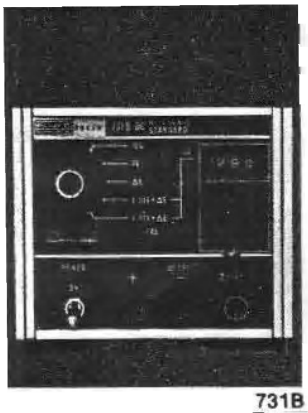

731B

510A

731B DC Reference Standard

The Fluke Model 731B DC Reference Standard is a versatile instrument providing standard cell accuracy, while utilizing the excellent performance capabilities of the solid-state technology. The instrument furnishes a variety of precision voltages with switched output ranges including 1.0, 1.018 + Δ E, 10.0, and Δ E volts. Delta E (Δ E) provides a variable output of 0 through 999 μV which is either added to the voltage of a standard cell transfer or may be used directly as a low-level, stable dc voltage source.

Specifications

Output Ranges: 10V, 1V, 1.018 +ΔE, 1.019 + ΔE, ΔE
Output Accuracy: (Absolute accuracy at 23°C ±1°C after 30 minutes warm-up)

	Period		
Range	**30 Days**	**90 Days**	**1 Year**
10V	±10 ppm	±15 ppm	±30 ppm
1V	±10 ppm	±15 ppm	±30 ppm
1.018 + ΔE	±10 ppm	±15 ppm	±30 ppm
1.019 + ΔE	±10 ppm	±15 ppm	±30 ppm
ΔE			±2 μV

Transfer Accuracy Between:

	4 Hours
Standard cells on 1.018V + ΔE ranges or 1.019V + ΔE ranges:	2 ppm
Standard cell and 1V output:	3 ppm
10V output and standard cell or 1V output:	5 ppm

Source Resistance: 10V range is < 0.07Ω; 1V, 1.018V, 1.019V, ΔE Ranges are < 1 kΩ
Output Protection: The output may be shorted indefinitely without damage to instrument
Line Regulation: < 1 ppm for ±10% line voltage variation
Ripple & Noise: < 1 ppm p-p dc to 1 Hz, < 20 μV rms 1 Hz to 1 MHz, except < 70 μV rms at 10 V output
Common Mode Noise Rejection: ≥ 120 dB at dc, ≥ 100 dB at 60 Hz, ≥ 85 dB at 400 Hz
Isolation: Output may be floated up to 500V dc between chassis ground and guard
Temperature: 0°C to 55°C, operating
Input Power: 115V or 230V ac ±10V, 50 to 400 Hz or internal rechargeable batteries, 6W max, 120 mA max
Size: 8.8 cm H x 10.7 cm W x 30.4 cm D (3½ in H x 4½ in W x 12 in D)
Weight: 2.26 kg (5 lbs)

Model

731B DC Reference Standard

Accessories

See 510A below

510A AC Reference Standard

The Fluke 510A is a precision, fixed frequency, ac voltage source which can be used as an amplitude calibration standard for test applications. In the calibration laboratory, the 510A provides an accurace ac reference for calibrating both True RMS and average-sensing ac voltmeters. On the production line, the 510A can be used to rapidly verify ac test instrumentation or to generate a precise ac stimulus for circuit testing.

The output frequency of the 510A may be varied ±1% from center frequency by a front panel screwdriver adjustment. Frequency resolution is ±0.05%.

Specifications

Output Voltage: 10V rms
Output Current: 10 mA rms, short-circuit protected
Frequency: Any specified single frequency from 50 Hz to 100 kHz. Standard choices are 50, 60, 400, 1,000, 2,400, 5,000, 19,200, and 100,000 Hz
Amplitude Accuracy

	24 Hours	**30 Days**	**90 Days**
50 Hz - 20 kHz	±0.01%	±0.015%	±0.02%
20 kHz - 50 kHz	±0.015%	±0.025%	±0.035%
50 kHz - 100 kHz	±0.04%	±0.05%	±0.06%

Amplitude Stability

	24 Hours	**30 Days**	**90 Days**
50 Hz - 20 kHz	±0.002%	±0.005%	±0.01%
20 kHz - 100 kHz	±0.004%	±0.01%	±0.02%

Total Harmonic Distortion: < 0.005% to 10 kHz, < 0.015% at 100 kHz
Center Frequency Accuracy: ±0.1%, adjustable ±1%
Frequency Stability: 500 ppm/mo
Load Regulation: ≤ 0.002% to 10 kHz, ≤ 0.008% at 100 kHz
Line Regulation: ≤ 10 ppm, for ±10% line change
Input Power: 115 or 230V ac ±10%, 50-500 Hz, optional rechargeable batteries for up to 16 hrs off-line operation
Size: 8.8 cm H x 10.7 cm W x 30.4 cm D (3.5 in H x 4.25 in W x 12 in D)
Weight: 2.26 kg (5 lbs.)

Model

510A AC Standard
510A S/F AC Standard (Special Frequency)
510A-01 AC Standard with rechargeable battery pack
510A-01K Rechargeable Battery Pack Kit for field installation

Accessories

M03-201-601 3½" Rack Adapter, Single
M03-202-603 3½" Rack Adapter, Dual
M03-205-605 3½" Rack Adapter, Quad
See page 152 for more accessory information.