

Low Cost, Embeddable Accelerometers

Ideal for Continuous Vibration Monitoring in High-Volume and Commercial OEM Applications

- Choice of Standard TO-5 or TO-8 Transistor-Style Packages
- Choice of Charge Output Piezoelectric, Voltage Output ICP[®], and 3-wire Low Power Varieties
- Mountable via Adhesive or Soldering and Choice of Integral Cable or Solder Pin Electrical Connections
- Variety of Sensitivities to Accommodate a Variety of Applications
- Broad Bandwidth, High Shock Survivability, Wide Operating Temperature Range, High Resolution, and Large Dynamic Range

Series 660 low cost accelerometers offer an affordable solution for vibration and shock measurements in high-volume and commercial OEM applications. The units are particularly well suited for shock and impact detection of packages or components, as well as bearing and gear mesh vibration measurements in predictive maintenance and condition monitoring requirements. The compact designs may be imbedded into machinery at the OEM level to provide value-added monitoring protection.

The units employ field-proven, solid-state, piezoelectric sensing elements for durability and broadband performance. Choose from charge output types, which achieve high operating temperatures; or voltage output ICP[®] types, with built-in signal conditioning microelectronics, for simplified operation and connectivity to data acquisition and vibration monitoring instrumentation.

As with all PCB[®] instrumentation, these sensors are complemented with toll-free applications assistance, 24-hour customer service, and are backed by a Total Customer Satisfaction guarantee.



