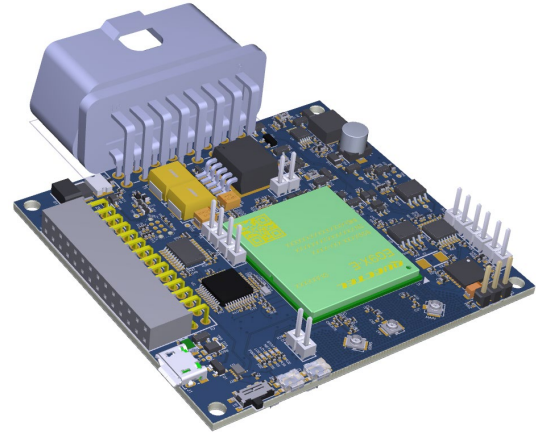# OBD II with LTE&GNSS

OBD II with Integrated Cellular and GNSS Connectivity

This device is an OBD II with integrated cellular and GNSS connectivity. The device provides bi-directional, half- duplex communication with the vehicle's On-Board Diagnostic system (OBD-II). It supports all legislated OBD-II protocols for cars, pickups, light trucks, and heavy trucks.

The device has integrated LTE cat 1 and GNSS modem. The LTE modem is an embedded LTE Cat 1 cellular communication module. The wireless modem provides a maximum data rate of 10Mbps downlink and 5 Mbps uplink. It provides data connectivity on LTE-FDD/HSPA/WCDMA/GSM/EDGE/GPRS networks.

The GNSS modem supports Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou, Galileo and QZSS) with assisted GPS for increased accuracy. The integrated GNSS greatly simplifies product design, and provides quicker, more accurate and more dependable positioning.

In addition, the device is powered by Microchip Microcontroller Unit (MCU) which is a 32-bit ARM Cortex® M0+ core. This MCU can be used to control both the OBD II controller and the modem using Arduino IDE. The MCU enables vast majority of customized applications to be easily run on the device.

A wealth of information can be obtained by tapping into the OBD II controller, obtaining precise geo-location of the vehicle, and transmitting the information over the cellular connection to the Cloud. Using OBD II controller, information such as status of the malfunction indicator light (MIL), diagnostic trouble codes (DTCs), inspection and maintenance (I/M), freeze frames, VIN, hundreds of real-time parameters, and more can be easily collected, stored on the Cloud, processed, and analyzed.

Key Benefits

OBD II Controller
- ✓ Fully **compatible with the ELM327** AT command set.
- ✓ Support for **all legislated OBD-II protocols:**
  - ✓ SAE J1850 VPW (GM vehicles)
  - ✓ SAE J1850 PWM (Ford vehicles)
  - ✓ ISO 9141-2 (Asian, European, Chrysler vehicles)
  - ✓ ISO 14230-4 (Keyword Protocol 2000)
  - ✓ ISO 15765-4 (CAN)
- ✓ Support for **non-legislated OBD protocols:**
  - ✓ ISO 15765
  - ✓ ISO 11898 (raw CAN)
- ✓ Support for the heavy-duty SAE J1939 OBD protocol
- ✓ Support 12/24V OBD

LTE Modem
- ✓ Category 1 module with 10Mbps (DL) and 5Mbps (UL)
- ✓ Multiband LTE, UMTS, GSM/GPRS/EDGE coverage
- ✓ Supports firmware over-air update (DFOTA)
- ✓ MIMO in downlink direction
- ✓ Nano USIM card slot

GNSS
- ✓ Supports GPS, GLONASS, BeiDou/Compass, Galileo, QZSS
- ✓ Supports assisted-GPS
- ✓ Cold start < 11.57s, Warm start < 3.7s, Hot start < 3.4s
- ✓ Accuracy < 2.5m

Microcontroller Unit
- ✓ Reprogrammable I/O interfaces
- ✓ Arduino IDE Compatible
- ✓ 28 pins connector for abundant functions
  UART/I^{2}C/SPI/GPIO/PWM/ADC/SWD/LEDs

Device Features
- ✓ Sleep mode for low power consumption
- ✓ Cloud ready with Amazon Web Services (AWS)
- ✓ One Type B Micro USB 2.0 port
- ✓ Easy reprogrammable with Single Wire Debug (SWD)
- ✓ Built-in LTE & diversity & GNSS antennas
- ✓ Dimension of 70.5 cm by 66 mm by 25 mm
- ✓ Wight < 46 g
- ✓ Temperature Range: -40°C ~ +80°C

Certification & Approval
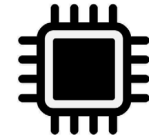- ✓ FCC, CE/RED

OBD II controller

LTE Cat 4
Max 10Mbps (DL) Max
50Mbps (UL)

GNSS
GPS, GLONASS,
BeiDou/Compass,
Galileo, QZSS

Reprogrammable
microcontroller

Embedded Abundant
Protocols

Compact Size

USB 2.0 High
Speed Interface

ARDUINO
Arduino Ready

amazon
web services™
Cloud Ready