

# Deutsche Akkreditierungsstelle

## Annex to the Accreditation Certificate D-K-12161-01-00 according to DIN EN ISO/IEC 17025:2018

**Valid from:** 14.02.2024

**Date of issue:** 28.02.2024

Holder of accreditation certificate:

**Phoenix Contact GmbH & Co. KG**  
**Flachsmarkstraße 8, 32825 Blomberg**

with the location

**Phoenix Contact GmbH & Co. KG**  
**Flachsmarkstraße 8, 32825 Blomberg**

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.

*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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Calibration in the fields:

**Dimensional quantities**

**Length**

- Length measuring instruments
- Diameter
- Thread

**Electrical quantities**

**DC and low frequency quantities**

- DC voltage
- AC voltage
- DC current
- AC current
- DC resistance

**Time and frequency**

- Frequency
- Time interval

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**Calibration and Measurement Capabilities (CMC)**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
<b>Length</b>				
Calipers for external, internal and depth dimensions	0 mm to 150 mm	VDI/VDE/DGQ 2618 Blatt 9.1:2006	$30 \mu\text{m} + 30 \cdot 10^{-6} \cdot l$	$l$ = measured length
Depth calipers	0 mm to 150 mm	VDI/VDE/DGQ 2618 Blatt 9.2 2006	$30 \mu\text{m} + 30 \cdot 10^{-6} \cdot l$	
Micrometers	0 mm to 75 mm	VDI/VDE/DGQ 2618 Blatt 10.1:2001	$3 \mu\text{m} + 10 \cdot 10^{-6} \cdot l$	
Dial gauges	to 12 mm	VDI/VDE/DGQ/DKD 2618 Blatt 11.4:2020	$3 \mu\text{m} + 10 \cdot 10^{-6} \cdot l$	
Dial gauges	to 12 mm	VDI/VDE/DGQ/DKD 2618 Blatt 11.1:2021	$3 \mu\text{m} + 10 \cdot 10^{-6} \cdot l$	
Lever gauges	to 1.6 mm	VDI/VDE/DGQ 2618 Blatt 11.3:2002	$2 \mu\text{m}$	
Setting ring gauges Diameter	2.5 mm to 200 mm	VDI/VDE/DGQ 2618 Blatt 4.1:2006 Option 3 Option 4	$2 \mu\text{m} + 10 \cdot 10^{-6} \cdot d$	$d$ = measured diameter
Setting plug gauges Diameter	5 mm to 30 mm	VDI/VDE/DGQ 2618 Blatt 4.1:2006 Option 3 Option 4	$2 \mu\text{m} + 10 \cdot 10^{-6} \cdot d$	
Measuring pins Diameter	0.1 mm to 20 mm	VDI/VDE/DGQ 2618 Blatt 4.2:2007 Option 1	$2 \mu\text{m}$	
Thread Metrical ISO-thread				
External thread Simple pitch diameter	1.6 mm to 27 mm	VDI/VDE/DGQ 2618 Blatt 4.8:2006 Option 1 Three wire procedure (vertical to thread axis)	$5 \mu\text{m}$	
Internal thread Simple pitch diameter	2.5 mm to 35 mm	VDI/VDE/DGQ 2618 Blatt 4.9:2006 Option 1 Two ball procedure (vertical to thread axis)	$4 \mu\text{m}$	

