



GL20-4PT-ISO Series Isolated Thermal Resistor Temperature Detection Module User Guide



Industrial
Automation



Intelligent
Elevator



New Energy
Vehicle



Industrial
Robot



Rail
Transit



Data code PS00021373A00

Legal Disclaimer

Copyright Notice

All rights reserved © Shenzhen Inovance Technology Co.,Ltd.

The copyright of this guide belongs to Shenzhen Inovance Technology Co., Ltd. Without written permission of the company, no unit or individual is allowed to extract, copy, modify, translate, or disseminate the guide in any form.

Legal action will be taken against infringement.

Trademark Notice

INOVANCE is the registered trademark of Shenzhen Inovance Technology Co., Ltd. and its affiliates. All other trademarks or registered trademarks mentioned in this guide are the property of their respective owners. The use of these trademarks by third parties for their own purposes without written authorization will infringe upon the rights of their owners.

Disclaimer of Liability

The content of this guide may be not fully match the actual product due to continuous product and technical updates. In case of deviations, the actual product shall prevail.

This guide is subject to change without notice.

Waste Disposal

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

Personnel Requirements

The product/system described in this guide can only be operated by qualified professionals. Operations must comply with this guide, especially alarm notices and safety instructions. Qualified personnel can identify the risks of the product/system and prevent possible dangers.

Usage Requirements

Proper transportation, storage, assembly, installation, commissioning, operation, and maintenance are prerequisites for the safe and normal operation of the product. It is necessary to use the product in proper environments by following the instructions in this guide.

Preface

Introduction

GL20-4PT-ISO is a 4-channel isolated thermal resistor temperature detection module. It can be used with Easy series PLCs and GL20-RTU-ECT32 series communication interface modules.

This guide introduces the 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	-		-
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	Code	Description
GL20-RTU-ECT/ECT32 Series Communication Interface Module User Guide	19012622	Introduces the information, mechanical installation, electrical installation, program commissioning, and troubleshooting of the product.
GL20-4PT-ISO Series Isolated Temperature Detection Module User Guide (This guide)	PS00021373	Introduces the mechanical installation, electrical installation, program commissioning, troubleshooting, and version matching information of the product.

Revision History

Date	Version	Revision
July, 2025	A00	Initial 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.
- 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. You will be charged for any repair work 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 Product Warranty Card.

Fundamental Safety Instructions

Safety Precautions

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 this 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 personal injuries or equipment damage. Keep this user guide properly for future use and deliver it to the end user.

Control System Design	
	<ul style="list-style-type: none">• 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 an external fuse or circuit breaker to prevent the module from smoking or catching fire due to long-time overcurrent caused by operation above rated current or load short-circuit.
	<ul style="list-style-type: none">• 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 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 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 compliant with overvoltage category II. The power supply must have a system-level surge protector to ensure that overvoltage caused by lightning shock cannot be applied to power supply input terminals, signal input terminals, and control output terminals of the PLC, therefore preventing damage to the product.

Installation

- 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 installing/removing 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.



- 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 unwanted matters on ventilation surface. Failure to comply may result in poor ventilation, which may cause fire, fault, or 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

- 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.
- After wiring, install the terminal cover attached to the product before power-on or operation. 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 product.



- 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 $\pm 20\%$ 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 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 by observing industry waste disposal standards to avoid environmental pollution.

1 Product Information

1.1 Introduction

Basic information

Model	Description	Material Code	Applicable Model
GL20-4PT-ISO	GL20 series 4-channel isolated input thermal resistor temperature detection module	01440988	Applicable to the GL20-RTU-ECT32 series communication interface module

The GL20-4PT-ISO module offers the following advantages over the GL20-4PT module:

- Supports isolation among channels, eliminating crosstalk.
- Supports four-wire connection, making it suitable for high-precision temperature measurement scenarios.
- Requires no connection to an external 24V power supply.

Main features

Item	Specification
Rated current of bus input power supply	150 mA (typical@ 5 V)
Number of input channels	4
Input terminal	Thermal resistor Resistor
Input type	Supports the following input types: <ul style="list-style-type: none"> • RTD sensors: Pt100 (default), Pt500, Pt1000, Cu100, Ni100, KTY84-130 • Resistance measurement: 0 Ω to 400 Ω, 0 Ω to 4000 Ω
Wiring method	Two-wire, three-wire (default), and four-wire method
Isolation method	Supports isolation between I/O terminals and the system, as well as isolation among I/O channels.

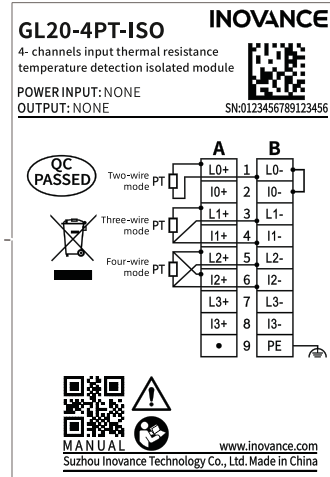
Spare parts

Name	Description	Code
Terminal block (marked as AB)	Pluggable terminal block with spring clamp wiring	15212511

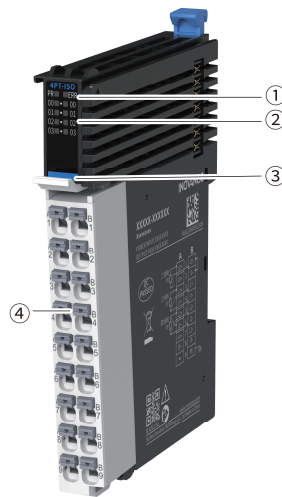
1.2 Model and Nameplate




GL 20 -4 PT - ISO
 ① ② ③ ④ ⑤

①	Product Information GL: Inovance general local module	④	Module Type PT: Thermal resistor temperature detection
②	Series Number 20: 20 series module	⑤	Auxiliary Type ISO: Isolated
③	Number of Input Channels 4: 4 input channels	-	



1.3 Components



No.	Name	Description			
①	Signal indicators	PR (POWER+RUN)	Power/Run indicator	Yellow-green	<ul style="list-style-type: none"> • Solid ON: The module is operating normally. • 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 28
②	Channel operation indicator	00 to 03	Channel operation indicator	Yellow-green	<ul style="list-style-type: none"> • Solid ON: The channel is running normally. • OFF: The channel is closed or faulty.
	Communication fault indicator	00 to 03	Channel fault indicator	Red	<ul style="list-style-type: none"> • Solid ON: The channel is faulty. • OFF: The channel is normal.
③	I/O terminals	4-channel thermal resistor input. For details, see " 3.2 Terminal Definition " on page 16			
④	Color identification		Red: Digital output		Orange: Analog output
			Gray: Digital input		Green: Analog input
			White: Communication		Blue: Other modules

Note

- Flashing quickly: The indicator is on for 200ms and off for 200ms.
- Flashing slowly: The indicator is on for 200ms and off for 1s.

1.4 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 61 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	150 mA (typical@ 5 V)
Rated voltage of terminal input power supply	/
Rated current of terminal input power supply	/

Item	Specification
Rated voltage of terminal output power supply	/
Rated current of terminal output power supply	/
Hot swap	Not supported

Input specifications

Item	Specification
Number of input channels	4
Digital resolution	24-bit resolution
Display sensitivity	0.1, 0.01, and 0.001 (configurable through software)
Input terminal	<ul style="list-style-type: none"> • Thermal resistor • Resistor
Input type	Supports the following input types: <ul style="list-style-type: none"> • RTD Sensors: Pt100, Pt500, Pt1000, Cu100, Ni100, KTY84-130 • Resistance measurement: 0 Ω to 400 Ω, 0 Ω to 4000 Ω
Wiring method	Two-wire, three-wire (default), and four-wire method
Accuracy (at normal temperature: 25°C)	Full range × (±0.1%) For the temperature measurement accuracy of sensors, see the following table "Detection range and accuracy".
Accuracy (at ambient temperature: -20°C to +55°C)	Full range × (±0.3%) For the temperature measurement accuracy of sensors, see the following table "Detection range and accuracy".
Interchannel consistency (at normal temperature: 25°C)	Full range × (±0.1%)
Interchannel consistency (at ambient temperature: -20°C to +55°C)	Full range × (±0.3%)
Sampling cycle	<ul style="list-style-type: none"> • Single channel: 20ms/Chn, 40ms/Chn, 100ms/Chn • Full channel: 250ms/4Chn, 500ms/4Chn, 1000ms/4Chn
Filter time	The moving average filter time can be configured as a multiple of the sampling cycle. Options include: None, 2T, 4T, 8T (default), 16T, 32T, 64T.
Isolation method	Supports isolation between I/O terminals and the system, as well as isolation among I/O channels.
Voltage resistance of isolation	With a 500 VAC voltage applied among isolated channels for 1 minute, the leakage current is less than 5 mA.



Caution

The sampling cycles are divided into fixed and free ones.

- In fixed cycle mode, the data is refreshed at a fixed cycle (such as 250ms/4Chn, 500ms/4Chn, and 1000ms/4Chn), regardless of the number of enabled channels.
- In free cycle mode, the sampling cycle is related to the number of enabled channels. Take 20ms/Chn as an example, it indicates that the sampling cycle for a channel is 20ms, and that for two channels is 40ms.

