



DEWETRON GmbH

Parking 4
8074 Grambach
Austria



AAT2630566
Akkreditierung Austria 0632
27.10.2026

Kalibrierstelle für elektrische Messgrößen
Calibration body for electrical measurands

akkreditiert durch / accredited by
AKKREDITIERUNG AUSTRIA

Kalibrierzeichen
Calibration Mark

Kalibrierschein nach ISO/IEC 17025
Calibration certificate according to ISO/IEC 17025

Gegenstand
Object 8 Channel Voltage Module

Hersteller
Manufacturer DEWETRON

Typ
Type XR-V8

Herstellernummer
Serial number 00581145

Auftraggeber
Customer

Kalibriernummer
Order number AAT2630566

Anzahl der Seiten des Kalibrierscheines
Number of pages of the certificate 5

Datum der Kalibrierung
Date of calibration 27.10.2026

Dieser Kalibrierschein dokumentiert die Rückführbarkeit auf nationale Normale zur Darstellung der physikalischen Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI).

Akkreditierung Austria ist Unterzeichner der multilateralen Übereinkommen der European Co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine.

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements according to the International system of Units (SI).

Akkreditierung Austria is a signatory to the multilateral agreements of the European Co-operation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates.

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen sind unzulässig. Kalibrierscheine ohne Unterschrift und Stempel haben keine Gültigkeit.

This calibration certificate may not be reproduced other than in full. Calibration certificates without signature and seal are not valid.

Stempel
Seal

Datum
Date

Zeichnungsberechtigter
Authorised person

Bearbeiter
Person responsible

27.10.2026

Stefan Strohmaier

Melanie Buchgraber

1. Kalibriergegenstand / Calibration object

8 Channel Voltage Module DEWETRON XR-V8, S/N: 00581145

2. Kalibrierverfahren / Calibration procedure

Die Kalibrierung erfolgt durch Vergleich der durch die Kalibrierstelle / Normale dargestellten Werte mit den Ausgangsgrößen am Kalibriergegenstand beziehungsweise den am Kalibriergegenstand angezeigten Werten.

The calibration is made by comparing the readings from the laboratory / standards to the output of the calibration object respectively the values displayed on the calibration object.

Prüfroutine / Calibration procedure: XR-V8_Akkred, Rev. 2.00

3. Messergebnisse / Measurement results

Die Kalibrierung im Rahmen der Akkreditierung umfasst die Messgrößen Gleichspannung, Wechselspannung, Gleichstrom, Wechselstrom und Gleichstromwiderstand.

Die Messergebnisse beziehen sich ausschließlich auf diesen Kalibriergegenstand zum Zeitpunkt der Kalibrierung.

The calibration scope of the accreditation contains the quantities direct voltage, alternating voltage, direct current, alternating current and direct current resistance.

The measurement results are exclusively linked to this calibration object at the time of calibration.

4. Messunsicherheit / Measurement uncertainty

Angegeben ist die erweiterte Messunsicherheit, die sich aus der Standardmessunsicherheit durch Multiplikation mit dem Erweiterungsfaktor $k=2$ ergibt. Sie wurde gemäß EA-4/02 ermittelt. Der Wert der Messgröße liegt im Regelfall mit einer Wahrscheinlichkeit von annähernd 95% im zugeordneten Werteintervall.

Ein Anteil für die Langzeitstabilität des Kalibriergegenstandes ist nicht enthalten.

The stated extended measurement uncertainty is derived from the standard uncertainty of measurement multiplied by the coverage factor $k=2$. It has been determined according to EA-4/02. The measured quantity is inside the corresponding value interval with a probability of approximately 95%.

A factor for the long time stability of the calibration object is not taken into account.

5. Umgebungsbedingungen / environmental conditions

Temperatur / Temperature: 23,4 °C +/- 1 °C

Rel. Luftfeuchte / Rel. humidity: 36 % +/- 10 %

Kalibrierort / Place of calibration: DEWETRON GmbH, Parkring 4, 8074 Grambach, Austria

6. Auftragsnummer / Reference Number**7. Status / Status**

PASS ()

AS-FOUND: Eingangskalibration / Incoming calibration

AS-LEFT: Ausgangskalibration / Outgoing calibration

FOUND/LEFT: Eingangskalibration erfüllt Herstellerspezifikation / Incoming calibration according to manufacturer specifications

PASS: Messergebnis liegt innerhalb der Herstellerspezifikationen (ohne Berücksichtigung der Messunsicherheiten) /

Measurement result is within manufacturer's specifications (without taking into account the measurement uncertainties)

FAIL: Das Messergebnis liegt nicht innerhalb der Herstellerspezifikationen (ohne Berücksichtigung der Messunsicherheiten) /

Measurement result is out of manufacturer's specifications (without taking into account the measurement uncertainties)

8. Verwendete Fußnoten / Used foot notes:

(1) Zusätzliche Messwerte außerhalb des akkreditierten Bereiches, es kann keine Konformitätsaussage getroffen werden.

(1) Additional measured values outside the accredited scope, a conformity statement cannot be made.

