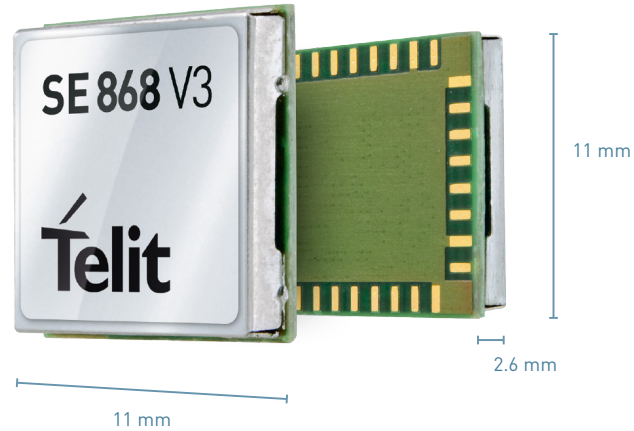


## SE868 V3

GNSS Embedded



### Product Description

The SE868 V3 is a positioning system that combines GPS, GLONASS, BeiDou, Galileo, and SBAS to provide a high performance position reporting and navigation solution. The SE868 V3 can navigate to -161 dBm and track to -165 dBm, thereby providing improved performance in harsh environments. The SE868 V3 is pin-to-pin compatible with the SE868 V2 as well as the JF2. It can track GPS and GLONASS or BeiDou constellations simultaneously and it is Galileo ready, thereby providing the host device with high-value benefits from multi-constellation navigation in just one period.

The SE868 V3 is encased in an 11 x 11 mm QFN package that has a powerful baseband processor, SQI Flash memory and integrated LNA. Its ultra-sensitive RF front-end enables multi-GNSS indoor fixes and hi-quality navigation in challenging outdoor scenarios such as dense urban areas. The SE868 V3 provides high-quality navigation over a serial interface according to the NMEA protocol standard or via OSP binary protocol. Its low power processing core delivers optimized multi-constellation tracking plus advanced power management. The SE868 V3 supports ephemeris file injection (A-GPS) as well as Satellite Based Augmentation System (SBAS) to increase position accuracy. Its onboard software engine can predict local short-term ephemeris starting from ephemeris data broadcast by GNSS satellites received by the module and stored in the internal Flash memory.

### Key Benefits

- Pin-to-pin compatible with JF2 and SE868 V2
- Full GNSS compliance: GPS, GLONASS, Galileo and BeiDou
- Low power processing core delivers optimized multi-constellation tracking
- Ultra-sensitive -165 dBm (tracking) RF front-end
- Embedded LNA allows use of passive antennas
- Supports ephemeris file injection (A-GPS)
- Satellite Based Augmentation System (SBAS) compliant
- QTI SiRFstarV™ based

### Family Concept

Our positioning product portfolio is the result of over twenty years of experience in GNSS applications. Telit has developed a range of products that are compatible with the well-known GPS constellation as well as its Russian counterpart GLONASS. Moreover, our portfolio is fully aligned with the upcoming service launch of Europe's Galileo constellation. Valuable features such as Dead Reckoning, Precision Timing, as well as speed and reliability are assured by multi-constellation coverage, thereby providing additional benefits for your application.

Your application development effort can also benefit significantly from the seamless integration between Telit's cellular and positioning modules. This bundling of cellular and positioning modules significantly reduces development complexity without adding costs. Multi-constellation positioning products employed together with our eCall/ERA-GLONASS compliant cellular modules enable ready-to-use emergency automotive tracking solutions for the European and Russian markets.

Typical applications include fleet management systems, European GPS-assisted road tolling systems, cellular base stations, in-car navigation systems, automotive telematics systems, and GPS-based personal sports training monitors.

Complete, Ready-to-Use Access to the Internet of Things



## SE868 V3

### Product Features

- 32-pad QFN package
- Frequency Band: GPS L1, Glonass L1, Galileo E1 and BeiDou B1
- Standards: NMEA and OSP binary
- Jamming rejection
- Low Power Modes
  - Smart GNSS 1 Mode (SG1)
  - High Power Reduction Mode (HPR)
- A-GPS: ephemeris file injection

### Environmental

- Dimensions: 11 x 11 x 2.62 mm
- Weight: 1 g
- 32-pad QFN package, requiring only 2 Layer PCB
- Temperature Range
  - Operating temperature: -40 to +85°C
  - Storage temperature: -40 to +85°C

### Interfaces

- UART, I<sup>2</sup>C and SPI interfaces
- PPS for precise timing
- EGNOS, WAAS, GAGAN and MSAS capability embedded with correction of positional errors due to ionospheric and orbital disturbances
- RTC for efficient power management

### Approvals

- RoHS compliant
- RED

### Electrical & Sensitivity

- Power supply
  - From 1.71V up to 1.89 V
- Current consumption: GPS+GLO
  - Acquisition : 76 mW
  - Tracking: 70mW
- Low power modes
  - Hibernate: 69 uW
  - SG1 mode: 44-51mW
  - HPR mode: 17-20mW
- Sensitivity: GPS+ GLO
  - Acquisition: -146 dBm
  - Navigation: -161 dBm
  - Tracking: -165 dBm
- Horizontal Positional accuracy (CEP50): GPS+GLO
  - 1.5 m
- Accuracy
  - Speed: 0.01 m/s
  - Heading: 0.01 deg
- Time To First Fix (90% @ -130 dBm) GPS+GLO Hot Start: 1.1 s
  - Warm start: 23 s
  - Cold Start: 27 s

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