

# Calibration Report: Pressure Transmitter S/N: P1730016

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## Summary

Calibration date: 2013 Nov 13

Next Calibration date: 2014 Nov 13

A collection, analysis and calibration of data from a Pressure Transmitter, S/N: P1730016 has been completed. Vaisala, Inc., the manufacturer of the instrument, performed the calibration. These data were collected by Vaisala on 2013 November 13.

Model: PTB101B (Vaisala)

Serial Number: P1730016

The test data presented in data table format display the pressure transmitter readings (reference and observed) in millibar, the voltage output for the observed transmitter, and the results before and after adjustment. The pressure readings at COVE historically range between 950-1060mb. Therefore, the 3 "after adjustment" calibration points in this range will be used to determine any corrections. The correction results in +1.0mb, as determined by plotting the reference pressure in millibar (949.8, 999.8 and 1060.0) vs. the observed voltages (1.899, 2.171 and 2.499).

We used this methodology because we collect measurements in voltages at COVE and requested voltage readings in this calibration. The following pages provide more detail into the calibration process and results.

Application: The pressure sensor is programmed via a Campbell Scientific data logger and collects raw voltage data. Correction is applied during processing of raw data.

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**CALIBRATION CERTIFICATE**  
before adjustment

**Customer** SSAI  
**Instrument** PTB101B Analog barometer  
**Serial number** P1730016  
**Manufacturer** Vaisala Oyj, Finland  
**Calibration date** 13th November 2013  
**Test procedure** doc210609a

This instrument has been calibrated against a Vaisala PTB220 factory working standard which has been calibrated against a Ruska 2465 pressure balance traceable to the National Institute of Standards and Technology (NIST, USA) at Vaisala Measurement Standards Laboratory (MSL). Vaisala MSL has been accredited by the Finnish Accreditation System (FINAS) according to ISO/IEC 17025 standard.

**Calibration results**

Reference pressure hPa	Observed pressure hPa	Correction* hPa	Uncertainty** hPa
619.7	619.7	0.0	± 0.15
699.8	699.8	0.0	± 0.15
799.7	799.5	0.2	± 0.15
849.8	849.5	0.3	± 0.15
899.8	899.5	0.3	± 0.15
949.8	949.5	0.3	± 0.15
999.8	999.5	0.3	± 0.15
1060.0	1059.9	0.1	± 0.15

\*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.

\*\*The calibration uncertainty given at 95 % confidence level, k = 2

**Equipment used in calibration**

Type	Serial number	Calibration date	Certificate number
Vaisala PTB220	X1260001	2013-09-03	090313-B- X1260001-Accr_P
Vaisala PTB220	X2550002	2013-09-03	090313-B- X2550002-Accr_P

**Ambient conditions** / Humidity 17 ± 5 %RH, Temperature 22 ± 1 °C, Pressure 1021 ± 1 hPa

  
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doc210635c

**CALIBRATION CERTIFICATE**  
before adjustment-voltage output

**Customer** SSAI  
**Instrument** PTB101B Analog barometer  
**Serial number** P1730016  
**Manufacturer** Vaisala Oyj, Finland  
**Calibration date** 13th November 2013  
**Test procedure** doc210609a

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**Calibration results**

Observed pressure hPa	Observed pressure V
619.7	0.107
699.8	0.542
799.5	1.084
849.5	1.356
899.5	1.628
949.5	1.899
999.5	2.171
1059.9	2.499

\*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.

\*\*The calibration uncertainty given at 95 % confidence level, k = 2

**Equipment used in calibration**

Type	Serial number	Calibration date	Certificate number
Vaisala PTB220	X1260001	2013-09-03	090313-B- X1260001-Accr_P
Vaisala PTB220	X2550002	2013-09-03	090313-B- X2550002-Accr_P

**Ambient conditions** / Humidity 17 ± 5 %RH, Temperature 22 ± 1 °C, Pressure 1021 ± 1 hPa

  
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**CALIBRATION CERTIFICATE**  
after adjustment

**Customer** SSAI  
**Instrument** PTB101B Analog barometer  
**Serial number** P1730016  
**Manufacturer** Vaisala Oyj, Finland  
**Calibration date** 13th November 2013  
**Test procedure** doc210609a

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At the time of shipment, the instrument described above met its operating specifications.

**Calibration results**

Reference pressure hPa	Observed pressure hPa	Correction* hPa	Uncertainty** hPa
619.7	619.7	0.0	± 0.15
699.7	699.6	0.1	± 0.15
799.8	799.6	0.2	± 0.15
849.7	849.4	0.3	± 0.15
899.8	899.5	0.3	± 0.15
949.8	949.5	0.3	± 0.15
999.8	999.5	0.3	± 0.15
1060.0	1059.8	0.2	± 0.15

\*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.

\*\*The calibration uncertainty given at 95 % confidence level, k = 2

**Equipment used in calibration**

Type	Serial number	Calibration date	Certificate number
Vaisala PTB220	X1260001	2013-09-03	090313-B- X1260001-Accr_P
Vaisala PTB220	X2550002	2013-09-03	090313-B- X2550002-Accr_P

**Ambient conditions** / Humidity 17 ± 5 %RH, Temperature 22 ± 1 °C, Pressure 1021 ± 1 hPa

  
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**CALIBRATION CERTIFICATE**  
after adjustment-voltage output

**Customer** SSAI  
**Instrument** PTB101B Analog barometer  
**Serial number** P1730016  
**Manufacturer** Vaisala Oyj, Finland  
**Calibration date** 13th November 2013  
**Test procedure** doc210609a

This instrument has been calibrated against a Vaisala PTB220 factory working standard which has been calibrated against a Ruska 2465 pressure balance traceable to the National Institute of Standards and Technology (NIST, USA) at Vaisala Measurement Standards Laboratory (MSL). Vaisala MSL has been accredited by the Finnish Accreditation System (FINAS) according to ISO/IEC 17025 standard.

At the time of shipment, the instrument described above met its operating specifications.

**Calibration results**

Observed pressure hPa	Observed pressure V
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699.6	0.541
799.6	1.085
849.4	1.355
899.5	1.628
949.5	1.899
999.5	2.171
1059.8	2.499

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**Equipment used in calibration**

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Vaisala PTB220	X2550002	2013-09-03	090313-B- X2550002-Accr_P

**Ambient conditions** / Humidity 17 ± 5 %RH, Temperature 22 ± 1 °C, Pressure 1021 ± 1 hPa

  
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