ZLAN9913
Profinet to
Modbus RTU gateway

Profinet to Modbus RTU master/slave

ZL DUI 20240429.1.0

Version Information

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CATALOGUE

1. Summary

ZLAN9913 is a new gateway designed to solve the communication problems between Profinet and Modbus protocol devices in the industrial Internet of Things. Its core function is to realize the mutual transfer of Profinet and Modbus protocols, so as to open up the communication barriers between different protocol devices. Our company provides dedicated GSDML files, users do not need too much professional knowledge, you can connect the field Modbus master station or the equipment of the slave station to the equipment of the Profinet master station through the ZLAN9913 gateway, convenient and simple configuration.

The equipment is divided into two models: ZLAN9913-M and ZLAN9913-S: ZLAN9913-M and ZLAN9913-S. Supports Modbus master mode and Modbus slave mode. On the Profinet side, 9913 can only be used as the Profinet slave station, and the GSDML file corresponding to the master and slave station must be downloaded from the device that can be used as the PN master station.

ZLAN9913-M: The serial port of ZLAN9913-M can be connected to Modbus RTU slave station equipment, such as frequency converter, meter, sensor, flowmeter, etc., so that the Profinet master station can read the data of Modbus RTU slave station equipment.

ZLAN9913-S: ZLAN9913-S serial port can be connected to Modbus RTU master station equipment, such as PLC,DCS, touch screen. The Modbus RTU master station device can read the data of Profinet device.

Figure 1 ZLAN9913 device picture

ZLAN9913 has two network ports and four RS485 channels. The two network ports support switching and network cascading. The four serial ports can be used independently and do not interfere with each other. The parameters of each serial port can be set arbitrarily.

ZLAN9913 applications：

- Connect the serial device to the Ethernet bus
- Power, smart meters and energy monitoring
- Various configuration software and device communication interfaces

A typical application connection is shown in Figure 2. Using the ZLAN9913 gateway, we connect the RS485 serial port device of the original Modbus RTU protocol to the LAN. Through simple configuration software configuration, the data interaction between Profinet master station and Modbus RTU device is realized. It is now easy and convenient for both the Profinet master to read data from the Modbus device and the Modbus master to obtain information from the Profinet master. This optimization scheme not only improves the efficiency of data transmission, but also enhances the compatibility and scalability of the system.

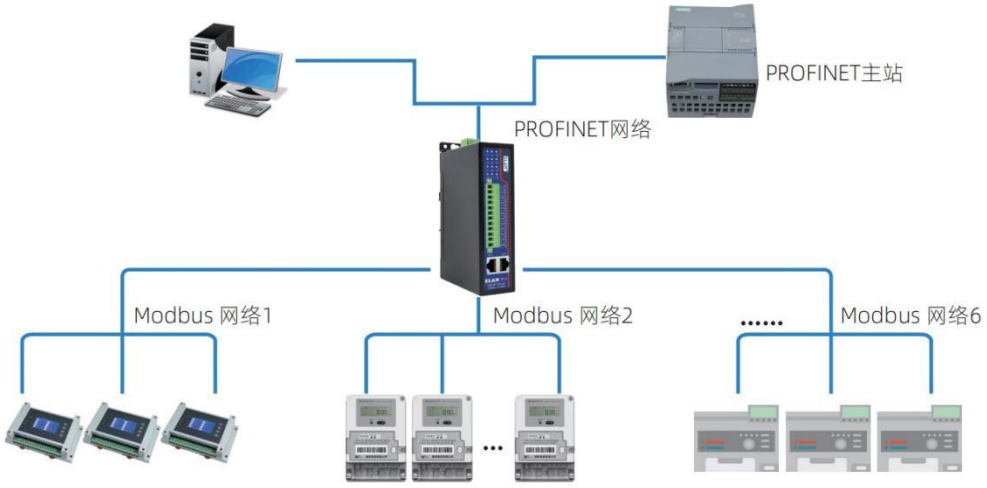


Figure 2 Connection map

2. Function features

2.1 Hardware features

ZLAN9913 contains following features：

1. Rich ports, four RS485 channels can be used independently without interference.

2. There are three ways to install guide rail, backplane mounting ear, and desktop mounting ear. Especially suitable for industrial rail installation, due to the narrow transverse width can save installation space, installation, disassembly more convenient.

3. Terminal type power supply, 9 ~ 24V wide voltage input, with reverse power supply protection.

4. The terminal type RS485 port supports 300 to 921600bps baud rate.

5. The rich panel indicator design provides users with convenient debugging experience and facilitates real-time monitoring of equipment status.

2.2 Software features

1. Support standard Profinet I/O protocol to achieve slave station function

2. Convenient configuration, providing dedicated GSDML files, without complex programming.

3. Complete function codes, including 01H, 02H, 03H, 04H, 05H, 06H, 0FH, and

10H function codes.

4. High communication efficiency, data can be read or written in the monitoring table according to the correspondence between Profinet input and output data area and Modbus communication data area.

5. Support status monitoring to know the online status of serial port devices in real time.

3. Technical parameter

Figure 1 technical parameter

Outline			
Interface：	485：terminal		
power supply：	terminal methods		
Size：	L x W x H =150mm×105mm×41mm（Housing dimensions, excluding interfaces）		
Telecommunication page			
Ethernet：	10M/100M*2		
Serial port：	RS485*4：485A、485B、GND		
Serial port parameter			
baud rate：	300~921600bps	Check bits：	None, odd check, even check, mark, space
Digit bits：	8 bits	Stop bits：	1、1.5、2
Software			
protocol：	Profinet I/O、Modbus RTU		
Configuration：	Botu、STEP 7-Micro/WIN SMART, etc PN master software		
Data length：	The data input and output length is up to 1024 bytes		
Modbus instructions	Modbus RTU instructions maximum is 62 records		
Working modes			
Modbus RTU master station、Modbus TCP slave station			

Power supply request	
Power supply：	9～24V DC(12V@200mA）
Environment	
Operating temperature：	-40~85℃
Storage temperature：	-45~165℃
Humidity range：	5~95% accordingly

4. Hardware specifications

4.1 Hardware interface

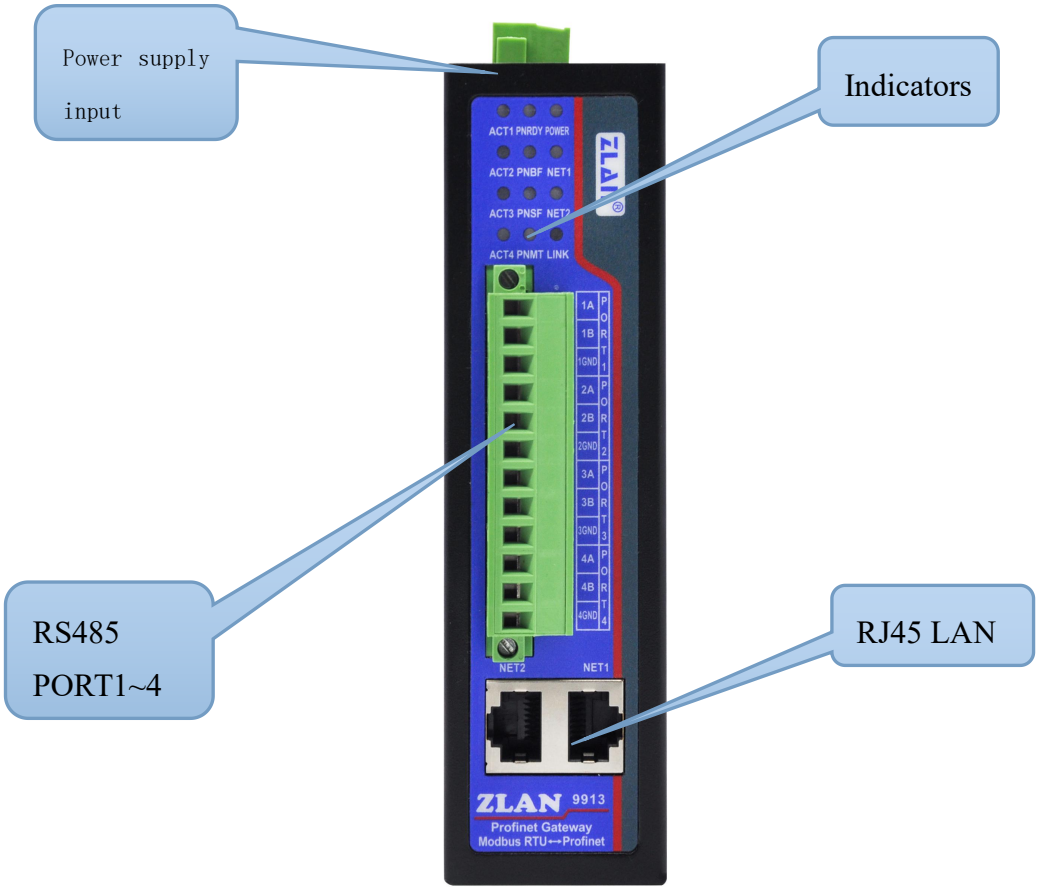


Figure 3 9913 Front view

The front view of the ZLAN9913 gateway is shown in the above figure, and the housing is made of black anti-radiation SECC metal housing.

1. Power input: The wiring terminal is 5.08mm terminal, the V+ is connected to 9 to 24V, the V- is connected to GND, and the shell ground is also available.

2. RS485: There are four RS485 ports in total. 1A, 1B, and 1GND are the first group with 12 terminals. 1 A indicates the 485 positive line, 1B indicates the 485 negative line. The 1GND can be disconnected. When there is communication interference, the GND of the 485 device can be connected. This 1GND is isolated from the internal power supply. The maximum communication distance is 1200 meters. Generally, when the RS485 line exceeds 300 meters, it is necessary to use the terminal resistance, and the 485 terminal resistance is 120 ohms.

3. Network port: Connects 10M/100M network cables and supports automatic crossover. Although they are called the primary network port and the level network port, the corresponding indicators are different for NET1 and NET2, and there is no difference between the two network ports in other aspects.

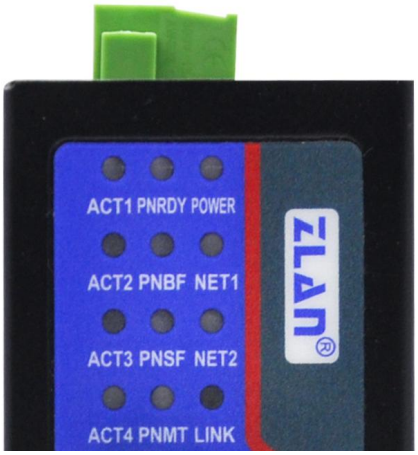


Figure 4 indicators

4. Indicators： Including Power, NET, LINK, PN, and ACT indicators indicate power supply, network port, network connection, PN status, and data active indicators respectively.

Figure 2 Indicator contents

POWER	Power indicator: Green indicates that the device is powered on.
NET1~2	Off: The network cable is not connected. Blinking blue: The network cable is

	connected properly
LINK	Subsequent extension use.
PNRDY	The PN module starts the indicator correctly (1) Steady on: The module is started correctly (2) Blinking: The module is waiting for the host CPU to synchronize data (3) Off: The module is not started correctly
PNBF	PN link indicator (4) Steady on: No link is available (5) Blinking: The link status is normal; No communication link to PROFINET controller (6) Off: The PROFINET controller has an active communication link to the PROFINET device
PNSF	PN Diagnostic light (1) Steady on: PROFINET diagnosis exists (2) Off: No PROFINET diagnosis
PNMT	PN Maintenance indicators
ACT1-4:	485 Serial port 1 to 4 Data active indicator

Use the indicator to debug communication methods:

1) If the NET indicator is not blinking blue, the network cable is not properly connected. Check the network cable.

2) If the PNRDY indicator is not steady on, the PN module is not started correctly. Please check the parameters and other Settings.

3) If the ACT indicator blinks, data is being transmitted or received. If no, check whether the baud rate is properly configured and whether positive or negative values of the RS485 port are reversed.

4.2 Hardware connection

Generally speaking, ZLAN9913 only needs to be connected to the power supply, serial port, and network cable.

The power supply can be configured with a 12V power adapter or on-site 2-wire

power supply, which can be directly connected to the positive and negative terminals of the power supply.

The 485 of the RS485 device is connected to the TA, and the 485 is connected to the TB.

Network port connection A network cable can be directly connected to a computer or connected to the network through a switch.

5. Module parameter

5.1. Modbus master module parameter

ZLAN9913-M is the Modbus master module, which supports access to the Modbus RTU slave device, so that the Profinet master station can read the data of the Modbus RTU slave device. The Modbus parameter and Serial parameter modules are added by default and do not need to be added by users.

5.1.1. Modbus parameter module

Modbus parameter module, which is used to set Modbus parameters.

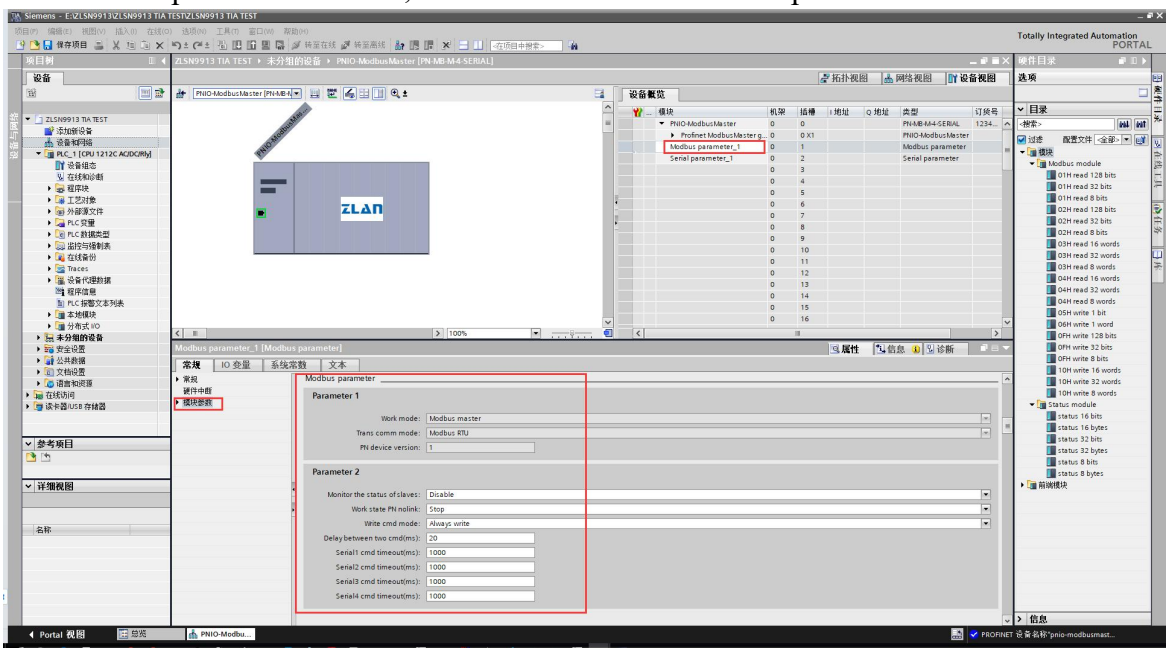


Figure 5 Modbus parameter Stats

Modbus parameter The following table describes parameter meanings.

Figure 3 Modbus parameter contents

parameter name	value range	Contents
Work mode	Modbus master	Working mode: The current mode is Modbus master, which cannot be changed.
Trans comm mode	Modbus RTU	Transmission mode: The current mode is Modbus RTU, which cannot be changed.
PN device version	1	The version number of the GSDML file installed by Botu cannot be modified.
Monitor the status of slaves	Enable、Disable	Modbus monitors the status of the slave station. It can be used to view the communication status of the slave station. If the communication is normal, the value is 1, otherwise the value is 0. （1）“Enable”Enable the monitoring function （2）“Disable”Do not open.
Work state PN nolink	Stop、Run	The operating status of ZLAN9913 when the Profinet link is broken. （1）“Stop”Stop running, that is, the command configured last time is not sent. （2）“Run”Continue to send the command configured last time.
Write cmd mode	Always write、 Write on change	Write mode. This parameter applies only to function codes such as 05H, 06H, 0FH, and 10H. （1）“Always write”Send instructions all the time （2）“Write on change”Write instructions are issued only when the content being written has changed.
Delay between two cmd(ms)	0~65535	The interval between two Modbus instructions. The value ranges from 0 to 65535 milliseconds
Serial1 cmd timeout	0~65535	Timeout period for a serial port 1 command to

(ms)		wait for a reply, expressed in milliseconds
Serial2 cmd timeout (ms)	0~65535	Timeout period for a serial port 2 command to wait for a reply, expressed in milliseconds
Serial3 cmd timeout (ms)	0~65535	Timeout period of serial port 3 command waiting for reply, expressed in milliseconds
Serial4 cmd timeout (ms)	0~65535	Timeout period of serial port 4 command waiting for reply, expressed in milliseconds

5.1.2. Serial parameter module

The Serial parameter module is used to set the RS485 serial port parameters of the serial port. The parameters of the four serial ports are independent and can be set to different parameters as required.

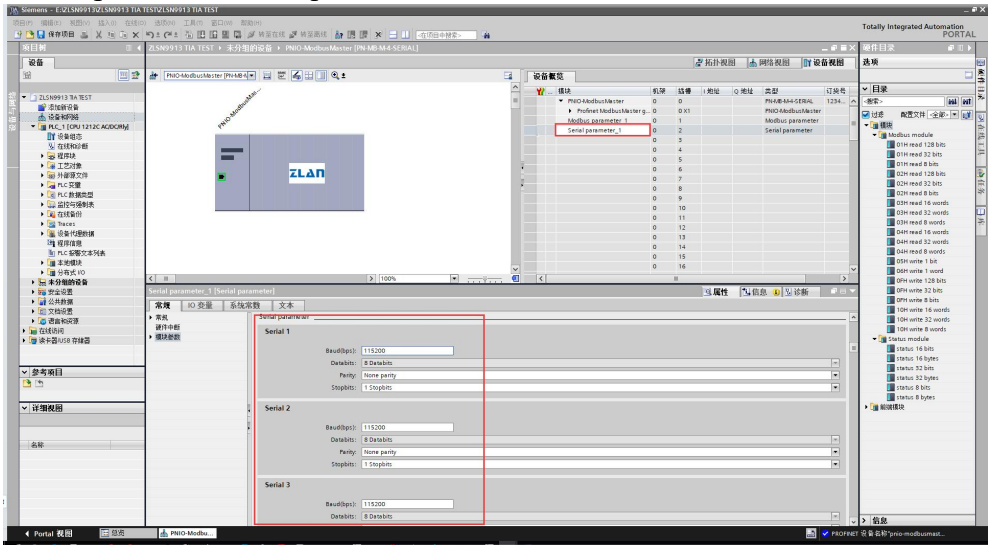


Figure 6 Serial parameter Stats

Serial parameter contents as followings.

Figure 4 Serial parameter stats contents

Parameter name	value range	Contents
Baud(bps)	300~921600	Baud rate. The value ranges from 300 to 921600.
Databits	8	Data bit. The default value is 8 data bits and

		cannot be modified.
Parity	None, odd, even, tag, space	The value can be none, odd, even, mark, or space.
Stopbits	1、1.5、2	The value can be 1, 1.5, or 2 stop bits

5.1.3. Custom addable modules

Customizable modules include Modbus module and Status Module. The former is the command delivery module related to Modbus. Slots 3-63 are available for adding modules. the latter is a status monitoring module. This module takes effect only when the Monitor the status of slaves function is enabled. Only one module can be added, and the slot of the module is 64.

