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SPACEX GNSS Receiver



- **Satellite Signals Tracked:** GPS, GLONASS, BEIDOU, GALILEO, IRNSS, QZSS, SBAS
- **Positioning Output Rate:** 1 Hz - 20 Hz
- **RTK Initialization Time:** <1 s; Reliability: >99.99%
- **Hardware:** Magnesium alloy, IP67, -40°C to +75°C operating temp
- **Battery:** 8000mAh, >24h working time
- **Storage:** 8GB internal memory, supports cyclic storage

SPACEX GNSS Receiver Specifications

Performance specification

■ Satellite signals tracked simultaneously	GPS: L1 C/A, L2C, L2P L5 GLONASS: L1, L2, L3 BEIDOU: B1, B2, B3, B1C, B2a, B2b GALILEO: E1,E5a,E5b,E6 IRNSS: L5 QZSS: L1,L2,L5,L6 SBAS: WAAS, EGNOS, MSAS, GAGAN, SDCM
■ Channels	1408 tracking Channels
■ Cold start	<50 s
■ Hot start	<15 s
■ Positioning output rate	1Hz - 20Hz
■ Signal Reacquisition	<1s
■ RTK Initialization time	<5s
■ Initialization Reliability	>99.99%
■ Time accuracy	20 ns

Positioning

■ Single-point positioning(RMS):	Horizontal: 1.5m, Vertical: 2.5m
■ DGPS(RMS):	Horizontal: 0.25m, Vertical: 0.4m
■ Static:	Horizontal: $\pm(3\text{mm} + 0.1\text{ppm})\text{RMS}$ Vertical: $\pm(3.5\text{mm} + 0.4\text{ppm})\text{RMS}$
■ RTK (RMS) & NRTK (RMS):	Horizontal: $\pm(8\text{mm}+1\text{ppm})\text{RMS}$, $\pm(8\text{mm}+0.5\text{ppm})\text{RMS}$ Vertical: $\pm(15\text{mm}+1\text{ppm})\text{RMS}$, $\pm(15\text{mm}+0.5\text{ppm})\text{RMS}$

HARDWARE PHYSICAL

■ Material	Magnesium alloy
■ Dimensions	120mm*72mm (without bottom connector 20mm)
■ Weight	0.76kg
■ Operating temperature	-40°C to +75°C
■ Storage temperature	-55°C to +85°C
■ Protection IP	IP67 dust proof, protected from 30min immersion to depth of 1m
■ Shock	Survive a 2m pole drop onto concrete
■ Vibration	MIL-STD-810G
■ Humidity	100%, condensing

IMU

■ IMU	Supported, 4D IMU initialization in 3 seconds
■ IMU update rate	400Hz
■ IMU accuracy	<2.5cm within 30°
■ IMU tilt compensation	0-120°

ELECTRICAL

■ Power	9~24V DC external power
■ USB Type-C fast charging	Support
■ Battery capacity	Internal 8000mAh lithium-ion battery

Working Time

■ Network Mode	>24h
■ Radio Reception	>18h
■ Radio Transmission	>8.5h

Communication & Data Storage

■ I/O Interface	5pin Lemo port, TNC port
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RADIO MODEM

■ Internal Radio	TX/RX Internal Module
■ Internal Radio Rrenquency	410-470 MHZ
■ Communication Protocols	PCC-EOT, TrimTalk450S, TrimMarkIII, South, GeoTalk, GeoMark, etc

Bluetooth

■ Fully integrated Bluetooth V5.0

Data Format

■ Differential Data	RTCM2.X, RTCM3.X, CMR, CMR+
■ GPS output data format	NMEA 01835 RTK, Binary code
■ Static Data Format	RINEX

Storage

■ 8GB internal memory, supports cyclic storage; with ability to collect over one year raw observation based on 5 seconds interval

Other

System integration

■ OS system	Intelligent LINUX operating system
■ Supported controllers	All android devices with supported software

Design

■ Key	One Button
■ Indicator	Power indicator, data link indicator, satellite indicator, Bluetooth indicator

1- Precision and reliability may be subject to anomalies due to multipath, obstructions, satellite geometry, and atmospheric conditions. The specifications stated recommend the use of stable mounts in an open sky view, EMI and multipath clean environment, optimal GNSS constellation configurations. Base lines longer than 30 km require precise ephemeris and occupations up to 24 hours may be required to achieve the high precision static specification.

2- Depends on SBAS system performance

3- Network RTK PPM values are referenced to the closest physical base station and depends on network performances.

Illustrations, descriptions and technical specifications are not binding and may change



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Janak Positioning and Surveying Systems Pvt. Ltd.

Head Office:-304-B, Pal Mohan Plaza,
D.B. Gupta Road,
Karol Bagh, New Delhi
Branch office:-
B-28, Sector-4, Noida
Tel : +91-1800116009

