



User Operating Manual

Model Number: EVB300



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1 Overview

1.1 Brief Introduction

The monitoring device EVB300 is the interaction interface of microinverters, which can effectively communicate with any Envertech microinverter and remote control the Envertech microinverter. Users can have access to data and precise analysis through a simple, flexible and convenient way. You can have access to of each inverter and module in your solar system with our EnverPortal and EnverView app. The user-friendly interface lets you manage your solar system in real time.

1.2 Features

- 3 Years Warranty
- Power Line Communication Simple Installation and Operation
- IP48 Protection Rating (Indoor)
- Real-time Monitoring and remote control through Website & App
- Local data storage

1.3 Key Equipments

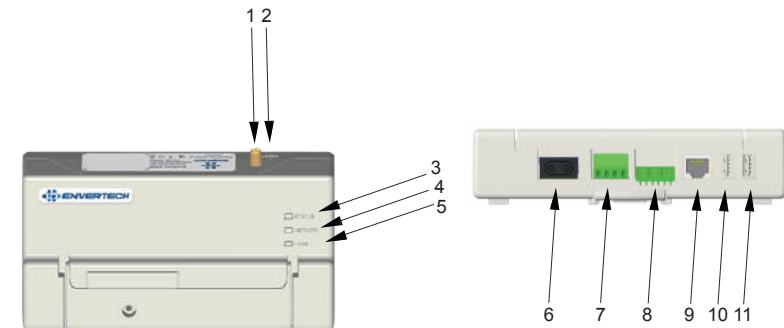
- Microinverter
- Monitoring Device EVB300
- Smart Monitoring Webportal- EnverPortal
- Smart Monitoring Application- EnverView

2 Structure

2.1 Package List

| | Component | Quantity | Description |
|---|------------------------|----------|------------------------------------|
| 1 | EVB300 | 1 | Monitoring device. |
| 2 | Networking Cable | 1 | Connect to the router. |
| 3 | Power Cable | 1 | Provide power for EVB300. |
| 4 | Expansion screws | 2 | For mounting EVB300 on the wall. |
| 5 | Hexagon wrench | 1 | Unscrew the front cover. |
| 6 | Ejection pin | 1 | To reset EVB300. |
| 7 | Antenna protection cap | 1 | To protect antenna hole. |
| 8 | Antenna | 1 | Enhance wireless signal of EVB300. |

2.2 Interface Layout



| No. | Description | Description |
|-----|------------------------------|--|
| 1 | Antenna mounting hole | Mount antenna in the hole. |
| 2 | Reset hole | Reset EVB300 |
| 3 | Mode light | When EVB300 works under different model, corresponding light blinks. |
| 4 | Network light | This light will be on When the EVB300 connects to the sever. |
| 5 | Status light | This light will be on When the EVB300 works well. |
| 6 | Power connection port | The power connection port connects power through the power adapter. |
| 7 | 3-phase electrical interface | To plug in 3-phase electricity. |
| 8 | Current sampling interface | To plug current sampling sensors. |
| 9 | Ethernet port | This port allows the EVB300 to communicate with the Envertech sever. |
| 10 | RS485 port | Virtual communication port, used for communication and control between RS485 equipment and EVB300. |
| 11 | USB port | Plug USB disk to record local data. |



2.3 Technical Parameters

| Model | EVB300 |
|------------------------------|--|
| Features | |
| Communication Method | PLCC (Power Line Carrier Communication) |
| Monitor mode | Real-time data monitored and remote control on app |
| Ethernet Connection | TCP/IP |
| Wireless Communication | WIFI (802.11g/n) |
| Applicable Voltage | Single Phase / Three-Phase |
| Storage (Optional) | USB Local Storage |
| Power Control (Optional) | Automatic Control of Power Output |
| RS485 Port | Virtual communication port, used for communication and control between RS485 equipment and EVB300. |
| Capacity | |
| Number of Devices Connected | Up to 60 Units of PV Modules in total |
| AC Supply/Consumption | |
| AC Supply | 108~264VAC, 47.5~62.0Hz |
| Power Consumption | 3 W |
| Mechanical Data | |
| Dimensions (W*H*D) | 172mm*100mm*45.5mm |
| Weight | 750 g |
| Cooling | Natural Convection- No Fans |
| Ambient Temperature Range | -40°C~+65°C |
| Ingress Protection (IP) | IP40 |
| Interface | |
| Compliance | CE |
| Warranty | 3 Years |

