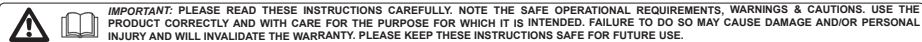




# INSTRUCTIONS FOR: POCKET MULTIMETER Model No: MM18

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.




## 1. SAFETY INSTRUCTIONS

### 1.1. PERSONAL PRECAUTIONS

- ✓ When using this multimeter, please observe all normal safety rules concerning:
  - Protection against the dangers of electrical current.
  - Protection of the meter against misuse.
- ✓ Full compliance with safety standards can only be guaranteed if used with the test leads supplied. If necessary, they must be replaced with genuine Sealey leads with the same electrical ratings. Failure to do so will invalidate the warranty. **DO NOT** use leads if damaged or if the wires are bared in any way.

### 1.2. GENERAL SAFETY INSTRUCTIONS

- ✓ Familiarise yourself with the application and limitations of the multimeter as well as the potential hazards. **IF IN ANY DOUBT CONSULT A QUALIFIED ELECTRICIAN.**
- ✓ **USE EXTREME CAUTION** when working with high voltages.
- x **DO NOT** use the meter if it is damaged. Before you use it inspect the case. Pay particular attention to the insulation surrounding the connectors.
- ✓ Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity. Replace damaged test leads before you use the meter.
- x **DO NOT** use the meter if it operates abnormally. Protection may be impaired. When in doubt have the meter inspected by your Sealey Authorised Dealer.
- x **DO NOT** operate the meter where explosive gas, vapour or dust is present.
- x **DO NOT** apply more than the rated voltage, as marked on the meter, between the probes or between any probe and earth ground.
- ✓ Before use verify the meter's operation by measuring a known voltage.
- ✓ When measuring current, turn off circuit power before connecting the meter in the circuit. Remember to place the meter in series with the circuit.
- ☐ **WARNING** Use caution when working with voltage above 30V ac rms, 42V peak, or 60V dc. Such voltages pose a shock hazard.
- x When using the probes keep your fingers behind the finger guards.
- ✓ When making connections, connect the black test lead before you connect the red test lead. When you disconnect the test leads, disconnect the red one first.
- ✓ Remove the test leads from the circuit under test before you open the back cover.
- x **DO NOT** operate the meter with the back cover removed or loosened.
- ✓ To avoid false readings, which could lead to possible electric shock or personal injury, replace the button cells as soon as the low battery indicator (  ) appears.
- x **DO NOT** touch any naked conductor with your hand or skin, to avoid electric shock, **DO NOT** ground yourself whilst using the meter.
- x When a probe is connected to a dangerous live potential, it must be noted that this potential can occur at the other probe. **NOTE CAT II** measurement category is for measurements performed on circuits directly connected to low voltage installations. (Examples are measurements on household appliances, portable tools and similar equipment.) **DO NOT** use the meter for measurements within Measurement Categories III and IV.
- x Disconnect circuit power and discharge all capacitors before testing resistance, diode or continuity.
- ✓ Use the proper function for your measurements.
- ✓ Before measuring current, check the meter's fuse and turn off power to the circuit before connecting the meter to the circuit.
- ✓ Before moving the function switch or rotating the range switch, disconnect the test leads from the circuit under test.
- ✓ **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.**

**NOTE:** The warnings, cautions and instructions referred to in this manual cannot cover all possible conditions and situations that may occur. It must be understood that common sense and caution are factors which cannot be built into this product, but must be applied by the operator.

### 1.3. ELECTRICAL SYMBOLS



Alternating Current.



Direct Current.



Both direct and alternating current.



Caution risk of danger refer to operating manual before use.



Caution risk of electric shock.



Earth (ground) terminal.



Fuse.



The equipment is protected throughout by double insulation or reinforced insulation.

## 2. FEATURES

Handy compact unit, small enough to fit in your pocket, making it ideal for basic circuit testing on the move. Features flip lid for added screen protection and storage of leads. Conforms to EN 61010-1 CAT II safety requirements. Supplied with test leads.

