VAISALA Certificate of Calibration

Certificate #:	010614-B-J1620010
Calibration Date:	January 6, 2014
Type:	Vaisala Pressure, RH & Temp. Transmitter
Model #:	PTU307
Serial #:	J1620010
SR #:	186245

Customer: University Of Alaska/SMC
Marinette, WI

Condition: The instrument was operational upon receipt.

Action Taken: The instrument was adjusted and calibrated.

Due Date: * January 6, 2015

RH Calibrated By:

Matthew Nocivelli
Calibration Technician

Approved By:

The measurement results on the certificate are traceable to national or international standards. The results of this calibration relate only to the items being calibrated. This certificate may not be reproduced, except in full, without the prior written approval of the issuing laboratory. Vaisala is ISO 9001:2008 certified. Vaisala's calibration system complies with the requirements of ANSI/NCSL Z540-1-1994.

The calibration laboratory is controlled at 22 °C ± 3 °C and 40 %RH ± 20 %RH.

Special Limitations: None.

*Any due date given is based on a customer provided calibration interval. A number of factors may cause drift prior to the due date. Monitor all devices and calibrate when measurement error is suspected.

Vaisala Inc. | Boston Office
10-D Gill Street, Woburn, MA 01801, USA
Phone +1 781 933 4500 | Fax +1 781 933 8029
www.vaisala.com

VAISALA Certificate of Calibration

Certificate #: 010614-B-J1620010
Calibration Date: January 6, 2014
Type: Vaisala Pressure, RH & Temp. Transmitter
Model #: PTU307
Serial #: J1620010
SR #: 186245

Relative Humidity Calibration

Procedure #: 11603108
Instrument Range: 0 to 100 %RH
Lab Environment: Relative Humidity 49.0 %RH, Temperature 21.7 °C

As Found Data

Out Of Tolerance As Received: NO

Relative Humidity, %RH				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
0.03	0.60	0.57	1.00	0.50
11.10	12.10	1.00	1.00	0.42
33.15	33.80	0.65	1.00	0.60
75.15	74.60	-0.55	1.00	0.79
Temperature, °C				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
22.14	22.10	-0.04	0.21	0.13

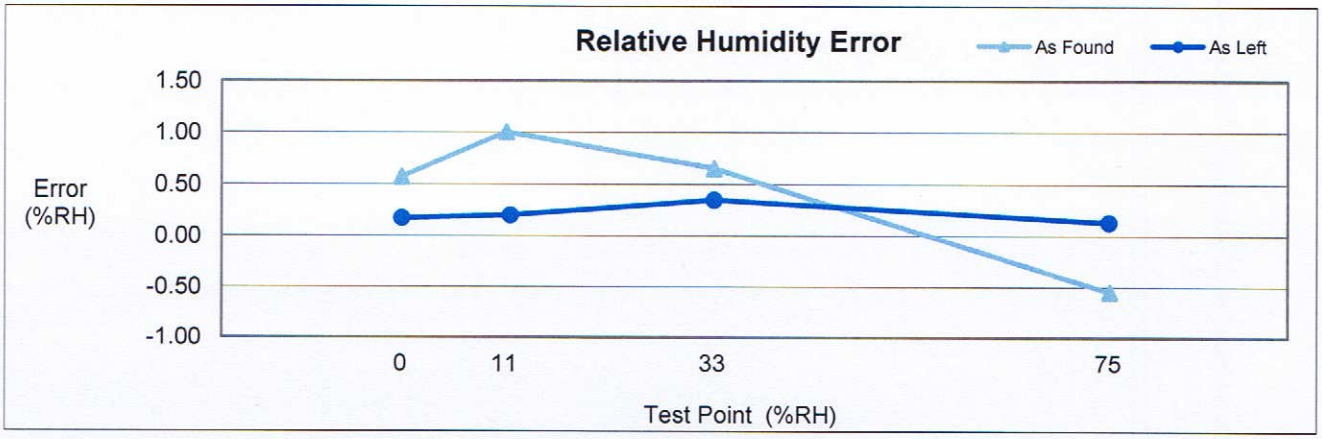
As Left Data

Relative Humidity, %RH				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
0.03	0.20	0.17	1.00	0.50
11.50	11.70	0.20	1.00	0.42
33.15	33.50	0.35	1.00	0.60
75.07	75.20	0.13	1.00	0.79
Temperature, °C				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
22.18	22.20	0.02	0.21	0.13

VAISALA Certificate of Calibration

Certificate #: 010614-B-J1620010
Calibration Date: January 6, 2014
Type: Vaisala Pressure, RH & Temp. Transmitter
Model #: PTU307
Serial #: J1620010
SR #: 186245

Relative Humidity Calibration



Reference Standards Calibration Information				
Model	**Serial Number**	**Asset Number**	**Calibration Date**	**Due Date**
Thunder Scientific 2500	0105303	5011-0016	Aug. 05, 2013	Feb. 05, 2014
Fluke 8846A	2161016	3011-0361	Sep. 11, 2013	Sep. 11, 2014
Vaisala DMT348	J2020116	3011-0366	Jun. 18, 2013	Jun. 01, 2014

Vaisala Inc. | Boston Office
10-D Gill Street, Woburn, MA 01801, USA
Phone +1 781 933 4500 | Fax +1 781 933 8029
www.vaisala.com

VAISALA Certificate of Calibration

Certificate #:	010614-B-J1620010
Calibration Date:	January 6, 2014
Type:	Vaisala Pressure, RH & Temp. Transmitter
Model #:	PTU307
Serial #:	J1620010
SR #:	186245

Description

The calibration was performed in the Standard Laboratory of Vaisala, Inc. The instrument was first allowed to equilibrate to the laboratory environmental conditions for a period of at least 8 hours.

