

# Installation Instruction for Smart Anti-reflux Box

Model: SAR-100

Version: V1.2



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# I Introduction

SOLARMAN anti-reflux box enables the real-time monitoring of grid-tied situation through the integration of three-phase meter, logger and CT, which meets the requirement of real-time adjusting inverter output power at power consumption scenario. It can connect to many inverters and support data transmission via WiFi&Ethernet. It also supports the anti-reflux application of parallel-connected machine for G3 series PV inverter.

# **II** Parameters

Parameter	
Product Model	SAR-100
Remote Communication	2.4G WiFi+Ethernet
Local Communication	RS 485
No. of Connections	5 or 10
Accessing Method	Three-Phase Four-Wire
Working Voltage	3x230/400V 50/60Hz
Working Current	3x1.5(6)A
IP Grade	IP65
Working Temperature	-25℃~+60℃
Working Humidity	5%-95% (No Condensation)
Installation Method	Wall-Hanging
Size	~400*300*170mm
Weight	~4.1kg

# III Product Installation



# 3.1 Tool

Tool Name	Picture	Usage	Note
Wire stripper	R	Strip cable insulation	
Cross screwdriver		Use to connect	
Cable		Connect logger with	Shielded twisted
Cable	N. 39	router	pair
Adjustable Wransh		Use to fix expansion	
Aujustable wrench	A BI Case and Yak am	screws	
Percussion Drill		Use to drill holes	
Computer with network port		Use to operate network configuration	
COM Line		RS485Communication	(Shielded twisted pair) Diameter: 3-7mm
Voltage-sampling cable	X	Use to connect voltage sampling signal	Specification:AWG 12-18, 105°/600V
Double-core cable		Use to connect CT signal	Specification:AWG 16-22, 105°/600V

# 3.2 Location

The installation location must meet the following requirements.

3.2.1 The logger should be installed in doors, avoiding damp and dust environment. Direct sunlight and aggressive vapour should also be avoided.

3.2.2 Environment temperature: -25  $^{\circ}C$  ~+60  $^{\circ}C$ .

3.2.3 Max. communication distance for RS485 should be less than 500m.

Away from other wiring routes or pipes in doors, such as gas pipe, water pipe, electric wire and etc.

3.2.4 Away from metal structure to ensure wireless signal strength.

# 3.3 Notice

- 3.3.1 Power off the device before installation.
- 3.3.2 Double check the connection before power on the device.

# **IVAnti-reflux System Diagram**





- 如果RS485链路上存在个别逆变器没通信成功,请将120Ω电阻连在中继器和最后一台逆变器的A和B上

If 485 link communication is not successful for some inverters, please connect a  $120\Omega$ resistance with repeater and A&B point of the last inverter.

# **V** Device Installation

# IGEN

# 5.1 Installation (Please install near the crossroad of grid side

# and power generation side.)

- 1. Select a right (firm&flat) place to install the device
- 2. Determine the drilling hole positions according to hangers (Refer to Fig. 5.1)
- 3. Fix the device using expansion screws



Fig. 5.1 Installation Diagram (Unit: mm)

## 5.2 Device Wiring

#### Notice

1. Connect inverter output to the grid. Connect to phase line R ,S, T, N accordingly.

2. Connect voltage-sampling signal line, communication distance should be less than 100m. Connect to phase line R ,S, T, N accordingly.

3. Connect CT, communication distance should be less than<10m. CT direction should be from grid to load and make sure R-phase CT connect to CT1-1/2, S-phase CT connect to CT2-1/2, T-phase CT connect to CT3-1/2.

[Phase sequence of CT should be consistent with the phase sequence of voltage-sampling signal.  $\pm 1/2$  cannot be reversed. (Select current sensor according to the device capacity.)]



4. RS485A-B cannot be reversed.

5. All devices can connect to ground line.

Inverter address settings

1.Meter address: 1

2.For one inverter, inverter address: 2

3.For multiple inverters, inverter address: 2, 3, 4, 5.....

Tip: Address cannot be the same.

4.No need to set anti-reflux function at LCD screen.

Notice: Please make sure local anti-reflux function: OFF.





	Vo	oltag	е		C	T1		CT2		СТ	3	R	S485
				N CT	<b>//2</b> 1 S1	M2 CT1 S	2 М 52 СТ2	2 M \$1 CT2	12 N 2 S2 CT	12 3 S1 C	M2 573 S2		
L1	L2	L3	N	M1 CT1 S	1 CT	<b>//1</b> 1 S2	M1 CT2 S1	M1 CT2 S2	М1 стз s <sup>.</sup>	М 1 СТ3	1 52	A	в



Double check the wiring and power on the device

# IGEN

# 5.3 Change external antenna

5.3.1 Unscrew the small antenna of DIN-Rail logger



5.3.2 Thread the external antenna lead through the waterproof joint, insert the rubber at the bottom of the antenna, and tighten the waterproof cap



5.3.3 Screw the external antenna SMA head onto the logger



# IGEN

# **VI** Networking Configuration

If the networking configuration is required, please follow the step and the stick logger along with the inverter does not need to install.

If the anti-reflux box is only used for anti-reflux purpose, users can skip this step directly and install the stick logger accordingly.



#### Notice:

**1.** DIN-Rail logger supports WiFi&Ethernet access. Please select one method to access according to actual situation.

# 6.1 WiFi Access

## Go to DIN-Rail logger configuration page

Step 1 Prepare a computer/smart phone that can connect to wireless network

Step 2 Connect to logger AP (Please do Not connect the cable when configuring the logger)

Select and connect AP XXXXXXXXX in the network list (XXXXXXXXX means logger SN)





Step 3 Log in to logger WEB page

Open a browser and enter 10.10.100.254.

Username: admin

Password: admin

2	Notice:
/	Supported browser: IE 8+, Chrome 15+、 Firefox 10+
	Sign in to access this site

Jsername		
Password		

Step 4 During the first login, the browser will remind you whether to save the password. You can decide according to your usage habit.

