

LEA-6N

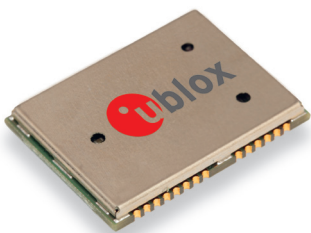
u-blox 6 GPS, QZSS, GLONASS and Galileo module

Highlights

- GLONASS, GPS and QZSS
- Optimized mode for low power and maximum sensitivity
- UART, USB and DDC (I²C compliant) interfaces
- Onboard RTC Crystal for faster warm and hot starts
- Integrated antenna supervisor

Features

- u-blox 6 position engine:
 - Navigate down to -162 dBm and -148 dBm coldstart
 - Configurable power management
 - Hybrid GPS/SBAS engine (WAAS, EGNOS, MSAS)
 - Anti-jamming technology
- Simple integration with u-blox wireless modules
- A-GPS: AssistNow Online and AssistNow Offline services, OMA SUPL compliant
- Easy migration from LEA-6, LEA-5 or LEA-4 GPS modules
- LCC package for reliable and cost effective manufacturing
- Compatible with u-blox GNSS Solution for Android
- Based on GNSS chips qualified according to AEC-Q100
- Manufactured in ISO/TS 16949 certified production sites
- Qualified according to ISO 16750



LEA-6N:
17.0 x 22.4 x 2.4 mm

Product description

The LEA-6N module brings GLONASS functionality to the high performance u-blox 6 position engine in the industry standard LEA form factor. The Russian GLONASS satellite system is an alternative to the US-based Global Positioning System (GPS). GLONASS-based navigation systems are becoming a de-facto standard in Russia and beyond. The LEA-6N also provides the GPS features and performance of u-blox 6 technology and adds enhanced coverage and performance by also supporting the QZSS regional satellite system.

The LEA-6N features the lowest power GLONASS functionality in the industry at low cost, and is designed for ERA-GLONASS. This versatile, standalone receiver combines an extensive array of features with flexible connectivity options. The ease of integration results in fast time-to-market for a wide range of automotive and industrial applications targeting the Russian market.

All LEA-6 modules are manufactured in ISO/TS 16949 certified sites. Each module is tested and inspected during production. The modules are qualified according to ISO 16750 - Environmental conditions and electrical testing for electrical and electronic equipment for road vehicles.

Product selector

Model	Type						Supply	Interfaces				Features						
	Standalone GPS	Standalone GLONASS	Standalone Galileo	QZSS	Timing & Raw Data	Dead Reckoning	1.75 V – 2.0 V 2.7 V – 3.6 V	UART	USB	SPI	DDC (I ² C compliant)	Programmable (Flash) FW update	Oscillator	RTC crystal	Antenna supply and supervisor	Configuration pins	Timepulse	External interrupt / Wakeup
LEA-6N	•	•	R	•			•	•	•		•	•	T	O	•		1	•

R = HW Galileo ready, firmware upgrade required.
O = Onboard RTC crystal for faster warm and hot starts.

T = TCXO

Receiver performance data

Receiver type	50-channel u-blox6 engine GPS/QZSS L1 C/A code GLONASS L1 FDMA Galileo L1 open service (with upgrade) SBAS: WAAS, EGNOS, MSAS		
Navigation update rate	2 Hz		
Accuracy ¹	Position	GPS 2.5 m CEP	GLONASS 4 m CEP
	SBAS	2.0 m CEP	n.a.
Acquisition ¹	Cold starts:	29 s	36 s
	Aided starts ² :	1 s	n.a.
	Hot starts:	1 s	2 s
Sensitivity ³	Tracking:	−162 dBm	−158 dBm
	Cold starts:	−148 dBm	−138 dBm
	Hot starts:	−155 dBm	−153 dBm

¹ All SV @ −130 dBm

² Dependent on aiding data connection speed and latency

³ Demonstrated with a good active antenna

Electrical data

Power supply	2.7 V – 3.6 V
Power consumption	124 mW @ 3.0 V (continuous) 43 mW @ 3.0 V Power Save Mode (1 Hz) ⁴
Backup power	1.4 V – 3.6 V, 22 µA
Antenna power	External or internal VCC_RF
Supported antennas	Active and passive
Antenna supervision	Integrated short-circuit detection and antenna shutdown, open circuit detection with minimal external circuitry

⁴ GPS only.

Interfaces

Serial interfaces	1 UART 1 USB V2.0 full speed 12 Mbit/s 1 DDC (I ² C compliant)
Digital I/O	Configurable timepulse 1 EXTINT input for Wakeup 1 reset
Serial and I/O	Voltages 2.7 V – 3.6 V
Timepulse	Configurable 0.25 Hz to 1 kHz
Protocols	NMEA, UBX binary, RTCM

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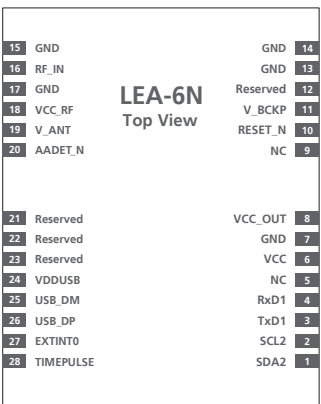
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Objective Specification

Package

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

Pinout



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 in ISO/TS 16949 certified production sites	

Support products

u-blox 6 Evaluation Kits:

Easy-to-use kits to get familiar with u-blox 6 positioning technology, evaluate functionality, and visualize GNSS performance.

EVK-6N: u-blox6 Evaluation Kit
GPS/GLONASS/QZSS with TCXO

Ordering information

LEA-6N-0 u-blox 6 GPS/GLONASS/QZSS Module, TCXO, Flash, 17 x 22mm, 250 pcs/reel

Available as samples and tape on reel

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