



Technical Manual of Energy Recovery Ventilator

Models:

NBSAV-TPF75E

NBSAV-TPF85E



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Safety Considerations

Please read the following safety instructions before installation. And ensure that the unit is installed correctly.

Please observe all instruction in order to avoid any injury or damage to equipment or property.

Safety attentions			
The following symbols indicate potential levels of caution.			
 Warning	Situations with a risk or death or serious injure.	 Attention	Situations with a risk of injury or equipment/property damage.
The following symbols indicate compliance which must be observed			
	Not allowed or Stop	 Must follow	 or obliged

 Warning			
	Installation to be carried out by qualified person, End Users must not install, move or re-install this equipment by themselves		An anti-bird net or similar device should be installed to outside vents. Ensure there are no obstructions to or in the ducts
	Installation engineers must follow this manual strictly. Improper action can create a health hazard and reduce efficiency of the unit		Fresh air vent must be far enough away from any flue gas discharge or areas where hazardous vapors are present
	Unit must be installed strictly following this manual and mounted to a weight bearing surface for the weight of the unit		Electric engineering must follow national regulations and the manual, use special cables. Less capacity cables and improper engineering can cause electric shock or fire.
	During maintenance or repair, the unit and circuit breaker must be switched off. Otherwise electric shock could occur.		Ground wire cannot be connected to gas pipe, water pipe, lighting rod or telephone line etc. Incorrect grounding can cause electric shock.
 Attention			
	Power cable and wires must be installed by a qualified electrical engineer. Improper connection can cause over heating. Fire and loss of efficiency.		To avoid condensation, insulation should be fitted to fresh air ducts. Other ducting may also require insulation depending on dew point conditions.
	Insulation between the metal ducting and wall penetration must be installed if the ducting penetrates metal wall cladding, to avoid risk of electric shock or current leakage.		The cover of wiring box must be pressed down and closed to avoid dust and dirt entering. Excess dust and dirt can cause overheating of terminals and result in fire or electric shock.
	Use only approved installation hardware and accessories. Failure to observe can result in fire risk, electric shock and equipment failure		Where the unit is positioned, at high level in a hot humid situation. Please ensure sufficient ventilation is available
	The outdoor ducts must be installed facing downwards to avoid rain water entering. Improper installation can cause water leakage.		Correctly sized MCB must be fitted to the unit suitable earth leakage protection should also be installed to avoid risk of electric shock or fire.

Safety Considerations

Safety Considerations

 Attention			
	Do not install the unit in an extremely humid conditions, as it may result in electric shock and pose a fire risk.		Do not use the units as the primary kitchen extract grease and fatty deposits can block the heat exchanger, filter and pose a fire risk.
	Don not install the unit in areas there any poisonous or caustic gases are present.		Do not install the unit near open flame as it may result in over heating and pose a fire risk
	Acidic or alkali environments can cause poisoning or a fire		Rated supply voltage must be maintained, otherwise this may cause fire.

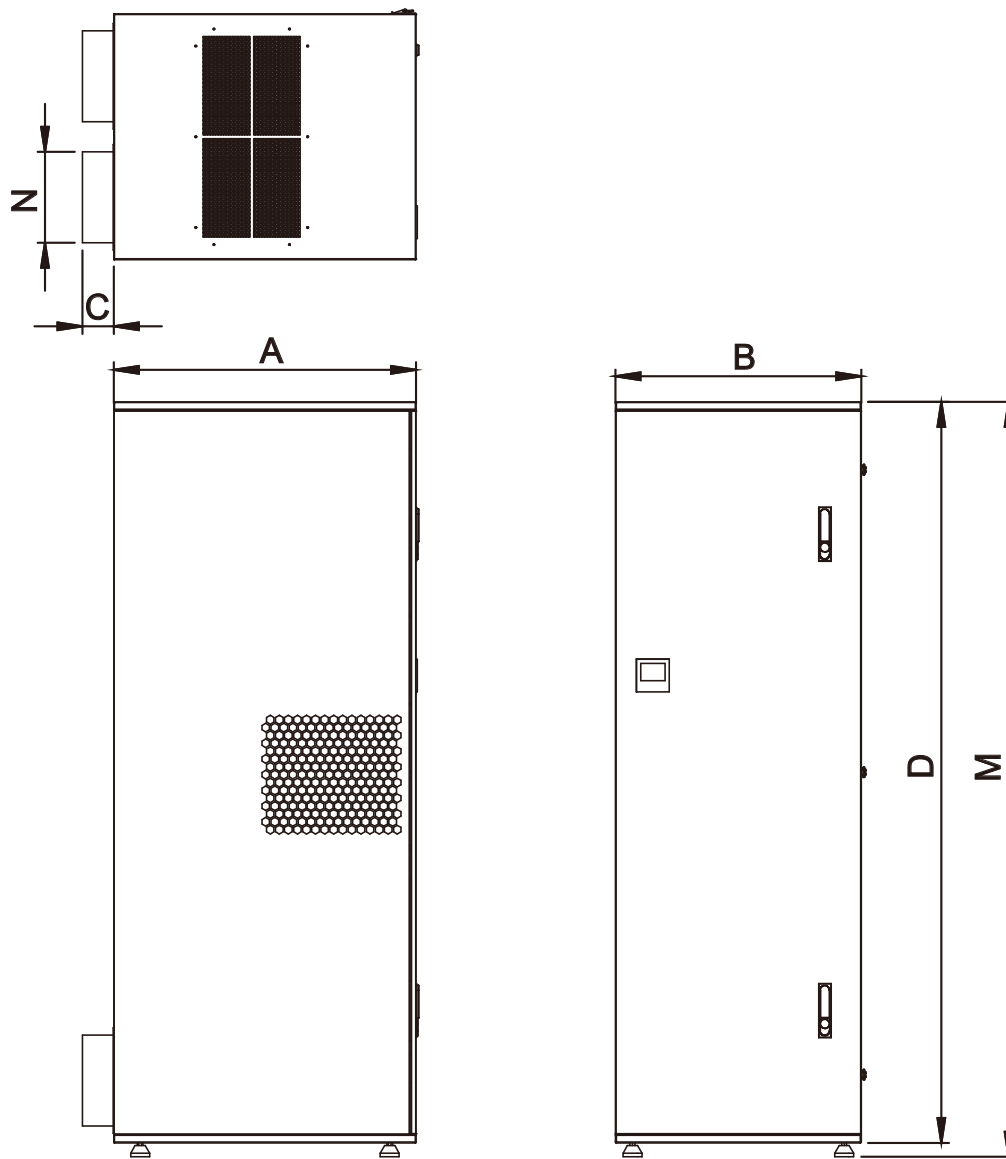
 Warning			
	This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.		
	Children shall not play with the appliance.		Cleaning and user maintenance shall not be made by children without supervision.
	Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.		Prior to cleaning or other maintenance, the appliance must be disconnected from the supply mains.
	Install L-brackets to prevent tipping		Wiring can not be connected in the middle, to use professional connection tools to connect

Specifications

Model		NBSAV-TPF75E	NBSAV-TPF85E
Performance			
Airflow (m³/h)		350/450/750	350/450/850
Enth. Eff (%)	Cooling	77-90	75-90
	Heating	69-83	66-81
Temp. Eff (%)		79-93	77-92
Noise dB(A) at 1 meter		30/32/40	30/32/42
Power Supply		220~240V/1Ph/50Hz	
Input Power (W)		340	350
Electric current(A)		1.55	1.6
Power Cable		3x4mm²	
Control Cable		4x0.5mm²	
Control	Standard	Yes (7-Day Time-clock)	
	(BMS)Mod bus	Yes	
Fan Type		EC Fan Motors	
Fan Speeds (Supply)		3 Speed Fan Control	
Fan Speeds (Exhaust)		3 Speed Fan Control	
Summer Bypass		Yes (Automatic with adjustable range)	
Defrost		Yes (Automatic with adjustable range)	
CO ₂ Control		Yes(On / Off control with adjustable range)	
Electric heating		Yes(2200W,On / Off control)	
Fan Boost Contacts		Yes (1x available connections to Volt-Free contacts: Close= boost to High Speed)	
Fire Shutdown		Yes (1x available connection to Volt-Free contacts: Closed = Shutdown)	
Weight (Kg)		135	140
Size (WxHxD)		800*650*1997	800*650*1997
Duct Size		250	250

