



Model 080A200
ICP® Accelerometer
Installation and Operating Manual

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

Toll-free: 800-828-8840
24-hour SensorLine: 716-684-0001
Fax: 716-684-0987
E-mail: info@pcb.com
Web: www.pcb.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

ICP® ACCELEROMETER

Revision: A
ECN #: 33036

Model Number
080A200

Performance
Sensitivity(± 10 %)
Measurement Range
Frequency Range(± 5 %)
(± 10 %)
(± 3 dB)
Resonant Frequency
Broadband Resolution(1 to 10,000 Hz)
Non-Linearity
Temperature Range(Operating)
Temperature Response

ENGLISH
10 mV/g
± 500 g pk
1 to 10,000 Hz
0.7 to 20,000 Hz
0.35 to 30,000 Hz
≥ 70 kHz
0.005 g rms
≤ 1 %
≤ 5 %
± 10,000 g pk
-65 to +250 °F
See Graph
18 to 30 VDC
2 to 20 mA
≤ 100 ohm
8 to 12 VDC
0.5 to 2.0 sec
<5 sec
3200 µg/√Hz
700 µg/√Hz
180 µg/√Hz
64 µg/√Hz

SI
1.02 mV/(m/s²)
± 4905 m/s² pk
1 to 10,000 Hz
0.7 to 20,000 Hz
0.35 to 30,000 Hz
≥ 70 kHz
0.05 m/s² rms
≤ 1 %
≤ 5 %
± 98,100 m/s² pk
-54 to +121 °C
See Graph
18 to 30 VDC
2 to 20 mA
≤ 100 ohm
8 to 12 VDC
0.5 to 2.0 sec
<5 sec
31,392 (µm/sec²)/√Hz
6867 (µm/sec²)/√Hz
1766 (µm/sec²)/√Hz
628 (µm/sec²)/√Hz

Electrical
Excitation Voltage
Constant Current Excitation
Output Impedance
Output Bias Voltage
Discharge Time Constant
Settling Time(within 10% of bias)
Spectral Noise(1 Hz)
(10 Hz)
(100 Hz)
(1 kHz)

Physical
Sensing Element
Sensing Geometry
Housing Material
Sealing
Size (Height x Diameter)
Weight(without cable)
Electrical Connector
Cable Length
Cable Type
Mounting Thread
Mounting Torque

Quartz
Shear
Titanium
Welded Hermetic
1.05 in x 1.45 in
1.66 oz
10-32 Coaxial Plug
1 ft
031 Twisted Pair
1/4-28 Female
2 to 5 ft-lb
3 to 7 N-m

NOTES:
[1] Typical.
[2] Negative polarity.
[3] Zero-based, least-squares, straight line method.
[4] Transverse sensitivity is typically ≤ 3%.

Quartz
Shear
Titanium
Welded Hermetic
26.7 mm x 36.8 mm
47.0 gm
10-32 Coaxial Plug
0.30 m
031 Twisted Pair
1/4-28 Female
3 to 7 N-m

SUPPLIED ACCESSORIES:
Model 081B20 Mounting Stud, with shoulder (1/4-28 to 1/4-28) (1)
Model 100-8092-40 8/32 x 1 screws (4)
Model 100-8623-00 Hex key 9/64 (1)
Model ACS-1 NIST traceable frequency response (10 Hz to upper 5% point). (1)

Typical Sensitivity Deviation vs Temperature

Entered: <i>JH</i>	Engineer: <i>BM</i>	Sales: <i>WPC</i>	Approved: <i>EB</i>	Spec Number:
Date: <i>5-27-10</i>	Date: <i>5-25-10</i>	Date: <i>5-26-10</i>	Date: <i>5-26-10</i>	32357

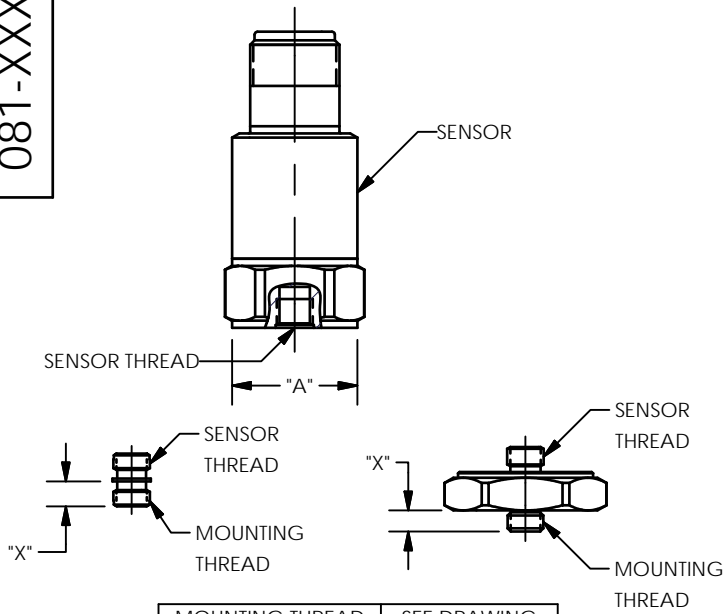
PCB PIEZOTRONICS™
VIBRATION DIVISION
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E-Mail: vibration@pcb.com

