



## Quick Guide for DG-WF-CEB

03/26/2024 Revision 8

## Table of Contents

1 Safety precautions	3
2 Warranty policy	4
3 Gateway specifications	-
3.1 Datasheet	5
3.2 Dimensions	8
3.3 Interfaces and indicators	9
4 System design for dongle gateway (1-to-1 connection)	13
4.1 Setting up the inverter	-
4.2 Modbus TCP converter	14
5 Hardware installation	14
5.1 Connect to inverter	15
5.2 Modbus TCP via Ethernet	15

6 Non-registered User ( Installer )	-
6.1 APP Connect to gateway	17
6.2 Setting up the gateway to connect to the WiFi router	-
6.3 Gateway connects to the Internet via 4G	20
6.4 Gateway connects to the LAN router via Ethernet	21
6.5 Key parameters for connecting the inverter	22
6.6 Initialize the inverter	23
6.7 Setting inverter parameters	24
6.8 Upgrade inverter firmware	30
6.9 Upgrade gateway firmware	-
6.10 Quickly check inverter running status	32
7 Portfolio Owner (End User)	-
7.1 Self-registered "End User" account through the APP	
	32
7.2 Bind site to account	32
7.2 Bind site to account       7.3 Remote checking of hardware running status	32 34 35
7.2 Bind site to account       7.3 Remote checking of hardware running status       7.4 Unbind site from account	32 34 35 36
7.2 Bind site to account         7.3 Remote checking of hardware running status         7.4 Unbind site from account         7.5 Authorize an O&M partner to control the site	32 34 35 36 32
7.2 Bind site to account         7.3 Remote checking of hardware running status         7.4 Unbind site from account         7.5 Authorize an O&M partner to control the site         8 Appendix	32 34 35 36 32 -
7.2 Bind site to account         7.3 Remote checking of hardware running status         7.4 Unbind site from account         7.5 Authorize an O&M partner to control the site         8 Appendix         8.1 Example of Modbus TCP application	32 34 35 36 32 - 32
7.1 Gen registered End oder decount modginute Art i         7.2 Bind site to account         7.3 Remote checking of hardware running status         7.4 Unbind site from account         7.5 Authorize an O&M partner to control the site         8 Appendix         8.1 Example of Modbus TCP application         8.2 Australian specification related	32 34 35 36 32 - 32 32 34
7.1 Gen registered End Oser decount direction in         7.2 Bind site to account         7.3 Remote checking of hardware running status         7.4 Unbind site from account         7.5 Authorize an O&M partner to control the site         8 Appendix         8.1 Example of Modbus TCP application         8.2 Australian specification related         8.3 Cyprus specification related	32 34 35 36 32 - 32 34 35

### **1 Safety Precautions**



Before performing operations, read through this manual and follow all the precautions to prevent accidents. The safety precautions provided in this document do not cover all the safety precautions. CPS shall not be liable for any consequence caused by the violation of the safety operation regulations and design, production, and usage standards.

#### Declaration

CPS shall not be liable for any consequence caused by any of the following events.

- Transportation
- The storage conditions do not meet the requirements specified in this document.
- Violate the operation instructions and safety precautions in this document for installation, cable connecting, and maintenance.
- Operation in extreme environments which are not covered in this document.
- Unauthorized modifications to the product or software code.
- Installation or use in environments which are not specified in related international standards.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

#### **Personal Requirements**

- Only qualified electrical technicians are allowed to install and operate the FlexOM Gateway.
- Operation personnel should receive professional training.
- Operation personnel should read through this document and follow all the precautions.
- Operation personnel should be familiar with the safety specifications about the electrical system.
- Operation personnel should understand the composition and working principles of the grid-tied PV power system and local regulations.

#### Installation

- Ensure that the FlexOM Gateway is not connected to a power supply and is not powered on before starting installation.
- Ensure that the FlexOM Gateway is installed in a well ventilated environment.
- Do not perform any operation on other components inside the chassis except connecting AC power cables and communications cables.
- Ensure that all electrical connections comply with local electrical standards.



High voltages may cause electric shocks and serious injuries during FlexOM Gateway operating.

Do not touch components such as AC cables, circuit breakers and connectors during FlexOM Gateway is energized.

- Maintain the FlexOM Gateway with sufficient knowledge of this document and proper tools and testing equipment.
- Before performing maintenance tasks, power off the FlexOM Gateway and perform lockout/tagout (LOTO) of the source circuit.
- For personal safety, wear personal protective equipment (PPE), including insulaed gloves and protective shoes.

#### 2 Warranty Policy

- The warranty policy of this product is specified in the contract; otherwise, the standard warranty is 2 years.
- For warranty terms, please refer to the CPS accessories warranty policy in place at time of purchase.