Detection range and accuracy

Sensor Type	Detection Range	Detection Accuracy
Pt100	-200.0°C to +850.0°C -328.0°F to +1562.0°F 73.15K to 1123.15K	±1°C@ T < 300°C ±2°C@ 300°C ≤ T ≤ 700°C ±2.5°C@ T > 700°C
Pt500	-200.0°C to +850.0°C -328.0°F to +1562.0°F 73.15K to 1123.15K	±1°C@ T < 300°C ±2°C@ 300°C ≤ T ≤ 700°C ±2.5°C@ T > 700°C
Pt1000	-200.0°C to +850.0°C -328.0°F to +1562.0°F 73.15K to 1123.15K	±1°C@ T < 300°C ±2°C@ 300°C ≤ T ≤ 700°C ±2.5°C@ T > 700°C
Cu100	-50.0°C to +150.0°C -58.0°F to +302.0°F 223.15K to 423.15K	±1°C@ -50°C ≤ T ≤ +150°C
Ni100	-60.0°C to +250.0°C -76.0°F to +482.0°F 213.15K to 523.15K	±1°C@ -60°C ≤ T ≤ +250°C
KTY84-130	0.0°C to 200.0°C 32.0°F to 392.0°F 273.15K to 473.15K	±1.5°C@ 0°C ≤ T ≤ 200°C

Software specifications

Item	Specification
Input PDO data volume	16 bytes
Diagnostic report function configuration	Supported
Diagnostic detection enable configuration	Supports open circuit detection and overflow/underflow detection (fault code displayed as 3276.7 or -3276.8).
Overflow detection configuration	Supported
Independent channel configuration	Supported
Temperature offset configuration	Supported
Offset range	-50% x (Max. - Min.) to +50% x (Max. - Min.)
Sampling cycle	<ul style="list-style-type: none"> • Single channel: 20ms/Chn, 40ms/Chn, 100ms/Chn • Full channel: 250ms/4Chn, 500ms/4Chn, 1000ms/4Chn
Sampling refresh	Refreshes asynchronously according to the sampling time and the completion time of each channel, with no need to refresh synchronously according to the bus cycle.
Filter parameter configuration	The moving average filter time can be configured as a multiple of the sampling cycle. Options include: None, 2T, 4T, 8T (default), 16T, 32T, 64T.
Display sensitivity	0.1, 0.01, and 0.001 (configurable through software)
Power frequency suppression	When the power frequency suppression is enabled, the power frequency interference is significantly reduced, improving the signal-to-noise ratio.
Display mode	Centigrade degree (°C), Fahrenheit degree (°F), and Kelvin (K)

Item	Specification
Sampling refresh	Refreshes asynchronously according to the sampling time and the completion time of each channel, with no need to refresh synchronously according to the bus cycle.
Stop mode	Continue refreshing according to sampling cycle
Open circuit or overflow/underflow detection	Output based on the maximum value, with no further refresh
Lead resistance compensation for two-wire connection	Supported
Diagnostic information report	A status byte or a status word is configured for each channel to sent fault messages from the PDO.
System diagnosis	System power supply fault
Communication diagnosis	Reception error frames (minor faults), transmission failure, and communication interruption
Channel diagnosis	Upper limit exceeded alarm, lower limit exceeded alarm, open circuit alarm, and overflow/underflow alarm

1.5 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
Max. altitude	≤ 2000 m
Pollution degree	2
Immunity	2 kV on power supply cable (compliant with IEC 61000-4-4)
Overvoltage category	I
EMC immunity level	Zone B, IEC61131-2
ESD protection level	Contact discharge +/-6 kV, 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; in ten cycles/axes • 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 200 Hz; Grms: 1.14 g
Shock resistance	Application/Transportation scenario: Tested according to IEC60068-2-27; 15 g peak gravitational acceleration; 11ms pulse width; 18 times in X/Y/Z-axis directions
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

2 Mechanical Installation

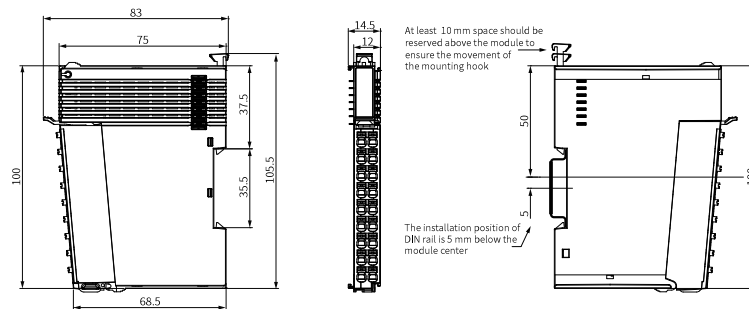
2.1 Installation Precautions

- 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 Installation Dimensions

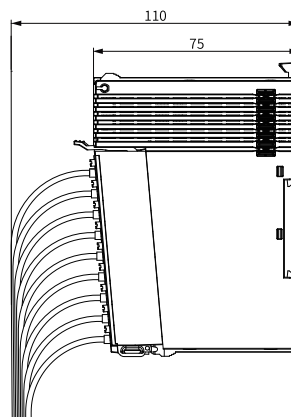
Module

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



Cable connection

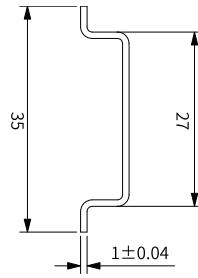
Cable dimensions (in mm) are shown in the figure below.



2.3 Installation Method

Installing the modules to each other

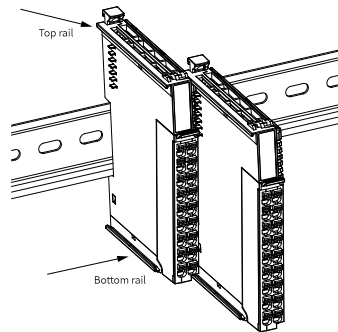
The module is mounted onto a DIN rail in conformity with IEC 60715 (width: 35 mm, thickness: 1 mm). The dimensions (in mm) are shown below.



 **Caution**

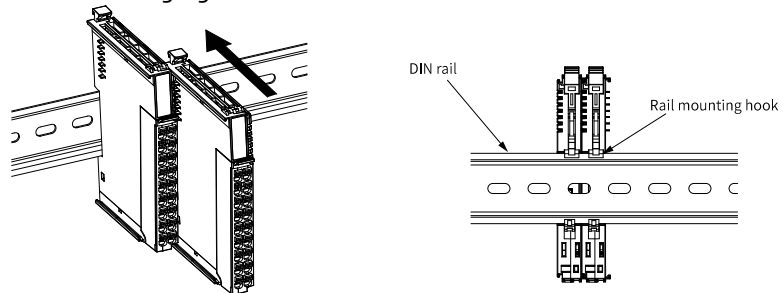
When installed on a DIN rail other than the recommended one (especially the one whose thickness is not 1.0 mm), the product will not fit in place as the mounting hook does not work.

Install the modules to each other through top and bottom guide rails, as shown below.

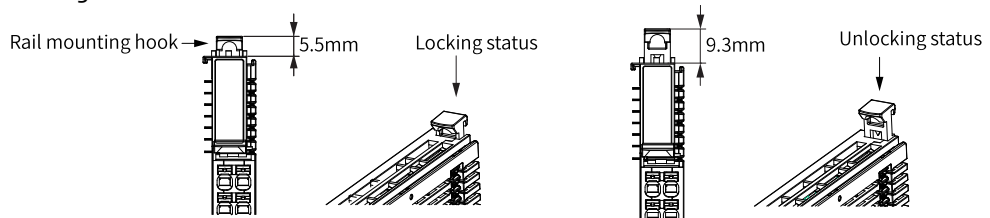


Installing the module onto DIN rail

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



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.

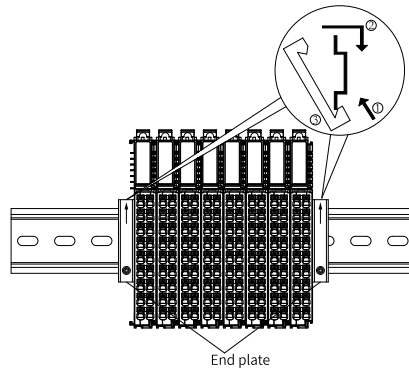
To lock the PLC to the DIN rail, press down the mounting hook.

**Caution**

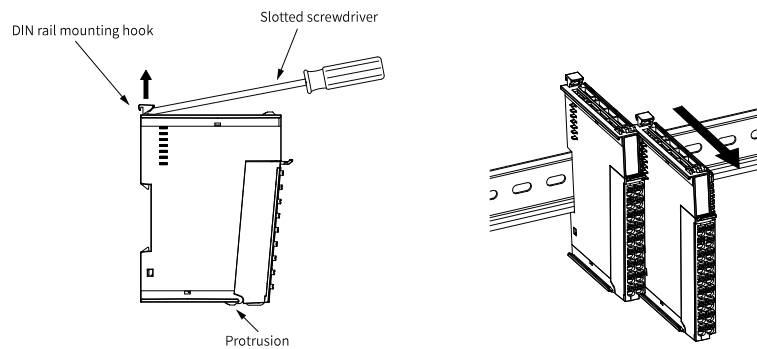
When the module is not installed on the rail, keep the mounting hook in the locked state. Keeping the mounting hook unlocked for a prolonged time may cause the hook to fail.

