Model 607M83

Industrial 3-Wire 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

Warranty, Service, Repair, and Return Policies and Instructions

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 SI through 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 **Warranty, Service, Repair, and Return Policies and Instructions** 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:

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PCB工业监视和测量设备 - 中国RoHS2公布表

PCB Industrial Monitoring and Measuring Equipment - China RoHS 2 Disclosure Table

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
住房	O	O	O	O	O	O
PCB板	X	O	O	O	O	O
电气连接器	O	O	O	O	O	O
压电晶体	X	O	O	O	O	O
环氧	O	O	O	O	O	O
铁氟龙	O	O	O	O	O	O
电子	O	O	O	O	O	O
厚膜基板	O	O	X	O	O	O
电线	O	O	O	O	O	O
电缆	X	O	O	O	O	O
塑料	O	O	O	O	O	O
焊接	X	O	O	O	O	O
铜合金/黄铜	X	O	O	O	O	O
本表格依据 SJ/T 11364 的规定编制。						
O： 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。						
X： 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。 铅是欧洲RoHS指令2011/65/ EU附件三和附件四目前由于允许的豁免。						

CHINA RoHS COMPLIANCE

Component Name	Hazardous Substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Chromium VI Compounds (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	O	O	O	O	O	O
PCB Board	X	O	O	O	O	O
Electrical Connectors	O	O	O	O	O	O
Piezoelectric Crystals	X	O	O	O	O	O
Epoxy	O	O	O	O	O	O
Teflon	O	O	O	O	O	O
Electronics	O	O	O	O	O	O
Thick Film Substrate	O	O	X	O	O	O
Wires	O	O	O	O	O	O
Cables	X	O	O	O	O	O
Plastic	O	O	O	O	O	O
Solder	X	O	O	O	O	O
Copper Alloy/Brass	X	O	O	O	O	O

This table is prepared in accordance with the provisions of SJ/T 11364.

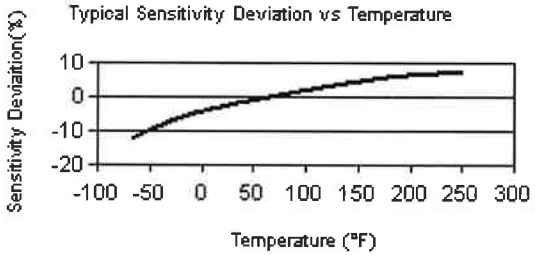
O: Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

X: Indicates that said hazardous substance contained in at least one of the homogeneous materials for this part is above the limit requirement of GB/T 26572.
Lead is present due to allowed exemption in Annex III or Annex IV of the European RoHS Directive 2011/65/EU.

DOCUMENT NUMBER: 21354
*DOCUMENT REVISION: **C***
ECN: 45605

Model Number	INDUSTRIAL 3-WIRE ACCELEROMETER	Revision: A
607M83		ECN #: 32451

Performance	ENGLISH	SI	
Sensitivity(± 20 %)	100 mV/g	10.2 mV/(m/s²)	[2]
Measurement Range	± 45 g	± 441 m/s²	[3]
Frequency Range(± 3 dB)	90 to 600,000 cpm	1.5 to 10,000 Hz	
Resonant Frequency	1500 kcpm	25 kHz	[1]
Broadband Resolution(1 to 10,000 Hz)	2 mg	19.6 mm/s²	[1]
Non-Linearity	± 1 %	± 1 %	[4]
Transverse Sensitivity	≤ 7 %	≤ 7 %	
Environmental			
Overload Limit(Shock)	5000 g pk	49,050 m/s² pk	
Temperature Range	-65 to +250 °F	-54 to +121 °C	
Temperature Response	See Graph	See Graph	[1]
Enclosure Rating	IP68	IP68	
Electrical			
Settling Time(within 1% of bias)	≤ 5.0 sec	≤ 5.0 sec	
Discharge Time Constant	≥ 0.1 sec	≥ 0.1 sec	
Excitation Voltage	3 to 12 VDC	3 to 12 VDC	
Output Impedance	<100 ohm	<100 ohm	
Current Draw	0.5 mA	0.5 mA	
Output Bias Voltage	1.5 to 6 VDC	1.5 to 6 VDC	
Spectral Noise(10 Hz)	18 µg/√Hz	176.6 (µm/sec²)/√Hz	[1]
(100 Hz)	4 µg/√Hz	39.2 (µm/sec²)/√Hz	[1]
(1 kHz)	2 µg/√Hz	19.6 (µm/sec²)/√Hz	[1]
Electrical Isolation(Case)	$>10^8$ ohm	$>10^8$ ohm	
Physical			
Size (Hex x Height)	9/16 in x 0.97 in	14 mm x 24.6 mm	
Weight(without cable)	1.1 oz	31 gm	[5]
Mounting	Stud	Stud	
Mounting Thread	1/4-28 Male	No Metric Equivalent	[6]
Mounting Torque(stud)	7 to 8 ft-lb	9.5 to 10.8 N-m	[7][8]
(hex nut)	2 to 5 ft-lb	2.7 to 6.8 N-m	
Sensing Element	Ceramic	Ceramic	
Sensing Geometry	Shear	Shear	
Housing Material	Stainless Steel	Stainless Steel	
Sealing	Welded Hermetic	Welded Hermetic	
Electrical Connector	Molded Integral Cable	Molded Integral Cable	
Electrical Connection Position	Side	Side	
Cable Termination	Blunt cut	Blunt cut	
Electrical Connections(Red)	Pos (+) Power	Pos (+) Power	
(Black)	Ground	Ground	
(White)	Acceleration Output	Acceleration Output	
Cable Length	10 ft	3.0 m	
Cable Type	Polyurethane	Polyurethane	



