

# **Ultra-thin Water Fan Coil**

## **Installation and Maintenance Manual**







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# 1. Preface

Thank you for choosing vertical water fan coil for controlling the climate in you home. The products strictly comply with design and production standards to provide high quality operation, perfect performance, high reliability and good adaptability.

Please read this installation and maintenance manual carefully before installing and starting. All repair or maintenance interventions must be performed by the technical service center or by professionally qualified personnel. Do not modify or intervene on the appliance, as this could create dangerous situations and the manufacturer will not be responsible for any damage caused.

This instruction must be kept carefully and must always accompany the appliance. If it is lost or damaged, please contact the local the manufacturer technical service centre.

1.1 Failure to comply with these recommendations will invalidate the warranty.

This appliances must be installed by an authorized installer.

All repair or maintenance interventions must be performed by the technical service department or by professionally qualified personnel.

All repair or maintenance interventions must be performed by the manufacturer specified period and times.

Use genuine standard spare parts the manufacturer.

1.2 In case of water leaks, turn the master switch of the system to "OFF" and close the water taps. As soon as possible, call the manufacturer technical service department or else professionally qualified personnel and do not intervene personally on the appliance.

If the unit is not used for a long time, you should:

- Power off the unit.

- If there is no anti-freeze protection, please drain out the water.

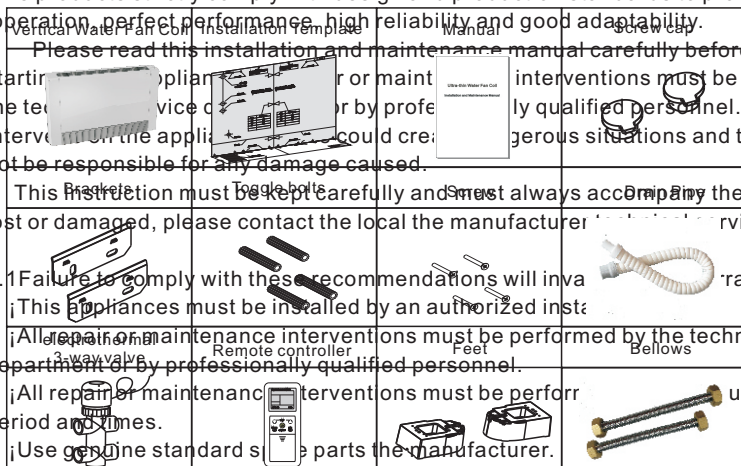
1.3 Note:

- If the room temperature is too low it is damaging for the health and is also a useless waste of energy.

- Avoid prolonged contact with the direct air flow.

- Do not leave the room closed for long periods. Periodically open the windows to ensure a correct change of air.

1.4 Packing list







## 2. Safety precaution

To prevent the users and others from the harm of this unit, and avoid damage on the unit or other property, please use the heat pump properly, please read this manual carefully and understand the following information correctly.




### 2.1 Mark Notes

Mark	Meaning
 <b>WARNING</b>	A wrong operation may lead to death or heavy injury on people.
 <b>ATTENTION</b>	A wrong operation may lead to harm on people or loss of material.








(1) The injury means no need to be in hospital and cure for a long time.

(2) The material lost means property and datum lost.

### 2.2 Icon Notes

Icon	Meaning
	Prohibition. What is prohibited will be nearby this icon.
	Compulsory implement. The listed action need to be taken.
	<b>ATTENTION(include WARNING)</b> Please pay attention to what is indicated.



### 2.3 Warning




<b>INSTALLATION</b>	 <b>PROFESSIONAL INSTALLER IS REQUIRED</b>	Entrust a specialized personnel for installation, Improper installation will lead to water leakage, electrical shock, injury or fire.
	 <b>EARTHING IS REQUIRED.</b>	Be sure the unit is properly grounded, or it may lead to electric shock.
<b>OPERATION</b>	 <b>PROHIBITION</b>	Do not put fingers or others into the fans and evaporator of the unit, otherwise harm may be occurred.
	 <b>SHUT OFF THE POWER</b>	When there is something wrong or strange smell, the power supply need to be shut off to stop the unit. Continue to run may cause electrical shock or fire.
<b>MOVE AND REPAIR</b>	 <b>ENTRUST</b>	When the heat pump need to be moved or installed again, please entrust dealer or qualified person to carry it out. Improper installation will lead to water leakage, electrical shock, injury or fire.
	 <b>PROHIBIT</b>	It is prohibited to repair the unit by the user himself, otherwise electrical shock or fire may be occur.
	 <b>ENTRUST</b>	When the heat pump need to be repaired, please entrust dealer or qualified person to carry it out. Improper movement or repair on the unit will lead to water leakage, electrical shock, injury or fire.



## 2. Safety precaution

### 2.4 Attention

INSTALLATION	Meaning
 Fix the unit	Make sure that the basement of the heat pump is strong enough to avoid any decline or fall down of the unit.
 Need circuit breaker	Make sure that there is circuit breaker for the unit, lack of circuit breaker can lead to electrical shock or fire.

OPERATION	Meaning
 Check the installation basement	Please check the installation basement regularly to avoid any decline or damage on the basement, which may hurt people or damage the unit.
 Switch off the unit	Please switch off the power for clean or maintenance.
 Prohibit	Please use the suitable fuse. If use copper or iron, it will cause failure, even the fire.



#### **Warning:**

Remember that some fundamental safety rules should be followed when using a product that uses electricity and water, such as:

It is forbidden to touch the appliance with wet hands or body when barefoot.

It is forbidden to carry out any cleaning before having disconnected the appliances from the electricity mains supply by turning the system master switch to OFF.

It is forbidden to modify the safety or adjustment devices or adjust without authorization and indication of the manufacturer.

It is forbidden to pull, cut or knot the electrical cables coming out of the appliance, even if it is disconnected from the mains supply.

It is forbidden to poke objects or anything else through the inlet or outlet grills.

It is forbidden to dispose of or leave in the reach of children the packaging materials which could become a source of danger.

It is forbidden to climb onto the appliance or rest any object on it.

It is forbidden to touch the unit with hands directly as the external parts of the appliance can reach temperatures of more than 70°C.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

The appliance shall be installed in accordance with national wiring regulations.



## 3.Specification

### 3.1 Parameter list

Unit Model		PFP-025V-A3	PFP-040V-A3	PFP-060V-A3	PFP-080V-A3	PFP-100V-A3
Heating capacity①	W	2550	3950	5750	7200	9400
Water flow rate①	m³/h	0.22	0.34	0.49	0.62	0.81
Pressure drop①	kPa	10.6	12.2	26.2	27.5	28.2
Heating capacity②	W	1350	2500	3350	4300	5200
Water flow rate②	m³/h	0.23	0.43	0.58	0.74	0.89
Pressure drop②	kPa	10.8	13.1	27.5	27.9	28.5
cooling capacity③	W	1000	1900	2500	3500	4350
Water flow rate③	m³/h	0.17	0.33	0.43	0.60	0.75
Pressure drop③	kPa	11.1	13.3	27.7	28.3	30.6
Air volume	m³/h	160	320	460	580	650
Noise pressure at max air flow	dB(A)	30	32	37	39	41
Noise pressure at min air flow	dB(A)	24	27	28	28	30
Power Supply	/	220-240V~/50Hz				
Power Input	W	15	20	23	25	32
Water In/Out	inch	3/4	3/4	3/4	3/4	3/4
Drain	mm	16	16	16	16	16
Net Dimensions(L/W/H)	mm	See below				
Shipping Dimensions(L/W/H)	mm	See package label				
Net weight	kg	See nameplate				
Gross weight	kg	See package label				

Test conditions:

(1) Heating test conditions:

Based on entering water temp. at 70℃ ,difference in temp. have 10℃ and entering air temp. at 20℃ DB .

(2) Heating test conditions:

Based on entering water temp. at 50℃ ,difference in temp. have 5℃ and entering air temp. at 20℃ DB .

