

NO: SAMM 375

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LABORATORY LOCATION:
(PERMANENT LABORATORY)

UCAL TECH'S (M) SDN. BHD.
NO. 6, 8 & 10,
JALAN SHAHBANDAR 2
TAMAN UNGKU TUN AMINAH
81300 SKUDAI, JOHOR BAHRU
JOHOR DARUL TAKZIM
MALAYSIA

FIELDS OF CALIBRATION:

DIMENSIONAL, MASS, PRESSURE, ELECTRICAL &
TEMPERATURE

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

This laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

* The uncertainty covered by the CMC is expressed as the expanded uncertainty corresponding to a coverage probability of approximately 95 % and have a coverage factor of $k=2$ unless stated otherwise.

SCOPE OF CALIBRATION: DIMENSIONAL

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
External micrometer	25 mm 25 mm spindle travel for 50 mm to 100 mm 100 mm to 175 mm frame	1.0 μ m 1.5 μ m 2.0 μ m	Measurement of instrument error, and parallelism and flatness of measuring faces reference to JIS B7502:2016. Setting rod must be provided by customer.
Caliper (External & Internal)	up to 300 mm 300 mm to 600 mm	15 μ m 18 μ m	Measurement of instrument error reference to JIS B7507:2016
Height gauge	up to 600 mm	20 μ m	Measurement of instrument error and parallelism of reference surface with measuring surface of scriber reference to JIS B7517:2018

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SCOPE OF CALIBRATION: DIMENSIONAL

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Digital displacement indicator	up to 50 mm 50 mm to 100 mm	1.8 μ m 12 μ m	Calibrated using gauge block as standard
Plain plug gauge / Plain cylinder gauge (diameter only)	0.3 mm to 25 mm 25 mm to 50 mm	2 μ m 3 μ m	Calibrated using gauge block as standard and micrometer as comparator with reference to JIS B7420:1997
Feeler gauge	0.005 mm to 3 mm	1.8 μ m	Calibrated using digital displacement indicator as standard with reference to JIS B7524:2008
Dial test indicator	0 mm to 2 mm	3 μ m	Calibrated using gauge tester as standard with reference to JIS B7533:1990
Dial gauge	Up to 5 mm 5 mm to 20 mm	2.5 μ m 6.5 μ m	Calibrated by using gauge tester as standards with reference to JIS B7503:2017 Measurement of error of indication and repeatability only.
Thickness gauge	Up to 15 mm 15 mm to 50 mm	2 μ m 10 μ m	Calibrated by using gauge block as standard with reference to JIS B7519:1994
Thread plug gauge	0 mm to 25 mm 25 mm to 50 mm 50 mm to 75 mm	Major diameter: 1.8 μ m Pitch diameter: 2.8 μ m Major diameter: 2.0 μ m Pitch diameter: 2.8 μ m Major diameter: 2.5 μ m Pitch diameter: 3.0 μ m	Calibrated by using three- wire set and micrometer as standards with reference to JIS B0261:2004

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SCOPE OF CALIBRATION: DIMENSIONAL**SITE:**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Measuring microscope (individual axis only)	Individual X and Y axis only Up to 300 mm	0.005 mm	Calibrated by using glass scale as standards with reference to JIS B 7153:1995
Surface plate flatness	500 mm x 500 mm 750 mm x 500 mm 1000 mm x 750 mm 2000 mm x 1000 mm	3 μ m 4.2 μ m 5 μ m 7.5 μ m	Calibrated using Precision Level Meter (Inclinometer) with reference to JIS B7513:1992

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SCOPE OF CALIBRATION: MASS**SITE:**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Analytical balances	Up to 100 g Up to 200 g	0.46 mg 0.88 mg	Calibration using Standard weight with reference to ASTM E898:2020 The calibration procedures covers test on instrumental error, repeatability and eccentric.
Weighing balances / Scale (Spring / Hanging Scale / Top Pan, Mechanical & Electronic)	Up to 500 g Up to 600 g Up to 1 kg Up to 2 kg Up to 5 kg Up to 6 kg Up to 10 kg Up to 20 kg Up to 30 kg	4.2 mg 4.3 mg 4.5 mg 8.7 mg 10 mg 12 mg 0.16 g 0.2 g 0.25 g	
	Up to 50 kg Up to 60 kg Up to 100 kg	2.6 g 3.1 g 5 g	

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SCOPE OF CALIBRATION: PRESSURE

