



Galvani

DRESSES YOUR PROCESS

CERTIFICATI DI CALIBRAZIONE DEGLI STRUMENTI UTILIZZATI

Aree interessate: Cleanbooth

Cliente: MAFLEX S.r.l.

Via Sant'Ambrogio, 2 - 22070 Carbonate (CO)

Commessa: 3090004

Data riqualificazione: 28 marzo 2022

Normativa di riferimento: UNI EN ISO 14644-1:2016

Rev.	Descrizione revisione	Data emissione	Emesso da	Timbro e firma
00	Prima emissione	28/03/2022	Fabiano Marastoni	 Via Monti Lessini n. 8 37057 S. GIOVANNI LUPATOTO (VR) Cod. fisc. e Partita I.V.A. 0086440 023 9

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1 STRUMENTI E CERTIFICATI

1.1 ELENCO STRUMENTI E RELATIVI CERTIFICATI

STRUMENTO	COSTRUTTORE	MODELLO	S/N
PARTICLE COUNTER	TSI	9500-01	95001751010
AIRDATA MULTIMETER	SHORTRIDGE	ADM-860	M00037
MULTIFUNZIONE	KIMO	AMI-300	11049456

1.2 PARTICLE COUNTER

		CERTIFICATE OF CALIBRATION Amira Srl, Via Vecchia Milanese 12, Triuggio, MB 20844 ITA Tel: (+39) 0362 528178 Fax: (+39) 0362 919596 http://www.amirasrl.com		
ENVIRONMENT CONDITION		MODEL		
TEMPERATURE	72,5 (22,5) °F (°C)	9500-01		
RELATIVE HUMIDITY	49 %RH	SERIAL NUMBER		
BAROMETRIC PRESSURE	989,00 (33,491,4) inHg (hPa)	95001751010		
		CUSTOMER INST ID		
		GALVANI		
☒ AS LEFT ☐ AS FOUND		☒ IN TOLERANCE ☐ OUT OF TOLERANCE		
AEROTrak CALIBRATION KIT				
MEASUREMENT VARIABLE	SYSTEM ID	DATE LAST CALIBRATED	CALIBRATION DUE DATE	
FLOW	40431343008	09/09/2021	09/09/2022	
FLOW	40431343009	29/06/2021	29/06/2022	
PARTICLE COUNT	72011339002	10/09/2021	10/09/2022	
PARTICLE STANDARDS				
PARTICLE SIZE	STANDARD UNCERTAINTY	STANDARD DEVIATION	LOT NO.	EXPIRATION DATE
0,51 µm	0,004 µm	0,009 µm	238846	31/03/2024
0,702 µm	0,003 µm	0,005 µm	242110	31/07/2024
0,994 µm	0,008 µm	0,01 µm	241632	30/06/2024
2,92 µm	0,03 µm	0,03 µm	206030	31/12/2021
5,4 µm	0,15 µm	0,6 µm	230231	31/08/2023
9,7 µm	0,255 µm	1 µm	386207	30/11/2026
<i>TSI does hereby certify that the calibration performed on the above described instrument meets the requirements of ISO 21501-4. TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI is registered to ISO-9001:2008.</i>				
 CALIBRATED		December 13, 2021 DATE		
Model 9500-01 SN 95001751010 lunedì 13 dicembre 2021				



CERTIFICATE OF CALIBRATION

Amira Srl, Via Vecchia Milanese 12, Triuggio, MB 20844 ITA
Tel: (+39) 0362 528178 Fax: (+39) 0362 919596 <http://www.amirasrl.com>

SIZE CALIBRATION AND VERIFICATION OF SIZE SETTING

NOMINAL PARTICLE SIZE	GAIN STAGE	DIGITAL CUTPOINT	EXPANDED UNCERTAINTY
0,5 μm	A	294	3.8%
0,7 μm	A	576	3.7%
1 μm	A	515	3.9%
3 μm	A	509	4.1%
5 μm	A	1.149	6.6%
10 μm	B	4.157	6.3%

COUNTING EFFICIENCY

PARTICLE SIZE	ACTUAL	ALLOWABLE RANGE	PASS/FAIL
0,5 μm	50%	50% $\pm$ 20%	Pass
1 μm	101%	100% $\pm$ 10%	Pass

SIZE RESOLUTION

PARTICLE SIZE	MEASURED	ALLOWABLE RANGE	PASS/FAIL
0,5 μm	6,8%	$\leq$ 5%	Pass

FALSE COUNT RATE

SAMPLE TIME (MIN)	SAMPLED (L)	MEASURED COUNTS (#)	CONCENTRATION ($\text{\#}/\text{m}^3$)	95% UCL ($\text{\#}/\text{m}^3$)	ALLOWABLE RANGE ($\text{\#}/\text{m}^3$)	PASS/FAIL
15	1.502		0,00	2,0	$\leq$ 2,0	Pass

SAMPLING FLOW RATE (L/MIN)

NOMINAL	ACTUAL	ERROR	ALLOWABLE RANGE	PASS/FAIL
100.0	100	0,1 %	$\pm$ 5%	Pass

SAMPLING TIME †

MEASURED	ALLOWABLE RANGE	PASS/FAIL
$< \pm 0,1\%$	$\pm 1\%$	Pass

RESPONSE RATE †

MEASURED	ALLOWABLE RANGE	PASS/FAIL
0,02%	$\leq 0,5\%$	Pass

MAXIMUM PARTICLE CONCENTRATION †

15000000 $\text{\#}/\text{m}^3$ @10% Coincidence Loss

† Tested and verified during product development

CALIBRATION INTERVAL

CALIBRATION DATE	EXPIRATION DATE
December 13, 2021	December 13, 2022

1.3 AIRDATA MULTIMETER

AIRDATA MULTIMETER CERTIFICATE OF RECALIBRATION

Customer ID: 010201 S/N: M00037
 Customer: GALVANI S.R.L. City: VERONA State: IT
 As-Received Model #: ADM-860 Converted to Model #: _____ Order #: R213017
 PO #: _____ Customer Eqpt ID#: _____ Calibration Due Date: _____

