

mosaic-go G5 P8

Evaluation kit with mosaic-G5 P8 receiver



Defence
A-PNT



Rail



Critical
Infrastructure



Marine

The Septentrio mosaic-go G5 P8 is an evaluation kit built around the mosaic-G5 P8™ high-precision multi-frequency GNSS receiver module. It enables rapid prototyping and evaluation for mission-critical applications requiring high-reliability and ultimate resilience. Featuring a versatile set of interfaces and Septentrio's AIM+ Ultimate technology for jamming and spoofing mitigation included, the mosaic-G5 P8™ sets a benchmark for assured and robust positioning performance.

KEY FEATURES

- ▶ **UART, USB-C, PPS and SD card slot**
- ▶ **Ultimate detection and protection against GNSS jamming and spoofing with industry-leading AIM+ technology**
- ▶ **All-in-view satellite tracking: multi-constellation, multi-frequency tracking of all available signals**
- ▶ **Single or dual antenna support**
- ▶ **End-to-end authentication for secure operations**

BENEFITS

No performance compromises

Designed for mission-critical and high-precision systems, it is engineered for reliable performance where security and uptime matter most. The receiver provides robust centimeter-level position and attitude with high-rate (100Hz), low-latency updates. Its ultimate resilience capabilities are optimized for operational continuity and situational awareness, helping systems maintain a trusted position even in interference-prone environments.

Easy setup and control

The mosaic-go G5 P8 comes with a comprehensive set of interfaces, commands, and data messages, which are fully documented. The RxTools software suite allows convenient receiver configuration and analysis.

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. The **GNSS+** toolset of this receiver includes:

- ▶ **AIM+ Ultimate** functionality with maximum protection against the most sophisticated and high-power threats, ensuring integrity in the most adverse conditions.
- ▶ **LOCK+** for robust tracking during high vibrations and shocks.
- ▶ **APME+** multipath mitigation to disentangle direct signal and those reflected from nearby structures.
- ▶ **IONO+ Full Protection** provides advanced protection against ionospheric disturbances.

FEATURES

GNSS technology

789 hardware channels for simultaneous tracking of all visible supported satellite signals:

- ▶ GPS: L1C/A, L1C, L2C, L2PY, L5
- ▶ GLONASS: L1CA, L2CA, L2P, L3 CDMA
- ▶ Beidou: B1I, B1C, B2a, B2b, B2I, B3
- ▶ Galileo: E1, E5a, E5b, E6
- ▶ QZSS: L1C/A, L1 C/B, L2C, L5
- ▶ Navic: L5
- ▶ SBAS 1: EGNOS, WAAS, GAGAN, MSAS
- ▶ On module L-band

GNSS Heading

Galileo High Accuracy Service (HAS)

Galileo OSNMA

Full raw measurement data

4-constellation RTK (rover)

Septentrio's patented GNSS+ technologies

- ▶ **AIM+ Ultimate** functionality with maximum protection against the most sophisticated and high-power threats, ensuring integrity in the most adverse conditions.
- ▶ **APME+** a posteriori multipath estimator for code and phase multipath mitigation
- ▶ **LOCK+** superior tracking robustness under heavy mechanical shocks or vibrations
- ▶ **IONO+ Full Protection** provides advanced protection against ionospheric disturbances
- ▶ **RAIM+** receiver autonomous integrity monitoring

Protocols

Septentrio Binary Format (SBF)

NMEA 0183 v3.03, V4.0

RTCM v3.x (MSM included)

Authenticated in- and output through DTLS

Interfaces

UART 1: 6-pin JST-GH (LVTTL, up to 4 Mbps, direct autopilot connection)

UART 2: 10-pin 100 mil socket (LVTTL, up to 4 Mbps, direct Bluetooth dongle connection)

USB-C (2.0, HS up to 480Mbps)

1 GPIO user programmable

1 Configurable PPS out

SD Card for logging

1 Event marker

PERFORMANCE

RTK performance ^{1,2,3}

Horizontal accuracy 0.6 cm + 0.5 ppm

Vertical accuracy 1 cm + 1 ppm

Initialization time 7s

Other positioning modes accuracy ^{1,2,3}

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.9 m
DGNSS	0.4 m	0.7 m
HAS	0.1 m	0.2 m

Velocity accuracy 3 cm/s

GNSS attitude accuracy ^{1,2}

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

Maximum update rate

Position 100 Hz

Measurements only 100Hz

Standalone, DGNSS + attitude 50Hz

RTK + attitude 50Hz

Latency ^{4,5} < 10 ms

Time precision

PPS precision ^{2,3} 5 ns

PPS jitter ± 0.7 ns

Event accuracy < 3 ns

Time to first fix

Cold start ⁶ < 35 s

Warm start ⁷ < 10 s

Re-acquisition 1 s

Tracking performance (C/N0 threshold)

Tracking 20 dB-Hz

Acquisition 30 dB-Hz

PHYSICAL AND ENVIRONMENTAL

Package

Type Casting metal enclosure

Size 74 x 44 x 11.4 mm

Weight 50 g

Electrical

Antenna preamplification range 15-50 dB SA

15-35 dB DA

Antenna bias voltage 3.0-5.5 V

Built-in current limit (150 mA)

Input voltage USB or 5 VDC

Power consumption SA 0.59 W typ/0.77 W Max

Power consumption DA 0.81 W typ/1.06 W Max

Environmental

Operating temperature -25 to 85°C

-13 to 185°F

Storage temperature -55 to 85°C

-67 to 185°F

Certification CE, FCC, RoHS, WEEE, ISED



¹ Static positioning only

² Open sky conditions

³ RMS levels

⁴ 99.9%

⁵ Non-moving-base operations

⁶ No information available (no almanac, no approx position)

⁷ Ephemeris and approx. position known

EMEA

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