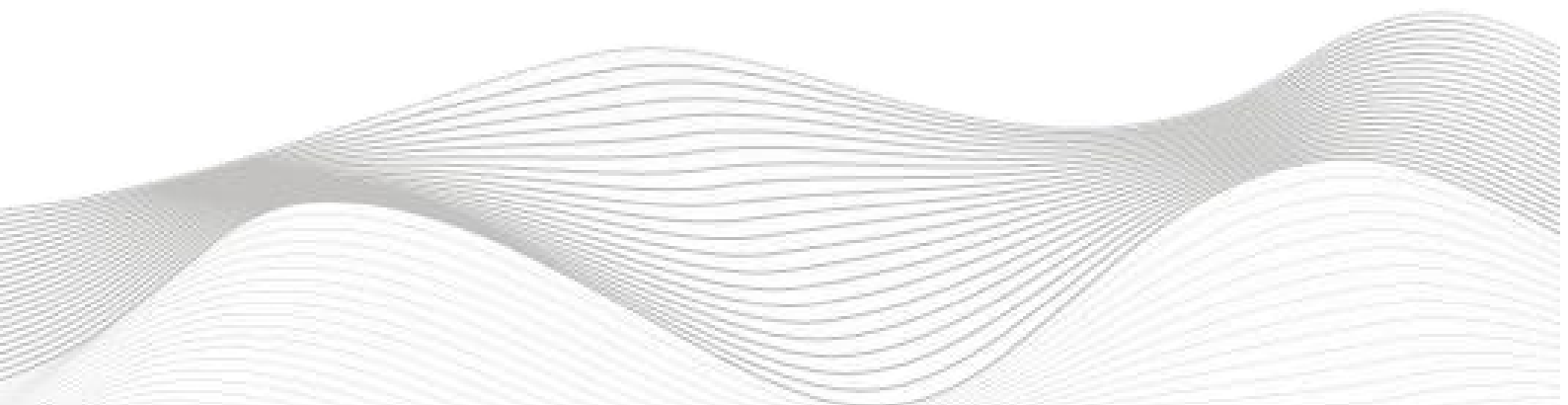




Technical Notes

Application of LUC-CE series module and Mitsubishi FX5U series PLC connection

keyword: CC-LINK IE FB, LUC-CE , FX5U, ES-02MB-232



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contents

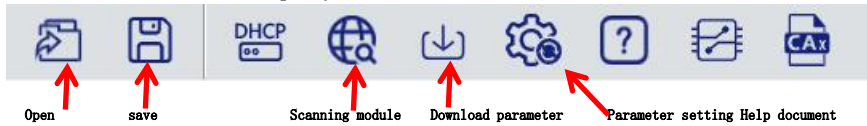
1.模块参数及IP地址配置	错误! 未定义书签。
1.1 LAEConfig软件界面介绍	- 4 -
1.2 扫描网络中的硬件	- 4 -
1.3修改模块的IP地址	- 5 -
.....	错误! 未定义书签。
1.4 修改模块的参数	- 5 -
2.ES-02MB原理概述	- 7 -
2.1接线端子定义	- 7 -
2.2接线图	- 8 -
3.调试环境	错误! 未定义书签。
4.技术实现	错误! 未定义书签。
4.1硬件连接	- 9 -
4.2新建工程	- 10 -
4.3 CC-Link IE Feild Basic参数设置	- 10 -
4.4 IO映射配置	- 12 -
4.5 PLC的连接测试	- 13 -
4.6诊断通讯状态	- 13 -
5. 打开调试助手软件	错误! 未定义书签。
6.监控表	- 14 -

1. Module parameters and IP address configuration

1.1 LAEConfigSoftware interface introduction




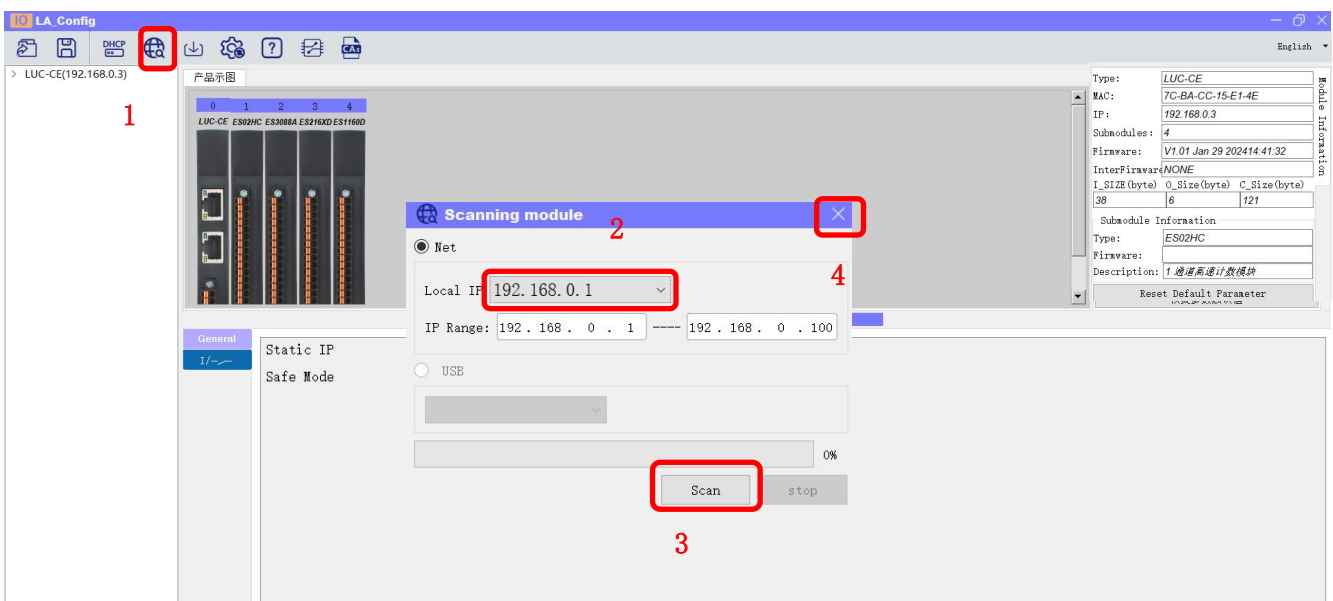
This software interface includes: toolbar, module information tree directory, parameter setting area, module information display area, etc.




1.2 Scan hardware in the network



click , Set the IP address range to be scanned (in the display area), and ensure that the computer's network IP parameters are in the same network segment as the set one. Click 'Start' to enter the scanning phase. The scanned modules will be displayed within the set IP range.