This instrument has been calibrated using Calibration Standards which are traceable to NIST (National Institute of Standards and Technology). Test accuracy ratio is 4:1 for pressures and temperature. Quality Assurance Program and calibration procedures meet the requirements for ANSI/NCISL Z540-1, ISO 17025, MIL-STD 45662A and manufacturer's specifications. Calibration accuracy is certified when meters are used with properly functioning accessories only. All Uncertainties are expressed in expanded terms (twice the calculated uncertainty). This report shall not be reproduced, except in full, without the written approval of Shortridge Instruments, Inc. Results relate only to the item calibrated. For limitations on use, see Shortridge Instruments, Inc. Instruction Manual for the use of AirData Multimeters. Procedure used: Procedure for Differential Pressure, Absolute Pressure and Temperature Recalibration of AirData Multimeters SIP-CP02 Revision: 30 Dated: 04/04/16

Calibration Technician(s): M. LaBach Calibration Date: 12/08/2021
 Calibration Approved by: D. Babb Title: Cal. Supv Date: 12/08/2021
 AS-Received By: M. LaBach FINAL Test By: B. R. Smith Test By: _____
 Date: 11/15/2021 Rh: 25 % Date: 12/08/2021 Rh: 29 % Date: _____ Rh: _____ %
 Ambient Temperature: 72 °F Ambient Temperature: 74 °F Ambient Temperature: N/A °F
 Barometric Pressure: 28.67 in Hg Barometric Pressure: 28.46 in Hg Barometric Pressure: _____ in Hg
 All within spec: YES NO NA All within spec: YES NO NA All within spec: YES NO NA

ABSOLUTE PRESSURE TEST (in Hg)

TEST METER TOLERANCE = $\pm 2.0\% \pm .1$ in Hg AS-RECEIVED TEST WITHIN SPEC YES NO N/A See Notes
 Pressure Standard: Heise #02-R S/N: 41741/42451 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #12A-R S/N: 45605/48491 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #04-R S/N: 41743/42453 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #14-R S/N: 43412/45043-2 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #06-R S/N: 41742/42452-1 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #16-R S/N: 43413/45044 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #08-R S/N: 42186/43328 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #18-R S/N: 44581/46845 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #10-R S/N: 42203/43352 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #20-R S/N: 44582/46847 As-Rcvd Test 2 Test 3

Approx Set Pt	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff
14.0	14.04	14.0	-.28	14.05	14.1	.36			
28.4	28.67	28.7	.10	28.46	28.5	.14			
40.0	40.14	40.1	-.10	40.03	40.1	.17			

DIFFERENTIAL PRESSURE TEST (in wc)

TEST METER TOLERANCE = $\pm 2.0\% \pm 0.001$ in wc AS-RECEIVED TEST WITHIN SPEC YES NO N/A See Notes
 Pressure Standard: Heise #01-L S/N: 41739/42449 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #11-L S/N: 43165/44551-1 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #01-R S/N: 41739/42446 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #11-R S/N: 43165/44730 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #02-L S/N: 41741/42454 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #12A-L S/N: 45605/48490-1 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #03A-L S/N: 45570/48461 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #13-L S/N: 43415/45041 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #03A-R S/N: 45570/48460 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #13-R S/N: 43415/45039 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #04-L S/N: 41743/42456 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #14-L S/N: 43412/45045 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #05-L S/N: 41740/42450 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #15-L S/N: 43416/45042 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #05-R S/N: 41740/42447 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #15-R S/N: 43416/45040 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #06-L S/N: 41742/42455 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #16-L S/N: 43413/45046 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #07-L S/N: 42185/42186 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #17-L S/N: 44579/46842 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #07-R S/N: 42185/43326 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #17-R S/N: 44579/46841 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #08-L S/N: 42186/43329 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #18-L S/N: 44581/46846 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #09-L S/N: 42202/43351 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #19-L S/N: 44580/46844 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #09-R S/N: 42202/43350 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #19-R S/N: 44580/46843 As-Rcvd Test 2 Test 3
 Pressure Standard: Heise #10-L S/N: 42203/43353 As-Rcvd Test 2 Test 3 Pressure Standard: Heise #20-L S/N: 44582/46848 As-Rcvd Test 2 Test 3

Approx Set Pt	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff
0.0500	.0504	.0504	.00	.0502	.0504	.40			
0.1250	.1259	.1264	.40	.1253	.1258	.40			
0.2250	.2254	.2261	.31	.2255	.2262	.31			
1.000	1.019	1.021	.20	1.005	1.009	.40			
2.000	2.002	2.006	.20	2.004	2.011	.35			
3.600	3.608	3.617	.25	3.605	3.599	-.17			
4.400	4.417	4.434	.38	4.408	4.432	.54			
27.00	27.09	27.21	.44	27.04	27.17	.48			
50.00	50.04	50.11	.14	50.08	50.24	.32			
Overrange	NA	✓	NA	NA	✓	NA	NA		NA

Shortridge Instruments, Inc.
 7855 East Redfield Road Scottsdale, Arizona 85260
 (480) 991-6744 • Fax (480) 443-1267 • www.shortridge.com

AIRDATA MULTIMETER CERTIFICATE OF RECALIBRATION

S/N: M00037

Order #: R213017

LOW VELOCITY CONFIRMATION (FPM)

TEST METER TOLERANCE = $\pm 3.0\% \pm 7$ FPM AS-RECEIVED TEST WITHIN SPEC YES NO N/A See Notes

Vel Eqv Trans Std: S/N: M02009	As-Rcvd	<u>Test 2</u>	Test 3	Vel Eqv Trans Std: S/N: M10897	<u>As-Rcvd</u>	Test 2	Test 3
Vel Eqv Trans Std: S/N: M02903	As-Rcvd	Test 2	Test 3	Vel Eqv Trans Std: S/N: M10901	As-Rcvd	Test 2	Test 3
Vel Eqv Trans Std: S/N: M10839	As-Rcvd	Test 2	Test 3	Vel Eqv Trans Std: S/N: M13492	As-Rcvd	Test 2	Test 3
Vel Eqv Trans Std: S/N: M10840	As-Rcvd	Test 2	Test 3	Vel Eqv Trans Std: S/N: M19325	As-Rcvd	Test 2	Test 3

Approx Set Point	Standard	Test Meter	Diff	Standard	Test Meter	Diff	Standard	Test Meter	Diff
100	102	103	1	108.4	110	1.6		N/A	
500	500	500	0	500.2	501	.8			

ADM-880C, ADM-870/870C and ADM-860/860C models are read in AirFoil Mode. ADM-850/850L models are read in Pitot Tube Mode.