The Modbus module folder contains the Modbus command module that users can select according to their requirements. The commands support function codes such as 01, 02, 03, and 06.

Figure 7 Modbus module folder

The functions of specific modules are shown in the following table：

Figure 5 Modbus module function

Module	Function
01H	Read the coil status. You can read the coil status of 1 to 128bits
02H	You can read the status of the discrete input, ranging from 1 to 128bits
03H	Read hold registers. 1 to 32 registers can be read
04H	Read input registers. 1 to 32 registers can be read
05H	Write 1 coil state
06H	Write 1 hold register
0FH	Write coil status: The number of coils that can be written to ranges from 1 to 128bits
10H	Write hold registers. 1 to 32 hold registers can be written

Take ZLAN9913 control Modbus RTU slave station device as an example.

1. The 01H module reads the switch output (0X) status (ON or OFF) of the slave device. The data must contain the start address and number of coils to be read. For example, to output the command "01 01 00 10 00 08 3c 09" in RS485-1, the purpose is to read 8 consecutive coils starting from address 16, the parameters are shown in the following figure.

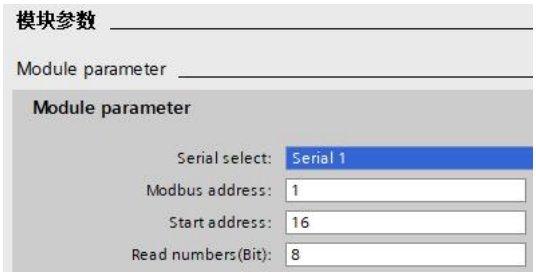


Figure 8 01H Module read coil

The following table describes the Module parameter of the 01H module.

Figure 6 01H module parameter contents

parameter name	value range	Contents
Serial select	Serial 1~4	Select the RS485 port for the command output
Modbus address	0~255	Modbus Indicates the address of the secondary station

Start address	0~65535	The coil reads the start address
Read numbers(Bit)	1~128、1~32、1~8	Read the number of coils，unit as Bit 01H read 128 bits:1~128。 01H read 32 bits:1~32。 01H read 8 bits:1~8。

2. 02H module, this module reads the discrete input (1X) status (ON or OFF) from the slave device. The data must contain the starting address and the number of discrete quantities to be read. For example, to output the instruction "01 02 00 00 00 00 08 79 cc" in RS485-1, the purpose is to read eight consecutive discrete quantities starting at address 0, the parameters are shown below.

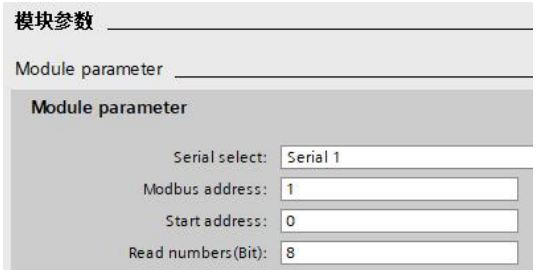


Figure 9 02H The module reads discrete quantities

The following table describes the Module parameters of the 02H module.

Figure 7 02H module parameter contents

parameter name	value range	contents
Serial select	Serial 1~4	Select the RS485 port for the command output
Modbus address	0~255	Modbus address of the slave station
Start address	0~65535	Discrete quantity read start address
Read numbers(Bit)	1~128、1~32、1~8	Read the number of discrete inputs，unit Bit 02H read 128 bits:1~128。 02H read 32 bits:1~32。 02H read 8 bits:1~8。

3. 03H module, this module reads the binary value from the device hold register (4X). The data must contain the starting address and the number of registers to be read. For example, to output the command "01 03 00 3f 00 01 b4 06" in RS485-1, the purpose is to read a hold register starting at address 63, the parameters are shown in

the following figure.

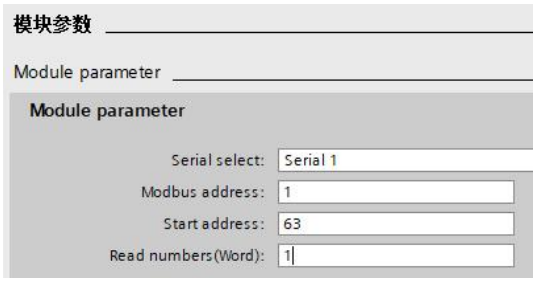


Figure 10 03H Module reads hold register

The following table describes the specific meanings of the Module parameters of the 03H module.

Figure 8 03H module parameter contents

parameter name	value range	Contents
Serial select	Serial 1~4	Select the RS485 port for the command output.
Modbus address	0~255	Modbus address of the slave station
Start address	0~65535	Register read start address
Read numbers (Word)	1~32、1~16、1~8	Read the number of hold registers，unit is Word 03H read 32 words:1~32。 03H read 16 words:1~16。 03H read 8 words:1~8。

4. The 04H module, which reads the binary value from the device input register (3X). The data must contain the starting address and the number of registers to be read. For example, to output the instruction "01 04 00 00 00 08 f1 cc" in RS485-1, the purpose is to read eight consecutive input registers starting at address 0, as shown in the following figure.

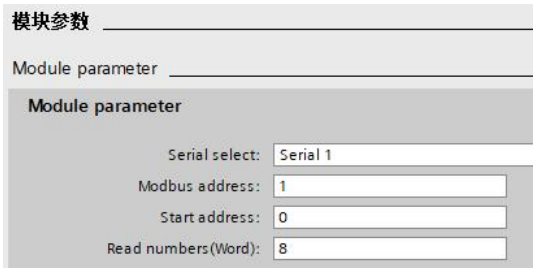


Figure 11 04H Module reads input register

The following table describes the meanings of Module parameter of 04H module.

Figure 9 04H module parameter contents

parameter name	value range	Contents
Serial select	Serial 1~4	Select the RS485 port for the command output
Modbus address	0~255	Modbus address of the slave station
Start address	0~65535	Register read start address
Read numbers (Word)	1~32、1~16、1~8	Read the number of input registers，unit is Word 04H read 32 words:1~32。 04H read 16 words:1~16。 04H read 8 words:1~8。

5. 05H module, which sets the state of one of the holding coils (0X) of the slave device to ON or OFF. The data must contain the address of the coil to be set. For example, to output the command "01 05 00 10 ff 00 8d ff" in RS485-1, the purpose is to set a coil starting from address 16, the parameters are shown in the following figure.

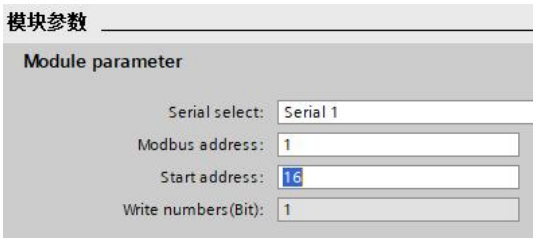


Figure 12 05H module wiring map

05H module's parameter, details as below.

Diagram 10 05H module parameter contents

parameter name	data range	contents
Serial select	Serial 1~4	Select the RS485 port for the command output
Modbus address	0~255	Modbus slave address
Start address	0~65535	Wiring start address
Write numbers(Bit)	1	Bit Quantity of wiring, unit is bit

6. 06H module, which sets one of the hold registers (4X) of the slave device to a specified value. The sent data must contain the address of the register to be set. For example, to output the instruction "01 06 00 3f 01 00 b8 56" in RS485-1, the purpose is to set an input register starting from address 63, the parameters are shown in the

following figure.

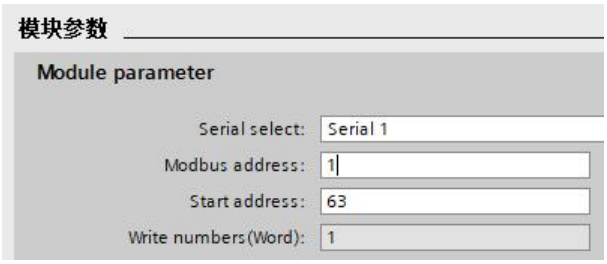


Figure 13 06H Module write input register

The following table describes the specific meanings of Module parameters of the 06H module.

Figure 11 06H module parameter contents

parameter name	data range	contents
Serial select	Serial 1~4	Select the RS485 port for the command output.
Modbus address	0~255	Modbus slave address
Start address	0~65535	Register write start address
Write numbers(Word)	1	Write hold the number of registers, unit in Word

7. The 0FH module sets the continuous holding coil (0X) state from a section of the device to a specified value. The data must contain the address of the coil to be set. For example, to output the command "01 0f 00 10 00 08 01 ff 7f 16" in RS485-1, the purpose is to set 8 consecutive coils starting from address 16, as shown in the following figure.

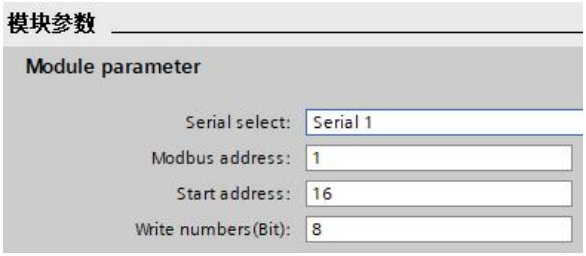


Figure 14 0FH module write multiple wires

0FH Module parameter as followings

Figure 12 0FH module parameter contents

parameter name	data range	Contents
Serial select	Serial 1~4	Select the RS485 port for the command output.
Modbus address	0~255	Modbus slave address

Start address	0~65535	Coil write start address.
Write numbers(Bit)	1~128、1~32、1~8	Write the number of coils，unit is Bit 0FH write 128 bits:1~128。 0FH write 32 bits:1~32。 0FH write 8 bits:1~8。

8. 10H module, which sets a continuous hold register (4X) from a segment of the device to a specified value. The data must contain the address where the register needs to be set. For example, to output the command "01 10 00 3f 00 01 02 01 00 b8 56" in RS485-1, the purpose is to set a register starting from address 63, the parameters are shown in the following figure.

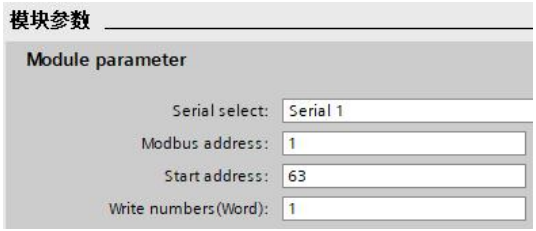


Figure 15 10H module writes multiple registers

10H Module parameter is as followings

Figure 13 10H Module parameter meaning

Parameter name	data range	Contents
Serial select	Serial 1~4	Select the RS485 port for the command output.
Modbus address	0~255	Modbus slave address
Start address	0~65535	Register write start address.
Write numbers(Word)	1~32、1~16、1~8	The number of write hold registers，unit is Word 10H write 32 words:1~32。 04H write 16 words:1~16。 04H write 8 words:1~8。

The Status module folder stores the status module, which is used to monitor the communication status of the Modbus slave station. The specific functions are as follows：

1. The value of "Status x bits" is to monitor the status of x slave stations. The value

of "Address 1-address x" is used to store the status of each slave station. If the communication is normal, the value is 1; if it is abnormal, the value is 0. For example, the selected Status module is Status 8 bits.

Figure 16 status 8 bits module

Status 8 bits parameter configuration as followings：

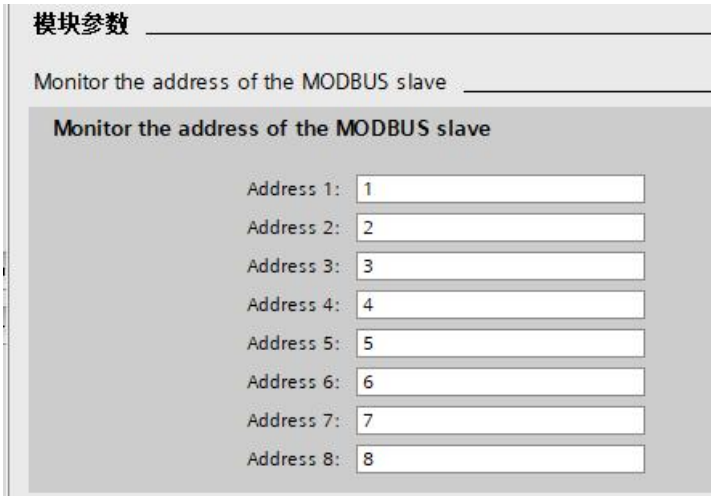


Figure 17 status 8 bits module parameter

Data as followings：

表 14 Status 8 bits 含义

Bit0	Bit1	Bit2	Bit3
The status of station address 1 is 1 in normal state and 0 in abnormal state	The status of station address 2 is 1 in normal state and 0 in abnormal state	The status of station address 3 is 1 in normal state and 0 in abnormal state	The status of station address 4 is 1 in normal state and 0 in abnormal state
Bit4	Bit5	Bit6	Bit7
The status of station address 5 is 1 in normal state and 0 in abnormal state	The status of station address 6 is 1 in normal state and 0 in abnormal state	The status of station address 7 is 1 in normal state and 0 in abnormal state	The status of station address 8 is 1 in normal state and 0 in abnormal state

For example, if station addresses 1, 3, 5, and 7 are abnormal and 2, 4, 6, and 8 are normal, the %IB35 data area is displayed as 0xAA in hexadecimal, which is 10101010 in binary.

2. "Status x bytes" monitors the Status of x slave stations. Address 1-address x

stores the status of the slave station according to each byte. If the communication is normal, it is 1, and if it is abnormal, it is 0.

Figure 18 status 8 bytes module parameter

Status x bytes parameter configuration as followings：

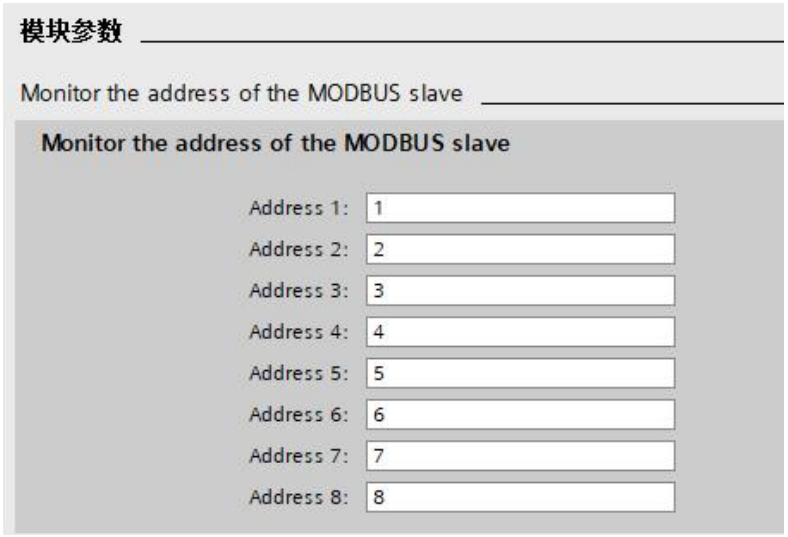


Figure 19 status 8 bytes module parameter

Status 8 bytes as followings：

Figure 15 Status 8 bytes contents

Byte0	Byte1	Byte2	Byte3
The status of station address 1 is 1 in normal state and 0 in abnormal state	The status of station address 2 is 1 in normal state and 0 in abnormal state	The status of station address 3 is 1 in normal state and 0 in abnormal state	The status of station address 4 is 1 in normal state and 0 in abnormal state
Byte4	Byte5	Byte6	Byte7
The status of station address 5 is 1 in normal state and 0 in abnormal state	The status of station address 6 is 1 in normal state and 0 in abnormal state	The status of station address 7 is 1 in normal state and 0 in abnormal state	The status of station address 8 is 1 in normal state and 0 in abnormal state

For example, the status of station addresses 1, 3, 5, 7 is abnormal, and 2, 4, 6, and 8 are normal, then the hexadecimal value of %IB35 data area is 0, the hexadecimal value of %IB36 data area is 1, the hexadecimal value of %IB37 data area is 0, the hexadecimal value of %IB38 data area is 1, and the hexadecimal value of %IB39 data

area is 0. The %IB40 data area is displayed as 1 hexadecimal, the %IB41 data area is displayed as 0 hexadecimal, and the %IB42 data area is displayed as 1 hexadecimal.

5.2. Modbus slave module parameter

ZLAN9913-S is a Modbus slave module that supports access to the Modbus RTU master station device to read the data of the Profinet master station device. The Modbus parameter and Serial parameter modules are added by default and do not need to be added by users.

5.2.1. “Modbus parameter” module

“Modbus parameter” module， The function of this module is to set Modbus parameters.

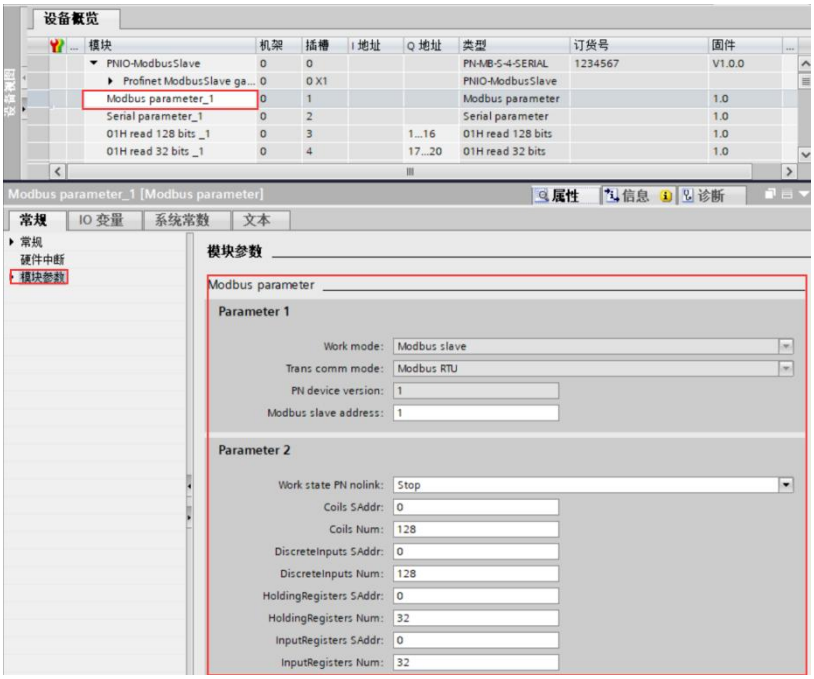


Figure 20 Modbus parameter parameter

Modbus parameter as followings.

Figure 16 Modbus parameter contents

Parameter	value range	Contents
Work mode	Modbus slave	Working mode, the current mode is Modbus slave, which cannot be changed.

Trans comm mode	Modbus RTU	Transmission mode: The current mode is Modbus RTU, which cannot be changed.
PN device version	1	The version number of the GSDML file installed by Botu cannot be modified.
Modbus slave address	0~255	ZLAN9913 slave address
Work state PN nolink	Stop、Run	The operating status of ZLAN9913 when the Profinet link is broken. (1) "Stop" stops work, and the command received from the Modbus master station is not processed. (2) "Run" continues to work, processing received Modbus instructions.
Coils SAddr	0~65535	Start address of coil data area
Coils Num	1~128	The length of the coil data area.
DiscreteInputs SAddr	0~65535	Discrete quantity Start address of the input data area.
DiscreteInputs Num	1~128	Discrete quantity length of the input data area.
HoldingRegiters SAddr	0~65535	Hold the start address of the register data area.
HoldingRegiters Num	1~32	Holds the length of the register data area
InputRegisters SAddr	0~65535	Enter the start address of the register data area.
InputRegisters Num	1~32	Enter the length of the register data area

It should be noted that the coil, discrete input, hold register, and the start address and length of the data area of the input register must be set, otherwise they cannot be used normally.

