

Autoranging Non-Contact Voltage Digital Multimeter

HOBBYIST

QM1529



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Autoranging Non-Contact Voltage

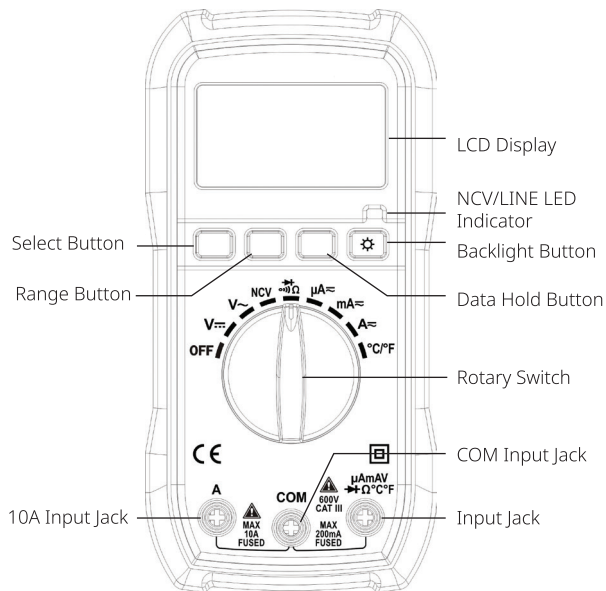
Digital Multimeter User Manual

Thank you for purchasing this Autoranging Non-Contact Voltage Digital Multimeter. Hobbyist multimeters provide exceptional value for money, and good features for a range of applications. This practical multimeter measures both DC and AC voltages and currents. The default autoranging setting automatically selects the best range for your measurements. If a different range is preferred, simply switch it to manual. A built-in buzzer and LED warning light alert you to low resistance, detected voltage and live wires. In low light conditions you can activate the 10 second backlight to view measurements. Use the data hold button to lock them on-screen for data capture and analysis.

Please familiarise yourself with the functions of the multimeter before use. We recommend keeping 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 the 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.
- Use great care if voltages are greater 30VAC RMS. Anything above this is considered a shock hazard.
- Always discharge capacitors and disconnect power before performing diode, resistance or continuity tests.
- Do not exceed the maximum limits of the input values shown in the specification tables on page 9-11 of this manual.
- Remove the batteries from the meter if it will be unused for an extended period of time.

FUNCTIONS	
Max. Display	2000 Count
Basic Accuracy	0.5%
DC Voltage Range	200mV - 600V
AC Voltage Range	2V - 600V
DC Current Range	200 μ A - 10A
AC Current Range	200 μ A - 10A
Resistance	200 Ω - 20M Ω
Diode Test	Yes
Continuity Check	Yes
NCV (Non-Contact Voltage) Detection	Yes
LINE (Live Wire Recognition) Test	Yes
LCD Backlight	Yes
Data Hold	Yes
Manual Range	Yes
Auto Range	Yes
Auto Power Off	Yes



The tilt stand & battery compartment are at the rear of the multimeter.

FUNCTIONS

NCV Detection	<ul style="list-style-type: none">• Move the rotary switch to NCV.• When voltage is detected, the alarm will sound and the LED indicator will flash.
Select Button	Press to measure AC current, DC current, diode & continuity check.
Range Button	Measure voltage and resistance automatically or manually. Default is automatic. <ul style="list-style-type: none">• Press the RANGE button again to manually measure.• Press the RANGE button again to switch back to automatic mode.
Data Hold Button	Press the button to lock readings as displayed on screen. Press again to unlock.
LED Indicator	Flashes when voltage is detected.
LCD Display	Readings and measurements taken by the multimeter appear in this area.
Backlight Button	Press to turn the backlight on. Light will remain on for approximately 10 seconds.
Auto Backlight	In low light conditions the LCD Display backlight will automatically turn on.
Rotary Switch	Select a measurement range by turning the switch to the preferred option.
Input Jacks	<ul style="list-style-type: none">• VΩmA• COM• 10A: Input terminal for 10A current.