3. Mount 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.

**Removal**

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.



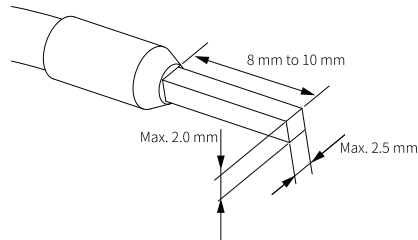
3 Electrical Installation

3.1 Cable Selection

The cable lug and cross sectional area shown in the following table are only for reference.

Material Name	Applicable cross sectional area of the cable		KST		Suzhou Yuanli	
	mm ²	AWG	Model	Crimping pliers	Model	Crimping pliers
Tubular lug	0.3	22	E0308	KST2000L	0308	YAC-5
	0.5	20	E0508			
	0.75	18	E7508			
	1.0	18	E1008			
	1.5	16	E1508			

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.



3.2 Terminal Definition



Left Signal Description	Left Signal	Left Terminal	Right Terminal	Right Signal	Right Signal Description
<ul style="list-style-type: none"> • Two-wire input A for channel 0 • Three-wire input A for channel 0 • Four-wire input A for channel 0 	L0+	A1	B1	L0-	<ul style="list-style-type: none"> • Two-wire input B for channel 0 • Three-wire input B for channel 0 • Four-wire input B for channel 0
Four-wire PT input A for channel 0	I0+	A2	B2	I0-	<ul style="list-style-type: none"> • Three-wire input B for channel 0 • Four-wire input B for channel 0
<ul style="list-style-type: none"> • Two-wire input A for channel 1 • Three-wire input A for channel 1 • Four-wire input A for channel 1 	L1+	A3	B3	L1-	<ul style="list-style-type: none"> • Two-wire input B for channel 1 • Three-wire input B for channel 1 • Four-wire input B for channel 1
Four-wire input A for channel 1	I1+	A4	B4	I1-	<ul style="list-style-type: none"> • Three-wire input B for channel 1 • Four-wire input B for channel 1
<ul style="list-style-type: none"> • Two-wire input A for channel 2 • Three-wire input A for channel 2 • Four-wire input A for channel 2 	L2+	A5	B5	L2-	<ul style="list-style-type: none"> • Two-wire input B for channel 2 • Three-wire input B for channel 2 • Four-wire input B for channel 2
Four-wire input A for channel 2	I2+	A6	B6	I2-	<ul style="list-style-type: none"> • Three-wire input B for channel 2 • Four-wire input B for channel 2
<ul style="list-style-type: none"> • Two-wire input A for channel 3 • Three-wire input A for channel 3 • Four-wire input A for channel 3 	L3+	A7	B7	L3-	<ul style="list-style-type: none"> • Two-wire input B for channel 3 • Three-wire input B for channel 3 • Four-wire input B for channel 3
Four-wire input A for channel 3	I3+	A8	B8	I3-	<ul style="list-style-type: none"> • Three-wire input B for channel 3 • Four-wire input B for channel 3
Empty terminal (unconnected)	-	A9	B9	PE	PE grounding

3.3 Terminal Wiring

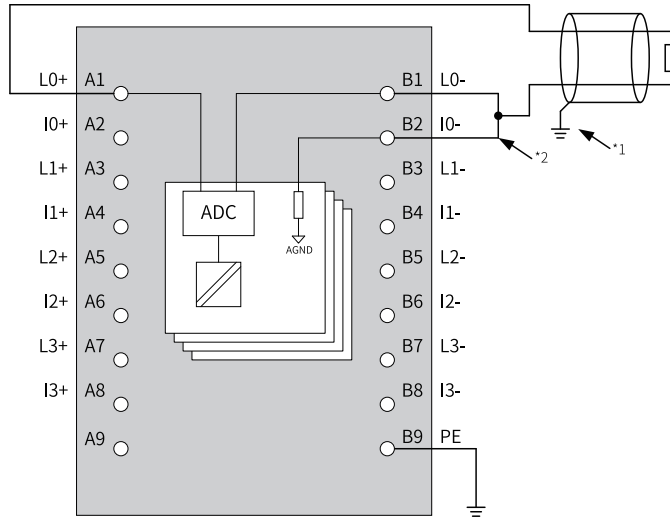
Wiring precautions

- Do not bundle the expansion cable together with power cables (with high voltage and large current) that produce strong interference signals; otherwise, the expansion cable may be influenced by noise, surge, or 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.

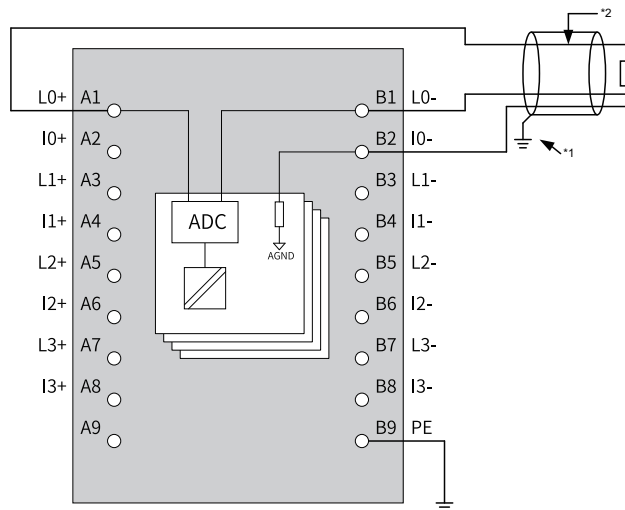
Circuit block diagram and wiring diagram

- Two-wire mode



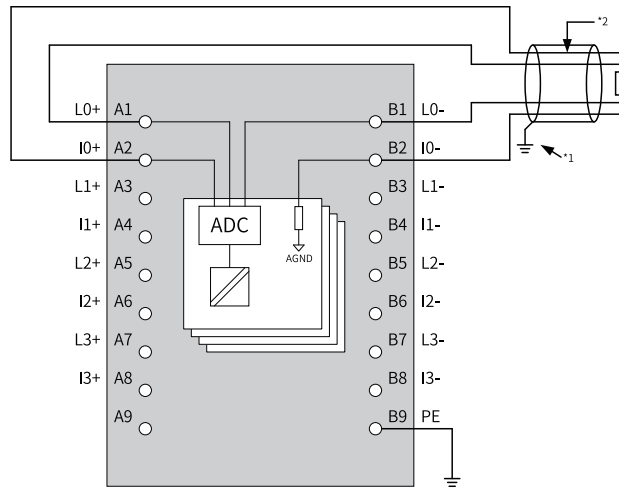
No.	Description
*1	The cable is required to be shielded. It is recommended to connect the shield to PE.
*2	If two-wire connection is used, short the L0- and I0- channels together. In this case, the resistance on the cable will affect the measurement.

- Three-wire mode



No.	Description
*1	The cable is required to be shielded. It is recommended to connect the shield to PE.
*2	Use a cable having three low-resistance wires that have no difference in resistance.

- Four-wire mode



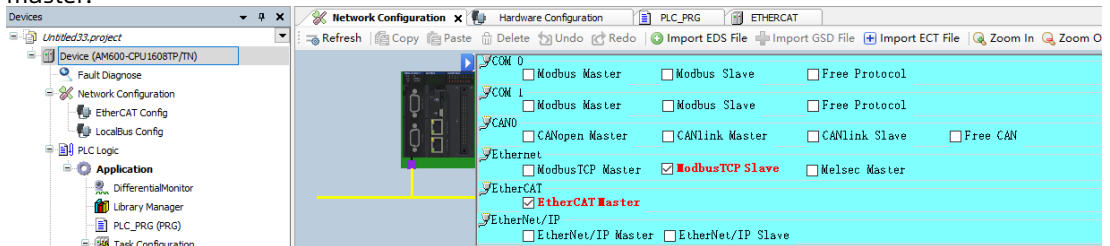
No.	Description
*1	The cable is required to be shielded. It is recommended to connect the shield to PE.
*2	Use a cable with four low-resistance wires that have no difference in resistance.

4 Program Commissioning

The following is an example where AM600 is used as the master control module along with the GL20-4PT-ISO module in InoProShop.

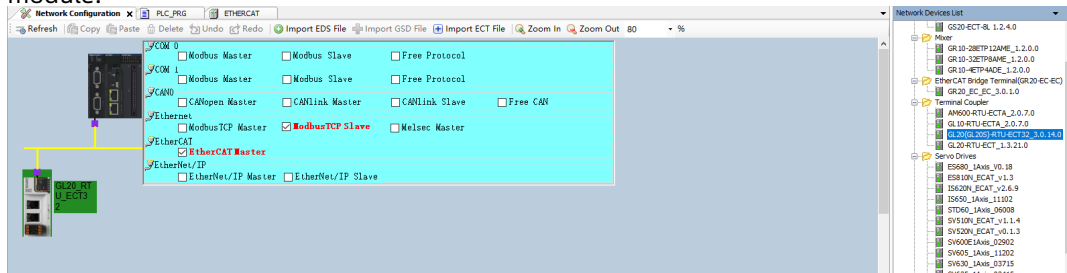
1. Enable the AM600 series PLC as the EtherCAT master and add the GL20-RTU-ECT32 communication interface module.

