

Installation Instructions For Hydraulic Module



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1. Document statement

If these instructions are not followed during installation, operation and maintenance, then the obligations of power world company, stemming from the terms of the warranty shall cease to apply. power world company hereby reserves the right to make changes to any parts of the documentation and specifications without prior notice.

- ▶ Always observe all operating instructions that are enclosed with the installation components.
- ▶ Store these instructions and all other applicable documents for further use.

These instructions apply only to: PW-03H/S 、PW-03H 、PW-05H/S 、PW-05H

2. Use safety

The device must not operate persons with limited mental abilities or lack of experience and knowledge (including children) unless they are under supervision of instructed persons responsible for their safety.

In the case of incorrect use or no intention to use, it is possible to cause the casualties of users or others, or damage to the product and other property.

2.1. Risk of death due to changes to the product or the product environment

Follow the operating instructions contained in the product and any other installation components to follow the instructions listed in all inspection and maintenance conditions.

Never remove, bridge or block the safety devices.

- ▶ Do not tamper with any of the safety devices.
- ▶ Do not damage or remove any tamper proof seals on components.
- ▶ Do not make any changes:
 - The product itself
 - The water and electricity supply lines
 - to the expansion relief valve
 - to the drain pipework
 - to constructional conditions that may affect the operational reliability of the product

2.2. Risk of injury and material damage due to maintenance and repairs carried out incorrectly or not carried out at all

- ▶ Never attempt to carry out maintenance work or repairs on your product yourself.
- ▶ Faults and damage should be immediately rectified by a competent person.
- ▶ Adhere to the maintenance intervals specified.



3. product description

3.1. product purpose

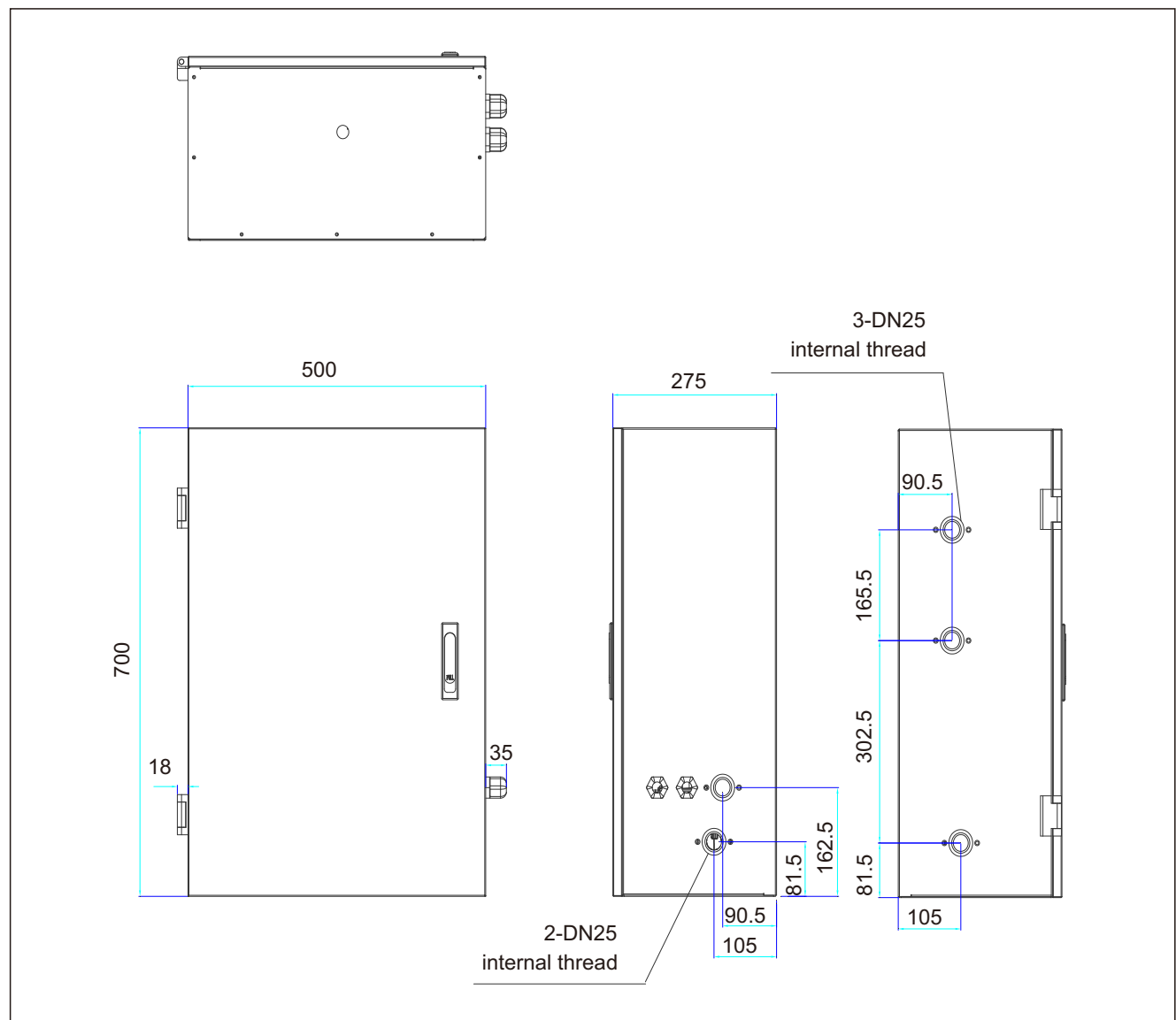
This product is a system component for controlling the heating circuits and domestic hot water generation in conjunction with a heat pump using a system control.

