Safety Warning

1. It is strictly prohibited to install the product in an environment containing flammable and explosive gases and wet condensation, and it is strictly prohibited to operate the product with wet hands.
2. It is forbidden to touch the conductive part of the product during the work.
3. The installation, maintenance and servicing of the product must be carried out by professionals to ensure that the line is powered off.
4. Children are not allowed to play with products or packaging.
5. Enough space and safety distance shall be reserved around the product installation.
6. Do not install in the place where the gas medium can corrode metal and damage insulation.
7. When the product is installed and used, the standard wire must be applied and the power supply and load that meet the requirements must be connected.
8. In order to avoid dangerous accidents, the installation and fixation of products must be carried out in strict accordance with the requirements of the instructions.
9. After removing the package, check whether the product is damaged and check the integrity of the item.
10. Please connect this product correctly in strict accordance with the wiring instructions.

This is the general warning sign. It is used to alert the user to potential hazards. All safety messages that follow this sign shall be obeyed to avoid possible harm.

1 Main purpose and scope

The Gateway with Open Protocol SMG-WSR and SMG-ESR (hereinafter referred to as the Gateway) is a flexible configuration data protocol converter for MQTT cloud users on the IOT.It mainly supports the conversion of ModbusRTU device data to JSON format and transmitted through the MQTT. The gateway's built-in web system supports configurating the gateway network parameters, cloud MQTT parameters, etc., And able to upload, check, and delete of device communication model files, device management files, and device rule files through the local web system. Data collection, cloud reporting, and remote control can be achieved through MQTT. The gateway complies with TH35-7.5 rail.

2 Usage, installation, transportation, and storage conditions

- Working environment temperature: -25℃~+70℃, and the average working temperature for 24 hours shall not exceed+35℃;
- Storage ambient temperature: -40℃~+70℃;
- Humidity of the working environment: the relative humidity of the atmosphere shall not exceed 50% when the ambient air temperature is+40℃, and a higher relative humidity is allowed at a lower temperature, such as 90% at+20℃. Appropriate measures shall be taken for occasional condensation due to temperature changes;
- Altitude: the installation site shall not exceed 2000m;
- Pollution level: Level 3;
- Protection grade: IP20;
- Installation category: Class II.

2.1 Installation conditions

Under the conditions that meet all safety cautions, the gateway should generally be installed vertically, and the installation site should be free from obvious shaking, impact, and vibration.

2.2 Transportation and storage conditions

During storage and transportation, the products shall not fall or be attacked by rain or corrosive gas.

3 Main technical parameters

3.1 Basic parameters of control power circuit

The gateway input voltage is DC12V, and the power supply used must be less than 100W and meet the PS2 level standard.

3.2 Communication port standards and characteristics

1) RS-485: It conforms to TIA/EIA-485-A standard, generally referred to as RS-485 standard, and can be connected to 16 terminal devices through RS-485 bus at most.

2) Wi-Fi: Comply with 802.11 b/g/n (802.11n, speed up to 150 Mbps) protocol, frequency range 2.4GHz - 2.5GHz.

3) Ethernet: Compliant with IEEE-802.3-2008 standard, with a maximum supported speed of 100Mbps.

3.3 Basic usage

1）Upon normal power supply, the gateway comes factory-set to enable its own AP hotspot with the default SSID: SMG-OPEN-XXXX (the last four digits of the nameplate QR code). After connecting to the hotspot, the user can access the gateway web system by the IP address 192.168.4.1 for parameter configuration.

2）Wi-Fi: The default mode is Station. The default IP type is DHCP.

3）Ethernet: The default IP type is DHCP.

4 Outline and installation dimensions

4.1 Dimension (unit: mm)

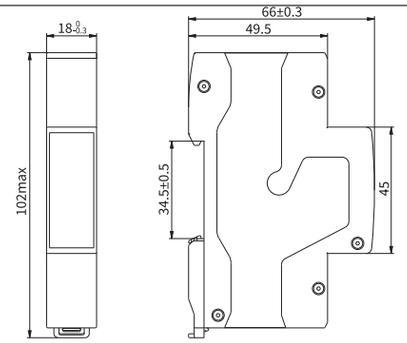

Figure 1 Outline and Installation Dimensions

4.2 Power port

The gateway has a power input port with a spacing of 3.8mm, as shown in Figure 2.

