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PS00012074A01

GL20-8ADI/8ADV Analog Input Module

User Guide

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Preface

■ Introduction

The GL20-8ADI 8-channel analog current input module and the GL20-8ADV 8-channel analog voltage input module feature a resolution of 16 bits and can be used with AC800, AC700 series products and GL20 series communication interface modules (e.g., GL20-RTU-ECT and GL20-RTU-PN).

This guide describes the product information, mechanical installation, electrical installation, fault diagnosis, programming examples, and version information 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		Standards Compliance
CE Certification	EMC Directive	2014/30/EU	**24 VDC products** EN 611312 **220 VAC products** EN 611312 EN 61000-3-2 EN 61000-3-3
	LVD	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
KC	-		-

Certification	Directive		Standards Compliance
EAC Certification	-		-
UKCA	Safety regulations	Electrical Equipment (Safety) Regulations 2016	EN 61010-1 EN 61010-2-201 EN 61131-2
	EMC Regulations	Electromagnetic Compatibility Regulations 2016	**24 VDC products** EN 611312 **220 VAC products** EN 611312 EN 61000-3-2 EN 61000-3-3
	RoHS Regulations	Directive (RoHS) Regulations 2012	EN IEC 63000

■ More Data

Name	Data code	Description
GL20-RTU-ECT Communication Interface Module User Guide	PS00004985	This guide describes the installation, wiring and more of the product.
GL20-RTU-PN Communication Interface Module User Guide	PS00007594	This guide describes the installation, wiring and more of the product.
GL20-RTU-ECT32 Communication Interface Module User Guide	PS00013434	This guide describes the installation, wiring and more of the product.
GL20-RTU-EIP Communication Interface Module User Guide	PS00014402	This guide describes the installation, wiring and more of the product.
GL20-8ADI/8ADV Analog Input Module User Guide	PS00012074	This guide describes the product information, mechanical installation, electrical installation, fault diagnosis, programming examples, and version information of the product.

■ Revision History

Date	Version	Description
August 2024	A01	• Update the software specifications in *"1.3 Technical Specifications" on page 12*. • Updated the wiring diagram in *"3.3 Terminal Wiring" on page 25*. • Updated *"5.1 GL20-8ADI Fault Diagnosis" on page 34* • Updated *"5.2 GL20-8ADV Fault Diagnosis" on page 36* • Updated *" Appendix: Version Matching Information" on page 40*
September 2023	A00	First release.

■ Access to the Guide

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

- Do keyword searching under Service and Support at *http://www.inovance.com*.
- Scan the QR code on the product with your smart phone.
- Scan the QR code below to install My Inovance app, where you can search for and download user guides.

■ Warranty Disclaimer

Inovance provides warranty service within the warranty period (as specified in your order) for faults or damage that occur during normal operation. Maintenance will be charged after the warranty expires.

Within the warranty period, maintenance fee will be charged for the following damage:

- Damage caused by operations not following the instructions in the user guide
- The product is damaged due to fire, flood, and abnormal voltage.
- Damage caused by unintended use of the product
- Damage caused by use beyond the specified scope of application of the product
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

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

For details, see Product Warranty Card.

Fundamental 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. "CAUTION", "WARNING", and "DANGER" in the user guide only indicate some of the precautions that need to be followed; they just supplement the safety precautions.
4. Use this equipment according to the designated environment requirements. Damage caused by improper use is not covered by warranty.
5. Inovance shall take no responsibility for any personal injury or property damage caused by improper use.

■ Safety levels and definitions



"DANGER" indicates that failure to comply with the notice can result in severe personal injury or even death.



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



"CAUTION" indicates that failure to comply with the notice may result in minor or moderate personal injury or equipment damage. Keep this user guide properly for future use and deliver it to the end user.

Control System Design



- Provide a safety circuit outside the PLC so that the control system can still work safely once external power failure or PLC fault occurs.
- Add a fuse or circuit breaker because the module may smoke or catch fire due to long-time overcurrent caused by operation above rated current or load short-circuit.

WARNING

- An emergency stop circuit, a protection circuit, a forward/reverse operation interlocked circuit, and a upper position limit and lower position limit interlocked circuit must be set in the external circuits of PLC to prevent damage to the machine.
- To ensure safe operation, for the output signals that may cause critical accidents, please design external protection circuit and safety mechanism.
- Once the CPU of the PLC detects an exception in the system, all outputs may be closed; however, when a fault occurs in the controller circuit, the output may not be under control. Therefore, it is necessary to design an appropriate external control circuit to ensure normal operation.
- If the 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 that compliant with overvoltage category II. The power supply must have a system-level surge protection device to ensure that overvoltage caused by lightning shock cannot be applied to the PLC's power supply input terminals, signal input terminals, and control output terminals, preventing damage to the equipment.

Installation

WARNING

- Installation must be carried out by qualified professionals.
- Disconnect all external power supplies of the system before disassembling/installing 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 damage the product.
- The PLC is open-type equipment that must be installed in a control cabinet with lock (IP rating of the control cabinet enclosure > IP20). Only qualified professionals can open the cabinet.

CAUTION

- Prevent metal filings and wire ends from dropping into ventilation holes of the PLC during installation. Failure to comply may result in fire, fault and malfunction.
- Ensure there are no unwanted matters on ventilation surface. Failure to comply may result in poor ventilation, which may cause fire, fault and malfunction.
- Ensure the module is connected to the respective connector securely and hook the module firmly. Improper installation may result in malfunction, fault or fall-off.

