



F7+ GNSS RECEIVER

PALM-SIZE GNSS+IMU RECEIVER

TECHNICAL SPECIFICATIONS

GNSS Performances ⁽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*
QZSS	L1C/A, L1C, L2C, L5
NavIC/ IRNSS	L5
PPP	B2b-PPP, E6B-HAS
SBAS	EGNOS (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 kinematics (PPK)	Horizontal: 3 mm + 1 ppm RMS Vertical: 5 mm + 1 ppm RMS
PPP	Support PPP-B2b, E6B-HAS H: 10cm V: 20cm
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
Vision stakeout	H: 8 mm + 1 ppm RMS V: 15 mm + 1 ppm 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 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 (L x W x H)	Φ119 mm x 85 mm (Φ4.69 in x 3.35 in)
Weight	0.77kg (1.7 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 °C)

Humidity	100% non-condensation
Ingress protection	IP67 ⁽⁵⁾
Drop	Survive a 2-meter pole drop
Tilt sensor	Calibration-free IMU for pole-tilt compensation. Immune to magnetic disturbance

Communication	
Wi-Fi	802.11 b/g/n, access point mode, 2.4Ghz
Bluetooth®	V4.2
Others	NFC for device touch pairing, 13.56MHz
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, 1 W Protocol: EFIX, Transparent, TT450, Satel ⁽⁶⁾ 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
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Electrical	
Power consumption	Typical 2.2 W (depending on user settings)
Li-ion battery capacity	Built-in non-removable battery 6,600 mAh, 7.2 V
Operating time on internal battery ⁽⁷⁾	UHF RTK Rover: up to 24h UHF RTK Base: up to 10.5 h Static: up to 25 h
External power input	Type-C 5 V / 2 A

Certifications	
IEC 62133-2:2017+A1, IEC 62368-1: 2014, EN 62368-1:2014+A11:2017, UN Manual Section 38.3	



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

(4) Typical observed values.

(5) Splash, water, and dust resistant and were tested under controlled laboratory conditions with a rating of IP67 under IEC standard 60529.

(6) 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. Compliant and Satel protocol to be provided through future firmware upgrade.

(7) Battery life is subject to operating temperature.

