

CHCNAV

CGI-830

HIGH-PERFORMANCE
INTEGRATED NAVIGATION
SYSTEM



NAVIGATION &
INFRASTRUCTURE



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		Communication Interface							
Signal tracking	BDS: B1, B2, B3 GPS: L1, L2, L5 GLONASS: L1, L2 Galileo: E1, E5a, E5b QZSS: L1, L2, L5	External interface	2 × RS232, 1 × RS422, 1 × CAN, 1 × RJ45, 1 × MINI USB, 2 × GNSS (TNC), 1 × 4G (TNC), 1 × POWER						
Horizontal positioning accuracy (RMS)	Single: 1.2m DGPS: 0.4 m RTK: 1 cm + 1 ppm	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						
Altitude Positioning Accuracy(RMS)	Single: 2.5 m DGPS: 0.4 m RTK: 2 cm + 1 ppm	Environmental							
Heading accuracy (RMS)	0.1°/ 2 m baseline	Operating temperature	-40°C ~ +75°C						
Speed accuracy (RMS)	0.03 m/s	Storage temperature	-40°C ~ +85°C						
PPS accuracy (RMS)	20 ns	Humidity	95%, Non-condensing						
Cold start time	45 s	Anti-static	ISO10605 Contac ±8 kv, Air ±15 kv						
Data Rate		Protection class	IP67						
GNSS Raw Data Rate	Configurable ^[1]	Vibration	MIL-STD-810G (20 g)						
IMU Raw Data Rate	100Hz	Impact	IEC-60028-2-27(10 g)						
INS Solution	Up to 100 Hz ^[2]	Physical Dimensions and Electrical Characteristics							
IMU Performance Specifications		Power input	9 V ~ 32 V DC Standard Adaptation 12 V DC						
IMU type	MEMS	Power consumption	<5 W (typical)						
Gyro Dynamic Range	±300 °/s	Physical dimensions	162 mm × 120 mm × 53 mm						
Gyro bias instability (Allan)	0.03°/h	Weight	1.15 kg (Without antenna and cable)						
Gyro Angular Random Walk (Allan)	0.03°/√h	<small>* 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 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.</small>							
Accelerometer Dynamic Range	±10 g	© 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.							
Accelerometer bias instability(Allan)	0.03 mg	Performance during GNSS outages RMS ^[3]							
Accelerometer Angular Random Walk (Allan)	0.02 m/s/√hz	GNSS outage duration	Positioning mode	Location accuracy (m)		Velocity accuracy (m/s)		Attitude accuracy (°)	
INS Position/Attitude	100 Hz			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