S3-LOGGER

USER MANUAL

Modification record

Version	Date	Description	Release date	Remarks
1	V1.0	First official release	21/05/06	

Contents

1. About this document

This manual is applicable to the following data logger of Canadian Solar Inc. S3-Logger

1.1 Target

Provide users with detailed product information and installation, operation and maintenance instructions of S3-Logger.

1.2 Note

This manual is applicable to the on-site installation and configuration of S3-Logger data logger, and requires professional technicians to operate.

1.3 Symbol Description

In order to ensure the safety of users, power grid, and equipment when using this product, the manual provides relevant warning symbols. Please read it carefully to better use the equipment and avoid personal and property damage.

Danger:
Indicates a high potential danger, which may cause personal injury or property damage if it cannot be avoided.

WARNING:
Indicates a moderate potential danger, which may result in personal injury or property damage if it cannot be avoided.

CAUTION:
Indicates a low potential hazard which, if not avoided, may result in personal injury or property damage.

Note:
Indicates that there is a low potential danger, if it cannot be avoided, it may cause personal injury and property damage.

2. Safety Notice

S3-Logger is designed in accordance with international safety regulations in order to ensure the safety of people, power grid and equipment. As a power electronic product, relevant safety regulations must be followed in the stages of installation, commissioning, operation, and maintenance. Improper operation may result in casualties and equipment damage.
Special attention: Only professionals with relevant qualifications can perform installation, wiring and other operations on this product.

Danger:
Please install and connect this product by professionals with relevant knowledge.

3. Product Description

3.1 Product Introduction

·S3-Logger is mainly used in industrial and commercial, distributed photovoltaic projects, safe and reliable, easy to install, flexible networking, multi-device access, intelligent operation and maintenance.

Easy to install: Desktop installation, rail installation

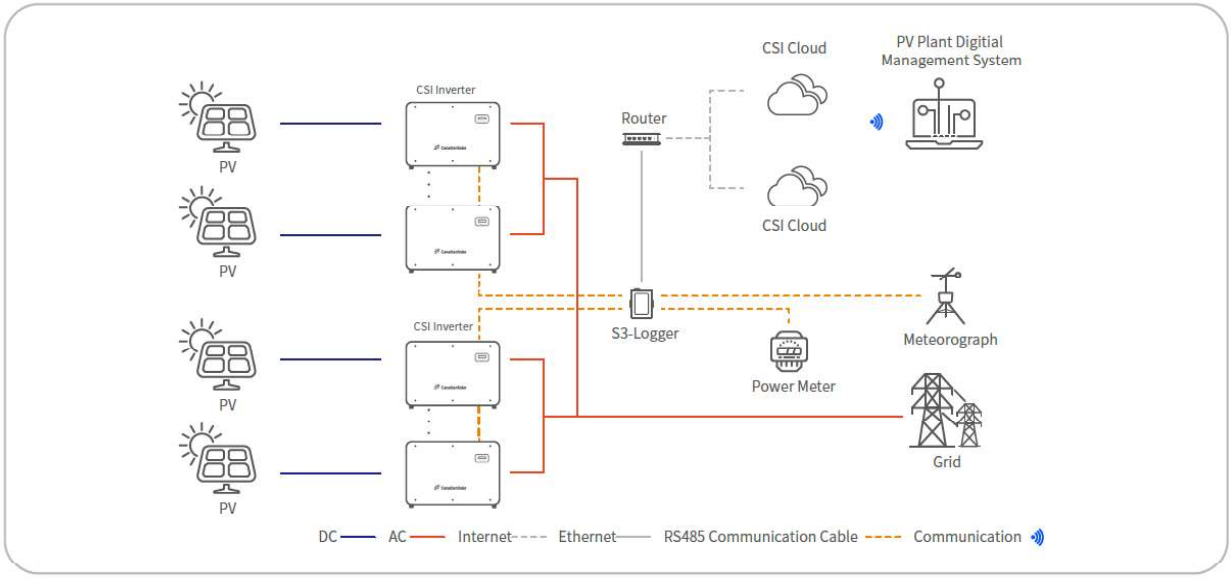
Flexible networking: Support 4 channels of RS485, 1 channel of Ethernet communication

Multi-device access: Support inverter, electricity meter, weather station equipment access (standard modbus)

