SmartModule1000A01
Quick Guide

HUAWEI TECHNOLOGIES CO., LTD.

1 Overview

IL04W00007

(1) LED indicators (RUN, ALM)
(2) Mounting ear
(3) Guide rail clamp
(4) COM ports (COM1, COM2, COM3)
(5) DI ports (DI)
(6) 12 V output power port (12V/GND)
(7) AI ports (AI)
(8) Potential transformer (PT) ports (PT1, PT2)
(9) Protective ground point
(10) 12 V input power port (DC IN 12V, 1A)
(11) 24 V input power port (DC IN 24V, 0.8A)
(12) GE ports (GE1, GE2, GE3, GE4)
(13) RST button (RST)

2 Installation Requirements

Dimensions

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Space

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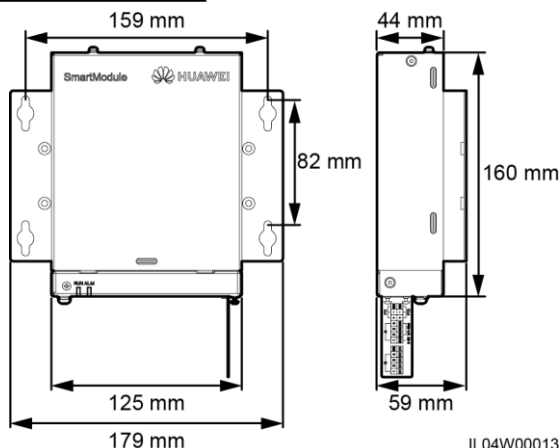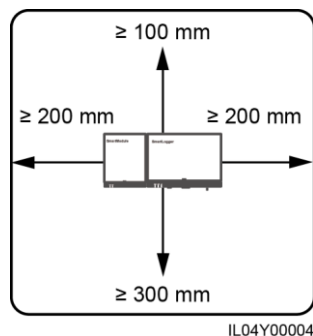
3 Device Installation

Wall-Mounted Installation

NOTICE

- Install the SmartLogger and SmartModule on a flat and secure interior wall.
- When wall-mounting the SmartLogger and SmartModule, ensure that the cable connection area faces downward for ease of cable connection and maintenance.
- You are advised to use the delivered tapping screws and expansion tubes.

1. Connect the SmartLogger to the SmartModule using a connecting plate.

NOTE

If the SmartLogger and SmartModule have been combined before delivery, skip this step.

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2. Install the SmartLogger and SmartModule.

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📖 NOTE

- Before installation, prepare a standard 35 mm guide rail and secure it.
- The recommended effective length of the guide rail is 360 mm or greater.
- Ensure that the SIM card slot on the SmartLogger is not blocked.
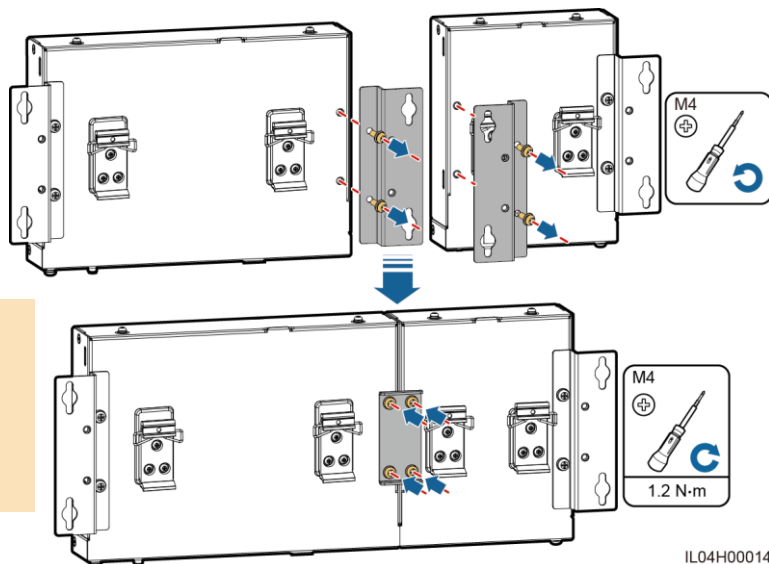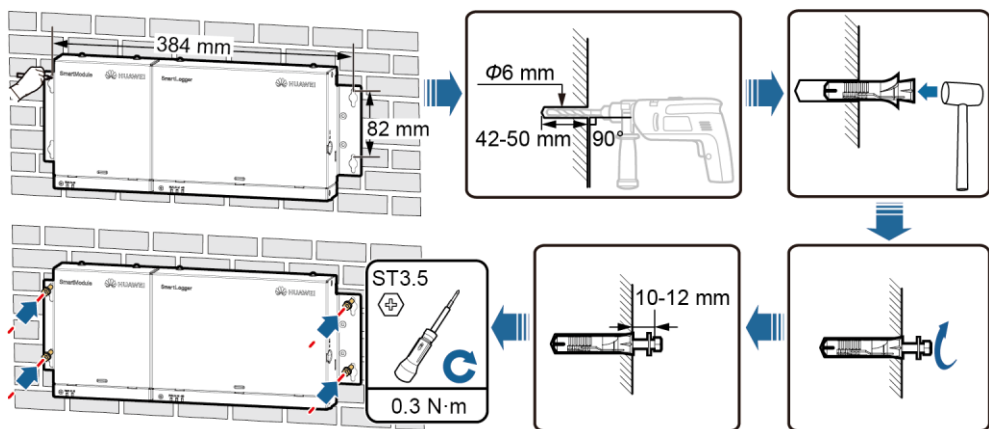
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Guide Rail-Mounted Installation (Combined)

