

GL20-RTU-EIP Series Communication Interface Module Equipment Guide



Industrial
Automation



New Energy
Vehicle



Intelligent
Elevator



Intelligent
Robot



Digital
Energy



Rail
Transit



Data code PS00022013A00

Legal Information

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Due to continuous updates and improvements of products and technologies, the content of this documentation may not fully match the actual products. In the event of any discrepancies, the actual products shall prevail.

The contents are subject to change without notice due to product upgrade.

Waste Disposal

The storage, use, and disposal of this product (including optional accessories) must comply with local laws and regulations.

Qualified Personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel can identify the risks of the product/system and prevent possible dangers.

Proper Use of the Product

Proper transportation, storage, assembly, installation, commissioning, operation, and maintenance are required to ensure the safe operation of the product without any problems. The required ambient conditions must be met. All operations must follow the guidelines provided in this documentation.

Preface

Introduction

This guide includes the module-specific information, such as model, components, and technical specifications.

Note

- The drawings in the user guide are shown for demonstration only, which may not match the product purchased.
- The user guide is subject to change without notice due to product upgrade, specification modifications as well as efforts to improve the accuracy and convenience of the user guide.

Documentation guide

The product documentation package is organized into equipment guide and system guide, enabling you to quickly access the information as needed.

- Equipment guide: Contains a brief description of module properties, including model, components, technical specifications, and terminal wiring diagrams.
- System guide: Covers all typical application scenarios of the system, providing detailed description of system configuration, installation, wiring, commissioning, and troubleshooting.

Standard

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.

Certification	Directive		Standard
CE certification	EMC directive	2014/30/EU	24 VDC products: EN 61131-2 220 VAC products: EN 61131-2 EN 61000-3-2 EN 61000-3-3
	LVD directive	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 certification	-	-	UL 61010-1 UL 61010-2-201 CAN/CSA-C22.2 No. 61010-1 CSA C22.2 NO. 61010-2-201
KCC certification	-	-	-
EAC certification	-	-	-

Certification	Directive		Standard
UKCA certification	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
TUV certification	-	-	ISO 13849-1 ISO 13849-2 IEC 62061 IEC 61508 IEC 61131-6

More documents

Document	Code	Description
GL20 Series Module System Guide	PS00022010	Introduces full-scenario tasks for typical users operating the system, providing detailed explanations on system overview, installation, wiring, debugging, and fault diagnosis.
GL20-RTU-EIP Series Communication Interface Module User Guide (This guide)	PS00022013	Introduces module properties, including model, components, technical specifications, and terminal wiring diagrams.

Revision history

Date	Version	Revision
February 2026	A00	First release.

Access to the guide

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

- Visit <https://www.inovance.com/global>, and choose Service&Support > Support > Documentation Download.
- Scan the QR code on the product with your smart phone.
- Scan the QR code below to install My Inovance app, where you can search for and download the guide.



Warranty

Inovance provides warranty service within the warranty period (as specified in your order) for any fault or damage that is caused by proper operation of the user. Maintenance will be charged after the warranty expires.

Even within the warranty period, maintenance will be charged for the following product damage:

- Damage caused by operations not following the instructions in the guide
- Damage caused by fire, flood, or abnormal voltage
- Damage caused by using the product for unintended functions
- Damage caused by using the product outside the specified scope
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

The maintenance fee will be 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 the Warranty Card.

1 Fundamental Safety Instructions

1.1 General Safety Instructions

Safety disclaimer

1. Read through the safety instructions before installing, operating, and servicing the equipment, and comply with these instructions.
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. The "CAUTION", "WARNING", and "DANGER" are only supplements to the safety instructions.
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



DANGER

The "DANGER" sign indicates that failure to comply with the notice will result in severe personal injuries or even death.



WARNING






The "WARNING" sign indicates that failure to comply with the notice may result in severe personal injuries or even death.






CAUTION

The "CAUTION" sign indicates that failure to comply with the notice may result in minor or moderate personal injury or equipment damage.

Unpacking	
<p>WARNING</p>	<ul style="list-style-type: none"> • Do not install the equipment if you find damage, rust, or signs of use on the equipment or accessories upon unpacking. • Do not install the equipment if you find water seepage or missing or damaged components upon unpacking. • Do not install the equipment if you find the packing list does not conform to the equipment you received.
<p>CAUTION</p>	<ul style="list-style-type: none"> • Check whether the packing is intact and whether there is damage, water seepage, dampness, and deformation before unpacking. • Unpack the package in accordance with the unpacking sequence. Do not hit the package with force. • Check whether there is damage, rust, or scratches on the surface of the equipment and equipment accessories upon unpacking. • Check whether the package contents are consistent with the packing list after unpacking.

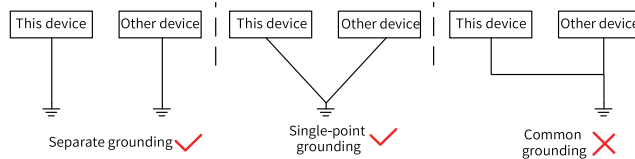
Storage and transportation	
 WARNING	<ul style="list-style-type: none"> • Large-scale or heavy equipment must be transported by qualified professionals using specialized hoisting equipment. Failure to comply may result in personal injury or equipment damage. • Before hoisting the equipment, ensure that components such as the front cover and terminal blocks are secured firmly with screws. Loosely-connected components may fall off and result in personal injury or equipment damage. • Never stand or stay below the equipment when the equipment is being hoisted by the hoisting equipment. • When hoisting the equipment with a steel rope, ensure the equipment is hoisted at a constant speed without suffering from vibration or shock. Do not turn the equipment over or let the equipment stay hanging in the air. Failure to comply may result in personal injury or equipment damage.
 CAUTION	<ul style="list-style-type: none"> • Handle the equipment with care during transportation and mind your step to prevent personal injury or equipment damage. • When carrying the equipment with bare hands, hold the equipment casing firmly with care to prevent parts from falling. Failure to comply may result in personal injury. • Store and transport the equipment based on the storage and transportation requirements. Failure to comply can result in equipment damage. • Do not store or transport the drive in environments with water splash, rain, direct sunlight, strong electric field, strong magnetic field, and strong vibration. • Do not store the drive for more than three months. Long-term storage requires stricter protection and necessary inspections. • Pack the drive strictly before transportation. Use a sealed box for long-distance transportation. • Never transport the drive with other device or materials that may harm or have negative impacts on the drive.
Design	
 DANGER	<ul style="list-style-type: none"> • Design a safety circuit and add an error handling program in the software to ensure the product remains in a safe state upon external power failure or product faults. • Add an external fuse or circuit breaker because the module may smoke or catch fire due to long-time overcurrent caused by operation above rated current or load short-circuit.
 WARNING	<ul style="list-style-type: none"> • When the output units such as relays or transistors in this product are damaged, the output may become uncontrollable and remain continuously ON or OFF. • The product design must comply with the overvoltage category requirements specified in the environmental specifications. The power supply must have a system-level lightning protection device, assuring that overvoltage due to lightning shock cannot be applied to the power supply input terminals, signal input terminals, or output terminals, preventing equipment damage. • Make sure that measures have been taken to avoid malfunction caused by the communication faults between the product and related equipment, preventing personal injury or equipment damage.
 CAUTION	<p>Do not create, on the touch screen of the HMI, switches that may result in personal injury of the operator or equipment damage . Use independent switches for performing critical operations. Failure to comply may result in accidents caused by wrong outputs or faults.</p>

