

i76

Palm-Sized GNSS with Visual Stakeout



► Highlights

Beyond Visual, Within Palm

The CHCNAV i76 receiver combines advanced positioning performance with exceptional ease of use in the field. Powered by CHCNAV StellaX chip, it delivers 15% higher accuracy and reliable positioning. Its dual camera AR stakeout feature projects complex CAD elements directly onto the ground for faster layout. The 5th generation Ultra IMU improves tilt measurement accuracy by 30% in any orientation without initialization. Weighing only 450 g, the i76 is 50% smaller and 40% lighter than standard receivers, offering outstanding portability for everyday surveying.



► Advanced CAD Visual Stakeout



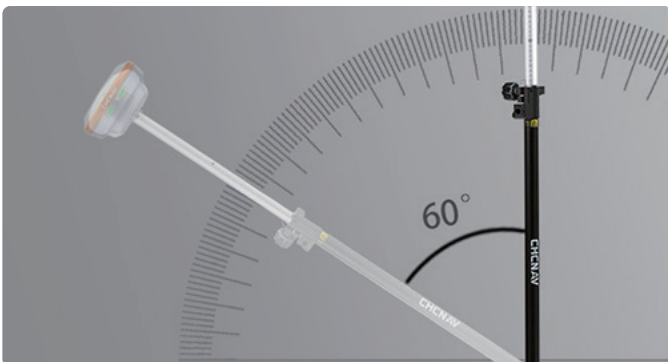
Increase overall stakeout efficiency by 40% with CAD AR visual stakeout. This technology integrates base maps with augmented reality (AR) for precise path planning and real-time visualization.

► StellaX Chip for Superior GNSS Performance



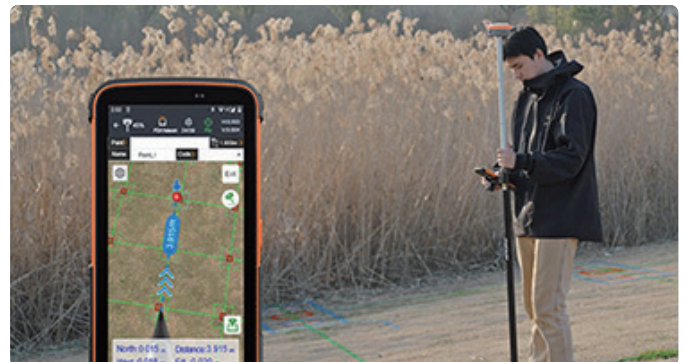
CHCNAV's new generation StellaX chip improves data quality throughout the entire process, from satellite signal reception to RTK receiver calculations. It delivers 15% higher accuracy for more reliable positioning results.

► 5th Generation Ultra-IMU



Enhance measurement precision by 30% with the 5th Gen Ultra-IMU. It offers automatic pole tilt compensation up to 60°, ensuring accuracy within 3 cm without manual initialization.

► Smart Positioning System



The i76 integrates GNSS, IMU, and dual wide-angle cameras, providing a seamless surveying experience. The system supports real-time stakeout and measurement with intuitive visual feedback.

► Main Features



Augmented Reality

Dual 2 MP cameras with a 95° field of view.



StellaX Chip

Integrated StellaX chip improves accuracy by 15%.



Ultra-IMU

5th generation IMU for high accuracy and tilt compensation.



Lightweight

Extremely compact and weighing just 450g.

► Compact and Lightweight Design



Enjoy easy handling and portability with the palm-sized i76, weighing just 450g. Its compact design makes it 40% lighter and 50% smaller than industry standards, enhancing field operations.

► Durable and Robust Construction

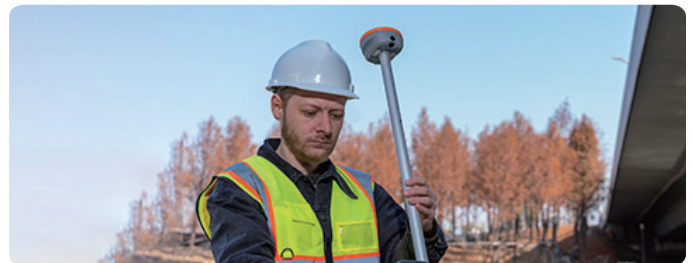


Withstand harsh environments with the i76's IP68 rating and 2-meter drop resistance. The biomimetic structure and sapphire lens ensure durability, making it ideal for tough field conditions.

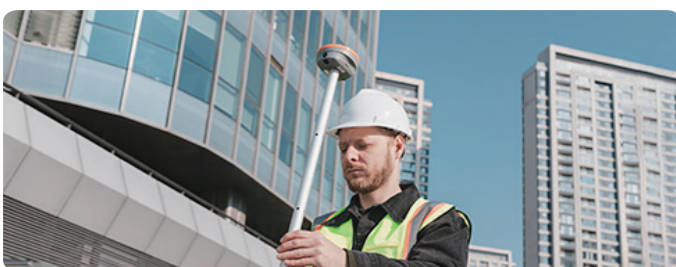
► Use Cases



Building Foundation Stakeout



Construction Site Stakeout



Stockpile Volume Measurement



Utility Network Mapping

SPECIFICATIONS

► GNSS Performance⁽¹⁾

Channels	1892 channels
GPS	L1C/A, L1C, L2P(Y), L2C, L5
GLONASS	G1, G2, L1OC*, L2OC*, L3OC*
Galileo	E1C, E5a, E5b, E5AltBoC, E6
BeiDou	B1I, B2I, B3I, B1C, B2a, B2b
QZSS	L1C/A (B), L1C, L2C, L5, L6D/E*
NavIC/ IRNSS	L5
PPP	B2b-PPP, E6B-HAS
SBAS	EGNOS (L1, L5)

