



**LeadSolar Link Gateway
Installation & Operation Guide**

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Ver 1.3

Contact Information

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1. Gateway Introduction

Thank you for purchasing LeadSolar Link Gateway!

LeadSolar Link Gateway is a type of enhanced gateway, which is designed for communicating with LeadSolar LS series microinverters. It is a wireless router, which hardware is based on the world's top chipset TI chipset, and it supports IEEE 802.11b/g/n. It can connect with your wireless network at home quickly and it will forward data from microinverters to LeadSolar Monitoring Platform through the Internet.

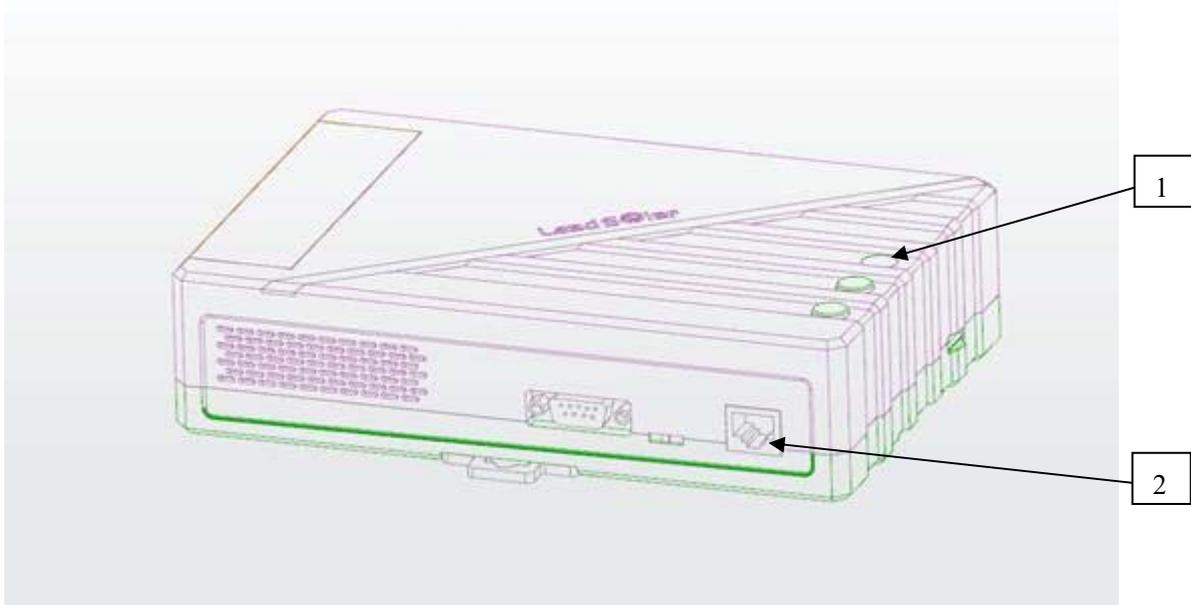
1.1 Packing List

Please check all goods in the box according to the following list:

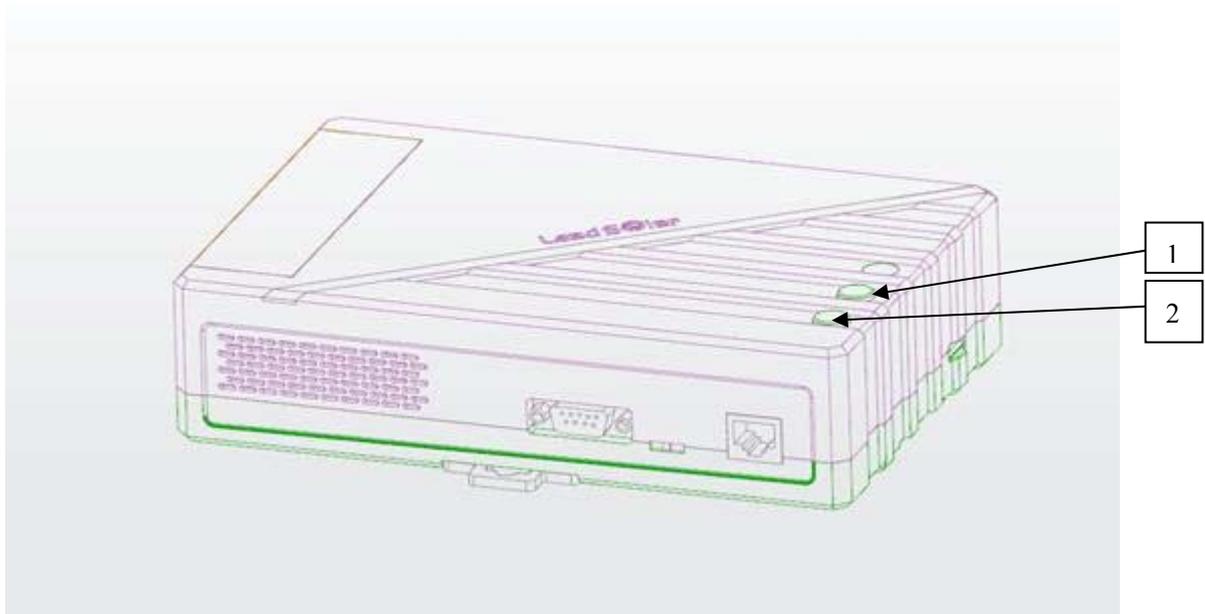
1 X LeadSolar Link Gateway

Please contact with the installer or LeadSolar Energy, if you find there is missing good or damaged good in the above list.