9. Kommentare / Comments

test

Für die Festlegung und Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

The user is responsible for the definition and the compliance to a reasonable period for repeating the calibration.



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10. Verwendete Normale / Standards used

<u>Asset</u>	<u>Description</u>	<u>Serial Number</u>	<u>Certificate No.</u>	<u>Cal Date</u>	<u>Due Date</u>
5522A	5522A CALIBRATOR	2940903	43102026	7-Okt-2026	7-Okt-2027



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11. Testergebnisse / Test results

Test Description	True Value	Test Result	Lower limit	Upper limit	Exp Uncert	Error	% of Tol	Status
Current Temperature Calibrator: 25.94°C								
Kalibrierverfahren / calibration method: CAL-KV-01 Gleichspannung v1.0 2024-07-04.xlsx-02								
Asset type: XR-V8 Serial Number: 00581145 Firmware Revision: 2.54								
Function Tests -----								
RS-485 Interface								Pass (1)
CAN Interface								Pass (1)
Sample Rate 200S/s								Pass (1)
Voltage Calibration DC accuracy 0.02% of reading +/-900uV								
Tests done with physical input range: +/-50V								
Sample Rate: 10S/s								
45.00000 V @ CH1	45.00000 V	45.00243 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00243 V	24.6%	Pass
45.00000 V @ CH2	45.00000 V	45.00193 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00193 V	19.5%	Pass
45.00000 V @ CH3	45.00000 V	45.00200 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00200 V	20.2%	Pass
45.00000 V @ CH4	45.00000 V	45.00220 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00220 V	22.2%	Pass
45.00000 V @ CH5	45.00000 V	45.00163 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00163 V	16.5%	Pass
45.00000 V @ CH6	45.00000 V	45.00143 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00143 V	14.5%	Pass
45.00000 V @ CH7	45.00000 V	45.00173 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00173 V	17.5%	Pass
45.00000 V @ CH8	45.00000 V	45.00090 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00090 V	9.09%	Pass
25.00000 V @ CH1	25.00000 V	25.00103 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00103 V	17.5%	Pass
25.00000 V @ CH2	25.00000 V	25.00080 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00080 V	13.6%	Pass
25.00000 V @ CH3	25.00000 V	25.00093 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00093 V	15.8%	Pass
25.00000 V @ CH4	25.00000 V	25.00100 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00100 V	16.9%	Pass
25.00000 V @ CH5	25.00000 V	25.00060 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00060 V	10.2%	Pass
25.00000 V @ CH6	25.00000 V	25.00053 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00053 V	9.04%	Pass
25.00000 V @ CH7	25.00000 V	25.00083 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00083 V	14.1%	Pass
25.00000 V @ CH8	25.00000 V	25.00033 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00033 V	5.65%	Pass
0.00000 V @ CH1	0.00000 V	0.00000 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00000 V	0%	Pass
0.00000 V @ CH2	0.00000 V	0.00013 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00013 V	14.8%	Pass
0.00000 V @ CH3	0.00000 V	0.00000 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00000 V	0%	Pass
0.00000 V @ CH4	0.00000 V	0.00013 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00013 V	14.8%	Pass
0.00000 V @ CH5	0.00000 V	0.00000 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00000 V	0%	Pass
0.00000 V @ CH6	0.00000 V	0.00000 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00000 V	0%	Pass
0.00000 V @ CH7	0.00000 V	0.00017 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00017 V	18.5%	Pass
0.00000 V @ CH8	0.00000 V	0.00000 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00000 V	0%	Pass
-25.00000 V @ CH1	-25.00000 V	-25.00163 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00163 V	27.7%	Pass
-25.00000 V @ CH2	-25.00000 V	-25.00120 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00120 V	20.3%	Pass
-25.00000 V @ CH3	-25.00000 V	-25.00137 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00137 V	23.2%	Pass
-25.00000 V @ CH4	-25.00000 V	-25.00137 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00137 V	23.2%	Pass
-25.00000 V @ CH5	-25.00000 V	-25.00113 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00113 V	19.2%	Pass
-25.00000 V @ CH6	-25.00000 V	-25.00097 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00097 V	16.4%	Pass
-25.00000 V @ CH7	-25.00000 V	-25.00130 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00130 V	22%	Pass
-25.00000 V @ CH8	-25.00000 V	-25.00080 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00080 V	13.6%	Pass
-45.00000 V @ CH1	-45.00000 V	-45.00297 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00297 V	30%	Pass
-45.00000 V @ CH2	-45.00000 V	-45.00220 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00220 V	22.2%	Pass
-45.00000 V @ CH3	-45.00000 V	-45.00260 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00260 V	26.3%	Pass
-45.00000 V @ CH4	-45.00000 V	-45.00253 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00253 V	25.6%	Pass
-45.00000 V @ CH5	-45.00000 V	-45.00207 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00207 V	20.9%	Pass
-45.00000 V @ CH6	-45.00000 V	-45.00177 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00177 V	17.8%	Pass
-45.00000 V @ CH7	-45.00000 V	-45.00200 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00200 V	20.2%	Pass
-45.00000 V @ CH8	-45.00000 V	-45.00147 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00147 V	14.8%	Pass
Sample Rate: 100S/s								
45.00000 V @ CH1	45.00000 V	45.00267 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00267 V	26.9%	Pass
45.00000 V @ CH2	45.00000 V	45.00200 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00200 V	20.2%	Pass
45.00000 V @ CH3	45.00000 V	45.00197 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00197 V	19.9%	Pass
45.00000 V @ CH4	45.00000 V	45.00207 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00207 V	20.9%	Pass
45.00000 V @ CH5	45.00000 V	45.00150 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00150 V	15.2%	Pass
45.00000 V @ CH6	45.00000 V	45.00143 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00143 V	14.5%	Pass

