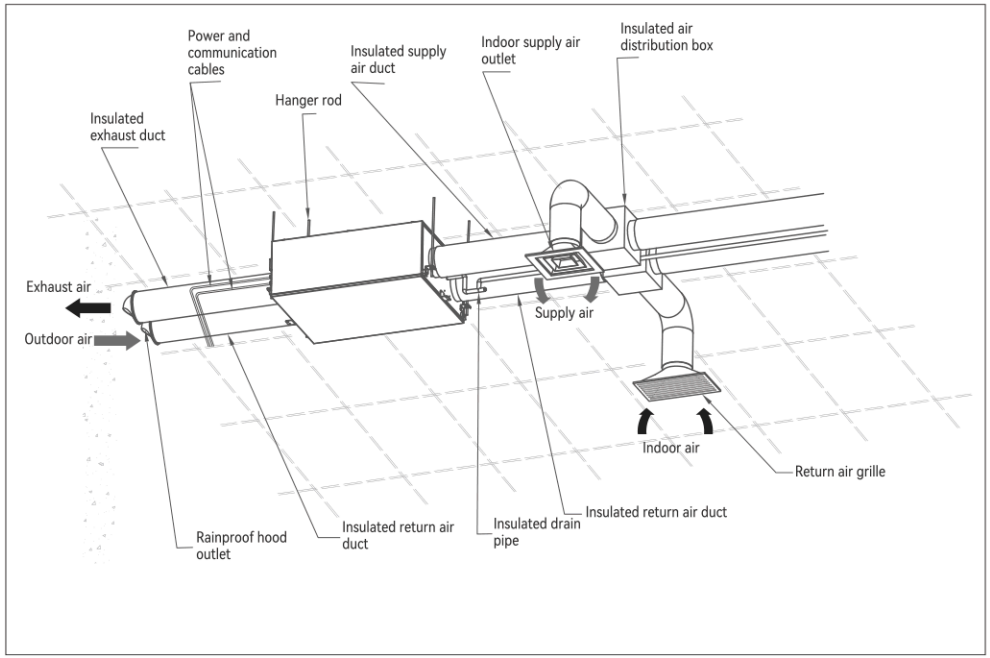


Unit Location:

The equipment must not be installed above areas where people are active, such as living rooms or bedrooms, otherwise it will cause greater noise.

4. Main Unit Installation

4.1 Installation Diagram



The above diagram is for installation reference only. The actual installation shall be subject to the official installation reference drawings.

Note:

- Installation of this product must be completed by professional technicians. Personnel without professional training can only perform basic maintenance operations such as replacing primary filters, medium-efficiency filters, and heat exchanger cores. Pay attention to warning labels on the product.
- Equipment wiring is in enclosed spaces, power must be disconnected during wiring operations. Only authorized personnel may connect wires.
- Fan moving parts at supply and exhaust air outlets are exposed. Open connection duct length should not be less than 1m to avoid accidental contact.
- Installers should follow installation instructions strictly for installation, piping, drainage testing, and other operations.
- Do not store the unit tilted or inverted. If it cannot be determined whether such issues exist during transportation or installation, it is recommended to let it stand for 2 hours before starting or running cooling/heating functions to avoid refrigeration system damage.

4.2 Setting Up Access Openings

The area within the marked line is a maintenance zone, where no other devices shall be installed.

Unit: mm

Model	A	B	C	D
WESTON-AW-CTCL-HCVENT-350	530	1050	1410	2460

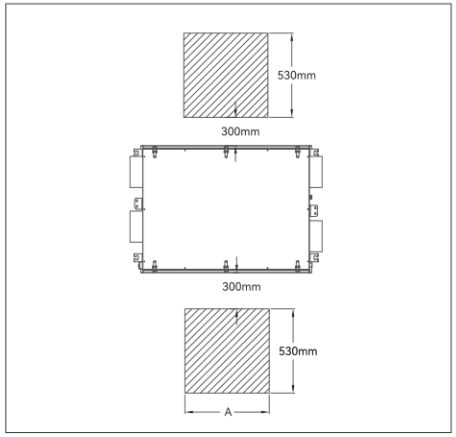


Figure 1

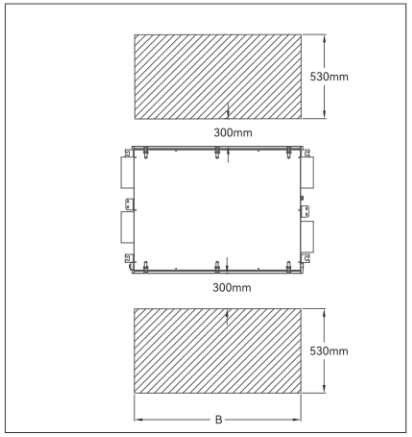


Figure 2

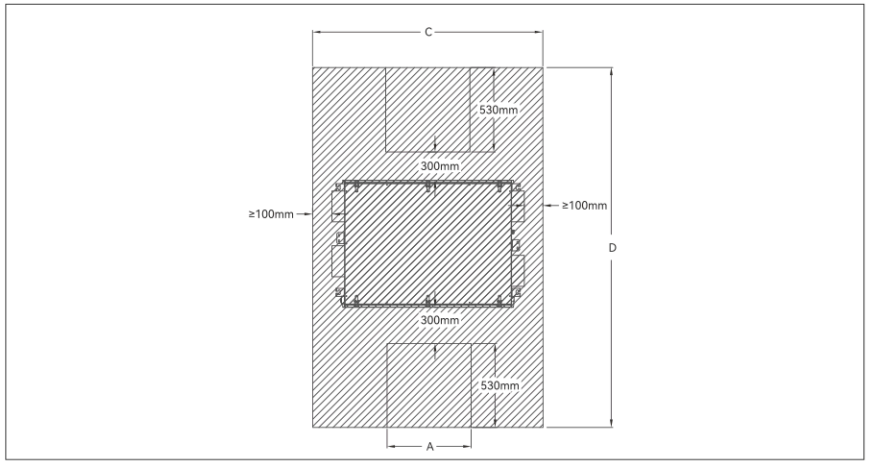


Figure 3

- When installing with integrated ceiling, be sure to reserve access space for convenient filter replacement, heat exchanger core cleaning, and electrical control inspection. Aluminum ceiling tiles can be used (Figure 1).
- When conditions permit, the length of the reserved access opening should match the unit body as much as possible for convenient inspection of the refrigeration system, fan, and other components (Figure 2).
- When conditions permit, make the access opening as large as possible, considering the possibility of full-unit inspection. It is recommended that the opening dimension on each side (except the access door side) exceed the equipment by at least 100mm, and sufficient space should be left on the access door side. If only a filter access opening is reserved, the entire unit cannot be inspected, and on-site drilling will be required for full-unit service (Figure 3).

4.3 Installation Key Points

Figure 4: Side view example

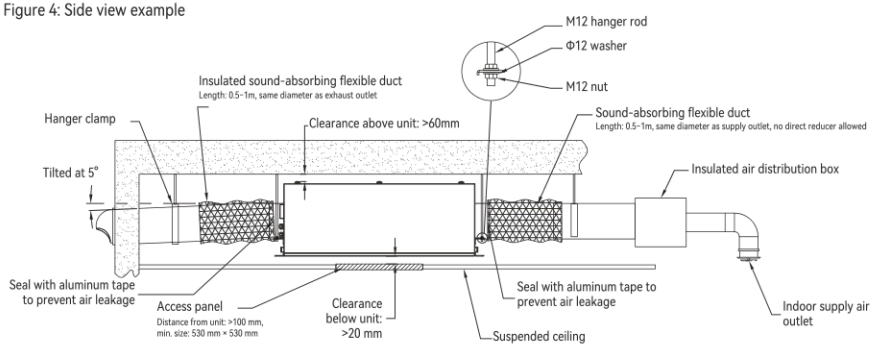
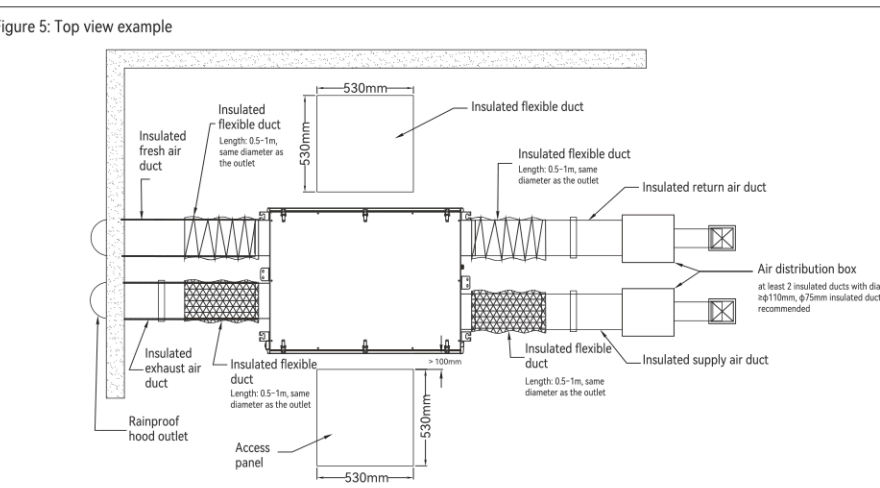


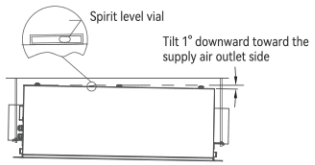
Figure 5: Top view example



- Position and mark the installation location, then hoist the equipment according to site conditions.
- The bearing surface at the selected location must have sufficient load-bearing capacity.
- Install vibration isolation measures (spring isolators). Inner expansion screws for hanging rods should not be installed in areas with insufficient strength to avoid vibration and unnecessary noise. After selecting the location, install inner expansion screws. The equipment has reserved lifting foot screw holes on both sides. Align them with the installed threaded rods and tighten nuts to achieve hoisting.
- Leave at least >60mm of space between the top of the equipment and the ceiling, and at least >20mm of space between the bottom and the ceiling (Figure 4).
- Set up an access opening of no less than 530 mm × 530 mm at a location approximately 300mm from the machine inspection door (if space is limited, ensure at least >100mm) (Figure 5).
- Fresh air and exhaust ducts should be installed with a downward slope of 5 degrees to prevent outdoor rainwater from backing up into the room. Weatherproof hoods with insect screens must be installed outdoors (Figure 4).
- Fresh air, return air, supply air, and exhaust duct dimensions must correspond to air outlet sizes. Diameter changes are not allowed. If large openings cannot be made on outdoor walls, fresh air and return air ducts should use Y-shaped pipes in a 2-to-1 configuration to divide into two paths.
- Supply and return air ducts must have air distribution boxes installed to reduce resistance from excessive diameter changes and minimize airflow loss (Figure 5).
- Fresh air and return duct outlets need 0.5-1m of equal-diameter insulated flexible hose. Supply and exhaust duct outlets need 0.5-1m of equal-diameter insulated sound-absorbing flexible hose to reduce outlet noise. Direct rigid pipes are not recommended as they may produce collision noise. All pipes need insulation to prevent condensation (Figure 5).
- All air outlets should be sealed with aluminum foil tape when connecting to ducts to prevent air leakage and reduce airflow loss (Figure 4).

4.4 Drain Pipe Installation

Figure 6



Note: Use a spirit level and adjust the nuts to tilt the unit 1° toward the drain outlet for smooth condensate drainage.

Figure 7

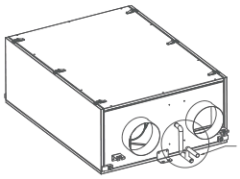
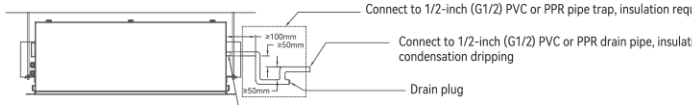


Figure 8



Note: Drain pump rated head 1.2 meters.

- Use a level and adjust the nuts so that the main unit tilts 1 degree toward the drain outlet for easier drainage.
- A P-trap should be connected first at the drain outlet to ensure no negative pressure during drainage, normal drainage, and reduce noise from negative pressure.
- The drain pipe should be insulated to prevent condensation water from dripping during operation.
- The unit comes with a condensate pump with a rated lift of 1.2 meters. The installation lift of the drain pipe should not exceed 1.2 meters to avoid poor drainage.
- The drain outlet is a 1/2-inch external thread fitting with an outer diameter of approximately 21mm.

