Installation and Operating Instructions

ZeverCom

zeversolar

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1. About this Manual

This manual contains a detailed description of the ZeverCom/ZeverCom WiFi, including precautions, methods of installation and operating instructions.
The specifications described in this document apply to the current version of the product. We reserve the right to make changes or to update our product to introduce new functions and overall improvements. This specification is subject to change without prior notice. Please contact Zeversolar to confirm the latest revision.

1.1 Scope of Application

This manual applies to the ZeverCom/ZeverCom WiFi firmware version 16B21-663R+16B21-658R and later versions.

1.2 Target Reader

This manual is intended for authorized skilled installers, who have knowledge of electrical safety. Safety warnings can be found in section 2.5. Please read this manual carefully before installing.

1.3 Abbreviations

Table 1-1: Abbreviations

Abbreviation	Designation
E-Today	Daily Energy
E-Total	Total Energy
LAN	Local Area Network
WAN	Wide Area Network
WLAN	Wireless Local Area Network
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name Server
PV	Photovoltaic
Pac	Alternating Current Output Power

2. Introduction

The monitoring system plays an important role in the PV plant. Users can view the PV Plants power generation data and fault information to avoid unnecessary loss of power and non-scheduled downtime. Users can also maximize the energy generating efficiency according to power generating data and reports.

2.1 Product Overview

The ZeverCom/ZeverCom WiFi collects the inverter's data and events in the PV plant. When an Internet connection is present, the ZeverCom/ZeverCom WiFi will upload the collected data to the ZeverCloud to facilitate on-line web monitoring and data analysis.

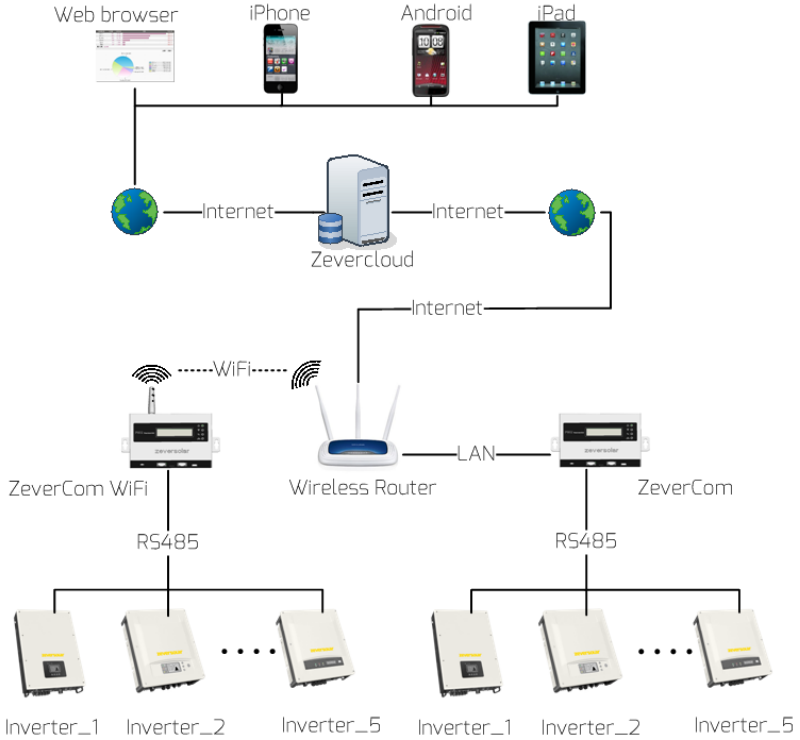


Fig.2-1: System structure

In the system structure shown in Fig. 2-1, the ZeverCom/ZeverCom WiFi connects to the inverters via an RS485 bus and collects the inverter data, which is then uploaded to the ZeverCloud for remote monitoring.

2.2 Function and Features

- PV Plant monitoring via the ZeverCloud
- Communicates with up to 5 inverters
- Standard RS485 interface
- Remote monitoring via Ethernet or WiFi
- Power Management Capability
- 5 days of storage
- Support smart energy meter
- 0-export support

2.3 Scope of Application

The ZeverCom/ZeverCom WiFi is supports the following inverters and function:

Model	Active power limit	0-export	DRM
Eversol TL1000~TL3000	Yes	No	No
Evershine TL3680~TL5000	Yes	No	No
Zeverlution 1000-3000S	Yes	Yes	Yes
Zeverlution 3680-5000	Yes	Yes	Yes
Evershine TLC4000~6000	Yes	Yes	Yes
Eershine TLC8000~10000	Yes	Yes	Yes
Eversol TLC15~20K	Yes	No	No
Zverlution Pro 30K/33K	Yes	Yes	Yes

The sections marked with an * apply to the ZeverCom WiFi.

2.4 Scope of Delivery

Upon opening the packing box of the ZeverCom/ZeverCom WiFi you will see the following components, as shown in Table 2-1.

Table 2-1: Components included in the scope of delivery

Component	Quantity
ZeverCom/ZeverCom WiFi	1
Quick Installation Guide	1
Warranty card	1
2-pole plug	1
Screw (ST4×25)	2
Antenna (WiFi version)	1
Power supply Unit (optional)	1

Please check carefully that all of the components are found inside the packing box. Please contact your distributor or local sales representative if a component is missing.

2.5 Environment

- The ZeverCom/ZeverCom WiFi operational ambient temperature is -10 ° C to 60 ° C
- Do not allow the ZeverCom/ZeverCom WiFi to become damp or wet during use
- Sudden disconnection of power to the ZeverCom/ZeverCom WiFi or disconnection of the RS485 cable under normal operation can lead to data loss

2.6 Safety Symbols

Please pay attention to the following safety symbols in the manual:

Information
Provides information about installation or use.

Notice
Indicates the instructions must be followed in the correct order to prevent problems.

Warning
Indicates the instructions must be followed in order to prevent serious problems or injuries.

3. Indication

3.1 LED Indication

The ZeverCom/ZeverCom WiFi displays the operating status to the user via LEDs. The LED indicator panel is showed in Fig.3-1.

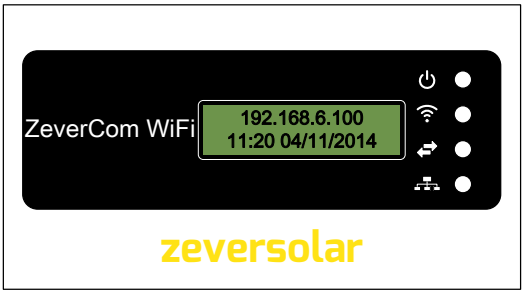


Fig. 3-1: LED indicator panel

The meanings of the LEDs are shown in the following Table 3-1.

Table 3-1: LEDs overview

LED designation	Status	Explanation
	Glowing green	ZeverCom/ZeverCom WiFi is supplied with voltage
	Off	ZeverCom/ZeverCom WiFi is not supplied with voltage
	Glowing yellow	A WiFi connection has been established between the ZeverCom WiFi and WLAN router.
	Flashing yellow	ZeverCom WiFI is sending or receiving data.
	Off	ZeverCom WiFi WiFi connection between ZeverCom WiFi and router has not been established
	Flashing green	ZeverCom/ZeverCom WiFi is sending active power limitation instructions to the inverter
	Flashing green	ZeverCom/ZeverCom WiFi is sending data to the inverter
	Flashing red	ZeverCom/ZeverCom WiFi is receiving data from the inverter

3.2 LCD Indication

The LCD of the ZeverCom/ZeverCom WiFi displays information to the user, for example the status of the connection to the ZeverCloud, date&time and IP address. Each information screen is displayed for 2 seconds. The various information screens are shown in Table 3-2.

Table 3-2: Information Screens shown on the LCD

LCD indication	Description
192.168.6.100 11:20 04/11/2014	ZeverCom/ZeverCom WiFi's IP address, time and date
Disconnected ZeverCloud	ZeverCom/ZeverCom WiFi is not connected to the ZeverCloud
Connected ZeverCloud	ZeverCom/ZeverCom WiFi is connected to the ZeverCloud
Total INV:05 Online INV:03	"Total INV:05" is the total number of inverters connected to the ZeverCom/ZeverCom WiFi since the ZeverCom/ZeverCom WiFi was powered on
	"Online INV:03" is the number of inverters being currently monitored by the ZeverCom/ZeverCom WiFi

For example, if the ZeverCom/ZeverCom WiFi is connected to the ZeverCloud, the LCD displays "Connected ZeverCloud". If ZeverCom/ZeverCom WiFi is not connected to the ZeverCloud, the LCD displays "Disconnected ZeverCloud". The normal information shown on the LCD is described in table 3-2. For further information about the LCD indication, please refer to section "9.3LCD Indication".

4. Installation

4.1 Location

The ZeverCom/ZeverCom WiFi should be installed indoors as extreme temperatures, immersing in water, fire and strong impacts will damage the ZeverCom/ZeverCom WiFi.

To take advantage of the ZeverCom/ZeverCom WiFi's self-powered feature the maximum length of the RS485 cable between the ZeverCom/ZeverCom WiFi and the inverter is 20m.Should a separate power supply unit be used, the maximum length is then increased to 1000m.

If the ZeverCom WiFi has the WiFi option, the antenna should be assembled as per Fig. 4-1. Please ensure that the signal strength between the WLAN router and the ZeverCom WiFi is strong enough to ensure a reliable wireless connection. Please refer to section 5.6 for the WiFi setup instructions. If the ZeverCom WiFi is connected to the WLAN router, the yellow WiFi LED will illuminate.

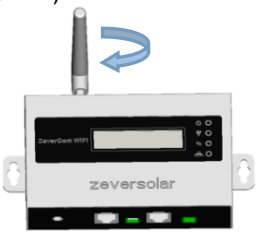


Fig. 4-1: Assemble the antenna

4.2 Installation

The ZeverCom/ZeverCom WiFi should be mounted on a wall as follows:

Step1: Select a suitable place for mounting.

Step2: Mark the positions of the drill holes on the wall (spacing of drill holes: 154mm).

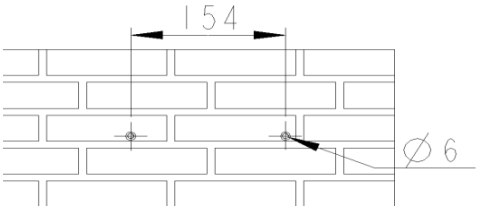


Fig. 4-2: Mark the holes

Step3: Drill the holes (diameter: 6mm, depth: at least 30mm).

Step4: Remove dust that may have accumulated from the drill holes.

Step5: Insert the screw anchors into the drill holes using a rubber mallet.

Step6: Screw in the screws until they protrude by 5mm.

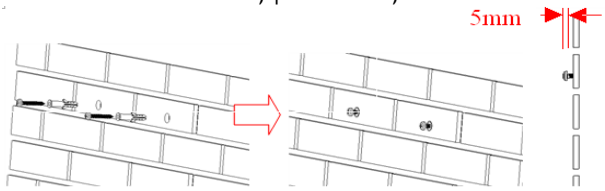


Fig. 4-3: Screw in the screws

Step7: Hang the ZeverCom/ZeverCom WiFi on the screws.

