

EIoT-GW03 SERIES

----USER MANUAL IP20 GATAWAY



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1 Quick Start

The purpose of this manual is to help users quickly get familiar with and understand how to use the EIoT20 series IIoT gateway, and use the webpage configuration application management to achieve user data collection and monitoring.

It is recommended that users read this chapter systematically and follow the instructions to have a basic understanding of the EIoT20 IIoT gateway product. At the same time, ELCO will continue to improve and explain specific functional details, please refer to the subsequent version updates.

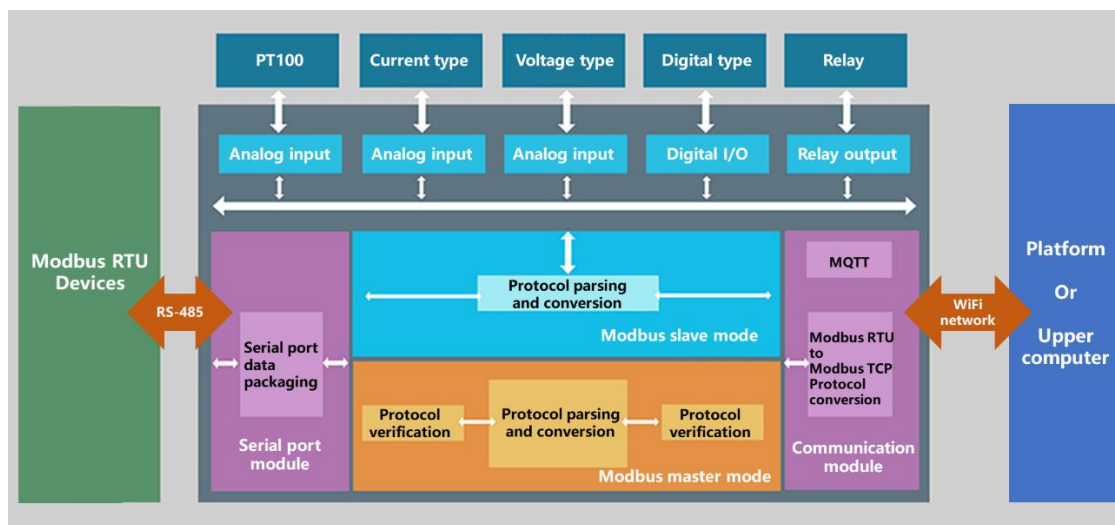
If you encounter problems during use, you can submit them to our Customer Support Center or send an email to the IIoT question mailbox: iiot@elco.cn

For product related information, you can go to the official website to download the corresponding product manual:

ELCO website: <http://www.elco-holding.com.cn>

1.1 Hardware environment

The system functions of the EIoT20 series IIoT gateway are as follows:



Hardware (standard application):

- One computer for configuration operation: used for login configuration webpage by Ethernet, the default IP address is 192.168.1.9;
- Remark: To better identify the terminal, it is recommended to connect the network cable first before powering on the gateway.
- EIoT20 IIoT gateway related hardware 1 set (standard sales package only includes gateway and related antenna), if expanded I/O and supporting connection components needed, please purchase them separately;
- The WiFi version gateway needs to be equipped with a WiFi router (AP hotspot) according to the network working mode;
- The LTE version needs to prepare a SIM card (the SIM card is not standard, the specific specifications refer to the relevant description);

Wiring:

- Connect extended I/O components according to requirements (optional parts, refer to relevant selection manual and operation instructions);
- Connect the sensor or output point of the relevant I/O point according to actual needs;

Networking:

- For LTE version gateway, insert the SIM card in the power off state (refer to the relevant instructions for use);
- For WiFi version gateway, complete the related operations for connect AP or hotspot through the webpage configuration after power-on;

Power:

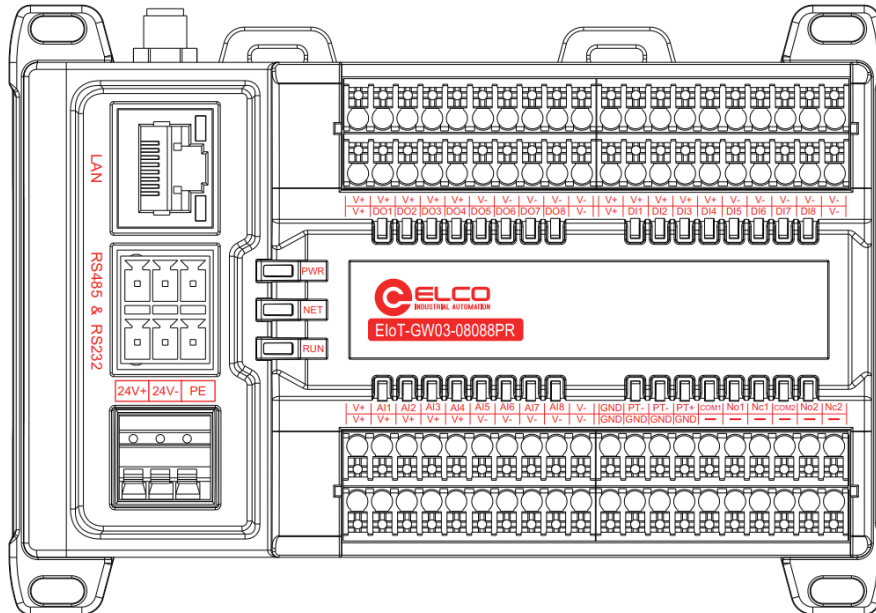
- EIoT20 series IIoT gateway products are equipped with Pluggable terminal to connect the power supply. The power supply part refers to the detailed requirements and selects qualified power supply to ensure the stability of network connection and I/O transmission.

Status indicator:

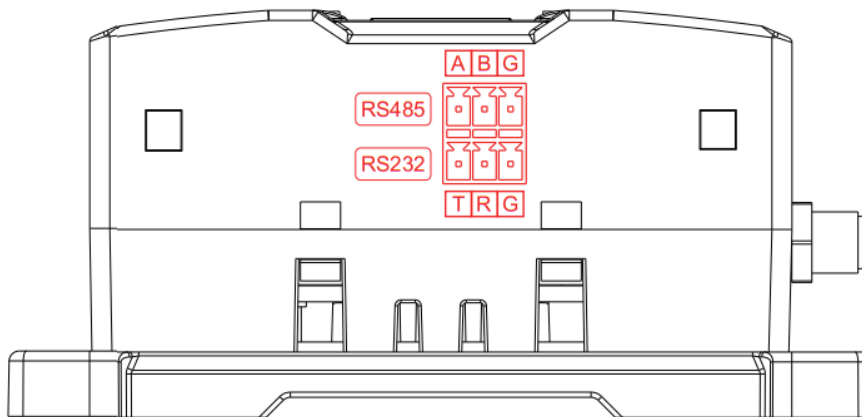
- According to different versions of the gateway configuration, PWR lights, WiFi lights, module lights, LTE lights, and I/O lights are all green to indicate normal operation (refer to the relevant instructions for details).

1.2 Hardware interface description

There are differences in the IO types and quantities of gateway products with different configurations. Please refer to the ordered product model for details. The standard configuration includes RS-232&RS-485 interfaces with pluggable terminals, Ethernet interfaces (RJ45), SMA for antenna, non pluggable spring terminal IO, and power interfaces.



Refer to the side markings for the wiring method of RS-232 and RS-485 interfaces.



2 Webpage Management operation description

The current webpage platform operation is only for the EIoT20 series IIoT gateway products, Subsequently, ELCO will update the relevant platform functions and operation descriptions according to the product delivery schedule. The final interpretation right belongs to ELCO.

