



Turbo-E MIC Microinverter Controller Instructions

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Turbo-E

Turbo-E MIC Microinverter Controller



- <https://www.turboe.com/>

Read this manual before installing the controller and follow the instructions carefully during the installation process.

INTRODUCTION

The MIC communications gateway collects and delivers modular performance data in real time, for comprehensive monitoring and management of your solar system, optimizing the performance of your solar system.

With built-in programmable DI, the MIC is able to control the shutdown of the connected microinverter immediately when the DI status is changed.

FEATURES

User-friendly

- LCD display and buttons, easy operation.
- Compact design and light in weight.

Capable

Built-in Zigbee, PLC and WIFI modular. Compatible with single phase and three phase applications. Enables remotely monitoring and management.

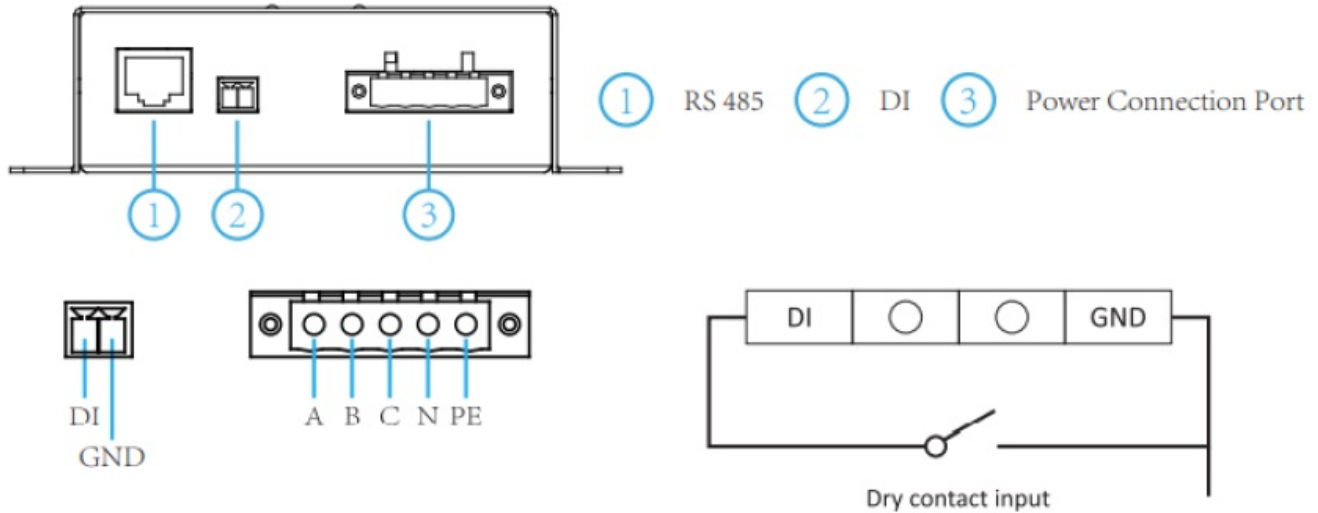
Safe

Support quick shutdown remotely for inverter. Robust design, 3 years warranty.

GENERAL DESCRIPTION OF THE EQUIPMENT

Interface description

All the MIC interfaces as below, from left to right, are Network port, DI and Power Connection Port.