TEMPERATURE TEST - AIRDATA MULTIMETER (° F)

TEST METER TOLERANCE = $\pm 0.2^\circ$ F AS-RECEIVED TEST WITHIN SPEC YES NO N/A See Notes

RTD Simulator: S/N 249	<u>As-Rcvd</u>	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 250	<u>As-Rcvd</u>	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 253	<u>As-Rcvd</u>	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 254	As-Rcvd	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 256	As-Rcvd	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 257	As-Rcvd	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 292	As-Rcvd	<u>Test 2</u>	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 293	As-Rcvd	<u>Test 2</u>	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 294	As-Rcvd	<u>Test 2</u>	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 313	As-Rcvd	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 314	As-Rcvd	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 315	As-Rcvd	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 316	As-Rcvd	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 317	As-Rcvd	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F
RTD Simulator: S/N 318	As-Rcvd	Test 2	Test 3	Set Point: 35.6° F	95° F	154.4° F

RTD Simulator Temperature Equivalent Set Point	Test Meter	Difference	Test Meter	Difference	Test Meter	Difference
35.60	35.6	.0	35.6	.0		
95.00	95.0	.0	95.0	.0		
154.40	154.6	.2	154.6	.2		

There were no additions to or deviations from the specified calibration procedure during the calibration process.

Any calibration due date shown is specified by the customer.

The enclosed ADM Calibration Standards for Pressure and Temperature form(s) is/are an integral part of this calibration and must remain with this Certificate of Calibration. There may be more than one such form included that pertains to this calibration.

Any additional information required pertaining to this calibration or to any repairs performed may be included in other documentation. If applicable, these documents may include, but not be limited to an AirData Multimeter Recalibration Notes form, and/or a Repair Record Notes form.

NOTES: _____

Shortridge Instruments, Inc.

7855 East Redfield Road Scottsdale, Arizona 85260
(480) 991-6744 • Fax (480) 443-1267 • www.shortridge.com

Shortridge Instruments, Inc. AirData Multimeter Calibration Equipment

Order Number: R213617 Serial Number: M00037 Test Type: Initial As-Received **Final**

ABSOLUTE PRESSURE STANDARDS

ADM #02-R	S/N: 41741/42451	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/30/21	Due Date: 04/2022
ADM #04-R	S/N: 41743/42453	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/19/21	Due Date: 11/2022
ADM #06-R	S/N: 41742/42452-1	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 08/17/21	Due Date: 08/2022
ADM #08-R	S/N: 42186/43328	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/10/21	Due Date: 03/2022
ADM #10-R	S/N: 42203/43352	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/27/21	Due Date: 01/2022
ADM #12A-R	S/N: 45605/48491	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 07/27/21	Due Date: 07/2022
ADM #14-R	S/N: 43412/45043-2	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/24/21	Due Date: 09/2022
ADM #16-R	S/N: 43413/45044	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 08/17/21	Due Date: 08/2022
ADM #18-R	S/N: 44581/46845	Heise Model: PPM-2	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 10/26/21	Due Date: 10/2022
ADM #20-R	S/N: 44582/46847	Heise Model: PPM-2	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 06/16/21	Due Date: 06/2022
#02-R, 04-R, 06-R, 08-R, 10-R, 12A-R, 14-R, 16-R	Rated Accuracy: 0.05% fs (0.0305 in Hg)		Range: 0-30 psia		Resolution: 0.01	Uncertainty: < 0.0358
#18-R, 20-R	Rated Accuracy: 0.05% fs (0.0305 in Hg)		Range: 0-60 in Hg		Resolution: 0.001	Uncertainty: < 0.0358

DIFFERENTIAL PRESSURE STANDARDS

ADM #01-L	S/N: 41739/42449	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 05/06/21	Due Date: 04/2022
ADM #01-R	S/N: 41739/42446	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 05/07/21	Due Date: 04/2022
ADM #02-L	S/N: 41741/42454	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 05/05/21	Due Date: 04/2022
ADM #03A-L	S/N: 45570/48461	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/24/21	Due Date: 11/2022
ADM #03A-R	S/N: 45570/48460	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/24/21	Due Date: 11/2022
ADM #04-L	S/N: 41743/42456	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/23/21	Due Date: 11/2022
ADM #05-L	S/N: 41740/42450	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/08/21	Due Date: 08/2022
ADM #05-R	S/N: 41740/42447	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/07/21	Due Date: 08/2022
ADM #06-L	S/N: 41742/42455	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/07/21	Due Date: 08/2022
ADM #07-L	S/N: 42185/42186	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/08/21	Due Date: 03/2022
ADM #07-R	S/N: 42185/43326	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/08/21	Due Date: 03/2022
ADM #08-L	S/N: 42186/43329	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/08/21	Due Date: 03/2022
ADM #09-L	S/N: 42202/43351	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/26/21	Due Date: 01/2022
ADM #09-R	S/N: 42202/43350	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/26/21	Due Date: 01/2022
ADM #10-L	S/N: 42203/43353	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/26/21	Due Date: 01/2022
ADM #11-L	S/N: 43165/44551-1	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 07/30/21	Due Date: 07/2022
ADM #11-R	S/N: 43165/44730	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 07/30/21	Due Date: 07/2022
ADM #12A-L	S/N: 45605/48490-1	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 08/09/21	Due Date: 07/2022
ADM #13-L	S/N: 43415/45041	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/24/21	Due Date: 09/2022
ADM #13-R	S/N: 43415/45039	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/24/21	Due Date: 09/2022
ADM #14-L	S/N: 43412/45045	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/24/21	Due Date: 09/2022
ADM #15-L	S/N: 43416/45042	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/08/21	Due Date: 08/2022
ADM #15-R	S/N: 43416/45040	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/07/21	Due Date: 08/2022
ADM #16-L	S/N: 43413/45046	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/07/21	Due Date: 08/2022
ADM #17-L	S/N: 44579/46842	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 10/29/21	Due Date: 10/2022
ADM #17-R	S/N: 44579/46841	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 10/29/21	Due Date: 10/2022
ADM #18-L	S/N: 44581/46846	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 10/29/21	Due Date: 10/2022
ADM #19-L	S/N: 44580/46844	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 06/23/21	Due Date: 06/2022
ADM #19-R	S/N: 44580/46843	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 06/24/21	Due Date: 06/2022
ADM #20-L	S/N: 44582/46848	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 06/23/21	Due Date: 06/2022
#01-L, 03A-L, 05-L, 07-L, 09-L, 11-L, 13-L, 15-L, 17-L, 19-L	Rated Accuracy: > 0.07% fs (0.000175 in wc)		Range: 0.0-0.25 in wc		Res.: 0.00001	Uncertainty: < 0.00035
#01-R, 03A-R, 05-R, 07-R, 09-R, 11-R, 13-R, 15-R, 17-R, 19-R	Rated Accuracy: > 0.08% fs (0.003 in wc)		Range: 0.0-5.0 in wc		Res.: 0.0001	Uncertainty: < 0.00348
#02-L, 04-L, 06-L, 08-L, 10-L, 12A-L, 14-L, 16-L, 18-L, 20-L	Rated Accuracy: > 0.06% fs (0.03 in wc)		Range: 0.0-50.0 in wc		Res.: 0.001	Uncertainty: < 0.0346

