Septentrio satellite navigation

Contact us for product details and pricing

NavtechGPS
+1-703-256-8900 or 800-628-0885
info@NavtechGPS.com
www.NavtechGPS.com

AsteRx2: GPS/GLONASS Dual-frequency Receiver family

The AsteRx2 receiver family provides all-in-view dual-frequency GPS/GLONASS receivers for demanding industrial applications. As member of the AsteRx-family of compact OEM boards, AsteRx2 features proven high-quality all-in-view GPS and GLONASS tracking and Septentrio's advanced multipath mitigation algorithm APME, offering excellent measurement quality for high precision positioning, even in challenging environments.

Industrial GPS/GLONASS Receiver

The AsteRx2 receiver family is powered by a next generation L1/L2 GPS/GLONASS/SBAS OEM receiver engine. With its 66 hardware channels it is designed for high-performance dual-frequency applications.

The receiver provides high quality cm- level positioning as well as an extensive set of measurements (raw data, position velocity, time) at up to 20 Hz. Septentrio's A Posteriori Multipath Estimator (APME), unique in its ability to tackle short-delay multipath, further enhances the quality of the measurement and position data generated with the receiver.

Providing extra robustness with GLONASS

Signal blocking by buildings, trees, mountains and other obstructions provide limitations to applicability of GPS in the most challenging professional applications requiring high-precision position data. AsteRx2 tracks GLONASS as well as GPS satellites, and generates high-quality GLONASS measurements, which are used together with GPS measurements for improved availability and accuracy, especially in these challenging environments.

Easy to integrate

AsteRx2 features low power consumption and is available in a compact OEM board version, making it suitable for on-board as well as portable battery operated applications.

An innovative and flexible power management under user control, aids integrators to save power and extend autonomy significantly.
Besides the OEM board the AsteRx2 comes in a compact waterproof plastic housing (AsteRx2 HDC), and a sturdy metal housing (AsteRxDR). Flexible configuration, a powerful command language, a variety of detailed output messages and formats suited for automation, serial and USB2.0 interfaces, all facilitate the work of the system integrator.

As with all Septentrio GNSS receivers, an intuitive GUI – RxControl – can be used with the AsteRx2 for its configuration, for logging and remote control. Moreover, RxControl includes a host of enhanced visualization features.
RxControl is available both on Windows and Linux platforms, as well as on WindowsMobile for PDA platforms (RxMobile).

NavtechGPS
Contact NavtechGPS for product details. www.NavtechGPS.com
+1-703-256-8900 • 800-628-0885 • info@navtechgps.com

AsteRx2 Technical Specifications

Features

- Dual-frequency L1/L2 code/carrier tracking of GPS and GLONASS signals.
- 66 hardware channels for simultaneous tracking of all visible satellites in GPS and GLONASS constellations
- 20 Hz data output rate (user selectable)
- A Posteriori Multipath Estimator technique (APME)
- Differential GPS (base station and rover)
- Includes up to 3 SBAS channels (EGNOS, WAAS, other)
- Innovative and flexible power management under user control
- x PPS output (x = 1, 2, 5, 10)
- 2 Event markers
- RAIM included
- Raw data output (code, carrier, navigation data)
- Three serial ports
  (LVTTL – OEM Board, RS232 - AsteRx2 HDC)
- 1 full speed USB port
- Highly compact and detailed Septentrio Binary Format (SBF) output
- NMEA v2.30 output format, up to 10 Hz
- RTCM v2.2, 2.3, 3.0 or 3.1
- CMR2.0 and CMR+
- Compact OEM board and housed solutions
- Includes intuitive GUI (RxControl) and detailed operating and installation manual

Performance

Position accuracy[1,2,3,6]

	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[1,14]

Horizontal accurary[3]	1 cm + 1ppm
Vertical accuracy[3]	2 cm + 2ppm
Average time to fix[4]	7 sec