Wiring



- Wiring must be carried out by qualified professionals.
- Disconnect all external power supplies of the system before wiring. Failure to comply may result in electric shock, module fault or malfunction.
- Insulate the cable terminals properly to ensure the insulation distance between cables will not be shortened after cables are connected to the terminal block. Failure to comply may result in electric shock or damage to the equipment.



- To avoid electric shock, cut off the power supply before connecting the product to the power supply.
- The input power of the product must meet the specifications listed in this guide. If the power input does not meet the specifications, the equipment may be damaged. Thus, check regularly that the DC power provided by the switching-mode power supply unit is stable.

Operation and Maintenance



- Operation and maintenance must be carried out by qualified professionals.
- Do not touch the terminals with power on. Failure to comply may result in electric shock or malfunction.
- Disconnect all external power supplies of the system before cleaning the module. Failure to comply may result in electric shock.
- Disconnect all external power supplies of the system before disassembling the module or connecting/disconnecting 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 programmable controller and can start or terminate the automatic running of the system.
- If you need to modify the program while the system is running, use the lock function or other protective measures. Ensure that only authorized personnel can make the necessary modifications.

Disposal



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

1 Product Information

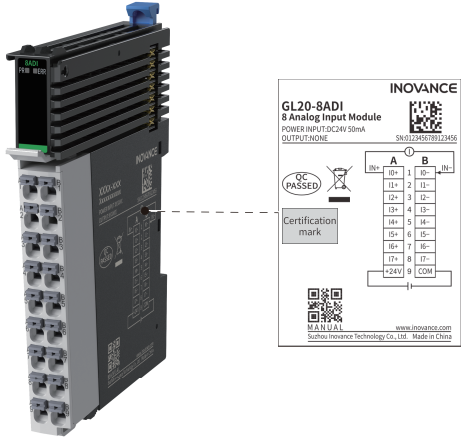
1.1 Model Number and Nameplate

GL 20 - 8 AD{I/V

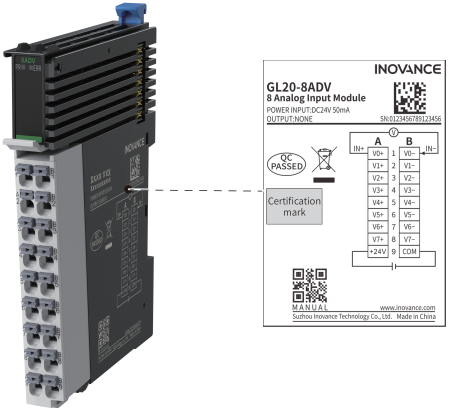
① ② ③ ④ ⑤

① **Product Information** GL: General local module	④ **Module Type** AD: Analog input
② **Series Number** 20: 20 series module	⑤ **Input type** • I: Current • V: Voltage
③ **I/O channel quantity** 8: 8 channels	

- GL20-8ADI nameplate



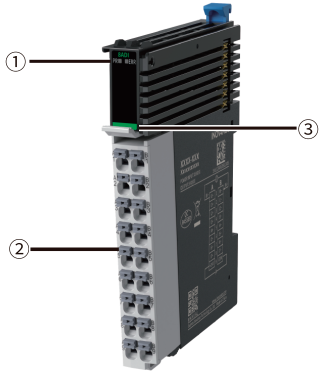
- GL20-8ADV nameplate



The data for ordering the product is shown below.

Model	Description	Product Code	Applicable Model
GL20-8ADI	GL20 series 8-channel analog input module - current type	01440489	AC800, AC700 series products and GL20 series communication interface modules (e.g., GL20-RTU-ECT and GL20-RTU-PN)
GL20-8ADV	GL20 series 8-channel analog input module - voltage type	01440482	

1.2 Components



No.	Interface	Description			
1	Signal indicator	PR (POWER +RUN)	Power / running indicator	Yellow green	ON when the module is in normal operation
		ERR	State machine error indicator	Red	Is ON when an error occurs in the state machine
2	User terminal	For details, see *"3.2 Terminal Definitions" on page 24*			

No.	Interface	Description			
3	Color identification		Red: Digital output		Orange: Analog output
			Gray: Digital input		Green: Analog input
			White: Communication		Blue: Other module

1.3 Technical Specifications

■ Basic 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	65 mA (typical value@5 V)
Rated terminal input voltage	24 VDC (20.4 VDC to 28.8 VDC)
Rated terminal input current	50 mA (typical@24 V)
Rated terminal output voltage	/
Rated terminal output current	/

■ Input specifications

Item	Specification
Input type	Analog input
Input mode	• GL20-8ADI: Current input • GL20-8ADV: Voltage input
Input channel	8
Resolution	16 bits

Item		Specification
Conversion time		125 μs/channel
GL20-8ADI	Current input range	±20 mA, 0 mA to 20 mA, 4 mA to 20 mA
	Current sampling impedance	90 Ω
	Current input accuracy (25°C)	±0.2% (full scale)
	Current input accuracy (full temperature range)	±0.4% (full scale)
	Current input limit	±30 mA (transient), ±24 mA (average), max. damaging current 50 mA
	Current input diagnosis	Wire break detection supported only when the current input is set to 4 mA to 20 mA
GL20-8ADV	Voltage input range	±10 V, 0 V to 10 V, ±5 V, 0 V to 5 V, 1 V to 5 V
	Voltage input impedance	>100 kΩ
	Voltage input accuracy (25°C)	±0.2% (full scale)
	Voltage input accuracy (full temperature range)	±0.4% (full scale)
	Voltage input limit	±15 V
	Voltage input diagnosis	Wire break detection supported only when the voltage input is set to 1 V to 5 V[1]
Isolation		No isolation between the channels; isolation between the channels and the power supply; isolation between the channels and the bus
Input action display		/
Input derating		/

Note

[1]: Disconnection detection is available only when the "Offline Sign" parameter is enabled. To ensure proper functioning of the disconnection detection feature, it is recommended to use a sensor with an independent power supply.

