



Installation / User Manual

ECU-R Energy Communication Unit

Rev 1.1



Please use mobile browser to
scan the QR codes to download ECU APP :



(Android)



(iOS)

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1. Introduction

The Energy Communication Unit (ECU-R) is the information gateway for our inverters. The unit collects module performance data from each individual inverter and transfers this information to an Internet database in real time, requiring only a single data and power cable. Through the Energy Monitoring and Analysis software, the ECU-R gives you precise analysis of each inverter and module in your solar installation from APP. The user-friendly interface lets you access your solar array in seconds.

Features

- Collects individual module and inverter statistics
- Communicates in real time
- Requires no additional wiring

The ECU-R is used in utility-interactive grid-tied applications, and is made up of four key elements:

- Inverter
- Energy Communication Unit (ECU-R)
- APP (ECU APP)
Based on android and iOS.
- Energy Monitoring and Analysis (EMA)
Web-based monitoring and analysis system.

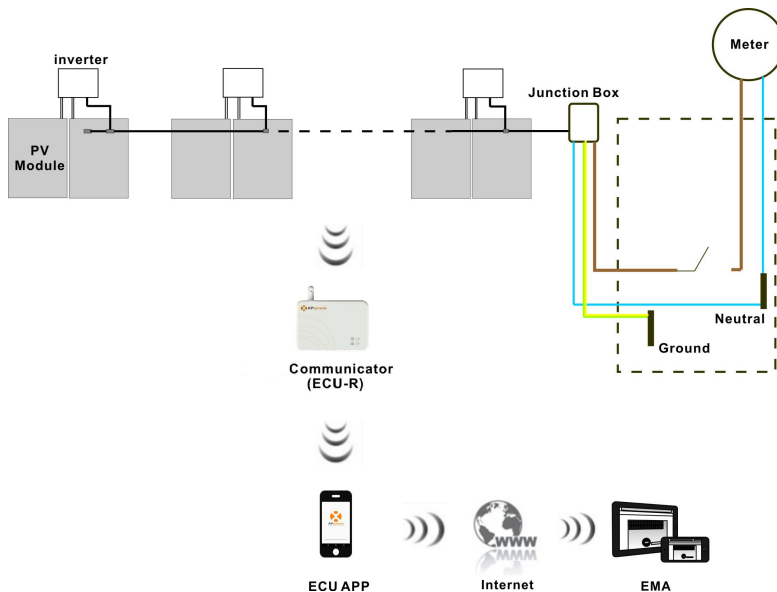


Figure 1

2. Interface Explanation

2.1 Interface Layout

The ECU-R interface includes, from left to right, are Reset, power connection port, USB port, RJ45 Internet, RJ45 Signal port and antenna.

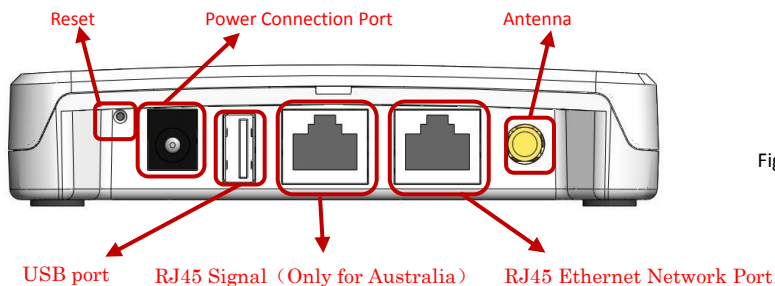


Figure 2

2.2 Reset

Press the Reset button for three seconds or longer, and the ECU-R will automatically return to the default settings.



NOTICE

The wireless password will be changed to '88888888'.

2.3 Power Connection Port

The power connection port connects power through the power adapter.

2.4 USB port

The USB interface is reserved.

2. Interface Explanation

2.5 RJ45 Ethernet Network Port

The ECU-R allows the user to communicate with the EMA.

2.6 RJ45 Signal (Only for Australia)

The RJ45 Signal is designed for DRM0, it should be connected by RJ45 connector in the package otherwise the inverter will not work.

2.7 Antenna

The antenna in the package should be connected to ECU-R.

