



# PRODUCT

USE INSTRUCTIONS

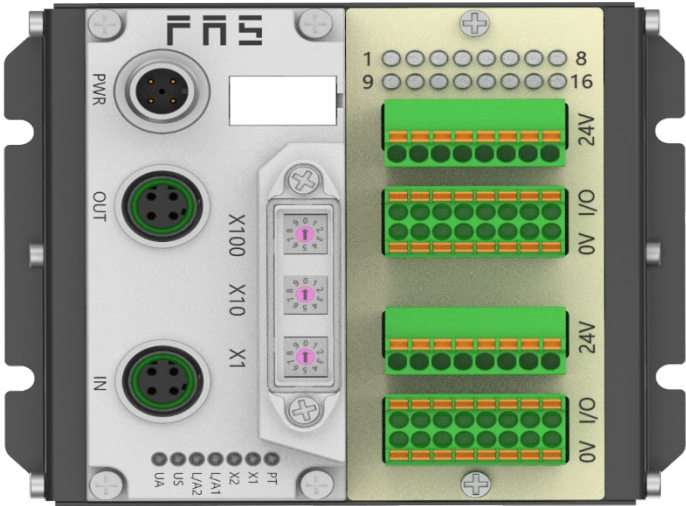
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**Ordering code: 009D11**

**Part number: FNI CCL-106-002-K54**

**CC-Link IP20 bus module user manual**  
**16 DI/DO NPN adaptive**



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## ■ Expected use

This manual describes as decentralized input and output modules for connecting to an industrial network.

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## ■ Installation and start-up

Precautions!

Installation and start-up may only be performed by trained personnel. A qualified individual is one who is familiar with the installation and operation of the product and has the necessary qualifications to perform such operations. Any damage caused by unauthorized operation or illegal and improper use is not covered by the manufacturer's warranty. The equipment operator is responsible for ensuring that appropriate safety and accident prevention regulations are observed.

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## ■ Corrosion resistance

Precautions!

FNI modules generally have good chemical and oil resistance. When used in corrosive media (e.g. high concentrations of chemicals, oils, lubricants, coolants and other material media (i.e. very low water content), these media must be checked before the corresponding application material compatibility. If a module fails or is damaged due to this corrosive medium, a defect claim cannot be made.

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## ■ Dangerous voltage

Precautions!

Disconnect all power before using the device!

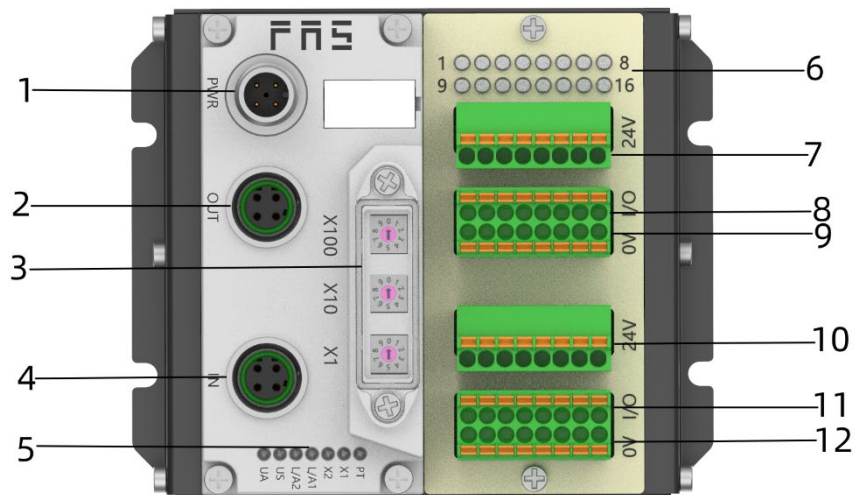
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## ■ General security

| Debugging and inspection                                                                                                  | Fault                                                                                                                                                          | Owner/operator obligations                                                                                                                                                                                          | Expected use                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Before debugging, read the user manual carefully.                                                                         | If the defect or equipment failure cannot be corrected, the operation of the equipment must be stopped to avoid damage that may be caused by unauthorized use. | This equipment is an EMC Class A compliant product.<br>This device produces RF noise.                                                                                                                               | <p>The warranty and limited liability statement provided by the manufacturer does not cover damage caused by:</p> <ul style="list-style-type: none"> <li>·Unauthorized tampering</li> <li>·Improper use operation</li> </ul> <p>·The instructions provided in the user manual explain the use, installation and handling of discrepancies</p> |
| This system cannot be used in an environment where the safety of personnel depends on the functionality of the equipment. | Only after the housing is fully installed can the intended use be assured.                                                                                     | <p>The owner/operator must take appropriate precautions to use this equipment.</p> <p>This device can only use the power supply that matches this device, and can only connect cables approved for application.</p> |                                                                                                                                                                                                                                                                                                                                               |