Installation	
 DANGER	<p>The equipment must be operated only by professionals with electrical knowledge. Non-professionals are not allowed.</p>
 WARNING	<ul style="list-style-type: none">• Read through the guide and safety instructions before installation.• Do not install this equipment in places with strong electric or magnetic fields.• Before installation, ensure that the mechanical strength of the installation site can bear the weight of the equipment. Failure to comply will result in mechanical hazards.• Before installation, ensure that the installation environment meets the specifications. Failure to comply will result in product damage.• Do not wear loose clothes or accessories during installation. Failure to comply may result in electric shock.• When installing the equipment in a closed environment (such as a cabinet or casing), use a cooling device (such as a fan or air conditioner) to cool the environment down to the required temperature. Failure to comply may result in equipment over-temperature or a fire.• Do not retrofit this product.• Never loosen the fixing bolts on components and modules, or any bolts marked in red.• The equipment shall be installed in a cabinet or terminal device. Protection measures such as a fireproofing shell, electric protection shell, or mechanical protection shell must be provided for the cabinet or terminal device. The IP level must meet IEC standards and local laws and regulations.• Before installing devices with strong electromagnetic interference, such as a transformer, install a shielding device for the equipment to prevent malfunction.• Install the equipment onto an incombustible object such as a metal. Keep the equipment away from combustible objects. Failure to comply will result in a fire.• For products not supporting hot swapping, disconnect all external power supplies of the system before installing/removing the product. Failure to comply may result in electric shock, module fault, or malfunction.
 CAUTION	<ul style="list-style-type: none">• Cover the top of the product with a piece of cloth or paper during installation. This is to prevent unwanted objects such as metal chippings, oil, and water from falling into the product and causing faults. After installation, remove the cloth or paper on top of the product to prevent over-temperature caused by poor ventilation due to blocked ventilation holes.• During installation, ensure the product is connected to the respective connector securely and hook the module firmly. Improper installation may result in malfunction, fault, or fall-off.

Wiring



- The equipment must be operated only by professionals with electrical knowledge. Non-professionals are not allowed.
- Before wiring, switch off all power supplies of the device. Wait for at least the time designated on the equipment warning label before further operations because residual voltage still exists after power-off. Measure the DC voltage of the main circuit and make sure that it is below the safety voltage. Failure to comply can result in the risk of electric shock.
- Do not perform wiring, remove the equipment cover, or touch the circuit board with power on. Failure to comply can result in the risk of electric shock.
- Make sure that the equipment and product are grounded properly. Failure to comply can result in the risk of electric shock. Ground the equipment separately or to a single point. Common grounding must not be used.



- 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.
- Install the terminal cover attached to the product before power-on or operation after wiring is completed. Failure to comply may result in electric shock.



- Never connect the power cable to output terminals of the equipment or product. Failure to comply may damage the equipment or even cause a fire.
- Cables used for wiring comply with the requirements for the cross sectional area and shielding. The shielding layer of the shielded cable must be reliably grounded at one end.
- Fix the terminal screws with the tightening torque specified in the user guide. Insufficient or excessive torque may cause overheating and damage of the joint, which could result in a fire.
- After wiring is done, check that all cables are connected properly and no screws, washers or exposed cables are left inside the equipment. Failure to comply may result in electric shock or equipment damage.














- Follow the proper electrostatic discharge (ESD) procedure and wear an anti-static wrist strap to perform wiring. Failure to comply may result in damage to the equipment or to the internal circuit of the product.
- Use shielded twisted pairs for the control circuit. Connect the shield to the grounding terminal of the equipment for grounding purpose. Failure to comply will result in equipment malfunction.

Power-on



- The equipment must be operated only by professionals with electrical knowledge. Non-professionals are not allowed.
- Before power-on, check that the equipment is installed and wired properly.
- Check that the power supply meets equipment requirements before power-on to prevent equipment damage or a fire.
- After power-on, do not open the cabinet door or protective cover of the equipment, touch any terminal, or disassemble any unit or component of the equipment. Failure to comply may result in death or personal injury.


Power-on
<p> WARNING</p> <p>Perform a trial run after wiring to ensure the equipment operates safely. Failure to comply may result in personal injury or equipment damage.</p>
Operation
<p> DANGER</p> <ul style="list-style-type: none"> • The equipment must be operated only by professionals. Failure to comply can result in personal injury or death. • Do not touch any connecting terminals or disassemble any unit or component of the equipment during operation. Failure to comply can result in electric shock.
<p> WARNING</p> <ul style="list-style-type: none"> • Do not touch the equipment enclosure, fan, or resistor with bare hands. Failure to comply may result in personal injury. • Prevent metal or other objects from falling into the equipment during operation. Failure to comply may result in a fire or equipment damage. • During operation, do not bring live parts into contact with the metal enclosure of the product. Failure to comply may result in a fire or equipment damage.
<p> CAUTION</p> <ul style="list-style-type: none"> • Operate the product strictly within the required environmental conditions. Failure to comply may result in equipment fault or damage. • Touch the HMI panel with hands only during use. Do not use tools to touch the HMI panel. Invoiance assumes no responsibility for panel damage caused by excessive external force. <p>Safety recommendations</p> <ul style="list-style-type: none"> • In the position where the operator directly touches the machinery part, for example, where a machinery tool is loaded/unloaded, or where a machine runs automatically, manually-operated devices or similar must be installed independently of the product to start or stop the automatic operation 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.
Battery usage
<p> WARNING</p> <ul style="list-style-type: none"> • Do not use batteries that do not meet the product requirements. Failure to comply may result in death, personal injury, explosion, or fire. • Do not throw batteries into a fire or heat oven. Do not crush or cut the battery. Failure to comply may result in death, personal injury, explosion, or fire. • Do not expose the battery to extremely high temperatures. Failure to comply may result in death, personal injury, explosion, or fire. • Do not swallow the battery to prevent the risk of chemical burns. • If a button battery is swallowed by accident, seek medical treatment immediately. Failure to comply may result in severe internal burns within two hours and could result in death.
<p> CAUTION</p> <ul style="list-style-type: none"> • Keep the battery away from children. • If the battery compartment is not shut tight, stop using the device and keep it away from children.

Maintenance
<p> DANGER</p> <ul style="list-style-type: none"> • Maintenance and inspection must be carried out by personnel who have the necessary electrical training and experience. • Do not maintain the equipment with power ON. Failure to comply can result in electric shock. • Before maintenance, cut off all the power supplies of the equipment and wait for at least the time designated on the equipment warning label. • Disconnect all external power supplies of the system before cleaning the product or re-tightening screws on the terminal block or screws of the connector. Failure to comply may result in electric shock. • Disconnect all external power supplies of the system before removing the product or connecting/removing wirings. Failure to comply may result in electric shock or malfunction.
<p> WARNING</p> <p>Perform routine and periodic inspection and maintenance on the equipment according to maintenance requirements and keep a maintenance record.</p>
Repair
<p> DANGER</p> <ul style="list-style-type: none"> • Product repair must be carried out by personnel who have the necessary electrical training and experience. • Do not repair the equipment with power ON. Failure to comply can result in electric shock. • Before inspection and repair, cut off all the power supplies of the equipment and wait for at least the time designated on the equipment warning label.
<p> WARNING</p> <ul style="list-style-type: none"> • Submit the repair request according to the warranty agreement. • When the fuse is blown or the circuit breaker or earth leakage circuit breaker (ELCB) trips, wait as specified on the product warning sign before power-on or further operations. Failure to comply may result in personal injuries, equipment damage or even death. • When the equipment is faulty or damaged, require professionals to perform troubleshooting and repair by following repair instructions and keep a repair record. • Replace quick-wear parts of the equipment according to the replacement instructions. • Do not use damaged equipment. Failure to comply may result in death, personal injury, or severe equipment damage. • After the equipment is replaced, check the wiring and set parameters again.
Disposal
<p> WARNING</p> <ul style="list-style-type: none"> • Dispose of retired equipment in accordance with local regulations and standards. Failure to comply may result in property damage, personal injury, or even death. • Recycle retired equipment by observing industry waste disposal standards to avoid environmental pollution. • Dispose of retired batteries as industrial waste according to local laws and regulations.

