

**/ SG READY**

**/ DUAL ZONE**

**/ ELECTRICITY CONSUMPTION METERING**

**SOLAREAST HEAT PUMP LTD.**

<https://solareasthvac.com>

# CONTENTS

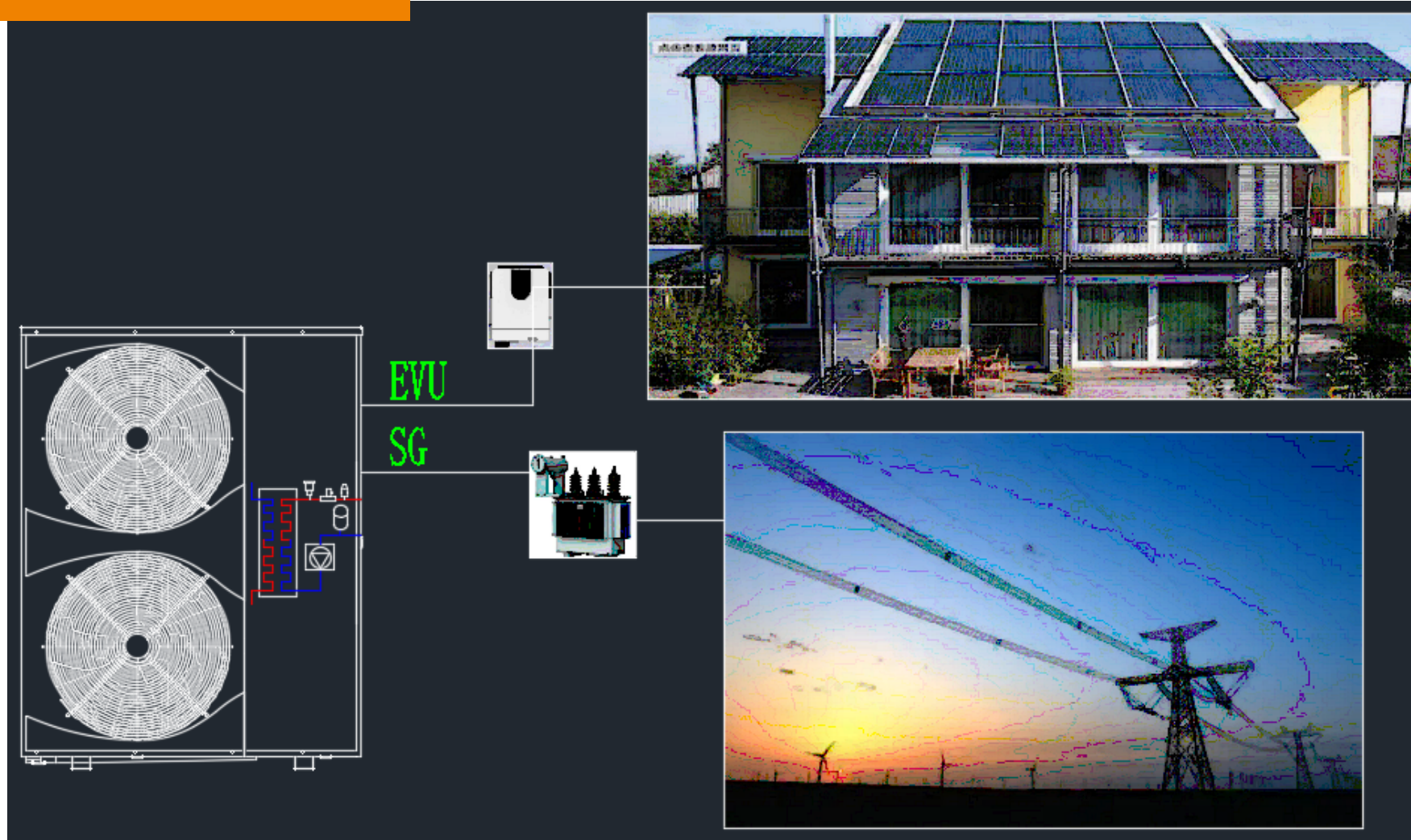
- ① SG READY
- ② DUAL ZONE  
(MIXING MODUAL)
- ② ELECTRICITY CONSUMPTION METERING  
(MIXING MODUAL)