Step8: Tighten the screws.

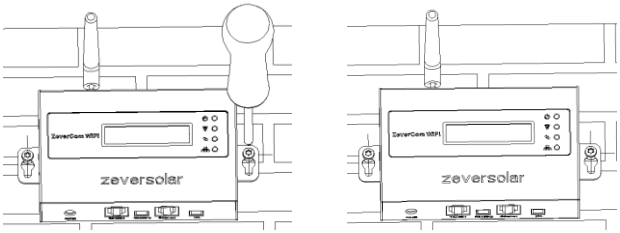


Fig. 4-4: Tighten the screws

5. Connection

5.1 Preparation

Table 5-1: Cables and wiring

Type	Requirements	Maximum length
Network cable	1. Comply with the standards for structured cabling according to EIA/TIA-568. 2. Shielded Ethernet cable (CAT-5E or higher). 3. UV resistant if used outdoors.	100m
RS485 cable	1. The same as network cable line	1000m
DRMs cable （DRED）	1. The same as network cable line	1000m

Remember to connect the Ethernet cable to the Ethernet port (RJ45 LAN connectors) and not to the RS485 port.

5.2 Connection Area

The ZeverCom/ZeverCom WiFi collects inverter(s) data and events, and uploads them to the ZeverCloud via the Internet. This section shows how to connect with the inverter and ZeverCloud.

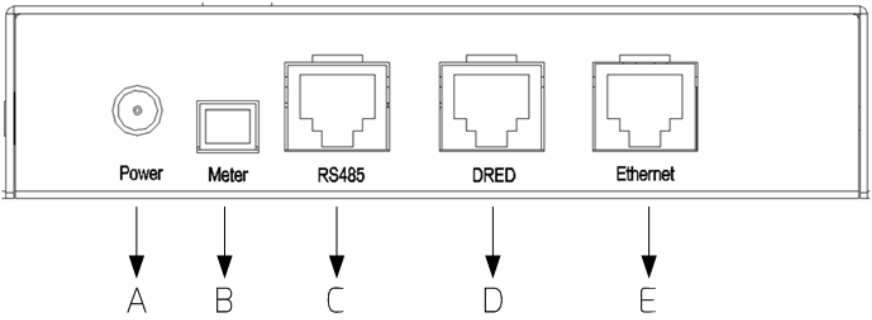


Fig. 5-1: Overview of the connection area

The description of the connection area is shown in the following Table 5-2.

Table 5-2: Function and Description of the connection area

Item	Function	Description
A	Power socket	Connect to power supply

B	Meter port	Connect to energy meter
C	RS485 port	Connect to inverters
D	DRED port	Connect to AS DRM DRED port
E	Ethernet port	Connect to router/switch

5.3 Connecting the Power

Requirements:

- Connect the RS485 cable directly to the ZeverCom/ZeverCom WiFi.
- The maximum cable length for self powered operation is 20m.

If the RS485 cable between the Zevercom/ZeverCom WiFi and the inverter is more than 20m, a separate power supply unit is required.
Connect the power supply unit to the Power socket (Item A in Fig. 5-1). Plug the other end into a power outlet, and check that the power LED light turns on as shown in Fig. 3-1(LED indicator panel).

If a separate power supply unit is used, it must satisfy the following requirements:

1. EMC directive and low voltage directive of the European parliament.
2. Output voltage between 7.5Vdc and 12Vdcand output current at least 500mA.
3. DC output polarity⊖——◉——⊕.

5.4 Connecting the Inverter

This section describes how to connect the ZeverCom/ZeverCom WiFi to the inverter(s):

Step 1: For PV Plants with more than one inverter, connect each inverter in a daisy chain configuration, shown in Fig. 5-2, with the RS485 cable.

Step 2: Connect the inverter closest to the ZeverCom/ZeverCom WiFi to the RS485 port of the ZeverCom/ZeverCom WiFi (Item B in Fig. 5-1) as shown in Fig. 5-2.

Fig. 5-2: Connection to the inverter

The pin order of the RJ45 socket and plug used by the RS485 port of the ZeverCom/ZeverCom WiFi is shown in Fig. 5-3.

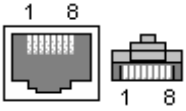


Fig. 5-3: Socket and plug definition of RJ45

The RS485 pin assignment of the RJ45 socket is shown in Table 5-3.

Table 5-3: RJ45-RS485 pin assignment

Pin	Signal description
1	RX+
2	RX-
3	TX+
4	GND
5	GND
6	TX-
7	+7V
8	+7V

1. The RS485 port between the ZeverCom/ZeverCom WiFi and the inverter (Item C in Fig. 5-1) uses the RJ45 socket. Please make sure to use the correct port.
2. The maximum communication distance of the whole RS485 bus is 1000m. Communication quality beyond this length is not guaranteed and can also be influenced by the quality of the RS485 cable.

5.5 Connecting the energy meter

ZeverCom/ZeverCom WiFi can connect to Eastron smart energy meter to limit the exported power of a PV plant. The energy meter must be connected at the grid connection point, as shown in Fig. 5-4.

Please refer to the user manual of Eastron smart meter for its wiring details.

The ZeverCom/ZeverCom WiFi supports the following EASTRON energy meter model:

- SDM630DC Modbus
- SDM630CT Modbus
- SDM120 Modbus
- SDM220 Modbus
- SDM230 Modbus

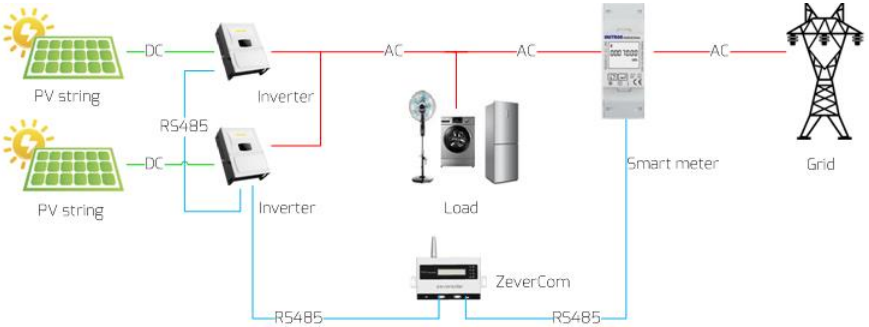


Fig. 5-4: System Connection with EASTRON smart energy meter

Smart meter "+/-" Pac means：Import power from grid/export power to grid

ZeverCom smart meter communication parameters: Baud rate 9600bps; parity is none; 1 stop bit.

The energy meter has to connected to the Meter port of ZeverCom/ZeverCom WiFi (Item B in Fig. 5-1), as shown in Fig. 5-5.

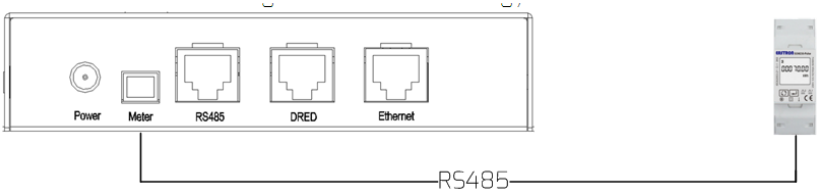


Fig.5-5: Connection Energy Meter

The pin order of the Meter port of the ZeverCom/ZeverCom WiFi is shown in Fig. 5-6.

Fig. 5-6: Socket definition

The Meter port pin assignment is shown in Table 5-4.

Table 5-4: Meter port pin assignment

Pin	Signal description
1	RS485-A
2	RS485-B

1. The maximum cable length of RS485 is 1000m, communication quality will be affected if the distance is longer than this value.

For the information on how to set the power limitation of PV system,, please refer to the “Active Power Limitation” section of “6.4.1 Power Management”

5.6 Connecting to the Ethernet

The ZeverCom/ZeverCom WiFi requires an Internet connection in order to provide remote monitoring. The connection between the ZeverCom/ZeverCom WiFi and the Internet is shown in Fig. 5-7.

The ZeverCom/ZeverCom WiFi uses port #6655 and #80 to communicate with the ZeverCloud. Both of these two ports must be opened otherwise the ZeverCom/ZeverCom WiFi cannot connect to the ZeverCloud and upload data.

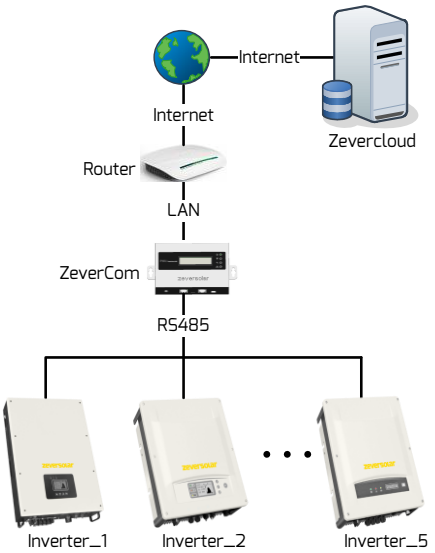


Fig. 5-7: Network connection

The ZeverCom/ZeverCom WiFi is connected to the network by simply connecting the network cable from the router to the Ethernet port of ZeverCom/ZeverCom WiFi (Item E in Fig. 5-1), as shown in Fig. 5-8.

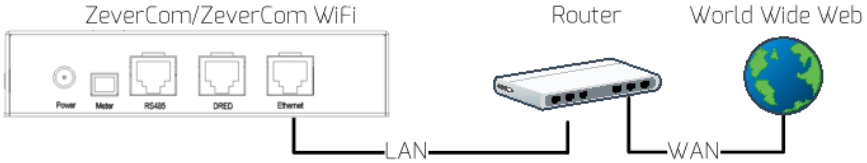


Fig. 5-8: ZeverCom/ZeverCom WiFi linked network

The ZeverCom/ZeverCom WiFi obtains an IP address from the router via DHCP automatically and displays it on the LCD. The time it takes to connect to the network depends on the network communication conditions.

The router needs to support DHCP services therefore the DHCP services must be activated.

If the IP address of the ZeverCom/ZeverCom WiFi is different from the network segment assigned by the router,
Trouble shooting:

1. Make sure the DHCP service of router has been activated.
2. Check the connection between the ZeverCom/ZeverCom WiFi and the router.
3. Check whether the ZeverCom/ZeverCom WiFi is using a fix IP address.
4. If the ZeverCom/ZeverCom WiFi cannot obtain an IP address from the router, it will use 169.254.*.*(* symbol is a random number) as the default IP address.

5.7 *Connecting to the WiFi

If users use the ZeverCom WiFi's WiFi to connect to the router for remote monitoring, the connection diagram is shown in Fig. 5-9.

