

Accredited Pressure Calibration

Certificate #: 111213-B-Y0620001-P
Procedure #: 11603172
Model #: PTB220
Serial Number: Y0620001
Instrument: Pressure
Manufacturer: Vaisala
SR #: 182862
Calibration Date: November 12, 2013



Calibration Laboratory
Certificate No: 2083.01

Customer Information: **University of Hawaii
Ocean Technology Group
1 Sand Island Access Road
Honolulu, HI 96819**

Condition of Instrument: Unit was operational upon receipt. Instrument was adjusted and calibrated.

Date Received: November 12, 2013

Requested Due Date: * November 12, 2014

Signatures

Calibrated By:

Approved By:

Levyn Palao
Calibration Technician

Nicholas Paoletta
Technical Administrator

This certificate may not be reproduced, except in full, without the prior written approval of the issuing Laboratory. The measurement results present with the certificate are traceable to national or international standards. The results of this calibration are related only to the items being calibrated. Unless otherwise specified the certificate and all measurements comply with the requirements of ISO/IEC 17025:2005.

* Any due date given is based on a customer provided calibration interval. Any number of factors may cause drift prior to the expiration of the calibration. All devices should be monitored and calibrated when there is suspicion of measurement error.

The CSL is controlled at a temperature of $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and a humidity of $40\% \pm 20\% \text{RH}$.

Special Limitations

None

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Laboratory Environment

Humidity (%RH)	Temperature (°C)
21.0	21.0

Uncertainty

The reported expanded uncertainty of the measurement is stated as the standard uncertainty of the measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of the measurement has been determined in accordance with U.S. Guide to the Expression of Uncertainty in Measurement.

Description

The pressure calibration was performed in the Calibration Standards Laboratory (CSL) of Vaisala, Inc. Before the commencement of the calibration the instrument was allowed to stabilize to the laboratory environmental conditions for a period of at least 8 hours. The pressure input out the instrument was connected to the outlet of a Fluke PPC4 Pressure Controller/Calibrator. The instrument and the PPC4 are at the same height during the calibration.

References

The Fluke PPC4 Pressure Controller/Calibrator uses digitally controlled solenoid valves and differential pressure regulators to maintain test pressures. The internal quartz reference pressure transducer (Q-RPT) is the source of the reference measurement. The PPC4 is traceable to NIST through Fluke.

Measurement results

The pressure was allowed to stabilize for at least two minutes after each setpoint was reached. Ten measurement values of the reference and the unit under test were recorded. The average reference value and average unit under test value were calculated and are reported on this certificate. The results of the measurement are valid only for the product being calibrated.

Reference Standard(s) Calibration Information				
Asset Number	Model	Serial Number	Calibration Date	Due Date
PA-13451	Fluke PPC4	439	Jun. 02, 2013	Dec. 02, 2013



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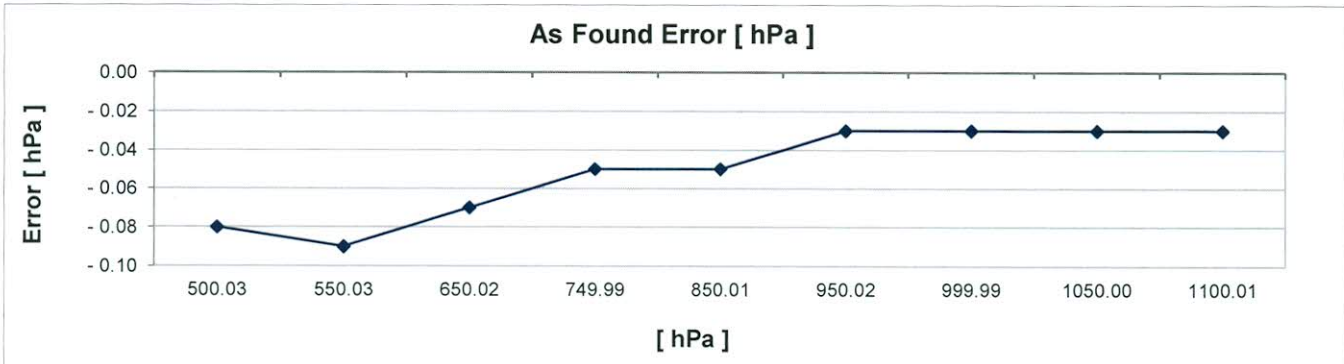


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AS FOUND DATA				
Out of Tolerance as Received: NO				
Pressure, hPa				
Reference	Unit Under Test	Deviation	± Tolerance	± Uncertainty
500.03	499.95	-0.08	0.14	0.07
550.03	549.94	-0.09	0.14	0.07
650.02	649.95	-0.07	0.14	0.07
749.99	749.94	-0.05	0.14	0.07
850.01	849.96	-0.05	0.14	0.07
950.02	949.99	-0.03	0.14	0.07
999.99	999.96	-0.03	0.14	0.07
1050.00	1049.97	-0.03	0.14	0.07
1100.01	1099.98	-0.03	0.14	0.07

Coverage factor of k = 2

Out of tolerance conditions are determined by the product specification only. The calibration uncertainty is not tied in with the instrument's accuracy.



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AS LEFT DATA				
Pressure, hPa				
Reference	Unit Under Test	Deviation	± Acceptance Limit	± Uncertainty
500.06	500.05	-0.01	0.05	0.07
550.05	550.04	-0.01	0.05	0.07
650.03	650.03	0.00	0.05	0.07
750.03	750.03	0.00	0.05	0.07
850.03	850.03	0.00	0.05	0.07
950.02	950.02	0.00	0.05	0.07
1000.01	1000.00	-0.01	0.05	0.07
1050.01	1050.00	-0.01	0.05	0.07
1100.01	1100.01	0.00	0.05	0.07

Coverage factor of k = 2

