AsteRx SB ProConnect

Light and compact ruggedized multi-frequency GNSS receiver

Mining

Automation

Precision Agriculture

Autonomous

The AsteRx SB is an IP68 compliant, multi-constellation, multi-frequency GNSS receiver ideal for rapid integration into machine control or sensor fusion applications. It offers an extensive range of cable and wireless connections for maximum flexibility.

KEY FEATURES

- **Quad-constellation, multi-frequency all-in-view RTK receiver**
- **Robust and compact IP68 weatherproof housing**
- **AIM+ anti-jamming, anti-spoofing advanced interference mitigation and monitoring technology**
- **Base and rover operation**
- **Bluetooth, WiFi, Ethernet, Serial and USB communications**

BENEFITS

Small footprint, high performance

The AsteRx SB offers high-update rate, low-latency scalable positioning accuracy in a light and compact ruggedized housing.

GNSS+ technology

AIM+ can suppress the widest variety of interferers, from simple continuous narrowband signals to the most complex wideband and pulsed jammers. APME+ multipath estimator, unique in its ability to tackle short-delay multipath, enhances measurement quality while LOCK+ guarantees robust tracking of rapid signal dynamics during heavy machine vibrations.

Base or rover, real-time or offline RTK precision

The AsteRx SB offers full flexibility of operation. It can operate in RTK rover or base station mode and, with 16 GB on-board memory, it can log data for monitoring or for offline post processed PPK.

Easy-to-integrate

The AsteRx SB comes with fully-documented interfaces, commands and data messages. The included RxTools software allows receiver configuration and monitoring as well as data logging and analysis. An SDK is provided to help integrators create professional custom applications.

Any device, any platform

Use any device with a web browser to operate the AsteRx SB without any special configuration software via the Web UI accessible over WiFi network or USB connection.

AsteRx SB ProConnect

FEATURES

GNSS technology

448 Hardware channels for simultaneous tracking of all visible satellite signals:

- GPS: L1 C/A, L1C, L2C, L2 P(Y), L5
- GLONASS: L1 C/A, L2C/A, L3, L2P
- BeiDou: B1I, B1C, B2a, B2b, B2I, B3I
- Galileo: E1, E5a, E5b
- QZSS: L1 C/A, L1 C/B, L2C, L5
- NavIC: L5
- SBAS: EGNOS, WAAS, GAGAN, MSAS, SDCM

Septentrio's patented GNSS+ technologies

- **AIM+** industry leading anti-jamming, anti-spoofing interference monitoring & mitigation technology
- **APME+** a posteriori multipath estimator for code and phase multipath mitigation
- **LOCK+** superior tracking robustness under heavy mechanical shocks or vibrations
- **IONO+** advanced scintillation mitigation

RAIM (Receiver Autonomous Integrity Monitoring)
RTK (base and rover)[1]
PPP (Precise Point Positioning with SECORX-S)[1,2]
Moving base[1,3]

Formats

Septentrio Binary Format (SBF), fully documented with sample parsing tools
NMEA 0183 v2.3, v3.01, v4.0 (output only)
RINEX[1] (obs, nav) v2.x, v3.x
RTCM v2.x and v3.x (MSM included)
CMR v2.0 and CMR+ (CMR+ input only)

Connectivity

3 Hi-speed serial ports (RS232)
Ethernet port (TCP/IP, UDP, LAN 10/100 Mbps)
Power over ethernet
1 High-speed/full-speed USB device port
1 USB OTG port (with support for external disk)
2 Event markers[1]
xPPS output (max. 100 Hz)
Integrated bluetooth (2.1 + EDR/4.0)
Integrated WiFi (802.11 b/g/n)
NTRIP (server, client, caster)
FTP server, FTP push[1], SFTP
2 simultaneous logging sessions
16 GB internal memory

PERFORMANCE

Position accuracy [4,5]

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.8 m
DGNSS	0.4 m	0.7 m

RTK performance [4,5,7,8]

Horizontal accuracy	0.6 cm + 0.5 ppm
Vertical accuracy	1 cm + 1 ppm
Initialisation	7 s

Velocity accuracy [4,5]

0.03 m/s

Maximum update rate

Position	100 Hz
Measurements	100 Hz

Latency[9]

<10 ms

Time precision

xPPS out[10]	5 ns
Event	< 20 ns

Time to first fix

Cold start[11]	< 45 s
Warm start[12]	< 20 s
Re-acquisition	avg. 1 s

Tracking performance (C/N0 threshold)

Tracking	20 dB-Hz
Acquisition	33 dB-Hz

STANDARD SYSTEM COMPONENTS

- On board Web UI and RxTools desktop software for all receiver controls and monitoring.
- GNSS receiver communication SDK. Available for both Windows and Linux.
- Other accessories (cables, mounting brackets, antennas, etc.) are available.

PHYSICAL AND ENVIRONMENTAL

Size	102 x 36 x 111 mm / 4.0 x 1.4 x 4.4 in
Weight	460 g / 1.01 lb
Input voltage	4.5 to 36 VDC
Power consumption	1.5 W typical

Connectors

Antenna	TNC female
ETH	ODU 4 pins female
COM1/GPIO	ODU 7 pins female
PWR/USB/COM2/COM3	ODU 7 pins female
USB OTG	Micro USB

Antenna LNA power output

Output voltage	5 VDC
Maximum current	200 mA

Environment

Operating temperature	-30° C to +65° C -22° F to 149° F
Storage temperature	-40° C to +75° C -40° F to 167° F
Humidity	MIL-STD810G, Method 507.5, Procedure I
Dust	MIL-STD-810G, Method 510.5, Procedure I
Shock	MIL-STD-810G, Method 516.6, Procedure I/II
Vibration	MIL-STD-810G, Method 514.6, Procedure I

Certification

IP68, RoHS, WEEE, CE, UKCA, ISO 9001-2015
IEC 60950

[1] Optional feature
[2] Service subscription required
[3] Maximum output rate is 20 Hz
[4] Open sky conditions
[5] RMS levels
[6] After convergence
[7] RTK fixed ambiguities
[8] Baseline < 40 Km
[9] 99.9%
[10] Including software compensation of sawtooth effect
[11] No information available (no almanac, no approximate position)
[12] Ephemeris and approximate position known

BBr 60/05/2023

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