VAISALA

Calibration Certificate

FINAS
Finnish Accreditation Service
K008 (EN ISO/IEC 17025)

Certificate Number: K008-1133861

Customer: VTG, LLC
520 SE Columbia River Dr #223
Vancouver, WA 98661
Canada

Manufacturer: Vaisala Oyj

Instrument: SP-2000-20R Humidity and Temperature Logger

Serial Number: 23112063

The measurement results were calculated from recorded values by using adjustment coefficients and averaging. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95 %.

The conformity status for each measurement point is determined using a guard band equal to the expanded (k=2, 95% confidence level) measurement uncertainty.

Pass: Error is less than or equal to the specification limit minus the measurement uncertainty.
*Pass or N/A: Error is less than the specification limit plus the measurement uncertainty.
Fail: Error is more than or equal to the specification limit plus the measurement uncertainty.

The calibration results and the statement of conformity with specification/acceptance limit relate only to the calibrated instrument and the calibration points

The statement of conformity is based on 95 % confidence level acceptance, whether the calibration result is within or outside the manufacturer's specification/acceptance limits. The expanded calibration uncertainty (k=2, 95 % confidence level) is taken into account in the statement of conformity. The probability of accepting a non-conforming result or rejecting a conforming result can be as large as 2.5 % with this acceptance rule when the calibration result is close to the acceptance limit.

The measurement results are traceable to the international system of units (SI) through national metrology institutes (NIST USA or equivalent) or via ISO/IEC 17025 accredited calibration laboratories.

Note(s):
This is new instrument without before adjustment data

Calibration Date: April 22, 2023 **Next Calibration:** April 22, 2024

Issue Date: April 27, 2023

Signature:

Harri Munter
Calibration Technician

Vaisala Oyj, PO Box 26, FI-00421 Helsinki, Finland Telephone +358 9 894 91 | Fax +358 9 8949 2227
Email helpdesk@vaisala.com | www.vaisala.com Domicile Vantaa, Finland | VAT FI01244162 | Business ID 0124416-2

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The internal temperature sensor of the logger was calibrated by comparing the logger readings to a reference thermometer in Vaisala Measurement Standards Laboratory (MSL). Calibration procedure DOC227678.

Measurement results after adjustment:

Reference		Channel 1			
Temperature	Observed	Error	Uncertainty	Limit	Pass/Fail
°C	°C	°C	°C	°C	
-24.93	-24.93	0.00	0.10	±0.2	Pass
10.07	10.07	0.00	0.07	±0.2	Pass
24.98	24.98	0.00	0.06	±0.1	Pass
30.03	30.03	0.00	0.07	±0.2	Pass
40.04	40.05	0.01	0.07	±0.2	Pass
44.97	44.96	-0.01	0.07	±0.2	Pass
70.05	70.05	0.00	0.09	±0.2	Pass

Reference(s):	Instrument Number	Calibration Date	Certificate	Next Calibration
Fluke 1560/2560	TP 14845/1	November 30, 2022	K008-F06454	November 30, 2023

Note(s):
This is new instrument without before adjustment data

Calibration Date: April 22, 2023

Next Calibration: April 22, 2024

Ambient Condition(s):
21.8 °C ±2.2 °C
33.2 %rh ±3.3 %rh
1006.2 hPa ±5.7 hPa

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The humidity sensor of the logger was calibrated by comparing the logger readings to the generated reference humidity readings in Vaisala Measurement Standards Laboratory (MSL). Calibration procedure DOC227678.

Measurement results after adjustment:

Reference		Channel 2				
Humidity	Temperature	Observed	Error	Uncertainty	Limit	Pass/Fail
%rh	°C	%rh	%rh	%rh	%rh	
44.68	10.07	44.75	0.07	0.80	±2	Pass
11.01	24.97	11.09	0.08	0.70	±1	Pass
45.04	24.98	45.05	0.01	0.80	±1	Pass
60.08	24.99	60.11	0.03	0.80	±1	Pass
80.06	24.99	79.89	-0.17	0.80	±1.5	Pass
64.80	30.03	64.86	0.06	0.80	±2	Pass
74.69	40.04	74.70	0.01	0.90	±2	Pass
44.98	44.97	45.05	0.07	0.80	±2	Pass

Reference(s):	Instrument Number	Calibration Date	Certificate	Next Calibration
Thunder 2500	UG 14324	October 26, 2022	K008-F05737	October 31, 2023
Fluke 1560/2560	TP 14845/1	November 30, 2022	K008-F06454	November 30, 2023
PTU303	PA 14534	June 21, 2022	K008-F03369	June 30, 2023

Note(s):
This is new instrument without before adjustment data

Calibration Date: April 22, 2023

Next Calibration: April 22, 2024

Ambient Condition(s):
21.8 °C ±2.2 °C
33.2 %rh ±3.3 %rh
1006.2 hPa ±5.7 hPa

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