FORWARD, ALWAYS PROGRESSING

INOVANCE





GL20-RTU-EIP Communication Interface Module User Guide

Suzhou Inovance Technology Co., Ltd.

Add.: No.52, Tian'e Dang Road, Wuzhong District, Suzhou 215104, P.R. China Tel: (0512) 6637 6666 Fax: (0512) 6285 6720 www.inovance.com

>>>

Preface

Introduction

This guide describes the product information, technical data, mechanical installation, electrical installation, configuration, commissioning, and troubleshooting of the product.

Standards Compliance

The following table lists the certifications, directives, and standards that the product may comply with. For details about the acquired certificates, see the certification marks on the product nameplate.

Certifica- tion	D	irective	Standard
CE	EMC Directive	2014/30/EU	24 VDC products
Certifica-			EN 61131-2
tion			220 VAC products
			EN 61131-2
			EN 61000-3-2
			EN 61000-3-3
	LVD	2014/35/EU	EN 61010-1
			EN 61010-2-201
	RoHS Directive 2011/65/EU amended by (EU) 2015/863		EN IEC 63000
UL/cUL	-		UL 61010-1
Certifica-			UL 61010-2-201
tion			CAN/CSA-C22.2 No. 61010-1
			CSA C22.2 NO. 61010-2-201
ксс	-		-
Certifica-			
tion			
EAC	-		-
tion			

Certifica- tion	Directive		Standard
UKCA Certifica- tion	Safety Regulations	Electrical Equipment (Safety) Regulations 2016	EN 61010-1 EN 61010-2-201
	EMC Regulations	Electromagnetic Compatibility Regulations 2016	24 VDC products EN 61131-2 220 VAC products EN 61131-2 EN 61000-3-2 EN 61000-3-3
	RoHS Regulations	Directive (RoHS) Regulations 2012	EN IEC 63000

Revision History

Date	Version	Description
April 2024	A00	Initial release

How to Obtain

This guide is not delivered with the product. You can obtain the PDF version by the following methods:

- Do keyword search under Service and Support at <u>http://www.inovance.com</u>.
- Scan the QR code on the product with your smart phone.
- Scan the QR code below to install the app, where you can search for and download manuals.



Warranty Disclaimer

Inovance provides warranty service within the warranty period (as specified in your order) for faults or damage that occur during normal operation. Maintenance will be charged after the warranty expires.

Within the warranty period, maintenance fee will be charged for the following damage:

- Damage caused by operations not following the instructions in the user guide
- The product is damaged due to fire, flood, and abnormal voltage.
- Damage caused by unintended use of the product
- Damage caused by use beyond the specified scope of application of the product
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

The maintenance is charged according to the latest Price List of Inovance. If otherwise agreed upon, the terms and conditions in the agreement shall prevail.

For details, see Product Warranty Card.

Fundamental Safety Instructions

Safety Precautions

- 1. Before installing, using, and maintaining this equipment, read the safety information and precautions thoroughly, and comply with them during operations.
- 2. To ensure personal and equipment safety, observe the notes indicated on the product labels and all the safety instructions in the user guide.
- 3. "CAUTION", "WARNING", and "DANGER" in the user guide only indicate some of the precautions that need to be followed; they just supplement the safety precautions.
- 4. Use this equipment according to the designated environment requirements. Damage caused by improper use is not covered by warranty.
- 5. Inovance shall take no responsibility for any personal injury or property damage caused by improper use.

Safety Levels and Definitions

\Lambda 危险

"DANGER" indicates that failure to comply with the notice can result in severe personal injury or even death.

▲ 警告

"WARNING" indicates that failure to comply with the notice may result in death or severe personal injury.



"CAUTION" indicates that failure to comply with the notice may result in minor or moderate personal injury or equipment damage. Keep this manual properly for future use and deliver it to the end user.

Control System Design

<u> </u>危险

- Provide a safety circuit outside the PLC so that the control system can still work safely once external power failure or PLC fault occurs.
- Add a fuse or circuit breaker because the module may smoke or catch fire due to longtime overcurrent caused by operation above rated current or load short-circuit.

▲ 警告

- An emergency stop circuit, a protection circuit, a forward/reverse operation interlocked circuit, and a upper position limit and lower position limit interlocked circuit must be set in the external circuits of PLC to prevent damage to the machine.
- To ensure safe operation, for the output signals that may cause critical accidents, please design external protection circuit and safety mechanism.
- Once the CPU of the PLC detects an exception in the system, all outputs may be closed; however, when a fault occurs in the controller circuit, the output may not be under control. Therefore, it is necessary to design an appropriate external control circuit to ensure normal operation.
- If the PLC output units such as relays or transistors are damaged, the output may fail to switch between ON and OFF states according to the commands.
- The PLC is designed to be used in an indoor electrical environment (overvoltage category II). The power supply must have a system-level surge protector, assuring that overvoltage due to lightning shock can't be applied to the PLC's power supply input terminals, signal input terminals and output terminals, to prevent damage to the equipment.

Installation

▲ 警告

- Installation must be carried out by specialists who have received the necessary electrical training and understood enough electrical knowledge.
- Disconnect all external power supplies of the system before removing/installing the module. Failure to do so may result in electric shock, module fault or malfunction.
- Do not use the PLC where there are dust, oil smoke, conductive dust, corrosive or combustible gases, or exposed to high temperature, condensation, wind & rain, or subject to vibration and impact. Electric shock, fire and malfunction may also result in damage or deterioration to the product.
- The PLC is open-type equipment that must be installed in a control cabinet with lock (cabinet housing protection > IP20). Only the personnel who have received the necessary electrical training and understood enough electrical knowledge can open the cabinet.



- Prevent metal filings and wire ends from dropping into ventilation holes of the PLC during installation. Failure to comply may result in fire, fault and malfunction.
- Ensure there are no foreign matters on ventilation surface. Failure to comply may result in poor ventilation, which may cause fire, fault and malfunction.
- Ensure the module is connected to the respective connector securely and hook the module firmly. Improper installation may result in malfunction, fault or fall-off.

Wiring

<u> </u>危险

- Wiring must be carried out by personnel who have received the necessary electrical training and understood enough electrical knowledge.
- Disconnect all external power supplies of the system before wiring. Failure to comply may result in electric shock, module fault or malfunction.
- Perform good insulation on terminals so that insulation distance between cables will not reduce after cables are connected to terminals. Failure to comply may result in electric shock or damage to the equipment.

⚠ 注意

- To avoid electric shock, cut off the power supply before connecting the product to the power supply.
- The input power of the product must meet the specifications listed in this guide. If the
 power input does not meet the specifications, the equipment may be damaged. Thus,
 check regularly that the DC power provided by the switching-mode power supply unit is
 stable.

Operation and Maintenance

⚠ 注意

- Maintenance & inspection must be carried out by personnel who have the necessary electrical training and experience.
- Do not touch the terminals while the power is on. Failure to comply may result in electric shock or malfunction.
- Disconnect all external power supplies of the system before cleaning the module. Failure to comply may result in electric shock.
- Disconnect all external power supplies of the system before removing the module or connecting/removing the communication wirings. Failure to comply may result in electric shock or malfunction.

Safety Recommendations

- In the position where the operator directly contacts the machinery part, for example, where a machinery tool is loaded/unloaded, or where a machine runs automatically, the onsite manual operating devices and any other alternative means must be carefully arranged and designed so that they are independent of the programmable controller and can start or terminate the automatic running of the system.
- If you need to modify the program while the system is running, use the lock function or other protective measures. Ensure that only authorized personnel can make the necessary modifications.

Disposal



- Dispose of retired batteries as industrial waste according to local laws and regulations.
- Recycle retired equipment by observing industry waste disposal standards to avoid environmental pollution.

1 Product Information

1.1 Product Introduction

Overview

GL20-RTU-EIP communication interface module connects to the EtherNet/IP network as an EtherNet/IP slave. With this module, you can expand the system with Inovance local modules such as GL20 series digital modules, analog modules, and temperature detection modules (*"1.6 Release Notes" on page 14*). It can be used together with Inovance or third-party EtherNet/IP master devices.

Bus Current Consumption Calculation

The GL20-RTU-EIP module supports up to 16 GL20 series expansion modules, including the GL20-PS2 module. The number of expansion modules supported depends on the total bus current consumption.

When the total bus current consumption of the expansion modules (*"1.6 Release Notes" on page 14*) exceeds the bus supply current of the GL20-RTU-EIP module, that is, 2 A, it is necessary to add an GL20-PS2 module to supply power to the expansion modules.

The formula for calculating the total bus current consumed by the expansion modules is as follows:

Total bus current consumption of expansion modules = Bus consumption current of expansion module #1 + Bus consumption current of expansion module #2 + ... + Bus consumption current of expansion module #n

- When a GL20-PS2 module is not provided, it is required that the total bus current consumption of the expansion modules must not exceed 2 A.
 For example, the GL20-RTU-EIP module can support up to 8 GL20-3232ETN-M modules each with a bus current consumption of 250 mA (2 A/250 mA=8), or up to 16 GL20-0008ETP modules each with a bus current consumption of 85 mA (16 x 85 mA=1360 mA≤2 A).
- When a GL20-PS2 module is provided because the total current consumption of the expansion modules that are directly powered by the GL20-RTU-EIP module exceeds 2 A, the excessive expansion modules are powered by the GL20-PS2 module. The number of expansion modules supported by the GL20-PS2 module is determined based on the total bus current consumption of the expansion modules, similar to the above calculation method of the GL20-RTU-EIP module. It

should be noted that if one GL20-PS2 module is provided, then its bus current consumption must be included in the total supply current of the GL20-RTU-EIP module. If multiple GL20-PS2 modules are provided, the bus current consumption of a certain GL20-PS2 module must be included in the total supply current of the immediately previous GL20-PS2 module.

For example, given that 8 GL20-3232ETN-M modules are already added to the GL20-RTU-ECT module. If you want to add more expansion modules, a GL20-PS2 module is required for additional power supply. In this case, you need to remove at least one GL20-3232ETN-M module to reserve the bus supply current margin of the GL20-RTU-EIP module to supply power to the GL20-PS2 module. The GL20-PS2 module consumes a bus current consumption of 60 mA and provides a bus current of 2 A.

Here we take one GL20-RTU-EIP module (2 A power supply) + one GL20-PS2 (2 A power supply) + several GL20-3232ETN-M modules as an example, then at least 15 GL20-3232ETN-M can be supported (15 x 250 mA=3750 mA).

The following figure shows the power supply diagram of the GL20-RTU-EIP module.





- The GL20-PS2 module and the GL20-RTU-EIP module must be powered on simultaneously, otherwise addressing may fail.
- Do not place the GL20-PS2 module in the last slot of the configuration.

1.2 Model Number and Nameplate



The data for ordering the product is shown below.

Model	Description	Product Code	Applicable Model
GL20-RTU-EIP	GL20 series EtherNet/IP communication module	01440511	Ethernet/IP master: PLC

1.3 Components



No.	Interface			Descr	iption
		-	Power	ON	Power supply normal
		PWR	indicator	OFF	Power supply abnormal
			Running	Blinking	EIP connection not established
		RUN	state indicator	Steady ON	EIP connection established
	Signal indicator	500	Communi- cation error indicator	Blinking	Blinking red at an interval of 1s, indicating that a recoverable fault such as RPI timeout occurs.
1		ERR		Steady ON	An unrecoverable fault such as Ethernet hardware initialization failure occurs.
		SF	Applica- tion fault indicator	OFF	The module has no fault.
				Blinking	The module has a minor hardware fault, such as disconnection.
				Steady ON	The module has a serious hardware fault (such as module hardware error, channel fault, overlimit, etc.)
2	Type-C interface	Used fo	Ised for software upgrade of the board		

No.	Interface	Description
3	EtherNet/IP interface	Ethernet port
4	24 V power supply	For power supply input
5	DIP switch	Configure the IP.

