

QUICK INSTALLATION GUIDE

# Lithium Series

Dual 48V 5.1kWh

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# Hybrid Inverter Turbo Energy<sup>TM</sup>



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# 1. Turbo Energy<sup>TM</sup> Hybrid Inverter Configuration

## 1.1. CONNECT TO THE WIFI

To be able to upload the SunBox to the cloud and be able to see the monitoring of the system, it is essential to connect the equipment to the internet. To do this, the following steps must be followed:

### Step 0: Locate the serial number of the logger

At the bottom of the inverter there is a label with a QR code, the serial number of your logger and the password to access the wifi of the logger. The logger creates a Wifi network whose name is "AP\_" followed by the serial number of the logger.

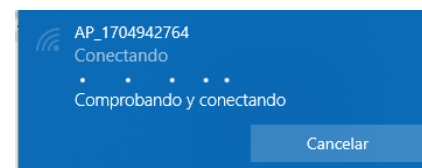
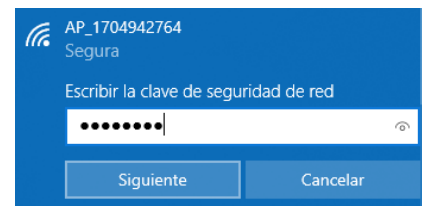


### Step 1: Connect to the Wifi network

With an electronic device that has Wifi (PC, Tablet, Smartphone ...) the connection with the Wifi of the recorder is established:

- Open the wireless network connection of your PC, tablet or smartphone
- Click View Available Wireless Networks
- Select the corresponding one with the device which you want to connect with (identified by "AP\_" and the serial number of logger)

Enter the key that appears on the logger along with the serial number.



## Step 2: Connect to the web portal

Once connected to the Wi-Fi network with your PC, Tablet or smartphone you must access the web portal of the registrar.

To do this, a web browser on the PC, tablet or smartphone that has been connected to the wi-Fi of the logger

Type in the address bar of the web browser the text "10.10.100.254"

A login pop-up window will appear asking for username and password. The default user is "admin" and the password is "admin" and pulsar the button "Login".

### 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

Once you have accessed the web portal of the registrar you will be able to see the "Status" page with general information of the registrar.

Click on the "Wizard" link under the "Status" link to run the connection wizard from the logger to the wi-fi of the installation (the wifi of your house or your plant).

The screenshot shows a web browser window with the URL 10.10.100.254/index\_cn.html. The page displays a navigation menu on the left with 'Status' selected. The main content area shows 'Inverter information' and 'Current power' sections.

- Inverter information	
Inverter serial number	2006284117
Firmware version (main)	---
Firmware version (slave)	---
Inverter model	---
Rated power	--- W
Current power	
Yield today	6552.10 kWh
Total yield	19.7 kWh
Alerts	---
Last updated	1

### Step3: Configure the LOGGER's access to the wi-fi of the plant

#### Step 3.1: Select the wi-fi of the plant

When we run the connection wizard we see the list of Wi-Fi networks to which the registrar has access. Among them must appear the wifi of our plant. We must select that wifi and press the "Next" button at the bottom of the screen:

SSID	BSSID	RSSI	Channel
<input type="radio"/> AP_1704942764	9C:D8:63:71:9C:50	100	12
<input type="radio"/> Solar-WiFi19E00055	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	F0:E4:A2:3E:53:9A	16	1
<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

\*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.

Add wireless network manually:  
 Network name (SSID) (Note: case sensitive)   
 Encryption method

#### Paso 3.2: Select the WiFi of the plant

Enter the password of the wifi of the plant: in the field "Password" enter the password of the wifi of your plant and press the button "Next"

Password (8-64 bytes) (Note: case sensitive)   Show Password

Obtain an IP address automatically

IP address

Subnet mask

Gateway address

DNS server address

#### Step 3.3: Enhance Security

Step 3.3: In this step it is NOT necessary to select any option and then press the "Next" button. Used to configure the security of the connection to the wifi. Seleccionando Hide AP, la red Wifi aparecerá como red oculta.