■ Software specifications

Item		Specification
PDO data size: input		Max. 16 bytes
PDO data size: output		0 byte
Independent channel enable configuration		Supported
Diagnostic report configuration		Supported
GL20-8ADI	Diagnostic detection configuration	Wire break detection supported only when the input is set to 4 mA to 20 mA
	Conversion mode configuration	±20 mA, 0 mA to 20 mA, 4 mA to 20 mA
GL20-8ADV	Diagnostic detection configuration	Wire break detection supported only when the input is set to 1 V to 5 V
	Conversion mode configuration	±10 V, 0 V to 10 V, ±5 V, 0 V to 5 V, 1 V to 5 V
Filter parameter configuration		Filtering strength, 0 to 255, default 8
Overflow enable configuration		Supported
Overlimit detection configuration		Supported
Peak hold configuration		Supported
Digital output range configuration		-20000 to +20000, -32000 to +32000, -27648 to +27648
Sampling cycle		125 μs/channel supported, 1 ms/8 channels not configurable
Sampling refresh		Refresh asynchronously according to the sampling time, not required to refresh synchronously according to the bus cycle
Stop mode		Output last value, no refresh
Change channel configuration during operation		Supported

1.4 Environmental Specifications

Item		Specification
Operating environment		No corrosive and flammable gas and no excessive conductive dust
Altitude		≤2,000 m
Pollution degree		2
Noise immunity		2 kV on power supply line (Conforms to IEC 61000-4-4)
Overvoltage category		I
EMC immunity level		Zone B, IEC61131-2
Vibration resistance		IEC 60068-2-6 5 Hz to 8.4 Hz, 3.5 mm, 8.4 Hz to 150 Hz, 1g, 10 times each in X, Y and Z directions
Shock resistance		IEC 60068-2-27 150 m/s^2, 11 ms, 3 times each in ±X, ±Y and ±Z directions, 18 times in total
Storage temperature/ humidity		• Storage temperature: -40°C to 70°C • Relative humidity: <90% RH, non-condensing
Operating temperature/humidity		Operating temperature: -20°C to 55°C Relative humidity: 10% to 90% RH, non-condensing Note: Install a fan or air conditioner in the direction of the ventilation holes when the operating temperature is greater than the maximum allowable temperature.
Installation position and limit	Installation position	The module can be mounted in one of the following four options. *"2.1 Installation Requirements" on page 16*
	Limits	Operating temperature for horizontal mounting: -20°C to +55°C
		Operating temperature for other mounting forms: -20°C to +45°C

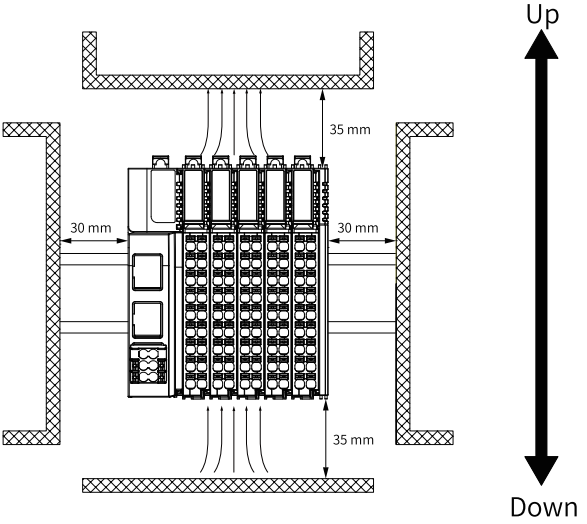
2 Mechanical Installation

2.1 Installation Requirements

The product can be mounted horizontally or vertically, on top or at the bottom of the electric cabinet. Different mounting options require different operating temperatures, see *"1.4 Environmental Specifications" on page 15*.

■ Optimal mounting option

It is recommended to install the product horizontally. To ensure normal ventilation and heat dissipation and allow sufficient wiring space, reserve enough clearance around the product, as shown in the following figure.

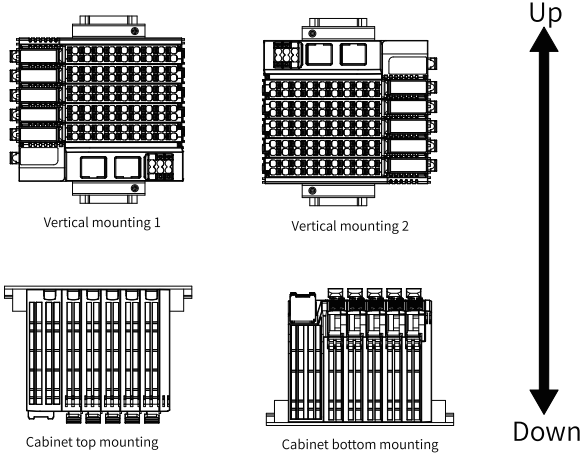


Note

If there is a high-temperature heat source (heater, transformer, large resistor, etc.) in vicinity of the product, keep the product away from the heat source by at least 100 mm.

■ Other mounting options

Other mounting options require the same clearance as the optimal mounting option and are shown in the following figure.



