SUNGROW
Clean power for all

User Manual

Data Logger

Logger1000A-EU



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About This Manual

The manual mainly contains the product information, as well as guidelines for installation, operation and maintenance. Readers can get additional information at **www.sungrowpower.com** or on the webpage of the respective component manufacturer.

Validity

This manual is valid for the following models:

- Logger1000A-EU

It is referred to as "Logger1000" hereinafter unless otherwise specified.

Target Group

This manual is intended for qualified technicians who are responsible for installation, operation, and maintenance of the product, and users who need to check inverter parameters.

The product must only be installed by qualified technicians. The qualified technical technician must:

- Have electronic, electrical wiring, and mechanical expertise, and be familiar with electrical and mechanical schematics.
- Have received professional training related to the installation and commissioning of electrical equipment.
- Be able to respond quickly and effectively to dangers or emergencies that may occur during installation and commissioning.
- Be familiar with local standards and relevant safety regulations of electrical systems.
- Read this manual thoroughly and understand the safety instructions related to operations.

How to Use This Manual

Read through this manual carefully before using the product, and keep it properly in an easy-to-reach place.

The information in this manual is subject to ongoing updates and revisions. Although efforts have been made to ensure accuracy, there might be slight variations or errors compared to the actual product. Please refer to the actual product purchased, and the latest manual can be obtained from **support.sungrowpower.com** or sales channels.

Security Declaration

For details on the product's network security vulnerability response process and vulnerability disclosure, please visit the following website:

https://en.sungrowpower.com/security-vulnerability-management

Symbols

This manual contains important safety instructions, which are highlighted with the following symbols, to ensure personal and property safety during usage, or to help optimize the product performance in an efficient way.

Symbols used in this manual are listed below. Please review carefully for better use of this manual.

⚠ DANGER

Indicates high-risk potential hazards that, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates moderate-risk potential hazards that, if not avoided, may lead to death or serious injury.

⚠ CAUTION

Indicates a slightly hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Indicates potential risks that, if not avoided, may lead to device malfunction or financial losses.

"NOTE" indicates additional information, important content, or helpful tips that may solve problems or save time.

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1 Safety Instructions

When installing, commissioning, operating, and maintaining the product, strictly observe relevant safety instructions. Improper use or misoperation may result in:

- Injury or death to the operator or a third party.
- Damage to the product or the property of the operator or a third party.

Strictly follow the safety instructions stated in the manual to avoid the hazards mentioned above.

⚠ WARNING

Do not perform any operation on the product (including but not limited to, handling, installing, powering on, and maintaining the product, performing electrical connection, and working at heights) in harsh weather conditions, such as thunder and lightning, rain, snow, and Level 6 or stronger winds. SUNGROW shall not be held liable for any damage to the device due to force majeure, such as earthquakes, floods, volcanic eruptions, mudslides, lightning strikes, fires, wars, armed conflicts, typhoons, hurricanes, tornadoes, and other extreme weathers.

In case of fire, evacuate from the building or product area and call the fire alarm. Re-entry into the burning area is strictly prohibited under any circumstances.

Tighten the screws to the specified torque using tools when fastening the product and terminals. Otherwise, the product may be damaged. And the damage caused is not covered by the warranty.

Learn how to use tools correctly before using them to avoid hurting people or damaging the device.

NOTICE

Maintain the device with sufficient knowledge of this manual and use proper tools.

- The safety instructions in this manual are only supplements and cannot cover all the precautions that should be followed. Perform operations considering actual on-site conditions.
- SUNGROW shall not be held liable for any damage caused by violation of general safety operation requirements, general safety standards, or any safety instruction in this manual.
- When installing, operating, and maintaining the device, comply with local laws and regulations. The safety precautions in this manual are only supplements to local laws and regulations.
- During the product transport, installation, wiring, maintenance, etc., the materials and tools prepared by users must meet the requirements of applicable local laws and regulations, safety standards, and other specifications. SUNGROW shall not be held liable for any damage to the product caused by the adoption of materials and tools that fail to meet the above-mentioned requirements.
- Operations on the product, including but not limited to, handling, installing, wiring, powering on, maintenance, and use of the product, must not be performed by unqualified personnel. SUNGROW shall not be held liable for any damage to the product resulting from operations done by unqualified personnel.
- Where the transport of the product is arranged by users, SUNGROW shall not be held liable for any damage to the product that is caused by users themselves or the third-party transport service providers designated by the users.
- SUNGROW shall not be held liable for any damage to the product caused by the negligence, intent, fault, improper operation, and other behaviors of users or third-party organizations.
- SUNGROW shall not be held liable for any damage to the product arising from reasons unrelated to SUNGROW.

1.1 Unpacking and Inspection

WARNING

Check all safety signs, warning labels, and nameplates on devices.

The safety signs, warning labels and nameplates must be clearly visible and cannot be removed or covered before the device is decommissioned.

NOTICE

After receiving the product, check whether the appearance and structural parts of the device are damaged, and check whether the packing list is consistent with the actual ordered product. If there are problems with the above inspection items, do not install the device and contact the distributor first. If the problem persists, contact SUNGROW in time.

1.2 Installation Safety

DANGER

Make sure there is no electrical connection before installation.

Make sure to avoid the water and electricity wiring in the wall before drilling.

CAUTION

Improper installation may cause personal injury!

- **When handling the product, be aware of the product weight and keep the balance to prevent it from tilting or falling.**

NOTICE

Before operating the product, please check and ensure that tools to be used have been maintained regularly.

1.3 Electrical Connection Safety

DANGER

Before electrical connections, please make sure that the product is not damaged. Otherwise, it may cause danger!

Before electrical connections, please make sure that the product switch and all switches connected to the product are set to "OFF", otherwise electric shock may occur!

DANGER

- **Be sure to use special insulation tools during cable connections.**
- **Note and observe the warning labels on the product, and perform operations strictly following the safety instructions.**
- **Respect all safety precautions listed in this manual and other pertinent documents.**

WARNING

Damage to the product caused by incorrect wiring is not covered by the warranty.

- **Electrical connection must be performed by qualified personnels.**
- **Check the power cord and confirm that the identifier is correct before connecting it.**
- **All cables used shall comply with the requirements of local laws and regulations, and must be firmly attached, properly insulated, and adequately dimensioned.**

NOTICE

Comply with the regulations related to the local grid during wiring.

1.4 Operation Safety

DANGER

- **When the product is running, do not touch its enclosure.**
- **When the product is running, do not touch any wiring terminal of the product. Otherwise, electric shock may occur.**
- **When the product is running, do not dismantle any components of the product. Otherwise, electric shock may occur.**

1.5 Maintenance Safety

DANGER

Unauthorized modification or use of parts not sold or recommended by SUNGROW may result in fires and electric shocks.

⚠ CAUTION

To prevent misuse or accidents caused by unrelated personnel. Post prominent warning signs or demarcate safety warning areas around the product to prevent accidents caused by misuse.

NOTICE

- **To avoid the risk of electric shock, do not perform any other maintenance operations beyond this manual. If necessary, contact SUNGROW for maintenance. Otherwise, the losses caused are not covered by the warranty.**
- **If a fault occurs, only re-power the device after the fault is cleared. Otherwise, the fault may expand, and the device may be damaged.**

1.6 Disposal Safety

⚠ WARNING

Please scrap the product in accordance with relevant local regulations and standards to avoid property losses or casualties.

2 Product Description

2.1 Function Introduction

The Logger1000 is a device used for data collection, power control, and protocol conversion for inverters and other PV equipment in the PV plant. The device is also integrated with communication gateway and plant O&M function.

The Logger1000 features flexible networking, auxiliary maintenance, and easy operation.

2.2 Performance Features

Flexible Networking

- Support RS485, 4G, WLAN, and Ethernet communication.
- Support the collection of data from various environment sensors, Smart Energy Meters, Meteo Stations, inverters, and other equipment.

Auxiliary Maintenance

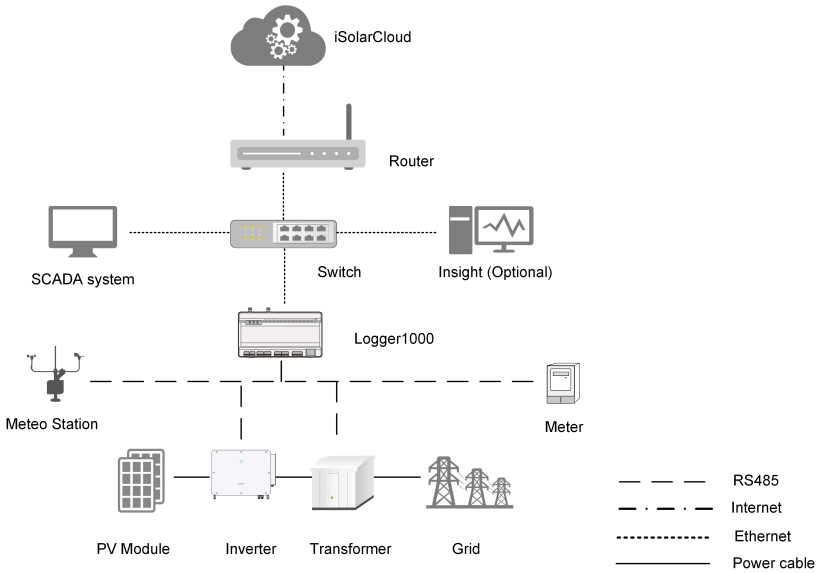
- Support batch inverter parameter setting and software upgrading.
- Support remote desktop, which reduces maintenance costs.
- Support transmitting grid control commands and power factor control.
- Support local real-time monitoring, without the need for an internet connection.

Easy Operation

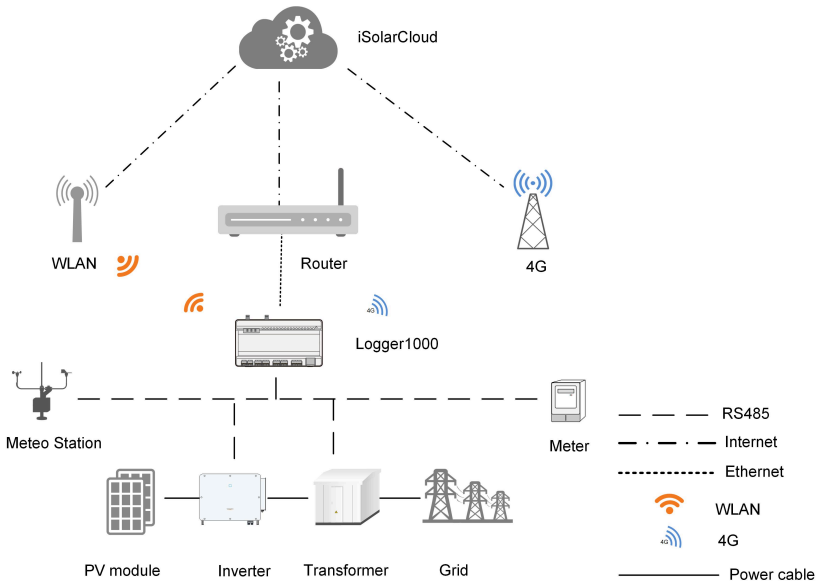
- Support automatic search and allocation of inverter addresses.
- Include a web-based interface that allows for easy access from mobile phones without the need to download a separate App.

2.3 Networking Application

The Logger1000 can be connected to iSolarCloud via an Ethernet switch.



The Logger1000 can be connected to iSolarCloud via the router or connected to the iSolarCloud via the WLAN or 4G network.

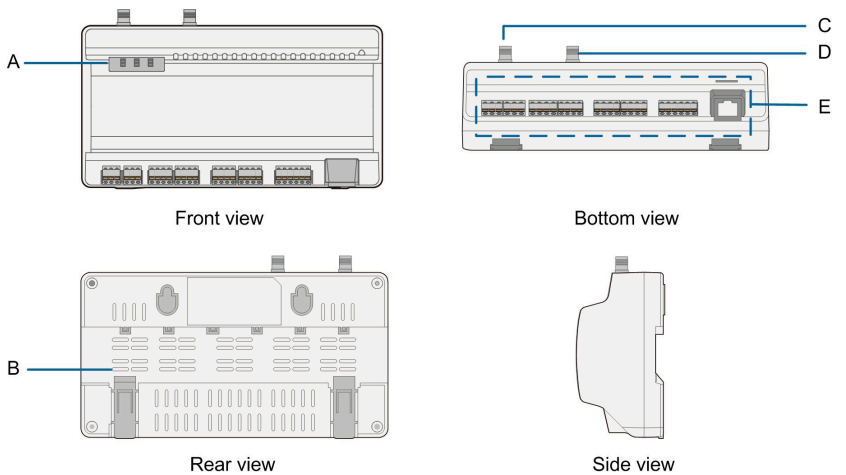


- The Logger1000 offers support for multiple communication methods, including WLAN and 4G networks.
- The Data Logger can be connected to various environmental sensors, Smart Energy Meters, Meteo Stations, and inverters in the PV power generation system using an RS485 bus.

- Users can access the web interface using a mobile phone or PC. Through the interface, they can configure parameters and perform remote online upgrades.
- The Data Logger can send data to iSolarCloud and forward commands to other devices connected to it.
- Support grid dispatching, including active power control and reactive power regulation.

2.4 Product Introduction

Appearance



Item	Name	Description
A	Indicators	Indicates the running state of the Logger1000
B	Vent	-
C	WLAN antenna mounting hole	-
D	4G antenna mounting hole	-
E	Wiring area	See 5.2 Port Introduction

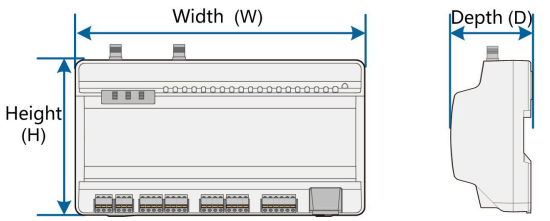
Indicators

Indicator (print)	LED color	LED status	Description
Running indicator (RUN)	Red/green	Off	No external power supply connected
		Slow flash (Green)	Normal operation
		Slow flash (Red)	Device alarm

Indicator (print)	LED color	LED status	Description
		Steady on (Red)	There is a fault with Logger1000
4G indicator (4G)	Blue	Off	No data communication
		Steady on (Red)	4G connected
		Slow flash	Data communication in progress
WLAN indicator (WLAN)	Blue	Off	No data communication
		Steady on (Red)	WLAN connected
		Slow flash	Data communication in progress

- Slow flash means that the indicator flashes once every second.
- When the communication indicator on the Logger1000A is slowly flashing, it indicates that data communication is in progress. If there is no data communication with iSolarCloud for 10 seconds, the indicator will remain steady.

Dimensions



Width (W)	Height (H)	Depth (D)
200mm	110mm	60mm

3 Unpacking and Storage

3.1 Scope of Delivery

Check the scope of delivery to ensure that all items listed on the packing list are included. The delivery should include the following items:

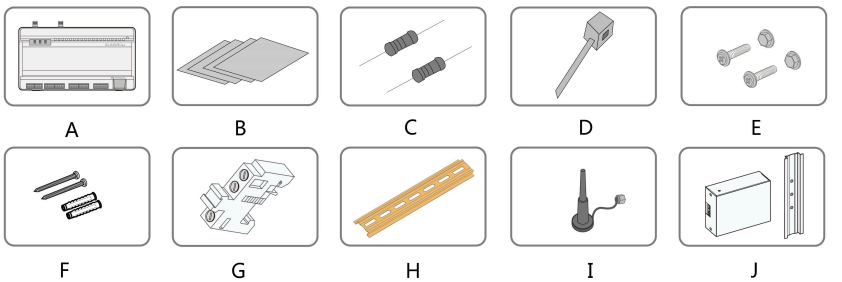
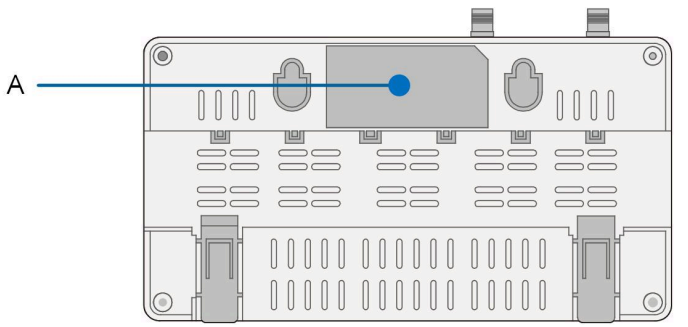


figure 3-1 Scope of delivery

Item	Name	Description
A	Data Logger	Logger1000
B	Documents	Quick Installation Guide, quality certificate, packing list, product test report, and warranty card
C	Communication terminal resistor	6x120Ω (Note: if there are more than 15 devices connected on the RS485 bus, it is recommended to connect a 120Ω terminal resistor in parallel on the A and B lines at the head or tail end of the bus)
D	Nylon cable tie	Used to tie cables
E	Fastener assembly	4 sets, M4x16, used for wall-mounting to secure the device on the metal surface
F	Expansion bolt	4 sets, ST4.8x19, used for wall-mounting to secure the device on the concrete wall
G	Terminal fastener	2 sets, E/UK-1201442, used for secure the Data Logger on the guide rail
H	Guide rail	Length: 240mm
I	WLAN antenna 4G antenna	Length: 2m
J	Power box	Converts the AC current into DC current. Length of supporting guide rail: 170mm

3.2 Identifying the Data Logger

The model and important technical parameters of the Data Logger can be found on the nameplate. The model and important technical parameters of the Data Logger can be found on the nameplate.



WARNING

The nameplate contains important parameters, which must be kept visible and free of stains and damage.

3.3 Checking upon Receiving

The product is thoroughly inspected and packed before delivery. However, it is possible for damage to occur during transport. Check the following items carefully once receiving the product:

- Check if the packing list matches the items included in the delivery. See 3.1 Scope of Delivery.
- Confirm that the received model is the same as the purchased one.
- Check the device thoroughly and ensure there are no visible damages.

If there are any problems, contact SUNGROW or the forwarding company.

WARNING

Proceed with installation and commissioning only if the product is intact without signs of damage! Before installation, ensure that:

- **The product is intact without any damages.**
- **Related documents, such as quick installation guide, are enclosed.**

3.4 Storage

If the Data Logger is not installed immediately after receiving, observe the following requirements to store it properly.

- Store the Data Logger in its original packing case in a well-ventilated, dry, and clean indoor environment.
- Ensure that the storage carrier can carry the weight of the Data Logger with the package.
- Ensure the device is kept in a well-ventilated and moisture-proof place, without accumulation of water.
- Ambient temperature: -40℃~+70°C. Relative humidity: 0-95%, no condensation.
- Take precautions to protect the device against damage due to harsh environment such as sudden temperature changes or collision.
- Conduct regular inspection, preferably at least once a week. Check whether the packaging is intact and prevent any damage that may be caused by pests and animals. Replace the packaging immediately if it is damaged.
- If the storage period exceeds six months, open the packaging to inspect the equipment and conduct power-on testing.

