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GL20-4TC Series Thermocouple Temperature Detection Module

Equipment Guide

Industrial Automation | New Energy Vehicle | Intelligent Elevator | Intelligent Robot | Digital Energy | Rail Transit

Data code PS00021892A01

Legal Information

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Disclaimer of Liability

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

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

Waste Disposal

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

Qualified Personnel

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

Proper Use of the Product

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

Preface

Introduction

This guide describes the product overview, model and nameplate specifications, component descriptions, terminal wiring, as well as technical and environmental specifications of the module.

Target audience

This guide is primarily intended for the following engineers:

- Inovance development/service engineers
- Channel/End-user chief technical engineers
- Channel/End-user mechanical engineers
- Channel/End-user electrical engineers
- Channel/End-user software engineers
- Channel/End-user maintenance/service engineers

Documentation guide

The product documentation package consists of an equipment guide and a system guide, enabling users to quickly access the information they need.

- Equipment guide: Provides a brief overview of module attributes, including model descriptions, component descriptions, technical specifications, and terminal wiring diagrams.
- System guide: Covers all typical application scenarios of the system, encompassing system introduction, installation, wiring, configuration and commissioning, troubleshooting, and maintenance.

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

Certification	Directive		Standard
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 documents

Document	Code	Description
GL20 Series Module System Guide	PS00022010	This guide covers all typical application scenarios of the system, providing detailed instructions on system configuration, installation, wiring, commissioning, troubleshooting.
GL20-4TC Series Thermocouple Temperature Detection Module Equipment Guide (This guide)	PS00021892	This guide describes the product overview, model and nameplate specifications, component descriptions, terminal wiring, as well as technical and environmental specifications of the module.

Revision history

Date	Version	Description
April 2026	A01	Added a schematic diagram of the internal structure of the sensor in *"5.2 Wiring Diagram" on page 15*.
December 2025	A00	First release.

Access to the guide

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

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



Warranty 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 fees 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 abnormal voltage
- Damage caused by using the product for unintended functions
- Damage caused by using the product outside the specified scope
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

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

For details, see Product Warranty Card.

1 Safety Instructions

1.1 General Safety Instructions

Safety Disclaimer

1. Read through the safety instructions before installing, operating, and servicing the equipment, and comply with these instructions.
2. To ensure personal and equipment safety, observe the notes indicated on the product labels and all the safety instructions in the user guide.
3. The "CAUTION", "WARNING", and "DANGER" are only supplements to the safety instructions.
4. Use this product 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



The "DANGER" sign indicates that failure to comply with the notice will result in death or serious injury.



The "WARNING" sign indicates that failure to comply with the notice could result in death or serious injury.



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

Unpacking
 • Do not install the product in case of any damage, rust, or signs of use on the product or accessories upon unpacking. • Do not install the product in case of water seepage into the product or missing or damaged components upon unpacking. • Do not install the product in the case of any discrepancy between the product you received and the product name on the packing list.
 • Check whether the packing is intact and whether there is damage, water seepage, dampness, and deformation before unpacking. • Unpack the package by following the unpacking sequence. Do not strike the package violently. • Check for damage, rust, or dents on the surfaces of the product and accessories upon unpacking. • After unpacking, check the contents against the packing list to ensure that the equipment and accessories are in the correct quantities, and that all documentation is complete.

Storage and transportation
 • Large or heavy equipment must be handled by qualified professionals using specialized hoisting equipment. Failure to comply could result in personal injury or equipment damage. • Before hoisting the equipment, ensure that components such as the front cover and terminal blocks are secured firmly with screws. Loosely-connected components may fall off and result in personal injury or equipment damage. • Never stand or stay below the equipment which is being hoisted. • When hoisting the equipment with a steel rope, ensure the equipment is hoisted at a constant speed without suffering from vibration or shock. Do not turn the equipment over or let the equipment stay hanging in the air. Failure to comply could result in personal injury or equipment damage.
 • Handle the equipment with care during transportation and mind your step to prevent personal injury or equipment damage. • When carrying the equipment with bare hands, hold the equipment casing firmly with care to prevent parts from falling. Failure to comply could result in personal injury. • Store and transport the equipment based on the storage and transportation requirements. Failure to comply could result in equipment damage. • Do not store or transport the equipment in locations where the equipment may be exposed to splashing water or rain, direct sunlight, strong electric field, strong magnetic field, or strong vibration. • Store the equipment for up to three months. Take stricter protective measures and carry out the necessary inspections for a longer storage time. • Pack the equipment securely and properly before transportation. Use a fully enclosed container for long-distance transportation. • Do not transport the equipment with other devices or materials that may harm or have negative impacts on the equipment.