## 3 Gateway Specifications3.1 Datasheet

Device Interface	
No. of Ports	1 ( DB9 )
Protocol	TTL
Bluetooth Interface	
Standard	BLE 4.2
Antenna	Built-in
WLAN Interface	
WLAN Standards	802.11 b/g/n
Frequency Band	2.4 GHz
Wireless Security	WEP, WPA/WPA2
Antenna	Built-in
Modbus TCP	
Mode	Server (Slave)
Max. No. of Client Connections	1

#### **Power Parameters**

Input Voltage	4.5 to 8 Vdc
Power Consumption	1 W, Max. 2.5 W
Environment limits	
Operating Temperature	-20 $^\circ\!C$ to 60 $^\circ\!C$ , Natural convection
Storage Temperature	-40 to 85°C
Ambient Relative Humidity	5 to 85% (non-condensing)
Physical Characteristics	
Housing	Plastic
IP Rating	IP65
Dimensions	117 mm / 66 mm / 38 mm
Weight	110g
Compliance	
RoHS	IEC 62321, (EU) 2015/863
CE - EMC	EN 55032 / 55035, EN 61000-3-2/-3-3
CE - RED	EN 301 908 / 300 328, EN 301 489-1/-17/-52, EN 62368-1
CE - LVD	EN 62368-1
FCC	SDoC Part 15B, ID Part 15C

## 3 Gateway Specifications3.2 Dimensions



## 3 Gateway Specifications3.3 Interfaces and Indicators



#### Internet interface : WiFi

If the gateway is connected to the Internet using Ethernet.

Open the LAN firewall ports before commissiong !

The following ports must be opened both ways (incoming and outgoing communications):

TCP 1883 with destination IP 139.196.138.86





## 4 System design for dongle gateway (1-to-1 connection) 4.1 Setting up the inverter



The dongle gateway one-to-one connection to a single PV inverter/hybrid inverter, connected to the cloud platform via WiFi ( or Ethernet, or 4G ).

The gateway is capable of storing 5 days of offline data if the Internet is disconnected.

After the APP connects to the dongle gateway, the user performs inverter initialization, troubleshooting, reading and writing registers and firmware upgrade.

4 System design for dongle gateway (1-to-1 connection) 4.2 Modbus TCP converter



The gateway can be used as a Modbus/TCP server, connect to a third-party SCADA system, and forward various commands to the inverter.

Several inverters can be connected to SCADA via Ethernet, providing both wiring flexibility and the need for SCADA to quickly control the entire site.

### 5 Hardware installation 5.1 Connect to inverter



Align the dongle gateway's indicator light towards the DC cable with the DB9 plug. Caution: Screw on the screws first to avoid dropping the gateway and damaging it.





## 6 Non-registered User (Installer)6.1 APP connect to gateway

Scan the QR-code to complete APP download and installation by using the mobile phones that can access the Internet. Or search for "Chint Connect" in Apple Store and Google Play.



The Android/iPhone user interface may look slightly different but the setup procedure will be the same as shown.

#### solar.chintpower.com

"Portfolio Owner" manages the site remotely through a web console and can log in from the URL solar.chintpower.com



4:48 🕣	::!! 🗢 🚺
Installation	O&M Service
For installers to devices without a r	set up hardware registered account.
÷	
Smart Link	Public Firmware
Quick View	
APP Setting	s @ Global 1

3:02 ୶			<b>::!!</b> 4G 🜠
<	Smart	Link	Next
	"Chint Connect" "Chint Connect" "Bluetooth for corr gate	ESI tr" Would Like utooth unts to access you recting to Dongle way	r
	Don't Allow	ОК	
	Screwed down	& Powered or	1
🔊 ві	uetooth on the pho	ne is enabled.	

Launch the APP,

note that you must allow the APP to obtain the two mobile phone permissions of location and Bluetooth, otherwise the APP will not work properly.



By clicking "Smart link",

the APP will automatically detect the connected hardware scene and provide different interactive interfaces after connecting to the gateway.



When launching an app, it is recommended to allow the app to send notifications.

Otherwise users cannot receive subscribed real-time hardware alertsconnecting to the gateway.

In the APP settings interface, users can change the language, synchronise scene data and switch servers at any time.

Make sure your phone can connect to the Internet when you run the app for the first time. The APP needs to sync some important data from the cloud.