WARNING

- **Do not store the equipment without packaging!**
- **Do not store the equipment outdoors or under direct sunlight.**
- **No tilting or stacking!**

After long-time storage, thoroughly check the Data Logger and ensure it is undamaged before installation. If necessary, install the Data Logger only after it has been tested by qualified personnel.

4 Mechanical Installation

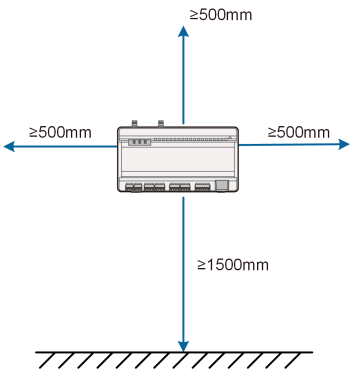
4.1 Installation Location Selection

Environment Requirements

- The Data Logger has an IP20 protection rating and should only be installed indoors.
- Ambient temperature: –30°C to +60°C. Ambient relative humidity: 0% to 95% (no condensation). Excessive humidity may cause damage to internal components.
- Pay attention to moisture prevention and ensure that the installation environment is free from flammable, explosive, and chemically corrosive substances.

Clearance Requirements

- Before installing the Data Logger, ensure that there is sufficient space around the installation location.
- Ensure that the Data Logger is oriented correctly, with the wiring terminals positioned at the bottom. This helps prevent dust, particles, and other airborne substances from entering the equipment over time, which could potentially impact its service life.
- Keep the Data Logger at least 1,500mm above the ground surface. Reserve a clearance of at least 500mm for convenient maintenance and servicing. The following figure shows the required minimum spacing.



NOTICE

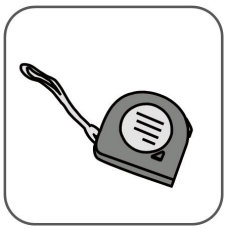
When connecting outdoor equipment, such as a Meteo Station, to the Data Logger, install a Surge Protection Device (SPD) to protect the communication system. Choose the right SPD based on the site conditions and requirements.

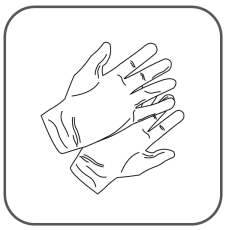
4.2 Installation Tools

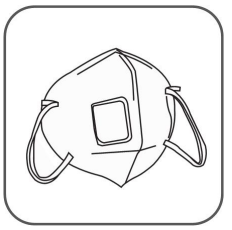
Installation tools include, but are not limited to, the following recommended ones. If necessary, use other auxiliary tools on site.


Utility knife


Marker

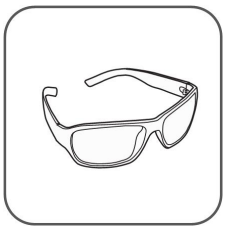

Measuring tape


Protective gloves


Dust mask


Safety footwear

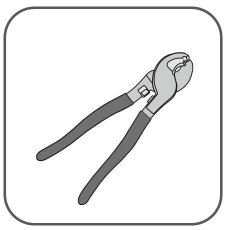

Vacuum cleaner

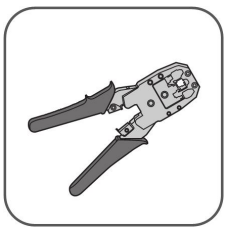

Goggles

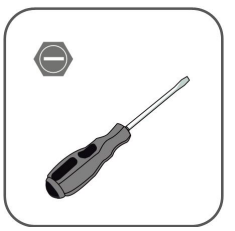

Hammer drill


Electric screwdriver

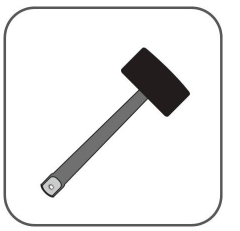

Wire stripper


Wire cutter


Wire crimping tool


Slotted screwdriver


Phillips screwdriver


Rubber mallet

4.3 Mounting the Data Logger

The Data Logger can be installed either by wall-mounting or by using a guide rail, depending on user preference.

4.3.1 Wall-Mounted Installation

Mount the Data Logger onto the concrete wall or metal surface according to onsite conditions.

For wall-mounted installation, the Data Logger is secured in place using wall-mounting holes.

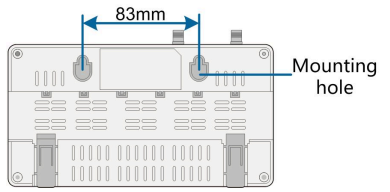
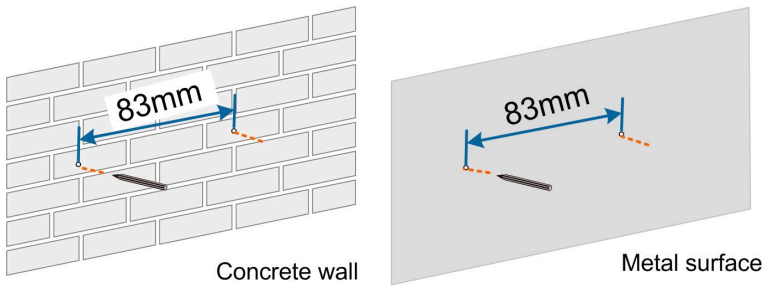


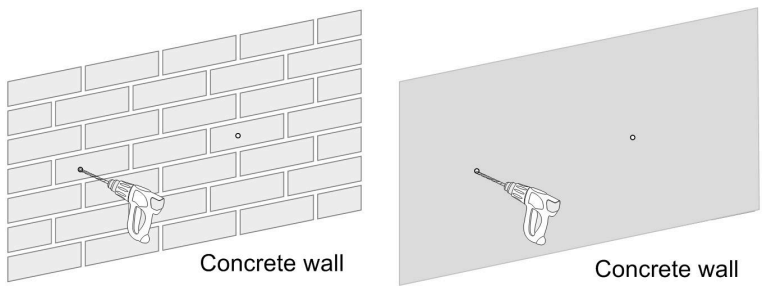
figure 4-1 Wall-mounting hole dimension

step 1 Select an appropriate installation surface.

step 2 Mark positions for drilling holes with a marker.



step 3 Drill the holes with a drill according to the marked positions.



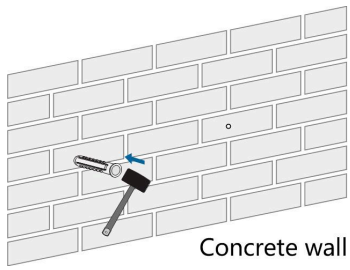
DANGER

Avoid drilling holes in the utility pipes and/or cables attached to back of the wall!

NOTICE

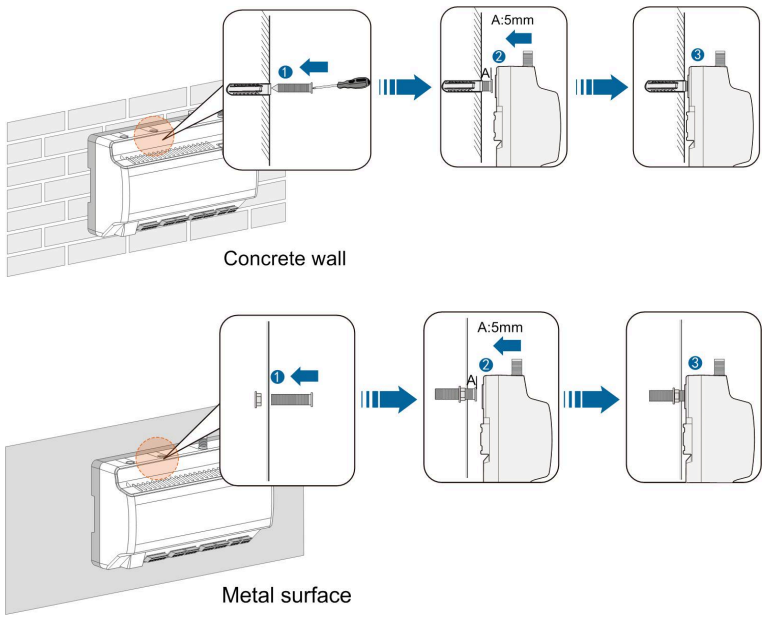
Operation personnel should wear goggles and dust mask throughout the drilling process to avoid dust inhalation or contact with eyes.

step 4 Secure the expansion bolts into the holes with a rubber mallet.



If the Data Logger is installed onto the metal surface, skip this step.

step 5 Fasten the screw or bolt to the installation surface, ensuring that it protrudes from the wall surface by approximately 5mm. Hang the Logger1000 onto the screws on the concrete wall or metal surface via the wall-mounting holes on the back of Logger1000.

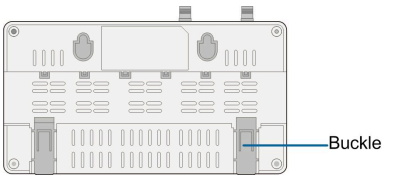


step 6 Check and ensure that the Logger1000 is firmly installed.

- - End

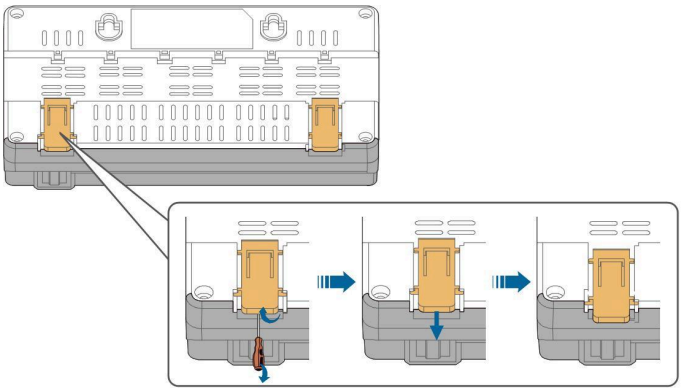
4.3.2 Guide Rail-Mounted Installation

For guide rail-mounted installation, the Data Logger is secured in place using the rail buckles.

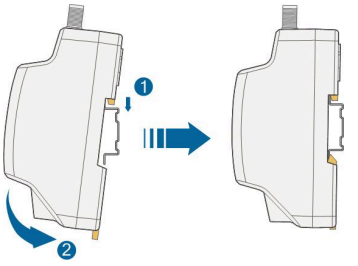


step 1 Install and secure the guide rail at the appropriate location.

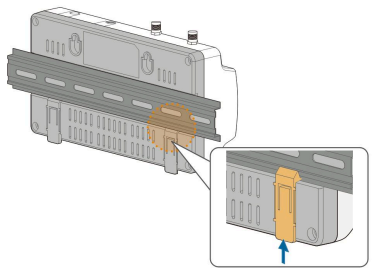
step 2 Slight press down the recessed part under the buckle of Logger1000 with a flat-head screwdriver or other similar tools to pull out the buckle outwards.



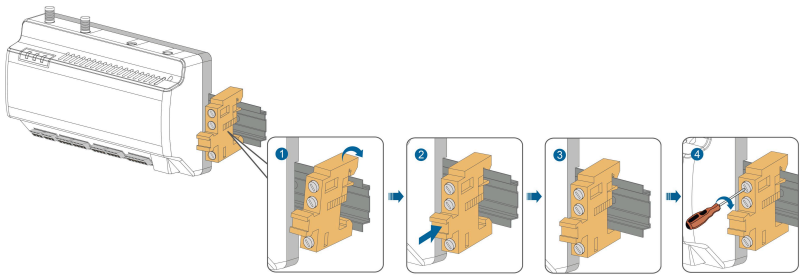
step 3 Hook the Logger1000 into the guide rail from above and press down the lower part of the Logger1000 until it snaps into place.



step 4 Push the buckle of the Logger1000 upwards to clamp the guide rail.



step 5 Secure the terminal fasteners on both ends of the guide rail, to prevent the Logger1000 from moving.



step 6 Check and ensure that the Logger1000 is firmly installed.

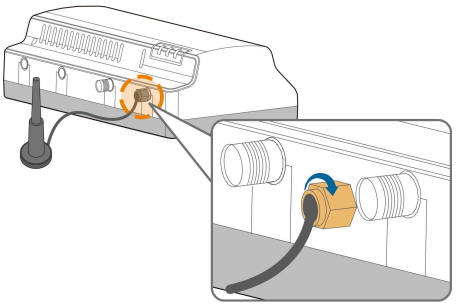
- - End

4.4 Installing Antenna

To ensure proper signal reception, the suction cup base must be placed on a metal surface outside the container.

Antenna entry should be reserved and pre-drilled on the container, and the diameter of the entry hole is 20mm.

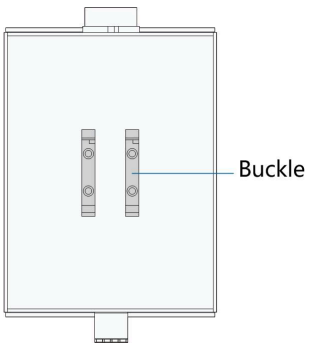
Secure the suction cup base to the exterior of the container. Insert the end of the suction cup antenna with the nut through the drilled hole and clockwise screw it onto the corresponding antenna port of the Logger1000, as shown in the diagram below.



4.5 Installing Power Box

Mount the Data Logger onto the concrete wall or metal surface according to onsite conditions.

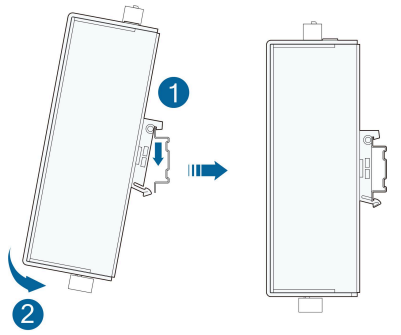
Secure the power box via the buckles (as shown in the figure below) on the back of it.



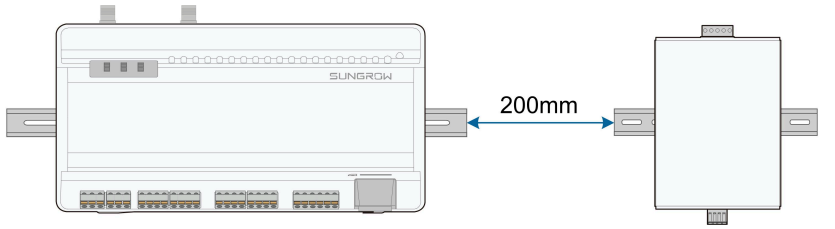
step 1 Install and secure the power box guide rail at the appropriate location.

To ensure proper connection of the power cable from the power box to the power input port of the Logger1000, keep a distance of 200mm between the power box and the Logger1000.

step 2 Tilt the power box and hook the buckle into the guide rail. Press down the power box until it snaps into place with an audible "Click" sound.



step 3 The installation of the power box and Logger1000 is completed.



- - End

5 Electrical Connection

5.1 Safety Instructions

NOTICE

Incorrect wiring may result in damage to the Data Logger and potential harm to the operator.

NOTICE

All cables are intact, well-insulated, and appropriately dimensioned.

5.2 Port Introduction

External wiring terminals are located at the bottom of Logger1000, and the wiring area is shown in the figure below.

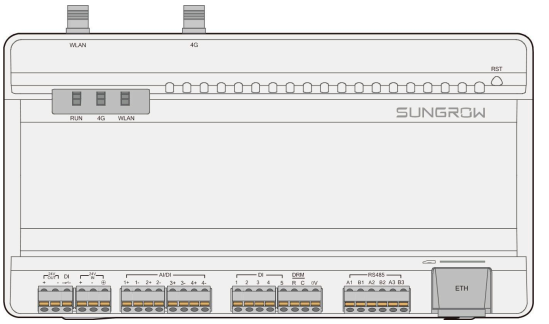


figure 5-1 Wiring area

table 5-1 Port description

Port	Function	Description
24V OUT	24V power output	24V±5%, the max. output current: 0.5A
DI	Converts AI into DI	Enabling switch for converting AI function to DI function
24V IN	24V power input	24V±3%
⏚	Grounding	Connecting protective grounding cable

Port	Function	Description
AI/DI	Compatible with AI/DI function	Default AI input sampling: 0-10V or 4-20mA
DI	Digital input	Digital signal input
DRM	DRM (Demand Response Modes) function	Works together with the DI1~DI4 to achieve the DRM function
0V	Digital reference point	-
RS485	RS485 communication port	Support of 3 inputs of RS485
	SIM card slot	Support of Micro-SIM card
ETH	Ethernet port	Can be connected to background master via devices such as Ethernet switch and router
WLAN	WLAN antenna	-
4G	4G antenna	-
RST	Restart	Press and hold it for > 3s to restart. Press and hold it for > 60s to restore the default settings.

For the RS485 (A1B1~A3B3) ports, the communication distance should not exceed 1,000m.

5.3 Connection to PV Devices

Devices in the PV system that can be connected to the Logger1000 include the inverter, Meteo Station, Smart Energy Meter, etc.

5.3.1 Connection to a Single Inverter

The RS485 port of SUNGROW inverter is RS485 terminal block or RJ45 port.

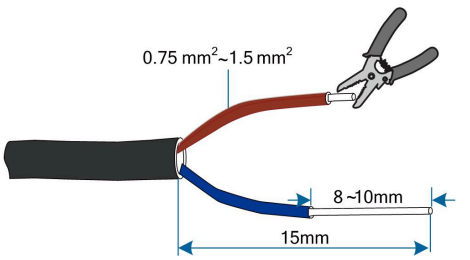
5.3.1.1 RS485 Terminal Block Connection

Communication cable specification:

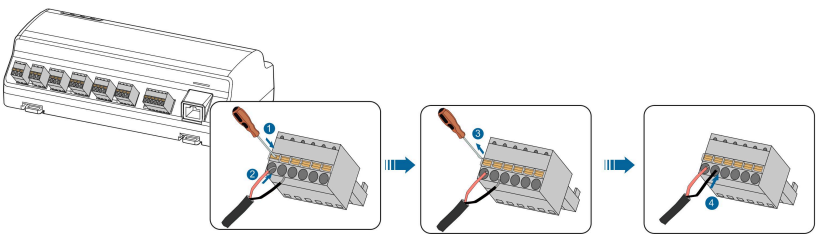
Cable	Type	Recommended cross-section
RS485 communication cable	Shielded twisted pair	0.75mm^2~1.5mm^2

step 1 Lead the RS485 communication cable from the inverter to the wiring area of Logger1000.

step 2 Strip the cable jacket and insulation layer with a wire stripper by about 15mm and 8mm to 10mm respectively.



step 3 Connect the stripped cable to the RS485 ports of the Logger1000, as shown in the figure below.



