LC1200
Quick User Manual

Suzhou Lingchen Acquisition Computer Co.,Ltd

LC1200 Quick User Manual

This document is a quick illustration of the use of the MODBUS-TCP coupler LC1200 and LC series IO modules with some engineering experience, designed to allow users to get started quickly.

1. Installation and removal

1. Installation

- Align the notch at the module shown in the figure below:

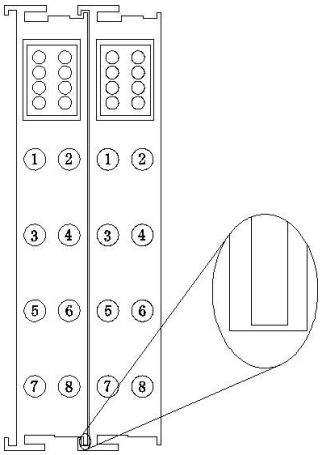


Figure 1-1 at the notch of the alignment module

- Push the IO module into the DIN pin in the direction of the arrow and place the module on the DIN guide rail;

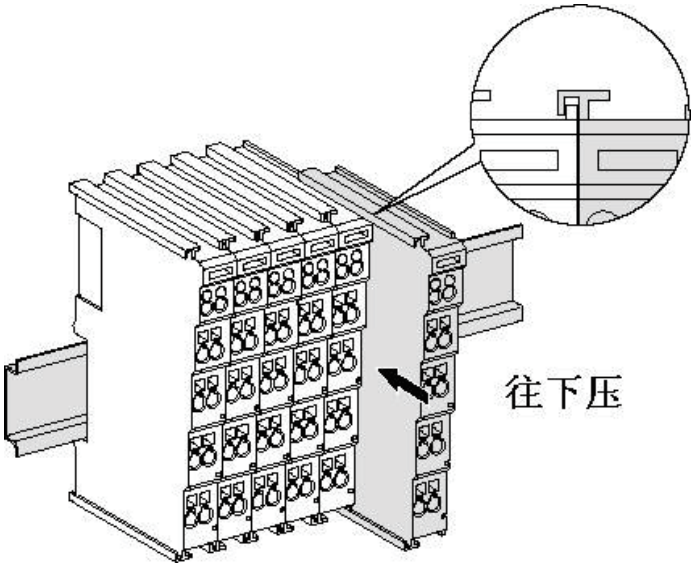


Figure 1-2, install the module on the guide rail

2. Removal mode

- First, all the signal cables or power cables of this module shall be removed;
- Pull the pin in the direction of the arrow (the yellow part in the figure below);
- Remove the module.

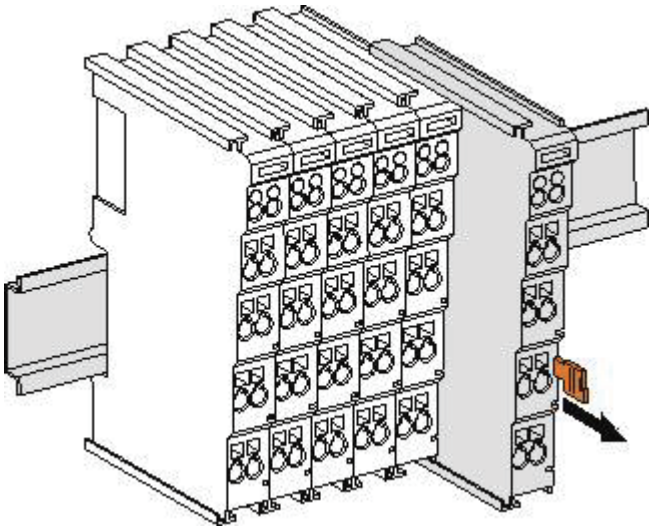


Figure 1-3 Removing the module from the guide rail

3. Precautions

lule is difficult to install, do not use brute force to avoid damage to the

current module or other modules; remove the module from the guide rail, check for abnormalities (such as foreign body blockage, etc.), and plug if there is no problem.

2. The wiring instructions

- In this paper, the topology is LC2488 + LC1488 + LC4134 + LC3134.

1、 Terminal wiring

The wiring terminal of the LC series IO module adopts the screw-free design, which only requires a one-word screwdriver (one word is recommended, and the model of the screwdriver is 275mm).

It is recommended to use 14A W G wire. In the wiring process, first strip the wire for a certain length, then use a sub-type screwdriver vertically into the terminal hole, lever down, and the other hand inserts the peeled wire into the opened circular hole, and then pull out a sub-type screwdriver, and the wire will automatically be tightly pressed by the spring.

Be sure not to connect the positive and negative poles of the power supply, otherwise it may cause the module to fail to work, work abnormally, or even damage the module.

2、 System power supply wiring

As shown in the figure below, use a 220V AC-> 24V DC power module (preferably dual output) to connect the control end, power line and power end power line.