Support Protocol: RS485: support modbus-RTU / Ethernet: support modbus-TCP, 104

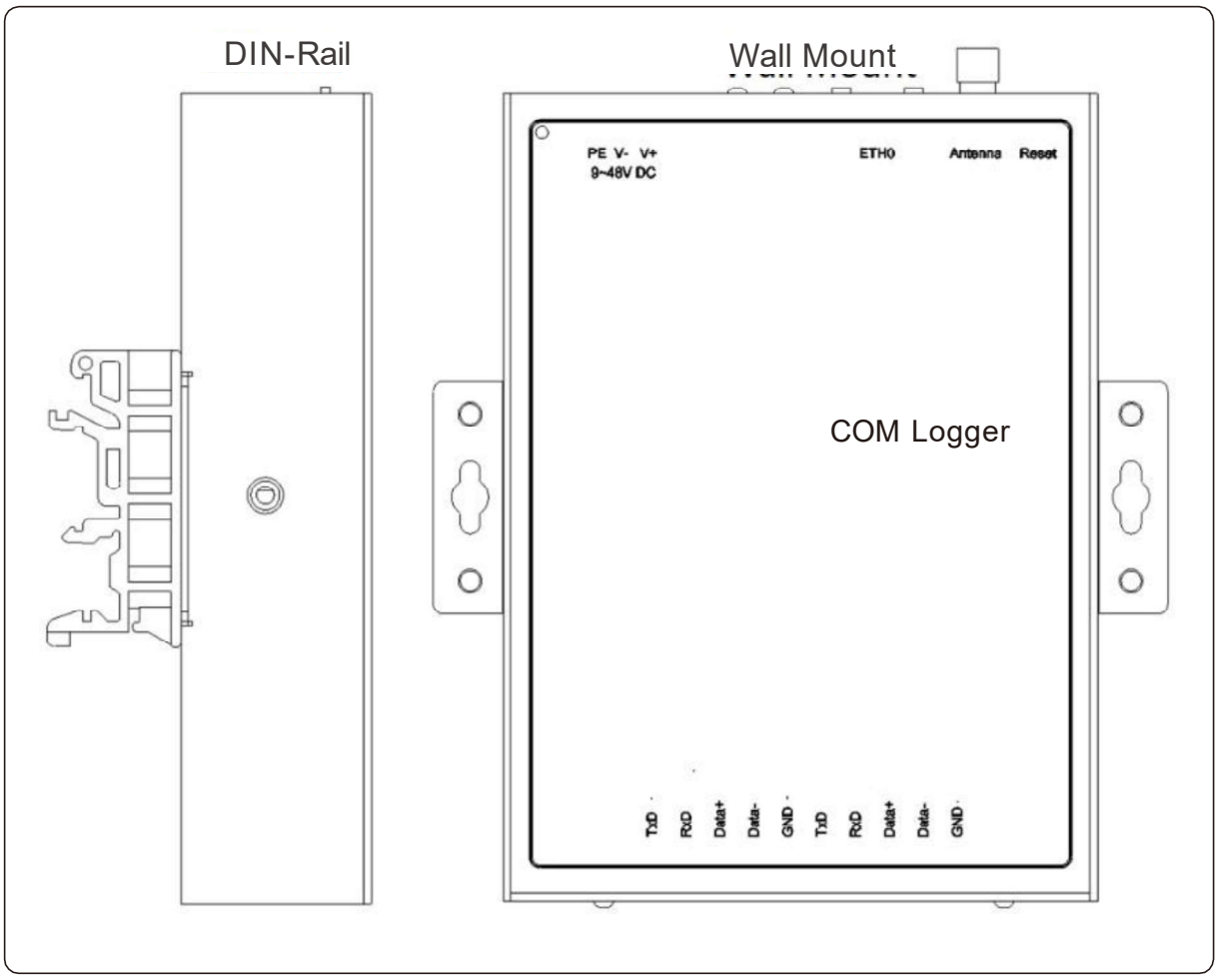
3.2 Application Scenarios Introduction

Application scenarios of data logger

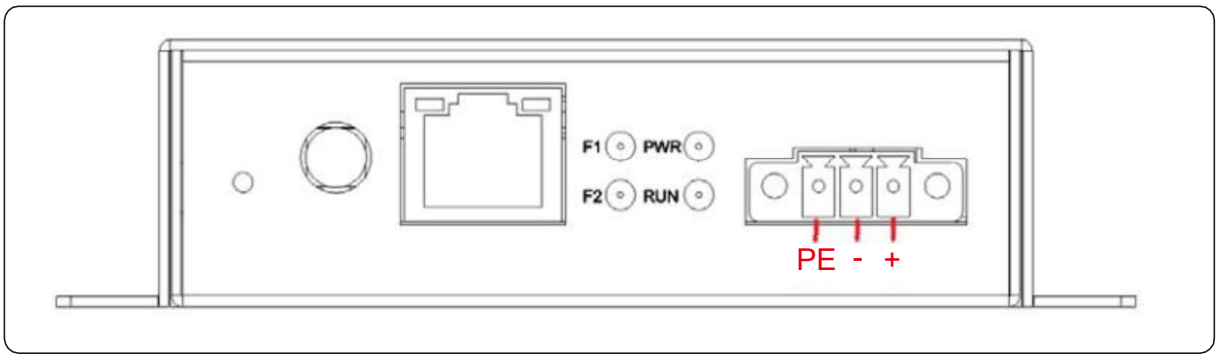


3. Product Description

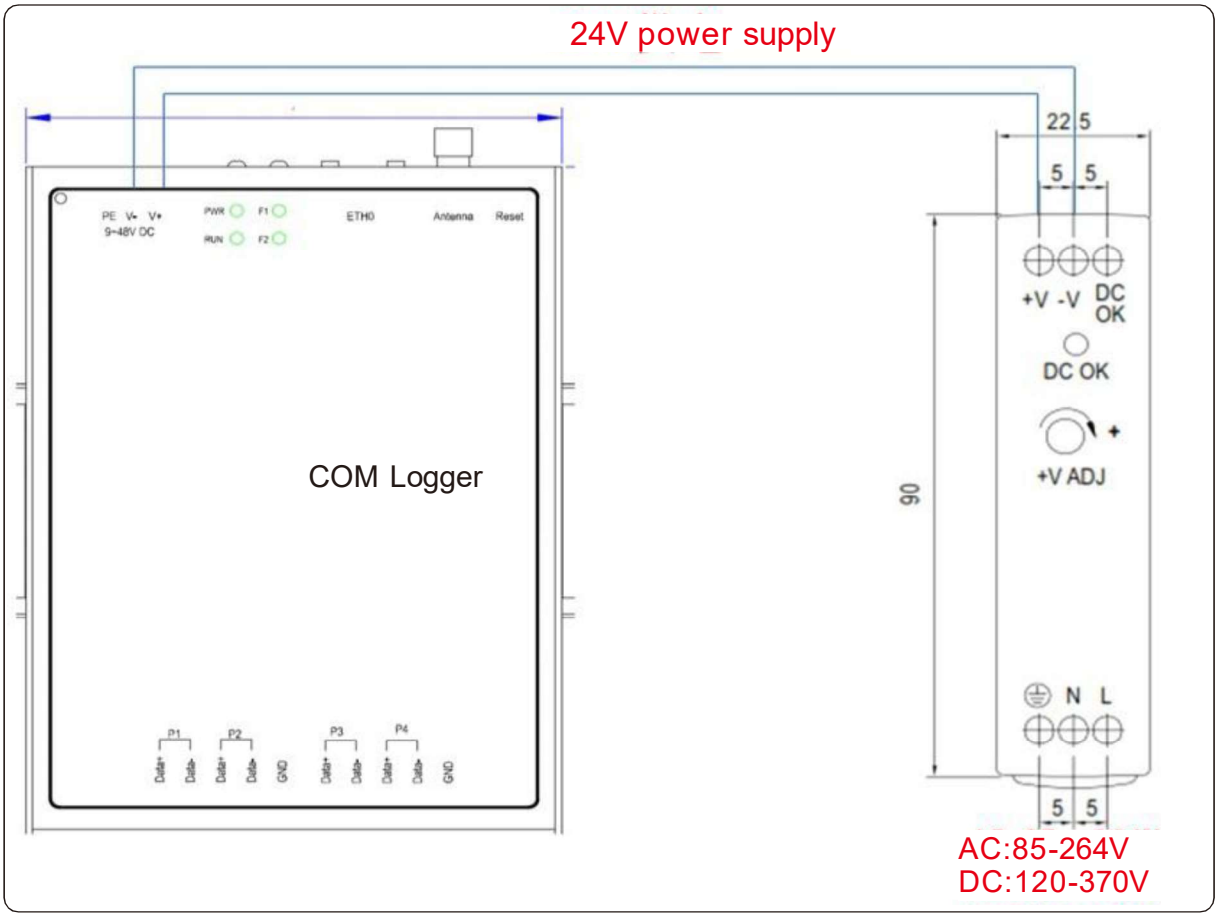
3.3 Appearance



3.4 Power Wiring Diagram

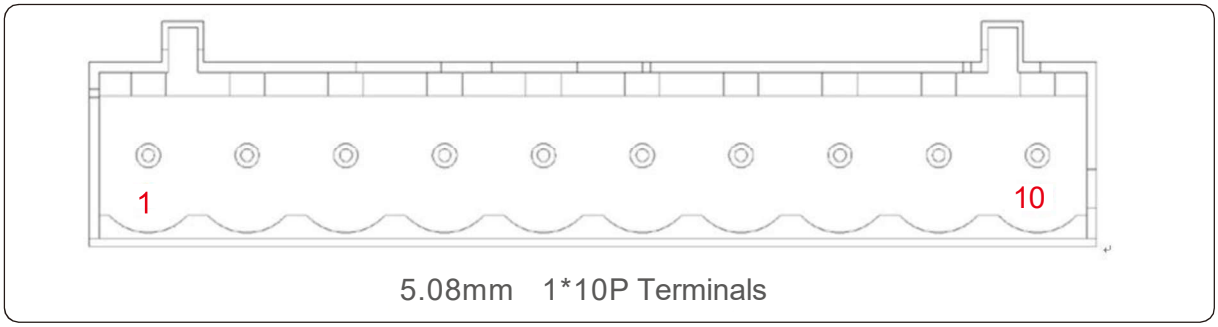


3. Product Description



Danger:
Please strictly follow the above example for wiring.