5.2.2. “Serial parameter”module

“Serial parameter”module，The function of this module is to set RS485 serial port parameters.

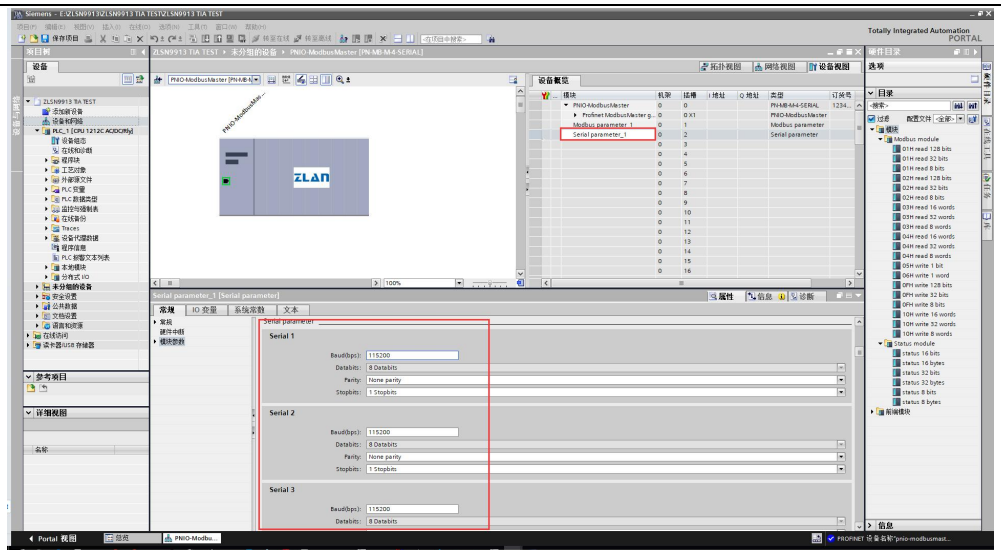


Figure 21 Serial parameter

Serial parameter contents as followings.

Figure 17 Serial parameter contents

parameter name	data range	contents
Baud(bps)	300~921600	Baud rate. The value ranges from 300 to 921600.
Databits	8	Data bit. The default value is 8 data bits and cannot be modified.
Parity	None, odd, even, tag, space	The value can be none, odd, even, mark, or space.
Stopbits	1、1.5、2	Stop bits，available for 1、1.5、2 bits stop bits

5.2.3. Custom modules can be added

The customized modules that can be added include Modbus module. The former is the module that delivers commands related to Modbus, and the slots that can be added are 3-64.

The Modbus module folder contains the Modbus command module that users can select according to their requirements. The commands support function codes such as 01, 02, 03, and 06.

Figure 22 Modbus module folder

The functions of specific modules are shown in the following table：

Figure 18 Modbus module functions

module	Function
01H	Write coil status. The value ranges from 1 to 128bits
02H	Write discrete input status. The value ranges from 1 to 128bits
03H	Write hold register data, can write 1-32 hold registers
04H	Write input register data, can write 1-32 input registers
05H	Read the state of one coil, and write the command of the function code of the main Modbus station 05H and 0FH
06H	The data of one hold register is read, and the instructions of the function code 06H and 10H of the Modbus master station are written
0FH	Read 1-128bits of coil status, write the command of 05H, 0FH function code of Modbus master station
10H	The data of 1-32 hold registers is read, and the function code instructions of the main Modbus station 06H and 10H are written

The following takes ZLAN9913 as an example to simulate Modbus RTU slave station.

1. The 01H module, such as the command "01 01 00 10 00 08 3c 09" sent by the

Modbus master station, aims to read the status of the coil with the starting address 16 and length 8, and can write the data to the Q area for the master station to read.

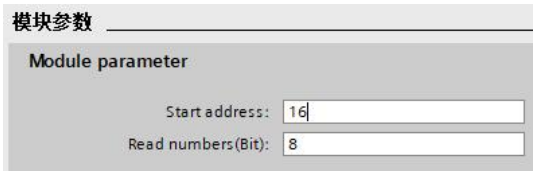


Figure 23 01 module wiring

2. The following table describes the Module parameter of the 01H module.

Figure 19 01H module parameter contents

Parameter name	data range	Contents
Start address	0~65535	Coil write start address
Read numbers(Bit)	1~128、1~32、1~8	Write wiring quantity，unit is Bit 01H read 128 bits:1~128。 01H read 32 bits:1~32。 01H read 8 bits:1~8。

3. The 02H module, such as the command "01 02 00 00 00 00 08 79 cc" from the Modbus master station, aims to read the state of the discrete input with the starting address 0 and length 8, where the data can be written to the Q area for the master station to read.

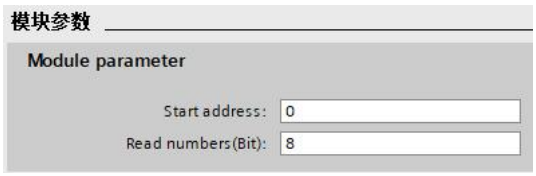


Figure 24 02 module discrete input

The following table describes the Module parameters of the 02H module.

Figure 20 02H module parameter contents

parameter name	data range	Contents
Start address	0~65535	Discrete quantity write start address.
Read numbers(Bit)	1~128、1~32、1~8	Write the number of discrete inputs，unit is Bit 02H read 128 bits:1~128。 02H read 32 bits:1~32。 02H read 8 bits:1~8。

4. The 03H module, such as the command "01 03 00 3f 00 01 b4 06" from the Modbus master station, aims to read the data of the hold register with the starting address 63 and length 1, where the data can be written to the Q area for the master station to read.

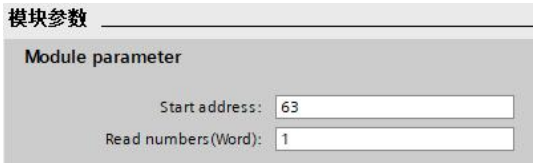


Figure 25 03 module hold register

The following table describes the specific meanings of the Module parameters of the 03H module.

Figure 21 03H module parameter contents

Parameter name	data range	Contents
Start address	0~65535	Register read start address.
Read numbers (Word)	1~32、1~16、1~8	The number of write hold registers，unit is Word 03H read 32 words:1~32。 03H read 16 words:1~16。 03H read 8 words:1~8。

5. The 5.04H module, such as the command "01 04 00 00 00 08 f1 cc" from the Modbus master station, aims to read the data of the input register with the starting address 0 and length 8, where the data can be written to the Q area for the master station to read.

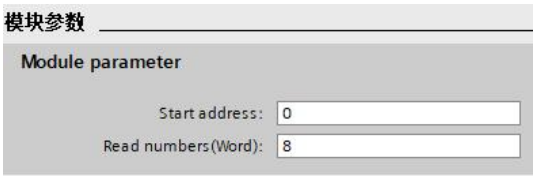


Figure 26 04 Module hold register

The following table describes the meanings of Module parameter of 04H module.

Figure 22 04H module parameter contents

parameter name	data range	contents
Start address	0~65535	Register write start address.

Read numbers (Word)	1~32、1~16、1~8	Write the number of input registers， unit is Word 04H read 32 words:1~32。 04H read 16 words:1~16。 04H read 8 words:1~8。

6. The 05H module, such as the command "01 05 00 10 ff 00 8d ff" from the Modbus master station, aims to write the state of the coil of length 1 at the starting address 16, where the written data can be read from zone I.

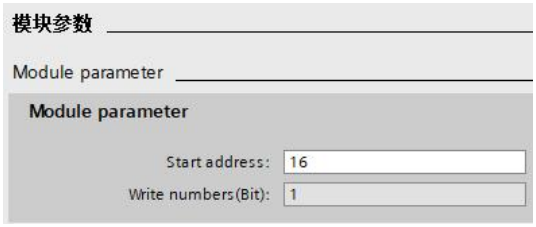


Figure 27 05 module read wiring map

The following table describes the Module parameter of the 05H module

Figure 23 05H module parameter contents

parameter name	data range	Contents
Start address	0~65535	The coil reads the start address.
Write numbers(Bit)	1	Read the number of coils，unit is Bit.

7. The 06H module, such as the command "01 06 00 3f 01 00 b8 56" from the Modbus master station, aims to write the data of the hold register at the starting address 63, length 1, where the written data can be read from the I area.

8.

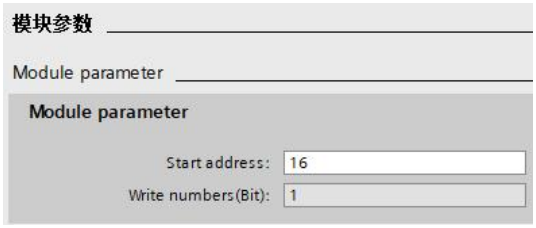


Figure 28 06 module read wiring map

The following table describes the specific meanings of Module parameters of the 06H module.

Figure 24 06H module parameter contents

Parameter name	data range	Contents
Start address	0~65535	Register read start address.
Write numbers(Word)	1	Read The number of read hold registers， unit is Word.

9. The 9.0FH module, such as the command "01 0f 00 10 00 08 01 ff 7f 16" from the Modbus master station, is intended to write the state of the coil of length 8 at the starting address 16, where the written data can be read from zone I.

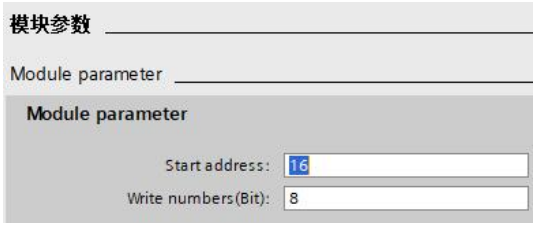


Figure 29 0FH module read wiring map

The following table describes the Module parameter of the 0F module.

Figure 25 0FH module parameter contents

Parameter name	data range	Contents
Start address	0~65535	The coil reads the start address.
Write numbers(Bit)	1~128、1~32、1~8	Read the number of coils，unit is Bit 0FH write 128 bits:1-128。 0FH write 32 bits:1-32。 0FH write 8 bits:1-8。

10. The 10H module, such as the command "01 10 00 3f 00 01 02 01 00 b8 56" from the Modbus master station, is intended to write the data of the holding register of length 1, starting at address 63, where the written data can be read from area I.

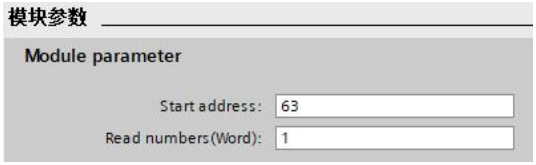


Figure 30 10H module read register

The following table describes the meanings of the Module parameter of the 10H module.

Figure 26 10H module parameter contents

parameter name	data range	Contents
Start address	0~65535	Register read start address.
Write numbers(Word)	1~32、1~16、1~8	Read the number of hold registers，unit is Word 10H write 32 words:1-32。 10H write 16 words:1-16。 10H write 8 words:1-8。

6. Configuration case

6.1. Modbus master configuration case

This tutorial is based on PLC S7-1200 (model: 6ES7 212-1BE40-0XB0) and TIA PORTAL V15.1.

1. The first step is to create a new project“ZLAN9913 TIA TEST”.

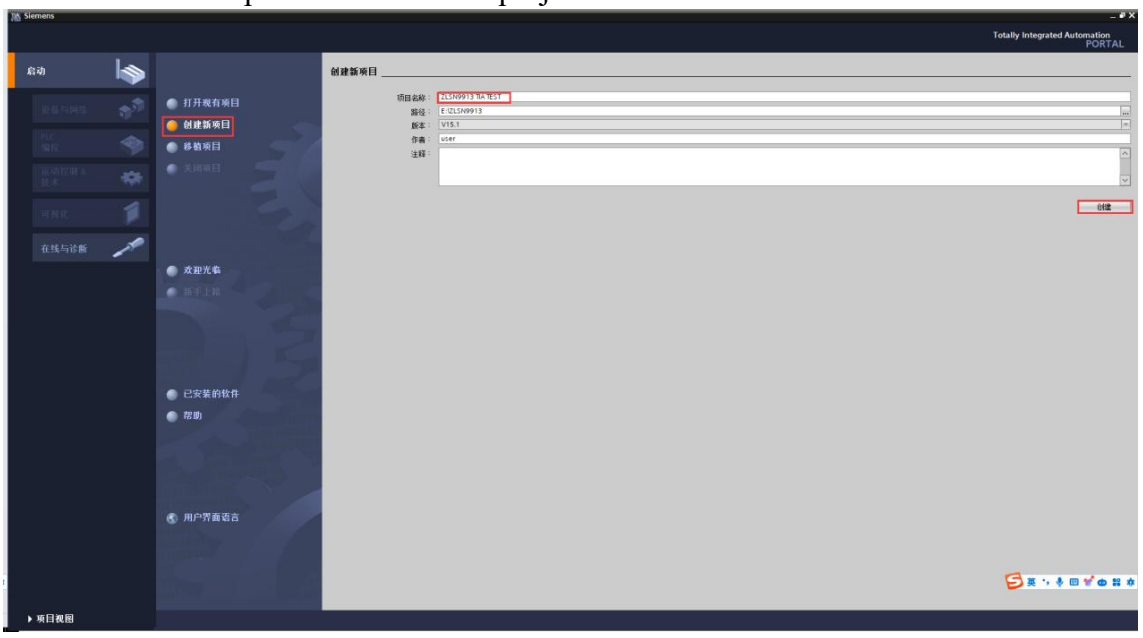


Figure 31 Create a new project for the main site

2. Click "Open Project View".

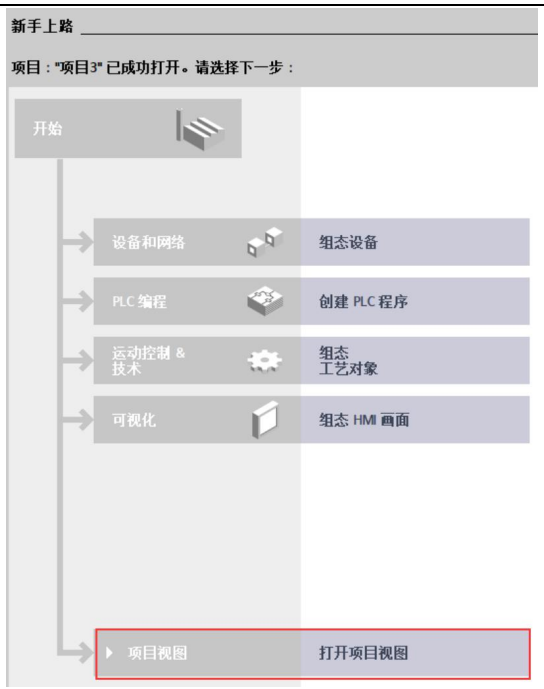


Figure 32 Open project view

3. Add new device: Profinet master device, here added is the S7-1200 "6ES7 212-1BE40-0XB0" model, note: if you do not know the version number of your device, it is best to choose the lowest version here, because the version is backward compatible.

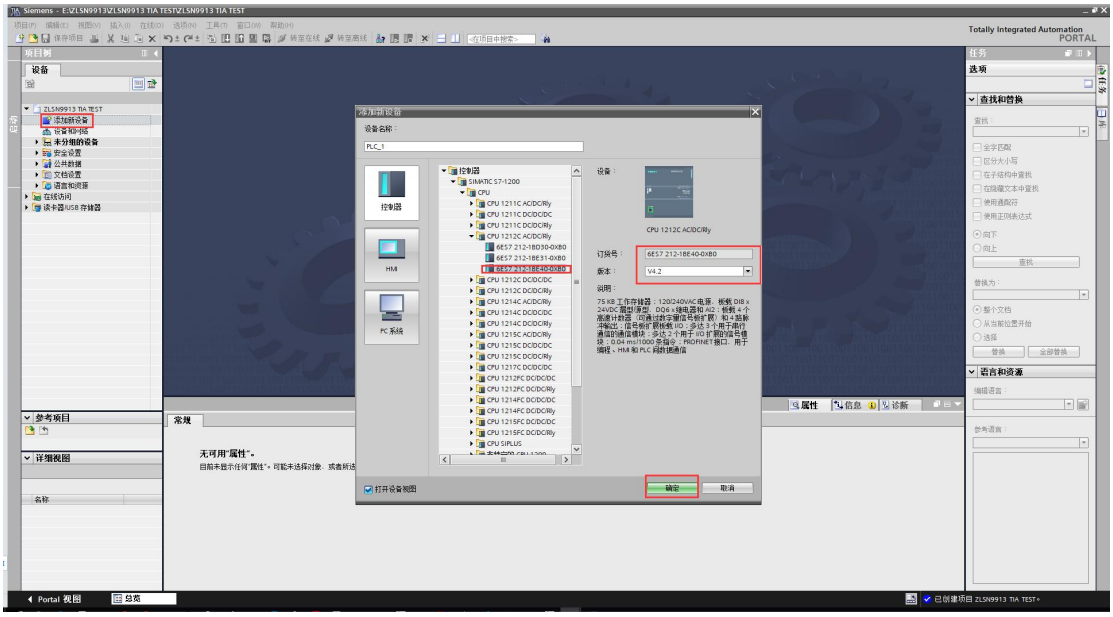


Figure 33 Add new device Profinet master station

4. To add GSDML file for ZLAN9913, click the option button to Manage Common Station Description File (GSD).

Figure 34 manage GSD documents

5. Select source path， insert ZLAN9913 GSDML document.

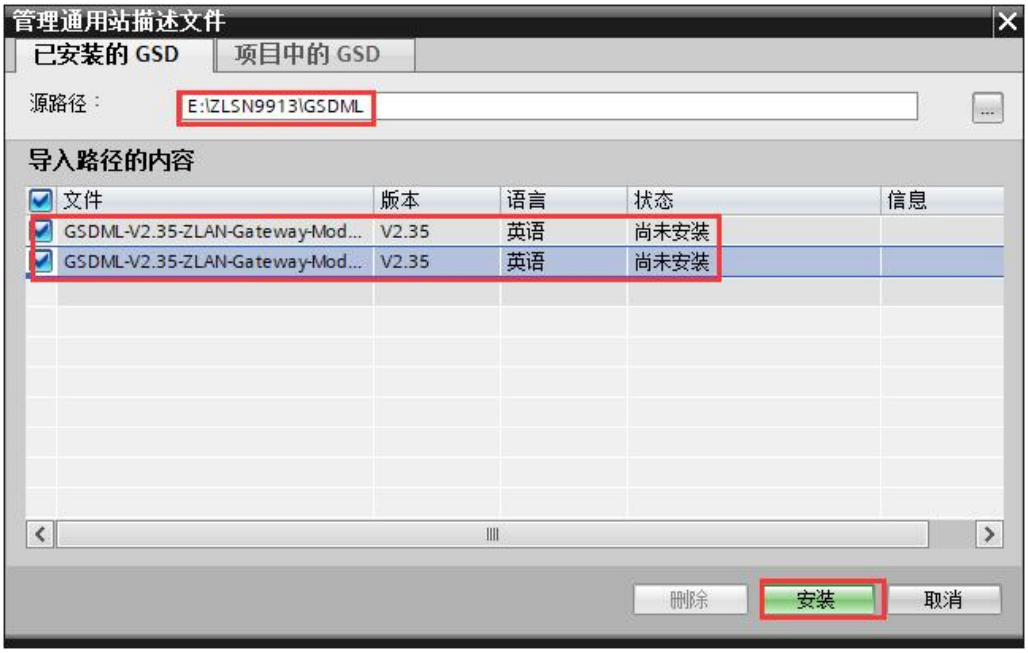


Figure 35 insert GSD document

6. Click Install, it will take a little time to install the GSD file, click close after the installation is complete.

Figure 36 install GSD document

7. Make sure the computer is in the same network segment as PLC and ZLAN9913. Click Other field Devices ->PROFINETIO->ZLAN.Co.Ltd->PN MBMaster-> PN-MB-M-4-serial. Add the ZLAN9913 master or slave device to Network View.