Safety Label

For safe equipment operation and maintenance, comply with the safety labels on the equipment. Do not damage or remove the safety labels. The following table describes the meaning of the safety labels.

To ensure safe operation, comply with equipment-related safety labels. The following table describes the meaning of the safety labels.

Safety Label	Description
	<ul style="list-style-type: none"> • Read through the safety instructions before operating the equipment. Failure to comply may result in death, personal injuries, or equipment damage. • Do not touch the terminals or remove the cover with power ON or within 10 min after power-off. Failure to comply will result in an electric shock. • The surface of the product may become very hot during operation. Do not touch these hot areas, as this may cause burns!

1.2 Industrial Information Safety

The product provides an interface to connect to the network and transmits data through the network interface. To protect factories, systems, machines, and networks from cyber attacks and ensure safe operation, a proper industrial information security protection mechanism must be implemented.

Customers are responsible for providing and maintaining a secure connection between the product and their network or any other network to protect their factories, systems, machines, and networks from unauthorized access. The system or machine can be connected to the enterprise network or the Internet only when secure connections are established and appropriate security measures are taken (such as using anti-virus software or installing firewalls).

Inovance is committed to continuous development and improvement of the products and solutions to improve the level of safety. It is strongly recommended to keep your products updated and always use the latest version.



Malware (such as viruses, Trojans, and worms) can bring the device into an unsafe operating state, resulting in death, serious injury, and property damage. Observe the following precautions strictly:

- Always use the latest software version. If the product version is no longer supported or the latest program version is not applied, customers are at increased risk of cyberattacks.
- Implement and maintain appropriate security measures (including but not limited to deploying anti-virus software, firewall, WAF, IPS/IDS, situational awareness system, ID verification, and data encryption) to prevent files in the removable storage device from being damaged by malware and to protect products, networks, systems, and interfaces from unauthorized access, disruption, intrusion, data leakage, or information theft.
- Check all safety-related interfaces and settings after commissioning.

2 Product Introduction

The 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. This module features auto scanning function and can be used with Inovance or third-party EtherNet/IP master devices.

3 Model and Nameplate

GL 20 - RTU - EIP

① ② ③ ④

① Product Information GL: General local module	③ I/O Type RTU: Remote terminal unit
② Series 20: 20 series module	④ Communication Protocol • ECT: EtherCAT • PN: PROFINET • EIP: EtherNet/IP

INOVANCE

GL20-RTU-EIP
EtherNet/IP communication module

POWER INPUT: 24V 0.6A
OUTPUT: 5V 2A

SN:0123456789123456

QC PASSED

Certification

A B

24V	24V
0V	0V

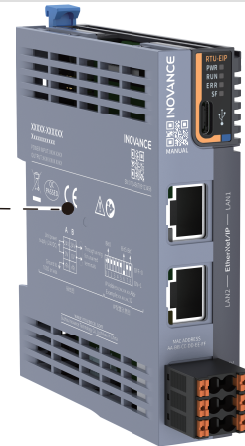
Unit power supply (24VDC)
Ground to 100Ω or less

Through wiring for unwired terminals

Bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	OFF=0	ON=1
1	2	3	4	5	6	7	8		

IP Address:xx.xx.xx.Addr
Example:xx.xx.xx.32

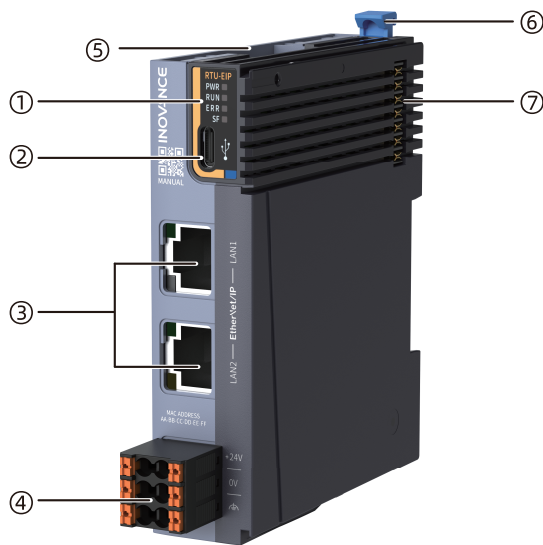
www.inovance.com
Suzhou Inovance Technology Co.,Ltd.Made in China



The data for ordering the product is shown in the following table.

Model	Description	Product Code	Applicable Model
GL20-RTU-EIP-INT	GL20 series programmable logic controller EtherNet/IP communication module	01441077	Ethernet/IP master: PLC

4 Components



No.	Interface	Function			
①	Signal indicator	PWR	Power supply indicator	Solid on	Power supply normal
				Off	Power supply abnormal
		RUN	Operation indicator	Flashing	EIP connection not established
				Solid on	EIP connection established
		ERR	Communication fault indicator	Flashing	A recoverable fault such as RPI timeout occurs.
				Solid on	An unrecoverable fault such as Ethernet hardware initialization failure occurs.
		SF	Application fault indicator	Off	The module has no fault.
				Flashing	A minor hardware fault occurs, such as disconnection.
②	Type-C interface	Used for software upgrade of the board			
③	EtherNet/IP interface	Ethernet port			
④	Power supply interface	+24 V	Power supply +		
		0 V	Power supply -		
		⏏	Grounding		
⑤	DIP switch	Used for IP configuration			
⑥	Rail mounting latch	Used to secure the module to the DIN rail.			
⑦	Three-position terminal block	Used for backplate bus power supply and communication			



Note

Flashing: The indicator is on for 200 ms and off for 200 ms, repeating this cycle.

5 Terminal Wiring

5.1 Terminal Assignment

The signal names and descriptions for the power terminals are listed in the table below.

Mark	Name	Description
	+24 V	Connected to +24 VDC power supply
	0 V	Connected to 0 V power supply
		Functional grounding terminal



Caution

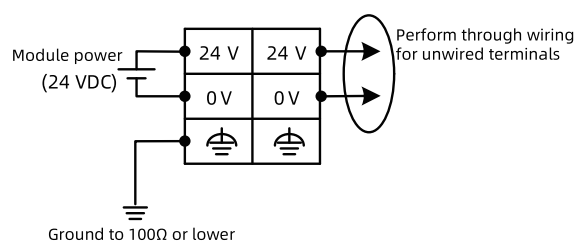
Terminals with the same mark are internally connected. You can connect to any of them as needed. For example, the two +24V terminals are internally connected, so connecting to either one will work.

5.2 Terminal Wiring Diagram

Wiring precautions

- Do not bundle the extension cables with power cables (high voltage and high current) that produce strong interference signals, as this may increase noise, surges, and induction effects. Separate the extension cables from the power cables and avoid cabling in parallel.
- Use the recommended cables and adapter boards for connection. It is recommended that shielded cables be used as extension cables to enhance anti-interference capacity.
- Apply single-point grounding for the shield of shielded cables and soldered cables.

