Space GPS Receiver SGR-07

The SGR-07 is a single antenna space GPS receiver for providing position, velocity and time in a convenient module box for integration in small professional satellites. It operates off unregulated 28V power bus and incorporates an isolated power supply with EMC filtering and latch-up protection, and is housed in a robust aluminium box for convenient integration.

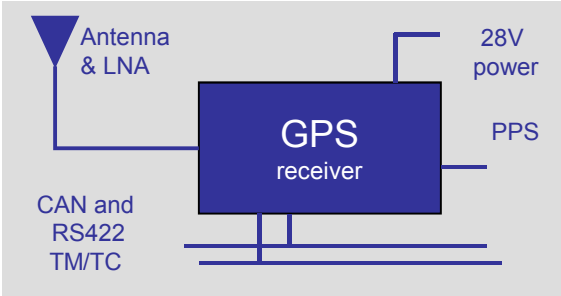
SGR-07 GPS Space Receiver

Features

- 12 Channel L1 C/A Code Space GPS Receiver
- Significant Flight Heritage
- Fast NVRAM-Aided Start-up
- Low Mass and Power
- Active Patch Antenna Included

Interfaces

- 50 Ohm antenna interface (SMA)
- CAN (ISO11898) and RS422 TM/TC Interface
- Pulse-Per-Second (IEE442) (TTL, RS422, LVDS)



SGR-07 Interfaces

Typical Performance

- Position to 10m (95%)
- Velocity to 15cm/s (95%)
- Time to 200ns
- Typical Time to First Fix (TTFF) 90 - 180s
- 28V Unregulated Supply, 1.6W
- 144 x 76 x 47mm, 450 g

APPLICATIONS

- Navigation for LEO Missions
- Position, Velocity, Time Determination
- Post-Manoeuvre Orbit Determination
- Accurate Timing and Synchronisation
- Payload Data Time Stamping
- Compact, Robust, Easy to Integrate

Space GPS Receiver – SGR-07

Radiation: Test results available from core component testing. SEE mitigation from TMR memory and electronic fuse protection.

Antenna: Active patch antenna weighing 50g with 45x50x20mm dimensions

Non-Volatile Memory: Almanacs and Orbital Elements also stored in flash memory to enable fast Time to First Fix (TTFF)

Physical Characteristics	
Dimensions (mm)	144 x 76 x 47 mm
Power at 28V	1.6 W (Supply 18-38V)
Mass	450 g
Temperature	-20° C to +50 ° C operating -30° C to +85 ° C non-operating
Random vibration	Tested to 15 grms in all axes
Radiation	Approx 5 kRad (Si) (core components tested to 10krads)
Performance Properties	
Number of channels	12
Number of antennas	1
Frequencies & signals	GPS L1 C/A Code
PPS outputs	TTL
SEE mitigation	Yes (SEE & SEL) EDAC protected memories
Typical position*	10 m
Typical velocity *	15 cm/s
TTFF (NVRAM)*	90 s
Time (UTC)*	200 ns
TM/TC interface(s)	RS422 UART, CAN

**Under defined 680km polar orbit, Earth pointing conditions*
Product specification may be subject to change without notification

SSTL designs, manufactures and operates high performance satellites, subsystems and ground systems for space agencies, international governments, and commercial customers worldwide. Our satellite platforms are designed to fly remote sensing, navigation and communication payloads in LEO, MEO and GEO orbits and beyond. Our innovative approach to low cost spacecraft engineering is changing the economics of space.

Flight Software: Extensive flight heritage software used on many missions

User Interface: PC software provided for receiver monitoring, control and data processing

Flight Heritage: First flown in 2009. In orbit on 9 satellites, with 8 further launches expected.

SSTL is ISO9001/14001:2015 certified

All work overseen by ESA certified assembly staff

Standard delivery service includes:

- compliance testing
- vibration test
- thermal cycling
- user manual
- test results
- export license and shipping
- thermal vacuum testing option

GNSS L1 Patch Antenna

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