



GPS Receiver

SITAEL GPS receiver is designed to perform real-time orbit determination on-board LEO satellites. The unit is based on two COTS front-ends kept in cold redundancy. Each front-end is individually protected against high current absorption events with a dedicated re-triggerable current limiter.

The active front-end provides raw GPS observations to the navigation computer, which support the following functions:

- Power regulation and distribution
- Data interface implementation
- Front-end current absorption monitoring
- Navigation algorithm computation, with the options:
 - Kinematic navigation (to be preferred at low altitudes or during maneuvers)
 - Reduced dynamic navigation (more accurate)



Features

SITAEL GPS RECEIVER

- Redundant front-end protected against overcurrent
- Isolated DC-DC converters
- Kinematic or reduced dynamic navigation algorithm
- Includes 26dB signal LNA
- To be used with passive single frequency GPS antenna

Technical Information

SPECIFICATIONS	
Bus Input Voltage (V)	+12 V to +30 V
Interfaces	CAN-Bus
Environment	Storage Temperature: -40 °C to +100 °C
	Operating Temperature: -10 °C to +60 °C
Power Consumption	< 3W
Size	210x110x30 mm (L x W x H) (excluding the antenna)
Mass (g)	≤ 800
Kinematic position accuracy	10m 3D RMS
Kinematic velocity accuracy	30cm/s
Reduced dyn. position accuracy	1m 3D RMS
Reduced dyn. velocity accuracy	1cm/s
Time to first fix	< 50s
TRL	5

General remarks

- The device is developed as part of the low cost product line for small LEO platforms and technological demonstrators.
- All electronic components are selected with industrial and military grades.
- The main computation unit is a 32-bit ARM device, tested for TID, SEL, SEU and SEFI.
 - TID test demonstrated no loss of functionality up to 30krads
 - SEL protection is implemented at board level (re-triggerable LCL)
 - SEU and SEFI impact is mitigated at software level

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