5. Wired Controller Installation

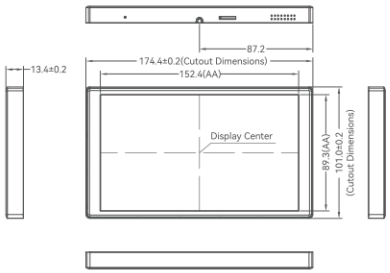
5.1 Installation Precautions

To ensure safe and reliable operation of the wired controller, be sure to read the following precautions before installation:

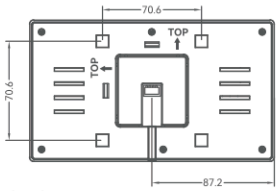
- Power Shutdown: Before installation or wiring, be sure to disconnect the main power supply of the unit and controller to prevent electric shock or equipment damage.
- Professional Installation: Installation should be performed by qualified professionals to ensure compliance with electrical safety standards.
- Environmental Requirements: Avoid installing in locations with direct sunlight, near high-temperature heat sources, or in humid areas.

5.2 Controller Dimensions

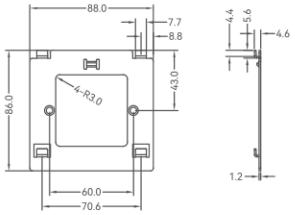
7-inch Screen Wired Controller HD027A Dimensions



Recommended Customer Cabinet Cutout: 175.4mm×102.0mm



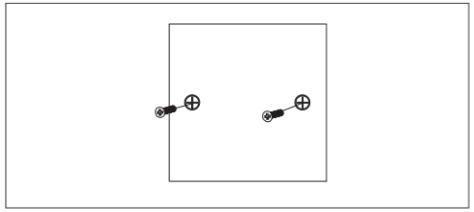
Mounting bracket:



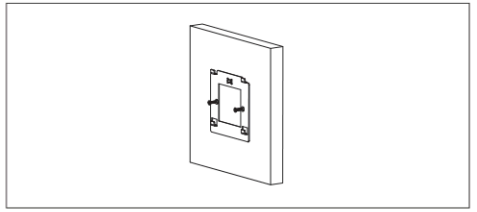
5.3 Controller Installation Steps

01 Mounted on the wall

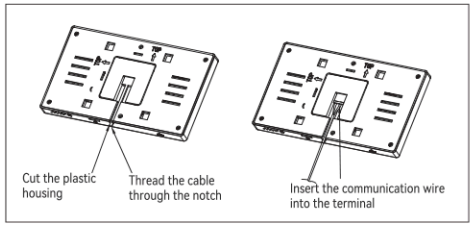
① Wall Drilling: Attach the positioning piece tightly to the wall, drill holes along the positioning center points, and insert M4-compatible expansion tubes.



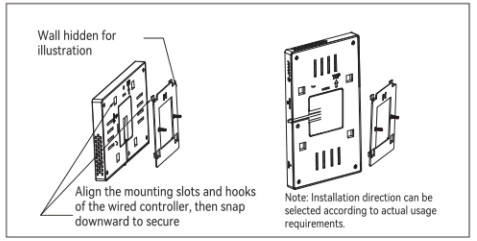
② Bracket Installation: Screw in two M4 countersunk screws along the 86-type box mounting holes to secure the installation bracket.



③ Controller Cable Connection: Cut the plastic housing notch, thread the communication cable through, and connect to the communication interface.

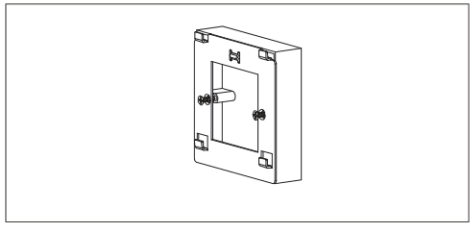


④ Controller and Base Installation: Clip in according to the indicated direction.

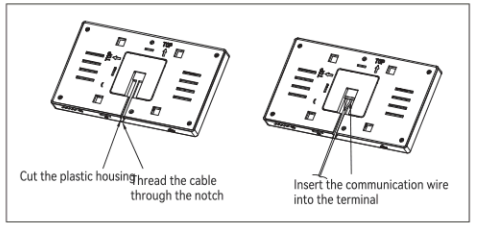


02 Mounted using 86-type box

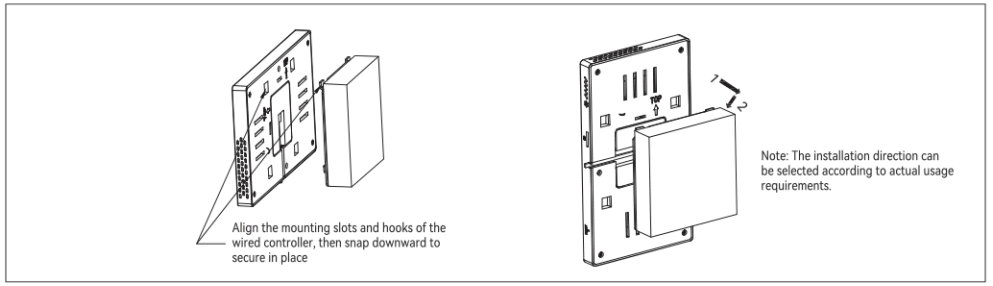
① Mounting the Bracket: Insert two M4 flat-head screws along the mounting holes of the 86 gang box and tighten to secure the mounting bracket.



② Connecting the Communication Wire to the Wired Controller: Cut out the notch on the plastic shell, thread the communication wire through, and connect it to the communication interface.



③ Installing the Wired Controller to the Base: Snap into place in the indicated direction.



6. Wired Controller Operation Instructions

6.1 Function and Display Description



- Icon Indicator Description:

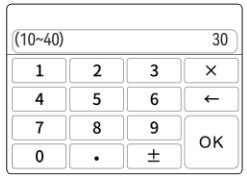
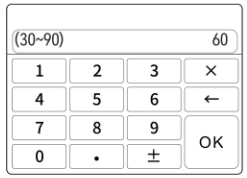
Function Icons	Definition	Name
	Displayed at the bottom of the main interface, indicates heating mode	Heating Mode
	Displayed at the bottom of the main interface, indicates cooling mode	Cooling Mode
	Displayed at the bottom of the main interface, indicates dehumidification mode	Dehumidification Mode
	Displayed at the bottom of the main interface, indicates fresh air mode	Fresh Air Mode
	Displayed at the bottom of the main interface, indicates auto mode	Auto Mode
	Displayed in the upper left of the main interface, indicates current fault	Fault Alarm
	Displayed in the upper left of the main interface, indicates timer function	Timer
	Displayed at the top of the main interface, shows water level status	Water Level
	Displayed at the top of the main interface, indicates unit is in sleep mode	Sleep Mode
	Displayed at the top of the main interface, indicates outdoor coil defrost mode	Outdoor Coil Defrost
	Displayed at the top of the main interface, indicates heat exchanger defrost mode	Heat Exchanger Defrost
P M H	Displayed at the top of the main interface, shows current filter mode	Filter
	Displayed at the top of the main interface, indicates unit is in oil return state	Oil Return

- Button Function Description

Button Icons	Definition	Name
	Unlock main interface	Child Lock
	Enter settings menu	Settings
	Return to main interface	Home
	Return to settings menu	Back
	Turn on/off	Power
	Increase fan speed	Fan Up
	Decrease fan speed	Fan Down
	Clear daily timer, weekly timer, and history faults	Clear
	Filter usage days reset	Reset
	Return to password login interface from advanced settings	Exit
	Enter fault detail interface	View Details
	Return to the fault interface	Back
	Switch sleep mode	Sleep Mode Toggle
	Previous page	Page Up
	Next page	Page Down
	Previous page	Left Page
	Next page	Right Page

6.2 Main Interface Operation

Screen Lock Function	After entering the screen lock interface, the lock icon appears in the upper left corner of the screen, and the controller cannot be operated.  Click the lock icon in the upper left corner to unlock the controller.  Clicking elsewhere will prompt "Please unlock". 
Power On/Off Operation	Click the power icon in the upper right corner of the main interface to bring up a prompt asking whether to turn on/off.  In the power-off state, the green indicator of the current operation mode icon will turn off and reset.  In the powered-on state, the current operation mode icon will pop up and display in green. 

Temperature Setting	Two temperature setting methods: 1. Click the temperature value on the main interface to bring up the temperature setting popup. Press OK to confirm and × exit.  2. Click the arrows or on both ends of the arc slider to set temperature. Each press changes by 1°C.  Note: Temperature is adjustable in all modes. Default temperature setting range is 10°C to 40°C.
Humidity Setting	Two humidity setting methods: (1) Tap the humidity value on the main interface. A humidity setting pop-up window will appear, displaying the adjustable upper and lower limits. After entering the modified value, press the OK key to exit, and the slider below will update accordingly. If no value adjustment is required, press the × key to exit.  (2) Tap the and arrows at both ends of the arc slider to adjust the humidity. Each tap increases or decreases the value by 1%, and the humidity value above will update synchronously after adjustment.  Note: Humidity can only be set in dehumidification mode. Default humidity setting range is 30% to 90%.

Fan Speed Setting

Fan speed is divided into exhaust fan speed and supply fan speed. The left side shows exhaust fan speed, the right side shows supply fan speed.

Press icons ∧ and ∨ to increase or decrease the fan speed.

- Fresh air mode: 1-10 levels adjustable.
- Cooling/Dehumidification/Heating mode: 5-10 levels adjustable.
- Auto mode: After 1-10 levels, there is auto fan speed, auto level A can be set.



Mode Setting

The mode display is at the bottom of the main interface, with five modes: Auto Ⓐ, Fresh Air, Cooling, Dehumidification, and Heating from left to right.



In powered-on state, tap the corresponding mode icon to switch modes.

Auto Mode Operating Logic:

- When TSA - TSET < -2°C, the unit operates in heating mode.
- When -2°C ≤ TSA - TSET ≤ 2°C, the unit operates in fresh air mode.
- When TSA - TSET > 2°C, the unit operates in cooling mode.

Note: TSA stands for actual supply air temperature, TSET stands for target supply air temperature.

6.3 Secondary Interface Operation

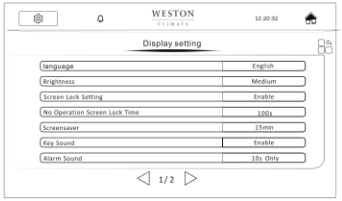
Tap the settings icon at the upper left corner on the main interface to enter the secondary menu interface:



Display Settings

Display Settings allow configuration of daily interface preferences, including language, screen lock function, screen brightness adjustment, idle screen lock timeout, key tone enable/disable, and more. Access the Display Settings interface via the following path:

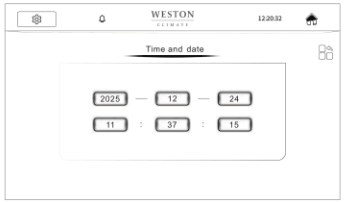
Main Interface > Settings Menu > Display Settings.



Parameter Items	Parameter Range	Default Value	Unit
Language Selection	English, Chinese	English	\
Screen Brightness	Low, Medium, High	Medium	\
Screen Lock Setting	Enable, Disable	Enable	\
Idle Screen Lock Time	10~100	45	Sec
Screen Saver Time	0~100	10	Min
Key Buzzer	Enable, Disable	Enable	\
Alarm Sound Setting	Continuous beep, No beep, Beep for 10 seconds only, Periodic 10-second beep	Beep for 10 seconds only	\
Network Time Synchronization	Enable, Disable	Enable	\

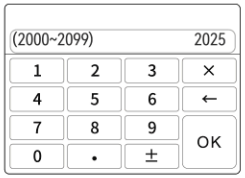
Date and Time Settings

If the date and time do not match the actual time, adjust them via: Main Interface > Settings Menu > Time and Date.



All time adjustments (year, month, day, hour, minute, second) on this wired controller follow the same operation method. The following takes modifying the year as an example:

Enter the Date & Time interface, then tap the year field to pop up the year input box.



Tap the numeric keypad buttons to enter the year value. After modification, tap OK to save the changes, tap × to close the pop-up directly without saving.

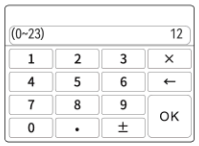
Timer Settings

1.Daily Timer

Setting path: Main Interface > Settings Menu > Timer Settings > Daily Timer.