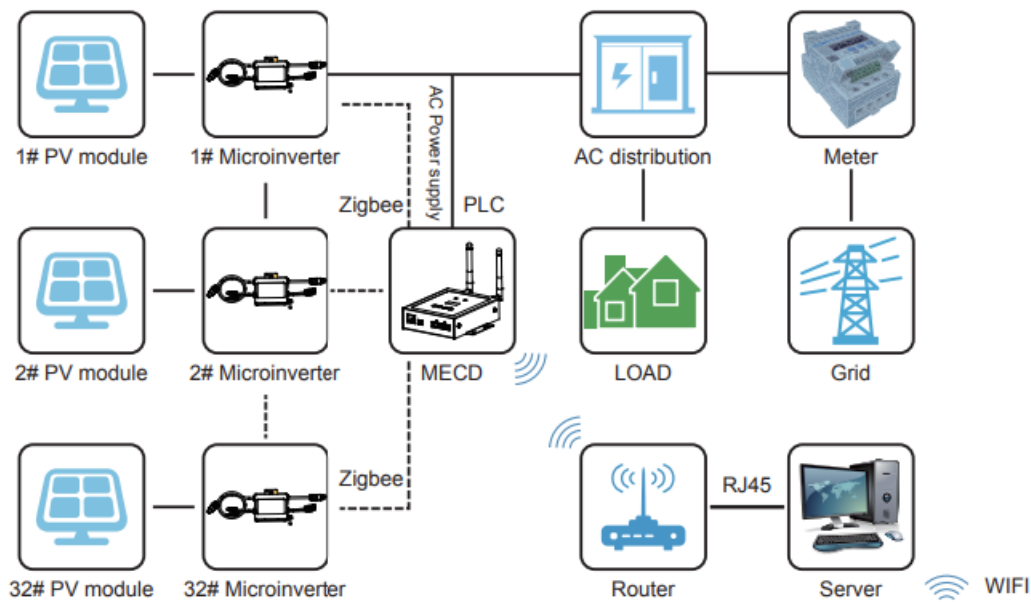
RS485: This port is for communication with the meter.

DI: Digital input. When the DI status changes from 1 to 0, the MIC will send command to control the microinverter shutdown immediately via Zigbee or PLC.

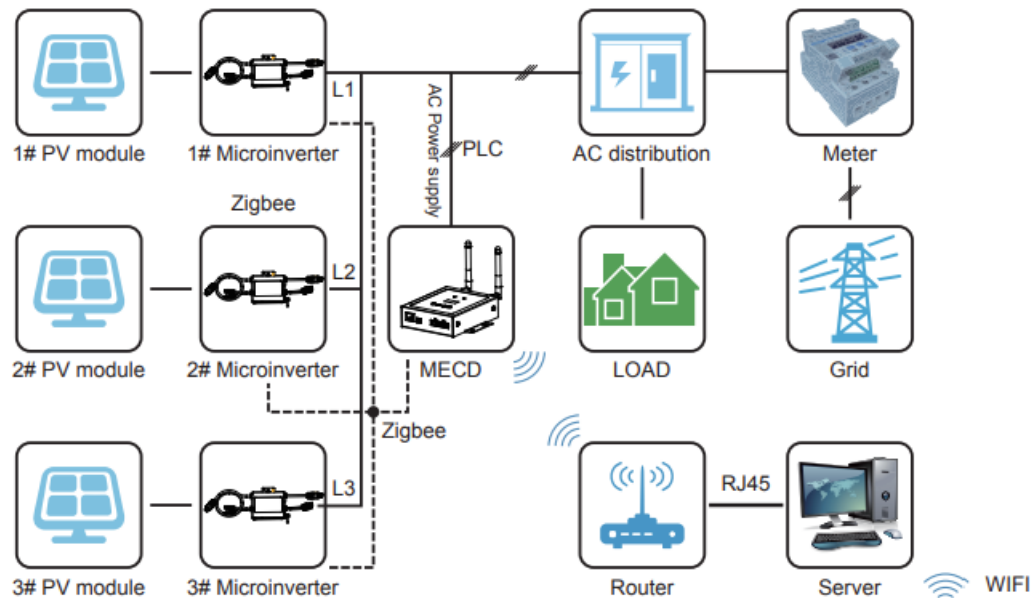
Power connection port: L1, L2, L3, N, PE, connects power through the power line. Power cable included in the MIC package.

