OT 2155947

~ Multi-Axis Load Cell Calibration Summary~

Model Number: 260A31/FCS-DN

Customer:

Serial Number: 16942

P.O. Number:

Description: Charge® 3-Component Force Sensor

Manufacturer: PCB Piezotronics, Inc.

Method: Back to Back Comparison (Test Procedure AT501-3)

Calibration Data

Temperature: 69 °F = 21 °C Humidity: 41 %

		X	Y	Z
Input:	(lbs.)	500	500	1000
	(N)	**2224**	**2224**	**4448**
Sensitivity:	(pC/lb)	34.10	34.29	15.74
	(pC/N)	**7.666**	**7.709**	**3.539**
Linearity:	(% FS)	0.2	0.2	0.2
Capacitance:	(pF)	18.7	18.5	18.6

Cross Talk Percentage

Cross Talk	%
X to Y	2.25
Y to X	1.20
X to Z	0.41
Y to Z	0.93
Z to X	2.22
Z to Y	0.58

Condition of Unit

As Found: In Tolerance

As Left: In Tolerance

Notes

1. Station #25 Sensivitity at 6744 lb is 17.19 pC/lb (30 kN is 3.86pC/N)
2. This sensor is calbrated with a 081M175 beryllium copper mounting stud.
3. The sensor is preloaded to 5000 lbs. (22.24 kN) prior to calibration.
4. Calibration is N.I.S.T. Traceable thru Project # KE104
5. This certificate shall not be reproduced, except in full, without written approval from PCB Piezotronics, Inc.
6. Calibration is performed in compliance with ISO 9001, ISO 10012-1, ANSI/NCSL Z540-1-1994 and ISO 17025.
7. See Manufacturer's Specification Sheet for a detailed listing of performance specifications.
8. Measurement uncertainty (95% confidence level with a coverage factor of 2) is +/-1%.

Technician: Ryan Roskwitalski RR

Date: 1/18/2018

ACCREDITED
Cert. No. 1862.01

PCB PIEZOTRONICS INC.
FORCE / TORQUE DIVISION
3425 Walden Avenue
Depew, New York 14043
TEL: 888-684-0013 FAX: 716-685-3886 www.pcb.com

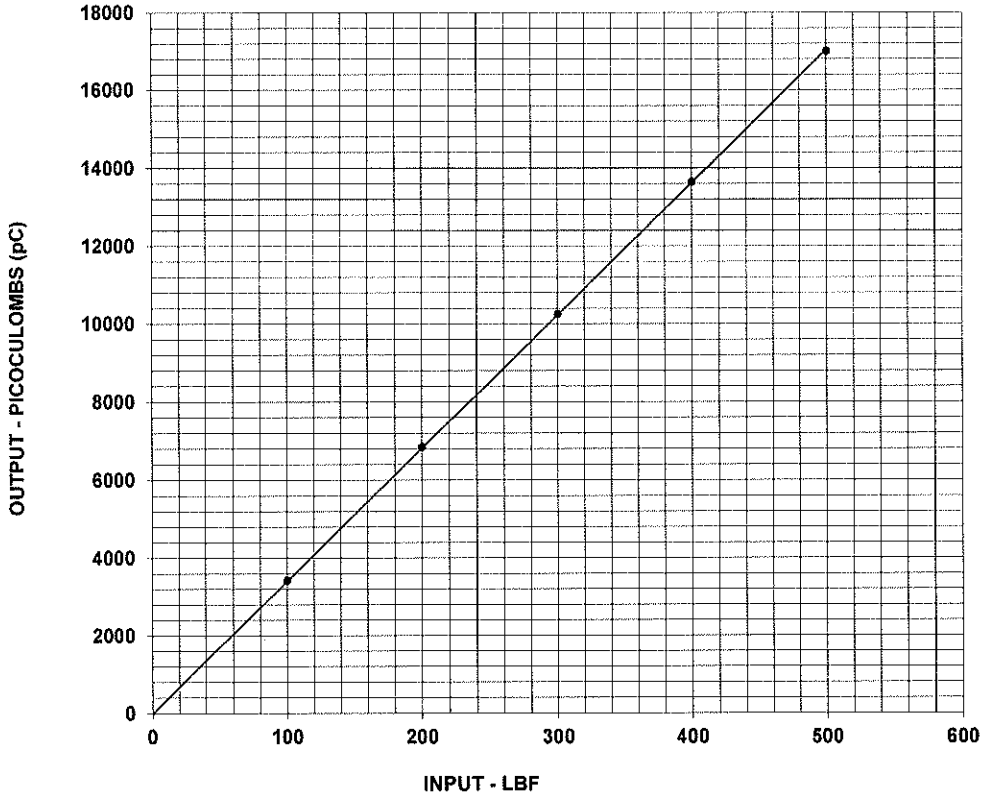
CALIBRATION CERTIFICATE

Model:	260A31/FCS-DN				
Serial #:	16942 X - Axis			**Date:**	1/18/2018
Description:	Force Sensor			**By:**	Ryan Roskwitalski, Cal. Tech. RR
Type:	Charge	**Capacitance:**	18.7 pF	**Station:**	0-1000 lb Load Cell (Test Procedure AT-501-3)
Sensitivity*:	34.10 pC/LBF			**Temp:**	69 deg F [21deg C]
	7.666 pC/N			**Humidity:**	41 %
Linearity*:	0.2% FS			**Cert #:**	685634
Uncertainty:**	+/- 1 %				

