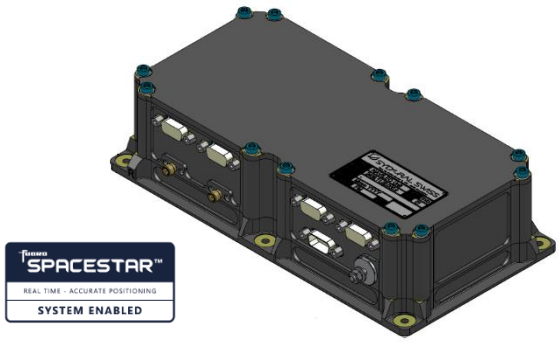
NAVILEO - GNSS Receiver

On-demand <10cm real time satellite positioning

SYDERAL SWISS
ELECTRONICS & SOFTWARE



NAVILEO addresses the specific requirements of the NewSpace market, offering **On-demand <10cm real time satellite positioning** to the Smallsats.

It **reduces operational risks** with a dependable, future proof and low capex solution while offering a state-of-the-art autonomous navigation solution.

Using **commercial and rad-tolerant components**, easy to customize and upgrade, NAVILEO is reliable for any **LEO application**.

NAVILEO offers **high performance** by processing two constellations (GPS and Galileo) and two frequencies (L1/E1 and L5/E5a), and implementing an on-board orbital filter.

Main Advantages of NAVILEO

- **On-demand** <10cm real time satellite positioning.
- **Dependable** via processing Multi-GNSS and multi-frequencies and ITAR free solution.
- Use of **High sensitivity** acquisition and tracking engines for active or passive antennas, combined with commercial and rad-tolerant components allow to **Lower expenditure.**
- **Improved performance** and reliability guaranteed by On-board orbital propagator and Iono-free combination processing.
- Highly customizable and **upgradable with the mission** via In-flight upgradability.

Performance characteristics	
Number of channels	*48*
Antenna inputs	*1 (2 in option); supports both active and passive antenna(s)*
Signals and frequencies	*GPS L1C/A and L5I/Q Galileo E1b and E5a Beidou B1C and B2a in the future*
Acquisition sensitivity *(dBHz, for P_d=0.9)*	*28 (L1); 31 (E1b)*
Tracking sensitivity *(dBHz)*	*20 (L1, E5a); 22 (L5); 24 (E1B)*
Warm / cold TTFF[1]	*< 10 s / < 60 s*
Typical pos. accuracy[1]	*< 5 m (3D rms) < 10 cm on-demand (3D rms)*
Typical vel. Accuracy[1]	*4 mm/s (3D rms)*
PPS signal (RS-422)	*< 50 ns rms*
TM/TC	*UART, CAN (other interfaces possible). Fully compliant with PUS/CCSDS standard.*
Update rate	*1- 10 Hz*
Physical characteristics	
Power / voltage	*8 W typical at 5 VDC*
Mass	*1300 gr*
Dimension	*219.5 x 110.5 x 59 mm³*
Operating temperature	*-20°C - +50 °C*
Lifetime	*Min. 5 years in LEO*

[1] for a typical LEO orbit (800 km altitude)

FUGRO SPACESTAR™

SpaceStar is the next generation technology for the provision of high-accuracy real-time navigation services in Low Earth Orbit (LEO)

SpaceStar is based upon Fugro's proven Precise Point Positioning (PPP) technique, including multi-constellation and multi-frequency GNSS technology with real-time GNSS orbit/clock corrections delivered via L-band signal from geostationary (GEO) satellites.

SpaceStar allows to obtain sub-decimetre absolute positioning and nanosecond-level timing, on board a LEO satellite and in real-time without additional ground-infrastructure for the satellite operator.

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