Total Customer Satisfaction Guaranteed





LOW COST EMBEDDABLE ACCELEROMETERS



Specifications

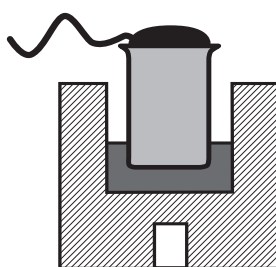
Package Size	Low Profile T0-5	T0-5	T0-5	T0-5	T0-8	T0-8
2-Wire ICP[®] Configuration						
Primary Model Sensitivity (± 20%)	10 mV/g	1.02 mV/m/s ²	100 mV/g	10.2 mV/m/s ²	1000 mV/g	102 mV/m/s ²
Measurement Range	500 g	5000 m/s ²	50 g	500 m/s ²	5 g	50 m/s ²
Frequency Range (± 3 dB)	0.4 to 10k Hz	0.4 to 10k Hz	0.32 to 10k Hz	0.32 to 10k Hz	0.13 to 8000 Hz	0.13 to 8000 Hz
Resonant Frequency	>30k Hz	>30k Hz	>25k Hz	>25k Hz	>20k Hz	>20k Hz
Broadband Resolution	0.003 g pk	0.03 m/s ² pk	0.0003 g pk	0.003 m/s ² pk	0.00003 g pk	0.0003 m/s ² pk
Excitation Voltage	18 to 28 VDC	18 to 28 VDC	18 to 28 VDC	18 to 28 VDC	18 to 28 VDC	18 to 28 VDC
Excitation Constant Current	2-20 mA	2-20 mA	2-20 mA	2-20 mA	2-20 mA	2-20 mA
Output Impedance	<100 ohm	<100 ohm	<100 ohm	<100 ohm	<100 ohm	<100 ohm
Output Bias Voltage	8 to 12 VDC	8 to 12 VDC	8 to 12 VDC	8 to 12 VDC	8 to 12 VDC	8 to 12 VDC
Discharge Time Constant	≥0.4 sec	≥0.4 sec	≥0.5 sec	≥0.5 sec	≥1.2 sec	≥1.2 sec
Settling Time	2 sec	2 sec	2.5 sec	2.5 sec	12 sec	12 sec
Operating Temperature Range	-65 to +185 °F	-54 to +85 °C	-65 to +185 °F	-54 to +85 °C	-65 to +185 °F	-54 to +85 °C
Weight	0.08 oz	2.2 gm	0.1 oz	3 gm	0.88 oz	25 gm
Other Available Sensitivities	1 mV/g	0.102 mV/m/s ²	N/A	N/A	100 mV/g, 500 mV/g	10.2 mV/m/s ² , 51 mV/m/s ²
3-Wire, Low-Power Configuration						
Primary Model Sensitivity (± 20%)	10 mV/g	1.02 mV/m/s ²	100 mV/g	10.2 mV/m/s ²	1000 mV/g	102 mV/m/s ²
Measurement Range *	200 g	2000 m/s ²	20 g	200 m/s ²	2 g	20 m/s ²
Frequency Range (± 3 dB)	0.32 to 10k Hz	0.32 to 10k Hz	0.32 to 10k Hz	0.32 to 10k Hz	0.32 to 8000 Hz	0.32 to 8000 Hz
Resonant Frequency	>30k Hz	>30k Hz	>25k Hz	>25k Hz	>20k Hz	>20k Hz
Broadband Resolution	0.003 g pk	0.03 m/s ² pk	0.001 g pk	0.01 m/s ² pk	0.0003 g pk	0.003 m/s ² pk
Excitation Voltage	3 to 5 VDC	3 to 5 VDC	3 to 5 VDC	3 to 5 VDC	3 to 5 VDC	3 to 5 VDC
Current Draw	0.75 mA	0.75 mA	0.75 mA	0.75 mA	0.75 mA	0.75 mA
Output Impedance	< 100 ohm	< 100 ohm	< 100 ohm	< 100 ohm	< 100 ohm	< 100 ohm
Output Bias Voltage (±10%)	0.5 × Excitation Voltage	0.5 × Excitation Voltage	0.5 × Excitation Voltage	0.5 × Excitation Voltage	0.5 × Excitation Voltage	0.5 × Excitation Voltage
Discharge Time Constant	≥0.5 sec	≥0.5 sec	≥0.5 sec	≥0.5 sec	≥0.5 sec	≥0.5 sec
Settling Time	2.5 sec	2.5 sec	2.5 sec	2.5 sec	15 sec	15 sec
Operating Temperature Range	-65 to +185 °F	-54 to +85 °C	-65 to +185 °F	-54 to +85 °C	-65 to +185 °F	-54 to +85 °C
Weight	0.08 oz	2.2 gm	0.1 oz	3 gm	0.88 oz	25 gm
Charge Output Configuration						
Sensitivity (± 20%)	5 pC/g	0.51 pC/m/s ²	11 pC/g	1.12 pC/ms ²	120 pC/g	12.2 pC/m/s ²
Frequency Range (± 3 dB)	10k Hz	10k Hz	10k Hz	10k Hz	8k Hz	8k Hz
Resonant Frequency	>30k Hz	>30k Hz	>25k Hz	>25k Hz	>20k Hz	>20k Hz
Operating Temperature Range	-65 to +185 °F	-54 to +85 °C	-65 to +185 °F	-54 to +85 °C	-65 to +250 °F	-54 to +121 °C
Capacitance	350 pF	350 pF	350 pF	350 pF	3600 pF	3600 pF
Weight	0.08 oz	2.2 gm	0.1 oz	3 gm	0.88 oz	25 gm
Common Specifications						
Transverse Sensitivity	≤ 5%	≤ 5%	≤ 5%	≤ 5%	≤ 5%	≤ 5%
Non-Linearity	≤1%	≤1%	≤1%	≤1%	≤1%	≤1%
Temperature Coefficient	0.10 %/ °F	0.18 %/ °C	0.10 %/ °F	0.18 %/ °C	0.10 %/ °F	0.18 %/ °C
Shock Limit	7000 g pk	70k m/s ² pk	7000 g pk	70k m/s ² pk	6000 g	60k m/s ² pk
Housing Material	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Mounting	Adhesive or Solder	Adhesive or Solder	Adhesive or Solder	Adhesive or Solder	Adhesive or Solder	Adhesive or Solder
Sealing (welded)	Hermetic	Hermetic	Hermetic	Hermetic	Hermetic	Hermetic
Size	0.36 × 0.26 in	9.1 × 6.6 mm	0.36 × 0.38 in	9.1 × 9.7 mm	0.64 × 0.57 in	16.3 × 14.5 mm
Options						
Low Output Bias Voltage	High Temperature Operation to +365 °F (+185 °C)					
High Range (less sensitivity)	Temperature Output Signal					
Note:						
* Measurement range achieved is dependent upon excitation voltage supplied, e.g.: Measurement Range = $(0.5 \times \text{Excitation Voltage}) - 0.5 \text{ V}$ Sensitivity (V/g)						



