



9000 Series Accelerometers Specifications

Catalog Numbers EK-43781I, EK-43782I, EK-46255I, EK-45890I, EK-43784I, EK-47086I, EK-43792I, EK-47090I, EK-43799I, EK-43794I, EK-43795I, EK-43797I, EK-43805I, EK-43807I, EK-46496, EK-43811I, EK-43808I, EK-43809I, EK-48958, EK-43786I, EK-43787, EK-48964, EK-43790I, EK-43791

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Summary of Changes

This manual contains new and updated information. Changes throughout this revision are marked by change bars, as shown to the right of this paragraph.

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Updated splash proof cable specifications for three-pin sensors	79

Rockwell Automation 9000 Series Accelerometers

Rockwell Automation 9000 Series Accelerometers are general purpose sensors used to measure vibration on industrial machinery. The family includes a broad selection of sensors with these varied capabilities:

- Low frequency, as low as 0.2 Hz or 12 cpm
- High frequency, up to 30 kHz or 1800 kcpm
- High temperature, up to 260 °C (500 °F)
- Velocity output, internal integrator

Typical Vibration Measurement Systems

Accelerometers are either permanently mounted or carried from point-to-point in a route-based measurement or analysis scheme. The entire measurement system, however, can take on a variety of forms, depending on sensor type and the goal of the monitoring program. The following examples illustrate vibration measurement and monitoring systems.

Figure 1 - XM System and Permanently Installed Accelerometers

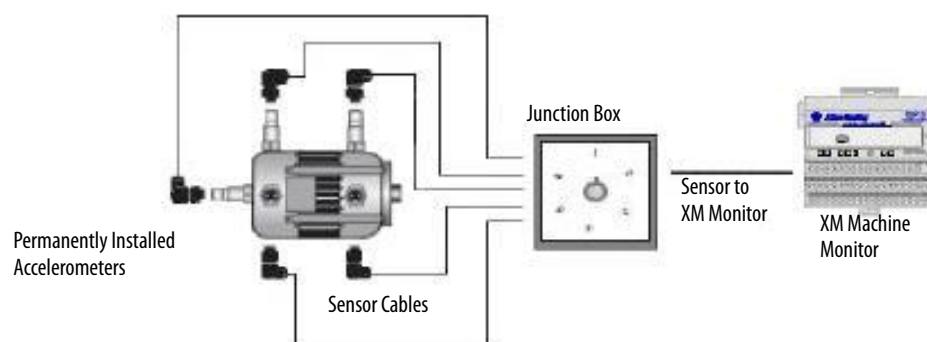
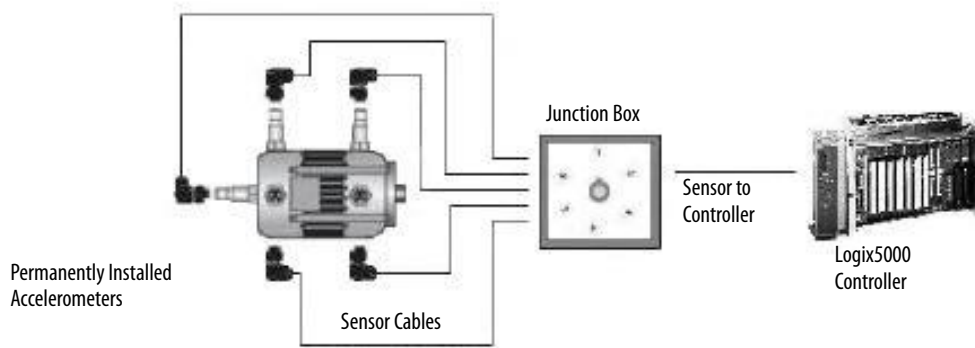
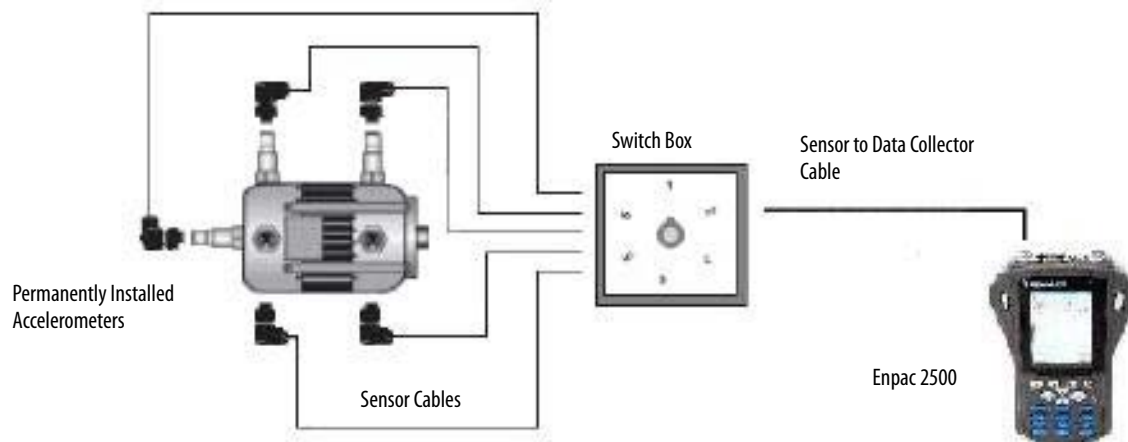
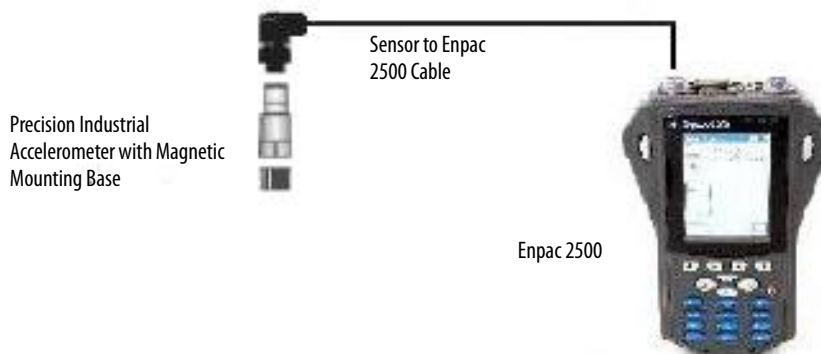


Figure 2 - 4...20 mA Output Sensor System**Figure 3 - Portable Data Collector and Permanently Installed Accelerometers****Figure 4 - Portable Data Collector and Accelerometer**

General Purpose Accelerometers

General purpose, industrial accelerometers are recommended for permanent installation onto machinery or route-based vibration data collection in predictive maintenance and condition monitoring applications.

Accelerometer	Purpose	Cat. No.	Features	Page
9000A	General purpose accelerometer	EK-43781I	• Good choice for online and portable • 100 mV/g • $\pm 5\%$ accuracy • Top exit	9
9000B	General purpose accelerometer	EK-43782I	• Online only • Integral 3 m (10 ft) cable • 100 mV/g • $\pm 5\%$ accuracy • Top exit	12
9008	Low cost integral cable	EK-46255I	• Low cost, online only • Small size • Integral 3 m (10 ft) cable • $\pm 20\%$ accuracy • Top exit	15
9010	General purpose	EK-45890I	• Portable or online • 50 mV/g • $\pm 10\%$ accuracy • Top exit	18
9100	General purpose	EK-43784I	• Best choice for online or portable • 100 mV/g • $\pm 5\%$ accuracy • Top exit	21
9200	General purpose	EK-47086I	• Recommended in mounting applications with limited head room • Best choice for online or portable • 100 mV/g • $\pm 5\%$ accuracy • Side exit	24
9300	Low cost general purpose	EK-43792I	• Low cost online only • Small size • 100 mV/g • $\pm 15\%$ accuracy • Top exit	27
9400	Low cost low profile general purpose	EK-47090I	• Recommended in mounting applications with limited head room • Low cost online only • 100 mV/g • $\pm 15\%$ accuracy • Side exit	29

High Frequency Accelerometer

For vibration monitoring, testing, and frequency analysis of high-speed rotating machinery, spindles, and gears, use a sensor with a high-frequency range to accurately capture the vibration signals within the bandwidth of interest. The miniature size is also ideal for use on small mechanisms where sensor size and weight may be important factors.

Accelerometer	Purpose	Cat. No.	Features	Page
9700A	High frequency miniature accelerometer	EK-43799I	• Recommended for machines where high frequency response is required such as high speed turbines, multi stage compressors, and turbochargers • Online or portable • Small size • 10 mV/g • $\pm 10\%$ • 85 kHz resonant frequency • Top exit	33

Low Frequency Accelerometers

These accelerometers combine low-frequency response with high-output sensitivity to obtain the resolution characteristics and output signal levels necessary for low-frequency measurements and analysis.

Low frequency accelerometers offer these additional advantages:

- Rugged, laser-welded, stainless steel housing with the ability to endure dirty, wet, or harsh environments
- Hermetically sealed military connectors
- Low noise, low impedance, voltage output signal with long-distance, signal transmission capability

Accelerometer	Purpose	Cat. No.	Features	Page
9100L	Low frequency accelerometer	EK-43794I	• Online or portable • 500 mV/g • $\pm 5\%$ accuracy • 0.2 Hz ± 3db • Top exit	37
9200L	Low frequency accelerometer	EK-43795I	• Online or portable • 500 mV/g • $\pm 5\%$ accuracy • 0.2 Hz ± 3db • Side exit	40
9500HLF	Low frequency accelerometer	EK-43797I	• Online or portable • 1000 mV/g • $\pm 5\%$ accuracy • 0.2 Hz ± 3db • 10 μG resolution • Top exit	42

High Temperature Accelerometers

These sensors withstand elevated temperature extremes common to machinery such as some steam and gas turbines. Standard and charge-mode types of high temperature accelerometers are available.

Standard, high-temperature accelerometers operate in the same manner, with the same cabling, data collection, and signal conditioning equipment, as the general purpose accelerometers.

Accelerometer	Purpose	Cat. No.	Features	Page
9100T	High temperature accelerometer	EK-43805I	• Online only • 100 mV/g • $\pm 5\%$ accuracy • Up to 163 °C (325 °F) • Top exit	45

For extreme, high-temperature requirements, charge-mode accelerometers are recommended. Charge-mode accelerometers do not contain internal signal conditioning circuits which impose temperature limits on general purpose accelerometers. However, since there is no signal conditioning circuits within charge-mode accelerometers, alternative cabling and signal conditioning equipment is required.

Accelerometer	Purpose	Cat. No.	Features	Page
9150HT	High temperature charge-mode accelerometer system	EK-43807I	• Online only • 3 piece charge mode system • 100 mV/g • $\pm 15\%$ accuracy • Up to 260 °C (500 °F) sensor • Up to 250 °C (482 °F) amplifier • Top exit	48
9150HTA	High temperature charge-mode accelerometer with armor cable	EK-46496	• Online only • 3 piece charge mode system • 100 mV/g • $\pm 15\%$ accuracy • Up to 260 °C (500 °F) sensor • Up to 250 °C (482 °F) amplifier • Armored cable • Top exit	51

Specialty Accelerometers

These sensors are available for specific measurements:

- Temperature and acceleration
- Velocity output

Accelerometer	Purpose	Cat. No.	Features	Page
9200AT	Combination acceleration and temperature	EK-43811I	• Online or powered switchbox • 100 mV/g • 10mV / °C • 2...121 °C (36...250 °F) • ±5% accuracy • Side exit	55
9100VO	Velocity output sensor	EK-43808I	• Online or portable • 100 mV/ in/s (velocity) • ±10% accuracy • Top exit	58
9200VO	Velocity output sensor	EK-43809I	• Online or portable • 100 mV/ in/s (velocity) • ±10% accuracy • Side exit	58

4...20 mA Accelerometer

The loop-powered, 4...20 mA output, vibration sensor measures signals that are representative of the overall vibration levels being generated by many types of rotating machinery. This sensor leverages existing process control equipment and HMI software to monitor machinery for excessive vibration levels.

Accelerometer	Purpose	Cat. No.	Features	Page
9842V	4...20 mA sensor output velocity	EK-48958	• Online only • 0...1 in/s peak • Top exit	77

Intrinsically Safe Accelerometers

Intrinsically safe sensors meet additional requirements for hazardous environments.

Accelerometer	Purpose	Cat. No.	Features	Page
9100CSA	General purpose accelerometer	EK-43786I	• Hazardous rating CSA • 100 mV/g • $\pm 5\%$ accuracy • Top exit	63
9100EX	General purpose accelerometer	EK-43787	• Hazardous rating ATEX • 100 mV/g • $\pm 5\%$ accuracy • Top exit	66
9842VCRT	4-20 mA sensor output velocity	EK-48964	• Hazardous rating CSA and ATEX • Online only • 4...20 mA output • 0...1 in/s peak • Top exit	68
9200CSA	General purpose accelerometer	EK-43790I	• Hazardous rating CSA • 100 mV/g • $\pm 5\%$ accuracy • Side exit	70
9200EX	General purpose accelerometer	EK-43791	• Hazardous rating ATEX • 100 mv/G • $\pm 5\%$ accuracy • Side exit	72

9000A Accelerometer (EK-43781I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	1.2...5000 Hz	72...300000 cpm
Frequency range ($\pm 10\%$)	0.87...8000 Hz	52...480000 cpm
Frequency range (± 3 dB)	0.43...10000 Hz	26...600000 cpm
Resonant frequency, typical	28 kHz	1680 kcpm
Broadband resolution (1...10000 Hz), typical	2943 $\mu\text{m/s}^2$	300 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54...121 °C	-65...250 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias)	≤ 2.0 s	≤ 2.0 s
Discharge time constant	≥ 0.4 s	≥ 0.4 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	2...20 mA	2...20 mA
Output impedance	$< 150 \Omega$	$< 150 \Omega$
Output bias voltage	8...12V DC	8...12V DC
Spectral noise (10 Hz), typical	78.5 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	8 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	29.4 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	3 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	24.5 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	2.5 $\mu\text{g}/\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Physical		
Size (hex x height)	17.5 x 49.8 mm	11/16 x 1.96 in.
Weight, approx.	61.7 g	2.2 oz
Mounting thread ⁽⁴⁾	Not applicable	1/4-28 female
Mounting torque	2.7...6.8 N-m	2...5 lb-ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor 1 g = 9.81 m/s².

(2) 1 Hz = 60 cpm (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Optional versions have identical specifications and accessories as listed for standard model except where noted below. More than one option may be used.

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

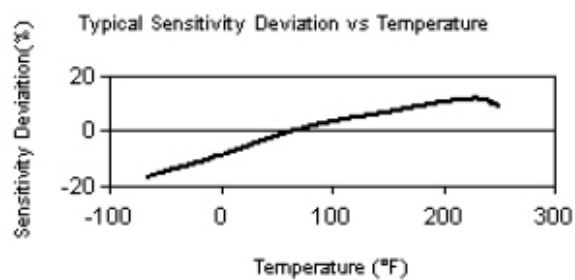
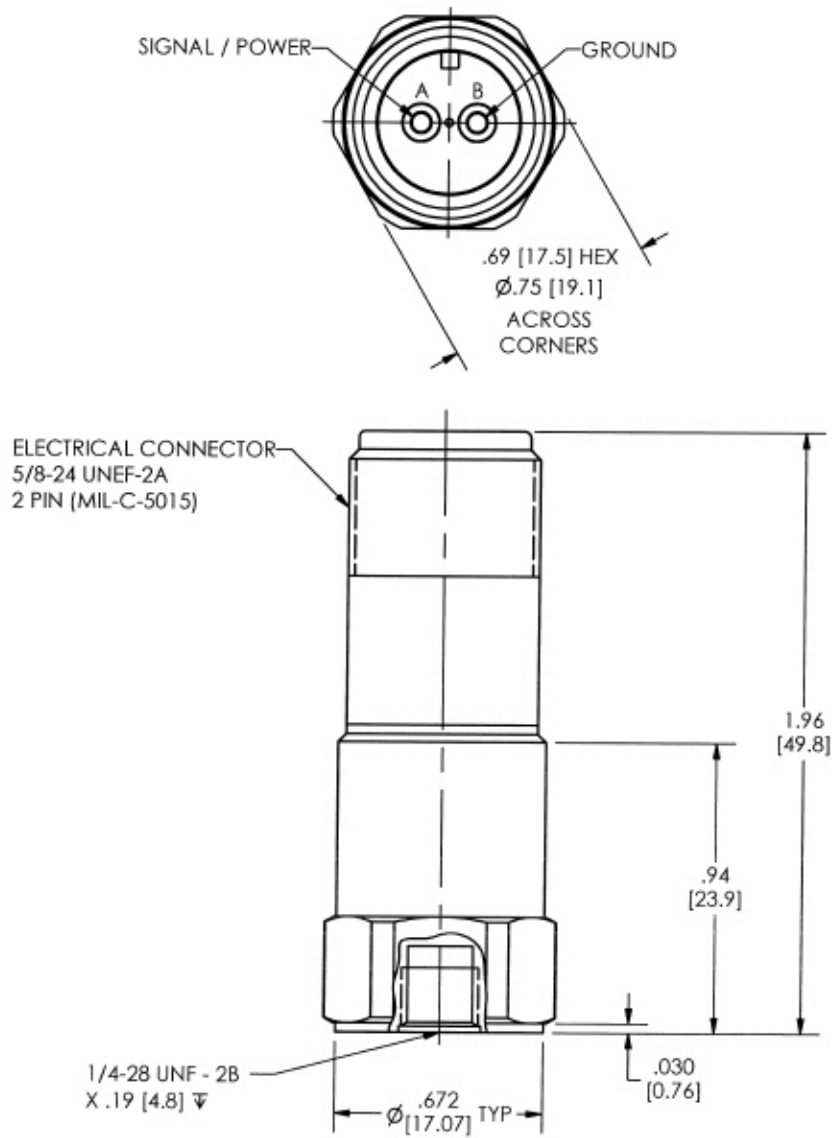


