



CALIBRATION CERTIFICATE

Instrument Humidity and Temperature Probe HMP155
Serial number E0610016
Manufacturer Vaisala Oyj, Finland
Calibration date 27th April 2009
Test procedure Doc210426-A

The analog outputs of the above instrument were measured by using working standards of the manufacturer. The outputs were forced by digital input signals to three output values. The observed values were determined by measuring the voltage over the output terminals. All results are traceable in terms of voltage to NIST.

Analog output channel 1 calibration results

Output forced to V	Observed output V	Difference V	Permissible difference V
0.500	0.501	0.001	±0.001
2.500	2.500	0.000	±0.001
4.500	4.500	0.000	±0.001

Analog output channel 2 calibration results

Output forced to V	Observed output V	Difference V	Permissible difference V
0.500	0.500	0.000	±0.001
2.500	2.500	0.000	±0.001
4.500	4.500	0.000	±0.001

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
HP34970A	EM 12997	2008-11-12	K004-08S793

Uncertainty (95 % confidence level, k=2)
 Voltage ±0.00069V

Ambient conditions / Humidity 18.00 ± 5%RH, Temperature 24.70 ± 2 °C, Pressure 1021.10 ± 20 hPa.

For Vaisala Oyj



 Technician

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Doc211861-B

CALIBRATION CERTIFICATE

Instrument Humidity and Temperature Probe HMP155
Serial number E0610016
Manufacturer Vaisala Oyj, Finland
Calibration date 28th April 2009
Test procedure doc216127a

The above instrument was calibrated by comparing the readings of the instrument to working standards of the manufacturer. The reference humidity was calculated from dewpoint temperature and temperature readings with the exception of the driest condition that was measured as relative humidity. Dewpoint temperature was measured with a 373 LHX dewpoint meter. Temperature and relative humidity were measured with two factory working standards. At the time of shipment, the instrument described above met its operating specifications.

The 373 LHX dewpoint meter has been calibrated at Vaisala Measurement Standards Laboratory (MSL) by using a MSL working standard traceable to National Institute of Standards and Technology (NIST). The temperature readings of the factory working standards have been calibrated at MSL by using MSL working standards traceable to NIST. The relative humidity readings of the factory working standards have been calibrated at the Vaisala factory by using a 373 LHX dewpoint meter. The temperature calibration at MSL has been accredited by the FINAS according to the ISO/IEC 17025.

Humidity calibration results

Reference humidity %RH	Reference temperature °C	Observed humidity %RH	Observed probe temperature °C	Additional probe temperature °C	Humidity difference %RH	Permissible difference %RH
+ 94.1	+ 22.17	+ 94.4	-	+ 22.16	+ 0.3	± 1.7
+ 74.7	+ 22.14	+ 75.2	-	+ 22.14	+ 0.5	± 1.0
+ 53.8	+ 22.13	+ 54.2	-	+ 22.14	+ 0.4	± 1.0
+ 33.0	+ 22.09	+ 33.2	-	+ 22.13	+ 0.2	± 1.0
+ 12.4	+ 22.12	+ 12.7	-	+ 22.14	+ 0.3	± 1.0
+ 0.4	+ 22.12	+ 0.3	-	+ 22.14	- 0.1	± 1.0

Temperature calibration results

Reference temperature °C	Observed probe temperature °C	Temperature difference °C	Additional probe temperature °C	Temperature difference °C	Permissible difference °C
+ 22.14	-	-	+ 22.14	0.00	± 0.10

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
373 LHX	05-0217	2008-06-16	M-08H032
HMT337 / T	E0840009	2009-03-02	K008-S00485
HMT337 / T	E0840008	2009-03-02	K008-S00484
HMT337 / RH	E0840009	2009-03-26	H33-09131003
HMT337 / RH	E0840008	2009-03-26	H33-09131002

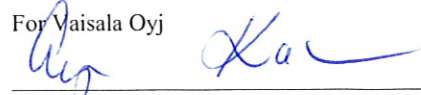
Uncertainties (95 % confidence level, k=2)

Humidity ± 0.6%RH @ 0...40%RH, ± 1.0%RH @ 40...97%RH

Temperature ± 0.10 °C.