2.1 User Login

User login interface

Users enter the provided management platform address through the IE browser and use the relevant username/password to complete the user login. Different browsers support different platform systems, including the reality of the interface of the reality and the storage of login information, etc., ELCO recommends to use Google Chrome or other browser products that support the Chrome kernel in order to get the best user experience. The reference interface is as follows.

The device parameters can be configured through the computer. Firstly, the computer and device need to be configured to the same network segment. The default network segment and address for the device are as follows. The default IP of the device is 192.168.1.9, and the computer is configured to be in the same network segment according to the following parameters.

IPv4

开

IP 地址

IP Address

192.168.1.25

子网掩码

Subnet mask

255.255.255.0

网关

首选 DNS

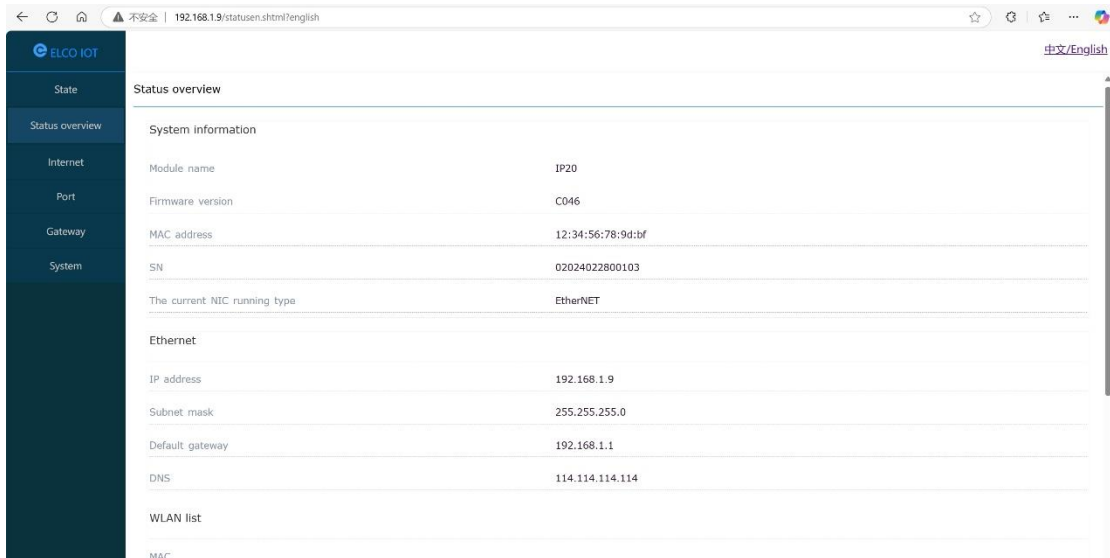
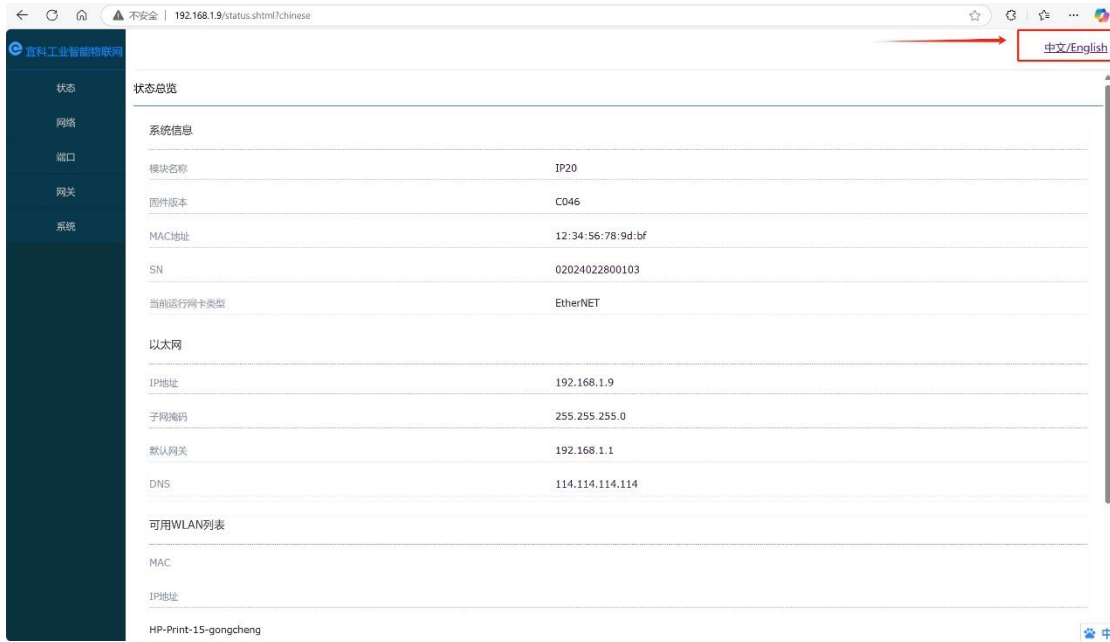
After successfully configuring the computer, connect the computer to the device using an Ethernet cable, restart the device, and log in to the webpage on the computer <http://192.168.1.9>. The login account and password are all admin. After successful login, the main page is shown in the following figure:



The default username and password is admin.

Note: Different browsers and operating systems may store or record login information!

The default language for the current version is Chinese, and users can switch between English and Chinese versions using the Chinese English switch button. In the future, the factory default language version can be customized for special sales regions.



2.2 Network function description

The menu bar enters the Internet page, where users can set the network connection method, the current version of the product supports Ethernet communication and WIFI communication solutions by default. Users can choose and configure corresponding communication solutions based on their actual usage needs and network environment.

After selecting the relevant configuration, it is necessary to choose to save it for the configuration to take effect.

network configuration Set parameters related to wired network, Ethernet IP, and WIFI networks

中文/English

EtherNET WIFI

IP ACCESS

DNS ACCESS

IP address

Subnet mask

Default gateway

Primary DNS server

Alternate DNS server

network configuration Set parameters related to wired network, Ethernet IP, and WIFI networks

中文/English

EtherNET WIFI

USERNAME

PASSWORD

IP ACCESS

IP address

Ethernet or WiFi scheme supports Static IP scheme or DHCP scheme optional.

network configuration Set parameters related to wired network, Ethernet IP, and WIFI networks

中文/English

EtherNET WIFI

IP ACCESS

DNS ACCESS

IP address

Subnet mask

Default gateway

Primary DNS server

Alternate DNS server

network configuration Set parameters related to wired network, Ethernet IP, and WIFI networks

中文/English

EtherNET WIFI

USERNAME

PASSWORD

IP ACCESS

IP address

WiFi mode requires users to enter the correct AP or hotspot username and password, Static IP mode requires confirmation of AP or hotspot support.

network configuration Set parameters related to wired network, Ethernet IP, and WIFI networks

EtherNET **WIFI**

USERNAME: EIoT20

PASSWORD: 12345678

IP ACCESS: Static IP

IP address: 192.168.1.100

SAVE DONT SAVE

2.3 Port management

The menu bar enters the Port page, where users can set serial port and Socket connection properties, the gateway provides two USART attribute setting functions, and users can configure them according to their actual needs, including basic serial communication parameter configuration and Socket communication configuration.

Serial port and network parameter configuration

serial port1 socket1

Baudrate: 115200 (1200~230400)bps

Databits: 8

Paritybits: None

Stopbits: 1

SAVE DONT SAVE

Serial port and network parameter configuration

serial port1 **socket1**

Working mode: TCP Client

Modbus TCP: disabled

Remote host Addr: 192.168.1.201

Remote host port: 5000

Heartbeat enable: disabled

SAVE DONT SAVE

Select the appropriate USART to configure detailed Socket properties, include Working mode, Modbus TCP and detail configurations.