Installation Considerations

Dimensions

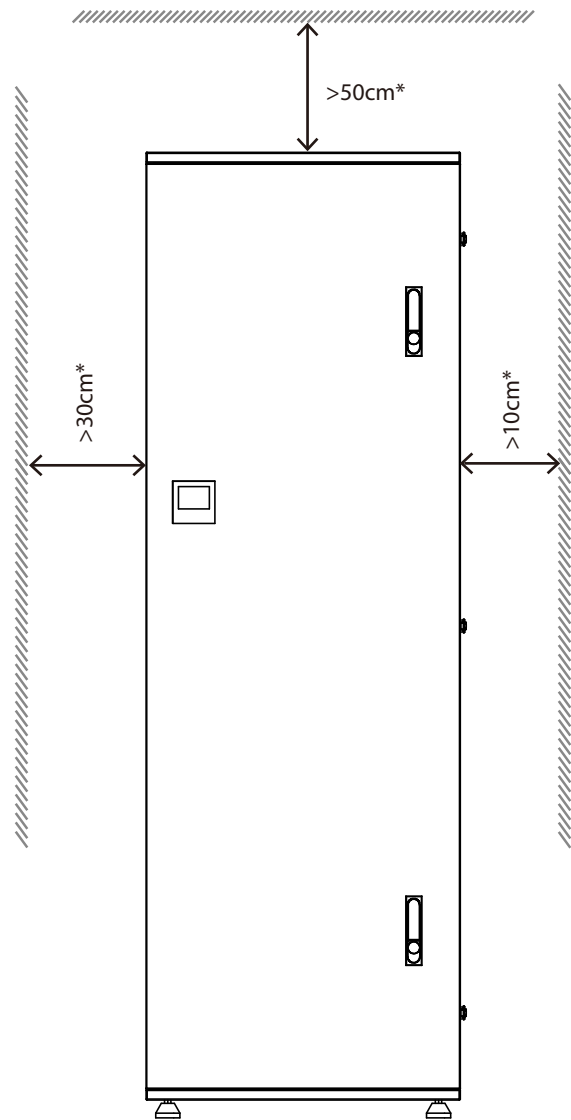
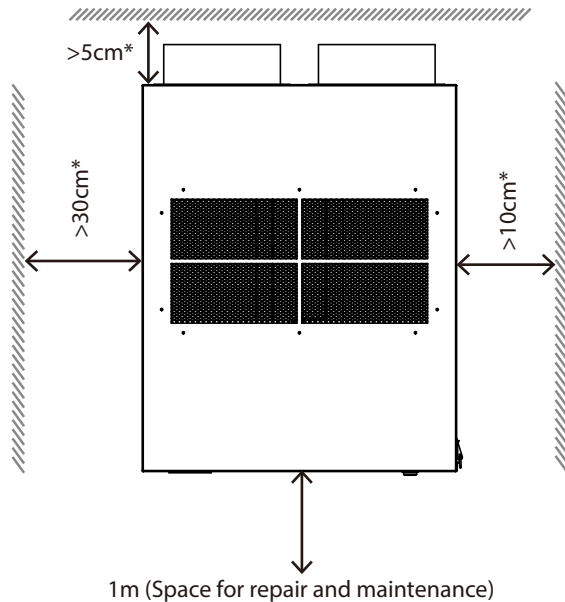


Model	A	B	C	D	M	N
NBSAV-TPF75E	800	650	83	1960	1997	Φ 250
NBSAV-TPF85E						

Installation Considerations

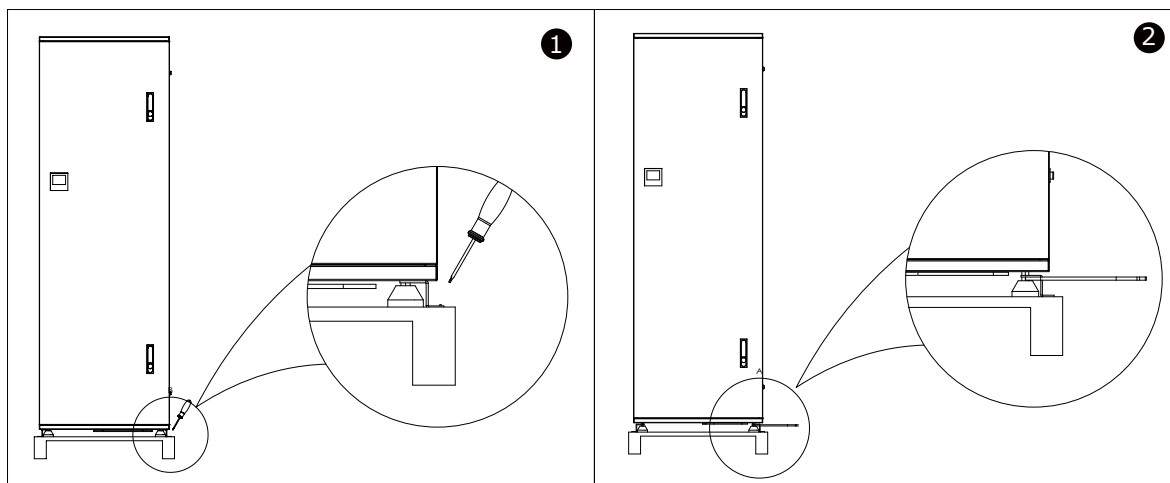
Installation Considerations

Protect the unit to avoid dust or other obstructions entering the unit and accessories during installation, or whilst in storage on site. Service ports should be installed to allow access for filter maintenance.