Vertical mounting 1

Vertical mounting 2

Cabinet top mounting

Cabinet bottom mounting

Caution

In case of vertical installation:

- If the module is mounted to the PLC, make sure the PLC is arranged below all I/O modules (see vertical mounting 1). The number of modules must not exceed 6, and the type of modules is not limited.
- Hold the cables with a cable duct to prevent the weight of cables being applied to the lower end plate, which may result loose of the product from the DIN rail.

2.2 Installation Precautions

- Before installing or removing the module, ensure that the module is powered off.

Caution

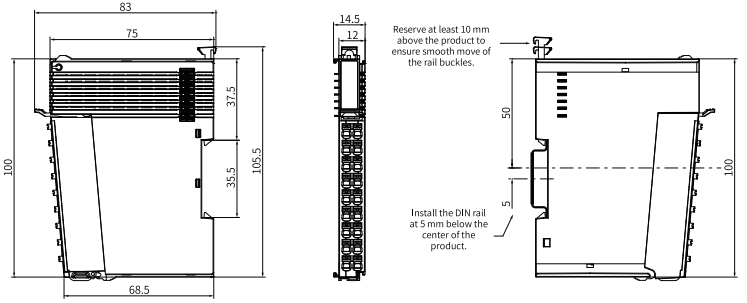
Do not hot swap the modules. Otherwise, the modules may be damaged by overcurrent or overvoltage, and the communication interface module or PLC may be subject to restart, user data loss or corruption.

- Prevent the enclosure or terminals of the module from dropping or suffering from impact or shock.

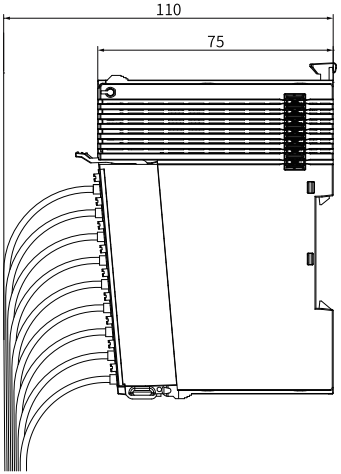
2.3 Mounting Dimensions

■ Module

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

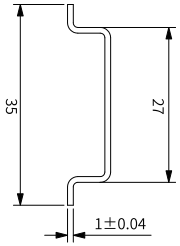


■ **Cable**



2.4 Installation Method

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

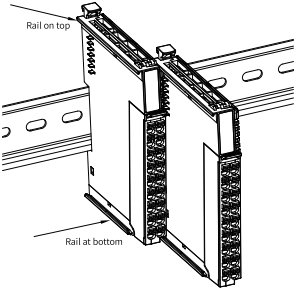


Caution

If the module is not installed on the recommended DIN rail (especially when the DIN rail thickness is not 1.0 mm), DIN rail buckles may not be locked. In this case, the module cannot be installed in place and will fail to work properly.

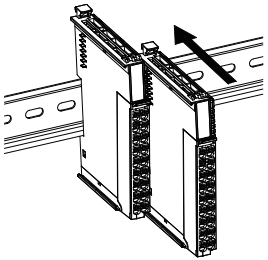
■ Installing the modules to each other

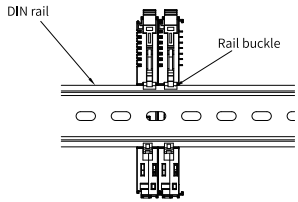
You can install multiple modules to each other with the help of top and bottom guides on the modules, as shown below.



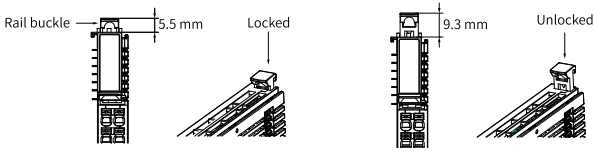
■ Installing the module onto DIN rail

1. Align the module with the DIN rail and push the module in the direction indicated by the arrow until you hear a clicking sound, as shown below.





2. Make sure the DIN rail mounting hook of the module is locked. The locked and unlocked states of the mounting hook are shown below.



- If the mounting hook is pressed down, it is locked.
- If the mounting hook is lifted up, it is unlocked.

Press down the mounting hook to lock the module to the DIN rail.

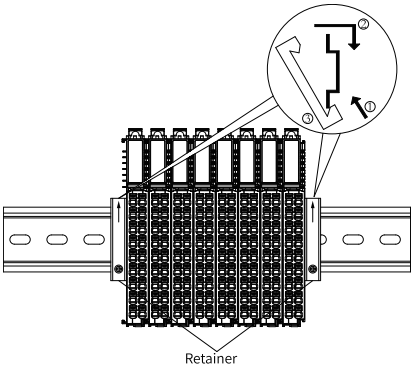
Caution

When the module is not installed on the DIN rail, keep the rail buckles in locked state. If the rail buckles remain in unlocked state for a long period of time, they will be invalidated.

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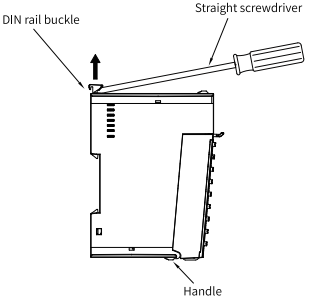
3. Mount an end plate on either side of the PLC or the module.

