



PROFESSIONAL AUTO-RANGING DIGITAL MULTIMETER

MODEL NO: **MM102**

Thank you for purchasing a Sealey product. Manufactured to a high standard, this product will, if used according to these instructions, and properly maintained, give you years of trouble free performance.

IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.



Refer to instructions



Electrical shock hazard

1. SAFETY

1.1. PERSONAL PRECAUTIONS

- ✓ When using this meter, please observe all normal safety rules concerning:
 - Protection against the dangers of electric current.
 - Protection of the meter against misuse.
- ✓ Full compliance with safety standards can only be guaranteed if used with the test leads supplied. Failure to do so will invalidate the warranty.
- ✗ **DO NOT** use leads if damaged or if the wire is bared in any way.

1.2. GENERAL SAFETY INSTRUCTIONS

- ✓ Familiarise yourself with the applications, limitations and hazards of the meter. If in any doubt consult a qualified electrician.
- ✓ When the meter is linked to a measurement circuit, **DO NOT** touch unused meter terminals.
- ✓ When the scale of the value to be measured is unknown set the selector to the highest range available.
- ✓ Before rotating the range selector to change functions, disconnect test leads from the circuit under test.
- ☐ **WARNING!** Never perform resistance measurements on live circuits.
- ✓ Always be careful when working with multimeter. Keep your fingers behind the probe guards while measuring.
- ✓ When not in use, store the meter carefully in a safe, dry, childproof location. Storage temperature range -10°C to 50°C
- ✗ **DO NOT** apply voltage or current to the meter that exceeds the specified maximum.
- ✓ The user shall ensure that test probes are correctly selected in order to prevent danger. Probes shall be selected to ensure that adequate barriers guard against inadvertent hand contact with live conductors under test and that probes have minimal exposed probe tips. Where there is a risk of the probe tip short circuiting with other live conductors under test, it is recommended that the exposed tip length shall not exceed 4mm.

2. INTRODUCTION

Lightweight, auto-ranging digital multimeter with double moulded plastic housing and a 2000 counts LCD display. Features forward facing work light, data hold and non-contact AC voltage detection. Conforms to EN 61010-1 CATIII 1000V / CAT IV 600V safety standard.

Measures: AC and DC Voltage, AC and DC Current, Resistance, Diode Test, Continuity Test.

3. SPECIFICATION

Model No	MM102
AC Voltage (Accuracy).....	.2V, 20V (±1%), 200V, 600V (±2.3%)
DC Voltage (Accuracy).....	.200mV (±0.5%), 2V, 20V, 200V, 600V (±1.2%)
AC Current (Accuracy).....	.200µA, 2000µA, 20mA, 200mA (±2.5%)
DC Current (Accuracy).....	.200µA, 2000µA, 20mA, 200mA (±2%)
Resistance (Accuracy).....	.200Ω (±0.8%), 2KΩ, 20KΩ, 200KΩ (±1.2%), 2MΩ (±5%), 20MΩ (±10%)
Capacitance (Accuracy).....	No
Frequency (Accuracy).....	No
Duty Cycle.....	No
Continuity Audible.....	Yes
Diode Test.....	Yes
Transistor Test.....	No
Hi- Impact Case.....	No
Digits x Height.....	.4 x 14mm
Low Battery Indicator.....	Yes
Batteries (supplied).....	2 AAx1.5V
Size (L x W x D).....	.105 x 57 x 34mm
Weight.....	.160g
Conformity.....	.EN61010-1
Non-Contact Voltage Detection VAC.....	.100V - 600V

1. Non-contact AC voltage detector probe tip
2. Non-contact AC voltage indicator light
3. 3 1/2 Digit (2000 count)
4. MODE button
5. Function switch
6. Flashlight
7. Flashlight button
8. Data Hold button
9. Battery Cover
10. Test leads