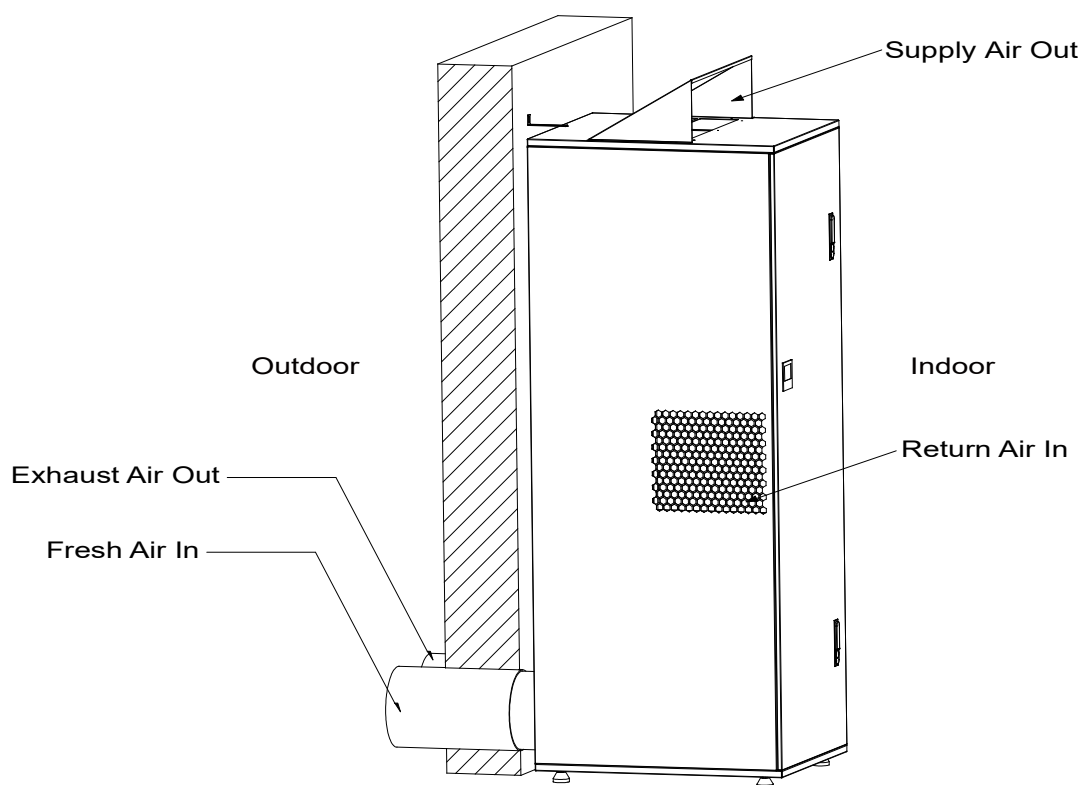


Installation Considerations

Installation Diagram



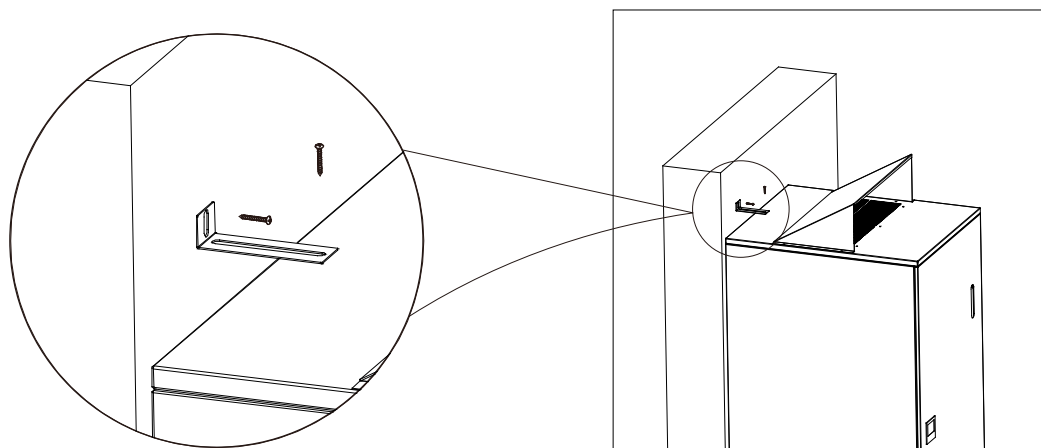
1. Take the outer boxes and plastic bags up.
2. Use a screwdriver to loosen the four screws fixing the bar on the board counterclockwise.
3. Use the wrench tool to loosen the anchor nut and take out the fixing strip.



Installation Considerations

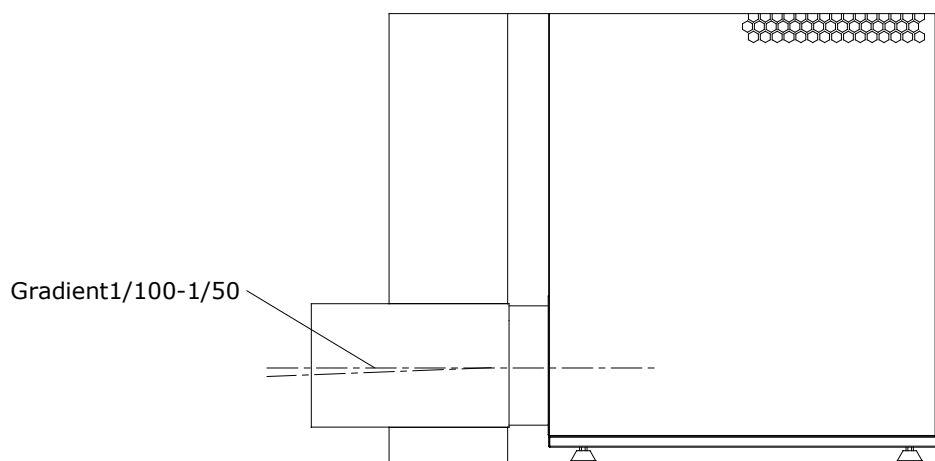
Physical Installation

1. Installer to prepare suitable threaded hangers with adjustable nuts and gaskets.
2. Install as shown by the image above. Installation must be level and securely fastened.
3. Failure to observe proper fixing could result in injury, equipment damage and excessive vibration. Uneven installation will also effect damper operation.



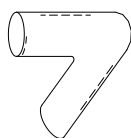
Ducting

1. Connection of unit vents and ducts should be taped or sealed to prevent air leakage, and should comply to relevant guidelines and regulations.
2. The two outdoor vents should face downward toward the outside to prevent any rain water ingress. (angle 1/100 1/50).
3. Insulation must be with the two ducts outside to prevent condensation.

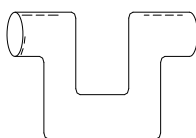


Installation Considerations

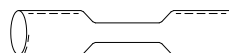
1. Make sure there is enough space around the machine.
2. Unit must not be installed close to boiler flues.
3. Following phenomenon should be avoided in the ducting installation.



Serve bends



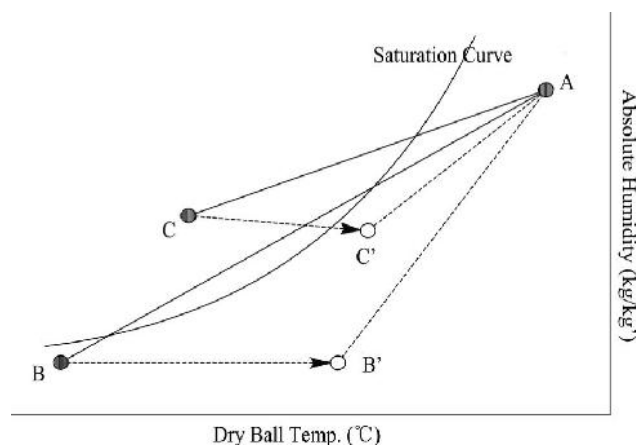
Multiple direction changes



Multiple reducers/ crimped duct

4. Fire dampers must be fitted as per national and local fire regulations.
5. Unit must not be exposed to ambient temperature above 40C and should not face an open fire.
6. Take action to avoid dew and frost.

As shown by drawing below, unit will produce dew or frost when saturation curve is formed from A to C. Use pre-heater to ensure conditions are kept to right of the curve (B to B' , to move C to C') to prevent condensation or frost formation.



7. To avoid the outdoor exhaust air cycling back to indoor, the distance between the two vents installed on the outside wall should be over 1000mm.
- 8.If heater is equipped to the unit, operation of heater should be synchronous with the unit, so that the heater starts to work only when unit starts.
- 10.Duct muffler may be considered if user wants indoor noise to be minimized.

Electrical Installation

Warning

Power must be isolated during installation and before maintenance to avoid injury by electric shock. The specifications of cables must strictly match the requirements, otherwise it may cause performance failure and danger of electric shock or fire.

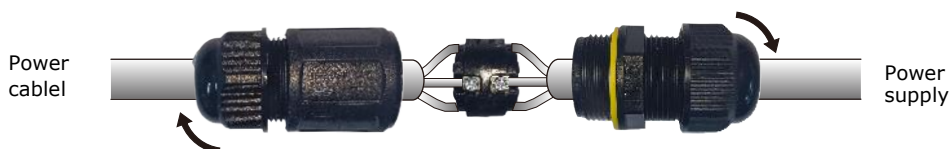
Power supply is AC220-240V/50HZ/1 Phase. Open the cover of electrical box, connect the 3 wires (L/N/E) to the terminals and connect the cable of the control panel to the board according to the wiring diagram, and join the control panel to the cable. A cable fixing device offered by installer is recommended to fix the power cable on the wall/ventilator.

Model	Spec. of power supply cable	Spec. of normal controller cable
NBSAV-TPF75E	3×4 mm ²	4×0.5mm ²
NBSAV-TPF85E		

Power cord connectiong

- 1.It is strictly prohibited to extend the power cord by hinged copper core wires.
- 2.It is recommended to use a power connector that complies with safety regulations to connect the power cord to the main power supply. There must be screws to ensure the copper core of the wire is securely fastened. (The connector is optional or local purchased.)

