



Model 602M42
Industrial ICP® 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
Web: 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. 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. 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 SensorLineSM: (716) 684-0001
Website: www.pcb.com
E-mail: info@pcb.com

INDUSTRIAL ICPC® ACCELEROMETER

Model Number
602M42

Revision: NR
ECN #:

ENGLISH

Performance
Sensitivity ($\pm 20\%$) [2] 10.2 mV/(m/s²)
Measurement Range ± 50 g [2]
Frequency Range (± 3 dB) 30 to 480,000 cpm [3]
Resonant Frequency 1500 kcpm [1]
Broadband Resolution (1 to 10,000 Hz) 350 μ g [1]
Non-Linearity $\pm 1\%$ [4]
Transverse Sensitivity $\leq 7\%$ [4]

Environmental
Overload Limit (Shock) 5000 g pk
Temperature Range -65 to +250 °F
Temperature Response See Graph
Enclosure Rating IP68

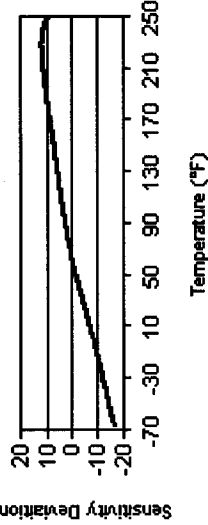
Electrical
Settling Time (within 1% of bias) ≤ 2.0 sec
Discharge Time Constant ≥ 0.3 sec
Excitation Voltage 18 to 28 VDC
Constant Current Excitation 2 to 20 mA
Output Impedance < 150 ohm
Output Bias Voltage 8 to 12 VDC
Spectral Noise (10 Hz) 8 μ g/√Hz
Spectral Noise (100 Hz) 5 μ g/√Hz
Spectral Noise (1 kHz) 4 μ g/√Hz
Electrical Isolation $> 10^8$ ohm

Physical
Size (Length x Width x Height) 2.04 in x 1.00 in x 1.00 in
Weight 5.36 oz
Mounting Thread M8 x 1.25
Mounting Torque 2.7 to 6.8 N-m
Sensing Element Ceramic
Sensing Geometry Shear
Housing Material Stainless Steel
Sealing Welded Hermetic
Electrical Connector 2-Pin MIL-C-5015
Electrical Connection Position Side



[6]

Typical Sensitivity Deviation vs Temperature



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.

NOTES:

- [1] Typical.
- [2] Conversion Factor $1g = 9.81$ m/s².
- [3] The high frequency tolerance is accurate within $\pm 10\%$ of the specified frequency.
- [4] Zero-based, least-squares, straight line method.
- [5] Metric mounting thread has no equivalent in English units.
- [6] See PCB Declaration of Conformance PS023 for details.

SUPPLIED ACCESSORIES:

Model 081M171 Thru bolt M8 x 1.25 (1)
Model ICS-2 NIST-traceable single-axis single-point amplitude response calibration at 6000 cpm (100 Hz) (1)

Entered: <i>RA</i>	Engineer: <i>RA</i>	Sales: <i>RA</i>	Approved: <i>RA</i>	Spec Number:
Date: 12/8/04	Date: 12/8/04	Date: 12-8-04	Date: 12-8-04	28379

IMI SENSORS
A PCB PIEZOTRONICS DIV.
3425 Waldben Avenue, Depew, NY 14043

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

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APPLICATION

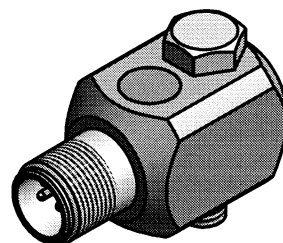
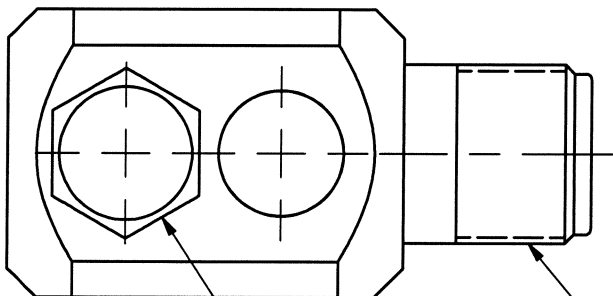
REVISIONS

