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PS00005972A06

GL20-0016ETP Series

Digital Output Module

User Guide

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Preface

■ Introduction

GL20-0016ETP series 16-channel digital output module supports digital transistor PNP output. It can be used with Easy series PLCs and GL20 series communication interface modules such as GL20-RTU-ECT.

This guide introduces the product information, mechanical installation, electrical installation, program 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.

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	Electromagnectic 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	Code	Description
GL20-RTU-ECT Series Communication Interface Module User Guide	PS00004985	Introduces the installation, wiring, and other information of the product.
GL20-RTU-PN Series Communication Interface Module User Guide	PS00007594	Introduces the installation, wiring, and other information of the product.
GL20-RTU-ECT32 Series Communication Interface Module User Guide	PS00013434	Introduces the product information, mechanical installation, electrical installation, program commissioning, and troubleshooting of the product.
GL20-0016ETP Series Digital Output Module User Guide (This guide)	PS00005972	Introduces the product information, mechanical installation, electrical installation, program commissioning, and troubleshooting of the product.

■ Revision History

Date	Version	Revision
April 2025	A06	• Modified *"1.2 Components" on page 12*. • Modified *"3.3 Terminal Wiring" on page 24*. • Modified *"1.3 Technical Specifications" on page 13*. • Modified *"1.4 Environmental Specifications" on page 15*. • Modified *" Appendix: Version Matching Information" on page 36*.
July 2024	A05	Modified *"2.1 Installation Precautions" on page 17*.
June 2024	A04	Modified *"1.4 Environmental Specifications" on page 15*.
January 2024	A03	**Added:** • Added *"2.1 Installation Precautions" on page 17*. • Added *" Troubleshooting" on page 34*. • Added *" Appendix: Version Matching Information" on page 36*. **Modified:** • Modified the component descriptions in *"1.2 Components" on page 12*. • Modified the general specifications in *"1.3 Technical Specifications" on page 13*. • Modified the operation steps in *" Program Commissioning" on page 26*.
February 2023	A02	Modified the effect diagram and structure diagram. Added environmental specifications.

Date	Version	Revision
July 2022	A01	Made minor corrections.
June 2022	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

- Do keyword search under Service and Support at *www.inovance.com*.
- 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 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 period 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
- Damage caused by fire, flood, or unusual 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.

Safety Precautions

■ Safety Disclaimer

1. Read and follow the safety instructions when installing, operating, and maintaining the equipment.
2. To ensure your safety and prevent damage to the equipment, follow the marks on the equipment and all the safety instructions in this guide.
3. "CAUTION", "WARNING", and "DANGER" items in the guide do not indicate all safety precautions that need to be followed; instead, they just supplement the safety precautions.
4. Use this equipment according to the designated environment requirements; otherwise, a fault may occur. Malfunction or 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 will result in death or severe personal injuries.

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

"CAUTION" indicates that failure to comply with the notice may result in minor or moderate personal injury or equipment damage. Keep this user guide 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 controller 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 an upper position limit and lower position limit interlocked circuit must be set in the external circuits of PLC to prevent damage to the equipment.
- To ensure safe operation, for the output signals that may cause critical accidents, use external protection circuits and safety mechanism.
- Once the CPU of the controller detects an exception in the system, all outputs may be closed. When a fault occurs in the controller circuit, the output may not be under control. Therefore, it is necessary to set up an external control circuit to ensure normal operation.
- If the 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 cannot be applied to the PLC's power supply input terminals, signal input terminals, and output terminals, to prevent damage to the equipment.

Installation

WARNING

- Installation must be carried out by skilled personal who have undergone specialized electrical training and possess comprehensive electrical expertise.
- Disconnect all external power supplies of the system before disassembling the module. Failure to do so may result in electric shock, module fault, or malfunction.
- Do not use the PLC in environments with dust, greasy smoke, conductive dust, corrosive or combustible gases, exposed to high temperature, condensation, wind & rain, or subject to vibration and shock. 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 skilled personnel who have undergone specialized electrical training and possess comprehensive electrical expertise can open the cabinet.

CAUTION

- Ensure there are no unwanted matters on ventilation surface. Failure to comply may result in poor ventilation, which may cause fire, fault, and malfunction.
- 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 the module is connected to the respective connector securely and hook the module firmly. Improper installation may result in malfunction, fault or fall-off.
- Ensure natural ventilation for the equipment.

Wiring

DANGER

- Wiring must be carried out by skilled personnel who have undergone specialized electrical training and possess comprehensive electrical expertise.
- Disconnect all external power supplies of the system before wiring. Failure to comply may result in electric shock, module fault, or malfunction.
- Install the terminal cover attached to the product before power-on or operation after wiring is done. Failure to comply may result in electric shock.
- Insulate the cable terminals properly to ensure the insulation distance between cables will not be shortened after cables are connected to the terminal block. Failure to comply may result in electric shock or damage to the equipment.

Wiring

- To avoid electric shock, cut off the power supply before connecting the equipment to the power supply.
- The input power supply of this product must be 24 VDC. Power supplies outside ±20% of 24 VDC can cause severe damage to the product. Therefore, check whether the DC power supply provided by the switching-mode power supply is stable at a regular interval.