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**Calibration and Measurement Capabilities (CMC)**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
<b>DC and low frequency quantities</b>				
DC voltage Measuring instruments	0 mV to < 330 mV 0.33 V to < 33 V 33 V to 1000 V		$17 \cdot 10^{-6} \cdot U + 3 \mu\text{V}$ $18 \cdot 10^{-6} \cdot U$ $23 \cdot 10^{-6} \cdot U$	$U = \text{set value}$
DC voltage Sources	0 mV to < 100 mV 0.1 V to < 1 V 1 V to 10 V > 10 V to < 100 V 100 V to 200 V > 200 V to 400 V > 400 V to 500 V > 500 V to 600 V > 600 V to 700 V > 700 V to 800 V > 800 V to 900 V > 900 V to 1050 V		$3 \cdot 10^{-6} \cdot U + 1.9 \mu\text{V}$ $68 \cdot 10^{-6} \cdot U$ $12 \cdot 10^{-6} \cdot U$ $16 \cdot 10^{-6} \cdot U$ $8 \cdot 10^{-6} \cdot U$ $9 \cdot 10^{-6} \cdot U$ $10 \cdot 10^{-6} \cdot U$ $11 \cdot 10^{-6} \cdot U$ $12 \cdot 10^{-6} \cdot U$ $14 \cdot 10^{-6} \cdot U$ $16 \cdot 10^{-6} \cdot U$ $18 \cdot 10^{-6} \cdot U$	$U = \text{measuring value}$
AC voltage Measuring instruments	1 mV to < 33 mV	10 Hz to 45 Hz > 45 Hz to 10 kHz > 10 kHz to 20 kHz > 20 kHz to 50 kHz > 50 kHz to 100 kHz > 100 kHz to 500 kHz	$9 \cdot 10^{-3} \cdot U$ $6.8 \cdot 10^{-3} \cdot U$ $7 \cdot 10^{-3} \cdot U$ $7.7 \cdot 10^{-3} \cdot U$ $16 \cdot 10^{-3} \cdot U$ $56 \cdot 10^{-3} \cdot U$	$U = \text{set value}$
	33 mV to < 330 mV	10 Hz to 45 Hz > 45 Hz to 10 kHz > 10 kHz to 50 kHz > 50 kHz to 100 kHz > 100 kHz to 500 kHz	$2 \cdot 10^{-3} \cdot U$ $0.81 \cdot 10^{-3} \cdot U$ $1 \cdot 10^{-3} \cdot U$ $1.9 \cdot 10^{-3} \cdot U$ $4.7 \cdot 10^{-3} \cdot U$	
	0.33 V to < 3.3 V	10 Hz to 45 Hz > 45 Hz to 10 kHz > 10 kHz to 20 kHz > 20 kHz to 50 kHz > 50 kHz to 100 kHz > 100 kHz to 500 kHz	$1.8 \cdot 10^{-3} \cdot U$ $0.78 \cdot 10^{-3} \cdot U$ $0.95 \cdot 10^{-3} \cdot U$ $0.98 \cdot 10^{-3} \cdot U$ $1.4 \cdot 10^{-3} \cdot U$ $4.8 \cdot 10^{-3} \cdot U$	
	3.3 V to < 33 V	10 Hz to 45 Hz > 45 Hz to 10 kHz > 10 kHz to 20 kHz > 20 kHz to 50 kHz > 50 kHz to 100 kHz	$1.4 \cdot 10^{-3} \cdot U$ $0.78 \cdot 10^{-3} \cdot U$ $1 \cdot 10^{-3} \cdot U$ $1.1 \cdot 10^{-3} \cdot U$ $1.6 \cdot 10^{-3} \cdot U$	
	33 V to < 330 V	> 45 Hz to 1 kHz > 1 kHz to 10 kHz > 10 kHz to 20 kHz > 20 kHz to 50 kHz > 50 kHz to 100 kHz	$0.3 \cdot 10^{-3} \cdot U$ $0.37 \cdot 10^{-3} \cdot U$ $0.42 \cdot 10^{-3} \cdot U$ $0.49 \cdot 10^{-3} \cdot U$ $3.4 \cdot 10^{-3} \cdot U$	
	330 V to 1020 V	> 45 Hz to 1 kHz > 1 kHz to 5 kHz > 5 kHz to 10 kHz	$1.2 \cdot 10^{-3} \cdot U$ $0.38 \cdot 10^{-3} \cdot U$ $0.41 \cdot 10^{-3} \cdot U$	