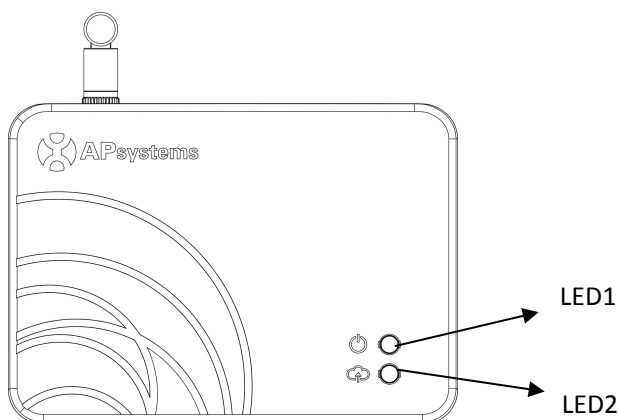


Figure 3

2.8 LED1

LED1 will be on When the ECU-R works well.

2.9 LED2

LED2 will be on When the ECU-R connects to the sever.

3. Hardware Installation

3.1 Preparation

Make sure you have the following components ready before beginning to install the ECU-R:

- A dedicated standard AC electrical outlet (located as close to the array as is possible).
- A broadband Internet connection available for your use.
- A broadband router with either a CAT5 Ethernet, or a wireless router.
- A phone with APP (see page 10).

3.2 Selecting an Installation Location for the ECU-R

- Choose a location that is as close to the array as possible
- The ECU-R is NOT rated for outdoor use, so if installing outdoors near a junction box or breaker panel, make sure you enclose it in an appropriate weatherproof NEMA electrical box.

3.3 Installation

1) Using a Wall Mount

When mounting the ECU-R to a wall, make sure to select a cool, dry indoor location.

- Depending on the wall surface you are mounting the ECU-R to, use either two drywall screws or wall anchors, installed 100 mm apart (The drywall screws and wall anchors are not included in the ECU-R kit).
- Align and slide the ECU-R onto the mounting screws.

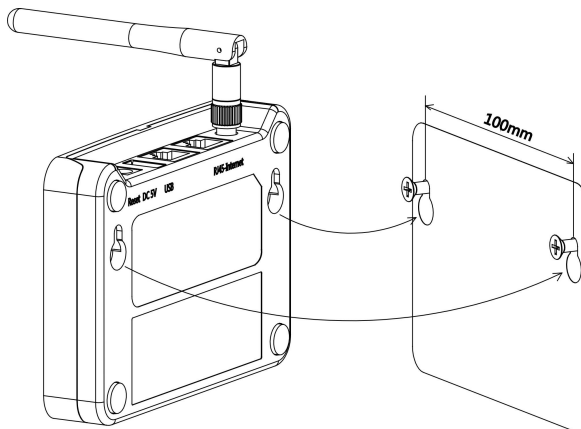


Figure 4

3. Hardware Installation

2) Power Distribution Cabinet Installation

If you use the energy communicator in power distribution cabinet:

- Install the 2 guide rail fasteners on the Guide rail, the space between fasteners shall be 100mm.
- Align and move the ECU-R to the 2 guide rail fasteners.

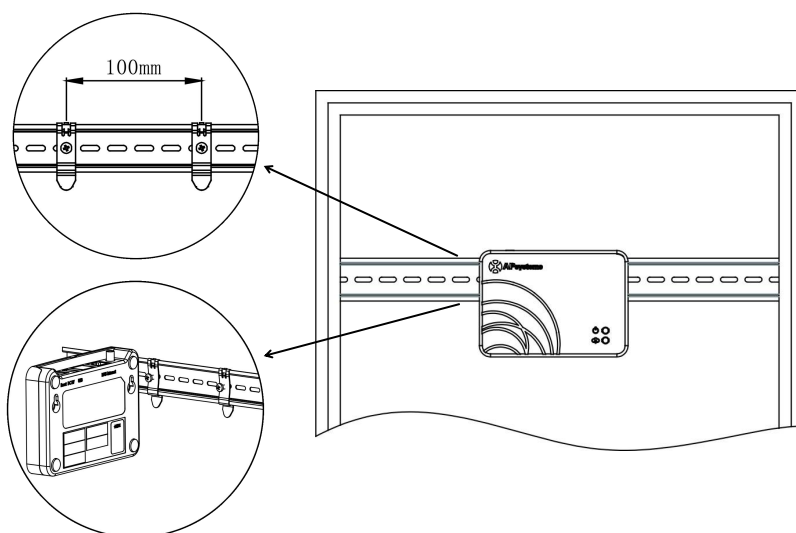


Figure 5

3. Hardware Installation

3.4 Cable Connection

- Connect the adapter to the power connection port on the top of the ECU-R.

