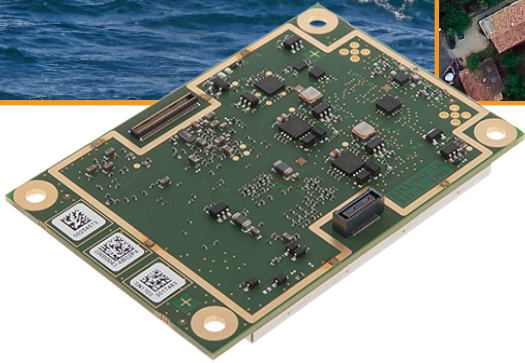


The AsteRx-m2

High-performance, ultra-low power RTK receiver



The AsteRx-m2 is a compact, high-performance and ultra-low power GNSS receiver ideal for integration in UAS, mobile platforms and other demanding industrial applications. It incorporates the latest in anti-jamming technology and offers unbeatable robustness and reliability.

Key Features

- ▶ Best-in-class reliable and scalable position accuracy
- ▶ AIM+ unique interference monitoring and mitigation system
- ▶ Industry-leading ultra-low power consumption
- ▶ All-in-view satellite tracking: multi-constellation, multi-frequency
- ▶ Easy-to-integrate

Feature Rich

With the GNSS+, the AsteRx-m2 comes into its own in difficult conditions:

- ▶ Lock+ for robust tracking in high dynamic applications
- ▶ APME+ to disentangle direct signals and those reflected from nearby structures
- ▶ IONO+ providing advanced scintillation mitigation

The AsteRx-m2 also features time synchronization for high-precision timing applications and L-Band tracking for PPP positioning using TerraStar. Two electronically identical U.FL antenna connectors support both passive and active antennas.

Interference Robustness

The AsteRx-m2 features AIM+, the most advanced on-board interference mitigation technology on the market. It can suppress the widest variety of interferers, from simple continuous narrowband signals to the most complex wideband and pulsed jammers. The RF spectrum can be viewed in real-time in both time and frequency domains.

Ultra-low power Design

The AsteRx-m2 provides RTK positioning at the lowest power consumption of any comparable device on the market. This means longer operation on a single battery charge, smaller batteries and greater usability.

Easy to Integrate

The AsteRx-m2 comes with fully-documented interfaces, commands and data messages. The included RxTools software allows receiver configuration, monitoring as well as data logging and analysis. An SDK is provided to help integrators create professional custom applications. The AsteRx-m2 is compatible for use with GeoTagZ Software and its SDK library for RPK (ReProcessed Kinematic) offline processing.

FEATURES

Technology

448 hardware channels for simultaneous tracking of all visible satellite signals

Simultaneously supported signals:

- GPS: L1, L2, L5
- GLONASS: L1, L2, L3
- Galileo: E1, E5a, E5b, AltBoc¹
- BeiDou: B1, B2¹
- SBAS: EGNOS, WAAS, GAGAN, MSAS, SDCM (L1, L5)
- IRNSS: L5¹
- QZSS: L1, L2, L5

Integrated dual channel L-band receiver AIM+ interference mitigation unit against narrow and wide band interference with spectrum analyzer

IONO+ advanced scintillation mitigation

APME+ a posteriori multipath estimator for code and phase multipath mitigation

RAIM (Receiver Autonomous Integrity Monitoring)

RTK (base and rover)¹

PPP (TerraStar services)^{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

RINEX v2.x, 3.x

RTCM v2.x, 3.x (MSM messages included)

CMR v2.0 and CMR+ (CMR+ input only)

Connectivity

4 Hi-speed serial ports (LVTTTL)

1 USB device port

xPPS output (max 100Hz)

2 Event markers

SDIO interface for logging (covers μ SD, SD, eMMC)

Outputs to drive external LEDs

General Purpose output

Time and Frequency synchronization

PERFORMANCE

Position accuracy^{4,5}

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.8 m
DGNSS	0.3 m	0.7 m
TerraStar-C ^{2,6}	4 cm	6 cm

RTK performance^{4,5,7}

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

Velocity accuracy^{4,5}

0.03 m/s

Maximum update rate

Position	100 Hz
Measurements only	100 Hz

Latency⁸

< 10 ms

Time precision

xPPS Out ⁹	5 ns
Event accuracy	< 20 ns

Time to first fix

Cold start ¹⁰	< 45 s
Warm start ¹¹	< 20 s
Re-acquisition	avg. 1.2 s

Tracking performance (C/N0 threshold)

Tracking	20 dB-Hz
Acquisition	33 dB-Hz

SUPPORTING COMPONENTS

Ease of use

RxTools, a Windows/Linux complete and intuitive GUI tool set for receiver control, monitoring, data analysis and conversion. GNSS Receiver Communication SDK

Optional accessories

- ▶ Antennas
- ▶ GeoTagZ re-processing Software and SDK library

PHYSICAL & ENVIRONMENTAL

Size	47.5 x 70 x 7.6 mm 1.87 x 2.75 x 0.29 in
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Weight	28 g / 0.987 oz
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Input voltage	3.3 VDC \pm 5%
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Power consumption

GPS/GLO L1/L2	770 mW
All Signals all GNSS constellations	950 mW
All Signals all constellations + L-Band	1050 mW
Shutdown power mode	10 mW

Antenna

Connectors ¹²	2 x U.FL
Antenna supply voltage	3-5.5V DC
Maximum antenna current	200 mA
Antenna gain range	passive 0-50 dB active

Auto-detection of external antenna

I/O connectors

30 pins Hirose DF40 socket¹²

60 pins Hirose DF40 socket for expanded connectivity

Environment

Operating temperature	-40 °C to +85 °C -40 °F to 185 °F
Storage temperature	-55 °C to +85 °C -67 °F to 185 °F
Humidity	5% to 95% (non-condensing)
Vibration	MIL-STD-810G
Certification	RoHS

- | | |
|--|--|
| 1 Optional feature, no almanac, no approximate position) | available (no almanac, no approximate position) |
| 2 Service subscription required | |
| 3 Maximum output rate 20 Hz | 11 Ephemeris and approximate position known |
| 4 Open sky conditions | 12 Second connector for alternative external antenna |
| 5 RMS levels | 13 Backwards compatible with AsteRx-m for easy replacement |
| 6 After convergence | |
| 7 Baseline < 40 Km | |
| 8 99.9% | |
| 9 Including software compensation of sawtooth effect | |
| 10 No information | |

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