## 1. Getting Started Guide

## 1.1 Module overview



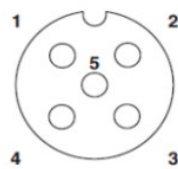
- |                           |                                      |
|---------------------------|--------------------------------------|
| 1 Power supply interface  | 7 Sensor actuator power supply +24V  |
| 2 CC-Link output port     | 8 1-8 signal interface               |
| 3 DIP switch              | 9 Sensor actuator power supply 0V    |
| 4 CC-Link input port      | 10 Sensor actuator power supply +24V |
| 5 Module status indicator | 11 9-16 signal interface             |
| 6 Signal status indicator | 12 Sensor actuator power supply 0V   |

1.2 Mechanical connection

The module is installed using 4 M4 bolts or DIN35 rail snaps.

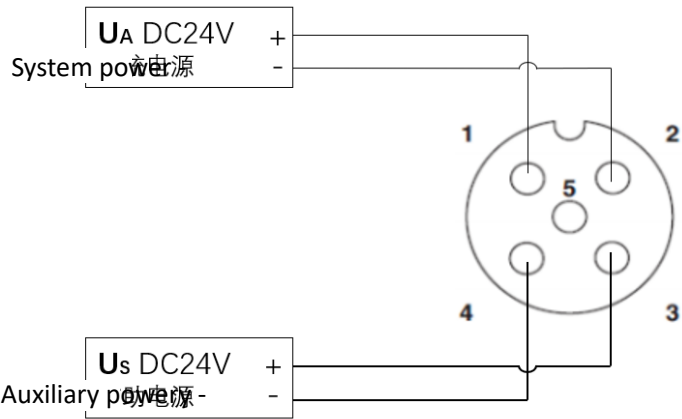
1.3 Electrical connection

1.3.1Power interface (A-coded)



| Pin | Function |             |
|-----|----------|-------------|
| 1   | UA       | +24V(Brown) |
| 2   | GND      | 0V(White)   |
| 3   | Us       | +24V (Blue) |
| 4   | GND      | 0V(Black)   |

Power interface



Note:

- 1. It is recommended to provide Us power supply and UA power supply separately;
- 2. The total current of UA power supply is <4A, and the total current of Us power supply is <4A;
- 3. The FE connection from the housing to the machine must be low impedance and kept as short as possible.

1.3.2 Communication interface (A-coded)

| Bus communication interface (LINK1) | Pin | Function |        | Remark |
|-------------------------------------|-----|----------|--------|--------|
|                                     | 1   | SLD      | Shield | M12    |

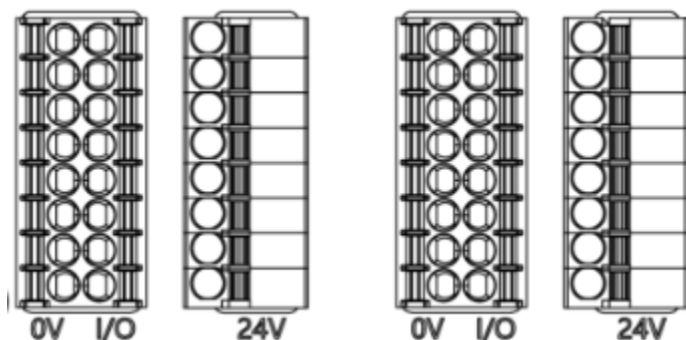
|                                                                                   |   |    |                       |                          |
|-----------------------------------------------------------------------------------|---|----|-----------------------|--------------------------|
|  | 2 | DB | Send and receive data | 4Pin<br>A code<br>Female |
|                                                                                   | 3 | DG | Data Ground+          |                          |
|                                                                                   | 4 | DA | Send and receive data |                          |

| Bus communication interface (LINK2)                                               | Pin | Function |                       | Remark                          |
|-----------------------------------------------------------------------------------|-----|----------|-----------------------|---------------------------------|
|  | 1   | SLD      | Shield                | M12<br>4Pin<br>A code<br>Female |
|                                                                                   | 2   | DB       | Send and receive data |                                 |
|                                                                                   | 3   | DG       | Data Ground+          |                                 |
|                                                                                   | 4   | DA       | Send and receive data |                                 |

Note:

Unused I/O port sockets must be covered with end caps to meet IP20 protection rating