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Pressure measuring devices (Pneumatic)	-0.8 bar to 20 bar	0.05 bar	1. The pressure devices, gauges are calibrated according to in-house procedure LQP-54 and LQP-56 with reference to OIML R101 2. The calibration procedure covers the increasing and decreasing tests only with reference to JIS C1031:1990
Pressure gauge (Hydraulic)	20 bar to 700 bar	0.3 bar	
Pressure transmitter & transducer (Pneumatic)	0 bar to 20 bar	0.3 bar	
Pressure transmitter & transducer (Hydraulic)	20 bar to 700 bar	0.3 bar	

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SCOPE OF CALIBRATION: PRESSURE**SITE:**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Pressure measuring devices (Pneumatic)	-0.8 bar to 20 bar	0.13 bar	1. The pressure devices, gauges are calibrated according to in-house procedure LQP-54 and LQP-56 with reference to OIML R101 2. The calibration procedure covers the increasing and decreasing tests only with reference to JIS C1031:1990
Pressure gauge (Hydraulic)	20 bar to 700 bar	0.3 bar	

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SCOPE OF CALIBRATION: TEMPERATURE

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Temperature Recorders/Indicators for Sensor type:			By electrical simulation using calibrator with reference to ITS-90
(a) Type T	-100 °C to 390 °C	0.6 °C	
(b) Type E	-100 °C to 0 °C 0 °C to 990 °C	0.6 °C 0.5 °C	
(c) Type K	-100 °C to 0 °C 0 °C to 1300 °C	0.5 °C 0.6 °C	
(d) Type R	0 °C to 1000 °C 1000 °C to 1700 °C	1.6 °C 1.4 °C	
(e) Type J	-100 °C to 0 °C 0 °C to 1100 °C	0.5 °C 0.4 °C	
(f) Type S	0 °C to 1000 °C 1000 °C to 1700 °C	1.6 °C 1.5 °C	
(g) Pt 100	-100 °C to 0 °C 0 °C to 800 °C	0.6 °C 0.7 °C	
Temperature Calibrator for Sensor type:			By electrical measurement using Temperature calibrator
(a) Type T	-100 °C to 390 °C	0.6 °C	
(b) Type E	-100 °C to 990 °C	0.5 °C	
(c) Type K	-100 °C to 0 °C 0 °C to 1300 °C	0.5 °C 0.6 °C	

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SCOPE OF CALIBRATION: TEMPERATURE

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
(d) Type R	0 °C to 1000 °C 1000 °C to 1700 °C	1.5 °C 1.4 °C	By electrical measurement using Temperature calibrator
(e) Type J	-100 °C to 1100 °C	0.5 °C	
(f) Type S	0 °C to 1000 °C 1000 °C to 1700 °C	1.5 °C 1.4 °C	
(g) Pt 100	-100 °C to 800 °C	0.6 °C	
Temperature & Humidity Indicator or Recorder	0 °C to 50 °C 50 °C to 100 °C	0.6 °C 0.8 °C	Comparison with sensor in chamber or temperature/humidity reference meter in chamber.
	Relative humidity at 25 °C 20 %rh to 50 %rh 50 %rh to 95 %rh	 2.2 %rh 2.5 %rh	Comparison with sensor in chamber or temperature/humidity reference meter in chamber.
Temperature Sensor/ Temperature Sensor with Indicator	-30 °C to 150 °C	0.15 °C	Comparison with Pt 100 in Temperature Block Calibrator
	150 °C to 400 °C	0.2 °C	
Mechanical Thermometer	-30 °C to 150 °C	1.5 °C	Comparison with Pt 100 in Temperature Block Calibrator
	150 °C to 400 °C	2 °C	
Radiation Thermometer	0 °C	0.8 °C	Comparison with reference Pt 100 in ice point
	30 °C to 400 °C	3.6 °C	Comparison with Blackbody temperature calibrator

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SCOPE OF CALIBRATION: TEMPERATURE**SITE:**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Temperature Recorders/Indicators for Sensor type:			By electrical simulation using calibrator with reference to Table ITS-90
(a) Type T	-100 °C to 0 °C 0 °C to 390 °C	0.7 °C 0.6 °C	
(b) Type E	-100 °C to 0 °C 0 °C to 990 °C	0.6 °C 0.5 °C	
(c) Type K	-100 °C to 0 °C 0 °C to 1300 °C	0.5 °C 0.6 °C	
(d) Type R	0 °C to 1000 °C 1000 °C to 1700 °C	1.6 °C 1.4 °C	
(e) Type J	-100 °C to 0 °C 0 °C to 1000 °C	0.5 °C 0.4 °C	
(f) Type S	0 °C to 1000 °C 1000 °C to 1700 °C	1.6 °C 1.5 °C	
(g) Pt 100	-100 °C to 0 °C 0 °C to 800 °C	0.6 °C 0.7 °C	
Temperature Sensor with Indicator	-35 °C to 165 °C	0.1 °C	Comparison with Pt100 in Temperature block calibrator

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SCOPE OF CALIBRATION: TEMPERATURE

SITE:

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Temperature Control Enclosure	-50 °C to 200 °C 200 °C to 400 °C 400 °C to 800 °C 800 °C to 950 °C	0.6 °C 0.8 °C 1.8 °C 2.5 °C	Calibrate using temperature recorder with thermocouple.

