

# ES821

## 1. General Description

ES821 is an LTE (Cat-M1 & NB) waterproof GPS asset tracker with a 7,800mAh large battery. Thanks to its embedded magnets, ES821 can be easily installed on many objects with an iron surface. Light sensor is used for detecting the drop or detachment of the device from the asset and a tamper message will be sent if it happens. It is carefully designed for long standby time purposes. Vibration mode is very useful for applications in which the location information is unnecessary when it is stationary to save data communication and power consumption.



## 2. Main Functions

- **Tracking:** Send GPS information to the server with configurable report interval
- **Power Saving by Report Interval:**
  1. LTE and GPS will be shut down at most times in one report per day mode
  2. LTE, GPS and MCU in sleep mode in long report interval (e.g. >3 minutes) mode
  3. LTE, GPS and MCU in active mode in short report interval (e.g. < 3 minutes) mode
- **Long Standby Time:** It can last 5 years under one report per day mode with a 7800mAh battery
- **Trip Start and Trip End Detection:** Report trip start and trip end
- **Drop Alarm:** Light sensor is used to detect the drop/detach from the tracking object
- **Vibration Mode:** Report location information only when moving is detected
- **LBS Positioning:** Report cell-ID info when the GPS signal is not available
- **Built-in Magnets:** Embedded with magnets, it can easily be installed to a vehicle, trailer, or container for asset tracking
- **Low Battery Alarm:** Send alarm when battery voltage is low
- **Storing Messages:** Store messages if out of cellular coverage
- **Geofence:** Supports multi-circle and polygon geofence setting
- **OTA (Over the Air):** Firmware can be remotely upgraded

## 3. Specification

### Physical and Electrical

Dimensions: 86mm\*62mm\*33mm

Weight: 286g

Battery Capacity: 7800mAh

Supply Voltage: 3.3VDC ~ 4.2VDC

Power Consumption:

-Active mode: <60mA @4VDC

-Power saving mode: <4mA @4VDC

-Deep Sleep Mode: <60µA @4VDC

Operation Temperature: -20°C to 65°C

Storage Temperature: -20°C to 65°C

LTE Module: Quectel BG96

Antenna: Built-in cellular and GPS antenna

Charging Method: USB charging

LED Indicators: 3 for GPS, cellular and charging status

SIM Card: Micro SIM(3FF)

### GPS Specifications

Sensitivity Tracking: -157dBm

Position Accuracy (CEP 50): <2.5m(Open Sky)

### Cellular Communication

Cat.M1 & NB:

LTE-FDD: B1/B2/B3/B4/B5/B8/B12/  
B13/ B18/B19/B20/B25/B26/B28

GSM: GSM850/GSM900/DCS1800/PCS1900

### Protocol

HTTP/TCP/UDP/SMS/MQTT