Step 5 During the first login, the system will prompt that the AP is not encrypted. Click **OK** to encrypt it, click **Cancel** if not.

	10.10.100.254 says Note: AP is not encrypted, wh to encrypt now?	iich will bring security risks. Do you need	■ #\$ Hel	(Simplified)? Translate to English	m Chinese
Status Wizard	Device serial number	2502324977	The device can	Always translate p (Simplified)	bages from Chinese
Wireless	Firmware version	H4.01.51MW.2.01W1.1.8(W512- 22030010D)	mode) to facilitat	Translate	Not now 🗸
Cable	Wireless AP mode	Enable	can also be use		
Advanced	SSID	AP_2502324977	wireless information	anoot the	
Upgrade	IP address	10.10.100.254	remote server via	wireless	
Restart	MAC address	98:D8:63:76:C5:B8	router.		
Deset	Wireless STA mode	Disable			
Resel	Router SSID				
	Signal quality				
	IP address				
	MAC address				
	Cable mode	Enable			
	IP address				
	MAC address				
	Connected Inverter				
	Remote server information				

# IGEN

Step 6 If you choose to encrypt AP, you will go to "AP Encryption Modification", enter your password and click **Save**.

Example: choose WPA2-PSK as encryption mode, AES as encryption algorithm, password: 1234578 (Please remember the password.)

Users can select encryption mode according to actual situation. After AP has been encrypted, it requires to connect AP again.

(If you forget your password or want to cancel the encryption, please long press Reset button for 4s to reset which will got to reconfiguration process. AP password, network information and anti-reflux settings will restore factory settings at this time.)

tatus Char	ige the encryption mode for	AP	
Vizalu	Encryption mode	WPA2-PSK	•
Cable	WPA encryption		=
Advanced	Deseword (8 to 63 charactere	O TRIP @ AES O TRIPAE	.5
Working mode		12345678	
Remote server		Save	1
Port setting			
Access point Acce	ss point setting		
Anti-injection	Network name(SSID)	AP_2502324977	
Jpgrade	Module MAC address	98:D8:63:76:C5:B8	
Restart	Transmission power	High	
		Save	
	AP 2502324977 connecting Enternet work security ke	y (	
1	AP 2502324977 connecting Enternet work security ke •••••••• Next Ca	y () () () () () () () () () ()	
1	AP 2502324977 connecting Enternet work security ke •••••••• Next Ca IGEN_office_5G	y mnce l	
( ( (	AP 2502324977 connecting Enternet work security ke •••••••• Next Ca IGEN_office_5G 360life	y (ince l	
	AP 2502324977 connecting Enternet work security ke Next Ca IGEN_office_5G 360life 360life-5G	y ance l	
	AP 2502324977 connecting Enternet work security ke •••••••• Next Ca IGEN_office_5G 360life 360life hello	y (nocel	



#### Step 7 Click **Reboot** after saving.

Status	Saved successfully!
Wizard	
Wireless	Configurations will take effect after restart
Cable	After restart, you will need to re-login the configuration
Advanced	interface for other settings, so it is recommended to restart
Working mode	Please click (Destart) to restart now or click (Back) to
Remote server	continue setting and restart later with the restart function on
Port setting	ien menu.
Access point	
Anti-injection	Restart Back
Upgrade	
Restart	
Reset	
Status	Rebooting successful!
Status <u>Wizard</u>	Rebooting successful!
Status <u>Wizard</u> Wireless	Rebooting successful!
Status <u>Wizard</u> Wireless Cable	Rebooting successful!
Status <u>Wizard</u> Wireless Cable Advanced	Rebooting successful!
Status <u>Wizard</u> Wireless Cable Advanced Working mode	Rebooting successful! To re-login the configuration interface, please make sure that your computer or smart phone and our device are in the
Status <u>Wizard</u> Wireless Cable Advanced Working mode Remote server	Rebooting successful! To re-login the configuration interface, please make sure that your computer or smart phone and our device are in the same network segment, and enter the new IP address of the device to access the interface.
Status <u>Wizard</u> Wireless Cable Advanced Working mode Remole server Port setting	Rebooting successful! To re-login the configuration interface, please make sure that your computer or smart phone and our device are in the same network segment, and enter the new IP address of the device to access the interface.
Status Wizard Wireless Cable Advanced Working mode Remote server Port setting Access point	Rebooting successful! To re-login the configuration interface, please make sure that your computer or smart phone and our device are in the same network segment, and enter the new IP address of the device to access the interface.
Status Wizard Wireless Cable Advanced Working mode Remote server Port setting Access point Anti-injection	Rebooting successful! To re-login the configuration interface, please make sure that your computer or smart phone and our device are in the same network segment, and enter the new IP address of the device to access the interface.
Status Wizard Wireless Cable Advanced Working mode Remote server Port setting Access point Anti-injection Upgrade	Rebooting successful! To re-login the configuration interface, please make sure that your computer or smart phone and our device are in the same network segment, and enter the new IP address of the device to access the interface.
Status Wizard Wireless Cable Advanced Working mode Remote server Port setting Access point Anti-injection Upgrade Restart	Rebooting successful! To re-login the configuration interface, please make sure that your computer or smart phone and our device are in the same network segment, and enter the new IP address of the device to access the interface.

After AP encryption has been set, you will be reminded again during network settings.



If the following prompt shows, you can select "AP encryption modification" accordingly.

Status	Enhance Security	
Wizard		
Wireless	You can enhance your system security by following methods	r choosing the
Cable	Hide AP	
Advanced		
Upgrade	Change the encryption mode for AP	
Restart	Encryption mode W	PA2-PSK V
Reset	WPA encryption	
	Encryption algorithm O TK	IP 🖲 AES 🔿 TKIPAES
	Password (8 to 63 characters) 123	345678

Step 8 Refresh the WEB page and log in again.

