

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

**Field of measured quantity:**      **electrical quantities**

**Calibration:**      Nominal calibration temperature:       $(23 \pm 2) ^\circ\text{C}$

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
1	<b>Direct-current voltage</b> Measurement 0 mV to 20 mV 20 mV to 50 mV 50 mV to 100 mV 100 mV to 200 mV 200 mV to 500 mV 500 mV to 1 V 1 V to 2 V 2 V to 5 V 5 V to 10 V 10 V to 20 V 20 V to 50 V 50 V to 100 V 100 V to 200 V 200 V to 500 V 500 V to 1000 V		0.50 μV 0.0011 % 0.00068 % 0.00057 % 0.00052 % 0.00038 % 0.00034 % 0.00051 % 0.00038 % 0.00034 % 0.00064 % 0.00051 % 0.00047 % 0.00070 % 0.00055 %	TP1, TP21
	<b>Direct-current voltage</b> Generation 10 μV to 20 mV 20 mV to 50 mV 50 mV to 100 mV 100 mV to 200 mV 200 mV to 500 mV 500 mV to 1 V 1 V to 2 V 2 V to 5 V 5 V to 10 V 10 V to 20 V 20 V to 50 V 50 V to 100 V 100 V to 200 V 200 V to 500 V 500 V to 1000 V		0.9 μV 0.0039 % 0.0021 % 0.0015 % 0.0013 % 0.0009 % 0.00078 % 0.00073 % 0.00057 % 0.00052 % 0.0011 % 0.0009 % 0.0008 % 0.0013 % 0.0011 %	TP1, TP21

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
1*	<b>Direct-current voltage</b> Measurement 0 mV to 20 mV 20 mV to 50 mV 50 mV to 100 mV 100 mV to 200 mV 200 mV to 500 mV 500 mV to 2 V 2 V to 10 V 10 V to 20 V 20 V to 50 V 50 V to 100 V 100 V to 300 V 300 V to 600 V 600 V to 800 V 800 V to 1000 V		1 μV 0.0041 % 0.0025 % 0.0019 % 0.0015 % 0.0013 % 0.0011 % 0.0019 % 0.0016 % 0.0014 % 0.0016 % 0.0019 % 0.0022 % 0.0027 %	TP1, TP21
	<b>Direct-current voltage</b> Generation 0.1 mV to 100 mV 100 mV to 150 mV 150 mV to 200 mV 200 mV to 500 mV 500 mV to 1 V 1 V to 2 V 2 V to 5 V 5 V to 10 V 10 V to 20 V 20 V to 50 V 50 V to 100 V 100 V to 200 V 200 V to 500 V 500 V to 1000 V		4 μV 0.0040 % 0.0033 % 0.0026 % 0.0017 % 0.0014 % 0.0025 % 0.0015 % 0.0013 % 0.0030 % 0.0021 % 0.0019 % 0.0031 % 0.0023 %	TP1, TP21
	<b>pH</b> (electric method) (0 to 14) pH (-1500 to +1500) mV		0.01 pH 0.02 mV	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
2	<b>Alternating-current voltage</b> Measurement 1 mV to 10 mV	10 Hz to 100 Hz	6 μV	TP2, TP21
		100 Hz to 305 Hz	5 μV	
		305 Hz to 2 kHz	4 μV	
		2 kHz to 10 kHz	6 μV	
		10 kHz to 30 kHz	12 μV	
		30 kHz to 100 kHz	28 μV	
	10 mV to 20 mV	10 Hz to 100 Hz	8 μV	
		100 Hz to 305 Hz	7 μV	
		305 Hz to 2 kHz	6 μV	
		2 kHz to 10 kHz	8 μV	
10 kHz to 30 kHz		15 μV		
20 mV to 50 mV	30 kHz to 100 kHz	35 μV		
	10 Hz to 40 Hz	0.041 %		
	40 Hz to 100 Hz	0.038 %		
	100 Hz to 305 Hz	0.034 %		
	305 Hz to 2 kHz	0.029 %		
	2 kHz to 10 kHz	0.036 %		
50 mV to 100 mV	10 kHz to 30 kHz	0.074 %		
	30 kHz to 100 kHz	0.18 %		
	10 Hz to 40 Hz	0.027 %		
	40 Hz to 100 Hz	0.025 %		
	100 Hz to 305 Hz	0.024 %		
	305 Hz to 2 kHz	0.021 %		
100 mV to 200 mV	2 kHz to 10 kHz	0.023 %		
	10 kHz to 30 kHz	0.049 %		
	30 kHz to 100 kHz	0.12 %		
	10 Hz to 40 Hz	0.018 %		
	40 Hz to 100 Hz	0.015 %		
	100 Hz to 2 kHz	0.014 %		
100 mV to 200 mV	2 kHz to 10 kHz	0.015 %		
	10 kHz to 30 kHz	0.039 %		
	30 kHz to 100 kHz	0.091 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
2	200 mV to 500 mV	10 Hz to 40 Hz	0.022 %	TP2, TP21
		40 Hz to 100 Hz	0.019 %	
		100 Hz to 2 kHz	0.018 %	
		2 kHz to 10 kHz	0.019 %	
		10 kHz to 30 kHz	0.041 %	
		30 kHz to 100 kHz	0.16 %	
		100 kHz to 300 kHz	1.3 %	
	500 mV to 1 V	10 Hz to 40 Hz	0.016 %	
		40 Hz to 100 Hz	0.013 %	
		100 Hz to 2 kHz	0.012 %	
		2 kHz to 10 kHz	0.013 %	
		10 kHz to 30 kHz	0.029 %	
		30 kHz to 100 kHz	0.091 %	
		100 kHz to 300 kHz	0.70 %	
	1 V to 2 V	10 Hz to 40 Hz	0.013 %	
		40 Hz to 100 Hz	0.011 %	
		100 Hz to 2 kHz	0.0084 %	
		2 kHz to 10 kHz	0.011 %	
		10 kHz to 30 kHz	0.025 %	
		30 kHz to 100 kHz	0.071 %	
100 kHz to 300 kHz		0.50 %		
2 V to 5 V	10 Hz to 40 Hz	0.021 %		
	40 Hz to 100 Hz	0.019 %		
	100 Hz to 2 kHz	0.017 %		
	2 kHz to 10 kHz	0.019 %		
	10 kHz to 30 kHz	0.041 %		
	30 kHz to 100 kHz	0.16 %		
	100 kHz to 300 kHz	1.3 %		
5 V to 10 V	10 Hz to 40 Hz	0.015 %		
	40 Hz to 100 Hz	0.013 %		
	100 Hz to 2 kHz	0.011 %		
	2 kHz to 10 kHz	0.013 %		
	10 kHz to 30 kHz	0.029 %		
	30 kHz to 100 kHz	0.091 %		
	100 kHz to 300 kHz	0.70 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
2	10 V to 20 V	10 Hz to 40 Hz	0.013 %	TP2, TP21
		40 Hz to 100 Hz	0.011 %	
		100 Hz to 2 kHz	0.0084 %	
		2 kHz to 10 kHz	0.011 %	
		10 kHz to 30 kHz	0.025 %	
		30 kHz to 100 kHz	0.071 %	
		100 kHz to 300 kHz	0.50 %	
		300 kHz to 1 MHz	3.0 %	
	20 V to 50 V	10 Hz to 40 Hz	0.022 %	
		40 Hz to 100 Hz	0.019 %	
		100 Hz to 2 kHz	0.017 %	
		2 kHz to 10 kHz	0.019 %	
		10 kHz to 30 kHz	0.041 %	
		30 kHz to 100 kHz	0.16 %	
	50 V to 100 V	10 Hz to 40 Hz	0.016 %	
		40 Hz to 100 Hz	0.013 %	
		100 Hz to 2 kHz	0.012 %	
		2 kHz to 10 kHz	0.013 %	
		10 kHz to 30 kHz	0.029 %	
		30 kHz to 100 kHz	0.091 %	
	100 V to 200 V	10 Hz to 40 Hz	0.014 %	
		40 Hz to 100 Hz	0.011 %	
		100 Hz to 2 kHz	0.0089 %	
		2 kHz to 10 kHz	0.011 %	
10 kHz to 30 kHz		0.025 %		
30 kHz to 100 kHz		0.071 %		
200 V to 500 V	40 Hz to 10 kHz	0.020 %		
	10 kHz to 30 kHz	0.041 %		
500 V to 1000 V	40 Hz to 10 kHz	0.014 %		
	10 kHz to 30 kHz	0.029 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
2	<b>Alternating current voltage</b> Generation 1 mV to 10 mV	10 Hz to 100 Hz  100 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz	0.85 %  0.78 % 0.85 % 1.4 % 2.9 %	TP2, TP21
	10 mV to 20 mV	1 Hz to 40 Hz 40 Hz to 100 Hz 100 Hz to 330 Hz 330 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 1 MHz	0.12 % 0.11 % 0.10 % 0.092 % 0.11 % 0.17 % 0.37 % 0.76 % 2.3 %	
	20 mV to 50 mV	1 Hz to 40 Hz 40 Hz to 100 Hz 100 Hz to 330 Hz 330 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 1 MHz	0.077 % 0.072 % 0.069 % 0.066 % 0.070 % 0.096 % 0.20 % 0.55 % 1.7 %	
	50 mV to 100 mV	1 Hz to 40 Hz 40 Hz to 100 Hz 100 Hz to 330 Hz 330 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 1 MHz	0.044 % 0.039 % 0.038 % 0.035 % 0.037 % 0.057 % 0.14 % 0.44 % 1.5 %	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
2	100 mV to 200 mV	1 Hz to 40 Hz	0.031 %	TP2, TP21
		40 Hz to 330 Hz	0.024 %	
		330 Hz to 2 kHz	0.025 %	
		2 kHz to 10 kHz	0.023 %	
		10 kHz to 30 kHz	0.044 %	
		30 kHz to 100 kHz	0.11 %	
		100 kHz to 300 kHz	0.51 %	
		300 kHz to 1 MHz	1.5 %	
	200 mV to 500 mV	10 Hz to 40 Hz	0.036 %	
		40 Hz to 2 kHz	0.026 %	
		2 kHz to 10 kHz	0.022 %	
		10 kHz to 30 kHz	0.043 %	
		30 kHz to 100 kHz	0.17 %	
		100 kHz to 300 kHz	0.44 %	
	500 mV to 1 V	300 kHz to 1 MHz	1.5 %	
		1 Hz to 40 Hz	0.024 %	
		40 Hz to 100 Hz	0.017 %	
		100 Hz to 330 Hz	0.016 %	
		330 Hz to 2 kHz	0.014 %	
		2 kHz to 10 kHz	0.015 %	
10 kHz to 30 kHz		0.030 %		
30 kHz to 100 kHz		0.093 %		
1 V to 2 V	100 kHz to 300 kHz	0.39 %		
	300 kHz to 1 MHz	1.4 %		
	1 Hz to 40 Hz	0.019 %		
	40 Hz to 100 Hz	0.014 %		
	100 Hz to 2 kHz	0.012 %		
	2 kHz to 10 kHz	0.013 %		
	10 kHz to 30 kHz	0.026 %		
	30 kHz to 100 kHz	0.072 %		
2 V to 5 V	100 kHz to 300 kHz	0.49 %		
	300 kHz to 1 MHz	1.5 %		
	10 Hz to 40 Hz	0.035 %		
	40 Hz to 100 Hz	0.026 %		
		100 Hz to 2 kHz	0.025 %	
		2 kHz to 10 kHz	0.022 %	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
2		10 kHz to 30 kHz	0.043 %	TP2, TP21
		30 kHz to 100 kHz	0.17 %	
		100 kHz to 300 kHz	0.43 %	
		300 kHz to 1 MHz	1.5 %	
	5 V to 10 V	10 Hz to 40 Hz	0.023 %	
		40 Hz to 100 Hz	0.017 %	
		100 Hz to 2 kHz	0.016 %	
		2 kHz to 10 kHz	0.015 %	
		10 kHz to 30 kHz	0.030 %	
		30 kHz to 100 kHz	0.093 %	
		100 kHz to 300 kHz	0.39 %	
		300 kHz to 1 MHz	1.4 %	
	10 V to 20 V	1 Hz to 40 Hz	0.019 %	
		40 Hz to 100 Hz	0.014 %	
		100 Hz to 2 kHz	0.012 %	
		2 kHz to 10 kHz	0.013 %	
		10 kHz to 30 kHz	0.026 %	
		30 kHz to 100 kHz	0.072 %	
		100 kHz to 300 kHz	0.52 %	
		300 kHz to 1 MHz	3.1 %	
	20 V to 50 V	10 Hz to 40 Hz	0.026 %	
		40 Hz to 100 Hz	0.027 %	
		100 Hz to 2 kHz	0.026 %	
		2 kHz to 10 kHz	0.023 %	
10 kHz to 30 kHz		0.045 %		
30 kHz to 100 kHz		0.17 %		
50 V to 100 V	10 Hz to 40 Hz	0.021 %		
	40 Hz to 100 Hz	0.018 %		
	100 Hz to 2 kHz	0.017 %		
	2 kHz to 10 kHz	0.016 %		
	10 kHz to 30 kHz	0.032 %		
	30 kHz to 100 kHz	0.094 %		
100 V to 200 V	1 Hz to 40 Hz	0.019 %		
	40 Hz to 100 Hz	0.015 %		
	100 Hz to 330 Hz	0.013 %		
	330 Hz to 2 kHz	0.012 %		
	2 kHz to 10 kHz	0.013 %		