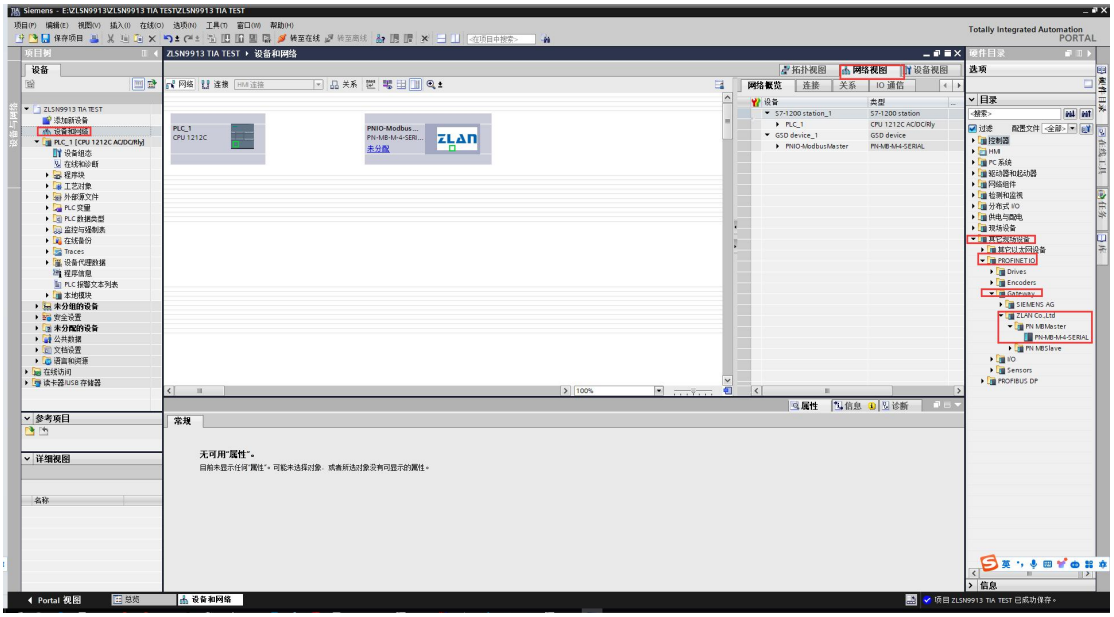


Figure 37 Add ZLAN9913 to LAN view map

8. Click "Unassigned" and select "PLC_1.PROFINET Interface _1".

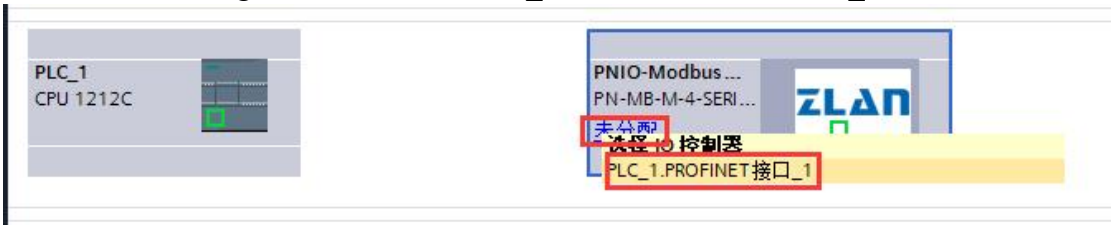


Figure 38 Unallocated 9913 status

9. 分配完成后如下图所示。

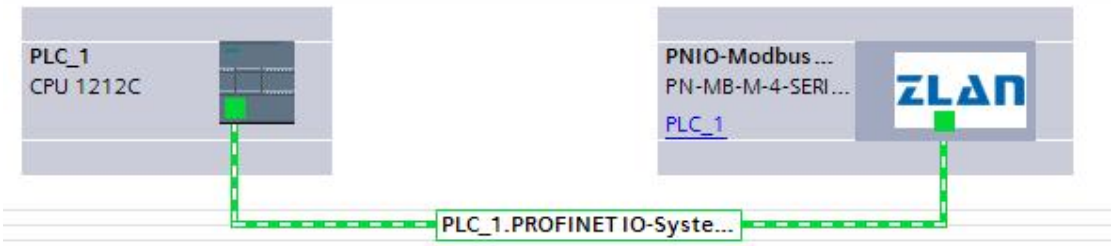


Figure 39 located 9913 accomplish

10. Select the PLC in the network view. Click the property bar below -> General -> Ethernet Address to set the IP address of the PLC, which needs to ensure that the IP is

unique and whether the network segment is the same as other devices in the LAN.

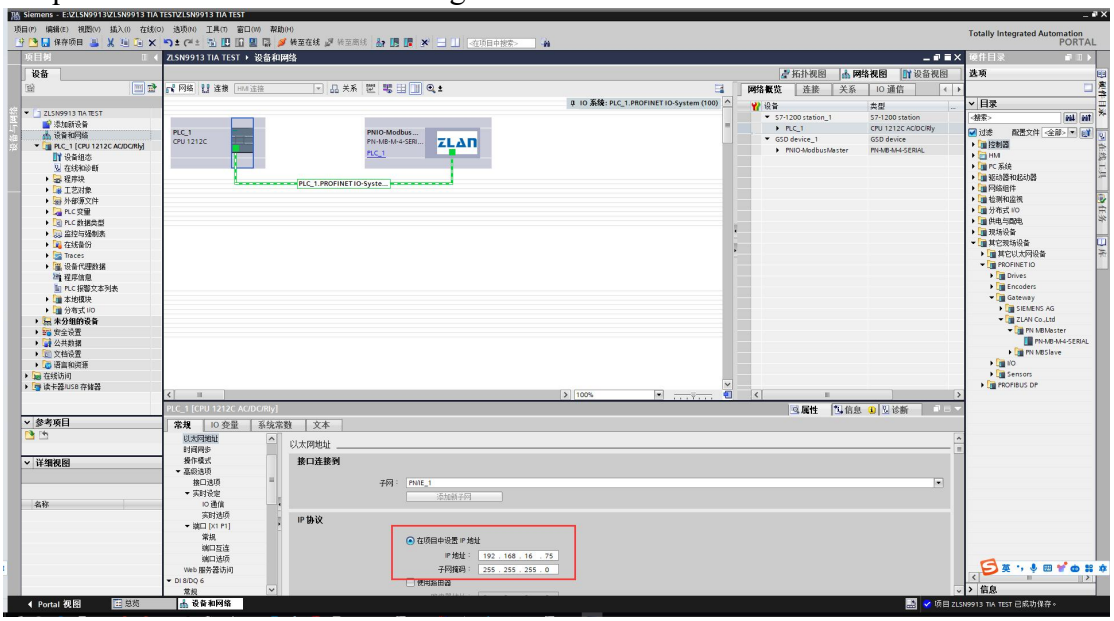


Figure 40 configuration of PLC IP address

11. Set the IP address and device name of the ZLAN9913. Note: The IP address and device name must be unique.

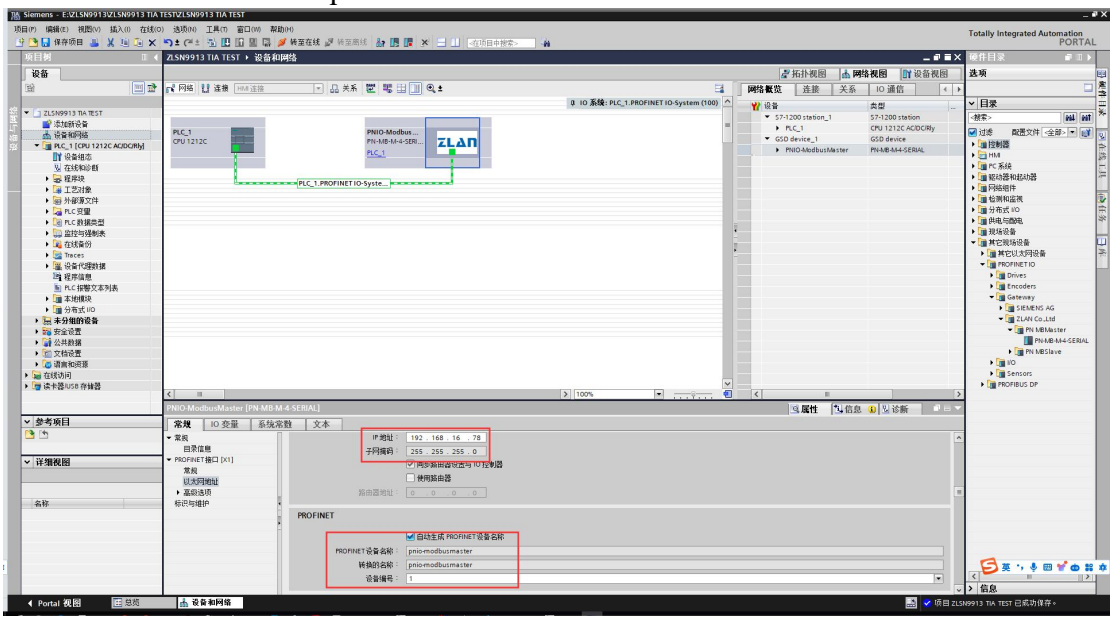


Figure 41 configuration for 9913 IP address and name

12. After the setting, the device name and IP address need to be assigned to ZLAN9913, as shown in the picture below. Right-click 9913 and click Assign device name.

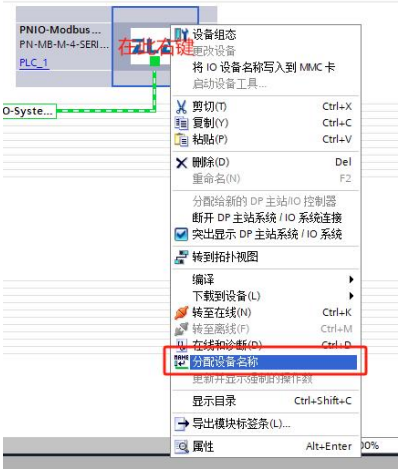


Figure 42 distribute 9913 IP address and name

13. Select the correct network interface and click "Update List".

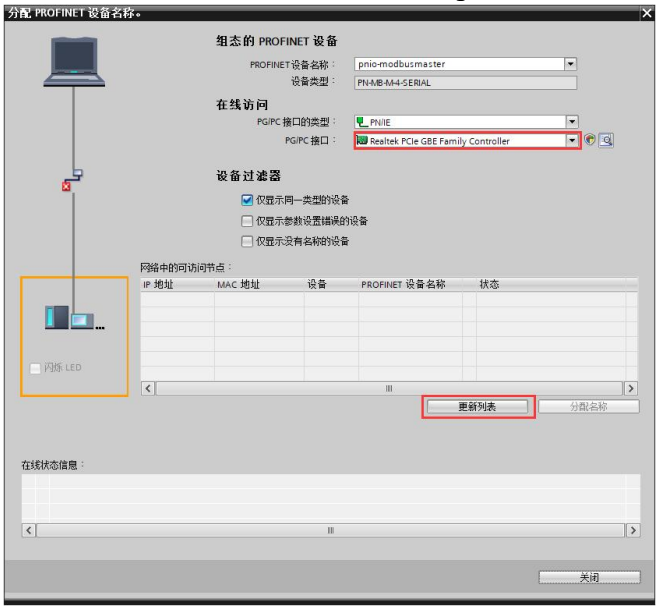


Figure 43 Updated list

14. Select the correct ZLAN9913 device and click "Assign Name".

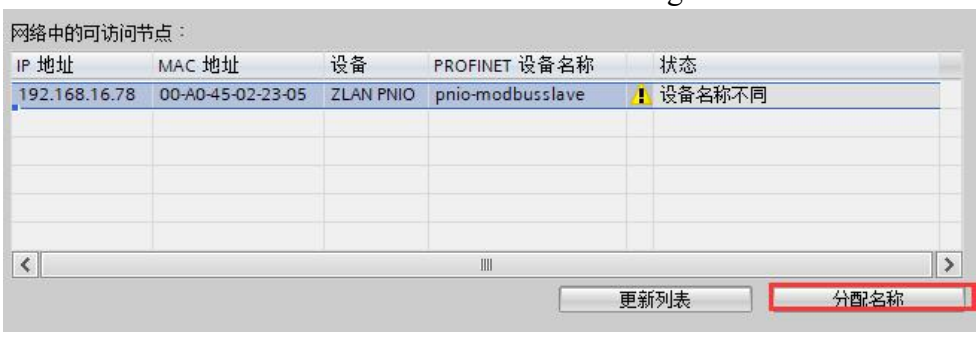


Figure 44 Assignment name

If the status prompts yes. Then click Close

IP 地址	MAC 地址	设备	PROFINET 设备名称	状态
192.168.16.78	00-A0-45-02-23-05	ZLAN PNIO	pnio-modbusmaster	确定

Figure 45 Close the allocation page

15. Click "Device View" and select the corresponding option for ZLAN9913.

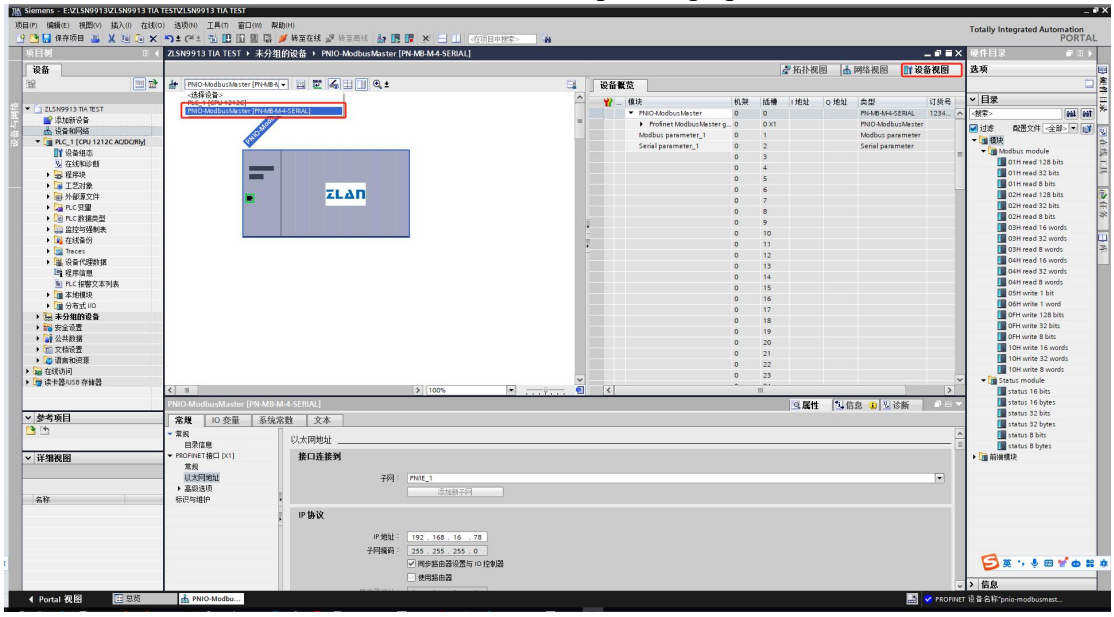


Figure 46 Option 9913 for Device view

16. Take ZLAN9913 control Modbus RTU slave station meter as an example, add the following modules to the slot：

设备概览

模块	机架	插槽	I 地址	Q 地址	类型
PNIO-ModbusMaster	0	0			PN-MB-M-4-SERIAL
Profinet ModbusMaster g...	0	0 X1			PNIO-ModbusMaster
Modbus parameter_1	0	1			Modbus parameter
Serial parameter_1	0	2			Serial parameter
01H read 8 bits _1	0	3	1		01H read 8 bits
02H read 8 bits _1	0	4	2		02H read 8 bits
03H read 8 words _1	0	5	3...18		03H read 8 words
04H read 8 words _1	0	6	19...34		04H read 8 words
05H write 1 bit _1	0	7		1	05H write 1 bit
05H write 1 bit _2	0	8		2	05H write 1 bit
0FH write 8 bits _1	0	9		3	0FH write 8 bits
0FH write 8 bits _2	0	10		4	0FH write 8 bits
06H write 1 word _1	0	11		5...6	06H write 1 word
06H write 1 word _2	0	12		7...8	06H write 1 word
status 8 bytes _1	0	64	35...42		status 8 bytes

Figure 47 Add 9913 module

17. Set up“Modbus parameter” module by following steps，meanwhile, Monitor the status of slaves choose Enable, open monitoring function

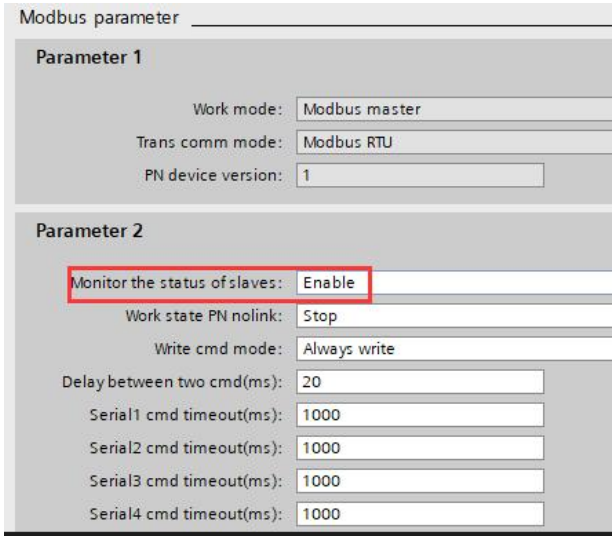


Figure 48 set up Modbus parameter

18. Set up“Serial parameter”module“Serial 1” as 115200,8,None,1，others as default ones.

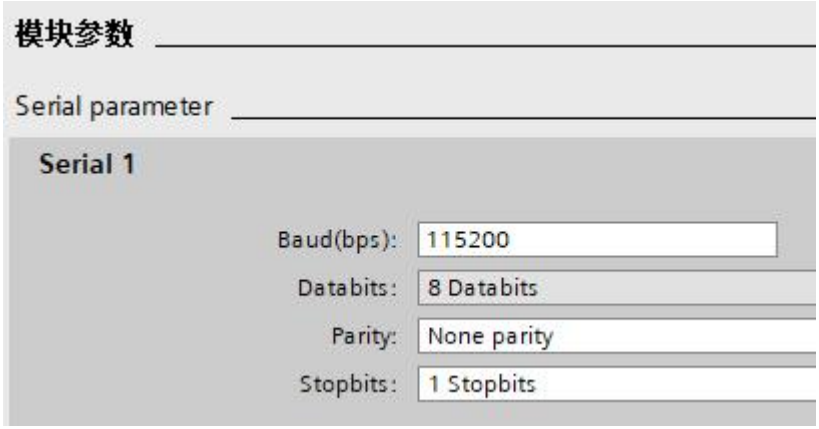


Figure 49 set up Serial parameter

19. “01H read 8 bits _1”module configuration by followings，slave address started from 16，read 8 coils consecutively.