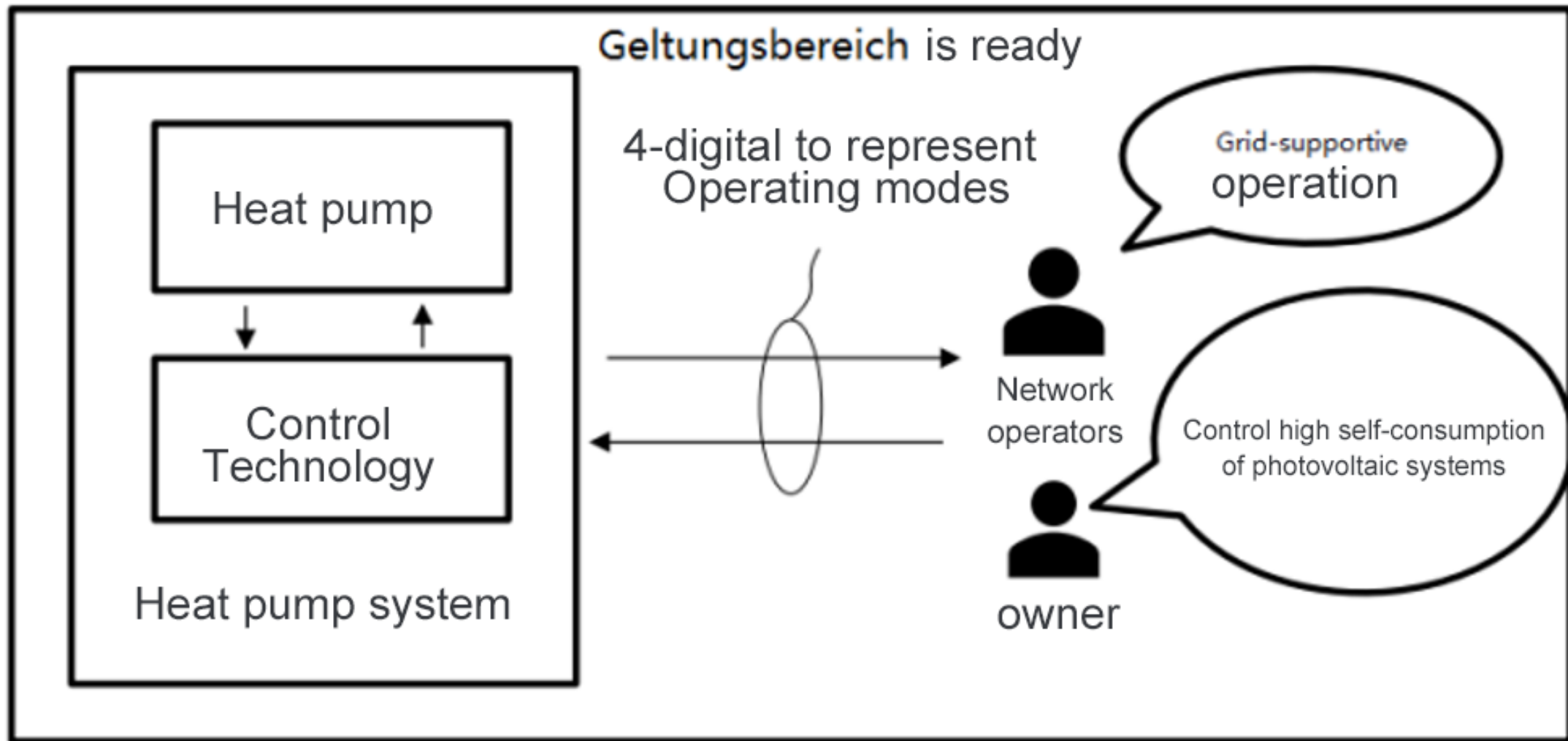
01

SG READY



# System Connection





# Connection

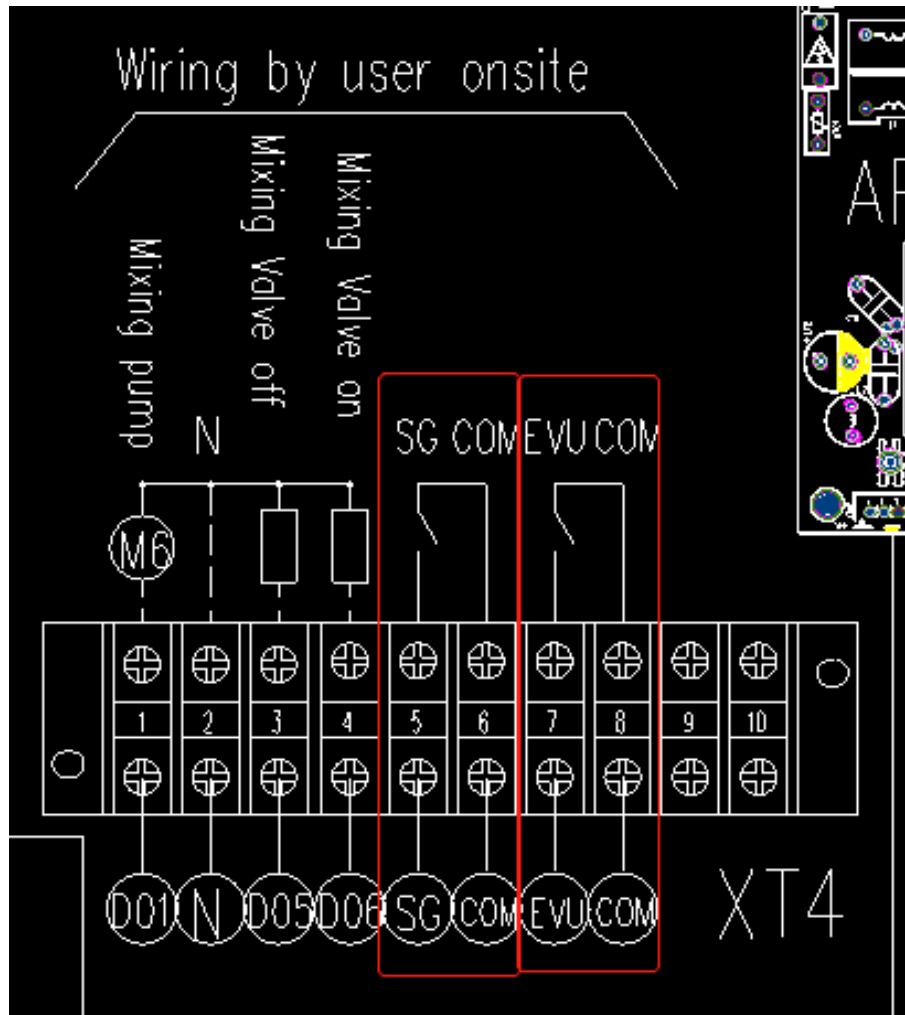


SG and EVU ports are used to detect the input signals from the smart grid.

SG signal comes from the city electricity, and EVU signal comes from the photovoltaic-free power supply.

SG and EVU ports constitute the 4 digital operating states.

# Connection



## Note:

SG and EVU ports can only be connected to passive switch signals.

If it is connected to 12V or a control signals with 220V power supply, the mainboard may be damaged.

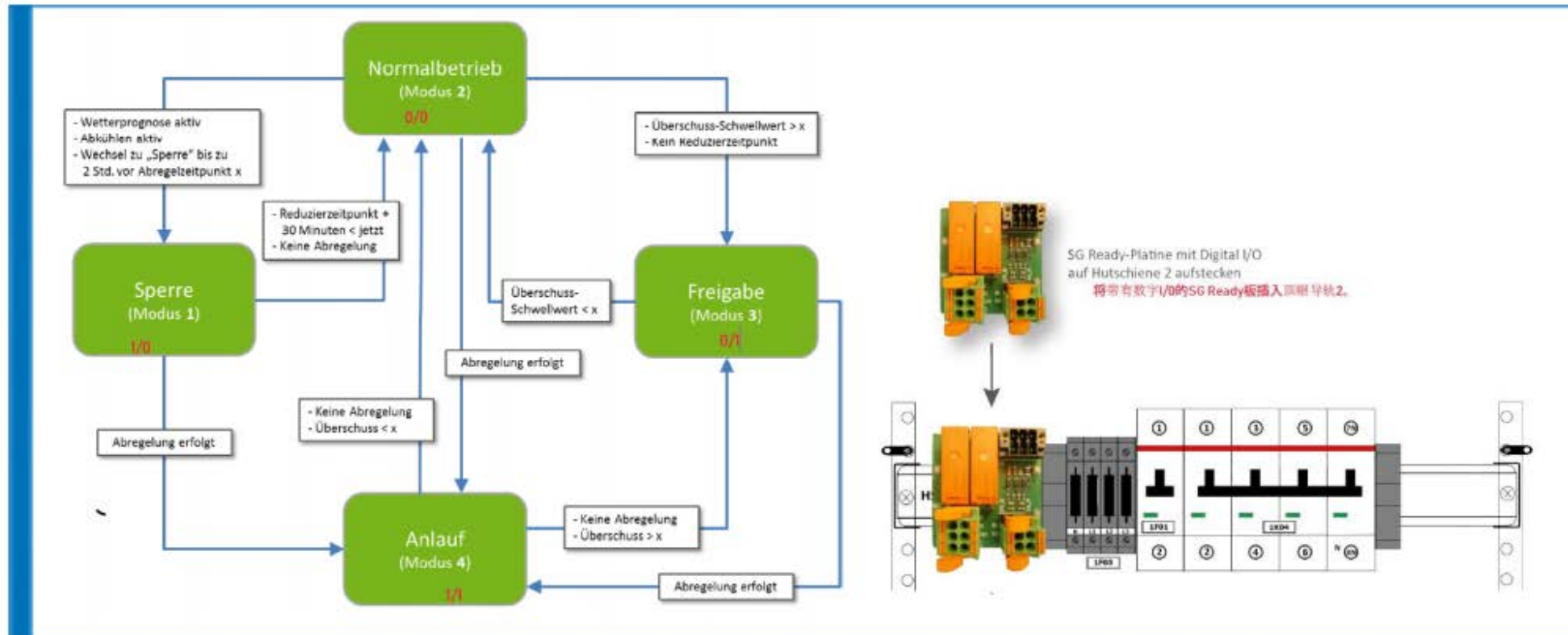


# SG READY LABEL (Smart Grid Ready label)



## SG Ready-Datenbank


<https://www.waermepumpe.de/normen-technik/sg-ready/sg-ready-datenbank/>



# Certification



**LABEL**  
FÜR SMART-GRID-FÄHIGE WÄRMEPUMPEN




Die Labelkommission „SG ready“ bescheinigt, dass die hier aufgeführten Geräte die Anforderungen der Regularien für das Label „SG ready“ für elektrische Heizungs- und Warmwasserwärmepumpen (Version 2.0; gültig ab 01.07.2020) erfüllen.


