ANEXOS

HOJA TECNICA DEL ACELEROMETRO AC102-2C

AC102 Series

Multi-Purpose Accelerometer, Top Exit Connector/Cable, 100 mV/g

SECTION I - VIBRATION SENSORS
Accelerometers

Actual Product Size Shown

CE

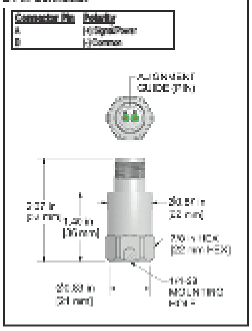
Product Features

CTC's Most Popular Sensor!

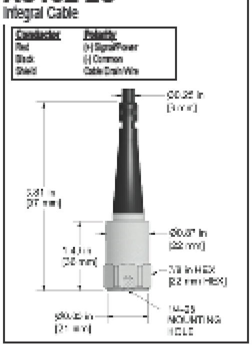
High Performance in a Low Cost Sensor

- *Standard 2 Pin MIL Connection*
- *Perfect for Thousands of Applications*
- *Affordably Priced, Hermetically Sealed Sensors*

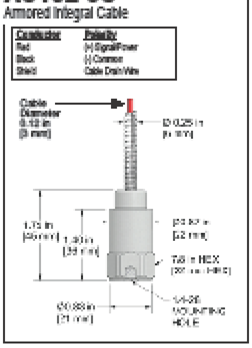
AC102-1A
2 Pin Connector



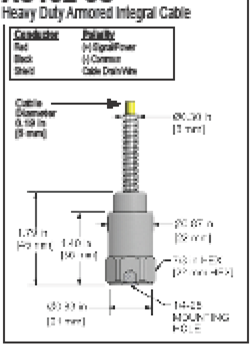
AC102-2C
Integral Cable



AC102-3C
Armored Integral Cable



AC102-6C
Heavy Duty Armored Integral Cable



Specifications	Standard	Metric
Part Number	AC102	M/AC102
Sensitivity (±10%)	100 mV/g	
Frequency Response (±3dB)	30-900,000 CPM	0,5-15000 Hz
Frequency Response (±10%)	120-600,000 CPM	2,0-10000 Hz
Dynamic Range	± 50 g, peak	
Electrical		
Settling Time	<2.5 seconds	
Voltage Source	18-30 VDC	
Constant Current Excitation	2-10 mA	
Spectral Noise @ 10 Hz	14 µg/√Hz	
Spectral Noise @ 100 Hz	2.3 µg/√Hz	
Spectral Noise @ 1000 Hz	2 µg/√Hz	
Output Impedance	<100 ohm	
Bias Output Voltage	10-14 VDC	
Case Isolation	>10⁸ ohm	

Specifications	Standard	Metric
Environmental		
Temperature Range	-58 to 250°F	-50 to 121°C
Maximum Shock Protection	5,000 g, peak	
Electromagnetic Sensitivity	CE	
Sealing	Welded, Hermetic	
Submersible Depth (AC102-2C/3C)	200 ft.	60 m
Physical		
Sensing Element	PZT Ceramic	
Sensing Structure	Shear Mode	
Weight	3.2 oz	90 grams
Case Material	316L Stainless Steel	
Mounting	1/4-28	
Connector (non-integral)	2 Pin MIL-C-5015	
Resonant Frequency	1,380,000 CPM	23000 Hz
Mounting Torque	2 to 5 ft. lbs.	2,7 to 6,8 Nm
Mounting Hardware	1/4-28 Stud	M6x1 Adapter Stud
Calibration Certificate	CA10	

Ordering Information

Standard	AC102-1A (1/4-28 Stud)	AC102-2C -/ ☐☐☐ - ☐ (1/4-28 Stud) (length in feet) (termination)	AC102-3C - / ☐☐☐ / ☐☐☐ - ☐ (1/4-28 Stud) (maximum armor length) (cable length in feet) (termination)	AC102-6C - / ☐☐☐ / ☐☐☐ - ☐ (1/4-28 Stud) (maximum armor length) (cable length in feet) (termination)
Metric	M/AC102-1A (M6x1 Adapter Stud)	M/AC102-2C- / ☐☐☐ - ☐ (M6x1 Adapter Stud) (length in feet) (termination); ☐☐☐M - ☐ (length in meters) (termination)	M/AC102-3C- / ☐☐☐ / ☐☐☐ - ☐ (M6x1 Adapter Stud) (maximum armor length) (cable length in feet) (termination); ☐☐☐M / ☐☐☐M - ☐ (maximum armor length) (cable length in meters) (termination)	M/AC102-6C- / ☐☐☐ / ☐☐☐ - ☐ (M6x1 Adapter Stud) (maximum armor length) (cable length in feet) (termination); ☐☐☐M / ☐☐☐M - ☐ (maximum armor length) (cable length in meters) (termination)

