

GEOMATE

Super Base, Performance Fighter



GEOMATE GBASE

ULTRA-LONG RANGE GNSS BASE



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GBase delivers unmatched field performance with over 13 hours of continuous operation, enabled by its LongRun technology and a data compression algorithm. It achieves reliable 30 KM range in challenging field, while the AI-driven Ultra Base mode ensures seamless transitions between radio and network signals for non-stop, precise surveying.

TECHNICAL SPECIFICATIONS

GNSS Performance⁽¹⁾

Channels	1608 channels
GPS	L1C/A, L2P (Y), L2C, L5
GLONASS	L1, L2, L3*
Galileo	E1, E5a, E5b, E6*
BeiDou	B1I, B2I, B3I, B1C, B2a, B2b*
QZSS	L1C/A, L1C, L2C, L5
NavIC/ IRNSS	L5
PPP	B2b-PPP*, E6B-HAS*
SBAS	L1, L5*

GNSS Accuracies⁽²⁾

Real time kinematic (RTK)	Horizontal: 8 mm + 1 ppm RMS Vertical: 15 mm + 1 ppm RMS Initialization time: < 10 s Initialization reliability: > 99.9%
Post-processing kinematic (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
High-precision static	H: 2.5 mm + 0.1 ppm RMS V: 3.5 mm + 0.4 ppm RMS
Static and rapid static	H: 2.5 mm + 0.5 ppm RMS V: 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	Up to 10 Hz
Time to first fix ⁽³⁾	Cold start: < 45 s Hot start: < 10 s Signal re-acquisition: < 1 s
IMU update rate	200 Hz, AUTO-IMU
Tilt angle	0-60°
RTK tilt-compensated	Additional horizontal pole-tilt uncertainty typically less than 8 mm + 0.7 mm/° tilt down to 30°

Hardware

Size (LxWxH)	Φ160.5 mm x 103 mm (Φ 6.32 in x 4.06 in)
Weight	1.73 kg (3.81 lb)
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 waterproof and dustproof, protected from temporary immersion to depth of 1 m
Shock	Survive a 2-meter pole drop
Tilt sensor	E-Bubble leveling
Front panel	2 LED, 0.96" OLED Display

Communication

Network modem	Integrated 4G modem LTE (FDD): B1, B2, B3, B4, B5, B7, B8, B20 DC - HSPA+/HSPA+/HSPA/UMTS: B1, B2, B5, B8 EDGE/GPRS/GSM850/900/1800/1900MHz
Wi-Fi	802.11 b/g/n, access point mode
Bluetooth®	v 5.0
Others	NFC
Ports	1 x 7-pin LEMO port (external power, RS-232) 1 x UHF antenna port (TNC female)
LongRun technology ⁽⁴⁾	The new-generation UHF radio data transmission mode of GeoMate enables GNSS RTK Base all-day operation and long-distance range.
UHF radio ⁽⁵⁾	Standard Internal Rx/Tx: 410 - 470 MHz Transmit Power: up to 5 W Protocol: LongRun, Transparent, TT450, Satel Link rate: 9600 bps / 19200 bps Range: Typical 8 km to 12 km, optimal up to 30 km with LongRun. Typical 5 km to 8 km, optimal up to 25 km with other protocols.
Ultra Base ⁽⁶⁾	Simultaneous radio and network differential data transmission
Data formats	RTCM2.x, RTCM3.x, CMR input / output GCN, RINEX2.11, 3.02 NMEA 0183 output NTRIP Client, NTRIP Caster
Data storage	8 GB memory

Electrical

Power consumption	12 W (depending on user settings)
Li-ion battery capacity	2 x 7000 mAh, 7.4 V
Operating time on internal battery ⁽⁷⁾	UHF base: up to 13 h (LongRun). 8 h to 10 h (other protocols) Static: up to 25 h

Compliance with Laws and Regulations

International standards	IEC 62133-2:2017+A1, IEC 62368-1: 2014, EN 62368-1:2014+A11:2017, UN Manual Section 38.3
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*All specifications are subject to change without notice.

(1) Compliant, but subject to availability of BDS ICD, GLONASS, Galileo, QZSS and IRNSS commercial service definition. GLONASS L3, Galileo E6, Galileo E6 High Accuracy Service (HAS), BDS B2b and SBAS L5 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) Typical observed values.

(4) All test values above are from GeoMate internal labs under typical conditions. Actual results may vary due to product differences, software versions, usage, and environmental factors.

(5) The use of UHF datalink may be subject to local regulations. Users must ensure that the device is not operated without the permission of the local authorities on frequencies or power output other than those specifically reserved and intended for use without required permit.

(6) Will be enabled in a future firmware upgrade, dependent on existing server coverage availability.

(7) Battery life is subject to operating temperature, environment, and working mode.

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DESIGNED IN
SINGAPORE

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