CHCNAV

PT.ASABA
SURVEYING SOLUTIONS

P5

GEODETIC GNSS REFERENCE STATION

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NAVIGATION & INFRASTRUCTURE

SMART GNSS GEODETIC REFERENCE STATION

The P5 GNSS reference station receiver integrates 1408 GNSS channels for tracking full constellations and frequency points. With its large storage and battery capacity, secure and diverse network connectivity, and smart access rights management, it is extremely reliable and easy to use. The P5 GNSS reference station receiver has excellent anti-interference capabilities, making it highly resilient in various environments. It is shock-resistant and features voltage stabilization, lightning protection, real-time self-diagnosis, and status monitoring to ensure uninterrupted operation.

The P5 is an advanced GNSS reference station designed to provide positioning services in various demanding industries, such as GNSS ground augmentation, deformation monitoring, atmospheric research, seismic research, precision agriculture, machine control, and vehicle and ship navigation.

1408-CHANNEL ADVANCED GNSS TRACKING
Full constellation for superior GNSS raw data

The 1408-channel P5 GNSS simultaneously tracks signals from GPS, GLONASS, Galileo, BeiDou, and SBAS satellites with outstanding GNSS raw data quality. The integration of the P5 GNSS reference stations as the foundation of RTK networks guarantees optimal GNSS RTK corrections resulting in the highest quality GNSS rover positioning.

SMART DATA MANAGEMENT
Large data storage and advanced web access

With 32GB of internal storage and up to 1TB of external storage, the P5 can simultaneously record up to 8 separate data sessions, providing data storage in the standard Rinex 3.02 format for up to 7 years. In addition, its embedded FTP server or FTP push to a remote site ensures data integrity and ease of use.

MULTIPLE POWER SOURCES
Reliable and uninterrupted operation

The P5 supports both DC and AC external power inputs to ensure a stable and continuous electrical supply. The built-in high-capacity 17,000 mAh battery provides up to 20 hours of non-stop backup operation in the event of an external power outage. The P5's electronic design results in an MTBF (mean time between failures) of over 35,000 hours.

VERSATILE NETWORK CONNECTION MODES
Robust and secure GNSS data streaming

The P5 supports remote connections via Intranet, Ethernet, 4G and Wi-Fi for easy access, configuration and data transfer. The redundant network connectivity feature allows the P5 to automatically switch between Ethernet and 4G wireless network connections, ensuring stable and reliable GNSS data streaming. The P5 also supports OpenVPN intranet penetration and multiple protocol stacks to easily create HTTP/HTTPS web access without static IP. In addition, the P5 has several security layers, such as multiple user permissions, web interface restrictions, HTTPS encryption to prevent unauthorized access and built-in firewall, port and MAC filtering.

FLAWLESS GNSS DATA INTEGRITY
Industrial design for optimal data integrity

The P5 GNSS is IP67-rated water and dust resistant to withstand challenging environmental conditions at its installation site, reducing potential downtime due to moisture or dust ingress. Its integrated design and advanced power supply ensure uninterrupted operation 24 hours a day, 7 days a week. The P5 provides continuous status information on its control screen and allows remote monitoring of power supply conditions, network status, firmware version, etc. Email alerts and automatic reconnection protocols can be enabled through the receiver's self-diagnosis and status monitoring.

GNSS GEODETIC REFERENCE STATION

OPTIMAL FOR GNSS NETWORKS
Supported by CPS to manage GNSS RTK networks

CPS (CHCNAV Precision Service) is the third generation of advanced distributed software solutions for GNSS RTK networks developed by CHC Navigation. CPS is compatible with the latest QZSS and BDS III navigation systems and fulfills the requirements of regional and national CORS and GNSS RTK networks. When associated with the P5 GNSS reference station, CPS uses the most advanced and proprietary CHCNAV VNS algorithm to establish error resolution models for the ionospheric delay, tropospheric delay, orbital error, multipath effect, etc., for the complete network. In addition, it features optimized spatial error corrections for each end user using an enhanced virtual reference station to ensure a reliable RTK fixed rate and positioning accuracy. The CPS quality control module also monitors P5 GNSS operation, network status, and data quality in the real time.

SPECIFICATIONS

GNSS characteristics

Channels	1408
BDS	B1I, B2I, B3I, B1C, B2a, B2b
GPS	L1, L2
GLONASS	G1, G2
Galileo	E1, E5a, E5b, E6
QZSS	L1C/A, L1C, L2C, L5
SBAS [1]	L1C/A
NavIC	L1C/A, L1C, L2C, L5
SBAS [1]	L5
L-Band*	

GNSS accuracies [2]

Real time kinematic (RTK)	Horizontal: 8 mm + 1 ppm RMS Vertical: 15 mm + 1 ppm RMS Initialization time: < 8 s Initialization reliability: > 99.9%
Post-processing static	Horizontal: 2.5 mm + 0.5 ppm RMS Vertical: 5 mm + 0.5 ppm RMS
Post-processing static (long observation)	Horizontal: 3 mm + 0.1 ppm RMS Vertical: 3.5 mm + 0.4 ppm RMS

Hardware

Size (L × W × H)	200 mm × 150 mm × 69 mm (7.9 in x 5.9 in x 2.7 in)
Weight	2.15 kg (75.8 oz) with battery
Environment	Operating: -40°C to +65 °C (-40°F to +149°F) Storage: -45°C to +80°C (-49°F to +176°F)
Humidity	100%
Ingress protection	IP67 waterproof and dustproof, protected from temporary immersion to depth of 1 m
Shock	IEC68-2-27

Electrical

Power consumption	5 W (depending on user settings)
Internal battery capacity	17,000 mAh, 7.4 V
Operating time on internal battery [3]	Up to 20 h (depending receiver configuration)
External power	9 V DC to 36 V DC

Certifications and Calibrations

FCC Part 15 (class B Device), FCC Part 22, 24, 90; CE Mark; Method 514.7, IGS

Communications and Data storage

Ports	1 x 10-pin LEMO port (external power, RS-232) 1 x USB 2.0 port (data download, firmware update) 1 x LAN port HTTP / HTTPs, TCP/IP, UDP, FTP, NTRIP Caster, NTRIP Server, NTRIP Client – Simultaneously transmits multiple data stream – Support proxy server and route table 1 x DB9 port 1 x GNSS antenna port 1 x SIM card slot
Protocols	Correction formats: RTCM2.x, RTCM 3.x Observables: HCN, HRC, RINEX2.x, RINEX3.x Position/Status I/O: NMEA 0183 output Met sensor
Internal data logging and position	Output frequency up to 50 Hz (optional) Storage capacity 32 GB
External storage	Up to 1 TB
Bluetooth ®	V 4.1
Wi-Fi	802.11 b/g/n, access point mode
Network modem (Internal 4G 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

*All specifications are subject to change without notice.
(1) SBAS 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) Battery life is subject to operating temperature.

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