3 Installation

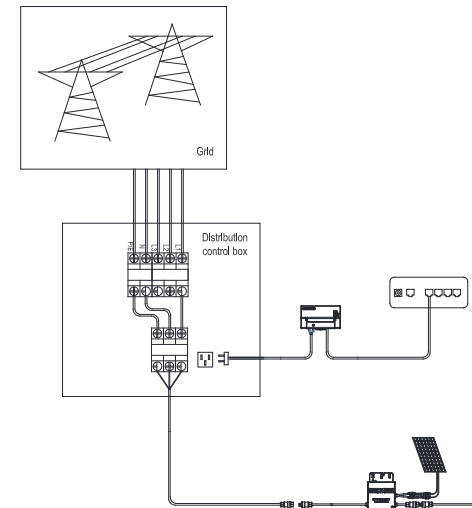
3.1 Preparation

Make sure you have the following components ready before beginning to install the EVB300:

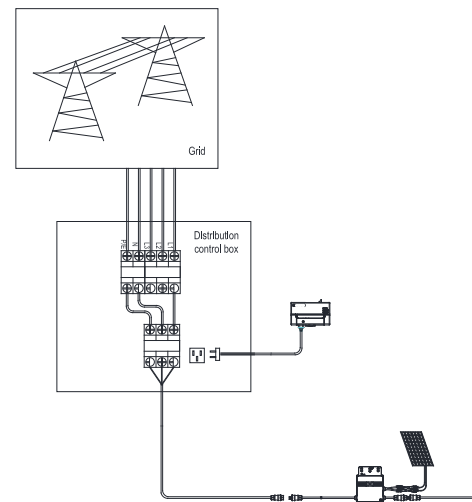
- An AC electrical outlet (connected to microinverter).
- A steady Internet connection (CAT5 Ethernet, or a wireless router).
- A computer/cellphone.

3.2 System Diagram

(1) Ethernet Mode



(2) Wireless (Wi-Fi) Mode



3.3 Installation Steps

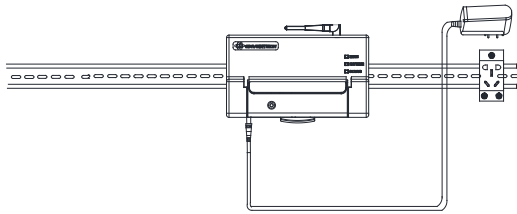
Note: When mounting the EVB300 to a wall, make sure to select a cool, dry indoor location.

Step1. Screw on the antenna.

Step2. Drill two holes on the wall surface (10cm apart), then insert 2 mounting screws.



Step3. Align and slide the EVB300 onto the mounting screws.



Wait 3 minutes and you can start the operation after booting EVB300.

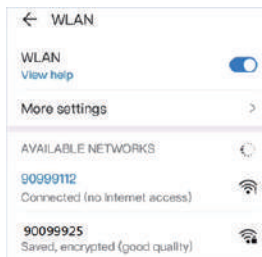
3.4 Internet Connection

Note: Please ensure that both EVB300 and your cellphone are in same

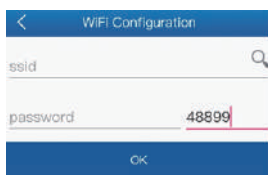
(1) Wireless Mode

A. Cellphone Configuration

a. Connect network whose name is same as your monitor's SN in your cellphone.

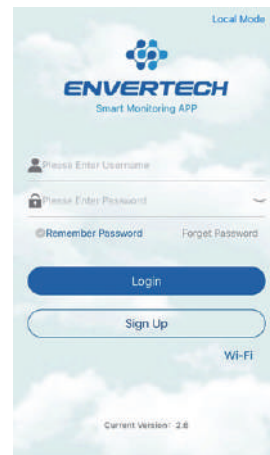


c. Click the magnifying glass icon.



e. Enter the password, finally click the OK button.

b. Open EnverView and click Wi-Fi Setting.

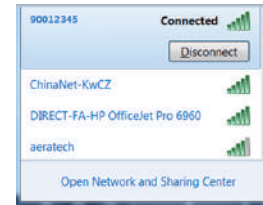


d. Select the WiFi monitor need to connect.