NOTICE

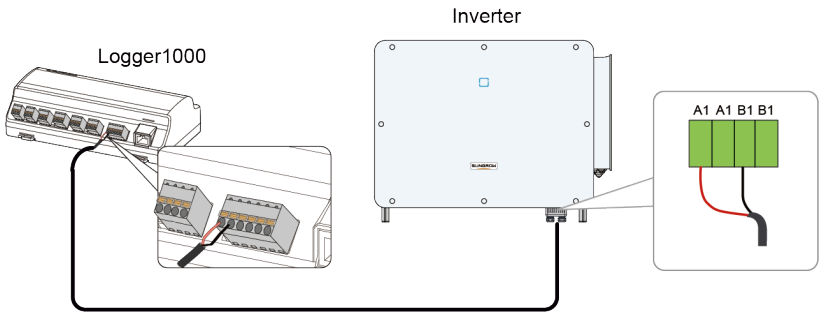
Connect RS485A to port A and RS485B to port B.

NOTICE

The RS485 communication cable must be the shielded twisted pair with the shielding layer single-point grounded.

When a multi-core multi-strand copper wire cable is used, crimp an appropriate euro style terminal at the communication cable head and then connect it to the RS485 port of the Logger1000.

step 4 Connect the Logger1000 to the inverter.



- - End

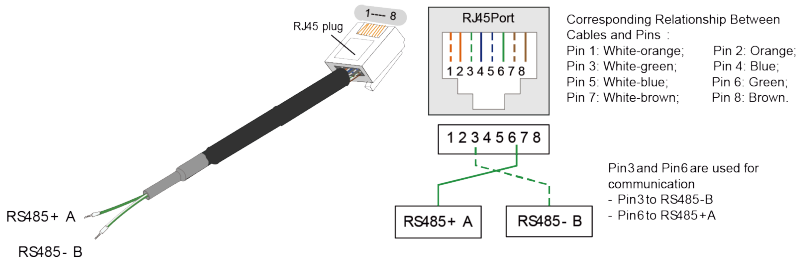
5.3.1.2 RJ45 Port Connection

Communication cable specification:

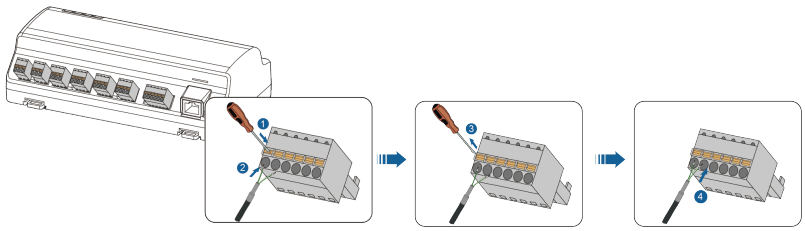
Cable	Type
RJ45 communication cable	Shielded twisted pair Ethernet cable

step 1 Lead the RJ45 communication cable from the inverter to the wiring area of Logger1000.

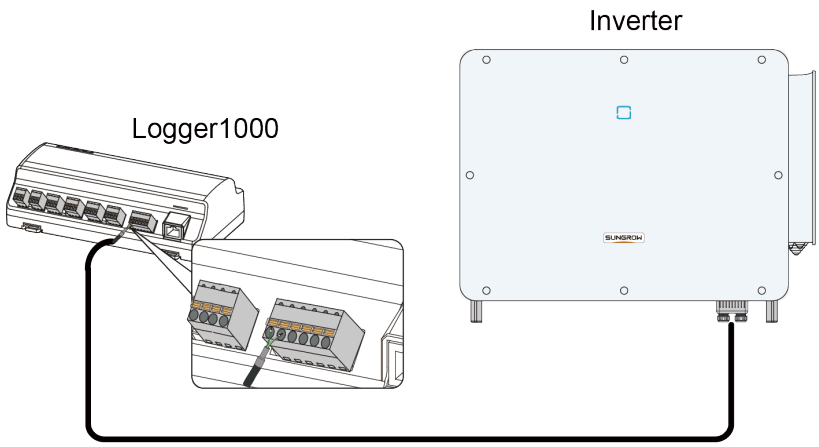
step 2 Strip the insulation layer of the communication cable with an Ethernet wire stripper, and lead the corresponding RS485A/B signal cables out. Insert cord end terminals into signal cable RS485+ A and signal cable RS485- B, and crimp them with a crimper. Cut off the redundant signal cable and warp it with a heat-shrink tubing. If the communication cable is Shielded Ethernet cable, white-green wire 3 is defined as RS485- B wire and the green wire 6 as RS485+ A wire.



step 3 Connect the communication cable to the RS485 ports of the Logger1000, as shown in the figure below.



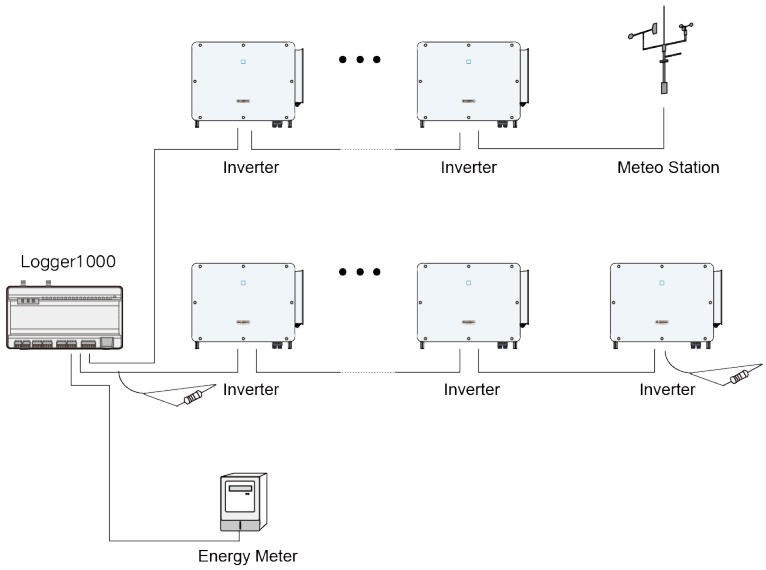
step 4 Connect the Logger1000 to the inverter.



- - End

5.3.2 Connection to Multiple Devices

Multiple inverters are connected to the Logger1000 in the RS485 daisy chain manner. If more than 15 inverters (14 inverters, for devices other than Logger1000) are connected on the RS485 bus, it is recommended to connect a 120Ω terminal resistor in parallel on the RS48 5A and RS485 B lines at the head and tail end of the bus.



NOTICE

With an outdoor device connected to the Logger1000, it is recommended to connect an SPD to protect the Logger1000 from lightning damage.

- The Logger1000 allows for 3 inputs of RS485 buses and 30 devices at most.
- When the number of device types is less than or equal to the number of RS485 ports of Logger1000, it is recommended to connect different types of devices to different RS485 ports separately.
- The addresses of devices on each RS485 bus must be different from one another and within the address range set for the Logger1000 (address range of residential inverters and string inverters manufactured by SUNGROW: 1-247; address range of third-party devices: 1-255). Otherwise, communication error will occur.
- Serial port parameters of each device on the RS485 bus should be consistent with those of the Logger1000. Configure the device's baud rate, check bit, data bit, and stop bit.

5.3.3 Connection to Smart Energy Meter

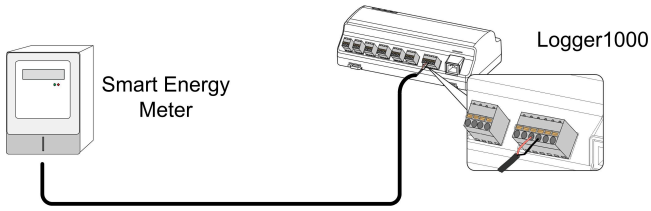
It is recommended to use the Smart Energy Meter whose communication protocol complies with DL/T645-1997/2007 protocol or Modbus protocol. Logger1000 can be connected to the Smart Energy Meter through RS485 port or Ethernet port. The recommended Smart Energy Meter types are as follows:

Item	Manufacturer	Model	Protocol Type	Wiring
1	Sfere	PD194E/Z	Modbus RTU	RS485 Connection

Item	Manufacturer	Model	Protocol Type	Wiring
2	Acrel	PZ96-E3		
3	Acrel	DTSD1352		
4	Weidmueller	EM 610		
5	SUNGROW	DTSU666		
6	Schneider	IEM3255		
7	Janitza	UMG604, UMG104	Modbus RTU Modbus TCP	RS485 Connection Ethernet Connection

RS485 Connection

The following figure shows the connection between the Logger1000 and the Smart Energy Meter.



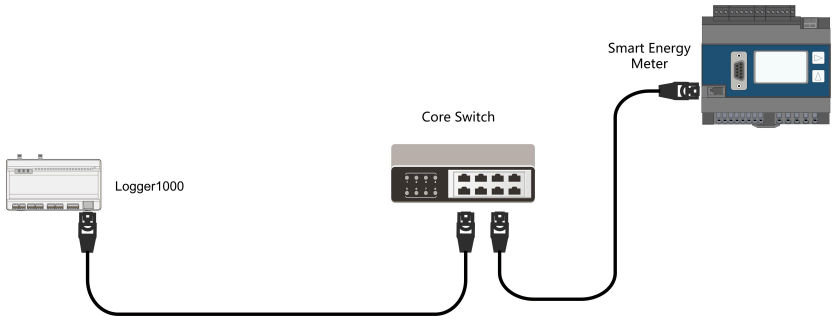
Connect the communication cable led from the Smart Energy Meter to the RS485 port of the Logger1000.

All devices on each RS485 bus support the same communication protocol.

When using Weidmüller or Janitza meters, connect the RS485 A/B port of the meter to the RS485 B/A port of the Logger1000.

Ethernet Connection

The following figure shows the connection between the Logger1000 and the Smart Energy Meter.



Prepare two appropriate Ethernet cables. Connect the cable led from the Smart Energy Meter to a port of the core switch. Connect one end of the other Ethernet cable to another port of the core switch and the other end to the "ETH" port of the Logger1000.

If there is no core switch connected on site, connect the cable led from the Smart Energy Meter directly to the "ETH" port of the Logger1000.

The farthest effective transmission distance of the network cable is 100m, and it is recommended that the actual distance should be no more than 90m. CAT 5E cable or network cable with higher category is recommended.

5.3.4 Connection to Meteo Station

Meteo Station includes standard Meteo Station and discrete Meteo Station. The discrete Meteo Station consists of several sensors.

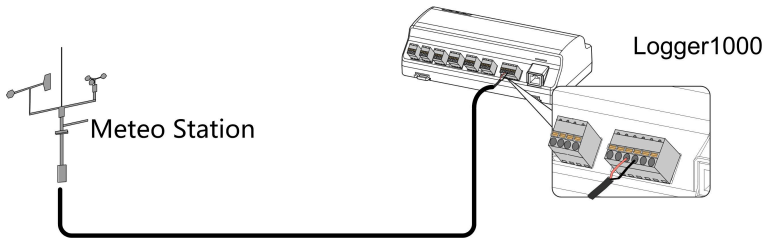
It is recommended to use Meteo Station that complies with the Modbus protocol. Meteo Station can be connected to Logger1000 through RS485 port or AI port. The recommended Meteo Station types are as follows:

Item	Model	Wiring
1	PC-4	RS485 Connection
2	PC-4 PRO	
3	WING-TRACKER	
4	WS601	
5	SMP10	
6	RT1	
7	PVMet75	
8	PVMet200	
9	Si-RS485TC	
10	TEMPER_SENSOR	AI Connection

Item	Model	Wiring
11	Meteo sensor	

RS485 Connection

The following figure shows the connection between the Logger1000 and the Meteo Station.

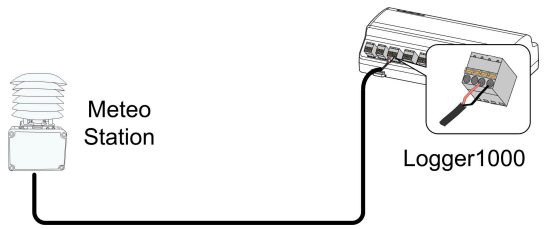


Connect the communication cable led from the Meteo Station to the RS485 port of the Logger1000.

If multiple inverters are connected to the Logger1000 together with the Meteo Station, the Meteo Station should be connected on the very end of the daisy chain.

AI Connection

The following figure shows the connection between the Logger1000 and the Meteo Station.



Connect the communication cable led from the Meteo Station to the AI port of the Logger1000.

5.4 Connection to Background

The Logger1000 can be connected to the background of the PV system via the network port, and the communication protocol is standard Modbus TCP or IEC104.

As a secondary device, the Logger1000 can be accessed by multiple backgrounds and communicate by using the standard protocol. The following figure shows the connection between the Logger1000 and the background.

The Logger1000 can be connected to multiple monitoring background systems via the Ethernet switch or router, or it may be connected to the single monitoring background system via the network cable.

For example, the Logger1000 is connected to the background system via the Ethernet switch, and the wiring steps are as follows:

step 1 Prepare an Ethernet cable of suitable length.

step 2 Insert one end of the cable into the port of the Ethernet switch and the other end to the "ETH" port of the Logger1000.

step 3 Set IP address of the ETH port to be within the same network segment as that of the background monitoring system.

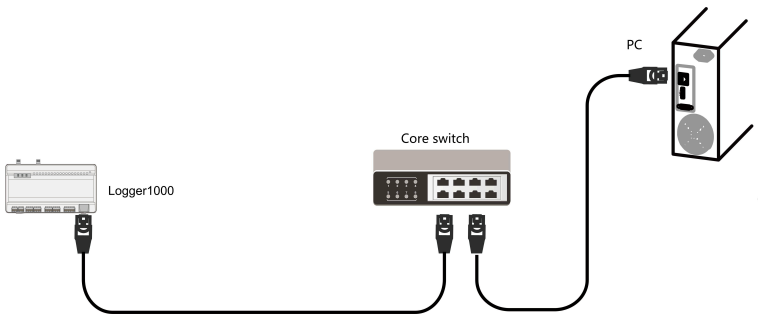


figure 5-2 Connection to PV background system

NOTICE

Default IP of "ETH": 12.12.12.12.

- - End

5.5 Installing the Micro-SIM Card

Micro-SIM Card Requirements

- Size: 12mm × 15mm.
- Recommended SIM card provider: Telekom, Vodafone, T-Mobile, or O2.
- Ensure that the SIM card has been properly configured the monthly data plan.

NOTICE

If using a nano-SIM card with an adapter, ensure that the nano-SIM is properly seated, and is correctly oriented to avoid improper insertion, difficulty in removing the SIM, or potential damage to the device.

The Micro-SIM card is not included in the scope of delivery.

table 5-2 Data Calculations for Different Devices

Device Connected	Monthly Data Required
Inverter	Number of inverters × 25 MB + 25 MB
Optimizer	Number of optimizers × 0.52 MB + 130 MB
Meter and meteo station	Number of meters and meteo stations × 12.5 MB + 12.5 MB

Estimated Monthly Data Usage for Different Configurations

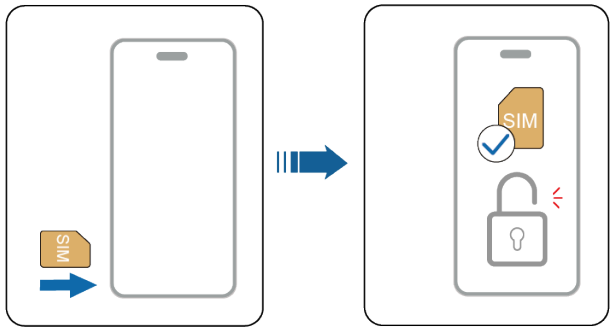
For example, the following provides estimated monthly data usage for specific configurations with nominal 450Wp modules.

Scenario	Configuration	Monthly Data Required
Residential	• 1 × SUNGROW inverter • 20 × optimizer • 1 × meter	215 MB
Industrial and Commercial	• 1 × SUNGROW inverter • 140 × optimizer • 1 × meter	277 MB
	• 2 × SUNGROW inverter • 280 × optimizer • 1 × meter	375 MB

step 1 Insert the SIM card into a compatible smart device to check its PIN status.

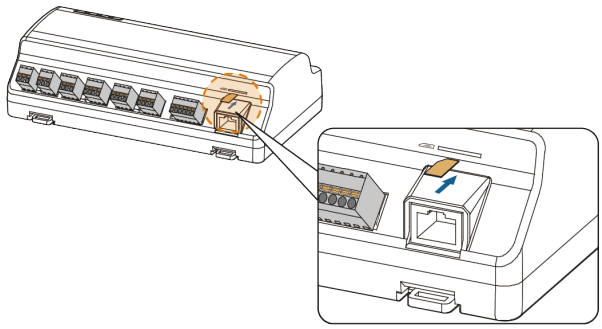
step 2 If the SIM is protected with a PIN, disable the PIN lock by following the on-screen instructions.

Check the original packaging of your SIM card for the PIN. If you enter the PIN incorrectly multiple times and it gets locked, you will need to enter the PUK (PIN Unlocking Key) to unlock it. Contact your SIM card provider if the original packaging is unavailable or if you need assistance with the PUK.



step 3 Remove the SIM card from the smart device.

step 4 Align the SIM card with the slot based on the silk screen direction of the Logger1000, and press the card gently until it clicks into place.



step 5 To eject the SIM card from the Logger1000, push the card inward slightly to release the locking.

Micro-SIM card hot-plugging is supported.

- - End

If the SIM card fails to connect to the Internet, configure the Public Network APN in the Web UI on page **System > Port Parameter > Mobile Network** . Contact your SIM card provider to obtain the correct APN settings. See 7.12.11.3 Mobile Network .

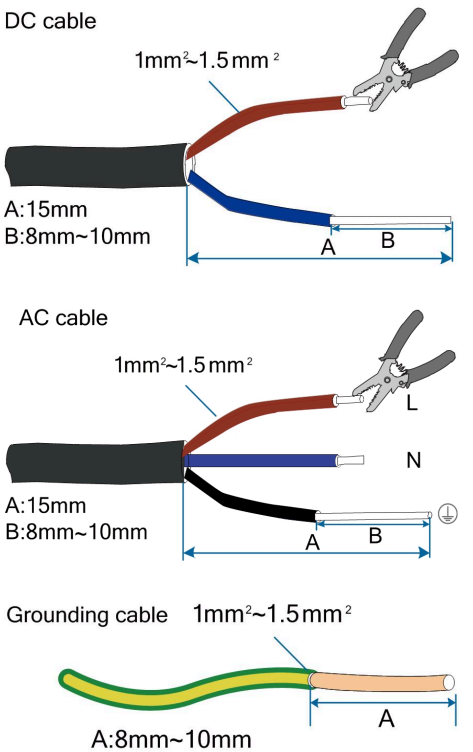
5.6 Connection to Power Box

The Logger1000 supports DC24V power supply. Prepare two-core DC cable, three-core AC cable, and grounding cable before wiring. Power cable specifications are shown in the table below.