**Gerätetyp** Luft-Wasser  
**Modelle** BLN-006TB1  
BLN-006TC1  
BLN-006TD1  
BLN-008TC1  
BLN-008TC3  
BLN-010TB1  
BLN-010TB3  
BLN-010TD1  
BLN-010TD3  
BLN-012TC1  
BLN-012TC3  
BLN-014TB1  
BLN-014TB3  
BLN-014TD1  
BLN-014TD3  
BLN-018TB1  
BLN-018TB3


**Vertreiber** SolarEast Heat Pump Ltd.  
SolarEast Heat Pump Ltd.  
No. 73 Defu Road, Xingtian Town, Shunde District, 528325,  
Foshan City, Guangdong Province, PEOPLE'S REPUBLIC OF  
CHINA

**Label-ID** SG-R/H0441  
**Gültig bis** 12.04.2025



Berlin, 13.04.2023

  
Katja Weinhold  
BWP Marketing & Service GmbH

  
Stephan Richter  
Vorsitzender Labelkommission

Eine vollständige Liste aller gültigen SG-Ready-Label findet sich unter [www.waermepumpe.de](http://www.waermepumpe.de)

BWP Marketing & Service GmbH - Hauptstraße 3 - 10827 Berlin  
Telefon: 030 208 799 720 - E-Mail: [sgready@bwp-service.de](mailto:sgready@bwp-service.de)

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**LABEL**  
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**Gerätetyp** Luft-Wasser  
**Modelle** BLN-018TC1  
BLN-018TC3  
BLN-018TD1  
BLN-018TD3  
BLN-024TB3  
BLN-024TD3

**Vertreiber** SolarEast Heat Pump Ltd.  
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## Bundesverband Wärmepumpe (BWP):

Bundesverband  
Wärmepumpe (BWP) is  
composed of about 500  
members and is  
headquartered in Berlin,  
Germany.  
It represents the overall  
interests of companies in the  
entire heat pump industry  
chain in Germany.

## Allowable Voltage Fluctuation Range For Photovoltaic Power Supply



### Operating voltage range:

The compressor should be operated in the range of rated voltage  $\pm 10\%$  , under standard condition and overload condition of rated frequency (applied voltage to inverter). It must be satisfied with item 5 ,6,7.

Minimum voltage: 198V; Maximum voltage : 242V

Minimum voltage : 342V ; Maximum voltage : 418V

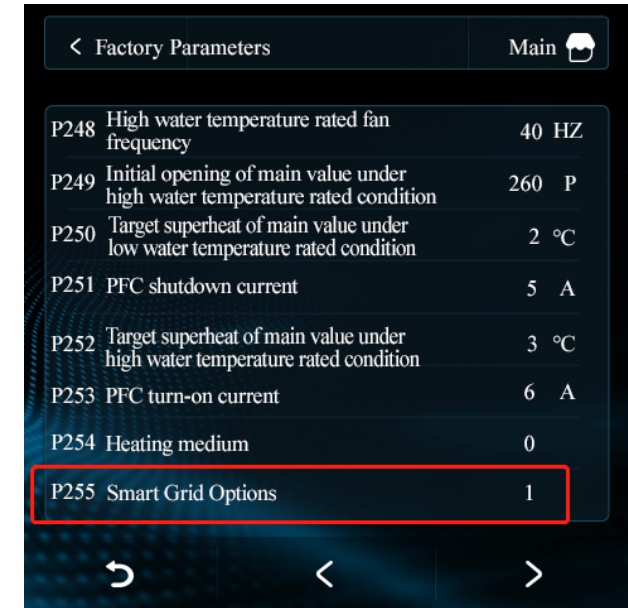
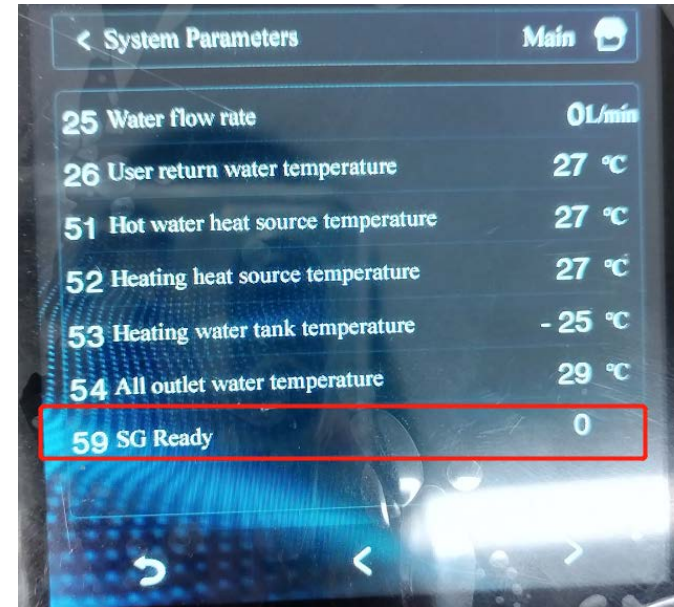
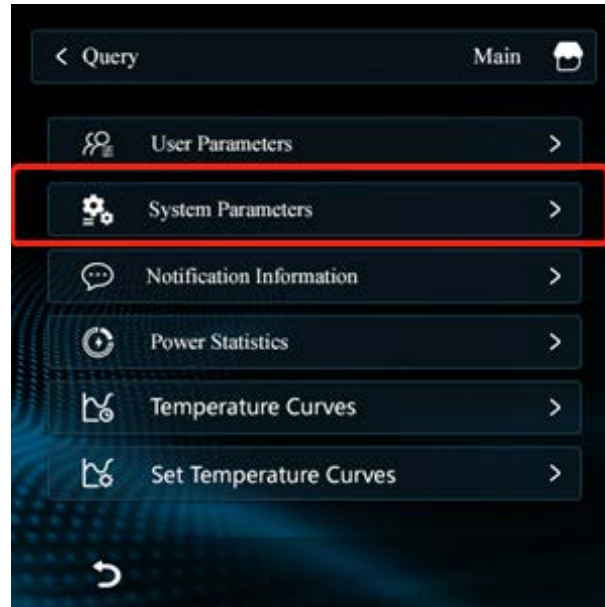
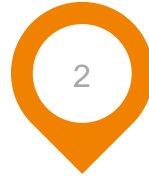
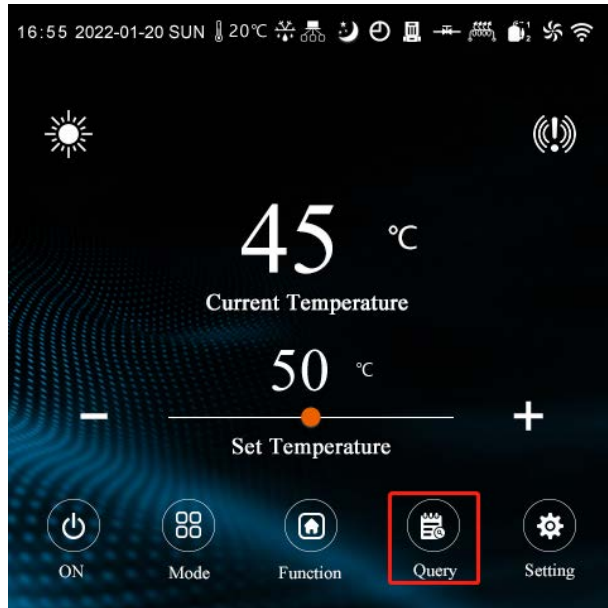
5 Oil Back and height of the oil level

6 Current limitation

Current peak among motor terminals (include instantaneous current peak) should be below demagnetizing current in order to prevent magnet in motor from demagnetization.