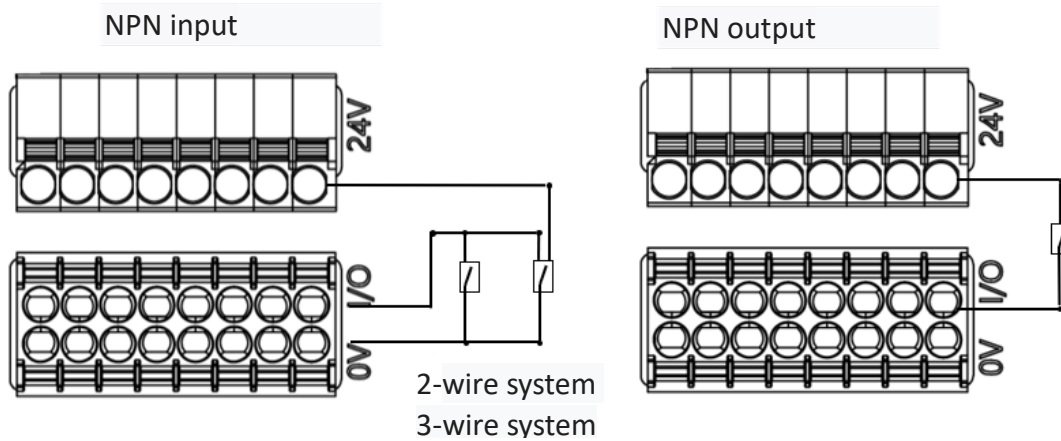
### 1.3.3 Signal port (screwless spring terminal)



Note:

1. Input and output signal types supported: three-wire NPN, two-wire NPN, dry contact;
2. Pin +24V single-channel output current maximum 500mA. The total module current is <4A;
3. The total current of every 8 channels (1~8, 9~16) is <1A

