

AsteRx-m™ GeoPod

Compact GPS/GLONASS RTK & DGNSS receiver for mobile computing platforms



Compact, easy to use, GPS/GLONASS RTK & DGNSS receiver, adding high accuracy positioning to mobile computing platforms. Possible applications for the AsteRx-m™ GeoPod include construction, field service, utility mapping, highway maintenance, local mapping authorities and emergency services.

Unique compact high accuracy tablet extension

The AsteRx-m™ GeoPod upgrades professional tablet PCs with a high accuracy GNSS receiver, giving the user access to sub-meter and even centimeter-level position accuracies without the need for specialized equipment. Using a standard USB connection, the AsteRx-m™ GeoPod can be connected to any professional tablet giving the user free choice of tablet.

World-class performance

The AsteRx-m™ GeoPod uses satellites from the GPS and GLONASS constellations to increase the availability of a high quality position solution even in areas with bad satellite visibility. The receiver offers innovative tracking and positioning algorithms designed for demanding environments, including:

- APME+, multipath mitigation technology
- Track+, for robust tracking when signals are weak such as under foliage
- RTK+, a novel, multi-system cm-accurate positioning engine that uses innovative real-time modeling of GNSS errors and a new mixed-mode fixing approach for robust performance and high availability in difficult environments

Easy to Integrate

The RxAssitant software takes care of configuring the receiver and connecting to NTRIP-capable RTK or DGNSS networks, allowing a seamless integration with existing software applications such as ESRI ArcPAD™.

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Key Features

- Any field operator can perform accurate measurements, without needing complex equipment
- Affordable solution for submeter, and centimeter, accurate positioning
- Compatible with most professional tablet PCs
- Seamless integration with existing GIS software (e.g. ESRI ArcPAD™)



Versatile OEM Receivers for Demanding Applications

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FEATURES

- Dual-frequency L1/L2 tracking of GPS and GLONASS signals
- 132 hardware channels for simultaneous tracking of all visible satellites in GPS and GLONASS constellations
- Positioning modes: Standalone, SBAS, DGNSS, RTK (using external PolaNt*-x MF antenna)
- Includes 3 SBAS channels (EGNOS, WAAS, others)
- RAIM included
- Raw data output (code, carrier, navigation data)
- 25Hz data output rate (user selectable)
- Automatic external antenna detection
- USB 2.0 Interface
- Highly compact and detailed Septentrio SBF Binary Format (SBF) output
- Standard NMEA v2.0 output format, up to 10Hz
- RTCM v2.2, 2.3, 3.0 or 3.1
- CMR2.0 and CMR+
- Suite of GUI RxTools including RxAssistant app, supported on Windows XP, Windows Vista, Windows 7, Windows 8, (other OS under consideration)

PHYSICAL AND ENVIRONMENTAL

| | |
|------------------------------|---|
| Data/Power interface: | USB2.0 |
| Power requirements: | 5V DC, <1W |
| Size: | 110 x 78 x 35mm (160mm deep in antenna area) |
| Weight: | 200gr |
| Antenna: | |
| Internal antenna: | L1 GPS/GLONASS |
| External Antenna Connector: | LEMO connector |
| Antenna supply voltage | 3-6VDC |
| Maximum current | 200mA |
| Detection current | < 6mA |
| Operating temperature | -20 to +50 °C |
| IP Rating | IP65 |
| Drop rating | 1.5m |

Mounting:

Magnetic clamp, hook & loop fasteners, threaded inserts for mechanical screw fixing

PERFORMANCE

Position accuracy^{1,2,3,5}

| | Horizontal | Vertical |
|------------|------------|----------|
| Standalone | 1.3 m | 1.9 m |
| SBAS | 0.6 m | 0.8 m |
| DGPS | 0.5 m | 0.9 m |

RTK performance^{1,10}

| | |
|----------------------------------|------------------|
| Horizontal accuracy ³ | 0.6 cm + 0.5 ppm |
| Vertical accuracy ³ | 1 cm + 1 ppm |
| Average time to fix ⁴ | 7 sec |

Velocity Accuracy^{1,2,3}

| | Horizontal ³ | Vertical ³ |
|--|-------------------------|-----------------------|
| | 0.8 cm/sec | 1.3 cm/sec |

Maximum Update rate

25 Hz

Time to first fix

| | |
|-------------------------|-------------|
| Cold start ⁶ | < 45 sec |
| Warm start ⁷ | < 20 sec |
| Re-acquisition | avg 1.2 sec |

Tracking performance

| | |
|--|----------|
| C/N0 threshold^{8,9,11} | |
| Tracking | 26 dB-Hz |
| Acquisition | 33 dB-Hz |

Dynamics

| | |
|----------------------------|---------|
| Acceleration ¹² | 10 g |
| Jerk ¹³ | 4 g/sec |

¹ 1 Hz measurement rate

² Performance depends on environmental conditions

³ 1σ level, averaged over 24h

⁴ Baseline < 20 km

⁵ C/N0 = 45 dB-Hz

⁶ Smoothed

⁷ Non-smoothed

⁸ Multipath mitigation disabled

⁹ Multipath mitigation enabled

¹⁰ No information available (no almanacs, no approximate position)

¹¹ Ephemeris and approximate position known

¹² 95%

¹³ Max speed 600 m/sec

OTHER SEPTENTRIO PRODUCTS

AsteRx2e/2eL – Compact dual-frequency GPS/GLONASS receiver platform, offering top-quality GPS code and carrier phase data and dual-frequency positioning (including DGPS, RTK and PPP (AsteRx2eL)) at up to 25 Hz.

AsteRx3 – A Multi-frequency GPS/GLONASS/GALILEO receiver for demanding industrial applications, featuring precise RTK with extended baselines, advanced multipath and interference mitigation and exceptional tracking stability under high vibration conditions.

AsteRx2eH – A unique single-board dual-frequency multi-antenna GPS/GLONASS receiver in a waterproof aluminum housing, that can be connected to 2 antennas for various machine control, heading and other multi-antenna applications.

AsteRxi – IMU assisted Compact Dual-frequency GNSS receiver platform, offering a 50Hz RTK position based on integrated IMU and GNSS measurements. In addition attitude information such as heading, pitch and roll are provided even in shadowed environments where conventional GNSS receivers fail.

PolaRx4 – fully featured high performance GNSS receiver providing network operators and scientific users with high-quality tracking and measurement of all available and upcoming GNSS signals (GPS/GALILEO/GLONASS/COMPASS/SBAS)

PolaRx5 – a multi-frequency multi-constellation receiver dedicated to ionospheric monitoring and space weather applications

PolaNt-x – A set of lightweight sturdy high precision antennas for geodetic, survey and machine control applications. Available in single-frequency GPS/GLONASS or multi-frequency GPS/GLONASS/GALILEO/COMPASS/L-Band variant, for use with the PolaRx and AsteRx receiver families.

Chokering MC – A multi-frequency GPS/GLONASS/Galileo L1/L2/E5abAltBOC chokering antenna for use with the PolaRx receiver family

RxTools – A suite of software applications for easy control of PolaRx and AsteRx receivers, and for easy manipulation, analysis and reporting of the data generated with these receivers

RxMobile – A unique intuitive, portable GUI field controller for the Septentrio receivers. RxMobile allows controlling the receiver, monitoring the navigation solution and accessing its functions in the field in the same intuitive way as with RxControl.



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