



PRODUCT

USE INSTRUCTIONS

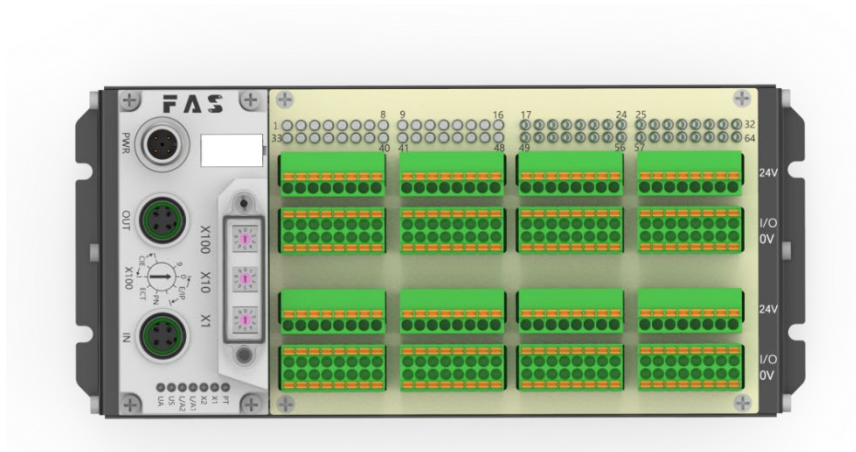


Ordering code: 009D71

Part number: FNI CCL-116-006-K54

CC-Link IP20 bus module user manual

64 DI/DO NPN adaptive



[Contents](#)

Security	4
■ Expected use	4
■ Installation and start-up	4
■ Corrosion resistance.....	4
■ Dangerous voltage	4
■ General security	4
1. Getting Started Guide	6
1.1 Module overview	6
1.2 Mechanical connection	7
1.3 Electrical connection	7
1.3.1 Power interface (A-coded)	7
1.3.2 Communication interface (A-coded)	8
1.3.3 Signal port (screwless spring terminal)	8
1.3.4 Module wiring method	9
2. Technical data	10
2.1. Size.....	10
2.2 Mechanical data	11
2.3 Operating conditions	11
2.4 Electrical data	11
2.5 Network port	11
2.6 Function indicator.....	11
3. Integrated	13
3.1 Module configuration.....	13
3.1.1 Communication parameter settings.....	13
3.1.2 Set baud rate	13
3.1.3 CCLINK wiring definition	13
3.2 PLC Integration Tutorial.....	14
3.2.1 Integrated in Mitsubishi GX Works2 (CCLINK)	14
4. Appendix	19
4.1 Ordering Information	19

■ Expected use

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

■ 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.

■ 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.

■ Dangerous voltage

Precautions!

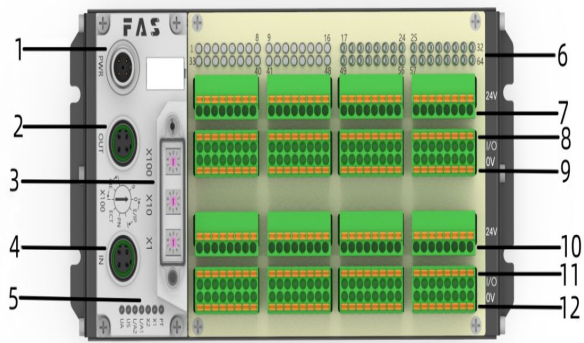
Disconnect all power before using the device!

■ 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. This device produces RF noise.	The warranty and limited liability statement provided by the manufacturer does not cover damage caused by: ·Unauthorized tampering ·Improper use operation ·The instructions provided in the user manual explain the use, installation and handling of discrepancies
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.	The owner/operator must take appropriate precautions to use this equipment. This device can only use the power supply that matches this device, and can only connect cables approved for application.	

