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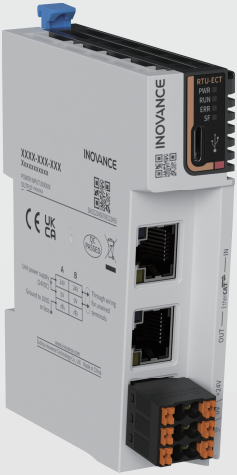

PS00004985A05

GL20-RTU-ECT
Communication Interface Module

User Guide

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Preface

■ Introduction

This guide describes the product information, mechanical installation, electrical installation, programming and fault diagnostics of the product.

■ Standard 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.

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

■ More Data

Name	Data Code	Description
GL20-RTU-ECT Communication Interface Module User Guide	PS00004985	This guide describes the product information, installation, wiring, programming debug and fault diagnostics of the product.

■ Revision History

Date	Version	Description
May 2024	A05	Updated *"1.6 Release Notes" on page 17*
February 2024	A04	• Updated *"1.4 Specifications" on page 15* • Updated *" Fault Diagnosis" on page 32*

Date	Version	Description
December 2023	A03	**Added** • *"1.1 Product Introduction" on page 9* • *"1.6 Release Notes" on page 17* • *"2.1 Installation Precautions" on page 21* **Updated** • *"2.3 Installation Method" on page 22* • *" Programming Examples" on page 30*
February 2023	A02	Updated renderings and structural diagrams
June 2022	A01	Corrected some minor errors.
April 2022	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 *http://www.inovance.com*.
- Scan the QR code on the product with your smart phone.
- My Inovance APP: Scan the QR code below to install the app, where you can search for and download user guides.

■ Warranty Disclaimer

Inovance provides warranty service within the warranty period (as specified in your order) for any fault or damage that is not caused by improper operation of the user. 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 the 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

DANGER	Indicates that failure to comply with the notice can result in death or severe personal injuries.
WARNING	indicates that failure to comply with the notice may result in severe personal injuries or even death.
CAUTION	indicates that failure to comply with the notice may result in minor or moderate personal injuries or damage to the equipment. Keep this manual properly for future use and deliver it to the end user.

Control System Design

DANGER

- 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 long-time overcurrent caused by operation above rated current or load short-circuit.

WARNING

- 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, 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 indoor electrical environment (overvoltage category II). The power supply must have a system-level lightning protection device, assuring that overvoltage due to lightning shock cannot be applied to the PLC power supply input terminals, signal input terminals and output terminals and so forth, so as to avoid damage to the equipment.

Installation

WARNING

- Installation must be carried out by the 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.

CAUTION

- 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

- 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.

- 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

- 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

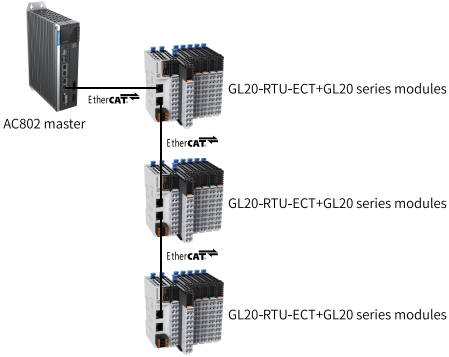
- Treat the scrapped product as industrial waste. Dispose of the battery according to local laws and regulations.
- Recycle retired equipment by observing industry waste disposal standards to avoid environmental pollution.

1 Product Information

1.1 Product Introduction

■ Overview

GL20-RTU-ECT communication interface module connects to the EtherCAT network as an EtherCAT 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 17*). It features auto scanning function and can be used together with Inovance or third-party EtherCAT master devices. The following figure shows the system topology with Inovance AC802 PLC as the master.



Note

EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

■ Bus current consumption

The GL20-RTU-ECT module supports up to 16 GL20 series expansion modules, including the GL20-PS2 relay power 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 17*) exceeds the bus supply current of the GL20-RTU-ECT 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 consumed by the expansion modules = bus current consumed by expansion module #1 + bus current consumed by expansion module #2 + … + bus current consumed by 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.