Operation and Maintenance

- Operation and maintenance must be carried out by skilled personnel who have undergone specialized electrical training and possess comprehensive electrical expertise.
- 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 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 assembling/disassembling the module or connecting/removing the communication cables. Failure to comply may result in electric shock or malfunction.

Safety Recommendations

- 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, the on-site manual operating devices and any other alternative means must be carefully arranged and designed so that they are independent of the PLC and can start or terminate the automatic running of the system.
- If modification on the program is needed during system operation, 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 in accordance with industry waste disposal standards to avoid environmental pollution.

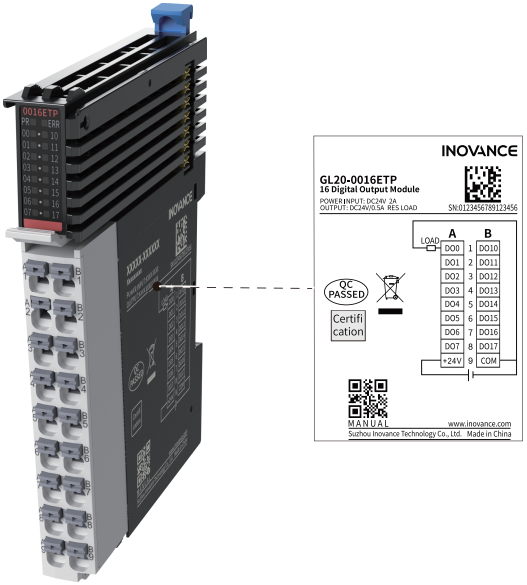
1 Product Information

1.1 Naming Rules and Nameplate

GL 20 -00 16 E TP

① ② ③ ④ ⑤ ⑥

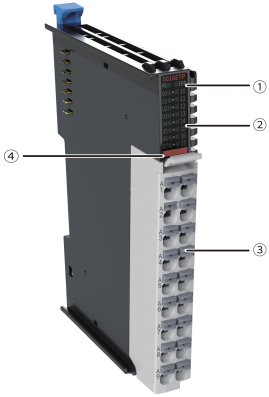
① **Product Information** GL: Inovance general local module	③ **Number of input channels** 00: 0 input	⑤ **Module Type** E: Logic I/O expansion module
② **Series Number** 20: 20 series module	④ **Number of output channels** 16: 16 outputs	⑥ **Output Type** R: Relay output TP: Transistor output (source mode) TN: Transistor output (sink mode)



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

Model	Description	Material Code	Applicable Model
GL20-0016ETP	GL20 series 16-channel digital transistor output module	01440292	It is applicable to Easy series PLCs and GL20 series communication interface modules, such as GL20-RTU-ECT.

1.2 Components



No.	Name	Description			
①	Signal indicator	PR (POWER +RUN)	Power/Operation indicator	Yellow-green	• Steady ON: The module is in normal operation. • Flashing quickly: The module is addressed successfully. • Flashing slowly: The module is powered on but not addressed. • OFF: The module is not powered on or is faulty.
		ERR	Fault indicator	Red	ON when the module is faulty. For details, see "Troubleshooting" on page 34.
②	I/O signal indicator	Corresponding to various input signals, ON: input active OFF: input inactive			
③	User terminal	For details, see "3.2 Terminal Definition" on page 23			

No.	Name	Description			
④	Color identification	Red: Digital output		Orange: Analog output	
		Gray: Digital input		Green: Analog input	
		White: Communication		Blue: Other modules	

Note

- Single flashing: The indicator is on for 200 ms and off for 1000 ms, repeating this cycle.
- Flashing: The indicator is on for 200 ms and off for 200 ms, repeating this cycle.
- Slow flashing: The indicator is on for 900 ms and off for 100 ms, repeating this cycle.
- Double flashing: The indicator is on for 200 ms, off for 200 ms, on for 200 ms, and off for 1 s, repeating this cycle.

1.3 Technical Specifications

■ General specifications

Item	Specification
IP rating	IP20
Dimensions (W x H x D)	12 mm x 100 mm x 75 mm
Weight	About 60 g

■ Power supply specifications

Item	Specification
Rated voltage of bus input power supply	5 VDC (4.75 VDC to 5.25 VDC)
Rated current of bus input power supply	100 mA (typical value @5 V)

Item	Specification
Rated voltage of terminal input power supply	24 VDC (20.4 VDC to 28.8 VDC)
Rated current of terminal input power supply	2 A (typical value @24 V)
Rated voltage of terminal output power supply	/
Rated current of terminal output power supply	/
Hot swap	Not supported

■ Output specifications

Item	Specification
Output type	Digital output, high side transistor output
Output mode	Source mode
Number of output channels	16
Output voltage class	24 VDC±10% (21.6 VDC to 26.4 VDC)
Output load (resistive load)	0.5 A/channel; 2 A/module
Output load (inductive load)	7.2 W/channel; 12 W/module
Output load (lamp load)	5 W/channel; 18 W/module
ON/OFF hardware response time	100 μs/100 μs
Leakage current upon OFF	10 uA
Switching frequency	Resistive load: 100 Hz; inductive load: 0.5 Hz; lamp load: 10 Hz
Isolation	Isolated
Output indicator	The output indicator turns on (controlled by software) when the output is in drive state.

