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Low Cost Digital Multimeter

HOBBYIST

QM1500



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Low Cost

Digital Multimeter User Manual

Thank you for purchasing this Low Cost Digital Multimeter. This multimeter is the perfect introduction to meters, and data capture of standard measurements including DC & AC voltage, DC current, resistance, transistor, and diode testing. Just move the rotary switch to the correct position, plug in your leads and you're good to go!


Please familiarise yourself with the functions of the multimeter before use. We recommend retaining this manual for ease of reference.

- Improper use of this meter can cause damage, shock, injury or death.
- Always remove the test leads before replacing the battery or fuses.
- Before using this meter, please inspect the condition of the test leads and the meter itself for any damage. If damage is present, please discontinue use.
- Do not measure voltage if the voltage on the terminals exceeds 1000V above earth ground.
- Do not exceed the maximum limits of the input values shown in the specification tables on pages 6-7 of this manual.
- Remove the batteries from the meter if it will be unused for an extended period of time.
- Always turn the function switch to the off position when not in use.

FUNCTIONS	
Max. Display	2000 Count
Basic Accuracy	0.500%
DC Voltage Range	200mV – 1000V
AC Voltage Range	200V – 750V
DC Current Range	2000 μ A – 10A
Resistance	200 Ω to 2000k Ω
Diode Test	Yes
Transistor hFE Test	Yes



FUNCTIONS	
Function Switch	Select a measurement range by turning the switch to the preferred option.
LCD Screen	Readings and measurements taken by the multimeter will display in this area.
Input Jacks	<ul style="list-style-type: none"> • VΩmA: Positive input terminal for voltage, resistance, diode, temperature, frequency. • COM: Negative input terminal for voltage, resistance, diode, temperature, frequency . • 10A: Input terminal for 10A current.

SYMBOL	
	Diode Test
Ω	Ohms
Hz	Hertz (Frequency)
V	Volts
A, mA, μA	Current Range
AC	Alternating Current/Voltage
DC	Direct Current/Voltage

AC/DC VOLTAGE MEASUREMENT

- 1) Insert the black test lead banana plug into the negative COM jack.
- 2) Insert the red test lead banana plug into the positive V Ω jack.
- 3) Set the function switch to the VAC or VDC position. If the voltage to be measured is not known beforehand, then set the switch to the highest range and reduce it until a satisfactory reading is obtained.
- 4) Connect the test leads to the device or circuit being measured, then turn the device or circuit on.
- 5) Read the voltage on the display.


DC CURRENT MEASUREMENT

- 1) Insert the black test lead banana plug into the negative COM jack
- 2) For current measurements up to:
 - a. 200mA DC – Insert the red test lead banana plug into the V Ω jack.
 - b. 10A DC – insert the red test lead banana plug into the 10A jack.
- 3) Set the function switch to the desired position.
- 4) Remove power from the circuit under test, then open up the circuit at the point where you wish to measure current.
- 5) Touch the black test probe tip to the negative side of the circuit.
- 6) Touch the red test probe tip to the positive side of the circuit.
- 7) Apply power to the circuit.
- 8) Read the current displayed on the display.

RESISTANCE MEASUREMENT

- 1) Insert the black test lead banana plug into the negative COM jack.
- 2) Insert the red test lead banana plug into the positive V Ω jack.
- 3) Set the function switch to the desired Ω position.
- 4) If the resistance being measured is connected to a circuit, then turn power off and discharge all capacitors prior to measurement. Then connect the test leads to the circuit.
- 5) Read the resistance on the display.

DIODE TEST

- 1) Insert the black test lead banana plug into the negative COM jack.
- 2) Insert the red test lead banana plug into the positive V Ω jack.
- 3) Set the function switch to the  position.
- 4) Touch the red test probe to the anode of the diode to be measured, and the black test lead to the cathode.
- 5) Reverse the probe polarity by switching the probe position. Note this reading.
- 6) The diode or junction can be evaluated as follows:
 - a. If one reading shows a value and the other reading shows OL, the diode is good.
 - b. If both readings show OL, the device is open.
 - c. If both readings are very small or zero, the device or circuit is shorted.

