

# KALIBRIER ZERTIFIKAT

## CALIBRATION CERTIFICATE / CERTIFICAT DE CALIBRATION



Abnahmeprüfzeugnis nach DIN EN 10204 – 3.1  
 Inspection certificate acc. DIN EN 10204 – 3.1  
 Certificat de réception selon DIN EN 10204 – 3.1



Zertifikat Nr. / Certificate No / Certificat N°.: N77089859

Type / Model / Modèle: EE08-PFT2V11D6HC01/T02

Gegenstand / Object / Objet: humidity/temperature transmitter EE08

Serien Nummer / Serial Number / Numéro de série: 203005000138BC

Hiermit bestätigen wir, dass die angeführten E+E Erzeugnisse unter Verwendung einwandfreier Werkstoffe nach dem Stand der Technik gefertigt wurden. Produktion, Kalibrierung und Qualitätsprüfung werden im Rahmen der E+E Qualitätssicherungsmaßnahmen überwacht. Die Erzeugnisse werden gegen Werksstandards kalibriert, welche auf internationale Standardeinheiten, verwaltet von den nationalen metrologischen Instituten wie NIST, PTB, NPL, BEV oder anderen anerkannten nationalen Standard Labors, rückführbar sind. Bei Entwicklungsmustern und Reparaturteilen bezieht sich die Bescheinigung ausschließlich auf das Prüfergebnis.

We herewith certify that above listed E+E products are manufactured in compliance with the latest technical standards. All used materials and components have passed the quality assurance system. Manufacturing, calibration and quality testing are performed according to the E+E Quality Assurance System.

The products are calibrated against factory standards traceable to international standard units administrated by the national metrology institutes like NIST, PTB, NBL, BEV or other recognized national standard laboratories.

For engineering samples and repair parts extent of certification is restricted to test results only.

Nous certifions par la présente que les produits E+E ci-dessus mentionnés sont fabriqués selon les règles de l'art avec l'utilisation de matériaux de qualité. La fabrication, la calibration et le contrôle qualité des produits E+E sont exécutées conformément au système d'assurance qualité de E+E.

Les produits sont étalonnés par rapport à des étalons de travail dont la traçabilité est rattachée aux étalons internationaux, administrés par les instituts de métrologie tel que le NIST, PTB, NBL, BEV, COFRAC ou d'autres laboratoires de référence reconnus. Pour les échantillons ou prototypes et les pièces de réparation, la validité du certificat est restreinte aux seuls résultats de tests.

### Rückführbare Standards / Traceable Standards / Etalons rattachés

Temperatur Referenz / Temperature reference / Température de référence	MKT 100, Paar
Feuchte Referenz / Humidity reference / Humidité de référence	DP30; MBW
Messunsicherheiten / Uncertainty of Measurement / Incertitude de mesure	0,5% rH, 0,1°C

### Prüfergebnis / Test result / Résultat de mesure

	50 %RH	76 %RH	23 °C
Referenzwert / Reference value / Valeur de référence	50,000	75,920	22,970
Messwert / Calibrated value / Valeur mesurée	51,000	76,630	22,980
Abweichung / Error / Ecart	1,000	0,710	0,010

Die angeführten Daten sind gültig, unter den angegebenen Bedingungen, zum Zeitpunkt der Messung und nehmen Bezug auf die angegebenen Standards und verwendeten Messeinrichtungen.

The calibrated values are valid under above conditions only at the time of measurement and are referenced to marked reference and working standards.

Les valeurs de calibration sont valides selon les conditions spécifiées ci-dessus au moment de la mesure et font référence aux spécifications et aux systèmes de mesure utilisés.

Ort, Datum / Place, Date / Lieu, date

Techniker / Technician / Technicien

Geprüft / Supervised / Vérification

Engerwitzdorf 30.07.2020

**Calibration Certificate**

Model	180	Serial Number	18A20148	Firmware Version	7.80
Spectrometer	187	Serial Number	8HG20148	Revision	P
Channels	PM-10; PM-2.5				

**Calibration Method:**

The reference unit is calibrated with NIST certified PSL particles and the calibration is verified every year. This is a worldwide accepted standard method referring to PTB Braunschweig and we therefore guarantee the traceability of our calibration. The absolute size calibration of the reference unit is transferred to the candidate unit with a calibration procedure using polydisperse dolomite particles.

**Instruments used for Calibration:**

- Reference instrument class 3                      Model 107GF
- Oscilloscope Hameg HM507                      Serial Number 60210471
- Flow meter Defender 520-M                      Serial Number 119944
- Calibration tower model                              7851

**Calibration Material:**

- Reference unit: NIST certified monidisperse PSL particles with different diameters
- Candidate unit: Micro Dolomit DR90 polydisperse powder (0,10µm - 180µm)

**Tolerance Ranges:**

- Sample Flow Rate: ± 5 % at 1.2 l/min
- Count Calibration: ± 3 % at ≥ 500 1/l
- Relative Mass Deviation: ± 3 % or ± 2 µg/m³

**Mass values of spectrometers at calibration tower:**

Mean Value	Reference 7H100021	Test Unit	Deviation
PM-10	266,6 µg/m³	263,2 µg/m³	-3,4 µg/m³ = -1,3%
PM-2.5	117,4 µg/m³	118,2 µg/m³	0,8 µg/m³ = 0,7%
PM-1.0	42,5 µg/m³	42,5 µg/m³	0,0 µg/m³ = 0,0%
<b>Sample Volume: 0,0180 m³ / Sample Time: 15 min.</b>			

**Mass values of complete systems at ambient air:**

Mean Value	Reference 87G09058	Test Unit	Deviation
PM-10	35,6 µg/m³	35,0 µg/m³	-0,6 µg/m³ = -1,7%
PM-2.5	24,0 µg/m³	24,2 µg/m³	0,2 µg/m³ = 0,8%
PM-1.0	16,3 µg/m³	17,1 µg/m³	0,8 µg/m³ = 4,9%
<b>Sample Volume: 3,4573 m³ / Sample Time: 2881 min.</b>			

We hereby confirm that this instrument has been successfully calibrated and passed the mass test. All work has been done by qualified and trained staff of GRIMM Aerosol Technik.

**This calibration is valid until 31 March 2022**

Date: 02.03.2021

Signature:  **Grimm Aerosol Technik Pouch GmbH**  
 OT Friedersdorf  
 Vordere Aue 4  
 06774 Muldestausee  
 Tel.: 03493 51407-0 Fax: 03493 51407-50