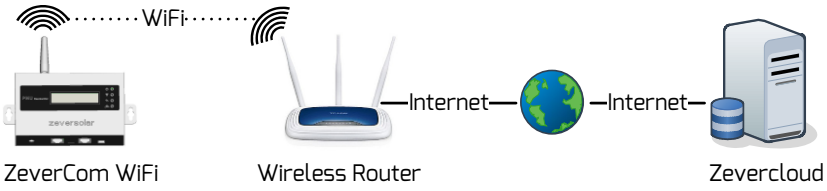


Fig. 5-9: WiFi connection

In order to achieve remote monitoring reliably, the following steps must be taken.

Step1: Power on the ZeverCom WiFi and open the mobile device or laptop's WLAN page to find the ZeverCom WiFi's wireless access point. The new access point of the ZeverCom WiFi's SSID called ZEVERSOLAR -XXXX is displayed, as shown in Fig. 5-10. Connect to the access point using the mobile device or laptop and enter the password as "zeversolar" when prompted.

Fig. 5-10: WLAN connection page

1. "XXXX" stands for the last four digits in the serial number.

Step2: Start the web browser and enterhttp://160.190.0.1. The internal website opens.

Step3: Select the wireless page and select a router in the [Wireless Network] area to connect. The Password/Security Key dialog box opens, as shown in Fig. 5-11.

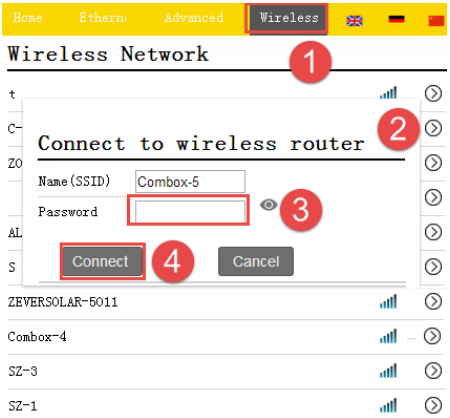


Fig. 5-11: connecting to wireless network

Step4: Enter the password of the wireless local network that you wish to connect to. Do not enter the password of the router.

Step5: After approximately three minutes the WiFi of the ZeverCom WiFi will connect to the wireless local network. The status indicator on the Wireless page should display the icon and the yellow WiFi LED should now illuminate, as shown in Fig. 5-12.

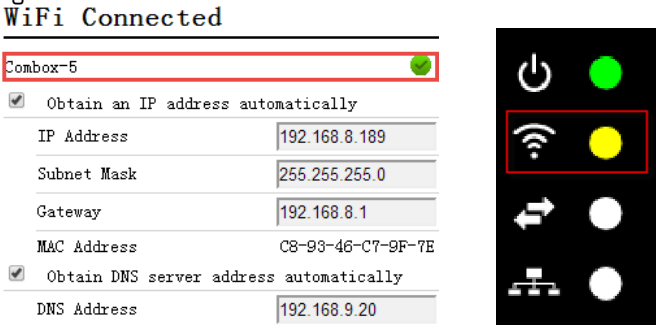


Fig. 5-12: WiFi Connection Instructions

5.8 Connecting to DRMs

The inverter shall detect and initiate a response to all supported demand response commands according to AS/NZS 4777.2:2015. The demand response modes are described as follows:

Table 5-5: DRMs requirement

Mode	Requirement
DRM 0	Operate the disconnection device
DRM 1	Do not consume power
DRM 2	Do not consume at more than 50% of rated power
DRM 3	Do not consume at more than 75% of rated power ANDSource reactive power if capable
DRM 4	Increase power consumption(subject to constraints from other active DRMs)
DRM 5	Do not generate power
DRM 6	Do not generate at more than 50% of rated power
DRM 7	Do not generate at more than 75% of rated power ANDSink reactive power if capable
DRM 8	Increase power generation(subject to constraints from other active DRMs)

Only DRM0, DRM5, DRM6, DRM7, DRM8 available.

Table 5-6: DRMs RJ45 Pin definition

Pin	Pin definition
1	DRM1/5
2	DRM2/6
3	DRM3/7
4	DRM4/8
5	REF GEN/0
6	COM Load/0
7	NC
8	NC

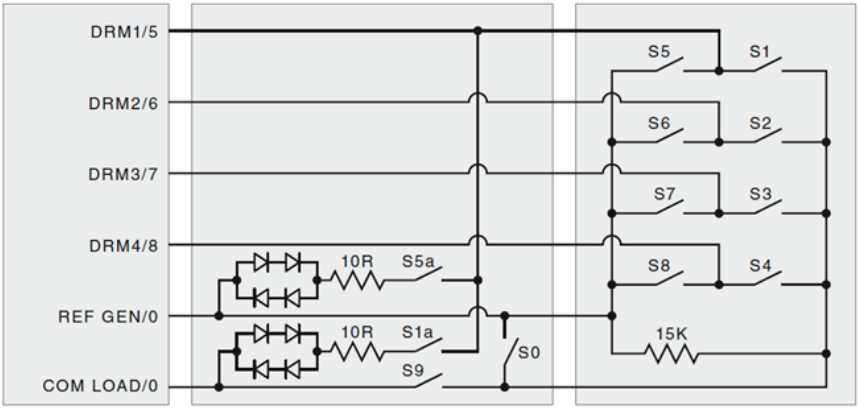


Fig. 5-13: DRMs RJ45 Connection Circuit

The DRMs function parameters setting, please refer to 6.4.1.

6. Web Server

Information about the ZeverCom/ZeverCom WiFi and the inverters connected to the ZeverCom/ZeverCom WiFi can be viewed via the ZeverCom/ZeverCom WiFi's internal web pages. These can also be used to configure the power control and network parameters.
The ZeverCom/ZeverCom WiFi's built-in web server interface structure is shown in Fig. 6-1.

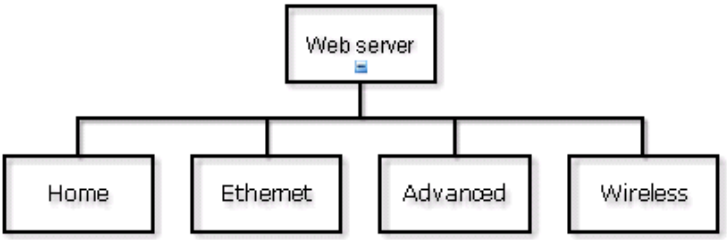


Fig. 6-1: Structural hierarchy of the web server

6.1 Visiting the Web Server

6.1.1 Connecting via Ethernet

Input the IP address of the ZeverCom/ZeverCom WiFi (shown on the LCD display) in the browser's address bar. For example, if the IP address shown on the ZeverCom/ZeverCom WiFi is 192.168.7.67, then enter 192.168.7.67 in the browser's address bar and press the Enter key to display the ZeverCom/ZeverCom WiFi's internal web page, as shown in Fig. 6-2.

6.1.2 *Connecting via WiFi

If you want to connect to the ZeverCom WiFi via WiFi, please refer to section 5.8. Once connected to the ZeverCom WiFi enter"160.190.0.1" in the browser's address bar, press the Enter key to display the ZeverCom/ZeverCom WiFi's internal web page, as shown in Fig. 6-2.

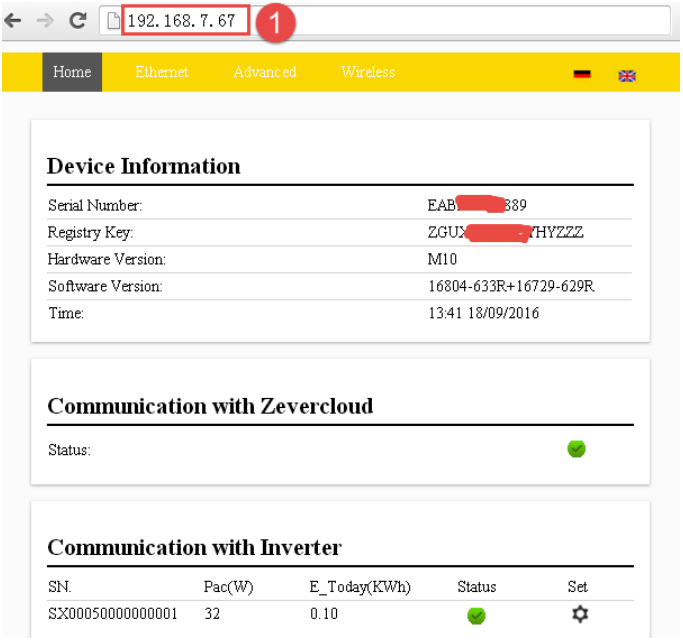


Fig. 6-2: ZeverCom/ZeverCom WiFi Web Server

6.2 Home

This page shows the information and state of the ZeverCom/ZeverCom WiFi equipment. It also shows the state of the connected inverter's which is shown in Fig. 6-2.

If the inverter is working normally, it shows a green icon; otherwise the red icon will be shown along with the error code.

You also can set the inverter power on/off by set menu.

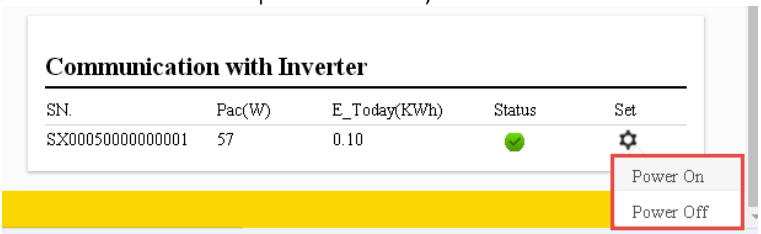


Fig. 6-3: Inverter power on/off function

6.3 Ethernet

Clicking the "Ethernet" tab takes you to the Ethernet page of the ZeverCom/ZeverCom WiFi's internal web page. From this page set the Ethernet parameters can set by either using a static IP address or obtaining the IP address automatically.

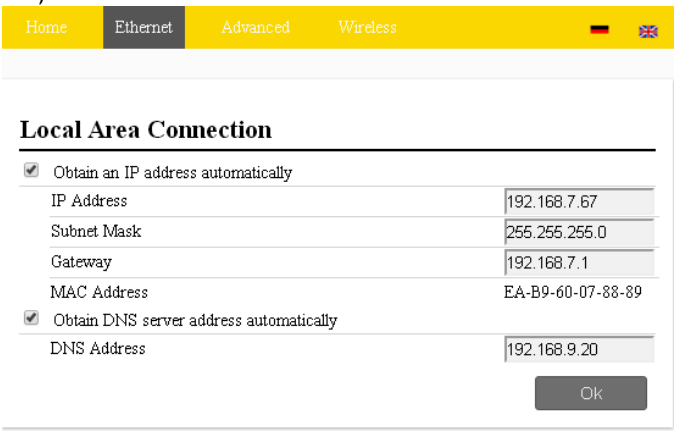


Fig. 6-4: Ethernet page

6.4 Advanced

The Advanced web page shows the advanced settings of the ZeverCom/ZeverCom WiFi. For example the Multi-Function Switch and output Power limit function can be configured. In addition the ZeverCom/ZeverCom WiFi's firmware can be upgraded from this webpage.