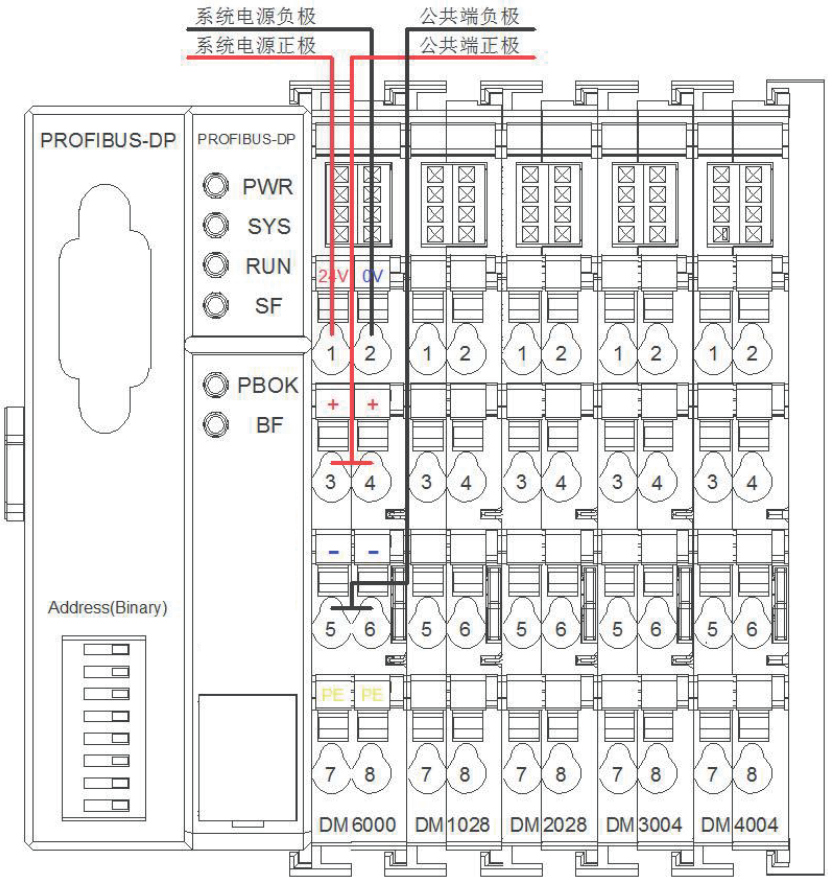


Figure 2-1 System power supply connected to the LC1100

3、Common-terminal power supply wiring of the system

- Connect the cable of the MODBUS master station to the LC1200 coupler

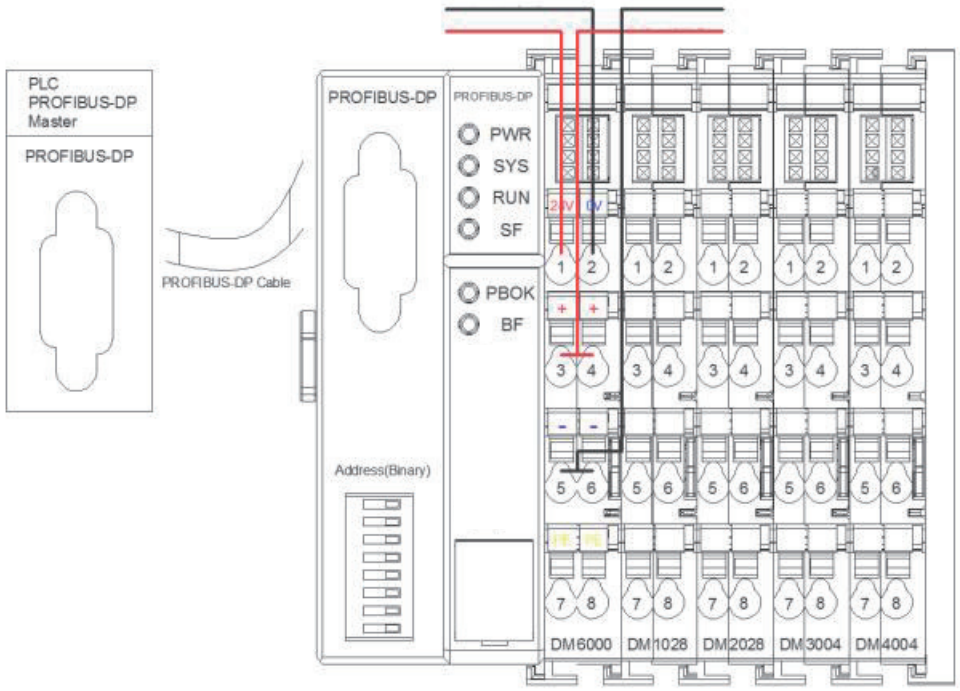


Figure 4-1 Schematic diagram of coupler LC1200 and MODBUS master station

- Set the dial switch of LC1200 as required

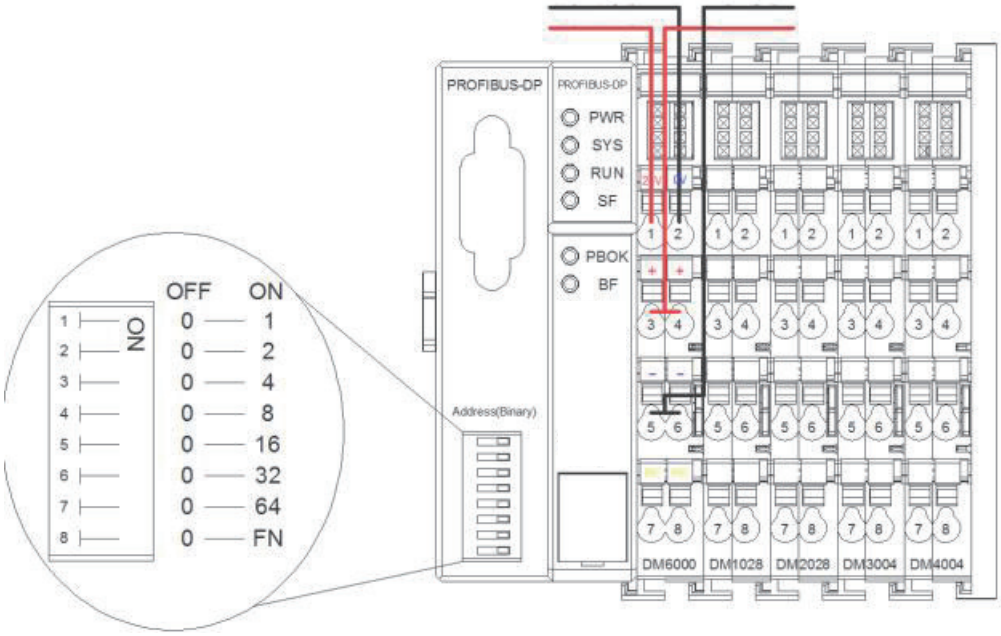


Figure 4-2 Set the IP address switch of the LC1200

Set the coupler address: 192.168.1.xxx, set the IP address xxx by dial switch, cannot

be 0 and 1.