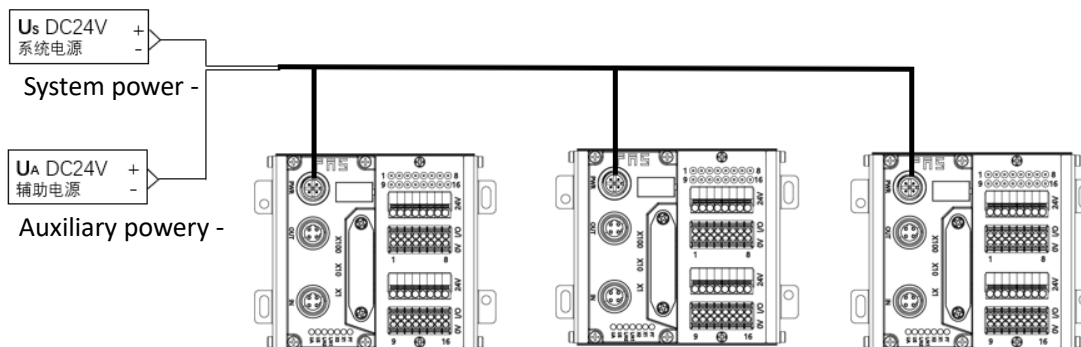
## Common I/O



1.3.4

## Module wiring method

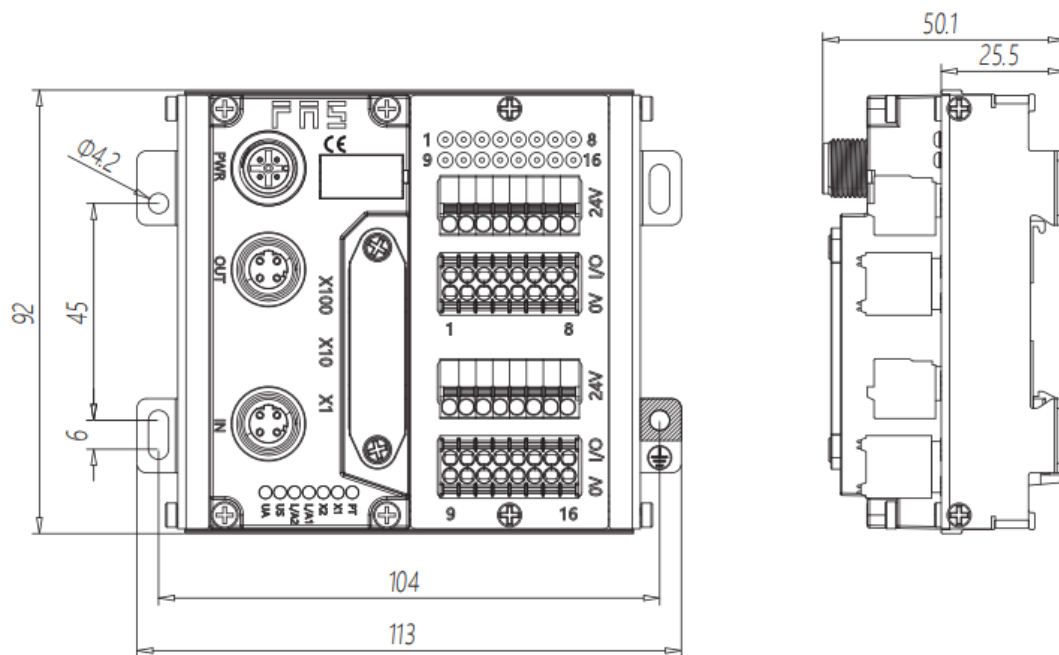
### Independent power supply



In independent power supply mode, the maximum current of each module can reach 4A.

## 2 Technical data

### 2.1. Size



### 2.2 Mechanical data

|                                       |                                              |
|---------------------------------------|----------------------------------------------|
| Shell material                        | Aluminum shell                               |
| Housing rating according to IEC 60529 | IP20                                         |
| Power interface                       | A-Code                                       |
| Input port/output port                | Pluggable screw-free quick connect terminals |
| Size(W*H*D)                           | 113mm*92mm*50.1mm                            |
| Installation type                     | Screw fixing or DIN35 rail mounting          |
| Weight                                | About 670g                                   |

### 2.3 Operating conditions

|                       |              |
|-----------------------|--------------|
| Operating temperature | -5°C ~ 80°C  |
| Storage temperature   | -25°C ~ 85°C |

## 2.4 Electrical data

|                                                |                                 |
|------------------------------------------------|---------------------------------|
| Supply voltage                                 | 18~30V DC, conform to EN61131-2 |
| voltage fluctuation                            | <1%                             |
| Input current when power supply voltage is 24V | <130mA                          |
| Maximum load current, sensor/channel           | 1A                              |
| Maximum load current, actuator                 | 0.5A                            |
| Total current Us                               | ≤4A                             |
| Total current Ua                               | ≤4A                             |

## 2.5 Network port

|                    |                                                                              |
|--------------------|------------------------------------------------------------------------------|
| Station type       | remote equipment station                                                     |
| Communication type | Use CCLINK dedicated cable                                                   |
| Support agreement  | CC-Link                                                                      |
| Cable type         | Shielded twisted pair minimum STP CAT5/STP CAT 5e, compliant with IEEE 802.3 |
| Data transfer rate | Maximum 10Mbps (CCLINK)                                                      |

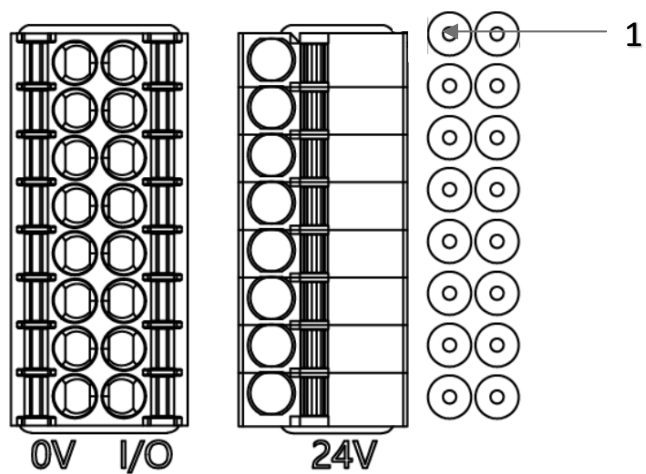
## 2.6 Function indicator



| Meaning of indicator light status during CC-Link communication protocol |                           |                                                     |
|-------------------------------------------------------------------------|---------------------------|-----------------------------------------------------|
| LED                                                                     | Show                      | Function                                            |
| PT                                                                      | Always extinguished       | CCLINK protocol                                     |
| RUN                                                                     | Green light off           | Device is in INIT state                             |
|                                                                         | Green light flashes 2.5HZ | Pre-operation: The device is in pre-operation state |
|                                                                         | Green light flashes 1HZ   | Safe operation: The equipment is in safe operation. |
|                                                                         | Steady green              | Running: The device is running                      |
| ERR                                                                     | Closure                   | No error: device CCLINK communication is working    |

