

## XB6-C01SP Serial Communication Module User Manual



南京实点电子科技有限公司

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## Product Overview

### 1.1 Product Introduction

XB6-C01SP is a 1-channel serial communication module in Solidot XB6 series slice I/O. It adopts X-bus backplane bus and is compatiable with XB6 series couplers. Through different function modules, it can realize three serial communication functions of Modbus master and slave, Freeport and pass-through. The modules take up little space, are simple to handle data interaction, and can meet the serial communication needs of different application scenarios.

### 1.2 Product Features

- Supports multiple communication modes
   Six modes can be set: MRM/MRS/MAM/MAS/FP/PT (see <u>2.2 serial port parameters</u>)
- Supports three types of communication interfaces
   Three interfaces are available: RS485/RS422/RS232
- Supports two communication protocols.
   Modbus RTU/ASCII
- Small footprint

Compact structure and small footprint.

Easy diagnosis

An innovative channel indicator design is adopted. As the indicators are placed close to the channels, channel status is displayed intuitively and clearly, facilitating detection and maintenance

- Easy configuration
   The modules are easy to configure, and support all mainstream PROFINET master stations
- Easy installation
   Installation on standard DIN 35 mm rails.
   Spring terminal blocks are used for convenient and fast wiring.

## 2 Product Parameters

## 2.1 General parameters

Interface parameters				
Model Number	XB6-C01SP			
Backplane bus protocol	X-bus			
Process data volume: downstream	40 Bytes			
Process data volume: upstream	40 Bytes			
Technical parameters				
Number of channels	1 channel			
Communication interface	RS232、RS485、RS422			
Communication protocol	Modbus RTU、Modbus ASCII			
Baud rate	1200bps~115200bps			
Power	70mA@5VDC			
Weight	90g			
Dimension	106×73×25.7mm			
Wiring method	Push-in technology			
Installation method	35mm rail mount			
Working temperature	-10~+60℃			
Storage temperature	-20℃~+75℃			
Relative humidity	95%, non-condensing			
Protection degree	IP20			

## 2.2 Serial port parameters

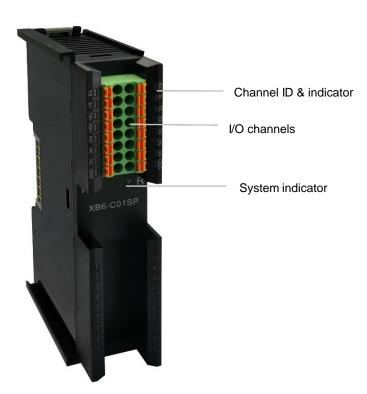
Value	Value Range	Description		
	0	MRM	Modbus RTU Master	
	1	MRS	Modbus RTU Slave <sup>[1]</sup>	
Communicate Mode	2	MAM	Modbus ASCII Master	
Communicate Mode	3	MAS	Modbus ASCII Slave	
	4	FP	FreePort	
	5	PT	PassThrough	
	0	1200 bps		
	1	2400 bps		
	2	4800 bps		
Serial Baud	3	9600 bps		
Senar Daud	4	19200 bps		
	5	38400 bps		
	6	57600 bps		
	7	115200 bps		
Carial Stan	0	1 Bit		
Serial Stop	1	2 Bits		
	0	Non		
Serial Parity	1	Odd		
	2	Eve		
Serial WordFormat	0	8 Bits		
Senai wordronnat	1	7 Bits		
Modbus Slave ID	1~247	Valid in slave mode		
Modbus Slave Respond Delay	0~65535	Unit ms		

Note[1]: Modbus RTU Slave is not supported

## 3 Panel

## 3.1 Product Structure

Name and function description of each part of the product

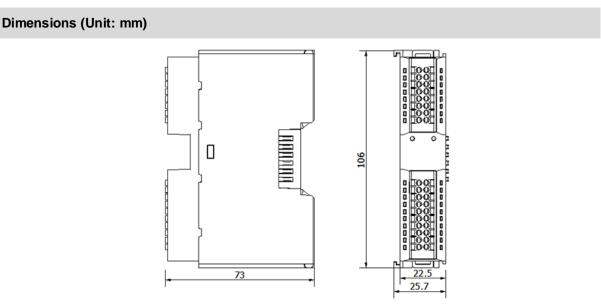


## 3.2 Indicator function

Name	ID	Color	Status	Status description
Power indicator	Р		ON	Normal status of power supply
Power indicator	P	Green	OFF	Unpowered or abnormal power supply
			ON	Normal status of system operation
O			Flashing 1Hz	The I/O module is connected, X-bus system is
Communication	R	Green		ready to interact
indicator			055	Device not powered on, X-bus not interacting
			OFF	with data or abnormal
	DY	0	Flashing	Channel with data reception
Input indicator	RX	Green	OFF	Channel without data reception
Outrast in disates	TV		Flashing	Channel with data reception
Output indicator	ТХ	Green	OFF	Channel without data reception

## **4** Installation and Disassembly

### 4.1 Dimension

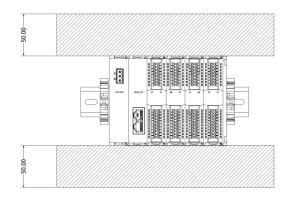


### 4.2 Installation instructions

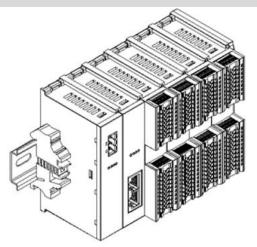
#### Installation and disassembly precautions

- Ensure that the cabinet is well ventilated (e.g., equipped with a fan).
- Do not install this equipment near or above any equipment that may cause overheating.
- Make sure to install modules vertically and maintain adequate clearance between the modules and nearby devices.
- Installation/disassembly operation may only be carried out after the power supply is cut off.

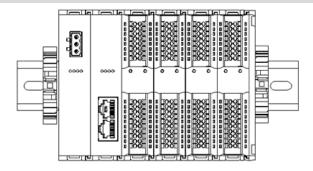
#### Minimum clearance for module installation (≥50 mm)



#### Make sure the modules are installed vertically



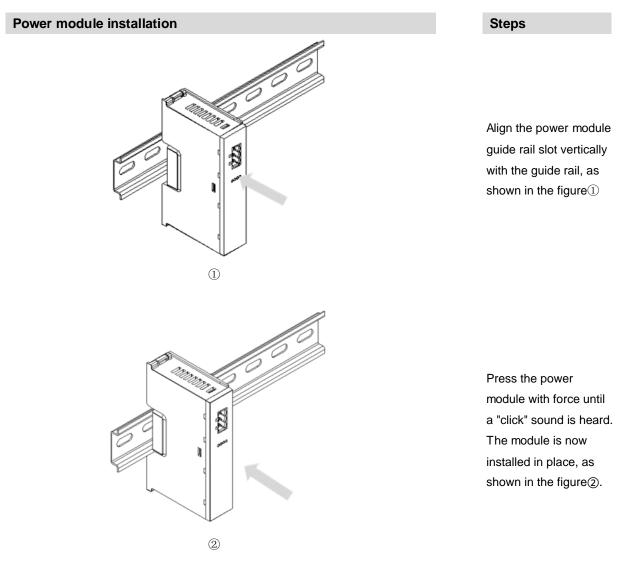
#### Make sure to install guide rail fasteners



## 4.3 Installation and disassembly steps

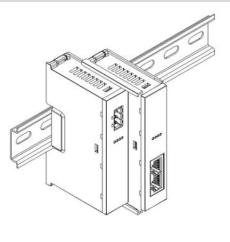
Module installation and disassembly			
	Install the power module on the fixed guide rail first.		
	Install the coupler and the required I/O modules on the right side of the power module.		
Module installation steps	After installing all required I/O modules, install the end cover to complete module assembly.		
	Install guide rail fasteners at both ends of the power module and end cover to fix the module.		
	Loosen the rail fasteners at both ends of the module.		
Module disassembly steps	Pry loose the module snap fitting with a slotted screwdriver.		
	Pull out the removed module.		

### 4.4 Installation schematic diagram



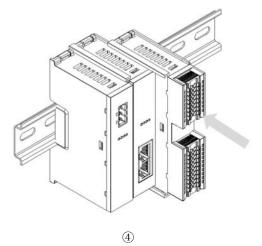
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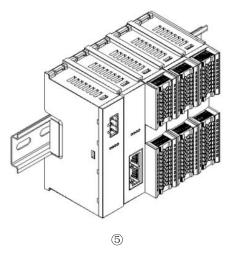
#### Coupler module installation



3

#### I/O module installation





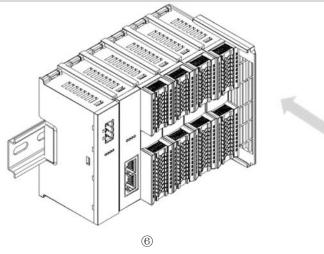
#### Steps

Align the left slot of the coupler module with the right side of the power module, and push it in as shown in the figure ③. Press the module with force into the guide rail until a "click" sound is heard. The module is now installed in placed.

#### Steps

Install the required IO modules one by one using the same the steps as coupler module installation, as shown in the figure 4 (5)

#### **Cover plate installation**



#### Steps

Install the end cover on the right side of the last module, as shown in the figure<sup>®</sup>, using the same installation method as the coupler module.

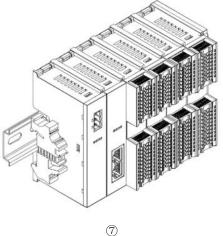
#### Steps

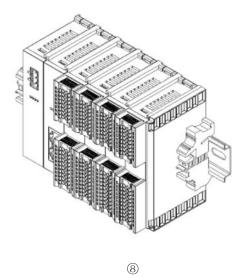
Install a guide rail fastener next to the left side of the coupler, and lock it tightly, as shown in the figure⑦

Install a guide rail fastener on the right side of the end cover. In this process, first push the guide rail fastener towards the coupler to ensure that the module is installed firmly, and then lock the fastener with a screwdriver, as shown in the figure (8)

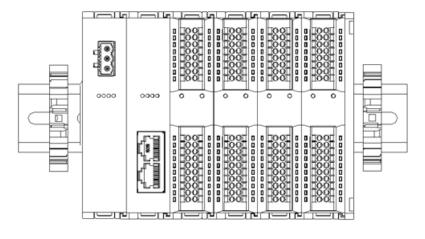
#### Steps

## Installation of guide rail fasteners

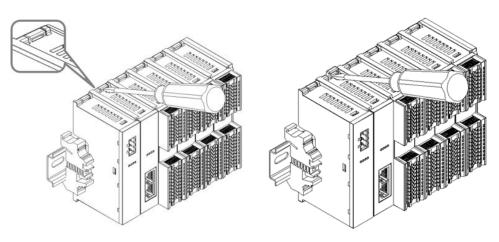




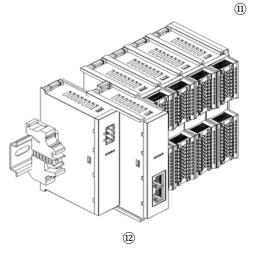
#### Disassembly



9



(10)



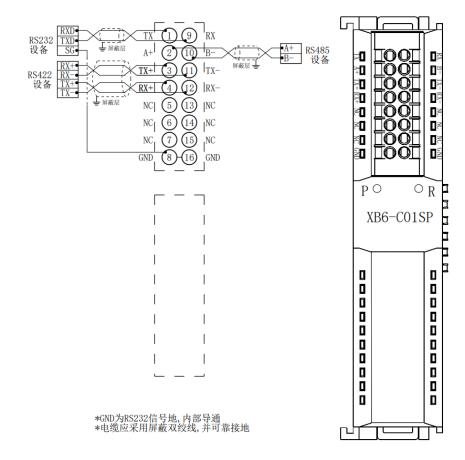
Using a screwdriver, loosen the guide rail fastener at one end of the module, and move it to one side to create a gap between the module and the fastener, as shown in the figure (9)

Insert the slotted screwdriver into the snap fitting of the module to be removed, and exert force along lateral direction of the module (until a click sound is heard), as shown in the figure 11 Note: Each module has two snap fittings, one on the top and the other at the bottom. Both should be operated in this way.

Remove the module in the reverse order of installation, as shown in the figure<sup>(12)</sup>

# 5 Wiring

## 5.1 Wiring Diagram



 For personal and equipment safety, it is recommended that the power supply be disconnected during wiring operations

Terminal number	Terminal ID	Description	Terminal number	Terminal ID	Description
1	ТΧ	RS232 Sender	9	RX	RS232 Receiver
2	A+	RS485 Send+	10	B-	RS485Send-
3	TX+	RS422Send+	11	TX-	RS422Send-
4	RX+	RS422Receive+	12	RX-	RS422Receive-
5	NC	Empty terminals	13	NC	Empty terminals
6	NC	Empty terminals	14	NC	Empty terminals
7	NC	Empty terminals	15	NC	Empty terminals
8	GND	Signal Ground	16	GND	Signal Ground

## 5.2 Wiring Terminal Definition

# 6 Operation

## 6.1 Description of process data

#### 6.1.1 ModbusRTU/ASCII Master Write Commands

Request (downstream data)				
Register address	Function description	Comment	Example	
Register 0	Control word	00H command release 01Hcommand enable	0x01	
Register 1	Station number	Interactive slave station number 1~247	0x02	
Register 2	Function code	01H, 02H, 03H, 04H	0x03	
Register 3	Register address HI	0000H~FFFFH	0x00	
Register 4	Register address LO	00000~FFFF	0xC8	
Register 5	Register quantity HI	Discrete: 1~288	0x00	
Register 6	Register quantity LO	Register: 1~36	0x03	
Register 7~39	Reserve	NULL	-	
	Response (up	ostream data)		
Register Address	Function Description	Comment	Example	
Register 0	Control word	See fault code	0x01	
Register 1	Station number	Interactive slave station number 1~247	0x02	
Register 2	Function code	01H, 02H, 03H, 04H	0x03	
Register 3	Number of bytes in the data field	Subject to actual response	0x06	
Register 4	Data1HI	0x00~0xFF	0xFF	
Register 5	Data1LO	0x00~0xFF	0xFF	
Register 6	Data2HI	0x00~0xFF	0xAA	
Register 7	Data2LO	0x00~0xFF	0xAA	