AC & DC VOLTAGE MEASUREMENT

To avoid electrical shock and/or damage to the multimeter, do not attempt to take any voltage measurements that might exceed 600VDC and do not apply more than 600VDC between the common terminal and the earth ground. Unstable display may occur, especially at the low voltage range measurement. If an erroneous reading is suspected, short the V/ Ω mA jack and COM jack and make sure zero is displayed on screen.

- 1) Set the rotary switch to the voltage position (V graphic V ~).
- 2) Insert the black test lead banana plug into the negative COM jack.
- 3) Insert the red test lead banana plug into the positive V/ Ω mA jack.
- 4) Touch the black test probe tip to the negative side of the circuit.
- 5) Touch the red test probe tip to the positive side of circuit.
- 6) Read the voltage on screen. The polarity of the red test lead will display when making DC Voltage measurement.


AC & DC CURRENT MEASUREMENT

Use the proper terminals, function and range for any current measurement. Never attempt measurement if potential for an open circuit to earth is greater than 250V. Do not place the test leads in parallel with a circuit or component when the test leads are plugged into the current terminals.

- 1) Disconnect power from the circuit to be tested and discharge the capacitors.
- 2) Set the rotary switch to current measuring range.
- 3) For current measurements:
 - less than 200mA - insert black test lead banana plug into the negative COM jack
 - between 200mA and 10A - insert the red test lead banana plug into the mA jack.
- 4) To break the circuit under test, connect the black test lead to the more negative side of the break, and connect the red test lead to the more positive side of the break.
- 5) Connect power to the circuit being tested and read the value on screen. If OL displays, the input is over range, so you will need to select the higher range.
- 6) Disconnect power from the circuit to be tested, then discharge all capacitors. Remove the test leads and recover the measured circuit.


DIODE TEST & CONTINUITY CHECK

To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking diode test and never measure continuity on circuits of wires that have voltage on them. In a circuit, a good diode should produce a forward bias reading of voltage, however, the reverse-bias reading can be variable based on the resistance of other pathways between the probe tips.

- 1) Set the rotary switch to the  position.
- 2) Insert the black test lead banana plug into the negative COM jack.
- 3) Insert the red test lead banana plug into the positive V Ω mA jack.
- 4) Place the red test lead on the anode of diode and black test lead on the cathode of diode. The meter will show the approx. forward voltage of diode. Reverse voltage will indicate OL.
- 5) Touch the test probe tips to the circuit or wire you wish to check. The maximum value of resistance under check will appear on the screen. If the resistance is less than 30 Ω , the audible signal will sound.

RESISTANCE MEASUREMENT

To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any resistance measurements. Remove the batteries and unplug the line cords. The measured value of a resistor in a circuit is usually different from the rated value of resistor. This is because the test current of the meter flows through all possible paths between the probe tips. In order to ensure the best accuracy when measuring low resistance, short the test leads before the measurement and subtract this resistance value from the total. For high resistance measurement, the meter may take a few seconds to stabilise the readings. In an open circuit, the meter will display OL to indicate over range.

- 1) Set the rotary switch to the  position.
- 2) Insert the black test lead banana plug into the negative COM jack.
- 3) Insert the red test lead banana plug into the positive V Ω mA jack.
- 4) Touch the test probe tips across the circuit or the part under test. It's best to disconnect one end of the circuit so the rest of the circuit will not interfere with the resistance reading.
- 5) Read the resistance displayed on screen.

NCV (NON-CONTACT VOLTAGE) DETECTION

Due to external interference sources, this test may detect the wrong voltage. Please use as an estimate only. Detection may be interfered by socket design, insulation thickness and other variable conditions. External sources such as flashlights, motors, etc may interfere with reading and cause the wrong detection.

- 1) Set the switch to the NCV position
- 2) Hold the meter near the voltage source.
- 3) The LED light will flash and an audible beep will be heard to indicate the presence of voltage.

LINE (LIVE WIRE RECOGNITION) TEST

When serious circuit leakage is detected (approx. over 15V) and the red test lead is in contact with the earth line, the meter will buzz and the LED light will flash.

