

20,000 OHMS/VOLT  
**MULTITESTER**

WITH CONTINUITY TEST BY BUZZER SOUND  
& BATTERY TESTER

MODEL OM-50N

**ROBIN**

**INSTRUCTION MANUAL**

## INTRODUCTION

The OM50N is a highly sensitive multimeter designed to measure AC and DC voltages, DC currents and resistance with accuracy and ease. A 10A DC high current measurement range is provided as a special feature. Battery condition, for both 1.5V and 9V cells, can be instantly tested.

A continuity test range using sound indication by a built in buzzer obviates the need to continually watch the meter when carrying out tests.

The meter is ideal for use where measurements must not appreciably disturb the circuit being tested, and features high 20,000 ohms/volt dc and 9,000 ohms/volt ac sensitivities, on all voltage ranges. The single knob function control is easy to use and read. The 92mm sensitive meter incorporates a mirrored-scale for accurate readings and uses 3 colours for rapid scale identification. An "off" position is incorporated for meter protection during transit.

The Meter circuit incorporates a fuse to protect the delicate meter movement and other internal parts in case of short-term inadvertent overload or improper function selection.

**Caution:** Permanent damage can occur to your multimeter by exceeding the specified limits and attempting to make measurements with the selector in wrong position.

# SPECIFICATIONS

FUNCTIONS	RANGES	ACCURACY	SENSIVITY
DC-Volts	0-0.25-2.5-10-50 -250-1000V	± 3% of Full Scale	20K $\Omega$ /V
AC-Volts	0-10-50-250- 1000V	± 4% of Full Scale	9K $\Omega$ /V
DC-Ampares	0-50 $\mu$ -5m-50m -500m-10A	± 3% of Full Scale	
OHMS	0-10K-100K-10M Rx1 Rx10 Rx1K	± 3% of Scale arc.	Mid Scale; 50K $\Omega$ at x1K
dB (Decibel)	-10 ~ + 22 ~ +62 dB at 4 ACV Range		
CONT.	Continuity Test by Buzzer Sound		
BATT.	Battery Condition Test 1.5V (10 $\Omega$ Load) 9V (900 $\Omega$ Load)		
OFF.	Meter protection during transit		
Power Requirements	Two 1.5V Penlight type Battery (AA Size)		
Fuse	5.2 $\phi$ x 20mm 0.75A 250V		

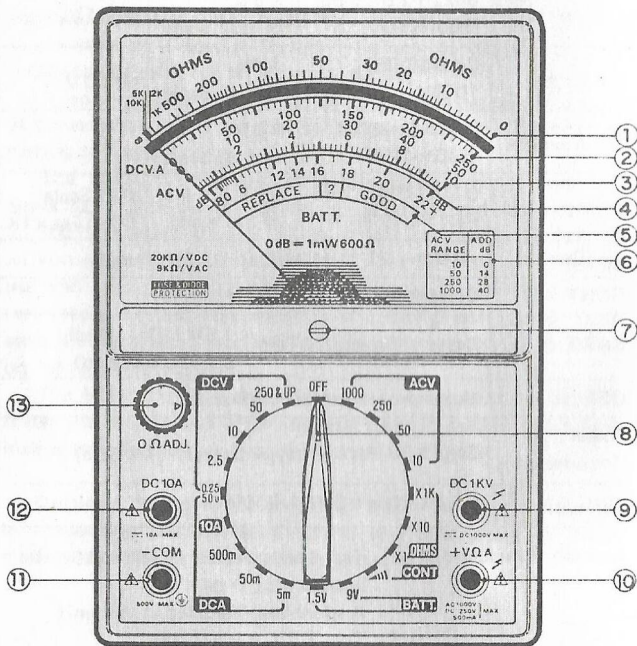
Accessory Included

- \* Test Leads; A pair of 44" (110cm) banana plug type
- \* A spare fuse installed in the unit
- \* Two 1.5V AA size cell
- \* Instruction manual

