

# Deutsche Akkreditierungsstelle

## Annex to the Accreditation Certificate D-K-17644-01-00 according to DIN EN ISO/IEC 17025:2018

**Valid from:** 01.02.2024

**Date of issue:** 01.02.2024

Holder of accreditation certificate:

**Endress + Hauser Wetzer GmbH + Co. KG**  
**Obere Wank 1, 87484 Nesselwang**

with the location

**Endress + Hauser Wetzer GmbH + Co. KG**  
**Obere Wank 1, 87484 Nesselwang**

The calibration laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The calibration laboratory meets additional legal and normative requirements, if applicable, including those in relevant sectoral schemes, provided that these are explicitly confirmed below.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of calibration laboratories and they conform to the principles of DIN EN ISO 9001.

Calibration in the fields:

**Thermodynamic quantities**

**Temperature quantities**

- Resistance thermometers
- Thermocouples
- Temperature transmitters, data loggers

*This certificate annex is only valid together with the written accreditation certificate and reflects the status as indicated by the date of issue. The current status of any given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at <https://www.dakks.de>.*

Abbreviations used: see last page

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**This document is a translation. The definitive version is the original German annex to the accreditation certificate.**

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**The calibration laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use calibration standards or equivalent calibration procedures listed here with different issue dates.**

**The calibration laboratory maintains a current list of all calibration standards / equivalent calibration procedures within the flexible scope of accreditation.**

**Permanent Laboratory**

**Calibration and Measurement Capabilities (CMC)**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
<b>Temperature</b> Precision resistance thermometers	0,00 °C	DKD-R 5-1:2018 ice point	3 mK	Calibration at fixed point temperature
Resistance thermometers	-40 °C to 300 °C	DKD-R 5-1:2018 in calibration baths	25 mK	Comparison with reference thermometer Determination of the characteristic curve according to DKD-R 5-6
	> 300 °C to 660 °C	DKD-R 5-1:2018 in tube furnace with sodium heat pipe	75 mK	
Temperature transmitters and data loggers with resistance sensor and digital output	-40 °C to 300 °C	DKD-R 5-1:2018 in calibration baths	23 mK	Comparison with reference thermometer
	> 300 °C to 660 °C	DKD-R 5-1:2018 in tube furnace with sodium heat pipe	61 mK	
Temperature transmitters and data loggers with resistance sensor and analogue current output (4 mA to 20 mA)	-40 °C to 300 °C	DKD-R 5-1:2018 in calibration baths	60 mK	Comparison with reference thermometer
	> 300 °C to 660 °C	DKD-R 5-1:2018 in tube furnace with sodium heat pipe	0.19 K	
Noble metal thermocouples	-40 °C to 300 °C	DKD-R 5-3:2018 in calibration baths	0.50 K	Comparison with reference thermometer
	> 300 °C to 660 °C	DKD-R 5-3:2018 in tube furnace with sodium heat pipe	0.50 K	
	> 660 °C to 1050 °C		2.1 K	
Base metal thermocouples	-40 °C to 300 °C	DKD-R 5-3:2018 in calibration baths	0.50 K	Comparison with reference thermometer
	> 300 °C to 660 °C	DKD-R 5-3:2018 in tube furnace with sodium heat pipe	0.55 K	
	> 660 °C to 1050 °C		2.5 K	

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**Permanent Laboratory**

**Calibration and Measurement Capabilities (CMC)**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Temperature transmitters and data loggers with thermocouple sensor and digital output	-40 °C to 300 °C	DKD-R 5-3:2018 in calibration baths	0.6 K	Comparison with reference thermometer
	> 300 °C to 660 °C	DKD-R 5-3:2018 in tube furnace with sodium heat pipe	0.6 K	
	> 660 °C to 1050 °C		2.2 K	
Temperature transmitters and data loggers with noble metal thermocouple sensor and analogue current output (4 mA to 20 mA)	-40 °C to 300 °C	DKD-R 5-3:2018 in calibration baths	0.7 K	Comparison with reference thermometer
	> 300 °C to 660 °C	DKD-R 5-3:2018 in tube furnace with sodium heat pipe	0.7 K	
	> 660 °C to 1050 °C		2.2 K	
Temperature transmitters and data loggers with base metal thermocouple sensor and analogue current output (4 mA to 20 mA)	-40 °C to 300 °C	DKD-R 5-3:2018 in calibration baths	0.7 K	Comparison with reference thermometer
	> 300 °C to 660 °C	DKD-R 5-3:2018 in tube furnace with sodium heat pipe	1.0 K	
	> 660 °C to 1050 °C		2.6 K	

**Abbreviations used:**

- CMC Calibration and measurement capabilities
- DIN Deutsches Institut für Normung e.V. (German Institute for Standardization)
- DKD-R Guideline of Deutscher Kalibrierdienst (DKD), published by Physikalisch-Technische Bundesanstalt
- EN Europäische Norm (European Standard)
- IEC International Electrotechnical Commission
- ISO International Organization for Standardization

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