ECU-R & ECU-C cellular communication
LTE USB Dongle

ALTENERGY POWER SYSTEM Inc.

www.APsystems.com

APsystems China:

Rm. B305 No.188, Tomson Center, Zhangyang Road,

Pudong, Shanghai , China

TEL: +86 21 33928205   EMAIL: info@APsystems.cn

ECU-R & ECU-C cellular communication
LTE USB Dongle

APsystems new generation of ECU-R and ECU-C is able to manage cellular communication with the addition of an external 4G USB Dongle.

New generation of ECUs can be identified either by their firmware version or their UID (serial number)
- ECU-R firmware version from 1.2.17.Z3 or UID number starting by 2162-
- ECU-C firmware version from C1.1.9 or UID number more than 215000017559

This technical brief describes the hardware interface, electrical characteristics and application of the LTE USB Dongle.
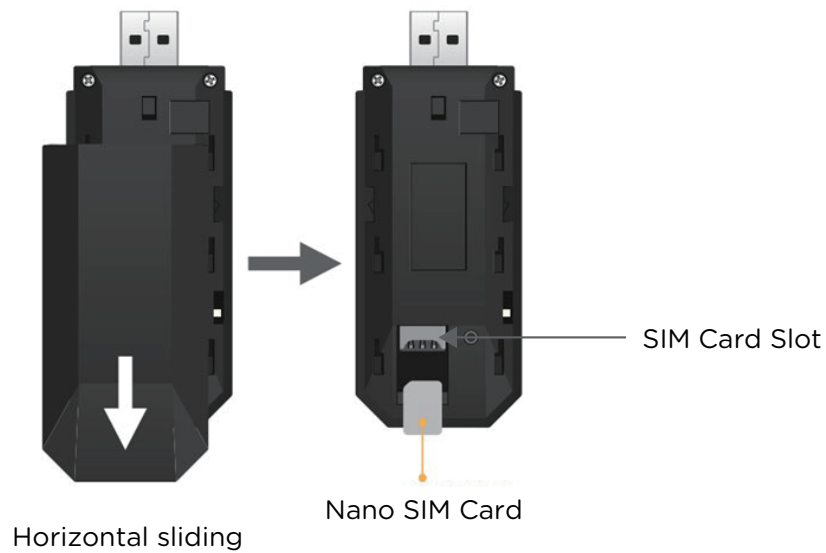
Key Features are listed below:

☆ LTE Cat4, 150Mbps 4G All Netcom

☆ Supporting Cloud Platform Management Devices and Traffic

☆ Supporting MQTT Transmission
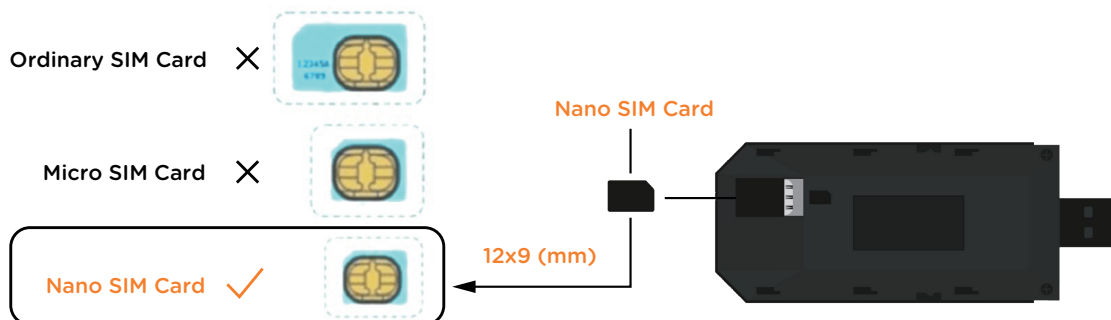
☆ Working Temperature: from -40°C to 85°C;

APsystems
ALTENERGY POWER

SIM Card

1. SIM Card Slot

Following up the direction of the arrow, press the casing while sliding horizontally to open the SIM card slot:

Horizontal sliding

SIM Card Slot

Nano SIM Card

2. SIM Card Type

LTE USB Dongle card slot is adapted to Nano SIM Card.

Ordinary SIM Card ✕

Micro SIM Card ✕

Nano SIM Card ✓

Nano SIM Card

12x9 (mm)

