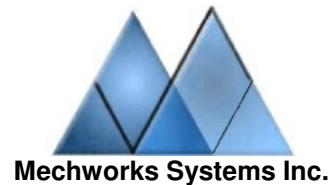


Mechsense[®] Analog



3-in-1 Sensor

MA201, MA202, MA205, MA210

Features

- ▶ Dual axis, $\pm 1g$, $\pm 2g$, $\pm 5g$ and $\pm 10g$ general purpose accelerometers
- ▶ Analog temperature output
- ▶ 5V single supply operation or optional 7-20V unregulated single supply
- ▶ 50,000 g shock survival rating
- ▶ Hermetically sealed for harsh environments
- ▶ Operational from -40°C to 85°C or optional expanded -40°C to 125°C range
- ▶ Small, Low cost

Applications

- ▶ High volume production
- ▶ Automotive testing
- ▶ Vibration monitoring
- ▶ Alarms and security
- ▶ Motion detection

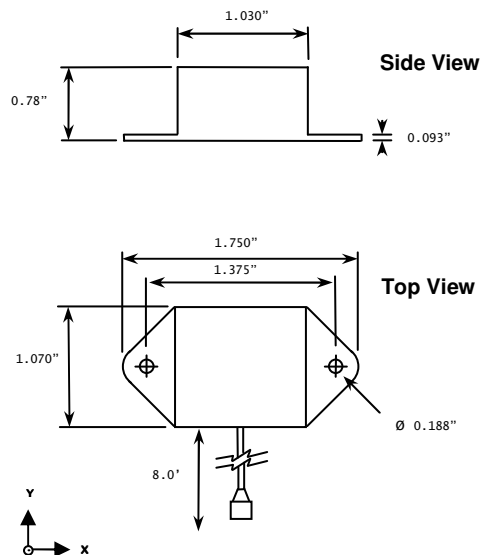


General Description

Mechsense Analog is a low cost, 3-in-1 sensor that combines a dual axis accelerometer with a temperature output. It measures both dynamic (i.e. vibration) and static (i.e. gravity) acceleration and is available with a full-scale range of $\pm 1g$, $\pm 2g$, $\pm 5g$ and $\pm 10g$. The addition of a temperature output can be employed by the user for a temperature compensation algorithm. Applications include automotive testing, vibration monitoring, alarms and security and motion detection. Due to its low cost, Mechsense Analog is perfect for high volume applications.

Mechsense Analog offers a wide dynamic range, has an excellent frequency response, provides an absolute analog output and operates on a regulated 5V single supply. With the Regulated (R) option, an unregulated 7-20V power supply can be used.

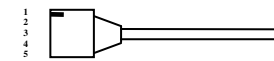
Ideal for harsh environments, Mechsense Analog is hermetically sealed, has a 50,000 g shock survival rating and has an operating temperature range of -40°C to $+85^{\circ}\text{C}$. An optional High Temperature (HT) package extends the operating temperature range from -40°C to $+125^{\circ}\text{C}$, making it suitable for the most torturous operating conditions. Its small, rugged composite package allows for reliable screw-down mounting.



Characteristics (Measurements @ 25°C, Acceleration = 0g unless otherwise noted.)

Specifications	MA201	MA202	MA205	MA210	Comments
Accelerometer Performance					
Measurement Range (g)	± 1	± 2	± 5	± 10	Minimum
Nonlinearity (% of FS)	1.0	1.0	1.0	1.0	Typical
Alignment Error (Degrees)	± 1.0	± 1.0	± 1.0	± 1.0	Typical
Cross-Axis Sensitivity (%)	± 2.0	± 2.0	± 2.0	± 2.0	Typical
Sensitivity (mV/g)	1000 ± 100	624 ± 60	200 ± 20	100 ± 10	
Noise (mg rms)	20	20	20	20	Maximum
Bandwidth (Hz)	DC-100	DC-100	DC-100	DC-100	
Temperature Performance					
Output Voltage (V)	1.25 ± 0.10	1.25 ± 0.10	1.25 ± 0.10	1.25 ± 0.04	
Sensitivity (mV/°C)	5.0	5.0	5.0	5.0	± 0.04
Environment					
Operating Temp. Range (°C)	-40 to +85	-40 to +85	-40 to +85	-40 to +85	
Operating Temp. Range – HT option (°C)	-40 to +125	-40 to +125	40 to +125	-40 to +125	
Shock (g)	50,000	50,000	50,000	50,000	Maximum
Electrical					
Supply Voltage (V)	5	5	5	5	Regulated
Supply Voltage - R option (V)	7-20	7-20	7-20	7-20	Unregulated
Supply Current (mA)	23	23	23	23	Maximum
Zero g Voltage (V)	2.5 ± 0.53	2.5 ± 0.35	2.5 ± 0.13	2.5 ± 0.09	
Span Output (V)	± 1.0	± 1.0	± 1.0	± 1.0	Minimum
Output Loading	>1kΩ, <100pF	>1kΩ, <100pF	>1kΩ, <100pF	>1kΩ, <100pF	
Physical					
Size	1.07" x 1.75"	x 0.78"	(2.72cm x 4.4cm	x 1.98cm)	
Weight		0.53 oz	(15 gm)		Not including cable
Mounting		Screw	down		
Hermetic Seal			Yes		

Connector Configuration



Notched, 5-pin, 0.1" spacing, female connector

Ordering Information

Model	Outputs	Range (g)
MA201	X, Y, Temperature	± 1
MA202	X, Y, Temperature	± 2
MA205	X, Y, Temperature	± 5
MA210	X, Y, Temperature	± 10

Options

- R Voltage regulator, 7-20 VDC unregulated input
- HT High temperature package (-40 to +125)

Pin	Function
1	Power In
2	Ground
3	X-Axis Output
4	Y-Axis Output
5	Temperature Output