

Installation / User Manual

APsystems Energy Communication Unit ECU-R

Rev 3.0 AP Please use mobile browser to scan the QR codes to download ECUAPP : (Android) (iOS) © All Rights Reserved

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1. Introduction

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

- APsystems inverter
- APsystems Energy Communication Unit (ECU-R)
 ECU-R is part of the system and is the data link to the inverter.
- APsystems APP (ECUAPP) Based on android and iOS.
- APsystems Energy Monitoring and Analysis (EMA) Web-based monitoring and analysis system.



2. Interface Explanation

2.1 Interface Layout

The ECU-R interface includes, (figure 2)from left to right, are Reset、 antenna(Wifi)、 power connection port、 RJ45 Signal port、 RJ45 ethernet network port、 antenna(Zigbee).

The sides from top to bottom ,are SIM port,USB port,AP.



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. Interface Explanation

2.3 Power Connection Port

The power connection port connects power through the power adapter.

2.4 RJ45 Ethernet Network Port

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

2.5 RJ45 Signal (Only for Australia)

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

2.6 Antenna

The antennas in the package should be connected to ECU-R. One antenna is used for the communication between ECU-R and inverters, the other antenna is used for the Wi-Fi connection between ECU-R and router.

2.7 SIM

The SIM interface is reserved.

2.8 USB port

The USB interface is reserved.

2.9 AP

Press the AP button to turn on AP. Then the ECU-R can be scanned by phone. ECU-R will turn off it automatically in one hour.



Figure 3

2.10 LED1

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

2.11 LED2

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

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

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

3.4 Cable Connection

1) Using a Wall Mount

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



Figure 6

- 2) Power Distribution Cabinet Installation
 - Install the socket on the guide rail (The socket will not be supplied by APsystems Please prepare it yourself).
 - Connect the adapter to the power connection port on the top of the ECU-R.



Figure 7

3.5 Antenna connection

- Make sure the sucker antenna is properly connected to the antenna port on the top of the ECU-R.
- The sucker antenna must be installed outside the Power Distribution Cabinet.



Figure 8

A NOTICE

Do not put the sucker antenna inside a metal box, that will block the signal. If the roof is metal, please use this long cable antenna, and place it outside or on roof.

3.6 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.



Option 2: Wireless Connection.

Use ECU-R internal WLAN (see Manage the WLAN connection).

Please use mobile browser to scan the QR codes to download ECUAPP :



4.1 Connecting to the ECU-R via the Local Wireless

- Open Wi-Fi setting in your smartphone, select ECU-R hotspot.
- Connecting to the ECU-R via the Local Wireless, the default password is "88888888".
- Open the ECUAPP.
- Check ECUAPP is connected to ECU-R in the Home page.



4.2 Add UID

• Click "Settings", select "ID Management", input the UID manually or scan the UID by camera. If there is no need to modify, then click "SYNC" to update the UIDs onto ECU.





4.3 Delete UID

 Select the UIDs, click "DELETE" then click "SYNC". The UIDs selected are deleted on the ECU-R.
 1326 11.10% 0 0 % III 0 = 91

4.4 Homepage

 Click "Home" at the bottom of the page. The information about systems info of ECU-R, ECU-R ID, version, total number of inverters, the number of connected inverters, intraday power output, historical Power output and current system power shall Be displayed.



- Green light indicates the mobile phone is connected to the ECU-R.
- Second se

4.5 Data

4.5.1 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, grid voltage, frequency and temperature.





Green panel indicates the inverter is successfully connected.

Grey panel indicates the inverter is disconnected.

4.5.2 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.



4.5.3 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 energy histogram of current week:



4.6 Settings

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



4.6.1 Manage IDs

Please refer to 4.2 to add UID.

4.6.2 Grid Profile

• Enter the Grid Profile page, you can select the grid profile for inverters. Select the grid profile, modify the parameters if it is needed and click Update.

A NOTICE

If you select the wrong grid profile, the inverters will not work normally.

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÷	Grid Profile	Deta	il	~	Grid Profile	e Detai	I.
ſ	Australia AS4777_2 2015	۲		Austra	lia AS4777_2 201	5 -	
	France VDE-0126/A1	0	V	Over volta 231-340V	age (stage 2)	244.0	v
,	France VDE-0126/A1(Island)	0	s	Over volta 0.04-610s	age 2 trip time	0.16	s
n	Germany VDE AR-N-4105	0	v	Under vol	tage (stage 3)	180.0	v
	Netherlands EN50438_NE	0	-	60-229V	60-229V	10010	
1	New Zealand AS4777_3	0	s	Under vol 0.04-610s	tage 3 trip time	1.5	s
	China NB/T 32004	0	V	Over volta 231-340V	age (stage 3)	245.0	V
	Spain RD1699	0	s	Over volta	age 3 trip time	1.5	
]	Sri Lanka IEC61727,IEC61683	0		0.04-610s	0.04-610s	1.5	S
8	US UL 1741/240	0	V	Average of 231-340V	over voltage	322.0	v
	US CA Rule 21	0		_	_		
	1011 1741/100	\cap			Reset	Update	

• Enter the Detail page, you can view the inverters' parameters. Click Read, ECU will get the parameters from inverters. You can swipe down the ID list to view the result after about 5 minutes later.