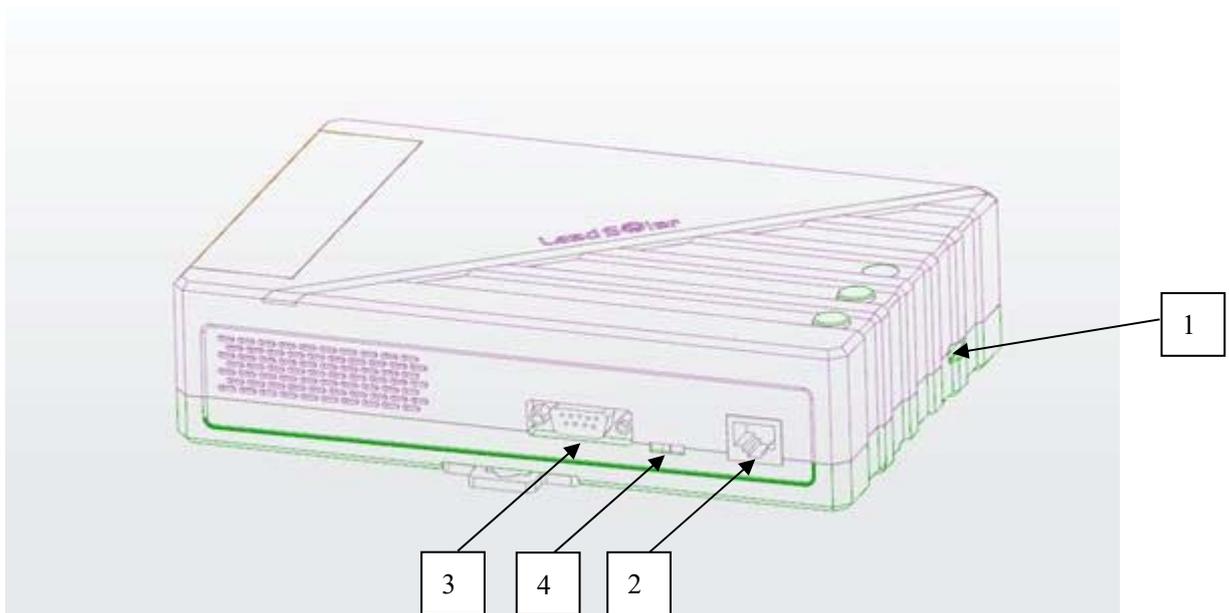
1.2 LED and Ports

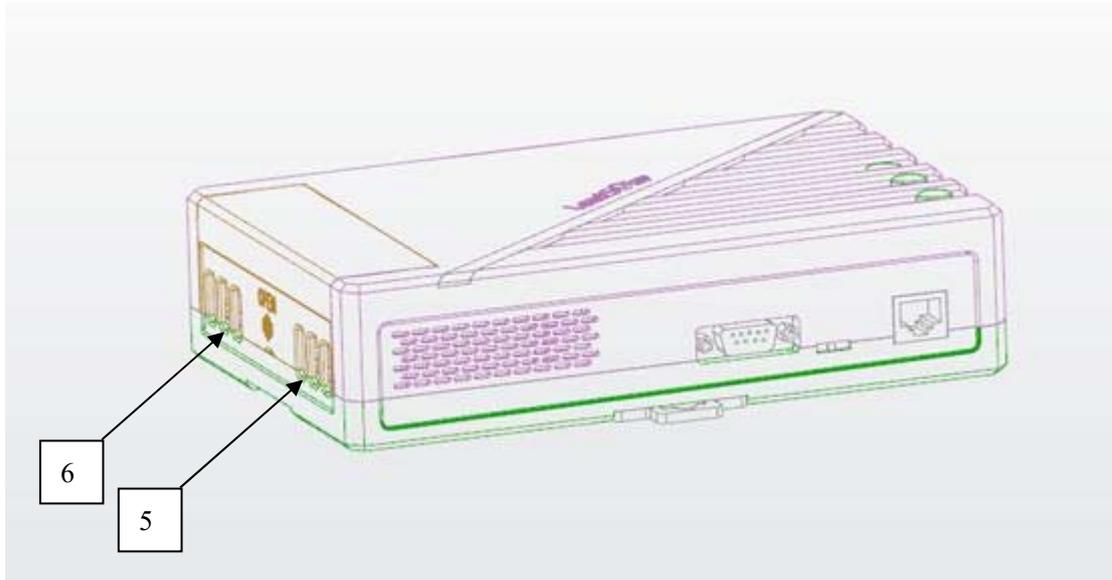


LED	State	Note
1	flashing	The gateway is power on.
1	LED keeping on	The power supply is working properly.
2	flashing	The network port is working properly



Key	State	Note
1	Service	PLC communication auxiliary button, built-in website reset button. Press the button for 10 seconds, the gateway will back to factory settings.
2	Reboot	Reboot the gateway.





Interface	Name	Note
1	TF	Micro SD card interface
2	Ethernet Port	Ethernet port for cable
3	GPRS	GPRS device interface
4	System debug interface	It is reserved for future functions
5	LINE	Connect with grid
6	LOAD	Connect with load (inverter output cables)



System debug interface is only for engineers doing system testing. Please don't touch it.

2. Gateway Installation

2.1 Single phase system

The gateway for single phase system has a power line filter inside.

- Install the gateway into a junction box. Fix it on the rail with a plastic clip on back side of the gateway.
- Connect grid to LINE port on the gateway.
- Connect cables from inverters to LOAD port.
- Please choose 6 AWG cables(13.3 square mm² copper wires, 50 amp)

2.2 Three phase system

The gateway for three phase system does not have a power line filter inside. You should use external 50A PLC filters for each phase. The package of three phase gateway has a "N" label on it.

- Install the gateway into a junction box. Fix it on the rail with a plastic clip on back side of the gateway.
- Connect cables from inverters to LOAD port.
- Do not connect cables to LINE port
- Normal AC cables can be used (22 AWG ~ 24 AWG, 0.20~0.32 square mm² copper wires, 0.81~1.28 amp)



If you do not have a LeadSolar Junction Box, you also can install the gateway in your own junction box. Please prepare a standard metal rail to fix the gateway in your junction box.



Please pay attention to the connection of cables to LOAD and LINE ports.



