

Logger3000-UEN-Ver20-202002

Logger3000

Data Logger

User Manual

SUNGROW

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1 About this Manual

1.1 Validity

This manual is valid for the following data loggers:

- Logger3000

1.2 Target Group

This manual is applicable to technical personnel who are responsible for the installation, operation and maintenance of the Logger3000 and to users who need to perform daily operation. Readers should have the following qualifications:

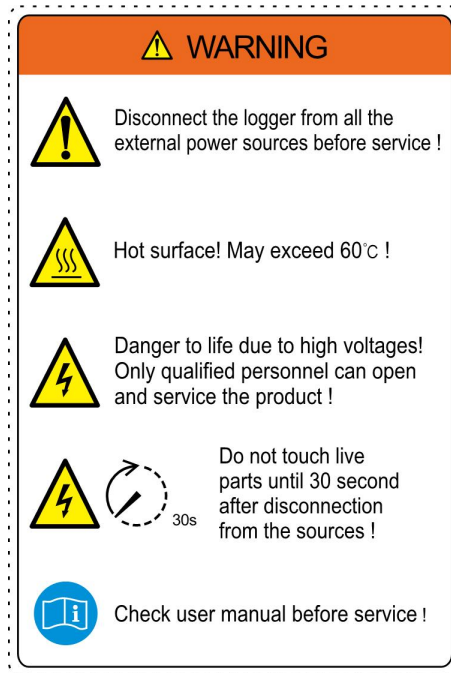
- Have some knowledge of electrical and electric cabling and mechanical knowledge; and be familiar with electrical and mechanical diagrams.
- Be familiar with the PV grid-connected power generation system and its working principle.
- Have received professional training in installing and commissioning of the electrical devices.
- Be capable of handling the danger or emergency that may occur during installation or commissioning.
- Be familiar with the national/local standards and regulations.
- Be familiar with the description in this manual.

Only personnel meeting the foregoing requirements can conduct installation, maintenance, and troubleshooting. Unauthorized personnel is prohibited to perform any operation on the device.

1.3 Symbol Explanations

Warning Label

Warning label on enclosure of the Logger3000 is as follows:



Symbols	Explanation
	Disconnect the Logger3000 from all the external power sources before service!
	Hot surface! Do not touch!
	Risk of electric shock! If not avoided, lethal hazard can be caused.
	Do not touch live parts until 30second after disconnection from the sources!
	Check user manual before service!

Symbols

This manual contains important safety and operational instructions that must be accurately understood and respected during the installation and maintenance of the equipment.

To ensure the optimum use of this manual, note the following explanations of the symbols used.

DANGER

DANGER indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

 WARNING

WARNING indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

 CAUTION

CAUTION indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE indicates a situation which, if not avoided, could result in equipment or property damage.



NOTE indicates additional information, emphasized contents or tips to help you solve problems or save time.

1.4 How to Use This Manual

Read this manual carefully before performing operation on the device. This manual must be stored at hand and available at all times.

All rights reserved including the pictures, symbols, and markings used in this manual. Any reproduction or disclosure, even partially, of the contents of this manual is strictly prohibited without prior written authorization of SUNGROW. The content of the manual will be periodically updated or revised as per the product development. It is probably that there are changes in manuals for the subsequent module edition. If there any mismatch between the product and its manual, the actual product shall prevail and the manual of the latest version can be obtained from SUNGROW.

2 Safety Instructions

This chapter mainly introduces safety instructions that need to be respected during the operation of Logger3000.

The Logger3000 has been designed and tested strictly according to international safety regulations. As electrical and electronic equipment, the Logger3000 must be installed, commissioned, operated, and maintained in strict accordance with related safety instructions. Incorrect operation or misuse of the device may cause:

- damage to personnel safety of the operators or the third party
- damage to the Logger3000 or other properties belong to the operators or the third party

Therefore, the following safety instructions must be read and always kept in mind prior to any work. All detailed work-related safety warnings and notes will be specified at the critical points in corresponding chapter.

WARNING

All operations and electrical work must only be performed by qualified personnel.

Before Installation

NOTICE

After receiving the device, please check if there is damage caused during transport. Contact SUNGROW or the forwarding company once any problem is found.

The related operators must be familiar with the safety instructions in this manual and other safety regulations about the installation, operation and maintenance of the Logger3000.

Move, transport, install, operate, and maintain the Logger3000 correctly and appropriately.

During Installation

NOTICE

The Logger3000 can only be used as described in this manual. Altering the product without authorization or using spare parts not sold or recommended by SUNGROW may lead to fire, electric shock or other damages.

NOTICE

Disconnect all electrical connections and the upstream input switch and make sure the Logger3000 is voltage-free during installation.

Maintenance and Replacement **WARNING**

The maintenance of the Logger3000 can only be performed by qualified personnel from SUNGROW or other qualified personnel.
User can never maintain or replace the modules and other parts. Serious personal injury or property loss may follow if otherwise.

NOTICE

Never replace the internal components of the Logger3000 without authorization. SUNGROW shall not be held liable for any possible damage caused by ignorance of this warning.

3 Product Introduction

3.1 Function Description

The Logger3000 is equipped with the following functions:

Support of Device Connection

The Logger3000 can be connected to devices in the PV system via an RS485 bus, and it can be also connected to SUNGROW string inverter equipped with the PLC communication function through the PLC cable. The Logger3000 can store and process device information as well as convert data communication protocol.

Management of Communication Device

The Logger3000 can centrally manage devices connected to it, including parameter setting, firmware upgrade, etc, which makes onsite maintenance more convenient.

Configuration through WEB Interface

Users can set system time, network, serial port, etc. and maintain the protocol point table through the embedded WEB interface of the Logger3000.

Data Forwarding Service

The Logger3000 can forward collected data to cloud platform, for example, iSolarCloud.

Protocol Conversion Service

The Logger3000 provides protocol conversion service, including converting ModbusRTU into IEC104, MQTT, etc.

Grid Dispatching

The Logger3000 can receive and execute dispatching instructions from the grid, including remote IEC104 instructions, remote dispatching from Japan utility power company, and AI/DI dispatching control instructions.

The Logger3000 can perform active power control and reactive power regulation on the inverter connected to it.

Local Dispatching

The Logger3000 can receive and execute local dispatching instructions, including delivering fixed value, energy meter closed-loop dispatching, etc.

I-V Curve Scanning

The Logger3000 can perform I-V curve scanning on SUNGROW inverter, and users can view scanning result via iSolarCloud or Insight. For detailed description of the I-V curve scanning, refer to the manual of iSolarCloud or Insight.

3.2 Application scenario

The Logger3000 is connected to the inverter, transformer, Meteo Station, and energy meter in the PV system via RS485 bus, or it can be connected to SUNGROW string inverter equipped with PLC communication function through PLC (power line carrier communication) bus.

The Logger3000 sends the collected data to Insight or a third-party server via a core switch, and then the background sends the data to iSolarCloud through a router.

Connection through Sore Switch

The following figures shows how the Logger3000 is connected to the Insight or iSolarCloud through a core switch.

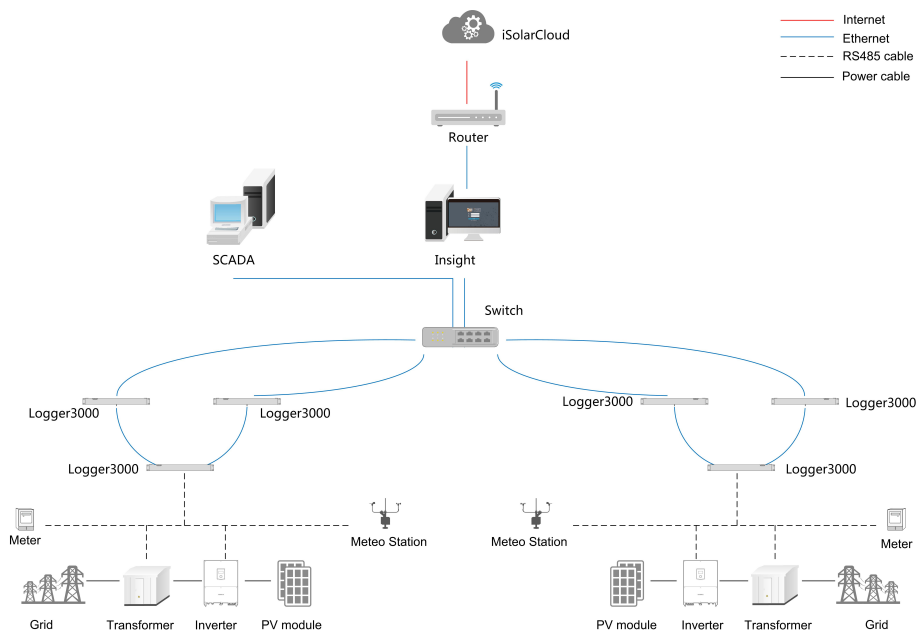


figure 3-1 Ring networking

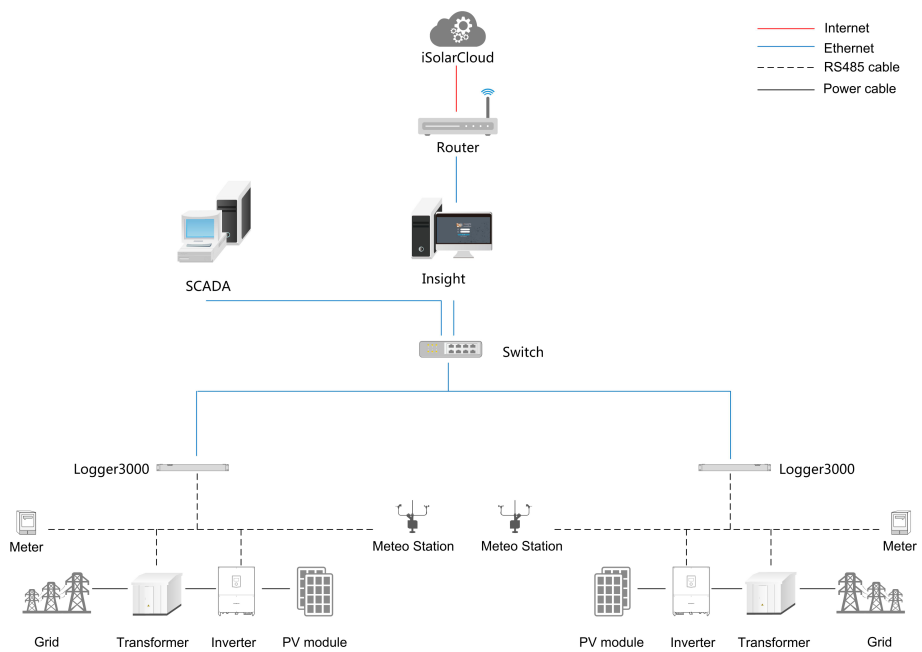
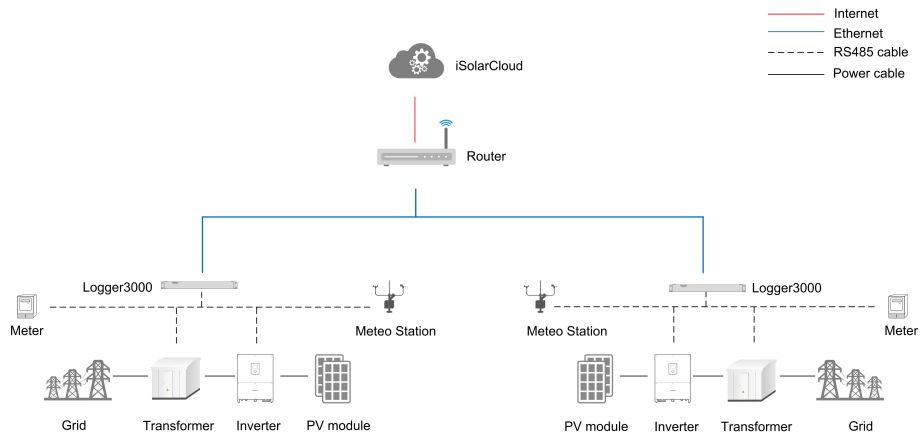


figure 3-2 Star networking

Connection through Router

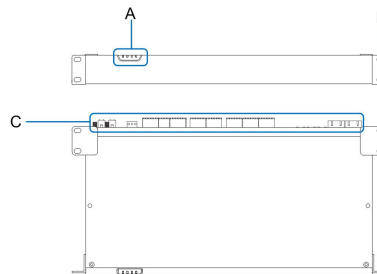
As shown in the figure below, the Logger3000 can be directly connected to the iSolarCloud through a router.



3.3 Appearance

3.3.1 Appearance

Appearance of the Logger3000 is shown in the following figure.



