

INNOVATION TO THE POINT

ANavS - Newsletter - June 2025



Embedded innovation - precision you can build on

Modern navigation and localisation solutions require compact, powerful and flexible hardware. ANavS® offers exactly that - with a new generation of embedded modules that combine maximum accuracy, reliability and integration capability. Whether for autonomous vehicles, mobile robotics or industrial applications - our embedded products deliver precise positioning data even under demanding conditions.

Our highlights at a glance:

- Embedded multi-sensor GNSS cards: Centimetre-accurate positioning, maximum flexibility, and reliable performance for autonomous systems compact, robust, and supporting all key GNSS constellations.
- High-performance IMU cards: Different variants (MEMS to FOG) for the highest demands on accuracy, dynamics and environmental resistance.
- EMB Ethernet receiver: Our robust GNSS receiver with Ethernet interface for simple integration and centimetre-precise position data ideal for edge devices, modular systems and as a standalone RTK base station.



Embedded Moduls



M.2 GNSS Cards - M.2 IMU Cards - EMB - Ethernet GNSS Receiver

M.2 form factor allows easy and convenient integration in embedded computers and systems

M.2 GNSS cards from ANavS® - precision at board level

Our GNSS cards provide centimetre-precise positioning data and are the ideal module for applications that require maximum accuracy and low latency - such as autonomous vehicles, drones, surveying systems or robotics.

The advantages at a glance:

- RTK-GNSS with centimetre accuracy for precise positioning in real time
- Support for multiple GNSS constellations GPS, Galileo, GLONASS, BeiDou
- Easy integration thanks to compact design and standardised interfaces
- Robust for demanding applications even in difficult environmental conditions
- Interface: USB or UART, Event In- and Output
- Available in 3 variants: X5 (Base), H (Heading) and T (Timing-Version)

Whether as a standalone module or in combination with our IMUs and sensor fusion solutions - the GNSS cards from ANavS® offer maximum flexibility and reliability for your navigation applications.

Related products: ANavS M.2 U-blox Card

Detailed performance data and specifications can be found here: MOSAIC X5 - MOSAIC H - MOSAIC T

M.2 IMU cards from ANavS® - Reliable motion detection for every application

Our high-precision inertial measurement units (IMUs) are the backbone of robust navigation solutions - especially when GNSS signals are disturbed or unavailable. Whether in autonomous vehicles, robotics or mobile mapping systems: ANavS® IMUs continuously provide reliable data for position, speed and acceleration detection.

Available with Epson M-G366 and M-G370. On request also only adapter without IMU.

Your benefits at a glance:

- Wide range of models from cost-efficient MEMS IMUs to high-precision FOG IMUs
- Interface: USB, Event In- and Output
- Robust performance temperature-compensated and vibration-resistant
- Ideal for sensor fusion seamless combination with GNSS and odometry for dead reckoning

Our IMU cards are optimised for real-time sensor fusion in combination with ANavS® embedded systems - for precise and stable navigation in any environment.

Detailed performance data and specifications can be found here: <u>M-G366</u> and <u>M-G370</u>

Embedded Moduls



Embedded Ethernet GNSS Receiver - accurate to the centimetre, networked, ready for use

The ANavS® Embedded Ethernet GNSS Receiver combines high-precision positioning with modern network technology - for applications that require reliable data in real time. Thanks to its direct Ethernet interface, the receiver can be quickly and flexibly integrated into existing systems - ideal for edge computing, industrial automation or networked vehicle platforms.

That makes it special:

- RTK-capable GNSS receiver with support for all global satellite systems
- Simple network integration via 100BASE-T Ethernet
- Compact design & low weight ideal for space-critical applications
- Robust performance even under difficult environmental conditions
- Can be used as precise PTP time server (IEEE 1588 PTP) in your network
- It can be powered either via PoE, DC voltage (7–25V) or USB-C

In combination with other ANavS® sensors and fusion algorithms, a powerful navigation system is created - fully networked and future-proof.

The Mosaic chipset supports different output formats which can be looked up in its datasheets - see links on page 2 to MOSAIC X5, H and T - and used via USB or Ethernet.

Our GNSS cards are conveniently available from <u>DigiKey</u> and <u>Compotek</u>. You can also order the EMB modules directly from <u>DigiKey</u>. Our IMU cards are available exclusively from <u>ANavS</u>.

For larger orders of 10 or more, please contact <u>ANavS</u> directly – we will be happy to advise you individually and provide you with a tailor-made offer!







ANavS[®] at the European Navigation Conference 2025 - Two presentations now online!

In May, ANavS[®] was represented at the European Navigation Conference (ENC) - with two presentations on current developments in the field of precise navigation and sensor fusion. The response to our contributions was consistently positive, and you have the opportunity to read both papers on the presentations on our website:

- <u>Multitask Deep Neural Network for IMU</u> <u>Calibration, Denoising and Dynamic Noise</u> <u>Adaption for Vehicle Navigation</u>
- <u>Robust real-time automotive Visual SLAM</u> with dynamic object removal

Both developments were realised as part of the EU research project DREAM and impressively demonstrate how modern sensor fusion and AIbased analysis enable robust, high-precision navigation solutions - even under difficult conditions.



ANavS at ION GNSS+ 2025 – Three exciting papers live in Baltimore!

From 8 to 12 September, the international GNSS community will meet at ION GNSS+ in Baltimore, Maryland – and we will be there with three presentations!

Our topics in focus:

- Al-assisted multi-sensor fusion for more precise autonomous vehicle navigation
- Detection and mitigation of jamming, meaconing, and spoofing using machine learning and sensor data
- Edge device-optimised LiDAR SLAM for robust real-time localisation in dynamic environments

All three developments originate from the EU research project DREAM – and the full papers will be available on our website after the conference!



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