



S3-Logger Datalogger

User Manual

Ginlong Technologies Co., Ltd.

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1. About this document

This manual is applicable to the following data logger of Ginlong Technology Co., Ltd.
S3-Logger, G3-Gateway.

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

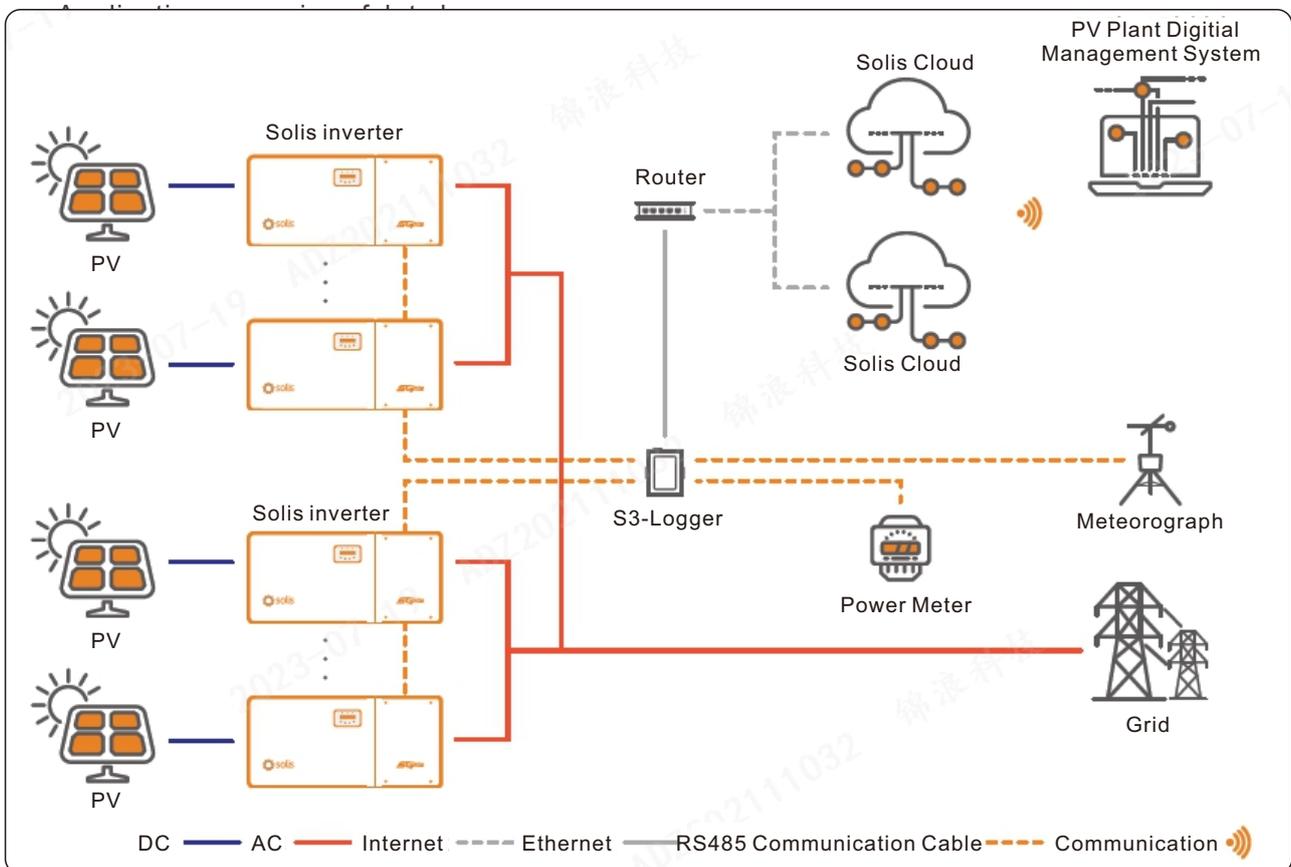
Flexible networking: Support 4 channels of RS485, 1 channel of Ethernet communication

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

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

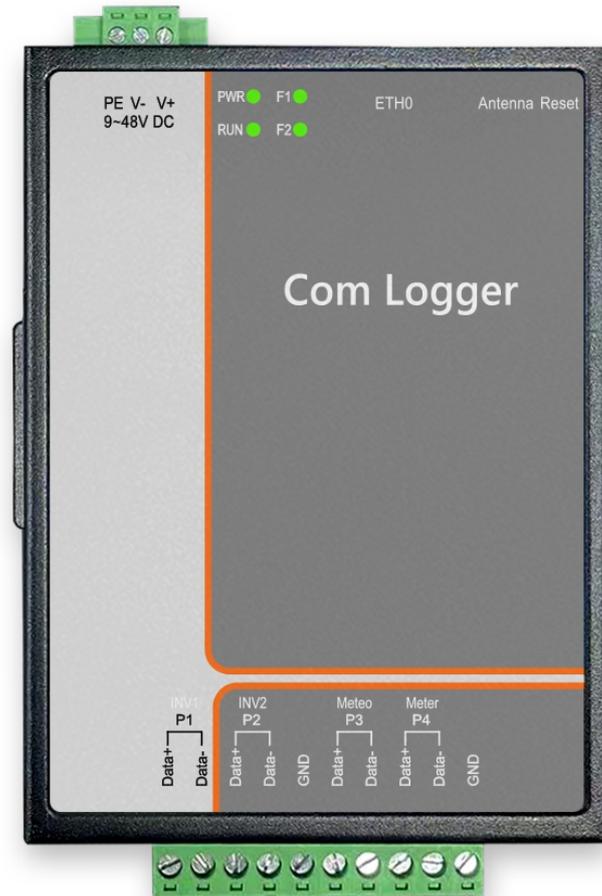
Intelligent operation and maintenance: support EPM, breakpoint resume and other functions