1. Getting started guide

1.1 Module overview



1 Power supply interface

2 CC-Link output port

3 DIP switch

4 CC-Link input port

5 Module status indicator

6 Signal status indicator

7 Sensor actuator power supply +24V

8 1-32 signal interface

9 Sensor actuator power supply 0V

10 Sensor actuator power supply +24V

11 32-64 signal interface

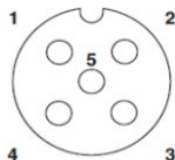
12 Sensor actuator power supply 0V

1.2 Mechanical connection

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

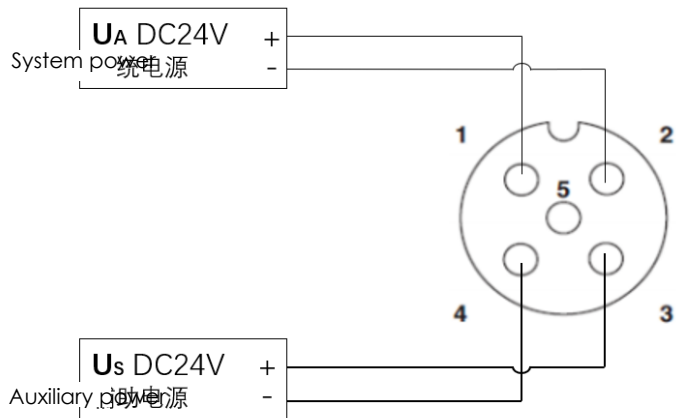
1.3 Electrical connection

1.3.1 Power interface (A-coded)



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

Power interface

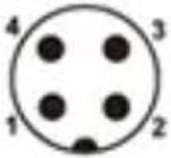


Note:

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

1.3.2 Communication interface (A-coded)

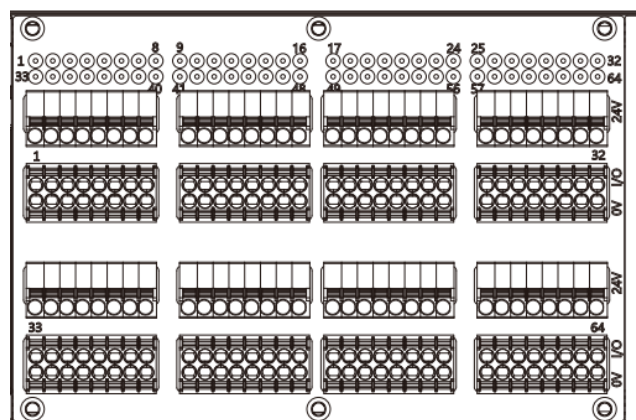
Bus communication interface (LINK1)	Pin	Function		Remark
	1	SLD	Shield	M12 4Pin A code Female
	2	DB	Receive and send data	
	3	DG	Data ground +	
	4	DA	Receive and send data	

Bus communication interface (LINK2)	Pin	Function		Remark
	1	SLD	Shield	M12 4Pin A code Female
	2	DB	Receive and send data	
	3	DG	Data ground +	
	4	DA	Receive and send data	

Note:

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

1.3.3 Signal port (screw-free spring-type terminal block)

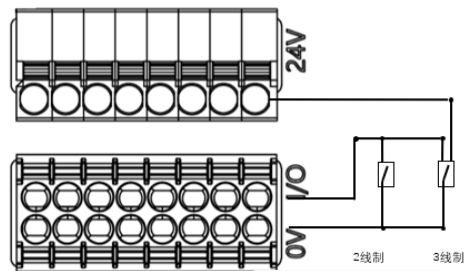


Description:

1. Input and output signal types supported: three-wire NPN, two-wire NPN, dry contact;
2. Pin +24V, single-channel output power supply maximum load 500mA, module total current <4A;
3. Total current of each 8 channels (1-8, 9-16, 17-24, 25-32, 33-40, 41-48, 49-56, 57-64) <1A;