Serial port and network parameter configuration

serial port1 **socket1**

Working mode: TCP Client

Modbus TCP: TCP Server

Remote host Addr: TCP Client

Remote host port: Httpd Client

Heartbeat enable: disabled

SAVE DONT SAVE

Serial port and network parameter configuration

serial port1 **socket1**

Working mode: TCP Client

Modbus TCP: disabled

Remote host Addr: disabled (dropdown menu open showing disabled, enabled)

Remote host port: 5000

Heartbeat enable: disabled

SAVE DONT SAVE

2.4 Gateway computing & IO functions management

EIoT20 series IIoT gateway products support basic edge computing for Modbus RTU and IO linkage functions to meet the IO data collection and monitoring and control output requirements of some control scenarios, users can choose whether to enable this function when entering the menu.

The data collection function is mainly for configuring relevant collection attributes for the Modbus RTU protocol, and users can set eight collection rules.

Note: When selecting MQTT communication mode, users can configure multiple collection rules, each of which can be a single register address or multiple consecutive register addresses.

When selecting Modbus TCP communication mode, due to current software and hardware limitations, it is recommended to configure a register address for each rule.

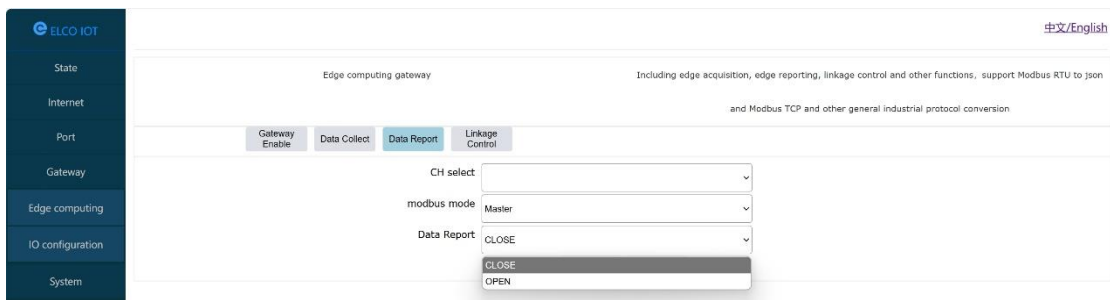
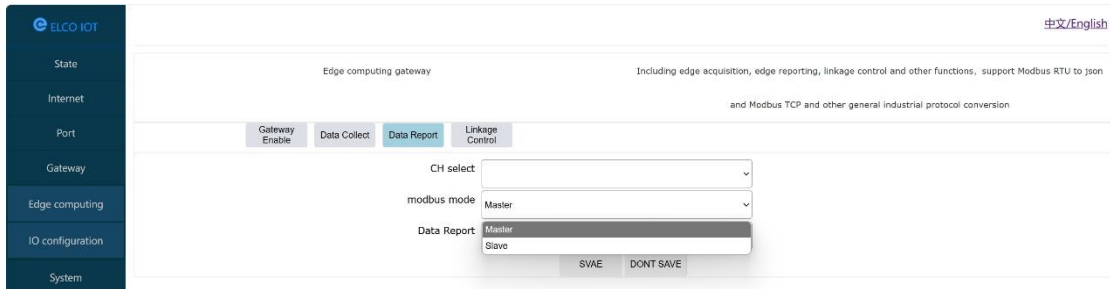
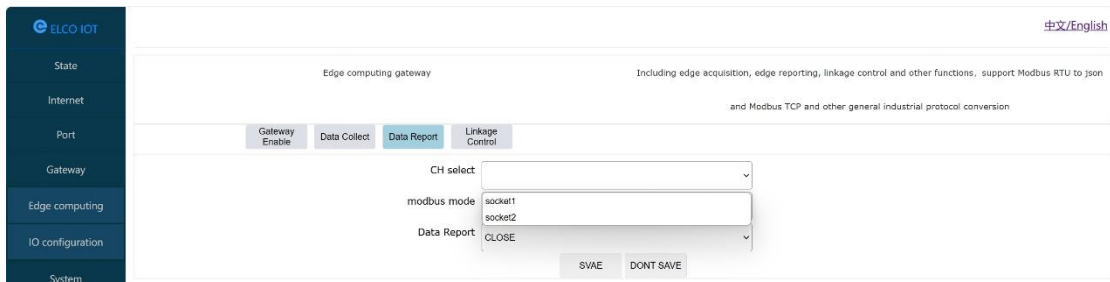
rule numbers	device address	Register address	Register Number
rule0	00	0000	0
rule1	00	0000	0
rule2	00	0000	0
rule3	00	0000	0
rule4	00	0000	0
rule5	00	0000	0
rule6	00	0000	0
rule7	00	0000	0