Username: admin

Password: admin

	Authorization required by Your connection to this sit	http://10.10.100.254 te is not secure
Status	Parament .	
<u> Wizard</u>	Password	
Nireless		Sign in Cancel
Cable		
Jabic		
Advanced		
Advanced Jpgrade		
Advanced Jpgrade Restart		
Advanced Jpgrade Restart Reset		



## Notice

1. Step 6-8 are for AP encryption. If you will not select AP encryption, skip step 6-8, click **Cancel** in step 5 and go to step 9 directly.

#### Step 9 Go to setup guide page. Click Start

;	Dear user:						
ird							
eless							
ole							
dvanced		Thank y	ou for cho	osing our	device.		
pgrade		the netv	ork settin	g step by	step;	to compl	ete
estart		or you c	an select	the left m	enu for de	tailed set	ings.
Reset		★Note: your wi	Before se reless or	etting, ple cable ne	ease mak twork is v	e sure the vorking.	at
						Sta	art
		10		12	12		20
	_1	2	3	4	5	6	7

#### Step 10 Select Wireless connection and click Next

oratus	Connection Settings:
Wizard	
Vireless	
Cable	
Advanced	
Upgrade	Wireless connection
Restart	○ Cable connection Wireless Enabled ▼
Reset	
	Park Hart



Step 11 Select router name and click Next, refresh the page if no target router listed

#### Notice



- 1. Router name and password do not support  $\gamma$ ;  $\gamma$  = '" characters.
- 2. 5G WiFi is not supported.
- 3. Router DHCP function: ON.
- 4. Router can connect to a network.

	Flease select your current	wireless network.		
Nizard	Cito Cuprov			
Vireless	SSID	BSSID	RSSI	Channe
able	05	5.	NONE%	6 1
JUDIC	NETWORK	6c:19:8f:c4:6	6d:58 81%	1
Advanced	0 <u></u>	C	65%	1
Ipgrade	0 [	E .	e 65%	1
	0100	L	134%	1
Restart	01	//0	186%	5
Reset	or		100%	6
	0 to	00:65:04:00	072/9 39%	7
	0		100%	8 .
	★Note: When RSSI of the sele connection may be unstable, shorten the distance between	ected WiFi network is low please select other avail the device and router.	wer than 15%, lable network	the or
	*Note: When RSSI of the sele connection may be unstable, shorten the distance between	ected WiFi network is low please select other avail the device and router.	wer than 15%, lable network Refresh	, the or
	*Note: When RSSI of the sele connection may be unstable, shorten the distance between Add wireless network mar Network name (SSID) (Note: case sensitive)	icted WiFi network is los please select other avail the device and router.	wer than 15%, lable network Refresh	the or
	*Note: When RSSI of the sele connection may be unstable, shorten the distance between Add wireless network mar Network name (SSID) (Note: case sensitive) Encryption method	Inter WiFi network is looplease select other avail the device and router.	wer than 15%, lable network Refresh	the or
	*Note: When RSSI of the sele connection may be unstable, shorten the distance between Add wireless network mar Network name (SSID) (Note: case sensitive) Encryption method Encryption algorithm	Audity: NETWORK WPA2PSK V AES V	wer than 15%, lable network	the or



10.000.000.0	Please e	nter the wi	ireless net	work p	assword	:		
Nizard								
Nireless								
Cable								
Advanced								
Jpgrade		Password (8-64 bytes) (Note: case sensitive)						
Restart		Re-enter password					6	
Reset				C	Show Pas	ssword		
					Pack		Mond	
					Back		Next	

Step 13 If allocating fixed IP address is not required, select **Obtain an IP address automatically:** Enable (Recommended) and click Next

	Please f	ill in the fo	llowing info	ormat	ion:			
Nizard								
Vireless		Obtain an I	P address	Г	Enable 🗸			
Cable		automatica	lly	- L				
Advanced		IP address			0.0.0			
Jpgrade		Subnet mask			0.0.0.0			
Restart	Gateway address			[	0.0.0.0			
Reset		DNS server address						
				L.				
					Back		Next	

Step 14 If allocating fixed IP address is required, select Disable



Enter the target IP address and click Next

Status	Please t	Please fill in the following information:								
Wizard										
Wireless		Obtai	n an IP	address		Enable V				
Cable		automatically				Enable V				
Advanced		IP address				Disable				
Upgrade		Subnet mask				0.0.0				
Restart		Gateway address				0.0.0.0				
Reset		DNS server address								
									-	
						_		and a set		
						Back		Next		
	1		2	3	1	5	6	7		
			2		-		0			

Step 15.1 If you wish to enhance safety, you can choose "Hide AP" or "AP Encryption Modification".

"AP Encryption Modification" is recommended.

If you already set AP encryption, please refer to previous steps.

#### Notice



1 If you select "Hide AP", AP will be hided automatically. If you wish to open again, please long press Reset button for 4s to reset which will got to reconfiguration process. AP password, network information and anti-reflux settings will restore factory settings at this time.)



	Enhance Security
Vizard	
Vireless	You can enhance your system security by choosing the following methods
Cable	Hide AP
Advanced	
Jpgrade	Change the encryption mode for AP
Restart	Encryption mode WPA2-PSK V
Reset	WPA encryption
	Encryption algorithm O TKIP ® AES O TKIPAES
	Password (8 to 63 characters) 12345678
	Change the user name and password for Web server
	Back Next

Step 15.2 If enhancing safety is not required, click **Next**. System will remind you to encrypt AP, click **Cancel**.