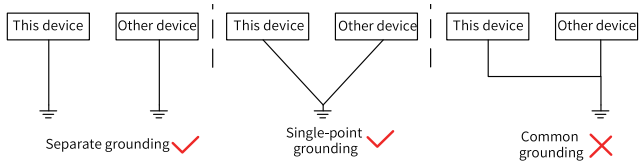
Design
 • Design a safety circuit and add an error handling program in the software to ensure the product remains in a safe state upon external power failure or product faults. • Add a fuse or circuit breaker because the product may smoke or catch fire due to long-time overcurrent caused by operation above rated current or load short-circuit.
 • Any damaged output components such as relays or transistors in this product may result in uncontrolled output that stays in a constant ON or OFF state. • The product design must comply with the overvoltage category requirements specified in the Environmental Specifications. The system-level power supply must have a lightning protection device, assuring that overvoltage due to lightning shock is not applied to the controller's terminals such as power supply input terminals, signal input terminals, and control output terminals, to prevent damage to the product. • Ensure that appropriate actions have been taken to prevent product malfunction caused by a communication fault between the product and related devices. Failure to comply could cause personal injury or equipment damage.
 Switches that could cause personal injury or equipment damage must not be configured on the touch screen. Use independent switches for performing critical operations. Failure to comply could result in accidents caused by wrong outputs or faults.

Installation
DANGER This equipment must be operated only by trained and qualified electrical personnel. Non-professionals must not operate this equipment.
WARNING • Read through the guide and safety instructions before installation. • Do not install this equipment in places with strong electric or magnetic field. • Before installation, ensure that the mechanical strength of the installation site can bear the weight of the equipment. Failure to comply will result in mechanical hazards. • Before installation, ensure that the installation environment meets the specifications. Failure to comply will result in product damage. • Do not wear loose clothes or accessories during installation. Failure to comply could result in electric shock. • When installing the product in an enclosed environment (such as a cabinet or case), use cooling devices (such as fans or air conditioners) to cool the space and meet the installation environment requirements. Failure to do so could result in equipment overheating or fire. • Do not modify the product. • Do not fiddle with the bolts used to fix equipment components or the bolts marked in red. • The equipment shall be installed in a cabinet or terminal device. Protection measures such as a fireproofing shell, electric protection shell, or mechanical protection shell must be provided for the cabinet or terminal device. The IP level must meet IEC standards and local laws and regulations. • Before installing devices with strong electromagnetic interference, such as a transformer, install a shielding device for the equipment to prevent malfunction. • Install the equipment onto a non-combustible object such as metal. Keep the equipment away from combustible objects. Failure to comply could result in fire. • For products not supporting hot swapping, disconnect all external power supplies of the system before installing/removing the product. Failure to comply could result in electric shock, product failure, or malfunction.
CAUTION • Cover the top of the equipment with a piece of cloth or paper during installation. This is to prevent unwanted objects such as metal chippings, oil, and water from falling into the product and causing faults. After installation, remove the cloth or paper for effective ventilation and cooling. • During installation, ensure the equipment is connected to the respective connector securely and hook the equipment firmly. Improper installation may result in malfunction, fault, or fall-off.

Wiring

DANGER

- This equipment must be operated only by trained and qualified electrical personnel. Non-professionals must not operate this equipment.
- Before wiring, disconnect all the power supplies of the equipment. Wait for at least the time designated on the warning label before further operations because residual voltage still exists after power-off. After waiting for the designated time, measure the DC voltage in the main circuit to ensure the DC voltage is within the safe voltage range. Failure to comply could result in electric shock.
- Do not perform wiring, remove the equipment cover, or touch the circuit board with power ON. Failure to comply could result in electric shock.
- Ensure that the equipment is grounded properly. Failure to comply could result in electric shock. Separate grounding or single-point grounding, other than common grounding, is recommended.



