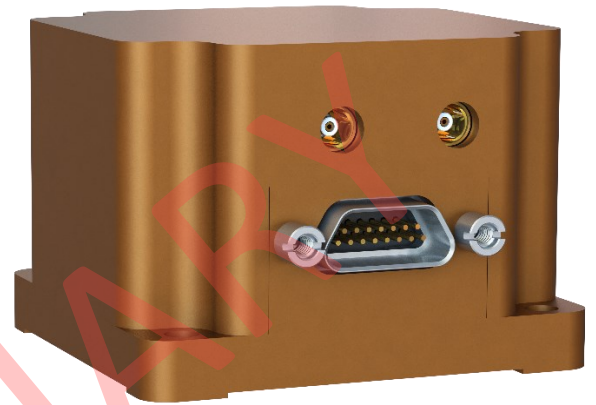


GCINS03 INTEGRATED INERTIAL NAVIGATION SYSTEM

GCINS03 Integrated Inertial Navigation System is a small form factor, lightweight, and a complete navigation system with a wide variety of uses in the industry, especially in applications where the continuity of navigation information is important. GCINS03 Integrated Inertial Navigation System integrates GCLAB's powerful IMU, GCIMU03. It contains one to two GNSS receivers, a 3-axis magnetometer, and a barometer. It also contains an interface to receive and process external odometer signals. GCLAB's expertise in estimation theory allows exceptional integration of IMU, GNSS, magnetometer, barometer, and odometer data. Using the powerful sensors inside, GCINS03 can provide reliable information even in extended GNSS denied environments. It has RTK capability through GNSS receivers. If used with two GNSS receivers, it can estimate heading information. GCINS03 is ITAR-free.



GCINS03 KEY CHARACTERISTICS

GNSS Capability	Single or Dual GNSS Receiver
Supply Voltage/Power Consumption	5±0.25V / <5 W
Weight/Size	<500g, ~ 4.8 cm x 4.5 cm x 3.3 cm
Operating Temperature Range	-40°C to +85°C
Communication Interfaces	RS-422 (Full Duplex)
Discrete Interfaces	Time Mark Outputs (2), User Event In (2), Odometer Input

GCINS03 NAVIGATION PERFORMANCE (Typical)

POSITION		VELOCITY		HEADING	PITCH/ROLL
Horizontal (m, 1σ)	Vertical (m, 1σ)	Horizontal (m/s, 1σ)	Vertical (m/s, 1σ)	(°, 1σ)	(°, 1σ)
1.5	2	0.05	0.05	0.2	0.1



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GCINS03 GNSS RECEIVER SPECIFICATIONS

Receiver Type	Multi-band GNSS high precision receiver
Constellations	GPS, GLONASS, Galileo, BeiDou, QZSS, SBAS
Cold Start	30 s
Hot Start	2 s
Altitude Limit	80000 m
Velocity Limit	500 m/s

GCIMU03 IMU TYPICAL PERFORMANCE OVER FULL OPERATING TEMPERATURE RANGE

GYRO BIAS REPEATABILITY (°/HR 1σ)	GYRO BIAS IN-RUN STABILITY (°/HR 1σ)	ARW (°/√HR MAX)	ACCEL BIAS REPEATABILITY (mG 1σ)	ACCEL BIAS IN-RUN STABILITY (mG 1σ)	VRW (m/sec/√HR MAX)
500 (x and z axes) 5000 (y axis)	2.7	0.2	2	0.003	0.01

GCINS03 MAGNETOMETER PERFORMANCE

RANGE	STABILITY	NOISE
± 30 G	%0.1 FS	0.002 G RMS

GCINS03 BAROMETER PERFORMANCE

RANGE	STABILITY	NOISE
1250 hPa	0.2 hPa	0.0008 hPa RMS