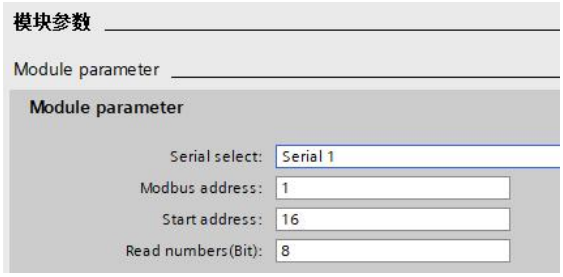


Figure 50 set up 01H module

20. “02H read 8 bits _1” module configuration as followings， slave address start from 0，read 8 discrete inputs consecutively.

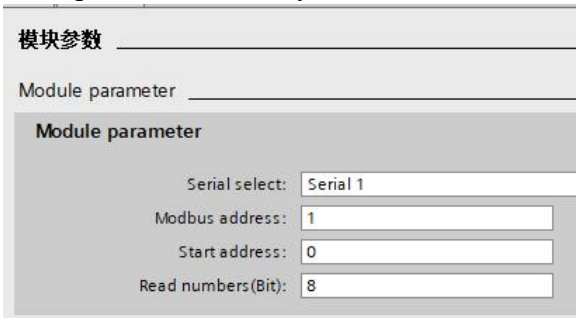


Figure 51 set up 02H module

21. “03H read 8 words _1” the module sets the following parameters, starting at address 63, to read 1 hold register.

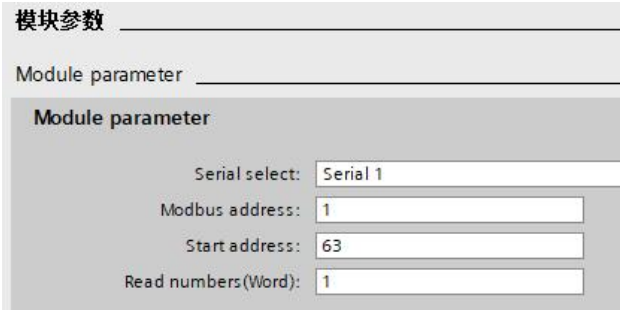


Figure 52 set up 03H module

22. “04H read 8 words _1” the module sets the following parameters, starting at address 0, to read eight consecutive input registers.

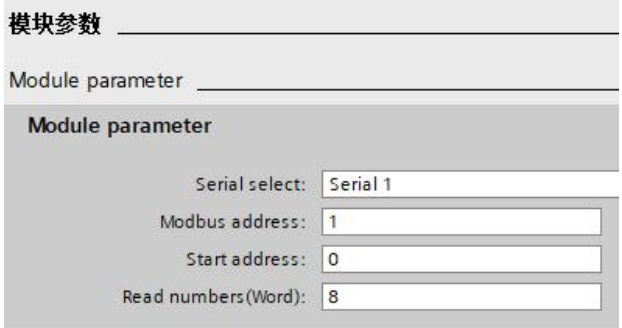


Figure 53 set up 04H module

23. The 05H write 1 bit _1 module sets the following parameters. Write one coil starting from address 16 and close the coil.

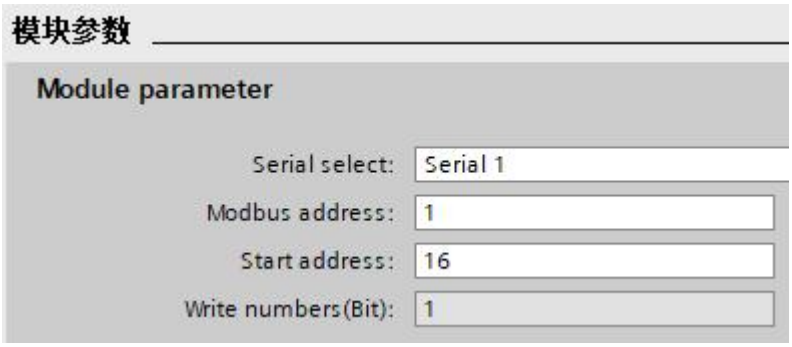


Figure 54 Set the closing coil of the 05H module

24. “05H write 1 bit _2”module configuration as followings，write a coil starting from address 16 and disconnect the coil.

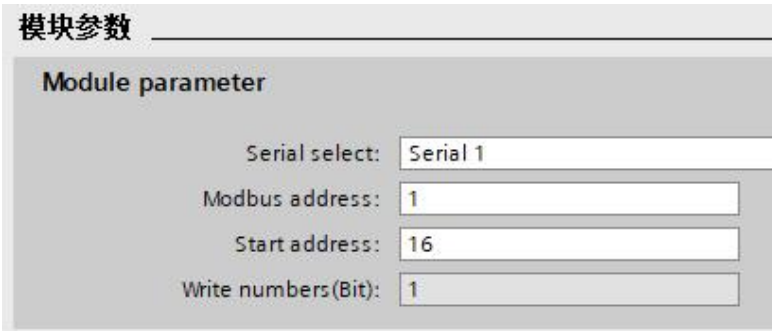


Figure 55 Set the 05H module to disconnect coil

25. “0FH write 8 bits _1”Set the following parameters on the module. Write eight consecutive coils starting from address 16 and close coils 1 to 8.

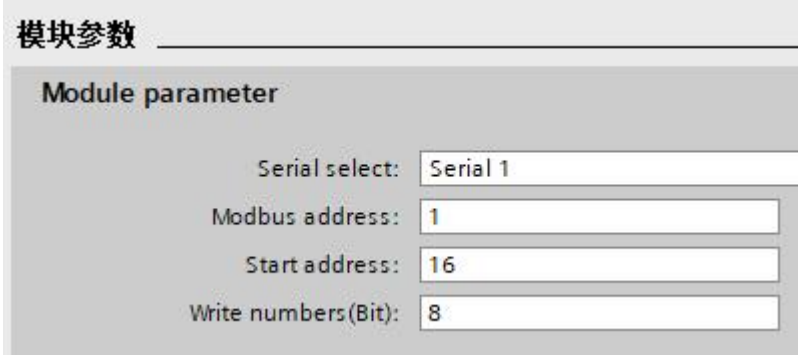


Figure 56 set up 0FH Module closing coil 1~8

26. “0FH write 8 bits _2”Module set the following parameters, write 8 consecutive coils starting from address 16, disconnect coils 1~8.

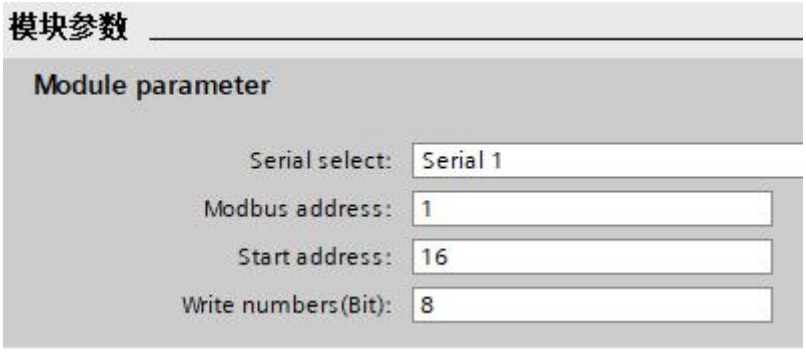


Figure 57 set up 0FH Module closing coil 1~8

27. “06H write 1 word _1” The module sets the following parameters to write a hold register from address 63 for writing the value to 2.

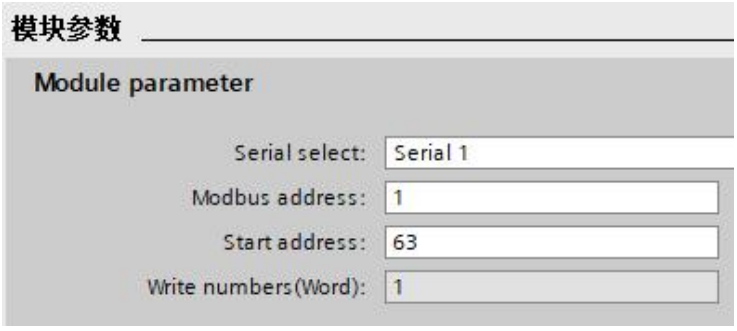


Figure 58 set up 06H module write data as 2

28. “06H write 1 word _2” The module sets the following parameters to write a hold register from address 63, which is used to write the value to 1.

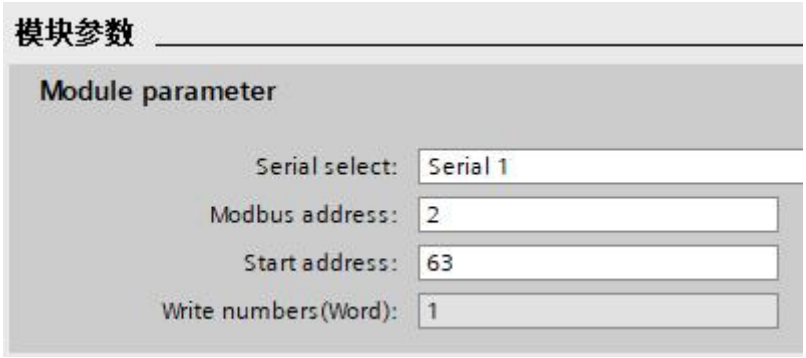


Figure 59 set up 06H module write data as 1

29. Till now, the configuration has been done, just need to download to the PLC on the line, click compile, no errors can be.

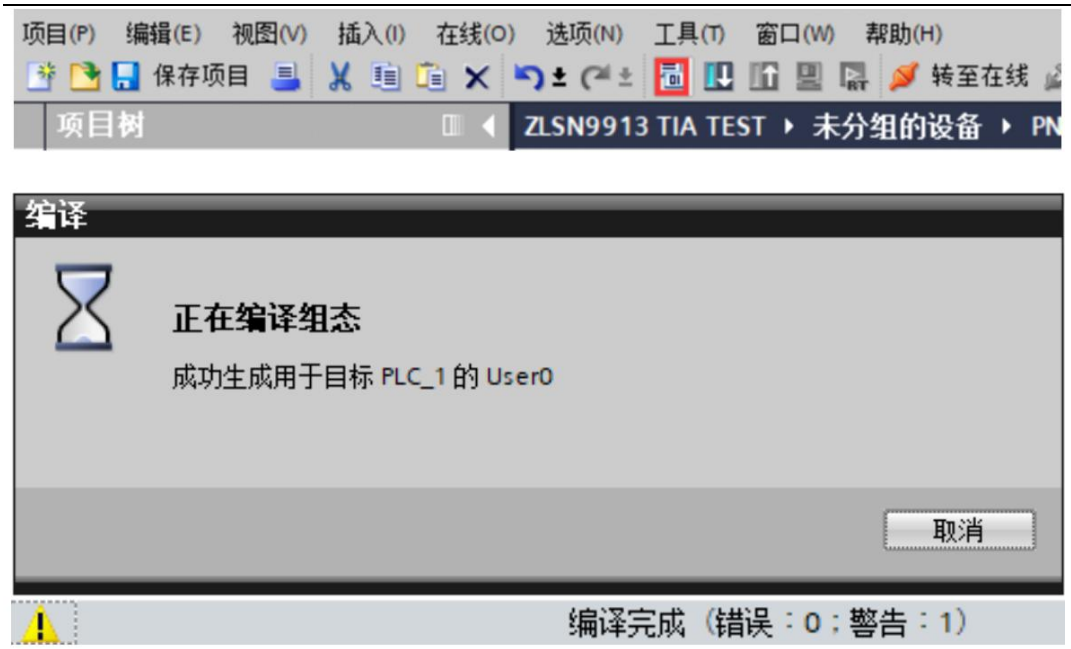


Figure 60 Compilation configuration

30. After the compilation is complete, click download, you need to select the correct network interface

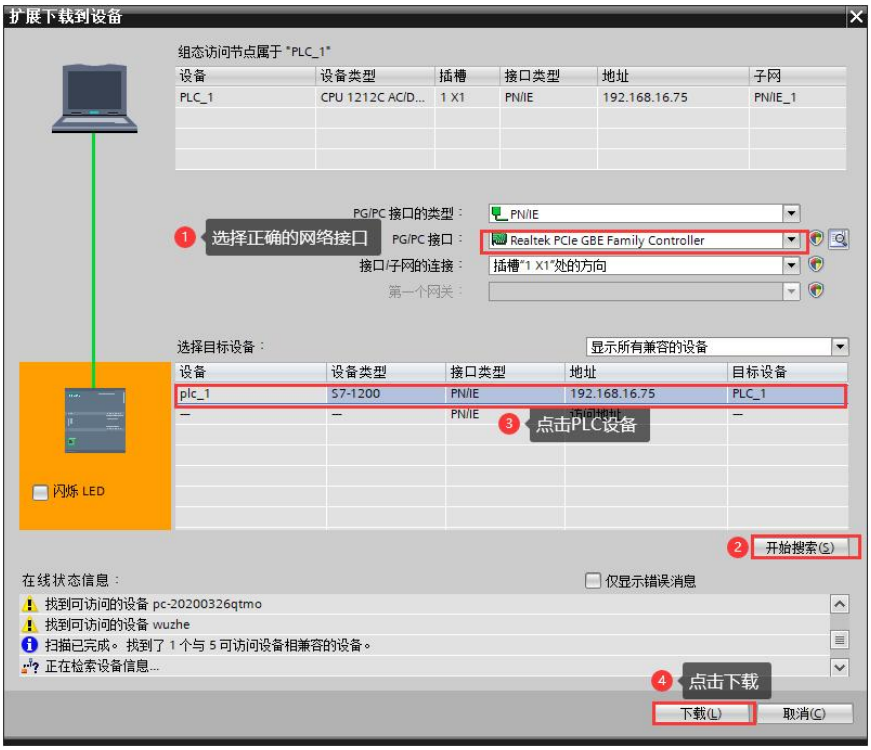


Figure 61 Download configuration

31. Select "Stop All" from "Stop Module" and click "Load".

Figure 62 Load configuration

32. Click "Done" and the link between PLC and ZLAN9913 will be established.

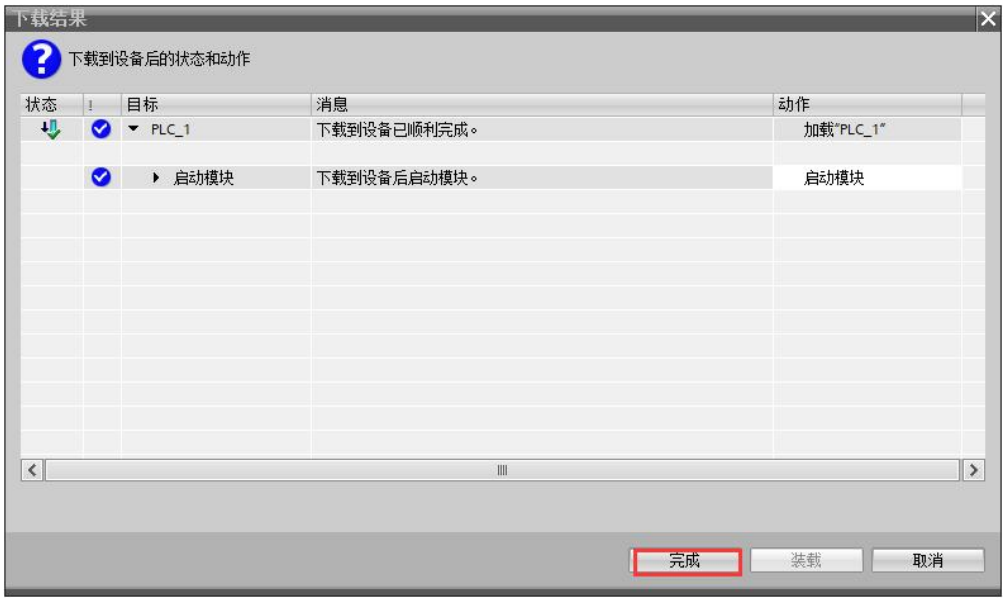


Figure 63 Finish download

33. Here you can click "Go to online" to verify whether PLC and ZLAN9913 have established a link. You can see that the status bar on the left side of the module is all green, otherwise no link has been established.

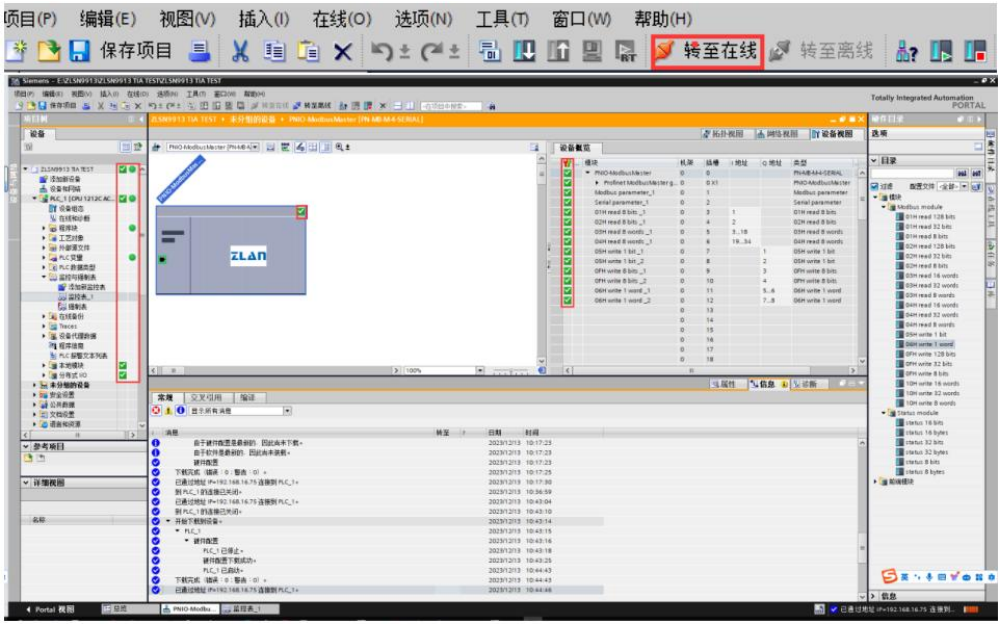


Figure 64 Turn into online

34. At this time, you can create a "monitor table" to map the Modbus RTU device through the Profinet data area, click "Add new monitor table" in "Monitor and force table" to get "Monitor table _1".

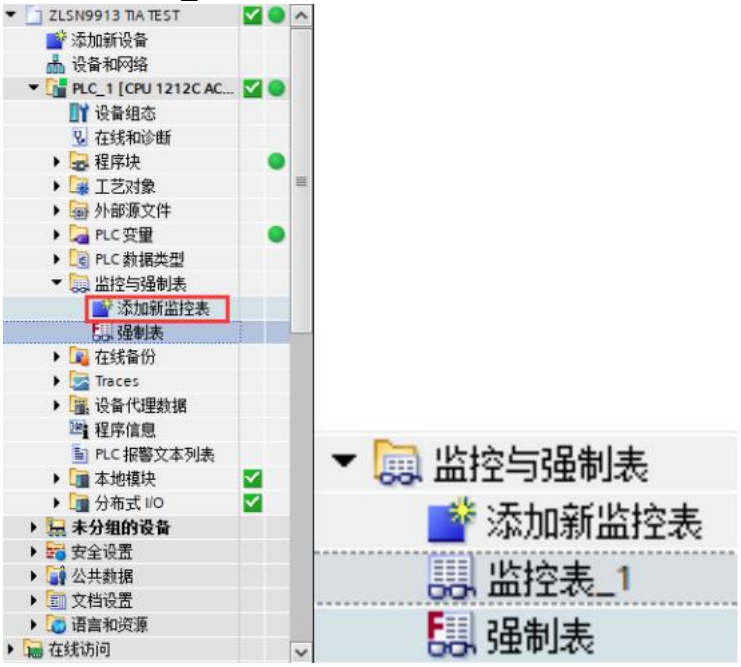


Figure 65 Adding a monitor table

35. Add the following data area to the monitoring table as shown in the following figure.

Figure 66 Monitoring table configuration

I Address: Users can read parameters based on the corresponding address. Keywords such as IB, IW, and ID can be used.