The following is one of the recommended connectors for reference only.



- 3.The connector should be placed in a location that is not easily touched and sufficient safety measures should be taken to prevent accidental contact and electric shock.

Warning

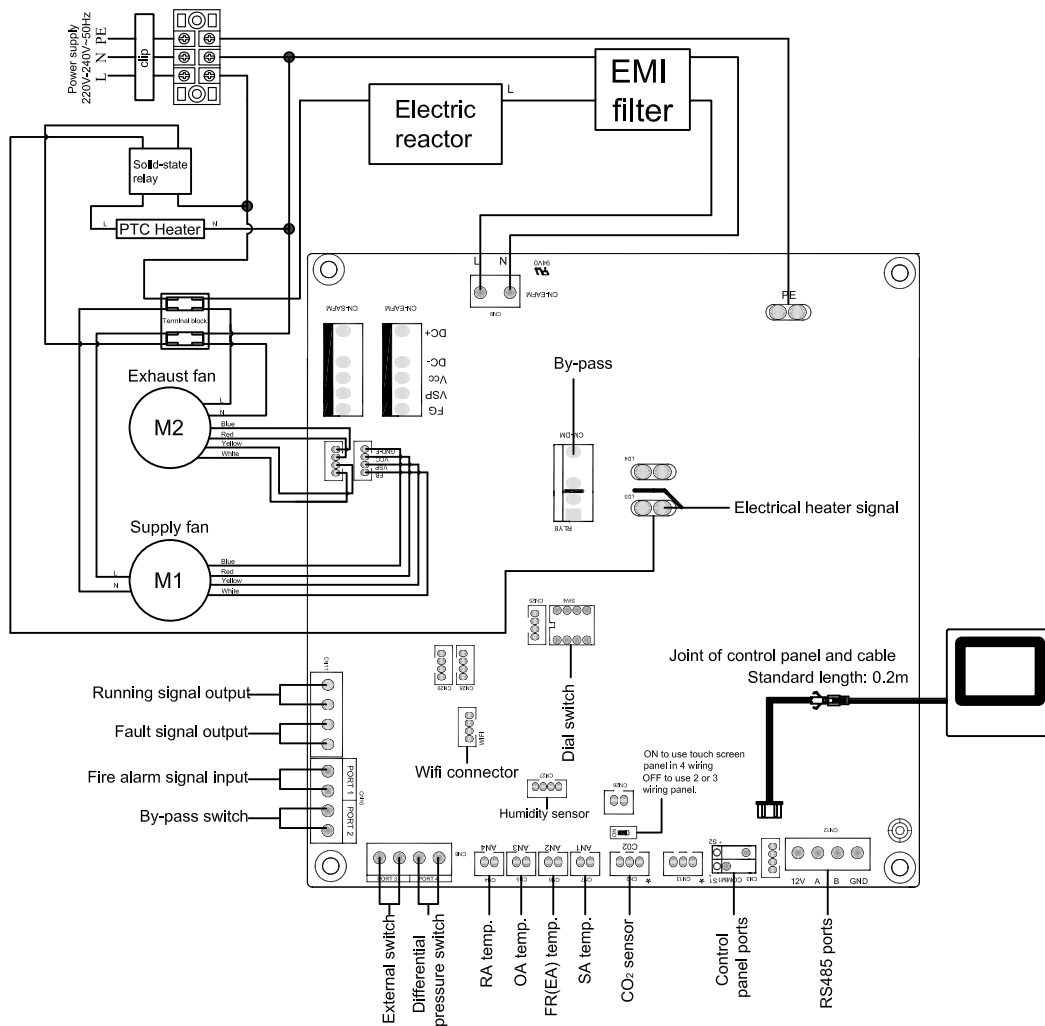
We do not accept any liability for any problems caused by the user's self and non-authorized reengineering to the electrical and control systems.

	The ventilator must be disconnected from the power supply before installation or repair operation.		The unit must be grounded according to regulations
	It is strictly forbidden to use extension cords or intermediate connections to connect the power supply.		



- Do not use an unqualified power connector to connect to the power supply.
- Do not use wire winding to connect the power supply.
- Do not use the plug to connect to the power supply.
- Otherwise, it will cause a fire caused by a spark at the joint.

Wiring Diagrams



Commissioning

Check that all cable sizes, circuit breakers and wire connections are correct before following below commissioning steps:

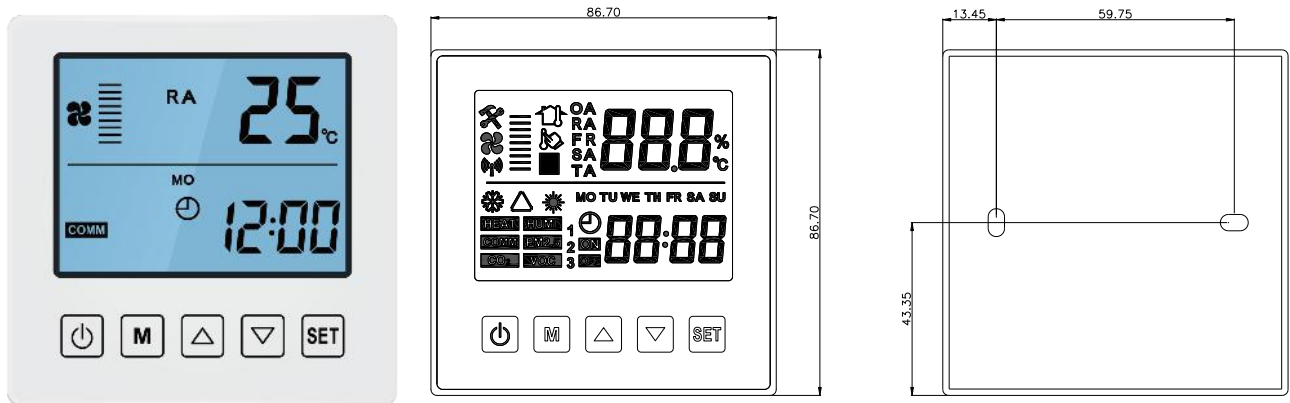
1. Press button  to turn on/off the ventilator.
2. Match the correct speed to ERV. Press  for 6 seconds to enter parameters setting and at this time the parameter number is shown in the middle of the screen, press button  to switch to parameter No. 21 (refer to parameters list in coming page) then press  shortly to enter the parameter setting, default value "0" flash at the top right corner, press UP and DOWN buttons to change the value according to below table (ERV code Vs Models) then press button  again to confirm setting. With the same way to change parameters number 23 to be value 2 (10 speeds DC fan control)
3. Then check the mode and fan speed switch. Press button  shortly to switch to OA, RA, SA or EA mode, check whether the temperature of the corresponding mode is correct. Under SA or RA mode, Press   to switch the fan speed, check if the airflow is adjusted corresponding to H speed , M speed  and L speed .
4. Check the operation of bypass. The default opening temperature of bypass is 19-21C (adjustable), press button  to check the temperature of OA. If the present OA temperature is among 19-21C, then bypass will open automatically. If the OA temperature is not within 19-21C, say 18C, then press button  more than 6 seconds to enter the parameter setting. Press  button to switch to parameter number 02, default value 19 flashes shown at the top right corner, Then press  button shortly to enter setting, by pressing   buttons and set the value to be "X", "X" should be less than 18C (present OA temperature), then press  again to confirm. with the same way to set parameter number 03 value to be "Y", if "X"<OA temperature<"X+Y". then bypass will open automatically, after bypass open, user can adjust the values under parameters 2 and 3 to make OA<"X" or OA>"X+Y", then bypass will close automatically, please pay attention that bypass open/closed will be around 1 minute delayed.