3.2 Application Scenarios Introduction

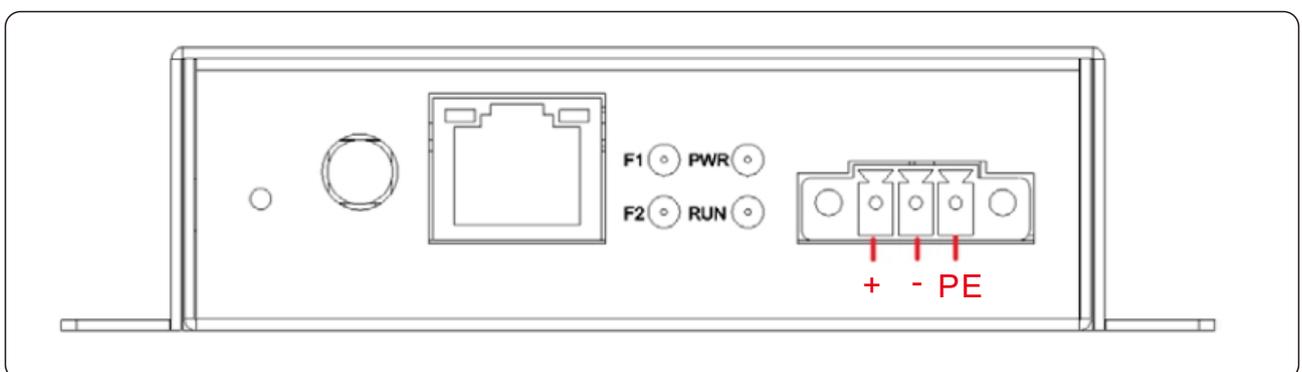


3. Product Description

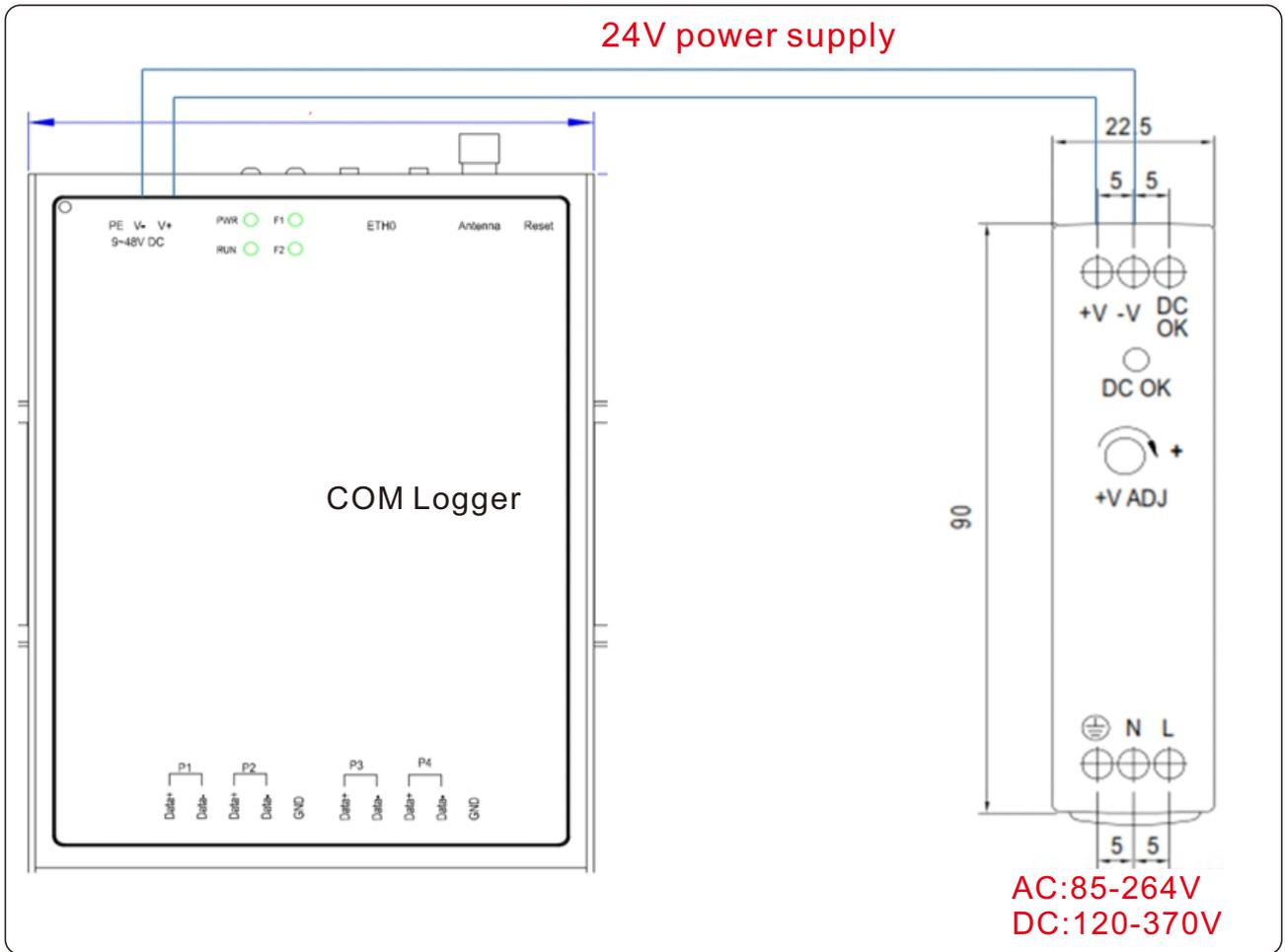
3.3 Appearance



3.4 Power Wiring Diagram



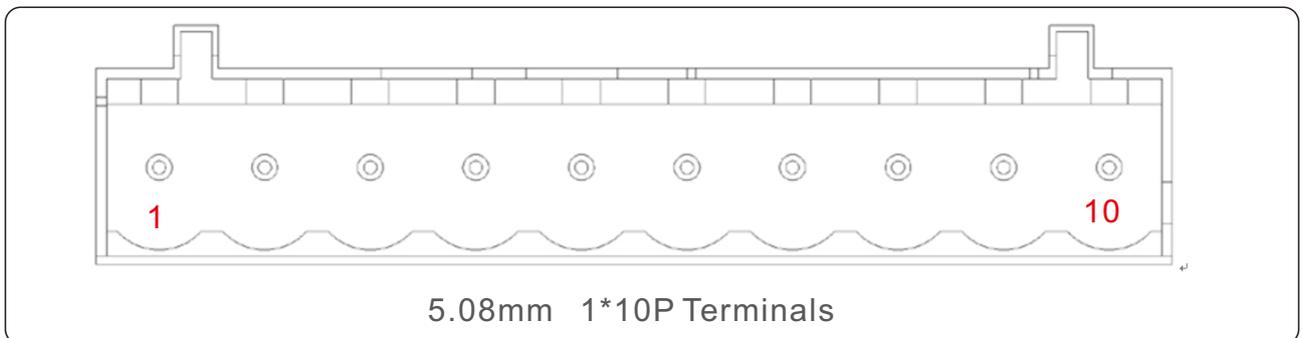
3. Product Description



Danger:

Please strictly follow the above example for wiring.

3.5 Communication Terminal Description



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	Port 2 RS-485_B	9	Port 4 RS-485_B
5	GND	10	GND



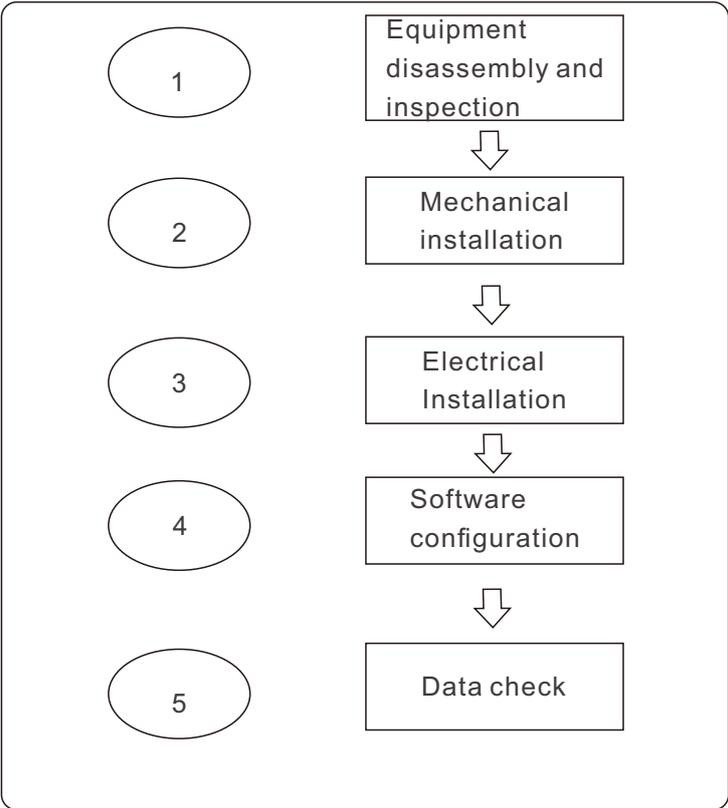
WARNING:

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

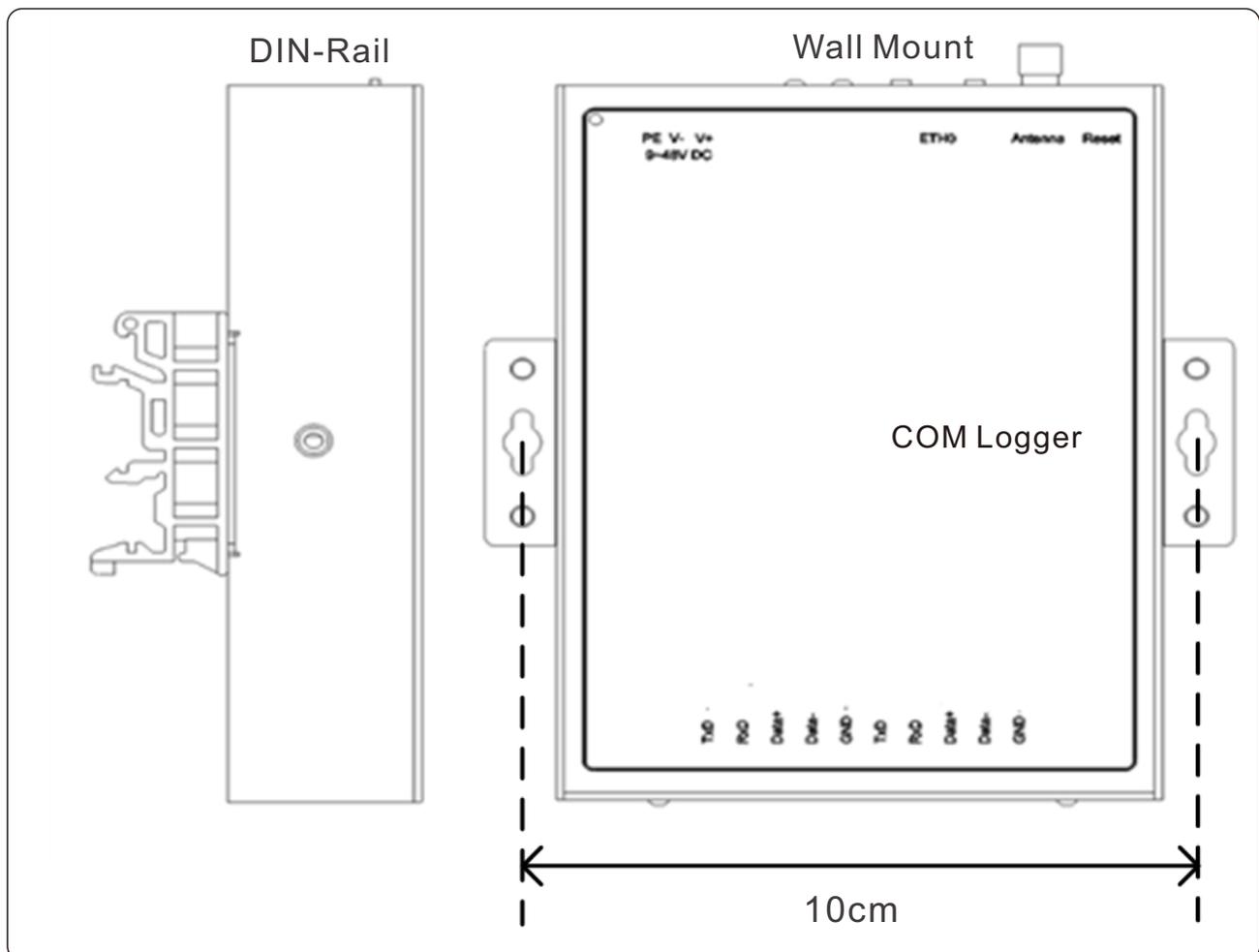
5.1 Equipment Disassembly

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	
2	Power terminal	1	
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



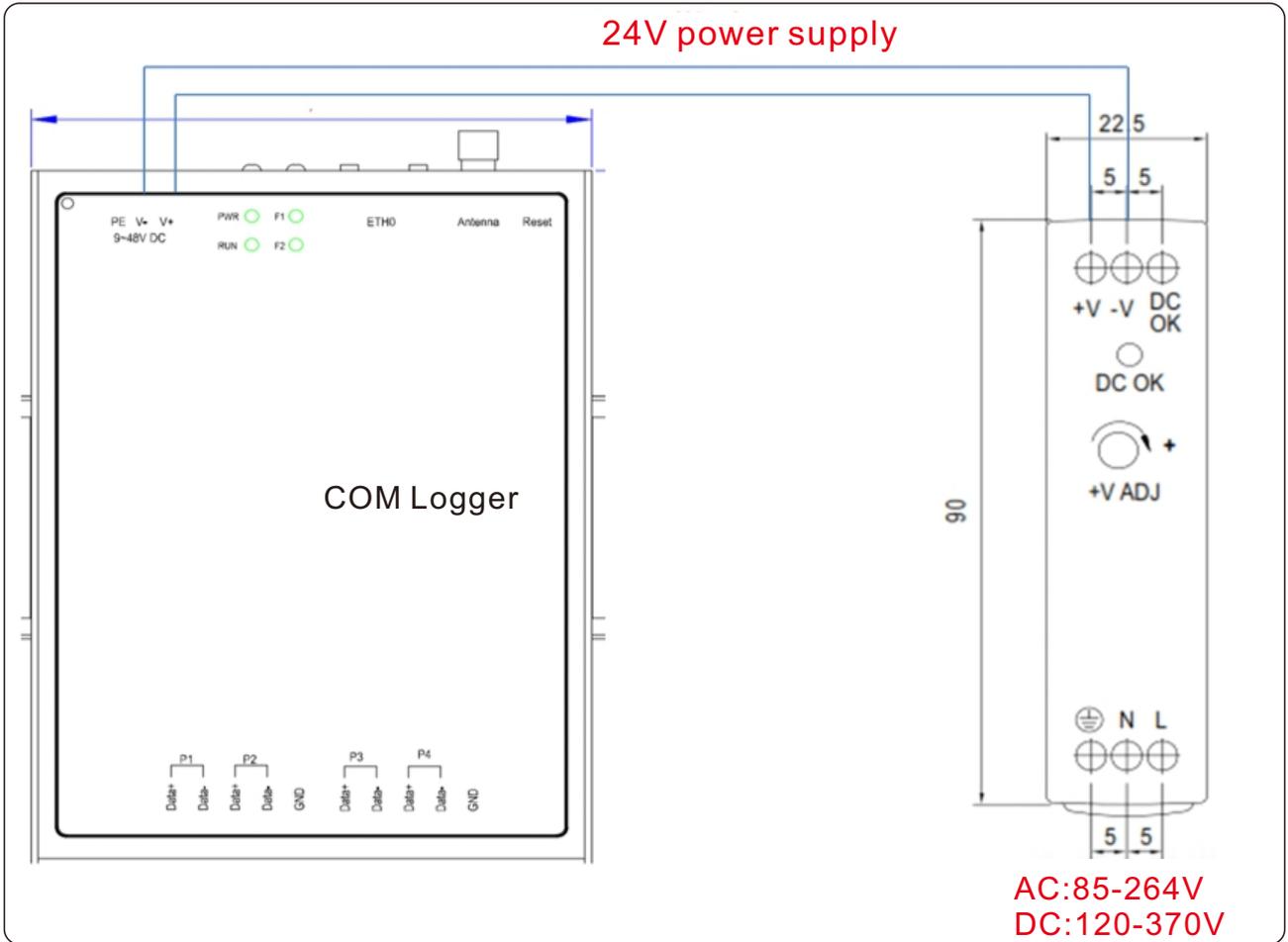
Warning:

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

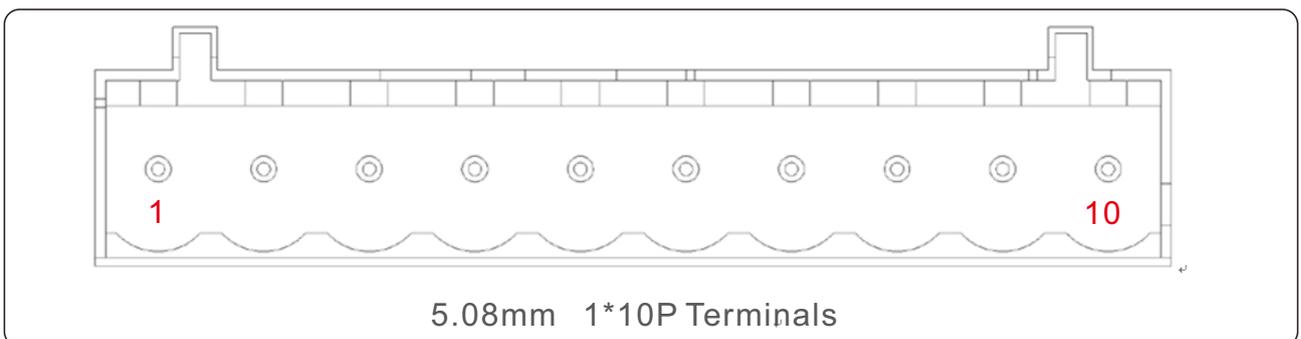
1. Use a 2.5mm² wire, strip the insulation for 8-10mm.
2. The +V and -V terminals of the power supply are respectively connected to the V+ and V- terminals of the S3-Logger device.



Danger:

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

RS485 connection



6. Electrical Connections

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

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.

Solis cloud platform: port 1883.

IEC104 protocol: 2404-2405 ports.

Remote maintenance ports: 47, 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.

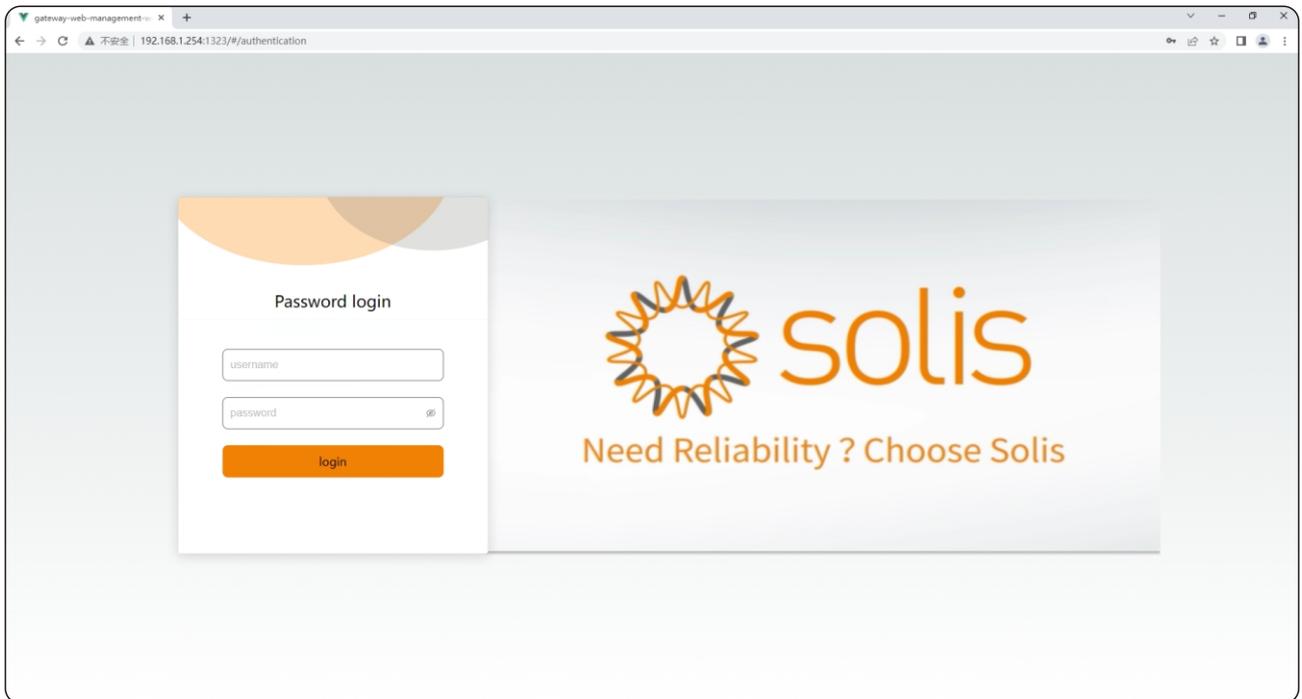
The image shows a 'General' network configuration dialog box. It contains the following elements:

- General** (tab)
- Text: "You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings."
- Radio button: Obtain an IP address automatically
- Radio button: Use the following IP address:
- Form fields for IP settings:
 - IP address: 192 . 168 . 1 . 234
 - Subnet mask: 255 . 255 . 255 . 0
 - Default gateway: . . .
- Radio button: Obtain DNS server address automatically
- Radio button: Use the following DNS server addresses:
- Form fields for DNS settings:
 - Preferred DNS server: . . .
 - Alternative DNS server: . . .
- Checkbox: Validate settings upon exit
- Button: Advanced...
- Buttons: OK, Cancel

7. Configuration

2. Enter 192.168.1.254:1323 in the URL bar of the browser.

Account: admin; Password: 123456



7. Configuration

3. Function introduction

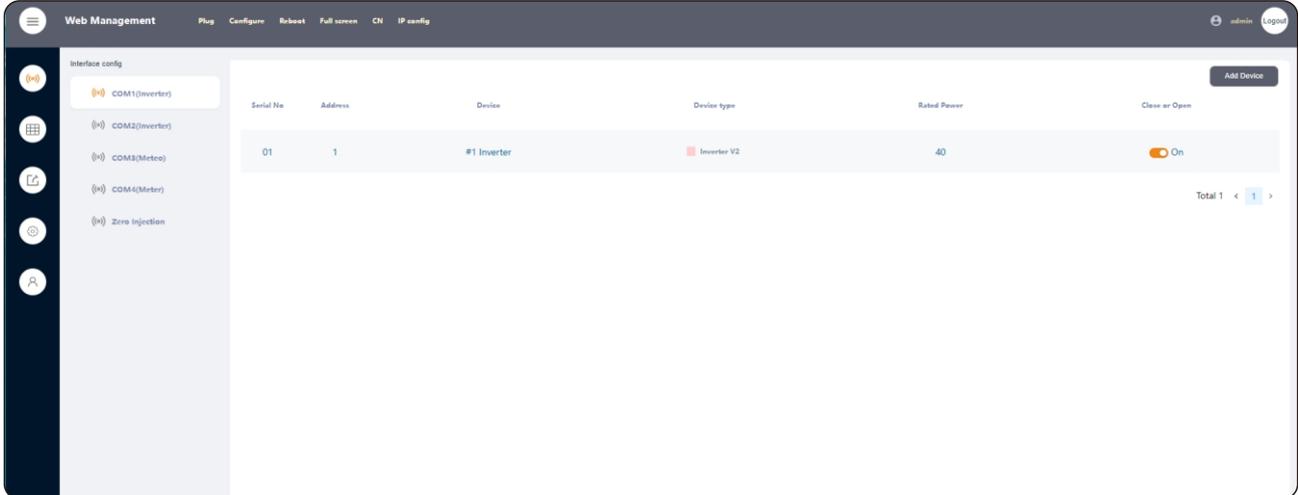
	Interface config	Used to configure device access
	Device data	For device view
	Forwarding service	Used to select forwarding channels
	App Config	Used to configure Zero Injection (datalogger + meter) parameters and select time zone
	Account password	Used for password change