1.4 Product Dimensions

The mounting dimensions (in mm) are shown in the figure below.

Module



End Cover



1.5 Spare Parts and Options

Communication Cable

EtherNet/IP bus communication adopts shielded Ethernet cables for data transmission, without short circuit, misalignment and poor contact. The length of cables between devices cannot exceed 100m; otherwise, signal attenuation will occur and affect normal communication. It is recommended to use cables specified as follows.

Item	Specification	
Cable type	Elastic crossover cable, S-FTP, Cat5	
Chandard	EIA/TIA568A, EN50173, ISO/IEC11801	
Standard	EIA/TI Abulletin TSB, EIA/TIA SB40-A&TSB36	
Cross sectional area	26AWG	
Conductor type	Twisted pair	
Number of pairs	4	

Power Supply Wiring

The cable lug and cable diameter described in the following table are only for reference.

Material	Cable [Cable Diameter		Cable Diameter KST		Suzhou Yuanli	
Name	mm ²	AWG	Model	Crimping	Model	Crimping	
				Tool		Tool	
	0.3	22	E0308	KST2000L	0308		
	0.5	20	E0508		0508		
Tubular lug	0.75	18	E7508		7508	YAC-5	
	1.0	18	E1008		1008		
	1.5	16	E1508		1508		

If you use other types of tubular lug, crimp the lug to the cables according to the shape and dimension requirements shown in the figure below.



External Interface Specifications

Туре	Interface	Cable Type/ Maximum Length	Description	User terminals	Performance
EtherNet/IP interface	EtherNet/IP	Cat5e shielded cable, 100 m	EtherNet/IP communica- tion interface	2x RJ45	100 Mbps (100Base-TX)
Power supply	24 V input	3-core unshielded cable, 20 m	24 V power input	6-pin pluggable terminal block	24 V/1 A

1.6 Release Notes

The following describes the released firmware version, the matching expansion modules, and the matching EDS file version.

First release: 1.1.6.0 firmware (MCU)

• Matching expansion modules

Product Code	Module Name	Description	Firmware Version	Bus Current Con- sump- tion	Input/Output Size
01440293	GL20-0016ETN	16-channel DO module (NPN transistor)	Logic software: 0.1.2.0 and later	100 mA	Input: 0 byte Output: 2 bytes
01440292	GL20-0016ETP	16-channel DO module (PNP transistor)	Logic software: 0.1.2.0 and later	85 mA	Input: 0 byte Output: 2 bytes
01440291	GL20-1600END	16-channel DI module	Logic software: 0.1.2.0 and later	100 mA	Input: 2 bytes Output: 0 byte
01440287	GL20-4DA	4-channel DA module, supporting voltage/current output	Board software: 1.1.5.0 and later	100 mA	Input: 0 byte Output: 8 bytes
01440288	GL20-4AD	4-channel AD module, supporting voltage/current output	Board software: 1.1.5.0 and later	100 mA	Input: 8 bytes Output: 0 byte
01440489	GL20-8ADI	8-channel AD module, supporting current output	Board software: 1.1.0.5 and later	100 mA	Input: 16 bytes Output: 0 byte
01440482	GL20-8ADV	8-channel AD module, supporting voltage output	Board software: 1.1.0.5 and later	100 mA	Input: 16 bytes Output: 0 byte

Product Code	Module Name	Description	Firmware Version	Bus Current Con- sump- tion	Input/Output Size
01440334	GL20-0008ER	8-channel relay DO module	Logic software: 0.1.2.0 and later	85 mA	Input: 0 byte Output: 1 byte
01440381	GL20-0800END	8-channel digital input module	Logic software: 0.1.2.0 and later	100 mA	Input: 1 byte Output: 0 byte
01440379	GL20-0008ETN	8-channel DO module (NPN transistor)	Logic software: 0.1.2.0 and later	100 mA	Input: 0 byte Output: 1 byte
01440380	GL20-0008ETP	8-channel DO module (PNP transistor)	Logic software: 0.1.2.0 and later	85 mA	Input: 0 byte Output: 1 byte
01440339	GL20-0808ETN	8-channel DI/DO module	Logic software: 0.1.2.0 and later	85 mA	Input: 1 byte Output: 1 byte
01440290	GL20-3232ETN-M	32-channel DI/DO module (ejector header)	Board software: 3.0.4.0 and later	250 mA	Input: 4 bytes Output: 4 bytes
01440378	GL20-3200END- M	32-channel DI module (ejector header)	Board software: 3.0.4.0 and later	125 mA	Input: 4 bytes Output: 0 byte
01440377	GL20-0032ETN-M	32-channel DO module (ejector header)	Board software: 3.0.4.0 and later	125 mA	Input: 0 byte Output: 4 bytes

Product Code	Module Name	Description	Firmware Version	Bus Current Con- sump- tion	Input/Output Size
01440466	GL20-3200END	32-channel DI module (push-in terminal)	Logic software: 0.1.2.0 and later	85 mA	Input: 4 bytes Output: 0 byte
01440467	GL20-0032ETN	32-channel DO module (push-in terminal)	Logic software: 0.1.2.0 and later	125 mA	Input: 0 byte Output: 4 bytes
01440337	GL20-4PT	4-channel input thermal resistor temperature detection module	Board software: 2.0.5.0 and later	100 mA	Input: 16 bytes Output: 0 byte
01440338	GL20-4TC	4-channel input thermocouple temperature detection module	Board software: 2.0.5.0 and later	85 mA	Input: 16 bytes Output: 0 byte
01440351	GL20-PS2	2A power module	Board software: 0.1.2.0 and later	2000 mA	Input: 0 byte Output: 0 byte

• Matching EDS file version: 00.01

2 Product Specifications

2.1 Electrical Specifications

Item	Specification				
Rated terminal input voltage	24 VDC (20.4 VDC to 28.8 VDC)				
Rated terminal input current	0.6 A (typical@24 V)				
Rated bus output voltage	5 VDC (4.75 VDC to 5.25 VDC)				
Rated bus output current	2 A (typical@5 V)				
Power output derating	80% derating at 55°C (the output current does not exceed 1.6 A), or 10°C derating when output current is 2 A				

2.2 Technical Specifications

General specifications

ltem	Specification
IP rating	IP20
Dimensions (W x H x D)	24 mm x 100 mm x 83 mm
Weight	Approx. 123 g

Software specifications

ltem	Specification
IP setting method	USB software toolBOOTP/DHCPDIP switch
Network topology	Linear, star, tree, and DLR (only supported as managed)
Max. number of supported I/ O modules	16
Max. data length	Input: 504 bytes, Output: 504 bytes
Transmission distance	100 m
RPI	1 ms to 50,000 ms
Max. number of CIP connections	8

Item	Specification
Network interface	2x RJ45 with interactive function
Connection rate	100M

Environmental Specifications

Item	Specification				
Operating environment	No corrosive and flammable gas and no excessive conductive dust				
Altitude	≤2,000 m				
Pollution degree	2				
Noise immunity	2 kV on power supply line (Conforms to IEC 61000-4-4)				
Overvoltage category	1				
EMC immunity level	Zone B, IEC61131-2				
Vibration resistance	 Operating: Tested according to IEC 60068-2-6. 5 Hz to 8.4 Hz, 3.5 mm, 8.4 Hz to 200 Hz, 1 g, 10 cycles each in X, Y and Z directions. Transport: Tested according to IEC 60068-2-64. 5 Hz to 100 Hz, 0.01 g²/Hz; 200 Hz, 0.001 g²/Hz, 1.14 g, 30 min each in X, Y and Z directions. 				
Shock resistance	 Operating: Tested according to IEC 60068-2-27. 15 g, 11 ms, 18 shocks. Transport: Tested according to IEC 60068-2-27. 15 g, 11 ms, 18 shocks. 				
Operating temperature/ humidity	 Temperature: -20°C to +55°C Relative humidity: 10% to 90% RH, non-condensing 				
Storage temperature/ humidity	 Temperature: -40°C to +70°C Relative humidity: <90% RH, non-condensing 				

3 Mechanical Installation

3.1 Installation Precautions

• Before installing or removing the module, ensure that the module is powered off.



Do not hot swap the modules. Otherwise, the modules may be damaged by overcurrent or overvoltage, and the PLC may be subject to restart, user data loss or corruption.

• Prevent the enclosure or terminals of the module from dropping or suffering from impact or shock.

3.2 Installation Method

The module is mounted onto a DIN rail in conformity with IEC 60715 (width: 35 mm, thickness: 1 mm). The dimensions (unit: mm) are shown below.





If the module is not installed on the recommended DIN rail (especially when the DIN rail thickness is not 1.0 mm), DIN rail buckles may not be locked. In this case, the module cannot be installed in place and will fail to work properly.

Installing the modules to each other

1. Remove the end cover in the direction indicated by the arrow, as shown below.



You can install multiple modules to each other with the help of top and bottom guides on the modules, as shown below.



Installing the module onto DIN rail

1. Align the module with the DIN rail and push the module in the direction indicated by the arrow until you hear a clicking sound, as shown below.



2. Make sure the DIN rail mounting hook of the module is locked. The locked and unlocked states of the mounting hook are shown below.



- If the mounting hook is pressed down, it is locked.
- If the mounting hook is lifted up, it is unlocked.

Press down the mounting hook to lock the module to the DIN rail.



When the module is not installed on the DIN rail, keep the rail buckles in locked state. If the rail buckles remain in unlocked state for a long period of time, they will be invalidated.

3. Mount an end plate on either side of the PLC or the module.

To mount the end plate, hook the bottom of it to the bottom of the DIN rail, rotate the end plate to hook the top of it to the top of the DIN rail, and then tighten the screw to lock the end plate in place.



Removing the module

Pry the DIN rail mounting hook upwards with a tool such as slotted screwdriver, hold the protrusions and pull the module out straight forward, and then press down the top of the DIN rail mounting hook.





4 Electrical Installation

4.1 Cable Connection



Figure 4-1 Cable connection diagram (in mm)

Note

To ensure the reliability, it is recommended to use different power supply modules for the 24 V input of the communication interface module and the 24 V input of other modules.

4.2 Electrical Wiring Diagram



5 Programming Examples

5.1 IP Address Definition and Configuration

Configuring the IP address via DIP switch

The DIP switch of the GL20-RTU-EIP module provides eight bits, which are defined as follows:

- When the DIP switch value is 0x00, the module uses the software-configured IP. The software-configured IP can be configured using the USB configuration tool (Note: The module comes with a factory default IP 192.168.1.66).
- When the DIP switch value is 0xFF, the module is in DHCP mode by default. In this mode, the BOOTP tool must be used to assign IP every time the module is powered on.
- When the DIP switch value is in the range 0x01 to 0xFE, the DIP switch value represents the last byte of the IP address. The first three bytes can be configured by the software or use the default (192.168.1). By default, the mask is 255.255.255.0 and the gateway is 192.168.1.1.

	Po		Key value	IP addross					
1	2	3	4	5	6	7	8	ney value	IF address
0	0	0	0	0	0	0	0	0x00	Software configuration mode
									(Configura- tion via USB)
1	0	0	0	0	0	0	0	0x01	x.x.x.1
0	1	0	0	0	0	0	0	0x02	x.x.x.2
									•
									•
0	1	1	1	1	1	1	1	0xFE	x.x.x.254
1	1	1	1	1	1	1	1	0xFF	DHCP mode

After modifying the IP address, it is necessary to restart the GL20-RTU-EIP module.

Software configuration mode

When all switches are 0, you can configure the IP address via software.

In the software configuration mode, you can configure the IP address through a USB connection.