NEXT ASS'Y	USED ON	VAR

REV	DESCRIPTION	ECN	APP'D
NR	RELEASED TO DRAFTING		ECB 9/5/06

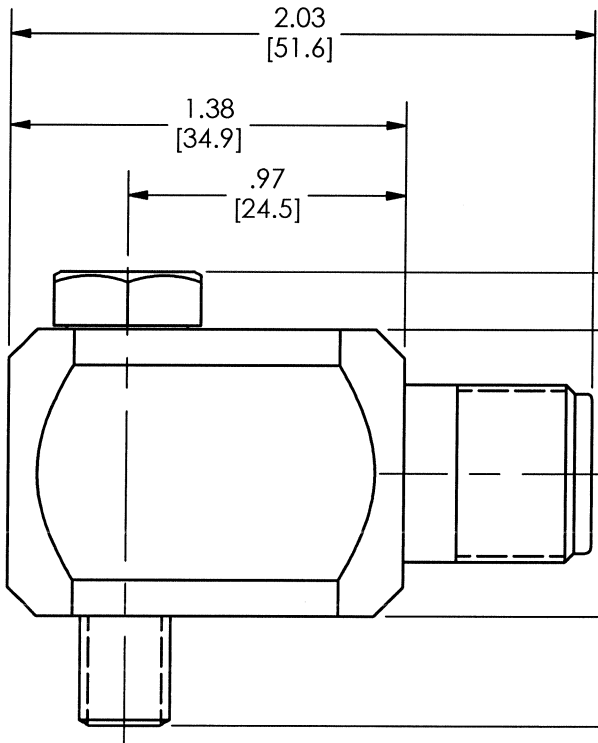
35202

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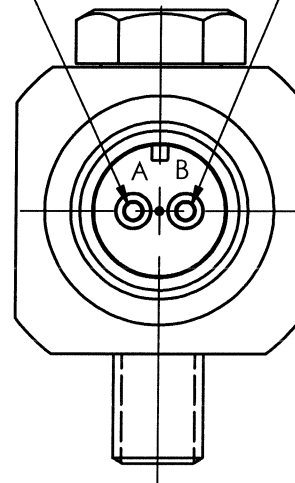
MOUNTING BOLT
MODEL 081M171
M8 X 1.25-6g
1.38 [35] LONG
(SUPPLIED)

ELECTRICAL CONNECTOR
5/8-24 UNEF-2A
2 PIN (MIL-C-5015)



SIGNAL / POWER

GROUND



UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:

DIMENSIONS IN INCHES

DIMENSIONS IN MILLIMETERS
[IN BRACKETS]

DECIMALS XX ± .03
XXX ± .010
ANGLES ± 2 DEGREES

DECIMALS X ± 0.8
XX ± 0.25
ANGLES ± 2 DEGREES

FILLETS AND RADII
003 - .005

FILLETS AND RADII
[0.07 - 0.13]

DRAWN	<i>RAM 9/5/06</i>	MFG	<i>P. D 9/14/06</i>
CHK'D	<i>ECB 9/5/06</i>	ENGR	<i>ECB 9/14/06</i>
APP'D	<i>U.B 9/14/06</i>	SALES	<i>CHEN 9/14/06</i>

PCB PIEZOTRONICS INC

3425 WALDEN AVE. DEPEW, NY 14043
(716) 684-0001 E-MAIL: sales@pcb.com

OUTLINE DRAWING
MODEL 602M42
ACCELEROMETER

CODE
IDENT. NO.
52681

DWG. NO.

35202

SCALE: FULL

SHEET 1 OF 1

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