Hide AP

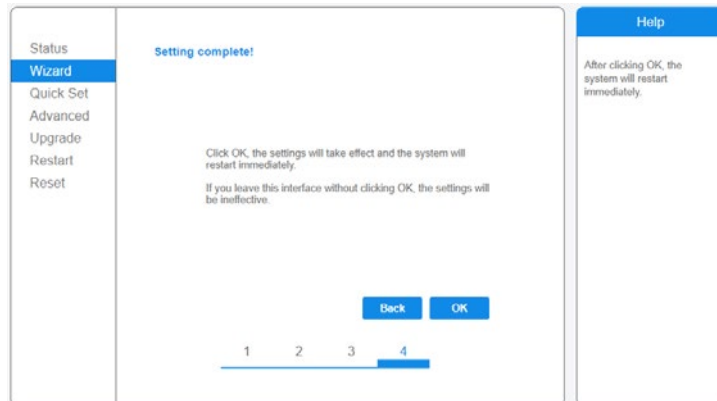
Change the encryption mode for AP   
 Encryption mode:

Change the user name and password for Web server

Current user name:   
 New user name (Max. 15 characters):   
 Re-enter user name:   
 New password (Max. 15 characters):   
 Re-enter password:

Step 3.4: restart the connection

If the adjustment has been made successfully press the “OK” button to restart the connection.

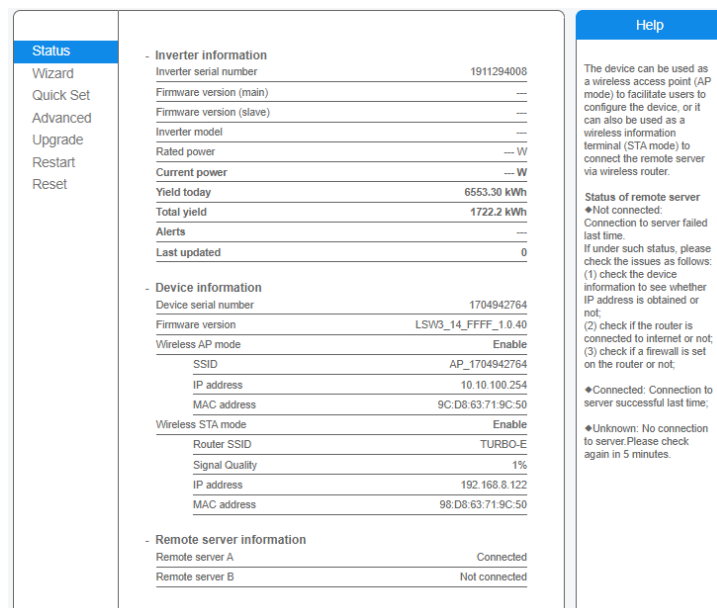


If the restart occurs successfully a message will appear indicating that it has been done successfully, if it does not appear then refresh the browser page::



**Paso 4: Check the connection of the REGISTRAR to the Wi-Fi of the plant**

After restarting the web page log back in to the “Status” page and check the status of the registrar’s network connection:



Once we have verified that the registrar is connected to the wifi of the plant and (which must have internet access) it is possible to add the plant to the cloud platform.

## 1.2. INVERTER CONFIGURATION

When programming the inverter you can choose between several configuration options:

1. **Selling first:** the priority for excess energy is to deliver it to the grid.
2. **Zero Export To Load:** The output power feeds the Load.
3. **Zero export To CT:** Production feeds the sum of loads (Network and Load).

Select one of these three modes and enable or disable the option to pour power into the grid.

In addition, power can be prioritized to the charge or to the battery.

The recommended working mode is: Zero Export to CT / Solar Sell activated / Load First. In this way the energy generated will feed the load, the excess amount will go to the battery and finally, the excess energy will be poured into the grid.

	<p><b>Selling first:</b> Deliver to the grid first  <b>Zero Export to Load:</b> Output power adjusts to BackUp load  <b>Zero Export to CT:</b> The system adjusts the production to the sum of the loads (Grid and BackUp)  <b>Solar Sell:</b> Sell surplus energy  <b>Max Sell Power:</b> maximum power output  <b>Zero-export Power:</b> Mains power output  <b>Batt First:</b> The energy from the solar panels is used to charge the batteries first.  <b>Load First:</b> The energy from the solar panels is used for charging and then for the batteries.  <b>Grid Peak Shaving:</b> Power limit to be taken from the network</p>
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The inverter also incorporates the possibility of using the Grid Peak Shaving function, which allows to reduce the maximum power consumed from the network. With this function the user can have less power contract in the hours of the day that are more expensive and the surplus power that is consumed, will be supplied by the battery.

There are three different modes:

- **GM (General Mode):** Mode to supply the energy consumed with Battery and solar panels
- **BU (BackUP):** No battery discharge mode
- **CH (Charge):** Battery charging mode

## 4. Battery On and Off

To turn on the battery, press the power button for a few seconds. The BMS will start working and the LED will light up.

To turn off the batteries, press the power button for more than 5 seconds.