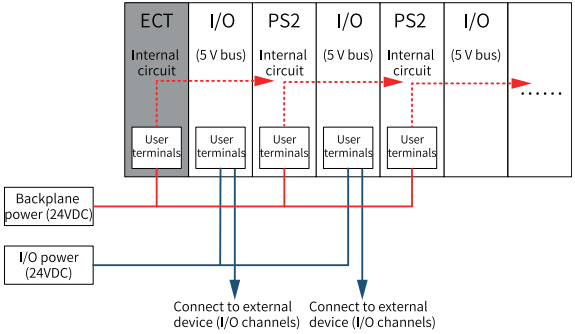
  For example, the GL20-RTU-ECT module can support up to 13 GL20-3232ETN-M modules each with a bus current consumption of 150 mA (2 A/150 mA=13.33≈13), or up to 16 GL20-0008ETP modules each with a bus current consumption of 80 mA (16 x 80 mA=1280 mA≤2 A).

- When a GL20-PS2 module is provided because the total current consumption of the expansion modules that are directly powered by the GL20-RTU-ECT 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-ECT 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-ECT 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 13 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-ECT module to supply power to the GL20-PS2 module. The GL20-PS2 module consumes a bus current consumption of 55 mA and provides a bus current of 2 A.

  Here we take one GL20-RTU-ECT module (2 A power supply) + one GL20-PS2 (2 A power supply) + several GL20-3232ETN-M modules as an example, then at least 25 GL20-3232ETN-M can be supported (25 x 150 mA=3750 mA).

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



Caution

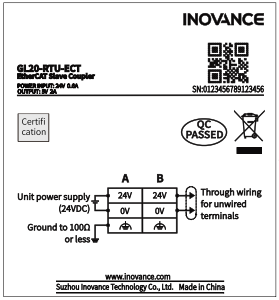
- The GL20-PS2 module and the GL20-RTU-ECT module must be powered on simultaneously (the GL20-PS2 module is allowed to be powered on at most two seconds later than the GL20-RTU-ECT module), otherwise addressing may fail.
- Do not place the GL20-PS2 module in the last slot of the configuration.

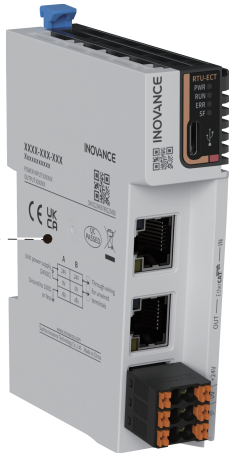
1.2 Model Number and Nameplate

G L 20 - RTU - ECT

① ② ③ ④ ⑤

①	**Product Family** G: General module	③	**Series** 20: 20 series module	⑤	**Communication Protocol** ECT: EtherCAT
②	**Product Type** L: Local module	④	**Module Type** RTU: Communication coupler	-	

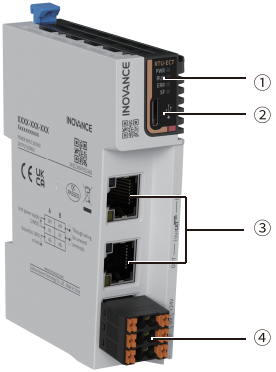




The data for ordering the product is shown below.

Model	Description	Product code	Applicable model
GL20-RTU-ECT	GL20-RTU-ECT EtherCAT communication interface module	01440286	Inovance and third-party EtherCAT master such as PLC and boards.

1.3 Components



No.	Interface	Description			
1	Signal Indicator	PWR	Power indicator	Green	ON when power supply is switched on
		RUN	Running state indicator	Off	The module is in the INIT state.
				Blinking (green)	The module is in the Pre-Operational state.
				Single flash (green)	The module is in the Safe-Operational state.
				ON (green)	The module is in the Operational state.
		ERR	Communica-tion error indicator	Off	The EtherCAT communication is normal.
				Blinking (red)	EtherCAT communication receives non-executable state transition commands
				Single flash (red)	Network disconnection, module synchronization error
				Double flash (red)	EtherCAT watchdog error
		SF	Fault indicator	Off	The device is normal.
				Single flash	An error occurred in the expansion module
				Blinking	The configuration is incorrect.
2	Type-C interface	Used for software upgrade of the board			
3	EtherCAT interface	IN: EtherCAT input			
		OUT: EtherCAT output for connecting back-end EtherCAT slaves			
4	24 V power supply	For power supply input			

1.4 Specifications

■ General specifications

Item	Specification
IP rating	IP20
Dimensions (W x H x D)	24 mm × 100 mm × 75 mm
Weight	Approx. 91 g

■ Power supply 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	85% derating at 55°C (the output current does not exceed 1.7 A), or 10°C derating when output current is 2 A
Isolation	No
Power supply protection	Overcurrent protection, anti reverse connection protection, surge absorption

■ Software specifications

Item	Specification
Access through alias	The GL20-RTU-ECT module supports alias configuration and access through its alias. Expansion modules connected to the GL20-RTU-ECT module do not support alias configuration and access through alias. Range: 1 to 65535
PDO data size: input	339 bytes max.
PDO data size: output	339 bytes max.

