

1443 Series Accelerometers Specifications

Catalog Numbers 1443-ACC-GP series, 1443-ACC-VO series, 1443-ACC-IS series, 1443-ACC-AT series, 1443-ACC-LF-T, 1443-ACC-HF-T

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Summary of Changes

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Rockwell Automation® 1443 Series Accelerometers are general-purpose sensors that are used to measure vibration on industrial machinery. The 1443 Series family also includes sensors with these varied capabilities:

- Low Frequency, as low as 0.1 Hz or 6 cpm
- High Frequency, up to 20 kHz or 1200 kcpm
- Velocity Output, internal integrator
- Hazardous Area Approved
- Dual Accelerometer and Temperature Output

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 various forms, depending on sensor type and the goal of the monitoring program. The following examples illustrate vibration measurement and monitoring systems.

Figure 1 - Dynamix™ System and Permanently Installed Accelerometers

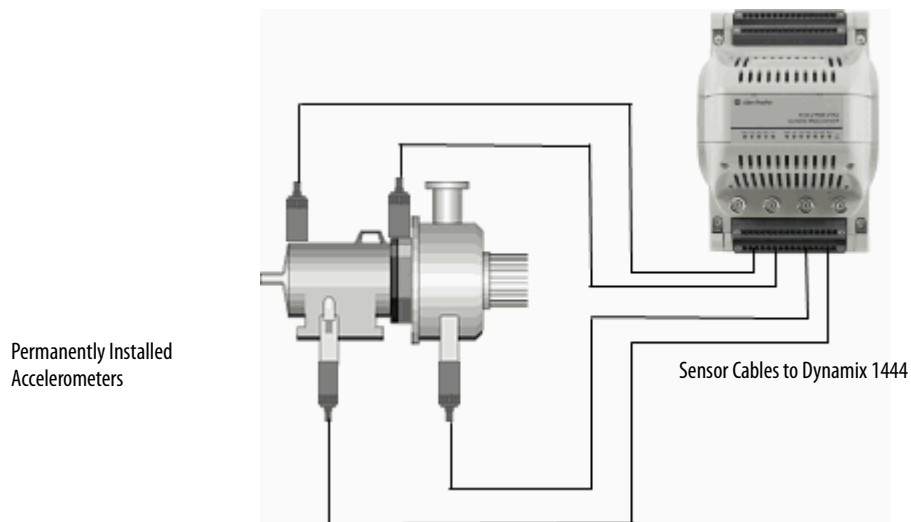


Figure 2 - Portable Data Collector and Permanently Installed Accelerometers

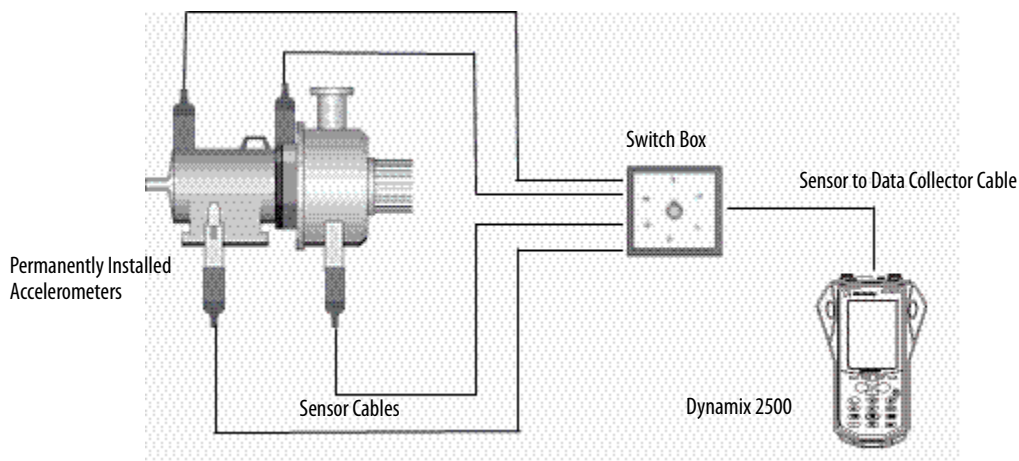
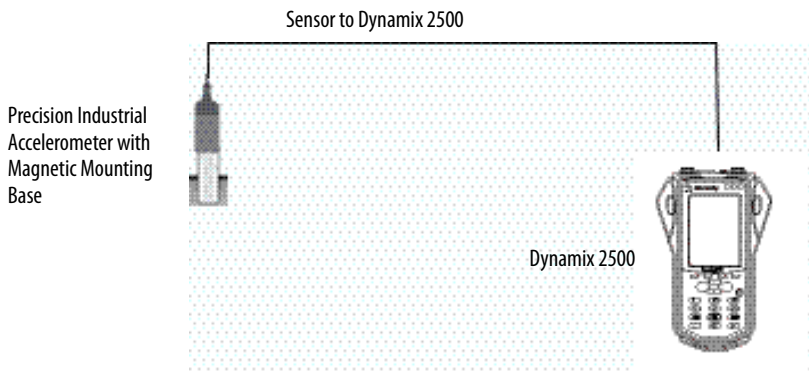


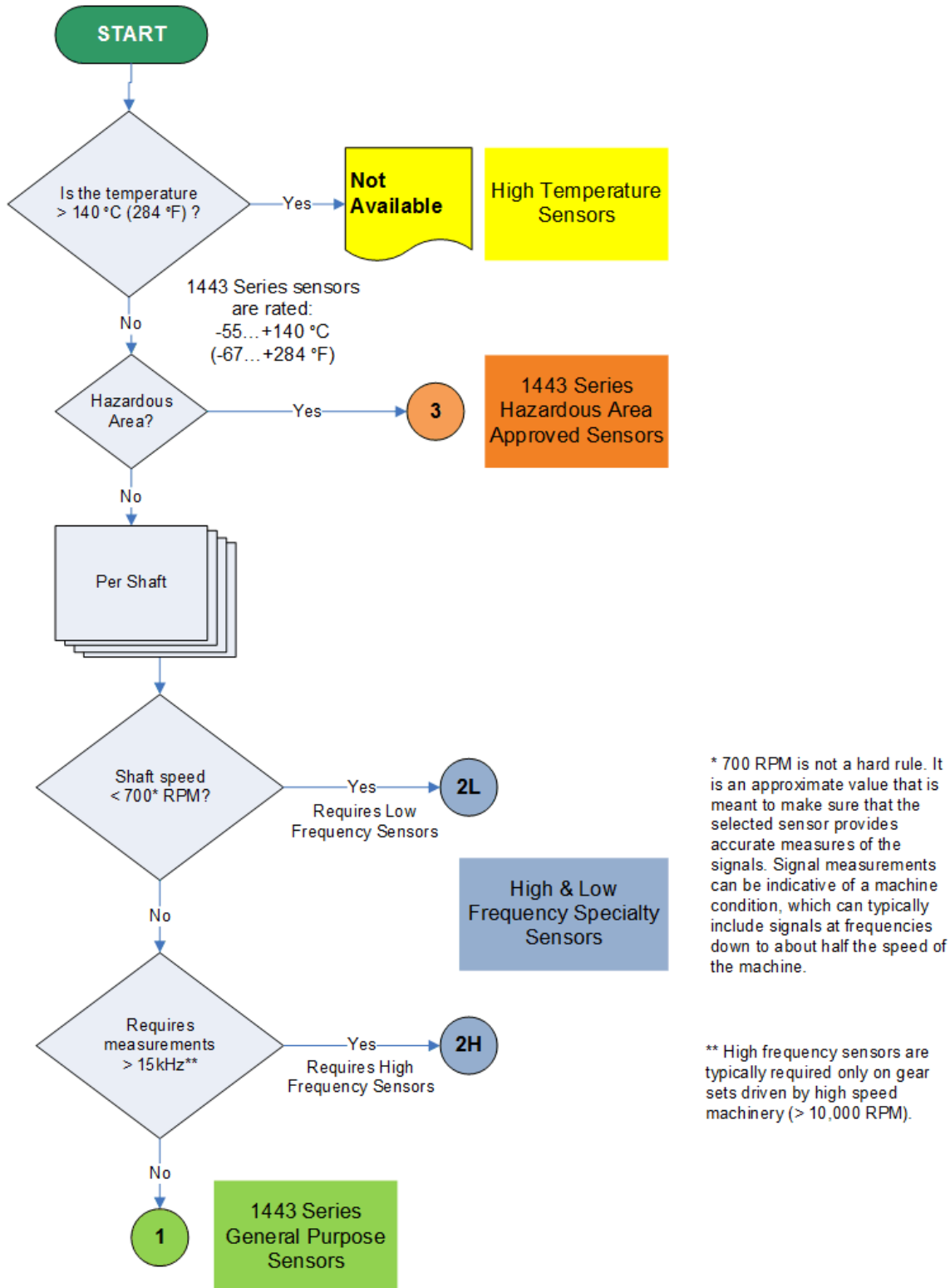
Figure 3 - Portable Data Collector and Accelerometer

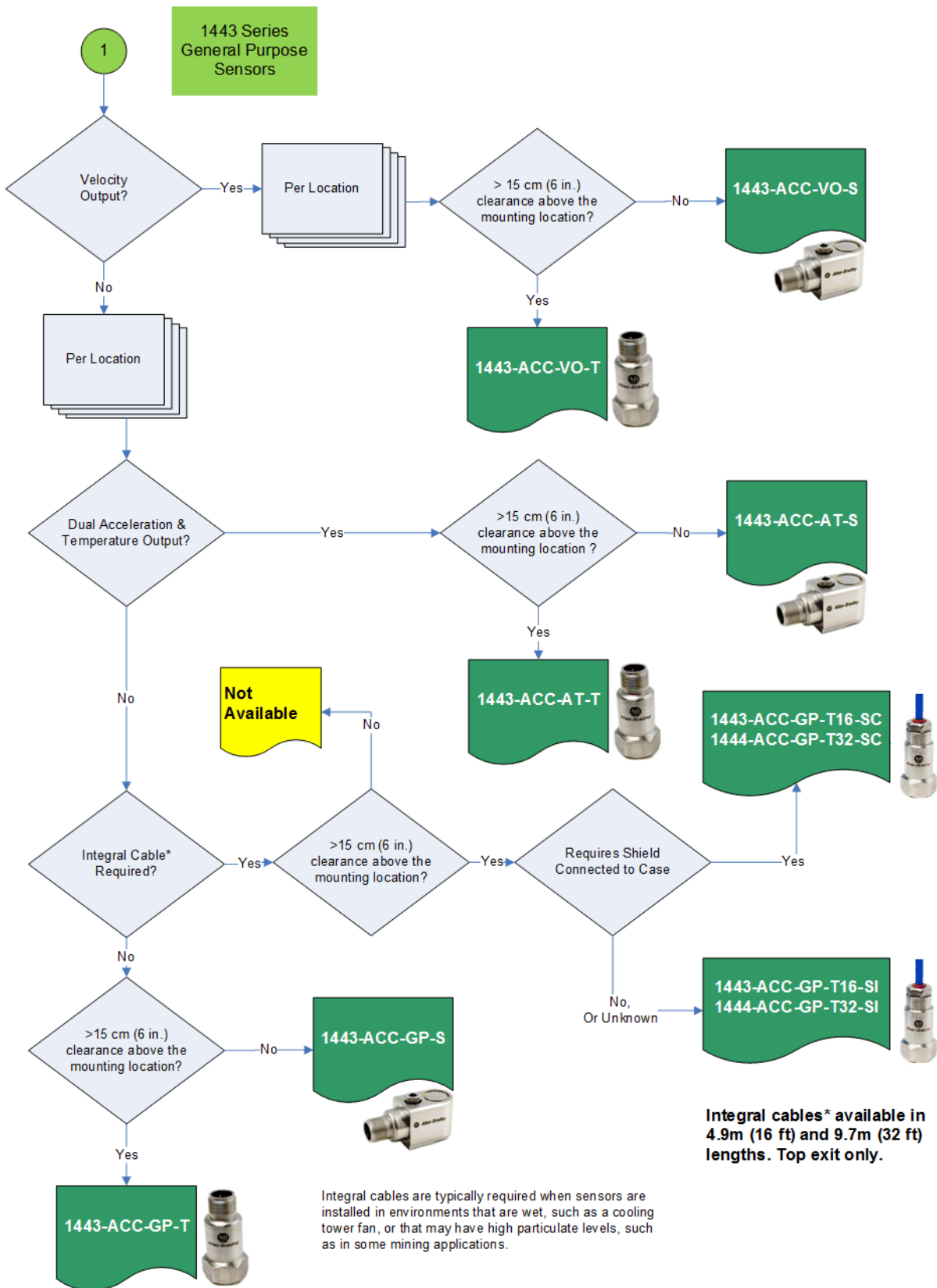
IMPORTANT All specifications are at room temperature unless otherwise specified.
For certification information, see Declaration of Conformance at <http://www.rockwellautomation.com/products/certification>.
Optional versions have identical specifications and accessories as listed for standard model except where noted. Multiple options can be used.

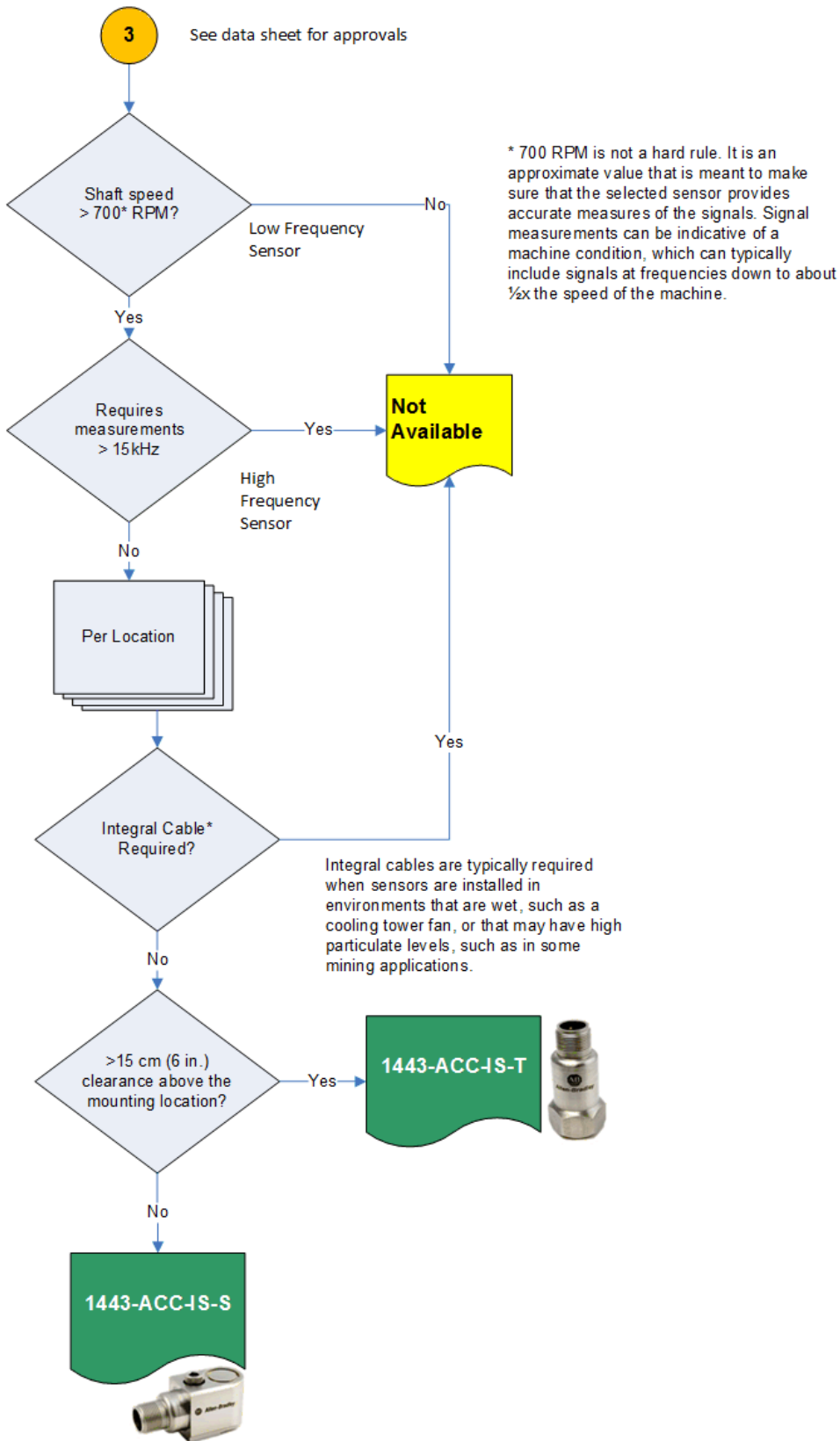
Sensor Selection Process

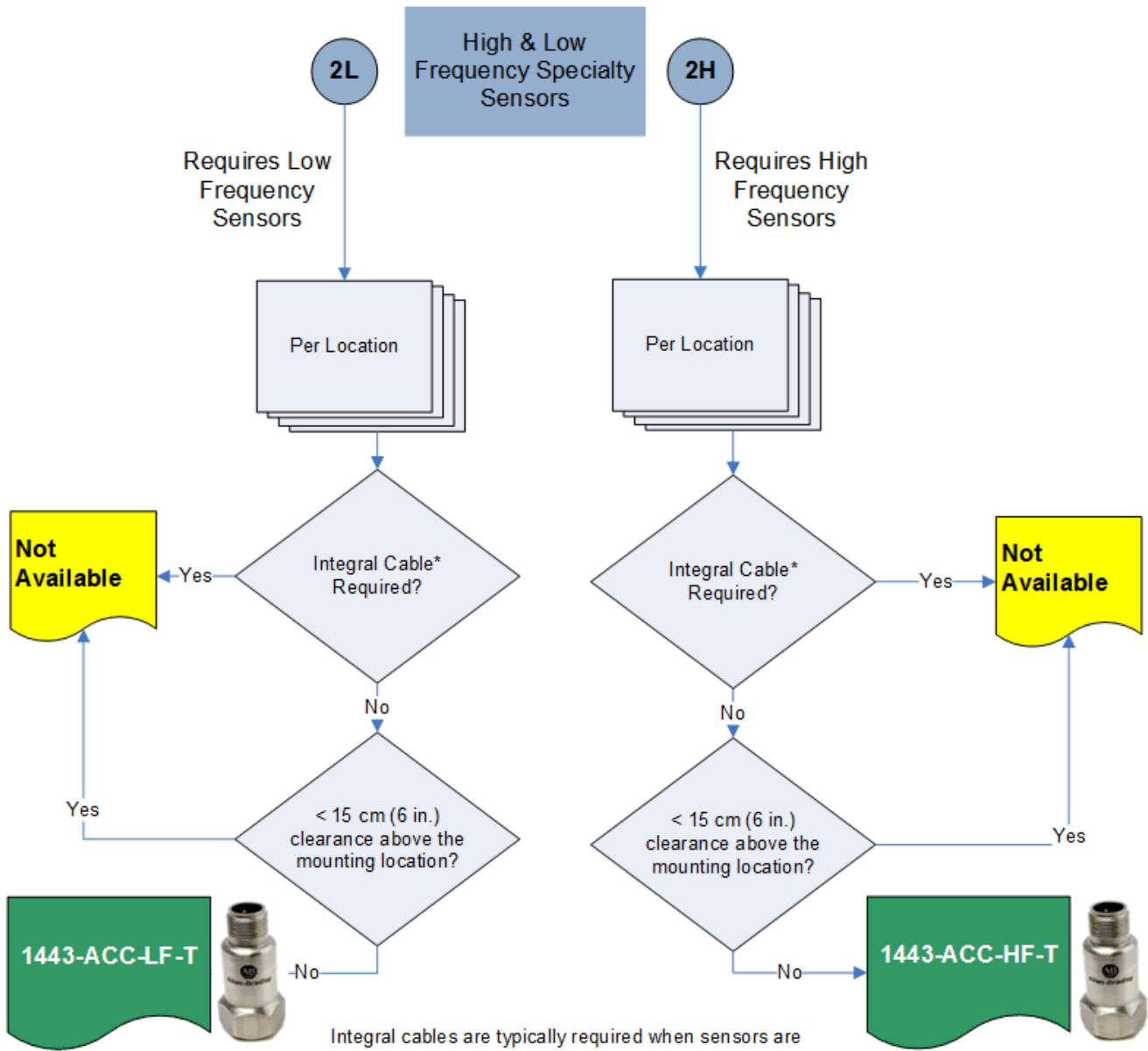
This flowchart illustrates the process that you can follow to select the appropriate sensor for your application.