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

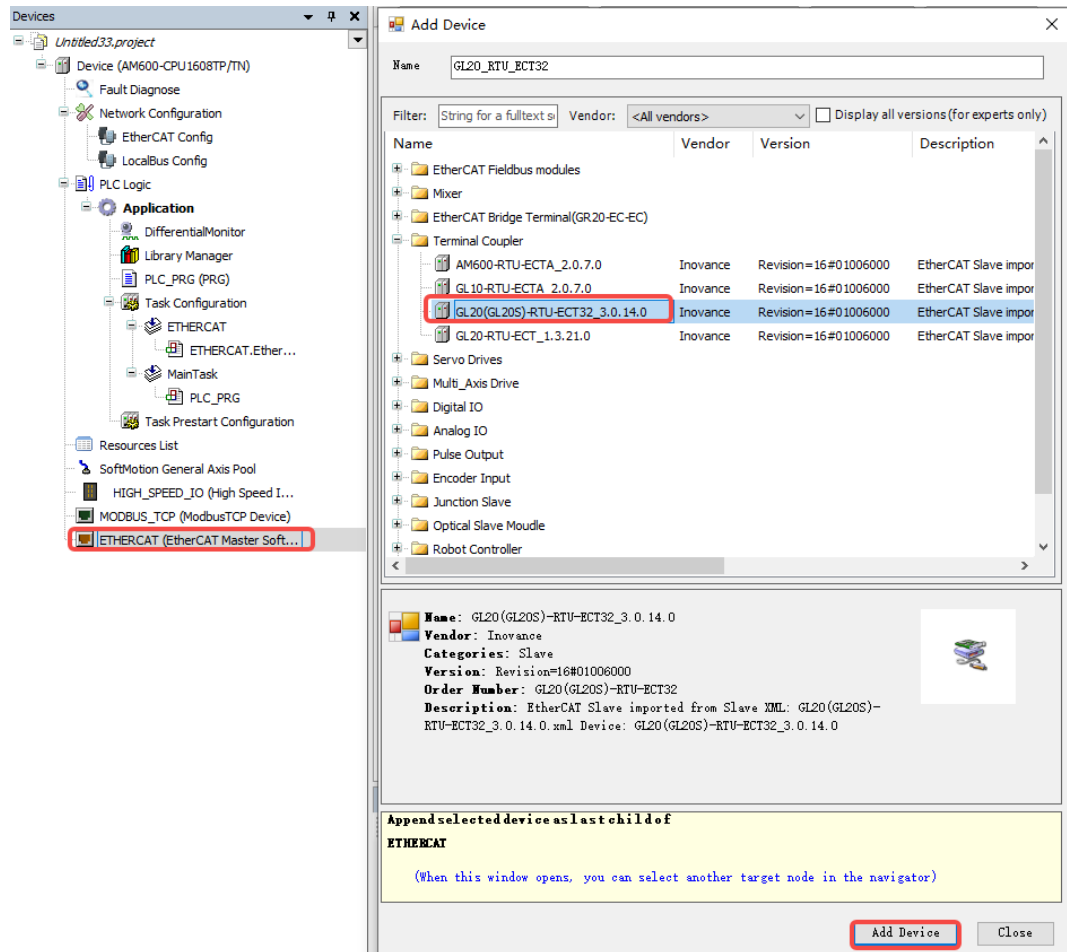


- b. Add the GL20-RTU-ECT32 communication interface module.

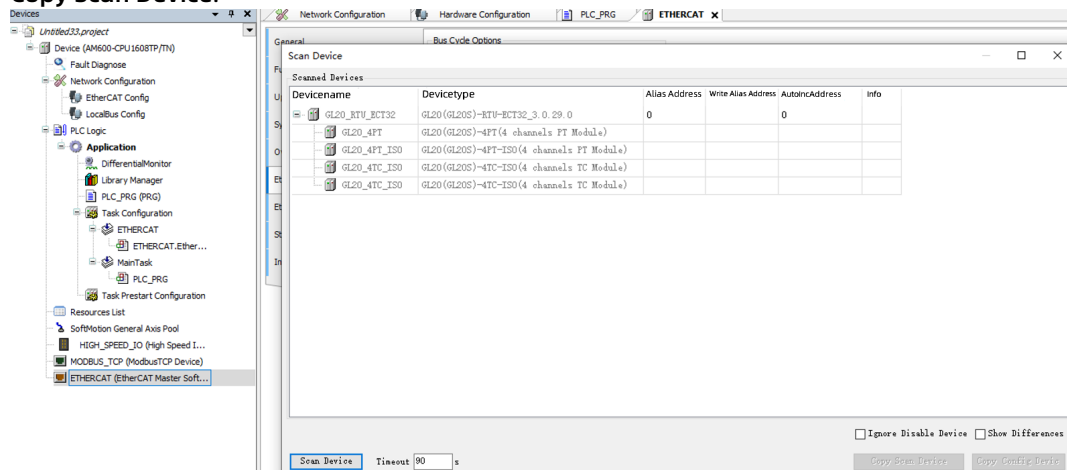
- Method 1: In the right **Network Devices List**, double-click "GL20-RTU-ECT32" to add the module.



- Method 2: In the left **Devices** pane, right-click **ETHERCAT(EtherCAT Master SoftMotion)** and select **Add Device**. Select "GL20_RTU_ECT32_X.X.X.X" in the pop-up dialog box and click **Add Device**.

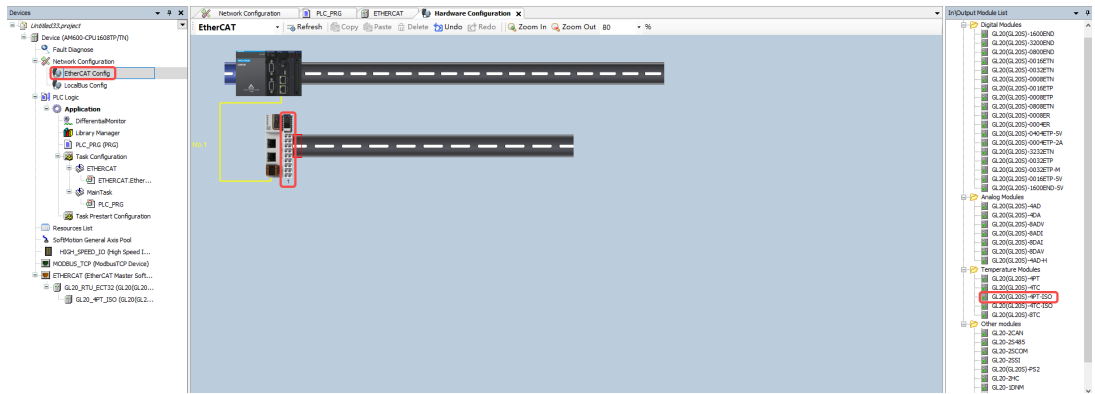


- Method 3: In the left **Devices** pane, right-click **ETHERCAT(EtherCAT Master SoftMotion)** and select **Scan For Devices**. Click **Scan Devices**, select the **GL20-RTU-ECT32** module, and click **Copy Scan Device**.