Intended use includes the following:

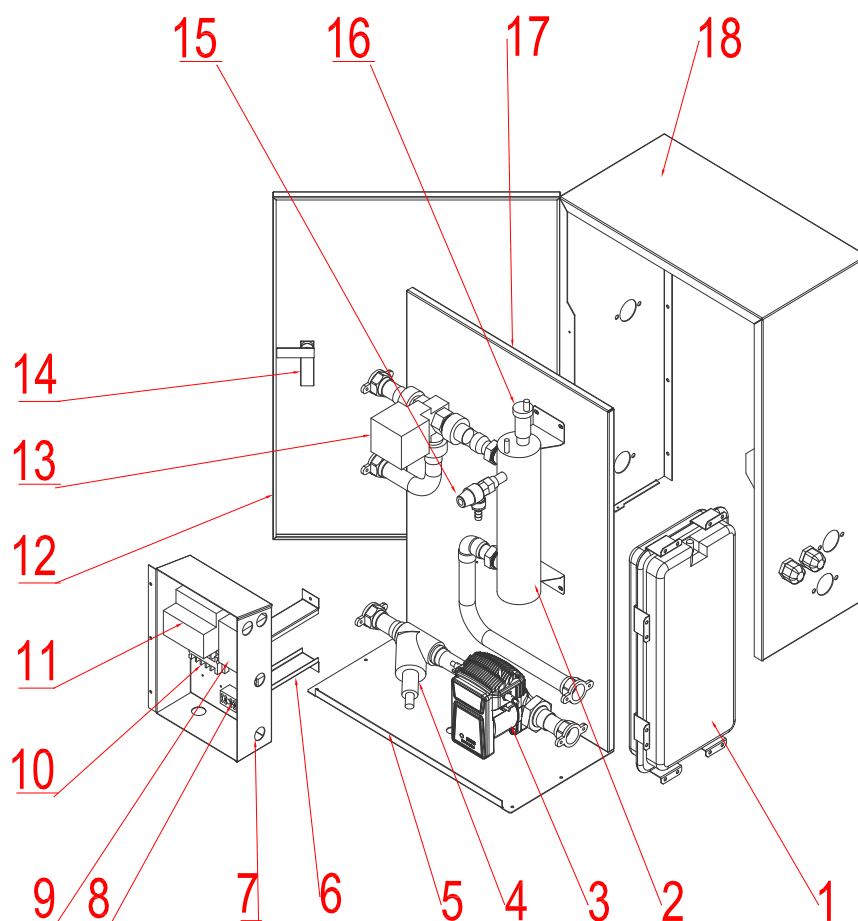
- observance of the operating instructions included for the product and any other installation components.
- compliance with all inspection and maintenance conditions listed in the instructions.

