

**FLUKE®**

**Calibration**

## **5502A Multi-Product Calibrator**

**Robust, transportable solution to  
match your workload and budget**





### **5502A features at a glance**

- Calibrates a wide variety of electrical test equipment
- Robust protection circuits prevent costly damage from operator error
- Ergonomically designed carrying handles make the 5502A easy to transport
- Rugged carrying case with built-in handles and wheels and removable front/rear access doors for in-situ calibration in almost any environment
- Current output that extends to 120 A when paired with the 52120A Transconductance Amplifier
- Remarkably affordable

# Practical solutions for calibrating in the lab or in the field

## A full-functioned calibrator that covers a wide range of common workload

The 5502A Multi-Product Calibrator addresses common workload items like 3.5 and 4.5 digit digital multimeters and more. It comes with internal and external protection features that enable you to transport it easily and perform on-site or mobile calibration. The 5502A can also be fully automated with MET/CAL® Plus Calibration Management Software. It is the ideal calibrator for metrology professionals who need a solution for calibrating low-to-medium accuracy electrical instrumentation.

The 5502A sources direct voltage and current; alternating voltage and current with multiple waveforms and harmonics; simultaneous voltage and current outputs or dual voltage outputs to simulate dc and ac power with phase control; as well as resistance, capacitance, thermocouples and RTDs. The 5502A can also measure thermocouples and thermocouple simulators. Two options add the capability to calibrate oscilloscopes to either 300 MHz or 600 MHz.

Using the Fluke Calibration 52120A Transconductance Amplifier, the 5502A's output current can be extended from 20.5 to 120 A; and with the use of 25 and 50 turn coils, it can calibrate instruments requiring up to 6000 A.

### The 5502A calibrator covers many of the most common items in your workload, including:

- Handheld and bench meters (analog and digital) to 4.5 digits
- Current clamps and clamp meters
- Panel meters
- Electronic thermometers
- Chart recorders
- Oscilloscope recorders
- XY recorders
- Data loggers

Workload	Fluke Calibrators				
	Multi-Product Calibrators			Multifunction Calibrators	
	5080A	5502A	5522A	5700A	5730A
<b>Analog/Panel meters</b>					
High burden meters					
Low burden meters					
<b>DMMs</b>					
<i>Basic dc V accuracy</i>	100 ppm	50 ppm	11 ppm	6.4 ppm	3.25 ppm
3.5 digits <small>(typ. ± 0.3 % dc V)</small>					
4.5 digits <small>(typ. ± 0.025 % dc V)</small>					
5.5 digits <small>(typ. ± 0.015 % dc V)</small>					
6.5 digits <small>(typ. ± 0.0024 % dc V)</small>					
7.5 digits <small>(typ. ± 1.2 ppm dc V)</small>					
8.5 digits <small>(typ. ± 3.9 ppm dc V)</small>					
<b>Temperature/Pressure</b>					
RTD simulate					
RTD measure					
Thermocouple simulate					
Thermocouple measure					
Pressure modules			opt		
<b>Oscilloscopes</b>					
	1 channel				
200 MHz to 600 MHz	200 MHz opt	300 MHz or 600 MHz opt	600 MHz opt		
1.1 GHz			opt		
2.1 GHz					
3.2 GHz					
6 GHz					
25 ps fast edge					
<b>Safety testers</b>					
Hipot					
Megohm meters	opt				
Installation					
PATs					
Continuity	opt				
<b>Power/Energy</b>					
Wattmeters					
Harmonic analyzers					
Flicker meters			PQ opt		
Phase angle meters			PQ opt		
Power analyzers			PQ opt		
Power recorders					
<b>Other</b>					
Clamp meters					
LCR meters		CR only	CR only		
Process calibrators					
Data acquisition					
Non sine waveforms					
RF millivolt meters				opt	opt
# of calibrator functions	8	11	11	5	5