(3) Cooling test conditions:

Based on entering water temp. at 7℃ ,difference in temp. have 5℃ and entering air temp. At 27℃ DB/ 19℃ DB.

(4) Noise level is measured in the standard anechoic chamber<17dB(A)

(5) Above data is subject to our change without prior notification.

### 3.2 Working condition

(1) Heating

Ambient temperature:5-29℃,Inlet water temperature:35-70℃.

(2) Cooling

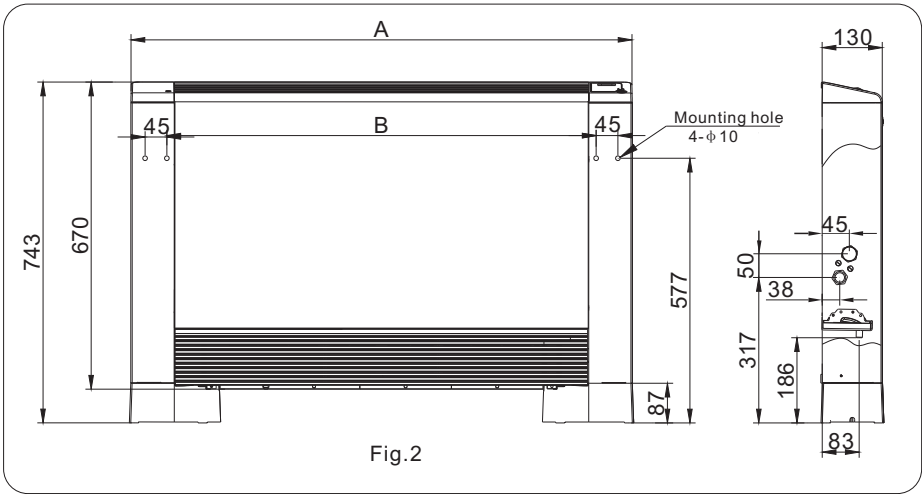
Ambient temperature:9-35℃,Inlet water temperature:5-20℃.



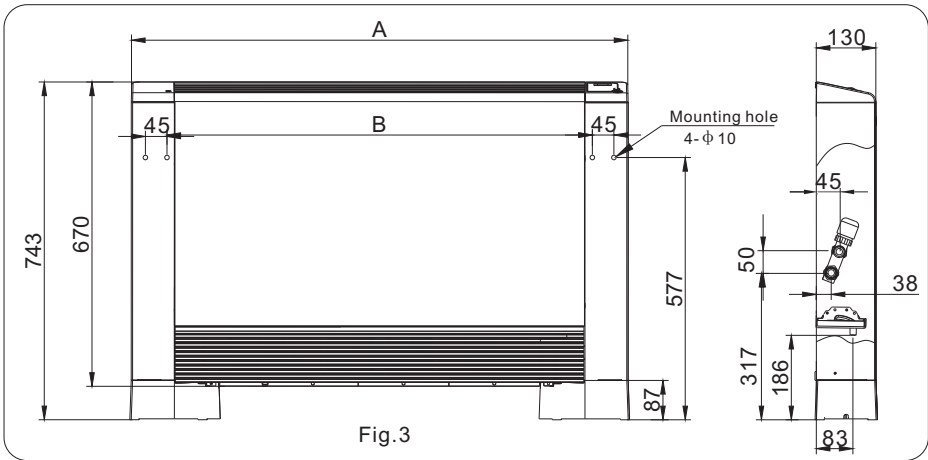
### 3.Specification

#### 3.3 Overall dimensions----- floor installation& wall installation

##### 3.3.1 Product model: PFP-025/040/060/080/100



##### 3.3.2 Product model: PFP-025V/040V/060V/080V/100V



Unit Model	PFP-025V-A3	PFP-040V-A3	PFP-060V-A3	PFP-080V-A3	PFP-100V-A3
A	700	900	1100	1300	1500
B	365	565	765	965	1165

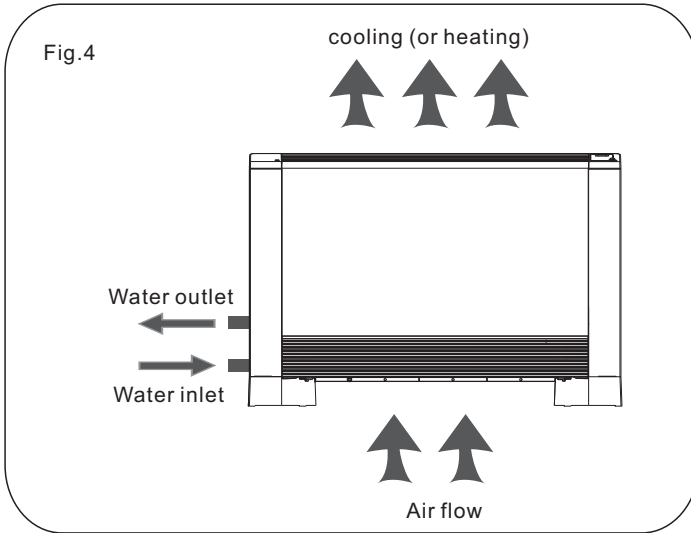


## 3.Specification

### 3.3.3 The working principle of units

This Vertical Water Fan Coil is a terminal which uses water to provide heated air in winter and fresh cooled, dehumidified air in summer (fig.4).

Compared with the traditional fan coil, the newly designed Water Fan Coil is thinner, quieter and nicer and can be installed in various ways such as floor installation, wall installation, ceiling installation and concealed installation, thus the installation cost is reduced.