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Shortridge Instruments, Inc. AirData Multimeter Calibration Equipment

Customer Order Number, Meter Serial Number, and Test Type are referenced on page 1

LOW VELOCITY EQUIVALENT CONFIRMATION STANDARDS

Vel Eqv Transfer Standard S/N: M02009	Model ADM-870C	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 08/20/21	Due Date: 08/2022
Vel Eqv Transfer Standard S/N: M02903	Model ADM-870C	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 12/16/20	Due Date: 12/2021
Vel Eqv Transfer Standard S/N: M10839	Model ADM-870C	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 10/26/21	Due Date: 10/2022
Vel Eqv Transfer Standard S/N: M10840	Model ADM-870C	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 10/26/21	Due Date: 10/2022
Vel Eqv Transfer Standard S/N: M10897	Model ADM-870C	Mfg'd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 01/26/21	Due Date: 01/2022
Vel Eqv Transfer Standard S/N: M10901	Model ADM-870C	Mfg'd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 12/16/20	Due Date: 12/2021
Vel Eqv Transfer Standard S/N: M13492	Model ADM-870C	Mfg'd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 08/20/21	Due Date: 08/2022
Vel Eqv Transfer Standard S/N: M19325	Model ADM-870C	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 06/29/21	Due Date: 06/2022
Rated Accuracy: Velocity $\pm 1.5\% \pm 3.5$ fpm		Range: 100-5000 fpm Resolution: 0.1	Uncertainty: <5.00 fpm at 100 fpm; <7.50 fpm at 500 fpm	

TEMPERATURE STANDARDS

RTD Simulator S/N: 249	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/02/20	Due Date: 03/2024
RTD Simulator S/N: 250	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/02/20	Due Date: 03/2024
RTD Simulator S/N: 253	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/02/20	Due Date: 03/2024
RTD Simulator S/N: 254	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 05/04/20	Due Date: 04/2024
RTD Simulator S/N: 256	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 05/04/20	Due Date: 04/2024
RTD Simulator S/N: 257	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 05/04/20	Due Date: 04/2024
RTD Simulator S/N: 292	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 01/03/20	Due Date: 01/2024
RTD Simulator S/N: 293	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 01/03/20	Due Date: 01/2024
RTD Simulator S/N: 294	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 01/03/20	Due Date: 01/2024
RTD Simulator S/N: 313	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 03/16/18	Due Date: 03/2022
RTD Simulator S/N: 314	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 03/16/18	Due Date: 03/2022
RTD Simulator S/N: 315	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 03/16/18	Due Date: 03/2022
RTD Simulator S/N: 316	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/16/18	Due Date: 04/2022
RTD Simulator S/N: 317	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/16/18	Due Date: 04/2022
RTD Simulator S/N: 318	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/16/18	Due Date: 04/2022
Rated Accuracy: 0.025% of setting		Range: 100.00 Ω to 11111.10 Ω	Resolution: 0.01 Ω	Uncertainty: ≤ 32 ppm	

Thermometer #1 S/N 8A089/Thermistor S/N A410660	Model 1504/5610	Mfgd by Hart Scientific	Calibrated by Fluke	Calibration Date: 08/26/21	Due Date: 08/2023
Thermometer #2 S/N 8B104/Thermistor S/N 871507	Model 1504/5610	Mfgd by Hart Scientific	Calibrated by Fluke	Calibration Date: 11/04/20	Due Date: 11/2022
Thermometer #5 S/N B11780/Thermistor S/N B10505	Model 1504/5610	Mfgd by Hart Scientific	Calibrated by Fluke	Calibration Date: 11/04/20	Due Date: 11/2022
Thermometer #6 S/N B11782/Thermistor S/N B10509	Model 1504/5610	Mfgd by Hart Scientific	Calibrated by Fluke	Calibration Date: 02/24/20	Due Date: 02/2022
Thermometer #7 S/N B49938/Thermistor S/N B482202	Model 1504/5610	Mfgd and Calibrated by Fluke		Calibration Date: 10/13/21	Due Date: 10/2023
Rated Accuracy(Combined): 0.0324° F		Range: 32° F to 176° F	Resolution: 0.001° F	Combined Uncertainty with Baths: $\leq 0.040^\circ$ F	

Temp Transfer Standard S/N M00136	Model ADM-870	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 10/26/21	Due Date: 10/2022
Temp Transfer Standard S/N M96100	Model ADM-870	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 03/17/21	Due Date: 03/2022
Rated Accuracy: 0.03° F		Range: 33° F to 158° F	Resolution: 0.01° F	Uncertainty: < 0.023° F
Total combined Uncertainty for MultiTemp and TempProbe testing : ≤ 0.046° F				

This form must remain with the Certificate of Calibration corresponding to the Customer Order Number and Meter Serial Number referenced on page 1.