Connect to the Type-C port of the GL20-RTU-EIP module through a USB cable, open the USB tool, and enter the IP address, subnet mask, and gateway address. Click **IP** and Mask Gateway Configuration to send the IP address to the module.

n 10Manager V2.0.0.0				- 0	×
断开连接 已连接	12 (基本信息 📑 设备判	干级 圆 故障诊断		
设备型号		序号 模块类型	MCU版本 FPGA/CPLD版本		
GL20 RTU EIP	-00	GL20_RTU_E11	P 01. 01. 07. 00 00. 01. 02. 00		
0_GL20_0016ETN	-0	0 0120 001457	MILL 00. 01. 12. 00		
I_GL20_1600END	-18	EIPERE	× 00.01.12.00		
2_GL20_4PT	-3		00. 02. 01. 00		
3_GL20_4TC	-0		获取III 网络参数 设置III 网络参数 00.01.03.00		
4_GL20_0032ETN	-0		00. 01. 03. 00		
5_GL20_0800END	-0	丁地	註: 192 , 168 , 1 , 66 00.01.05.00		
0_GL20_3232ETN	-0	7 (2)40:	GL 000 000 000 00 000 000 000 000 000 00		
GL20_0808ETN	-0	71910	00.01.12.00		
8_GL20_0008ETN	-0	网络	关: 182 , 168 , 1 , 1 00.01.05.00		
68 9_GL20_3200END	-0		00. 01. 15. 00		
10_GL20_4AD	÷D	NDLC :	D: FF - FF - FF - FF - FF - FF 00.01.03.00		
11_GL20_8AD1	-18		00. 02. 00. 01		
USI 12_GL20_4DA	-33		9083441 MM- 10 00. 01. 02. 00		
aa 13_6L20_410	-0	13 GL20_416	02, 01, 05, 00 00, 01, 03, 00		
上载拓扑 参数配置					
工程导出 工程导入					
模块电流信息	操作	日志			
共计14个模块, 消耗1670mA电流! ^	- 5	育息	日期	对词	^

Figure 5-1 Configuring IP address via the USB tool

5.2 Configuration of Mounted Modules

The modules mounted to the GL20-RTU-EIP communication interface module can be configured either through the USB configuration tool or through the attribute of custom UCMM object.

5.2.1 Configuration via USB Configuration Tool

Prerequisite

The USB configuration tool has been successfully installed.

Steps

1. Check the configuration of modules mounted to the communication interface module.

Connect to the communication interface module via the USB cable, open the USB configuration tool, and click **Connect Device**. Upon successful connection, click **Upload Topology** to view the configuration of the modules mounted to the communication interface module. Right-click the communication interface module

and select **PDO Parameters** to view the periodic data type and data length of input and output of each module, and total data size of all modules.

n 10Manager V2.0.0.0									-	Ø	×
断开连接 已连接	≔ 基本公	18 日 设备;	开级 民 故障	诊断							
设备型号	序号	模块类型		M	U版本		FPGA/I	CPLD版本			
GL20 RTU EIP	<0 °	GL20_RTU_EI	Ρ	0	1.01.08.00		00.01	. 02. 00			
0 GL20 0016ETN	-00 0	GL20_0016ET	N	N	ULL		00.01	. 12. 00			
22 1_GL20_0808ETN	67. 1	01.20 080857	N				00.01	12.00			
2 GL20 4DA	190世教							×			
3_GL20_4AD	700输出参数:				P10输入参数:						
	積块	模块输入总数	通道救掘类型	通道位长度	模块	模块输入总数	通道救援类型	通道位长度			
	0_GL20_0016ETM	2	USINT	8	1_6L20_0806ETN	1	USINT	8			
	1_GL20_0606873	1	USINT	8	3_GL20_4AD	8	INT	16			
	2_GL20_4IA	8	181	16							
上载拓扑 参数配置 工程导出 工程导入	700輸出总数:	11			110输入总数:	11					
模块由流信息	操作日志										
共计4个模块, 消耗455mA电流!	消息							日期	时间		
0_GL20_0016ETN>150mA	 ※※) 	*接中						2024-01-31	19:4	7:06.3	221
1_GL20_0808ETN>120mA	(2) 连接:	0 % st 10 1						2024-01-31	19:4	7:06	248
2_GL20_4DA>85mA	() 注意:	1 如果是单数	会器连接USR	请等待30+之	后再进行操作!			2024-01-31	19-4	7-06	251
3_GL20_4AD>100#A	0	2. 荣禄块扫描	纠态,需要务	连接24V由源。	否则可能组态	扫描不全!		2024-01-31	19:4	7:06.	253
	E 100 - 1	石扑完成!			and a second			2024-01-31	19-4	7-07	586

Figure 5-2 Viewing the configuration of the modules mounted to the communication interface module

2. Configure the module.

Click a corresponding module in the module list, and then click the **Parameter Configuration** tab. After configuring the configuration data of the module, click **Parameter Configuration** in the lower left corner to send the module configuration parameters to the communication interface module.



Figure 5-3 Configuring the module

5.2.2 Configuration via UCMM Programming

The module supports UCMM (Unconnected Message Manager). You can obtain configuration information, version number, diagnostic information, as well as issue module configuration data by reading and writing custom UCMM objects.

Configuration Flowchart

The following figure shows the process of issuing configuration data through the attributes of custom UCMM objects. First, read the attribute 0x000000064 of instance 0x00000000 of object 0x0381 of the communication interface module to obtain the number of modules mounted to the EIP communication interface module and the ID of each module. Then perform match according to the module type returned. After the configuration interface is generated, generate the configuration data according to the protocol format and allocate the configuration data to the corresponding slot.

Note

The diagnostic data can be read selectively based on actual requirements or read by default.



Figure 5-4 Configuration flowchart

Definition of UCMM communication protocol

• UCMM read/write definition:

Class ID	Instance	Attribute	Notes			
	0x00000000	0x00000064	Communication interface module information, including the number of modules mounted and module ID			
0x0381		0x00000001	Module ID, module version			
	0x00000001	0x00000002	Configuration information			
		0x0000003	Diagnostic information			
		0x00000001	Module ID, module version			
	0x00000002	0x00000002	Configuration information			
		0x0000003	Diagnostic information			
	0x0000003	0x00000001	Module ID, module version			
		0x00000002	Configuration information			
		0x0000003	Diagnostic information			
		0x00000001	Module ID, module version			
	0x00000004	0x00000002	Configuration information			
		0x0000003	Diagnostic information			
		0x00000001	Module ID, module version			
	0x00000010	0x00000002	Configuration information			
		0x0000003	Diagnostic information			

• Definition of returned data for UCMM read:

Class ID	Instance	Attribute	length	data	Notes	
0x0381	0x00000000	0x00000064	Total length of the data area	Refer to table 5-1	Communication interface module information, including the number of modules mounted and module ID	
	0x00000001	0x00000001	-	Refer to table 5-2	Module ID, module version	
		0x00000001	0x00000002	-	Refer to module configuration data	Configuration information
		0x0000003	-	Refer to module diagnostic data	Diagnostic information	

Class ID	Instance	Attribute	length	data	Notes
		0x00000001	-	Refer to table 5-2	Module ID, module version
	0x00000002	0x00000002	-	Refer to module configuration data	Configuration information
		0x00000003	-	Refer to module diagnostic data	Diagnostic information
		0x00000001	-	Refer to table 5-2	Module ID, module version
	0x0000003	0x00000003 0x00000002		Refer to module configuration data	Configuration information
		0x00000003	-	Refer to module diagnostic data	Diagnostic information
0x0381	0x00000004	0x00000001	-	Refer to table 5-2	Module ID, module version
		0x00000002	-	Refer to module configuration data	Configuration information
		0x00000003	-	Refer to module diagnostic data	Diagnostic information
		0x00000001	-	Refer to table 5-2	Module ID, module version
	0x00000010	0x00000002	-	Refer to module configuration data	Configuration information
		0x00000003	-	Refer to module diagnostic data	Diagnostic information

Table 5–1 Communication interface module information list

length		data									
data Total length (2byte)	Commu- nication interface module ID (4byte)	Commu- nication interface module version (4byte)	FPGA Version (4byte)	Number of slots mounted to the communi- cation interface module (4byte)	Slot 1 Module ID (4byte)	Slot 2 Module ID (4byte)		Slot x Module ID (4byte)			
0xXXXX	0xXXXX- XXXX	0xXXXX- XXXX	0xXXXX- XXXX	0xXXXXXX- XX	0xXXXX- XXXX	0xXXXX- XXXX		0xXXXXX- XXX			

Table 5–2 Information list of local modules

length	da	ata	-
Total data length (2byte)	MCU version (4byte)	Module ID	CPLD version (4byte)
0xXXXX	0xXXXXXXXX	0xXXXXXXXX	0xXXXXXXXX

• Definition of UCMM RX/TX data:

Class ID	Instance	Attribute	data	Notes
		0x0000064	-	Not allowed to write
	0x00000000	0x00000065	Tooling-related functions	-
		0x0000001	-	Not allowed to write
	0x00000001	0x00000002	Refer to module configuration data	Configuration information
		0x0000003	-	Not allowed to write
		0x00000001	-	Not allowed to write
	0x00000002	0x00000002	Refer to module configuration data	Configuration information
		0x0000003	-	Not allowed to write
		0x00000001	-	Not allowed to write
0x0381	0x00000003	0x00000002	Refer to module configuration data	Configuration information
		0x0000003	-	Not allowed to write
		0x0000001	-	Not allowed to write
	0x00000004	0x00000002	Refer to module configuration data	Configuration information
		0x0000003	-	Not allowed to write
		0x0000001	-	-
	0x00000010	0x00000002	Refer to module configuration data	Configuration information
		0x0000003	-	Not allowed to write

• Definition of returned data for UCMM write: Same with the standard format of the returned data for UCMM write.

5.3 Definition of Process Data

Process data mapping

The network adapter reads and writes the I/O process data of the I/O module in real time through the internal bus. The data mapping model is shown in the following figure.



Figure 5-5 Diagram of data mapping model

For the mapping of the input data for a specific cycle, you can view related parameters in the USB software. The maximum input bytes and output bytes of the EtherNet/IP network adapter are 504 bytes respectively.

Diagnostic Definition of Process Data

The GL20-RTU-EIP communication interface module itself outputs process data. The first two bytes of the input process data are diagnostic data, such as Diag data on *"Figure 5–5 " on page 36*.

bit	Name	Meaning	Remarks	
0	EIP diagnosis	Indicates the EIP diagnostic information	1: Diagnostic information present	
1	GL-LINK diagnosis	L-LINK diagnosis Indicates the GL-LINK diagnostic information		
2	MODULE diagnosis	Indicates the MODULE diagnostic information	1: Diagnostic information present	
3	EIP STATUS	EIP connection status	1: Connected, 0: Disconnected	
4 to 7	GL-LINK STATUS	Status of local bus	See below	
8 to 15	MODULE Address	Address of the module that has diagnostic information.	If multiple modules have diagnostic information, then it is the address of the last module.	

When the module has diagnostic information, bit2 is set to 1 and bit8 to bit15 displays the address of the module with diagnostic information. When multiple modules have diagnostic information, bit2 displays the address of the module with diagnostic information. It is the address of the last module with diagnostic information.

Local bus status: 0: Error; 1: Initialization; 2: Pre-running; 3: Safe-operational; 4: Running

For detailed diagnostic fault codes of the module, see "Fault Diagnosis" on page 61.

5.4 Programming Examples

5.4.1 Programming with Inovance InoProShop

Prerequisite

Inovance InoProShop software has been installed successfully and the EDS file is ready. You can get the InoProShop software and the EDS file at <u>https://www.inovance.com</u>.

Steps

1. Add a device.

a. Add EDS file of the GL20-RTU-EIP communication interface module.

Note

If the EDS file is not installed successfully, the GL20-RTU-EIP device cannot be scanned.