Wiring diagram



6 Product Function

6.1 IP Configuration

6.1.1 Configuration 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 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 address is 255.255.255.0 and the gateway address is 192.168.1.1.


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

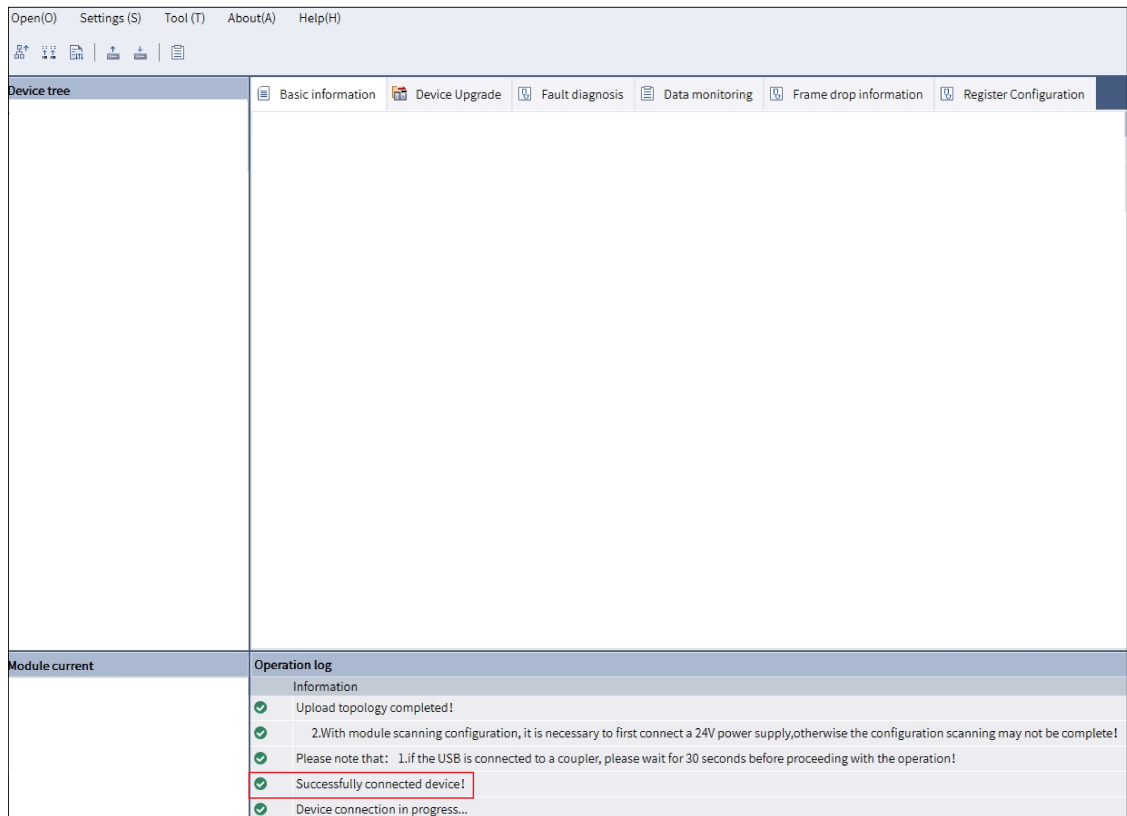
Positions of DIP switch (ON: 1, OFF: 0)								Key value	IP address
1	2	3	4	5	6	7	8		
0	0	0	0	0	0	0	0	0x00	Software configuration mode (Configuration via USB)
1	0	0	0	0	0	0	0	0x01	x.x.x.1
0	1	0	0	0	0	0	0	0x02	x.x.x.2
.
.
0	1	1	1	1	1	1	1	0xFE	x.x.x.254
1	1	1	1	1	1	1	1	0xFF	DHCP mode


6.1.2 Configuration via IOManager

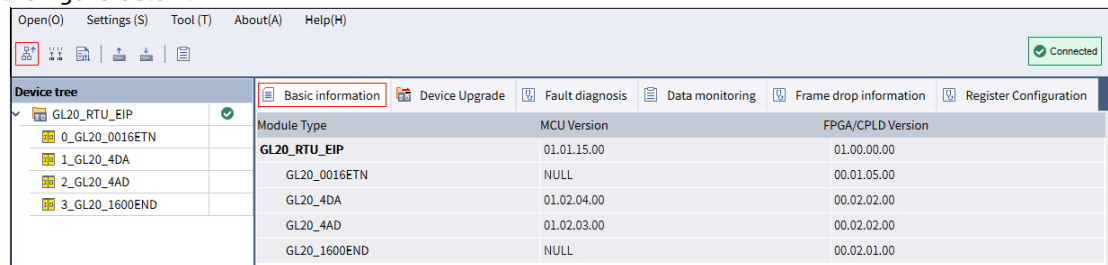
When all DIP switches are set to 0, the IP address can be modified via the IOManager software.

In the software, the IP address can be modified via USB connection. The specific procedure is as follows.

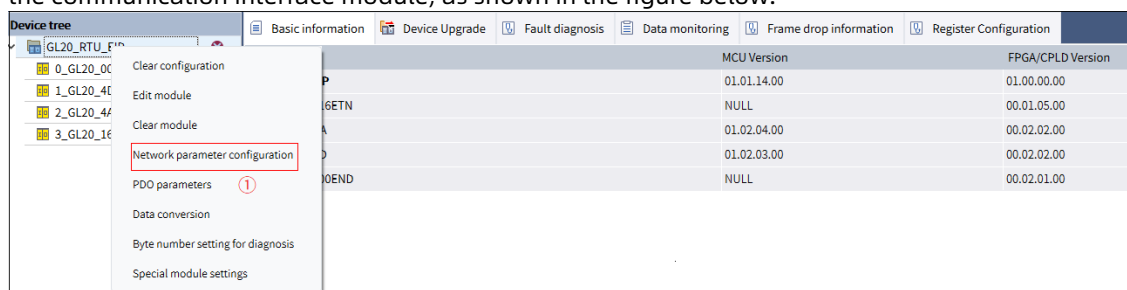
1. Connect the communication interface module and the PC using a Type-C USB cable.
2. Double-click the shortcut icon  to open the IOManager software, select "Open > Connected device". The device status ("Connected") is displayed in the upper right corner of the interface, and the operation log prompts successful device connection, as shown in the figure below.

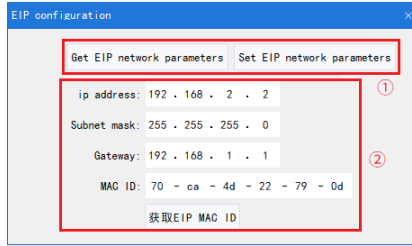


3. Click the "Upload topology" icon , and on the "Basic information" tab, check the information of the successfully scanned communication interface modules and expansion modules, as shown in the figure below.



4. Right-click the "GL20-RTU-EIP" communication interface module and select "Network parameter configuration" (①). In the pop-up window, enter the IP address, subnet mask, and gateway address (②), then click "Set EIP network parameters" (③) to send the IP and other parameters to the communication interface module, as shown in the figure below.