📖 **NOTE**

- Before installation, prepare a standard 35 mm guide rail and secure it.
- The recommended effective length of the guide rail is 360 mm or greater.
- Ensure that the SIM card slot on the SmartLogger is not blocked.
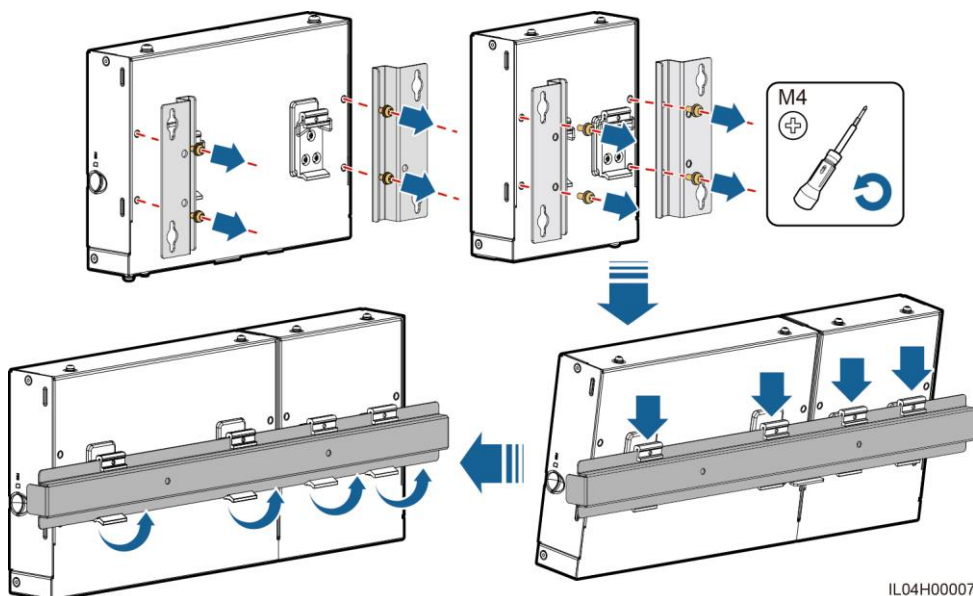
1. Connect the SmartLogger to the SmartModule using a connecting plate.
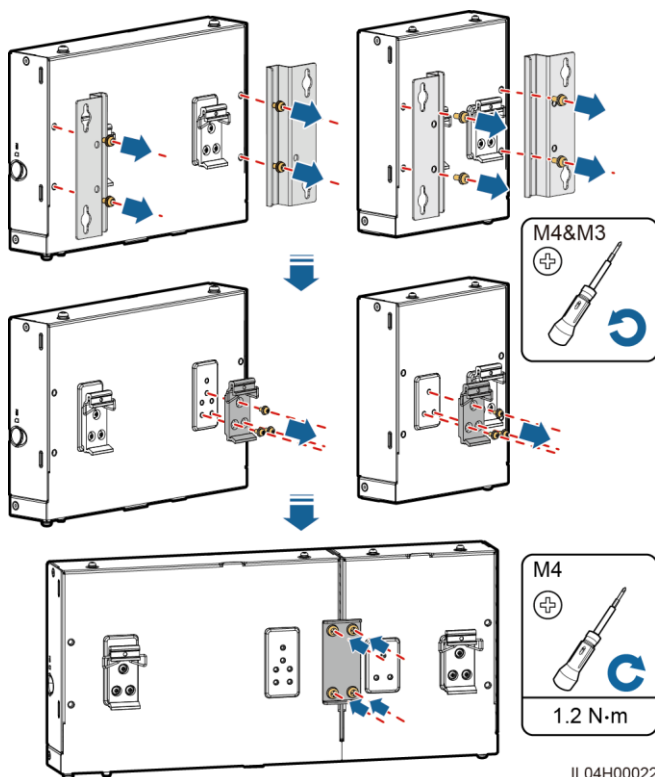
📖 **NOTE**

