GCAN-8100

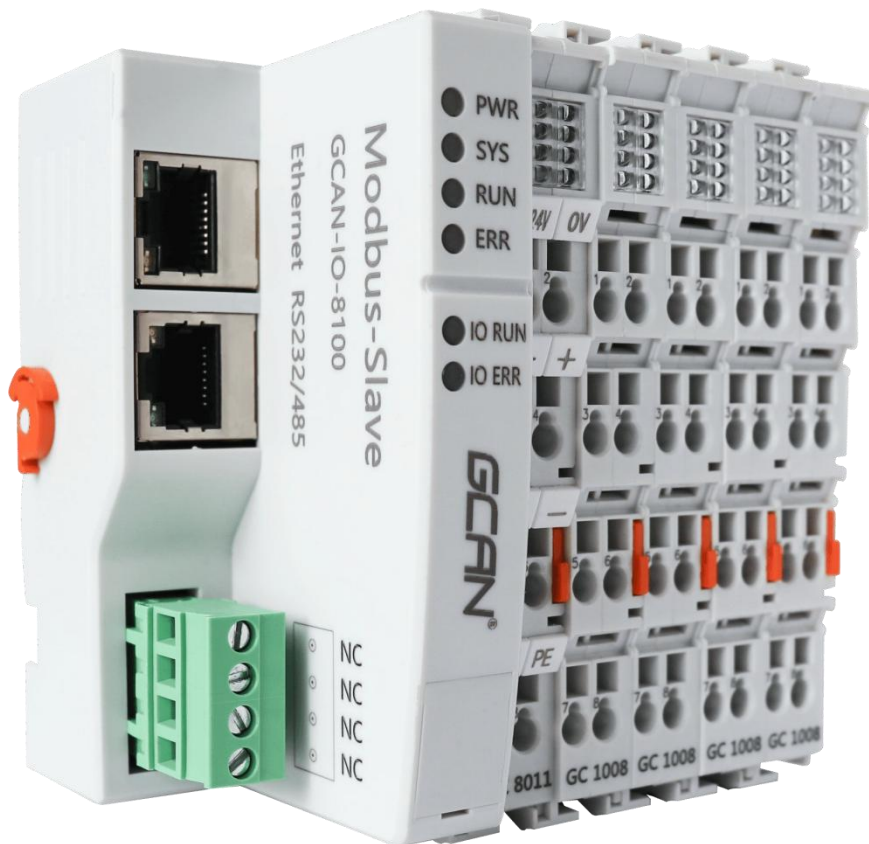## Modbus bus coupler
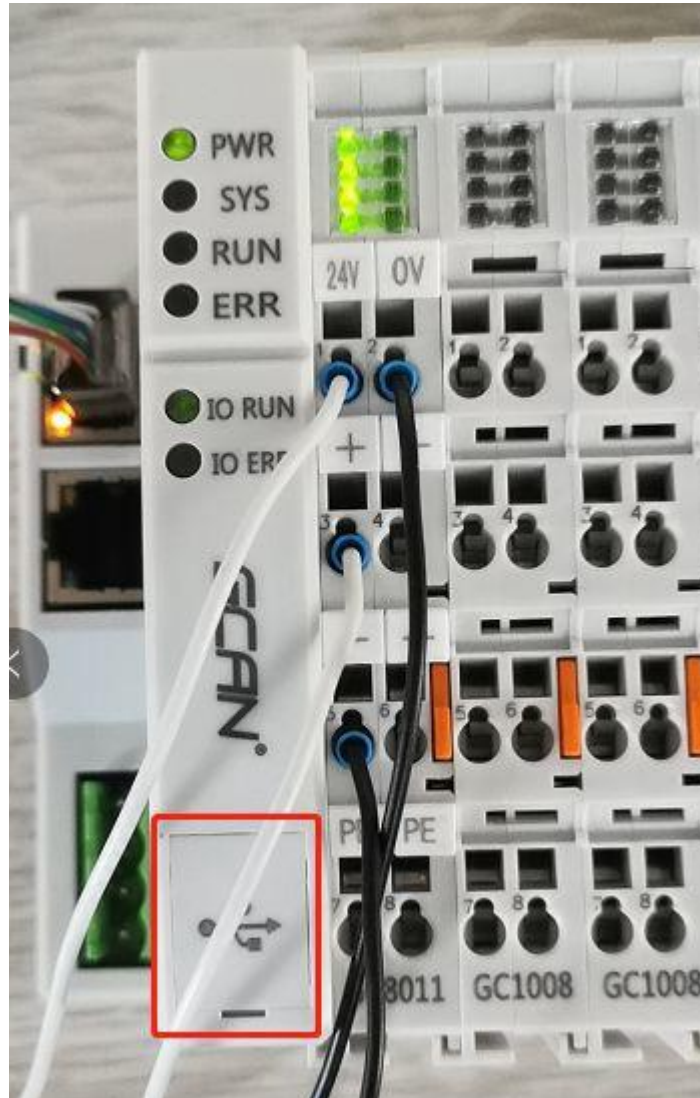
1. View and modify configuration parameters

