

## OPERATING INSTRUCTIONS

### OPERATION OF INSTRUMENT

The meter is intended for use horizontally. Should it happen by any chance that the pointer is not on zero, it may be so set by means of the screw head on the panel.

The leads fitted with Long Reach Safety clips Mk. 2 or clips, as required, should be connected to the lower pair of meter terminals in all cases except when measuring voltages over 1,000 V.

When measuring current or voltage, ensure that the instrument is set to match the type of source to be measured (either a.c. or d.c.) and then choose a suitable range before connecting up to the circuit under test. When in doubt, always switch to the highest range and work downwards, there being no necessity to disconnect the leads as the switch position is changed.

*Do not, however, switch off by rotating either of the knobs to a blank position.*

The instrument is flashed tested at 6,000 V. a.c., but should the meter be used with accessories on circuits in excess of 2,500 V., it should be kept at the low potential end of the circuit (near earth potential). If this procedure cannot be adopted other suitable safeguards must be applied.

### CURRENT MEASUREMENT

To measure current, the instrument should be set to a suitable a.c. or d.c. range, and then connected in series with the apparatus to be tested.

Generally speaking, the power absorbed in the instrument is negligible, but in cases of low voltage heavy current circuits, the inclusion of a meter may reduce the current appreciably below the value which would otherwise prevail. The potential drop at f.s.d., across the meter terminals is in the order of 500 mV. on all d.c. ranges, except the 50 microamp range which has a drop of 125 millivolts. In the case of a.c., it is less than 350 mV. on all ranges. Standard meter leads have a resistance of 0.02 ohm per pair. Care should be taken to ensure that the circuit is 'dead' before breaking into it to make current measurements.

### VOLTAGE MEASUREMENT

When measuring voltage, it is necessary to set the appropriate range of 'a.c.' or 'd.c.' and connect the leads across the source of voltage to be measured. If the expected magnitude of the voltage is within the range of the meter, but its actual value is unknown, set the instrument to its highest range, connect up and if below 1,000 V. rotate the appropriate selector switch, decreasing the ranges step by step, until the most suitable range has been selected. If the voltage should exceed 1,000 V., the instrument should be set to measure 1,000 V. as described above, but the negative lead should be transferred to the appropriate 2,500 V. terminal. Great care must be exercised when making connections to a live circuit, and the procedure should be entirely avoided if possible.