Item	Specification
Output derating	Take resistive load as an example, the module operates at full load (with the output current of all simultaneously ON output channels not exceeding 2 A) at 45°C, and operates at 50% of full load (with the output current not exceeding 1 A) at 55°C.
Protective functions	Short circuit protection, overcurrent protection

■ Software specifications

Item	Specification
Output PDO data volume	Max. 2 bytes
Output state mode during fault stop	Output zero, last value, or preset value
Preset value output during fault stop	0 or 1
Output terminal fault detection and indication	/
Output channel logic level configuration	Not supported
Independent channel enable configuration	Not supported
Diagnostic report function configuration	Not supported
Output in the stop mode	Output zero, last value, or preset value according to the output state mode during fault stop, without further refreshing.

1.4 Environmental Specifications

Item	Specification
Installation/ application environment	Free from conductive dust, conductive fibers, explosive dust, flammable gases, water mist/greasy dirt, corrosive dusts/gases, strong vibration, and repetitive shock
Altitude	⩽ 2,000 m
Pollution degree	2

Item	Specification
Immunity	2 kV on power supply cable (compliant with 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	• Application scenario: Tested according to IEC60068-2-6, 3.5 mm amplitude from 5 Hz to 8.4 Hz; 1 g acceleration from 8.4 Hz to 200 Hz; 10 cycles per axial direction • Transportation scenario: Tested according to IEC60068-2-64, 0.01 g^2/Hz power spectral density from 5 Hz to 100 Hz; 0.001 g^2/Hz power spectral density at 200 Hz; 1.14 g Grms
Shock resistance	Application/Transportation scenario: Tested according to IEC60068-2-27; 15 g peak acceleration, 11 ms pulse width, 18 cycles in total in X, Y and Z axial directions
Operating temperature/humidity	• Temperature: -20°C to +55°C • Humidity: < 95% RH (30°C), without condensation
Storage temperature/ humidity	• Temperature: -20°C to +60°C • Humidity: < 95% RH (30°C), without condensation
Transportation temperature/humidity	• Temperature: -40°C to +70°C • Humidity: < 95% RH (40°C), without condensation

2 Mechanical Installation

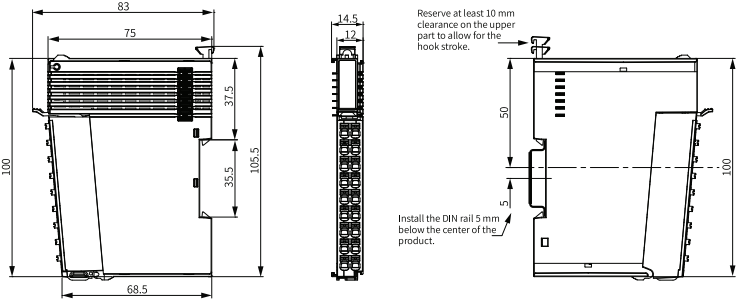
2.1 Installation Precautions

- Make sure the module is powered off before installing or removing.
- 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.
- Do not drop or shock the housing or terminals of the module to avoid damage.

2.2 Mounting Dimensions

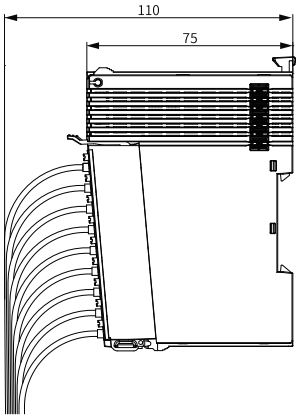
■ Module

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



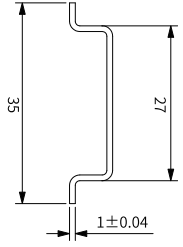
■ Cable connection

Cable dimensions (in mm) are shown in the figure below.



2.3 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.

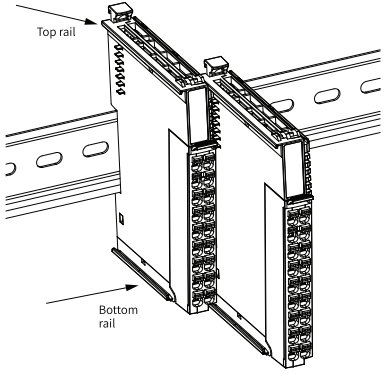


Caution

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

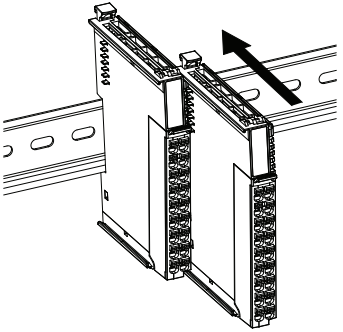
■ Installing modules side by side

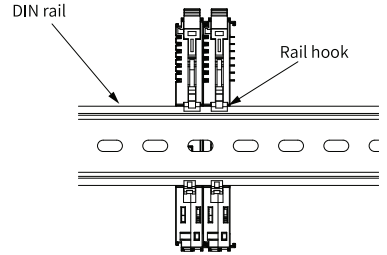
Install modules side by side by sliding them along the top and bottom guide rails of adjacent modules.