**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification	
2		10 kHz to 30 kHz	0.027 %	TP2, TP21	
		30 kHz to 100 kHz	0.074 %		
	200 V to 500 V	45 Hz to 10 kHz	0.035 %		
		10 kHz to 30 kHz	0.050 %		
500 V to 1000 V	45 Hz to 10 kHz	0.026 %	0.037 %		
	10 kHz to 30 kHz				
2*	<b>Alternating-current voltage</b> Measurement 1 mV to 5 mV	10 Hz to 40 Hz	8 μV	TP2, TP21	
		40 Hz to 10 kHz	5 μV		
		10 kHz to 20 kHz	8 μV		
		20 kHz to 50 kHz	11 μV		
		50 kHz to 100 kHz	0.87 %		
	5 mV to 10 mV	10 Hz to 40 Hz	0.15 %		0.086 %
		40 Hz to 1 kHz	0.086 %		
		1 kHz to 10 kHz	0.092 %		
		10 kHz to 20 kHz	0.16 %		
		20 kHz to 50 kHz	0.21 %		
		50 kHz to 100 kHz	0.63 %		
	10 mV to 20 mV	10 Hz to 40 Hz	0.086 %		0.058 %
		40 Hz to 1 kHz	0.058 %		
		1 kHz to 10 kHz	0.063 %		
		10 kHz to 20 kHz	0.11 %		
		20 kHz to 50 kHz	0.12 %		
		50 kHz to 100 kHz	0.16 %		
		100 kHz to 300 kHz	0.72 %		
		300 kHz to 1 MHz	2.1 %		
	20 mV to 50 mV	10 Hz to 40 Hz	0.061 %		0.037 %
40 Hz to 1 kHz		0.037 %			
1 kHz to 10 kHz		0.041 %			
10 kHz to 20 kHz		0.085 %			
20 kHz to 50 kHz		0.093 %			
50 kHz to 100 kHz		0.14 %			
100 kHz to 300 kHz		0.51 %			
300 kHz to 1 MHz		1.6 %			
50 mV to 100 mV	10 Hz to 40 Hz	0.047 %			

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
2*		40 Hz to 1 kHz	0.024 %	TP2, TP21
		1 kHz to 10 kHz	0.029 %	
		10 kHz to 20 kHz	0.071 %	
		20 kHz to 50 kHz	0.079 %	
		50 kHz to 100 kHz	0.12 %	
		100 kHz to 300 kHz	0.41 %	
		300 kHz to 1 MHz	1.3 %	
	100 mV to 200 mV	10 Hz to 40 Hz	0.068 %	
		40 Hz to 1 kHz	0.036 %	
		1 kHz to 10 kHz	0.043 %	
		10 kHz to 20 kHz	0.075 %	
		20 kHz to 50 kHz	0.086 %	
		50 kHz to 100 kHz	0.14 %	
		100 kHz to 300 kHz	0.48 %	
	200 mV to 500 mV	10 Hz to 40 Hz	0.046 %	
		40 Hz to 1 kHz	0.023 %	
		1 kHz to 10 kHz	0.030 %	
		10 kHz to 20 kHz	0.048 %	
		20 kHz to 50 kHz	0.061 %	
		50 kHz to 100 kHz	0.12 %	
100 kHz to 300 kHz		0.42 %		
500 mV to 1 V	10 Hz to 40 Hz	0.035 %		
	40 Hz to 1 kHz	0.015 %		
	1 kHz to 10 kHz	0.023 %		
	10 kHz to 20 kHz	0.032 %		
	20 kHz to 50 kHz	0.046 %		
	50 kHz to 100 kHz	0.10 %		
	100 kHz to 300 kHz	0.38 %		
1 V to 2 V	10 Hz to 40 Hz	0.032 %		
	40 Hz to 1 kHz	0.013 %		
	1 kHz to 10 kHz	0.041 %		
	10 kHz to 20 kHz	0.044 %		
	20 kHz to 50 kHz	0.061 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
2*		50 kHz to 100 kHz	0.12 %	TP2, TP21
		100 kHz to 300 kHz	0.48 %	
		300 kHz to 1 MHz	1.5 %	
	2 V to 5 V	10 Hz to 40 Hz	0.042 %	
		40 Hz to 1 kHz	0.021 %	
		1 kHz to 10 kHz	0.029 %	
		10 kHz to 20 kHz	0.033 %	
		20 kHz to 50 kHz	0.050 %	
		50 kHz to 100 kHz	0.11 %	
		100 kHz to 300 kHz	0.41 %	
	5 V to 10 V	300 kHz to 1 MHz	1.3 %	
		10 Hz to 40 Hz	0.033 %	
40 Hz to 1 kHz		0.015 %		
1 kHz to 10 kHz		0.022 %		
10 kHz to 20 kHz		0.026 %		
20 kHz to 50 kHz		0.043 %		
50 kHz to 100 kHz		0.10 %		
10 V to 20 V	100 kHz to 300 kHz	0.38 %		
	300 kHz to 1 MHz	1.3 %		
	10 Hz to 40 Hz	0.075 %		
	40 Hz to 10 kHz	0.047 %		
	10 kHz to 20 kHz	0.049 %		
20 V to 50 V	20 kHz to 50 kHz	0.066 %		
	50 kHz to 100 kHz	0.17 %		
	10 Hz to 40 Hz	0.055 %		
	40 Hz to 10 kHz	0.036 %		
	10 kHz to 20 kHz	0.039 %		
50 V to 100 V	20 kHz to 50 kHz	0.055 %		
	50 kHz to 100 kHz	0.16 %		
	10 Hz to 40 Hz	0.043 %		
	40 Hz to 10 kHz	0.029 %		
	10 kHz to 20 kHz	0.034 %		
100 V to 200 V	20 kHz to 50 kHz	0.050 %		
	50 kHz to 100 kHz	0.15 %		
	40 Hz to 1 kHz	0.070 %		
		1 kHz to 10 kHz	0.094 %	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification		
2*		10 kHz to 20 kHz	0.17 %	TP2, TP21		
		20 kHz to 50 kHz	0.21 %			
		50 kHz to 90 kHz	0.38 %			
	200 V to 500 V	40 Hz to 1 kHz	0.059 %			
		1 kHz to 10 kHz	0.083 %			
		10 kHz to 20 kHz	0.24 %			
		20 kHz to 50 kHz	0.27 %			
		50 kHz to 90 kHz	0.39 %			
	500 V to 700 V	40 Hz to 1 kHz	0.053 %			
		1 kHz to 10 kHz	0.077 %			
		10 kHz to 20 kHz	0.25 %			
		20 kHz to 50 kHz	0.28 %			
		50 kHz to 90 kHz	0.42 %			
	<b>Alternating-current voltage</b> Generation					TP2, TP21
	2 mV to 5 mV	10 Hz to 30 kHz	1.6 %			
30 kHz to 50 kHz		2.0 %				
50 kHz to 100 kHz		2.8 %				
5 mV to 10 mV	10 Hz to 45 Hz	0.65 %				
	45 Hz to 10 kHz	0.59 %				
	10 kHz to 20 kHz	0.68 %				
	20 kHz to 30 kHz	0.74 %				
	30 kHz to 50 kHz	0.90 %				
10 mV to 20 mV	50 kHz to 100 kHz	1.3 %				
	10 Hz to 45 Hz	0.42 %				
	45 Hz to 10 kHz	0.36 %				
	10 kHz to 20 kHz	0.44 %				
	20 kHz to 30 kHz	0.49 %				
20 mV to 50 mV	30 kHz to 50 kHz	0.58 %				
	50 kHz to 100 kHz	0.86 %				
	10 Hz to 45 Hz	0.17 %				
	45 Hz to 1 kHz	0.11 %				
	1 kHz to 10 kHz	0.18 %				
	10 kHz to 20 kHz	0.20 %				
	20 kHz to 30 kHz	0.35 %				
	30 kHz to 100 kHz	0.39 %				