Relative Humidity Calibration: The sensor of the instrument was placed in the chamber of a Thunder Scientific 2500. The instrument was allowed to stabilize for at least 30 minutes at each testpoint. A dry air line monitored by a Vaisala DMP248 was used to test 0 %RH.

References

The Thunder Scientific 1200/2500 Two-Pressure Humidity Generator saturates a continuous stream of air with water vapor at a controlled pressure and temperature. The saturated high-pressure air then passes through an expansion valve to generate a specific humidity at the chamber pressure and temperature. The generator is traceable to NIST via Thunder Scientific or an MBW 373LHX chilled mirror hygrometer.

The Vaisala DMT348 measures dewpoint using a capacitive polymer sensor and temperature using an RTD. It calculates RH from the dewpoint and temperature readings.

In or Out of Tolerance Decision Rule

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

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 corresponds to a coverage probability of approximately 95%. The standard uncertainty of the measurement has been determined in accordance with the ISO Guide to the Expression of Uncertainty in Measurement.

Vaisala Inc. | Boston Office
10-D Gill Street, Woburn, MA 01801, USA
Phone +1 781 933 4500 | Fax +1 781 933 8029
www.vaisala.com

VAISALA **Certificate of Calibration**

Certificate report no. B07-14020001
B07/14020001

CALIBRATION CERTIFICATE

Before adjustment

Customer	University Of Alaska/SMC
Instrument	PTU300(500-1100) Digital Barometer
Serial number	J1620010
Manufacturer	Vaisala Oyj, Finland
Calibration date	06th January 2014 **Due Date:** 06th January 2015

The above instrument was calibrated by comparing the readings of the instrument to the factory working standard of Vaisala.

The pressure readings of the factory working standard have been calibrated at an ISO/IEC 17025 accredited calibration laboratory (FINAS), Vaisala Measurement Standards Laboratory (MSL), by using MSL working standards traceable to NIST.

Calibration results

Reference hPa	Observed hPa	Correction* hPa
500.04	500.02	0.02
550.03	550.02	0.01
650.03	650.02	0.01
750.02	750.02	0.00
850.02	850.02	0.00
950.02	950.02	0.00
1000.01	1000.01	0.00
1050.01	1050.01	0.00
1100.01	1100.01	0.00

*To obtain the true pressure, add the correction to the barometer reading.
Interpolated corrections may be used at intermediate readings of the scale of the barometer.

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
PPC4	439	2013-12-13	1500158221/1500158222

Uncertainty (95 % confidence level, k=2)

Pressure	± 0.07 hPa

Ambient Conditions

Humidity	26 %RH ± 5 %RH
Temperature	21 °C ± 1 °C
Pressure	998 hPa ± 1 hPa

Approved By

Technical Operator

VAISALA **Certificate of Calibration**

Certificate report no. B07-14020004
B07/14020004

CALIBRATION CERTIFICATE

After adjustment

Customer	University Of Alaska/SMC
Instrument	PTU300(500-1100) Digital Barometer
Serial number	J1620010
Manufacturer	Vaisala Oyj, Finland
Calibration date	06th January 2014 **Due Date:** 06th January 2015

The above instrument was calibrated by comparing the readings of the instrument to the factory working standard of Vaisala.

The pressure readings of the factory working standard have been calibrated at an ISO/IEC 17025 accredited calibration laboratory (FINAS), Vaisala Measurement Standards Laboratory (MSL), by using MSL working standards traceable to NIST.

Calibration results

Reference hPa	Observed hPa	Correction* hPa	Acceptance limit hPa
500.04	500.04	0.00	± 0.05
550.03	550.03	0.00	± 0.05
650.03	650.03	0.00	± 0.05
750.02	750.02	0.00	± 0.05
850.01	850.01	0.00	± 0.05
950.02	950.02	0.00	± 0.05
1000.01	1000.01	0.00	± 0.05
1050.01	1050.01	0.00	± 0.05
1100.01	1100.01	0.00	± 0.05

*To obtain the true pressure, add the correction to the barometer reading.
Interpolated corrections may be used at intermediate readings of the scale of the barometer.

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
PPC4	439	2013-12-13	1500158221/1500158222

Uncertainty (95 % confidence level, k=2)

Pressure	± 0.07 hPa

Ambient Conditions

Humidity	31 %RH ± 5 %RH
Temperature	22 °C ± 1 °C
Pressure	993 hPa ± 1 hPa

Approved By

Technical Operator