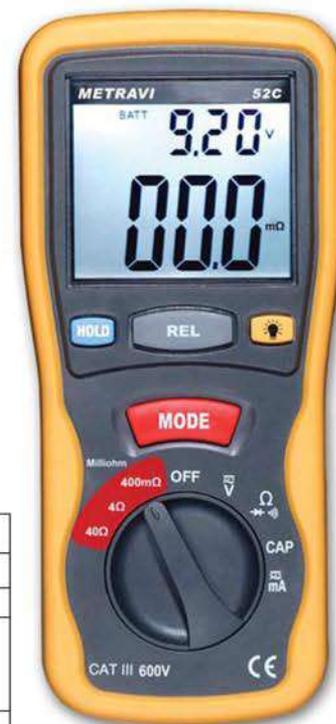




FEATURES

- Low resistance range : 0~40Ω
- Display : 3-3/4 Digits Large LCD with bar graph display
- Maximum output current : 200mA (400mΩ)
- Sampling Rate : 2 times per second.
- Relative measurement
- Over Range Indicator : OL of highest digit is displayed.
- Low Battery Indication : The "BAT" is displayed when the battery Voltage drop below the operating voltage.
- Auto Power Off : After approx. 30 minutes of non-use.
- 4 Terminal measuring system with Kelvin type probes
- Overload Protection on all ranges
- Simultaneous display of Battery Voltage and measured value
- Max/Min Recording Mode Confirms to CAT-III 600V.
- Operating Temperature : 0°C to 40°C (32°F to 104°F) and Humidity below 80% RH
- Storage Temperature : -10°C to 60°C (14°F to 140°F) and Humidity below 70% RH
- Power source : 6x1.5V Size "AA" battery or Equivalent (DC9V)
- Dimensions : 200(L) x 92(W) x 50(H) mm
- Weight : Approx 700g include battery
- Accessories : Test Leads 6pcs battery, Carrying case, manual.



Capacitance

Range	Resolution	Accuracy
4nF	1pF	unspecified
40nF	10PF	± (5.0% + 20d)
400nF	0.1nF	± (3%+10d)
4uF	1nF	
40uF	10nF	± (4%+10d)
400uF	0.1uF	
4mF	1uF	± (10%+10d)
40mF	10uF	unspecified

ELECTRICAL SPECIFICATIONS

Accuracies are specified in the way:
± (...% of reading + ...digits) at 23°C ± 5°C, below 80% RH

Low resistance

Range	Resolution	Accuracy	Current
400mΩ	0.1mΩ	± (1%+10d)	200mA
4Ω	1mΩ	± (1%+5d)	20mA
40Ω	0.01Ω	± (1%+5d)	2mA

DC Current

Range	Resolution	Accuracy
400μA	0.1μA	± (1.5%+5d)
4000μA	1μA	
40mA	0.01mA	
400mA	0.1mA	

DC Voltage

Range	Resolution	Accuracy
400mV	0.1 mV	± (1%+5d)
4V	1 mV	
40V	0.01V	
400V	0.1V	
1000V	1V	± (1.2%+5d)

AC Current

Range	Resolution	Accuracy / 50~60Hz	Accuracy / 400Hz
400μA	0.1μA	± (1.5%+5d)	± (1.5%+5d)
4000μA	1μA	± (1.5%+5d)	± (1.5%+5d)
40mA	0.01mA	± (1.5%+5d)	± (1.5%+5d)
400mA	0.1mA	± (1.5%+5d)	± (1.5%+5d)

AC Voltage

Range	Resolution	Accuracy / 50~60Hz	Accuracy / 400Hz
400mV	0.1 mV	± (1.2%+10d)	± (2.5%+10d)
4V	1 mV	± (1.0%+10d)	± (1.2%+10d)
40V	0.01V	± (1.0%+10d)	± (1.2%+10d)
400V	0.1V	± (1.0%+10d)	± (1.2%+10d)
750V	1V	± (1.0%+10d)	± (1.2%+10d)

OHMS

Range	Resolution	Accuracy
400Ω	0.1Ω	± (1.0% + 4d)
4KΩ	1Ω	± (1.5% + 2d)
40KΩ	10Ω	
400KΩ	100Ω	± (2.5% + 3d)
4MΩ	1KΩ	
40MΩ	10kΩ	± (3.5% + 5d)

*Technical Specifications & Appearance are subject to change without prior notice

INTRODUCTION

"METRAVI" Digital Micro Ohm Meter is a compact high reliability 3-½ Digit instrument suitable for measurement of resistivity of copper wires from 7/0 SWG to 50 SWG. resistance of cables, windings, coils, heater elements and contact resistance of switches, relays etc. Emphasis in the design of this instrument has been to provide quick, stable and repeatable readings of resistance. The instruments uses 4-terminal measurement so that resistance of test leads and contacts is eliminated from test results. Actual value of resistor is directly displayed on seven segment 12.5mm Display.

SPECIFICATIONS

RANGE OF MEASUREMENT : 1micro-ohm to 19.99 Kohm in eight range.

