CHCNAV

CGI-830

HIGH-PERFORMANCE INTEGRATED NAVIGATION SYSTEM



NAVIGATION & INFRASTRUCTURE

CHCNAV



HIGH-PERFORMANCE INTEGRATED NAVIGATION SYSTEM

The CGI-830 is a premium integrated MEMS navigation receiver featuring an all-in-one multi-frequency GNSS baseband module and a high-performance 6-axis MEMS IMU with an impressive bias instability of only 0.03°/h. Utilizing CHCNAV's advanced tightly coupled algorithms, the CGI-830 integrates seamlessly with various external sensors such as Dead Reckoning (DR), Doppler Velocity Log (DVL) and Ultra-Short Baseline (USBL) acoustic positioning, making it ideal for vehicle, surface and underwater navigation applications. Designed to meet the stringent IP67 protection standards and featuring integrated shock-absorbing structures that protect the main board circuitry, the CGI-830 excels in adapting to a wide range of complex operational scenarios. It offers versatile communication options, including Wi-Fi, serial ports, Ethernet and CAN, ensuring compatibility with common user interface requirements. With 8 GB of on-board data storage, it can easily manage detailed operational logs and user-defined cyclic data storage.

SPECIFICATIONS

GNSS Performance Indicators	
Signal tracking	BDS: B1, B2, B3 GPS: L1, L2, L5 GLONASS: L1, L2 Galileo: E1, E5a, E5b QZSS: L1, L2, L5
Horizontal positioning accuracy (RMS)	Single: 1.2m DGPS: 0.4 m RTK: 1 cm + 1 ppm
Altitude Positioning Accuracy(RMS)	Single: 2.5 m DGPS: 0.4 m RTK: 2 cm + 1 ppm
Heading accuracy (RMS)	0.1°/ 2 m baseline
Speed accuracy (RMS)	0.03 m/s
PPS accuracy (RMS)	20 ns
Cold start time	45 s

Data Rate	
GNSS Raw Data Rate	Configurable[1]
IMU Raw Data Rate	100Hz
INS Solution	Up to 100 Hz[2]

IMU Performance Specifications	
IMU type	MEMS
Gyro Dynamic Range	±300 °/s
Gyro bias instability (Allan)	0.03°/h
Gyro Angular Random Walk (Allan)	0.03°/√h
Accelerometer Dynamic Range	±10 g
Accelerometer bias instability(Allan)	0.03 mg
Accelerometer Angular Random Walk (Allan)	0.02 m/s√hz
INS Position/Attitude	100 Hz

Communication Interface	
External interface	2 × RS232, 1 × RS422, 1 × CAN, 1 × RJ45, 1× MINI USB, 2 × GNSS (TNC), 1 × 4G (TNC), 1 × POWER
Wireless communication	Wi-Fi: 802.11b/g/n LTE-FDD:B1/B2/B3/B4/B5/B7/B8/B12/B13/B18,B19/B20/B25/B26/B28 LTE-TDD: B38/B39/B40/B41 UMTS: B1/B2/B4/B5/B6/B8/B19 GSM: B2/B3/B5/B8

Environmental	
Operating temperature	-40°C ~ +75°C
Storage temperature	-40°C ~ +85°C
Humidity	95%, Non-condensing
Anti-static	ISO10605 Contac ±8 kv, Air ±15 kv
Protection class	IP67
Vibration	MIL-STD-810G (20 g)
Impact	IEC-60028-2-27(10 g)

Physical Dimensions and Electrical Characteristics	
Power input	9 V ~ 32 V DC Standard Adaptation 12 V DC
Power consumption	<5 W (typical)
Physical dimensions	162 mm × 120 mm × 53 mm
Weight	1.15 kg (Without antenna and cable)

* All specifications are subject to change without notice.
[1] With GNSS receiver, GNSS RTK results up to 20Hz output, 1Hz raw data;[2] INS solution data is CHCNAV tightly coupled real-time data output frequency, post-processing output frequency can be configured according to software[3] Post-processing results using Inertial Explorer software.The values of the parameters listed in this document are all theoretical values or values measured by CHCNAV testers in a specific controlled test environment. The values listed in this document are all theoretical values or values measured by CHCNAV testers under specific controlled test environments (please see specific instructions), and may be different in actual use due to individual differences in the product, firmware version, use conditions, In actual use, the results may vary to different degrees due to individual product differences, firmware versions, use conditions, use methods and use environments, etc. Please refer to the actual use of the situation.In order to provide the most accurate product information, parameter values, CHCNAV may adjust and correct the text of this document in real time, parameter values and other content. In order to provide the most accurate product information, parameter values, CHCNAV may real-time adjustments and corrections to the text of this document, parameter values and other content, in order to match the actual product performance, specifications and other information. Due to real-time changes in product lot Due to real-time changes in product lot and production supply factors, if it is necessary to carry out the aforementioned modifications and adjustments, we will not specifically notify you. Please refer to the real-time information on the official website.

© 2023 Shanghai Huace Navigation Technology Ltd. All rights reserved. The CHCNAV and CHCNAV logo are trademarks of Shanghai Huace Navigation Technology Limited. All other trademarks are the property of their respective owners. Revision September 2023.

Performance during GNSS outages RMS [3]

GNSS outage duration	Positioning mode	Location accuracy (m)		Velocity accuracy (m/s)		Attitude accuracy (°)	
		Horizontal	Vertical	Horizontal	Vertical	Attitude	Heading
0 s	RTK	0.02	0.03	0.020	0.01	0.030	0.080
	Post-Processed	0.01	0.02	0.010	0.01	0.003	0.010
10 s	RTK	0.15	0.10	0.050	0.02	0.030	0.100
	Post-Processed	0.01	0.02	0.010	0.02	0.003	0.010
60 s	RTK	1.50	1.00	0.050	0.05	0.050	0.120
	Post-Processed	0.10	0.05	0.010	0.05	0.004	0.014

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
Infopark Building, Sétány 1,
1117 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