7 Pressure difference between suction and discharge

In all allowable rotational speed range, the difference of pressure should be more than 0.39 MPa (4kgf/cm<sup>3</sup>). But if there is no problem of noise when assembled in air conditioner. It can also be below this value



**Parameter P255 :**  
0 is enabled, 1 is disabled  
Default setting: 1 (disabled)

# Control Logic



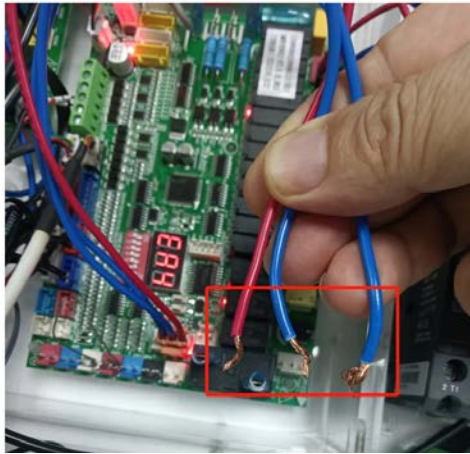
SG (City Electricity)	EVU (photovoltaic)	Function
1	1	<p>At this time, it is in the state of free electricity:</p> <p>(1) if hot water function P48 is set to 1 (enabled), no matter which mode is in before, heat pump is set to cooling + hot water/heating + hot water, and hot water is given priority;</p> <p>(2) When heat pump enters the hot water mode, the hot water setting temperature is automatically switched to the sterilization temperature, and the hot water auxiliary electric heating is turned on;</p> <p>3) The compressor runs in strong mode,</p> <p>4) If the EVU signal or SG signal is disconnected during this period, heat pump will return to the previous mode setting</p>
0	1	<p>At this time, it is in the state of free electricity:</p> <p>(1) if hot water function P48 is set to 1 (enabled), no matter which mode is in before, heat pump is set to cooling + hot water/heating + hot water, and hot water is given priority;</p> <p>(2) When heat pump enters the hot water mode, the hot water setting temperature is automatically switched to the sterilization temperature, and the hot water auxiliary electric heating is turned on;</p> <p>(3) if hot water tank temperature &gt; compressor shutdown temperature, heat pump will stop to standby time sequence; if hot water tank temperature &gt; sterilization temperatures, electric heating stop;</p>

# Control Logic



SG (City Electricity)	EVU (photovoltaic)	Function
1	0	At this time, it is in the state of low peak electricity consumption: Heat pumps operate according to normal logic.
0	0	At this time, it is in the state of peak electricity consumption: (1) hot water mode stop, electric heating cannot be used, and the sterilization function is invalid; (2) Cooling and heating modes operate in ECO mode, and the unit is turned off after the peak period maximum running time (parameter P256: default 30min); (3) Antifreeze function operates normally during heat pump standby period

In normal mode:  
SG, EVU disconnected



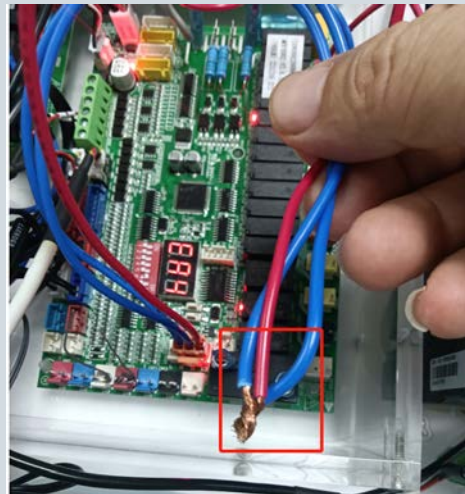
No Powerful mode symbol



Compressor runs at normal frequency



Start SG、EVU function



Powerful mode symbol



Compressor runs at maximum frequency



02

DUAL ZONE  
(MIXING MODUAL)