### 3.Specification

#### 3.4 Overall dimensions-----horizontal installation

##### 3.4.1 Product model: PFP-025/040/060/080/100

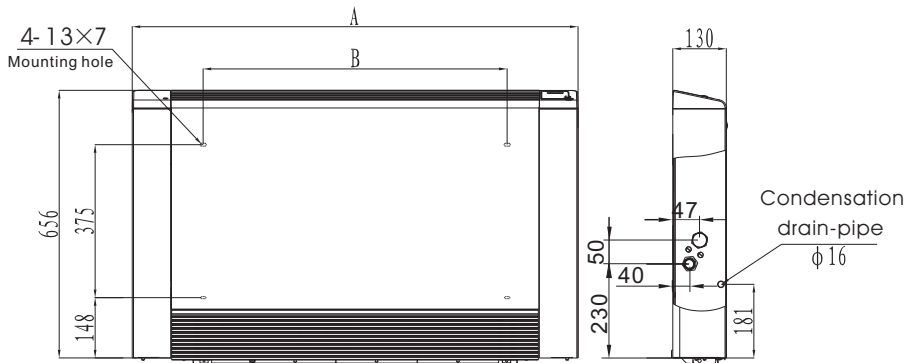


Fig.5

##### 3.4.2 Product model: PFP-025V/040V/060V/080V/100V

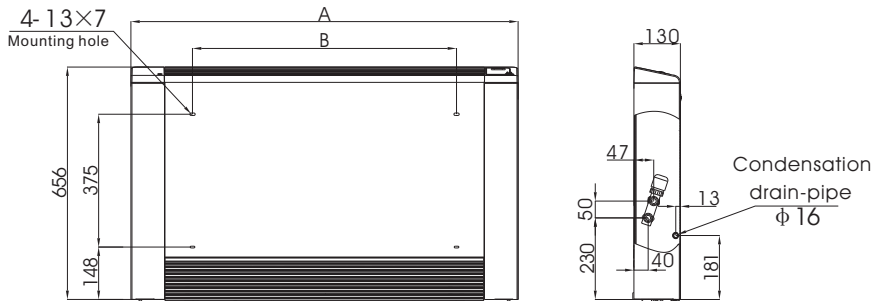


Fig.6

Unit Model	PFP-025V-A3	PFP-040V-A3	PFP-060V-A3	PFP-080V-A3	PFP-100V-A3
A	700	900	1100	1300	1500
B	346	546	746	946	1146

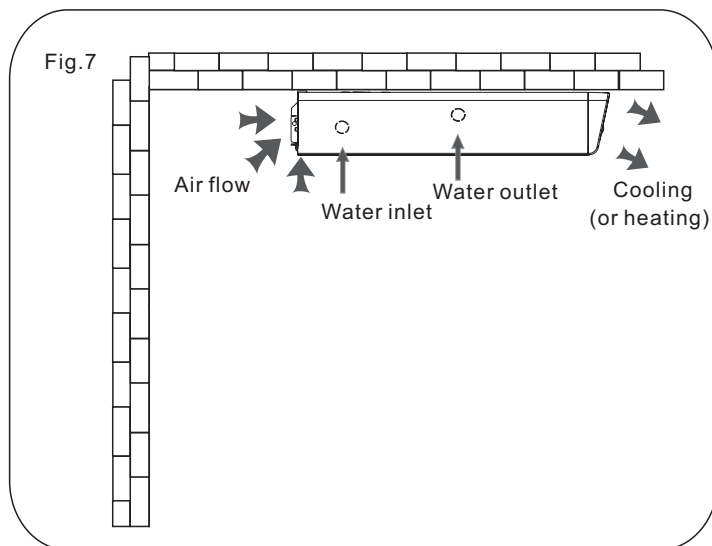


## 3.Specification

### 3.4.3 The working principle of units

This Vertical Water Fan Coil is a terminal which uses water to provide heated air in winter and fresh cooled, dehumidified air in summer (fig.7).

Compared with the traditional fan coil, the newly designed Water Fan Coil is thinner, quieter and nicer and can be installed in various ways such as floor installation, wall installation, ceiling installation and concealed installation, thus the installation cost is reduced.



### 3.5 Unit characteristics

#### (1) Super quiet

The use of cross-flow fan combined with newly wind-guiding technology makes lower noise and you can enjoy a healthier and more comfortable sleep.

#### (2) Ultra-thin

Compact structure and thin casing (only 130mm thickness, the traditional fan coil is always with the thickness of 250mm) leave more space for your room.

#### (3) Fashionable shape

With module-noble & fashion arc frame and color-elegant & graceful snow white, it will be inviting wherever it is in your room.

#### (4) Humanistic controlling

The ultra-thin fan coil applies the newly built controller which is with the super quiet airflow design and the running modes of heating and cooling. Remote controller can be also used to manage the unit.



## 4. Installation

### 4.1 Installation precautions

4.1.1 To ensure that the installation is performed correctly and that the appliance will perform perfectly carefully follow the instructions indicated in this manual. Failure to respect the rules indicated not only can cause malfunctions of the appliance but also invalidate the warranty and hence the manufacturer shall not respond for any damage to persons, animals or property.

4.1.2 It is important that the electrical installation is made according to the laws in force, respects the data indicated in the technical sheet and is correctly earthed.

4.1.3 The appliance must be installed in a position that allows the routine maintenance, such as filter cleaning

### 4.2 Positioning the unit

4.2.1 Avoid installing the unit in proximity to:

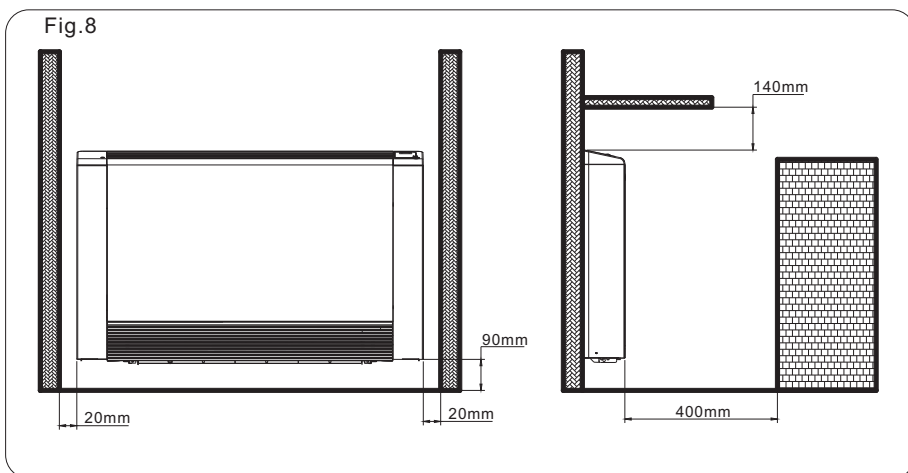
- positions subject to exposure to direct sunlight;
- in proximity to sources of heat;
- in damp areas or places with probable contact with water;
- in places with oil fumes
- places subject to high frequencies.

4.2.1 Make sure that:

- the wall on which the unit is to be installed is strong enough to support the weight;
- the part of the wall interested does not have pipes or electric wires passing through;
- the interested wall is perfectly flat;
- there is an area free of obstacles which could interfere with the inlet and outlet air flow;
- the installation wall is preferably an outside perimeter wall to allow the discharge of condensation outside;

### 4.3 Minimum installation distances----- floor installation& wall installation

4.3.1 Figure indicates the minimum mounting distances between the wall-mounted cooler-convector and furniture present in the room.

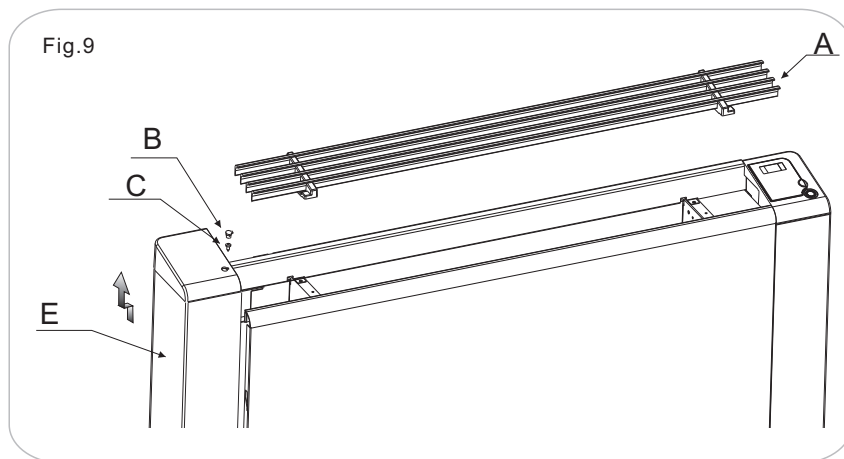




## 4. Installation

### 4.3.2 Side opening (fig.9)

- Dismount the upper grill (fig.9 ref.A) by unscrewing the fixing screws.
- Lift the cover (fig. 9ref. B) that protects the screw (fig.9 ref. C) and unscrew it. Move the side panel slightly and lift it out (fig. 9ref. E).



### 4.3.3 Wall installation or vertical floor

- Using the paper template, trace the position of the wall (fig.10). Use a suitable drill to make the holes with and insert the toggle bolts (2 for each bracket) (fig.11 ref. A); fix the two brackets (fig.11 ref. B).