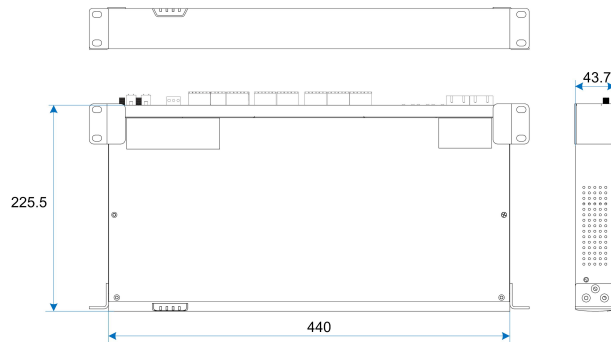
No.	Description	
A	Indicator	
B	Mounting ear	
C	Wiring terminal	

Indicator

Indica- tor	Name	Description
PWR	Power indicator	On: power supply is normal; Off: power supply is abnormal
RUN	Running indicator	Flashing: running is normal; Off: running is abnormal

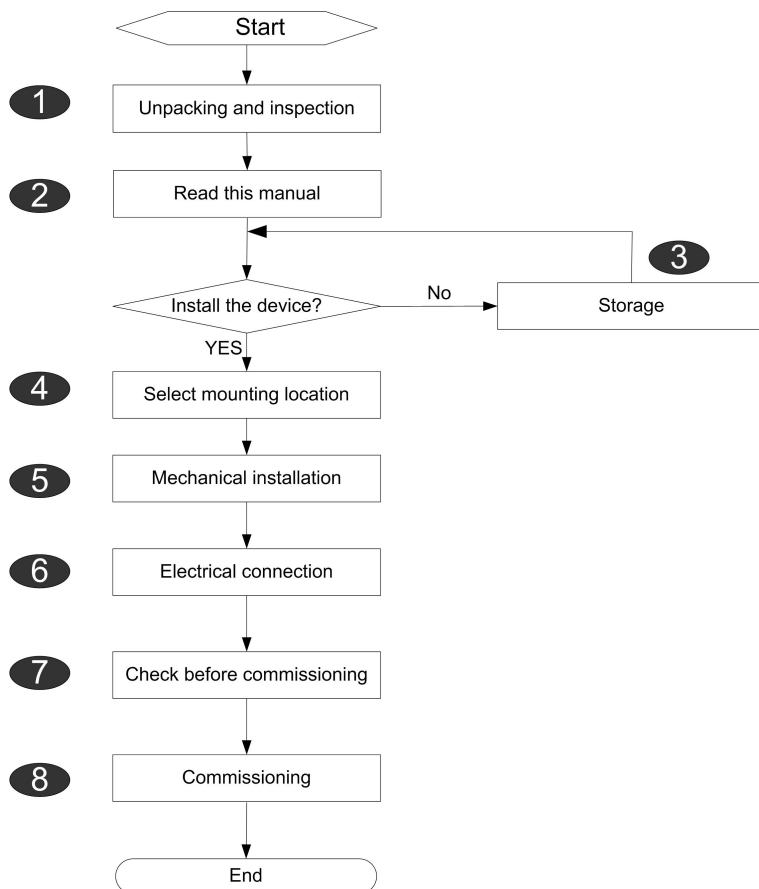
Indicator	Name	Description
BLE	Bluetooth indicator	Reserved
FAULT	Fault indicator	On: fault occurs in connected inverter; Off: connected inverter is free of fault

3.3.2 Dimensions



4 Installation Flow

The following figure shows the overall installation flow of Logger3000.



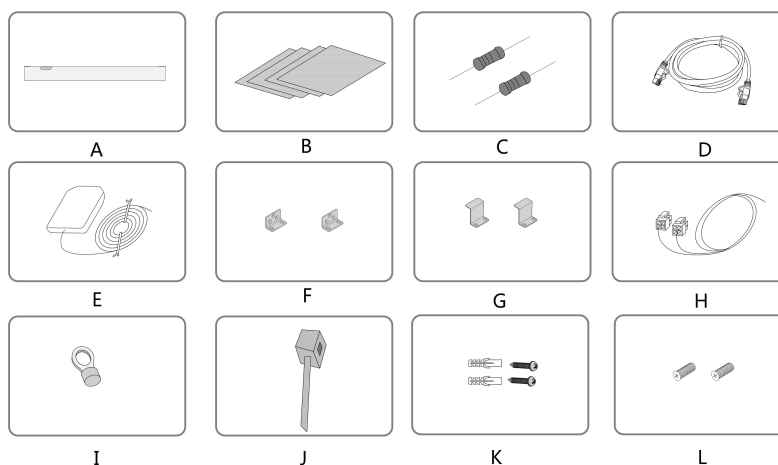
No.	Procedure	Reference chapter
1	Unpacking and inspection	"5.1 Scope of Delivery"
2	Read the user manual, especially "Safety Instructions"	"2 Safety Instructions"
3	Store the Logger3000 properly if it is not to be installed immediately	"5.4 Storage"
4	Installation location selection	"6.1 Location Selection"
5	Mechanical installation	"6 Mechanical Installation"
6	Electrical installation	"7 Electrical Connection"

No.	Procedure	Reference chapter
7	Check before commissioning	"8.1 Inspection before Commissioning"
8	Commissioning	"8.2 Commissioning Steps"

5 Unpacking and Storage

5.1 Scope of Delivery

Check the scope of delivery for completeness according to the packing list. The following items should be included.

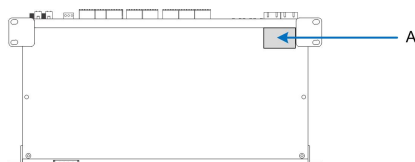


No.	Name	Description
A	Logger3000	-
B	Documents	Quick User Manual, quality certificate, packing list, product test report, and warranty card
C	Communication terminal resistor	(Note: if there are more than 15 devices connected on the RS485 bus, it is recommended to connect a 120Ω terminal resistor in parallel on the A and B lines at the head or tail end of the bus)
D	Ethernet cable	1x2m
E	GPS antenna	Optional
F	Mounting ear	2
G	Bottom supporter	2
H	PLC cable	2 x 1m, cable specification: 0.5mm ²
I	OT terminal	RNBL5-4
J	Nylon cable tie	Used to tie cables

No.	Name	Description
K	Tapping screw assembly	8, including ST4.8x19 expansion bolts and tapping screws, used for wall-mounted installation
L	Fastener assembly	6, M4x8 cross recessed countersunk head screws, used to anchor the mounting ears to the Logger3000

5.2 Identifying the Logger3000

The type and key technical parameters of the Logger3000 can be found on the nameplate. The nameplate is attached to the upper right corner of the Logger3000, shown by A in the figure below.



WARNING

The nameplate contains important parameters. Ensure it is intact and clearly legible.

5.3 Checking upon Receiving

The Logger3000 is thoroughly inspected and packed before delivery, but damage may be still caused during transport. Check the following items carefully once receiving the Logger3000.

- Check the scope of delivery for completeness according to ["5.1 Scope of Delivery"](#).
- Ensure that the device type is correct.
- Check the device thoroughly and ensure there are no visible damages.

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

WARNING

Only undamaged Logger3000 can be installed and commissioned. Before installation, ensure that:

- The Logger3000 is intact without any damages.
- Related documents, such as quick user manual, are enclosed.

5.4 Storage

If the Logger3000 is not to be installed immediately after receiving, observe the following requirements to store it properly:

- The Logger3000 should be stored in its original packing case and placed in a well-ventilated, dry, and tidy room.
- The storage carrier should be suitable for the weight of the Logger3000.
- The storage environment should be well ventilated, dry, and without any accumulated water.
- Ambient temperature: -40°C to +85°C; relative humidity: 0~95%, no condensation.
- Take precautions to protect the device against damage due to harsh environment such as shock cooling, shock heating, and collision.
- Regularly inspect the Logger3000, usually at least once a week. Check the packing case for intactness and replace it immediately when necessary.
- Unpack and check the Logger3000 in powered on state if it has been stored more than half a year.

WARNING

- **The Logger3000 must be packed during storage!**
- **Never store the Logger3000 outdoors or in a place directly exposed to!**
- **No tilting or stacking!**



After long-time storage, thoroughly check the Logger3000 and ensure it is undamaged before installation. If necessary, install the Logger3000 only after it has been tested by qualified personnel.

6 Mechanical Installation

6.1 Location Selection

This section is intended to guide the user in selecting an appropriate installation location.

Installation Location Requirements

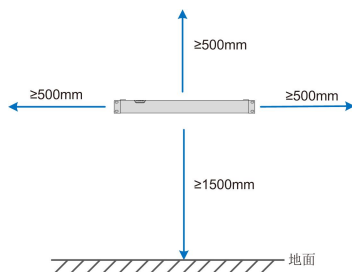
- With the ingress of protection IP 20, the Logger3000 can be installed only indoors.
- Ambient temperature range: -30°C to $+60^{\circ}\text{C}$. The relative humidity should not exceed 95%. If otherwise, the internal components will be damaged.
- The installation environment should be free of inflammable, explosive, and corrosive materials.

Requirement for Installation Clearance

Reserve enough clearances around the Logger3000.

Before installation, make sure the wiring terminals are at the bottom of the Logger3000 to prevent the dust or particles in the air penetrating into the device, impairing the service life.

The installation location should be 1,500mm above the ground surface. Clearances of at least 500mm should be reserved around the Logger3000 for ease of maintenance. The follow figure shows the requirement for minimum clearances.

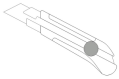
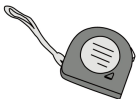
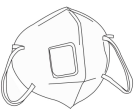
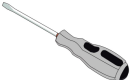


NOTICE

When there are external devices (such as Meteo Station) connected to the Logger3000, users should install corresponding communication SPD according to onsite conditions.

6.2 Installation Tools

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

General tools	 Utility knife	 Marker	 Measuring tape	 Protective gloves
	 Dust mask	 Goggles	 Vacuum cleaner	—
Installation tools	 Hammer drill	 Electric screwdriver	 Wire stripper	 Wire clipper
	 Phillips screwdriver	 Rubber mallet	 Crimping tool	—

6.3 Installing Logger3000

The Logger3000 can be installed anywhere in the room meeting the installation environment requirements. Wall-mounted installation and rack-mounted installation are supported.

6.3.1 Wall-Mounted Installation

DANGER

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



Turn on the vacuum cleaner and wear safety goggles and dust mask throughout the drilling process to avoid dust inhalation or contact with eyes.

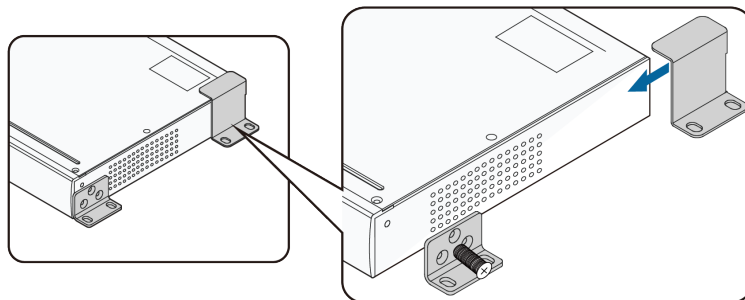
Installation component parts

- Marker (beyond the delivery scope)
- Hammer drill (beyond the delivery scope)
- Bottom supporter (in the delivery scope)
- Mounting ear (in the delivery scope)

- Expansion bolt (in the delivery scope)
- Tapping screw (in the delivery scope)
- Screwdriver (beyond the delivery scope)

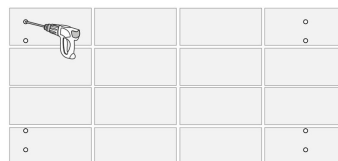
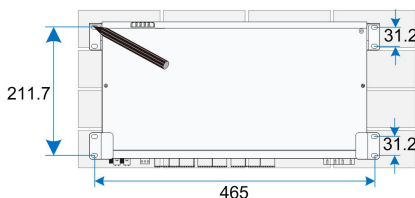
Install Mounting Ears and Bottom Supporters

Anchor the mounting ears and bottom supporters to the Logger3000 with supplied M4x8 cross recessed countersunk head screws. The fastening torque is $1.8\text{--}2.4\text{N} \cdot \text{m}$, and the anchoring method is as follows:

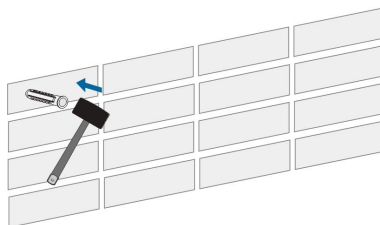


Mount the Logger3000 to the Wall

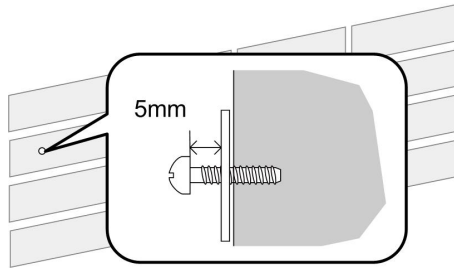
step 1 Mark positions for drilling holes on the installation wall. Drill the holes with a hammer drill of $\phi 6\text{mm}$. (Note: Reserve sufficient clearances around the Logger3000.)



step 2 Insert the expansion sleeve into the drilled hole, and make it completely embedded in the wall with a rubber hammer.



step 3 Insert the tap screw and mounting ear successively into the expansion sleeve, to fix the Logger3000 onto the wall.



step 4 Fasten the tapping screw with a screwdriver by the torque of $0.3\text{N} \cdot \text{m}$.

- - End

6.3.2 Rack-mounted Installation

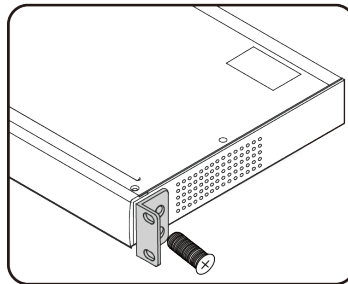
Use 1U standard rack in case of the rack-mounted installation.

Installation tools and component parts

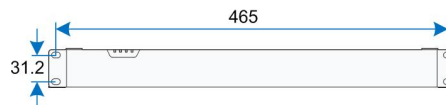
- 1U standard rack (beyond the scope of delivery)
- Electric screwdriver (beyond the scope of delivery)
- Screw (beyond the scope of delivery)
- Nut (beyond the scope of delivery)

Install mounting ears

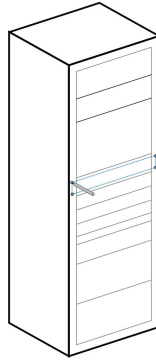
Anchor the mounting ears to the Logger3000 with supplied M4x8 cross recessed countersunk head screws. The fastening torque is $1.8\text{--}2.4\text{N} \cdot \text{m}$, and the anchoring method is as follows:



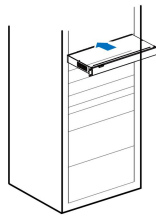
step 1 Mark positions on the rack according to dimensions of the Logger3000.



step 2 Drill holes on the rack with a hammer drill of $\varnothing 6\text{mm}$.



step 3 Level the mounting ears with the drilled holes on the rack.



step 4 Fix the Logger3000 in the sequence of screws, mounting ears, rack, and nuts.

