

DATASHEET

EL.1A - EDGE Locate™

High Precision GNSS Solution



The Taoglas® **EDGE Locate™** solution is an ultra low-power IoT hardware platform providing high precision GNSS for high volume navigation and autonomous applications in an off-the-shelf, compact form factor.

The **EDGE Locate™** GNSS L1/L2/E5 hardware platform combines the antenna, RF electronics and receiver technology delivering reliable high accuracy positioning.

Key Features

- High-end RTK receiver
- Integrated and validated multi-band antenna
- Integrated u-blox ZedF9P multi-band GNSS Receiver
- Concurrent reception of GPS, GLONASS, Galileo and BeiDou
- Advanced anti-spoofing and anti-jamming
- PMOD compatible and easy to integrate into third-party hardware
- Pre-certified and validated electronics
- Easy integration with EDGE Connect for full cellular connectivity
- REACH & RoHS Compliant

Key Benefits

- Ultra low power platform in an off the shelf compact form factor
- Future-proof your IoT deployments and optimize location based performance with high precision GNSS and RTK
- Quickly and effectively build IoT devices without having to invest in costly and lengthy RF design, integration and testing processes

Typical Applications

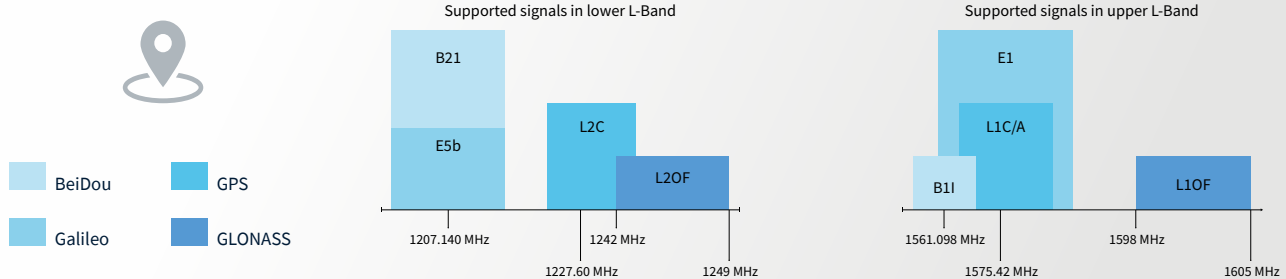


DATASHEET

EL.1A - EDGE Locate™

High Precision GNSS Solution

Supported Bands and Signals



High precision GNSS Receiver – EDGE Locate™ Static Open Sky Testing Results

| ZED-F9P GNSS Constellation Bands | ZED-F9P Frequency Bands (MHz) | Recommended Minimum C/No for Standard Precision Acquisition/Tracking (dB-Hz) | Recommended Minimum C/No for RTK (dB-Hz) | Without RTK | | | With RTK | | | Group Delay @ Zenith Variation Across Single Constellation (ns) | Phase Center Offset PCO (cm) | Phase Center Variation PCV (mm) including Active Circuitry | Axial Ratio (AR/dB) with Active Circuitry included |
|----------------------------------|-------------------------------|--|--|-----------------------------------|--|----------------------|--------------------------------|---|-------------------|---|------------------------------|--|--|
| | | | | Tracking C/No without RTK (dB-Hz) | 2*DRMS Positioning accuracy (cm) - without RTK | TTFF (s) without RTK | Tracking C/No with RTK (dB-Hz) | 2*DRMS Positioning accuracy (cm) - with RTK | TTFF (s) with RTK | | | | |
| GPS L1 | 1563-1587 | 26-30/ 12-15 | 40 | 40 | 82 | 33.7 | 43.37 | 1.4 | 31 | 25 | 6.3 | 1 | 3 |
| GPS L2 | 1215-1239.6 | 26-30/ 12-15 | 40 | 33 | 82 | 33.7 | 36.16 | 1.4 | 31 | 80 | 7.9 | 70 | 5 |
| Galileo E1 | 1559-1591 | 26-30/ 12-15 | 40 | 39 | 82 | 33.7 | 39 | 1.4 | 31 | 25 | 6.3 | 1 | 3 |
| Galileo E5b | 1189-1214 | 26-30/ 12-15 | 40 | 33 | 82 | 33.7 | 31.5 | 1.4 | 31 | 80 | 43 | 70 | 18 |
| Glonass G1 | 1598-1605 | 26-30/ 12-15 | 40 | 33 | 82 | 33.7 | 28.6 | 1.4 | 31 | 30 | 6.3 | 1 | 11 |
| Glonass G2 | 1242-1249 | 26-30/ 12-15 | 40 | 28 | 82 | 33.7 | 28.8 | 1.4 | 31 | 25 | 43 | 70 | 18 |
| Beidou B1I | 1559-1563 | 26-30/ 12-15 | 40 | 40 | 82 | 33.7 | 36.42 | 1.4 | 31 | 30 | 6.3 | 1 | 3 |
| Beidou B2I | 1200-1214 | 26-30/ 12-15 | 40 | 33 | 82 | 33.7 | 28.8 | 1.4 | 31 | 25 | 43 | 70 | 18 |

* All outdoor measurements performed on the rooftop of the Taoglas R&D Labs facility in Dublin, Ireland.

Power Consumption

| Symbol | Parameter | Conditions | GPS+GLO+GAL+BDS | GPS | Unit |
|--------------------------------|--------------|-------------|-----------------|-----|------|
| IPEAK | Peak current | Acquisition | 130 | 120 | mA |
| I _{VCC} ¹⁰ | VCC current | Acquisition | 90 | 75 | mA |
| I _{VCC} ¹⁰ | VCC current | Tracking | 85 | 68 | mA |

Low Power Mode: 1.4 mA to achieve a warm start. VCC/VIN Range - 3.3-5.5V.
For more information please refer to the U-blox ZED-F9P datasheets.

System Interface

PMOD Connector Pinout

- | | | |
|---|------|--|
| 1 | EN | Power enable (active high) |
| 2 | INT | External interrupt for ZF9 module, unused |
| 3 | TXR | TX ready, interrupt for data ready when using SPI |
| 4 | GEO | Geofence status from ZF9 |
| 5 | CS | Chip select when using SPI |
| 6 | MOSI | ZF9 SPI input when using SPI and ZF9 UART_TXD when using UART |
| 7 | MISO | ZF9 SPI output when using SPI and ZF9 UART_RXD when using UART |
| 8 | SCK | SPI clock when using SPI |

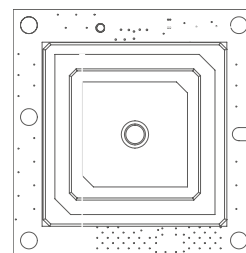
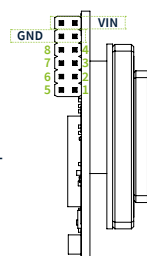
Notes:

UART and SPI switchable by resistor population
UART up to 921600 bps (default 38400)
SPI up to 5.5 MHz clock and 125kb/s throughput

Data Format:

See U-blox ZED-F9P datasheet

Mechanical Specifications



Width: 47 mm
Length: 48 mm
Height: 19 mm
Weight: 40g

For further information on the antenna used, the AGPSF.36, please refer to the Datasheet

For further details go to www.taoglas.com/product/edge-locate