Tap the hour and minute fields to pop up the input box:



Tap the numeric keypad buttons to enter values. After modification, tap OK to save the changes, tap × to close the pop-up directly without saving.

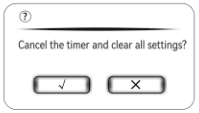
Note: The start time cannot be later than the end time, otherwise, an invalid timer setting prompt will appear upon confirmation, as shown below:



After setting the start time and end time, enable the timer by checking the check box ☐ on the left. Once enabled, the check box changes to the selected state ☑ , and a timer icon appears at the top of the interface, as shown below:



Tap the Clear button on the right to cancel all timer settings at once. A confirmation pop-up will appear after tapping.



Tap √ to confirm clearing the timer and close the pop-up, tap × to cancel and close the pop-up. After tapping √ , as shown below:



Timer Settings

2.Weekly Timer

Setting path: Main Interface > Settings Menu > Timer Settings > Weekly Timer.

Weekly timer includes an additional weekday selection compared to daily timer. Tap the weekday icons to set the timer to take effect on specific days. As shown below, Wednesday and Sunday are selected, so the timer will only activate on these two days.

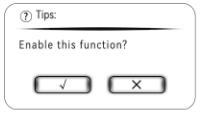


Filter Settings

Setting path: Main Interface > Settings Menu > Filter Settings



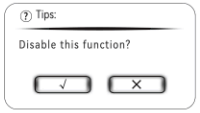
(1) On the filter interface, you can select filters by tapping Primary, Medium, and High Efficiency. Primary Efficiency is selected by default. Tapping Medium Efficiency or High Efficiency will bring up a prompt box. For example, tapping Medium Efficiency will display the prompt box below.



Tap √ to confirm clearing the timer and close the pop-up, tap × to cancel and close the pop-up. After tapping √ , refer to the image below:

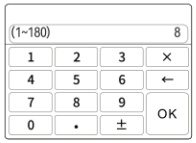


Tap while Medium Efficiency and High Efficiency are enabled, and a prompt box reading "Disable this function" will pop up, as shown below:



Filter Settings

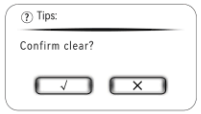
(2) Set days: Tap the days value field, then an input box will pop up.



Tap the numeric keypad buttons to enter values. After modification, tap OK to save the changes, tap × to close the pop-up directly without saving.

Parameter Name	Parameter Range	Default Value	Unit
Filter Type	Primary / Primary + Medium / Primary + High / Primary + Medium + High	Primary + Medium	\
Primary Filter Reminder Time	1...180	60	Day
Medium Filter Reminder Time	1...180	60	Day
High Filter Reminder Time	1...180	90	Day

(3) Clear usage days: Tap the button, and a confirmation pop-up will appear. Tap √ to confirm clearing the days and close the pop-up, tap × to cancel and close the pop-up.



Wi-Fi Settings

When first configuring Wi-Fi, ensure the wired controller and phone are on the same Wi-Fi network. Access the path: Main Interface > Settings Menu > Wi-Fi Settings. Tap the "Wi-Fi Settings" option to enter the network configuration interface, which displays the current Wi-Fi status, MAC address, and instructions for network configuration.



If the Wi-Fi status shows Connected to Cloud Server, the wired controller has already been configured. You can control it using the account that completed the previous network configuration.



If the Wi-Fi status displays other information or you need to cancel the existing network configuration, follow the steps below (Note: The account that was successfully paired and connected will no longer be able to control the unit).

On the network configuration information interface, tap the Reset Wi-Fi button. When the Wi-Fi status shows Connecting in Smart mode, refer to Page 2 for the mobile APP network configuration and connection procedures.



Advanced Settings

Setting path: Main Interface > Settings Menu > Advanced Settings. First entry will show password login interface.

1.Password Login

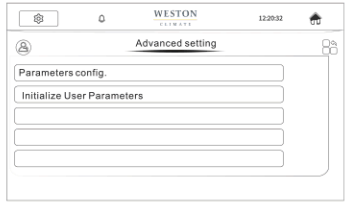


Tap the right side of the interface to select the login account, which is divided into Manufacturer Settings and User Settings. After selecting the login account, enter the password via the keypad below (User Password: 123). If the password is correct, you will enter the Advanced Settings interface, if incorrect, a password error prompt will appear, as shown below:



2.Advanced Settings

(1) User Settings



Tap the icon to return to the password login interface, where you can reselect the login account.

(a) Parameter Settings

This section can be directly modified and used by end users. Access the interface via the path: Main Interface > Settings Menu > Advanced Settings (User Settings) > Parameter Settings.



The specific parameter options are shown in the table below:

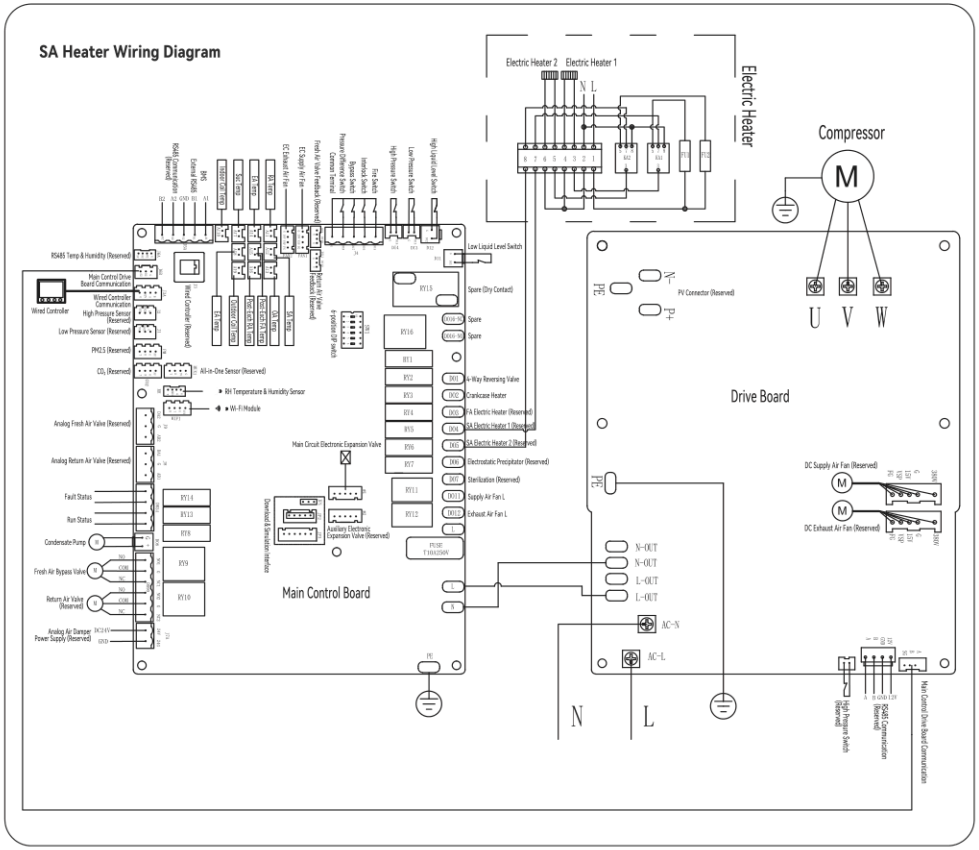
General Settings

Setting Item	Setting Range	Default	Unit
Control Mode	Cooling, Heating, Auto, Dehumidify, Fresh Air	Auto	\
Cooling Set Temperature	min...max	25	°C
Heating Set Temperature	min...max	30	°C
Dehumidification Set Temperature	min...max	22	°C
Auto Set Temperature	min...max	25	°C
Set Humidity	0...100	55	%
Set CO_2	0...2000	1000	ppm
Set PM2.5	0...200	100	ug/m^3
Lower Limit of Cooling Set Temperature	0...80	10	°C
Upper limit of refrigeration set temperature	0...80	40	°C
Heating lower temperature limit	0...80	10	°C
Heating upper temperature limit	0...80	40	°C
Dehumidification lower temperature limit	0...80	10	°C
Upper limit of dehumidification setpoint	0...80	40	°C
Lower humidity limit setting	0...100	30	%
Set upper humidity limit	0...100	90	%
Power-off memory switch	Disable, Enable	Enabled	\
Auto-start on power-up	Disable, Enable	Disable	\
BMS Data Format	8N1 / 8N2 / 801 / 8E1	8N1	\
BMS Communication Address	1...247	1	\
Sensor-Controlled Airflow Damper	CO_2 Control CO_2+PM2.5 Control Humidity Control	CO_2 Control	\
Sensor-Controlled Exhaust Fan Speed	CO_2 Control CO_2+PM2.5 Control Humidity Control	CO_2 Control	\
Return Air Temperature Compensation	-20.0...20.0	0	°C
Supply Air Temperature Compensation	-20.0...20.0	0	°C
Indoor humidity compensation	-20.0...20.0	0	%
Zigbee Control Address	1...15	1	\
Auto Set Lower Limit	0...80	10	°C
Auto upper limit setting	0...80	40	°C
Fan set humidity	30...90	55	%

Supply Air Electric Heater and Bypass Damper

Setting Item	Setting Range	Default	Unit
Supply Air Electric Heating	Disable, Enable	Disabled	\
Supply Air Electric Heating Load	-50...50	0	°C
Blower and heating fully on	-50...50	5	°C
Bypass valve open	5...30	19	°C
Bypass valve opening deviation	2...15	2	°C

SA Heater Wiring Diagram



Supply Air Electric Heating Valve

Forced-Air Electric Heating: This logic applies when the function is set to On and the unit operates in heating mode or fresh air mode.

(1) When Set Temperature − Supply Air Temperature < 0°C (Supply Air Electric Heating Load Threshold), both Supply Air Electric Heater 1 and Supply Air Electric Heater 2 shall be OFF.

(2) When 0°C (Supply Air Electric Heating Load Threshold) ≤ Set Temperature − Supply Air Temperature < 5°C (Supply Air Electric Heating Full-On Threshold), Supply Air Electric Heater 1 shall be ON, and Supply Air Electric Heater 2 shall be OFF.

(3) When Set Temperature − Supply Air Temperature ≥ 5°C (Supply Air Electric Heating Full-On Threshold), both Supply Air Electric Heater 1 and Supply Air Electric Heater 2 shall be ON.

Bypass Valve

(1) When DIP switch bit2 is OFF with no external bypass valve switch input, or when DIP switch bit2 is ON, the bypass valve operates in automatic mode:

Opening condition: The valve opens when [Bypass Valve Opening Setpoint] < Fresh Air Temperature < [Bypass Valve Opening Setpoint] + [Bypass Valve Opening Deviation].

Closing conditions (either condition is met):

a) Fresh Air Temperature ≤ [Bypass Valve Opening Setpoint] - 1°C.

b) Fresh Air Temperature ≥ [Bypass Valve Opening Setpoint] + [Bypass Valve Opening Deviation] + 1°C.

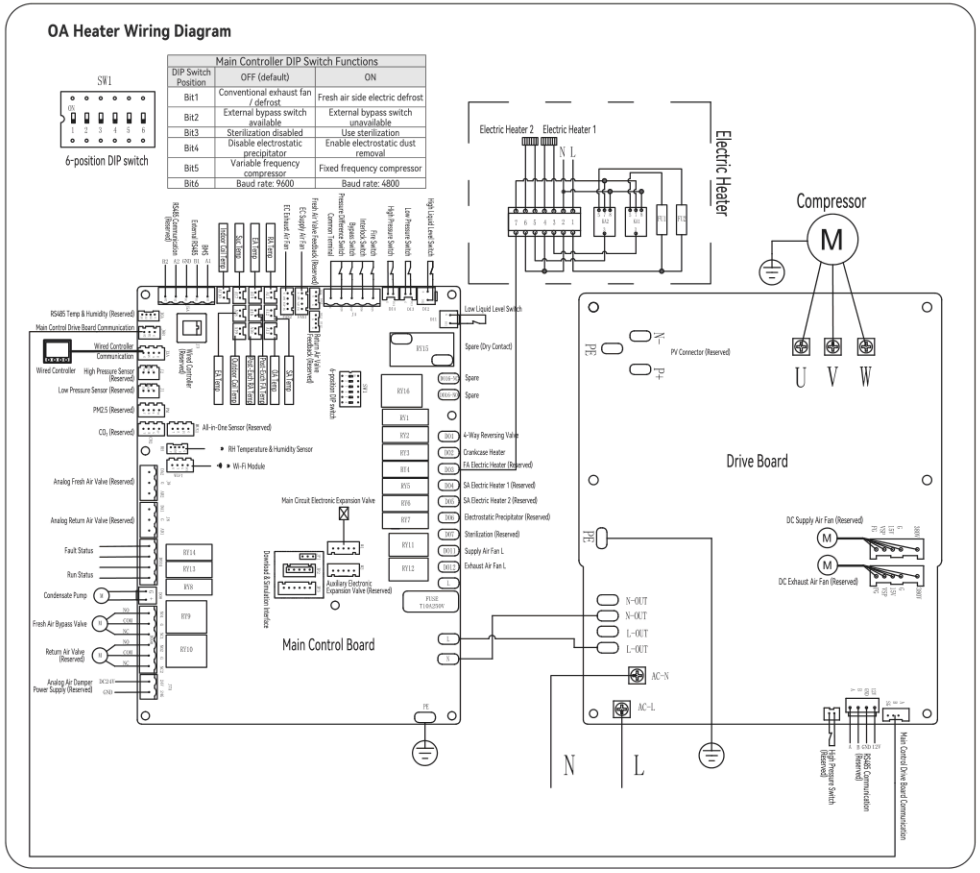
(2) When DIP switch bit2 is OFF with an external bypass switch input, the bypass valve is forced open.