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AC voltage Sources	1 mV to 12 mV > 12 mV to 120 mV	100 Hz to 20 kHz	$10 \cdot 10^{-3} \cdot U + 18 \mu\text{V}$ $2.1 \cdot 10^{-3} \cdot U$	$U$ = measuring value
	> 0.12 V to 1.2 V	20 Hz to < 40 Hz 40 Hz to < 100 Hz 100 Hz to 20 kHz > 20 kHz to 50 kHz > 50 kHz to 100 kHz > 100 kHz to 250 kHz	$4.7 \cdot 10^{-3} \cdot U$ $2.4 \cdot 10^{-3} \cdot U$ $1.9 \cdot 10^{-3} \cdot U$ $7.8 \cdot 10^{-3} \cdot U$ $18.4 \cdot 10^{-3} \cdot U$ $0.1 \cdot 10^0 \cdot U$	
	> 1.2 V to 12 V	20 Hz to < 40 Hz 40 Hz to < 100 Hz 100 Hz to 20 kHz > 20 kHz to 50 kHz > 50 kHz to 100 kHz > 100 kHz to 250 kHz	$4.8 \cdot 10^{-3} \cdot U$ $2.5 \cdot 10^{-3} \cdot U$ $2.2 \cdot 10^{-3} \cdot U$ $7.9 \cdot 10^{-3} \cdot U$ $14 \cdot 10^{-3} \cdot U$ $0.1 \cdot 10^0 \cdot U$	
	> 12 V to 120 V	20 Hz to < 40 Hz 40 Hz to < 100 Hz 100 Hz to 20 kHz > 20 kHz to 50 kHz > 50 kHz to 100 kHz > 100 kHz to 250 kHz	$5 \cdot 10^{-3} \cdot U$ $2.4 \cdot 10^{-3} \cdot U$ $2.2 \cdot 10^{-3} \cdot U$ $7.9 \cdot 10^{-3} \cdot U$ $14 \cdot 10^{-3} \cdot U$ $0.1 \cdot 10^0 \cdot U$	
	> 120 V to 1000 V	40 Hz to < 100 Hz 100 Hz to 20 kHz	$8.3 \cdot 10^{-3} \cdot U$ $8.2 \cdot 10^{-3} \cdot U$	
	DC current Measuring instruments	0 A to < 330 $\mu\text{A}$ 0.33 mA to < 1.1 A 1.1 A to < 3 A 3 A to < 11 A 11 A to 20.5 A		
20 A to 100 A			$1 \cdot 10^{-3} \cdot I$	
DC current Sources	0 A to 1.2 $\mu\text{A}$ > 1.2 $\mu\text{A}$ to 12 $\mu\text{A}$ > 12 $\mu\text{A}$ to 120 $\mu\text{A}$ > 0.12 mA to 12 mA > 12 mA to 120 mA > 120 mA to 1.05 A		$0.2 \cdot 10^{-3} \cdot I + 0.1 \text{ nA}$ $0.24 \cdot 10^{-3} \cdot I$ $69 \cdot 10^{-6} \cdot I$ $74 \cdot 10^{-6} \cdot I$ $83 \cdot 10^{-6} \cdot I$ $0.22 \cdot 10^{-3} \cdot I$	$I$ = measuring value
	1 A to 30 A 30 A to 500 A > 500 A to 2000 A		$3.1 \cdot 10^{-3} \cdot I$ $4.9 \cdot 10^{-3} \cdot I$	
	20 A to 1000 A		$5.5 \cdot 10^{-3} \cdot I$	
DC current Current clamps	100 A to 5000 A		$30 \cdot 10^{-3} \cdot I$	$I$ = set value

