VAISALA

Certificate report no. H35-12420046

CALIBRATION CERTIFICATE

before adjustment

Instrument	Humidity and Temperature Transmitter HMT333
Order code	HMT330 3E0A002BCAC100A04AABAA1
Serial number	A4650018
Manufacturer	Vaisala Oyj, Finland
Calibration date	18th October 2012

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. The calibration results below were measured before any adjustments were made to the instrument.

The 373 LHX dewpoint meter has been calibrated at National Institute of Standards and Technology (NIST). The temperature readings of the factory working standards 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. The relative humidity readings of the factory working standards have been calibrated at the Vaisala factory by using a 373 LHX dewpoint meter.

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
+ 0.1	+ 21.97	- 0.5	+ 21.98	-	- 0.6	±1.0
+ 12.7	+ 21.98	+ 12.3	+ 21.99	-	- 0.4	± 1.0
+ 33.1	+ 21.99	+ 32.5	+ 22.00	-	- 0.6	± 1.0
+ 53.8	+ 21.99	+ 52.9	+ 22.00	-	- 0.9	± 1.0
+ 74.5	+ 22.00	+ 73.5	+ 22.00	-	- 1.0	± 1.0
+ 94.0	+ 22.02	+ 93.6	+ 22.03	-	- 0.4	± 1.7

Temperature calibration results

Reference temperature °C	Observed probe temperature °C	Temperature difference °C		Additional probe temperature °C	Temperature difference °C	Permissible difference °C
+ 22.00	+ 22.00	0.00		-	-	± 0.10

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
MBW 373LHX	10-017	2012-01-26	M-11H094
PTU303 / T	H0730004	2012-02-24	K008-V00379
HMT337 / T	E4420203	2012-01-13	K008-V00044
PTU303 / RH	H0730004	2012-07-19	H35-12291001
HMT337 / RH	E4420203	2012-07-19	H35-12291002

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 43 ± 5%RH, Temperature + 23 ± 1 °C, Pressure 1011 ± 1 hPa.

Technician

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VAISALA

Certificate report no. H35-12420053

CALIBRATION CERTIFICATE

Instrument	Humidity and Temperature Transmitter HMT333
Order code	HMT330 3E0A002BCAC100A04AABAA1
Serial number	A4650018
Manufacturer	Vaisala Oyj, Finland
Calibration date	19th October 2012

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 National Institute of Standards and Technology (NIST). The temperature readings of the factory working standards 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. The relative humidity readings of the factory working standards have been calibrated at the Vaisala factory by using a 373 LHX dewpoint meter.

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
+ 0.1	+ 21.94	- 0.1	+ 21.94	-	- 0.2	±1.0
+ 12.8	+ 21.96	+ 13.0	+ 21.96	-	+ 0.2	± 1.0
+ 33.1	+ 21.98	+ 33.2	+ 21.97	-	+ 0.1	± 1.0
+ 53.8	+ 22.00	+ 53.6	+ 21.99	-	- 0.2	± 1.0
+ 74.3	+ 22.01	+ 74.1	+ 22.01	-	- 0.2	± 1.0
+ 93.6	+ 22.01	+ 93.8	+ 22.01	-	+ 0.2	± 1.7

Temperature calibration results

Reference temperature °C	Observed probe temperature °C	Temperature difference °C		Additional probe temperature °C	Temperature difference °C	Permissible difference °C
+ 22.01	+ 22.01	0.00		-	-	± 0.10

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
MBW 373LHX	10-017	2012-01-26	M-11H094
PTU303 / T	H0730004	2012-02-24	K008-V00379
HMT337 / T	E4420203	2012-01-13	K008-V00044
PTU303 / RH	H0730004	2012-07-19	H35-12291001
HMT337 / RH	E4420203	2012-07-19	H35-12291002

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 44 ± 5%RH, Temperature + 23 ± 1 °C, Pressure 1008 ± 1 hPa.

Technician

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VAISALA

Certificate report no. H37-12430001

CALIBRATION CERTIFICATE

Instrument	Humidity and Temperature Transmitter HMT333
Order code	HMT330 3E0A002BCAC100A04AABAA1
Serial number	A4650018
Manufacturer	Vaisala Oyj, Finland
Calibration date	22nd October 2012

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 a calibrated precision resistor. All results are traceable in terms of voltage and resistance to NIST.

Analog output channel 1 calibration results
Channel 1 scaling: RH 0...100 %RH

Output forced to mA	Observed output mA	Difference mA	Permissible difference mA
2.000	2	0	±0.010
10.000	10.002	+ 0.002	±0.010
18.000	18.006	+ 0.006	±0.010

Analog output channel 2 calibration results
Channel 2 scaling: T -40...80 °C

Output forced to mA	Observed output mA	Difference mA	Permissible difference mA
2.000	2	0	±0.010
10.000	10.003	+ 0.003	±0.010
18.000	18.007	+ 0.007	±0.010

Analog output channel 3 calibration results
Channel 3 scaling: No analog 999.999...999.999

Output forced to mA	Observed output mA	Difference mA	Permissible difference mA
-	-	-	-
-	-	-	-
-	-	-	-

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
HP34970A	US37010141	2012-01-18	K004-12S028
Shunt Cable	ES 13194	2012-02-27	V00358

Uncertainty (95 % confidence level, k=2)
Current ±0.00175mA
Ambient conditions / Humidity 38 ± 5%RH, Temperature 25 ± 2 °C, Pressure 1011 ± 20 hPa.

Technician

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