Figure 5 - 9000A Accelerometer Drawing



9000B Accelerometer (EK-43782I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	1.2 ... 7000 Hz	72 ... 420000 cpm
Frequency range ($\pm 10\%$)	0.87 ... 8000 Hz	52 ... 480000 cpm
Frequency range (± 3 dB)	0.44 ... 13000 Hz	26 ... 780000 cpm
Resonant frequency, typical	28 kHz	1680 kcpm
Broadband resolution (1 ... 10000 Hz), typical	735.6 $\mu\text{m/s}^2$	75 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54 ... 121 °C	-65 ... 250 °F
Electrical		
Settling time (within 1% of bias)	≤ 2.0 s	≤ 2.0 s
Discharge time constant	≥ 0.4 s	≥ 0.4 s
Excitation voltage	18 ... 28V DC	18 ... 28V DC
Constant current excitation	2 ... 20 mA	2 ... 20 mA
Output impedance	$< 150 \Omega$	$< 150 \Omega$
Output bias voltage	8 ... 12V DC	8 ... 12V DC
Spectral noise (10 Hz), typical	58.8 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	6 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	19.6 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	2 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	5.9 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	0.6 $\mu\text{g}/\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$

Attribute	Metric	Imperial
Physical		
Size (hex x height)	17.5 x 75.2 mm	11/16 x 2.96 in.
Weight, approx. (without cable)	48.6 g	1.7 oz
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7...6.8 N•m	2...5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	IP68	Welded hermetic
Cable length	3.0 m	10 ft
Cable type ⁽⁵⁾	Polyurethane	Polyurethane

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

(5) Twisted shielded pair.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

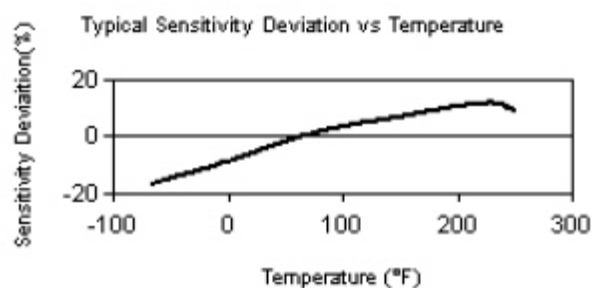
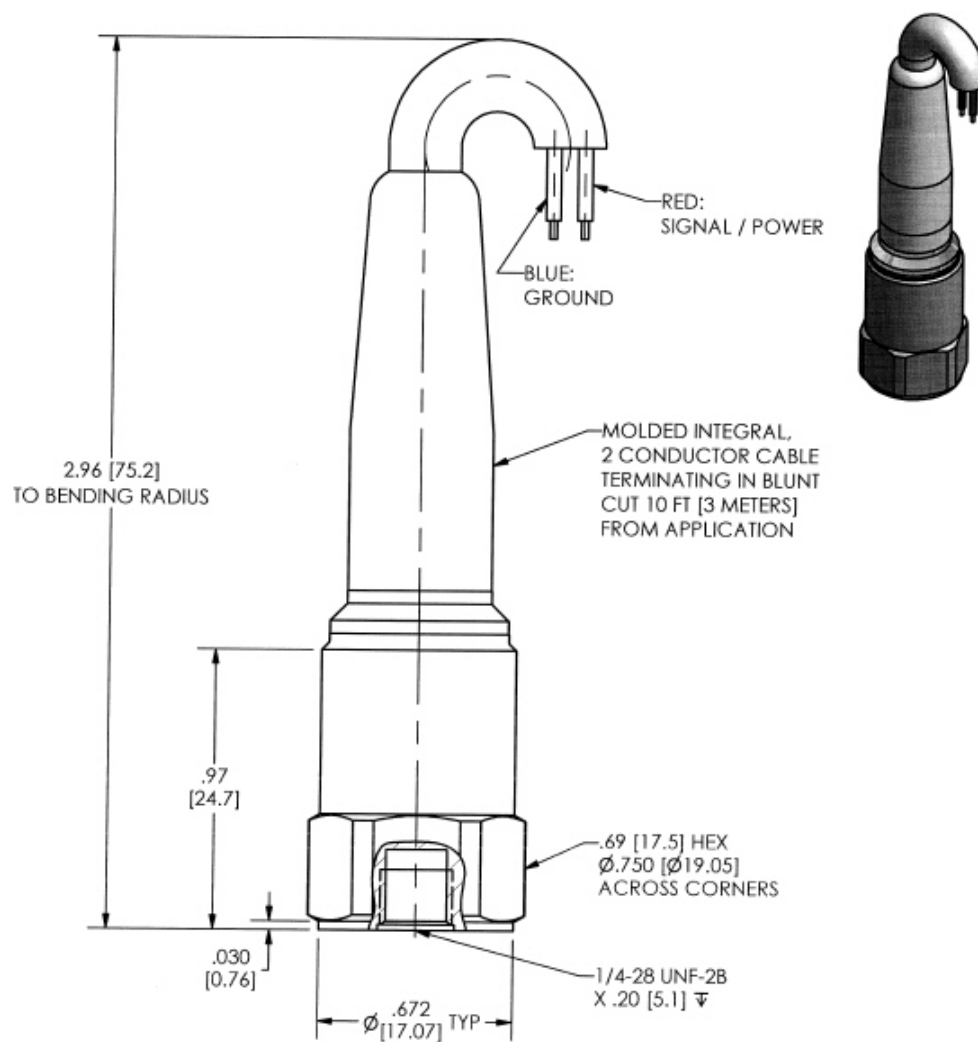


Figure 6 - 9000B Accelerometer Drawing



9008 Accelerometer (EK-46255I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 20\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g peak
Frequency range (± 3 dB) ⁽²⁾	0.5 ... 10000 Hz	30 ... 600000 cpm
Resonant frequency, typical	22 kHz	1320 kcpm
Broadband resolution (1 ... 10000 Hz), typical	3434 μ m/s ²	350 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 7\%$	$\leq 7\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54 ... 121 °C	-65 ... 250 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias)	≤ 2.0 s	≤ 2.0 s
Discharge time constant	≥ 0.3 s	≥ 0.3 s
Excitation voltage	18 ... 28V DC	18 ... 28V DC
Constant current excitation	2 ... 20 mA	2 ... 20 mA
Output impedance, max	$< 150 \Omega$	$< 150 \Omega$
Output bias voltage	8 ... 12V DC	8 ... 12V DC
Spectral noise (10 Hz), typical	78.5 (μ m/s ²)/ $\sqrt{\text{Hz}}$	8 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	49.1 (μ m/s ²)/ $\sqrt{\text{Hz}}$	5 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	39.2 (μ m/s ²)/ $\sqrt{\text{Hz}}$	4 μ g/ $\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Physical		
Size (hex x height)	14 x 64 mm	9/16 x 2.5 in.
Weight, approx.	99.3 g	3.5 oz
Mounting	Stud	Stud
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7 ... 6.8 N·m	2 ... 5 lb·ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Molded	Molded
Electrical connector	Molded integral cable	Molded integral cable

Attribute	Metric	Imperial
Electrical connection position	Top	Top
Cable length	3.0 m	10 ft
Cable type ⁽⁵⁾	Polyurethane	Polyurethane

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

(5) Twisted shielded pair.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Notes:

- To minimize the possibility of signal distortion when driving long cables with high vibration signals, 24...30 VDC powering is recommended. The higher level constant current source should be used when driving long cables. Please consult Entek Customer Service.
- A maximum current of 6 mA is recommended for operating temperatures in excess of 100 °C.

Supplied accessories include the following:

1/4-28 mounting stud

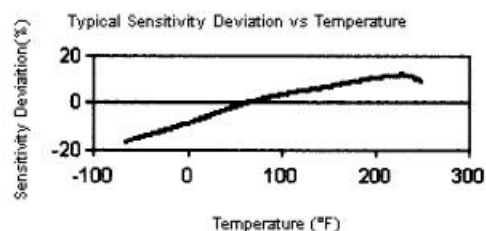
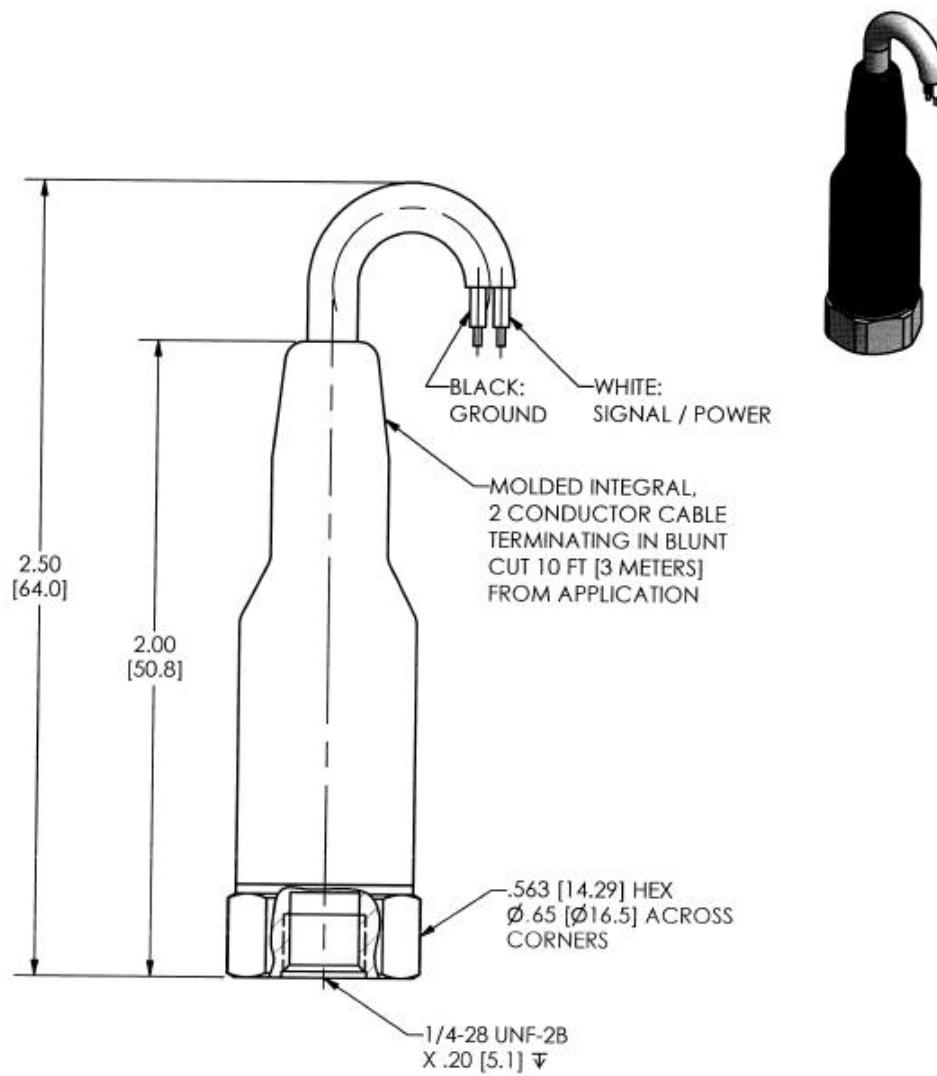


Figure 7 - 9008 Accelerometer Drawing



9010 Accelerometer (EK-45890I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	5.1 mV/(m/s ²)	50 mV/g
Measurement range	± 981 m/s ²	± 100 g
Frequency range ($\pm 5\%$) ⁽²⁾	1.2 ... 5000 Hz	72 ... 300000 cpm
Frequency range ($\pm 10\%$)	0.85 ... 7000 Hz	51 ... 420000 cpm
Frequency range (± 3 dB)	0.4 ... 10000 Hz	24 ... 600000 cpm
Resonant frequency, typical	30 kHz	1800 kcpm
Broadband resolution (1 ... 10000 Hz), typical	3924 $\mu\text{m/s}^2$	400 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54 ... 121 °C	-65 ... 250 °F
Electrical		
Settling time (within 1% of bias)	≤ 2.0 s	≤ 2.0 s
Discharge time constant	≥ 0.4 s	≥ 0.4 s
Excitation voltage	18 ... 28V DC	18 ... 28V DC
Constant current excitation	2 ... 20 mA	2 ... 20 mA
Output impedance	$< 150 \Omega$	$< 150 \Omega$
Output bias voltage	8 ... 12V DC	8 ... 12V DC
Spectral noise (10 Hz), typical	88.3 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	9.0 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	49.1 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	5.0 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	29.4 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	3.0 $\mu\text{g}/\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$

Attribute	Metric	Imperial
Physical		
Size (hex x height)	17.5 x 50 mm	11/16 x 1.97 in.
Weight, approx.	52 g	1.83 oz
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7 ... 6.8 N·m	2 ... 5 lb·ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

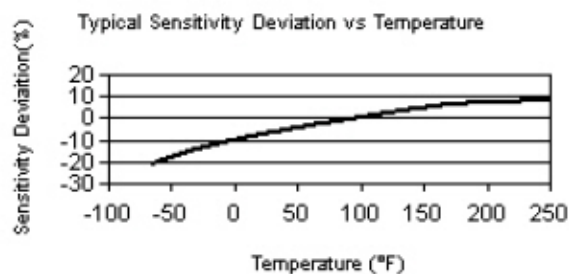
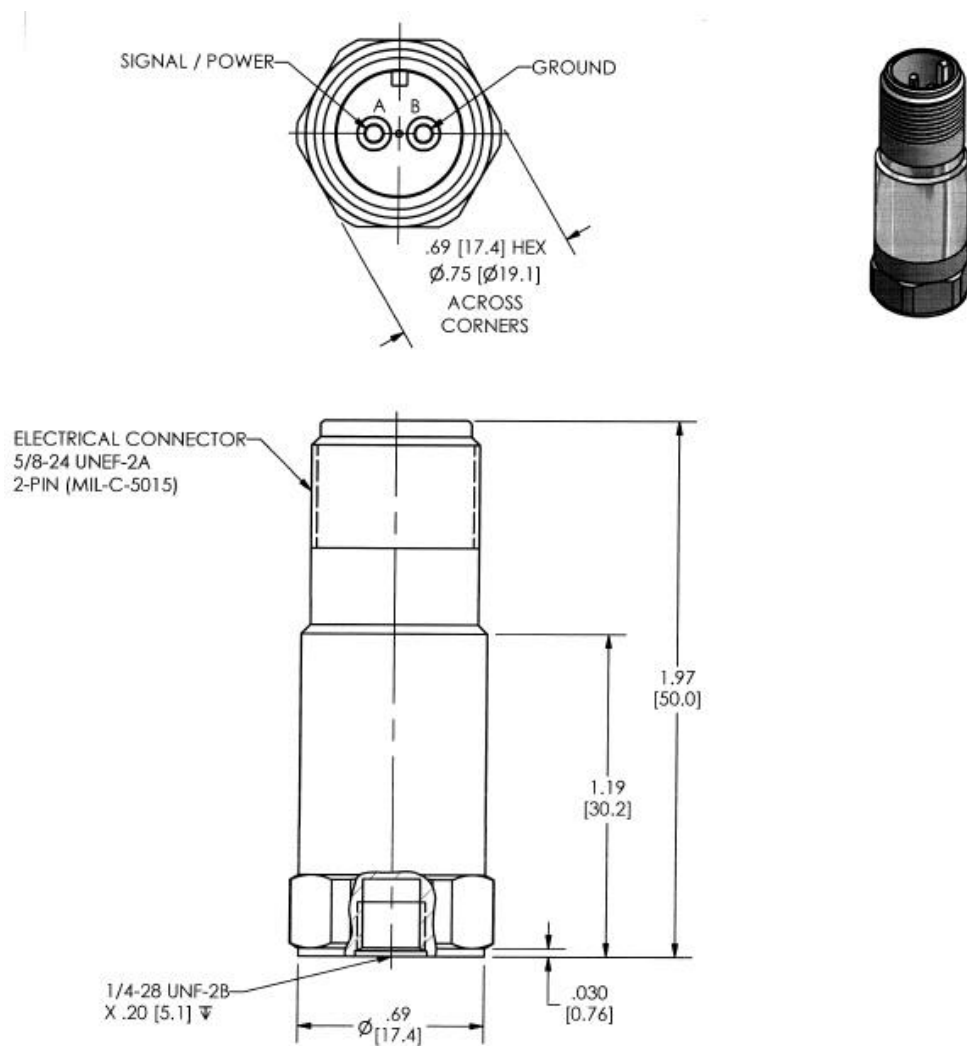


Figure 8 - 9010 Accelerometer Drawing



9100 Accelerometer (EK-43784I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	0.58...4000 Hz	35...240000 cpm
Frequency range ($\pm 10\%$)	0.42...5000 Hz	25...300000 cpm
Frequency range (± 3 dB)	0.2...10000 Hz	12...600000 cpm
Resonant frequency, typical	20 kHz	1200 kcpm
Broadband resolution (1...10000 Hz), typical	490 μ m/s ²	50 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54...121 °C	-65...250 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias)	≤ 5.0 s	≤ 5.0 s
Discharge time constant	≥ 0.8 s	≥ 0.8 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	2...20 mA	2...20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8...12V DC	8...12V DC
Spectral noise (10 Hz) ¹	39.2 (μ m/s ²)/ $\sqrt{\text{Hz}}$	4.0 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (100 Hz) ¹	7.85 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.8 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (1 kHz) ¹	3.92 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.4 μ g/ $\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Electrical Protection	RFI/ESD	RFI/ESD

