JUPITER SE868K3-A/AL

6.1 mm (A)

4.1 mm (AL)

11 mm

11 mm

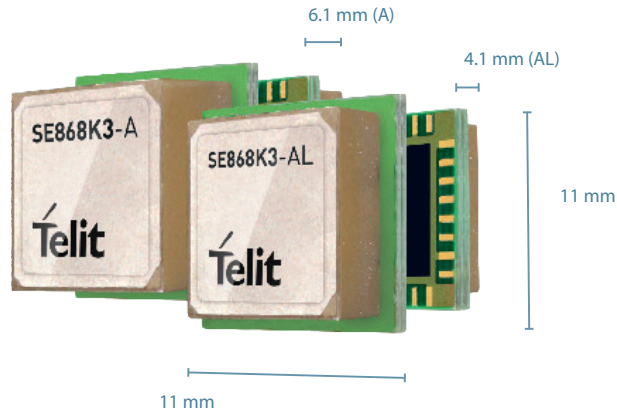## Product Description

The Jupiter SE868K3-A series is a new, enhanced variant of the Telit SE868-A GNSS antenna module. These modules are complete multi-constellation GNSS receivers, which include a 9 x 9 mm patch antenna, SAW filter, flash memory, GNSS core, RTC and TCXO. The SE868K3-A series uses the same compact 11 x 11 mm "cavity like" PCB package as the SE868-A and retains its popular footprint while adding 2nd LNA to increase the RF sensitivity.

The SE868K3-A series is available in two different floavours: with standard antenna (SE868K3-A) and low profile antenna (SE868K3-AL).

Telit's commitment to excellence is reflected in the architecture of the SE868K3-A series. Competing solutions require a guard in the host PCB around the RF PIN zone in order to minimize interference and antenna detuning. The Telit SE868K3-A series provides an integrated solution with an optimized RF path and standard SMT mounting operation, without constraining the host PCB, thus minimizing the antenna detuning.

The SE868K3-A series support GPS, QZSS and GLONASS and it is Galileo ready. The SE868K3-A series is capable to track GPS + GLONASS and Galileo constellations simultaneously, providing the positioning data though standard UART, I2C or SPI.

The Jupiter SE868K3-A series supports either autonomous than server based A-GPS. Its onboard A-GPS software engine is able to locally predict ephemeris up to three days in advance and store this data in the memory.

The small size of the Jupiter SE868K3-A series features the best balance between size and performance together with an optimized power consumption. The Jupiter SE868K3-A series is the best solution for small tracking applications with challenging footprint requirement. The low profile variant SE868K3-AL is the specifically designed for applications with stringent constraints in terms of thickness but requiring anyway the multipath rejection capability of a RHCP antenna rahter than a chip antenna solution with no rejection and big ground plane contraint.

Key Benefits

- standard variant with integrated 9 x 9 x 4mm SMT antenna
- low profile variant with 9 x 9 x 2mm antenna
- Additional LNA and SAW filter
- SMT mounting not requiring holes on host PCB
- Ready for Galileo
- Backward compatible with SE868-A
- Pin-to-pin compatible with GPS-only variant SE868K7-A / AL and SE868-AS
- Supports ephemeris file injection (A-GPS)
- Satellite Based Augmentation System (SBAS) compliant

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 compatible with the well-known GPS constellation as well as its Russian counter-part 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 assured by multi-constellation coverage, provide additional benefits for your application.

Your application development effort can also benefit significantly from the seamless integration between Telit's 2G cellular and positioning modules. This bundling of cellular and positioning modules significantly reduces development complexity without adding costs. Multi-constellation positioning products applied together with our eCall/ERA-GLONASS compliant cellular modules bring you 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.

Combine your GNSS module with

Cellular modules

Short Range modules

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IoT PLATFORM S   IoT KNOW-HOW

ENABLING END-TO-END IoT SOLUTIONS

JUPITER SE868K3-A / AL

Model	Constellations				Interfaces			Add. LNA	SAW	Features			
	GPS/ QZSS	GLONASS	Galileo	BDS	UART	SPI	I2C			Track. Sensitivity	Acq. Sensitivity	Flash	Size
SE868-A	•	•	•		•		•			-159	-145	•	11 x 11 x 6.1
SE868K3-A	•	•	•	•	•	•	•	•	•	-164	-148	•	11 x 11 x 6.1
SE868K3-AL	•	•	•	•	•	•	•	•	•	-160	-145	•	11 x 11 x 4.1
SE868-AS	•				•					-160	-146		11 x 11 x 6.1
SE868K7-A	•				•			•	•	-164	-148		11 x 11 x 6.1
SE868K7-AL	•				•			•	•	-160	-146		11 x 11 x 4.1

Product Features

- 32-pad QFN package with embedded SMT antenna
- Embedded 9 x 9 mm SMT antenna
- Frequency Bands: GPS L1, GLONASS L1, QZSS L1, Galileo E1
- Standards: NMEA
- Jamming rejection
- Additional LNA + SAW filter
- Data logging
- A-GPS: ephemeris file injection
- EGNOS, WAAS, GAGAN and MSAS capability embedded with correction of positional errors due to ionospheric and orbital disturbances

Environmental

- Dimensions: 11 x 11 x 6.1 mm (SE868K3-A)
- Dimensions: 11 x 11 x 4.1 mm (SE868K3-AL)
- Weight: <2 g
- Temperature range:
  - Operating temperature: -40 to +85℃
  - Storage temperature: -40 to +85℃

Interfaces

- UART
- I2C
- SPI
- PPS for precise timing

Approvals

- RoHS compliant
- R&TTE

Electrical & Sensitivity

- Current consumption
  - Backup : ‹ 30 uW
  - Full power tracking: ‹ 90 mW (G+G)
  - Full power acquisition: ‹ 100 mW (G+G)
- Sensitivity (SE868K3-A)
  - Acquisition: -148 dBm
  - Navigation: -161 dBm
  - Tracking: -164 dBm
- Sensitivity (SE868K3-AL)
  - Acquisition: -145 dBm
  - Navigation: -159 dBm
  - Tracking: -160 dBm
- Power supply
  - Range from 3 up to 4.3 V
- Positional accuracy (CEP50): Autonomous Positional Error = 2.5m
- Accuracy
  - Speed: ‹ 0.01 m/s
  - Heading: ‹ 0.01 deg
- Time to first fix (90% @ -130 dBm)
  - Hot start: 1 s
  - Cold start: ‹ 35 s

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For a quicker and more rewarding integration experience join the Telit Technical Forum. There you can browse the first open forum covering all IoT topics, get direct support by region (EMEA, North America, Latin America, APAC), take part in this quickly growing IoT community and exchange experiences.