|    |                         |                                          |
|----|-------------------------|------------------------------------------|
|    | Red light flashes 2.5HZ | Invalid configuration                    |
|    | Red light flashes 1HZ   | local error                              |
|    | Red light double flash  | Application monitoring timeout           |
| SD | Steady green            | The device is sending and receiving data |
|    | Flashing green          | The device is sending and receiving data |
|    | Closure                 | Device is not sending data               |
| RD | Steady green            | The device is receiving data             |
|    | Flashing green          | The device is receiving data             |
|    | Closure                 | Device not receiving data                |
| US | Green                   | Input voltage is normal                  |
|    | Flashing red            | Input voltage low (< 18 V)               |
| UA | Green                   | Output voltage is normal                 |
|    | Flashing red            | Output voltage low (< 18 V)              |
|    | Red always on           | No output voltage present (< 11 V)       |

## I/O port status



| LED | State   | Function                                      |
|-----|---------|-----------------------------------------------|
| 1   | Closure | The status of an I/O pin input or output is 0 |
| 1   | Yellow  | The status of an I/O pin input or output is 1 |

# 3 Integrated

## 3.1 Module configuration

### 3.1.1Communication parameter settings

CCLINK node address setting:

By dialing settings (1~64), the device needs to be powered off. The X10 dialing code is the tens digit of the address, and the X1 dialing code is the ones digit of the address. For example, dial X10 to 1 and X1 to 5. Just power on again, that is The current station number is 15.

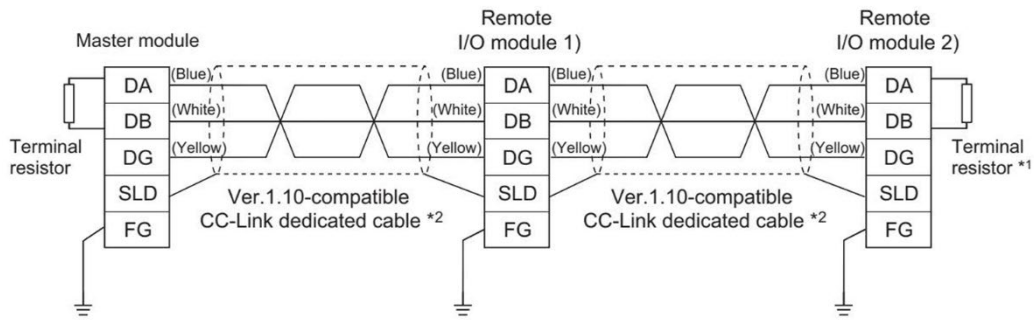


### 3.1.2 Set baud rate

The module baud rate is determined based on the CCLINK module of the actual PLC and the PLC configuration. For example, first power off the device, set the B RATE dial to 0, and then power on again. The baud rate of the module is 156kbps.

| CCLINKver2 compatible cable (uses 110Ω terminating resistor) |                     |                           |                            |  |
|--------------------------------------------------------------|---------------------|---------------------------|----------------------------|--|
| Baud rate dialing                                            | Communication speed | Distance between stations | Cable maximum delay length |  |
| 0                                                            | 156kbps             | 20CM以上                    | 1200m                      |  |
| 1                                                            | 625kbps             |                           | 900m                       |  |
| 2                                                            | 2.5Mbps             |                           | 400m                       |  |
| 3                                                            | 5Mbps               |                           | 160m                       |  |
| 4                                                            | 10Mbps              |                           | 100m                       |  |

### 3.1.3 CCLINK wiring definition



## 3.2 PLC integration tutorial

### 3.2.1 Integration in Mitsubishi GX Works2 (CCLINK)

Here, you will see an example of how to integrate this module into Mitsubishi GXWORK2. Taking the CCLINK module of Mitsubishi L02CPU and 009D11 as an example, click GXWORK2 to create a new project:

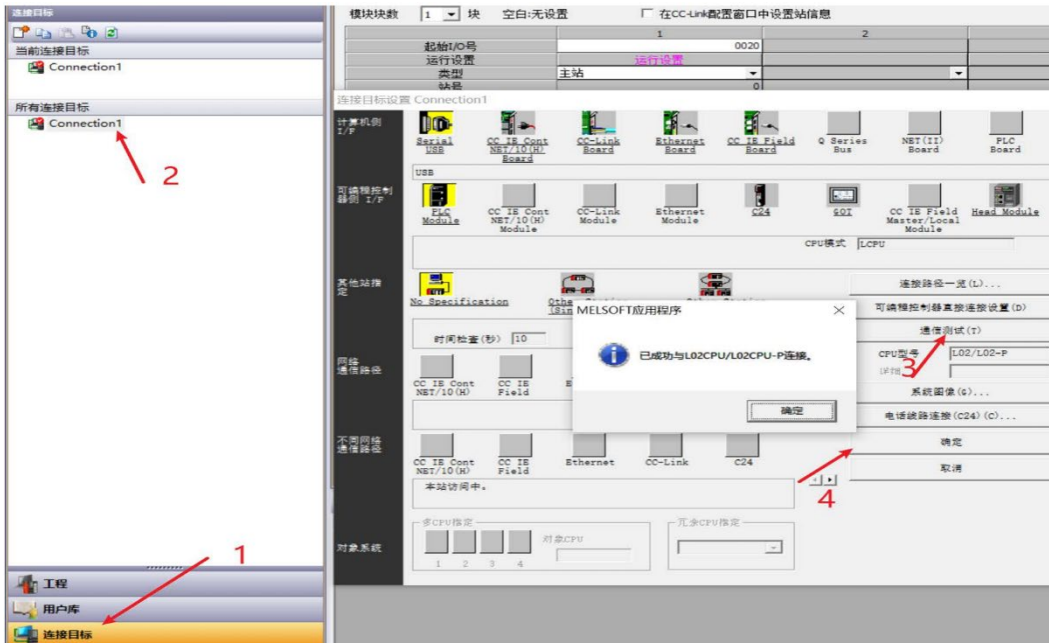
1. Click GXWORK2 to create a new project to add the PLC path.

The screenshot shows the '新建' (New) dialog box in Mitsubishi GX Works2. The settings are as follows:

- 系列(S): LCPU
- 机型(T): L02/L02-P
- 工程类型(P): 简单工程
- 使用标签(L): ☐
- 程序语言(G): 梯形图

The '确定' (OK) and '取消' (Cancel) buttons are located at the bottom right of the dialog box.

Here, USB is used to directly connect to the PLC USB port. Click on the connection target, click on Connection1, select the USB driver, click on the communication test to show that the connection is successful, and finally click OK.

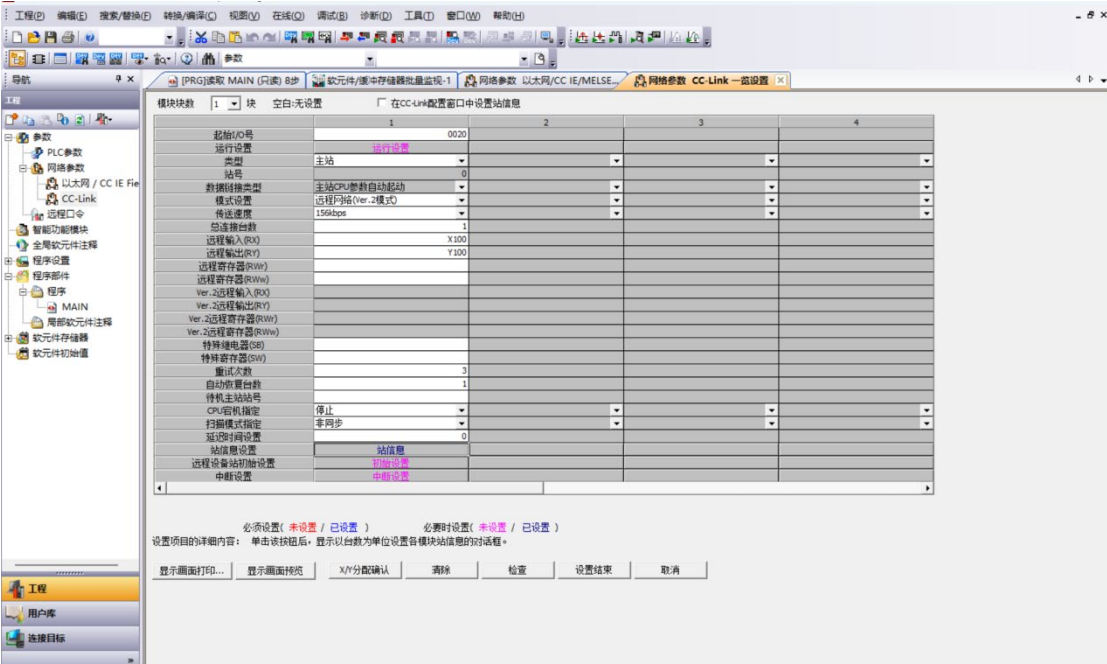


Click PLC parameters, click IO allocation, you can manually add the actual installed module, or read the module information through PLC data, and then assign the starting XY address



## 2. Configure CCLINK parameters

Click the network parameter CCLINK module number to select 1 block, enter the previously assigned starting address of the cclink module, here the CCLINK is the Ver.2 version, this time the 156kbps baud rate is used, the corresponding B RATE dial code of 009D11, dial 0 when power off , then power on again, then configure the plc configuration, and fill in the address mapped to the PLC in turn.