-- End

7 Electrical Connection

7.1 Safety Instructions

⚠ DANGER

High voltage hazard!

The Logger3000 should be reliably ground. Never touch the AC power supply port "AC (100~277V)" and PLC communication port "PLC (L1、L2)" when the device is powered on.

NOTICE

High voltage hazard! Danger will be caused by touching the PLC communication port immediately after powering down. Wait at least 30s to have the capacitor discharge completely.

NOTICE

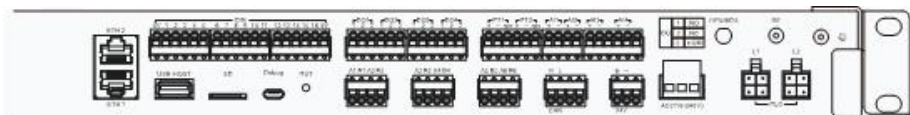
Incorrect wiring will cause device damage or even personal injury.

NOTICE

All cables must be intact, well insulated, appropriately dimensioned, and firmly connected.

7.2 Port Introduction

External wiring terminals are located at the bottom of Logger3000, and the wiring area is shown in the figure below.



Port	Function	Description
ETH1, ETH2	Ethernet port	Can be connected to the background through devices like switch and router.
DIN	Digital input	Dry contact input interface
USB-HOST	USB port	Reserved
SD	SD port	Reserved
Debug	Debug port	Used for debugging of the Logger3000
RST	Reset	Used for hardware reset of Logger3000
DO1~DO4	Digital output	Relay output interface Relay specification: 250Vac/1A or 30Vdc/1A
PT1, PT2, AI1~AI4	Analog input	PT1、PT2 detect range: -30°C ~120°C AI1~AI2: 4~20mA/0~10Vdc AI3~AI4: 0~0.1Vdc
A1B1~A6B6	RS485 communication interface	Support of 6 inputs of RS485 Can be connected to both slave device and background
CAN	CAN communication port	Reserved
24V	DC24V power supply port	If the current is $\leq 2.0A$, the switch mode power supply at this port requires reinforced insulation.
AC(100~277V)	AC power supply port	Connecting 100~277Vac (50/60Hz), current $\leq 0.5A$
GPS/BDS	GPS antenna interface	Used for time synchronization and positioning
RF	Wireless antenna interface	Reserved
	Grounding hole	Connecting protective grounding cable
PLC (L1, L2)	PLC communication interface	Can be connected to string inverters equipped with PLC communication function

AC power supply port and PLC communication interface

High voltages may be present on the AC power supply port "AC (100~277V)" and communication interface "PLC (L1 、 L2) ". Therefore, before cable connection, ensure that the two ports are free of voltage and the grounding cable is reliably connected.

Digital input/output ports

Digital input/output ports (DIN and DO1~DO4) are configured to collect node data and control node communication.

GPS wireless antenna

The wireless antenna should be installed outdoors. The GPS antenna port (GPS/BDS) are used for time synchronization and positioning.

- The time synchronization function is available to the Logger3000 itself only.
- Positioning function can be used to read out the geographic position of the Logger3000 with the help of communication devices.

Ensure that the Logger3000 has been powered down before installing or removing the GPS antenna.

RS485 communication ports

For the RS485 communication ports (A1B1~A6B6), the communication distance should be no more than 1,000m.

7.3 Overview

The Logger3000 can be connected to:

- devices in the PV system such as the inverter, combiner box, Meteo Station, and energy meter through the RS485 port
- background devices through the Ethernet port
- transformer or other devices through the PLC port

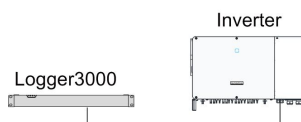
7.4 Connecting to the Inverter

7.4.1 Connecting to the Device with RS485 Port

Use an RS485 shielded twisted pair (STP) to connect any RS485 port (A1B1 – A6B6) of the Logger3000 and the RS485 communication terminal of the inverter.

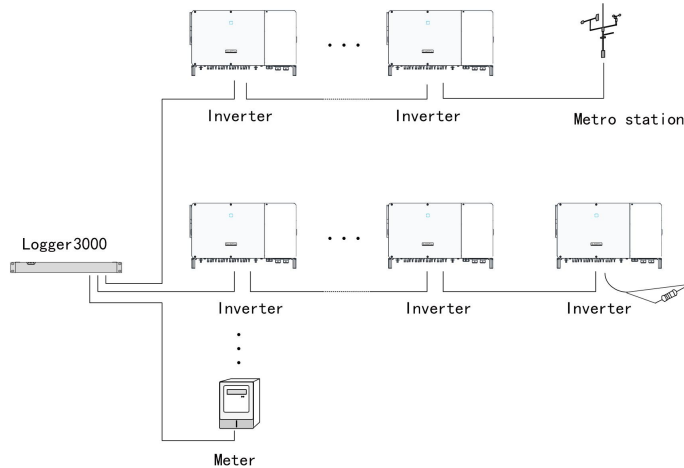
Connecting to a Single Inverter

Insert the communication cable led from the inverter to any RS485 port (A1B1 – A6B6) of the Logger3000.



Connecting to Multiple Inverters

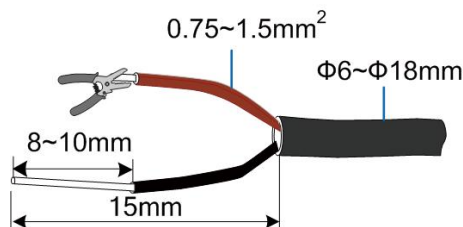
Multiple inverters are connected to the Logger3000 in the RS485 daisy chain manner. If more than 15 inverters are connected on the RS485 bus, it is recommended to connect a 120Ω terminal resistor in parallel on the RS485A and RS485B lines at the head or tail end of the bus.



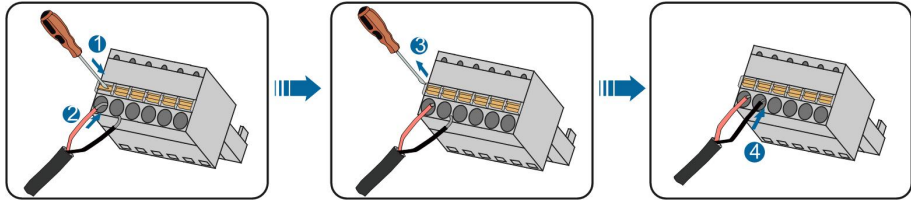
- The Logger3000 supports 6 RS485 buses and 200 devices at most. Each RS485 bus supports 60 devices at most.
- Devices of different types must be connected to different RS485 communication ports of the Logger3000. For example, the transformer and the inverter should be connected to different RS485 communication ports of the Logger3000.
- The address of each device on the RS485 bus should be within the set address range (1 to 246) of the Logger3000 without repetition. Otherwise, communication failure occurs.
- Serial port parameters of each device on the RS485 bus should be consistent with those of the Logger3000. The serial port parameters include baud rate, data bit, stop bit, and check bit.

Connection Procedure

- step 1** Lead the RS485 communication cable from the inverter to the wiring area of Logger3000.
- step 2** Strip the protection layer of the communication cable with a wire stripper. Cable specification and stripped length are as follows:



- step 3** Crimp the wiring terminal.

**NOTICE**

RS485A is connected to port A while RS485B is connected to port B.

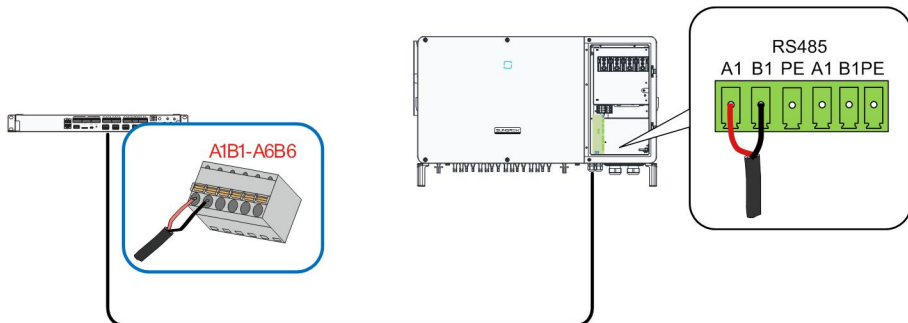
NOTICE

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



When a multi-core multi-strand copper cable is used, crimp an appropriate euro style terminal at the communication cable head and then connect it to the RS485 port of the Logger3000.

step 4 Connect the wiring terminal to the terminal "A1 B1 ~ A6 B6" of the Logger3000.

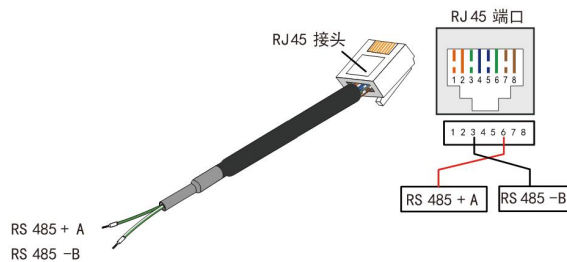


-- End

7.4.2 Connecting to the Device with RJ45 Port

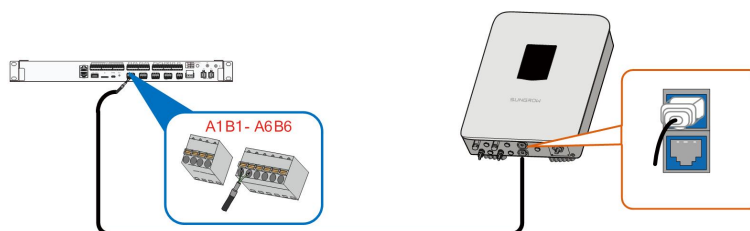
step 1 Lead the RJ45 communication cable from the inverter to the wiring area of Logger3000.

step 2 Strip the Ethernet cable.



The white-green wire 3 is defined as RS485- B wire and the green wire 6 as RS485+ A wire.

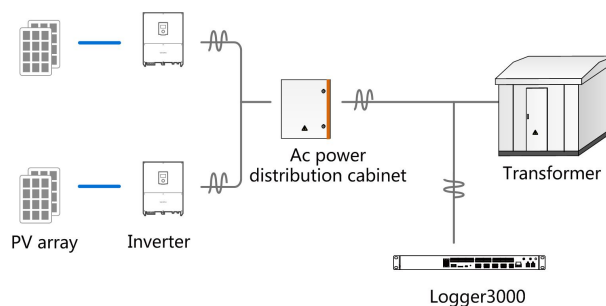
step 3 Connect the communication cable to the RS485 port of the Logger3000, as shown in the figure below.



-- End

7.4.3 Connecting to the Inverter with PLC Port

Integrated with PLC master node, the Logger3000 can be connected to the inverter integrated with PLC slave node and achieve PLC communication by using existing power cable.

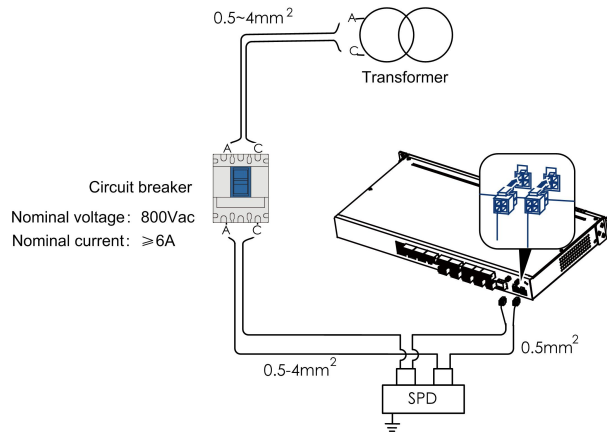


Preparation before wiring

- Disconnect the transformer from the grid.
- Disconnect the DC side of the inverter and make sure the system is in safe state.

Wiring method

Connect one end of the supplied PLC power cable to any two phases of the micro circuit breaker and the other end to the port "PLC (L1 、 L2) " of the Logger3000.



The external circuit breaker is beyond the scope of delivery, and users need to prepare it by themselves if necessary.



The external circuit breaker just needs to meet the above two parameters (- nominal voltage and nominal current). Other parameters, such as breaking capacity, are not mandatory requirement.

NOTICE

Isolation voltage of the PLC cable should be greater than 1,000V, recommended cable specification: 0.5mm².

PLC cable must be connected to an additional SPD with the protection degree of 3. Otherwise, device damage may occur.

NOTICE

The built-in PLC module of the Logger3000 supports AC voltage less than 1000V.

In case of PLC communication, the distance between the Logger3000 and the inverter should be no more than 1,000m.

NOTICE

PLC networking is intended for medium voltage grid-connection. If low voltage grid-connection is desired, observe the following two conditions:

- Never connect a load between the Logger3000 and the PLC slave node.
- The distance between the Logger3000 and the load should be greater than 20m, that is, the LV grid-connection point should be more than 20m away from the nearest load distribution line. The load includes air conditioners, machines, motors, etc.

NOTICE

In case of PLC communication, note that:

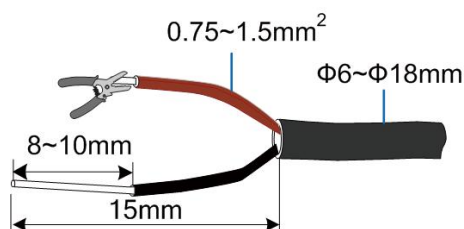
- Electrical connection between the inverter and its downstream transformer has been correctly performed.
- Input and output circuit breakers of the Logger, inverter, and transformer are connected.

