



**Model 66332APZ1**

**ICP® TO-8 Accelerometer**

**Installation and Operating Manual**

**For assistance with the operation of this product,  
contact PCB Piezotronics, Inc.**

**Toll-free: 800-959-4464**

**24-hour SensorLine: 716-684-0001**

**Fax: 716-684-3823**

**E-mail: [imi@pcb.com](mailto:imi@pcb.com)**

**Web: [www.imi-sensors.com](http://www.imi-sensors.com)**



**The information contained in this document supersedes all similar information that may be found elsewhere in this manual.**

**Total Customer Satisfaction** – PCB Piezotronics guarantees Total Customer Satisfaction. If, at any time, for any reason, you are not completely satisfied with any PCB product, PCB will repair, replace, or exchange it at no charge. You may also choose to have your purchase price refunded in lieu of the repair, replacement, or exchange of the product.

**Service** – Due to the sophisticated nature of the sensors and associated instrumentation provided by PCB Piezotronics, user servicing or repair is not recommended and, if attempted, may void the factory warranty. Routine maintenance, such as the cleaning of electrical connectors, housings, and mounting surfaces with solutions and techniques that will not harm the physical material of construction, is acceptable. Caution should be observed to insure that liquids are not permitted to migrate into devices that are not hermetically sealed. Such devices should only be wiped with a dampened cloth and never submerged or have liquids poured upon them.

**Repair** – In the event that equipment becomes damaged or ceases to operate, arrangements should be made to return the equipment to PCB Piezotronics for repair. User servicing or repair is not recommended and, if attempted, may void the factory warranty.

**Calibration** – Routine calibration of sensors and associated instrumentation is

recommended as this helps build confidence in measurement accuracy and acquired data. Equipment calibration cycles are typically established by the users own quality regimen. When in doubt about a calibration cycle, a good “rule of thumb” is to recalibrate on an annual basis. It is also good practice to recalibrate after exposure to any severe temperature extreme, shock, load, or other environmental influence, or prior to any critical test.

PCB Piezotronics maintains an ISO-9001 certified metrology laboratory and offers calibration services, which are accredited by A2LA to ISO/IEC 17025, with full traceability to N.I.S.T. In addition to the normally supplied calibration, special testing is also available, such as: sensitivity at elevated or cryogenic temperatures, phase response, extended high or low frequency response, extended range, leak testing, hydrostatic pressure testing, and others. For information on standard recalibration services or special testing, contact your local PCB Piezotronics distributor, sales representative, or factory customer service representative.

**Returning Equipment** – *Following these procedures will insure that your returned materials are handled in the most expedient manner.* Before returning any equipment to PCB Piezotronics, contact your local distributor, sales representative, or factory customer service representative to obtain a Return

Materials Authorization (RMA) Number. This RMA number should be clearly marked on the outside of all package(s) and on the packing list(s) accompanying the shipment. A detailed account of the nature of the problem(s) being experienced with the equipment should also be included inside the package(s) containing any returned materials.

A Purchase Order, included with the returned materials, will expedite the turn-around of serviced equipment. It is recommended to include authorization on the Purchase Order for PCB to proceed with any repairs, as long as they do not exceed 50% of the replacement cost of the returned item(s). PCB will provide a price quotation or replacement recommendation for any item whose repair costs would exceed 50% of replacement cost, or any item that is not economically feasible to repair. For routine calibration services, the Purchase Order should include authorization to proceed and return at current pricing, which can be obtained from a factory customer service representative.

**Warranty** – All equipment and repair services provided by PCB Piezotronics, Inc. are covered by a limited warranty against defective material and workmanship for a period of one year from date of original purchase. Contact

PCB for a complete statement of our warranty. Expendable items, such as batteries and mounting hardware, are not covered by warranty. Mechanical damage to equipment due to improper use is not covered by warranty. Electronic circuitry failure caused by the introduction of unregulated or improper excitation power or electrostatic discharge is not covered by warranty.

**Contact Information** – International customers should direct all inquiries to their local distributor or sales office. A complete list of distributors and offices can be found at [www.pcb.com](http://www.pcb.com). Customers within the United States may contact their local sales representative or a factory customer service representative. A complete list of sales representatives can be found at [www.pcb.com](http://www.pcb.com). Toll-free telephone numbers for a factory customer service representative, in the division responsible for this product, can be found on the title page at the front of this manual. Our ship to address and general contact numbers are:

PCB Piezotronics, Inc.  
3425 Walden Ave.  
Depew, NY 14043 USA  
Toll-free: (800) 828-8840  
24-hour SensorLine<sup>SM</sup>: (716) 684-0001  
Website: [www.pcb.com](http://www.pcb.com)  
E-mail: [info@pcb.com](mailto:info@pcb.com)

