



The Dutch Accreditation Council RvA, by law appointed as the national accreditation body for The Netherlands, hereby declares that accreditation has been granted to:

**TRESCAL Hengelo B.V.
Calibration Laboratory
Hengelo**

The organisation has demonstrated to be able to generate technical valid results in a competent way and work according to a management system.

This accreditation is based on an assessment against the requirements as laid down in EN ISO/IEC 17025:2017.

The accreditation covers the activities as specified in the authorized annex bearing the registration number.

The accreditation is valid provided that the organisation continues to meet the requirements.

The accreditation with registration number:

K 018

is granted on 15 September 1980

This declaration is valid until
1 December 2024

The board of the Dutch Accreditation Council,
on its behalf,


mr. J.A.W.M. de Haas

of **TRESCAL Hengelo B.V.**
Calibration Laboratory

This annex is valid from: **21-01-2021** to **01-12-2024**

Replaces annex dated: **05-06-2020**

HCS code	Measured quantity, Instrument, Measure	Range	CMC ¹	Remarks	Location
		(0 – 2 500) kg	$6 \cdot 10^{-5} \cdot m + \text{last digit} + h/2$	h = Repeatability	

HCS code	Measured quantity, Instrument, Measure	Frequency	CMC ¹	Remarks	Location
LF 0 0	DC / LF				
LF 1 0	Direct voltage				HLO, OS
	0 mV – 200mV		$1.0 \cdot 10^{-5} \cdot U$, minimum 0.15 μ V	Measuring	
	0.2 V – 2 V		$7 \cdot 10^{-6} \cdot U$	Measuring	
	2 V – 20 V		$5 \cdot 10^{-6} \cdot U$	Measuring	
	20 V – 200 V		$7 \cdot 10^{-6} \cdot U$	Measuring	
	200 V – 1000 V		$8 \cdot 10^{-6} \cdot U$	Measuring	
	0 mV – 220 mV		$2.0 \cdot 10^{-5} \cdot U$, minimum 1.5 μ V	Generate	
	0.22 V – 2,2 V		$7 \cdot 10^{-6} \cdot U$	Generate	
	2.2 V – 22 V		$1.0 \cdot 10^{-5} \cdot U$	Generate	
	22 V – 220 V		$1.5 \cdot 10^{-5} \cdot U$	Generate	
	220 V – 1100 V		$1.0 \cdot 10^{-5} \cdot U$	Generate	
LF 2 0	Direct current				HLO, OS
	1 μ A – 200 μ A		$1 \cdot 10^{-4} \cdot I$, minimum 0.5 nA	Measuring	
	200 μ A – 20 mA		$3 \cdot 10^{-5} \cdot I$	Measuring	
	20 mA – 200 mA		$7 \cdot 10^{-5} \cdot I$	Measuring	
	0.2 A – 2 A		$2.5 \cdot 10^{-4} \cdot I$	Measuring	

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	2 A – 20 A		$6 \cdot 10^{-4} \cdot I$	Measuring	
	0 μ A – 220 mA		$1.0 \cdot 10^{-4} \cdot I$, minimum 0.5 nA	Generate compliance < 0,5 V	
	0.22 A – 2.2 A		$1 \cdot 10^{-4} \cdot I$	Generate compliance < 0,5 V	
	2.2 A – 20 A		$2.0 \cdot 10^{-4} \cdot I$	Generate compliance < 0,5 V	
	20 A – 1000 A		$5 \cdot 10^{-3} \cdot I$	Generate, with coils	
LF 3 0	Alternating voltage				HLO, OS
	10 mV – 200 mV	20 Hz – 20 kHz	$1.4 \cdot 10^{-3} \cdot U$	Measuring	
	10 mV – 200 mV	20 kHz – 100 kHz	$4 \cdot 10^{-3} \cdot U$	Measuring	
	0.2 V – 2 V	20 Hz – 10 kHz	$2.0 \cdot 10^{-4} \cdot U$	Measuring	
	0.2 V – 2 V	10 kHz – 100 kHz	$1.0 \cdot 10^{-3} \cdot U$	Measuring	
	2 V – 20 V	20 Hz – 10 kHz	$1.6 \cdot 10^{-4} \cdot U$	Measuring	
	2 V – 20 V	10 kHz – 100 kHz	$1 \cdot 10^{-3} \cdot U$	Measuring	
	20 V – 200 V	20 Hz – 10 kHz	$1.6 \cdot 10^{-4} \cdot U$	Measuring	
	20 V – 200 V	10 kHz – 100 kHz	$1 \cdot 10^{-3} \cdot U$	Measuring	
	200 V – 1000 V	55 Hz – 10 kHz	$2.0 \cdot 10^{-4} \cdot U$	Measuring	
	200 V – 1000 V	10 kHz – 30 kHz	$1.0 \cdot 10^{-3} \cdot U$	Measuring	
	1 kV – 100 kV	50 Hz	$1.0 \cdot 10^{-3} \cdot U$	Measuring	
	2.2 mV – 22 mV	40 Hz – 20 kHz	$5 \cdot 10^{-4} \cdot U$	Generate	
	22 mV – 220 V	40 Hz – 20 kHz	$1.0 \cdot 10^{-4} \cdot U$	Generate	
	220 V – 1100 V	40 Hz – 1 kHz	$1.0 \cdot 10^{-4} \cdot U$	Generate	
LF 4 0	Alternating current				HLO, OS
	10 μ A – 100 μ A	55 Hz – 1 kHz	$4 \cdot 10^{-3} \cdot I$	Measuring	
	100 μ A – 200 mA	55 Hz – 1 kHz	$6 \cdot 10^{-4} \cdot I$	Measuring	
	0.2 A – 2 A	55 Hz – 1 kHz	$1.0 \cdot 10^{-3} \cdot I$	Measuring	