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.
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081-XXXX-90

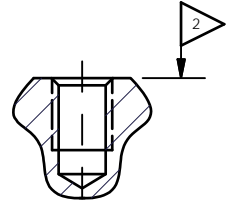
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STANDARD STUD MOUNT



MOUNTING THREAD	SEE DRAWING
5-40	A
M3 X 0.50	B
10-32	C
M5 X 0.80	D
1/4-28	E
M6 X 1.00	F

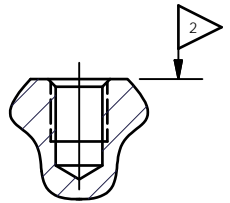
"A"
5-40
MOUNTING INSTRUCTIONS
(METRIC DIMENSIONS IN BRACKETS)



MOUNTING HOLE PREPARATION:
 1) $\phi .101[\phi 2.57]$
 X .20[5.1] ∇ MIN.
 5-40 UNC-2B
 X .15[3.8] ∇ MIN.

4.) RECOMMENDED MOUNTING TORQUE,
 4-5 INCH POUNDS
 [45-55 NEWTON CENTIMETERS].

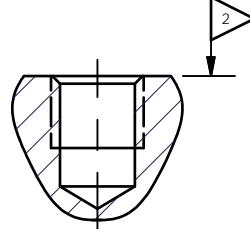
"B"
M3 X 0.50
MOUNTING INSTRUCTIONS
(ENGLISH DIMENSIONS IN BRACKETS)



MOUNTING HOLE PREPARATION:
 1) $\phi 2.5[\phi .099]$
 X 4.6 [1.8] ∇ MIN.
 M3 X 0.50-6H
 X 3.3[.13] ∇ MIN.

4.) RECOMMENDED MOUNTING TORQUE,
 45-55 NEWTON CENTIMETERS
 [4-5 INCH POUNDS].

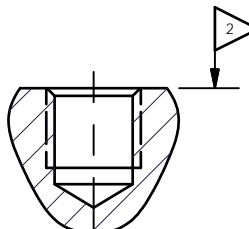
"C"
10-32
MOUNTING INSTRUCTIONS
(METRIC DIMENSIONS IN BRACKETS)



MOUNTING HOLE PREPARATION:
 1) $\phi .159[\phi 4.04]$
 X .23[5.8] ∇ MIN.
 10-32 UNF-2B
 X .15[3.8] ∇ MIN.

4.) RECOMMENDED MOUNTING TORQUE,
 10-20 INCH POUNDS
 [113-225 NEWTON CENTIMETERS].

"D"
M5 X 0.80
MOUNTING INSTRUCTIONS
(ENGLISH DIMENSIONS IN BRACKETS)

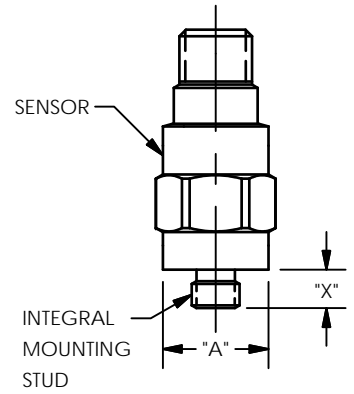


MOUNTING HOLE PREPARATION:
 1) $\phi 4.22[\phi .166]$
 X 7.62 [.300] ∇ MIN.
 M5 X 0.8-6H
 X 5.08[.200] ∇ MIN.

4.) RECOMMENDED MOUNTING TORQUE,
 113-225 NEWTON CENTIMETERS
 [10-20 INCH POUNDS].

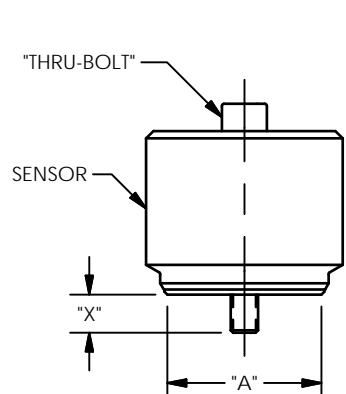
REVISIONS		
REV	DESCRIPTION	DIN
P	UPDATE DRAWING	25686

INTEGRAL STUD MOUNT



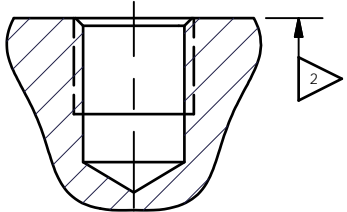
MOUNTING THREAD	SEE DRAWING
5-40	A
M3 X 0.50	B
10-32	C
M5 X 0.80	D
1/4-28	E
M6 X 1.00	F

