NVLAP Lab Code 105016-0

FLUKE Calibration

Certificate of Calibration
Fluke Park Laboratory

Description:	PRESSURE CONTROLLER/CALIBRATOR	**Certificate Number:**	1500201690
Manufacturer:	FLUKE CALIBRATION	**Date of Calibration:**	06 Jul 2016
Model:	7250i	**Date Due:**	06 Jul 2017
Serial Number:	69713	**Temperature:**	19.0 to 26.0 °C
Status:	AS-LEFT	**Relative Humidity:**	10 - 60 %RH
		Pressure:	95 to 103 kPa
Calibration:	FULL	**Issue Date:**	06 Jul 2016
Procedure:	PCAL_H SECONDARY: ZCAL/ACAL VER : 20120624		
Customer:	MESA LABORATORIES INC LAKEWOOD, CO	**RMA/SO Number:**	31050754
		Customer ID:	TE10750
PO Number:	PO-004271		

This calibration is traceable to the SI through recognized national measurement institutes, ratiometric techniques, or natural physical constants and is in compliance with ISO17025:2005 and ANSI/NCSL Z540.1. The calibration has been completed in accordance with the Fluke Calibration Quality System document QSD 111.0. Calibration certificates without signatures are not valid. This certificate applies to only the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. This certificate shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

This calibration certificate may contain data that is not covered by the Scope of Accreditation. The unaccredited test points, where applicable, are indicated by an asterisk (*), or confined to clearly marked sections. Functional tests are not accredited.

Measurement uncertainties at the time of test are given where applicable. They are calculated in accordance with the method described in the ISO Guide to the Expression of Uncertainty in Measurement. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95 %.

Comments: Instrument adjusted.

FLUKE Calibration

Cert # : 1500201690
Date Cal: 06 Jul 2016
Date Due: 06 Jul 2017
S/N : 69713
877-355-3225 www.flukecal.com

Cert: 1500201690
Due: 06 Jul 2017
S/N: 69713

Approved Signatory

Josh Hanger
Authorized Signatory

Standards Used

Description	Serial Number	Due-Date
DH INSTRUMENTS PC-7100/7600-10 KPA/KG PISTON-CYLINDER	902	18-Dec-2016
DH INSTRUMENTS PC-7100/7600-50 KPA/KG PISTON-CYLINDER	1526	14-May-2017
RUSKA 2468-758 PISTON-CYLINDER	TL-1088	03-Feb-2019
FLUKE CALIBRATION MS-AMH-38 MASS SET	2170	23-Jun-2018
FLUKE CALIBRATION MS-AMH-38 MASS SET	2815	19-May-2017
RUSKA 2468 MASS SET	30090	12-Mar-2018
DH INSTRUMENTS PG7601 PISTON GAUGE BASE	197	28-Oct-2016
DH INSTRUMENTS PG7601 PISTON GAUGE BASE	328	07-Oct-2016
RUSKA 2455-11-006 PRT	46239	01-Dec-2016
RUSKA 2456-800 PISTON GAUGE MONITOR	56048	19-Nov-2016
TROEMNER CLASS S TRIM MASS SET	53185	28-Sep-2018

Quality Manuals

This calibration has been completed in accordance with:

- The Fluke Corporate Quality Manual, QSD 111.0, Revision 118, Dated August, 2014 and/or
- The Fluke 17025 Quality Manual, QSD 111.41, Revision 005, Dated Sept. 2014

TEST CONDITIONS

Four hours were allowed for the device under test temperature to stabilize before commencing the test.

The primary sensor was zeroed to reduce zero drift before collecting data.

Reference level: The bottom of the display where the display and the front panel join.