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

WARNING

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

CAUTION

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

Power-on

DANGER

- This equipment must be operated only by trained and qualified electrical personnel. Non-professionals must not operate this equipment.
- Before power-on, check that the equipment is installed and wired properly.
- Ensure that the power supply meets equipment requirements before power-on to prevent equipment damage or fire accident.
- Do not open the cabinet door or protective cover of the product, touch any wiring terminal of the product, or remove any components or parts while the product is powered on. Failure to comply could result in personal injury or even death.

Power-on
WARNING Perform a trial run after wiring to ensure the equipment operates safely. Failure to comply could result in personal injury or equipment damage.

Operation
DANGER • The equipment must be operated only by professionals. Failure to comply can result in injury or death. • Do not touch any connecting terminals or disassemble any unit or component of the equipment during operation. Failure to comply can result in electric shock.
WARNING • Do not touch the enclosure, fan, or resistor with bare hands. Failure to comply could result in burns. • Prevent metal or other objects from falling into the equipment during operation. Failure to comply could result in fire or equipment damage. • During operation, do not bring live parts into contact with the metal enclosure of the product. Failure to comply could result in fire or product damage.
CAUTION • Operate the equipment within the specified environmental conditions. Failure to comply could result in equipment failure or damage. • Touch the HMI panel with hands only. Failure to comply could cause panel damage, which is out of the warranty range.
Safety recommendations • In positions where the operator directly touches the mechanical components, for example, where a mechanical device is loaded/unloaded, or where a machine runs automatically, manually-operated devices or other alternative means must be carefully designed so that they are independent of the product to start or stop the automatic operation of the system. • If you need to modify the program while the system is running, use the lock function or other protective measures. Ensure that only authorized personnel can make the necessary modifications.

Battery usage
WARNING • Do not use batteries that do not meet the product requirements. Failure to comply could result in death, personal injury, explosion, or fire. • Do not throw batteries into a fire or heat oven. Do not crush or cut the battery. Failure to comply could result in death, personal injury, explosion, or fire. • Do not expose the battery to extremely high temperatures. Failure to comply could result in death, personal injury, explosion, or fire. • Do not swallow batteries. Failure to comply could result in chemical burns. • Seek for medical treatment immediately if a button battery is swallowed by accident, because this may cause severe internal burns within two hours and even death.
CAUTION • Keep batteries out of reach of children. • If the battery compartment is not securely closed, stop using the product immediately and keep it out of reach of children.

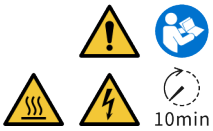
Maintenance
DANGER . Maintenance must be performed only by trained and qualified electrical personnel. . Do not maintain the equipment with power ON. Failure to comply could result in electric shock. . Before maintenance, disconnect all the power supplies of the equipment and wait for at least the time specified on the warning label. . Disconnect all external power supplies of the system before cleaning the equipment or re-tightening screws on the terminal block or screws of the connectors. Failure to comply could result in electric shock. . Disconnect all external power supplies of the system before removing or installing the product, or connecting or disconnecting cables. Failure to comply could result in electric shock or malfunction.
WARNING Perform routine and periodic inspection and maintenance on the equipment according to maintenance requirements and keep a maintenance record.

Repair
DANGER . Repair must be performed only by trained and qualified electrical personnel. . Do not repair the equipment with power ON. Failure to comply can result in electric shock. . Before inspection or repair, disconnect all the power supplies of the equipment and wait for at least the time specified on the warning label.
WARNING . Submit the repair request according to the warranty agreement. . When the fuse is blown or the circuit breaker or earth leakage circuit breaker (ELCB) trips, wait for at least the time designated on the equipment warning label before power-on or further operations. Failure to comply could result in equipment damage, personal injury, or death. . When the equipment is faulty or damaged, require professionals to perform troubleshooting and repair by following repair instructions and keep a repair record. . Replace quick-wear parts of the equipment according to the replacement instructions. . Do not use damaged equipment. Failure to comply could result in death, personal injury, or severe equipment damage. . Recheck the wiring and reset the parameters after equipment replacement.

Disposal
WARNING . Dispose of the retired equipment in accordance with applicable national regulations and standards. Failure to comply could result in property damage, personal injury, or death. . Recycle retired equipment in accordance with industry waste disposal standards to avoid environmental pollution. . Treat the retired equipment as industrial waste. Dispose of used batteries according to local laws and regulations.

Safety Label

To ensure safe operation, comply with safety labels on the equipment and do not damage or remove the labels. The following table describes the meanings of the safety labels.