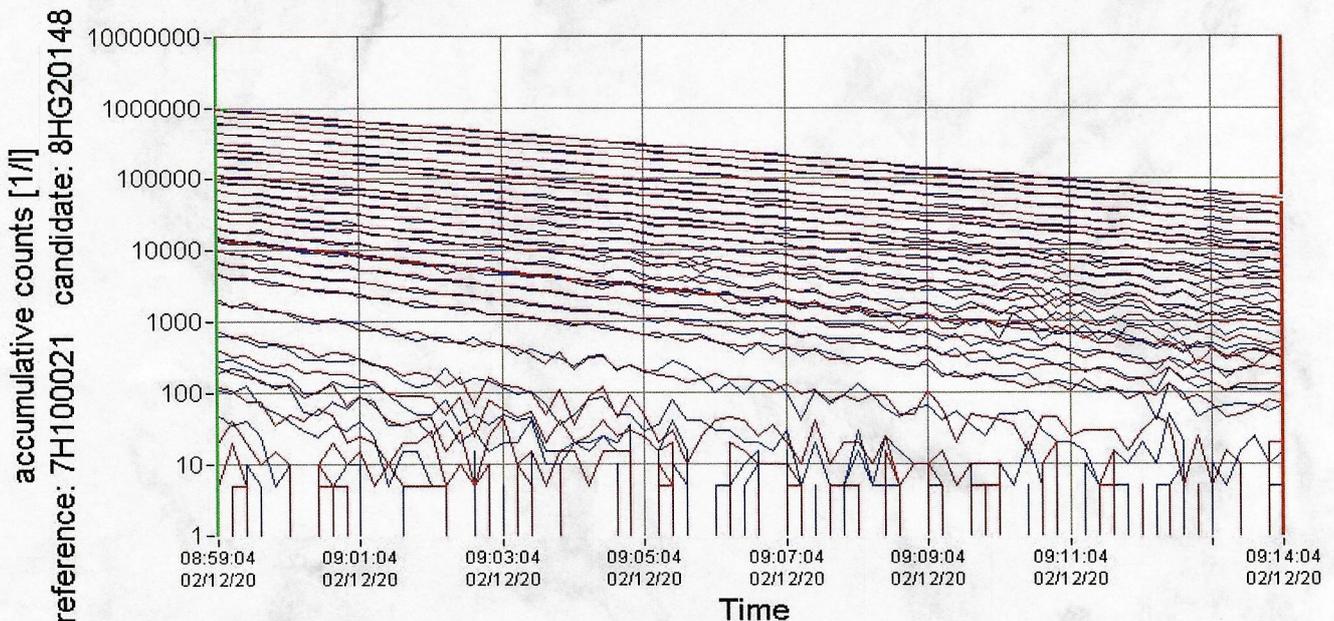
**Calibration Certificate**

**Count values of spectrometers at calibration tower:**

Channels		0	1	2	3	4	5	6	7
Diameter [µm]		> 0,25	> 0,28	> 0,30	> 0,35	> 0,40	> 0,45	> 0,50	> 0,58
Concentration [p/l]	Reference	318879	256770	196825	142371	100979	76593	63572	44957
	Test unit	317201	256030	198925	143835	102339	78062	63122	45108
Deviation [%]		-0,5	-0,3	1,1	1,0	1,3	1,9	-0,7	0,3
Channels		8	9	A	B	C	D	E	F
Diameter [µm]		> 0,65	> 0,70	> 0,80	> 1,00	> 1,30	> 1,60	> 2,00	> 2,50
Concentration [p/l]	Reference	32877	26841	19420	14134	9894	7775	5204	3501
	Test unit	32794	27209	19630	14199	10020	7807	5203	3452
Deviation [%]		-0,3	1,4	1,1	0,5	1,3	0,4	0,0	-1,4
Channels		G	H	I	J	K	L	M	N
Diameter [µm]		> 2,50	> 3,00	> 3,50	> 4,00	> 5,00	> 6,50	> 7,50	> 8,50
Concentration [p/l]	Reference	3650	2288	1478	956	350	109	53	26
	Test unit	3668	2285	1489	957	342	99	40	25
Deviation [%]		0,5	-0,1	0,7	0,1	-2,3	-9,2	-24,5	-3,8
Channels		O	P	Q	R	S	T	U	V
Diameter [µm]		> 10,00	> 12,50	> 15,00	> 17,50	> 20,00	> 25,00	> 30,00	> 32,00
Concentration [p/l]	Reference	11	3	1	0	0	0	0	0
	Test unit	10	3	1	0	0	0	0	0
Deviation [%]		-9,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Sample Volume: 0,0180 m <sup>3</sup>		Sample Time: 15 min.							

**Count validation graph of spectrometers at calibration tower:**

Reference  
Test Unit



Date: 02.03.2021

Signature: *[Signature]*  
Grimm Aerosol Technik Pouch GmbH  
OT Friedersdorf  
Vordere Aue 4  
06774 Muldestausee  
Tel.: 03493 51407-0 Fax: 03493 51407-50

## WARRANTY POLICY

Dorfstraße 9 \* D-83404 Ainring contact@grimm-aerosol.com Tel.: +49 8654 / 578 - 0; Fax: +49 8654 / 578 - 35

Model: 180

Serial Number: 18A20148

GRIMM Aerosol Technik, hereinafter referred to as GRIMM, warrants the equipment purchased hereunder to be free from defect in materials and workmanship under normal use and service, when used for the purpose for which it is designed, for a period of (1) one year from the date of shipment. GRIMM further warrants that the equipment performs in accordance with the technical specifications which accompanied the formal equipment offer.

GRIMM will repair or replace any such defective items that may fail within the stated warranty period, PROVIDED:

That any claim of defect under this warranty is made within thirty (30) days after discovery thereof and that inspection by GRIMM, if required, indicates the validity of such claim to GRIMM's faction; and

- That the defect is not the result of damage incurred in shipment to or from our factory; and
- That the equipment has not been altered in any way whether as to design or use, whether by replacement parts not supplied or approved by GRIMM, or otherwise; and
- That any equipment or accessories furnished but not manufactured by GRIMM, or not of GRIMM design, shall be subject only to such adjustments as GRIMM may obtain from the supplier thereof.

GRIMM's obligation on under this warranty is limited to the repair or replacement of defective parts with the exception noted above. If the equipment includes a scattering chamber, GRIMM's warranty does not extend to contamination on of the scattering chamber by foreign material.

At GRIMM's option, any defective equipment that fails within the warranty period shall be returned to Grimm's factory for inspection, properly packed with shipping charges prepaid. No equipment shall be returned to GRIMM without prior issuance of a return authorization on by GRIMM.

No warranties, express or implied, other than those specifically set forth herein shall be applicable to any equipment manufactured or furnished by GRIMM and the foregoing warranty shall constitute the Buyer's sole right and remedy. In no event does GRIMM assume any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of GRIMM products, or any inability to use them either separately or in combination on with other equipment or materials or from any other cause.

Location: GAT Pouch

Responsible: B. Rath

Grimm Aerosol Technik Pouch GmbH

OT Friedersdorf

Vordere Aue 4

06774 Muldestausee

Tel.: 03493 51407-0 Fax: 03493 51407-50

Date: 02.03.2021

**Calibration Certificate - QC Inspection Report**

Model	180	Serial Number	18A20148	Firmware Version	7.80
Power Supply	230V / 60Hz			Revision	P
<b>Settings:</b>	P-weight / P-volume	n.a.	Fast Mode	off	
	Type of Date	EU			
	Channels	PM-10; PM-2.5			
Customer	Green Group PE SAC		Order-Number	2462002497	

**Mechanical Instrument End Check**

<b>Spectrometer</b>	QC: <u>B. Rall</u>	Date: 10.02.2021
<b>Housing</b>	QC: <u>B. Rall</u>	Date: 02.03.2021

**Electrical Instrument End Check**

DC/V	71,5 mV	Vacuum	-60 kPa	passed
DC_d	135,2 mV	Pneumatic tightness		passed
DC_h	163,5 mV	0-Check		passed
DC-Difference	28,3 mV	PCMCIA-Card function		passed
C0_d	0	Analog inputs		passed
C0_h	0	Battery function		n.a.
Laser Current low	51 mA	Keyboard function		passed
Laser Current high	93 mA	Software test		n.a.
Pump Current	48,2 %	RS-232-Interface function		passed
Air flow	1,20 l/min	RJ45-Interface function		n.a.