# Overview

## Internal circuitry protects against user error

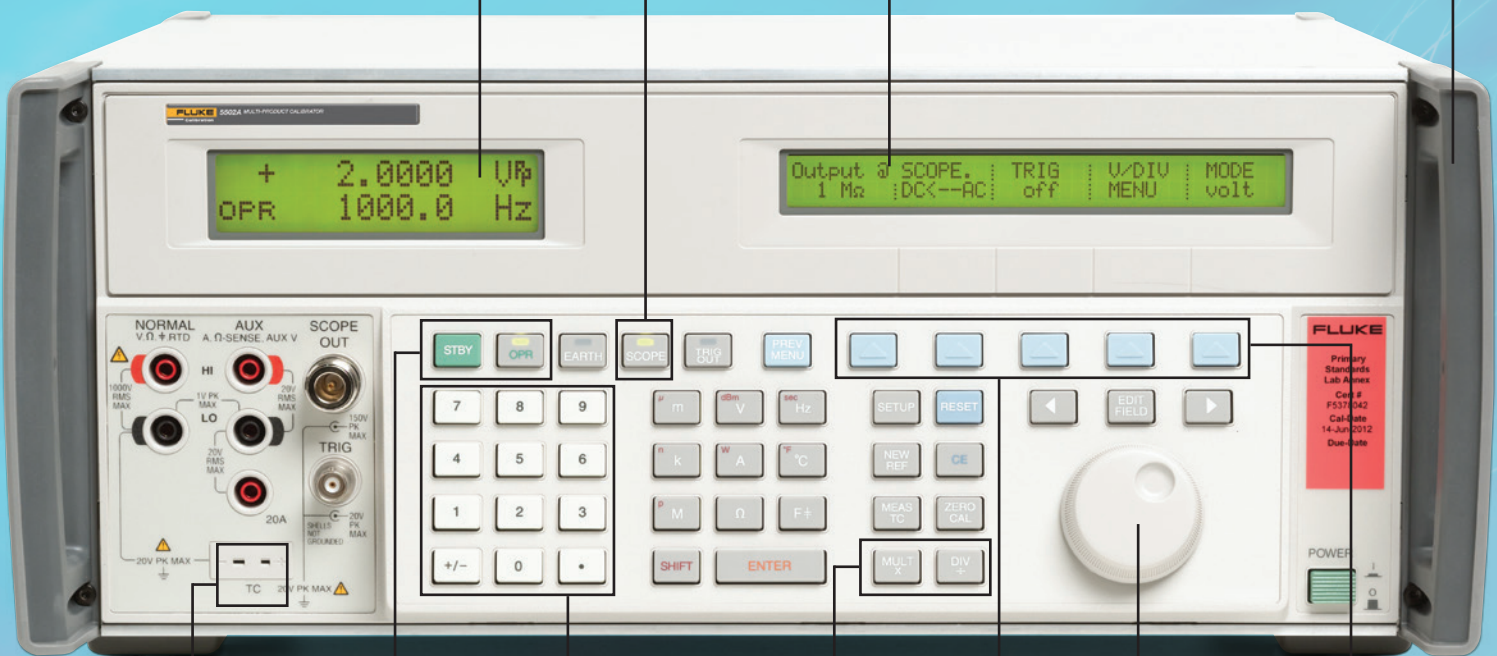
Reverse power protection, check before connect, immediate output disconnection, and fuse protection on the output terminals offers “mistake proof” protection against common user errors. This protection is for applied external voltages up to  $\pm 300$  V peak.

The bright, backlit **LCD display** is easy to read from all angles and under a variety of light conditions.

Ergonomically designed, rugged **handles** make the 5502A easy to transport.

Press the **SCOPE key** for on-demand oscilloscope calibration (optional).

The **control window** displays a variety of status messages, soft key menus, and status and other auxiliary information.



Control output by pressing **STBY** and **OPR** keys.

Calculator-style **keypad** makes it easy to enter values.

**MULT [X]** and **DIV[+]** keys simplify stepping up and down in decade multiples of any output setting, and let you step up or down to the next range in a 1-2-5 sequence for oscilloscope calibration.

**Edit knob** allows you to vary the output. When editing, the difference between the original output and the edited output is computed automatically and displayed in the control window.