						O	Cancel
Status	Enhance S	ecurity				-	
Vizard							
Vireless	You car followir	n enhance	your sys	tem secu	irity by ch	noosing t	ne
Cable	Hide AF	, ,					
Advanced	and the second						
Jpgrade	Change	the encry	ption mo	de for AF	0		
Restart	Change	the user	name and	d passwo	rd for We	b server	
Reset							
				1	Back		Next
	1	2	3	4	5	6	7

Step 16 Click **OK** to complete WiFi configuration



Status	Configuratio	on comp	oleted!				
Wizard							
Wireless							
Cable							
Advanced							
Upgrade	Clic	ck OK, the tart imme	e settings diately.	will take e	ffect and t	he syste	m will
Restart	lfv	ou leave t	his interfa	ce withou	t clicking (	OK the s	settings will
Reset	be	ineffective	e.		t onorthing t	ore, the c	Jottingo min
					Back		ок
	1	2	3	4	5	6	7

Step 17 Connect AP again according to the notification around 40s. Log in to WEB page and check if the network is successful.

tatus	Configuration completed! Please close this page manually!
Nizard	
Nireless	
Cable	★Note: Please wait for 3 minutes, and check if the configuration is successful following the procedures.
Advanced	below.
Jpgrade	1) Please re-connect to the AP of the data logger,
Restart	2) Enter the IP address 10.10.100.254 in the browser, and
Reset	login the configuration page again;
	<ol> <li>Please check if the remote server A is pingable. It indicates that the configuration is successful when remote server A is pingable.</li> </ol>
	<ol> <li>If the remote server A is not pingable, please check ("Device information" — "Wireless STA mode") if the data logger has obtained an IP address, and if the signal strength is strong(&gt;15%);</li> </ol>
	<ul> <li>a. If the data logger has obtained an IP address, please check if you can access the Internet via the router,</li> </ul>
	<ul> <li>b.If the data logger has not obtained an IP address from the router, please restart the data logger and configure again following the wizard;</li> </ul>
	c. If the signal strength is weaker than 15%, please try to adjust the antenna direction, and shorten the distance between the data logger and the router.
	Please login our management portal to monitor and manage your PV system. (Please register an account if you do not have one.)
	To re-login the configuration interface, please make sure that your computer or smart phone and our device are in the same network segment, and enter the new IP address of the device to access the interface.



Wizard	Device serial number	2502324977
Wireless	Firmware version	H4.01.51MW.2.01W1.1.8(W512- 22030010D)
Cable	Wireless AP mode	Enable
Advanced	SSID	AP_2502324977
Upgrade	IP address	10.10.100.254
Restart	MAC address	98:D8:63:76:C5:B8
Reset	Wireless STA mode	Enable
	Router SSID	NETWORK
	Signal quality	86%
	IP address	192.168.64.38
	MAC address	98:D8:63:76:C5:B9
	Cable mode	Disable
	IP address	
	MAC address	
	Connected Inverter	

# 6.2 Ethernet Access

## Use cable to connect DIN-Rail logger and router

## Notice

- 1. Ethernet port of DIN-Rail logger has no lighting function
- 2. Router DHCP function: ON

Step 1 Select "**Cable connection**", and set Wireless function: **Enable**. Click **Next**. (Otherwise, you can't connect to AP through mobile phone or computer for web page setting)



atoo	Connection Settings:
Vizard	
Vireless	
Cable	
Advanced	
Jpgrade	O Wireless connection
Restart	Cable connection     Wireless     Enabled
Reset	
	Back Next

Step 2 If allocating fixed IP address is not required, select **Obtain an IP address automatically:** Enable (Recommended) and click Next

Status	Please	Please fill in the following information:							
Nizard									
Nireless		Obt	ain an IP	address		Enable ¥			
Cable		automatically				()			- 12/1
Advanced		IP address				0.0.0.0			
Jpgrade		Subnet mask				0.0.0.0			
Restart		Gateway address				0.0.0.0			-
Reset		DNS server address							
						Back		Next	
		1	2	3	4	5	6	7	

Step 3 If allocating fixed IP address is required, select Disable

Enter the target IP address and click Next

latao	Please fill	lease fill in the following information:							
Wizard									
Wireless	0	btain an IP	address	F	nable ¥				
Cable	a	automatically			Enable				
Advanced	IF	IP address			Disable				
Upgrade	S	Subnet mask			0.0.0.0				
Restart	G	Gateway address			0.0.0.0				
Reset	D	DNS server address			(Brossories))			Ŧ.	
				1	Back		Next		

Step 4 If you wish to enhance safety, you can choose "Hide AP" or "AP Encryption Modification".

"AP Encryption Modification" is recommended.

If you already set AP encryption, please refer to previous steps.

#### Notice



1 If you select "Hide AP", AP will be hided automatically. If you wish to open again, please long press Reset button for 4s to reset which will got to reconfiguration process. AP password, network information and anti-reflux settings will restore factory settings at this time.)



otatao	Enhance Security	
Wizard		
Wireless	You can enhance your system security by choosing the following methods	
Cable	Hide AP	
Advanced		5
Upgrade	Change the encryption mode for AP	
Restart	Encryption mode WPA2-PSK V	1
Reset	WPA encryption	
	Encryption algorithm O TKIP @ AES O TKIPAES	6
	Password (8 to 63 characters) 12345678	]
	Change the user name and password for Web server	l
	Back Next	

Step 5 If enhancing safety is not required, click **Next**. System will remind you to encrypt AP, click **Cancel**.

	_					OI	Cancel
Status	Enhance Se	curity					
Nizard							
Nireless	You can	enhance	your sys	tem secu	irity by ch	noosing t	he
Cable	Hide AP	ginetiou	2				
Advanced							
Jpgrade	Change	the encry	ption mo	de for AF	0		
Restart	Change	the user	name and	d passwo	rd for We	b server	
Reset							
0.0000000000000000000000000000000000000				1	Back		Next
	1	2	3	4	5	6	7



Step 6 Click **OK** to complete Ethernet configuration.



Step 7 Connect AP again according to the notification. Log in to WEB page and check if the network is successful.