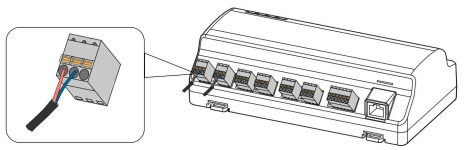
table 5-3 Power cable specification

Cable	Recommended cross-section	Length of cable jacket to be stripped off	Length of insulation to be stripped off
DC cable, AC cable	1mm²~1.5mm²	15 mm	8 mm~10 mm
Grounding Cable	1mm²~1.5mm²	8 mm~10 mm	-

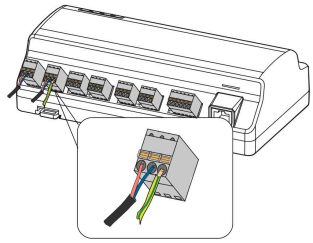
step 1 Strip the cable jackets and insulation layers of the DC cable, AC cable, and grounding cable with a wire stripper by appropriate length.



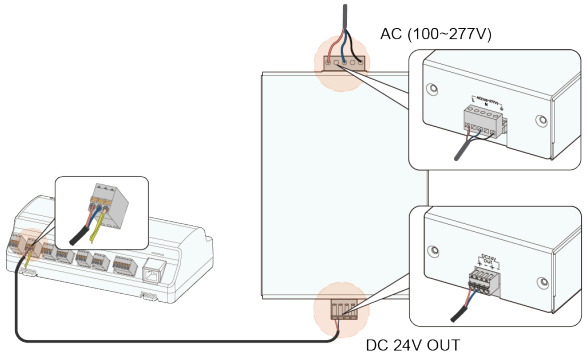
step 2 Insert the stripped DC cable into the "24V IN" and "24V OUT" ports of the Logger1000. Connect the DC cable led from the "24V OUT" port of the Logger1000 to other devices that need 24V DC power supply.



step 3 Connect the stripped grounding cable to the corresponding port of the Logger1000.



step 4 Connect the DC cable led from the "24V IN" port of the Logger1000 to the "DC 24V OUT" port of the power box. Connect the stripped AC cable to the "AC (100~277V)" port of the power box, and connect the other end of the AC cable to the 220V AC power.



NOTICE

The power source should meet limited power source or PS2 requirements.

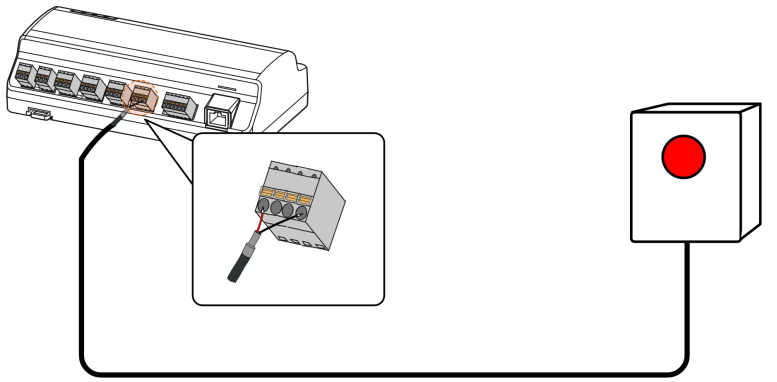
- - End

5.7 Connection to Emergency Stop Device

The Data Logger can receive DI signals from the emergency stop device.

The DI5 port should only be used for connecting the emergency stop device. The emergency stop device is not included in the scope of delivery.

Connect the signal wire from the emergency stop device to the "DI5" port, and the ground wire to the "0V" port of the Data Logger.



5.8 Cable Routing Requirements

Cables used in the system generally include power cables and communication cables.

The communication cable needs to be routed away from the power cable, and the cables need to form a right angle at the intersection. The communication cable needs to be as short as possible and keeps a distance from the power cable.

Power cables and communication cables should be routed in different cable trenches to avoid long-distance parallel cable routing of power cables and other cables, thereby reducing electromagnetic interference due to output voltage transient.

The distance between the power cable and communication cable should be greater than 200mm. When the cables meet with each other, the cross angle should be 90°, and the distance can be reduced accordingly.

The following table shows the recommended minimum distances between parallel shielded communication cables and power cables.

Parallel cable length (m)	Min. distance (m)
200	0.3
300	0.5
500	1.2

The communication cables should be routed as closely to the ground surface or supports (such as support beam, steel channel, or metal rail) as possible.

6 Commissioning

6.1 Inspection before Commissioning.

No.	Check Item	Result
1	All cables are intact, well-insulated, and appropriately dimensioned.	□
2	All cables are connected correctly and firmly.	□
3	The polarity of the power supply cable is correct. The grounding cable is reliably grounded.	□

6.2 Commissioning Step

Item	Step	Result
1	Perform inspection before commissioning.	□
2	Power on the Logger1000.	□
3	Verify if the indicators on the Logger1000 are flashing as expected.	□
4	Connect PC to the “ETH” port of the Logger1000 using an Ethernet cable. The default IP address of the “ETH” port is 12.12.12.12. Log in to the web interface at 12.12.12.12 through an Internet browser such as Internet Explorer, Safari, or Chrome.	□
5	Make sure that the communication cable between the device and Logger1000 is firmly connected. Switch on the DC-side circuit breaker of the inverter and verify that the inverter is powered on.	□
6	Configure the device’s baud rate, check bit, data bit, and stop bit. See 7.12.11.1 RS485. The default setting is 9600bps, 8 data bit, 2 stop bit, and no check bit.	□

Item	Step	Result
7	Set the devices connected to the Logger1000 through the device management function. When connecting a SUNGROW string inverter for the first time, use auto search with addresses allocated automatically. See 7.10.1.1 Auto Search. Other devices must be manually added. See 7.10.1 Device List. For the devices of other types, the communication address needs to be preset.	□
8	Enable the DHCP service of the router, so that the Logger1000 automatically obtains the IP address via the DHCP function.	□
9	Set the iSolarCloud address if data needs to be uploaded to cloud server. The default iSolarCloud server is “European Server”. Users in other regions select “International Server”.	□
10	Verify the accuracy of the data from the SUNGROW string inverter on the real-time information page.	□
11	Create a plant via the iSolarCloud App and verify the accuracy of the data.	□

When connecting multiple devices to the same communication port, ensure that each device has a unique address to prevent conflicts.

After making any configuration changes, save the settings to ensure they take effect.

Use the iSolarCloud App to create a new plant. Scan the QR code on the front label of the Logger1000, or manually enter the serial number (S/N) to add the communication equipment. For details, refer to the Quick Guidance of iSolarCloud App. Scan the QR Code to view or obtain the Quick Guidance of iSolarCloud App.

7 Web Interface

7.1 Running Requirements

Item	Description
Browser	IE11 or later, Chrome65 or later, and Safari11 or later
Min. resolution	1024*768

7.2 Establishing a Connection

7.2.1 Establishing a Connection via Wireless Hotspot

Necessary information for connection

- SSID: SG-[device S/N number] (for example, **SG-A1234567890**)
- IP address of the Logger1000: **11.11.11.1**

step 1 On your PC, navigate to the wireless network settings, and connect to Logger1000's network.

The serial number (S/N) can be found on the Logger1000's front label.

step 2 Open your web browser and enter **11.11.11.1** in the address bar to navigate to Logger1000's login page.

- - End

7.2.2 Establishing a Connection via Ethernet

Prerequisites

- The Logger1000 is connected to the PC using an Ethernet cable.

Necessary information for login

- Default IP address of the ETH port: **12.12.12.12**
- Default subnet mask: **255.255.255.0**

step 1 Set your PC's network card to match the Logger1000's network segment.
For example, assign an IP address to your PC within the same range: **12.12.12.125**, with the subnet mask set to **255.255.255.0**.

The IP address should have the same first three octets as the Logger1000. The fourth octet should be unique within the range of 1 to 254 to avoid conflicts (excluding 12, which is used by the Logger1000).

step 2 Open your web browser and enter **12.12.12.12** in the address bar to navigate to Logger1000's login page.

- - End

7.3 Logging to the Web UI

7.3.1 Local Login

step 1 Enter the username: **maintain**.

step 2 Enter the initial password **pw1111**, and click **Login**.
After logging in, the Web UI defaults to the interface with O&M user permissions.

- - End

7.3.2 Remote Login via Maintenance Link

Prerequisites

- Remote maintenance is enabled on this Logger1000.
- The necessary maintenance information is provided.

step 1 Enter the address **https://rm.isolarcloud.com** in the browser address bar and navigate to the remote maintenance portal.

step 2 Select the server site and product category.

- Server site: Select as instructed in the remote maintenance information provided.
- Product category: Select communication device.

step 3 Enter the device S/N and password.

step 4 Log in and navigate to the Logger1000's login page.

step 5 Enter the username: **maintain**.

step 6 Enter the initial password **pw1111**, and click **Login**.
After logging in, the Web UI defaults to the interface with O&M user permissions.

- - End

7.4 Modify Password

It is recommended to change the login password after initial login.

NOTICE

To keep your account secure, it is recommended to change the password regularly and always make sure you remember the new one. You may see a password leak if you do not change the default password, or an increased risk of the account getting hacked or compromised if you use the default password for a long time, and you may not be able to access the device if you have lost your password. These situations may cause losses for the plant, and such losses shall be borne by users.

If you forgot your password, contact system administrator or SUNGROW.

step 1 Click > **Modify Password** to enter the corresponding page.

step 2 In the pop-up **Modify Password** dialog box, enter the **Old Password** and **New Password**, and then **Confirm New Password**.

Passwords should be 8–32 character long and contain at least three of the following four character types: uppercase letters, lowercase letters, numbers, and special characters. The new password cannot be the same as the old one.

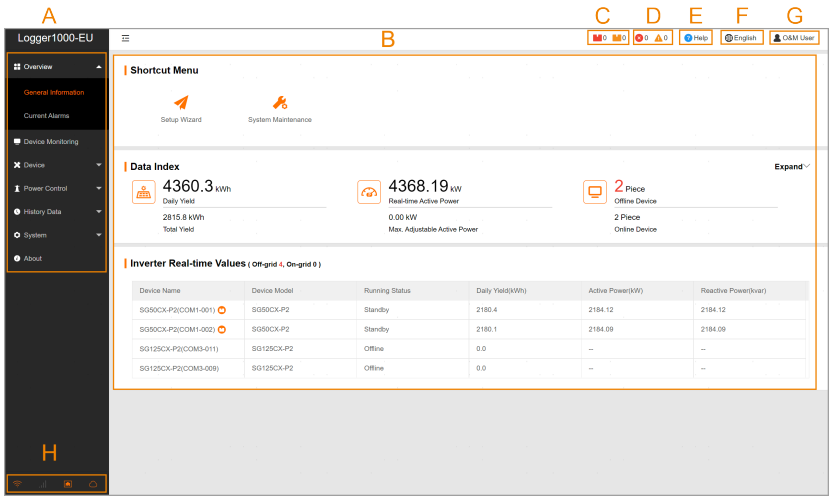
step 3 Click **Save** and log into the system using the new password.

- - End

7.5 Web Main Interface

When logging into the web for the first time as an O&M user, the **Help** page pops up. Follow the instruction to perform operations such as time synchronization, device connection, and forwarding configuration.

The main interface is as follows:



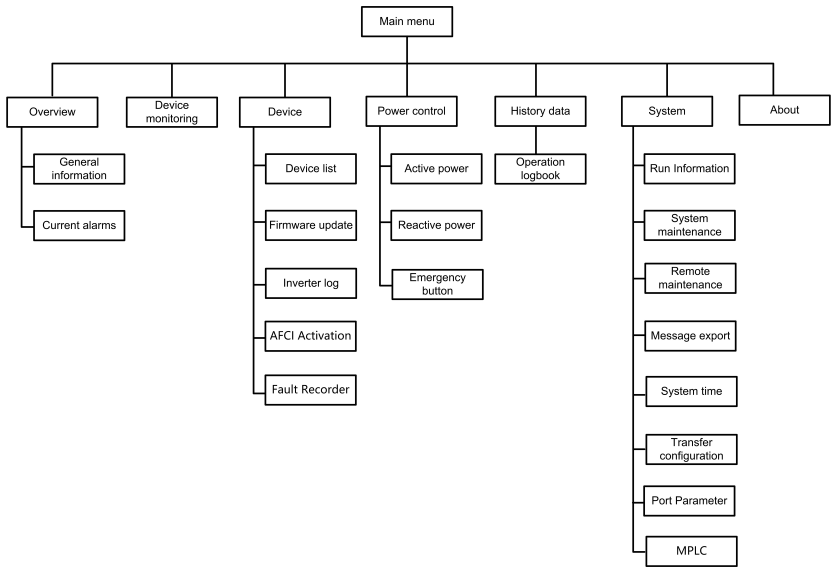
Item	Name	Description
A	Navigation menu	Display main function modules of the Web
B	Function display area	Display the current interface
C	Optimizer fault and alarm	Display the counts of fault and alarm of the connected optimizer. Click the icon to enter the **Device Monitoring** page.
D	Alarm icon	Display the current alarm level and alarm number. Users can click the icons to enter the corresponding alarm page.
E	Help	Display the basic configuration steps of the Logger1000.
F	Language menu	Click the button to select the desired language.
G	User	Display the current login user.
H	Information icon	 : WLAN connection  : Mobile network connection  : Ethernet connection  : Cloud access If the corresponding icon shows orange, the device has accessed to the service.

Note: If the Logger1000 is connected to WLAN, mobile network, and Ethernet at the same time, Ethernet will be the most preferred option for data transfer, followed by mobile network and then WLAN.

7.6 Web Menu

The Web has seven main function modules: Overview, Device Monitoring, Device, Power Control, History Data, System, and About.

The permissions of the O&M users are as follows:



7.7 Operation Procedure

Prerequisites

- Finished the electrical connection.
- Logged into the Web.

step 1 Configure serial ports of the Data Logger.

After logging into the Web, first configure the serial ports to ensure that the Data Logger can normally communicate with downstream devices. See 7.12.11 Port Parameter.

step 2 Calibrate the system time.

Check whether the current system time is correct, and perform manual time synchronization or automatic time synchronization when necessary. See 7.12.5 System Time.

step 3 Add the device via auto search.

Devices that can be automatically searched, such as SUNGROW string inverter, can be added via the auto search function with addresses allocated automatically. See 7.10.1 Device List.

step 4 Add other devices. See 7.10.1 Device List.

step 5 Configure forwarding service.

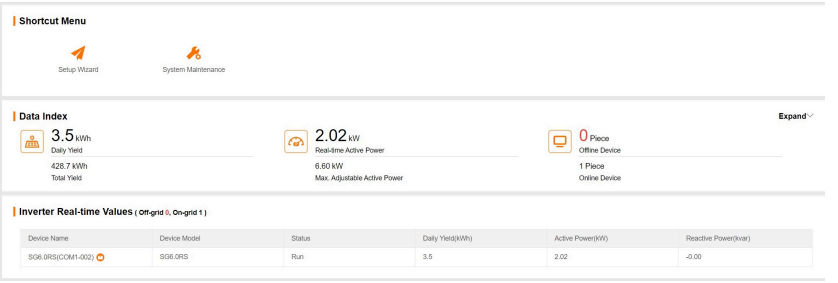
After all devices have been added, configure the forwarding service to ensure that the Data Logger can forward the data to upstream devices. See 7.12.6 iSolarCloud~7.12.9 Third-party Portal.

- - End

7.8 Overview

7.8.1 General Information

Click **Overview > General Information** to enter the corresponding page.



Shortcut Menu

- **Setup Wizard**: Quickly configure the network settings of the Data Logger, add devices, and set up a power plant.
- **System Maintenance**: Support of operations such as system upgrade, log export, and rebooting. See 7.12.2 System Maintenance.

Data Index

Information such as today yield, total yield, real-time active power, and number of offline devices can be viewed.

Click **Expand** to view more information.

Inverter Real-time Values

Information on the inverter such as state, daily yield, active power, and reactive can be viewed.

7.8.2 Current Alarms

Click **Overview > Current Alarms** to enter the corresponding page.

Information such as device name, alarm name, alarm type, alarm time, fault code, and fault ID can be viewed.

7.9 Device Monitoring

Click **Device Monitoring** to view the corresponding information.

Device information such as real-time values, DC data, initial parameters, operation parameters, system parameters, protection parameter, power regulation parameters, general parameter, device instruction and device information can be viewed on this interface.

The device data will be cached for 7 days. In the case of network outage during the operation of the device, the inverter data generated during the period of network outage will be uploaded after the network service is back to normal. Contact SUNGROW if you want to check the data uploaded after the network outage event.

7.9.1 RealTime Values

Realtime information such as power generation, device state, and active power can be viewed on this page.

step 1 Click **Device Monitoring > Realtime Values** to view the corresponding information.

step 2 Click ⌄ to select the device type.

- - End

7.9.2 DC Info

On this interface, voltage and current information of multiple inputs of MPPTs and strings can be viewed.

Click **Device Monitoring > DC Info** to view the corresponding information.

7.9.3 Initial Parameter

Click **Device Monitoring > Initial Parameter** to enter the corresponding page and set the initial parameters.

Select a meter, set PT Transformation Ratio, CT Transformation Ratio, Meter Reverse Connection Enable, and Access Type, and click **Save**.

When the meter cable is connected reversed, but it is not easy to change the wiring, the correct meter data can be obtained after opening the meter reversing enable switch.

The meter reversal function supports single-phase meters and three-phase meters. Note that only the reverse connection of three phases is supported, and the reverse connection of one or two of the three phases is not supported.

For inverters, both individual and batch settings are supported.

7.9.3.1 Individual Device Settings

step 1 Select the device's Country/Region and Grid Type.

step 2 Click **Settings** to set initial parameters for an individual device.

- - End

7.9.3.2 Batch Settings

step 1 Select the device's Country/Region and Grid Type.

step 2 Click **Configure Synchronization**.

step 3 Select the desired devices in the pop-up device list, and click **Save** to apply the changes.

- - End

7.9.4 Operation Parameters

Click **Device Monitoring > Operation Parameters** to enter the corresponding page and set operation parameters.