Common I/O

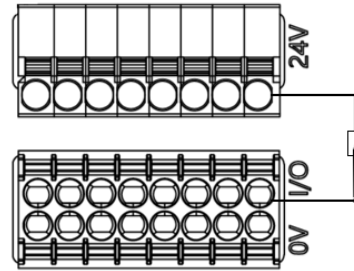
NPN input



2-wire system

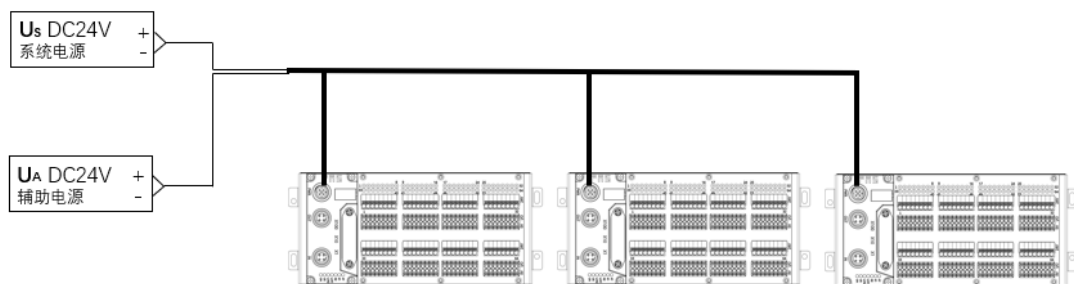
3-wire system

NPN output



1.3.4 Module wiring method

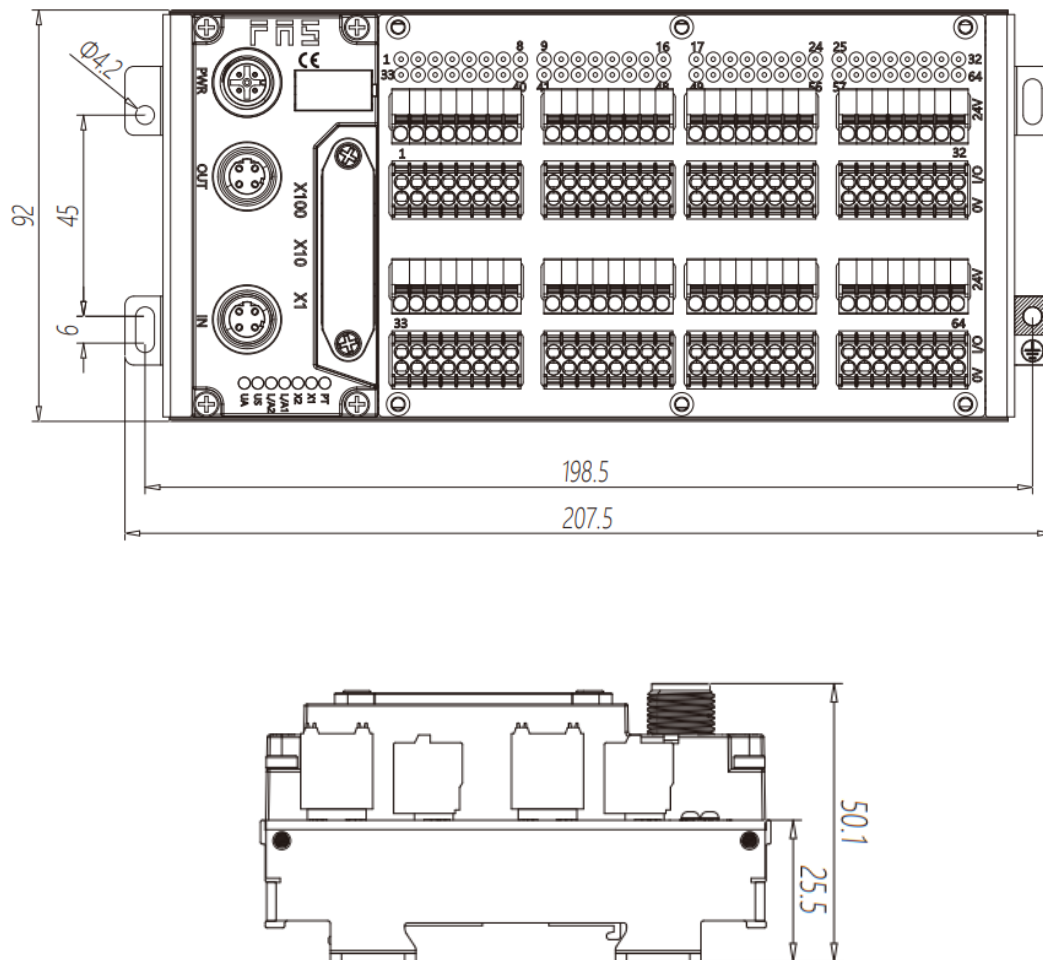
Independent power supply



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

2 Technical data

2.1. Size



2.2 Mechanical data

Housing material	Aluminum shell
Housing grade complies with IEC 60529	IP20
Power interface	A-Coded
Input port/output port	Pluggable screw-free quick-connect terminal
Dimensions (W*H*D)	207.5mm*92mm*50.1mm
Installation type	Screw fixation 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 at 24V supply voltage	<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
Supported protocols	CC-Link
Cable type	Shielded twisted pair minimum STP CAT5/STP CAT 5e, compliant with IEEE 802.3
Data transmission rate	Maximum 10Mbps (CCLINK)

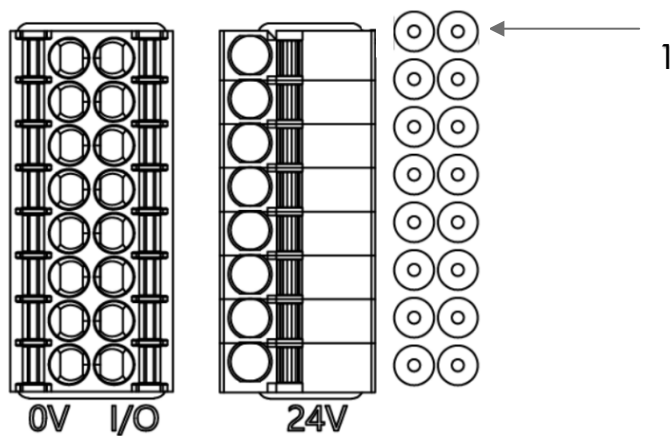
2.6 Function indicator



Meaning of indicator light status when using CC-Link communication protocol		
LED	Display	Function
PT	Always off	CCLINK protocol
RUN	Green light off	Device in INIT state
	Green light flashing 2.5HZ	Pre-operation: Device in pre-operation state
	Green light flashing 1HZ	Safe operation: Device in safe operation state