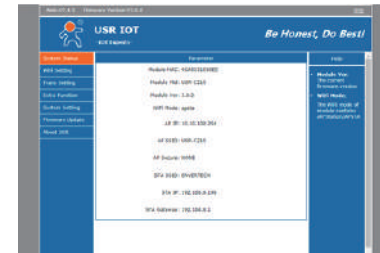


B. Computer Configuration

- Connect the monitor to the power supply.
- Connect network whose name is same as your EVB SN.



c. Use a browser to open the webpage: <http://10.10.100.254/>, and login the account (username: admin and password: admin).



d. Click "Wi-Fi Setting" for relevant configuration:



As shown in the figure above, enter the Wi-Fi name at "1", or click the search button to select the corresponding Wi-Fi name.

e. After the above operation, click save.



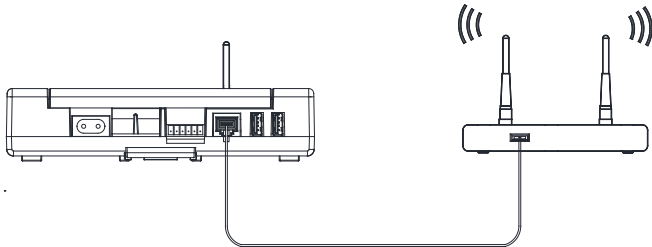
f. Click the "restart" button and wait for 5s. The interface is shown as follows

Note: if more than one monitor needs to connect Wi-Fi, configure one monitor first and change its network name to the monitoring number to avoid network configuration conflicts.

(2) Direct LAN Cable Connection.

A. Make sure the LAN cable is connected to the network port on the bottom of the EVB300.

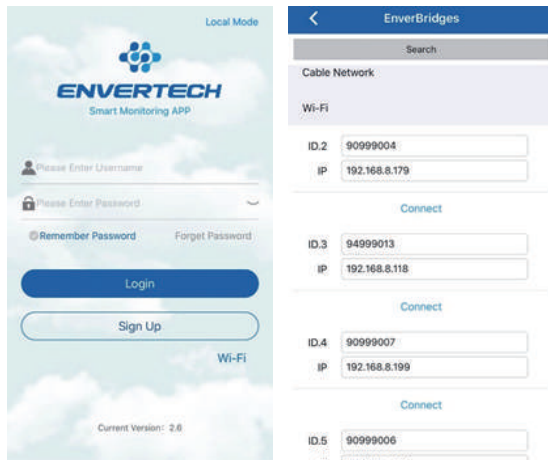
B. Connect the LAN cable to a spare port on the router.



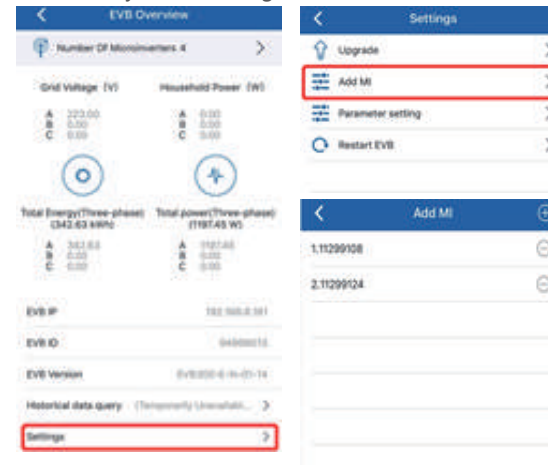
3.5 Add MI:

Note: Please ensure that both EVB300 and your cellphone are in same router network.

Step1. Launch EnverView app, enter Local Mode. Connect your EVB300.



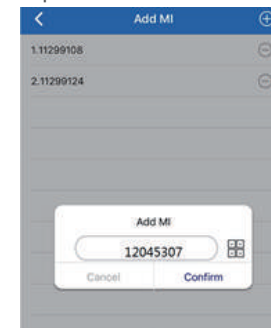
Step2. On EVB OverView page, enter Settings. Click Add MI you could choose enter MI SN manually or click the grid icon to scan the MI SN automatically.



Or you can Scan the bar code.



Step3. Click confirm to finish Adding MIs.