<b>End Check completed</b>	QC: <u>B. Rall</u>	Date: 02.03.2021
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**Calibration Approval**

Calibration at Calibration Tower	QC: <u>F. [Signature]</u>	Date: 01.12.2020
Check Spectrometer at Ambient Air	QC: <u>F. [Signature]</u>	Date: 02.12.2020
Check complete System at Ambient Air	QC: <u>F. [Signature]</u>	Date: 24.02.2021

**Final packing and shipping**

All the above described test have been successfully finished and the system is completed

Date: 02.03.2021	Signature: <u>B. Rall</u>
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# KALIBRIER ZERTIFIKAT CALIBRATION CERTIFICATE / CERTIFICAT DE CALIBRATION



Abnahmeprüfzeugnis nach DIN EN 10204 – 3.1  
Inspection certificate acc. DIN EN 10204 – 3.1  
Certificat de réception selon DIN EN 10204 – 3.1



Zertifikat Nr. / Certificate No / Certificat N°.: N78073940

Type / Model / Modèle: EE08-PFT2V11D6HC01/T02

Gegenstand / Object / Objet: humidity/temperature transmitter EE08

Serien Nummer / Serial Number / Numéro de série: 20470500036742

Hiermit bestätigen wir, dass die angeführten E+E Erzeugnisse unter Verwendung einwandfreier Werkstoffe nach dem Stand der Technik gefertigt wurden. Produktion, Kalibrierung und Qualitätsprüfung werden im Rahmen der E+E Qualitätssicherungsmaßnahmen überwacht. Die Erzeugnisse werden gegen Werkstandards kalibriert, welche auf internationale Standardeinheiten, verwaltet von den nationalen metrologischen Instituten wie NIST, PTB, NPL, BEV oder anderen anerkannten nationalen Standard Labors, rückführbar sind. Bei Entwicklungsmustern und Reparaturteilen bezieht sich die Bescheinigung ausschließlich auf das Prüfergebnis.

We herewith certify that above listed E+E products are manufactured in compliance with the latest technical standards. All used materials and components have passed the quality assurance system. Manufacturing, calibration and quality testing are performed according to the E+E Quality Assurance System.

The products are calibrated against factory standards traceable to international standard units administered by the national metrology institutes like NIST, PTB, NBL, BEV or other recognized national standard laboratories.

For engineering samples and repair parts extent of certification is restricted to test results only.

Nous certifions par la présente que les produits E+E ci-dessus mentionnés sont fabriqués selon les règles de l'art avec l'utilisation de matériaux de qualité. La fabrication, la calibration et le contrôle qualité des produits E+E sont exécutées conformément au système d'assurance qualité de E+E.

Les produits sont étalonnés par rapport à des étalons de travail dont la traçabilité est rattachée aux étalons internationaux, administrés par les instituts de métrologie tel que le NIST, PTB, NBL, BEV, COFRAC ou d'autres laboratoires de référence reconnus. Pour les échantillons ou prototypes et les pièces de réparation, la validité du certificat est restreinte aux seuls résultats de tests.

## Rückführbare Standards / Traceable Standards / Etalons raccordés

Temperatur Referenz / Temperature reference / Température de référence	MKT 50, Paar
Feuchte Referenz / Humidity reference / Humidité de référence	373 HX, MBW
Messunsicherheiten / Uncertainty of Measurement / Incertitude de mesure	0,5% rH, 0,1°C

## Prüfergebnis / Test result / Résultat de mesure

	50 %RH	76 %RH	23 °C
Referenzwert / Reference value / Valeur de référence	49,990	75,920	22,840
Messwert / Calibrated value / Valeur mesurée	50,650	76,610	22,840
Abweichung / Error / Ecart	0,660	0,690	0,000

Die angeführten Daten sind gültig, unter den angegebenen Bedingungen, zum Zeitpunkt der Messung und nehmen Bezug auf die angegebenen Standards und verwendeten Messeinrichtungen.

The calibrated values are valid under above conditions only at the time of measurement and are referenced to marked reference and working standards.

Les valeurs de calibration sont valides selon les conditions spécifiées ci-dessus au moment de la mesure et font référence aux spécifications et aux systèmes de mesure utilisés.

Ort, Datum / Place, Date / Lieu, date

Techniker / Technician / Technicien

Geprüft / Supervised / Vérification

Engerwitzdorf 10.12.2020

**Calibration Certificate**

Model	180	Serial Number	18A20129	Firmware Version	7.80
Spectrometer	187	Serial Number	8HG20129	Revision	P
Channels	PM-10; PM-2.5				

**Calibration Method:**

The reference unit is calibrated with NIST certified PSL particles and the calibration is verified every year. This is a worldwide accepted standard method referring to PTB Braunschweig and we therefore guarantee the traceability of our calibration. The absolute size calibration of the reference unit is transferred to the candidate unit with a calibration procedure using polydisperse dolomite particles.

**Instruments used for Calibration:**

- Reference instrument class 3	Model	107GF
- Oscilloscope Hameg HM507	Serial Number	60210471
- Flow meter Defender 520-M	Serial Number	119944
- Calibration tower model		7851

**Calibration Material:**

- Reference unit: NIST certified monodisperse PSL particles with different diameters
- Candidate unit: Micro Dolomit DR90 polydisperse powder (0,10µm - 180µm)

**Tolerance Ranges:**

- Sample Flow Rate:	1,2 l/min ± 5%
- Count Correlation:	± 3% at 1µm
- Count Calibration:	± 3% ≥ 500P/l
- Relative Mass Deviation:	± 3% or ± 2 µg/m³

**Mass values of spectrometers at calibration tower:**

Mean Value	Reference 7H100021	Test Unit	Deviation
PM-10	247,8 µg/m³	249,1 µg/m³	1,3 µg/m³ = 0,5%
PM-2.5	122,8 µg/m³	122,6 µg/m³	-0,2 µg/m³ = -0,2%
PM-1.0	45,0 µg/m³	44,4 µg/m³	-0,6 µg/m³ = -1,3%
<b>Sample Volume: 0,0180 m³ / Sample Time: 15 min.</b>			

**Mass values of complete systems at ambient air:**

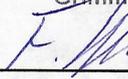
Mean Value	Reference 87G09058	Test Unit	Deviation
PM-10	12,4 µg/m³	12,5 µg/m³	0,1 µg/m³ = 0,8%
PM-2.5	11,4 µg/m³	11,5 µg/m³	0,1 µg/m³ = 0,9%
PM-1.0	10,4 µg/m³	10,5 µg/m³	0,1 µg/m³ = 1,0%
<b>Sample Volume: 4,8464 m³ / Sample Time: 4039 min.</b>			

We hereby confirm that this instrument has been successfully calibrated and passed the mass test. All work has been done by qualified and trained staff of GRIMM Aerosol Technik.

**This calibration is valid until 31 March 2022**

Date: 16.02.2021

Signature:

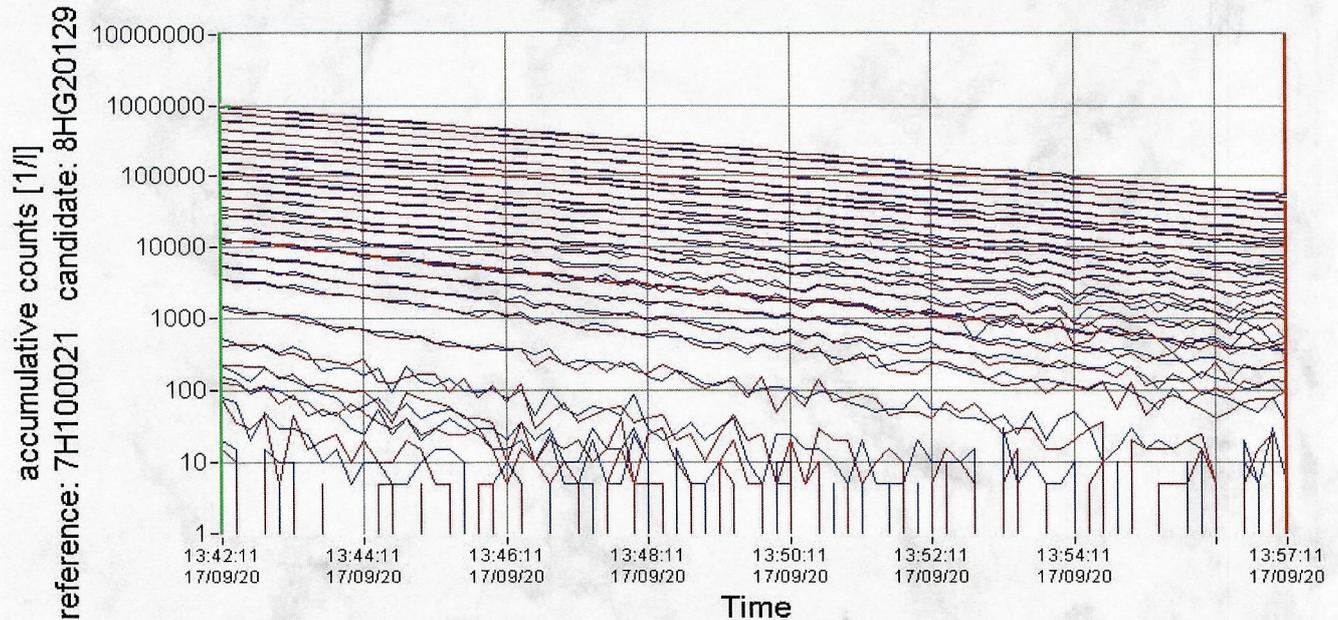
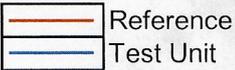
Grimm Aerosol Technik Pouch GmbH  
  
