

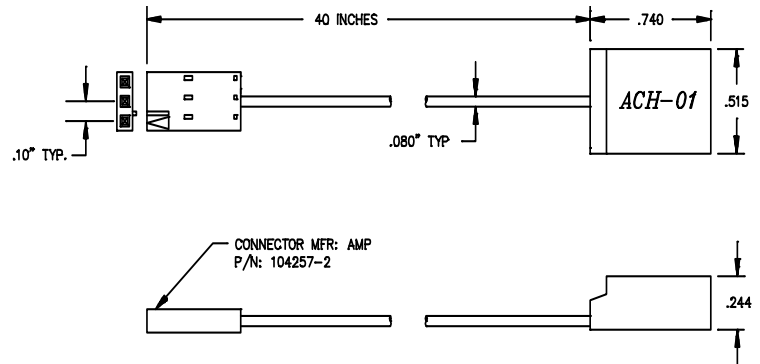
Accelerometer ACH-01

- Piezoelectric Accelerometer
- Wide Bandwidth; AC Coupled
- Ultra Low Power
- High G Ranges

The **ACH-01** is an inexpensive, general purpose accelerometer with outstanding performance characteristics. The use of piezoelectric polymer film in the ACH-01 provides many cost/performance advantages that allow it to be used in a wide range of applications where the use of traditional accelerometer technology is impractical. It is specifically designed for high volume applications which require the permanent installation of an accelerometer.



dimensions

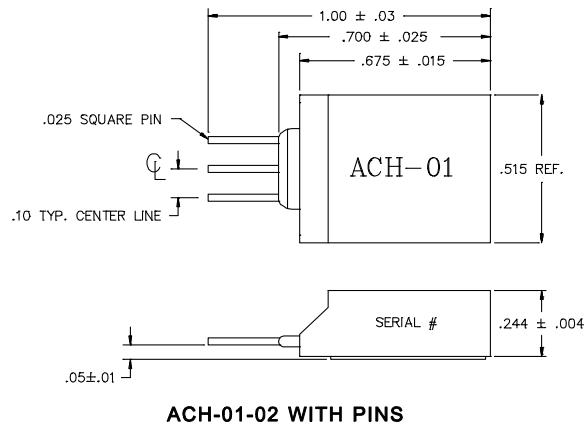


FEATURES

- Wide Frequency Response
- Excellent Phase Response
- Small Temperature Dependence
- Wide Supply Voltage Range
- Excellent Linearity
- Very High Resonant Frequency
- Wide Dynamic Range
- Low Transverse Sensitivity
- Wide Temperature Range
- Low Impedance Output
- Ultra Low Power

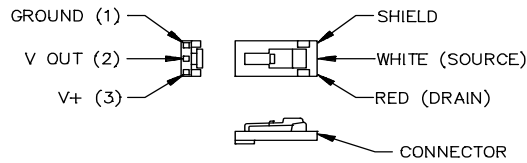
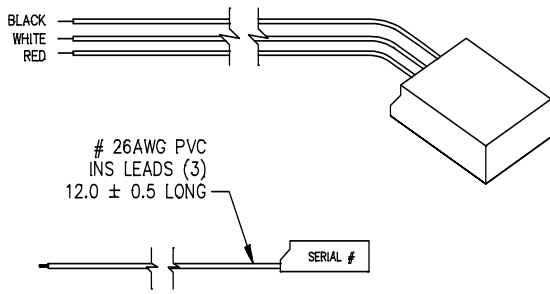
APPLICATIONS

- Machine Health Monitoring
- Model Analysis
- Automotive Sensors
- Appliances
- Feedback Control Systems



Accelerometer ACH-01

dimensions (con't)



CONNECTOR DETAIL

ACH-01-04 WITH WIRES

performance specifications

| PERFORMANCE (T=25EC) | Symbol | Min | Typ | Max | Units |
|---|-----------|--------------|------|-----|-------------------|
| Sensitivity | M_o | 7 | 9 | 11 | mV/g |
| Lower Frequency Limit (1) | f_l | -- | 2 | 5 | Hz |
| Upper Frequency Limit(1) | f_u | 10 | 20 | -- | kHz |
| Equivalent Noise Floor | | | | | $\mu g/\sqrt{Hz}$ |
| 10Hz | | -- | 130 | -- | |
| 100Hz | | -- | 20 | -- | |
| 1kHz | | -- | 6 | -- | |
| Dynamic Range | -- | $\nabla 150$ | -- | -- | g |
| Linearity | -- | -- | 0.1 | 1.0 | % |
| Transverse Sensitivity | M_t | -- | 2.0 | 5 | % |
| Resonant Frequency | f_o | -- | 35 | -- | kHz |
| Phase Deviation ($\nabla 5E$ Limit)(6) | θ | 10 | -- | 10 | kHz |
| Drain Voltage (6) | V+ | 3 | -- | 40 | Volts |
| Supply Current (6) | I_{dss} | 30 | -- | 90 | μA |
| Output Impedance (6) | -- | -- | 20 | -- | k Ω |
| ENVIRONMENTAL CHARACTERISTICS | | | | | |
| Operating Temperature (2) | T_o | -40 | -- | 85 | EC |
| Storage Temperature | T_s | -40 | -- | 85 | EC |
| Maximum Shock Level | A_m | 1000 | -- | -- | g |
| Base Strain Sensitivity (3) | -- | -- | 0.3 | -- | g/ $\mu\epsilon$ |
| Transient Temp Sensitivity (4) | -- | -- | 0.35 | -- | g/EC |
| PHYSICAL CHARACTERISTICS | | | | | |
| Weight (5) Cable | W | -- | 8 | -- | grams |

