

ความสามารถห้องปฏิบัติการสอบเทียบ

ห้องปฏิบัติการทางไฟฟ้า

No.	Description	Range	ISO/IEC 17025		ISO/IEC 17025		
			by TISI (สมอ)		by ANAB (USA)		
			In-lab	On-site	In-lab	On-site	
1	AC/DC Calibrator						
	DC Voltage	0 V to < ±1,200 V	✓	✓	✓	✓	
			0 V to < ±1,200 V		0 V to < ±1,200 V		
	AC Voltage	1 m V to <1,200 V	✓	✓	✓	✓	
		(10 Hz to 300 kHz)	1 m V to <1,200 V		1 m V to <1,200 V		
	Resistance	0 Ω to <1.2 GΩ	✓	✓	✓	✓	
			0 Ω to < 1.2 GΩ		0 Ω to < 1.2 GΩ		
	DC Current	0 A to <±12 A	✓	✓	✓	✓	
			0 A to <±12 A		0 A to <±12 A		
	AC Current	10 μA to <12 A	✓	✓	✓	✓	
		(10 Hz to 10 kHz)	10 μA to <12 A		10 μA to <12 A		
	Capacitance	0.1 nF to 100 mF	✓	✓	✓	✓	
			0.1 nF to 100 mF		0.1 nF to 100 mF		
	Temperature	-210 °C to 1,372 °C	✓	✓	✓	✓	
		(Type J, K)	-210 °C to 1,372 °C		-210 °C to 1,372 °C		

RTD	-200 °C to 800 °C (Type Pt 385 100)	✓	✓	✓	✓
Frequency	5 Hz to 1 MHz (10 mV to 10 V)	✓	✓	✓	✓
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2 AC/DC Power Meter					
DC Voltage	0 V to ±1,020 V	✓	✓	✓	✓
AC Voltage	1 mV to 1,020 V (10 Hz to 500 kHz)	✓	✓	✓	✓
DC Current	0 A to ±11 A	✓	✓	✓	✓
AC Current	30 µA to 11 A (45 Hz to 10 kHz)	✓	✓	✓	✓
DC Power	±11 kW	✓	✓	✓	✓
AC Power	1 W to 11 kW (45 Hz to 1 kHz), Power factor = 1	✓	✓	✓	✓
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3 Digital/Analog Clamp Meter					
DC Voltage	0 V to ±1,020 V	✓	✓	✓	✓
AC Voltage	1 mV to 1,020 V (10 Hz to 500 kHz)	✓	✓	✓	✓

Resistance	0 Ω to 330 M Ω	✓	✓	✓	✓
		0 Ω to 330 M Ω		0 Ω to < 1.2 G Ω	
DC Current	0 A to \pm 550 A	✓	✓	✓	✓
		0 A to \pm 550 A		0 A to \pm 1000 A	
AC Current	30 μ A to 550 A	✓	✓	✓	✓
	(10 Hz to 10 kHz)	30 μ A to 550 A		30 μ A to 1000 A	
Frequency	0.01 Hz to 2 MHz	✓	✓	✓	✓
	(10 mV to 10 V)	0.01 Hz to 2 MHz		0.01 Hz to 2 MHz	
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4 Resistance (Decade, Fixed)					
Resistance	0 Ω to <1.2 G Ω	✓	✓	✓	✓
		0 to < 1.2 G Ω		0 to < 1.2 G Ω	
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5 RTD Indicator w/o Probe					
Pt 385, 100	-200 °C to 800 °C	✓	✓	✓	✓
		-200 °C to 800 °C		-200 °C to 800 °C	
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6 Digital/Analog Multimeter					
DC Voltage	0 V to \pm 1,020 V	✓	✓	✓	✓
		0 V to \pm 1,020 V		0 V to \pm 1,020 V	
AC Voltage	1 mV to 1,020 V	✓	✓	✓	✓
	(10 Hz to 500 kHz)	1 mV to 1,020 V		1 mV to 1,020 V	
Resistance	0 Ω to 330 M Ω	✓	✓	✓	✓
		0 Ω to 330 M Ω		0 Ω to < 1.2 G Ω	
DC Current	0 A to \pm 11 A	✓	✓	✓	✓