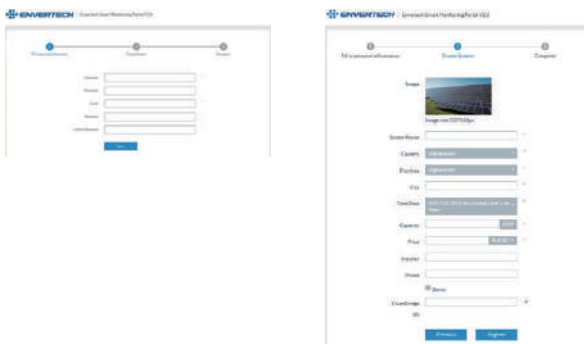


4 Main Functions

By the Power Line Carrier Communication (PLCC) technology, EVB300 collects power generation data from the microinverter, and transmits to the EnverPortal database. Correspondingly, user can also manage his own devices through EnverPortal or EnverView app.

4.1 Register a New Account

EnverPortal, an intelligent monitoring system developed by Envertech, monitors the performance of the whole Envertech microinverter system as well as that of every module in the system. New users need to register an account. Registration address: www.envertecportal.com

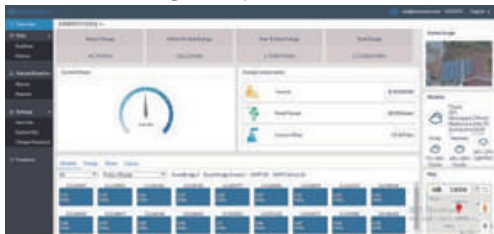


Click "Next", and create a power station.

4.2 EnverPortal Monitoring System

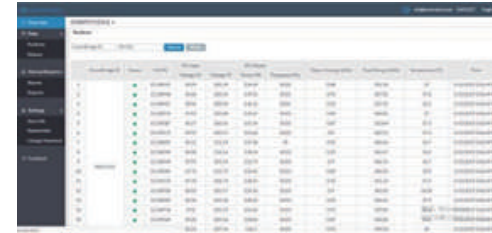
4.2.1 Overview Page

Smart Monitoring Web portal—EnverPortal, for single power station.



4.2.2 Real-time Monitoring

Click "Real-time" button to enter the real time data page.



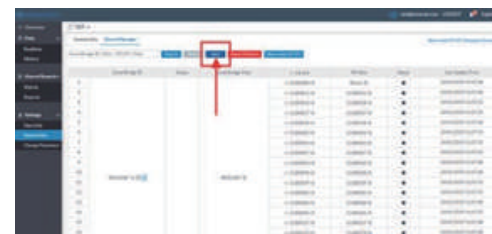
4.2.3 Historical Data

Click "History" to enter the data graphs page.

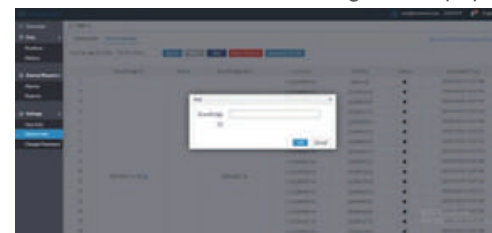


4.2.4 Add Devices

Select "Settings" → "System Info" → "Device Manager", and click "Add" to enter the interface.



Enter the correct SN of EnverBridge in the popup box and click "OK".



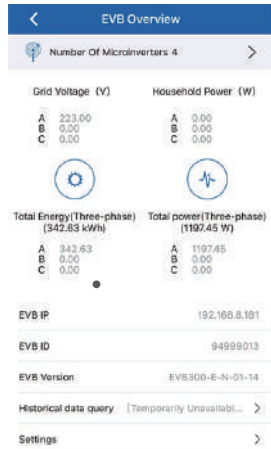
4.3 EnverView App

Monitor Interface and Features.

EVB300 is a smart internet monitor device, all operations can be done on the cellphone app.

4.3.1 Monitor Interface

(1) After logging in the app, you will reach the interface below.



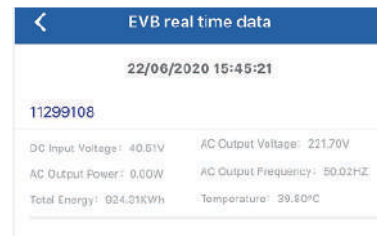
(2) The real-time data of the whole system is displayed in this interface:

- A. Grid voltage of each phrase
- B. Real-time consumption of each phrase
- C. Total energy of all microinverters on each phase
- D. Real-time output power of all micro-inverters on each phase
- E. LAN IP of the device
- F. Serial number of the device
- G. On the top of the interface, the number of the devices online are on display.

