

i83 SPECIFICATIONS

GNSS Performance ⁽¹⁾	
Channels	1408 channels
GPS	L1 C/A, L2C, L2P, L5
GLONASS	L1, L2
Galileo	E1, E5a, E5b, E6*
BeiDou	B1I, B2I, B3I, B1C, B2a, B2b*
SBAS	L1
QZSS	L1, L2, L5, L6*

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	Additional horizontal pole-tilt uncertainty typically less than 10 mm + 0.7 mm/° tilt

Hardware	
Size (L x W x H)	Φ 152 mm x 78 mm (Φ 5.98 in x 3.07 in)
Weight	1.15 kg (2.54 lb)
Front panel	1.1" OLED Color Display 2 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 waterproof and dustproof, protected from temporary immersion to depth of 1 m
Waterproof and breathable membrane	Prevent water vapor from entering the device under harsh environments such as sun exposure and sudden heavy rain
Shock	Survive a 2-meter pole drop
Tilt sensor	Calibration-free IMU for pole-tilt compensation. Immune to magnetic disturbances. E-Bubble leveling

Communication	
SIM Card Type	Nano-SIM card
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/GSM 850/900/1800/1900MHz
Wi-Fi	802.11 b/g/n, access point mode
Bluetooth®	V 4.2
Ports	1 x 7-pin LEMO port (RS-232) 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 2 W Protocol: CHC, Transparent, TT450, Satel Link rate: 9,600 bps to 19,200 bps Range: Typical 3 km to 5 km
Data formats	RTCM 2.x, RTCM 3.x, CMR input / output HCN, HRC, RINEX 2.11, 3.02 NMEA 0183 output NTRIP Client, NTRIP Caster
Data storage	8 GB internal memory

Electrical	
Power consumption	Typical 4.5 W (depending on user settings)
Li-ion battery capacity	Built-in non-removable battery 9,600 mAh, 7.4 V
Operating time on internal battery ⁽⁵⁾	UHF/ 4G RTK Rover: up to 18 h UHF RTK Base: up to 9.5 h Static: up to 18 h
External power input	9 V DC to 28 V DC

Certifications	
CE Mark; FCC Part 15 Subpart B Class B; NGS Antenna Calibration; MIL-STD-810H, method 514.8	



*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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