Application Diagram

Single Phase System



Three Phase System



INSTALLATION

Preparation

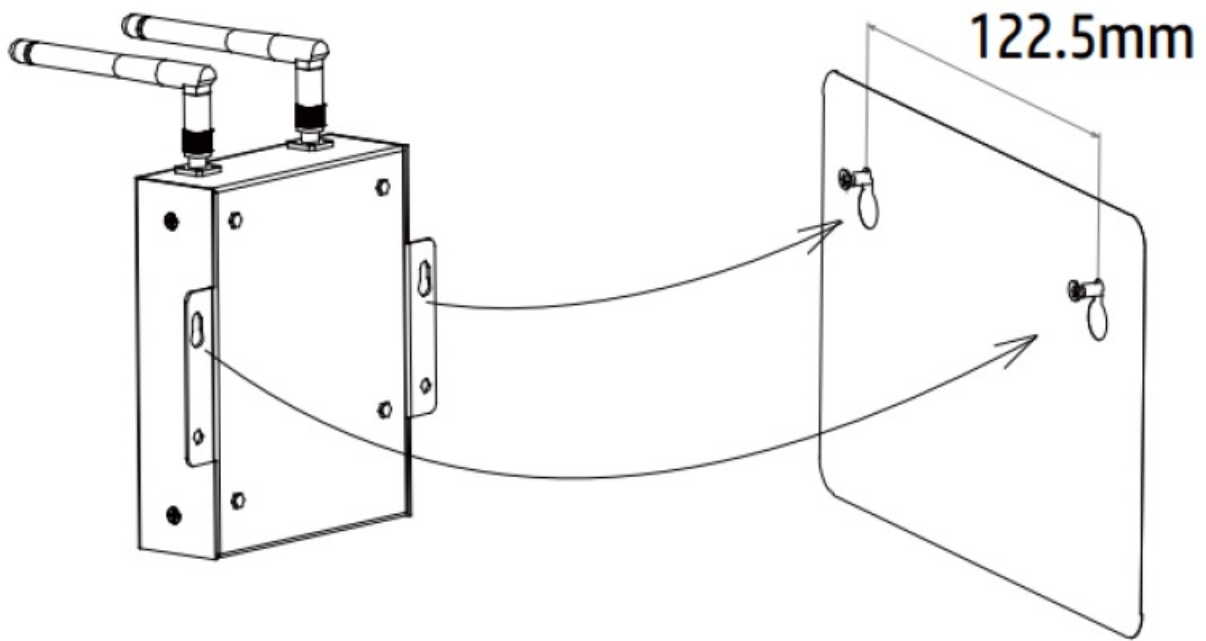
Make sure you have the following things taken care of before the installation:

- A dedicated standard AC electrical outlet (located electrically as close to the array as is possible).
- A broadband Internet connection is available for your use.
- Wireless router is available for you use a laptop.
- A web browser (to view the EMA online monitoring application).
- A pre-programmed MIC.

Selecting an Installation Location for the MIC

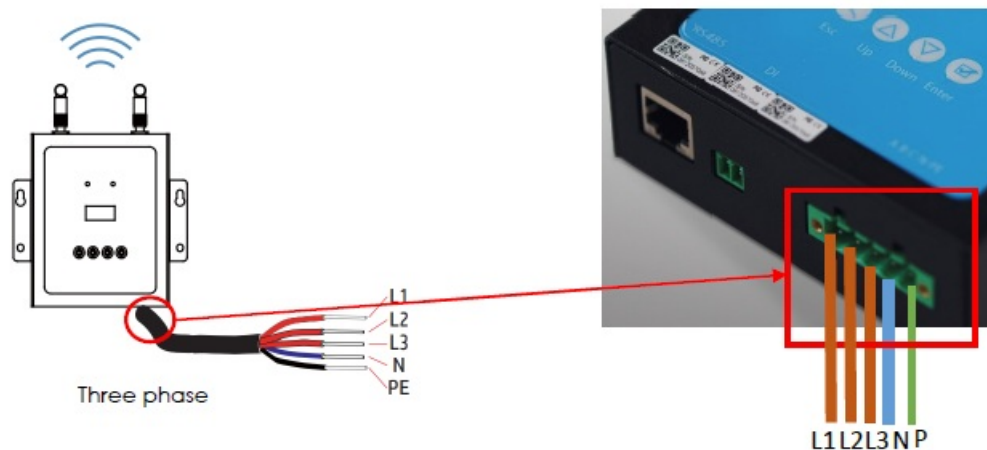
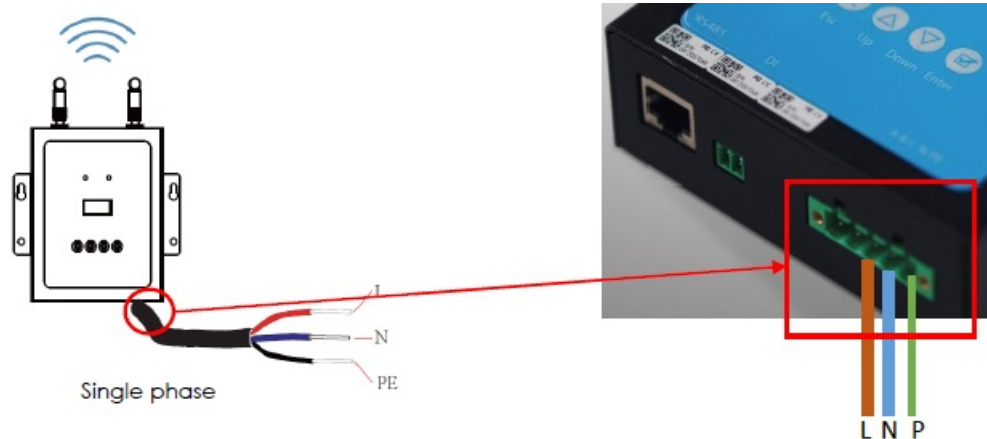
- A location that is electrically as close to the array as is possible -preferably a dedicated outlet installed directly to the solar system sub-panel.

