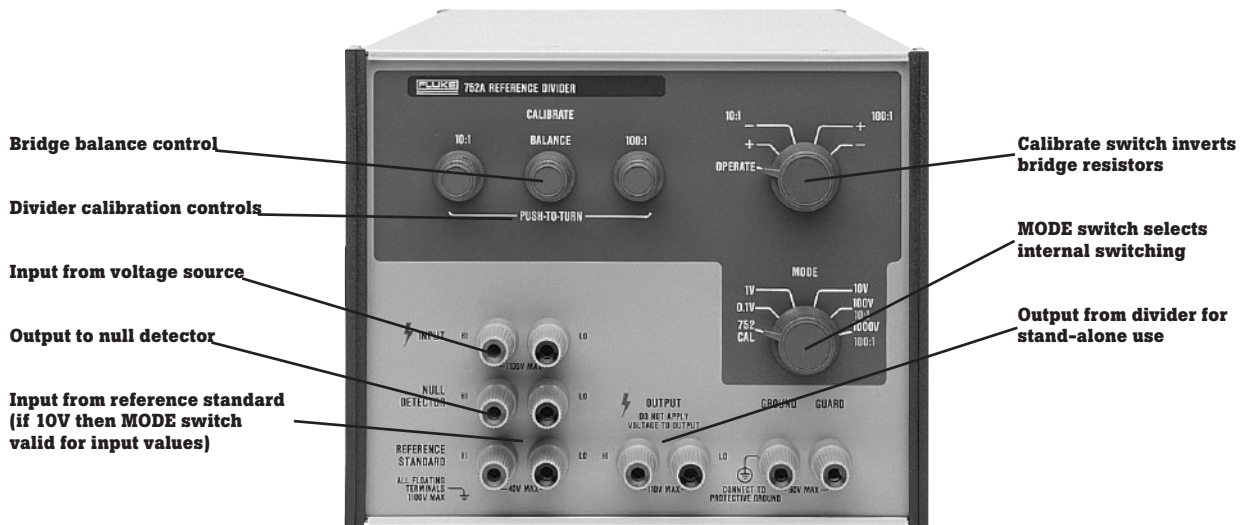


Fluke 752A Reference Divider Specifications

Technical Data



Features of the Fluke 752A

- 10:1 and 100:1 divider outputs
- Output uncertainty 0.2 ppm and 0.5 ppm
- Built-in Calibration Bridge
- Dynamic Resistor Matching™
- System switching for ease of use

The Fluke 752A Reference Divider sets the standard for ratio accuracy and ease of use. It offers two divider outputs, 10:1 and 100:1 with output uncertainties of less than 0.2 ppm and 0.5 ppm respectively.

Before each use, the Fluke 752A is easily calibrated with only a stable source and a null detector. The entire procedure takes only five minutes and does not require external standards.

The calibration procedure compensates for long term changes in value of the divider resistors. The upper leg of the divider is configured into three

equal groups, which, when placed in parallel, form a resistor of equal value to the output resistor. These two resistors form one half of a Wheatstone bridge. The other half is composed of two calibration resistors whose positions can be interchanged in the circuit. This interchange allows correction for any difference in the values of the calibration resistors through use of the BALANCE knob on the front panel. The upper leg resistors are then matched to the output resistor with the 10:1 or 100:1 potentiometers respectively.

Operating modes

In the stand-alone divider mode, input to the divider is applied to the INPUT terminals and is switched by the MODE switch to either the 10:1 or the 100:1 position. Output from the divider is then available at the OUTPUT terminals.

When the Fluke 752A is augmented with a 10V reference source (such as the Fluke 732B) and a null detector, the resulting system becomes the 5-decade cardinal point voltage calibrator with facilities for comparing input voltages of 1000 V, 100 V, 10 V, 1 V and 0.1 V to the 10 V reference. In this mode, the voltage source to be calibrated is connected to the 752A input terminals and the MODE switch reconfigures the system for each of the ranges with no manual lead changing necessary.

When the MODE switch is turned to the 752 CAL position, the 752A divider resistors are switched to form a bridge circuit with the two additional calibration resistors. Bridge excitation is supplied from the voltage source (set for an output of 20 V) connected to the input terminals and the null detector is switched across the bridge to measure bridge balance.

Specifications

These specifications apply for the lifetime of the instrument over the temperature range of 18 °C to 28 °C.

Ratio uncertainty

The Fluke 752A may be calibrated and operated in the normal temperature range of 18 °C to 28 °C. The following table describes the ratio uncertainty of the 752A that applies for a temperature variation of less than ± 1 °C from the calibration temperature for up to eight hours following calibration.

Range	Input Voltage	Ratio Uncertainty	Null Uncertainty*
10:1	100 V	0.2 ppm	± 0.5 μ V
100:1	1000 V	0.5 ppm	± 1.0 μ V

*Null uncertainty refers to the required uncertainty of the null detector reading during calibration.

Temperature coefficient of ratio

Temperature coefficient of ratio is $< \pm 1$ ppm/°C over the entire operating range. Typical performance from 15 °C to 30 °C is 0.1 ppm/°C.

Input resistance

10:1 ratio: 380 k Ω ± 1 %

100:1 ratio: Divider 4 M Ω
Driver Guard 4 M Ω
Total 2 M Ω ± 1 %

Maximum input voltage

10:1 ratio: 200 V. This specification applies to the safety of the unit only. The maximum voltage for best accuracy is 100 V.

100:1 range: 1100 V

Power coefficient effect on ratio

10:1 ratio: < 0.05 ppm of output with 100 V applied.

100:1 ratio: < 0.3 ppm of output with 1000 V applied.

Note: These specifications are already included in the Ratio Uncertainty Specifications.

Weight

Net: 8.4 kg (18.5 lb)

Shipping: 13.6 kg (30 lb)

Size: 60.3 cm L x 22.1 cm W x 19.1 cm H (23.75 in L x 8.69 in W x 7.53 in H)

Compliance with standards

ANSI C39.5, 1980. IEC 348, 2nd edition, 1978

Temperature and humidity

Condition	Temperature	% Relative Humidity (non-condensing)
Non-operating	-40 °C to +75 °C 0 °C to 50 °C	Not controlled 95 \pm 5 % max.
Operating	0 °C to 40 °C 40 °C to 50 °C	75 \pm 5 % max. 45 \pm 5 % max.

Altitude

Non-operating: 0 to 12,000 m (40,000 ft)

Operating: 0 to 3,050 m (10,000 ft)

Vibration

Per MIL-T-288800C, Type III, Class 5, Style E.

Options and accessories

M07-200-603 Full Width Rack Mount Kit

The Full Width Rack Mount Kit permits the 752A to be rack mounted side-by-side with another half rack width instrument, such as the 732A DC Reference Standard. This rack mounting method requires the 752A to be bolted to the adjacent instrument using four M00-800-523 Dual Mounting Fasteners, which are included with the kit. Assembly instructions are supplied with the kit.

5440A-7002 Low Thermal EMF Cables

The Low Thermal EMF Cables are a set of three shielded, 2-conductor cables terminated with beryllium copper low thermal EMF banana plug connectors. One cable is four feet long and two are two feet long. The cables are particularly well suited for interconnecting a 752A, 732B and a null

detector for calibration of a 5700 Series Direct Voltage Calibrator. In addition, they will be found useful for general purpose lab work where the low thermal EMF and quick disconnect features are important.

Ordering Information

752A Reference Divider

Accessories

M07-200-603 7-inch Full Width Dual Rack Mount Kit
5440A-7002 Low Thermal EMF Cable Assembly

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