Figure 4 - Sensor Selection Flowchart









Integral cables are typically required when sensors are installed in environments that are wet, such as a cooling tower fan, or that may have high particulate levels, such as in some mining applications.

Shield Wire Isolation Sensor and Cable Selection

The 1443 Series include sensor and cable solutions that isolate the shield wire from the sensor, or that ground the shield wire to the sensor. For standard sensors, select either shield isolated or shield grounded cables, where the shield wire is either isolated from or connected to the sensor connector. When a sensor with an integral cable is required, select a sensor with its shield wire that is isolated from the sensor or that has its shield wire that is grounded to the sensor.

When a shield to sensor isolated solution is required, which is the normal recommended method:

- If a sensor without an integral cable is required, then use an accessory cable that has its shield wire that is isolated from the sensor connector. Select a cable with 'IBC' in its catalog number, for example, 1443-CBL-MS2IBC-32S.
- If a sensor with an integral cable is required, then use a sensor with its shield wire that is isolated from the sensor. Select a sensor with 'SI' in its catalog number, for example, 1443-ACC-GP-T16-SI.

When a shield grounded sensor is required:

- If a sensor without an integral cable is required, then use an accessory cable that has its shield wire that is grounded to the sensor connector. Select a cable with 'GBC' in its catalog number, for example, 1443-CBL-MS2GBC-16S.
- If a sensor with an integral cable is required, then use a sensor with its shield wire that is grounded to sensor case. Select a sensor with 'SC' in its catalog number, for example, 1443-ACC-GP-T16-SC.

The recommended solution is to connect the shield at the measurement system and leave it isolated at the sensor end. Use IBC version cables or 'SI' version sensors when an integral cable sensor is required. However, when EMI problems are present, or expected, then a shield case grounded solution can prove to be a better design.

When signal noise or interference is a problem or concern, you must understand the source of the problem to resolve it. Noise can be introduced into signals from accelerometers through these common phenomena:

- Electromagnetic Interference (EMI)

EMI is the introduction of unwanted signals into an electronic device from electromagnetic fields that another electronic device generated. Televisions, radars, vehicles, Variable Frequency Drives (VFDs), and other electronic devices can produce high powered electromagnetic fields. EMI can be introduced into the measurement system via the signal wiring when that wiring acts as an antenna, which occurs when one end of the wire is ungrounded.

When EMI occurs, it typically results in signals being introduced at discrete frequencies that are related to the signal source. The impact on measurements is dependent on the magnitude and specific frequency of the signal that is induced. This occurrence is relative to the measurement systems design signal magnitude and frequency range and the expected signals that are intended to be measured.

- Ground Loops

In electronics, a ground loop is caused when a device has multiple paths for electricity to flow to ground. In a measurement system, this scenario commonly occurs when a signal wire is grounded at both ends, with each end having a different potential (resistance) to ground.

The key for accelerometer measurement systems is knowing if the machine case, or bearing housing, to which the sensor is attached, is grounded or not. While a new machine installation can be isolated, changes are possible over the life of the machine as wear occurs, maintenance is performed, and other changes are made.

Regardless the source, when present these signals or noise can result in significant error in measurements. The result can be random and inexplicable machine alarms and trips, erroneous condition assessment / diagnosis, and possible damage to the instrumentation. If the source of the noise is clear, and there is only one concern, then the corrective action is clear, depending on the source of the problem, try the following:

EMI

Ground the shield at both ends of the cable.

- If you tie the shield to the sensor case only, it creates a ground if the structure that the sensor is mounted on is grounded. If the bearing housing or the machine is isolated from ground, then when you connect the shield to the case of the sensor cannot ground the shield.
- If the ground potential through the sensor is different than ground potential through the instrumentation ground, then a ground loop is created. The ground loop that is created can be a worse condition than the EMI problem.
- In most cases, grounding the shield at both ends must be the last resort because ground loop problems can result. The ground loop problems can create more significant problems than the EMI issue. Make sure that the following common wiring solutions are considered:
 - Use high quality, well shielded, twisted wire cable.
 - Route cable runs to avoid obvious / strong sources of EMI such as radio transmission towers, generators, and transformers.
 - If cables are routed through a J-box, make sure that shields are properly connected.
 - When routing cables, make sure to cross AC power lines at right angles. Approach AC motors from a right angle to the motor shaft and do not route wiring alongside a motor.
 - At the monitor, connect the shield wires directly to ground - so do not ground it through the instrument.

Ground Loops

Isolate the shield at one end of the cable.

- In most cases, make sure that the shield is not connected to the sensor.
- A special cable or a custom made cable is required for accelerometers with two or three pin MIL-C-5015 connectors.
- For existing installations, do not assume that the shield is not tied to the sensor case. While not connected to the sensor case is normal practice, in most locations, it doesn't mean that it is that way. And, if the shield is connected to the sensor case, it's possible that the structure the sensor is mounted on has changed in respect to the ground for other reasons.
- If continuous or intermittent EMI (RFI) sources are present, then when you isolate one end of the shield it creates an antenna that can result in EMI (RFI) noise problems. An EMI (RFI) issue can be a worse condition than the ground loop problem.

Sensor Quick Reference

The 1443 Series sensors are summarized in this section. Each sensor is listed with only its major characteristics for easy comparison and quick selection.

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.

Table 1 - General-purpose Accelerometers

Purpose	Cat. No	Features	Page
General-purpose Accelerometer	1443-ACC-GP-T	<ul style="list-style-type: none"> • 100 mV/g • 0.8...19 kHz • Top Exit 	13
	1443-ACC-GP-S	<ul style="list-style-type: none"> • 100 mV/g • 0.2...15 kHz • Side Exit 	15
General-purpose Accelerometer (with Integral Cable)	1443-ACC-GP-T16-SI	<ul style="list-style-type: none"> • Integral ~5 m (16 ft) Cable • 100 mV/g • 0.8...15 kHz • Top Exit 	17
	1443-ACC-GP-T32-SI	<ul style="list-style-type: none"> • Integral ~10 m (32 ft) Cable • 100 mV/g • 0.8...15 kHz • Top Exit 	19
	1443-ACC-GP-T16-SC	<ul style="list-style-type: none"> • Integral ~5 m (16 ft) Cable • Shield Case Grounded Cable⁽¹⁾ • 100 mV/g • 0.8...15 kHz • Top Exit 	21
	1443-ACC-GP-T32-SC	<ul style="list-style-type: none"> • Integral ~10 m (32 ft) Cable • Shield Case Grounded Cable⁽¹⁾ • 100 mV/g • 0.8...15 kHz • Top Exit 	23

(1) Sensors with the shield wire grounded to the case are non-standard. See [Shield Wire Isolation Sensor and Cable Selection on page 8](#) before ordering.

Sensors with Integral Cables

Included in the list of 1443 Series general-purpose Accelerometers are variants of the sensor that include integral 4.8 m (16 ft) and 9.7 m (32 ft) cables. Sensors with an integrated cable are useful in wet or dirty (high particulate) areas.

Low Frequency Accelerometer

This accelerometer combines low-frequency response with high-output sensitivity to obtain the resolution characteristics and output signal levels necessary for low-frequency measurements and analysis.

Table 2 - Low Frequency Accelerometer

Purpose	Cat. No	Features	Page
Low Frequency Accelerometer	1443-ACC-LF-T	<ul style="list-style-type: none"> • 500 mV/g • 1.5...10 kHz (5%) • 0.1...15 kHz (3db) • Top Exit 	25

High Frequency Accelerometer

When you test, monitor vibrations, and analyze the frequency of machinery where frequencies greater than approximately 15 kHz, the frequencies must be measured.

Table 3 - High Frequency Accelerometer

Purpose	Cat. No	Features	Page
High Frequency Accelerometer	1443-ACC-HF-T	<ul style="list-style-type: none"> • 50 mV/g • 0.8...20 kHz • Top exit 	27

Specialty Accelerometers

These sensors are available for applications that require velocity output and temperature output from the sensor.

- Velocity Output
- Acceleration and Temperature

Table 4 - Specialty Accelerometers

Purpose	Cat. No	Features	Page
Velocity Output Accelerometer	1443-ACC-VO-T	<ul style="list-style-type: none"> • Output is integrated to velocity • 100 mV/ips • 2...6 kHz • Output ± 50 in/s • Top Exit 	29
Velocity Output Accelerometer	1443-ACC-VO-S	<ul style="list-style-type: none"> • Output is integrated to velocity • 100 mV/ips • 2...6 kHz • Output ± 50 in/s • Side Exit 	31
Combination Acceleration and Temperature	1443-ACC-AT-T	<ul style="list-style-type: none"> • 100 mV/g • 0.8...15 kHz • 10 mV/°C • Top Exit 	33
Combination Acceleration and Temperature	1443-ACC-AT-S	<ul style="list-style-type: none"> • 100 mV/g • 0.8...15 kHz • 10 mV/°C • Side Exit 	35

Intrinsically Safe Accelerometers

Intrinsically safe sensors meet additional requirements for hazardous environments. See specification tables for a list of certifications.

Table 5 - Intrinsically Safe Accelerometers

Purpose	Cat. No	Features	Page
Hazardous Area Accelerometer	1443-ACC-IS-T	<ul style="list-style-type: none"> • 100 mV/g • 0.8...15 kHz • Top Exit 	37
	1443-ACC-IS-S	<ul style="list-style-type: none"> • 100 mV/g • 0.8...15 kHz • Side Exit 	39

Metric and Imperial Mounting

Sensor mounting accessories are included with the accelerometer, see Supplied Accessories in the specification tables. Options exist to mount the sensor on the machine end - either in Metric or Imperial units, as denoted by the 'Mounting Thread' attribute in the following tables for each sensor.

Top exit sensors have a 1/4-28 UNF female thread on the sensor end. Two studs are included, both with one 1/4-28 UNF male end (for the sensor). The other end has either an M8 x 1.25 mm male thread or a 1/4-28 UNF male thread for mounting on the machine.

Side exit sensors have a through hole. Bolts are included with a machine mounting thread of either M6 x 1.00 mm male or 1/4-28 UNF male.

Sensors

1443-ACC-GP-T Accelerometer

Table 6 - 1443-ACC-GPT-T Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 785 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	2.0...14 kHz	120...840000 cpm
Frequency range (± 3 dB)	0.8...19 kHz	48...1140000 cpm
Resonant frequency, typical	28 kHz	1680 kcpm
Broadband resolution (1...10000 Hz), typical	2943 μ m/s ²	300 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+140 °C	-67...+284 °F
Enclosure Rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
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	<150 Ω	<150 Ω
Output bias voltage	10...12V DC	10...12V DC
Electrical isolation (case)	> 10 ¹⁰ Ω	> 10 ¹⁰ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	19x36 mm	3/4 x 1.42 in.
Weight, approx.	48 g	1.7 oz
Mounting thread ⁽⁴⁾	M8 x 1.25 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Shear	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin-MIL-C-5015	
Electrical connector position	Top	
Supplied Accessories ⁽⁵⁾	1443-STD-0-0	
	1443-STD-0-M8	
	Calibration Certificate	

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

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

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

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

(5) Calibration @80 Hz per ISO 9001-2008

Figure 5 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

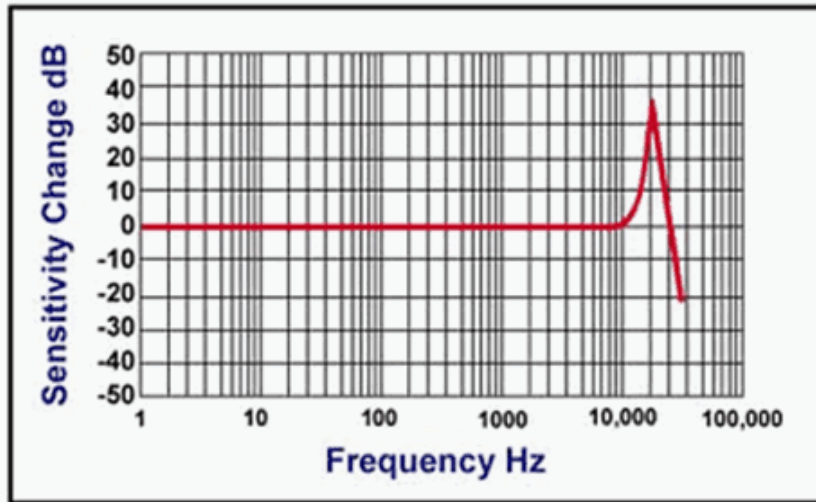
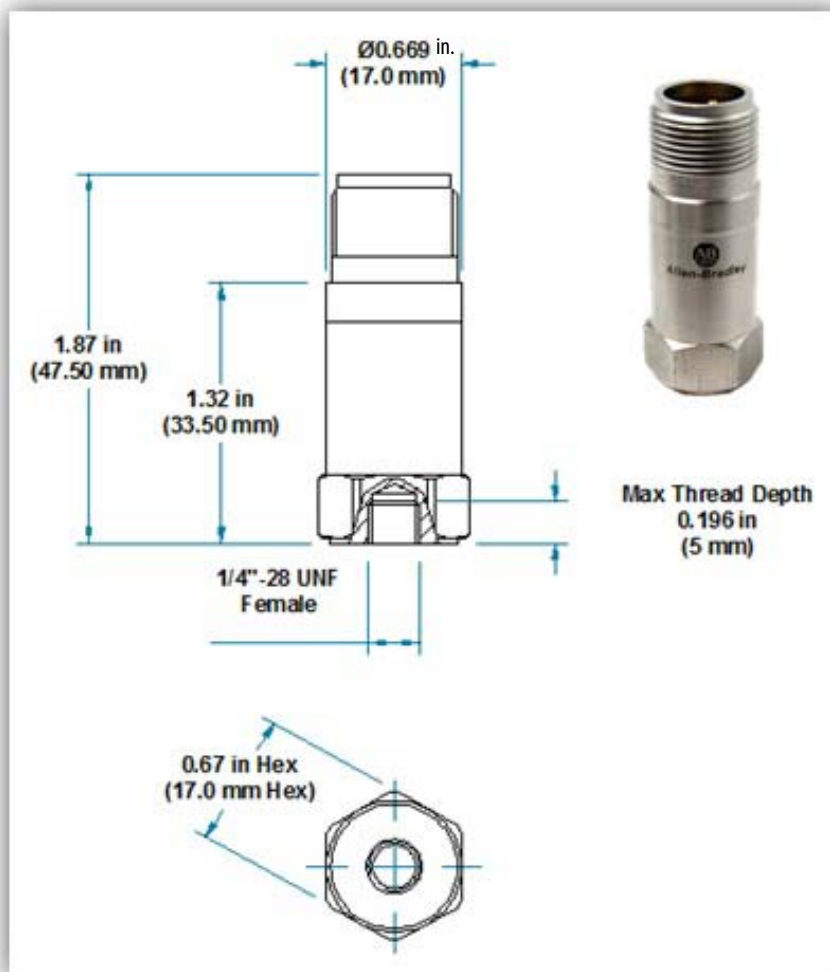


Figure 6 - 1443-ACC-GP-T Measurements



1443-ACC-GP-S Accelerometer

Table 7 - 1443-ACC-GP-S Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 785 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	1.5...10 kHz	90...600000 cpm
Frequency range (± 3 dB)	0.2...15 kHz	24...900000 cpm
Resonant frequency, typical	22 kHz	1500 kcpm
Broadband resolution (1...10000 Hz), typical	491 μ m/s ²	50 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+140 °C	-67...+284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
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	<150 Ω	<150 Ω
Output bias voltage	10...12V DC	10...12V DC
Electrical isolation (case)	> 10 ¹⁰ Ω	> 10 ¹⁰ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	25 x 30 x 35 mm	1 x 1.18 x 1.38 in.
Weight, approx.	170 g	6.0 oz
Mounting thread ⁽⁴⁾	M6 x 1 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin-MIL-C-5015	
Electrical connector position	Side	
Supplied Accessories ⁽⁵⁾	1443-BLT-125-0	
	1443-BLT-125-M6	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 7 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