3.5 Communication Terminal Description



5.08mm 1*10P Terminals

3. Product Description

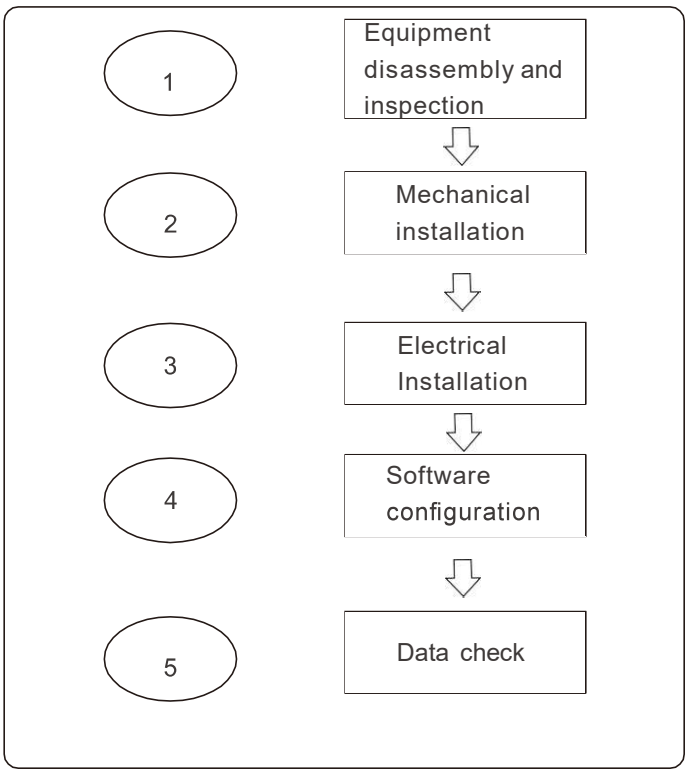
NO.	definition	NO.	definition
1	Port 1 RS-485_A	6	Port 3 RS-485_A
2	Port 1 RS-485_B	7	Port 3 RS-485_B
3	Port 2 RS-485_A	8	Port 4 RS-485_A
4	Port2 RS-485_A	9	Port 4 RS-485_B
5	GND	10	GND

WARNING:
Follow the wire markings for wiring.

3.6 Indicator Light Description

Model	S3-Logger		
Light	Color	Status	Function
PWR	Green	ON	Always on after power on,the power supply is normal
		OFF	Power OFF
RUN	Green	ON/Blink	System running indicator,on/flashing is normal
F1	Green	OFF	Unused
F2	Green	Blink	Module communication status,flashing irregularly

4. Installation Process



NO.	Process	Reference Chapter
1	Equipment disassembly and inspection	5.1
2	Mechanical installation	5.2
3	Electrical Installation	6
4	Software configuration	7
5	Data check	7

5. Mechanical Installation

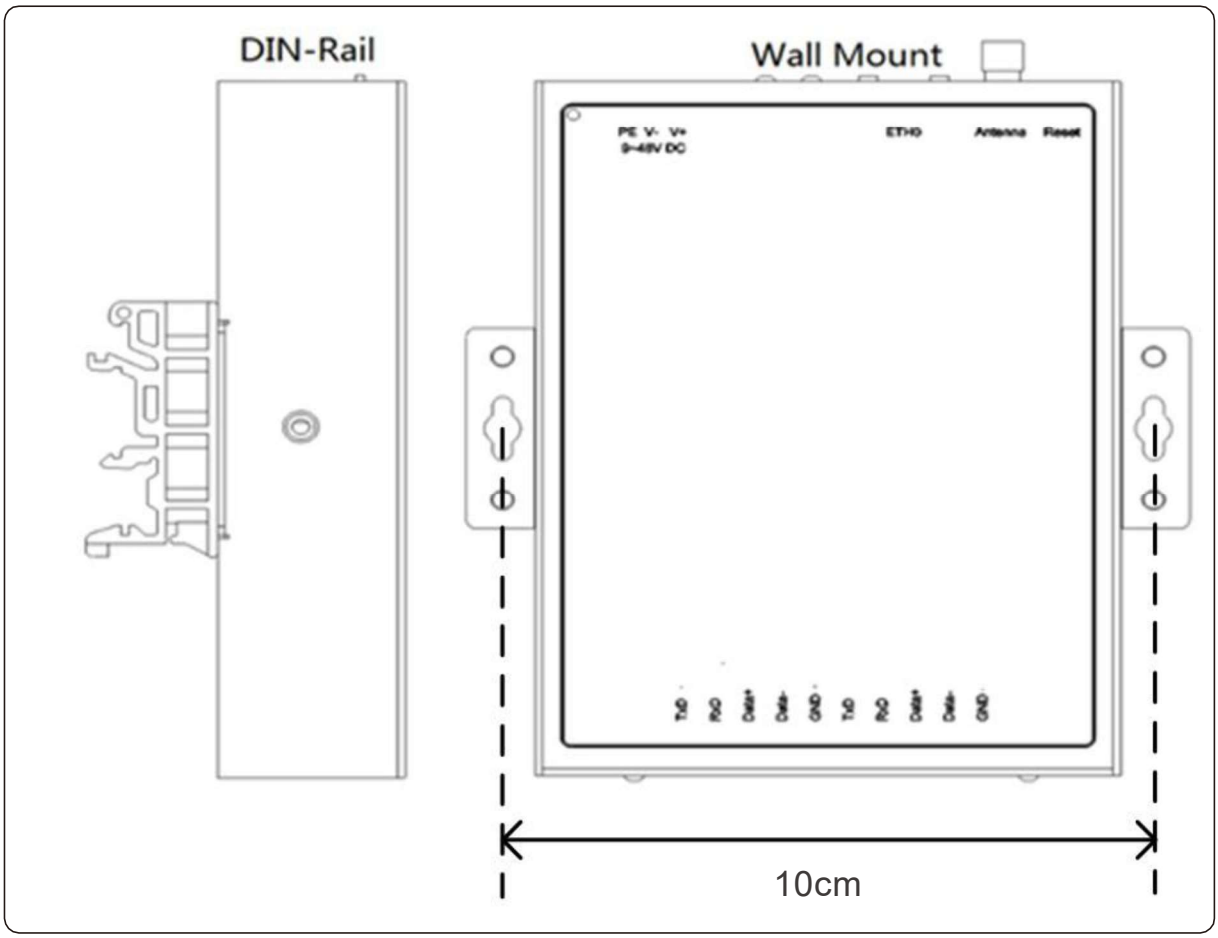
5.1 Equipment Disassembly

Check that the delivery is complete and undamaged according to the packing list inside the package.

NO.	Name	Num	Comment
1	S3-Logger Datalogger	1	Port 3 RS-485_A
2	Power terminal	1	Port 3 RS-485_B
3	Serial communication terminal	1	With 2*120 ohm terminating resistors
4	Power Supply	1	
5	DIN-Rail	1	

5.2 Device Installation

It can be installed on the wall, desktop or rail according to the actual situation of the site



Wall and desktop installation

5. Mechanical Installation

1. Choose a suitable place (wall, metal surface, desktop);
2. Use a marker to mark the drilling position;
3. Use an electric drill/impact drill to make holes at the marked locations;
4. Fastening with expansion screws (wall) or with nuts (metal surface)

Danger:
Please avoid other wires in the wall when drilling to avoid casualties.