Please choose the gateway with PLC filter for single phase system and choose the gateway without PLC filter for three phase system.



The manual is only for LSBOX.
LSBOX should be installed in a junction box.
Installation of LSBOX needs a professional person.

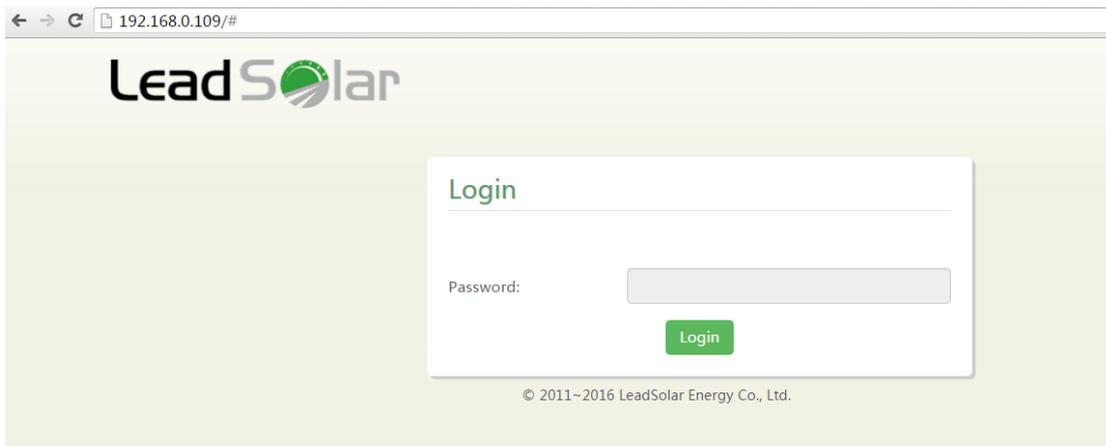
3. Setup Gateway Connection

3.1 With cable connection

- If you have used an Ethernet cable to connect the gateway to your router, please make sure you have active DHCP function of the router. Turn on the gateway and wait for two minutes, you can log in your router and check the IP address of the device list. If you see LSBOX-XXXX, which is LeadSolar Link Gateway.

LSBOX-0000	20-CD-39-F0-42-F8	192.168.5.199	47:56:38
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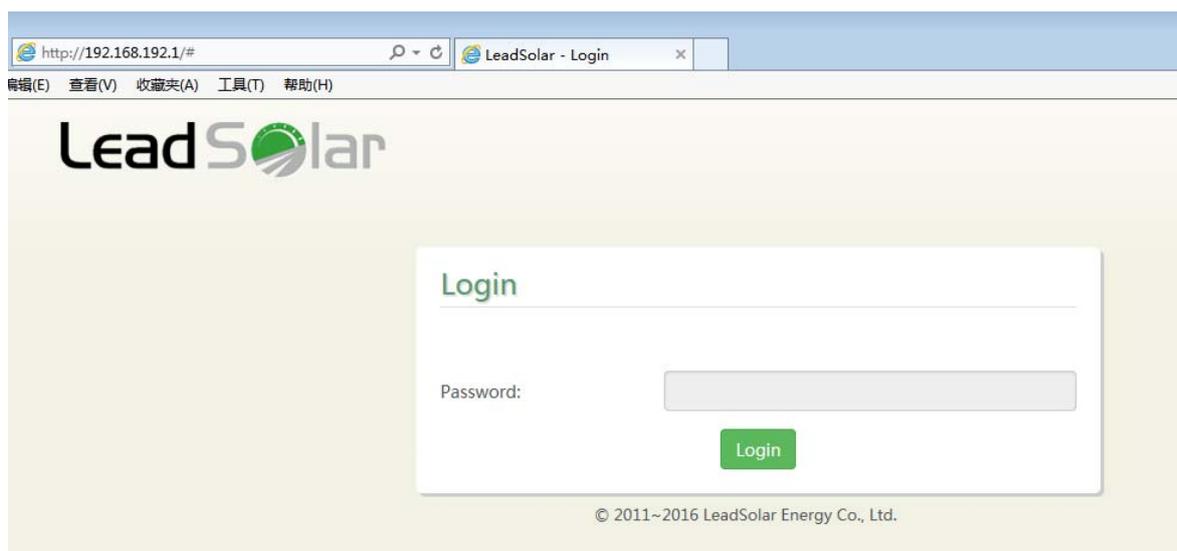
- Make sure your PC, PAD or mobile is connecting with your router and input the IP address of the gateway on your web browser of your PC, PAD or mobile, you can log on following web page.



When you use your gateway for the first time, you should connect it to your PC, PAD or mobile by WiFi, or connect it to your router by cable. You cannot connect it to your PC by cable. Because the default mode of the gateway is AP Mode.