Note: This logic does not activate when the unit is in standby mode.

Fresh Air Heating and Exhaust Fan Defrosting

Settings	Setting Range	Default	Unit
Core Defrost Fresh Air	-50...20	-15	°C
Core-Retraction Defrost Fresh Air	-50...20	-5	°C
Inlet core defrost exhaust air	-50...20	-1	°C
Core defrost exhaust airflow	0...50	15	°C
Electric defrost exhaust airflow	0...50	25	°C
Fresh air heating stop	0...120	5	min
Fresh Air Heating Operation	0...120	15	min
Fresh Air Heating On Time 1	0...120	50	min
Fresh Air Heating Off Time 1	0...120	10	min
Fresh Air Heating On Time 2	0...120	10	min
Fresh Air Heating Off Time 2	0...300	30	sec
Core defrost shutdown	0...120	50	min
Exhaust defrost interval	0...120	30	min
Defrost Ventilation Duration	0...120	10	min
Core defrost shutdown detection delay	0...120	5	min

OA Heater Wiring Diagram



Heat Exchanger Core Defrost Logic

(1) Fresh Air Electric Heating Defrost

- Automatic Defrosting

  Prerequisites:

  a. When DIP switch bit1 is set to ON, defrosting operates in fresh air electric heating mode.

  b. The system is in heating mode or fresh air mode.

  The following fresh air electric heating automatic defrost logic applies only when both prerequisites a and b are met.

  Defrost Action:

  1. When the compressor is running, if the fresh air temperature ≤ -15°C [core-inlet fresh air defrost] and the fresh air electric heater has been off for 5 minutes [fresh air heating stopped], the system enters defrost mode and the fresh air electric heater turns on. If the fresh air temperature ≥ -5°C[core-outlet fresh air defrost] and the fresh air electric heater has been running for 15 minutes [fresh air heating running], the system exits defrost mode and the fresh air electric heater turns off.

  2. When the compressor has been stopped for 5 minutes or is in fresh air mode, the defrost action proceeds as follows:

  a.) When fresh air temperature ≤ -15°C [Core Defrost Fresh Air] and fresh air heater has operated for 50 min [Fresh Air Heating On Time 1], it enters defrost mode. Defrost action: Fresh air heater operates for 50 min [Fresh Air Heating On Time 1], then shuts off for 10 min [Fresh Air Heating Off Time 1] before restarting. When the fresh air heater runs for [Core defrost shutdown detection delay] 5 minutes and the exhaust air temperature ≤ -1°C [Core defrost exhaust air], the unit shuts down for 50 minutes [Core defrost shutdown] before restarting.

  b.) When fresh air temperature > -15°C [Core defrost fresh air intake] and exhaust air temperature ≤ -1°C [Core defrost exhaust air], enter defrost mode. Defrost action: Fresh air electric heating runs for 10 min [Fresh Air Heating On Time 2], then shuts off for 30 s [Fresh Air Heating Off Time 2] before restarting.

  c.) When exhaust air temperature ≥ 25°C [Exhaust defrosting with electric heating], exit defrosting and turn off fresh air electric heating.

- Manual Defrost

  Prerequisite:

  a. When DIP switch bit1 is set to ON, defrosting operates in fresh air electric heating mode.

  b. Operating in heating mode or fresh air mode.

  The following fresh air electric heating manual defrost logic applies only when both prerequisites a and b are met.

  Entry Conditions:

  When exhaust air temperature < 15°C [core defrost exhaust air] and fresh air electric heating has been off for 5 minutes [fresh air heating stopped], manual defrost can be initiated. Fresh air electric heating turns on, compressor shuts off, and supply/exhaust fans operate at the previous speed setting.

  Exit Conditions:

  When the exhaust air temperature ≥ 15°C [Core-Retraction Defrost Exhaust] or the manual defrost duration exceeds 10 minutes [Exhaust Defrost Time], exit defrost mode. The fresh air heater shuts off, and the system resumes operation according to the state prior to manual defrost initiation.

(2) Exhaust Fan Defrost

- Automatic Defrost

  Prerequisite:

  a. When DIP switch bit1 is set to OFF, defrosting operates in exhaust fan defrost mode.

  b. The compressor has been off for 5 minutes or is in fresh air mode.

  The following exhaust fan defrost logic applies only when both prerequisites a and b are met.

  Defrost Action:

  1. When exhaust air temperature ≤ -1°C [Core defrost exhaust] and persists for 1 minute, and the interval since the last defrost exceeds 30 minutes [Exhaust defrost interval] (the first time the temperature is reached and persists for 1 minute, defrosting starts immediately without requiring this interval), enter defrost mode. Defrost action: Exhaust fan runs at high speed, supply fan shuts off.

  2. When exhaust air temperature > 15°C [Core defrost exhaust air] and persists for 1 minute, or defrost duration exceeds 10 minutes [Exhaust defrost time], exit defrost mode. Both fans resume previous operating states.

- Manual Defrost

Prerequisite:

a. When DIP switch bit1 is set to OFF, defrosting operates in exhaust fan defrost mode.

b. The system is in heating mode or fresh air mode.

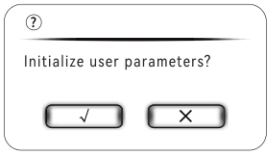
The following manual defrost logic for the exhaust fan applies only when both prerequisites a and b are met.

Entry Conditions:

When exhaust air temperature ≤ 15°C [core defrost exhaust] and persists for 1 minute, manual defrosting may be initiated. The exhaust fan operates at high speed, the supply fan shuts off, and the compressor shuts off.

Exit Conditions:

When the exhaust air temperature ≥ 15°C [Core-Retraction Defrost Exhaust] for 1 minute or the manual defrost duration exceeds 10 minutes [Exhaust Defrost Time], exit defrost mode and resume operation according to the pre-manual-defrost state.

Advanced Settings	(b) Initialize User Parameters: User-level parameters can be reset via the following path: "Main Interface" > "Settings Menu" > "Advanced Settings (User Settings)" > "Initialize User Parameters". In shutdown state, clicking "Initialize User Parameters" displays a prompt. Click √ to confirm initialization or × to cancel and close the window. 
	(2) Factory Settings  Click the icon to return to the password login screen, where you can select a different login account.

Advanced Settings

(a) Manufacturer settings can be directly modified and used by the manufacturer. Access this interface via the following path: "Main Interface" > "Settings Menu" > "Advanced Settings (Manufacturer Settings)" > "Parameter Settings".



(b) Tap Initialization Settings to reset parameters, compressor runtime, and inverter to factory defaults. Access the interface via the path: Main Interface > Settings Menu > Advanced Settings (Manufacturer Settings) > Initialization.



Note: All factory-set parameters should not be modified by users. Contact the manufacturer if after-sales service requires viewing or modifying these parameters.

(c) To modify the password, first click the account on the right side of the interface to select the one for password modification. This is divided into manufacturer settings and user settings. After selecting the account, enter the old password using the keyboard below.



If the password is correct, the prompt "Please enter a new password" appears. After entering the new password, the prompt "Please re-enter the new password" appears. Finally, the prompt "Password changed successfully" appears, as shown below.

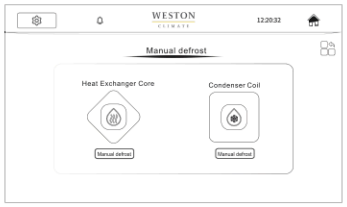


If the password is incorrect, a prompt will appear indicating an incorrect password, as shown below. You will need to re-enter the old password.



Manual Defrost Function

The unit features an intelligent (automatic) defrost function during normal operation. However, manual defrosting may be required in certain situations. Access the manual defrost function via the following path: "Main Interface" > "Settings Menu" > "Manual Defrost", as shown in the figure.

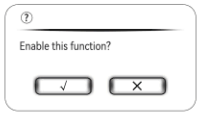


Tap the Manual Defrost button below to select between two defrost modes: Heat Exchange Core and External Coil Heat Exchanger.

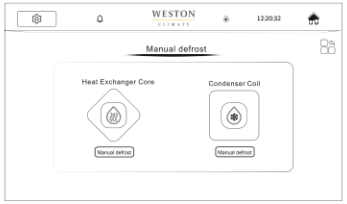
If the module does not meet the defrost conditions, tapping the defrost button will display a pop-up prompt: "Operation not allowed".



Only when the module is in operation and the fin temperature is < [Defrost Threshold] 15°C will clicking the corresponding option trigger a "Enable this function?" pop-up.



Click the √ button. The module's current status will switch to defrosting, and a corresponding icon will appear at the top of the interface. The image below shows the outdoor coil heat exchanger undergoing defrosting.



(1) Defrost operation time ≥ [Defrost Time] of 420 seconds.

(2) Fin temperature ≥ [Defrost Exit Fin Temp] of 15°C.

(3) During compressor defrost, high compressor pressure occurs (no alarm, and unit shuts down).

Exit defrost mode when any one of the above conditions is met.

Status Inquiry

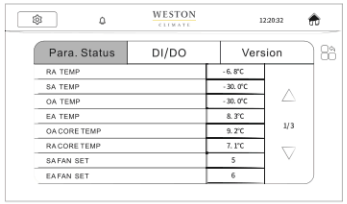
Access the Status Inquiry interface via the following path: "Main Interface" > "Settings Menu" > "Status Inquiry". The Status Inquiry interface contains three options:

(1) Parameter Status

(2) Input/Output

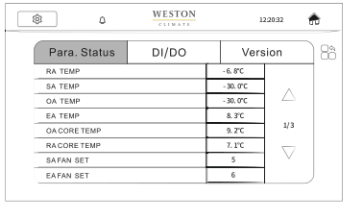
(3) Version Query

The Status Inquiry interface displays three options: Parameter Status, Input/Output, and Version Inquiry. Click the corresponding option to access the relevant functional interface.



Parameter Status Interface

To view the unit's current status information (such as temperature, air damper, etc.), access the Parameter Status Query Interface. Use the △ or ▽ to scroll through all status information.



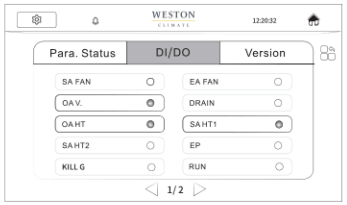
Parameter status list as follows:

Return Air Temperature	Current Superheat of Main Valve	PM1.0 (Wired)
Supply Air Temperature	Defrost-Free Operation Fin Temperature	PM1.0 (Wireless)
Fresh Air Temperature	Defrost-Free Operation Ambient-Fin Difference	PM2.5 (Wired)
Exhaust Air Temperature	Target Inverter Speed	PM2.5 (Multi-Function)
Fresh Air Exchange Post-Temperature	Current Inverter Speed	PM2.5 (Wireless)
Return Air Temperature After Exchange	Inverter Output Voltage	PM10 (Multi-Function)
Supply Air Fan Speed	Inverter Output Current	PM10 (Wired)
Exhaust Air Fan Speed	Inverter Module Temperature	PM10 (Wireless)
Supply Fan Current Speed	Inverter Frequency Limitation Information	TVOC (Multi-in-One)
Exhaust Fan Current Speed	Inverter Input Current	TVOC (Wireless)
Shutdown Code	Inverter Output Power	Indoor Temperature (Wired)
Compressor Runtime	Inner Coil Temperature	Indoor Temperature (Multi-Function)
Main Electrical Expansion Valve	Inverter Input Voltage	Indoor Temperature (Wireless)
Outdoor Temperature	CO2 (Wired)	Indoor Humidity (Multi-Function)
Exhaust Temperature	CO2 (All-in-One)	Indoor Humidity (Wired)
Suction Temperature	CO2 (Wireless)	Indoor Humidity (Wireless)
Main Valve Target Superheat	PM1.0 (All-in-One)	/

Status Inquiry

Input/Output Interface

To view the unit's current input/output information (e.g., four-way valve, condensate pump, etc.), access the Input/Output Query Interface. Use the ◁ or ▷ to scroll left or right through all input/output inform ation. ○ indicates a closed state, ● indicates an open state.