 In the menu bar, select Tools > Device Repository. The Device Repository dialog opens, as shown below.

a a la be des la de ce y de la	1	grains (99) doge Maroger	100	a (0		e 28 1 (3 1 %		ः । आ २१				
- 3 40 M		nery Republicy		acte	1.00 T	g tera	Inc.nic.	× .	Include the la			
Constraints Constraints		Profestion (market) Market (market) Market (market) (mark	1.9	Serve SE.099	Liliva	Enie type prig	hitdaalar	Pervision	A w	Caromeri	24 bon	

Figure 5-6 Opening the device repository

- In the menu bar, select Tools > Device Repository. The Device Repository dialog opens, as shown below.
- 3). In the pop up dialog, open the EDS file of the GL20-RTU-EIP communication interface module to be installed, as shown below.

Ocation: System Repo	sitory Files\InoPr	oShop\CODESYS\Repository\Devices	~	Edit Locations	rk Publish	Comment	Attributes	
(010.003.00					_			
nstalled device descript	ions:							
String for a fulltext searc	h	Vendor: <al vendors=""></al>	~	Install				
Name Miscelaneous Fieldbusses Fieldbusses PLCs	Ven	dor Version Description		Uninstell Exporta	L			
tall Device Descriptio	n n							
	11 、文相	≝ (E:) → GL20-RTU-EIP →			~ č	存 GL2	D-RTU-EIP 中搜索	
▼ 新建文件夹							BE • 0	
报告客户	^	名称	修改日	期	类型	大小		
归档		EncryptionToolsV3.17	2022/	10/12 14:17	文件夹			
耦合器xml		InoETNLoader v2.13.5 2304	14 2024/	7/5 10:44	文件夾			
此由脑		InoLoader_V3.17.7	2024/	2/26 17:43	文件夾			
20.2140		IOManager_0308_EIPUpdate	2024/	3/8 16:12	文件夾			
1025		版本	2024/	6/6 14:03	文件夾			
TRUKE		GL20(GL20S)-RTU-EIP_V00.0	1.eds 2024/	7/8 10:11	EDS 文件		19 KB	
		GL20-RTU-EIP_V00.01.eds	2024/	7/10 16:10	EDS 文件		19 KB	
又相 王和								
38.1								
百次								
黑田								
系统 (C:)								
软件 (D:)								
软件 (D:) , 文档 (E:)	~							

Figure 5-7 Installing the EDS file

b. Add the GL20-RTU-EIP communication interface module.

 Double-click Network Configuration and select "EtherNet/IP Master", as shown below.

2exces - • • ×	🖉 ETHERCAT 👔 PLC_PRG_DO 👔 Device 👔 PLC_PRG_DI 👘 Hardware Configuration 🛪
* @ 10,N	EtherCAT(LAN Q) + 👒 Refresh 🕼 Copy 👘 Parts 🖄 Delete 💱 Undo 👷 Redo 🛛 🔍 Zoom Is 🔍 Zoom Out 80 🛛 + %
B B Denice (AM780-H)	
Device Diagnose	Personal and a second s
W Network Configuration	Polyard TUSE /
D EtherCAT Config	C EtherCAT Barter
- 🕼 Localdus Carifig	JUNERAL DUAL OF LAN A
H (1) R.C Lapic	EtherBet/IP Easter EtherBet/IP Slave
C Application	JEtharlies/IP GAN E0
🐮 Lbrwy Manager	Lthefdel/IF Katter _ EtherNet/IF Slave
B stc_sec_te (sec)	
- 1 PLC_PRS_DO (PRS)	
iii 🔯 Taok Configuration	
States 107 and 107	
EthernedPMaster_ALDCycle	
🗏 🥵 EPHateServiceTaik_A	
EtherhetPMaster_A.ServiceCycle	
eteroscor	
😑 🤹 MainTask	
- @ mc_ma_po	
- Resources Lot	
ETHERCAT (EtherCAT Haster SoftMotor)	
 B ON (ON But) 	
CAN, Port (CAN Part)	
👻 📳 Senal (Senal Interface)	
CON (Serial Part)	
+ (theret, A (theret)	
Eliene@Master_A (Elienes/P Scaver)	
SoftMation General Asis Pool	
🛁 🔪 Local Bus	

Figure 5-8 Adding EtherNet/IP master

- 2). Add the GL20-RTU-EIP communication interface module through automatic scanning or manual addition, as shown below.
 - Automatic scanning
 - i. In the **Devices** pane, right-click "EtherNetIPMaster_A (EtherNet/IP Scanner)" and select **Scan for Devices**.



Figure 5-9 Scanning for device

 ii. Click Scan Devices, select the scanned device, and click Copy all to project to finish adding the GL20-RTU-EIP communication interface module (Currently, the modules that are mounted to the communication interface module cannot be added through scanning.)

n Devices)
ranned Devices						
Devicename	Devicetype	IP Address	Serial Number			
- GL20_RTV_EIP	GL20-RTU-EIP(Major Revision=16#1, Minor Revision = 16#1)	192.168.1.240	1 (16#1)			
				Salow	Differen	15.62
	thernat Tilamot i ar		Copy all to proj	eet Corst croff		

Figure 5-10 Selecting the scanned device

- Adding the module manually
 - Right-click "EtherNetIPMaster_A (EtherNet/IP Scanner)" and select Add Device.



Figure 5-11 Adding device

ii. Click Add Device. In the pop up dialog, select the GL20-RTU-EIP

communication interface module.

🛃 Add Device	,				×
Rane GL20 B	KTV KIP				
Action	-				
(Append dev	iae 🔿 Insert deviae 🔿	PlugDevice	🔿 Vydate device		
String for a fulley	d search	Vendor:	call vanderes		V
			00100000	N	5 1 C
Name G. All cuta		vende	or	version	Description
- D Recouse	es dua 10				
	Negar Negarint III Romata Adaptas				
	AC200 Series PLC FIP Adapter	Innvan	(B)	Mainr Devision = 16.81 Minor Devision = 16.	#1 Ethernal /ID Tarnet imported from EDS File: AC200 Series RI C. FID Adapter eds Device: AC200 Series R
	ACROD Series PLC ETP Adapter	Inovan		Nator Revision = 16#1, Minor Revision = 16;	#1 Ethernet/IP Target imported from EDS File: AC800 Series PLC FIP Adapter, eds Device: AC800 Series P
-	A1800 Series PLC EIP Adapter	Innvan		Nator Revision=16#1, Minor Revision = 16	#1 Ethernet/IP Target imported from EDS File: AI800 Series PLC. EIP Adapter.eds Device: AI800 Series PL
-6	AM300 Series PLC EIP Adapte	Inovan	ce	Major Revision=16#1, Minor Revision = 16	#1 Ethernet/IP Target imported from EDS File: AM300 Series PLC EIP Adapter.eds Device: AM300 Series P
-6	AM400 Series PLC EIP Adapte	Inovan	œ	Major Revision=16#1, Minor Revision = 16-	#1 Ethernet/IP Target imported from EDS Pile: AM400 Series PLC EIP Adapter.eds Device: AM400 Series P
-6	AM500 Series PLC EIP Adapte	Inovan	ce	Major Revision=16#1, Minor Revision = 16	#1 Ethernet/IP Target imported from EDS File: AM500 Series PLC EIP Adapter.eds Device: AM500 Series P
-6	AM600 Series PLC EIP Adapte	Inovan	œ	Major Revision=16#1, Minor Revision = 16-	#1 Ethernet/IP Target imported from EDS File: AM600 Series PLC EIP Adapter.eds Device: AM600 Series P
-6	EtherNetIP Adapter	35 - Sm	art Software Solutions GmbH	Major Revision=16#1, Minor Revision = 16	#1 Ethernet/IP Target imported from EDS File: CODESYS_EtherNetIP_Adapter.eds Device: EtherNetIP Ada
-6	Generic EtherNet/IP device	35 - Sm	art Software Solutions GmbH	3.5.8.0	EtherNet/IP Target for a generic Device
-6	GL20-RTU-EIP	Inovan	œ	Major Revision=16#1, Minor Revision = 16	#1 Ethernet/IP Target imported from EDS Pile: GL20-RTU-EIP_V00.01.eds Device: GL20-RTU-EIP
-6	Inovance PLC EIP Adapter	Inovan	oe	Major Revision=16#1, Minor Revision = 16	#1 Ethernet/IP Target imported from EDS File: Inovance PLC EIP Adapter.eds Device: Inovance PLC EIP A
<					>
Group by cate	gory Display all versions (f	or experts on	ly) Display outdated vers	ions	
Inne: G.	20-RTU-EIP				0
					*
Append selecter	d device as last child of				
EtherSetIFMast	er_A				
(When this	window opens, you can sele	ot another	target node in the navige	itor)	
					Add Device Close

Figure 5-12 Adding GL20-RTU-EIP communication interface module

2. Configure the EtherNet/IP network adapter.

In the **Devices** pane, double-click "EtherNet_A (EtherNet)". In the pop up page, select the **General** tab and then click **Interface** to select the network adapter with the same IP as the communication interface module.



Figure 5-13 Configuring EtherNet/IP

- 3. Configure the GL20-RTU-EIP communication interface module.
 - a. Configure the general information of the GL20-RTU-EIP communication interface module.

In the **Devices** pane, select GL20_RTU_EIP (GL20-RTU-EIP) > General. Check whether the IP address of the module is the IP address configured. If not, modify the IP address.



b. View modules connected to the GL20-RTU-EIP communication interface module.
 Connect to the communication interface module via the USB cable, open the USB software, and click Connect Device. Upon successful connection, click Upload Topology to view the configuration of the mounted communication interface module. Right-click the communication interface module and select PDO Parameters to view the periodic data type and data length of input and output of each module, and total data size of all modules.

新子法接 设备型 5 回 420,RTU_E1P 面 0,68,20,001 /eTN 面 1,0,20,0808ETN 面 2,64,20_49A 面 3,6420_4AD	Ⅲ 基本值 序号 40 ° 40 ° 40 0 40 0 40 1 100400	息 日 设备 模块类型 GL20_RTU_EI GL20_0016ET	中级 凤 政隊	ide Rif	加度本		5001.0				
後名型号 田20_8120_RTU_EIP 田30_81.20_0010ETN 田31_61.20_0808ETN 田32_61.20_40A 田3_61.20_44D P5	序号 	模块类型 GL20_RTU_EI GL20_0016ET	P	10	川版本		5001 //	and an and she			
GL20_RTU_EIP H 0_GL20_D016ETN H 1_GL20_0808ETN H 2_GL20_40A H 3_GL20_40A F		GL20_RTU_E1 GL20_0016ET	Р				PPG//	PLD版本			
Image: Control of the contro		GL20_0016ET		0	1.01.08.00		00.01	02.00			
I _ GL 20_0808ETN I 2_GL 20_4DA III 3_GL 20_4AD III 3_GL 20_4AD	10000		N	N	uu		00.01	12.00			
E 2_6L20_40A E 3_6L20_4AD F1	1004680	0.30 000057	M				00.01	12.00			
EE 3_GL20_4AD PC								×			
	10稿出部数:				110船入参数:						
	模块	模块输入总数	通道救援负型	通道拉长度	根块	模块输入总数	通道救援失型	通道拉长度			
0	_GL20_0016ETH	2	USINT	8	1_GL20_00008TS	1	NETHL	8			
L	_GL20_0808ETH	1	USIN	8	3_6L20_4AD	8	INT	16			
2	_GL20_43k	8	INT	16							
工程导出 工程导入 "					110級入意题: 1	1					
模块电流信息	操作日志										
共计4个模块,消耗455mA电流!	消息							日期	时间		
_GL20_0016ETN>150mA	② 设备连	接中						2024-01-31	19:4	7:06.3	221
_GL20_0808ETN>120nA	◎ 连接设	备成功!						2024-01-31	19:4	7:06.3	248
_GL20_4DA>85mA	注意:	1. 如果是单数	合器连接USB,	, 请等待30s之	后再进行操作!			2024-01-31	19:4	7:06.3	251
3_GL20_4AD>100mA	۲	2. 带模块扫描	出态, 需要先	连接24V电源。	否则可能组态并	3描不全!		2024-01-31	19:4	7:05.2	253
	 上数拓 	扑完成!						2024-01-31	19:4	7:07.5	186

Figure 5-15 Viewing modules connected to the GL20-RTU-EIP communication interface module

c. Configure the connection information of the GL20-RTU-EIP communication interface module.