7.5 Connecting to the Meteo Station

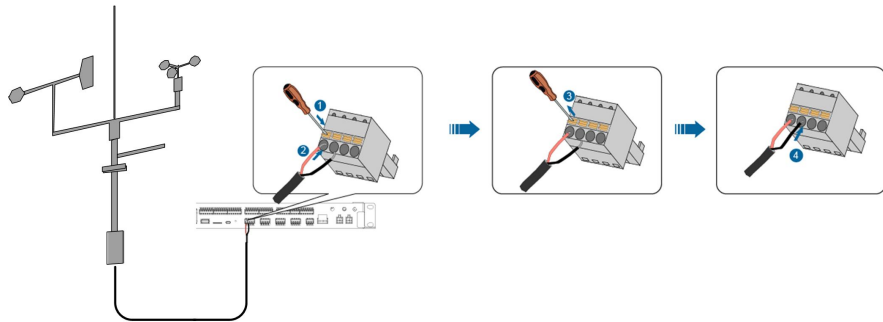
Meteo Station of the Modbus-RTU protocol can be connected to the Logger3000.

step 1 Connect the communication cable led from the Meteo Station to the RS485 port of the Logger3000.

step 2 Strip the protection layer and insulation layer of the communication cable with a wire stripper, as shown in the figure below.



step 3 Connect the stripped cable to the RS485 port of the Logger3000, as shown in the figure below.



-- End

7.6 Connecting to the Energy Meter

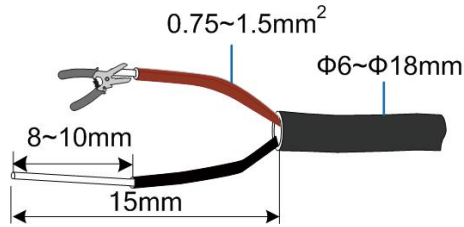
The Logger can be connected to the energy meter through the RS485 port or the Ethernet port. Specifically, refer to the table below.

Energy Meter	Communication Port	Port Definition	Protocol Type	Wiring Method
Wasion	24	RS485-A	Modbus RTU	"7.6.1 RS485 Cable Connection"
	25	RS485-B	Modbus RTU	
	26	Public	Modbus RTU	
	27	RS485-A	Modbus RTU	
	28	RS485-B	Modbus RTU	
Acrel	21	RS485-A	Modbus RTU	
	22	RS485-B	Modbus RTU	
Weidmuller EM610	17	RS485-A	Modbus RTU	
	16	RS485-B	Modbus RTU	
Janitza UMG604	22	RS485-A	Modbus RTU	
	23	RS485-B	Modbus RTU	
	Ethernet	Ethernet	Modbus TCP	"7.6.2 Ethernet Cable Connection"

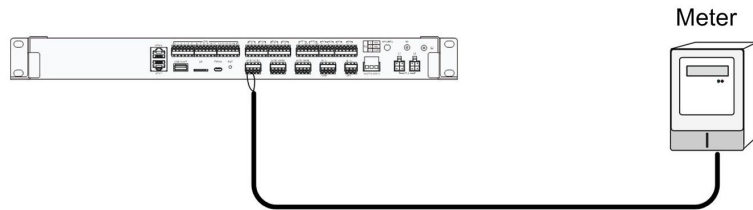
7.6.1 RS485 Cable Connection

step 1 Lead the RS485 cable from the energy meter to the wiring area of the Logger3000.

step 2 Strip the protection layer and insulation layer of the communication cable with a wire stripper, as shown in the figure below.



step 3 Connect the stripped cable to the RS485 port of the Logger3000, as shown in the figure below.



-- End

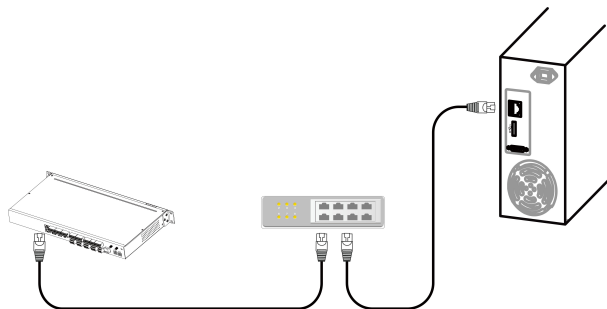
7.6.2 Ethernet Cable Connection

Connect the "Ethernet" port of the energy meter and the "Ethernet" port of the Logger with a network cable.

7.7 Connecting to the Remote Monitoring Device

The Logger3000 is equipped with two Ethernet ports: ETH1 and ETH2. The function of the ETH1 is reserved. The Logger3000 can be connected to the Ethernet switch and router through the ETH2 port.

step 1 Insert one plug of the supplied network cable into the network port of the Ethernet switch and the other plug into the ETH2 port of the Logger3000.



step 2 Configure network parameters.

-- End



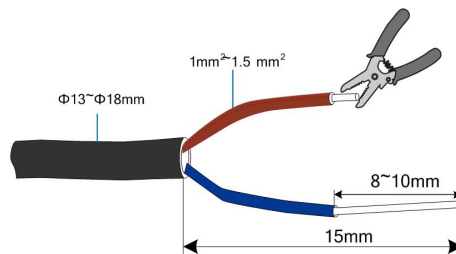
- Default IP address of the ETH2 port is 13.13.13.13.
- If the ETH2 port has enabled the Dynamic Host Configuration Protocol (-DHCP) function, the IP address of the port can be read out after the it is connected to a router or other devices.

7.8 Connecting to the AC Power Supply

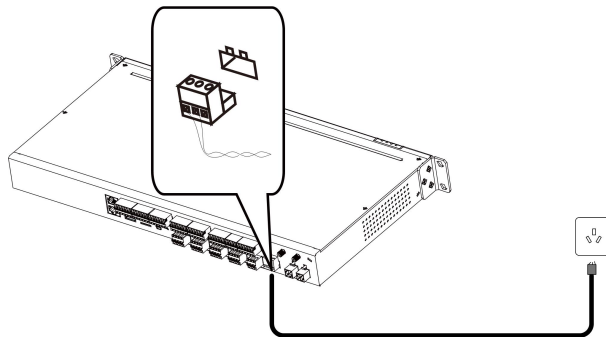
The Logger3000 can be connected to a power source with voltage ranging from 100 to 277Vac.

step 1 Lead the external power supply cable to the wiring area of the Logger3000.

step 2 Strip the power supply cable by an appropriate length and crimp it to an euro style terminal.



step 3 Insert the euro style terminal to the external jack "AC100~277V" of the Logger3000.



-- End



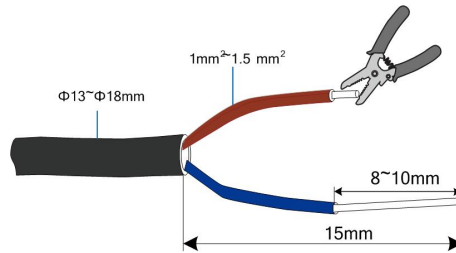
The Logger3000 can be connected to both AC power supply and DC power supply. UPS can be used as a DC backup power source.

7.9 Connecting to the DC Power Supply

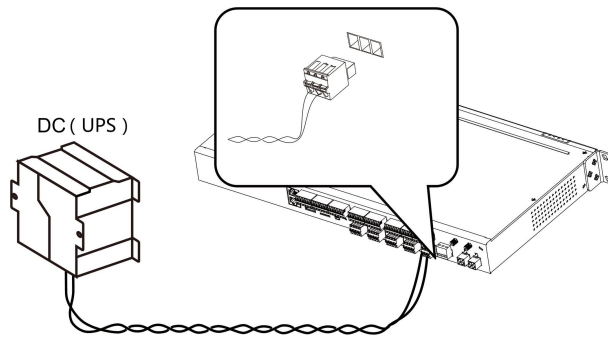
The Logger3000 can be connected to 24Vdc external power supply. UPS can be used as a power source.

step 1 Lead the external power supply cable to the wiring area of the Logger3000.

step 2 Strip the power supply cable by an appropriate length and crimp it to an euro style terminal.



step 3 Insert the euro style terminal to the external jack "24V (+ , -)" of the Logger3000.



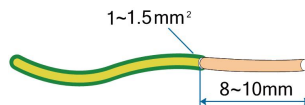
-- End

7.10 Earthing Connection

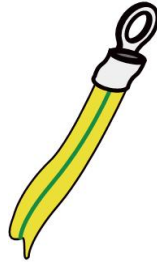
⚠ WARNING

The grounding cable should be grounded reliably. Otherwise, lethal electric shock may occur in case of fault; and the device may be damaged due to lightning.

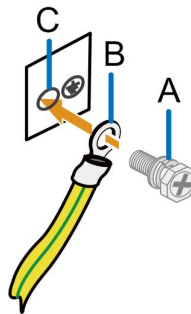
step 1 Strip the protection layer and insulation layer of the grounding cable by specific length, as shown in the figure below.



step 2 Crimp the stripped cable into an appropriate euro style terminal.



step 3 Secure the grounding cable to the grounding hole of the Logger3000, as shown in the figure below.



No.	Description	Note
A	Bolt	M4
B	OT terminal	—
C	Grounding hole	—

step 4 Fasten the screw with a wrench by the torque of $5 \pm 1 \text{ N} \cdot \text{m}$.

-- End

8 Commissioning

8.1 Inspection before Commissioning

No.	Inspection item
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

8.2 Commissioning Steps

No.	Description
1.	Connect PC to the "ETH2" port of Logger3000 by using a network cable (default IP address of "ETH" is 13.13.13.13).
2.	Connect external power supply to power on Logger3000.
3.	Observe whether the indicator RUN at the exterior of Logger3000 flickers normally.
4.	Log in to 13.13.13.13 through Internet Explorer, Safari, or Chrome.
5.	Configure serial port parameters on the WEB interface.
6.	Add PV devices connected to Logger3000 to the WEB interface by means of searching or manual adding.
7.	Configure IP address.
	Configure iSolarCloud address if inverter data needs to be uploaded to iSolarCloud.
8.	Accessed iSolarCloud site is "Chinese Server" by default. In mainland China, set the site to "Chinese Server". In Europe, set the site to "European Server". In other regions, set the site to "International Server".
9.	Access the Web interface of Logger3000 and check whether running data of string inverters manufactured by SUNGROW is normal.
10.	Create power plants through iSolarCloud App, and check whether data displayed on iSolarCloud is normal.

Additional Information

To create power plants through iSolarCloud App, proceed as follows after downloading and installing the App:

- 1 Log in to the Web of Logger3000, and click "About" to get the QR code.



- 2 Scan the QR code with iSolarCloud App or manually enter the serial number S/N to add corresponding communication device.

For more details, refer to Quick Operation Manual of iSolarCloud App.

9 Web Interface

9.1 Running Requirements

Item	Parameter
Browser	IE11 or later, Chrome65 or later, and Safari11 or later
Min. resolution	1024x768

9.2 Login Steps

step 1 Connect Logger3000 to the PC network card.

step 2 Configure IP of the PC, and ensure that it is in the same network segment as the PC of ETH2 port. The IP of the ETH2 port is 13.13.13.13 by default, and the IP of the PC can be set to 13.13.13.X, and the subnet mask to 255.255.255.0.

step 3 Enter the IP of ETH2, 13.13.13.13, in the address bar of the PC, to access the default interface.



In case you forget the IP of the ETH2 port, log in through the virtual IP.

The virtual IP of ETH1 port is 14.14.14.14.

The virtual IP of ETH2 port is 15.15.15.15.

step 4 Select the desired language in the upper right corner of the interface, and click "Login".



User types include "general user" and "O&M user".

The general user can view basic information, real-time fault, and device monitoring information of the Logger3000.

In addition to all permissions of the general user, the O&M user has the permission to set and modify parameters of the Logger3000 and devices connected to the Logger3000.

In the following, description is given by using the O&M permission as an example.



After login for the first time, it is recommended to change the password as soon as possible. Click "O&M user" -> "Modify password" to change the password.

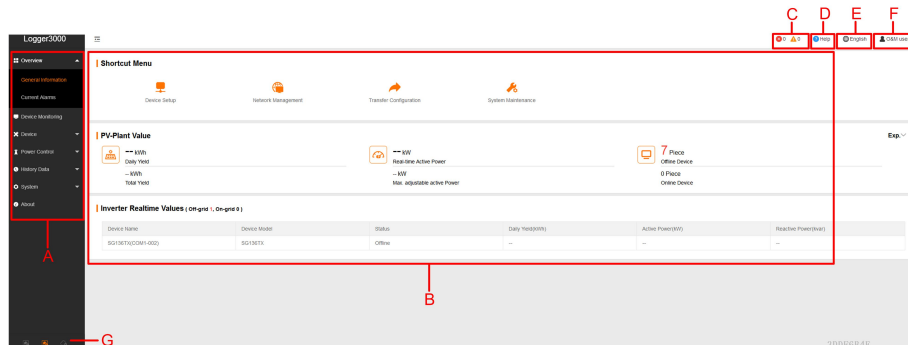
With the login password forgotten, contact SUNGROW and provide the device S/N as well as system time, to get the password.

-- End

9.3 Web Main Interface

When the "O&M user" logs into the Web for the first time, the "Help" window pops up. Follow the prompts to perform operations such as time synchronization, device connection, and forwarding configuration.