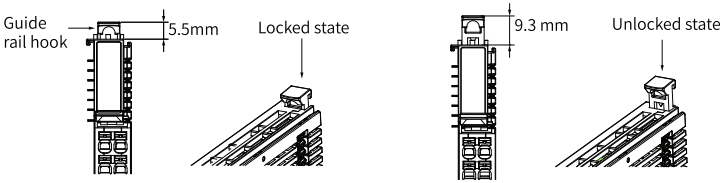
■ Installing modules onto DIN Rail

1. Align the module with the DIN rail and push the module in the direction indicated by the arrow until you hear a click, 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.

To lock the module to the DIN rail, press down the mounting hook.

Caution

When the module is not installed on the DIN rail, keep the rail hook in locked state. A hook that kept in unlocked state for a long period of time may fail to function properly.

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3. Install a DIN rail end plate on both sides of the PLC or the module.

   To install 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,

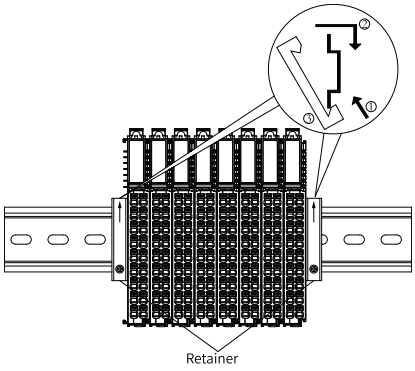
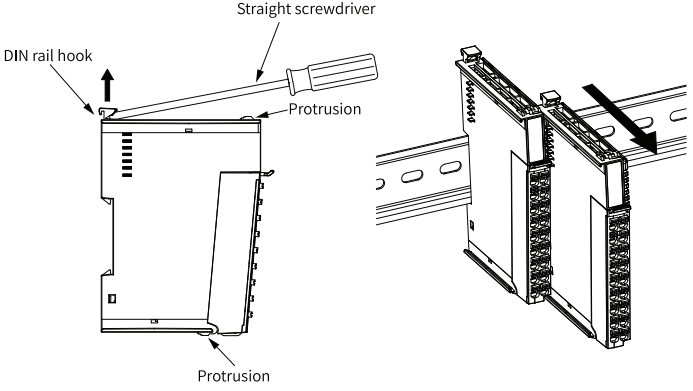


Figure 2-1 Installing end plate

■ Removing modules

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



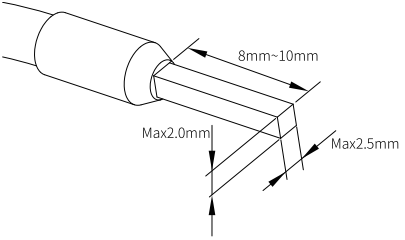
3 Electrical Installation

3.1 Cable Selection

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

Material Name	Applicable 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	

To use other types of tubular lugs, crimp the lug to the cables according to the shape and dimension requirements shown below.



3.2 Terminal Definition

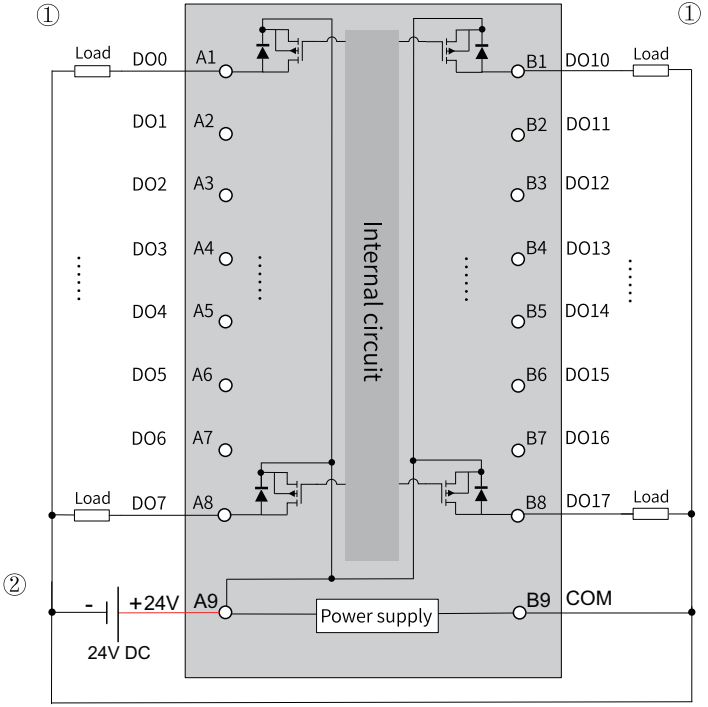
Left Indicator	Left Signal	Left Terminal	Right Terminal	Right Signal	Right Indicator
00	Y0	A1	B1	Y10	10
01	Y1	A2	B2	Y11	11
02	Y2	A3	B3	Y12	12
03	Y3	A4	B4	Y13	13
04	Y4	A5	B5	Y14	14
05	Y5	A6	B6	Y15	15
06	Y6	A7	B7	Y16	16
07	Y7	A8	B8	Y17	17
/	24V	A9	B9	COM	/

