Digital multimeter

08101

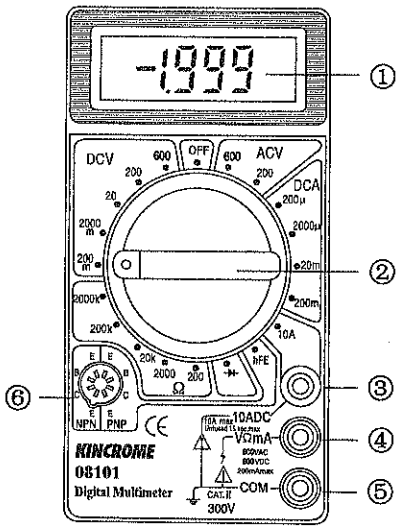
KINCROME

Operator's Instruction Manual

WARNING

READ AND UNDERSTAND THIS MANUAL BEFORE USING THE INSTRUMENT

Failure to understand and comply with the WARNING and operating instructions can result in serious or fatal injuries and / or property damage.



General Description

This instrument is a pocket sized 3-1/2 digit multimeter for measuring DC and AC voltage, DC current, resistance and performing transistor and diode test . Overload protection and low battery indication are provided.

Front Panel Description

1 Display
3-1/2 Digit, 7 segment, 0.5" (13mm) height LCD
2 Function and Range Switch
This switch is used to select functions and desired ranges
3 "10A" Jack
Plug in connector for red (positive) test lead up to 10A measurement.
4 "V mA" jack
Plug in connector for red (positive) test lead for all voltage, resistance and current with exception of measurement between 200mA and 10A
5 "Common" Jack
Plug in connector for black (negative) test lead
6 Transistor Test Socket

DC Voltage

Rang	Resolution	Accuracy
200mV	0.1mV	±0.5% of rdg ±1D
2000mV	1mV	±0.8% of rdg ±2D
20V	10mV	±0.8% of rdg ±2D
200V	0.1V	±0.8% of rdg ±2D
600V	1V	±1.0% of rdg ±2D

Overload Protection: 220V rms AC for 200mV range and 600VDC or 600V rms AC for other ranges.

AC Voltage

Rang	Resolution	Accuracy
200V	0.1V	±1.2% of rdg ±5D
600V	1V	±1.5% of rdg ±5D

Overload protection: 600VDC or 600V rms AC for all ranges.
Response: Average responding, calibrated in rms of a sine wave.
Frequency Range: 45Hz 450Hz

DC Current

Rang	Resolution	Accuracy
200μA	0.1μA	±1.0% of rdg ±2D
2000μA	1μA	±1.0% of rdg ±2D
20mA	0.01mA	±1.0% of rdg ±2D
200mA	0.1mA	±1.0% of rdg ±2D
10A	10mA	±2.0% of rdg ±3D

Overload Protection: 500mA/250V fuse(10A range unfused)

Resistance

Rang	Resolution	Accuracy
200Ω hm	0.1Ω hm	±1.2% of rdg ±2D
2000Ω hm	1Ω hm	±1.0% of rdg ±2D
20kΩ hm	10Ω hm	±1.0% of rdg ±2D
200kΩ hm	100Ω hm	±1.0% of rdg ±2D
2000kΩ hm	1kΩ hm	±1.0% of rdg ±2D

Maximum Open Circuit Voltage: 3.2V
Overload Protection: 250V rms AC on all range but 200Ω Range.