Plug	Configure	Reboot	Full screen	CN	IP config
Plug-in update	Configuration update	Device restart	Full screen switch	CN/EN switch	IP configuration
For software driver update, follow the prompts	For configuration file update, follow the operation prompts	Device soft restart			

7. Configuration

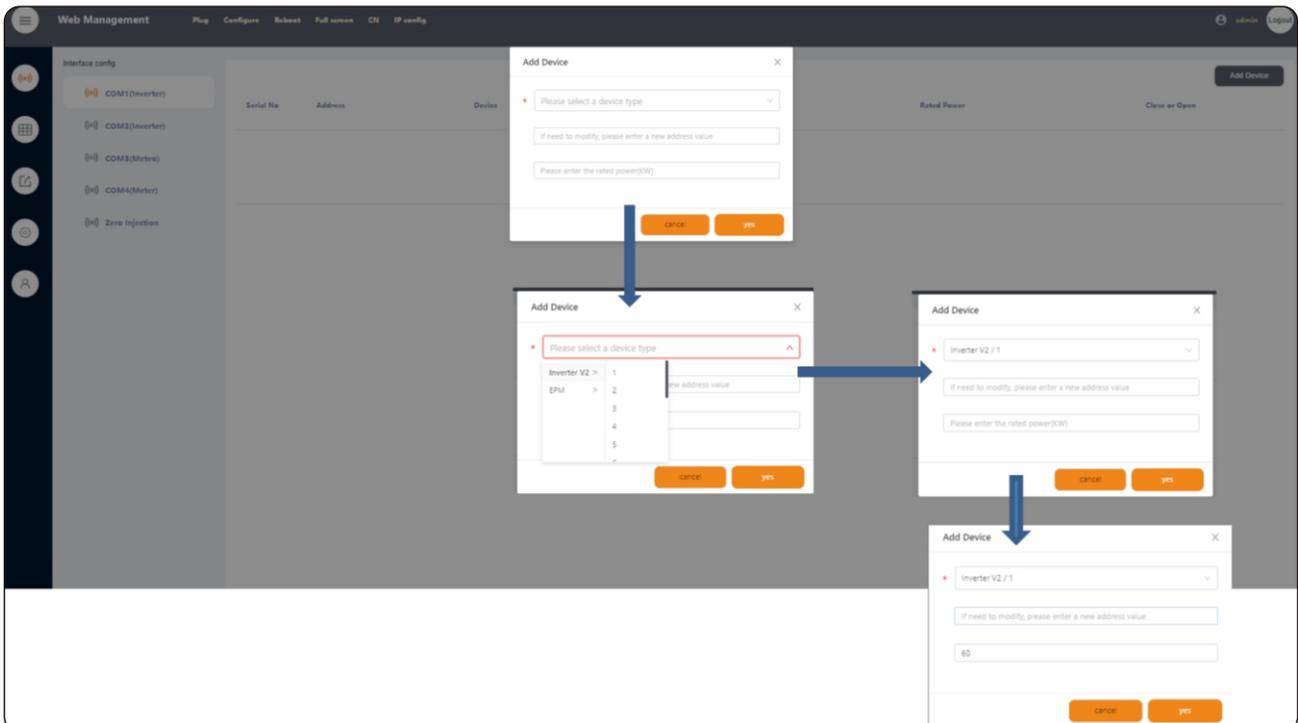
4. Interface config

The configuration function of S3 logger, you can add inverters, EPM (Solis EPM Device), meteorological meters, meters and other devices through the Add Device. Com1 and Com2 support inverters and EPM devices, Com3 supports meteorological meters, and com4 supports meters (two-way electric meters can be used to meet the zero injection function).



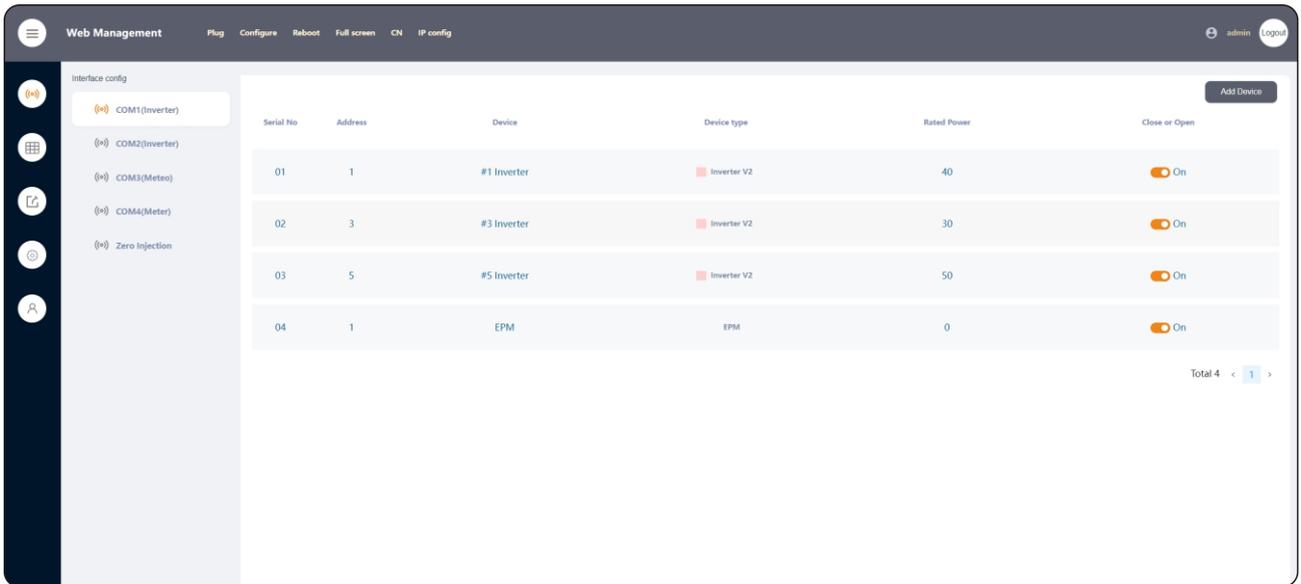
5. Add EPM and inverter to Com1 and com2.

- (1) Click Add Device to select a device type. You can select EPM or inverter
- (2) The default device address of the EPM is 1, and the default device address of the inverter is 1-15. If the default value is used, you do not need to consider the second row. The third line is the rated power of the inverter, which must be filled in.
- (3) If the inverter address is not in the default setting, click the number from 1 to 15 based on the number of connected devices, and manually enter the inverter address in the second row. Note: The device address entered manually cannot be the same as the default address.
- (4) If an error occurs, the configuration content will be confused. You can delete all the configurations (YES or NO) and restart the datalogger to restore the data.