三、Software configuration

1. MODBUS main station software ModbusPoll

1.1 Connect the coupler MODBUS slave station

- Sendd address: set MODBUS-TCP coupling LC1200 slave address to 192.168.1.xxx, and set IP address xxx through the dial switch. For example, set to 16, the dial switch should be dialed to the ON terminal to set a range of 2-255;

- Modbus Host network address: the IP address of the host is 192.168.1.100, the subnet mask is 255.255.255.0, and the default gateway is 192.168.1.1.

1.2 Network connection

- Open the ModbusPoll software, and then select File (File) -> New (New), from the menu bar to create the new file

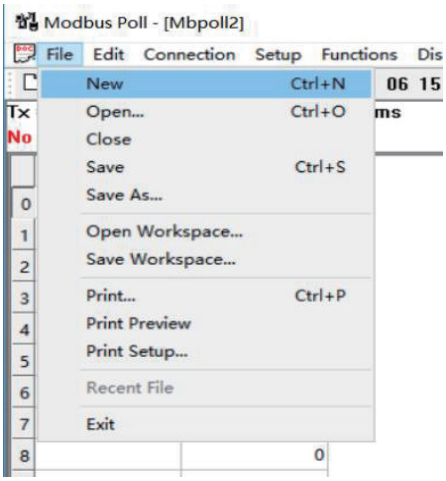


Figure 1-1 New construction file

- Click on the Connection

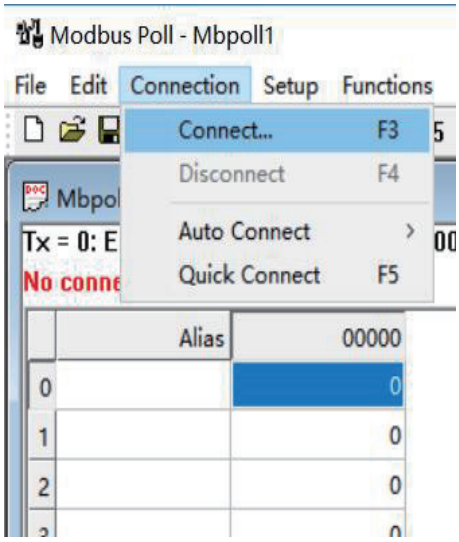


Figure 1-2 Click on the Connect

- Configure connection information

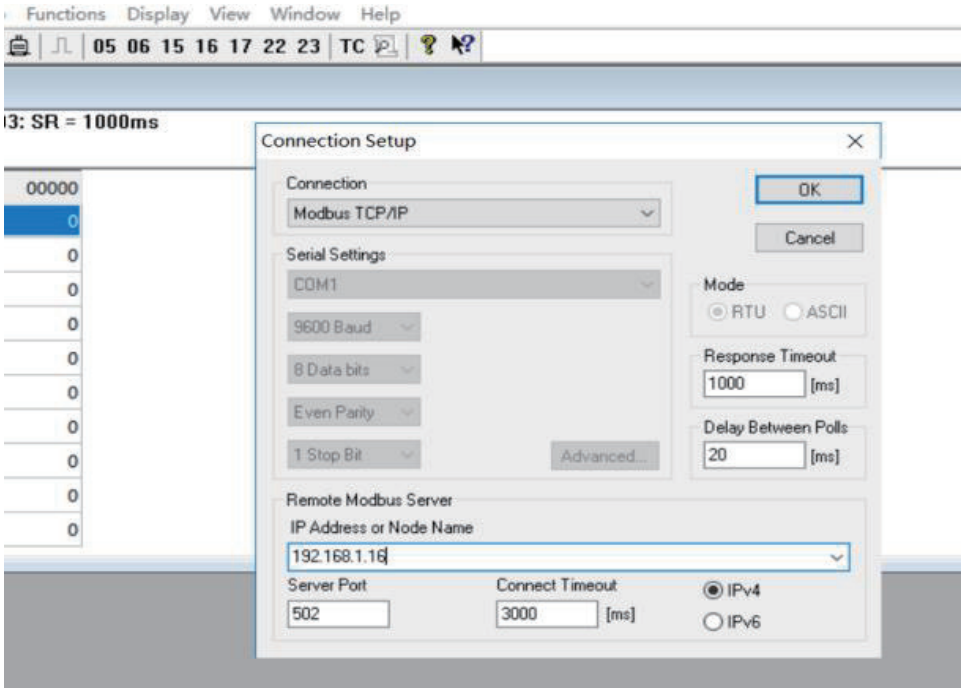


Figure 1-3 Connection configuration interface

1、Set the connection target to Modbus TCP / IP

2、 This IP address is set to 192.168.1.16 according to the dial switch value

3、The Server Port was set to 502.

- Read the register data

The slave Id, register type, register address and number of read registers can be set independently in the following figure.