3.3 Terminal Wiring

■ Precautions

- Do not bundle the expansion cable together with power cables (with high voltage, large current) that produce strong interference signals; otherwise, the expansion cable may be influenced by noise, surge, and induction. Separate it from other cables and avoid cabling in parallel.
- Use recommended cables and adapter boards for connection. It is recommended that shielded cables be used as expansion cables to enhance anti-interference capacity.
- Apply single-point grounding for the shielding of shielded cable and solder sealed cable.

■ Circuit block diagram and wiring diagram



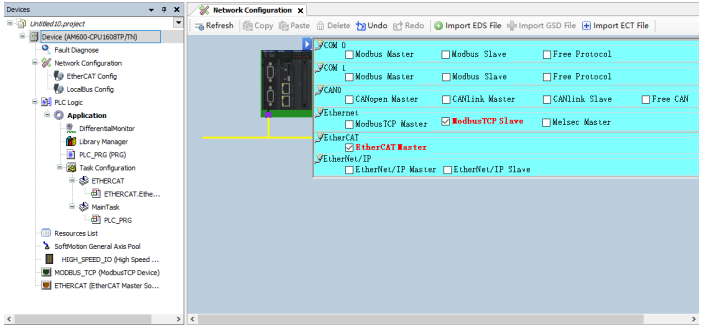
No.	Remark
①	Wiring of output terminals (A1 to A8 and B1 to B8)
②	Wiring of power supply (A9 and B9)

4 Program Commissioning

The following is an example where AM600 series PLC is used as the master control module along with the GL20-0016ETP module.

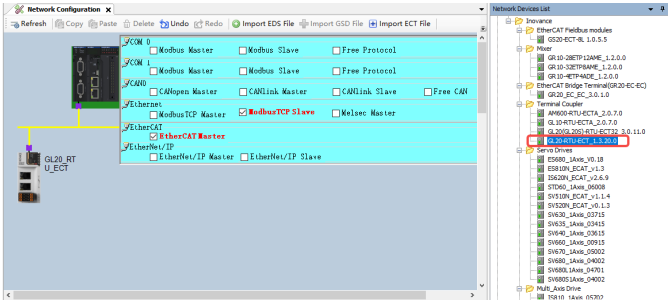
1. Enable the AM600 PLC as the EtherCAT master and add the GL20-RTU-ECT communication interface module.

   a. In the left **Devices** pane, double-click **Network Configuration** and click the AM600 PLC figure in the upper left corner of the interface. Check the "EtherCAT Master" to enable the PLC as an EtherCAT master.

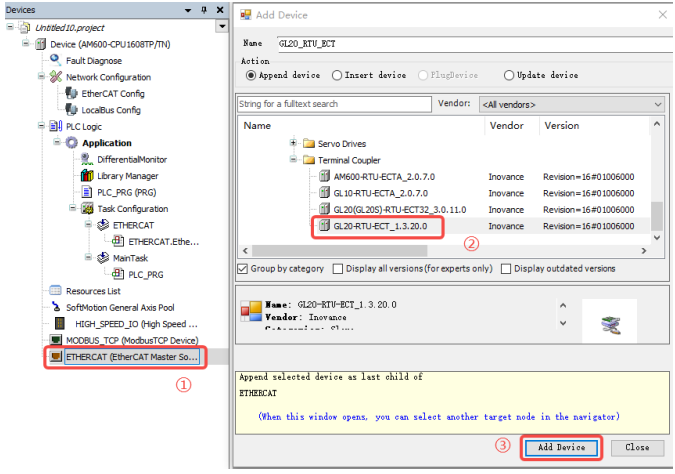


   b. Add the GL20-RTU-ECT communication interface module.

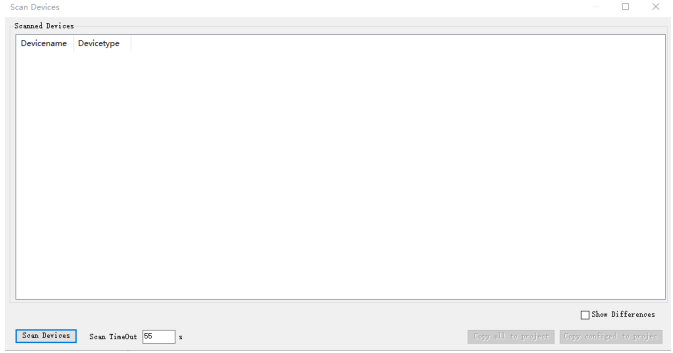
   - Method 1: In the right **Network Devices List**, double-click "GL20-RTU-ECT" to add the module.