6.4.1Power Management

The ZeverCom/ZeverCom WiFi can regulate the power of the inverter(s) according to the value of installed inverter capacity or the energy meter reading, which are set by the user.

a) Active Power Limit

Tick "Active Power Limit" and fill in the total Inverter AC capacity to active Power limit function. There are three modes of active power limitation which can be selected.

1. Please make sure the inverter AC capacity is correct, otherwise the power limitation function cannot work properly.

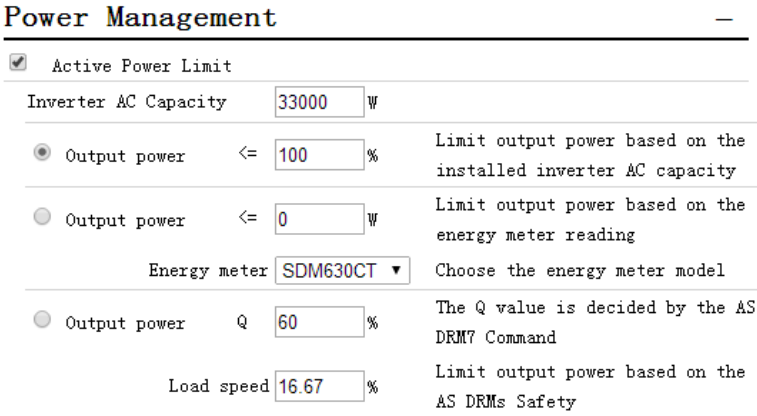


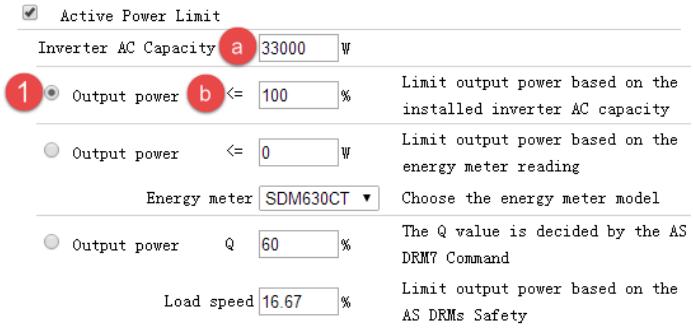
Fig. 6-5: Set Active Power Limitation Method

The following ways will introduce how to configure the three kinds of power limitation.
For correct operation of this method the parameter: tem A – total inverter AC capacity of PV system that must be entered, please refer to Fig. 6-6:

■ Based on the Installed Inverter AC Capacity

In this method the AC output of the PV system will not exceed a set percentage of the installed inverter AC capacity. For example, if a 20 % limitation on a 33 kWp PV system connected to an Zverlution Pro 33K has been set then the AC output will not exceed 6.6kWac.

Click the "OK" button in bottom-right of this web page to ensure the setting parameters take effect.



The Fig. 6-6 Set parameters based on the AC capacity

Table 6-1: The indicator of the Item

Parameter	Definition
a	The sum of the rated power of all inverters in the PV plant (Wac)
b	The percentage of power output limitation based on parameter b

■ Power Limitation Based on the Energy Meter Reading

In this method the export power of the PV system at the point of connection will not exceed the set value. For example, if 0 kWac export limit has been set in "limit output power based on the energy meter reading " then a 33 kWp PV system connected to Zeverlution Pro 33K(33 kWac inverter) will reduce its AC output power to ensure the export power at the smart meter won't exceed 0 kWac.

Fig. 6-7 shows the system diagram of power limitation based the energy meter reading.

Example for 0-export setting:

Please make sure all wire connection is correct before doing the settings on web server.

Step 1: Tick "Active Power Limit" and fill in the total Inverter AC capacity to active Power limit function.

Step 2: Select "limit output power based on the energy meter reading" and set out put power<=0W

Step 3: Select the correct smart meter of the PV sysem

Setp 4: Click the "OK" button in bottom-right of this web page to ensure the setting parameters take effect.

The PV system will automatically to regulate inverter's output power to make sure inverter's output power won't exceed the load power, in this case, no PV power can feed into the grid.

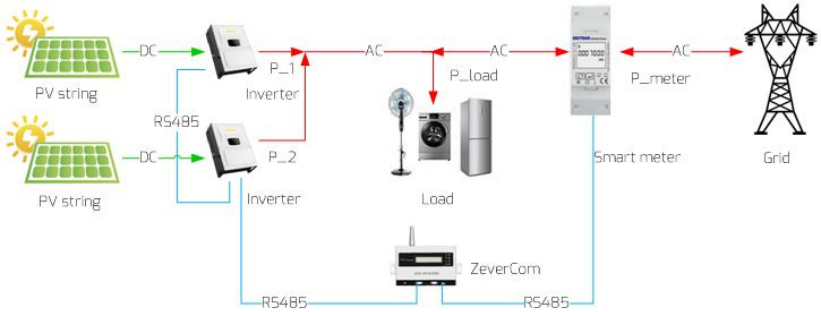
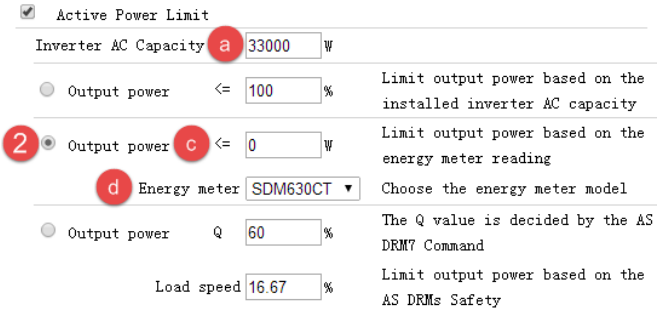


Fig. 6-7: Power flow & limitation based on the energy meter reading

For this method position 2 in Fig. 6-8 should be ticked.

Click the "OK" button in bottom-right of this web page to ensure the setting parameters take effect.

The system power is calculated as following:
P_load – (P_1 + P_2) = P_meter



The Fig. 6-8: Set parameters based on the energy meter reading

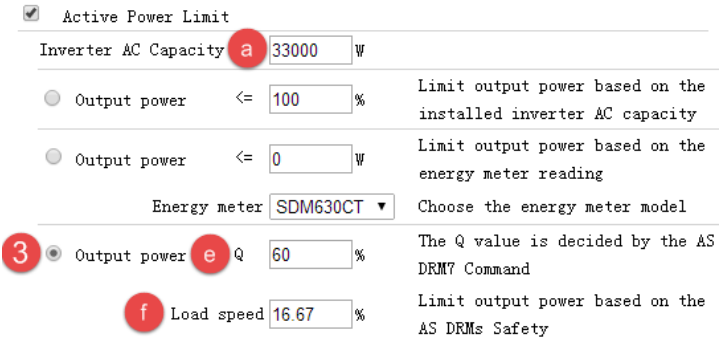
The "output power" value is e when P >= P_meter

Table 6-2: The indicator of the Item

Parameter	Definition
a	The sum of the rated power of all inverters in the PV plant (Wac)
c	It expect power reading of the energy meter
d	The energy meter model

- Based on the AS DRMs Safety

  The output power is be decided by DRMs command. Please refer the section 4.3.



The Fig. 6-9: Set parameters based on AS DRMs safety

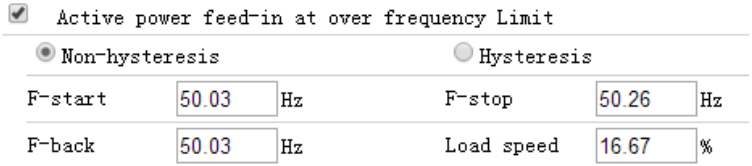
The "output power" value is e when P >= P_meter

Table 6-3: The indicator of the Item

Parameter	Definition
E	Q value: The reactive value of inverter when received the AS DRM7 Command
f	It expect power reading of the energy meter

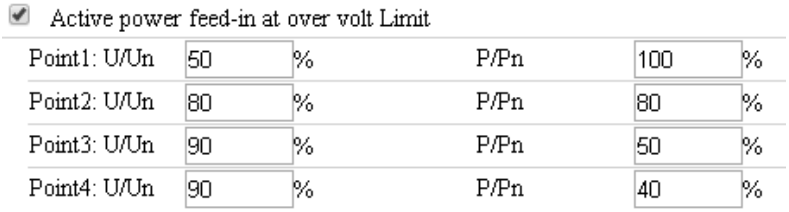
b) Active power feed-in at over frequency Limit

The Load speed is setted for inverter load speed when reconnection.



The Fig. 6-10: Set active power feed-in at over frequency Limit

c) Active power feed-in at over volt Limit



The Fig. 6-11: Set active power feed-in at over volt limit

d) Reactive Power Limit

There are four modes of reactive power limitation which can be selected.

- Cos(phi) fix mode: In this mode, the ZeverCom/ZeverCom WiFi will regulate the reactive power of inverter according to the Cos(phi) value which is set by the user. Enter the Cos(phi) value and choose the phase as shown in Fig. 6-12.

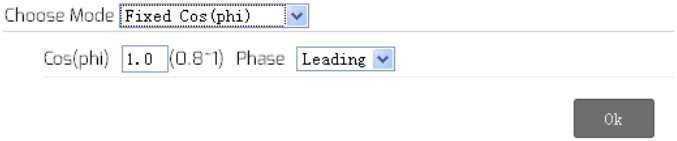


Fig. 6-12: Cos(phi) fix mode

- Cos(phi) variable mode: In this mode, the ZeverCom/ZeverCom WiFi will produce a curve according to the "P/Pn", "Cos(phi)" and the phase of points 1,2,3 and 4, and will regulate the reactive power according to this curve, as shown in Fig. 6-14.

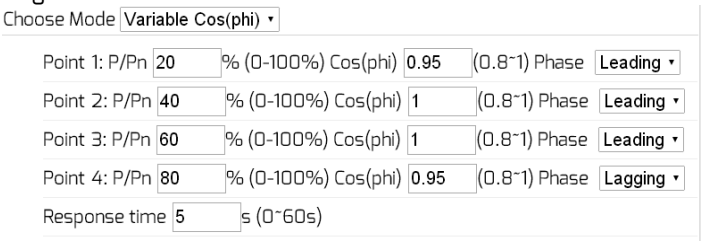


Fig. 6-13: Cos(phi) variable mode

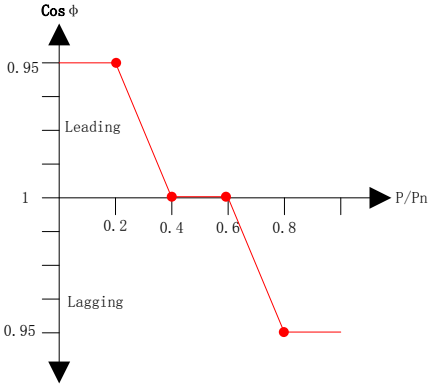


Fig. 6-14: Cos(phi) variable Cure

- Q fix mode: In this mode, the ZeverCom/ZeverCom WiFi will regulate the reactive power of the inverter according to the Q value which is set by the user. You need to input the Q value and choose the phase as shown in Fig. 6-15.