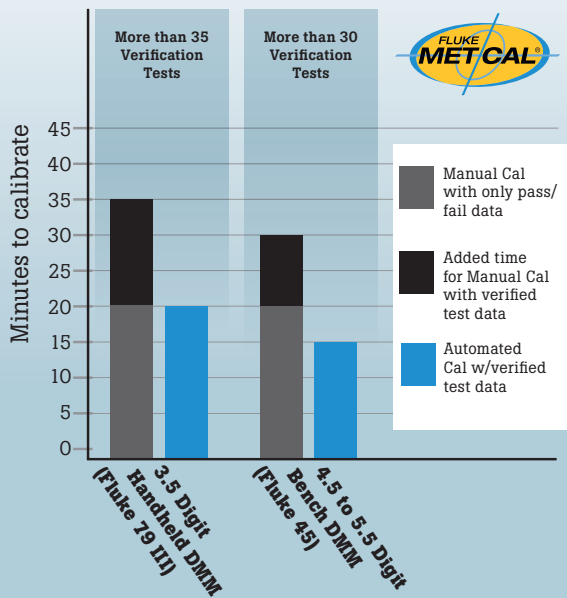
Using **soft keys** you can access a “SPEC” menu lets you view the uncertainty for the present value.

**Temperature** measurement modes calibrate thermocouple simulators and can also document environmental conditions present at the time of calibration, as required by all quality standards.

**Soft keys** allow access to the menus in the control windows, letting you select parameters such as offset, waveforms, phase, thermocouple or RTD type. PREV MENU lets you step backward through these menus.

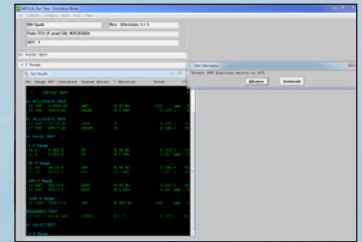
# Automation, training and support

**Time comparison for manual and automated calibration methods**



## Automate with MET/CAL® Plus software for consistent and efficient calibration

MET/CAL Plus software is a powerful application for creating, editing and testing calibration procedures and collecting and reporting results on a wide variety of instruments. It includes MET/CAL software—the industry leading software for automated calibration, and MET/TEAM™ Express—a dedicated system to manage your test and measurement assets. Or choose MET/TEAM standard edition for fully-featured enterprise calibration asset management, with optional modules for on-site calibration, commerce management, and customer web portal.



Using MET/CAL Plus Calibration Management Software can help you meet the requirements for documented processes, procedures and reports mandated by most quality standards. Automating with MET/CAL software also helps you increase throughput and streamline your calibration processes.

## Priority software support helps you stay productive

MET/SUPPORT<sup>SM</sup> Gold is an annual membership program offering premium support and services to help you stay as productive as possible with MET/CAL Plus software. Services include free software updates and upgrades, free access to the MET/CAL Warranted Procedures Library, plus discounts on training and custom procedure development. Members also receive invitations to regular calibration software web seminars and user group meetings. Use only a few of the Gold services and you can easily recover more than the cost of your membership fee.

## Calibration and repair service

Fluke Calibration offers extensive calibration support and service to ensure your long-term satisfaction and return on investment in calibration equipment. Our worldwide network of calibration centers offers accredited calibrations traceable to national standards. We also offer fast, quality repair and calibration services including a module exchange program and full support in setting up your lab.

## Metrology training increases skill levels

Calibration and metrology training from Fluke Calibration can help you and your staff become more knowledgeable in a wide variety of disciplines. Instructor-led classroom training is available for general topics in metrology, as well as for calibration software. On-site training can also be scheduled if you have a number of people in your organization who would benefit.

Fluke Calibration also offers other educational events such as web seminars and road shows on a wide variety of topics. The best way to stay informed about these events is to register to receive email and direct mail from Fluke Calibration. You can register online at [www.flukecal.com](http://www.flukecal.com).