RANGE(OHMS)	NORMAL TEST CURRENT	ACCURACY
0 - 1999u	1.50 A	± 0.3% ± 2 Digits
0 - 19.99 m	0.75 A	± 0.2% ± 2 Digits
0 - 199.9 m	0.75 A	± 0.2% ± 2 Digits
0 - 1.999	75 mA	± 0.2% ± 2 Digits
0 - 19.99	7.5 mA	± 0.2% ± 2 Digits
0 - 199.9	0.75 mA	± 0.2% ± 2 Digits
0 - 1.999k	0.075 mA	± 0.2% ± 2 Digits
0 - 19.99k	0.005mA	± 0.2% ± 2 Digits

WARMUP time for rated accuracy : 3 minutes

INPUT VOLTAGE 230V AC ± 10% 10W Approx.

OVER RANGE 3-1/2 Digit 12.5mm Height LED.



*Technical Specifications & Appearance are subject to change without prior notice.



INTRODUCTION

Metravi Digital Micro Ohm meter Model 53C-II, is a compact high reliability 3 ½ digit instrument suitable for measurement of resistivity of copper wires from 7/0 SWG to 50 SWG, resistance of cables, windings coils, heater elements and contact resistances of switches, relays etc. Emphasis in the design of this instrument has been to provide quick, stable and repeatable readings of resistance. The instrument uses a 4 terminal measurement so that resistance of test leads and contacts is eliminated from test results. Actual value of resistor is directly displayed in the seven segment 12.5mm display.

SPECIFICATION GENERAL

Range of Measurement : 1 micro Ohm to 19.99 K Ohm in eight ranges.

Range (Ohms)	Nominal Test Current	Accuracy
0-1999u	1.50 A	+/- 0.3% +2 Digits
0-19.99m	0.75 A	+/- 0.2% +2 Digits
0-199.9m	0.75 A	+/- 0.2% +2 Digits
0-1.999	75mA	+/- 0.2% +2 Digits
0-19.99	7.5mA	+/- 0.2% +2 Digits
0-199.9	0.75mA	+/- 0.2% +2 Digits
0-1999	0.075mA	+/- 0.2% +2 Digits
0-19.99K	0.075mA	+/- 0.2% +2 Digits

Warm-up Time: For rated accuracy is 3 minutes.

Input Voltage : 230V AC +/- 10% , 10W approx.

Over Range : Three most significant digits Blank and '1' appears.

Test Procedure:

1. To Determine the Resistivity of Copper Wires.

Zero Setting: Connect the test leads -V & +V only. Do not connect -I & +I leads. Selector switch should be in 1999u Ohm position. Switch 'ON' power and stabilise instrument for 3 Minutes. Set Zero by zero setting knob. Best Zero setting is when '-' sign blinks. During measurement, zero setting may be made by removing +I lead even while the other leads are connected to the unit under test. Range of 199.9m Ohms and 19.99 Ohms do not need Zero setting and stabilization.

Connect sample conductor in 4 terminal connection as follows:



-I & +I = Current Leads , -V & +V = Potential Leads.

L= the instrument indicates resistance of conductor in Length L, the distance between Potential leads should be kept 1metre for convenience.Keep current leads well away from potential leads.

Take care that clip -I should NOT touch -V & +V directly except through conductor.

2. Measurement of Resistance of Transformers, Motors etc.

Connect leads in 2 or 4 terminal arrangement. Switch 'ON' power. Change range if Required. Wait for a few seconds for a stable reading. Switch off power and disconnect leads and change over to next measurement. Do not disconnect leads when instrument is 'ON'.

3. Calculation of Heater Resistance.

$V^2/W = R$ where V = Heater operating voltage
W = Wattage of heater
R = Resistance of heater.

4. Measurement of Temperature Rise.

Of copper windings by increase in resistance (IS-9678-1980).

$$T_2 + 235 R_2$$

$$T_1 + 235 R_1 \text{ where}$$

T_2 = Temperature in Deg. C of winding at the end of the test.

R_2 = Resistance of winding at the end of the test.

T_1 = Temperature in Deg. C of winding (cold) at the moment of initial resistance measurement, and

R_1 = Initial resistance of winding.

5. Instrument Adjustment & Calibration.

Test instruments required:

1. Std. 200mV DC meter of 4 ½ digit of known accuracy.
2. Std. resistance of 1m Ohms, 10m Ohms, 100m Ohms, 1 Ohm, 10 Ohms, 1K Ohm & 10K Ohms

Procedure:

Connect 10 Ohms std resistor to the instrument. Switch 'ON' Power. Clip Std voltmeter across clips -V & +V. Adjust test current by preset P5 so that Std Voltmeter reads 75mV. Adjust instruments indication by preset on DPM to read value of std 10 Ohms resistor. Change range to 1.999 Ohms, Connect 1 Ohm std resistor. Adjust test current by adjusting preset P4 so that the instrument displays value of std 1 Ohms resistor. Set all other ranges likewise. All ranges must be adjusted by connecting resistors in 4 Terminal connection. Please recheck calibration using the same resistors. Please send this manual with the instrument whenever it is sent to a laboratory for re calibration. Recommended re calibration cycle is 1 Year.

6. Operational Safety.

Extreme care must be taken while calibrating the instrument as there are dangers of high voltage inside the instrument.



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