	Green always on	Operation: Device in operation state
ERR	Off	No error: Device CCLINK communication is in working state
	Red light flashing 2.5HZ	Invalid configuration
	Red light flashing 1HZ	Local error
	Red light double flashing	Application monitoring timeout
SD	Green always on	Device is sending or receiving data
	Green flashing	Device is sending or receiving data
	Off	Device is not sending data
RD	Green always on	Device is receiving data
	Green flashing	Device is receiving data
	Off	Device is not receiving data
US	Green	Input voltage is normal
	Red flashing	Input voltage is low (< 18 V)
UA	Green	Output voltage is normal
	Red flashing	Output voltage is low (< 18 V)
	Red always on	Output voltage does not exist (< 11 V)

I/O Port Status



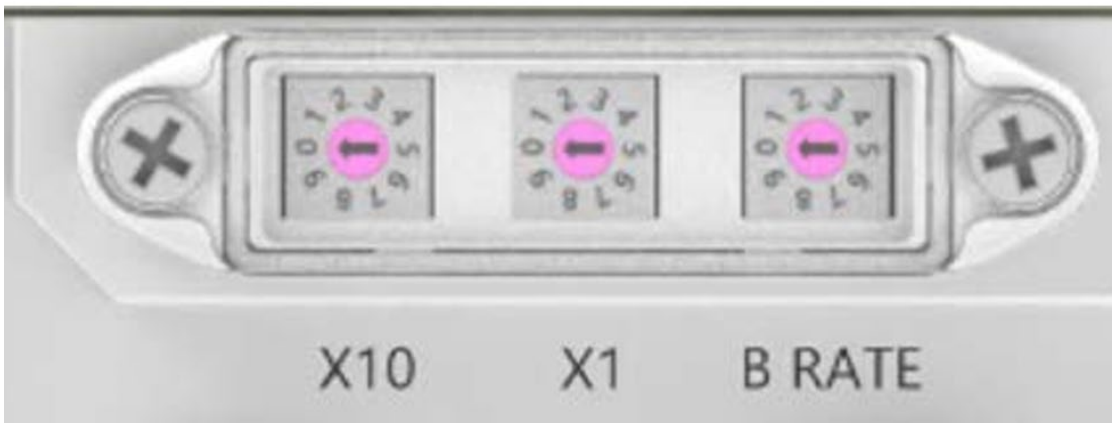
LED	Status	Function
1	Closed	The state of the I/O pin input or output is 0
1	Yellow	The state of the I/O pin input or output is 1

3 Integrated

3.1 Module configuration

3.1.1 Communication parameter settings

The module baud rate is determined by the CCLINK module and PLC configuration of the actual PLC. For example, if you power off the device, turn the B RATE switch to 4, and then power on again, the module baud rate is 10Mbps.

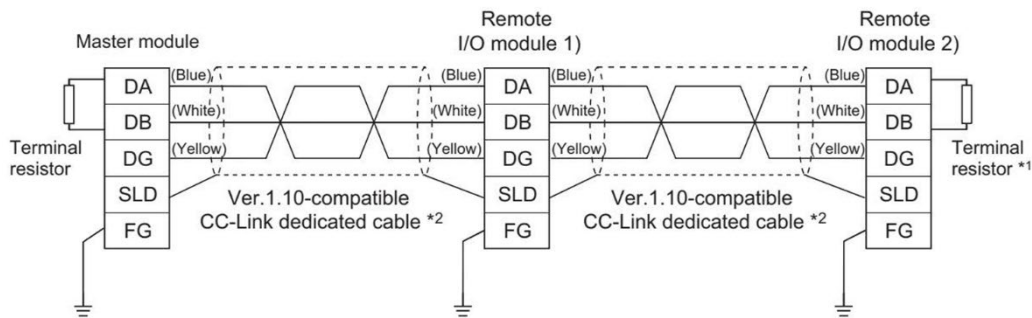


3.1.2 Setting the baud rate

The module baud rate is determined by the CCLINK module and PLC configuration of the actual PLC. For example, if you power off the device, turn the B RATE switch to 4, and then power on again, the module baud rate is 10Mbps.

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 the module into Mitsubishi GXWORK2, taking Mitsubishi L02CPU and 009D71 CCLINK module as an example. Click GXWORK2 to create a new project:

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

2.