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÷	Inverter Parameters Read	~	Inverter Parameters Read			
ID	Parameters	ID	Parameters			
50600000000	Over voltage (stage 2)	504000000000	Over voltage (stage 2)			
53600000028	245.0V	53600000028	245.0V			
	Over voltage 2 trip time	1	Over voltage 2 trip time			
	0.12s	\mathbf{V}	0.12s			
	Under voltage (stage 3)		Under voltage (stage 3)			
	180.0V		180.0V			
	Under voltage 3 trip time		Under voltage 3 trip time			
	1.5s		1.5s			
	Over voltage (stage 3)		Over voltage (stage 3)			
	246.0V		246.0V			
	Over voltage 3 trip time		Over voltage 3 trip time			
	1.5s		1.5s			
	Average over voltage		Average over voltage			
	-0.1V		-0.1V			
	Average over voltage trip time		Average over voltage trip time			
	600s		600s			
	Under frequency (stage 2)		Under frequency (stage 2)			

4.6.3 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.



4.6.4 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.

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÷	LAN	÷	LAN
Obtain an IP addre	ess automatically	Obtain an IP addre	ess automatically
IP address	192.168.1.103		
		IP address	192.168.1.103
		Subnet mask	255.255.255.0
		Default gateway	192.168.1.1
		Preferred_DNS_server	220.189.127.108
		Alternate DNS server	220.189.127.107
			UPDATE

4.6.5 Manage the WLAN connection

- The page will show up ECU's wireless connection status. Click "Refresh" button, the available SSID would show up.
- Click the SSID and enter the password.
- The ECU-R would restart after sending the password. Please reconnect the ECU-R.

13:17 🖬	0.21 % 🛛 🛈 🤶	ີ ລິຟ 🙆 🔲 92	
÷	WLAN		
TP-LINK_0580	D_1	al	
ECU-WIFI_0777		al	
TP-LINK_6964_3		al	
ECU-WIFI_0803		al	
ECU-WIFI_0847		al	
ECU-WIFI_0721		al	
ECU-WIFI_0200		al	
TP-LINK_43C9_2		al	
ECU-WIFI_5074		al	
	C		

A NOTICE

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

4.6.6 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".

13:17 🖬	1.06 ½ 🗊 😳 🤶 înt 🙆 💷 92			
÷	WLAN PASSWORD			
Please reconnect the ECU's hotspot after setting the password				
Old Password	Input old password			
New Password	Input password			
Confirm	Input password again			
UPDATE				

4.6.7 Language

Select Language.



4.6.8 Help





Introduction

This smart phone application is designed to control and monitor an APsystems ECU as part of an APsystems solar microinverter system. App users can see the working status of the ECU and its inverters and can reset the device configuration.

The APsystems Energy Communication Unit (ECU) is the information gateway to and from APsystems solar microinverters. The unit collects module performance data from each microinverter unit and transfers this information to an online database in real time, requiring only an internet connection (via wired CATS or Wi-Fi) and power cable. Through the APsystems Energy Monitoring and Analysis (EMA) cloud-based service, the ECU gives the homeowner precise analysis of each microinverter and module in their solar installation.

Features:

-See the status and configuration of the ECU gateway and monitor each inverter.

-Display real-time energy production and other nerformance data

5. Technical Data

Model: ECU-R			
Communication Interface			
Integrated Wi-Fi	802.11g/n		
Antenna	Standard2.4G		
Power Requirements			
AC Adapter	110~240 VAC, 50~60 Hz 5V 2A		
Power Consumption	1.7W		
Mechanical Data			
Dimensions (W×H×D)	122mm×87mmx25mm		
Weight	150g		
Ambient Temperature Range	-20°C to +65°C		
Cooling	Nature Convection; No Fans		
Enclosure Environmental Rating	Indoor - NEMA 1(IP20)		
Features			
	IEC 60950-1, EN60950-1, IEC 60529, EN 60529,		
Compliance	ANSI/UL 60950-1, CAN/CSA C22.2 No.60950-1,		
Compliance	UL50E, FCC part 15, EN61000-6-1,EN61000-6-3,		
	ICES-003, AS NZS 60950-1, GB/T17799		

Specifications subject to change without notice.

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

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 Class B digital apparatus complies with Canadian ICES-003.

2018/12/26 REV3.0

5.Technical Data

:: WEEE (for Europe)



Disposal of your old appliance

- 1. When this crossed-out wheeled bin symbol is attached to a product, it means the product is covered by the European Directive 2002/96/EC.
- All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
- 3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
- 4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.

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

APsystems Jiaxing China

No. 1, Yatai Road, Nanhu District, Jiaxing, Zhejiang Tel: +86 573 8398 6967 Mail: <u>info@altenergy-power.com</u>

APsystems Shanghai China

B403 No. 188, Zhangyang Road, Pudong, Shanghai Tel: +86 021 3392 8205 Mail: <u>info@altenergy-power.com</u>

APsystems Australia

Suite 502, 8 Help Street, Chatswood NSW 2067 Australia Tel: +61 (0)2 8034 6587 Mail: <u>info@altenergy-power.com</u>

APsystems America

600 Ericksen Ave NE, Suite 200 Seattle, WA 98110 Tel: 844-666-7035 Mail: info@APsystems.com

APsystems Europe

Rue des Monts dor ZAC de Folliouses Sud-Les Echets 01700 Miribel, France Tel: +33-481 65 60 40 Mail: <u>emea@APsystems.com</u>