

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:

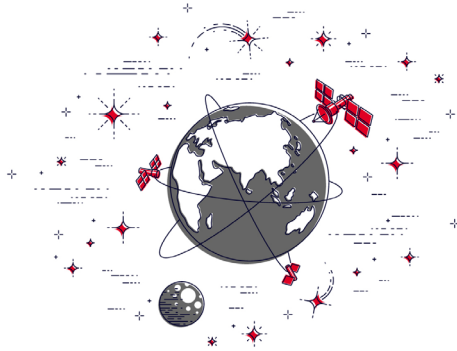
If you have an application for *Sextans GMV* and would like more information or to discuss your requirements, please contact the team: [sexmans@gmv.com](mailto:sexmans@gmv.com)



## 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

- Dual constellation.
- Providing standalone precise navigation in-flight.
- Adaptability to different HW platforms.
- Configurability for different space mission requirements.
- Wide range of interfaces (HW and SW).
- Multiple navigation modes (LSQ, EKF).
- PPS & Timing functionality

## Product roadmap

- GMV is developing a specific application of the **Sextans** receiver for reusable rocket within a project with ESA-FLPP named PANTHER
- Dual Frequency Receiver.

## Data sheet

Type	Software Defined Radio GNSS Receiver
Communication	- UART (RS-422) - PUS
Supported bands	- GPS L1 / Galileo E1 - GPS L5 / Galileo E5a (optional)
Platforms	- Zynq 7030
Performance	- 10 m and 0.25 m/s in LSQ (single frequency mode) - Option of improving performance in Hybrid EKF mode (single frequency + IMU) - Short PVT reacquisition (<8s)
Acquisition / Tracking	- 5 min TTFF in cold start / 2 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	- Microlaunchers - Qualification wrt typical environmental testing including: - Shock - Vibration - TVAC - EMC(EMI) Possibility of integrating an IMU within the casing
Navigation modes	- Least Square - Hybrid Kalman Filter (optional)
Outputs (1-10 Hz)	- PVT - Raw Measurements: Pseudoranges, Dopplers, Carrier Phases - Tracking outputs: Correlation IQ, Code and Phase errors - Processing status - Almanacs / Ephemerides
Mass	570 g (without IMU)600 g
Volume	155(L) x 77 (W)76 x 65 (H)54 mm <sup>3</sup>
Power Input	15 – 50 V (DC) < 6 W (without IMU) < 8 W (with IMU)

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

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