- The MIC is not rated for outdoor use, so if installing outdoors near a junction box or breaker panel, making sure that you enclose it in an appropriate weatherproof NEMA electrical box.
- Using wall-mounted. When mounting the MIC on the wall, make sure to select a cool, dry, indoor location.
- Depending on the wall surface you are mounting the MIC, use either two #4 drywall screws or wall anchors, installed 122.5 mm apart. The drywall screws and wall anchors are NOT included in the MIC kit.
- Align and slide the MIC onto the mounting screws.



Connections

1. Connect the power cable to the power connection port on the bottom of the MIC.



2. Connect the meter to the MIC via RJ45 connector



OPERATION

Buttons

Once power is supplied to the MIC, it automatically steps into the main screens on its LCD display, which include detailed information below.



| Buttons | Name | Functions |
|----------------|--------------------|---|
| Esc | Return button | Allows you to return to the last page or end an operation. |
| Up | Cursor Up button | Allows you to go to the upper-level menu or set parameters. |
| Down | Cursor Down button | Allows you to go to the lower-level menu or set parameters. |
| Enter | Confirm button | Allows you to go to the menu or confirm the value. |

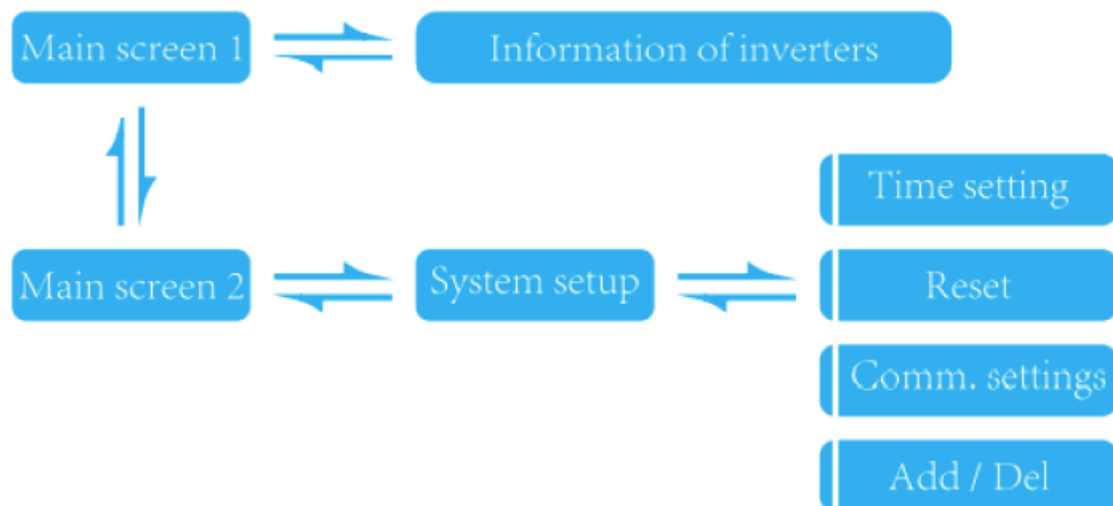
LED indications

There are two indicators in the MIC. The following description will tell how it works.