PERFORMANCE SPECIFICATIONS: 7250i

MODEL	7250i
Precision[1]	From 25% to 100% FS: ±0.005% of Reading, Below 25% FS: ±0.005% of 25% FS
Negative Gauge Precision (Optional) [1]	Greater of ±0.005% of 25% FS or 0.00075 psi (0.005 kPa)
Stability[2]	0.0075% of reading

Barometric Sensor Option:

The two sigma expanded uncertainty of the barometric reference sensor is estimated to be less than or equal to 0.002 psi (13.8 Pa) per year. It is recommended that this uncertainty component be combined in quadrature (RSS) with the primary sensor uncertainty when operating in absolute mode with a barometric sensor.

Vacuum Sensor (Evacuated Reference) Option:

The two sigma expanded uncertainty of the vacuum sensor used to monitor the reference pressure is estimated to be the greater of 10% of reading or 10 mTorr (1.33 Pa), whichever is greater per year. It is recommended that this uncertainty component be combined in quadrature (RSS) with the primary sensor uncertainty when operating in absolute mode with an evacuated reference vacuum sensor.

Notes:

1. Precision is defined as the combined effect of linearity, repeatability and hysteresis throughout the operating temperature range.

2. One-Year stability specification. This uncertainty is combined in quadrature (RSS) with the precision specification for data reported as "As Found".

No statement of compliance with specifications is made or implied on this certificate. If manufacturer's specifications are listed, measured values greater than the manufacturer's specification limits are indicated by 'MV>Spec'.

Certificate Number: 1500201690 **Date of Calibration: 06 Jul 2016**

Applied	Test Result	Error	Measurement Uncertainty	Specification
AS LEFT DATA				
PRIMARY SENSOR VERIFICATION: GAUGE				
0.0000 kPa	-0.000 kPa	-0.0003 kPa	5.9E-001 Pa	0.013 kPa
130.3525 kPa	130.351 kPa	-0.0014 kPa	2.5E+000 Pa	0.013 kPa
386.3644 kPa	386.363 kPa	-0.0009 kPa	7.1E+000 Pa	0.019 kPa
647.2358 kPa	647.231 kPa	-0.0045 kPa	1.2E+001 Pa	0.032 kPa
903.4187 kPa	903.415 kPa	-0.0039 kPa	1.6E+001 Pa	0.045 kPa
1034.2910 kPa	1034.289 kPa	-0.0024 kPa	1.9E+001 Pa	0.052 kPa
516.5368 kPa	516.541 kPa	0.0042 kPa	9.4E+000 Pa	0.026 kPa
260.7827 kPa	260.789 kPa	0.0060 kPa	4.8E+000 Pa	0.013 kPa
0.0000 kPa	0.005 kPa	0.0049 kPa	5.9E-001 Pa	0.013 kPa
Medium used: Nitrogen				
Date Tested: 20160706				
PRIMARY SENSOR VERIFICATION: NEGATIVE GAUGE				
0.0000 kPa	0.000 kPa	0.0000 kPa	5.8E-001 Pa	0.013 kPa
-24.9998 kPa	-24.999 kPa	0.0008 kPa	6.9E-001 Pa	0.013 kPa
-50.0001 kPa	-49.997 kPa	0.0031 kPa	9.5E-001 Pa	0.013 kPa
-75.0007 kPa	-74.998 kPa	0.0027 kPa	1.3E+000 Pa	0.013 kPa
-100.0006 kPa	-100.000 kPa	0.0006 kPa	1.6E+000 Pa	0.013 kPa
-50.0001 kPa	-50.000 kPa	0.0001 kPa	9.5E-001 Pa	0.013 kPa
0.0000 kPa	-0.002 kPa	-0.0020 kPa	5.8E-001 Pa	0.013 kPa
Medium used: Air				
Date Tested: 20160706				
BAROMETRIC SENSOR VERIFICATION				
75.31807 kPa	75.3181 kPa	0.00005 kPa	1.4E+000 Pa	0.0138 kPa
90.42764 kPa	90.4273 kPa	-0.00038 kPa	1.6E+000 Pa	0.0138 kPa
103.32760 kPa	103.3276 kPa	-0.00002 kPa	1.9E+000 Pa	0.0138 kPa
Medium used: Nitrogen				
Date Tested: 20160706				