Attribute	Metric	Imperial
Physical		
Size (hex x height)	22 x 52.3 mm	7/8 x 2.06 in.
Weight, approx.	93 g	3.3 oz
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7...6.8 N•m	2...5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

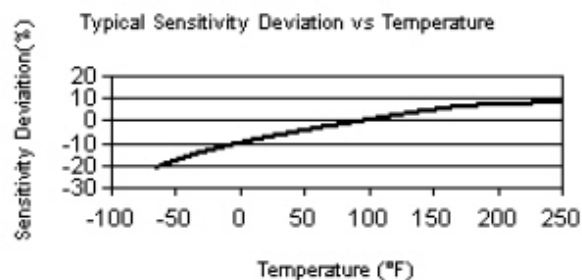
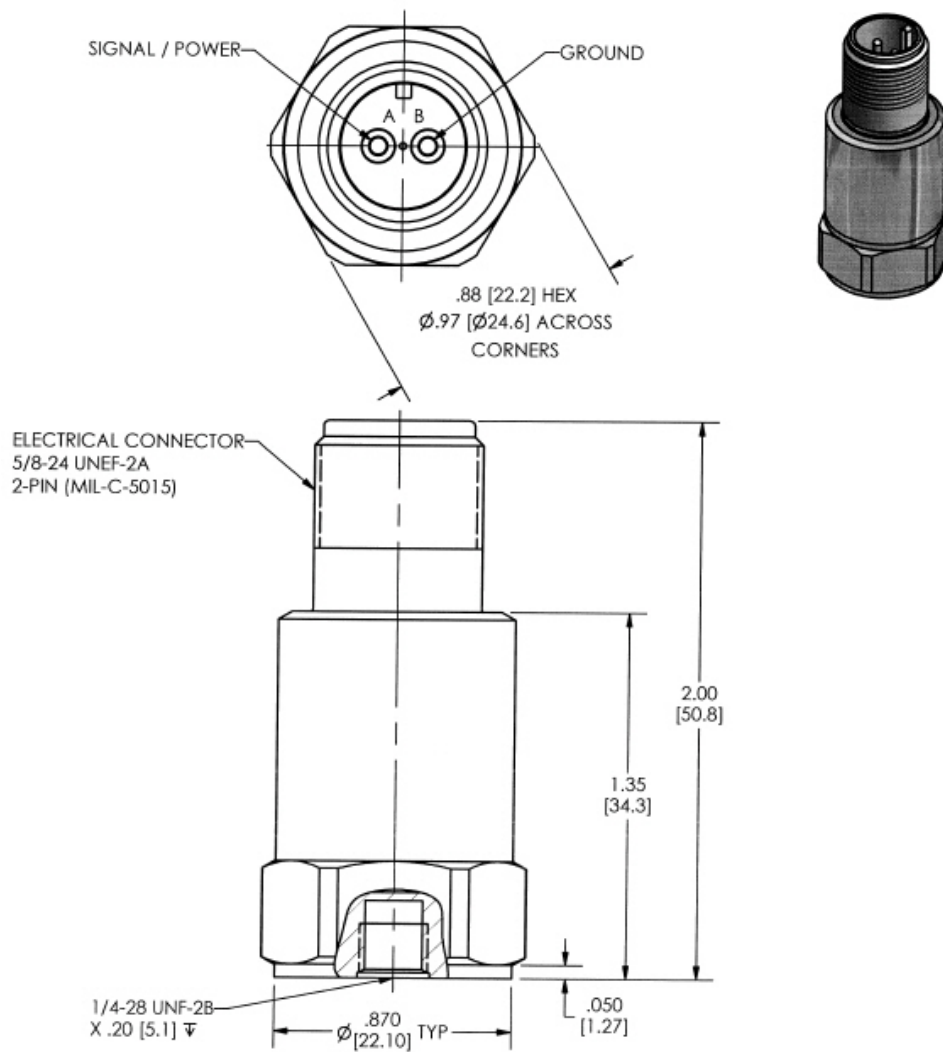


Figure 9 - 9100 Accelerometer Drawing

9200 Accelerometer (EK-47086I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	0.5...6500 Hz	30...390000 cpm
Frequency range ($\pm 10\%$)	0.4...7500 Hz	22...450000 cpm
Frequency range (± 3 dB)	0.2...10500 Hz	12...630000 cpm
Resonant frequency, typical	25 kHz	1500 kcpm
Broadband resolution (1...10000 Hz), typical	491 $\mu\text{m/s}^2$	50 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54...121 °C	-65...250 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias)	≤ 8.0 s	≤ 8.0 s
Discharge time constant	≥ 1.0 s	≥ 1.0 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	2...20 mA	2...20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8...12V DC	8...12V DC
Spectral noise (10 Hz) ¹	24.5 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	2.5 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz) ¹	7.8 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	0.8 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz) ¹	4.9 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	0.5 $\mu\text{g}/\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$

Attribute	Metric	Imperial
Physical		
Size (hex x height)	35.1 x 28.7 mm	1.38 x 1.13 in.
Weight, approx.	145 g	5.1 oz
Mounting	Through hole	Through hole
Mounting thread ⁽⁴⁾	1/4-28 male	1/4-28 male
Mounting torque	2.7...6.8 N•m	2...5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Side	Side

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>

Supplied accessories include the following:

- 081A73 captive mounting bolt 1/4-28 x 1.34 in.
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

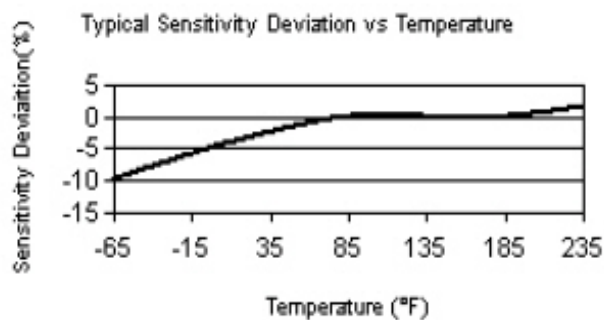
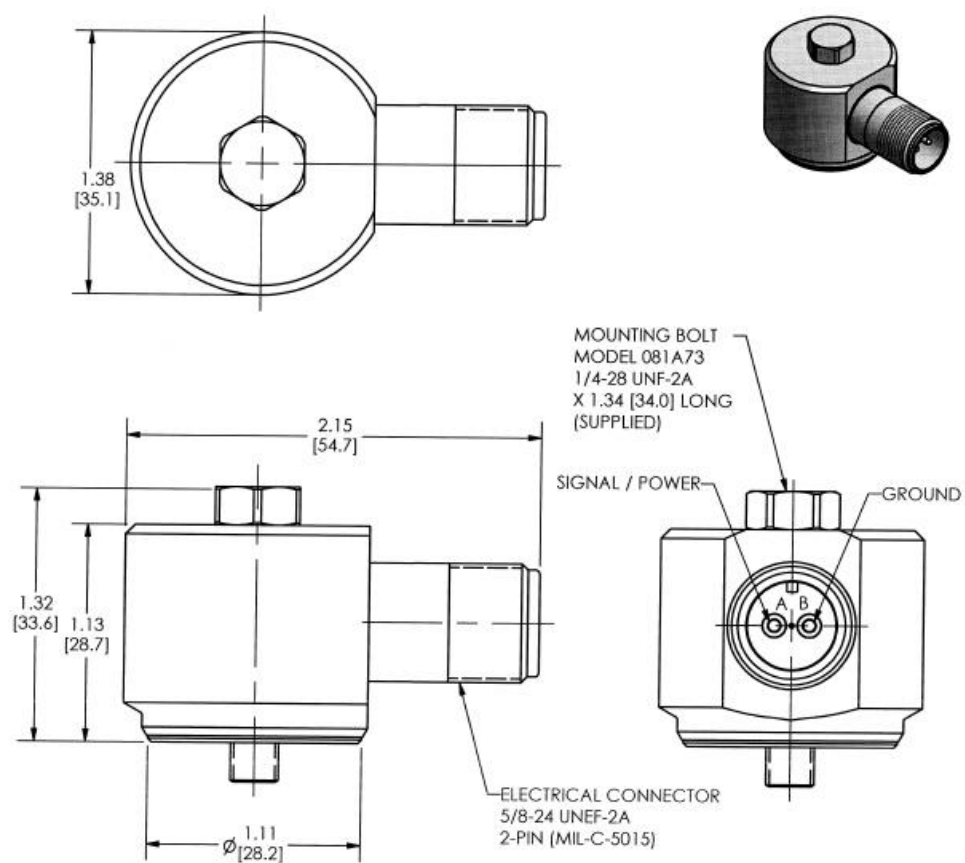


Figure 10 - 9200 Accelerometer Drawing



9300 Accelerometer (EK-43792I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 15\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	1.2...5000 Hz	72...300000 cpm
Frequency range ($\pm 10\%$)	0.87...8000 Hz	52...480000 cpm
Frequency range (± 3 dB)	0.43...10000 Hz	26...600000 cpm
Resonant frequency, typical	28 kHz	1680 kcpm
Broadband resolution (1...10000 Hz), typical	2943 $\mu\text{m/s}^2$	300 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54...121 °C	-65...250 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias)	≤ 2.0 s	≤ 2.0 s
Discharge time constant	≥ 0.4 s	≥ 0.4 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	2...20 mA	2...20 mA
Output impedance	$< 150 \Omega$	$< 150 \Omega$
Output bias voltage	8...12V DC	8...12V DC
Spectral noise (100 Hz), typical	78.5 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	8 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	29.4 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	3 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (10 kHz), typical	24.5 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	2.5 $\mu\text{g}/\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8$ ohm	$> 10^8$ ohm
Physical		
Size (hex x height)	17.5 x 42.2 mm	11/16 x 1.66 in.
Weight, approx.	48.6 g	1.7 oz
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7...6.8 N-m	2...5 lb-ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor 1g = 9.81 m/s².

(2) 1 Hz = 60 cpm (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

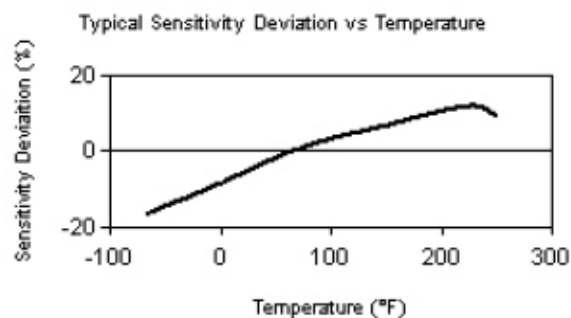
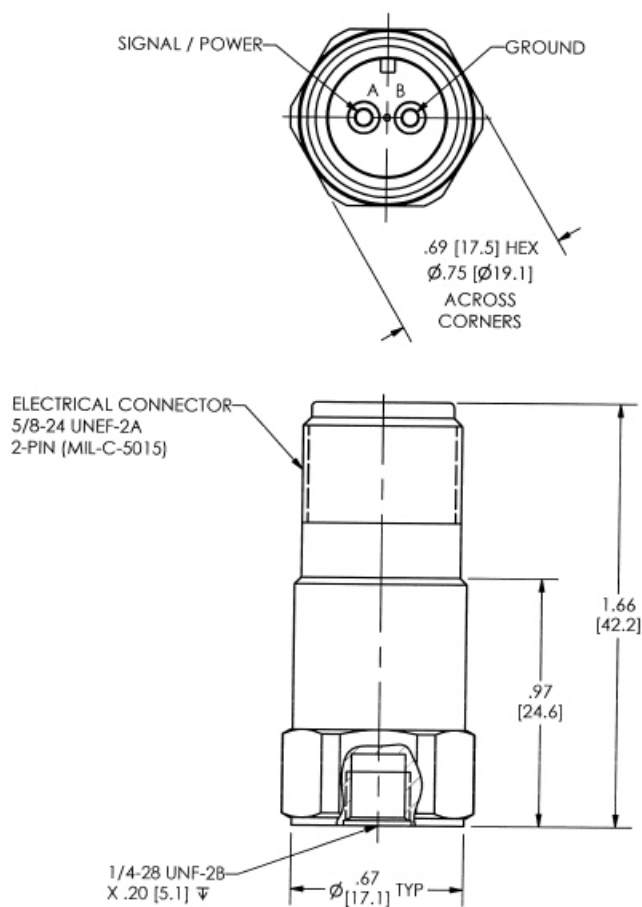


Figure 11 - 9300 Accelerometer Drawing



9400 Accelerometer (EK-47090I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 15\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	0.5...6500 Hz	30...390000 cpm
Frequency range ($\pm 10\%$)	0.4...7500 Hz	22...450000 cpm
Frequency range (± 3 dB)	0.2...10500 Hz	12...630000 cpm
Resonant frequency, typical	25 kHz	1500 kcpm
Broadband resolution (1...10000 Hz), typical	491 $\mu\text{m/s}^2$	50 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54...121 °C	-65...250 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias)	≤ 8.0 s	≤ 8.0 s
Discharge time constant	≥ 1.0 s	≥ 1.0 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	2...20 mA	2...20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8...12V DC	8...12V DC
Spectral noise (10 Hz), typical	24.5 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	2.5 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	7.8 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	0.8 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	4.9 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	0.5 $\mu\text{g}/\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$

Attribute	Metric	Imperial
Physical		
Size (hex x height)	34.5 x 33.9 mm	1.36 x 1.33 in.
Weight, approx.	145 g	5.1 oz
Mounting	Through hole	Through hole
Mounting thread ⁽⁴⁾	1/4-28 male	1/4-28 male
Mounting torque	2.7...6.8 N•m	2...5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Side	Side

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

Supplied accessories include the following:

- 080B45 thermal boot
- 081A73 captive mounting bolt 1/4-28 x 1.34 in.
- ICS-3 3pt calibration 10 Hz, 100 Hz, 1 kHz

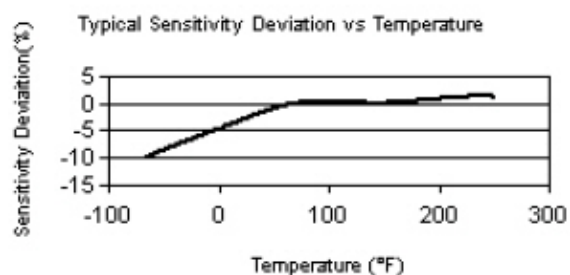
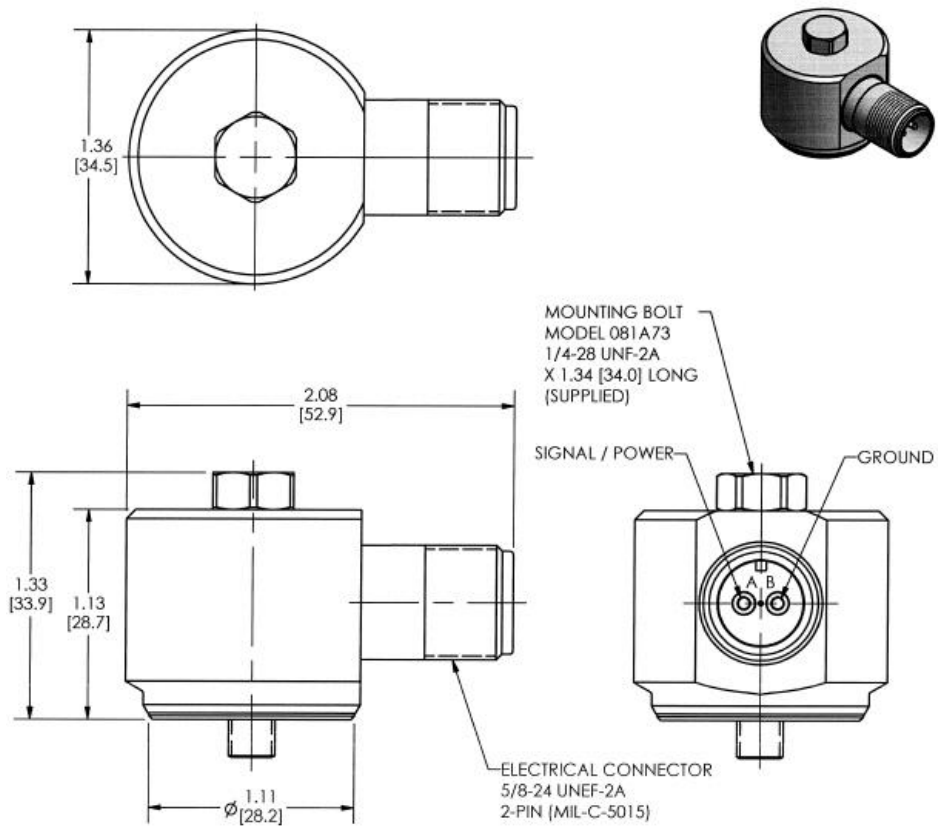


Figure 12 - 9400 Accelerometer Drawing

Notes:

9700A Accelerometer (EK-43799I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	1.02 mV/(m/s ²)	10 mV/g
Measurement range	$\pm 4905 \text{ m/s}^2$	$\pm 500 \text{ g}$
Frequency range ($\pm 10\%$) ⁽²⁾	3.4 ... 18000 Hz	204 ... 1080000 cpm
Frequency range ($\pm 3 \text{ dB}$)	1.6 ... 30000 Hz	96 ... 1800000 cpm
Resonant frequency, typical	85 kHz	5100 kcpm
Broadband resolution (1 ... 10000 Hz), typical	1176 $\mu\text{m/s}^2$	1.2 mg rms
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	$\pm 98100 \text{ m/s}^2 \text{ pk}$	$\pm 10000 \text{ g pk}$
Temperature range	-54 ... 121 °C	-65 ... +50 °F
Electrical		
Settling time (within 1% of bias)	$\leq 3.0 \text{ s}$	$\leq 3.0 \text{ s}$
Discharge time constant	$\geq 0.1 \text{ s}$	$\geq 0.1 \text{ s}$
Excitation voltage	18 ... 28V DC	18 ... 28V DC
Constant current excitation	2 ... 20 mA	2 ... 20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8 ... 12V DC	8 ... 12V DC
Spectral noise (10 Hz), typical	980 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	100 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	294 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	30 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	98.1 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	10 $\mu\text{g}/\sqrt{\text{Hz}}$

Attribute	Metric	Imperial
Physical		
Size (hex x height)	9.53 x 16.8 mm	3/8 x 0.66 in.
Weight, approx.	2.8 g	0.1 oz
Mounting thread ⁽⁴⁾	5-40 male	5-40 male
Mounting torque	203...226 N•cm	18...20 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Titanium	Titanium
Sealing	Welded hermetic	Welded hermetic
Electrical connector	5-44 coaxial jack	5-44 coaxial jack
Electrical connection position	Top	Top

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) Frequency response with adhesive base.