4:48 🕣	iili
Installation	O&M Service
For installers to devices without a	set up hardware registered account.
<del>,</del>	
Smart Link	Public Firmware
Quick View	
ADD Cattin	
AFF Settin	
3:03 🗸	
	<b>::!!</b> 4G 📢
< APP S	ull 46 🗭
APP S Language setting	uttings Gettings English >
APP S Language setting Sync Cloud Data	English >
APP S Language setting Sync Cloud Data Platform	English > 2024-03-15 15:02:23 > Global 1 >
APP S Language setting Sync Cloud Data Platform App version	Image: Settings         English >         2024-03-15 15:02:23 >         Global 1 >         V 24.3.1
<ul> <li>APP S</li> <li>Language setting</li> <li>Sync Cloud Data</li> <li>Platform</li> <li>App version</li> <li>Privacy statement</li> </ul>	<pre>## 46 @D Settings English &gt; 2024-03-15 15:02:23 &gt; Global 1 &gt; V 24.3.1 &gt;</pre>







The gateway SN is included in the BLE signal name, and the APP will list the scanned signals.

<

Select the SN consistent with the target gateway label and click to enter.

Click on the gateway SN, when the APP connects to the gateway, if there is a problem, it will indicate a specific error.



#### Bluetooth troubleshooting

#### " Connection failure "

- Phone is too far away from the gateway.
- Another phone has been connected to the gateway and is communicating normally.
- Android 14 (or other versions) may have issues communicating with the gateway and will need to upgrade the gateway to the latest version.

#### "The gateway must be upgraded with firmware to work properly, please wait for about 5 minutes"

• Unknown communication error, try to solve it by updating the firmware.

### 6 Non-registered User (Installer) 6.2 Setting up the gateway to connect to the WiFi router

18:12 🌢	■ <sup>4.00</sup> att 🗟 🗢 47% ■
<b>&lt;</b> CUGW-5062113	000286
-> Refresh : 2024-0 GMT+0 SN : 506211 MAC : 30:C6:F Firmware : 2.0021 Server : solar.cf Status : Offine Internet : WiFi WiFi SSID : WiFi Status : Discon Bus Mode : Flex Mo Baud Rate : 9600 N Device ID range : 1~1 Device Online : 0/1	03-18 18:12:31 18:00 F-NE 3000286 F7:E0:91:84 hintpower.com 1883 hected ode IONE 1
Device settings	Refresh
Internet Settings	More…

18:12 🛔	-	▶ 0.70 KB/s 🛠 🤤	8 47% 🔳		
<	Internet Setti	ngs	Switch		
Select the inte Internet, and parameters a	erface as the channe you can configure th fter switching.	el to connect e correspon	t to the ding		
🖌 Wi-Fi			>		
		2:54 <b>-</b>			<b>::!!</b> 4G 💋
		Cau	tion : Do	not support 5	GHz WiFi!
		WiFi SSID			>
		Password			>
		DHCP			
		Auto DNS			
M	ore informatio				
n of the					
ons of					
ttings.				Save	

Click on "Internet Settings", the WiFi version of gateway only has WiFi settings, other versions the gateway will list both Ethernet or 4G setting



Caution : The gateway does not support 5Ghz WIFI gateways, as well as WIFI users who need to open a browser and redirect to an account-verified router.

2:55 🕫		::!!
<	WiFi	
1	Save Success Reconnecting router	
	Reconnecting router	

2:56 🕇		;;;] 奈 ☞
< cug	W-51121150000	20
-> Refresh : Model : SN : MAC : Firmware version : Cloud server : Status : Internet : WiFi SSID : Wi-Fi Status : Baud Rate : Device ID range : Device online status :	2024–03–18 14: DG–WF–FEB 5112115000020 1C:9D:C2:4B:B8 2.0021 solar.chintpowe Online Wi–Fi NETGEAR40 Connected 115200 NONE 1 200~200 1/1	55:58 GMT +8 :74 r.com 1883
Device se	ettings	Refresh
Internet Se	ettings	More

After entering the SSID and password of the WiFi, save the settings and the gateway will automatically connect to the WiFi router.

If the gateway reports an error, there is a high probability that the character input is wrong.

Caution :



If the user cannot judge the network status of the WLAN router, the user can configure the WiFi hotspot of the mobile phone to the gateway for reference.



2:55 <b></b>			
K WiFi module ir	K WiFi module information		
Site profile			
Running time after power-on	4m5Seconds		
Other			
Current MAC address	1C:9D:C2:4B:B8:74		
Router connection status	Connected		
Waiting to reconnect to the router	-		
Router Channel	11		
Router signal strength	-46 dBm		
Router security	WPA2_PSK		
LAN IP acquisition status	Acquired		
LAN IP	10.0.0.20		
LAN Mask	255.255.255.0		
LAN Gw	10.0.0.1		
DNS1	10.0.0.1		

The gateway may not be able to access the Internet even if it is connected to a WiFi router, in this case, the gateway is also not working properly.

Usually there is a firewall in the LAN to which the WiFi router is connected, and you need to add a TCP access policy for the gateway.

Click "More Information" to check whether the gateway is connected to the WiFi router properly.

It can help to diagnose if the firewall must be found and to increase the policy.