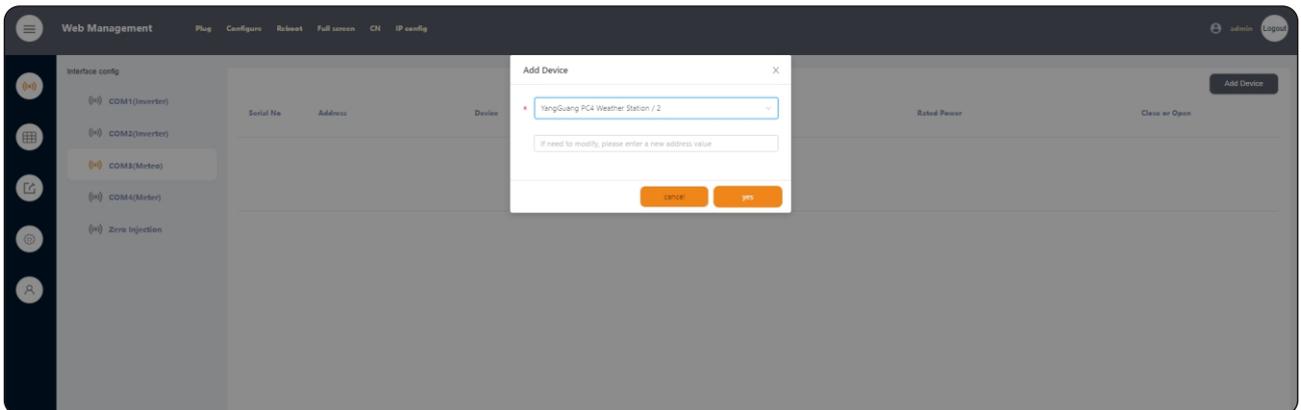


7. Configuration

After the configuration is completed, as shown in Figure:

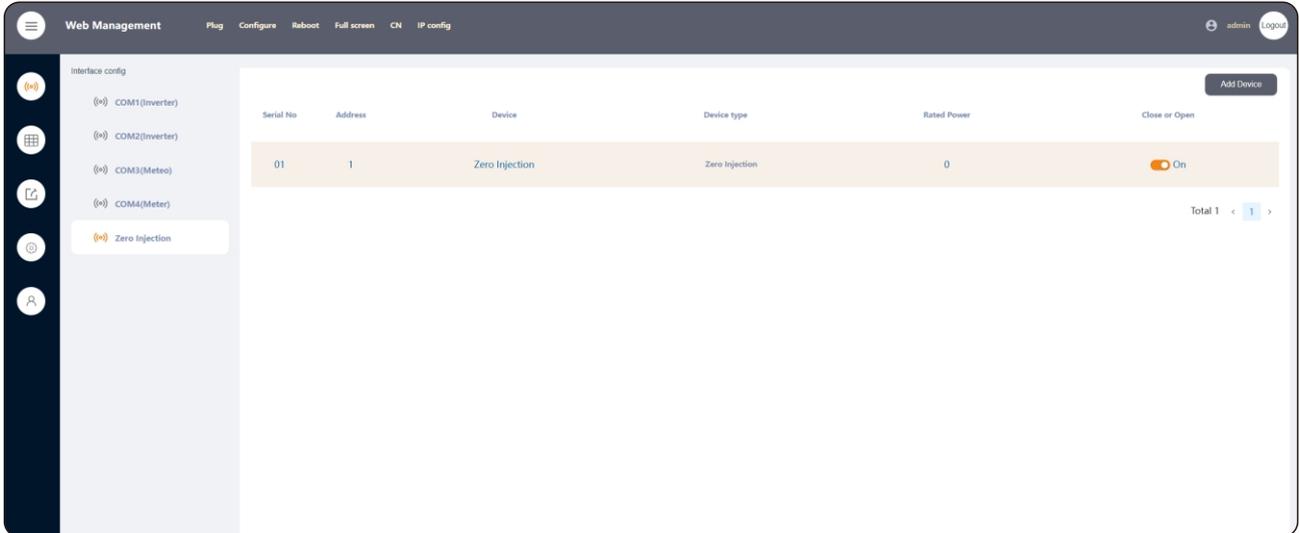


6. Configure the weather meter and electricity meter in COM3 and COM4. The default device addresses are 1-3. If other addresses are required, configure them like above inverters



7. Configuration

7. If you want to view Zero Injection (datalogger + meter) data, you need to add the corresponding meter information to COM4; otherwise, the corresponding device information cannot be added to the Zero Injection list. This page is used to display Zero Injection data. If YES is selected, you can view the corresponding Zero Injection function data.



The screenshot shows the 'Web Management' interface. The top navigation bar includes 'Plug', 'Configure', 'Reboot', 'Full screen', 'CN', and 'IP config'. The left sidebar lists interface configurations: COM1(Inverter), COM2(Inverter), COM3(Meter), COM4(Meter), and Zero Injection. The main content area displays a table with the following data:

Serial No	Address	Device	Device type	Rated Power	Close or Open
01	1	Zero Injection	Zero Injection	0	On

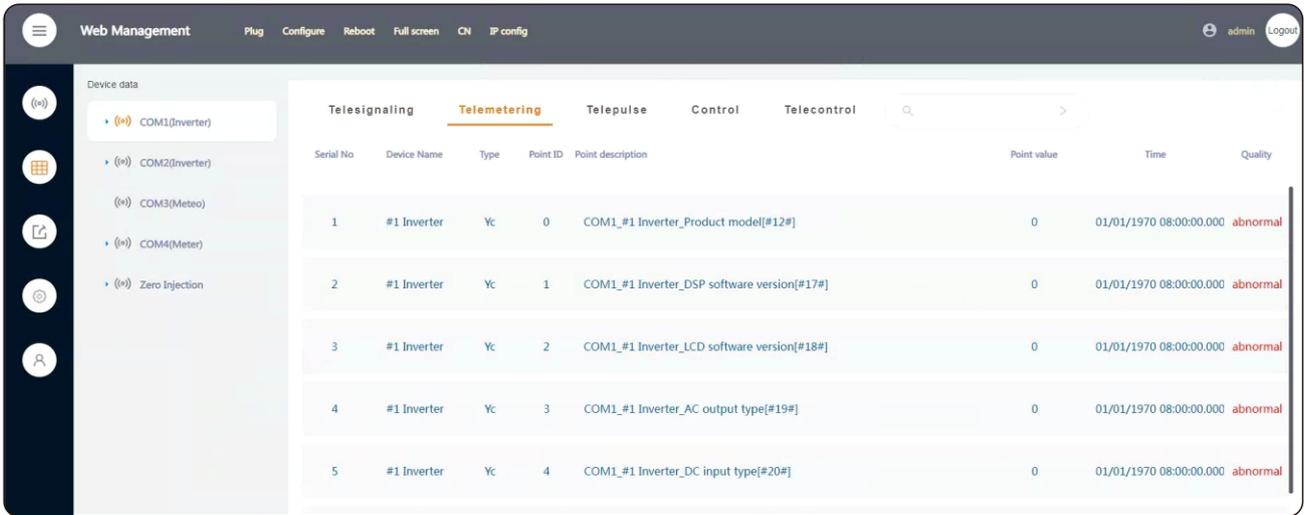
The table also shows a total of 1 device and a page number of 1.