Accessory Optional  
Size and Weight

Carrying case.  
152x104x42mm (HWD) 250g approx

# CONTROLS AND JACKS



- ① OHMS Scale
- ② DC Volts, DC Ampere Scale
- ③ AC Volts Scale
- ④ dB (Decibel) Scale
- ⑤ Battery Condition Scale
- ⑥ dB Add number chart refer ACV range.
- ⑦ Meter zero adjusting screw
- ⑧ Range Selector knob
- ⑨ For only DC 1000V (DC 1KV) jack terminal  
plug-in connection for red test lead.
- ⑩ +AC/DC Voltages DC Ampares & OHMS jack terminal.  
Except DC 1000V & 10A measurement.  
Plug-in connection for red test lead.
- ⑪ COM jack terminal  
Plug-in connection for black test lead.
- ⑫ For only DC10A jack terminal  
Plug-in connection for red test lead.
- ⑬ OHMS zero adjusting knob.

## SPECIAL PANEL SAFETY MARKINGS



To avoid electric shock and/or instrument damage, do not connect the common input terminal (-jack) to any source of more than 500 volts with respect to ground.

IEC 417, Symbol 5019



Be extra careful when making measurements for high voltage, do not touch terminals or probe ends.

IEC 417, Symbol 5036.



Refer to the following complete operating instructions.

IEC 417, Symbol.

# OPERATING PROCEDURE

## PRELIMINARY ADJUSTMENTS

1. Check the meter zero adjust screw setting as follows:
  - a. Place the tester flat on a bench.
  - b. Set the Range selector knob to  $0.25V/50\mu A$
  - c. Connect one test lead to the other.
  - d. The meter pointer should indicate exactly 0 at the extreme left end of the black scale.
  - e. If it does not read 0, turn the meter zero adjust, screw on the meter movement slowly to set the meter zero (0).
  
2. Check the batteries as follows:
  - a. Connect one test lead to the other.
  - b. Set the RANGE switch to the OHMS, x1 position.
  - c. Turn the OHMS zero adjust knob the meter pointer the full scale to set zero 0 on the OHMS scale. If this adjustment can not be made, replace the 1.5 volt size "AA" cell.

(See REPLACEMENT OF BATTERY/FUSE)

## GENERAL OPERATING INSTRUCTIONS

1. Set the range selector switch to the correct voltage or current range before making measurements. Never apply more voltage or current than the value indicated at each range selector position.
2. Avoid placing the test where there is severe vibration. Do not store it in an extremely hot or humid location.
3. Remove the batteries before storing the tester for a long period of time. Also rotate the Range selector from time to time to clean the contacts.
4. To preserve the life of the batteries do not leave the range selector in an ohms setting when you are not in measuring resistance. Keep the range selector in the OFF position when the tester is not being used.
5. For all measurements, plug the black test lead into the — COM jack. Plug the red test lead into the +  $V\Omega A$  jack except when measuring from 250 to 1,000 volts DC or 10A DC.
6. You can see a reflection of the meter pointer in the mirror arc. To avoid parallax reading errors look vertically down onto the meter scale. When the mirror image of the pointer is covered by the actual meter pointer, the reading is accurate.

**Notes:** For most accurate readings, keep the meter laying flat on a non-metallic surface.

## REPLACEMENT OF BATTERY/FUSE

**WARNING:** TO AVOID ELECTRIC SHOCK DISCONNECT LEADS BEFORE REMOVING BATTERY OR FUSE. REPLACE ONLY WITH SAME TYPE BATTERY OR FUSE OPEN COMPARTMENTS ONLY WHEN REPLACING BATTERY OR FUSE. DO NOT TOUCH ANY AREA INSIDE THE METER OTHER THAN BATTERY OR FUSE: CAUTION: REPLACE ONLY WITH 0.75A 250V FUSE.

