

## OPERATING INSTRUCTIONS

### LIMITS OF ACCURACY

The instrument will produce its highest accuracy when used face upwards, in which position it has been calibrated.

In the case of voltage measurements, successive ranges have been chosen to obviate the need for taking readings on very small deflections.

**D.C. Voltage.** 2% of indication between full-scale and half-scale deflection. Below half-scale deflection, 1% of the full-scale value.

**D.C. Current.** 1% of full-scale value.

**A.C. Voltage\*.** Up to 250 V. 2.25% of full-scale value over effective range. (25-2,000 Hz.).

**A.C. Current\*.** 2.25% of full-scale value over effective range.

**Resistance.** 3% of reading at centre scale.

The 'effective range' in accordance with British Standard Specification 89/1954 is:

D.C.—from 0.1 of scale-range to full-scale value.

A.C.—from 0.25 of scale-range to full-scale value.

It will be noted that with the exception of the d.c. voltage ranges, the instrument meets the requirements laid down in Section 6 of the British Standard Specification 89/1954 for 5 in. (127 mm.) scale-length Industrial Portable Instruments.

\*The instrument is calibrated for use at 50 Hz but the change in readings, due to variation in frequency (between 15 Hz and 15 kHz) should not exceed 2% on a.c. current ranges or on a.c. voltage ranges between 10V and 250V. On the 2.5V a.c. range the change should not exceed 4%.

Inasmuch as rectifier moving coil instruments give readings on 'a.c.' proportional to the mean and not the r.m.s. value of the wave form which they are presented, they depend for their accuracy not only upon their initial calibration, but also upon the maintenance of a sinusoidal wave form. Since the form factor (r.m.s. value divided by mean value) of a sine wave is 1.11, this has been taken into account in calibrating the meter which does, therefore, indicate r.m.s. values on the assumption that the normal sine wave will be encountered. Generally speaking, considerable wave form distortion can occur without appreciably affecting the form factor and resulting accuracy of measurement, but the user should recognise the possibility of some error when using distorted wave forms, squarish wave shapes producing high readings, and peaky ones, low readings.