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Register 8	Data3HI	0x00~0xFF	0x55
Register 9	Data3LO	0x00~0xFF	0x55
Register 10	Data4HI	NULL	-
Register 11	Data4LO	NULL	-
Register 12	Data5HI	NULL	-
Register 13	Data5LO	NULL	-
Register 14	Data6HI	NULL	-
Register 15	Data6LO	NULL	-
Register 16	Data7HI	NULL	-
Register 17	Data7LO	NULL	-
Register 18	Data8HI	NULL	-
Register 19	Data8LO	NULL	-
Register 20	Data9HI	NULL	-
Register 21	Data9LO	NULL	-
Register 22	Data10HI	NULL	-
Register 23	Data10LO	NULL	-
Register 24	Data11HI	NULL	-
Register 25	Data11LO	NULL	-
Register 26	Data12HI	NULL	-
Register 27	Data12LO	NULL	-
Register 28	Data13HI	NULL	-
Register 29	Data13LO	NULL	-
Register 30	Data14HI	NULL	-
Register 31	Data14LO	NULL	-
Register 32	Data15HI	NULL	-
Register 33	Data15LO	NULL	-
Register 34	Data16HI	NULL	-
Register 35	Data16LO	NULL	-
Register 36	Data17HI	NULL	-
Register 37	Data17LO	NULL	-
Register 38	Data18HI	NULL	-
Register 39	Data18LO	NULL	-

Request (downstream data)				
Register Address	Function Description	Comment	Example	
Register 0	Control word	00H command release 01Hcommand enable	0x01	
Register 1	Station number	Interactive slave station number 1~247	0x02	
Register 2	Function code	0FH, 10H	0x10	
Register 3	Register address HI	0000H~FFFFH	0x00	
Register 4	Register address LO	00000~~~~~~	0xC8	
Register 5	Register quantity HI	Discrete: 1~280	0x00	
Register 6	Register quantity LO	Register : 1~34	0x03	
Register 7	Number of bytes	Discrete: 1~35, Register : 1~34	0x06	
Register 8	Data1HI	0x00~0xFF	0xFF	
Register 9	Data1LO	0x00~0xFF	0xFF	
Register 10	Data2HI	0x00~0xFF	0xAA	
Register 11	Data2LO	0x00~0xFF	0xAA	
Register 12	Data3HI	0x00~0xFF	0x55	
Register 13	Data3LO	0x00~0xFF	0x55	
Register 14~39	Reserve	NULL	-	
	Response (	upstream data)		
Register Address	Function Description	Comment	Example	
Register 0	Control word	See fault code	0x00	
Register 1	Station number	Interactive slave station number 1~247	0x02	
Register 2	Function code	0FH, 10H	0x10	
Register 3	Register address HI		0x00	
Register 4	Register address LO	0000H~FFFFH	0xC8	
Register 5	Register quantity HI	Discrete: 1~280	0x00	
Register 6	Register quantity LO	Register : 1~34	0x03	
Register 7~39	Reserve	NULL	-	

#### 6.1.2 ModbusRTU/ASCII Master Write Commands

#### 6.1.3 Modbus fault code

Fault code	Notes
0x00	No error
0x01	Illegal function code
0x02	lllegal data address
0x03	lllegal data
0x04	Slave device failure
0x10	Wrong station number
0x11	Wrong function code response
0x12	Error request length
0x13	Wrong response length
0x14	CRC checksum error
0x15	Wrong data frame
0xFF	Unknown error

#### 6.1.4 Pass-through function uplink data (Hex)

Byte number	Definition	Range of values
		0: Packet not yet sent
		1: Packet is ready
01	Status Word	2: Packet count error
		3: Data length abnormal
		F: Data transmission completed
		0: Invalid setting
		1: Input-only mode
02	Transmission method	2: Output-only mode
		3: Request mode
		4: Response mode
03	Downstream data length	0~FF
04	Upstream data length	0~FF
05	Downlink packet count	0~8 packet counting, F packet completion
06	Uplink Packet Count	0~8 packet counting
07	Data 01	0~FF
08	Data 02	0~FF
28	Data 19	0~FF

### 6.1.5 Pass-through function downlink data (Hex)

Byte number	Definition	Range of values
01	Status Word	0: Disable
01	Status Word	1: Enable
		0: Invalid setting
		1: Input-only mode
02	Transmission method	2: Output-only mode
		3: Request mode
		4: Response mode
03	Downstream data length	0~FF
04	Upstream data length	0~FF
05	Downlink packet count	0~8 packet counting, F packet completion
06	Uplink Packet Count	0~8 packet counting
07	Data 01	0~FF
08	Data 02	0~FF
28	Data 19	0~FF

6 Operation

		Inp	out-only mod	le			
			Byte numb	er/definitio	on		
	01	02	03	04	05	06	07~28
Command Function	Downlink: control word Uplink: Status word	Transmission method	Downlink data length	Uplink data length	Downlink data packet count	Uplink data packet count	Data
Downlink data writing	00	01	Invalid	28 Bytes	Invalid	Invalid	
Downlink Performance	01	01	Invalid	28 Bytes	Invalid	Invalid	
	Waiting for da	ta reception, when	the periphera	l device is e	enabled to send	data	
Packet 1 data received upstream	00	01	Invalid	28 Bytes	Invalid	01	Data01~ Data19
Downstream 2nd packet data receive command	01	01	Invalid	28 Bytes	Invalid	02	
Packet 2 data received upstream	00	01	Invalid	28 Bytes	Invalid	02	Data1A~ Data28
Downlink deactivation	00	00	00	00	00	00	
		Out	tput-only mo	de			
			Byte numb	er/definitio	on		
	01	02	03	04	05	06	07~28
Command Function	Downlink: control word Uplink: Status word	Transmission method	Downlink data length	Uplink data length	Downlink data packet count	Uplink data packet count	Data
Downlink data writing to packet 1	00	02	28 Bytes	Invalid	01	Invalid	Data01~ Data19

#### 6.1.6 Description of the transmission mode of the pass-through function (Hex)

Downlink write packet 2 with enable	01	02	28 Bytes	Invalid	02	Invalid	Data1A~ Data28
Writing completed	01	02	28 Bytes	Invalid	0F	Invalid	
		Wait for data	transmission	to complete	)		
Upstream transmission complete	0F	02	Invalid	28 Bytes	Invalid	02	
Downlink deactivation	00	00	00	00	00	00	

Note: The data length is 28 Bytes for example, the following table is the same.

	Request Mode						
			Byte	number/defi	nition		
	01	02	03	04	05	06	07~28
Command Function	Downlink : control word Uplink: Status word	Transmis sion method	Downlink data length	Uplink data length	Downlink data packet count	Uplink data packet count	Data
Downlink data writing to packet 1	00	03	28 Bytes	28 Bytes	01	Invalid	Data01~ Data19
Downlink write packet 2 with enable	01	03	28 Bytes	28 Bytes	02	Invalid	Data1A~ Data28
Writing completed	01	03	28 Bytes	Invalid	0F	Invalid	
	Waiting for d	ata reception,	when the peri	pheral device	is enabled to	send data	
Packet 1 data received upstream	00	03	Invalid	28 Bytes	Invalid	01	Data01~ Data19
Downstream 2nd packet data receive command	01	03	Invalid	28 Bytes	Invalid	02	
Packet 2 data received upstream	00	03	Invalid	28 Bytes	Invalid	02	Data1A~ Data28
Downlink deactivation	00	00	00	00	00	00	

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			Response	e mode			
			Byte	number/defi	nition		
	01	02	03	04	05	06	07~28
Command Function	Downlink : control word Uplink: Status word	Transmis sion method	Downlink data length	Uplink data length	Downlink data packet count	Uplink data packet count	Data
Downlink data writing to packet 1	00	04	28 Bytes	28 Bytes	01	Invalid	Data01~ Data19
Downlink write packet 2 with enable	01	04	28 Bytes	28 Bytes	02	Invalid	Data1A~ Data28
	Waiting for d	ata reception,	when the peri	pheral device	is enabled to	send data	
Packet 1 data received upstream	00	04	28 Bytes	28 Bytes	02	01	Data01~ Data19
Downstream 2nd packet data receive command	01	04	28 Bytes	28 Bytes	02	02	Data1A~ Data28
Packet 2 data received upstream	00	04	28 Bytes	28 Bytes	02	02	Data1A~ Data28
The next exercise can respond	01	04	28 Bytes	28 Bytes	0F	02	Data1A~ Data28
Downlink deactivation	00	00	00	00	00	00	

### 6.2 Module configuration description

#### 6.2.1 Application in TIA Portal V17 software environment

#### 1, Preparation

- Hardware environment
  - > Model number: XB6-C01SP
  - Power module, PROFINET coupler, cover plate
     In this case XB6-P2000H power module and XB6-PN0002 coupler were taken as examples
  - > one computer with installed TIA Portal V17 software
  - > PROFINET dedicated shielded cable
  - Devices or modules supporting MODBUS protocol
     This description is based on the example of Anchorite energy meters
  - > One Siemens PLC
  - > A switching power supply
  - > Module installation guide rail and fasteners
  - Device configuration files
     Website of configuration files: <u>https://www.solidotech.com/documents/configfile</u>
  - Hardware configuration and wiring
     Please follow the instructions for <u>4 Installation and Disassembly</u> and <u>5 Wiring</u>.

#### 2, Project Creation

Open the TIA Portal V17 software and click on "Create new project".

	创建新项目		
● 打开现有项目	项目名称: 路径:	XB6-C01SP C:lUsersl29719lDocumentslAutomation	
● 创建新项目	版本: 作者:	V17 29719	Ţ
<ul> <li>移植项目</li> <li>关闭项目</li> </ul>	注释:		^
			~
● 欢迎光临			创建

- Project Name: Customizable, default can be kept.
- Path: Keep the project path, default can be kept.
- Version: Default can be kept.
- Author: Default can be kept.
- Comment: Customizable, optional to fill in.

#### 3、 Adding a PLC

a. Click "Configure a device".

启动	>	新手上路
设备与网络	● 打开现有项目	项目:"X86-C015P" 已成功打开。请选择下一步:
PLC 编程	<ul> <li>创建新项目</li> <li>移植项目</li> </ul>	Лы
运动控制 & 技术	关闭项目	
可视化	● 欢迎光临	し 没着和网络 なび 組态设备
在线与诊断	✓ ● 新手上路	→ PLC编程 《 创建 PLC程序
	● 已安装的软件	→ <sup>运动控制 8</sup> ↔ <sup>组态</sup> 技术
	● 帮助	→ 可祝化 🚺 組态 HM 面面
	🔇 用户界面语言	>> 项目视图 打开项目视图

b. Click "Add new device", select the PLC model you are currently using, and click "Add", as showed below. After the addition is completed, you can view that the PLC has been added to the device navigation tree.



#### 4. Scan devices

a. Click on the "Online Access -> Update Accessible Devices" in the left navigation tree, as shown in the following figure.



b. After the update is completed, the connected slave devices will be displayed as shown in the following figure.

0			
项目树		XB6-C01SP → PLC_1 [CPU 1511-1 PN]	_ # = ×
设备			🛃 拓扑视图 🛛 🛔 网络视图 🛛 阶 设备视图
8	••• 🖻	🏕 PLC_1 [CPU 1511-1 PN] 💌 📰 🔣 🔛 🔢 💷 🍳 ±	□ 设备概じ
		A	▲ ₩ 模块
XB6-C01SP	^	a C	-
💣 添加新设备		· ·	
📩 设备和网络			<ul> <li>PLC_1</li> </ul>
PLC_1 [CPU 1511-1 PN]		100 0 1 2 3 4 5 6142231	▶ PROFINET接口_1
🕨 🔙 未分组的设备			
▶ 🚘 安全设置	=	LANCE CONTRACTOR OF	-
▶ अ 跨设备功能			1
▶ 🙀 公共数据		7 15 23	-
▶ 🛅 文档设置			
▶ Co 语言和资源		14 22 31	
▶ 🔀 版本控制接口			
' 🔚 在线访问			
┇ 显示隐藏接口			
Realtek PCIe GbE Family Controller	1		
品?更新可访问的设备		< II > 100% •	
🔒 显示更多信息			🧕 属性 🚺 信息 🔒 🗓 诊断 🛛 💷 🔹
▶ 🛅 plc_1.profinet 接口_1 [192.168.0.1]		常規 交叉引用 编译	
pnio [192.168.0.2]			
Intel(R) Wi-Fi 6 AX201 160MHz	100	3 A 0 显示所有消息	
🕨 🎦 PC internal [本地]	100		
USB [S7USB]		1 消息	转至 ? 日期 ▲ 时间
ToloConvice (白毛h田 Will Dill		✓ 已创建项目 XB6-C01SP。	2023/1/4 10:04:53
✔ 详细视图		1 扫描接口 Realtek PCIe GbE Family Controller上的设备已启动。	2023/1/4 10:12:21
		1 扫描接口 Realtek PCIe GbE Family Controller 上的设备已完成。在网络上找到了 2 个设备。	2023/1/4 10:12:27

The IP address of the computer must be in the same network segment as the PLC. If they are not in the same network segment, modify the computer's IP address and repeat the above steps.

#### 5、 Add GSD configuration file

- a. In the menu bar, click "Options" and select "Manage general station description files (GSD)"
- b. Click "Source path" to select the file.
- c. Check whether the status of the GSD file to be added is "Not Installed". If it is not installed, click on the "Install" button. If it has already been installed, click on "Cancel" to skip the installation steps.

管理通用站描述文件 <b>已安装的 GSD</b> 项目中的 GSD					×
源路径: D:\					
导入路径的内容					
☑ 文件	版本	语言	状态	信息	
GSDML-V2.3-Sdot-XB6-PN0002_v3.1.13-20221129.xml	V2.3	英语	尚未安装	XB6_PN0002	
<					>
		删除		装 取消	
					_

#### 6. Adding slave devices, modifying device names and IP addresses.

a. Double-click on the "Devices and Networks" in the left navigation tree.

b. Click on the vertical button "Hardware Catalog" on the right side, and the catalog will be displayed as shown in the figure below.

硬件目录 🔹 🖬 🗉	
选项	
	二度
✔ 目录	<b>硬件日</b> 录
	ut 🏃
☑ 过滤 配置文件 <全部>	<b>1</b>
▶ 🛅 控制器	- A
▶ 🔄 HMI	Ett
▶ 🛄 PC 系统	- E
▶ 🛅 驱动器和起动器 ▶ 🛅 网络组件	
▶ <b>□</b> 分布式 I/O	
▶ 🛅 供电与配电	任务
▶ 🛄 现场设备	
▶ 🛅 其它现场设备	
	屠
	- *
	件

- c. Select "Other field devices -> PROFINET IO -> I/O -> Sdot -> X-Bus -> XB6-PN0002".
- d. Drag or double-click on "XB6-PN0002" to the "Network View", as shown in the figure below.