**Note:** The fuse will blow when voltage is applied in resistance or current mode. In this case, there will be no meter movement. (Replace the fuse).

To install or replace the battery or fuse :

1. Disconnect the test leads.
2. Open the compartment by unscrewing the retaining screws.
3. Replace the battery if necessary.
4. If the fuse has blown, remove it.
5. Insert a new fuse, using only one of the same type/rating (0.75A, 250A)
6. Replace the compartment cover, insert and tighten the screws.

**WARNING:** DO NOT OPERATE THE UNIT UNTIL THE COMPARTMENT IS FULLY CLOSED AND FIXED IN POSITION.



## DC VOLTAGE MEASUREMENTS

**WARNING:** USE EXTREME CARE WHEN MAKING MEASUREMENTS FOR HIGH VOLTAGE; DO NOT TOUCH TERMINAL OR PROBE ENDS.

1. Plug the test leads into the correct jacks (black into — COM and red into + V- $\Omega$ -A).
2. Set the range selector to one of the DC V positions; it is best to start at the top and work down.  
If you're uncertain about the level of voltage, start with 1000 volt range as stated on step 5.
3. Connect the test probe tips to the circuit under test; be sure to observe correct polarity. Set the range selector as required to obtain a meter reading in the upper 1/2 or 1/3rd of the scale.
4. Read the voltage on the black DC scales.
5. For voltages between 250 and 1000, set the range selector to 250 & up and plug the red test lead into the DC 1KV only jack.

**Note:** The DC 1KV only jack is for use only with DC voltages of 250 to 1000.

USE EXTREME CARE WHEN USING THESE HIGH-VOLTAGE RANGES.

## DC CURRENT MEASUREMENTS

**WARNING:** DO NOT APPLY VOLTAGE TO MEASURING TERMINAL WHILE RANGE SWITCH IS IN CURRENT POSITION.

1. Plug the test leads into the correct jacks (black into  $- \text{COM}$  and red into  $+ \text{V-}\Omega\text{-A}$ ).
2. Set the range selector to the 500m DC A position. (500 milliamp). or, if the current to be measured is likely to be greater than 500mA use the  $\pm$  DC 10A jack (instead of the  $\pm \text{V-}\Omega\text{-A}$ ) and set the range to 10A. Always start at the top and work down.
3. Open up the circuit in which you want to measure current and connect the black lead to the negative side and the red lead to the positive side of the circuit.
4. Apply power to the circuit under test. Set the range as required to obtain a meter reading in the upper 1/2 or 1/3rd of the scale.
5. Read the current on the black DC scales.

**Notes:** Do not attempt to read AC current. For currents above 500 milliamps, use the 10A range setting and the +DC 10A jack (instead of the  $+ \text{V-}\Omega\text{-A}$  jack).

## AC VOLTAGE MEASUREMENTS

**WARNING:** USE EXTREME CARE WHEN MAKING MEASUREMENTS FOR HIGH VOLTAGE; DO NOT TOUCH TERMINAL OR PROBE ENDS.

1. Plug the test leads into the correct jacks (black into — COM and red into + V- $\Omega$ -A).
2. Set the range selector to one of the ACV positions; it is best to start at the top and work down.
3. Connect the test probe tips to the circuit under test. Set the range as required to obtain a meter reading in the upper 1/2 or 1/3rd of the scale.
4. Read the voltage on the black numbers above the red AC scale.

## DECIBEL MEASUREMENTS

1. Plug the test leads into the correct jacks (black into — COM and red into + V- $\Omega$ -A).
2. Set the range as required to obtain a meter reading in the upper 1/2 of the scale.
3. Read dB on the dB scale, adding the appropriate number of dB to the dB scale reading as indicated on the chart at the lower right on the meter face.

**Note:** For absolute dB measurements, circuit impedance must be 600 ohms, 0 dB=1 milliwatt dissipated in a 600 ohm impedance (equivalent to 0.775 volts across 600 ohms).