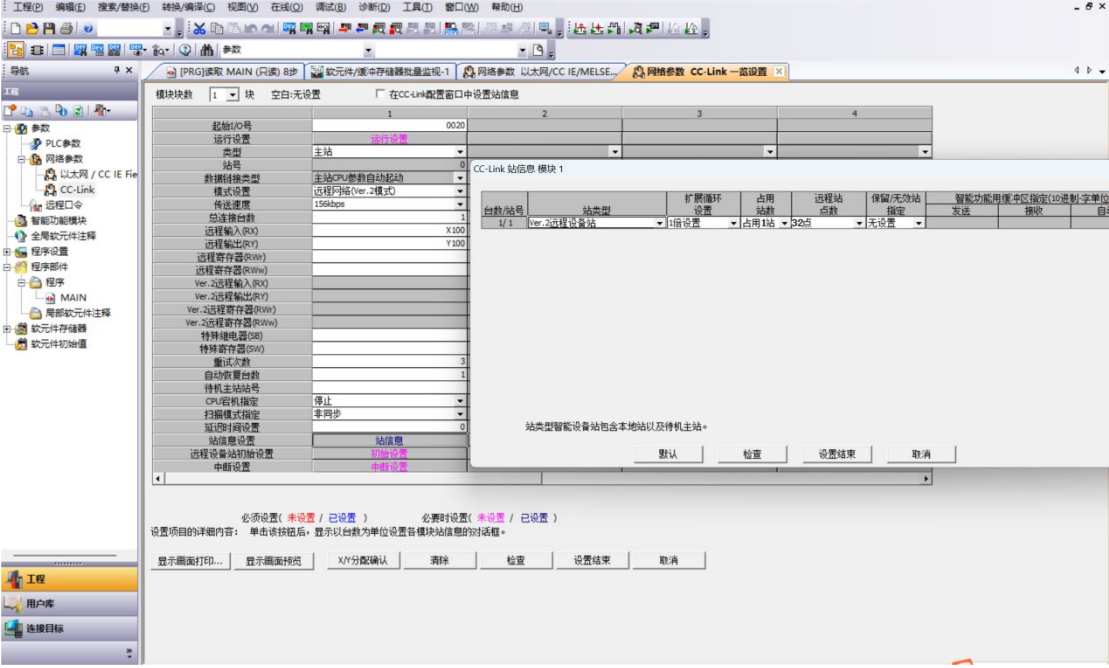
根据规格表里的控制规格和硬件设备单元所占点数（Bit/字节数）进行设置

以下为CC-LINK V1.10/CC-LINK V2通讯的规格表，因为CC-LINK通讯迭代升级变频，V2的逻辑站还可以按倍数进行拓展控制规格容量

| 项目          |             |                          | 规格                            |               |       |       |        |       |
|-------------|-------------|--------------------------|-------------------------------|---------------|-------|-------|--------|-------|
|             |             |                          | Ver.1.10                      | Ver.2.00 (V2) |       |       |        |       |
| 控制规格        | 最大链接点数      | 远程I/O (RX, RY)           | 各2048点                        | 各8192点        |       |       |        |       |
|             |             | 远程寄存器 (RWr)              | 256字                          | 2048字 (从站到主站) |       |       |        |       |
|             |             | 远程寄存器 (RWw)              | 256字                          | 2048字 (主站到从站) |       |       |        |       |
|             | 扩展循环设置      |                          | -                             | 1倍设置          | 2倍设置  | 4倍设置  | 8倍设置   |       |
|             | 每个单元的最大链接容量 | 占用1个逻辑站                  | RX, RY                        | 各32点          |       | 各32点  | 各64点   | 各128点 |
|             |             |                          | RWr, RWw                      | 4字            | 各8字节  | 各16字节 | 各32字节  |       |
|             |             | 占用2个站时                   | RX, RY                        | 各64点          |       | 各96点  | 各192点  | 各384点 |
|             |             |                          | RWr, RWw                      | 8字            | 各16字节 | 各32字节 | 各64字节  |       |
|             |             | 占用3个站时                   | RX, RY                        | 各96点          |       | 各160点 | 各320点  | 各640点 |
|             |             |                          | RWr, RWw                      | 12字           | 各24字节 | 各48字节 | 各96字节  |       |
|             |             | 占用4个站时                   | RX, RY                        | 各128点         |       | 各224点 | 各448点  | 各896点 |
|             |             |                          | RWr, RWw                      | 16字           | 各32字节 | 各64字节 | 各128字节 |       |
| 最大占用逻辑数     |             | 4站                       |                               |               |       |       |        |       |
| 通信速度        |             | 10M/5M/2.5M/625k/156kbps |                               |               |       |       |        |       |
| CSDN @尖枫508 |             |                          |                               |               |       |       |        |       |
| 通信系统        |             |                          | 广播-轮询方式                       |               |       |       |        |       |
| 同步系统        |             |                          | 帧同步系统                         |               |       |       |        |       |
| 编码系统        |             |                          | NRZI                          |               |       |       |        |       |
| 传输路径格式      |             |                          | 总线方式 (基于EIA RS485)            |               |       |       |        |       |
| 传输格式        |             |                          | HDLC                          |               |       |       |        |       |
| 差错控制        |             |                          | CRC ( $X^{16}+X^{12}+X^5+1$ ) |               |       |       |        |       |
| 最大连接单元数量    |             |                          | 64个                           | 最多可以连接64个设备   |       |       |        |       |
| 从站数量        |             |                          | 1-64                          |               |       |       |        |       |