Q address: Users can set parameters according to the corresponding address, you can use QB, QW, QD and other keywords.

Monitor table address :%IB2 means that 1 byte of data with I address 2 is read.

Monitor value: Read the values of the I and Q addresses.

Modify the value: Write the value to the register of the Modbus RTU slave device.

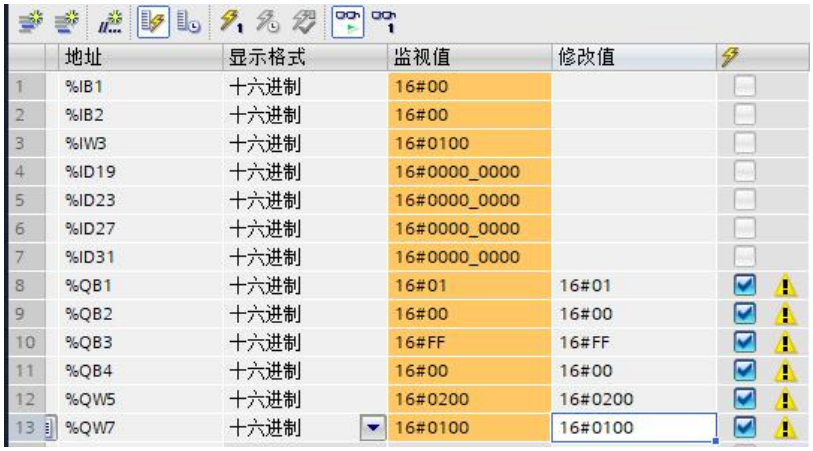
The following table describes the mapping between the module parameters set in the preceding figure

Table 27 For your reference

parameter name	I address	Q address	address
01H read 8 bits_1	1		%IB1（IB refer to 1 bit）
02H read 8 bits_1	2		%IB2（IB refer to1 bit）
03H read 8 words_1	3~18		%IW3~%IW17（IW refer to 2 bits）
04H read 8 words_1	19~34		%ID19~%IW31（ID refer to 4 bits）
05H write 1 bits_1		1	%QB1（QB refer to 1 bit）
05H write 1 bits_2		2	%QB2（QB refer to 1 bit）
0FH write 8 bits_1		3	%QB3（QB refer to 1 bit）
0FH write 8 bits_2		4	%QB4（QB refer to 1 bit）
06H write 8 word_1		5~6	%QW5（QW refer to 2 bits）

06H write 8 word_2		7~8	%QW7（QW refer to 2 bits）

36. Click  to monitor I zone data，read Modbus RTU slave station corresponding data； click  to revise Q zone parameter to PLC， control Modbus RTU slave station devices corresponding functions.



	地址	显示格式	监视值	修改值	
1	%IB1	十六进制	16#00		
2	%IB2	十六进制	16#00		
3	%IW3	十六进制	16#0100		
4	%ID19	十六进制	16#0000_0000		
5	%ID23	十六进制	16#0000_0000		
6	%ID27	十六进制	16#0000_0000		
7	%ID31	十六进制	16#0000_0000		
8	%QB1	十六进制	16#01	16#01	
9	%QB2	十六进制	16#00	16#00	
10	%QB3	十六进制	16#FF	16#FF	
11	%QB4	十六进制	16#00	16#00	
12	%QW5	十六进制	16#0200	16#0200	
13	%QW7	十六进制	16#0100	16#0100	

Figure 67 Monitor data

6.2. Modbus slave Configuration case

This tutorials is based on PLC S7-1200 （Item No.：6ES7 212-1BE40-0XB0） and TIA PORTAL V15.1.

1. Create project named of“ZLAN9913 TIA SLAVE TEST”。

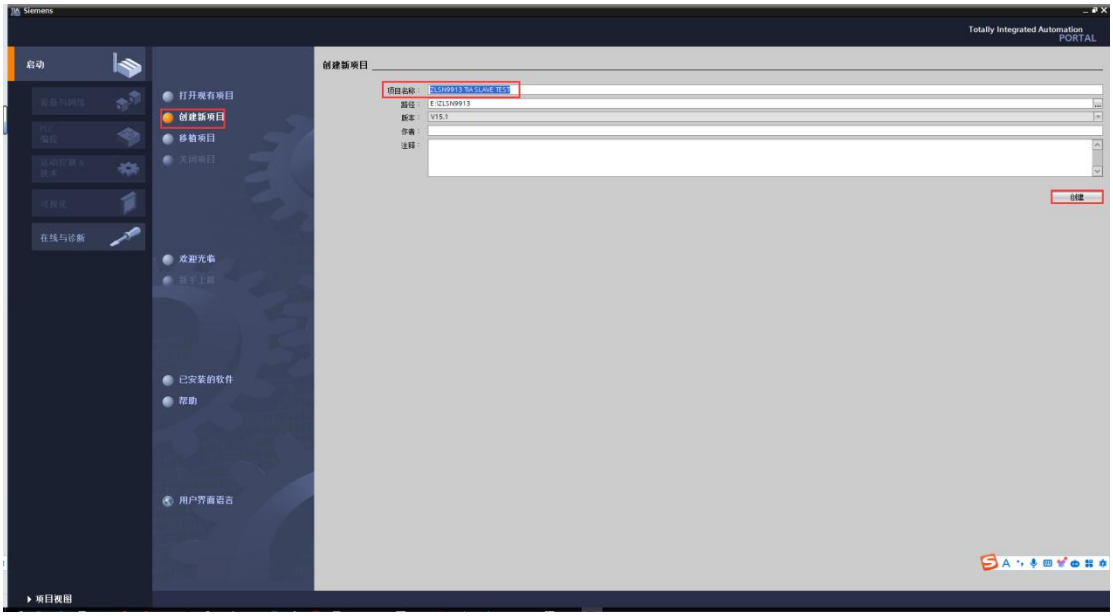


Figure 68 Create slave station new project

2. Click “open project view”

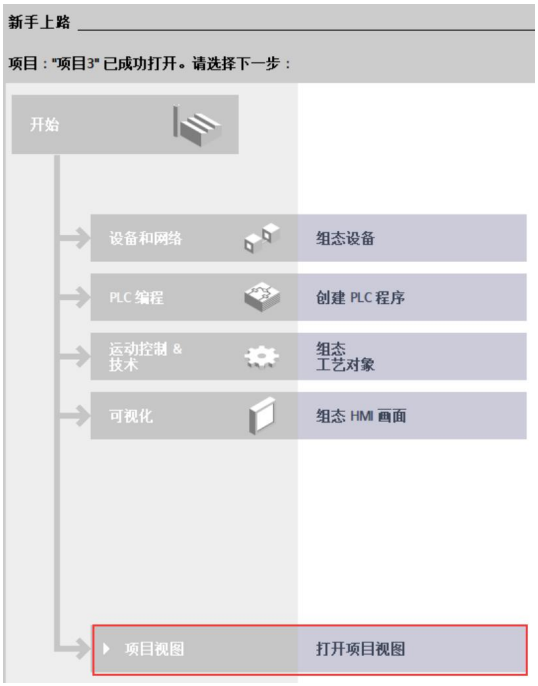


Figure 69 Open project view

3. Add new device： Profinet main station device， here add S7-1200 “6ES7 212-1BE40-0XB0”item，Notice：If you do not know the version number of your device, it is best to choose the lowest version here, because the version is backward compatible.

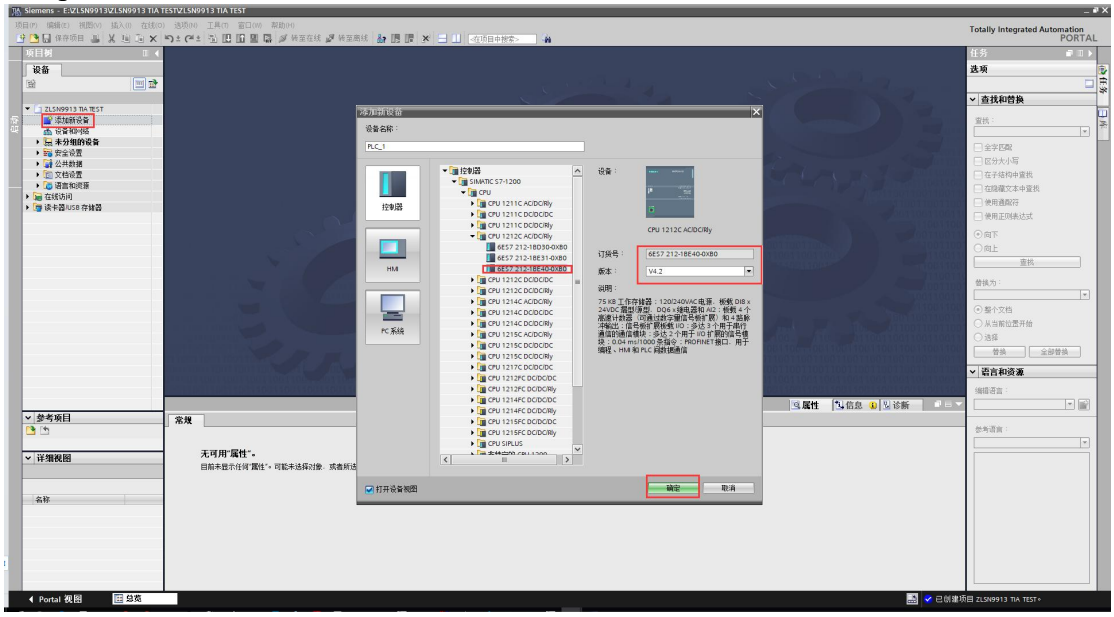


Figure 70 Add new device Profinet main station

4. Add ZLAN9913 GSDML file, select button management Common Station Description File (GSD).

Figure 71 Add new device Profinet main station

5. Select path origin，insert ZLAN9913 GSDML file.

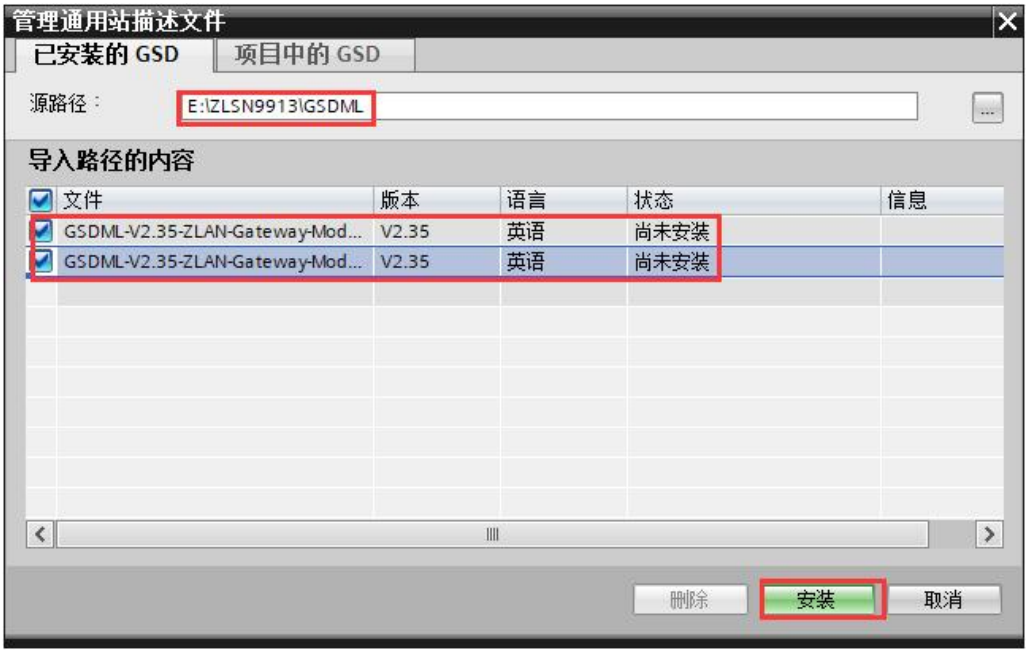


Figure 72 insert GSD file

6. Click Install, it will take a little time to install the GSD file, click close after the installation is complete.

Figure 73 install GSD file

7. Ensure PLC 、 ZLAN9913 in the same LAN， click other devices on the scene->PROFINETIO->ZLAN.Co.Ltd->PN MBSlave->PN-MB-M-4-SERIAL 。 AddZLAN9913 main station or slave station devices to “LAN view”.

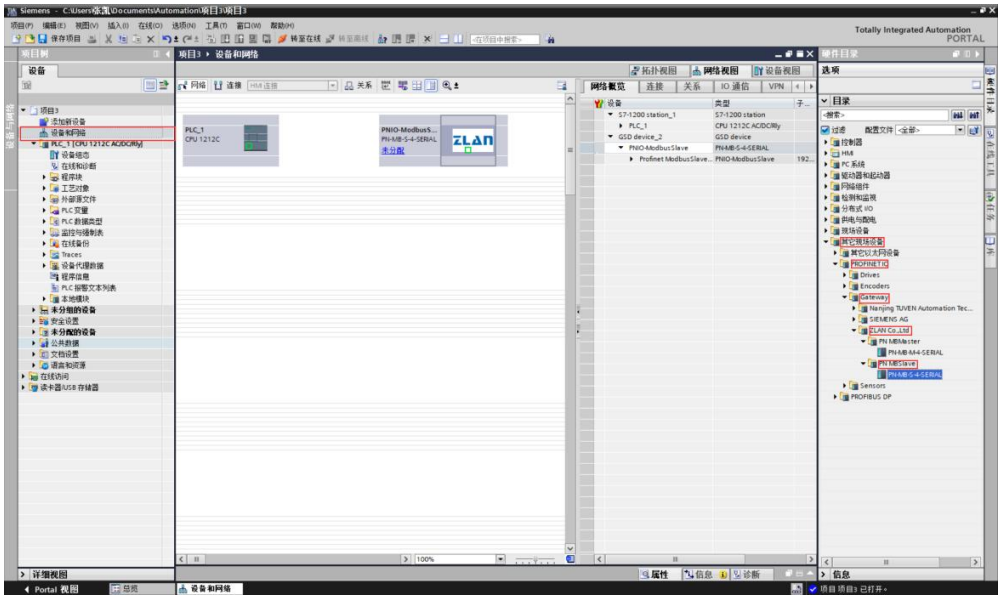


Figure 74 Add ZLAN9913 to LAN view

8. Click "Unassigned"，select“PLC_1.PROFINET interface_1”.

Figure 75 Click unassigned

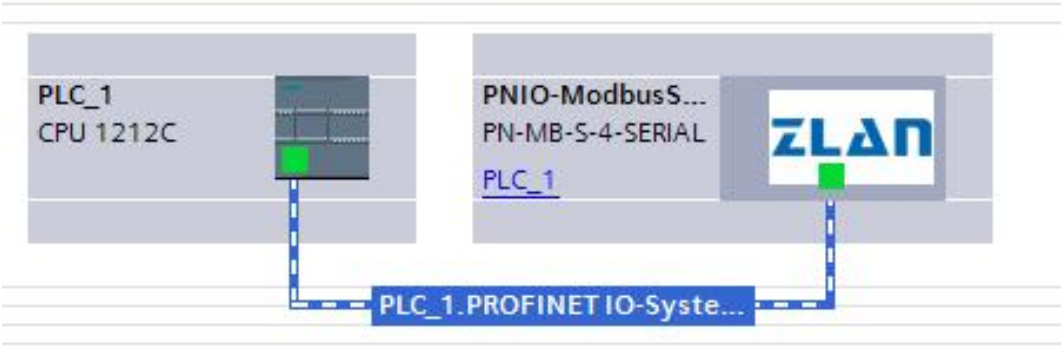


Figure 76 Assignment complete

9. Select the PLC in the network view. Click the property bar below -> General -> Ethernet Address to set the IP address of the PLC, which needs to ensure that the IP is unique and whether the network segment is the same as other devices in the LAN.

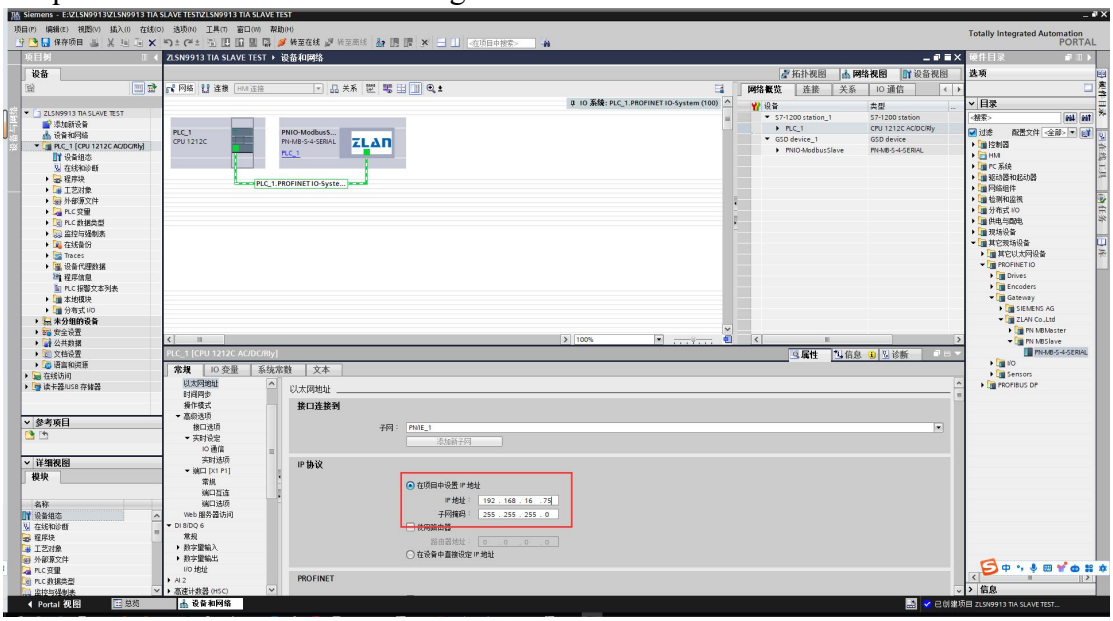


Figure 77 Set up PLC IP address

10. Set the IP address and device name of ZLAN9913. Note: The IP address and device name must be unique.

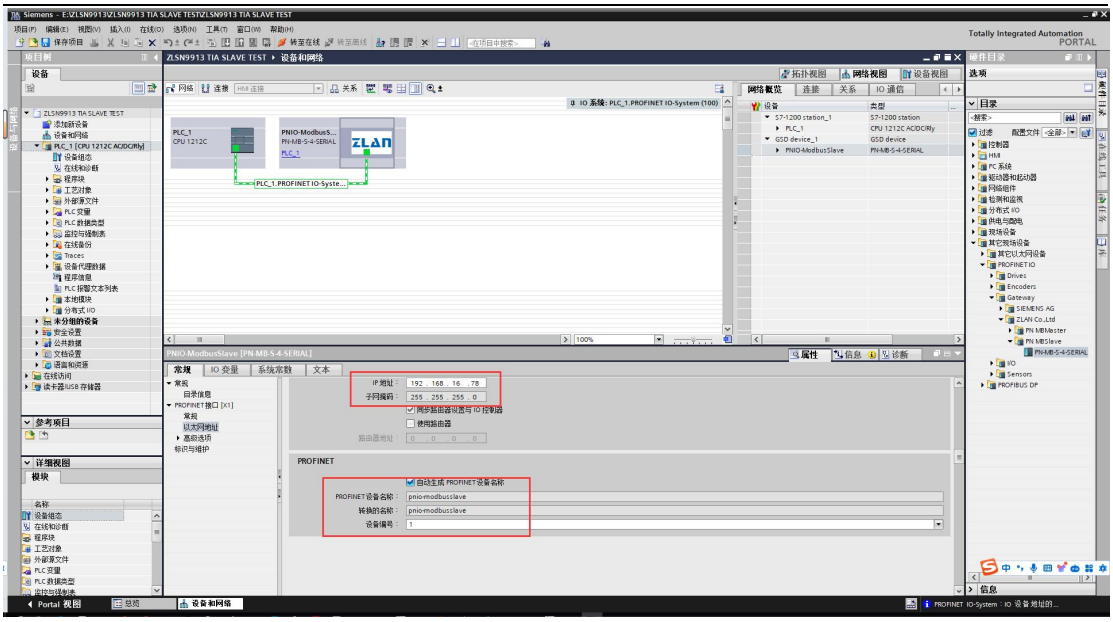


Figure 78 Set the IP address and device name of 9913

11. After the setting, the device name and IP address need to be assigned to ZLAN9913, as shown in the picture below. Right-click 9913 and click Assign device name.