Figure **1.1 GC-8100** wiring diagram

First, connect the GC-8100 wire as shown in the figure (the white wire is 24v, the black wire is GND), and use a flat-blade screwdriver or other tools to open the USB cover of the GC-8100 main control module from below (the red frame is USB Cover). After opening the cover, you can see three

components as shown in Figure 2. The three components are: ②USB interface, ③stop switch, ④core upgrade button.
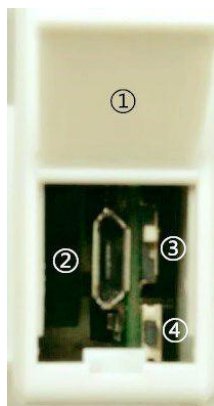

图 1.2 GC-8100　USB 接口

Use a USB micro cable (Android data cable) to connect to the GC-8100, open the device manager to read the port number of our device.

Figure 1.3 Device Manager

Open XCOM (serial port debugging assistant), select to open the corresponding COM port, baud rate 115200, stop bit 1, data bit 8, no parity, and tick to send a new line. Send help in ASCII code or? , Can get GC-8100 parameter setting instructions, and then read and modify the parameters. (TCP and RTU cannot take effect at the same time) The default IP is 192.168.1.30, the serial port is configured as 485 mode with a baud rate of 19200, data bit 8, stop bit 1, no parity.
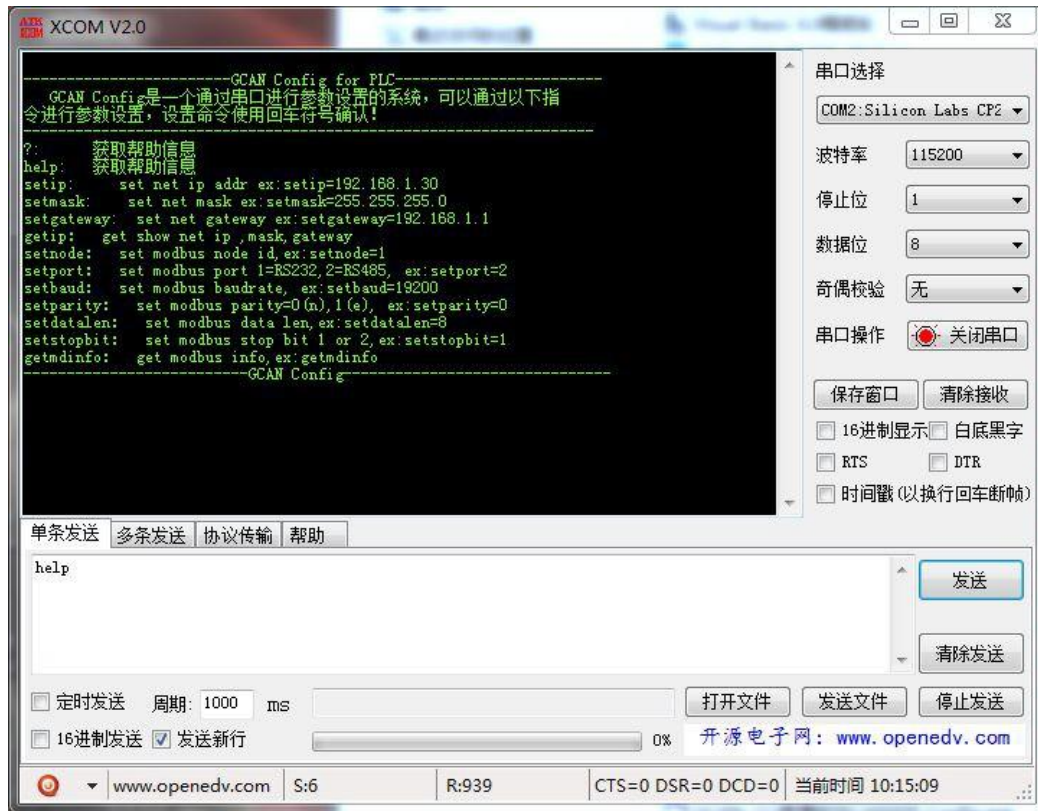
Figure 1.4 GC-8100 configuration related commands

2. Using MODBUS RTU control

2.1 GC-8100 with Modbus Poll connection method

The definition of GC-8100 RS232 or RS485 interface is shown in Table 2.1.