Measures:

- AC and DC Voltage
- DC Current
- Resistance
- Audible Continuity

- 1. Display**  
3½ digit LCD, with a max. reading of 1999.
- 2. Function**  
Used to select desired function.
- 3. Range Switch**  
Used to select desired range.
- 4. Test Probes**



## 3. SPECIFICATION

Model No: ..... MM18  
 Measures:  
 Voltage DC: ..... 2V, 20V, 200V, 250V (±1.0%)  
 Voltage AC: ..... 250V (±1.2%)  
 Current DC: ..... 200mA (±1.2%)  
 Resistance: ..... 2k Ω, 20k Ω, 200k Ω, 2000k Ω (±1.2%)  
 Continuity Audible: ..... Yes  
 Digits x Height: ..... 5 x 11mm  
 Batteries (Supplied): ..... 2 x 1.5V  
 Size (L x W x H): ..... 114 x 56 x 23mm  
 Weight: ..... 101g  
 Conformity: ..... EN 61010-1  
 Operation Environment: ..... 0°C to 40°C  
 Relative Humidity: ..... <75%  
 Storage Temperature: ..... -10°C to 50°C  
 Relative Humidity: ..... <85%

### DC VOLTAGE

Range	Resolution	Accuracy
2V	0.001V	±(1.0% +5 digits)
20V	0.01V	
200V	0.1V	
250V	1V	

**Input Impedance:** 1MΩ  
**Max. Allowable Input Voltage:** 250V dc

### DC CURRENT

Range	Resolution	Accuracy
200mA	0.1mA	±(1.2% + 5 digits)

**Overload Protection:** 250mA/250V Fast fuse

### AC VOLTAGE

Range	Resolution	Accuracy
200V	0.1V	±(1.2% +10 digits)
250V	1V	



**Input Impedance:** About 500kΩ  
**Frequency Range:** 40Hz to 400Hz  
**Max. Allowable Input Voltage:** 250V ac rms  
**Response:** Average, calibrated in rms of sine wave

### RESISTANCE

Range	Resolution	Accuracy
2kΩ	0.001kΩ	±(1.2% +5 digits)
20kΩ	0.01kΩ	
200kΩ	0.1kΩ	
2000kΩ	1kΩ	

**Max Open Circuit Voltage:** About 0.4V  
**Overload Protection:** 250V DC/AC rms

**DIODE AND CONTINUITY**


Range	Description	Remark
	The display shows the approx. forward voltage drop of the diode.	Open Circuit Voltage about 2.5V Max. Test Current: 1mA
	<p>The built in buzzer will sound if the resistance is less than about 30Ω.</p> <p>The buzzer may not sound if the resistance is between 30Ω and 100Ω.</p> <p>The buzzer will not sound if the resistance is more than 100Ω.</p>	Open Circuit Voltage about 2.5V

**Overload Protection:** 250V DC/AC rms






## 4. OPERATING INSTRUCTIONS


### 4.1. MEASURING DC VOLTAGE

- 4.1.1. Set the function switch to the **V**  position.
  - 4.1.2. Set the range to the desired position. If the magnitude of the voltage to be measured is not known beforehand, set the range switch to the highest range first and then reduce it range by range until satisfactory resolution is obtained.
  - 4.1.3. Connect the test leads across the source or circuit to be tested.
  - 4.1.4. Read the reading on the display. The polarity of the red test lead connection will be indicated as well.
- NOTE** To avoid electric shock to you or damage to the meter, **DO NOT** measure a voltage higher than 250V.


### 4.2. MEASURING AC VOLTAGE

- 4.2.1. Set the function switch to the **V**  position.
  - 4.2.2. Set the range switch to **250V**  or **200V**  range position.
  - 4.2.3. If the magnitude of the voltage to be measured is not known beforehand, set the range to the highest first and then reduce it until a satisfactory resolution is obtained.
  - 4.2.4. Read the reading on the display.
- NOTE** To avoid electric shock to you or damage to the meter, **DO NOT** measure a voltage higher than 250V.