- 1) Set the rotary switch to LINE position.
- 2) Connect the black test lead to the COM jack and red test lead to the $V\Omega mA$ jack. Make sure to hold the insulation part of the black test lead and not plug it into the circuit under measurement.
- 3) Contact the red test lead to the wire. If it's live, the meter's buzzer will sound and the red LED light will flash.
- 4) If an earth connection is detected, the buzzer will not sound and LED light will not flash.

AUTO POWER OFF

The auto off feature will power down the meter after 15 minutes of inactivity.

LOW BATTERY INDICATION

The battery icon will appear on the screen when battery power is low and the batteries need to be replaced.

MEASUREMENT SPECIFICATIONS

The following guide is based on an environmental temperature of 18-28°C and humidity <80%.

DC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200mV	100 μ V	$\pm(0.5\%$ reading + 2 digits)
2V	1mV	$\pm(0.5\%$ reading + 3 digits)
20V	10mV	$\pm(0.8\%$ reading + 3 digits)
200V	100mV	
500V	1V	$\pm(0.8\%$ reading + 5 digits)

Overload Protection: 200mV range at 250VDC or 250VAC RMS.
Other ranges at 600VDC or 600VAC RMS.

AC VOLTAGE

RANGE	RESOLUTION	ACCURACY
2V	1mV	$\pm(1.0\%$ reading + 10 digits)
20V	10mV	
200V	0.1V	
500V	1V	
600V	1V	

Overload Protection: 600VDC or 600VAC RMS
Frequency Range: 40~400Hz

DC CURRENT

RANGE	RESOLUTION	ACCURACY
200 μ A	0.1 μ A	$\pm(1.0\%$ reading + 5 digits)
2mA	1 μ A	
20mA	10 μ A	
200mA	100 μ A	$\pm(2.0\%$ reading + 5 digits)
2A	1mA	$\pm(3.0\%$ reading + 5 digits)
10A	10mA	

Overload Protection: fuse F200mA/250V.
No fuse for 10A range.

AC CURRENT

RANGE	RESOLUTION	ACCURACY
200 μ A	0.1 μ A	$\pm(1.8\%$ reading + 5 digits)
2mA	1 μ A	
20mA	10 μ A	
200mA	100 μ A	$\pm(2.5\%$ reading + 5 digits)
2A	1mA	$\pm(3.0\%$ reading + 5 digits)
10A	10mA	

Overload Protection: fuse F200mA/250V.
No fuse for 10A range.



RESISTANCE

RANGE	RESOLUTION	ACCURACY
200 Ω	0.1 Ω	$\pm(1.0\% \text{ reading} + 2 \text{ digits})$
2k Ω	0.001k Ω	
20k Ω	0.01k Ω	
200k Ω	0.1k Ω	
2M Ω	0.001Mk Ω	
20M Ω	0.01Mk Ω	

Overload Protection: 250VDC or 250VAC RMS.

Maximum Open Circuit Voltage: <3.2V.

DIODE & CONTINUITY

RANGE	FUNCTION
	Display approximate forward voltage of diode
	Built-in buzzer will sound if resistance is less than 30 Ω

MAINTENANCE

BATTERY INSTALLATION

To avoid the false readings, replace the battery as soon as the low battery power indicator appears.

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

REPLACING THE FUSES

- 1) Turn power off and disconnect the test leads from the meter.
- 2) Remove the battery cover and battery.
- 3) Remove the screws securing the rear cover.
- 4) Gently remove the old fuse and install the new fuse into fuse holder.
- 5) Replace and secure the rear cover, battery and battery cover.

SPECIFICATIONS

Protection:	Overload, Full Range
Max. Input Voltage:	600VDC
Operating Temperature:	0°C~40°C
Operating Humidity:	< 80%RH
Storage Temperature:	-10°C~60°C
Storage Humidity:	< 70%RH
Power Supply:	2 x AAA
Dimensions:	145(H) x 70(W) x 32(D)mm
Weight:	200g

BOX CONTENTS

- 1 x Multimeter
- 1 x Test Leads
- 2 x AAA Batteries
- 1 x User Manual

WARRANTY

This product is protected by a lifetime 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 product's specifications, or the normal wear and tear of 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. Distributor 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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