CHCNAV

CGI-610

GNSS/INS SENSOR

NAVIGATION &
INFRASTRUCTURE

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TIGHTLY COUPLED HIGH-PERFORMANCE GNSS/INS SYSTEM

The CGI-610 GNSS/INS sensor is a high-precision dual-antenna receiver providing reliable and accurate navigation and positioning solutions for demanding ground, marine or aerial applications. Specifically designed to meet the requirements of 3D control and autonomous vehicle guidance applications, the CGI-610 is particularly efficient in urban canyons, when GNSS signals are lost and in other harsh environments where navigation results are easily degraded.

The tight fusion of the latest GNSS technology with an industrial-grade MEMS IMU is powered by CHCNAV algorithms to provide accurate hybrid position, attitude and velocity data up to 100 Hz. With its extremely rugged and lightweight enclosure, the CGI-610 GNSS/INS sensor is built to meet the highest protection standards and ensure uninterrupted performance.

ROBUST POSITIONING AND ATTITUDE

GNSS + MEMS IMU

Tightly integrated dual-antenna GNSS technology with industrial MEMS IMU provides continuous, reliable and high-precision real-time positioning and orientation data, even in complex and obstructed environments where GNSS outages occur.

EXTENDED CONNECTIVITY AND WEB CONFIGURATION

Rich hardware interfaces make the integration seamless in all applications

The CGI-610 GNSS/INS offers high connectivity integration to achieve accurate positioning and attitude from GNSS NTRIP/TCP corrections. RTK centimeter initialization is fast and reliable to ensure that you can get started in a fraction of time. With its serial ports, CAN and low latency PPS output, the CGI-610 GNSS/INS sensor offers unsurpassed compatibility for a wide range of industrial and machine applications.

EXTERNAL SENSOR INPUT

Odometer sensor supports for ultimate results

When longer GNSS outages are likely to be encountered (tunnels, bridges,...), an external odometer sensor for terrestrial vehicles can provide an additional independent measurement of displacement and velocity, which is fused with the GNSS/INS navigation solution.

HIGH-FREQUENCY OUTPUTS

Up to 100 Hz data

The CGI-610 is a powerful GNSS/INS system supporting data output up to 100 Hz to meet the requirements of highly dynamic applications (airplane, train, car,...). Its versatile design allows a perfect integration in many applications where uninterrupted performance is required, such as marine, industrial automation, robotics, machine control, port automation...

INTEGRATED INDUSTRIAL DESIGN

Secure your investment in any machine or robotics application

The CGI-610 is a fully embedded GNSS/INS navigation and positioning sensor that enables cost-effective integration into machines and vehicles, eliminating the price barrier for mass deployment. The IP67 dust and water-resistant certification and industrial grade power management ensure reliable and continuous operation in the harshest environments. The CGI-610 is vibration and shock resistant and is protected against electrostatic discharge.

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RUGGED
GNSS/INS FUSION

RELIABLE POSITION AND ATTITUDE

SPECIFICATIONS

Performance	
Channel	1408 channels

Signal Tracking	
Position antenna	
GPS	L1C/A, L1C, L2P, L2C, L5
BDS	B1I, B2I, B3I, B1C, B2a, B2b
GLONASS	L1C/A, L2C/A
GALILEO	E1, E5a, E5b, E6
QZSS	L1 CA, L2C, L5
Vector antenna	
GPS	L1C/A, L2P, L2C, L5
BDS	B1I, B2I, B3I
GLONASS	L1C/A, L2C/A
GALILEO	E1, E5a, E5b
QZSS	L1 C/A, L2C, L5
Attitude accuracy	0.1°(Baseline length ≥ 2 m)
Positioning accuracy	Single 1.5 m DGPS 0.4 m RTK 1 cm + 1 ppm

Maximum data update rate	
RTK Position	20 Hz
INS Position/Attitude	100 Hz
Initialization time	< 60 seconds
Initialization reliability	> 99.9%
Signal reacquisition	≤ 1 seconds
Time to first fix	Cold start ≤ 45 seconds Hot start ≤ 30 seconds

IMU Performance	
Gyroscope Performance	
Gyro type	MEMS
Gyro range	±300 deg/s
Gyro bias stability	2.5 deg/h
Accelerometer Performance	
Accelerometer	±6 g
Accelerometer bias stability	15 μg

Communication Ports	
1 x RJ45	
3 x RS232 Serial port	up to 921,600 bps
1 x CAN	up to 1 Mbps
1 x Micro USB	
Wi-Fi	802.11 b/g/n
Network modem	LTE: B1, B3, B7, B8, B20 3G: B1, B8 2G: B3, B8
1 x 4G Antenna port	TNC
2 x GNSS Antenna connector	TNC
1 x PPS	
1 x Power interface	

Environmental	
Operating temperature	-40°C to +75°C
Storage temperature	-40°C to +85°C
Humidity	95% non-condensing
Water/Dust rating	IP67
Vibration	MIL-STD-810G: CHG1 § 514.7
Shock	IEC-60068-2-27
Anti-static	ISO10605 Contact ±8 kv Air ±15 kv

Included Accessories
1 x Power cable 1 x 19 PIN cable 2 x GNSS Antenna 1 x 4G Antenna 2 x Magnetic antenna holder

Physical And Electrical	
Size	162 mm × 120 mm × 53 mm
Weight	1.15 kg
Input voltage	9 ~ 32 V DC (Standard adaptation 12 V DC)
Power	< 5 W (Typical)

*All specifications are subject to change without notice.

Performance during GNSS outages

Outage duration	Positioning mode	Position accuracy (m) RMS		Velocity accuracy (m/s) RMS		Attitude accuracy (degree) RMS		
		Horizontal	Vertical	Horizontal	Vertical	Roll	Pitch	Heading
0 s	RTK	0.02	0.03	0.03	0.02	0.10	0.10	0.10
10 s	RTK	0.30	0.15	0.15	0.05	0.15	0.15	0.17

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