Rail installation

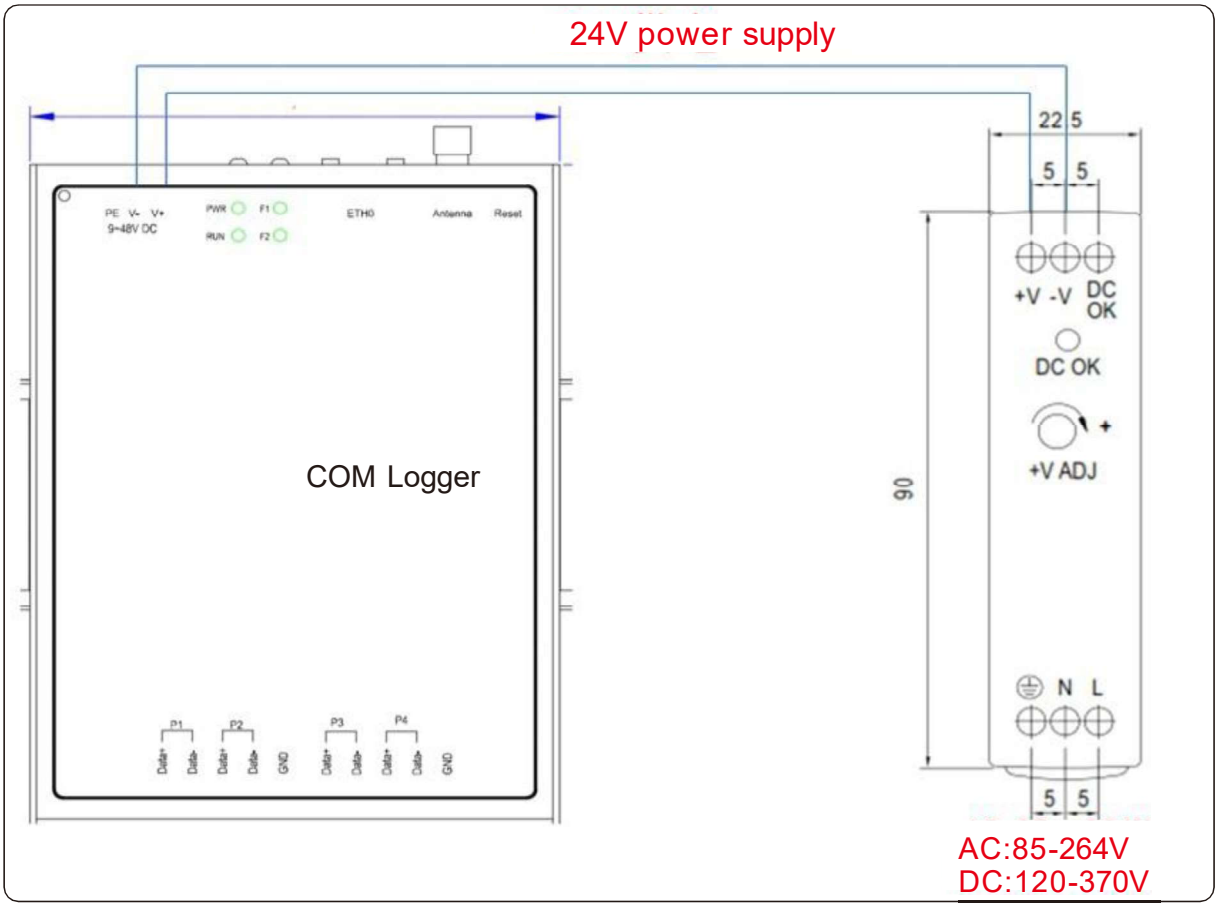
1. Fix the guide rail in a suitable position
2. S3-Logger is tilted at a certain angle, so that the upper clip fits into the guide rail
3. Push the lower part of S3-Logger and snap it into the guide rail

Warning:
Please observe the surrounding environment during installation to avoid hand scratches.

Power supply installation

The power supply only supports rail installation. For installation steps, please refer to the S3-Logger rail installation steps.

6. Electrical Connections

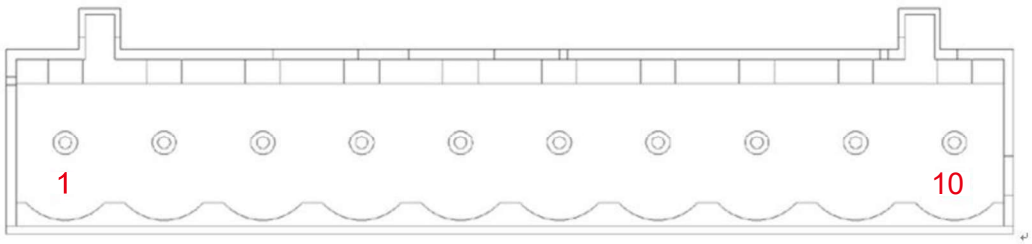


Power supply installation steps

1. Use a 2.5mm² wire, strip the insulation for 8-10mm.
2. The +V and -V terminals of the power supply are respectively connected to the V+ and V- terminals of the S3-Logger device.

Danger:
Please be sure to check the corresponding terminal carefully when wiring, so as to avoid injury to personnel and equipment.

RS485 connection



5.08mm 1*10P Terminals

6. Electrical Connections

NO.	definition	NO.	definition
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4	Port2 RS-485_A	9	Port 4 RS-485_B
5	GND	10	GND

1. Use 1~1.5mm² twisted pair with shielding layer
2. Strip the protective layer of the communication cable by about 20mm, and strip the insulation layer of the wires by about 10mm
3. Connect the stripped wires to the RS485 port of the S3-Logger device
4. If multiple inverters need to be monitored on site, daisy-chain cables can be used for the inverters. Each serial port of S3-Logger can connect 15 inverters.

Note:
When wiring, RS485A is connected to the A port of the S3-Logger device, and RS485B is connected to the B port of the S3-Logger device.

7. Configuration

7.1 Network Configuration

The product adopts WEB configuration, it is recommended to use browser chrome version 100 or above, and the resolution of computer is recommended to be 1920*1080. If there is a firewall on site, please let the firewall allow the following IP and port, so that the data collected can be effectively uploaded.

IP: Allocation according to firewall policy, Logger for adaptation.