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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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.

M - Metric Mount
Supplied Accessory : Model M080A159 Mounting stud, 1/2-20 to M6 x 1 (1) replaces Model 080A156

NOTES:

[1] Typical.
[2] Conversion Factor 1g = 9.81 m/s².
[3] Full range requires adequate bias voltage.
[4] Zero-based, least-squares, straight line method.
[5] Measured with mounting stud.
[6] 1/4-28 has no equivalent in S.I. units.
[7] 1/8" hex Allen key required for English version, 4 mm hex Allen key required for Metric version.
[8] Stud torque must exceed sensor hex nut torque to ensure proper dismantling.

SUPPLIED ACCESSORIES:

Model 080A156 Mounting Base (1)
Model ICS-2 NIST-traceable single-axis single-point amplitude response calibration at 6000 cpm (100 Hz) (1)

Entered:	Engineer:	Sales:	Approved:	Spec Number:
Date: 3-5-10	Date: 2-18-10	Date: 2/18/10	Date: 2-24-10	37457

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18551

REVISIONS		
REV	DESCRIPTION	DIN
B	ADDED METRIC MOUNTING INFORMATION	43341

METRIC MOUNTING HOLE PREPARATION:

DRILL Ø.199[Ø5.05] ↧.300[7.62] MIN (1)

TAP M6 X 1-6g ↧.200[5.08] MIN

ENGLISH MOUNTING HOLE PREPARATION:

DRILL Ø.218[Ø5.54] ↧.300[7.62] MIN (1)

TAP 1/4-28 UNF-2B ↧.200[5.08] MIN

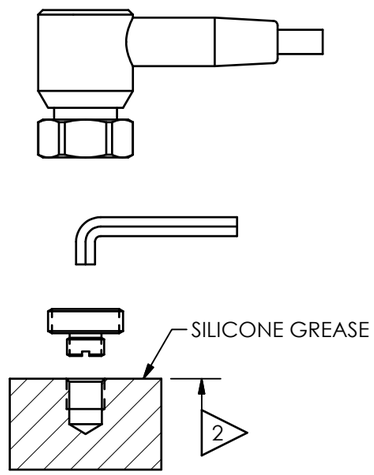

FIG 1: A 1/8" HEX ALLEN KEY IS REQUIRED FOR THE ENGLISH MOUNTING STUD. A 3MM HEX ALLEN KEY IS REQUIRED FOR THE METRIC MOUNTING STUD. APPLY SILICONE GREASE TO ALL MOUNTING SURFACES (SEE ARROWS FIG 1 & 2)

FIG 2: TIGHTEN THE MOUNTING STUD USING THE ALLEN KEY. TORQUE THE MOUNTING STUD TO WITHIN 3 TO 4 FT-LBS. (4.1 TO 5.4 Nm)

