TECHNICAL DATA

FLUKE®
Calibration

720A Kelvin-Varley Divider

A primary standard for ratio measurements

The 720A Kelvin-Varley Divider is a high-resolution primary ratio standard with absolute linearity of 0.1 ppm, temperature coefficient of linearity of 0.1 ppm/°C, and self-calibration capability.

Key features

- 0.1 ppm resolution, seven decades
  - Seven resistor decades with 0.1 ppm resolution allow users to divide stable source voltages into highly accurate output voltages
- 0.1 ppm of input absolute linearity
  - 0.1 ppm of input absolute linearity gives users a high level of confidence that the division of output voltages will remain linear across all resistor decades
- Built-in self-calibration bridge
  - The built-in self-calibration bridge aids users in compensating for errors caused by temperature changes and aging
- Front panel self-calibration
  - Front panel access to the first two resistor decades enables users to easily adjust the 720A resistors to minimize errors caused by temperature changes and aging

Specifications

General specifications	
Ratio range	0 to 1.0 (1.0 input tap) and 0 to 1.1 (1.1 input tap)
Resolution	0.1 ppm of input with seven decades
Absolute linearity	(At calibration temperature and without the use of a correct chart) ±0.1 ppm of input at dial settings of 1.1 to 0.1, ±0.1 $(10S)^{1/3}$ of input at dial settings (S) of 0.1 to 0
Absolute linearity stability	(Without self-calibration) ±1.0 ppm of input/yr at dial settings of 1.1 to 0.1, ±1.0 $(10S)^{(2/3)}$ ppm of input/yr at dial setting (S) of 0.1 to 0 Note: Absolute linearity is defined as the linearity between max and min output voltages. The self-calibration procedure may be used at any time to reset absolute linearity to ±0.1 ppm of input.

Temperature coefficient of linearity	±0.05ppm of input °C maximum at dial settings of 1.1 to 0.1
Short-term linearity stability	Under typical standards laboratory conditions (temperature maintained within ± 1 °C) and with an applied voltage of up to 100V, stability of linearity is ± 0.01 ppm/24 hours and ± 0.1 ppm/30 days
Power coefficient of linearity	±0.2 ppm of input/W max at dial settings of 1.1 to 0.1; ±0.2 $(10S)^2$ ppm of input/W max at dial settings (S) of 0.1 to 0
Maximum end errors	Zero error at output low: 0.004 ppm of input Zero error at input low: 0.05 ppm of input Full-scale error: 0.05 ppm of input
Maximum input voltage	1000 V on 1.0 input terminal, 1100 V on 1.1 input terminal
Thermal voltages	±0.5 µV max
Input resistance	100 kΩ ±0.005% at 1.0 input terminal at 25 °C, 110 kΩ ±0.005% at 1.1 input terminal at 25 °C
Temperature coefficient of input resistance	±1 ppm per °C max
Size	14 cm H x 48.2 cm W x 33 cm D, rack mounted (5.5 in H x 19 in W x 13 in D)
Weight	8.15 kg (18 lb)

Ordering information

Model	Description
720	Kelvin-Varley Voltage Divider
	Includes instruction manual, one-year product warranty

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Electrical | RF | Temperature | Humidity | Pressure | Flow | Software

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