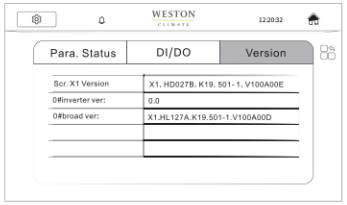


Input/Output List:

Supply Fan	Exhaust Fan
Fresh Air Damper	Drainage Pump
Fresh Air Heating	Supply Air Heating 1
Supply Air Heating 2	Electrostatic Dust Removal
Sterilization	Operation
Fault	Compressor
Four-Way Valve	Crankshaft
Fire Safety Interlock	Interlock Switch
Bypass Switch	Differential Pressure Switch
Low Water Level	High Water Level
Low Pressure	High Pressure

Version Inquiry Interface

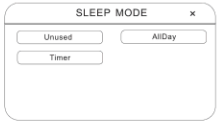
When addressing certain after-sales issues, providing the software information used by the unit controller may facilitate faster troubleshooting. Access the version query interface to view the software version details for the main control board, drive board, and wired controller.



Sleep Mode

Access the Sleep Mode interface via the following path: "Main Interface" > "Settings Menu" > "Sleep Mode".

Sleep Mode offers three options: Unused, AllDay, and Timer. The default setting upon initial power-up is Unused. Click the Sleep Mode icon on the right side of the interface to open a pop-up window for mode selection.



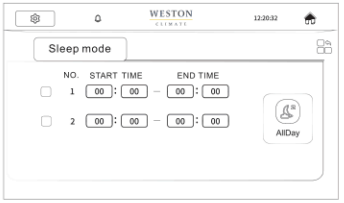
Unused

When sleep function is unused, as shown below, the timer settings on the left side of the interface cannot be clicked, and the sleep mode icon on the right side will appear grayed out.



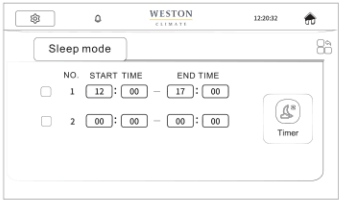
AllDay

In AllDay mode, as shown below, none of the timer settings on the left side of the interface are clickable. The sleep mode icon on the right is white, with the text below it changing to "AllDay", indicating the current mode is All-Day Sleep. The sleep mode icon in the upper left corner of the interface indicates the unit is in sleep state.



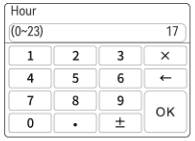
Timer

In Timer mode, as shown in the figure, the sleep mode icon on the right is white and the text below changes to Timer sleep, indicating the current mode is activated. Tap the time box on the left to set the timer sleep period.



Sleep Mode

Tap the hour or minute time field to pop up the input box.



Enter using the numeric keypad buttons. After making changes, click OK to save the modifications. Clicking × will close the window immediately without saving changes. Note that cross-day settings are permitted, but two time periods cannot overlap. Otherwise, selecting them will trigger an "Invalid Timer Settings" alert, as shown:



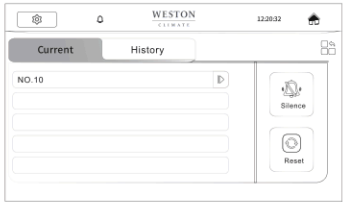
After setting the start and end times, enable the timer by checking the left box labeled ☐. Once enabled, the box changes to ☑. If the current time falls within the scheduled sleep period, the sleep icon appears at the top of the interface, indicating the unit is in sleep mode, as shown.



Fault Inquiry

Current Fault

Access the current fault interface via the following path: "Main Interface" > "Settings Menu" > "Fault Query".



This interface displays only the fault number. To view detailed fault information, click ▷. Click ↩ to return to the current fault interface, as shown:



On the current fault interface, if a fault has been resolved, click Reset ⟳ to clear the fault, click Mute to turn off the alarm sound.

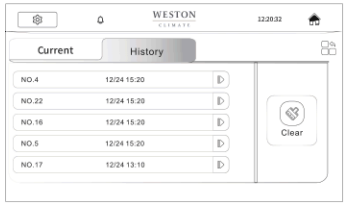
Fault Inquiry

Fault List

Fault ID	Fault Name	Fault ID	Fault Name
2	EEPROM Data Error	54	Exhaust Temperature Too High
4	Return Air Temperature Fault	55	Low-Pressure Transmission Fault
5	Supply Air Temperature Fault	56	High Pressure Sensor Fault
9	Fire Protection Interlock Failure	57	Pressure Transmitter Low Pressure Too Low
10	Fresh Air Temperature Too Low	58	Pressure Sensor High Pressure Too High
14	Supply Air Fan Speed Abnormal	59	Suction Temperature Fault
15	Exhaust Air Fan Speed Abnormal	61	Inlet Air Temperature Too Low
16	Fresh Air Temperature Fault	62	Frequent Emergency Defrosting
17	Exhaust Air Temperature Fault	63	Abnormal Suction/Discharge Temperature Differential
21	Fresh Air Exchange Temperature Fault	64	Refrigeration Evaporation Too Low
22	Return Air Temperature Fault After Air Exchange	66	Indoor Coil Temperature Fault
23	High Water Level Drainage Failure	75	Inverter Communication Fault
24	Faulty Water Level Drainage	76	Inverter Malfunction
25	Primary Filter Clogged	84	Refrigerant Leak
26	Medium-Efficiency Filter Clogged	85	Excessive Refrigerant Evaporation
27	HEPA Filter Is Dirty	86	Excessive Condensation During Cooling
28	Clean or Replace the Filter	87	Heating Evaporator Temperature Too High
29	Inverter Model Settings	88	Heating Condenser Temperature Too High
48	Low Compressor Pressure	117	Supply Air Temperature Too Low
49	High-Pressure Compressor	118	Supply Air Temperature Too High
52	Outer Coil Temperature Fault	/	Communication Failure Between Display and Mainboard
53	Exhaust Temperature Fault		

Historical Faults

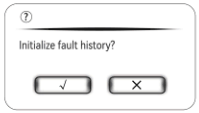
Access the historical faults interface via the following path: "Main Interface" > "Settings Menu" > "Fault Query" > "Historical Faults".

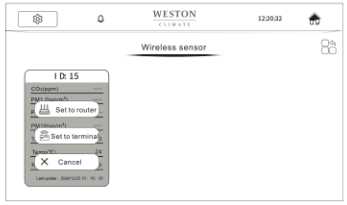


In this interface, only the fault code and fault time are displayed. To view detailed fault information, tap ▷. Tap ↩ to return to the fault history interface, as shown below:



On the Fault History Interface, tap . A prompt will appear: "Initialize fault history? ". Confirm to clear the fault records.



Fault Inquiry	After initialization completes, the historical faults interface will display "No faults currently!" as shown. 
Wireless Sensor Query	Access the Wireless Sensor Query interface via the path: Main Interface > Settings Menu > Wireless Sensor Query. The system will automatically scan and display nearby detectable wireless sensor devices, as shown in the figure below.  You can configure settings for a specific sensor. Tap the information box of the target sensor, and the options Set as Router or Set as Terminal Device will appear, as shown in the figure. The default setting is Set as Terminal Device. When the target device is located far away, you can set the detected sensor as a Router to establish a connection with remote devices.  Note: Data will only be displayed after installing the wireless sensor. No data will be shown if the sensor is not installed.

6.4 Important Notes for Using the Remote Controller

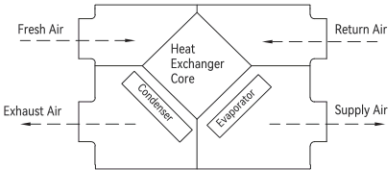
To ensure safe, efficient, and long-term use of this wired controller, please observe the following precautions:

- Installation and wiring must be performed by qualified professionals and must comply with national electrical safety standards.
- Before performing any installation, wiring, or maintenance operations, always disconnect the main power supply to both the host unit and the wired controller to prevent electric shock or equipment damage.
- Operate the screen by gently touching it with your fingers. Do not use sharp objects (such as fingernails or pen tips) to avoid scratching the screen.
- This product is designed for indoor use only. Do not install it in locations exposed to direct sunlight, near high-temperature heat sources, in humid environments, dusty areas, or where corrosive gases are present.
- When cleaning the screen, first disconnect the power and gently wipe with a soft, dry cloth. To remove stubborn stains, lightly dampen the cloth with water, wring it out thoroughly, and then wipe. Never use organic solvents like alcohol or gasoline, nor any corrosive cleaning agents.
- If you encounter malfunctions that cannot be resolved independently (such as no display, unresponsive touch, or frequent alarms), do not attempt to disassemble or repair the device yourself.

7. Product Working Principle

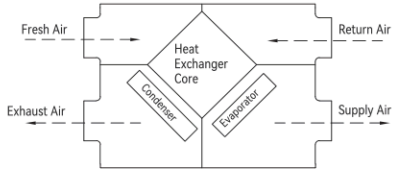
Auto Mode

Automatically selects fresh air mode, cooling mode, or heating mode based on the set supply air temperature. Fan speed is adjustable, but humidity cannot be set.



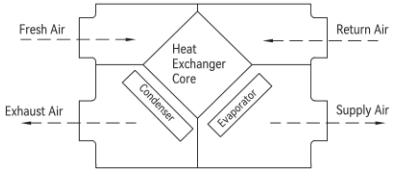
Fresh Air Mode

The fan operates at the preset speed, the compressor does not start, and return air humidity cannot be adjusted.



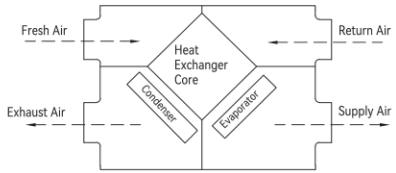
Cooling Mode

Fan operates at preset speed, compressor starts, and adjusts operation based on set supply air temperature. Humidity cannot be set.



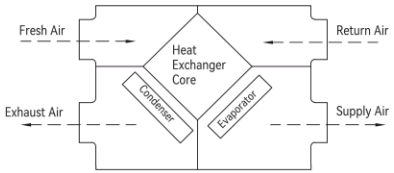
Dehumidification Mode

The fan operates at the preset speed, the compressor starts, and the system adjusts based on the set supply air temperature and return air humidity.



Heating Mode

The fan operates at the preset speed, the compressor starts, and the system adjusts based on the set supply air temperature. Humidity cannot be adjusted.



Effortlessly delivers fresh air intake, air purification, cooling, dehumidification, and heating—all in one unit. Enjoy comfort anytime, anywhere with comprehensive functionality that saves energy and offers peace of mind. Experience the pure, fresh air of the outdoors at all times.