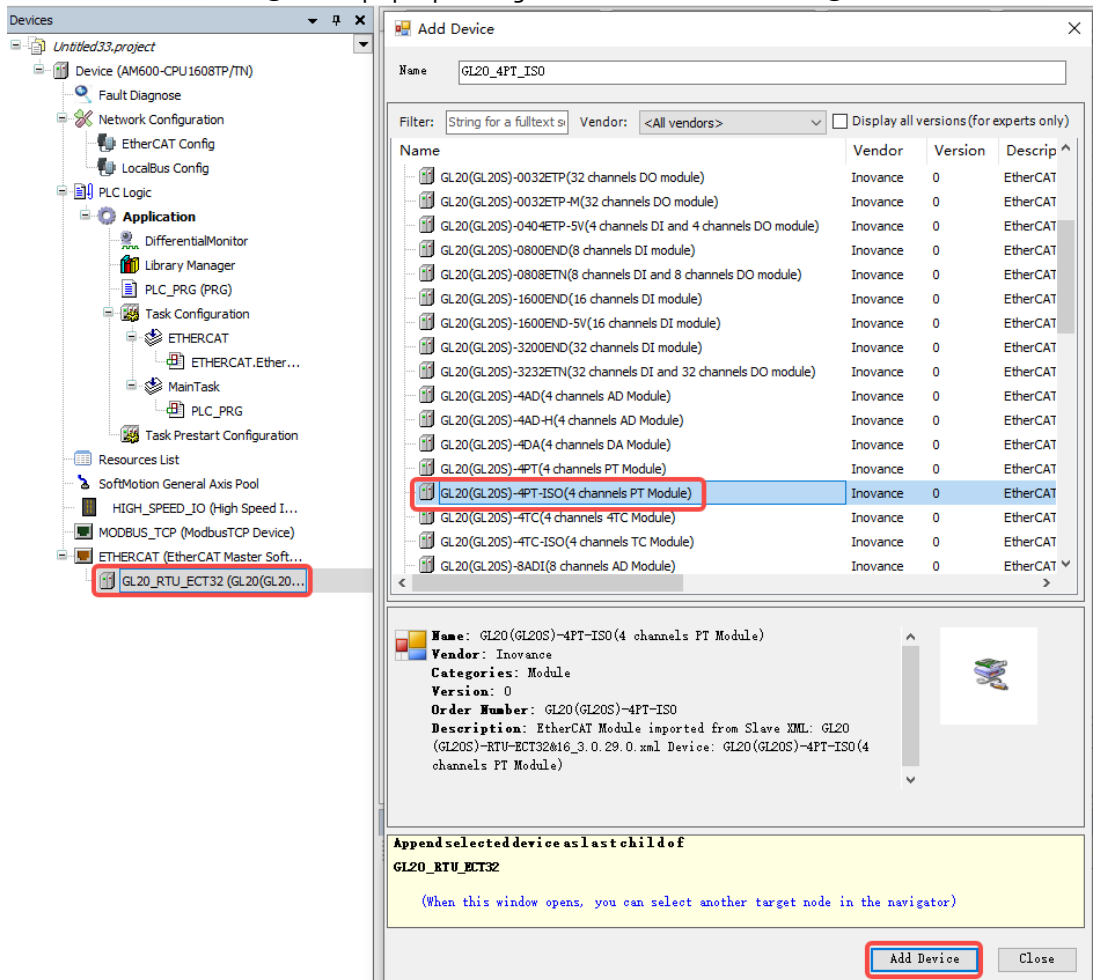


2. Add the GL20-4PT-ISO module.

- Method 1: In the left **Devices** pane, double-click on **EtherCAT Config**, or in the **Network Configuration** pane, double-click on the **GL20-RTU-ECT32** icon to open the **Hardware Configuration** pane, then in the right **In\Output Module List**, double-click on **GL20-4PT-ISO** or drag the **GL20-4PT-ISO** module and place it after the **GL20-RTU-ECT32** module.

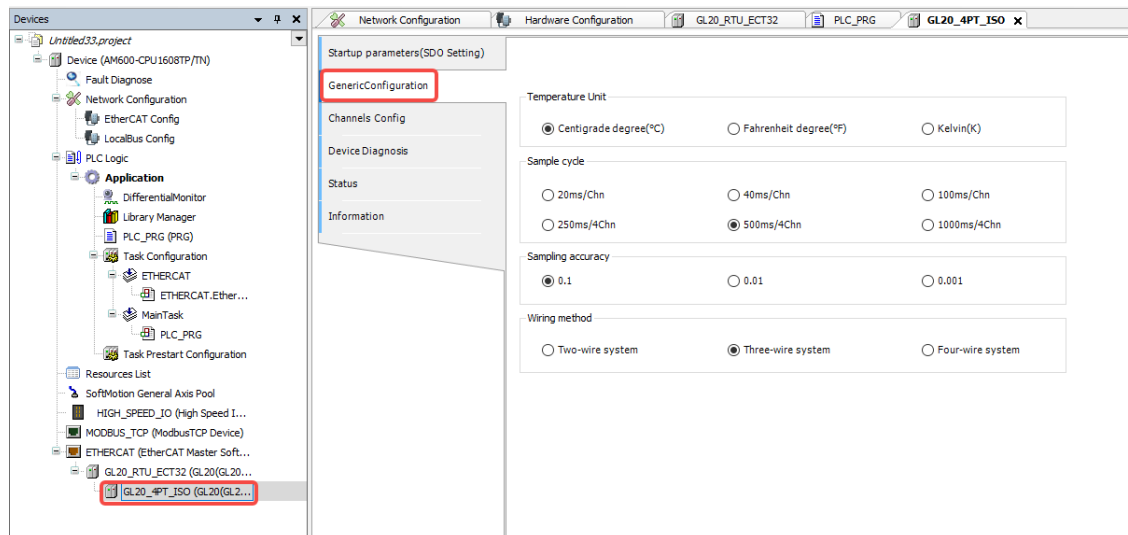


- Method 2: In the left **Devices** pane, right-click "GL20_RTU_ECT32" ① and select **Add Device**. Select "GL20-4PT-ISO" ② in the pop-up dialog box and click **Add Device** ③.



- Method 3: In the left **Devices** pane, right-click **ETHERCAT(EtherCAT Master SoftMotion)** and select **Scan For Devices**. Click **Scan Devices**, select the GL20-4PT-ISO module, and click **Copy Scan Device**.

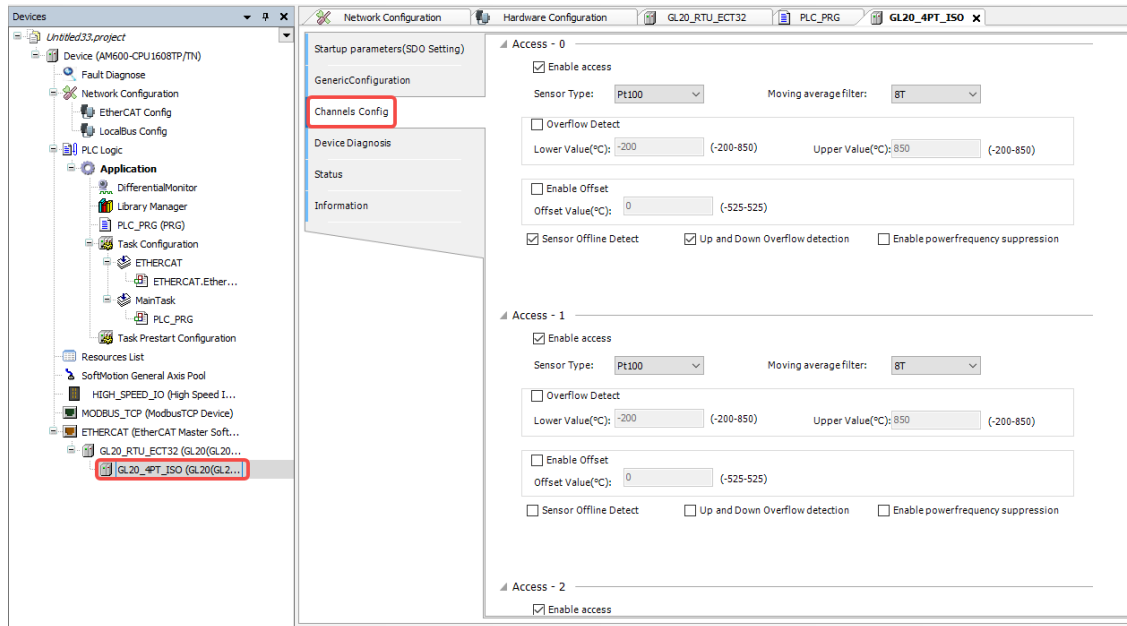
3. Double-click the GL20-4TC module ① in the left **Devices** pane to set **GenericConfiguration** ②.



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

Parameter Name	Description	Configuration
Temperature unit	The unit of temperature data collected by the module	Supported temperature units (by default is Centigrade degree): • Centigrade degree (°C) • Fahrenheit degree (°F) • Kelvin (K)
Sampling cycle	Sampling and polling time of temperature data for the 4-channel module	Supported sampling cycles: • 20ms/Chn • 40ms/Chn • 100ms/Chn • 250ms/4Chn • 500ms/4Chn (default) • 1000ms/4Chn
Wiring method	Thermal resistor wiring mode	Supported wiring methods: • Two-wire mode • Three-wire mode (default) • Four-wire mode
Resolution	Sampling accuracy	Supported resolutions: • 0.1 (default) • 0.01 • 0.001

4. Double-click the GL20-4PT-ISO module ① to set the **Channels Config** ②.




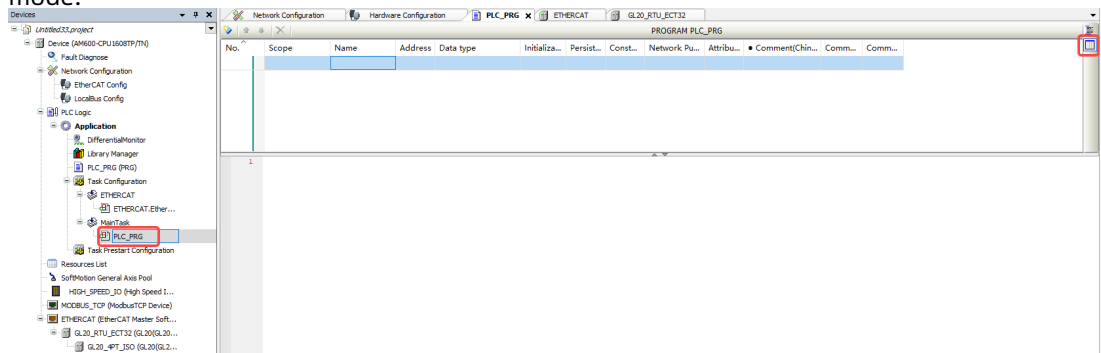
The parameters for channel configuration are shown in the following table.