## RESISTANCE MEASUREMENTS

**WARNING:** DO NOT APPLY VOLTAGE TO MEASURING TERMINAL WHILE RANGE SELECTOR IS IN OHM POSITION.

BEFORE TAKING ANY RESISTANCE MEASUREMENTS, DISCONNECT POWER TO THE UNIT UNDER TEST AND DISCHARGE THE CAPACITORS. It is best to remove batteries and unplug line cords.

1. Plug the test leads into the - COM and + V- $\Omega$ -A jacks.
2. Set the range to one of the  $\Omega$  positions; touch the test probe tips together and adjust the OHMS zero Adj. knob to bring the pointer to "0" on the top (green) OHMS scale.
3. Now, connect the probe tips across the circuit or part under test.
4. Read the resistance on the green OHMS scale; use the proper multiplier to obtain the correct value (R "times" 1, 10, or 1000, depending on the position of the range).

**NOTE:** When you are unable to adjust the pointer to "0" on the OHMS scale in the R x 1, R x 10, or R x 1K positions, the penlight battery must be replaced. When measuring resistance, it is best to disconnect one side of the part under test (so the remainder of the circuit will not interfere with the readings).

## CONTINUITY TEST

**WARNING:** DO NOT APPLY VOLTAGE & HIGH CURRENT TO MEASURING TERMINAL WHILE RANGE SELECTOR IS IN CONT POSITION.

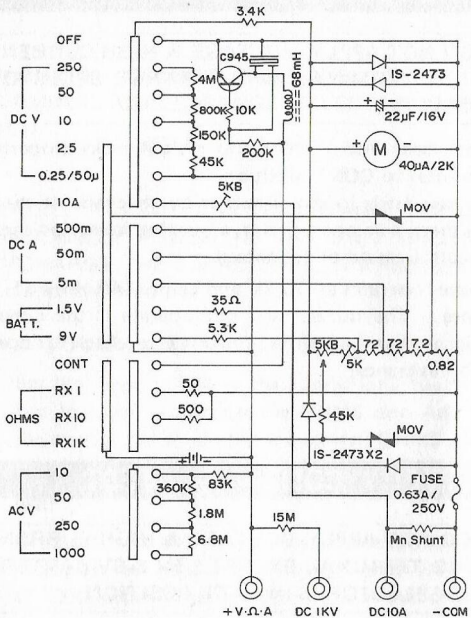
1. Plug the test leads into – COM and +  $V\Omega A$  jacks properly.
2. Set range selector to CONT. position.
3. Touch two test leads to the circuit to be checked. If there is no sound there is an open circuit, a buzzing sound indicates that the circuit is closed or connected.

**Note:** This buzzer operates at DC 3V and below 140 ohms of circuit resistance. The buzzer will not operate if the circuit resistance is higher than 140 ohms. In this case check for open circuit or high resistance.


## BATTERY CONDITION TEST

**WARNING:** DO NOT APPLY VOLTAGE & HIGH CURRENT TO MEASURING TERMINAL EXCEPT 1.5V & 9V BATTERY WHILE RANGE SELECTOR IS IN BATT, POSITION.

1. Plug the test leads into the correct jacks (black into – COM and red into +  $V\Omega A$ ).
2. Set the range selector knob to one of the BATT positions.
3. Touch the test probe tips to the battery; be sure to observe correct polarity.
4. Read the BATT, scale; if the pointer rest in the green zone (GOOD), the battery is good and in the red zone (REPLACE), the battery is weak or bad condition.



**NOTES:** (1) ALL RESISTANCE VALUES ARE INDICATED IN "OHM" (K=10<sup>3</sup> OHM, M=10<sup>6</sup> OHM)  
Schematic subject to change without notice.

**CAUTION:** THE COMPONENTS MARKED BY  ARE CRITICAL FOR SAFETY.

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