Product Summary
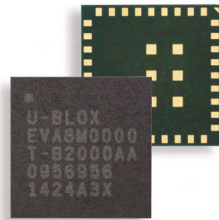# EVA-8M SiP

Cost-efficient u-blox 8 GPS SiP

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Standard

Professional

Automotive

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.

	EVA-8M
Grade	
Automotive	
Professional	•
Standard	
GNSS	
GPS / QZSS	•
GLONASS	•
Galileo	
BeiDou	
Number of concurrent GNSS	1
Interfaces	
UART	1
USB	1
SPI	1
DDC (I²C compliant)	1
Features	
Data logging	E
RTC crystal	o
Oscillator	C
Timepulse	1
Power supply	
1.65 V – 3.6 V	•

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

EVA-8M SiP

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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 Autonomous:	GPS 2.5 m CEP	GLONASS 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	

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 (I²C 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

Further information

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

For more product details and ordering information, see the product data sheet.