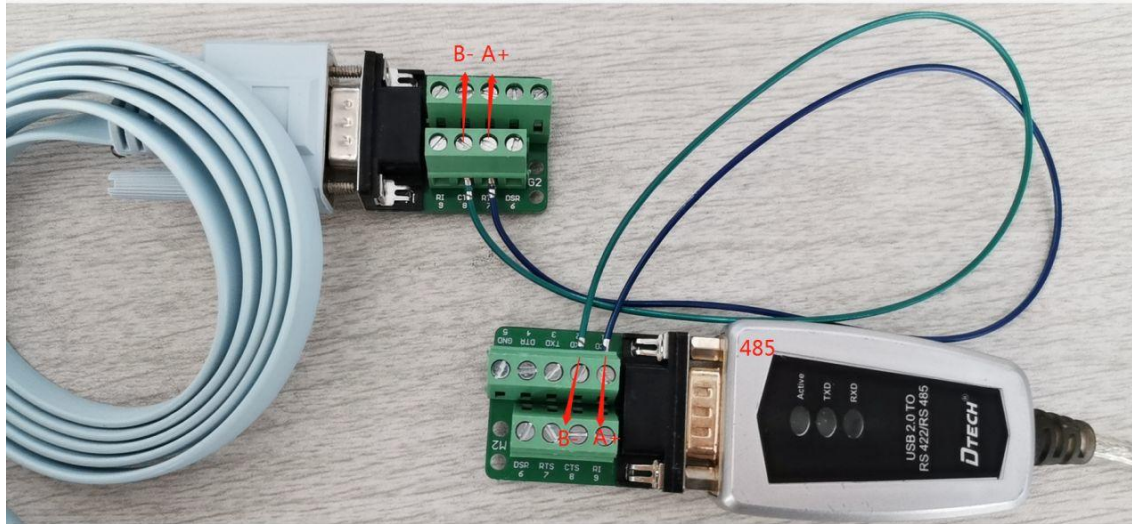| terminal	RJ45 terminal serial number	DB9 terminal serial number	meaning
RS232_TX	3	2	RS232 data transmission
RS232_RX	6	3	RS232 data reception
GND	4	5	signal ground
RS485_A+	8	7	RS485 signal A+
RS485_B-	1	8	RS485 signal B-

Table 2.1 RS232 or RS485 pin definition

Fig.2.1 RS485 wiring diagram

Take the default configuration as an example, the slave address is 1, RS485 mode, baud rate 19200, data bit 8, stop bit 1, no parity. First power on the GC-8100 as shown in Figure 1.1, then connect the 485 line as shown in Figure 2.1, then connect the 485 line to the computer, read the corresponding COM port through the device manager , and connect to Modbus Poll（ Modbus analog master software).), the Modbus Poll configuration interface is shown in Figure 2.3.
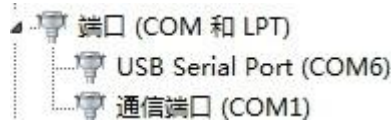