If the SmartLogger and SmartModule have been combined before delivery, you only need to remove the mounting ears and guide rail clamps in the middle. You do not need to use a connecting plate to connect the SmartLogger and SmartModule.

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M4

1.2 N·m

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2. Install the SmartLogger and SmartModule.

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4 Electrical Connections

4.1 Preparing Cables

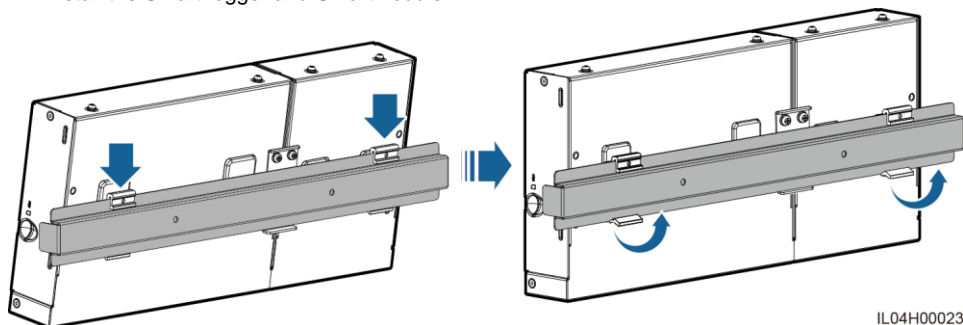| Type	Recommended Specifications
Protective earthing (PE) cable	Outdoor copper cable with a cross-sectional area of 4–6 mm^2 or 12–10 AWG
Ethernet cable	Delivered with the SmartModule
12 V input power cable	Delivered with the SmartModule
RS485 communications cable	Two-core or multi-core cable with a cross-sectional area of 0.2–2.5 mm^2 or 24–14 AWG
DI signal cable	Two-core or multi-core cable with a cross-sectional area of 0.2–1.5 mm^2 or 24–16 AWG
Output power cable	
AI signal cable	
PT signal cable	For details about the cables and cable connection operations, see the documents delivered with the PT100/PT1000.
(Optional) 24 V input power cable	Two-core cable with a cross-sectional area of 0.2–1.5 mm^2 or 24–16 AWG

