**NEO-6P**

**u-blox 6 Precise Point Positioning GPS module**

### Highlights
- High precision of < 1 m
- Allows ultra small GPS designs
- High accuracy positioning at a fraction of the cost of other high precision solutions
- Raw data

### Features
- **u-blox 6 position engine:**
  - Navigate down to –160 dBm and –146 dBm coldstart
  - Faster acquisition with AssistNow Autonomous
  - 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
- LCC package for reliable and cost effective manufacturing
- Compatible with u-blox GPS Solution for Android
- Based on GPS chips qualified according to AEC-Q100
- Manufactured in ISO/TS 16949 certified production sites
- Qualified according to ISO 16750

### Product description
The NEO-6P module combines the high performance of the u-blox 6 position engine with Precise Point Positioning (PPP) technology. u-blox’ industry proven PPP algorithm provides extremely high levels of position accuracy in static and slow moving applications, and makes the NEO-6P an ideal solution for a variety of high precision applications such as surveying, mapping, marine, or agriculture.

Ionospheric corrections such as those received from local SBAS geostationary satellites (WAAS, EGNOS, MSAS) or from GPS enable the highest positioning accuracy with the PPP algorithm. The maximum improvement of positioning accuracy is reached with PPP+SBAS and can only be expected in an environment with unobstructed sky view during a period in the order of minutes.

All NEO-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

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>Supply</th>
<th>Interfaces</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEO-6P</td>
<td>Standalone GPS</td>
<td>1.75 V – 2.0 V</td>
<td>UART, USB, SPI, DDC (I²C compliant), Programmable (Flash) FW update, Oscillator, RTC crystal, Antenna supply and supervisor, Configuration pins, Timepulse, External interrupt, Wakeup</td>
<td>C</td>
</tr>
</tbody>
</table>

○ = requires external components and integration on application processor

C = Crystal

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**NEO-6P**

12.2 x 16.0 x 2.4 mm
Receiver performance data

Receiver type  50-channel u-blox 6 engine
GPS L1 C/A code
SBAS: WAAS, EGNOS, MSAS

Navigation update rate  up to 5 Hz

Accuracy1
Autonomous  2.5 m CEP
SBAS  2.0 m CEP
SBAS + PPP2  < 1 m (2D, R50)
               < 2 m (3D, R50)

Acquisition1
Cold starts:  32 s
Aided starts3:  < 3 s
Hot starts:  1 s

Sensitivity4
Tracking:  –160 dBm
Cold starts:  –146 dBm
Hot starts:  –155 dBm

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Accuracy with PPP+SBAS (units in m)
Accuracy with GPS and SBAS (units in m)

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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
Contact the u-blox sales team nearest you.

Ordering information
NEO-6P-0 u-blox 6 GPS Module, PPP, 12x16mm, 250 pcs/reel
Available as samples and tape on reel

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Packaging data

24 pin LCC (Leadless Chip Carrier): 12.2 x 16.0 x 2.4 mm, 1.6 g

Pinout

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Table of Interfaces

<table>
<thead>
<tr>
<th>Interfaces</th>
<th>Serial interfaces</th>
<th>Digital I/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 UART</td>
<td>1 US V2.0 full speed 12 Mbit/s</td>
<td></td>
</tr>
<tr>
<td>1 DDC (I²C compliant)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 SPI</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Digital I/O

Configurable timepulse
1 EXTINT input for Wakeup

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Serial and I/O

Voltage:  2.7 – 3.6 V

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Timepulse

Configurable:  0.25 Hz to 1 kHz

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Protocols

NMEA, UBX binary

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Specifications

Electrical data

Power supply  2.7 V – 3.6 V
Power consumption  117 mW @ 3.0 V
Backup power  1.4 V – 3.6 V, 22 μA
Supported antennas  Active and passive

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Specification applies to FW 6.02