~ Calibration Certificate ~

SWLW230802

Model Number: 356A01 Serial Number: LW230802 (x axis) ICP® Triaxial Accelerometer Description: **PCB** Manufacturer: Back-to-Back Comparison AT401-3 Method: Calibration Data Sensitivity @ 100 Hz **Output Bias** 10.4 VDC 4.42 mV/g Transverse Sensitivity 4.3 % (0.450 mV/m/s2) 0.41 seconds Discharge Time Constant Sensitivity Plot Temperature: 73 °F (23 °C) Relative Humidity: 48 % 2.0 1.0 dB 0.0 -1.0 -2.0 -3.0= 100.0 1000.0 5000.0 10.0 Hz Data Points Frequency (Hz) Dev. (%) Frequency (Hz) Dev. (%) -0.6 10 300 0.4 15 -0.3500 0.4 30 -0.01000 0.6 3000 0.1 1.8 50 0.0 5000 3.0 REF. FREQ. Mounting Surface: Tangston Adapter Fastoner Adhesive Fixture Orientation: Inverted Vertical Acceleration Level (pk)* 100 g (98.1 m/s*)

The acceleration level may be familted by slaker 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)*. The gravitational constant used for calculations by the calibration system is; 1 g = 9.80665 m/s*. Condition of Unit As Found: New Unit, In Tolerance As Left: 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%. Robert Zsebehazy R.Z. VIBRATION DIVISION
Headquarters: 3425 Walden Avenue, Depew, NY 14043 Calibration Performed at: 10869 Highway 903, Halifax, NC 27839 FAX: 716-685-3886 www.pcb.com CAL2-3588845787.257+0 TEL: 888-684-0013 PAGE 1 of I

~ Calibration Certificate ~

				Per ISO 16063-21	
Model Numb	er:	356A01			
erial Numbe	er: LW	230802 (y axis)			
escription:	ICP® Triaxia	I Accelerometer			
lanufacturer:	A A WA	PCB	Method:	Back-to-Back Comparison	AT401-3
		Calibration L	.		
Sand	sitivity @ 100 Uz		vata	Output Bias	10.5 VDC
Sensitivity @ 100 Hz		4.51 mV/g	~		
		(0.459 mV/m/s^2)	Trat	sverse Sensitivity	4.3 %
Dischar	ge Time Constant	0.38 seconds			
		Sensitivity l	Plot		
	Temperature: 73 °F (*	Relative Humidity: 48 %		
3.0-					
2.0-					
1.0- B 0.0-					
0.0					
-1.0-					
-2.0-					
-3.0- 10.0		100.0	1	1000.0	8000.0
Ηz		Data Poin	fe .		
Frequency (I	Hz) Dev. (%)	Frequency (Hz)	Dev. (%)	Frequency (H	Iz) Dev. (%
10	-0.3	300	0.4	7000	2.6
15	-0.3	500	0.4	8000	3.1
30	-0.1	1000	0.5		
50	0.0	3000	1.1		
REF. FRE	Q. 0.0	5000	1.7		
		Of the Medial			
Acceleration Level (pk	I may be limited by shaker displacement	at low frequencies. If the listed level cannot be obtained, the tions by the calibration system is: $1 g = 9.80665 \text{ m/s}^3$.	he calibration system use	s the following formula to set the vibration amplitude	; Acceleration Levet
(g) ~ u.uos x (neu):	-the Bartemoral conductation for calcula	Condition of	Unit		
As Found:	n/a	-			
As Left:	New Unit, In Toler				
1. Callborn	:- NICT Tuncoble	Notes thru Project 683/287323 and F	PTR Traceahl	e thru Project 17014	
2. This certi	ficate shall not be rep	roduced, except in full, without	written appro	oval from PCB Piezotronics,	Inc.
3. Calibratic	on is performed in con	ipliance with ISO 9001, ISO 10	012-1, ANSI	Z540.3 and ISO 17025.	
4. See Manu	ıfacturer's Specificatio	on Sheet for a detailed listing of	performance	specifications.	lurino calibration
5. Measuren	nent uncertainty (95% ws: 5-9 Hz; +/- 2.0%,	confidence level with coverage 10-99 Hz; +/- 1.5%, 100-1999	Hz; +/- 1.09	%, 2-10 kHz; +/- 2.5%.	iaing vanoration
Technician:	,	Robert Zsebehazy R.Z.			1/2017
			TOONICC	•	
	A	PCB PIEZO	I KUNILD		



Headquarters: 3425 Walden Avenue, Depew, NY 14043 Calibration Performed at: 10869 Highway 903, Halifax, NC 27839 TEL: 888-684-0013 FAX: 716-685-3886

CAL2-3588847532.171+0

~ Calibration Certificate ~

Model Number:	356A01		-		
Serial Number:	LW2	LW230802 (z axis) ICP® Triaxial Accelerometer			
Description:	ICP® Triaxial				
Manufacturer:	F	РСВ	Method	Back-to-Back Compariso	n AT401-3
		Calibr	ation Data		
Sensitivity @ 100 Hz		4.37 mV/g		Output Bias	10.2 VDC
		(0.445 mV/m/s²)	Tr	ansverse Sensitivity	4.4 %
Discharge Ti	me Constant	0.45 seconds			
		Sens	itivity Plot		
7€ 3,0-	emperature: 73 °F (2	23 °C)		Relative Humidity: 48 %	
2.0-					
1.0~					
dB _{0.0}		_			
-1.0-					
-2.0~					
-3,0-\ 10.0	er a mener e	100.0		1000.0	8000.0
Hz			ta Points		
Frequency (Hz)	Dev. (%)	Frequency		Frequency (Hz) Dev. (%)
10	-0.3	300	0.5	7000	2.7
15	-0. I	500	0.5	8000	3.2
30	0.0	1000			
50	0.1	3000			
REF. FREQ.	0.0	5000	1.8		
As Found: n/a	98.1 m/s²) imited by shaker displacement a atuonal constant used for calculati	at low frequencies. If the listed level cannons by the calibration system us. $1\mathrm{g}=9.80$ Condi	nt be obtained, the catibration system 665 m/s ² . tion of Unit	uses the following formula to set the vibration amplitt	ude; Accelention Level
As Left: Nev	w Unit, In Tolera	nnce	Notes		
This certificate Calibration is p See Manufactu Measurement I	shall not be reproperformed in comparer's Specification uncertainty (95%)	oduced, except in full, pliance with ISO 9001 n Sheet for a detailed leantiful with confidence level with	23 and PTB Tracea without written app, ISO 10012-1, ANS isting of performance overage factor of 2	ble thru Project 17014. broval from PCB Piezotronics SI Z540.3 and ISO 17025, be specifications.) for frequency ranges tested 0%, 2-10 kHz; +/- 2.5%.	
Technician:		Robert Zsebehazy	R.Z.	Date: 9/2	21/2017
ACCREDITED CALIBRATION CERT #1862		Headquarters: 3425 Wa	VIERATION DIVISION VIBRATION DIVISION Iden Avenue, Depew, N 869 Highway 903, Haliff X: 716-685-3886	Y 14043	CAL2-3588847709.589