## 5. Setting Lithium Series Dual 48V 5.1 kWh

Each module has 5 DIP switches (SW1, SW2, SW3, SW4, and SW5) that will be set differently based on system requirements, battery connection, and inverter.



SW1 is for the communication protocol with the inverter. If the CAN protocol is used, 1 and 2 must be ON.

SW4 and SW5 are for communication with the inverter and depend on the communication cable and protocol of the inverter.

If a pin-to-pin cable is used, the DIP settings are as follows:

Protocol	SW1	SW4	SW5
CAN	<p>1=ON 0=OFF</p>		

























Make sure DIP switch SW2 is selected correctly. If the battery is connected in parallel mode, but DIP8 is in the ON position, a serious and dangerous fault may occur. On the other hand, **if the battery is connected in serial mode, but SW2 DIP8 is in the OFF position, a serious and dangerous fault may occur.**

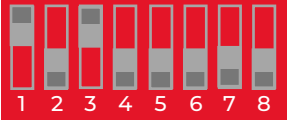













**5.1. DIPS FOR CONNECTION ON PARALLEL**

















SW2 and SW3 are for communication between batteries.

Connected Battery Number	Group	SW2 Parallel connect	SW3 Address Set
1	-		
2	Primary		
	Sub		
3	Primary		
	Sub1		
4	Sub2		
	Primary		
	Sub1		
	Sub2		
	Sub3		



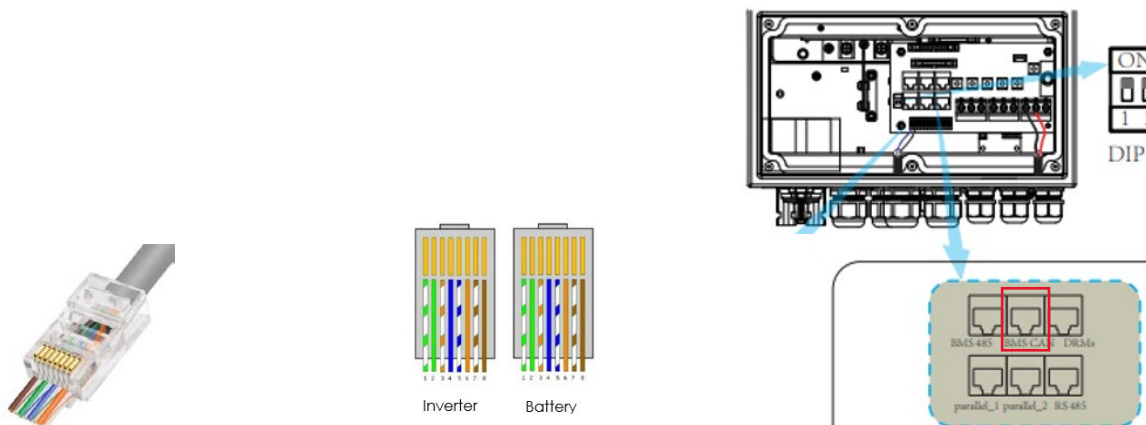
Connected Battery Number	Group	SW2 Parallel connect	SW3 Address Set
<b>5</b>	Primary		
	Sub1		
	Sub2		
	Sub3		
	Sub4		
<b>6</b>	Primary		
	Sub1		
	Sub2		
	Sub3		
	Sub4		
	Sub5		

Connected Battery Number	Group	SW2 Parallel connect	SW3 Address Set
<b>7</b>	Primary		
	Sub1		
	Sub2		
	Sub3		
	Sub4		
	Sub5		
	Sub6		

Connected Battery Number	Group	SW2 Parallel connect	SW3 Address Set
8	Primary		
	Sub1		
	Sub2		
	Sub3		
	Sub4		
	Sub5		
	Sub6		
	Sub7		

Make sure DIP switch SW2 is selected correctly. **If the battery is connected in parallel mode, but DIP8 is in the ON position, a serious and dangerous fault may occur.** On the other hand, if the battery is connected in serial mode, but SW2 DIP8 is in the OFF position, a serious and dangerous fault may occur.

## 6. Wiring configuration



The cable needed to make the connection is the RJ45. It is a special cable that is composed of 8 smaller cables each with a different color configuration.

It's needed to use a standard pin-to-pin cable with RJ45 connector.

For the connection between the inverter and battery, the RJ45 cable will be connected to the "Inverter" port in the battery.

In the inverter, the RJ45 cable will be connected to the BMS CAN port

## 7. Communication verification

To verify that the communication has been done correctly you can check by pressing the battery icon on the main screen and pressing on the Li-BMS button. If similar or non-zero data appears, it means that the communication between battery and inverter is correct.