 Warning			
	Loose or incorrect wiring connection can cause explosion or fire when the unit starts to work. Use only rated power voltage.		Don't put fingers or objects into vents of fresh air or exhaust air supply. Injury may be caused by the rotation of the impeller.
	Don't install, move or re-install the unit by yourself. Improper action may cause unit instability, electric shock or fire.		Don't change, disassemble or repair the unit by yourself. Improper action may cause electric shock or fire.
	Running the unit continuously in an abnormal status may cause failure, electric shock or fire.		Switch off the power and breaker when you clean the exchanger.
 Attention			
	Don't site intake supply vent in hot and humid conditions, as it may cause failure, current leakage or fire.		Don't put any burner directly facing the fresh air discharge, otherwise it may cause an insufficient burning.
	Isolate power during extended off periods. Isolate power and take care when cleaning unit. (Risk of electric shock)		Observe guidelines and regulations relating to incomplete combustion when use is associated with fuel burning appliances.
	Clean the filter regularly. A blocked filter may result in poor indoor air quality.		Do not put foreign bodies, such as screws, paper clips, etc. into the machine tuyere, otherwise it will cause damage to the machine and even cause danger.

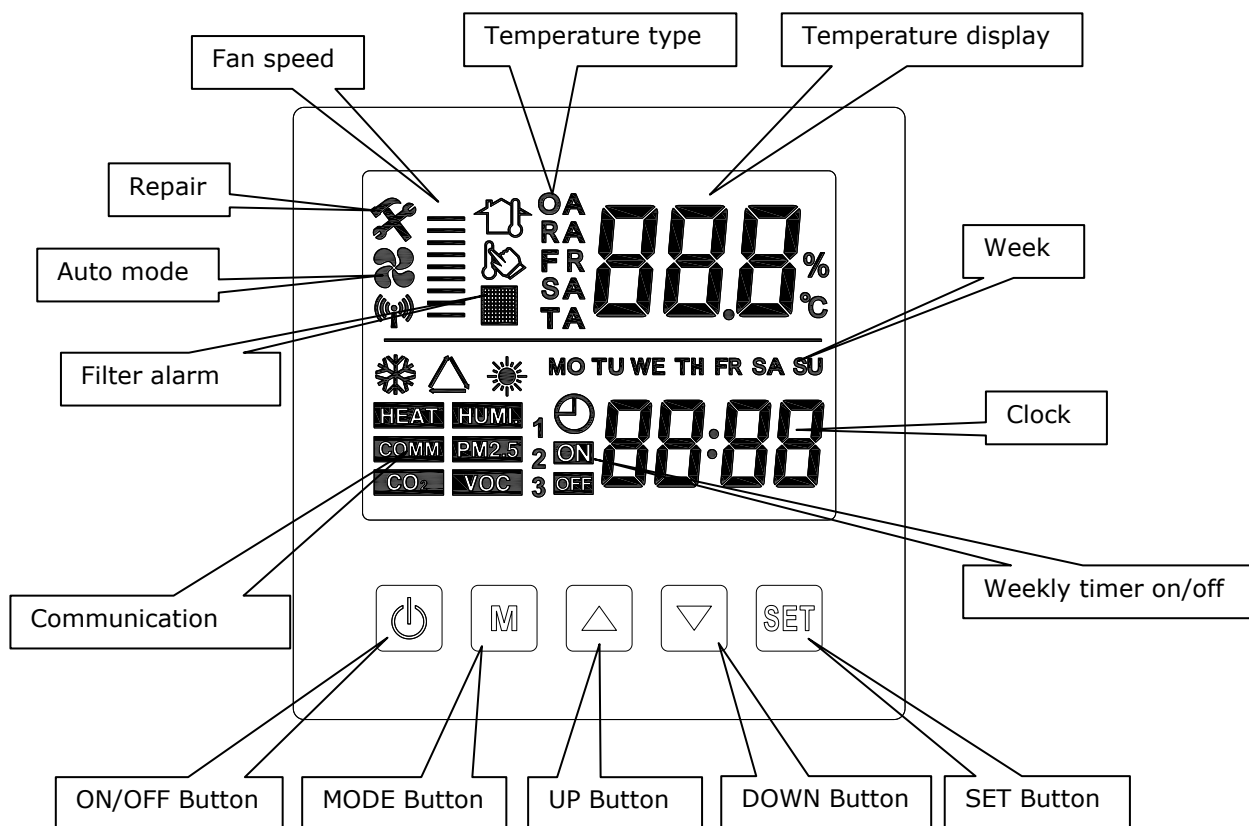
Touch Screen Intelligent Controller

Control Panel

The intelligent controller is surface mounted and comes with a touch screen LCD display screen.



Display screen and Buttons



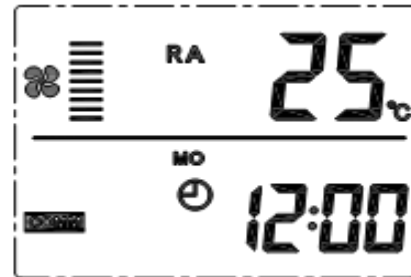
Touch Screen Controller Instructions

Operation Instructions

1. ON/OFF: press ON/OFF button once for starting; twice for closing. In ON status, backlit LCD display lights up, in OFF status, backlit LCD display off, without operation for 30 seconds, backlit LCD display off too. By pressing ON/OFF button for around 6 seconds can lock and unlock the controller.

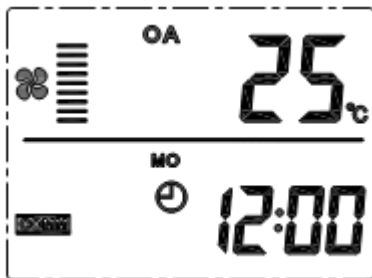


OFF state

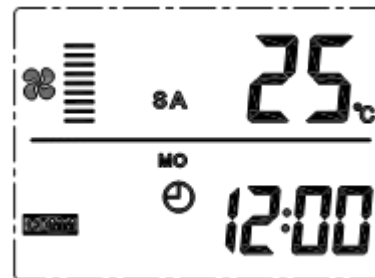


ON state

2. Mode switch: press MODE button to choose display the OA- SA Setting-CO2 status or Humidity control status.



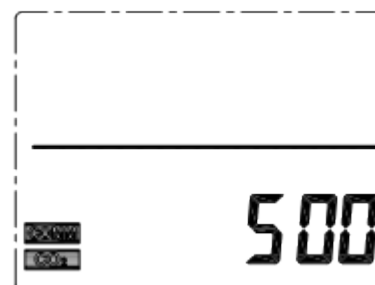
OA temperature



SA temperature

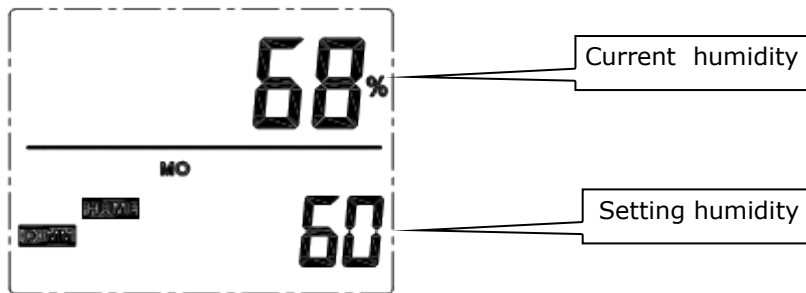


SA temperature setting



CO2 concentration

Touch Screen Controller Instructions



Humidity control

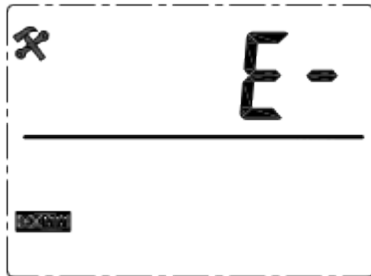
Remark:

- 1) Under SA setting mode, after connecting the electrical heater to the PCB (LD3) and change parameter 01 to value 1, users can set the supply air temperature by pressing up and down button. The setting temperature range is 10-25°C.
 setting temperature - SA temperature > 5 °C, heater on.
 SA temperature - setting temperature > 5°C, heater off.
- 2) The CO₂ symbol appears when the CO₂ sensor is connected.
 1. After connecting the power supply (unit off), if the CO₂ value > set value (# 7) for more than 5 seconds, the unit automatically on and runs in the latest mode and air volume, while the CO₂ icon flashes; When the CO₂ value < set value by a certain value, the unit will shut down and enter standby mode.
 2. When the above situation occurs in On state, the unit runs in current mode and the CO₂ icon flashes. When CO₂ < set value, the CO₂ lamp stops flashing.
- 3) The humidity symbol appears when the "temperature and humidity sensor" is connected. ERV runs at boost speed when humidity higher than setting value.