3.2. Product appearance

3.2.1. Overall size diagram



3.2.2. Product explosion map



NO	Spare parts	NO	Spare parts
1	Expansion tank	11	Air Switch
2	Electrical heating	12	Front panel
3	Water pump	13	Three-way valve
4	Filter	14	Door lock
5	Chassis	15	Safety valve
6	Electric box support plate	16	Exhaust valve
7	Electric box	17	Backboard
8	Terminal block	18	Coaming
9	Contactor		
10	Terminal block		

3.3. Product parameter table

BOM code	CP-RW0300082	CP-RW0300081	CP-RW0500066	CP-RW0500065
Model	PW-03H/S	PW-03H	PW-05H/S	PW-05H
3-Way Valve	ACOL/DN25	ACOL/DN25	ACOL/DN25	ACOL/DN25
Electric Heater	3kW/220V	3kW/220V	3kW/220V	3kW/220V
DC Inverter Water Pump	Shimge APM25-9-130	Shimge APM25-9-130	Shimge APF25-12-130	Shimge APF25-12-130
Max water head(m)	9	9	12	12
Expansion Tank(L)	8L	8L	8L	8L
Diameter of pipe (mm)	DN25	DN25	DN25	DN25
Safety valve(MPa)	0.3	0.3	0.3	0.3
Leakage Switch (A)	Schneider/40A	Schneider/25A	Schneider/50A	Schneider/32A
Cabinet	Galvanized powder coated steel			
Package	Splint/Carton	Splint/Carton	Splint/Carton	Splint/Carton
Power Supply (V)	230V/1Ph/50-60Hz	380V/3Ph/50-60Hz	230V/1Ph/50-60Hz	380V/3Ph/50-60Hz
Net Weight (kg)	35	35	35	35
Gross Weight (kg)	38	38	38	38
Net Dimension (mm)	700*500*280	700*500*280	700*500*280	700*500*280
Packing Dimension (mm)	760*540*320	760*540*320	760*540*320	760*540*320
Applicable Models	PW030/040 (Single phase)	PW040 (Three-phase)	PW050 (Single phase)	PW050/PW060 (Three-phase)

3.3.1. water pump

3.3.2. technical parameter

Parameters	Specification description	
model	APM25-9-130/180 PWM1	APF25-12-130E FPWM1
Electric pump form	Centrifugal circulating pump (non-self-priming)	
Power source	AC 230V	
Frequency	50/60Hz	
Input power	4~95W	10-180W
Current	0.04~0.75A	0.1-1.8A
Range of speed	1000~4500r/m	1750~5350r/m
Noise	≤45dB	≤45dB
Maximum lift	9m	12 m
Maximum flow	4.5m³/h	5.6 m³/h
Matching pipe diameter (thread)	DN25 (G1.5)	
Rotating direction of the rotor	Clockwise from the control box to the pump body	

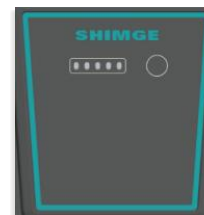
Attention :

A circulation pump is a component that has possible replacements according to market availability. The model of the circulation pump is written on its label. If one of the possible substitutes is used, visit the manufacturer's website to find the operating instructions for the circulation pump.

3.3.3. water pump APM25-9-130/180 PWM1 Operation and Panel Display

A.Overview of operation and panel

When the pump has no PWM signal input, the pump runs according to the maximum constant power curve; when there is a PWM signal input, it runs according to the PWM speed control logic; the right picture is an overview of the panel.