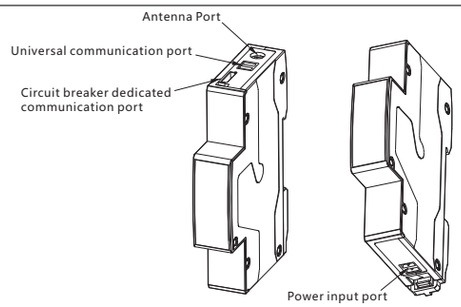

Figure 2 SMG-WSR Schematic diagram of gateway power supply and communication port

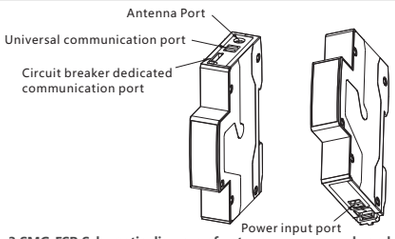

Figure 3 SMG-ESR Schematic diagram of gateway power supply and communication port

4.3 Communication port

The SMG-WSR gateway has one universal purpose RS-485 port and one special purpose RS-485 port, as shown in Figure 4. The universal RS-485 port adopts the plug-in terminal with a spacing of 2.5 mm, and the special RS-485 port is a customized terminal with a spacing of 2.0 mm. The two RS-485 ports are connected inside the gateway.

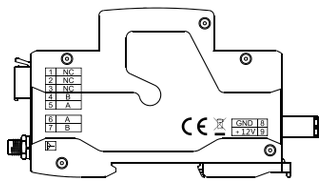

Figure 4 Schematic diagram of SMG-WSR gateway communication port

Table 2.1 SMG-WSR Gateway Port Description

No.	Port	Port identification	Port description
1	NC port	NC	No Connect port
2			
3			
4	RS-485	B	special RS-485 port
5		A	
6		A	Universal RS-485 port
7		B	

Continued Table 2.1

No.	Port	Port identification	Port description
8	Power input port	GND	12V power supply negative pole
9		+12V	12V power supply positive pole
10	Antenna		Suction cup antenna

The SMG-ESR gateway has one universal purpose RS-485 port and one special purpose RS-485 port, as shown in Figure 4. The universal RS-485 port adopts the plug-in terminal with a spacing of 2.5 mm, and the special RS-485 port is a customized terminal with a spacing of 2.0 mm. The two RS-485 ports are connected inside the gateway.

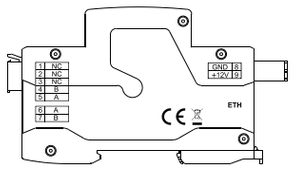

Figure 5 Schematic diagram of SMG-ESR gateway communication port

Table 2.2 SMG-ESR Gateway Port Description

No.	Port	Port identification	Port description
1	NC port	NC	No Connect port
2			
3			
4	RS-485	B	special RS-485 port
5		A	
6		A	Universal RS-485 port
7		B	
8	Power input port	GND	12V power supply negative pole
9		+12V	12V power supply positive pole
10	Ethernet port	ETH	Rj45 port

5 Structural features and working principle

The gateway operates by using hardware circuits to implement communication port conversion and software programs to handle protocol conversion, data forwarding, and device management functions.

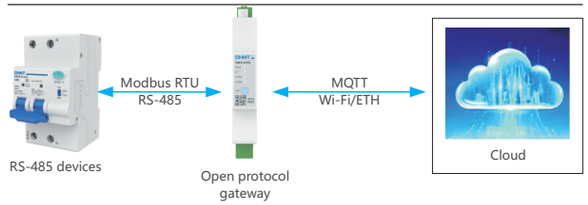

Figure 6 Schematic Diagram of Data Flow Direction

5.2 Keys and indicators

The working status indicator and key positions of the gateway are shown in Figure 7.

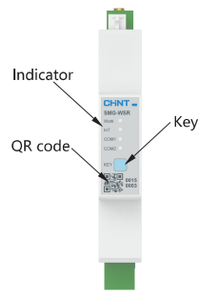

Figure 7 SMG-WSR Gateway

5.2.1 Key function

The key of the gateway has multiple functions. See Table 3 for details.

Table 3 Description of Multi-function Keys

Operation	Function
Press for 1 second	Normal mode/configuration mode flip switch Normal mode: Work LED flashes slowly Configuration mode: Work LED flashing
Press for 7 second	Press and hold for 7 seconds until the Working LED, IoT yellow LED, and IoT blue LED are all on, then restart for 5 seconds
Press for 15 second	Press and hold for 15 seconds, the Work LED, IoT yellow LED, and IoT blue LED will flash super fast, and then reset within 1 minute

Table 4 Explanation of Flashing Frequency

Definition of flashing lights	Description	On-off cycle
Slow Flash	0.5Hz	1000ms on, 1000ms off
Fast flash	2Hz	250ms on, 250ms off
Super-fast flash	5Hz	100ms on, 100ms off

5.2.2 Indicator status

The indicator light will display the current working status of the gateway, as shown in Table 5.