### 4.3. MEASURING DC CURRENT

- 4.3.1. Set the function switch to **A**  position.
- 4.3.2. Set the range switch to the **200mA** range position.
- 4.3.3. Turn off the circuit to be tested. Then discharge all capacitors.
- 4.3.4. Break the circuit path to be tested, then connect the test leads in series with the circuit.
- 4.3.5. Turn on the power to the circuit, then read the reading on the display. The polarity of the red test lead connection will be indicated as well.



### 4.4. MEASURING RESISTANCE

- 4.4.1. Set the function switch to  position.
- 4.4.2. Set the range switch to the desired resistance measuring range position.
- 4.4.3. Connect the test leads across the object to be measured.
- 4.4.4. Read the reading on the display.



#### NOTE:

1. For measurements > 1M $\Omega$ , the meter may take a few seconds to stabilise a reading. This is normal for high resistance measurements.
2. When the test leads are in open circuit state, "1" will be displayed as an overrange indication.
3. Before measurement, disconnect all power to the circuit to be tested and discharge all capacitors thoroughly.

### 4.5. DIODE TEST


- 4.5.1. Set the function to the  position.
- 4.5.2. Set the range switch to the  position.
- 4.5.3. Connect the red test lead to the anode of the diode to be tested and the black lead to the cathode of the diode.
- 4.5.4. The display shows the approximate forward voltage drop of the diode. If the connection is reversed, "1" will be shown on the display.

### 4.6. CONTINUITY TEST

- 4.6.1. Set the function switch to the  position.
- 4.6.2. Set the range switch to the  position.
- 4.6.3. Connect the test leads across the circuit to be tested.
- 4.6.4. If the resistance is less than about 30 $\Omega$ , the built in buzzer will sound.

**NOTE** Before test, disconnect all power to the circuit to be tested and discharge all capacitors thoroughly.

## 5. MAINTENANCE

- 5.1. Periodically wipe the case with a damp cloth and mild detergent. **DO NOT** use abrasives or solvents.
- 5.2. **BATTERY AND FUSE REPLACEMENT**
  - 5.2.1. When the symbol "  " appears on the display, the batteries are low and must be replaced immediately. To replace the batteries remove the screws in the back cover and remove the back cover. Remove the batteries and replace with batteries of the same type (1.5V button cell LR44 or equivalent). Make sure the polarity connections are correct (see the indication on the bottom of each cell compartment). Reinstall the back cover and its screws.

The fuse rarely needs to be replaced and is blown as a result of operator's error. To replace the fuse, remove the back cover (see above) replace the fuse with one of the same rating. Reinstall the back cover and its screws.

This meter uses 250mA/250V, fast,  $\varnothing$ 5x20mm fuse.

- WARNING** Remove all leads from the circuit under test before opening the back cover.



#### Environmental Protection.

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycle centre and disposed of in a manner which is compatible with the environment.



#### WEEE Regulations.

Dispose of this product at the end of its working life in compliance with the EU Directive on Waste Electrical and Electronic Equipment. When the product is no longer required, it must be disposed of in an environmentally protective way. Contact your local solid waste authority for recycling information.

#### Battery Removal.



- WARNING!** To avoid electric shock, disconnect the test leads from any source of voltage before removing the battery door.  
Disconnect the test leads from the meter.  
Open the battery cover by loosening the two cover screws using a cross head screwdriver (see picture below and refer to 5.2.1. above).  
Replace the battery cover back in place. Secure with the screws.
- WARNING!** To avoid electric shock, do not operate the meter until the battery cover is in place and fastened securely.

**Dispose of batteries according to local authority guidelines.**

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), Jack Sealey Ltd's Batteries Producer Registration Number (BPRN) is BPRN00705.



**Battery/Fuse Cover Screws**

**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 will be required for any claim.

**INFORMATION:** For a copy of our latest catalogue and promotions call us on 01284 757525 and leave your full name and address, including postcode.



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