新建

系列(S): L02CPU

机型(T): L02/L02-P

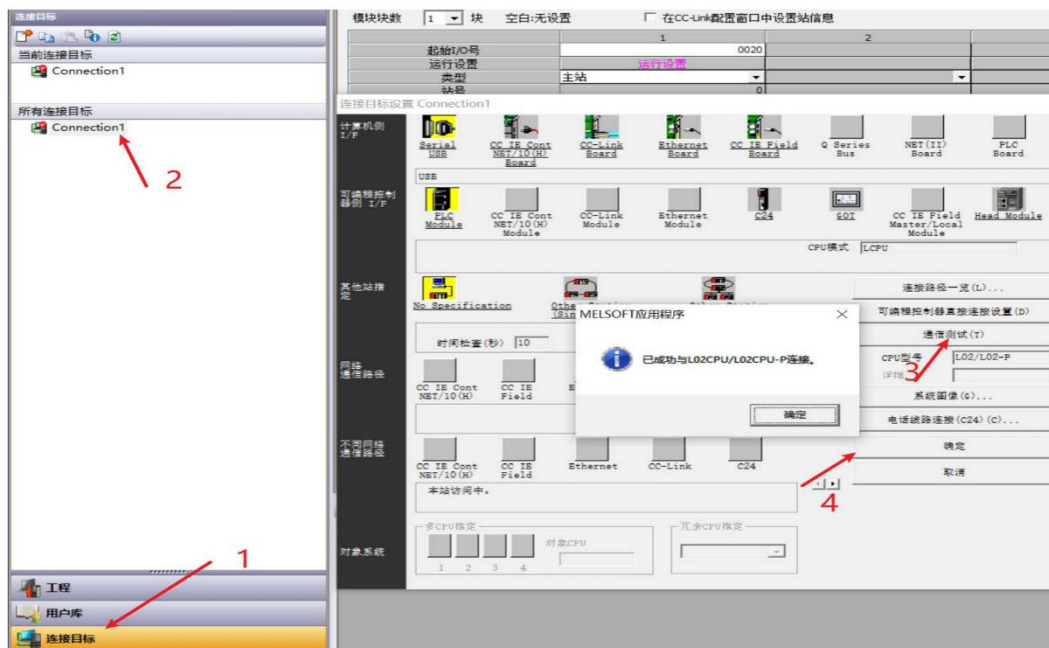
工程类型(P): 简单工程

程序语言(G): 梯形图

☐ 使用标签(L)

确定 取消

Here, USB is used to directly connect to the PLC USB port. Click the connection target, click Connection1, select the USB driver, click Communication Test to display the connection is successful, and finally click OK.

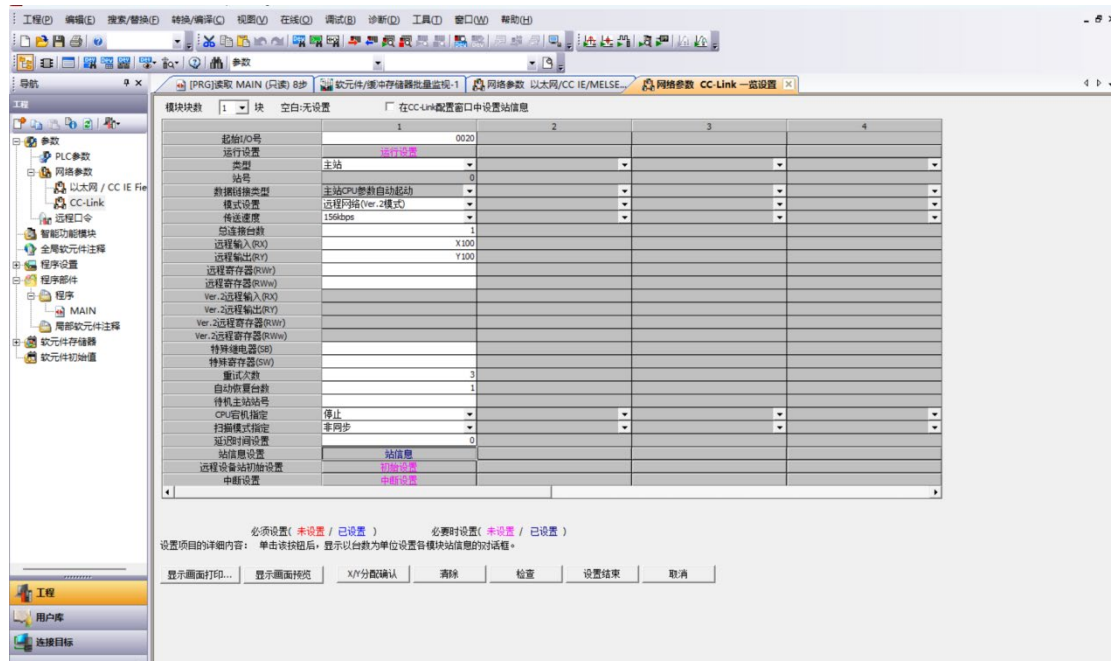


Click PLC Parameters, click IO Assignment, you can manually add the actually installed modules, or read the module information through PLC data, and then assign the starting XY address.