 OT Friedersdorf  
 Vordere Aue 4  
 06774 Muldestausee  
 Tel.: 03493 51407-0 Fax: 03493 51407-50

**Calibration Certificate**

**Count values of spectrometers at calibration tower:**

Channels		0	1	2	3	4	5	6	7
Diameter [µm]		> 0,25	> 0,28	> 0,30	> 0,35	> 0,40	> 0,45	> 0,50	> 0,58
Concentration [p/l]	Reference	327954	268050	208424	152366	108977	83245	69300	48657
	Test unit	323956	267222	208392	152625	109363	83725	69091	48108
Deviation [%]		-1,2	-0,3	0,0	0,2	0,4	0,6	-0,3	-1,1
Channels		8	9	A	B	C	D	E	F
Diameter [µm]		> 0,65	> 0,70	> 0,80	> 1,00	> 1,30	> 1,60	> 2,00	> 2,50
Concentration [p/l]	Reference	35488	28926	20747	14909	10256	7927	5176	3327
	Test unit	35318	29015	20592	14817	10269	7997	5178	3381
Deviation [%]		-0,5	0,3	-0,7	-0,6	0,1	0,9	0,0	1,6
Channels		G	H	I	J	K	L	M	N
Diameter [µm]		> 2,50	> 3,00	> 3,50	> 4,00	> 5,00	> 6,50	> 7,50	> 8,50
Concentration [p/l]	Reference	3452	2067	1283	800	270	77	34	17
	Test unit	3461	2079	1308	819	283	78	29	18
Deviation [%]		0,3	0,6	1,9	2,4	4,8	1,3	-14,7	5,9
Channels		O	P	Q	R	S	T	U	V
Diameter [µm]		> 10,00	> 12,50	> 15,00	> 17,50	> 20,00	> 25,00	> 30,00	> 32,00
Concentration [p/l]	Reference	6	1	0	0	0	0	0	0
	Test unit	6	1	0	0	0	0	0	0
Deviation [%]		0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Sample Volume: 0,0180 m³ /		Sample Time: 15 min.							

**Count validation graph of spectrometers at calibration tower:**



Date: 16.02.2021

Signature: *F. K.*  
 Grimm Aerosol Technik Pouch GmbH  
 OT Friedersdorf  
 Vordere Aue 4

06774 Muldestausee  
 Tel.: 03493 51407-0 Fax: 03493 51407-50

## WARRANTY POLICY

Dorfstraße 9 \* D-83404 Ainring contact@grimm-aerosol.com Tel.: +49 8654 / 578 - 0; Fax: +49 8654 / 578 – 35

Model: 180

Serial Number: 18A20129

GRIMM Aerosol Technik, hereinafter referred to as GRIMM, warrants the equipment purchased hereunder to be free from defect in materials and workmanship under normal use and service, when used for the purpose for which it is designed, for a period of (1) one year from the date of shipment. GRIMM further warrants that the equipment performs in accordance with the technical specifications which accompanied the formal equipment offer.

GRIMM will repair or replace any such defective items that may fail within the stated warranty period, PROVIDED:

That any claim of defect under this warranty is made within thirty (30) days after discovery thereof and that inspection by GRIMM, if required, indicates the validity of such claim to GRIMM's faction; and

- That the defect is not the result of damage incurred in shipment to or from our factory; and
- That the equipment has not been altered in any way whether as to design or use, whether by replacement parts not supplied or approved by GRIMM, or otherwise; and
- That any equipment or accessories furnished but not manufactured by GRIMM, or not of GRIMM design, shall be subject only to such adjustments as GRIMM may obtain from the supplier thereof.

GRIMM's obligation on under this warranty is limited to the repair or replacement of defective parts with the exception noted above. If the equipment includes a scattering chamber, GRIMM's warranty does not extend to contamination on of the scattering chamber by foreign material.

At GRIMM's option, any defective equipment that fails within the warranty period shall be returned to Grimm's factory for inspection, properly packed with shipping charges prepaid. No equipment shall be returned to GRIMM without prior issuance of a return authorization on by GRIMM.

No warranties, express or implied, other than those specifically set forth herein shall be applicable to any equipment manufactured or furnished by GRIMM and the foregoing warranty shall constitute the Buyer's sole right and remedy. In no event does GRIMM assume any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of GRIMM products, or any inability to use them either separately or in combination on with other equipment or materials or from any other cause.

Location: GAT Pouch

Responsible:

Grimm Aerosol Technik Pouch GmbH

 OT Friedersdorf  
Vordere Aue 4

Date: 16.02.2021

06774 Muldestausee

Tel.: 03493 51407-0 Fax: 03493 51407-35

**Calibration Certificate - QC Inspection Report**

Model	180	Serial Number	18A20129	Firmware Version	7.80
Power Supply	230V / 60Hz		Revision	P	
<b>Settings:</b>	P-weight / P-volume	n.a.	Fast Mode	off	
	Type of Date	EU			
	Channels	PM-10; PM-2.5			
Customer	Green Group PE SAC		Order-Number	2462002497	

**Mechanical Instrument End Check**

<b>Spectrometer</b>	QC: <u>B. Ball</u>	Date: 16.11.2020
<b>Housing</b>	QC: <u>B. Ball</u>	Date: 15.02.2021

**Electrical Instrument End Check**

DC/V	104,5 mV	Vacuum	-64 kPa	passed
DC_d	169,9 mV	Pneumatic tightness		passed
DC_h	181,5 mV	0-Check		passed
DC-Difference	11,6 mV	PCMCIA-Card function		passed
C0_d	0	Analog inputs		passed
C0_h	0	Battery function		n.a.
Laser Current low	50 mA	Keyboard function		passed
Laser Current high	89 mA	Software test		n.a.
Pump Current	53,2 %	RS-232-Interface function		passed
Air flow	1,19 l/min	RJ45-Interface function		n.a.