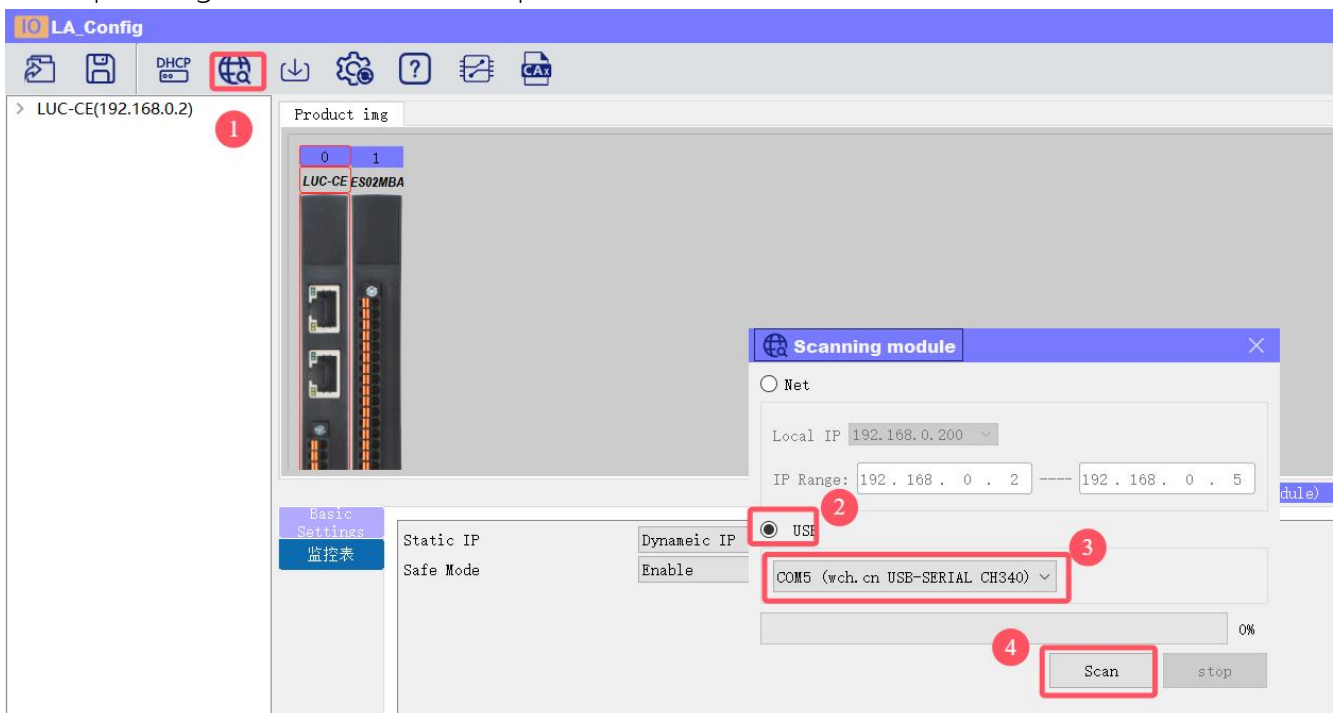
1.3 Modify the IP address of the module

click  , Click on Global Scan, select the IP address for modification, and click on Modify IP Address. Entering the process of assigning IP addresses, whether the assignment was successful can be displayed in the status column at the end.



1.4 Modify the parameters of the module

Modify ES-02MB parameters: Click the Scan Module button, select USB, choose the corresponding USB to TYPEC serial port, and click Scan Start.



According to the following communication parameter settings, the key is to be consistent with the slave station parameter settings

Set the communication speed to 9600bps; Set 8 data bits, no checksum, and 1 stop bit;

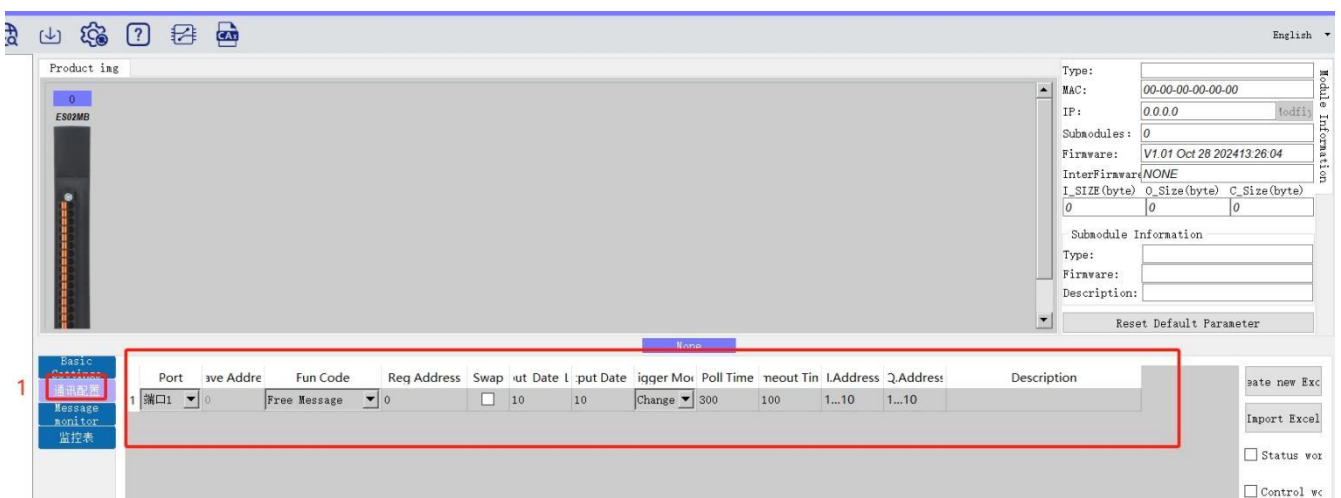


The specific communication is as follows:

Function code 1, set port 1, free protocol, input data length of 10 bytes, output data length of 10 bytes.

Set module parameters in the parameter setting area. After the setup is completed,

click , Download module parameters.



2. ES-02MB Overview

The Mitsubishi FX5U series PLC can be connected to remote IO modules through cc link iefb communication. By adding LUC-CEB couplers and ES-02MB expansion modules, remote IO control can be achieved through simple connections.