I/O data statistics are available in the host controller. For details, see "5.2.1 Configuration via USB Configuration Tool" on page 27. You can configure the connection parameters of the GL20-RTU-EIP communication interface module through I/O data statistics.

The OUT and IN byte statistics are known. In the **Devices** pane, go to **GL20_ RTU_EIP (GL20-RTU-EIP)** > **Connections**. Configure the input/output assembly based on the type and channels of the module. For example, configure " $O \rightarrow T$ Size" to 11 bytes and " $T \rightarrow O$ Size" to 11 bytes, as shown below.

C.CC.materi	a generation a recom	5,00 👔 Device 👔 PLC_PRG_01 🌗 Hardware Configuration 🦅 Hetwork Con	nfpanton / 🗑 G.20,409,09 x 👸 EtherhelPhater,A 🛛 👸 Etherhel,A
The same Distance of the	Coresi		
Control Diagnese	Connections	Connection Name RPI (mi) O->T Size (Bytes) T->O Size (Bytes) Proxy Con	nfig Size (Bytes) Tanget Config Size (Bytes) Connection Path
K Network Configuration		ALLEN COM NO 11 11	202020
D EtwickT Config	Uper-Oxfined Ferenduce		
• • • • • • • • • • • • • • • • • • •	Rthertox(3P 2/0 Mapping		
* O Application	Bandrard W. Change		
Resources List	Contractor according		
ETHERCAT (EtherCAT Naster Selfinition)	Balas		
g CHI (CAI Bu)	Information		
I Sand (Sand Interface)			
B con (becairwit)			
B there(A (there)			
- I the lettine A (the lettin some)			
3 0.30, KTU, EP (0.21 4TU EP)			
SoftWaton General Axis Pad Local Burn		Add Connection Add Teg Connection Delete Edit	
		Assembly Configuration Data	
		Overvit Assembly "Overvit (/O Henningen" (D -> 1)	Provid Assembly Trout (I/O Messager" (T -> 0)
		W ADd X Delets V More Up V More Down	WAS A Desite IF Move Up II Move Davis
		Name Lista type lat Length Help string	Name Data type at Leight Help tong
		B THOMAS T LIGHT &	- ID SIMU UNY IN
		1.22-52 do UNT 18	- 1120-440-400 LEVT 18
		- 0.29-04-01 UNT 18	-0.21-440-61 URVT 18
		- 0.28-04-02 UNT IS	- 0.21-440-62 UNT 18
		- 6.21-64-03 UNT IS	G.28-440-e5 UNT 18
		- 6.28-64-65 UNT II	- 628-440-65 UNT 18
		- 628-664-65 UBY 18	- 0.28-440-045 URV 16
		L G28-G9-d9 UBIT IS	L_0,21+40-65 U017 IS
			i aziswo-do uenr in
		N 1991 Oct-40-00	- 0.3440-05 UD7 IX
		i-Ω314€4465 URT 14	- G.3.40-03 007 H
		`-Q34€445 URT II	Lasaeas (en s

Figure 5-16 Configuring the connection of the GL20-RTU-EIP communication interface module

d. Log in to and operate the GL20-RTU-EIP communication interface module.

Log in to InoProShop. In the **Devices** pane, select **GL20_RTU_EIP** (**GL20-RTU-EIP**) > **EtherNet/IP I/O Mapping**, as shown below. You can operate the data of the module.

s • 1	🗶 / 👔 R.C./RG.DO 🛛 🗃 D	Nor 👔 PLC_PRG_DI 🕱 N	letwork Config.	unten /B	GL20_RTU		Cherkel2Heater	A B the	e,A					
DD_DE_project	•	Dot	CN CN	of these al			- 444.00	Syr 10 Channel	Go to Lastance	ter Core	and the second statement			
G 👔 Device Somected (ANCRON)	Citize a													
Device Diagrame	Connections	Variable	dapping Cl	hannel	Address	Type	Default Value	Current Value	Prepared Value	Unit	Description			
- 20. Network Configuration		- Declusive Owner												
The cocase comp	Use Center Parameters			5596.0	5600	CENT		4						
 Brockspic A contraction found 	CtherNet/1P L/O Happing	17		20-0000-01	1402	USING								
- C Manual and		1.		10.000.000	10.000	LENT.		1017						
n G fill can / see had	EtherNet/0* IEC Olderits	1.		10.445-012	1000	LENT		1015						
Gill on region reg	204			20-002-003	3603	LENT	2	00:2						
· · · · · · · · · · · · · · · · · · ·				20-0014	1010	LENT								
G III CON Deval Part	Dismator.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		20.0000.017	5082	USAT								
R G E Theret & Theref)			9	20.404.40	5002	LENT	2	0000						
R O E Cherter Priester A (Cherter D Sonner)			9.	21-69-01	5013	UENT	2	0000						
3 8 9.20 KTU EP (9.20-470-EP)			9.	21-404-02	5014	UENT	2	0000						
SoftMatter General Ave Pagi		· *	94	28-404-02	1015	UDIT	2	0000						
										Rept.A	Mapping Var	lways up dats	www.waladesa Strateberg 2 Subserver in towar content trade)	
		Γφ = Craste new satisfie	🍾 - Hepito	o existing variable						Repet A	Mapping Vir	lwaya up dato	wantables [probled 1 delevers in boar code tool)	
	Dyress	Fig. = Craste new satisfie	°≱ = Hapto	o existing variable				-		Renet A	Mapping Var	voji oplič • † X	randolas (balled) (denne in bar och tad) Manges-tad Lanajo, denneg	¢ W. +
	Dyross	Fp Create men netrable E & warning © 26 indemnation	°≱ = Hapito X Clear j	o existing variable g [*] Export His	1 Sorical DWG	INFO: [v distant	System DIAO IN	Renet A	Mapping Var a	vəytupda • 1 x	nastalina (balas) (desveri har sole tad) Massagar Tatal Karadiji, Granagi, - • • •	t M. +
	Depose scoreption O devor Severity Time	Ty = Crast ner verlahr B 0 uswning 0 25 internation) Information ID Position D	"≱ = Hapto ≫ Clear j escription	o existing variable g ^{or} Export His	sorical DWG	INFO: [v di Show [3 System DLAO IN	Renet.A	Mapping Var a	veys update • 1 x •	randalas <u>Brakkel 2 Salven in kar ock tek</u> Messages - Stal 8 en (6), 6 eaneg v 8 . 3 Denotypion	c W. •
	Depuse © Denception © Dencer Servity Time © 2004/01 10:00	* •	"≱ = Hapto X Dear j tecription Component-Sal	o eliziog variable g ^o Export His Cruthered P-/C	a Borical DWG	INFO: [v distant () System DIAO IN	Renet.4	Margong Var	• • • ×	readular (Salard Salara in har och and Maagae - Nad d analy), d aaring	t vi. + Espre
	Deves B 0 exception O 0 error Servity Time O 2034/6.13 (266) O 2034/6.13 (266)	************************************	"≱ = Hapto X Clear j teoription Component-tal C is suring	o existing variable S [®] Export He On-Otherwell [®] 4/C	torical DWG	INFO: [v di Stew [System DIAO IN	Port A	Show All	vayt updat • 1 X 8	randalas <u>Byddel 2 (deven in har nok teol)</u> Pesages - Total 8 en efgl, 0 aaneg • • • • Denotypion The agtenetin as a to det genetic ode	t W. + Espre
	Depress © 0 energiant © 0 energiant ••••••••••••••••••••••••••••••••••••	Pp + Costs nor validation Pp + Costs nor validation Meteoreadion D - Data (Science and Cost)	"≱ = Hapto X Clear j ksciptor Clearning Ke anning for "Aplicato	eleting variable g [*] Export He On-Othere B* 40 In 15 rut	sorical DMG	INFO: [v distant [System DLAO IN	Renet.#	Show All	• 1 X	natalia (selet) (dennin historic ke) Neaget- that denský, disenny, - • • • • Densigen - selet denský, disenny, - • • • •	t W. + Espre
	Devesi B C security Time	************************************	"≱ = Hapto ≫ Gear j kscription Createrst tit C is uming liken' Application arrited (Pito)	eleting veriable) Export He Cr-Charrell + Ke pick/epicator.co	torical DWG	INFO: [v dister [System DRAD IN	Por e	MappipVir a	ivayi updati • 8 X - 8	randular Bodel 2 Menor In Nat Index and Message, "Static Barrisky, Statistics	t VL
	Depress D Dentry Image: D Dentry Time Image: D Dentry	Image: Contract new validation Image: Contract new validation Image: Contre new validation Image: Contract new va	Ty = Hapto X Clear j tecription Creative C is unity dear Application Application Prices period (Prices period (Prices	e eisting veriable gi Export He Gr-ChemedP+/C on to ra gict[kgs]cator.co gict[kgs]cator.co	torical DMG longerenti- cific 'bore' ifie 'bore'	INFO: [v distor [System DIAD IN	Port A	Show AT	Nega updati • 8 X B	Haddel Select (Search Nacional and Manager, Stati Enrich, Station, • • 1 Derrorher Presententen genetis de Hadden - , genetis de Hadden - , genetis de Hadden - ,	t W. •
	Depress © 0 encreption © 0 encreption Servity Three 2204.01 13 1006 2004.01 1006 2004.01 1006 <td>• Construction • Construction • Outwring • 2 Statemation • Monumbert • Radon D • 5000007 Appoint • 5000007 Appoint</td> <td>Ty = Hapto >:: Clear ;; tescriptor Composert tot Composert tot Composert Compo</td> <td>e elsting variable</td> <td>torical DMG importanto sile 'boar'</td> <td>INFO: [</td> <td></td> <td>v dishea [H</td> <td>System DIAO IN</td> <td>Rent A</td> <td>Show AT</td> <td>vayi upda</td> <td>Anatolis (Marco In Augusta Internet Marco Internet) Manager, Tant danski, Savange, • • • Denorsking persent on Anatolis (Marco Internet) persent on Anatolis (Marco Internet) (Marco Internet)</td> <td>t W Espre</td>	• Construction • Construction • Outwring • 2 Statemation • Monumbert • Radon D • 5000007 Appoint	Ty = Hapto >:: Clear ;; tescriptor Composert tot Composert tot Composert Compo	e elsting variable	torical DMG importanto sile 'boar'	INFO: [v dishea [H	System DIAO IN	Rent A	Show AT	vayi upda	Anatolis (Marco In Augusta Internet Marco Internet) Manager, Tant danski, Savange, • • • Denorsking persent on Anatolis (Marco Internet) persent on Anatolis (Marco Internet) (Marco Internet)	t W Espre
	Depende Image of a central of	² ²	"≱ = Hap to ≫ Chear j tesciption Cescent till Cit uning Mark State which Pitco splicaton file to splicaton file to splicaton file to	o eleting variable g [*] Export Her Cr-ChemedP + (C or to run gicl/kopication.co gicl/kopication.co gicl/kopication.co water water	sorical DMG longerenti- cifie "bow" cifie "bow"	INFO: [v distant] System EKAD IN Hip	Por 8	Show AT	• • • ×	National Index I (Annum In Annum Internet) Neuropes - Mark Handy, Channey,	t W
	Depose D overplan D overplan e 0 - overplan 0 - overplan Starket 31 0 - overplan 2 - overplan 0 - 200-K131 0 - overplan 2 - overplan 0 - 200-K131 0 - overplan 2 - overplan 0 - 200-K131 0 - overplan 2 - overplan 0 - 200-K131 0 - overplan 2 - overplan 0 - 200-K131 0 - overplan - overplan		" = Hapto X Clear () lescription Corporent-bit C is united () () () social () social () () social () social () () social ()	e ministry vertable gif Export Her Cr-Efferme® - (C politika) (a)(hopication or ander ander b to ran ander b to homistry (C)(homistry) (b to homistry)	sorical DWG longerenti- sile 'bone' sile 'bone'	INFO: [v distance	System DiAD IN	Por 8	Mapping Ver a	nays updat	Paradial Statistical Second International In	toper
	System © 0 entry © 0 conception 0 0 entry The 2 conception 0 entry The 2 conception 0 entry State 2 concentry Stat	ip - Coast are incluiv ip - Coast are incluiv ib - Coast are incluiv	Ty = Hapto X Clear g teoription C to uning don' Applicato social (Picco social (Picco splicator) file to splicator (file to splicator) report splicator report	esting variable Cr-there eff - (C Cr-there eff - (C on to rull gins/lepidation.co andle te belognated den te belognated den te belognated den	i Sorical DWG Iorganetti- Sile 'Sora' e	INFO:		v distant	System DEAD IN	Pont A	Show AT	nani ang	Territoria and a second	Espres

Figure 5-17 Logging in to and operating the GL20-RTU-EIP communication interface module

Note

The bytes occupied by OUT and IN of each module are stored in sequence according to the module ID, and can be displayed in the order of the dataset after the dataset is established.