(3) Mounted resonance (nominal) without magnet.

(4) Zero-based, least-squares, straight line method.

Requires accelerometer cable, coaxial to BNC (cat. no. EK-46669).

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

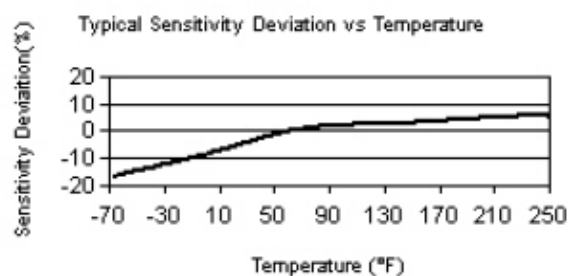
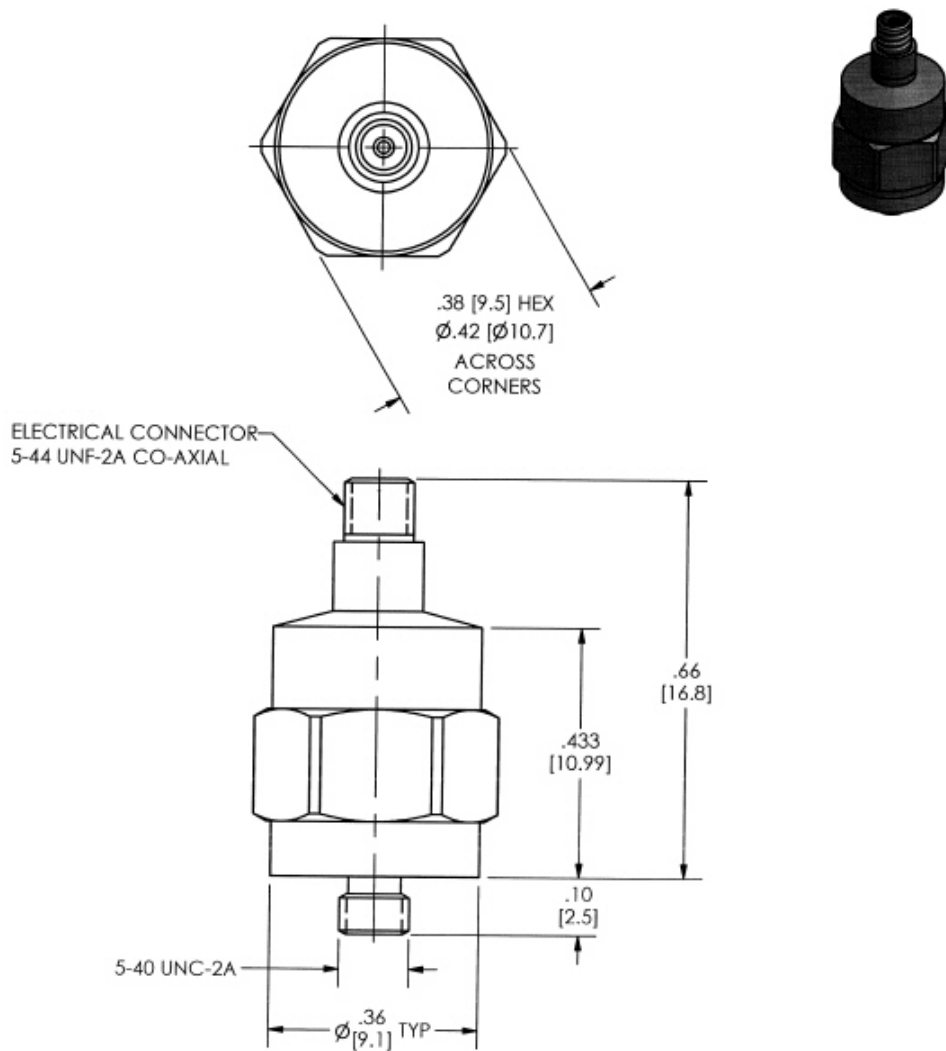


Figure 13 - 9700A Accelerometer Drawing



Notes:

9100L Accelerometer (EK-43794I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	51 mV/(m/s ²)	500 mV/g
Measurement range	± 98 m/s ²	± 10 g
Frequency range ($\pm 5\%$) ⁽²⁾	0.5 ... 2000 Hz	30 ... 120000 cpm
Frequency range ($\pm 10\%$)	0.3 ... 4000 Hz	18 ... 240000 cpm
Frequency range (± 3 dB)	0.2 ... 6000 Hz	12 ... 360000 cpm
Resonant frequency, typical	12 kHz	720 kcpm
Broadband resolution\ (1 ... 10000 Hz), typical	147 μ m/s ²	15 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 7\%$	$\leq 7\%$
Environmental		
Overload limit (shock)	24525 m/s ² pk	2500 g pk
Temperature range	-54 ... 121 °C	-65 ... 250 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias)	≤ 5 s	≤ 5 s
Discharge time constant	≥ 1.0 s	≥ 1.0 s
Excitation voltage	18 ... 28V DC	18 ... 28V DC
Constant current excitation	2 ... 20 mA	2 ... 20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8 ... 12V DC	8 ... 12V DC
Spectral noise (1 Hz), typical	29.4 (μ m/s ²)/ $\sqrt{\text{Hz}}$	3 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (10 Hz), typical	7.8 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.8 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	4.9 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.5 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	2.0 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.2 μ g/ $\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Electrical protection	RFI/ESD	RFI/ESD

Attribute	Metric	Imperial
Physical		
Size (hex x height)	30.2 x 56.1 mm	1.19 x 2.21 in.
Weight, approx. (without cable)	210 g	7.4 oz
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7...6.8 N•m	2...5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	316L stainless steel	316L stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A40 mounting stud
- 085A31 protective thermal jacket
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

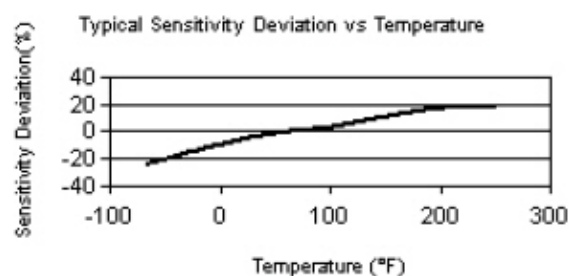
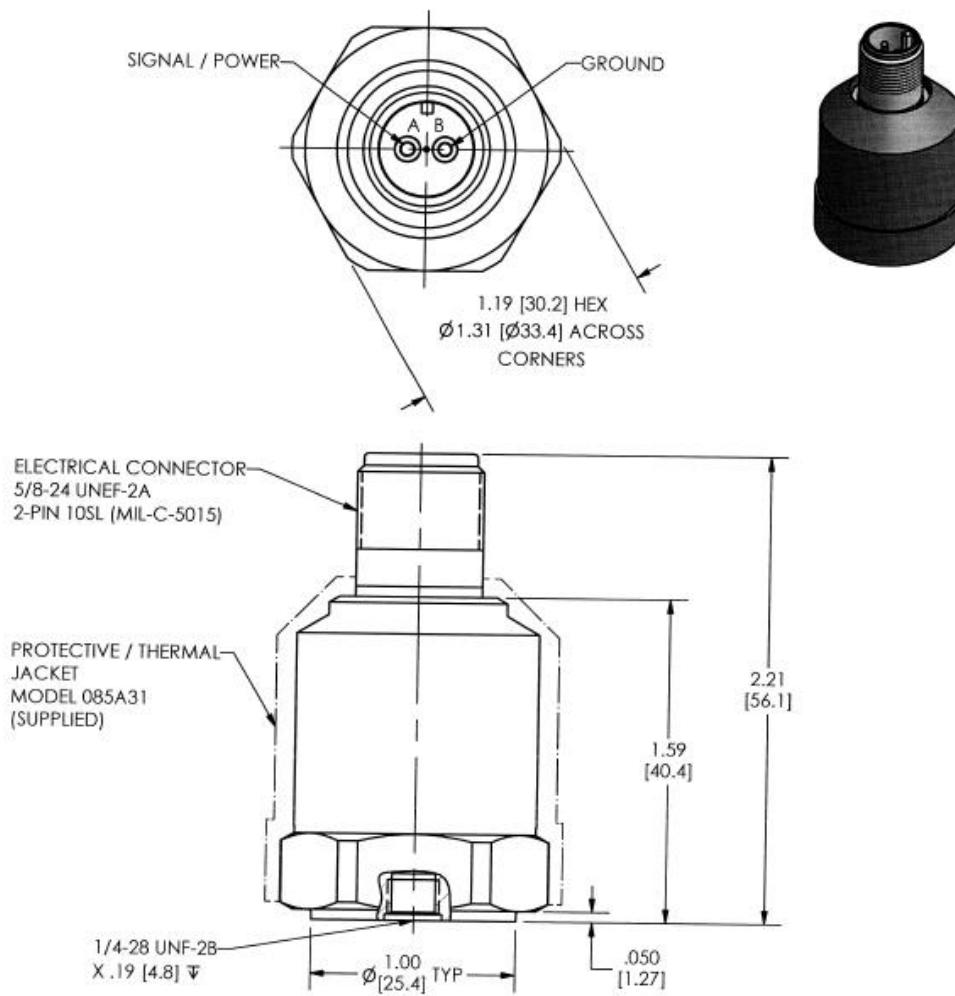


Figure 14 - 9100L Accelerometer Drawing



9200L Accelerometer (EK-43795I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	51 mV/(m/s ²)	500 mV/g
Measurement range	± 98 m/s ²	± 10 g
Frequency range ($\pm 5\%$) ⁽²⁾	0.5...2000 Hz	30...120000 cpm
Frequency range ($\pm 10\%$)	0.37...4000 Hz	22...240000 cpm
Frequency range (± 3 dB)	0.2...6000 Hz	12...360000 cpm
Resonant frequency, typical	12 kHz	720 kcpm
Broadband resolution (1...10000 Hz), typical	147 μ m/s ²	15 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 7\%$	$\leq 7\%$
Environmental		
Overload limit (shock)	24525 m/s ² pk	2500 g pk
Temperature range	-54...121 °C	-65...250 °F
Electrical		
Settling time (within 1% of bias)	≤ 4.5 s	≤ 4.5 s
Discharge time constant	≥ 1.0 s	≥ 1.0 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	2...20 mA	2...20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8...12V DC	8...12V DC
Spectral noise (10 Hz), typical	8.8 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.9 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	7.0 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.7 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	3.1 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.3 μ g/ $\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Physical		
Size (hex x height)	34.5 x 28.7 mm	1.36 x 1.13 in.
Weight, approx.	173 g	6.1 oz
Mounting thread ⁽⁴⁾	1/4-28 male	1/4-28 male
Mounting torque	2.7...6.8 N·m	2...5 lb·ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Side	Side

(1) Conversion factor 1g = 9.81 m/s².

(2) 1 Hz = 60 cpm (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 080B45 thermal boot
- 081A73 captive mounting bolt 1/4-28 x 1.34 in.
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

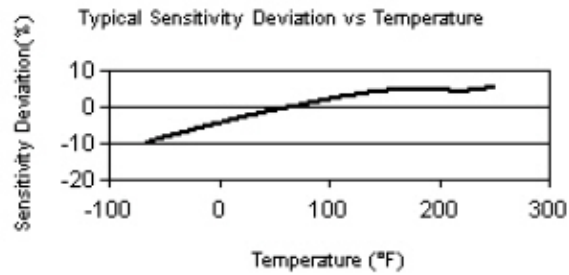
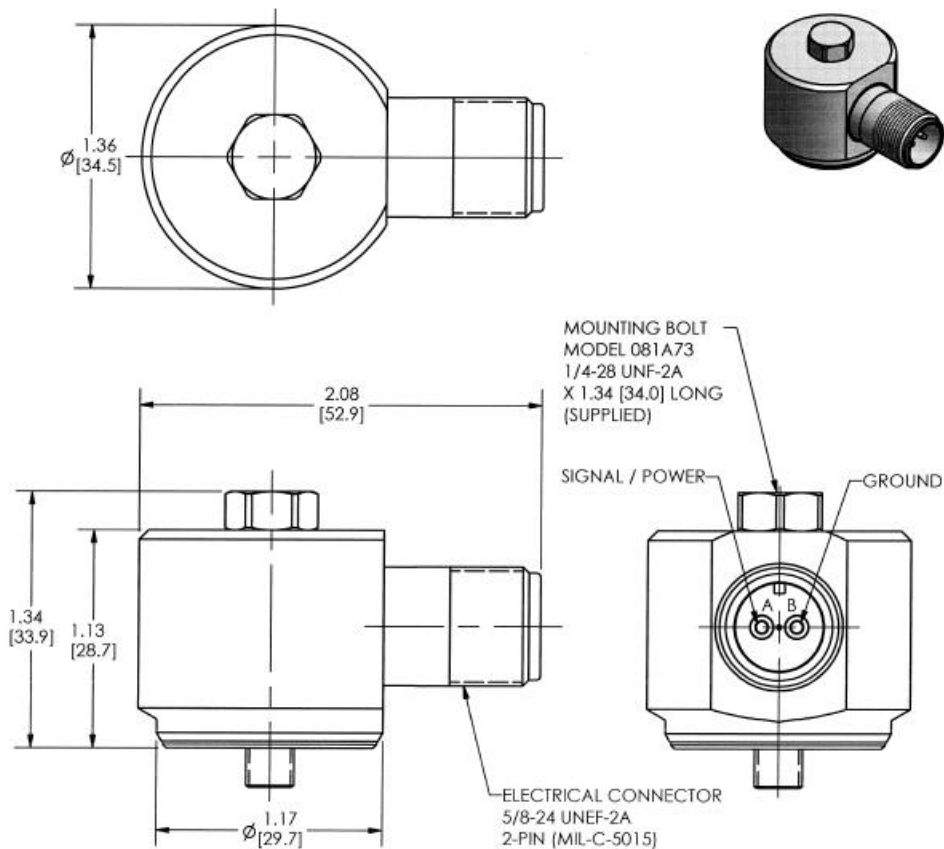


Figure 15 - 9200L Accelerometer Drawing



9500HLF Accelerometer (EK-43797I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	102 mV/(m/s ²)	1000 mV/g
Measurement range	± 49 m/s ²	± 5 g
Frequency range ($\pm 5\%$) ⁽²⁾	0.5 ... 2000 Hz	30 ... 120000 cpm
Frequency range ($\pm 10\%$)	0.3 ... 4000 Hz	18 ... 240000 cpm
Frequency range (± 3 dB)	0.2 ... 6000 Hz	12 ... 360000 cpm
Resonant frequency, typical	12 kHz	720 kcpm
Broadband resolution (1 ... 10000 Hz), typical	98 $\mu\text{m/s}^2$	10 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 7\%$	$\leq 7\%$
Environmental		
Overload limit (shock)	24525 m/s ² pk	2500 g pk
Temperature range	-54 ... 121 °C	-65 ... 250 °F
Electrical		
Settling time (within 1% of bias)	≤ 10 s	≤ 0 s
Discharge time constant	≥ 1.0 s	≥ 1.0 s
Excitation voltage	18 ... 28V DC	18 ... 28V DC
Constant current excitation	2 ... 20 mA	2 ... 20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8 ... 12V DC	8 ... 12V DC
Spectral noise (1 Hz), typical	24.5 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	2.5 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (10 Hz), typical	2.9 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	0.3 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	2.0 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	0.2 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	1.0 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	0.1 $\mu\text{g}/\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Electrical Protection	RFI/ESD	RFI/ESD

Attribute	Metric	Imperial
Physical		
Size (hex x height)	30.2 x 56.1 mm	1.19 x 2.21 in.
Weight, approx.	210 g	7.4 oz
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7...6.8 N·m	2...5 lb·ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	316L stainless steel	316L stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A40 mounting stud
- 085A31 protective thermal jacket
- ICS-3 3pt calibration 10 Hz, 100 Hz, 1 kHz

