

CALIBRATION CERTIFICATE

Instrument Humidity and Temperature Transmitter HMT333
Order code HMT330 3F0A002BCAC100A04AABAA1
Serial number L0830822
Manufacturer Vaisala Oyj, Finland
Calibration date 19th February 2015

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 Centre for metrology and accreditation (MIKES) by using a MIKES working standard traceable to 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	+ 21.92	- 0.1	+ 21.93	-	- 0.2	± 1.0
+ 12.6	+ 21.94	+ 12.3	+ 21.95	-	- 0.3	± 1.0
+ 33.1	+ 21.94	+ 33.0	+ 21.95	-	- 0.1	± 1.0
+ 54.0	+ 21.95	+ 53.9	+ 21.95	-	- 0.1	± 1.0
+ 74.9	+ 21.95	+ 75.0	+ 21.95	-	+ 0.1	± 1.0
+ 94.3	+ 21.98	+ 94.7	+ 21.98	-	+ 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
+ 21.95	+ 21.95	0.00	-	-	± 0.10

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
MBW 373LHX	10-0118	2014-03-20	M-14H022
PTU303 / T	H0730002	2014-10-01	K008-X01689
HMT337 / T	E0840007	2014-10-01	K008-X01686
PTU303 / RH	H0730002	2015-01-05	H33-15021001
HMT337 / RH	E0840007	2015-01-05	H33-15021002

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 30 ± 5%RH, Temperature + 22 ± 1 °C, Pressure 1003 ± 1 hPa.



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Doc212778-E

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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	1.998	- 0.002	±0.010
10.000	9.998	- 0.002	±0.010
18.000	17.998	- 0.002	±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	1.995	- 0.005	±0.010
10.000	9.996	- 0.004	±0.010
18.000	17.996	- 0.004	±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	MY41016758	2015-01-14	1250-307063246
Shunt Cable	ES 13137	2014-10-13	X01724

Uncertainty (95 % confidence level, k=2)

Current ±0.00175mA

Ambient conditions / Humidity 15.00 ± 5%RH, Temperature 22.60 ± 2 °C, Pressure 1012.50 ± 20 hPa.



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