5.4.2 Programming with Omron Sysmac Studio

Prerequisite

The Omron Sysmac Studio software has been installed successfully.

Steps

1. Create a project.

a. Open the Sysmac Studio software, click **New Project**. In the **Project Properties** dialog, select the device and click **Create**.



Figure 5-18 Creating a project

- b. In the left navigation pane, select Configurations and Setup > Controller
 - Setup > Built-in EtherNet/IP Port Settings to view the fixed IP address.

Ale de las mesoines des	n Lonsie	- Conductore Tank Vilonboar Help	
1000000	1 2 4	ANDRIAN R ANDEROCH HEES	
Wallies Caluer 🔹 🗸	[block		· \$2500 · · ·
new (animality () =	歰	Mar TCP/IP Settings	-Seedh 10 10
3 04-07		* Caldera	8
 In Old Spanish Activ In Old Spanish Activ 		Instanting Fabres E0.100 cs	
C & Operation Settings		Chall prime to a second se	
One of the second		Chances INOP www. Exact the Pathese Desired from ANIP source	
e' CanOra Uning. E Sub Server	1000	Operation at 8 Address Depleation The Address Depleation Operation Operation Operation	
R, Said Serings			-
B D. CPCub Letting	104	DRU Danatara 🔒 Uar	
 Ropanneg Ø Roh 		Secondary 2M Samar Material Contractions	
• 2 Popers • 11 Passed	100		-
L C Salurio		Had Name 1 P Address 1	
CE Poster Bala	1		
P Di Terle			
	CIP		
		Kang Man Sumbaring Stars	
		There is a share of the share o	7
	104		*×
	•	Antonia I Antonia I Antonia I	
1 997 7	toner B		

Figure 5-19 Viewing the fixed IP address

c. View the network segment of the PC.

- U.C.NII 3 秋志	以太同 3 届性	Internet 协议版本 4 (TCP/IPv4) 屬性
常現	网络 身份验证 共享	第 规
编辑 IPv4 连接:	連接时使用: 望 Realtek USB FE Family Controller	如果與確交接起於解。則可以因称自动解消的 IP 设置。而則,你需要从同 培業純著理是社經傳過当的 IP 设置。
编体状态;	此连接使用下列项目(O);	○ 自动获得 IP 地址(0)
ianicane	☑ 聖Microsoft 网络御户論 ☑ ■ Microsoft 网络御户論	IP 地址(); 192 . 168 . 250 . 154
洋堤信息(E)	ビ 回 OoS 数据和计划程序 ビ 1 Internet 地议版本 4 (TCP/IPv4)	子网络研(U): 255、255、255、0
150) E723 —	A Microsoft 阿爾拉尼部多雄物道書物说 Microsoft LLDP 物心思測想事 Microsoft LLDP 物心思測想事 A Internet 物心版法 6 (TCP/IPv6) G 時期時代後期 G 時期時代後期 G	IDARA(U) IV2 - 165 - 230 - 1 回訪記書 DNS 服务務地址(B) 使用下面的 DNS 服务器地址(E):
李田: 19,290	安映(N)	首选 DNS 服務種(P):
♥届性(P)	传输控制的议儿ternet 的议。该的议是新以S 于在不同的相互连接的网络上最信。	27 二道北村設正役職(L) 商家(V)

Figure 5-20 Viewing the network segment of the PC

Mukke bylow • 0 • Muke in Standard Standard Standard - x	oba • I
enclamanted = III III III III III III III III III	enda 🛛 🖬 🕅
2 Checkit PASSeen	
Consignment of the second s	
G Carbata Salay Sobert 18 2072207001 Carbata Salay Control Option Control Option Control Option Control Option Control Option	
O Motor Central Stage Fire A Collective KCCP unvec Fire A State Learner KCCP unvec	
e Conclusion providence of a Conclusion of C	
R Tas Selog	
n Cold and service P CO C to La Sarlay Bin Prior C C to at use	
Kapanning Station Security (56 mm December (56 mm	
S Program	
Kathana PAdraa	
Liff Andrine Control of the Control of Contr	
► E 0xx 0-0	
• Kap Alva	
Keep Aleve considering from the second secon	
Tearries and the second s	
Taki Contraction Contraction	ntrolectatio = 1
i Desciption i Proprae i Location i I	NUNE • 1921683111
	SUNLM
Tree 2 Loss Bill	

Figure 5-21 Viewing the network segment of the PC

- 2. Configure the project.
 - a. Before carrying out EtherNet/IP communication, determine the input/output data area size. You can configure the connection parameters of the GL20-RTU-

EIP communication interface module by configuring "PDO Parameters" in

IOManger software.

										0	
新开选接 已选接	三 基本(19 8 Q&:	升级 凤 故障	诊断							
设备型号	序号	模块类型		M	CU版本		FP8A/	CPLD版本			i
GL20 RTU EIP	-0.1	GL20_RTU_EI	P	(1.01.08.00		00.01	. 02. 00			
TE 0 61 20 001/FTN	-0 0	GL20_0016ET	N		RULL		00.01	. 12. 00			
1 0L20 0808ETN	470.1	01.70 000007	M				00.01	12.00			
FE 2 6L20 40A	110世期							×			
0 3 6L20 4AD	200稿出部数:				710输入参数:						
	横块	模块输入总数	通道救援负型	通道拉长度	模块	模块输入总数	通道救援负型	通道拉长度			
	0_GL20_0016ETH	2	USINT	8	1_GL20_06068T\$	1	NEINT	8			
	1_6L20_0908ETH	1	USIN	8	3_GL20_4AD	8	INT	16			
	2_6L20_43k	8	191	16							
上载扬扑 参数配置	100編出总数:	1			70级入出数:	11					
上	100歳出出数:	1			110歳入意数:	11					
上数拓扑 参数配置 工程导出 工程导入 块电流信息	100編出出数: 操作日志 38年	1			110歳入意数:	11		RII	Rite		
上载拓扑 参数配置 工程导出 工程导入 块电流信息 14个很快,消耗455mA电流! 120 001/ETM->150mA	roo編出品数: 操作日志 消息	1 Silia da			1008(A.552):	11		日期 2024-01-31	时间 19-4	7-06	
上载拓扑 季散配置 工程导出 工程导入 块电流信息 1/2个很快,消耗455mA电流! 1.20_0016FIN->150mA 30_06081FIN->120mA	roo編出品数: 操作日志 消息 ② 没 後知 () 法 100	1 E接中			no@\.58	11		日期 2024-01-31 2024-01-31	时间 19:4	7:06.	
上载扬扑 参数配置 工程导出 工程导入 块电流信息 F4个很决,清格4556A电流! 120_001eTm->120eA L20_001eTm->120eA	FD0編出出数: 操作日志 消息 ② 現音元 ③ 注接(1. E接中 1. 的原品单系		18.20.0	no板入场数:	11		EIMI 2024-01-31 2024-01-31 2024-01-31	时间 19:4 19:4	17 : 06. 17 : 06.	
上版标扑 参数配置 工程导出 工程导入 块电震信息 H4个模块,清耗455m场流注 1.20_0014ETW->150aA 120_0008TW->270aA 120_0409->55mA	100歳出品数: 操作日志 消息 ③ 设备双 ④ 注意:	1. E接中 2. 金城功! 1. 如果是单君 2. 金城地和31	青合器连接USB。	请等待30s之	710输入总数: : 武再进行操作:	01 Di#Z+1		日期 2024-01-31 2024-01-31 2024-01-31 2024-01-31	时间 19:4 19:4 19:4	17:06. 17:06. 17:06.	
上载扬扑 参数配置 工程导出 工程导入 块电流信息 120_01062TM->150aA 120_0082TM->120aA 120_0082TM->120aA 120_00A2TM->100aA	100% 出当款: 操作日志 消息 0.10余元 0.15余1 0.15余1 0.15余1 0.15余1 0.15余1	1 接使 社會成功: 1. 如果是单君 2. 常模块11 50年度1	鳥合器连接∪SB, 能坦态,需要失	. 请等待30s-2 连接24V电源.	730编入总数: 后再进行操作: . 否则可能组态:	11		日期 2024-01-31 2024-01-31 2024-01-31 2024-01-31 2024-01-31	时间 19:4 19:4 19:4 19:4	17 : 06. 17 : 06. 17 : 06. 17 : 06. 17 : 06.	

Figure 5-22 Viewing the data statistics

b. Based on the input/output data area size of the I/O module, click Global Variables to create an input variable (ARRAY[0..10] OF byte) and an output variable (ARRAY[0..10] OF byte). Select "Input" and "Output" respectively in the Network Public column.



Figure 5-23 Creating an input/output variable

c. In the menu bar, select Tools > EtherNet/IP Connection Settings. In the pop up dialog, double-click the PLC to open the Built-in EtherNet/IP Port Settings - Connection Settings interface.



Figure 5-24 Built-in EtherNet/IP port settings - Connection settings

d. Click **Register All**, select the input/output variable defined by the global variable, and click **Register** to complete the registration of the new variable.

Ne Edit View Inset Proje	t Controller	r Simulation Tools Window He	No.					
X 4 6 6 5 7 7	1 8 d		R					
Multiview biglorer - 0	😹 kuitein Et	helves V Part S MC Gober Variable	c Berly	is IP Device Gitt	NF		-	Toobos • 1
ana (and alor) 🔹		Teg Set						Target Device
Configurations and Setup	<u></u>							
28 EtherGAT IN CRU/Dipension Facks		Device Information Tax Sets				 		
e VO Map		Tag Setu Marc 0 / 32 Tagu Ma				THE OFFICE	epistration All Import Export	
LTS Operation Settings		Look Deput						
Lighthatis Dawner P			🖬 Teg	Let Registration Setting		×		
e' Can Dela Tetings			Select	e variables to set. Variable Name	Cala Type	Comment		
 Event Settings 				▼ legal (ag				
St. Onto Trace Settings				iep.z. V Detroit Tex				N 🕶 🗉
 D. OVCUA Settings 					ARRANGLIES OF Lyra			Variable Name 1 Size (Byte)
¥ @ 90A								
▼3t Programs								
L @ Intin0								
4.30 Functions 4.30 Functions Review								
V III Dela								
LN DesTypes								
► Ftt Taolo								
			1000	ALCONTRACT TRANSPORT	(Not	 Theory 17 mill		
							Transfer from Controller Compare	
	0.34						• * *	
	8101000	(management						
		Description I Pi	opan I					
E raw 🕐	Orpei M	1d						NUSALITATION

Figure 5-25 Registering the variable

- 3. Import the EDS file
 - a. In the right **Toolbox** pane, right-click the space and select **Display EDS Library** to open the EDS library.

