Revision History			
Version number	Revised content	Revision date	Reviser
V1.0	Newly formulated		

Contents

Thank you for using the UEZ3 series smart miniature circuit breakers (hereinafter referred to as circuit breakers) and auxiliary components produced by our company. Before installation, operation, maintenance and inspection, please read the contents of this instruction manual carefully to ensure normal use. You should also be familiar with the relevant safety precautions and matters needing attention during use.

DANGER

- There may be a risk of electric shock, explosion, and electric arc burns
- When working on this power equipment, please cut off the superior power supply first
- Violation of these instructions may result in serious personal injury

The following are safety instructions before installing, operating, or maintaining this equipment. Please strictly comply with them!

- It is strictly prohibited to forcibly prevent the automatic opening and closing of the circuit breaker by external forces
- Before wiring the circuit breaker, please confirm whether the current power supply matches the rated voltage on the circuit breaker label, and determine the position of the phase and N lines to ensure the correct phase sequence
- When repairing the rear end equipment of the circuit breaker outlet, be sure to turn the manual/automatic switch to the manual position
- Strictly follow the "top in and bottom out" wiring method, reverse wiring can cause damage to product components and abnormal performance
- This product is suitable for use by personnel with electrical installation qualifications, and our company is not responsible for any problems caused outside of its normal use range

1、Precautions before use

1.1 Transport

During the transportation of products, it is necessary to prevent the invasion and mixing of harmful liquids such as water, rain, snow, or other chemical solvents, corrosive liquids, etc; Prevent strong collisions and squeezing between objects; Stack according to the packaging instructions.

1.2 Storage

Storage temperature range：-40 ℃ ~ 80 ℃

Storage location: dust-free, non-conductive, dust-free, dry and well ventilated.

1.3 Standard working environment

Working temperature range: -25 ℃ ~ 70 ℃ (monthly average temperature ≤ 35 ℃)

Relative humidity: Annual average: < 75%, 30 days (these days are naturally distributed throughout the year): 95%; Accidental appearance on other days: 85%

Altitude: not exceeding 2000m

Pollution level: Level 2

Installation category: Class II/III

Installation conditions: 35mm standard guide rail installation; The inclination between the installation surface and the vertical surface shall not exceed ± 5 °

1.4 Receiving inspection

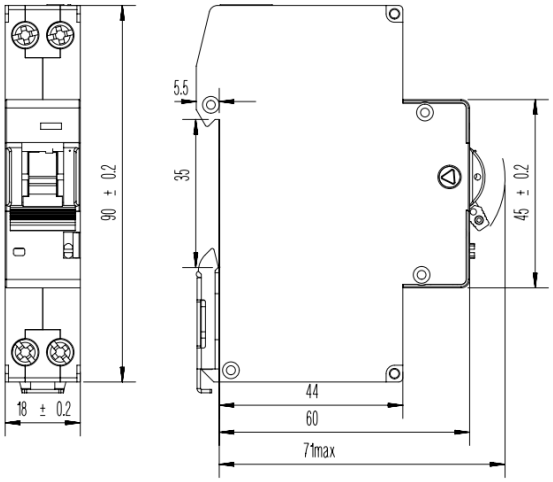
Inspect the received goods and verify if the product model, specifications, and quantity are consistent with the ordered goods. When opening the packaging box for inspection, avoid hitting and dropping the circuit breaker. After receiving the goods for inspection, even if it is to be installed and used in a short period of time, please return the circuit breaker to the packaging box and pay attention to waterproof and moisture-proof measures.

2、 Product Series Introduction

2.1 Circuit breaker series

Circuit breakers can be classified by frame and function into the following models: UEZ3-40, UEZ3-63, UEZ3L-63, UEZ3-125, and UEZ3D-125. The model specifications and appearance diagrams of the circuit breakers are shown below. For detailed product specifications of circuit breakers, please refer to the product section on the official website of Hongfa Co., Ltd.

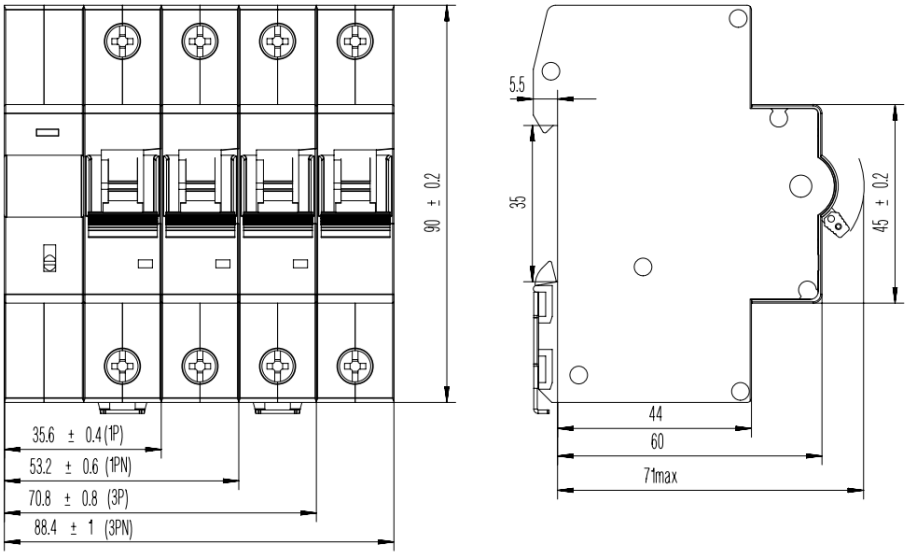
UEZ3-40 physical and dimensional drawings