Fig.10

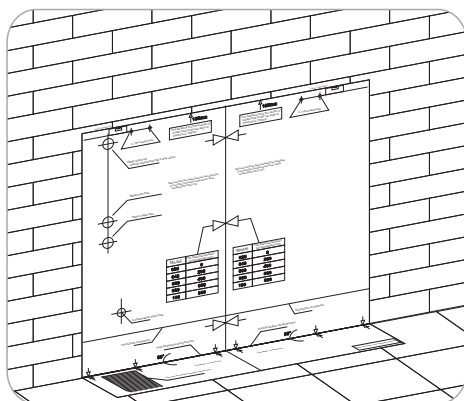
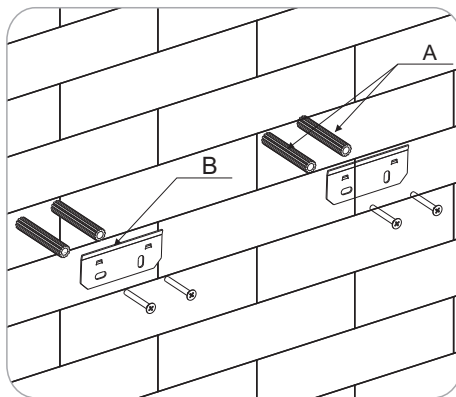


Fig.11





## 4.Installation

● Before you installed the unit on the floor,the feeting should be mounted: First, lay down the unit, next take out screws and two feet from accessories bag,then make the feet are match up with screw holes A/B/C/D, finally apply four screws to each side to fix the feet.(See fig.12 and fig.13)

Fig.12

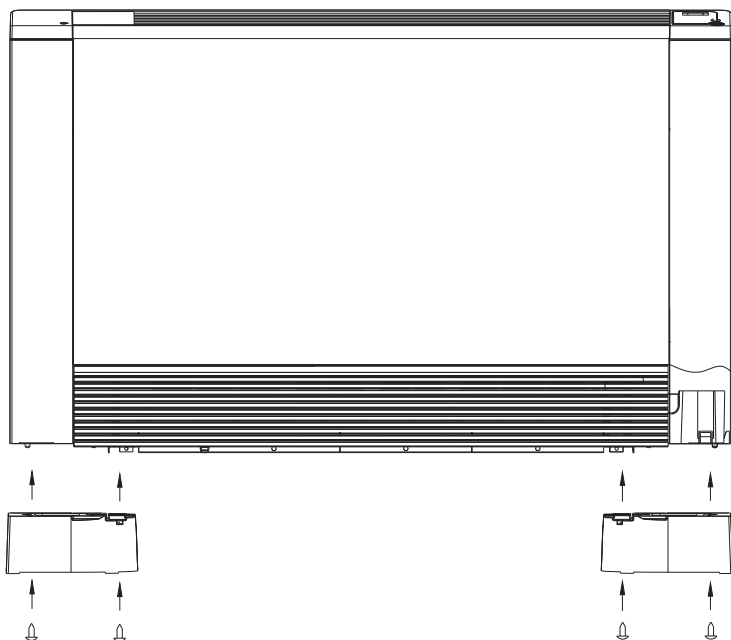
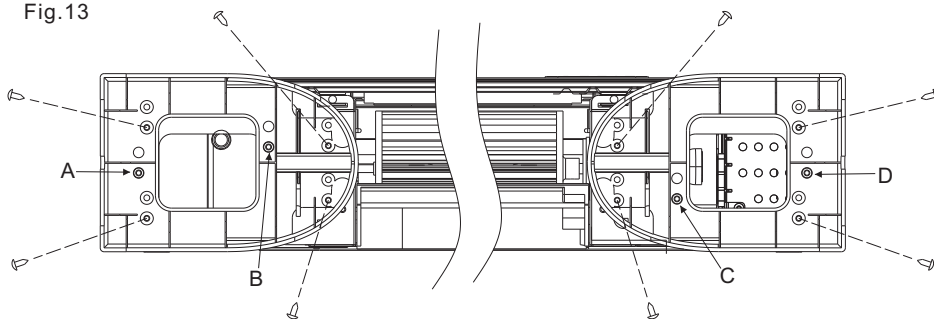


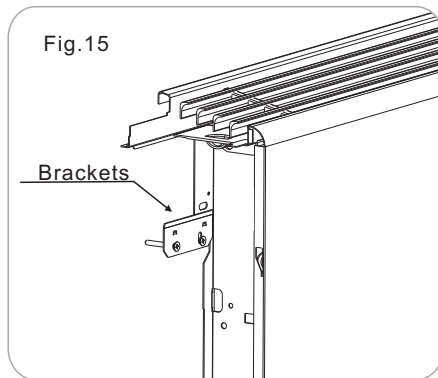
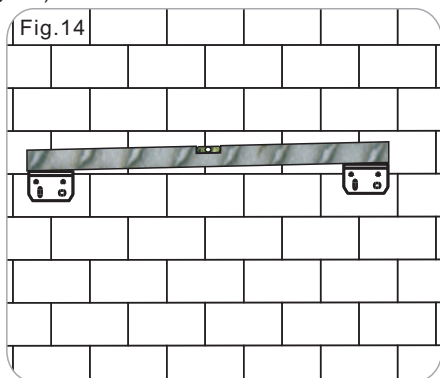
Fig.13





## 4. Installation

- Do not over-tighten the screws so that the brackets can be adjusted with a spirit level (fig. 14).
- Then fully tighten the four screws to block the two brackets.
- Mount the unit, checking that it fits correctly onto the brackets and checking that it is stable (fig. 15).



### 4.4 Hydraulic connections----- floor installation& wall installation

4.4.1 Refer to fig.16 and fig.17 to connect the inlet and outlet lines. The hydraulic lines and



Attention:

- The hydraulic lines should be with the least resistance.
- Piping system should be clean, no rust slag and jam in the pipeline. There will be no leakage in the hydraulic lines and insult the lines after finish the connection.
- The hydraulic lines should be connect to the water tank and the height of the water should be 0.5 m higher.
- Y type filter should be installed in the water inlet of the unit.
- Air release valve should be arranged on top of the hydraulic lines to avoid air retention.
- Waterway system should be conducted the pressure test separately and not together with the Vertical Water Fan Coil.