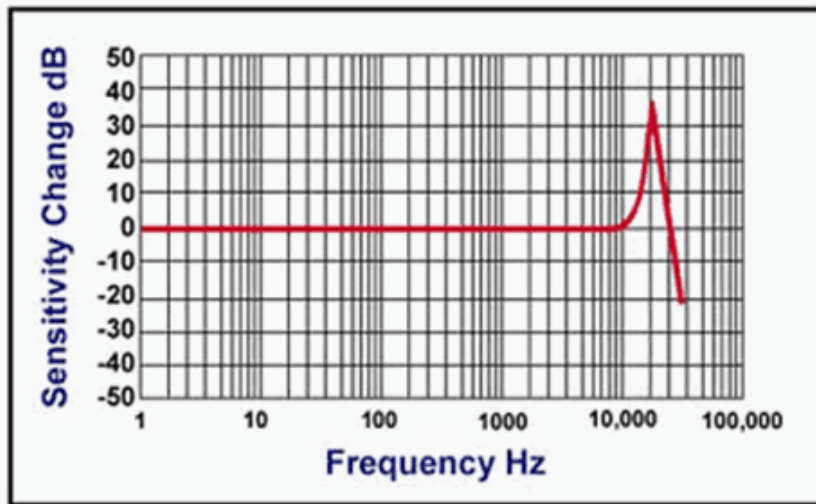
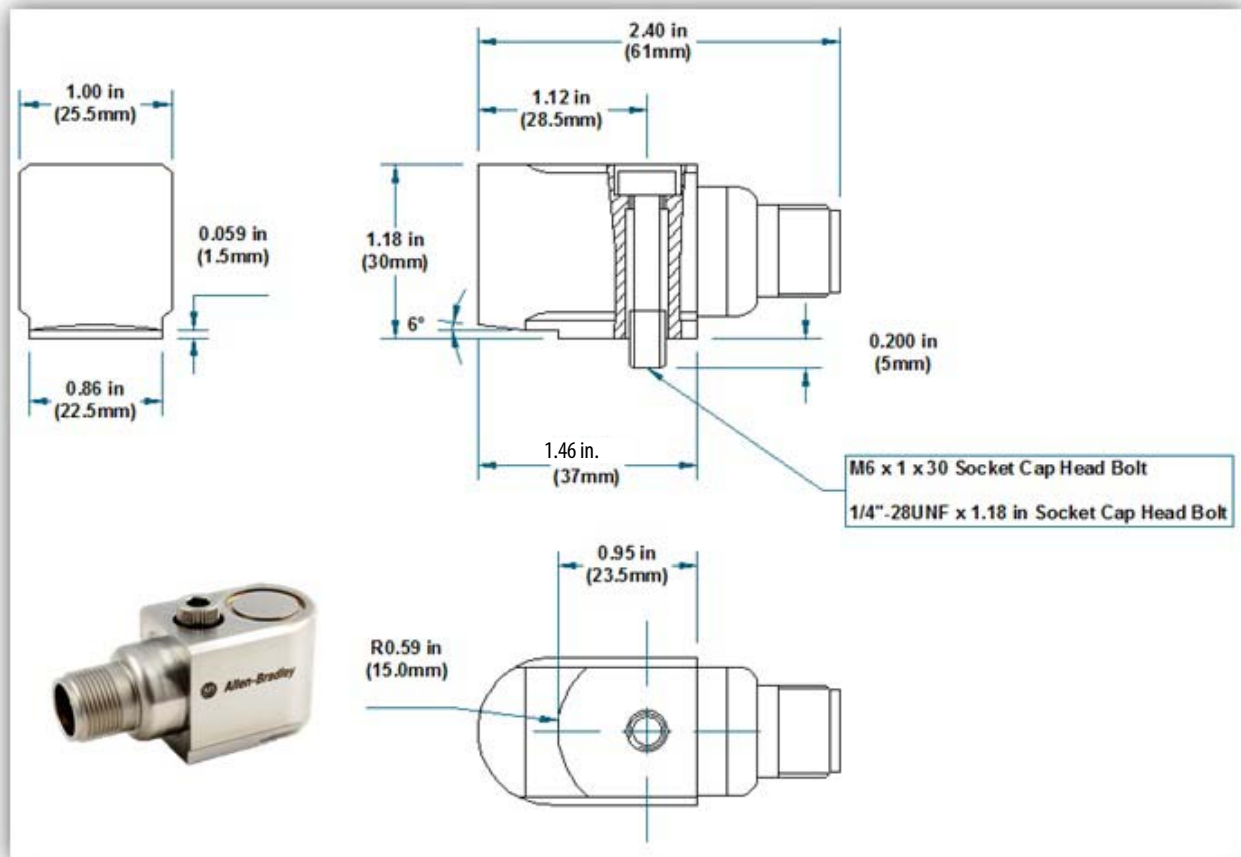


Figure 8 - 1443-ACC-GP-S Accelerometer



1443-ACC-GP-T16-SI Accelerometer

Table 8 - 1443-ACC-GP-T16-SI Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 785 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	2.0...10 kHz	120...600000 cpm
Frequency range (± 3 dB)	0.8...15 kHz	48...900000 cpm
Resonant frequency, typical	28 kHz	1680 kcpm
Broadband resolution (1...10000 Hz), typical	2943 μ m/s ²	300 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+140 °C	-67...+284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
Discharge time constant	≥ 0.5 s	≥ 0.5 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	0.5...8 mA	0.5...8 mA
Output impedance	<150 Ω	<150 Ω
Output bias voltage	10...12V DC	10...12V DC
Electrical isolation (case)	> 10 ¹⁰ Ω	> 10 ¹⁰ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	19 x 36 mm	3/4 x 1.42 in.
Weight, approx.	48 g	1.7 oz
Mounting thread ⁽⁴⁾	M8 x 1.25 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin MIL-C-5015	
Electrical connector position	Top	
Cable Length	5 m	16 ft
Cable Type	Shielded Silicone	
Supplied Accessories ⁽⁵⁾	1443-STD-0-0	
	1443-STD-0-M8	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 9 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

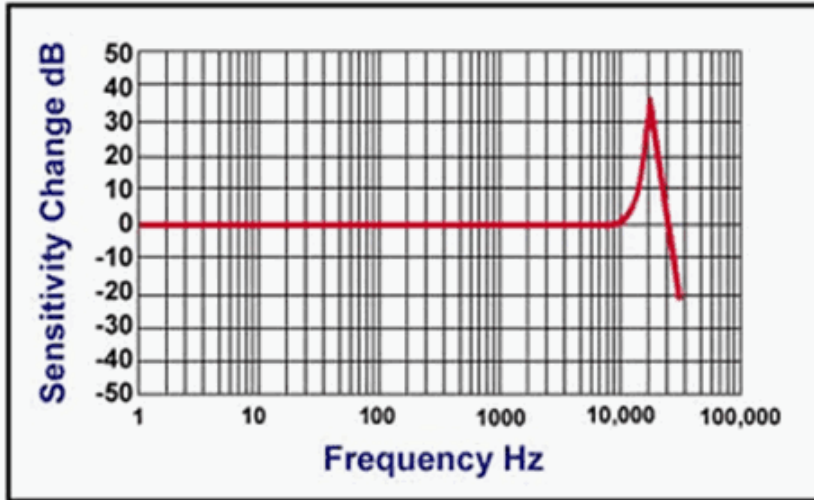
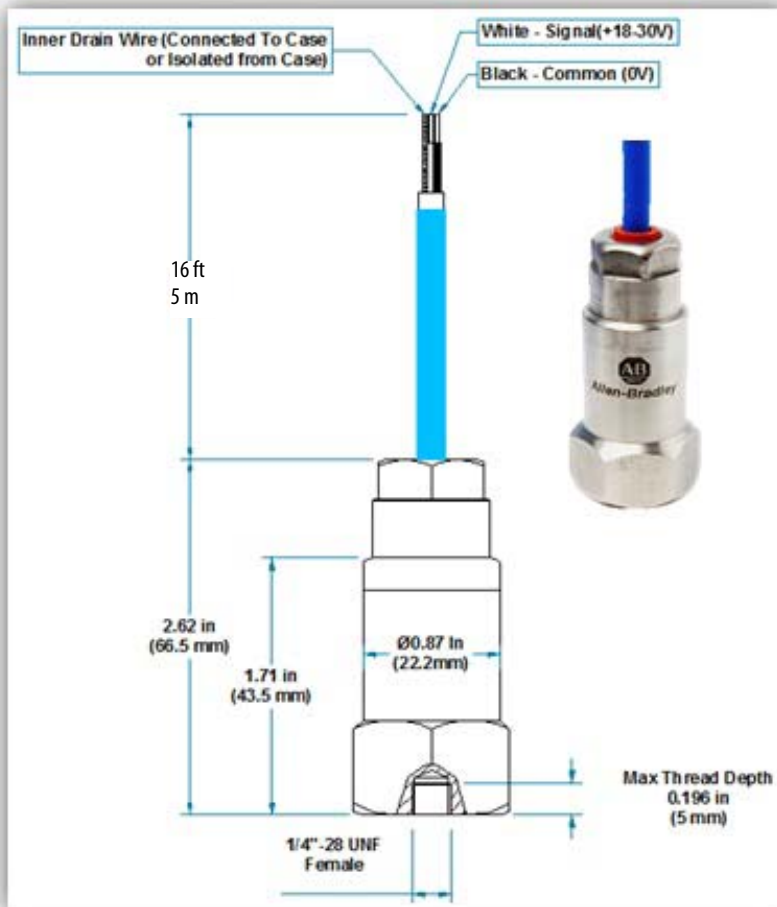


Figure 10 - 1443-ACC-GP-T16-SI Accelerometer



1443-ACC-GP-T32-SI Accelerometer

Table 9 - 1443-ACC-GP-T16-SI Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 785 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	2.0...10 kHz	120...600000 cpm
Frequency range (± 3 dB)	0.8...15 kHz	48...900000 cpm
Resonant frequency, typical	28 kHz	1680 kcpm
Broadband resolution (1...10000 Hz), typical	2943 μ m/s ²	300 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+140 °C	-67...+284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
Discharge time constant	≥ 0.5 s	≥ 0.5 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	0.5...8 mA	0.5...8 mA
Output impedance	<150 Ω	<150 Ω
Output bias voltage	10...12V DC	10...12V DC
Electrical isolation (case)	> 10 ¹⁰ Ω	> 10 ¹⁰ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	19 x 36 mm	3/4 x 1.42 in.
Weight, approx.	48 g	1.7 oz
Mounting thread ⁽⁴⁾	M8 x 1.25 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin MIL-C-5015	
Electrical connector position	Top	
Cable Length	10 m	32 ft
Cable Type	Shielded Silicone	
Supplied Accessories ⁽⁵⁾	1443-STD-0-0	
	1443-STD-0-M8	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 11 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

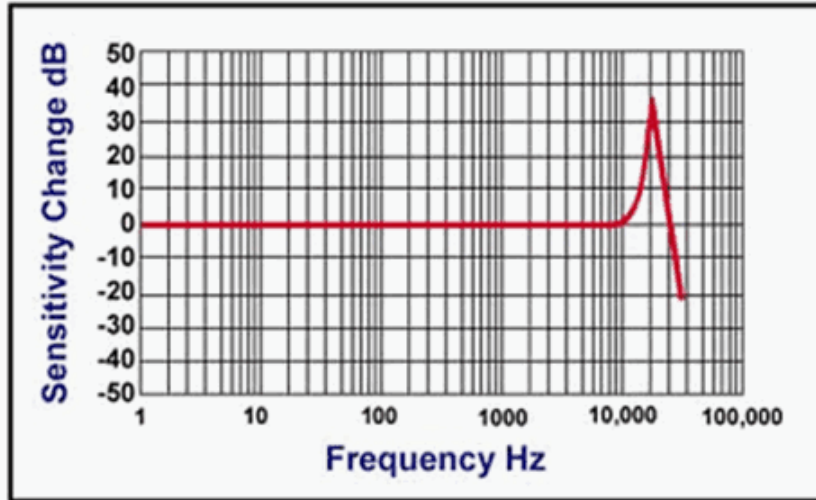
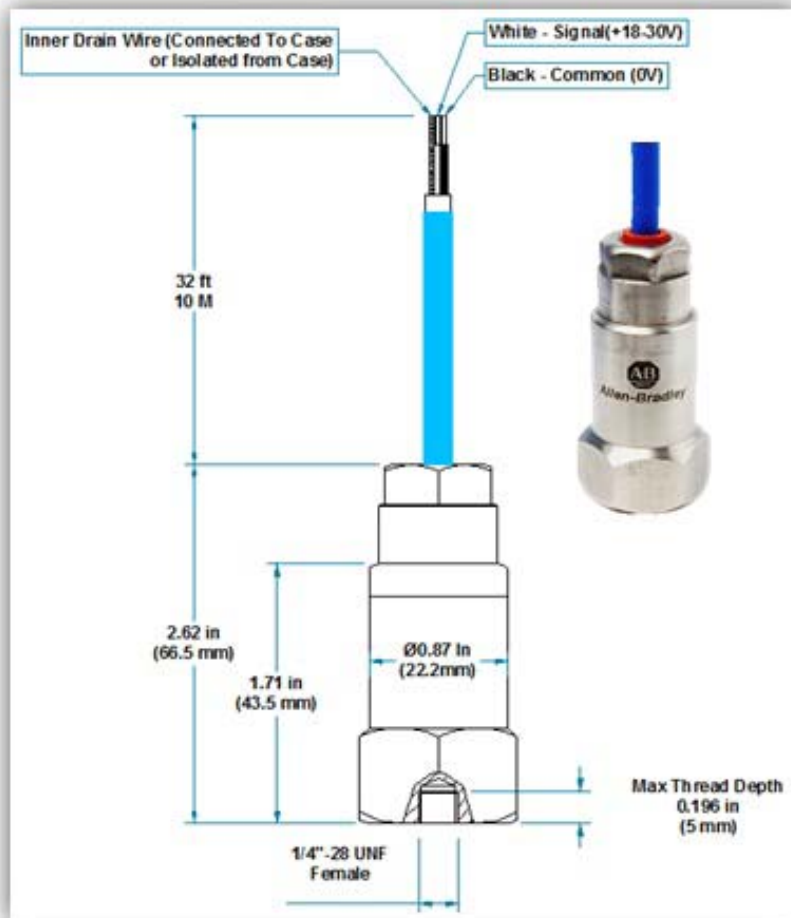


Figure 12 - 1443-ACC-GP-T16-SI Accelerometer



1443-ACC-GP-T16-SC Accelerometer

Sensors with the shield wire that is grounded to the case are non-standard. See [Shield Wire Isolation Sensor and Cable Selection on page 8](#) ordering.

Table 10 - 1443-ACC-GP-T16-SC Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 785 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	2.0...10 kHz	120...600000 cpm
Frequency range (± 3 dB)	0.8...15 kHz	48...900000 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	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+140 °C	-67...+284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
Discharge time constant	≥ 0.5 s	≥ 0.5 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	0.5...8 mA	0.5...8 mA
Output impedance	<150 Ω	<150 Ω
Output bias voltage	10...12V DC	10...12V DC
Electrical isolation (case)	$> 10^{10}$ Ω	$> 10^{10}$ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	19 x 36 mm	3/4 x 1.42 in.
Weight, approx.	48 g	1.7 oz
Mounting thread ⁽⁴⁾	M8 x 1.25 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin MIL-C-5015	
Electrical connector position	Top	
Cable Length	5 m	16 ft
Cable Type	Shielded Silicone	
Cable Grounding	Shield Case Grounded	
Supplied Accessories ⁽⁵⁾	1443-STD-0-0	
	1443-STD-0-M8	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 13 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

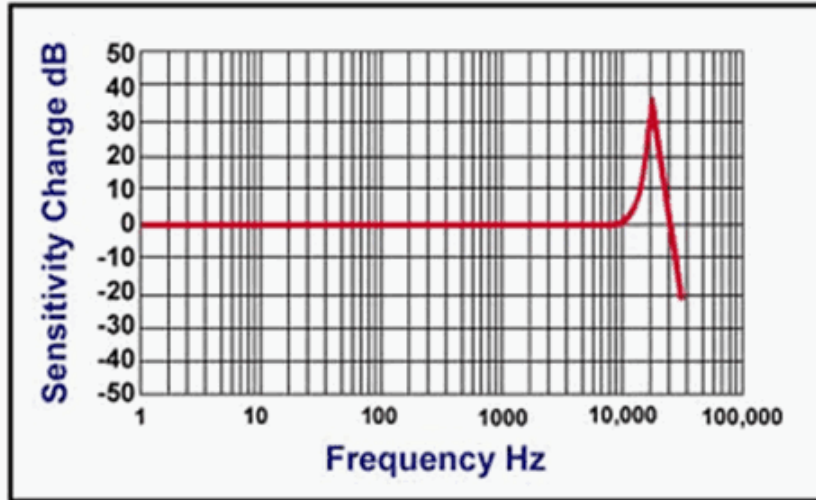
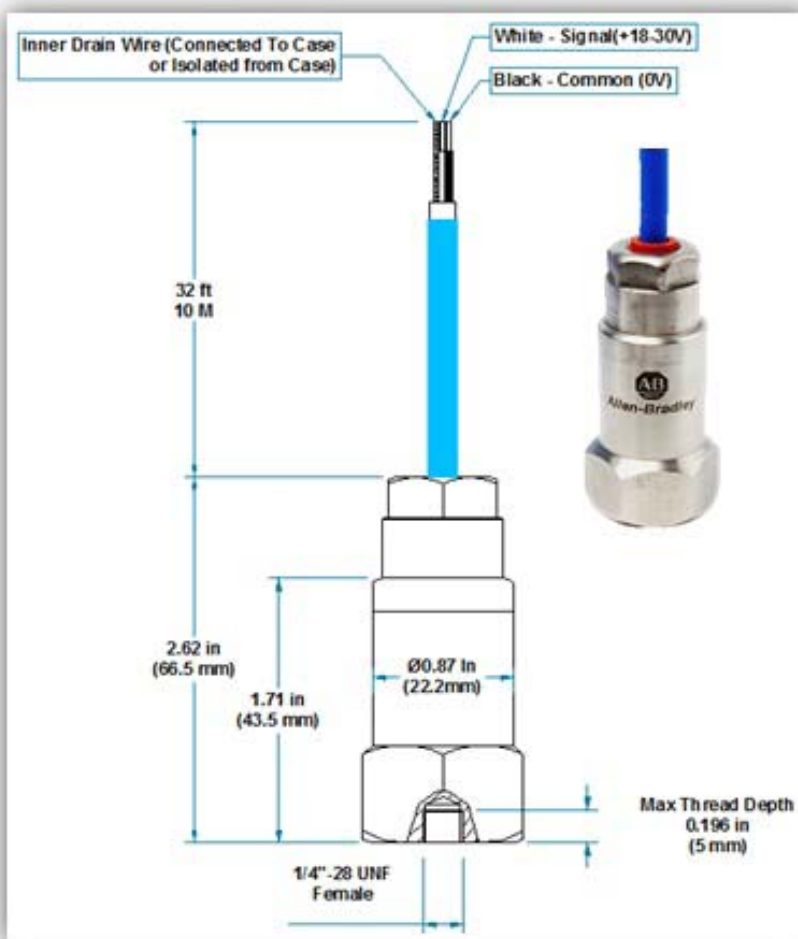


Figure 14 - 1443-ACC-GP-T16-SC Accelerometer



1443-ACC-GP-T32-SC Accelerometer

Sensors with the shield wire that is grounded to the case are non-standard. See [Shield Wire Isolation Sensor and Cable Selection on page 8](#) ordering.

