



Robotics



Autonomous



Automation



Logistics & Port Operations



Rail



UAV

Septentrio mosaic-go is an evaluation kit integrating multi-frequency, multi-constellation receiver module mosaic-X5. It has been designed for rapid prototyping and evaluation of mosaic-X5 in applications such as robotics, autonomous systems and many others. This highly-reliable receiver tracks all Global Navigation Satellite Systems (GNSS) and supports all their current and future signals. With Septentrio's unique AIM+ technology for interference mitigation included, Septentrio is now offering a performance benchmark in mass market GNSS positioning.

## KEY FEATURES

- ▶ Serial ports, USB port, PPS and event marker
- ▶ Easy evaluation of base or rover functionality
- ▶ All-in-view satellite tracking: multi-constellation, multi-frequency
- ▶ Best-in-class RTK performance
- ▶ AIM+ unique interference mitigation and monitoring technology
- ▶ OSNMA Support
- ▶ Industry-leading ultra-low power consumption
- ▶ Easy-to-use with web UI

## BENEFITS

### No performance compromises

Sized at only 71 x 59 x 12 mm and weighing only 58 g, mosaic-go offers unmatched size to performance ratio.

mosaic-go includes:

- ▶ High update rate (>100 Hz) and low latency, both crucial for control systems of autonomous applications
- ▶ Reliable centimetre-level positioning
- ▶ Full L2 support via P(Y) code

### Advanced technologies inside

Septentrio's **GNSS+** toolset enables accuracy and reliability in the toughest conditions, allowing you to complete projects with high 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 signals<sup>1</sup>:

- ▶ GPS: L1C/A, L1PY, L2C, L2P, L5
- ▶ GLONASS: L1CA, L2CA, L2P, L3 CDMA
- ▶ Beidou: B1I, B1C, B2a, B2I, B3
- ▶ Galileo: E1, E5a, E5b, E5 AltBoc
- ▶ QZSS: L1C/A, L2C, L5
- ▶ Navic: L5
- ▶ SBAS: Egnos, WAAS, GAGAN, MSAS, SDCM (L1, L5)
- ▶ On module L-band

**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

5 constellation RTK (base and rover)

Moving base RTK<sup>2</sup>

**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 (out/in), CMR+ (input only)

**Interfaces**

2 UART (LVTTL, up to 4 Mbps)

USB device (2.0, HS)

SDIO (mass storage)

1 Event markers<sup>1</sup>

1 Configurable PPS out<sup>8</sup>

**PERFORMANCE**

**RTK performance** <sup>3,4,5</sup>

Horizontal accuracy	0.6 cm + 0.5 ppm
Vertical accuracy	1 cm + 1 ppm
Initialisation time	7 s

**Other positioning modes accuracy** <sup>3,4</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**

3 cm/s

**Maximum update rate**

Position	100 Hz
Measurements only	100 Hz

**Latency** <sup>7</sup>

<10 ms

**Time precision**

xPPS out <sup>8</sup>	5 ns
Event accuracy	< 20 ns

**Time to first fix**

Cold start <sup>9</sup>	< 45 s
Warm start <sup>10</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	15-50 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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<sup>1</sup> Configuration dependent

<sup>2</sup> Output rate 20 Hz

<sup>3</sup> Open sky conditions

<sup>4</sup> RMS levels

<sup>5</sup> Baseline <40 km

<sup>6</sup> After convergence

<sup>7</sup> 99.9%

<sup>8</sup> Incl. software compensation of sawtooth effect

<sup>9</sup> No information available (no almanac, no approx position)

<sup>10</sup> Ephemeris and approx. position known

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