Ambient conditions / Humidity 39 ± 5%RH, Temperature 23 ± 1 °C, Pressure 1005 ± 1 hPa.

For Vaisala Oyj


Erja Korhonen

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doc216127-a



CALIBRATION CERTIFICATE

Instrument Humidity and Temperature Probe HMP155
Serial number E0610015
Manufacturer Vaisala Oyj, Finland
Calibration date 27th April 2009
Test procedure Doc210426-A

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Analog output channel 1 calibration results

Output forced to V	Observed output V	Difference V	Permissible difference V
0.500	0.501	0.001	±0.001
2.500	2.500	0.000	±0.001
4.500	4.500	0.000	±0.001

Analog output channel 2 calibration results

Output forced to V	Observed output V	Difference V	Permissible difference V
0.500	0.500	0.000	±0.001
2.500	2.500	0.000	±0.001
4.500	4.500	0.000	±0.001

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
HP34970A	EM 12997	2008-11-12	K004-08S793

Uncertainty (95 % confidence level, k=2)
 Voltage ±0.00069V

Ambient conditions / Humidity 18.00 ± 5%RH, Temperature 24.70 ± 2 °C, Pressure 1021.10 ± 20 hPa.

For Vaisala Oyj


 Technician

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Doc211861-B



CALIBRATION CERTIFICATE

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Manufacturer Vaisala Oyj, Finland
Calibration date 27th April 2009
Test procedure doc216127a

The above instrument was calibrated by comparing the readings of the instrument to working standards of the manufacturer. The reference humidity was calculated from dewpoint temperature and temperature readings with the exception of the driest condition that was measured as relative humidity. Dewpoint temperature was measured with a 373 LHX dewpoint meter. Temperature and relative humidity were measured with two factory working standards. At the time of shipment, the instrument described above met its operating specifications.

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Humidity calibration results

Reference humidity	Reference temperature	Observed humidity	Observed probe temperature	Additional probe temperature	Humidity difference	Permissible difference
%RH	°C	%RH	°C	°C	%RH	%RH
+ 94.1	+ 22.16	+ 94.3	-	+ 22.19	+ 0.2	± 1.7
+ 74.6	+ 22.14	+ 74.8	-	+ 22.18	+ 0.2	± 1.0
+ 53.8	+ 22.12	+ 54.0	-	+ 22.17	+ 0.2	± 1.0
+ 33.0	+ 22.10	+ 33.3	-	+ 22.15	+ 0.3	± 1.0
+ 12.4	+ 22.12	+ 12.7	-	+ 22.16	+ 0.3	± 1.0
+ 0.5	+ 22.11	+ 0.3	-	+ 22.16	- 0.2	± 1.0

Temperature calibration results

Reference temperature	Observed probe temperature	Temperature difference	Additional probe temperature	Temperature difference	Permissible difference
°C	°C	°C	°C	°C	°C
+ 22.14	-	-	+ 22.18	+ 0.04	± 0.10

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
373 LHX	05-0217	2008-06-16	M-08H032
HMT337 / T	E0840009	2009-03-02	K008-S00485
HMT337 / T	E0840008	2009-03-02	K008-S00484
HMT337 / RH	E0840009	2009-03-26	H33-09131003
HMT337 / RH	E0840008	2009-03-26	H33-09131002

Uncertainties (95 % confidence level, k=2)

Humidity ± 0.6%RH @ 0...40%RH, ± 1.0%RH @ 40...97%RH

Temperature ± 0.10 °C.

Ambient conditions / Humidity 41 ± 5%RH, Temperature 23 ± 1 °C, Pressure 1009 ± 1 hPa.

For Vaisala Oyj


Erja Korhonen

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