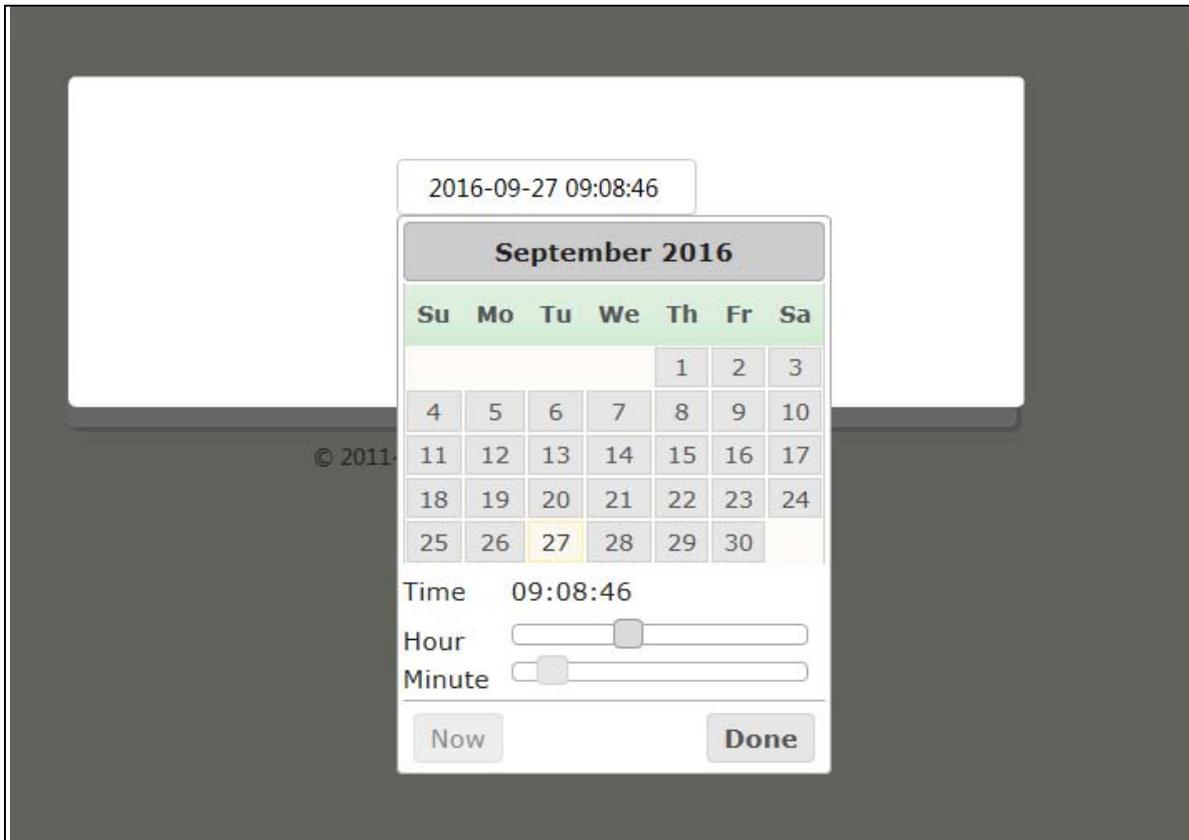
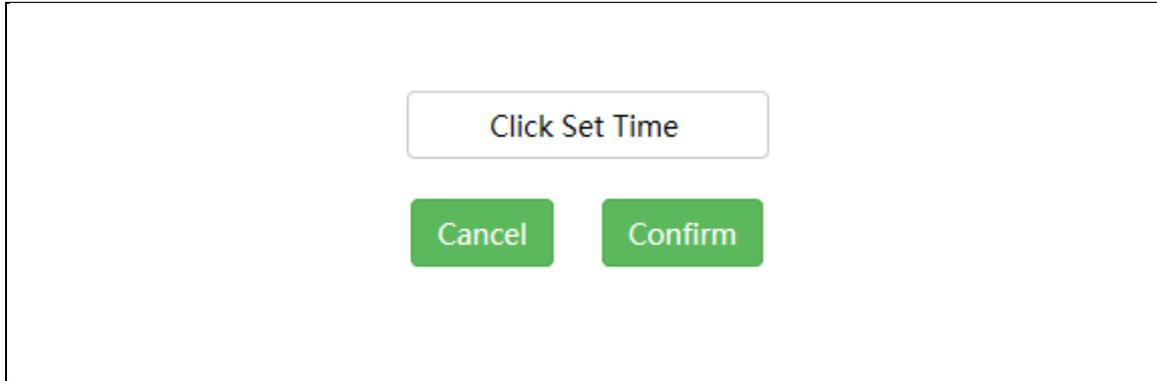
3.2 Connect your PC to gateway with WiFi

- If you plan to use WiFi to connect your device to the gateway, please use your PC, PAD or mobile to search WiFi hotspot. You will see a hotspot with the name LSBOXAP-XXXX, please connect it with password 12345678. If your device connects with the gateway successfully, your device will get an IP address, such as 192.168.192.16.
- Input the IP address (<http://192.168.192.1>) of the gateway on your web browser of your PC, Pad or mobile, you can log on following web page.

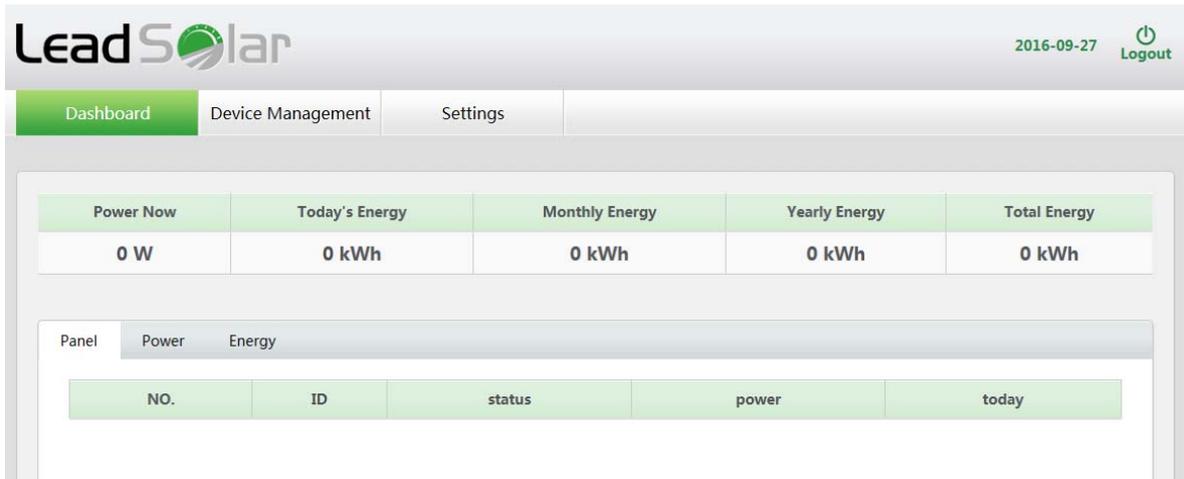


3.3 Log in built-in webpages

- Please input password: 12345678
- Please set the correct local time. Press "click set time", and press "Now", the gateway will get instant time from your PC. Then press "Done" and "Confirm".