| Indicator | Status | Meaning |
|--------------------------------|---------------|--|
| Normal indicator (left LED) | Steady blue | All inverters connected works normal |
| | Off | All inverters connected has alarms |
| | Blinking blue | Some inverters connected has alarms |
| Comm indicator (right LED) | Steady blue | All inverters connected communication successfully |
| | Off | All inverters connected communication failed |
| | Blinking | Some inverters communication failed |

LCD display

- **Flow chart:**



Inverters information

MIC main interface 1

```

Power:      0 W
E-Today:    0 W
E-Total:    572 Wh
  
```

MIC main interface 2

```

Ver: 0100
INV_Num: 5
Comm.Mode: PLC
ID:      0
  
```

Inverters information

```

1 / 5: 0000000000
Power:  0 W
Connect failed
  
```

1. Output power;
2. Today's total power generation;
3. Total power generation of microinverters connected.
 1. version information.
 2. Number of connected inverters.
 3. Communication method.
 4. MECD Serial number.

1. Inverter ID currently connected;
2. Power generation;
3. Connection Status.

System setup

System setup

```

TimeSet    <--
Reset
CommSet
ADD/DEL
  
```

Time settings

```

TimeSet
2020.04.26
21:00:43
OK      Cancel
  
```

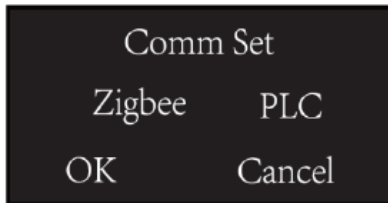
Reset

```

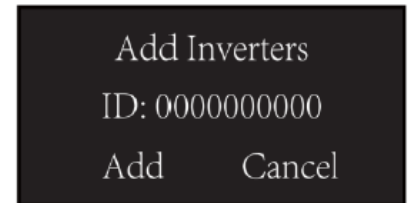
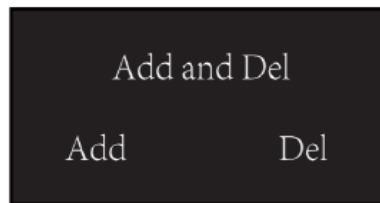
Energy Reset
MIC  Res INV_ Res
OK      Cancel
  
```


1. Time setting;
2. Reset;
3. Communication settings;
4. Add or Delete.
 1. MECD reset: reset to factory setting.
 2. Inverter reset: clear all inverters information of MECD.

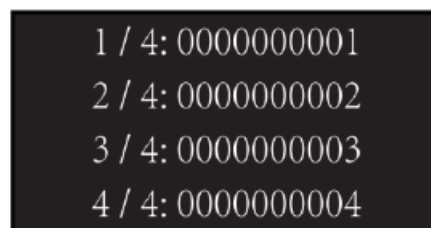
Communication settings



Add or delete inverter ID on MIC



1. Communication mode selection, Zigbee or PLC.
2. Introduce the microinverter serial number and add it.



MONITORING

The MIC has built-in WIFI modular which is able to connect to router directly. Web monitoring address: <https://pro.solarmanpv.com>; (for Solarman distributor account) <https://home.solarmanpv.com> (for Solarman end user account).



