Product summary

NEO-D9S

u-blox D9 correction data receiver

First mass-market L-band GNSS correction module
- Access to centimeter-level GNSS corrections globally
- Freedom to select GNSS correction data delivery channel
- High scalability for industrial and automotive applications
- Allows selection of desired L-band GNSS correction service
- Easy and seamless integration with u-blox F9 receivers

Product description

NEO-D9S is a satellite data receiver for L-band correction broadcast, which can be configured for use with a variety of correction services. It decodes the satellite transmission and outputs a correction stream, enabling a high precision GNSS receiver to reach accuracies down to centimeter level. Depending on the capabilities of the receiver used, it can consume the data output by NEO-D9S as is, or external preprocessing on the host might be needed. By providing an independent correction data stream delivered via satellite L-band, NEO-D9S ensures high availability of the position output and decreases dependency on cellular connectivity for correction service delivered via IP. Granting access to a broadcast data stream, NEO-D9S allows virtually infinite scalability, eliminating the need for a dedicated delivery channel per user. This makes NEO-D9S flexible for use in various markets and applications.

NEO-D9S is configurable for use with correction data of various providers and service levels. This ensures high precision in multiple regions globally, as well as coverage across continents.

NEO-D9S can be easily integrated with a variety of high precision GNSS receivers from the u-blox F9 platform, which allows a complete high precision solution to be built with less design effort. For more information about the u-blox F9 products, refer to the u-blox website.

In addition, NEO-D9S can be integrated in any high precision GNSS system that uses L-band correction delivery.

NEO-D9S implements u-blox security principles and advanced security features including signature and anti-jamming mechanisms, thus allowing reliable GNSS positioning in end-user products.

This L-band receiver is in the u-blox NEO form factor.

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Grade
- Automotive • •
- Professional •
- Standard

GNSS
- Satellite L-band • • •
- Concurrent signals 1 1 1

Interfaces
- UART 2 2 2
- USB 1 1 1
- SPI 1 1 1
- DDC (i2C compliant) 1 1 1

Features
- Programmable (flash) • • •
- Additional SAW filter • • •
- RTC crystal • • •
- Oscillator T T T
- Active antenna / LNA supply • • •

Power supply
- 2.7 V – 3.6 V • • •
NEO-D9S series

Features

- Receiver type: u-blox D9 correction data receiver
- Time-to-first-frame: Initial acquisition at 2400 bit/s <10 s
- Acquisition sensitivity: For BER < 10^-5 at 2400 bit/s -133 dBm
- Oscillator: TCXO
- Frequency bands:
  - 1525 - 1559 MHz (NEO-D9S-00A/00B)
  - 1550 - 1559 MHz (NEO-D9S-01A)
- Memory: Flash
- Supported antennas: Active
- Anti-jamming: Active CW detection and removal
  - Onboard SAW band pass filter

High precision GNSS architecture

Interfaces

- Serial interfaces: 2 UARTs, 1 USB, 1 SPI, 1 DDC (I2C compliant)
- Protocols: UBX
- Digital I/O: 1 EXTINT input for Wakeup

Electrical data

- Supply voltage: 2.7 V to 3.6 V
- Power consumption:
  - NEO-D9S-00B: 35 mA at 3.0 V (average)
  - NEO-D9S-00A/01A: 55 mA at 3.0 V (average)

Package

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

Environmental data, quality & reliability

<table>
<thead>
<tr>
<th>NEO-D9S-00A/01A</th>
<th>NEO-D9S-00B</th>
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<tbody>
<tr>
<td>Operating temp.</td>
<td>-40 °C to +105 °C</td>
</tr>
<tr>
<td>Storage temp.</td>
<td>-40 °C to +85 °C</td>
</tr>
<tr>
<td>Qualification</td>
<td>Professional-grade modules qualified according to ISO 16750</td>
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<tr>
<td></td>
<td>Automotive-grade modules qualified according to AEC-Q104</td>
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<tr>
<td>RoHS compliant</td>
<td>(2015/863/EU)</td>
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<tr>
<td>Green (halogen-free)</td>
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<td>Manufactured and fully tested in ISO/TS 16949 certified production sites</td>
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<tr>
<td>High vibration and shock resistance</td>
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<tr>
<td>Based on u-blox chips qualified according to AEC-Q100</td>
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Related u-blox products and services

- GNSS products:
  - ZED-F9P high precision GNSS module
  - ZED-F9R high precision dead reckoning module
  - ZED-F9K high precision dead reckoning module for automotive markets
- Location services: PointPerfect GNSS augmentation service

Support products

- Evaluation kits provide reference design, and allow efficient integration and evaluation of u-blox positioning technology.
- C101-D9S: NEO-D9S application board, allowing NEO-D9S module to be evaluated as a stand-alone module or combined with a suitable u-blox evaluation board, for example, C099-F9P or C100-F9K

Product variants

<table>
<thead>
<tr>
<th>NEO-D9S-00A</th>
<th>NEO-D9S-00B</th>
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</thead>
<tbody>
<tr>
<td>u-blox D9 correction data receiver with satellite L-band raw output, automotive grade</td>
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</tr>
<tr>
<td>u-blox D9 correction data receiver with satellite L-band raw output, limited frequency band, automotive grade</td>
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<tr>
<td>u-blox D9 correction data receiver with satellite L-band raw output, professional grade</td>
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Further information

For contact information, see www.u-blox.com/contact-u-blox.
For more product details and ordering information, see the product data sheet.

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