TRANSISTOR MEASUREMENT

- 1) Set the function switch to the hFE position.
- 2) Determine whether the transistor is NPN or PNP.
- 3) Insert the Emitter, Base & Collector leads into the corresponding E, B & C holes in the hFE socket.
- 4) The meter will display the approximate hFE value at the base current of 10 μ A & VCD 2.8V.

MEASUREMENT SPECIFICATIONS

DC Voltage

RANGE	RESOLUTION	ACCURACY
200mV	100 μ V	(±1.0% of reading + 10 digits)
2000mV	1mV	
20V	10mV	
200V	100mV	
1000V	1V	

Overload protection: 220VAC for 200mV range, 1000VDC or 750VAC for other ranges.

AC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200V	100mV	(±1.2% of reading + 10 digits)
750V	1V	

Overload Protection: 1000VDC or 750VAC for all ranges.

Response: Average, calibrated in RMS of SINE.

Frequency Range: 45Hz-450Hz

DC CURRENT

RANGE	RESOLUTION	ACCURACY
2000µA	1µA	(±2.0% of reading + 10 digits)
20mA	10µA	
200mA	100µA	
10A	10mA	(±2.5% of reading + 10 digits)

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

Measuring Voltage Drop: 200mV

RESISTANCE

RANGE	RESOLUTION	ACCURACY
200Ω	0.1Ω	(±1.0% of reading + 8 digits)
2000Ω	1Ω	(±1.2% of reading + 8 digits)
20kΩ	10Ω	
200kΩ	100Ω	
2000kΩ	1kΩ	

Maximum Open Circuit Voltage: 2.8V

Overload Protection: 15 seconds maximum, 220V RMS all ranges.

Audible continuity.

MAINTENANCE

BATTERY INSTALLATION

To avoid false readings, replace the battery every 6 months if the device is used regularly.

- 1) Turn power off and disconnect the test leads from the meter.
- 2) Open the rear cover with a screwdriver.
- 3) Remove the old battery and insert the new battery into the battery holder, observing the correct polarity.
- 4) Put the battery cover back in place and secure it with a screwdriver.

REPLACING FUSES

- 1) Turn power off and disconnect the test leads from the meter.
- 2) Remove the cover.
- 3) Gently remove the old fuse and install the new fuse into the holder.
- 4) Always use a fuse of the proper size and value (500mA/250V).
- 5) Replace and secure the cover.

SPECIFICATIONS

Display:	2000 Count
Security Class:	Cat II 500V
Basic DCV Accuracy:	0.500%
DC Voltage:	200mV, 1000V ($\pm 0.5\%$)
AC Voltage:	200V, 750V (max input 750V RMS) ($\pm 1.2\%$)
DC Current:	2000 μ A, 20mA, 200mA, 10A ($\pm 1.2\%$)
Resistance:	200 Ω , 2000 Ω , 20k Ω , 200k Ω , 2000k Ω ($\pm 1.2\%$)
Measurement Type:	Average
Input Impedance:	1 Ω
Dimensions:	125(H) x 68(W) x 23(H)mm
Weight:	140g
Battery Type:	9V (Included)

BOX CONTENTS

- 1 x Multimeter
- 2 x Test leads
- 1 x 9V Battery (Installed)
- 1 x User Manual

WARRANTY

The product is protected by a 2-year warranty (from the date of purchase) covering all product manufacturing defects/faults that may occur within this timeframe. This warranty does not cover damage caused by neglect, misuse, contamination, alteration, accident or abnormal conditions of operation or handling, including failures caused by use outside of the products specifications, or normal wear and tear of the mechanical components.

In the event that you suspect your product is defective/faulty, cease using the product when the suspected defect/fault arises and return the product along with proof of purchase to the place of purchase or distributor for assessment. Distributer contact details are available on the last page of this manual.

If the assessment concludes that the product is indeed defective/faulty, the product will either be repaired or replaced at no cost to you.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

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