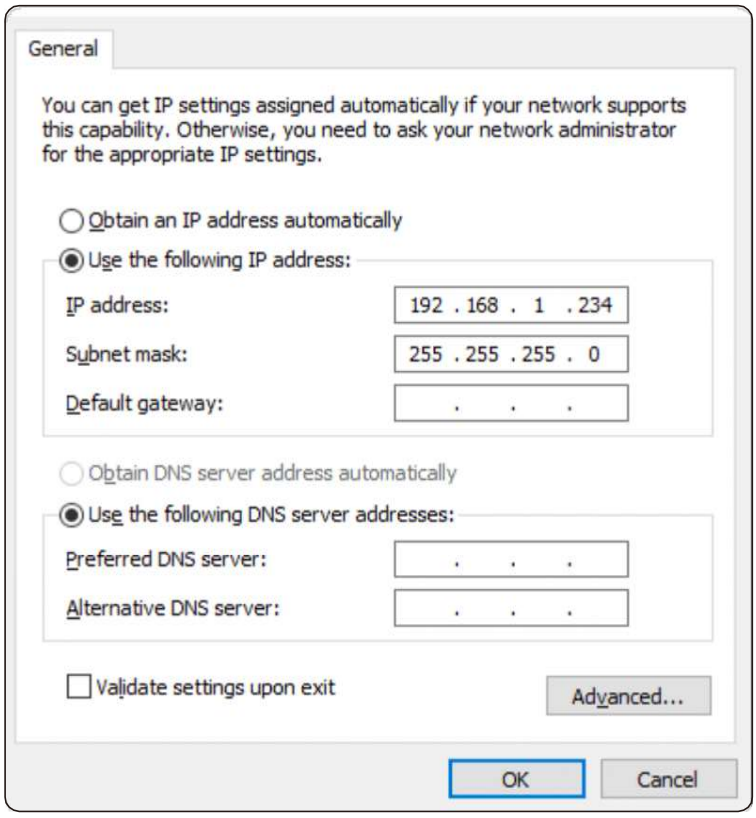
Cloud platform: port 1883.

IEC104 protocol: 2404-2405 ports.

Remote maintenance ports: 1723, 1777 ports.

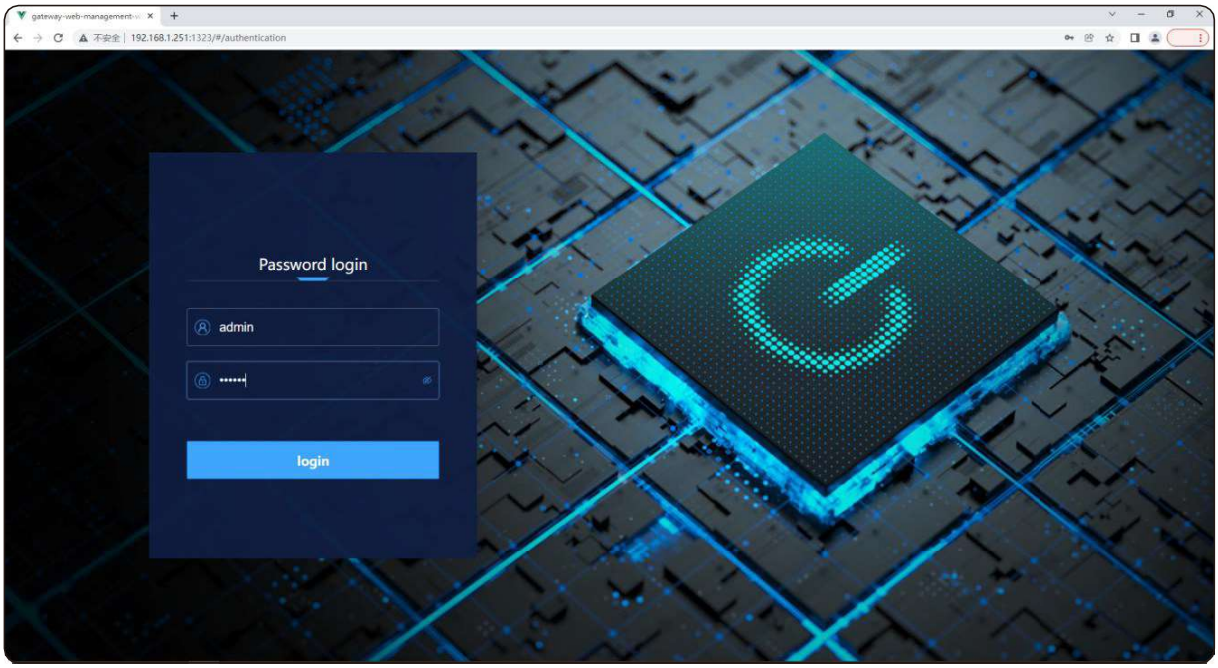
7.2 Software Configuration

1. Modify the computer IP, and keep the computer and Logger datalogger IP in the same network segment, and use the network cable to connect the computer and Logger device.