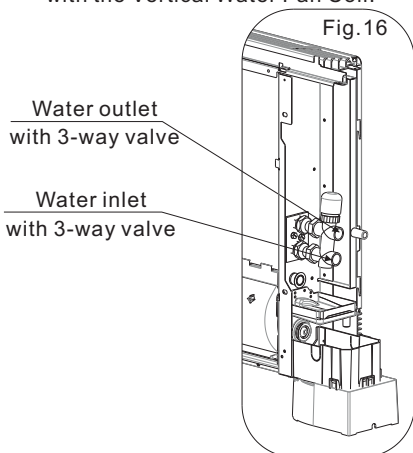


fig. 16

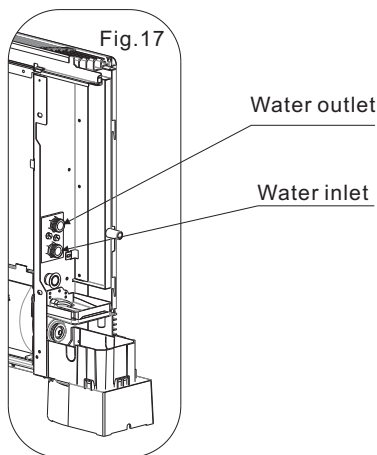


Fig.17



## 4.Installation

### 4.4.2 Connection methods for bellows

#### ① Connecting method I with valve

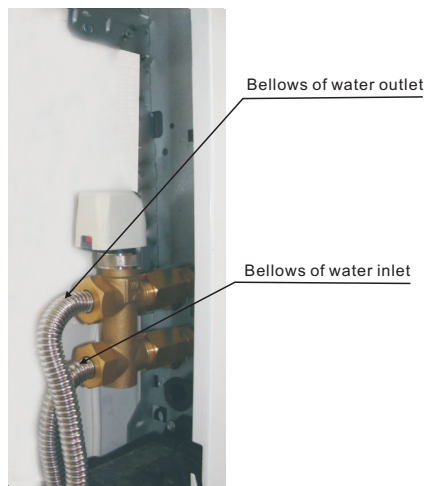


Fig. 18

#### ② Connection method II with valve

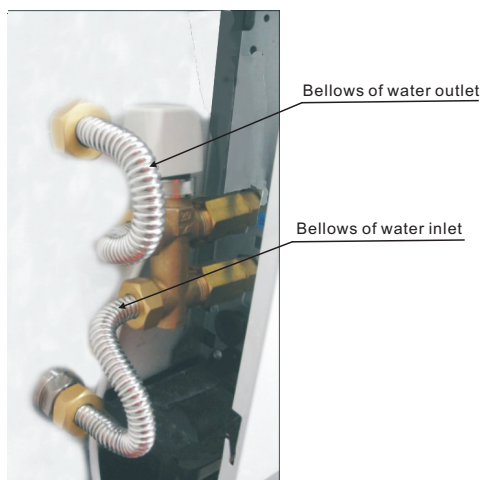


Fig. 19

#### ③ Connection method I without valve

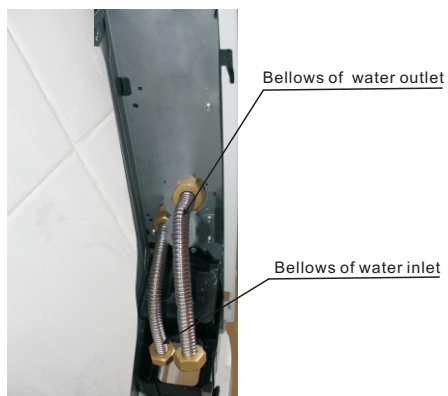


Fig. 20

#### ④ Connection method II without valve

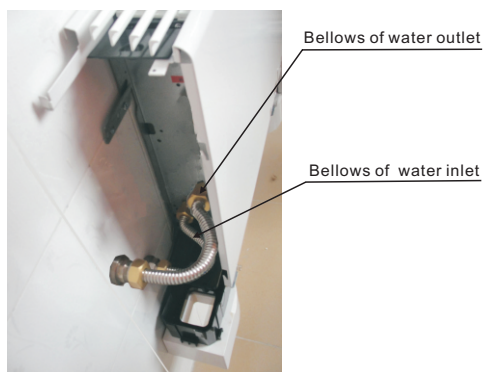


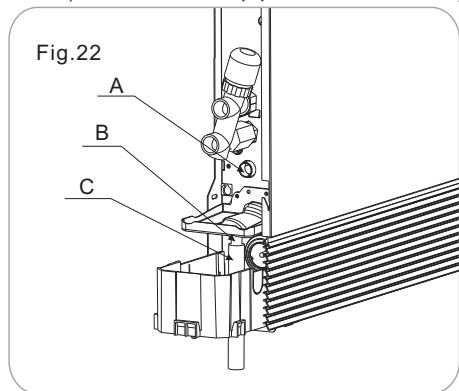
Fig. 21



## 4.Installation

### 4.4.3 Condensation discharge

When mounting the condensation discharge device in the vertical version, connect to the condensation collection tray discharge union (fig.22 ref. C) a pipe for the outflow of the liquid (fig. 22 ref. B) blocking it adequately. The condensation discharge network must be suitably sized (minimum inside pipe diameter 16 mm).



Attention :

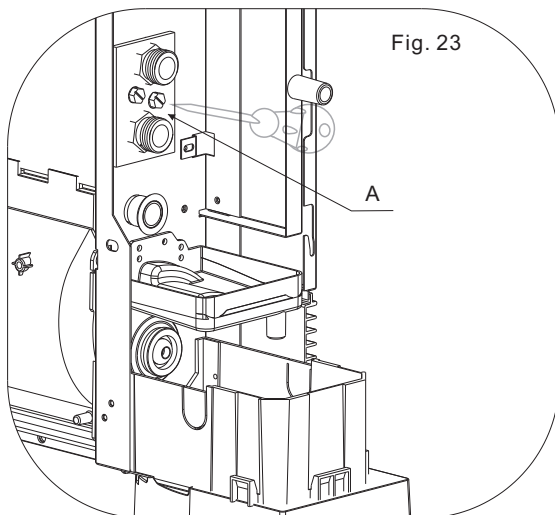
- -When discharging directly into the main drains, it is advisable to make a siphon to prevent bad smells returning up the pipe towards the room. The curve of the siphon must be lower than the condensation collection bowl.
- -If the condensation needs to be discharged into a container, it must be open to the atmosphere and the tube must not be immersed in water to avoid problems of adhesiveness and counter-pressure that would interfere with the normal outflow.

### 4.4.4 Evacuating air while filling the system

If there is no electric power and the thermo-valve has already been powered use the special cap to press the valve stopper to open it.

Start the filling by slowly opening the system water filling tap. Use a screwdriver to unscrew the side battery breather (fig. 23 ref. A). When water starts coming out of the breather valves of the appliance, close them and continue filling until reaching the nominal value for the system. Check the hydraulic seal of the gaskets.

It is advisable to repeat these operations after the appliance has been running for a few hours and periodically check the pressure of the system.



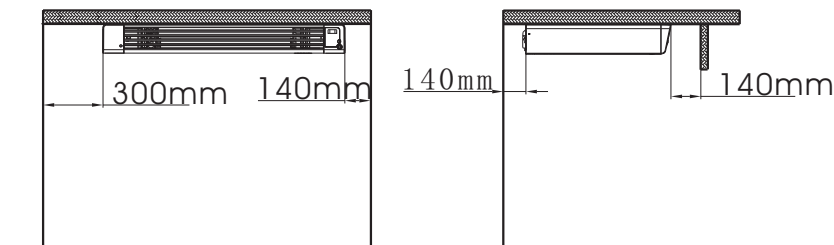


## 4. Installation

### 4.5 Minimum installation distances-----horizontal installation

4.5.1 Figure indicates the minimum mounting distances between the wall-mounted cooler-convector and furniture present in the room.

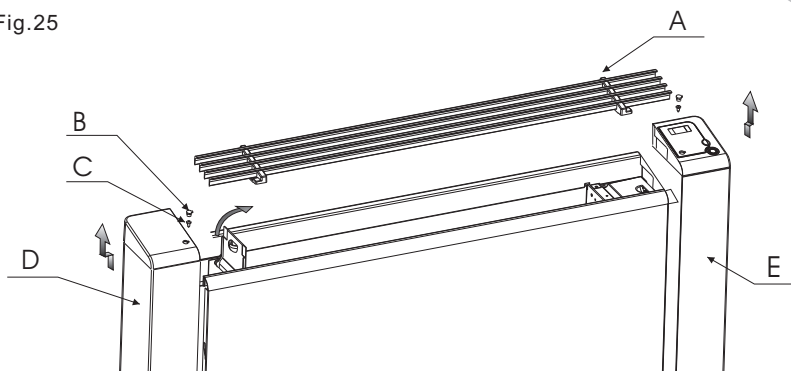
Fig.24



### 4.5.2 Side opening (fig.25)

- Dismount the upper grill (fig.25 ref.A) by unscrewing the fixing screws.
- Lift the cover (fig. 25ref. B) that protects the screw (fig.25 ref. C) and unscrew it. Move the side panel slightly and lift it out (fig. 25ref.D& E).

Fig.25



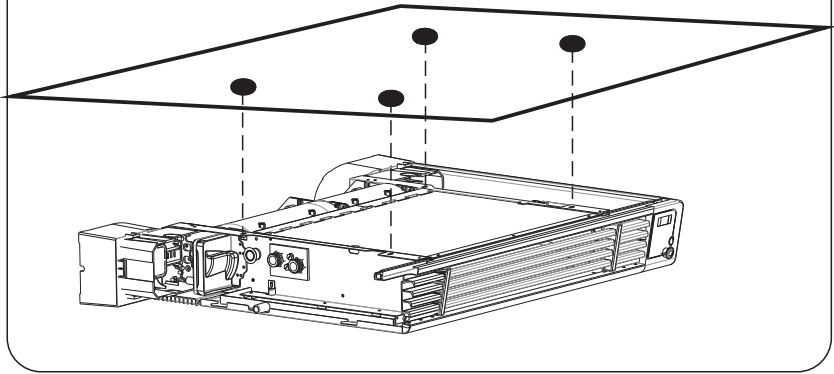


## 4.Installation

### 4.5.3 Wall installation or vertical floor

● Ensure the installation space is enough around the unit, according to installation dimension chart(fig. 5 or fig.6), painting the relative fixing hole position on the installation wall(fig. 26),then drilling holes and using M6 bolt , and then rising unit.