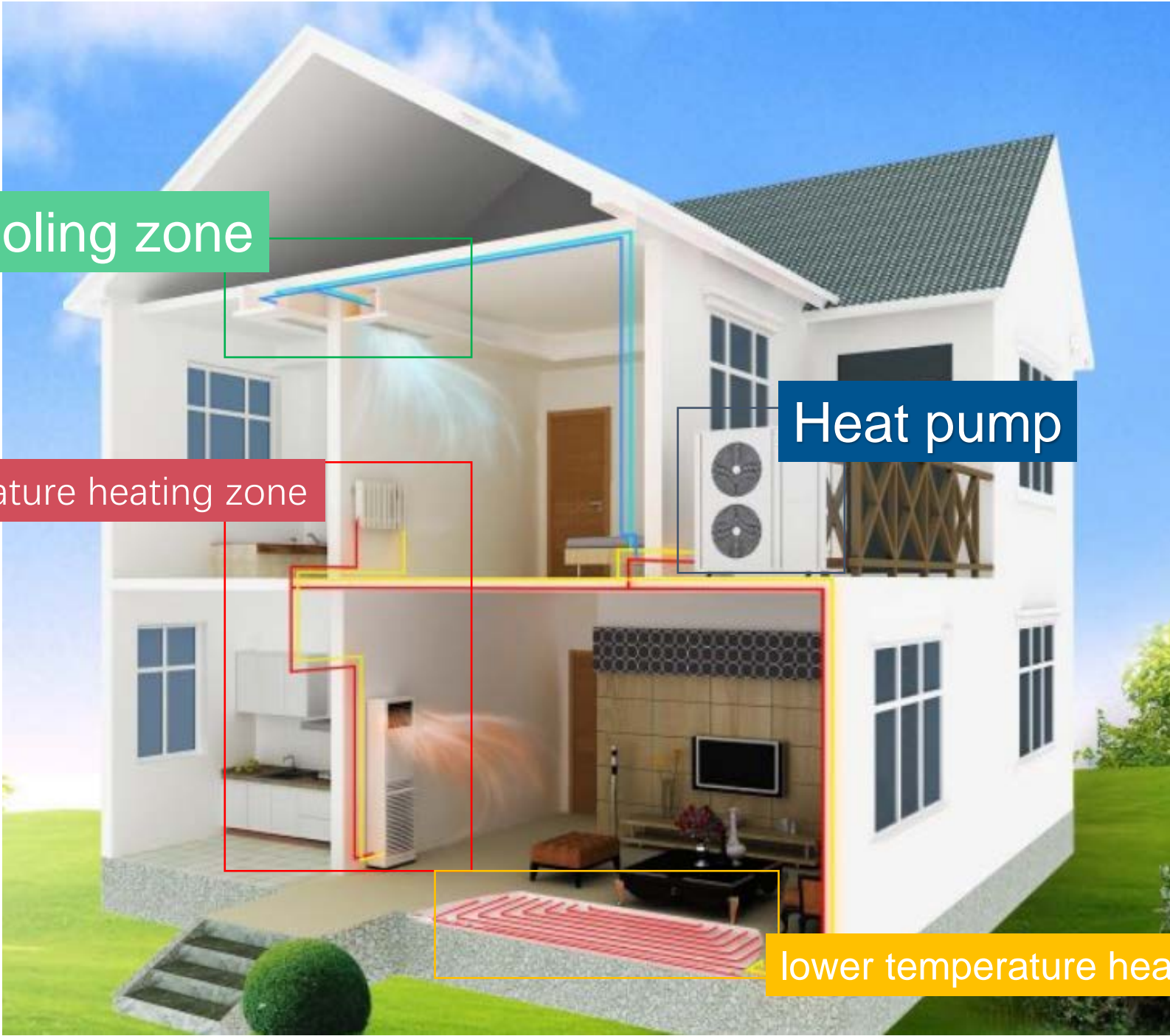


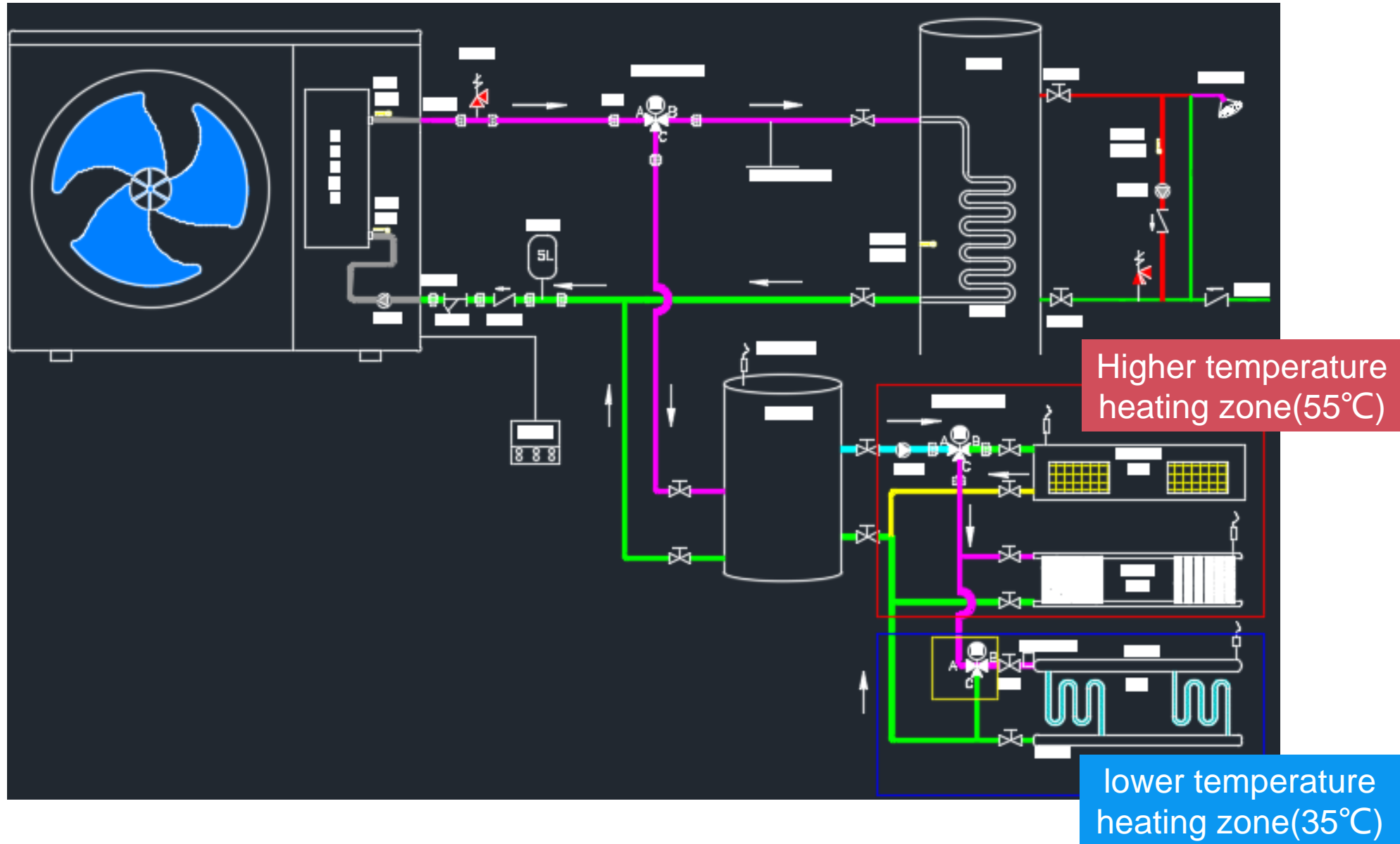
Cooling zone

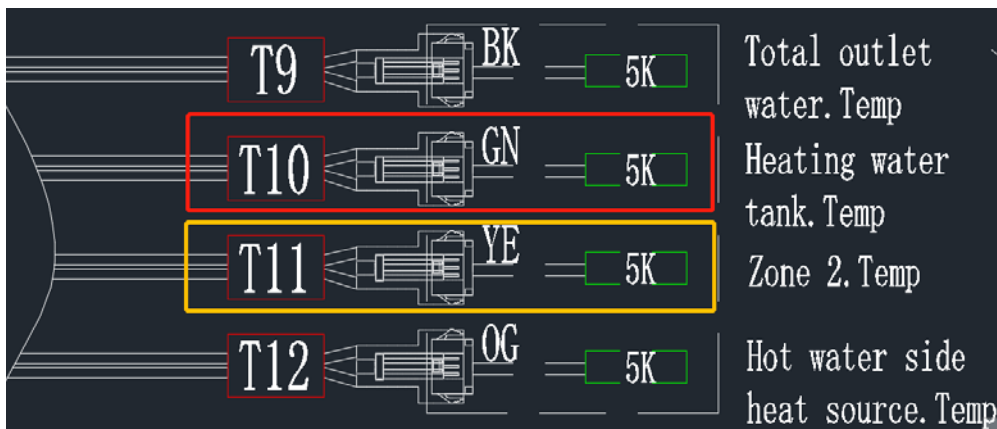
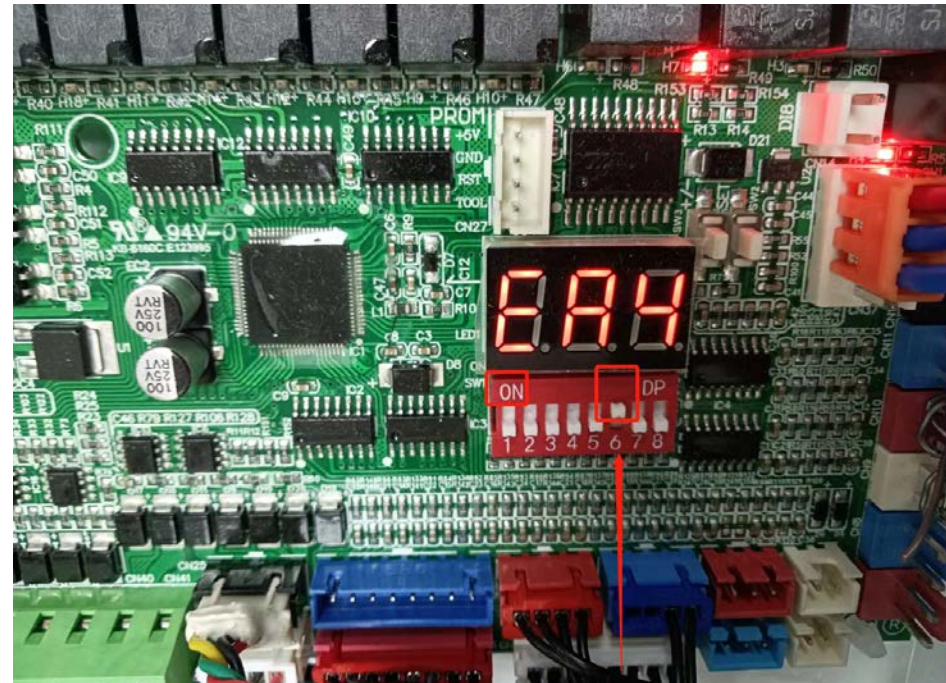
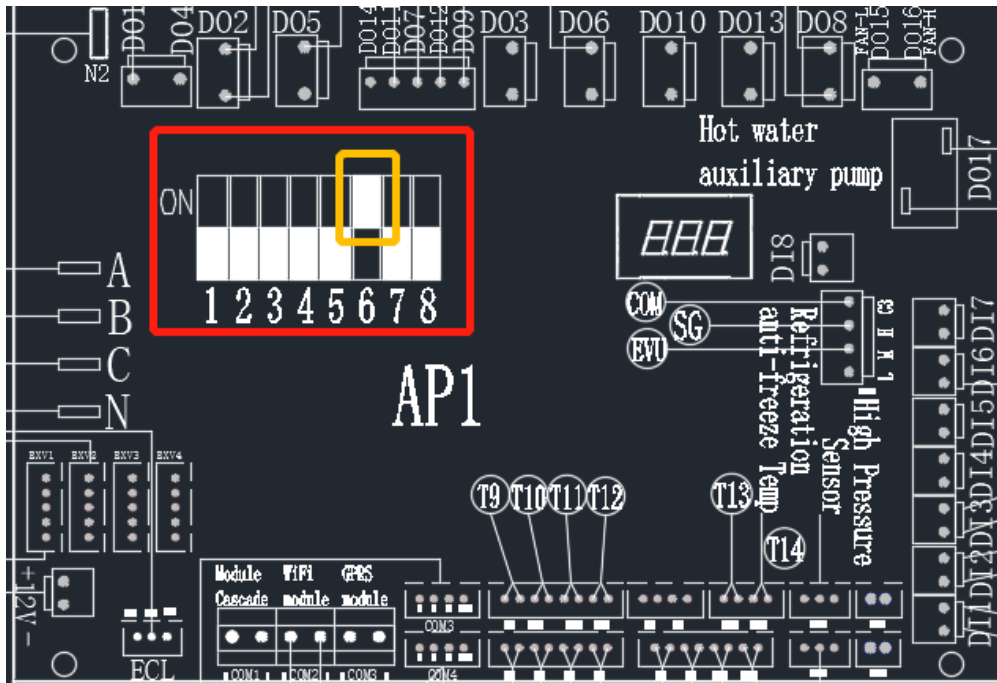
Heat pump