Safety label	Description
	• Before using the equipment, read the guide and safety precautions carefully. Failure to comply could result in personal injury, death, or equipment damage. • Do not touch the terminals or remove the cover with power-on or within 10 min after power-off. Failure to comply could result in electric shock. • The surface of the product may become very hot during operation. Do not touch these hot areas, as this may cause burns!

1.2 Industrial Information Security

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

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

Inovance continuously develops and improves products and solutions to improve safety. It is strongly recommended to keep your products updated and always use the latest version.

Caution

Tampering with software (such as viruses, Trojans, and Worms) can lead to unsafe drivestate, which can put the device in an unsafe operation state. This may result in death,serious injury, and property damage. Observe the following strictly.

- Always use the latest software version. If the product version is no longersupported or the latest version of the program is not applied, customers are atincreased risk of cyber-attacks.
- Take proper protection measures (including but not limited to deploying antivirussoftware, firewall, WAF, IPS/IDS, situational awareness system, IDverification, and data encryption) to prevent files in the mobile storage devicefrom being damaged by malware and protect products, networks, systems, andinterfaces from unauthorized access, disturbance, intrusion, data disclosure, orinformation theft.
- Check all safety-related interfaces and settings after commissioning.

2 Product Introduction

The GL20-4TC is a 4-channel thermocouple input temperature detection module. It is compatible with GL20 series communication interface modules, such as GL20-RTU-ECT32.

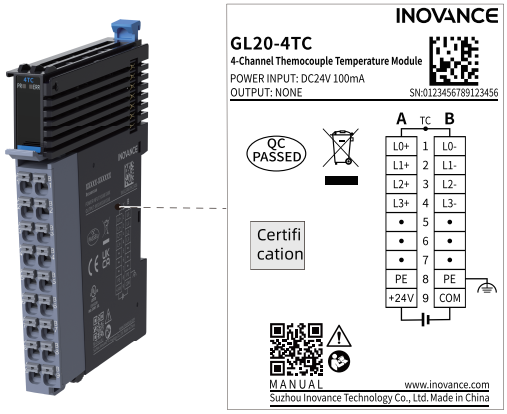
3 Model and Nameplate

Model

GL 20 -4 TC
① ② ③ ④

① **Product information** GL: General local module	③ **I/O channels** 4: 4 channels
② **Series** 20: 20 series module	④ **Module type** TC: Thermocouple temperature detection

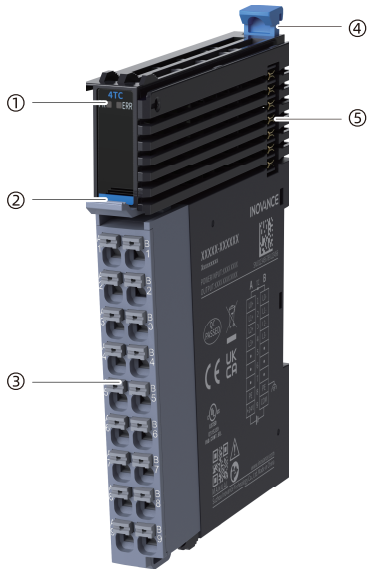
Nameplate



Based on the above description of model number and nameplate, the relevant ordering data of this product is described in the following table.

Model	Description	Product code	Applicable model
GL20-4TC-INT	GL20 series 4-channel input thermocouple temperature detection module	01441066	Applicable to GL20 series communication interface modules, such as GL20-RTU-ECT32

4 Components



No.	Name	Description			
①	Signal indicator	PR (POWER +RUN)	Power/Operation indicator	Yellow-green	• Steady ON: The module is in normal operation. • Fast flashing: The module is addressed successfully. • Slow flashing: The module is powered on but not addressed. • OFF: The module is not powered on or is faulty.
		ERR	Fault indicator	Red	ON: The module is faulty.
②	Color identification		Red: Digital output		Orange: Analog output
			Gray: Digital input		Green: Analog input
			White: Communication		Blue: Other modules
③	PUSH IN terminal	Pluggable terminal block with spring clamp wiring. The terminal block features "AB" silkscreen marking. For detailed definitions, see *"5.1 Terminal Assignment" on page 15*			
④	Rail mounting latch	Used to secure the module to the DIN rail.			
⑤	Three-position terminal block	Used for backplane bus power supply and communication.			

