

M.2 G5 GNSS CARDS

High-precision GNSS module family



Advanced Navigation Solutions

The **ANavS M.2 G5 GNSS Cards** are part of the ANavS Smart Module family, designed for integration into industrial PCs and development boards. There are two card variants, the **SMART** and **PRO**.

The **M.2 MOSAIC G5 SMART**, with its small form factor (M.2 key A+E), is ideal for industrial PCs such as Nvidia Jetson.

The **M.2 MOSAIC G5 PRO** is equipped with high-quality MMCX connectors for GNSS antennas. Furthermore its compatible with all GNSS antennas due to the 5V LNA. Additionally the variant has connector for timing and UART.

Advanced GNSS+
technologies:
AIM+, Advanced,
LOCK+, APME+,
IONO+, RAIM+

GNSS FEATURES

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

- GPS: L1C/A, L1C, L2C, L2PY, L5
- GLONASS: L1CA, L2CA, L2P, L3CDMA
- Beidou: B1I, B1C, B2a, B2I, B2b, B3I
- Galileo: E1, E5a, E5b, E6
- QZSS: L1C/A, L1 C/B, L2C, L5, L6 (future update)

GNSS Heading (P3H only)

Galileo High Accuracy Service (HAS, future update)

Galileo OSNMA Full raw measurement data (P3 only)

5 constellations RTK (rover)

MOSAIC-G5 PERFORMANCE

Accurate RTK Positioning ¹ (1 σ)

Horizontal accuracy	6 mm $\pm$ 0.5 ppm
Vertical accuracy	10 mm $\pm$ 1 ppm
Initialization time	7 s

Accurate Attitude ¹ (on P3H)

1m antenna spacing	
Roll and Pitch	0.25°
True Heading	0.15°
5m antenna spacing	
Roll and Pitch	0.05°
True Heading	0.03°

Velocity Accuracy

0.03 m/s RMS

Maximum update rate

Measurements (P3 only)	20 Hz
Position	20 Hz
Latency	<10ms

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Measurements (P3 only)	20 Hz
Position	20 Hz
Latency	<10ms

Time precision

PPS resolution	1.4 ns
Event accuracy	<3 ns

Time to first fix

Cold start	< 35 s
Warm start	< 10 s
Re-acquisition	1 s

¹ Depends on Environment and used GNSS-Antenna



M2_Mosaic-G5-Smart



M2_Mosaic-G5-Pro

I/O

Interfaces

USB device (2.0, HS up to 480Mbps)
Configurable PPS via u.FI
UART (Pro only)
GPIO (user programmable, Pro only)
Configurable PPS via M.2 (Pro only)

Protocols

Septentrio Binary Format (SBF)
NMEA 0183, v2.3, v3.03, V4.0
RTCM v3.x (MSM included)

The official Septentrio Mosaic-G5 driver can be used

PHYSICAL & ENVIRONMENTAL

Smart

Package	Compatible with M.2 Key A+E
Size	22 x 30 mm
GNSS / PPS connector	u.FI Jack

Pro

Package	Compatible with M.2 Key E
Size	30 x 42 mm
GNSS connector	MMCX Jack
PPS connector	u.FI Jack

Operating temp.	-40 to 85° C
Storage temp.	-55 to 85° C
Humidity	5% - 95% (non-condensing)
Certification	RoHS, WEEE, CE

ELECTRICAL SPECIFICATIONS

Input voltage	3.3 V +/-5%
Power consumption	0.4-0.6 W typ, 0.9 W max
Antenna pre-amplification range	15-50 dB (P3) 15-35 dB (P3H)
Antenna bias voltage	3.3 V (Smart) 5.0 V (Pro) Built-in current limit (150 mA)

M.2 G5 PRODUCT FAMILY

Variant/Chipset	Mosaic-G5 P3	Mosaic-G5 P3H
Smart	73.40.0.65.0.0	73.40.0.66.0.0
Pro	70.40.0.65.0.0	70.40.0.66.0.0

RELATED PRODUCTS

M.2 X5/H/T GNSS Cards

70.40.0.6x.0.0

M.2 GNSS cards with the Mosaic-X5 (61), Mosaic-H (62) or Mosaic-T (63) chipset. Ideal for high resilient navigation



M.2 Epson IMU card

70.40.0.00.x.0

M.2 IMU card, available in different Epson FOG performance IMU variants



M.2 to USB-C Adapter

71.40.0.00.0.0

Adapter from M.2 Key-E cards to USB Type C. Compatible with all ANavS M.2 cards



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