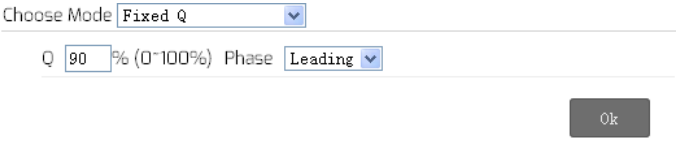


Fig. 6-15: Q fix mode

- Q variable mode: In this mode, the ZeverCom/ZeverCom WiFi will produce a curve according to the "U/Un", "Q value" and phase position of points 1,2,3 and 4, and will regulate the reactive power according to this curve, as shown in Fig. 6-17.

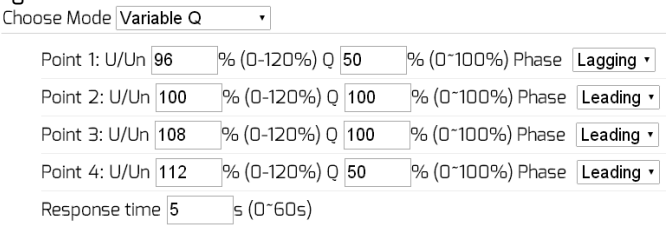


Fig. 6-16: Q variable mode

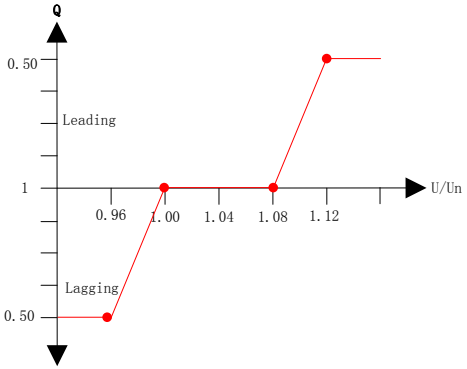


Fig. 6-17: Q variable Cure

To cancel the output power limit function untick the checkbox and click the "OK" button.

Please ensure that the inverter supports the Output Power Limit function.

6.4.2 Safety Setting

The ZeverCom also supports setting the safety parameters of the inverter.

Choose the safety standard and then set the protect threshold below. And press the "OK" button.

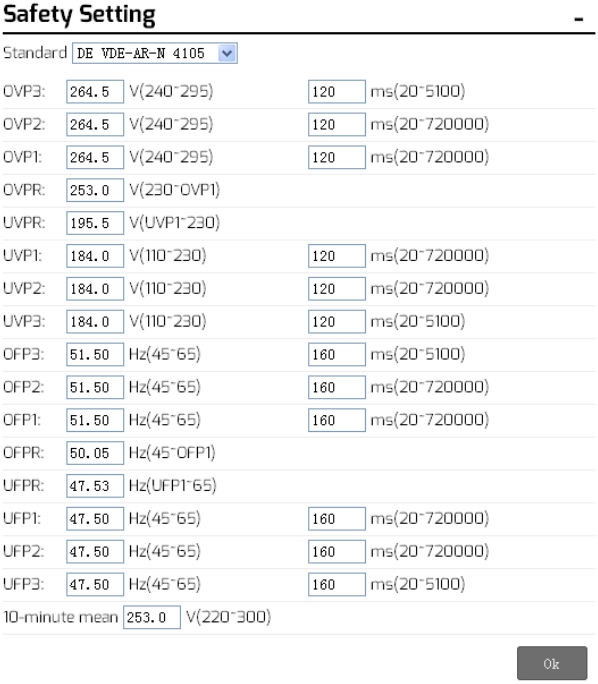


Fig. 6-18: Safety Parameters

6.4.3 Updating Firmware

The firmware of the ZeverCom/ZeverCom WiFi can also be updated. It can also update the inverter's firmware. Enter the Advanced page and click the "choose file" in the Update Firmware section to select the new firmware and then click the "OK" button to update.

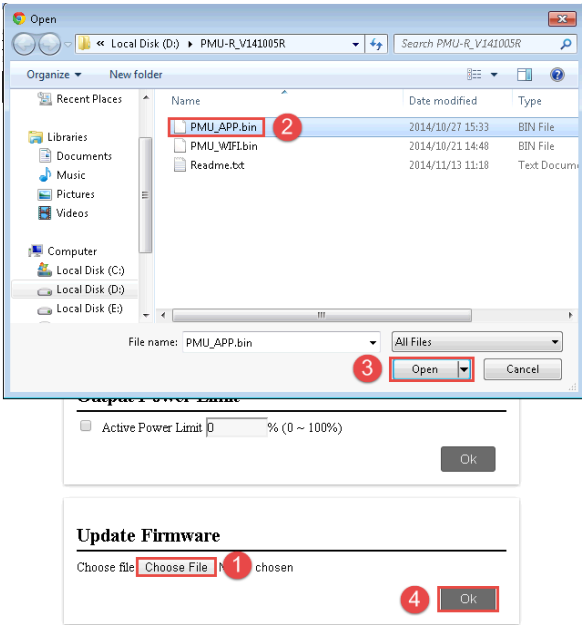


Fig. 6-19: Update Firmware

6.4.4 Restart

Enter the Advanced page of the ZeverCom/ZeverCom WiFi and click the "OK" button at the Restart section to restart the device.

Fig. 6-20: Restart ZeverCom/ZeverCom WiFi

6.4.5 Restore to Factory

Enter the Advanced page of the ZeverCom/ZeverCom WiFi and click the "OK" button in the Restore to Factory section to restore all the parameters of the ZeverCom/ZeverCom WiFi to the factory settings.

Fig. 6-21: Restore to Factory

This operation will delete all user data

6.5 *Wireless

This page shows the list of wireless Networks that ZeverCom/ZeverCom WiFi can connect to. If you want to change the connected WiFi network, please refer to section5.7.

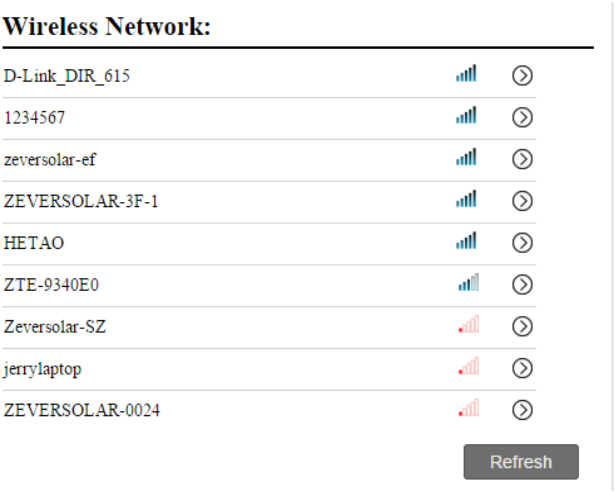


Fig. 6-22: Wireless Network

The wireless network IP information is shown as below Fig 6-23. This refers to the “Ethernet” section.

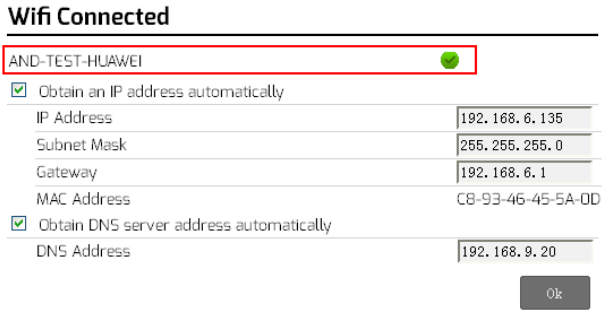


Fig. 6-23: Wireless IP information

This page shows the WiFi SSID and password information, you can change the SSID and WiFi password accordingly (default password is 'zeversolar'). To ensure highest security of your system, please change the default password 'zeversolar' and keep the new password confidential. If you do not change the password, you expose your system to a risk of unauthorized access by persons who know the default password and are within the reach of the WiFi network.

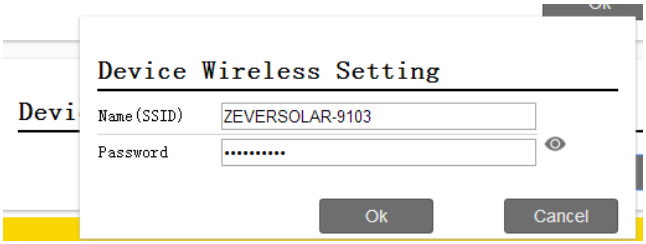


Fig. 6-24: SSID & Password reset

7. ZeverCloud APP

ZeverCloud APP is a terminal application used on smartphone for users provided with a Zeversolar ZeverCom / ZeverComWiFi data loggers. These data loggers transfer the operational data to the ZeverCloud server via the internet and enable the users to monitor their PV plants and inverters remotely via a smart mobile device.

You can visit and download ZeverCloud APP via the following website on your mobile phone:

Android:

https://www.zeversolar.com/products/productline-detail/productline/detail/en-zevercloud/#download-data-link

Fig. 7-1: Android QR code

IOS:

https://itunes.apple.com/cn/app/zevercloud/id1147038131?l=zh&ls=1&mt=8

Fig. 7-2: IOS QR code

7.1 Account Registration

First time users of the ZeverCloud APP are required to register an account via

the ZeverCloud APP or via the ZeverCloud website. Monitoring can then be performed after the user has registered and created a PV plant.

Step 1: Open ZeverCloud APP which has been downloaded and installed on your device, as shown in fig. 7-3.

