

Viceroy™ GPS Spaceborne Receiver

standard positioning service in space

General Dynamics' Viceroy GPS Spaceborne Receiver provides position, velocity and time information for low Earth orbiting satellites using the C/A code on the GPS L1 frequency. Performance and satellite visibility is enhanced by Viceroy's dual antenna system. Recent improvements include enhanced radiation performance, improved antenna isolation and EMI suppression, and optional interfacing via a MIL-STD-1553B bus.



Features

- Space Qualified Digital Design
- Full Spaceborne Capability
- Autonomous Operation with Doppler Capability at 1 Second Rate
- Non-Destruct Doppler Measurements at 1 Second Rate
- 1 PPS Clock Output Synchronized to GPS Time
- Radiation Hardened Static RAM
- Up to 12 Receive Tracking Channels
- Only 53 Cubic Inches
- Only 2.7 Pounds
- 20 to 34 VDC Operation @ 4.7W

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Performance Characteristics

Receiver Architecture	Up to 12 tracking channels L1 1575.42 MHz C/A code (1.023 MHz chip rate) Code plus carrier aided tracking
Serial Input/Output	RS485/422 (MIL-STD-1553B optional) Fully differential Customized X.25 protocol, ECEF position, velocity, time, longitude, latitude (Optional: Pseudorange, carrier phase) 1 PPS output 9-pin male sub-D prime power 37-pin socket sub-D command/telemetry
Interface	Differential serial control data Differential serial received data Differential serial transmit data Analog telemetry for key analog functions Digital telemetry status word appended to received data
Navigation Solution Accuracy*	Autonomous Position: < 30 m (1 σ) Autonomous Velocity: < 0.2 m/sec (1 σ) Time Offset 1PPS: < 500 ns
Time to First Fix	User S/C Ephemeris: < 10 km, 10 m/sec User GPS Clock Error: < 1 sec
Orbital Dynamics (Typical Spacecraft Orbit)	Velocity: 8,000 m/sec Acceleration: 10 m/sec ²
Antennas	Two active microstrip patch antenna modules included; power supplied by GPS receiver Weight: 0.4 lbs per antenna module SMA female connectors on receiver and antenna modules Single coaxial cable (not supplied) required to interconnect receiver with each antenna; loss must be ≤ 4 dB at L1
Physical/Environmental	Size: 6.0" x 5.2" x 1.7" (15.2 x 13.2 x 4.3 cm) Weight: 2.7 lbs. (1.2 kg) max. DC Power: 20 to 34 VDC @ 4.7 Watts max Vibration: 17 Grms Shock: 1750 G at 500 Hz Operating Temperature: -20° C to +60° C
Multiple Configurations Available	L1, C/A code Multiple antennas 6 to 12 channels Single string or redundant configuration

*The GPS system is controlled, maintained and operated by the U. S. Department of Defense. GPS receivers are subject to degradations of position and velocity accuracies under Department of Defense imposed Selective Availability.

For more information contact:

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