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SCOPE OF CALIBRATION: ELECTRICAL

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Sourcing Instruments			
DC voltage	100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1000 V	0.030 mV/V 0.025 mV/V 0.032 mV/V 0.035 mV/V	Direct measurement method
AC voltage	0 mV to 10 V (Refer The Matrix A)	(Refer The Matrix A)	
	10 V to 750 V (Refer The Matrix B)	(Refer The Matrix B)	
Resistance	100 Ω to 1 k Ω 1 k Ω to 10 k Ω 10 k Ω to 100 k Ω 100 k Ω to 1 M Ω 1 M Ω to 10 M Ω 10 M Ω to 100 M Ω	0.07 m Ω / Ω 0.07 m Ω / Ω 0.07 m Ω / Ω 0.08 m Ω / Ω 0.3 m Ω / Ω 5 m Ω / Ω	
DC current	10 mA to 100 mA 100 mA to 1 A 1 A to 3 A	0.33 μ A/A 0.66 mA/A 0.87 mA/A	
AC current	At 1 kHz 0 A to 1 A 1 A to 3 A	0.9 mA/A 1.4 mA/A	

Matrix A**AC voltage (Generator (Source))**

Range		kHz			
		0.01 to 20	20 to 50	50 to 100	100 to 300
10 V	0 mV to 10 V	0.55 mV/V	0.99 mV/V	4.2 mV/V	30 mV/V

Matrix B**AC voltage (Generator (Source))**

Range		kHz			
		0.04 to 1	-	-	-
750 V	10 V to 750 V	0.06 mV/V	-	-	-

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SCOPE OF CALIBRATION: ELECTRICAL

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Withstanding / Insulation Tester High voltage (measure) DC voltage AC voltage Cut-off current High voltage (source) DC voltage AC voltage	1 kV to 10 kV At 50 Hz 1 kV to 10 kV 0.5 mA to 10 mA 10 mA to 50 mA 1 kV to 10 kV At 50 Hz 1 kV to 10 kV	7 mV/V 13 mV/V 65 μ A/A 14 μ A/A 12 mV/V 16 mV/V	Direct measurement method
Measuring instruments LCR Indicating Meter Resistance Capacitance Inductance	0 Ω to 100 Ω 100 Ω to 1 k Ω 1 k Ω to 10 k Ω 10 k Ω to 100 k Ω 100 k Ω to 1 M Ω 1 M Ω to 10 M Ω 10 M Ω to 100 M Ω 100 pF to 900 pF 1 nF to 9 nF 10 nF to 90 nF 100 nF to 900 nF 1 μ F to 9 μ F 100 μ H to 1000 μ H 1 mH to 10 mH 10 mH to 100 mH 100 mH to 1000 mH	9.9 m Ω / Ω 0.9 m Ω / Ω 0.8 m Ω / Ω 0.9 m Ω / Ω 1.7 m Ω / Ω 1.5 m Ω / Ω 1.5 m Ω / Ω 8.3 mF/F 7.2 mF/F 6.1 mF/F 6.1 mF/F 8.9 mF/F 7 mH/H 7 mH/H 7 mH/H 0.6 mH/H	Using decade resistance, decade capacitance and decade inductance

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SCOPE OF CALIBRATION: ELECTRICAL

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Measuring / Indicating instruments a) DC voltage	0 mV to 320 mV 320 mV to 3.2 V 3.2 V to 32 V 32 V to 320 V 320 V to 1050 V	0.063 μ V/V 0.063 mV/V 0.063 mV/V 0.063 mV/V 0.070 mV/V	Generation using calibrator model Wavetek 9100 / Fluke 5522 A
b) AC voltage	0 mV to 105 V (Refer Matrix C)	(Refer Matrix C)	
	105 V to 1050 V (Refer Matrix D)	(Refer Matrix D)	

Matrix C
AC voltage (Indicating instruments)