Table 11 - 1443-ACC-GP-T32-SC Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 785 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	2.0...10 kHz	120...600000 cpm
Frequency range (± 3 dB)	0.8...15 kHz	48...900000 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	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+140 °C	-67...+284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
Discharge time constant	≥ 0.5 s	≥ 0.5 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	0.5...8 mA	0.5...8 mA
Output impedance	<150 Ω	<150 Ω
Output bias voltage	10...12V DC	10...12V DC
Electrical isolation (case)	$> 10^{10}$ Ω	$> 10^{10}$ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	19 x 36 mm	3/4 x 1.42 in.
Weight, approx.	48 g	1.7 oz
Mounting thread ⁽⁴⁾	M8 x 1.25 mm male	1/4-28 UNF male
Mounting torque	8 N•m	6 ft•lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin MIL-C-5015	
Electrical connector position	Top	
Cable Length	10 m	32 ft
Cable Type	Shielded Silicone	
Cable Grounding	Shield Case Grounded	
Supplied Accessories ⁽⁵⁾	1443-STD-0-0	
	1443-STD-0-M8	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 15 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

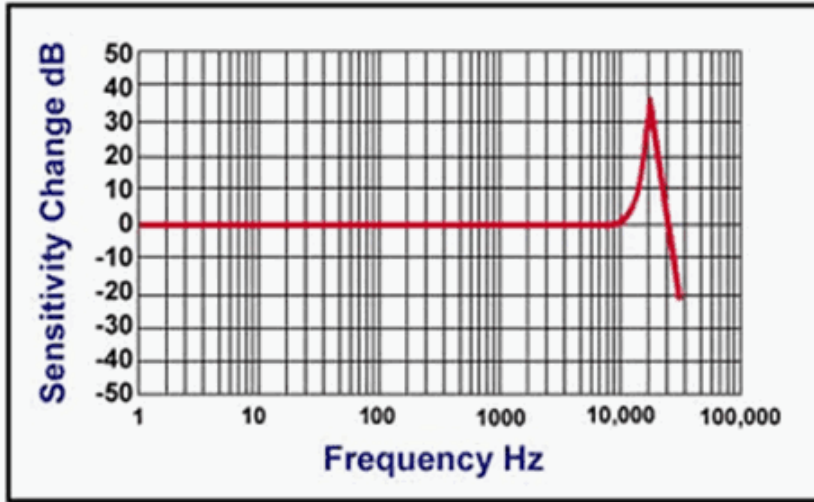
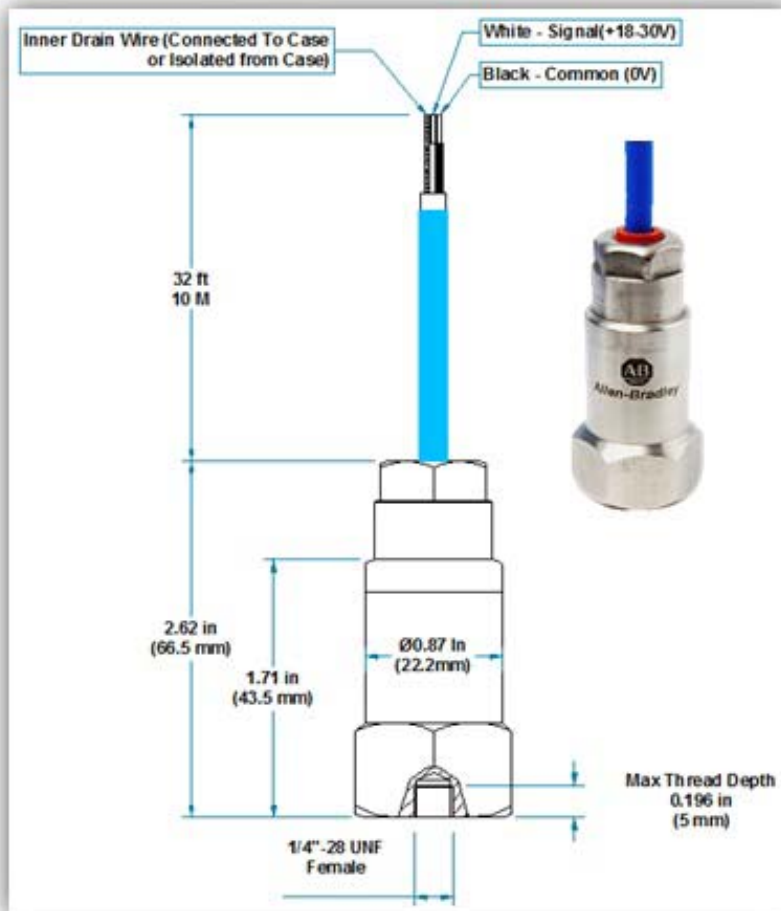


Figure 16 - 1443-ACC-GP-T32-SC Accelerometer



1443-ACC-LF-T Accelerometer

Table 12 - 1443-ACC-LF-T Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	51 mV/(m/s ²)	500 mV/g
Measurement range	± 157 m/s ²	± 16 g
Frequency range ($\pm 5\%$) ⁽²⁾	1.5... 10 kHz	90... 600000 cpm
Frequency range (± 3 dB)	0.1... 15 kHz	6... 900000 cpm
Resonant frequency, typical	25 kHz	1500 kcpm
Broadband resolution (1... 10000 Hz), typical	490 $\mu\text{m/s}^2$	50 μg
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55... +140 °C	-67... +284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
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 Ω	< 100 Ω
Output bias voltage	10... 12V DC	10... 12V DC
Electrical isolation (case)	> 10 ⁸ Ω	> 10 ⁸ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	25 x 40 mm	1 x 1.6 in.
Weight, approx.	110 g	3.9 oz
Mounting thread ⁽⁴⁾	M8 x 1.25 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin MIL-C-5015	
Electrical connector position	Top	
Supplied Accessories ⁽⁵⁾	1443-STD-0-0	
	1443-STD-0-M8	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 17 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

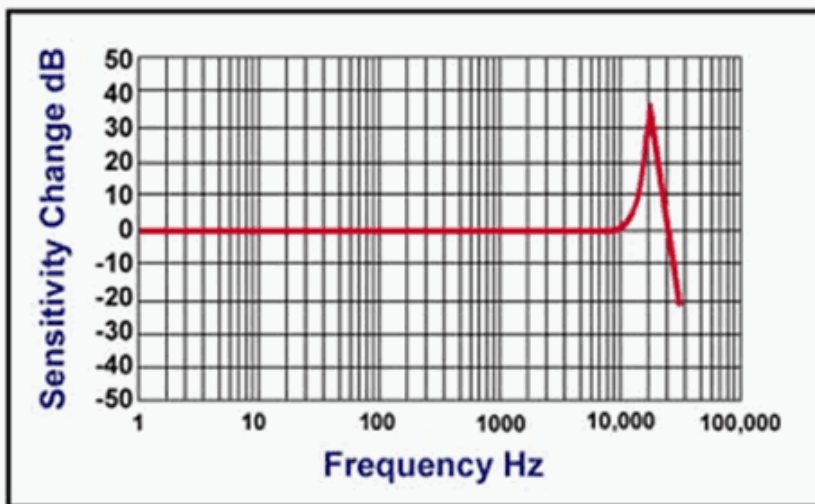
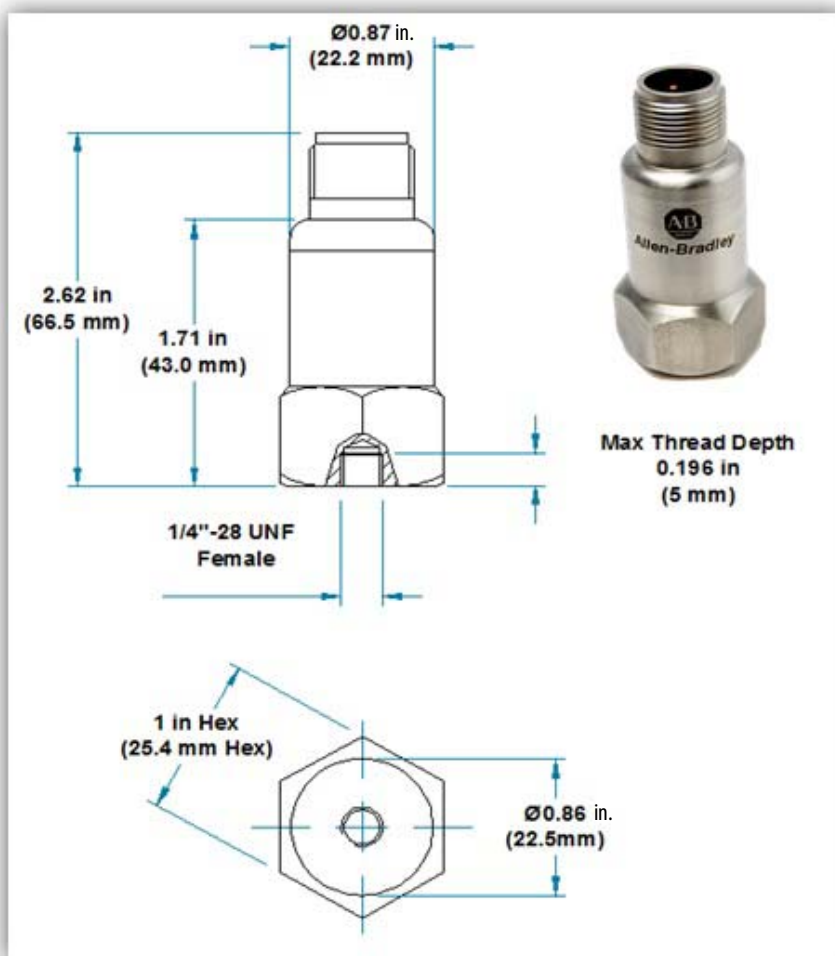


Figure 18 - 1443-ACC-LF-T Accelerometer



1443-ACC-HF-T Accelerometer

Table 13 - 1443-ACC-HF-T Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	51 mV/(m/s ²)	50 mV/g
Measurement range	± 1570 m/s ²	± 160 g
Frequency range ($\pm 5\%$) ⁽²⁾	2.0... 14 kHz	120... 840000 cpm
Frequency range (± 3 dB)	0.8... 20 kHz	48... 1200000 cpm
Resonant frequency, typical	28 kHz	1680 kcpm
Broadband resolution (1... 10000 Hz), typical	2943 μ m/s ²	300 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55... +140 °C	-67... +284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
Discharge time constant	≥ 0.5 s	≥ 0.5 s
Excitation voltage	18... 28 V DC	18... 28 V DC
Constant current excitation	0.5... 8 mA	0.5... 8 mA
Output impedance	< 200 Ω	< 200 Ω
Output bias voltage	10... 12 V DC	10... 12 V DC
Electrical isolation (case)	> 10 ⁸ Ω	> 10 ⁸ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	19x19 mm	3/4 x 0.75 in.
Weight, approx.	48 g	1.7 oz
Mounting thread ⁽⁴⁾	M8 x 1.25 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Shear	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin MIL-C-5015	
Electrical connector position	Top	
Supplied Accessories ⁽⁵⁾	1443-STD-0-0	
	1443-STD-0-M8	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 19 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

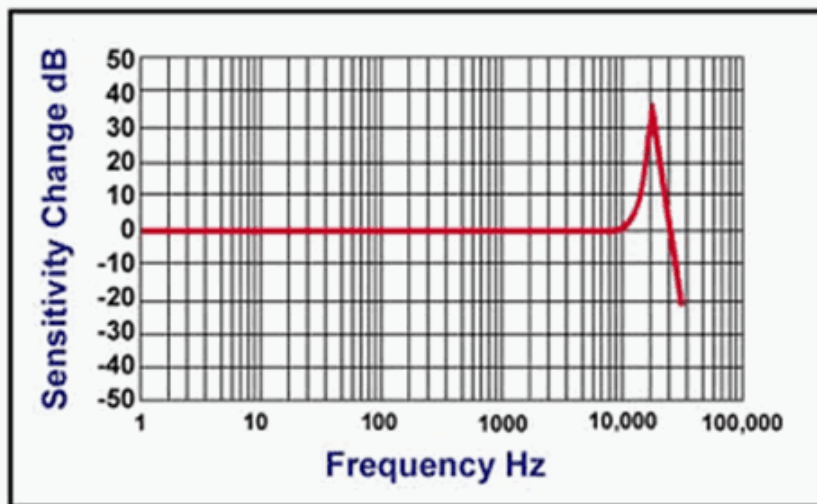
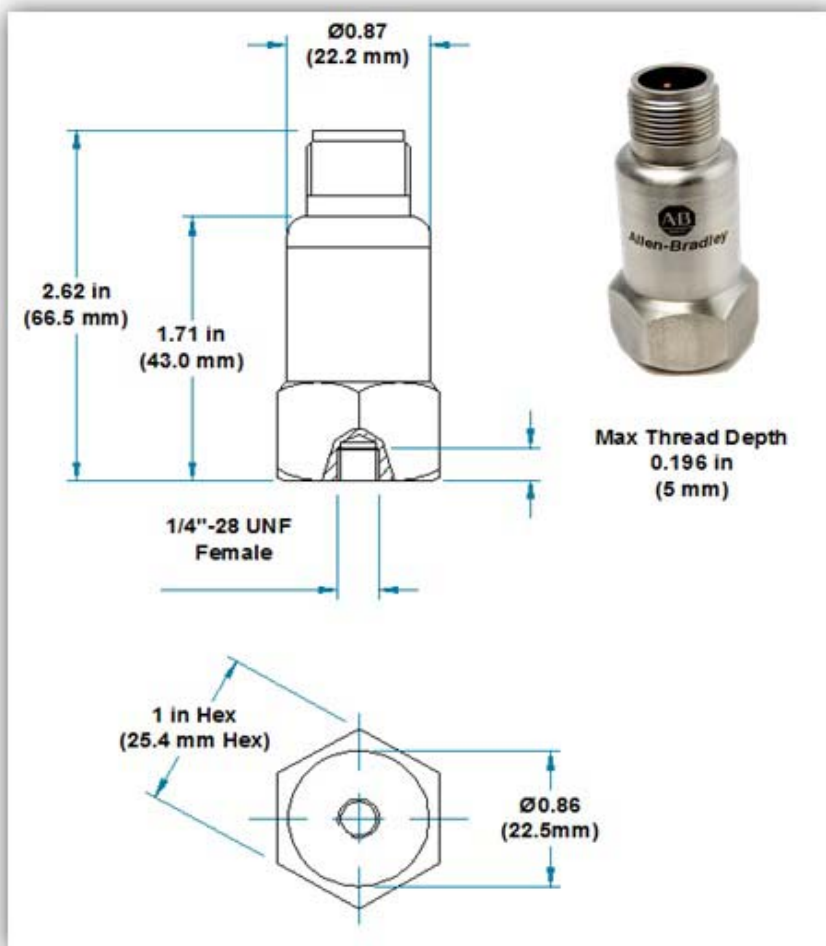


Figure 20 - 1443-ACC-HF-T Accelerometer



1443-ACC-V0-T Accelerometer

Table 14 - 1443-ACC-V0-T Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	4 mV/(mm/s)	100 mV/(in/sec)
Output	± 1.27 m/s	± 50 in/s
Measurement range Peak	± 1000 mm/s	± 39.4 in/s
Frequency range ($\pm 10\%$) ⁽²⁾	3.0...4.5 kHz	180...270000 cpm
Frequency range (± 3 dB)	2.0...6 kHz	120...360000 cpm
Resonant frequency, typical	22 kHz	1320 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	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+140 °C	-67...+284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
Discharge time constant	≥ 0.5 s	≥ 0.5 s
Excitation voltage	18...28 V DC	18...28 V DC
Constant current excitation	2...10 mA	2...10 mA
Output impedance	<200 Ω	<200 Ω
Output bias voltage	10...12 V DC	10...12 V DC
Electrical isolation (case)	> 10 ⁸ Ω	> 10 ⁸ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	25 x 40 mm	1 x 1.6 in.
Weight, approx.	110 g	3.9 oz
Mounting thread ⁽⁴⁾	M8 x 1.25 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin MIL-C-5015	
Electrical connector position	Top	
Supplied Accessories ⁽⁵⁾	1443-STD-0-0	
	1443-STD-0-M8	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 21 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

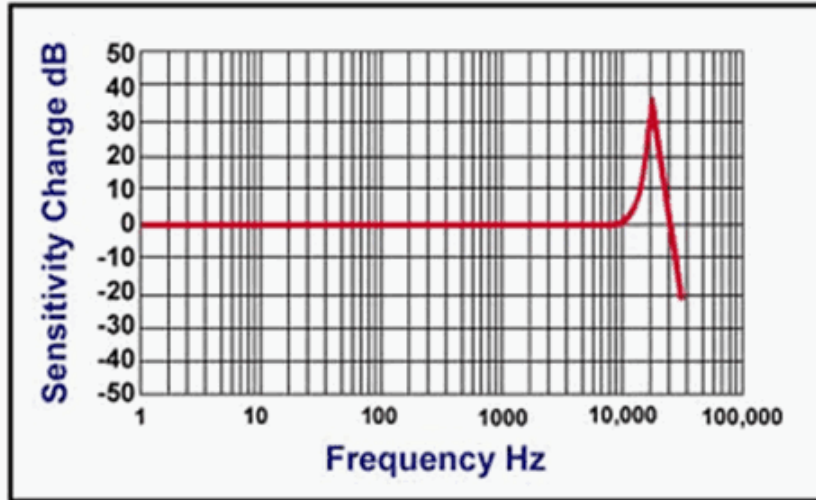
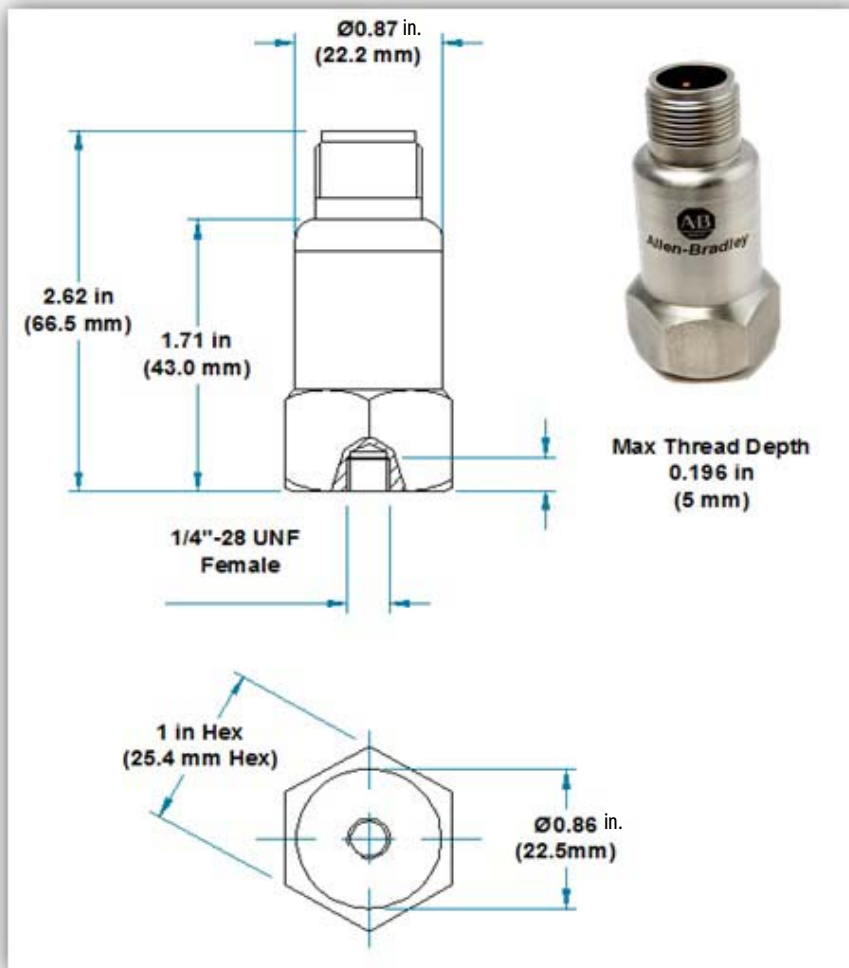