APsystems
ALTENERGY POWER

3. SIM Card Activation (for some specific countries only)

In some specific countries, the SIM Card may need to be activated via a PIN code (default PIN is usually "0000"). In order to use the cellular option of the ECU, the PIN code needs to be deactivated first.
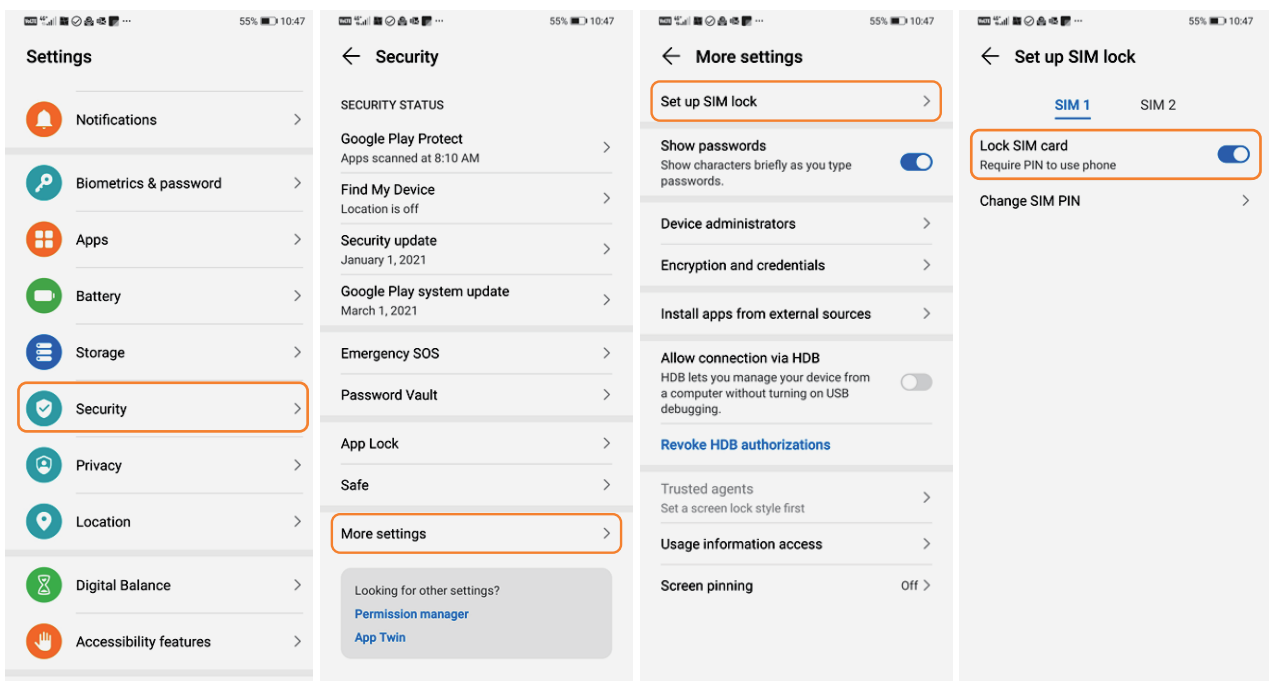
After inserting the SIM card in your smart phone, typical deactivation steps are as shown below:

Step1: Open Settings menu in your smartphone, then click « Security » .

Step2: Click « More settings ».

Step3: Click « Set up SIM lock ».

Step4: Uncheck the box.

Step1   Step2   Step3   Step4

> **Note:** *These 4 steps are only needed if he SIM Card is protected with a PIN code. Once the SIM card has been deactivated, you can use it in the EC20 USB 4G Dongle.*

APsystems
ALTENERGY POWER

4. Priority order of Internet connection

Priority order of internet connection and switching mode is：

Ethernet, then Wi-Fi, then 4G.

The ECU scans and updates the connection according to this order every 5mins. As an example: if the ECU is using Wi-Fi or 4G, after plugging the Ethernet cable, it will turn to Ethernet connection within 5mins.
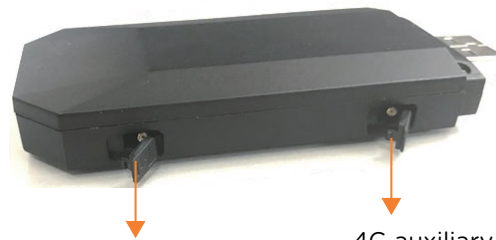
Antennas of LTE USB Dongle

LTE USB dongle has 2 antenna interfaces (port model: CRC9): a main antenna port and an auxiliary antenna port.

It is delivered with 2 pieces of 4G glue rod antennas as a standard installation.

4G antenna (standard)

4G main antenna
port：CRC9
Outside diameters: 2mm

4G auxiliary antenna
port：CRC9
Outside diameters :2mm

If the Dongle is installed in the distribution cabinet, users can also install extension antennas with CRC9 interface to make sure the antennas are located outside of the distribution cabinet to ensure proper communication.

Extension antenna with CRC9 interface is a common article and can be purchased in electrical store.

Extension antenna（CRC9 ）

> **Note:** *LTE USB dongle must always be equipped with the main antenna.*

ECU cellular set-up

Insert the Nano SIM into the SIM Card Slot of LTE USB dongle,
Then connect the LTE USB dongle with the energy communication Unit (ECU) through the
USB interface. Once the ECU is powered on, the Dongle can be connected to the 4G network.

ECU-C and LTE USB Dongle

ECU-R and LTE USB Dongle

> *Note:* *LTE USB dongle only supports the USB connection; Once the LTE USB dongle is plugged into the ECU, it does not need any special settings in the ECU_APP. (see ECU Quick Install Guide for more info on the ECU_APP and the commissioning method).*

Indicator of LTE USB Dongle

After the LTE USB dongle is plugged into the Energy Communication Unit (ECU), wait about
15 seconds for the LTE USB dongle to start to operate. User can judge the working state of
LTE USB Dongle through the indicator.

Network searching state：
Slow flicker (0.2s blue light flicker/2s light off)

Access network state:
Alternating flicker (0.2s green light flicker/2s blue light flicker)

Data Plan Guideline

The following table shows the data volume typically used for our microinverter system.

Name	Daily data volume (Kbytes)
Data volume per micro-inverter	150Kbytes
Basic data volume per ECU	2000 Kbytes
Total data volume of Micro-inverter system	2000Kbytes+N*150Kbytes

Note: *"N"means the number of inverters*