Open the LAN firewall ports before commissiong !

The following ports must be opened both ways (incoming and outgoing communications): TCP 1883 with destination IP 139.196.138.86



## 6 Non-registered User (Installer)6.3 Gateway connects to the Internet via 4G

4:57	•	\$ \$\$ <sup>46</sup> .111 <b>\B</b> 1
<	Internet Settings	Switch
Select the ir Internet, an parameters	nterface as the channel to conr d you can configure the corres after switching.	nect to the sponding
🗌 Wi-Fi		
<mark> 4</mark> G Cell	ular	
Ethern	et	>
🗌 Auto		
м	ore information(Ether	net)

Different versions of the gateway have different options for connecting to the Internet. Users can select 4G and click "Switch" to change the connection options.

Changing the connection will cause the gateway to reboot and it will take about 1~5 minutes for the 4G to connect to the Internet properly.

The gateway connects to the Internet via 4G and can still connect to the Modbus TCP client via WIFI at the same time.

4:59 🗭		\$ 🙃 "	all 💌
<b>&lt;</b> CUGW-58	54234400	2612	Next
-> Refresh : Model : SN : MAC : Firmware : Server : Status : Internet : LTE Status : Modbus port type : Baud Rate : Device ID range : Device online status : Modbus TCP Server : MLPE Current Status :	2024-03- GMT+08:0 EHX2-S 554234400 48:27:E2:C 4.0016T5 edge.fomw Online WiFi + LTE Ready UART 9600 NON 1 ~ 32 0 / 32 Enabled Not Enable	18 16:59:1 0 02612 12:97:78 vare.com 1 + Etherne E 1	1 883 :t
Device setting	gs	Refre	sh
Internet Settin	ngs	More	

4:25 -	1 ::!! 중 ■								
<	Internet Settings								
Select t configu	Select the interface as the channel to the Internet,and configure the corresponding parameters after switching								
	WiFi								
	4G Cellular Current >								
	More information(4G Cellular)								



#### Cellular troubleshooting

#### "Not Ready "

• The 4G modem is searching/registering for a cellular network, if it fails it will reboot and try again.

Check "More Information" for networking details.

" Ready "

• Everything went well.

4:25 🕇	::!! <b>?</b> 🔳
✓ 4G C	cellular
Site profile	
Cellular status	Ready
Duration of current working status	37Seconds
Cellular version	EC200SCNABR03A 04M16
Cellular IMEI	868089051295495
SIM ICCID	8986049010208019 6282
SIM IMSI	460081076506282
SIM type	External SIM
Network access type	TDD LTE
Cellular band	LTE BAND 40
Operator	CHINA MOBILE
IP	10.114.119.38
RSSI	–61 dBm
Ber	99

Page 24

## 6 Non-registered User (Installer)6.4 Gateway connects to the LAN router via Ethernet

3:40 🖪 🖨 M	💐 🗟 © 57% 🛢		3:40 🛦 🌐 🖪	•	🗙 🖘 📶 57% 🛢	7	
< CUGW-5502404	002754		<	Internet Settin	ngs Switch		
-> Refresh : 2024-0 GMT+( Model : DG-EW SN : 55024(	Select the inter Internet, and yo parameters afte	face as the channel t u can configure the c er switching.	o connect to the corresponding				
MAC : 48:27:1 Firmware : 4.0014 Server : eu.forr	E2:01:CC:04		🗌 Wi-Fi		>		
Status : Online Internet : WiFi(A WiFi SSID : <b>NETGE</b>	uto) + Ethernet EAR40		Ethernet		>	_	
WiFi Status : Conne Modbus port type : UART Baud Rate : 9600 N	oted		Auto		Wi-Fi		
Device ID range : 1 ~ 1 Device online status : 1 / 1				Γ			
					3:41 🖻 🛦 🕲 •	Ethernet	¥ क,5⊪ 57% ∎
					``	Linemet	Save
					Static		
					IP Address	3	>
Device settings	Refresh				Subnet Ma	ask	>
Internet Settings	More			More informa	Gateway		>
	<		111	0	Auto DNS		
By clicking on "Inte	rnet settings"	', you car	n choose	how			
to connect to the Ir	iternet.						
Different gateways	have differer	nt channe	els such a	IS			
Ethernet + WiFi + 4	G.						
The gateway auton	natically sele	cts the c	hannel to				
connect to the Inte	rnet in "Auto"	mode.				$\bigcirc$	<

As shown in the figure, click "Save" after finishing the Ethernet parameter setting.

Then click "Switch" to make the channel selection effective.



ŕ	1:30 🗐	* 🗟	; ".ull 💽 I
<	Ethe	Save	
Sta	ntic		0
	IP Address	10.0.0	.89 >
	Subnet Mask	255.255.25	5.0 >
	IP Ad	ldress	
	10 . 0	. 0 . 89	
	Cancel	ОК	

Typical Modbus TCP applications, it is recommended to go through Ethernet and a static IP address and related parameters must be configured.