The Web main interface is as follows:

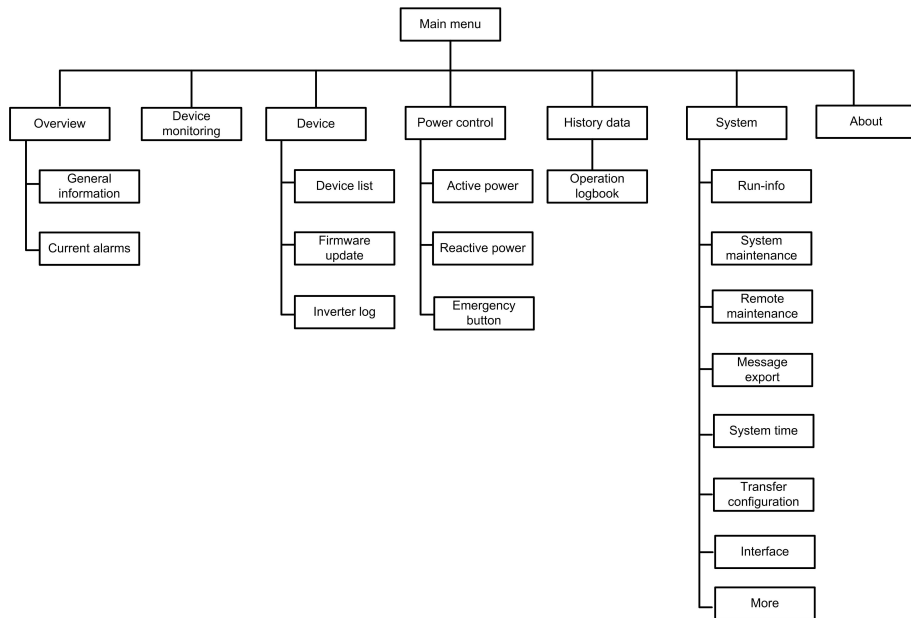


Item	Designation	Description
A	Navigation menu	Display main function modules of the Web
B	Function display area	Display the current interface
C	Alarm icon	Display the current alarm level and alarm number. Users can click the icons to enter the corresponding alarm interface
D	Help	Display the basic configuration steps of the Logger3000
E	Language menu	Click the button to select the desired language
F	User	Display the current login user
G	Information icon	 : Connection state of ETH1 port
		 : Connection state of ETH2 port
		 : Cloud service

9.4 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:



9.5 Operation Procedure

Prerequisite

- Finished the electrical connection.
- Log in the Web.

step 1 Configure serial ports of the Logger3000.

After logging into the Web, first configure the serial ports of the Logger3000, to ensure that the Logger3000 can normally communicate with upstream devices. Refer to the chapter "[9.10.13 Interface](#)".

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. Refer to the chapter "[9.10.8 System Time](#)".

step 3 Automatically search the device.

Devices that can be automatically searched, such as SUNGROW string inverter, can be added via the auto search function with addresses allocated automatically. Refer to the chapter "[9.8.1 Device List](#)".

step 4 Add the device. Refer to the chapter

"[9.8.1 Device List](#)".

step 5 Configure forwarding service.

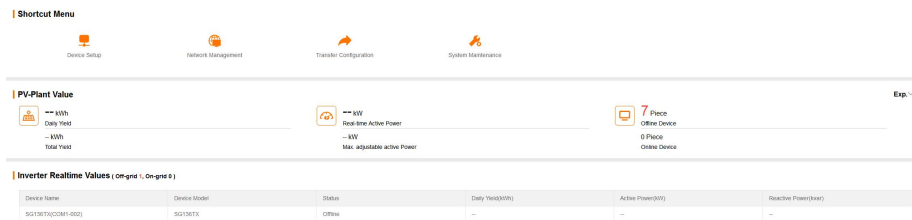
After all devices have been added, configure the forwarding service of the Logger3000, to ensure that the Logger3000 can forward the data to upstream devices. Refer to the chapter "9.10.9 Forwarding Configuration", "9.10.10 IEC104", "9.10.11 MODBUS", "9.10.12 Third-party portal".

-- End

9.6 Overview

9.6.1 General Information

Click "Overview" -> "General information" to enter the corresponding interface.



Shortcut Menu

- Device setup

Support of auto search and add device functions. Click the menu to add, delete, modify, and view the device or perform auto search operation to search the device to which address will be automatically allocated. Refer to the chapter "9.8.1 Device List".

- Network management

Set Ethernet parameters. Refer to the chapter "9.10.13 Interface".

- Transfer configuration

Transfer the data connected by the system to the background. Refer to the chapter "9.10.9 Forwarding Configuration", "9.10.10 IEC104", "9.10.11 MODBUS", "9.10.12 Third-party portal".

- System maintenance

Support of operations such as system upgrade, log export, and rebooting. Refer to the chapter "9.10 System".

PV-plant Value

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

Click the button "Exp." to view more information.

Inverter realtime values

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

9.6.2 Current Alarms

Click "Overview" -> "Current alarms" to view the device fault information.

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

9.7 Device Monitoring

Click "Device Monitoring" to enter the corresponding interface.

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

9.7.1 RealTime Values

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

step 1 Click "Device Monitoring" -> "Realtime values" to view the corresponding information.

step 2 Click the button  to select the device type.

-- End

9.7.2 DC Data

step 1 Click "Device Monitoring" -> "DC data" to view the corresponding information.

step 2 On this interface, voltage and current information of multiple inputs of MPPTs and strings can be viewed.

-- End

9.7.3 Initial Parameter

step 1 Click "Device monitoring" -> "Initial parameter" to enter the corresponding interface and set initial parameters.

step 2 Initial parameters can be set in two manners: single setting and batch setting.

-- End

9.7.3.1 Single setting

step 1 Select the desired country (region) and grid type.

step 2 Click "Setting" to set initial parameters for the single device.

- - End

9.7.3.2 Batch setting:

step 1 Select the desired 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 achieve batch setting.

- - End

9.7.4 Protection Parameter

Click "Device monitoring" -> "Protection parameter" to enter the corresponding interface and set protection parameters.

Protection parameters can be set in two manners: single setting and batch setting. For specific setting method, refer to ["9.7.3 Initial Parameter"](#).

9.7.5 General Parameter

step 1 Click "Device monitoring" -> "General parameters" to enter the corresponding interface and set general parameters.

step 2 Select "Read-back", set register address, register number, and address type, and click the button "Read-back", to read the current value of the device.

step 3 Select "Setting", set register address, data type, and set value, and click the button "- Save", to set device parameters.

- - End

9.7.6 Device Instruction

Click "Device monitoring" -> "Device instruction" to enter the corresponding interface.

On this interface, users can boot/shutdown the device or reset all settings.

Device instruction can be set in two manners: single setting and batch setting. Take the boot operation as an example for explanation.

9.7.6.1 Single setting

step 1 Select a device, click "boot", and a dialog box pops up.

step 2 Click "Yes" to start a single device.

- - End

9.7.6.2 Batch setting

step 1 Select a device, click "boot", and a dialog box pops up.

step 2 Click "Configure synchronization".

step 3 Select the desired devices in the pop-up device list, and click "Save" to achieve batch setting.

step 4 Click "Confirm" on the pop-up dialog box.

-- End

9.7.7 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.

9.8 Device Maintenance

9.8.1 Device List

The function module "Device list" is used for managing devices connected to the Logger3000 and configuring addresses for these devices. Devices can be automatically searched and added.

9.8.1.1 Auto search

The "Auto search" function is used for SUNGROW string inverter to which addresses will be automatically allocated.

step 1 Click "Device" -> "Device list" to enter the corresponding interface.

step 2 Click the button "Auto search", and the corresponding window pops up. Select an interface type, and click "Search".

step 3 After that, corresponding devices will be displayed.

-- End



Inverters without the SN do not support the automatic search function and device adding function.

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

9.8.1.2 Export

step 1 Click "Device" -> "Device list" to enter the corresponding interface.



step 2 Click the button to export the device list.

-- End

9.8.1.3 Import

step 1 Click "Device" -> "Device list" to enter the corresponding interface.



step 2 Click the button to export the device list.

step 3 After the device list is exported, the 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 the button to import the .csv file into the Web.

-- End

9.8.1.4 Add device

step 1 Click "Device" -> "Device list" to enter the corresponding interface.

step 2 Click "Add device", select a device type in the pop-up window, and fill in the information required.

-- End

9.8.1.5 Edit device

step 1 Click "Device" -> "Device list" to enter the corresponding interface.



step 2 Click the button in the operation bar, to modify the name of the device connected to the Logger3000 and other parameters.

step 3 Click "Save".

-- End



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.

9.8.1.6 Delete device

After a device is deleted on site, the user can delete the device from the device list, to keep device consistency.

step 1 Click "Device" -> "Device list" to enter the corresponding interface.

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

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

-- End

9.8.2 Firmware Update

The firmware update function is used to upgrade the SUNGROW residential inverter and string inverter.

step 1 Click "Device" -> "Firmware update" to enter the corresponding interface.

step 2 Click the button "Select a firmware file". Select an upgrading file and import it to the system. Matching inverters will be detected.

step 3 Select the device to be upgraded, and click "Upgrade" .

step 4 Complete firmware update to view current version, target version, start time, end time and other information.

-- End



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

9.8.3 Inverter Log

step 1 Click "Device" -> "Inverter log" to enter the corresponding interface.



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

step 3 Click "Save" to store the exported log in the local.

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

-- End

9.9 History Data

Click "History data" -> "Operation logbook" to enter the corresponding interface.

On this interface, users can view history information.

9.10 System

9.10.1 Running Information

Click "System" -> "Run-info" to enter the corresponding interface.

Information such as mobile network signal strength, AI voltage, DI status can be viewed.

9.10.2 System upgrade

Users can upgrade Logger3000 on the Web interface.

step 1 Click "System" -> "System maintenance" to enter the corresponding interface.

step 2 Click "System upgrade", select the upgrade file, and export it to the system.

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

-- End



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

9.10.3 Log export

step 1 Click "System" -> "System maintenance" to enter the corresponding interface.

step 2 Click the button "Log export" to enter the corresponding interface.

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

-- End

9.10.4 Rebooting

step 1 Click "System" -> "System maintenance" to enter the corresponding interface.

step 2 Click "Rebooting" to enter the corresponding interface.

step 3 A warning window will pop up, and click "Confirm" to continue the rebooting operation.

-- End

9.10.5 Reset all setting

step 1 Click "System" -> "System maintenance" to enter the corresponding interface.

step 2 Click "Reset all settings" to enter the corresponding interface.

step 3 A warning window will pop up, and 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.

9.10.6 Remote Maintenance

Click "System" -> "Remote maintenance" to enter the corresponding interface.

Remote Maintenance

Enable ▼

Remote Service Address

Chinese Server ▼

Save

Remote Service Is Not Connected

Remote maintenance switch state	Description
Disabled	Not allow for remote maintenance on the Logger3000
Enable	Allow for remote maintenance on the Logger3000

In case the remote maintenance switch is in the "Enable" state, the remote service address needs to be set.

- Users in mainland China select "Chinese Server",
- Users in Europe select "European Server".
- Users in other regions select the "International Server".

9.10.7 Message Export

step 1 Click "System" -> "Message export" to enter the corresponding interface.

Port

Serial Port ▼

Serial Port

COM1 ▼

Duration (Min)

1

Start

Stop

Export

Parameter	Description	Range
Port	-	Serial port: COM1~COM6 and PLC Ethernet port: ETH1 and ETH2
Duration	Export the message recorded during the set time	1 min ~ 10min

step 2 Set parameters, including interface, serial port, and duration, and click "Start" to start recording message. The recording automatically stops when the set time reaches, or the user may manually click the button "Stop" to stop recoding message.

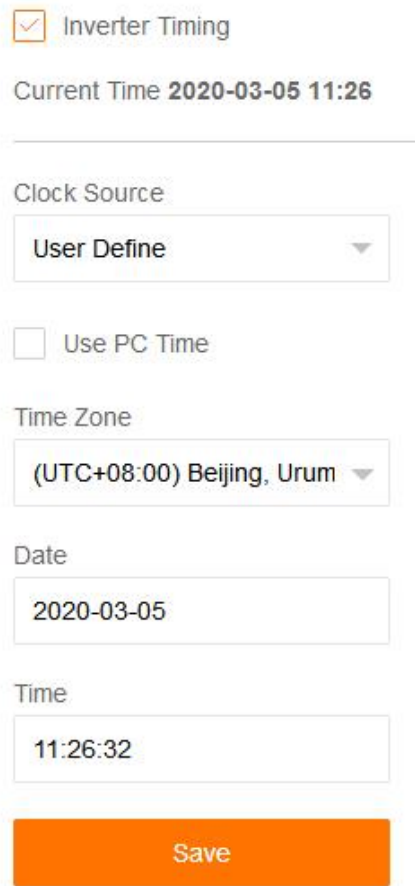
step 3 Click "Export" to export the message.

-- End

9.10.8 System Time

Click the "System time" to check whether the current system time is correct, synchronize the system time, and enable/disable "Inverter timing".

Click "System" -> "System time" to enter the corresponding interface.



☒ Inverter Timing

Current Time **2020-03-05 11:26**

Clock Source

User Define ▼

☐ Use PC Time

Time Zone

(UTC+08:00) Beijing, Urum ▼

Date

2020-03-05

Time

11:26:32

Save

step 1 When the option "Inverter timing" is selected, device time will be synchronized with the time of Logger3000.

step 2 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 Logger3000 with the time of the PC.
- Click the "Time zone" pull-down-list and select the local time zone. Enter the "Date" and "Time" and click "Save" to manually set the time of the Logger3000.

It is recommended to select "User define" during debugging.

step 3 Click the "Time zone" pull-down-list and select the local time zone

Clock Source	Descriptions
NTP	When the clock source is set to "NTP", time of all devices can be synchronized. Click the "Time zone" pull-down-list and select the local time zone. Fill in the domain, set the time interval, and click "Save". In this way, the time of the Logger3000 is synchronized with the time of the server.
IEC104	In this way, the Logger3000 and the background must use the IEC104 communication protocol, and otherwise, this manner is invalid.
iSolarCloud	-
MODBUS-TCP	-
GPS	Select the corresponding country and city in the time zone drop-down box, and click "Save".