SAVE DONT SAVE

When the gateway is used as a data source mode, users can select communication parameters with the platform or upper computer through this configuration, and the platform or upper computer can access the gateway's own register address data.

Note: This configuration has no strong correlation with the data collect function.

Data report function include select socket channel set in the port selection, and Modbus mode etc.



The linkage control function can be used in scenarios where logical correlation and closed-loop control between IOs are required on site, and this scenario is suitable for IoT control scenarios.

Note: Before selecting this function, users need to evaluate whether the linkage control implementation of the gateway meets the minimum performance requirements for on-site control capabilities.

Linkage control supports the association between analog and digital quantities, as well as the configuration of the association between digital quantities. The specific configuration needs to be determined based on the user's actual input configuration, the type of sensor connected, and the I/O control logic.

Edge computing gateway Including edge acquisition, edge reporting, linkage control and other functions, support Modbus RTU to json and Modbus TCP and other general industrial protocol conversion

Gateway Enable Data Collect Data Report Linkage Control

Analog linkage

PT100 range:T: -50°C~180°C;R: 50~200Ω;
Voltage range:0~100000(单位0.1mV);Current range:40000~200000(单位0.1uA)

Channel	Type	Alarm upper limit	Alarm lower limit	Linkage enable	Linkage IO	Trigger upper limit	Trigger lower limit	Trigger level
A11_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
A12_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
A13_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
A14_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
A15_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
A16_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
A17_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
A18_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
PT100_ENABLE ▾	R ▾	<input type="text" value="50"/>	<input type="text" value="30"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾

SAVE DONT SAVE

Digital linkage

Channel	Linkage enable	Trigger action	Linkage IO	Trigger level
D11_ENABLE ▾	DISABLE ▾	low ▾	<input type="checkbox"/> DO2 <input type="checkbox"/> DO3 <input type="checkbox"/> DO4 <input type="checkbox"/> DO5 <input type="checkbox"/> DO6 <input type="checkbox"/> DO7 <input type="checkbox"/> DO8 <input type="checkbox"/> relay1 <input type="checkbox"/> relay2	low ▾
D12_ENABLE ▾	DISABLE ▾	low ▾	<input type="checkbox"/> DO1 <input type="checkbox"/> DO3 <input type="checkbox"/> DO4 <input type="checkbox"/> DO5 <input type="checkbox"/> DO6 <input type="checkbox"/> DO7 <input type="checkbox"/> DO8 <input type="checkbox"/> relay1 <input type="checkbox"/> relay2	low ▾
D13_ENABLE ▾	DISABLE ▾	low ▾	<input type="checkbox"/> DO1 <input type="checkbox"/> DO2 <input type="checkbox"/> DO4 <input type="checkbox"/> DO5 <input type="checkbox"/> DO6 <input type="checkbox"/> DO7 <input type="checkbox"/> DO8 <input type="checkbox"/> relay1 <input type="checkbox"/> relay2	low ▾
D14_ENABLE ▾	DISABLE ▾	low ▾	<input type="checkbox"/> DO1 <input type="checkbox"/> DO2 <input type="checkbox"/> DO3 <input type="checkbox"/> DO5 <input type="checkbox"/> DO6 <input type="checkbox"/> DO7 <input type="checkbox"/> DO8 <input type="checkbox"/> relay1 <input type="checkbox"/> relay2	low ▾

Taking analog input configuration linkage output control as an example, users can choose which channel to enable linkage for the corresponding analog input.