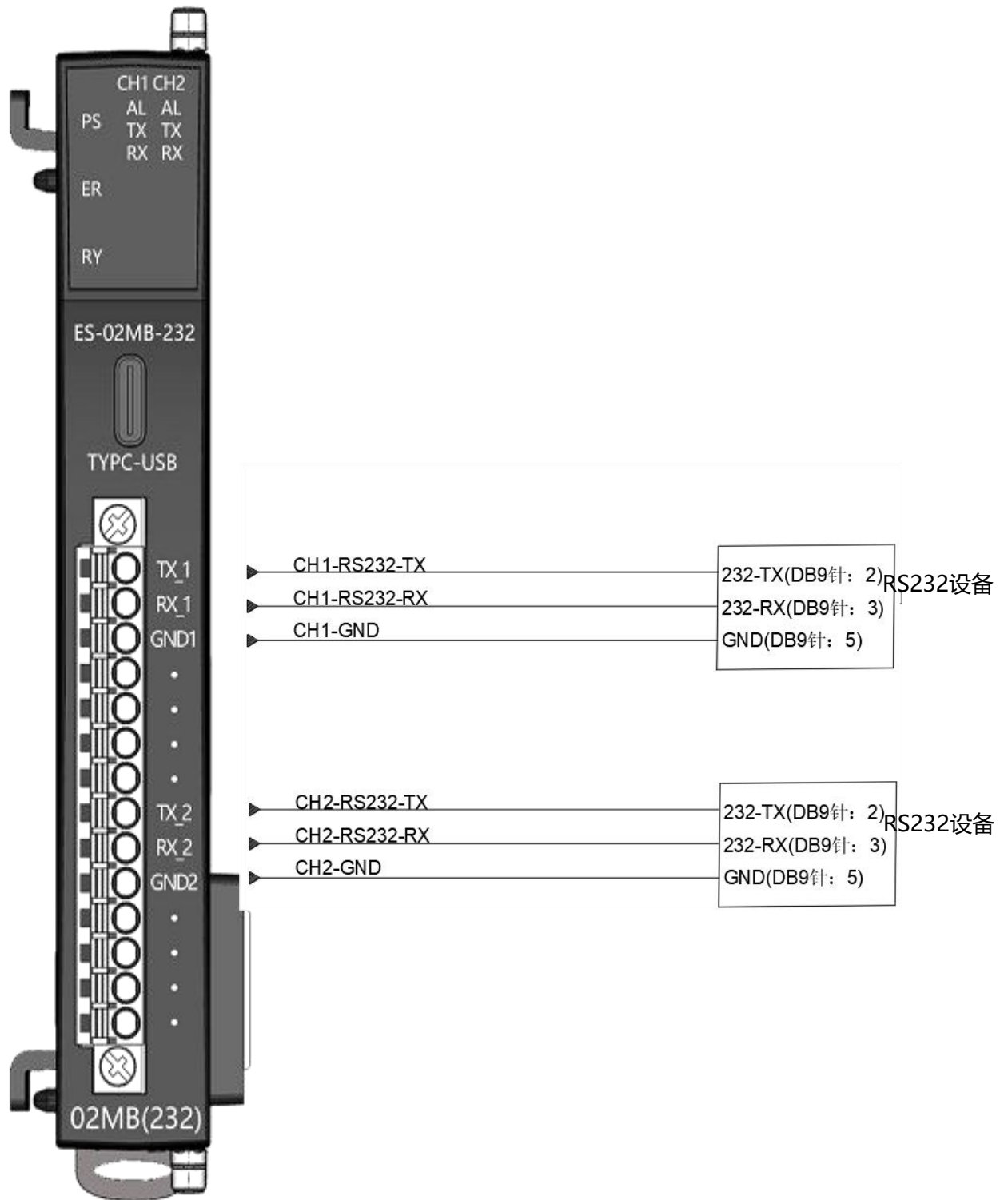
The module supports 2-channel Modbus RTU 232 slave communication.

The module supports TYPC-USB parameter download.

2.1 Definition of wiring terminals

Terminal number	ES-02MB-232	
	symbol	describe
1	TX_1	RS232-A
2	TX_2	RS232-B
3	GND1	grounding
4	Y_1	reserve
5	Z_1	reserve
6	GND1	grounding
7	TX_1	RS232-A
8	TX_2	RS232-B
9	GND2	grounding
10	Y_2	reserve
11	Z_2	reserve
12	GND2	grounding

