

# 5790A AC Measurement Standard

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Automated AC measurement with precision that is easy to use

The 5790A is a complete automated ac measurement standard designed for the most demanding calibration applications. It combines the accuracy you would expect from a thermal transfer standard with the ease-of-use of a digital multimeter. Absolute ac voltage measurement uncertainties are as low as  $\pm 24$  ppm (one year, 23 $\circ$ C  $\pm$  5 $\circ$ C). The 5790A is designed to meet the complete ac

voltage and wideband verification requirements of the Fluke 5700A, 5500A and other calibrators, amplifiers like the 5725A and 5205A, and transfer standards and ac voltmeters.

The 5790A covers an alternating voltage range of 700  $\mu$ V to 1000V, and a frequency range of 10 Hz to 1 MHz. A wideband voltage option extends frequency range to 30 MHz to meet the calibration requirements of Fluke 5700A, 5720A and 5100 Series Wideband Options.

The 5790A is also compatible with Fluke A40 and A40A Current Shunts, which permit you to make ac/dc current transfer measurements up to 20A.

The 5790A may be used alone or as a transfer standard with an external dc source. In either case the normally tedious switching and calculations are performed automatically by the 5790A, and the resulting ac/dc difference is displayed directly on the easy-to-read vacuum fluorescent display.

# 5790A AC Measurement Standard Features

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- [Versatility that keeps you productive](#)
- [Designed with your support requirements in mind](#)

Versatility that keeps you productive

When you first power up the 5790A, diagnostics verify the instrument's integrity.

The variety of input connections allows you to use the one that best suits your application. There are four sets of input terminals on the 5790A, two Type-N connectors and two sets of five-way binding posts. One Type-N and one set of binding posts are dedicated to the ac measurement and transfer modes. AC or dc voltages may be applied to either input connection over the 5790's full range, allowing you to perform automated ac/dc transfer measurements. The 5790A determines automatically whether the applied voltage is ac or dc.

The second Type-N input connection supports the optional wideband mode, and the second set of binding posts are designed for [Fluke A40 Series Current Shunts](#).

The input connection is selected with the touch of a key on the 5790A front panel. An LED indicates which selection is active.

Whether you are using the 5790A as a voltmeter or a transfer standard, input voltage and frequency are always indicated on the measurement display. In the transfer mode, the ac/dc or ac/ac difference is always indicated on the control display in ppm, %, volts or ratio.

The 5790A is a fully autoranging instrument and selects the best voltage range for the measurement you are making. You may also select and lock in ranges manually. Robust 1200V input protection is active on all voltage

ranges.

Using the trigger keys, the 5790A can switch from continuous to single measurements of the input voltage, making it easy to take sample readings at predetermined intervals.

When using the 5790A in transfer mode, the reference voltage is stored automatically, and all ac/dc or ac/ac difference measurements are made relative to it. At any time, you can view the reference by pressing the VIEW REF key. You may also store the average of two voltages as a reference to eliminate dc reversal errors, for example.

The intuitive front panel layout of the 5790A makes manual operation fast and simple. Keys and selections are logically arranged and labeled. And messages and menus are displayed clearly on the 5790A's bright, vacuum fluorescent display.

The 5790A is at home in automated systems as well. GPIB/IEEE-488 and RS-232C interfaces are included and all functions of the instruments can be controlled by a variety of host computers, including PCs. Using an available instrument driver, the 5790A can be integrated into automated systems operating under MET/CAL<sup>®</sup> Plus Calibration Software.

Designed with your support requirements in mind

The 5790A provides a self-contained calibration procedure designed to simplify periodic performance verification. The operator is prompted on what actions to take. To minimize the equipment required, the 5790A is designed to be supported by the Fluke 792A AC/DC Transfer Standard.

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# 5790A AC Measurement Standard Specifications

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- [Specifications](#)

## Specifications

ACV Measurement	Range: 700 $\mu$ V to 1000V 10 Hz to 1 MHz Best 1 Year Specification: $\pm$ 24 ppm
Wideband Measurement	Range: 700 $\mu$ V to 7V 10 Hz to 30 MHz Best 1 Year Specification: $\pm$ 0.35%
Warm-up Time	30 minutes
Relative Humidity	Operating: 45% to 50°C; 75% to 45°C; 95% to 30°C  Storage: < 95% non-condensing
Altitude	Operating: 3,050 meters (10,000 feet) Non-Operating: 12,200 meters (40,000 feet)
Temperature	Operating: 0°C to 50°C Calibration: 15°C to 35°C
Storage	-40°C to 70°C
EMI /RFI	Complies with FCC Part 15 Subpart B, Class B; VDE 0871, Class B; ESD: EIA PN-1361. Surge: ANSI C62.41-1980, Category A
Reliability	MIL-T-28800D, paragraph 3.13.3
Line Power	47 Hz to 63 Hz; +/-10% of selectable line voltages: 100V, 110V, 115V, 120V, 200V, 220V, 230V, 240V
Safety	Complies with UL 1244 and IEC348-1978 and IEC 1010 and CSA C22.2 No. 231
Remote Interfaces	RS-232C, IEEE-488
Maximum Power	5790A: 95 VA; with wideband: 120 VA

Size	Height: 17.8 cm (7 in) standard rack mount + 1.5 cm (0.6 in) Width: 43.2 cm (17 in) Depth: 63 cm (24.8 in)
Weight	5790A: 24 kg (53 lbs.); with wideband: 24.5 kg (54 lbs.)

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# 5790A AC Measurement Standard Models, Options & Accessories

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Model Name	Product Description
5790A	AC Measurement Standard

## Available Accessories and Options

Model Name	Accessory or Option Description
5440A-7002	Low Thermal Copper EMF Plug-In Cables
5790A-03	Wideband AC Measurement
A45-4004	Output cable for A40A current shunt. Connects the output of the A40A to the 792A-7004 Adapter.
Y5737	5790A Rack Mount Kit. Includes 24" slides that allow for side ventilation.
Y8021	Shielded IEEE-488 Cable, 1m
Y8022	Shielded IEEE-488 Cable, 2m
Y8023	Shielded IEEE-488 Cable, 4m

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