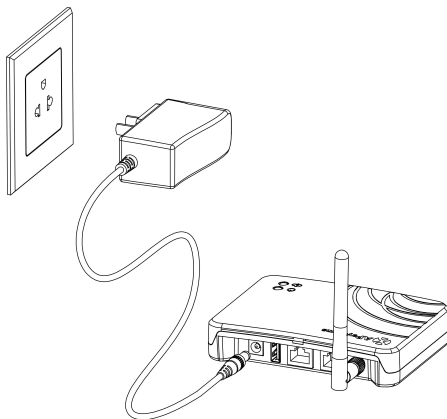


Figure 6

3. Hardware Installation

3.5 Internet Connection

There are two different approaches to connecting the ECU-R to the Internet:

Option 1: Direct LAN cable connection.

- 1) Make sure the LAN cable is connected to the network port on the bottom of the ECU-R.
- 2) Connect the LAN cable to a spare port on the broadband router.



Figure 7

Option 2: Wireless Connection.

Use ECU-R internal WLAN (see Managing the WLAN Connection).

4. ECU-R User Interface

Please use mobile browser to scan the QR codes to download ECU APP :



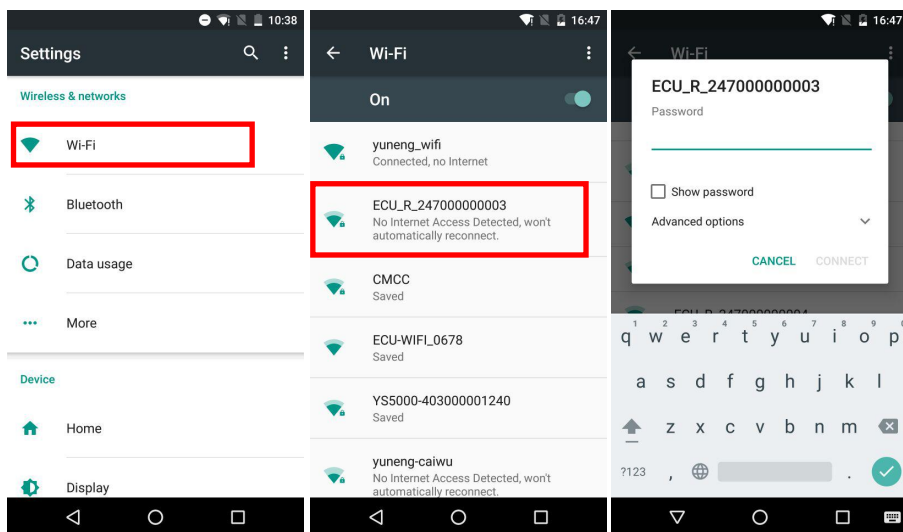
(iOS)



(Android)

4.1 Connecting to the ECU-R via the Local Wireless

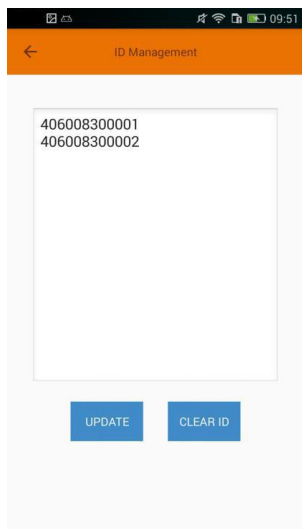
- Open the ECU APP.
- Open the WLAN, link the WiFi of ECU-R, the default password is “88888888”.



4. ECU-R User Interface

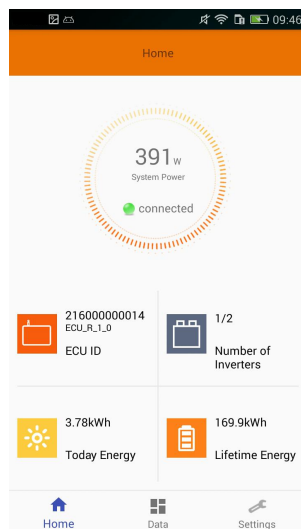
4.2 Add UID

- Click "Settings", select "ID Management", then input the UID, click "OK" to complete setting. If you need to clear all the IDs, please click the "Clear ID" button.



