

Model Number: EVB300



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# ENVERTECH

# 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-friend-ly 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.



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 commu-
		nication and control between RS485 equipment
		and EVB300.
11	USB port	Plug USB disk to record local data.

1



2.2 Interface Layout

# 2.3 Technical Parameters

Model	EVB300
Footuure	
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.
- EnverView app(search "EnverView" on Google Play or iOS Appstore)

# 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 as same as your monitor' s SN in your cellphone.

> ← WLAN
> WLAN
> Wiew help
> More settings
> AVAILABLE NETWORKS
> © 00990112 Connected (no internet access)
> © 0099925 Saved, encrypted (good quality)

b. Open EnverView and click Wi-Fi Setting.



c. Click the magnifying glass icon.

ssid	Q
password	48899

e. Enter the password of selected Wi-Fi, finally click the OK button.

d. Select the WiFi monitor need to connect.

TP-LINK	_F576	100
ENVERT	CH_GUEST	78
ENVERT	ECH	78

# **B.** Computer Configuration

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

90012345	Connected	
	Disconnect	
ChinaNet-KwCZ	dir.	
DIRECT-FA-HP OfficeJ	et Pro 6960	
aeratech	-11	

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

25 -	k 101	Be Honest, Do Besti
rent Dens	. fearing	1.00
et second	PARAMETERS ADDRESS	· Burlish You
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	AP Secure woold	
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	914 (P. 192, 120, 0.09)	
	10% Galaxies 192, 104, 8-3	

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

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	Via Parmont ET (20400 3	erter the D
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	(Sere)	-

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.

Local Mode	C EnverBridges
	Search
ENVERTECH Smart Monitoring APP	Cable Network Wi-Fi
	ID.2 90999004
A Plazas Enter Username	IP 192.168.8.179
🔒 Prase Enter Passaord 🛛 🗠	Connect
Remember Password Forget Password	ID.3 94999013
Login	IP 192.168.8.118
	Connect
Sign Up	ID.4 90999007
Wi-Fi	IP 192.168.8.199
	Connect
Current Version: 2.0	ID.5 90999006

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.

P Number Of Monair	Network N	😧 Uograde 🧮 Add Mi	>
Grid Voltage (V)	Heusehald Power (W)	🗮 Add Mi	100
			>
A 222.00	A 0.00	Parameter setting	>
č	e	O Restart EVB	>
hotal Energy(Three phase) CH2.43 AVM2	Total power(Three-phase) (1187.45 W)	K Ado	am 🕀
1 241.84 241	a martak	1,11299108	Θ
	C 100	2.11299124	Θ
DBP	10.0 (0.0.0.101)		
EVB ID	Gildenets.		
EVB Version	0/02014 01-01-14		
Hotorical data Garry - (1	Content ( Installe)		
Settings	2		

Or you can Scan the bar code.



Step3. Click confirm to finish Adding MIs.

	Add MI	
1.112991	08	
2.11299	24	
ľ	Add MI	
ľ	Add Mi (12045307	



# 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.

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-											
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1.00		1.4	parties.			1000			-	100.000	Coldstand States
						100	-		-		And in case of

# 4.2.3 Historical Data





### 4.2.4 Add Devices

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

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27884.4							
- march	Section 1						And the local division of the local division
	-	-		-			
	inter.	and the second	and design in case	1.0444	-	1.00	in the local division of the local divisiono
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Enter the correct SN of EnverBridge in the popup box and click "OK" .

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# 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.



(3) Click the ">" icon.

Number Of Microinverters 2

>

(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 microinverters 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.

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

<	EVB real time data		
	22/06/2	020 15:45:21	
11299108			
DC Input Voltage	: 40.51V	AC Cutput Vellage: 221,70V	
DC Input Voltage AC Output Power	: 40.51V : 0.00W	AC Output Voltage: 221.70V AC Output Frequency: 50.02HZ	

### 4.3.2 History Data Inquiry

Please refer to Local Mode User Guide on www.envertec.com for the details.

# 4.3.3 Settings

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

K EV	'B Overview
🖗 Number Of Mi	croinverters 4
Grid Voltage (V)	Household Power (W)
A 223.00 B 0.00 C 0.00	A 0.00 B 0.00 C 0.00
$\bigcirc$	1
otal Energy(Three-ph (342.63 kWh)	ase) Total power(Three-phase (1197.45 W)
A 342.63 B 0.00 C 0.00	A 1192,45 B 0.00 C 0.00
evb ip	192,168,8,181
eve id	94999013
EVB Version	EV8300-E-N-01-14
Historical data query	(Temporarily Unavailabl

# (1) Add MI

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

<	Settings	
企	Upgrade	>
긆	Add MI	>
æ	Parameter setting	>
0	Restart EVB	>
20	Change Password	>



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.