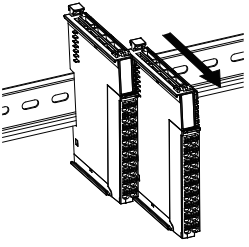
To mount the end plate, hook the bottom of it to the bottom of the DIN rail, rotate the end plate to hook the top of it to the top of the DIN rail, and then tighten the screw to lock the end plate in place.



■ Removing the module

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





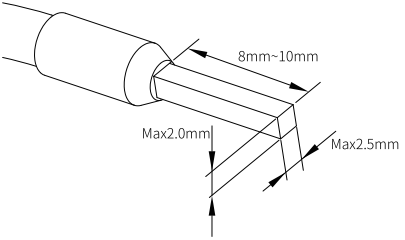
3 Electrical Installation

3.1 Cable Selection

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

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

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



3.2 Terminal Definitions



- GL20-8ADI

Left Signal	Left Terminal	Right Terminal	Right Signal
I0+	A1	B1	I0-
I1+	A2	B2	I1-
I2+	A3	B3	I2-
I3+	A4	B4	I3-
I4+	A5	B5	I4-
I5+	A6	B6	I5-
I6+	A7	B7	I6-
I7+	A8	B8	I7-
24V	A9	B9	COM

- GL20-8ADV

Left Signal	Left Terminal	Right Terminal	Right Signal
V0+	A1	B1	V0-
V1+	A2	B2	V1-
V2+	A3	B3	V2-
V3+	A4	B4	V3-
V4+	A5	B5	V4-
V5+	A6	B6	V5-
V6+	A7	B7	V6-
V7+	A8	B8	V7-
24V	A9	B9	COM

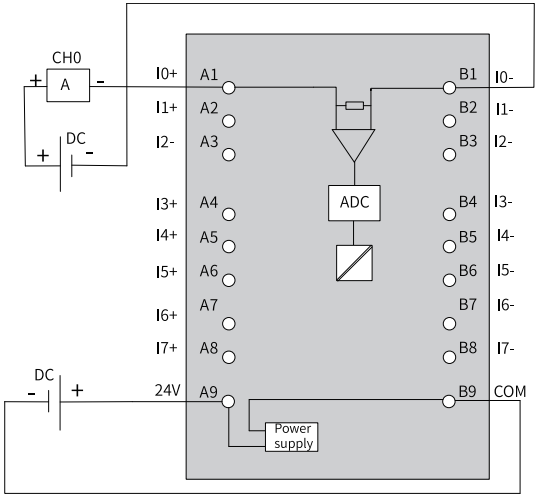
3.3 Terminal Wiring

This section describes the circuit block diagram, the wiring method (two/three/four-wire), and wiring precautions of the GL20-8ADI/8ADV analog input module. Different wiring methods can be used and combined for different channels.

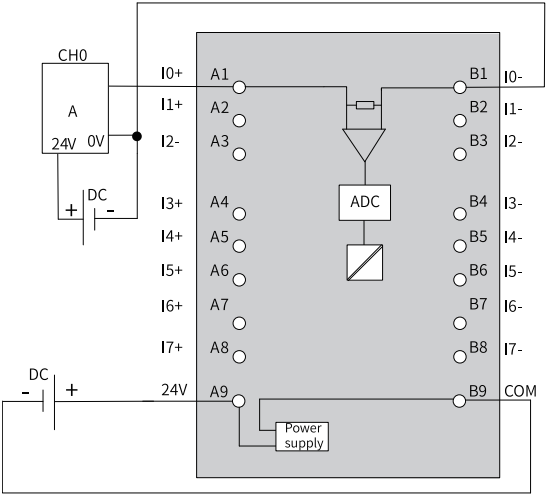
■ Circuit block diagram and wiring diagram

GL20–8ADI module

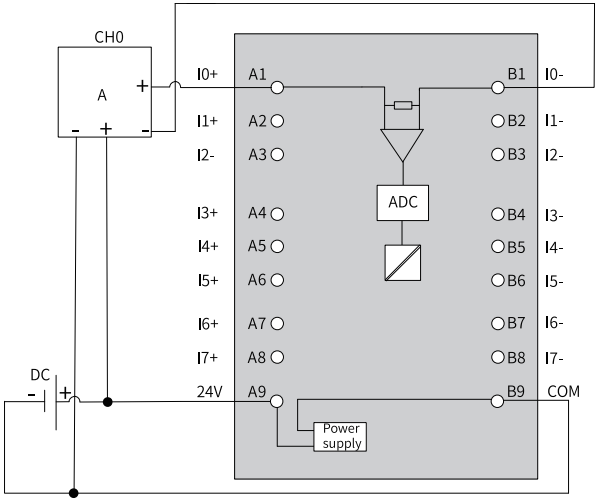
- Two-wire


CH0
A
+
-
DC
+
-
I0+
I1+
I2-
I3+
I4+
I5+
I6+
I7+
A1
A2
A3
A4
A5
A6
A7
A8
ADC
B1
B2
B3
B4
B5
B6
B7
B8
I0-
I1-
I2-
I3-
I4-
I5-
I6-
I7-
DC
-
+
24V
A9
B9
COM
Power
supply