11. Testergebnisse / Test results

Test Description	True Value	Test Result	Lower limit	Upper limit	Exp Uncert	Error	% of Tol	Status
45.00000 V @ CH7	45.00000 V	45.00170 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00170 V	17.2%	Pass
45.00000 V @ CH8	45.00000 V	45.00107 V	44.99010 V	45.00990 V	1.30 e-03 V	0,00107 V	10.8%	Pass
25.00000 V @ CH1	25.00000 V	25.00133 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00133 V	22.6%	Pass
25.00000 V @ CH2	25.00000 V	25.00090 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00090 V	15.3%	Pass
25.00000 V @ CH3	25.00000 V	25.00087 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00087 V	14.7%	Pass
25.00000 V @ CH4	25.00000 V	25.00103 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00103 V	17.5%	Pass
25.00000 V @ CH5	25.00000 V	25.00083 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00083 V	14.1%	Pass
25.00000 V @ CH6	25.00000 V	25.00060 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00060 V	10.2%	Pass
25.00000 V @ CH7	25.00000 V	25.00083 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00083 V	14.1%	Pass
25.00000 V @ CH8	25.00000 V	25.00047 V	24.99410 V	25.00590 V	440.00 e-06 V	0,00047 V	7.91%	Pass
0.00000 V @ CH1	0.00000 V	-0.00007 V	-0.00090 V	0.00090 V	120.00 e-06 V	-0,00007 V	7.41%	Pass
0.00000 V @ CH2	0.00000 V	-0.00007 V	-0.00090 V	0.00090 V	120.00 e-06 V	-0,00007 V	7.41%	Pass
0.00000 V @ CH3	0.00000 V	0.00003 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00003 V	3.7%	Pass
0.00000 V @ CH4	0.00000 V	0.00010 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00010 V	11.1%	Pass
0.00000 V @ CH5	0.00000 V	0.00007 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00007 V	7.41%	Pass
0.00000 V @ CH6	0.00000 V	0.00003 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00003 V	3.7%	Pass
0.00000 V @ CH7	0.00000 V	0.00007 V	-0.00090 V	0.00090 V	120.00 e-06 V	0,00007 V	7.41%	Pass
0.00000 V @ CH8	0.00000 V	-0.00007 V	-0.00090 V	0.00090 V	120.00 e-06 V	-0,00007 V	7.41%	Pass
-25.00000 V @ CH1	-25.00000 V	-25.00180 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00180 V	30.5%	Pass
-25.00000 V @ CH2	-25.00000 V	-25.00130 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00130 V	22%	Pass
-25.00000 V @ CH3	-25.00000 V	-25.00140 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00140 V	23.7%	Pass
-25.00000 V @ CH4	-25.00000 V	-25.00147 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00147 V	24.9%	Pass
-25.00000 V @ CH5	-25.00000 V	-25.00133 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00133 V	22.6%	Pass
-25.00000 V @ CH6	-25.00000 V	-25.00103 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00103 V	17.5%	Pass
-25.00000 V @ CH7	-25.00000 V	-25.00107 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00107 V	18.1%	Pass
-25.00000 V @ CH8	-25.00000 V	-25.00090 V	-25.00590 V	-24.99410 V	440.00 e-06 V	-0,00090 V	15.3%	Pass
-45.00000 V @ CH1	-45.00000 V	-45.00330 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00330 V	33.3%	Pass
-45.00000 V @ CH2	-45.00000 V	-45.00243 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00243 V	24.6%	Pass
-45.00000 V @ CH3	-45.00000 V	-45.00263 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00263 V	26.6%	Pass
-45.00000 V @ CH4	-45.00000 V	-45.00243 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00243 V	24.6%	Pass
-45.00000 V @ CH5	-45.00000 V	-45.00197 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00197 V	19.9%	Pass
-45.00000 V @ CH6	-45.00000 V	-45.00173 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00173 V	17.5%	Pass
-45.00000 V @ CH7	-45.00000 V	-45.00203 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00203 V	20.5%	Pass
-45.00000 V @ CH8	-45.00000 V	-45.00130 V	-45.00990 V	-44.99010 V	1.30 e-03 V	-0,00130 V	13.1%	Pass

Ende des Kalibrierscheines / End of Calibration Certificate