**End Check completed** QC: B. Ball Date: 15.02.2021

**Calibration Approval**

Calibration at Calibration Tower	QC: <u>F. [Signature]</u>	Date: 17.09.2020
Check Spectrometer at Ambient Air	QC: <u>F. [Signature]</u>	Date: 17.09.2020
Check complete System at Ambient Air	QC: <u>F. [Signature]</u>	Date: 23.11.2020

**Final packing and shipping**

All the above described test have been successfully finished and the system is completed

Date: 16.02.2021

Signature: B. Ball

Grimm Aerosol Technik Pouch GmbH  
OT Friedersdorf  
Vordere Aue 4  
06774 Muldestausee  
Tel.: 03493 51407-0 Fax: 03493 51407-1



## RAPPORTO DI TARATURA N.210309375 REPORT OF CALIBRATION

SVICA2203

**Data: 18/03/2021**  
Date

**Oggetto: ANEMOMETRO SONICO**  
Referring to

**Destinatario: LSI LASTEM S.R.L.**  
Addressee

**Costruttore: Delta Ohm**  
Manufacturer

**Modello: DNB105.2**  
Model

**Matricola: 21005918+21020357**  
Serial nr.

I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR006, la cui catena di riferibilità ha inizio dal campione primario interno:

*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR006; traceability is assured by internal primary reference:*

Matr/Serial nr.S0018 Cl.A Certificato/Certificate ARO (ACCREDIA n. 046)

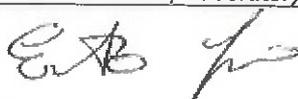
Matr/Serial nr.S0129 Cl.A Certificato/Certificate Cetiat

Incertezza estesa della misura/*expanded measurement uncertainty* Velocità/*Speed* (m/s):  $\pm 0,25$  m/s o 3% VL (0÷ 25 m/s) e 2% VL (>25m/s)

Condizioni ambientali durante la prova/*Ambient conditions during test.*

Temperatura dell'aria/*Air Temperature* (°C): 20.2 Pressione/*Pressure* (mB): 1003

Velocità di riferimento <i>Reference speed</i> (m/s)	Valore di uscita <i>Value of output</i> (m/s)	Differenza <i>Difference</i> (m/s)
2.00	1.95	-0.05
30.20	29.79	-0.41

Eseguito da / <i>Performed by</i>		Il Responsabile del Laboratorio Fisico / <i>Laboratory Technical Manager</i>	
Ernesto Consiglio		Ernesto Consiglio	

Copia del seguente documento verrà conservata per 5 anni a partire dalla data di emissione.  
*A copy of this certificate will be available in our files in the next 5 years.*

**LSI LASTEM S.r.l.**

Via Dosso 9, 20090 Settala Premenugo (Milano) Italia Tel: +39 02 954141 Fax: +39 02 95770594 e.mail: info@lsi-lastem.it Web: www.lsi-lastem.com



## RAPPORTO DI TARATURA N.210309383 REPORT OF CALIBRATION

SVICA2304

**Data: 18/03/2021**  
Date

**Oggetto: DIREZIONE VENTO**  
Referring to

**Destinatario: LSI LASTEM S.R.L.**  
Addressee

**Costruttore: Delta Ohm**  
Manufacturer

**Modello: DNB105.2**  
Model

**Matricola: 21005918+21020357**  
Serial nr.

I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR006, la cui catena di riferibilità ha inizio dal campione primario interno:

*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR006; traceability is assured by internal primary reference:*

Matr/Serial nr.S0018 Cl.A Certificato/Certificate ARO (ACCREDIA n. 046)

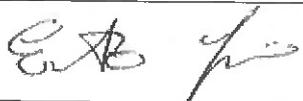
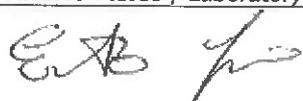
Matr/Serial nr.S0129 Cl.A Certificato/Certificate Cetiat

Incertezza estesa della misura/*expanded measurement uncertainty* Angolo/Degree (°): 3.6 °

Condizioni ambientali durante la prova/*Ambient conditions during test.*

Temperatura dell'aria/*Air Temperature* (°C): 20.2 Pressione/*Pressure* (mB): 1003

Angolo di riferimento <i>Reference degree</i> (°)	Angolo letto <i>Read degree</i> (°)	Differenza <i>Difference</i> (°)
0.0	-0.4	-0.4
90.0	89.6	-0.4
180.0	179.5	-0.5
270.0	269.4	-0.6

Eseguito da / <i>Performed by</i>		Il Responsabile del Laboratorio Fisico / <i>Laboratory Technical Manager</i>	
Ernesto Consiglio		Ernesto Consiglio	

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**LSI LASTEM S.r.l.**

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## RAPPORTO DI TARATURA N.210209288 REPORT OF CALIBRATION

SVICA3101

**Data: 24/02/2021**  
Date

**Oggetto: PLUVIOMETRO**  
Referring to

**Destinatario: LSI LASTEM S.R.L.**  
Addressee

**Costruttore: LSI LASTEM S.r.l.**  
Manufacturer

**Modello: DQA231.1**  
Model

**Matricola: 21020276**  
Serial nr.

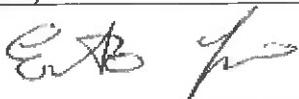
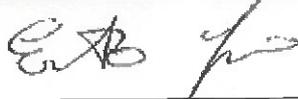
I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR082, la cui catena di riferibilità ha inizio dal campione primario interno:  
*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR082; traceability is assured by internal primary reference:*

Campione di volume/Sample volume 1000 ml (20 °C) a/at 20°C "HBG" DIN A.

Incertezza estesa della misura/*expanded measurement uncertainty* Precipitazione/*Rain* (mm):  $\pm 0.28$  mm

Condizioni ambientali durante la prova/*Ambient conditions during test.*  
Temperatura dell'aria/*Air Temperature* (°C): 21.1 Pressione/*Pressure* (mB): 1021

Precipitazione di riferimento <i>Reference rain</i> (mm)	Valore di uscita <i>Value of output</i> (mm)	Differenza <i>Difference</i> (mm)
15.40	15.40	0.00

Eseguito da / <i>Performed by</i>		Il Responsabile del Laboratorio Fisico / <i>Laboratory Technical Manager</i>	
Ernesto Consiglio		Ernesto Consiglio	

Copia del seguente documento verrà conservata per 5 anni a partire dalla data di emissione.  
*A copy of this certificate will be available in our files in the next 5 years.*

**LSI LASTEM S.r.l.**

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## ATTESTATO DI COLLAUDO TEST REPORT

**Sensore Pluviometrico**  
*Rain Gauge Sensor*

**Modello:** DQA231.1  
*Model*

**Matricola:** 21020276  
*Serial nr.*

**Data:** 22/02/2021  
*Date*

**Procedura di collaudo:** PCR082  
*Test procedure*

### 1. Ispezione visiva / Visual inspection

Part	Descrizione / Description
1.1	Solo per sensori nuovi: assenza di colature e graffi sulle verniciature; uniformità e consistenza delle anodizzazioni <i>Only for new sensors : absence of flows and scratches on Paintings; uniformity and consistency of anodizations</i>
1.2	Integrità e serraggio delle viti <i>Screw fixing and integrity</i>
1.3	Congruenza delle indicazioni della targhetta con il documento guida del codice relativo <i>Compliance between label information and manufacturing documentation</i>

### 2. Verifica funzionale / Operative test

Part	Descrizione / Description
2.1	Verificare il segnale in uscita: <i>Check the output signal</i>  Verifica corretta uscita del reed relay sottoponendo il pluviometro alla caduta di: - 30,8 mmH <sub>2</sub> O per DQA230.1/DQA231.1/ DQA230.3 - 50 mm H <sub>2</sub> O per DQA235 - 10 mm H <sub>2</sub> O per DQA236 <i>Check the electric output subjecting the rain gauge to :</i> - 30,8 mmH <sub>2</sub> O for DQA230.1/DQA231.1/ DQA230.3 - 50 mm H <sub>2</sub> O for DQA235 - 10 mm H <sub>2</sub> O for DQA236
2.2	<b>Solo versioni riscaldate / Only heated versions</b> Verifica funzionamento riscaldamento. <i>Check the heater operation.</i>

Verificato da / Verified by		Il Responsabile del Laboratorio Fisico / Laboratory Technical Manager	
Fabio Bellaviti		Ernesto Consiglio	