- Three-wire

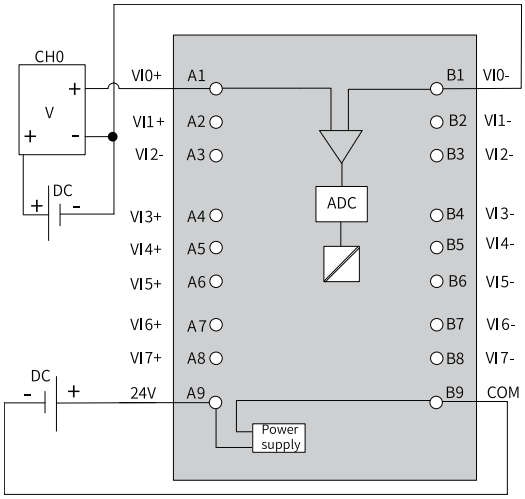

CH0
A
24V
0V
I0+
I1+
I2-
DC
+
-
I3+
I4+
I5+
I6+
I7+
A1
A2
A3
A4
A5
A6
A7
A8
ADC
B1
B2
B3
B4
B5
B6
B7
B8
I0-
I1-
I2-
I3-
I4-
I5-
I6-
I7-
DC
-
+
24V
A9
B9
COM
Power
supply

- Four-wire

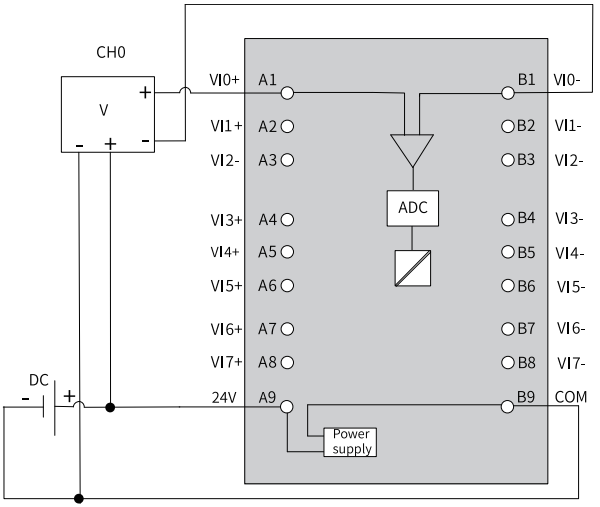


GL20–8ADV module

- Three-wire


CH0
+
V
+ -
DC
+ -
VI0+
VI1+
VI2-
VI3+
VI4+
VI5+
VI6+
VI7+
DC
- +
24V
A1
A2
A3
A4
A5
A6
A7
A8
A9
ADC
Power supply
B1
B2
B3
B4
B5
B6
B7
B8
B9
VI0-
VI1-
VI2-
VI3-
VI4-
VI5-
VI6-
VI7-
COM

- Four-wire



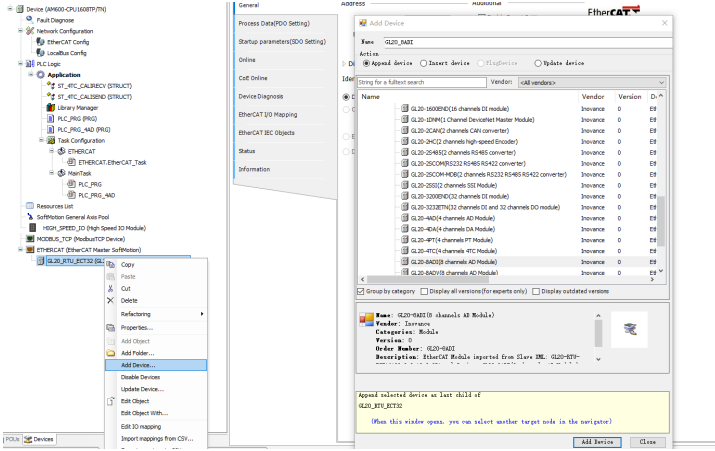
■ Wiring Precautions

- Do not bundle the extension 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.
- Select recommended cables and pinboards for connection. It is recommended that shielded cables be used as extension cables to enhance capacity of resisting interference.
- Apply single-point grounding for the shielding of shielded cable and solder sealed cable.

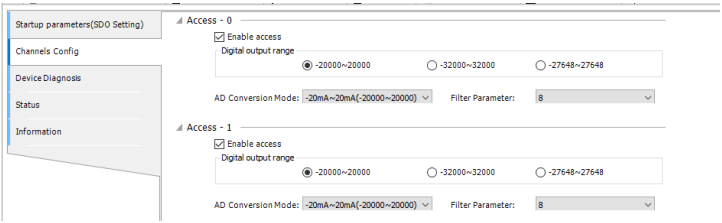
4 Programming Examples

4.1 Programming the GL20-8ADI Module

1. Right-click "GL20_RTU_ECT (GL20_RTU_ECT_2.0.8.0)", select **Add Device**, and add the GL20-8ADI module, as shown below.



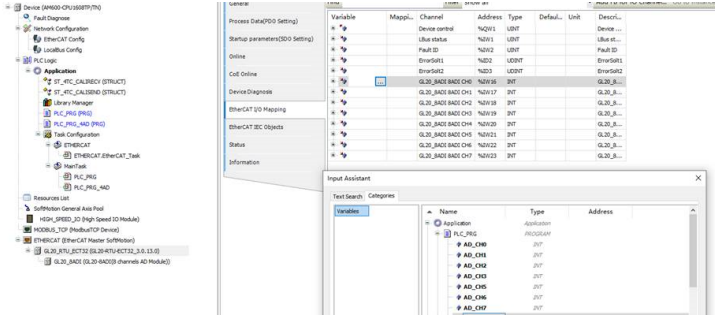
2. In the **Channels Config** interface of the GL20-8ADI module, check the "Enable access" checkbox for channel 0, and select the digital output range. Set the following parameters as per needs: AD conversion mode, filter parameter, offline sign (supported when the conversion mode is set to 1 V to 5 V), overflow sign, peak value keeping and overflow detection.