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
2*		100 kHz to 300 kHz	1.1 %	TP2, TP21
		300 kHz to 500 kHz	1.9 %	
	50 mV to 100 mV	10 Hz to 45 Hz	0.11 %	
		45 Hz to 1 kHz	0.053 %	
		1 kHz to 10 kHz	0.083 %	
		10 kHz to 20 kHz	0.093 %	
		20 kHz to 30 kHz	0.21 %	
		30 kHz to 100 kHz	0.24 %	
		100 kHz to 300 kHz	0.71 %	
		300 kHz to 500 kHz	1.5 %	
	100 mV to 200 mV	10 Hz to 45 Hz	0.089 %	
		45 Hz to 1 kHz	0.033 %	
1 kHz to 10 kHz		0.049 %		
10 kHz to 20 kHz		0.061 %		
20 kHz to 30 kHz		0.16 %		
30 kHz to 100 kHz		0.18 %		
100 kHz to 300 kHz		0.67 %		
200 mV to 500 mV	10 Hz to 45 Hz	0.16 %		
	45 Hz to 1 kHz	0.087 %		
	1 kHz to 20 kHz	0.13 %		
	20 kHz to 30 kHz	0.25 %		
	30 kHz to 100 kHz	0.29 %		
	100 kHz to 300 kHz	0.70 %		
	300 kHz to 1 MHz	1.6 %		
500 mV to 1 V	10 Hz to 45 Hz	0.096 %		
	45 Hz to 1 kHz	0.046 %		
	1 kHz to 10 kHz	0.062 %		
	10 kHz to 20 kHz	0.067 %		
	20 kHz to 30 kHz	0.15 %		
	30 kHz to 100 kHz	0.17 %		
	100 kHz to 300 kHz	0.55 %		
1 V to 2 V	10 Hz to 45 Hz	0.075 %		
	45 Hz to 1 kHz	0.033 %		
	1 kHz to 10 kHz	0.041 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
2*		10 kHz to 20 kHz	0.047 %	TP2, TP21
		20 kHz to 30 kHz	0.11 %	
		30 kHz to 100 kHz	0.13 %	
		100 kHz to 300 kHz	0.60 %	
		300 kHz to 1 MHz	1.7 %	
	2 V to 5 V	10 Hz to 45 Hz	0.15 %	
		45 Hz to 1 kHz	0.075 %	
		1 kHz to 20 kHz	0.12 %	
		20 kHz to 30 kHz	0.25 %	
		30 kHz to 100 kHz	0.29 %	
	5 V to 10 V	10 Hz to 45 Hz	0.088 %	
		45 Hz to 1 kHz	0.041 %	
		1 kHz to 10 kHz	0.057 %	
		10 kHz to 20 kHz	0.063 %	
20 kHz to 30 kHz		0.14 %		
10 V to 20 V	10 Hz to 45 Hz	0.070 %		
	45 Hz to 1 kHz	0.029 %		
	1 kHz to 10 kHz	0.039 %		
	10 kHz to 20 kHz	0.045 %		
	20 kHz to 100 kHz	0.12 %		
20 V to 50 V	30 Hz to 45 Hz	0.17 %		
	45 Hz to 1 kHz	0.086 %		
	1 kHz to 10 kHz	0.12 %		
	10 kHz to 30 kHz	0.21 %		
	30 kHz to 40 kHz	0.26 %		
50 V to 100 V	30 Hz to 45 Hz	0.098 %		
	45 Hz to 1 kHz	0.045 %		
	1 kHz to 10 kHz	0.058 %		
	10 kHz to 30 kHz	0.11 %		
	30 kHz to 40 kHz	0.14 %		
100 V to 200 V	30 Hz to 45 Hz	0.075 %		
	45 Hz to 1 kHz	0.031 %		
	1 kHz to 10 kHz	0.039 %		
	10 kHz to 30 kHz	0.068 %		
	30 kHz to 40 kHz	0.095 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
2*	200 V to 500 V	45 Hz to 1 kHz 1 kHz to 10 kHz	0.056 % 0.095 %	TP2, TP21
	500 V to 1000 V	46 Hz to 1 kHz 1 kHz to 10 kHz	0.035 % 0.054 %	
3	<b>Direct current</b> Measurement 0 nA to 20 µA 20 µA to 50 µA 50 µA to 100 µA 100 µA to 200 µA 200 µA to 500 µA 500 µA to 1 mA 1 mA to 2 mA 2 mA to 5 mA 5 mA to 10 mA 10 mA to 20 mA 20 mA to 50 mA 50 mA to 100 mA 100 mA to 200 mA 200 mA to 500 mA 500 mA to 1 A 1 A to 100 A 200 A 300 A 400 A 500 A 600 A		0.6 nA 0.0029 % 0.0017 % 0.0013 % 0.0028 % 0.0017 % 0.0013 % 0.0029 % 0.0017 % 0.0013 % 0.0074 % 0.0050 % 0.0042 % 0.024 % 0.019 % 0.020 % 0.020 % 0.020 % 0.020 % 0.020 % 0.020 %	TP3, TP21
	<b>Direct current</b> Generation 0.2 µA to 20 µA 20 µA to 50 µA 50 µA to 100 µA 100 µA to 200 µA 200 µA to 500 µA 500 µA to 1 mA 1 mA to 2 mA 2 mA to 5 mA		5 nA 0.024 % 0.017 % 0.015 % 0.011 % 0.0072 % 0.0060 % 0.011 %	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
3	5 mA to 10 mA 10 mA to 20 mA 20 mA to 50 mA 50 mA to 100 mA 100 mA to 200 mA 200 mA to 500 mA 500 mA to 1 A 1 A to 2 A 2 A to 11 A 11 A to 1000 A		0.0072 % 0.0060 % 0.013 % 0.0086 % 0.0072 % 0.035 % 0.027 % 0.031 % 0.029 % 0.50 %	TP3, TP21
3*	<b>Direct current</b> Measurement 0 nA to 10 µA 10 µA to 20 µA 20 µA to 50 µA 50 µA to 100 µA 100 µA to 200 µA 200 µA to 500 µA 500 µA to 1 mA 1 mA to 2 mA 2 mA to 5 mA 5 mA to 10 mA 10 mA to 20 mA 20 mA to 50 mA 50 mA to 100 mA 100 mA to 200 mA 200 mA to 500 mA 500 mA to 1 A 1 A to 100 A 200 A 300 A 400 A 500 A 600 A		7 nA 0.066 % 0.035 % 0.017 % 0.014 % 0.0088 % 0.0061 % 0.012 % 0.0076 % 0.0056 % 0.016 % 0.011 % 0.0079 % 0.032 % 0.024 % 0.019 % 0.020 % 0.020 % 0.020 % 0.020 % 0.020 % 0.020 %	TP3, TP21



**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
3*	<b>Direct current</b> Generation 1 µA to 20 µA 20 µA to 50 µA 50 µA to 100 µA 100 µA to 200 µA 200 µA to 500 µA 500 µA to 1 mA 1 mA to 2 mA 2 mA to 5 mA 5 mA to 10 mA 10 mA to 20 mA 20 mA to 50 mA 50 mA to 100 mA 100 mA to 200 mA 200 mA to 500 mA 500 mA to 1 A 1 A to 2 A 2 A to 5 A 5 A to 10 A 10 A to 20 A 20 A to 30 A 30 A to 1000 A		14 nA 0.068 % 0.033 % 0.021 % 0.023 % 0.012 % 0.0082 % 0.017 % 0.0094 % 0.0071 % 0.018 % 0.011 % 0.0082 % 0.037 % 0.026 % 0.023 % 0.046 % 0.037 % 0.034 % 0.042 % 0.50 %	TP3, TP21
4	<b>Alternating current</b> Measurement 10 µA to 20 µA 20 µA to 50 µA 50 µA to 100 µA 100 µA to 200 µA 200 µA to 500 µA 500 µA to 1 mA 1 mA to 2 mA 2 mA to 5 mA	10 Hz to 5 kHz 10 Hz to 5 kHz 10 Hz to 1 kHz 1 kHz to 5 kHz 10 Hz to 1 kHz 1 kHz to 5 kHz 10 Hz to 10 kHz 10 Hz to 5 kHz 5 kHz to 10 kHz 10 Hz to 10 kHz 10 Hz to 10 kHz	29 nA 0.15 % 0.071 % 0.082 % 0.046 % 0.048 % 0.14 % 0.067 % 0.071 % 0.047 % 0.13 %	TP4, TP21