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AC current Measuring instruments	30 $\mu$ A to < 330 $\mu$ A	10 Hz to < 20 Hz	$5.4 \cdot 10^{-3} \cdot /$	/ = set value	
		20 Hz to < 45 Hz	$5 \cdot 10^{-3} \cdot /$		
		45 Hz to 1 kHz	$4.6 \cdot 10^{-3} \cdot /$		
		> 1 kHz to 5 kHz	$8.1 \cdot 10^{-3} \cdot /$		
		> 5 kHz to 10 kHz	$15 \cdot 10^{-3} \cdot /$		
		> 10 kHz to 30 kHz	$29 \cdot 10^{-3} \cdot /$		
		0.33 mA to < 3.3 mA	10 Hz to < 20 Hz		$2.5 \cdot 10^{-3} \cdot /$
			20 Hz to < 45 Hz		$1.8 \cdot 10^{-3} \cdot /$
			45 Hz to 1 kHz		$1.6 \cdot 10^{-3} \cdot /$
			> 1 kHz to 5 kHz		$2.6 \cdot 10^{-3} \cdot /$
> 5 kHz to 10 kHz	$5.8 \cdot 10^{-3} \cdot /$				
3.3 mA to < 33 mA	10 Hz to < 20 Hz	$2.5 \cdot 10^{-3} \cdot /$			
	20 Hz to < 45 Hz	$1.7 \cdot 10^{-3} \cdot /$			
	45 Hz to 1 kHz	$1.1 \cdot 10^{-3} \cdot /$			
	> 1 kHz to 5 kHz	$1.5 \cdot 10^{-3} \cdot /$			
	> 5 kHz to 10 kHz	$3.1 \cdot 10^{-3} \cdot /$			
33 mA to < 330 mA	10 Hz to < 20 Hz	$2.5 \cdot 10^{-3} \cdot /$			
	20 Hz to < 45 Hz	$1.7 \cdot 10^{-3} \cdot /$			
	45 Hz to 1 kHz	$1.1 \cdot 10^{-3} \cdot /$			
	> 1 kHz to 5 kHz	$2.5 \cdot 10^{-3} \cdot /$			
	> 5 kHz to 10 kHz	$5 \cdot 10^{-3} \cdot /$			
0.33 A to < 1.1 A	10 Hz to < 45 Hz	$2.1 \cdot 10^{-3} \cdot /$			
	45 Hz to 1 kHz	$0.78 \cdot 10^{-3} \cdot /$			
	> 1 kHz to 5 kHz	$8.6 \cdot 10^{-3} \cdot /$			
	> 5 kHz to 10 kHz	$39 \cdot 10^{-3} \cdot /$			
	1.1 A to < 3 A	10 Hz to < 45 Hz	$1.9 \cdot 10^{-3} \cdot /$		
45 Hz to 1 kHz		$0.69 \cdot 10^{-3} \cdot /$			
> 1 kHz to 5 kHz		$6.6 \cdot 10^{-3} \cdot /$			
> 5 kHz to 10 kHz		$29 \cdot 10^{-3} \cdot /$			
3 A to < 11 A	45 Hz to 100 Hz	$1.3 \cdot 10^{-3} \cdot /$			
	> 100 Hz to 1 kHz	$1.6 \cdot 10^{-3} \cdot /$			
	> 1 kHz to 5 kHz	$31 \cdot 10^{-3} \cdot /$			
11 A to 20.5 A	45 Hz to 100 Hz	$1.6 \cdot 10^{-3} \cdot /$			
	> 100 Hz to 1 kHz	$1.9 \cdot 10^{-3} \cdot /$			
	> 1 kHz to 5 kHz	$29 \cdot 10^{-3} \cdot /$			
20 A to 120 A	10 Hz to 300 Hz	$0.63 \cdot 10^{-3} \cdot /$			
	> 300 Hz to 1 kHz	$1.7 \cdot 10^{-3} \cdot /$			
	> 1 kHz to 3 kHz	$4.5 \cdot 10^{-3} \cdot /$			
	> 3 kHz to 6 kHz	$11 \cdot 10^{-3} \cdot /$			
	> 6 kHz to 10 kHz	$36 \cdot 10^{-3} \cdot /$			

