

# AsteRx EB

Housed multi-frequency GNSS rover receiver



Automation



Robotics



Precision Agriculture



Logistics

**AsteRx EB is a multi-frequency GNSS receiver delivering centimeter-level RTK positioning in an industrial enclosure. Its compact housing is tailored for effortless integration into robotics automation applications.**

## KEY FEATURES

- ▶ **All in view, multi-constellation, multi-frequency satellite tracking**
- ▶ **Light and compact IP67 weatherproof housing**
- ▶ **AIM+ advanced anti-jamming, anti-spoofing monitoring and mitigation technology**
- ▶ **Sub-degree GNSS heading option**
- ▶ **GNSS+ algorithms guaranteeing reliable performance with low latency**

## Rover applications

The AsteRx EB is a rover GNSS receiver with best-in-class positioning performance, employing Septentrio's latest multifrequency multi-constellation RTK technology. It delivers robust and reliable positions with low-latency also in challenging environments in both single or dual antenna modes. Its specialized design makes it an easy-to-use, cost-efficient rover receiver.

## Industrial housing

AsteRx EB is ideally suited for any space-constrained industrial application thanks to its small dimension and light weight, combined with commonly used interfaces and industrial grade connectors. Designed for reliable performance in industrial environments, it offers protection against dust, water, vibration and shocks. If you require a housed receiver for more extreme conditions such as harsh mechanical impacts or highly corrosive chemical environments, please refer to AsteRx RB3.

## Ease of integration

The AsteRx EB integrates seamlessly into any system thanks to fully documented interfaces, commands and data messages. Septentrio's open interfaces and software tools (WebUI, RxTools) make it easy to integrate, configure and control the AsteRx EB.

## FEATURES

### GNSS signals

544 Hardware channels for simultaneous tracking of most visible 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)

### Formats

Septentrio Binary Format (SBF), fully documented with sample parsing tools

NMEA 0183, v3.01, v4.0  
RTCM v2.x, v3.x (MSM messages 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 Full-speed USB device port  
2 Event markers  
FTP server

## SUPPORTING COMPONENTS

Embedded Web UI with full control and monitoring functionality.

RxTools, a complete and intuitive GUI tool set for receiver control, monitoring, data analysis and conversion.

GNSS receiver communication SDK. Available for both Windows and Linux.

### Optional accessories

- ▶ Antennas
- ▶ SDK library for UAS applications

## PERFORMANCE

### RTK performance <sup>1,2,3</sup>

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

### GNSS attitude accuracy <sup>1,2,8</sup>

Antenna separation	Heading	Pitch/Roll
1 m	0.15°	0.25°
5 m	0.03°	0.05°

### Position accuracy <sup>1,2</sup>

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

### Velocity accuracy <sup>1,2</sup>

0.03 m/s

### Maximum update rate

Position	10 Hz
Measurements	10 Hz

### Latency <sup>4</sup>

<10 ms

### Time precision

xPPS out <sup>5</sup>	5 ns
Event accuracy	< 20 ns

### Time to first fix

Cold start <sup>6</sup>	< 45 s
Warm start <sup>7</sup>	< 20 s
Re-acquisition	avg. 1 s

### Tracking performance (C/N0 threshold)

Tracking	20 dB-Hz
Acquisition	33 dB-Hz

## PHYSICAL AND ENVIRONMENTAL

### SWaP

Size	102 x 36 x 118 mm / 4.0 x 1.4 x 4.6 in
Weight	497 g / 1.1 lb
Input voltage	5 to 36 VDC

### Power consumption

GPS/GLO L1/L2	1.1 W
All signals, all GNSS constellations	1.3 W
Maximum	2.5 W

### Connectors

Antenna	2 x TNC
ETH	ODU 4 pins
COM1/GPIO	ODU 7 pins
PWR/USB/COM2/COM3	ODU 7 pins

### Antenna LNA power output on TNC

Output voltage	5 VDC
Maximum current	150 mA

### Environmental Operating

Temperature	-30° C to +65° C -22° F to +149° F
Vibration	Random 8g RMS
Shock	To 16g, 11ms

### Environmental Storage

Temperature	-40° C to +75° C -40° F to +167° F
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Humidity	MIL-STD-810H, Method 507.6, Procedure I
Dust	MIL-STD-810H, Method 510.7, Procedure I
Shock	MIL-STD-810H, Method 516.8, Procedure I/II
Vibration	MIL-STD-810H, Method 514.8, Procedure I

### Certification

IP 67, RoHS, WEEE, CE, FCC



<sup>1</sup> Open sky conditions

<sup>2</sup> RMS level

<sup>3</sup> Baseline < 40 Km

<sup>4</sup> 99.9%

<sup>5</sup> Including software compensation of sawtooth effect

<sup>6</sup> No information available (no almanac, no approximate position)

<sup>7</sup> Ephemeris and approximate position known

<sup>8</sup> Optional feature

### EMEA

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