Copia del seguente documento verrà conservata per 5 anni a partire dalla data di emissione.  
*A copy of this certificate will be available in our files in the next 5 years.*

**LSI LASTEM S.r.l.**

Via Dosso 9, 20090 Settaia Premenugo (Milano) Italia Tel: +39 02 954141 Fax: +39 02 95770594 e.mail: Info@lsi-lastem.it Web: www.lsi-lastem.com



## RAPPORTO DI TARATURA N.210209254 REPORT OF CALIBRATION

SVICA0003

**Data: 23/02/2021**  
Date

**Oggetto: TERMOMETRO**  
Referring to

**Destinatario: UNEP-DEAM – OEFA PERU'**  
Addressee

**Costruttore: LSI LASTEM S.r.l.**  
Manufacturer

**Modello: DMA975**  
Model

**Matricola: 21020258**  
Serial nr.

I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR015, la cui catena di riferibilità ha inizio dal campione primario interno:

*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR015; traceability is assured by internal primary reference:*

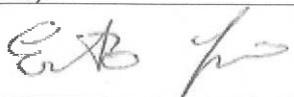
Matr/Serial nr.S0002 Cl.A Certificato/Certificate LSI LASTEM 4792-T-2010

Incertezza estesa della misura/*expanded measurement uncertainty* Temperatura/*Temperature* (°C): 0.2 °C

Condizioni ambientali durante la prova/*Ambient conditions during test.*

Temperatura dell'aria/*Air Temperature* (°C): 20.1 Pressione/*Pressure* (mB): 1019

<b>Temperatura di riferimento</b> <i>Reference temperature</i> (°C)	<b>Valore di uscita</b> <i>Value of output</i> (°C)	<b>Differenza</b> <i>Difference</i> (°C)
5.00	5.01	0.01
20.00	20.01	0.01
40.00	40.02	0.02

<b>Eseguito da / Performed by</b>		<b>Il Responsabile del Laboratorio Fisico / Laboratory Technical Manager</b>	
Ernesto Consiglio		Ernesto Consiglio	

Copia del seguente documento verrà conservata per 5 anni a partire dalla data di emissione.  
*A copy of this certificate will be available in our files in the next 5 years.*

**LSI LASTEM S.r.l.**

Via Dosso 9, 20090 Settala Premenugo (Milano) Italia Tel: +39 02 954141 Fax: +39 02 95770594 e.mail: info@lsi-lastem.it Web: www.lsi-lastem.com

Pag. 1/1



## RAPPORTO DI TARATURA N.210209269 REPORT OF CALIBRATION

SVICA1003

**Data: 23/02/2021**  
Date

**Oggetto: UMIDITA'**  
Referring to

**Destinatario: UNEP-DEAM – OEFA PERU'**  
Addressee

**Costruttore: LSI LASTEM S.r.l.**  
Manufacturer

**Modello: DMA975**  
Model

**Matricola: 21020258**  
Serial nr.

I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR015, la cui catena di riferibilità ha inizio dal campione primario interno:

*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR015; traceability is assured by internal primary reference:*

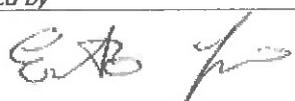
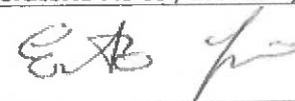
Matr/Serial nr.S0042 Cl.A Certificato/Certificate Delta Ohm LAT n. 124

Incertezza estesa della misura/*expanded measurement uncertainty* Umidità/*Humidity* (%): 2.0 % RV

Condizioni ambientali durante la prova/*Ambient conditions during test.*

Temperatura dell'aria/*Air Temperature* (°C): 20.1 Pressione/*Pressure* (mB): 1019

Umidità di riferimento <i>Reference Humidity</i> (UR%)	Valore di uscita <i>Value of output</i> (UR%)	Differenza <i>Difference</i> (UR%)
13.70	13.80	0.10
51.00	50.60	-0.40
70.10	69.90	-0.20

Eseguito da / <i>Performed by</i>		Il Responsabile del Laboratorio Fisico / <i>Laboratory Technical Manager</i>	
Ernesto Consiglio		Ernesto Consiglio	

Copia del seguente documento verrà conservata per 5 anni a partire dalla data di emissione.  
*A copy of this certificate will be available in our files in the next 5 years.*

**LSI LASTEM S.r.l.**

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## ATTESTATO DI COLLAUDO TEST REPORT

**Sensore Termoigrometrico**  
*Thermohygrometric sensor*

**Modello:** DMA975  
*Model*

**Matricola:** 21020258  
*Serial nr.*

**Data:** 24/02/2021  
*Date*

**Procedura di collaudo:** PCP088  
*Test procedure*

### 1. Ispezione visiva / Visual inspection

Part	Descrizione / Description
1.1	Solo per sensori nuovi: assenza di colature e graffi sulle verniciature; uniformità e consistenza delle anodizzazioni <i>Only for new sensors : absence of flows and scratches on Paintings; uniformity and consistency of anodizations</i>
1.2	Integrità e serraggio delle viti <i>Screw fixing and integrity</i>
1.3	Congruenza delle indicazioni della targhetta con il documento guida del codice relativo <i>Compliance between label information and manufacturing documentation</i>

### 2. Verifica funzionale / Operative test

Part	Descrizione / Description
2.1	Verificare il segnale in uscita: <i>Check the output signal</i>  Segnale in uscita della temperatura entro $\pm 0,3^{\circ}\text{C}$ rispetto a strumento primario <i>Temperature signal output within <math>\pm 0,3^{\circ}\text{C}</math> reading from the primary sensor</i>
2.2	Verificare il segnale in uscita: <i>Check the output signal</i>  Segnale in uscita di umidità entro $\pm 3\%$ rispetto a strumento primario <i>Humidity signal output within <math>\pm 3\%</math> reading from the primary sensor</i>
2.3	Verificare il segnale in uscita se presente: <i>Check the output signal if present</i>  Segnale in uscita della Pressione entro $\pm 0,5\text{hPa}$ rispetto a strumento primario se presente <i>Pressure signal output within <math>\pm 0,5\text{hPa}</math> reading from the primary equipment if present</i>
2.4	Verificare funzionamento radio interna se presente <i>Check of the radio functioning if present</i>

Verificato da / Verified by		Il Responsabile del Laboratorio Fisico / Laboratory Technical Manager	
Fabio Bellaviti		Ernesto Consiglio	

Copia del seguente documento verrà conservata per 5 anni a partire dalla data di emissione.  
*A copy of this certificate will be available in our files in the next 5 years.*

**LSI LASTEM S.r.l.**

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## RAPPORTO DI TARATURA N.210409495 REPORT OF CALIBRATION

SVICA5001

**Data:** 13/04/2021  
Date

**Oggetto:** BAROMETRO NESA  
Referring to

**Destinatario:** LSI LASTEM S.R.L.  
Addressee

**Costruttore:** LSI LASTEM S.r.l.  
Manufacturer

**Modello:** DQA251  
Model

**Matricola:** 21040129+3000842  
Serial nr.

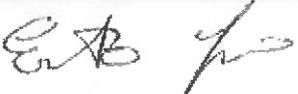
I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR21021710, la cui catena di riferibilità ha inizio dal campione primario interno:  
*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR21021710; traceability is assured by internal primary reference:*

Matr/Serial nr.S0007 Cl.A Certificato/Certificate Emit LAS (ACCREDIA 024)

Incertezza estesa della misura/*expanded measurement uncertainty* Pressione/*Pressure* (mB):  $\pm 0.15$  hPa

Condizioni ambientali durante la prova/*Ambient conditions during test.*  
Temperatura dell'aria/*Air Temperature* (°C): 21 Pressione/*Pressure* (mB): 1001.26