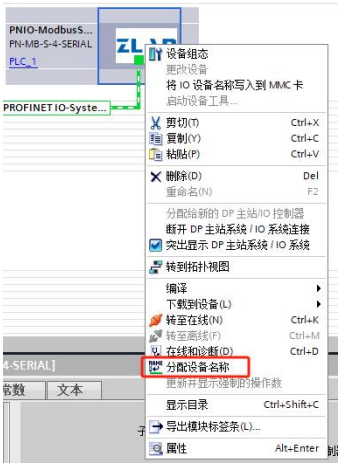


Figure 79 Assign device name

12. Select the correct network interface and click "Update List".

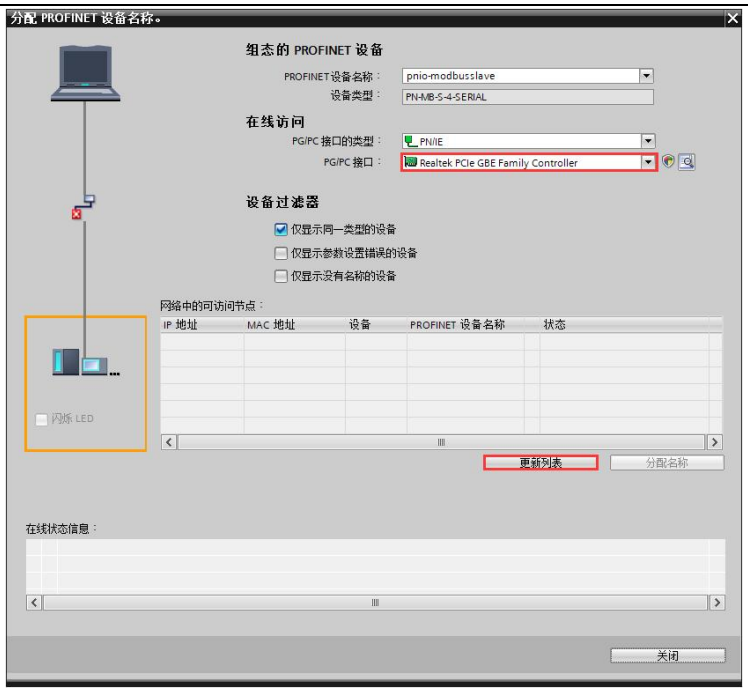


Figure 80 updated list

13. Select the correct ZLAN9913 device and click "Assign Name".

Figure 81 Assignment name

Confirm that the assignment is complete and click Close page.

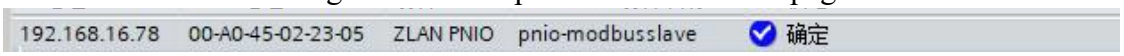


Figure 82 Definite allocation

14. Click "Device View" and select the corresponding option for ZLAN9913.

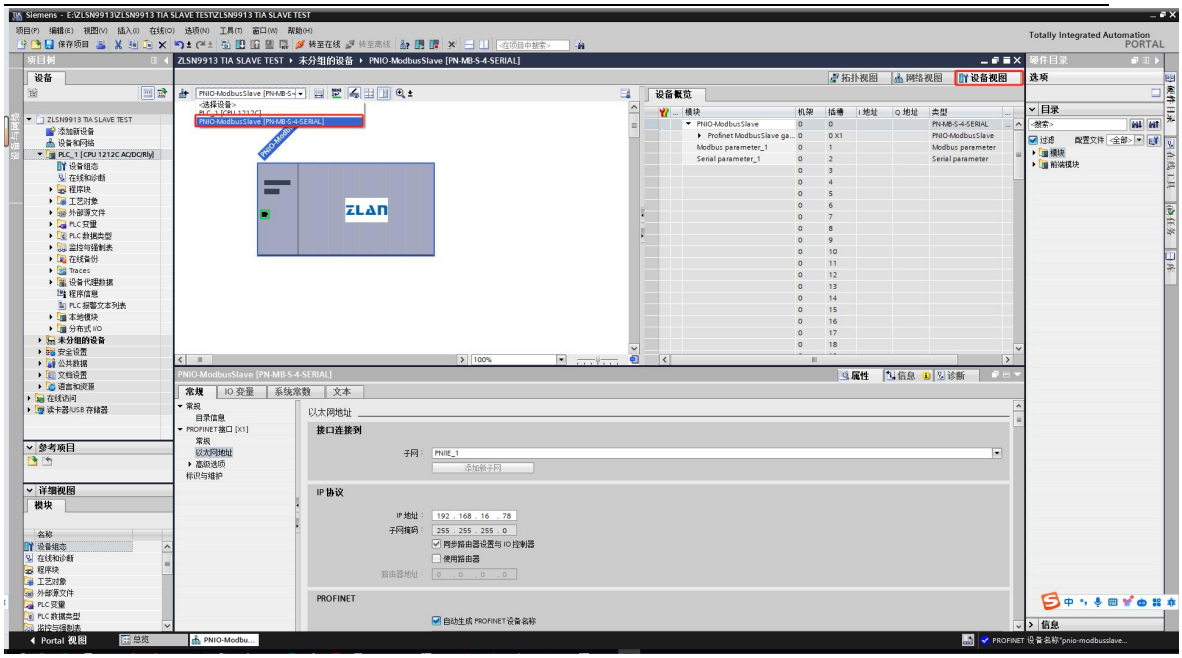


Figure 83 9913 device view

15. Add the following modules to the slot using the ZLAN9913 analog Modbus RTU slave station as an example.

设备概览

模块	机架	插槽	I 地址	Q 地址	类型
PNIO-ModbusSlave	0	0			PN-MB-S-4-SERIAL
Profinet ModbusSlave ga...	0	0 X1			PNIO-ModbusSlave
Modbus parameter_1	0	1			Modbus parameter
Serial parameter_1	0	2			Serial parameter
01H read 8 bits _1	0	3		1	01H read 8 bits
02H read 8 bits _1	0	4		2	02H read 8 bits
03H read 8 words _1	0	5		3...18	03H read 8 words
04H read 8 words _1	0	6		19...34	04H read 8 words
05H write 1 bit _1	0	7	1		05H write 1 bit
06H write 1 word _1	0	8	2...3		06H write 1 word
0FH write 8 bits _1	0	9	4		0FH write 8 bits
10H write 8 words _1	0	10	5...20		10H write 8 words

Figure 84 9913 Add module

16. Set up “Modbus parameter” module configuration by following.

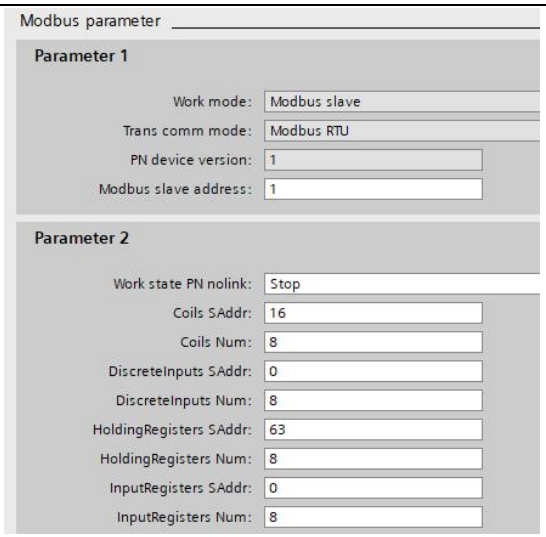


Figure 85 Modbus parameter

17. Set up“Serial parameter”module“Serial 1”into 115200,8,None,1，others set up as default.

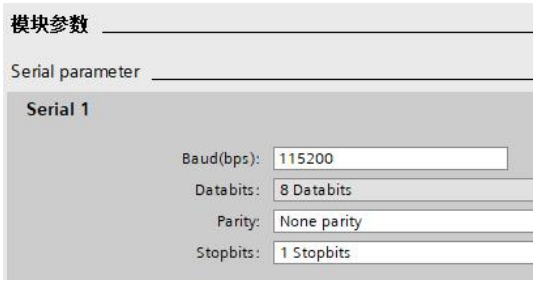


Figure 86 Serial parameter

18. “01H read 8 bits _1”module configuration as followings，slave address 16 start with 8 consecutive coils. Set the state of 8 coils.

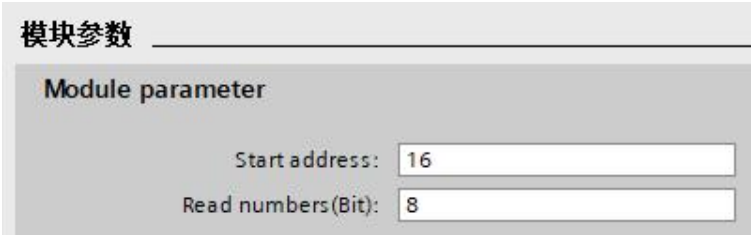


Figure 87 01H module set up 8 wiring

19. “02H read 8 bits _1”the module sets the following parameters for 8 consecutive discrete quantities starting at address 0. Sets the state of the 8 discrete quantity inputs.

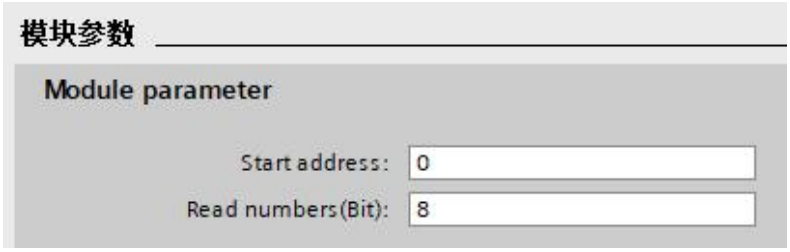


Figure 88 02H The module is set up with 8 discrete inputs

20. “03H read 8 words _1” The module sets the following parameters, 8 hold registers starting from address 63, and sets the data of 8 hold registers.

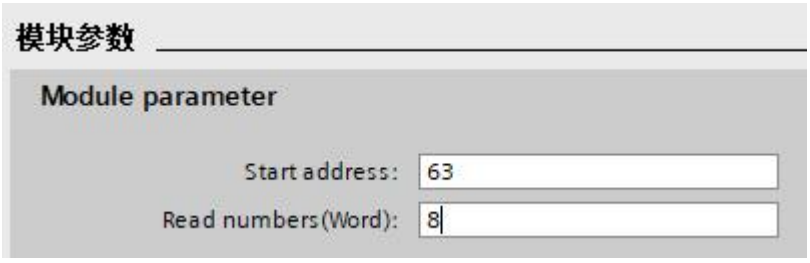


Figure 89 03H module set up 8 kept registers

21. “04H read 8 words _1” The module sets the following parameters, 8 input registers starting from address 0, and sets the data of 8 input registers.

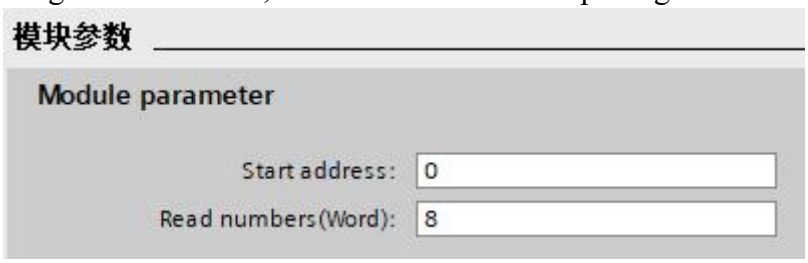


Figure 90 04H module set up 8 input registers

22. “05H write 1 bit _1”The module sets the following parameters, one coil starting from address 0, to read the status of the Modbus master set coil.

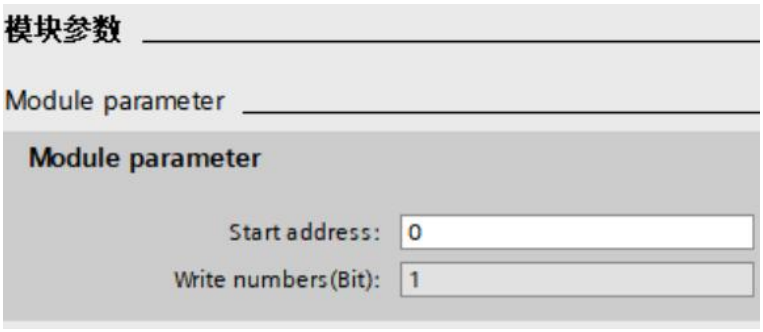


Figure 91 05H module set up 1 wiring

23. “06H write 1 word _1” The module sets the following parameters, starting from address 63, 1 hold register, and reads the data of the Modbus master set hold register.

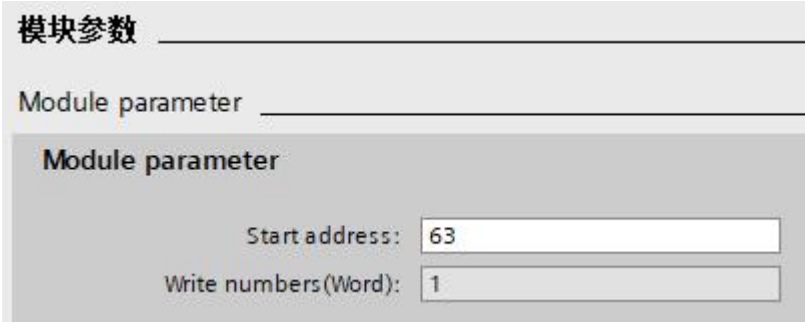


Figure 92 06H The module sets 1 hold register

24. “0FH write 8 bits _1” The module sets the following parameters, 8 coils starting from address 16, and reads the status of the 8 coils set at the Modbus master station.

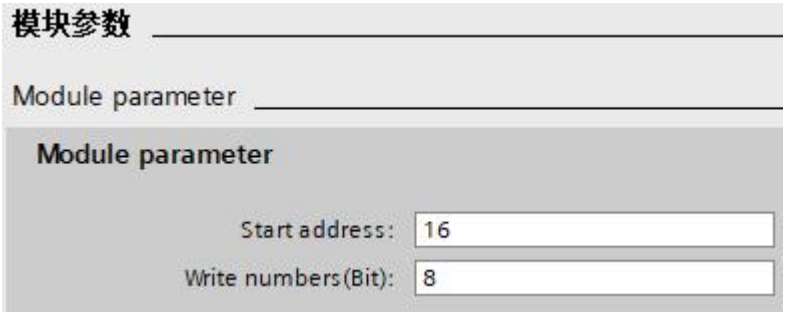


Figure 93 0FH The module is configured with 8 coils

25. “10H write 8 words _1” The module sets the following parameters, 8 registers starting from address 63. Read data from the Modbus master Settings hold register.

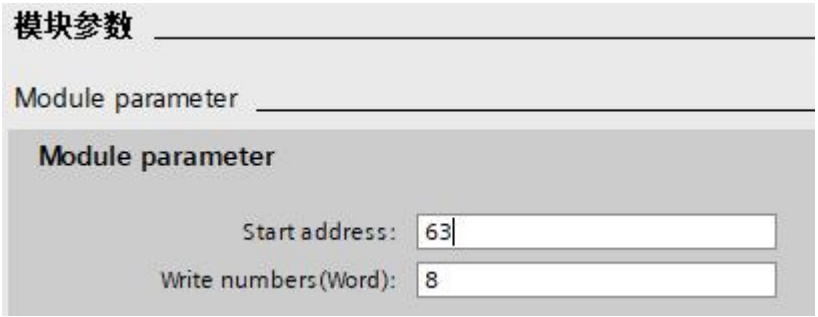


Figure 94 10H The module is set with 8 hold registers

26. Here, the configuration has been done, just need to download to the PLC on the line, click compile, no errors can be.

