

TECHNICAL SPECIFICATIONS

GNSS Performance <sup>(1)</sup>	
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
SBAS	L1, L5*
PPP	B2b-PPP, E6B-HAS

GNSS Accuracies <sup>(2)</sup>	
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
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 <sup>(3)</sup>	1 Hz, 5 Hz and 10 Hz
Time to first fix <sup>(4)</sup>	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)	Φ106 mm x 55.6 mm(Φ4.17 in x 2.1 in)
Weight	450 g (0.99 lb)
Front panel	2 synchronized LED + 1 Button
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% non-condensation
Ingress protection	IP68 <sup>(5)</sup> (according to IEC 60529)
Shock resistance grade	IK08
Drop	Survive a 2-meter pole drop
Tilt sensor	Calibration-free IMU for pole-tilt compensation. Immune to magnetic disturbance

Camera	
Sensor pixels	2 MP
Aperture	F2.4
Video frame rate	30 fps
Feature	Vision stakeout
Communication	
Wi-Fi	Wi-Fi 2.4G 802.11 b/g/n Wi-Fi 5G 802.11ac
Bluetooth <sup>®</sup>	v 4.2, backward compatible
Others	NFC for device touch pairing, 13.56MHz
Ports	1 x USB Type-C port (external power, data download, OTG firmware update) 1 x UHF antenna port (SMA female)
UHF radio <sup>(6)</sup>	Internal Rx Only: 410 - 470 MHz Protocol: EFIX, Transparent, TT450 Link rate: 9600 bps to 19200 bps
Data formats	RTCM2.x, RTCM3.x, CMR input / output, Full Star HCN, RINEX 2.11, 3.02 NMEA 0183 output NTRIP Client, NTRIP Caster
Data storage	8 GB high-speed memory
Electrical	
Charging time	Full charge in 4.5 hours
Operating time on internal battery <sup>(7)</sup>	UHF/4G RTK Rover w/o camera: up to 17 h Vision Stakeout: up to 10 h Static: up to 22 h
External power input	Type-C 5 V / 2 A



\*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 IP68 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.  
(7) Battery life is subject to operating temperature.

Shanghai EFIX Geomatics Co.,Ltd.

Room 1137, D, 11/F, Building 1, No. 158 Shuanglian Road, Qingpu District, Shanghai  
Sales@efix-geo.com  
www.efix-geo.com

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GNSS RECEIVER