"THRU-BOLT" STUD MOUNT



BOLT THREAD	SEE DRAWING
10-32	C
M5 X 0.80	D
1/4-28	E
M6 X 1.00	F
M8 X 1.25	F

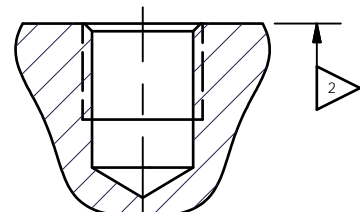
"E"
1/4-28
MOUNTING INSTRUCTIONS
(METRIC DIMENSIONS IN BRACKETS)



MOUNTING HOLE PREPARATION:
 1) $\phi .218[\phi 5.54]$
 X .300[7.62] ∇ MIN.
 1/4-28 UNF-2B
 X .200[5.08] ∇ MIN.

4.) RECOMMENDED MOUNTING TORQUE,
 2-5 FOOT POUNDS
 [3-7 NEWTON METERS].

"F"
M6 X 0.75, M6 X 1.00, M8 X 1.25
MOUNTING INSTRUCTIONS
(ENGLISH DIMENSIONS IN BRACKETS)



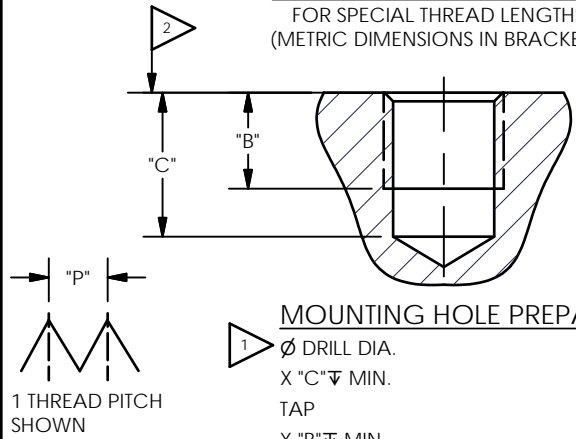
M6 X 1.00 MOUNTING HOLE PREPARATION:
 1) $\phi 5.05[\phi .199]$
 X 8.10 [.320] ∇ MIN.
 M6X 1.0-6H
 X 6.35[.250] ∇ MIN.

4.) RECOMMENDED MOUNTING TORQUE,
 3-7 NEWTON METERS [2-5 FT POUNDS].

M6 X 0.75 MOUNTING HOLE PREPARATION:
 1) $\phi 5.31[\phi .209]$
 X 7.62 [.300] ∇ MIN.
 M6 X 0.75-6H
 X 5.08[.200] ∇ MIN.

M8 X 1.25 MOUNTING HOLE PREPARATION:
 1) $\phi 6.75[\phi .266]$
 X 8.64 [.340] ∇ MIN.
 M8 X 1.25-6H
 X 5.00[.197] ∇ MIN.

"G"
MOUNTING INSTRUCTIONS
FOR SPECIAL THREAD LENGTHS
(METRIC DIMENSIONS IN BRACKETS)



MOUNTING HOLE PREPARATION:
 1) ϕ DRILL DIA.
 X "C" ∇ MIN.
 TAP
 X "B" ∇ MIN.

THREAD DEPTH : B = X + 1 THREAD PITCH
 DRILL DEPTH : C = B + 3 THREAD PITCH
 SEE A-F FOR APPROPRIATE DRILL AND TAP
 THREAD PITCH = 1/TPI [P]

- 3.) FOR BEST RESULTS, PLACE A THIN LAYER OF SILICONE GREASE (OR EQUIVALENT) ON INTERFACE PRIOR TO MOUNTING.
- 2) MOUNTING SURFACE SHOULD BE FLAT TO WITHIN .001(0.03) TIR OVER DIM 'A' WITH A $\sqrt{63[1.61]}$ OR BETTER FINISH FOR BEST RESULTS.
- 1) DRILL PERPENDICULAR TO MOUNTING SURFACE TO WITHIN $\pm 1^\circ$.

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		DRAWN		CHECKED		ENGINEER	
DIMENSIONS IN INCHES	DIMENSIONS IN MILLIMETERS [IN BRACKETS]	JDM	3/9/07	ECB	3/9/07	JJD	3/9/07
DECIMALS XX $\pm .01$ XXX $\pm .005$	DECIMALS X ± 0.3 XX ± 0.13	TITLE					
ANGLES ± 2 DEGREES	ANGLES ± 2 DEGREES	INSTALLATION DRAWING FOR STANDARD 081 SERIES MOUNTING					
FILLETS AND RADII .003 - .005	FILLETS AND RADII 0.07 - 0.13	CODE IDENT. NO. 52681		DWG. NO. 081-XXXX-90		SCALE: N.T.S. SHEET 1 OF 1	



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