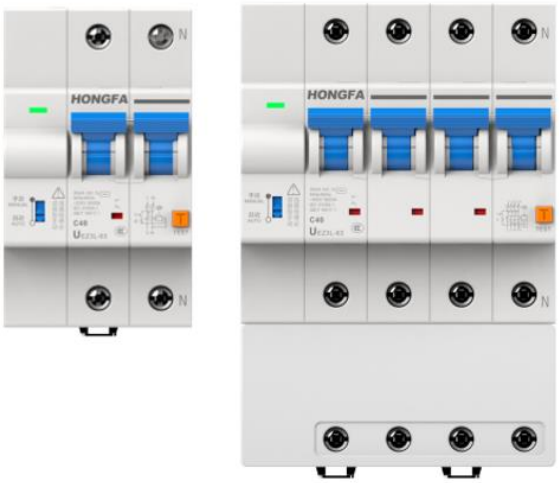
1P **1PN**

UEZ3-63 physical drawing dimensional drawing

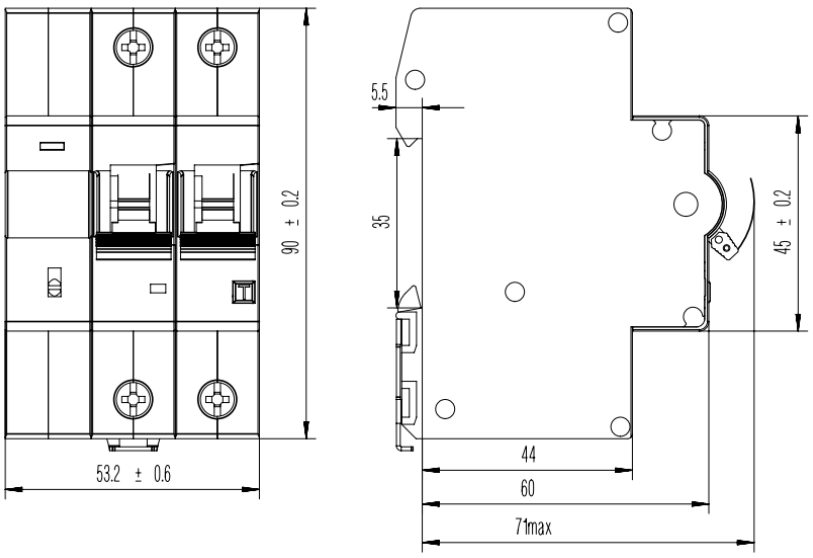
1P **1PN** **3P** **3PN**

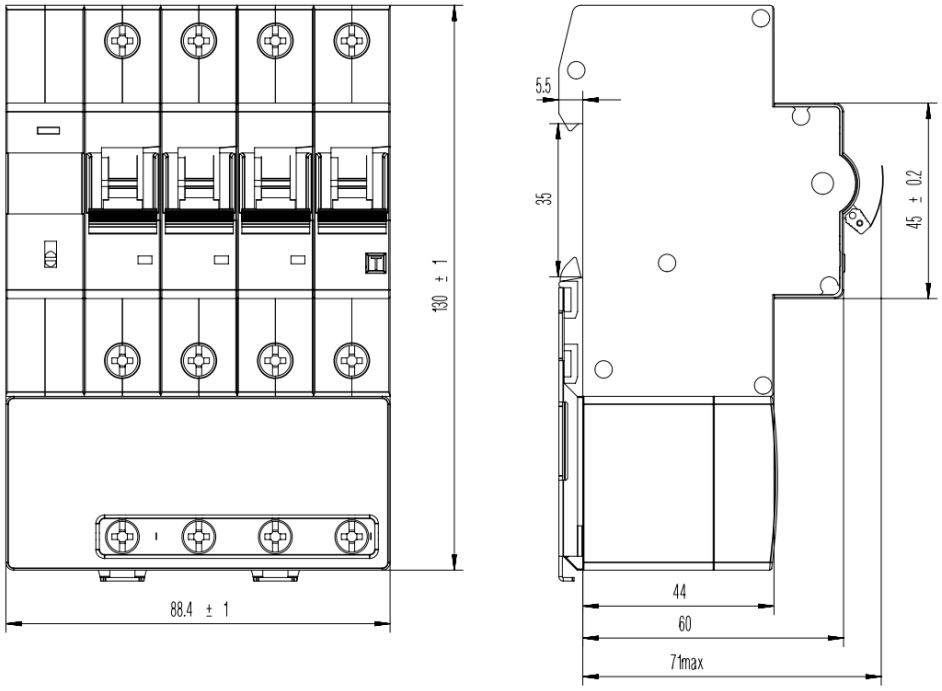


UEZ3L-63 physical drawing dimensional drawing



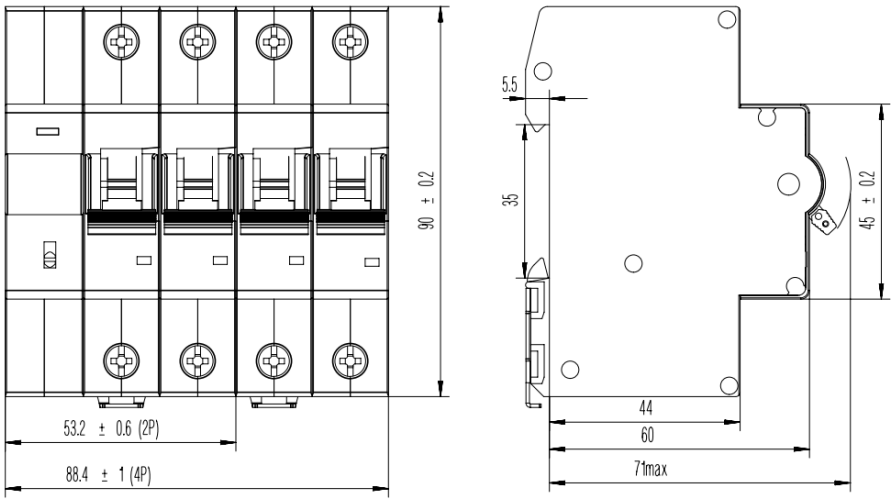
1PNL **3PNL**



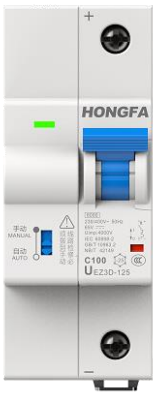


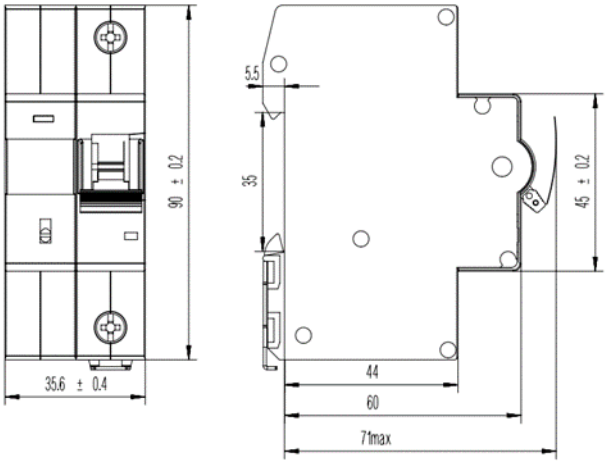
UEZ3-125 physical drawing dimensional drawing

2P **4P**



UEZ3D-125 physical drawing dimensional drawing

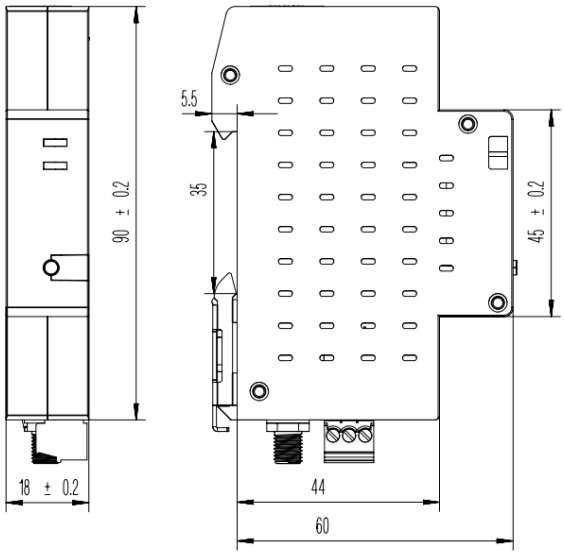




1P

2.2 Smart gateway series

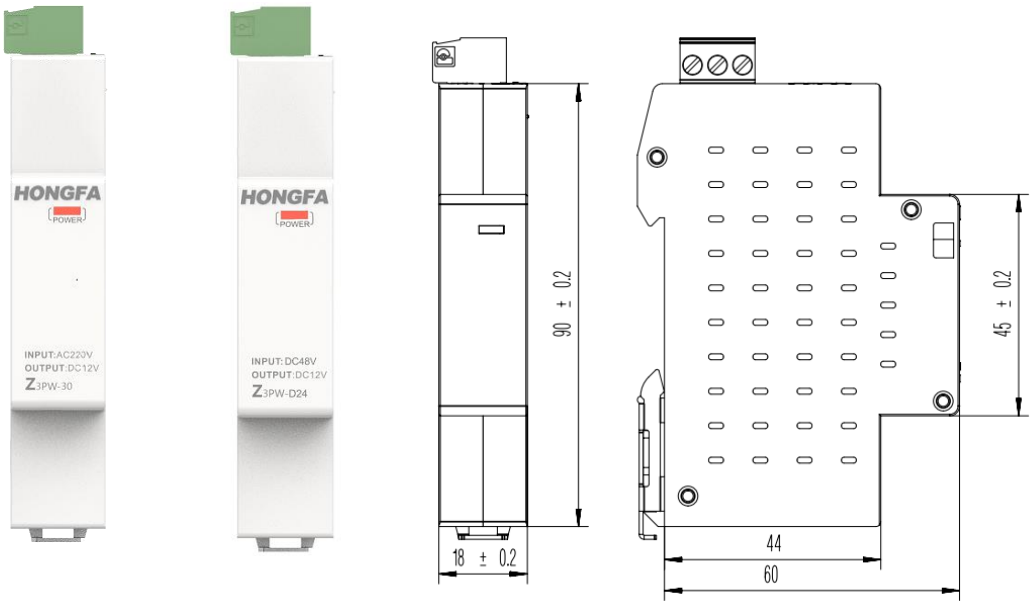
The main function of the smart gateway is to collect the information of the circuit breaker and upload it to the cloud service platform. According to different communication methods, the smart gateway can be divided into WIFI-type gateways, wired Ethernet-type gateways, 4G version gateways, as well as R-type (RS485) and U-type (RS232) gateways for the uplink communication interface for selection. For detailed instructions on the product models of the smart gateway, please refer to the product selection manual of the Z3GW gateway on the official website of Hongfa Co., Ltd.



2.3 Power module

The main function of the power module is to supply power to the circuit breaker and the smart gateway. Due to different application environments, our company has two types of power modules: The input voltage range of the Z3PW-30 power module is AC120-260V, which is used to be matched with the AC circuit breaker; The input voltage range of the Z3PW-D24 power module is DC20-80V, which is usually matched with the DC circuit breaker. For detailed instructions on the product models of the power modules, please refer to the power product selection manual on the official