2.2 Wiring diagram



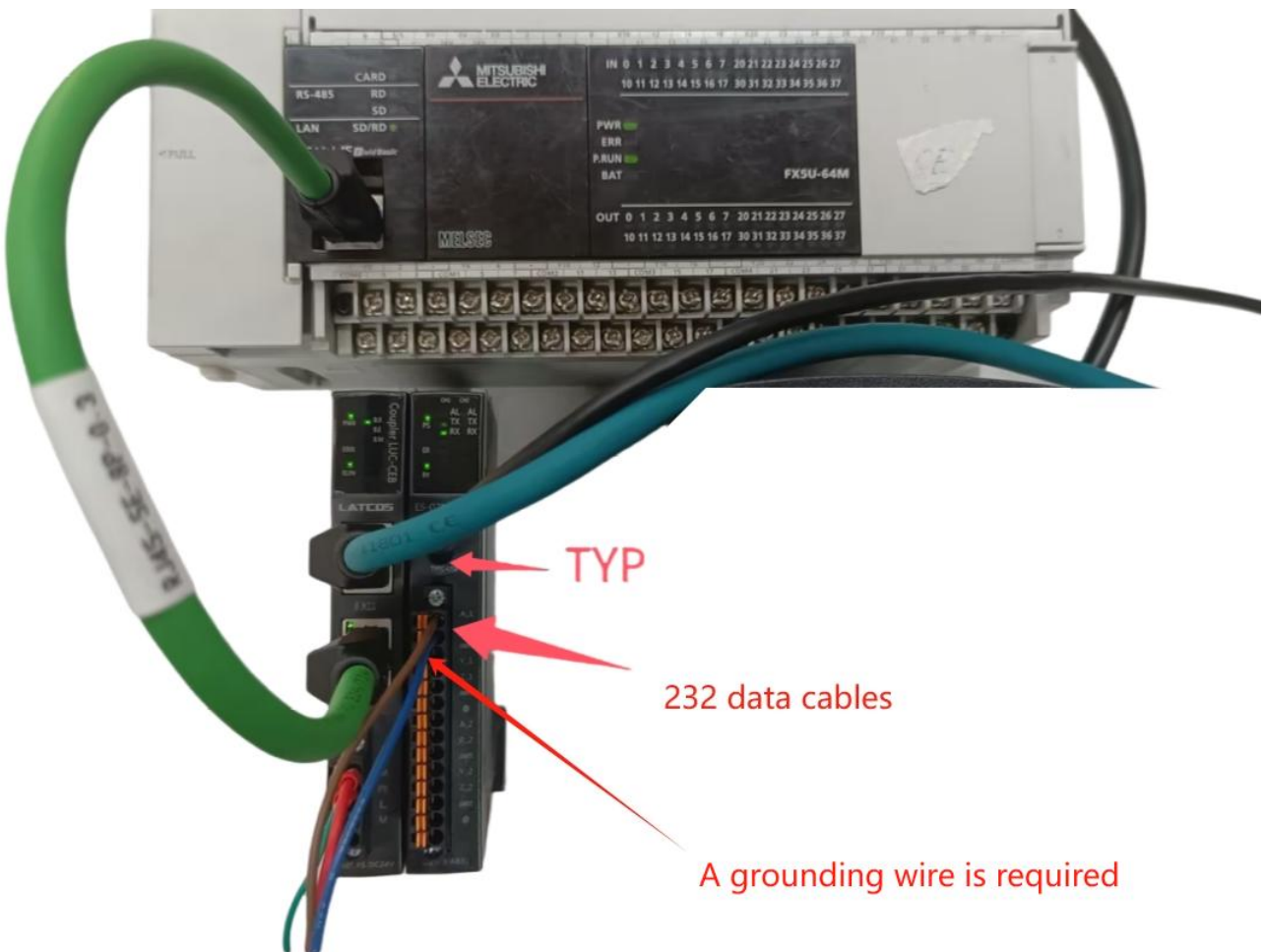
3. Debugging environment

- GX-WORKS3
- LAE-config

4. technical realization

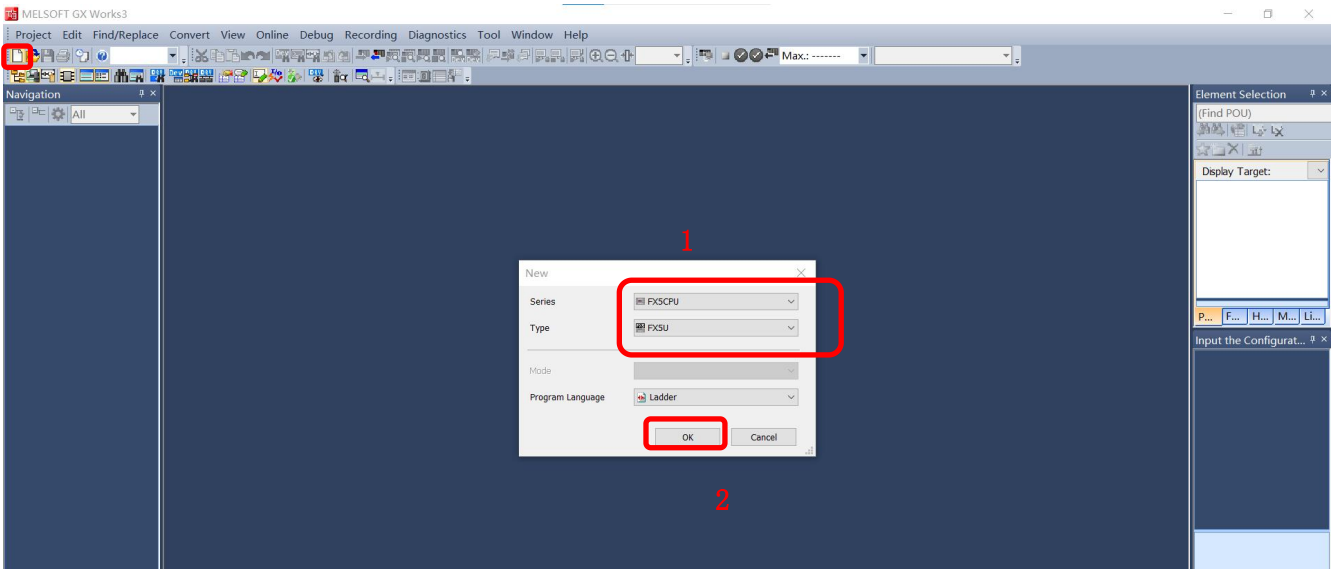
4.1 Hardware connection

1. Connect the Mitsubishi FX5U series PLC and remote IO module power supply correctly.
2. Connect the RJ45 interface of the test object PLC to the Ethernet port of the remote IO module through a dedicated Ethernet cable.
3. Use LAE config software to scan and download parameters through the type-c interface.
4. Connect the A_1 of ES-02MB-232 to the A+ of the slave station, connect the B_1 of ES-02MB-485 to the B - of the slave station, and connect the GND of ES-02MB-232 to the GND of the slave station



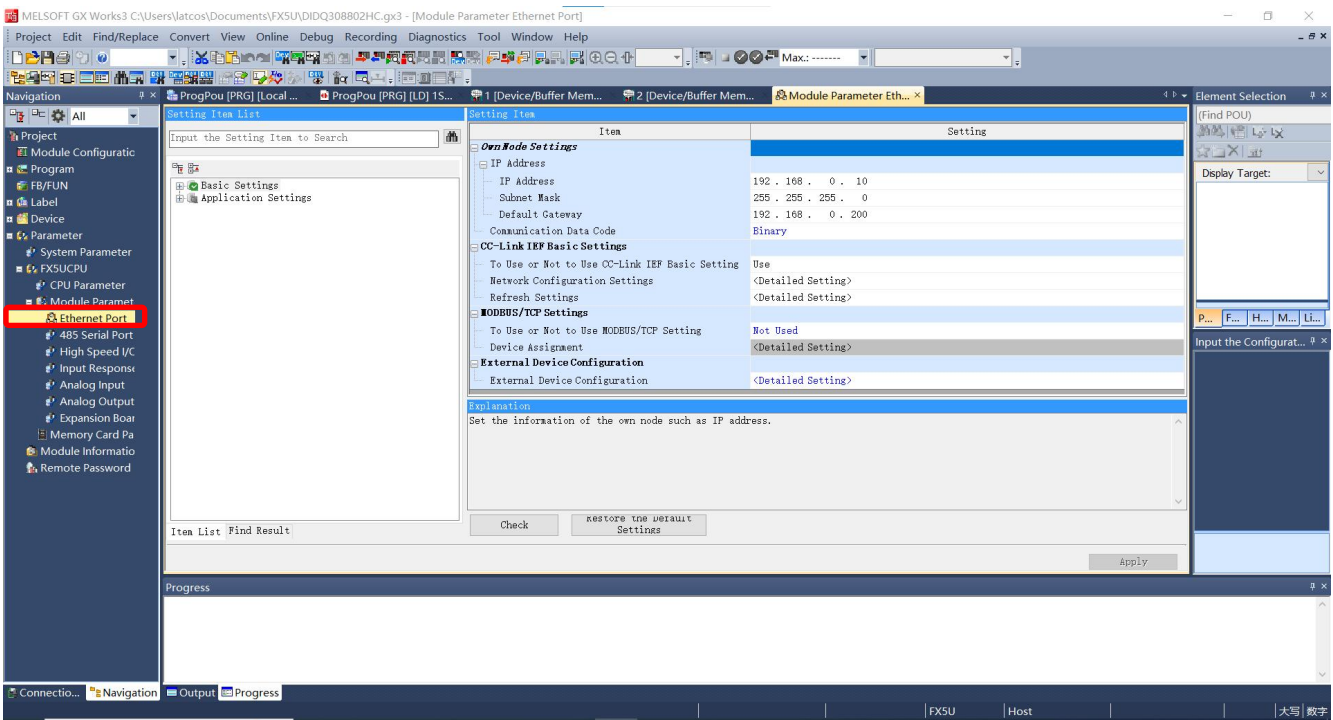
4.2 New construction project

Open GX Works 3 software, select "Project" and "New" from the menu bar, choose the PLC series based on the CPU model, and take the 5U series CPU as an example, as shown in the figure.