Figure 22 - 1443-ACC-V0-T Accelerometer



1443-ACC-V0-S Accelerometer

Table 15 - 1443-ACC-V0-S Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	4 mV/(mm/s)	100 mV/(in/sec)
Output	± 1.27 m/s	± 50 in/s
Measurement range Peak	± 1000 mm/s	± 39.4 in/s
Frequency range ($\pm 10\%$) ⁽²⁾	3.0...4.5 kHz	180...270000 cpm
Frequency range (± 3 dB)	2.0...6 kHz	120...360000 cpm
Resonant frequency, typical	22 kHz	1320 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	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+140 °C	-67...+284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
Discharge time constant	≥ 0.5 s	≥ 0.5 s
Excitation voltage	18...28 V DC	18...28 V DC
Constant current excitation	2...10 mA	2...10 mA
Output impedance	<200 Ω	<200 Ω
Output bias voltage	10...12 V DC	10...12 V DC
Electrical isolation (case)	> 10 ⁸ Ω	> 10 ⁸ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	25 x 35 x 30 mm	1 x 1.4 x 1.2 in
Weight, approx.	170 g	6.0 oz
Mounting thread ⁽⁴⁾	M6 x 1 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin MIL-C-5015	
Electrical connector position	Side	
Supplied Accessories ⁽⁵⁾	1443-BLT-125-0	
	1443-BLT-125-M6	
	ICS-3 3 pt calibration	

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

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

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

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

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 23 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

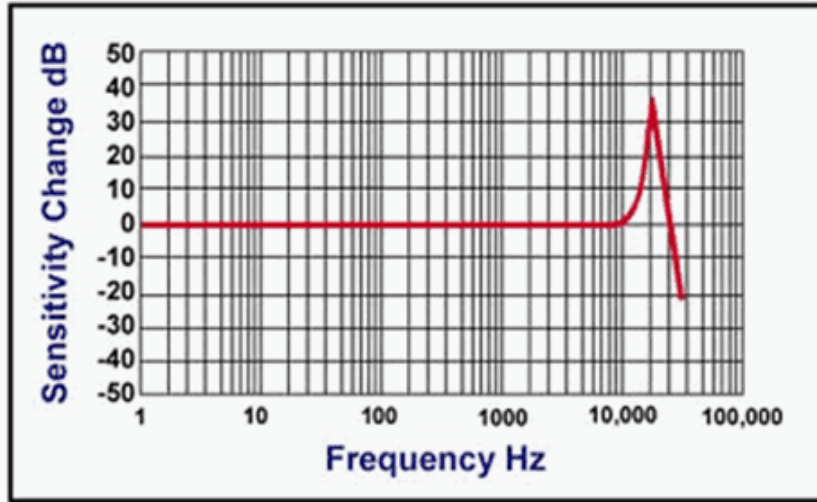
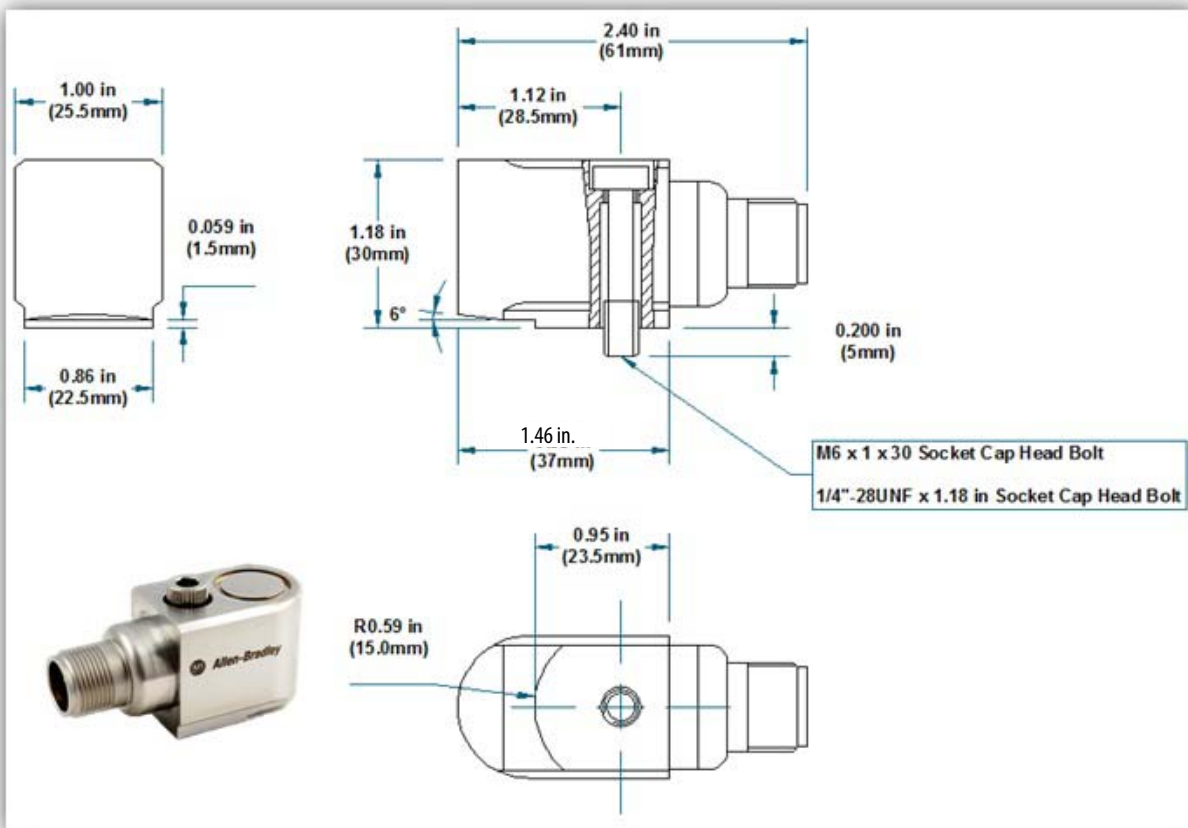


Figure 24 - 1443-ACC-V0-S Accelerometer



1443-ACC-AT-T Accelerometer

Table 16 - 1443-ACC-AT-T Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Sensitivity Temperature	10 mV/°C	5.56mV/°F
Measurement range	± 785 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	2.0...10 kHz	120...600000 cpm
Frequency range (± 3 dB)	0.8...15 kHz	48...900000 cpm
Temperature range	0...100 °C	32...212 °F
Resonant frequency, typical	22 kHz	1320 kcpm
Broadband resolution (1...10000 Hz), typical	2943 μ m/s ²	300 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+140 °C	-67...+284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
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	<150 Ω	<150 Ω
Output bias voltage	10...12V DC	10...12V DC
Electrical isolation (case)	> 10 ¹⁰ Ω	> 10 ¹⁰ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	25 x 40 mm	1 x 1.6 in.
Weight, approx.	110 g	3.9 oz
Mounting thread ⁽⁴⁾	M8 x 1.25 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Three-pin MIL-C-5015	
Electrical connector position	Top	
Supplied Accessories ⁽⁵⁾	1443-STD-0-0	
	1443-STD-0-M8	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 25 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

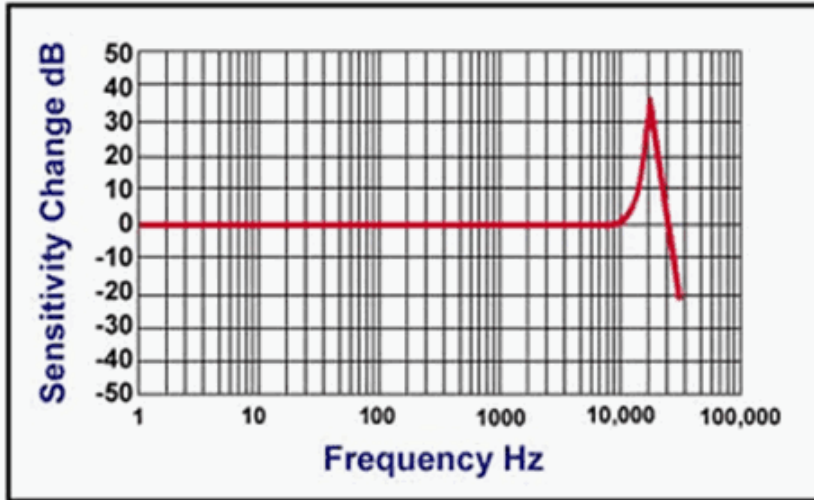
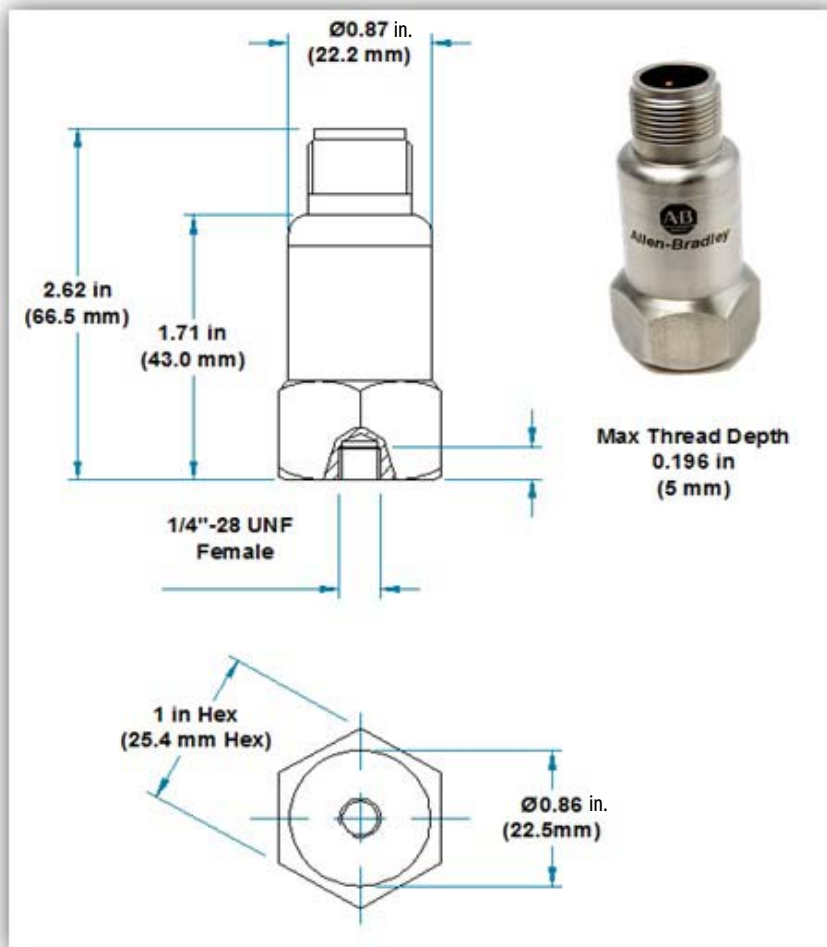


Figure 26 - 1443-ACC-AT-T Accelerometer



1443-ACC-AT-S Accelerometer

Table 17 - 1443-ACC-AT-S Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Sensitivity Temperature	10 mV/°C	5.56mV/°F
Measurement range	± 785 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	2.0...10 kHz	120...600000 cpm
Frequency range (± 3 dB)	0.8...15 kHz	48...900000 cpm
Temperature range	0...100 °C	32...212 °F
Resonant frequency, typical	22 kHz	1320 kcpm
Broadband resolution (1...10000 Hz), typical	2943 μ m/s ²	300 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+140 °C	-67...+284 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
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	<150 Ω	<150 Ω
Output bias voltage	10...12V DC	10...12V DC
Electrical isolation (case)	> 10 ¹⁰ Ω	> 10 ¹⁰ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	25 x 30 x 35mm	1 x 1.18 x 1.38 in
Weight, approx.	170 g	6.0 oz
Mounting thread ⁽⁴⁾	M6 x 1 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Three-pin MIL-C-5015	
Electrical connector position	Side	
Supplied Accessories ⁽⁵⁾	1443-BLT-125-0	
	1443-BLT-125-M6	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 27 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

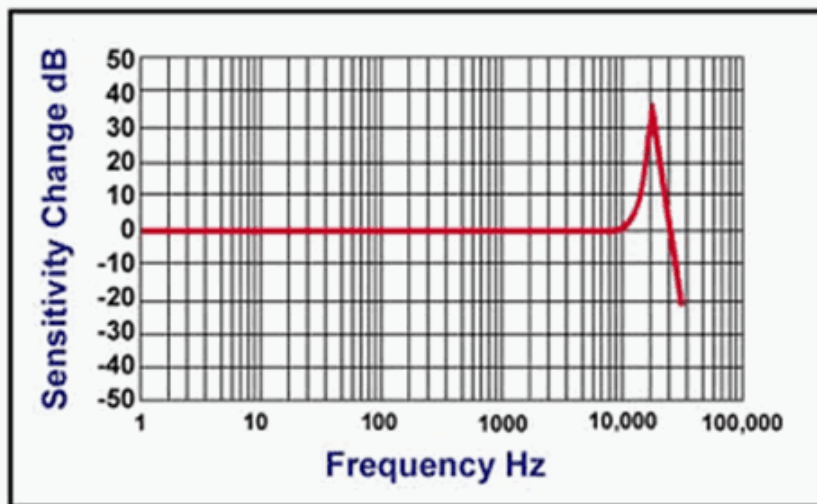
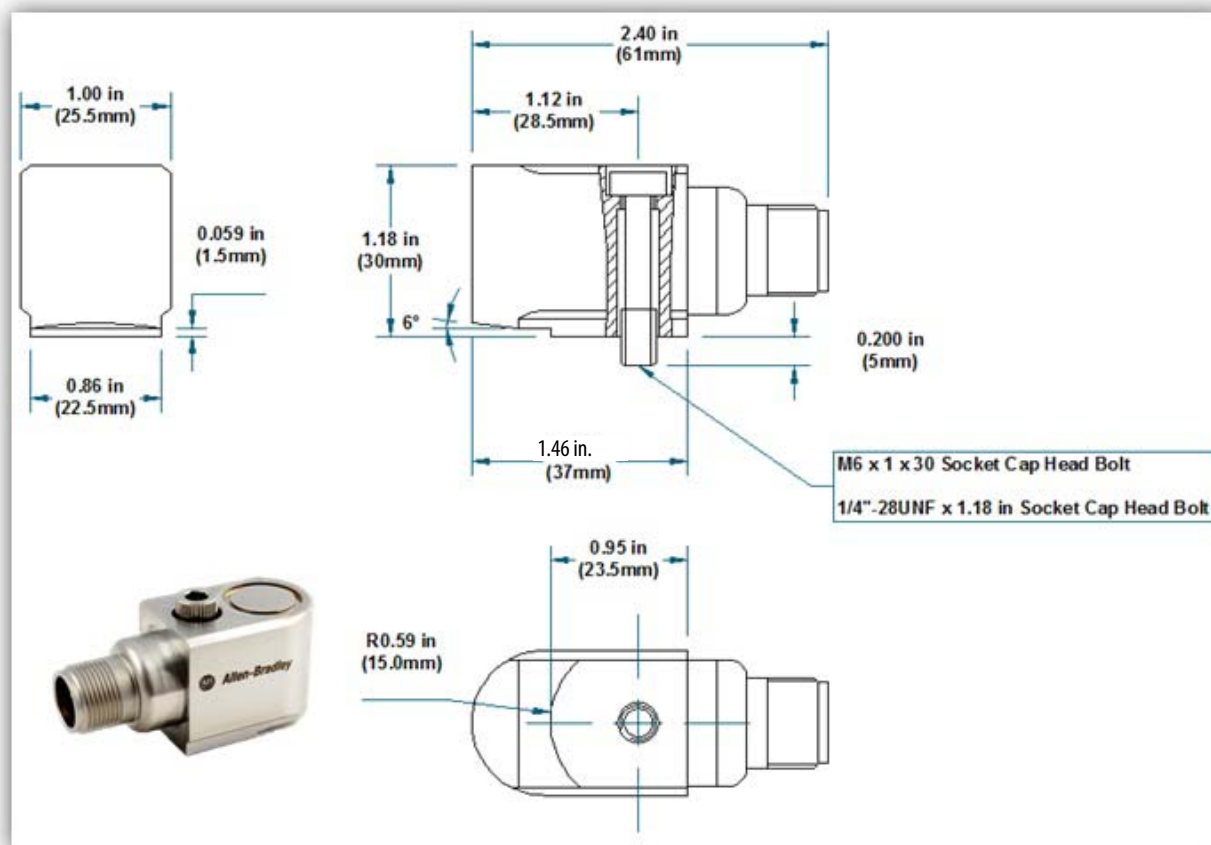


