

## POTENTIOMETER - slide wire pattern

Cat: EM2450-001 2x1 Metre long, with Jockey.

EM2451-001 2x500 mm long, with Jockey.

### DESCRIPTION:

The IEC **Slide Wire Potentiometer** is of aluminium construction for stability, strength and durability. The instrument comes complete with a Jockey for sliding along the graduated wire to search for the exact position that produces the precise voltage that balances a 'bridge' circuit. The straight wire that passes up then down the length of the bridge, is 0.56mm diameter with a resistance of approx. 2 ohms/metre. It is 'Advance' alloy for very close temperature and resistance stability.

### EM2450-001 1m & EM2451-001 0.5m potentiometer



**Physical size: 1m long: 1040x100x50mm LxWxH Weight: 1.8 kg**

**500mm long: 540x100x50mm LxWxH Weight: 1.1 kg**

Maximum voltage to be applied is as follows:

0.5 Metre of wire length: 1.0V (1 amp) runs cool. At 1.5V (1.5 amp) wire runs 40°C

1 Metre of wire length: 2.0V (1 amp) runs cool. At 3V (1.5 amp) wire runs 40°C

2 Metres of wire length: 4.0V (1 amp) runs cool. At 6V (1.5 amp) wire runs 40°C

**CAUTION: At higher voltages and currents the wire will expand and will be loose on the metre scale. At still higher currents, the wire can become hot enough to damage the scale and to burn fingers.**

**OPERATION:**

The Potentiometer is a length of resistance wire stretched along an exact distance on a scale and then returned back to the start. Therefore a 1m Potentiometer has a wire length of 2m and the 0.5M Potentiometer has a wire length of 1m. A 'knife-edge jockey' can be placed on the wire to show on the scale exactly the length of wire either side of the point of touching.

It is a very accurate method of measuring very small voltages when it is wired into the normal circuit using a Galvanometer, a small change-over switch, a 4V or 6V dry cell battery, an unknown voltage source and a Standard Cell or a Voltage Reference (IEC Cat: EM4230-001). In a normal potentiometer circuit, the current passing through the potentiometer's wire is very small (a few milliamps).

The change-over switch is pressed one way so that the Reference Voltage is used to calibrate the Potentiometer and the graduations along the wire are made to equate volts or known fractions of a volt. The switch is then pressed the other direction to apply the 4 or 6V dry cell voltage and the unknown voltage. The jockey is adjusted by hand to change the contact point on the wire until the Galvanometer reads zero current flow. This occurs when the unknown voltage is 'bucked' or balanced exactly against the calibrated Potentiometer voltage. When this occurs, the unknown voltage can be calculated exactly by using the proportional values of the wire length either side of the touching point of the jockey.

There are several types of Potentiometer circuits. Refer to details in class notes or text books for circuit details.

**Designed and manufactured in Australia**