Parameter Name	Description	Configuration
Enable access	Whether to enable the channel	Checked by default <ul style="list-style-type: none"> • Check to enable the channel • Uncheck to disable the channel
Sensor type	Type of sensor connected to the module channel	Supported types: <ul style="list-style-type: none"> • Pt100 (default) • Pt500 • Pt1000 • Cu100 • KTY84 • Ni100 Supported resistance measurement ranges: <ul style="list-style-type: none"> • 0 Ω to 400 Ω • 0 Ω to 4000 Ω
Moving average filter	Sampling filter time for module analog channel	Supported moving average filter time: None, 2T, 4T, 8T (default), 16T, 32T, 64T
Overflow detect	Whether to detect the channel data overflow	Unchecked by default <ul style="list-style-type: none"> • Check to enable overflow detection • Uncheck to disable overflow detection
Lower value	Lower limit of channel data	The lower limit depends on the temperature unit (by default is displayed in °C). The lower limit ranges from -200°C (default) to +850°C.
Upper value	Upper limit of channel data	The upper limit depends on the temperature unit (by default is displayed in °C). The upper limit ranges from - 200°C to +850°C (default).
Enable offset	Whether to enable the channel data offset	Unchecked by default <ul style="list-style-type: none"> • Check to enable temperature offset • Uncheck to disable temperature offset
Offset value (°C)	Offset of channel data	Default is 0. The offset value ranges from -50% x (Max. - Min.) to +50% x (Max. - Min.).

Parameter Name	Description	Configuration
Sensor offline detect	Whether to enable the open circuit detection of the channel	Unchecked by default <ul style="list-style-type: none"> • Check to enable sensor open circuit detection • Uncheck to disable sensor open circuit detection
Up and down overflow detection	Whether to detect overflow and underflow of the channel data	Unchecked by default <ul style="list-style-type: none"> • Check to enable overflow/underflow detection • Uncheck to disable overflow/underflow detection
Enable power frequency suppression	Whether to suppress interference signals	Unchecked by default <ul style="list-style-type: none"> • When the power frequency suppression is enabled, the power frequency interference is significantly reduced, improving the signal-to-noise ratio. • When the power frequency suppression is disabled, the module only performs median filtering and moving average filtering on the signals. The median filter parameter is set to 9, and the moving average filter parameter can be configured as None, 2T, 4T, 8T, 32T, and 64T.

5. Create new variables.

a. Double-click **PLC_PRG** in the left **Devices** pane, and then click  on the right to switch to table mode.

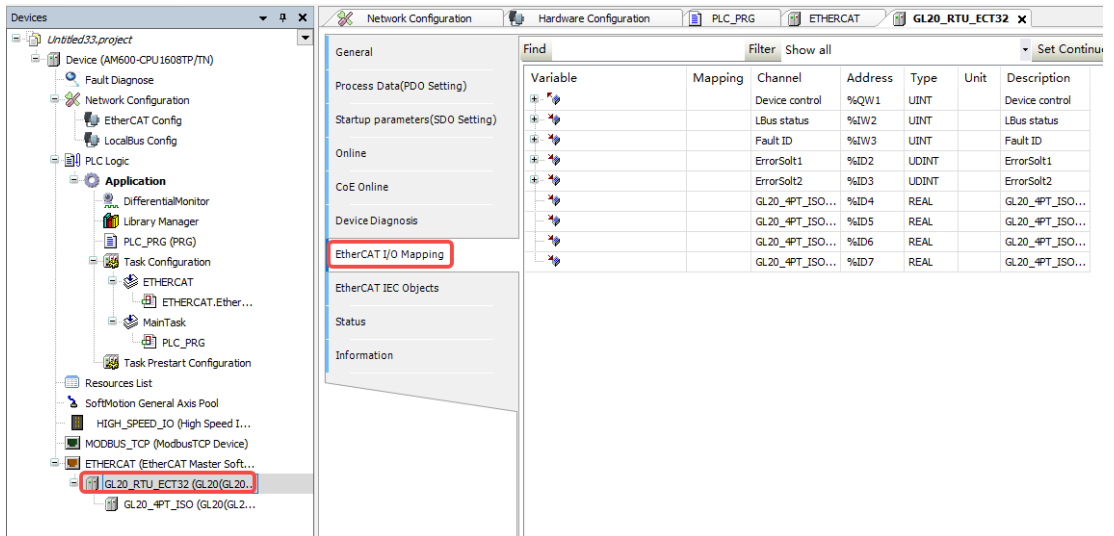


b. Add custom input variables "GL20_4PT_ISO_CH0", "GL20_4PT_ISO_CH1", "GL20_4PT_ISO_CH2", and "GL20_4PT_ISO_CH3". Set the scope to **VAR** and data type to **REAL**, as shown below.

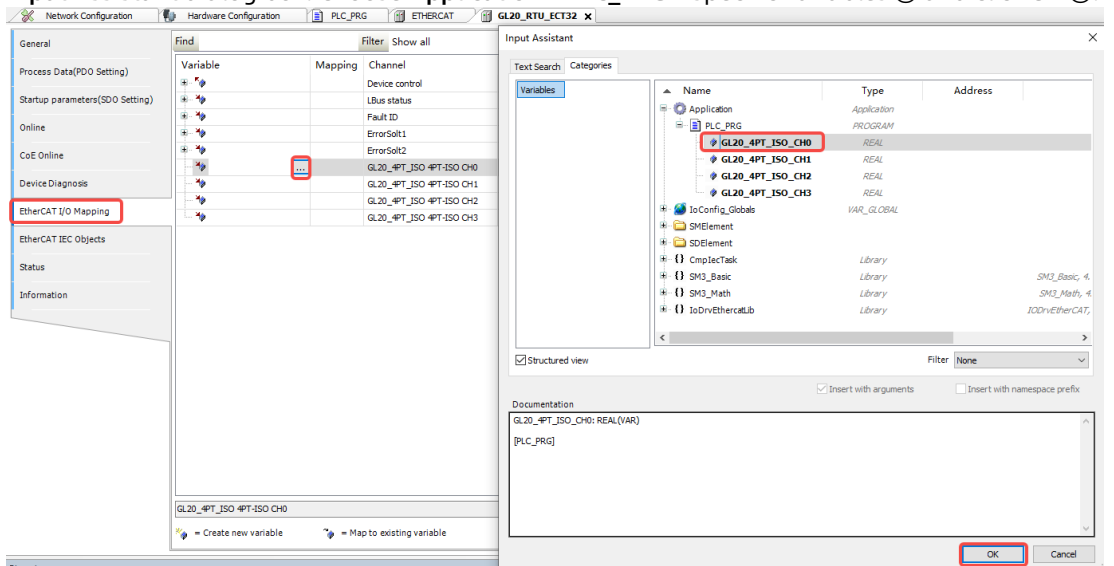
No.	Scope	Name	Address	Data type	Initializa...	Persist...	Const...	Network Pu...	Attribu...	• Comment(Chin...	Comm...	Comm...
1	VAR	GL20_4PT_ISO_CH0		REAL		<input type="checkbox"/>	<input type="checkbox"/>	Default				
2	VAR	GL20_4PT_ISO_CH1		REAL		<input type="checkbox"/>	<input type="checkbox"/>	Default				
3	VAR	GL20_4PT_ISO_CH2		REAL		<input type="checkbox"/>	<input type="checkbox"/>	Default				
4	VAR	GL20_4PT_ISO_CH3		REAL		<input type="checkbox"/>	<input type="checkbox"/>	Default				

6. Map variables to the corresponding input channels.

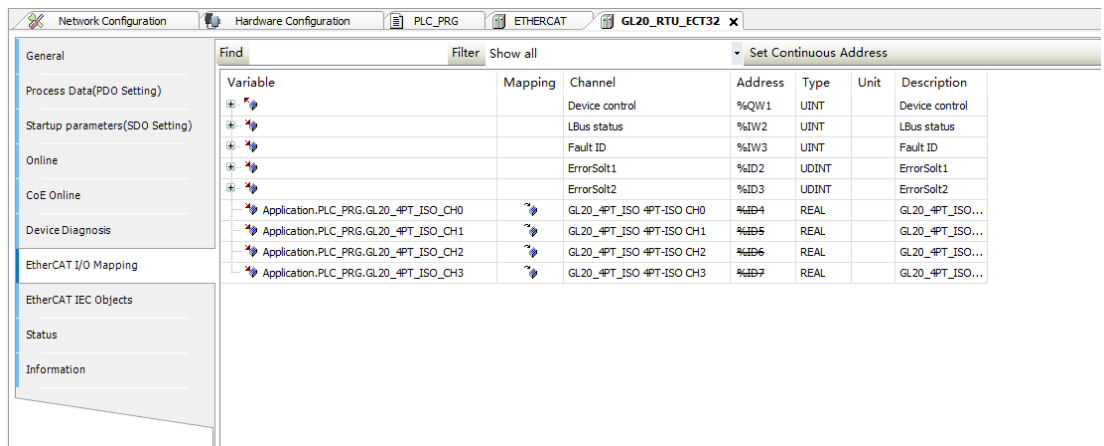
a. In the left **Devices** pane, double-click **GL20_RTU_ECT** ① and click the **EtherCAT I/O Mapping** tab ②.







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** ③.