4.2 Connecting the PE Cable

📖 **NOTE**

- To enhance the corrosion resistance of the ground terminal, you are advised to apply silica gel or paint on it after connecting the ground cable.
- If the SmartLogger is connected to the SmartModule over a connecting plate, connect a PE cable to the ground point of the SmartLogger or SmartModule based on site requirements.
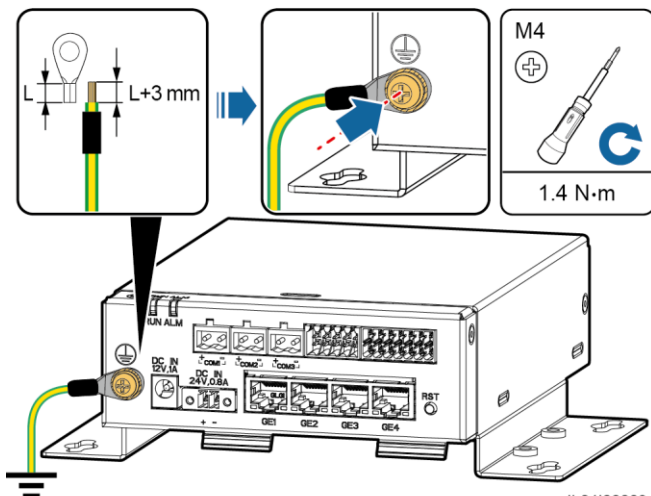
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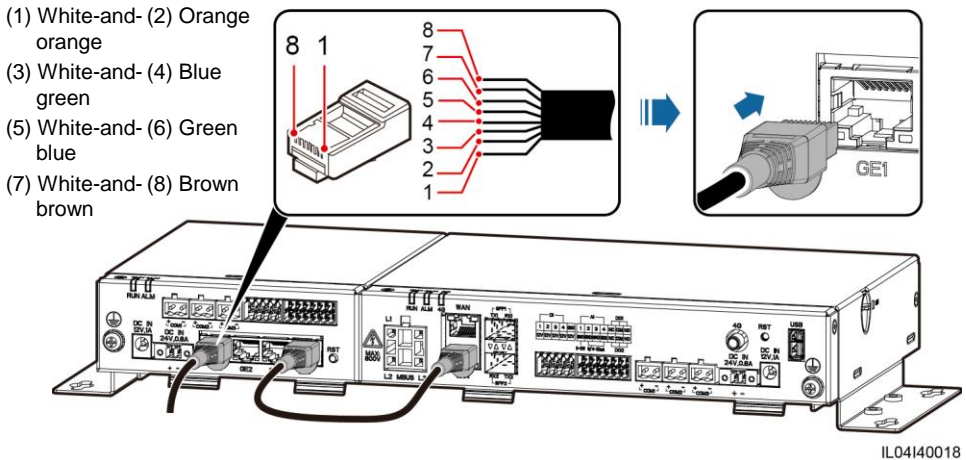## 4.3 Connecting the Ethernet Cable

- The SmartModule can be connected to the SmartLogger and a PC over the GE port.
- Connect the LAN port on the SmartLogger to one GE port on the SmartModule using an Ethernet cable.
- If the delivered network cable is too short, you are advised to prepare a network cable of Cat 5e or higher specifications and shielded RJ45 connectors. It is recommended that the cable length be less than or equal to 100 m. When crimping the network cable, ensure that the shielding layer of the cable is securely connected to the metal shell of the RJ45 connectors.

(1) White-and-orange
(2) Orange
(3) White-and-green
(4) Blue
(5) White-and-blue
(6) Green
(7) White-and-brown
(8) Brown

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4.4 Connecting the 12 V Input Power Cable

The SmartLogger connects to the power supply over the 12 V input power port, and the 24 V input power port of the SmartLogger functions as the 12 V output power port to supply power to the SmartModule.

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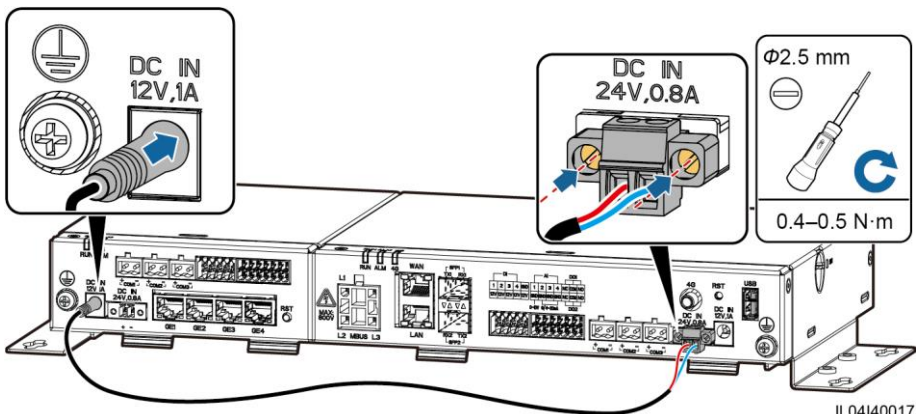
4.5 Connecting the RS485 Communications Cable