XB6-C01SP → 设备和网络				硬件目录	
	一 拓扑视图	▲ 网络视图 ■ 设备社	R	选项	
■ 网络 11 连接 HMI 连接	]品关系 🕎 🖫 🗐 🖽 🛄 🤇	Q ±	4		
			^	▼ 目录	
			H		ini lini
PLC_1 PN CPU 1511-1 PN XB0	5-PN0002 DP.NORM			☑ 过滤 配置文件 <全部>	•
				▶ ☐ 控制器	^
				▶ 🔄 HM	
			• 2	▶ [] PC系统	
			12	▶ □ 驱动器和起动器	
			1 2		
				<ul> <li>▶ 1</li></ul>	
				▶ □ 供电与配电	
				▶ <u>□</u> 现场设备	
				▼ 11 其它现场设备	
				▶ □ 其它以太网设备	
			~	▼ ■ PROFINET IO	
< =	> 100%	· · · · · · · ·	•	Drives	
				Encoders	
	9 属性	3.信息 12.诊断		🕨 🫅 Gateway	
常規 交叉引用 编译				▼ 10	
😢 🛕 🚺 显示所有消息	7			✓ Im Sdot	
	J.			✓ Im X-Bus	
! 消息		转至?	1	XB6-PN0002	_
1 扫描接口 Realtek PCIe GbE Family Control	ller上的设备口户th。	救主 (	~	SIEMENS AG	
1 扫描接口 Realtek PCIe GbE Family Control 1 扫描接口 Realtek PCIe GbE Family Control		下设备。	<	Sensors	~

e. . Click on "Unassigned (blue font)" on the slave device and select "PLC\_1.PROFINET Interface\_1", as shown in the figure below.

PNIO				
XB6-PN0002		DP-NORM		
★ 选择 IO 控制器				
PLC_1.PROFINET	接口	1_1		

f. After completing the connection, it will appear as shown in the figure below.

	• •	<u> </u>	
XB6-C01SP ▶ 设备和网络			_∎≡×
		🛃 拓扑视图 🚮 网络视图	■ 设备视图
₩ 网络 11 连接 HMI连接	🔽 🖪 关系 🕎	. 📲 🔳 🔲 🔍 ±	
		平 IO 系统: PLC_1.PROFINET IO	
PLC_1 CPU 1511-1 PN	PNIO XB6-PN0002 PLC_1	DP-NORM	2
PLC_1.PRC	FINET IO-Syste		23 - 25 - 25 - 25 - 25 - 25 - 25 - 25 -

g. Click on the device name to rename it, as shown in the figure below.

PNIO1	
XB6-PN0002	DP-NORM
PLC_1	

Right-click on the coupling view icon and click "Properties" to see the property menu. Modify the IP h. address in "Properties" as shown below.

PLC_1 CPU 1511-1 PN		PNIO1 XB6-PN0002	Di			٦					
		PLC_1	Df ) ) ) ) ) ) ) ) ) ) ) ) )	态 谷 设备名称写入至	il MMC +€						
		FINET IO-Syste		2回43から八± 备工具	of round P						
	rec_nrac	interio syste	🗶 剪切(	)	Ctrl+X						
			(回) 夏制()	)	Ctrl+C						
			💼 粘贴()	)	Ctrl+V						
			★ 刪除(		Del						
			重命名		F2	_					
			断开口	新的 DP 主站// P <b>主站系统 / IC</b> 示 DP 主站系线	)系统连接						
					A	-					
			编译		•						
				设备 <mark>(L)</mark>	•						
			● 转至在		Ctrl+K						
			🌌 转至副		Ctrl+M						
			鬼 在线利		Ctrl+D						
			🕎 分配词								
			── 接收排	警 显示强制的操	De-44						
						-					
			显示目	求	Ctrl+Shift+C						
			➡ 导出核	块标签条 <mark>(L)</mark>							
			→ 导出相	块标签条(L)	Alt+Enter						
DAUCH [VDC BADOOD]			-	块标签条(L)	Alt+Enter				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10 34 87	1.9
	石砂雪塘	**	-	块标签条(L)	Alt+Enter			属性	【信息	2诊断	••
常規 10 变量 🦉	系统常数		-	块标签条(L)	Alt+Enter		9	属性	国信息	2 诊断	•
<b>常規</b>	以 大	大网地址	-	块标签条(L)	Alt+Enter			属性	包信息	2 诊断	
▼ 常規 目录信息	以 大		-	块标签条(L)	Alt+Enter			属性	目信息	见诊断	•
<b>常規</b> 10 变量 3 ▼常規 目录信息 ▼ PROFINET接口 [X1]	以 大	大网地址			Alt+Enter			属性	也信息	见诊断	
<b>常規</b> 10 变量 ⅔ ▼常規 目录信息 ▼ PROFINET接口 [X1] 常規	以 大	大网地址	-		Alt+Enter			属性	包信息	2诊断	
<ul> <li>常規</li> <li>Ⅰ○ 变量</li> <li>第規</li> <li>目录信息</li> <li>PROFINET接口 [X1]</li> <li>常規</li> <li>♡太阿地址</li> </ul>	以 大	大网地址					9	属性	包信息	2诊断	
常規         IO 变量         3           ■景信息         ●         PROFINET接口 [X1]         常規           「双方回归批         ●         ASSIGN         ●	以 大	大网地址		_1			G	属性	包信息	见诊断	
常規         IO 变量         3           ■景信息         ■ <td< td=""><td>U.J.</td><td>大网地址</td><td></td><td>_1</td><td></td><td></td><td>9</td><td>。 属性</td><td>13信息</td><td>见诊断</td><td></td></td<>	U.J.	大网地址		_1			9	。 属性	13信息	见诊断	
常規         IO 变量         3           日录信息	U.J.	☆网地址 【 <b>口连接到</b>		_1			G	。属性	<u>私信息</u>	2 诊断	
常規         IO 变量         3           ■景信息         ■ <td< td=""><td>U.J.</td><td>内地址 日 连接到 け 协议</td><td>④ 例性 予例: PNII</td><td>_1</td><td>×</td><td></td><td>Q</td><td>。属性</td><td><u><b>私信息</b></u></td><td>见诊断</td><td></td></td<>	U.J.	内地址 日 连接到 け 协议	④ 例性 予例: PNII	_1	×		Q	。属性	<u><b>私信息</b></u>	见诊断	
常規         IO 变量         3           日录信息	U.J.	网地址 和连接到 9 协议	④ 爾性 子网: PN/II IP 地址: 192	_1 添加新子I . 168 . 0	∞.2			<b>《</b> 尾性	<u>当信息</u>	2诊断	
常規         IO 变量         3           日录信息	U.J.	网地址 和连接到 9 协议	<ul> <li>受 原性</li> <li>子阿: PN/II</li> <li>IP 地址: 192</li> <li>阿猪路: 255</li> </ul>	_1 添加新子I . 168 . 0 . 255 . 255	∞.2			《 <u>属性</u>	<u><u><u></u></u></u>	<u>见</u> 诊断	
常規         IO 变量         3           日录信息	U.J.	○同地址 注口连接到 》协议 子	<ul> <li>○ 剛性</li> <li>子阿: PNII</li> <li>IP 地址: 192</li> <li>····································</li></ul>	_1 添加新子I . 168 . 0 . 255 . 255 明照由器	网 . 2 . 0		9	属性	<u>飞信息</u>	见诊断	
常規         IO 变量         3           日录信息	U.J.	○同地址 注口连接到 》协议 子	<ul> <li>○ 剛性</li> <li>子阿: Ph/II</li> <li>Ph/II</li> <li>IP 地址: 192</li> <li>·阿掩码: 255</li> <li>·</li> </ul>	_1 添加新子I . 168 . 0 . 255 . 255	网 . 2 . 0		g	属性	<u>私信息</u>	2诊断	
常規         IO 交量         3           常規         目录信息	E CLUE	(网地址 (□ 连接到 ) 协议 子 篇曲	<ul> <li>○ 剛性</li> <li>子阿: PNII</li> <li>IP 地址: 192</li> <li>····································</li></ul>	_1 添加新子I . 168 . 0 . 255 . 255 明照由器	网 . 2 . 0		9	· 属性		<u>见诊断</u>	
常規         IO 交量         3           常規         目录信息	E CLUE	○同地址 注口连接到 》协议 子	<ul> <li>○ 剛性</li> <li>子阿: PNII</li> <li>IP 地址: 192</li> <li>····································</li></ul>	_1 添加新子I . 168 . 0 . 255 . 255 明照由器 . 0 . 0	. 2 . 0			· 属性		2.诊断	
常規         IO 交量         3           常規         目录信息	E CLUE	(网地址 <b>≹口连接到</b> 9 <b>协议</b> 子 ROFINET	<ul> <li>○ 剛性</li> <li>子阿: PNII</li> <li>IP 地址: 192</li> <li>何獲码: 255</li> <li>④</li> <li>○</li> <li>○</li> <li>○</li> <li>●</li> <li>●</li> </ul>	_1 添加新子I . 168 . 0 . 255 . 255 用路由器 . 0 . 0	. 2 . 0			<ul> <li>属性</li> </ul>		2诊断	
常規         IO 变量         3           日录信息	E CLUE	(网地址 <b>≹口连接到</b> 9 <b>协议</b> 子 ROFINET	<ul> <li>○ 剛性</li> <li>子阿: PNII</li> <li>IP 地址: 192</li> <li>····································</li></ul>	_1 添加新子I . 168 . 0 . 255 . 255 用路由器 . 0 . 0	. 2 . 0			<ul> <li>属性</li> </ul>		2诊断	
常規         IO 变量         3           日录信息	E CLUE	(网地址 <b>上一连接到</b> * <b>协议</b> ### ROFINET ₽ROFINET设	<ul> <li>○ 剛性</li> <li>子阿: PNII</li> <li>IP 地址: 192</li> <li>何獲码: 255</li> <li>④</li> <li>○</li> <li>○</li> <li>○</li> <li>●</li> <li>●</li> </ul>	_1 添加新子I . 168 . 0 . 255 . 255 用路由器 . 0 . 0	. 2 . 0			<ul> <li>属性</li> </ul>		2诊断	

i. Click on "Device View" to enter an overview of the coupling device. Under the "Module" directory on the right, add I/O modules according to actual topology (the order must be consistent with actual topology, otherwise communication will not succeed) as shown below.

PNIO1 [XB	6-PN0002]					_₽₽	×	硬件目录	
				🛃 拓扑视	图 👗 网络视图	👔 设备视图	٦	选项	
*	机架 插槽	1地址	Q 地址	类型	订货号	固件		✔ 目录	
C	0 0			XB6-PN0002	1234567	V10.00.00	^		ini.
C	0 0 X1			PNIO					•
C	0 X1 P	1		Port 1 - RJ45					
		2		Port 2 - RJ45					
		039	039	XB6-C01SP		1.0			
								XB6-C015	Ρ
								XB6-P20D	
								Pulse I/O	
								Relay Output	
								▶ 🚺 前端模块	
							$\sim$		
		0 0 0 0 0 X1 P 0 0 X1 P 0 0 X1 P 0 2 0 3 0 4 0 5 0 6 0 7 0 8 0 9 0 10 0 11 0 12 0 13 0 14	…         机架         紙槽         1地址           0         0         0×11           0         0×112           0         0×112           0         1         039           0         1         039           0         1         039           0         5         0           0         5         0           0         7         0           0         9         0           0         11         0           0         13         0	小型         抵機         1地址         Q.地址           0         0         0×11         0         0×171         0         0×172         0         0         0×172         0         0×172         0         0×172         0         0×172         0         0×172         0         3         0         4         0         5         0         6         0         7         0         8         0         9         0         10         0         11         0         11         0         13         0         14         10         11         11         11	●       机架       插槽       1地址       Q地址       典型         0       0       0       X86-PN0002         0       0 ×11       PNIO         0       0 ×11P1       Port 1 - RJ45         0       1       039       039         0       1       039       039         0       1       039       039         0       1       039       X86-C015P         0       3       0       4         0       5       0       6         0       7       0       8         0       9       0       10         0       11       0       12         0       13       0       14	●       机架       插槽       1地址       Q.地址       典型       订货号         0       0       0       X86-PN0002       1234567         0       0 X1       PNIO       PNIO         0       0 X1       PNIO       POID         0       0 X1       PNIO       POID         0       0 X1 P1       Port2-R45       POID         0       0       1       0.39       X86-C015P         0       2       0       3       POID         0       2       0       1       POID         0       3       POID       POID       POID         0       4       POID       POID       POID         0       6       POID       POID       POID         0       8       POID       POID       POID         0       10       POID       POID       POID         0       13       POID       POID       POID         0       14       POID       POID       POID	●       机架       插槽       1地址       Q 地址       类型       订货号       固件         0       0       X86-PN0002       1234567       V10.00.00         0       0.X1       PNIO       Port 1-845       Port 1-845         0       0       1       0.39       X86-C015P       1.0         0       2       Port 2-845       1.0       Port 2-845         0       3       0       4       Port 3-845       Port 3-845         0       5       0       6       Port 3-845       Port 3-845         0       6       0       7       Port 3-845       Port 3-845         0       1       0.39       X86-C015P       1.0         0       3       Port 3-845       Port 3-845       Port 3-845         0       6       Port 3-845       Port 3-845       Port 3-845         0       6       Port 3-845       Port 3-845       Port 3-845         0       10       Port 3-845       Port 3-845       Port 3-845         0       12       Port 3-845       Port 3-845       Port 3-845         0       12       Port 3-845       Port 3-845       Port 3-845         0	●       机架       插槽       地址       Q       地址       类型       订接号       面件         0       0       ×86-™0002       1234567       ¥10.00.00       ▲         0       0.X1       PNIO       1234567       ¥10.00.00       ▲         0       0.X1       PNIO       Port 1-R45       ■       ■         0       0.X1P       Port 2-R45       ■       ■       ■         0       0.X1P       Port 2-R45       ■       ■       ■       ■         0       0.X1P       Port 2-R45       ■	

Up to 32 modules can be added, and I/O addresses are assigned by the system but can also be changed manually.

j. Switch to "Network View", right-click on the connection line between PLC and PNIO1, select "Assign Device Name".