Set WiFi connection on PC

With a device that has Wi-Fi (PC, Tablet, Smartphone...) the connection with the MIC's Wi-Fi is established:

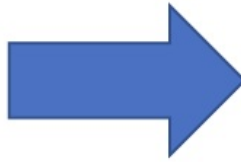
- Open the wireless network connection.
- Click on See available wireless networks.
- Select the corresponding one with the device with which you want connect.
- It is necessary to connect the logger to a 2.4 GHz Wi-Fi network

AP_1704942764
Segura

Escribir la clave de seguridad de red

••••••••

Siguiente Cancelar



AP_1704942764
Conectando

• • • • •

Comprobando y conectando

Cancelar

- The network name consists of AP and the serial number of the product.
- Input the password shown on the logger and click Connect.
- The default password for MICs is 12345678.

Connection with the logger

Once connected to WiFi:

- Open a web browser.
- Type the following: 10.10.100.254
- Fill in username and password, both of which are admin as default.
- In the Status page, you can view general information of the logger.

10.10.100.254/index_cn.html

No es seguro | 10.10.100.254/index_cn.html

中文 | English

Iniciar sesión

http://10.10.100.254 necesita un nombre de usuario y una contraseña. Tu conexión con este sitio web no es privada

Nombre de usuario

admin

Contraseña

•••••

Cancelar Iniciar sesión

Web Ver.1.0.24

Status

Wizard
Quick Set
Advanced
Upgrade
Restart
Reset

- Inverter information

| | |
|--------------------------|-------------|
| Inverter serial number | 2006284117 |
| Firmware version (main) | --- |
| Firmware version (slave) | --- |
| Inverter model | --- |
| Rated power | --- W |
| Current power | --- W |
| Yield today | 8552.10 kWh |
| Total yield | 19.7 kWh |
| Alerts | --- |
| Last updated | 1 |

+ Device information

+ Remote server information

Help

The device can be used as a wireless access point (AP mode) to facilitate users to configure the device, or it can also be used as a wireless information terminal (STA mode) to connect the remote server via wireless router.

Status of remote server
◆ Not connected: Connection to server failed last time. If under such status, please check the issues as follows:
(1) check the device information to see whether IP address is obtained or not;
(2) check if the router is connected to internet or

- Follow the setup wizard to start quick setting, click Wizard to start. Select the wireless network you need to connect, then click Next.