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Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
AC current Sources	10 $\mu$ A to < 120 $\mu$ A	10 Hz to < 20 Hz 20 Hz to < 45 Hz 45 Hz to 100 Hz > 100 Hz to 1 kHz	$9 \cdot 10^{-3} \cdot I + 10$ nA $6.5 \cdot 10^{-3} \cdot I + 10$ nA $6 \cdot 10^{-3} \cdot I + 10$ nA $7.5 \cdot 10^{-3} \cdot I + 10$ nA	I = measuring value
	0.12 mA to < 1.2 mA	10 Hz to < 20 Hz 20 Hz to < 45 Hz 45 Hz to 100 Hz > 100 Hz to 5 kHz > 5 kHz to 20 kHz > 20 kHz to 50 kHz > 50 kHz to 100 kHz	$9 \cdot 10^{-3} \cdot I$ $7 \cdot 10^{-3} \cdot I$ $6.5 \cdot 10^{-3} \cdot I$ $6.5 \cdot 10^{-3} \cdot I$ $6.5 \cdot 10^{-3} \cdot I$ $12 \cdot 10^{-3} \cdot I$ $30 \cdot 10^{-3} \cdot I$	
	1.2 mA to < 12 mA	10 Hz to < 20 Hz 20 Hz to < 45 Hz 45 Hz to 100 Hz > 100 Hz to 5 kHz > 5 kHz to 20 kHz > 20 kHz to 50 kHz > 50 kHz to 100 kHz	$7.4 \cdot 10^{-3} \cdot I$ $5.2 \cdot 10^{-3} \cdot I$ $4.6 \cdot 10^{-3} \cdot I$ $4.3 \cdot 10^{-3} \cdot I$ $4.6 \cdot 10^{-3} \cdot I$ $11 \cdot 10^{-3} \cdot I$ $30 \cdot 10^{-3} \cdot I$	
	12 mA to < 120 mA	10 Hz to < 20 Hz 20 Hz to < 45 Hz 45 Hz to 100 Hz > 100 Hz to 5 kHz > 5 kHz to 20 kHz > 20 kHz to 50 kHz > 50 kHz to 100 kHz	$7.4 \cdot 10^{-3} \cdot I$ $5.2 \cdot 10^{-3} \cdot I$ $4.5 \cdot 10^{-3} \cdot I$ $4.2 \cdot 10^{-3} \cdot I$ $4.5 \cdot 10^{-3} \cdot I$ $11 \cdot 10^{-3} \cdot I$ $30 \cdot 10^{-3} \cdot I$	
	0.12 A to 1.05 A	10 Hz to < 20 Hz 20 Hz to < 45 Hz 45 Hz to 100 Hz > 100 Hz to 5 kHz > 5 kHz to 20 kHz > 20 kHz to 50 kHz	$8.5 \cdot 10^{-3} \cdot I$ $6.6 \cdot 10^{-3} \cdot I$ $6 \cdot 10^{-3} \cdot I$ $6.1 \cdot 10^{-3} \cdot I$ $7.7 \cdot 10^{-3} \cdot I$ $18 \cdot 10^{-3} \cdot I$	
	1 A to 30 A	1 Hz to 1 kHz > 1 kHz to 5 kHz	$3.2 \cdot 10^{-3} \cdot I$ $53 \cdot 10^{-3} \cdot I$	
AC current Current clamps	20 A to 1000 A	45 Hz to 65 Hz > 65 Hz to 440 Hz	$7.8 \cdot 10^{-3} \cdot I$ $13 \cdot 10^{-3} \cdot I$	I = set value  only Toroidal-type Clamps
AC current Current clamps	20 A to 1000 A	45 Hz to 65 Hz > 65 Hz to 440 Hz	$49 \cdot 10^{-3} \cdot I$ $53 \cdot 10^{-3} \cdot I$	I = set value
	100 A to 6000 A	10 Hz to 300 Hz > 300 Hz to 500 Hz	$15 \cdot 10^{-3} \cdot I$ $49 \cdot 10^{-3} \cdot I$	