Fig.26

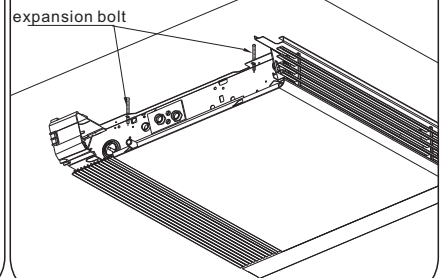


- Adjusting unit installation angle and ensure the condensation drain-pipe position is lowest, for better draining condensation water (fig. 27).
- Mount the unit, checking that it fits correctly onto the brackets and checking that it is stable (fig. 28).

Fig.27



Fig.28





## 4. Installation

### 4.6 Hydraulic connections-----horizontal installation

4.6.1 Refer to fig.29 and fig.30 to connect the inlet and outlet lines. The hydraulic lines and joints must be thermally insulated.



Attention:

- The hydraulic lines should be with the least resistance.
- Piping system should be clean, no rust slag and jam in the pipeline. There will be no leakage in the hydraulic lines and insult the lines after finish the connection.
- The hydraulic lines should be connect to the water tank and the height of the water should be 0.5 m higher.
- Y type filter should be installed in the water inlet of the unit.
- Air release valve should be arranged on top of the hydraulic lines to avoid air retention.
- Waterway system should be conducted the pressure test separately and not together with the Vertical Water Fan Coil.

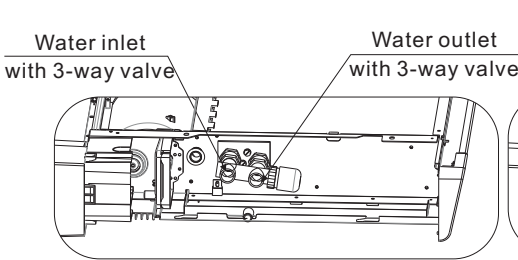


Fig. 29

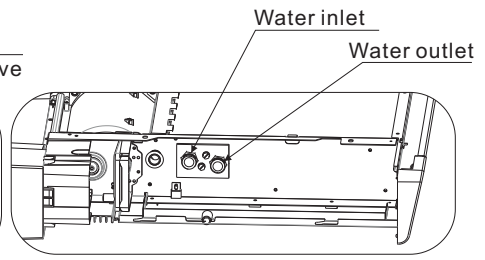


Fig.30

### 4.6.2 Connection methods for bellows

Connecting method I with valve

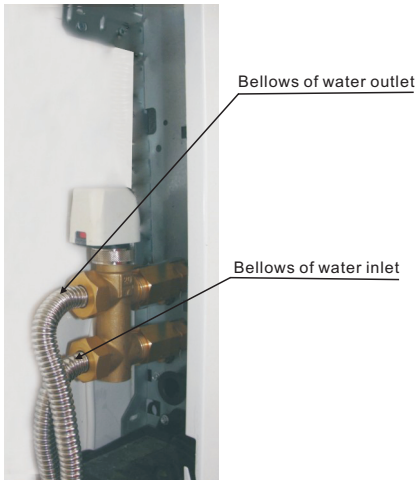


Fig. 31

Connection method I without valve



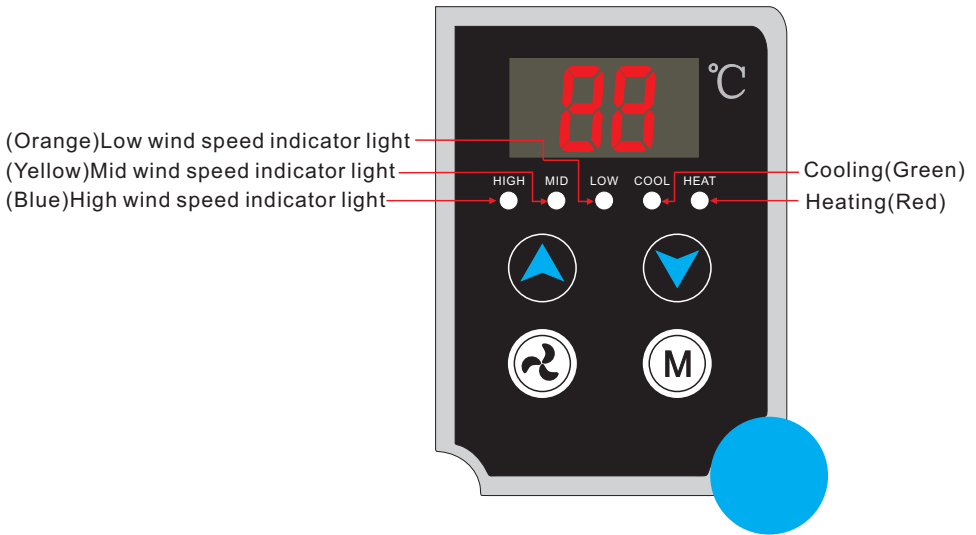
Fig. 32








## 5.Usage

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### 5.1 Function description of wire controller



#### 5.1.1 Key

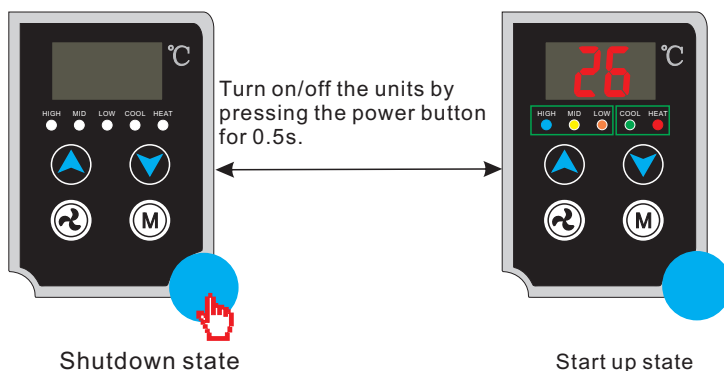
-  Power: Power on/off, cancel, return.
-  Mode: Change running modes.
-  Fan Speed: Set the fan speed.
-  Up: Turn page up, increase value.
-  Down: Turn page down, decrease value.



## 5.Usage

### 5.2 Usage of wire controlle

#### 5.2.1. ON/OFF



#### 5.2.2. Mode switch

Press mode button to switch modes. There are five modes for you to choose: Heating,Auto, Cooling, Dehumidifying and Ventilation.

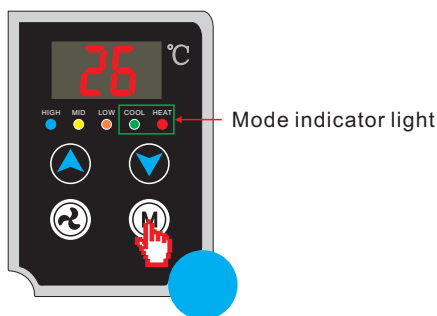
Cooling mode :cooling indicator light keeps on(green);

Heating mode :heating indicator light keeps on(red);

Auto mode : cooling indicator light and heating indicator light flashes in turn;

Ventilation mode :cooling and heating indicator lights are off, the fan indicator light keeps on according to the chosen wind speed;

Dehumidifying mode :cooling indicator light keeps on for 2 seconds and off for 1second, and over .



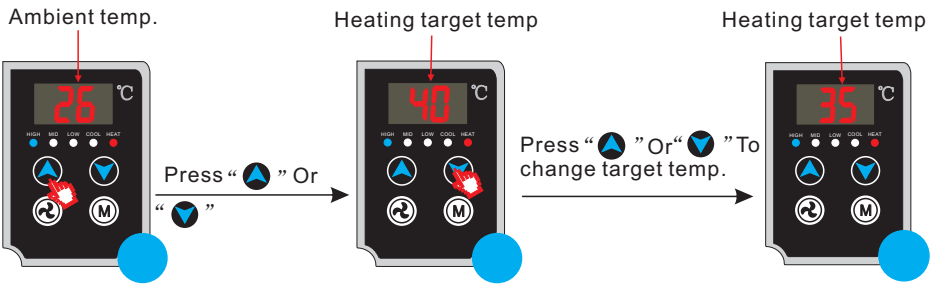
Attention: Changes of mode could only be done on main interface.