If you need to enter the web page through IP address via LAN, please remember the actual IP address in "Wireless Mode".

tus	Configuration completed! Please close this page manually!
/izard	
Vireless	
Cable	★Note: Please wait for 3 minutes, and check if the configuration is successful following the procedures
dvanced	below.
Jpgrade	1) Please re-connect to the AP of the data logger,
≷estart	2) Enter the IP address 10.10.100.254 in the browser, and
Reset	login the configuration page again;
	<ol> <li>Please check if the remote server A is pingable. It indicates that the configuration is successful when remote server A is pingable.</li> </ol>
	4) If the remote server A is not pingable, please check ('Device information' — "Wireless STA mode') if the data logger has obtained an IP address, and if the signal strength is strong(>15%);
	<ul> <li>a. If the data logger has obtained an IP address, please check if you can access the Internet via the router,</li> </ul>
	<ul> <li>b.If the data logger has not obtained an IP address from the router, please restart the data logger and configure again following the wizard;</li> </ul>
	c. If the signal strength is weaker than 15%, please try to adjust the antenna direction, and shorten the distance between the data logger and the router.
	Please login our management portal to monitor and manage your PV system.(Please register an account if you do not have one.)
	To re-login the configuration interface, please make sure that your computer or smart phone and our device are in the same network segment, and enter the new IP address of the device to access the interface.



Status	<ul> <li>Device information</li> </ul>	
Nizard	Device serial number	2502324977
Nireless	Firmware version	H4.01.51MW.2.01W1.1.8(W512- 22030010D)
Cable	Wireless AP mode	Enable
dvanced	SSID	AP_2502324977
Jpgrade	IP address	10.10.100.254
Restart	MAC address	98:D8:63:76:C5:B8
Reset	Wireless STA mode	Disable
	Router SSID	
	Signal quality	
	IP address	
	MAC address	
	Cable mode	Enable
	IP address	192.168.60.69
	MAC address	98:D8:63:76:C5:BB
	✓ Connected Inverter	
	▲ Remote server information	
	Remote server A	Pingable

After the network setting is completed, you can enter the web page through two methods to set up anti-reflux.

Method 1(Recommended): If AP is visible, connect AP via computer, mobile and other devices. Open a browser and enter

10.10.100.254 to go.

Method 2: If AP is hided, AP cannot be connected via computer, mobile and other devices. You need to keep the computer or mobile in the same LAN with the logger, and enter the assigned IP address by the logger in the browser to enter the web page.

# VII Anti-reflux Setup

This step is required no matter what the network situation is.

# 7.1 Anti-reflux setup

## Step 1 Click Advanced - Anti-reflux

Def	fault: Anti-reflux Mode	
Status Wizard Wireless	Anti-Injection Setting Anti-Injection Work Mode Setting	Anti-Injection Mode 🗸
Cable Advanced		Save
Working mode Remote server Port setting Access point	Anti-Injection Power Setting(w)	0 Save
Anti-injection Upgrade Restart	Number of inverters	1
Reset	CT Ratio Setting	Save 1
		Save
	Meter Address-Meter1	1
	Meter Address-Meter2	100



## Step 2 Select Anti-reflux Working Mode

Set anti-reflux power: 0 W (Default).

If it is allowed to purchase electricity at a fixed power, please set according to purchasing power. (e.g. If the purchasing power is 1500W, please enter 1500.)

## **Anti-Injection Setting**

Anti-Injection Mode 🗸
Save

If you wish to sell the electricity, please select "Selling Mode" and enter selling power. (e.g. If the selling power is 100W, please enter 100.)

### **Anti-Injection Setting**

Anti-Injection Work Mode Setting	Electricity Selling M 🗸
	Save
Selling power setting(w)	100
	Save



Step 3 Set inverter number (Please set according to actual inverter number.)

Number of inverters	1	
		Save
ep 4 Set CT ratio of meter on grid side (N	/leter1)	

## **CT Ratio Setup**

If you use 200/5A CT, please enter 40 and click "Save" .

After the setup, logger will reboot and send the ratio modification automatically.

#### Step 5 Click Save - Reboot

Status	Saved successfully!
Wizard	
Wireless	Configurations will take effect after restart
Cable	After restart, you will need to re legin the configuration
Advanced	After restart, you will need to re-login the configuration interface for other settings, so it is recommended to restart
Working mode	aner completing an settings.
Remote server	Please click [Restart] to restart now, or click [Back] to continue setting and restart later with the restart function on
Port setting	left menu.
Access point	
Anti-injection	Restart Back
Upgrade	
Restart	
Reset	

Step 6 Set CT ratio and systematical error of meter on generation side (Meter2)



Find a computer or a mobile phone to connect logger AP (XXXXXXXX presents SN).

#### (E.g. AP\_2502324799)

(k	AP_25 开放式 其他人	02652009 ; 、可能会看到	到你通道	寸此网络	发送的信	息
		动连接			连接	
₽//.	IGEN	office_5G				
₽//.	IGEN-	IE5G				
₽//.	hello					
G.	AP_25	01971127				
4	WIFI-2	2-5G				
网络更改	和 Inter 2置,例如	rnet <mark>设置</mark> II将某连接设	置为按测	記量计费。		
ſ.		蛉	(1)	)		
WLAN		飞行模式	移	动热点		

Go to a browser and enter "10.10.100.254/fnl\_hide.html", then go to anti-reflux hidden setup

page.



Inverter execution time(x10 ms)	55
Current transformation ratio of generating power meter	Save
Load Balance Settings	Save Three phase unbali
Data upload cloud settings	Enable ~
Systematical Error Power Percentage(%)	1

1. Set "Current ratio of generation power meter"

Set CT ratio of meter on generation side (Meter2), please set according to actual situation.



2. Set "Systematical error"

Default: 1%.

If you wish to modify, please check CT accuracy (Calculation of systematical error: meter

error+CT error. E.g. CT error: 0.5%, meter error: 0.5%, systematical error will be 1%.)

Systematical Error Power	1	
Percentage(76)	-	
		Save





Notice

It is recommended to use CT with its error<0.5%.

# $\mathbf{W}$ Instruction for Indicator Light, Dial Switch and

# **Reset Button**

# 8.1 Indicator Light

After DIN-Rail logger (WiFi/ETH) connected to the device and networking is normal, check the status of STATUS light, LINK light, 485/422 light.

(There is only one light for each STATUS light, LINK light, 485/422 light.)