It is recommended that the top priority should be given to the IEC104 and then the iSolarCloud.

-- End

NOTICE

Set the system time when using the Logger3000 for the first time.

9.10.9 Forwarding Configuration

step 1 Click "System" -> "Transfer configuration" to enter the corresponding interface.



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

-- End



The default iSolarCloud station is "Chinese Server". Users in mainland China select "Chinese Server", users in Europe select "European Server", and users in other regions select the "International Server".

9.10.10 IEC104

Configure the IEC104 forwarding service for the Logger3000 on this interface.

Click "System" -> "Transfer configuration" -> "IEC104" to enter the corresponding interface.

Server Mode

In the server mode, Logger3000 is used as a Server and connected to PC server to implement data transmission and instruction delivery.



The local port is 2404.

White list setting

When the option "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 Logger3000. When the option "Enable White List" is selected, and specified IP address is entered, only the device with the specified IP address can access the Logger3000.

Generate Point Table

Turn on the switch of local port 2404.

Click "Generate point table", and default IEC104 point table will be automatically imported to configuration file.

Edit IEC104 Forwarding Point Table

step 1 Click "Export of configuration tools" to export the IEC104 forwarding point table.

step 2 Open the sheet "Introduce" of the IEC104 forwarding point table, where data of five types (telemetry, telesignalling, remote pulse, remote control, and remote regulating) are included.

table 9-1 Introduce tab parameters

Data Type	Description
YC	Telemetry
YX	Telesignalling
YM	Remote pulse
YK	Remote control
YT	Remote regulating

step 3 Open the sheet "Cfg Para" of the IEC104 forwarding point table to view and set the addresses of the five types of data. The addresses shown in the following table are default ones and can be modified according to actual situation.

table 9-2 Cfg Para tab parameters

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

step 4 Open the sheet "Cfg Para" of the IEC104 forwarding point table to view and set the addresses of the five types of data. The addresses shown in the following table are default ones and can be modified according to actual situation.

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

Data Type	DataID	State	Invert	Coefficient	Unit	Data Name
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 9-3 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 tele signalling only
	N	No negate, 0 is 0 and 1 is 1
Coefficient*	-	Coefficient, available for telemetry, remote pulse, and remote regulating only
Unit	-	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.

step 5 Open the sheet "Device List" of the IEC104 forwarding point table 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

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*	Number of COM port to which device connected, corresponding to the port data of the "Device list" on the Web interface
Collect ID*	Collect device Modbus address, corresponding to communication address of the "Device list" on the Web interface

Parameter	Description
Access ID*	Background access address, corresponding to the forwarding address of the "Device list" on the Web interface
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" interface and copy the data in the exported excel.

-- End

9.10.10.1 Import IEC104 forwarding point table

step 1 After editing the IEC104 forwarding point table, click "Export" -> "IEC104 CFG", so that a prompt window pops up, and then convert the excel file into xml file. The xml file and the excel file are at the same path.

step 2 Click the button  on the operation bar

step 3 Click the button  on the pop-up window, to import the xml file.

-- End

9.10.10.2 Client Mode

In the client mode, Logger3000 is used as a Client and connected to PC server to implement data transmission and instruction delivery.

step 1 Click "System" -> "Transfer Configuration" -> "IEC104" to enter the "Server" tab by default.

step 2 Click "Client" to enter the corresponding tab.

-- End

9.10.10.3 Add Peer Port Information

step 1 Configure point table, where reference can be made to editing IEC104 forwarding point table in the server mode.

step 2 After editing the IEC104 forwarding point table, click "Export" -> "IEC104 CFG" in the menu bar, and the prompt window will pop up. Convert the excel file into .xml file, where the .xml file and the excel file are in the same path.

step 3 Click "Add", to enter the "Advanced Settings" interface.

step 4 Enter domain and peer port, and select remote signaling measuring point type, remote signaling time mark, and upload with a change.

step 5 Click configuration  to import .xml file.

step 6 Click "Save".

-- End

9.10.11 MODBUS

Configure the MODBUS forwarding service for the Logger3000 on this interface.

Server Mode

In the server mode, Logger3000 is used as a Server and connected to PC server through Modbus TCP protocol to implement data transmission and instruction delivery.

step 1 Click "System" -> "Transfer configuration" -> "MODBUS" to enter the corresponding interface.

step 2 For the white list setting, refer to the description in "IEC104".

-- End

9.10.11.1 Client Mode

In the client mode, Logger3000 is used a Client and connected to PC server through Modbus TCP protocol to implement data transmission and instruction delivery.

step 1 Click "System" -> "Transfer Configuration" -> "MODBUS" to enter the "Server" tab by default.

step 2 Click "Client" to enter the corresponding tab.

step 3 Click "Add" to enter the "Advanced Settings" interface.

step 4 Enter domain and peer port and click "Save".

-- End

9.10.11.2 RTU Mode

In the RTU mode, Logger3000 is connected to PC server through Modbus RTU protocol to implement data transmission and instruction delivery.

step 1 Click "System" -> "Transfer Configuration" -> "MODBUS" to enter the "Server" tab by default.

step 2 Click "RTU" to enter the corresponding tab.

step 3 Select serial port and enter delay time.

step 4 Click  .

-- End

9.10.12 Third-party portal

Configure the third-party cloud forwarding service for the Logger3000 on this interface.

step 1 Click "System" -> "Transfer configuration" -> "Third-party portal" to enter the corresponding interface.

step 2 Turn on the switch.

step 3 Click the button  on the operation bar, so that an advanced setting window will pop up.

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

9.10.13 Interface

Set ports of the Logger3000 on the interface. There are 6 RS485 ports (COM1~COM6) and 1 PLC port.

9.10.13.1 RS485

step 1 Click "System" -> "Interface" -> "RS485" to enter the corresponding interface.

step 2 Click  to modify baud rate, parity bit, and stop bit.

Serial Port	Baud Rate	Check Bit	Stop Bit	PLC Access
COM1~COM6	9600	Null	1	Disable/ Enable
PLC	115200	Null	1	Enable



When a serial port of Logger3000 is connected to a device, the "Baud rate", "Check bit", and "Stop bit" of the serial port must be configured the same as those of the corresponding device, so as to ensure normal communication between Logger3000 and the device.



When "PLC Access" corresponding to COM1~COM6 is set to "Enable", the baud rates of COM1~COM6 will be automatically changed to 115200.

step 3 Optional) When "PLC access" is set to "Enable", click "Set PLC Net ID". In the pop-up window, follow the interface prompts to set the master node, set the slave node, restart the master node, and restart the slave node. Then, click "Save and Exit".

-- End

9.10.13.2 Ethernet

Perform Ethernet settings on this interface.

step 1 Click "System" -> "Interface" -> "Ethernet" to enter the corresponding interface.

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

Port	Default IP	Virtual IP
ETH1	12.12.12.12	14.14.14.14
ETH2	13.13.13.13	15.15.15.15

step 3 If the parameter "Automatically obtain IP settings (DHCP)" is set to , fill in the information such as the IP address, subnet mask, and default gateway, and click the

button  to save the operation.

-- End

9.10.13.3 AI

step 1 Click "System" -> "Interface" -> "AI" to enter the corresponding interface.

step 2 Select an input type, set the lower limit and upper limit, and click the button  to save the operation.

AI Port	Input Type	Lower Sampling Limit	Upper Sampling Limit
AI1	Voltage (V)	0	10
	Current (mA)	4	20
AI2	Voltage (V)	0	10
	Current (mA)	4	20
AI3	Voltage (mV)	0	100
AI4	Voltage (mV)	0	100

-- End

9.10.13.4 DI

step 1 Click "System" -> "Interface" -> "DI" to enter the corresponding interface.

step 2 Set the initial status to "NO" or "NC", and click the button  to save the operation.

-- End

9.10.14 More

step 1 Click "System" -> "Port Parameters" -> "More" to enter the interface.

step 2 Select automatic online state (enable/disable) from the drop-down list.

- When the state is set to "Enable", parameters of string inverters researched and developed by SUNGROW can be automatically added without additional operations on the Web.
- When the state is set to "Disable", automatic parameter adding is not supported.

-- End

9.10.15 About

Click "About" to enter the corresponding interface.

Firmware information on Logger3000 can be accessed on this interface.

Scan QR code on the interface with the iSolarCloud App, to add new Logger3000.

10 Grid Dispatching

10.1 Function Description

Logger3000 is equipped with a power control module. The module is used to receive control instructions from the grid dispatch center and send the control instructions to the monitored inverter through the RS485 port, thereby controlling the active power, reactive power, power factor, start/stop of the inverter.

10.2 Power Regulation

Power regulation includes active power control and reactive power regulation.

10.2.1 Active Power

10.2.1.1 Disable

If the inverter needs to operate at full load, the active control mode should be set to "Disable".

step 1 Click "Power control" -> "Active power" to enter the active power interface.

step 2 Set the active control mode to "Disable" and click "Save".

-- End

10.2.1.2 Remote power control

When the instruction source is IEC104 or MODBUS TCP protocol, set the active control mode to "Remote power control".

step 1 Click "Power control" -> "Active power" to enter the active power interface.

step 2 Set the active control mode to "Remote power control".

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

table 10-1 Parameter description

Parameter	Description
Communication abnormality output (%)	Communication is abnormal, and specified dispatch output value is delivered.
Control method	Open loop control: Remote monitoring background is connected and active instruction of remote dispatching is sent to the power output port of the inverter, thereby achieving active power control. Closed-loop control: - In case no Smart Energy Meter is selected, remote monitoring background is connected, active instruction of remote dispatching is used as target value, and active power compensation ratio is calculated and sent to the power output port of the inverter. Generally, this strategy is used for fast and accurate active power regulation. - In case a Smart Energy Meter is selected, remote monitoring background is connected, active instruction of remote dispatching is used as target value, active power of the meter needs to be collected and used as input parameter, and active power compensation ratio is calculated and sent to the power output port of the inverter. Generally, this strategy is used for anti-backflow or avoiding zero power feed-in.
Select energy meter / transformer*	Unselected Select Smart Energy Meter / transformer involved in power regulation
Error limit (%)*	Adjustment 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 instructions Parameter range: 5~60s

Note: *Only when the control method is set to "Closed-loop control", the parameter "- Select energy meter / transformer" is settable.

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

-- End

10.2.1.3 Local Power Control

If active dispatching instruction or dispatching target value is used as dispatching input locally, the active control mode is set to "Local power control".

step 1 Click "Power control" -> "Active power" to enter the active power interface.

step 2 Set the active control mode to "Local power control".

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

table 10-2 Parameter description

Parameter	Description
Communication abnormality output (%)	Communication is abnormal, and specified dispatch output value is delivered.
Control method	Open loop control: At the start time, the locally configured active instruction is sent to the power output port of the inverter, thereby implementing active power control.
	Closed-loop control:
	- In case no Smart Energy Meter is selected, at the beginning time, the active instruction configured locally is used as target value, and active power compensation ratio is calculated and sent to the power output port of the inverter. Generally, this strategy is used for fast and accurate active power regulation. - In case a Smart Energy Meter is selected, at the beginning time, active instruction configured locally is used as target value, active power of the meter needs to be collected and used as input parameter, and active power compensation ratio is calculated and sent to the power output port of the inverter. Generally, this strategy is used for anti-backflow or avoiding zero power feed-in.
Select energy meter*	Unselected Select Smart Energy Meter involved in power regulation
Control cycle	Time interval of delivering dispatching instructions Parameter range: 5~60s
Q-Method	kW: set active power value
	%: set active power percentage

Note: *Only when the control method is set to "Closed-loop control", the parameter "Select energy meter" is settable.

step 4 Add local power control manner

Fill in "Start time" and "Percentage" (fixed value of active power), 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".

10.2.1.4 AI Control

When using the analog signal at the AI port of the Logger3000 as the dispatching input, set the active control mode to "Analog input".

step 1 Click "Power control" -> "Active power" to enter the active power interface.

step 2 Set the active control mode to "Analog input".

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

table 10-3 Parameter description

Parameter	Description
Communication abnormality output (%)	Communication is abnormal, and specified dispatch output value is delivered.
Control method	Open loop control: Active instruction controlled by AI is sent to the power output port of the inverter, thereby achieving active power control.
	Closed-loop control:
	- In case no Smart Energy Meter is selected, active instruction controlled by AI is used as target value, and active power compensation ratio is calculated and sent to the power output port of the inverter. Generally, this strategy is used for fast and accurate active power regulation. - In case a Smart Energy Meter is selected, active instruction controlled by AI is used as target value, active power of the meter needs to be collected and used as input parameter, and active power compensation ratio is calculated and sent to the power output port of the inverter. Generally, this strategy is used for anti-backflow or avoiding zero power feed-in.
Select energy meter*	Unselected Select Smart Energy Meter involved in power regulation
Control cycle	Time interval of delivering dispatching instructions Parameter range: 5~60s

Parameter	Description
AI port	AI1~AI4 available
Q-Method	kW: set active power value %: set active power percentage
Min.	Lower limit: 0.0
Max.	When "Q-Method" is set to "%", the upper limit is 100.0% When "Q-Method" is set to "kW", the upper limit is 999999 kW
Step	The minimum difference value between two consecutive power dispatching instructions

Note: *Only when the control method is set to "Closed-loop control", the parameter "-Select energy meter" is settable.

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

- - End

10.2.1.5 Digital Input

When using the digital signal at the DI port of the Logger3000 as the dispatching input, set the active control mode to "Digital input".

step 1 Click "Power control" -> "Active power" to enter the active power interface.

step 2 Set the active control mode to "Digital input".