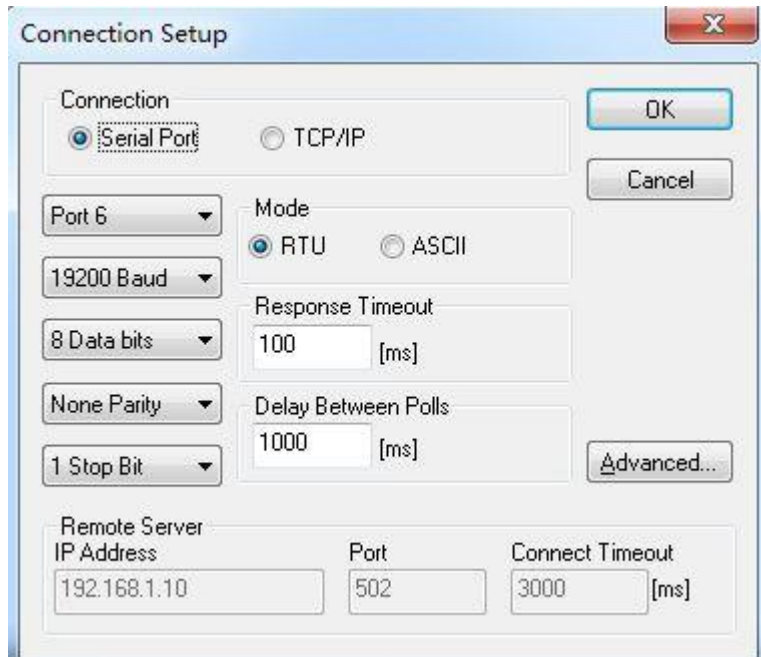Figure 2.2 RS485 device manager interface

Figure 2.3 Configuration of Modbus Poll connected via RS485

After the configuration is complete, click OK. If it appears as shown in Figure 2.4, the connection is successful. If it appears as shown in the figure

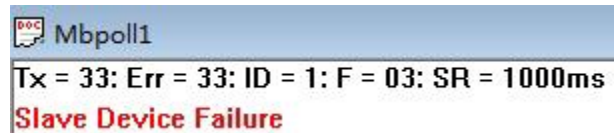**2.5** shows that the connection fails
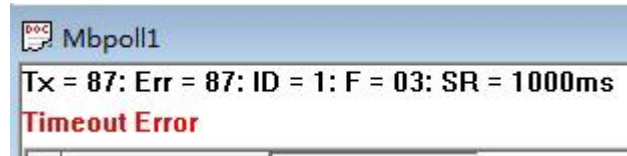
Figure 2.4 Modbus Poll Connection success prompt

Figure 2.5 Modbus Poll connection failure message

Connection method between **GC-8100** and **GC-2008**

When GC-8100 is connected with Modbus Poll, click Setup, then click Read/Write Definition.., Slave ID is changed to 1, Function is changed to 01 Read Coils（0x）, Address is changed to 0, Quantity is changed to 8. Then click ok, you will find, Modbus Poll The prompt will change from Slave Device Failure to blank, the Err count will be cleared, and the display result will be shown in Figure 2.8.
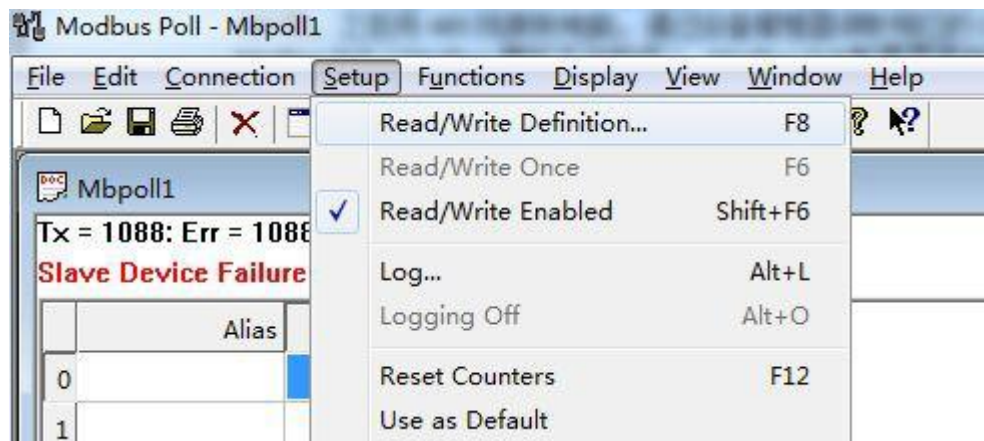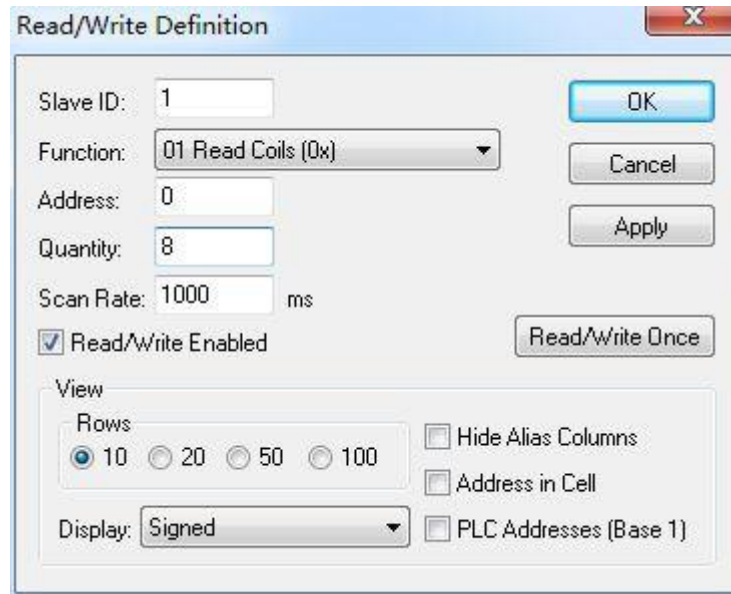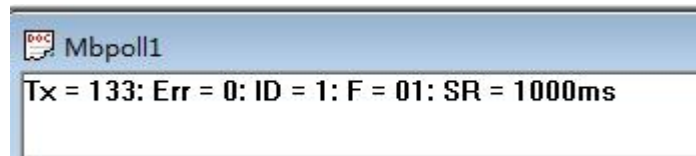

