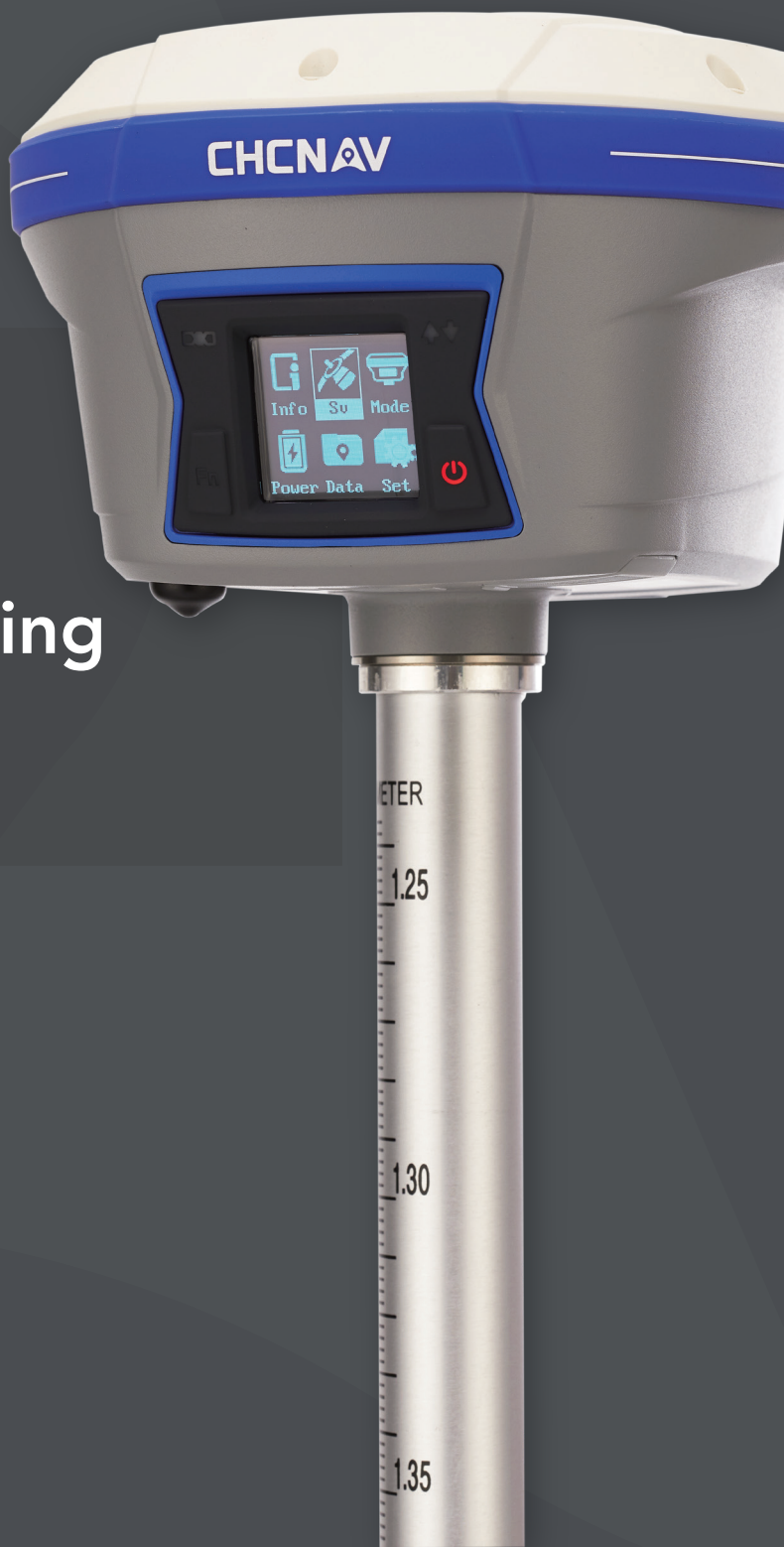
CHCNAV

i90 Pro

Survey & Engineering



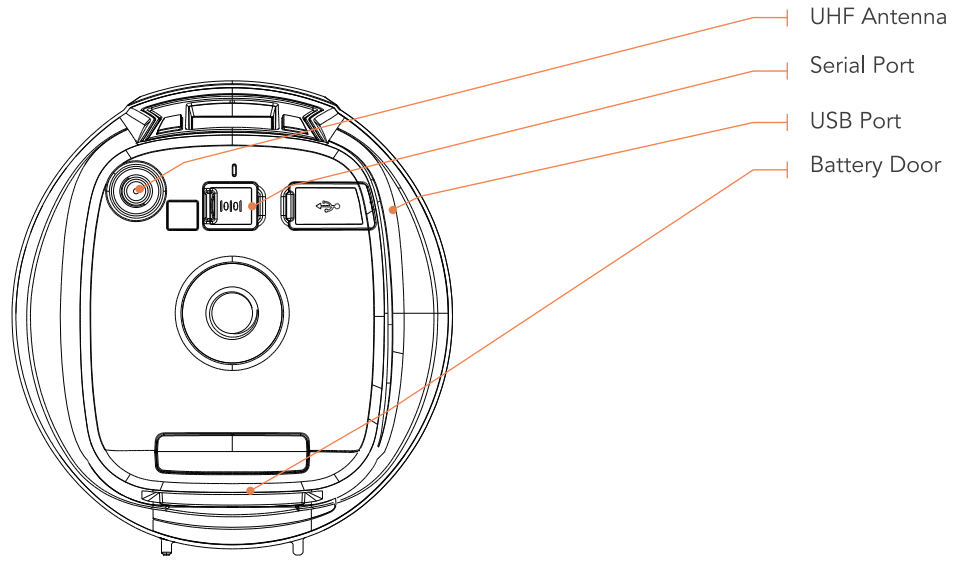
Make your work more efficient

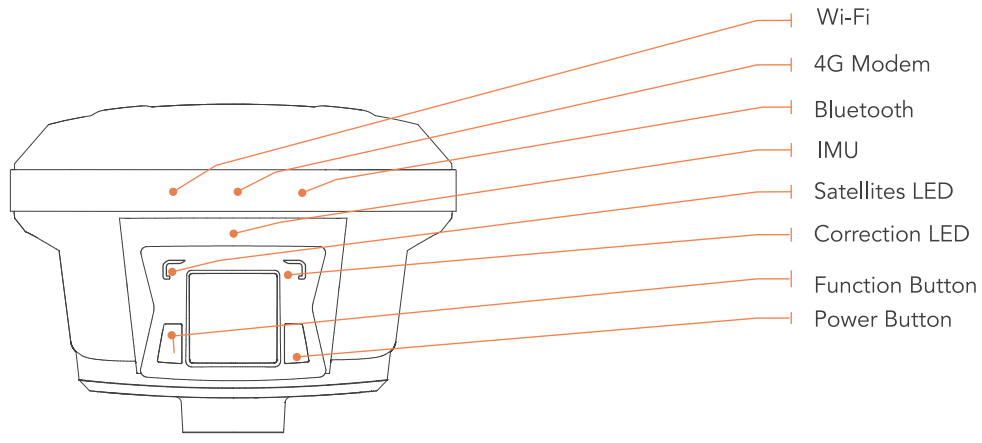
Hardware Description

i90 Pro IMU-RTK GNSS Receiver

The i90 Pro GNSS receiver offers integrated IMU-RTK technology to provide a robust and accurate GNSS positioning, in any circumstances. Unlike the standard MEMS based GNSS receivers, the i90 Pro GNSS IMU-RTK combines state-of-the-art GNSS RTK engine, calibration-free professional IMU sensor and advanced GNSS tracking capabilities to dramatically increase RTK availability and reliability.

The i90 Pro automatic pole-tilt compensation boosts survey and stakeout speed by up to 20%. Construction and land surveying projects are achieved with high productivity and reliability pushing the boundaries of conventional GNSS RTK survey.





Core Technology



336 channels- Full GNSS

The embedded 336-channel GNSS technology takes benefit from all GPS, GLONASS, Galileo and BeiDou signals and provides robust RTK position availability and reliability.



