

MILLIOHMMETER OM 1

BRIEF OPERATION AND ADJUSTMENT INSTRUCTIONS

Measurements to be made with constant current:

Range 2 Ohm - $50 \mu\text{A}_{\text{RMS}}$

Range 200 mOhm - $500 \mu\text{A}_{\text{RMS}}$

Range 20 mOhm - 5mA_{RMS}

Range 2 mOhm - $50 \text{mA}_{\text{RMS}}$

Measuring frequency: 1 kHz \pm max. 2%

Measuring voltage: $10 \mu\text{V}_{\text{RMS}}$ - $100 \mu\text{V}_{\text{RMS}}$

Max. no-load voltage: $12 \text{mV}_{\text{RMS}}$ & 12mV_{DC}

Trade for OM 1 \rightarrow 8013207
(standard model)

ACCURACY (+ 10 to + 50 degrees Centigrades)

Range:

20 mOhm - 200 mOhm - 2 Ohm

± 3% of reading

± 1 digit

Range:

2 mOhm

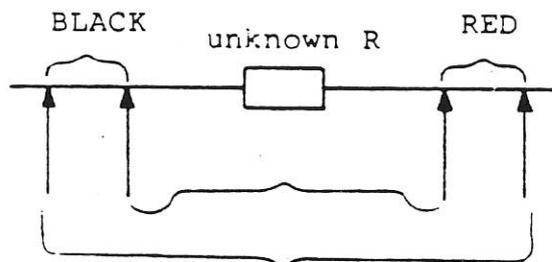
± 3% of reading

± 1 digit

0.01 mOhm Max. reading added

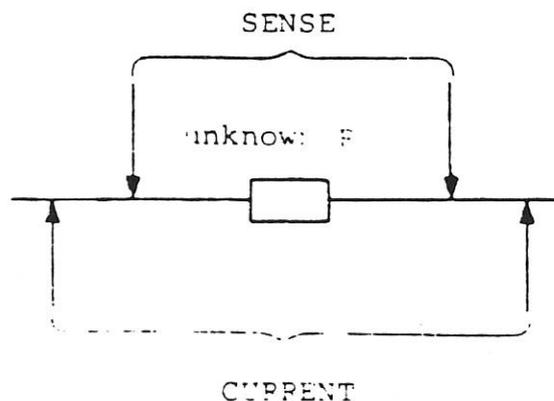
Measurement:

Example in 200 mOhm +
2 Ohm ranges



Important thing in the 20 mOhm + 2 mOhm ranges!

The current leads must be turned away from the sense leads,
as shown in below diagram:



ADJUSTMENT INSTRUCTIONS:

The following resistance ratios are available:

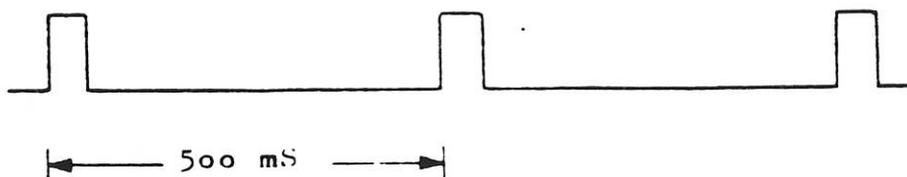
1.008 Ohm \pm 0.5 %

121.1 mOhm \pm 0.5 %

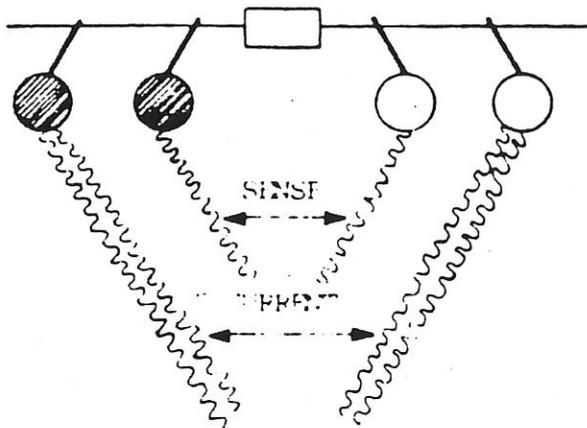
17.63 mOhm \pm 0.55%

1.535 mOhm \pm 1.0 %

1. Let the two sense leads remain open and short-circuit the two current leads.
2. Check that the oscillator is oscillating, 1 kHz approx. 5V_{RMS}, as measured in point A.
3. Adjust point A to 0 V_{DC} with P₈ with all four leads open, and re-short-circuit the two current leads.
4. Adjust point D to 0 V_{DC} with P₇.
5. Adjust U_G gate of U1897 with P₁ to -1.5 V. The oscillator must then still be yielding approx. 5 V_{RMS}.
6. Adjust "Sample rate" to 500 mS with P₆:



7. Connect 1.008 Ohm as follows:



Adjust the filter of the measuring amplifier to max. with P_2 as measured in point B.

8. Remove the two sense leads and let them remain open. Adjust "Analog output to DVM" to 0 V with P_4 .
9. Re-join the two sense leads as shown in item 7. Adjust "Analog output to DVM" to 1.008 V_{DC} with P_3 .
10. Then adjust the reading to 1.008 Ohm with P_5 .
11. Remove all 4 leads and let them remain open. Now the measuring range has to be 2 mOhm. Check that the no-load voltage across the two current leads does not exceed: 12 mV_{RMS} and 12 mV_{DC} .
12. Now make a range check with the three remaining resistors. They should be within $\pm 3\%$ of the reading with self-tolerance of the resistors considered.