4.3 Homepage

- Click "Home" at the bottom of the page. The information about systems info of ECU-R, ECU-R ID, version NO., total number of inverters, the number of connected inverters, intraday power output, historical Power output and current system power shall be displayed.



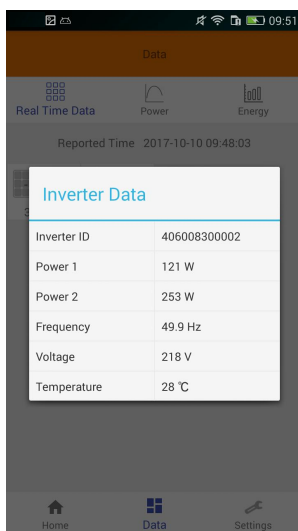
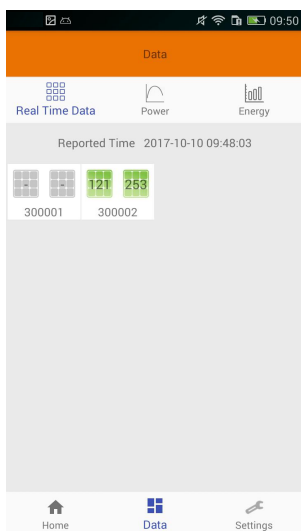
4. ECU-R User Interface

-  Green light indicates the mobile phone is connected to the ECU-R.
-  Grey light indicates the mobile phone fails to connect to the ECU-R.

4.4 Data

4.4.1 Real Time Data

- This page shall display the added inverter. According to different models of inverter, each inverter would have the corresponding modules displaying the real time power.
- Click "Module", the detailed information of the inverter shall be displayed, including inverter ID, PV module power, network voltage, frequency and temperature.



Green panel indicates the inverter is successfully connected.

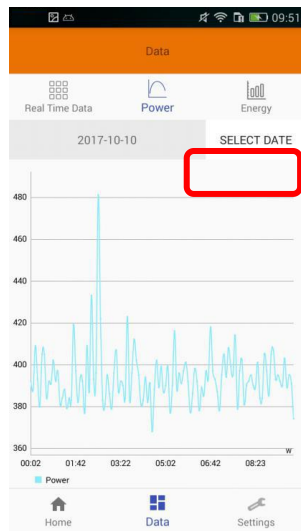


Grey panel indicates the inverter is disconnected.

4. ECU-R User Interface

4.4.2 Power

- To This page displays the daily system power curve. Click "Power" at the real time data page to view the historical system power curve.

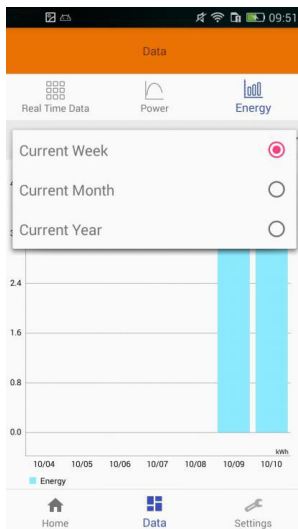
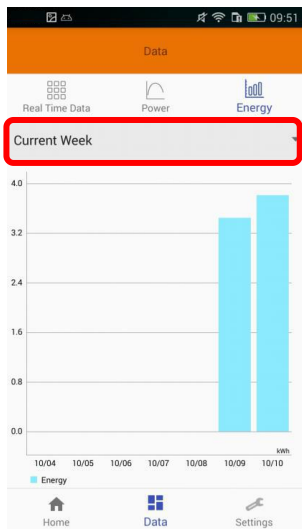


4.4.3 Power generation statistics

- Press "Energy" at the real-time data page to view the system power generation of the solar system.

The statistics of power generation shall be displayed.