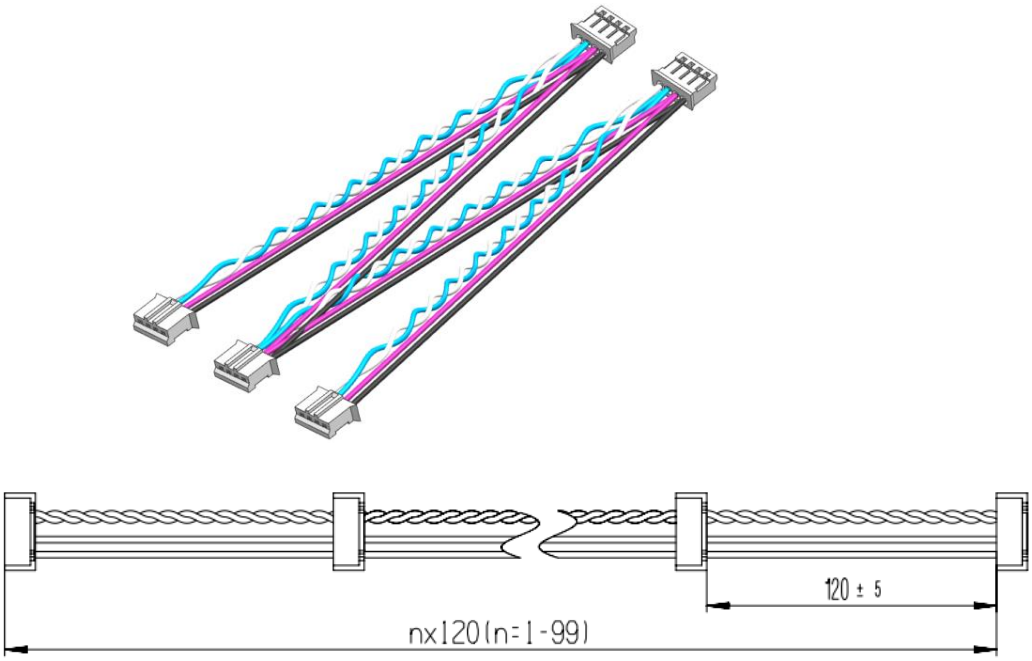
website of Hongfa Co., Ltd.



Z3PW-30 **Z3PW-D24**

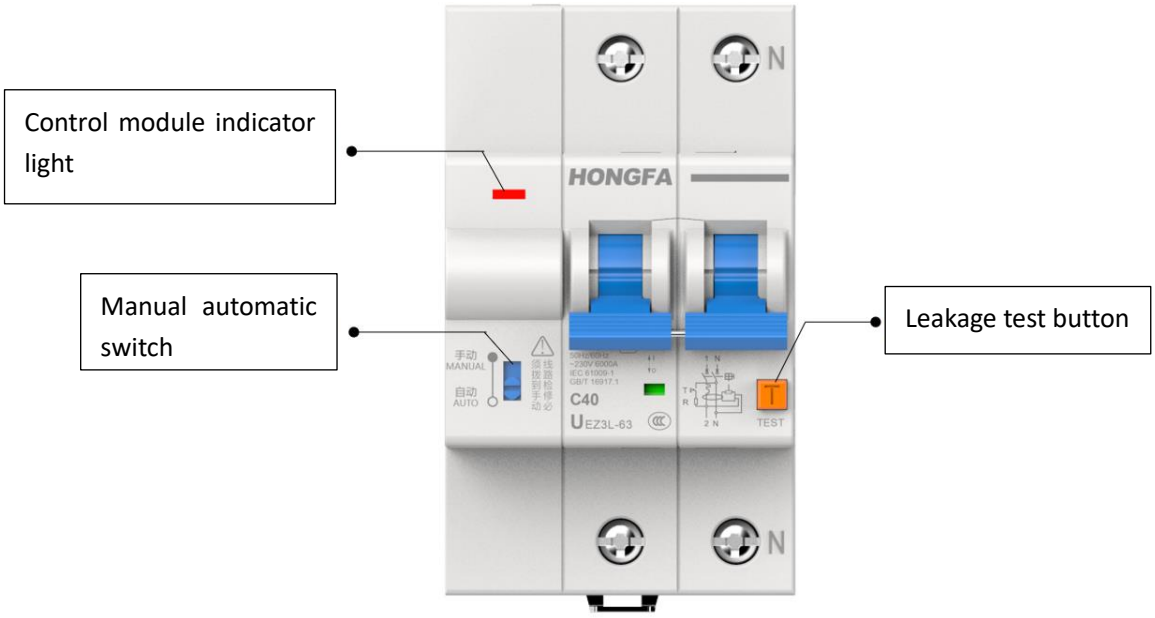
2.4 Communication wire

Z3CL communication wire is an auxiliary component used for connecting power supplies, circuit breakers, and gateways for information transmission and power input. According to the number of wiring terminals, there are 1, 20, 50, and 100 available for selection. Line defined as black: GND; Red: +12V; Blue: 485B; White: 485A.