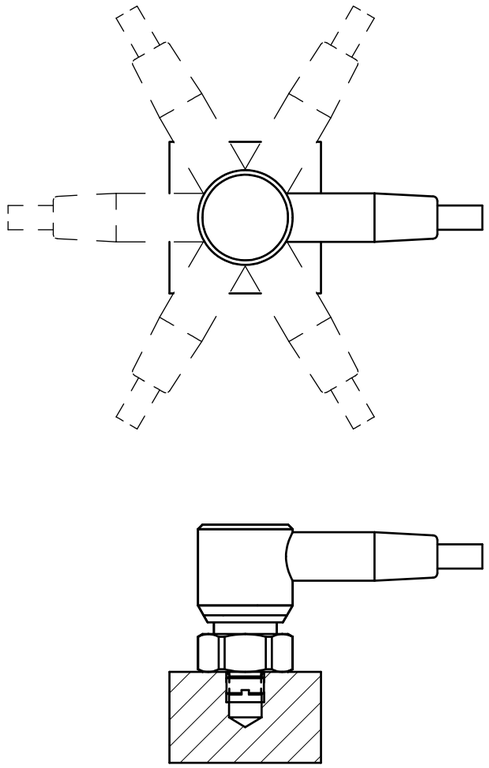

FIG 3: THREAD THE SENSOR'S HEX NUT ONTO THE MOUNTING STUD. POSITION THE CABLE OR CONNECTOR TO THE DESIRED LOCATION AND HAND TIGHTEN THE HEX NUT.

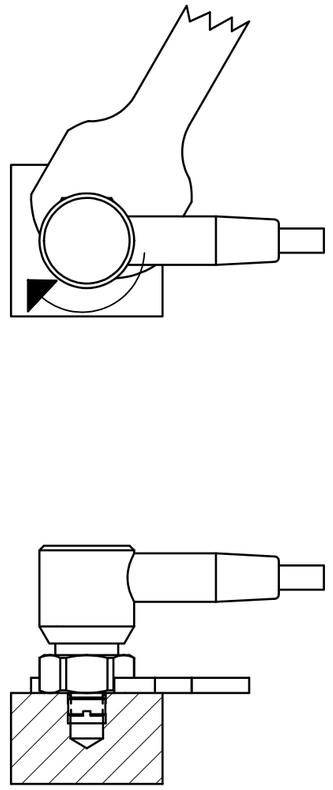

FIG 4: TIGHTEN THE HEX NUT USING A TORQUE WRENCH TO WITHIN 2 TO 3 FT-LBS (2.7 TO 4.1 Nm) WHILE HOLDING THE CABLE OR CONNECTOR IN THE DESIRED LOCATION.

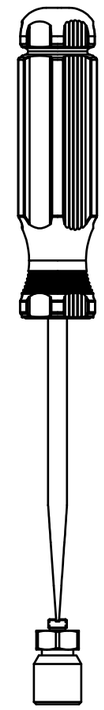

FIG 5: IF FOR ANY REASON THE MOUNTING STUD DOES NOT DISENGAGE FROM THE SENSOR, USE A FLAT HEAD SCREW DRIVER TO HOLD THE STUD WHILE TURNING THE HEX NUT COUNTERCLOCKWISE WITH A WRENCH.

3.) FOR BEST RESULTS, PLACE A THIN LAYER OF SILICONE GREASE (DOW CORNING #4 OR EQUIVALENT) ON INTERFACE PRIOR TO MOUNTING.

(2) MOUNTING SURFACE SHOULD BE FLAT TO WITHIN .001[0.03] TIR WITH A MINIMUM 63 [1.6] FINISH FOR BEST RESULTS.

(1) DRILL PERPENDICULAR TO MOUNTING SURFACE TO WITHIN ±1°

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		DRAWN		CHECKED		ENGINEER	
DIMENSIONS IN INCHES DECIMALS XX ±.01 XXX ±.005 ANGLES ± 2 DEGREES	DIMENSIONS IN MILLIMETERS [IN BRACKETS] DECIMALS X ±0.3 XX ±0.13 ANGLES ± 2 DEGREES	JDM	10/9/14	ECB	10/9/14	DRK	10/9/14
FILLETS AND RADII .003 - .005	FILLETS AND RADII 0.07 - 0.13	TITLE: INSTALLATION DRAWING MODEL 607 SERIES					