📖 **NOTE**

- It is recommended that the RS485 communication distance be less than or equal to 1000 m.
- The SmartModule can connect to RS485 communications devices, such as a solar inverter, an environmental monitoring instrument (EMI), and a power meter over the COM port.
- Ensure that the RS485+ and RS485– terminals are respectively connected to the COM+ and COM– ports on the SmartModule.
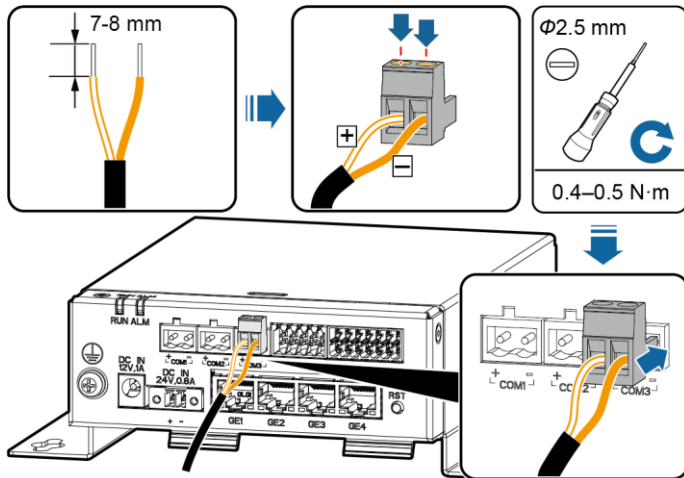
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Port	Identifier	Description
COM1, COM2, COM3	+	RS485A, RS485 differential signal+
	–	RS485B, RS485 differential signal–

Cascading Connection

NOTICE

- You are advised to connect fewer than 30 devices to each RS485 route.
- The baud rate, communications protocol, and parity mode of all devices on the RS485 cascading link must be the same as those of the COM ports on the SmartModule.
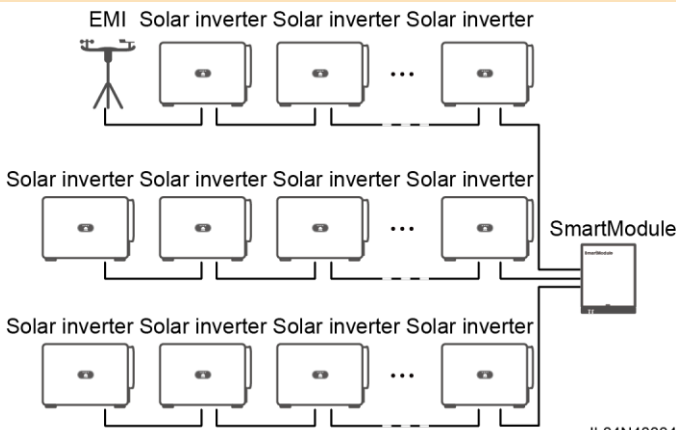

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4.6 Connecting the DI Signal Cable

- The SmartModule can receive DI signals such as remote power grid scheduling commands and alarms over DI ports. It can only receive passive dry contact signals.
- It is recommended that the signal transmission distance be less than or equal to 10 m.

Port	Description
DI1	
DI2	Can receive passive dry contact signals.
DI3	
DI4	

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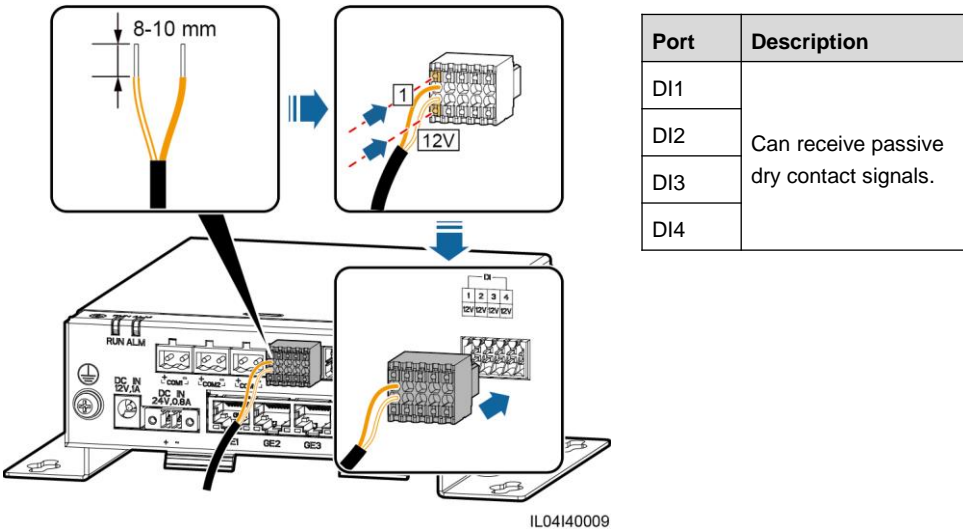
4.7 Connecting the Output Power Cable

