

# 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 anti-jamming, anti-spoofing 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 signals<sup>1</sup>:

- ▶ GPS: L1, L2
- ▶ Galileo: E1, E5b
- ▶ GLONASS: L1, L2
- ▶ Beidou: B1, B2, B3
- ▶ QZSS: L1C/A, L1C/B, L2
- ▶ SBAS: Egnos, WAAS, GAGAN, MSAS, SDCM (L1)

### Septentrio's patented GNSS+ technologies

- ▶ **AIM+** industry leading anti-jamming, anti-spoofing interference monitoring & mitigation technology
- ▶ **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 markers<sup>1</sup>  
1 Configurable PPS out<sup>6</sup>

## PERFORMANCE

### RTK performance <sup>2,3,4</sup>

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

### Other positioning modes accuracy <sup>2,3</sup>

	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 <sup>2,3</sup>

3 cm/s

### GNSS attitude accuracy <sup>2,3</sup>

	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 <sup>4</sup>

<10 ms

### Time precision

xPPS out <sup>6</sup>	5 ns
Event accuracy	< 20 ns

### Time to first fix

Cold start <sup>7</sup>	< 45 s
Warm start <sup>8</sup>	< 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)
----------	---------------------------

Certification	CE, RoHS, WEEE, UKCA, ISO 9001-2015
---------------	--



<sup>1</sup> Configuration dependent

<sup>2</sup> Open sky conditions

<sup>3</sup> RMS levels

<sup>4</sup> Baseline <40 km

<sup>5</sup> 99.9%

<sup>6</sup> Incl. software compensation of sawtooth effect

<sup>7</sup> No information available (no almanac, no approx position)

<sup>8</sup> Ephemeris and approx. position known

### EMEA

Greenhill Campus (HQ)  
Interleuvenlaan 15i  
3001 Leuven, **Belgium**

Espoo, **Finland**

### Americas

Suite 200  
23848 Hawthorne Blvd  
Torrance, CA 90505, **USA**

septentrio.com/contact

### Asia-Pacific

Shanghai, **China**  
Yokohama, **Japan**  
Seoul, **Korea**

septentrio.com



septentrio