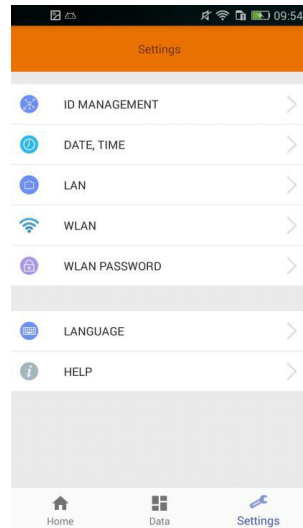
The power output histogram of current week:



4. ECU-R User Interface

4.5 Settings

- Click "Settings" and enter into the "settings page".

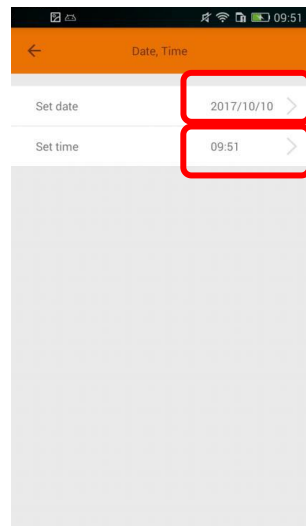


4.5.1 Manage IDs

- Please refer to 4.2 to add UID.

4.5.2 Time management

- Enter the page, the time of ECU-R shall be displayed on the right side of the page. Click "date" or "time" to modify.



4. ECU-R User Interface

4.5.3 Manage the Network Connection

- ECU-R's wired network setting has 2 options: automatically obtain an IP address or use a fixed IP address. Obtaining an IP address automatically means the router would distribute IP to ECU-R automatically. When choose user fixed IP, users shall use the following IPs.

The image displays two screenshots of the ECU-R LAN configuration interface. Both screenshots show a top bar with a back arrow, the title 'LAN', and status icons (signal, Wi-Fi, battery, and time 09:51).

The left screenshot shows the 'Obtain an IP address automatically' option selected with a radio button. Below it is the 'Use the following IP address' option, which is unselected. A blue 'UPDATE' button is visible at the bottom.

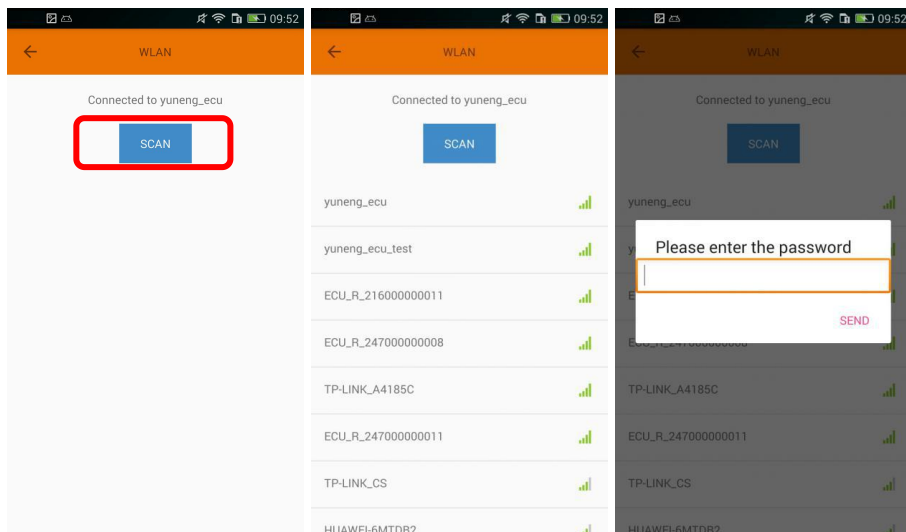
The right screenshot shows the 'Use the following IP address' option selected with a radio button. Below it are five input fields for network configuration, each with a blue 'UPDATE' button at the bottom.

Field	Value
IP address	192 . 168 . 1 . 252
Subnet mask	255 . 0 . 0 . 0
Default gateway	192 . 168 . 1 . 1
Preferred DNS server	0 . 0 . 0 . 0
Alternate DNS server	0 . 0 . 0 . 0

4.5.4 Manage the WLAN connection

- connection state of ECU-R. Click "Search", the available SSID would be listed below.
- Click the SSID and enter the password.
- The ECU-R would restart after sending the password. Please reconnect the ECU-R.