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification	
4	5 mA to 10 mA	10 Hz to 10 kHz	0.066 %	TP4, TP21	
	10 mA to 20 mA	10 Hz to 10 kHz	0.046 %		
	20 mA to 50 mA	10 Hz to 10 kHz	0.13 %		
	50 mA to 100 mA	10 Hz to 10 kHz	0.066 %		
	100 mA to 200 mA	10 Hz to 10 kHz	0.046 %		
	200 mA to 500 mA	10 Hz to 10 kHz	0.18 %		
	500 mA to 1 A	10 Hz to 10 kHz	0.12 %		
	1 A to 2 A		10 Hz to 2 kHz		0.081 %
			2 kHz to 10 kHz		0.093 %
	2 A to 5 A		10 Hz to 2 kHz		0.19 %
			2 kHz to 10 kHz		0.36 %
	5 A to 10 A		10 Hz to 2 kHz		0.13 %
			2 kHz to 10 kHz		0.30 %
	10 A to 20 A		10 Hz to 2 kHz		0.11 %
			2 kHz to 10 kHz		0.28 %
	20 A to 25 A		50 Hz		0.44 %
	25 A to 50 A		50 Hz		0.27 %
	50 A to 60 A		50 Hz		0.20 %
	60 A to 70 A		50 Hz		0.33 %
	70 A to 80 A		50 Hz		0.30 %
80 A to 120 A		50 Hz	0.28 %		
120 A to 150 A		50 Hz	0.24 %		
150 A to 300 A		50 Hz	0.21 %		
300 A to 600 A		50 Hz	0.18 %		
600 A to 1200 A		50 Hz	0.23 %		
	<b>Alternating current Generation</b>			TP4, TP21	
10 µA to 20 µA		10 Hz to 1 kHz	34 nA		
		1 kHz to 5 kHz	39 nA		
20 µA to 50 µA		10 Hz to 1 kHz	0.17 %		
		1 kHz to 5 kHz	0.19 %		
50 µA to 100 µA		10 Hz to 1 kHz	0.082 %		
		1 kHz to 5 kHz	0.11 %		
100 µA to 200 µA		10 Hz to 1 kHz	0.055 %		
		1 kHz to 5 kHz	0.070 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
4	200 µA to 500 µA	10 Hz to 5 kHz	0.16 %	TP4, TP21
	500 µA to 1 mA	10 Hz to 1 kHz	0.076 %	
		1 kHz to 5 kHz	0.082 %	
	1 mA to 2 mA	10 Hz to 40 Hz	0.052 %	
		40 Hz to 1 kHz	0.058 %	
	2 mA to 5 mA	10 Hz to 5 kHz	0.16 %	
	5 mA to 10 mA	10 Hz to 1 kHz	0.075 %	
		1 kHz to 5 kHz	0.081 %	
	10 mA to 20 mA	10 Hz to 1 kHz	0.052 %	
		1 kHz to 5 kHz	0.058 %	
	20 mA to 50 mA	10 Hz to 1 kHz	0.16 %	
	50 mA to 100 mA	10 Hz to 1 kHz	0.075 %	
		1 kHz to 5 kHz	0.081 %	
	100 mA to 200 mA	10 Hz to 1 kHz	0.052 %	
		1 kHz to 5 kHz	0.058 %	
	200 mA to 500 mA	10 Hz to 1 kHz	0.21 %	
		1 kHz to 5 kHz	0.23 %	
500 mA to 1 A	10 Hz to 5 kHz	0.15 %		
1 A to 2 A	10 Hz to 1 kHz	0.22 %		
	1 kHz to 5 kHz	0.30 %		
2 A to 5 A	10 Hz to 45 kHz	0.23 %		
	45 Hz to 1 kHz	0.17 %		
	1 kHz to 2 kHz	0.27 %		
	2 kHz to 5 kHz	0.41 %		
5 A to 11 A	10 Hz to 45 kHz	0.10 %		
	45 Hz to 1 kHz	0.13 %		
	1 kHz to 2 kHz	0.19 %		
	2 kHz to 5 kHz	0.33 %		
11 A to 20 A	10 Hz to 45 Hz	0.24 %		
	45 Hz to 100 Hz	0.13 %		
	100 Hz to 1 kHz	0.52 %		
20 A to 25 A	50 Hz	0.45 %		
25 A to 30 A	50 Hz	0.28 %		
30 A to 1000 A	50 Hz	0.70 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
4*	<b>Alternating current</b> Measurement 10 µA to 20 µA	20 Hz to 45 Hz	71 nA	TP4, TP21
		45 Hz to 1 kHz	50 nA	
	20 µA to 50 µA	20 Hz to 45 Hz	0.36 %	
		45 Hz to 1 kHz	0.25 %	
	50 µA to 100 µA	20 Hz to 45 Hz	0.25 %	
		45 Hz to 1 kHz	0.15 %	
		1 kHz to 5 kHz	0.073 %	
	100 µA to 200 µA	20 Hz to 45 Hz	0.41 %	
		45 Hz to 100 Hz	0.31 %	
		100 Hz to 1 kHz	0.27 %	
		1 kHz to 5 kHz	0.31 %	
	200 µA to 500 µA	20 Hz to 45 Hz	0.30 %	
45 Hz to 100 Hz		0.19 %		
100 Hz to 1 kHz		0.16 %		
1 kHz to 5 kHz		0.18 %		
500 µA to 1 mA	20 Hz to 45 Hz	0.22 %		
	45 Hz to 100 Hz	0.12 %		
	100 Hz to 1 kHz	0.083 %		
	1 kHz to 5 kHz	0.093 %		
1 mA to 2 mA	20 Hz to 45 Hz	0.41 %		
	45 Hz to 100 Hz	0.31 %		
	100 Hz to 5 kHz	0.27 %		
2 mA to 5 mA	20 Hz to 45 Hz	0.29 %		
	45 Hz to 100 Hz	0.19 %		
	100 Hz to 5 kHz	0.16 %		
5 mA to 10 mA	20 Hz to 45 Hz	0.23 %		
	45 Hz to 100 Hz	0.12 %		
	100 Hz to 1 kHz	0.083 %		
	1 kHz to 5 kHz	0.085 %		
10 mA to 20 mA	20 Hz to 45 Hz	0.41 %		
	45 Hz to 100 Hz	0.31 %		
	100 Hz to 5 kHz	0.27 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
4*	20 mA to 50 mA	20 Hz to 45 Hz	0.29 %	TP4, TP21
		45 Hz to 100 Hz	0.19 %	
		100 Hz to 5 kHz	0.16 %	
	50 mA to 100 mA	20 Hz to 45 Hz	0.23 %	
		45 Hz to 100 Hz	0.12 %	
		100 Hz to 1 kHz	0.083 %	
		1 kHz to 5 kHz	0.085 %	
	100 mA to 200 mA	20 Hz to 45 Hz	0.42 %	
		45 Hz to 1 kHz	0.32 %	
		100 Hz to 5 kHz	0.35 %	
	200 mA to 500 mA	20 Hz to 45 Hz	0.31 %	
		45 Hz to 100 Hz	0.21 %	
		100 Hz to 5 kHz	0.24 %	
	500 mA to 1 A	20 Hz to 45 Hz	0.24 %	
		45 Hz to 100 Hz	0.15 %	
		100 Hz to 5 kHz	0.17 %	
	1 A to 15 A	45 Hz to 1 kHz	0.10 %	
	15 A to 25 A	50 Hz	0.44 %	
	25 A to 50 A	50 Hz	0.27 %	
	50 A to 60 A	50 Hz	0.20 %	
60 A to 70 A	50 Hz	0.33 %		
70 A to 80 A	50 Hz	0.30 %		
80 A to 120A	50 Hz	0.28 %		
120 A to 150 A	50 Hz	0.24 %		
150 A to 300 A	50 Hz	0.21 %		
300 A to 600 A	50 Hz	0.18 %		
600 A to 1200 A	50 Hz	0.23 %		
<b>Alternating current Generation</b>				TP4, TP21
20 µA to 50 µA	10 Hz to 45 Hz	1.7 %		
	45 Hz to 1 kHz	0.94 %		
	1 kHz to 10 kHz	2.1 %		
50 µA to 100 µA	10 Hz to 45 Hz	0.77 %		
	45 Hz to 1 kHz	0.42 %		
	1 kHz to 10 kHz	1.4 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
4*	100 µA to 200 µA	10 Hz to 45 Hz	0.48 %	TP4, TP21
		45 Hz to 1 kHz	0.24 %	
		1 kHz to 10 kHz	1.2 %	
	200 µA to 500 µA	10 Hz to 45 Hz	0.35 %	
		45 Hz to 1 kHz	0.21 %	
		1 kHz to 10 kHz	0.66 %	
	500 µA to 1 mA	10 Hz to 45 Hz	0.25 %	
		45 Hz to 1 kHz	0.12 %	
		1 kHz to 10 kHz	0.54 %	
	1 mA to 2 mA	10 Hz to 45 Hz	0.21 %	
		45 Hz to 1 kHz	0.084 %	
		1 kHz to 10 kHz	0.51 %	
	2 mA to 5 mA	10 Hz to 45 Hz	0.38 %	
45 Hz to 1 kHz		0.21 %		
1 kHz to 10 kHz		0.43 %		
5 mA to 10 mA	10 Hz to 45 Hz	0.26 %		
	45 Hz to 1 kHz	0.11 %		
	1 kHz to 10 kHz	0.31 %		
10 mA to 20 mA	10 Hz to 45 Hz	0.22 %		
	45 Hz to 1 kHz	0.079 %		
	1 kHz to 10 kHz	0.28 %		
20 mA to 50 mA	10 Hz to 45 Hz	0.38 %		
	45 Hz to 1 kHz	0.21 %		
	1 kHz to 10 kHz	0.71 %		
50 mA to 100 mA	10 Hz to 45 Hz	0.26 %		
	45 Hz to 1 kHz	0.11 %		
	1 kHz to 10 kHz	0.56 %		
100 mA to 200 mA	10 Hz to 45 Hz	0.22 %		
	45 Hz to 1 kHz	0.079 %		
	1 kHz to 10 kHz	0.52 %		
200 mA to 500 mA	10 Hz to 45 Hz	0.40 %		
	45 Hz to 1 kHz	0.25 %		
	1 kHz to 5 kHz	0.72 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
4*	500 mA to 1 A	10 Hz to 45 Hz	0.28 %	TP4, TP21
		45 Hz to 1 kHz	0.16 %	
		1 kHz to 5 kHz	0.57 %	
	1 A to 2 A	10 Hz to 45 Hz	0.23 %	
		45 Hz to 1 kHz	0.11 %	
		1 kHz to 5 kHz	0.52 %	
	2 A to 5 A	10 Hz to 45 Hz	0.40 %	
		45 Hz to 100 Hz	0.20 %	
		100 Hz to 1 kHz	0.71 %	
	5 A to 10 A	10 Hz to 45 Hz	0.28 %	
45 Hz to 100 Hz		0.14 %		
100 Hz to 1 kHz		0.57 %		
10 A to 20 A	10 Hz to 45 Hz	0.24 %		
	45 Hz to 100 Hz	0.13 %		
	100 Hz to 1 kHz	0.52 %		
20 A to 25 A	50 Hz	0.45 %		
25 A to 30 A	50 Hz	0.28 %		
30 A to 1000 A	50 Hz	0.70 %		
5	<b>DC resistance</b> Measurement 0 Ω to 1 Ω 1 Ω to 5 Ω 5 Ω to 10 Ω 10 Ω to 20 Ω 20 Ω to 50 Ω 50 Ω to 100 Ω 100 Ω to 200 Ω 200 Ω to 500 Ω 500 Ω to 1 kΩ 1 kΩ to 2 kΩ 2 kΩ to 5 kΩ 5 kΩ to 10 kΩ 10 kΩ to 20 kΩ 20 kΩ to 50 kΩ 50 kΩ to 100 kΩ 100 kΩ to 200 kΩ		15 μΩ 0.0015 % 0.0011 % 0.00089 % 0.0011 % 0.00085 % 0.00079 % 0.0010 % 0.00084 % 0.00079 % 0.0010 % 0.00084 % 0.00079 % 0.0011 % 0.00087 % 0.00081 %	TP5, TP21