XB6-C01SP ) 设备和网络					_ <b>P</b> i	×
			🛃 拓扑视图	📩 网络视图	🚺 设备视图	
💦 网络 🔡 连接 HMI连接	🚽 🗛 关系 🦉	z = 1 i ii	€, ±		-	
			平 IO 系统: PL	C_1.PROFINET IO-9	System (100) 🛕	
					=	
PLC_1 CPU 1511-1 PN	PNIO1 XB6-PN0002 PLC_1	DP-NORM				
					_	
PLC_1.PRO	¥ 剪切(ī)	Ctrl+X			_	. 3
	1 复制(Y)	Ctrl+C				1
	🫅 粘贴(P)	Ctrl+V			_	19
	★ 刪除(D)	Del			_	
	重命名(N)	F2			_	
	分配给新的 DP 主	E站/IO 控制器				
	编译 下载到设备(L)	<b>b</b>			- 1	
	ダ 转至在线(N)	Ctrl+K Ctrl+M			_	
	☑ 转至离线(F) ☑ 在线和诊断(D)	Ctrl+D			~	
<	2011日2日の日本の1007日日本の1007日日本の1007日日本の10071日本の100710月本の100710月本の100710月本の100710月本の100710月本の10071011111111111111111111111111111111	Carro	> 100%	<b>.</b> -	<del></del>	
PROFINET IO-System [IO-system]	<ul> <li>Assign PROFIsafe</li> <li>接收报警</li> </ul>	e address			诊断	_
<b>常規</b> 10 变量 系统常数	更新并显示强制的	的操作数				
常规 个 4 常規 硬件标识符	显示目录	Ctrl+Shift+C				^
嫂件标识付	🔍 属性	Alt+Enter				*

k. The window for assigning PROFINET device names pops up as shown below.

PROFINET 设备名利						
		组态的 PROFINE	ET 设备			
		PROFINET设	备名称:	pnio1		-
		设	备类型:	XB6-PN0002		
		在线访问				
		PG/PC 接口	的类型:	PN/IE		-
		PG/f	PC 接口:	Realtek PCIe GbE Fam	ily Controller	• 💎 🖸
		设备过滤器				
		🛃 仅显示同一	-类型的设备			
		🗌 仅显示参数	设置错误的	<u>汽备</u>		
		□ 仅显示没有	有名称的设备			
	网络中的可访问	++ ·				
		m点· MAC 地址	设备	PROFINET 设备名称	状态	
	192.168.0.2	00-A0-45-01-27-2C		pnio	🔥 设备名称不同	
N烁 LED						
P gap CCD	<					
					更新列表	分配名称
						分配名称

Check whether MAC address printed on coupling is same as that of assigned device name.

- PROFINET Device Name: The name set in "Assign IP Address and Device Name" for slave station.
- ◆ Type of PG/PC interface: PN/IE.
- PG/PC Interface: Actual network adapter used..
- I. Select each slave station device one by one, click "Update List", then click "Assign Names". Check if status of nodes in "Accessible Nodes in Network" is "Confirmed" as shown below.

分配 PROFINET 设备名称	<b>к</b> .						×
		组态的 PROFINE	T设备				
		PROFINET设	备名称:	pnio1		-	
		设	备类型:	XB6-PN0002			
		在线访问					
		PG/PC 接口		Ų_ PN/IE		-	
		PG/F	℃接口:	Realtek PCIe GbE Fan	nily Controller	▼ 🖲 🖸	
		设备过滤器					
		🛃 仅显示同一	·类型的设备	ł			
		🗌 仅显示参数	设置错误的	的设备			
		🗌 仅显示没有	i名称的设备	ł			
	网络中的可访问	<b>节</b> 占:					
	IP 地址	MAC 地址	设备	PROFINET 设备名称	状态		
	192.168.0.2	00-A0-45-01-27-2C	PNIO	pnio1	🧭 确定		
□ 闪烁 LED							
	<					>	1
					更新列表	分配名称	
在线状态信息:							
						·	•
<ul> <li>1 搜索完成。找到1-</li> <li>✓ PROFINET设备名称</li> </ul>		。 给 MAC 地址"00-A0-45-	-01-27-20"	, ,			
	LINE LINE STOLE					~	

m. Click "Close".

#### 7, Download Configuration Structure

- a. In the "Network View", select the PLC.
- b. Click on the III button in the menu bar to download the current configuration to the PLC.
- c. Configure as shown in the figure below in the pop-up "Extended Download to Device" interface.

展下载到设备			_				
	组态访问节点属于『	PLC_1"					
	设备	设备类型	插槽	接口类型	地址	子网	
	PLC_1	CPU 1511-1 PN	1 X1	PN/IE	192.168.0.1	PN/IE_1	
			hale well a				
		PG/PC 接口的		PN/IE			
			接口:		GbE Family Controller		•
		接口/子网的		PN/IE_1			۲
		第一个	~网关:			<b>v</b>	۲
	选择目标设备:				显示所有兼容的设备	ĥ	
	设备	设备类型	接口类	2型 地	1址	目标设备	
1	-		PN/IE	访	间地址	-	
闪烁 LED							
线状态信息:					🗌 仅显示错误消息	开始投	索( <u>s</u>

d. Click on "Start Search" button, as shown below.

	设备	设备类型	插槽	接口类型	地址	子网
	PLC_1	CPU 1511-1 PN	1 X1	PN/IE	192.168.0.1	PN/IE_1
		PG/PC 接口	的类型:	PN/IE		•
		PG/P	C 接口:	Realtek PCIe	GbE Family Controller	
		接口/子网	的连接:	PN/IE_1		-
		第一	个网关:			
	选择目标设备:	ेम के अंध मा	1÷	k. TTI Ja	显示所有兼容的设备	
		记名米刑	按口》	₩		
-	设备 PLC_1	设备类型 CPU 1511-1 PN	接口 PN/IE		的小小小小小小小小小小小小小小小小小小小小小小小小小小小小小小小小小小小小	目标设备 PLC_1
	设备			1	b址	目标设备
-	设备 PLC_1	CPU 1511-1 PN	PN/IE	1	b址 92.168.0.1	目标设备 PLC_1
÷	设备 PLC_1	CPU 1511-1 PN	PN/IE	1	b址 92.168.0.1	目标设备 PLC_1
王 列练 LED	设备 PLC_1	CPU 1511-1 PN	PN/IE	1	b址 92.168.0.1	目标设备 PLC_1
	设备 PLC_1	CPU 1511-1 PN	PN/IE	1	b址 92.168.0.1	目标设备 PLC_1
	设备 PLC_1	CPU 1511-1 PN	PN/IE	1	b址 92.168.0.1	目标设备 PLC_1 -
列烁 LED	设备 PLC_1	CPU 1511-1 PN	PN/IE	1	8社 92.168.0.1 5间对地址	目标设备 PLC_1 -
	设备 PLC_1 	CPU 1511-1 PN	PN/IE	1	b址 92.168.0.1	目标设备 PLC_1
Ŋ烁 LED 代态信息∶ 到可访问的设备	设备 PLC_1 	CPU 1511-1 PN 	PN/IE	1	8社 92.168.0.1 5间对地址	目标设备 PLC_1 -

e. Click on "Download".

f. Select "Continue without synchronizing", as shown below.

装栈	到设备前的软件同步			×
	CPU 包含无法自动同步的更改。			
1	软件同步	状态	动作	
4	▼ PLC_1			
Ā				
Ā	Main [OB1]	0	需要手动同步	
Ā	✓ 'PLC 变量'			
Ā	安重	0	需要手动同步	
-				
<				>
	离线在线比较	- P3	在不同步的情况下继续	取消

g. Choose "All Stop".

状态	-	目标	消息	动作	
*0	×4	▼ PLC_1	下载准备就绪。		-
	4	▼ 保护	保护系统。防止未授权的访问		
			達接到企业网络或直接连接到 internet 的设备必须采取合适的保护 揭晓以防止未经费权的访问。例如通过使用防火造或网络分校。有 关工业安全性的更多信息。请访问 http://www.siemens.com/industrialsecurity		
	A	▶ 不同的模块	已组态模块与目标模块(在线)之间的差异		
	0	▶ 停止模块	模块因下载到设备而停止。	全部停止	
	٢	<ul> <li>设备组态</li> </ul>	静脉并普换目标中的系统数据	下戰到设备	
<	0	▶ 软件	將软件下载到设备	一致性下數	>

- h. Click on "Load".
- i. Click on "Finish"
- j. Re-power up the device.

# 8. Communication Connection

a. Click the 🔝 button, then click "Go Online" button to connect successfully as shown in the figure below.

		XB6-C01SP • 设备和网络			
设备				🛃 拓扑视图 📠 网络视图	Ⅰ ↓ 设备视图
14 14	📃 📑	N 网络 🔡 连接 HMI 连接	- 品 关系 📅 🖫 🖽 💷 🔍 生		
				4 IO 系统: PLC_1.PROFINET I	O-System (100)
XB6-C01SP	M 🔵 🔺				
📑 添加新设备		<b>~</b>			1
📥 设备和网络		PLC_1	PNI01		
PLC_1 [CPU 1511-1 PN]	<b>2</b>	CPU 1511-1 PN	XB6-PN0002 DP-NORM		
〕 〕 〕 、 设备组态			PLC_1		
2. 在线和诊断		<b>—</b>			
▶  软件单元			PLC_1.PROFINET IO-Syste		
▶ 🔜 程序块	•		PEC_TEROFINETIO-System		
▶ 🚂 工艺对象					
▶ 圖 外部源文件					
▶ 🌄 PLC 变量	•				
▶ 📴 PLC 數据类型					
▶ 🧔 监控与强制表					
🕨 🙀 在线备份					
🕨 🔯 Traces					
▶ 🐼 OPC UA 通信					
🕨 📷 Web 应用程序					
▶ 🧱 设备代理数据					
22 程序信息					
PLC 监控和报警		4 w			
■ PLC 报警文本列表		<		> 100%	

# 9、 Check Device Indicator Lights

XB6-P2000H: P light is green ON.

XB6-PN0002: P light is green ON, L light is ON, B light is not lit, R light is ON. Module XB6-C01SP: P light and R light are both ON.

# 10, Parameter Setting

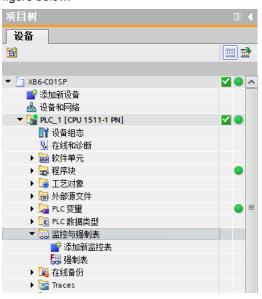
- a. Open "Device View".
- b. Select XB6-C01SP module, right-click on "Properties", and click on "Module Parameters" as shown in the figure below.
- c. The parameters can be configured according to actual needs of use. After configuration completion, download the program again into PLC and both PLC and module need to be powered up again.上电。

XB6-C01SP_1 [XB6-C01SP]			🔍 属性	1 信息	2 诊断
<b>常規</b> 10 变量 系统常	<b>送数</b> 文本				
▶ 常规 输入	模块参数				
模块参数 I/O 地 <u>址</u>	XB6-C01SP Parameter				
	CommunicateMode:	0			
	Serial Baud:	3			
	Serial Stop:	0			
	Serial Parity:	0			
	Serial WordLength:	0			
	Slave Station Number:	1			
	Slave Respond Delay:	50			

#### 11, Function Verification

Example 1: Verify Module Communication Function through Monitoring Table

a. Expand the project navigation on the left side and select "Monitoring & Forcing Tables" as shown in the figure below.



b. Double-click "Add New Monitoring Table". The system adds a new monitoring table as shown in the figure below

		XB6-C01			▶ 监控与强制表	▶ 监控表_1				• •
设备										
諸	🔳 🖻	🥩 🕐		91 8 12 2 2	ĩ					
		i	名称	地址	显示格式	监视值	修改值	9	注释	
XB6-C01SP	🗹 🔍 🔨	1		■ <新増>						
📑 添加新设备										
📥 设备和网络										
PLC_1 [CPU 1511-1 PN]	<b>V</b> 🔍									
设备组态										
鬼 在线和诊断										
▶ i a 软件单元										
▶ 🔜 程序块										
🕨 🖼 工艺对象										
▶ 🔙 外部源文件										
🕨 🔁 PLC 变量	• =									
▶ 📴 PLC 数据类型										
▼ 🔜 监控与强制表										
📑 添加新监控表										
53. 强制表										
▶ 📴 在线备份										
🕨 📴 Traces										
▶ 🔯 OPC UA 通信										
🕨 🐻 Web 应用程序										
▶ 🔛 设备代理数据										
22 程序信息										
Sig PLC 监控和报警										
🛓 PLC 报警文本列表										

c. Click button

d. Open "Device View" to check channel Q address (output signal channel address) or I address (input signal channel address) of module XB6-C01SP in device overview.

For example, if you see that "Q Address" for module XB6-C01SP ranges from 0-39 while "I Address" ranges from 0-39 as well, as shown in Figure below.

					🖉 拓	扑视图 👗	网络视图	🛛 🛐 设备视图
设备概览								
₩ 模块	机架	插槽 1地:	业 Q.地址	类型	订货号	固件	注释 访	io 📃
V PNIO	0	0		XB6-PN0002	1234567	V10.00.00	PL	C_1
PN-IO	0	0 X1		PNIO			PL	C_1
XB6-C01SP_1	0	1 03	9 039	XB6-C01SP		1.0	PL	C_1 💌

- e. Fill input/output channel addresses based on communication equipment requirements into cells of monitoring table's addresses such as writing QB0....QB6、 IB0....IB10 for Ankerui energy meter's monitoring table, then press Enter key
- f. Enter values into cell of "Modify Value", click<sup>2</sup> Write button to write the modified value of "QB0" from 0 to 1. You can see data in IB address monitoring value and channel indicator light flashes once.

XB6-C019	SP → PLC_1 [CPU	1511-1 PN]	▶ 监控与强制表	▶ 监控表_1			
🥩 🥐 I	pä 📝 🗓 🍠 1 🕫	5 🛷 下 🕯	յոր 1				
i	名称	地址	显示格式	监视值	修改值	9	注释
1		%QB0	十六进制	16#01	16#01	🗹 🔺	控制字
2		%QB1	十六进制	16#01	16#01	🛛 🔼	站号
3		%QB2	十六进制	16#03	16#03	🗹 📐	功能码
4		%QB3	十六进制	16#00	16#00	🛛 🔼	寄存器起始地址高位
5		%QB4	十六进制	16#00	16#00	🗹 📐	寄存器起始地址低位
6		%QB5	十六进制	16#00	16#00	🗹 📐	寄存器数量高位
7		%QB6	十六进制	16#03	16#03	🗹 📐	寄存器数里低位
8		%IBO	十六进制	16#00			
9		%IB1	十六进制	16#01			
10		%IB2	十六进制	16#03			
11		%IB3	十六进制	16#06			
12		%IB4	十六进制	16#00			
13		%IB5	十六进制	16#01			
14		%IB6	十六进制	16#01			
15		%IB7	十六进制	16#02			
16		%IB8	十六进制	16#E2			
17		%IB9	十六进制	16#01			
18		%IB10	十六进制	16#00			

Note: QB0 control word is 1 means serial port enable, while it is 0 means serial port release.