2. Configure CCLINK parameters

Click the network parameter CCLINK module number and select 1, enter the previously assigned CCLINK module start address, CCLINK here is Ver.2, this time use 156kbps baud rate, corresponding to 009D71 B RATE dial, power off and dial 0, then power on again, then configure the PLC configuration, fill in the addresses mapped to the PLC in turn



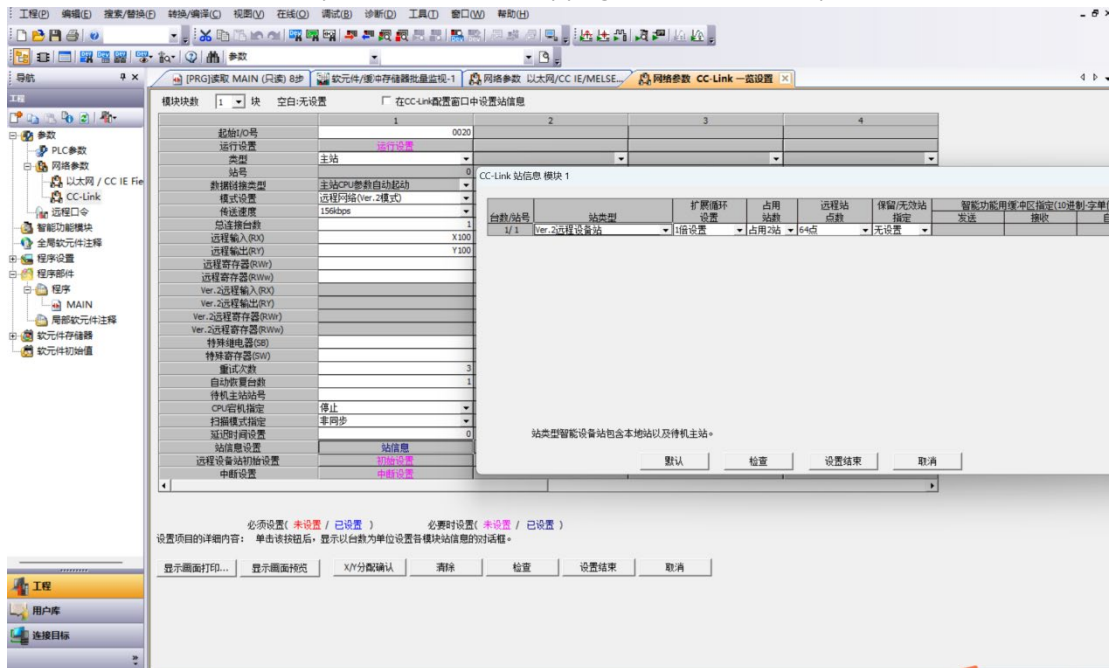
根据规格表里的控制规格和硬件设备单元所占点数 (Bit/字节数) 进行设置

以下为CC-LINK V1.10/CC-LINK V2.00通讯的规格表, 因为CC-LINK通讯迭代升级变种, 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 (RW _r)	256字	2048字 (从站到主站)			
			远程寄存器 (RW _w)	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	
			RW _r , RW _w	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	
			RW _r , RW _w	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	
			RW _r , RW _w	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	
			RW _r , RW _w	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/156kpbs				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. Station information configuration

Click on the station information. This remote IO module 009D71 belongs to the remote device station of Ver.2 version, with an extended cycle of 1 times, occupying 2 stations and 64 points



After the module parameters are configured, click on the setting to end, otherwise the parameters may not be set successfully. After the parameter setting is completed, download it to the PLC.



4. Quick query of PLC mapping address

Click the PLC shortcut window and select the soft component allocation window. Here you can view the mapping address of CCLINK. Its output first address is 64-bit signal from Y100-Y13F, and its input first address is 64-bit signal from X100-X13F.