Item	Specification
Mailbox data size: input	256 bytes max.
Mailbox data size: output	256 bytes max.

1.5 Environmental Specifications

Item	Specification
Working environment	No corrosive and flammable gas and no excessive conductive dust
Altitude	⩽2000 m
Pollution degree	2 or less
Noise immunity	2 kV on power supply line (Conforms to IEC 61000-4-4)
Overvoltage category	I
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 g^2/Hz; 200 Hz, 0.001 g^2/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	• Operating temperature: -20°C to +55°C • Relative humidity: 10% to 95% RH, non-condensing
Storage temperature/humidity	• Storage temperature: -40°C to +70°C • Relative humidity: <90% RH, non-condensing

1.6 Release Notes

This section describes the supported expansion modules and features, and the XML file version that match to the released firmware.

■ Fourth release: 3.0.6.0 firmware (MCU)

- **New supported expansion modules**

Product Code	Module Name	Description	Firmware Version	Bus Current Consump-tion
01440466	GL20-3200END	GL20 series 32-channel digital input module	Logic software: 0.1.13.0 and later	85 mA
01440467	GL20-0032ETN	GL20 series 32-channel transistor NPN output module	Logic software: 0.1.13.0 and later	80 mA
01440506	GL20-0404ETP-5V	GL20 series 4-channel digital input and 4-channel digital output 5V module	Logic software: 0.1.12.0 and later	90 mA
01440485	GL20-0004ER	GL20 series 4-channel relay output general-purpose module	Logic software: 0.1.13.0 and later	90 mA
01440512	GL20-0004ETP-2A	GL20 series 4-channel large current digital PNP output module	Logic software: 0.1.14.0 and later	80 mA

- **XML file version:** 1.3.20.0

■ Third release: 2.4.18.0 firmware (MCU)

- **New supported expansion modules**

Product Code	Module Name	Description	Firmware Version	Bus Current Consump-tion
01440489	GL20-8ADI	GL20 series 8-channel analog input module - current type	Board software: 1.2.0.1 and later Logic software: 0.1.3.0 and later	65 mA
01440482	GL20-8ADV	GL20 series 8-channel analog input module - voltage type	Board software: 1.2.0.1 and later Logic software: 0.1.3.0 and later	65 mA
01440456	GL20-2S485	GL20 series 2-channel RS485 module	Board software: 1.1.8.8 and later	155 mA
01440463	GL20-2SCOM	GL20 series serial port communication module	Board software: 1.0.0.9 and later	170 mA
01440445	GL20-2SSI	GL20 series SSI communication module	Board software: 1.1.7.0 and later	115 mA

- **XML file version:** 3.0.11.0

■ Second release: 2.4.13.0 firmware (MCU)

- **New supported expansion modules**

Product Code	Module Name	Description	Firmware Version	Bus Current Consumption
01440334	GL20-0008ER	GL20 series 8-channel relay output general-purpose module	Board software: 0.1.2.0 and later	110 mA
01440381	GL20-0800END	GL20 series 8-channel digital input module	Board software: 0.1.2.0 and later	105 mA
01440379	GL20-0008ETN	GL20 series 8-channel digital NPN transistor output module	Board software: 0.1.2.0 and later	115 mA
01440380	GL20-0008ETP	GL20 series 8-channel digital PNP transistor output module	Board software: 0.1.2.0 and later	80 mA
01440339	GL20-0808ETN	GL20 series module with 8-channel digital input and 8-channel NPN transistor output	Board software: 0.1.2.0 and later	130 mA
01440290	GL20-3232ETN-M	GL20 series module with 32-channel digital input and 32-channel NPN transistor output	Board software: 3.0.4.0 and later	150 mA
01440378	GL20-3200END-M	GL20 series 32-channel digital input module (external terminal block)	Board software: 3.0.4.0 and later	95 mA
01440377	GL20-0032ETN-M	GL20 series 32-channel digital NPN transistor output module	Board software: 3.0.4.0 and later	85 mA
01440351	GL20-PS2	GL20 series 2A power supply module	Board software: 0.1.2.0 and later	55 mA

