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iBase

GNSS RECEIVER

SURVEYING & ENGINEERING

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RUGGED INTEGRATED GNSS BASE RECEIVER

The iBase GNSS receiver is a fully integrated professional GNSS base station, specifically designed to meet 95% of surveyors' needs when working in UHF GNSS base and rover mode. The performance of the iBase UHF base station compared to a standard external UHF radio modem is almost perfect. But its unique design eliminates the need for a heavy external battery, cumbersome cables, external radio and radio antenna. Its 5-watt radio module provides operational GNSS RTK coverage up to 25 km with optimal conditions and features a real-time UHF interference self-checking technique, allowing the operator to select the most appropriate frequency channel to use.

THE CONCEPT OF GNSS RTK STATION REDEFINED

Start your projects in fractions of seconds.

The iBase GNSS station is an all-in-one RTK GNSS station. No more cables or external batteries. No need to take many accessories, resulting in easier operation. The simplicity of the setup process improves work efficiency at least 3 times compared to conventional external radio solutions. Beyond a simple GNSS station, the iBase also includes a 4G modem for transmitting GNSS corrections via TCP/IP server. If connected to a RTK GNSS network, the iBase can be turned into a UHF repeater to broadcast RKT corrections to multiple rovers across a project site.

INDUSTRIAL GRADE DESIGN

Rugged conception for uninterrupted work.

iBase is the GNSS base receiver that you can rely on regardless of your working environment. Its industrial design meets the stringent IP67 standard for water and dust ingress protection. The IK08 impact protection level further extends the life of the iBase GNSS receiver, allowing it to withstand accidental falls from the height of a tripod onto hard ground.

LOWER CONSUMPTION, LONGER AUTONOMY, BROADER COVERAGE!

Increased performance with 50% less power consumption.

The iBase GNSS electronics design significantly reduces power needs without sacrificing the UHF modem's performance. Its two high-capacity removable batteries provide up to 12 hours of continuous operation when transmitting RTK corrections at 5 watts power output. With UHF coverage of up to 25 km in typical survey operations, and up to 5 km in difficult conditions such as wooded and suburban areas.

BEST GNSS SIGNAL TRACKING IN ITS CLASS

Full GNSS with 1408 channels and advanced multipath mitigation.

The state-of-the-art 1408-channel GNSS technology leverages GPS, GLONASS, Galileo and BeiDou. The iBase GNSS integrates cutting-edge GNSS antenna technology and multipath mitigation algorithms to ensure that the highest quality GNSS corrections are transmitted to the GNSS rovers. The iBase outputs standard DGNSS corrections in RTCM 3.x format for optimal performance. Internal 8 GB memory is available to store GNSS raw data for post-processing or quality control at a later stage.

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INTEGRATED GNSS BASE RECEIVER

BOOST PRODUCTIVITY OF GNSS BASE + ROVER SURVEY.

SPECIFICATIONS

GNSS Performance [1]

Channels	1408 channels
GPS	L1C/A, L2P (Y), L2C, L5
GLONASS	L1, L2, L3*
Galileo	E1,E5a,E5b,E6*
BeiDou	B1I, B2I, B3I, B1C, B2a, B2b*
QZSS	L1C/A, L1C, L2C, L5
NavIC/ IRNSS	L5
PPP	B2b-PPP*, E6B-HAS*
SBAS	L1, 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: 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	Up to 10 Hz
Time to first fix[3]	Cold start: < 45 s Hot start: < 10 s Signal re-acquisition: < 1 s
IMU update rate	200 Hz, AUTO-IMU
Till angle	0-60°
RTK tilt-compensated	Additional horizontal pole-tilt uncertainty typically less than 8 mm + 0.7 mm/° tilt down to 30°

Hardware

Size (L x W x H)	Φ160.5 mm x 103 mm (Φ 6.32 in × 4.06 in)
Weight	1.73 kg (3.81 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% non-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	E-Bubble leveling
Front panel	2 LED 0.96" OLED Display

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/G- SM850/900/1800/1900MHz
Wi-Fi	802.11 b/g/n, access point mode
Bluetooth®	v 5.0
Others	NFC
Ports	1 x 7-pin LEMO port (external power, RS-232) 1 x UHF antenna port (TNC female)
UHF radio [4]	Standard Internal Rx/Tx: 410 - 470 MHz Transmit Power: up to 5 W Protocol: CHC,Transparent, TT450, Satel Link rate: 9600 bps / 19200 bps Range: Typical 5 km to 8 km, up to 25km with optimal conditions
Data formats	RTCM2.x, RTCM3.x, CMR input / output HCN, RINEX2.11, 3.02 NMEA 0183 output NTRIP Client, NTRIP Caster
Data storage	8 GB memory

Electrical

Power consumption	12 W (depending on user settings)
Li -ion battery capacity	2 x 7000 mAh, 7.4 V
Operating time oninternal battery [5]	UHF receive / transmit (5 W): 8 h to 12 h Static: up to 25 h
External power input	9 V DC to 28 V DC

Compliance with Laws and Regulations

International standards	NGS Antenna Calibration, IEC 62133-2:2017+A1, IEC 62368-1: 2014, EN 62368-1:2014+A11:2017, UN Manual Section 38.3

ANATEL

*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. (3) Typical observed values. (4) The use of UHF datalink may be subject to local regulations. Users must ensure that the device is not operated without the permission of the local authorities on frequencies or power output other than those specifically reserved and intended for use without required permit. (5) Battery life is subject to operating temperature.

WWW.CHCNAV.COM | MARKETING@CHCNAV.COM

CHC Navigation Headquarter
Shanghai Huace Navigation Technology Ltd.
577 Songying Road, Qingpu,
201703 Shanghai, China
+86 21 54260273

CHC Navigation Europe
IOffice Campus, Building A,
Gubacsi út 6, 1097
Budapest, HUNGARY
+36 20 421 6430
Europe_office@chcnav.com

CHC Navigation USA LLC
6380 S. Valley View Blvd, Suite 246,
Las Vegas, NV 89118, USA
+1 702 405 6578

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