Note

- Fast flashing: The indicator is on for 200 ms and off for 200 ms, cycling continuously.
- Slow flashing: The indicator is on for 200 ms and off for 1 s, cycling continuously.

5 Terminal Wiring

5.1 Terminal Assignment



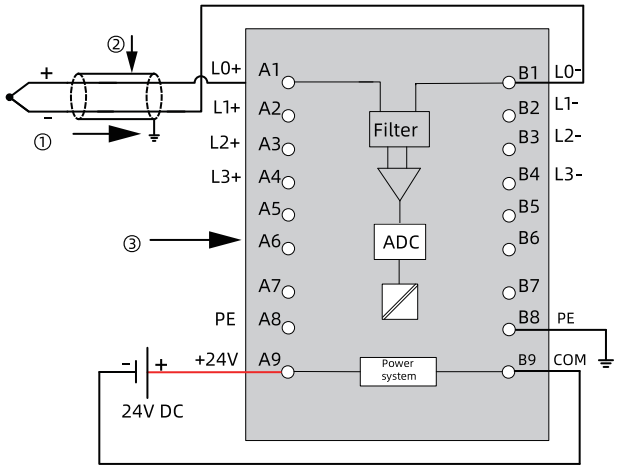
Left signal	Left terminal	Right terminal	Right signal
L0+	A1	B1	L0-
L1+	A2	B2	L1-
L2+	A3	B3	L2-
L3+	A4	B4	L3-
-	A5	B5	-
-	A6	B6	-
-	A7	B7	-
PE	A8	B8	PE
+24 V	A9	B9	COM

5.2 Wiring Diagram

Wiring precautions

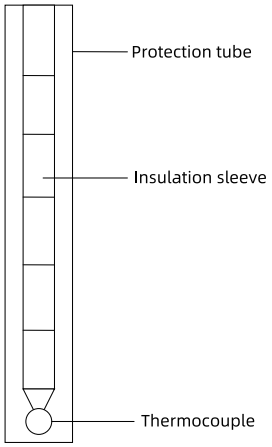
- Do not bundle the expansion cable together with power cables (high voltage, large current) which produce strong interference signals; otherwise, it may be influenced by noise, surge and induction. Separate it from other cables and avoid cabling in parallel.
- Use the recommended cables and adapter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

Circuit wiring diagram



Name	Description
①	Use shielded compensation cables and connect the shield to PE. It is recommended to connect the PE terminal of the module to the external PE.
②	When extending a thermocouple, use compensation wire. Failure to do so will result in abnormal temperature readings.
③	A5 to A7 and B5 to B7 are empty terminals with no electrical connections.

The following is a schematic diagram of the internal structure of the sensor.



Caution

The thermocouple and the protection tube must be electrically isolated from each other and must not be in contact. If it is not possible to confirm that they are electrically isolated, measure the resistance between the protection tube (shield) and the TC+ and TC- terminals. The measured value must be greater than 1 kΩ.

6 Technical Data

Mechanical specifications

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

Power supply specifications

Item	Specification
Rated bus input voltage	5 VDC (4.75 VDC to 5.25 VDC)
Rated bus input current	95 mA (typical@ 5 V)
Rated terminal input voltage	24 VDC (20.4 VDC to 28.8 VDC)
Rated terminal input current	100 mA (typical@24 V)
Rated terminal output voltage	Not included
Rated terminal output current	Not included
Module hot-swap	Not supported
Reverse polarity protection for 24 V input	Supported

Input specifications

Item	Specification
Number of input channels	Four channels
Digital resolution	24-bit
Display sensitivity	0.1℃, 0.1℉
Number of input terminals	Thermocouple input (types: B, E, N, J, K, R, S, T)
Compensation method	Internal cold junction compensation
Accuracy (at room temperature: 25℃)	(± 0.1%)[1](±100 mV full scale) + cold junction compensation error[2]
Accuracy (operating temperature range: -20° C to 55℃)	(± 0.3%)[1](±100 mV full scale) + cold junction compensation error[2]
Isolation	Isolation between I/O terminals and power supply, no isolation between channels
Input action display	Not included
Input derating	Not included
Overlimit and wire break detection	Supported
Power consumption	< 0.9 W

Note

- [1]: Indicates ADC sampling accuracy, which is determined based on sensor type and thermocouple detection temperature range. For details, see "Accuracy calculation".
- [2]: The cold junction compensation error is determined based on the mounting direction, adjacent module type, and operating temperature range. For details, see "Accuracy calculation".