Higher temperature heating zone

lower temperature heating zone

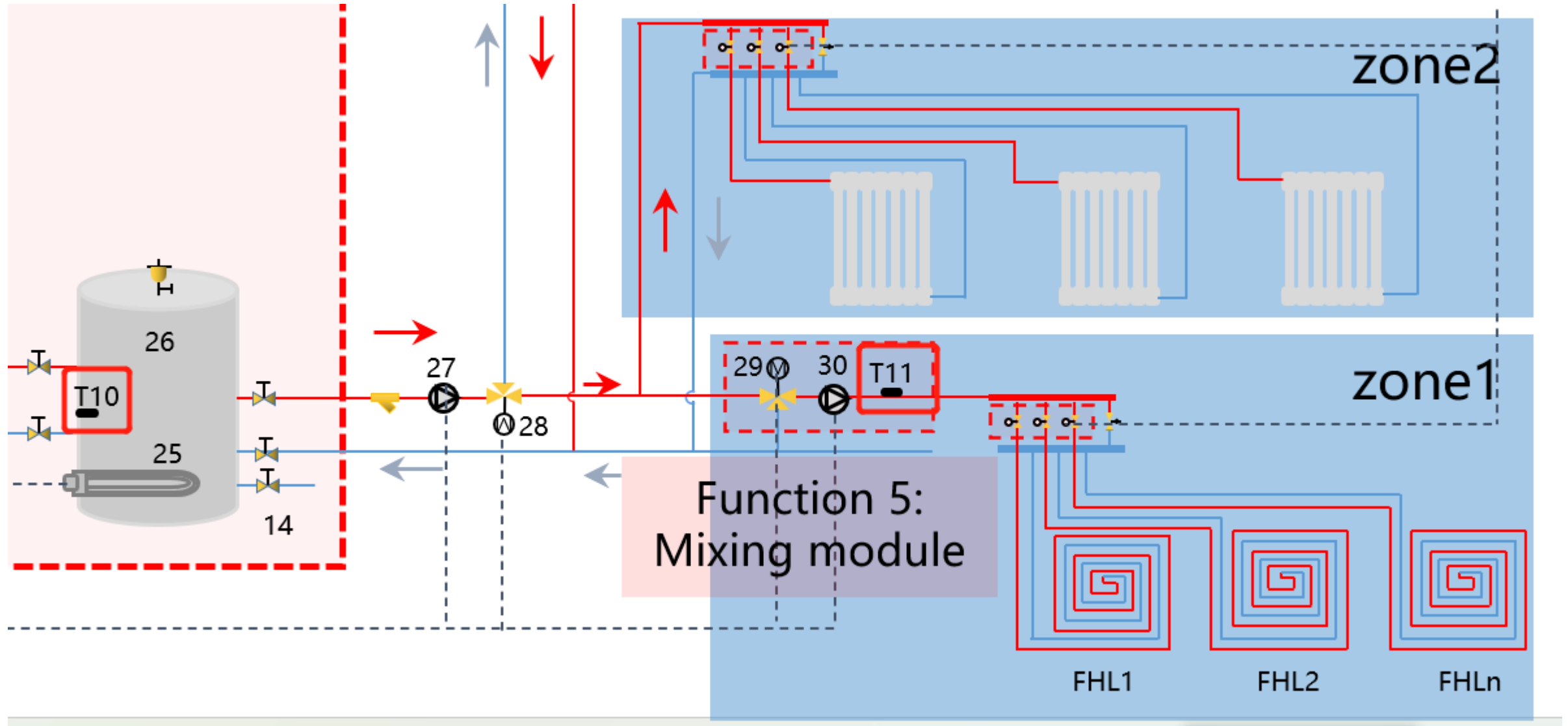






## Electric control:

1. Turn No. 6 dial code on the mainboard to ON
2. Connect the T10 (tank sensor) to the buffer tank
3. Connect the T11 (dual temperature zone 2 sensor) to the water inlet of the floor heating water separator

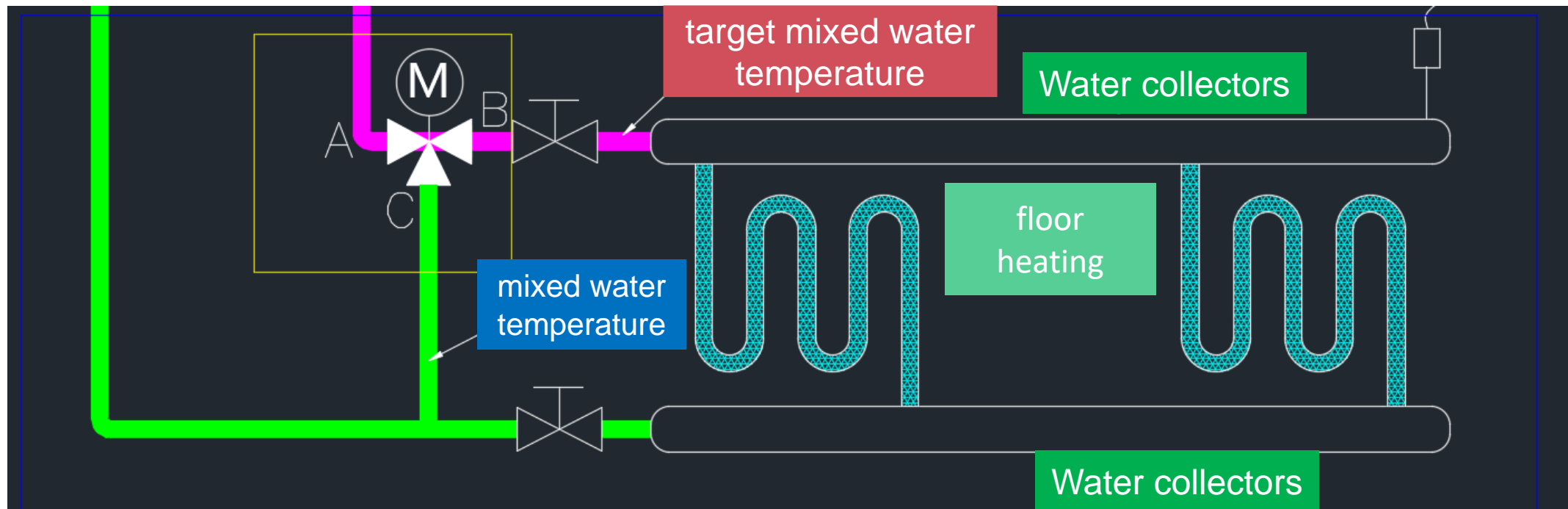


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Dual Temperature Zone (p257)	Function
0	Starts running when there is a switch-on signal or when it reaches the temperature set to standby. <i>This value is used for a Primary circulation system.</i>
1	Air conditioning pump linkage operation (Indoor thermostat linkage signal to heat pump) <i>This value is used for a Secondary circulation system.</i>
2	Disable (Cancel the dual temperature zone function)