| Status | | Help | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|------|---------|------|---------|-------------------------------------|-------------------|-----|----|--|-------------------|-----|---|------------------------------------|------------------|----|---|------------------------------------|-------------------|----|----|-------------------------------|-------------------|----|---|-------------------------------|-------------------|----|---|------------------------------------|-------------------|----|---|---|--|--|--|-------------------------------|-------------------|----|---|-----------------------------|------------------|---|----|--|
| Wizard | <p>Please select your current wireless network:</p> <p>Site Survey</p> <table border="1"> <thead> <tr> <th>SSID</th> <th>BSSID</th> <th>RSSI</th> <th>Channel</th> </tr> </thead> <tbody> <tr> <td><input type="radio"/> AP_1704942764</td> <td>9C:D8:63:71:9C:50</td> <td>100</td> <td>12</td> </tr> <tr> <td><input type="radio"/> Solar-WiFi19B00055</td> <td>98:D8:63:8B:55:CC</td> <td>100</td> <td>1</td> </tr> <tr> <td><input type="radio"/> vodafone7A38</td> <td>74:DA:88:B:1F:5E</td> <td>45</td> <td>1</td> </tr> <tr> <td><input type="radio"/> TP-LINK_8D10</td> <td>7C:8B:CA:B9:8D:10</td> <td>37</td> <td>11</td> </tr> <tr> <td><input type="radio"/> RMNTRNS</td> <td>90:3A:72:32:C5:58</td> <td>30</td> <td>8</td> </tr> <tr> <td><input type="radio"/> RMNTRNS</td> <td>34:FA:9F:2C:CA:E8</td> <td>25</td> <td>3</td> </tr> <tr> <td><input type="radio"/> DIRECT-35-HP</td> <td>E6:E7:49:26:F6:35</td> <td>23</td> <td>6</td> </tr> <tr> <td><input type="radio"/> PageWide MFP P57750</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="radio"/> TURBO-E</td> <td>F0:E4:A2:3E:53:9A</td> <td>16</td> <td>1</td> </tr> <tr> <td><input type="radio"/> TURBO</td> <td>D8:47:32:3D:83:6</td> <td>6</td> <td>11</td> </tr> </tbody> </table> <p>★Note: When RSSI of the selected WiFi network is lower than 15%, the connection may be unstable, please select other available network or shorten the distance between the device and router.</p> <p>Refresh</p> <p>Add wireless network manually:</p> <p>Network name (SSID) (Note: case sensitive) <input type="text"/></p> <p>Encryption method Disable ▾</p> <p>Next</p> <p>1 2 3 4</p> | SSID | BSSID | RSSI | Channel | <input type="radio"/> AP_1704942764 | 9C:D8:63:71:9C:50 | 100 | 12 | <input type="radio"/> Solar-WiFi19B00055 | 98:D8:63:8B:55:CC | 100 | 1 | <input type="radio"/> vodafone7A38 | 74:DA:88:B:1F:5E | 45 | 1 | <input type="radio"/> TP-LINK_8D10 | 7C:8B:CA:B9:8D:10 | 37 | 11 | <input type="radio"/> RMNTRNS | 90:3A:72:32:C5:58 | 30 | 8 | <input type="radio"/> RMNTRNS | 34:FA:9F:2C:CA:E8 | 25 | 3 | <input type="radio"/> DIRECT-35-HP | E6:E7:49:26:F6:35 | 23 | 6 | <input type="radio"/> PageWide MFP P57750 | | | | <input type="radio"/> TURBO-E | F0:E4:A2:3E:53:9A | 16 | 1 | <input type="radio"/> TURBO | D8:47:32:3D:83:6 | 6 | 11 | <p>Help</p> <p>The setup wizard will assist you to complete the device setting within one minute.</p> |
| SSID | BSSID | RSSI | Channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> AP_1704942764 | 9C:D8:63:71:9C:50 | 100 | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> Solar-WiFi19B00055 | 98:D8:63:8B:55:CC | 100 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> vodafone7A38 | 74:DA:88:B:1F:5E | 45 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> TP-LINK_8D10 | 7C:8B:CA:B9:8D:10 | 37 | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> RMNTRNS | 90:3A:72:32:C5:58 | 30 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> RMNTRNS | 34:FA:9F:2C:CA:E8 | 25 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> DIRECT-35-HP | E6:E7:49:26:F6:35 | 23 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> PageWide MFP P57750 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> TURBO-E | F0:E4:A2:3E:53:9A | 16 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> TURBO | D8:47:32:3D:83:6 | 6 | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

- Enter the password for the selected network, select Enable to obtain an IP address automatically, then click Next.

| Status | | Help |
|--------|--|--|
| Wizard | <p>Please fill in the following information:</p> <p>Password (8-64 bytes) (Note: case sensitive) <input type="password"/></p> <p><input type="checkbox"/> Show Password</p> <p>Obtain an IP address automatically Enable ▾</p> <p>IP address <input type="text"/></p> <p>Subnet mask <input type="text"/></p> <p>Gateway address <input type="text"/></p> <p>DNS server address <input type="text"/></p> <p>Back Next</p> <p>1 2 3 4</p> | <p>Help</p> <p>Most systems support the function of DHCP to obtain IP address automatically. Please select disable and add it manually if your router does not support such function.</p> |

- Enhance security settings of the WiFi logger by selecting any options as listed, then click Next.

| | | |
|---|--|--|
| <div>Status</div> <div>Wizard</div> <div>Quick Set</div> <div>Advanced</div> <div>Upgrade</div> <div>Restart</div> <div>Reset</div> | <h3>Enhance Security</h3> <p>You can enhance your system security by choosing the following methods</p> <div> <div>Hide AP</div> <div><input checked="" type="checkbox"/></div> </div> <div> <div>Change the encryption mode for AP</div> <div><input checked="" type="checkbox"/></div> </div> <div> <div>Encryption mode</div> <div>WPA2-PSK</div> </div> <div> <div>Change the user name and password for Web server</div> <div><input checked="" type="checkbox"/></div> </div> <div> <div>Current user name</div> <div>admin</div> </div> <div> <div>New user name (Max.15 characters)</div> <div></div> </div> <div> <div>Re-enter user name</div> <div></div> </div> <div> <div>New password (Max.15 characters)</div> <div></div> </div> <div> <div>Re-enter password</div> <div></div> </div> <div> <div>Back</div> <div>Next</div> </div> <div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> </div> | <div>Help</div> <div> <p>Change the encryption mode for AP</p> <p>If you set password for the AP network, you will need to enter the password to connect to AP.</p> </div> <div> <p>Change the user name and password for Web server</p> <p>If you change the username and password for the web server, you will need to enter the new username and password to get access to the setting page.</p> </div> |
|---|--|--|

