

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		Environmental		Physical Dimensions and Electrical Characteristics	
Signal tracking		External interface		Operating temperature		Power input	
BDS: B1, B2, B3		2 × RS232, 1 × RS422, 1 × CAN,		-40°C ~ +75°C		9 V ~ 32 V DC	
GPS: L1, L2, L5		1 × RJ45, 1 × MINI USB, 2 × GNSS (TNC), 1 × 4G (TNC), 1 × POWER		Storage temperature		Standard Adaptation 12 V DC	
GLONASS: L1, L2		Wireless communication		Humidity		<5 W (typical)	
Galileo: E1, E5a, E5b		Wi-Fi: 802.11b/g/n		Anti-static		162 mm × 120 mm × 53 mm	
QZSS: L1, L2, L5		LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18,B19/B20/B25/B26/B28		Protection class		Weight	
Horizontal positioning accuracy (RMS)		LTE-TDD: B38/B39/B40/B41		ISO10605		(Without antenna and cable)	
Single: 1.2m		UMTS: B1/B2/B4/B5/B6/B8/B19		Contac ±8 kv, Air ±15 kv		1.15 kg	
DGPS: 0.4 m		GSM: B2/B3/B5/B8		Vibration		90%, Non-condensing	
RTK: 1 cm + 1 ppm		Impact		ISO10605		MIL-STD-810G (20 g)	
Altitude Positioning Accuracy(RMS)		IEC-60028-2-27(10 g)		Anti-static		162 mm × 120 mm × 53 mm	
Single: 2.5 m		Protection class		Weight		1.15 kg	
DGPS: 0.4 m		IP67		(Without antenna and cable)		90%, Non-condensing	
RTK: 2 cm + 1 ppm		Vibration		ISO10605		MIL-STD-810G (20 g)	
Heading accuracy (RMS)		Impact		Anti-static		162 mm × 120 mm × 53 mm	
0.1°/ 2 m baseline		IEC-60028-2-27(10 g)		Protection class		1.15 kg	
Speed accuracy (RMS)		IP67		(Without antenna and cable)		90%, Non-condensing	
PPS accuracy (RMS)		Vibration		ISO10605		MIL-STD-810G (20 g)	
20 ns		Impact		Anti-static		162 mm × 120 mm × 53 mm	
Cold start time		IEC-60028-2-27(10 g)		Protection class		1.15 kg	
45 s		IP67		(Without antenna and cable)		90%, Non-condensing	
Data Rate							
GNSS Raw Data Rate		Configurable ^[1]		Operating temperature		ISO10605	
IMU Raw Data Rate		100Hz		Storage temperature		Anti-static	
INS Solution		Up to 100 Hz ^[2]		Humidity		Protection class	
IMU Performance Specifications							
IMU type		MEMS		-40°C ~ +85°C		IP67	
Gyro Dynamic Range		±300 °/s		-40°C ~ +85°C		Vibration	
Gyro bias instability (Allan)		0.03°/h		95%, Non-condensing		IEC-60028-2-27(10 g)	
Gyro Angular Random Walk (Allan)		0.03°/√h		ISO10605		Impact	
Accelerometer Dynamic Range		±10 g		Contac ±8 kv, Air ±15 kv		IEC-60028-2-27(10 g)	
Accelerometer bias instability(Allan)		0.03 mg		90%, Non-condensing		ISO10605	
Accelerometer Angular Random Walk (Allan)		0.02 m/s/√h		MIL-STD-810G (20 g)		Anti-static	
INS Position/Attitude		100 Hz		IEC-60028-2-27(10 g)		Protection class	
Performance during GNSS outages RMS ^[3]							
GNSS outage duration		Positioning mode		Location accuracy (m)		Velocity accuracy (m/s)	
				Horizontal		Horizontal	
0 s		RTK		Vertical		Vertical	
				0.02		0.020	
10 s		Post-Processed		0.01		0.010	
				0.02		0.01	
60 s		RTK		0.15		0.050	
				0.10		0.02	
		Post-Processed		0.01		0.010	
				0.02		0.01	
				0.030		0.080	
				0.003		0.010	
				0.030		0.100	
				0.003		0.010	
				0.050		0.120	
				0.004		0.014	

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* All specifications are subject to change without notice.
[1] Min GNSS receiver GNSS RTK needs 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 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, and may be different in actual use due to individual differences in the product, firmware version, use conditions, etc. Please refer to the actual use 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 product to the specific parameters of the product. CHCNAV reserves the right to make changes to the product design, 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.

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