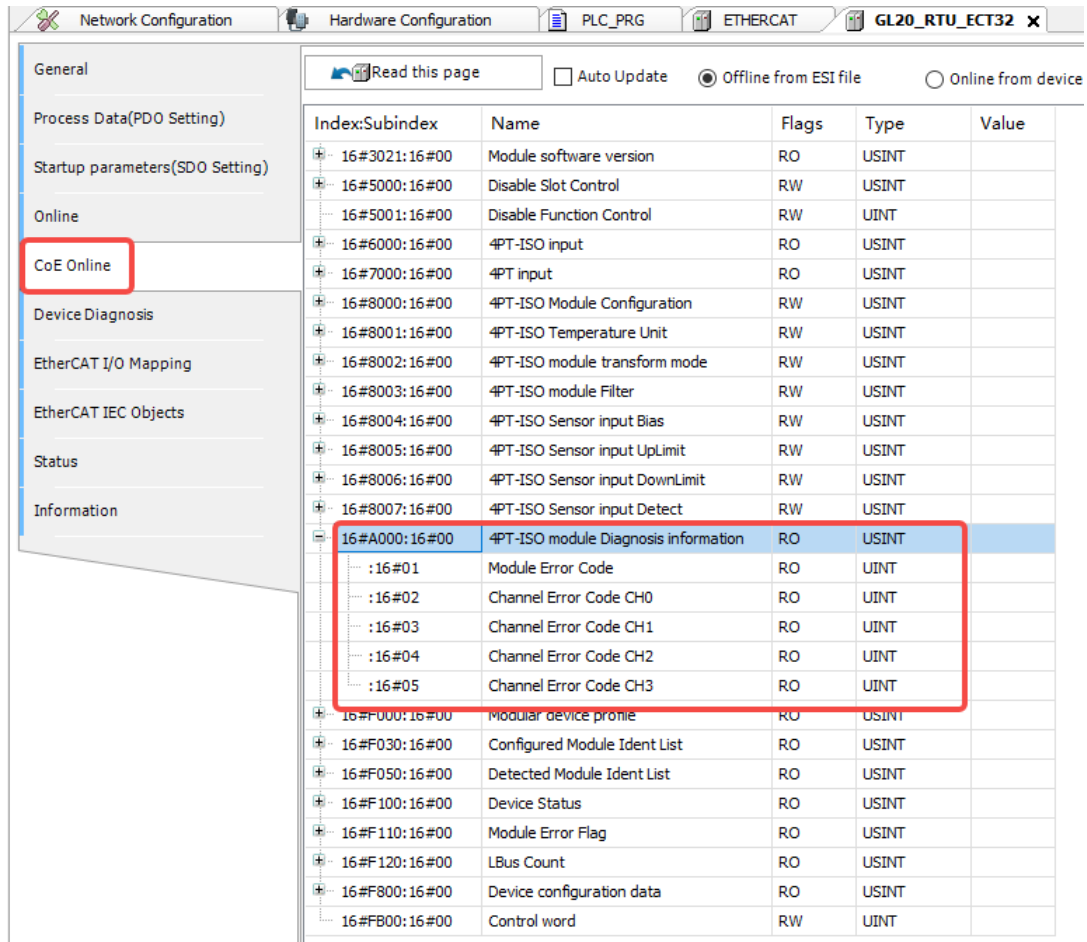
In the **EtherCAT I/O Mapping** tab, map the input variables "GL20_4PT_ISO_CH0", "GL20_4PT_ISO_CH1", "GL20_4PT_ISO_CH2", and "GL20_4PT_ISO_CH3" to the input channels of the configured module, as shown in the figure below.



7. Double-click **PLC_PRG** in the left **Devices** pane and complete the programming on the **PLC_PRG** page.
8. 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. You can get the fault code through the diagnostic data object dictionary value displayed on 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.



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: 4PT Diag data				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Subindex 000	USINT	RO	NO	5
1	Module Error Code	UINT	RO	NO	0x0000
2	Channel Error Code CH0	UINT	RO	NO	0x0000
3	Channel Error Code CH1	UINT	RO	NO	0x0000
4	Channel Error Code CH2	UINT	RO	NO	0x0000
5	Channel Error Code CH3	UINT	RO	NO	0x0000

Note

The PT thermal resistor input supports module fault detection and channel fault detection.

The module fault code is defined as follows:

Fault Code	Description	Solution
0x5021	The ADC device is faulty.	/

The channel fault codes are defined as follows:

Fault Code	Description	Solution
0x6001	Channel open-circuited	Check the wiring of the sensor.
0x6002	Channel short-circuited	/
0x6003	Channel data exceeds the upper limit.	Check whether the sensors, wiring, or configured limit ranges are appropriate.
0x6004	Channel data exceeds the lower limit.	Check whether the sensors, wiring, or configured limit ranges are appropriate.
0x6005	Overflow	Check whether the selected sensor range is exceeded.
0x6006	Underflow	Check whether the selected sensor range is undershot.
0x6008	Channel ADC fault	/

6 Appendix

6.1 Appendix 1: Object Dictionary Definition

Process data

For the module in slot n ($n = 0$ to 31), the object dictionary definition for index $0x1A03+0x08*n$ is shown in the table below.

Index	0x1A03+0x08*n: 4PT-ISO Input Mapping				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	4
1	1st application object	UDINT	RO	NO	0x60000120
2	2nd application object	UDINT	RO	NO	0x60000220
3	3rd application object	UDINT	RO	NO	0x60000320
4	4th application object	UDINT	RO	NO	0x60000420

For the module in slot n ($n = 0$ to 31), the object dictionary definition for index $0x1A04+0x08*n$ is shown in the table below.

Index	0x1A04+0x08*n: 4PT-ISO Diagnosis Information Mapping				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	5
1	1st application object	UDINT	RO	NO	0xA0000110
2	2nd application object	UDINT	RO	NO	0xA0000210
3	3rd application object	UDINT	RO	NO	0xA0000310
4	4th application object	UDINT	RO	NO	0xA0000410
5	5th application object	UDINT	RO	NO	0xA0000510

Index	0x1602+0x08*n: 4PT-ISO Output Mapping				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	1
1	1st application object	UDINT	RO	NO	0x70000110

For the module in slot n ($n = 0$ to 31), the object dictionary definition for index $0x6000+0x40*n$ is shown in the table below.

Index	0x6000+0x40*n: 4PT Input				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	4
1	4PT-ISO CH0	REAL	RO	YES	0x00000000
2	4PT-ISO CH1	REAL	RO	YES	0x00000000
3	4PT-ISO CH2	REAL	RO	YES	0x00000000
4	4PT-ISO CH3	REAL	RO	YES	0x00000000

Note

Each subindex represents the detected PT thermal resistance temperature of a channel.

For the module in slot n ($n = 0$ to 31), the object dictionary definition for index $0x7000+0x40*n$ is shown in the table below.

Index	0x7000+0x40*n: GL20-4PT-ISO Control Word				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	4
1	4PT-ISO Control Word	UINT	RO	YES	0x0000
2	Reserve0	UINT	RO	YES	0x0000
3	Reserve1	UINT	RO	YES	0x0000
4	Reserve2	UINT	RO	YES	0x0000

Subindex 1: 4PT-ISO Control Word

Parameter	Description
4PT-ISO Control Word	<p>Module control words that support process data output configuration</p> <ul style="list-style-type: none"> • 0: Default configuration (output temperature and resistance values) • 1: ADC source code upload mode • 2: Code value after filtering • 3: Resistance before calibration • 4: Resistance after calibration • 5: Converted temperature • 6: Temperature after offset

Configuration Data

For the module in slot n (n = 0 to 31), the object dictionary definition for index 0x8000+0x40*n is shown in the table below.

Index	0x8000+0x40*n: 4PT-ISO Module Configuration				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	4
1	4PT-ISO Sampling Time	USINT	RW	NO	0x11
2	4PT-ISO Wiring Method	USINT	RW	NO	0x0001
3	Reserve0	USINT	RW	NO	0x0000
4	Reserve1	USINT	RW	NO	0x0000

Parameter	Description
Sampling Time	<p>The sampling cycles for a single channel are shown below.</p> <ul style="list-style-type: none"> • 0x00: 20ms/Chn • 0x01: 40ms/Chn • 0x02: 100ms/Chn • 03 to 0F: Reserved <p>The sampling cycles for all channels are shown below.</p> <ul style="list-style-type: none"> • 0x10: 250ms/4Chn • 0x11: 500ms/4Chn (default) • 0x12: 1000ms/4Chn
Wiring Method	<p>The supported wiring methods are shown below.</p> <ul style="list-style-type: none"> • 0: Two-wire mode • 1: Three-wire mode (default) • 2: Four-wire mode



Caution

The sampling cycles are divided into fixed and free ones.

- In fixed cycle mode, the data is refreshed at a fixed cycle (such as 250ms/4hn, 500ms/4Chn, and 1000ms/4Chn), regardless of the number of enabled channels.
- In free cycle mode, the sampling cycle is related to the number of enabled channels. Take 20ms/Chn as an example, it indicates that the sampling cycle for a channel is 20ms, and that for two channels is 40ms.

For the module in slot n (n = 0 to 31), the object dictionary definition for index 0x8001+0x40*n is shown in the table below.