Both individual and batch settings are supported. For configuration methods, see 7.9.3 Initial Parameter.

7.9.5 System Parameters

Click **Device Monitoring > System Parameters** to enter the corresponding page and set the system time of the device.

Both individual and batch settings are supported. For configuration methods, see 7.9.3 Initial Parameter.

7.9.6 Protection Parameter

Click **Device Monitoring > Protection Parameters** to enter the corresponding page and set protection parameters.

Both individual and batch settings are supported. For configuration methods, see 7.9.3 Initial Parameter.

7.9.7 Protection Parameters (Other)

Click **Device Monitoring > Protection Parameters (Others)** to enter the corresponding page and set protection parameters.

Both individual and batch settings are supported. For configuration methods, see 7.9.3 Initial Parameter.

The parameters on this page may vary by inverter model. Please refer to the actual page.

7.9.8 Power Regulation Parameters

Click **Device Monitoring > Power Regulation Parameters** to enter the corresponding page and set power regulation parameters.

Both individual and batch settings are supported. For configuration methods, see 7.9.3 Initial Parameter.

7.9.9 General Parameter

step 1 Click **Device Monitoring > General Parameters** to enter the corresponding page and set general parameters.

step 2 Select **Read-back**, set **Register Address**, **Register Number** and **Address Type**, and click **Read-back** to read the current value of the device.

step 3 Select **Settings**, set **Register Address**, **Data Type** and **Set Value**, and click **Save** to apply the changes to an individual device.

For parameters that need to be set, refer to corresponding communication protocol of the inverter.

step 4 Optional: Configure general parameters in batch.

i. Click **Configure Synchronization** to apply the changes.

ii. Select the desired devices in the pop-up dialog, and click **Save** to apply the changes.

- - End

7.9.10 Device Instruction

Users can perform power on, power off, and factory reset operations on SUNGROW inverters. Both individual and batch settings are supported.
Take powering on inverter as an example:

step 1 Click **Device Monitoring > Device Instruction** to enter the corresponding page.

step 2 Optional: Click ⌄ to select needed device type in the drop-down list.

step 3 Select a device, and click **Boot** to open the dialog box. Click **Boot**.

step 4 Click **Yes** to power on a specific inverter.

step 5 Optional: Batch powering on devices.

i. Select a device, and click **Configure Synchronization** to open the dialog box.

ii. Select the desired devices in the pop-up dialog, and click **Save** to apply the changes.

- - End

7.9.11 Device Information

Click **Device Monitoring > Device Information** to view the corresponding information.

Parameter information such as device S/N, device model, and rated active power can be viewed.

7.10 Device Maintenance

7.10.1 Device List

The **Device List** function is used for managing devices connected to the Data Logger and configuring addresses for these devices. Devices can be searched and automatically added.

7.10.1.1 Auto Search

The “**Auto Search**” function is used for SUNGROW string inverters with addresses automatically allocated.

Inverters without a serial number do not support the automatic search function and device adding function.

Automatic address allocation pops up only when there is an actual address confrontation.

step 1 Click **Device > Device List** to enter the corresponding page.

step 2 Click **Auto Search** to open the **Auto Search** pop-up window. Select **Port**, and click **Search**.

step 3 The devices that meet the search criteria will be displayed.

- - End

7.10.1.2 Export

step 1 Click **Device > Device List** to enter the corresponding page.

step 2 Click  to export the device list.

- - End

7.10.1.3 Import

step 1 Click **Device > Device List** to enter the corresponding page.

step 2 Click  to export the device list.

step 3 After the device list is exported, user can modify device names in batch.

step 4 After the modification is completed, save the device list file in the .csv format.

step 5 Click  to import the .csv file into the Web interface.

- - End

7.10.1.4 Add Device

step 1 Click **Device > Device List** to enter the corresponding page.

step 2 Click **Add Device** to open the **Add Device** pop-up window, select **Device Type** and fill in the information required.

- - End

7.10.1.5 Add the Third-party Meter (Import Files)

step 1 Click **Device > Device List** to enter the corresponding page.

step 2 Click **Add Device** to open the **Add Device** pop-up window, and select **Meter** in Device Type.

step 3 Select the port (COM1/COM2/COM3/NET) that the device is actually connected to in the Port.

step 4 Set Device Model to **Others**.

step 5 Set Configuration Method to **Import Files**.

step 6 Select the corresponding measuring point template in Configuration File. Or click  to import the configuration file.

step 7 Enter Beginning Address and Quantity of Device, and click **Save**.

Pay attention to the number of devices added in each port. Beginning Address to be entered should be bigger than the device address existed if they are in the same port.

- - End

7.10.1.6 Add the Third-party Meter (Custom)

step 1 Click **Device > Device List** to enter the corresponding page.

step 2 Click **Add Device** to open the **Add Device** pop-up window, and select **Meter** in Device Type.

step 3 Select the port (COM1/COM2/COM3/NET) that the device is actually connected to in the Port.

step 4 Set Device Model to **Others**.

step 5 Set Configuration Method to **Custom**. Click **Next** to open the **Configure Measuring Point** pop-up window.

table 7-1 Parameters description

Parameter	Description
Byte Order	The order to parse the read byte stream. Refer to the communication protocol of the meter for details.
PT Transformation Ratio	The voltage transformation ratio. Refer to the communication protocol of the meter for details.
CT Transformation Ratio	The current transformation ratio. Refer to the communication protocol of the meter for details.
Beginning Address	The beginning address of the device.
Quantity of Device	The number of the device.
Debug Address	Specify the device address to be read when clicking **Read-back**. The range is [(“Beginning Address”), (“Beginning Address” + “Quantity of Device”-1)]
Device Modbus ID	The address of Modbus communication protocol. It is recommended to select the register address corresponding to the data type of “Float”. Refer to the communication protocol of the meter for details.

Parameter	Description
Register Type	The register type of the corresponding measuring point. Refer to the communication protocol of the meter for details.
Data Type	The data type of the corresponding measuring point. Refer to the communication protocol of the meter for details.
Read Type	With or without framing when send messages at this point. It is recommended to select **Continuous**
Coefficient	The coefficient that multiplied the value of the data read. Refer to the communication protocol of the meter for details.
Read-Back Value	Specify the value of the selected measuring point read when clicking **Read-back**

User can select up to 21 measuring points for configuration. For the corresponding parameters (such as Modbus address), refer to the user manual of the connected meter.

step 6 Select the points to be measured, click **Read-back** to read the information from the Meteo Station in real-time to verify the accuracy of the data.

Only when the “Read-Back Value ” is consistent with the displayed value of the electric meter, the parameter setting of the measuring point is correct.

step 7 When the “Read-Back Value” is consistent with the displayed value of the electric meter, click **Save Template** to save the measuring point setting of this/these meter(s) as a template.

step 8 Enter the template name in the pop-up window and click **Confirm** to save the template.

The template name should be a combination of numbers, letters, dashes and underscores starting with English letters, with a maximum length of 32 bits.

step 9 In the **Configure Measuring Point** window, click **Confirm** to add the device and apply the changes.

- - End

7.10.1.7 Add the Third-party Meteo Station (Import Files)

step 1 Click **Device > Device List** to enter the corresponding page.

step 2 Click **Add Device** to open the **Add Device** pop-up window, and select **Meteo Station** in Device Type.

step 3 Select the port (COM1/COM2/COM3) that the Meteo Station is actually connected to in the Port.

step 4 Set Device Model to **Others**.

step 5 Set Configuration Method to **Import Files**.

step 6 Select the corresponding measuring point template in Configuration File. Or click  to import the configuration file.

step 7 Enter Beginning Address and Quantity of Device, and click **Save**.

The Modbus ID addresses of the devices connected in the same COM port of the Data Logger cannot be repeated.

- - End

7.10.1.8 Add the Third-party Meteo Station (Custom)

step 1 Click **Device > Device List** to enter the corresponding page.

step 2 Click **Add Device** to open the **Add Device** pop-up window, and select **Meteo Station** in Device Type.

step 3 Select the port (COM1/COM2/COM3) that the Meteo Station is actually connected to in the Port.

step 4 Set Device Model to **Others**.

step 5 Set Configuration Method to **Custom**. Click **Next** to open the **Configure Measuring Point** pop-up window.

table 7-2 Parameters description

Parameter	Description
Byte Order	Refer to the device Modbus map, parse the order of the read byte stream.
Beginning Address	The beginning address of the device.
Quantity of Device	The number of the device.
Debug Address	Specify the device address to be read when clicking **Read-back**. The range is [(“Beginning Address”), (“Beginning Address” + “Quantity of Device”-1)]
Read Type	With or without framing when send messages at this point. It is recommended to select **Continuous**
Coefficient	Refer to the Modbus map of the device, the coefficient that multiplied the value
Read-Back Value	Specify the value of the selected measuring point read when clicking **Read-back**

User can select up to 13 measuring points for configuration. For the corresponding parameters (such as register address, and register type), refer to the user manual of the connected Meteo Station.

step 6 Select the points to be measured, click **Read-back** to read the information from the Meteo Station in real-time to verify the accuracy of the data.

step 7 After confirming that the read-back data is correct, then click **Save Template**.

step 8 Enter the template name in the pop-up window and click **Confirm** to save the template.

The template name should be a combination of numbers, letters, dashes and underscores starting with English letters, with a maximum length of 32 bits.

step 9 In the **Configure Measuring Point** window, click **Confirm** to add the device and apply the changes.

- - End

7.10.1.9 Edit Device

step 1 Click **Device > Device List** to enter the corresponding page.

step 2 Click  to open the **Edit Device** pop-up window. The name of the device connected to the Data Logger and other parameters can be modified.

The “**Device Name**” is named in the form: device model (port number-communication address).

Take “SG36KTL-M (COM1-7)” as an example. “SG36KTL-M” is device type, “COM1” is the communication port, and “7” is the communication address.

step 3 Click **Save** to apply the changes.

- - End

7.10.1.10 Delete Device

After a device is deleted on site, the user can delete the device from the **Device List** page, to keep device consistency.

step 1 Click **Device > Device List** to enter the corresponding page.

step 2 Select the device to be deleted, click **Delete**.

step 3 Click **Confirm** in the pop-up window, to delete the device.

- - End

7.10.2 Firmware Update

Users can upgrade the SUNGROW residential inverter and string inverter.

step 1 Click **Device > Firmware Update** to enter the corresponding page.

step 2 Click **Select a Firmware File** to select an update method.

Update Methods	Description
Local Update Package	Users need to obtain the device update package in advance and save it locally.
Online Update Package	Use the update package downloaded via iConfig for updating. This requires users to install the iConfig. Contact SUNGROW customer service for the installation package if needed.
iSolarCloud Upgrade Package	Use the update package on iSolarCloud for updating. This requires the Data Logger to access to iSolarCloud. See 7.12.6 iSolarCloud.

The firmware file should be in the ".zip" format.

step 3 Select the upgrade file, and click **Open** to import the file. Matching devices are displayed.

step 4 Select the device, and click **Upgrade**.

Never interrupt the upgrade.

step 5 Complete firmware update to view current version, target version, start time, end time and other information.

- - End

7.10.3 Inverter Log

step 1 Click **Device > Inverter Log** to enter the corresponding page.

step 2 Select the device running information, and click  to view the export progress.

step 3 Click **Export** to store the exported log locally.

step 4 Click **Cancel** and then **Confirm** on the pop-up window, to cancel the current operation.

- - End

7.10.4 AFCI Activation

step 1 Click **Device > ACFI Activation** to enter the corresponding page.

step 2 Check the devices that need to self-checking, click **Self Checking** and then **Confirm** on the pop-up window.

> The status of the self-checking device must be **Enable** . If the self-checking status is **Disable** , you can click to set the self-checking status to **Enable** .

step 3 The result column shows the self-checking status as Self-Testing. After 7~8 seconds, the self-checking result will be displayed as Self-checking Failure or Self-test Pass.

step 4 Click **Clear Fault** to bring up a dialog box showing the status of fault clearing.

- - End

7.10.5 Fault Recorder

step 1 Click **Device > Fault Recorder** to enter the corresponding page.

step 2 Check the device, and click  to export the data. The exported file needs to be unzipped locally.

step 3 Find the .txt file, which is contained in the exported file mentioned in Step 2, and open it using iConfig. You may now check the fault recording of the device.

> Contact SUNGROW customer service for the installation package and instructions for iConfig.

- - End

7.11 History Data

Click **History Data > Operation Log** to enter the corresponding page.

History information can be viewed.

7.12 System

7.12.1 Run Information

Click **System > Run Information** to enter the corresponding page.
The following information can be viewed:

- **General Information**

  Check information like system time, IP address, MAC address, and mobile network.

- **IO Information**

  Check information like AI voltage and current values, and DI status.

- **Forwarding Information**

  Check the current value of MODBUS-TCP and IEC104 parameters.

7.12.2 System Maintenance

7.12.2.1 System Update

Users can upgrade the Data Logger on the Web interface.

step 1 Click **System > System Maintenance** to enter the corresponding page.

step 2 Click **System Update**, select the upgrade method, and import the upgrade file following the on-screen instructions.

The upgrade package is a .zip file.

step 3 Click **Upgrade** on the pop-up version information window. The system enters upgrade state.

- - End

7.12.2.2 Log Export

step 1 Click **System > System Maintenance** to enter the corresponding page.

step 2 Click **Log Export** to enter the **Log Export** page.

step 3 Select the type of logs to be exported, and click **Confirm**.

- - End

7.12.2.3 Rebooting

step 1 Click **System > System Maintenance** to enter the corresponding page.

step 2 Click **Rebooting** and a warning window will pop up. Click **Confirm** to continue the rebooting operation.

- - End

7.12.2.4 Reset All Settings

step 1 Click **System > System Maintenance** to enter the corresponding page.

step 2 Click **Reset All Settings** and a warning window will pop up. Click **Confirm** to continue the reset all settings operation.

- - End

Restoring the factory settings refers to restoring all modified settings to the factory state and will not clear the data.

7.12.3 Remote Maintenance

Prerequisites

- The iSolarCloud forwarding service is enabled. See 7.12.6 iSolarCloud.

step 1 Click **System > Remote Maintenance** to enter the corresponding page.

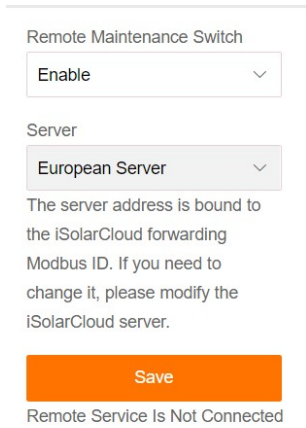


table 7-3 Parameters description

Remote maintenance switch state	Description
Disable	Cannot perform remote maintenance on the Data Logger.
Enable	Can perform remote maintenance on the Data Logger.

step 2 The **Server** is associated with the iSolarCloud forwarding address. If you need to change it, modify the iSolarCloud server. For details, see 7.12.6 iSolarCloud.

step 3 Click **Save** to enter the **Remote Access** page.

step 4 Enter the login password and click **Confirm**.

step 5 Access information is saved in the following two ways.

- Click **Copy Remote Access Information**, and save the access information locally after successful copying.
- Enter the email address and click **Send** to send the access information to the email address.

step 6 Enter the access link in the URL field to enter the **Remote Maintenance** page. Enter the device S/N and password, and click **Login** to perform remote maintenance.

- - End

7.12.4 Message Export

step 1 Click **System > Message Export** to enter the corresponding page.

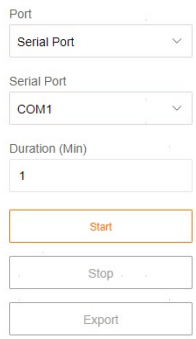


table 7-4 Parameters description

Parameter	Description	Range
Port	-	Serial port: COM1, COM2, COM3 Network port: ETH, WiFi, Mobile Network
Duration	Export the message recorded during the set time	1 min ~ 10 min

step 2 Set Port, Serial Port, and Duration. Click **Start** to start recording message. The recording automatically stops when the set time reaches, or user may click **Stop** to manually stop recording.

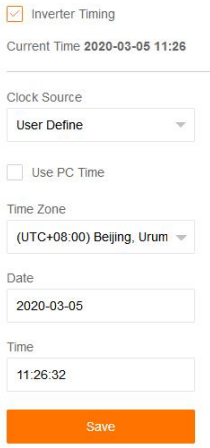
step 3 Click **Export** to export the message.

- - End

7.12.5 System Time

Users can check whether the current system time is correct, and allows for setting the system's current time and schedule time synchronization for inverters.

Click **System > System Time** to enter the corresponding page.



Method of setting system time:

- When **Inverter Timing** is selected, SUNGROW inverter time will be synchronized with the time of Logger1000.
- When the clock source is set to **User Define**, user can manually set the current system time and time zone in the following two manners:
  - Select **Use PC Time** to synchronize the time of the Logger1000 with the time of the PC.
  - Click the Time Zone drop-down list and select the local time zone. Enter Date and Time, and click **Save** to manually set the time.
- When the clock source is set to **NTP**, it allows for the synchronization of time across all devices. Click the Time Zone drop-down list and select the local time zone. Fill in Server, set Time Interval, and click **Save**. This synchronizes the time of the Logger1000 with the time of the server.
- The clock source is set to **IEC104**. Both the Logger1000 and the background must use the **IEC104** communication protocol. Otherwise, this method will not be valid.
- The clock source is set to **iSolarCloud**.
- The clock source is set to **Modbus-TCP**.

It is recommended to select **User Define** for debugging purposes.

It is recommended to select the IEC104 communication protocol for time synchronization, followed by iSolarCloud.

NOTICE

Set the system time when using the Logger1000 for the first time.

7.12.6 iSolarCloud

step 1 Click **System > Transfer Configuration** to enter the corresponding page.

step 2 Click  to modify the forwarding configuration information of iSolarCloud.

The default iSolarCloud server is “**European Server**”. Users in other regions select “**International Server**”.

To ensure the Data Logger can function properly, please complete the router whitelist settings first. For details, see Router Whitelist Settings.

- - End

7.12.7 IEC104

Configure the IEC104 forwarding service for the Data Logger on this page.

- **Server Mode**

  In the Server Mode, the Data Logger is used a server and connected to PC server to implement data transmission and command delivery.

  The local port number is 2404 when configuring IEC104 forwarding service.

- **Client Mode**

  In the Client Mode, the Data Logger is used as a client and connected to PC server to implement data transmission and command delivery.

7.12.7.1 White List Settings

When **Enable White List** is not selected, and the default IP address is "0.0.0.0", any background devices with valid IP address can access the Data Logger.

When **Enable White List** is selected, and specified IP address is entered, only the device with the specified IP address can access the Data Logger.