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**Calibration and Measurement Capabilities (CMC)**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
DC resistance Fixed values	0 Ω	2-wire-short 4-wire-short	0.5 mΩ 0.4 μΩ	
	10 μΩ 100 μΩ 1 mΩ 10 mΩ 100 kΩ		2 μΩ 5 μΩ 10 μΩ 20 μΩ 5 Ω	Calibration is performed at the nominal values of the standards
DC resistance Measuring instruments	0 Ω to < 11 Ω	4-wire-connection	$0.2 \cdot 10^{-3} \cdot R + 1.1 \text{ m } \Omega$	R = set value
	11 Ω to < 33 Ω	4-wire-connection	$0.16 \cdot 10^{-3} \cdot R$	
	33 Ω to < 110 Ω	4-wire-connection	$70 \cdot 10^{-6} \cdot R$	
	110 Ω to < 330 Ω	4-wire-connection	$48 \cdot 10^{-6} \cdot R$	
	0.33 kΩ to < 1.1 kΩ	4-wire-connection	$37 \cdot 10^{-6} \cdot R$	
	1.1 kΩ to < 3.3 kΩ	4-wire-connection	$47 \cdot 10^{-6} \cdot R$	
	3.3 kΩ to < 11 kΩ	4-wire-connection	$37 \cdot 10^{-6} \cdot R$	
	11 kΩ to < 33 kΩ	4-wire-connection	$47 \cdot 10^{-6} \cdot R$	
	33 kΩ to < 110 kΩ	4-wire-connection	$37 \cdot 10^{-6} \cdot R$	
	110 kΩ to < 330 kΩ	2-wire-connection	$52 \cdot 10^{-6} \cdot R$	
	0.33 MΩ to < 1.1 MΩ	2-wire-connection	$43 \cdot 10^{-6} \cdot R$	
	1.1 MΩ to < 3.3 MΩ	2-wire-connection	$0.1 \cdot 10^{-3} \cdot R$	
	3.3 MΩ to < 11 MΩ	2-wire-connection	$0.15 \cdot 10^{-3} \cdot R$	
	11 MΩ to < 33 MΩ	2-wire-connection	$0.48 \cdot 10^{-3} \cdot R$	
33 MΩ to < 110 MΩ	2-wire-connection	$0.8 \cdot 10^{-3} \cdot R$		
110 MΩ to < 330 MΩ	2-wire-connection	$3.8 \cdot 10^{-3} \cdot R$		
0.33 GΩ to 1.1 GΩ	2-wire-connection	$16 \cdot 10^{-3} \cdot R$		
DC resistance Sources	0 Ω to 12 Ω	4-wire-connection	$30 \cdot 10^{-6} \cdot R + 30 \text{ } \mu \Omega$	R = measured value
	> 12 Ω to 120 Ω	4-wire-connection	$20 \cdot 10^{-6} \cdot R$	
	> 0.12 kΩ to 1.2 kΩ	4-wire-connection	$11 \cdot 10^{-6} \cdot R$	
	> 1.2 kΩ to 12 kΩ	4-wire-connection	$10 \cdot 10^{-6} \cdot R$	
	> 12 kΩ to 120 kΩ	4-wire-connection	$11 \cdot 10^{-6} \cdot R$	
	> 0.12 MΩ to 1.2 MΩ	4-wire-connection	$17 \cdot 10^{-6} \cdot R$	
	> 1.2 MΩ to 12 MΩ	4-wire-connection	$50 \cdot 10^{-6} \cdot R$	
	> 12 MΩ to 120 MΩ	4-wire-connection	$1.6 \cdot 10^{-3} \cdot R$	
> 0.12 GΩ to 1.2 GΩ	4-wire-connection	$6.5 \cdot 10^{-3} \cdot R$		

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Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
<b>Time and frequency</b>				
Frequency Measuring instruments	0.1 Hz to < 10 Hz 10 Hz to < 50 MHz 50 MHz to < 500 MHz 0.5 GHz to 1.1 GHz		$50 \cdot 10^{-3} \cdot f + 500 \mu\text{Hz}$ $0.55 \cdot 10^{-3} \cdot f$ $0.12 \cdot 10^{-3} \cdot f$ $12 \cdot 10^{-6} \cdot f$	$f = \text{set value}$
Frequency Sources	1 mHz to < 10 kHz 10 kHz to 6 GHz		$1 \cdot 10^{-6} \cdot f + 0.23 \mu\text{Hz}$ $1 \cdot 10^{-6} \cdot f$	$f = \text{measuring value}$
Time interval Measuring instruments	1 ns to 0.1 s > 0.1 s to 10 s		$0.55 \cdot 10^{-3} \cdot t$ $59 \cdot 10^{-3} \cdot t + 0.1 \text{ ms}$	$t = \text{time interval}$
Time interval Sources	1 ns to 0.1 ms > 0.1 ms to 1000 s		$4.8 \cdot 10^{-6} \cdot t$ $0.24 \cdot 10^{-3} \cdot t + 0.1 \mu\text{s}$	$t = \text{time interval}$

**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 the Physikalisch-Technischen Bundesanstalt
EN	Europäische Norm – European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardisation

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