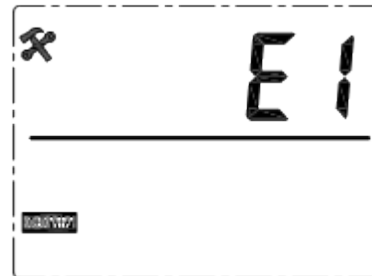
Under "humidity control" mode, users can set the setting humidity by pressing up and down button. The setting range is 45% ~ 90%. And the Dial switch SW4-3 on the PCB should be switched ON to switch from CO₂ control function to humidity control function.

Touch Screen Controller Instructions

4. Error code checking: under the main interface, press the SET button for short, user can check the error code of ventilator, refer to below table.



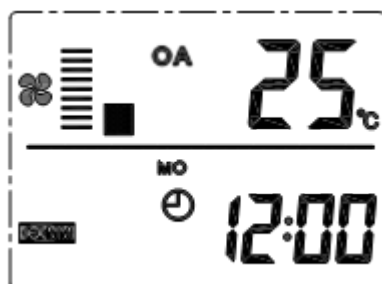
No Error



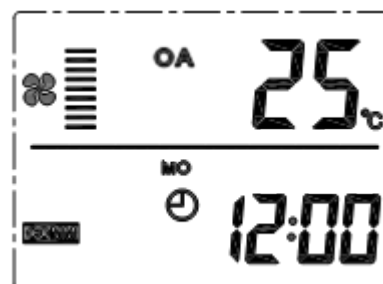
Error alarm

Code	Error
E1	Fresh air temperature sensor error
E2	EEPROM error
E3	Return air temperature sensor error
E4	Exhaust air temperature sensor error (defrosting temperature error)
E5	Communication error
E6	Supply air temperature sensor error
E7	Exhausted fan error
E8	Supply fan error

5. Filter alarm: When running time of ventilator is over the setting filter alarm time, the filter alarm symbol flashes to remind user clean/replace the air filters. After filters being cleaned/replaced, please sweep the filter alarm by setting parameter Number 24, value 1.



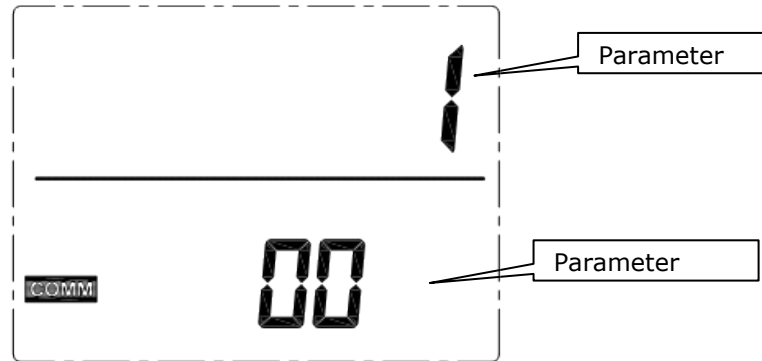
Filter alarm on



Filter alarm off

Touch Screen Controller Instructions

6. Parameters setting: Keep pressing the MODE button for 6 seconds, after buzzing to enter the parameter setting interface.



After entering the parameter setting interface, press SET button shortly to change the parameter number, every pressing will make parameter value +1. After choosing the correct parameter number, press Mode button for short, parameter value flashes at the top right corner, at this time to change the

No.	Contents	Range	Default	Unit	Record Position
00	Power to auto restart	0-1	1		Main control
01	Electrical heater available	0-1	1		Main control
02	Bypass opening temperature X	5-30	19	℃	Main control
03	Bypass opening temperature range Y	2-15	3	℃	Main control
04	Defrosting interval	15-99	30	Minute	Main control
05	Defrosting entering temperature	-9-5	- 1	℃	Main control
06	Defrosting duration time	2-20	10	Minute	Main control
07	CO2 sensor function value	00, 80-250	00 (off)	X10 PPM	Main control
08	Modbus ID address	1-16	1		Main control
21	ERV models match/selection	0-7	0		Main control
23	Fan speed control	0: 2 speeds 1: 3 speeds 2: 10 speeds (DC)	1		
24	Multifunction setting	0: Reserved 1: Sweep filter alarm 2: sweep weekly timer	0		
25	Filter alarm setting	0: 45 days 1: 60 days 2: 90 days 3: 180 days	1		Main control

Touch Screen Controller Instructions

Instruction of Parameter Settings

1) Parameter 00 refers to power to auto restart

0: Invalid, 1: Valid

2) Parameter 01 refers to Supply air electrical heater function

0: Not available 1: Available

When connecting with supply air electrical heater, user should choose 1 to activate the electrical heater, and under the SA temperature setting interface, the SA temperature can be set by pressing up and down button. The setting temperature range is 10-25°C.

3) Parameter 02-03 refers to automatic bypass function

The bypass is opened on the condition that the outdoor temperature is equal or higher than X (parameter 02) and less than X+Y (parameter 03). Bypass is closed on other conditions.

4) Parameter 04-06 refers to automatic defrost function

When EA side of heat exchanger temperature lower than -1°C (defrosting entering temperature, parameter 05) and last for 1 minute, and the interval of defrosting is longer than 30 minutes (parameter 04), the exhaust fan will run at high speed automatically for defrosting, and supply fan will stop, until EA side temperature higher than defrosting entering temperature +15°C for 1 minute, or the defrosting time is longer than 10 minutes (parameter 06).

5) Parameter 07 refers to CO2 concentration control function (optional)

After connecting the optional CO2 sensor, the CO2 symbol will display on the screen. If CO2 concentration is higher than setting value, When the unit is off. The unit will run automatically in the last set speed. If the CO2 returns to lower than setting value, the unit will be off. CO2 default setting value is 00, which means CO2 function off, setting range is 80-250, which means 800-2500 PPM (setting value times 10), recommend PPM is 1000.

6) Parameter 08 refers to the central control function to identify the address of ERV.

7) Parameter 23 refers to the fan speed display, for the ERV with BLDC motor, user should change value to 2 for 10 speed control.

8) Parameter 24 refers to clear filter alarm and weekly timer setting.

9) Parameter 25 refers to set the filter alarm timer.

Touch Screen Controller Instructions

8. Time setting

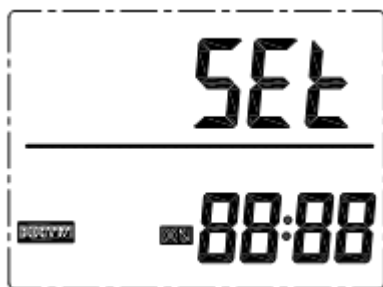
Keep pressing the SET button for 6 seconds, after buzzing to enter the time setting interface. Under this interface, press the MODE button shortly, then can switch from time setting, day setting, weekly timer on and weekly timer off setting.