7.12.7.2 Generate Point Table

step 1 Turn on the switch of local port 2404.

step 2 Click **Generate Point Table**, and the default IEC104 point table will be automatically imported to the configuration file.

- - End

7.12.7.3 Edit IEC104 Forwarding Point Table

step 1 Click **Export of Configuration Tools** to export the IEC104 forwarding point table.

step 2 Unzip the exported package.

step 3 Open the forwarding point table and set the parameters as needed.

i. Click the **Introduce** sheet. Five types of data can be viewed: telemetry, telesignalling, remote pulse, remote control, and remote regulating.

ii. Click the **Cfg Para** sheet. The addresses shown in the following table are default ones and can be modified according to actual situation.

table 7-5 Cfg Para tab parameters

Data Type	YX	YC	YM	YK	YT
Bngr Addr	1	16385	15221	15271	15000

iii. Open the sheets such as inverter, Smart Energy Meter, Meteo Station, and Logger1000, to set corresponding measuring point data.

table 7-6 Parameters of each equipment sheet

Data Type	DataID	State	Invert	Coefficient	Unit	Data Name
YC	1	Y	N	1000	W	P
YC	2	Y	N	1000	Var	Q
YX	3	Y	Y	1	NA	On-grid
YX	4	Y	N	1	NA	Off-grid
YM	5	Y	N	1	kWh	E-Daily
YK	6	Y	N	1	NA	Power On / Off
YT	7	Y	N	1	kW	P-Set
YT	8	Y	N	1	Var	Q-Set

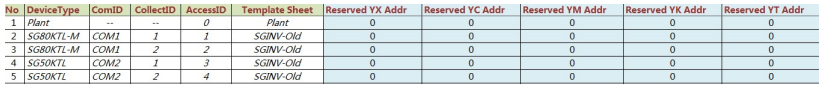
table 7-7 Description of parameter

Parameter	Value	Description
Data Type	-	Data type
Data ID	-	Data type
State*	Y	Data is uploaded to the background via the IEC104 communication protocol
	N	Data is not uploaded to the background
Invert*	Y	Negate, 0 is 1, and 1 is 0, available for telesignalling only
	N	No negate, 0 is 0 and 1 is 1
Coefficient*	-	Coefficient, available for telemetry, remote pulse, and remote regulating only

Parameter	Value	Description
Uint	-	Unit, available for telemetry, remote pulse, and remote regulating only NA indicates no unit
Data Name	-	Data name in multiple languages

Note: * indicates that the parameters should be set according to onsite conditions.

iv. Open the **Device List** sheet to sort the devices.



No	DeviceType	ComID	CollectID	AccessID	Template Sheet	Reserved YX Addr	Reserved YC Addr	Reserved YM Addr	Reserved YK Addr	Reserved YT Addr
1	Plant	--	--	0	Plant	0	0	0	0	0
2	SG80KTL-M	COM1	1	1	SGINV-Old	0	0	0	0	0
3	SG80KTL-M	COM1	2	2	SGINV-Old	0	0	0	0	0
4	SG50KTL	COM2	1	3	SGINV-Old	0	0	0	0	0
5	SG50KTL	COM2	2	4	SGINV-Old	0	0	0	0	0

figure 7-1 The Device List sheet parameters

table 7-8 Description of parameter

Parameter	Description
No.	Sort devices, and only support moving the whole line for the device type corresponds one-to-one to its parameters in the same line
Device Type	Device type
Com ID*	The number of COM port to which device connected, corresponding to the port data on the **Device List** page.
Collect ID*	Collect device's Modbus address, corresponding to communication address on the **Device List** page.
Access ID*	The background access address, corresponding to the forwarding address on the **Device List** page.
Template Sheet	Keep consistent with the that in the device sheet
Reserved YX Addr	Reserved telesignalling address
Reserved YC Addr	Reserved telemetry address
Reserved YM Addr	Reserved remote pulse address
Reserved YK Addr	Reserved remote control address
Reserved YT Addr	Reserved remote regulating address

Note: Export the excel from the **Device List** page and copy the data in the exported excel.

step 4 After editing the IEC104 forwarding point table, click **Export > IEC104 CFG** on the menu bar to convert the excel file into the .xml file. The generated xml file and the excel file are at the same file directory.

- - End

7.12.7.4 Import IEC104 Forwarding Point Table

step 1 Click to open the **Advanced Settings** pop-up window.

step 2 Click to import the .xml file.

step 3 Click **Save**.

- - End

7.12.7.5 Add Peer Port Information

step 1 Configure the forwarding point table on the **Client** page. See 7.12.7.3 Edit IEC104 Forwarding Point Table.

step 2 Click **Add** to open the **Advanced Settings** dialog box.

step 3 Enter **Server** and **Peer Port**, and select **Remote Signaling Measuring Point Type**, **Remote Signaling Time Mark**, and **Upload with a Change**.

step 4 Click to import the .xml file.

step 5 Click **Save** to apply the changes.

- - End

7.12.8 MODBUS

Configure the MODBUS forwarding service for the Data Logger on this page.

7.12.8.1 Server Mode

In the Server Mode, the Data Logger is used a server and connected to PC server using the Modbus TCP protocol to implement data transmission and command delivery.

step 1 Click **System > Transfer Configuration > MODBUS** to enter the **Server** page.

step 2 For the white list setting, see 7.12.7.1 White List Settings.

- - End

7.12.8.2 Client Mode

In the Client Mode, the Data Logger is used a client and connected to PC server using the Modbus TCP protocol to implement data transmission and command delivery.

step 1 Click **System > Transfer Configuration > MODBUS** to enter the **Server** page.

step 2 Click **Client** to enter the **Client** page.

step 3 Click **Add** to open the **Advanced Settings** dialog box.

step 4 Enter **Server** and **Peer Port**, and click **Save**.

- - End

7.12.8.3 RTU Mode

In the RTU Mode, Data Logger is connected to PC server using the Modbus TCP protocol to implement data transmission and command delivery.

step 1 Click **System > Transfer Configuration > MODBUS** to enter the **Server** page.

step 2 Click **RTU** to enter the **RTU** page.

step 3 Select **Serial Port Name**, and enter **Delay**.

step 4 Click .

- - End

Serial Port Name is set to **Forwarding Is Prohibited** by default, in which case this port can only be used to collect data. If the logger is connected to a third-party device through a COM port for data forwarding, select the COM port in the drop-down list of **Serial Port Name**. A maximum of two COM ports can be used for forwarding.

7.12.9 Third-party Portal

Configure the third-party cloud forwarding service for the Data Logger on this page.

step 1 Click **System > Transfer Configuration > Third-party Portal** to enter the **Third-party Portal** page.

step 2 Turn on the switch.

step 3 Click to open the **Advanced Settings** dialog box.

step 4 Modify the configuration information and click **Save**.

Set the FTP path and name it as "/FTP server directory".

For example, for the name "/SUNGROW", / is the root directory, and SUNGROW is the directory where data is stored on the FTP server.

- - End

7.12.10 Echonet

Configure the Echonet forwarding service for the Data Logger on this page.

step 1 Click **System > Transfer Configuration > Echonet** to enter the corresponding page.

step 2 Turn on the switch.

step 3 Click  to open the **Advanced Settings** pop-up window.

step 4 Click  to import the .xml file, and click Save.

- - End

Click  to export the .xml file.

Click **Quick Configuration** to apply the default Echonet forwarding points configuration of Data Logger for forwarding.

7.12.11 Port Parameter

Configure serial ports of the Data Logger.

7.12.11.1 RS485

step 1 Click **System > Port Parameter > RS485** to enter the **RS485** page.

step 2 Click  to modify Baud Rate, Parity Bit, and Stop Bit.

step 3 Click **Save** to apply the changes.

- - End

When the Data Logger is connected to a device via the serial port, the settings of Baud Rate , Parity Bit , and Stop Bit of the serial port should match those set for the connected device, to ensure normal communication. The default setting is 9600bps, 1 stop bit, and no check bit.

7.12.11.2 Ethernet

Perform Ethernet settings on this interface.

step 1 Click **System > Port Parameter > Ethernet** to enter the **Ethernet** page.

step 2 If auto IP allocation is **Open**, it is recommended to obtain the current IP address of the ETH port by connecting the WLAN module and logging into 11.11.11.1.

step 3 If the parameter Automatically obtain IP settings (DHCP) is set to **Close**, fill in the information such as the IP Address, Subnet Mask, and Default Gateway, and click  to save the operation.

- - End

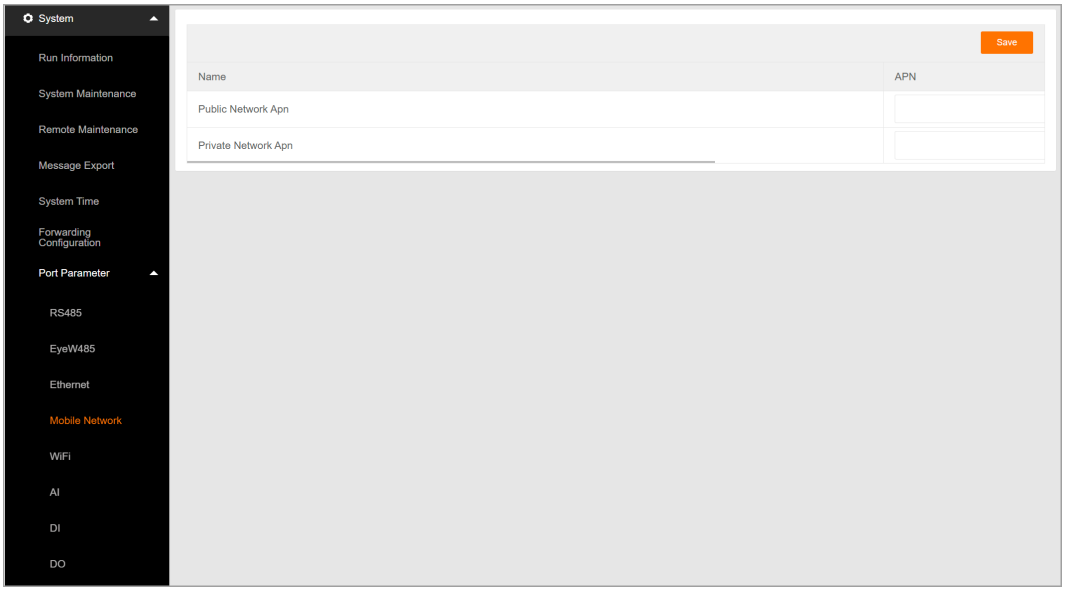
The default IP address of the ETH port is 12.12.12.12.

If both auto IP allocation and WLAN STA client are enabled, ensure that the Ethernet and the WLAN STA are at different network segment. Otherwise, it is probably that neither of the two networks is available.

7.12.11.3 Mobile Network

Configure 4G settings on this page.

step 1 Click **System > Port Parameter > Mobile Network** to enter the corresponding page.



step 2 Modify APN settings based on the information provided by the SIM card provider.

step 3 Click **Save** to apply the changes.

- - End

7.12.11.4 WiFi

Configure WLAN settings on this page.

Client

In the client mode, the Logger1000 is configured to connect to another hotspot or router using its WLAN function.

Click **System > Port Parameter > WiFi** to enter the **WiFi** page. Users will enter the Client mode by default, and the WLAN switch is turned on.

Hotspot

In Hotspot mode, the Logger1000 operates as a hotspot. Other devices such as PCs or mobile phones can connect to the Logger1000 using its WLAN function.

Click **System > Port Parameter > WiFi** to enter **WiFi** page. Click **Hotspot** to enter the **Hotspot** page.

table 7-9 Hotspot parameters description

Parameter	Description
AP Hotspot Enable Switch	**Enable**: Turn on the Logger1000 hotspot. Users can then search for the hotspot on their PC or mobile phone. **Disable**: Turn off the Logger1000 hotspot. Users cannot access the web interface through the hotspot.
Network Name	Network name
Security	**None**: no password required **WPA2**: enable encryption and require a password for access

When changing the WLAN hotpot password, it is necessary to reconnect the WLAN.

7.12.11.5 AI

step 1 Click **System > Port Parameter > AI** to enter the **AI** page.

step 2 Select **Input Type**, set **Lower Limit** and **Upper Limit**, and click to save the operation.

table 7-10 AI parameters

Parameters	Default value	Upper Sampling Limit
Voltage lower limit (V)	0	0 ~ 10
Voltage upper limit (V)	10	0 ~ 10
Current lower limit (mA)	4	4 ~ 20
Current upper limit (mA)	20	4 ~ 20

step 3 Optional: If there is an external IO device connected to the Logger, click **External** to set the AI information of this device.

- - End

7.12.11.6 DI

step 1 Click **System > Port Parameter > DI** to enter the **DI** page.

step 2 Click to apply the changes.

- - End

7.12.11.7 DO

An external IO module is required to enable the DO function.

step 1 Click **System > Port Parameter > DO** to enter the **DO** page.

step 2 Set the following parameters.

Parameter	Description
Initial Status	The status of the DO port during normal operation. • **NO** • **NC**
Function	• **Communication Control**: Issue commands via iSolarCloud or a third-party device. • **Manual Control**: Control the status of the DO port manually on the web interface.
Action Mode	• **Level**: The status of the DO port changes, and then stays the same. • **Pulse**: The status of the DO port changes and, after staying the same for a certain period of time, switches to the initial status. The duration of this period is set in Pulse Duration.
Pulse Duration	Only when Action Mode is set to **Pulse**, can you configure Pulse Duration. Range: 1-60s.
Purpose	It notes the purposes of the DO port.

step 3 Click **Manual Control** at the upper right of the page. Set Control Method to **Reset** or **Action**, and click **Confirm**.

- **Reset**: The DO port is restored to the initial status.
- **Action**: The DO port switches to the reverse status of Initial Status.

This step is applicable only when Function is set to **Manual Control**.

If Initial Status is **NO**, its reverse status is **NC**.

If Initial Status is **NC**, its reverse status is **NO**.

step 4 Click  to apply the changes.

- - End

7.12.12 MPLC

step 1 Click **System > MPLC**, select the MPLC to be set, and click  to open the pop-up window and set the following parameters.

Parameter	Description
Band Num	Band1: default band. Band2: standby band.
Array ID	Select the current array ID. The ID of adjacent arrays cannot be the same.
Winding ID	Select the winding ID.

Verify the accuracy of Array ID and Winding ID. If not, the device may go offline.

step 2 Click **Next** to set the slave node. Check the device to be set and click **Synchronization**.

step 3 Check the device to be rebooted, and click **Reboot**. After the rebooting is complete, click **Next**.

The parameters set in Step 1 take effect only after click **Reboot** in Step 3.

step 4 Click **Reboot Master Node** and click Confirm.

- - End

7.12.13 About

Click **About** to enter the **About** page.
Information such as firmware information of the Data Logger can be viewed.

- Device S/N: Check the SN of the device.
- Version Information: Click **Value** for five times to check the Application Software Version, Build Software Version, and System Software Version of the device.

Users can scan the QR code via the iSolarCloud App to add the Data Logger.

8 Grid Dispatching Function

NOTICE

Only installation personnel with some communication knowledge can perform operations described in this chapter.

8.1 Function Description

The Data Logger not only serves as a communication management device of single PV array/ plant, but also has the power regulation function. The Data Logger can regulate the power output of the SUNGROW inverter, and the regulation mainly includes active power control and reactive power regulation.

The Data Logger can control device power output according to the local preset commands. In addition, it can receive regulation commands via the remote communication (IEC104, MODBUS, and TCP), AI, and dry contact (DI).

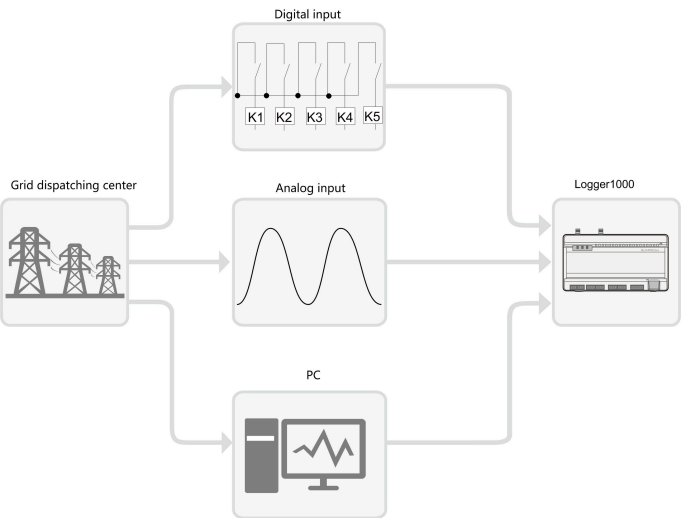


figure 8-1 Overall frame of power control function

The Data Logger supports closed-loop power regulation. The regulation accuracy and real-time performance can be further improved by adding a Smart Energy Meter.

The Data Logger supports fast command transmitting channels (ms-level processing delay) while ensuring that the dispatching commands are correctly transmitted to all inverters.

NOTICE

The corresponding power dispatching function is available only when the inverter supports active power control, power factor control, and reactive power regulation! For details, refer to the inverter user manual or consult the local retailer.

8.2 Interface Description

The Data Logger is equipped with digital control interfaces and analog control interfaces for receiving digital and analog commands sent by the grid dispatching center.

8.2.1 Digital Control Interface

The digital control interfaces are at the bottom of the Data Logger, and a sum of 5 digital input ports are provided, as shown in the figure below.

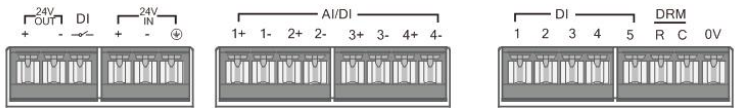
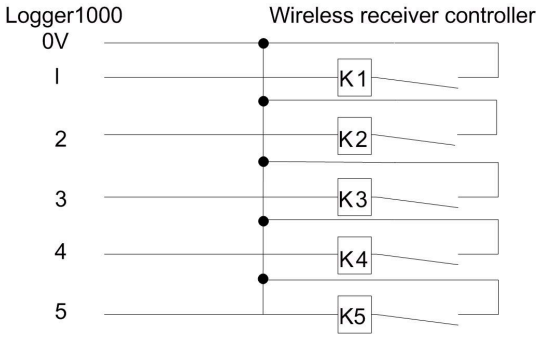


table 8-1 Digital control interface signal definition

Signal	Definition
DI	Enabling switch for converting AI function to DI function
1+, 1-, 2+, 2- 3+, 3-, 4+, 4-	4 input dry contact channels
1, 2, 3, 4, 5	5 independent-input dry contact signal channel
DRM	Works together with the DI1~DI4 to achieve the DRM function
0V	Input dry contact signal ground

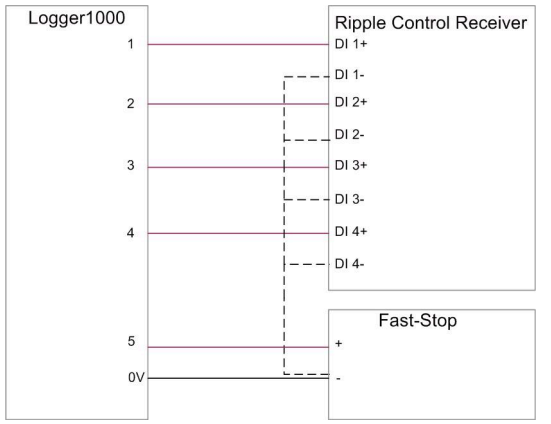
There are 4 ports at the bottom of the Data Logger compatible with the AI/DI function. When the DI function of the "AI/DI" port is enabled, use a power cable to connect the "24V OUT+" port to "DI" port.