Light	Implication	Instruction
STATUS	Logger working status	<ol> <li>OFF: DIN-Rail logger (WiFi/ETH) works abnormally.</li> <li>ON: DIN-Rail logger (WiFi/ETH) works normally.</li> <li>ON after 5s: DIN-Rail logger (WiFi/ETH) starts/restarts.</li> </ol>
	Communication status with logger and router	<ol> <li>Flashing: Network configuration is not conducted after first power on or reset.</li> <li>Configure to WiFi and connect to router: Light: ON; If not, Light: OFF</li> <li>Configure to Ethernet and connect to router: Light: Flash; If not, Light: Flash</li> </ol>
485/422	Communication status with logger and inverter	<ol> <li>ON/Fast Flash: DIN-Rail logger (WiFi/ETH) connected to inverter and communicate normally.</li> <li>2.OFF: DIN-Rail logger (WiFi/ETH) not connected to inverter and communicate abnormally.</li> </ol>

## Logger light



## Repeater light

Light	Implication	Instruction			
		1. OFF: No data transmission			
TXD	RS485 IN	2. Flash: Data transmitting			
		3. ON: Abnormal			
		1. OFF: No data transmission			
RXD	RS485 OUT	2. Flash: Data transmitting			
		3. ON: Abnormal			
• PWR	Power	<ol> <li>1. ON: Normal power-on</li> <li>2. OFF: Fail to power on</li> </ol>			

## 8.2 Dial Switch

Light	Implication	Instruction		
ON Term	RS485 terminal 120Ω matching resistance switch	Default:Term ON:A problem with 485 link when there are various inverter on site (Turn on one dial switch either for logger or inverter; If a repeater is connected, there is no		
		need to turn on this switch		

## 8.3 Reset Button

Light	Implication	Instruction
Reset	Reset button	Long press for 4s to reset the logger and restore factory settings.

# IX SOLARMAN Monitoring

If the anti-reflux box is only used for anti-reflux purpose, networking is not required, users can skip this step directly.

## 9.1 Register

If you have a household PV plant, it is recommended to use SOLARMAN Smart.

Scan the QR code below to download or go to Android/App Store searching for

#### SOLARMAN Smart.

For web: https://home.solarmanpv.com



SOLARMAN Smart

If you are a distributor, O&M provider, manufacturer in PV field, it is recommended to use SOLARMAN Business.

Scan the QR code below to download or go to Android/App Store searching for SOLARMAN Business.

For web: https://pro.solarmanpv.com



**SOLARMAN Business** 

# 9.2 SOLARMAN Smart APP

## Step 1 Registration

Go to SOLARMAN Smart APP and click "Register a new account" and select "E-mail" or "Phone Number" to register.

	← Register
🙆 SOLARMAN Smart	E-mail Phone Number
E-mail Phone Number Username	E-mail E-mail
Password bet	Verification Code Send
	Password
Log In Register a new account Forgot Password?	Password 🐵
	Done Done I have read and agreed to T&Cs and Privacy Policy

## Step 2 Create a plant

Click "Add Now".

Choose "Yes" to select "Create Plant By Myself".

Choose "No" to select "Create Now".



# IGEN

### Step 2.1

Users can select plant location automatically or enter plant location manually, then click "Next". Please select "system type" as "Self-consumption".

Users need to enter plant information here, click "Done" to complete.

$\leftarrow$ Confirm Plant Location	$\leftarrow$ Plant Info		← Plant Info		Created
Q. Please enter plant address	Basic Info		Basic Info	1	
	Plant Name	Name your plant	Plant Name	Demo	
	Time Zone	(UTC+08:00) Beijing,Chongqing,Hong Kong,Urumqi	Time Zone	Select Time Zone >	
HERE AND A	System Info		System Info		Created
	Plant Type	Residential Rooftop >	Plant Type	Residential Rooftop >	Continue the following steps
	System Type	Please select >	System Type	Please select >	🕌 Add a logger Go to Add
	Installed Capacity(kWp)	Please enter	Installed Capacity(kWp)	5	Logger can collect the data of related devices in the plant, upload to platform for data analysis
	Operating Date (1)	2022-04-07 >	Operating Date (i)	Please select >	If you don't know the device information for a while, this step can be skipped and you can then operate in
	Yield Info		Yield Info		the power station details.Skip
	Currency	CNY >	Currency	Select Currency >	
	Unit Price(CNY) () kWh)	Please enter (Optional)	Unit Price (j)	1	
Plant Address China, Janosu Wuxi Ximnugu >	Total Cost(CNY)	Please enter (Optional)	Total Cost()	10000	
江苏谕无德市斯吴区委组大道 200 号 £1杨 Next	Done	e		Done	

## Step 3 Add a logger

Click "Go to Add", enter SN manually or scan bar code, then click "Add".



# IGEN

## Step 3.1

Click "Skip" to return homepage and click plant name to visit a plant.

User can click "..." in the upper right corner and click "Add a logger".

## (Please follow step 3)

My Plants	+	←		←		← Add a logger
Commissioning		Demo		Demo	Add a Logger	Please enter the logger SN belongs to the plant. System will calculate plant data according to the logger.
		Unknown updated time	Alert	Unknown updated time	A Layout	SN Please enter device SN
			Instruction		𝒮 Authorization	Calliot Pild Stybarcoder
Demo		C Device commissioning	ana ucuur y		Plant Settings	
Currient Production Production-Today Power		Production 	Grid	Production	T Delete	
Consumption-Today Anticipated Yield-Today		· @		@		
Unknown updated time		1				
Check the plant $ ightarrow$		Consumption		Consumpt 	ion	
_		24-hour Trend		24-hour Trend		
Message		← 2022-04-07 🛗	$\rightarrow$	← 2022-04-07	- <del>111</del> →	
<u>۵</u>						Add
Plant Me					_	

## Step 4 Select associated device

After the logger is added, system will go to "Select associated device", if you will not change associated method, click "Done". If you are going to change associated method, click "Manual selection".

