

EVA-8M SiP

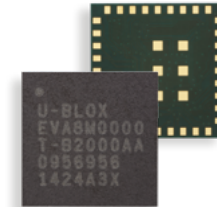


Cost-efficient u-blox 8 GPS SiP



Cost-efficient GNSS solution

- Industry's smallest GPS/QZSS and GLONASS SiP
- High sensitivity of -164 dBm
- Cost-efficient system
- Minimal power consumption
- Superior anti-spoofing and anti-jamming
- Pin-compatible to EVA-7M



7.0 × 7.0 × 1.1 mm

Product description

The EVA-8M standard precision GNSS SiP features the reliable performance of the u-blox 8 positioning engine (receiving GPS, GLONASS, QZSS and SBAS signals). The EVA-8M delivers high sensitivity in the ultra compact EVA form factor.

The EVA-8M supports advanced Power Save Modes and provides message integrity protection, geofencing, spoofing detection, and odometer functionalities.

The EVA-8M is an ideal solution for cost and space-sensitive applications. It is easy to design-in, only requiring an external GNSS antenna in most applications. The layout of the EVA-8M is especially designed to ease the customer's design and limit near field interferences, since RF and digital domains are kept separated.

The EVA-8M uses a crystal oscillator for lower system costs. Like other u-blox GNSS modules, the EVA-8M uses components selected for functioning reliably in the field over the full operating temperature range.

The EVA-8M is easily integrated in manufacturing, thanks to its QFN-like package and low moisture sensitivity level. The SiPs are available in 500 pieces/reel, ideal for small production batches.

The EVA-8M SiP combines a high level of integration capability with flexible connectivity options in a miniature package. This makes it perfectly suited for industrial and mass-market end products with strict size and cost requirements. The DDC (I²C compliant) interface provides connectivity and enables synergies with most u-blox cellular modules.

The EVA-8M SiP is manufactured in ISO/TS 16949 certified sites and qualified as stipulated in the JESD47 standard.

By offering backward compatibility to EVA-7M, migration to EVA-8M is easy.

Product selector

Model	Category	GNSS	Supply	Interfaces	Features	Grade
	Standard Precision GNSS High Precision GNSS Dead Reckoning Timing	GPS/QZSS GLONASS Galileo BeiDou Number of concurrent GNSS	1.65 V - 3.6 V	UART USB SPI DDC (I ² C compliant)	Programmable (Flash) Data logging Additional SAW Additional LNA RTC crystal Oscillator Built-in antenna Built-in antenna supply and supervisor Timepulse	Standard Professional Automotive
EVA-8M	•	• •	•	• • • •	E o C	•

E = External Flash required / o = Optional, or requires external components / C = Crystal



Features

Receiver type	72-channel u-blox 8 GNSS engine GPS/QZSS L1 C/A, GLONASS L1 FDMA, SBAS: WAAS, EGNOS, MSAS	
Nav. update rate	up to 18 Hz	
Position accuracy	GPS	GLONASS
Autonomous:	2.5 m CEP	4.0 m CEP
Acquisition		
Cold starts:	30 s	33 s
Aided starts:	3 s	3 s
Reacquisition:	1 s	1 s
Sensitivity		
Tracking & Nav:	-164 dBm	-163 dBm
Cold starts:	-147 dBm	-145 dBm
Hot starts:	-156 dBm	-155 dBm
Assistance GNSS	AssistNow Online AssistNow Offline (up to 35 days) AssistNow Autonomous (GPS only, up to 3 days) OMA SUPL & 3GPP compliant	
Oscillator	Crystal	
Real time clock (RTC)	Can be derived either from onboard GNSS crystal (for lowest system costs and smallest size) or from external RTC Clock (Default mode, for lower battery current)	
Anti jamming	Active CW detection and removal	
Memory	Onboard ROM	
SQI Flash (optional) for	AssistNow Offline AssistNow Autonomous Data logging	
Supported antennas	Active and passive ¹	
Antenna supervision	Short and open circuit detection supported with external circuit	
Raw Data	Code phase output	
Odometer	Integrated in navigation filter	
Geofencing	Up to 4 circular areas GPIO for waking up external CPU	
Spoofing detection	Built-in	
Signal integrity	Signature feature with SHA 256	
Data-logger ²	For position, velocity, time, and odometer data	

¹ External LNA and SAW recommended for passive antenna applications

² External Flash required

Environmental data, quality & reliability

Operating temp.	-40 °C to +85 °C
Storage temp.	-40 °C to +105 °C
RoHS compliant (lead-free) and green (no halogens)	
Qualification according to standard	JESD47
Manufactured in ISO/TS 16949 certified production sites	
Moisture sensitivity level	3

Further information

For contact information, see www.u-blox.com/contact-us.

For more product details and ordering information, see the [product data sheet](#).

Package

43 pin LGA (Land Grid Array): 7.0 x 7.0 x 1.1 mm, 0.13 g

Electrical data

Supply voltage	1.65 V to 3.6 V
Digital I/O voltage level	1.65 V to 3.6 V
Power consumption ³	16 mA @ 3 V (Continuous) 3.7 mA @ 3 V Power Save mode (1 Hz)
Backup Supply	1.4 V to 3.6 V

³ For default mode: GPS incl. QZSS, SBAS

Interfaces

Serial interfaces	1 UART 1 USB 1 SPI (optional) 1 DDC (I ² C compliant) 1 SQI interface (For optional external Flash)
Digital I/O	Configurable timepulse 1 EXTINT input for Wakeup
Timepulse	Configurable 0.25 Hz to 10 MHz
Protocols	NMEA, UBX binary, RTCM

Support products

Evaluation kits to get familiar with u-blox 8 positioning technology, evaluate functionality, and visualize GNSS performance.

EVK-M8MEVA Evaluation Kit for EVA-8M (crystal), in single GNSS mode (GPS or GLONASS)

Product variants

EVA-8M u-blox 8 GNSS LGA SiP, Crystal, ROM

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