

SPACE

GNSS Receiver for Space Applications

Next generation GNSS receiver for space applications designed to meet the demanding needs of modern missions

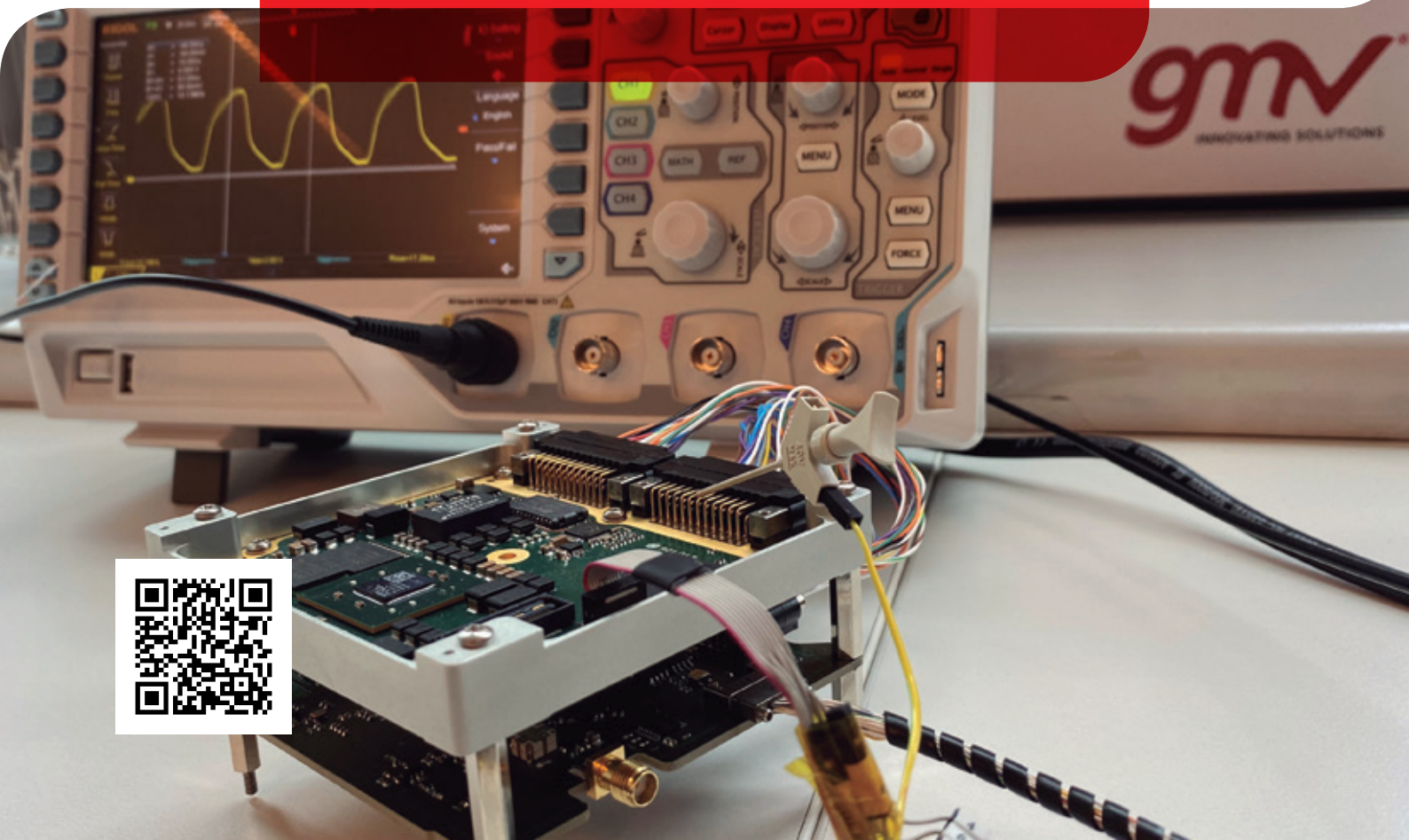
What is Sextans GMV ?

Sextans GMV is a software defined GNSS receiver which provides accurate position, navigation and timing information to support multiple spaceborne applications. Typical platforms include microsattellites and microlaunchers. **Sextans GMV** is multi-constellation and multi-frequency.

Sextans GMV has been engineered to provide a flexible, configurable, extendible capability for spaceborne missions. The product has been developed to meet the needs of providing position, navigation and timing for missions covering earth observations, telecommunications/IoT, navigation, science and exploration. It is suitable for use onboard cubesats, microsattellites or micro-launchers, whether individual satellites, multiple satellites or mega constellations. **Sextans GMV** can be configured to meet your mission needs.

For further information:

If you have an application for **Sextans GMV** and would like more information or to discuss your requirements, please contact the team: sextans@gmv.com



How does **Sextans GMV** work?

Sextans GMV can be deployed standalone or readily integrated into an existing OBC (depending on the processor power).

The modular architecture and RTEMS 5.0 operating system allows the **Sextans GMV** for Symmetric/ Asymmetric multiprocessing on a range of HW architectures. The flexibility of the **Sextans GMV** Receiver enables it to be customised to operate on a single processing core, or in parallel with other applications (e.g. guidance, navigation and control algorithms) on a multi-core processor.



Main features

- Software Defined Radio GNSS receiver upgradeable in orbit.
- Dual constellation and Dual frequency.
- Providing standalone precise navigation in-orbit.
- Adaptability to different HW platforms.
- Configurability for different space mission requirements.
- Wide range of interfaces (HW and SW).
- Multiple navigation modes (LSQ, EKF, IONOfree).

Product roadmap

- Absolute on-board Precise Orbit Determination (P2OD) in development.
- Relative navigation in development.
- High sensitivity for GEO / Moon scenarios in development.

Data sheet

Type	Software Defined Radio GNSS Receiver
Communication	- CAN / SpW - PUS / CSP
Supported bands	- GPS L1 / Galileo E1 - GPS L5 / Galileo E5a
Platforms	- Zynq 7030 (used for the budget below) - GR740 (Quad Core LEON4)
Performance	- 10 m and 0.1 m/s in LSQ (single frequency mode) - 10 m and 0.05 m/s in EKF mode (single frequency) - 2 m and 0.01 m/s in IONO free EKF mode (dual frequency)
Acquisition / Tracking	- 10 min TTFF in cold start / 3 min TTFF in warm start - ACQ sensitivity of 40 dBHz in frequency domain and 28 dBHz in time domain - TCK sensitivity of 28 dBHz - Up to 40 channels (single frequency) - Up to 12x2 channels (dual frequency)
Applications	- Low Earth Orbit (LEO) Satellites: 400 to 1500 km
Navigation modes	- Least Square - IONO free (with Kalman Filter)
Outputs (1-10 Hz)	- PVT - PPS - Raw Measurements: Pseudoranges, Dopplers, Carrier Phases - Tracking outputs: Correlation IQ, Code and Phase errors - Processing status - Almanacs / Ephemerides
Mass	300 g
Volume	1/3 of a Cubesat Unit
Power Input	5 V (DC) 5 W nominal

Sextans GMV is a modular system that allows the customer to:

- Configure its functionality and performance in-orbit.
- Adapt to specific processors and processing budgets.
- Offers ease of SW upgrade including the core functions.
- Provides flexible interfaces with external hardware.

