



Specifications – Sensors

Angles

Range	Pitch: $\pm 90^\circ$, roll: $\pm 180^\circ$ Heading (AHRS only): $\pm 180^\circ$
Static accuracy (RMS)	Pitch and roll: 0.03° Heading (AHRS only): 1.5°
Dynamic accuracy (RMS)	Pitch and roll: 0.5° Heading (AHRS only): 1.5°
Angular resolution	Pitch and roll: $< 0.005^\circ$ Heading (AHRS only): $< 0.1^\circ$

Accelerometer

Range	$\pm 2\text{ g}/\pm 4\text{ g}/\pm 8\text{ g}$ selectable
Zero offset error	$< \pm 0.5\text{ mg}$ (@ 20°C)
In-run bias stability	X & Y: $< 5\ \mu\text{g}$, Z: $< 10\ \mu\text{g}$
Noise density	$25\ \mu\text{g}/\text{VHz}$ (@ 200Hz)
Velocity random walk	X & Y: $0.007\text{ m/sec}/\text{Vhr}$ Z: $0.011\text{ m/sec}/\text{Vhr}$
Nonlinearity	$\pm 0.1\%$ FS

Gyroscope

Selectable range	$\pm 125/250/500/1000/2000^\circ/\text{s}$
In-run bias stability	$10^\circ/\text{hr}$
Angle random walk	$0.35^\circ/\text{Vhr}$
Noise density	$0.007\text{ dps}/\text{VHz}$ (@ 10 Hz)
Nonlinearity	$< 0.1\%$ FS

Magnetometer

Range	$\pm 800\ \mu\text{T}$
Nonlinearity	$\pm 0.2\%$ FS
Noise density	$0.06\ \mu\text{T}/\text{VHz}$ (@ 100 Hz)

Specifications – System

Power source	4.1 – 38 VDC
Power consumption	400 mW (80 mA @ 5 V)
Data format	ASCII and binary
Baud rate	2.4kbps – 921.6kbps selectable default: 115.2kbps
Output data rate	1 Hz to 2 kHz selectable
Serial interface options	RS232, RS422, RS485, Wireless, UART/USB
GUI software	CTi Sensors Connect®

Features

- 6 DOF sensor data: 3-axis accelerometer and 3-axis gyroscopic turn rate
- Additional 3 DOF on IMU and AHRS: 3-axis magnetic field intensity
- Output data rate up to 2000 Hz
- High resolution: $< 0.005^\circ$
- Ultra-low noise: $0.001^\circ/\text{VHz}$
- Very low temperature offset drift: $\pm 0.002^\circ/\text{C}$ (Typical)
- Simple ASCII interface language
- IP 67 compliant connector, cable, and housing
- Robust aluminum housing
- Low power consumption: 400 mW (80 mA @ 5 V)

Applications

- Inertial navigation and GPS compensation
- Avionics and unmanned vehicles
- Motion and dynamics measurements
- Vehicle control: marine, robotics, automotive
- Agricultural and industrial vehicle tilt monitoring
- Virtual/augmented reality

Specifications – Mechanical

Protection	IP 67 (housing, connector, and cable)
Dimension	1.65" x 2.15" x 1.00"
Material	Enclosure: anodized aluminum Connector: brass/nickel Cable carrier: TPU or nylon
Temperature range	-40°C to $+85^\circ\text{C}$ (-40°F to $+185^\circ\text{F}$)
Connection	Cable gland connector M8, 6-contact (female)