<	Add MI	Ð		<	Add MI	9
1.11299108		Θ		1,11299108		
2.11299124		Θ	18 7103	2.11299124		
			and the second second		Add MI	
				_ (	12045307	
					Cancel Cont	Seen .

# (2) Restart EVB

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

<	Settings	
슣	Upgrade	>
	Add MI	>
	Parameter setting	>
0	Restart EVB	>
20	Change Password	>

# (3) Upgrade

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

# A. Select Upgrade.

<	Settings	
Ŷ	Upgrade	>
콾	Add MI	>
콾	Parameter setting	>
0	Restart EVB	>
20	Change Password	>

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

Down	load?	1
Down	NUMBER OF STREET	

C. After the file downloaded, click upgrade button.

<	۲
EVB300.bin	upgrade delete

### (4) Password (Distributor)

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

<	Settings	
슣	Upgrade	>
	Add MI	>
	Parameter setting	>
0	Restart EVB	>
2	Change Password	>

B. Then input the origin password and new password.

<	Settings	
Ŷ	Upgrade	
	Password	Verification
0	Driginal password	
C+	New Password	
2	Cancel	Confirm

# (5) Parameter Setting (Distributor) A. MI Safety Param

Introduction:

Each micronvert 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

<	
Safety Param Selection	>
Standard Selection	>
Grid Power Control	>
AD Sampling Calibration	

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

<	Safety Param Selection
Austria	
Belgiu	m
Cypra	5
Denma	ark
Finland	3
United	Kingdom





# **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

<	EVBO	verview		
P Num	ber Of Microinv	vertors 4		>
Grid Volt	age (V)	Househ	old Power (	W)
A 22 B 00 C 00	3.00 10 10	A B C	0.00 0.00 0.00	
			(4)	
Total Energy (342.6	(Three-phase) 3 kWh)	Total por	ver(Three-p 1197.45 W)	hase)
A 34 B 00 C 0.0	2.63 10 10	A B C	119745 0.00 0.00	
EVB IP			192,168,8	3813
EVB ID			94999	013
EVB Version	1	EVE	300+E+N+0	-14
Historical d	ata query (1)	mporarly	Unavailabi	>
Cattings				N

Step3. Enter Standard Selection

Safety Param Selection

Standard Selection

Grid Power Control

AD Sampling Calibration

<

# Step2. Select Parameter setting

¥	Upgrade	>
Ż	Add MI	>
÷	Parameter setting	>
0	Restart EVB	>
2	Change Password	>
	Cattlerer	

😯 U	pgrade		>
- A	IM bi		>
×	Password Verification		>
0	Please birthir sold	Servered [	>
2	Cancel	Confirm	>

# Step4. Select VDE 4105 then enter Reactive Power Control

Reactive Power Control	
Power setting	
Frequency setting	
 Cancel	

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

< Reactiv	Reactive Power Control			
Auto Setting:		Settings		
Manual Setting	Set	Settings		
Response Time:	Set	Settings		

# a) Auto Control

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

<	
Safety Param Selection	>
Standard Selection	>
Grid Power Control	>
AD Sampling Calibration	

# 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.

Auto Setting:		Settings
Manual Setting:	Set	Settings
Response Time:	ManualCo	Settings
	1	
	-0.99	
	-0.98	
	-0.97	
	-0.96	
	-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.

Auto Setting:		Settings
Manual Setting:	Set	Settings
Response Time:	Set	Settings
	65	
	10s	
	205	
	306	
	40s	
	50s	
	60s	

>

>

>



# **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  $600W \times 20\% = 120W$ .

Settings

# 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







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# 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

<	
Safety Param Selection	>
Standard Selection	>
Grid Power Control	>
AD Sampling Calibration	

Step3. Enter Safety Param Selection

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

Aanual	Setting	
A	0	
B		
c	0 Sattings	
C Wto Si	Sottings	
C luto Si A	Settings	
C Watto Si A B	Sottings	



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.
JICPZ.	CIICK	COMMIT	button.

<	
Safety Param Selection	>
Standard Selection	>
Grid Power Control	>
AD Sampling Calibration	



# 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.

NOTE	<b>NOTE</b> The "Note" mark in this manual indicates important product information.	
	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 microin verter fails, please contact Envertech customer service.	
	<b>WARNING</b> Please ensure that all power is off and there is no electric current when connecting Envertech monitoring device.	

# 6 About Us

# Zhejiang Envertech Corporation Ltd.

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# 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.



# 7 Attachments

# 1. Single Phase