工程(E) 编辑(E) 搜索/替换(F) 转换/编译(C) 视图(V) 在线(O) 调试(D) 诊断(D) 工具(T) 窗口(W) 帮助(H)																																																																																																																																																																															
[PRG]读取 MAIN (只读) 1步																																																																																																																																																																															
款元件分配确认(CC-Link) - 主站 起始站/O: 0020 站号: 0																																																																																																																																																																															
起始站(O)号: 0020 显示选项(O)... CSV文件输出(S)...																																																																																																																																																																															
从站一览(A) 链接软元件一览(L) 显示详细信息(I)																																																																																																																																																																															
<table> <tr> <th>本站信息</th><th>远端输入站(XI)</th><th>远端输出站(YO)</th><th>远端安全站(SRW)</th></tr> <tr> <th>站号</th><th>站号</th><th>站号</th><th>站号</th></tr> <tr> <td>X100</td><td>X100</td><td>Y100</td><td>Y100</td></tr> <tr> <td>X101</td><td>X101</td><td>Y101</td><td>Y101</td></tr> <tr> <td>X102</td><td>X102</td><td>Y102</td><td>Y102</td></tr> <tr> <td>X103</td><td>X103</td><td>Y103</td><td>Y103</td></tr> <tr> <td>X104</td><td>X104</td><td>Y104</td><td>Y104</td></tr> <tr> <td>X105</td><td>X105</td><td>Y105</td><td>Y105</td></tr> <tr> <td>X106</td><td>X106</td><td>Y106</td><td>Y106</td></tr> <tr> <td>X107</td><td>X107</td><td>Y107</td><td>Y107</td></tr> <tr> <td>X108</td><td>X108</td><td>Y108</td><td>Y108</td></tr> <tr> <td>X109</td><td>X109</td><td>Y109</td><td>Y109</td></tr> <tr> <td>X10A</td><td>X10A</td><td>Y10A</td><td>Y10A</td></tr> <tr> <td>X10B</td><td>X10B</td><td>Y10B</td><td>Y10B</td></tr> <tr> <td>X10C</td><td>X10C</td><td>Y10C</td><td>Y10C</td></tr> <tr> <td>X10D</td><td>X10D</td><td>Y10D</td><td>Y10D</td></tr> <tr> <td>X10E</td><td>X10E</td><td>Y10E</td><td>Y10E</td></tr> <tr> <td>X10F</td><td>X10F</td><td>Y10F</td><td>Y10F</td></tr> <tr> <td>X110</td><td>X110</td><td>Y110</td><td>Y110</td></tr> <tr> <td>X111</td><td>X111</td><td>Y111</td><td>Y111</td></tr> <tr> <td>X112</td><td>X112</td><td>Y112</td><td>Y112</td></tr> <tr> <td>X113</td><td>X113</td><td>Y113</td><td>Y113</td></tr> <tr> <td>X114</td><td>X114</td><td>Y114</td><td>Y114</td></tr> <tr> <td>X115</td><td>X115</td><td>Y115</td><td>Y115</td></tr> <tr> <td>X116</td><td>X116</td><td>Y116</td><td>Y116</td></tr> <tr> <td>X117</td><td>X117</td><td>Y117</td><td>Y117</td></tr> <tr> <td>X118</td><td>X118</td><td>Y118</td><td>Y118</td></tr> <tr> <td>X119</td><td>X119</td><td>Y119</td><td>Y119</td></tr> <tr> <td>X11A</td><td>X11A</td><td>Y11A</td><td>Y11A</td></tr> <tr> <td>X11B</td><td>X11B</td><td>Y11B</td><td>Y11B</td></tr> <tr> <td>X11C</td><td>X11C</td><td>Y11C</td><td>Y11C</td></tr> <tr> <td>X11D</td><td>X11D</td><td>Y11D</td><td>Y11D</td></tr> <tr> <td>X11E</td><td>X11E</td><td>Y11E</td><td>Y11E</td></tr> <tr> <td>X11F</td><td>X11F</td><td>Y11F</td><td>Y11F</td></tr> <tr> <td>X120</td><td>X120</td><td>Y120</td><td>Y120</td></tr> <tr> <td>X121</td><td>X121</td><td>Y121</td><td>Y121</td></tr> <tr> <td>X122</td><td>X122</td><td>Y122</td><td>Y122</td></tr> <tr> <td>X123</td><td>X123</td><td>Y123</td><td>Y123</td></tr> <tr> <td>X124</td><td>X124</td><td>Y124</td><td>Y124</td></tr> <tr> <td>X125</td><td>X125</td><td>Y125</td><td>Y125</td></tr> <tr> <td>X126</td><td>X126</td><td>Y126</td><td>Y126</td></tr> <tr> <td>X127</td><td>X127</td><td>Y127</td><td>Y127</td></tr> <tr> <td>X128</td><td>X128</td><td>Y128</td><td>Y128</td></tr> </table>				本站信息	远端输入站(XI)	远端输出站(YO)	远端安全站(SRW)	站号	站号	站号	站号	X100	X100	Y100	Y100	X101	X101	Y101	Y101	X102	X102	Y102	Y102	X103	X103	Y103	Y103	X104	X104	Y104	Y104	X105	X105	Y105	Y105	X106	X106	Y106	Y106	X107	X107	Y107	Y107	X108	X108	Y108	Y108	X109	X109	Y109	Y109	X10A	X10A	Y10A	Y10A	X10B	X10B	Y10B	Y10B	X10C	X10C	Y10C	Y10C	X10D	X10D	Y10D	Y10D	X10E	X10E	Y10E	Y10E	X10F	X10F	Y10F	Y10F	X110	X110	Y110	Y110	X111	X111	Y111	Y111	X112	X112	Y112	Y112	X113	X113	Y113	Y113	X114	X114	Y114	Y114	X115	X115	Y115	Y115	X116	X116	Y116	Y116	X117	X117	Y117	Y117	X118	X118	Y118	Y118	X119	X119	Y119	Y119	X11A	X11A	Y11A	Y11A	X11B	X11B	Y11B	Y11B	X11C	X11C	Y11C	Y11C	X11D	X11D	Y11D	Y11D	X11E	X11E	Y11E	Y11E	X11F	X11F	Y11F	Y11F	X120	X120	Y120	Y120	X121	X121	Y121	Y121	X122	X122	Y122	Y122	X123	X123	Y123	Y123	X124	X124	Y124	Y124	X125	X125	Y125	Y125	X126	X126	Y126	Y126	X127	X127	Y127	Y127	X128	X128	Y128	Y128
本站信息	远端输入站(XI)	远端输出站(YO)	远端安全站(SRW)																																																																																																																																																																												
站号	站号	站号	站号																																																																																																																																																																												
X100	X100	Y100	Y100																																																																																																																																																																												
X101	X101	Y101	Y101																																																																																																																																																																												
X102	X102	Y102	Y102																																																																																																																																																																												
X103	X103	Y103	Y103																																																																																																																																																																												
X104	X104	Y104	Y104																																																																																																																																																																												
X105	X105	Y105	Y105																																																																																																																																																																												
X106	X106	Y106	Y106																																																																																																																																																																												
X107	X107	Y107	Y107																																																																																																																																																																												
X108	X108	Y108	Y108																																																																																																																																																																												