# 5.Usage

## 5.2.3 Temp. setting

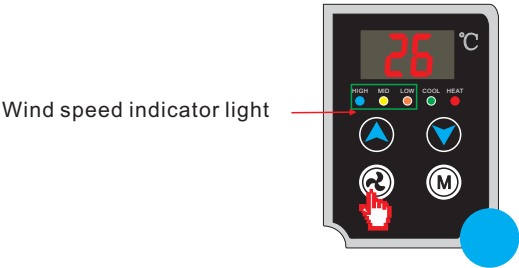
At the main interface, press “▲” or “▼” to start changing target temp, and press “▲” Or “▼” again to increase or decrease the temp. value.



## 5.2.4 Fan speed setting

At the main interface, press “⌚” to switch fan speed to low, medium,high or auto.



- High wind speed: High wind speed indicator light keeps on(blue);
  - Medium wind speed: Medium wind speed indicator light keeps on(yellow);
  - Low wind speed: Low wind speed indicator light keeps on(orange);
  - Automatic: high wind speed indicator light, medium wind speed indicator light and low wind speed indicator light flashes in turn;
- Attention: Changes of wind speed could only be done on main interface. You could not choose the automatic wind speed when in ventilating mode. When in dehumidifying mode, the wind speed is fixed in low speed.

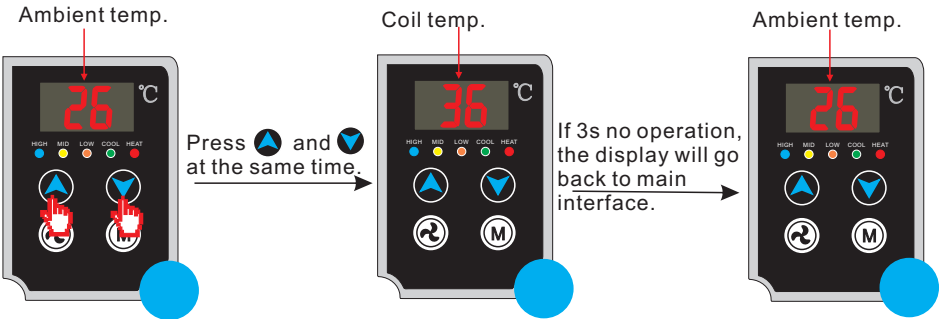








# 5.Usage

## 5.2.5 Check the Coil temp.

At the main interface, press  and  at the same time to check coil temperature.



## 5.2.6 Keyboard lock

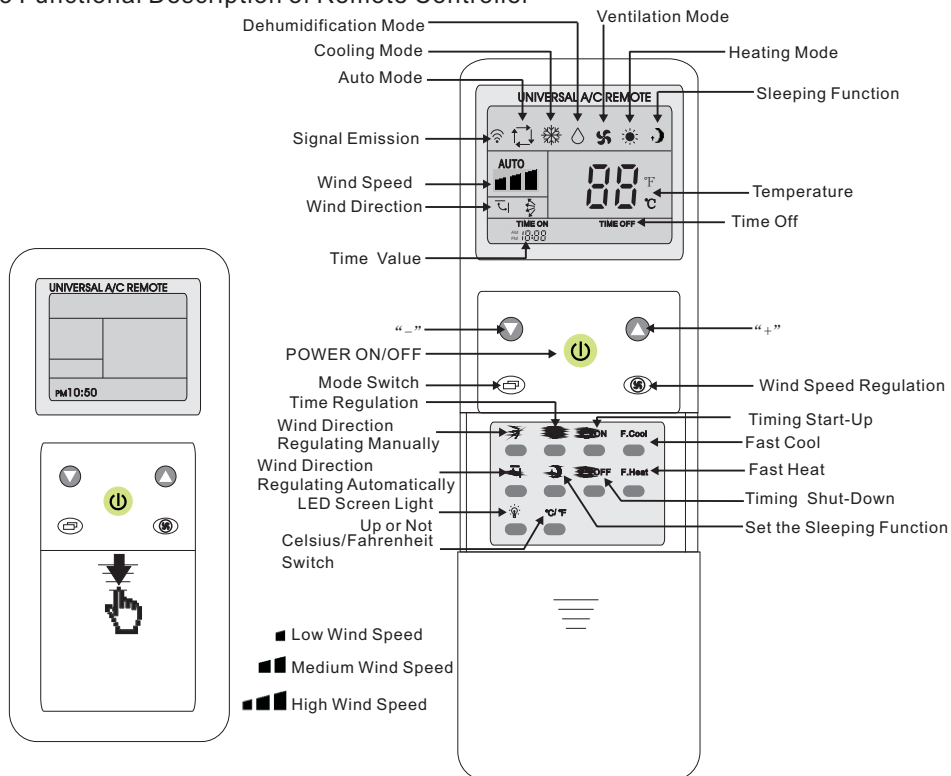
At the main interface, press “” and “” at the same time for 3s to lock the keyboard;  
Press “” and “” at the same time again for 3s to unlock the keyboard.





## 5.Usage

### 5.3 Functional Description of Remote Controller



#### POWER ON/OFF

Press this key to start up or shut down the unit.

MODE



#### Mode Switch

Press this key to switch the mode among Auto., Cooling, Dehumidifying, Ventilating and Heating.

FAN



#### Wind Speed

Press this key to switch the wind speed among High, Medium, Low and Auto.



“+”

Press this key to increase the setting value.



“-”

Press this key to decrease the setting value.



**Note:** Take out the batteries if you do not use the remote controller for a long time.

Take out the batteries for 35 minutes if there is a failure in the program of the remote controller which is caused by wrong operation. Then put the batteries back, and you will find the remote controller return to be normal.



## 5.Usage

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### 5.4. Usage of remote controller

#### 5.4.1 Function of “F.Cool” and “F.Heat”

Pressing the key “F.Cool” , the system will be automatically set to cooling mode , high wind speed and automatic wind direction.

Pressing the key “F.Heat” , the system will be automatically set to heating mode , high wind speed and automatic wind direction.

#### 5.4.2 Setting of clock

Press the key “CLOCK” and hold till the relative light flashes, then you could start to set the time. Press the key “+” or “-” to increase or decrease the setting temperature. Press the key “CLOCK” again to save setting and return to main interface.

#### 5.4.3 Setting of timing startup or shutdown

TIME OFF            The key is available when the unit is on.

01                    The number 01 means the unit will shut down automatically after 1 hour and so forth.

TIME ON            The key is available when the unit is on.

01                    The number 01 means the unit will turn on automatically after 1 hour and so forth.

#### 5.4.4 Setting of Sleep Mode

a.Press the key “SLEEP “ , the system will be automatically set to sleep mode, then you could start to set the sleep time ,press the key “TIME OFF ” to increase the sleep time .press “SLEEP” once again for cancelling sleep mode.

b.You can setting of sleep mode only in cooling mode and heating mode .

In cooling mode, the target temperature will increase 1℃ after one hour, the target temperature will increase 1℃ after two hours ,it will not changing after later.

In heating mode ,the target temperature will decrease 1℃ after one hour ,it will decrease 1℃ after two hours , it will decrease 1℃ after three hours once again , it will not changing after later.

**Note: The unit will automatically shut down when you set the timer when the it is on and it will start up after the setting hours.**

### 5.5. Parameter list

Meaning	Default	Remark
Cooling temperature	26℃	adjustable
Heating temperature	20℃	adjustable



## 6.Maintenance and Overhaul

### 6.1 Maintenance

- To guarantee the unit reliable and security operation for a long time, it is suggested to maintain and clean up the unit every six months.
- Please take the following steps to clean up the strainer regularly:
  - 1) Lift the grill(A) upward (Fig.33) , then pull out the grill from the upside of it. (Fig.34) ;
  - 2) Move away the grill (Fig.35&36) and take out strainer (Fig.37) , then wash the strainer with water(Fig.38).