It must be ensured that the gateway is on a LAN subnet with the third party SCADA.

Open the LAN firewall ports before commissiong !

The following ports must be opened both ways (incoming and outgoing communications): TCP 1883 with destination IP 139.196.138.86



## 6 Non-registered User (Installer)6.5 Key parameters for connecting the inverter

3:48 <b>1</b>	Setting	<b>::!!</b> 4G (	4		The d	ongle (
Inverter Baud Rate	4	800 NONE 1	>		chang	ge the s
Modbus ID Range			>		ln exc Modb	eption
Rename Gateway			>		WOUL	
Reset Gateway Name			>		The g	ateway
Recovery the gateway	to default		>		eters	to mat
Upgrade Firmware			>			
Reboot			>			
	1	18:11 🔺		Setting	● 0,30 KBM 🛠	
		Paud Data		Octing		
		Baud Rate			9600 NON	
		Modbus ID	Rang	ge		>
	_	Rename Ga	atewa	ау		>
		Reset Gate Name	way			>
		Recovery to gateway to	he defa	ult		>
			ļ	Baud Ra	te	
		Speed	Par	rity	Stop	Auto
		1200				
		2400				
		4800				
		9600				~
				Save		

The dongle gateway usually does not need to change the settings of the connection inverter.

In exceptional cases, the default Baud Rate and Modbus ID of the inverter are modified.

The gateway needs to change the relevant parameters to match those of the inverter.

## 6 Non-registered User (Installer) 6.6 Initialize the inverter

:40 <b>2 8</b> M	¥ क≎0 57%∎	5:13 <del>/</del>	
CUGW-5502404	002754	<	
-> Refresh : 2024-0 GMT+C Model : DG-EW SN : 550240 MAC : 48:27:E Firmware : 4.0014 Server : eu.fom Status : Online Internet : WiFi(At WiFi SSID : NETGE WiFi Status : Conner Modbus port type : UART Baud Rate : 9600 N	2-05 15:40:24 98:00 -NE 94002754 52:01:CC:04 ware.com 1883 uto) + Ethernet AR40 cted ONE 1		Inverter
Device ID range : 1 ~ 1 vice online status : 1 / 1		Grid Code	NB32
		PV Link Type	independent con
		Neutral Line	connected to
		RS485	
		Inverter Clock	2024-03-15 0
Device settings	Refresh		
Internet Settings	More	Cancel	

Click "device settings", the App will show the initialisation interface of the inverter.

Inverters without Grid code are considered as uninitialised inverters.

The initialisation screen varies slightly from inverter to inverter, but all will ask for settings:

- Grid Code
- PV Line Type
- Neutral Line •
- **Inverter Clock** •
- RS485 Port •

## 6 Non-registered User (Installer)6.7 Setting inverter parameters





An inverter that has completed initialisation displays the Inverter Settings screen.

This completely replaces the traditional physical LCD screen of the inverter. The display will vary between inverters.

The user needs to enter the password of the inverter in order to modify the inverter parameters.

Please check the inverter manual or contact the inverter manufacturer for details.





VoltMinTripT2

GridVoltMin3

0.20 Secs >

50.00 % >

An inverter that has completed initialisation displays the Inverter Settings screen.

This completely replaces the traditional physical LCD screen of the inverter. The display will vary between inverters.

The user needs to enter the password of the inverter in order to modify the inverter parameters.

Please check the inverter manual or contact the inverter manufacturer for details.

## 6 Non-registered User (Installer) 6.8 Upgrade inverter firmware



Firmware upgrade interruptions do not cause the inverter to fail, restarting the firmware upgrade is sufficient.



## 6 Non-registered User (Installer) 6.9 Upgrade gateway firmware



Firmware upgrade interruptions do not cause the gateway to fail, restarting the firmware upgrade is sufficient.

process.



#### Upgrade hardware firmware



Installers can simply use the latest or most stable public version of the firmware.

Click on the desired model to get a list of firmware and then click to download.

If there is no required model, it means APP has not released the public version firmware at present, please contact the after-sales service.

