

CHCNAV

CGI-230

**HIGH-PRECISION COMBINED
INERTIAL GUIDANCE SYSTEM**



**NAVIGATION &
INFRASTRUCTURE**





HIGH-PRECISION COMBINED INERTIAL GUIDANCE SYSTEM

CGI-230 is a new generation of automotive-grade high-precision tight combination inertial guidance system launched by CHCNAV. Based on the full-system full-frequency point GNSS module and 6-axis tactical IMU, the product adopts CHCNAV's new generation of closely coupled algorithm engine, and through the fusion and solution of GNSS, INS, DR information, it can still provide continuous and high-precision navigation information such as position, speed and attitude in urban canyons, urban overpass, tree-shade, high-speed, park and other satellite signal occlusion or multipath scenarios, which has a higher fixed rate and robustness than the loosely coupled algorithm.

The product supports serial port, 100Base-T1 automotive Ethernet, CANFD and other communication methods; based on Autosar software architecture development, it supports fault messages, UDS diagnosis, gPTP\CanTsyn, PPS time synchronization scheme, and supports general vehicle, low-speed carrier and other modes.

Provide stable and reliable high-precision PVAT solutions for logistics and distribution, park cleaning, low-speed robots, RoboTaxi, trunk line logistics, intelligent agricultural machinery and other industries.

AREAS OF APPLICATION



Park Logistics



Agricultural farmland



Autonomous Vehicle Driving



Dry logistics

SPECIFICATIONS

GNSS Performance Indicators		IMU Performance Specifications					
Signal tracking	BDS: B1/B2/B3 GPS: L1/L2/L5 GLONASS: L1/L2 Galileo: E1/E5a/E5b QZSS: L1/L2/L5	Accelerometer bias instability(Allan 1σ)	≤15ug				
Positioning accuracy (RMS)	Single: L1/L2: 1.2m DGPS: 0.4m RTK: 1cm+1ppm (Horizontal) , 2cm+1ppm (Altitude)	Accelerometer angular random walk(Allan 1σ)	0.035m/s\hz				
Heading accuracy (RMS)	0.1°/2 m baseline	Fusion output frequency	100Hz				
RTK solution frequency	20Hz(max) [1]	Communication Interface					
Speed accuracy (RMS)	0.03m/s	External interface	Primary connector: 1×power- 3×RS232, 1×PPS, 2×CANFD, 1×100Base-T1, 2×Antenna RF interface				
PPS time synchronization accuracy (RMS)	20ns	Environmental					
Cold start time (RMS)	≤35s	Operating temperature	-40°C ~ +75°C				
IMU Performance Specifications		Storage temperature	-40°C ~ +85°C				
IMU type	MEMS	Humidity	95% non-condensing				
Gyro output operating range	±300 °/s	Protection class	IP52				
Gyro bias instability(Allan 1σ)	1.8°/h	Physical Dimensions and Electrical Characteristics					
Accelerometer output operating range (Allan 1σ)	±6g	Power input	9~32V DC Standard Adaptation 12V DC)				
Performance during GNSS outages RMS [2]		Power consumption	<4W (typical)				
		Physical dimensions	154×105×35mm				
GNSS outage duration	Positioning mode	Location accuracy (m/s)	Location accuracy (m/s)	Attitude accuracy (°)			
		Horizontal	Vertical	Horizontal	Vertical	Heading	Attitude
0s	RTK	0.02	0.03	0.02	0.01	0.08	0.08
10s	RTK	0.2	0.1	0.05	0.02	0.12	0.09

Note 1: 20Hz RTK data output, need to use GNSS special RS232 B port.

Note 2: GNSS interrupt lost lock test, for passenger car urban tunnel typical test scene test, for reference only. According to different carrier types, different carrier speeds, and different application environments, the test results will vary, subject to the actual scene of the physical test. 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 Huatech navigation 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, Huatech Navigation 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.

* All specifications are subject to change without notice.

© 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.

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@chcnv.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