Fig.33

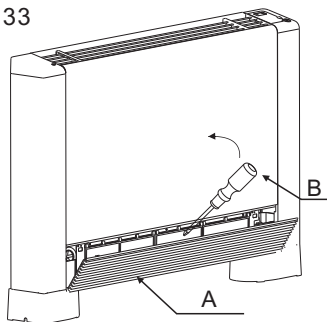


Fig.34

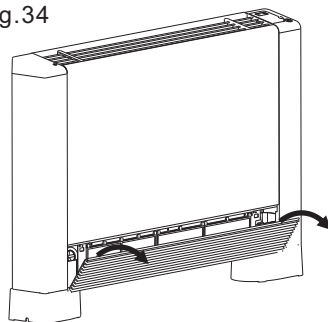


Fig.35

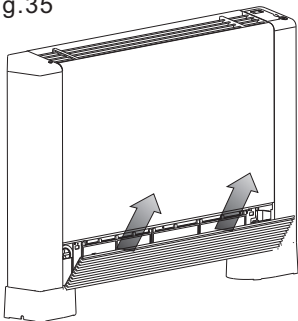


Fig.36

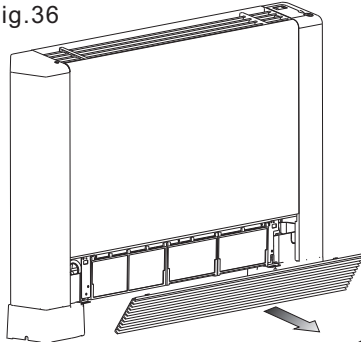


Fig.37

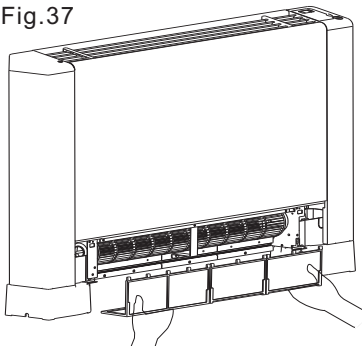
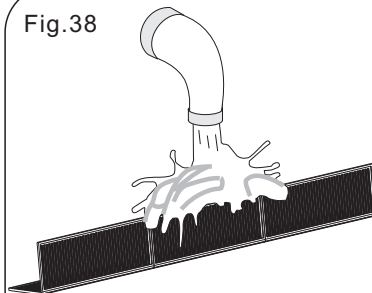


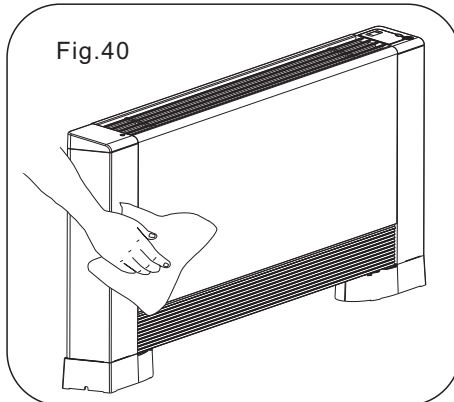
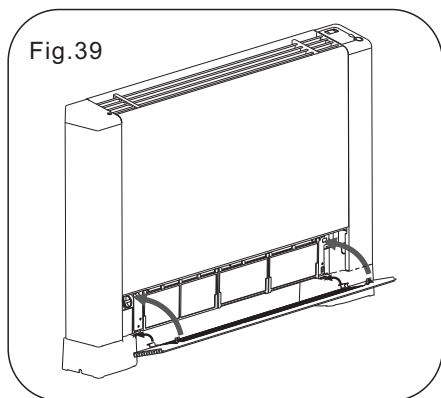
Fig.38






## 6.Maintenance

- 4) Set the filter net and the air return grille to the original place. (Fig.39)。
- 5) Clean up the unit outer with soft and damp rag (Fig.40) . To protect the paint-coat of the unit, please don't use rough sponge or corrosive detergent to do these.



 **Warning:** Cut off power supply before cleaning or maintaining the unit.

### 6.2 Common fault and the solving methods

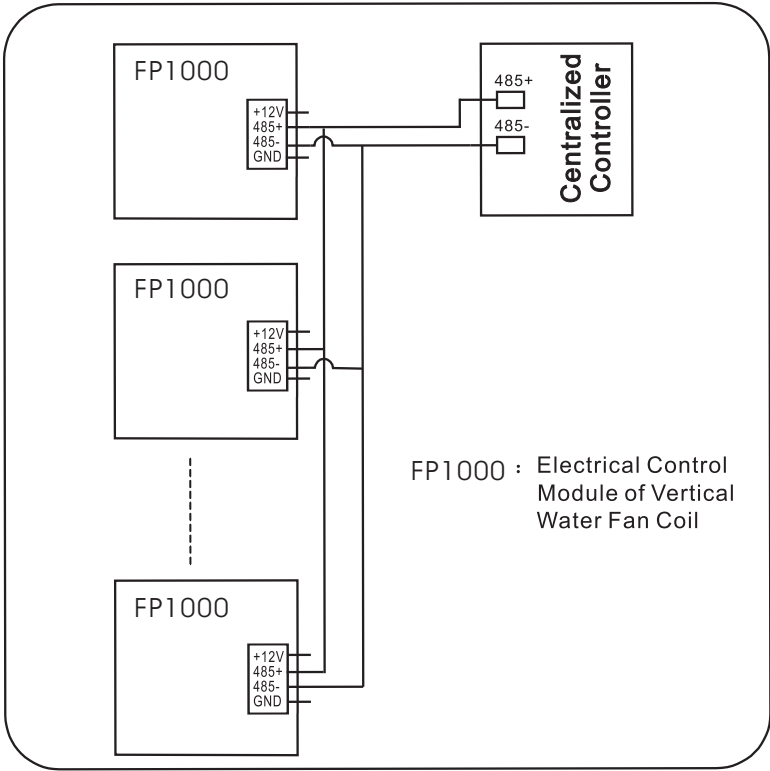
You can according to wire control device, or remote fault display to judgment and trouble-shooting

Malfunction	Code	Cause	Measures
Indoor ambient temperature sensor	P4	Ambient temperature sensor is in open circuit or short circuit	Check and replace the ambient temperature sensor
Coil temperature sensor	P5	Coil temperature sensor is in open circuit or short circuit	Coil temperature sensor
Motor feedback signal	E0	Fan motor failure or feedback wire is not inserted well	Check and replace the motor



# 7.Appendix

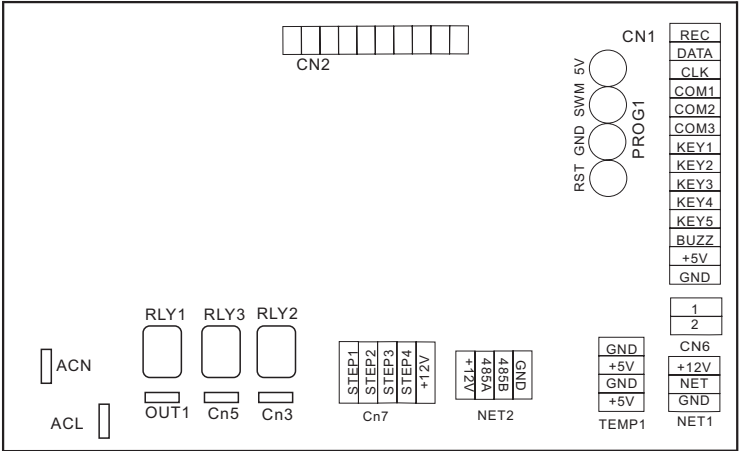
## 7.2 Net control diagram





# 7.Appendix

## 7.2 Controller of motherboard interface diagram




NO.	Signal	Meaning
1	Cn2	Fan output
2	CN3	Contral the heat pump model
3	CN5	Contral the heat pump ON/OFF
4	Cn6	Remote switch
5	TEMP1	To ambient and coil temperature
6	OUT1	Water valve
7	ACL	Live wire
8	ACN	Neutral wire
9	NET1	To wire controller







	Correct Disposal of this product
	<p>This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.</p>