			1:32 🛦 🕮 🖪 🔹		76% 💼
1:31 🖻 🍘 📦 🔹	🔌 🖘 🛇 76% 🖬		<	Setting	
← DG-W	F-NE Downloaded		Baud Rate	9600 NONE 1	>
Neicuseu Vog	Dominouucu	3:40 🖪 🖨 🛤	Modbus ID Rang	ge	>
+0800	Delete Upgrade	<ul> <li>&lt; CUGW-5502404002</li> </ul>	Modbus TCP		>
		-> Refresh : 2024-02-03 GMT+08:0 Model : DG-EW-NE	Rename Gatewa	ау	>
		SN : 550240400 MAC : 48:27:E2:0 Firmware : 4.0014	Reset Gateway	Name	>
		Server : <b>eu.fornwar</b> Status : Online Internet : WiFi(Auto)	Recovery the ga to default	iteway	>
		WiFi SSID: NETGEAR4 WiFi Status: Connected Modbus port type: UART	Upgrade Firmwa	are	>
		Baud Rate : 9600 NON Device ID range : 1 ~ 1 Device online status : 1 / 1	Reboot		>
Slatest STesting	Revision History				
			111	0 <	
		Device settings	Refresh		
		Internet Settings	More		
		III O	<		

There are two ways to upgrade your hardware with firmware that has been downloaded into the app.

1) Left slide the firmware name and click "Upgrade", the APP will guide you to the hardware and perform the upgrade at the same time.

2) Click "Upgrade Firmware" after entering the hardware settings interface.

#### Setting the site time zone

Dongle gateway related APP interactions do not have an interface to set the site's time zone.



Register an account in time to view the site via the Web/App and set the time zone correctly.

Time zone is an important factor in the accuracy of site data.

## 6 Non-registered User (Installer)6.10 Quickly check hardware running status

12:07 🕇	::!! 🗢 🕼
Installation	O&M Service
For installers to devices without a r	set up hardware registered account.
Smart Link	Public Firmware
QUICK VIEW	
APP Setting	s @ Global 1

Without any account, the installer can click "Quick View" and scan the barcode of the gateway or enter the gateway SN.

The app will display the hardware's operating data.

This is a very simple way for anyone to be able to check the operation of a site, at any place and time, knowing the gateway SN.



The interface displayed will be different for different gateways and inverters.

Users can only view the underlying data and cannot make any changes to the hardware.

## 7 Portfolio Owner (End User)7.1 Self-registered "End User" account through the APP



Click "O&M Service", APP prompts you to log in, click "Register" to self-register a new "End User" account.



create a site in the Portal system.

After binding the gateway by themselves, users can immediately view the site data via APP/Web.

### 7 Portfolio Owner (End User) 7.2 Bind site to account



## 7 Portfolio Owner ( End User )7.3 Remote checking of hardware running status

2:27 🖬 🛦 🖶 🔹	ັ≹ ຈີະໂຟ 85%∎
← 🔓 Da	ashboard 🔇
PV	Hybrid
Project&Site	Gateway 2
Inverter 1	Meter 0
Projects	& Sites Details
Last Updated :	2024/02/06 14:27
0.0 Current Pow	ver (w) Rated Power (kwp) 8.0
E-Today (kwh	) Income Today (CNY) <b>0.0</b>
More D	oetails 🗸
4Q Flow	/ (Bar Chart)
Z Dashboard Proje	Ct & Site Account
111	0 <



After logging in via the APP/Web, Portfolio Owner is able to view data for all sites in the account, as well as remotely modify hardware settings.

Different roles will be given different permissions, so the Portal system administrator will adjust the account permissions according to the contract.

Please check the product sales contract for details.



## 7 Portfolio Owner (End User) 7.4 Unbind site from account



Users can enter a site from the site list, click on "Tools" and then select "Unbind this site".

The site is unbound from the current account and the site and data are not deleted.

The Portal administrator is still able to manage the site, so in case of misuse, you can contact after-sales service.

## 7 Portfolio Owner (End User)7.5 Authorize an O&M partner to control the site



The Portal Admin can send an "Invite-to-register" self-registration URL to the target user.

O&M Partner will receive a 4-digit "Service Code" after completing the account registration.

Both the "Service Code" and the O&M Partner account name can be used as elements of the Portfolio Owner's authorisation. O&M Partner is a service or integrator account role with a cross-organizational perspective.

"Portfolio Owner" can turn on or off O&M Partner's access to sites in his account.





© Config

Analysis

-

Portfolio Owner Select the target site in the site list and click "Tools".

Among the listed options, click on the "O&M Partner" option to Bind/Unbind O&M Partner to the target site.

#### 8 Appendix

### 8.1 Example of Modbus TCP application



The gateway connects to the Daisy Chain and is created as a Modbus TCP server object for each device with a different Modbus ID.

A third party SCADA acts as a Modbus TCP client and connects to the target Modbus ID device via a TCP channel.

SCADA typically creates a long connection TCP channel for each Modbus ID; we recommend that SCADA reads and writes to the Modbus ID devices one at a time over a short connection TCP channel.

The advantage of this model is that only one TCP channel (Modbus TCP client) is needed to read and write multiple devices one by one.



Assuming that the user has connected two inverters using Modbus IDs 1 and 2, it is also possible to simulate the same inverters using the Modbus slave software.