Range		kHz				
		0.01 to 3	3 to 10	10 to 30	30 to 50	50 to 100
320 mV	0 mV to 320 mV	0.3 μ V/V	0.31 μ V/V	0.5 μ V/V	0.75 μ V/V	1.8 μ V/V
3.2 V	0.32 V to 3.2 V	0.3 mV/V	0.31 mV/V	0.5 mV/V	0.75 mV/V	1.8 mV/V
32 V	3.2 V to 32 V	0.3 mV/V	0.47 mV/V	0.59 mV/V	1.2 mV/V	2.7 mV/V
105 V	32 V to 105 V	0.3 mV/V	0.42 mV/V	0.57 mV/V	1.2 mV/V	2.9 mV/V

Matrix D
AC voltage (Indicating instruments)

Range		kHz					
		0.04 to 0.1	0.1 to 1	1 to 3	3 to 10	10 to 20	20 to 30
320 V	105 V to 320 V	0.41 mV/V	0.41 mV/V	0.56 mV/V	0.59 mV/V	0.84 mV/V	1.1 mV/V
800 V	320 V to 800 V	0.38 mV/V	0.38 mV/V	0.54 mV/V	0.56 mV/V	-	-
1050 V	800 V to 1050 V	0.29 mV/V	0.29 mV/V	0.41 mV/V	0.43 mV/V	-	-

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SCOPE OF CALIBRATION: ELECTRICAL

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Measuring / Indicating instruments c) DC current d) AC current	0 A to 320 μ A 0.32 mA to 3.2 mA 3.2 mA to 32 mA 32 mA to 320 mA 0.32 A to 3.2 A 3.2 A to 10.5 A 3.2 μA to 10 A (Refer Matrix E)	0.013 μ A/A 0.13 μ A/A 0.13 μ A/A 0.14 μ A/A 0.41 mA/A 0.4 mA/A (Refer Matrix E)	Generation using calibrator model Wavetek 9100 / Fluke 5522A

Matrix E
AC current (Indicating instruments)

Range		kHz			
		0.01 to 3	3 to 10	10 to 20	20 to 30
320 μ A	32 μ A to 320 μ A	0.10 μ A/A	0.18 μ A/A	0.5 μ A/A	0.72 μ A/A
3.2 mA	0.32 mA to 3.2 mA	0.59 μ A/A	4.7 μ A/A	5 μ A/A	5.7 μ A/A
32 mA	3.2 mA to 32 mA	0.56 μ A/A	0.84 μ A/A	1.5 μ A/A	2 μ A/A
320 mA	32 mA to 320 mA	0.63 μ A/A	0.81 μ A/A	1.4 μ A/A	1.8 μ A/A
3.2 A	0.32 A to 3.2 A	0.75 mA/A	2 mA/A	-	-
10 A	3.2 A to 10 A	1.6 mA/A	3.8 mA/A	-	-

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SCOPE OF CALIBRATION: ELECTRICAL

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Measuring / Indicating instruments e) Resistance f) Capacitance	0 Ω to 40 Ω 40 Ω to 400 Ω 0.4 k Ω to 4 k Ω 4 k Ω to 40 k Ω 40 k Ω to 400 k Ω 0.4 M Ω to 4 M Ω 4 M Ω to 40 M Ω 40 M Ω to 400 M Ω 0.5 nF to 4 nF 4 nF to 40 nF 40 nF to 400 nF 400 nF to 4 μ F 4 μ F to 40 μ F 40 μ F to 400 μ F 400 μ F to 4 mF 4 mF to 40 mF	0.63 m Ω/Ω 0.12 m Ω/Ω 0.11 m Ω/Ω 0.11 m Ω/Ω 0.12 m Ω/Ω 0.14 m Ω/Ω 0.38 m Ω/Ω 0.45 m Ω/Ω 4.5 mF/F 2.3 mF/F 2.4 mF/F 3 mF/F 3.5 mF/F 3.5 mF/F 3.5 mF/F 7.5 mF/F	Generation using calibrator model Wavetek 9100 / Fluke 5522A

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SCOPE OF CALIBRATION: ELECTRICAL

SITE:

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Sourcing Instruments			Direct measurement methods
a) DC voltage	1 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1000 V	0.059 μ V/V 0.034 mV/V 0.029 mV/V 0.037 mV/V 0.039 mV/V	Measurement been made by using Fluke 8845A Precision Multimeter
b) AC voltage	1 mV to 750 V (Refer Matrix F)	(Refer Matrix F)	

Matrix F
AC voltage (Generator (Source))