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Shortridge Instruments, Inc. AirData Multimeter Calibration Equipment

Order Number: R213017 Serial Number: M00037 Test Type: Initial As-Received Final

ABSOLUTE PRESSURE STANDARDS

ADM #02-R	S/N: 41741/42451	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/30/21	Due Date: 04/2022
ADM #04-R	S/N: 41743/42453	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/06/20	Due Date: 11/2021
ADM #06-R	S/N: 41742/42452-1	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 08/17/21	Due Date: 08/2022
ADM #08-R	S/N: 42186/43328	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/10/21	Due Date: 03/2022
ADM #10-R	S/N: 42203/43352	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/27/21	Due Date: 01/2022
ADM #12A-R	S/N: 45605/48491	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 07/27/21	Due Date: 07/2022
ADM #14-R	S/N: 43412/45043-2	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/24/21	Due Date: 09/2022
ADM #16-R	S/N: 43413/45044	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 08/17/21	Due Date: 08/2022
ADM #18-R	S/N: 44581/46845	Heise Model: PPM-2	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 01/23/21	Due Date: 10/2021
ADM #20-R	S/N: 44582/46847	Heise Model: PPM-2	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 06/16/21	Due Date: 06/2022
#02-R, 04-R, 06-R, 08-R, 10-R, 12A-R, 14-R, 16-R	Rated Accuracy: 0.05% fs (0.0305 in Hg)		Range: 0-30 psia		Resolution: 0.01	Uncertainty: < 0.0358
#18-R, 20-R	Rated Accuracy: 0.05% fs (0.0305 in Hg)		Range: 0-60 in Hg		Resolution: 0.001	Uncertainty: < 0.0358

DIFFERENTIAL PRESSURE STANDARDS

ADM #01-L	S/N: 41739/42449	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 05/06/21	Due Date: 04/2022
ADM #01-R	S/N: 41739/42446	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 05/07/21	Due Date: 04/2022
ADM #02-L	S/N: 41741/42454	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 05/05/21	Due Date: 04/2022
ADM #03A-L	S/N: 45570/48461	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/11/20	Due Date: 11/2021
ADM #03A-R	S/N: 45570/48460	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/11/20	Due Date: 11/2021
ADM #04-L	S/N: 41743/42456	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/09/20	Due Date: 11/2021
ADM #05-L	S/N: 41740/42450	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/08/21	Due Date: 08/2022
ADM #05-R	S/N: 41740/42447	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/07/21	Due Date: 08/2022
ADM #06-L	S/N: 41742/42455	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/07/21	Due Date: 08/2022
ADM #07-L	S/N: 42185/42186	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/08/21	Due Date: 03/2022
ADM #07-R	S/N: 42185/43326	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/08/21	Due Date: 03/2022
ADM #08-L	S/N: 42186/43329	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/08/21	Due Date: 03/2022
ADM #09-L	S/N: 42202/43351	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/26/21	Due Date: 01/2022
ADM #09-R	S/N: 42202/43350	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/26/21	Due Date: 01/2022
ADM #10-L	S/N: 42203/43353	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/26/21	Due Date: 01/2022
ADM #11-L	S/N: 43165/44551-1	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 07/30/21	Due Date: 07/2022
ADM #11-R	S/N: 43165/44730	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 07/30/21	Due Date: 07/2022
ADM #12A-L	S/N: 45605/48490-1	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 08/09/21	Due Date: 07/2022
ADM #13-L	S/N: 43415/45041	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/24/21	Due Date: 09/2022
ADM #13-R	S/N: 43415/45039	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/24/21	Due Date: 09/2022
ADM #14-L	S/N: 43412/45045	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/24/21	Due Date: 09/2022
ADM #15-L	S/N: 43416/45042	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/08/21	Due Date: 08/2022
ADM #15-R	S/N: 43416/45040	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/07/21	Due Date: 08/2022
ADM #16-L	S/N: 43413/45046	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/07/21	Due Date: 08/2022
ADM #17-L	S/N: 44579/46842	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 01/26/21	Due Date: 10/2021
ADM #17-R	S/N: 44579/46841	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 01/26/21	Due Date: 10/2021
ADM #18-L	S/N: 44581/46846	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 01/26/21	Due Date: 10/2021
ADM #19-L	S/N: 44580/46844	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 06/23/21	Due Date: 06/2022
ADM #19-R	S/N: 44580/46843	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 06/24/21	Due Date: 06/2022
ADM #20-L	S/N: 44582/46848	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 06/23/21	Due Date: 06/2022
#01-L, 03A-L, 05-L, 07-L, 09-L, 11-L, 13-L, 15-L, 17-L, 19-L	Rated Accuracy: > 0.07% fs (0.000175 in wc)		Range: 0.0-0.25 in wc		Res.: 0.00001	Uncertainty: < 0.00035
#01-R, 03A-R, 05-R, 07-R, 09-R, 11-R, 13-R, 15-R, 17-R, 19-R	Rated Accuracy: > 0.06% fs (0.003 in wc)		Range: 0.0-5.0 in wc		Res.: 0.0001	Uncertainty: < 0.00348
#02-L, 04-L, 06-L, 08-L, 10-L, 12A-L, 14-L, 16-L, 18-L, 20-L	Rated Accuracy: > 0.06% fs (0.03 in wc)		Range: 0.0-50.0 in wc		Res.: 0.001	Uncertainty: < 0.0346

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Shortridge Instruments, Inc. AirData Multimeter Calibration Equipment

Customer Order Number, Meter Serial Number, and Test Type are referenced on page 1

