



Key Features

- ▶ **cm-level (RTK) position accuracy with or without real-time datalink**
- ▶ **Low and scalable power consumption**
- ▶ **Septentrio GNSS+ algorithms for robust industrial performance**
- ▶ **Camera shutter synchronization**
- ▶ **Plug Compatible with Pixhawk**

For more information contact

NavtechGPS

Your ONE Source for GNSS Products and Solutions

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Designed around the custom built GReCo3 GNSS chipset, the AsteRx-m UAS receiver is powered by the latest algorithms for consistently robust and accurate positioning.

CM accuracy for less than 700 mW

The AsteRx-m UAS is an ultra-low power – smaller than credit card - RTK receiver for integration in UAS applications requiring high accuracy and low power consumption. The AsteRx-m UAS provides cm-level accurate RTK operation at less than 600 mW with GPS and less than 700 mW with GPS and GLONASS. Reliable submeter accuracy is possible at less than 400 mW. Septentrio's exclusive GeoTagZ software suite provides RTK accuracy without the need for a real-time datalink and easy integration with image processing SW.

Reliable positioning

AsteRx-m UAS is powered by Septentrio's advanced algorithms to ensure a reliable position in challenging applications: LOCK+ technology to maintain tracking during heavy vibration and IONO+ technology for working under difficult ionospheric conditions.

Straightforward integration in UAS

The AsteRx-m UAS is designed and built to easily integrate into your system. Standard connectors directly connect to your autopilot (e.g., Pixhawk). The 6-30 V power supply allows you to use the power directly from the vehicle power bus. An event marker is available to accurately synchronize a camera shutter with GNSS time.

The command interface is specifically optimized for M2M communication and sample code is provided to help you set-up.

AsteRx-m UAS

FEATURES

GNSS Technology

Supported signals: GPS (L1, L2), GLONASS (L1,L2)

3 channels for SBAS tracking (EGNOS, WAAS, GAGAN, MSAS, SDCM)

132 hardware channels for simultaneous tracking of all visible satellites in GPS and GLONASS constellations

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

RAIM

DGNSS (base station and rover)

RTK (base and rover) (optional feature)

Moving base positioning (optional feature)

Raw data output (code, carrier, navigation data - optional)

UAS Interface Board

Wide range power supply input (6-30 V)

On-board logging on Micro-SD card (max 32 GB)

Plug compatible with Pixhawk and Ardupilot

Event marker for camera shutter synchronisation

Connectivity

3 Hi-speed serial ports (LVTLL)

1 Full speed USB (micro USB)

User configurable xPPS output (max 10 Hz)

X PPS Output (x = 1,2,5,10)

Formats

Highly Compact and fully documented 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+ (CMR+ input)

PERFORMANCE

Position accuracy^{1,2,3,7}

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.8 m
DGPS	0.4 m	0.9 m

RTK performance^{1,2,3,4}

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

Velocity Accuracy^{1,2,3,7}

	Horizontal	Vertical
	0.01 m/s	0.015 m/s

Maximum Update rate

Position (Standalone, SBAS, DGNSS)	20 Hz
Position (RTK)	10 Hz
Measurements	20 Hz

Latency

< 20 ms

Time accuracy³

xPPS Out	10 ns
Event accuracy	< 20 ns

Time to first fix

Cold start ⁵	< 45 s
Warm start ⁶	< 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	47.5 x 70 mm (1.87 x 2.75 in)
Weight	27 g (0.95 oz) OEM board 10 g (0.352 oz) Interface Card

Input voltage 5 V or 6–30 V DC

Power Consumption

GPS/GLONASS L1 (submeter)	0.4 W
GPS/GLONASS L1/L2 (centimeter)	<0.7 W

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

I/O Connectors

COM1	6 pins DF13-6P-1.25DSA (plug compatible with Pixhawk and ArduPilot)
COM2	6 pins DF13-6P-1.25DSA
COM3	4 pins DF13-4P-1.25DSA
Event-marker	2 pins header
PPS-Out	3 pins header
Antenna Connector	uFLX

¹ 1 Hz measurement rate

² Performance depends on environmental conditions

³ 1σ level

⁴ Baseline: <100 km

⁵ No information available (no almanacs, no approximate position)

⁶ Ephemeris and approximate position know

⁷ Max speed 600 m/s

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