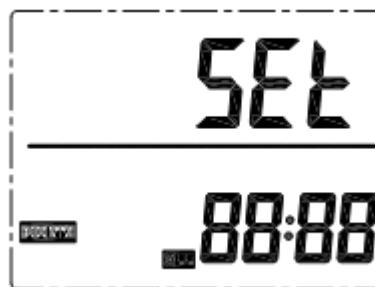
Time setting



Week setting

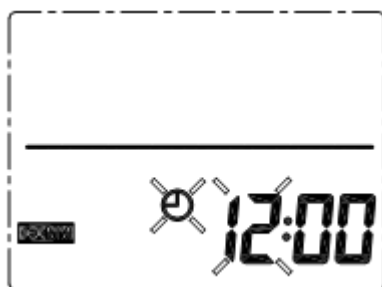


Weekly timer on

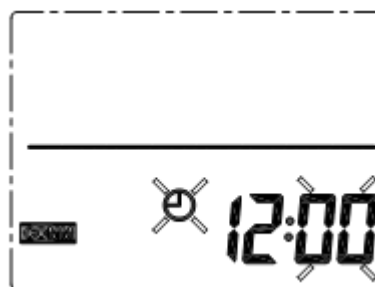


Weekly timer off

A. Time setting: under time setting interface, press SET button for short, at this time "hour" flashes, press UP and DOWN button to change "hour". After setting "hour", press MODE button for short to switch to "minute" setting, at this time "minute" flashes, press Up and Down button to change "minute". After time setting, press SET button to save and return to the main interface.



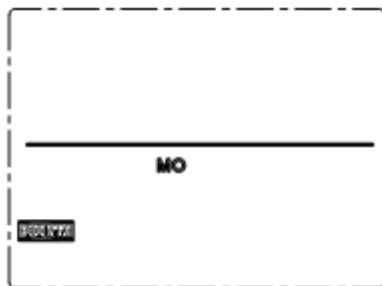
Hour setting



Minute setting

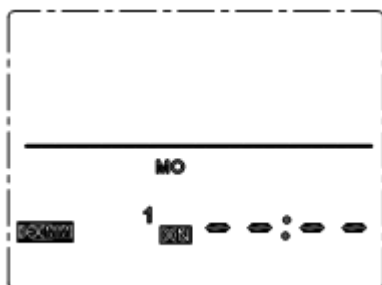
Touch Screen Controller Instructions

B. Day setting: under day setting interface, press SET button for short to begin the day setting, by pressing UP and DOWN buttons to select the correct day, after this finished, press SET button to save and return to the main interface.

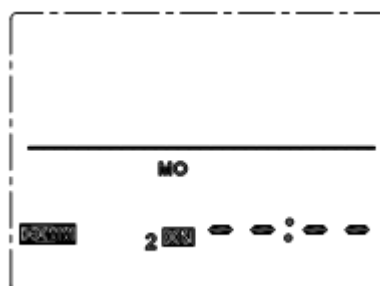


Day setting

C. Weekly timer on setting: under weekly timer on setting interface, press SET button to begin the timer on setting, press SET button time after time to select Monday period 1 to Sunday period 2 (namely Monday period 1 to Sunday period 2).

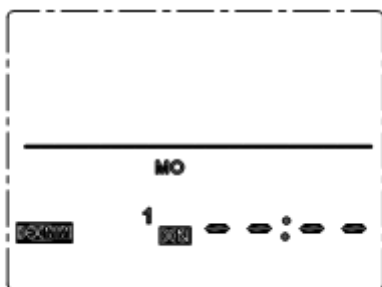


Period 1 timer on

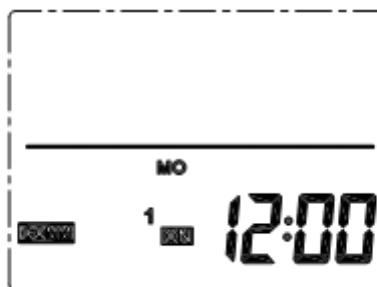


Period 2 timer on

After selecting the day, press ON/OFF button to confirm timer on is valid/invalid.

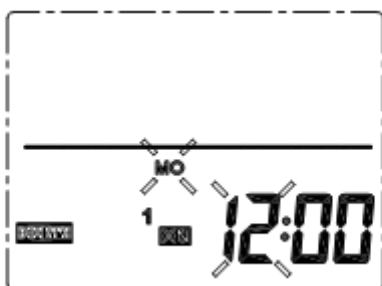


Timer on valid



Timer on invalid

When timer on is valid, press MODE button to enter "hour" setting, by pressing UP and DOWN button to set "hour". After "hour" setting, press MODE button to enter "minute" setting. After "minute" setting, press SET button to save and switch to the next day timer on setting, and repeat the above steps to set all days and periods timer on. After setting all the time on, press SET button to save the data.



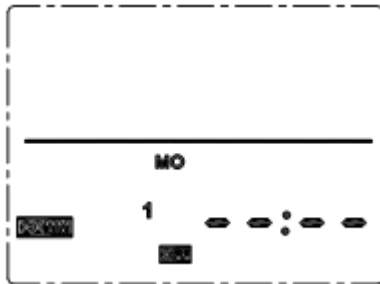
Timer on hour setting



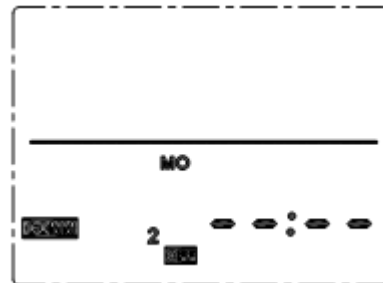
Timer on minute setting

Touch Screen Controller Instructions

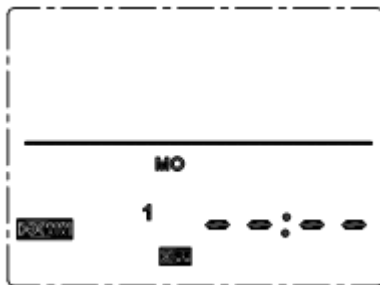
D. Weekly timer off setting: under weekly timer off setting interface, press SET button for short to begin the timer off setting, press SET button time after time to select Monday period 1 to Sunday period 2 (namely Monday period 1 to Sunday period 1 then Monday period 2 to Sunday period 2).



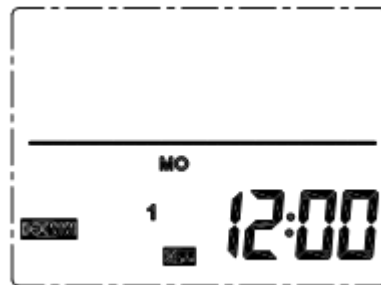
Period 1 timer off



Period 2 timer off

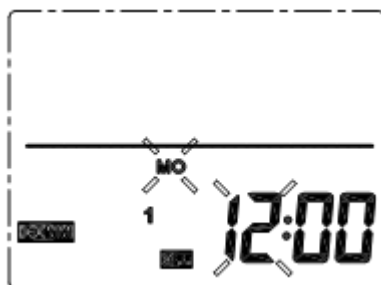


Timer off invalid

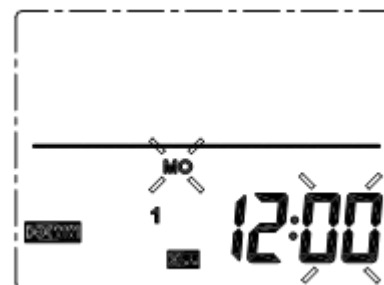


Timer off valid

Under the week interface, press ON/OFF button to confirm the timer off is valid/invalid.