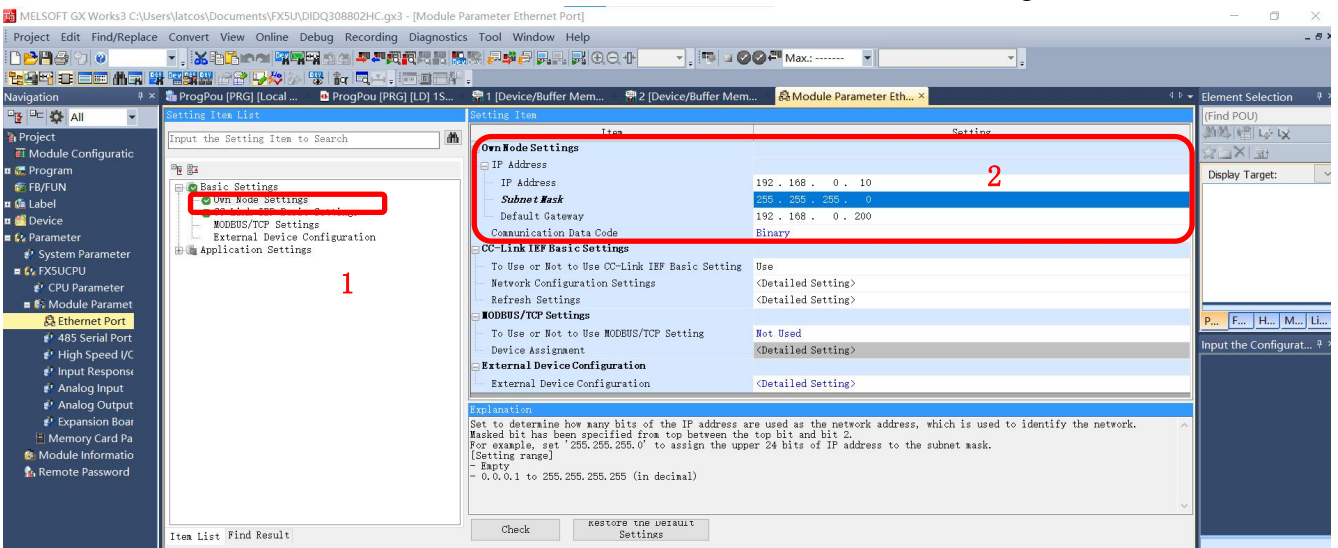


4.3 CC-Link IE Field Basic Parameter settings

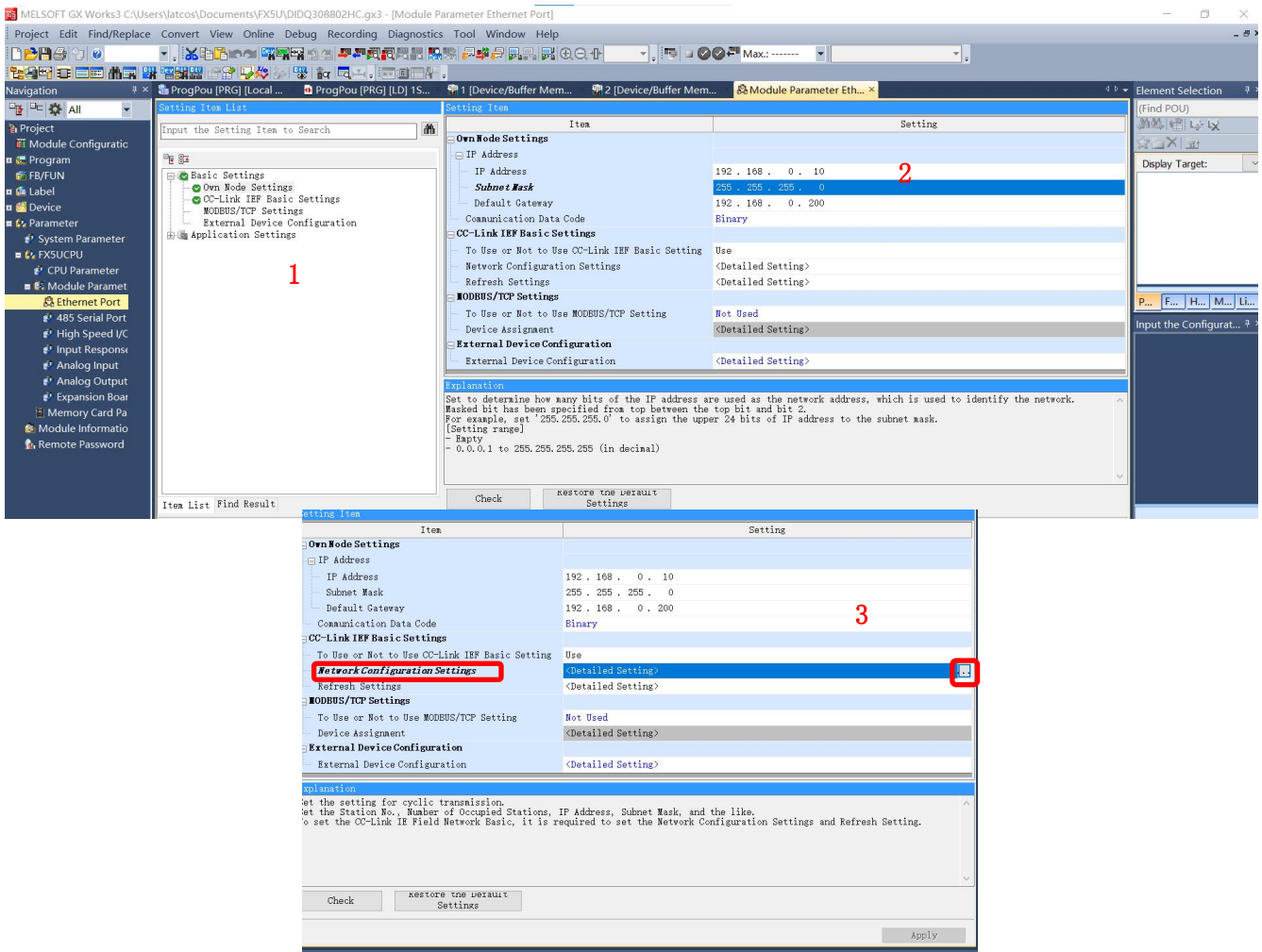
Select parameters/FX5UCPU/module parameters/Ethernet port in the left navigation window, as shown in the figure.



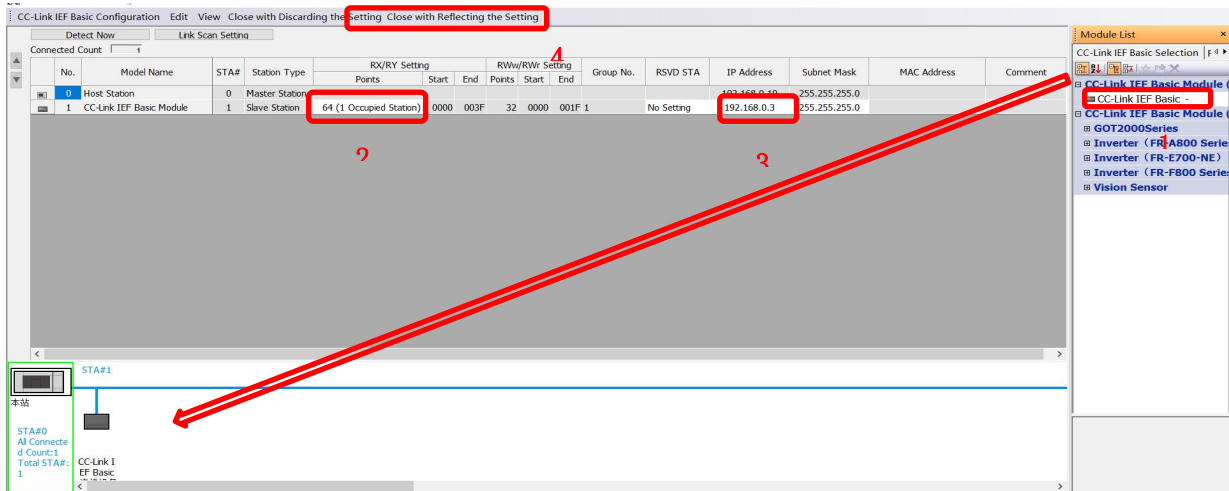
Set the IP address and sub mask of the PLC master station as shown in the figure.



After setting the main station address and sub mask, select "USE" CC Link IE Field Basic in the CC Link IE Field Basic settings window to set the network configuration settings, as shown in the figure.