Analog linkage

PT100 range:T: -50°C~180°C;R: 50~200Ω;
Voltage range:0~100000(单位0.1mV);Current range:40000~200000(单位0.1uA)

Channel	Type	Alarm upper limit	Alarm lower limit	Linkage enable	Linkage IO	Trigger upper limit	Trigger lower limit	Trigger level
A11_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
A12_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
A13_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾
A14_ENABLE ▾	I ▾	<input type="text" value="160000"/>	<input type="text" value="50000"/>	DISABLE ▾	select ▾	<input type="text" value="0"/>	<input type="text" value="0"/>	low ▾

Configure analog signal input type, select current type or voltage type, and set parameters for Alarm upper limit & Alarm lower limit based on actual linkage control requirements.

Gateway Enable Data Collect Data Report **Linkage Control**

Analog linkage

PT100 range:T: -50°C~180°C;R: 50~200Ω;
Voltage range:0~100000(単位0.1mV);Current range:40000~200000(単位0.1uA)

Channel	Type	Alarm upper limit	Alarm lower limit	Linkage enable	Linkage IO	Trigger upper limit	Trigger lower limit	Trigger level
AI1 ENABLE	I	160000	50000	DISABLE	select	0	0	low
AI2 ENABLE	U	160000	50000	DISABLE	select	0	0	low
AI3 ENABLE	I	160000	50000	DISABLE	select	0	0	low

Set the Linkage control to enable state.

Gateway Enable Data Collect Data Report **Linkage Control**

Analog linkage

PT100 range:T: -50°C~180°C;R: 50~200Ω;
Voltage range:0~100000(単位0.1mV);Current range:40000~200000(単位0.1uA)

Channel	Type	Alarm upper limit	Alarm lower limit	Linkage enable	Linkage IO	Trigger upper limit	Trigger lower limit	Trigger level
AI1 ENABLE	I	160000	50000	DISABLE	select	0	0	low
AI2 ENABLE	I	160000	50000	ENABLE	select	0	0	low
AI3 ENABLE	I	160000	50000	DISABLE	select	0	0	low

And select Linkage output IO, include digital output or relay.

Gateway Enable Data Collect Data Report **Linkage Control**

Analog linkage

PT100 range:T: -50°C~180°C;R: 50~200Ω;
Voltage range:0~100000(単位0.1mV);Current range:40000~200000(単位0.1uA)

Channel	Type	Alarm upper limit	Alarm lower limit	Linkage enable	Linkage IO	Trigger upper limit	Trigger lower limit	Trigger level
AI1 ENABLE	I	160000	50000	DISABLE	select	0	0	low
AI2 ENABLE	I	160000	50000	DISABLE	select	0	0	low
AI3 ENABLE	I	160000	50000	DISABLE	select	0	0	low
AI4 ENABLE	I	160000	50000	DISABLE	select	0	0	low
AI5 ENABLE	I	160000	50000	DISABLE	select	0	0	low
AI6 ENABLE	I	160000	50000	DISABLE	select	0	0	low
AI7 ENABLE	I	160000	50000	DISABLE	select	0	0	low

The triggering conditions are selected based on alarm rules.

and Modbus TCP and other general industrial protocol conversion

Gateway Enable Data Collect Data Report **Linkage Control**

Analog linkage

PT100 range:T: -50°C~180°C;R: 50~200Ω;
Voltage range:0~100000(単位0.1mV);Current range:40000~200000(単位0.1uA)