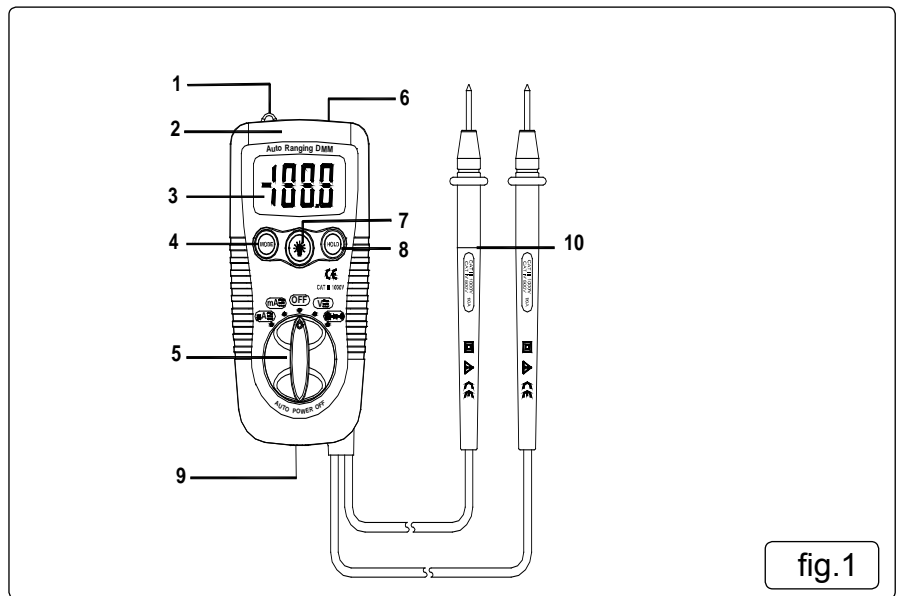


fig.1

4. OPERATION

- ❑ **WARNING!** Risk of electrocution. High voltage circuits, both AC and DC are dangerous and should be measured with great care. Always turn the function switch to the off position when the meter is not in use.
- 4.1. **AC/DC VOLTAGE MEASUREMENTS**
 - ✱ **DO NOT** measure DC/AC voltages if a motor on the circuit is being switched ON or OFF. Large voltage surges may occur that can damage the meter.
 - 4.1.1. Set the function switch to the green V position.
 - 4.1.2. Press the MODE button to indicate "DC" or "AC" on the display.
 - 4.1.3. Touch the black test probe tip to the negative side of the circuit.
 - 4.1.4. Touch the red test probe tip to the positive side of the circuit.
 - 4.1.5. Read the voltage in the display.
 - 4.2. **DC/AC CURRENT MEASUREMENTS**
 - 4.2.1. Set the function switch to the $\mu\text{A}/\text{mA}$ position.
 - 4.2.2. For current measurements up to 2000 μA DC/AC, set the function switch to the mA position
 - 4.2.3. Press the MODE button to indicate "DC" / "AC" on the display.
 - 4.2.4. Remove power from the circuit under test, then open up the circuit at the point where you wish to measure current.
 - 4.2.5. Touch the black test probe tip to the negative side of the circuit.
 - 4.2.6. Touch the red test probe tip to the positive side of the circuit.
 - 4.2.7. Apply power to the circuit.
 - 4.2.8. Read the current in the display.
 - 4.3. **RESISTANCE MEASUREMENT**
 - ❑ **WARNING!** 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.
 - 4.3.1. Set the function switch to the Ω position.
 - 4.3.2. Press the MODE button to indicate Ω on the display.
 - 4.3.3. Touch the test probe tips across the circuit or part under test. It is best to disconnect one side of the part under test so the rest of the circuit will not interfere with the resistance reading.
 - 4.3.4. Read the resistance in the display.
 - 4.4. **CONTINUITY CHECK**
 - ❑ **WARNING!** To avoid electric shock, never measure continuity on circuits or wires that have voltage on them.
 - 4.4.1. Set the function switch to the Ω position.
 - 4.4.2. Press the MODE button to indicate Ω on the display
 - 4.4.3. Touch the test probe tips to the circuit or wire you wish to check.
 - 4.4.4. If the resistance is less than approximately 150 Ω , the audible signal will sound. If the circuit is open, the display will indicate "OL".
 - 4.5. **DIODE TEST**
 - 4.5.1. Set the function switch to the Ω position.
 - 4.5.2. Press the MODE button to indicate Ω on the display.
 - 4.5.3. Touch the test probes to the diode under test. Forward voltage will typically indicate 0.400 to 0.700V. Reverse voltage will indicate "OL". Shorted devices will indicate near 0V and an open device will indicate "OL" in both polarities.
 - 4.6. **Non-Contact AC Voltage Measurements**
 - ❑ **WARNING!** Risk of Electrocution. Before use, always test the Voltage Detector on a known live circuit to verify proper operation
 - 4.6.1. Position the non contact probe fig.1.1. in close proximity to the cable/conductor.
 - 4.6.2. If AC voltage is present, the detector light will illuminate.
 - NOTE:** The conductors in electrical cables are often twisted. For best results, move the non contact probe along a length of the cable to assure the probe is in close proximity to the live conductor.
 - NOTE:** The detector is designed with high sensitivity. Static electricity or other sources of energy may randomly operate the sensor. This is normal operation.

4.7. **HOLD BUTTON**

- 4.7.1. The Data Hold function allows the meter to “freeze” a measurement for later reference
- 4.7.2. Press the “DATA HOLD” button to “freeze” the display, the “HOLD” indicator will appear.
- 4.7.3. Press the “DATA HOLD” button to return to normal operation.

4.8. **FLASHLIGHT**

Press and hold the top button to turn the flashlight on. Release the button to turn the flashlight off.

4.9. **AUTO POWER OFF**

The auto off feature will turn the meter off after 15 minutes.

5. MAINTENANCE

- ❑ **WARNING!** To avoid electric shock, disconnect the test leads from any source of voltage before removing the back cover or the battery or fuse covers.

5.1. **REPLACING THE BATTERY**

- 5.1.1. Remove the bottom cover and secure the screw.
- 5.1.2. Replace old battery with two 1.5V AAA type batteries.
- 5.1.3. Replace the bottom cover and secure with the screw.

5.2. **REPLACING THE FUSE**

- 5.2.1. Disconnect the test leads from the meter.
- 5.2.2. Remove the test leads holder and top cover by removing screw.
- 5.2.3. Pull out the pcb Lift the centre circuit board straight up from the connectors to gain access to the fuse holders.
- 5.2.4. Remove the old fuse and install the new fuse into the holder. (Always use the correct size of fuse).
- 5.2.5. Align the board with the connects and gently press into place.
- 5.2.6. Replace and secure the cover.

- ❑ **WARNING!** To avoid electric shock, do not use meter unless all covers are in place



ENVIRONMENT PROTECTION

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.



BATTERY REMOVAL SEE SECTION 5

Under the Waste Batteries and Accumulators Regulations 2009, Jack Sealey Ltd are required to inform potential purchasers of products containing batteries (as defined within these regulations), that they are registered with Valpak's registered compliance scheme. Jack Sealey Ltd Batteries Producer Registration Number (BPRN) is BPRN00705.

Note: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.

Important: No Liability is accepted for incorrect use of this product.

Warranty: Guarantee is 12 months from purchase date, proof of which is required for any claim.

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