- In the grid connection with limited power or audible and visual alarm scenarios, the SmartModule can drive the coils of the intermediate relay over the 12 V output power port.
- It is recommended that the transmission distance be less than or equal to 10 m.

Intermediate relay

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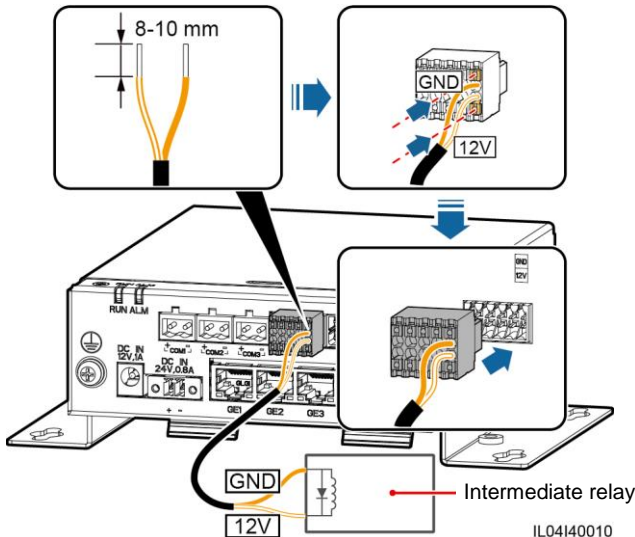
4.8 Connecting the AI Signal Cable
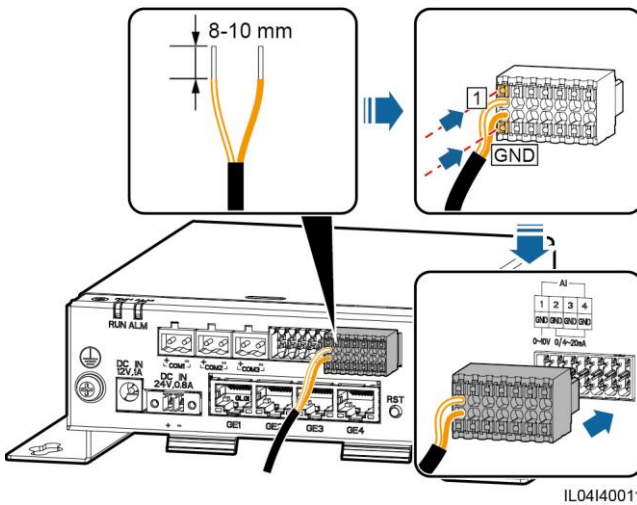
Port	Description
AI1	Supports 0–10 V input voltage.
AI2	Supports 4–20 mA or 0–20 mA input current.
AI3	
AI4	

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4.9 Connecting the PT Signal Cable

Three-Wire System

PT100/PT1000 temperature sensor

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When the PT ports need to be connected to a two-wire PT100/PT1000, use a short-circuit cable to short-circuit GND and – of the ports.
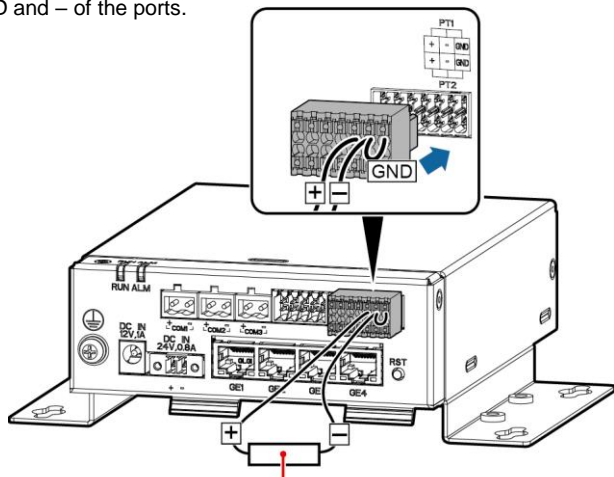
PT100/PT1000 temperature sensor   IL04I40014

4.10 Connecting the 24 V Input Power Cable

The 24 V input power cable needs to be connected in the following scenarios:
- The 24 V DC power supply is used.
- The SmartModule connects to the power supply over the 12 V input power port, and the 24 V input power port functions as the 12 V output power port to supply power to a device.