* Zero based, least-squares straight line.

** Measurement uncertainty represented using a coverage factor of k=2 which provides a level of confidence of approximately 95 %.

Condition of Unit:
As Found: In tolerance
As Left: In tolerance



TEST DATA

INPUT (LBF)	OUTPUT (pC)
100	3430
200	6847
300	10258
400	13652
500	17007

Notes:
1 Station# 25
2 The sensor is preloaded to 5000 lbs. prior to calibration. The preload is applied to fixtures that do not shunt forces through the mounting stud.
3 Calibration is traceable to NIST and is accredited to ISO 17025 and ANSI/NCSL Z540.3.
4 NIST traceability through PCB control # KE104.
5 This certificate may not be reproduced, except in full, without written approval from PCB Piezotronics, Inc.

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CALIBRATION CERT #1862.01

PCB PIEZOTRONICS INC.
Tel: 716-684-0001 Fax: 716-684-0987 Email: sales@pcb.com
3425 Walden Avenue, Depew NY 14043

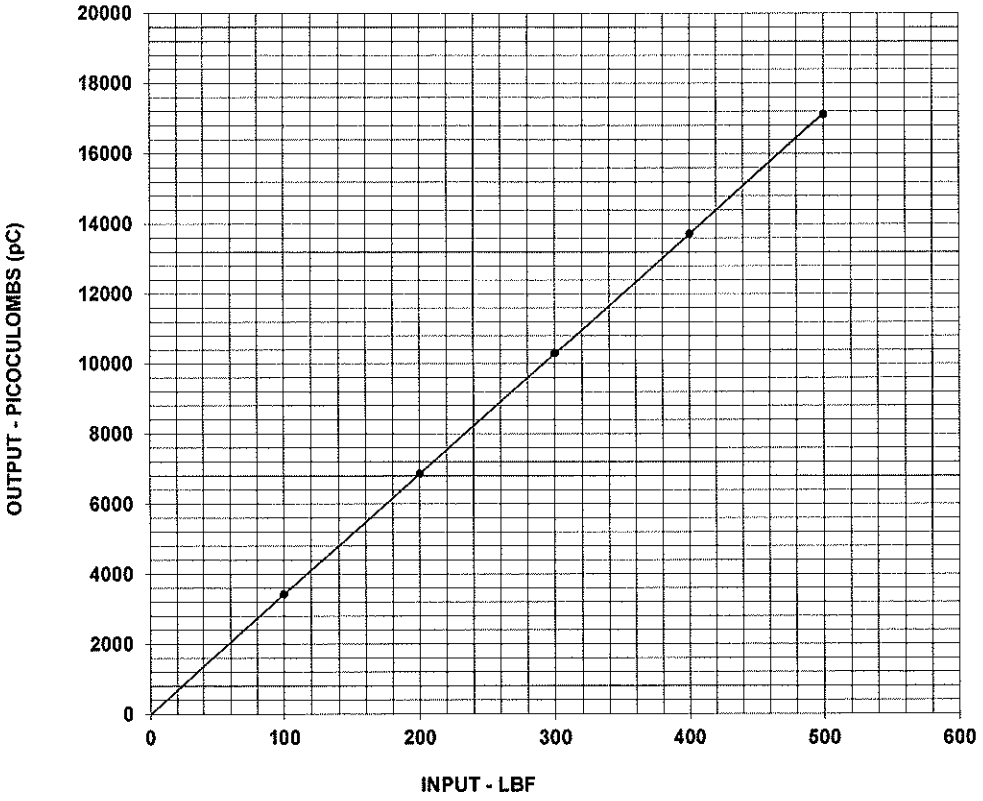
CALIBRATION CERTIFICATE

Model:	260A31/FCS-DN				
Serial #:	16942 Y - Axis			**Date:**	1/18/2018
Description:	Force Sensor			**By:**	Ryan Roskwitalski, Cal. Tech. RR
Type:	Charge	**Capacitance:**	18.5 pF	**Station:**	0-1000 lb Load Cell (Test Procedure AT-501-3)
Sensitivity*:	34.29 pC/LBF			**Temp:**	69 deg F [21deg C]
	7.709 pC/N			**Humidity:**	41 %
Linearity*:	0.2% FS			**Cert #:**	685633
Uncertainty:**	+/- 1 %				

* Zero based, least-squares straight line.