(3) Click the ">" icon.

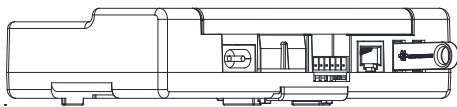


(4) You can see your devices list and EVB real-time data below.

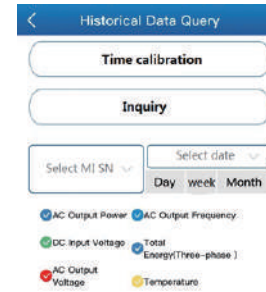


4.3.2 History Data Inquiry

Insert an USB disk into EVB300 before using this function.



Here you can see the power curve of the day, the month, the year and the total corresponding to the date you select. Put your fingertip on the curve and the data at that time point will be displayed.



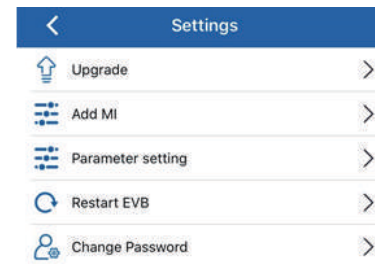
4.3.3 Settings

Under "Settings", you can edit this system and manage its devices.

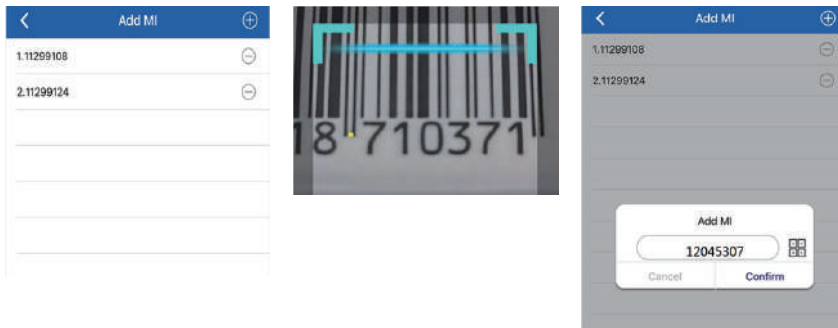


(1) Add MI

Click Add MI on the upper right of the screen to add your microinverter.

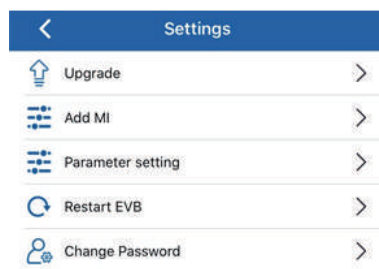


Click “+” to add a new microinverter under the EnverBridge. The SN of the microinverter can be typed into the input box, or you can click the barcode icon and scan the barcode on the microinverter. Click “Confirm” to finish adding the MI. This added MI will be in the microinverter list then.



(2) Restart EVB

Select **Restart EVB** and click Confirm, your device will restart in 3 minutes.

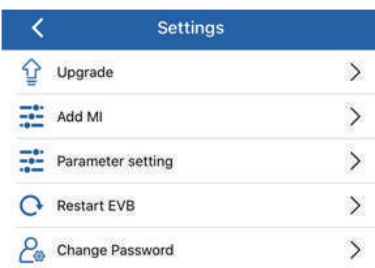


(3) Upgrade

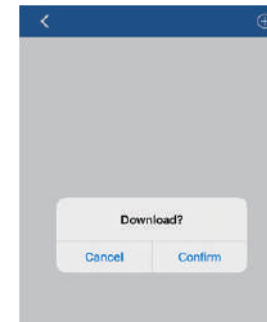
Introduction: When a new version is released, the firmware can be upgrade remotely.