8. Product Specifications

Storage and Transportation Environment: -20 to 60°C, Fresh Air Mode Operating Conditions: -15 to 50°C

Cooling/Dehumidification Mode Operating Conditions: 15 to 50°C, Heating Mode Operating Conditions: -15 to 40°C

Ceiling-Mounted Heat Pump Energy Recovery Ventilator Parameters

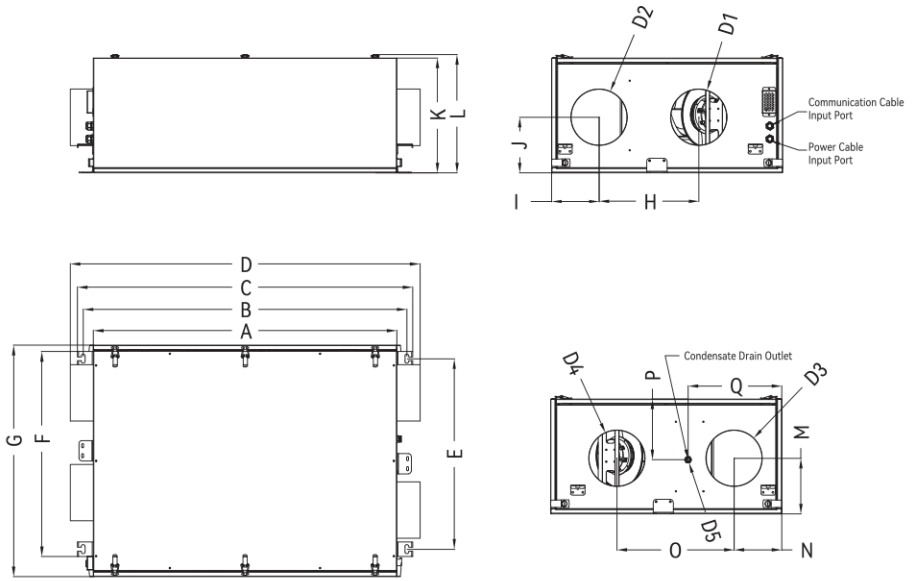
Model		Unit	WESTON-AW-CTCL-HCVENT-350
Rated Airflow		CMH	350
Fresh Air Volume (Fresh Air / Cooling / Heating Mode)		CMH	350
Exhaust Air Volume (Fresh Air / Cooling / Heating Mode)		CMH	350
Fresh Air Fan External Static Pressure (350 CMH)		Pa	100
Exhaust Air Fan External Static Pressure (350 CMH)		Pa	80
Fresh Air Mode	Sensible Heat Exchange Efficiency (Heating)	%	75.4
	Sensible Heat Exchange Efficiency (Cooling)	%	66.3
	Enthalpy Exchange Efficiency (Heating)	%	71.1
	Enthalpy Exchange Efficiency (Cooling)	%	64.5
	Rated Power	W	185
	Rated Current	A	1.72
Cooling Mode	Nominal Cooling Capacity	W	4100
	Maximum Cooling Capacity	W	4350
	Input Power (Cooling)	W	615
	Maximum Input Power (Cooling)	W	800
	Input Current (Cooling)	A	3.41
	Maximum Input Current (Cooling)	A	4.18
Heating Mode	Nominal Heating Capacity	W	4230
	Maximum Heating Capacity	W	4480
	Input Power (Heating)	W	715
	Maximum Input Power (Heating)	W	850
	Input Current (Heating)	A	3.74
	Maximum Input Current (Heating)	A	4.30
Noise		dB(A)	36 / 41
Input Power		/	230V 1P 50/60Hz
Overall Dimensions (excluding vent dimensions)		mm(LWH)	1050×800×395
Air inlet / outlet diameter		mm	Φ195
Air inlet / outlet height		mm	80
Condensate drain port size		Inch	G1/2 21mm
Total weight		kg	100
Refrigerant Code		/	R32
Refrigerant Charge		g	320
Maximum Working Pressure of Heat Exchanger		MPa	4.2
Maximum Allowable Pressure on High / Low Pressure Side		MPa	4.2
Maximum Working Pressure on Suction / Discharge Side		MPa	1.6/4.2
Operating Environment		°C	-15~50
Heat Recovery		/	Graphene Full Heat Exchanger Core
Filter		/	Primary G4 (return air), Primary G4 + Medium F8 (fresh air)
Fan		/	DC Fan
Drainage Method		/	DC Condensate Pump
Compressor		/	DC Inverter

Note:

- External static pressure and input power are measured at rated airflow.
- Heating/cooling heat recovery efficiency is measured in fresh air mode under standard indoor conditions of 27°C / 19.5°C and outdoor conditions of 35°C / 28°C.
- Nominal cooling capacity is measured in cooling mode under standard indoor conditions of 27°C / 19.5°C and outdoor conditions of 35°C / 28°C.
- Heating heat recovery efficiency is measured in fresh air mode under standard indoor conditions of 21°C / 13°C and outdoor conditions of 2°C / 1°C.
- Nominal heating capacity is measured in heating mode under standard indoor conditions of 21°C / 13°C and outdoor conditions of 2°C / 1°C.
- Noise levels are measured at 1.5 meters below the unit center in a semi-anechoic chamber according to standards.

9. Product Dimensions and Structure

9.1 Product Dimensions Diagram (Unit: mm)



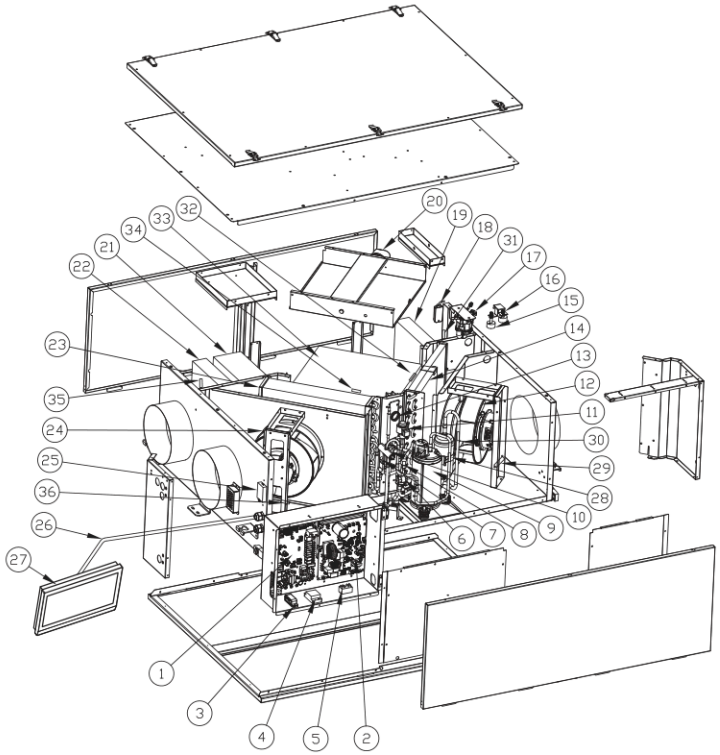
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
WESTON-AW-CTCL-HCVENT-350	1050	1120	1160	1210	685.5	708.5	800	345	165	192	397	409.2	192	165	405	210	324.5

Model	D1	D2	D3	D4	D5
WESTON-AW-CTCL-HCVENT-350	Ø195	Ø195	Ø195	Ø195	21

The above image is for illustrative purposes only and serves as a dimensional reference. Actual model configurations may differ from the illustration. Please refer to the labels affixed to the actual equipment.

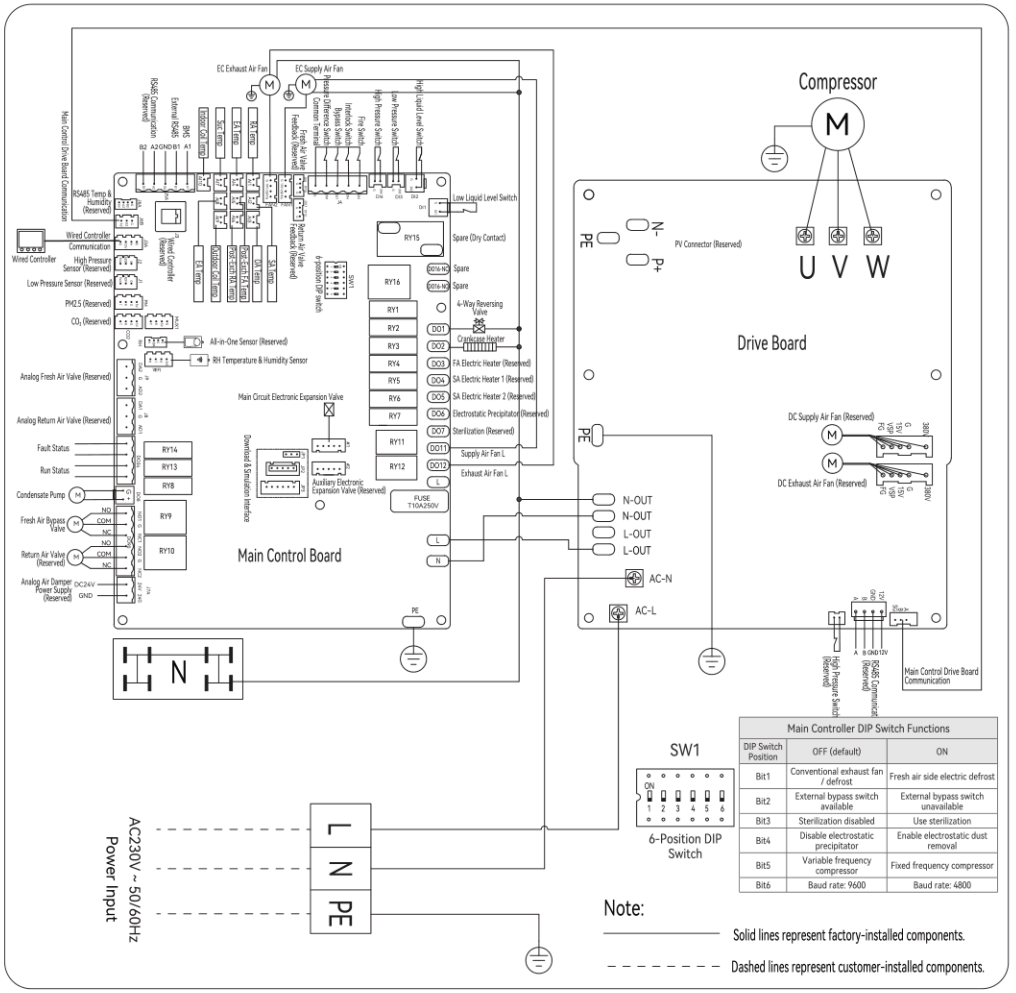
The product does not include duct connection accessories. Actual installation may require adjustments such as reducers due to site conditions, necessitating on-site modifications and procurement of relevant accessories.

9.2 Product Structure Diagram



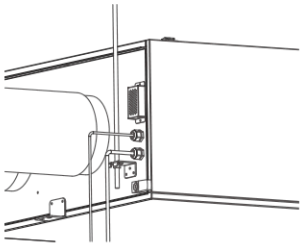
No.	Name	No.	Name	No.	Name
1	Main Control Board	13	Capillary Tube	25	WiFi Module
2	Driver Board	14	Evaporator	26	Wired Controller Communication Cable
3	Wire Clamp	15	High Liquid Level Switch	27	Wireless Controller
4	Terminal Block	16	Low Liquid Level Switch	28	Exhaust Temperature Sensor
5	Common Terminal Block	17	Drainage Pump	29	Supply Air Temperature Probe
6	High-Voltage Switch	18	Humidity Sensor	30	Return Air Temperature Probe
7	Low-Voltage Switch	19	Return Air Primary Filter	31	Return Air Temperature Probe
8	Low-Pressure Needle Valve	20	Damper Actuator	32	Fresh Air Core Post-Temperature Probe
9	Compressor	21	Fresh Air High-Efficiency Filter	33	Heat Exchange Core
10	Four-Way Valve	22	Fresh Air Primary Filter	34	Return Air Core Rear Temperature Probe
11	Electronic Expansion Valve	23	Condenser	35	Fresh Air Temperature Probe
12	Supply Air Fan	24	Exhaust Fan	36	Exhaust Air Temperature Probe

10. Electrical Wiring



Main Controller DIP Switch Functions		
DIP Switch Position	OFF (default)	ON
Bit1	Conventional exhaust fan / defrost	Fresh air side electric defrost
Bit2	External bypass switch available	External bypass switch unavailable
Bit3	Sterilization disabled	Use sterilization
Bit4	Disable electrostatic precipitator	Enable electrostatic dust removal
Bit5	Variable frequency compressor	Fixed frequency compressor
Bit6	Baud rate: 9600	Baud rate: 4800

- This product recommends using power cables with a cross-sectional area of no less than 2.5 mm². If connecting external appliances beyond the product itself, please connect them to a separate power source.
- This product is only supplied with a wired controller communication cable. If you intend to use your own shielded signal cable, it must be a 4-core cable with a cross-sectional area of 0.5 mm² or larger.
- Note: Fixed wiring for appliance connections must comply with applicable wiring regulations and be equipped with a power disconnect device (with contact opening distance ensuring complete disconnection under overvoltage category III conditions).
- The device supports the universal RS485 communication standard and uses the Modbus communication protocol for data transmission and control via connection to a wired controller.
- Connection of the wired controller and external RS485 communication shall be performed on-site by the installer. (For external RS485 communication, only the protocol and port are provided, all other components shall be supplied by the customer.)