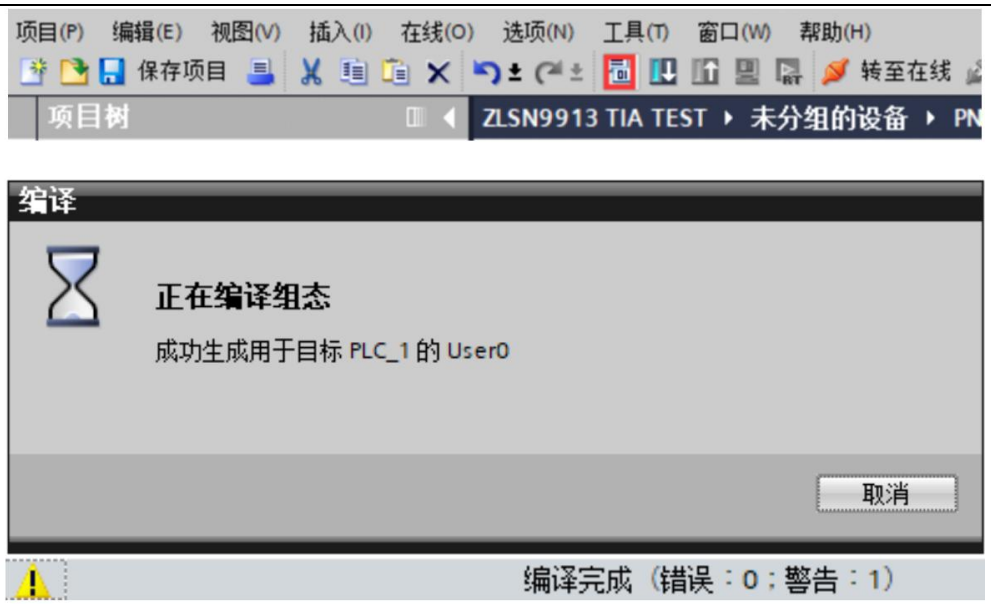


Figure 95 Compilation configuration

37. After the compilation is complete, click download, you need to select the correct network interface.

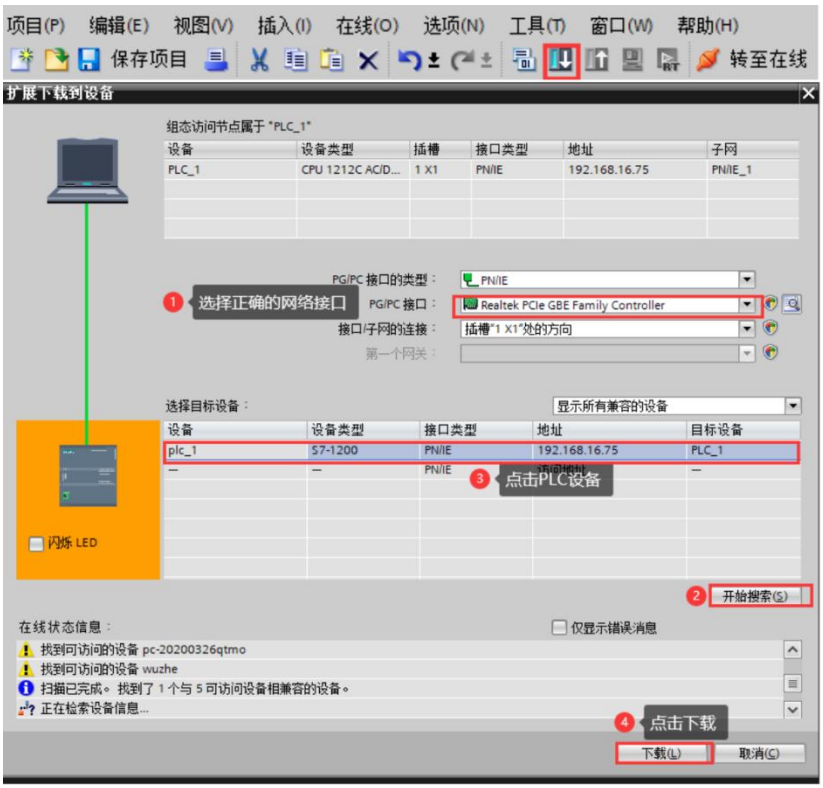


Figure 96 Download configuration

38. Select "Stop All" from "Stop Module" and click "Load".

Figure 97 Load configuration

39. Click "Done" and the link between PLC and ZLAN9913 will be established.

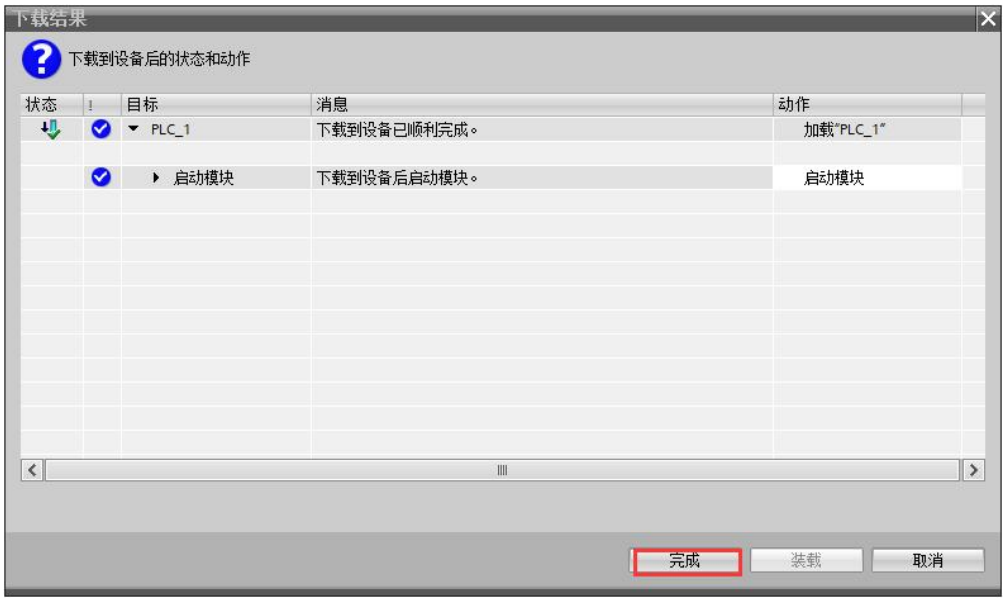


Figure 98 Finish download

40. Here you can click "Go to online" to verify whether PLC and ZLAN9913 have established a link. You can see that the status bar on the left side of the module is all green, otherwise no link has been established.

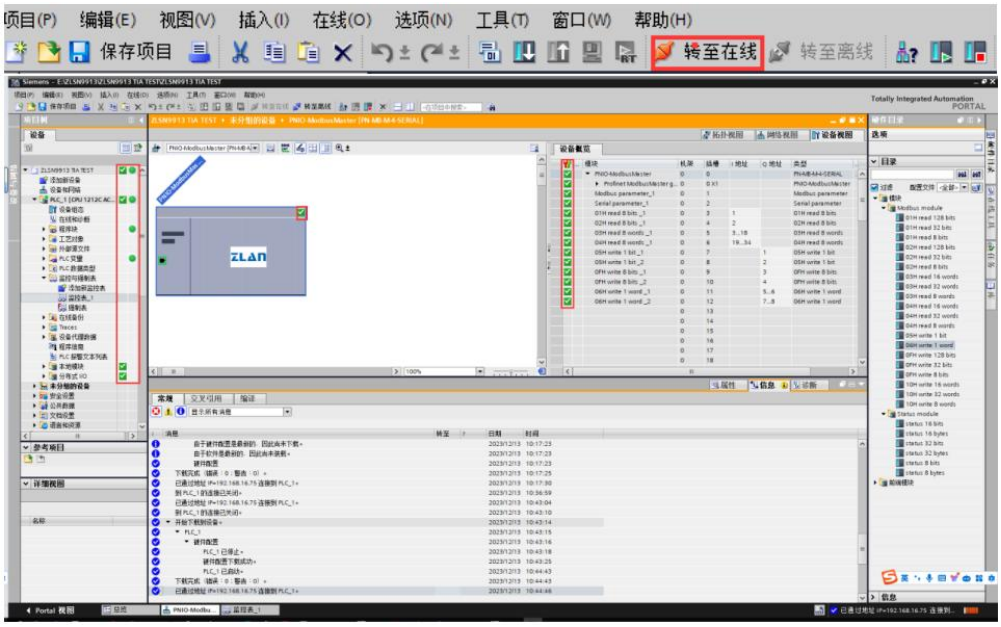


Figure 99 Turn into online

27. At this time, you can create a "monitor table" to map the analog Modbus RTU slave station through the Profinet data area for the master Modbus read and write, click "Add new monitor table" in "Monitor and force table" to get "Monitor table _1".

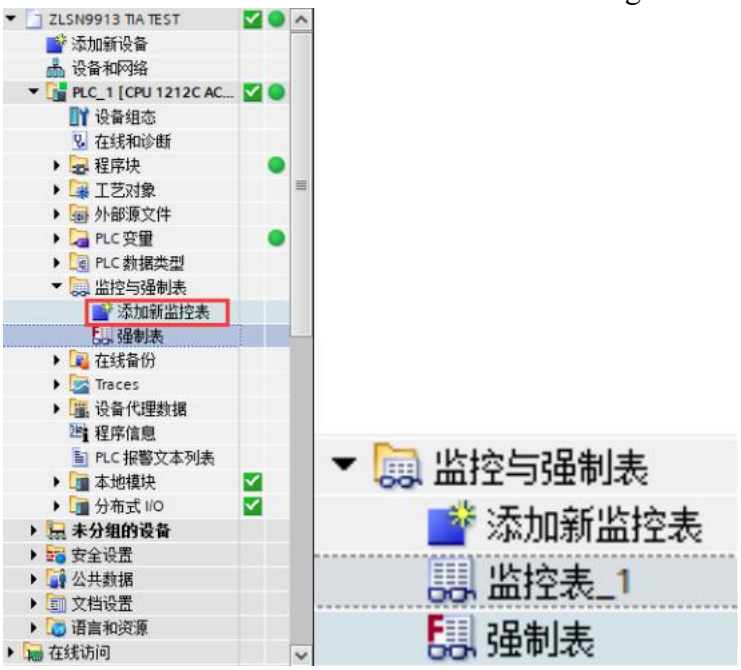


Figure 100 Add monitoring data

28. Add the following data area to the monitoring table for read and write by the Modbus master.

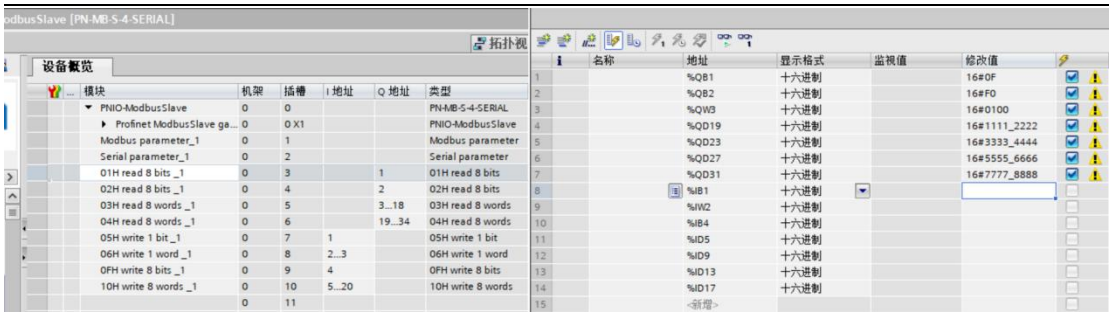


Figure 101 Monitor table Settings

I Address: Users can set parameters based on the corresponding address. Keywords such as IB, IW, and ID can be used.

Q address: Users can read parameters according to the corresponding address, can use QB, QW, QD and other keywords.

Monitor table address :%QB2 represents 1 byte of data set with Q address 2.

Monitor value: Read the values of the I and Q addresses.

Modified value: Data is written to Q area for read by Modbus RTU master station.

The following table describes the mapping between the module parameters set in the preceding figure。

Figure 28 Reference list

parameter name	I address	Q address	Address
01H read 8 bits_1		I	%QB1（QB is 1 bit）
02H read 8 bits_1		2	%QB2（QB is 1 bit）
03H read 8 words_1		3~18	%QW3~%QW17（QW is 2 bits）
04H read 8 words_1		19~34	%QD19~%QW31（QD is 4 bits）
05H write 1 bits_1	1		%IB1（IB is 1 bit）
06H write 8 bits_1	2~3		%IW2（IW is 2 bits)
0FH write 8 bits_1	4		%IB4（IB is 1 bit）
10H write 8 word_1	5~20		%ID5~%ID17（ID is 4 bits）

29. Click  to monitor I zone data，click  to revise Q zone parameter to PLC，simulate Modbus RTU slave device corresponding functions.

地址	显示格式	监视值	修改值		注释
%QB1	十六进制	16#0F	16#0F	☑ ⚠	01H. 设置线圈1-8的状态
%QB2	十六进制	16#F0	16#F0	☑ ⚠	02H. 设置离散量输入1-8的状态
%QW3	十六进制	16#0100	16#0100	☑ ⚠	03H. 设置保持寄存器1的数据
%QD19	十六进制	16#1111_2222	16#1111_2222	☑ ⚠	04H. 设置输入寄存器1-2的数据
%QD23	十六进制	16#3333_4444	16#3333_4444	☑ ⚠	04H. 设置输入寄存器3-4的数据
%QD27	十六进制	16#5555_6666	16#5555_6666	☑ ⚠	04H. 设置输入寄存器5-6的数据
%QD31	十六进制	16#7777_8888	16#7777_8888	☑ ⚠	04H. 设置输入寄存器7-8的数据
%IB1	十六进制	16#00		☐	05H. 读取主站设置线圈1的状态
%IW2	十六进制	16#1111		☐	06H. 读取主站设置保持寄存器1的数据
%IB4	十六进制	16#80		☐	0FH. 读取主站设置线圈1-8的状态
%ID5	十六进制	16#1111_2222		☐	10H. 读取用户设置保持寄存器1-2的数据
%ID9	十六进制	16#3333_4444		☐	10H. 读取用户设置保持寄存器3-4的数据
%ID13	十六进制	16#5555_0000		☐	10H. 读取用户设置保持寄存器5-6的数据
%ID17	十六进制	16#0000_3333		☐	10H. 读取用户设置保持寄存器7-8的数据

Figure 102 Operate monitor table

Modbus Poll can be used to simulate the Modbus master device. The following is the Modbus Poll configuration and running results.

1. 01H Function code. Set the start address of the coil to 16. Set the number to 8. The training interval is 1000ms. 02H Function code: set the start address of the discrete quantity to 0. Set the number to 8. The training interval is 1000ms. 03H function code, set the start address of the hold register to 63. The number is 8. The training interval is 1000ms. 04H function code, set the input register start address to 0 and the number to 8. The training interval is 1000ms.

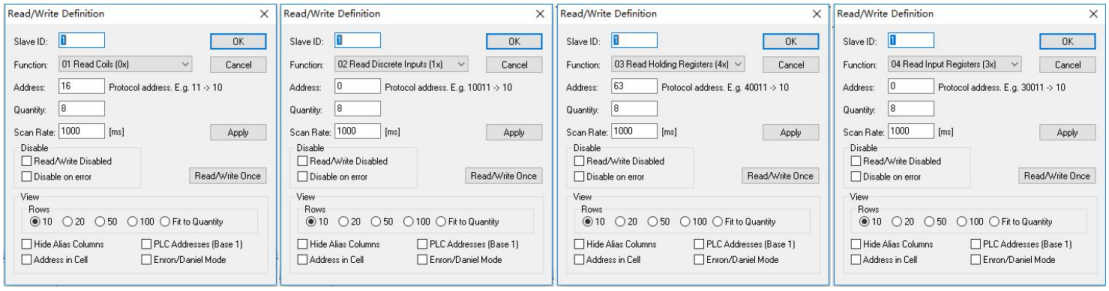


Figure 103 poll 01、02、03、04H Function code setting

2. Set %QB1 to 16#0F in hexadecimal,% QB2 to 16#F0 in hexadecimal,%QW3 to 16#0100 in hexadecimal, The values of %QD19 to 31 are 16#1111_2222,16#3333_4444,16#5555_6666,16#7777_8888 in hexadecimal.

地址	显示格式	监视值	修改值		注释
%QB1	十六进制	16#0F	16#0F	☑ ⚠	01H. 设置线圈1-8的状态
%QB2	十六进制	16#F0	16#F0	☑ ⚠	02H. 设置离散量输入1-8的状态
%QW3	十六进制	16#0100	16#0100	☑ ⚠	03H. 设置保持寄存器1的数据
%QD19	十六进制	16#1111_2222	16#1111_2222	☑ ⚠	04H. 设置输入寄存器1-2的数据
%QD23	十六进制	16#3333_4444	16#3333_4444	☑ ⚠	04H. 设置输入寄存器3-4的数据
%QD27	十六进制	16#5555_6666	16#5555_6666	☑ ⚠	04H. 设置输入寄存器5-6的数据
%QD31	十六进制	16#7777_8888	16#7777_8888	☑ ⚠	04H. 设置输入寄存器7-8的数据

Figure 104 9913 01、02、03、04H Function code setting

3. Modbus poll can read the data of 01,02,03,04 function codes respectively, and the result is shown in the figure below.

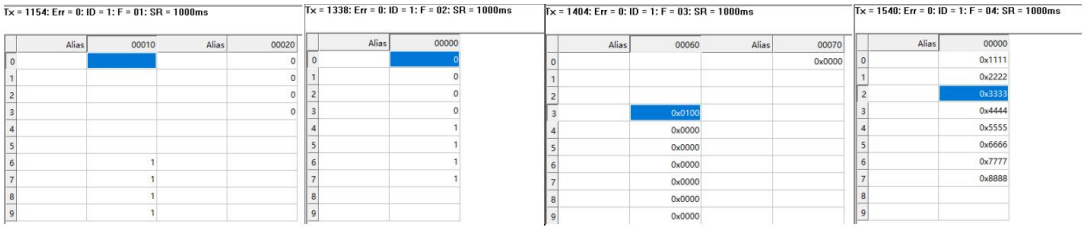


Figure 105 poll 01、02、03、04H read result

4. 05H Function code, set the coil start address to 16. The number is 1. 06H function code, set the register start address to 63. Number is 1,0 FH function code, set the coil start address to 16. The number is 8,10 H function code, set the register start address to 63. The number is 8.

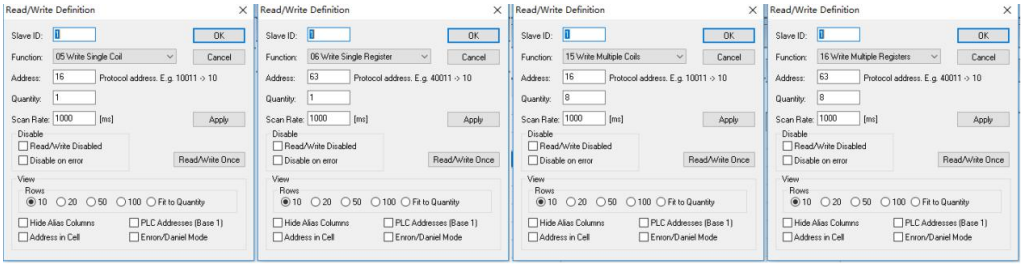


Figure 106 poll 05、06、0F、10H Function code setting

5. 05H function code set the value to 16# 00. 06h function code set the value to 16# 1111,0 FH function code set the value to 16#80, 10H function code setting values are 16#1111, 16#2222, 16#3333, 16#4444, 16#5555, 16#0000, 16#0000, 16#3333 in hexadecimal.

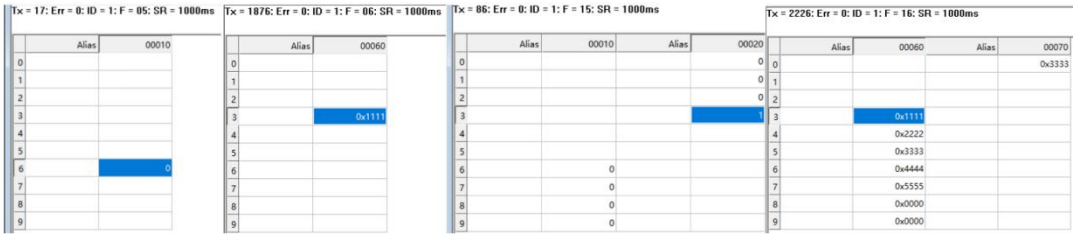


Figure 107 poll 05、06、0F、10H parameter write in

6. As can be seen from the figure below, poll has successfully written data to the I address of PLC through 05H,06H,0FH,10H.

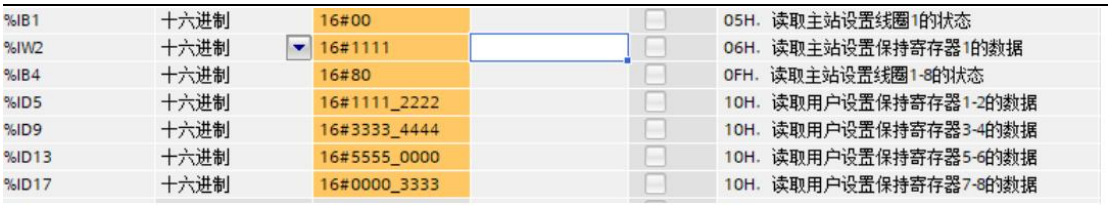


Figure 108 I The address monitors the value written to the master

7. Ordering info

Table 8Ordering info

Item No.	Specifications
ZLAN9913-M	Modbus RTU master version， read and write sensor、 electric meter Modbus RTU slave devices.
ZLAN9913-S	Modbus RTU slave version， passive acceptance Modbus RTU master station read and write

8. After sales service

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