Model 356A32

Triaxial, mini (5 gm) high sensitivity, ICP® accel., 100 mV/g, 1 Hz to 4k Hz,

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

PCB PIEZOTRONICS INC.
A PCB GROUP COMPANY

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 traceablility 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:

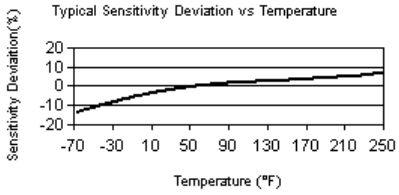
PCB Piezotronics, Inc.
3425 Walden Ave.
Depew, NY 14043 USA
Toll-free: (800) 828-8840
24-hour SensorLine[SM]: (716) 684-0001
Website: www.pcb.com
E-mail: info@pcb.com

DOCUMENT NUMBER: 21354
DOCUMENT REVISION: B
ECN: 17900

Model Number **356A32**	**ACCELEROMETER, ICP®, TRIAXIAL**	Revision F ECN #: 28478

Performance	**ENGLISH**	**SI**	
Sensitivity (±10 %)	100 mV/g	10.2 mV/(m/s²)	
Measurement Range	±50 g pk	±491 m/s² pk	
Frequency Range (±5 %)	1.0 to 4000 Hz	1.0 to 4000 Hz	
Frequency Range (±10 %)	0.7 to 5000 Hz	0.7 to 5000 Hz	
Resonant Frequency	≥25 kHz	≥25 kHz	
Broadband Resolution (1 to 10000 Hz)	0.0003 g rms	0.003 m/s² rms	[1]
Non-Linearity	≤1 %	≤1 %	[2]
Transverse Sensitivity	≤5 %	≤5 %	
Environmental			
Overload Limit (Shock)	±5000 g pk	±49050 m/s² pk	
Temperature Range (Operating)	-65 to +250 °F	-54 to +121 °C	
Base Strain Sensitivity	0.001 g/με	0.01 (m/s²)/με	[1]
Electrical			
Excitation Voltage	24 to 30 VDC	24 to 30 VDC	
Constant Current Excitation	2 to 20 mA	2 to 20 mA	
Output Impedance	≤200 Ohm	≤200 Ohm	
Output Bias Voltage	7 to 16 VDC	7 to 16 VDC	
Discharge Time Constant	0.4 to 1.5 sec	0.4 to 1.5 sec	
Settling Time (within 10% of bias)	<5 sec	<5 sec	
Spectral Noise (1 Hz)	95 μg/√Hz	932 (μm/sec²/√Hz	[1]
Spectral Noise (10 Hz)	20 μg/√Hz	196 (μm/sec²/√Hz	[1]
Spectral Noise (100 Hz)	6 μg/√Hz	58.9 (μm/sec²/√Hz	[1]
Spectral Noise (1 kHz)	3 μg/√Hz	29.4 (μm/sec²/√Hz	[1]
Spectral Noise (10 kHz)	2 μg/√Hz	19.6 (μm/sec²/√Hz	[1]
Physical			
Sensing Element	Ceramic	Ceramic	
Sensing Geometry	Shear	Shear	
Housing Material	Titanium	Titanium	
Sealing	Hermetic	Hermetic	
Size (Height x Length x Width)	0.45 in x 0.45 in x 0.45 in	11.4 mm x 11.4 mm x 11.4 mm	
Weight	0.19 oz	5.4 gm	[1]
Electrical Connector	8-36 4-Pin	8-36 4-Pin	
Electrical Connection Position	Side	Side	
Mounting Thread	5-40 Female	5-40 Female	
Mounting Torque	4 to 5 in-lb	45 to 55 N-cm	

CE[3]



Optional Versions (Optional versions have identical specifications and accessories as listed for standard model except where noted below. More than one option maybe used.)

T - TEDS Capable of Digital Memory and Communication Compliant with IEEE P1451.4
TLA - TEDS LMS International - Free Format
TLB - TEDS LMS International - Automotive Format
TLC - TEDS LMS International - Aeronautical Format
TLD - TEDS Capable of Digital Memory and Communication Compliant with IEEE 1451.4

Output Bias Voltage	7.7 to 17.0 VDC	7.7 to 17.0 VDC
Weight	.23 oz	6.4 gm
Mounting	Adhesive	Adhesive

Notes

[1] Typical.
[2] Zero-based, least-squares, straight line method.
[3] See PCB Declaration of Conformance PS023 for details.

Supplied Accessories

034K10 Cable 10FT Mini 4 Pin To (3) BNC (1)
080A Adhesive Mounting Base (1)
080A109 Petro Wax (1)
081A27 Mounting Stud (5-40 to 5-40) (1)
081A90 Mounting stud, 10-32 to 5-40 (1)
ACS-1T NIST traceable triaxial amplitude response, 10 Hz to upper 5% frequency. (1)
M081A27 Metric mounting stud, 5-40 to M3 x 0.50 long (1)

Entered: LLH	Engineer: MJN	Sales: BAM	Approved: LLH	Spec Number:
Date: 03/28/2008	Date: 03/27/2008	Date: 03/28/2008	Date: 03/31/2008	**16563**

PCB PIEZOTRONICS VIBRATION DIVISION
3425 Walden Avenue
Depew, NY 14043
UNITED STATES
Phone: 800-828-8840
Fax: 716-684-0987
E-mail: info@pcb.com
Web site: www.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. ICP® is a registered trademark of PCB group, Inc.	