X109	X109	Y109	Y109																																																																																																																																																																												
X10A	X10A	Y10A	Y10A																																																																																																																																																																												
X10B	X10B	Y10B	Y10B																																																																																																																																																																												
X10C	X10C	Y10C	Y10C																																																																																																																																																																												
X10D	X10D	Y10D	Y10D																																																																																																																																																																												
X10E	X10E	Y10E	Y10E																																																																																																																																																																												
X10F	X10F	Y10F	Y10F																																																																																																																																																																												
X110	X110	Y110	Y110																																																																																																																																																																												
X111	X111	Y111	Y111																																																																																																																																																																												
X112	X112	Y112	Y112																																																																																																																																																																												
X113	X113	Y113	Y113																																																																																																																																																																												
X114	X114	Y114	Y114																																																																																																																																																																												
X115	X115	Y115	Y115																																																																																																																																																																												
X116	X116	Y116	Y116																																																																																																																																																																												
X117	X117	Y117	Y117																																																																																																																																																																												
X118	X118	Y118	Y118																																																																																																																																																																												
X119	X119	Y119	Y119																																																																																																																																																																												
X11A	X11A	Y11A	Y11A																																																																																																																																																																												
X11B	X11B	Y11B	Y11B																																																																																																																																																																												
X11C	X11C	Y11C	Y11C																																																																																																																																																																												
X11D	X11D	Y11D	Y11D																																																																																																																																																																												
X11E	X11E	Y11E	Y11E																																																																																																																																																																												
X11F	X11F	Y11F	Y11F																																																																																																																																																																												
X120	X120	Y120	Y120																																																																																																																																																																												
X121	X121	Y121	Y121																																																																																																																																																																												
X122	X122	Y122	Y122																																																																																																																																																																												
X123	X123	Y123	Y123																																																																																																																																																																												
X124	X124	Y124	Y124																																																																																																																																																																												
X125	X125	Y125	Y125																																																																																																																																																																												
X126	X126	Y126	Y126																																																																																																																																																																												
X127	X127	Y127	Y127																																																																																																																																																																												
X128	X128	Y128	Y128																																																																																																																																																																												

5. The corresponding output can be controlled by controlling Y100~Y13F, and the corresponding input can be monitored by monitoring X100~X13F.

4 Appendix

4.1 Ordering Information

Product Order Code	Ordering code
FNI CCL-116-006-K54	009D71

■ High Quality Product / Sincere Service



경기도 성남시 중원구 사기막골로 124

SKn 테크노파크 메가동 303 호

E-mail: sales@creken.com www.creken.com



FAS / Factory Automation Solution
No. 33 Liuqiao Road, Shangjie Town,
Minhou County, Fujian Province
www.faselec.com