LOW VELOCITY EQUIVALENT CONFIRMATION STANDARDS

Vel Eqv Transfer Standard S/N: M02009	Model ADM-870C	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 08/20/21	Due Date: 08/2022
Vel Eqv Transfer Standard S/N: M02903	Model ADM-870C	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 12/16/20	Due Date: 12/2021
Vel Eqv Transfer Standard S/N: M10839	Model ADM-870C	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 10/26/21	Due Date: 10/2022
Vel Eqv Transfer Standard S/N: M10840	Model ADM-870C	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 10/26/21	Due Date: 10/2022
Vel Eqv Transfer Standard S/N: M10897	Model ADM-870C	Mfg'd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 01/26/21	Due Date: 01/2022
Vel Eqv Transfer Standard S/N: M10901	Model ADM-870C	Mfg'd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 12/16/20	Due Date: 12/2021
Vel Eqv Transfer Standard S/N: M13492	Model ADM-870C	Mfg'd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 08/20/21	Due Date: 08/2022
Vel Eqv Transfer Standard S/N: M19325	Model ADM-870C	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 06/29/21	Due Date: 06/2022
Rated Accuracy: Velocity $\pm 1.5\% \pm 3.5$ fpm		Range: 100-5000 fpm Resolution: 0.1	Uncertainty: <5.00 fpm at 100 fpm; <7.50 fpm at 500 fpm	

TEMPERATURE STANDARDS

RTD Simulator S/N: 249	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/02/20	Due Date: 03/2024
RTD Simulator S/N: 250	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/02/20	Due Date: 03/2024
RTD Simulator S/N: 253	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/02/20	Due Date: 03/2024
RTD Simulator S/N: 254	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 05/04/20	Due Date: 04/2024
RTD Simulator S/N: 256	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 05/04/20	Due Date: 04/2024
RTD Simulator S/N: 257	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 05/04/20	Due Date: 04/2024
RTD Simulator S/N: 292	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 01/03/20	Due Date: 01/2024
RTD Simulator S/N: 293	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 01/03/20	Due Date: 01/2024
RTD Simulator S/N: 294	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 01/03/20	Due Date: 01/2024
RTD Simulator S/N: 313	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 03/16/18	Due Date: 03/2022
RTD Simulator S/N: 314	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 03/16/18	Due Date: 03/2022
RTD Simulator S/N: 315	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 03/16/18	Due Date: 03/2022
RTD Simulator S/N: 316	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/16/18	Due Date: 04/2022
RTD Simulator S/N: 317	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/16/18	Due Date: 04/2022
RTD Simulator S/N: 318	Model RTD-1000/500	Mfgd by General Resistance	Calibrated by IET Labs	Calibration Date: 04/16/18	Due Date: 04/2022
Rated Accuracy: 0.025% of setting		Range: 100.00 Ω to 11111.10 Ω	Resolution: 0.01 Ω	Uncertainty: ≤ 32 ppm	

Thermometer #1 S/N 8A089/Thermistor S/N A410660	Model 1504/5610	Mfgd by Hart Scientific	Calibrated by Fluke	Calibration Date: 08/26/21	Due Date: 08/2023
Thermometer #2 S/N 8B104/Thermistor S/N 871507	Model 1504/5610	Mfgd by Hart Scientific	Calibrated by Fluke	Calibration Date: 11/04/20	Due Date: 11/2022
Thermometer #5 S/N B11780/Thermistor S/N B10505	Model 1504/5610	Mfgd by Hart Scientific	Calibrated by Fluke	Calibration Date: 11/04/20	Due Date: 11/2022
Thermometer #6 S/N B11782/Thermistor S/N B10509	Model 1504/5610	Mfgd by Hart Scientific	Calibrated by Fluke	Calibration Date: 02/24/20	Due Date: 02/2022
Thermometer #7 S/N B49938/Thermistor S/N B482202	Model 1504/5610	Mfgd and Calibrated by Fluke		Calibration Date: 09/26/19	Due Date: 09/2021
Rated Accuracy(combined): 0.0324° F		Range: 32° F to 176° F	Resolution: 0.001° F	Combined Uncertainty with Baths: ≤ 0.040 ° F	

Temp Transfer Standard S/N M00136	Model ADM-870	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 10/26/21	Due Date: 10/2022
Temp Transfer Standard S/N M96100	Model ADM-870	Mfgd & Calibrated by Shortridge Instruments, Inc.	Calibration Date: 03/17/21	Due Date: 03/2022
Rated Accuracy: 0.03° F		Range: 33° F to 158° F	Resolution: 0.01° F	Uncertainty: < 0.023° F
Total combined Uncertainty for MultiTemp and TempProbe testing: ≤ 0.046° F				

This form must remain with the Certificate of Calibration corresponding to the Customer Order Number and Meter Serial Number referenced on page 1.

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1.4 MULTIFUNZIONE



Laboratorio Metrologico

CERTIFICATO DI TARATURA

N° 4136/21

Pagina 1 di 6

Destinatario: **Galvani S.r.L. – San Giovanni Lupatoto (VR)**

Oggetto della taratura: **Strumento multifunzione**

Metodo: verifica per comparazione su 5 punti

Utilizzo: rilevazione della velocità dell'aria, temperatura e di umidità

Modello: **AMI 300**

Ingresso: **sonde**

Sonda tipo: **ventola HE 100 RF**

Sonda tipo: **press.diff.MDP 2500**

Sonda tipo: **per superfici**

Sonda tipo: **termoigrom. HR110 RF**

Sonda tipo: **Filo Caldo FCT900**

Matricola: **11049456**

Matricola: **11041362**

Matricola: **11042896**

Matricola: **11049456**

Matricola: **11041369**

Matricola: **11043201**

Procedura di verifica

La procedura utilizzata per effettuare la verifica prevede l'impiego di strumenti e/o campioni primari certificati da centri Accredia o equivalenti riconosciuti a livello internazionale (ove disponibili).

Le verifiche vengono effettuate per confronto diretto o indiretto tra lo strumento/campione in taratura e lo strumento/campione di riferimento primario con l'utilizzo delle attrezzature di supporto.