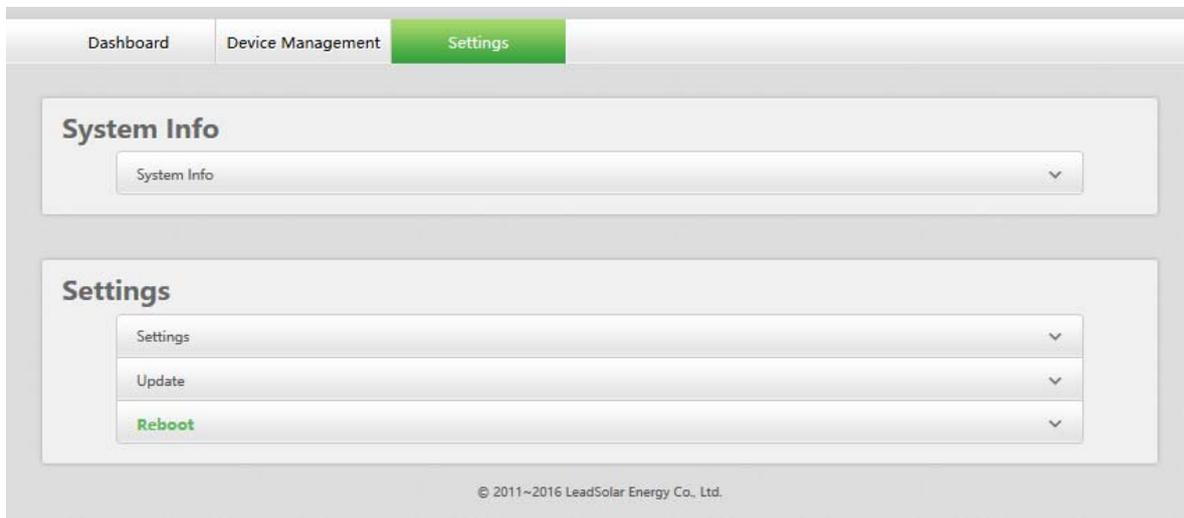


- When you see a dialog box that means you have set the time successfully.
- Then you go to the Dashboard page.



4. Setup Gateway Mode

- Go to Setting page and enter into Settings drop-down menu to set up your gateway mode.



4.1 You have Internet connection

If you have Internet connection, you should choose Client Mode. So the gateway will forward data to LeadSolar web monitoring servers through your router.

- Gateway will be connected to your router by WiFi: Input id and password of your router. So the gateway can connect it.

- Gateway will be connected to your router by cable: If you have used a cable to connect the gateway to your router, please make sure you have active DHCP function of the router.

If you have Internet connection, you should connect the gateway to your router by cable or WiFi. And you need to register an account on LeadSolar on line monitoring platform. Then you register the gateway and inverters on your account. After that, you can get system performance information on web site or built-in web pages of the gateway.



Please refer to the web monitoring guide to get more information about how to use LeadSolar on line monitoring platform.



You can get the quick link of the monitoring platform on LeadSolar official website: www.leadsolarenergy.com



When the gateway is in Client Mode, it is connecting to your router with new IP address. So you cannot login the built-in webpages of the gateway. But you can get new IP address of the gateway on your router's webpage (please refer to user manual of your router). And you can input IP address of the gateway in web browser and login it with password 12345678 again.

4.2 You do not have Internet connection

If you do not have Internet connection, just keep the default mode, which is AP Mode. So you can connect your PC, PAD or mobile to the gateway and get your PV system power generation information on its built-in

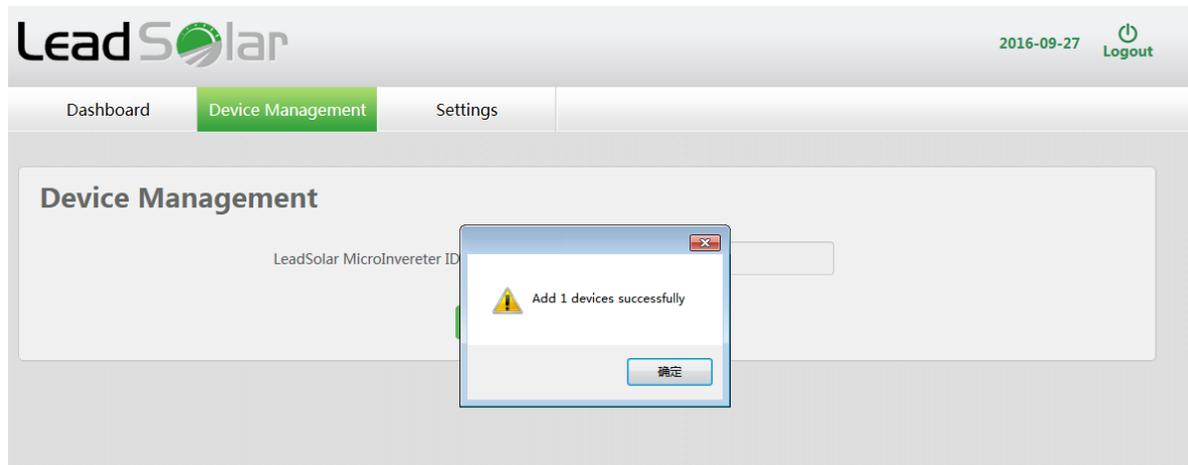
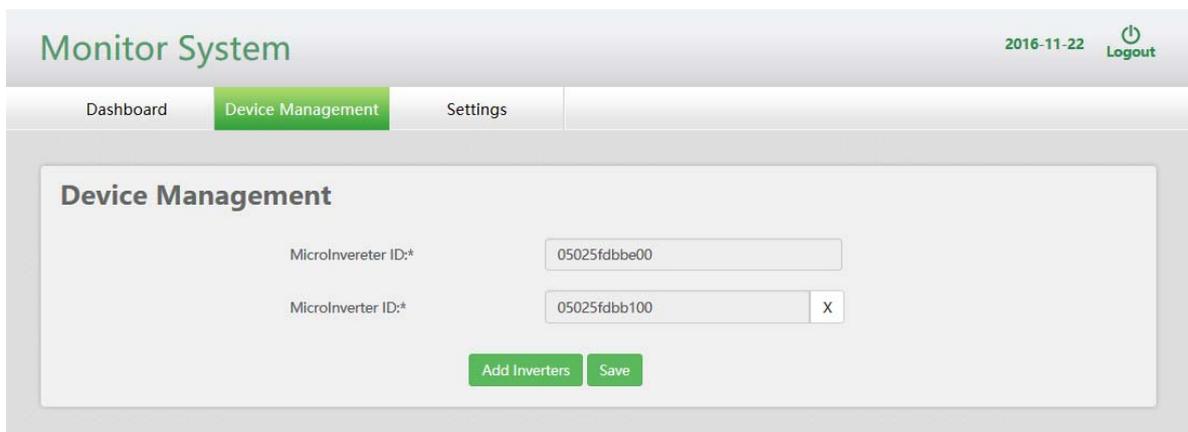
webpages.