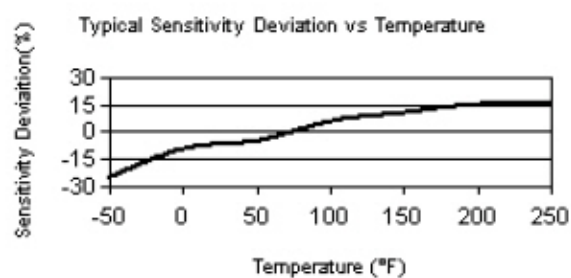
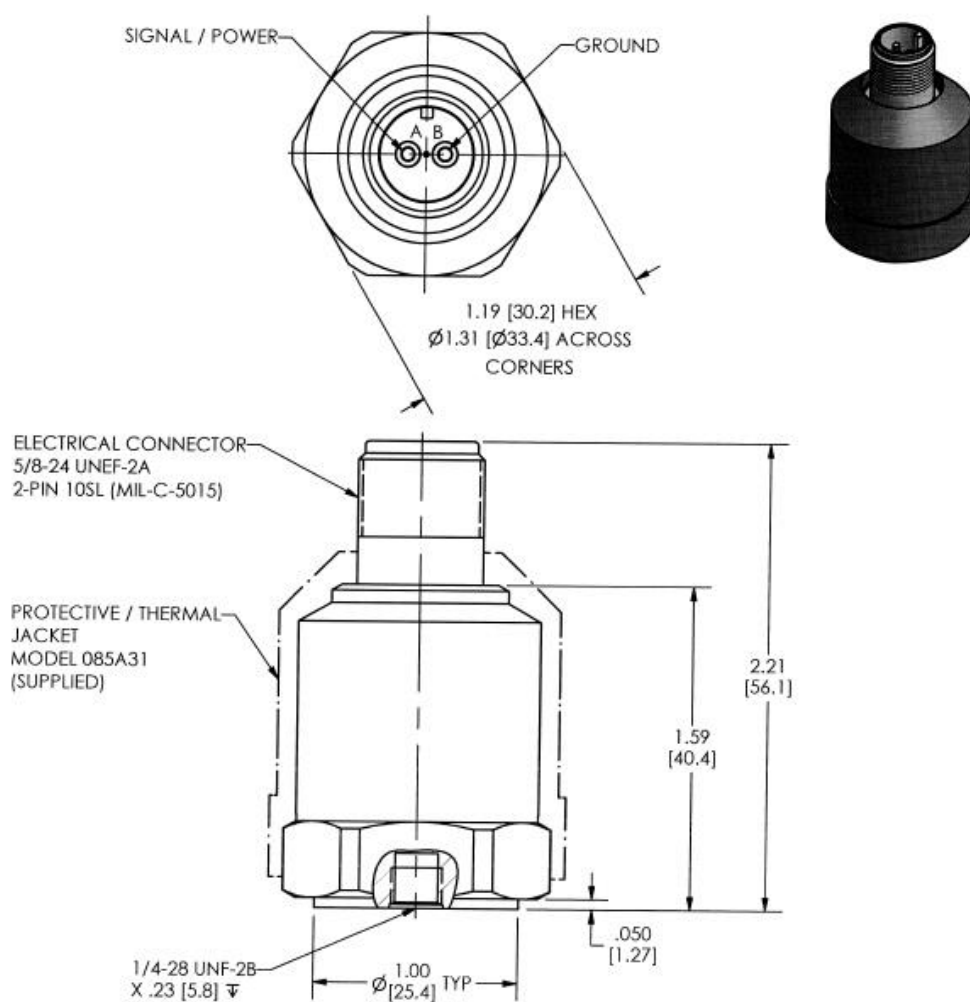


Figure 16 - 9500HLF Accelerometer Drawing



9100T Accelerometer (EK-43805I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	0.58...4000 Hz	35...240000 cpm
Frequency range ($\pm 10\%$)	0.42...5000 Hz	25...300000 cpm
Frequency range (± 3 dB)	0.2...10000 Hz	12...600000 cpm
Resonant frequency, typical	20 kHz	1200 kcpm
Broadband resolution (1...10000 Hz), typical	1472 $\mu\text{m/s}^2$	150 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54...163 °C	-65...325 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias)	≤ 5.0 s	≤ 5.0 s
Discharge time constant	≥ 0.8 s	≥ 0.8 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation ⁽⁴⁾	2...10 mA	2...10 mA
Output impedance	$< 700 \Omega$	$< 700 \Omega$
Output bias voltage ⁽⁵⁾	8...14V DC	8...14V DC
Spectral noise (10 Hz), typical	118 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	12 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	31.4 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	3.2 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	11.8 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	1.2 $\mu\text{g}/\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Electrical protection	RFI/ESD	RFI/ESD

Attribute	Metric	Imperial
Physical		
Size (hex x height)	22.8 x 50.8 mm	0.88 x 2.0 in.
Weight, approx.	93 g	3.3 oz
Mounting thread ⁽⁶⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7...6.8 N•m	2...5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) Maximum of 4 mA is recommended at temperatures above 121°C (250°F).

(5) Bias voltage increases with higher constant current.

(6) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

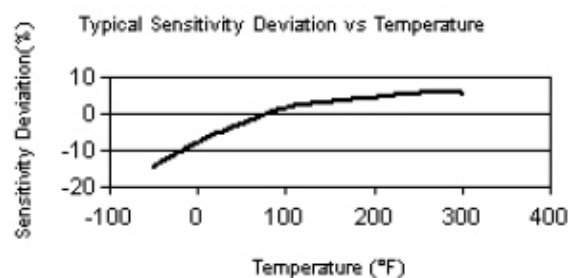
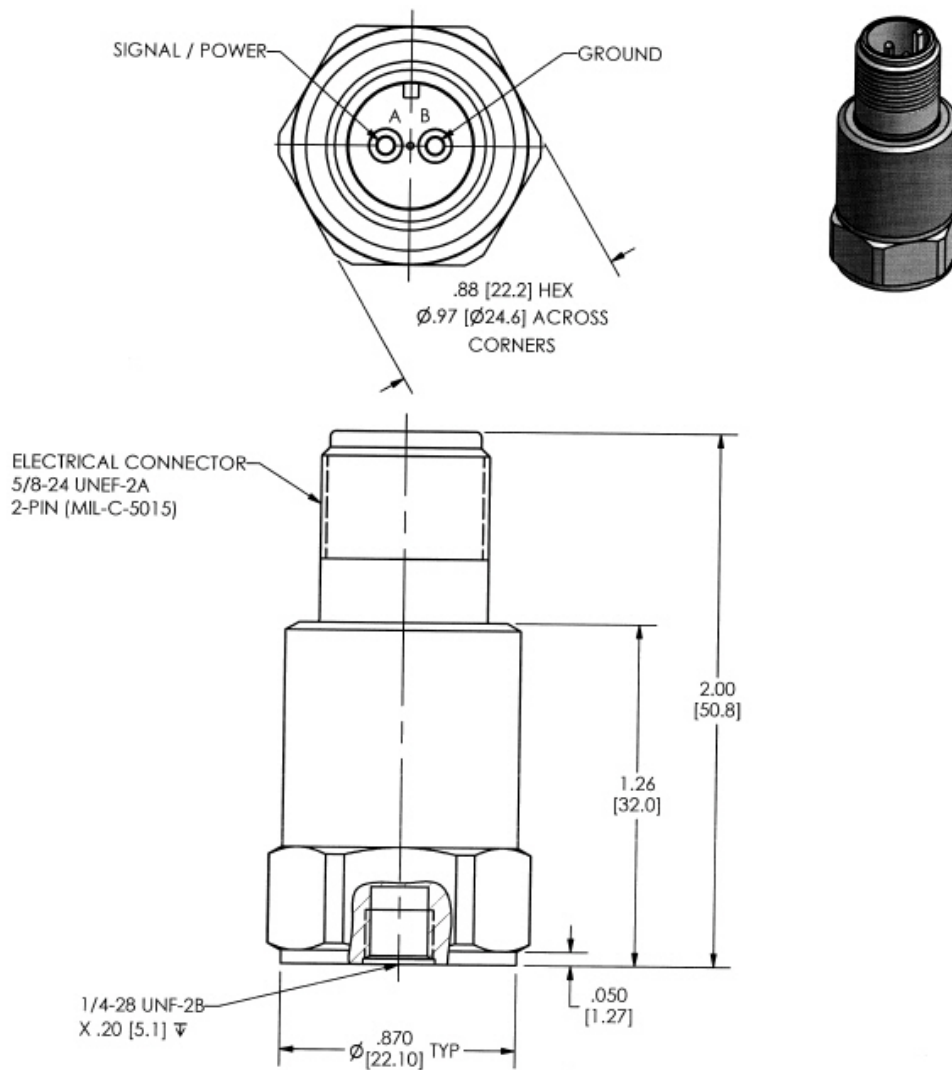


Figure 17 - 9100T Accelerometer Drawing



9150HT Accelerometer (EK-43807I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 15\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 245 m/s ²	± 25 g
Frequency range ($\pm 10\%$) ⁽²⁾	1.67...3000 Hz	100...180000 cpm
Frequency range (± 3 dB)	1...7000 Hz	60...420000 cpm
Resonant frequency, typical	30 kHz	1800 kcpm
Broadband resolution (1...10000 Hz), typical	11.8 μ m/s ²	120 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Temperature range ⁽⁴⁾	-54...260 °C	-65...500 °F
Enclosure rating	IP65	IP65
Electrical		
Settling time (at 70 °F within 1% of bias)	≤ 15.0 s	≤ 5.0 s
Settling time (at 500 °F within 1% of bias)	≤ 4.0 min	≤ 4.0 min
Discharge time constant	≥ 0.5 s	≥ 0.5 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	2...20 mA	2...20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8...12V DC	8...12V DC
Spectral noise (10 Hz) ¹	78.5 (μ m/s ²)/ $\sqrt{\text{Hz}}$	8 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (100 Hz) ¹	19.6 (μ m/s ²)/ $\sqrt{\text{Hz}}$	2 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (1 kHz) ¹	9.8 (μ m/s ²)/ $\sqrt{\text{Hz}}$	1 μ g/ $\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$

Attribute	Metric	Imperial
Physical		
Size (hex x height)	22.2 x 53.85 mm	0.88 x 2.12 in.
Mounting thread ⁽⁵⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7 ... 6.8 N•m	2 ... 5 lb•ft
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) Sensor end 260°C (500°F); in-line charge amplifier not to exceed 121°C (250°F).

(5) 1/4-28 has no equivalent in metric units.

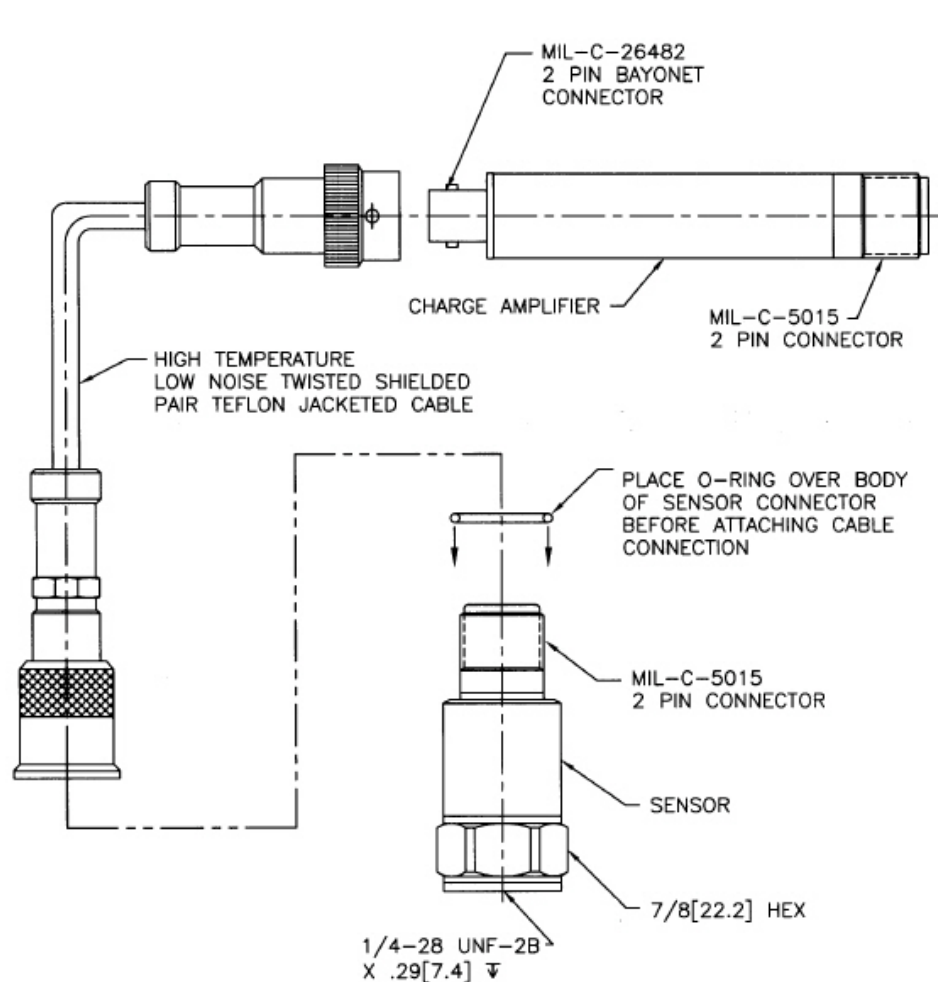
All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 045ER010CJ cable 3 m (10 ft) hi-temp 2 SKT to bayonet
- 081A40 mounting stud
- 422M134 in-line charge amplifier
- 612M02 accelerometer
- ICS-3 3pt calibration 10 Hz, 100 Hz, 1 kHz

Figure 18 - 9150HT Accelerometer Drawing



9150HTA Accelerometer (EK-46496)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 15\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 245 m/s ²	± 25 g
Frequency range ($\pm 10\%$) ⁽²⁾	1.67 ... 3000 Hz	100 ... 180000 cpm
Frequency range (± 3 dB)	1 ... 7000 Hz	60 ... 420000 cpm
Resonant frequency, typical	30 kHz	1800 kcpm
Broadband resolution (1 ... 10000 Hz), typical	11.8 μ m/s ²	120 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Temperature range ⁽⁴⁾	-54 ... 260 °C	-65 ... 500 °F
Enclosure rating	IP65	IP65
Electrical		
Settling time (at 70 °F within 1% of bias)	≤ 15.0 s	≤ 15.0 s
Settling time (at 500 °F within 1% of bias)	≤ 4.0 min	≤ 4.0 min
Discharge time constant	≥ 0.5 s	≥ 0.5 s
Excitation voltage	18 ... 28V DC	18 ... 28V DC
Constant current excitation	2 ... 20 mA	2 ... 20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8 ... 12V DC	8 ... 12V DC
Spectral noise (10 Hz), typical	78.5 (μ m/s ²)/ $\sqrt{\text{Hz}}$	8 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	19.6 (μ m/s ²)/ $\sqrt{\text{Hz}}$	2 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	9.8 (μ m/s ²)/ $\sqrt{\text{Hz}}$	1 μ g/ $\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$

Attribute	Metric	Imperial
Physical		
Size (hex x height)	22.2 x 53.85 mm	0.88 x 2.12 in.
Mounting thread ⁽⁵⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7 ... 6.8 N•m	2 ... 5 lb•ft
Housing material	Stainless steel	Stainless steel
Sealing	Welded Hermetic	Welded Hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) Sensor end 260°C (500°F); in-line charge amplifier not to exceed 121°C (250°F).