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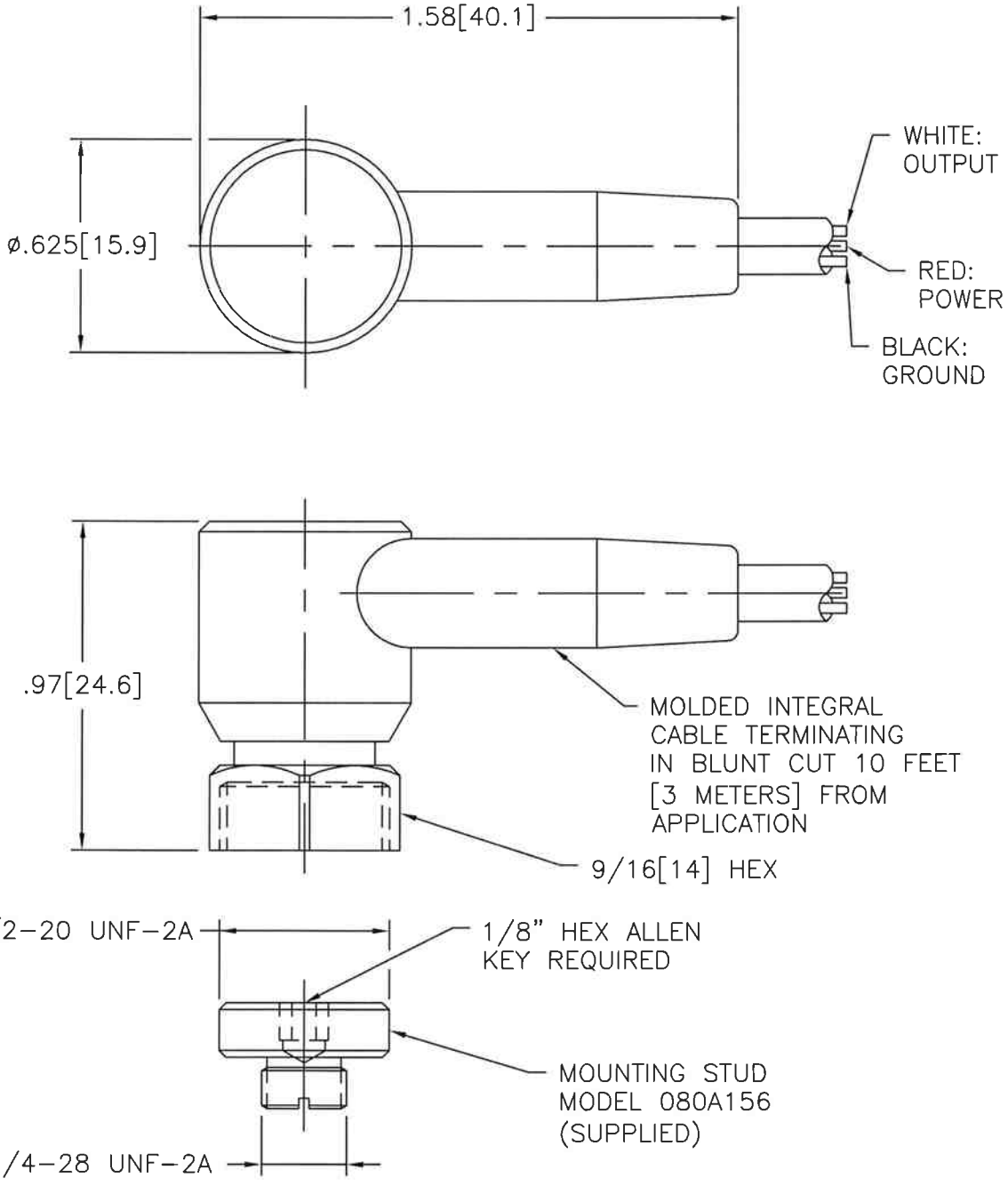
CODE IDENT. NO. 52681	DWG. NO. 18551
SCALE: FULL	SHEET 1 OF 1

37456

REVISIONS				
REV	DESCRIPTION	ECN	DATE	APP'D
NR	RELEASED TO DRAFTING		5/10/07	EB 5/10



UNLESS SPECIFIED TOLERANCES	
DIMENSIONS IN INCHES DECIMALS XX ±.03 XXX ±.010 ANGLES ±2 DEGREES	DIMENSIONS IN MILLIMETERS [IN BRACKETS] DECIMALS X ±0.8 XX ±0.25 ANGLES ±2 DEGREES
FILLETS AND RADII .003 – .005	FILLETS AND RADII [0.07 – 0.13]
DD011 REV. C 01/21/03	

DRAWN	MDF	5/14/07	MFG	R.A	5/11/07
CHK'D	ECB	5/10/07	ENGR	RAB	5/11/07
APP'D	MF	5/11/07	SALES	[illegible]	5/11/07

TITLE: OUTLINE DRAWING
MODEL 607M83
ACCELEROMETER

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CODE IDENT. NO.	DWG. NO.
52681	37456

SCALE: 2X | SHEET 1 OF 1