6.2 Mounted Module Configuration

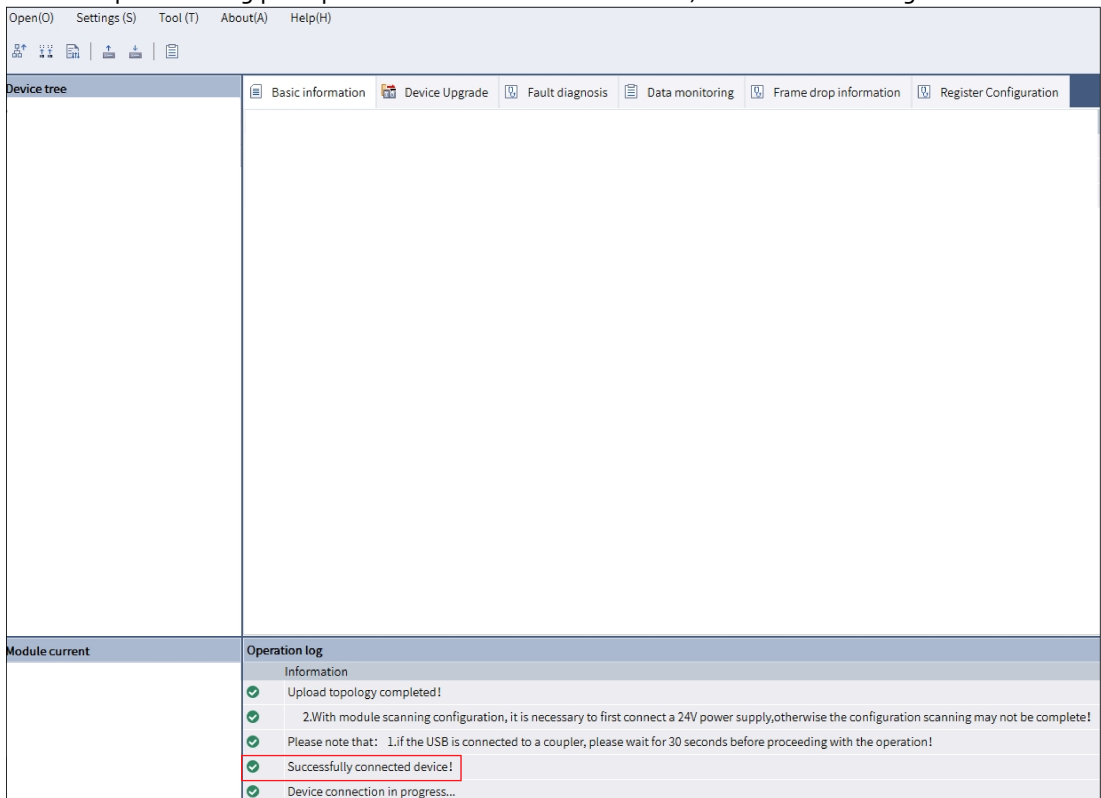
6.2.1 Configuration via USB


Prerequisite

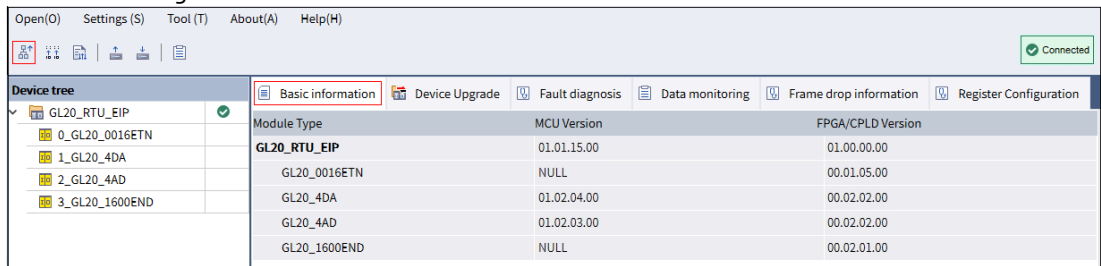
The USB configuration tool has been successfully installed.

Procedure

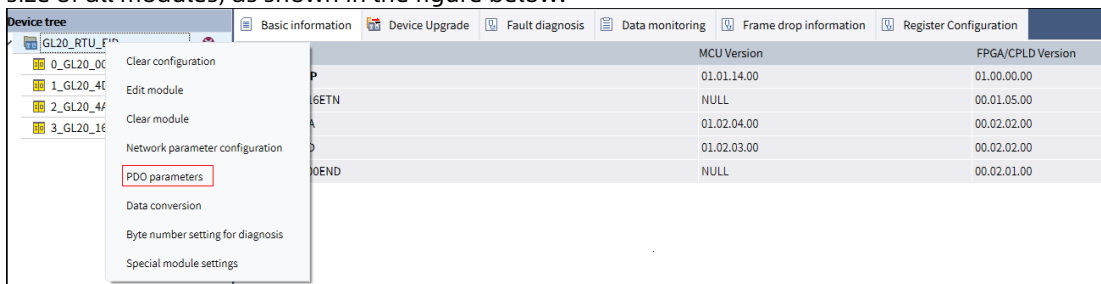
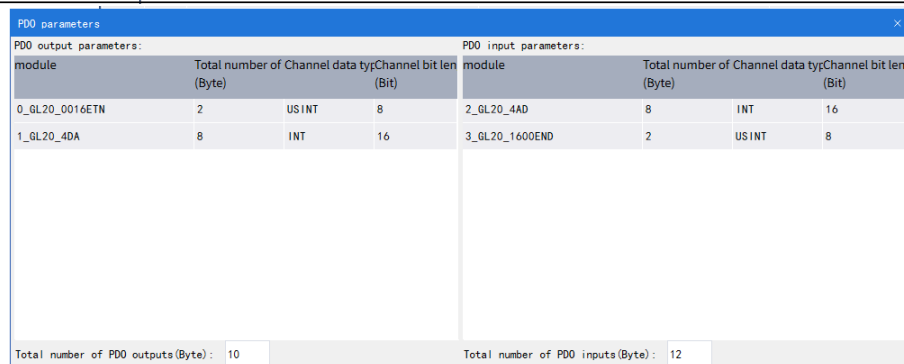
1. View modules connected to the GL20-RTU-EIP communication interface module.
 - a. Connect the communication interface module and the PC using a Type-C USB cable.
 - b. Double-click the shortcut icon  to open the IOManager software, select "Open > Connected device". The device status ("Connected") is displayed in the upper right corner of the interface, and the operation log prompts successful device connection, as shown in the figure below.



- c. Click the "Upload topology" icon , and on the "Basic information" tab, check the information of the successfully scanned communication interface modules and expansion modules, as shown in the figure below.




- d. Right-click the "GL20-RTU-EIP" communication interface module, and select "PDO parameters" to view the data type and data length of input/output cycle of each module, and the total data size of all modules, as shown in the figure below.