3. Define variables AD_CH0, AD_CH1, AD_CH2, AD_CH3, AD_CH4, AD_CH5, AD_CH6 and AD_CH7 with the ST programming language, as shown below.

```
PROGRAM PLC_PRG
VAR
    AD_CH0:INT;
    AD_CH1:INT;
    AD_CH2: INT;
    AD_CH3: INT;
    AD_CH4: INT;
    AD_CH5: INT;
    AD_CH6: INT;
    AD_CH7:INT;
END_VAR
```

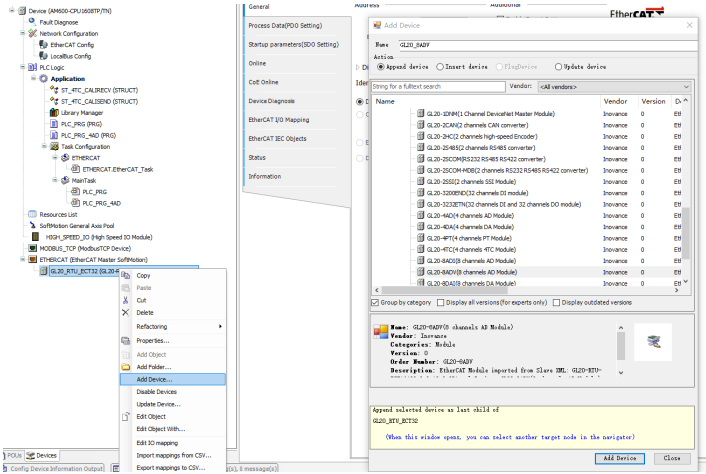
4. Map the variable AD_CH0 to channel 0 of the configured GL20-8ADI module, as shown below.



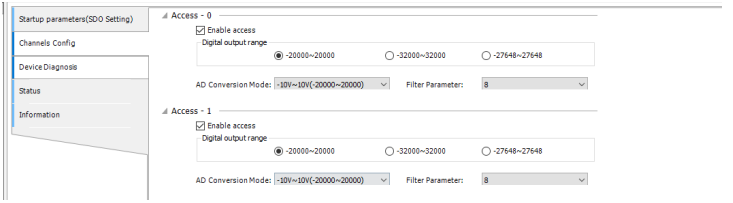
5. After successful compiling, download the project and run it.

4.2 Programming the GL20-8ADV Module

1. Right-click "GL20_RTU_ECT (GL20_RTU_ECT_2.0.8.0)", select **Add Device**, and add the GL20-8ADV module, as shown below.



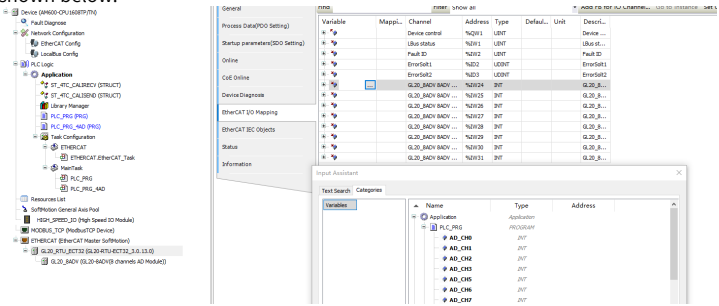
2. In the **Channels Config** interface of the GL20-8ADV module, check the "Enable access" checkbox for channel 0, and select the digital output range. Set the following parameters as per needs: AD conversion mode, filter parameter, offline sign (supported when the conversion mode is set to 1 V to 5 V), overflow sign, peak value keeping and overflow detection.



3. Define variables AD_CH0, AD_CH1, AD_CH2, AD_CH3, AD_CH4, AD_CH5, AD_CH6 and AD_CH7 with the ST programming language, as shown below.

```
PROGRAM PLC_PRG
VAR
    AD_CH0:INT;
    AD_CH1:INT;
    AD_CH2: INT;
    AD_CH3: INT;
    AD_CH4: INT;
    AD_CH5: INT;
    AD_CH6: INT;
    AD_CH7:INT;
END_VAR
```

4. Map the variable AD_CH0 to channel 0 of the configured GL20-8ADV module, as shown below.

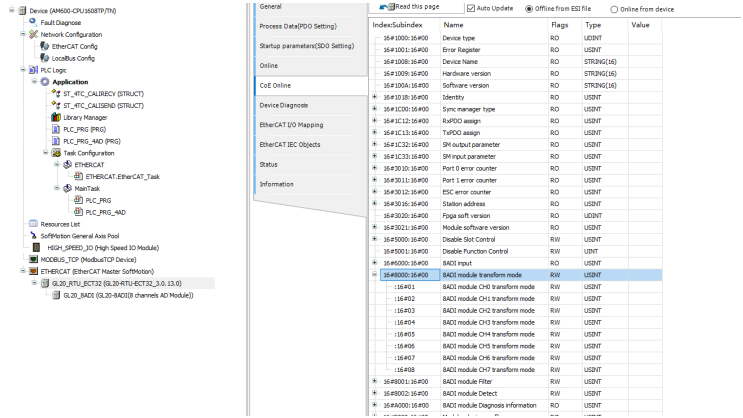


5. After successful compiling, download the project and run it.

5 Fault Diagnosis

5.1 GL20-8ADI Fault Diagnosis

When the ERR indicator of the module is ON, it indicates that the module encounters a fault. 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=0-31), the object dictionary definition for index 0xA000+0x40*n is shown in the table below.