Range		kHz					
		0.003 to 0.005	0.005 to 0.01	0.01 to 20	20 to 50	50 to 100	100 to 300
100 mV	1 mV to 100 mV	0.51 μ V/V	6.2 μ V/V	6.2 μ V/V	6.2 μ V/V	6.2 μ V/V	9.2 μ V/V
1 V	100 mV to 1 V	0.37 mV/V	0.37 mV/V	0.26 mV/V	0.37 mV/V	0.84 mV/V	3.2 mV/V
10 V	1 V to 10 V	0.38 mV/V	0.38 mV/V	0.32 mV/V	0.42 mV/V	1.2 mV/V	1.2 mV/V
100 V	10 V to 100 V	0.23 mV/V	0.23 mV/V	0.33 mV/V	0.38 mV/V	2.7 mV/V	2.7 mV/V
750 V	100 V to 750 V	0.36 mV/V	0.36 mV/V	0.36 mV/V	0.36 mV/V	0.36 mV/V	0.36 mV/V

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SCOPE OF CALIBRATION: ELECTRICAL

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Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Sourcing Instruments			Direct measurement methods
c) Resistance	10 $\mu\Omega$ to 100 Ω 100 Ω to 1 k Ω 1 k Ω to 10 k Ω 10 k Ω to 100 k Ω 100 k Ω to 1 M Ω 1 M Ω to 10 M Ω 10 M Ω to 100 M Ω	0.93 m Ω/Ω 0.07 m Ω/Ω 0.072 m Ω/Ω 0.072 m Ω/Ω 0.074 m Ω/Ω 0.029 m Ω/Ω 4.9 m Ω/Ω	
d) DC current	100 μ A to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 400 mA 400 mA to 1 A 1 A to 3 A 3 A to 10 A	0.36 μ A/A 0.44 μ A/A 0.35 μ A/A 0.35 μ A/A 0.49 mA/A 0.8 mA/A 1.2 mA/A	Measurement been made by using Fluke 8845A Precision Multimeter
e) AC current	100 μA to 10 A (Refer Matrix G)	(Refer Matrix G)	

Matrix G
AC current (Generator (Source))

Range		kHz			
		0.003 to 0.005	0.005 to 0.01	0.01 to 5	5 to 10
1 mA	100 μ A to 1 mA	22 μ A/A	22 μ A/A	22 μ A/A	22 μ A/A
10 mA	1 mA to 10 mA	7.1 μ A/A	2.6 μ A/A	1.7 μ A/A	6.6 μ A/A
100 mA	10 mA to 100 mA	6.5 μ A/A	2.2 μ A/A	1.9 μ A/A	4.1 μ A/A
400 mA	100 mA to 400 mA	6.5 μ A/A	2.4 μ A/A	1.3 μ A/A	5.5 μ A/A
1 A	400 mA to 1 A	6.2 mA/A	2.2 mA/A	7.2 mA/A	32 mA/A
3 A	1 A to 3 A	7.4 mA/A	2.3 mA/A	18 mA/A	19 mA/A
10 A	3 A to 10 A	6.9 mA/A	2.6 mA/A	1.9 mA/A	5.2 mA/A

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SITE:

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks
Measuring / Indicating instruments (Measure) LCR indicating meter a) Resistance	0 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ to 100 kΩ 100 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ	9.9 mΩ/Ω 0.9 mΩ/Ω 0.8 mΩ/Ω 0.9 mΩ/Ω 1.7 mΩ/Ω 1.5 mΩ/Ω 1.5 mΩ/Ω	Direct measurement methods Generation using decade resistors box
b) Capacitance	100 pF to 900 pF 1 nF to 9 nF 10 nF to 90 nF 100 nF to 900 nF 1 μF to 9 μF	8.3 mF/F 7.2 mF/F 6.1 mF/F 6.1 mF/F 8.9 mF/F	Generation using decade capacitance box
c) Inductance	100 μH to 1000 μH 1 mH to 10 mH 10 mH to 100 mH 100 mH to 1000 mH	7 mH/H 7 mH/H 7 mH/H 0.6 mH/H	Generation using decade inductance box
Withstanding / Insulation Tester High voltage (Source) a) DC voltage	0 kV to 10 kV	7 mV/V	The measurement are measured using high voltage digital meter TOS-149-10A
b) AC voltage	0 kV to 10 kV (at 50 / 60 Hz)	13 mV/V	
c) Cut-off current	0.5 mA to 1 mA 1 mA to 2 mA 2 mA to 5 mA 5 mA to 10 mA 10 mA to 50 mA	65 μA/A 65 μA/A 65 μA/A 65 μA/A 14 μA/A	The measurement are measured using current calibrator TOS-1200

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