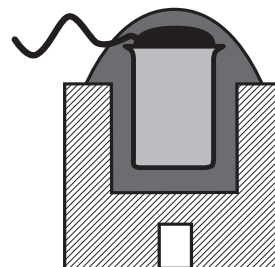
How to Order

Style	
66	Low-cost, Embeddable Accelerometer
Package Size and Sensitivity	
10	Low-profile TO-5 with 10 mV/g \pm 20 % sensitivity (use "40" for \pm 10 %)
16	Low profile TO-5 with 1 mV/g \pm 20 % sensitivity (use "46" for \pm 10 %) **must select 2A below**
19	Low-profile TO-5 with 5 pC/g \pm 20 % sensitivity (use "49" for \pm 10 %) **must select 2C below**
21	TO-5 with 100 mV/g \pm 20 % sensitivity (use "51" for \pm 10 %; or "81" for \pm 5 %) ** \pm 5% requires 2A below**
29	TO-5 with 11 pC/g \pm 20 % sensitivity (use "59" for \pm 10 %) **must select 2C below**
31	TO-8 with 100 mV/g; \pm 20% sensitivity (use "61" for \pm 10 %)
32	TO-8 with 500 mV/g \pm 20% sensitivity (use "62" for \pm 10 %)
33	TO-8 with 1000 mV/g \pm 20% sensitivity (use "63" for \pm 10 %)
39	TO-8 with 120 pC/g \pm 20% sensitivity (Use "69" for \pm 10 %) **must select 2C below**
Sensor Configuration and Excitation Scheme	
2A	2-wire ICP [®] (power/signal, ground), current regulated power
2C	2-wire charge output (signal, ground) for options 19, 29, 39, 49, 59 or 69 above
3L	3-wire voltage output (power, signal, ground); low power
4T	4-wire voltage output with temperature output (power, signal, ground, temperature)
Orientation / Polarity	
PZ	Positive output for acceleration along z-axis (in upward direction when pin mounted)
NZ	Negative output for acceleration along z-axis (in upward direction when pin mounted)
Electrical Connection	
1	Header Pins
2	Integral one foot (0.3 meter) cable
Options	
XX	Overall integral cable length in "XX" feet (other than standard 1 foot)
MXX	Overall integral cable length in "XX" meters (other than standard 0.3 meter)
Example	
66 21 2A PZ 1	Embeddable accelerometer, TO-5, 100 mV/g sensitivity, 2-wire ICP [®] , positive output with header pins
Options available for low output bias voltage, temperature output and RoHS compliant sensors. Contact factory for details.	

Mounting Examples



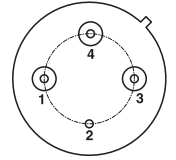
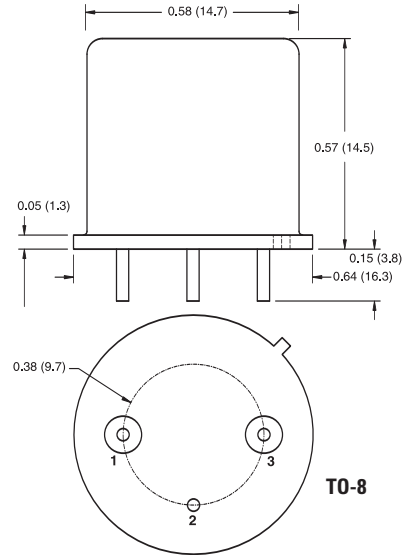
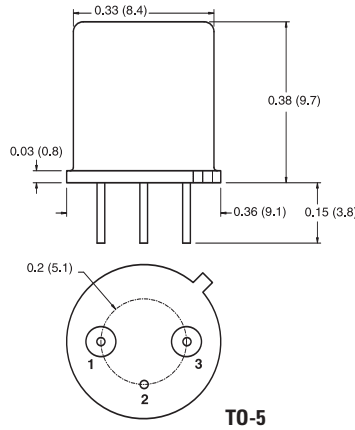
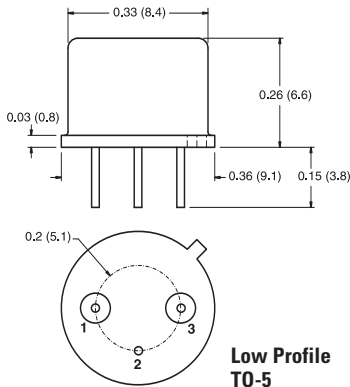
Potted Sensor Installation