Wiring between the Data Logger and the wireless receiver controller is as follows:

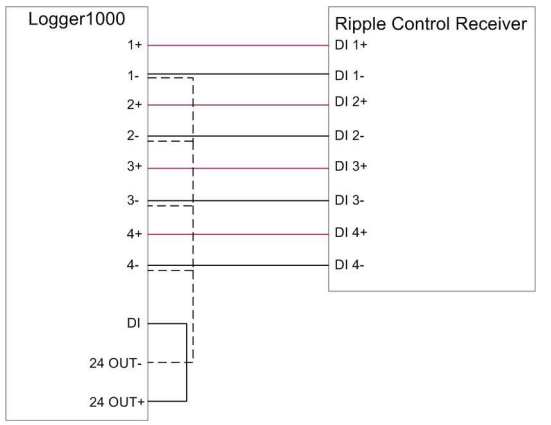


In Germany and some other European countries, grid companies use Ripple Control Receiver to convert grid dispatching signals and transmit them through dry contacts. In this case, the power plant needs to receive the grid dispatching signals using dry contact communication.

Wiring of the active power dry contact is shown in the figure below:



Wiring of the reactive power dry contact is shown in the figure below:



8.2.2 Analog Control Interface

The analog control interfaces are at the bottom of the Data Logger, and a sum of 4 analog input ports are provided, as shown in the figure below.



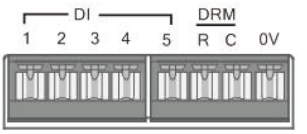
table 8-2 Analog control interface signal definition

Signal	Definition
1+, 1-, 2+, 2-, 3+, 3-, 4+, 4-	4 analog input channels

The Data Logger supports 4 inputs of 4~20mA analog currents or 4 inputs of 0~10V analog voltage.

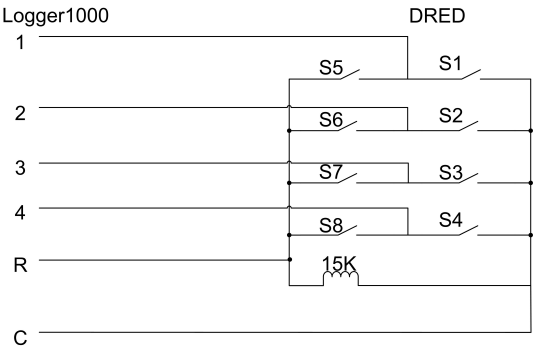
8.2.3 DRM Control Interface

The DRM control interface are located at the bottom of the Data Logger, as shown in the figure below.



The DRM interface works together with DI1~DI4 to achieve the DRM function.

Wiring between the Logger1000 and the DRED is as follows:



The Data Logger must be connected to the DRED (Demand Response Enablement Device). The connection can be made using either wiring terminals or RJ45 connector.

8.3 Power Control

Power regulation includes active power control and reactive power regulation.

8.3.1 Active Power

8.3.1.1 Disable Derating

When **Disable Derating** is selected, the inverter operates at full load.

step 1 Click **Power Control > Active Power** to enter the **Active Power** page.

step 2 Set **Active Control Mode** to **Disable Derating**, and click **Save**.

- - End

8.3.1.2 Remote Power Control

When the command is issued through IEC104 or MODBUS TCP protocol, set **Active Control Mode** to **Remote Power Control**.

step 1 Click **Power Control > Active Power** to enter the **Active Power** page.

step 2 Set **Active Control Mode** to **Remote Power Control**.

step 3 Set remote dispatching parameters. For specific parameter description, refer to the following table.

table 8-3 Parameters description

Parameters	Description
Control Method	• **Open-loop Control**: Active dispatching command is sent to the power output port of the inverter, thereby achieving active power control. • **Closed-loop Control**: - When not using a Smart Energy Meter, at the start time, the active power command is set as the target value. Multiple adjustment algorithms are applied to calculate the proportional value of active power compensation, which is then sent to the power output port of the inverter. This method is generally used for fast and accurate active power regulation. - When using a Smart Energy Meter, at the start time, the active power command is set as the target value, and the active power is collected by the meter as an input parameter. A closed-loop control algorithm is then used to calculate the proportional value of active power compensation, which is then sent to the power output port of the inverter. This method is generally used for anti-backflow or zero power feed-in.
Query Recovery Time*	The Data Logger receives the remote scheduling command and will stop querying data during this time period. Range: 0~60s
Frame Delay*	Time interval for data interaction with the inverter while executing the power control function. Range: 4~70ms
Select energy meter/transformer*	Select a Smart Energy Meter or transformer for power regulation
Error Limit**	Adjust accuracy. If the ratio of the difference between the active power and the target value to the rated power is within the set error range, the target value is reached.
Adjustment Ratio**	If the adjustment does not reach the set target value, increase or decrease adjustment value according to the set adjustment ratio, so as to reach the target value.
Control Cycle**	Time interval of delivering dispatching commands Range: 5~60s

The parameters noted with * refer to the parameters that need to be set only when **Control Method** is set to **Closed-loop Control**.

The parameters noted with ** refer to the parameters that need to be set only when **Control Method** is set to **Closed-loop Control**, and a Smart Energy Meter or transformer is selected.

step 4 After finishing parameter setting, click **Save** to save the operation.

- - End

8.3.1.3 Local Power Control

If reactive dispatching command or dispatching target value is used as dispatching input locally, set **Active Control Mode** to **Local Power Control**.

step 1 Click **Power Control > Active Power** to enter the **Active Power** page.

step 2 Set **Active Control Mode** to **Local Power Control**.

step 3 Set local dispatching parameters. For specific parameter description, refer to the following table.

table 8-4 Parameters description

Parameters	Description
Control Method	• **Open-loop Control**: Active dispatching command is sent to the power output port of the inverter, thereby achieving active power control. • **Closed-loop Control**: - When not using a Smart Energy Meter, at the start time, the active power command is set as the target value. Multiple adjustment algorithms are applied to calculate the proportional value of active power compensation, which is then sent to the power output port of the inverter. This method is generally used for fast and accurate active power regulation. - When using a Smart Energy Meter, at the start time, the active power command is set as the target value, and the active power is collected by the meter as an input parameter. A closed-loop control algorithm is then used to calculate the proportional value of active power compensation, which is then sent to the power output port of the inverter. This method is generally used for anti-backflow or zero power feed-in.
Select energy meter/transformer*	Select a Smart Energy Meter or transformer for power regulation

Parameters	Description
Power Limit in Case of Meter Communication Anomaly**	In the event of meter communication failure, set a fixed proportion to limit the power fed into the grid.
Wiring Mode**	**Direct Connection**: One Data Logger is connected to all inverters, where all the inverters must be string inverters or central inverters. **Cascading**: Multiple Data Loggers are cascaded, and this Data Logger is used as the host.
Start After Communication Recovery**	**Enable**: After the Smart Energy Meter recovers normal communication, the Data Logger will deliver a start command to the inverter. **Disable**: After the Smart Energy Meter recovers normal communication, the Data Logger will not deliver a start command to the inverter.
Start Delay After Communication Recovery**	After the Smart Energy Meter recovers normal communication, the Data Logger will deliver a start command to the inverter after a certain time period. Range: 0~120s
Feed-in Stop**	• **Enable**: When feed-in power is detected, the Data Logger will deliver a stop command to the inverter. • **Disable**: When feed-in power is detected, the Data Logger will not deliver stop instruction to the inverter. Note: Use the enable switch with caution. In general, keep it in the disabled state unless necessary.
Feed Network Control Mode**	• If the meter collects the three-phase data on the grid side, select **Total Active Power Control** as feedback value for regulation. • If the meter collects the single-phase data on the grid side, select **Split Phase Active Power Control** as feedback value for regulation.
Energy Meter Response Time**	Based on the model of the meter actually connected, adjust the meter response time to improve the feed-in speed and precision.
Over-scaling**	Compare the values of power limit and over-scaling. If the value of power limit is lower than that of over-scaling, power limitation will not be performed. In case the former goes higher than the latter, only the difference between them will be sent.
Control Cycle	Time interval of delivering dispatching commands Range: 5~60s
Instruction Type	**kW**: set active power value **%**: set active power percentage

Parameters	Description
Feed-in Limitation Method*	To calculate the value to be sent for power control based on the inverter's **Nominal Power** or **Installed PV Power**. If **Installed PV Power** is selected, fill in the total installed power of PV modules based on the actual conditions in the plant.

The parameters noted with * refer to the parameters that need to be set only when **Control Method** is set to **Closed-loop Control**.

The parameters noted with ** refer to the parameters that need to be set only when **Control Method** is set to **Closed-loop Control**, and a Smart Energy Meter or transformer is selected.

step 4 Add local power control manner.
Fill in the **Start Time**, and **Fixed Value of Active Power** or **Percentage**, and click **Save**.

- - End

Subsequent Operation

Delete local power control manner: select a local control manner that needs to be deleted, and click **Clear Data**.

8.3.1.4 Analog Input

When using the analog signal at the AI port of the Data Logger as the dispatching input, set **Active Control Mode** to **Analog Input**.

step 1 Click **Power Control > Active Power** to enter the **Active Power** page.

step 2 Set **Active Control Mode** to **Analog Input**.

step 3 Set AI control parameters. For specific parameter description, refer to the following table.

table 8-5 Parameters description

Parameters	Description
Control Method	• **Open-loop Control**: Active dispatching command is sent to the power output port of the inverter, thereby achieving active power control. • **Closed-loop Control**: - When not using a Smart Energy Meter, at the start time, the active power command is set as the target value. Multiple adjustment algorithms are applied to calculate the proportional value of active power compensation, which is then sent to the power output port of the inverter. This method is generally used for fast and accurate active power regulation. - When using a Smart Energy Meter, at the start time, the active power command is set as the target value, and the active power is collected by the meter as an input parameter. A closed-loop control algorithm is then used to calculate the proportional value of active power compensation, which is then sent to the power output port of the inverter. This method is generally used for anti-backflow or zero power feed-in.
Select energy meter/transformer*	Select a Smart Energy Meter or transformer for power regulation
Control Cycle	Time interval of delivering dispatching commands Range: 5~60s
AI Port	AI1~AI4 available
Instruction Type	**kW**: set active power value **%**: set active power percentage
Min/Max	When **Instruction Type** is set to **%**, the lower and upper limit is 0.0%~100.0%. When **Instruction Type** is set to **kW**, the lower and upper limit is 0.0 kW~999999 kW.
Step	The minimum difference value between two consecutive power dispatching commands
Sampling Value Less Than Lower Limit Power Value	Power limit ratio to be sent when the sampling value from the AI channel falls below the lower limit.
Sampling Value Less Than Lower Limit Associated DO	If the IOM424 module has been connected and the sampling value from the AI channel falls below the lower limit, the selected DO port outputs an action signal.

Parameters	Description
Sampling Value Less Than Lower Limit Fault Recovery Time	Time taken for the DO port to restore to the initial state in the event of the sampling value from the AI channel falling below the lower limit.
Sampling Value Greater Than Upper Limit Power Value	Power limit ratio to be sent when the sampling value from the AI channel exceeds the upper limit.
Sampling Value Greater Than Upper Limit Associated DO	If the IOM424 module has been connected and the sampling value from the AI channel exceeds the upper limit, the selected DO port outputs an action signal.
Sampling Value Greater Than Upper Limit Fault Recovery Time	Time taken for the DO port to restore to the initial state in the event of the sampling value from the AI channel exceeding the upper limit.

The parameters noted with * refer to the parameters that need to be set only when **Control Method** is set to **Closed-loop Control**.

step 4 After finishing the configuration, click **Save** to apply the changes.

- - End

8.3.1.5 Digital Input

When using the analog signal at the DI port of the Data Logger as the dispatching input, set **Active Control Mode** to **Digital Input**.

step 1 Click **Power Control > Active Power** to enter the **Active Power** page.

step 2 Set **Active Control Mode** to **Digital Input**.

step 3 Set DI control parameters. For specific parameter description, refer to the following table.

table 8-6 Parameters description

Parameters	Description
Control Method	• **Open-loop Control**: Active dispatching command is sent to the power output port of the inverter, thereby achieving active power control. • **Closed-loop Control**: - When not using a Smart Energy Meter, at the start time, the active power command is set as the target value. Multiple adjustment algorithms are applied to calculate the proportional value of active power compensation, which is then sent to the power output port of the inverter. This method is generally used for fast and accurate active power regulation. - When using a Smart Energy Meter, at the start time, the active power command is set as the target value, and the active power is collected by the meter as an input parameter. A closed-loop control algorithm is then used to calculate the proportional value of active power compensation, which is then sent to the power output port of the inverter. This method is generally used for anti-backflow or zero power feed-in.
Select energy meter/transformer*	Select a Smart Energy Meter or transformer for power regulation
Control Cycle	Time interval of delivering dispatching commands Range: 5~60s
Instruction Type	**kW**: set active power value **%**: set active power percentage
Feed-in Limitation Method*	To calculate the value to be sent for power control based on the inverter's **Nominal Power** or **Installed PV Power**. If **Installed PV Power** is selected, fill in the total installed power of PV modules based on the actual conditions in the plant.

The parameters noted with * refer to the parameters that need to be set only when **Control Method** is set to **Closed-loop Control**.

step 4 Add digital input manner.

Select the desired **DI Port**, fill in the **Fixed Value of Active Power** or **Percentage**, and click **Save**.

- - End

Subsequent Operation

Delete digital input manner: select a digital input manner that needs to be deleted, and click **Clear Data**.

8.3.1.6 DRM Mode

When using the analog signal at the DI port of the Data Logger (DI1~DI4) as the dispatching input, set **Active Control Mode** to **DRM Mode**.

step 1 Click **Power Control > Active Power** to enter the **Active Power** page.

step 2 Set **Active Control Mode** to **DRM Mode**, and click **Save**.

- - End

8.3.1.7 Country Mode

If the dispatching input must be the national power dispatching commands, set **Active Control Mode** to **Country Mode**.

step 1 Click **Power Control > Active Power** to enter the **Active Power** page.

step 2 Set **Active Control Mode** to **Country Mode**.

step 3 Select **Country**.

When the country is set to **Korea**, the corresponding parameter description is as follows.

table 8-7 Parameters description

Parameters	Description
PPC Type	PPC device of DER-AVM type
Forwarding Modbus ID	From 1 to 10

When the country is set to **Japan**, the corresponding parameter description is as follows.

table 8-8 Parameters description

Parameters	Description
Scheduling Mode	Data Logger is connected to the power plant dispatch server designated by the Japan Electric Power Company.
Obtaining Schedule	• When it is set to **Remote Download**, fill in plant code and server address. And import certificate, to download schedule from the set server address. • When it is set to **Local Import**, just import the schedule file.

Parameters	Description
Parameter Type	• When selecting **Plant Parameter**, set **Plant Information** and **PV Module Capacity** further. • When selecting **Device Parameter**, click **Detailed Device Parameter** to view and set device information.
Time Calibration	Calibrate the time as needed. Calibration range: -10~10. When the system time of Data Logger < the time adjusted after **Time Calibration**, or the time of Data Logger < the NTP synchronized time, **Time Validity** will be displayed as Invalid, at which time Data Logger will send a stop command to the inverter, until **Time Calibration** or NTP synchronization operation is performed.

step 4 Click **Save**.

- - End

8.3.1.8 Disable Dispatching

Set **Active Control Mode** to **Disable Dispatching** to prohibit the Data Logger from performing reactive dispatching on the inverter.

step 1 Click **Power Control > Active Power** to enter the **Active Power** page.

step 2 Set **Active Control Mode** to **Disable Dispatching**, and click **Save**.

- - End

8.3.2 Reactive Power

8.3.2.1 Disable Output

If the grid company does not need the power plant to adjust the voltage at the grid-connection point, and the inverter does not need to cooperate with the grid for reactive power compensation, the inverter keeps operating in the reactive-forbidden output state, and the **Reactive Control Mode** is set to **Disable Output**.

step 1 Click **Power Control > Reactive Power** to enter the **Reactive Power** page.

step 2 Set **Reactive Control Mode** to **Disable Output**, and click **Save**.

- - End

8.3.2.2 Remote Power Control

When the command is issued through IEC104 or MODBUS TCP protocol, set **Reactive Control Mode** to **Remote Power Control**.

step 1 Click **Power Control > Reactive Power** to enter the **Reactive Power** page.

step 2 Set **Reactive Control Mode** to **Remote Power Control**.

step 3 Set remote dispatching parameters.

table 8-9 Parameters description

Parameters	Description
Control Method	• **Open-loop Control**: At the start time, the reactive power command is sent to the power output port of the inverter for reactive power control. • **Closed-loop Control**: At the start time, the reactive power command is set as the target value, and the reactive power and power factor are collected by the meter as input parameters. A closed-loop control algorithm is then used to calculate the proportional value of reactive power compensation, which is then sent to the power output port of the inverter. This method is generally used to improve the power factor of the property boundary point.
Query Recovery Time	The Data Logger receives the remote scheduling command and will stop querying data during this time period. Range: 0~60s
Frame Delay	Time interval for data interaction with the inverter while executing the power control function. Range: 4~70ms
Select energy meter/transformer*	Select a Smart Energy Meter or transformer for power regulation
Error Limit*	Adjust accuracy. If the ratio of the difference between the reactive power and the target value to the rated power is within the set error range, the target value is reached.
Adjustment Ratio*	If the adjustment does not reach the set target value, increase or decrease adjustment value according to the set adjustment ratio, so as to reach the target value.
Reactive Power Direction*	**Forward Direction**: The reactive power direction of the inverter array displayed by the meter/transformer is the same as the actual reactive power direction. **Direction Reverse**: The reactive power direction of the inverter array displayed by the meter/transformer is opposite to the actual reactive power direction.