Figure 28 - 1443-ACC-AT-S Accelerometer



1443-ACC-IS-T Accelerometer

Table 18 - 1443-ACC-IS-T Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 785 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	2.0...10 kHz	120...600000 cpm
Frequency range (± 3 dB)	0.8...15 kHz	48...900000 cpm
Resonant frequency, typical	28 kHz	1680 kcpm
Broadband resolution (1...10000 Hz), typical	2943 μ m/s ²	300 μ g
Non-linearity ⁽³⁾	$\pm 1\%$	$\pm 1\%$
Transverse sensitivity	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+110 °C	-67...+230 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
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	<150 Ω	<150 Ω
Output bias voltage	10...12V DC	10...12V DC
Electrical isolation (case)	> 10 ¹⁰ Ω	> 10 ¹⁰ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	19 x36 mm	3/4 x 1.42 in.
Weight, approx.	48 g	1.7 oz
Mounting thread ⁽⁴⁾	M8 x 1.25 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin MIL-C-5015	
Electrical connector position	Top	
Supplied Accessories ⁽⁵⁾	1443-STD-0-0	
	1443-STD-0-M8	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 29 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

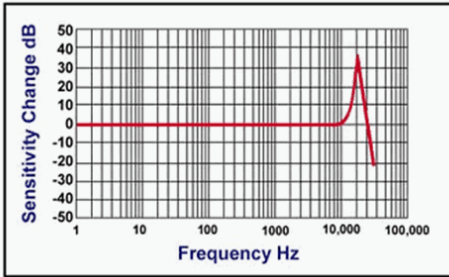
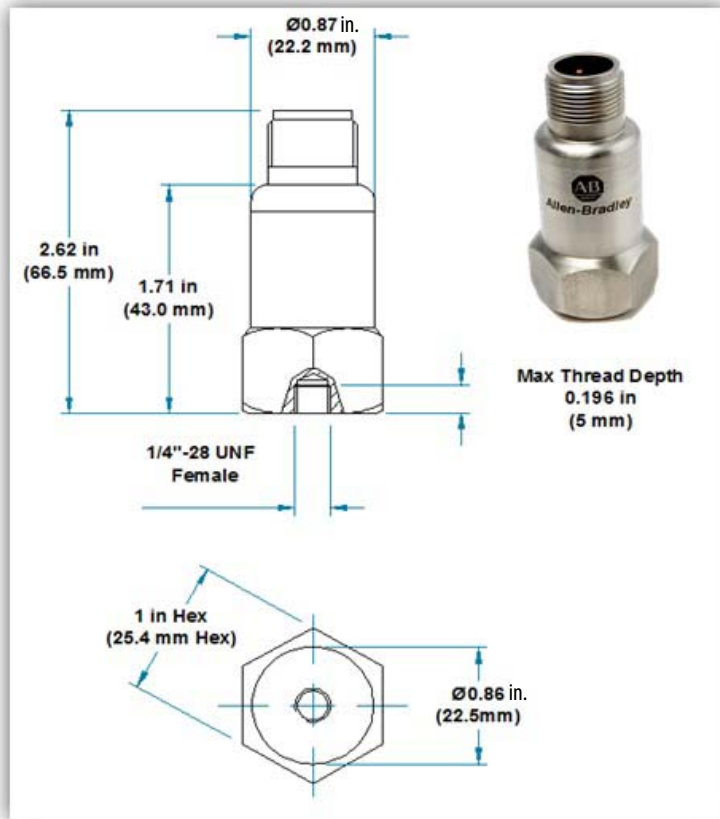


Figure 30 - 1443-ACC-IS-T Accelerometer



1443-ACC-IS-S Accelerometer

Table 19 - 1443--ACC-IS-S Accelerometer Specifications

Attribute	Value	
Performance		
Sensitivity ($\pm 10\%$) ⁽¹⁾	10.2 mV/(m/s ²)	100 mV/g
Measurement range	± 785 m/s ²	± 80 g
Frequency range ($\pm 5\%$) ⁽²⁾	2.0...10 kHz	120...600000 cpm
Frequency range (± 3 dB)	0.8...15 kHz	48...900000 cpm
Resonant frequency, typical	22 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	< 5%	< 5%
Environmental		
Overload limit (shock)	49050 m/s ² pk	5000 g pk
Temperature range	-55...+110 °C	-67...+230 °F
Enclosure rating	IP66 to 68, depending upon the cable assembly used.	IP66 to 68, depending upon the cable assembly used.
Electrical		
Settling time (within 1% of bias)	< 2.0 s	< 2.0 s
Discharge time constant	≥ 0.5 s	≥ 0.5 s
Excitation voltage	18...28V DC	18...28V DC
Constant current excitation	...	2...20 mA
Output impedance	<150 Ω	<150 Ω
Output bias voltage	10...12V DC	10...12V DC
Electrical isolation (case)	$> 10^{10}$ Ω	$> 10^{10}$ Ω
Electrical protection	500V	500V
Physical		
Size (hex x height)	25 x 30 x 35 mm	1 x 1.18 x 1.38 in
Weight, approx.	170 g	6.0 oz
Mounting thread ⁽⁴⁾	M6 x 1 mm male	1/4-28 UNF male
Mounting torque	8 N·m	6 ft·lb
Sensing element	Ceramic	
Sensing geometry	Compression	
Housing material	Stainless Steel	
Sealing	Welded hermetic	
Electrical connector	Two-pin MIL-C-5015	
Electrical connector position	Side	
Supplied Accessories ⁽⁵⁾	1443-BLT-125-0	
	1443-BLT-125-M6	
	ICS-3 3 pt calibration	

(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 UNF has no equivalent in metric units.

(5) ICS-3 3 pt calibration 10 Hz, 100 Hz, 1 kHz.

Figure 31 - Sensitivity Change vs. Frequency for the Accelerometer (Same for All 1443 Series)

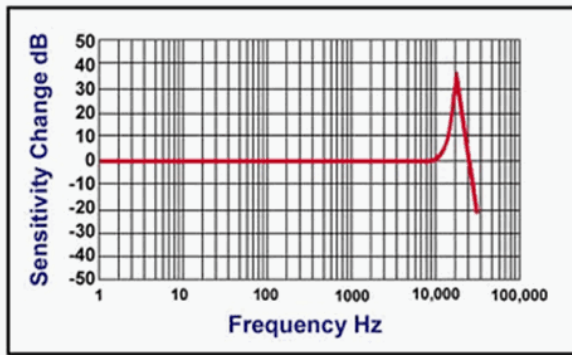
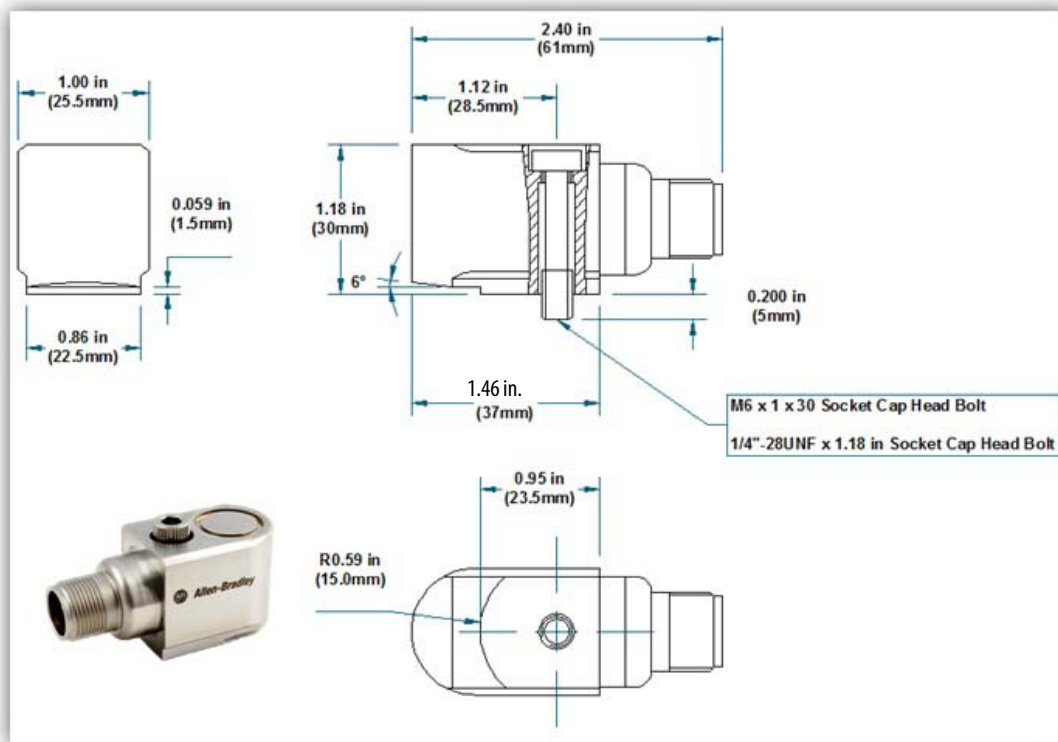


Figure 32 - 1443-ACC-IS-5 Accelerometer



Sensor Certifications and Approvals

Table 20 - Sensor Certifications

Certification⁽¹⁾ (When Product Is Marked)	1443-ACC-IS-S and 1443-ACC-IS-T
Entity Parameters	Ui = Vmax = 28V, Ii=Imax=93 mA, Pi=0.65 W, Ci=1.0 nF, Li=zero
Temperature, ambient, max.	Hazardous Area - North America -55 °C...110 °C (-67...+230 °F) Hazardous Area - ATEX -55 °C...110 °C (-67...+230 °F) Hazardous Area - IECEx -55 °C...110 °C (-67...+230 °F)
Temperature Codes	For Div 1,2 Groups A-G T4 (-55...+110 °C) (-67...+230 °F) T6 (-55...+60 °C) (-67...+140 °F) For Zone 20, Dust group IIIC T130 °C (-55...+110 °C) (-67...+230 °F) T80 °C (-55...+60 °C) (-67...+140 °F) For Class I Zone 0 gas group IIC T4 (-55...+110 °C) (-67...+230 °F) ATEX and IECEx: For Ex ia IIC T4 (-55...+110 °C) (-67...+230 °F) T6 (-55...+60 °C) (-67...+140 °F) For Ex ia IIIC T130 °C (-55...+110 °C) (-67...+230 °F) T80 °C (-55...+60 °C) (-67...+140 °F)
Cable Assemblies For use with 1443-ACC-IS-S and 1443-ACC-IS-T	1443-CBL-MS2IBC 1443-CBL-MS2IBC-50A - tighten to 4 N-m, temperature range: -40...100 °C (-40...+212 °F) 1443-CBL-MS2IBC - rated IP66 1443-CBL-MS2GBC - push on connection, temperature range: -50...110 °C (-58...+230 °F) 1443-CBL-MS2GBC - rated IP68 1443-CBL must conform with Rockwell Automation® Environmental Specification 970-20-01
Wiring Category ⁽²⁾	2 - on shielded signal ports
Ex	European Union 94/9/EC ATEX Directive, compliant with: EN 60079-0:2010+A11:2013; General Requirements EN 60079-11:2012 Explosive Atmospheres, Protection 'i' ☞ I M1 Ex ia I Ma -55 °C < Ta < +110 °C (-67...+230 °F) ☞ II 1 G Ex ia IIC T4 Ga -55 °C < Ta < +110 °C (-67...+230 °F) ☞ II 1 G Ex ia IIC T6 Ga -55 °C < Ta < +60 °C (-67...+140 °F) ☞ II 1 D Ex ia IIIC T130 °C IP65 Da -55 °C < Ta < +110 °C (-67...+230 °F) ☞ II 1 D Ex ia IIIC T80 °C IP65 Da -55 °C < Ta < +60 °C (-67...+140 °F) Baseefa15ATEX0101X Baseefa15ATEX0100
IECEx	IECEx System, compliant with: IEC 60079-0:2011 Edition 6; General Requirements IEC 60079-11:2011 Edition 6; Explosive Atmospheres, Protection 'i' Ex ia I Ma -55 °C < Ta < +110 °C (-67...+230 °F) Ex ia IIC T4 Ga -55 °C < Ta < +110 °C (-67...+230 °F) Ex ia IIC T6 Ga -55 °C < Ta < +60 °C (-67...+140 °F) Ex ia IIIC T130 °C IP65 Da -55 °C < Ta < +110 °C (-67...+230 °F) Ex ia IIIC T80 °C IP65 Da -55 °C < Ta < +60 °C (-67...+140 °F) IECEx BAS 15.0073X IECEx BAS 15.0072

Table 20 - Sensor Certifications (Continued)

c-SGS-us	SGS Certified Process Control Equipment for Class I, Zone 0 Hazardous Locations, which are certified for US and Canada. See SGS File USTC/15/FAI/01350 AEx, ia, IIC, T4, Ga, -55°C...+110 °C
c-SGS-us	SGS Certified Process Control Equipment for Zone 20 Hazardous Locations, which are certified for US and Canada. See SGS File USTC/15/FAI/01350 AEx, ia, IIIC, T130°C, IP65, Da, -55 °C...+110 °C AEx, ia, IIIC, T80°C, IP65, Da, -55 °C...+60 °C
c-SGS-us	SGS Certified Process Control Equipment for Class I, II, III Division 1, 2 Group A-G Hazardous Locations, which are certified for US and Canada. See SGS File USTC/15/FAI/01350 T4, -55 °C...+110 °C, IP65 T6, -55 °C...+60 °C

- (1) See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.
- (2) Use this conductor category information to plan conductor routing. See Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

Accessories

This section describes the accessories that are available for the sensors.

Cables

These cables are available for the two-pin sensors.

Table 21 - Cables for Two-pin Sensors

Catalog Number	Description
1443-CBL-MS2IBC-16S	16 ft of silicone twisted shielded pair cable w/ molded 2-pin MIL connector and terminated to blunt cut, shield isolated from the connector
1443-CBL-MS2IBC-32S	32 ft of silicone twisted shielded pair cable w/ molded 2-pin MIL connector and terminated to blunt cut, shield isolated from the connector
1443-CBL-MS2IBC-64S	64 ft of silicone twisted shielded pair cable w/ molded 2-pin MIL connector and terminated to blunt cut, shield isolated from the connector
1443-CBL-MS2GBC-16S	16 ft of silicone twisted shielded pair cable w/ molded 2-pin MIL connector and terminated to blunt cut, shield grounded to the connector ⁽¹⁾
1443-CBL-MS2GBC-32S	32 ft of silicone twisted shielded pair cable w/ molded 2-pin MIL connector and terminated to blunt cut, shield grounded to the connector ⁽¹⁾
1443-CBL-MS2GBC-64S	64 ft of silicone twisted shielded pair cable w/ molded 2-pin MIL connector and terminated to blunt cut, shield grounded to the connector ⁽¹⁾
1443-CBL-MS2IBC-50A	50 ft of stainless steel armored jacket over polyurethane twisted shielded pair cable w/ 2-pin MIL (AM) connector and terminated to blunt cut, shield isolated from the connector

(1) Cables with the shield that is grounded to the connector are non-standard. See [Shield Wire Isolation Sensor and Cable Selection on page 8](#) before ordering.

TIP Before selecting a 'GBC' version cable, see [Shield Wire Isolation Sensor and Cable Selection on page 8](#).