Operation Steps :

A. Select Upgrade.

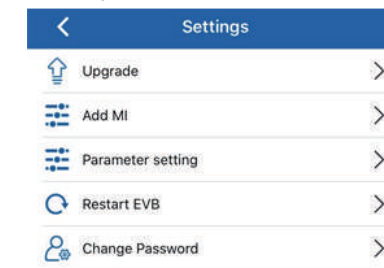


B. Click “+” button on the up right corner, then click download.



(4) Password (Distributor)

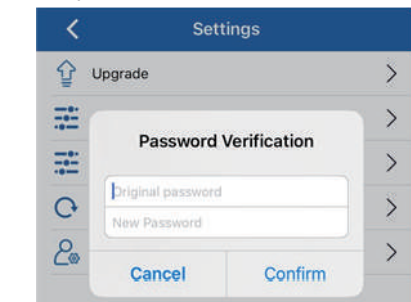
A. Password is required for first login, default password: 123456.



C. After the file downloaded, click upgrade button.



B. Then input the origin password and new password.



(5) Parameter Setting (Distributor)

A. MI Safety Param

Introduction:

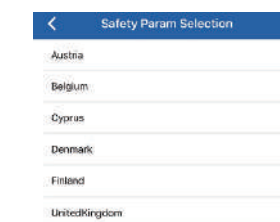
Each microinvert appearance has an initial safety regulation, which is not applicable to all countries, so the safety regulations are set to meet the standards of each country.

Operation Steps:

Step1. Select Safety Param Selection



Step2. here are many countries you can choose and a default SafetyParam for all countries in the end.



B. Standard Setting

a. Reactive Power Control

Introduction:

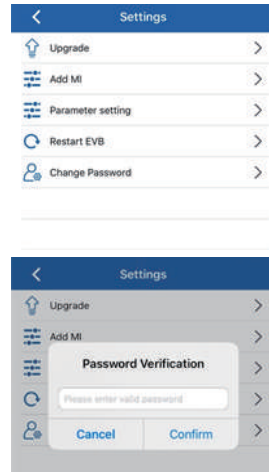
Generally, there are active power and reactive power in a power system, so we could use this function to modify the power factor to improve the efficiency of the whole system. And this function will have no effect on the output energy.

Operation Steps:

Step1. Open Setting



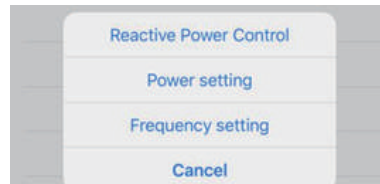
Step2. Select Parameter setting



Step3. Enter Standard Selection



Step4. Select VDE 4105 then enter Reactive Power Control



Step5. Enter Reactive Settings, you will see 3 selections below.



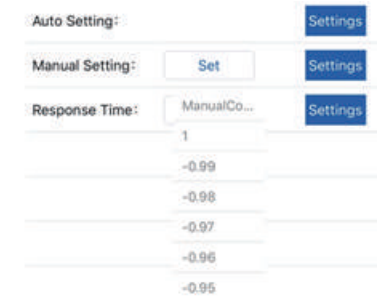
a) Auto Control

With Auto control, the system will adjust the reactive power according to the real-time active power automatically.



b) Manual Control

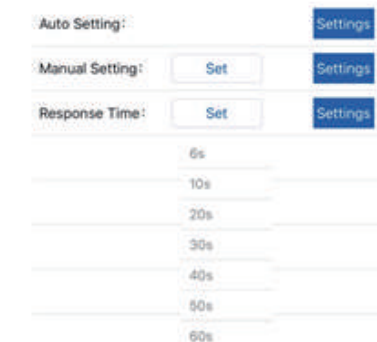
First need to select Manual control to set manual control; Then select power factors that you need; There are leading power factors: +0.99, +0.98, +0.97, +0.96 and +0.95; Lagging power factors: -0.99, -0.98, -0.97, -0.96, and -0.95.



Note: The default setting of power factor is 1.

c) Response Time

There are 7 Time selections: 6s, 10s, 20s, 30s, 40s, 50s, and 60s. At present, only 6s, 10s and 60s can be used; Each selection reveals the time from Reactive power setup to the designated setting.

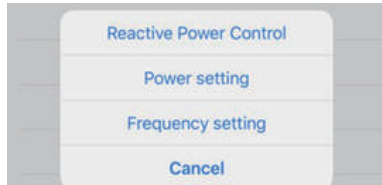


b. Output Power Control

Introduction: If users don't want to transmit all electricity that microinverter system generated to the grid. They could proceed this function to modify the percentage of the electricity we want to transmit to the grid.