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

table 10-4 Parameter description

Parameter	Description
Communication abnormality output (%)	Communication is abnormal, and specified dispatch output value is delivered.
Control method	Open loop control: Active instruction controlled by DI is sent to the power output port of the inverter, thereby achieving active power control.
	Closed-loop control: - In case no Smart Energy Meter is selected, active instruction controlled by DI is used as target value, and active power compensation ratio is calculated and sent to the power output port of the inverter. Generally, this strategy is used for fast and accurate active power regulation. - In case a Smart Energy Meter is selected, active instruction controlled by DI is used as target value, active power of the meter needs to be collected and used as input parameter, and active power compensation ratio is calculated and sent to the power output port of the inverter. Generally, this strategy is used for anti-backflow or avoiding zero power feed-in.
Select energy meter*	Unselected Select Smart Energy Meter involved in power regulation
Control cycle	Time interval of delivering dispatching instructions Parameter range: 5~60s
Q-Method	kW: set active power value. %: set active power percentage.

Note: *Only when the control method is set to "Closed-loop control", the parameter "-Select energy meter" is settable.

step 4 Add digital input manner.

Select the desired DI channel, fill in the "Percentage"(fixed value of active power), and click "Save".

-- End

Subsequent Operation

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

10.2.1.6 Country Mode

If the dispatching input must be the national power dispatching instruction, the active control mode is set to "Country mode".

step 1 Click "Power control" -> "Active power" to enter the active power interface.

step 2 Set the active control mode to "Country mode".

step 3 Select a country and PPC type, and click "Save".

When the country is set to "Korea", corresponding parameter description is as follows:

table 10-5 Parameter description

Parameter	Description
PPC type	PPC device of DER-AVM type

When the country is set to "Japan", corresponding parameter description is as follows:

table 10-6 Parameter description

Parameter	Description
Scheduling mode	Logger3000 is connected to the power plant dispatch server designated by the Japan Electric Power Company to realize the Kyushu power dispatch.
Obtaining Schedule	Support remote download and local import 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.
Parameter type	Select "Plant parameter" or "Device parameter". When selecting "Plant parameter", set plant capacity 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 Logger3000 < the time adjusted after "Time calibration", or the time of Logger1000 < the NTP synchronization time, The time validity will be displayed as "Invalid", at which time Logger1000 will send a stop instruction to the inverter. "Time validity: Invalid" will not disappear until the "Time calibration" or NTP synchronization operation is performed.

- - End

10.2.1.7 Scheduling Prohibited

Set the active control mode to "Scheduling prohibited" if the Logger3000 is prohibited to perform active dispatching on the inverter.

step 1 Click "Power control" -> "Active power" to enter the active power interface.

step 2 Set the active control mode to "Scheduling prohibited" and click " Save " .

-- End

10.2.2 Reactive Power

10.2.2.1 Disable

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".

step 1 Click "Power control" -> "Reactive power" to enter the reactive power interface.

step 2 Set the reactive control mode to "Disable" and click " Save " .

-- End

10.2.2.2 Remote Power Control

When the instruction source is IEC104 or MODBUS TCP protocol, set the "Reactive control mode" to "Remote power control".

step 1 Click "Power control" -> "Reactive power" to enter the reactive power interface.

step 2 Set the "Reactive control mode" to "Remote power control".

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

Parameter	Description
Communication abnormality output (%)	Communication is abnormal, and specified dispatch output value is delivered.
Control method	Open loop control: Remote monitoring background is connected and active instruction of remote dispatching is sent to the power output port of the inverter, thereby achieving active power control. Closed-loop control: Remote monitoring background is connected and reactive instruction of remote dispatching is used as target value, reactive power and power factor of the meter need to be collected and used as input parameters, and reactive power compensation ratio is calculated and sent to power output port of the inverter. Generally, this strategy is used for improving the power factor of the property boundary point.
Select energy meter / transformer*	Unselected Select Smart Energy Meter / transformer involved in power regulation
Error limit (%)*	Adjustment 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: The reactive power direction of the inverter array displayed by the meter/transformer is the same as the actual reactive power direction. Backward: The reactive power direction of the inverter array displayed by the meter/transformer is opposite to the actual reactive power direction.
Control cycle	Time interval of delivering dispatching instructions Parameter range: 5~60s

Note: *Only when the control method is set to "Closed-loop control", the parameter "-Select energy meter / transformer" is settable.

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

-- End

10.2.2.3 Local Power Control

If reactive dispatching instruction or dispatching target value is used as dispatching input locally, the reactive control mode is set to "Local power control".

step 1 Click "Power control" -> "Reactive power" to enter the reactive power interface.

step 2 Set the "Reactive control mode" to "Local power control".

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

Parameter	Description
Communication abnormality output (%)	Communication is abnormal, and specified dispatch output value is delivered.
Control method	Open loop control : At the start time, the locally configured active instruction is sent to the power output port of the inverter, thereby implementing reactive power control. Closed-loop control: At the beginning time, reactive instruction configured locally is used as target value, reactive power and power factor of the meter need to be collected and used as input parameters, and reactive power compensation ratio is calculated and sent to power output port of the inverter. Generally, this strategy is used for improving the power factor of the property boundary point.
Select energy meter*	Select Smart Energy Meter involved in power regulation
Wiring mode*	Direct connection: One Logger3000 is connected to all inverters, where all the inverters must be string inverters or central inverters. Cascade connection: Multiple Logger3000 are cascaded, and this Logger3000 is used as the host.
Line reactive power compensation*	Compensation for reactive power losses in the line
Control cycle	Time interval of delivering dispatching instructions Parameter range: 5~60s
Q-Method	PF: set the power factor as the target value %: set reactive power percentage.

Note: *Only when the control method is set to "Closed-loop control", the parameter "- Select energy meter" is settable. When selecting an energy meter, the Logger used must be the one manufactured by SUNGROW.

step 4 Add local power control manner

Fill in "Start time" and "Percentage"(PF), and click "Save".

- - End

Subsequent Operation

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

10.2.2.4 AI Control

When using the analog signal at the AI port of the Logger3000 as the dispatching input, set the reactive control mode to "Analog input".

step 1 Click "Power control" -> "Reactive power" to enter the reactive power interface.

step 2 Set the reactive control mode to "Analog input".

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

Parameter	Description
Communication abnormality output (%)	Communication is abnormal, and specified dispatch output value is delivered.
Control method	Open loop control: Reactive instruction controlled by AI is sent to power output port of the inverter, thereby achieving active power control. Closed-loop control: Reactive instruction controlled by AI is used as target value and reactive power and power factor of the meter need to be collected and used as input parameters, and reactive power compensation ratio is calculated and sent to power output port of the inverter. Generally, this strategy is used for improving the power factor of the property boundary point.
Select energy meter*	Select Smart Energy Meter involved in power regulation
Control cycle	Time interval of delivering dispatching instructions Parameter range: 5~60s
AI port	AI1~AI4 available
Q-Method	PF: set the power factor as the target value %: set reactive power percentage
Min. / Max.	When "Q-Method" is set to "%", the parameter ranges from -100.0% to 100.0%. When "Q-Method" is set to "PF", the parameter ranges from -1 to -0.8 or 0.8 to 1.

Parameter	Description
Step	The minimum difference value between two consecutive power dispatching instructions
Hysteresis range**	When the parameter "Q-Method" is set to PF, dispatching output maintains to be $PF \pm 1$

Note: *Only when the control method is set to "Closed-loop control", the parameter "-Select energy meter" is settable.

** Only when the control method is set to "Open loop control" and the Q-Method to "PF" or when the control method is set to "Closed-loop control", a Smart Energy Meter is selected, and the Q-Method is set to "PF", the parameter "Hysteresis range" is settable.

step 4 (Optional) After selecting AI configuration, set parameters of the AI port, such as voltage sampling and current sampling.

step 5 After finishing parameter setting, click "Save" to save the operation.

-- End

10.2.2.5 Digital Input

When using the digital signal at the DI port of the Logger3000 as the dispatching input, set the reactive control mode to "Digital input".

step 1 Click "Power control" -> "Reactive power" to enter the reactive power interface.

step 2 Set the reactive control mode to "Digital input".

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

Parameter	Description
Communication abnormality output (%)	Communication is abnormal, and specified dispatch output value is delivered.
Control method	Open loop control: Reactive instruction controlled by DI is sent to power output port of the inverter, thereby achieving active power control. Closed-loop control: Reactive instruction controlled by DI is used as target value and reactive power and power factor of the meter need to be collected and used as input parameters, and reactive power compensation ratio is calculated and sent to power output port of the inverter. Generally, this strategy is used for improving the power factor of the property boundary point.
Select energy meter*	Select Smart Energy Meter involved in power regulation

Parameter	Description
Control cycle	Time interval of delivering dispatching instructions Parameter range: 5~60s
Q-Method	PF: set the power factor as the target value %: set reactive power percentage

Note: *Only when the control method is set to "Closed-loop control", the parameter "-Select energy meter" is settable.



The open-loop control has the "PF" Q-Method, and the closed-loop control has the "PF" Q-Method only when the meter is selected.

step 4 Add digital input manner

Select the desired DI channel, fill in the "Percentage "(PF), and click "Save".

- - End

Subsequent Operation

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

10.2.2.6 Country Mode

If the dispatching input must be the national power dispatching instruction, the active control mode is set to "Country mode".

step 1 Click "Power control" -> "Reactive power" to enter the reactive power interface.

step 2 Set the reactive control mode to "Country mode".

step 3 Select a country, PPC type, and instruction type, and click "Save".

- - End

10.2.2.7 Scheduling Prohibited

Set the reactive control mode to "Scheduling prohibited" if the Logger3000 is prohibited to perform reactive dispatching on the inverter.

step 1 Click "Power control" -> "Reactive power" to enter the reactive power interface.

step 2 Set the reactive control mode to "Scheduling prohibited" and click "Save".

- - End

10.2.3 Emergency Button

In inverters need to be stopped in batch, select the button "Emergency button".

Click "Power control" -> "Emergency button" to enter the corresponding interface.

Parameter	Description
Emergency button	Enable: The emergency button is turned on, and inverters are stopped in batch.
	Disable: The emergency button is turned off, and inverters are restored to the boot in batch.
DI port	Associated with DI5 channel

11 Maintenance

Due to the influence of ambient temperature, humidity, dust and vibration, the inner components of the Logger3000 will be aging and worn out. To ensure the system safety and maintain the efficiency of the Logger3000, it is necessary to carry out routine and periodic maintenance.

All measures, which can help the Logger3000 to keep good working conditions, are within the maintenance scope.

11.1 Safety Instructions

WARNING

Only qualified personnel can perform the work described in this chapter.
Do not leave any screws, washers or other metallic parts inside the Logger3000 to avoid device damage.

WARNING

After the Logger3000 stops, wait at least 5 minutes before performing any work on it.

Five Safety Rules

Respect the following five rules throughout the maintenance or service process to ensure personnel safety.

- Disconnect the Logger3000 from all the external connections and internal power supplies.
- Ensure that the Logger3000 will not be inadvertently connected.
- Ensure that the Logger3000 is voltage free with a multimeter.
- Connect necessary grounding cables.
- Cover the electrical components with insulation cloth during operation.

11.2 Maintenance List

Item	Method
Working environment	Check to make sure there is no strong EMC interference device around the Logger3000
	Check to make sure there is no hot source around the Logger3000.
	Check to make sure there is no corrosive materials around the Logger3000
Hardware maintenance	Check to make sure the power supply voltage is normal
	Check to make sure the cables are connected firmly
	Check to make sure the grounding cable is grounded properly
System cleaning	Clean the enclosure, circuit board and the components
	Check the heat dissipation hole and the ensure it is not covered
Terminal and cable connection	Check if the screws of the control terminals are loose. Refasten them with screwdriver if necessary
	Check if the connection copper bar or screws are discoloring
	Visually check the wiring layout and the device terminal connection
Software maintenance	Log in Web to check the device communication situation
	Log in Web to check the parameter setting of the Logger3000
	Log in Web to check the software version of the Logger3000

12 Troubleshooting

12.1 Safety Instructions

DANGER

The ground cable must be grounded reliably. Otherwise, electric shock may occur to the operators!

12.2 Common Faults and Corrective Measures

The following table shows common faults and corresponding corrective measures. If the fault still persists after you perform the corrective measures as described in this manual, contact SUNGROW with the following information provided:

- Serial number of the Logger3000, date of manufacture, and software version
- Manufacture, type, configuration, and other information of device connected to the Logger3000
- Fault information and brief description
- Picture of the fault (if possible)

Fault	Possible cause	Corrective measure
Failure to log into the Web	1. Cable connection between the PC and the Logger3000 is abnormal.	1. Check whether the PC is normally connected to the port ETH of the Logger3000.
	2. PC network signal is abnormal.	2. Check whether the network signal icon of the PC is abnormal, like this  .
	3. IP address of the PC is incorrect.	3. Manually configure the IP address of the PC network port so that it is on the same network segment as the IP address of the Logger3000.

Fault	Possible cause	Corrective measure
Communication failure between the Logger3000 and devices connected to it	4. The PC cannot normally receive data.	4. Use the shortcut key win+R to call up the running command box and enter "ping 13.13.13.13 (IP address of the Logger3000)", to check whether the PC can receive data packets.
	5. Confrontation with network card or anti-virus software occurs.	5. If the PC cannot receive data packets, disable other network cards, anti-virus software or fireproof wall, and try the login again.
	1. The RS485 cable connecting the device and the Logger3000 is abnormal.	1. Check the RS485 cable connecting the device and the Logger3000 and ensure it is not in short circuit, open circuit, or reverse connection between RS485 – A and RS485 – B.
	2. Configuration of the serial port is inconsistent with the RS485 parameters of the device.	2. Log into the Web, and click "System" -> "Port Parameter" -> "RS485", to check whether the port configuration is consistent with the RS485 parameters of the device.
	3. The current device is an inverter, and the inverter cannot be added to the Web system in automatic search manner.	3. Manually input the inverter address to add the inverter to the Web system.

