

CHCNAV

i90

**IMU-RTK GNSS
RECEIVER**



**SURVEYING &
ENGINEERING**

HIGH-PERFORMANCE IMU RTK GNSS RECEIVER

The i90 GNSS receiver integrates professional IMU-RTK technology to provide a robust and accurate positioning, in any circumstances. It combines state-of-the-art GNSS RTK engine, a hassle-free high-end IMU sensor and advanced GNSS tracking capabilities to dramatically increase RTK availability and reliability.

The i90 automatic pole-tilt compensation boosts survey and stakeout speed by up to 30%. Construction and land surveying projects are achieved with high productivity and reliability pushing the boundaries of conventional GNSS RTK survey.

FULL GNSS POSITIONING

Combining GPS, Glonass, Galileo and BeiDou constellations.

The embedded 624-channel GNSS technology takes benefit from all GPS, GLONASS, Galileo and BeiDou signals and provides robust RTK position availability and reliability.

HIGH ACCURACY. ALWAYS.

Boost survey and stakeout speed by up to 30%.

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

HASSLE-FREE IMU-RTK SURVEYING

Dramatically increase RTK availability.

No complicated calibration process, rotation, leveling or accessories are necessary with the i90. Simply rock the range pole a few times to initialize the i90 internal IMU module and enable GNSS RTK survey in difficult field environment.

EXTENDED CONNECTIVITY

Instant NFC pairing of your controller.

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.



**ENABLE GNSS RTK
ANYTIME, ANYWHERE.**

SPECIFICATIONS

| GNSS Performance ⁽¹⁾ | |
|---------------------------------|--|
| Channels | 624 channels Powered by CHCNAV iStar GNSS tracking technology |
| GPS | L1 C/A, L2C, L2P, L5 |
| GLONASS | L1, L2 |
| Galileo | E1, E5a, E5b |
| BeiDou | B1, B2, B3 |
| SBAS | L1 |
| QZSS | L1, L2, L5 |

| 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: 1.5 m RMS Vertical: 3 m RMS |
| Positioning rate | Up to 10 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 x W x H) | 159 mm x 150 mm x 110 mm (6.3 in x 5.9 in x 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% condensation |
| 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. EBubbleleveling |
| Front panel | 4 LED indicators 1.46" OLED Display |

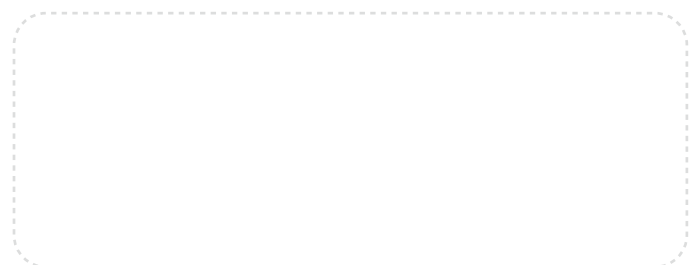
| Certifications | |
|--|--|
| FCC Part 15 (class B Device), FCC Part 22, 24, 90; CEMark; NGS Antenna Calibration; MIL-STD-810G, Method 514.7 | |

| 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® | v 4.1 |
| 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 - 470 MHz Transmit Power: 0.5 W to 2 W Protocol: CHC, Transparent, TT450, 3AS Link rate: 9600 bps to 19200 bps Range: Typical 3 km to 5 km |
| Data formats | RTCM2.x, RTCM3.x, CMRinput / output HCN, HRC, RINEX2.11, 3.02 NMEA0183 output NTRIPClient, NTRIPCaster |
| 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): 6 h to 9 h Cellular receive only: up to 9 h Static: up to 10 h |
| External power input | 9 V DC to 28 V DC |



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



© 2021 Shanghai Huace Navigation Technology Ltd. All rights reserved. The CHC and CHC logo are trademarks of Shanghai Huace Navigation Technology Limited. All other trademarks are the property of their respective owners. Revision September 2021.

WWW.CHCNAV.COM | SALES@CHCNAV.COM

CHC Navigation Headquarter
 Shanghai Huace Navigation Technology Ltd.
 599 Gaojing Road, Building D,
 Shanghai, 201702, China,
 +86 21 54260273

CHC Navigation Europe
 Infopark Building, Sétány 1, 1117
 Budapest, Hungary
 +36 20 235 8248 +36 20 5999 369
 info@chcnv.eu

CHC Navigation USA LLC
 6380 S. Valley View Blvd Suite 246
 Las Vegas, NV 89118 USA
 +1 480 399 9533

CHC Navigation India
 409 Trade Center, Khokhra Circle,
 Maninagar East, Ahmedabad,
 Gujarat, India
 +91 90 99 98 08 02