

eBase GNSS Receiver

Benchmark Tool & Supply's eBase GNSS receiver is an integrated UHF GNSS base station built specifically for surveyors working in base-rover RTK workflows. It delivers reliable RTK performance without external radios, cables, or batteries.



Technical Specifications

GNSS Performance ⁽¹⁾

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

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	Up to 10 Hz
Time to first fix ⁽³⁾	Cold start: < 45 s Hot start: < 10 s Signal re-acquisition: < 1 s

IMU Sensor

IMU Type	4D AUTO-IMU
IMU Update Rate	200Hz
IMU Tilt Angle	0-60°
Additional Horizontal Pole-tilt	Typically less than 2.5 cm within 30°

Hardware

Size (Lx Wx H)	Φ 6.32 in × 4.06 in (Φ160.5 mm × 103mm)
Weight	3.81 lb. (1.73 kg)
Environment	Operating: -40 °F to +149 °F (-40 °C to +65 °C) Storage: -40°F to +185°F (-40 °C to +85 °C)
Humidity	100% non-condensation
Ingression Protection	IP67 waterproof and dustproof, protected from temporary immersion to depth 1m
Shock	Survive a 2-meter pole drop
Front Panel	2 LED 0.96" OLED Display

Technical Specifications

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/GSM850/900/1800/1900 MHZ
Wi-Fi	802.11 b/g/n, access point mode
Bluetooth ⁽⁴⁾	v 5.0
Others	NFC
Ports	1 x 7-pin LEMO port (external power, RS -232) 1 x UHF antenna port (TNC female)
UHF Radio ⁽⁴⁾	Standard Internal Rx/Tx: 410 - 470 MHz Transmit Power: up to 5 W Protocol: EFIX,Transparent, TT450, Satel Link rate: 9600 bps / 19200 bps Range: Typical 5 km to 8 km, up to 25km with optimal conditions.
Data Formats	RTCM2.x, RTCM3.x, CMR input / output ECN, 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 ⁽⁵⁾	UHF receive / transmit (5 W): 8 h to 12 h Static: up to 25 h
External Power Input	9 V DC to 28 V DC



*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) 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.

(5) Battery life is subject to operating temperature.