Index	0x8001+0x40*n: 4PT-ISO Temperature Unit				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RW	NO	4
1	4PT-ISO Temperature Unit	USINT	RW	NO	0x0000
2	4PT-ISO Resolution	USINT	RW	NO	0x0000
3	Reserve0	USINT	RW	NO	0x0000
4	Reserve1	USINT	RW	NO	0x0000

Parameter	Description
Temperature Unit	The supported temperature units are shown below (default is °C). <ul style="list-style-type: none"> • 0: Centigrade degree (°C) • 1: Fahrenheit degree (°F) • 2: Kelvin (K)
Resolution	The supported resolution options are shown below. <ul style="list-style-type: none"> • 0: 0.1 (default) • 1: 0.01 • 2: 0.001

For the module in slot n (n = 0 to 31), the object dictionary definition for index 0x8002+0x40*n is shown in the table below.

Index	0x8002+0x40*n: 4PT-ISO Module Transform Mode				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	4
1	4PT-ISO module CH0 transform mode	USINT	RW	NO	0xC1
2	4PT-ISO module CH0 transform mode	USINT	RW	NO	0xC1
3	4PT-ISO module CH0 transform mode	USINT	RW	NO	0xC1
4	4PT-ISO module CH0 transform mode	USINT	RW	NO	0xC1

Each subindex represents whether to enable temperature detection and the thermal resistance sensor model for each channel. Default is 0xC1, which corresponds to enabling Pt100 mode. In this mode, a fault is reported and triggers shutdown. The setting rule is as follows:

Bit	Description
Bit 7	Determines whether to enable temperature detection channel <ul style="list-style-type: none"> • 0: Disabled • 1: Enabled
Bit 6	Reserved
Bit 0 to Bit 5	Thermocouple sensor models include: <ul style="list-style-type: none"> • 0: Pt100 • 1: Reserved • 2: Pt500 • 3: Pt1000 • 4: Reserved • 5: Reserved • 6: Cu100 • 7: KTY84 to KTY130 • 8 to 10: Reserved • 11: Ni100 • 0x10: 0 Ω to 400 Ω • 0x11: 0 Ω to 4000 Ω

For the module in slot n (n = 0 to 31), the object dictionary definition for index 0x8003+0x40*n is shown in the table below.

Index	0x8003+0x40*n: 4PT-ISO Module Filter				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	4
1	4PT-ISO Module CH0 Filter	USINT	RW	NO	0x04
2	4PT-ISO Module CH1 Filter	USINT	RW	NO	0x04
3	4PT-ISO Module CH2 Filter	USINT	RW	NO	0x04
4	4PT-ISO Module CH3 Filter	USINT	RW	NO	0x04

Note

The moving average filter parameter of the temperature detection channel ranges from 1 (0) to 7 (64T), indicating the multiple of the sampling cycle. The default value is 4 (8T).

Subindex 1: 4PT module CH0 Filter (The usage of subindices 2, 3, and 4 is the same as subindex 1)

Bit	Description
Bit 5 to Bit 7	Power frequency suppression <ul style="list-style-type: none"> • 0: Disabled • 1: Enabled
Bit 0 to Bit 4	CH0 channel filter parameter (configured by the moving average filter parameter): <ul style="list-style-type: none"> • 1: None • 2: 2T • 3: 4T • 4: 8T • 5: 16T • 6: 32T • 7: 64T Note: "T" refers to the sampling cycle.

For the module in slot n (n = 0 to 31), the object dictionary definition for index 0x8004+0x40*n is shown in the table below.

Index	0x8004+0x40*n: 4PT-ISO Sensor Input Bias				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	4
1	4PT-ISO Sensor Input CH0 Bias	INT	RW	NO	0x0000
2	4PT-ISO Sensor Input CH1 Bias	INT	RW	NO	0x0000
3	4PT-ISO Sensor Input CH2 Bias	INT	RW	NO	0x0000
4	4PT-ISO Sensor Input CH3 Bias	INT	RW	NO	0x0000

Note

The range of the offset parameter for the temperature detection channel is $\pm 50\% \times$ full range. The unit of 0.1 °C/°F/K and the default value is 0.

Sensor Type	Full-Range Temperature Detection Range		
	Centigrade degree (°C)	Fahrenheit degree (°F)	Kelvin (K)
Pt100	-200.0 to +850.0	-328.0 to +1562.0	73.15 to 1123.15
Pt500			
Pt1000			
Cu100	-50.0 to +150.0	-58.0 to +302.0	223.15 to 423.15
Ni100	-60.0 to +250.0	-76.0 to +482.0	213.15 to 523.15
KTY84 to KTY130	0.0 to 200.0	32.0 to 392.0	273.15 to 473.15
0 to 400 Ω	-		
0 to 4000 Ω	-		

For the module in slot n (n = 0 to 31), the object dictionary definition for index 0x8005+0x40*n is shown in the table below.

Index	0x8005+0x40*n: 4TC-ISO Sensor Input UpLimit				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	4
1	4PT-ISO Sensor Input CH0 UpLimit	INT	RW	NO	0x2134
2	4PT-ISO Sensor Input CH1 UpLimit	INT	RW	NO	0x2134
3	4PT-ISO Sensor Input CH2 UpLimit	INT	RW	NO	0x2134
4	4PT-ISO Sensor Input CH3 UpLimit	INT	RW	NO	0x2134

Note

The subindex represents the upper limit parameter of the temperature detection channel with a unit of 0.1°C/°F. The range is same as the setting temperature range of the current mode. The default value is the maximum of the setting temperature range of the current mode.

For sensor models Pt100, Pt500, and Pt1000, the lower limit is -200°C, corresponding to the setting value of -2000, and the upper limit is 850°C, corresponding to the setting value of 8500. For sensor model Cu100, the lower limit is -50°C, corresponding to the setting value of -500, and the upper limit is 150°C, corresponding to the setting value of 1500. The temperature configuration unit is 0.1°C.

For the module in slot n ($n = 0$ to 31), the object dictionary definition for index $0x8006+0x40*n$ is shown in the table below.

Index	0x8006+0x40*n: 4PT-ISO Sensor Input DownLimit				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	4
1	4PT-ISO Sensor Input CH0 DownLimit	INT	RW	NO	0xF830
2	4PT-ISO Sensor Input CH1 DownLimit	INT	RW	NO	0xF830
3	4PT-ISO Sensor Input CH2 DownLimit	INT	RW	NO	0xF830
4	4PT-ISO Sensor Input CH3 DownLimit	INT	RW	NO	0xF830

The subindex represents the lower limit parameter of the temperature detection channel with a unit of $0.1\text{ }^{\circ}\text{C}/^{\circ}\text{F}$. The range is same as the setting temperature range of the current mode. The default value is the minimum value of the setting temperature range of the current mode.

For the module in slot n ($n = 0$ to 31), the object dictionary definition for index $0x8007+0x40*n$ is shown in the table below.

Index	0x8007+0x40*n: 4PT-ISO Sensor Input Detect				
Subindex	Name	Data Type	Access Type	Mapping	Default Value
0	Number of entries	USINT	RO	NO	4
1	4PT-ISO Sensor Input CH0 Detect	USINT	RW	NO	0x0000
2	4PT-ISO Sensor Input CH1 Detect	USINT	RW	NO	0x0000
3	4PT-ISO Sensor Input CH2 Detect	USINT	RW	NO	0x0000
4	4PT-ISO Sensor Input CH3 Detect	USINT	RW	NO	0x0000

The subindex represents the input functions and diagnostic option parameters for the temperature detection channel. Default is $0x0000$, indicating temperature offset, wire break detection, and over-limit detection are disabled. The setting rule is as follows:

Bit	Description
Bit 3 to Bit 7	Reserved
Bit 3	Overflow/underflow detection <ul style="list-style-type: none"> • 0: Disabled • 1: Enabled
Bit 2	Limit exceeded detection <ul style="list-style-type: none"> • 0: Disabled • 1: Enabled
Bit 1	Disconnection detection <ul style="list-style-type: none"> • 0: Disabled • 1: Enabled
Bit 0	Temperature offset <ul style="list-style-type: none"> • 0: Disabled • 1: Enabled

6.2 Appendix 2: Version Matching Information

The version matching information is shown in the following table.

Product Name	Firmware Version	Device Description File (.xml)
Local module	Board software: 4.2.2.0 and later Logic software: 4.1.0.0 and later	-
GL20-RTU-ECT32 communication interface module	Logic software: 0.1.4.5 and later	3.0.30.0 and later

Note

You can get the firmware of the module and the firmware of communication interface module from Inovance technical support, and download XML files and InoProShop from <https://www.inovance.com>.

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.



Copyright © Shenzhen Inovance Technology Co., Ltd.

PS00021373A00

Shenzhen Inovance Technology Co., Ltd.

www.inovance.com

Suzhou Inovance Technology Co., Ltd.

www.inovance.com

Add.: Inovance Headquarters Tower, High-tech Industrial Park,
Guanlan Street, Longhua New District,
Shenzhen 518000, P.R. China

Tel: (0755) 2979 9595

Fax: (0755) 2961 9897

Add.: No. 52, Tian E Dang Road, Wuzhong District, 215104,
Suzhou City, Jiangsu Province, P.R. China

Tel: (0512) 6637 6666

Fax: (0512) 6285 6720