Figure 2.6 Setup Tab

Figure 2.7 2008 Configuration Read/Write

Definition.. tab

Figure 2.8 Normal connection effect

single coil（channel）can be controlled through the 05 function code, and all coils (channels) can be controlled through the 15 function code . Click 05 to control the corresponding 2008 pass through Address . Since the coil address starts counting from 0 and the channel starts from 1 , address 0 corresponds to channel 1 , address 1 corresponds to channel 2 , and so on. Change the value of Value from Off to On , click send to make the corresponding channel output. Click 15 to set how many coils can be controlled at the same time through the Quantity parameter（ a GC-2008 has 8 channels , you can set
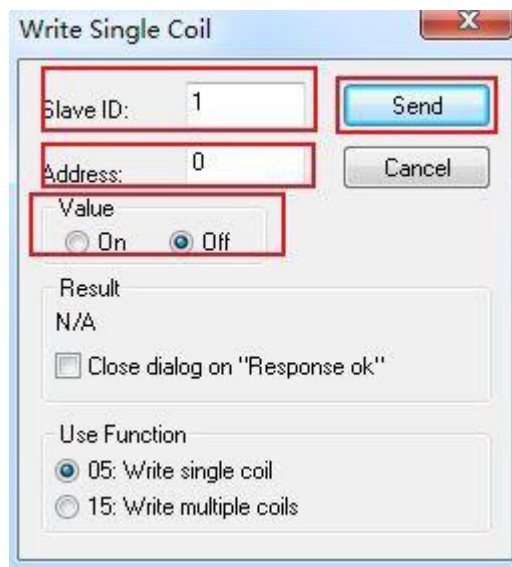
the Quantity to 8) , check the coil of the channel you want to control. , click

send to realize batch control 2008 output . At the same time, you can see which coil is controlled to be turned on on the Mbpoll interface. As shown in Figure 2.11 , the 3, 5, and 8 channels of the GC-2008 are currently outputting.
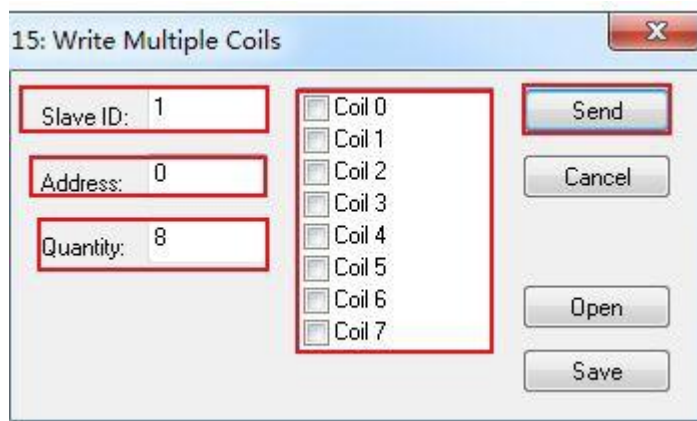
Figure 2.9 Operation interface of function code 05