Encapsulated Sensor Installation

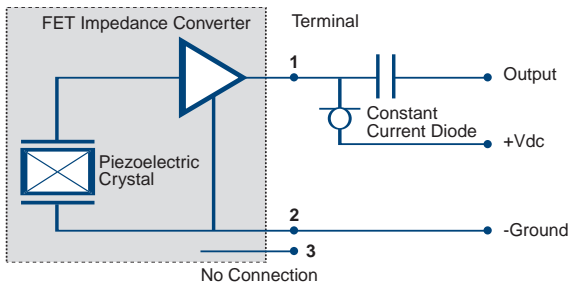


INDUSTRIAL VIBRATION MONITORING INSTRUMENTATION

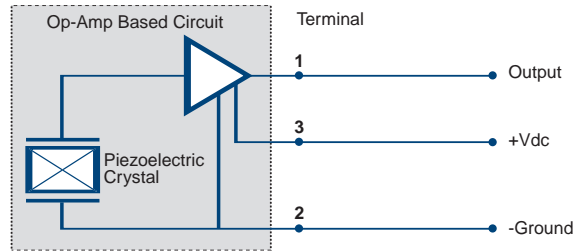


Optional Temperature Output Configuration

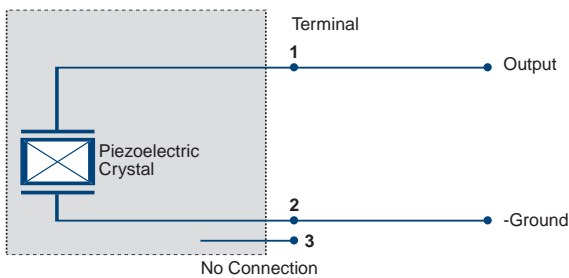
2-wire ICP® Mode



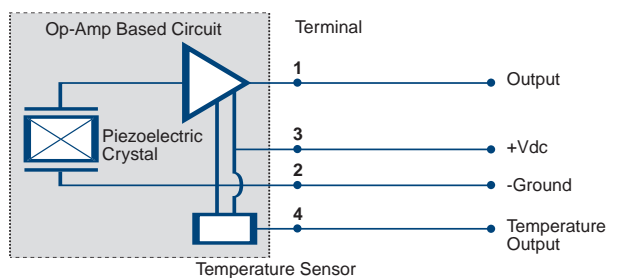
3-wire Voltage Output



2-wire Charge Output



4-wire Voltage Output with Temperature Output



3425 Walden Avenue, Depew, NY 14043-2495 USA

IMI Sensors Division toll free 800-959-4464

24-hour SensorLineSM 716-684-0003

Fax 716-684-3823 E-mail imi@pcb.com

Web site www.imi-sensors.com

ISO 9001:2000 CERTIFIED

A2LA ACCREDITED to ISO 17025

© 2007 PCB Group, Inc. In the interest of constant product improvement, specifications are subject to change without notice. PCB, IMI with associated logo, ICP, Swiveler, and Spindler are registered trademarks of PCB Group, Inc. SensorLine is a service mark of PCB Group, Inc. All other trademarks are properties of their respective owners.

IMI-660-0707

Printed in U.S.A.

The IMI Sensors Division of PCB® Piezotronics, Inc. specializes in the development, application, and support of industrial vibration sensors, switches, transmitters, meters, and accessories for machinery condition monitoring and predictive maintenance requirements. This product focus, coupled with the strengths and resources of PCB®, permits the IMI Sensors Division to offer exceptional customer service, 24-hour technical assistance, and a **Total Customer Satisfaction** guarantee.

Visit www.imi-sensors.com to locate your nearest sales office