- **XML file version:** 1.3.9.0

■ First release: 2.4.3.0 firmware (MCU)

- **Supported expansion modules**

Product Code	Module Name	Description	Firmware Version	Bus Current Consumption
01440293	GL20-0016ETN	GL20 series 16-channel digital NPN transistor output module	Board software: 0.1.2.0 and later	145 mA
01440292	GL20-0016ETP	GL20 series 16-channel digital PNP transistor output module	Board software: 0.1.2.0 and later	100 mA
01440291	GL20-1600END	GL20 series 16-channel digital input module	Board software: 0.1.2.0 and later	120 mA
01440287	GL20-4DA	GL20 series 4-channel analog output module	Board software: 1.1.5.0 and later	70 mA
01440288	GL20-4AD	GL20 series 4-channel analog input module	Board software: 1.1.5.0 and later	95 mA
01440337	GL20-4PT	GL20 series 4-channel thermistor temperature detector module	Board software: 2.0.5.0 and later	95 mA
01440338	GL20-4TC	GL20 series 4-channel thermocouple temperature detector module	Board software: 2.0.5.0 and later	95 mA

- **XML file version:** 1.2.7.0

2 Mechanical Installation

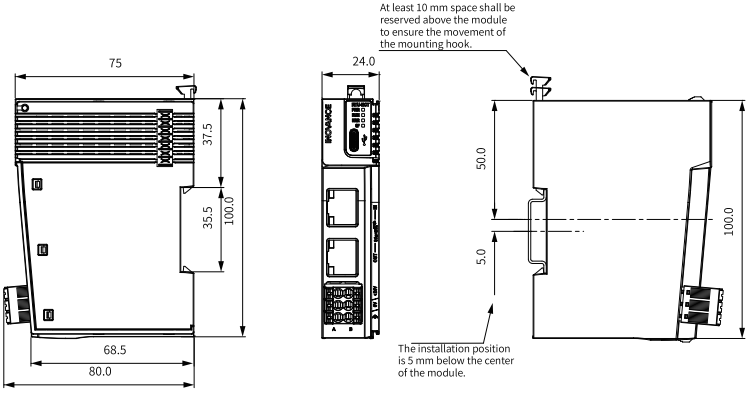
2.1 Installation Precautions

- 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 communication interface module or 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.

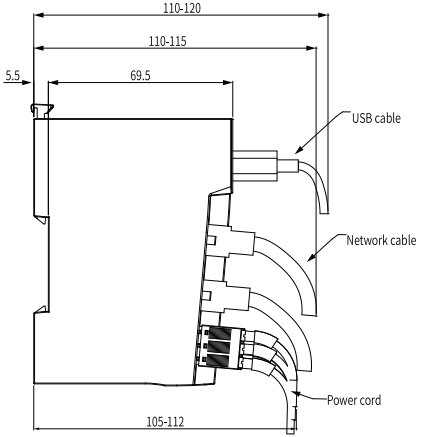
2.2 Mounting Dimensions

■ Module

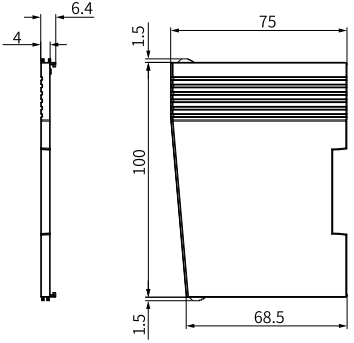
The mounting dimensions (in mm) are shown in the figure below.



■ Cable



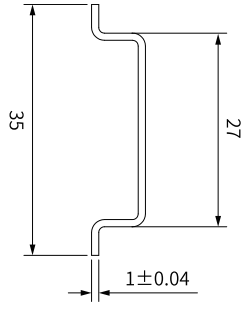
■ End Cover



2.3 Installation Method

■ Installing the modules to each other

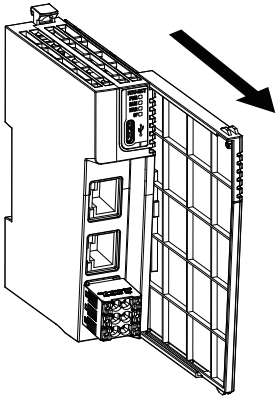
The module is mounted onto a DIN rail in conformity with IEC 60715 (width: 35 mm, thickness: 1 mm). The dimensions (unit: mm) are shown below.