(Network configuration has been done at step 6)

Click "Later" to return to homepage.



Notice

Logger SN will be displayed in the device list after 10 mins.



← Select associated device	← Select associated device	← Select associated device	My Plants +
SN: 2502324977 Method:Auto-selection & Switch to manual-selection	Manual-selection Before adding the device, please select the associated devices first. Only the selected device will be added to your plant.	5N: 2502324977 Method Auto-selection © Switch to manual-selection	
Done	0 items selected.	Done	Demo
	Meter         Image: Constraint of the second s	Added Logger SN250239477 has been added. Mornal usage requires networking configuration. Notice: If you eaker: "Later", you can gage to configure the device.	Current Production Power Consumption-Today Anticipated Tried-Today
	Loaded	Later Go to Configure	Unknown updated time $\ $ Check the plant $\rightarrow$
	Done		Message

## Step 5 Meter configuration

Click plant name to visit a plant. (If you are in plant details page, you can click "Device" directly) Click "Device"-"Meter"-"Meter configuration", go to select "Three-phase System"-"Grid", click a blue arrow in CT direction and change to "Energy Purchase".

Current ratio can set according to CT specification. (e.g. If you choose 200/5A CT, set current ratio as 200/5)

Click"Done"to return to"Device"page.



IGEN

Set power calculation method, data sourcing and non-operating hours

6.1 Power calculation method

Click "..." in the upper right corner and go to "Plant Settings". Click "Power calculation method",

set "Based on device data" for total energy, set "Based on calculation data" for total

consumption, set "Based on device data" for total grid-tie energy, set "Based on device data" for total energy purchased and click "Save".



## 6.2 Data sourcing

Click "Data sourcing"-"Switch to manual selection". Select "Gird-tie" for grid side, select "Inverter data summation" for generation, select "Meter data summation" for grid and select "Calculation method" for consumption and click "Save".





6.3 Non-operating hours

Click Non-operating hours settings and enable it.

Effective time: From sunrise to sunset.

Click "Save".

(Uses can set the time according to actual situation.)



6.4 Back to plant details to check data.

# 9.3 SOLARMAN Business APP

Step 1 Registration Go to SOLARMAN Business APP and click "Register" - "Switch to E-mail registration". Tick "T&Cs" and click "Next". Select "Business Type", enter "Business Name", select "Business Area", select "Type" and click "Next".

If you already have an account, click "Click here" to return to login page.

@ English	÷	÷	←
	Register Enter E-mail or Phone Number	Register Enter E-mail or Phone Number	Register Enter Business Info
	E-mail	(China +86) Phone Number	Your account already registered in 5
E-mail Phone Username			Business Type Enterprise >
	Verification Code Send	Verification Code Send	*Business Name Enter Business Name >
E-mail	I have read and agreed T&Cs Privacy Policy	I have read and agreed T&Cs Privacy Policy	Business Area China >
			Type Installation O&M Provider >
Pasaworu hat	Next	Next	
	Switch to phone registration	Switch to E-mail registration	Next
Forgot your password?			
Log In			
Register			

The following page will display and click "Finished and Log In" to return to login page.Enter information and click "Log In".





#### Step 2 Create a plant

Click "+" in the upper right corner, select "Create a Plant" and enter plant information, select system type as "PV+Grid+Consumption", then click "Save".

O Dashb	oard +	Cancel Create a	Plant Save	Cancel Create	a Plant	Save	Create a Plant Done
Q See	rcl 🕀 Create a Plant	Cover		Plant Type @	poon - battery	-	<ul> <li>Your plant has been created! Please</li> <li>follow the steps below to complete system commissioning.</li> </ul>
Total Plants 2 >			Change	Commercial			63
<ul> <li>Incomplete Plants </li> <li>Offline </li> </ul>	1 > 0 >	Location Lor	Demo ngitude109°29'26.9" Latitude36°35'47.5"	Ground Mounted		_	Add Datalogger Scan code and add datalogger to realize plant data monitoring
😤 Partially Offline 🗇	0 >	Region	China >	Azimuth(") (1)	Optional, (	0~360"	If you need to add multiple dataloggers, please click
Alerts	0 >	Address	wuxi	Tilt Angle(") ③	Optional,	0~90°	U the 'Done' button in the upper right corner and add in the plant details
	Total Power	Capacity(kWp)	10	Mor	re ⊙		
	<b>0</b> w	System Type ③		Currency		CNY >	*
0%	Installed Capacity	O PV + Grid		Unit Price(CNY/kWh)	O)	ptional	Authorize end users Authorize the plant to the end user, and the user can also watch the monitoring
Daily Production	20 kWp Monthly Production	<ul> <li>PV + Grid + Consumptie</li> <li>PV + Grid + Consumptie</li> </ul>	on on + Battery	Total Cost(CNY)		ptional	If you need to authorize businesses and internal members, please click the "Done" button in the upper right comer and and it in the near details.
O kWh	O kWh	Plant Type ③		Contact Person		ptional	
0 kWh	0 kWh	<ul> <li>Residential</li> </ul>		Contact Number	Optional, used to calls in th	o make te APP	
Deshboerd Monitor Aler	s Applications Me	Commercial		Business Name	0	ptional	

## Step 3 Add a logger

Click "Add Data logger", enter SN manually or scan bar code, then click "Done".