3、Product Appearance and Interface Description

3.1 Circuit breaker appearance and interface description



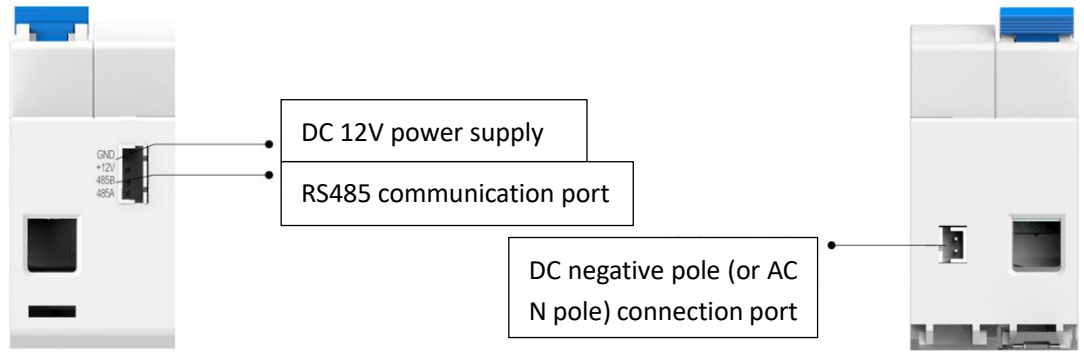
Control module indicator light：

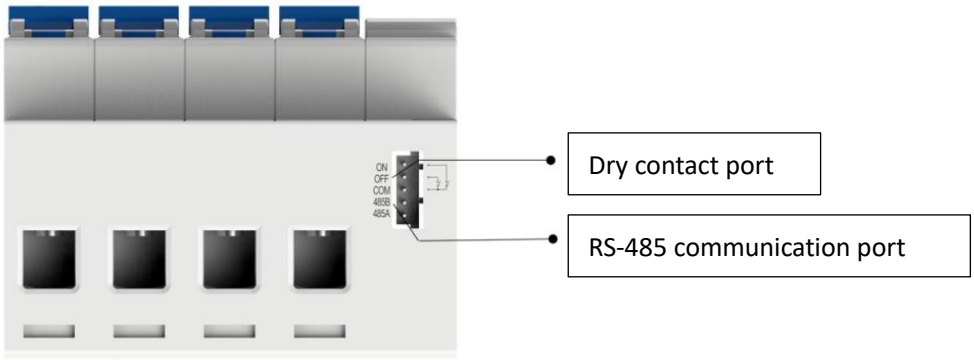
Closing indication: The indicator light is green;
Opening indication: The indicator light is red;
Fault indication: The indicator light is flashing red;
Fault waiting for closing: The indicator light is flashing green;
Manual state: The indicator light flashes alternately red and green.

Manual automatic switch： The manual automatic switch is in the automatic position, enabling automatic reclosing and remote control opening and closing functions; The manual and automatic switch is in the manual position to turn off the automatic reclosing and remote control opening and closing functions. The manual automatic switch is also a function key for changing the communication address.

Leakage test button： Orange T button is a test button. Press it once a month to test whether the leakage protection function is normal. The circuit breaker is in a closed state when connected to the circuit, press the test button, and if the leakage protection is normal, the circuit breaker trips; If the leakage protection fails and the test button is pressed, the circuit breaker will not trip and needs to be replaced.

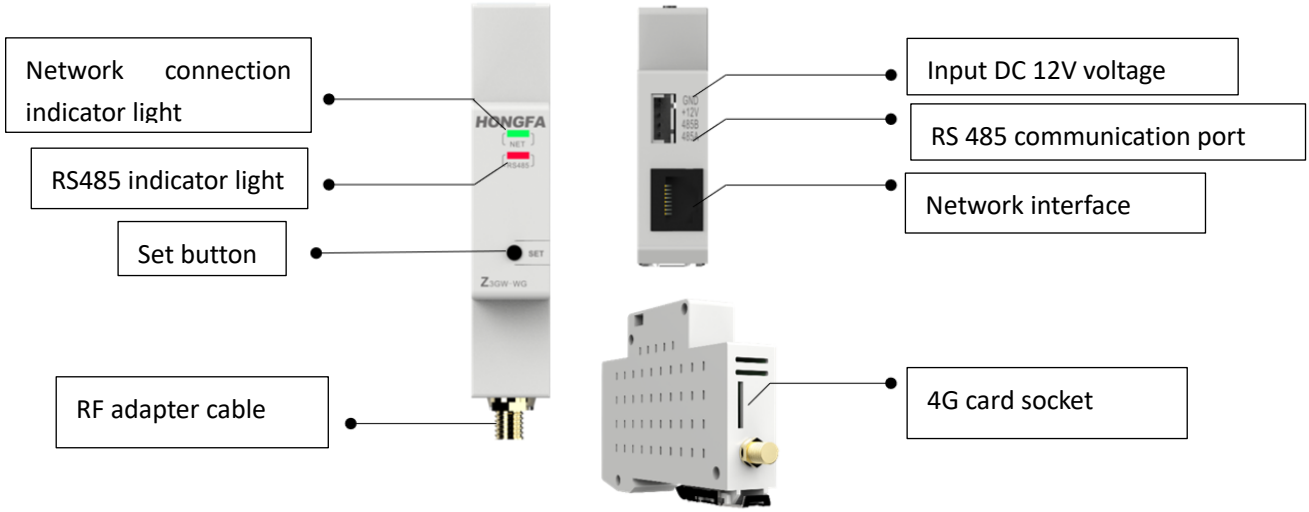
Interface Description:

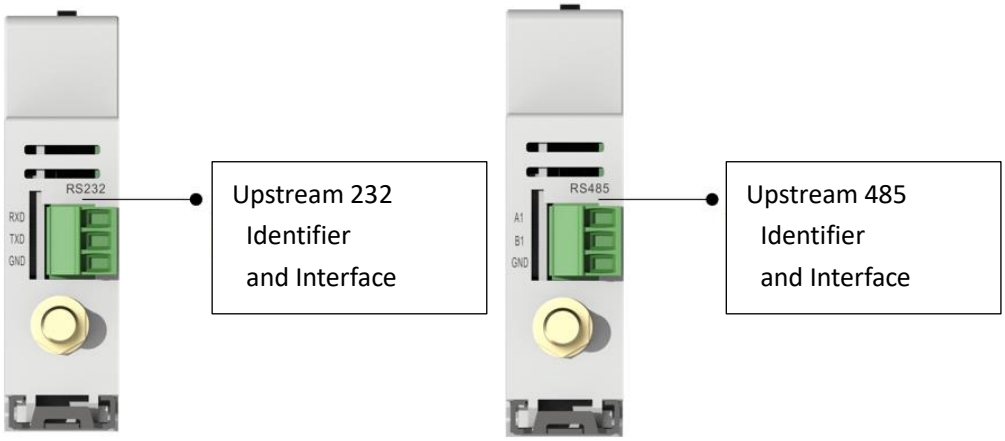




3.2 Gateway Interface Description

Z3GW Intelligent Gateway Interface Description



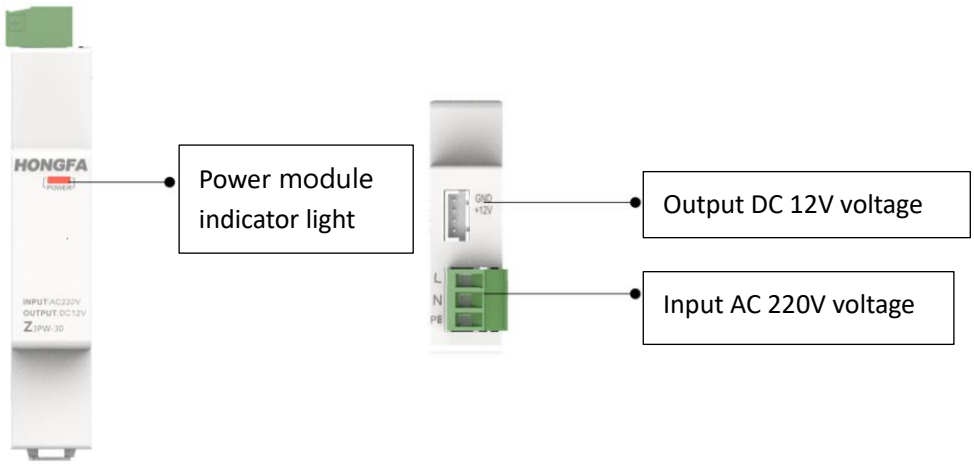


Gateway indicator light description

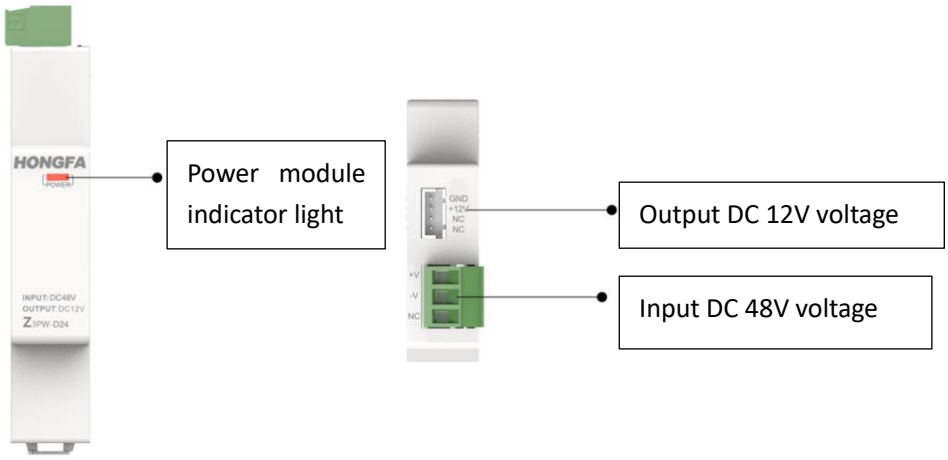
Gateway indicator light	State	Illustration
NET(Green light)	Slow flashing (once every 1s)	AP hotspot mode status, can be configured for WIFI distribution network or gateway
	Flash (once every 100ms)	The gateway is not connected to the network or is currently connected
	Light	The gateway is connected to the network
	2 seconds slow flash and then fast flash	The gateway did not recognize the 4G card, please check to confirm if the card is inserted correctly!
RS485(Red light)	Slow flashing (once every 1s)	Abnormal communication between gateway and circuit breaker, gateway not connected or circuit breaker not added
	Light	Communication between gateway and circuit breaker is normal
	Flash (once every 100ms)	The gateway is in circuit breaker address configuration mode

3.3 Power Module Interface Description

Z3PW-30 Power Module Interface Description



Z3PW-D24 Power Module Interface Description



Note: The indicator light remains red when the power module is operating normally.

4、Product installation

4.1 Product installation precautions

1） The gateway supports communication with 1-16 circuit breakers (additional gateways are required if the maximum number is exceeded).

2） The Z3PW power module can support a maximum of 12 poles for circuit breakers. Equivalent to a power module capable of carrying 12 1P circuit breakers; A power module can carry 6 2P (or 6 1PN or 6 1PNL) circuit breakers; A power module can carry four 3P circuit breakers; A power module can carry three 4P (or three 3PN or three 3PNL) circuit breakers. If multiple types of circuit breakers are installed in combination, it is sufficient to not exceed the maximum number of poles. The opening and closing control between two circuit breakers should achieve a minimum interval of 0.5 seconds.

3） The maximum number of poles of the DC circuit breaker supported by the Z3PW-D24 power module is 8 poles. There should be an interval of at least 0.5 seconds between the opening and closing control of two circuit breakers.

4） For the convenience of wiring, when installing the circuit breaker, the communication wire should be plugged in first, and then the main circuit wire should be connected.

5） The power module should be installed on the incoming line side of the intelligent circuit breaker it supplies power to.

6） When installing, the QR code label on the gateway should preferably be in a visible position to facilitate later debugging.

4.2 Circuit breaker terminal wiring capacity

Terminal wiring capacity: Suitable for UEZ3-63, UEZ3L-63, UEZ3-125, UEZ3D-125 series.
It uses a crimping method and can be connected to wires with a cross - sectional area ranging from 1.0 mm^2 to 35 mm^2.