Timer off hour setting



Timer off minute setting

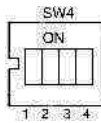
Eco-Smart ModBus Address

Add:	Content	Range	De-fault	Record
00	Power to auto restart	0/1	1	PCB
01	Heater valid or invalid	0/1	1	Control-ler
02	Bypass opening temperature X	5-30	19	PCB
03	Bypass opening temperature range Y	2-15	3	PCB
04	Defrosting interval	15-99	30	PCB
05	Defrosting enter temperature	-9 to 5	-1	PCB
06	Defrost duration time	2-20	10	PCB
07	CO2 sensor value setting	24-255 (unit= x10PPM)	0	PCB
08	ModBus address	01-16	01	PCB
09	ERV ON/OFF	0-OFF 1-ON		PCB
10	Supply fan speed	Fan speed: 0=stop, 2=speed 1, 3=speed 2, 5=speed 3, 8=speed 4, 9=speed 5, 10=speed 6, 11=speed 7, 12=speed 8, 13=speed 9, 14= speed 10		PCB
11	Exhaust fan speed	Fan speed: 0=stop, 2=speed 1, 3=speed 2, 5=speed 3, 8=speed 4, 9=speed 5, 10=speed 6, 11=speed 7, 12=speed 8, 13=speed 9, 14= speed 10		PCB
12	Room temperature	observed, showing number minus 40		PCB
13	Outdoor temperature	observed, showing number minus 40		PCB
14	Exhaust air temperature	observed, showing number minus 40		PCB
15	Defrosting temperature	observed, showing number minus 40		PCB
16	External ON/OFF signal	query value, 0=off, 1=on		PCB
17	CO2 ON/OFF signal	query value, 0=off, 1=on		PCB
18	Fire alarm signal/bypass/defrosting signal	query value: B0 - 1-fire alarm ON B1- 1-bypass on B2- 1-bypass off B3- 1- defrosting		PCB
19	Humidity value setting	1-99		PCB
20	Error symbol	query value: B0-OA sensor error, B1-EEPROM error, B2-RA sensor error, B3-EA sensor error B5-SA sensor error, B6-Supply Fan error, B7-Exhaust Fan error		PCB
24	Multifunction Setting	0-Reserved, 1-Filter alarm clear		PCB
25	Filter alarm timer	0-45 days, 1-60 days 2-90 days, 3-180 days		PCB
27	Heater on/off temperature	10-25		PCB
768	CO2 value	PPM		PCB
769	Fan running time record	Unit: 0.1h , range 0-65535		PCB
770	Indoor humidity	1%		PCB

Introduction of dial switch

Introduction of dial switch

Dial switch



1. SW4-1: OFF-Traditional EA fan defrost

2. SW4-2: OFF-Auto bypass

3. SW4-3: OFF-CO2 sensor

4. SW4-4: OFF-Baud rate 4800

ON-OA side electrical heater defrost(OA side heater is optional)

ON- Bypass function invalid

ON-Humidity sensor

ON-Baud rate 9600

Attention: Please cut off the power before dialing.

1. SW4-1 is switching the defrost mode. Default is "off", it means traditional defrost by EA fan. When turn to "on", the defrost mode is changed to be OA side heater defrost (required to connect the heater to the OA duct, only suggested in winter under -15°C), at this time the parameter 01 would be turned to 0 automatically and the supply air side electrical heater is not able to use.

Under electrical heater defrost mode, controller can automatic drive the electric heater on/off to heat the fresh air in order to prevent frosting at the EA side of heat exchanger.

1) If the outdoor fresh air temperature $< -15^{\circ}\text{C}$, the OA heater turns on for 50 minutes, then the ventilator switches off for 10 minutes and restarts.

2) If the OA heater switches on and the exhaust air temperature still $< -1^{\circ}\text{C}$, then the ventilator will stops for 50 minutes.

3) If the exhaust air temperature $< -1^{\circ}\text{C}$ and the outdoor air temperature $> -15^{\circ}\text{C}$, the OA heater switches on for 10 minutes for defrosting.

4) If the OA heater is on and temperature of outdoor air is $> +25^{\circ}\text{C}$, then OA heater will stop for 5 minutes, If the outdoor air temperature is detected over 25°C by sensor over 3 times, electrical heater stops.

2. SW4-2 is the bypass function control, off=auto bypass, on=bypass function invalid.

3. SW4-3 is switching the forced ventilation mode. Default is "off", it means that ventilator is controlled by CO_2 sensor. When turn to "on", the ventilator is controlled by both humidity sensor and CO_2 sensor, if SW4-3 turned to "ON" but without connecting humidity sensor, then E3 error code appears.

4. SW4-4 is baud rate switch, off=4800, on=9600.

External voltage free connectors on the PCB

1) Running signal output (switch): by connecting external device and external power supply to this device, when ventilator runs, then this device turns on automatically, when ventilator stops, then this device turns off automatically.

2) Fault signal output (switch): by connecting external lamp and external power supply to this lamp, when ventilator is normal, the lamp is off, when the ventilator has error, then the lamp turns on (for error reminding purpose)

3)	SW4-2 OFF	The ventilator is off	The ventilator is on
	Connector closed	Bypass open, ERV in boost speed	Bypass open, ERV in boost speed
	Connector open	Auto bypass, ventilator off	Auto bypass, same speed as it was
	SW4-3 ON	The ventilator is off	The ventilator is on
	Connector closed	Bypass invalid, ERV in boost speed	Bypass invalid, ERV in boost speed
	Connector open	Bypass invalid, ERV off	Bypass invalid, same speed as it was

Fire alarm signal input (switch), buy connecting a smoke sensor and a A/C contractor (or a relay) to this connector, when smoke sensor activated and let the A/C contractor (or relay) to close this connector, then ventilator turns off.

4) Bypass switch: refer to below table

Maintenance

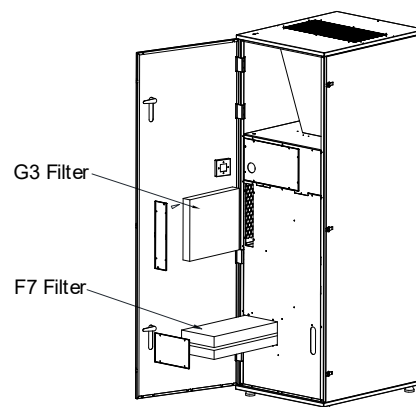
Warning

Power must be isolated before installation and maintenance to avoid injury or electric shock. Supply power cables, main circuit breaker and earth leakage protection, must comply with national regulations. Failure to observe could cause unit failure, electric shock or fire.

Standard filtration is supplied with this unit and must be used. Dust and dirt can accumulate in the heat exchanger if filters are removed. (This can lead to failure or decreased performance). To ensure efficient operation, regular cleaning or replacement of filters is required. Filter maintenance frequency will depend on working environment and unit running time.

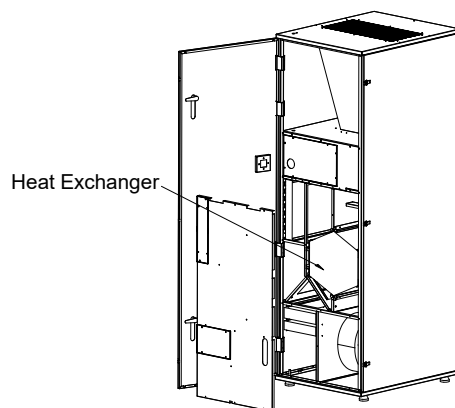
Cleaning the filter

1. Open the access door.
2. Remove the filters (from the side of the unit).
3. Vacuum the filters to get rid of the dust and dirt.
For bad conditions dip it into water with soft wash to clean.
Note: F7 filter is no washable.
4. Push the filters to the positions after they get dried naturally, close the access door.
5. Change the filters if they are badly affected with dust and dirt or broken.



Maintenance of heat exchanger

1. Pull off the filters first.
 2. Draw out the exchanger from the unit.
 3. Establish a cleaner schedule to clean the dust and dirt on the exchanger. The exchanger is washable.
 4. Install the exchanger and filters to their positions and close the access door.
- Remark: It is recommended to clean the exchanger every 3 years.



Failure diagnose

User can use the unit after trial operation. Before contacting us, you can make self trouble shooting following below chart in case of any failure.

Phenomenon	Possible reason	Solutions
The airflow volumes both indoor and outdoor vents drop obviously after a period of operation.	Dust and dirt blocking the filter	Replace or clean the filter
Noise comes from vents	Vents installation are loosing.	Re-tightening the vents connections
Unit doesn't work	1. No electricity 2. Protection breaker is cut	1. Guarantee power is on 2. Connect the breaker



ISO9000 ISO14001



Issue Date: Jan.2025