| Standard | Professional | Automotive |

EVA-7M

u-blox 7 GNSS module

Highlights

- Industry's smallest standalone GPS/QZSS, GLONASS module
- Minimal system cost
- Minimal power consumption
- Eases design and manufacturing
- No host integration or external components needed

EVA-7M:
7.0 x 7.0 x 1.1 mm

Product description

The EVA-7M standalone GNSS module features the reliable performance of the u-blox 7 positioning engine (receiving GPS, GLONASS, QZSS and SBAS signals). The EVA-7M delivers high sensitivity and minimal acquisition times in the ultra compact EVA form factor.

The EVA-7M 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-7M is especially designed to ease the customer's design and limit near field interferences since RF and digital domains are kept separated.

EVA-7M uses a crystal oscillator for lower system costs. Like other u-blox GNSS modules, the EVA-7M uses components selected for functioning reliably in the field over the full operating temperature range.

The EVA-7M is easily integrated in manufacturing, thanks to its QFN-like package and low moisture sensitivity level. The modules are available in 500 pcs/reel, ideal for small production batches. The EVA-7M module 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 u-blox cellular modules.

The EVA-7M module is manufactured in ISO/TS 16949 certified sites and qualified as stipulated in the JESD47 standard.

Product selector

Model	Type								Supply		Interfaces				Features											Grade		
	GPS / QZSS	GLONASS	Galileo	BeiDou	Timing	Dead Reckoning	Precise Point Positioning	Raw Data	1.65 V – 3.6 V	Lowest power (DC/DC)	UART	USB	SPI	DDC (I²C compliant)	Programmable (Flash)	Data logger	Additional SAW	Additional LNA	RTC crystal	Internal oscillator	Active antenna / LNA supply	Active antenna / LNA control	Antenna short circuit detection / protection pin	Antenna open circuit detection pin	Frequency output	Standard	Professional	Automotive
EVA-7M	●	●							●	●	●	●	●	●					○	C	○	○	○	○		■		

○ = Optional, or requires external components
C = Crystal

Production Information

u-blox

Features

Receiver type	56-channel u-blox 7 GNSS engine GPS/QZSS L1 C/A, GLONASS L1 FDMA, SBAS: WAAS, EGNOS, MSAS	
Max nav. update rate	10 Hz	

		GPS	GLONASS
Accuracy	Position	2.5 m CEP	4.0 m CEP
	SBAS	2.0 m CEP	n.a.
Acquisition	Cold starts:	30 s	32 s
	Aided starts:	5 s	n.a.
	Reacquisition:	1 s	3 s
Sensitivity	Tracking and Nav:	−160 dBm	−158 dBm
	Cold starts:	−147 dBm	−139 dBm
	Warm starts:	−148 dBm	−145 dBm

Assistance GPS	AssistNow Online AssistNow Offline AssistNow Autonomous 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
Supported antennas	Active and passive[1]
Antenna supervision	Short and open circuit detection supported with external circuit

[1]   An external LNA is recommended

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	16.5 mA @ 3 V (Continuous) 4 mA @ 3 V Power Save mode (1 Hz)
Backup Supply	1.4 to 3.6 V

Interfaces

Serial interfaces	1 UART 1 USB 1 SPI (Optional) 1 DDC (I²C compliant)
Digital I/O	Configurable timepulse 1 EXTINT input for Wakeup
Timepulse	Configurable 0.25 Hz to 10 MHz
Protocols	NMEA, UBX binary, RTCM

Package

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

Pinout
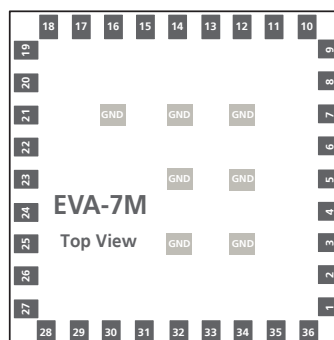
Environmental data, quality & reliability

Operating temp.	−30° 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

Support products

Evaluation kit to get familiar with u-blox 7 positioning technology, evaluate functionality, and visualize GPS performance.

EVK-7EVA: u-blox 7 Evaluation Kit for EVA-7M (crystal)

C88-7M: NEO adaptor board using EVA-7M for easier evaluation for existing NEO-xM designs.

Product variants

EVK-7M: u-blox 7 GNSS LGA module, 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.