After the power is turned on, all green LED lights flash 3 times, and the speed control mode is displayed as follows:

Pump status	Display light status	Pump status	Display light status
No PWM signal		PWM signal speed control	

B.Fault display

Description of fault protection:		
Function name	Description	Panel display code
Panel display code	When the rotor shaft of the electric pump is stuck, the electric pump will attempt to restart, and restart every 5s; when attempting to restart, the electric pump reports a	
	blocking error and the panel displays the fault code, and the pump will stop after 5 cycles of restart	
Overvoltage/undervoltage protection	Under abnormal circumstances where the input voltage is less than 170V or higher than 270V, the electric pump will enter the protection state and stop, and report an electrical fault and the panel will display the fault code, so as not to operate beyond the range and cause damage; and when the voltage returns to 170V-270V, and the electric pump will resume running	
Phase loss protection	When the phase loss fault occurs to the electric pump, the electric pump will attempt to restart, and restart every 1s; when attempting to restart, the electric pump reports an electrical error and the panel displays a fault code; finally, the pump will stop after 5 cycles of restart	
Overcurrent (short circuit) protection	When such faults as short circuit or overheating occur to the electric pump, the electric pump will attempt to restart, and restart every 5s; when attempting to restart, the electric pump reports an electrical error and the panel displays the fault code	
Over-temperature protection	When the power module is overheated, the water pump stops and reports a fault code	

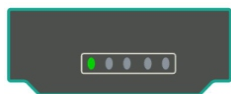
Notes for protection functions: The faults above can be cleared by inputting the standby signal.

3.3.4. water pump APF25-12-130E FPWM1

Operation and Panel Display

A. Overview of operation and panel

When the pump has no PWM signal input, the pump runs according to the maximum constant power curve; when there is a PWM signal input, it runs according to the PWM speed control logic; the right picture is an overview of the panel.



After the power is turned on, all green LED lights flash 4 times, and the speed control mode is displayed as follows:

Pump status	Display light status	Pump status	Display light status
No PWM signal		PWM signal speed control	

B. Fault display

Description of fault protection:		
Function name	Description	Panel display code
Dry running protection	When the pump runs without water, the pump stops for 5 seconds after 1 minute of operation judgment, the electric pump reports the feedback code 90% and the panel displays the fault code, and the pump stops/runs according to the control signal at the same time for unlimited times. When the fault disappears, the pump resumes running.	
Locked-rotor protection	When the rotor shaft of the electric pump is stuck, the pump stops for 5 seconds, the electric pump reports the feedback code 90% and the panel displays the fault code, and the pump stops/runs according to the control signal at the same time for unlimited times. When the fault disappears, the pump resumes running.	
Phase loss protection	When a phase loss fault occurs to the electric pump, the pump stops for 5 seconds, the electric pump reports the feedback code 90% and the panel displays the fault code, and the pump stops/runs according to the control signal at the same time for unlimited times. When the fault disappears, the pump resumes running.	
Overvoltage protection	In abnormal conditions, when the input voltage is higher than 270V, the electric pump will enter the protection state; the electric pump reports the feedback code 85% and the panel displays the fault code. When the voltage returns to 265V, the pump will run or stop according to the control signal.	

Undervoltage protection	In abnormal conditions, when the input voltage is lower than 160V, the electric pump will enter the protection state; the electric pump reports the feedback code 85% and the panel displays the fault code. When the voltage returns to 165V, the pump will run or stop according to the control signal.	
Overcurrent (short circuit) protection	When a short circuit or overheating fault occurs to the electric pump, the electric pump reports the feedback code 80% and the panel displays the fault code. When the fault disappears, the pump resumes running.	
Over-temperature protection	When a short circuit or overheating fault occurs to the electric pump, the electric pump reports the feedback code 80% and the panel displays the fault code. When the fault disappears, the pump resumes running.	