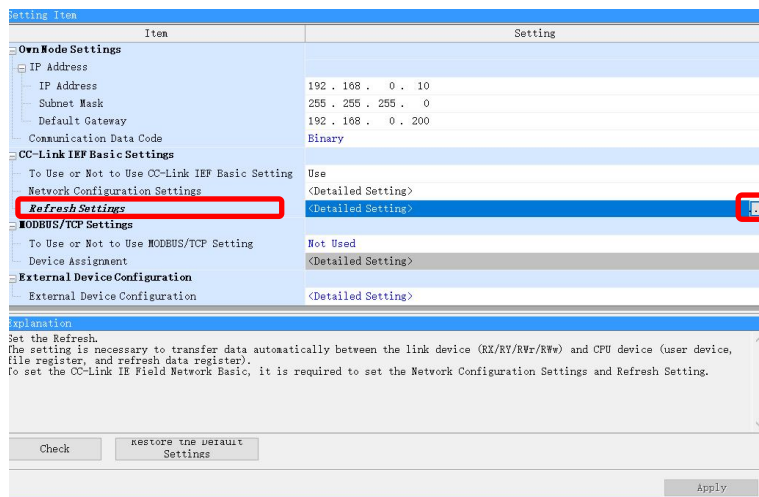


Manually add the module. In the CC Link IE Field Basic configuration window, drag the right IO module directly to the CPU configuration below, change the CC Link IE Field Basic IP address to match the module address, and then click "Reflect Settings and Close".

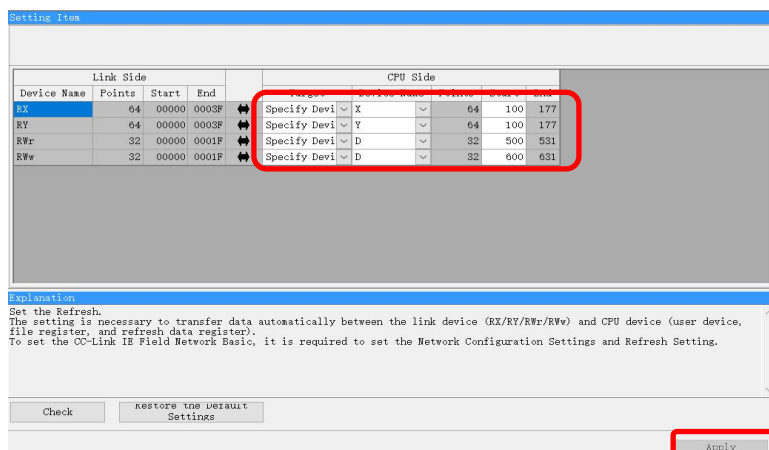


4.4 IO mapping configuration

In the CC Link IE Field Basic configuration window, set the starting point of the remote IO module's input and output, as shown in the figure.

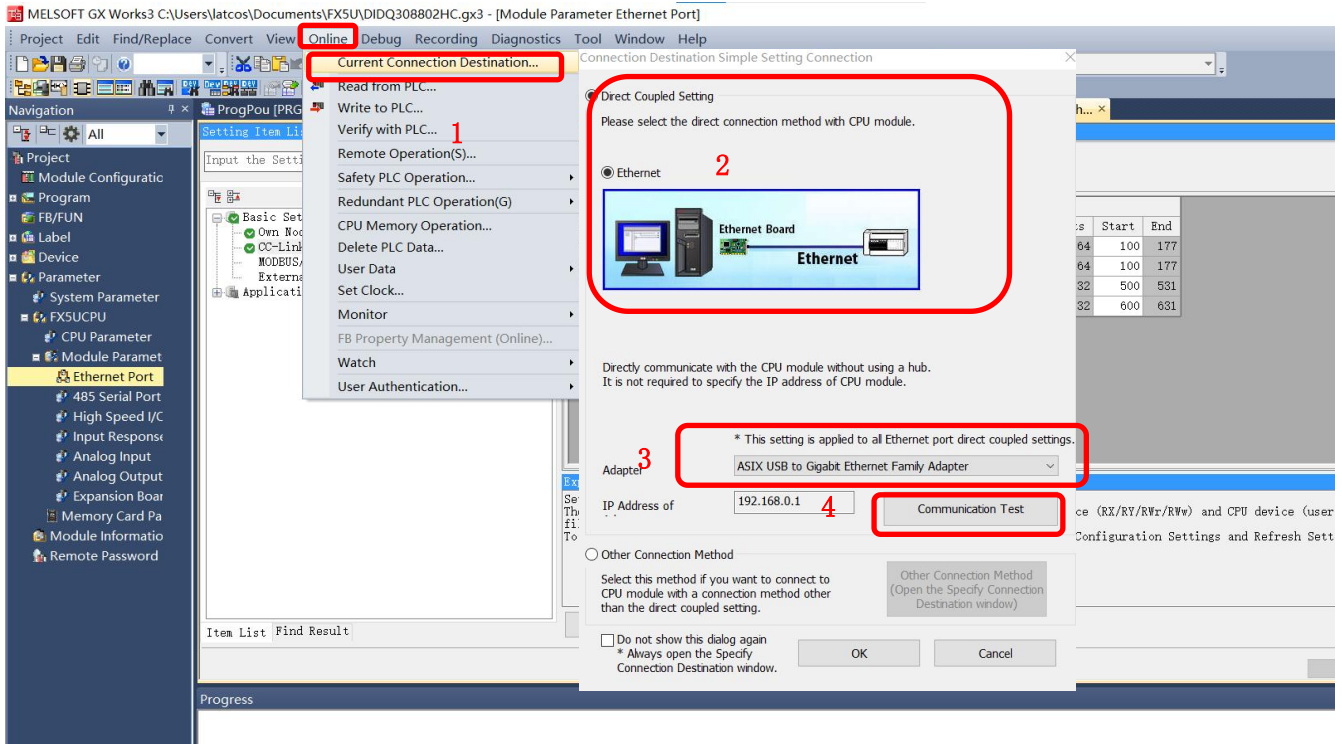


CC Link IE Field Basic output point mapping method: Each slave occupies 64 points, namely 64DI, 64DO, 32AI, and 32AO. The input and output points set here correspond to starting points X100 and Y100, while the register input and output points correspond to starting addresses D500 and D600.