(5) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 045M06 cable
- 422M134 in-line charge amplifier
- 612M02 accelerometer
- ICS-3 3pt calibration 10 Hz, 100 Hz, 1 kHz

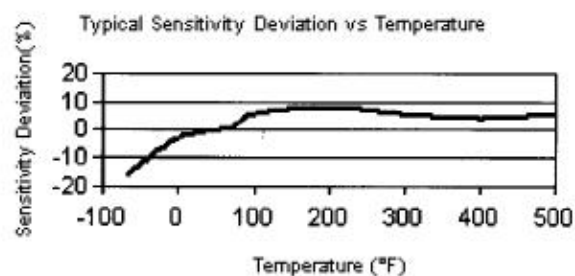
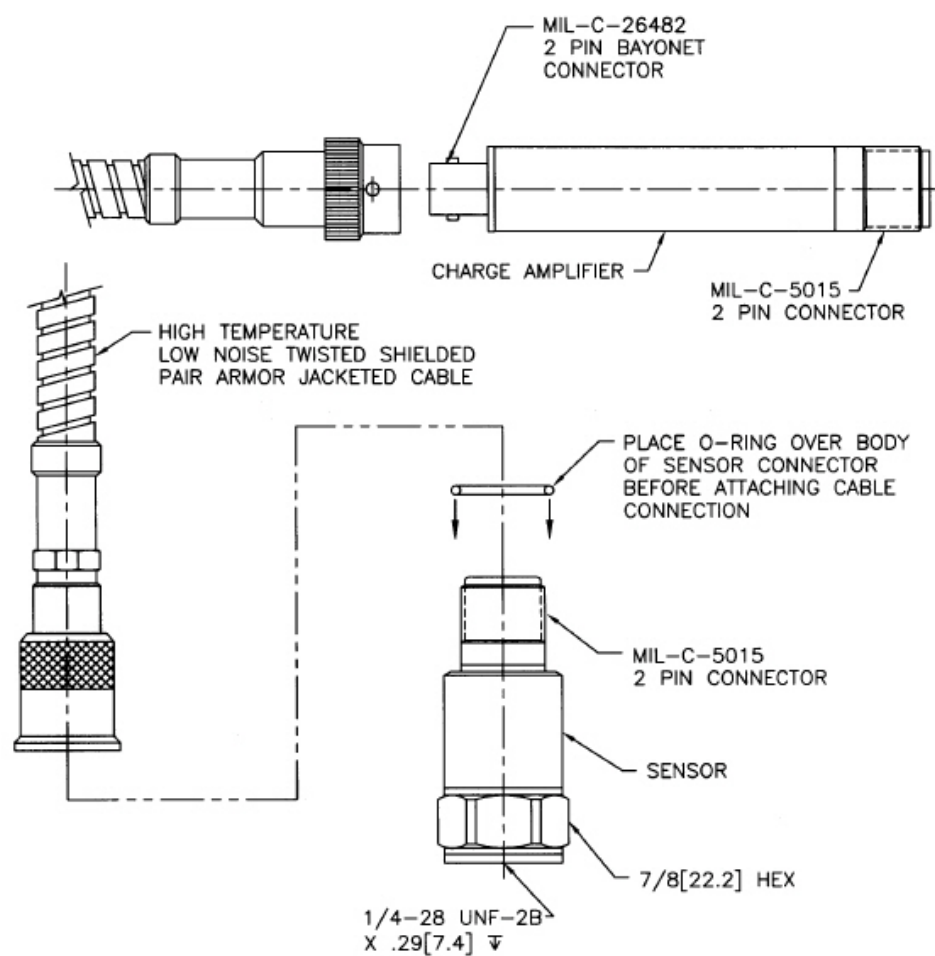


Figure 19 - 9150HTA Accelerometer Drawing



Notes:

9200AT Accelerometer (EK-43811I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	0.5...6500 Hz	30...390000 cpm
Frequency range ($\pm 10\%$)	0.4...7500 Hz	22...450000 cpm
Frequency range (± 3 dB)	0.2...10500 Hz	12...630000 cpm
Resonant frequency, typical	25 kHz	1500 kcpm
Broadband resolution (1...10000 Hz), typical	491 $\mu\text{m/s}^2$	50 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	2...121 °C	36...250 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias), typical	≤ 8.0 s	≤ 8.0 s
Discharge time constant	≥ 1.0 s	≥ 1.0 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	2...20 mA	2...20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8...12 VDC	8...12 VDC
Spectral noise (10 Hz), typical	24.5 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	2.5 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	7.8 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	0.8 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	4.9 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	0.5 $\mu\text{g}/\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$

Attribute	Metric	Imperial
Physical		
Size (hex x height)	34.5 x 28.7 mm	1.36 x 1.13 in.
Weight, approx.	145 g	5.1 oz
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7 ... 6.8 N•m	2 ... 5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Three-pin MIL-C-5015
Electrical connections (pin A)	Acceleration output	Acceleration output
Electrical connections (pin B)	Ground	Ground
Electrical connections (pin C)	Temperature output	Temperature output

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 080B45 thermal boot
- 081A73 captive mounting bolt 1/4-28 x 1.34 in.
- ICS-3 3pt calibration 10 Hz, 100 Hz, 1 kHz

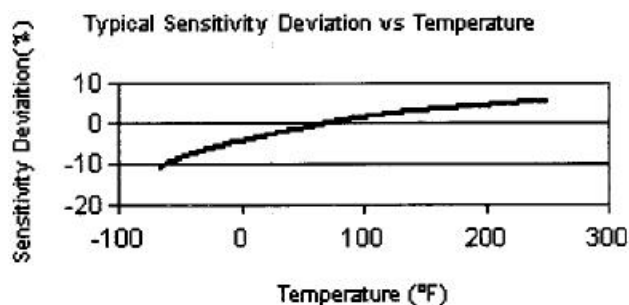
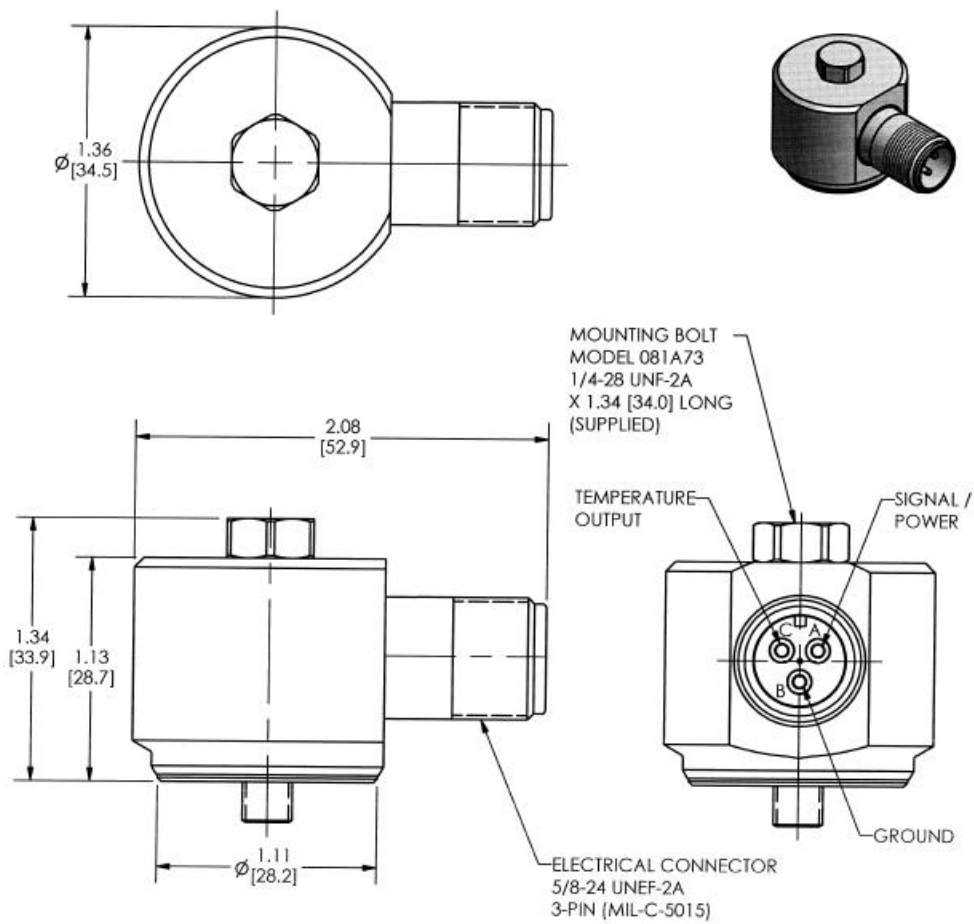


Figure 20 - 9200AT Accelerometer Drawing

9100V0 Accelerometer (EK-43808I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	3937 mV/m/s	100 mV/in/s
Measurement range	± 1.27 m/s	± 50 in/s
Frequency range ($\pm 10\%$) ⁽²⁾	4...4500 Hz	240...270000 cpm
Frequency range (± 3 dB)	3...9000 Hz	180...540000 cpm
Resonant frequency, typical	20 kHz	1200 kcpm
Broadband resolution (1...10000 Hz), typical	11.4 μ m/s	450 μ in/s
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54...121 °C	-65...250 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias)	≤ 30 s	≤ 30 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation, typical	2...10 mA	2...10 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage, typical	8...12 VDC	8...12 VDC
Spectral noise (10 Hz), typical	1.12 μ m/s/ $\sqrt{\text{Hz}}$	40.0 μ in/s/ $\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	0.18 μ m/s/ $\sqrt{\text{Hz}}$	7.0 μ in/s/ $\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	0.01 μ m/s/ $\sqrt{\text{Hz}}$	0.4 μ in/s/ $\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Electrical protection	RFI/ESD	RFI/ESD

Attribute	Metric	Imperial
Physical		
Size (hex x height)	22 x 52.3 mm	0.88 x 2.06 in.
Weight, approx.	93 g	3.3 oz
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7...6.8 N·m	2...5 lb·ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor 1 in/s = 0.0254 m/s

(2) 1 Hz = 60 cpm (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-3 3pt calibration 10 Hz, 100 Hz, 1 kHz

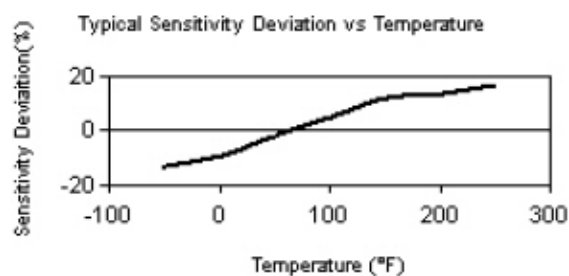
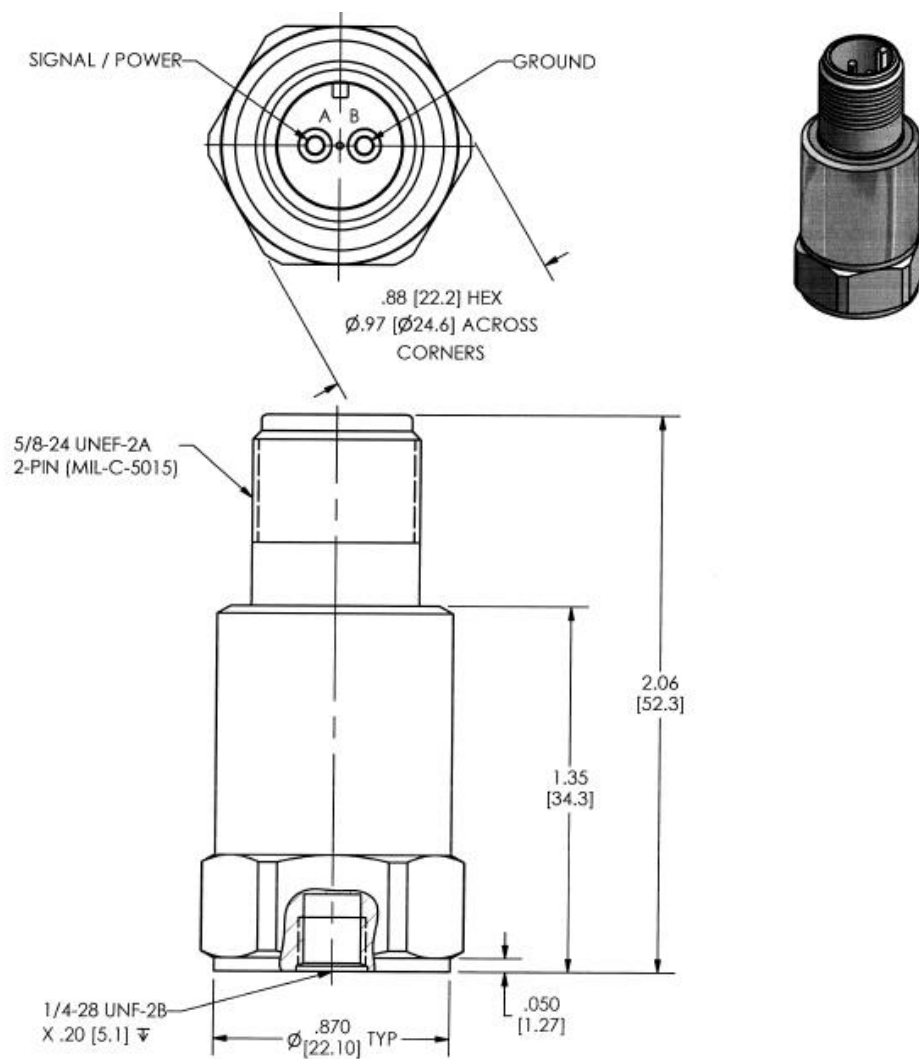


Figure 21 - 9100V0 Accelerometer Drawing



9200V0 Accelerometer (EK-43809I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	3937 mV/m/s	100 mV/in/s
Measurement range	± 1.27 m/s	± 50 in/s
Frequency range ($\pm 10\%$) ⁽²⁾	2...2500 Hz	120...150000 cpm
Frequency range (± 3 dB)	1.5...6000 Hz	90...360000 cpm
Resonant frequency, typical	10 kHz	600 kcpm
Broadband resolution (1...10000 Hz), typical	10.6 μ m/s	400 μ in/s
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 8\%$	$\leq 8\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54...121 °C	-65...250 °F
Enclosure rating	IP68	IP68
Electrical		
Settling time (within 1% of bias)	≤ 30 s	≤ 30 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation, typical	2...10 mA	2...10 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage, typical	8...12V DC	8...12V DC
Spectral noise (10 Hz), typical	0.64 μ m/s/ $\sqrt{\text{Hz}}$	25.0 μ in/s/ $\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	0.08 μ m/s/ $\sqrt{\text{Hz}}$	3.0 μ in/s/ $\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	0.01 μ m/s/ $\sqrt{\text{Hz}}$	0.5 μ in/s/ $\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Electrical protection	RFI/ESD	RFI/ESD
Physical		
Size (hex x height)	34.9 x 28.7 mm	1.375 x 1.13 in.
Weight, approx.	215 g	7.6 oz
Mounting	Through hole	Through hole
Mounting thread ⁽⁴⁾	1/4-28 male	1/4-28 male
Mounting torque	2.7...6.8 N-m	2...5 lb-ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Side	Side

(1) Conversion factor 1 in/s = 0.0254 m/s

(2) 1 Hz = 60 cpm (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A57 captive mounting bolt 1/4-28 x 1 in.
- 085A34 protective thermal jacket
- ICS-3 3pt calibration 10 Hz, 100 Hz, 1 kHz

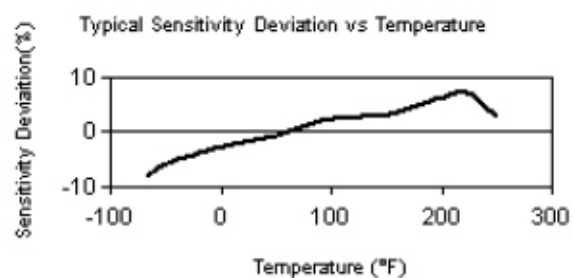
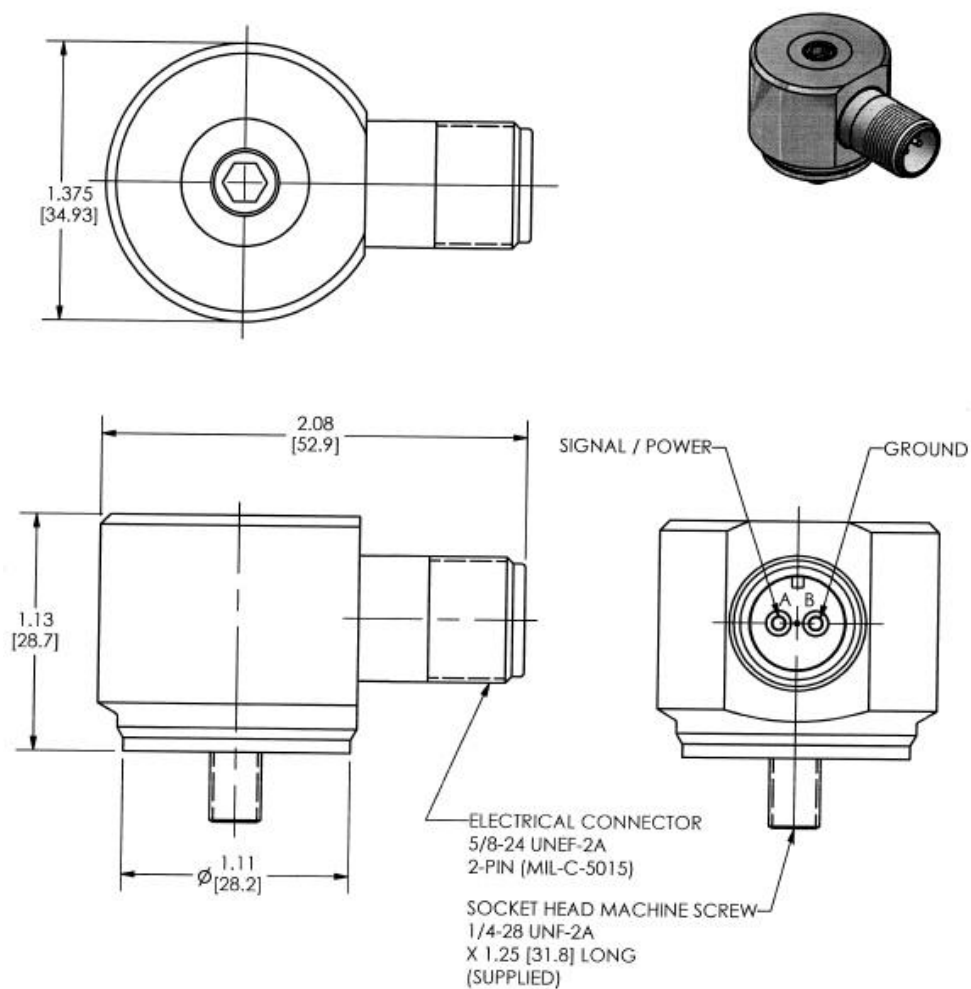


Figure 22 - 9200V0 Accelerometer Drawing



9100CSA Accelerometer (EK-43786I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	0.58...4000 Hz	35...240000 cpm
Frequency range ($\pm 10\%$)	0.42...5000 Hz	25...300000 cpm
Frequency range (± 3 dB)	0.2...10000 Hz	12...600000 cpm
Resonant frequency, typical	20 kHz	1200 kcpm
Broadband resolution (1...10000 Hz), typical	490 μ m/s ²	50 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54...121 °C	-65...250 °F
Enclosure rating	IP68	IP68
Hazardous area approval ⁽⁴⁾	CSA Intrinsically Safe	CSA Intrinsically Safe
Electrical		
Settling time (within 1% of bias)	≤ 5.0 s	≤ 5.0 s
Discharge time constant	≥ 0.8 s	≥ 0.8 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	2...20 mA	2...20 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	8...12V DC	8...12V DC
Spectral noise (10 Hz), typical	39.2 (μ m/s ²)/ $\sqrt{\text{Hz}}$	4.0 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	7.85 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.8 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	3.92 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.4 μ g/ $\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Electrical protection	ESD	ESD

Attribute	Metric	Imperial
Physical		
Size (hex x height)	22 x 52.3 mm	0.88 x 2.06 in.
Weight, approx.	93 g	3.3 oz
Mounting thread ⁽⁵⁾	1/4-28 female	1/4-28 female
Mounting torque	2.7...6.8 N•m	2...5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) Division 1; Class I; Group A, B, C & D; Temperature Code T4.