			0 A to ±11 A	0 A to ± 20 A
AC Current	30 µA to 11 A	✓	✓	✓
	(10 Hz to 10 kHz)		30 µA to 11 A	30 µA to 20 A
Capacitance	0.33 nF to 1.1 mF	✓	✓	✓
			0.33 nF to 1.1 mF	220 pF to 110 mF
Temperature	-210 °C to 1,372 °C	✓	✓	✓
	(Type J, K)		-210 °C to 1,372 °C	-210 °C to 1,372 °C
RTD	-200 °C to 800 °C	✓	✓	✓
	(Type Pt 385 100)		-200 °C to 800 °C	-200 °C to 800 °C
Frequency	0.01 Hz to 2 MHz	✓	✓	✓
	(10 mV to 10 V)		0.01 Hz to 2 MHz	0.01 Hz to 2 MHz
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7	RTD Source			
	Pt 385, 100	-200 °C to 800 °C	✓	✓
			-200 °C to 800 °C	-200 °C to 800 °C
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	AC/DC Withstanding Tester			
8	AC/DC High Voltage Tester			
	DC High Voltage Mode	0.5 kV to 10 kV	✓	✓
			0.5 kV to 10 kV	0.5 kV to 10 kV
	AC High Voltage Mode	0.5 kV to 10 kV	✓	✓
		@ 50 Hz/60 Hz	0.5 kV to 10 kV	0.5 kV to 10 kV
	DC Cutoff Current Mode	0.5, 1, 2, 5, 10 mA	✓	✓
			✓	✓

	AC Cutoff Current Mode	0.5, 1, 2, 5, 10, 20 mA @ 50 Hz/60 Hz	0.5, 1, 2, 5, 10 mA ✓	0.5, 1, 2, 5, 10 mA ✓	0.5, 1, 2, 5, 10, 20, 50, 100 mA ✓	0.5, 1, 2, 5, 10, 20, 50, 100 mA ✓
9	Digital Thermometer w/o Probe	-250 °C to 1,820 °C Type B, E, J, K, N, R, S, T	✓	✓	✓	✓
10	Micro Ohmmeter	1 mΩ to 330 MΩ	✓	✓	✓	✓
			1 mΩ to 330 MΩ		1 mΩ to < 1.2 GΩ	
11	Stopwatch					
	Time base (Frequency)	32 Hz to 32,768 Hz	✓		✓	
			32 Hz to 32,768 Hz		32,768 Hz	
12	Digital Tachometer					
	Photo & Contact Type	1 RPM to 99,999 RPM	✓	✓	✓	✓
			1 RPM to 99,999 RPM		1 RPM to 99,999 RPM	
13	AC-DC Current Source	0 to 1,500 A			✓	✓
					0 to 1,500 A	
14	Capacitance Substituter	10 pF to 1,000 nF			✓	✓
					10 pF to 1,000 nF	
15	Inductance Substituter	1 mH to 1,000 mH			✓	✓
					1 mH to 1,000 mH	
16	Lux Meter	0 to 7,000 lux			✓	
					0 to 7,000 lux	
17	Electrostatic Field Meter	0 to 10 kV			✓	✓