4. ECU-R User Interface

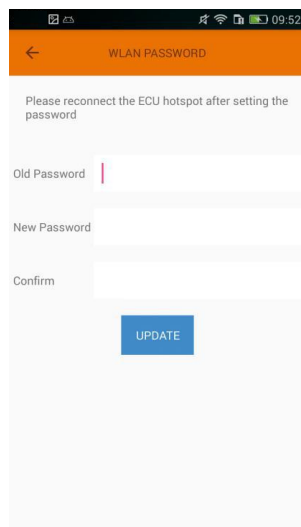


NOTICE

After the password is sent, ECU-R will restart. Please reconnect to ECU-R.

4.5.5 WLAN PASSWORD

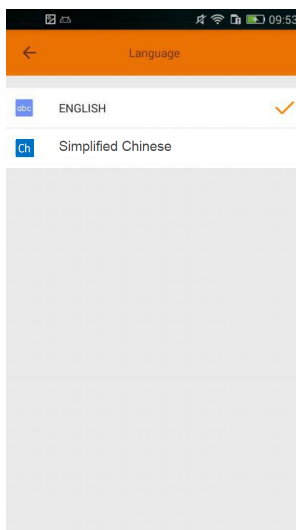
- Please reconnect the ECU-R hotspot after setting the password. On the page, you can change Password.
- If user forget the password, hardware reset could be carried out. The initial password would be "88888888".



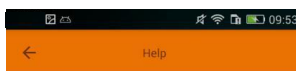
4. ECU-R User Interface

4.5.6 Language

Switch Language.



4.5.7 Help



Introduction

This App is a smart phone application designed for control and monitor ECU-R. User could get the working status of ECU-R and inverters below it, also could reset the configurations.

Main function

Get the latest working status and configurations of ECU-R, monitor each inverter.

Show the real time data, power, and energy in the data page.

Reset inverter IDs to ECU-R, make new communications.

Reset the time on ECU-R, the current time of the ECU-R will be displayed.

Obtain an IP address automatically or use a static IP address.

5. Technical Data

Model: ECU-R	
REV 1.0	
Communication Interface	
Integrated Wireless	802.11b/g/n and 802.15.4
Antenna	Standard
Power Requirements	
AC Adapter	100~240 VAC, 50~60 Hz 5V 2A
Power Consumption	1.7W
Mechanical Data	
Dimensions (W×H×D)	122mm×87mm×25mm
Weight	150g
Ambient Temperature Range	-20°C to +65°C
Cooling	Nature Convection; No Fans
Enclosure Environmental Rating	Indoor - NEMA 1(IP20)

Specifications subject to change without notice.

Please ensure you are using the most recent update found at www.APsystems.com.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

5. Technical Data

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

ISED RSS Warning:

This device complies with Innovation, Science and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

ISED RF exposure statement:

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Le rayonnement de la classe B respecte ISED fixaient un environnement non contrôlés. Installation et mise en œuvre de ce matériel devrait avec émetteur distance minimale entre 20 cm de votre corps. Émetteurs ou ne peuvent pas coexister cette antenne ou capteurs avec d'autres.

CAUTION

The professional person is allowed to replace the battery.

Do not ingest battery, Chemical Burn Hazard.

This product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death. Keep new and used batteries away from children. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

6.Contact Information

ALTENERGY POWER SYSTEM Inc.

www.APsystems.com

Altenergy Power System Inc. (Jiaxing China)

No. 1, Yatai Road, Nanhu District, Jiaxing, Zhejiang

Tel: +86 573 8398 6967

Mail: info@altenergy-power.com

Altenergy Power System Inc. (Shanghai China)

B403 No. 188, Zhangyang Road, Pudong, Shanghai

Tel: +86 021 3392 8205

Mail: info@altenergy-power.com

Altenergy Power System Inc. (Australia)

Suite 502, 8 Help Street, Chatswood NSW 2067 Australia

Tel: +61 (0)2 8034 6587

Mail: info@altenergy-power.com

Altenergy Power System Inc. (America)

600 Ericksen Ave NE, Suite 200 Seattle, WA 98110

Tel: 844-666-7035

Mail: info@APsystems.com

Altenergy Power System Inc. (Europe)

Rue des Monts dor ZAC de Folliouses Sud-Les Echets 01700 Miribel, France

Tel: +33-481 65 60 40

Mail: emea@APsystems.com