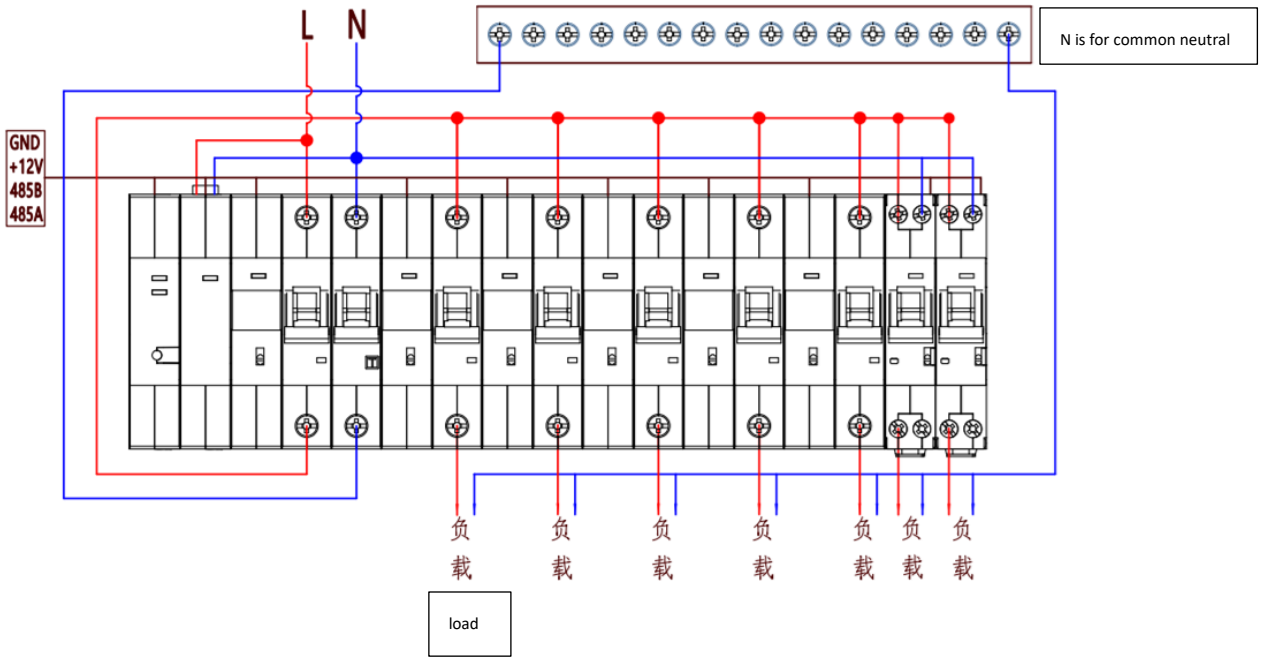
Wiring screw specifications	Rated Torque	Ultimate torque	Hard (solid or stranded) conductor	Flexible circuit conductor
M7	3.5N • m	4.5N • m	1.0mm²～35mm²	1.0mm²～25mm²

Terminal wiring capacity: Suitable for UEZ3-40 series.
It uses a crimping method and can be connected to wires with a cross - sectional area ranging from 1.0 mm² to 16 mm².

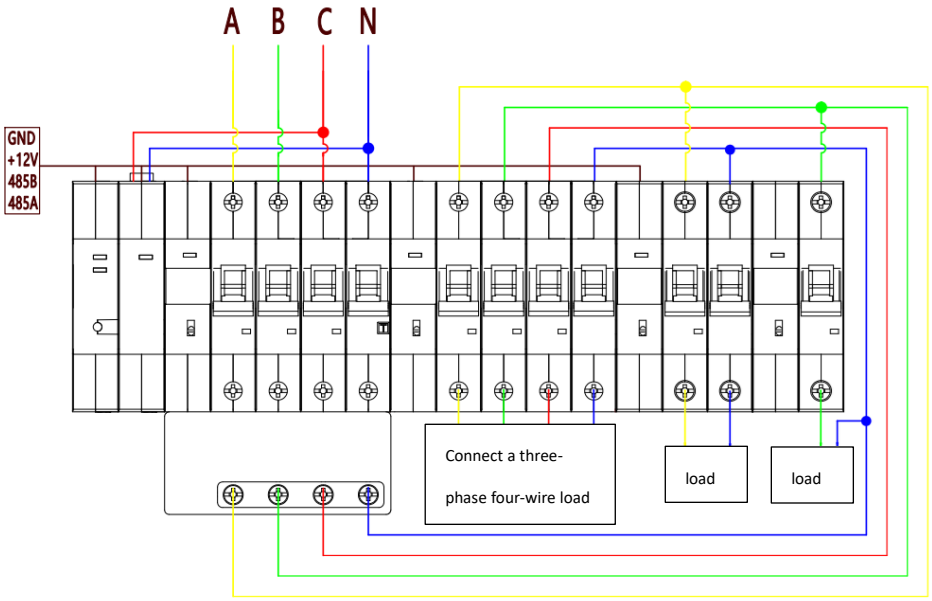
Wiring screw specifications	Rated Torque	Ultimate torque	Hard (solid or stranded) conductor	Flexible circuit conductor
M4	1.2N • m	2N • m	1.0mm²～16mm²	1.0mm²～16mm²

4.3 Product power supply wiring diagram

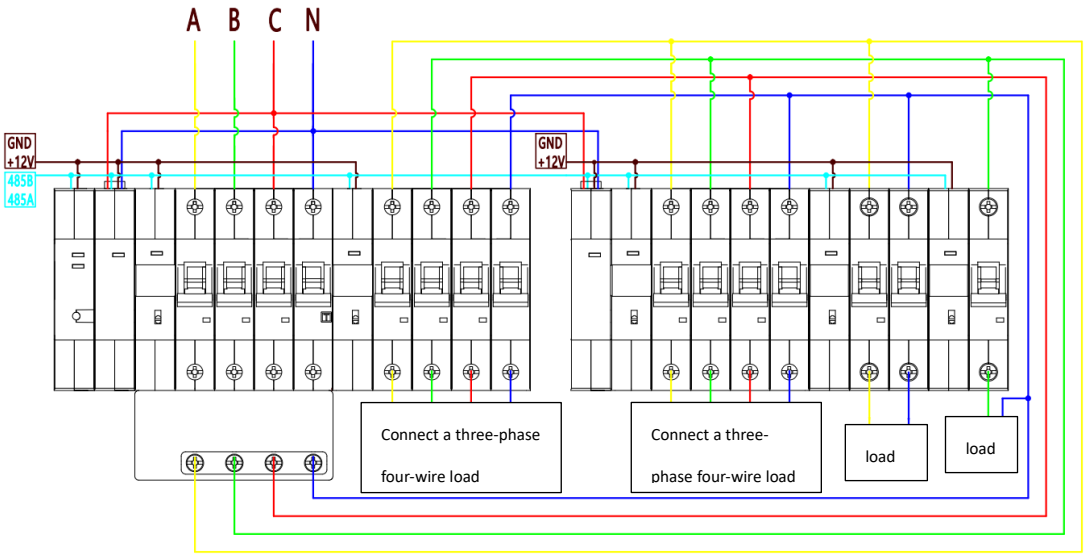
Circuit breaker single-phase power supply environment wiring diagram



Circuit breaker three-phase power supply environment wiring diagram.

