Designed around the custom built GRCo3 GNSS chipset, the AsteRx-m UAS receiver is powered by the latest algorithms for consistently robust and accurate positioning.

**CM accuracy for less than 700mW**
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 700mW with GPS and GLONASS. Reliable submeter accuracy is possible at less than 400mW. 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**
The 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 or ArduPilot). The 6-30V 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 get started.

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

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FEATURES

AsteRx-m OEM

- Supported signals: GPS (L1, L2), GLONASS (L1,L2)
- 3 channels for SBAS tracking (EGNOS, WAAS, GAGAN, MSAS, SDCM)
- 25Hz Raw data output (code, carrier, navigation data) (optional feature)
- 20 Hz SBAS, DGNSS
- 10Hz RTK
- A Posteriori Multipath Estimator Technique (APME+), including code & phase multipath mitigation
- ION+ Advanced scintillation mitigation
- RAIM
- Differential GNSS (base station and rover)
- Real Time Kinematic (base and rover) (optional features)
- Moving base positioning (optional feature)

UAS Interface Board:

- Wide range power supply input (6-30V)
- On-board logging on Micro-SD card (max 32GB)
- HMC5883L magnetometer
- Plug compatible with Pixhawk & Ardupilot
- Event marker for camera shutter synchronisation

Connectivity:

- 3 hi-speed serial ports (LVTLL)
- Magnetometer output
- Full speed USB (micro USB)
- 1 Event marker for shutter synchronisation (optional feature)
- User configurable xPPS output (max 10Hz)

Formats:

- Highly Compact & fully documented Septentrio Binary Format (SBF) output
- NMEA v2.30 output format, up to 20Hz
- RTCM v2.2, 2.3, 3.0 or 3.1
- CMR2.0 and CMR+ (CMR+ input only)

PERFORMANCE

Position accuracy1,2,3

<table>
<thead>
<tr>
<th></th>
<th>Horizontal</th>
<th>Vertical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standalone</td>
<td>1.2 m</td>
<td>1.9 m</td>
</tr>
<tr>
<td>SBAS</td>
<td>0.6 m</td>
<td>0.8 m</td>
</tr>
<tr>
<td>DGPS</td>
<td>0.4 m</td>
<td>0.9 m</td>
</tr>
<tr>
<td>RTK performance4,4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horizontal accuracy</td>
<td>0.6 cm + 0.5 ppm</td>
<td>1 cm + 1 ppm</td>
</tr>
<tr>
<td>Vertical accuracy</td>
<td>1 cm + 1 ppm</td>
<td></td>
</tr>
<tr>
<td>Average time to fix</td>
<td></td>
<td>7 sec</td>
</tr>
</tbody>
</table>

Velocity Accuracy1,2,3

<table>
<thead>
<tr>
<th></th>
<th>Horizontal</th>
<th>Vertical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.01 m/s</td>
<td>0.015 m/s</td>
</tr>
</tbody>
</table>

Maximum Update rate

Position (Standalone, SBAS, DGNSS) 25Hz
Position (RTK) 10Hz
Measurements 25Hz
Latency < 20 msec

Time accuracy3

xPPS Out 10 nsec
Event accuracy < 20 nsec

Time to first fix

Cold start6 < 45 sec
Warm start7 < 20 sec
Re-acquisition avg 1.2 sec

Tracking performance

C/N0 threshold

Tracking 20 dB-Hz
Acquisition 33 dB-Hz

Dynamics

Acceleration 10 g
Jerk13 4 g/sec

PHYSICAL AND ENVIRONMENTAL

Size 47.5 x 70 mm
Weight 40g (AsteRx-m) + 10 g (Interface Card)
Input voltage 5V or 6-30VDC
Power Consumption

0.4W (GPS L1 – submeter accuracy)
0.5W (GPS/LO L1-L2 –submeter accuracy)
0.6W (GPS/LO L1-L2 – Centimeter accuracy)
<0.7W (GPS/LO L1-L2 – Centimeter accuracy)

Operating temperature -40 to +85 °C
Storage temperature -40 to +85 °C
Certification RoHS

Connectors

I/O connectors

COM1: 6-pins DF13-6P-1.25DSA: plug compatible with Pixhawk & Ardupilot
COM2: 6-pins DF13-6P-1.25DSA
COM3: 4-pins DF13-4P-1.25DSA
Magnetometer output: DF13-4P-1.25DSA
Event-marker: 2-pins header
PPS-Output: 3-pins header

Antenna Connector uFLX