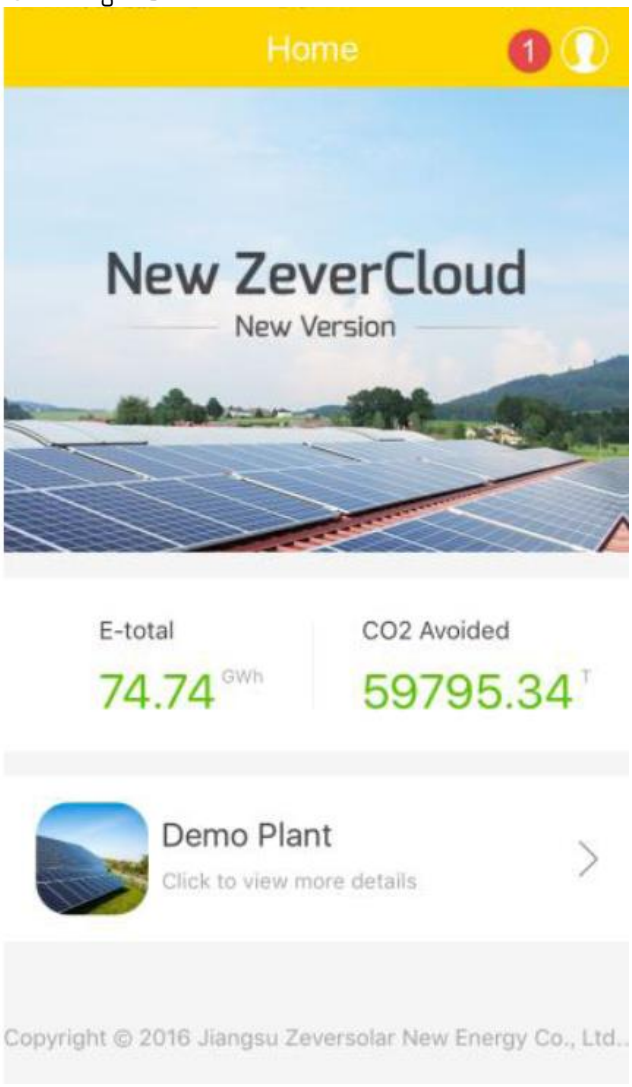


Fig. 7-3: Home Page

Step 2: Click the button marked with a '1' in Fig. 7-3 to enter the login page, as shown in Fig. 7-4

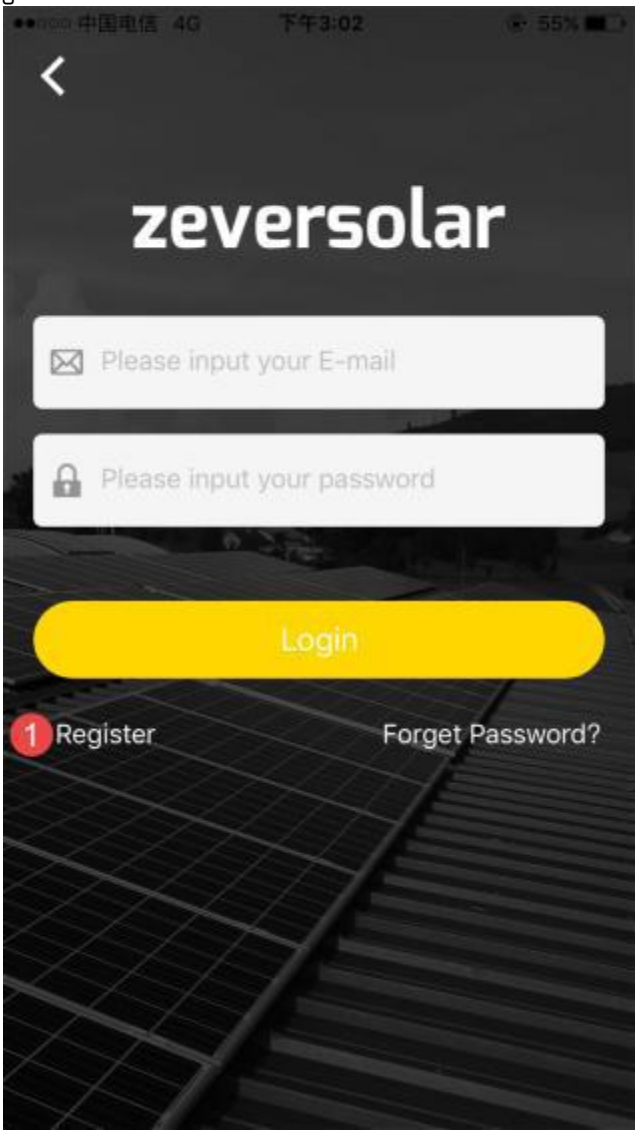


Fig. 7-4: Login

Step 3: Click the button marked with a '1' in Fig. 7-4, click 'Register' to enter the registration page, input the available e-mail address and login password

(Password length must be over 6 digits and less than 32 digits, capital and small English letter A(a)-Z(z) and numbers 0-9 can be accepted).

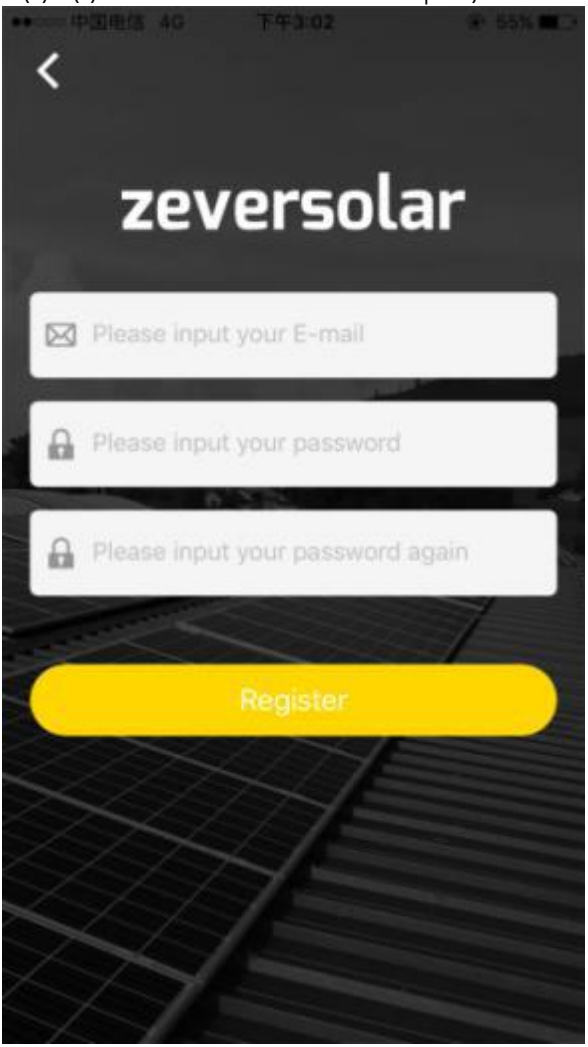


Fig. 7-5: Registration

Step 4: After the registration has been completed, ZeverCloud will send an activation e-mail. Activate your ZeverCloud account according to the information in the e-mail. If there is no activation mail in your inbox, please check your spam folder.

7.2 Create a PV plant

Step 1: Open ZeverCloud APP which has been downloaded and installed already, as shown in Fig. 7-3

Step 2: Click the button marked with a '1' in Fig.7-3 to enter the login page, as shown in Fig.7-4

Step 3: Input your user name and password in the area as shown in Fig.7-4 to login to ZeverCloud APP. If the login is successful you will enter the page with a PV plant list as shown in Fig.7-6 (prompt: if you have not created, nor being shared with any PV plant, the PV plant list will be blank).

Fig.7-6: PV plant list

Step 4: Click the "Create New Plant" button in the navigation bar at the bottom of the screen as shown in Fig. 7-6 to enter the PV plant create page as shown in Fig. 7-7. Follow the prompts on the page to establish a PV plant, input ZeverCom/ZeverComWiFi and PV plant information to finish the creation of PV

plant. The serial number and registry number of the monitoring device can be entered by clicking the scan button marked with a '1' as shown below to scan the QR code on the label of monitoring device (ZeverCom/ZeverCom WiFi).

Fig.7-7: Create a PV plant

During PV plant creation, it is very important to choose the correct time zone. Please select the correct time zone where the PV plant is located in Position 2 shown in Fig. 7-7.

When establishing a PV plant, it is necessary to input the serial number and registry number of the ZeverCom/ZeverCom WiFi., or or to scan a QR code which contains these two pieces of information. Thisinformation can be found on the ZeverCom/ZeverComWiFi label.

7.3 Connect Monitoring Management Device through WiFi

Keep APP logging in.
Open WLAN configuration on your mobile devices, search WiFi SSID of your ZeverCom. The default WiFi SSID of ZeverCom starts with ZEVERSOLAR-XXXX, i.e.: Testing SSID: ZEVERSOLAR-8894 as shown in fig. 7-8 below:

Fig.7-8: Wireless network list

Click SSID of ZeverCom, type in password as shown in fig (default password: zeversolar).

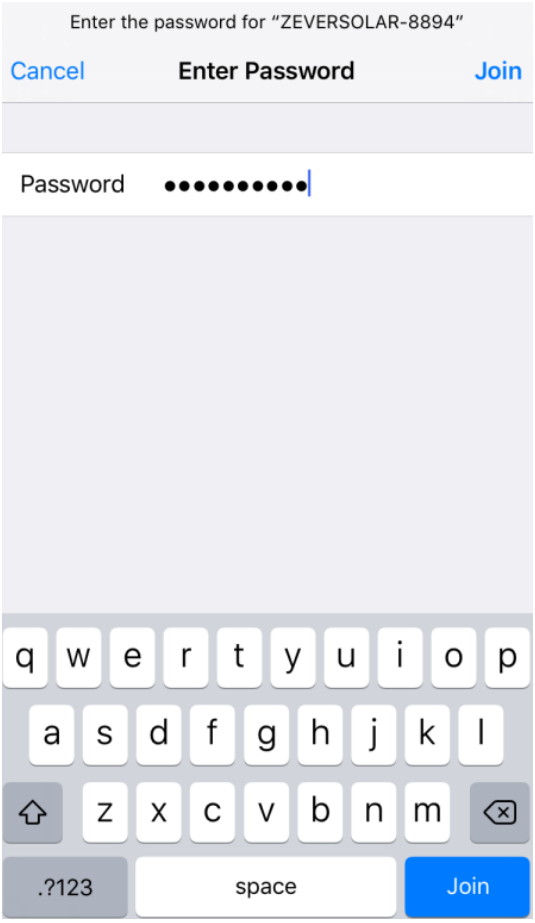


Fig. 7-9: Enter the password

Smartphone connected to ZeverCom successfully, as shown in fig. 7-10.

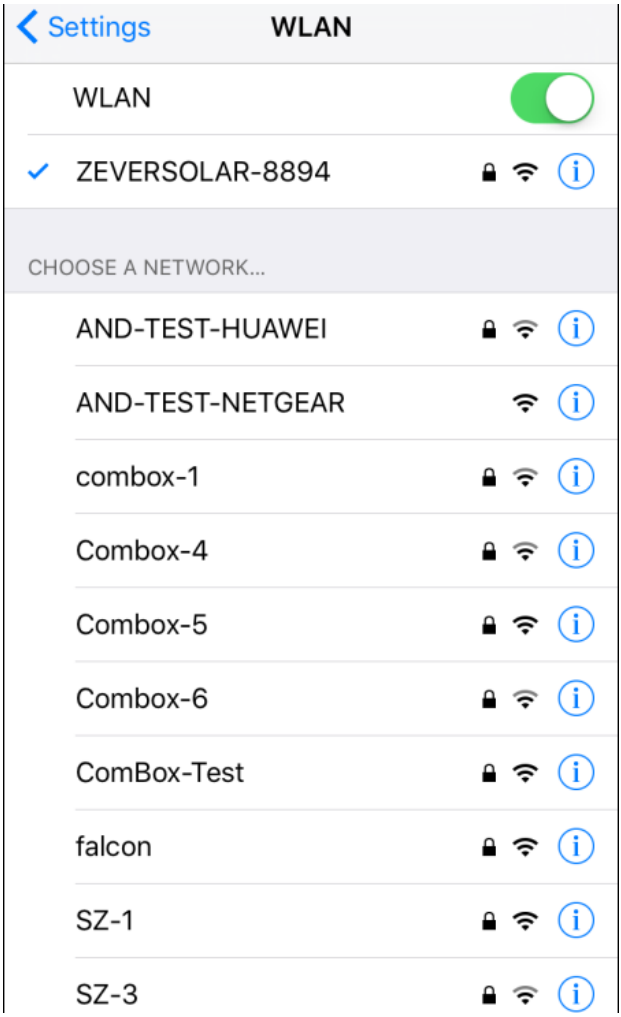


Fig.7-10: Connected to the WiFi

Click the 'Connect WIFI' button in the navigation bar at bottom as shown in Fig. 7-7 to enter the WiFi configuration page as shown in Fig.7-11. Here you can modify the WIFI password of the monitoring devices, as well as modify the account name and password of the router. You can switch routers here as well as shown in the area marked with '1' in Fig. 7-11.

