Product Summary

LEA-M8S module

u-blox M8 GNSS module

P

Seamless upgrade of existing LEA-6 designs to multi-GNSS

- Concurrent reception of up to 3 GNSS (GPS, Galileo, GLONASS, BeiDou)
- Industry leading –167 dBm navigation sensitivity
- Combines low power consumption and high sensitivity
- Superior anti-spoofing and anti-jamming
- UART, USB and DDC (I²C compliant) interfaces
- Easy migration from LEA-6 modules

17.0 × 22.4 × 2.4 mm

u-blox

LEA-M8S

Product description

The LEA-M8S module delivers concurrent GNSS location capability together with high-performance u-blox M8 positioning technology in the industry proven LEA form factor.

With its dual-frequency RF front-end, the LEA-M8S concurrent GNSS module is able to intelligently use the highest number of visible satellites from up to three GNSS systems (GPS/Galileo together with either BeiDou or GLONASS) for more reliable positioning. The LEA-M8S provides exceptional performance with low system power, and is optimized for cost sensitive applications. It also supports message integrity protection, geofencing, and spoofing detection.

The LEA-M8S has sophisticated RF-architecture and interference suppression ensuring maximum performance even in GNSS-hostile environments. It features very low power GLONASS functionality. This 6th generation module in the LEA form factor allows simple migration from LEA-6x GPS and LEA-6N GPS /GLONASS modules.

The LEA-M8S combines a high level of robustness and integration capability with flexible connectivity options. The DDC (I²C compliant) interface provides connectivity and enables synergies with most u-blox cellular modules. For RF optimization, the LEA-M8S features a front-end SAW filter for increased jamming immunity.

LEA-M8S module uses u-blox GNSS chips qualified according to AEC-Q100 and is manufactured in ISO/TS 16949 certified sites. Qualification tests are performed as stipulated in the ISO16750 standard: "Road vehicles – Environmental conditions and testing for electrical and electronic equipment".

	LEA-M8S
Grade	
Automotive	
Professional	•
Standard	
GNSS	
GPS / QZSS	•
GLONASS	•
Galileo	•
BeiDou	•
Number of concurrent GNSS	3
Interfaces	
UART	1
USB	1
SPI	
DDC (I²C compliant)	1
Features	
Additional SAW	•
RTC crystal	•
Oscillator	T
Built-in antenna supply & supervisor	•
Timepulse	1
Power supply	
2.7 V – 3.6 V	•

T = TCXO

u-blox

LEA-M8S module

P

Features

Receiver type	72-channel u-blox concurrent M8 engine GPS/QZSS L1 C/A, GLONASS L10F, BeiDou B11, Galileo E1B/C SBAS L1 C/A: WAAS, EGNOS, MSAS, GAGAN
Nav. update rate	Single GNSS: up to 18 Hz 2 Concurrent GNSS: up to 10 Hz
Accuracy	Position 2.5 m CEP SBAS 2.0 m CEP
Acquisition[1] Cold starts: Aided starts: Reacquisition:	 26 s 2 s 1 s
Sensitivity[1] Tracking & Nav.: Cold starts: Hot starts:	 −167 dBm −148 dBm −157 dBm
Assistance GNSS	AssistNow Online AssistNow Offline (up to 35 days) AssistNow Autonomous (GPS only, up to 3 days) OMA SUPL & 3GPP compliant
Oscillator	TCXO
RTC crystal	Built-in
Anti jamming	Active CW detection and removal; extra onboard SAW band pass filter
Memory	Onboard ROM
Supported antennas	Active and passive
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

Electrical data

Supply voltage	2.7 V to 3.6 V
Power Consumption[1]	22 mA @ 3.0 V (Continuous) 6.2 mA @ 3.0 V Power Save mode (1 Hz)
Backup supply	1.4 V to 3.6 V

1 For default mode: GPS incl. QZSS, SBAS

Package

28 pin LCC (Leadless Chip Carrier): 17.0 x 22.4 x 2.4 mm, 2.1 g

Environmental data, quality & reliability

Operating temp.	−40 °C to +85 °C
Storage temp.	−40 °C to +85 °C
RoHS compliant (lead-free)	
Qualification according to ISO 16750	
Manufactured and fully tested in ISO/TS 16949 certified production sites	
Uses u-blox M8 chips qualified according to AEC-Q100	

Interfaces

Serial interfaces	1 UART 1 USB V2.0 full speed 12 Mbit/s 1 DDC (I²C compliant)
Digital I/O	Configurable timepulse 2 EXTINT input for Wakeup
Timepulse	Configurable: 0.25 Hz to 10 MHz
Protocols	NMEA, UBX binary, RTCM

Support products

u-blox 8 Evaluation Kits:	
Easy-to-use kits to get familiar with u-blox M8 positioning technology, evaluate functionality, and visualize GNSS performance.	
EVK-M8N	u-blox M8 GNSS Evaluation Kit, with TCXO, supports LEA-M8S

Product variants

LEA-M8S	u-blox M8 concurrent GNSS Module, TCXO, ROM, SAW

Further information

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

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