Create the register objects correctly, for example:

Register Name: Pac (AC active power) Address: 0x001D (29) R/W: RO Type: uint16 Function Code: 0x04

월 Modbus Poll - Mbpoll1				
File Edit Connection Set	tup Functions Display Vi	iew Window	Help	
🗅 🚅 🖬 🎒 🗙 💆	Read/Write Definition	F8	R 🖉 🖇 😵	
Mbpoll1 Tx = 0: Err = 0: ID = 1	Read/Write Once Read/Write Disabled	F6 Shift+F6		
No connection Alias	Excel Log Excel Logging Off	Alt+X Alt+Q		
0	Log Logging Off	Alt+L Alt+O		
3	Reset Counters Reset All Counters	F12 Shift+F12		
5	Use as Default			
6	0			
7 8 9	0 0 0			

Create a read/write interface for Modbus ID 1 in the Modbus Poll software.

Take care to correctly define the register objects that need to be read and written to. The current illustration defines the Pac registers for the CPS inverter.

🚱 Modbus Poll - Mbpoll1	
File Edit Connection Setup Functions Display View Window Help	
🗅 😅 🖬 🎒 🗙 🛅 🖳 🏛 1. 05 06 15 16 17 22 23   TC 🖻 🗮 💡 🌿	
Mbpoll1	Read/Write Definition X
Tx = 0: Err = 0: ID = 1: F = 04: SR = 1000ms No connection	Slave ID: OK
Allas 00029 29 0	Function:         04 Read Input Registers (3x)         Cancel
	Address: 29 PLC address = 30030
	Quantity: 1
	Scan Rate: 1000 [ms] Apply
	Disable
	Read/Write Disabled
	Disable on error Read/Write Once
	View
J	
	Hide Alias Columns PLC Addresses (Base 1)     Address in Cell Firron/Daniel Mode
	Request
	RTU 01 04 00 1D 00 01 A1 CC
	ASCII 3A 30 31 30 34 30 30 31 44 30 30 30 31 44 44 0D 0A
1	
For Help, press F1.	[10.0.0.83]: 502

-		
	₩a Modbus Poll - Mbpoll1	
	File Edit Connection Setup Functions Display View Window Help	
* * * *	🗅 😂 🖬 🎒 🗙 🛅 🗒 🏨 几   05 06 15 16 17 22 23   TC 🖻 📓 💡 🛠	
ſ		
I	Tx = 0: Err = 0: ID = 1: F = 04: SR = 1000ms	l
I	No connection	1
I	Alias 3x0029	l
I		l
I		l
I		l
I		l
I		
1		1

Follow the same procedure to create a read/write interface for Modbus ID 2.

As shown in the figure, the Modbus Poll is ready to perform read and write operations to both Modbus IDs.



• <sup>2</sup>					
Ve Modbus Poll - Mbpoll2					
File Edit <u>Connection</u> Setup Functions Display View Window Help					
🗅 🗃 🖬 🔮 Connect F3	5 17 22 23   TC 🖻 🗮 🔋 🎗				
Disconnect F4					
Tx = 0: EI Auto Connect >	00ms				
No conne Quick Connect F5					
Alias 3x0029					
29 0					
💬 Mbpoll2					
Tx = 0: Err = 0: ID = 2: F = 04: SR =	1000ms				
No connection					
Alias 3x0029					
29 0					

Initiate a Modbus Poll to connect to the Modbus TCP Server (gateway).

You need to know the Modbus TCP Server parameters of the target gateway, and view the operation of WiFi or Ethernet after it has been set to a static IP address via the APP.

3:40 🖪 🖨 M	🔌 🗟 O 57% 🛢	4:17 🛦	🕷 🗟 🕅 79	% 🖬	3:41 🖪 🛦	🔌 🖘 🕅 57% 🛢
< CUGW-55	02404002754	< Set	tting		< м	odbus TCP 🔹 🏟
-> Refresh: Model: SN:	2024-02-05 15:40:24 GMT+08:00 DG-EW-NE 5502404002754	Baud Rate	9600 NONE 1	>		
MAC : Firmware : Server :	48:27:E2:01:CC:04 4.0014 eu.fomware.com 1883	Modbus ID Range		>	Se	rvice started
Status: Internet: WiFi SSID:	Online WiFi(Auto) + Ethernet NETGEAR40	Modbus TCP		>	Ethernet: Please	check if the network cable plugged in
WiFi Status: Modbus port type:	Connected UART	Rename Gateway		>		
Baud Rate: Device ID range: Device online status:	9600 NONE 1 1 ~ 1 1 / 1	Reset Gateway Name		>	WiFi: Servic	e IP address and port: .0.0.7 <mark>4:50</mark> 2
		Recovery the gateway to default		>	Connected Client	Information (0/3)
		Upgrade Firmware		>	Device addres	3 Port
		Reboot		>		
Device setting	s Refresh					
Internet Setting	gs More				St	op Service
	0 <	111 0			111	$\bigcirc$ <

