

GEOMATE

Premium Surveying. Trusted Solutions



GEOMATE SG5

SMART GNSS IMU-RTK RECEIVER



GEOMATE SG5

The GeoMate GNSS SG5 is the latest premium GNSS geodetic receiver made in Singapore. Designed to meet the highest standards, the SG5 is a high-performance 1608-channel IMU-RTK GNSS receiver that delivers the performance and reliability you need to survey your work sites with confidence. The SG5 has built-in connection modules including Wi-Fi, Bluetooth, NFC, UHF modem to support a variety of application scenarios, such as urban surveying and mapping, road infrastructure construction, urban utility development, housing construction and more.

TECHNICAL SPECIFICATIONS

GNSS Performance ⁽¹⁾

Channels	1608 channels
GPS	L1 C/A, L2C, L2P(Y), L5
GLONASS	L1, L2
Galileo	E1, E5a, E5b, E6*
BeiDou	B1I, B2I, B3I, B1C, B2a, B2b
SBAS	L1, L5
QZSS	L1, L2, L5, L6*
PPP	B2b-PPP

GNSS Accuracies ⁽²⁾

Real time kinematics (RTK)	Horizontal: 8 mm + 1 ppm RMS Vertical: 15 mm + 1 ppm RMS Initialization time: < 10 s Initialization reliability: > 99.9%
Post-processing kinematics (PPK)	Horizontal: 3 mm + 1 ppm RMS Vertical: 5 mm + 1 ppm RMS
Post-processing static	Horizontal: 2.5 mm + 0.5 ppm RMS Vertical: 5 mm + 0.5 ppm RMS
Code differential	Horizontal: 0.4 m RMS Vertical: 0.8 m RMS
Autonomous	Horizontal: 1.5 m RMS Vertical: 2.5 m RMS
Positioning rate ⁽³⁾	1 Hz, 5 Hz and 10 Hz
Time to first fix ⁽⁴⁾	Cold start: < 45 s Hot start: < 10 s Signal re-acquisition: < 1 s
IMU update rate	200 Hz
Tilt angle	0~60°
RTK tilt-compensated	Typically less than 10 mm + 0.7 mm/° tilt

Hardware

Size (L x W x H)	Φ119 mm x 85 mm (Φ4.69 in x 3.35 in)
Weight	0.73kg (1.61 lb)
Front panel	4 LED, 2 physical buttons
Environment	Operating: -40°C to +65°C (-40°F to +149°F) Storage: -40°C to +85°C (-40°F to +185°F)
Humidity	100% condensation
Ingress protection	IP67
Shock	Survive a 2-meter pole drop
Tilt sensor	Calibration-free IMU, E-Bubble leveling

Communication

Wi-Fi	802.11 b/g/n, access point mode
Bluetooth®	V4.2
Ports	1 x USB Type-C port (external power, data download, firmware update) 1 x UHF antenna port (TNC female)
UHF radio	Standard Internal Rx/Tx: 410 - 470 MHz Transmit Power: 0.5 W to 1 W Protocol: Transparent, TT450, Satel Link rate: 9600 bps to 19200 bps Range: Typical 3 km, up to 8km with optimal conditions
Data formats	RTCM 2.x, RTCM 3.x, CMR input / output RINEX 2.11, 3.02 NMEA 0183 output NTRIP Client, NTRIP Caster
Data storage	8 GB internal memory

Electrical

Power consumption	Typical 2.2 W (depending on user settings)
Li-ion battery capacity	Built-in non-removable battery 6,800 mAh, 7.4 V
Operating time on internal battery ⁽⁵⁾	UHF RTK Rover: up to 24h UHF RTK Base: up to 10.5 h Static: up to 25 h



*All specifications are subject to change without notice.

(1) Compliant, but subject to availability of BDS ICD, Galileo and QZSS commercial service definition. BDS B2b, Galileo E6 and QZSS L6 will be provided through future firmware upgrade.

(2) Accuracy and reliability are determined under open sky, free of multipaths, optimal GNSS geometry and atmospheric condition. Performances assume minimum of 5 satellites, follow up of recommended general GPS practices.

(3) Compliant and 10 Hz to be provided through future firmware upgrade.

(4) Typical observed values.

(5) Battery life is subject to operating temperature.

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