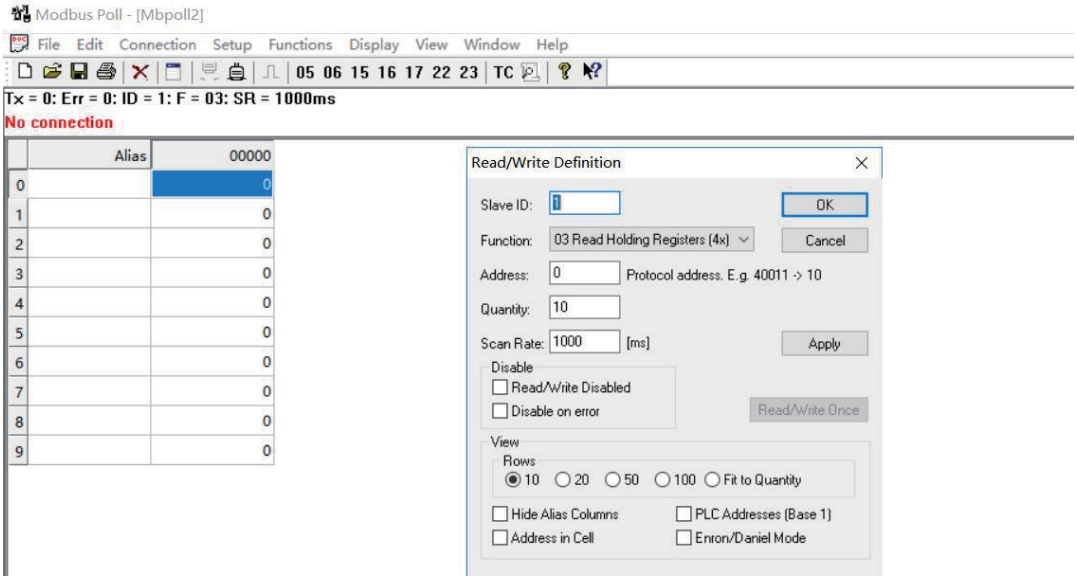


Figure 1-4 Connection configuration interface

- Set up the display data format

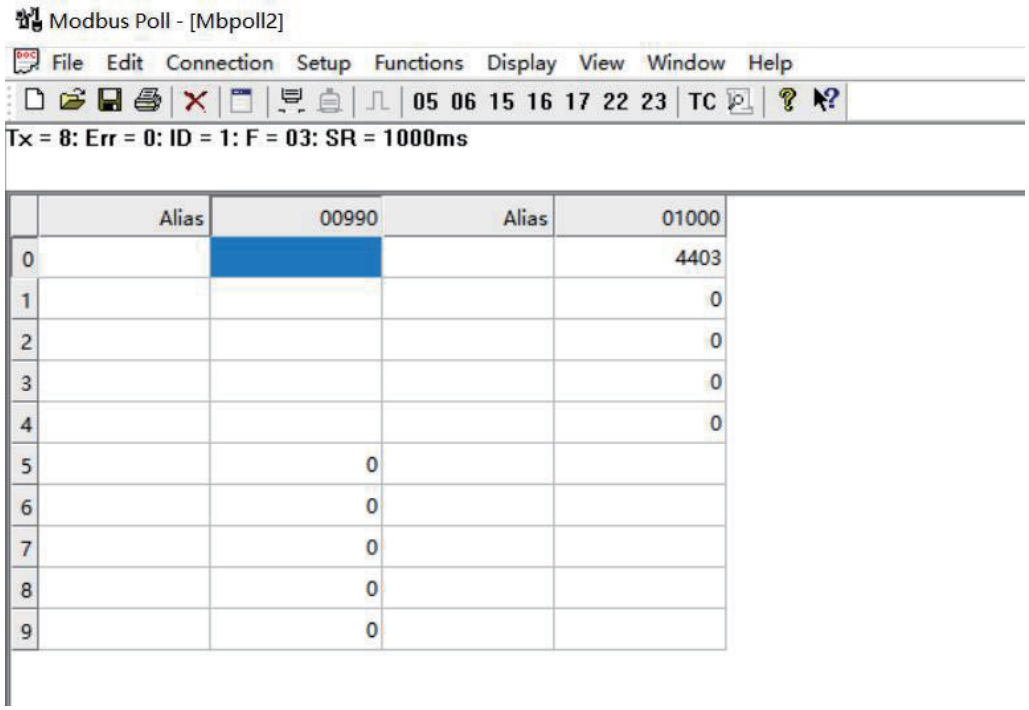


Figure 1-5 Data display format

Data displays by default in 10 penetrant. After selecting all tables, the data can be converted to 16 preciliant in the Display of the toolbar; the register displays the data in 10 units.