(5) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

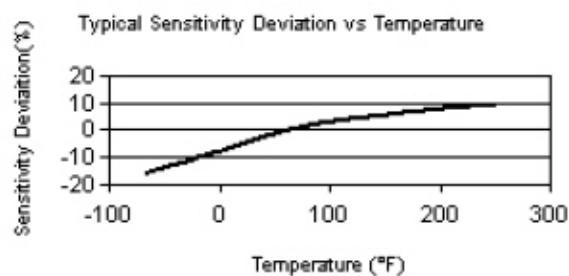
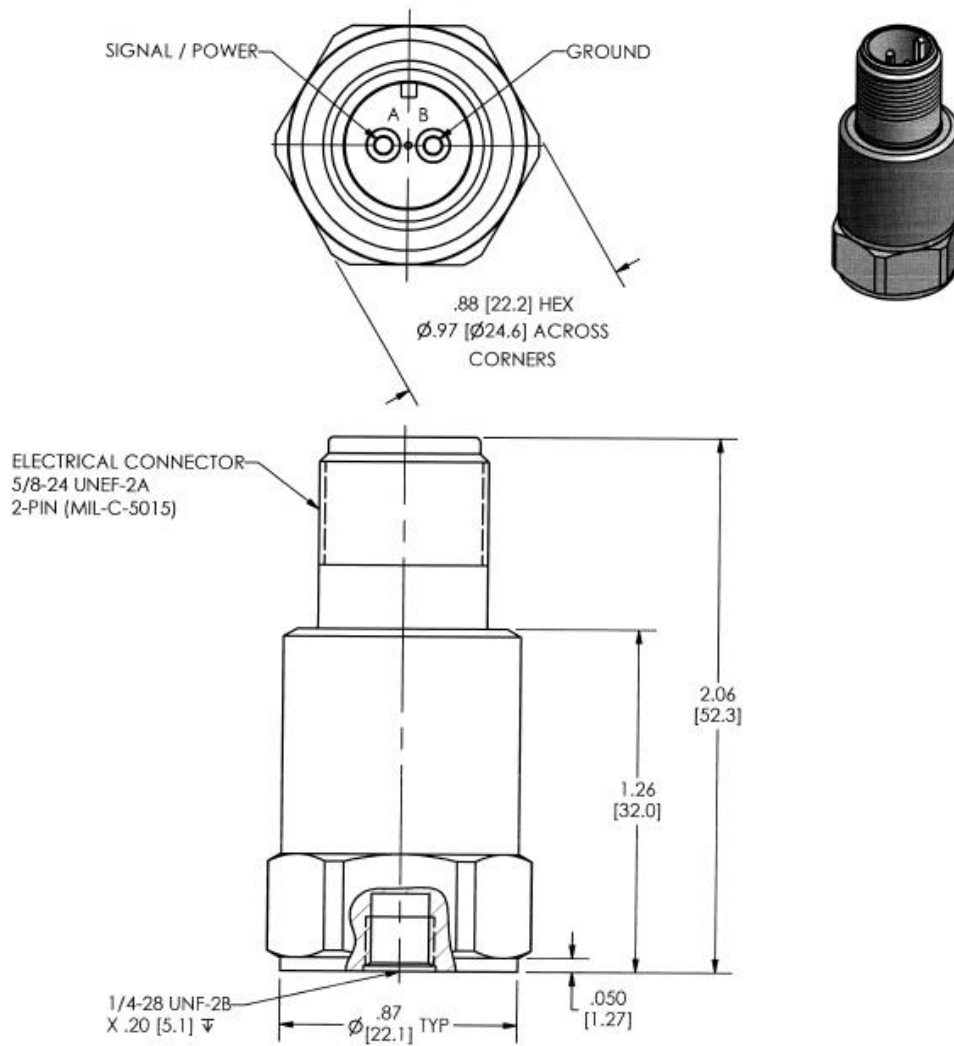


Figure 23 - 9100CSA Accelerometer Drawing



9100EX Accelerometer (EK-43787)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 784 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	1.5...5000 Hz	90...300000 cpm
Frequency range ($\pm 10\%$)	1...7000 Hz	60...420000 cpm
Frequency range (± 3 dB)	0.5...15000 Hz	30...900000 cpm
Resonant frequency, typical	25 kHz	1500 kcpm
Broadband resolution (2.5...25 k Hz), typical	5880 $\mu\text{m/s}^2$	600 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-46...49 °C	-50...20 °F
Hazardous area approval	EX ia IIC T4 ATEX II 1G	EX ia IIC T4 ATEX II 1G
Electrical		
Excitation voltage	18...30V DC	18...30V DC
Constant current excitation	2...10 mA	2...10 mA
Output impedance	$< 100 \Omega$	$< 100 \Omega$
Output bias voltage	12V DC	2V DC
Spectral noise (10 Hz) ¹	79 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	8 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz) ¹	49 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	5 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz) ¹	49 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	5 $\mu\text{g}/\sqrt{\text{Hz}}$
Grounding	Case isolated, internally shielded	Case isolated, internally shielded
Physical		
Size (hex x height)	25 x 56.9 mm	1 x 2.42 in.
Weight, approx.	93 g	3.3 oz
Mounting thread ⁵	1/4-28 female	1/4-28 female
Mounting torque	2.7...6.8 N·m	2...5 lb·ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top

(1) Conversion factor 1g = 9.81 m/s².

(2) 1 Hz = 60 cpm (cycles per minute).

(3) Zero-based, least-squares, straight line method.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

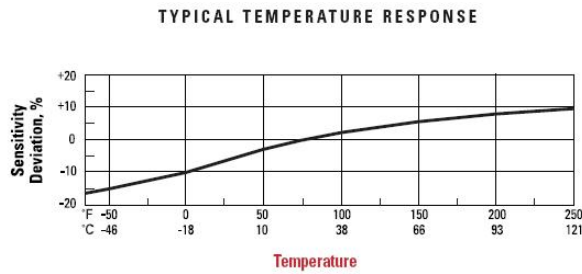
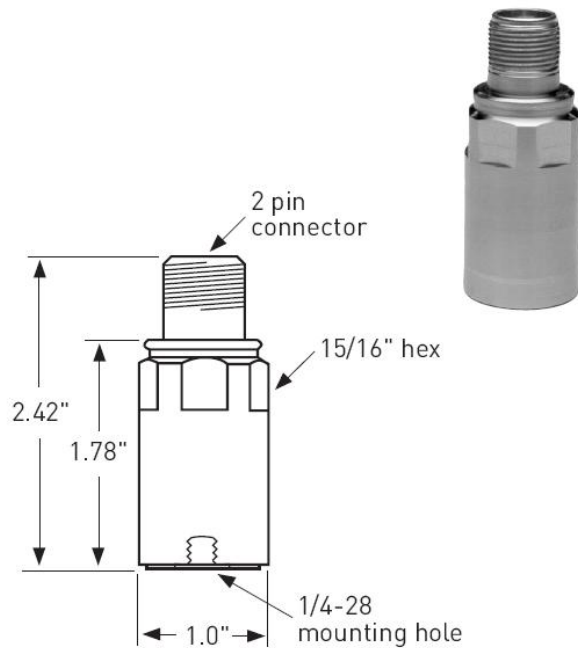


Figure 24 - 9100EX Accelerometer Drawing



9842VCRT Accelerometer (EK-48964)

Attribute	Metric	Imperial
Performance		
Measurement range ⁽¹⁾	0.0 ... 25.4 mm/s pk	0.0 ... 1.0 in/s pk
Output	4-20 mA	4-20 mA
Broadband resolution, typical	0.13 mm/s pk	0.005 in/s pk
Frequency range ($\pm 10\%$) ^{(2) (3)}	3 ... 1000 Hz	180 ... 60000 cpm
Non-linearity	$\pm 1\%$	$\pm 1\%$
Environmental		
Temperature range	-40 ... 85 °C	-40 ... 185 °F
Hazardous area approval	EEX ia IIC T4, -40 °C $\leq$ Ta $\leq$ 80 °C, II 1 G	EEX ia IIC T4, -40 °C $\leq$ Ta $\leq$ 8 °C, II 1 G
Hazardous area approval	EEX nL IIC T4, -40 °C $\leq$ Ta $\leq$ 80 °C, II 3 G	EEX nL IIC T4, -40 °C $\leq$ Ta $\leq$ 80 °C, II 3 G
Hazardous area approval	DIV I CL I, II, III, GRPS A-G, ExnI, AExia, IIC T4	DIV I CL I, II, III, GRPS A-G, ExnI, AExia, IIC T4
Hazardous area approval	DIV II, CL I GRPS A-D, ExnL, AExnA, IIC T4	DIV II, CL I GRPS A-D, ExnL, AExnA, IIC T4
Electrical		
Settling time (within 1% of bias)	≤ 60 s	≤ 60 s
Excitation voltage	15 ... 30V DC	15 ... 30V DC
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Physical		
Size (hex x height)	22 x 63 mm	0.88 x 2.48 in.
Weight, approx.	90 g	3.17 oz
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Top	Top
Electrical connections (pin A)	4 ... 20 mA Pos (+)	4 ... 20 mA Pos (+)
Electrical connection (pin B)	4 ... 20 mA Neg (-)	4 ... 20 mA Neg (-)

(1) Conversion factor 1 in/s = 0.0254 m/s.

(2) Current will fluctuate at frequencies below 5 Hz.

(3) 1 Hz = 60 cpm (cycles per minute)

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

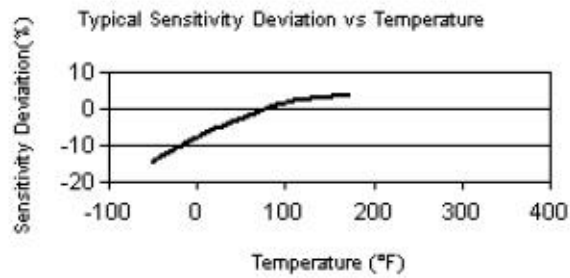
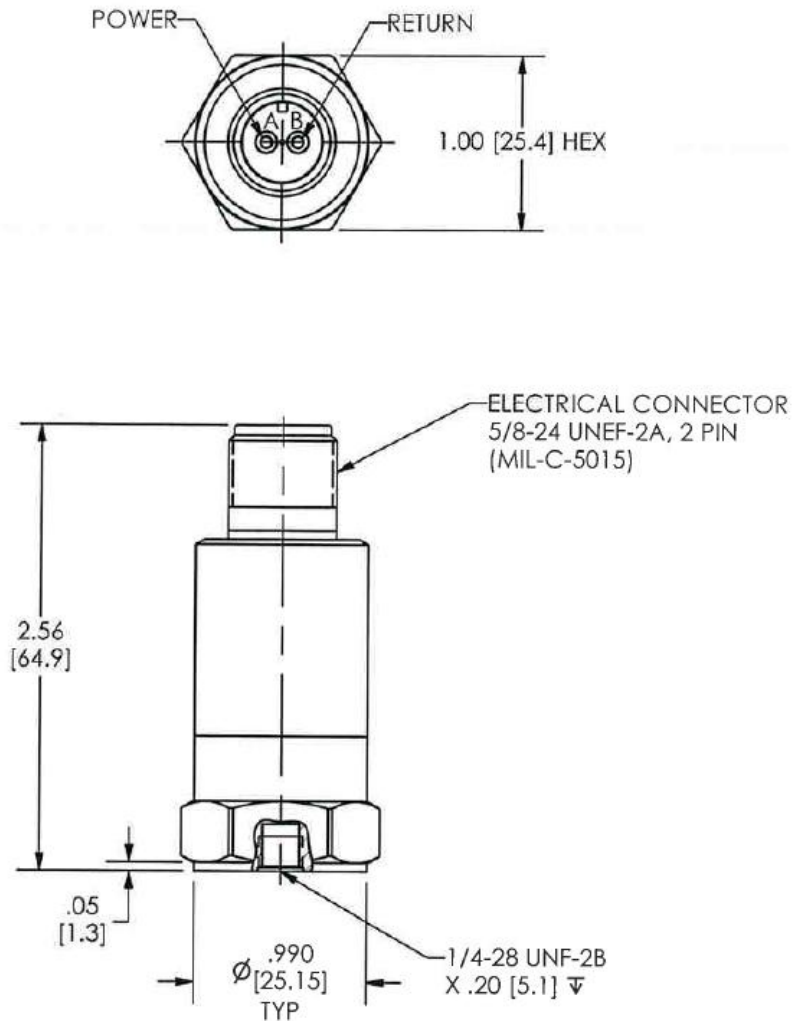


Figure 25 - 9842VCRT Accelerometer Drawing



9200CSA Accelerometer (EK-43790I)

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	0.5 ... 6500 Hz	30 ... 390000 cpm
Frequency range ($\pm 10\%$)	0.4 ... 7500 Hz	22 ... 450000 cpm
Frequency range (± 3 dB)	0.2 ... 10500 Hz	12 ... 630000 cpm
Resonant frequency, typical	25 kHz	1500 kcpm
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-54 ... 121 °C	-65 ... 250 °F
Enclosure rating	IP68	IP68
Hazardous area approval ⁽⁴⁾	CSA Intrinsically Safe	CSA Intrinsically Safe
Electrical		
Settling time (within 1% of bias)	≤ 8.0 s	≤ 8.0 s
Discharge time constant	≥ 1.0 s	≥ 1.0 s
Excitation voltage	18 ... 28V DC	18 ... 28V DC
Constant current excitation	2 ... 20 mA	2 ... 20 mA
Output impedance	< 100 Ω	< 100 Ω
Output bias voltage	8 ... 12V DC	8 ... 12V DC
Broadband electrical noise (1 ... 10 kHz)	50 μ V	50 μ V
Spectral noise (10 Hz), typical	24.5 (μ m/s ²)/ $\sqrt{\text{Hz}}$	2.5 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	7.8 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.8 μ g/ $\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	4.9 (μ m/s ²)/ $\sqrt{\text{Hz}}$	0.5 μ g/ $\sqrt{\text{Hz}}$
Electrical isolation (case)	$> 10^8$ Ω	$> 10^8$ Ω

Attribute	Metric	Imperial
Physical		
Size (hex x height)	34.5 x 52.9 mm	1.36 x 2.08 in.
Weight, approx.	145 g	5.1 oz
Mounting	Through hole	Through hole
Mounting thread ⁽⁵⁾	1/4-28 male	1/4-28 male
Mounting torque	2.7...6.8 N•m	2...5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Side	Side

(1) Conversion factor $1g = 9.81 \text{ m/s}^2$.

(2) $1 \text{ Hz} = 60 \text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) Division 1; Class I; Group A, B, C & D; Temperature Code T4.