Cable Termination Options: E F Z

Backed by our Unconditional Lifetime Warranty

www.ctconline.com

CTC VIBRATION ANALYSIS HARDWARE

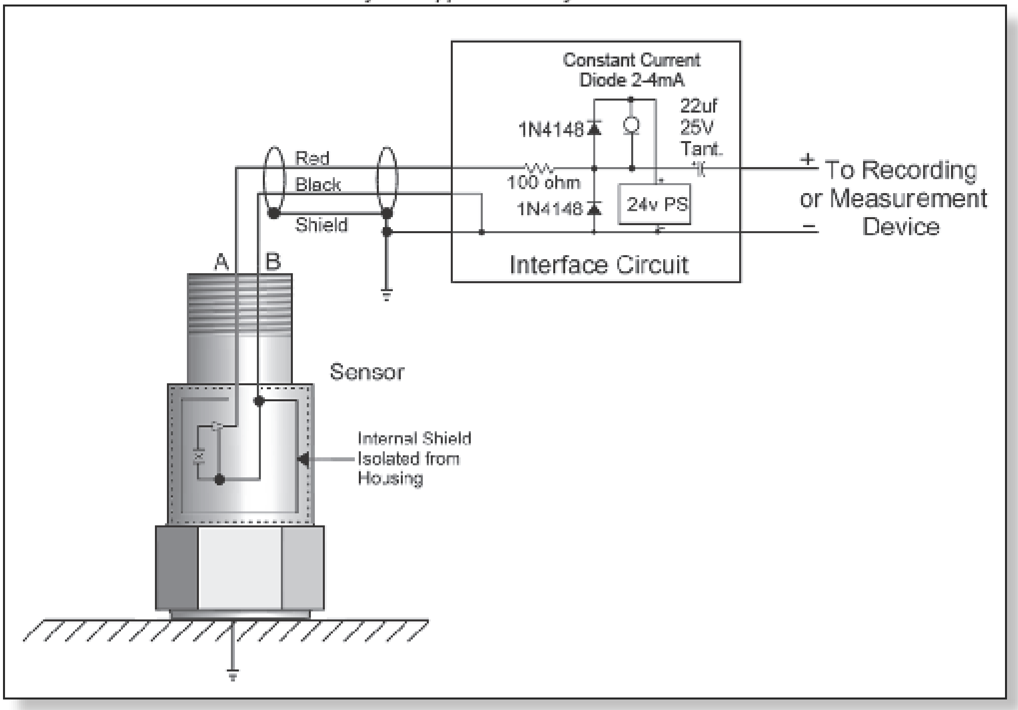
Sensor Power Requirements

CTC sensors will function well with a constant current power unit, which provides 2-10 mA with a DC voltage level between 18 and 30 VDC. We recommend using a current source of 2 mA and 24 VDC. This can be provided by using a data collector or by an interface circuit.

The 100 ohm, 1/4 watt resistor and 1N4148 diodes are used to suppress electrostatic discharge. The CR220 current regulator diode provides the necessary bias current for the sensor. The power supply can be virtually any regulated supply that provides a clean 24 volt DC output. The 22 µf tantalum capacitor removes the DC component from the signal. All parts in this circuit have polarity and must be connected correctly for the circuit to function properly.

Please note: The cable should be shielded and grounded at the interface end for optimum rejection of external noise. All CTC sensors have an internal shield that is connected to the negative terminal. CTC accelerometer cases are isolated from the circuitry for optimum noise rejection. Each sensor will transmit a signal riding on their specified bias voltage. This is typically +/- 5 volts riding on a 12 volt bias (please refer to the data sheet for each particular sensor).

This circuit is intended for non-intrinsically safe applications only



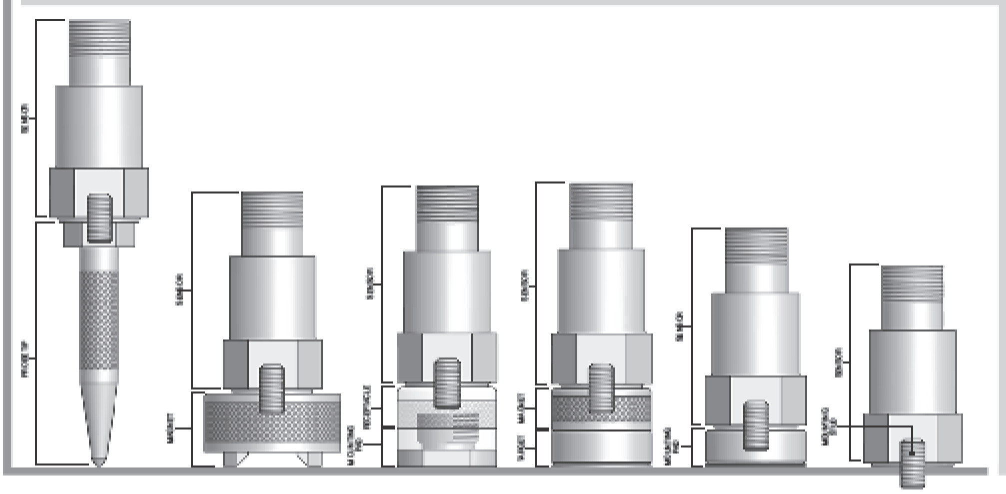
Frequency Response / Mounting Techniques