Si predispongono l'oggetto della verifica e gli strumenti/campioni di confronto pronti ad effettuare misurazioni lasciandoli per circa due ore nella camera di prova a temperatura ed umidità controllate. Si effettuano una serie di misure significative annotandole sulla scheda tecnica interna. Si calcola la media aritmetica degli scostamenti rilevati. Si verifica poi la ripetibilità di lettura. Si determina quindi l'incertezza di misura derivante dagli scostamenti rilevati, dalla ripetibilità di lettura, dall'incertezza degli strumenti e/o campioni utilizzati per la prova, da deriva termica, rumore, ove applicabili. Si determina poi l'esito della verifica o la conformità alla normativa di riferimento, se previsti. Alla fine della compilazione della scheda tecnica interna, può essere redatto il documento di verifica. Si appone infine sullo strumento/campione l'etichetta di avvenuta certificazione.

Costruttore: **Kimo**

Procedura utilizzata per la verifica: **CP023 – CP06 – CP03 - CP017- CP06**

Data: **22-04-21**

Intervallo di verifica: **12 mesi**

Ente certificatore: **Assicontrol**

Il responsabile di laboratorio:

C. Alborghetti

firma



Registro di laboratorio **CERT23**

Documento N° **58/10** del **20-10-98**

Rev. **1.00**

La riproduzione del presente documento è ammessa in copia conforme integrale. La riproduzione parziale è consentita soltanto a seguito di autorizzazione scritta del Centro di emissione del documento.

CARLESI COMMERCIALE STRUMENTI

Sede Operativa: Via San Morese 9, 50019 Sesto Fiorentino (FI) – P.I.: 01941160978 C.F.: CRLCDL57R01G999B
Tel. 055/420.48.71 Fax. 055/74.72.013

www.carlesistrumenti.eu info@carlesistrumenti.eu

Verifica rilevazioni strumento multifunzione tipo: **AMI 300**matricola: **11049456**Sonda tipo: **ventola HE 100 RF**Matricola: **11041362**

Campo di misura: 0,3 – 35 m/s ... -20 +80°C

Risoluzione: 0,01 m/s da 0,3 a 2.99 m/s poi 0,1 m/s0,1°C

Procedura: CP023

La catena di riferibilità ha inizio con i seguenti campioni primari :

- ☒ Anemometro HD2303.0 + AP472S2 matricola 07006077 + 09003855 dotato di certificato Accredia 19002544
- ☒ Termometro digitale HD9219 matricola 003ASC+03000092 corredato di certificato Accredia C1181D6000

Strumentazione ausiliaria: mini galleria del vento WT1 matricola 44

Verifica velocità

Punto	valore nominale (m/s)	valore letto (m/s)	scostamento dal valore nominale (m/s)
1	0,32	0,30	-0,02
2	3,08	3,0	-0,08
3	5,15	5,0	-0,15
4	10,28	10,0	-0,28
5	20,46	20,0	-0,46
Scostamento medio dal valore nominale:			-0,20 (m/s)
Incertezza di misura:			< ± -0,17 (m/s)

Verifica temperatura

Punto	valore nominale (°C)	valore letto (°C)	scostamento dal valore nominale (°C)
1	0,0	0,1	0,1
2	20,0	20,3	0,3
3	50,0	50,5	0,5
Scostamento medio dal valore nominale:			0,30 (°C)
Incertezza di misura:			< ± 0,27 (°C)

Note: I valori letti sono la media di più misurazioni.

Le incertezze di misura dichiarate in questo documento, associate alle letture effettuate, sono espresse come due volte lo scarto tipo corrispondente, nel caso di distribuzione normale, ad un livello di confidenza di circa 95%.

Le misure sono state effettuate nelle seguenti condizioni ambientali:

Temperatura: 23°C ± 1°C

Umidità: 50% u.r. ± 10% u.r.

Data delle prove: 22-04-21

Tecnico di laboratorio 

ASSICONTROL Divisione ASSISTENZA e TARATURE

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Verifica rilevazioni strumento multifunzione tipo: **AMI 300**
Sonda tipo: **press.diff.MDP 2500**
Procedura: CP017

matricola: **11049456**
Matricola: **11042896**

Scala: 2500 Pa
Risoluzione: 1 Pa
Precisione: /
Indicatore: digitale
Tubo di Pitot: /

La catena di riferibilità ha inizio con i seguenti campioni primari per il confronto indiretto:
Manometro campione Lab DMM matricola 350-41283 con certificato Accredia nr. P0031 2020
Manometro campione 8205 matricola 9061889 con certificato Accredia nr. P0004 2021
Banco di controllo utilizzato per la verifica del campione tipo GPM/2 AEP matricola 35 (401).

CICLO POSITIVO			
valore nominale (Pa)	valore letto (Pa)	errore (Pa)	eccedenti (Pa)
100,8	100,0	-0,8	-
502,6	500,0	-2,6	-
1008,0	1000,0	-8,0	-
1510,0	1500,0	-10,0	-
2015,0	2000,0	-15,0	-
CICLO NEGATIVO			
valore nominale (Pa)	valore letto (Pa)	errore (Pa)	eccedenti (Pa)
100,7	100,0	-0,7	-
502,3	500,0	-2,3	-
1007,0	1000,0	-7,0	-
1513,0	1500,0	-13,0	-
2016,0	2000,0	-16,0	-
Incertezza di misura: (% v.l.) $< \pm 0,64$			

Note: /

Considerazioni: /

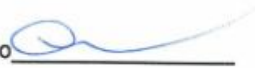
Le incertezze di misura dichiarate in questo documento, associate alle letture effettuate, sono espresse come due volte lo scarto tipo corrispondente, nel caso di distribuzione normale, ad un livello di confidenza di circa 95%.

