

#### **Introduction**

This meter is designed to measure DC and AC voltage, DC current, Resistance, Diode and Transistor test. A combined On/Off multi-function switch selects the various functions and ranges. Red and Black leads are provided for electrical measurements. Maximum display: "1999". Working environment, 0-40°C, <80% RH. Tests are carried out with the black lead in the socket "COM" and the red lead in "VΩmA" socket UNLESS otherwise stated. Reverse polarity indication by minus sign. Accuracy figures are quoted for ambient temperatures 23°C ± 5°C. If unsure of reading select highest range.

#### **Safety rules and warnings!**

1. Do not operate unit with rear cover removed, high voltage circuitry may be exposed!
2. Before use ensure that battery and leads are serviceable and connect leads to correct sockets.
3. Select correct function and range.
4. Do not attempt to measure values in excess of the maximum.
5. Do not switch between functions when connected to circuits being tested.
6. Use only a new fuse of the correct rating in the event of a fuse failure.
7. The battery must be renewed when exhausted otherwise accuracy will be affected.
8. Switch off unit when not in use to reduce battery drain.
9. Do not use this multi-meter in wet conditions.
10. Observe safety warnings in these instructions as danger to user could be present when testing some circuits or components.

#### **DC Voltage**

Five ranges up to 500 volts.

Accuracy: ±2.5% of reading, except for the 200 mV range which is ±1.5% of reading.

#### **DC Current**

Four ranges up to 10 Amps.

For the 10 Amp range only, the red lead is plugged into the "A" socket. Accuracy: ±2.5% of reading. Overload protection: 200mA fuse. Note: The 10 A range is NOT protected.

#### **AC Voltage**

Two ranges: 500 volts and 200 volts.

Accuracy: ±2.5% of reading. Frequency range: 45Hz to 400Hz sinusoidal wave form. Maximum allowable input 500 volts RMS.

#### **Resistance**

Five ranges up to 2 MΩ.

Accuracy: ±2.5% of reading. Note: When measuring resistance the power to the item under test must be turned off.

#### **Diode test**

With the red lead connected to the anode of a diode and the black lead to the cathode the reading is the approximate forward voltage of the diode. With the leads reversed the display will show an over range indication of "1".

#### **Transistor test**

With hFE selected, transistor of either PNP or NPN can be checked when plugged into the socket. The hfe value is shown at the test condition of Base current 10μA, Vce 2.8 volts.

#### **Notes**

To change the battery, undo the two screws on the back of the unit and carefully remove the back cover. Disconnect the old battery and replace with a new 12 volt A23 leak-proof battery. Replace the cover. If no reading of current is obtained on the lower ranges, check the internal fuse. Replacement fuse must be a 200mA/250V fast blow 20mm x 5mm.

*Always switch the multi-meter off when not in use to conserve the battery.*



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**WARNING**



Be sure to read the warnings and follow the instructions in this manual. Incorrect use may put the user in danger.

The following legend apply to these instructions:



Danger High voltage



Ground/Earth



Warning! Refer to the instruction manual



Direct Current (DC)



Alternating current (AC)



Fuse with correct amp rating



Double insulated (protection Class II)

**500 volts AC/DC, 10amps Maximum!**  
**To IEC664 Cat II**

To avoid electrical shock, remove test leads before opening the case

Do not use abrasives or solvents on the meter!



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