The accuracy of your high frequency response is directly affected by the mounting technique that you select for the sensor. In general, the greater the mounted surface area contact between the sensor and the machine surface, the more accurate your high frequency response will be. High frequency response is based on the sensor specified as well as the method of attachment (together as a system). Stud mounted (or epoxy mounted) sensors are often able to utilize the entire high frequency measurement capability of a sensor, because this technique will maximize the surface contact of the sensor on the machine. Conversely, a probe tip mounted sensor has very little surface area contact with the machine surface, and offers very little high frequency accuracy above 500 Hz (30,000 CPM).

Low frequency response may be accurately obtained by all of the below illustrated techniques, because low frequency is not based on the mounting system resonance of the sensor and attachment method. The ability to measure low frequency vibrations will be a function of the sensor's specified capability to measure a given low frequency, and not dependent on the mounting technique chosen.

The following chart offers a general guideline for the range of mounting techniques available, and the corresponding high frequency response expectations.*

Probe Tip	Curved Surface Magnet	Quick Disconnect	Flat Magnet with Target	Adhesive Mount	Stud Mount



500 Hz (30,000 CPM)	2000 Hz (120,000 CPM)	6500 Hz (390,000 CPM)	10000 Hz (600,000 CPM)	10000-15000 Hz (600,000-900,000 CPM)	Maximum Response of Sensor

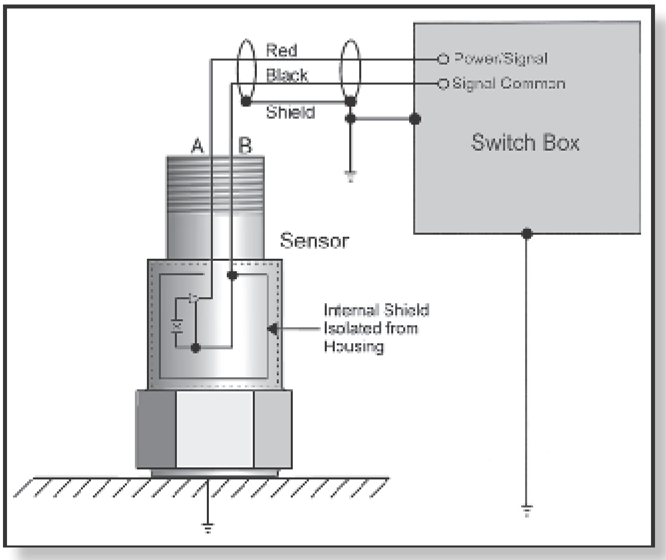
Maximum Frequency Response
(within ±3dB)

*Depending on specified high frequency response of individual sensors.

Sensors & Cabling

Sensors

CTC sensors feature all welded stainless steel construction for survival in harsh factory environments. A dual case design shields the sensing element from RFI & EMI interference. PZT ceramic sensing elements are utilized to provide the highest signal to noise ratio available, which is critical for use with data collectors, which often integrate an acceleration signal to velocity. Low frequency noise (Ski Slopes) are avoided by utilizing a sensor with a low noise PZT ceramic sensing element. Shear mode element construction is utilized in all CTC sensors, which virtually eliminates erroneous output due to thermal transient interference. Two pin MIL Spec connectors are generally used to carry the signal output from the sensor, protecting the shielding and hermetic sealing of the sensor. Pin "A" is utilized for the Power/ Signal (+), and Pin "B" is utilized for Signal/Common (-). The case of the sensor is electrically grounded to the machinery that is mounted to and electrically isolated from Pin "A" and Pin "B". (See illustration)



Cabling

CTC cables are specially manufactured to transmit signals over long distances, while withstanding the rigorous physical demands of harsh factory environments. CTC cables will accurately transmit sensor signals a minimum of 500 feet to a switch box, with no signal loss or distortion. All CTC cables feature twisted, shielded pair construction, for interference rejection. A drain wire is provided with the shield, for quick and professional grounding. For most CTC cabling, the red conductor is utilized for the Signal/Power (+), the black conductor is utilized for the Signal Common (-) and the drain wire/shield should be connected to earth ground (see illustration above). Proper grounding of cable shielding will ensure clean and interference free data. CTC's permanent installed cables incorporate a strength cord within the construction of the cable. Strength cords relieve the tension of the conductors when a cable is being pulled through conduit or tight spaces.