Notes for protection functions: The faults above can be cleared by inputting the standby signal.

4. Installation

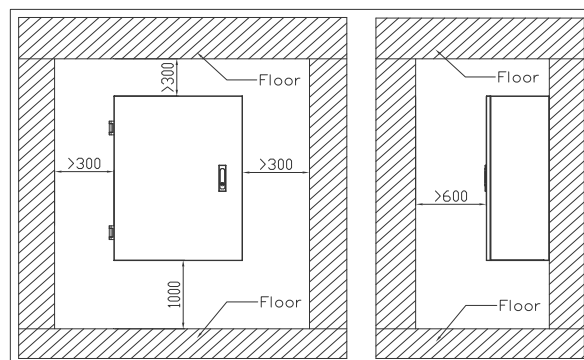
4.1. environment condition

The utility room must be spacious enough and dry. The air temperature must be between 10°C and 35°C and the relative humidity should not permanently exceed 70%.

Under no circumstances must the Hydraulic module be installed on walls made of flammable materials!

4.2. space requirement

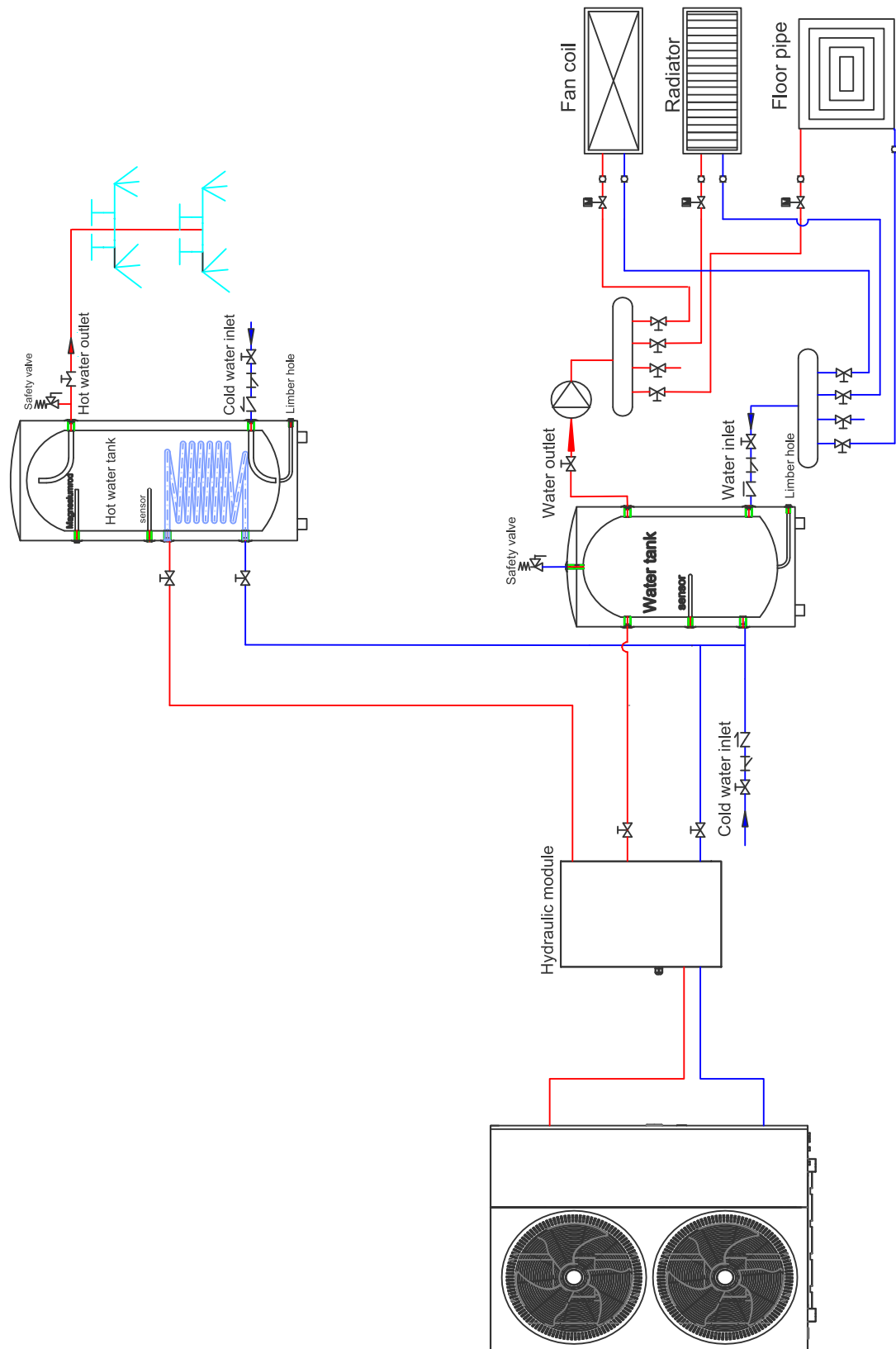
The space requirements for the device are shown below, where the minimum distances to obstacles are shown.