► GNSS Accuracies⁽²⁾

Real time kinematic (RTK)	H: 8 mm + 1 ppm RMS V: 15 mm + 1 ppm RMS Initialization time: <10 s Initialization reliability: > 99.9%
Post-processing kinematic (PPK)	H: 3 mm + 1 ppm RMS V: 5 mm + 1 ppm RMS
PPP	Support PPP-B2b, E6B-HAS H: 10 cm V: 20 cm
High-precision static	H: 2.5 mm + 0.1 ppm RMS V: 3.5 mm + 0.4 ppm RMS
Static and rapid static	H: 2.5 mm + 0.5 ppm RMS V: 5 mm + 0.5 ppm RMS
Code differential	H: 0.4 m RMS V: 0.8 m RMS
Autonomous	H: 1.5 m RMS V: 2.5 m RMS
Visual stakeout ⁽³⁾	H: 8 mm + 1 ppm RMS V: 15 mm + 1 ppm RMS
Positioning rate ⁽⁴⁾	1 Hz, 5 Hz and 10 Hz
Time to first fix ⁽⁵⁾	Cold start: < 45 s; Hot start: < 10 s Signal re-acquisition: < 1 s
IMU update rate	200 Hz, AUTO-IMU
Tilt angle	0-60°
RTK tilt-compensated	Additional horizontal pole-tilt uncertainty typically less than 8 mm + 0.7 mm/° tilt down to 30°

► Environments

Temperature	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 ⁽⁶⁾ (according to IEC 60529)
Impact protection	IK08 (according to IEC 62262:2002)
Drop	Survive a 2-meter pole-drop
Vibration	Compliant with ISO 9022-36-08 and MIL-STD-810H
Waterproof and breathable membrane	Prevent water vapor from entering under harsh environments.

► Electrical

Charging time	Full charge in 4.5 hours
Operating time on internal battery ⁽⁷⁾	UHF/ 4G RTK Rover w/o camera: up to 17 h Visual Stakeout: up to 10 h Static: up to 22 h
Charging spec	Type-C 5 V / 2 A

► Hardware

Size (LxWxH)	Φ106 mm x 55.6 mm (Φ 4.17 in x 2.1 in)
Weight	450 g (0.99 lb)
Front panel	2 synchronized LED, 1 button
Tilt sensor	Calibration-free IMU for pole-tilt compensation. Immune to magnetic disturbances.

► Cameras

Sensor pixels	Dual cameras with 2 MP each
Size (LxWxH)	95° ± 3°
Field of view	30 fps
Aperture	F2.4
Features	LandStar software, support Visual Navigation, CAD AR Visual Stakeout.

► Communication

Wireless connection	NFC for device touch pairing
Wi-Fi	Wi-Fi 2.4G 802.11g Wi-Fi 5G 802.11ac (CH42 & 155)
Bluetooth®	Bluetooth V5.4 BDR & EDR
Ports	1 x USB Type-C port (external power, data download, OTG firmware update) 1 x UHF antenna port (SMA female)
UHF radio	Standard Internal Tx/Rx ⁽⁸⁾ : 410 - 470 MHz Transmit Power: 0.5 W, 1 W Protocol: CHC, Transparent, TT450, Satel ⁽⁹⁾ Link rate: 9,600 bps to 19,200 bps Range: Typical 3km, up to 5 km with optimal conditions
Data formats	RTCM 2.x, RTCM 3.x, CMR input / output HCN, RINEX 2.11, 3.02 NMEA 0183 output NTRIP Client, NTRIP Caster
Data storage	8 GB high-speed memory

► Compliance with Laws and Regulations

International standards	NGS Antenna Calibration, IGS Antenna Calibration, IEC 62133-2:2017, EN IEC 62368-1:2020, UN Manual Section 38.3
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*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. PPP accuracy is subject to the region, environment, and convergence time. High-precision static requires a minimum of 24 hours of long-term observation and precise ephemeris.
- (3) CHCNAV's VPT™ (Virtual Pole Tip) technology ensures precise alignment of the virtual pole tip with the red point representing the staking out location in the LandStar software within acceptable error margins.
- (4) Compliant and 10 Hz to be provided through future firmware upgrade.
- (5) Typical observed values.
- (6) Splash, water, and dust resistant and were tested under controlled laboratory conditions with a rating of IP68 under IEC standard 60529.
- (7) Rechargeable and built-in 7.2 V / 4900 mAh new-energy high-density lithium battery. Battery life is subject to operating temperature and battery cycle life.
- (8) Supported after the product upgrade in April 2025. For details, please kindly contact authorized CHCNAV dealer or regional business team.
- (9) Compliant and Satel protocol to be provided through future firmware upgrade.

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