Pressione di riferimento <i>Reference pressure</i> (mB)	Valore di uscita <i>Value of output</i> (mB)	Differenza <i>Difference</i> (mB)
1001.26	1001.21	-0.05

Eseguito da / <i>Performed by</i>		Il Responsabile del Laboratorio Fisico / <i>Laboratory Technical Manager</i>	
Ernesto Consiglio		Ernesto Consiglio	

Copia del seguente documento verrà conservata per 5 anni a partire dalla data di emissione.  
*A copy of this certificate will be available in our files in the next 5 years.*

**LSI LASTEM S.r.l.**

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## RAPPORTO DI TARATURA N.210309391 REPORT OF CALIBRATION

SVICA2304

**Data: 19/03/2021**  
Date

**Oggetto: DIREZIONE VENTO**  
Referring to

**Destinatario: LSI LASTEM S.R.L.**  
Addressee

**Costruttore: Delta Ohm**  
Manufacturer

**Modello: DNB105.2**  
Model

**Matricola: 21005928+21020368**  
Serial nr.

I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR006, la cui catena di riferibilità ha inizio dal campione primario interno:

*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR006; traceability is assured by internal primary reference:*

Matr/Serial nr.S0018 Cl.A Certificato/Certificate ARO (ACCREDIA n. 046)

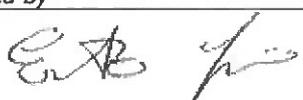
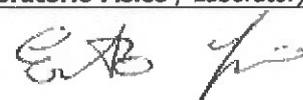
Matr/Serial nr.S0129 Cl.A Certificato/Certificate Cetiat

Incertezza estesa della misura/*expanded measurement uncertainty* Angolo/*Degree* (°): 3.6 °

Condizioni ambientali durante la prova/*Ambient conditions during test.*

Temperatura dell'aria/*Air Temperature* (°C): 19.8 Pressione/*Pressure* (mB): 1001

Angolo di riferimento <i>Reference degree</i> (°)	Angolo letto <i>Read degree</i> (°)	Differenza <i>Difference</i> (°)
0.0	0.8	0.8
90.0	90.3	0.3
180.0	180.6	0.6
270.0	270.4	0.4

Eseguito da / <i>Performed by</i>		Il Responsabile del Laboratorio Fisico / <i>Laboratory Technical Manager</i>	
Ernesto Consiglio		Ernesto Consiglio	

Copia del seguente documento verrà conservata per 5 anni a partire dalla data di emissione.  
*A copy of this certificate will be available in our files in the next 5 years.*

**LSI LASTEM S.r.l.**

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Pag. 1/1



## RAPPORTO DI TARATURA N.210309371 REPORT OF CALIBRATION

SVICA2203

**Data: 18/03/2021**

Date

**Oggetto: ANEMOMETRO SONICO**

Referring to

**Destinatario: LSI LASTEM S.R.L.**

Addressee

**Costruttore: Delta Ohm**

Manufacturer

**Modello: DNB105.2**

Model

**Matricola: 21005928+21020368**

Serial nr.

I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR006, la cui catena di riferibilità ha inizio dal campione primario interno:

*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR006; traceability is assured by internal primary reference:*

Matr/Serial nr.S0018 Cl.A Certificato/Certificate ARO (ACCREDIA n. 046)

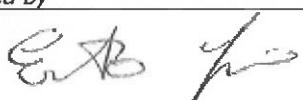
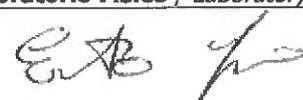
Matr/Serial nr.S0129 Cl.A Certificato/Certificate Cetiat

Incertezza estesa della misura/*expanded measurement uncertainty* Velocità/Speed (m/s):  $\pm 0,25$  m/s o 3% VL (0÷ 25 m/s) e 2% VL (>25m/s)

Condizioni ambientali durante la prova/*Ambient conditions during test.*

Temperatura dell'aria/*Air Temperature* (°C): 20.2 Pressione/*Pressure* (mB): 1003

<b>Velocità di riferimento</b> <i>Reference speed</i> (m/s)	<b>Valore di uscita</b> <i>Value of output</i> (m/s)	<b>Differenza</b> <i>Difference</i> (m/s)
2.00	2.07	0.07
30.20	30.14	-0.06

<b>Eseguito da / Performed by</b>		<b>Il Responsabile del Laboratorio Fisico / Laboratory Technical Manager</b>	
Ernesto Consiglio		Ernesto Consiglio	

Copia del seguente documento verrà conservata per 5 anni a partire dalla data di emissione.  
*A copy of this certificate will be available in our files in the next 5 years.*

**LSI LASTEM S.r.l.**

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Pag. 1/1



## RAPPORTO DI TARATURA N.210309405 REPORT OF CALIBRATION

SVICA3101

**Data: 19/03/2021**  
Date

**Oggetto: PLUVIOMETRO**  
Referring to

**Destinatario: LSI LASTEM S.R.L.**  
Addressee

**Costruttore: LSI LASTEM S.r.l.**  
Manufacturer

**Modello: DQA231.1**  
Model

**Matricola: 21030125**  
Serial nr.

I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR082, la cui catena di riferibilità ha inizio dal campione primario interno:

*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR082; traceability is assured by internal primary reference:*

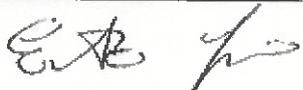
Campione di volume/Sample volume 1000 ml (20 °C) a/at 20°C "HBG" DIN A.

Incertezza estesa della misura/*expanded measurement uncertainty* Precipitazione/*Rain* (mm):  $\pm 0.28$  mm

Condizioni ambientali durante la prova/*Ambient conditions during test.*

Temperatura dell'aria/*Air Temperature* (°C): 20.1 Pressione/*Pressure* (mB): 1001

<b>Precipitazione di riferimento</b> <i>Reference rain</i> (mm)	<b>Valore di uscita</b> <i>Value of output</i> (mm)	<b>Differenza</b> <i>Difference</i> (mm)
15.40	15.40	0.00

<b>Eseguito da / Performed by</b>		<b>Il Responsabile del Laboratorio Fisico / Laboratory Technical Manager</b>	
Ernesto Consiglio		Ernesto Consiglio	

Copia del seguente documento verrà conservata per 5 anni a partire dalla data di emissione.  
*A copy of this certificate will be available in our files in the next 5 years.*

**LSI LASTEM S.r.l.**

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## ATTESTATO DI COLLAUDO TEST REPORT

**Sensore Pluviometrico**  
*Rain Gauge Sensor*

**Modello:** DQA231.1  
*Model*

**Matricola:** 21030125  
*Serial nr.*

**Data:** 11/03/2021  
*Date*

**Procedura di collaudo:** PCR082  
*Test procedure*

### 1. Ispezione visiva / Visual inspection

Part	Descrizione / Description
1.1	Solo per sensori nuovi: assenza di colature e graffi sulle verniciature; uniformità e consistenza delle anodizzazioni <i>Only for new sensors : absence of flows and scratches on Paintings; uniformity and consistency of anodizations</i>
1.2	Integrità e serraggio delle viti <i>Screw fixing and integrity</i>
1.3	Congruenza delle indicazioni della targhetta con il documento guida del codice relativo <i>Compliance between label information and manufacturing documentation</i>

### 2. Verifica funzionale / Operative test

Part	Descrizione / Description
2.1	Verificare il segnale in uscita: <i>Check the output signal</i>  Verifica corretta uscita del reed relay sottoponendo il pluviometro alla caduta di: - 30,8 mmH <sub>2</sub> O per DQA230.1/DQA231.1/ DQA230.3 - 50 mm H <sub>2</sub> O per DQA235 - 10 mm H <sub>2</sub> O per DQA236 <i>Check the electric output subjecting the rain gauge to :</i> - 30,8 mmH <sub>2</sub> O for DQA230.1/DQA231.1/ DQA230.3 - 50 mm H <sub>2</sub> O for DQA235 - 10 mm H <sub>2</sub> O for DQA236
2.2	<b>Solo versioni riscaldate / Only heated versions</b> Verifica funzionamento riscaldamento. <i>Check the heater operation.</i>

