



ES500



1. General Description

ES500 is an IoT device, which can be used for engine on/off detection via CAN bus or just by HALL effect sensor, and calculating the engine working hours. It can also detect the person who is operating the machine (for example, lawn mower) with that engine. It can also detect the malfunction of the engine or hash operation of the machine. Since it is embedded with GPS, it can also be used to know the position of the machine and also to find the lost machine.

2. Main Functions

- **Report engine working hours:** It sends machine on/off timestamps periodically so that at server or with a smartphone APP, user can know exactly the engine on/off time and so that the working hours.
- **Report the person who is operating the machine:** Let the person who operating the machine carry a BLE tag, the device will detect the tag ID and report the ID together with the engine on/off information to the server.
- **Detect the rough handling of the machine:** The device can detect the collision of the machine with its embedded 3-axis accelerometer.
- **As a data router:** With its embedded BLE module, the device can relay the data to the server from its child product – ES501, which does not have cellular module.
- **Low power mode:** With its 3-axis accelerometer, the device will go to sleep mode and save the power consumption when there is no vibration detected from the machine.
- **Storing Message:** The device can store message when there is no cellular coverage and send out stored message when it come back to the coverage.
- **Backup Battery:** With a backup battery, the device sends a tamper message if the main power supply harness is disconnected.
- **OTA (Over the Air):** the FW of device, BLE module, and the LTE module can be upgraded via OTA

3. Specification

Physical and Electrical

Dimensions: 90mm *55mm *18mm

Weight: 65g

Input voltage range: 6-42VDC

Power Consumption:

- Active mode: <32 mA @12VDC

- Sleep mode: <10mA @12VDC

Operation temperature: -20°C to +65°C

Storage temperature (Without battery):

-40°C to +85°C

Module: EC25 from Quectel

GPS specification

-162dBm Tracking Sensitivity

Accuracy (Open Sky): < 2.5m (CEP50)

Comprehensive IOs

Max 4 inputs and 4 outputs

Max 2 A/D inputs and 3 UARTs

2 LEDs for GPS and Cellular status

Cellular Communication