- Method 2: In the left **Devices** pane, right-click **ETHERCAT(EtherCAT Master SoftMotion)** ① and select **Add Device**. Select "GL20_RTU_ECT _*x.x.x.x* " ② in the pop-up dialog box and click **Add Device** ③.

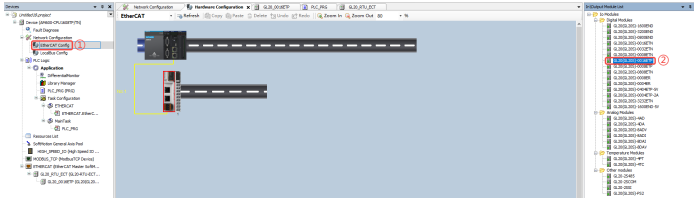


- Method 3: In the left **Devices** pane, right-click **ETHERCAT(EtherCAT Master SoftMotion)** and select **Scan For Devices**. Click **Scan Devices**, select the GL20-RTU-ECT module, and click **Copy Scan Device**.

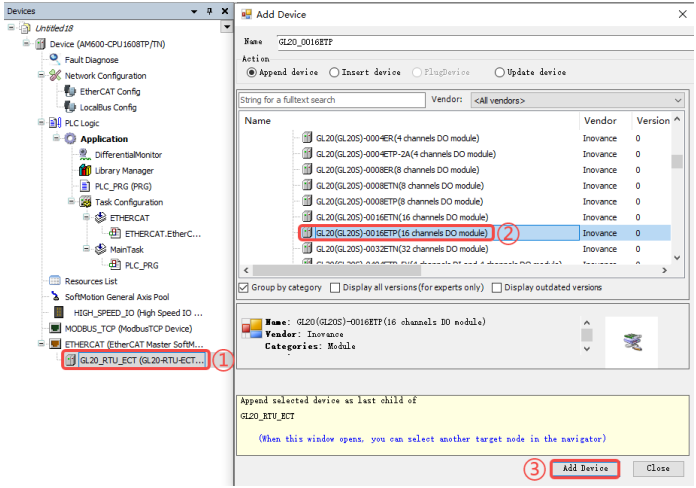


2. Add the GL20-0016ETP module.

- Method 1: Open the **Hardware Configuration** pane by double-clicking **EtherCAT Config** ① in the left **Devices** pane, or double-clicking the GL20-RTU-ECT figure in the **Network Configuration** pane. In the right **In\Output Module List**, double-click "GL20-0016ETP" ② or drag the GL20-0016ETP module and place it after the GL20-RTU-ECT module.

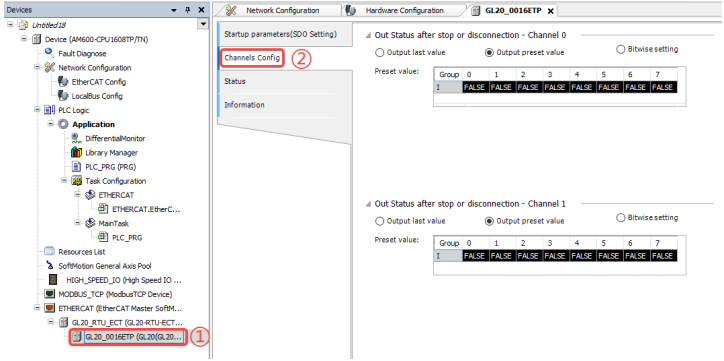


- Method 2: In the left **Devices** pane, right-click "GL20_RTU_ECT" ① and select **Add Device**. Select "GL20-0016ETP" ② in the pop-up dialog box and click **Add Device** ③.



- Method 3: In the left **Devices** pane, right-click **ETHERCAT(EtherCAT Master SoftMotion)** and select **Scan For Devices**. Click **Scan Devices**, select the GL20-0016ETP module, and click **Copy Scan Device**.

3. Double-click the module ① to set **Channels Config** ②.

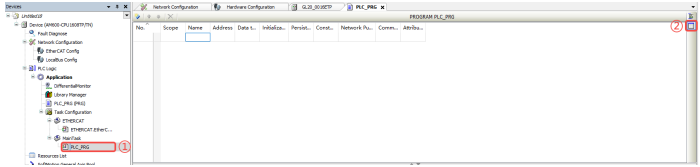


The parameters for channel configuration are shown in the following table.

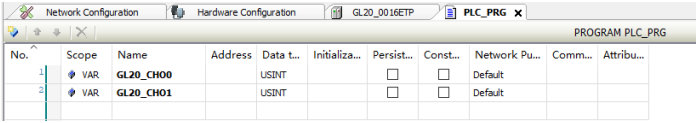
Name	Description	Configuration
Out status after stop or disconnection	The output mode of the output channel of the module in non-OP state (when the module is stopped or the coupler is disconnected)	The following options are supported: • Output last value: All channels in the corresponding group retain the output state before module stop or network disconnection. • Output preset value: The output mode of each channel in the corresponding group matches the preset values. The preset value is matched by bit, with one bit representing one channel.For example, if bit0 is set to FALSE, the output state of channel 0 is 0; if bit0 is set to TRUE, the output state of channel 0 is 1. • Bitwise setting: The output mode of each channel in the corresponding group is matched by bit, with one bit representing one channel. For example, bit0 represents channel 0.If bit0 is set to TRUE, channel 0 outputs according to its preset value. If bit0 is set to FALSE, channel 0 retains the last output state.