Operation Steps :

Select VDE 4105 then enter Power Setting



There are several power percentage options: 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90% and 100%. Choose the proper value you want.

Note: If the real-time output power is 600W and you choose the 20% selection, then after setup the output power would turn to 600W x 20% = 120W.



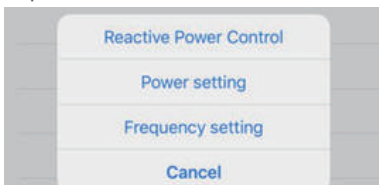
c. Frequency Setting

Introduction:

To reduce the impact of frequency fluctuation from the power system, microinverter will reduce the output power once detecting the over frequency.

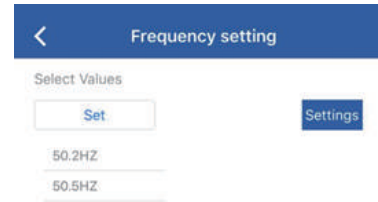
Operation Steps:

Step1. Select VDE 4105 then enter Frequency setting



Step2. Enter Frequency setting

There are frequency settings.



Step3. Select the frequency value, then the Overfrequency function will reduce power when the frequency reach the setting value.

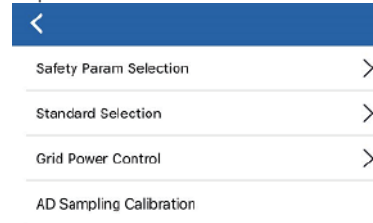
d. Grid Power Control

Introduction:

In order to control the power generation and prevent over generation, the power generation can be controlled by the power control of the grid. There are two control modes here. Manual control can control the power by setting the upper limit of A.B.C three-phase power; automatic control can limit the power uploaded to the grid by setting the upper limit of A.B.C three-phase power.

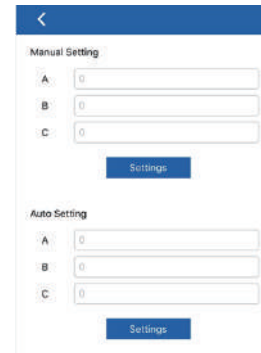
Operation Steps :

Step1. Enter Grid Power Control



Step3. Enter Safety Param Selection—

There are two control modes here. Input the upper power limit you need and click



Here user could set the maximum power for each phase. For example, if the user sets the power value on phase A to 600W on app, and a microinverter with 2 DC inputs is connected to phase A, then each MPPT can send a maximum of $600W/2 = 300W$ power; if there are 2 microinverters with 2 DC inputs, each MPPT on phase A can generate a maximum of $600W/4 = 150W$.

Note: If the user set the Automatic control in the Grid power control panel and haven't switched to the Manual control. Even if a specific power percentage is set in the parameter setting >>>standard selection>>>Power Setting, firstly the microinverter will generate power according to the specific power set, but the maximum microinverter power will be re-adjusted according to the value of Automatic control in about 5 minutes.

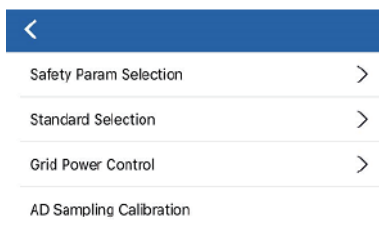
D. AD Sampling Calibration

Introduction:

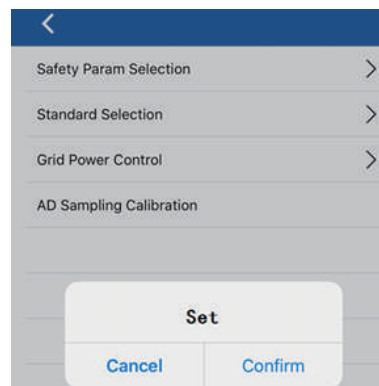
In order to ensure the accuracy of sampling, it is necessary to calibrate the sensor for the first time to ensure the accuracy of zero current voltage, so that the difference between sampling voltage and zero current voltage is accurate, and determine the current size according to the scale table corresponding to the sensor. Generally, it only needs to be calibrated once, and then it doesn't need to be recalibrated.

Operation Step:

Step1. Enter AD Sampling Calibration



Step2. Click confirm button.



