

Rugged GNSS Receiver



Highlights

- ◆ GPS-GLONASS-GAGAN Receiver for aerospace and defense applications
- ◆ Rugged construction with Aluminium Alloy
- ◆ Indigenous GNSS Receiver Technology
- ◆ Compliance with CE, RoHS and Safety Directives
- ◆ Qualification as per MIL-810G, MIL-461F, MIL-275B and MIL-464A
- ◆ Designed and manufactured in India, with custom modification options



Description

Rugged GNSS Receiver is a GPS, GLONASS, GAGAN receiver designed and built for aerospace and defense applications

Features

- ◆ GPS GAGAN GLONASS receiver with indigenous technology
- ◆ Differential Corrections as per RTCM SC 104
- ◆ Isolated serial interface ports
- ◆ Built in Test
- ◆ NMEA 3.01 Output messages
- ◆ MTBF of more than 20000 hours as per MIL-217-HDBK

Specifications

Physical

Dimensions (L x W x H)	175 mm x 94.5 mm x 67 mm
Weight	1.4 kg
Installation	Slide and Lock
Cooling	Passive Conduction
Chassis	Aluminum alloy
Color	NATO Green
Mass Continuity	Severity as per MIL-STD-464 A
MTBF	20000 hours

Interface

Power	+24V DC Power Supply
Antenna Port	GPS-GLONASS active Antenna (+ 5.5 V / 100 mA max.)
COM1 Port	Isolated RS422 Transmitter: NMEA 0183 Version 3.01, Built in Test (BIT) message
	Isolated RS422 Receiver: ASCII Commands, 1PPS Isolated Logic Signal
COM2 Port	Isolated RS422 Transmit: Same as COM1
	Isolated RS422 Receiver: RTCM SC104 Ver 2.1,2,3

Electrical

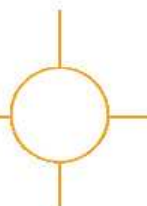
Power Input	9-36V DC Continuous
Power Consumption	< 3 Watts

Receiver

Channels	27
Signals	GPS L1, C/A code GLONASS L1, SP Code SBAS(GAGAN, WAAS, EGNOS, MSAS)
Cold Start TTFF	< 50 seconds (95%)
Hot Start TTFF	< 35 seconds (95%)
Sensitivity	-136 dBm Acquisition -155 dBm Tracking
Positioning Modes	GPS Only GLONASS Only Combined GPS and GLONASS Differential GPS
Position Accuracy	SPS Without SBAS: < 10m (95%) With SBAS: < 5 m (95%) With DGPS: < 4 m (95%)
Velocity Accuracy	0.2 m/s, (95%)
Time Accuracy	<100 ns (95%)
Update rate	1 Hz
Dynamics	Max Velocity: 515 m/s Max Acceleration: 4g
Altitude	Max Altitude: 18,000 m Min Altitude: -1000m



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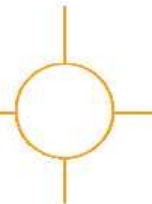
Specifications

Environment

Low Temperature Storage	-46°C: MIL-STD-810 G, method 502.5, procedure 1
Low Temperature Operating	-37°C: MIL-STD-810 G, method 502.5, procedure 2
High Temperature Storage	70°C: MIL-STD-810 G, method 501.5, procedure 1
High Temperature Operating	60°C: MIL-STD-810 G, method 501.5, procedure 2
Pressure/Altitude	540 hPa: MIL-STD-810 G, method 500-5, Procedure 2
Storage at Low Pressure	540 hPa: MIL-STD-810 G, method 500-5, Procedure 1
Fluids	MIL-STD-810 G, method 504.1.
Rain	MIL-STD-810 G, method 506.5, procedure 2
Humidity	MIL-STD-810 G, method 507.5, procedure 2
Salt Fog	MIL-STD-810 G, method 509.5, procedure 1
Sand	MIL-STD-810 G, method 510.5, procedure 2
Dust	MIL-STD-810 G, method 510.5, procedure 1
Icing Freezing Rain	MIL-STD-810 G, method 521.3
Fungus	MIL-STD-810 G, method 508.6
Solar Radiation	MIL-STD-810 G, method 505.5, procedure 1
Explosive Atmosphere	MIL-STD-810 G, method 511.5, procedure 1
Water Tightness	2 hours at depth of 2 m: MIL-STD-810 G, method 512-5, Procedure 1
Random Vibration	MIL-STD-810G, method 514-6, Category 4 -Figure 514-6C2, Table 514.6C-IV -Figure 514-6C3, Table 514.6C-VI
Narrow band Random Vibration	MIL-810E, 514.4, Procedure 1, Vertical axis: 2.87 g RMS, Transverse axis: 1.75 g RMS, Longitudinal axis: 2.03 g RMS
Shocks GunFire	MIL-STD-810 G, method 519.6, procedure 1
Operating Shocks	MIL-STD-810 G, method 516-6, Procedure 1: -- 40g, 6 ms, half-sine -3 shocks in each direction for three axes -- 30g, 11 ms, half-sine -3 shocks in each direction for three axes
Crash Hazard Shock Test	MIL-STD-810 G, method 516-6, Procedure 5: 25g 6 ms half-sine: 1000 shocks at 2 Hz per axis in each direction with equipment in operation. 1000 shocks at 2 Hz per axis in each direction with equipment not in operation.



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Specifications

Environment

Conducted Emission	MIL-STD-461 F, CE 101, severity Ground Army
	MIL-STD-461 F, CE 102, severity Ground Army
	MIL-STD-461 F, CE 106, severity Ground Army
Radiated Emission	MIL-STD-461 F, RE 101, severity Ground Army
	MIL-STD-461 F, RE 102, severity Ground Army
	MIL-STD-461 F, RE 103, severity Ground Army
Conducted Susceptibility	MIL-STD-461 F, CS101, severity Ground Army
	MIL-STD-461 F, CS103, severity Ground Army
	MIL-STD-461 F, CS104, severity Ground Army
	MIL-STD-461 F, CS105, severity Ground Army
	MIL-STD-461 F, CS114, severity Ground Army
	MIL-STD-461 F, CS115, severity Ground Army
Radiated Susceptibility	MIL-STD-461 F, RS 101, severity Ground Army
	MIL-STD-461 F, RS 103, severity Ground Army
Transient Power Outages	Transient power outages of 500 micro-seconds and 1 millisecond in compliance with RTCA/DO-160 C section 16
Network Environment	MIL-STD-1275B, 9V-36V DC, Power \leq 3 W @ 24 VDC, Surges – 40V/50ms 100V/50ms, Spikes - 250V/70us
Mass Continuity	MIL-STD-464A, Mechanical mass of the equipment and any point of structure : < 0.5 m Ω , Mechanical mass of the equipment and connectors : < 2.5 m Ω

Markings

CE	Low voltage directive 2006/95/EC, EMC Directive 2004/108/EC).
RoHS	EU Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC.
Safety	§1.7 of EN 60950-1, EN 60417-1, ISO 3864 and ISO IR 361



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