But first you should go to Step 5 and register ID of your inverters to the gateway.

5. Register ID of inverters

If you do not have Internet connection, you should register inverters on the gateway according to following steps.

- Go to Device Management page and add ID of inverters. Press Save button to save your input.



If you want to remove inverters from the list, just press the cross behind the SN. Then press save button.



If you register ID inverters on web monitoring platform, you do not need to register them on the gateway again.

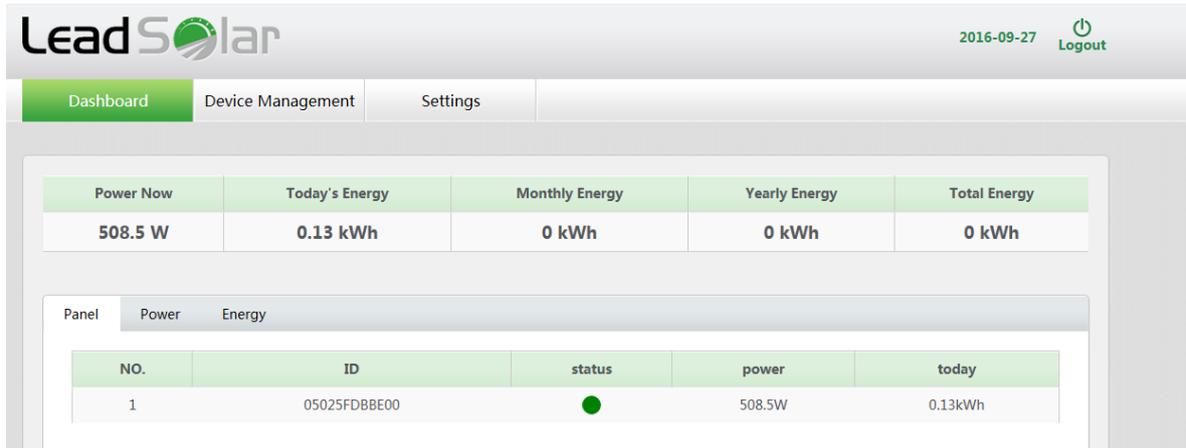
When you press “Save” button, the inverters in the list will replace the inverters, which have already been registered. So please input all ID of inverters and then press “Save” button.

If you have registered inverters on our online monitoring platform, your

registered inverter list in the gateway will be placed by inverters in monitoring platform database. Because the gateway will download inverter list when it is power on.

6. Get System Performance Information

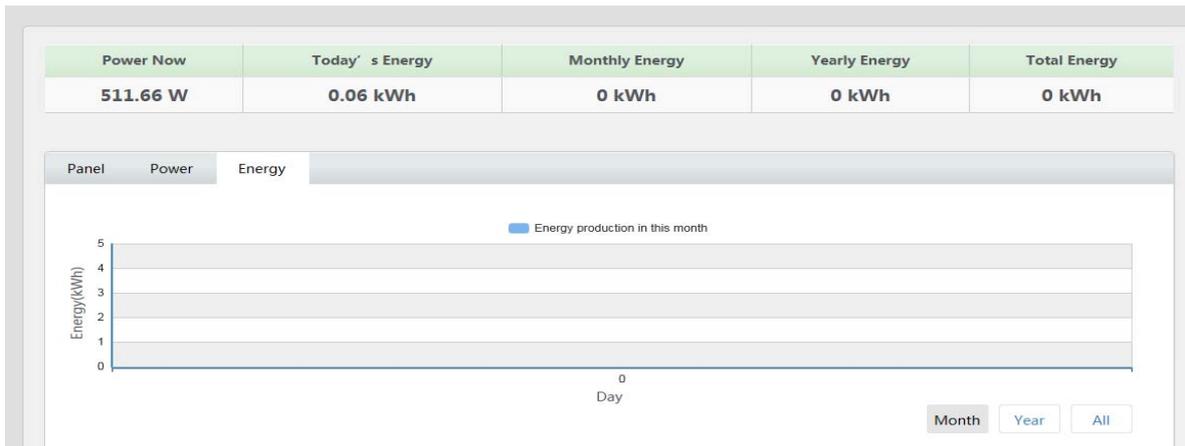
- Wait for 3 to 30 minutes after you registering ID of inverters on built-in web pages or on line monitoring platform, then you will see power generation information.



- Power diagram of the system updates one time per hour.



- Historical energy diagram shows power generation of each day in one year. The data can be recorded in the gateway for 10 years.



7. Other Configurations

- On setting page, you can get more information of the gateway

- System Info shows gateway hardware and software information

- In Settings drop-down menu, you can input SSID and password of your router to set Gateway Mode from AP mode to client mode. You also can set time and gateway password.