Parameters	Description
Control Cycle	Time interval of delivering dispatching commands Range: 5~60s

The parameters noted with * refer to the parameters that need to be set only when **Control Method** is set to **Closed-loop Control**.

step 4 After finishing the configuration, click **Save** to apply the changes.

- - End

8.3.2.3 Local Power Control

If reactive dispatching command or dispatching target value is used as dispatching input locally, set **Reactive Control Mode** to **Local Power Control**.

step 1 Click **Power Control > Reactive Power** to enter the **Reactive Power** page.

step 2 Set **Reactive Control Mode** to **Local Power Control**.

step 3 Set local dispatching parameters.

table 8-10 Parameters description

Parameters	Description
Control Method	• **Open-loop Control**: At the start time, the reactive power command is sent to the power output port of the inverter for reactive power control. • **Closed-loop Control**: At the start time, the reactive power command is set as the target value, and the reactive power and power factor are collected by the meter as input parameters. A closed-loop control algorithm is then used to calculate the proportional value of reactive power compensation, which is then sent to the power output port of the inverter. This method is generally used to improve the power factor of the property boundary point.
Select energy meter/transformer*	Select a Smart Energy Meter or transformer for power regulation
Power Limit in Case of Meter Communication Anomaly*	In the event of meter communication failure, set a fixed proportion to limit the power fed into the grid.
Wiring Mode*	**Direct Connection**: One Data Logger is connected to all inverters, where all the inverters must be string inverters or central inverters. **Cascading**: Multiple Data Loggers are cascaded, and this Data Logger is used as the host.

Parameters	Description
Line Reactive Power Compensation*	Compensation for reactive power losses in the line.
Control Cycle	Time interval of delivering dispatching commands Range: 5~60s
Instruction Type	**PF**: set the power factor as the target value **%**: set reactive power percentage

The parameters noted with * refer to the parameters that need to be set only when **Control Method** is set to **Closed-loop Control**.

When selecting an energy meter, the meter must be the one manufactured by SUNGROW.

step 4 Add local power control manner.

Fill in and **PF** or **Percentage**, and click **Save**.

- - End

Subsequent Operation

Delete local power control manner: select a local control manner that needs to be deleted, and click **Clear Data**.

8.3.2.4 Analog Input

When using the analog signal at the AI port of the Data Logger as the dispatching input, set **Reactive Control Mode** to **Analog Input**.

step 1 Click **Power Control > Reactive Power** to enter the **Reactive Power** page.

step 2 Set **Reactive Control Mode** to **Analog Input**.

step 3 Set AI control parameters.

table 8-11 Parameters description

Parameters	Description
Control Method	• **Open-loop Control**: At the start time, the reactive power command is sent to the power output port of the inverter for reactive power control. • **Closed-loop Control**: At the start time, the reactive power command is set as the target value, and the reactive power and power factor are collected by the meter as input parameters. A closed-loop control algorithm is then used to calculate the proportional value of reactive power compensation, which is then sent to the power output port of the inverter. This method is generally used to improve the power factor of the property boundary point.
Select energy meter/transformer*	Select a Smart Energy Meter or transformer for power regulation
Control Cycle*	Time interval of delivering dispatching commands Range: 5~60s
AI Port	AI1~AI4 available
Instruction Type	**PF**: set the power factor as the target value **%**: set reactive power percentage
Min/Max	When **Instruction Type** is set to **%**, the lower and upper limit is -100.0%~100.0%. When **Instruction Type** is set to **PF**, the lower and upper limit is -1~-0.8 or 0.8~1
Step	The minimum difference value between two consecutive power dispatching commands
Hysteresis Range**	When **Instruction Type** is set to **PF**, dispatching output maintains a power factor within the range of ±1.

The parameters noted with * refer to the parameters that need to be set only when **Control Method** is set to **Closed-loop Control**.

Only when **Control Method is set to **Open-loop Control** and **Instruction Type** to **PF** or when **Control Method** is set to **Closed-loop Control**, a Smart Energy Meter is selected, and the **Instruction Type** is set to **PF**, the parameter **Hysteresis Range** is settable.

step 4 After finishing the configuration, click **Save** to apply the changes.

- - End

8.3.2.5 Digital Input

When using the analog signal at the DI port of the Data Logger as the dispatching input, set **Reactive Control Mode** to **Digital Input**.

step 1 Click **Power Control > Reactive Power** to enter the **Reactive Power** page.

step 2 Set **Reactive Control Mode** to **Digital Input**.

step 3 Set DI control parameters.

table 8-12 Parameters description

Parameters	Description
Control Method	• **Open-loop Control**: At the start time, the reactive power command is sent to the power output port of the inverter for reactive power control. • **Closed-loop Control**: At the start time, the reactive power command is set as the target value, and the reactive power and power factor are collected by the meter as input parameters. A closed-loop control algorithm is then used to calculate the proportional value of reactive power compensation, which is then sent to the power output port of the inverter. This method is generally used to improve the power factor of the property boundary point.
Select energy meter/transformer*	Select a Smart Energy Meter or transformer for power regulation
Control Cycle*	Time interval of delivering dispatching commands Range: 5~60s
Instruction Type	**PF**: set the power factor as the target value **%**: set reactive power percentage

The parameters noted with * refer to the parameters that need to be set only when **Control Method** is set to **Closed-loop Control**.

Open-loop Control can set **PF**, and **Closed-loop Control** can only set **PF** when a meter or transformer is selected.

step 4 Add digital input manner.

Select the desired **DI Port**, fill in the **PF** or **Percentage**, and click **Save**.

- - End

Subsequent Operation

Delete digital input manner: select a digital input manner that needs to be deleted, and click **Clear Data**.

8.3.2.6 Country Mode

If the dispatching input must be the national power dispatching commands, set **Reactive Control Mode** to **Country Mode**.

step 1 Click **Power Control > Reactive Power** to enter the **Reactive Power** page.

step 2 Set **Reactive Control Mode** to **Country Mode**.

- - End

8.3.2.7 Disable Dispatching

Prohibit the Data Logger from performing reactive dispatching on the inverter.

step 1 Click **Power Control > Reactive Power** to enter the **Reactive Power** page.

step 2 Set **Reactive Control Mode** to **Disable Dispatching**, and click **Save**.

- - End

8.4 Setting Emergency Stop

If the emergency stop switch is activated, the Logger1000 will initiate a batch power-off operation on the inverters.

Prerequisites

- The Logger1000 is connected to the emergency stop device. See 5.7 Connection to Emergency Stop Device.

step 1 Click **Power Control > Emergency Button** to navigate to the corresponding page.

step 2 Set **Emergency Button** to **Enable**.

step 3 Optional: Set Inverter Status During Emergency Stop Recovery to **Boot**.
After resetting the emergency stop switch, the inverters will automatically power on.

step 4 Click **Save** to apply the changes.

- - End

If the inverters remain in standby mode after resetting the emergency stop switch, manually start the inverters through **Device Monitoring > Device Instruction** . If there is any problem, contact SUNGROW.

9 User Management

The system administrator can create and manage O&M user accounts, reset account passwords, set account protection and session security parameters, and enable the developer debugging mode.

Prerequisites

- Firmware version of Logger1000-EU: P005 or above. See 7.12.13 About.
- The user has administrator permissions.

9.1 User Roles and Permissions

The following roles are provided:

- O&M user
- R&D user
- System administrator

The R&D user account is reserved only for SUNGROW's technical support engineers.

Menu permissions	User role	
	O&M user	System administrator
View real-time data of the power plant	✓	×
Configure serial ports of the Data Logger	✓	×
Configure data communication and transfer protocols	✓	×
Device Administration	✓	×
Configure device parameters	✓	×
Export data	✓	×
Control active and reactive power	✓	×
Maintain the Data Logger	✓	×
View available accounts of all O&M users	×	✓
Create or delete O&M user accounts	×	✓
Reset account password	×	✓
Set account protection and session parameters	×	✓
Enable the O&M Mode	×	✓

9.2 Factory Default Passwords

Username	User role	Initial password
maintain	O&M user	pw1111
administrator	System administrator	pw@111111

9.3 Setting Up Administrator Account

The super administrator account must be associated with an email or phone number. This ensures that if you forget your password, it can be reset through verification via your phone or email.

step 1 Click **Link Account** to navigate to the corresponding page.

step 2 Enter the necessary contact information.

Depending on the interface language, you can associate the account with the following:

- Email address
- Phone number

If both an email address and phone number are added, the system will prioritize the phone number for verification purposes in the event of password recovery.

step 3 Click **Save**.

step 4 Optional: To delete the associated email pr phone number from the account, click **Unlink**.

- - End

9.4 Creating O&M Users

You can create additional operation and maintenance user accounts to meet the needs of operation and maintenance.

The default O&M user account is "maintain" and it cannot be deleted.

As a system administrator, you can create up to 4 additional O&M user accounts.

Username requirements

- May include uppercase letters, lowercase letters, numbers, and underscores (_)
- Must begin with a letter
- Username length should be between 4 to 16 characters

Password requirements

- Must contain at least three of the following four types of characters: uppercase letters, lowercase letters, numbers, and special characters
- Password length should be between 8 to 32 characters

step 1 Click **User Management** to navigate to the corresponding page.

step 2 Click **Add** to open the **Add User** dialog box.

step 3 Enter the desired username and password.

step 4 In the drop-down list **Permission**, select **O&M User**.

step 5 Click **Confirm**.

- - End

9.5 Deleting O&M Users

step 1 Click **User Management** to navigate to the corresponding page.

step 2 Locate the user account you intend to remove, and in the action column, click  .

step 3 In the confirmation pop-up, click **Confirm** to remove the user account.

step 4 Optional: To remove all user accounts except “maintain”, click **Clear Users**

- - End

9.6 Resetting Account Password

9.6.1 Resetting O&M Account Password

step 1 Click **User Management** to navigate to the corresponding page.

step 2 Click  to open the **Modify User** dialog box.

step 3 Reset password.

step 4 Click **Confirm**.

- - End

9.6.2 Resetting Administrator Account Password

step 1 Open the Logger1000’s login page.

step 2 Enter the username: **administrator**.

step 3 Click **Forgot Password** to open the **Modify Password** dialog box.

step 4 Enter the private key.

You can receive the private key via the email or phone number associated with the administrator account.

If the administrator account is not associated with an email or a phone number, contact SUNGROW Customer Service.

step 5 Enter the new password and confirm.

step 6 Click **Confirm**.

- - End

9.7 Setting Account Security Parameters

To enhance account security, you can configure the related parameters to control login behavior and session validity.

step 1 Click **Login Management** to navigate to the corresponding page.

step 2 Modify account security related parameters:

The following parameters can be configured:

- **Number of Illegal Visits**: Specify how many times a user can attempt to log in. An account will be auto-locked if the number of incorrect password attempts exceeds this limit. (Range: 3-6; Default: 6)
- **Login Timeout**: Specify a duration of inactivity after which the system will automatically log the user out, requiring re-authentication. (Range: 10-30; Default: 10)
- **User Lock Time**: Set the duration before a locked account, due to consecutive failed sign-in attempts, is automatically unlocked. (Range: 10-30; Default: 10)

step 3 Click **Save**.

- - End

9.8 Enabling the O&M Mode

To permit the R&D user to access the Web UI, the administrator needs to activate **R&D Debugging**.

step 1 Click **R&D Management** to navigate to the corresponding page.

step 2 Turn on the switch.

The switch will automatically turn off after being turned on continuously for 24 hours. By default, this switch is turned off.

- - End

10 Routine Maintenance

Due to ambient temperature, humidity, dust, and vibration, the internal components of the Data Logger may age and wear, which may lead to potential failures inside the device. Therefore, it is necessary to perform daily and regular maintenance on the Data Logger to ensure its normal operation and service life.

All measures, which can help the Data Logger to keep good working conditions, are within the maintenance scope.

10.1 Safety Instructions

⚠ WARNING

Only qualified and authorized personnel may perform maintenance and other operations on the Data Logger.

Do not leave screws, washers or other metal parts in the Data Logger during maintenance. Otherwise, damage may be caused to the device!

⚠ WARNING

After the Data Logger stops running, wait at least 5 minutes before performing any operation on it.

Five Safety Rules

The following five safety rules shall be observed during maintenance or troubleshooting of the Data Logger to ensure operators' safety:

- Disconnect the Data Logger from all external connections and internal power supplies.
- Ensure that the Data Logger will not be inadvertently connected.
- Ensure that the Data Logger is voltage-free using a multimeter.
- Connect necessary grounding cables.
- If there are parts in the operation area that may carry voltage, cover them with insulated cloth for insulation shielding.

10.2 Maintenance List

Item	Method
Working environment	• Ensure that there are no devices emitting strong electromagnetic interference near the Data Logger. • Ensure that there are no heat sources near the Data Logger. • Ensure that there are no corrosive materials present near the Data Logger.
Hardware	• Ensure that the power supply voltage is within the normal range. • Ensure that the wiring connections are secure and reliable. • Ensure that the device is properly grounded.
System cleaning	• Ensure that the enclosure, circuit board and other components are clean. • Check for dust or obstructions in the ventilation holes.
Terminal and cable connection	• Check whether the screws of control terminals are loose. Tighten them with a screwdriver if necessary. • Check whether the copper bars or screws are oxidized and discolored. • Visually inspect the connections and distribution of terminals and cables.
Software	• Log in to the web interface to check the device's communication status. • Log in to the web interface to review and adjust the parameters of the Data Logger. • Log in to the web interface to check the software version of the Data Logger.

10.3 Troubleshooting

⚠ WARNING

The grounding cable must be grounded reliably. Otherwise, electric shock can cause personal injury!

Refer to the table below for common faults and troubleshooting steps. If the problem still persists or there are any other questions, please contact SUNGROW.

Fault	Possible Causes	Corrective measures
Power-on fault	1. The power supply terminal of the Logger1000 has no power connection. 2. Power source failure 3. Logger1000 fault	1. Connect the power cable to the power supply terminal of the Logger1000. 2. Replace the power source. 3. Contact Sungrow.
Cannot find any device	1. The RS485 port is not connected to any devices or the connection cable is loose or connected reversely. 2. The RS485 communication parameters are set incorrectly. 3. The devices that do not support automatic search are not manually added, such as Meteo Station and Smart Energy Meter. 4. The address of the manually added device is inconsistent with the actual device address. 5. Device does not operate normally.	1. Check the RS485 communication cable connection; reconnect and tighten the cable if necessary. 2. Check the RS485 communication parameter setting; and make sure the Baud rate and the communication address setting are correct. 3. Manually add the devices such as Meteo Station and Smart Energy Meter. 4. Check the device address setting. 5. Check the device operation status.

Fault	Possible Causes	Corrective measures
The Logger1000 displays the device state as disconnection	1. Communication cable between the device and the Logger1000 is loose or disconnected. 2. Device does not operate normally. 3. The device is removed or its configuration is changed.	1. Check the cable connection between the device and Logger1000, and reconnect and tighten the cable if necessary. 2. Power on the device if the device connection is correct. 3. Check if there is a device replaced. If so, research or add the device manually. If the device is removed, navigate to the “**Device List**” page and perform **Delete** operation.
Cannot communicate with the background	1. The network between the Logger1000 and the background is failed. 2. Network parameter setting is incorrect. 3. The forwarding protocol configuration is incorrect.	1. Check if the Ethernet port of the Logger1000 is connected to the PC or router correctly. 2. Check if the network parameter is set correctly. 3. Check if the forwarding protocol is set correctly.

11 Appendix

11.1 Technical Data

Parameter	Logger1000A-EU
Basic Data	
Supported Device Number	Max. 30*
Communication	
RS485	3
Ethernet	1 x RJ45, 10/100/1000Mbps
Digital Input	5, Max. 24VDC
Analog Input	4, support 4 ~ 20mA or 0~10VDC
Operation Band	LTE(FDD): B1, B3, B7, B8, B20, B28A LTE(TDD): B38, B40, B41 GSM: B3/B8
WLAN(AP Mode)	802.11 a/b/g/n/ac; HT20/40/80MHz; 2.4GHz/5GHz
Power Supply	
DC input	24 ± 0.72VDC,1.2 A
DC output	24 ± 0.72VDC,0.5 A
Power consumption	Typ. 30 W, Max. 40 W
Ambient Conditions	
Operating temperature	-30°C ~ +60°C
Storage temperature	-40°C ~ +70°C
Allowable relative humidity range	0%~95% ,non-condensing
Max. operating altitude	4000m
Protection class	IP20
Mechanical Parameters	
Dimensions (W x H x D)	200 mm x 110 mm x 60 mm
Weight	400 g
Installation	DIN Rail / Wall mounting
General Data	

Parameter	Logger1000A-EU
Support for Software Updates	2 years

All the devices connected via ports, including inverters, meters and meteo stations, are counted.

11.2 Dry Contact Wiring Cable

The wiring cable used for each Logger1000 dry contact needs to meet the requirements in the following table.

Dry contacts	Specification
RS485	Use outdoor UV rated twisted pair with a shielding layer. The recommended cable diameter is 0.75~1.5mm^2. The maximum wiring distance should be less than 1000m.
AI	The recommended cable diameter is 0.75mm^2. The recommended maximum wiring distance is 10m.
DI	The recommended cable diameter is 0.75mm^2. The recommended maximum wiring distance is 10m.
Ethernet	Use CAT5E or higher specification network cable. Communication distance should be less than 100m.
PLC	The recommended cable diameter is 4~10mm^2. The maximum wiring distance is 1000m. Cable withstand voltage to ground must be greater than 1000V.

11.3 Quality Assurance

Evidence

During the warranty period, the customer shall provide the product purchase invoice and date. In addition, the trademark on the product shall be undamaged and legible. Otherwise, SUNGROW has the right to refuse to honor the quality guarantee.

Conditions

- When product faults occur during the warranty period, SUNGROW will provide free repairs or replace the product with a new one.
- After replacement, unqualified products shall be processed by SUNGROW.
- The customer shall give SUNGROW a reasonable period to repair the faulty device.

In the following circumstances, SUNGROW has the right to refuse to honor the quality guarantee:

- The device is damaged during transport.
- The device is improperly installed.
- The device is improperly refitted.
- The device is improperly used.
- The device operates in harsh conditions beyond those described in this document.
- The damage is caused by an unexpected natural factors.

11.4 Contact Information

If you have any questions about this product, please reach out to us. In order to be more responsive and provide you with better service, please offer the following information:

- Model of the device
- Serial number of the device
- Fault code/name
- Brief description of the problem

HQ Tel: 0551 - 6532 7878 / 0551 - 6532 7877

For detailed information, see **https://www.sungrowpower.com/headquarter.html** .

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M-D-000331