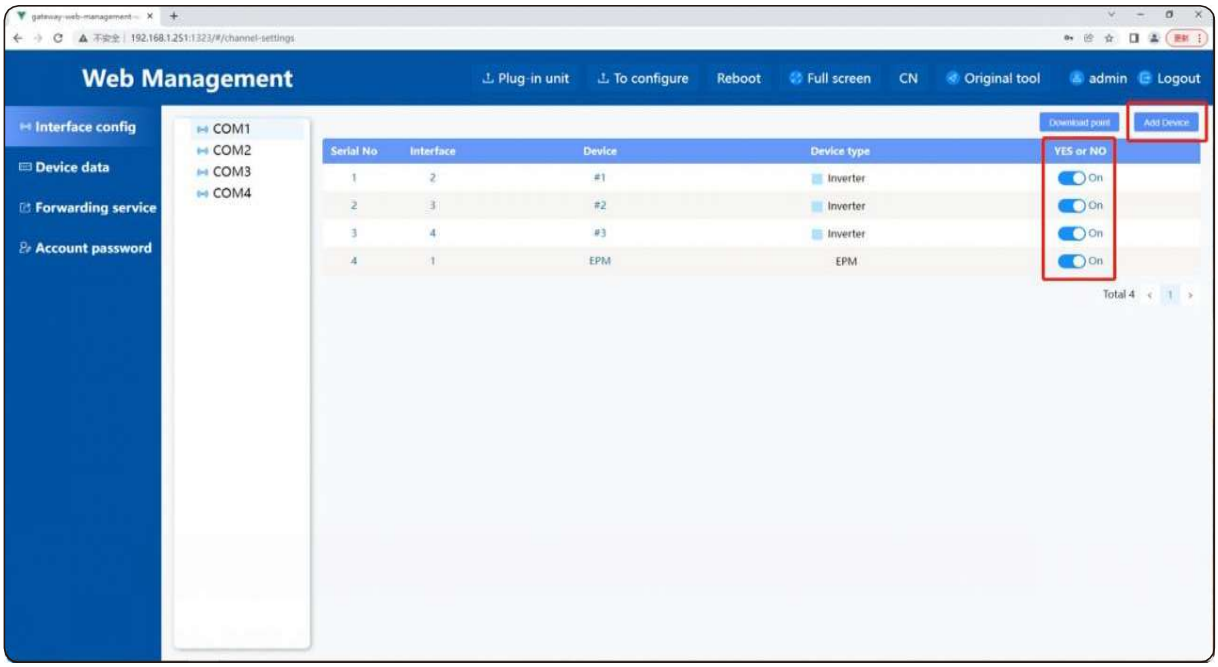
7. Configuration

2. Enter 192.168.1.254:1323 in the URL bar of the browser.
   Account: admin; Password: 123456

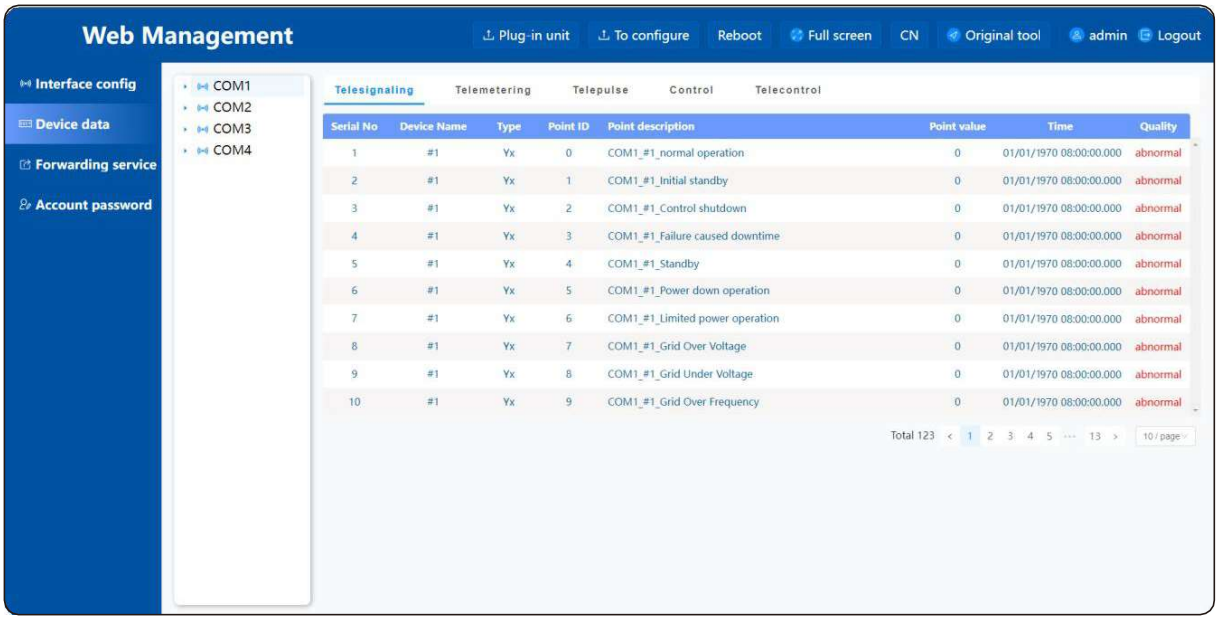


7. Configuration

3. Configure the RS485 interface in "Interface config", connect COM1 and COM2 to the inverter and EPM, COM3 to the weather station, and COM4 to the electric meter. (If the list of weather stations and electric meters cannot match the actual application on site. Please feedback the equipment model and communication protocol to the local technical support, and we will update it according to the site).
Select COM1, click "Add Device" to add the number of inverters, just select the inverter and inverter device address. If you want to delete redundant configuration, turn off "YES or NO" to delete redundant configuration. Similar to weather stations and electricity meters. After the configuration is complete, click "Reboot" to restart and take effect.

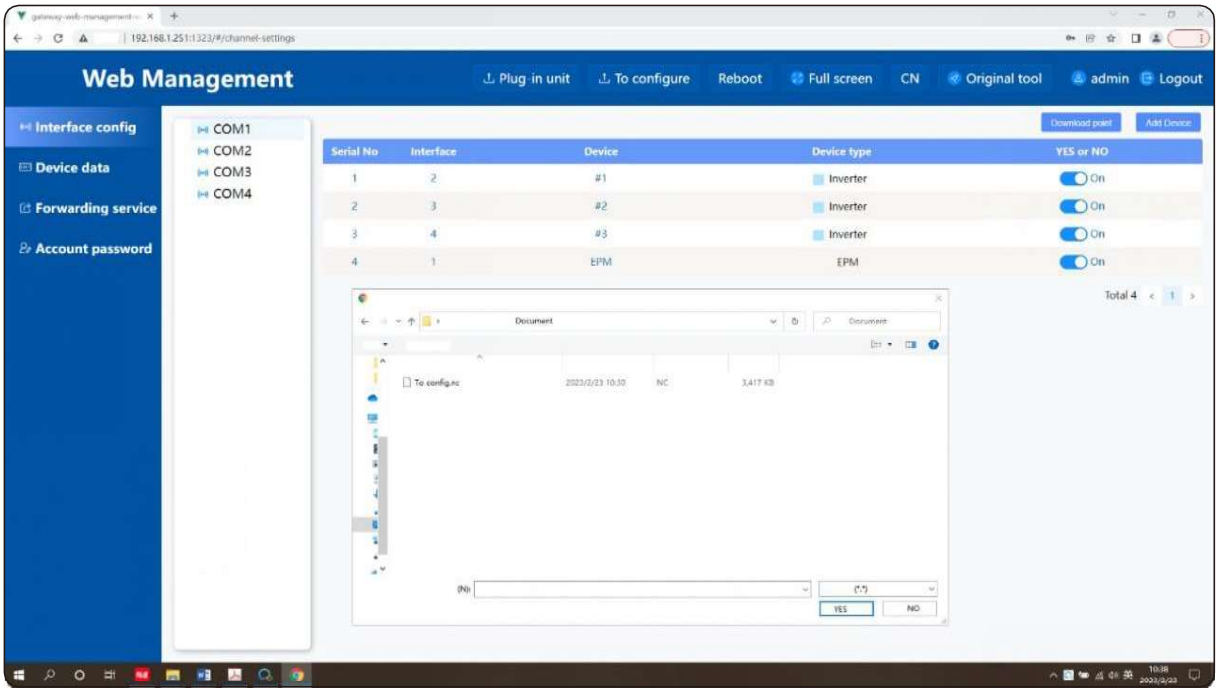


4. "Device data" can view the real-time data of the connected device. At the same time, the inverter can be remotely adjusted and controlled by "Control and Telecontrol".

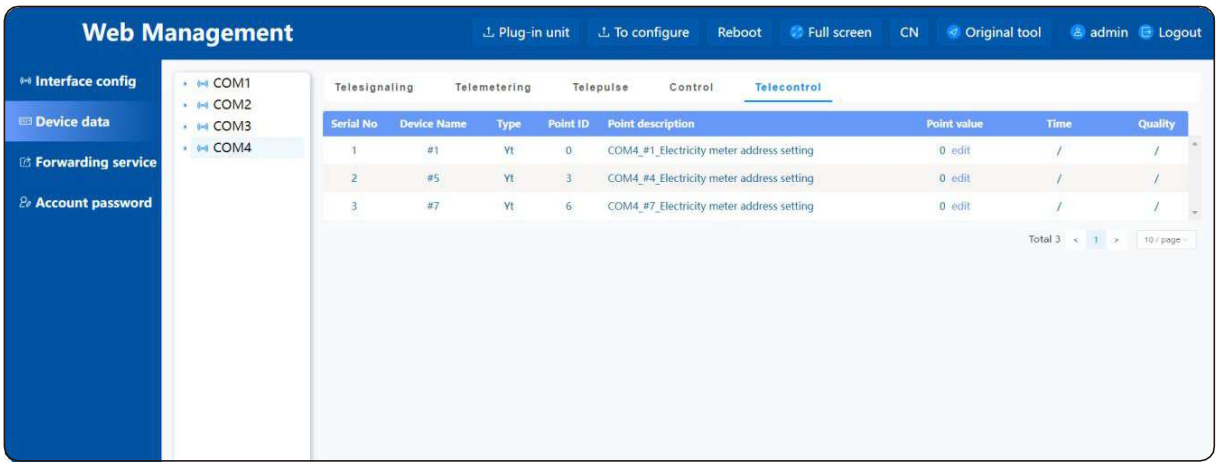


7. Configuration

5. ‘To configure’ allows you to import the configuration file directly. If other brands of weather stations or electricity meters are used on site, please send the communication protocol of the equipment to the local technical support. After we complete the configuration, you only need to import the configuration file and restart it to take effect. "Plug-in unit" is an option to update the software driver, similar to the operation to configure.