Figure 33 - 1443-CBL-MS2IBC

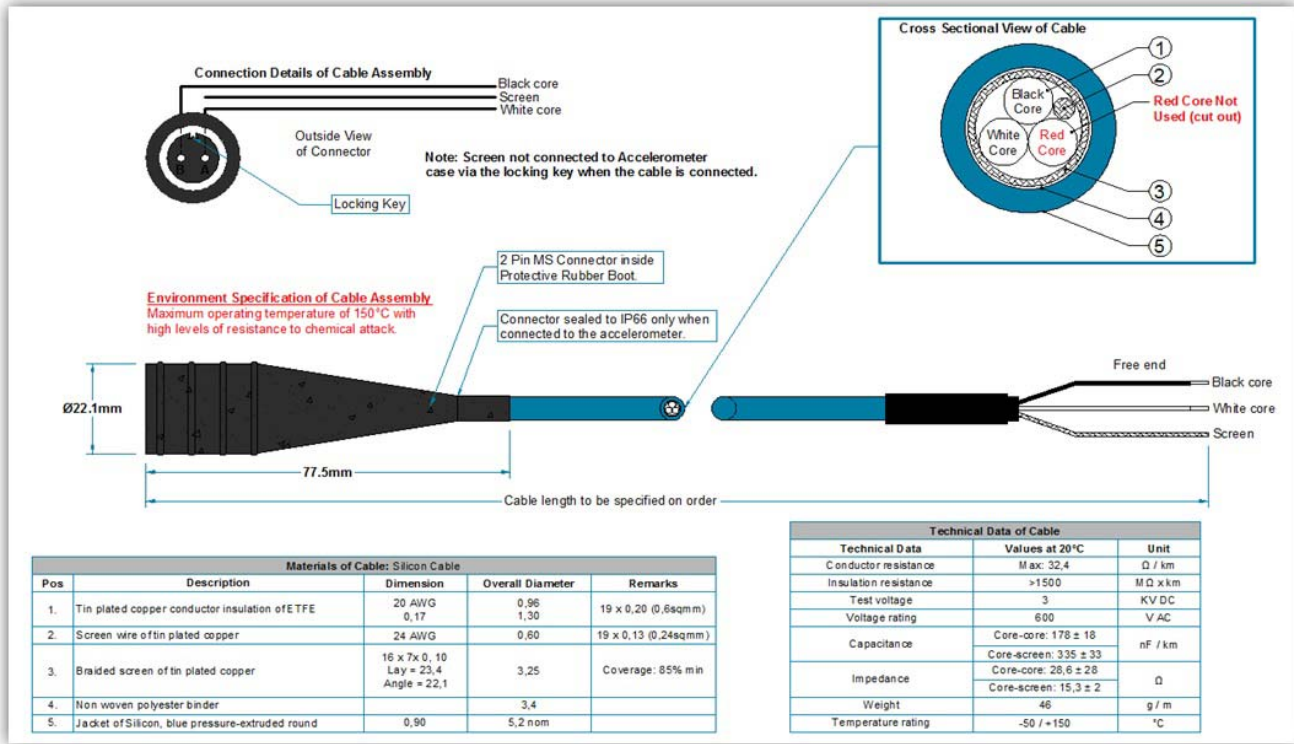


Figure 34 - 1443-CBL-MS2GBC

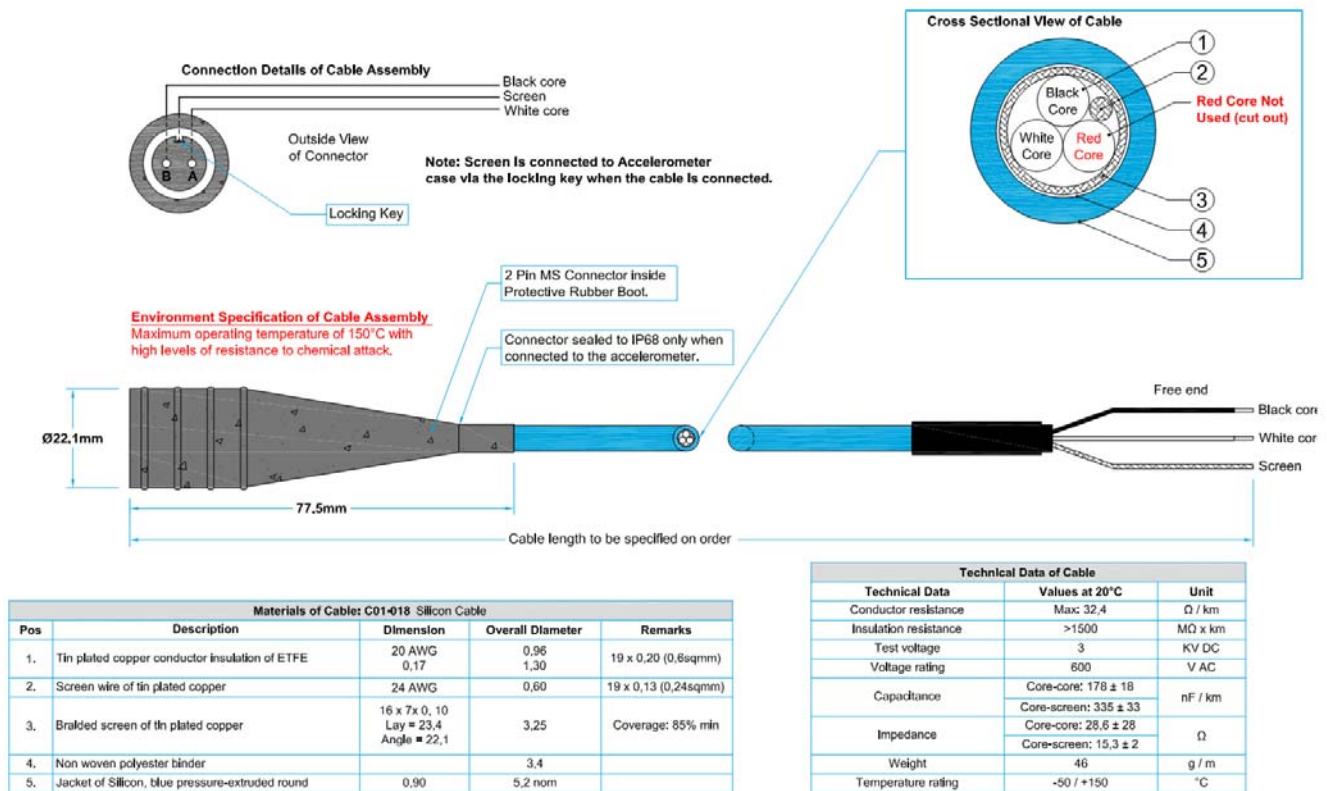
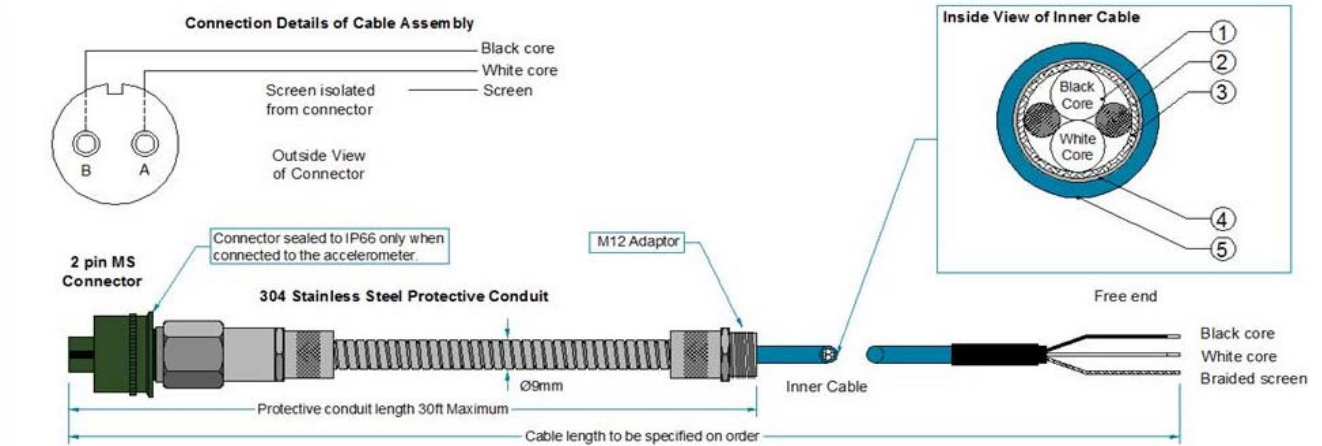


Figure 35 - 1443 -MS2IBC-50A



Environment Specification of Cable Assembly
 Maximum operating temperature of 150°C with high levels of resistance to chemical attack.

Materials of Cable: FR Polyurethane Cable				
Pos	Description	Dimension	Overall Diameter	Remarks
1.	Tin plated copper conductor insulation of ETFE	24 AWG	0,60 1,14	19 x 0,13
2.	Solid LT filler		0,6	
3.	Braided screen of tin plated copper	0,10mm	2,8	Optimised: 90% min
4.	Non woven polyester binder		3,0	
5.	Jacket of FR Polyurethane cable, Blue Pressure-extruded round	0,60mm	4,2 4,0	Nominal OD Minimum OD

Technical Data of Cable		
Technical Data	Values at 20°C	Unit
Conductor Resistance	96,0	Ω / km
Insulation Resistance	>1500	MΩ x km
Test Voltage	3	KV DC
Voltage Rating	600	V AC
Capactance	Core-core: 88	nF / km
	Core-screen: 158	
Impedance	Core-core: 56	Ω
	Core-screen: 31	
Inductance	0,715	μH / m
Radiation Tolerance	2x 10 E5	Gy
Weight	24,5	g / m
Temperature Rating	-40 / +100	°C

Table 22 - Cables for Three-pin Sensors

Catalog Number	Description
1443-CBL-BC3BC-500	Bulk spool of 500 ft of silicone twisted shielded 3-conductor cable
1443-CBL-MS3IBC-16S	16 ft of silicone twisted shielded 3-conductor cable w/ molded 3-pin MIL connector and terminated to blunt cut, shield isolated from the connector
1443-CBL-MS3IBC-64S	64 ft of silicone twisted shielded 3-conductor cable w/ molded 3-pin MIL connector and terminated to blunt cut, shield isolated from the connector
1443-CBL-MS3IBC-112S	112 ft of silicone twisted shielded 3-conductor cable w/ molded 3-pin MIL connector and terminated to blunt cut, shield isolated from the connector

Figure 36 - 1443-CBL-BC3BC-500

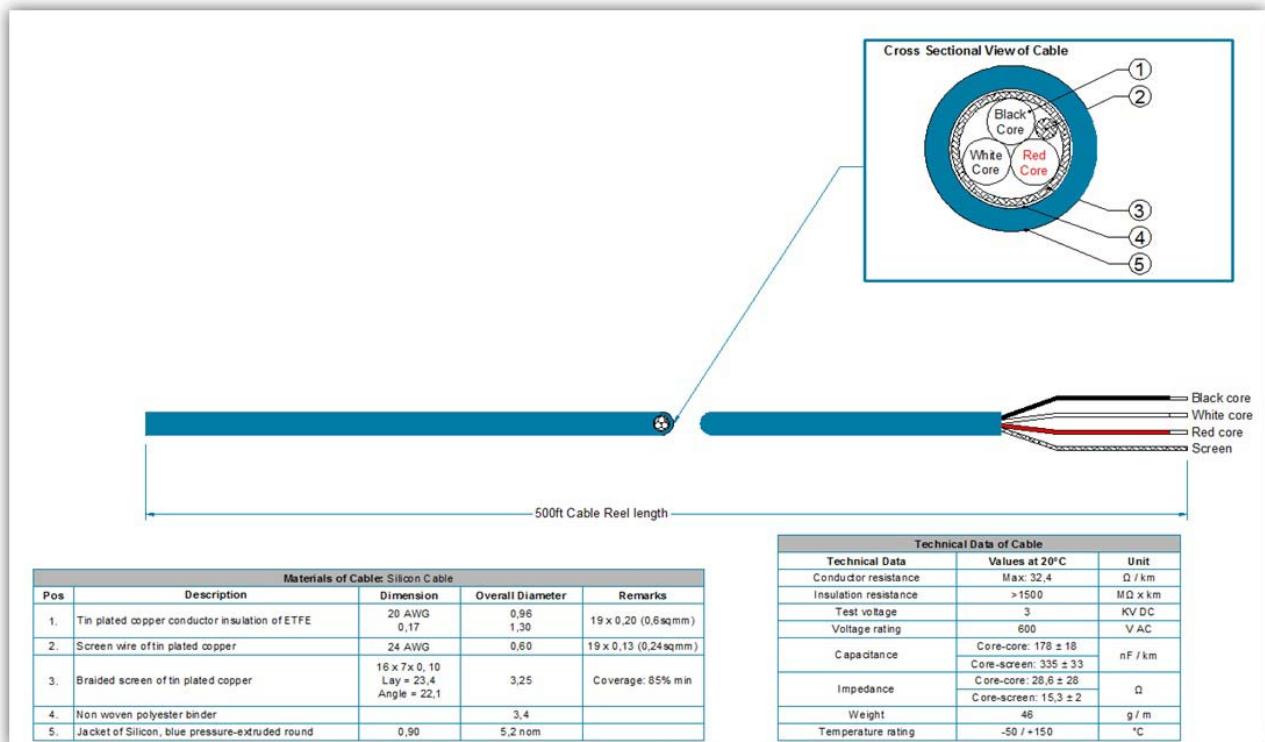


Figure 37 - 1443-CBL-MS3IBC (All Lengths)

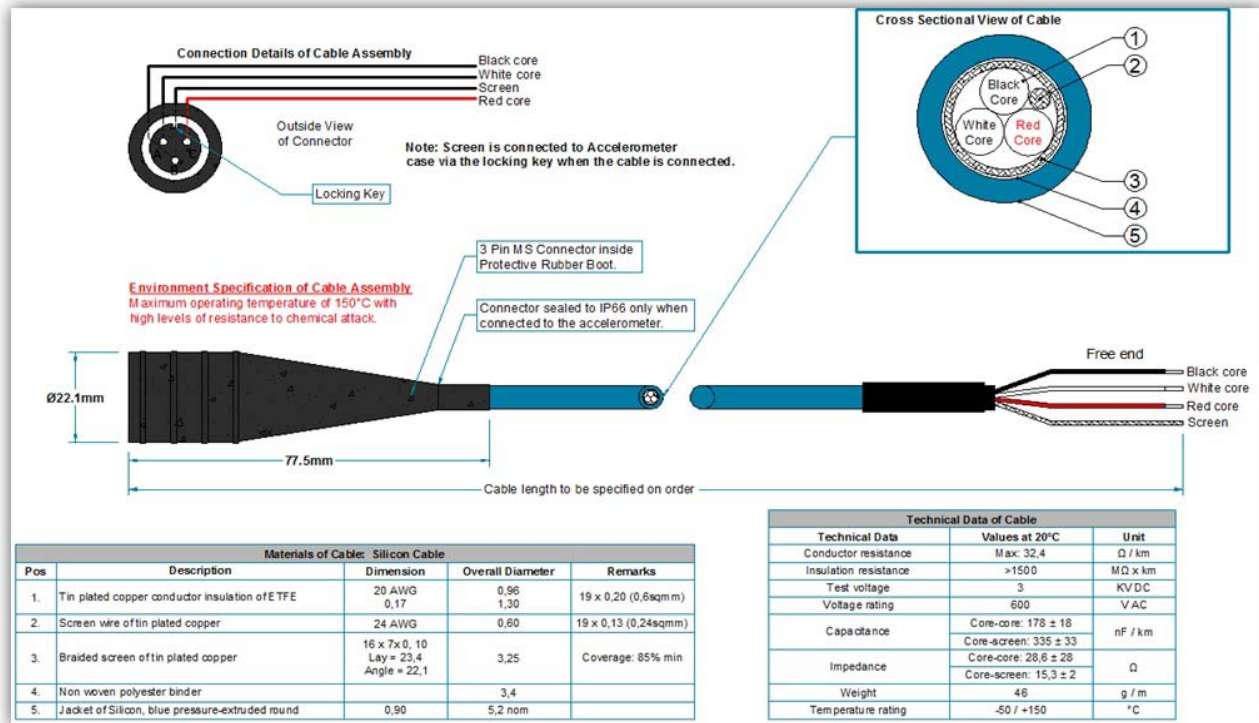


Table 23 - Adapter Cables

Catalog Number	Description
1443-CBL-MSILM-6	Coiled data collector sensor cable, Two pin MS to lemo, top
1443-CBL-MSILM-50	50 ft, data collector balancing cable, Two pin MS to lemo, top
1443-CBL-LMBNC-1	1 foot, lemo to BNC adapter

