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GPS-GLONASS-BEIDOU-GALILEO-NAVIC-SBAS RECEIVER

# ACC-GNSS-NANO

## GPS-GLONASS-BEIDOU-GALILEO-NavIC-SBAS Receiver for Spacecraft Applications

| | | | |
|---|---|---|---|
| **< 10m**<br>3D POSITION ACCURACY | **< 20 cm/s**<br>3D VELOCITY ACCURACY | **< 100ns**<br>1PPS ACCURACY | **10 km/s**<br>3D VELOCITY LIMIT |
| **2,000 kms**<br>ALTITUDE LIMIT | **2g**<br>ACCELERATION LIMIT | **30k rad**<br>RADIATION TOLERANCE | **< 0.75 W**<br>POWER CONSUMPTION |

## PRODUCT OVERVIEW

ACC-GNSS-NANO is a multi-constellation GNSS receiver supporting 64 simultaneous tracking channels configured to lock on to signals from 5 different constellations providing unmatched performance in Space.

The receiver is enclosed in a metallic enclosure and provides power, antenna and data interface through a standard connector.




## KEY PERFORMANCE FEATURES

- GPS-GLONASS-BEIDOU-GALILEO-NavIC-SBAS receiver
- 52 Acquisition and 64 Tracking channels
- Fast Time-To-First-Fix in Cold start
- Supports higher dynamics
- Provides Precise 1PPS output
- 15 Pin D-Sub Male Connector power & Signal interface
- SMA Female Connector for Antenna Interface
- NMEA0183 compatible message format
- Supports UART RS-422/RS-232 serial interface
- Multi-constellation improves position availability in the orbit

## PHYSICAL & ELECTRICAL

| | |
|---|---|
| Dimensions | 75mm X 60mm X 20mm (Approx.) |
| Weight | 165 gms (Approx.) |
| Supply Voltage | 3.6V - 32V DC |
| Board-to-Board Interface | 15 pin D-sub male connector |
| RF connector | SMA female connector |

# Specifications of ACC-GNSS-NANO

| System Specifications | |
|---|---|
| Channels | 64 Tracking, 52 Acquisition |
| Constellation Supported | L1: GPS, GLONASS, GALILEO, BEIDOU, SBAS; L5: NavIC |
| Cold Start TTFF (without almanac, time or position) | 120 s, open sky, under dynamics |
| Reacquisition | 10 s |
| Position Accuracy | < 10m (1σ) @ -130dBm |
| Velocity Accuracy | < 0.2 m/s (1σ) @–130dBm |
| Update rate | 1 Hz |
| Dynamics | Velocity: 10000 m/s Acceleration: 2 g Altitude: 2000Km |
| Sensitivity (acquisition) | -136 dBm |
| Sensitivity (reacquisition) | -142 dBm |
| Sensitivity (tracking) | -150 dBm |

| Input Messages | |
|---|---|
| Proprietary ASCII | Reset, Communication port setting, Message configuration, Version query |

| Output Messages | |
|---|---|
| NMEA Ver 4.11 (ON by default) | GGA, RMC, GNS, GSV, VTG, GSA, ZDA, GLL |
| Proprietary binary (OFF by default) | As defined in the ICD (contains position, speed, date & time, fix type, satellites in view, satellite elevation, satellite azimuth, satellite signal strength, range of satellite to receiver antenna) |

| Environmental | |
|---|---|
| Operating Temperature | -40°C to +85°C |
| Storage temperature | -40°C to +85°C |
| Vibration | 14g (random) |
| Radiation (TID) | 30Krad |

| Mechanical | |
|---|---|
| Dimensions (without considering connectors and mounting fins) | 75mm X 60mm X 20mm (Approx.) |
| Weight | 165 gms (Approx.) |
| Board-to-Board Interface | 15 pin D-sub male connector |
| RF connector | SMA Female |

| 1PPS | |
|---|---|
| 1PPS Jitter | 100 ns |
| 1PPS pulse width | 5 ms |
| Pulse edge | Rising |

| Electrical | |
|---|---|
| Supply voltage | 3.6V to 32V DC |
| Power Consumption | < 0.75 W |

| Host Communication | |
|---|---|
| Configuration | RS-422 |
| Baud Rate | 4800-115200 bps; default: 115200 bps |
| Message Formats | 8 data bits, 1 start bit, 1 stop bit, odd parity |

| Antenna (Desirable Specifiications) | |
|---|---|
| Frequency | L1 & L5 band (1575.42 MHz & 1176.45 Mhz) |
| Frequency | 20MHz |
| Gain | 26dB |
| Noise Figure | <2dB |
| RF connector | SMA male connector |

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