11. Troubleshooting

⚠ Maintenance and servicing of our ceiling-mounted heat pump energy recovery ventilators, their high-voltage refrigeration systems, and high-voltage circuits may pose health hazards to personnel, potentially resulting in death, serious injury, or property damage. Maintenance and servicing must be performed only by qualified maintenance technicians.

Fault Codes

No.	Fault Name	Possible Causes	Troubleshooting Method
2	EEPROM data error	The program has been upgraded, the factory parameter attributes of the program are inconsistent before and after the upgrade.	Initialize all parameters. If the fault persists after initialization, please contact us!
		EEPROM failure	If the fault persists after initialization, please contact us!
4	Return air temperature fault	Return air temperature probe abnormal	Check if the return air temperature probe resistance is normal and the wiring is well connected.
5	Supply air temperature fault	Supply air temperature probe malfunction	Check if the supply air temperature probe resistance is normal and the wiring is well connected.
9	Fire interlock fault	Fire interlock switch abnormality	Check if the fire interlock switch input status is normal.
10	Fresh air temperature too low	Fresh air temperature too low	Check the fresh air temperature probe.
14	Supply air fan speed abnormal	Supply fan communication cable not properly connected	Check if the communication cable is properly connected and in good contact.
		Supply fan malfunction	Check if the supply fan is abnormal.
15	Exhaust air fan speed abnormal	Exhaust fan communication cable not properly connected	Check if the communication cable is properly connected and in good contact.
		Exhaust fan malfunction	Check if the exhaust fan is abnormal.
16	Fresh air temperature fault	Fresh air temperature sensor malfunction	Check if the fresh air temperature probe resistance is normal and the wiring is well connected.
17	Exhaust air temperature fault	Discharge temperature sensor abnormal	Check if the exhaust air temperature probe resistance is normal and the wiring is well connected.
21	Post-core fresh air temperature fault	Fresh air core rear temperature probe abnormality	Check if the post-core fresh air temperature probe resistance is normal and the wiring is well connected.
22	Post-core return air temperature fault	Return air core rear temperature probe abnormal	Check if the post-core return air temperature probe resistance is normal and the wiring is well connected.
23	High water level drainage fault	Water level sensor installed incorrectly	Check the water level sensor.
		High water level sensor malfunction	Check if the high water level sensor is damaged or in good contact.
		Condensate pump malfunction or water tray water not draining	Check if the drain pump is damaged or the drain pipe is clogged.
24	Fault water level drainage fault	Water level sensor installed incorrectly	Check if the water level sensor is installed correctly.
		High/low water level abnormality	Check if the high and low water level sensors are abnormal.
		Insufficient drainage volume	Check if drainage is normal.
25	Primary filter dirty	Primary filter dirty and reached replacement time	Clean or replace the primary filter and reset the timer.
26	Medium filter dirty	Medium-efficiency filter dirty and reached replacement time	Clean or replace the medium filter and reset the timer.
27	HEPA filter dirty	HEPA filter dirty and reached replacement time	Clean or replace the HEPA filter and reset the timer.
28	Clean or replace filter	Differential pressure switch malfunction	Check if the differential pressure switch input status is normal.
		Filter dirty	Clean or replace the filter.
29	Inverter model setting in progress	No corresponding compressor model in the variable frequency drive	Check if the compressor code is correct.
48	Compressor low pressure	Compressor low-voltage switch malfunction	Check if the compressor low pressure switch input status is normal.
		Insufficient refrigerant	Check for refrigerant in the refrigeration system.
		Refrigeration system clogged with contaminants	Check for clogging in the refrigeration system.
		Evaporator airflow too low	Check if the fan is abnormal or the duct resistance is excessive.
49	Compressor high pressure	Abnormal compressor high-pressure switch	Check if the compressor high pressure switch input status is normal.
		Excess refrigerant	Check if the refrigeration system is overcharged with refrigerant.
		Refrigeration system clogged with contaminants	Check for clogging in the refrigeration system.
		Insufficient condenser airflow	Check if the fan is abnormal or the duct resistance is excessive.
52	Outdoor coil temperature fault	External temperature probe malfunction	Check if the outdoor coil temperature probe resistance is normal and the wiring is well connected.
53	Discharge temperature fault	Discharge temperature sensor malfunction	Check if the discharge temperature probe resistance is normal and the wiring is well connected.
54	Discharge temperature too high	Discharge temperature probe abnormality	Check if the discharge temperature probe resistance is normal.
		Insufficient refrigerant	Check for refrigerant leakage in the refrigeration system.
		Condensing air volume too low	Check if the fan is abnormal or the duct resistance is excessive.
55	Low pressure sensor fault	Low pressure sensor abnormality	Check if the low pressure sensor is normal and the wiring is well connected.
56	High pressure sensor fault	High pressure sensor abnormality	Check if the high pressure sensor is normal and the wiring is well connected.
57	Low pressure too low	Insufficient refrigerant	Check for refrigerant in the refrigeration system.
		Refrigeration system clogging	Check for clogging in the refrigeration system.
		Evaporation air volume too low	Check if the fan is abnormal or the duct resistance is excessive.

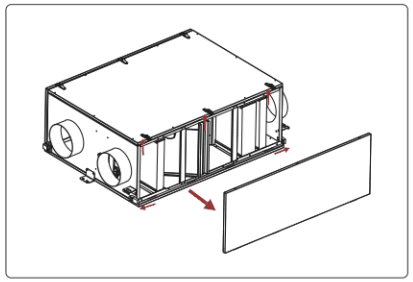
No.	Fault Name	Possible Causes	Troubleshooting Method
58	High pressure sensor reading too high	Excessive refrigerant charge	Check if the refrigerant charge in the refrigeration system is excessive
		Refrigeration system clogged with contaminants	Check for dirt blockage in the refrigeration system
		Low condenser airflow	Check if the fan is malfunctioning or if there is excessive duct resistance
59	Suction temperature fault	Abnormal suction temperature probe	Check if the suction temperature probe resistance is normal or if the wiring connections are secure
61	Suction temperature too low	Suction temperature probe malfunction	Check if the suction temperature probe resistance is normal
		Insufficient refrigerant	Check for refrigerant leaks in the refrigeration system
62	Frequent emergency defrosting	Refrigerant shortage	Check for refrigerant leaks in the refrigeration system
63	Abnormal suction/discharge temperature difference	Abnormal suction or discharge temperature probe	Check whether the resistance values of the suction and discharge temperature probes are normal or if they are reversed
		Internal gas leakage in the compressor	Check compressor current or housing temperature
		Refrigeration system piping connection error	Inspect refrigeration system piping
64	Excessively low refrigerant evaporation	Abnormal indoor coil temperature sensor	Check whether the resistance value of the indoor coil temperature probe is normal
		Insufficient airflow	Check if the supply fan is malfunctioning or if duct resistance is excessive
66	Indoor coil temperature fault	Abnormal indoor coil temperature sensor	Check whether the resistance value of the inner coil temperature probe is normal or whether the wiring connections are secure
75	Inverter communication fault	Inverter communication cable not properly connected	Verify communication cable is properly connected with secure contact.
76	Inverter malfunction	Inverter malfunction	Refer to the corresponding "Inverter-related faults" section below to identify the specific inverter sub-fault.
			Refer to the VFD manual for specific fault meanings.
84	Refrigerant leak	High/low pressure sensor malfunction	Inspect high/low-pressure sensors
		Insufficient refrigerant	Check for refrigerant leaks in the refrigeration system
85	Excessive evaporation temperature	Abnormal indoor evaporator temperature sensor	Check if the indoor coil temperature sensor resistance is normal or if it is connected to the wrong position
		Insufficient refrigerant	Check for refrigerant leaks in the refrigeration system
86	Excessive condensing temperature	Abnormal outdoor temperature sensor	Check if the outdoor coil temperature sensor resistance is normal or if it is connected to the wrong position
		Insufficient exhaust airflow	Check if the exhaust fan is malfunctioning or if duct resistance is excessive
87	Excessive evaporation during heating operation	Heating outdoor coil temperature sensor malfunction	Check whether the outdoor coil temperature probe resistance is normal or incorrectly connected
		Insufficient refrigerant	Check for refrigerant leaks in the refrigeration system
88	Excessively high condensing temperature during heating	Heating indoor coil temperature sensor malfunction	Check if the indoor coil temperature sensor resistance is normal or if it is connected to the wrong position
		Insufficient airflow	Check if the supply fan is malfunctioning or if duct resistance is excessive
117	Supply air temperature too low	Supply air temperature sensor malfunction	Check whether the supply air temperature probe resistance is normal or if it is connected to the wrong position
		Insufficient supply air volume	Check if the supply fan is malfunctioning or if duct resistance is excessive
118	Supply air temperature too high	Supply air temperature sensor malfunction	Check if the supply air temperature probe is functioning properly or if it is incorrectly positioned
		Insufficient supply air volume	Check if the supply fan is malfunctioning or if duct resistance is excessive
/	No display after powering on (Communication failure between display and mainboard)	Abnormal circuit board	Check for wiring issues on the circuit board or verify the board's functionality
		Abnormal wiring in the remote controller communication line	Check if the remote controller communication cable is functioning properly
/	Display is normal but no output	Abnormal circuit board	Check if the circuit board is functioning properly
		Load abnormality	Check if the load is normal
		Abnormal connection between load and circuit board	Check whether the load and circuit board wiring have good contact
/	Wi-Fi communication failure	Network abnormality	Check if the network is functioning properly
/	Humidity display incorrect	Humidity sensor malfunction	Check if the humidity sensor deviation is excessive
		Incorrect installation location	Verify the humidity sensor is installed in the correct position
/	Temperature display incorrect	Temperature probe malfunction	Check if the temperature probe resistance is normal
		Incorrect installation location	Verify the temperature probe is installed in the correct position
/	Excessive noise	Unit not installed correctly	Verify that the unit is installed according to specifications
		Excessive compressor vibration	Check if the compressor mounting bolts are over-tightened, preventing proper vibration damping
		Fan noise is excessive	Check if the fan is malfunctioning or scraping against foreign objects
		Refrigeration system malfunction	Check if refrigeration system pressure and temperature are normal or if piping exhibits excessive vibration
		Duct blockage	Check for improper duct installation or foreign object blockage
/	Insufficient airflow	High duct resistance	Check for improper duct installation or foreign object blockage
		Dirty or clogged air filter	Check if the filter is dirty or clogged
		Fan malfunction	Check if the fan is operating normally
/	Summer supply air temperature is too high, winter supply air temperature is too low	Heat exchanger failure	Check if the heat exchanger has reached end-of-life or is excessively dirty
		Refrigeration system malfunction	Check if the refrigeration system is operating normally
		Fan malfunction	Check if the fan is operating normally
/	Unit water leakage	Unit installed with excessive tilt	Check if the unit is installed according to specifications
		Drain pipe is blocked	Check if the drain pipe is blocked
		Drain pump malfunction	Check if the condensate pump is functioning properly
/	Pipe condensation	Pipes are uninsulated or insufficiently insulated	Check if pipe insulation is adequate

12. Heat Exchanger Core and Filter Maintenance

WARNING

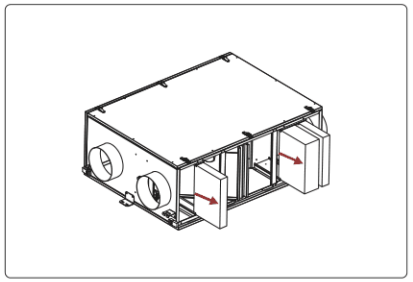
Be sure to disconnect power before maintaining this product!

01 Open the rear inspection door panel



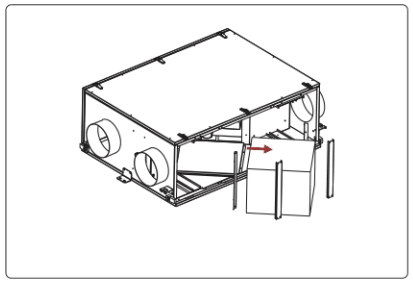
Release the aviation locks on the top and left/right sides, remove the rear access panel, and place it in a convenient location.