Le misure sono state effettuate nelle seguenti condizioni ambientali:

Temperatura: $23^{\circ}\text{C} \pm 1^{\circ}\text{C}$

Umidità: $50\% \text{ u.r.} \pm 10\% \text{ u.r.}$

Data delle prove: 22-04-21

Tecnico di laboratorio 

ASSICONTROL Divisione ASSISTENZA e TARATURE

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Verifica rilevazioni termometro digitale tipo: **AMI 300** matricola: **11049456**
Sonda tipo: **per superfici** Matricola: **11049456**
Campo di misura: **-50 +250 °C**
Modulo tipo: / Matricola: **0217040**
Procedura: CP03

La catena di riferibilità ha inizio con i seguenti campioni primari :

Termometro digitale HD9219 matricola 003ASC+03000092 corredato di certificato ACCREDIA C1181D6000

Calibratore multifunzione Fluke 5500A matricola 6330020 corredato di certificato ACCREDIA 62137

Norma di riferimento IEC 584 con espressione della temperatura secondo STI 90

Strumentazione ausiliaria

Strumento calibratore Thermostatic calibrator Pyros matricola F087 00.

Strumento calibratore Thermostatic calibrator Pyros matricola C152 95.

Unità criogenica 9705 matricola 34 (811955)

Risultati della verifica con sonda matricola 11049456

Punto	valore nominale (°C)	valore letto (°C)	scostamento dal valore nominale (°C)	Incertezza di misura ($\pm$ °C)
1	-9,5	-10,0	-0,5	0,44
2	49,2	50,0	0,8	0,70
3	98,6	100,0	1,4	1,23
4	198,1	200,0	1,9	1,67
5	247,3	250,0	2,7	2,38
Scostamento medio dal valore nominale:			1,46 (°C)	

Note: i valori letti sono la media di più misurazioni.

Considerazioni: /

Le incertezze di misura dichiarate in questo documento, associate alle letture effettuate, sono espresse come due volte lo scarto tipo corrispondente, nel caso di distribuzione normale, ad un livello di confidenza di circa 95%.

Le misure sono state effettuate nelle seguenti condizioni ambientali:

Temperatura: $23^{\circ}\text{C} \pm 1^{\circ}\text{C}$

Umidità: 50% u.r. $\pm$ 10% u.r.

Data delle prove: 22-04-21

Tecnico di laboratorio



ASSICONTROL Divisione ASSISTENZA e TARATURE

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Verifica termigrometro per comparazione con campioni primari

Procedura: CP06

Strumento tipo: **AMI 300**matricola: **11049456**Sonda tipo: **termigrom. HR110 RF**Matricola: **11041369**

Campo di misura: 3-98% -20 +80°C

Metodo di rilevazione umidità: sensore capacitivo

UMIDITA'

La catena di riferibilità ha inizio con i seguenti campioni primari:

Igrometro HD4901T matricola 11005609 corredato di certificato ACCREDIA 0069 19 UR

Punto	valore nominale (%RH)	valore letto (%RH)	scostamento dal valore nominale (%RH)
1	35,0	35,8	0,8
2	50,0	51,4	1,4
3	80,0	82,3	2,3
Scostamento medio dal valore nominale:			1,50 (% RH)
Incertezza di misura:			< ± 1,35 (% RH)

TEMPERATURA

La catena di riferibilità ha inizio con i seguenti campioni primari:

Termometro digitale HD9219 matricola 003ASC+03000092 corredato di certificato Accredia

C1181D6000

Norma di riferimento IEC 584 con espressione della temperatura secondo STI 90

Punto	valore nominale (°C)	valore letto (°C)	scostamento dal valore nominale (°C)
1	10,0	10,3	0,3
2	20,0	20,6	0,6
3	50,0	50,8	0,8
Scostamento medio dal valore nominale:			0,57 (°C)
Incertezza di misura:			< ± 0,51 (°C)

Strumentazione ausiliaria

Camera termigrometrica M60-TB matricola 38 (M10110593)

Unità criogenica 9705 matricola 34 (811955)

Le incertezze di misura dichiarate in questo documento, associate alle letture effettuate, sono espresse come due volte lo scarto tipo corrispondente, nel caso di distribuzione normale, ad un livello di confidenza di circa 95%.

Le misure sono state effettuate nelle seguenti condizioni ambientali:

Temperatura: 23°C ± 1°C

Umidità: 50% u.r. ± 10% u.r.

Data delle prove: 22-04-21

Tecnico di laboratorio 

ASSICONTROL Divisione ASSISTENZA e TARATURE

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Verifica rilevazioni termometro digitale tipo: **AMI 300**matricola: **11049456**Sonda tipo: **Filo caldo FCT900**Matricola: **11043201**

Campo di misura: 0,15 – 30 m/s ... -20 +80°C

Risoluzione: 0,01 m/s da 0,3 a 2.99 m/s poi 0,1 m/s

Procedura: CP023

La catena di riferibilità ha inizio con i seguenti campioni primari :

- ☒ Anemometro HD2303.0 + AP472S2 matricola 07006077 + 09003855 dotato di certificato Accredia 19002544
- ☒ Termometro digitale HD9219 matricola 003ASC+03000092 corredato di certificato Accredia C1181D6000

Strumentazione ausiliaria: mini galleria del vento WT1 matricola 44

Verifica velocità

Punto	valore nominale (m/s)	valore letto (m/s)	scostamento dal valore nominale (m/s)
1	0,16	0,15	-0,01
2	3,06	3,0	-0,06
3	5,09	5,0	-0,09
4	10,23	10,0	-0,23
5	20,36	20,0	-0,36
Scostamento medio dal valore nominale:			-0,15 (m/s)
Incertezza di misura:			< ± -0,13 (m/s)

Verifica temperatura

Punto	valore nominale (°C)	valore letto (°C)	scostamento dal valore nominale (°C)
1	0,0	0,2	0,2
2	20,0	20,2	0,2
3	50,0	50,6	0,6
Scostamento medio dal valore nominale:			0,33 (°C)
Incertezza di misura:			< ± 0,30 (°C)

Note: I valori letti sono la media di più misurazioni.

Considerazioni: /

Le incertezze di misura dichiarate in questo documento, associate alle letture effettuate, sono espresse come due volte lo scarto tipo corrispondente, nel caso di distribuzione normale, ad un livello di confidenza di circa 95%.

Le misure sono state effettuate nelle seguenti condizioni ambientali:

Temperatura: 23°C ± 1°C

Umidità: 50% u.r. ± 10% u.r.

Data delle prove: 22-04-21

Tecnico di laboratorio 

ASSICONTROL Divisione ASSISTENZA e TARATURE

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