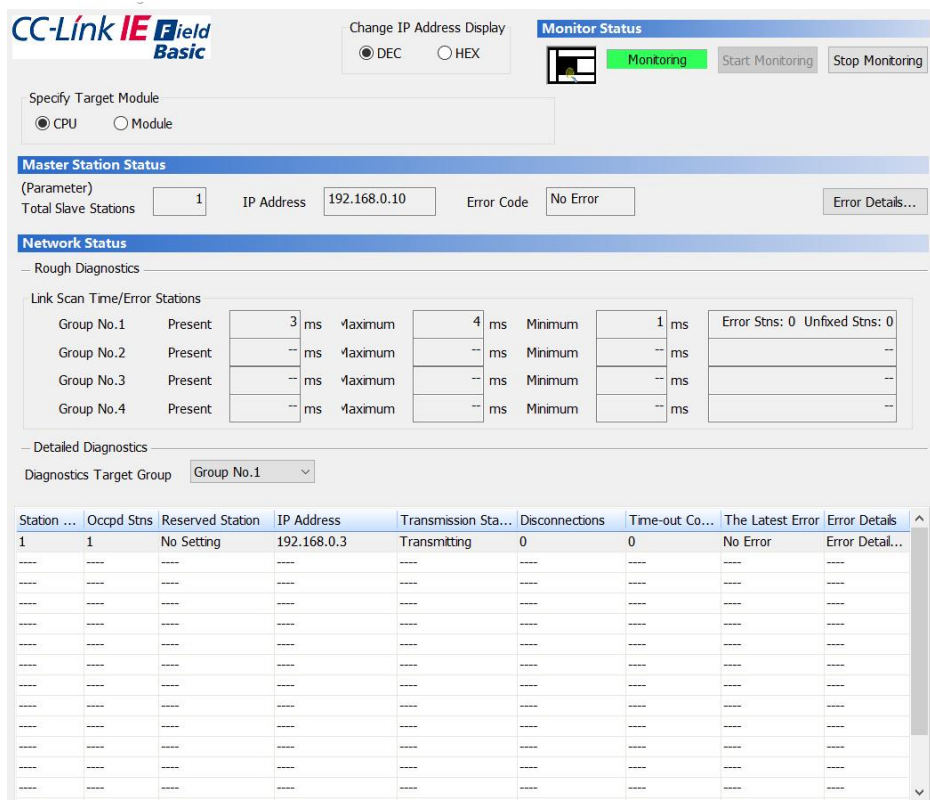
4.5 PLC connection test

Click online, connect to PLC, select direct connection, choose the network card of this computer, and click connect test.



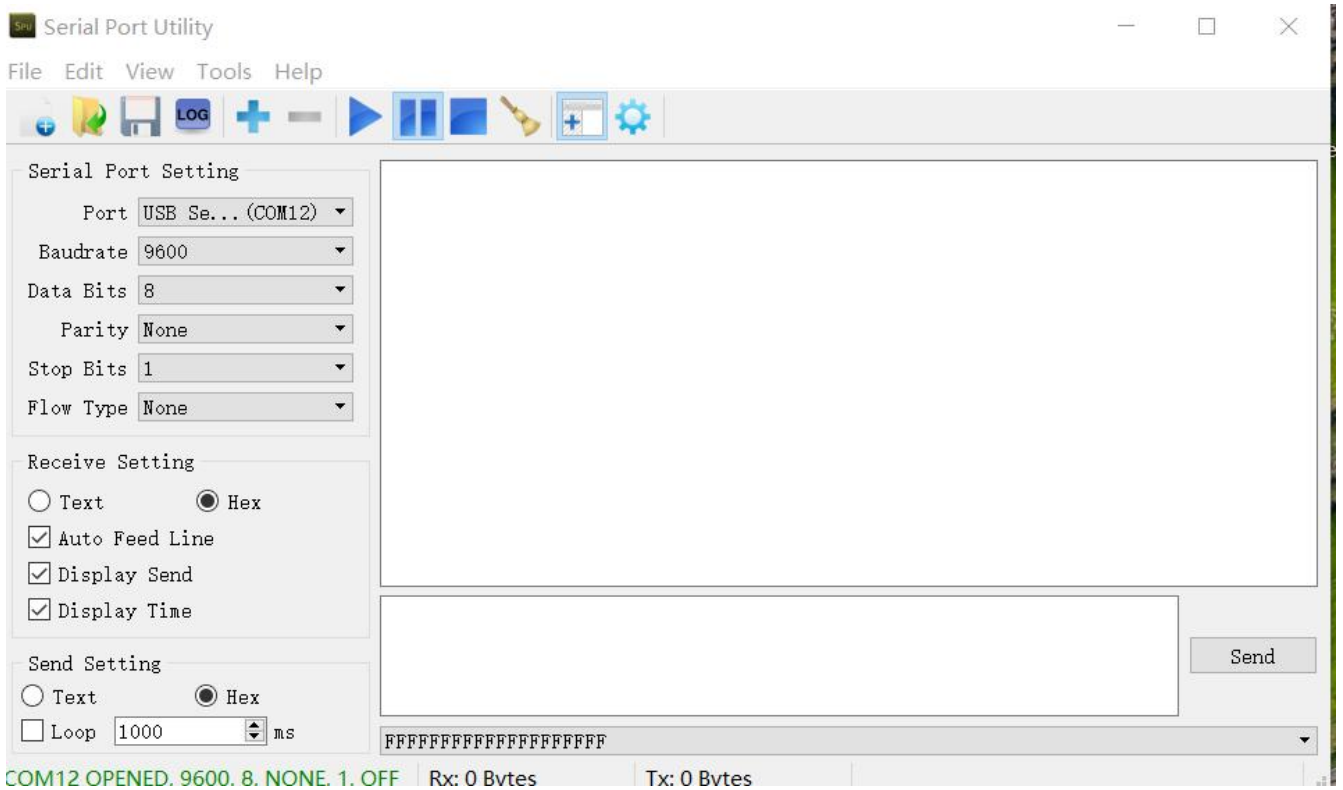
4.6 Diagnostic communication status

After completing the parameter configuration, the project can be downloaded to the PLC and the communication status can be detected through online diagnosis. Select "Diagnosis" from the menu bar and view the status of the slave IO module in the CC Link IE Field Basic diagnostic window, as shown in the figure.



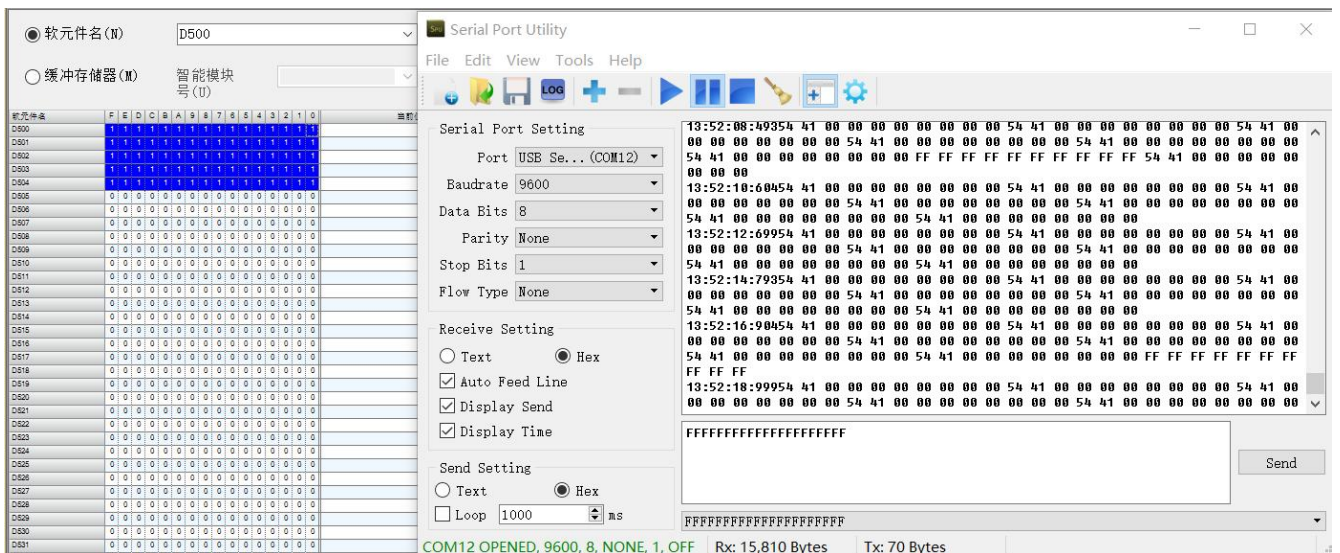
5. Open the debugging assistant software