** Measurement uncertainty represented using a coverage factor of k=2 which provides a level of confidence of approximately 95 %.

Condition of Unit:
As Found: In tolerance
As Left: In tolerance



TEST DATA

INPUT (LBF)	OUTPUT (pC)
100	3432
200	6872
300	10307
400	13729
500	17116

Notes:
1 Station# 25
2 The sensor is preloaded to 5000 lbs. prior to calibration. The preload is applied to fixtures that do not shunt forces through the mounting stud.
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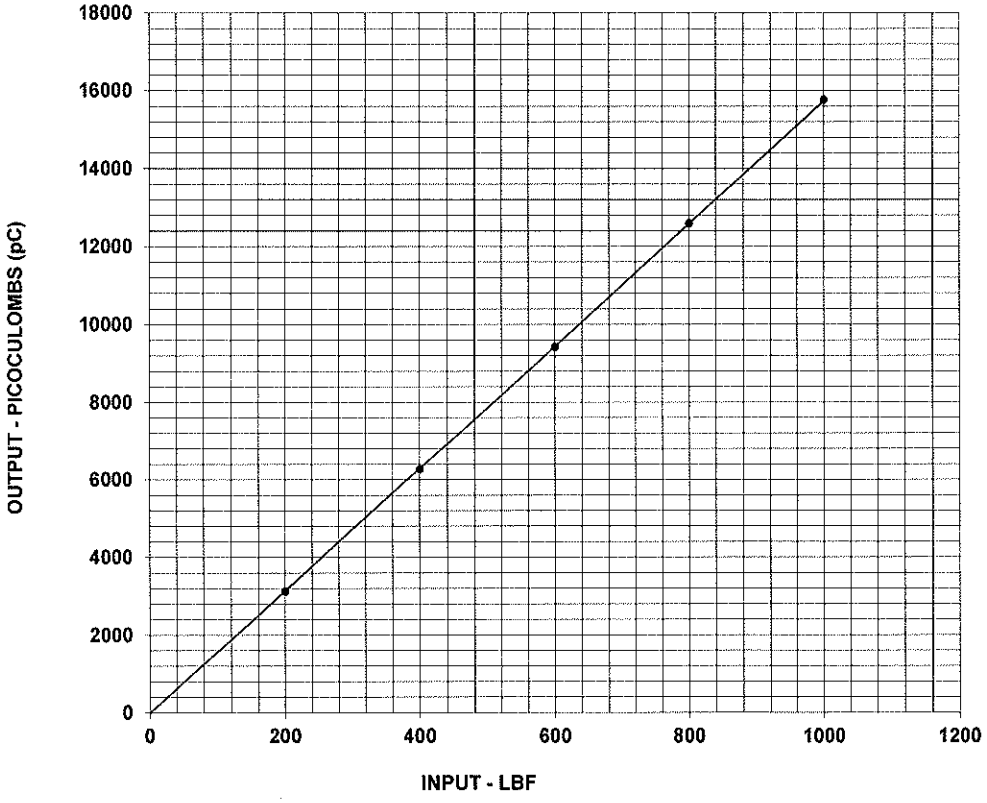
CALIBRATION CERTIFICATE

Model:	260A31/FCS-DN			**Date:**	1/18/2018
Serial #:	16942 Z - Axis			**By:**	Ryan Roskwitalski, Cal. Tech. RR
Description:	Force Sensor			**Station:**	0-1000 lb Load Cell (Test Procedure AT-501-3)
Type:	Charge	**Capacitance:**	18.6 pF		
Sensitivity*:	15.74 pC/LBF			**Temp:**	69 deg F [21deg C]
	3.539 pC/N			**Humidity:**	41 %
Linearity*:	0.2% FS			**Cert #:**	685649
Uncertainty:**	+/- 1 %				

* Zero based, least-squares straight line.

** Measurement uncertainty represented using a coverage factor of k=2 which provides a level of confidence of approximately 95 %.

Condition of Unit:
As Found: In tolerance
As Left: In tolerance



TEST DATA

INPUT (LBF)	OUTPUT (pC)
200	3121
400	6270
600	9425
800	12596
1000	15770

Notes:

1 Station# 25 Sensitivity at 6744 is 17.19 pC/lb (30 kN is 3.86)
2 The sensor is preloaded to 5000 lbs. prior to calibration. The preload is applied to fixtures that do not shunt forces through the mounting stud.
3 Calibration is traceable to NIST and is accredited to ISO 17025 and ANSI/NCSL Z540.3.
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