Create a Plant Done	← Scan S	sn Ø	Create a Plant	Done	← Demo		Q \$
Your plant has been created! Please follow the steps below to complete system commissioning.			Your plant has been created follow the steps below to con system commissioning.	! Please mplete	Incomplete C	anfurate /- litt+ok No Alerts	∞ <b>23°</b> C >
63	Г		Datalogger added	Ē	Dashboard	Devices Alerts	About Au
			SN 1719831727				
Add Datalogger Scan code and add datalogger to realize plant data			COM Status:	° Offline	Production		Grid
monitoring			COM Mode:	Others	(milti		*
Hogo need to add multiple dataloggen, plase cick     the Took table number inght center and add     in the plant details	L	L	If you need to add multiple datalogge O the "Done" button in the upper right o in the plant details	Refresh rs, please click ormer and add	Ĩ		
Authorize end users			(3			consumption	
also watch the monitoring			Authorize end users Authorize the plant to the end user, and also watch the monitoring	I the user can		Capacity 10 kWp	
the sector of the sector	& Enter SN	년 Turn on Flashlight	If you need to authorize businesses an O members, please click the 'Done' but right corner and add in the plant detai	d internal on in the upper ils	← Day ← Daily Preducti == Select Parameter	Month Year 2022-04-07 🛱 	Total → & Hours Today

## Step 3.1

If not, click "Done" to return to "Dashboard".

Click "..." in the upper right corner in "Dashboard"page, click "Add Data logger", enter SN manually or scan bar code, then click "Confirm".







## Step 4 Meter configuration

Click "Devices", choose target meter and click "Meter configuration", go to select "Grid", click a blue arrow in CT direction and change to "Energy Purchase".

Current ratio can set according to CT specification. (e.g. If you choose 200/5A CT, set current ratio as 200/5)

Click "Save" to return to "Devices" page.

(System will use three-phase/single-phase system in default.)



← Demo	Q ☆ …	Cancel Meter Co	nfiguration Save
Last update: 2022/04/0	7/14/04:04 07C+08:00	02502324977- CT1   CT2   CT3	002
Sonline No Alerts Edit Tag	i 23°C >	Apply to	O Three-phase System
Dashboard Devices	Alerts About Au	CT CT1+CT2+CT3	
Meter Logger		Installation Site	Grid >
Status 💌		Installation direction	
<b>Meter</b> 02502324977-002	• Online	Grid-connected	
Configured	Meter Configuration	Click arro	ow to switch
		Current Ratio (A/A)	
		200 / 5	= 40.00

Step 5 Plant Settings (SOLARMAN Business APP does not support the settings, please go to SOLARMAN Business Web to set.)

Set power calculation method, data sourcing and non-operating hours

## 5.1 Data sourcing

Click "More" in the upper-right corner, go to "Plant Settings" and click "Data sourcing".

Select" Manual Modification" and the arrow at Place 4 will point to grid.

Select"Inverter data summation"for generation, select "Meter data summation"for grid and select"Calculation method"for consumption and click"Save".



## User Manual



## 5.2 Power calculation method

Click "Power calculation method"

Select" **Accumulated production summation uploaded by device**s" for calculation of accumulated production.

Select" Daily consumption summation" for calculation of accumulated consumption.

Select" **Energy purchased summation uploaded by devices**" for calculation of energy purchased.

Select "Grid feed-in summation uploaded by devices" for calculation of grid feed-in.



Plant Settings		×
Data Source		Settings
Calculation of accumulated e	lectricity	Settings
Offset		Settings
Planned Production		Settings
Plant Non-Working Time Set	ting Not Enabled	Settings
Plant authorization restriction Authorization restriction is tu Manufacturers and distributo data and operation of the pla	ns rned off now. rs can directly view the ınt.	0
Plant Settings / Calculation of accu	umulated electricity	
Calculation of accumulated production	Accumulated production summation	n uploaded by devices
Calculation of Accumulated Consumption	Daily cor	sumption summation
Calculation of Energy Purchased	Energy purchased summation	n uploaded by devices
Calculation of Grid Food in	Grid food in summation	uploaded by devices

### 5.3 Non-operating hours

Cal

Click Non-operating hours settings and enable it.

Effective time: From sunrise to sunset.

Click "Save".

(Uses can set the time according to actual situation.)



Data Source		Settings
Calculation of accumulated electricity		Settings
Offset		Settings
Planned Production		Settings
Plant Non-Working Time Setting	Not Enabled	Settings
Plant authorization restrictions Authorization restriction is turned off now. Manufacturers and distributors can directly v he data and operation of the plant.	view	
lant Settings / Plant Non-Working Time Setting		
Iant Settings / Plant Non-Working Time Setting The plant non-working time setting is only used to solve the problem that the pla "self-consumption" cannot calculate the electric power or grid power through alg inverter does not work at right.	int with the grid ty orithms because th	pe of ne
Iant Settings / Plant Non-Working Time Setting The plant non-working time setting is only used to solve the problem that the pla "self-consumption" cannot calculate the electric power or grid power through alg inverter does not work at night. On	int with the grid ty	pe of ne
Iant Settings / Plant Non-Working Time Setting The plant non-working time setting is only used to solve the problem that the pla "self-consumption" cannot calculate the electric power or grid power through alg inverter does not work at night. On  Cn Cffective Time	int with the grid ty	pe of ne
Iant Settings / Plant Non-Working Time Setting The plant non-working time setting is only used to solve the problem that the pla "self-consumption" cannot calculate the electric power or grid power through alg inverter does not work at night. On  Free Summer Setting Set	nt with the grid ty orithms because t	pe of he
Iant Settings / Plant Non-Working Time Setting The plant non-working time setting is only used to solve the problem that the pla 'self-consumption' cannot calculate the electric power or grid power through alg inverter does not work at night. On Con Effective Time From Sunset to Sunrise Customized Time	int with the grid ty orithms because the	pe of he
Iant Settings / Plant Non-Working Time Setting The plant non-working time setting is only used to solve the problem that the pla 'self-consumption' cannot calculate the electric power or grid power through alg inverter does not work at night. On Con Effective Time From Sunset to Sunrise Customized Time If there is no production power within 1 hour before sunset and 1 hour after sunr automatically make the production power to zero.	int with the grid ty orithms because the se, the system will	pe of he

5.4 Back to plant details to check data.

# $\boldsymbol{X}$ Contact

IGEN Tech Co., Ltd. Add: Block F4, China IoT International Innovation Park, No. 200, Linghu Avenue,



Wuxi, Jiangsu, P. R. China Tel: +86-400-181-0512 Email: info@solarmanpv.com Website: www.solarmanpv.com