Software specifications

Item	Specification
Input PDO data length	Max. 16 bytes
Diagnostic reporting function	Supported
Diagnostic detection enable	Supports overlimit and wire break detection.
Sensor type configuration	Supported thermocouple types: B, E, N, J, K (default), R, S, T
Filter time	0s to 100s (configurable through software, default 5s)
Overflow/Underflow detection	Overflow and underflow faults are reported only when the overflow detection is enabled.
Overlimit detection configuration	Supported
Independent channel configuration	Supported
Temperature offset enable	Supported
Temperature range	-204.8 to +204.7 (temperature unit)
Sampling cycle	250 ms, 500 ms, 1000 ms/4 channels
Temperature unit	Celsius (°C), Fahrenheit (°F)
Sensitivity	0.1℃, 0.1℉
Sampling refresh mode	Refresh asynchronously according to the sampling time. Synchronization with the bus cycle is not required.
Stop mode	Output based on the maximum value with no further refresh
Wire break or overlimit	Output based on the maximum value with no further refresh
System diagnostics	System power supply fault
Channel diagnostics	Upper limit exceeded alarm, lower limit exceeded alarm, wire break alarm, overflow/underflow alarm
Software diagnostics	Not supported
Configuration diagnostics	Configuration error identification, channel parameter configuration error

Accuracy calculation

Within the operating temperature range, when the temperature change rate is less than 0.3°C/min, the accuracy of the product equals the ADC sampling accuracy plus the cold junction compensation error. According to the measurement principle, the module must be powered on for 45 minutes before temperature measurement.

- Recommended: Within the operating temperature range, with the module mounted horizontally in the upright position, and when adjacent modules are temperature modules, the cold junction compensation error is within ±3°C.
- Not recommended: Avoid using the module next to power-intensive modules (e.g., GL20-3232ETN) that consume more than 3.5 W.

The following table shows the thermocouple detection range and ADC sampling accuracy.

Sensor type	Detection range	ADC sampling accuracy
B	200.0℃ to 1800.0℃, 392.0℉ to 3272.0℉	≥ ±5℃@200℃ ≤ T ≤ 400℃ < ±5℃@400℃ ≤ T ≤ 750℃ < ±3℃@750℃ ≤ T ≤ 1200℃ < ±3.5℃@1200℃ ≤ T ≤ 1800℃
E	-270.0℃ to +1000.0℃, -454.0℉ to +1832.0℉	≥ ±1℃@-270 ≤ T ≤ -200 < ±1℃@-200 ≤ T ≤ 400 < ±1.5℃@400℃ ≤ T ≤ 1000℃
N	-200.0℃ to +1300.0℃, -328.0℉ to +2372.0℉	< ±2℃@-200℃ ≤ T ≤ -150℃ < ±1.5℃@-150℃ ≤ T ≤ 750℃ < ±0.2% of displayed value @750℃ ≤ T ≤ 1300℃
J	-210.0℃ to +1200.0℃, -346.0℉ to +2192.0℉	≥ ±1℃@-210℃ ≤ T ≤ -100℃ < ±1℃@-100℃ ≤ T ≤ 500℃ < ±0.2% of displayed value@500℃ ≤ T ≤ 1200℃
K	-270.0℃ to +1370.0℃, -454.0℉ to +2498.0℉	≥ ±1.5℃@-270℃ ≤ T ≤ -200℃ < ±1.5℃@-200℃ ≤ T ≤ -100℃ < ±1℃@-100℃ ≤ T ≤ 500℃ < ±0.2% of displayed value@500℃ ≤ T ≤ 1300℃ ≥ ±2.6℃@1300℃ ≤ T ≤ 1370℃
R	-50.0℃ to +1765.0℃, -58.0℉ to +3209.0℉	≥ ±4℃@-50℃ ≤ T ≤ 0℃ < ±4℃@0℃ ≤ T ≤ 250℃ < ±2℃@250℃ ≤ T ≤ 500℃ < ±3.5℃@500℃ ≤ T ≤ 1700℃ ≥ ±3.5℃@1700℃ ≤ T ≤ 1765℃
S	-50.0℃ to +1765.0℃, -58.0℉ to +3209.0℉	≥ ±4℃@-50℃ ≤ T ≤ 0℃ < ±4℃@0℃ ≤ T ≤ 250℃ < ±2℃@250℃ ≤ T ≤ 500℃ < ±3.5℃@500℃ ≤ T ≤ 1700℃ ≥ ±3.5℃@1700℃ ≤ T ≤ 1768℃
T	-270.0℃ to +400.0℃, -454.0℉ to +752.0℉	≥ ±1℃@-270℃ ≤ T ≤ -200℃ < ±1℃@-200℃ ≤ T ≤ 400℃