The screenshot shows a 'Settings' interface with a dropdown menu. The menu items are: Settings, Set Client Mode (current AP mode), Set Time, Update Password, Update, and Reboot. The 'Set Client Mode' option is selected, revealing a form with two input fields: 'SSID:' and 'Password:'. Below these fields are two green buttons: 'Cancel' and 'Confirm'.



AP Mode: If you do not have Internet connection, you can set AP Mode to connect your PC, PAD or mobile to the gateway and get PV system power generation information.



Client Mode: If you have Internet connection, you can set Client Mode to connect the gateway to your router. So data from inverters will be forward to LeadSolar web monitoring servers by the gateway and your router.



If you set the wrong SSID or password, you can change them by connecting Ethernet cable from router to the gateway. You also can press “Service” button on the gateway by 10 seconds. The gateway will reset the mode to AP mode. So you can connect your PC or mobile to the gateway and set SSID and password.

- Set gateway time: press Click Set Time button to set gateway time.

The screenshot shows the 'Settings' interface with the 'Set Time' option selected. Below the menu, there is a button labeled 'Click Set Time'. At the bottom of the form are two green buttons: 'Cancel' and 'Confirm'.

- Press Now button, the gateway will get time from your device. You also can set the time by yourself.

Then press Done button and confirm button.

September 2016

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Time 15:31:52

Hour

Minute

Now Done

2016-09-27 15:31:52

Cancel Confirm



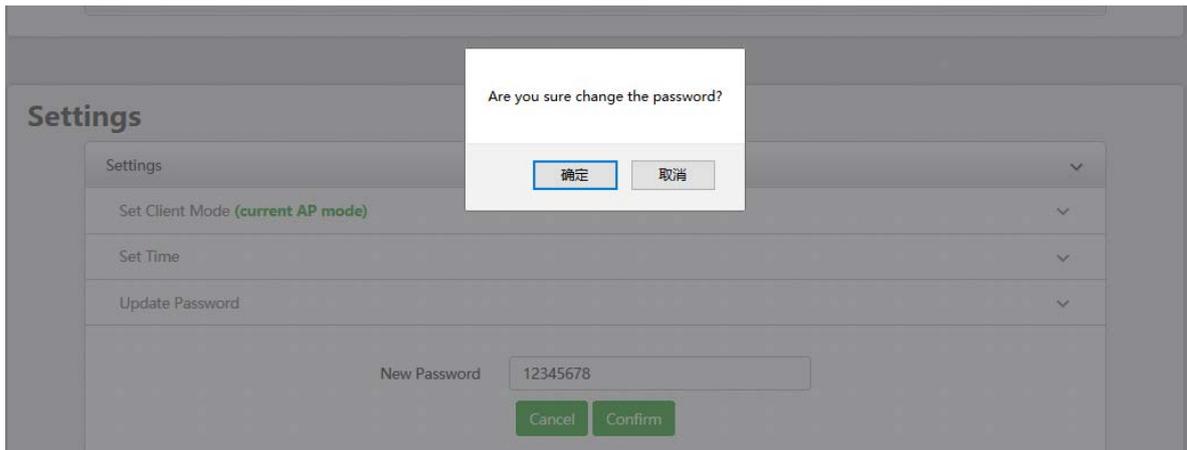
Please sure the time is correct. Otherwise, the monitoring platform cannot display system power generation accurately.

- Set built-in web pages log in password: input password and press confirm button. You will get a dialog box. Then press confirm to save new password.