6. When the COM3 weather station or COM4 meter Device address is not the default value of "1-3", click the "Device data" list, select the corresponding COM port, select "Telecontrol" to manually set the device address required on site in "Point value", and click "edit".

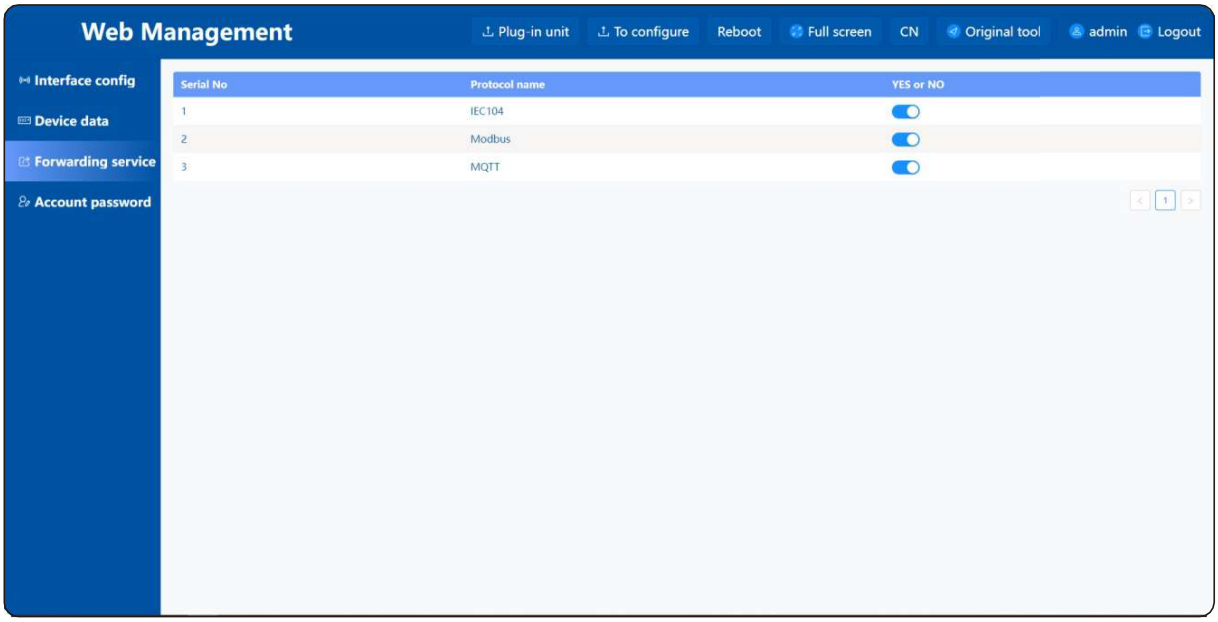


7. Configuration

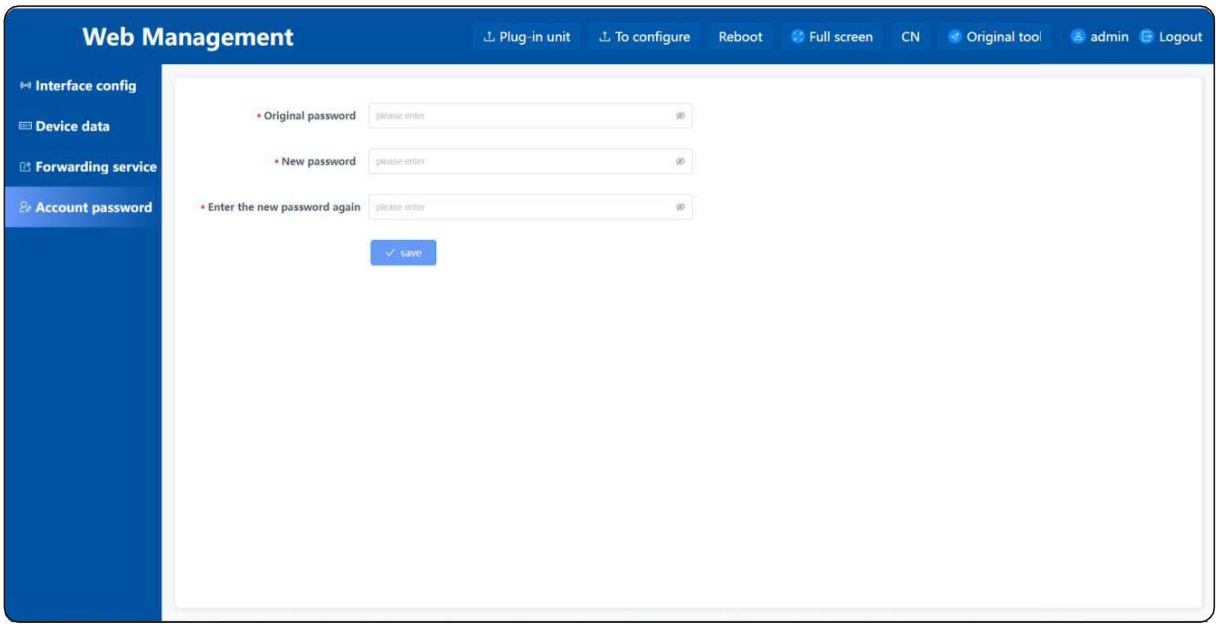
7. “Forwarding service” allows you to set forwarding information.
Supports IEC104, Modbus-TCP, and MQTT forwarding

Protocol	Communication parameter		
IEC104	IP address, subnet mask, and gateway		Same as the device network port
	Port		2404
Modbus-TCP	IP address, subnet mask, and gateway		Same as the device network port
	Port		502
	Tele signaling	Function code	02
		Register start address	0
	Telemetering	Function code	03
		Register start address	0
		Data type	32-bit short floating point
		Byte order	HH HL LH LL
	Tele control	Function code	04
		Register start address	0
		Data type	32-bit short floating point
		Byte order	HH HL LH LL
Modbus-TCP	Control	Function code	05
		Register start address	0
	Tele control	Function code	06 or 10
		Data type	16 bit signed integer
		Byte order	HL
MQTT	ON		Upload to Cloud
	OFF		Do not upload to Cloud