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Model:	7250i	**Date Due:**	
Serial Number:	69713	**Temperature:**	19.0 to 26.0 °C
Status:	AS-FOUND	**Relative Humidity:**	10 - 60 %RH
		Pressure:	95 to 103 kPa
Calibration:	FULL	**Issue Date:**	06 Jul 2016
Procedure:	PCAL_H SECONDARY: ZCAL/ACAL VER : 20120624		
Customer:	MESA LABORATORIES INC LAKEWOOD, CO	**RMA/SO Number:**	31050754
		Customer ID:	TE10750
PO Number:	PO-004271		

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Comments:

Approved Signatory

Josh Hanger
Authorized Signatory

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RUSKA 2456-800 PISTON GAUGE MONITOR	56048	19-Nov-2016
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- The Fluke 17025 Quality Manual, QSD 111.41, Revision 005, Dated Sept. 2014

Certificate Number: 1500201689 **Date of Calibration: 06 Jul 2016**

Applied	Test Result	Error	Measurement Uncertainty	Specification	
AS RECEIVED DATA - Specifications are based on 382 days since last calibration					
PRIMARY SENSOR VERIFICATION: GAUGE					
0.0000 kPa	-0.000 kPa	-0.0002 kPa	5.9E-001 Pa	0.013 kPa	
130.3532 kPa	130.368 kPa	0.0144 kPa	2.5E+000 Pa	0.016 kPa	
386.3666 kPa	386.415 kPa	0.0482 kPa	7.1E+000 Pa	0.036 kPa	MV>Spec
647.2396 kPa	647.318 kPa	0.0787 kPa	1.2E+001 Pa	0.060 kPa	MV>Spec
903.4237 kPa	903.536 kPa	0.1127 kPa	1.6E+001 Pa	0.084 kPa	MV>Spec
1034.2960 kPa	1034.429 kPa	0.1330 kPa	1.9E+001 Pa	0.096 kPa	MV>Spec
516.5395 kPa	516.612 kPa	0.0724 kPa	9.4E+000 Pa	0.048 kPa	MV>Spec
260.7840 kPa	260.824 kPa	0.0402 kPa	4.8E+000 Pa	0.024 kPa	MV>Spec
0.0000 kPa	0.009 kPa	0.0095 kPa	5.9E-001 Pa	0.013 kPa	
Medium used: Nitrogen					
Date Tested: 20160706					
PRIMARY SENSOR VERIFICATION: NEGATIVE GAUGE					
0.0000 kPa	-0.001 kPa	-0.0010 kPa	5.8E-001 Pa	0.013 kPa	
-24.9998 kPa	-25.006 kPa	-0.0062 kPa	6.9E-001 Pa	0.013 kPa	
-50.0002 kPa	-50.010 kPa	-0.0098 kPa	9.5E-001 Pa	0.014 kPa	
-74.9994 kPa	-75.013 kPa	-0.0136 kPa	1.3E+000 Pa	0.014 kPa	
-99.9993 kPa	-100.017 kPa	-0.0177 kPa	1.6E+000 Pa	0.015 kPa	MV>Spec
-50.0002 kPa	-50.013 kPa	-0.0128 kPa	9.5E-001 Pa	0.014 kPa	
0.0000 kPa	-0.005 kPa	-0.0050 kPa	5.8E-001 Pa	0.013 kPa	
Medium used: Air					
Date Tested: 20160706					
BAROMETRIC SENSOR VERIFICATION					
75.31816 kPa	75.3098 kPa	-0.00831 kPa	1.4E+000 Pa	0.0144 kPa	
90.42786 kPa	90.4188 kPa	-0.00910 kPa	1.6E+000 Pa	0.0144 kPa	
103.32790 kPa	103.3188 kPa	-0.00912 kPa	1.9E+000 Pa	0.0144 kPa	
Medium used: Nitrogen					
Date Tested: 20160706					