(1) $\nabla 3$ dB limit (3) @ 250 $\mu\epsilon$ in base plane (5) Includes 40" cable and connector
 (2) $\nabla 2$ dB from nominal M_o at 1kHz (4) @ 3Hz LLF (6) Typical Value

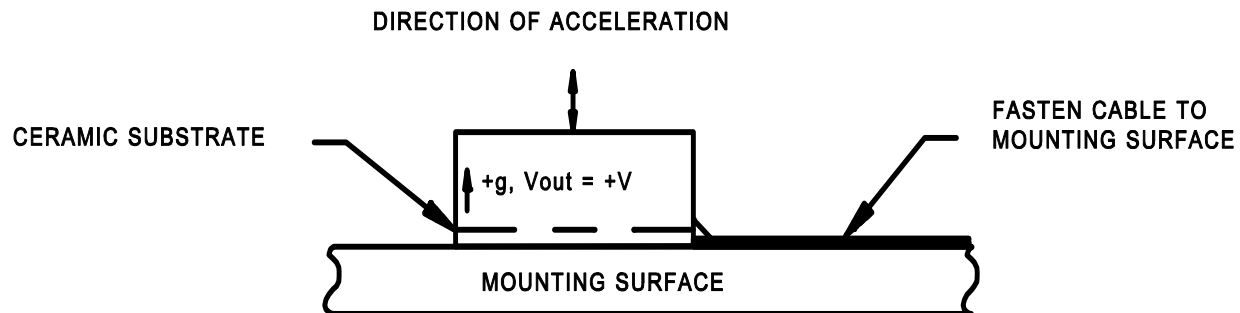
mounting requirements

Mounting methods play a critical role in determining the overall performance of any accelerometer. The ACH-01 is no exception. An improperly mounted accelerometer can give erroneous results. We recommend using an Adhesive Mounting Method.

The surface should be flat. The area where the ACH-01 is to be mounted should be thoroughly cleaned to remove any dirt or oil present on the surface. Use a quick setting, viscous methyl cyanoacrylate adhesive such as Loctite's Black Max[™] or any epoxy such as Devcon's 5-Minute epoxy. Apply the adhesive sparingly to one surface following the manufacturer's directions. Apply pressure and allow the adhesive to set. Soft adhesives, such as double-sided tape or pressure sensitive adhesives, should not be used since they can adversely affect the ACH-01's performance. Cable should be adhered to the surface.

There is an interface amplifier available to simplify connection to the ACH-01, the IB-ACH-01. Please see the appropriate data sheet.

In an effort to keep the product cost low, the ACH-01 uses a ceramic substrate as the mounting base. Because of this, the ACH-01 is susceptible to base strain and temperature transient effects. A mechanically rigid and thermally non-conductive mounting surface is highly recommended to limit these effects. MEAS application engineers are available to recommend various mounting arrangements for your specific application.

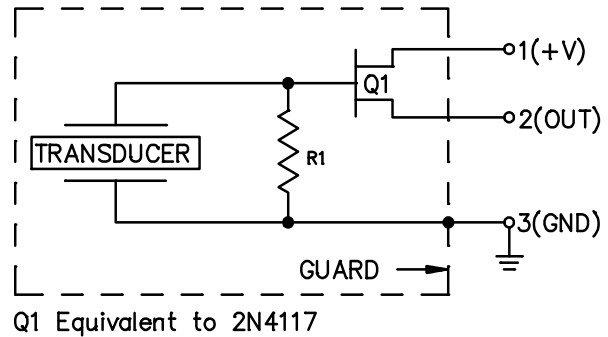
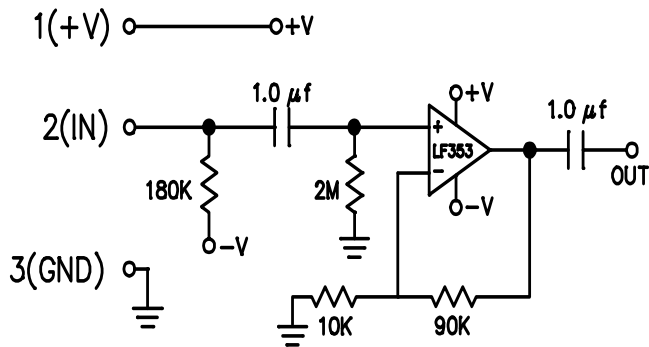


Accelerometer ACH-01

electrical interface circuits

The accelerometer ACH-01 accommodates various electrical interface circuits. A typical example is provided in the following figure. The ACH-01 equivalent electrical schematic is also shown.

GAIN STAGE



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ordering information

| Description | Interface | Model No. | Part No. |
|---------------|----------------|-----------|-------------|
| Accelerometer | Pins | ACH-01-02 | 0-1000985-0 |
| | Shielded Cable | ACH-01-03 | 1-1001220-0 |
| | Discrete Wires | ACH-01-04 | 1-1001497-0 |
| Amplifier | Amplifier Box | IB-ACH-01 | 1003058 |

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