Shock and Vibration

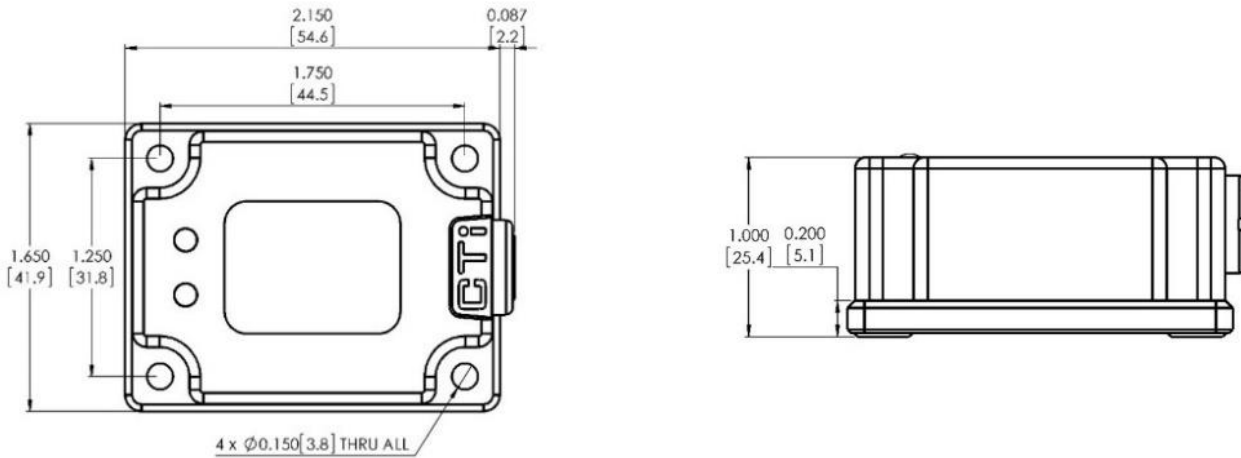
Shock	MIL-STD-202H, Method 213 Half-Sine, 0.5 ms, 2000 g
Random Vibration	MIL-STD-202H, Method 214 50-2000Hz, 15 min/axis Overall RMS: 5.35 g

Terminal Assignment

Connector	RS232/UART/USB	RS422	RS485	Wire Color
Pin 1	+Vin	+Vin	+Vin	Brown
Pin 2	GND	GND	GND	White
Pin 3	TX	TX+	D+	Blue
Pin 4	–	TX-	D-	Black
Pin 5	RX	RX+	D+	Gray
Pin 6	–	RX-	D-	Pink

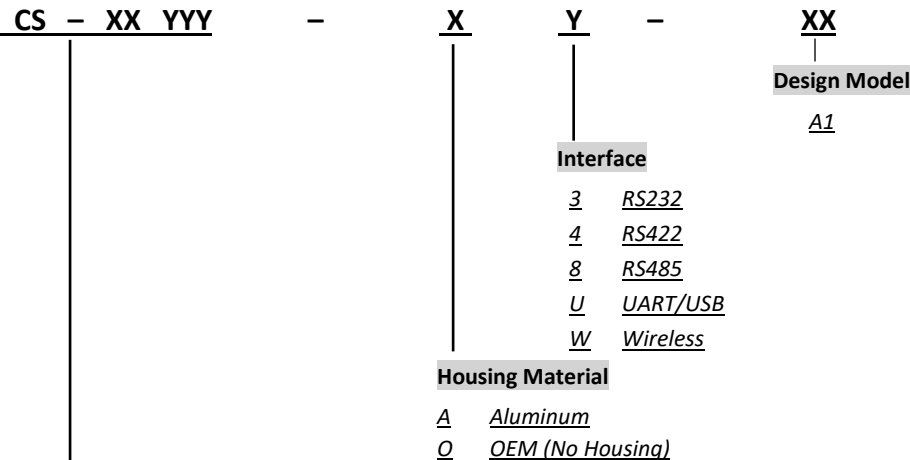
	Device: M 8 – 6-contact (female)	Cable: M 8 – 6-pin (male)	
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Dimensional Drawing



Inch [millimeter]

Part Number



Family Series	Accelerometer	Gyroscope	Magnetometer	Quaternions	Pitch/Roll	Heading	Temperature
<u>CS – VR 100</u>	Three Axis	Three Axis	X	X	✓	X	✓
<u>CS – VR 200</u>	Three Axis	Three Axis	Three Axis	X	X	X	✓
<u>CS – AH 100</u>	Three Axis	Three Axis	Three Axis	✓	✓	✓	✓
<u>CS – AH 200</u>	Three Axis	Three Axis	Three Axis	✓	✓	✓	✓

Warranty: This product has 18 months limited warranty. For more information, please visit:

www.CTiSensors.com/warranty

This product is fully designed and manufactured in the U.S.A.

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