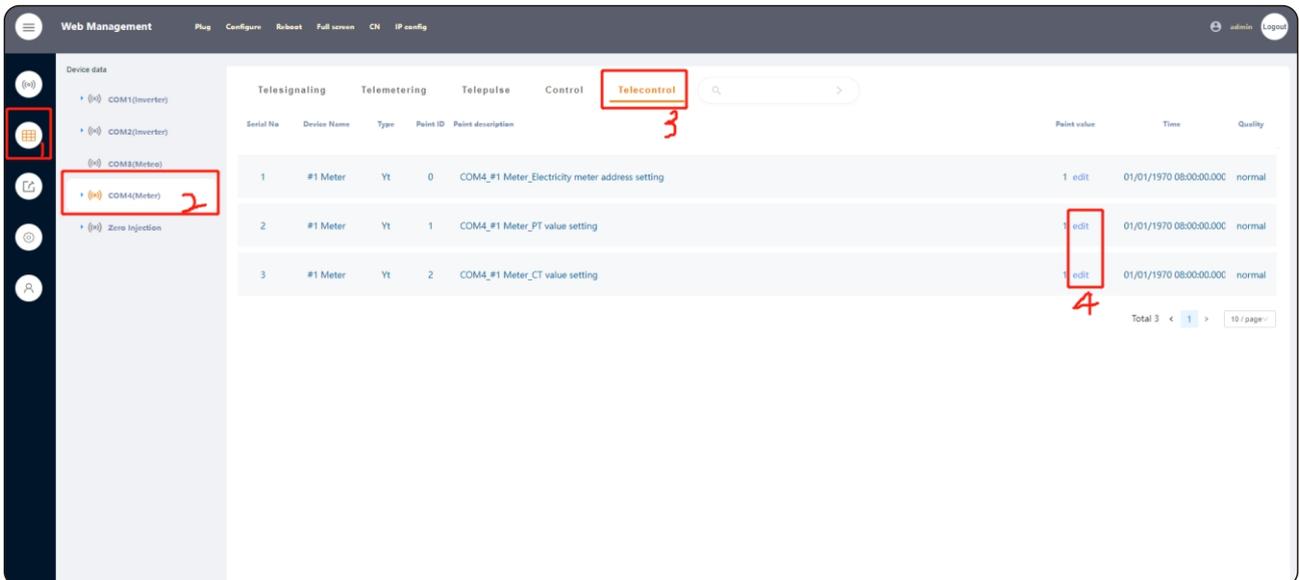
Note that after adding the device, it is necessary to restart the device

7. Configuration

8. "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".



Because the meter involves PT/CT ratio and other issues, after adding the meter information in Interface config, you must set the strain ratio parameters in the Device data according to the sequence in below figure. For example, if the PT ratio is 10kv to 100v, 100 needs to be delivered.

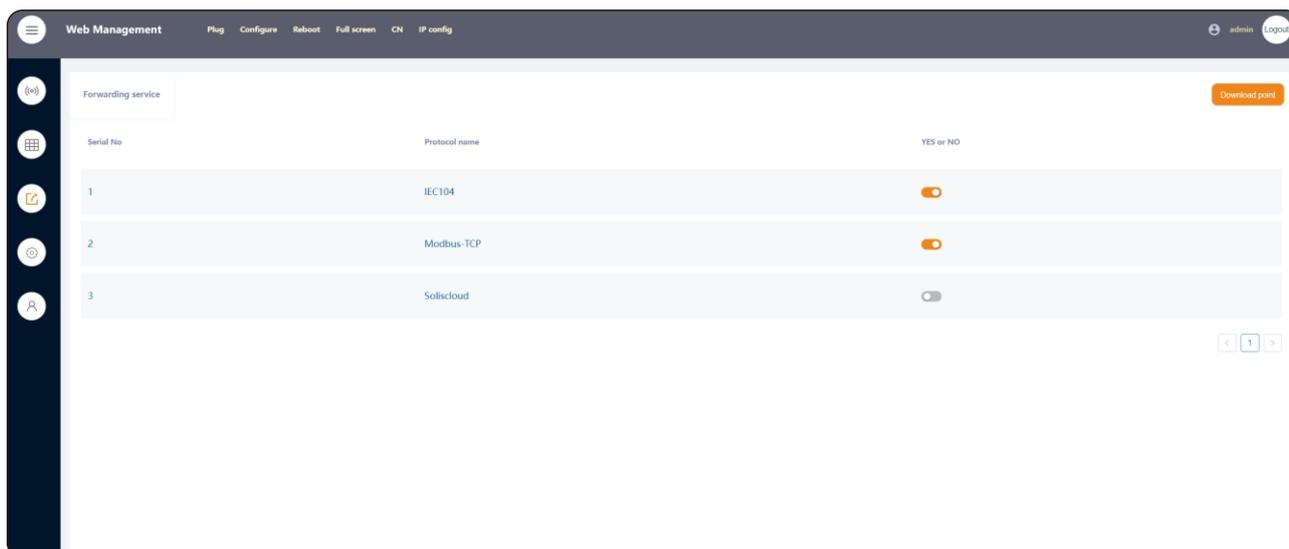


7. Configuration

9. "Forwarding service" allows you to set forwarding information. Supports IEC104, Modbus-TCP, and Soliscloud forwarding, the backflow power and Zero Injection function can be changed remotely via IEC 104 or Modbus-TCP with Zero Injection function (datalogger + meter).

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

7. Configuration

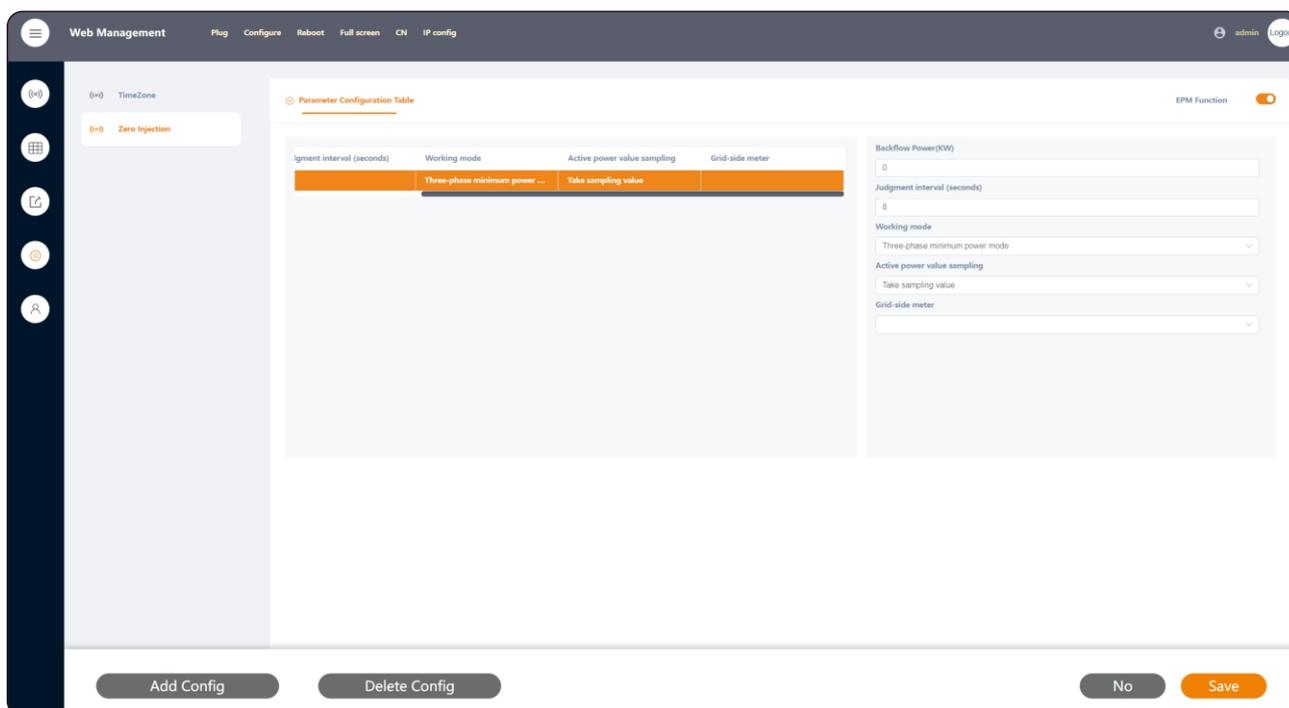


10. Zero Injection function (datalogger + meter)

Note: This function only supports the function judgment based on the total power of the grid point.