- If setting is successful, the following page will display. Click OK to restart.

| | | |
|---|--|---|
| <div>Status</div> <div>Wizard</div> <div>Quick Set</div> <div>Advanced</div> <div>Upgrade</div> <div>Restart</div> <div>Reset</div> | <h3>Setting complete!</h3> <p>Click OK, the settings will take effect and the system will restart immediately.</p> <p>If you leave this interface without clicking OK, the settings will be ineffective.</p> <div> <div>Back</div> <div>OK</div> </div> <div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> </div> | <div>Help</div> <div> <p>After clicking OK, the system will restart immediately.</p> </div> |
|---|--|---|

- If restart is successful, the following page will display. If this page does not display automatically, please refresh your browser.

| | | |
|--|---|---|
| <div>Status</div> <div>Wizard</div> <div>Quick Set</div> <div>Advanced</div> <div>Upgrade</div> <div>Restart</div> <div>Reset</div> | <div>Setting complete! Please close this page manually!</div> <div> <p>Please login our management portal to monitor and manage your PV system.(Please register an account if you do not have one.)</p> <p>To re-login the configuration interface, please make sure that your computer or smart phone and our device are in the same network segment, and enter the new IP address of the device to access the interface.</p> </div> | <div>Help</div> <div> <p>★Note: The IP address of the device may have changed, please refer to User Manual to check the procedures to obtain the new IP address.</p> </div> |
|--|---|---|


- Re- log in this setting page to the Status page after the Web server restart, and check the network connection status of the logger.

We recommend not to change the password of the access portal or the password of the inverter's Wi-Fi through the portal 10.10.100.254. If you forget the password, you will not be able to access the portal again to configure the WiFi.

DATASHEET

| Model | MIC |
|------------------------------------|--|
| Communication | |
| Communication method | Zigbee, PLC |
| Max. number of inverters connected | 5、 10、 20、 32 (Max.) |
| Communication to router | WIFI |
| WIFI wireless security | WEP, WPA2-PSK |
| RS485 | Reserved |
| Max.distance(free space) | PLC 300m; Zigbee 100m(Max. straight-line distance) |
| Power Supply | |
| AC Power Supply | 100 to 240V AC, 50/60Hz |
| Power consumption | 5W typical, 10W Maximum |
| Mechanical Data | |
| Dimensions(W×H×D) | 133.6×132×35.5 mm |
| Weight | 0.3KG |
| Operation temperature range | -20~+50℃ |
| Mounting method | Wall-mounted |
| Display | OLED and LED indicators |
| Features | |
| Grid type | Single phase / three phase |
| Digital Input | Control device connection |
| Others | |
| Compliance | IEC60950, IEC61000-6-2, FCC Part15 Class B / Class C |
| Warranty | 3 years |

Documents / Resources

| | |
|---|---|
|  <p>TURBO ENERGY SOLAR INVERTERS</p> <p>Instruction manual</p> <p>Microinverter Controller (MIC)</p> | <p>Turbo-E MIC Microinverter Controller [pdf] Instructions</p> <p>MIC Microinverter Controller, MIC, Microinverter Controller, Controller</p> |
|---|---|

References

- home.solarmanpv.com

- [🔗 home.solarmanpv.com/](https://home.solarmanpv.com/)
- [🔗 pro.solarmanpv.com](https://pro.solarmanpv.com)
- [🔗 pro.solarmanpv.com/](https://pro.solarmanpv.com/)
- [📄 Home Page - Turbo Energy](#)