Figure 2.10 Function code 15 operation interface

Figure 2.11 Current coil status read

2.3 Connection method between GC-8100 and **GC-1008**

When the GC-8100 is connected to **Modbus Poll**, click **Setup**, then click **Read/Write Definition..**, the **Slave ID is** changed to **1**, the **Function is** changed to **02 Read Discrete Inputs**（ **1x**）, the **Address is** changed to **0**, and the **Quantity is** changed to **8**. Then click **ok**, you will find that the prompt of **Modbus Poll will change from Slave Device Failure** to blank, the **Err** count will be cleared, and the display result will be shown in Figure **2.8**.
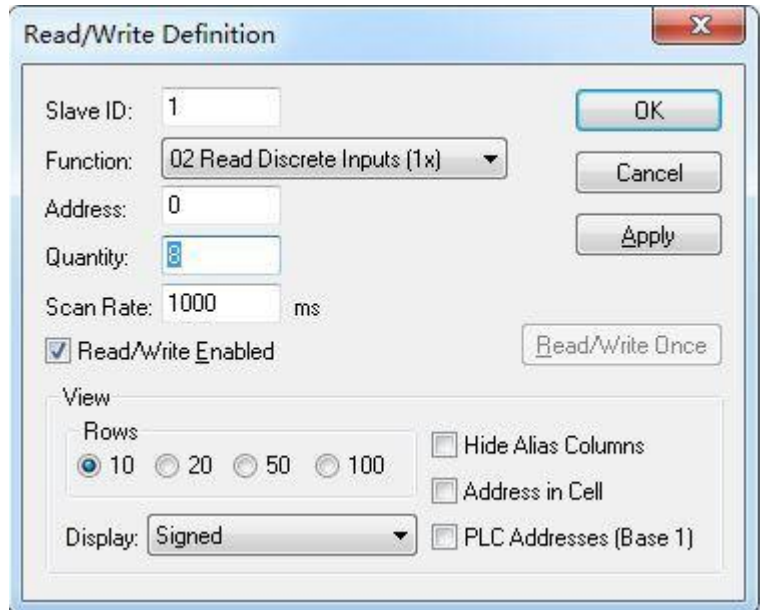
Figure 2.12 1008 Configuration Read/Write Definition.. Tab

The data value collected by the current data volume can be directly read through the 02 function code. Figure 2.13

As shown, channels 1 and 3 have digital 1 input at this time.

Figure 2.13 Current coil status read

2.4 Connection method between GC-8100 and GC-3604

When the GC-8100 is connected to Modbus Poll, click Setup, then click Read/Write Definition.., the Slave ID is changed to 1, the Function is changed to 04 Read Input Registers（3x), the Address is changed to 0, and the Quantity is changed to 4（A 3604 has 4 channels). Then click ok, you will find that the prompt of

Modbus Poll will change from Slave Device Failure to blank, the Err count will be cleared, and the display result will be shown in Figure 2.8.

3604 is **-5v~+5v** voltage input, his data is a **signed** (integer variable) representing a pass
channel, and corresponds to a register, the calculation formula is ″
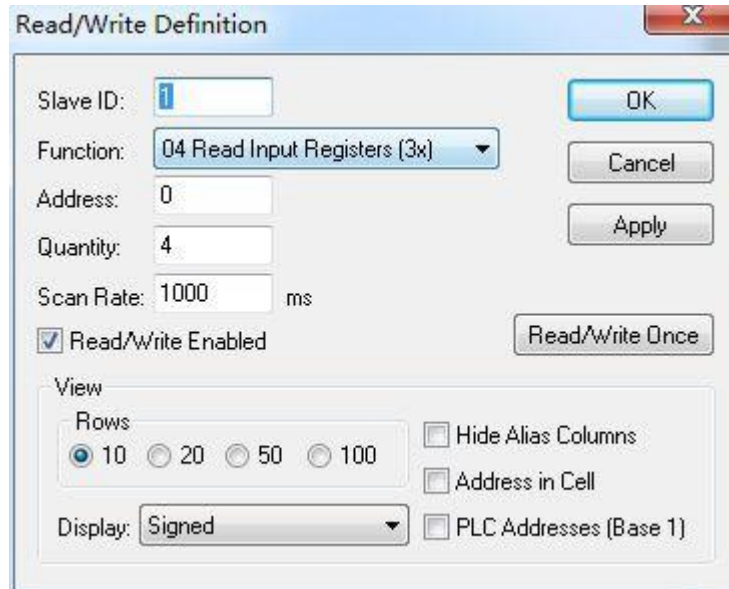**GC8010** acquisition value *** 5/32765 =** actual voltage value″.

