

~ Calibration Certificate ~

Per ISO 16063-21

Model Number: 393B04

Serial Number: 44962

Description: ICP® Accelerometer

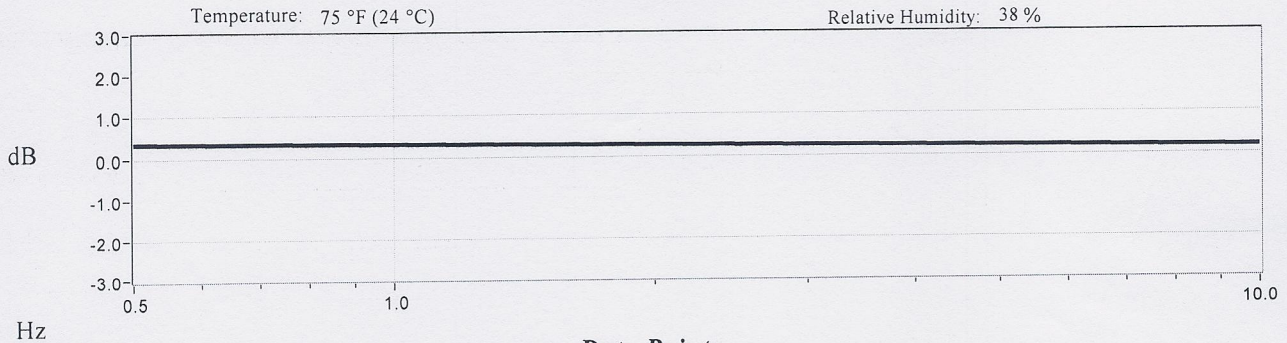
Manufacturer: PCB

Method: Back-to-Back Comparison AT401-12

Calibration Data

Sensitivity @ 100 Hz 999 mV/g
(101.8 mV/m/s²)

Sensitivity Plot



Data Points

Frequency (Hz)	Dev. (%)	Frequency (Hz)	Dev. (%)
0.5	3.9	10	1.9
1	3.5		
2	3.1		
5	2.4		
7	2.2		

Mounting Surface: Stainless Steel w/Silicone Grease Fastener: 10-32 Female Fixture Orientation: Vertical

Acceleration Level (pk): 1.00 g (9.81 m/s²)

¹The 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) = 0.207 x (freq)². ²The gravitational constant used for calculations by the calibration system is: 1 g = 9.80665 m/s².

Condition of Unit

As Found: n/a

As Left: New Unit, In Tolerance

Notes

1. Calibration is traceable to one or more of the following; PTB 10065, PTB 10066 and NIST 683/283498.
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 9001, 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: 0.5-0.99 Hz; +/- 1.8%, 1-30 Hz; +/- 1.0%, 30.01-199 Hz; +/- 1.5%, 200-1 kHz; +/- 3.0%.

Technician: Monty Manning *mm*

Date: 12/9/2015



CALIBRATION CERT #1882.02

PCB PIEZOTRONICS
VIBRATION DIVISION

Headquarters: 3425 Walden Avenue, Depew, NY 14043

Calibration Performed at: 10869 Highway 903, Halifax, NC 27839

TEL: 888-684-0013

FAX: 716-685-3886

www.pcb.com

CAL57-3532546396.240+0



~ Calibration Certificate ~

Per ISO 16063-21

Model Number: 393B04

Serial Number: 44962

Description: ICP® Accelerometer

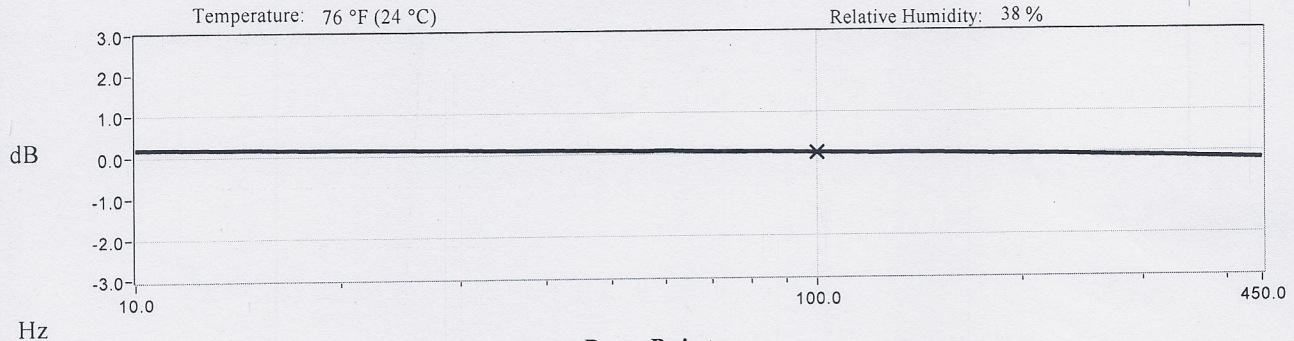
Manufacturer: PCB

Method: Back-to-Back Comparison AT401-3

Calibration Data

Sensitivity @ 100 Hz	999 mV/g (101.8 mV/m/s ²)	Output Bias	11.2 VDC
Discharge Time Constant	11.3 seconds	Transverse Sensitivity	0.8 %
		Resonant Frequency	2.7 kHz

