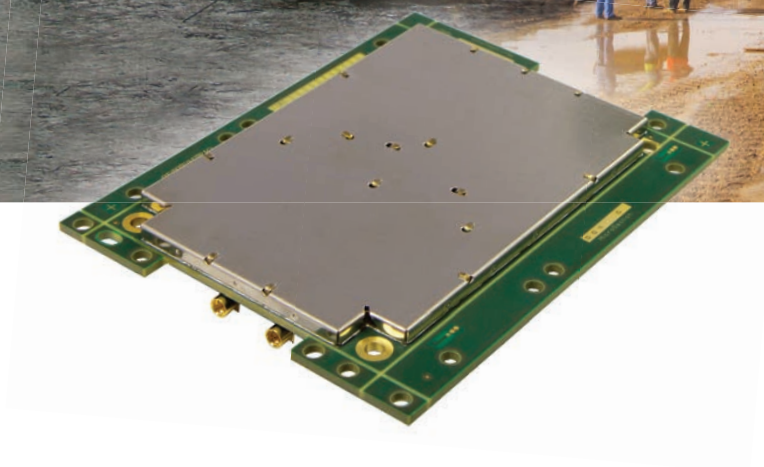
AsteRx4 OEM

Multi-frequency dual-antenna receiver



Key Features

- **544 channels for tracking all known and planned signals from GPS, GLONASS, Galileo, BeiDou, IRNSS, QZSS and SBAS on both antennas**
- **Precise and robust heading calculation**
- **cm-level (RTK) and dm-level (PPP) position accuracy**
- **Dual L-band channel with support for TerraStar and VERIPOS corrections**
- **Septentrio GNSS+ algorithms for robust industrial performance**

The AsteRx4 OEM is Septentrio's latest generation dual-antenna receiver built around the custom built GreCO4 GNSS chipset and powered by the most advanced algorithms for robust and accurate positioning.

Consistently accurate now and into the future

The AsteRx4 is the most advanced multi-constellation dual-antenna receiver from Septentrio. Its triple-frequency engine can track all Global Navigation Satellite System (GNSS) constellations – GPS, GLONASS, Galileo, BeiDou, IRNSS and QZSS – on both antennas. It supports current and planned signals as they become available – guaranteeing you reliable and accurate GNSS positioning now and into the future.

Accuracy scalable to a centimetre

Septentrio's knowledge and experience in the GNSS industry ensures that the AsteRx4 offers you the highest possible accuracy, scalable to a centimeter. LOCK+ technology maintains tracking during heavy machine vibration and IONO+ ensures position accuracy even under periods of elevated ionospheric activity. The AsteRx4 offers the very latest in special interference mitigation technology which filters out ambient interference.

Straightforward integration

The AsteRx4 was designed with ease of integration into your existing systems. The command interface is specifically optimised for M2M communication and sample code is provided to help you start your integration. You can operate the receiver without any special configuration software via the built-in webserver accessible via network or USB connection.

AsteRx4 OEM

FEATURES

GNSS Technology

544 hardware channels for simultaneous tracking of all visible satellite signals

Supported signals: GPS (L1, L2, L5), GLONASS (L1,L2,L3), Galileo (E1, E5ab, AltBoc, E6), BeiDou (B1, B2, B3), IRNSS (L5), QZSS (L1,L2,L5) (Galileo, Beidou, IRNSS, E6/B3 and Altboc are optional features)

All-in-view SBAS (EGNOS, WAAS, GAGAN, MSAS, SDCM) (incl. L5 tracking)

Integrated dual channel L-band receiver

100Hz Raw data output (code, carrier, navigation data) (optional feature)

20 Hz SBAS, DGNSS, PPP and RTK (Optional 50Hz available in future firmware upgrades)

A Posteriori Multipath Estimator Technique (APME+), including code & phase multipath mitigation

AIM+/WIMU interference mitigation unit, including chirp jammers (optional feature)

ION+ Advanced scintillation mitigation

RAIM

DGNSS (base station and rover)

RTK (base and rover) (optional features)

TerraStar and VERIPOS services (optional feature)

Moving base positioning (optional feature)

Connectivity

4 Hi-speed serial ports (LVTTL RS232)

Ethernet port (TCP/IP and UDP)

Full speed USB (host & device)

2 Event markers (optional feature)

xPPS output (max. 100Hz)

Formats

Highly Compact & fully documented Septentrio Binary Format (SBF) output

NMEA v2.30 output format, up to 20 Hz; NMEA 4.0; NMEA 3.04

RTCM v2.2, 2.3, 3.0 or 3.1

CMR2.0 and CMR+ (CMR+ input only)

PERFORMANCE

Position accuracy[1,2,3]

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.8 m
DGPS	0.4 m	0.9 m
TERRASTAR-D[4]	6 cm	<10 cm
APEX2[5]	6 cm	<10 cm
ULTRA2[5]	6 cm	<10 cm

RTK performance[1,2,3,6,7]

Horizontal accuracy	0.6 cm + 0.5 ppm
Vertical accuracy	1 cm + 1 ppm
Average time to fix	7 s

Velocity Accuracy[1,2,3]

Horizontal	Vertical
0.01 m/s	0.015m/s

Heading Accuracy[1,2,3]

	Heading	Pitch/Roll
1 m antenna separation	0.1 °	0.2 °
10 m antenna separation	0.01 °	0.02 °

Maximum Update rate

Position	20Hz (50Hz in future firmware upgrade)
Measurements	100Hz

Latency

< 20 ms

Time accuracy

xPPS Out	10 ns
Event accuracy	< 20 ns

Time to first fix

Cold start[8]	< 45 s
Warm start[9]	< 20 s
Re-acquisition	avg 1.2 s

Tracking performance (C/N0 threshold)

Tracking	20 dB-Hz
Acquisition	33 dB-Hz

Dynamics

Acceleration	10 g
Jerk	4 g/s

PHYSICAL AND ENVIRONMENTAL

Size	3.03 x 3.93 in (77 x 100 mm)
Size (without breakoff edges)	2.40 x 3.22 in (61x 82 mm)
Weight	1.94 oz (55 g)
Input voltage	3 – 5.5 VDC
Operating temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Storage temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Certification	RoHS

Antenna LNA Power Output

Output voltage	5 VDC
Maximum current	200 mA

Connectors

I/O Connector	SFM-140-02-SM-D
Antenna Connector	2x MMCX

Power Consumption

1.6 W (GPS/GLO L1/L2)

1.8 W (GPS/GLO L1/L2 dual antenna)

2.6 W (All Signals)

3.0 W (All signals, dual antenna)

[1] 1-20 Hz measurement rate

[2] Performance in open sky conditions

[3] RMS level

[4] Requires service activation from TerraStar

[5] Requires service activation from VERIPOS

[6] RTK fixed ambiguities

[7] Baseline: < 20 km

[8] No information available (no almanacs, no approximate position)

[9] Ephemeris and approximate position known

Europe
Greenhill Campus
Interleuvenlaan 15i
3001 Leuven, Belgium
+32 16 30 08 00

Americas
Suite 200,
23848 Hawthorne Blvd
Torrance, CA 90505, USA
+1 310 541 8139

Asia-Pacific
Level 901, The Lee Gardens
33 Hysan Avenue
Causeway Bay, Hong Kong
+852 3959 8680

www.septentrio.com sales@septentrio.com @septentrio