Channel	Type	Alarm upper limit	Alarm lower limit	Linkage enable	Linkage IO	Trigger upper limit	Trigger lower limit	Trigger level
AI1 ENABLE	I	160000	50000	DISABLE	select	0	0	low
AI2 ENABLE	I	160000	50000	DISABLE	select	0	0	high
AI3 ENABLE	I	160000	50000	DISABLE	select	0	0	low
AI4 ENABLE	I	160000	50000	DISABLE	select	0	0	low

The setting method for digital linkage control is the same, but the difference is that the digital trigger action can select high and low levels.

Digital linkage

Channel	Linkage enable	Trigger action	Linkage IO	Trigger level
DI1 ENABLE	DISABLE	low	<input type="checkbox"/> DO2 <input type="checkbox"/> DO3 <input type="checkbox"/> DO4 <input type="checkbox"/> DO5 <input type="checkbox"/> DO6 <input type="checkbox"/> DO7 <input type="checkbox"/> DO8 <input type="checkbox"/> relay1 <input type="checkbox"/> relay2	low

On the IO configuration page, you can choose whether to enable the relevant digital output function and view the relevant IO status.

2.5 System function

The system management function provides users with options to restore factory settings and restart devices.

On the system settings page, users can reset their username and password.

2.6 Modbus register address

IO setting	DI	16	0x3000-3007	8-channel IO value register, 1 for high level, 0 for low level	RO	
			0x3010-3017	High Enable:1 enable, 0 disable	WR	
	DO	16	0x3020-3027	8-channel IO value register, 1 for high level, 0 for low level	WO	
	relay	4	0x3008-0x3009	2-way relay value register 1 for high level, 0 for low level	WR	
			0x3018-0x3019	High enable:1 enable,0 disable (relay is fixed output, IO direction cannot be configured)	WR	
	AI		0x3070-3078	High bit enable:1 enable,0 disable Low IO type: 2 for voltage value, 3 for AD value, 0-1 for current value.	WR	
			0x3080-308F	Analog Alarm Threshold Upper Limit (4 bytes float type), 2 registers for 1 alarm upper limit value	WR	
			0x3092-30A1	Analog Alarm Threshold Lower Limit (4 bytes float type),2 registers represent 1 channel alarm lower limit value	WR	
			0x3050-305F	8-way AI value registers, 2 registers represent 1 analog IO value. The high bit is in the front	RO	
	PT100		0x30F0-0x30F1	1-way PT100 value register, 2 registers, high first	RO	
			0x3078	High enable:1 enable,0 disable PT100: 2 for temperature value, 3 for AD value, 0-1 for resistance value.	WR	
			0x3090-3091	PT100 Analog Alarm Threshold Upper Limit (4 bytes float type),2 registers represent 1 channel alarm upper limit value	WR	
			0x30A2-30A3	PT100 Analog Alarm Threshold Lower Limit (4 bytes float type),2 registers represent 1 way alarm lower limit value	WR	
	IO linkage	AIO0~AID7 Linkage	7	0x30B0	High: Linkage Enable, Status: IO Configuration Register, 2 indicates voltage	WR

				value, 3 indicates AD value, 1 indicates current value	
			0x30B1-0x30B2	limit	WR
			0x30B3-0x30B4	lower limit	WR
			0x30B5	Linkage IO No.	WR
			0x30B6	Performs an action outside the threshold 0 or 1	WR
	PT100 linkage		0x30E8-0x30EE	Performs an action outside the threshold 0 or 1	WR
	DIO Linkage	16	0x3040-0x304F	3040 represents the linkage channel, 3041 represents the linkage trigger level, 4 bytes form a channel total of eight channels	WR
		16	0x3060-0x306F	3060 represents the trigger level, 3061 represents the linkage enable, 4 bytes form a channel for a total of eight channels	WR

3 FAQ

The relevant content is continuously being improved.