

## Maintenance

### Performance Test

Verify the probe accuracy by measuring a 25 kV dc  $\pm 0.25\%$  voltage source. When used with a compatible dc voltmeter, the probe should measure the source with  $\pm 1\%$  accuracy. No calibration adjustments are provided.

### Cleaning

Use a soft cloth dampened in distilled water to clean the 80K-40. Never use solvents or abrasive cleaners. Make sure the 80K-40 is dry before reuse.

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# FLUKE®

## 80K-40

## High Voltage Probe

### Instruction Sheet

### Introduction

The Model 80K-40 is a high voltage accessory probe designed to extend the voltage measuring capability of an ac/dc voltmeter up to 40,000 volts Overvoltage Category I. This means the probe can only be used to make measurements on energy limited circuits within equipment. Examples include high voltage within televisions or photo copy machines. DO NOT use this probe to measure high voltages on power distribution systems. The probe is a precision 1000:1 voltage divider formed by two matched resistors. The unusually high input impedance offered by these resistors minimizes circuit loading and thereby, optimizes measurement accuracy. A special plastic body houses the divider and provides the user with isolation and protection from the voltage being measured.

### Specifications

The 80K-40 will achieve rated accuracy when used with a voltmeter (ac or dc) having an input impedance of  $10\text{ M}\Omega \pm 1.0\%$ .\* Specifications for the probe are as follows:

† **Voltage Range:** 1 kV to 40 kV dc or peak ac, 28 kV rms ac

**Input Resistance:** 1000 M $\Omega$

**Division Ratio:** 1000: 1 (1000X attenuator)

**Accuracy DC:**

**20 kV to 35 kV:**  $\pm 1\%$  at 20°C to 30°C; add 1% at 10°C <20°C and >30°C to 45°C. (For total measurement accuracy add accuracy specification of voltmeter being used.)

**0 kV to <20 kV and >35 kV to 40 kV:**  $\pm 2\%$ .

**Accuracy AC:** 60 Hz,  $\pm 5\%$ .

**Safety:** Meets IEC 1010-2-031:1993, Type B, 40 kV dc or, peak ac, 28 kV rms ac, Overvoltage Category I (voltages derived from limited energy transformer).

\* The input impedance of Autoranging Fluke handheld digital multimeters varies as a function of range. The only range that deviates significantly from  $10\text{ M}\Omega$  is the 3V (Models 21, 23, 25, 27, 70, 73, 75, 77) or 4V (Models 10, 11, 12, 29, 79, 83, 85, 86, 87, 88) range where the impedance is  $11.11\text{ M}\Omega$ . To enhance the measurement accuracy when using this range, apply a correction factor of 0.99, i.e. multiply the displayed reading by .99.

† This probe is intended for low energy applications such as CRT and similar circuits. Above 2000 meters altitude, and up to 5000 meters, derate linearly the working voltage from 40 kV peak to 28 kV peak, and derate linearly the transient overvoltage from 80 kV peak to 57 kV peak. Transient overvoltage refers to micro-second duration impulses caused by lightning or load switching. See International Electrotechnical Commission Publication 664-1980, Clause 3.9 Table II, and Appendix A.

### Measurement Considerations

Before attempting to use the 80K-40, the following paragraphs should be read and understood. Particular attention should be given to Operator Safety.

PN 481978

January 1978, Rev.9, 3/97

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