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5 Check Before Power-On

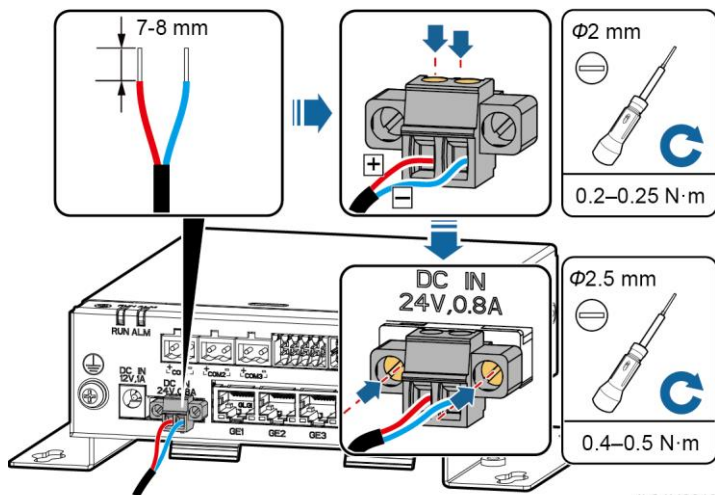| No.	Criterion
1	The SmartModule is installed correctly and securely.
2	All cables are securely connected.
3	Routing of the power cable and signal cable meets the requirements for routing strong-current and weak-current cables and complies with the cable routing plan.
4	Cables are bound neatly, and cable ties are secured evenly and properly in the same direction.
5	There is no unnecessary adhesive tape or cable tie on cables.

6 Powering On the System

1. Connect the power supply.
   - Method 1: When the 24 V input power port of the SmartLogger functions as the 12 V output power port to supply power to the SmartModule, connect the power supply to the 12 V input power port of the SmartLogger.
   - Method 2: When a DC power supply is used, check that the cable between the DC power supply and the SmartModule is connected properly, and turn on the upstream power switch of the DC power supply.

Indicator	Status		Meaning
Running indicator (RUN)	Green off		The SmartModule is not powered on
	Blinking green slowly (on for 1s and then off for 1s)		The communication with the SmartLogger is normal.
	Blinking green fast (on for 0.125s and then off for 0.125s)		The communication with the SmartLogger is interrupted.
Alarm/maintenance indicator (ALM)	Alarm status	Red off	No alarm is raised for the SmartModule.
		Blinking red slowly (on for 1s and then off for 4s)	The SmartModule enters the mode of ignoring digital certificate expiration.
		Blinking red fast (on for 0.5s and then off for 0.5s)	The SmartModule digital certificate is invalid.

7 FAQ

7.1 The SmartModule Cannot Be Powered On

1. Check whether the DC output cable between the 24 V input power port on the SmartLogger and the 12 V input power port on the SmartModule is properly connected.
2. Check whether the SmartLogger is powered on properly.

7.2 RST Button

Operation	Function
Hold down the button for 3s to 10s.	If the **Communication using expired certificate** function is disabled for the SmartLogger and the digital certificate of the SmartModule becomes invalid, after enabling the function, press the RST button for 3s to 10s to enable the SmartModule to enter the mode of ignoring digital certificate expiration and restore the communication with the SmartLogger. The alarm/maintenance indicator (ALM) blinks red slowly. After the digital certificate of the SmartModule is reloaded through the SmartLogger, the SmartModule communication can recover.
Hold down the button for more than 60s.	Within 3 minutes after the SmartModule is powered on after power-off, hold down the RST button for more than 60s to restart the SmartModule and restore factory settings.

7.3 Replacing the SmartLogger2000 with the SmartLogger3000

For details, see *Quick Guide to Replacing the SmartLogger2000 with the SmartLogger3000*. You can scan the QR code below to obtain the document.

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