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	2 A – 20 A	55 Hz – 1 kHz	$1.3 \cdot 10^{-3} \cdot I$	Measuring	
	20 A – 600 A	50 Hz	$6 \cdot 10^{-4} \cdot I$	Measuring	
	100 μ A – 220 mA	40 Hz – 1 kHz	$2.0 \cdot 10^{-4} \cdot I$	Generate	
	0.22 A – 2.2 A	40 Hz – 1 kHz	$3 \cdot 10^{-4} \cdot I$	Generate	
	2.2 A – 20 A	40 Hz – 440 Hz	$1.0 \cdot 10^{-3} \cdot I$	Generate	
	20 A – 1000 A	45 – 60 Hz	$5 \cdot 10^{-3} \cdot I$	Generate, with coils Calibration of clamps	HLO
	20 A – 200 A	60 – 440 Hz	$7.5 \cdot 10^{-3} \cdot I$	Generate, with coils Calibration of clamps	HLO
LF 6 1	Resistance				HLO, OS
	100 $\mu\Omega$ - 1 m Ω		$3 \cdot 10^{-4} \cdot R$	Measuring	
	1 m Ω - 100 m Ω		$1.5 \cdot 10^{-4} \cdot R$	Measuring	
	100 m Ω - 1 Ω		$5 \cdot 10^{-5} \cdot R$	Measuring	
	1 Ω – 2 Ω		$3.0 \cdot 10^{-5} \cdot R$	Measuring	
	2 Ω – 2 k Ω		$1.3 \cdot 10^{-5} \cdot R$	Measuring	
	2 k Ω – 20 k Ω		$1.1 \cdot 10^{-5} \cdot R$	Measuring	
	20 k Ω – 2 M Ω		$1.2 \cdot 10^{-5} \cdot R$	Measuring	
	2 M Ω - 20 M Ω		$3.6 \cdot 10^{-5} \cdot R$	Measuring	
	20 M Ω - 200 M Ω		$2.8 \cdot 10^{-4} \cdot R$	Measuring	
	200 M Ω – 2 G Ω		$3.0 \cdot 10^{-3} \cdot R$	Measuring	
	0 Ω		70 $\mu\Omega$	Generate	
	100 $\mu\Omega$, 1 m Ω , 10 m Ω		$1 \cdot 10^{-4} \cdot R$	Generate	
	100 m Ω		$4 \cdot 10^{-5} \cdot R$	Generate	
	1 Ω , 1.9 Ω		$8 \cdot 10^{-5} \cdot R$	Generate	
	10 Ω		$2.5 \cdot 10^{-5} \cdot R$	Generate	

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	19 Ω, 100 Ω, 190 Ω, 1 kΩ, 1.9 kΩ, 10 kΩ, 19 kΩ, 100 kΩ, 190 kΩ		$2.0 \cdot 10^{-5} \cdot R$	Generate	
	1 MΩ, 1.9 MΩ		$3 \cdot 10^{-5} \cdot R$	Generate	
	10 MΩ		$4 \cdot 10^{-5} \cdot R$	Generate	
	19 MΩ, 100 MΩ		$6 \cdot 10^{-5} \cdot R$	Generate	
LF 6 5	LF Capacity				HLO, OS
	2 nF, 10 nF, 20 nF, 200 nF	1 kHz	$1.0 \cdot 10^{-3} \cdot C$	Generate only sine-shaped signals	

HCS code	Measured quantity, Instrument, Measure	Range	CMC ¹	Remarks	Location
PV 1 0	Gas pressure				
PV 1 1	Absolute pressure	(750 - 1150) hPa a	0.3 hPa	By comparison to a reference barometer	HLO
		(0.01 – 1.1) MPa a	$0.3 \text{ hPa} + 25 \cdot 10^{-5} \cdot (p - 100 \text{ kPa}) $		
		(1.1 – 60.1) MPa a	$ 1 \cdot 10^{-3} \cdot (p - 0.1 \text{ MPa}) $	By comparison with digital pressure indicators	HLO, OS
PV 1 2	Relative pressure	(-1.5 - -90) kPa g	$25 \cdot 10^{-5} \cdot p_e$		HLO
		(1.5 - 1000) kPa g	$25 \cdot 10^{-5} \cdot p_e$		
		(1 - 60) MPa g	$1 \cdot 10^{-3} \cdot p_e$	By comparison with digital pressure indicators	HLO, OS
PV 2 0	Liquid pressure				