

SpaceNav

GPS receiver for space applications

KEY FEATURES

SpaceNav GPS receiver for satellites is a fully dual-redundant, radiation-tolerant, 12-channel L1 C/A code receiver. It provides precise orbit determination and precise timing for low-earth-orbit satellite host vehicles.

Significantly enhancing navigation accuracy, the advanced system includes a unique orbital filter algorithm that delivers critical data while smoothing GPS navigation.

SpaceNav also includes a sophisticated mechanism that enables automatic detection and correction of single-event upsets, assuring continuous functioning.

Up to four antennas can be installed on the host vehicle.

BAE Systems Rokar – committed to your mission

BAE Systems Rokar designs, develops, and manufactures advanced GPS solutions for airborne, naval, and ground applications. The company is an approved manufacturer of space-related solutions. Its GPS receiver systems are used as standard equipment by the Israeli Space Agency and Israel Aerospace Industries Ltd.

SpaceNav is currently orbiting aboard the Eros-B and Ofeq-7 satellites.

Radiation-tolerant

Full dual redundancy

Four antennas

Automatic error detection and correction

Accurate 1PPS output



SPACENAV TECHNICAL SPECIFICATIONS

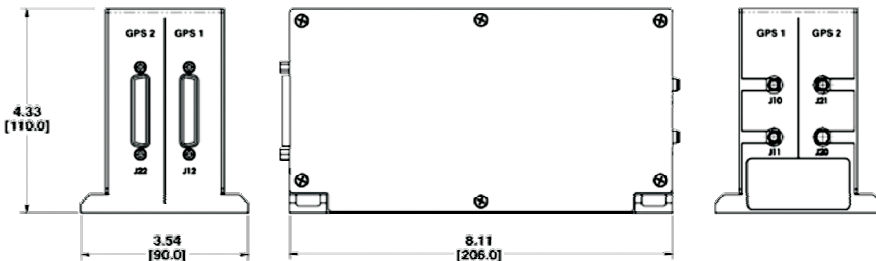
Performance characteristics

| | |
|------------------------|---|
| Dynamics: | Velocity up to 10,000 m/second |
| Accuracy: | Pseudorange: 4.5 meters RMS (without SA) |
| Pseudorange rate: | 0.015 m/second |
| Position accuracy: | (PDOP) x (pseudorange accuracy) Demonstrated accuracy in space better than 5 meters RMS |
| Time to first fix: | Warm start: 60 seconds average (aiding age less than 5 seconds and almanac age up to 1 month) Cold start: 8 minutes average (without aiding) |
| Nav update rate: | 1 per second |
| 1PPS: | RS-442 level, 1 ms width Accuracy better than 100 ns RMS |
| Input power: | 25 – 45 VDC 5.4 W ± 5% @ 28 VDC |
| Environmental: | Per MIL-STD-810D |
| Operating temperature: | GPS: -25°C to +60°C Antenna: -70°C to +70°C |
| Humidity: | 40% to 60% |
| Altitude: | Low-earth orbits <1000 km |

| | |
|---------------------|--|
| Acceleration: | 23g non-operational |
| Vibration: | GPS: 19.2 g RMS z axis 15.1 g RMS x, y axis Antenna: 38.9 g RMS z axis 16.1 g RMS x, y axis |
| Radiation Tolerant: | Total dose, 20 kRad Heavy ion fluxes Trapped proton fluxes Solar energetic particle fluxes |
| Single event upset: | EDAC correction for single error event; detection and reset for double error event (extremely low probability) |
| EMI MIL-STD-461C: | CE03, CS01, CS02, CS06, RE02, RS03 |

Physical characteristics

| | |
|-------------|-------------------------|
| Dimensions: | 206 mm x 90 mm x 110 mm |
| Weight: | 1.4 kg, ± 5% |



FOR MORE INFORMATION, CONTACT:

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