Index	0xA000+0x40*n: 8ADI Diagnostic Information				
Sub-index	Name	Data type	Access mode	Mapping	Default
0	8ADI error code	USINT	RO	NO	9
1	8ADI module fault information	UINT	RO	NO	0
2	8ADI module channel 0 fault	UINT	RO	NO	0

Index	0xA000+0x40*n: 8ADI Diagnostic Information				
Sub-index	Name	Data type	Access mode	Mapping	Default
3	8ADI module channel 1 fault	UINT	RO	NO	0
4	8ADI module channel 2 fault	UINT	RO	NO	0
5	8ADI module channel 3 fault	UINT	RO	NO	0
6	8ADI module channel 4 fault	UINT	RO	NO	0
7	8ADI module channel 5 fault	UINT	RO	NO	0
8	8ADI module channel 6 fault	UINT	RO	NO	0
9	8ADI module channel 7 fault	UINT	RO	NO	0

■ Module fault code

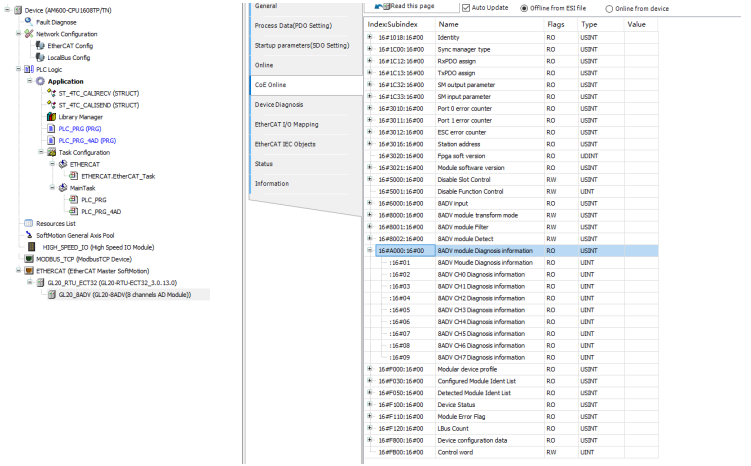
Fault Code	Fault Description	Solution
0x5003	External 24 V power failure	Check the isolated power supply of the module.
0x5004	ADC configuration data error	• Check that the external 24 V power supply voltage is stable. • Restart the module.

■ Module channel fault code

Fault Code	Fault Description	Solution	Remarks
0x6001	Channel disconnected	Check the wiring or select a proper conversion mode.	Overflow detection must be enabled. Wire break detection is supported only when the conversion mode is set to 4 mA to 20 mA.
0x6003	Channel input data exceeds upper limit	Check the size of input signal or change the conversion mode.	Overlimit detection must be enabled.
0x6004	Channel input data exceeds lower limit		
0x6005	Channel input data overflow		Overflow detection must be enabled.
0x6006	Channel input data underflow		

5.2 GL20-8ADV Fault Diagnosis

When the ERR indicator of the module is ON, it indicates that the module encounters a fault. 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=0-31), the object dictionary definition for index 0xA000+0x40*n is shown in the table below.

Index	0xA000+0x40*n: 8ADV Diagnostic Information				
Sub-index	Name	Data type	Access mode	Mapping	Default
0	8ADV error code	USINT	RO	NO	9
1	8ADV module fault information	UINT	RO	NO	0
2	8ADV module channel 0 fault	UINT	RO	NO	0
3	8ADV module channel 1 fault	UINT	RO	NO	0
4	8ADV module channel 2 fault	UINT	RO	NO	0

Index	0xA000+0x40*n: 8ADV Diagnostic Information				
Sub-index	Name	Data type	Access mode	Mapping	Default
5	8ADV module channel 3 fault	UINT	RO	NO	0
6	8ADV module channel 4 fault	UINT	RO	NO	0
7	8ADV module channel 5 fault	UINT	RO	NO	0
8	8ADV module channel 6 fault	UINT	RO	NO	0
9	8ADV module channel 7 fault	UINT	RO	NO	0

■ Module fault code

Fault Code	Fault Description	Solution
0x5003	External 24 V power failure	Check the isolated power supply of the module.
0x5004	ADC configuration data error	• Check that the external 24 V power supply voltage is stable. • Restart the module.

■ Module channel fault code

Fault Code	Fault Description	Solution	Remarks
0x6001	Channel disconnected	Check the wiring or select a proper conversion mode.	Overflow detection must be enabled. Wire break detection is supported only when the conversion mode is set to 1 V to 5 V.
0x6003	Channel input data exceeds upper limit	Check the size of input signal or change the conversion mode.	Overlimit detection must be enabled.
0x6004	Channel input data exceeds lower limit		
0x6005	Channel input data overflow		Overflow detection must be enabled.
0x6006	Channel input data underflow		

6 Appendix: Version Matching Information

You can get the firmware of module and the firmware of communication interface module from Inovance technical support, and get XML file and InoProShop from *https://www.inovance.com*. The following table describes the version matching information.

I/O Firmware Version	Coupler Firmware Version	XML/GSD File Version	InoProShop Version
Board software: 1.20.1 and later Logic software: 0.20.1 and later	GL20-RTU-ECT: board software 2.4.12.0 and later GL20-RTU-PN: Board software 2.2.0.0 and above GL20-RTU-EIP: Board software 1.1.6.0 and above	GL20-RTU-ECT: 3.0.11.0 and later GL20-RTU-PN: 20230523 and later GL20-RTU-EIP: V00.01 and later	V1.7.3 SP5 and later