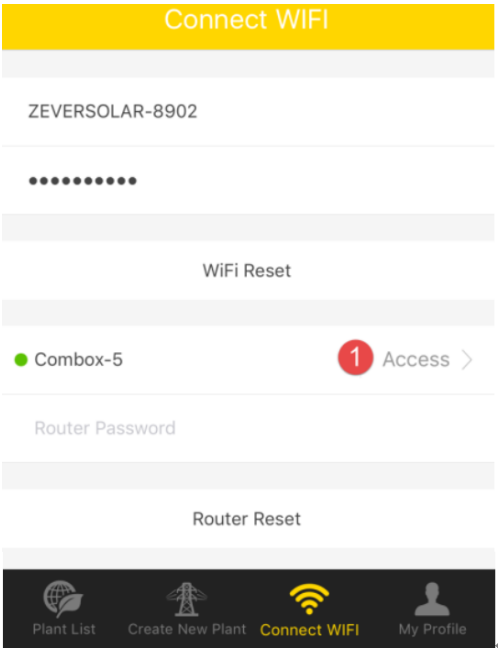


Fig. 7-11: WiFi configuration

Before open the page of "Connect WIFI", make sure you have manually connected your terminal mobile device to the WiFi of the monitoring device.

7.4 Browse PV plant

You can enter any PV plant by clicking the plant list as shown in Fig.7-6.This allows you to view the power generation data of the PV plant as well as inverter events. The menu structure is shown in Fig.7-12:

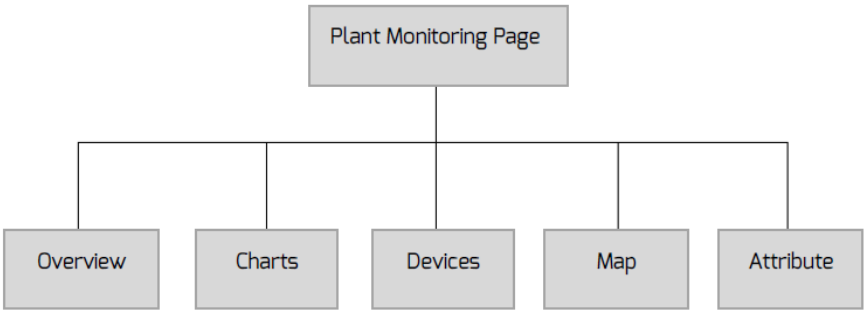


Fig.7-12: Menu structure of PV plant monitoring page

7.4.1 Overview

This menu provides summarized information such as current Power, Total Income, E-Today, E-Month, E-Total as well as power generation charts like, current day real-time power, current month's daily power, current year's monthly power, annual summarized power generation, as shown in Fig. 7-13.
E-Total: is the total energy that generated by all inverters connected to the monitoring device from the day the PV plant is created

Fig.7-13: Overview

7.4.2 Charts

This menu provides detailed curve graphs, i.e: DC input voltage Vpv, DC input current Ipv and AC output power Pac of the PV plant and every inverter, as shown in Fig.7-14:

Fig.7-14: Charts

7.4.3 Devices

This menu provides the status of monitoring devices, as well as other contents such as relevant parameter error information of inverters that are connected to this monitoring device, as shown in Fig.7-15

Fig.7-15: Devices

8. ZeverCloud website

The ZeverCloud is a cloud service platform for users provided by Zeversolar. The ZeverCom/ZeverCom WiFi transfers the operation data to the ZeverCloud server via the Internet to enable the users to monitor their PV plants and inverters remotely through a computer or a mobile device.

You can visit ZeverCloud via the following website on a PC: *http://www.evercloud.com*. For the Android or IOS user, refer chapter 7.7 to download ZeverCloud APP.

To monitor the PV plant and inverter with ZeverCloud, the ZeverCom/ZeverCom WiFi and Internet must be functioning normally.

8.1 Account Registration

Users who use ZeverCloud for the first time are required to register an account in ZeverCloud. Monitoring can then be performed after the user has registered.

Step 1: Input *http://www.evercloud.com* in the browser and open the main page of ZeverCloud as shown in Fig. 8-1.

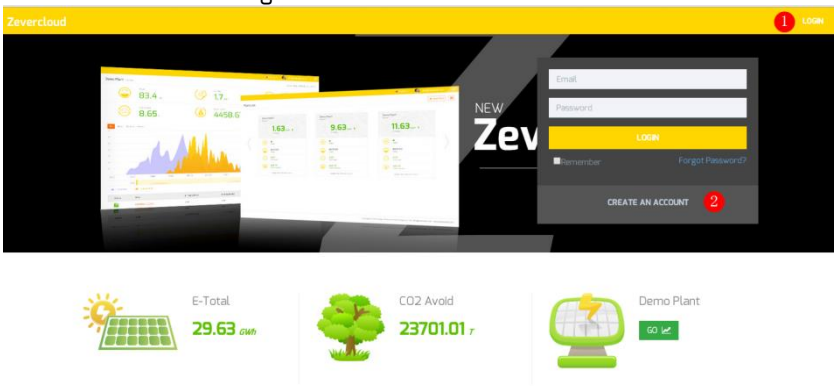


Fig. 8-1: Registration and login page

Step 2: Click the button marked with a "1" in Fig .8-1, click "CREATE AN ACCOUNT" to enter the registration page, and register a user account according to the prompts.

Step 3: After the registration has been completed, ZeverCloud will send an activation email. Activate your ZeverCloud account according to the information in the email. If there is no activation mail in your inbox, please check your spam box.

If you did not receive an email from Zevercloud, it could be:

1. The email was identified as junk mail. Please check the spam folder. If the email from ZeverCloud was identified as junk mail, please add the address of ZeverCloud into your white list to avoid future emails from ZeverCloud being identified as junk mail.
2. You may have input an email address which is different from the one you used for registration. Please confirm if the email was sent to another email address. Please reregister if you entered an unknown email address when entering account information.

8.2 Create a PV plant

Step1: Enter http://www.zevercloud.com in the address bar of the browser and open the home page of ZeverCloud as shown in Fig. 8-1.

Step2: Input your user name and password in the area marked with a "1" in Fig. 8-1 to login to ZeverCloud. If the login is successful you will enter the web page with a PV plant list as shown in Fig. 8-2.

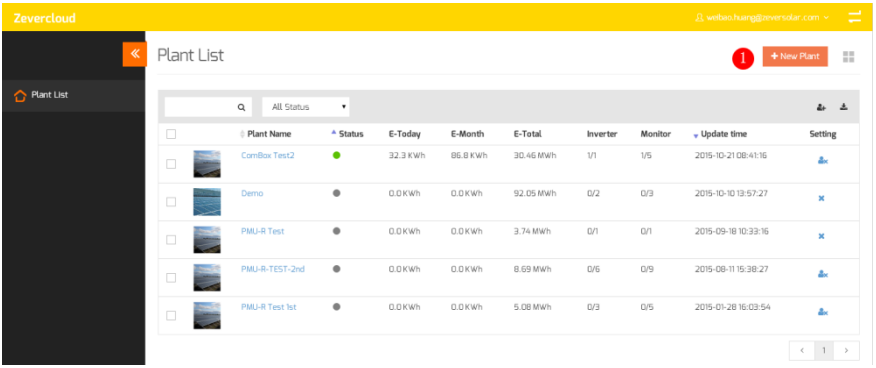


Fig. 8-2: Setting up a new PV plant

Step3: Click Position 1 in Fig. 8-2 to enter the PV plant establishing page as shown in Fig. 8-3. Follow the prompts on the page to establish a PV plant.

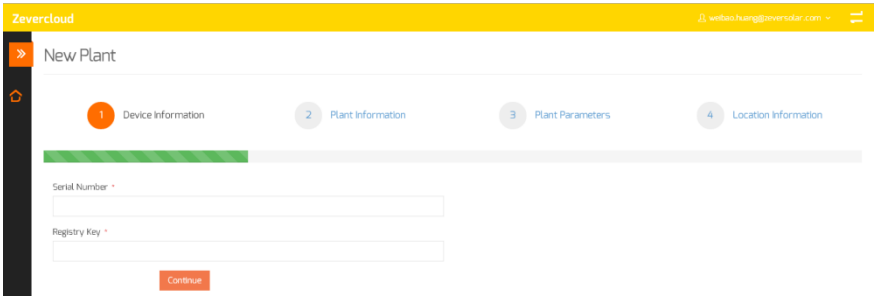


Fig. 8-3: Enter the ZeverCom/ZeverCom WiFi and PV plant information to finish the creation of PV plant

During PV plant creation, it is very important to choose the correct time zone. Please select the correct time zone where the PV plant is located in Position 4 shown in Fig. 8-3.

When establishing a PV plant, it is necessary to input the serial number and registry number of the ZeverCom/ZeverCom WiFi. This information can be found on the ZeverCom/ZeverCom WiFi label.

8.3 Browse PV plant

You can enter any PV plant by clicking the plant list. This allows you to view the power generation data of the PV plant as well as inverter events. The menu structure is shown in Fig. 8-4:

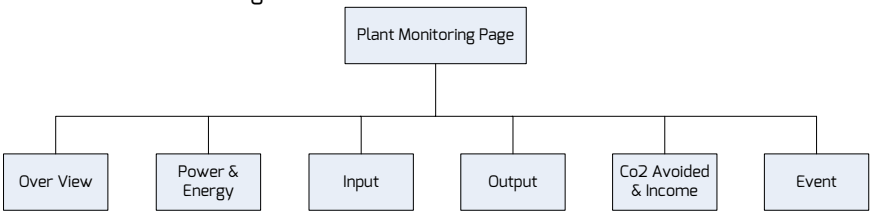


Fig. 8-4: Menu structure of PV plant monitor page

8.3.1Overview

This menu provides information such as E-Today, E-Total and the Yield of the entire PV plant. It also provides the power generation graph of the PV plant.