# Summary specifications

Function and range	
Direct volts	0 to $\pm 1020$ V
Direct current	0 to $\pm 20.5$ A
Alternating volts	1 mV to 1020 V 10 Hz to 500 kHz
Volt/hertz	1000 V@10 kHz/330 V@100 kHz
Alternating current	29 $\mu$ A to 20.5 A 10 Hz to 30 kHz
Waveforms	Sine, square, triangle, truncated sine
Resistance	0 $\Omega$ to 1100 M $\Omega$
Capacitance	220 pF to 110 mF
Power (phantom loads)	20.9 kW
Phase control	0.01°
Thermocouple (source and measure temperature)	B, C, E, J, K, L, N, R, S, T, U 10 $\mu$ V/°C and 1 mV/°C
RTD (source temperature)	Pt 385-100 $\Omega$ , Pt 3926-100 $\Omega$ , Pt 3916-100 $\Omega$ , Pt 385-200 $\Omega$ , Pt 385-500 $\Omega$ , Pt 385 1000 $\Omega$ , PtNi 385-120 $\Omega$ (Ni120), Cu 427 10 $\Omega$
Interfaces	RS-232, IEEE 488
Frequency uncertainty	< 25 ppm
Oscilloscope calibrator (options)	Levelled sine wave from 5 mV to 5.5 Vpp max, frequencies 50 kHz to 600 MHz; edge rise times of < 300 ps, multiple trigger functions, lowest dc, square wave and timing uncertainty
Amplified current (accessory amplifier)	Extend from 20.5 A to a maximum of 100 A dc and 120 A ac from 10 Hz to 10 kHz



## Calibrate almost anywhere

### Rugged transit case makes on-site calibration safe, easy, convenient

An optional shock-mounted transit case featuring built-in handles and wheels gives you the option of taking the calibrator to the workload for on-site or mobile applications. Once at the site, just remove the front and rear doors from the case for access to the 5502A's front and rear panels—the top, bottom and sides of the calibrator remain protected, and you don't need to fully unpack the calibrator for each use.



# Multi-product calibrator family



## 5522A Multi-Product Calibrator

### Robust, transportable wide workload coverage

The 5522A Multi-Product Calibrator is the most accurate model in this calibrator family. It calibrates digital multimeters into the 5.5 and 6.5 digit category. The 5522A addresses the widest calibration workload with optional power quality capabilities and oscilloscope calibration for scopes with bandwidths to 1100 MHz. It comes with internal and external protection features that protect it against damage and make it easier to transport for on-site or mobile calibration.

The 5522A can be fully automated with MET/CAL Plus Calibration Management Software. It is the ideal calibrator for metrology professionals who need to calibrate many different types of electronic equipment and want a transportable instrument that offers them a high return on investment.

## 5080A High Compliance Multi-Product Calibrator

### Calibration solutions for your analog and digital workload

The 5080A Multi-Product Calibrator calibrates your analog and digital workload accurately and economically. Its high voltage and current compliance makes analog workload calibration easy and precise. With maximum burden up to 800 mA for ac/dc voltage, and voltage up to 50 V for ac/dc current, 5080A calibrators can drive a wide range of analog meters.

Built-in protection circuitry protects the 5080A against damaging input voltages. Versatile software applications enable you to record paperless results and more.

Options and accessories enable you to use the 5080A to calibrate an even broader workload, including clamp meters, oscilloscopes, and megohm meters.

## Innovation from the leader in calibration

Fluke Calibration pioneered the multi-product calibrator concept, creating a family of instruments that allow you to calibrate the widest range of today's electronic test tools with a single instrument. These calibrators offer simple, portable, cost-effective solutions that allow you to match your calibrators to your workload and your budget.





## Ordering Information

### Model

5502A	Multi-Product Calibrator
5502A/3	Multi-Product Calibrator with 300 MHz Oscilloscope Calibration Option
5502A/6	Multi-Product Calibrator with 600 MHz Oscilloscope Calibration Option

### Accessories

52120A	Transconductance Amplifier
5522A/ CARRYCASE	Rugged Carrying Case with removable front/back panels
55XX/CASE	Transit Case with Wheels
5500A/ LEADS	Thermocouple and Test Lead Set
5500A/COIL	50-Turn Coil
9100-200	Dual 10 & 50 Turn Coil
5500A/HNDL	Side Handle
Y5537	Rack Mount Kit

### Software

MET/CAL	MET/CAL <i>Plus</i> Calibration Management Software
MET/TEAM	MET/TEAM Test Equipment Asset Management Software

## The broadest range of calibration solutions

Fluke Calibration provides the broadest range of calibrators and standards, software, service, support and training in electrical, temperature, pressure, RF and flow calibration.

Visit [www.flukecal.com](http://www.flukecal.com) for more information about Fluke Calibration products and services.

**Fluke Calibration.** *Precision, performance, confidence.™*

Electrical	RF	Temperature	Pressure	Flow	Software
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