~ Calibration Certificate ~

Model Number: 356A01 Serial Number: LW248879 (x axis) ICP® Triaxial Accelerometer Description: **PCB** Method: Back-to-Back Comparison Manufacturer: Calibration Data 10.3 VDC Sensitivity @ 100 Hz 5.01 mV/g**Output Bias** 1.0 % Transverse Sensitivity (0.511 mV/m/s^2) Discharge Time Constant 0.27 seconds Sensitivity Plot Temperature: 72 °F (22 °C) Relative Humidity: 47 % 3.0 2.0 dB 0.0 -1.0 -2.0 -3.0 5000.0 1000.0 Hz **Data Points** Dev. (%) Frequency (Hz) Dev. (%) Frequency (Hz) 0.4 300 10 -0.5500 0.4 15 -0.3-0.11000 0.6 30 3000 2.2 50 0.1 5000 3.3 REF. FREQ. Mounting Surface: Tungsten Adapter Fastener: Adhesive Fixture Orientation: Inverted Vertical Acceleration Level (pk)!: 10.0 g (9k 1 m/s²)

The acceleration level may be limited by shaker displacement at low frequencies. If the listed level cannot be obtained, the calibration system uses the following formula to set the vibration amplitude: Acceleration Level (g) = 0.008 x (freq)². The gravitational constant used for calculations by the calibration system is: 1 g = 9.80665 m/s². Condition of Unit As Found: As Left: New Unit. In Tolerance Notes 1. Calibration is NIST Traceable thru Project 683/287323 and PTB Traceable thru Project 17014. 2. This certificate shall not be reproduced, except in full, without written approval from PCB Piezotronics, Inc. 3. Calibration is performed in compliance with ISO 10012-1, ANSI Z540.3 and ISO 17025. 4. See Manufacturer's Specification Sheet for a detailed listing of performance specifications. 5. Measurement uncertainty (95% confidence level with coverage factor of 2) for frequency ranges tested during calibration are as follows: 5-9 Hz; +/- 2.0%, 10-99 Hz; +/- 1.5%, 100-1999 Hz; +/- 1.0%, 2-10 kHz; +/- 2.5%. Robert Zsebehazy WIBRATION DIVISION
Headquarters: 3425 Walden Avenue, Depew, NY 14043 ACCREDITED



Calibration Performed at: 10869 Highway 903, Halifax, NC 27839 FAX: 716-685-3886 www.pcb.com

CAL2-3617868973.636+0

~ Calibration Certificate ~

Model Number: 356A01 Serial Number: LW248879 (y axis) 1CP® Triaxial Accelerometer Description: **PCB** Manufacturer: Method: Back-to-Back Comparison Calibration Data Sensitivity @ 100 Hz 10.3 VDC 4.67 mV/g Output Bias Transverse Sensitivity 3.9 % (0.476 mV/m/s^2) 0.26 seconds Discharge Time Constant Sensitivity Plot Temperature: 72 °F (22 °C) Relative Humidity: 46 % 2.0 1.0 dB 0.0 -1.0 -2.0 -3.0-100.0 8000.0 1000.0 Hz **Data Points** Dev. (%) Frequency (Hz) Dev. (%) Frequency (Hz) Frequency (Hz) Dev. (%) 7000 2.8 300 0.5 -0.410 8000 3.4 15 -0.2 500 0.5 0.0 30 1000 0.7 0.2 3000 1.2 50 0.0 5000 1.8 REF. FREQ. Mounting Surface Tungsten Adapter | Fastener, Adhesive | Fixture Orientation: Vertical Acceleration Level (pk): 10.0 g (9k 1 m/s²) | 10 Condition of Unit As Found: n/a As Left: New Unit. In Tolerance Notes 1. Calibration is NIST Traceable thru Project 683/287323 and PTB Traceable thru Project 17014. 2. This certificate shall not be reproduced, except in full, without written approval from PCB Piezotronics, Inc. 3. Calibration is performed in compliance with ISO 10012-1, ANSI Z540.3 and ISO 17025. 4. See Manufacturer's Specification Sheet for a detailed listing of performance specifications. 5. Measurement uncertainty (95% confidence level with coverage factor of 2) for frequency ranges tested during calibration are as follows: 5-9 Hz; +/- 2.0%, 10-99 Hz; +/- 1.5%, 100-1999 Hz; +/- 1.0%, 2-10 kHz; +/- 2.5%. Robert Zsebehazy Date: 8/23/2018



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~ Calibration Certificate ~

356A01 Model Number: Serial Number: LW248879 (z axis) ICP® Triaxial Accelerometer Description: **PCB** Manufacturer: Back-to-Back Comparison AT401-3 Method: Calibration Data 10.3 VDC **Output Bias** Sensitivity @ 100 Hz 4.57 mV/g 0.8 % (0.466 mV/m/s^2) Transverse Sensitivity 0.30 seconds Discharge Time Constant Sensitivity Plot Temperature: 72 °F (22 °C) Relative Humidity: 46 % 2.0 1.0 dΒ 0.0 -1.0 -2.0 -3.0-100.0 1000.0 8000.0 Hz **Data Points** Dev. (%) Dev. (%) Frequency (Hz) Frequency (Hz) Frequency (Hz) Dev. (%) 300 0.5 7000 2.6 -0.310 0.5 8000 3.0 15 -0.1 500 -0.030 1000 0.6 3000 0.2 1.1 50 5000 1.6 REF. FREO. 0.0 Mounting Surface: Tungsten Adapter | Fastener, Adhesive | Fixture Orientation, Vertical Acceleration Level (ps): $100 g (98 1 m/s^2)$ The acceleration level may be limited by shaker displacement at low frequencies. If the listed level cannot be obtained, the calibration system uses the following formula to set the vibration amplitude. Acceleration Level $(g) = 0.008 \times (freq)^2$. The gravitational constant used for calculations by the calibration system is, $1 g = 9.80665 \text{ m/s}^3$. Condition of Unit As Found: n/a As Left: New Unit, In Tolerance Notes 1. Calibration is NIST Traceable thru Project 683/287323 and PTB Traceable thru Project 17014. 2. This certificate shall not be reproduced, except in full, without written approval from PCB Piezotronics, Inc. 3. Calibration is performed in compliance with ISO 10012-1, ANSI Z540.3 and ISO 17025. 4. See Manufacturer's Specification Sheet for a detailed listing of performance specifications. 5. Measurement uncertainty (95% confidence level with coverage factor of 2) for frequency ranges tested during calibration are as follows: 5-9 Hz; +/- 2.0%, 10-99 Hz; +/- 1.5%, 100-1999 Hz; +/- 1.0%, 2-10 kHz; +/- 2.5%. Date: ______8/23/2018 Robert Zsebehazy Technician:



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