Mbpoll1	Connection Setun	×	
= 0: Err = 0: ID = 1: F = 04: SR = 1000ms o connection	Connection		
Alias 3x0029	Modbus TCP/IP		
90	Serial Settings	Cancel	
Mbpoll2	COM1	Mode	
c = 0: Err = 0: ID = 2: F = 04: SR = 1000ms	9600 Baud ~	ORTU OASCII	
Alias 3x0029	8 Data bits	Response Timeout 600 [ms	
	Even Parity 🗠	Delay Between Polls	
	1 Stop Bit V Advanced	20 [ms	
	Remote Modbus Server		
	IP Address or Node Name		
	10.0.83	~	
	Server Port   Connect     502   3000   [ms]	<ul> <li>IPv4</li> <li>IPv6</li> </ul>	

The third party SCADA or Modbus Poll successfully connects to the gateway and the Modbus TCP Client connection can also be viewed on the APP.

# 8 Appendix8.2 Australian specification related

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tunning INV ID 1	
CPS SCA5KTL-SM [M Deputy:BR0201] N C98152102313000	aster:010301; 1
Read @2 +0	2024-03-18 18:58:07 800
Inverter local time	2024-03-18 18:49:26
Soft start time	10 Secs >
Reconnect time	70 Secs >
Grid frequency high loss level 1 limit	55.00 Hz >
Grid frequency low loss level 1 limit	0.02 Hz >
Grid frequency high loss level 1 trip time	600 ms >
Grid frequency low loss level 1 trip time	600 ms >
Grid standard code	DE (VDE )

18:58 🔺	⊕ <sup>2,80</sup> 🔃 🕏 39% 💽			
Running INV ID 1				
CPS SCA5KTL-SM [N Deputy:BR0201] SN C98152102313000	laster:010301; )1			
Read @2024-03-18 18:58:07 +0800				
Input the	password			
Input the passwor	rd			
	0			
Cancel	ОК			
limit				
Grid frequency low loss level 1 limit	0.02 Hz 🚿			
Grid frequency high loss level 1 600 ms trip time				
Grid frequency low loss level 1 trip time	600 ms >			
Grid standard code	DE (VDE > 0126-1-1/A1)			

# 8 Appendix8.3 Cyprus specification related

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unning INV ID 1	
:PS SCA5KTL-SM [ peputy:BR0201] N C9815210231300	Master:010301; 001
Read	<sup>®</sup> 2024-03-18 18፡59፡5 ⊦0800
Inverter local time	2024-03-18 18:49:26
Soft start time	10 Secs
Reconnect time	70 Secs
Grid frequency high loss level 1 limit	55.00 Hz
Grid frequency low loss level 1 limit	0.02 Hz
Grid frequency high loss level 1 trip time	600 ms
Grid frequency low loss level 1 trip time	600 ms
Grid standard code	CY (Cyprus 2019)

19:00 🛔	🖷 1.70 📖 🗟 🗢 37%			
< CUGW-5	062113000286			
Running INV ID 1				
CPS SCA5KTL-SM [Master:010301; Deputy:BR0201] SN C981521023130001				
Read	@2024-03-18 19:00:4 +0800	2		
Group:Setting p	arameters [55]	•		
crossing enable				
Inverter isolation type	Input ground, connect transformer	>		
Reactive power setting	80 %	>		
Matched resistor switch	Closure	>		
Insulation resistance detection enable	Enable	>		
Leakage current detection enable	Enable	>		
Loss Of Mains	5s			
Start Gradinet	10%/min			

# 8 Appendix8.4 Italy specification related

19:18 🛔	🕕 🕬 🔐 🛠 🗢 35% 🔳
< Read/Write	e Register
Power Dispatch	Grid Protection Parameters
Active Power Derating Parameters	Reactive Power Derating Parameters
LVRT/HVRT	Others Parameters
Enable/ disable control Parameters	Control Command
Inverter Basic Information	LcdLess Basic Parameters

19	9:18 🔺			र्ड. 🗢 35% 🔳	
	<	Control C	command		
	ARCDete	ect		>	
	SelfS	SysLimSele		- 1	
	0	Disable			
	0	59.S1		- 1	
	0	27.S1		19:17	· · · · · · · · · · · · · · · · · · ·
	0	81>.S1		<	
	0	81<.S1		•	
	0	59.S2			
	0	27.S2			
	۲	81>.S2			Testing
1	0	81<.S2			
			Cancel		
	Localoo	minaoign			
	IripValTh	ıx			

Page 54



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