Fault	Possible cause	Corrective measure
Data communication between the Logger3000 and background via ModbusRTU failed	4. Communication connection status between the Logger3000 and the device is abnormal.	4. Log into the Web, and click "Device Monitoring", to check whether the communication status icon is like this , and check whether repeated addresses are allocated to the same port. If the fault persists, contact SUNGROW.
	1. The RS485 cable connecting the device and the Logger3000 is abnormal.	1. Check the RS485 cable connecting the device and the Logger3000 and ensure it is not in short circuit, open circuit, or reverse connection between RS485 – A and RS485 – B.
	2. COM port parameter is incorrectly set on the web interface.	2. Log into the Web, and click "System" -> "Transfer Configuration" -> "Modbus" -> "RTU" to check whether the COM port is set to "Forwarding Is Prohibited". Check whether the serial port parameter is correct.
	3. Collection address of the device does not match with access address.	3. Log into the Web, and click "Device -> Device List" to ensure that "Device Address" and "Forwarding IP" are the same.
No data exchange between the and background via ModbusTCP	4. Protocol configuration of the background is inconsistent with that of the device.	4. Ensure that the protocol configuration of the background is consistent with that of the device.
	1. Network connection between the and background is incorrect.	1. Check that the network connection between the and the background is correct.

Fault	Possible cause	Corrective measure
	2. Configuration of port ETH2 of the is incorrect.	2. Set the IP address of the port ETH2 of the to the one that the background needs to access.
	3. Collection address of the device does not match with forwarding address.	3. Log into the Web, and click "Settings" -> "Modbus service settings" to ensure that the collection address of the matches with the forwarding address.
	4. Protocol configuration of the background is inconsistent with that of the device.	4. Ensure that the protocol configuration of the background is consistent with that of the device.
	1. Network connection between the and background is incorrect.	1. Check that the network connection between the and the background is correct.
No data exchange between the and background via IEC104	2. IP address of the forwarding device or background IP address is incorrect.	2. Log into the Web, and click "System->Transfor Configuration-> IEC104 " and choose "White List Setting " to check whether it is enabled. If enabled, only IP addresses of white list setting are allowed to access the Logger3000.
	3. The communication device is abnormal.	3. Check that the communication device is normal.
	4. Background parameters are incorrectly configured.	4. Ensure that the background parameters are correctly configured.
	1. System time of the is incorrect.	1. Log into the Web, and click "System->System Time " , to check whether the time is correct.
No data exchange between the and iSolarCloud	2. The port ETH2 is abnormal.	2. Users access the Internet via the port ETH.

Fault	Possible cause	Corrective measure
Remote inverter upgrading failed	3. Communication between the inverter and devices like inverter and combiner box is abnormal.	3. Check that the inverter can normally communicate with devices such as inverter and combiner box.
	1. The current inverter does not support remote upgrading function, or the upgrading file is inconsistent with the actual device type.	1. Ensure that the current inverter supports the remote upgrading function, and the sgu file is consistent with the actual device type.
	2. The upgrading file is abnormal.	2. The upgrading file is invalid, for example, the file is encrypted or the file is named incorrectly.
	3. The type of to-be-upgraded inverter is inconsistent with the upgrading file.	3. Check whether the type of the to-be-upgraded inverter is inconsistent with the upgrading file.
	4. Communication connection is abnormal.	4. Check whether the communication cable is correctly connected, and try to upgrade the inverter again if so. If the fault persists, contact SUNGROW.
Remote parameter setting failed	1. Communication connection is abnormal.	1. Log into the Web, and click "Monitoring", to check whether the communication status icon is normal, like this  .
	2. The current operation mode of the inverter does not support the parameter setting.	2. Identify the current operation mode of the inverter. For example, the active power rising speed and drop speed can be set only when the speed control switch of the inverter is enabled.

13 FAQ

Q1. How many types of communication ports does the Logger3000 support, what are the corresponding ports, and how to set the port parameters?

Type	Port	Parameter setting
Ethernet	ETH1	Default IP: 12.12.12.12; subnet mask: 255.255.255.0
		Gateway: 12.12.12.1
		DNS1: 1.2.4.8
		DNS2: 8.8.8.8
	ETH2	Default IP: 13.13.13.13; subnet mask: 255.255.255.0
		Gateway: 13.13.13.1
		DNS1: 1.2.4.8
		DNS2: 8.8.8.8
RS485	A1B1~A6B6	Default Baud rate: 9600
		Check bit: Null
		Data bit: 8
		Stop bit: 1
PLC	PLC	Default Baud rate: 115200
		Check bit: Null
		Data bit: 8
		Stop bit: 1

Q2. What are the forwarding protocols supported by the Logger3000?

Protocol	Description
ModbusRTU/ModbusTCP	The Logger3000 sends the collected data of devices (- such as inverter, combiner box, Meteo Station) to the background. The background allocates forwarding addresses to these devices, thereby accessing and obtaining the data of the devices.
IEC104	1. Add or search devices on the Web interface (such as inverter, combiner box, Meteo Station). 2. Export the IEC104 point table by clicking "Settings" - > "IEC104 service settings". The point table shows measuring point information of devices.
FTP	The Logger3000 transfers the data of the collected equipment (such as inverter, PV combiner box, Meteo Station, etc.) to the remote monitoring system through the FTP protocol.

Q3. How to log into the system via R&D account and how to obtain the password?

Generally, the O&M users have access to most of onsite configurations. If there should be any needs to use the R&D account, contact SUNGROW to obtain a temporary password which is valid only as of this day.

Q4. How to connect multiple Logger3000s to the background through the network?

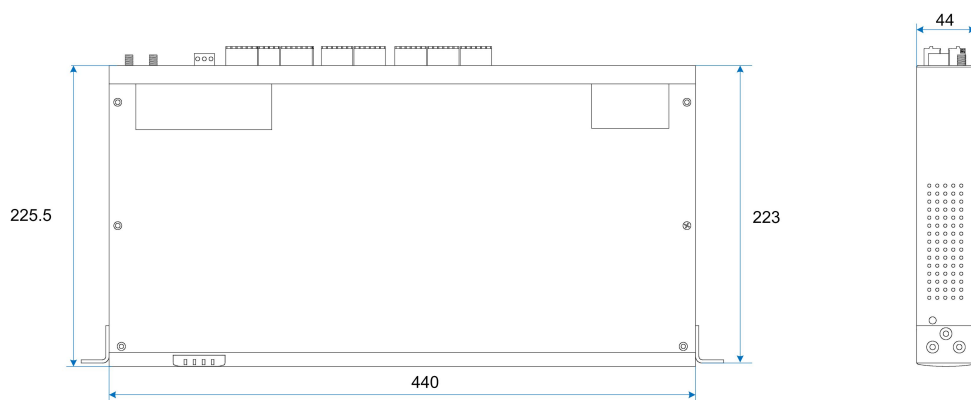
- 1 Logger3000s closer to the Ethernet switch (< 100m) are connected to the Ethernet switch by using network cables.
- 2 Logger3000s relatively far away from the Ethernet switch (> 100m) are connected to the Ethernet switch by using routed fiber optic cables.
- 3 After cable connection, IP address of the multiple Logger3000s should be set to be within the same network segment, without repeated addresses.

14 Appendix A: Technical Data

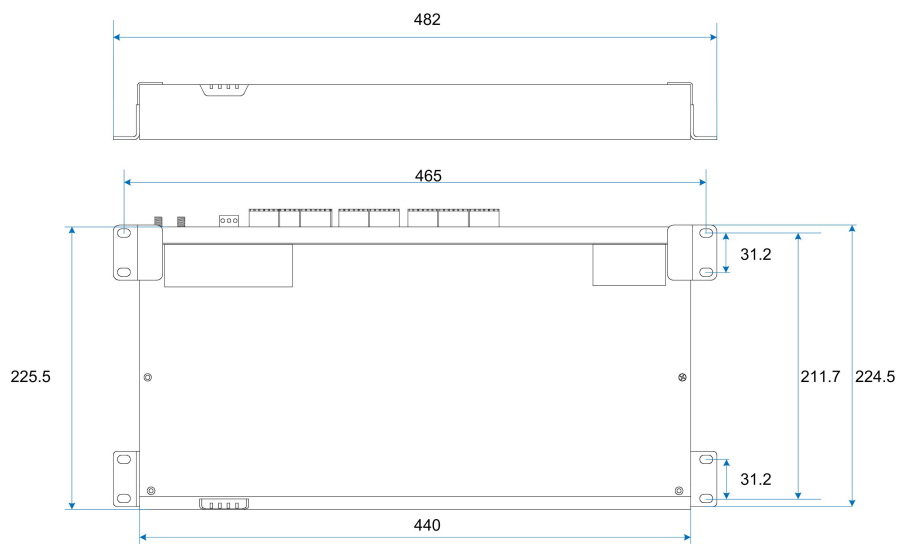
Communication	
Inverter communication	RS485/PLC
PC communication	Ethernet/RS485/PLC
Max. Communication Range	
RS485/Ethernet	• RS485: 1000m • Ethernet: 100m • PLC: 1000m
Interface Design	
RS485	6
Digital input port	16
Digital output port	4
Ethernet port	2
PLC port	1
PT100	2
AI	4
Power Supply	
Power module	100 V ~ 277 V (50 / 60 Hz)
Adapter input voltage	9 V – 24 V
Power consumption	• Average power consumption: 15W • Max. power consumption: 20W
Environmental Conditions	
Operating Temperature	-30 °C to +60 °C
Storage Temperature	-40 °C to +80 °C
Relative humidity	≤ 95 % (non-condensing)
Max.operating altitude	3000 m
Protection class	IP20
Memory	
Internal	4 GB circulating memory
General Data	
Dimension (W x H x D)	440 x 44 x 241mm
Weight	3 kg
Installation method	Rack-mounted installation, wall mounted installation
Man-Machine Interaction	WEB
Language	Chinese, English, Japanese
Compliance	UL 60950-1, FCC, IEC 62109-1, IEC 61000-6-2/-4

15 Appendix B: Related Drawings

Rack-mounted drawings



Wall-mounted drawings



16 Appendix C: General Information

16.1 Quality Guarantee

SUNGROW shall service or replace the faulty product for free within the warranty period.

Evidence

Within the warranty period, SUNGROW shall require the customer to present the purchase invoice and date. The trademark on the product shall be clearly visible, and SUNGROW shall hold no liability if otherwise.

Exclusion of Liability

- The free warranty period for the whole machine/components has expired
- The device is damaged during transport
- The device is installed, altered, or operated incorrectly
- The device operates in an environment harsher than that described in this manual
- The fault or damage is caused due to installation, maintenance, alteration, or disassembly performed by persons not from SUNGROW
- The fault or damage caused by using non-standard components or software or using components or software not from SUNGROW
- The installation and operation do not comply with stipulations of relevant international standards
- The damage is caused by unpredictable factors

For the foregoing faults or damages, SUNGROW can provide a paid service at the request of the client after judgment.



The dimensions and parameters of the device are subject to changes without notification, and reference can be made to the latest document.

Software Licenses

- It is prohibited to use data contained in firmware or software developed by SUNGROW, in part or in full, for commercial purposes by any means.
- It is prohibited to perform reverse engineering, cracking, or any other operations that compromise the original program design of the software developed by SUNGROW.

16.2 Contact Information

Should you have any question about this product, please contact us.

We need the following information to provide you the best assistance:

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

China (HQ)	Australia
Sungrow Power Supply Co., Ltd	Sungrow Australia Group Pty. Ltd.
Hefei	Sydney
+86 551 65327834	+61 2 9922 1522
service@sungrowpower.com	service@sungrowpower.com.au
Brazil	France
SungrowDo Brasil	Sungrow France – Siege Social
Sao Paulo	Paris
+55 11 2366 1957	
latam.service@sa.sungrowpower.com	service.france@sungrow.co
Germany	Greece
Sungrow Deutschland GmbH	Service Partner – Survey Digital
München	+30 2106044212
+49 89 324 914 761	service.greece@sungrow.co
service.germany@sungrow.co	
India	Italy
Sungrow (India) Private Limited	Sungrow Italy
Gurgaon	Milano
+9108041201350	service.italy@sungrow.co
service@in.sungrowpower.com	
Japan	Korea
Sungrow Japan K.K.	Sungrow Power Korea Limited
Tokyo	Seoul
+81 3 6262 9917	+827077191889
japanservice@jp.sungrowpower.com	service@kr.sungrowpower.com
Malaysia	Philippines
Sungrow SEA	Sungrow Power Supply Co., Ltd
Selangor Darul Ehsan	Mandaluyong City
+6019897 3360	+639173022769
service@my.sungrowpower.com	service@ph.sungrowpower.com

Thailand	Spain
SungrowThailand Co., Ltd.	Sungrow Ib é rica S.L.U.
Bangkok	Navarra
+66891 246053	service.spain@sungrow.co
service@th.sungrowpower.com	
Romania	Turkey
Service Partner - Elerex	Sungrow Deutschland GmbH Turkey
+40 241 762250	Istanbul Representative Bureau
service.romania@sungrow.co	Istanbul
	+90 2127318883
	service.turkey@sungrow.co
UK	U.S.A, Mexico
Sungrow Power UK Ltd.	Sungrow USA Corporation
Milton Keynes	PhoenixArizona
+44 (0) 0908 414127	+1833 7476937
service.uk@sungrow.co	techsupport@sungrow-na.com
Vietnam	
Sungrow Vietnam	
Hanoi	
+84 918 402 140	
service@vn.sungrowpower.com	