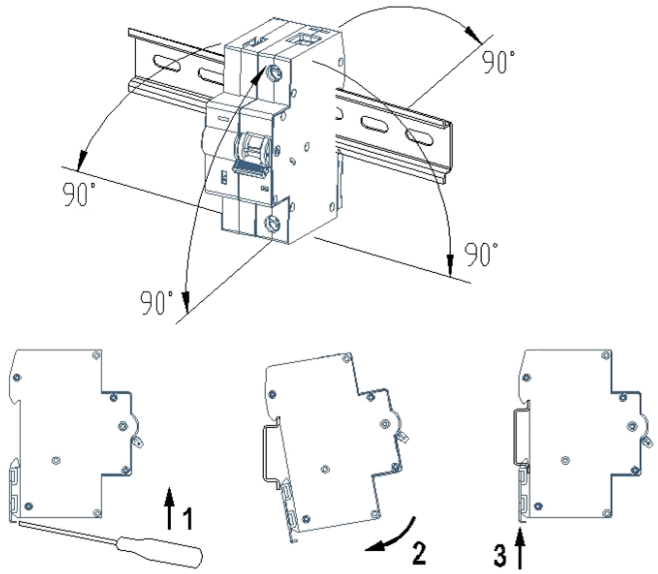


Wiring diagram of multiple circuit breakers loaded by two power supply modules.



4.4 Product installation steps

1. Power off the upper level of the circuit breaker to be installed.
2. Follow the instructions in the following figure to connect the intelligent gateway, power module, and circuit breaker to the guide rail in sequence, and insert the communication wire terminals into the output end of the power module. The other communication wire terminals are inserted into the ports of the intelligent gateway and circuit breaker in sequence. Afterwards, connect the wires to the incoming and outgoing lines of the circuit breaker to ensure that there is no looseness.



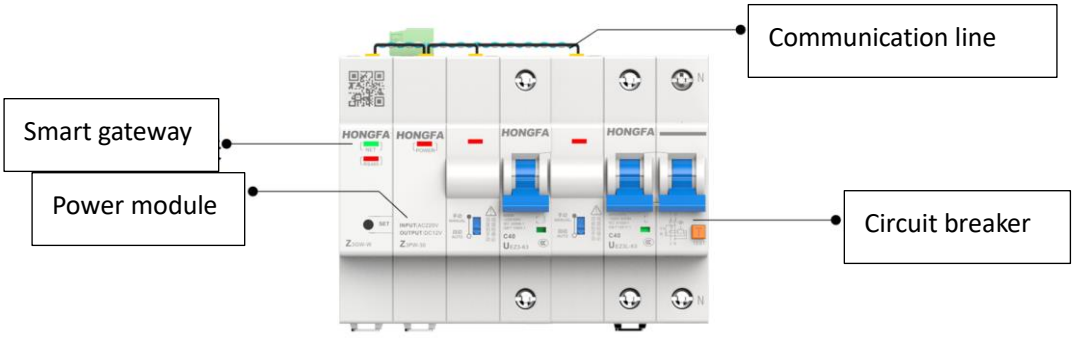
3. The input terminal of the power module should be connected to the incoming side of the intelligent circuit breaker it supplies. After the overall completion, check the wiring to ensure that there are no errors in the wiring. While ensuring that there are spare communication wires, cut off the excess parts and perform insulation treatment.

4. Power on the superior and observe the status of the product indicator light. Under normal circumstances, the power indicator light is always red, the gateway NET (green light) should be in a fast flashing (once every 100ms) state, and the RS485 (red light) should be in a slow flashing (once every 1s) state. The red light of the circuit breaker is always on when it is in the open state (please refer to the control module's indicator light instructions for any other changes).

5. If all product lights are found to be off, check if the circuit is successfully powered on or if the power module is abnormal; If only the power module indicator light is on, check if the output terminal wiring of the power module is loose; If individual circuit breakers or gateway lights are not on or the initial state is incorrect, it is necessary to check whether the communication wires at the corresponding positions are loose.

4.5 Installation effect display

The diagram below illustrates the installation schematic of the gateway, power supply, communication cable, and circuit breaker. If additional circuit breakers need to be connected, they can be sequentially daisy-chained using the communication cable to the circuit breaker ports, provided the total number does not exceed the power supply's maximum load capacity (refer to the product installation notes for the power supply's load specifications).



5、Product debugging

After the overall installation is completed, the gateway and the circuit breakers need to be debugged. For the detailed operation of gateway debugging, you can refer to the "Z3GW Intelligent Gateway Software Manual" on the official website of Hongfa Co., Ltd. For the detailed operation of circuit breaker debugging, you can refer to the "UEZ3 Series Intelligent Miniature Circuit Breaker Software Manual" on the official website of Hongfa Co., Ltd.

6、Common problems and solutions

1. When remotely controlling the circuit breaker to close, the circuit breaker repeatedly performs closing and opening operations. This situation is generally caused by insufficient power supply or too long communication lines. The length of excess communication wires should be reduced or matched according to the number of circuit breakers that our power module can carry.
2. During the closing process of the circuit breaker, the working power input is abnormal, and the circuit breaker may become stuck. It is necessary to re plug and unplug the communication wire interface of the circuit breaker, and the circuit breaker can be restored to normal.
3. Short circuit protection (instantaneous protection) and leakage protection are achieved by tripping the circuit breaker mechanism. When the circuit breaker trips due to these two reasons, the circuit breaker cannot identify the type of fault.

7、Document link

For the product selection of circuit breakers, please go to the official website of Hongfa Co., Ltd. to download the product selection manual.
For the debugging of circuit breakers and communication protocols, please go to the official website of Hongfa Co., Ltd. to download the "UEZ3 Series Smart Miniature Circuit Breaker Software Manual".
For the debugging of the intelligent gateway and communication protocols, please go to the official website of Hongfa Co., Ltd. to download the "Z3GW Smart Gateway Software Manual".