**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
5*	20 Ω to 50 Ω 50 Ω to 100 Ω 100 Ω to 200 Ω 200 Ω to 500 Ω 500 Ω to 1 kΩ 1 kΩ to 2 kΩ 2 kΩ to 5 kΩ 5 kΩ to 10 kΩ 10 kΩ to 20 kΩ 20 kΩ to 50 kΩ 50 kΩ to 100 kΩ 100 kΩ to 200 kΩ 200 kΩ to 500 kΩ 500 kΩ to 1 MΩ 1 MΩ to 2 MΩ 2 MΩ to 5 MΩ 5 MΩ to 10 MΩ 10 MΩ to 20 MΩ 20 MΩ to 50 MΩ 50 MΩ to 100 MΩ 100 MΩ to 1 GΩ		0.0046 % 0.0028 % 0.0021 % 0.0018 % 0.0016 % 0.0020 % 0.0017 % 0.0016 % 0.0022 % 0.0019 % 0.0017 % 0.0046 % 0.0036 % 0.0030 % 0.018 % 0.013 % 0.0091 % 0.071 % 0.065 % 0.061 % 0.59 %	TP5, TP21
	<b>DC resistance</b> Generation 0.1 mΩ 1 mΩ, 10 mΩ 100 mΩ 1 Ω 10 Ω, 100 Ω 1 kΩ, 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 1 GΩ 10 GΩ 100 GΩ		0.02 % 0.012 % 0.008 % 0.005 % 0.004 % 0.003 % 0.0035 % 0.0042 % 0.0066 % 0.009 % 0.014 % 0.1 % 0.54 %	TP5, TP21

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
5*	<b>DC resistance</b> Generation 0 Ω to 1 Ω 1 Ω to 5 Ω 5 Ω to 10 Ω 10 Ω to 11 Ω 11 Ω to 20 Ω 20 Ω to 33 Ω 33 Ω to 110 Ω 110 Ω to 330 Ω 330 Ω to 1.1 kΩ 1.1 kΩ to 3.3 kΩ 3.3 kΩ to 11 kΩ 11 kΩ to 33 kΩ 33 kΩ to 110 kΩ 110 kΩ to 330 kΩ 330 kΩ to 1.1 MΩ 1.1 MΩ to 3.3 MΩ 3.3 MΩ to 11 MΩ 11 MΩ to 33 MΩ 33 MΩ to 110 MΩ 110 MΩ to 330 MΩ 330 MΩ to 1.1 GΩ		1.5 mΩ 0.13 % 0.021 % 0.026 % 0.030 % 0.023 % 0.016 % 0.016 % 0.012 % 0.013 % 0.012 % 0.013 % 0.014 % 0.016 % 0.019 % 0.021 % 0.072 % 0.15 % 0.59 % 0.69 % 2.0 %	TP5, TP21
6	<b>A.C. resistance</b> Measurement 0.1 Ω 1 Ω 10 Ω, 100 Ω, 1 kΩ, 10 kΩ, 100 kΩ 1 MΩ 10 MΩ	50 Hz to 10 kHz 20 kHz 50 Hz to 10 kHz 20 kHz 50 Hz to 10 kHz 20 kHz 50 Hz to 20 kHz 50 Hz to 4 kHz 10 kHz 20 kHz	0.5 % 1 % 0.3 % 0.5 % 0.1 % 0.2 % 0.2 % 2 % 3 % 5 %	TP6, TP24

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
6*	<b>A.C. resistance</b> Generation 0,1 Ω, 1 Ω	1 kHz	0.02 %	TP6, TP24
	10 Ω, 100 Ω, 1 kΩ, 10 kΩ, 100 kΩ	1 kHz 1 kHz	0.01 % 0.01 %	
	<b>A.C. resistance</b> Generation, real part of impedance 0.1 Ω	10 Hz to 10 kHz 10 kHz to 0.3 MHz 0.3 MHz to 0.5 MHz 0.5 MHz to 1 MHz	0.03 % 0.45 % 0.55 % 0.8 %	
	1 Ω	10 Hz to 10 kHz 10 kHz to 0.3 MHz 0.3 MHz to 0.5 MHz 0.5 MHz to 1 MHz 1 MHz to 3 MHz 3 MHz to 13 MHz	0.02 % 0.15 % 0.20 % 0.30 % 1.5 % 2.5 %	
	10 Ω	10 Hz to 10 kHz 10 kHz to 0.3 MHz 0.3 MHz to 1 MHz 1 MHz to 5 MHz 5 MHz to 13 MHz	0.02 % 0.05 % 0.08 % 0.30 % 1.0 %	
	100 Ω, 1 kΩ	10 Hz to 10 kHz 10 kHz to 0.3 MHz 0.3 MHz to 1 MHz 1 MHz to 5 MHz 5 MHz to 13 MHz	0.02 % 0.05 % 0.09 % 0.30 % 0.8 %	
	10 kΩ	10 Hz to 10 kHz 10 kHz to 0.3 MHz 0.3 MHz to 0.5 MHz 0.5 MHz to 1 MHz	0.02 % 0.05 % 0.07 % 0.09 %	
	100 kΩ	10 Hz to 10 kHz 10 kHz to 0.5 MHz 0.5 MHz to 1 MHz	0.02 % 0.15 % 0.25 %	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
6*	<b>A.C. resistance</b> Measurement 0.1 Ω to 1 Ω	42 Hz to 100 Hz	6.5 %	TP6, TP24
		100 Hz to 100 kHz	4.7 %	
	1 Ω to 10 Ω	42 Hz to 100 Hz	1.2 %	
		100 Hz to 100 kHz	0.71 %	
		100 kHz to 1 MHz	2.0 %	
	10 Ω to 100 Ω	42 Hz to 100 Hz	0.80 %	
		100 Hz to 10 kHz	0.39 %	
		10 kHz to 100 kHz	0.57 %	
100 kHz to 1 MHz		0.86 %		
1 MHz to 5 MHz		5.0 %		
100 Ω to 10 kΩ	42 Hz to 100 Hz	0.66 %		
	100 Hz to 10 kHz	0.26 %		
	10 kHz to 100 kHz	0.57 %		
	100 kHz to 1 MHz	0.86 %		
	1 MHz to 5 MHz	5.0 %		
10 kΩ to 100 kΩ	42 Hz to 100 Hz	0.66 %		
	100 Hz to 1 kHz	0.26 %		
	1 kHz to 10 kHz	0.36 %		
	10 kHz to 100 kHz	0.92 %		
	100 kHz to 1 MHz	4.7 %		
	1 MHz to 5 MHz	9.8 %		
100 kΩ to 1 MΩ	42 Hz to 100 Hz	1.3 %		
	100 Hz to 10 kHz	0.90 %		
	10 kHz to 100 kHz	1.6 %		
1 MΩ to 10 MΩ	42 Hz to 100 Hz	6.6 %		
	100 Hz to 10 kHz	3.3 %		
	10 kHz to 100 kHz	8.3 %		
7	<b>Capacity</b> Measurement 2 pF to 20 pF	10 kHz	0.3 %	TP7, TP21, TP24
		20 kHz	1.5 %	
	20 pF to 200 pF	1 kHz to 4 kHz	0.3 %	
		10 kHz	0.2 %	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
7	0.20 nF to 2 nF	100 Hz to 400 Hz	0.3 %	TP7, TP21, TP24
		1 kHz to 4 kHz	0.2 %	
		10 kHz	0.1 %	
		20 kHz	0.5 %	
	2 nF to 20 nF	100 Hz to 400 Hz	0.2 %	
		1 kHz to 10 kHz	0.1 %	
		20 kHz	0.5 %	
	20 nF to 200 nF	100 Hz to 10 kHz	0.1 %	
		20 kHz	0.5 %	
	0.2 μF to 2 μF	100 Hz to 4 kHz	0.1 %	
		10 kHz	0.5 %	
	2 μF to 20 μF	100 Hz to 400 Hz	0.1 %	
		1 kHz to 4 kHz	0.5 %	
10 kHz		1 %		
20 kHz		2 %		
20 μF to 200 μF	100 Hz to 400 Hz	0.5 %		
	1 kHz to 4 kHz	1 %		
	10 kHz	2 %		
	20 kHz	5 %		
0.2 mF to 2 mF	100 Hz to 400 Hz	1 %		
	1 kHz to 4 kHz	2 %		
	10 kHz	5 %		
	20 kHz	10 %		
2 mF to 20 mF	100 Hz to 400 Hz	2 %		
	1 kHz to 4 kHz	5 %		
20 mF to 200 mF	100 Hz to 400 Hz	5 %		
	1 pF, 10 pF, 100 pF, 1000 pF, 10 nF	1 kHz	0.003 %	
100 nF, 1 μF	1 kHz	0.005 %		
10 μF	1 kHz	0.007 %		
100 μF	1 kHz	0.02 %		
7*	<b>Capacity</b> Measurement 160 pF to 380 pF 1.6 nF to 16 nF 16 nF to 16 μF	42 Hz to 100 Hz	6.6 % 1.3 % 0.66 %	TP7, TP21, TP24