Verificato da / Verified by		Il Responsabile del Laboratorio Fisico / Laboratory Technical Manager	
Fabio Bellaviti		Ernesto Consiglio	

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## RAPPORTO DI TARATURA N.210209257 REPORT OF CALIBRATION

SVICA0003

**Data: 23/02/2021**  
Date

**Oggetto: TERMOMETRO**  
Referring to

**Destinatario: UNEP-DEAM – OEFA PERU'**  
Addressee

**Costruttore: LSI LASTEM S.r.l.**  
Manufacturer

**Modello: DMA975**  
Model

**Matricola: 21020261**  
Serial nr.

I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR015, la cui catena di riferibilità ha inizio dal campione primario interno:

*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR015; traceability is assured by internal primary reference:*

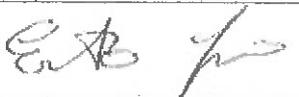
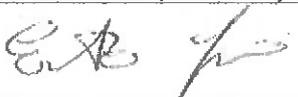
Matr/Serial nr.S0002 C.I.A. Certificato/Certificate LSI LASTEM 4792-T-2010

Incertezza estesa della misura/*expanded measurement uncertainty* Temperatura/*Temperature* (°C): 0.2 °C

Condizioni ambientali durante la prova/*Ambient conditions during test.*

Temperatura dell'aria/*Air Temperature* (°C): 20.1 Pressione/*Pressure* (mB): 1019

Temperatura di riferimento <i>Reference temperature</i> (°C)	Valore di uscita <i>Value of output</i> (°C)	Differenza <i>Difference</i> (°C)
5.00	5.13	0.13
20.00	20.14	0.14
40.00	40.13	0.13

Eseguito da / <i>Performed by</i>		Il Responsabile del Laboratorio Fisico / <i>Laboratory Technical Manager</i>	
Ernesto Consiglio		Ernesto Consiglio	

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**LSI LASTEM S.r.l.**

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Pag. 1/1



## RAPPORTO DI TARATURA N.210209266 REPORT OF CALIBRATION

SVICA1003

**Data: 23/02/2021**  
Date

**Oggetto: UMIDITA'**  
Referring to

**Destinatario: UNEP-DEAM – OEFA PERU'**  
Addressee

**Costruttore: LSI LASTEM S.r.l.**  
Manufacturer

**Modello: DMA975**  
Model

**Matricola: 21020261**  
Serial nr.

I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR015, la cui catena di riferibilità ha inizio dal campione primario interno:

*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR015; traceability is assured by internal primary reference:*

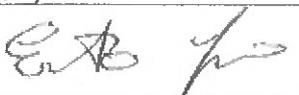
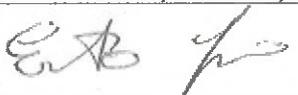
Matr/Serial nr.S0042 Cl.A Certificato/Certificate Delta Ohm LAT n. 124

Incertezza estesa della misura/*expanded measurement uncertainty* Umidità/*Humidity* (%): 2.0 % RV

Condizioni ambientali durante la prova/*Ambient conditions during test.*

Temperatura dell'aria/*Air Temperature* (°C): 20.1 Pressione/*Pressure* (mB): 1019

Umidità di riferimento <i>Reference Humidity</i> (UR%)	Valore di uscita <i>Value of output</i> (UR%)	Differenza <i>Difference</i> (UR%)
13.70	15.10	1.40
51.00	52.10	1.10
70.10	70.90	0.80

Eseguito da / <i>Performed by</i>		Il Responsabile del Laboratorio Fisico / <i>Laboratory Technical Manager</i>	
Ernesto Consiglio		Ernesto Consiglio	

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## ATTESTATO DI COLLAUDO TEST REPORT

**Sensore Termoigrometrico**  
*Thermohygrometric sensor*

**Modello:** DMA975  
*Model*

**Matricola:** 21020261  
*Serial nr.*

**Data:** 24/02/2021  
*Date*

**Procedura di collaudo:** PCP088  
*Test procedure*

### 1. Ispezione visiva / Visual inspection

Part	Descrizione / Description
1.1	Solo per sensori nuovi: assenza di colature e graffi sulle verniciature; uniformità e consistenza delle anodizzazioni <i>Only for new sensors : absence of flows and scratches on Paintings; uniformity and consistency of anodizations</i>
1.2	Integrità e serraggio delle viti <i>Screw fixing and integrity</i>
1.3	Congruenza delle indicazioni della targhetta con il documento guida del codice relativo <i>Compliance between label information and manufacturing documentation</i>

### 2. Verifica funzionale / Operative test

Part	Descrizione / Description
2.1	Verificare il segnale in uscita: <i>Check the output signal</i>  Segnale in uscita della temperatura entro $\pm 0,3^{\circ}\text{C}$ rispetto a strumento primario <i>Temperature signal output within <math>\pm 0,3^{\circ}\text{C}</math> reading from the primary sensor</i>
2.2	Verificare il segnale in uscita: <i>Check the output signal</i>  Segnale in uscita di umidità entro $\pm 3\%$ rispetto a strumento primario <i>Humidity signal output within <math>\pm 3\%</math> reading from the primary sensor</i>
2.3	Verificare il segnale in uscita se presente: <i>Check the output signal if present</i>  Segnale in uscita della Pressione entro $\pm 0,5\text{hPa}$ rispetto a strumento primario se presente <i>Pressure signal output within <math>\pm 0,5\text{hPa}</math> reading from the primary equipment if present</i>
2.4	Verificare funzionamento radio interna se presente <i>Check of the radio functioning if present</i>

Verificato da / Verified by		Il Responsabile del Laboratorio Fisico / Laboratory Technical Manager	
Fabio Bellaviti		Ernesto Consiglio	

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## RAPPORTO DI TARATURA N.210409492 REPORT OF CALIBRATION

SVICA5001

**Data: 13/04/2021**  
Date

**Oggetto: BAROMETRO NESA**  
Referring to

**Destinatario: LSI LASTEM S.R.L.**  
Addressee

**Costruttore: LSI LASTEM S.r.l.**  
Manufacturer

**Modello: DQA251**  
Model

**Matricola: 21040125+3000839**  
Serial nr.

I risultati di misura riportati nel presente certificato sono stati ottenuti applicando la procedura di calibrazione LSI LASTEM PCR21021710, la cui catena di riferibilità ha inizio dal campione primario interno:

*The measurement results reported in this certificate were obtained following the procedure LSI LASTEM PCR21021710; traceability is assured by internal primary reference:*

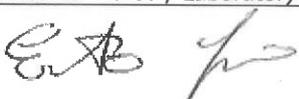
Matr/Serial nr.S0007 Cl.A Certificato/Certificate Emit LAS (ACCREDIA 024)

Incertezza estesa della misura/*expanded measurement uncertainty* Pressione/*Pressure* (mB):  $\pm 0.15$  hPa

Condizioni ambientali durante la prova/*Ambient conditions during test.*

Temperatura dell'aria/*Air Temperature* (°C): 21 Pressione/*Pressure* (mB): 1001.79

<b>Pressione di riferimento</b> <i>Reference pressure</i> (mB)	<b>Valore di uscita</b> <i>Value of output</i> (mB)	<b>Differenza</b> <i>Difference</i> (mB)
1001.79	1001.70	-0.09

<b>Eseguito da / Performed by</b>		<b>Il Responsabile del Laboratorio Fisico / Laboratory Technical Manager</b>	
Ernesto Consiglio		Ernesto Consiglio	

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