Figure **2.14 3604** configuration **Read/Write Definition..** tab

The data value collected by the current analog quantity can be directly read through the **04 function code.** Figure **2.15**
As shown, one channel inputs **4V** , and the output voltage of the signal

generator is shown in Figure **2.16** .

Figure **2.15** The current register status read

Figure 2.16 Current signal generator output voltage

Note: When **GC-8100** is connected with other **IO** modules, it can be configured automatically. The address will be automatically increased according to the number of channels. For example, if two **GC-1008** are connected to **GC-8100**, **16** coils will be used. You can write **16 in the Quantity**, and the **Address** from **0-7** is the first **GC-1008**, **8- 15** is the second **GC-1008, the** principle of other expansion **IO modules is the same.**

Connection method between GC-8100 and GC-4642

When the GC-8100 is connected with Modbus Poll, click Setup, then click Read/Write
Definition.. Slave_ID_ Change it to 1 ,Function__ Change to 03 Read Holding_Registers(4x)Address
Change it to 0 and Quantity to 2(a 4642 has two channels). Then click ok, you will find that the prompt of Modbus Poll will change from Slave Device Failure to blank, the Err count will be cleared, and the display result will be shown in Figure 2.8.

4642 is a 0-20mA current output. Its data is an unsigned (unsigned integer variable) representing a channel and corresponds to a register. The calculation formula is ″ GC8010 acquisition value *20/65535= actual current value″.
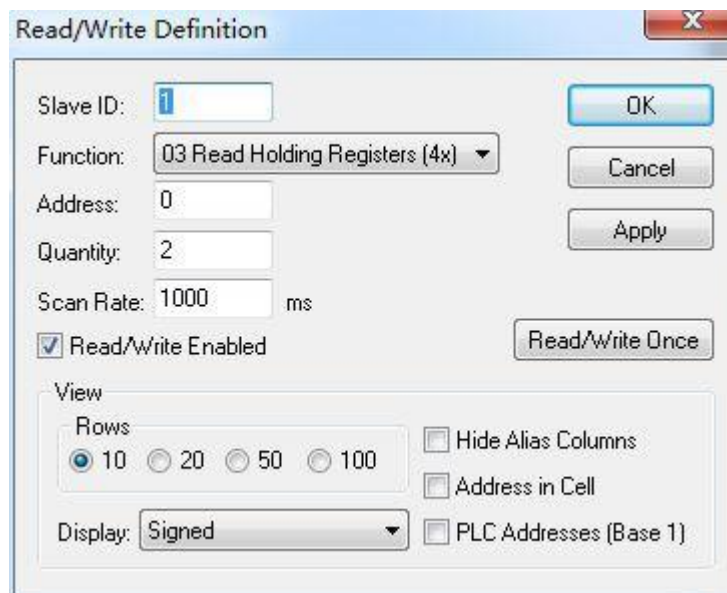

Figure 2.17 4642 Configuration Read/Write Definition.. Tab
output current value can be controlled through the 06/16 function code.
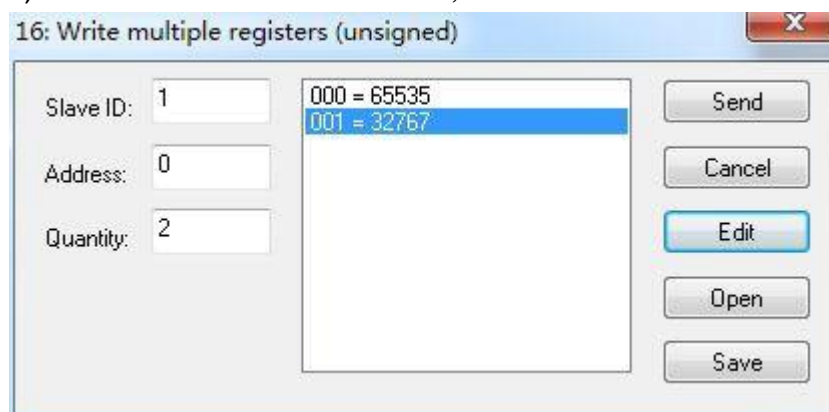At this time, the first channel is set to 20mA , and the second channel is 10mA .