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
7*	16 µF to 160 µF		0.53 %	TP7, TP21, TP24
	160 µF to 1.6 mF		0.60 %	
	1.6 mF to 16 mF		1.1 %	
	16 pF to 160 pF	100 Hz to 1000 Hz	3.3 %	
	160 pF to 1.6 nF		0.90 %	
	1.6 nF to 1.6 µF		0.26 %	
	1.6 µF to 16 µF		0.12 %	
	16 µF to 160 µF		0.30 %	
	160 µF to 1.6 mF		0.60 %	
	1.6 pF to 16 pF		1 kHz to 10 kHz	
	16 pF to 160 pF	0.90 %		
	160 pF to 1.6 nF	0.36 %		
	1.6 nF to 160 nF	0.26 %		
160 nF to 1.6 µF	0.12 %			
1.6 µF to 16 µF	0.30 %			
16 µF to 160 µF	0.60 %			
1.6 pF to 16 pF	10 kHz to 100 kHz	1.6 %		
16 pF to 160 pF		1.0 %		
160 pF to 16 nF		0.57 %		
16 nF to 1.6 µF		0.30 %		
1.6 µF to 16 µF		0.60 %		
1.6 pF to 16 pF	100 kHz to 1 MHz	4.7 %		
16 pF to 1.6 nF		0.86 %		
1.6 nF to 16 nF		0.45 %		
16 nF to 160 nF		0.60 %		
160 nF to 1.6 µF		1.5 %		
1.6 pF to 160 pF	1 MHz to 5 MHz	5.0 %		
160 pF to 1.6 nF		2.3 %		
3.2 nF to 16 nF		3.0 %		
<b>Capacity</b>				TP7, TP21, TP24
Generation				
1 pF, 10 pF, 100 pF, 1000 pF	1 kHz	0.003 %		
10 nF	1 kHz	0.005 %		
100 nF, 1 µF, 10 µF	1 kHz	0.01 %		
100 µF	1 kHz	0.1 %		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
7*	10 pF	10 kHz, 100 kHz	0.02 %	TP7, TP21, TP24
	100 pF, 1000 pF	100 Hz, 10 kHz, 100 kHz	0.02 %	
	10 nF, 100 nF, 1 μF,	100 kHz	0.1 %	
	10 μF	100 kHz	0.1 %	
	100 μF	100 Hz, 10 kHz	0.1 %	
	10 pF, 10 nF	100 Hz to 20 kHz	0.03 %	
	100 nF	100 Hz to 20 kHz	0.05 %	
	1 μF, 10 μF	100 Hz to 20 kHz	0.1 %	
	1 pF	20 kHz to 1 MHz	0.3 %	
		1 MHz to 10 MHz	1.3 %	
	10 pF	20 kHz to 1 MHz	0.1 %	
		1 MHz to 10 MHz	0.25 %	
	100 pF	100 Hz to 1 MHz	0.03 %	
1 MHz to 10 MHz		0.2 %		
1 nF	100 Hz to 1 MHz	0.03 %		
	1 MHz to 10 MHz	0.86 %		
	<b>Capacity Generation</b>			TP7, TP21, TP24
	220 pF to 1.1 nF	10 Hz to 10 kHz	0.5 % + 0.01 nF	
	1.1 nF to 3.3 nF	10 Hz to 3 kHz	0.5 % + 0.01 nF	
	3.3 nF to 11 nF	10 Hz to 1 kHz	0.25 % + 0.01 nF	
	11 nF to 110 nF	10 Hz to 1 kHz	0.25 % + 0.1 nF	
	110 nF to 330 nF	10 Hz to 1 kHz	0.25 % + 0.3 nF	
	0.33 μF to 1.1 μF	10 Hz to 600 Hz	0.25 % + 1 nF	
	1.1 μF to 3.3 μF	10 Hz to 300 kHz	0.25 % + 3 nF	
	3.3 μF to 11 μF	10 Hz to 150 Hz	0.25 % + 10 nF	
	11 μF to 33 μF	10 Hz to 120 Hz	0.40 % + 30 nF	
	33 μF to 110 μF	10 Hz to 80 Hz	0.45 % + 100 nF	
	110 μF to 330 μF	0 Hz to 50 Hz	0.45 % + 300 nF	
	0.33 mF to 1.1 mF	0 Hz to 20 Hz	0.45 % + 1 μF	
	1.1 mF to 3.3 mF	0 Hz to 6 Hz	0.45 % + 3 μF	
	3.3 mF to 11 mF	0 Hz to 2 Hz	0.45 % + 10 μF	
	11 mF to 33 mF	0 Hz to 0.6 Hz	0.75 % + 30 μF	
	33 mF to 110 mF	0 Hz to 0.2 Hz	1 % + 100 μF	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification	
8*	<b>Loss factor of capacitor D</b> Generation for (10, 100, 1000 and 10000) pF D < 0.001 0.001 ≤ D < 0.1 0.1 ≤ D < 1	1 kHz	0.00001	TP30, TP24	
		1 kHz	0.00002		
		1 kHz	0.002		
		100 nF D < 0.1 0.1 ≤ D < 1	1 kHz 1 kHz		0.00005 0.0025
		1000 nF D < 0.1	1 kHz		0.004
9	<b>Inductance</b> Measurement 0.2 μH to 2 μH	10 kHz	1 %	TP8, TP21, TP24	
		20 kHz	2 %		
	2 μH to 20 μH	10 kHz	0.5 %		
		20 kHz	1 %		
	20 μH to 200 μH	100 Hz to 400 Hz	1 %		
		1 kHz to 20 kHz	0.5 %		
	0.2 mH to 2 mH	100 Hz to 400 Hz	0.5 %		
		1 kHz to 10 kHz	0.1 %		
		20 kHz	0.5 %		
2 mH to 20 mH	100 Hz to 10 kHz	0.1 %			
	20 kHz	0.5 %			
20 mH to 200 mH	100 Hz to 4 kHz	0.1 %			
	10 kHz	0.5 %			
	20 kHz	1 %			
0.2 H to 2 H	100 Hz to 400 Hz	0.1 %			
	1 kHz to 4 kHz	0.5 %			
2 H to 20 H	100 Hz to 400 Hz	0.5 %			



**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
9	<b>Inductance</b> Measurement			TP8, TP21, TP24
	1 µH	1 kHz	0.2 %	
	10 µH	1 kHz	0.08 %	
	100 µH	1 kHz	0.03 %	
	1 mH, 10 mH, 100 mH 1 H, 10 H	1 kHz	0.03 %	
	100 H	1 kHz	0.05 %	
	1000 H	1 kHz	0.07 %	
10 kHz	1 kHz	0.1 %		
9*	<b>Inductance</b> Generation			TP8, TP21, TP24
	1 µH	1 kHz	0.3 %	
	10 µH	1 kHz	0.12 %	
	100 µH, 1 mH, 10 mH 100 mH	100 Hz, 1 kHz, 10 kHz	0.03 %	
	1 H, 10 H	100 Hz, 1 kHz	0.05 %	
	<b>Simulated inductor</b>			TP8, TP21, TP24
	100 H	1 kHz	0.1 %	
	1000 H, 2 kH	1 kHz	1.0 %	
	<b>Inductance</b> Measurement			TP8, TP21, TP24
	160 µH to 1.6 mH	42 Hz to 100 Hz	6.0 %	
	1.6 mH to 16 mH		1.1 %	
	16 mH to 160 mH		0.60 %	
	160 mH to 1.6 H		0.53 %	
1.6 H to 1.6 kH	0.66 %			
1.6 kH to 16 kH	1.3 %			
16 kH to 38 kH	6.6 %			
160 µH to 1.6 mH	100 Hz to 1000 Hz	0.60 %		
1.6 mH to 16 mH		0.30 %		
16 mH to 160 H		0.12 %		
160 H to 160 H		0.26 %		
160 H to 1.6 kH		0.90 %		
1.6 kH to 16 kH	3.3 %			

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
9*	1.6 μH to 16 μH	1 kHz to 10 kHz	4.5 %	TP8, TP21, TP24
	16 μH to 160 μH		0.60 %	
	160 μH to 1.6 mH		0.30 %	
	1.6 mH to 16 mH		0.12 %	
	16 mH to 1.6 H		0.26 %	
	1.6 H to 16 H		0.36 %	
	16 H to 160 H		0.90 %	
	160 H to 1.6 kHz		3.3 %	
	160 nH to 1.6 μH	10 kHz to 100 kHz	4.5 %	
	1.6 μH to 16 μH		0.60 %	
	16 μH to 1.6 mH		0.30 %	
	1.6 mH to 160 mH		0.57 %	
	160 mH to 1.6 H		1.0 %	
	1.6 H to 16 H		1.6 %	
	160 nH to 1.6 μH	100 kHz to 1 MHz	1.5 %	
	1.6 μH to 16 μH		0.60 %	
16 μH to 160 μH	0.45 %			
160 μH to 16 mH	0.86 %			
16 mH to 160 mH	4.7 %			
10*	<b>Non-linear distortion</b> Generation U ≥ 200 mV pure harmonic signal	20 Hz to 20 kHz	0.003 %	TP10
		20 kHz to 50 kHz	0.03 %	
		50 kHz to 100 kHz	0.05 %	
	<b>Non-linear distortion</b> Measurement 0.01 % to 100 %			TP10
	BW 80 kHz	20 Hz to 20 kHz	1 dB + 0.01 % abs.	
	BW 500 kHz	20 kHz to 50 kHz	2 dB + 0.04 % abs.	
BW 500 kHz	50 kHz to 100 kHz	2 dB + 0.06 % abs.		
11*	<b>HF power</b> Measurement 50 Ω -50 dBm to -20 dBm	10 MHz to 30 MHz	7.8 %	TP11, TP23
		30 MHz to 18 GHz	5.4 %	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
	-20 dBm to +17 dBm	10 MHz to 30 MHz	6.5 %	
		30 MHz to 18 GHz	4.4 %	
	+17 dBm to +40 dBm	10 MHz to 18 GHz	5.7 %	
12*	<b>HF voltage</b> Generation 50 Ω 5 mV to 5.5 V (peak-to-peak value)	50 kHz to 1 MHz	4.7 %	TP12, TP23
		1 MHz to 10 MHz	6.6 %	
		10 MHz to 30 MHz	9.0 %	
		30 MHz to 250 MHz	6.8 %	
	5 mV to 3.0 V (peak-to-peak value)	250 MHz to 300 MHz	6.8 %	
	<b>HF voltage</b> Measurement 50 Ω 20 mV to 1.5 V	20 MHz to 30 MHz	6.9 %	TP12, TP23
		30 MHz to 100 MHz	4.7 %	
		100 MHz to 1 GHz	4.3 %	
	40 mV to 100 mV	1 MHz to 10 MHz	3.2 %	
		10 MHz to 20 MHz	3.5 %	
	250 mV to 1 V	1 MHz to 10 MHz	2.5 %	
		10 MHz to 20 MHz	4.0 %	
	1.5 V to 3 V	1 MHz to 10 MHz	3.3 %	
13	<b>HF attenuation</b> Measurement comparative method 0 dB to 60 dB	1.2 GHz to 3.8 GHz	0.30 dB	TP13
		3.8 GHz to 8.2 GHz	0.40 dB	
		8.2 GHz to 18 GHz	0.70 dB	
	60 dB to 80 dB	1.2 GHz to 3.8 GHz	0.80 dB	
		3.8 GHz to 8.2 GHz	1.20 dB	
		8.2 GHz to 18 GHz	1.50 dB	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
13*	<b>HF attenuation</b> Measurement power method 0 dB to 30 dB	10 MHz to 30 MHz	0.50 dB	TP13
		30 MHz to 2 GHz 2 GHz to 18 GHz	0.15 dB 0.35 dB	
	30 dB to 50 dB	10 MHz to 30 MHz 30 MHz to 2 GHz 2 GHz to 18 GHz	0.70 dB 0.35 dB 0.50 dB	
14*	<b>Depth of AM</b> Measurement 5 % to 99 %	$f_c$ : 150 kHz to 10 MHz $f_{mod}$ : 50 Hz to 10 kHz	2.2 % rel.	TP14
		$f_c$ : 150 kHz to 10 MHz $f_{mod}$ : 20 Hz to 50 Hz	3.2 % rel.	
		$f_c$ : 10 MHz to 1300 MHz $f_{mod}$ : 50 Hz to 50 kHz	1.2 % rel.	
		$f_c$ : 10 MHz to 1300 MHz $f_{mod}$ : 20 Hz to 50 Hz $f_{mod}$ : 50 kHz to 100 kHz	3.2 % rel.	
15*	<b>FM frequency deviation</b> Measurement 90 Hz to 40 kHz	$f_c$ : 250 kHz to 10 MHz $f_{mod}$ : 20 Hz to 10 kHz	2.1 % + 1 Hz	TP15
		$f_c$ : 10 MHz to 1300 MHz $f_{mod}$ : 50 Hz to 100 kHz	1.1 % + 1 Hz	
		$f_c$ : 10 MHz to 1300 MHz $f_{mod}$ : 20 Hz to 50 Hz $f_{mod}$ : 100 kHz to 200 kHz	5.1 % + 1 Hz	
16*	<b>DC power</b> Generation U: 0.33 V to 1 kV I: 0.33 mA to 11 A 1mW to 330 mW 330 mW to 11 kW 11 kW to 550 kW		0.04 % 0.12 % 0.6 %	TP16