Model Number

66332APZ1

# ICP® TO-8 ACCELEROMETER

Revision: B

ECN #: 41045

### Performance

	ENGLISH	SI	
Sensitivity(± 20 %)	1000 mV/g	102 mV/(m/s <sup>2</sup> )	[3][2]
Measurement Range	± 5 g	± 50 m/s <sup>2</sup>	
Frequency Range(± 3 dB)	0.25 to 5k Hz	0.25 to 5k Hz	[4][5]
Resonant Frequency	>16 kHz	>16 kHz	[5]
Broadband Resolution	38 µg rms	373 µm/sec <sup>2</sup> rms	[1]
Non-Linearity	≤ 1 %	≤ 1 %	[6]
Transverse Sensitivity	≤ 7 %	≤ 7 %	

### Environmental

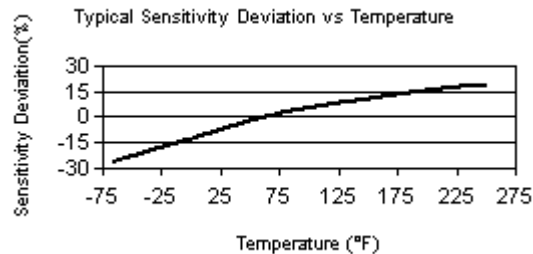
Acceleration Sensitivity(± 20 %)	1000 mV/g	102 mV/(m/s <sup>2</sup> )	[2]
Overload Limit(Shock)	5000 g pk	49k m/s <sup>2</sup> pk	
Temperature Range(Operating)	-65 to +185 °F	-54 to +85 °C	
Temperature Response	See Graph	See Graph	[1]

### Electrical

Settling Time(within 1% of bias)	≤ 30 sec	≤ 30 sec	
Discharge Time Constant	≥ 0.65 sec	≥ 0.65 sec	
Excitation Voltage	18 to 28 VDC	18 to 28 VDC	
Constant Current Excitation	2 to 20 mA	2 to 20 mA	
Output Impedance	<550 Ohm	<550 Ohm	
Output Bias Voltage(± 10 %)	8 to 12 VDC	8 to 12 VDC	
Spectral Noise(10 Hz)	1.9 µg/√Hz	18.6 (µm/sec <sup>2</sup> )/√Hz	[1]
Spectral Noise(100 Hz)	0.6 µg/√Hz	5.9 (µm/sec <sup>2</sup> )/√Hz	[1]
Spectral Noise(1 kHz)	0.4 µg/√Hz	3.9 (µm/sec <sup>2</sup> )/√Hz	[1]

### Physical

Size (Lip Diameter x Height)	0.64 in x 0.57 in	16.3 mm x 14.5 mm
Weight	0.88 oz	25 gm
Mounting	Adhesive/Solder	Adhesive/Solder
Sensing Element	Ceramic	Ceramic
Sensing Geometry	Shear	Shear
Housing Material	Stainless Steel	Stainless Steel
Sealing	Welded Hermetic	Welded Hermetic
Electrical Connector	Header Pins	Header Pins
Electrical Connection Position	Bottom	Bottom
Electrical Connections(Pin 1)	Signal / Power	Signal / Power
Electrical Connections(Pin 2)	Ground	Ground
Electrical Connections(Pin 3)	No Connection	No Connection



All specifications are at room temperature unless otherwise specified.  
 In the interest of constant product improvement, we reserve the right to change specifications without notice.

ICP® is a registered trademark of PCB Group, Inc.

### OPTIONAL VERSIONS

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

**HT** - High temperature, extends normal operation temperatures  
 Temperature Range(Operating) -65 to 250 °F -54 to 121 °C

**RH** - RoHS Compliant

### NOTES:

- [1] Typical.
- [2] Positive output along Z-axis (in upward direction when pin mounted).
- [3] Conversion Factor 1g = 9.81 m/s<sup>2</sup>.
- [4] The high frequency tolerance is accurate within ±10% of the specified frequency.
- [5] Performance depends on mounting
- [6] Zero-based, least-squares, straight line method.
- [7] See PCB Declaration of Conformance PS023 or PS060 for details.

### SUPPLIED ACCESSORIES:

Model ICS-2 NIST-traceable single-axis single-point amplitude response calibration at 6000 cpm (100 Hz) (1)

Entered: AP	Engineer: do	Sales: fd	Approved: BAM	Spec Number:
Date: 5/14/2013	Date: 5/14/2013	Date: 5/14/2013	Date: 5/14/2013	<b>47329</b>



3425 Walden Avenue, Depew, NY 14043

Phone: 800-959-4464  
 Fax: 716-684-3823  
 E-Mail: imi@pcb.com