1. Interval time for 3-way valve adjustment: range (5min to 20min), default is 5min;
  2. When the indoor circulation pump linkage switch feeds back a start signal, mixing water pump starts and mixing water valve opens to its initial angle;
  3. When the indoor circulating pump linkage switch feeds back a stop signal, mixing water pump stops for 5 seconds, and mixing water valve stop for 120 seconds and reset to 0%;
  4. After power on, mixing valve stops for 120s and reset to 0%
-

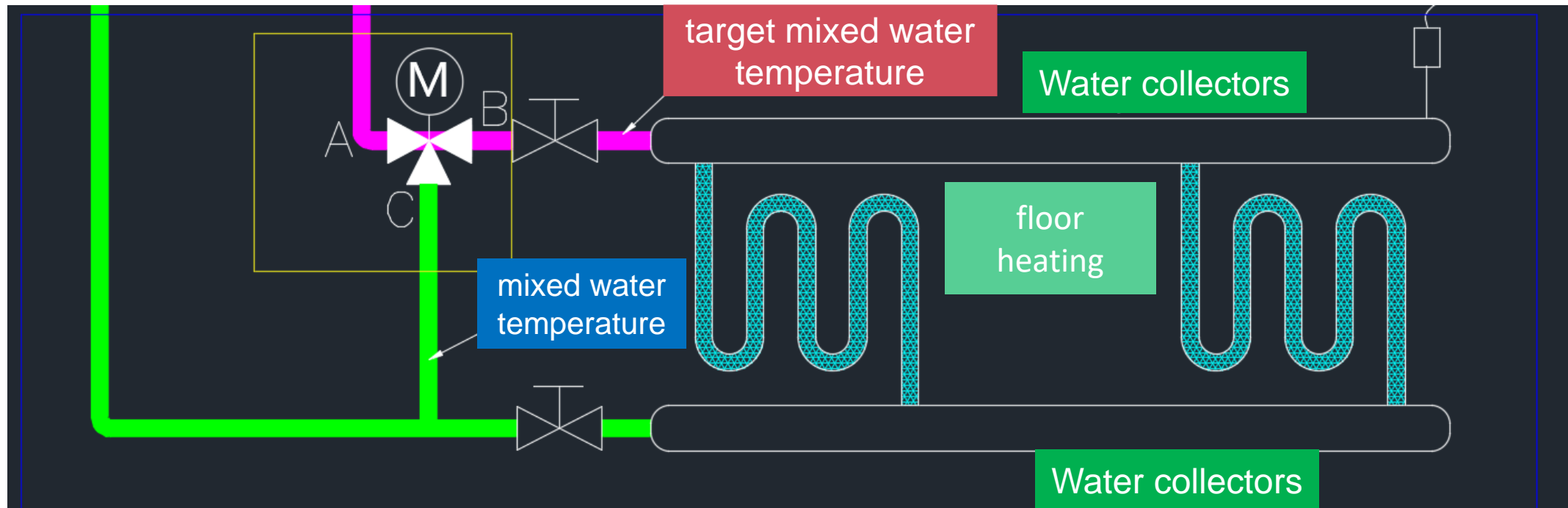
# Control Logic



After water mixing 3-way valve adjusts the initial angle value for 5 minutes, it is allowed to enter the constant temperature adjustment.

- ① When target mixed water temperature - mixed water temperature  $> 2^{\circ}\text{C}$ , mixing return valve adjustment increases by 1% angle (mixing valve increases by 1%);
- ② When target mixing temperature - mixed water temperature  $< 2^{\circ}\text{C}$ , mixing return valve is adjusted to reduce the angle by 1% (mixing valve closed by 1%);

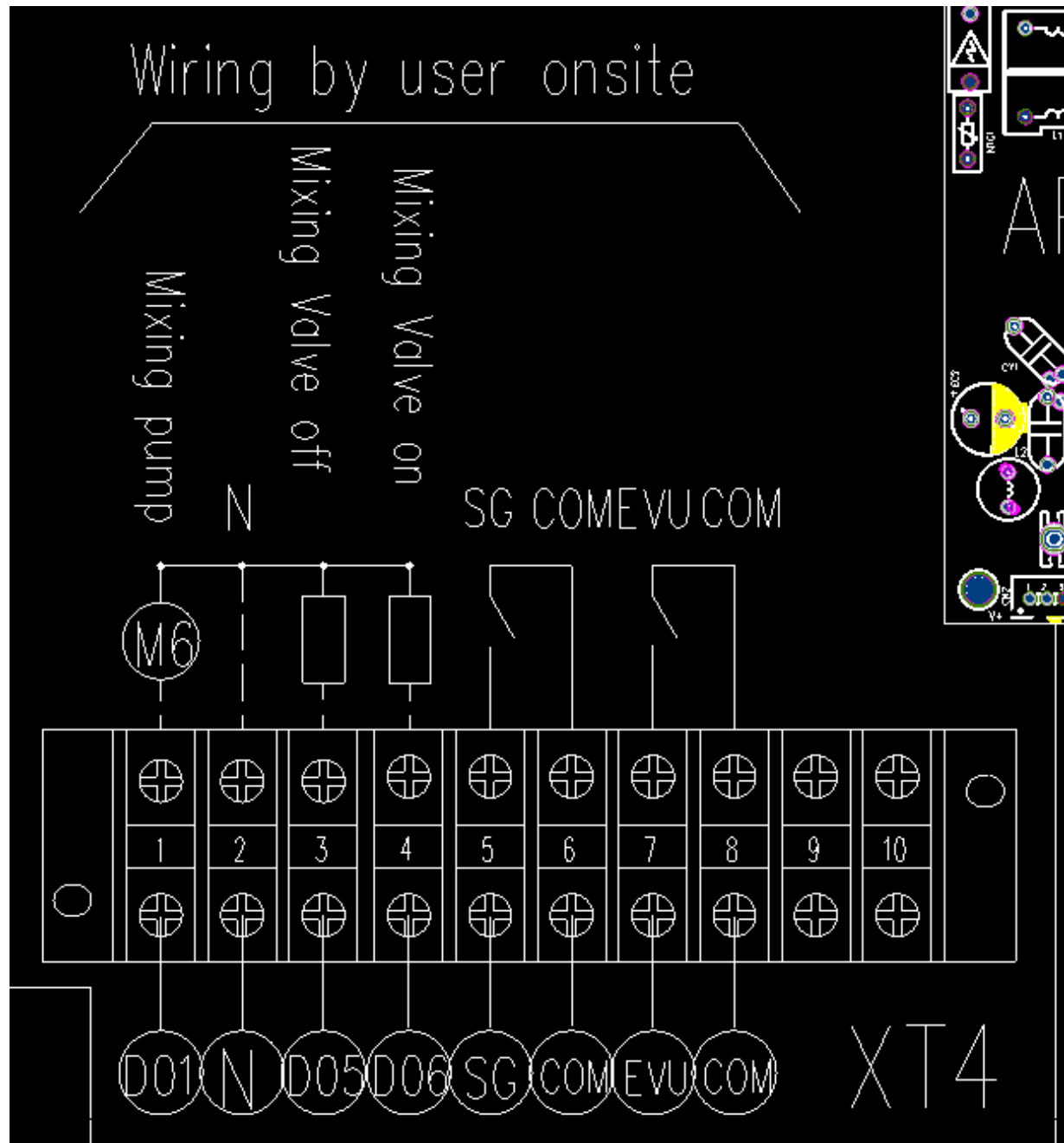
# Control Logic



③ When  $-2^{\circ}\text{C} \leq \text{target mixing water temperature} - \text{mixing water temperature} \leq 2^{\circ}\text{C}$ , mixing water 3-way valve will not be adjusted

④ 5min per adjustment interval (P258 parameter) (depending on floor heating pipe length and flow rate)

When mixing module stops, mixing pump stops running, 5 seconds after the pump stops running, mixing return waterway is closed.



