

GNSS system i93.



Mätsystem i93 kombinerar GNSS och fotogrammetri för att snabba upp och förenkla inmätning och utsättning.

i93 VISUAL IMU-RTK GNSS-mottagaren är en extremt mångsidig GNSS RTK som integrerar de senaste GNSS-, IMU- och dubbla kameror, vilket ger snabbare och enklare mätning. Genom att införliva CHCNAVs senaste visuella navigering och utsättningsteknik, ger den visuella 3D-utsättningsfunktionen oöverträffad användarvänlighet och komfort, vilket omedelbart ökar effektiviteten för alla mätprojekt.

Med i93:s integrerade kameror sker inmätning och utsättning visuellt. Visuella mätningar förenklar punktmätningar utan behov av komplexa offsetmetoder att kartlägga tidigare svåråtkomliga, signalobstruerade eller farliga platser. Snedbilder från i93 kan också användas för att komplettera fotogrammetri från drönare.

Med sina avancerade funktioner och banbrytande teknik är i93 den idealiska lösningen för proffs som utför mätning, mer exakt och mer effektivt än tidigare.

Mätsystem i93 Integrerar:

- GNSS RTK-mottagare med stöd för alla satellitsystem.
- Automatisk kalibreringsfri stånglutningskompensering.
- Visuell utsättning
- Visuell inmätning
- Integrerad UHF modem med protokoll för de populäraste formaten.

Teknisk specifikation

GNSS Performance ⁽¹⁾		Hardware	
Channels	1408 channels	Size (D x H)	Φ 152 x 81 mm (Φ 5.98 x 3.19 in)
GPS	L1C, A, L2C, L2P(Y), L5	Weight	1.15 kg (2.54 lb)
GLONASS	L1, L2, L3	Front panel	1.1" OLED Color Display 2 LED, 2 physical buttons
Galileo	E1, E5a, E5b, E6*	Tilt sensor	Calibration-free IMU for pole-tilt compensation. Immune to magnetic disturbances. E-Bubble leveling.
BeiDou	B1I, B2I, B3I, B1C, B2a, B2b	Cameras	
QZSS	L1, L2, L5, L6*	Sensor pixels	Global shutter with 2 MP & 5 MP
PPP	B2b-PPP	Field of view	75°
SBAS (EGNOS Support)	L1, L5	Video frame rate	25 fps
GNSS Accuracies ⁽²⁾		Image group capture	Method: video photogrammetry. Rate: typically 2 Hz, up to 25Hz. Max. capture time: 60s with an image group size of appr. 60MB.
Real time kinematic (RTK)	H: 8 mm + 1 ppm RMS V: 15 mm + 1 ppm RMS Initialization time: <10 s Initialization reliability: >99.9%	Illumination	Starlight-grade camera. OmniPixel®-GS technology. Maintain full color at illumination levels as low as 0.01 lux.
Post-processing kinematic (PPK)	H: 3 mm + 1 ppm RMS V: 5 mm + 1 ppm RMS	Communication	
Post-processing static	H: 2.5 mm + 0.5 ppm RMS V: 5 mm + 0.5 ppm RMS	SIM card type	Nano-SIM card
Code differential	H: 0.4 m RMS V: 0.8 m RMS	Network modem	Integrated 4G modem: TDD-LTE, FDD-LTE, WCDMA, EDGE, GPRS, GSM
Autonomous	H: 1.5 m RMS V: 2.5 m RMS	Wireless connection	NFC for device touch pairing
Visual survey	Typical 2~4 cm, range 2~15 m	Wi-Fi	Wi-Fi IEEE 802.11a/b/g/n/ac, access point mode
Positioning rate ⁽³⁾	1 Hz, 5 Hz and 10 Hz	Bluetooth®	5.0 and 4.2 +EDR, backward compatible
Time to first fix ⁽⁴⁾	Cold start: < 45 s, Hot start: < 10 s Signal re-acquisition: < 1 s	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)
IMU update rate	200 Hz	Built-in UHF radio	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, up to 15 km with optimal conditions
Tilt angle	0-60°	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
RTK tilt-compensated	Additional horizontal pole-tilt uncertainty typically less than 10 mm + 0.7 mm/m° tilt	Data storage	8 GB internal memory. Support 128 GB external expansion
Environments		Compliance with Laws and Regulations	
Temperature	Operating: -40°C to +65°C (-40°F to +149°F) Storage: -40°C to +85°C (-40°F to +185°F)	International standards	NGS Antenna Calibration, IEC 62133-2:2017+A1, IEC 62368-1:2014, UN Manual Section 38.3
Humidity	100% non-condensation		
Ingress protection	IP67 (according to IEC 60529)		
Drop	Survive a 2-meter pole-drop		
Vibration	Compliant with ISO 9022-36-08 and MIL-STD-810G- 514.6-Cat.24.		
Waterproof and breathable membrane	Prevent water vapor from entering under harsh environments		
Electrical			
Power consumption	UHF/ 4G RTK Rover w/o camera: Typical 2.8 W Visual Stakeout/Visual Survey: Typical 4 W		
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 w/o camera: up to 34 h Visual Stakeout/Visual Survey: up to 24 h UHF RTK Base: up to 16 h Static: up to 36 h		
External power input	9 V DC to 28 V DC		

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*All specifications are subject to change without notice.
(1) Compliant, but subject to availability of BDS (C0), Galileo and QZSS commercial service definition. 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. Performance assumes 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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