Velocity Accuracy[1,2,3]

	Horizontal[3]	Vertical[3]
Standalone	0.8 cm/sec	1.3 cm/sec

Maximum Update rate	20 Hz
Latency	< 20 msec

Time accuracy[3]

1PPS	10 nsec
Event accuracy	< 10 nsec

Measurement precision[1,3,5]

C/A pseudoranges	5 cm (GPS)[6]
	0.16 m (GPS)[7,8]
	7 cm (GLONASS)[6]
	0.25 m (GLONASS)[7,9]
GPS P2pseudoranges[7]	0.1 m
GLONASS P pseudoranges[7]	0.1 m
L1 carrier phase	1 mm
L2 carrier phase	1 mm
L1/L2 doppler	0.02 Hz

Time to first fix

Cold start[10]	< 45 sec
Warm start[11]	< 20 sec
Re-acquisition	avg 1.2 sec

Tracking performance (C/N$_0$ threshold)[12,13,15]

Tracking	26 dB-Hz
Acquisition	33 dB-Hz
Acceleration[16]	10 g
Jerk[17]	4g/sec

Physical and Environmental

OEM

Size	60 x 90 mm
weight	60 g
Input voltage	+3.3 VDC

DR

Size	285 x 140 x 37 mm
weight	930 g
Input voltage	9-30 VDC

HDC

size	130 x 185 x 46 mm
weight	510 g
Input voltage	7-28 VDC

Antenna LNA Power Output	+ 3.3VDC
Output voltage	200 mA
Maximum current	
Power consumption	2W typical, 2.5W Max
Operating temperature	-40 to +70˚C
Storage temperature	-40 to +85 ˚C
Humidity	5% to 95% (non condensing)

Connectors

Antenna	TNC female
Power (HDC Housing)	ODU 5 pins female
COM1 (HDC Housing)	ODU 10 pins female
COM2 (HDC Housing)	ODU 10 pins female
Power (Asterx2DR)	ODU 3 pins female
COM1 (Asterx2DR)	ODU 7 pins female
COM2 (Asterx2DR)	ODU 7 pins female
USB (Asterx2DR)	ODU 5 pins female
IN (Asterx2DR)	ODU 7 pins female
Ethernet (Asterx2DR)	ODU 4 pins female

Multi-purpose button (Asterx2DR)	
Power button (Asterx2DR)	

Other Septentrio products

AsteRx1 – Compact single-frequency GNSS receiver platform, offering top-quality GPS and Galileo code and carrier phase data and single frequency positioning (including GPS DGPS and L1-RTK) at up to 50 Hz.

PolaRx2eH and PolaRx2e@ - A unique single-board dual-frequency multi-antenna receiver that can be connected to 2, respectively 3 antennas, for various machine control, heading/attitude and other multi-antenna applications.

PolaRx3 - A versatile high-accuracy dualfrequency GNSS receivers for precise positioning and navigation applications. Next to high-quality GPS measurements, it provides GLONASS dual-frequency data as well as modernized GPS (L2C).

PolaRx3G - A high-performance integrated dual-frequency GNSS receiver that provides access to the new and upcoming Galileo signals. The modernized GPS signals are also supported.

PolaRx3TR - A high-performance integrated dual-frequency GNSS Timing/Reference receiver.

PolaNt* – A lightweight precise positioning and survey single or dual-frequency GPS or GPS/GLONASS antenna for use with the PolaRx family.

RxControl - RxControl is an intuitive user interface to configure and control all types of PolaRx receivers and monitor, log and post data remotely.

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.

AsteRx2 Products

AsteRx2 OEM

AsteRx2DR

AsteRx2 HDC

Integrator Kit

1. Hz measurement rate
2. Performance depends on environmental conditions
3. 1σ level
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
14. Fixed ambiguities
15. Depends on user settings of tracking loop parameters
16. During acquisition
17. During tracking

SSNDS 09/2008/10