

Measuring Devices



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Description

Measuring Devices

A **test probe** (test lead, test prod) is a physical device used to connect electronic test equipment to the device under test (DUT). They range from very simple, rugged devices to complex probes that are sophisticated, expensive, and fragile.

Voltmeter probes

Voltmeter probes usually consist of single wires that are equipped on one end with a connector that fits the user's voltmeter and on the other end with a rigid plastic section (the probe itself) that allows the user to safely hold the probe while being protected from the danger of electric shock. Within the plastic body of the probe, the wire is connected to a rigid, pointed metal tip that makes the actual contact with the DUT.

Voltmeter probes are usually colored red (for the positive probe) and black (for the negative probe). Either probe may be replaced with a wire ending in an alligator clip, allowing a connection to the DUT that does not need to be held. Some probes allow an alligator clip to be screwed onto their ends, covering the metal point.

Ordinary voltmeter probes can be used for voltages up to about 1,000 volts and currents of a few amps. Depending upon the accuracy required, they can be used for frequencies ranging from DC to a few kilohertz.

High voltage probes

By inserting a large resistor in series with the probe, and by providing massive amounts of electrical insulation, it is possible to create a probe that allows an ordinary voltmeter to measure very high voltages (up to about 50 kV). The value of the resistor must be chosen to form an appropriate voltage divider with the input resistance of the voltmeter. Because of the very high value of the resistor (many megohms), high voltage probes are only useful for measuring DC; the RC circuit that is formed with the parasitic capacitance of the voltmeter input will attenuate any frequencies above DC.

Oscilloscope probes

Because of the high frequencies involved, oscilloscopes do not normally use simple wires to connect to the DUT. Instead, a specific scope probe is used. Scope probes use a coaxial cable to transmit the signal from the tip of the probe to the oscilloscope, preserving those high frequencies that are so important to accurate oscilloscope operation.

Scope probes fall into two main categories: passive and active.

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Reviews

There are yet no reviews for this product.