Extended connectivity

The i90 GNSS combines high-end connectivity modules: Bluetooth, Wi-Fi, NFC, 4G and UHF radio modem. The 4G modem brings ease of use when working within RTK networks. The internal UHF radio modem allows long-distance base-to-rover surveying up to 5 km.



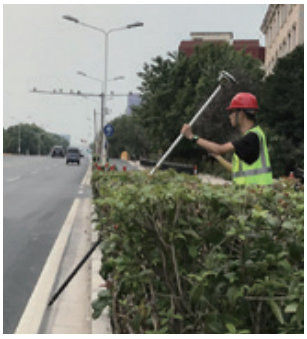
Hassle-free IMU-RTK surveying

No complicated calibration process, rotation, leveling or accessories are necessary with the i90 Pro. Just a few meters walk will initialize the i90 Pro internal IMU module and enable RTK survey in difficult field environment.



High accuracy. Always.

The i90 Pro GNSS build-in IMU ensures interference-free automatic pole-tilt compensation in real-time. 3 cm accuracy is achieved with pole-tilt range of up to 30 degrees.







Specifications

GNSS Performance[1]	
Channels	336 channels
GPS	L1 C/A, L2E, L2C, L5
GLONASS	L1C/A, L2 C/A, L3 CDMA
Galileo	E1, E5a, E5b, E5AltBOC, E6
BeiDou	B1, B2, B3
SBAS	L1C/A, L5
QZSS	L1 C/A, L1 SAIF, L2C, L5, LEX
IRNSS	L5
L-BAND	RTX®
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: 2.5 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: 0.25 m RMS
Autonomous	Horizontal: m RMS Vertical: 1.5 m RMS
Positioning rate	Up to 50 Hz
Time to first fix[3]	Cold start: < 45 s Hot start: < 10 s Signal re-acquisition: < 1 s
RTK tilt-compensated	Additional horizontal pole-tilt uncertainty typically less than 10 mm + 0.7 mm/° tilt
Hardware	
Size (L × W × H)	159 mm x 150 mm x 110 mm (6.3 in × 5.9 in × 4.3 in)
Weight	1.26 kg (2.77 lb)
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%
Ingress protection	IP67 waterproof and dustproof, protected from temporary immersion to depth of 1 m
Shock	Survive a 2-meter pole drop
Tilt sensor	Calibration-free IMU for pole-tilt compensation. Immune to magnetic disturbances. EBubble leveling
Front panel	4 status LED 1.46" OLED Display
Certifications	
FCC Part 15 (class B Device), FCC Part 22, 24, 90; CE Mark; NGS Antenna Calibration;	

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/GSM 850/900/1800/1900 MHz
Wi-Fi	802.11 b/g/n, access point mode
Bluetooth®	v4.1
Ports	1 x 7-pin LEMO port (external power, RS-232) 1 x USB Type-C port (data download, firmware update) 1 x UHF antenna port (TNC female)
UHF radio	Standard Internal Rx/Tx: 410 MHz to 470 MHz Transmit Power: 0.5 W to 2 W Protocol: CHC, Transparent, TT450 Link rate: 9600 bps to 19200 bps Range: 5 km under optimal conditions
Data formats	RTCM 2.x, RTCM 3.x, CMR, CMR+, SCMRX input and output HCN, HRC, RINEX 2.11, 3.02 NMEA 0183 output NTRIP Client, NTRIP Caster
Data storage	32 GB internal memory
Electrical	
Power consumption	5 W (depending on user settings)
Li-ion battery capacity	2 x 3400 mAh, 7.4 V
Operating time on internal battery[4]	UHF receive/transmit (0.5 W): 5 h to 8 h Cellular receive only: up to 9 h Static: up to 10 h
External power input	9 V DC to 28 V DC

*Specifications are subject to change without notice.

(1) Compliant, but subject to availability of BDS ICD and Galileo commercial service definition. GLONASS L3, BDS B3 and Galileo E6 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) Battery life is subject to operating temperature.

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