	SE EIP-0718 Project - new_Controller	0 - Sysmec	Studio (\$461)								-	8 ×
	He Edit View Inset Project	Controller	Simulation Tools Window Hel	le .								
	X 6 6 6 5 C 6	8.0		A 8								
	MANiev bylown = 0	an an an an	nerins 19 Part S Met Global Haribbles	Electrics P Devi	aute beter	term Flacio	0.54X				Toolbox	
	new, Cambralan, 3 V	0-	🕕 Tag Set									
	20 EtherCAT		 Device Information 									
	# UO Map	-6	Top Sets						10000	l la		
	▼ El Controller Situp		Cold Dense									
	Ligt Built in EthertectP1		1 Top Set Name	1 Bit Selection	I Saultynd I	Sau 184	I Instance 10	I Controller Status			Connection	
	 O Motion Carded Selay 		v input.		11 1		Auto	Not included				
	 Event Settings 			P						04	piay 60% Library	
	R. Task Settings									1	7	
	► D. OVC BA Settings										Value Name	Culler
	Frogramming Recta											
	▼3€ Programs											
	T⊡ Repart L C Inter0											
	LOC Functions											
Vertices the set of th	Liff Function Bodo											
	L'M Outs Types											
	Clobal Variables											
										Return All to Default		
bit ************************************										Compare		
			A REAL PROPERTY.									
1 Tax 2 2000 20 0001												
The second s												
Trave 0 Sound Bad												
	B Rise C	Orepet 🔤	3									



b. In the pop up window, click **Install**. Then in the pop up dialog, open the EDS file of the GL20-RTU-EIP communication interface module to be installed. After successful installation, the EDS library displays the Inovance logo.

I V A A A A A A		ANTERANTE LANDAR	0.0.0 2 2 0.0 5		_		_		
X 4 4 5 5 6	18 0	A A A C C A V K A A A C S 4	0.25 1.4.4.4						
Multiview balance + 0		heries V. Part S., 📷 Globar Hariaben – Etheries V. Device Litz – 🔤 Globar Hariaben – Etheries V. Pavice Litz	eters Willer Sellin X						Toobox • I
Configuration and Setup	0-	Tag Set							Target Device
 To CPU/Expansion Packs 		 Device information Tag Sets 							
= VO Mag			EDS Library	- D X		Registration All			
 If Constant Setup If Oversion Setures 		Cartes Output	N Instal 105 No.					×	
L.S. Builton Etherties (P) B G Motion Control Setup		I Sag Set Name I Bit Solocion I Soz Bytel I	E → × ↑ 1 + 1283	278 R1 + 0L25-RTU-8P +		~ 0	₩ GL20-RTL-D	-+88 P	
e' Cam Deta Settings > Avant Settings		rep.d	ISR · REDAR				8	·• 🗆 🛛	
R: Task Settings			Line and the second	* ao ^	953N	22	202		and the local
0 Data bas Seriega 9 Data bas Seriega 9 Data 9 Data			2 (200) 3 (2) Table 3 (2) Tab	Encyclent Park 17 Hermonian Park 17 Hermonian Park 2013 (2014) Hermonian VIII // Hermonian VIII // Monage (2005) Monage (2005) Kite 4 Color Color VIII - edit Color Color VIII - edit Color Color VIII - edit Color Color VIII - edit	2022/10/12 16/17 2024/7/30 17:13 2024/2/36 17:41 2024/2/64 17:41 2024/2/64 16:41 2024/2/64 16:41 2024/2/64 16:41 2024/2/64 16:41	交结束 2月6日 文括束 2月6日 文括束 2月6日 文括束 2月6日 (105-2月6 (105-2月6) (105-2月6)	13 G 13 G		No internet i Sine (Bytel)
			10500				Dertweit Dete	Quarter 1	
							CTRA	Rev.	
							20166	604	
	No.54 8 Martinese 1 1	Financiana Devolption I Program I Location I						. 1 ×	
II Nier 2	Daya M	4							Terror Tay Ser

Figure 5-27 Installing the EDS file

- 4. Add a configuration module.
 - a. In the right **Toolbox** pane, select **Target Device** and then click + to add a GL20-RTU-EIP network configuration module.

Toolbox ····································	• #
Target Device	
H H	

Figure 5-28 Adding a configuration module

b. In the right **Toolbox** pane, modify the node address to the IP address of the communication interface module.

🕱 EP-0710 Project - new Controller () - Sysmac Studio (H4bb)		- 0 ×
File Edit View Inset Angiest Controller Simulation Tools Window Help		
X ▲ & @ @ つけ Ø 目 Ø A 送 III E H Ø R ▲ X ム 사 S A O 인 D I I O Q C		
Multivine before 🔹 🕫 Built in Etherheit W. Part S., 🛛 199 Galas manifest. Etherheit W. Device Lat. Balan Etherheit W. Jacobs Format W. Jaco	Toolbox -	
ewschwadod V III II Tag Set	Node add Nodel nar Revision	···· 2 108 1
20 EtherCAT - Device Information		
▶ 5 CH Itopsic facto 201 T T Sig See		
to the control of the control o	Deport	
Lift Operation Sections		
Sector Market Del		
of Can Data Setup 1944 11 11 1		
* been lidings		
B tak Setap		
 R. ONCOLSemps 		
Pogaming		
▼ # POA		
▼ ⊟ Angand		
Lef Interd		
L Charlens		
▼ T Ges		
LN Gestipes		
C Clobel Valuelles		
19	turn All to Debuilt	
Tanke to Conceler Tanke for Conceler	Compare	
634		
Research Medications		
I Devolption I Program I Location I		
Base Town State St	640	Crot

Figure 5-29 Modifying the node address

c. Click and select "192.168.250.20 GL20-RTU-EIP" for **Target Device**. Set **Originator Variable** to "input" or "output". Set **Target Variable** to "101" for input and "100" for output_o Ensure that the target variable and originator variable have the same size (byte).

EIP-0710 Project - new_Controlle	 O - Syonac 	Studia (6468)										- 0 ×
He Edit View insert Project	t Controller	Simulation Tools N	Vindow Help									
X 4 9 8 5 < 6				R 🗛 🕸								
Multilex Explorer + 9	and Ballion St.	lan Marcol Print S 1999 G	Initial Variables	Energies P De	nistia bibi	iterio(F.e.)	ion Se_ X					• Toobox • 3
new.Controller.d												Tanget Device
 Configurations and Service 	11+	usu connecco										ADVISING DALLES
21 EPACAT												
 In Ord Separation Radio In Ord Separation Radio 	of8	Convections Visit 2 / 3	2 Konnection N		hostOst land	Navida (San B				(meant h)		
V (2 Controller Setup		192.168.1.240 GL20-RTU-8	sintex.0,000	Exclusive Ouner	Input 101	11	nput .	• 11	Multi-cast con \$00 B	Pix4		
L B. Operation Settings					Output 180	11	puput	11	Paint to Paint (_
 D. Motion Control Servin. 												
ef Cam Data Settings												
 Frent Settings 												
12 Data Sections												
In D. OPCUR Settings												Variable Name 1 Size (Byte)
V (1 20.)												
▼ 35 Programs												
▼ ⊟ Program0												
L.H. Functions												
L IE Function Blocks												
 M Desilion 												
Cichal Variables												
► fe Tada		141 141										
		Device Sandwidth										
											Resure All to Defe	1
												<u> </u>
											Tarder to concile Tarder too Concile Cargae	
	5.40											2 X
		A REAL PROPERTY.										
		Description	i Prog	yan i	Location							
	_											Incompany of the local diversion of the local
D 1990	compart dui	3										

Figure 5-30 Connection diagram

d. Select d. Select o > o in the function bar or select Controller > Transfer > To
Controller > Execute in the menu bar to complete the transfer.



Figure 5-31 Transfer diagram

e. In the menu bar, select View > Watch Tab Page to open the watch tab page.



Figure 5-32 Opening the watch tab page

f. Add input/output variables in the watch tab page for data monitoring.

EIP-0718 Project - new_Controlle	r,0 - Sysma	Studio (54bit)									σ×
He Edit Vew inset Projec	t Controlle	r Simulation Tools Window Help									
X 6 6 6 5 7 7	8.0	K & S R L H B R		095							
MANierbylorer - 0	an that is a second	Normal Parts	nenies IP Device LizBuilt-le D	white Placion Sel	📌 1.0 Map					Toolbox	
ang farindry 🔹 🚺	郉	TCP/IP Settings								+Search 2	
10 CheCAT		* 12 Addres									
To CPU/Operator Racks											
 UO Map Constitution Series 		Platers Difference									
L.T. Operation Settings		Default galeway	-								
 a.gl Built in Educated P1 b. C. Materia Control Sales 		 Obtain From ECOTP server. B For at the IP address obtained from ECOT 									
e' Can Deta Settings		 Operation at IP Address Duplication 									
P. Event Settings		Use of depicated IP address 💿 Stop									
Sti Data Trace Settings		* 0NG									
 D. OVCUA Settings 	Et.	Priority DNS server incompany									
V (1 POLA		Secondary (HG server									
T (2) Programs		▼ Host Name - IP Address									
L & Inter0	2082										
4.30 functions	10.00		1.000								
LEE Auscien Boole TE Gen	848										
L'M Des Types											
Litte Global Variables											
		1 H H H									
		The start of the									
		Keep lake monitoring time									
									8		
									TRAFIC STREET		
	Wath (Fro	K Soutourourourourourourourourourourourourouro	310310303103103103103	ratestestestest	0103103103103	0310310310310310	stostostostostost	atostostostostostosto		forevile datas	-
	anu Conti	iter_0 augut[0]	DO MODIN	Comment	Lyte	Al	Heranderices *				2010
	new.Contr	Ster, 0 Input St	00 III				Headcord and			DOGSALM .	EDN mode
	eeu Contr	Ster_0 acquit(1)	80		0y%e		Headers w				
	eeu Contr	Ner C			35						
B rase (7	October 16	Watch Project/1								13	121

Figure 5-33 Data monitoring diagram

5.4.3 Configuration with Rockwell Studio5000

Prerequisite

The Rockwell Studio5000 software has been installed successfully.

Steps

1. Import the EDS file

Open the Studio5000 software, click **TOOLS**, and then import the EDS file of the communication interface module.



Figure 5-34 Importing the file

2. Configure the device.

In the left project tree, right-click **Ethernet** to add the configuration. In the pop up dialog, search for GL20. The configuration description file of GL20 is displayed. Click **Create** to create the configuration.



Figure 5-35 Creating the configuration

- 3. Modify the configuration parameters.
 - a. In the left project tree, click the configuration to modify the input/output parameters of the communication interface module.
 - b. Modify the configuration parameters based on the actual input/output byte size of the communication interface module. With the correct IP address setting, you can download the modifications to the PLC.