(5) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 080B45 thermal boot
- 081A73 captive mounting bolt 1/4-28 x 1.34 in.
- ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

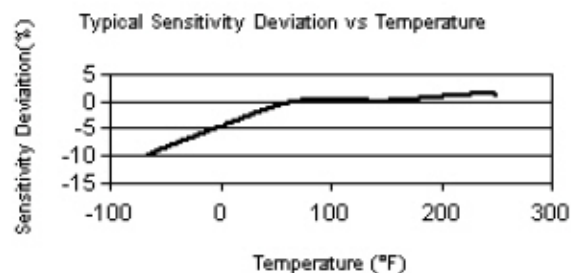
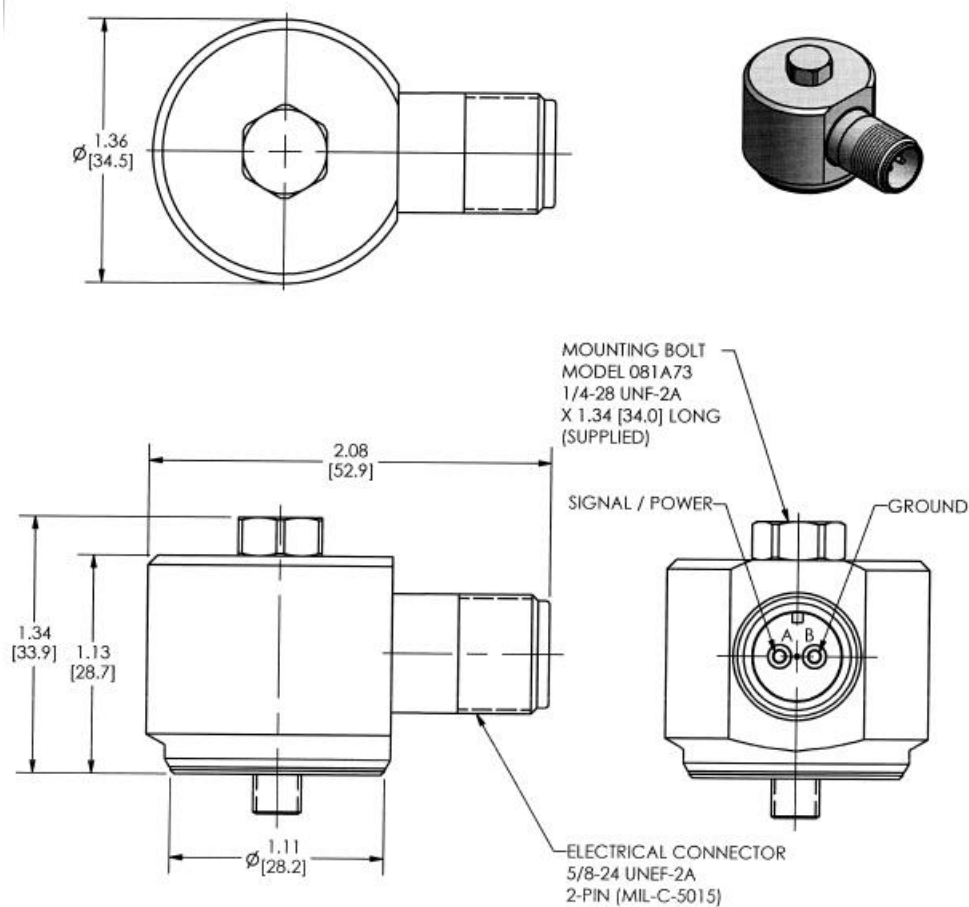


Figure 26 - 9200CSA Accelerometer Drawing**9200EX Accelerometer (EK-43791)**

Attribute	Metric	Imperial
Performance		
Sensitivity ($\pm 5\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 490 m/s ²	± 50 g
Frequency range ($\pm 5\%$) ⁽²⁾	3...5000 Hz	180...300000 cpm
Frequency range ($\pm 10\%$)	2...7000 Hz	180...420000 cpm
Frequency range (± 3 dB)	1...12000 Hz	60...720000 cpm
Resonant frequency, typical	26 kHz	1560 kcpm
Broadband resolution (2.5...25 kHz), typical	5880 μ m/s ²	600 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-46...49 °C	-50...120 °F

Attribute	Metric	Imperial
Hazardous area approval	Sira Ex ia IIC T4 ATEX II 1G	Sira Ex ia IIC T4 ATEX II 1G
Electrical		
Excitation voltage	18...30V DC	18...30V DC
Constant current excitation	2...10 mA	2...10 mA
Output impedance	< 100 Ω	< 100 Ω
Output bias voltage	8...12V DC	8...12V DC
Spectral noise (10 Hz), typical	79 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	8 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (100 Hz), typical	49 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	5 $\mu\text{g}/\sqrt{\text{Hz}}$
Spectral noise (1 kHz), typical	49 ($\mu\text{m/s}^2$)/ $\sqrt{\text{Hz}}$	5 $\mu\text{g}/\sqrt{\text{Hz}}$
Grounding	Case isolated, internally shielded	Case isolated, internally shielded
Physical		
Size (hex x height)	41.9 x 54.6 mm	1.65 x 2.15 in.
Weight, approx.	138 g	4.87 oz
Mounting thread ⁽⁴⁾	1/4-28 male	1/4-28 male
Mounting torque	2.7...6.8 N•m	2...5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	Side	Side

(1) Conversion factor $1\text{g} = 9.81\text{ m/s}^2$.

(2) $1\text{ Hz} = 60\text{ cpm}$ (cycles per minute).

(3) Zero-based, least-squares, straight line method.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz

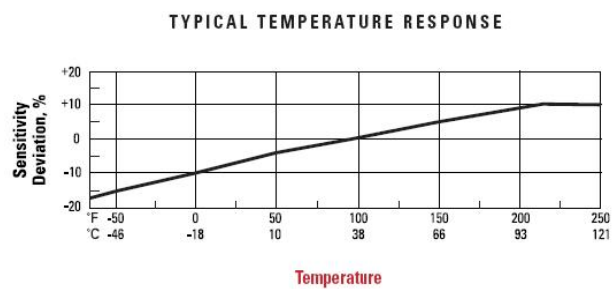
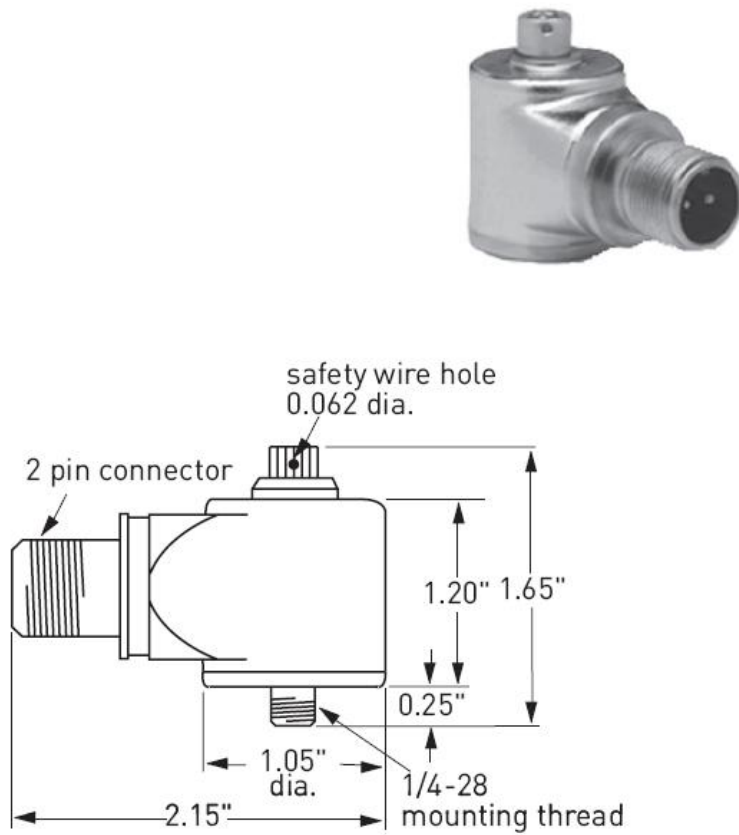


Figure 27 - 9200EX Accelerometer Drawing

Notes:

9842V Accelerometer (EK-48958)

Attribute	Metric	Imperial
Performance		
Measurement range ⁽¹⁾	0.0...25.4 mm/s pk	0.0...1 in/s pk
Output	4...20 mA	4...20 mA
Frequency range ($\pm 10\%$) ^{(2) (3)}	3...1000 Hz	180...60000 cpm
Broadband resolution (1...10000 Hz), typical	0.13 mm/s pk	0.005 in/s pk
Non-linearity	$\pm 1\%$	$\pm 1\%$
Environmental		
Temperature range	-40...85 °C	-40...185 °F
Electrical		
Excitation voltage	12...30V DC	12...30V DC
Settling time (within 2% of value)	<15 s	<15 s
Electrical isolation (case)	$> 10^8 \Omega$	$> 10^8 \Omega$
Physical		
Size (hex x height)	25.4 x 66 mm	1.0 x 2.6 in.
Weight, approx.	131 g	4.7 oz
Mounting thread ⁽⁴⁾	1/4-28 female	1/4-28 female
Mounting torque	4...7 N•m	3...5 lb•ft
Sensing element	Ceramic	Ceramic
Sensing geometry	Shear	Shear
Housing material	Stainless steel	Stainless steel
Sealing	Welded hermetic	Welded hermetic
Electrical connector	Two-pin MIL-C-5015	Two-pin MIL-C-5015
Electrical connection position	top	Top
Electrical connections (pin A)	4...20 mA Pos (+)	4...20 mA Pos (+)
Electrical connections (pin B)	4...20 mA Neg (-)	4...20 mA Neg (-)

(1) Conversion factor 1 in./s = 0.0254 m/s.

(2) 1 Hz = 60 cpm (cycles per minute).

(3) Current will fluctuate at frequencies below 5 Hz.

(4) 1/4-28 has no equivalent in metric units.

All specifications are at room temperature unless otherwise specified.

See Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.

Supplied accessories include the following:

- 081A40 mounting stud
- ICS-4 NIST-traceable single-axis amplitude response calibration from 0 cpm (0 Hz) to upper 10% frequency for 4...20 mA output vibration sensor

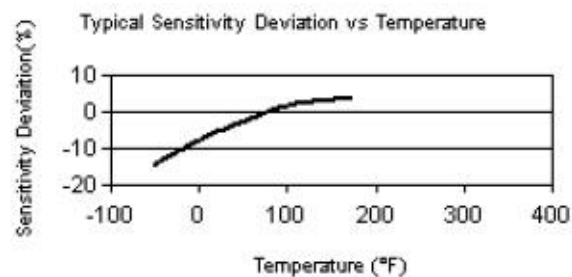
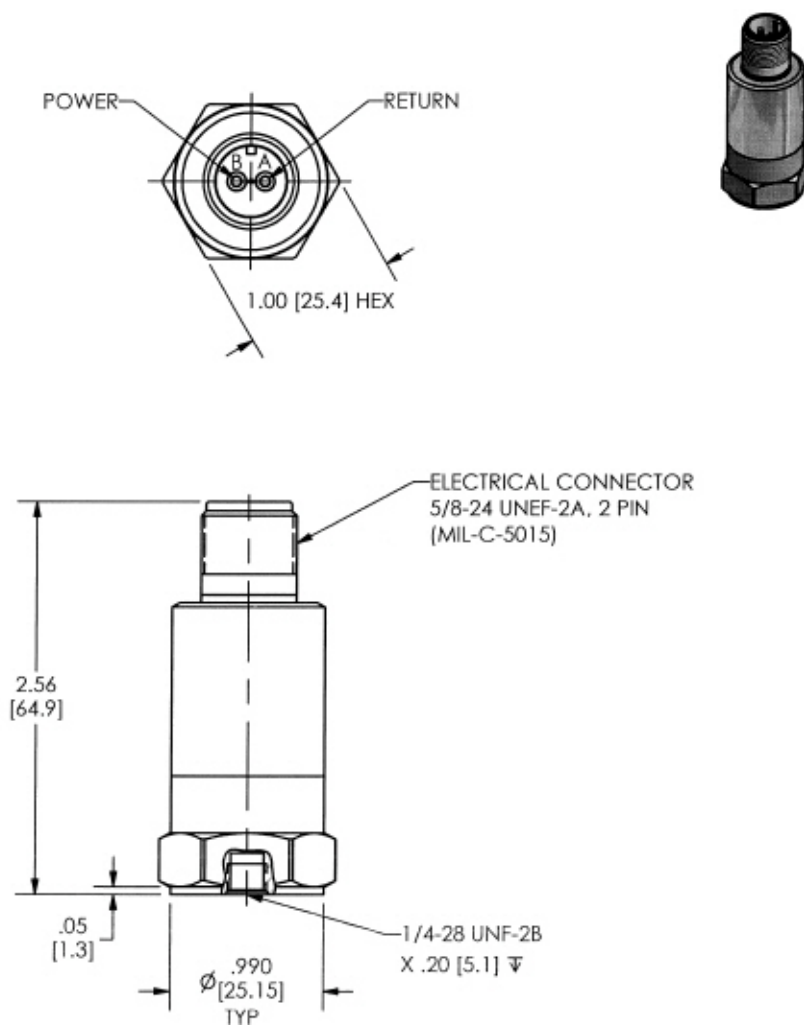


Figure 28 - 9842V Accelerometer Drawing



Accessories

Table 1 - Splash Proof Cables for Two-pin Sensors

Cat. No.	Description
EK-468001	Accelerometer cable, splash proof, MS-C-5015 environmental molded boot connector to blunt cut, two conductor, shielded (braid), twisted pair, Teflon jacket, 27 pF/ft, 4.88 m (16 ft)
EK-468011	Accelerometer cable, splash proof, MS-C-5015 environmental molded boot connector to blunt cut, two conductor, Shielded (braid), twisted pair, Teflon jacket, 27 pF/ft, 9.75 m (32 ft)
EK-468021	Accelerometer cable, splash proof, MS-C-5015 environmental molded boot connector to blunt cut, two conductor, Shielded (braid), twisted pair, Teflon jacket, 27 pF/ft, 19.51 m (64 ft)
EK-468061	Accelerometer cable, splash proof, MS-C-5015 environmental molded boot connector to blunt cut, two conductor, shielded (braid), twisted pair, Teflon jacket, 27 pF/ft, 34.14 m (112 ft)

Table 2 - Cables for Two-pin Sensors

Cat. No.	Description
EK-44134	Accelerometer cable, MS-C-5015 molded composite threaded connector to blunt cut, two conductor, shielded (braid), twisted pair, Teflon jacket, 27 pF/ft, 4.88 m (16 ft)
EK-44135	Accelerometer cable, MS-C-5015 molded composite threaded connector to blunt cut, two conductor, shielded (braid), twisted pair, Teflon jacket, 27 pF/ft, 9.75 m (32 ft)
EK-44136	Accelerometer cable, MS-C-5015 molded composite threaded connector to blunt cut, two conductor, shielded (braid), twisted pair, Teflon jacket, 27 pF/ft, 19.51 m (64 ft)
EK-44137	Accelerometer cable, MS-C-5015 molded composite threaded connector to blunt cut, two conductor, shielded (braid), twisted pair, Teflon jacket, 27 pF/ft, 34.14 m (112 ft)

Table 3 - Splash Proof Cables for Three-pin Sensors

Cat. No.	Description
EK-468031	Accelerometer cable, splash proof, MS-C-5015 environmental molded boot connector to blunt cut, three conductor, shielded (braid), twisted bundle, Teflon jacket, 27 pF/ft, 4.88 m (16 ft)
EK-468051	Accelerometer cable, splash proof, MS-C-5015 environmental molded boot connector to blunt cut, three conductor, shielded (braid), twisted bundle, Teflon jacket, 27 pF/ft, 19.51 m (64 ft)
EK-468071	Accelerometer cable, splash proof, MS-C-5015 environmental molded boot connector to blunt cut, three conductor, shielded (braid), twisted bundle, Teflon jacket, 27 pF/ft, 34.13 m (112 ft)
EK-47774	Accelerometer cable, MS-C-5015 molded composite threaded connector to blunt cut, three conductor, shielded (braid), twisted bundle, Teflon jacket, 27 pF/ft, 4.88 m (16 ft)

Table 4 - Cables for Two-pin MS Style Sensor Connectors

Cat. No.	Description
EK-36960-C-006	Enpac cable, LEMO to MS3106 two pin connector, coiled, 1.83 m (6 ft), compatible with 2500, 2500Z2, 1200A, 1200B, and Datapac series
EK-36960-S-005	Enpac cable, LEMO to MS3106 two pin connector, straight, 1.52 m (5 ft), compatible with 2500, 2500Z2, 1200A, 1200B, and Datapac series
EK-36960-S-025	Enpac cable, LEMO to MS3106 two pin connector, straight, 7.62 m (25 ft), compatible with 2500, 2500Z2, 1200A, 1200B, and Datapac series
EK-36960-S-050	Enpac cable, LEMO to MS3106 two pin connector, straight, 15.24 m (50 ft), compatible with 2500, 2500Z2, 1200A, 1200B, and Datapac series

Table 5 - Cables for 10...32 Style Sensor Connector

Cat. No.	Description
EK-35579	Connector, 5-44 to BNC, 5ft straight, for accelerometer 9700A (EK-43799I)

Table 6 - Accelerometer and Velocity Connector

Cat. No.	Description
EK-44144	Connector, MS3106, two pin, aluminum, designed for use with bulk cable (EK-44149)

Table 7 - Mounting Accessories

Cat. No.	Description
EK-41529	Magnet, curved, 38.1 mm (1.5 in.) diameter, 24.95 kb (55 lb) pull, 1/4-28 UNF thread
EK-41717	Magnet, curved, 25.4 mm (1 in.) diameter, 15.88 kg (35 lb) pull, 1/4-28 UNF thread
EK-42118	Magnet, curved, 19.05 mm (0.75 in.) diameter, 6.35 kg (14 lb) pull, 1/4-28 UNF thread
EK-42119	Magnet, curved, 50.8 mm (2 in.) diameter, 36.29 kg (80 lb) pull, 1/4-28 UNF thread
EK-42120	Magnet, flat surface, 19.05 mm (0.75 in.) diameter, 6.8- kg (15 lb) pull, 1/4-28 UNF thread
EK-46670	Magnet, flat surface, 9.5 mm (0.375 in.) diameter, 1.13 kg (2.5 lb) pull, 5-40 UNC thread, for accelerometer 9700A (EK-43799I)
EK-01103	Accelerometer probe, straight, 228.6 mm (9 in.), 1/4-28 UNF thread
EK-41530	Accelerometer probe, straight, 101.6 mm (4 in.), 0.5 hex tapered, 1/4-28 UNF thread
EK-44156	Mounting base for epoxy mounting, 25.4 mm (1 in.) diameter, 1/4-28 UNF thread, includes stud
EK-44164	Mounting base for epoxy mounting, 25.4 mm (1 in.) diameter, 1/4-28 UNF thread female, includes key notch
EK-44801	Mounting epoxy for two bases
EK-44151	Mounting stud 10-32 to 10-32 UNF thread
EK-44152	Mounting stud 10-32 to 1/4-28 UNF thread
EK-44153	Mounting stud 1/4-28 to 1/4-28 UNF thread
EK-44154	Mounting stud 1/4-28 to M8 thread
EK-44155	Mounting stud 1/4-28 to M6 thread
EK-42053	Spot face mounting tool 31.75 mm (1.25 in.) diameter, 1/4-28 UNF thread

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Installation Assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/rockwellautomation/support/overview.page , or contact your local Rockwell Automation representative.

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