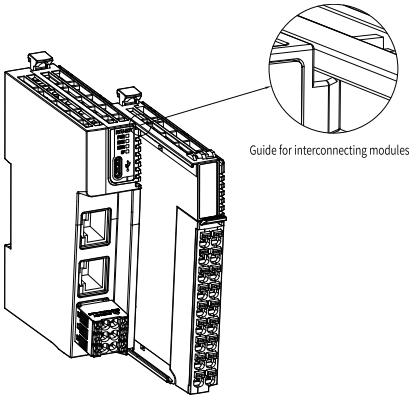
Caution

When installed on a DIN rail other than the recommended one (especially the one whose thickness is not 1.0 mm), the module will not fit in place as the mounting hook does not work.

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

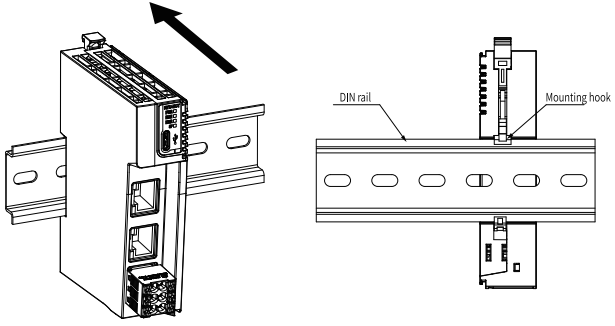


2. You can install multiple modules side by side with the help of top and bottom guides on the modules, as shown below.

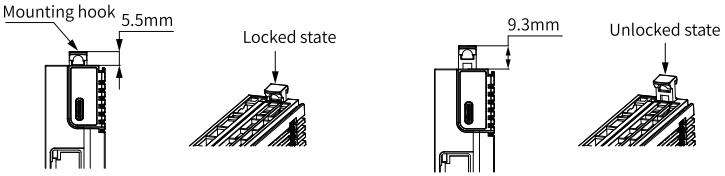


■ Installing the module onto DIN rail

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.

Caution

When the module is not installed on the rail, keep the mounting hook in the locked state. Keeping the mounting hook unlocked for a prolonged time may cause the hook to fail.

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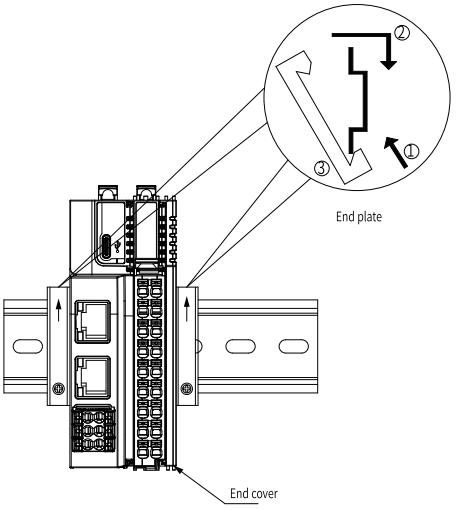
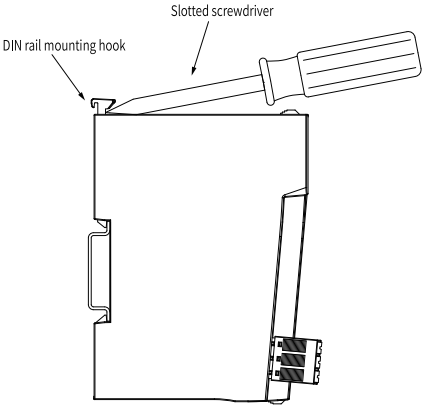
3. Mount the end cover to the last module to prevent the exposure of metal pins, and mount an end plate on either side of the module assembly to prevent it from sliding, as shown below.

   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, and then pull the module away from the DIN rail to remove it. After the module is removed, press the top of the mounting hook downwards.


Slotted screwdriver
DIN rail mounting hook

3 Electrical Installation

3.1 Cable Selection

■ Communication Cable

EtherCAT 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.