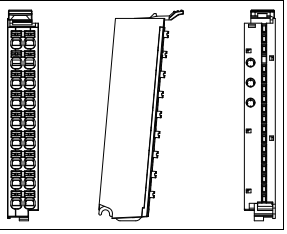
The following table shows the cold junction compensation error.

Installation direction	Adjacent module type	Cold junction compensation error (-20℃ to 0℃)	Cold junction compensation error (0℃ to 55℃)
Horizontal, upright	Temperature module	±3℃	±1.75℃
	Non-temperature module	±6.5℃	±4.5℃
Non-horizontal, upright	Temperature module	±5.5℃	±4℃
	Non-temperature module	±5.5℃	±4.5℃

7 Environmental Specifications

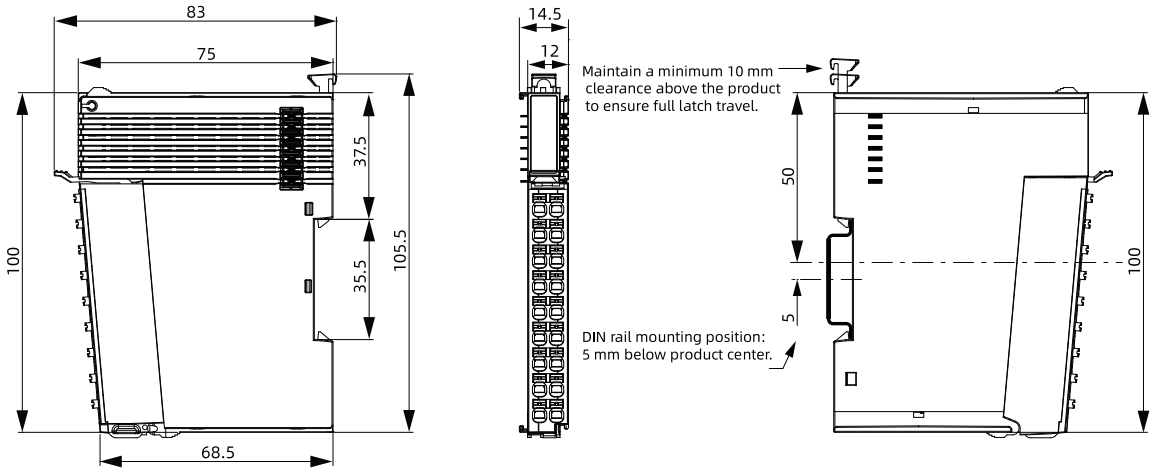
Item	Specification
Installation/Operating environment	Free from conductive dust, conductive fibers, explosive dust, flammable gases, water mist/greasy dirt, corrosive dusts/gases, strong vibration, and repetitive shock
Altitude	≤ 2000 m
Pollution degree	Level 2
Immunity	2 kV on power supply line (Conforms to IEC 61000-4-4)
Overvoltage category	I
EMC immunity level	Zone B, IEC61131-2
Anti-static rating	Contact discharge +/-6 kV and air discharge +/-8 kV
Vibration resistance	• Application scenario: Tested according to IEC60068-2-6. 3.5 mm amplitude at 5 Hz to 8.4 Hz; 1 g acceleration at 8.4 Hz to 200 Hz; 10 cycles per axis. • Transportation scenario: Tested according to IEC60068-2-64, 0.01 g^2/Hz power spectral density at 5 Hz to 100 Hz; 0.001 g2/Hz power spectral density at 200Hz; 1.14 g G_{rms}
Shock resistance	Application/Transportation scenario: Tested according to IEC60068-2-27; 15 g peak acceleration, 11 ms pulse width, 18 shocks in total in X, Y and Z axes
Operating temperature/ humidity	• 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

8 Spare Parts List

Name	Description	Product Code	Diagram
Push-in terminal block (marked as AB)	Pluggable terminal block with spring clamp wiring	15212635	

9 Dimension Drawing

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



Service and Support

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

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

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

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