Example 2: Introduce XB6-C01SP Module Data Transmission Function with Our Self-developed Function Block

The communication function under the function block of module will be briefly introduced here. For detailed introduction of function block, please refer to "XB6-C01SP Siemens Step7 self-built function block user manual".

- Expand navigation tree on the left side, view program blocks in "Program Blocks -> Main[OB1]", and monitor data in "Program Blocks -> DATA[DB2]"
- b. After opening Main[OB1] program, Program Segment 1 is for reading function block. Click Enable

Monitoring button to enable program block functionality. After that, the path of functional blocks becomes a passage and some values of energy meter can be read from DATA [DB2] data monitoring table as shown below.

	DATA	l di la di mi								10.0.0	1.00.00	
⊢⊸⊢╓┕╴╴	名称 1 💶 ▼ Static	教掘类型	偏移里	起始值	监视值	保持	从 нмиор	. "Қн_	在 HMI	设定值	监控	10
** Main Program Sweep (Cycle)*	2 da 🖛 RDData	Array[0,.17] of Uint	0.0			_ 0						
g : Main Program Sweep (Cycle)	3 💶 🔹 RDData[0]	UInt	0.0	0	1		<b>v</b>	<b>V</b>	Image: A start and a start			
	4 <1 • RDData[1]	Uint	2.0	0	258		Image: A start and a start	1	1			
序段 1:	5 • RDData[2]	UInt	4.0	0	57857		Y	8	8			
	6 1 RDData[3]	Uint	6.0 8.0	0	1				V			
	8 -0 = RDData[4]	Uint	10.0	0	106	Ä		v V	<ul> <li>Image: A start of the start of</li></ul>			
And a second	9 - RDData[6]	Uint	12.0	0	9000	ä	v V	V				
1081 118. MesterRD	10 💶 = RDData[7]	UInt	14.0	0	0	- ē		2	Image: A start and a start			
D8"	11 - RDData[8]	UInt	16.0	0	0		<b>V</b>	1	<b>V</b>			
SM1.2 SE81	12 < RDData(9)	Uint	18.0	0	0		Image: A start and a start	1	1			
ways TRUE" "MB_MasterRD"	13 - RDData[10]	UInt	20.0	0	0		<b>Y</b>	<b>V</b>	<ul> <li>Image: Second sec</li></ul>			
EN ENO	14 - RDData[11]	Uint Uint	22.0	0	0			8	<ul> <li>Image: A start of the start of</li></ul>			
TRUE	16 - RDData[12]	Uint	24.0	0	0	ä		V	<ul> <li>Image: A start of the start of</li></ul>			
\$M100.0 %M1.2 %M101.0 *Tag_10* *AlwaysTRUE* Done**********************************	17 BDData[14]	Uint	28.0	0	0	Ä			1			
	18 - RDData[15]	UInt	30.0	0	0	ă		8				
T# 100ms — Cycle_Time TM101.1	19 💶 🔹 RDData[16]	UInt	32.0	0	0		Image: A start and a start	V	<b>V</b>			
SM102.0 T#350ms WDT TimeOut "TimeOut.RD"	20 <1 RDData[17]	Uint	34.0	0	0			1	1			
"RDTrig" 1 SlaveID FALSE	21 - WRData	Array[015] of Uint	36.0									
SM101.2	22 - WRData[0] 23 - WRData[1]	Uint	36.0	0	0		<b>&gt;</b>	8	>			
"Tag_6" FunctionCode ComErr → "ComErr.RD"	23 4 WRData[1]	Uint	40.0	0	0	ä		V	<ul> <li>Image: A start of the start of</li></ul>			
	25 40 WRData[3]	Uint	42.0	0	0	ä	v V	v V				
SHAVESTAT	26 < WRData [4]	Uint	44.0	0	0	ă	V					
"Tag_2" - RegAddr "Connect".	27 💶 • WRData[5]	UInt	46.0	0	0		<b>V</b>	V	<ul> <li>Image: A start of the start of</li></ul>			
Connect_Q Connect_Q1	28 🔩 • WRData[6]	Uint	48.0	0	0		<b>V</b>	1	1			
"MW22	29 💶 🔹 WRData[7]	UInt	50.0	0	0			<b>V</b>				
"Tag_1" — RegNum	30 - WRData[8]	UInt	52.0 54.0	0	0		<b>&gt;</b>	8	¥ ¥			
	31 - WRData[9] 32 - WRData[10]	Uint	54.0	0	0	Ä		<ul> <li>Image: A transmission</li> <li>Ima</li></ul>	<ul> <li>Image: A start of the start of</li></ul>			
PBD.0 "MB Master	33 - WRData[10]	Uint	58.0	0	0	ä		V	<ul> <li>Image: A start of the start of</li></ul>			
"MB_Master_ Connect_I" Connect I	34 🚭 🔹 WRData[12]	Uint	60.0	0	0	ĕ			Image: A start and a start			
	35 💶 • WRData[13]	UInt	62.0	0	0		<b>V</b>	8	Image: A start and a start			
P#D8 2.D6 X0.0	36 💶 🔹 WRData[14]	Uint	64.0	0	0		<b>V</b>	Image: A start and a start	4			
"DATA".FDData	37 💶 🔹 WRData[15]	UInt	66.0	0	0		<b>V</b>	1	1			

# 6.2.2 Application in Sysmac Studio software environment

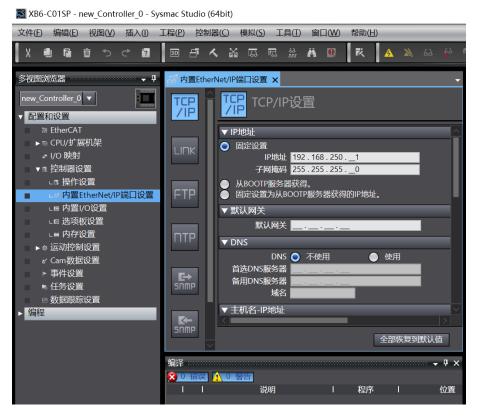
# 1. Preparation

- Hardware environment
- > Model number: XB6-C01SP
- Power module, EtherCAT coupler, cover plate
   In this case we take XB6-P2000H power module and XB6-EC0002 coupler as examples
- > A computer installed with Sysmac Studio software
- > One Omron PLC
  - In this case NX1P2-9024DT was taken as a example
- Devices or modules supporting MODBUS protocol This instanction (along Ambanyi alongia)
- This instruction takes Ankerui electric energy meter as an example.
- EtherCAT speical shielded cable
- > A switching power suppl
- Device configuration files
   Website of configuration files: <u>https://www.solidotech.com/documents/configfile</u>
- Hardware configuration and wiring

Please follow the instructions for <u>4 Installation and Disassembly</u> and <u>5 Wiring</u>.

# 2、 Setting IP

Set the IP address of the computer and PLC to ensure that they are on the same network segment. If the PLC's IP is unknown, it can be viewed in "Configuration and Settings -> Controller Settings -> Built-in EtherNet/IP Port Settings" after creating a project, as shown below



# 3、 Creating a new project

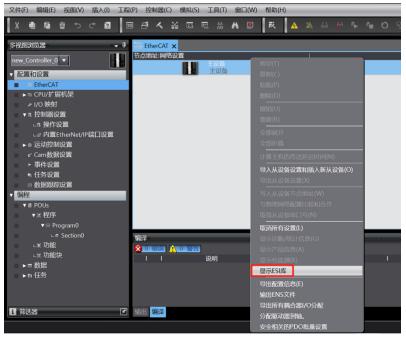
a. Open Sysmac Studio software and click the "New Project" button, as shown below.

📓 Sysmac Studio (64bit)				-		×
				_	_	_
斎建工程(N)         一打开工程(Q)         留 导入(U)         習 导出(E)         在线         少 连接到设备(C)	<b>二 工程属性</b> 工程名称 作者 注释 类型	XB6-C01SP 29719 标准工程	_			
版本控制						
ۥ 版本控制浏览器(V)	1. 选择设备	E E				
许可(L)	类型	控制器				-
📼 许可(L)	设备		▼ <sup>-</sup> 9024DT			•
	版本	1.46				-
Robot System ■ 以仿真模式打开				Û	J建( <u>C</u> )	

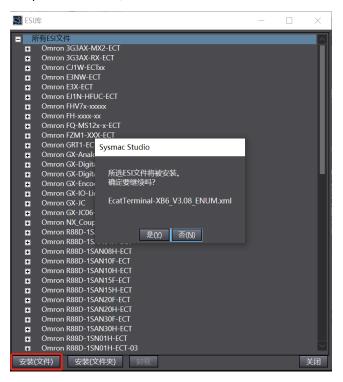
- Project name: Customized.
- Select device: Select the corresponding PLC model for "Device", and recommend selecting V1.40 or above for "Version".
- b. After completing the project properties input, click the "Create" button

# 4. Installing XML files

 Expand "Configuration and Settings" in the left navigation tree, double-click on "EtherCAT", right-click on "Master Device", select "Show ESI Library", as shown below.

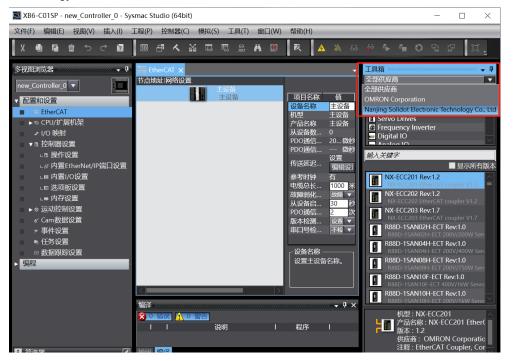


b. Click on "Install (File)" button in "ESI Library" window that pops up, select XML file path, click "Yes" to complete installation, as shown below.



#### 5. Adding slave devices

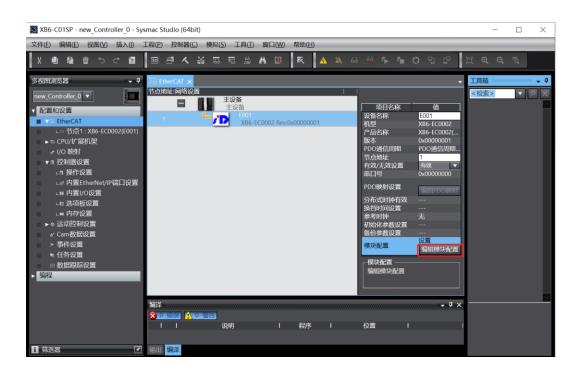
a. In the right-hand side toolbox column, click to expand all suppliers, select "Nanjing Solidot Electronic Technology Co., Ltd." as shown below.



b. Click"XB6 Series Fieldbus"to select product series, and then choose product model at bottom.Doubleclick"XB6-EC0002"to add slave device as shown below.

XB6-C01SP - new_Controller_0 - Sysmac	c Studio (64bit)	- 🗆 ×
文件(E) 编辑(E) 视图(V) 插入(I) 工程(	(P) 控制器(C) 模拟(S) 工具(I) 窗口(W) 帮助(H)	
	3 년 4 월 55 월 # # 12   14   4 월 6 4 5 1 1 0 2 2 1 1 0	
多規型記憶ス器 ・ 2   3   3   4   5 <td>Linke 「 本 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>■局示航有新大</td>	Linke 「 本 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	■局示航有新大
×		XB6-EC0002(Modi

c. On the EtherCAT main page, click on "XB6-EC0002" and then click on "Edit Module Configuration" in the menu on the right-hand side, as shown in the figure below.



d. On the module configuration main page, click on the position of slot 0 and then search for module model "XB6-C01SP" in the search box at the bottom of the toolbox on the right-hand side. Double-click to add it to the slot, as shown in figure below. Repeat this process for all modules according to their actual installation topology. Note: The order and model must be consistent with physical topology!

XB6-C01SP - new_Controller_0 - Sy	mac Studio (64bit)	- 🗆 X
文件(E) 编辑(E) 视图(V) 插入(I)	Σ程(P) 控制器(C) 模拟(S) 工具(I) 窗口(W) 帮助(H)	
X 🗐 🛱 🖮 ちさ 🖻	◎ ff < ‱ 蕊 誌 쓺 ₩ ◎  乾  ▲ ≫ ↔ ≫ % % ● ○ 입	₽ □ <b>€ €</b> °₹
<ul> <li>&gt; 秋田対抗器</li> <li>● </li> <li>○ </li> <li>● </li> <li>○ </li> <li>● </li> <li>○ </li> <li>● </li> <li>○ </li> <li>○ </li> <li>● </li> <li>○ </li> <li>○</li> <li>○</li> <li>○</li> <li>○</li>     &lt;</ul>	1位置i 插槽 i 快快 节点i:X86-EC002(E001) 0 Terminals 2 Terminals 2 Terminals 3 Terminals 5 Terminals 6 Terminals 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 注波位置 7品名称 2 目 7品名称 2 目 7品名称 2 目 7品名称 2 目 7品名称 2 目 7品名称 2 目 7品名称 2 目 7 7 7 7 7 7 7 7 7 7 7 7 7	算指 ・ ↓ ↓ 示 <u>有</u> 組 Digital Input Terminals Digital Output Terminals Analog Output Terminals Analog Input Terminals B6-C01SP 文程6-C01SP 文程6-C01SP
	編译	型号: XB6-C01SP 产品名称: XB6-C01SP 供应商: Nanjing Solidot Ek
1 筛选器	输出 编译	×