### Connection:

1. Connect Mixing pump to terminal blocks port 21 and port 22;
2. Mixing water 3-way valve: normally open end connects to port 23, normally closed end connects to port 24, common end connects to port 22



03

ELECTRICITY CONSUMPTION METERING  
(POWER STATISTICS)

# Configuration

## Electricity consumption metering chip:

Same precision as the meter to ensure the detection accuracy



Three-phase metering board

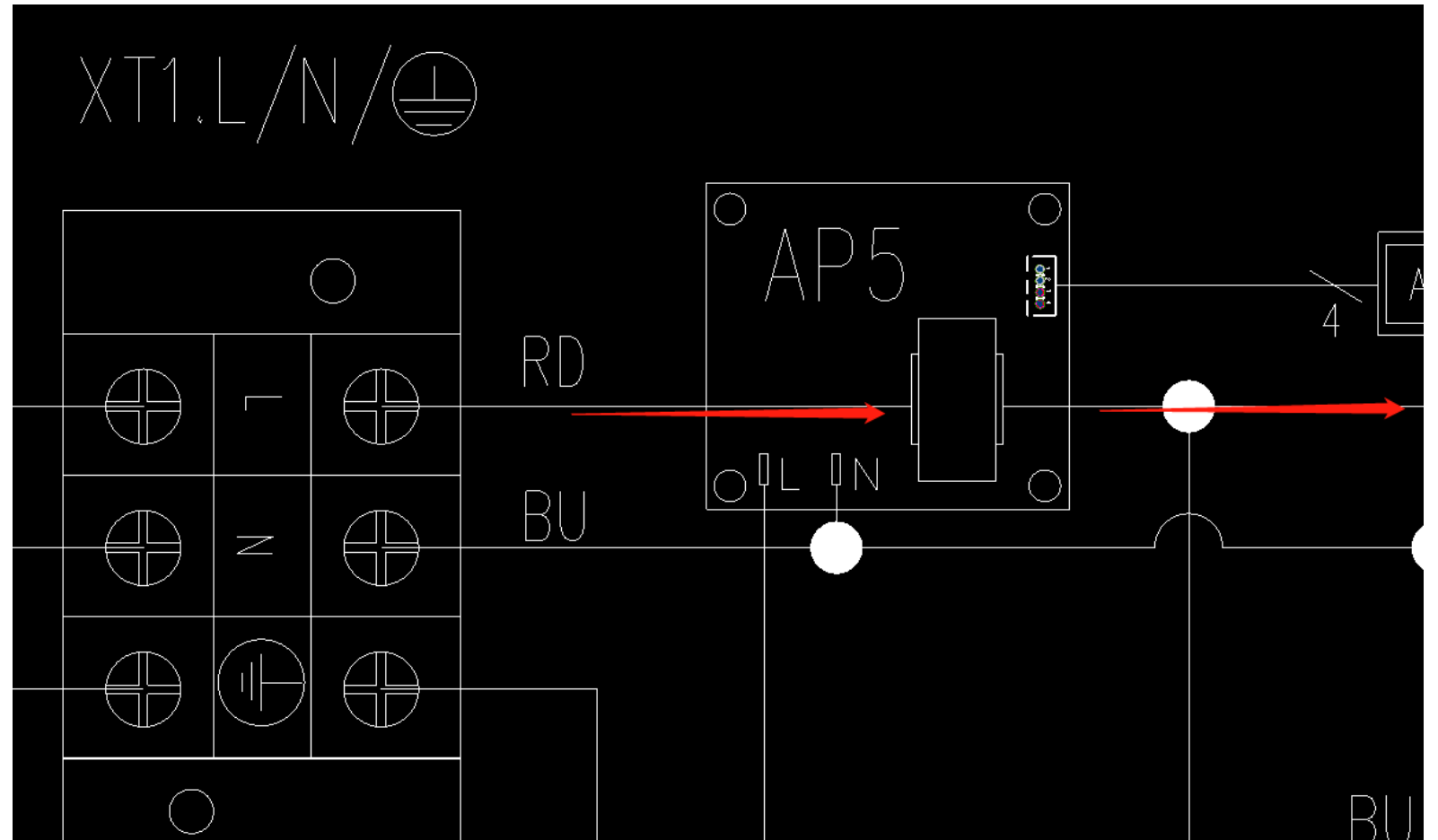
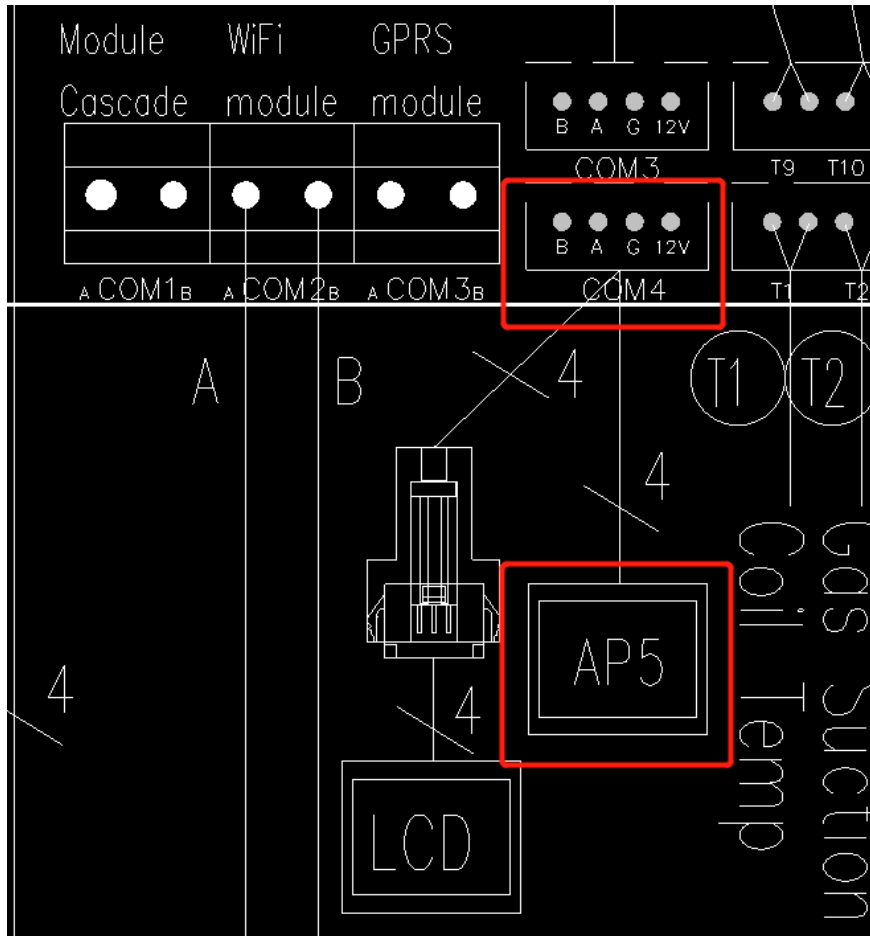


Single-phase metering board



metering board adapters

# Connection





Total power consumption  
(Accumulated since power up. if heat pump  
power up again after shutdown, it will will be  
accumulated again) 1.25 KW/h

Today power consumption 1.25 KW/h

Input current 0.066 A

input power 5.2 W



# THANK YOU

**SOLAREAST HEAT PUMP LTD.**

<https://solareasthvac.com>