4. Create output variables.

   a. In the left **Devices** pane, double-click **PLC_PRG** ① and click  ② in the upper right corner to switch to table mode.

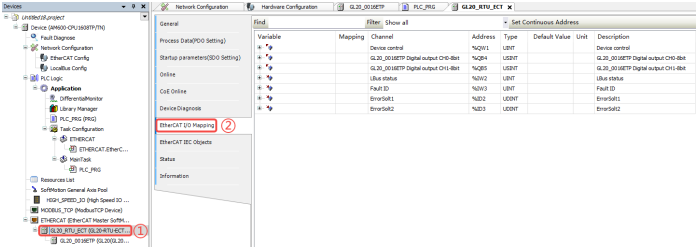


b. Add custom output variables "GL20_CHO0" and "GL20_CHO1". Set the scope of these variables to "VAR" and data type to "USINT", as shown below.

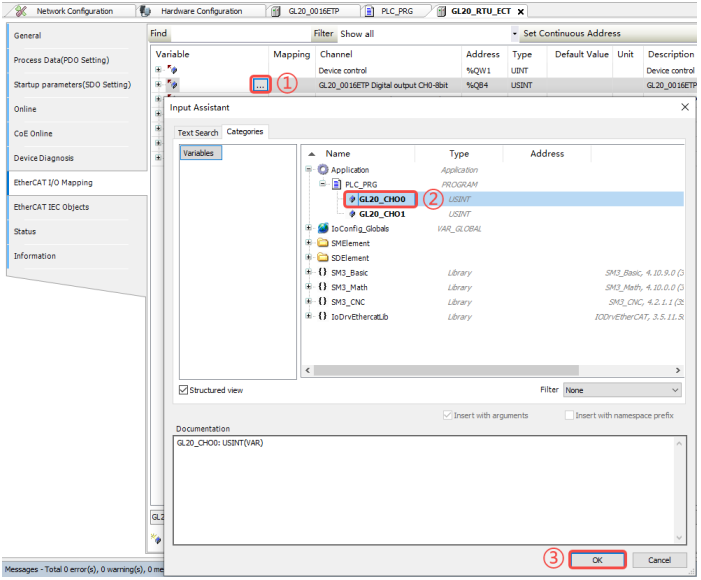


5. Map output variables to the corresponding output channel.

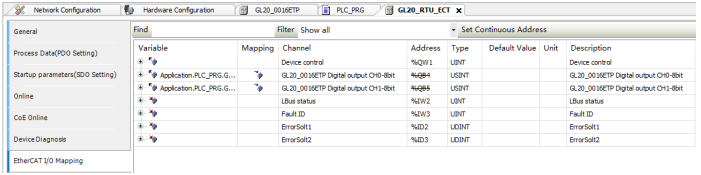
a. In the left **Devices** pane, double-click **GL20_RTU_ECT** ① and click the **EtherCAT I/O Mapping** tab ②.



b. On the **EtherCAT I/O Mapping** tab, double-click a variable entry and click ... ① to open the **Input Assistant** dialog box. Choose **Application** > **PLC_PRG** > specific variables ② and click **OK**



Map the variables "GL20_CHO0" and "GL20_CHO1" to the output channels of the configured module.



6. Double-click **PLC_PRG** in the left **Devices** pane and complete the programming on the **PLC_PRG** page.
7. Check, compile, log in, download, and run the program.

   a. Click  on the toolbar at the top of the interface to check whether the program is correct.

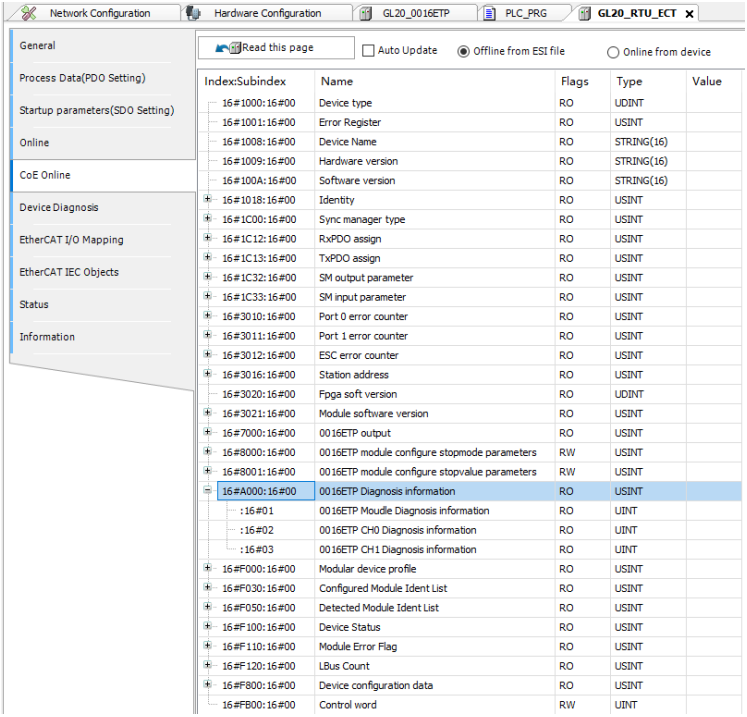
b. Click  on the toolbar to compile all the code into PLC executable code.

c. Click  on the toolbar, and follow the interface prompts to log in to the PLC and download the program.

d. Click  on the toolbar to execute the program.