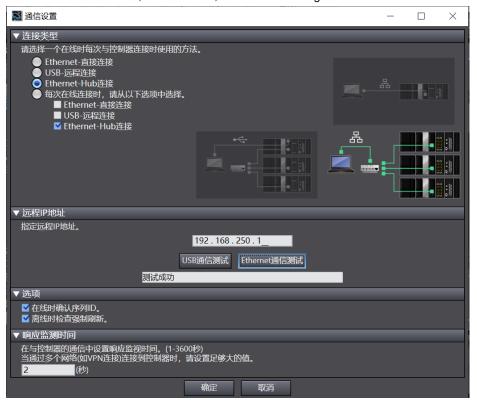
📓 XB6-C01SP - new_Controller_0 - Sy	/smac Studio (64bit)	– 🗆 X
文件(F) 编辑(E) 视图(V) 插入(I)	工程(P) 控制器(C) 模拟(S) 工具(T) 窗口(W) 帮助(H)	
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多视图浏览器	翻 EtherCAT 17 時点1:XB6-EC0002 (E001) × ・ ・ エリ語 1位音1 振情 1 後状 ∧ 知	- <del>1</del>
new_Controller_0	节点1 : XB6-EC0002 (E001)	
▼ 配置和设置	0 Terminals Digital Input Te	rminals
EtherCAT	1 Terminals 辺島名称 M1 Digital Output で 型号 X86-C01SP Digital Output で	
▼ □ 节点1 : XB6-EC0002(E001)	2 Terminals 空号 XBO-CUTSP Digital IO Term 3 Terminals 产品名称 XBO-COTSP Analog Output	
∟ <= 0 : XB6-C01SP(M1)	在 Terminals 连接位置 0 在alog Input Te	
▶ ⓑ CPU/扩展机架	5 Terminals 0x7001:0 XB6-C01SP	
☞ I/O 映射	6 Torminals	
▼ ℝ 控制器设置	6         Definition         0x/0019           7         Terminals         0x/0019         Image: Constraint of the state of t	
□□□ 操作设置	9 Terminals 0x7001:0	
L≓ 内置EtherNet/IP端口设置	10 Terminals 0x7001:0 0x7001:0	
L⊞ 内置I/O设置	11 Terminals 0x7001:0	
- □ 选项板设置	12 Terminals 0x7001:0	
□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	13 Terminals 0x7001:0 14 Terminals 0x7001:0	
▶☆ 运动控制设置	15 Terminals 0x7001:0	
	16 Terminals 0x7001:0	
▶ 事件设置	17 Terminals 27 Terminals 为设备公置一个名称。	
■ 任务设置	18 terminais	
◎ 数据跟踪设置	19 Terminals	
▶ 编程		
	编译 -	
		KB6-C01SP 称:XB6-C01SP
		: Nanjing Solidot Ek
1 筛选器	输出 编译	~

#### 6, Communication Settings

a. Click on the menu bar "Controller -> Communication Settings" to open the communication settings window as shown in the figure below.



b. In the communication settings window, select "Ethernet-Hub Connection" for connection type and choose "Ethernet-Hub Connection" as the method used every time when connecting to the controller online. Fill in the corresponding PLC's IP address for remote IP address, click on "Ethernet Communication Test", if communication is normal, then "Test Successful" will be displayed in the box below. After confirming that communication is normal, click on "OK", as shown in the figure below.

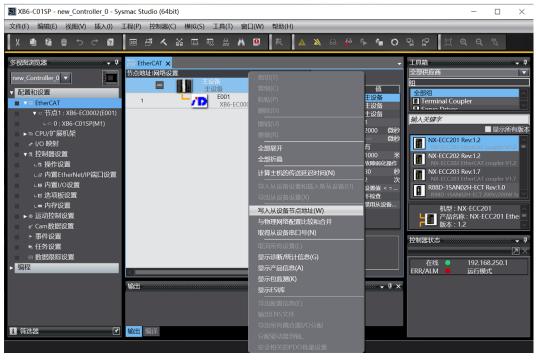


#### 7、 Setting Node Address

a. Click on menu bar "Controller -> Online" to switch controller to online status as shown in the below figure.



b. Right-click on main device and select "Write Slave Device Node Address", as shown in the below figure.



c. In node address setting window, click value under set value and enter node address; click "Write" button to change slave device node address, as shown in the below figure.

■ 从设备节点地址写入中	_		×
当前值1 设置值1物理网络配置	_		
1 1 XB6-EC0002 Rev:0x00000001			
使用	局新实际	网络配置	更新
为从设备设置节点地址。 当除0外的任意值被设置到能够从硬件设置节点地址的从设备时,该设置有优先级。对于其它情况,设置的地址被应用。			
<del>当体切到江急国极权重到能够然硬件改重力点呕吐的效及菌</del> 时,该反直有优先激。对于共占捐成,该直的呕吐被应用。	Ĩ	入口	取消

d. After successful writing of node address, follow prompts to power off and restart slave device.

# 8、 Downloading Configuration into PLC

a. Click on menu bar "Controller -> Transfer (A) -> Download (T)" button to transfer configuration into controller as shown in the below figure.

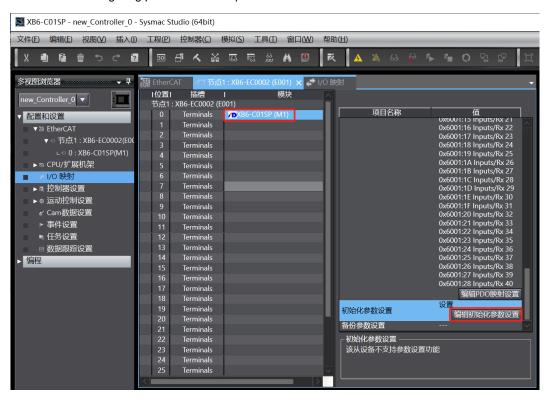


e. A pop-up confirmation window appears; click "Execute" button followed by clicking "Yes/OK" buttons for subsequent pop-ups until download is complete; after which it needs a reboot.



# 9. Module Parameter Configuration

On edit module configuration main page, click on XB6-C01SP; then right-click"Edit Initialization
 Parameter Settings" on right side of screen can open parameter page, as showinbelow.Note: Switching offline before configuring parameters is required.



b. On parameter setting page, parameters can be configured according to actual needs of communication module. After configuration is completed, download program to PLC again and both PLC and module need to be rebooted as shown in the below figure.

■ 编辑初始化参数设置		-		$\times$
项目名称				
0x2000:01 XB6-C01SP Config/Communicate Mode	0: ModbusRTUMaster			
0x2000:02 XB6-C01SP Config/Serial Baud	7: Baud 115200			
0x2000:03 XB6-C01SP Config/Serial Stop	0: 1Bit			
0x2000:04 XB6-C01SP Config/Serial Parity	0: None			
0x2000:05 XB6-C01SP Config/Serial WordFormat	0: 8Bits			
0x2000:06 XB6-C01SP Config/Modbus Slave ID	1			
0x2000:07 XB6-C01SP Config/Modbus Slave Respond Delay	1000			
	上移下移	; 🎽	忝加	删除
			返回至點	认值
_ 帮助				<u> </u>
数据类型: 注释 :				
此设置参数作为EtherCAT设置的一部分保存在CPU单元中。 选择工具栏上的同步进行传送。				
	确定	: I	取消	应用

# 10. Viewing Module Function

a. Double-click on "I/O Mapping" in the left navigation tree; under node 1 on the main page on the right side, you can see device name: XB6-EC0002; device name for slot 0: XB6-C01SP. Click on the expand icon before device name to view input/output signal monitoring page of module. Output values (Outputs\_Tx) can be set according to actual needs while input values (Inputs\_Rx) can be viewed as shown in the below figure.

件(E) 编辑(E) 视图(V) 插入(I)	工程(P) 搭	2制器( <u>C</u> )	模拟(S)	I具(I)	窗口	<u>W)</u> 帮	助(出)								
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视图浏览器 🚽 🗸	-口 节点1 : XB	6-EC0002 (	E001)	🛗 Ethe	rCAT	<b>₽</b> 1/0	映射 ×								
ew_Controller_0 🔻	位置	🔍 🛡 🗳 Ethe	erCAT网络	端口 宿吉	_			说	明	R/W	数据类型	值	变量		_
			(B6-EC00												
▼			Outputs_C		rl F200					w	UINT	0			
▼ ∞ 节点1:XB6-EC0002(E0(			puts_Cou							R	UINT	0			
	插槽0		XB6-C0												
■ 0 : XB6-C01SP(M1)	Distantia de			_Tx 1_70	01 01					w	USINT	0			
▶ ⓑ CPU/扩展机架				Tx 2_70						w	USINT	0			
.∗ I/O 映射				Tx 3 70						w	USINT	0			
▶ 🛯 控制器设置				Tx 4 70						w	USINT	0			
▶ @ 运动控制设置				 _Tx 5_70						w	USINT	0			
✔ Cam数据设置				Tx 6 70						w	USINT	0			
▶ 事件设置				Tx 7 70						w	USINT	0			
▶ 任务设置										w	USINT	0			
∞ 数据跟踪设置				Tx 9_70						w	USINT	0			
编程										w	USINT	0			
漏性				Tx 11_7						w	USINT	0			
				Tx 12_7						w	USINT	0			
				Tx 13_7						w	USINT	0			
				 Tx 14 7						w	USINT	0			
				_Tx 15_7						w	USINT	0			
				_Tx 16_7						w	USINT	0			
				 _Tx 17_7						w	USINT	0			
				Tx 18 7						w	USINT	0			
	<														

# 6.2.3 Application in TwinCAT3 software environment

#### 1. Preparation

- Hardware environment
  - > Model number: XB6-C01SP
  - Power module, EtherCAT coupler, cover plate
     In this case we take XB6-P2000H power module and XB6-EC0002 coupler as examples
  - > A computer installed with TwinCAT3 software
  - Devices or modules supporting MODBUS protocol
     This instruction takes RS232 barcode scanner as an example.
  - > EtherCAT speical shielded cable
  - > A switching power suppl
  - > Module installation guide rail and fasteners
  - Device configuration files Website of configuration files: <u>https://www.solidotech.com/documents/configfile</u>
- Hardware configuration and wiring

Please follow the instructions for <u>4 Installation and Disassembly</u> and <u>5 Wiring</u>.

# 2. Preset Configuration File

Place the ESI configuration file (EcatTerminal-XB6\_V3.10\_ENUM.xml) in the TwinCAT installation directory "C:\TwinCAT\3.1\Config\lo\EtherCAT" as shown below.

» 此电脑 » Windows (C:) » TwinCAT » 3.1 » Config » Io » EtherCAT »

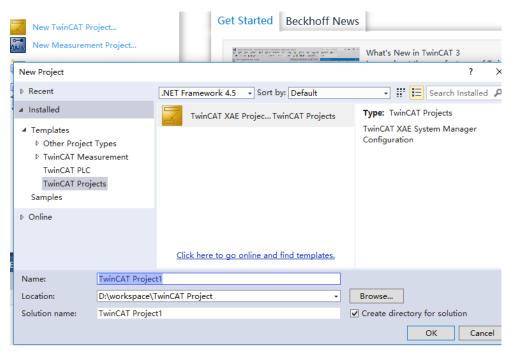
修改日期	类型	大小
2017/12/14 11:34	XML 文档	480 KB
2017/12/28 12:22	XML 文档	1,811 KB
2017/12/8 8:48	XML 文档	2,099 KB
2016/12/22 10:57	XML 文档	500 KB
2016/12/22 10:57	XML 文档	736 KB
2017/4/5 14:46	XML 文档	1,272 KB
2016/12/22 10:57	XML 文档	1,466 KB
2015/11/12 14:24	XML 文档	22 KB
2016/11/23 10:42	XML文档	73 KB
2016/11/22 11:22	XML 文档	1,386 KB
2016/11/21 15:46	XML 文档	165 KB
2016/11/21 14:32	XML 文档	259 KB
2017/6/9 13:35	XML文档	1,177 KB
2016/11/22 12:58	XML文档	318 KB
2016/3/14 11:52	XML 文档	273 KB
2016/3/14 11:52	XML 文档	494 KB
2016/11/22 12:14	XML 文档	1,503 KB
2016/3/14 11:52	XML文档	207 KB
2015/2/4 12:57	XML 文档	72 KB
2015/2/4 12:57	XML 文档	53 KB
2017/5/24 12:26	XML 文档	49 KB
2015/2/4 12:57	XML文档	21 KB
2015/2/4 12:57	XML 文档	8 KB
2023/3/21 10:57	XML 文档	470 KB
	2017/12/14 11:34 2017/12/28 12:22 2017/12/28 12:22 2017/12/8 8:48 2016/12/22 10:57 2016/12/22 10:57 2015/12/22 10:57 2015/11/12 14:24 2016/11/23 10:42 2016/11/21 15:46 2016/11/21 14:32 2016/11/21 14:32 2016/11/22 12:58 2016/3/14 11:52 2016/3/14 11:52 2016/3/14 11:52 2016/3/14 11:52 2016/3/14 11:52 2015/2/4 12:57 2015/2/4 12:57 2015/2/4 12:57	2017/12/14 11:34         XML 文档           2017/12/28 12:22         XML 文档           2017/12/8 8:48         XML 文档           2016/12/22 10:57         XML 文档           2016/11/21 14:24         XML 文档           2016/11/21 15:46         XML 文档           2016/11/21 15:46         XML 文档           2016/11/21 15:46         XML 文档           2016/11/21 15:45         XML 文档           2016/11/21 15:45         XML 文档           2016/3/14 11:52         XML 文档           2016/3/14 12:57         XML 文档           2015/2/4 12:57         XML 文档 </td

# 1、 Project Creation

a. Click on the TwinCAT icon in the lower right corner of your desktop and select "TwinCAT XAE (VS xxxx)" to open the TwinCAT software, as shown below.

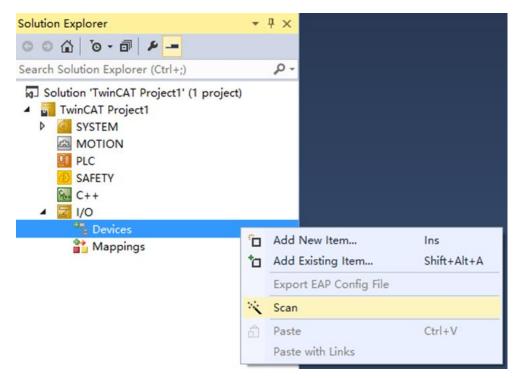


b. Click on "New TwinCAT Project". In the pop-up window, enter a name for your project under "Name", a solution name under "Solution Name", and choose a location for your project under "Location". You can leave these three items at their default settings if you wish, then click on "OK" to create your project successfully, as shown below.