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
16*	U: 25 V to 100 V I: 50 mA to 100 mA 1.25 W to 10 W		0.013 %	TP16
17*	<b>A.C. power</b> Generation U: 0.33 V to 1 kV I: 0.33 mA to 11 A PF = 1 1 mW to 11 kW 11 kW to 550 kW	45 Hz to 65 Hz 45 Hz to 65 Hz	0.25 % 0.7 %	TP16
	U: 0.33 V to 1 kV I: 0.33 mA to 11 A			
	PF = 0.5 inductive and capacitive 1 mW to 11 kW	45 Hz to 65 Hz	0.8 %	
	U: 0.33 V to 1 kV I: 0.33 mA to 11 A PF = 1 1 mW to 11 kW	65 Hz to 500 Hz	1 %	
	U: 0.33 V to 1 kV I: 0.33 mA to 11 A PF = 0.5 inductive and capacitive 1 mW to 11 kW	65 Hz to 500 Hz	2.8 %	
18*	<b>Direct current electrical work</b> Generation U: 0.33 V to 1 kV I: 0.33 mA to 11 A t ≥ 600 s 0.9 Ws to 300 Ws 300 Ws to 9.9 MWs 9.9 MWs to 500 MWs		0.09 % 0.14 % 0.61 %	TP16

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
18*	U: 25 V to 100 V I: 50 mA to 100 mA t ≥ 600 s 0.9 Ws to 9 MWs		0.53 %	TP16
	I <sub>1</sub> : 50mA to 100 mA I <sub>2</sub> : 1 mA to 1 A t ≥ 600 s 9 MWs to 18 GWs		0.53 %	
19*	<b>A.C. electrical work</b> Generation U: 0.33 V to 1 kV I: 0.33 mA to 11 A t ≥ 600 s, PF = 1 0.9 Ws to 9.9 MWs	45 Hz to 65 Hz	0.09 %	TP16
	U: 0.33 V to 1 kV I: 0.33 mA to 11 A t ≥ 600 s, PF = 1 0.9 Ws to 9.9 MWs	45 Hz to 65 Hz	0.14 %	
	U: 0.33 V to 1 kV I: 0.33 mA to 11 A t ≥ 600 s, PF = 0.5 inductive and capacitive 0.9 Ws to 9.9 MWs	45 Hz to 65 Hz	0.61 %	
	U: 0.33 V to 1 kV I: 0.33 mA to 11 A t ≥ 600 s, PF = 1; PF = 0.5 inductive and capacitive 0.9 Ws to 9.9 MWs	65 Hz to 500 Hz	0.53 %	
20*	<b>Reflection coefficient</b> Measurement N connector 50 Ω 0.01 to 0.10 0.10 to 0.20 0.20 to 0.30 0.05 to 0.15	10 MHz to 2 GHz 10 MHz to 2 GHz 10 MHz to 2 GHz 2 GHz to 18 GHz	0.020 0.030 0.045 0.070	TP17

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [±] <sup>2)</sup>	Calibration procedure identification
	0.15 to 0.20	2 GHz to 18 GHz	0.080	
	0.20 to 0.30	2 GHz to 18 GHz	0.10	
21*	<b>Voltage above 1000 V</b> Measurement 1000 V to 30000 V		0.21 %	TP18
	Generation > 1000 V to 30000 V		0.25 %	
	Measurement 1000 V to 25000 V	50 Hz	0.3 %	
	Generation > 1000 V to 4000 V	50 Hz	0.5 %	
	AC HV measurement 1000 V to 10000 V	Max. 75 MHz	3 dB	
22	<b>Mains impedance</b> Generation 0.16 Ω	50 Hz	0.015 Ω	TP6, TP27
	Generation 0.17 Ω to 1 Ω	50 Hz	0.5 % + 0.015 Ω	
	1 Ω to 10 Ω	50 Hz	0.3 % + 0.015 Ω	
	10 Ω to 2 kΩ	50 Hz	0.1 % + 0.015 Ω	
23*	<b>Phase shift</b> Measurement For $U_1 = U_2$ or for $10 \text{ mV} \leq U_1 \leq 30 \text{ V}$ and $1 \text{ V} \leq U_2 \leq 250 \text{ V}$ $0^\circ$ to $360^\circ$	2 Hz to 200 kHz	$1^\circ$	TP32
	Generation For $10 \text{ mV} \leq U_1 \leq 3 \text{ V}$ For $10 \text{ mV} \leq U_2 \leq 3 \text{ V}$ $0^\circ$ to $360^\circ$	2 Hz to 200 kHz	$1^\circ$	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
24*	<b>Calibration of electrical part of temperature indicators and simulators</b> Measurement and generation of equivalent direct current voltage for thermocouples, type:			TP1,TP21
	<b>B</b>			
	600 °C to 800 °C		0.44 °C	
	800 °C to 1000 °C		0.34 °C	
	1000 °C to 1550 °C		0.30 °C	
	1550 °C to 1820 °C		0.33 °C	
<b>C</b>				
0 °C to 150 °C		0.30 °C		
150 °C to 650 °C		0.26 °C		
650 °C to 1000 °C		0.31 °C		
1000 °C to 1800 °C		0.50 °C		
1800 °C to 2316 °C		0.84 °C		
<b>E</b>				
-250 °C to -100 °C		0.50 °C		
-100 °C to -25 °C		0.16 °C		
-25 °C to 350 °C		0.14 °C		
350 °C to 650 °C		0.16 °C		
650 °C to 1000 °C		0.21 °C		
<b>J</b>				
-210 °C to -100 °C		0.27 °C		
-100 °C to -30 °C		0.16 °C		
-30 °C to 150 °C		0.14 °C		
150 °C to 760 °C		0.17 °C		
760 °C to 1200 °C		0.23 °C		
<b>K</b>				
-200 °C to -100 °C		0.33 °C		
-100 °C to -25 °C		0.18 °C		
-25 °C to 120 °C		0.16 °C		
120 °C to 1000 °C		0.26 °C		
1000 °C to 1372 °C		0.40 °C		



**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
	L -200 °C to -100 °C -100 °C to 800 °C 800 °C to 900 °C		0.37 °C 0.26 °C 0.17 °C	
	N -200 °C to -100 °C -100 °C to -25 °C -25 °C to 120 °C 120 °C to 410 °C 410 °C to 1300 °C		0.40 °C 0.22 °C 0.19 °C 0.18 °C 0.27 °C	
	R 0 °C to 250 °C 250 °C to 400 °C 400 °C to 1000 °C 1000 °C to 1767 °C		0.57 °C 0.35 °C 0.33 °C 0.40 °C	
	S 0 °C to 250 °C 250 °C to 1000 °C		0.47 °C 0.36 °C	
24*	1000 °C to 1400 °C 1400 °C to 1767 °C		0.37 °C 0.46 °C	TP1,TP21
	T -250 °C to -150 °C -150 °C to 0 °C 0 °C to 120 °C 120 °C to 400 °C		0.63 °C 0.24 °C 0.16 °C 0.14 °C	
	U -200 °C to 0 °C 0 °C to 600 °C		0.57 °C 0.27 °C	
25*	<b>Calibration of electrical part of temperature meters using resistance temperature sensors</b> generation of equivalent resistance for RTD, type: Pt 385, 100 Ω -200 °C to 0 °C		0.05 °C	TP5,TP21

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
25*	0 °C to 100 °C		0.07 °C	TP5,TP21
	100 °C to 300 °C		0.09 °C	
	300 °C to 400 °C		0.10 °C	
	400 °C to 630 °C		0.12 °C	
	630 °C to 800 °C		0.23 °C	
	Pt 3926, 100 Ω			
	-200 °C to 0 °C		0.05 °C	
	0 °C to 100 °C		0.07 °C	
	100 °C to 300 °C		0.09 °C	
	300 °C to 400 °C		0.10 °C	
	400 °C to 630 °C		0.12 °C	
	Pt 3916, 100 Ω			
	-200 °C to -190 °C		0.25 °C	
	-190 °C to -80 °C		0.04 °C	
	-80 °C to 0 °C		0.05 °C	
	0 °C to 100 °C		0.06 °C	
	100 °C to 260 °C		0.07 °C	
	260 °C to 300 °C		0.08 °C	
300 °C to 400 °C		0.09 °C		
400 °C to 600 °C		0.10 °C		
600 °C to 630 °C		0.23 °C		
Pt 385, 200 Ω				
-200 °C to 100 °C		0.04 °C		
100 °C to 260 °C		0.05 °C		
260 °C to 300 °C		0.12 °C		
300 °C to 400 °C		0.13 °C		
400 °C to 600 °C		0.14 °C		
600 °C to 630 °C		0.16 °C		
Pt 385, 500 Ω				
-200 °C to -80 °C		0.04 °C		
-80 °C to 100 °C		0.05 °C		
100 °C to 260 °C		0.06 °C		
260 °C to 400 °C		0.08 °C		
400 °C to 600 °C		0.09 °C		
600 °C to 630 °C		0.11 °C		

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
25*	Pt 385, 1000 Ω -200 °C to 0 °C		0.03 °C	TP5, TP21
	0 °C to 100 °C		0.04 °C	
	100 °C to 260 °C		0.05 °C	
	260 °C to 300 °C		0.06 °C	
	300 °C to 600 °C		0.07 °C	
	600 °C to 630 °C		0.23 °C	
	Cu 427, 10 Ω -100 °C to 260 °C		0.30 °C	
	<b>Calibration of electrical part of temperature simulation systems using resistance temperature sensors</b> Measurement of equivalent resistance for RTD, type: PT25			
	-200 °C to 630 °C		0.02 °C	
	PT100 -200 °C to 630 °C		0.02 °C	

<sup>1)</sup> Asterisk at the ordinal number identifies the calibrations performed outside/also outside the laboratory premises.

