

Model 1600A High Voltage Probe

PA-148

Model 1600A High Voltage Probe

The Model 1600A High Voltage Test Probe increases the DC voltage measuring range of digital multimeters to 40k VDC. The division ratio is 1000 to 1. Rated accuracy is achieved when the probe is terminated into a DMM with 10M Ω input resistance. The Model 1600A can also be used with the AC volts function of a DMM but with degraded accuracy.

NOTE

The WARNINGS and CAUTIONS that appear in this instruction sheet have been written to alert the operator of the hazards of working with High Voltage. Read and understand all the Warnings, Cautions and the section on General Precautions before working with the High Voltage Probe.

SPECIFICATIONS

Maximum Input: 40kV DC or peak AC to 300Hz

Input Resistance: 1000M Ω

Division Ratio: 1000 to 1 \pm 2% into 10M Ω
2000 to 1 \pm 5% in 1M

Ratio Accuracy (into 10M Ω): \pm 2.5%
1kV DC to 40kV DC
-3db at 300 Hz AC

Operating Temperature: 0 $^{\circ}$ C to +50 $^{\circ}$ C

Storage Temperature: -20 $^{\circ}$ C to +70 $^{\circ}$ C

Temperature Coefficient: Less than
200ppm/ $^{\circ}$ C

Cable Length: 2 meters

Supplied Accessories: Domed Tip, Hook

WARNING

A serious or fatal injury may result from shock by improper use of the probe. Extreme caution must be exercised when working with high voltages. Care must be taken to maintain the insulating properties of the probe. Tampering with or alteration to the probe may void the high voltage rating of probe and create a potentially dangerous condition.

General Precautions

1. Avoid contamination of the probe body from oil, dirt, etc. *Inspect the probe body.* Inspect the probe body cable, alligator clip and input jacks to insure that no damage has been sustained which might degrade insulating properties or break electrical paths.
2. Turn off the power to the circuit to be measured before making any connections.

WARNING

After turning off power to the High Voltage circuit, there may be hazardous residual voltage potentials present.

3. Do not attempt to measure voltages exceeding the probe specifications.
4. Avoid contact with your person on metallic objects. Make the measurement while standing on an insulating material that is capable of withstanding the voltage to be measured.
5. Do not work alone when making high voltage measurements. Inform another person that you are making or are intending to make high voltage measurements.

High Voltage DC Measurements

1. Observe all the warnings, precautions and safety procedures of the DMM and the probe.
2. Connect the two banana plugs to the HI and LO or V and COM on the DMM. Set the DMM to the ap-

WARNING

A serious or fatal injury may result from shock by improper use of the probe. Extreme caution must be exercised when working with high voltages. Care must be taken to maintain the insulating properties of the probe. Tampering with or alteration to the probe may void the high voltage rating of probe and create a potentially dangerous condition.

General Precautions

1. Avoid contamination of the probe body from oil, dirt, etc. Inspect the probe body. Inspect the probe body cable, alligator clip and input jacks to insure that no damage has been sustained which might degrade insulating properties or break electrical paths.
2. Turn off the power to the circuit to be measured before making any connections.

WARNING

After turning off power to the High Voltage circuit, there may be hazardous residual voltage potentials present.

3. Do not attempt to measure voltages exceeding the probe specifications.
4. Avoid contact with your person on metallic objects. Make the measurement while standing on an insulating material that is capable of withstanding the voltage to be measured.
5. Do not work alone when making high voltage measurements. Inform another person that you are making or are intending to make high voltage measurements.

High Voltage DC Measurements

1. Observe all the warnings, precautions and safety procedures of the DMM and the probe.
2. Connect the two banana plugs to the HI and LO or and COM on the DMM. Set the DMM to the a

shock. Discharge any residual voltage on the probe by touching the probe tip to common (low) until the meter reads zero. Then remove the ground lead (alligator clip).

High Voltage AC Measurement

1. The division ratio of the probe with an AC voltmeter depends on the probe's input and output impedances, the voltmeter's input characteristics, any stray capacitances, and any lead inductances that may be present. The probe's AC response is -3dB at 300Hz into a 10M Ω DMM.
2. Determine the appropriate voltage range needed and set the voltmeter to the AC voltage function. Use the ACV input terminals.
3. Proceed as for DC high voltage measurements.

WARRANTY

We warrant each of our products to be free from defects in material and workmanship. Our obligation under this warranty is to repair or replace, at our option, any instrument or part thereof which, within a year from date of shipment, proves defective upon examination. We will pay local domestic surface freight costs. (NOTE: This warranty does not cover battery replacement or damage due to battery leakage.)

SERVICE POLICY

For service contact your local representative who will be able to give you immediate assistance in most cases. Complete repair and calibration facilities are maintained in Cleveland, Ohio; Munich, West Germany; and Reading, United Kingdom, as well as first line repair service in Palaiseau, France. Information concerning the application, operation or service of your instrument may be directed to the applications engineer at any of the locations listed below.

KEITHLEY

Keithley Instruments Inc. 2875 Aurora Road, Cleveland, Ohio 44134 U.S.A. Tel: 216-245-0400, Telex: 483469
WEST GERMANY: Keithley Instruments GmbH, Hagenstrasse 1, D-8034 München 9, GFR. Tel: 49-89-31111
GREAT BRITAIN: Keithley Instruments Ltd., Broomfield, 2, Kingsley, Barnet, Herts, UK. Tel: 0437 57111
FRANCE: Keithley Instruments SARL, 2 Rue Maurice Blum, B.P. 40, 91000 Palaiseau, France. Tel: 33-1-67 40 00 00
NETHERLANDS: Keithley Instruments B.V., Lindendreef 44, Postbus 24, Nieuw-Vennep, GMM, The Netherlands
SWITZERLAND: Keithley Instruments SA, Route Duvevois, 11800 Vevey, Switzerland. Tel: 41-263 263 00 00
AUSTRIA: Keithley Instruments Handelsgesellschaft m.b.H., Krenngasse 10, A-1010 Wien, Austria. Tel: 43-1-47 11 11