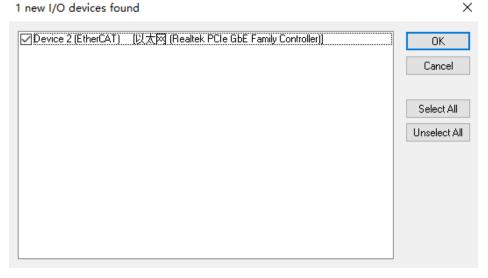


# 2、 Scan Devices

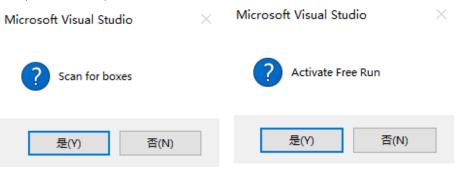
a. After creating your project, right-click on "Scan" option under "I/O -> Devices" to scan slave devices as shown below.



 b. Checkmark "Local Connection" network card as shown below 1 new I/O devices found



c. In the pop-up window "Scan for boxes", click on "Yes". In another pop-up window named "Activate Free Run", click on "Yes", as shown below.



d. After scanning devices, Box1(XB6-EC0002) and Module 1(XB6-C01SP) will appear in left navigation tree with status OP indicating that they are online and running properly; RUN light is ON indicating that slave device is working fine too,as shown below

Solution Explorer 🔷 👎 🗙	TwinCAT Project1	÷Χ				
- 4 B - 0	General EtherC	AT Process Da	ita Slots S	tartup CoE - Online Onlin	ie	
Search Solution Explorer (Ctrl+;)	State Machin	ne				
<ul> <li>Solution 'TwinCAT Project1' (1 project)</li> <li>TwinCAT Project1</li> </ul>	Init	Boo	tstrap	1	OP	
SYSTEM MOTION	Pre-Op	Safe	e-Op	Current State: Requested State:	OP	
SAFETY	Op	Clea	ar Error	hequested state.		
G C++ ✓ C++ ✓ C++ ✓ VO ✓ Bevices ✓ Bevice 2 (EtherCAT)	DLL Status Port A:	Carrier / Op	en			
Image Image-Info	Port B:	No Carrier	Closed			
<ul> <li>SyncUnits</li> <li>Inputs</li> </ul>	Port C:	No Carrier ,	Closed			
<ul> <li>InfoData</li> </ul>	Port D:	No Carrier ,	Closed			
/ D Box 1 (XB6-EC0002)     D Inputs	File Access o	ver EtherCAT				
<ul> <li>The contract of the contract of t</li></ul>	Downloa	ad	Upload			

# 3、 Verify Basic Functions

a. Clicking on left navigation tree item "Box1 -> Startup -> New" will take you to parameter editing page where you can edit parameters related to CANopen startup entry ,as showm blow:

Solution Explorer 👻 👎 🗙	TwinCAT Project	1 -⊨ ×			
°°∆ `o•∎  <b>⊁</b> _	General Ether	CAT Process	Data Slots St	tartup CoE - Online C	Online
Search Solution Explorer (Ctrl+;)					
Solution 'TwinCAT Project1' (1 project)     ✓    Softmanner     MOTION     MOTION     SAFETY     SAFETY     C++     ✓    VO     ✓    Devices     ✓    Devices     ✓    Devices     ✓    Devices     ✓    Devices     ✓    Device     Outputs     ◇     Softmanner     Softmanner	Transition	Protocol CoE	Index 0xF030 C 0	Data 01 00 A1 06 00 00	Comment download slot cfg
Box 1 (XB6-EC0002)					
<ul> <li>Inputs</li> <li>Outputs</li> <li>Module 1 (X86-C01SP)</li> <li>Inputs</li> <li>Outputs</li> <li>WeState</li> <li>InfoData</li> </ul>	Move Up	Move	Down	New	Delete Edit

b. On Edit CANopen Startup Entry popup menu ,clicking "+" before Index 2000:0 will expand configuration parameter menu. You can see 7 configuration parameters here and clicking on any of them will allow you to set related configurations, as shown below.

Edit CANoper	n Sta	artup Entry						×
Transition ☐ I -> P ☑ P -> S ☐ S -> 0		S -> P  O -> S	Index (hex): Sub-Index (d	dec):	0 0 Complete Acc	ess		OK Cancel
Data (hexbin):								Hex Edit
Validate Mask:								
Comment:								Edit Entry
Index	Na			Flags	Value		Unit	
≐-2000:0		6-C01SP Config		RW	>7<			- 15
2000:01		mmunicate Mode		RW	ModbusRTUM		①通讯模	
2000:02		rial Baud		RW	Baud 115200 (	7)	②串口波	
2000:03		rial Stop		RW	1 Bit (0)		③停止位	
2000:04		rial Parity		RW	None (0)		④奇偶校	
2000:05		rial WordFormat		RW	8Bits (0)		⑤字符格	
2000:06		dbus Slave ID		RW	0x00000001 (1	<i>,</i>		us从站编号
- 2000:07		dbus Slave Resp	· · ·	RW	0x000003E8 (1	000)	⑦应答延	时
®-F030:0		nfigured Module I	uent List	RW				

c. For example, if you want to modify communication mode parameter, double-click on "Communicate Mode" and change the parameter value as shown below.

Edit CANopen Startup Entry			$\times$
Transition ☐ I -> P ✓ P -> S ☐ S -> P ☐ S -> 0 ☐ 0 -> S	Index (hex): Sub-Index (dec):	2000 1 Complete Access	OK Cancel
Data (hexbin): 00 00 00 00			Hex Edit
Validate Mask:			
Comment: Communicate Mc	Set Value Dial	og	×
Index     Name       2000:0     ×B6-C01SP Config       - 2000:01     Communicate Mode       - 2000:02     Serial Baud       - 2000:03     Serial Stop       - 2000:04     Serial Parity       - 2000:05     Serial WordFormat       - 2000:06     Modbus Slave ID       - 2000:07     Modbus Slave Respon <ul> <li>F030:0</li> <li>Configured Module Ide</li> <li>Configured Module Ide</li></ul>	Bool:	5 0x00000005 PassThrough 0 0 0 0 0 0 0 0 0 0 0 0 0	OK Cancel

d. After modifying the parameters, you can see modified items and their values under Startup section as shown below

Twi	nCAT Project	1 ⊕ ×				-
G	eneral Ether	CAT Process [	Data Slots St	artup CoE - Online C	Inline	
	Transition	Protocol	Index	Data	Comment	
	C <ps></ps>	CoE	0xF030 C 0	01 00 A1 06 00 00	download slot cfg	
	C PS	CoE	0x2000:01	PassThrough (5)	Communicate Mode	
	Move Up	Move D		New	Delete Edit	
	wove up	Iviove L	JOWIT	INEW	Delete Edit	
						•

e. Left navigation tree item "Module 1 -> Inputs" displays upstream data of communication module for monitoring its status ,as shown below.

ype Size	ize >Address	In/Out	User ID Linked to
JSINT 1.0	.0 41.0	Input	0
JSINT 1.0	.0 42.0	Input	0
JSINT 1.0	.0 43.0	Input	0
JSINT 1.0	.0 44.0	Input	0
JSINT 1.0	.0 45.0	Input	0
JSINT 1.0	.0 46.0	Input	0
JSINT 1.0	.0 47.0	Input	0
JSINT 1.0	.0 48.0	Input	0
JSINT 1.0	.0 49.0	Input	0
JSINT 1.0	.0 50.0	Input	0
JSINT 1.0	.0 51.0	Input	0
JSINT 1.0	.0 52.0	Input	0
JSINT 1.0	.0 53.0	Input	0
JSINT 1.0	.0 54.0	Input	0
JSINT 1.0	.0 55.0	Input	0
JSINT 1.0	.0 56.0	Input	0
JSINT 1.0	.0 57.0	Input	0
JSINT 1.0	.0 58.0	Input	0
JSINT 1.0	.0 59.0	Input	0
JSINT 1.0	.0 60.0	Input	0
JSINT 1.0	.0 61.0	Input	0
JSINT 1.0		Input	0
JSINT 1.0	.0 63.0	Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
JSINT 1.0		Input	0
			0
			0
			0
ISI	NT 1	NT 1.0 79.0	NT 1.0 79.0 Input

f. Left navigation tree item "Module 1 -> Outputs" displays downstream data of pulse output module for monitoring its output status ,as shown below.

Solution Explorer	<b>-</b> ₽ ×	TwinCAT	Project1 🕫 🗙							
○ ○ ☆ io - 司 ≠		Name		Online	Type	Size	>Address	In/Out	User ID	Linked to
Search Solution Explorer (Ctrl+;)	- م	■Tx 1	<ol> <li>         ①控制字         </li> </ol>	0	USINT	1.0	41.0	Output	0	
	- p -	■Tx 2	②传输方式	0	USINT	1.0	42.0	Output	0	
Solution 'TwinCAT Project1' (1 project)		<b>₽</b> Тх 3	③下行数据长度	0	USINT	1.0	43.0	Output	0	
TwinCAT Project1		■Tx 4	④上行数据长度	0	USINT	1.0	44.0	Output	0	
SYSTEM		■Tx 5	⑤下行数据包计数	0	USINT	1.0	45.0	Output	0	
MOTION PLC		■Tx 6	⑥上行数据表计数	0	USINT	1.0	46.0	Output	0	
SAFETY		■Tx 7	⑦~数据	0	USINT	1.0	47.0	Output	0	
SAFETT		💵 Tx 8		0	USINT	1.0	48.0	Output	0	
		<b>■</b> Tx 9		0	USINT	1.0	49.0	Output	0	
✓ ■ Devices		■Tx 10		0	USINT	1.0	50.0	Output	0	
✓ ■ Device 2 (EtherCAT)		■Tx 11		0	USINT	1.0	51.0	Output	0	
👯 Image		■Tx 12		0	USINT	1.0	52.0	Output	0	
🚼 Image-Info		■Tx 13		0	USINT	1.0	53.0	Output	0	
SyncUnits		■Tx 14		0	USINT	1.0	54.0	Output	0	
Inputs		■Tx 15		0	USINT	1.0	55.0	Output	0	
Outputs		■Tx 16		0	USINT	1.0	56.0	Output	0	
InfoData		■Tx 17		0	USINT	1.0	57.0	Output	0	
Box 1 (XB6-EC0002)		■Tx 18		0	USINT	1.0	58.0	Output	0	
Inputs		■Tx 19		0	USINT	1.0	59.0	Output	0	
Outputs		■Tx 20		0	USINT	1.0	60.0	Output	0	
Module 1 (XB6-C01SP)		■ Tx 21		0	USINT	1.0	61.0	Output	0	
<ul> <li>Inputs</li> <li>Outputs</li> </ul>	_	■Tx 22		0	USINT	1.0	62.0	Output	0	
V WcState		■Tx 23		0	USINT	1.0	63.0	Output	0	
InfoData		■Tx 24		0	USINT	1.0	64.0	Output	0	
Mappings		►Tx 25		0	USINT	1.0	65.0	Output	0	
a mappings		■Tx 26		0	USINT	1.0	66.0	Output	0	
		■Tx 27		0	USINT	1.0	67.0	Output	0	
		►Tx 28		0	USINT	1.0	68.0	Output	0	
		►Tx 29		0	USINT	1.0	69.0	Output	0	
		■Tx 30		0	USINT	1.0	70.0	Output	0	
		■Tx 31		0	USINT	1.0	71.0	Output	0	
		■Tx 32		0	USINT	1.0	72.0	Output	0	
		■Tx 33		0	USINT	1.0	73.0	Output	0	
		■Tx 34		0	USINT	1.0	74.0	Output	0	
		►Tx 35		0	USINT	1.0	75.0	Output	0	
		Tx 36		0	USINT	1.0	76.0	Output	Ő	
		Tx 37		0	USINT	1.0	77.0	Output	0	
		• Tx 38		0	USINT	1.0	78.0	Output	0	
		Tx 39		0	USINT	1.0	79.0	Output	0	
		Tx 40		0	USINT	1.0	80.0	Output	0	
		- 1X 40		0	03011	1.0	00.0	output	0	

# 4. Example of Transparent Transmission Function

Example: Verify pure input mode in module transparent transmission function through barcode scanner

a. Configure the parameters by selecting communication mode 5 i.e. transparent mode as shown below:

Edit CANope	n Startup Entry					×
Transition ☐ I -> P ☑ P -> S ☐ S -> 0	S.→P O.→S	Index (he Sub-Inde	x (dec):	2000 1 Complete Access		OK Cancel
Data (hexbin):	05 00 00 00					Hex Edit
Validate Mask:						
Comment:	Communicate 1	Mode				Edit Entry
Index ⊨-2000:0	Name XB6-C01SP Config		Flags RW	Value > 7 <	Unit	
2000:01	Communicate Mode	9	RW	PassThrough (5)		
2000:02	Serial Baud		RW	Baud 115200 (7)		
2000:03	Serial Stop		RW	1 Bit (0)		
2000:04	Serial Parity		RW	None (0)		
2000:05	Serial WordFormat		RW	8Bits (0)		
-2000:06	Modbus Slave ID		RW	0x00000001 (1)		
- 2000:07	Modbus Slave Resp	,	RW	0x000003E8 (1000)		
₽-F030:0	Configured Module	Ident List	RW			

b. Write downlink data where Tx2 is set to 1 indicating that transmission method is pure input mode; Tx4 is set to 13 indicating that upstream data length is 13 (you can write any length for first time but after receiving data, you'll know actual upstream data length), as showm blow

olution Explorer 🗸 🗸	🗛 🗙 TwinCAT Pro	oject3 👳 🗙						
0 0 🏠 To - 🗊 👂 🗕	Name	Online	Туре	Size	>Address	In/Out	User ID	Linked
	د <mark>■</mark> Tx 1	0	USINT	1.0	41.0	Output	0	
	Tx 2	1	USINT	1.0	42.0	Output	0	
Solution 'TwinCAT Project3' (1 project)	Tx 3	0	USINT	1.0	43.0	Output	0	
TwinCAT Project3	■Tx 4	13	USINT	1.0	44.0	Output	0	
GYSTEM     MOTION	Tx 5	0	USINT	1.0	45.0	Output	0	
MOTION	Tx 6	0	USINT	1.0	46.0	Output	0	
SAFETY	Tx 7	0	USINT	1.0	47.0	Output	0	
C++	Tx 8	0	USINT	1.0	48.0	Output	0	
	■ Tx 9	0	USINT	1.0	49.0	Output	0	
Devices	■Tx 10	0	USINT	1.0	50.0	Output	0	
<ul> <li>Device 2 (EtherCAT)</li> </ul>	■Tx 11	0	USINT	1.0	51.0	Output	0	
📲 Image	■Tx 12	0	USINT	1.0	52.0	Output	0	
📑 Image-Info	■Tx 13	0	USINT	1.0	53.0	Output	0	
SyncUnits	■Tx 14	0	USINT	1.0	54.0	Output	0	
Inputs	■Tx 15	0	USINT	1.0	55.0	Output	0	
Outputs	■Tx 16	0	USINT	1.0	56.0	Output	0	
🔺 🛄 InfoData	■Tx 17	0	USINT	1.0	57.0	Output	0	
ChangeCount	■Tx 18	0	USINT	1.0	58.0	Output	0	
🔁 Devid	■Tx 19	0	USINT	1.0	59.0	Output	0	
📌 AmsNetId 😎 CfgSlaveCount	►Tx 20	0	USINT	1.0	60.0	Output	0	
<ul> <li>CigsiaveCount</li> <li>Box 1 (XB6-EC0002)</li> </ul>	■Tx 21	0	USINT	1.0	61.0	Output	0	
Dox 1 (AB0-EC0002)	■ Tx 22	0	USINT	1.0	62.0	Output	0	
Outputs	■ Tx 23	0	USINT	1.0	63.0	Output	0	
<ul> <li>Module 1 (XB6-C01SP)</li> </ul>	■ Tx 24	0	USINT	1.0	64.0	Output	0	
Inputs	■Tx 25	0	USINT	1.0	65.0	Output	0	
Outputs	■Tx 26	0	USINT	1.0	66.0	Output	0	
WcState	■ Tx 27	0	USINT	1.0	67.0	Output	0	
🕨 🔜 InfoData	■ Tx 28	0	USINT	1.0	68.0	Output	0	
📸 Mappings	■Tx 29	0	USINT	1.0	69.0	Output	0	
	■ Tx 30	0	USINT	1.0	70.0	Output	0	
	■Tx 31	0	USINT	1.0	71.0	Output	0	
	■ Tx 32	0	USINT	1.0	72.0	Output	0	
	■ Tx 33	0	USINT	1.0	73.0	Output	0	
	■ Tx 34	0	USINT	1.0	74.0	Output	0	
	■ Tx 35	0	USINT	1.0	75.0	Output	0	
	■ Tx 36	0	USINT	1.0	76.0	Output	0	
	<b>₽</b> Tx 37	0	USINT	1.0	77.0	Output	0	
	■Tx 38	0	USINT	1.0	78.0	Output	0	
	■Tx 39	0	USINT	1.0	79.0	Output	0	
	■ Tx 40	0	USINT	1.0	80.0	Output	0	