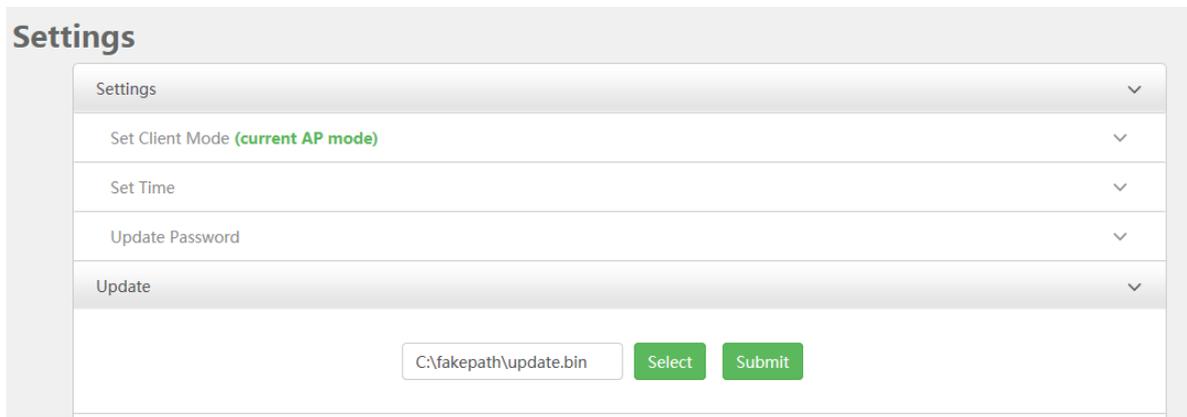
Update Password

New Password

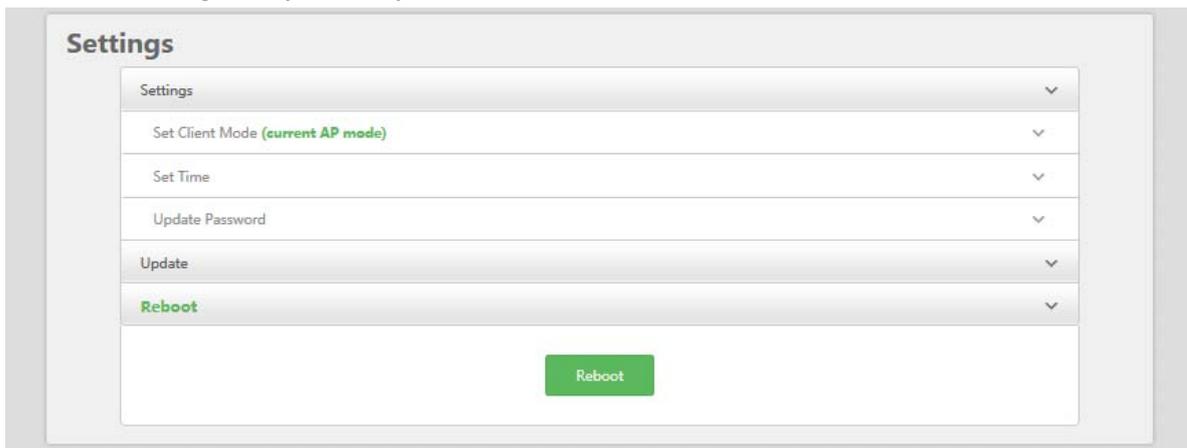
Cancel Confirm



- System upgrade: you can upgrade software of your gateway in the Update drop-down menu. Wait for 2 to 3 minutes, you will be prompted for whether the upgrading success or not.



- You can reboot the gateway remotely.



- You can download update file (update.bin) from www.leadsoleenergy.com to your PC, PAD or mobile. Then press select button to choose the file and press submit button to upgrade your gateway software.
- It will take you 2 to 3 minutes for upgrading. If the upgrading is failed, you will see a dialog box. You can try it again. If the upgrading is successful, you will also see a dialog box.
- You can go to System Info drop-down menu and check software version.

- You also can upgrade the gateway by SD card. You just need to copy update.bin into the SD card and insert the card into the gateway. Then reboot the gateway and wait for 2 to 3 minutes.
- If you have connected the gateway to your router by Ethernet cable or WiFi, you just need to keep the gateway accessing to the Internet for 24 hours. The gateway will download update file from the server and upgrading itself.

System Info

System Info ▼

Serial Number:0F12300F0012

Software Version:2.2.0

Hardware Version: 1.5.1

Wired MAC Address: 20:CD:39:F0:38:84

Wireless MAC Address: 20:F4:1B:52:74:92



Please keep the gateway connecting to the Internet. LeadSolar will do regular upgrading for the gateway software.

- If you turn off the gateway or disconnect it from the Internet, your online account cannot get data of your system from your gateway. But if you power on the gateway or connect it to the Internet again, it can upload the date for the past 7 days. Please note, this function is only active with WiFi or Ethernet cable connection. It does not work with GPRS connection.
- If you forget password of built-in webpages, LSBOXAP-XXX connection or SSID, you can press “Service” button on the gateway for 10 seconds. The gateway login password and LSBOXAP-XXXX password will be set back to 12345678. And the gateway mode will be set back to AP mode. So you can reset SSID and password to connect the gateway to your router.

Appendix

Explanation of Professional terms

- SSID:

Each BSS or ESS is identified by a service set identifier (SSID) - a 1 to 32 byte string. This is normally a human-readable string and thus commonly called the "network name". In an IBSS, the SSID is chosen by the client device that starts the network, and broadcasting of the SSID is performed in a pseudo-random order by all devices that are members of the network.

At user's home, SSID is the name of the wireless network. So LeadSolar gateway needs to get the right SSID and password to connect with the router via WiFi. There should be no space before or after SSID.

Datasheet of LeadSolar Link Gateway

TECHNICAL DATA	LeadSolar Link
Input voltage (AC)	100–240V
Nominal operating frequency	50Hz / 60Hz
Maximum input current (PLC filter)	50A
Power consumption	3W
Communication interface	Power Line Communication
Maximum number of microinverters	200
EXTERNAL INTERFACE	
Power interface	Connect to AC power supply
Network interface	802.3, Cat5E, 802.11b/g/n
GPRS interface	Connect to GPRS devices
Service Pin button	Send Service Pin message, reset the gateway to factory settings
Reset button	Reboot the gateway
Micro SD card interface	Insert micro SD card
MECHANICAL DATA	
Operating ambient temp range	-40°C to 65°C
Dimensions (W x H x D)	19.6 cm x 12.8 cm x 4.8 cm(7.7" x 5.0" x 1.9")
Weight	610 g (1.34 lbs)
Cooling	Natural convection
Enclosure environmental rating	Indoor
OTHER FEATURES	
User interface	Built-in webpages
Local data storage	Up to 10 years
Firmware upgrading	Remote upgrading, local upgrading

FAQ

1. Q: Shall I connect LeadSolar gateway to my router for monitoring?

A: If you want to get detailed information, or monitoring your system on your PC, pad or mobile, you can connect the gateway to your router and create an account on LeadSolarweb monitoring platform. If you do not have the Internet at home, you just need to register your microinverters' ID on the gateway and get information from the built-in web pages of the gateway.

2. Q: How many microinverters can be connected with the gateway?

A: It supports connecting with 200 pcsLeadSolar microinverters (LS250, LS600 or LS1500).

3. Q: Can I use LeadSolar gateway to monitor inverters of other brand?

A: No.

4. Q: How long can the gateway record the data from microinverters?

A: 10 years.

5. Q: Can I turn off the gateway?

A: Yes. But it cannot receive data from microinverters when it is power off. And it cannot forward these data to the monitoring servers when it is turned on.

6. Q: Why the gateway cannot talk to the microinverter after I configuring the network and registering all microinverters?

A: Please check ID and SN of microinverters you have registered on your account and reboot the gateway and wait for 3-30 min. The gateway needs to talk to each microinverter. So the gateway needs more time to communicate with all microinverters if the system size is big.

7. Q: Shall I install the gateway inside of my house?

A: No. The gateway should be installed in the junction box outside of your house.

8. Q: Can I use my PC, pad or mobile to connect with the gateway by WiFi?

A: Yes. Please set the gateway to Client Mode first.



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