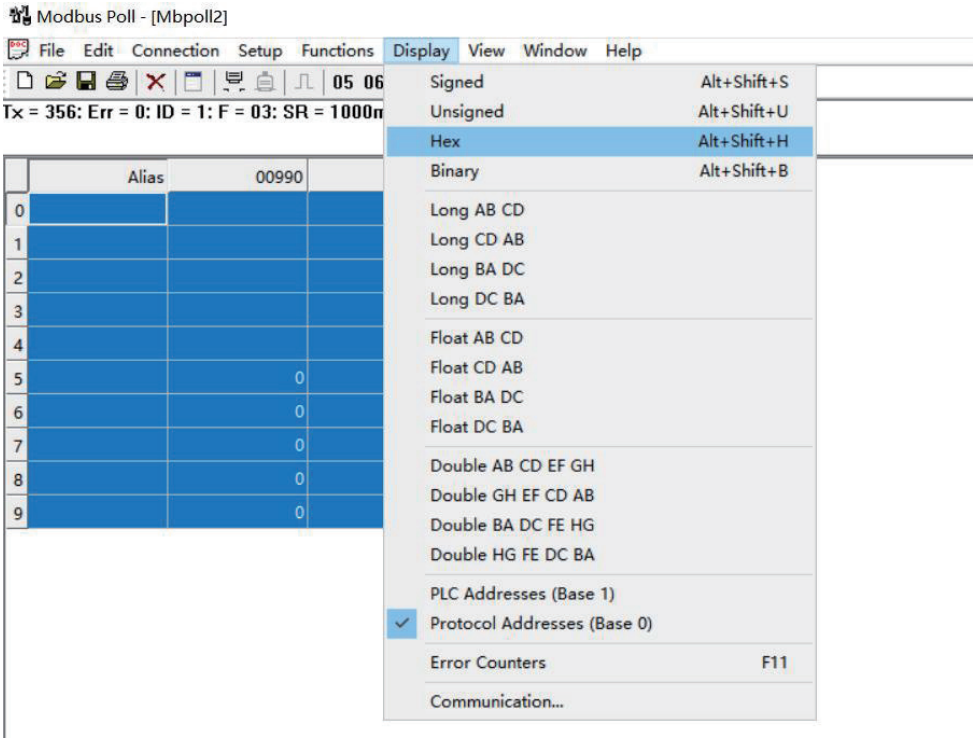


Figure 1-6 Data go to 16 bases

2, the structure of the MODBUS-TCP data message

2.1 Read the register data:

Read the data request message: 00 01 00 00 00 06 01 03 00 00 00 02

data	meaning
00 01	The communication transaction identifier, generally after each communication, will be required to add 1 to distinguish the different communication data messages
00 00	Represents the protocol identifier, and the number 00 00 is the modbus protocol
00 06	Data length, used to indicate the length of the following data, in unit byte
01	Device address for identifying a remote server connected to a serial line or network. The above seven bytes are also known as the modbus message header
03	Function code, at this time code 03 for read hold register data
00 00	start address
00 02	Number of registers, (16-bit)

Read the data response message: 000100000000701030400 ff 0011

data	meaning
00 01	The response transaction identifier requires the response message to be consistent with the previous corresponding request
00 00	Protocol identifier, consistent with the previous corresponding request
00 07	Data length, used to indicate the length of the following data, in unit byte
01	Equipment address, the response message is consistent with the previous corresponding request
03	Under normal circumstances, the response message requires consistent with the previous corresponding request and returns 0x80 + previous function code (read error code 83)
04	Byte length of the following data
00 ff 00 11	Data value in the read hold register (high level before)

2.2 Write to the register data:

Write the data request message: 00 01 00 00 00 0B 01 10 00 02 00 02 04 00 ff 00 11

Write to the data request	
data	meaning
00 01	The communication transaction identifier, generally after each communication, will be required to add 1 to distinguish the different communication data messages
00 00	Represents the protocol identifier, and the number 00 00 is the modbus protocol
00 0B	Data length, used to indicate the length of the following data, in unit byte
01	Device address for identifying a remote server connected to a serial line or network. The above seven bytes are also known as the modbus message header
10	Function code, when code 10 is the write register data
00 02	start address

00 02	Write the number of registers
04	Number of bytes written to the data
00 ff 00 11	Written data (top)

Write to data response: 00 01 00 00 00 06 01 10 00 02 00 02

Write data response	
data	meaning
00 01	The communication transaction identifier, the response message should be consistent with the previous corresponding request;
00 00	Protocol identifier, consistent with the previous corresponding request
00 06	Data length, used to indicate the length of the following data, in unit byte
01	Equipment address, the response message is consistent with the previous corresponding request
10	Under normal circumstances, the response message is consistent with the previous corresponding request, and if wrong, return 0x80 + previous function code (write error code 90)
00 02	Write to the starting address
00 02	Write Register Length (16-bit)

3, the coupler modbus tcp data read and write instance

3.1 Establish the corresponding keeping register table according to the card type and arrangement order:

Card type	Number of assigned addresses	data type	remarks
1、LC1488	Assign an address (receive data)	UINT16	Digital input is NPN type 8-way
2、LC1108	Assign an address (receive data)	UINT16	Digital input is PNP type 8-way
3、LC2488	Assign an address (send data)	UINT16	Digital output NPN type 8 road
4、LC2108	Assign an address (send data)	UINT16	Digital output NPN type 8 road

5、LC3008	Assign four addresses (received data)	INT16 x 4	Analog input voltage type 4-circuit
6、LC3108	Assign four addresses (received data)	INT16 x 4	Analog input current type 4-circuit
7、LC4008	Assign four addresses (send data)	INT16 x 4	Analog output voltage type 4-circuit
8、LC4108	Assign four addresses (send data)	INT16 x 4	Analog output current type 4 circuit
9、LC3602	Assign three addresses (1 send + 2 receive)	UINT16 + INT16 x 2	Loadcell Sensor is 2-way

In this example, we selected a digital output LC2488, a digital input LC1488, an analog output LC4134, and an analog input LC3134.

The order is LC2488 + LC1488 + LC4134 + LC3134 with 10 addresses 00 00 to 00 09:

Register serial number	Data information	data type
Register 0	Card 0: the data for the LC2488	Lower 8 bits indicates the digital output
Register 1	Card 1: the data for the LC1488	Lower 8 bits indicates the amount of digital input
Register 2	Card 4: data for LC4134	Analog output 1 channel: INT 16
Register 3		Analog output 2-channel: INT 16
Register 4		Analog output 3-channel: INT 16
Register 5		Analog output 4-channel: INT 16
Register 6	Card 5: LC3134 of the data	Analog input 1 channel: INT 16
Register 7		Analog input 2-channel: INT 16
Register 8		Analog input 3-channel: INT 16
Register 9		Analog input 4-channel: INT 16
Register 999	Card fault information	The no-failure time value is 0: UINT16
Register of 1000-1007	Card type Each 4bit indicates one card type	Up to 32 card types are indicated UINT16 x 8