02 Remove the filters



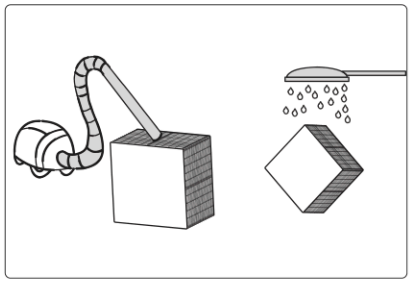
Remove the old primary and medium-efficiency filters in the direction shown in the diagram.

03 Remove the heat exchanger core



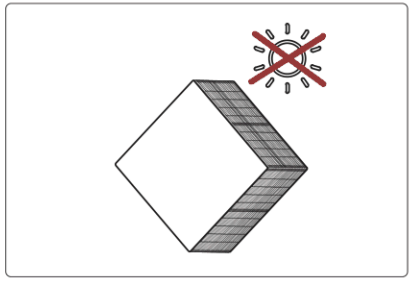
Use tools to remove the pressure plate fasteners and core fasteners one by one, place them in a convenient location, then remove the heat exchange core in the direction shown in the diagram.

04 Clean the heat exchanger core



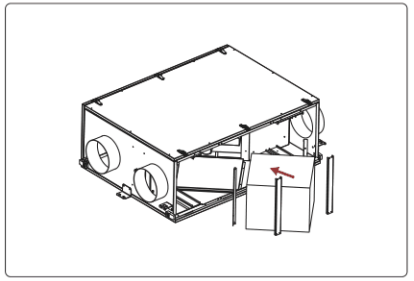
You may use a vacuum cleaner to remove dust, or clean dust from the core with low-pressure clean water.

05 Allow the heat exchange core to dry thoroughly



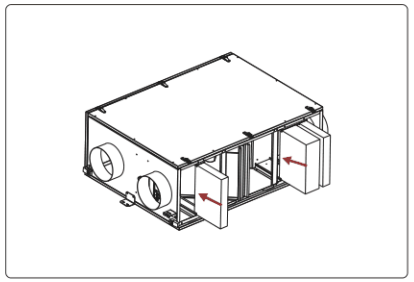
After cleaning the heat exchange core with clean water, dry it in a shaded area. Do not expose it directly to the sun.

06 Reinstall the heat exchange core



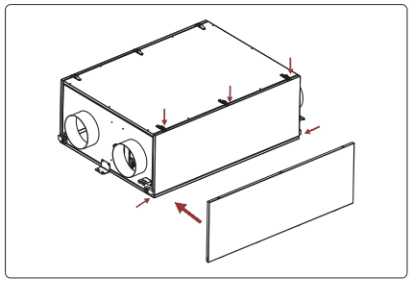
Install the heat exchange core in the direction shown in the diagram, then use tools to install and secure the core fasteners and pressure plate fasteners one by one.

07 Replace the filters



Install the new primary and medium-efficiency filters in the direction shown in the diagram, paying attention to the direction indicators on the filters.

08 Reinstall the rear access panel



Install the rear access panel in the direction shown in the diagram, and fasten the aviation latches securely.

Note

1. Primary and medium-efficiency filters are not washable and must be replaced regularly. Replacement cycles may vary by region, recommended service life does not exceed 6 months.
2. Pay attention to the installation order of primary and medium-efficiency filters. Install new filters according to the arrow direction indicated on the label.
3. The heat exchange core is washable, cleaning agents are not recommended. Maintain at least once a year. Handle with care during maintenance.
4. Filters and heat exchange cores must be purchased separately by the customer, they are not provided free of charge by the manufacturer.

Optional Spare Parts List

Serial No.	Part Name	Recommended Replacement Interval
1	Primary Filter G4	60~180 days
2	Medium Efficiency Filter F8	60~180 days
3	Heat exchange core	36~60 months

13. R32 Refrigerant Safety Information

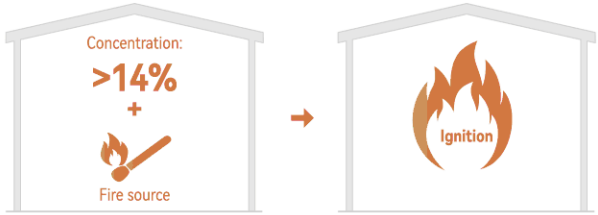
13.1 Refrigerant Composition



- The autoignition temperature of R32 is 648 °C (1198.4 °F).
- International standards ISO 817 and ISO 5149 classify its safety rating as A2L, meaning R32 cannot be ignited by any ignition source other than an open flame and will extinguish automatically once removed from the flame.
- The R32 refrigerant used in ceiling-mounted variable-frequency fresh air heat pumps operates in a fully sealed environment, with strict anti-leakage and anti-contamination measures. As long as installed and used in accordance with standards, there are no safety concerns. In fact, it is safer than natural gas used in households.

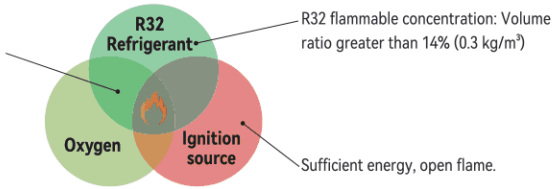
13.2 Refrigerant Safety

- Ceiling-mounted variable-frequency fresh air heat pump installation room: Indoor installation shall be in a closed equipment room or away from fire sources. Outdoor installation is not recommended. If outdoor installation is necessary, a rain shelter and louvers must be provided to prevent rainwater and fire sources from approaching the unit.
- Pipeline maintenance shall be performed in a confined space. At a concentration of 14%, it may ignite upon contact with an open flame.



13.3 R32 Refrigerant Overview

R32 is slightly flammable. R32 with oxygen is heavier than air and has strong sedimentation characteristics. At lower concentrations, its combustion speed will accelerate significantly. At a height of 40 cm above the ground, the burning speed will be more than 4 times the normal burning speed.



Three elements required for combustion

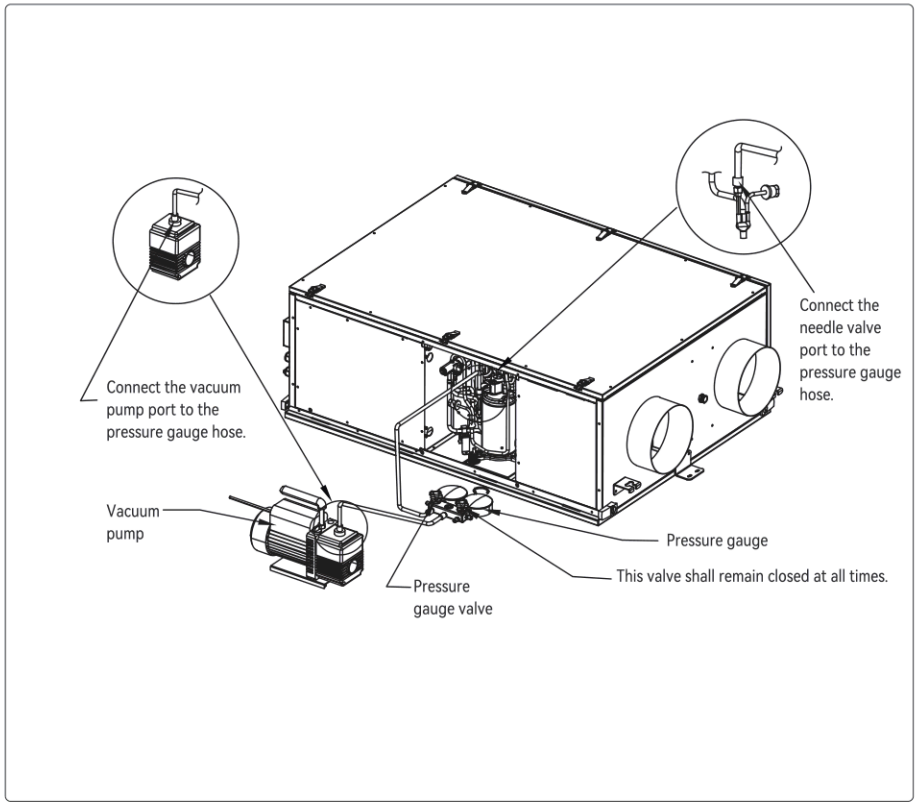
Warning

- Installation, refrigerant charging, maintenance and other operations of this product must be performed by qualified personnel.
- Customers must not perform such operations by themselves, as this may cause serious safety accidents!

14. Refrigeration System Evacuation and Charging

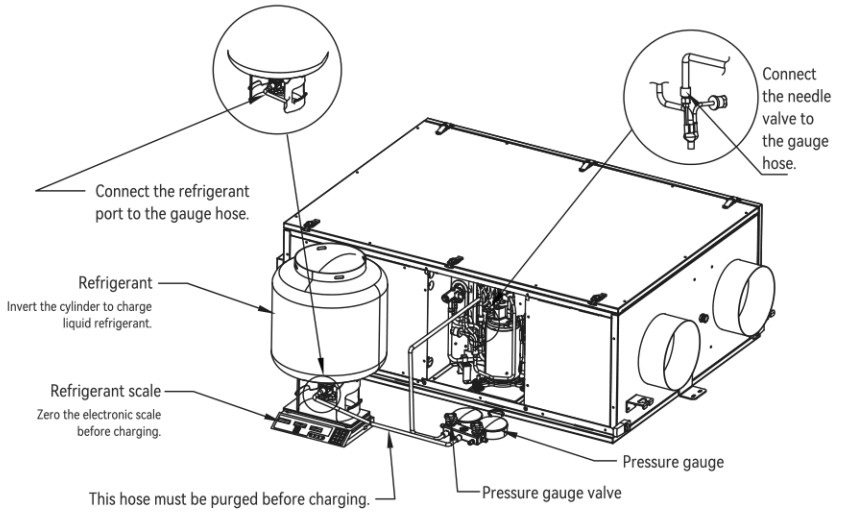
⚠ **Caution:** Non-professionals are prohibited from performing this operation. Personnel must wear anti-freezing protective gloves before operation to prevent hand frostbite caused by improper handling.

01 Vacuum pumping



1. Prepare the vacuum pump, refrigerant pressure gauge, and gauge hose as shown in the diagram.
2. Remove the needle valve nut. Connect the gauge hose to the needle valve, pressure gauge, and vacuum pump as illustrated. Tighten all fittings securely to prevent air leaks and ensure complete evacuation.
3. Open the left pressure gauge valve to connect the refrigeration system with the vacuum pump.
4. Connect the vacuum pump to the power supply and start it. Evacuate the system for approximately 15–20 minutes.
5. Once evacuation is complete, close the left pressure gauge valve, disconnect the power supply, and remove the gauge fitting at the vacuum pump port.

02 **Charge refrigerant**



⚠ **Note:** The refrigerant must be charged only after the refrigeration system has been evacuated.

1. Prepare R32 refrigerant and electronic scale as shown in the figure.
2. Connect the pressure gauge hose to the refrigerant cylinder port, open the cylinder valve, and place the cylinder upside down on the electronic scale.
3. Loosen the connection between the refrigerant cylinder and the pressure gauge hose slightly. Allow a small amount of refrigerant to flow out for about 1–2 seconds, then retighten the connection to purge air from the hose.
4. Turn on the electronic scale and press the zero button to reset the reading to zero.
5. Open the left-hand pressure gauge valve and charge the refrigerant in accordance with the quantity specified on the nameplate.
6. After charging is completed, close both the pressure gauge valve and the refrigerant cylinder valve. Disconnect the pressure gauge hose from the needle valve and the cylinder, then tighten the needle valve connection nut.
7. The unit may be started and put into operation after refrigerant charging is finished.

15. R32 Ceiling Heat Pump ERV Maintenance

- **Service Personnel Qualifications**

  All operating or maintenance personnel must hold valid certificates issued by industry-recognized assessment bodies to prove they have the ability to safely handle refrigerants.

  Equipment maintenance and repair should be carried out strictly according to methods recommended by the equipment manufacturer.

- **On-Site Inspection**

  Before repairing the ceiling-mounted heat pump energy recovery ventilator using R32 refrigerant, safety inspections must be conducted to minimize fire hazards.

- **Operating Procedures**

  Operations should be carried out according to control procedures to minimize risks from R32 refrigerant during operation.

  General Work Area: All maintenance personnel should be clear about the nature of their work. Avoid working in confined spaces. Work areas should be appropriately divided to ensure safe working conditions.

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