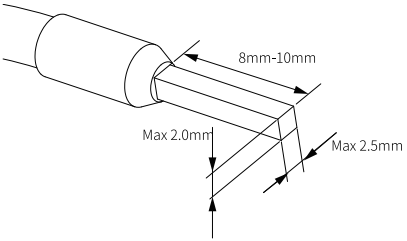
Item	Specification
Cable type	Elastic crossover cable, S-FTP, Cat5
Standard	EIA/TIA568A, EN50173, ISO/IEC11801 EIA/TI Abulletin TSB, EIA/TIA SB40-A&TSB36
Cross sectional area	26AWG
Conductor type	Twisted pair
Line pair	4

■ Power Supply Wiring

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

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

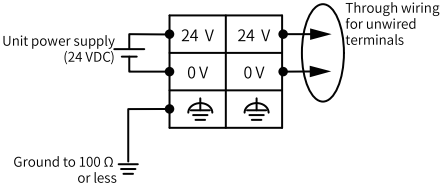
If you use other types of tubular lug, crimp the lug to the cables according to the shape and dimension requirements shown in the figure below.



■ External Interface Specifications

Interface Type	Interface	Cable Type/ Maximum Length	Description	Terminals	Item
EtherCAT interface	EtherCAT	Shielded network cable, 100 m	EtherCAT 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

3.2 Terminal Wiring



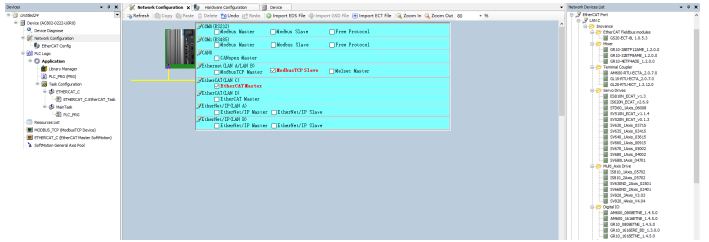
4 Programming Examples

Here we take AC802 PLC as an example.

1. Enable AC802 as EtherCAT master and add the GL20-RTU-ECT module.

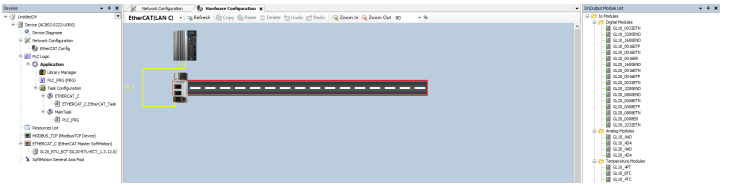
   a. In the **Devices** pane, double-click on **Network Configuration**, then check the **EtherCAT Master** checkbox corresponding to the PLC to which the GL20-RTU-ECT module is connected.

   b. In the **Network Device List** pane, double click on GL20-RTU-ECT_*x.x.x.x* to add it.



2. Add a module to the GL20-RTU-ECT module.

   In the **Devices** pane, double-click on **EtherCAT Config** under **Network Configuration**,then in the **In\Output Module List** pane, double-click on the module you want to add.



Note

Another way to add a module to the GL20-RTU-ECT module: In the Devices pane, right-click on the GL20_RTU_ECT module under ETHERCAT_C (EtherCAT Master SoftMotion) menu and select Add Device... Then in the pop-up dialog, select the module you want to add and click the Add Device button.

3. After adding the module, configure the module parameters. For details, refer to the User Guide of the corresponding module.
4. After successful compiling, download the project and run it.

5 Fault Diagnosis

LED indicator		Description	Solution
RUN	OFF	No connection between EtherCAT master and slave	• Check that the configuration and parameter assignment are correct. • Check that the communication address is correct. • Check that the length and other specifications of the network cable are as specified.
	Blinking	EtherCAT slave is in a state other than OP.	Check slave configuration for any missing, faulty or unconfigured module.
ERR	Blinking	No data exchange between EtherCAT master and slave	Check that the cable connector is inserted correctly.
		EtherCAT communication receives non-executable state transition commands	Check that the network cable is intact.
		The EtherCAT module has a synchronization error.	Re-power on.
		EtherCAT watchdog error	Check that the PDO configuration is correct.
SF	Blinking	Incorrect configuration	Check that the host controller configuration is consistent with the module configuration.
		Module error.	Check that the module is not interfered.