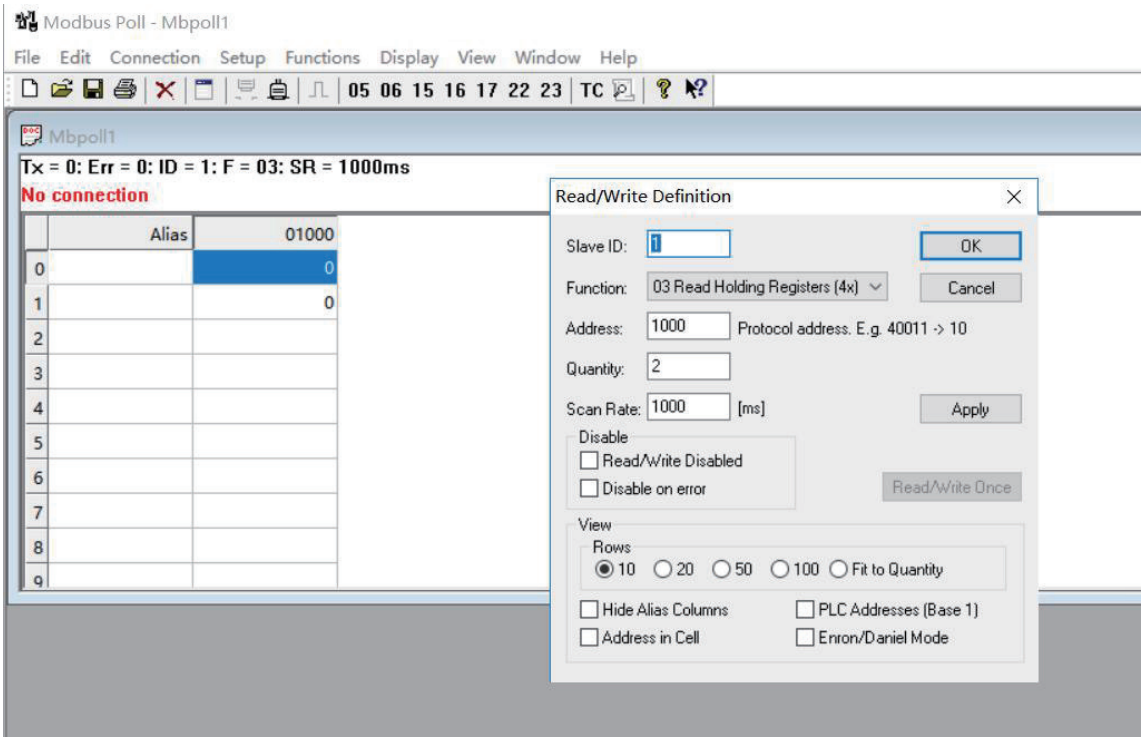
Register 999 stores the card fault information, the master program can cycle to query the register value to obtain the fault information, 0 means no fault.

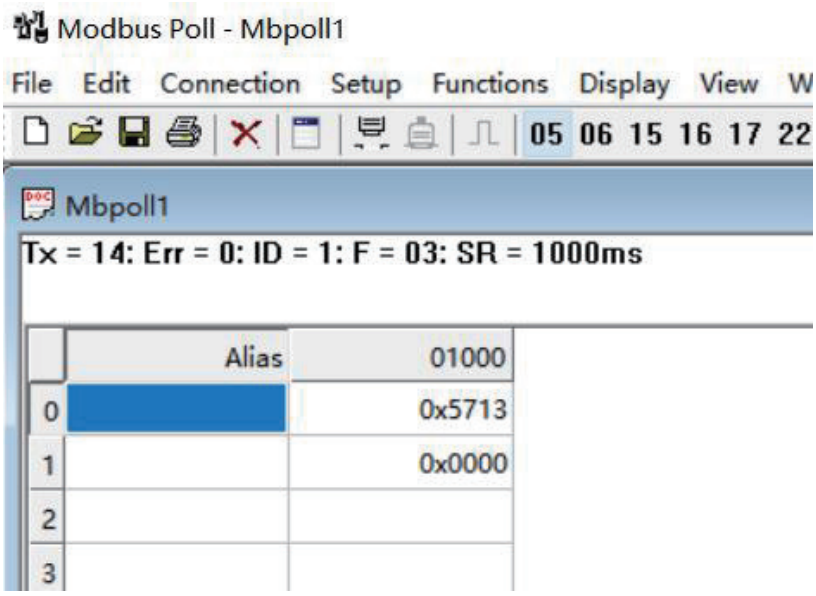
Experiment 1: Read the values of Type of 4 cards:

Register address (1000-1007) stores card type data, one address 16bit stores four card type (TYPE) values with up to 32 cards.

(TYPE) price	Card type	number
1	The 8-way NPN digital quantity input	LC1488
2	The 8-way PNP digital quantity input	LC1108
3	The 8-way NPN digital quantity output	LC2488
4	The 8-way PNP digital quantity output	LC2108
5	A 4-way voltage-type analog input	LC3134
6	A 4-way current-type analog input	LC3104
7	A 4-way voltage-type analog output	LC4134
8	A 4-way current-type analog output	LC4104
9	A 2-way pressure sensor with an analog input	LC3602

The read data format is: 00 01 00 00 00 06 01 03 03 e8 00 02
Modbus Poll The read register settings are shown below:





Because the register value is high eight in the front, and low eight in the back, the actual order of IO is: 3175 0000,

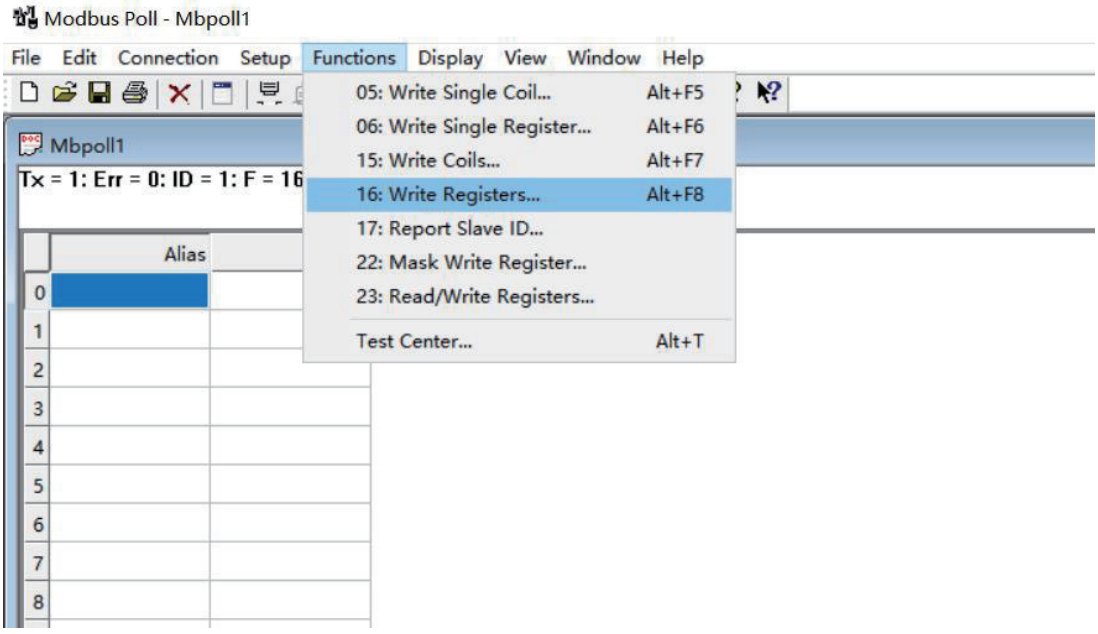
The four cards are arranged in the following order:

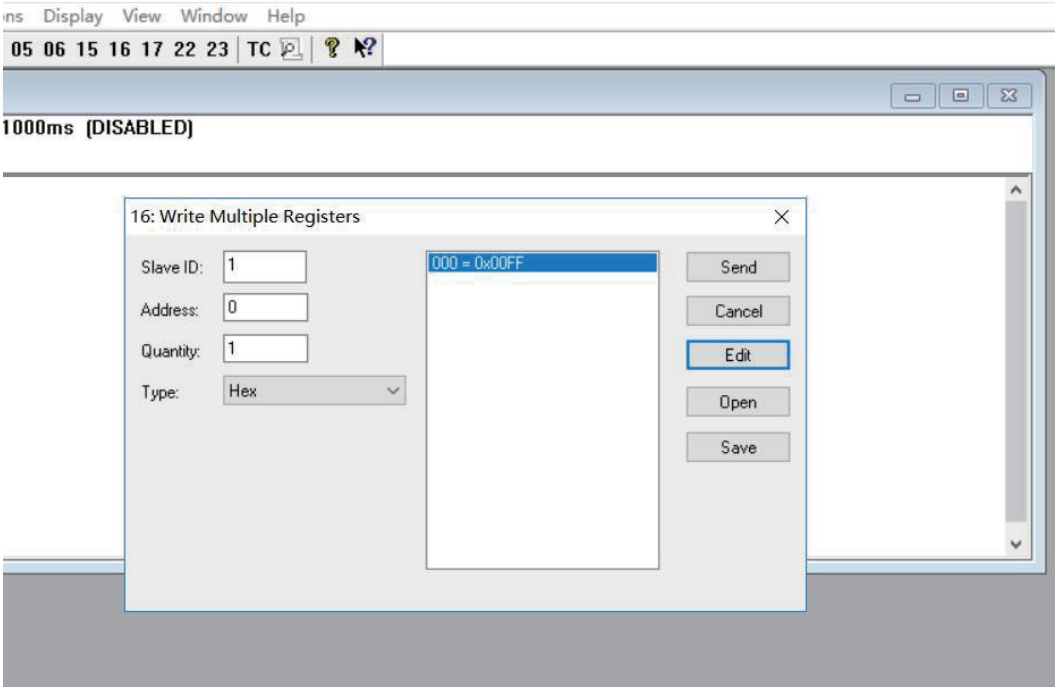
Coupler-> Card 0: LC2488-> Card 3: LC1488-> Card 4: LC4134-> Card 5: LC3134

Experiment 2: Light up all the lights of the card zero:

The write data format is: 00 01 00 00 00 09 01 10 00 00 00 01 02 00 ff

Modbus Poll Write register settings are shown below:



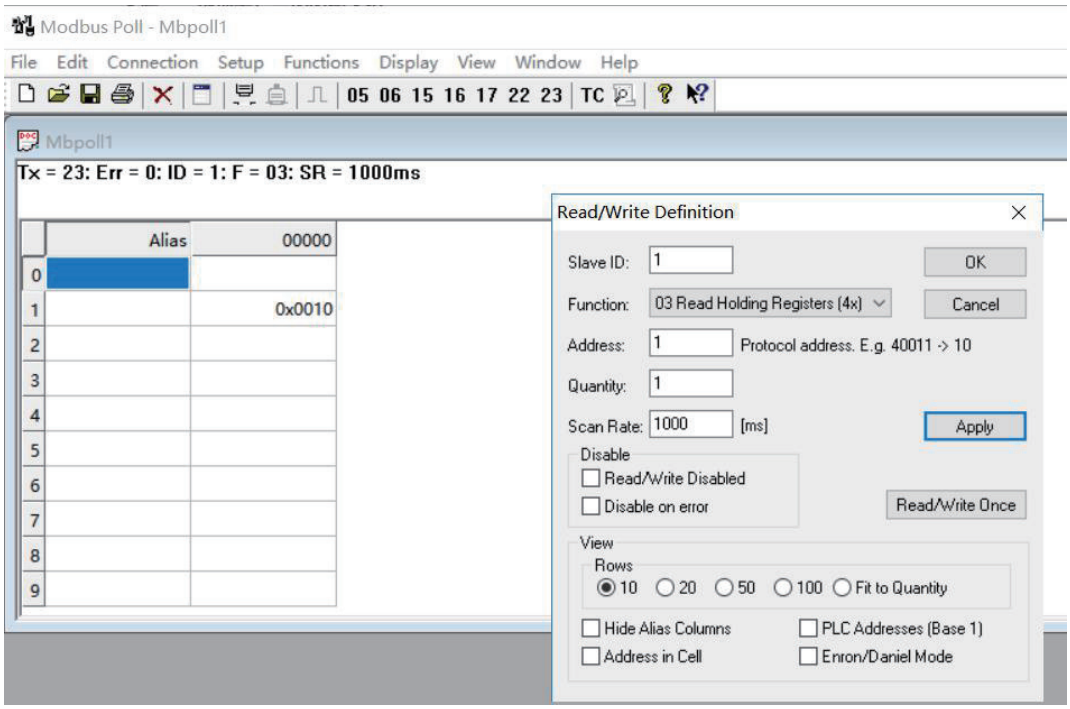


Select register address 0, Quantity 1, Type value in Hex format, set value to 0x00FF, and click Send to light all the lights of card 0.