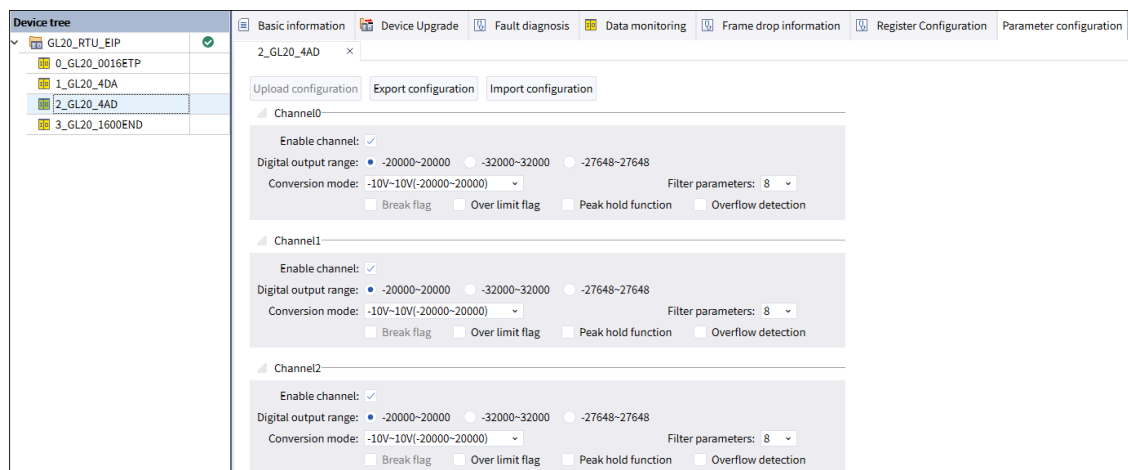



PDO output parameters:				PDO input parameters:			
module	Total number of Channel data (Byte)	Channel data type	Channel bit len (Bit)	module	Total number of Channel data (Byte)	Channel data type	Channel bit len (Bit)
0_GL20_0016ETN	2	USINT	8	2_GL20_4AD	8	INT	16
1_GL20_4DA	8	INT	16	3_GL20_1600END	2	USINT	8

Total number of PDO outputs(Byte): 10 Total number of PDO inputs(Byte): 12

2. Configure the module.

- Click the corresponding module in the configuration list. On the "Parameter configuration" tab, configure the module data and click  to download parameter configuration. The download status can be viewed in the operation log, as shown in the figure below.



6.2.2 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 procedure

The following figure shows the process of issuing configuration data through the attributes of custom UCMM objects. First, read the attribute 0x00000064 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.

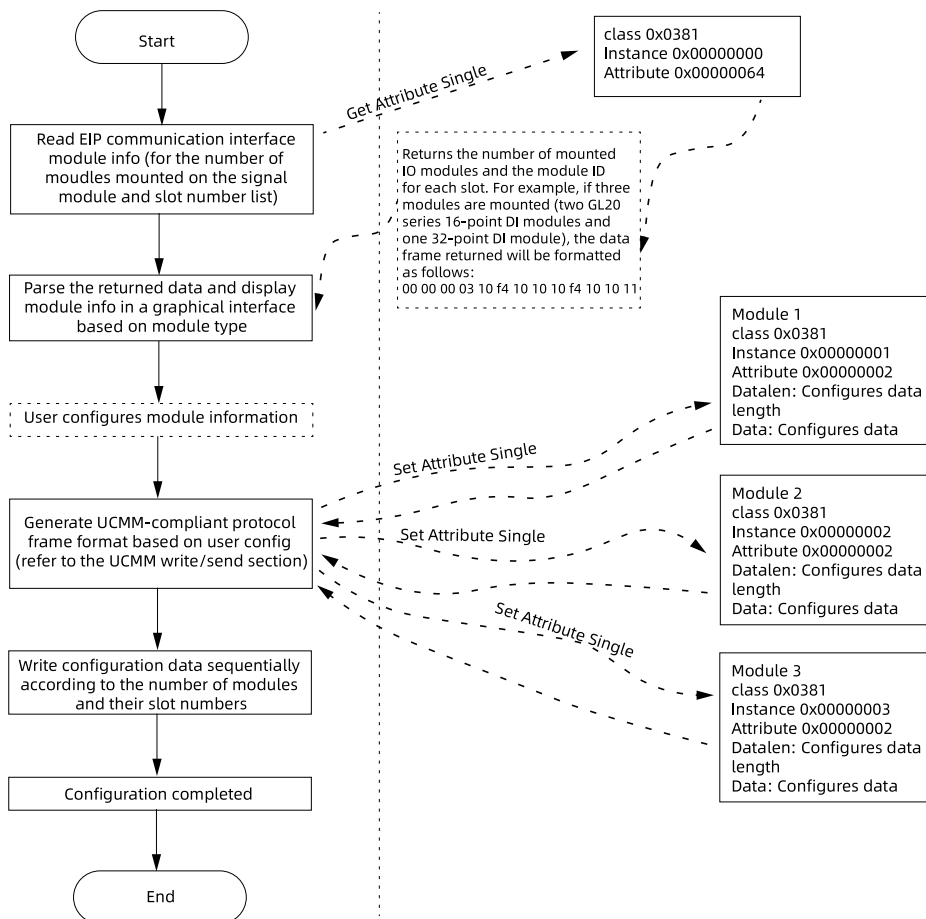


Figure 6-1 Configuration flowchart

Definition of UCMM communication protocol

- UCMM

read/write definition:

	Class ID	Instance	Attribute Notes
	0x0381	0x00000000	0x00000064 Communication interface module information, including number of mounted modules and module ID
		0x00000001	0x00000001 Module ID and module version number
			0x00000002 Configuration information
	0x00000003 Diagnostic information		
	0x00000002	0x00000002	0x00000001 Module ID and module version number
			0x00000002 Configuration information
			0x00000003 Diagnostic information
	0x00000003	0x00000003	0x00000001 Module ID and module version number
			0x00000002 Configuration information
			0x00000003 Diagnostic information
	0x00000004	0x00000004	0x00000001 Module ID and module version number
			0x00000002 Configuration information
			0x00000003 Diagnostic information
	
	0x00000010	0x00000010	0x00000001 Module ID and module version number
			0x00000002 Configuration information
			0x00000003 Diagnostic information

- Definition of returned data for UCMM read:

Class ID	Instance	Attribute	Length	Data	Notes
0x0381	0x00000000	0x00000064	Total length of data area	See Table 6-1	Communication interface module information, including number of mounted modules and module ID
	0x00000001	0x00000001	-	See Table 6-2	Module ID and module version number
		0x00000002	-	See module configuration data	Configuration information
		0x00000003	-	See module configuration data	Diagnostic information

Class ID	Instance	Attribute	Length	Data	Notes
0x0381	0x00000002	0x00000001	-	See Table 6-2	Module ID and module version number
		0x00000002	-	See module configuration data	Configuration information
		0x00000003	-	See module configuration data	Diagnostic information
	0x00000003	0x00000001	-	See Table 6-2	Module ID and module version number
		0x00000002	-	See module configuration data	Configuration information
		0x00000003	-	See module configuration data	Diagnostic information
	0x00000004	0x00000001	-	See Table 6-2	Module ID and module version number
		0x00000002	-	See module configuration data	Configuration information
		0x00000003	-	See module configuration data	Diagnostic information

	0x00000010	0x00000001	-	See Table 6-2	Module ID and module version number
		0x00000002	-	See module configuration data	Configuration information
		0x00000003	-	See module configuration data	Diagnostic information

Table 6-1 Communication interface module information list

Length	Data							
Total data length (2Byte)	Communication interface module ID (4Byte)	Communication interface module version number (4Byte)	FPGA version number (4Byte)	Number of slots mounted on the communication 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	0XXXXXXXXX-X	0XXXXXX-XXX	0XXXXXX-XXX	0XXXXXX-XXX

Table 6-2 Information list of local modules

Length	Data		-
Total data length (2Byte)	MCU version number (4Byte)	Module ID	CPLD version number (4Byte)
0XXXXX	0XXXXXXXXX	0XXXXXXXXX	0XXXXXXXXX

- Definition of UCMM RX/TX data:

Class ID	Instance	Attribute	Data	Notes	
0x0381	0x00000000	0x00000064	-	Not allowed to write	
		0x00000065	Tooling-related functions	-	
	0x00000001	0x00000001	-	-	Not allowed to write
		0x00000002	Refer to module configuration data	-	Configuration information
		0x00000003	-	-	Not allowed to write
	0x00000002	0x00000001	-	-	Not allowed to write
		0x00000002	Refer to module configuration data	-	Configuration information
		0x00000003	-	-	Not allowed to write
	0x00000003	0x00000001	-	-	Not allowed to write
		0x00000002	Refer to module configuration data	-	Configuration information
		0x00000003	-	-	Not allowed to write
	0x00000004	0x00000001	-	-	Not allowed to write
		0x00000002	Refer to module configuration data	-	Configuration information
		0x00000003	-	-	Not allowed to write

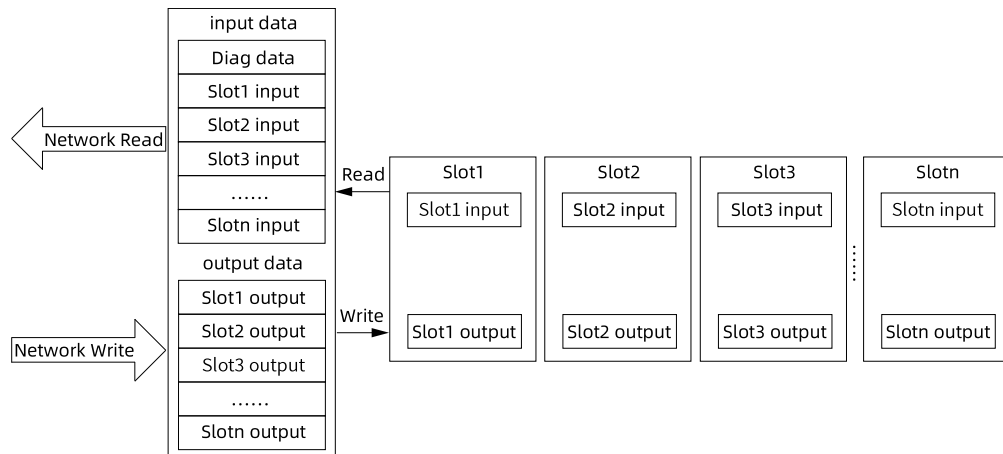
	0x00000010	0x00000001	-	-	-
		0x00000002	Refer to module configuration data	-	Configuration information
		0x00000003	-	-	Not allowed to write

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

6.3 Process Data Definition

6.3.1 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.



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

6.3.2 Diagnostic Data

The GL20-RTU-EIP communication interface module itself outputs process data. The first two bytes or eight bytes of the input process data are diagnostic data, such as "Diag data".

Version	Diagnostic Bytes in Input PDO	Description
Versions 1.1.9 and earlier	2 bytes	When multiple modules are faulty, only the address of the last faulty module is reported.
1.1.15.0	2 bytes/8 bytes	When configured to 8 bytes, the addresses of all faulty modules are reported.

- **2-byte diagnostic data**

Bit	Name	Description	Remarks
0	EIP diagnosis	EIP diagnostic information	Reserved
1	GL-LINK diagnosis	GL-LINK diagnostic information	Reserved
2	MODULE diagnosis	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, only the address of the last module is reported.


When a module has diagnostic information, bit 2 is set to 1 and bit 8 to bit 15 displays the address of the module. When multiple modules have diagnostic information, bit 8 to bit 15 displays the address of the last module with diagnostic information.

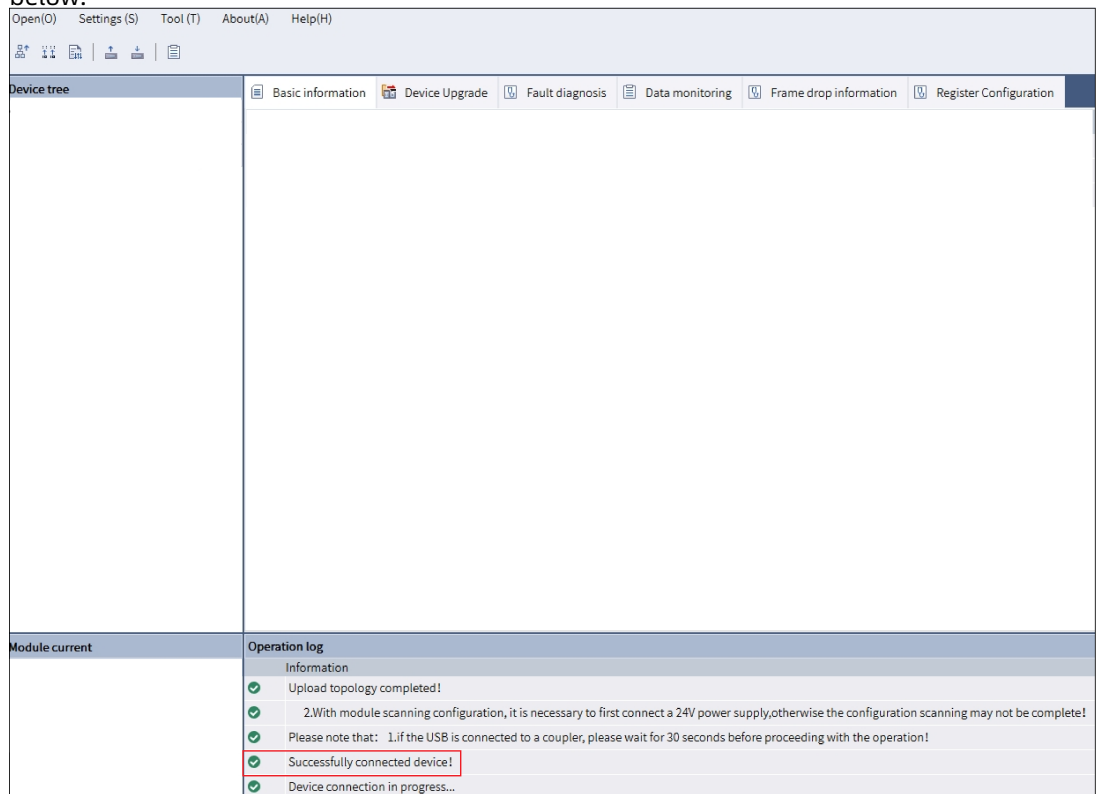
Local bus status: 0: error state; 1: initialization state; 2: pre-operational state; 3: safe-operational state; 4: operational state.


- **8-byte diagnostic data**

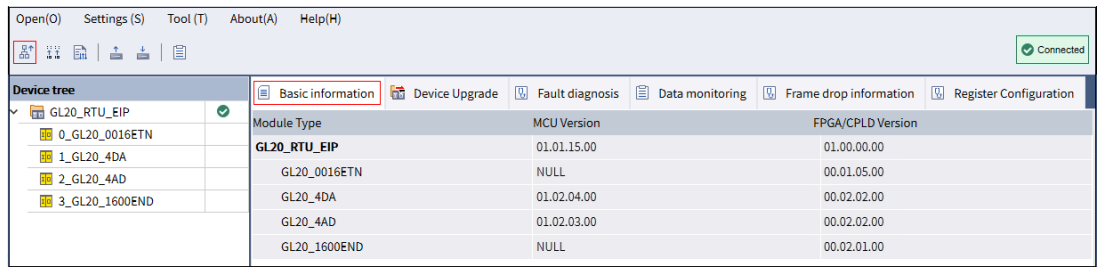
Byte	Name	Description	Remarks
0	EIP Status	EIP status	0: Reserved 1: All connections are normal 2: Partial connections are disconnected 3: Connection status is changed
1	GL-LINK Status	bit 0 to bit 7: Local bus status	0x01: Initialization 0x02: Pre-operational 0x04: Safe-operational 0x08: Operational 0x80: Local bus error
2 to 3	Reserve	Reserved	Reserved
4 to 7	MODULE Address	32 bits indicate the diagnostic status of 32 modules; bit 0 corresponds to slot 1, followed by subsequent slots.	0: No diagnostic information 1: Diagnostic information present