Configuration:

- (1) Select the Zero Injection list in the sequence shown in the following figure, and select System Configuration Table to set Zero Injection system parameters



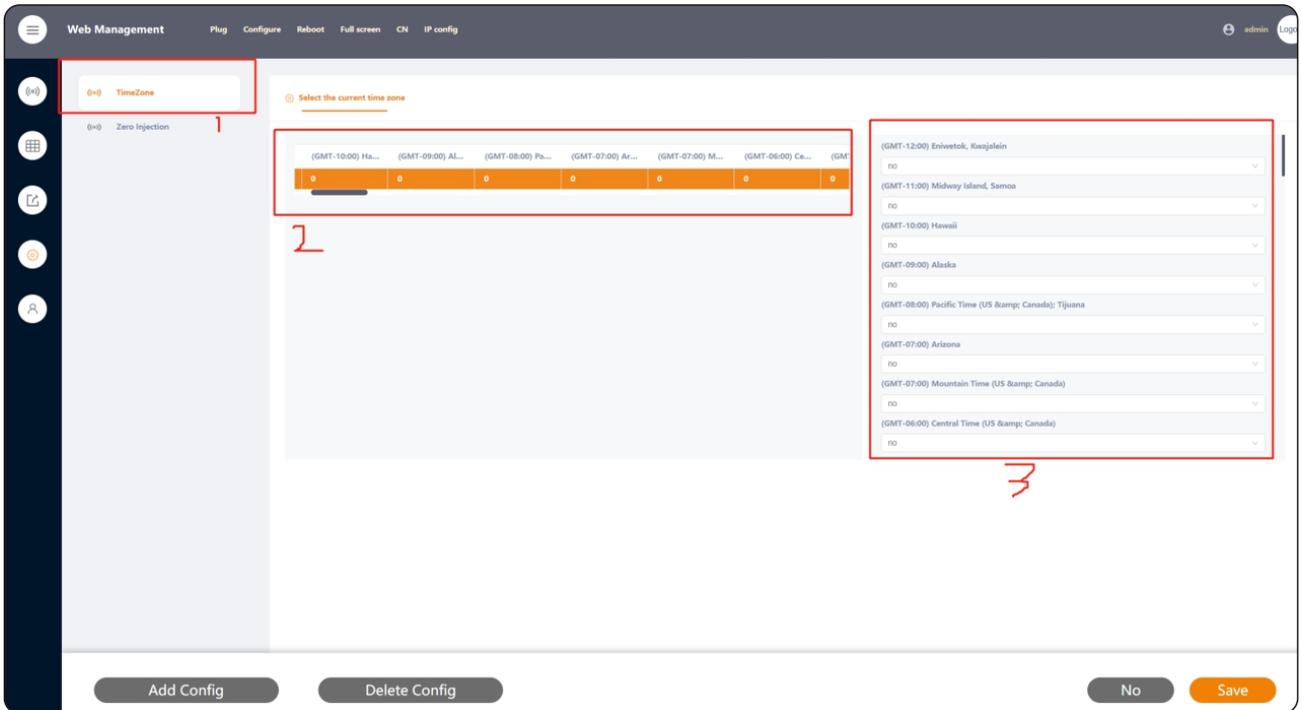
7. Configuration

Name	Meaning
Backflow power(KW)	Backflow power setting value
Judgment interval (seconds)	Logic judgment time, the default is 3 seconds, Calculate based on the number of inverters * 1.5 seconds
Working mode	Three-phase average power mode (default) Three-phase minimum power mode
Active power value sampling	Calculated according to three-phase voltage and current (default) Take sampling value
Grid-side meter	Select from a list

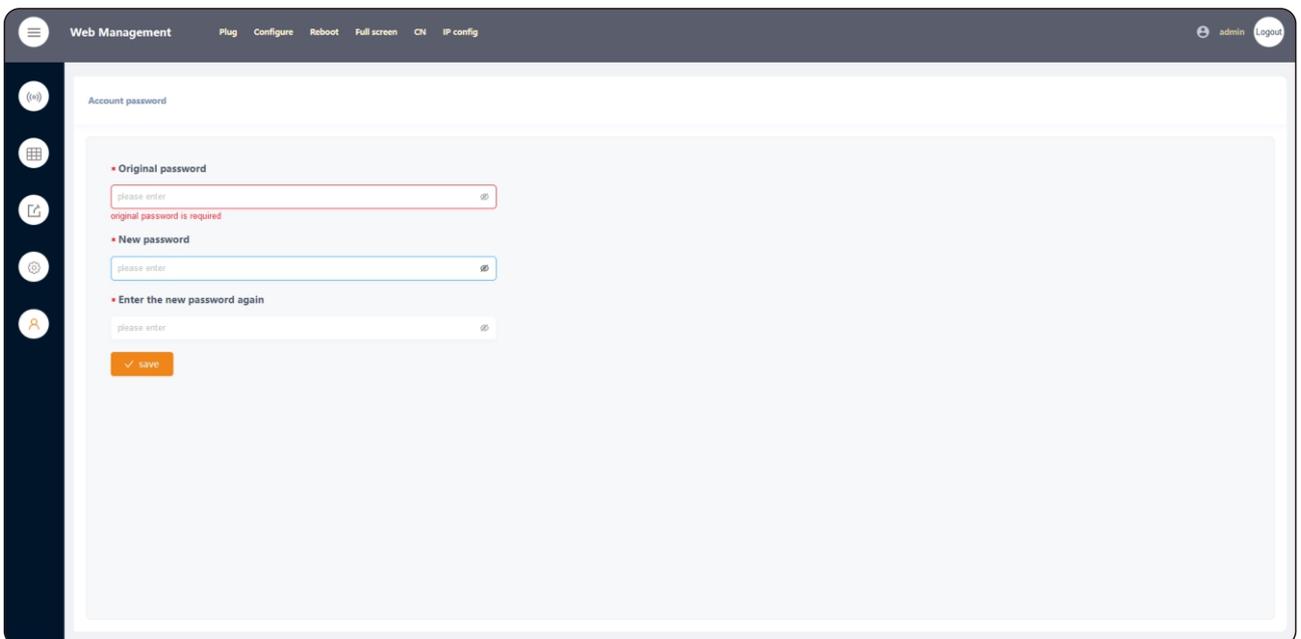
Note that after the configuration is completed, the device needs to be restarted

7. Configuration

11. Time zone selection, this time zone involves the timing of the inverter and other functions, please select your own time zone according to the sequence shown in the diagram, and select no for the rest. After the configuration is complete, click Save and restart datalogger



12. Datalogger login password change



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?	<ol style="list-style-type: none"> 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?	<ol style="list-style-type: none"> 1. Recommended weather station manufacturers: Jinzhou Sunshine (http://www.jz322.net/).Jinzhou Licheng (http://www.zn17.com.cn/); 2. Recommended meter manufacturer: Acrel (https://www.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	Solis inverter
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°C ~+80°C
Storage temperature	-40°C ~+80°C
Operating humidity	≤ 85%,Relative humidity,no condensa
Operating altitude	≤ 4000m
Protection degree	IP20
Mechanical	
Dimensions(L*W*H)	89*121*27mm
Installation method	Rail Mounting,Desktop installation
Others	
Certification	CE, RoHS

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