18 Process Calibrator

Measurement

DC Voltage	0 V to ± 300 V	✓	✓
		0 V to ± 300 V	0 V to ± 300 V
AC Voltage	1 mV to 300 V	✓	✓
	(20 Hz to 10 kHz)	1 mV to 300 V	1 mV to 300 V
DC Current	0 to ± 110 mA	✓	✓
		0 to ± 110 mA	0 to ± 110 mA
Resistance	0 Ω to 11 k Ω	✓	✓
		0 Ω to 11 k Ω	0 Ω to 11 k Ω
Frequency	1 Hz to 50 kHz	✓	✓
	(<1 kHz: Max 300 V, >1 kHz: Max 30 V)	1 Hz to 50 kHz	1 Hz to 50 kHz
Temperature	-250 °C to 1,820 °C	✓	✓
	(Type E, B, J, K, N, R, S, T)	-250 °C to 1,820 °C	-250 °C to 1,820 °C
RTD	-200 °C to 800 °C	✓	✓
	(Type Pt 385 100)	-200 °C to 800 °C	-200 °C to 800 °C
Sourcing			
DC Voltage	0 V to ± 100 V	✓	✓
		0 V to ± 100 V	0 V to ± 100 V
AC Voltage	1 mV to 100 V	✓	✓
	(0.01 Hz to 50 kHz)	1 mV to 100 V	1 mV to 100 V

DC Current	0 to ±110 mA	✓	✓
		0 to ±110 mA	0 to ±110 mA
Simulate Transmitter	4 mA to 24 mA	✓	✓
		4 mA to 24 mA	4 mA to 24 mA
Resistance	0 Ω to 11 kΩ	✓	✓
		0 Ω to 11 kΩ	0 Ω to 11 kΩ
Frequency	0.01 Hz to 50 kHz	✓	✓
	(0.1 Vp-p to 10 Vp-p)	0.01 Hz to 50 kHz	0.01 Hz to 50 kHz
Temperature	-250 °C to 1,820 °C	✓	✓
	(Type E, B, J, K, N, R, S, T)	-250 °C to 1,820 °C	-250 °C to 1,820 °C
RTD	-200 °C to 800 °C	✓	✓
	(Type Pt 385 100)	-200 °C to 800 °C	-200 °C to 800 °C
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19 Digital Sound Level Meter	94 dB, 114 dB		✓ ✓
			94 dB, 114 dB
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20 Handheld LCR Meter			
Function Capacitance	0 to 1,000 nF		✓ ✓
			0 to 1,000 nF
Function Inductance	0 mH to 1,000 mH		✓ ✓
			0 mH to 1,000 mH
Function Resistance	0.01 Ω to 1,000 MΩ		✓ ✓
			0.01 Ω to 1,000 MΩ
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21 Insulation Tester	100 kΩ to 10 GΩ		✓ ✓

			100 k Ω to 10 G Ω
22	Weld tester	0.1 to 200 kA @ 50 Hz	✓ ✓ 0.1 to 200 kA @ 50 Hz
23	High Voltage Source by using High Voltage Probe and True RMS Multimeter		✓ ✓
	DCV	0 to 40 kV	0 to 40 kV
	ACV	0.1 to < 28 kV Frequency 45 to 65 Hz	0.1 to < 28 kV Frequency 45 to 65 Hz
24	High Voltage Source by using High Voltage Probe and Digital Oscilloscope	0.1 to 10 kV Frequency < 50 MHz	✓ ✓ 0.1 to 10 kV Frequency < 50 MHz
25	High Volte Meter		✓ ✓
	DCV	DCV 0.5 kV to 10 kV	DCV 0.5 kV to 10 kV
	ACV	0.5 kV to 10 kV 50/60 Hz	0.5 kV to 10 kV 50/60 Hz
26	Sound Calibrator	As Specification	
27	Wrist Strap Tester	As Specification	
28	Surface Resistance		
29	Control Vale	0 to 100 %	
30	Transmitter	4 to 20 mA	
31	Speed Control	1 to 99,999 RPM	
32	RTD Indicator w/o Probe		
	Pt 3926, 100 Ω	-200 °C to 800 °C	
	Pt 3916, 100 Ω	-200 °C to 800 °C	
	Pt 385, 200 Ω	-200 °C to 800 °C	

Pt 385, 500 Ω

-200 °C to 800 °C

Pt 385, 1000 Ω

-200 °C to 800 °C

PtNi 385, 120 Ω (Ni 120)

-200 °C to 800 °C

Cu 427, 10 Ω

-200 °C to 800 °C

33 Charge-discharge Battery

1 to 1,500 A