## 3. Site information configuration

Click on the station information. This remote IO module 009D11 belongs to the Ver.2 version of the remote device station. The expansion cycle is doubled and occupies 32 points of one station.

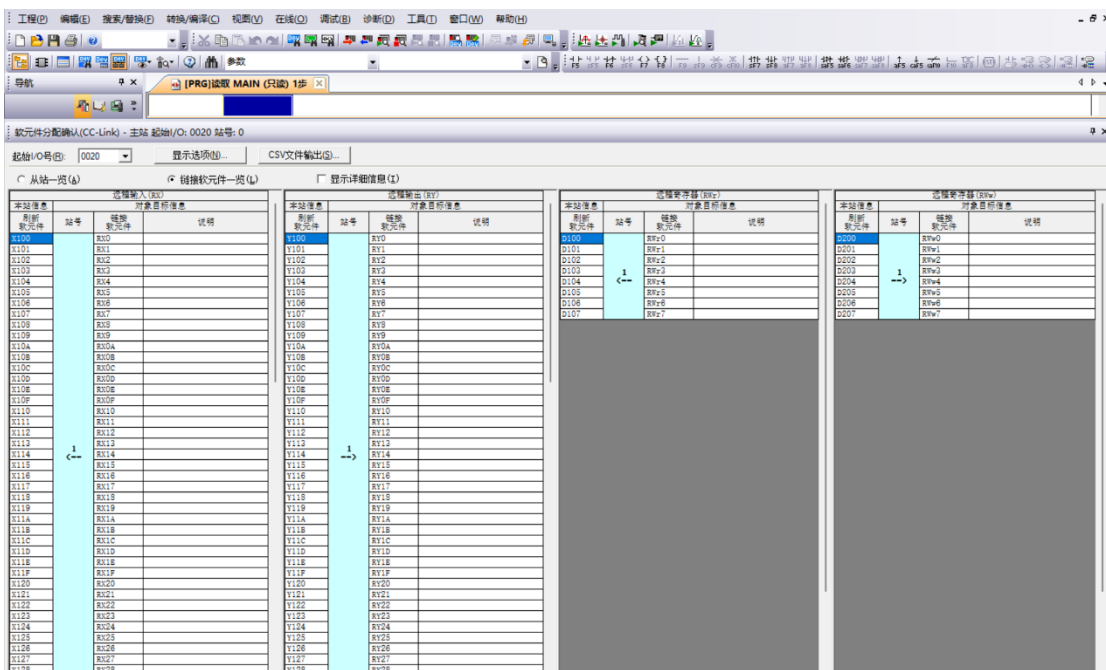


After the module parameters are configured, click Set to finish, otherwise the parameters may not be set successfully. After the parameter settings are completed, download them to the PLC.



#### 4. Quick query of PLC mapping address

Click the PLC shortcut window and select the soft component allocation window. Here is the mapping address of CCLINK. It outputs a 16-bit signal with the first address from Y100-Y10F and inputs a 16-bit signal with the first address from X100-X10F.



5. The corresponding output can be controlled by controlling Y100~Y10F, and the corresponding input can be monitored by monitoring X100~X10F.

## 4 Appendix

### 4.1 Ordering Information

|                     |               |
|---------------------|---------------|
| Product Order Code  | Ordering code |
| FNI CCL-106-002-K54 | 009D11        |

■ High Quality Product / Sincere Service



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