4.3.4 Others

To know more about EnverView, please refer to EnverView App User Guide (End User) on our website www.envertec.com




5 Basic operations

5.1 Safety Checks

Safety checks should be performed at least every 12 months by manufacturer's qualified person who has adequate training, knowledge, and practical experience to perform these checks. The data should be recorded in an equipment log. If the device is not functioning properly or fails in any of the tests, the device has to be repaired.

5.2 Maintain Periodically

For more information of safety checks, please see below the three safety instructions of this manual.

| | |
|--|---|
|  <p>NOTE</p> | <p>NOTE The "Note" mark in this manual indicates important product information.</p> |
|  | <p>WARNING Do not attempt to repair the Envertech monitoring device without authorization, because it does not contain parts available for users to repair. If the microinverter fails, please contact Envertech customer service.</p> |
|  | <p>WARNING Please ensure that all power is off and there is no electric current when connecting Envertech monitoring device.</p> |



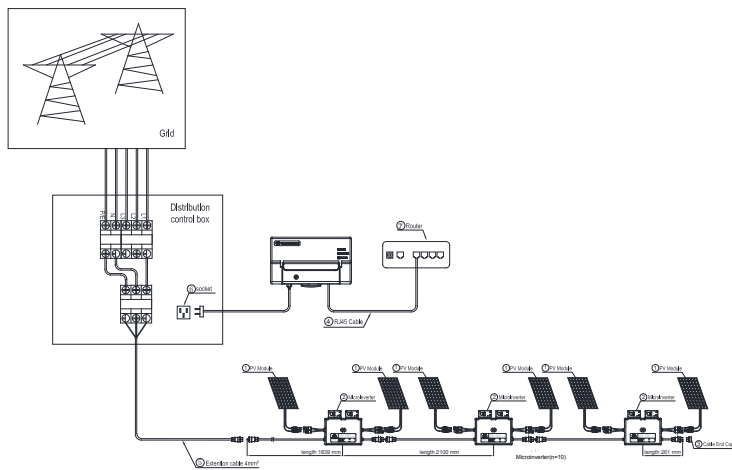
6 About Us

Zhejiang Envertech Corporation Ltd.

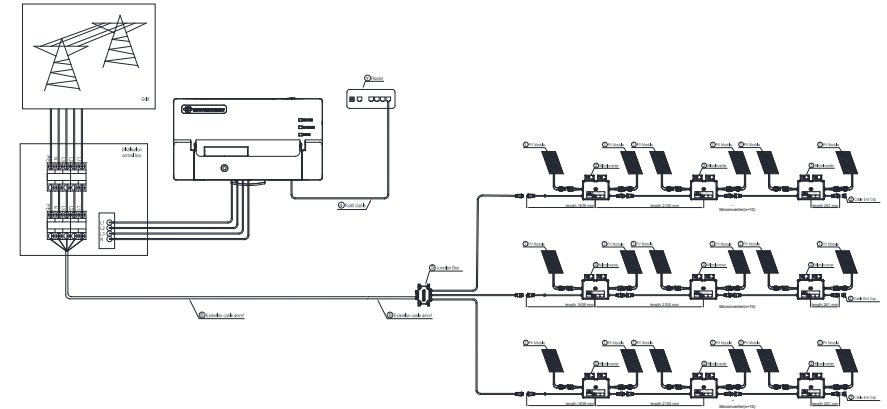
Tel: 0086-0579 89266326
 Add: 24th Floor, Jintong Mansion, Center of Headquarters, YongKang City, Zhejiang Province, China
 Email: info@envertec.com; tech@envertec.com
 Web: www.envertec.com

7 Attachments

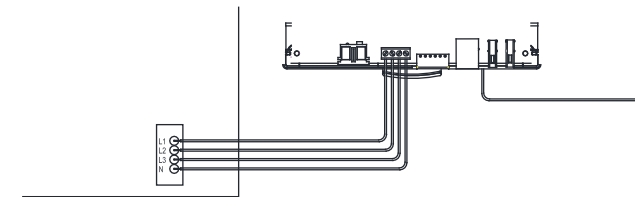
1. Single Phase



2. Three Phase



Unscrew the front cover with the complimentary hex screwdriver, then plug wires on each phase into the corresponding connector of EVB300.



WARNING

Tighten the screws that fix the plastic baffle plate. Make sure not to connect single-phase and three-phase power ports at the same time to prevent electric shock.