8.3.2 Power & Energy

This menu provides detailed graphs such as power & energy of each inverter in the PV plant.

8.3.3 Input

This menu provides detailed graphs such as Input PV Vpv & Ipv of each inverter in the PV plant.

8.3.4 Output

This menu provides detailed graphs such as Vac, Iac & Fac of each inverter in the PV plant.

8.3.5 Co2 Avoided & Income

This menu provides detailed graphs such as Co2 Avoided & Income.

8.3.6 Event

This menu provides detailed information of each inverter's work state.

8.4 Add a ZeverCom/ZeverCom WiFi

A ZeverCom/ZeverCom WiFi can be added to a PV plant as follows:

Step1: Login to ZeverCloud and enter Configuration→Device Management page.

Step2: Enter the serial number and registry key of the ZeverCom/ZeverCom WiFi into the textbox shown in Fig. 8-5.

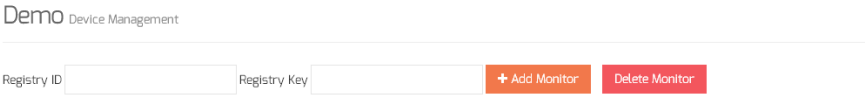


Fig. 8-5: Add more ZeverCom/ZeverCom WiFis to the PV plant

Step3: Click the "Add monitor" button and the new ZeverCom/ZeverCom WiFi will be added.

8.5 PV plant Sharing

Your PV plant can be shared with other ZeverCloud users, to enable other users to view your PV plant. You can also configure the sharing authority when sharing it.

Step1: Login into ZeverCloud and enter the Configuration→Shared Configuration page.

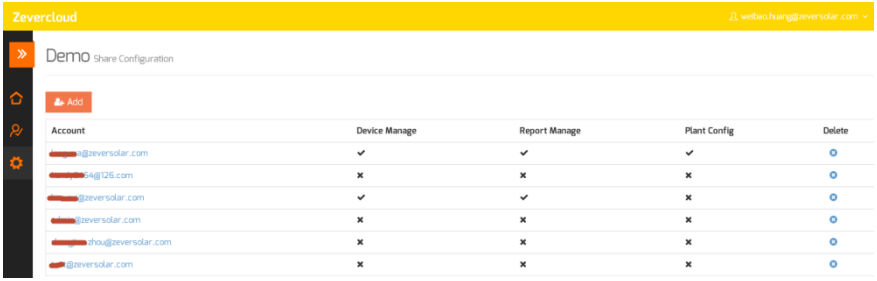


Fig. 8-6: PV plant sharing

Step2: Click Add, an "Add a shared user window" will appear; enter the user account that needs to be shared.

Step3: In the check box in Fig. 8-6, you can configure the authorities of the shared users.

8.6 Configuration Report

ZeverCloud can email you the daily and monthly operation state of the PV plant, including the amount of generated energy, yield, CO_2 emission reduction and other information. In addition it can also inform you of events of the PV plant by email. This function can be configured as follows:

Step1: Login to ZeverCloud and enter Configuration→Report Configuration page.

Step2: First click "No" to activate this function as shown in Fig. 8-7.

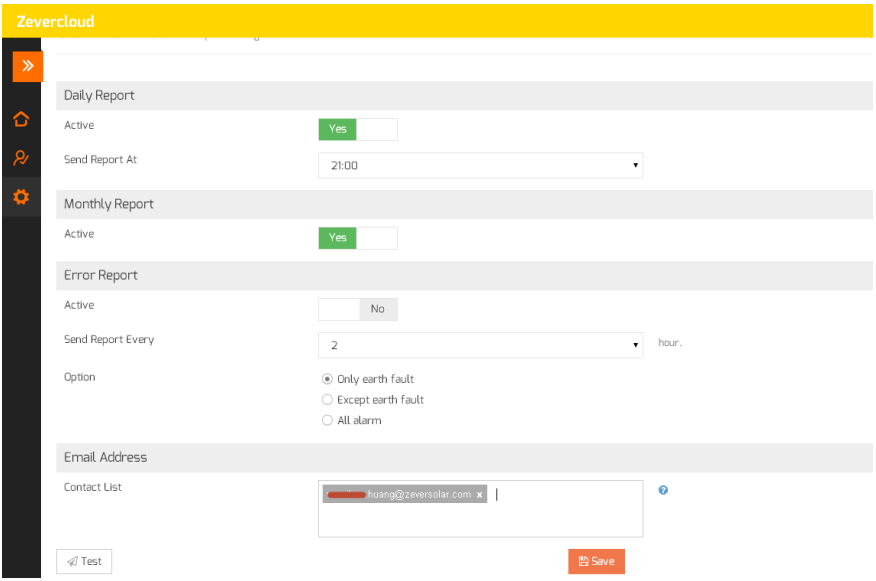


Fig. 8-7: Activate the configuration report

Step3: After the above steps, click the "Save" button to save your settings, then click "Test" button to send to an email immediately.

9. Trouble Shooting

9.1 LED Indication

Some faults can be identified by looking at the LEDs.

LED	Status	Description	Solutions
	Off	Power supply is abnormal	Check the power supply. Make sure the power supply outlet is normal
	Off	The ZeverCom WiFi's WiFi cannot connect to the router	Please check the router is functioning as normal. Ensure the Wifi has been set in accordance with section 5.6
	Green off	System error	Restart ZeverCom/ZeverCom WiFi
	Red light does not flash after green light flashed	Inverter did not send data to ZeverCom/ZeverCom WiFi	Check that the connection between inverter and ZeverCom/ZeverCom WiFi is not damaged or disconnected

9.2 LED Indication of Network Interface

LED	Status	Description	Solutions
Yellow light(link)	Off	No connection established	Check whether the connection between router and ZeverCom/ZeverCom WiFi is normal. Ensure the router is turned on.
	On	Connection established	NA
Green light (activity)	off	Communication is abnormal	Check whether the connections between router/switch and ZeverCom/ZeverCom WiFi are normal.
	Flashing	Data is being transmitted or received	NA

9.3 LCD Indication

The LCD information of the ZeverCom/ZeverCom WiFi can help with troubleshooting as follows:

Display	Solutions
169.254.1.100 11:20 04/11/2014	The ZeverCom/ZeverCom WiFi cannot obtain IP from router, please check the Ethernet cable or the router.
Total INV:05 Online INV:03	Two inverters connected to the ZeverCom/ZeverCom WiFi are not being monitored. Check whether the RS485 cable is normally connected or restart the ZeverCom/ZeverCom WiFi.
WAN Abnormal Check Network	The ZeverCom/ZeverCom WiFi cannot be connected with ZeverCloud. Please check the connection between the ZeverCom/ZeverCom WiFi and the Internet.
INV SN. Empty	The inverter connected to the ZeverCom/ZeverCom WiFi has no serial number. Please contact our after-sales service personnel.
INV SN. Invalid	More than one connected inverter has the same serial number. Please contact our after-sales service personnel.
INV SN. Space	The serial number of the inverter connected to the ZeverCom/ZeverCom WiFi is blank. Please contact our after-sales service personnel.
Non-existent SN.	Confirm whether the SN on the label of ZeverCom/ZeverCom WiFi is the same as that displayed in the built-in Web server. If not, please contact our after-sales service personnel.
Unbind Zevercloud	The ZeverCom/ZeverCom WiFi has not been added to your PV plant in ZeverCloud. Please add the ZeverCom/ZeverCom WiFi into your plan as described in section 7.4.
The IP address shown in the ZeverCom/ZeverCom WiFi is not in the same network segment as the IP address distributed by the router.	1. Confirm whether the Internet cable connection between the ZeverCom/ZeverCom WiFi and the router is normal. 2. Confirm whether the DHCP of the Router is activated. 3. Restart the ZeverCom/ZeverCom WiFi.
The time displayed on the LCD of the ZeverCom/ZeverCom WiFi is incorrect.	Adjust the time zone of PV plant in ZeverCloud to the time zone you are in.

9.4 FAQ

Q1. How can I confirm whether all the inverters are connected to the ZeverCom/ZeverCom WiFi?

Method 1: Check the LCD on the ZeverCom/ZeverCom WiFi. The "Online INV*"on the LCD display of ZeverCom/ZeverCom WiFi shows the number of inverters currently being monitored. Check whether this number is the same as the number of inverters connected to this ZeverCom/ZeverCom WiFi through the RS485 cable.

Method 2: In the home menu of built-in web server in the ZeverCom/ZeverCom WiFi, check whether the number of online inverters is the same as the number of inverters connected to the ZeverCom/ZeverCom WiFi. Refer to section 6.2.

Q2. How can I confirm whether the ZeverCom/ZeverCom WiFi is successfully connected to ZeverCloud?

Check the LCD on the ZeverCom/ZeverCom WiFi. If it shows "Connected ZeverCloud", it means the ZeverCom/ZeverCom WiFi is successfully connected to the ZeverCloud. "Disconnected Zevercloud" means the ZeverCom/ZeverCom WiFi is disconnected from the ZeverCloud.

Q3. Why can't I open the web page of the ZeverCom/ZeverCom WiFi's web server?

Check whether the IP address displayed on the LCD of ZeverCom/ZeverCom WiFi and the IP address of the computer are in the same network segment. If not, please use a computer that is in the same network segment with the ZeverCom/ZeverCom WiFi to login.

10. Technical Parameters

Model	A10078-10	A10078-00
Electrical Data		
Power supply	DC: 7.5V~12V, Max. 0.3A	DC: 7.5V~12V, Max. 0.3A
Max. power consumption	2.5W	1.5W
Communication		
Communicate with the inverter	4-wires RS485	4-wires RS485
Communicate with energy meter	2-wires RS485	2-wires RS485
Communicate with router	Ethernet	Ethernet
Number of directly connected inverters	Max. 5	Max. 5
WiFi communication	2.4GHz 802.11 b/g/n WEP/WPA/WPA2 PSK	--
Interface		
Ethernet	10/100 Mbit/s, RJ45 (for Router)	10/100 Mbit/s, RJ45 (for Router)
RS485	4-wires	4-wires
Meter(RS485)	2-wires	2-wires
Max. communication range		
RS485	1000m	1000m
Ethernet	100m	100m
DRMs	1000m	1000m
Meter	1000m	1000m
Mechanical data		
Dimensions (W x H x D) in mm	138x87.5x31mm	138x87.5x31mm
Weight	260g	230g
Installation	Wall, Indoor	Wall, Indoor
Environmental conditions		
Operation	-10℃ to +60℃	-10℃ to +60℃
Storage and shipment	-30℃ to +80℃	-30℃ to +80℃
Relative air humidity	5% to 95%, non-condensing	5% to 95%, non-condensing
Protection class	IP20	IP20

11. Disposal

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your old equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment.

The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

12. Contact Us

If you have any technical problems concerning our products, please contact SMA service.

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