<sup>2)</sup> Expressed like uncertainty in accordance with the requirements of the document EA 4/02 at  $k = 2$ .

**Measured instruments or devices:**

(In accordance with the above list of measured quantities and the ranges of measurement the following types of instruments or devices can be measured.)

Ordinal number	Measured instrument/device type
1	D.C. analogue and digital voltmeters up to 6.5 digits, D.C. voltage calibrators and sources, electrical part of pH meters and pH simulators
2	A.C. analogue and digital voltmeters up to 6,5 digits, A.C. voltage calibrators and sources
3	D.C. analogue and digital ammeters up to 6.5 digits, D.C. calibrators, tong-test ammeters, D.C. current sources and transducers
4	A.C. analogue and digital ammeters up to 6.5 digits, A.C. calibrators, tong-test ammeters and A.C. current sources

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number	Measured instrument/device type
5	Ohmmeters, resistance bridges, compensators, decade resistance boxes, resistance standards, resistance calibrators, insulation and transition resistance testers
6	A.C. resistance and conductivity meters up to 13 MHz frequency, A.C. resistance and conductivity standards
7	Capacity meters, bridges, standards, decades
8	Inductance meters, standards, decades
9	Non-linear distortion meters and sine wave signal generators
10	HF meters and power sources and spectrum analyzers, radio communication testers (COM, CMS,CTS,...) and radio navigation testers, simulators and imitators (ATC, DMF, TACAN, VOR – ILS, TCAS), testing and inspection equipment and their parts
11	HF voltage meters and sources
12	HF resistive attenuators and attenuation meters, radio communication testers (COM, CMS,CTS,...) and radio navigation testers, simulators and imitators (ATC, DMF, TACAN, VOR – ILS, TCAS), testing and inspection equipment and their parts
13	Amplitude modulated signal generators, amplitude modulation meters, radio communication testers (COM, CMS,CTS,...) and radio navigation testers, simulators and imitators (ATC, DMF, TACAN, VOR – ILS, TCAS), testing and inspection equipment and their parts
14	Frequency modulated signal generators, frequency modulation meters, radio communication testers (COM, CMS,CTS,...) and radio navigation testers, simulators and imitators (ATC, DMF, TACAN, VOR – ILS, TCAS), testing and inspection equipment and their parts
15	Tong type, D.C. and A.C. wattmeters,
16	Measurement of impedance matching to 50 $\Omega$ impedance
17	D.C. and A.C. high voltage power sources, D.C. high voltage meters and high voltage voltage/current transducers
18	Time pulse meter
19	Oscilloscopes, transient recorders
20	Instruments for the inspection of electrical installations and resistance-based impedance standards
21	Instruments for the measurement of capacity loss factor D
22	Phase shifted voltage signal sources, phase shifted voltage signal meters
23	Electrical parts of temperature meters and simulators using thermocouples
24	Electrical parts of temperature meters and simulators using RTD

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

**Field of measured quantity:**      **frequency, time**

**Calibration:**      Nominal calibration temperature:       $(23 \pm 2) ^\circ\text{C}$

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ $\pm$ ] <sup>2)</sup>	Calibration procedure identification
1*	<b>Frequency</b> Measurement 0.005 Hz to 400 kHz 400 kHz to 1.5 GHz 1.5 GHz to 18 GHz		$3.3 \cdot 10^{-4} / f^{3)}$ $1.2 \cdot 10^{-9}$ $3 \cdot 10^{-9}$	TP9, TP22
	<b>Frequency</b> 1 MHz, 5 MHz, 10 MHz 1 s $\leq \tau \leq$ 2 000 s 2 000 s $\leq \tau \leq$ 15 000 s $\tau$ 15 000 s		$3 \cdot 10^{-10}$ $1 \cdot 10^{-11}$ $5 \cdot 10^{-12}$	
	<b>Frequency</b> Generation of reference signal 10 MHz 1 Hz to 18 GHz		$1 \cdot 10^{-11}$ $1 \cdot 10^{-9}$	
2*	<b>Time stamps</b> Generation 1.8 ns to 2.2 ns 4.5 ns to 11 ns 18 ns to 22 ns 45 ns to 60 s		0.005 % 0.005 % 0.005 % 0.005 %	TP23
	<b>Time stamps</b> Generation 1 s		$1 \cdot 10^{-9}$	
	<b>Rise time <math>\leq</math> 1 ns</b> Generation 4.5 mV to 5.5 mV	1 kHz to 1 MHz	0.3 ns	
	9 mV to 11 mV 22.5 mV to 27.5 mV 45 mV to 55 mV (peak-to-peak value)	1 kHz to 1 MHz	0.2 ns	

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

Ordinal number <sup>1)</sup>	Measured quantity and range of measurement	Frequency	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
2*	90 mV to 110 mV 225 mV to 275 mV 450 mV to 550 mV 0.9 V to 1.1 V 2.25 V to 2.75 V (peak-to-peak value)	1 kHz to 1 MHz	0.2 ns	TP23
3*	<b>Time – chronometers</b> Measurement – electronically switched 1 s to 100,000 s Measurement – (manually switched) 1 s to 90,000 s		0.01 s  0.20 s	TP33

<sup>1)</sup> Asterisk at the ordinal number identifies the calibrations performed outside/also outside the laboratory premises.

<sup>2)</sup> Expressed like uncertainty in accordance with the requirements of the document EA 4/02 at  $k = 2$ .

<sup>3)</sup> measured frequency in Hz

**Measured instruments or devices:**

(In accordance with the above list of measured quantities and the ranges of measurement the following types of instruments or devices can be measured.)

Ordinal number	Measured instrument/device type
1	LF and HF counters, LF and HF generators, variable speed drives, frequency standards, frequency comparators and pulse generators
2	Oscilloscopes, transient recorders
3	Stopwatches, timers and chronometers

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

**Field of measured quantity: pressure**

**Calibration:** Nominal calibration temperature: (20 ± 2) °C

Ordinal number <sup>1)</sup>	Measured quantity	Measured quantity range	Calibration and Measurement Capability [ ± ] <sup>2)</sup>	Calibration procedure identification
1*	<b>Absolute pressure</b>	(0 to 131) kPa (131 to 350) kPa	16 Pa 42 Pa	TP40, TP41, TP42, TP43
	<b>Vacuum – gas</b>	(0 to 2.5) kPa (2.5 to 35) kPa (35 to 100) kPa	2.4 Pa 32 Pa 45 Pa	TP40, TP41 TP42
	<b>Overpressure – gas</b>	(0 to 20) kPa (20 to 200) kPa (0.2 to 3.5) MPa (3.5 to 30) MPa	2.4 Pa 0.011 % 2.1 kPa 21 kPa	TP40, TP41, TP42
	<b>Overpressure – liquids</b> (water, alcohol, oil)	(0 to 2.5) kPa (2.5 to 35) kPa (35 to 100) kPa (0.1 to 1.2) MPa (1.2 to 12) MPa (12 to 35) MPa (35 to 70) MPa	2.4 Pa 32 Pa 2.1 kPa 0.22 kPa 0.018 % 21 kPa 40 kPa	TP40, TP41, TP42

<sup>1)</sup> Asterisk at the ordinal number identifies the calibrations performed outside/also outside the laboratory premises.

<sup>2)</sup> Expressed like uncertainty in accordance with the requirements of the document EA 4/02 at k = 2.

**Measured instruments or devices:**

(In accordance with the above list of measured quantities and the ranges of measurement the following types of instruments or devices can be measured.)

Ordinal number	Measured instrument/device type
1	Deformation manometers, pointer manometers, pressure converters, dial manometers, digital manometers, pressure calibrators, barometers, aircraft pressure altimeters, pressure airspeed indicators and aircraft pressure calibrators

**The Appendix is an integral part of  
Certificate of Accreditation No. 369/2018 of 10/07/2018**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

**HES, s.r.o.**  
Calibration Laboratory  
U Dráhy 11, 664 49 Ostopovice

**Field of measured quantity: temperature**

**Calibration:** Nominal calibration temperature – direct measurement:  $(20 \pm 5) ^\circ\text{C}$

Ordinal number <sup>1)</sup>	Measured quantity	Measured quantity range	Calibration and Measurement Capability $[\pm ]$ <sup>2)</sup>	Calibration procedure identification
1*	<b>Direct indicating thermometers and temperature measuring chains</b>	-196 °C (-80 to -30) °C (-30 to 0) °C (0 to 50) °C (50 to 140) °C (140 to 300) °C (300 to 600) °C (600 to 1000) °C	0.32 °C 0.20 °C 0.07 °C 0.04 °C 0.06 °C 0.34 °C 0.62 °C 3.5 °C	TP44.1
2*	<b>Resistance temperature sensors</b>	-196 °C (-80 to -30) °C (-30 to 0) °C (0 to 50) °C (50 to 140) °C (140 to 300) °C (300 to 600) °C (600 to 1000) °C	0.3 °C 0.15 °C 0.07 °C 0.03 °C 0.06 °C 0.26 °C 0.5 °C 3.5 °C	TP44.2
3*	<b>Thermoelectric temperature sensors</b>	-196 °C (-80 to -30) °C (-30 to 0) °C 0 °C (0 to 140) °C (140 to 300) °C (300 to 600) °C (600 to 1000) °C	4.0 °C 1.5 °C 0.9 °C 0.7 °C 0.8 °C 1.5 °C 1.7 °C 3.5 °C	TP44.3
4*	<b>Contactless thermometers and thermal cameras</b>	(-25 °C to 0) °C (0 to 50) °C (50 to 100) °C (100 to 300) °C (300 to 500) °C	1.9 °C 1.3 °C 1.6 °C 2.0 °C 2.5 °C	TP44.4 TP44.5

<sup>1)</sup> Asterisk at the ordinal number identifies the calibrations performed outside/also outside the laboratory premises.

<sup>2)</sup> Expressed like uncertainty in accordance with the requirements of the document EA 4/02 at  $k = 2$ .