#### c. Enable downlink instruction where Tx1 is set to 1 indicating enablement ,as showm blow

Solution Explorer 🔹	👎 🗙 TwinCAT P	roject3 ↔ ×						
0 0 🏠 '0 - 🗊 👂 🗕	Name	Online	Туре	Size	>Address	In/Out	User ID	Linked t
Search Solution Explorer (Ctrl+;)	ρ- ■Tx 1	1	USINT	1.0	41.0	Output	0	
1 1 1		1	USINT	1.0	42.0	Output	0	
Solution 'TwinCAT Project3' (1 project)	■ Tx 3	0	USINT	1.0	43.0	Output	0	
TwinCAT Project3	■ Tx 4	13	USINT	1.0	44.0	Output	0	
SYSTEM	■ Tx 5	0	USINT	1.0	45.0	Output	0	
	■ Tx 6	0	USINT	1.0	46.0	Output	0	
PLC SAFETY	■ Tx 7	0	USINT	1.0	47.0	Output	0	
General C++	■ Tx 8	0	USINT	1.0	48.0	Output	0	
▲ 🔀 I/O	■ Tx 9	0	USINT	1.0	49.0	Output	0	
Devices	■Tx 10	0	USINT	1.0	50.0	Output	0	
✓ ■ Devices ✓ ■ Device 2 (EtherCAT)	■Tx 11	0	USINT	1.0	51.0	Output	0	
= Image	■Tx 12	0	USINT	1.0	52.0	Output	0	
Image-Info	■Tx 13	0	USINT	1.0	53.0	Output	0	
SyncUnits	■Tx 14	0	USINT	1.0	54.0	Output	0	
Inputs	■Tx 15	0	USINT	1.0	55.0	Output	0	
Outputs	■Tx 16	0	USINT	1.0	56.0	Output	0	
🖌 📮 InfoData	■Tx 17	0	USINT	1.0	57.0	Output	0	
🔁 ChangeCount	■Tx 18	0	USINT	1.0	58.0	Output	0	
🔁 Devld	■Tx 19	0	USINT	1.0	59.0	Output	0	
📌 AmsNetId	■Tx 20	0	USINT	1.0	60.0	Output	0	
🔁 CfgSlaveCount	►Tx 21	0	USINT	1.0	61.0	Output	0	
Box 1 (XB6-EC0002)	Tx 22	0	USINT	1.0	62.0	Output	0	
Inputs	• Tx 23	0	USINT	1.0	63.0	Output	0	
Outputs	■ Tx 24	0	USINT	1.0	64.0	Output	0	
<ul> <li>Module 1 (XB6-C01SP)</li> <li>Inputs</li> </ul>	Tx 25	0	USINT	1.0	65.0	Output	0	
Generation     Generation     Generation     Generation     Generation     Generation	Tx 26	0	USINT	1.0	66.0	Output	0	
V WCState	Tx 27	0	USINT	1.0	67.0	Output	0	
InfoData	Tx 28	0	USINT	1.0	68.0	Output	0	
appings	Tx 29	0	USINT	1.0	69.0	Output	0	
	Tx 30	0	USINT	1.0	70.0	Output	0	
	Tx 30	0	USINT	1.0	70.0		0	
	Tx 32	0	USINT	1.0	71.0	Output		
		0				Output	0	
	Tx 33	-	USINT	1.0	73.0	Output	0	
	■ Tx 34	0	USINT	1.0	74.0	Output	0	
	Tx 35	0	USINT	1.0	75.0	Output	0	
	■ Tx 36	0	USINT	1.0	76.0	Output	0	
	Tx 37	0	USINT	1.0	77.0	Output	0	
	■Tx 38	0	USINT	1.0	78.0	Output	0	
	►Tx 39	0	USINT	1.0	79.0	Output	0	
	■ Tx 40	0	USINT	1.0	80.0	Output	0	

d. Scan barcode with scanner which completes sending of data . Upstream Data received from barcode scanner shows that packet has been prepared successfully when Rx1=1 ;upstream Data Length =13 when Rx4=13;Rx6=1 indicates first package while Rx7~Rx19 are actual scanned code characters obtained by scanning device ,as shown blow

Solution Explorer 🛛 👻	Image: state sta	Г Project3 👍 🗙						
0 0 û io - 🗊 👂 🗕	Name	Online	Туре	Size	>Address	In/Out	User ID	Linked to
	🖉 - 🔍 Rx 1	1	USINT	1.0	41.0	Input	0	
Search Solution Explorer (Ctrl+;)	- Rx 2	1	USINT	1.0	42.0	Input	0	
Solution 'TwinCAT Project3' (1 project)	🕶 Rx 3	0	USINT	1.0	43.0	Input	0	
TwinCAT Project3	🕶 Rx 4	13	USINT	1.0	44.0	Input	0	
SYSTEM	🕶 Rx 5	0	USINT	1.0	45.0	Input	0	
MOTION	🕶 Rx 6	1	USINT	1.0	46.0	Input	0	
PLC PLC	🕶 Rx 7	50	USINT	1.0	47.0	Input	0	
SAFETY C++	🕶 Rx 8	54	USINT	1.0	48.0	Input	0	
▲ S 1/O	🕶 Rx 9	57	USINT	1.0	49.0	Input	0	
<ul> <li>Devices</li> </ul>	🕶 Rx 10	55	USINT	1.0	50.0	Input	0	
<ul> <li>Devices</li> <li>Device 2 (EtherCAT)</li> </ul>	• Rx 11	49	USINT	1.0	51.0	Input	0	
timage	💌 Rx 12	50	USINT	1.0	52.0	Input	0	
📲 Image-Info	🕶 Rx 13	53	USINT	1.0	53.0	Input	0	
SyncUnits	<b>•</b> Rx 14	53	USINT	1.0	54.0	Input	0	
Inputs	🕶 Rx 15	48	USINT	1.0	55.0	Input	0	
Outputs	• Rx 16		USINT	1.0	56.0	Input	0	
🔺 🛄 InfoData	= Rx 17	49	USINT	1.0	57.0	Input	0	
🐔 ChangeCount	• Rx 18		USINT	1.0	58.0	Input	0	
🔁 Devld	• Rx 19	13	USINT	1.0	59.0	Input	0	
🔁 AmsNetId	= Rx 20		USINT	1.0	60.0	Input	0	
CfgSlaveCount	• Rx 21	0	USINT	1.0	61.0	Input	0	
Box 1 (XB6-EC0002)	<b>•</b> Rx 22		USINT	1.0	62.0	Input	0	
Inputs	• Rx 23		USINT	1.0	63.0	Input	0	
<ul> <li>Outputs</li> <li>Module 1 (XB6-C01SP)</li> </ul>	• Rx 24		USINT	1.0	64.0	Input	0	
Module T (ABG-COTSP) Inputs	■ Rx 25		USINT	1.0	65.0	Input	0	
<ul> <li>Inputs</li> <li>Outputs</li> </ul>	• Rx 26		USINT	1.0	66.0	Input	0	
V WcState	• Rx 27		USINT	1.0	67.0	Input	0	
InfoData	= Rx 28		USINT	1.0	68.0	Input	0	
appings 1	• Rx 29		USINT	1.0	69.0	Input	0	
	= Rx 30		USINT	1.0	70.0	Input	0	
	= Rx 31	0	USINT	1.0	71.0	Input	0	
	= Rx 32		USINT	1.0	72.0	Input	0	
	= Rx 33		USINT	1.0	73.0	Input	0	
	= Rx 34		USINT	1.0	74.0	Input	0	
	• Rx 35	-	USINT	1.0	75.0	Input	0	
	= Rx 36		USINT	1.0	76.0	Input	0	
	• Rx 30		USINT	1.0	77.0	Input	0	
	• Rx 37		USINT	1.0	78.0	Input	0	
	• Rx 30		USINT	1.0	78.0		0	
				1.0		Input	0	
	<b>•</b> Rx 40	U	USINT	1.0	80.0	Input	0	

e. Scanned barcodes are displayed in figure given above



f. Convert the received data into a string, as shown in the following table, which is consistent with the barcode and can be successfully read.

Rx7	50	ASCII code converts to"2"
Rx8	54	ASCII code converts to"6"
Rx9	57	ASCII code converts to"9"
Rx10	55	ASCII code converts to"7"
Rx11	49	ASCII code converts to"1"
Rx12	50	ASCII code converts to"2"
Rx13	53	ASCII code converts to"5"
Rx14	53	ASCII code converts to"5"
Rx18	49	ASCII code converts to"1"

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		Rx19	13		ASCII co	Il code converts to empty					
g.	g. The downlink disable command, Tx1 is 0 which means disabled, as shown in the figure below.										
	Solution Explorer		- û ×	TwinCAT Proje	ect3 ⊕ ×				-		
	000 100	ji 2 _=		Name	Online	Туре	Size	>Address	In/Out	User ID	Linked to
	Search Solution Expl		- م	■Tx 1	0	USIN	T 1.0	41.0	Output	0	
			<i>p</i> .	■ Tx 2	0	USIN	T 1.0	42.0	Output	0	
		AT Project3' (1 project)		■Tx 3	0	USIN	T 1.0	43.0	Output	0	
	TwinCAT Pro	ject3		■Tx 4	0	USIN	T 1.0	44.0	Output	0	
	SYSTEM MOTION			■Tx 5	0	USIN	T 1.0	45.0	Output	0	
	MOTION			■Tx 6	0	USIN	T 1.0	46.0	Output	0	
	SAFETY			■Tx 7	0	USIN	T 1.0	47.0	Output	0	
	% C++			■Tx 8	0	USIN	T 1.0	48.0	Output	0	
	▲ 🛃 I/O			■Tx 9	0	USIN		49.0	Output	0	
	Device	es		<b>₽</b> Tx 10	0	USIN		50.0	Output	0	
		vice 2 (EtherCAT)		■Tx 11	0	USIN		51.0	Output	0	
		Image		■Tx 12	0	USIN	T 1.0	52.0	Output	0	
		Image-Info		■Tx 13	0	USIN		53.0	Output	0	
		SyncUnits		■Tx 14	0	USIN		54.0	Output	0	
		Inputs		■ Tx 15	0	USIN		55.0	Output	0	
		Outputs		■Tx 16	0	USIN		56.0	Output	0	
	_	InfoData 2 ChangeCount		■Tx 17	0	USIN		57.0	Output	0	
		<ul> <li>Devid</li> </ul>		■Tx 18	0	USIN		58.0	Output	0	
		AmsNetId		■Tx 19	0	USIN		59.0	Output	0	
		CfgSlaveCount		■ Tx 20	0	USIN		60.0	Output	0	
		Box 1 (XB6-EC0002)		■ Tx 21	0	USIN		61.0	Output	0	
	⊳	Inputs		■ Tx 22	0	USIN		62.0	Output	0	
	Þ	Outputs		■ Tx 23	0	USIN		63.0	Output	0	
	▲	Module 1 (XB6-C01S	P)	■Tx 24	0	USIN		64.0	Output	0	
	1	- mpars		■ Tx 25	0	USIN		65.0	Output	0	
		Outputs		■ Tx 26	0	USIN		66.0	Output	0	
	Þ	WcState		■Tx 27	0	USIN		67.0	Output	0	
		lnfoData		■ Tx 28	0	USIN		68.0	Output	0	
	背 Mapp	ings		■Tx 29	0	USIN		69.0	Output	0	
				■ Tx 30	0	USIN		70.0	Output	0	
				■ Tx 31	0	USIN		71.0	Output	0	
				■ Tx 32	0	USIN		72.0	Output	0	
				■ Tx 33	0	USIN		73.0	Output	0	
				■ Tx 34	0	USIN		74.0	Output	0	
				■ Tx 35	0	USIN		75.0	Output	0	
				Tx 36	0	USIN		76.0	Output	0	
				Tx 37	0	USIN		77.0	Output	0	
				Tx 38	0	USIN		78.0	Output	0	
				Tx 39	0	USIN		79.0	Output	0	
	1		I	<b>₽</b> Tx 40	0	USIN	T 1.0	80.0	Output	0	

# 7 FAQ

# 7.1 When updating accessible devices, the device cannot be found

- 1. Confirm that the Botu software is installed correctly.
- 2. Make sure that no other software is using the network adapter used by the Botu software.
- 3. Ensure that the Ethernet cable, network card, and port are working properly.
- 4. IP address or MAC address conflict..

# 7.2 The load button is gray when downloading configuration files

- 1. Confirm that there are no forced values in the PLC.
- 2. Confirm that the PLC is in a stopped state.