With IOManager V1R2 and later versions, the number of diagnostic bytes can be configured. Disconnect the EIP connection first and follow the steps below:

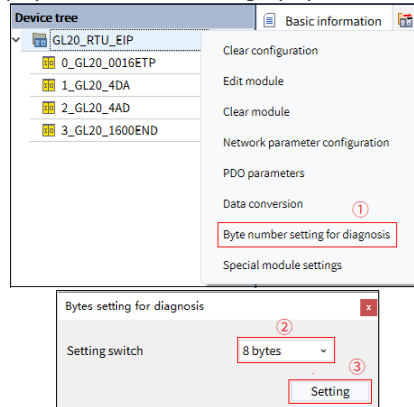
1. Connect the communication interface module and the PC using a Type-C USB cable.
2. Double-click the shortcut icon  to open the IOManager software, select "Open > Connected device". The device status ("Connected") is displayed in the upper right corner of the interface, and the operation log prompts successful device connection, as shown in the figure below.



3. Click the "Upload topology" icon , and on the "Basic information" tab, check the information of the successfully scanned communication interface modules and expansion modules, as shown in the figure below.



4. Right-click the "GL20-RTU-EIP" communication interface module and select "Byte number setting for diagnosis" (①). In the pop-up window, enter the configured PDO byte count for diagnosis in "Setting switch" (②), then click "Setting" (③), as shown in the figure below.



7 Technical Specifications

General specifications

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

Software specifications

Item	Specification
IP setting method	<ul style="list-style-type: none"> • USB software tool • BOOTP/DHCP • DIP switch
Network topology	Linear, star, tree, and DLR (only supported as managed)
Max. number of supported I/O modules	16
Max. data length	<ul style="list-style-type: none"> • Input: 504 bytes • Output: 504 bytes
Transmission distance	100 m
RPI	1 ms to 50,000 ms
Max. number of CIP connections	8
Network interface	Two RJ45 interfaces with interactive function
Connection rate	100 Mbps

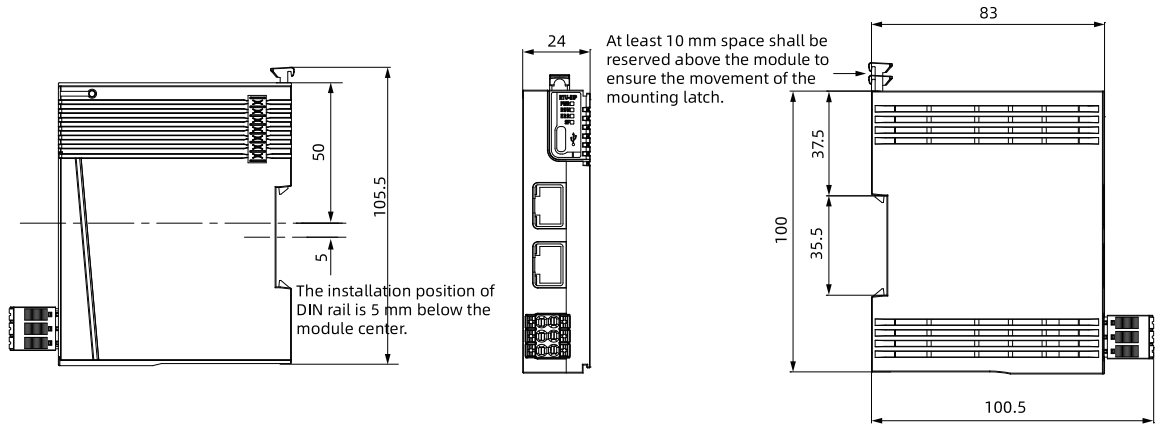
8 Environmental Specifications

Item	Specification
Installation/Operating environment	Free from conductive dust, conductive fibers, explosive dust, flammable gases, water mist/greasy dirt, corrosive dusts/gases, strong vibration, and repetitive shock
Altitude	≤ 2000 m
Pollution degree	Level 2
Immunity	2 kV on power supply line (Conforms to IEC 61000-4-4)
Overvoltage category	I
EMC immunity level	Zone B, IEC61131-2
Anti-static rating	Contact discharge +/-6 kV and air discharge +/-8 kV
Vibration resistance	<ul style="list-style-type: none"> • Application scenario: Tested according to IEC60068-2-6. 3.5 mm amplitude at 5 Hz to 8.4 Hz; 1 g acceleration at 8.4 Hz to 200 Hz; 10 cycles per axis. • Transportation scenario: Tested according to IEC60068-2-64, 0.01 g²/Hz power spectral density at 5 Hz to 100 Hz; 0.001 g²/Hz power spectral density at 200Hz; 1.14 g G_{rms}
Shock resistance	Application/Transportation scenario: Tested according to IEC60068-2-27; 15 g peak acceleration, 11 ms pulse width, 18 shocks in total in X, Y and Z axes
Operating temperature/humidity	<ul style="list-style-type: none"> • Temperature: -20°C to +55°C • Humidity: < 95% RH (30°C), without condensation
Storage temperature/humidity	<ul style="list-style-type: none"> • Temperature: -20°C to +60°C • Humidity: < 95% RH (30°C), without condensation
Transportation temperature/humidity	<ul style="list-style-type: none"> • Temperature: -40°C to +70°C • Humidity: < 95% RH (40°C), without condensation

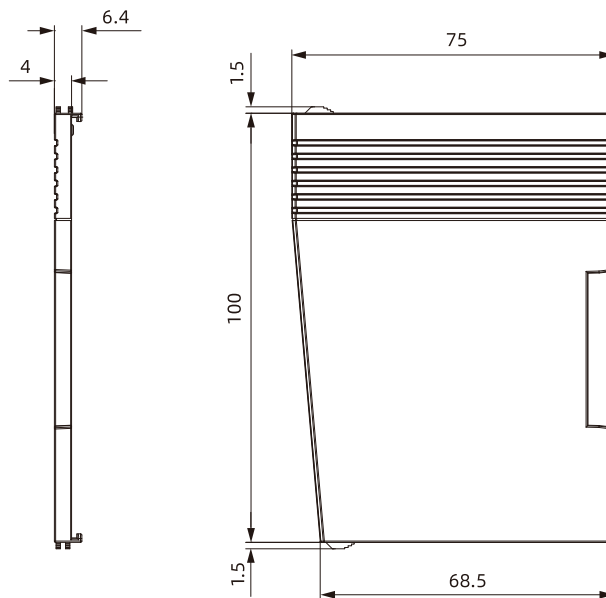
9 Dimension Drawing

The installation dimensions are shown below in millimeters (mm).

Module



End cover



Service and Support

Should you encounter a safety accident during the use or operation of the product, or face challenges in operating and maintaining the equipment, which remain unresolved after the relevant documentation is consulted, we provide multiple channels to ensure prompt resolution:

- Channel #1: Contact service@inovance.com.
- Channel #2: Visit <https://www.inovance.com/global> to access document downloads, after-sales support, spare parts ordering, repair applications, and authenticity verification services.
- Channel #3: Download My Inovance app (<https://zshc-eu.inovance.com/download-pc/>) where you can access products info and documentation, and query product parameters.

We are committed to providing you with quick and professional technical support, and we look forward to your satisfaction and trust.



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