General Characteristics

Maximum Display: 1999 counts with automatic polarity indication
Overrange Indication: "1" figure only in the display
Maximum Common Mode Voltage: 600V DC/rms AC
Temperature Ranges: Operating: 0℃ to 40℃ (32° F to 104° F)
RH<80%
Storage: -10℃ to 50℃ (14° F to 122° F)
Temperature for Guaranteed Accuracy: 23℃ to 5℃ RH<75%
Power Supply: 9V battery, NEDA 1804.6F22 type or equivalent.
Dimension: 126x70x25mm
Weight: Approx. 170g
This instrument complies with insulation category (over voltage category), CAT II 300V,CAT I 600V

Operating Instruction

DC Voltage Measurement

1 Connect the red test lead to "VΩmA" Jack and the black test lead to "COM" jack.
2 Set range switch at desired DCV range position. If the voltage to be measured is not known beforehand, set range switch to the highest range and then reduce it until satisfactory reading is obtained.
3 Connect test probes to device or load being measured.
4 Read voltage value on the LCD display along with the polarity of red lead connection.

AC Voltage Measurement

1 Connect the red test lead to "VΩmA" Jack and the black test lead to "COM" jack.
2 Set range switch at desired ACV range position.
3 Connect test probes to device or load being measured.
4 Read voltage value on the LCD display.

DC Current Measurement

1 Connect the red test lead to "VΩmA" Jack and the black test lead to "COM" jack. (For measurement between 200mA and 10A, connect red lead to "10A" jack)
2 Set range switch at desired DCA range position.
3 Open the circuit in which the current is to be measured, and connect test probes in series with the circuit.
4 Read current value on the LCD display along with the polarity of red lead connection.

Resistance Measurement

1 Connect the red test lead to "VΩmA" Jack and the black test lead to "COM" jack. (The polarity of red lead is positive "+")
2 Set range switch at desired resistance range position.
3 Connect test probes across the resistor to be measured and read the LCD display.
4 If the resistor being measured is connected to a circuit, turn off power and discharge all capacitors before measurement.

Transistor Test

1 Set range switch at "hFE" position.
2 Determine whether the transistor under testing is NPN or PNP type and locate the emitter, base, collector leads. Insert the leads into proper holds of the hFE test socket on the front panel.
3 The meter will show the approximate hFE value at the condition of base current 10μA and Vce 3.0V.

Diode Test

1 Connect the red test lead to "VΩmA" Jack and the black test lead to "COM" jack.
2 Set range switch at —▷|— position
3 Connect red probe to the anode of the diode to be tested and black probe to the cathode of the diode.

4 The approximate forward voltage drop of the diode will be displayed in mV. If the connection is reversed, only figure "1" will be shown.

Battery and Fuse Replacement

1 If the sign "BAT" appears on the LCD display, it indicates that the battery should be replaced. Remove screws on the back cover and open the case. Replace the exhausted battery with a new one of the same type.
2 Fuse rarely need replacement and blow almost as a result of operator's error. Open the case as mentioned above and replace the blown fuse with the ratings of 0.5A/250V

Safety Information

Follow all safety and operating instructions to ensure the meter is used safely and is kept in good condition.

Preliminary

Safety can be guaranteed only with test leads supplied. If necessary, they must be replaced with the same electric ratings. Measuring leads must be in good conditions.

During use

1 Never exceed the protection limit values indicated in the specifications for each range of measurement.
2 When the meter is linked to measurement circuit, do not touch the unused terminals.
3 Never use the meter to measure voltage that might exceed 500V above earth ground.

4 Always be careful when working with voltages above 60V DC or 30V AC rms. Keep fingers behind the probe barriers while measuring.
5 Do not perform resistance measurements on live circuits.
6 Never test AC current on this tester.

Safety Symbols.

Important safety information. Refer to the operation manual.

Dangerous voltage may be present

Earth ground

Indicates the equipment complies with the requirements for double insulation

Indicates that the fuse must be replaced with one having the ratings indicated

Maintenance

1 Before opening the case, always disconnect test leads from all energized circuits.
2 For continued protection against fire, replace fuse only with the specified voltage and current ratings: 0.5A / 250V (quick acting).
3 Never use abrasives or or solvents on the meter, use only a fastened.
4 Do not use abrasives or solvents on the meter, use only a damp cloth and mild detergent to clean the meter.

Accessories

1xBattery 9V 1604 6F22 or 006P
1 set of Test Leads 1000V, 10A
1xOperating Manual