



Specifications – Sensors

Angles

Range	Pitch: $\pm 90^\circ$, roll: $\pm 180^\circ$ Heading (AHRS only): $\pm 180^\circ$
Static accuracy (RMS)	Pitch and roll: 0.2° Heading (AHRS only): 1.5°
Dynamic accuracy (RMS)	Pitch and roll: 1.0° Heading (AHRS only): 1.5°
Angular resolution	Pitch and roll: $< 0.025^\circ$ Heading (AHRS only): $< 0.1^\circ$

Accelerometer

Range	$\pm 2\text{ g}/\pm 4\text{ g}/\pm 8\text{ g}$ selectable
Zero offset error	$< \pm 1.0\text{ mg}$ (@ 20°C)
In-run bias stability	$< 10\text{ }\mu\text{g}$
Velocity random walk	X & Y: $0.075\text{ m/sec}/\text{Vhr}$ Z: $0.095\text{ m/sec}/\text{Vhr}$
Noise density	$125\text{ }\mu\text{g}/\text{VHz}$ (@ 200 Hz)
Nonlinearity	$\pm 0.5\%$ FS

Gyroscope

Selectable range	$\pm 250/500/1000/2000\text{ }^\circ/\text{s}$
In-run bias stability	$< 20\text{ }^\circ/\text{hr}$
Angle random walk	$1.4\text{ }^\circ/\text{Vhr}$
Noise density	$0.025\text{ dps}/\text{VHz}$ (@ 64 Hz)
Nonlinearity	$< 0.5\%$ FS

Magnetometer

Range	$\pm 800\text{ }\mu\text{T}$
Nonlinearity	$\pm 0.1\%$ FS
Noise density	$0.06\text{ uT}/\text{VHz}$ (@ 100 Hz)

Specifications – System

Power source	4.1 – 38 VDC
Power consumption	250 mW (50 mA @ 5 V)
Data format	ASCII and binary
Baud rate	2.4kbps – 921.6kbps selectable default: 115.2kbps
Output data rate	1 Hz to 200 Hz selectable
Serial interface options	RS232, RS422, RS485, Wireless, UART/USB, Modbus RTU RS485 with multi-drop networked
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 200 Hz
- Selectable accelerometer and gyroscope range
- Simple ASCII interface language
- Several interface options: RS232, RS422, RS485, UART/USB, and Modbus RTU
- IP 67 compliant connector, cable, and housing
- Robust aluminum housing
- Low power consumption: 250 mW (50 mA @ 5 V)

Applications

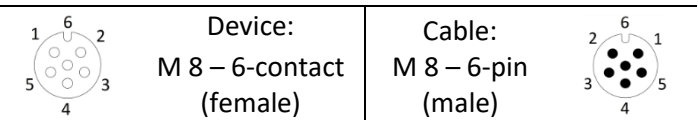
- Inertial navigation and GPS compensation
- Avionics and unmanned vehicles
- Motion and dynamics measurements
- Vehicle control: marine, robotics, automotive
- Agricultural and industrial vehicle tilt monitoring
- Virtual/augmented reality

Specifications – Mechanical

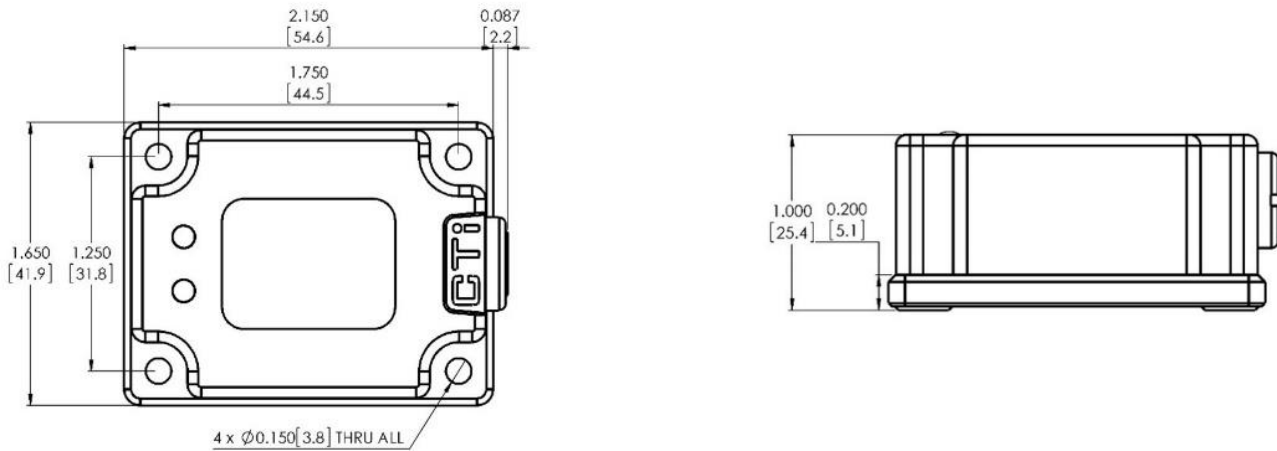
Protection	IP 67 (housing, connector, and cable)
Dimension	1.65" x 2.15" x 1.00"
Material	Enclosure: anodized aluminum Connector: brass/nickel Cable molded head: TPU Cable carrier: TPU or nylon Conductor insulation: PVC
Connection	Cable gland connector M8, 6-contact (female)
Temperature range	-40°C to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

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



Dimensional Drawing



Inch [millimeter]

Part Number

CS – XX YYY	-	X	Y	-	XX
					Design Model
					<i>A1</i>
			Interface		
			<i>3</i> <u>RS232</u>		
			<i>4</i> <u>RS422</u>		
			<i>8</i> <u>RS485</u>		
			<i>U</i> <u>UART/USB</u>		
			<i>W</i> <u>Wireless</u>		
			Housing Material		
			<i>A</i> <u>Aluminum</u>		
			<i>O</i> <u>OEM (No Housing)</u>		

Family Series	Accelerometer	Gyroscope	Magnetometer	Quaternions	Pitch/Roll	Heading	Temperature
<u>CS – VR 100</u>	Three Axis	Three Axis	✗	✗	✓	✗	✓
<u>CS – VR 200</u>	Three Axis	Three Axis	✗	✗	✗	✗	✓
<u>CS – IM 100</u>	Three Axis	Three Axis	Three Axis	✗	✗	✗	✓
<u>CS – IM 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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All contents of this document are subject to change without any notice.