

DIGITAL MULTIMETER

It is a type of meter which shows measurement in digits, is called as digital multimeter.

Figure shows a typical digital multimeter.

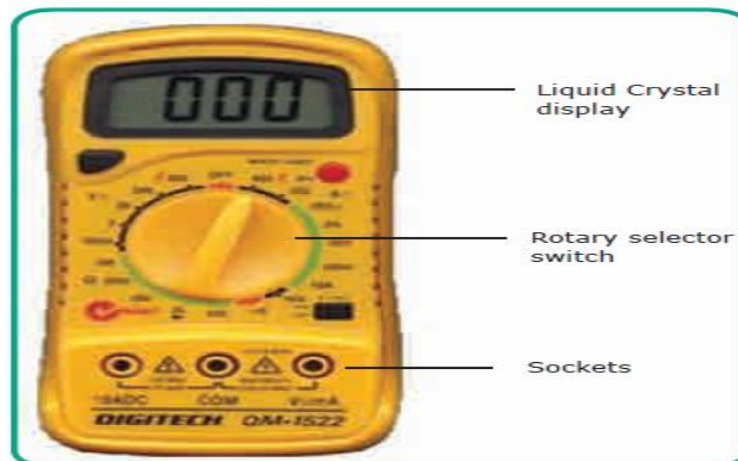
**Digital Multimeter Front Panel****Components of a digital Multimeter**

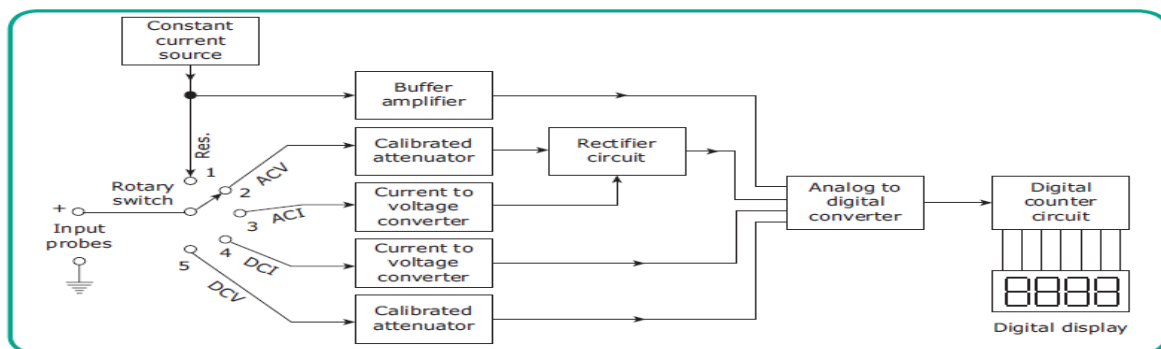
Figure shows a typical digital multimeter.

A digital multimeter comprises of three parts viz

1. Liquid Crystal Display
2. Rotary Selector switch and
3. Test probes.

The display usually has four digits and has the ability to display a negative sign. A few meters have illuminated displays for better viewing in low-light situations.

The selector switch allows the user to set the multimeter to read different parameters such as current, voltage and resistance. Two probes with banana plugs are plugged into two ports on the front of the instrument. COM stands for common and is always connected to ground or '-' of a circuit. V Ω mA is the port in which the red probe (+ terminal) is conventionally plugged-in. This means, using this port, we can measure current up to 200 mA, voltage and resistance values.



Block Diagram of Digital Multimeter

Probe types

There are different types of probes available for multimeters. Here are some of the important probes in regular use.

1. Banana plugs to crocodile clips

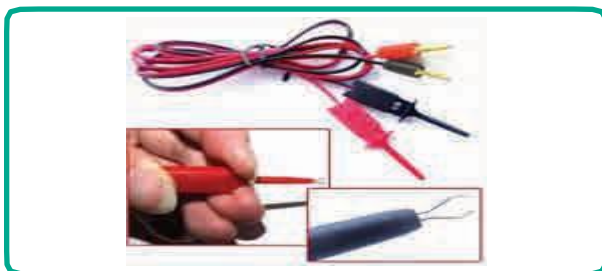
These cables are used for connecting large wires or pins on a bread board as shown in Figure 10.15. It is good for performing longer term tests where the user doesn't have to hold the probes in hands while testing the circuit.



Banana Plugs to Crocodile Clips

2. Banana Plugs to IC Hook

These probes are used to connect the legs of ICs with the meter and can be measured easily. It is shown in Fig



Banana Plugs to IC Hook

3. Banana plugs to Tweezer :

These are handy to test SMD components as shown in Figure

**Banana plugs to Tweezer****4. Banana plugs to test leads :**

These are ordinary probes to measure Ampere, Voltage and Ohm as shown in Figure 10.18.

**Banana plugs to test leads****INVERTER**

A power inverter, or inverter, is an electronic device or circuitry that changes direct current (DC) to alternating current (AC). The input voltage, output voltage and frequency, and overall power handling depend on the design of the specific device or circuitry. The inverter does not produce any power; the power is provided by the DC source. A power inverter can be entirely electronic or may be a

combination of mechanical effects (such as a rotary apparatus) and electronic circuitry. Static inverters do not use moving parts in the conversion process.

Application of inverters

An **inverter** is a device which converts a DC (direct current) voltage source into an AC (alternating current) voltage source. It is useful when you want to run an appliance designed to be operated from AC mains (120 or 240Vac, 50 or 60Hz) from a battery (often 12 or 24Vdc).

Typical applications may be when you are off grid with solar panels and storage battery, when you want to operate mains appliances like TV, hifi, desktop computer and refrigerator. They are also useful for backup power for critical loads when mains power fails.

Inverters may be **rotary**, with an AC generator driven by a DC motor. More commonly, though, they are **static**, using electronic power switches to synthesize an AC waveform from the DC input