Figure 2.18 Use 16 function code to output to the holding register

	Alias	00000
0		65535
1		32767
2		
3		
4		
5		
6		
7		
8		
9		

Figure 2.19 Use the 03 function code to read the value of the holding

register

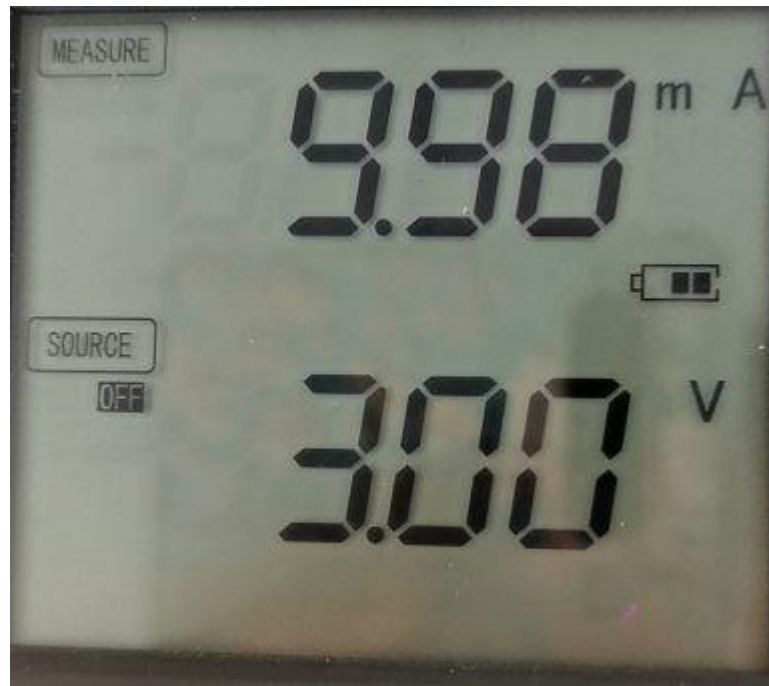Figure 2.20 The current value read by the 1-channel signal generator

Figure **2.21** The current value read by the
2-channel signal generator
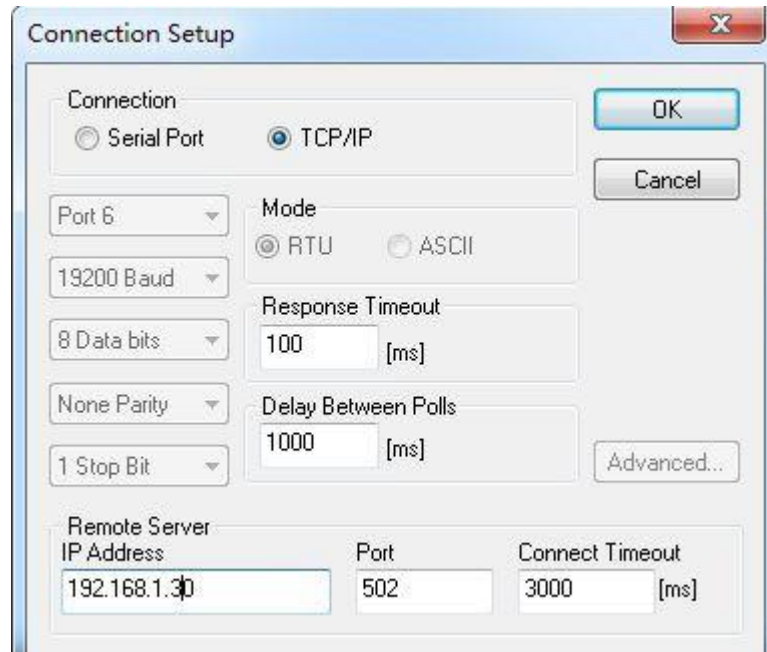
3. Using **Modbus tcp** connect

Figure 3.1 Configuration of Modbus Poll via TCP connection

Take the default configuration as an example, the IP address 192.168.1.30. First, power up the GC-8100 according to the method shown in Figure 1.1. The Modbus Poll configuration interface is shown in Figure 3.1. After the configuration is complete, click OK. If it appears as shown in Figure 2.4, the connection is successful, and if it appears as shown in Figure 2.5, the connection fails.

Note: When **8100 is used** with **IO**, it needs to be matched in order. First input, then output, first digital, then analog. For example, when used with **1008(** digital input **), 2008(** digital output **), 3654(** analog input), **4652** (analog output), the sequence is:
1008-->2008-->3654-->4652
Same goes for multiple **IOs**
1008×n-->2008×n-->3654×n-->4652×n