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**WHEATSTONE BRIDGE
FOUR - GAP
CAT NO. PH1156B**



Instruction Manual

INTRODUCTION:

This high-quality product is of meter bridge design and is intended primarily for the comparison of two resistance.

CONSTRUCTION:

A resistance wire negligible temperature coefficient is stretched over a meter ruler with millimeter graduations. Terminals, mounted on five plated brass strips, provide means for connecting resistors and a voltage source. These strips are separated by gaps that can be eliminated (as required) by using two further brass strips. A robust "jockey" (moveable contact) with lead is supplied for taking readings on the wire. A sprung clip provides convenient storage for the jockey.

OTHER EQUIPMENT REQUIRED:

A centre-zero galvanometer, typically reading 1mA 0 1mA. More sensitive instruments can be used but care must be taken not to create current overloads which, on analogue meters, can result in bent needles.

A dry cell (or equivalent with similar internal resistance). The use of low-voltage packs or secondary cells is inadvisable as over-heating and distortion of the resistance wire can easily occur.

USE:

In elementary use, each of the resistors is connected across one of the two central gaps.

The two outer gaps should be closed by the brass strips provided. The terminals of the dry cell are connected to the outer two terminals. The galvanometer is connected between the central terminal and the jockey. Note that polarity need not be observed in any of these connections.

The jockey is moved along the wire with minimum pressure until the galvanometer reading is zero. The position of this null-point is recorded by reading its separation from each end of the resistance wire. Note that the meter rule has graduations in both directions to facilitate these readings.

For a meter bridge, the Wheatstone Bridge relation $R_1/R_2 = R_3/R_4$ takes the form $R_1/R_2 = L_1/L_2$, where R_1 and R_2 are the resistance being compared and L_1 and L_2 are the distances from the ends of the wire to the null-point.

PRECAUTION IN USE:

The jockey must not be pressed onto the wire. This will create narrowing of the wire and hence non-uniformity.

If necessary the wire can be replaced using Constantan wire of SWG 26, 28 or 30.

Manufactured by :



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