Experiment 3: Read the input value of card 1:

The read data format is: 00 01 00 00 00 06 01 03 00 01 00 01

Modbus Poll The read register settings are shown below:



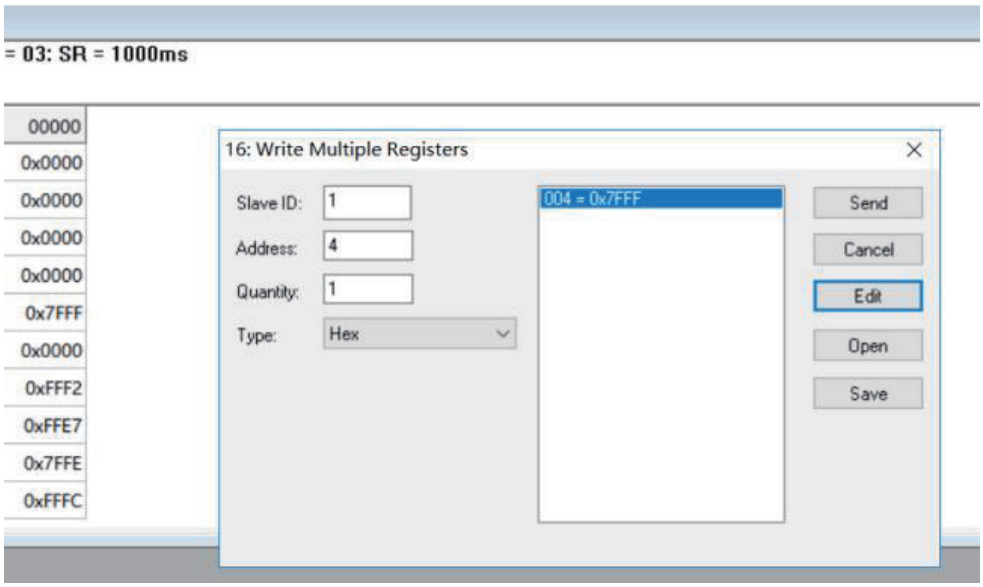
From the figure above, register 01 is 0x0010, which indicates that the seventh channel has a signal input in card 1.

Experiment 4: causes the third channel of the analog output card 2 to output 10V:

INT 16-bit representation-10V to + 10V: 0X0000-0 X 7 FFF is 0 to 10V; 0X8000-FFFF is-10V to 0V

The write data format is: 00 01 00 00 00 09 01 10 00 04 00 01 02 7 fff

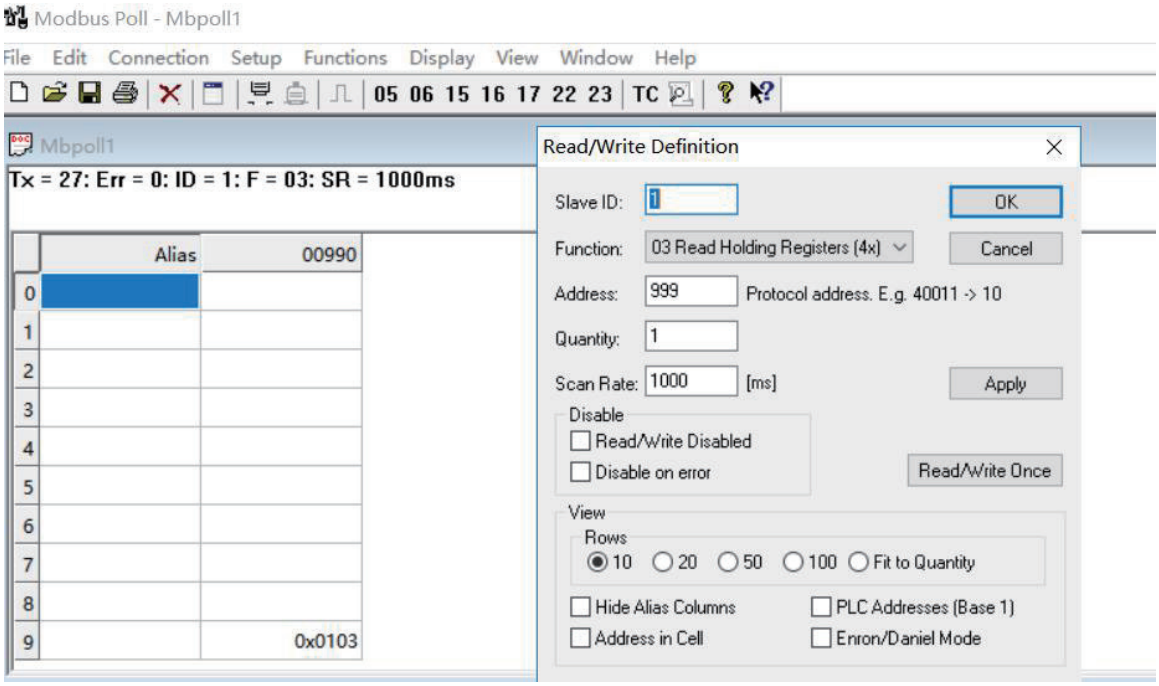
Modbus Poll Write register settings are shown below:



Experiment 5: Read the error feedback value (address 0x03e7):

The read data format is: 00 01 00 00 00 06 01 03 03 e7 00 01

Modbus Poll The read register settings are shown below:



Unplug card 3, the register value is 0x0103, where 01 represents the communication error and 03 represents the error card is card 3.