

GENERAL

The Model 101 although priced comparatively low, is a comprehensive volometer covering a wide range of resistance, AC and DC voltage, and DC current measurements. It features the use of a battery operated miniature tube as a rectifier in place of the conventional copper oxide type.

A single Burgess #1 cell or equivalent is used on the model 101A and a single Burgess #1 cell or equivalent is used on the model 101B. The cell should be checked periodically by turning the switch to "L.O." position and noting if the meter pointer can be brought well beyond full scale position with the zero adjust knob. If it can't, the cell should be replaced.

Both the rectifier and the cell can be replaced without using a soldering iron.

The switch should be kept at the D C V- M A position at all times except when the instrument is actually being used for other measurements. Failure to observe this precaution will cause the 1.5 volt cell to run down and require unnecessary replacement.

OPERATIONI. To measure DC volts

1. Set Selector Switch to D C V-M A position.
2. Insert test leads into "C O M-VOLTS-MA-LO" and into 6 V D C, 6 OVDC, 300VDC, 600VDC, or 3000VDC jacks depending upon the range desired. If in doubt, always use the highest range first and then gradually reduce until a reading at or beyond center scale is obtained if possible.
3. (a) For the 0-6VDC range readings are taken on the 0-60 black linear scale and divided by 10 to obtain reading in volts.
- (b) For the 0-60VDC range, readings are taken directly on the 0-60 black linear scale.
- (c) For the 0-300VDC range, readings are taken directly on the 0-300 black linear scale.
- (d) For the 0-600 VDC range, readings are taken on the 0-60 black linear scale and multiplied by 10 to obtain reading in volts.
- (e) For the 0-3000 VDC range, readings are taken on the 0-300 black linear scale and multiplied by 10 to obtain reading in volts.

II To Measure DC Current

1. Set Selector Switch to DCV-MA position.
2. Insert test leads into "COM-VOLTS-MA-LO" and into 6MA, 60MA, or 600 MA jacks depending on range desired. If in doubt, use the highest range first, and then gradually reduce until a reading at or beyond center scale is obtained if possible. Connect unit in series with the line under test.
3. (a) For the 0-6 MA range, readings are taken on the 0-60 black linear scale and divided by 10 to obtain reading in milliamperes.
- (b) For the 0-60 MA range, readings are taken directly on the 0-60

black linear scale.

- (c) For the 0-600 MA range, readings are taken on the 0-60 black linear scale and multiplied by 10 to obtain reading in milliamperes.

III To Measure AC Volts

1. Set Selector Switch to ACV position.
2. Insert test leads into "COM-VOLTS-MA-LO" and into 12 VAC, 120VAC, 600VAC or 1200VAC jacks depending on the range desired. If in doubt, use the highest range first and then gradually reduce until a reading at or beyond center scale is obtained.
3. (a) For the 0-12VAC range only readings are taken directly on the 0-12VAC red Scale.
- (b) For the 0-120VAC range, readings are taken on the 0-12 ACV red Scale above the DC scale and multiplied by 10 to obtain reading in volts.
- (c) For the 0-600VAC range, readings are taken on the 0-60 red AC scale and multiplied by 10 to obtain reading in volts.
- (d) For the 0-1200VAC range, readings are taken on the 0-12 ACV red scale above the DC scale and multiplied by 100 to obtain reading in volts.
4. After making the measurement, turn switch away from A.C.V. position.

IV To Measure Output

Connect a .5 mfd condenser in series with one of the test leads and follow the instructions for measuring AC Volts. For the 0-12V range only slightly more accurate readings will be obtained if a 3000 ohm or lower resistor is connected across the "COM" and "12VAC" jacks.

V To Measure Resistance

A. LOW OHMS Range

1. Insert test leads into "COM-VOLTS-MA-L.O." and "L.O.-Rx10k" jacks.
2. Turn switch to "L.O." position.
3. Adjust for full scale meter deflection with zero adjust knob.
4. Place resistor to be measured across free ends of test leads.
5. Read directly in ohms on "LOW OHMS" scale. If the resistance is less than 1 ohm, subtract resistance of test leads.
6. After making the measurement, turn switch away from "L.O." position.

B. Rx1, Rx100 ranges

1. Insert test leads into "COM-OHMS" and into either the "Rx1, or Rx100" jacks depending on range desired.
2. Turn selector switch to "Rx1-Rx100" position.
3. Make sure that no external current is flowing thru the resistor under test.
4. Short the free ends of the test leads and adjust for full scale meter deflection with the zero adjust knob. Separate leads and place resistor to be measured across them.
5. (a) For the Rx1 range readings in ohms are taken directly on the top OHMS" scale.
- (b) For the Rx100 range readings are taken on the top "OHMS" scale and

multiplied by 100, to obtain value in "ohms".

C. Rx10K RANGE

1. Insert test leads into "COM-OHMS" and "Rx10K-L.O." jacks.
2. Turn switch to "Rx10K" position.
3. Connect a line cord to the outlet at the side of the case if the model is openface and plug the other end of the line cord into any 115VAC outlet.
4. Make sure that no external current is flowing through the resistor under test and that there is no external ground connected to the resistor.
5. Short the free ends of the test leads and adjust for full scale meter deflection with the zero adjust knob. Separate leads and place resistor to be measured across them.
6. Readings are taken on the top "OHMS" scale and multiplied by 10,000 to obtain value in ohms.
7. After making the measurement, turn switch away from Rx10K position.

MAINTENANCE

When it is no longer possible to bring the meter pointer beyond full scale on the "L.O." range, the instrument, should be removed from the case, and the 1.5 volt cell, replaced with a fresh one. Observe proper polarity when making the replacement.

If the meter reads erratically on all resistance ranges, check the contacts to the 1.5 volt cell.

If the instrument shows a large error on all AC voltage ranges, and the 1.5 volt cell checks good and makes good contact, then the tube has probably become defective and should be replaced.

ACCESSORIES FOR OPEN FACE MODEL

Test Leads- 80 cents

Line Cord with plug to fit outlet at side of case- 75 cents.

GUARANTEE

This instrument is guaranteed for 90 days from date of purchase to be free from any defect in workmanship or material. ELECTRONIC MEASUREMENTS CORPORATION will replace any defective part or parts within this period without charge, if tests at our factory show that the defect was not caused by abuse or tampering.

ELECTRONIC MEASUREMENTS CORPORATION reserves the right to make changes in design or add improvements to equipment manufactured by them without incurring any obligation to incorporate such changes or improvements in equipment previously sold by them.