LEA-6 series
Feature rich u-blox 6 GPS/GLONASS & Galileo modules

Highlights
- Industry standard 17.0 x 22.4 x 2.4 mm package
- UART, USB and DDC (I²C compliant) interfaces
- Available in Crystal and TCXO versions
- 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
  - Faster acquisition with AssistNow Autonomous
  - 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
- Supports GLONASS¹, Galileo ready (LEA-6H)
- Backward compatible (hardware and firmware); easy migration from LEA-5 or LEA-4 families
- Based on GNSS chips qualified according to AEC-Q100
- Manufactured in ISO/TS 16949 certified sites
- LCC package for reliable and cost effective manufacturing
- Operating temperature range: –40°C to 85°C

¹ Available with LEA-6H-0-002. HW GLONASS ready, requires firmware upgrade.

Product description
The LEA-6 module series brings the high performance of the u-blox 6 position engine to the industry standard LEA form factor. u-blox 6 has been designed with low power consumption and low costs in mind. Intelligent power management is a breakthrough for low-power applications. These versatile, standalone receivers combine an extensive array of features with flexible connectivity options. Their ease of integration results in fast time-to-market for a wide range of automotive, consumer and industrial applications.

All LEA-6 modules are based on GNSS chips qualified according to AEC-Q100 and are manufactured in ISO/TS 16949 certified sites. Qualification tests on LEA-6 modules are performed as stipulated in the ISO16750 standard: “Road vehicles – Environmental conditions and testing for electrical and electronic equipment”.

Product selector

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>Supply</th>
<th>Interfaces</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standalone GPS</td>
<td>GLONASS Timing &amp; Raw Data</td>
<td>Dead Reckoning</td>
<td>UART</td>
</tr>
<tr>
<td>LEA-6H</td>
<td>•</td>
<td>R</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>LEA-6S</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>LEA-6A</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>
Receiver performance data

Receiver type 50-channel u-blox 6 engine
GPS L1 C/A code
GLONASS L1 FDMA
Galileo L1 open service (with upgrade)
SBAS: WAAS, EGNOS, MSAS

Navigation update rate up to 5 Hz (ROM version), 2 Hz (Flash)

Accuracy
Position 2.5 m CEP
SBAS 2.0 m CEP

Acquisition
Cold starts: 26 s
Aided starts: < 3 s
Hot starts: 1 s

Sensitivity
Tracking: –162 dBm
Cold starts: –148 dBm
Hot starts: –157 dBm

1 Available with LEA-6H-0-002 with firmware upgrade
2 All SV @ –130 dBm
3 Dependent on aiding data connection speed and latency
4 Demonstrated with a good active antenna

Interfaces
Serial interfaces
1 UART
1 USB V2.0 full speed 12 Mbit/s
1 DDC (I²C 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

Environmental data
Operating temp. –40° C to 85° C
Storage temp. –40° C to 85° C
RoHS compliant (lead-free)

Support products
u-blox 6 Evaluation Kits:
Easy-to-use kits to get familiar with u-blox 6 positioning technology, evaluate functionality, and visualize GPS performance.
EVK-6H: u-blox 6 Evaluation Kit with TCXO, suitable for LEA-6H, LEA-6S
EVK-6P: u-blox 6 Evaluation Kit with Crystal, suitable for LEA-6A

Ordering information
LEA-6H-0 Programmable u-blox 6 GPS Module with TCXO, GLONASS and Galileo ready
LEA-6S-0 ROM-based u-blox 6 GPS Module with TCXO
LEA-6A-0 ROM-based u-blox 6 GPS Module with Crystal
Available as samples and tape on reel (250 pieces)

Contact us
HQ Switzerland +41 44 722 7444 info@u-blox.com
EMEA +41 44 722 7444 info@u-blox.com
Americas +1 703 483 3180 info_us@u-blox.com
APAC – Singapore +65 6734 3811 info_ap@u-blox.com
China +86 10 68 133 545 info_cn@u-blox.com
Japan +81 3 5775 3850 info_jp@u-blox.com
Korea +82 2 542 0861 info_kr@u-blox.com
Taiwan +886 2 2657 1090 info_tw@u-blox.com

Legal Notice
u-blox reserves all rights to this document and the information contained herein. Products, names, logos and designs described herein may in whole or in part be subject to intellectual property rights. Reproduction, use, modification or disclosure to third parties of this document or any part thereof without the express permission of u-blox is strictly prohibited.
The information contained herein is provided "as is". No warranty of any kind, either express or implied, is made in relation to the accuracy, reliability, fitness for a particular purpose or content of this document. This document may be revised by u-blox at any time. For most recent documents, please visit www.u-blox.com.
Copyright © 2011, u-blox AG