Sensitivity Plot



Data Points

Frequency (Hz)	Dev. (%)	Frequency (Hz)	Dev. (%)
10	2.0	300	-1.4
15	1.8	450	-2.4
30	1.2		
50	0.8		
REF. FREQ.	0.0		

Mounting Surface: Beryllium w/Silicone Grease Fastener: 10-32 Female Fixture Orientation: Vertical

Acceleration Level (pk): 1.00 g (9.81 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: 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 9001, 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%.

Technician: Monty Manning *MM*

Date: 12/9/2015



CALIBRATION CERT #1862.02



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Calibration Performed at: 10869 Highway 903, Halifax, NC 27839

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CAL48-3532545000.054+0



~ Calibration Certificate ~

Per ISO 16063-21

Model Number: 393B04

Serial Number: 44962

Description: ICP® Accelerometer

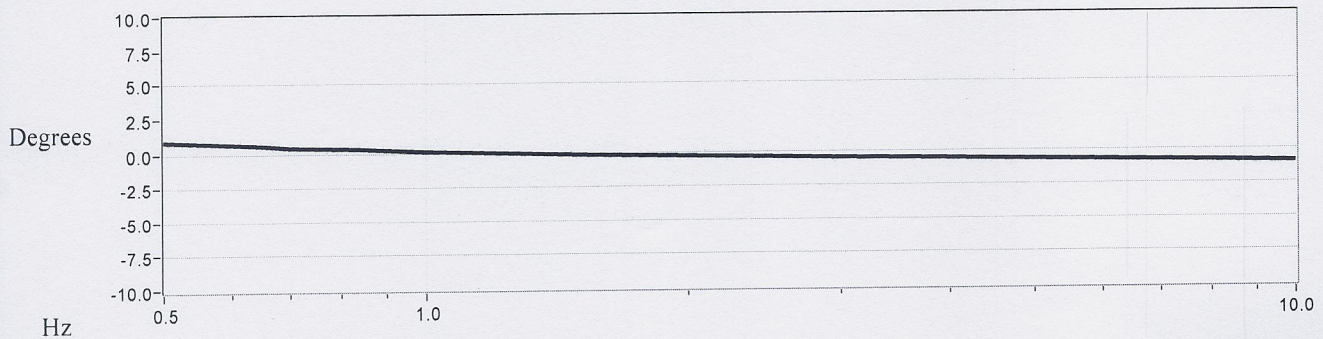
Manufacturer: PCB

Method: Back-to-Back Comparison AT401-12

Calibration Data

Sensitivity @ 100 Hz 999 mV/g (101.8 mV/m/s²)

Phase Plot



Data Points

Frequency (Hz)	Phase (°)
0.5	0.9
1	0.1
2	-0.3
5	-0.7
7	-0.8
10	-1.0

Notes

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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 9001, ISO 10012-1, ANSI Z540.3 and ISO 17025.
4. See Manufacturer's Specification Sheet for a detailed listing of performance specifications.

Technician: Monty Manning *mm*

Date: 12/9/2015



VIBRATION DIVISION
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CERTIFICATION OF CONFORMANCE

Title Page of Calibration Certificate Documentation

CUSTOMER:

ESTEQ Test & Measurement (Pty) Ltd
C/O Concordia International Forwarding
155-37 145th Avenue
Jamaica, NY 11434
UNITED STATES

PURCHASE ORDER #: TMO2761

PCB ORDER #: I000204008

QTY	ITEM	DESCRIPTION
2	393B04	SEISMIC ACCELEROMETER 00044962, 00044963

Notes:

1. This document certifies that the subject item(s) have been manufactured, repaired (if applicable), tested, or inspected in accordance with referenced purchase order and conform(s) to applicable specifications per PCB Quality Policy Manual Rev. I 09/30/2014.
2. Equipment used in validation is traceable to NIST and appropriate records are on file.
3. Calibrations comply with ISO 17025 and ANSI/NCSL Z540-1-1994 except as noted on associated calibration certificate(s).
4. Calibrations are performed using processes having a test uncertainty ratio (TUR) of four or more times greater than the unit calibrated, unless otherwise noted on the calibration certificate. Calibration at 4:1 TUR provides reasonable confidence that the instrument is within product specifications.

Logistics Associate: 

Date: 12/14/15

**- ISO 9001 Certified / ISO 17025 Accredited -
PCB Piezotronics, Inc.**

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