Energy Storage Offline . No Forces	▶, No Edits 🔒		< → Favorite	es Add-On	Safety)	Alerms Bit	Timer/Counter	Input/Output	Compare	Compute/Math	Nove/Logical File
ontroller Organizer 🔷 🕈 🗙	Module Properties: Local (GL20_EN	INIP 1.001) ×									
Control of the second s	General - Convestor - Model Ho - Internet Processor - Theorem - National - Theorem - - National - Theorem - - National - Statuse Officer	General Type: Vendor: Parent: Name: Description: Bectronic Ke Connections	GL20_ENIP GL1 inverce Local [RTU1 downore group downore group grou	20-ENIP 1.001 Compatible M Exclusive Ow	lodule mer	hange	Mode Revision: Bectronici Connection Name Exclus	de Definition Keying: Com ns: OK Cancel	Pattile Mode Input: Output: Cano	001 ÷ le Size 2 0 SNT Help	×
Controller Organizer											



5.4.4 Configuration with Keyence KV STUDIO

Prerequisite

The Keyence KV STUDIO software has been installed successfully.

Steps

1. Import the EDS file

After creating the project, double-click to enter the EIP configuration interface and click **EDS file** to import the EDS file of the communication interface module.

		1	2	3	4	5	6	7
50	B. Disc	Not 0D cottings						
	Thurs.	CODE Colored Inc.	a. c		T MT. 11.1.00			
00001	nie(r)	conic) seconds(s) view(() Convent(c) EUS HI	(D) Communication(N)	100i(1) help(h)			
	- W W	11 Yo do 11 10 19 14	10 MQ 10	ate(T)				
uc.	III *			arch(S)			EtherNet/IP unit	
10			Ed	t comments(E)			Unit Est(1) Unit setting	(2) Search unit(3)
							○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○	
du			Ad	d to scan list(A)			Unit name	Rev. EDS fil
- 00000			Dis	play all EDS files(V)			Keyence Corpora	tion
00002			Pro	operty(P)			xv-5500	1.1 xv-5500
							RV-7500	1.1 KV-7500
							BM KV-EP02	1.1 EtherNe
_							RV-NISER	1.1 10-poin
1.tr							KV-NIGET*	1.1 1e-poin
							AV-BICEA	1.1 10"poin
							TV-NOFP	1.1 2*ich a
00003							AT-BOER	1 1 Separate
							PU-NORY	1 1 Geneint
							and set solution.	3 3 818
							<	>
00004								
00004								
	Output							
	n n 1	n 🌮 🖻 🍕 🐘						
	N	Node name	IP address	Connection	RPI(IN) RE	I[OUT] Time out	Refresh	
	-				(83)	(ma)	priority	
00005								
00005		Message Verify Setup In	/		14)
						C-D-		Consel Austra
	_					Conto		Carron Poppy

Figure 5-37 Importing the file

2. Configure the device.

Double-click the EDS file of the communication interface module to create the configuration.



Figure 5-38 Creating the configuration

- 3. Modify the configuration parameters.
 - a. Double-click "Exclusive Owner" of the connection to enter the configuration and modify the input/output parameters of the communication interface module.
 - b. Modify the configuration parameters based on the actual input/output byte size of the communication interface module. With the correct IP address setting, you can download the modifications to the PLC.

LtherNet/IP settings								- 🗆 🛛
File(F) Edit(E) Settings(S) View(V) Convert(C) El	DS file(D) Communica	tion(N) Tool(T) Help(H)						
- # O 新唱 太白白 馬 町 # 6 Q Q 3	🖌 h h 🕜 🖉	Connection settings - 1:GL	20-RTU-EIP		? ×			
TT 17-7500101 - 197 168 0 10		Connection list(L)				EtherNet	1P unit	
		No. Conne	ction	Application t	ype	Unit list() Unit setting(2) Searc	ch unit(3)
		1 Crousive Owner (14	101)	 exclusive owner 		76 M=	¥	
1: GL20-RTU-EIP : 192.168.1.88						E Adapt	er settings	
*** Exclusive Owner						Setup parameter		×
					_	Parameter(P)	GL20-RTU-EIP	~
		Add(A) Delete()	2)			Day Day and	and	1000
		Connection name(C)	Exclusive Or	vner	~	0002 Total Input Size	2 Servane	RW
		Time out(T)	RPI*16 ~	(IN:320.0ms / OUT:5120.0	Oms)	0003 Total Output Siz	e 0	RW .
		Refresh priority(F)	Normal		~	L		
			Setup para	meter(P) Assign der	vice(D)			
		IN (input from adapter)						
		Connection type	Point-to-point	x	~			
		Connection point	IN_101		~			
		Data size	1	Word				
		Send trigger	Cyclic		~			
		RPI (communication cycle)	20.0	ms (1.0 to 10000.0ms)		Description Input but	lar rine in hyter	
						Default value 2		_
		Production inhibit time		ms		Current set 2		
		OUT (output to adapter)	_		_	Permarks		
		Connection type						
Output		Connection point			~		~	
		Data size	0	Word			「「「」、日の	
N 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		RPI (communication cycle)	320.0	ms (1.0 to 10000.0ms)		Restore to default(D)	OK	Cancel
N Node name IP address	Conne		Keep con:	sistent with IN				
1 GL20-RTU-EIP 192.168	. Rozalusive Ow			ОК	Cancel			
H 4 + H Message Verify Setup list			1	<				>
						Editor	OK C	ancel Apply

Figure 5-39 Modifying the parameters

6 Fault Diagnosis

LED in	ndicator	Meaning	Solution
RUN	Blinking	EIP connection not established	 Check that the network parameters (IP address, subnet mask, and gateway) are configured correctly. Check the configured input/output data size and the configuration parameters sent down to the module. Check that the length and other specifications of the network cable are as specified.
	Blinking	A recoverable fault such as RPI timeout occurs.	Check that the cable connector is inserted correctly.Check that the network connection is stable.
BF	Steady ON	An unrecoverable fault such as Ethernet hardware initialization failure occurs.	 Check that the cable connector is inserted correctly. Check that the network cable is intact. Re-power on.
SF	Blinking	Module error	Troubleshoot the error.

Note

The fault code information of the communication interface module needs to be read through UCMM. For details about the parameters read, see "5.2.2 Configuration via UCMM Programming" on page 29. The following table describes the specific fault codes, causes, and solutions.

Fault code	Cause	Solution
0x1000	 Expansion module does not exist No expansion module was scanned due to local bus communication failure. 	 Check that the module is installed properly and supplied with power. Check the contact of the communication interface of the expansion module or restart the rack.
0x1001	 The actual slot of the expansion 	 Check the number and
0x1002	module is inconsistent with the	installation sequence of
0x1003	 Local bus communication failure, resulting in that the module scanned is inconsistent with the configuration. 	 expansion modules. Check the contact of the communication interface of the expansion module or restart the rack.
0x1004	The local bus communication	Check the contact of the
0x1005	failure causes an error when the master module interacts with the expansion module.	communication interface of the expansion module or restart the rack.
0x1006	 I/O module was powered off or removed. Error was caused by high frame loss rate of local bus communication. 	 Check whether the module in the corresponding slot is powered off or removed. Check the contact of the communication interface of the expansion module or restart the rack.
0x5001		
0x5002	unstable power supply to the module or power failure	Check the power supply of the module
0x5003		nounc
0x5011	DAC device temperature is too high.	Check whether the module
0x5021	ADC device failure	hardware is faulty.
0x5022	DAC device failure	 Replace the Module.
0x5023	ADC reference voltage error	

Fault code	Cause	Solution
0x5031	TC module cold end sampling channel failure	 Check the TC module cold end channel hardware. Replace the module.
0x6001	Analog channel wiring disconnected	• Check the external wiring of the module channel.
0x6002	Analog channel wiring shorted	 If external wiring is correct, it is recommended to check the internal hardware of the module or replace the module.
0x6003		
0x6004	Channel data is abnormal and out	Check that the external input signal
0x6005	of normal range.	of module is normal.
0x6006		
0x6050	For any channel that is outputting, the chip detects that the output current exceeds the current limit of the chip (2.4 A to 3.2 A, typical value 2.8 A).	Check whether the load is short- circuited.
0x6051	For any channel that is not outputting, the chip detects that the DO is not connected to a load.	
0x6052	For any channel that is outputting, the chip detects that the DO is not connected to a load.	Check the load status.
0x6053	For any channel that is not outputting, the chip detects a short circuit between the DO and VDD.	Check the DO wiring.
0x6054	When the output current is too large but the overcurrent protection value is not reached, the power consumption of the chip's output channel increases and the temperature increases. When the junction temperature reaches 165°C, an overload error (high current module) occurs.	Check the load status.

7 Appendix: Firmware Upgrade

You can upgrade the MCU firmware through the Ethernet interface.

Prerequisite

- Get the InoEtnLoader software and the MCU firmware upgrade package.
- The InoEtnloader software has been successfully installed on the local PC.
- The local PC is connected to the communication interface module through a network cable.
- Ensure that the IP address of the local PC and the IP address of the communication interface module are on the same network segment.

Steps

1. Open the InoEtnLoader software.

网卡: Re 站号: 1 本机P地址: 1 #录文件:	ed Hat 0.61.18.57		入模式: Ethe PN相当描 ○标	rNET v 崔以太网扫描	焼柔	关闭
□ 焼录完程序后送	行程序					
产最系列 ☑ PLC V1.01	220418	产品型号 Gx20系列通信。	芯片型号 . 0x131	主从芯片 主芯片	芯片鉄 主芯片	型 文 1
<						>
全选 扫描:		勾选:		分配IP	扫描设备	设置IP
PHOL	子树掩码	M ₇	MAG	SU	112	严重未列



2. Burn the upgrade firmware.

a. In the software, select "Network card", "Local IP address", "Communication Mode". Configure "Station Number" and select "Standard Ethernet Scan", select the file to be burned, click **Scan Device**, and then click **Burn** after the device is scanned.

网卡: [站号: [本机P地址: [续录文件: [· 续录文件: [· 续录关程序后端:	Intel(R) Ethernet 1 192.168.1.154 E:\工作资料\EIP\T 7程序	Con v ii v (v v iii) (v v iii) (v v) (v	●祝模式: E ○PN43描 ● eware\GL20_RTU_	therNET // 标准以太网拍器 EIPs_1.1.3.0.bin	烧录	美闲	焼栗详細 总赦: 设备	「「「」「」「」「」「」「」「」「」「」「」「」「」「」「」「」「」「」「」	3cort311 1278	关版:	吉果 备注	iat stife
产品系列 ☑ PLC V1.01 < 二 全法 扫描:	产品 220418 Gx20	型号 之)系列通信 0 勾法:	5月型号 主) x131 主;	从芯片 芯片ガ 芯片 主芯ド	2型 文 (1	件大小 99704字节 >						
₽ ₩5%	子四編詞 255.255.255.0	阿 決 192.168.1.	MACBBH 1 1C-1A-4D-F	E-00-EE	产品系列	产品型号						

Figure 7-2 Programming

The burning is successful.

同卡: 站号; 本机印地址:	Intel(R) Et	hernet C	on v	通讯模 ○ PN4	:元 副編	EtherNE ●标准以	T 太网扫描	✓ i 炊衆		关闭	· 续荣详载	1		威功:	1		失败:		0		-12219
录文件:	E:\工作资料	\EIP\TO	OLS\elp_fi	meware	\GL20_F	TU_EIPs_1	.1.3.0.bi	n			ଞ୍ଚ		芯片类型	進接	Baot切换	攔除	编程	进度	结果	香注	
」焼果克程序后送 ≃品系列]PLC V1.01	行程序 220418	产品型 Gx20≸	号 词通信	芯片型 0x131	8	主从芯片 主芯片	Z ±)州类型 (芯片	文件 199	大小 1704字书	192.16	3.1.14	主芯片	PASS	1165	7455	PASS	100%	PASS	-	
全法 扫描	1		勾选:	1			分配印	扫描词	29	設置ℙ											
地社 192.168.1.14	子阿穆颋 255.255	.255.0	网关 192.168	.1.1	MAC38 1C-1A-	반 40-FE-00-E	E	产品系	(9)	产品型号											

Figure 7-3 Programming succeeded

b. Turn off the communication interface module, then turn it on again.