- Provide sufficient clearance on both sides of the product in order to facilitate access for maintenance and repair work.
- When using the accessories, observe the minimum clearances/installation clearances.
- Ensure that no highly flammable parts come into contact with the components as these may reach temperatures of over 80°C.
- Ensure that there is a minimum clearance between the highly flammable parts and the hot components.

4.3. System installation schematic diagram

The system installation schematic diagram is shown in the figure below.



4.4. Safety valve parts

To ensure safe operation and possible replacement of equipment, it is necessary to use the following components at the appropriate points in the heating system.

- ⊙ Heating water filter
- ⊙ Ball valves
- ⊙ Drain valve
- ⊙ Reverse valve
- ⊙ Safety valve

4.5. Electrical preparation

The electrical connection is made from the bottom side, where leave a free cable length of at least 2m.

4.6. Cleaning and maintenance

4.6.1. Clean way

Clean the Hydraulic module with products designed for stainless materials.

Do not use any types of sprays around the Hydraulic module. This is especially true for :

- ⊙ Solvents
- ⊙ Cleaning products containing chlorine
- ⊙ Colors
- ⊙ Glues

4.6.2. matters needing attention

The Hydraulic module contains electrical components and therefore the front lid must not be removed!

5. Warranty & Service

5.1. After-sales guarantee

All appliances shall be fully commissioned in accordance with our installation manual and Benchmark commissioning check list (this will be included within the installation manual). These must be signed and given to the user for safe keeping during the hand over process. Installers should also at this time advise the user of the annual servicing requirements and advise of appropriate service agreement.

The manufacturer provides a warranty for the product within the period, performance and under the conditions specified in the warranty card. The warranty card is included in the delivery and must be filled in for its validity.

In order to qualify for guarantee after one year the appliance must be serviced in accordance with our installation manual servicing instructions. The benchmark service history should be completed. Note - all costs associated with this service are excluded from this guarantee. Failure to install and commission this appliance in compliance with the manufacturer's instructions will invalidate the guarantee (this does not affect the customer's statutory rights).

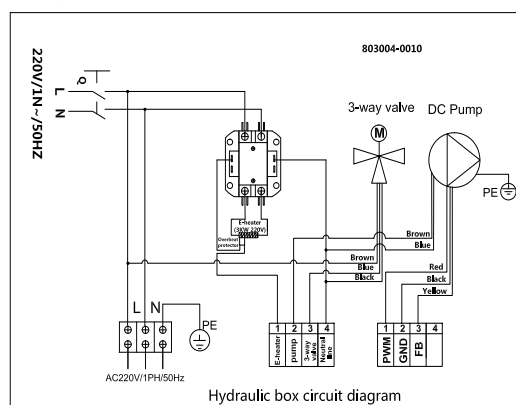
5.2. customer service

Service work on the product may only be carried out by authorized service technicians. For more, contact the plumbing company that performed the installation.