Table 5 Description of Indicator status

Name	Description	Status display
Work red light	System operation status indicator light	Slow flashing in normal mode Fast flashing in configuration mode
IoT Blue Light	Network status indicator	Super-fast flashing in network connection Fast flashing when the network connection is successful Slow flashing when Cloud MQTT connection is successful
COM1	COM1 communication indicator	Two tone LED, blue when sending data and yellow when receiving data
COM2	COM2 communication indicator	Reserved

6 Installation, debugging, and operation

6.1 Installation inspection and instructions

Before installation, check whether the gateway nameplate correct or not. Connect the power cable correctly and connect the gateway to the RS-485 device.You can configure the network connection parameters through the gateway web system.Only Bluetooth Smart MCB devices can be added through the autonet button of the web system.When the Bluetooth Smart MCB is added successfully,the web system can perform corresponding actions by simply controlling the Bluetooth Smart MCB device.

6.2 Installation

Install with a TH35-7.5 type mounting rails, as shown in Figure 8

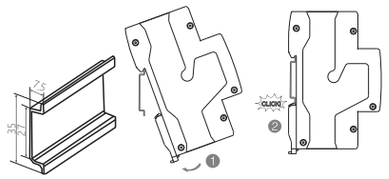

Figure 8 Installation Diagram

6.3 Removal

When removing, use a tool to press the retaining clip and it can be taken off, as shown in Figure 9.

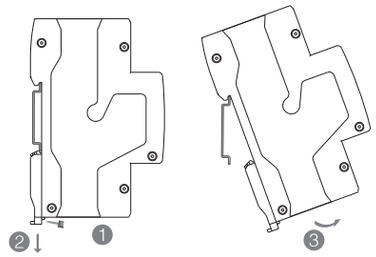

Figure 9 Disassembly Diagram

6.4 Wiring selection

The power input port is connected to the+12V and GND ends of DC12V. Generally, the wire cross-sectional area is (0.5-1) mm²Copper conductor.RS-485 communication line generally selects line cross-sectional area of (0.2-0.5) mm² Shielded twisted pair. The stripping length is shown in Figure 10.The connection line of the special power supply and communication port for the circuit breaker needs to use the customized line of Chint special circuit breaker.

Please consult the sales department for details.

Zhejiang Chint Electrics Co., Ltd.

Add: No.1, CHINT Road, CHINT Industrial Zone,North Baixiang, Yueqing, Zhejiang 325603,P.R.China

E-mail: global-sales@chint.com

Website: http://en.chint.com

CHINT ELECTRICS

SMG-WSR、SMG-ESR
Open Protocol Gateway
User Instruction

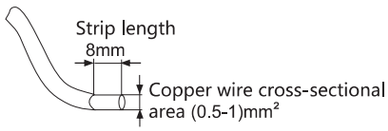

Figure 10 Schematic Diagram of Terminal Stripping

Note: Check whether the wiring is correct and firm before power on.

7 Maintenance

The gateway should be checked regularly during operation;

After the gateway has a fault, it should be eliminated first. Then restart the device to check whether it returns to normal. If it fails to return to normal, replace the device.

8 Troubleshooting

Table 6: Examples of Fault Analysis and Troubleshooting

Fault phenomenon	Cause analysis	Exclusion method
All lights not on	Gateway not powered, wiring screws not tightened on wires or loose connections	Check if the terminal screws are tightened or if there's a loose connection
COM1 not flashing	1. RS-485 communication cable not connected 2. No devices under the gateway	1.Reinsert the RS-485 communication cable 2.Re-add devices

9 Warranty period and environmental protection and other legal regulations

9.1 Warranty period

Under the normal storage and transportation conditions, and the product package or product itself is in good condition, the warranty period of the product is 24 months from the date of production.

The following conditions are not covered by the warranty:

1) Damage caused by improper use, storage and maintenance of users.

2) Damage caused by organizations or personnel not designated by the company, or self disassembly and maintenance.

3) The product exceeds the warranty period.

4) Damage caused by force majeure.

9.2 Environmental protection

In order to protect the environment, when this product or its components are scrapped, please properly treat them as industrial wastes or it can be delivered to the recycling station for classified disassembly, recycling and reuse according to relevant national regulations.

CHINT

QC PASS

SMG-WSR、SMG-ESR
Open Protocol Gateway
IEC 62368-1:2020+A11:2020

JZQ-08

Test date: Please see the packing

ZHEJIANG CHINT ELECTRICS CO., LTD.

NO:2024.10

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SMG-WSR、SMG-ESR
Open Protocol Gateway

User Instruction

Standard: IEC 62368-1:2020+A11:2020