5 Troubleshooting

When the ERR indicator is ON, it indicates that the module is faulty. The module reports a fault code, which can be obtained through the diagnostic data object dictionary value in the **CoE Online** interface, as shown below. For the module installed in slot n (n = 0 to 31), the object dictionary definition for index 0xA000 +0x40*n is shown in the table below.



Index:Subindex	Name	Flags	Type	Value
16#1000:16#00	Device type	RO	UDINT	
16#1001:16#00	Error Register	RO	USINT	
16#1008:16#00	Device Name	RO	STRING(16)	
16#1009:16#00	Hardware version	RO	STRING(16)	
16#100A:16#00	Software version	RO	STRING(16)	
16#1018:16#00	Identity	RO	USINT	
16#1C00:16#00	Sync manager type	RO	USINT	
16#1C12:16#00	RxPDO assign	RO	USINT	
16#1C13:16#00	TxPDO assign	RO	USINT	
16#1C32:16#00	SM output parameter	RO	USINT	
16#1C33:16#00	SM input parameter	RO	USINT	
16#3010:16#00	Port 0 error counter	RO	USINT	
16#3011:16#00	Port 1 error counter	RO	USINT	
16#3012:16#00	ESC error counter	RO	USINT	
16#3016:16#00	Station address	RO	USINT	
16#3020:16#00	Fpga soft version	RO	UDINT	
16#3021:16#00	Module software version	RO	USINT	
16#7000:16#00	0016ETP output	RO	USINT	
16#8000:16#00	0016ETP module configure stopmode parameters	RW	USINT	
16#8001:16#00	0016ETP module configure stopvalue parameters	RW	USINT	
16#A000:16#00	0016ETP Diagnosis information	RO	USINT	
:16#01	0016ETP Moudle Diagnosis information	RO	UINT	
:16#02	0016ETP CH0 Diagnosis information	RO	UINT	
:16#03	0016ETP CH1 Diagnosis information	RO	UINT	
16#F000:16#00	Modular device profile	RO	USINT	
16#F030:16#00	Configured Module Ident List	RO	USINT	
16#F050:16#00	Detected Module Ident List	RO	USINT	
16#F100:16#00	Device Status	RO	USINT	
16#F110:16#00	Module Error Flag	RO	USINT	
16#F120:16#00	LBus Count	RO	USINT	
16#F800:16#00	Device configuration data	RO	USINT	
16#FB00:16#00	Control word	RW	UINT	

- Diagnostic Data

  For the module in slot n (n = 0 to 31), the object dictionary definition for index 0xA000+0x40*n is shown in the table below.

Index	0xA000+0x40*n: 0016ETP-5V Diag data				
Subindex	Name	Data type	Access Mode	Mapping	Default Value
0	Subindex 000	USINT	RO	Not supported	3
1	Module Error Code	UINT	RO	Not supported	0x0000
2	DO Channel Error Code CH0	UINT	RO	Not supported	0x0000
3	DO Channel Error Code CH1	UINT	RO	Not supported	0x0000

- Fault code

Code	Description	Solution
0x5003	External 24 V power supply failure	Check the isolated power supply of the module.

Note

Fault detection is only supported for the output power supply. When the output power supply is faulty (undervoltage), the diagnostic code is 0x5003.

6 Appendix: Version Matching Information

Contact Inovance technical support to obtain the firmware of GL20-0016ETP module and the firmware of communication interface module. XML files and the AutoShop/InoProShop software can be downloaded from the software and debugging tools tab on the GL20 series product page at *https://www.inovance.com*. The following table describes the version matching information.

Module Firmware Version	Communication Interface Module Firmware Version	XML/GSD File Version	AutoShop/ InoProShop Version
Logic software: 0.1.2.0 and later	• GL20-RTU-ECT: Board software 2.4.3.0 and later • GL20-RTU-ECT32: Board software 2.5.9.0 and later • GL20-RTU-PN: Board software 2.0.0.5 and later • GL20-RTU-EIP: Board software 1.1.6.0 and later	• GL20-RTU-ECT: 1.2.7.0 and later • GL20-RTU-ECT32: 3.0.2.0 and later • GL20-RTU-PN: 20220930 and later • GL20-RTU-EIP: V00.01	• AutoShop (ECT): V4.8.2.4 and later • InoProShop (ECT): V1.7.3 and later • InoProShop (ECT32): V1.7.3 SP6 and later • InoProShop (EIP): V1.7.3 SP6 and later