

mosaic-go heading

Evaluation kit for GNSS module receiver with heading



Robotics



Autonomous



Automation



Logistics & Port Operations



Rail



UAV

This is an evaluation kit designed for rapid prototyping of GNSS heading module mosaic-H. With dual-antenna input, mosaic-go heading provides precise and reliable heading combined with centimeter-level RTK positioning. Dual antenna capability opens the door to advanced automation and navigation performance in both static and dynamic states, with reduced power consumption. Dual antenna GNSS delivers heading & pitch or heading & roll angles, which are available immediately at start-up, helping initialize inertial sensors which rely on movement for attitude measurements.

KEY FEATURES

- ▶ **Dual antenna support for sub-degree heading & pitch or heading & roll angles**
- ▶ **All-in-view satellite tracking: multi-constellation, multi-frequency**
- ▶ **Best-in-class RTK performance**
- ▶ **AIM+ industry-leading anti-jamming anti-spoofing technology**
- ▶ **OSNMA Support**
- ▶ **Lowest power consumption on the market**
- ▶ **Ready to use interface with USB, serial ports, PPS and events**

BENEFITS

Reliable heading performance

With dual-antenna input, mosaic-go heading provides precise, reliable and position independent heading combined with centimeter-level RTK. GNSS heading provides the best performance in both static and dynamic conditions removing the reliance on vehicle movement for INS initialization. It also provides an alternative to magnet-based heading sensors, which can be affected by metal.

Advanced technologies inside

Septentrio's **GNSS+** toolset enables accuracy and reliability in the toughest conditions, allowing you to complete projects with the highest quality and efficiency. It includes:

- ▶ **AIM+** the most advanced on-board interference mitigation technology on the market (narrow and wide band, chirp jammers).
- ▶ **LOCK+** for robust tracking during high vibrations and shocks.
- ▶ **APME+** multipath mitigation to disentangle direct signal and those reflected from nearby structures.
- ▶ **IONO+** provides advanced protection against ionospheric disturbances.

FEATURES

GNSS technology

448 hardware channels for simultaneous tracking of all visible supported satellite signals¹:

- ▶ GPS: L1, L2
- ▶ Galileo: E1, E5b
- ▶ GLONASS: L1, L2
- ▶ Beidou: B1, B2, B3
- ▶ QZSS: L1, L2
- ▶ SBAS: Egnos, WAAS, GAGAN, MSAS, SDCM (L1)

Septentrio's patented GNSS+ technologies

- ▶ **AIM+** interference monitoring and mitigation (narrow band, wide band, chirp jammers)
- ▶ **IONO+** advanced scintillation mitigation
- ▶ **APME+** a posteriori multipath estimator for code and phase multipath mitigation
- ▶ **LOCK+** superior tracking robustness under heavy mechanical shocks or vibrations
- ▶ **RAIM+** receiver autonomous integrity monitoring

OSNMA Support
RTK
GNSS heading

Protocols

Septentrio Binary Format (SBF)
NMEA 0183, v2.3, v3.03, V4.0
RINEX v2.x, v3.x
RTCM v2.x, v3.x (MSM included)
CMR v2.0 (in), CMR+ (input only)

Interfaces

2 UART (LVTTTL, up to 4 Mbps)
USB device (2.0, HS)
SDIO (mass storage)
1 Event markers¹
1 Configurable PPS out⁶

PERFORMANCE

RTK performance ^{2,3,4}

Horizontal accuracy 0.6 cm + 0.5 ppm
Vertical accuracy 1 cm + 1 ppm

Other positioning modes accuracy ^{2,3}

	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

3 cm/s

GNSS attitude accuracy ^{2,3}

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

Maximum update rate

Measurements only	100 Hz
Standalone, SBAS, DGPS + attitude	50 Hz
RTK + attitude	20 Hz

Latency ⁴

<10 ms

Time precision

xPPS out ⁶	5 ns
Event accuracy	< 20 ns

Time to first fix

Cold start ⁷	< 45 s
Warm start ⁸	< 20 s
Re-acquisition	1 s

Tracking performance (C/N0 threshold)

Tracking	20 dB-Hz
Acquisition	33 dB-Hz

Firmware

Free product lifetime upgrades

PHYSICAL AND ENVIRONMENTAL

Package

Size	71 x 59 x 12 mm
Weight	58 g

Electrical

Antenna pre-amplification range	15-35 dB
Antenna bias voltage	3.0-5.5 V
Build-in current limit (150 mA)	
Input voltage	3.3 VDC
Power consumption	0.6 W typ 1.1 W max

Environmental

Operating temp	-40 to 85° C -40 to 185° F
Storage temp	-55 to 85° C -67 to 185° F

Humidity	5% - 95% (non-condensing)
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Certification	CE, RoHS, WEEE, ISO 9001-2015
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¹ Configuration dependent

² Open sky conditions

³ RMS levels

⁴ Baseline <40 km

⁵ 99.9%

⁶ Incl. software compensation of sawtooth effect

⁷ No information available (no almanac, no approx position)

⁸ Ephemeris and approx. position known

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