Figure 38 - 1443-CBL-MSILM-6

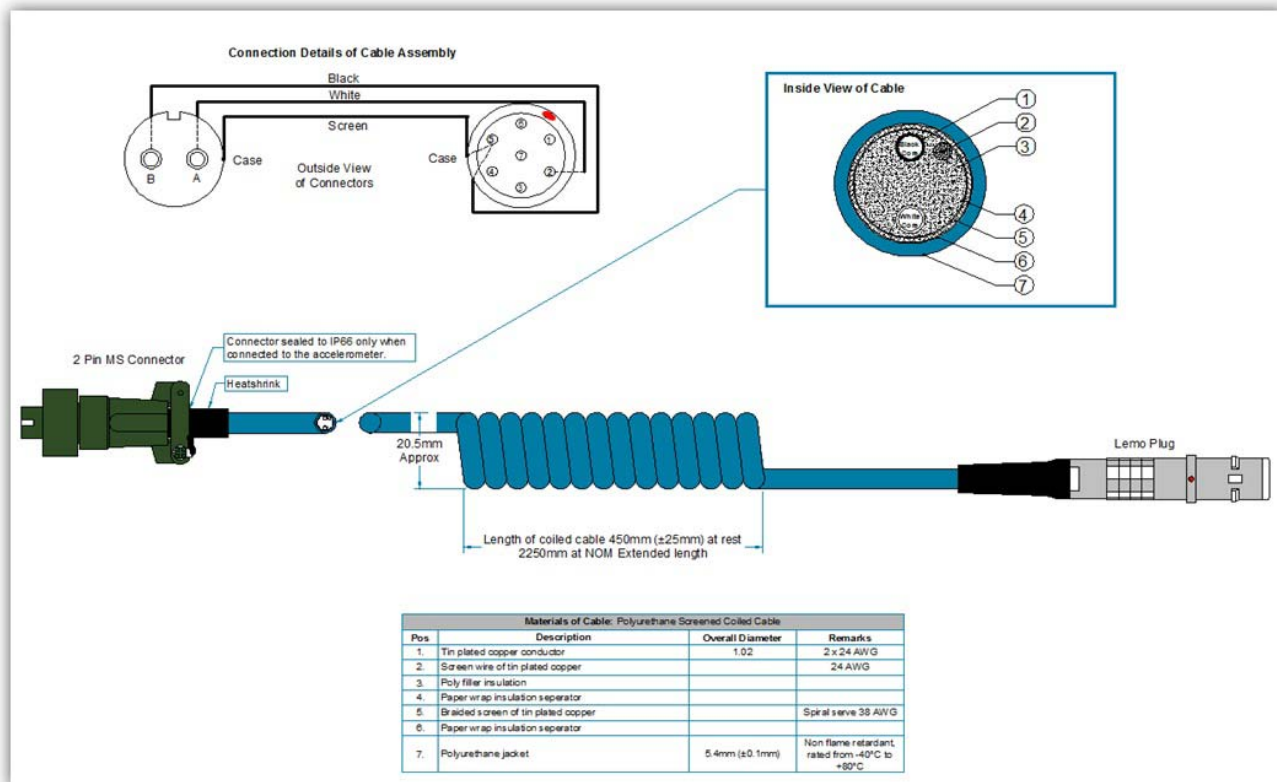


Figure 39 - 1443-CBL-MSILM-50

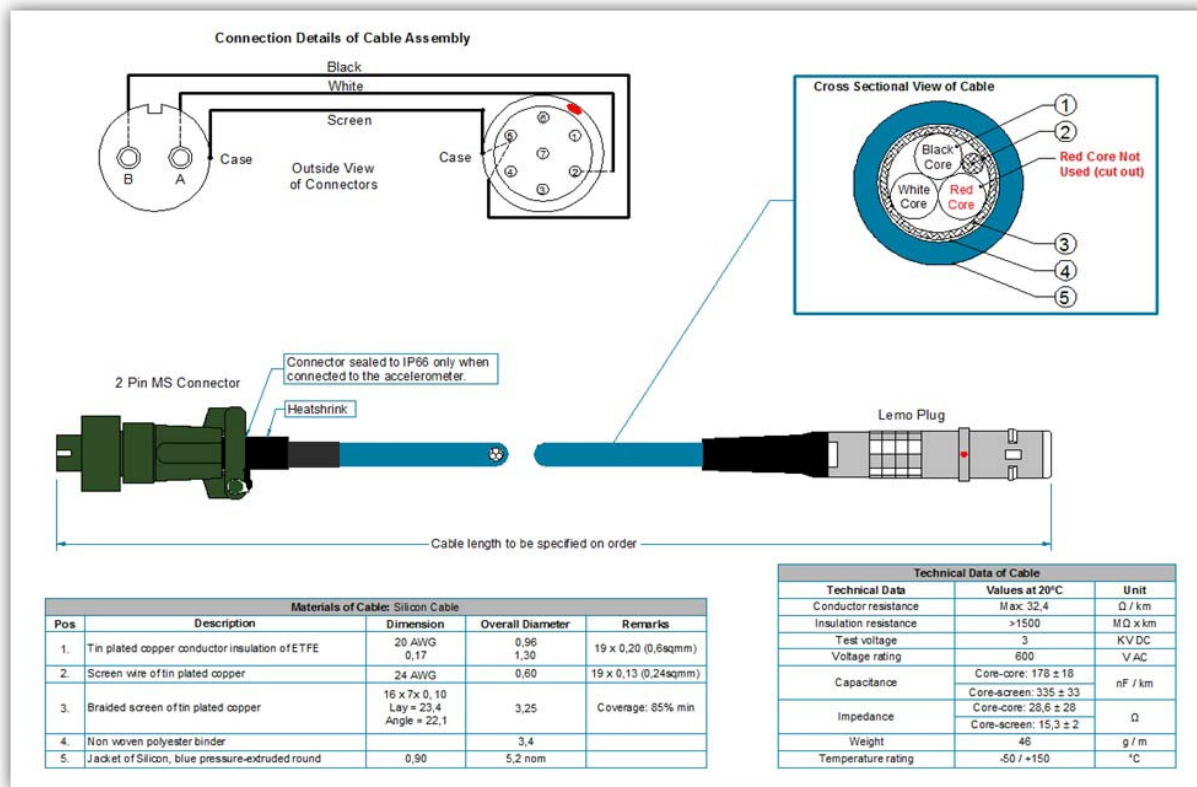
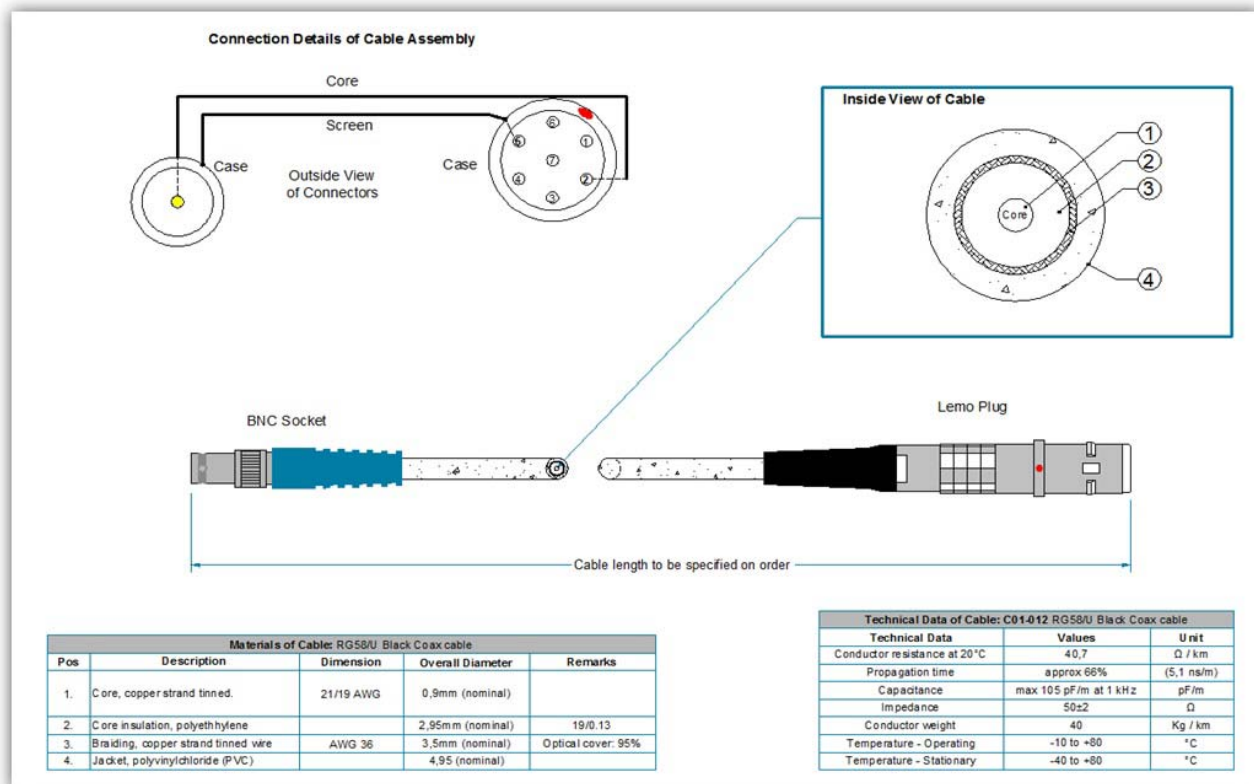


Figure 40 - 1443-CBL-LMBNC-1



Connectors

Table 24 - Connectors

Catalog Number	Description
1443-CON-MS2-SP	Qty 5: silicon boot, splash proof, push on: Two pin MS, top exit
1443-CON-MS3-SP	Qty 5: silicon boot, splash proof, push on: Three pin MS, top exit

Figure 41 - 1443-CON-MS2-SP & 1443-CON-MS3-SP



Mounting Accessories

Table 25 - Mounting Accessories

Catalog Number	Description
1443-MAG-075C-14 ⁽¹⁾	3/4" diameter curved surface magnet (14 lb pull, 1/4-28)
1443-MAG-075F-15 ⁽¹⁾	3/4" diameter flat surface-magnet (15 lb pull, 1/4-28)
1443-MAG-100C-35 ⁽¹⁾	1" diameter curved surface-magnet (35 lb pull, 1/4-28)
1443-MAG-100F-35 ⁽¹⁾	1" diameter flat surface-magnet (35 lb pull, 1/4-28)
1443-MAG-150C-55 ⁽¹⁾	1"-1/2" diameter curved surface-magnet (55 lb pull, 1/4-28)
1443-MAG-150F-50 ⁽¹⁾	1"-1/2" diameter flat surface-magnet (50 lb pull, 1/4-28)
1443-STD-0-0	Mounting Stud - 1/4-28 to 1/4-28
1443-STD-0-M8	Mounting Stud - 1/4-28 to M8
1443-BLT-125-M6	Through bolt - M6
1443-BLT-125-0	Through bolt - 1/4-28
1443-PRB-40	Probe tip 4" length, 1/2" hex tapered to point (1/4-28)
1443-PRB-90	Probe tip 9" length with 1/4-28 stud, aluminum
1443-PAD-075-0	Mounting pad 1/4-28

(1) Magnet material: Neodymium-Iron-Boron (NdFeB)

Figure 42 - 1443-MAG (Representative of All Sizes) - Left: Curved Surface, Right: Flat Surface

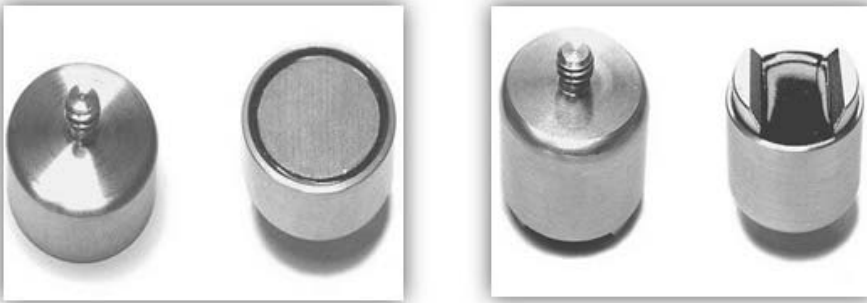


Figure 43 - 1443-STD-0-0

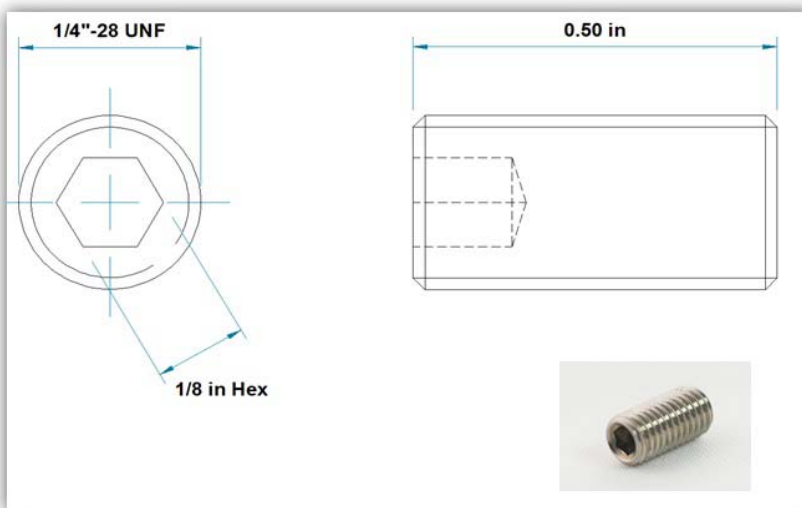
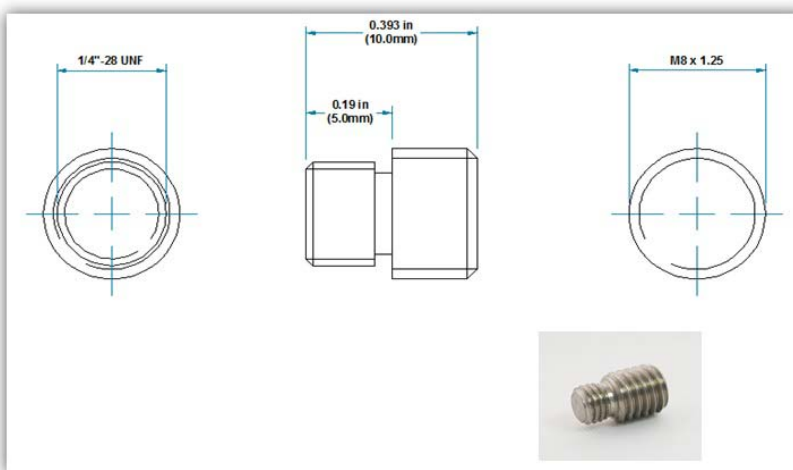


Figure 44 - 1443-STD-0-M8



TIP Through bolt cannot be used with EK 9000 Series side exit sensors.

Figure 45 - 1443-BLT-125-M6

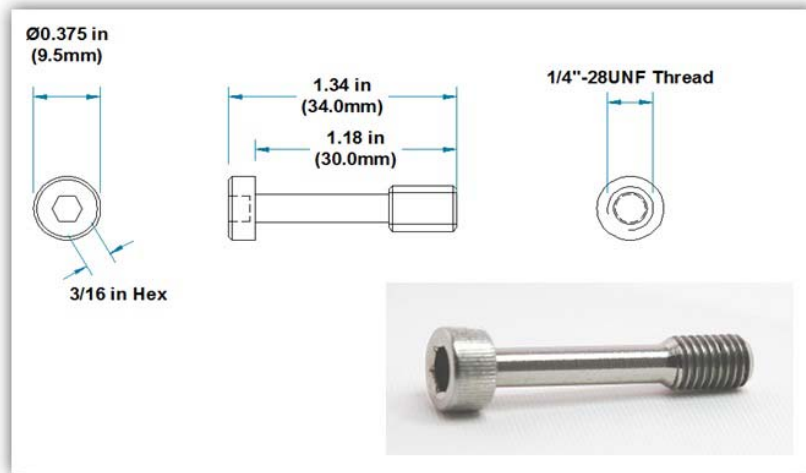


Figure 46 - 1443-BLT-125-0

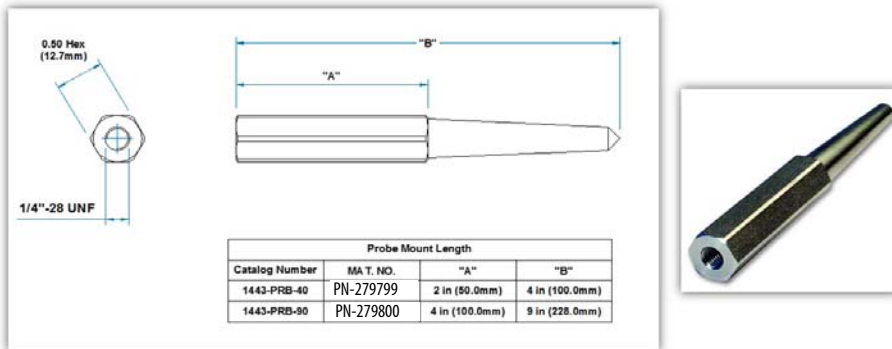


Figure 47 - 1443-PAD

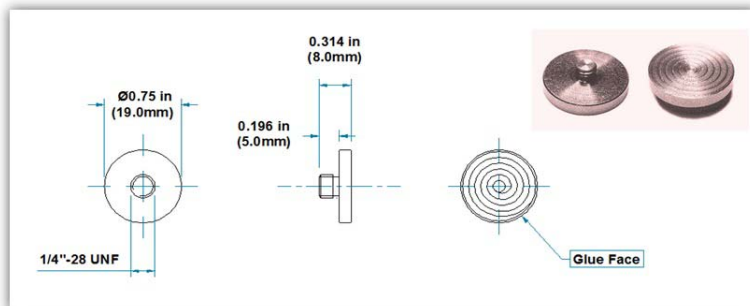


Figure 48 - 1443-SFT-125 (Representative for All)

Spot-face Tool Kits

Table 26 - Accessory Spot-face Tool Kit

Catalog Number	Description
1443-SFT-125-0	Spot-face tool kit for sensor mounting, 1.25" diameter, 1/4-28 pilot, two Drill Bits, three Taps, Tap Wrench, Allen Wrench, Case
1443-SFT-125-M6	Spot-face tool kit for sensor mounting, M6 pilot, two Drill Bits, three Taps, Tap Wrench, Allen Wrench, Case
1443-SFT-125-M8	Spot-face tool kit for sensor mounting, M8 pilot, two Drill Bits, three Taps, Tap Wrench, Allen Wrench, Case

Data Collector Sensor Kit

Table 27 - Data Collector Sensor Kit

Catalog Number	Description
1443-KIT-DATACLTRO	Includes one 1443-ACC-GP-T Accelerometer, one 1443-CBL-MSILM-6 coiled cable, one 1443-MAG-075F-15 magnet mount



EK 9000 Series Compatibility

1443 Series cables and accessories are compatible with EK 9000 Series sensors except for the side exist sensor through bolts. Through bolts 1443-BLT-125-M6 and 1443-BLT-125-0 cannot be used with EK 9000 Series sensors.

- For cables, make sure to choose the same type of cable, two pin or three pin, shield isolated (all EK 9000 Series cables are shield isolated) cable.
- For mounting accessories, make sure to match the thread size.

See the [Sensor Cross-reference - 1443 Series \(New\) to 9000 Series \(Old\) on page 55](#), to identify equivalent 1443 Series sensors.

Sensor Cross-reference - 1443 Series (New) to 9000 Series (Old)

The EK Series sensor line is marked Rockwell Automation®. They are legacy products from Entek. The current sensors are sourced from PCB/IMI in the U.S. but earlier versions of the same sensors were sourced from Wilcoxon Research or were manufactured by IRD.

The 1443 Series are Allen-Bradley® branded products that are sourced from Hansford Sensors in the UK.

This project simplifies the offering from about 58 EK catalogs, including 26 sensors, to a total of 47 catalogs and just 14 sensors.

TIP The 1443 Series do not include specialty high temperature sensors or proportional output (4-20 mA) “process” sensors. These capabilities are no longer offered.

Table 28 - Sensor Cross-reference - 1443 Series (New) to 9000 Series (Old)

Sensor Class	Catalog Number	Replaces
General-purpose	1443-ACC-GP-T	EK-43781I
		EK-43784I
		EK-43792I
	1443-ACC-GP-S	EK-47086I
		EK-47090I
	1443-ACC-GP-T16-SI	EK-43782I
		EK-46255I
	1443-ACC-GP-T32-SI	EK-43782I
		EK-46255I
	1443-ACC-GP-T16-SC	New
		New
	1443-ACC-GP-T32-SC	New
New		
Low Frequency	1443-ACC-LF-T	EK-43794I
		EK-43795I
		EK-43797I
		EK-43798I
High Frequency	1443-ACC-HF-T	EK-43799I
		EK-43800I
Velocity	1443-ACC-VO-T	EK-43808I
	1443-ACC-VO-S	EK-43809I
Hazardous Area	1443-ACC-IS-T	EK-43786I
		EK-43787
	1443-ACC-IS-S	EK-43790I
		EK-43791I
		EK-48965
Accel and Temp	1443-ACC-AT-T	New
	1443-ACC-AT-S	EK-43811I

Table 28 - Sensor Cross-reference - 1443 Series (New) to 9000 Series (Old) (Continued)

Sensor Class	Catalog Number	Replaces
Cable	1443-CBL-MS2IBC-16S	EK-468001
		EK-44134
	1443-CBL-MS2IBC-32S	EK-468011
		EK-44135
	1443-CBL-MS2IBC-64S	EK-468021
		EK-44136
	1443-CBL-MS3IBC-112S	EK-468061
	1443-CBL-MSGBC-16S	New
	1443-CBL-MSGBC-32S	New
	1443-CBL-MSGBC-64S	New
	1443 -CBL-MSIBC-50A	New
	1443-CBL-BCBC-500	New
	1443-CBL-MSILM-6	EK-36960-C-006
		EK-36960-S-005
		EK-47787
1443-CBL-MSILM-50	EK-36960-S-050	
1443-CBL-LMBNC-1	EK-46252	
	EK-47021	
Connector	1443-CON-MS2-SP	EK-44144
	1443-CON-MS3-SP	New
Tool	1443-SFT-125-0	EK-42053
	1443-SFT-125-M6	New
	1443-SFT-125-M8	New
Kit	1443-KIT-DATACLTRO	EK-45148

Table 28 - Sensor Cross-reference - 1443 Series (New) to 9000 Series (Old) (Continued)

Sensor Class	Catalog Number	Replaces
Mounting	1443-MAG-075C-14	EK-46670
		EK-44162
		EK-42118
	1443-MAG-075F-15	EK-42120
	1443-MAG-100C-35	EK-41717
	1443-MAG-100F-35	EK-42121
	1443-MAG-150C-55	EK-41529
		EK-42119
		EK-04332
	1443-MAG-150F-50	EK-24746
		EK-42123
	1443-STD-0-0	EK-44151
		EK-44152
		EK-44153
	1443-STD-0-M8	EK-44154
		EK-44155
	1443-BLT-125-M6	New
	1443-BLT-125-0	New
	1443-PRB-40	EK-41530
	1443-PRB-90	EK-01103
EK-41915		
1443-PAD-075-0	EK-44156	

You cannot replace all EK sensors with a 1443 Series sensor. The sensors that are listed in this table are no longer offered.

Table 29 - Discontinued EK Sensors

Catalog Number	Description
EK-46496	9150HTA High Temperature Accelerometer
EK-48958	9842V Process Accelerometer
EK-48964	9842VCRT Hazardous Process Accelerometer
EK-43805I	9100T High Temperature Accelerometer
EK-43807I	9150HT High Temperature Accelerometer

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
Dynamix 1443 Series Sensors Product Information, publication 1443-PC001	Included with hazardous area rated sensors, provides basic environmental, ratings, and mounting information.
Dynamix 1443 Series Sensors User Manual, publication 1443-UM001	Provides complete information for mounting and cabling 1443 Series sensors.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation® industrial system.
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

Notes:

Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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