7. Configuration

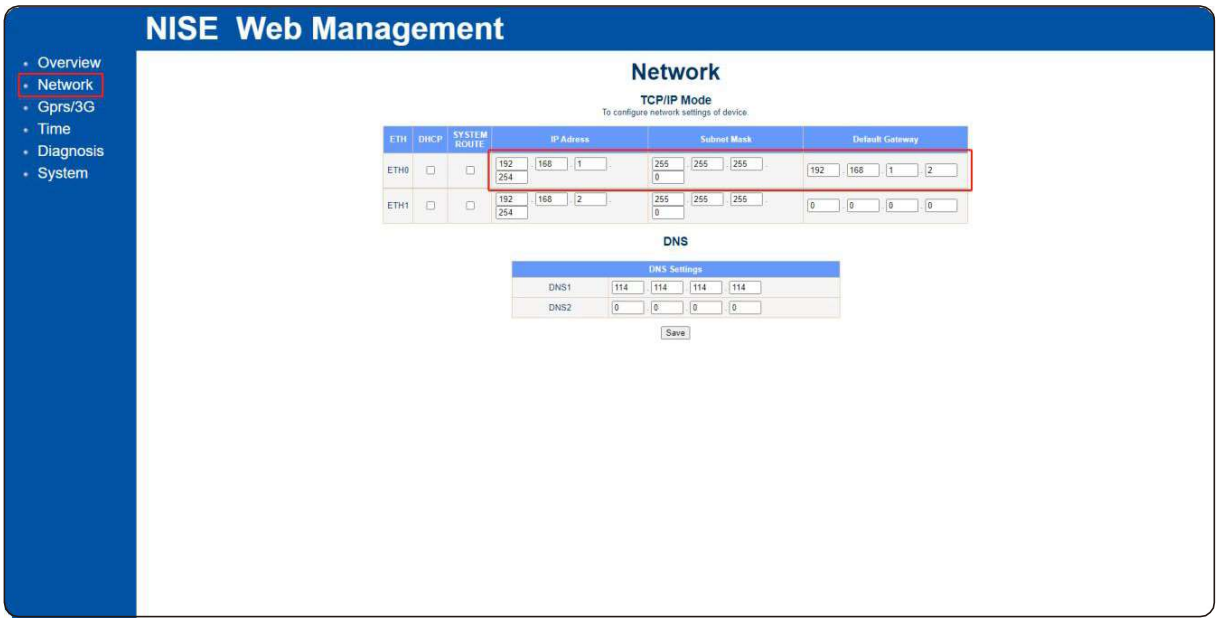


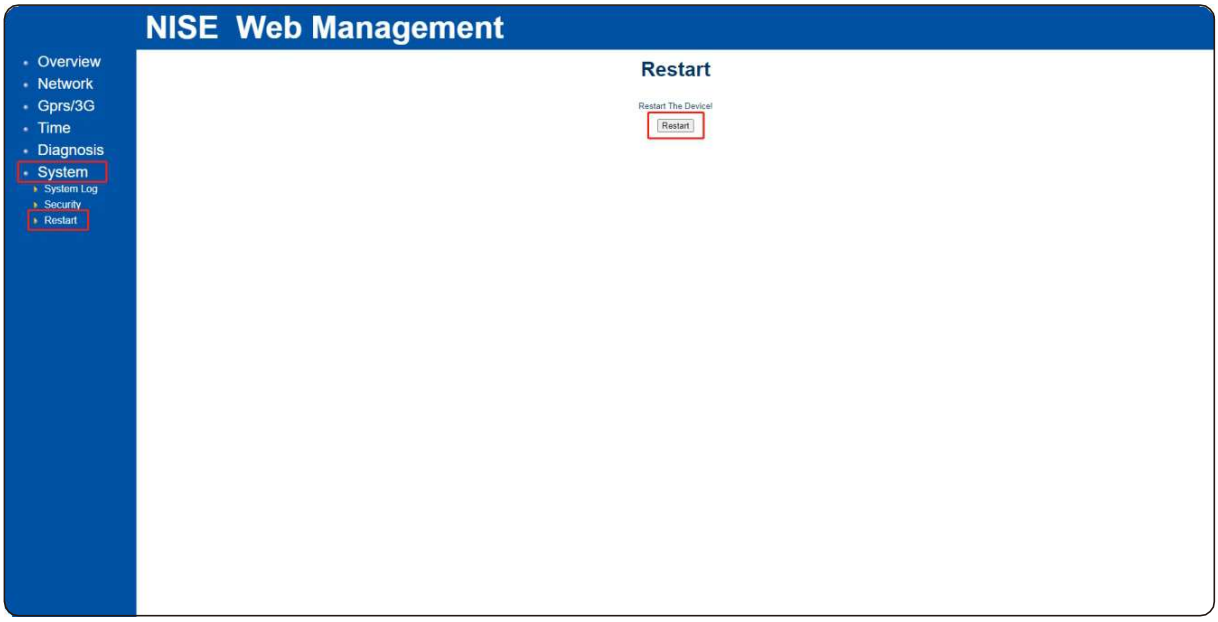
8. "Account password" allows you to modify the login password.



7. Configuration

9. Modify the IP address of the network port of the Logger device: the datalogger default IP address: 192.168.1.254, click "Original tool", click "Network", and configure the IP, subnet mask, and gateway according to the firewall to ensure that the device can connect to the network smoothly. Then click "System—Restart" to restart to take effect.





10. IEC104 Modbus-TCP protocol export, click “Interface config” interface. click “Download point” .

8. Routine Maintenance

Check	Method
Working environment	Check whether there is electrical interference near S3-Logger
	Check for corrosive substances near S3-Logger
	Check if the S3-Logger ambient temperature is out of range
	Check if S3-Logger is clean
Circuit maintenance	Check whether the S3-Logger power supply is stable and reliable
	Check whether the S3-Logger power supply and communication cables are fastened
	Check if S3-Logger is well grounded
Equipment installation and maintenance	Check S3-Logger for dropping risk

9. Common Problems

No	Problems	Explanation
1	How to deal with the device offline?	Observe the indicator light of the equipment and check item by item according to the instruction manual;
2	How to deal with the inverter without data?	1. Debug software to check whether the inverter is normal (excluding inverter hardware problems); 2. Measure whether the 485 cable has any abnormal conditions such as interruption and grounding and check whether the shielding layer of the 485 communication cable is effectively grounded; 3. Replacement test with other normal equipment (excluding data acquisition hardware problems);
3	Are there any recommended manufacturers for weather stations and electricity meters?	1. Recommended weather station manufacturers: Jinzhou Sunshine (http://www.jz322.net/).Jinzhou Licheng (http://www.zn17.com.cn/); 2. Recommended meter manufacturer: Acrel (https:llwww.acrel.cn/); 3. Other brands: The equipment communication protocol is required to be standard Modbus. and the customer provides the communication protocol for advanced development. It is recommended to be a relatively reliable and well-known local brand.

10. Appendix

Model Name	S3-Logger
Communication	
Supported device type	CSI inverter – GL03,GL02 Generation
Number of connected inverter	Each RS485 PORT≤ 15
Data collection intervals	5 minutes
Status indicator	LED x 2,Power,Run
RS485	COM x 4,1200-19200 bps,communication distance≤ 1000m
Ethernet communication	LAN x 1,10 / 100Mbps adaptive,communication distance≤ 100m
Communication Protocol	
RS485	Modbus-RTU,IEC60870-5-103,DLT645
Ethernet	Modbus-TCP,IEC60870-5-104
Electrical	
AC power supply	100~240V, 50Hz/ 60Hz
DC power supply	9~36V
Operating power consumption	5W@12VDC
Environment	
Operating temperature	-40℃ ~+80℃
Storage temperature	-40℃ ~+80℃
Operating humidity	≤ 85%,Relative humidity,no condensa
Operating altitude	≤ 4000m
Mechanical	
Dimensions(L*W*H)	89*121*27mm
Protection degree	IP20
Installation method	Rail Mounting,Desktop installation
Others	
Certification	CE、RoSH

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