To ensure regular servicing, it is strongly recommended that arrangements are made for a Maintenance Agreement. Please contact Service Solutions for further details.

6. Electrical wiring diagram

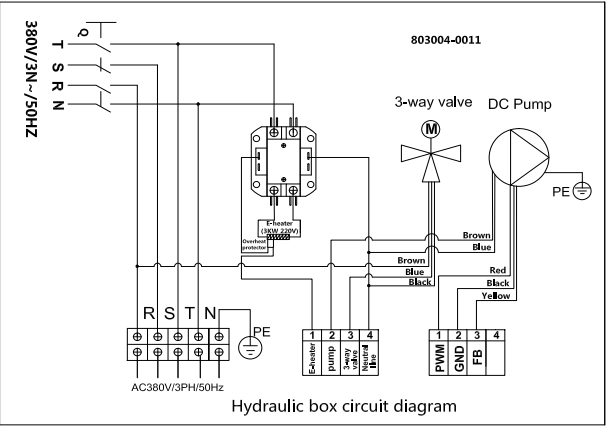
6.1. Single-phase hydraulic module power wiring diagram apply to:PW-03H/S、PW-05H/S



Single-phase Hydraulic Mode Terminal Connection Instructions

No.	Name	Mark	Function	Connection	Signal
1	Circuit Breaker	Q	Input Power Line	Connect To The City Power Grid	AC 220V
2	3 phase power terminal block	L N PE	Provides Power To Outdoor Unit	Connect To The Power Line Terminal	AC 220V
3	Load Terminal	1-E-heat	Heating Electric Heating Control Signal	Connect To The Outdoor Unit Terminal Block E-Heater	AC 220V
4	Block	2-Pump	DC Pump Power Line	Connected to the outdoor unit terminal block PUMP	AC 220V
5		3-3-way valve	3-way valve power line (electrically active in hot water mode, inactive in heating and cooling modes)	Connected to the outdoor unit terminal block 3-way valve	AC 220V
6		4-N	Strong Electric Signal Neutral Line	Connected to the outdoor unit terminal block N	AC 220V
7	DC Pump	1-PWM	DC Pump Control Signal	Connected to the outdoor unit terminal block PWM	DC 0~12V
8	Signal Terminal	2-GND	Weak Point Neutral Line	Connected to the outdoor unit terminal block GND	DC 0V
9		3-FB	DC Pump Feedback Signal	Connected to the outdoor unit terminal block FB	DC 0~12V

6.2. Three-phase hydraulic module power wiring diagram apply to:PW-03H 、PW-05H



3-phase Hydraulic Mode Terminal Connection Instructions

No.	Name	Mark	Function	Connection	Signal
1	Circuit Breaker	Q	Input Power Line	Connect To The City Power Grid	AC 380V
2	5 phase power terminal block	RSTNPE	Provides Power To Outdoor Unit	Connect To The Power Line Terminal	AC 380V
3	Load Terminal	1-E-heat	Heating Electric Heating Control Signal	Connect To The Outdoor Unit Terminal Block E-Heater	AC 220V
4	I Block	2-Pump	DC Pump Power Line	Connected to the outdoor unit terminal block PUMP	AC 220V
5		3-3-way valve	3-way valve power line (electrically active in hot water mode, inactive in heating and cooling modes)	Connected to the outdoor unit terminal block 3-way valve	AC 220V
6		4-N	Strong Electric Signal Neutral Line	Connected to the outdoor unit terminal block N	AC 220V
7	DC Pump	1-PWM	DC Pump Control Signal	Connected to the outdoor unit terminal block PWM	DC 0~12V
8	Signal Terminal	2-GND	Weak Point Neutral Line	Connected to the outdoor unit terminal block GND	DC 0V
9	I	3-FB	DC Pump Feedback Signal	Connected to the outdoor unit terminal block FB	DC 0~12V

