LEA-7N

u-blox 7 GPS/GNSS module

GNSS

locate, communicate, accelerate

Highlights

- Multi-GNSS engine for GPS, GLONASS, Galileo and QZSS
- Combines low power consumption and high sensitivity
- UART, USB and DDC (I²C compliant) interfaces
- Simple integration with u-blox wireless modules
- 5th generation LEA module
- Easy migration from LEA-6 GPS and GLONASS modules

LEA-7N:
17.0 x 22.4 x 2.4 mm

Product description

The LEA-7N module delivers multi-GNSS location capability (GPS, GLONASS, Galileo, QZSS and SBAS) together with high performance u-blox 7 positioning technology in the industry proven LEA form factor. The LEA-7N provides exceptional performance with low system power, and is optimized for active antennas.

The LEA-7N features the lowest power GLONASS functionality in the industry and is designed for ERA-GLONASS. This 5th generation module in the LEA form factor allows simple migration from LEA-6 GPS and LEA-6N GPS/GLONASS modules. Sophisticated RF-architecture and interference suppression ensure maximum performance even in GPS-hostile environments.

The LEA-7N combines a high level of robustness and integration capability with flexible connectivity options. Future-proof the LEA-7N's internal Flash allows simple firmware upgrades for supporting additional GNSS systems. This makes it perfectly suited to industrial and automotive applications. The DDC (I²C compliant) interface provides connectivity and enables synergies with u-blox SARA, LEON and LISA wireless modules. For RF optimization the LEA-7N features a front-end SAW filter for increased jamming immunity.

u-blox 7 modules use GPS/GNSS chips qualified according to AEC-Q100 and are 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".

Product selector

Model	Type						Supply			Interfaces				Features											
	GPS	QZSS	GLONASS	Timing	Dead Reckoning	Precise Point Positioning	2.7 V – 3.6 V	1.65 V – 3.6 V	Lowest power (DC/DC)	UART	USB	SPI	DDC (I2C compliant)	Programmable (Flash)	Data logger	Extra front-end LNA	Front-end SAW filter	Oscillator	RTC crystal	Antenna supply	Antenna short circuit detection / protection	Antenna open circuit detection pin	Timepulse	External interrupt / Wakeup
LEA-7N	•	•	•				•		•	•	•		•	•	•		•	T	•	•	•	•	•	•

C = Crystal / T = TCXO

Features

Receiver type	56-channel u-blox 7 engine GPS L1 C/A, GLONASS L1 FDMA, QZSS L1 C/A, Galileo E1B/C, Compass ready SBAS: WAAS, EGNOS, MSAS		
Navigation update rate	up to 10 Hz		
		GPS	GLONASS
Accuracy	Position	2.5 m CEP	4.0 m
	SBAS	2.0 m CEP	n.a.
Acquisition	Cold starts:	29 s	30 s
	Aided starts:	5 s	n.a.
	Reaquisition:	1 s	3 s
Sensitivity	Tracking:	–162 dBm	–158 dBm
	Cold starts:	–148 dBm	–140 dBm
	Warm starts:	–148 dBm	–145 dBm
Assistance	AssistNow Online AssistNow Offline AssistNow Autonomous OMA SUPL & 3GPP compliant		
LNA	Built-In		
Oscillator	TCXO		
RTC crystal	Built-In		
Anti jamming	Active CW detection and removal		
Memory	Flash		
Supported antennas	Active and passive		

Electrical data

Supply voltage	2.7 V to 3.6 V
Power Consumption	69 mW @ 3 V (Continuous) 30 mW @ 3 V Power Save mode (1 Hz)
Backup Supply	1.4 to 3.6 V

Interfaces

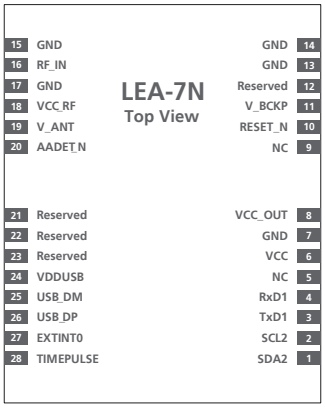
Serial interfaces	1 UART 1 USB V2.0 full speed 12 Mbit/s 1 DDC (I^2C compliant)	
Digital I/O	Configurable timepulse 1 EXTINT input for Wakeup	
Timepulse	Configurable	0.25 Hz to 1 kHz
Protocols	NMEA, UBX binary, RTCM	

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 7 Evaluation Kits:

Easy-to-use kits to get familiar with u-blox 7 positioning technology, evaluate functionality, and visualize GPS/GNSS performance.

EVK-7N:	u-blox 7 GPS/GNSS Evaluation Kit, with TCXO

Ordering information

LEA-7N-0	u-blox 7 GPS/GNSS Module, Flash, TCXO, SAW, 17 x 22mm, 250 pcs/reel

Available as samples and tape on reel

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