Select a suitable serial port and set the communication speed to 9600bps; Set 8 data bits, no checksum, and 1 stop bit;

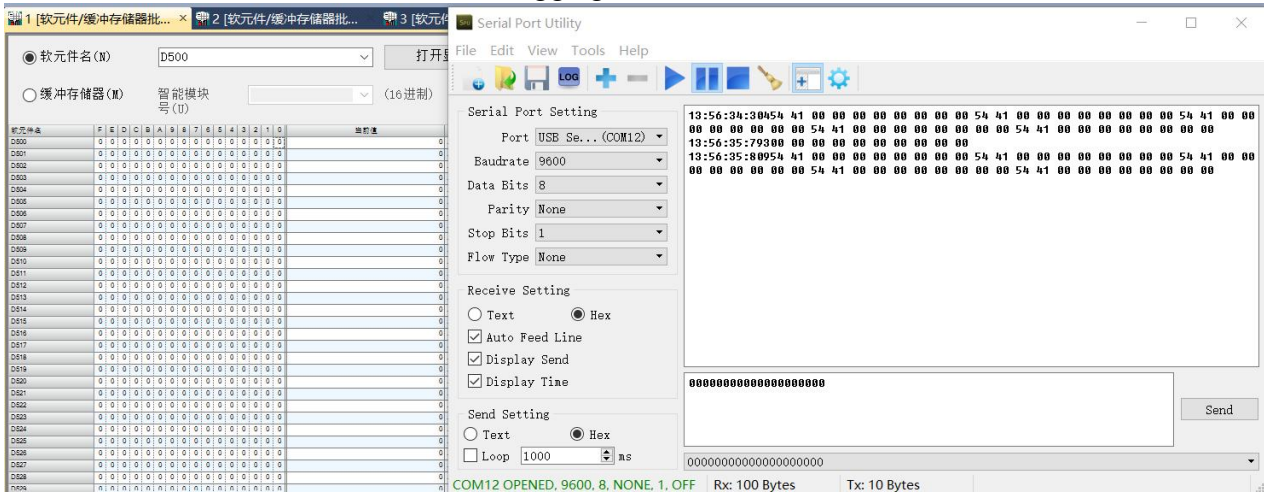


6. Monitoring table

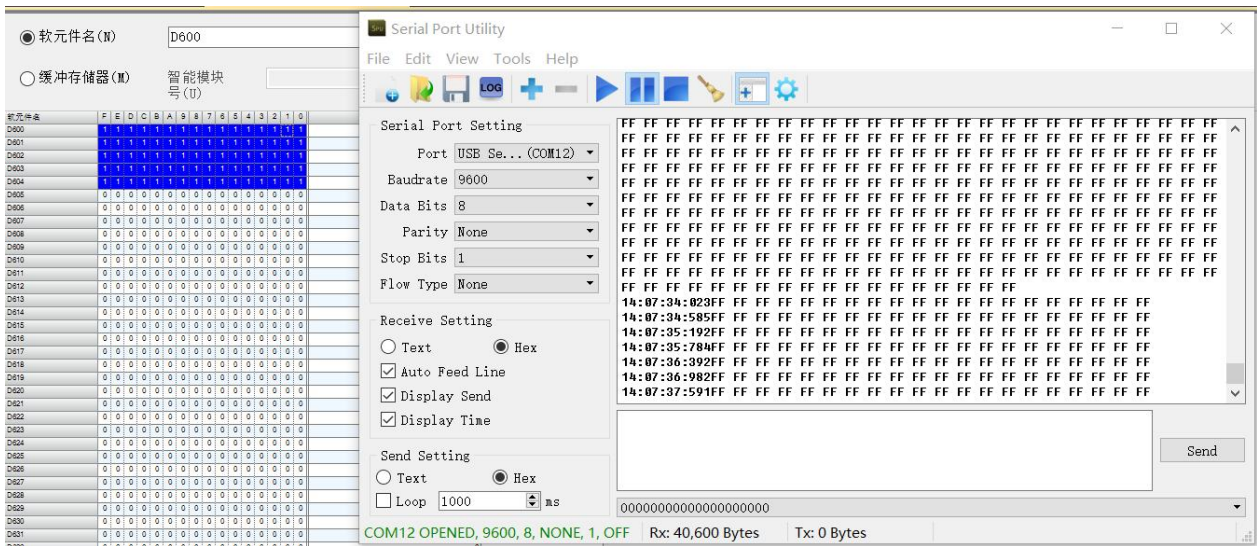
D500 indicates that the master station receives data sent from the slave station and sends FFFFFFFFFFFFFFFFFF in the debugging tool. D500 to D504 are all set to 1



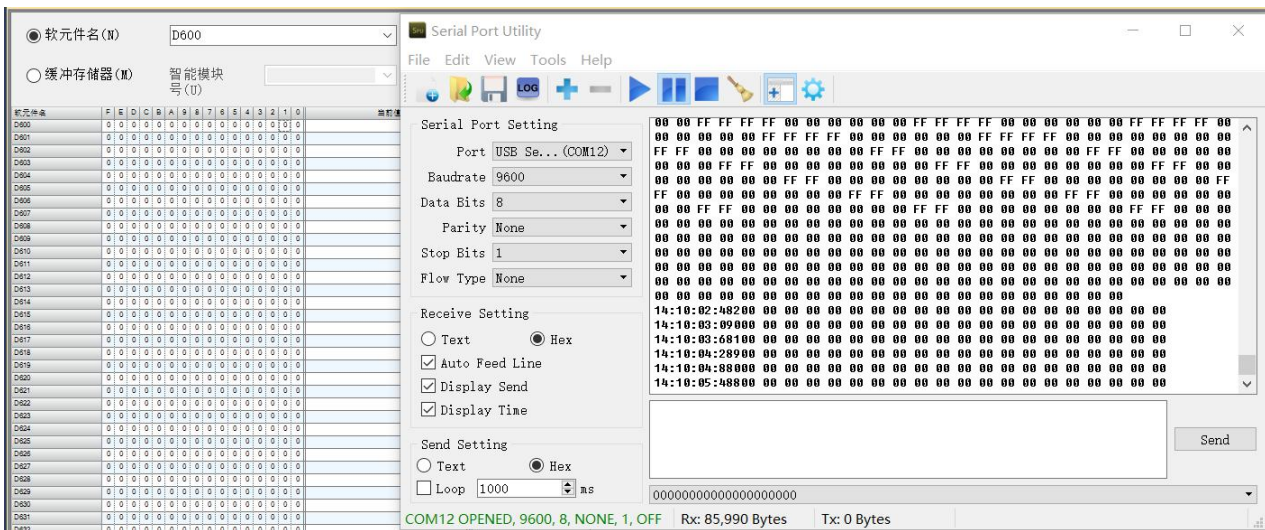
Send 00000000000000000000 in the debugging tool, set D500 to D504 all to 0



D600 indicates that the slave station receives data sent by the master station and sends FFFFFFFFFFFFFFFFFF in the monitoring table. In the debugging assistant, it can be seen that the received data is FFFFFFFFFFFFFFFFFF.



Send 00000000000000000000 in the monitoring table, and in the debugging assistant, you can see that the received data is 00000000000000000000.



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