

FLUKE

5522A

The Fluke 5522A is a high-performance Multi-Product Calibrator designed to address a wide workload of electrical and electronic calibration. Although the product is sometimes miscategorized as a VNA calibration kit in standard catalogs, the Fluke 5522A is a primary laboratory electrical calibrator. It calibrates digital multimeters (up to 6.5 digits), oscilloscopes (up to 600 MHz or 1.1 GHz with optional modules), power meters, power quality analyzers, thermometers, and various other measurement instruments. It features robust reverse-power protection (V-Guard) to safeguard against accidental operator voltage inputs, ensuring long-term reliability.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488), RS-232
Display	Dual displays: high-contrast backlit graphic LCD for menus/settings, and a segmented vacuum fluorescent display (VFD) for primary output values

Physical

Power Supply	100 V to 240 V AC ($\pm 10\%$), 47 Hz to 63 Hz, < 300 VA
Operating Temperature	0 °C to 50 °C °C
Dimensions (W×H×D)	443 mm × 178 mm × 473 mm mm
Weight	22.4 kg

DC Voltage

DC Voltage Range	0 to ± 1020 V
DC Voltage Resolution	0.1 μ V
DC Voltage 1-Year Absolute Uncertainty	$\pm(11$ ppm of reading + 1.5 μ V) on 3.3 V range
DC Voltage Ranges	329.9999 mV, 3.299999 V, 32.99999 V, 329.9999 V, 1020.000 V
DC Voltage Maximum Compliance Current	220 mA (on 3.3 V and 33 V ranges)
DC Voltage Source Impedance	50 Ω (on 330 mV range)

AC Voltage

AC Voltage Range	1 mV to 1020 V
AC Voltage Frequency Range	10 Hz to 500 kHz
AC Voltage 1-Year Absolute Uncertainty	$\pm(0.015\%$ of reading + 0.002% of range)
AC Voltage Waveforms	Sine, square, triangle, truncated sine

DC Current

DC Current Range	0 to ± 20.5 A
DC Current 1-Year Absolute Uncertainty	$\pm(100$ ppm of reading + 0.05 μ A) on 3.3 mA range
DC Current Maximum Compliance Voltage	7 V (up to 330 mA)

AC Current

AC Current Range	29 μ A to 20.5 A
AC Current Frequency Range	10 Hz to 30 kHz
AC Current 1-Year Absolute Uncertainty	$\pm(0.04\%$ of reading + 0.003% of range) at 1 kHz
AC Current Ranges	29 μ A to 329.999 μ A, 330 μ A to 3.29999 mA, 3.3 mA to 32.9999 mA, 33 mA to 329.999 mA, 330 mA to 2.99999 A, 3 A to 20.50000 A

Resistance

Resistance Range	0 Ω to 1.1 G Ω
Resistance Style	Continuously variable
Resistance 1-Year Absolute Uncertainty	± 28 ppm of reading on 10.9 k Ω range

Capacitance

Capacitance Range	220 pF to 110 mF
Capacitance 1-Year Absolute Uncertainty	$\pm(0.25\%$ of reading + 10 nF) on 3.3 μ F range

Temperature Calibration (Thermocouple)

TC Source/Measure Types	B, C, E, J, K, L, N, R, S, T, U, BP, XK
TC Source Temperature Range	-250 $^{\circ}$ C to +2316 $^{\circ}$ C (type-dependent)
TC Source Best Uncertainty	± 0.09 $^{\circ}$ C (Type K)

Temperature Calibration (RTD)

RTD Source Types	Pt385 (100 Ω , 200 Ω , 500 Ω , 1000 Ω), Pt3926, Pt3916, Ni120 (120 Ω Ni), Cu10
RTD Temperature Range	-200 $^{\circ}$ C to +850 $^{\circ}$ C (type-dependent)
RTD Best Uncertainty	± 0.03 $^{\circ}$ C (Pt385, 100 Ω)

Phase & Power

Phase Range	-180.00 $^{\circ}$ to +180.00 $^{\circ}$
Phase Resolution	0.01 $^{\circ}$
Power Range (Simulated)	Up to 20.9 kW (with voltage and current outputs simultaneously)
Power Frequency Range	10 Hz to 30 kHz

Oscilloscope Calibration (Options)

SC600 Option Bandwidth	Up to 600 MHz
SC1100 Option Bandwidth	Up to 1.1 GHz
Oscilloscope Calibration Functions	Amplitude, edge, fast edge, leveled sine wave, time marker, wave generator

General Technical Specifications

Warm-up Time	30 minutes
Calibration Interval	1 Year
Frequency Uncertainty	±2.5 ppm
Reverse Power Protection (V-Guard)	Up to 300 V peak on all voltage/current output terminals

Environmental

Operating Altitude	Up to 3,050 m (10,000 ft)
Storage Temperature Range	-20 °C to +70 °C
Relative Humidity (Operating)	< 80% to 30 °C, < 70% to 40 °C, < 40% to 50 °C
Storage Altitude	12,192 m (40,000 ft)

Accessories

Compatible Current Coil	Fluke 5500A/COIL 50-Turn Current Coil (extends AC/DC current capability to 1025 A)
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Frequency

Frequency Source Range	0.01 Hz to 2.0 MHz
Frequency Source Resolution	11 digits

Power & Phase

Power Factor Range	0 to 1
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AC Signal

Harmonics Generation	Up to 50th harmonic
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Temperature

Thermocouple Resolution	0.01 °C or 0.01 °F
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Power Supply

Line Frequency	47 Hz to 63 Hz
Maximum Power Consumption	600 VA

Oscilloscope Calibration

SC300 Option Bandwidth	300 MHz
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Compliance

EMC Compliance	IEC 61326-1
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Auxiliary AC Voltage Output

Auxiliary AC Voltage Range	10 mV to 3.3 V
Auxiliary Voltage Phase Resolution	0.01°

Thermocouple

Thermocouple Types Supported	B, C, E, J, K, L, N, R, S, T, U, XK, BP
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RTD

RTD Types Supported	Pt385 (10 Ω , 50 Ω , 100 Ω , 200 Ω , 500 Ω , 1000 Ω), Pt3926 (100 Ω), Pt3916 (100 Ω), Pt385 (10 Ω), Ni120 (120 Ω), Cu10 (10 Ω)
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TECHNOLOGY

Electrical Calibration

APPLICATIONS

Calibration of digital multimeters, oscilloscopes, power meters, and temperature indicators

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