10-FUNCTION TOUCHSCREEN RECHARGABLE AUTO-RANGING DIGITAL SMART MULTIMETER

MODEL NO: **MM03**

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


Keep in dry area protect from rain


Caution before and during connection

1. SAFETY

1.1. GENERAL SAFETY

- ✓ Perform a risk assessment of tasks to be carried out before using the meter.
- ✓ Measurement category III is for the measurements performed on circuits directly connected to the low voltage installation. This meter has been designed according to IEC-61010-1 concerning electronic measuring instruments with an overvoltage category (CAT III 600V) and pollution degree 2.
- ✓ Please ensure that these guidelines are followed to guarantee the optimal performance and safety of our meter and the user.
- ✓ Follow all safety and operating instructions to ensure the meter is used safely and is kept in good condition. With proper use and care, your digital multimeter will give you years of satisfactory service.
- ✓ When using this multimeter, please observe all normal safety rules concerning protection against the dangers of electrical current, and 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 and/or those 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. **DO NOT** carry meter by the probes or their leads.
- × **DO NOT** remove back cover. This item does not contain any serviceable components.

1.2. SAFETY

- × **NEVER** exceed the protection limit indicated in the specifications for each range of measurement.
- × **NEVER** use the meter to measure voltages that might exceed 600V above earth ground in category III installations.
- ✓ Always be careful when working with voltages above 60V dc or 30V ac rms. Keep fingers behind the probe barriers while measuring.
- × **DO NOT** perform resistance measurements on live circuits.
- ✓ Inspect test leads and probes for cracks, breaks or crazes in the insulation before using the meter.
- ✓ Familiarise yourself with the application and limitations of the multimeter as well as the potential hazards.
- ✓ This meter is designed to be used outdoors in dry conditions in accordance with Overvoltage Category III and Pollution Degree 2.
- ✓ **IF IN ANY DOUBT CONSULT A QUALIFIED ELECTRICIAN.**
- ❑ **WARNING! USE EXTREME CAUTION WHEN WORKING WITH HIGH VOLTAGES.**
- × **DO NOT** position the equipment so it is difficult to disconnect the probes.
- ✓ When the meter is connected to a circuit, **DO NOT** touch unused meter terminals.
- ✓ When the magnitude of the value to be measured is unknown, set the range selector to the highest value available.
- ✓ Before commencing testing, follow instructions below and select the correct input sockets, function and range on the multimeter.
- ✓ Before changing functions, disconnect the test leads from the circuit under test.
- ✓ Take care when working with voltages above 35V DC or 25V AC RMS. These voltages are considered a shock hazard.
- ✓ Keep fingers behind the probe barriers whilst measuring.
- × **DO NOT** test voltages above 600V - the circuitry of the multimeter may be destroyed.
- ❑ **WARNING! NEVER** connect the multimeter to a voltage source / live circuit when the rotary switch is set to any other function apart from voltage testing.
- ❑ **WARNING! NEVER** perform resistance, transistor, diode or continuity measurements on live circuits.
- ✓ Always discharge filter capacitors in power supplies and disconnect the power when making resistance or diode tests.
- ❑ **WARNING!** Voltage checks on electrical outlets can be difficult and misleading because of the uncertainty of connection to the recessed electrical contacts. Other means should be used to ensure that the terminals are not “live”.
- × **DO NOT** use the multimeter in a potentially explosive atmosphere.
- × **DO NOT** operate the meter unless the back cover are in place and fastened securely.
- ✓ If any abnormal readings are observed, the multimeter must be checked out by an authorised technician.
- ✓ When not in use, store the multimeter carefully in a safe, dry, childproof location out of direct sunlight. Storage temperature range is -10 to 60°C (14°F to 140°F)
- ✓ 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. If there is a hot item or surface near the test area, ensure suitable PPE is used to protect body parts.
- ✓ **NOTE:** The warnings, cautions and instructions referred to in this manual cannot cover all possible conditions/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.
- ❑ **WARNING!**: When Low Battery symbol “  ” appears recharge immediately. Low battery can cause incorrect readings.

1.3. PROBE ASSEMBLY OPERATION

- ✓ If the probe assembly is used in a manner not specified by the manufacturer, the protection provided by the probe assembly may be impaired.
- ✓ The applicable measurement category of a combination of a probe assembly and an accessory is the lower of the measurement categories of the probe assembly and of the accessory.
- ✓ Inspect the probes for damage to ensure safe use.

2. INTRODUCTION

Large LCD touch screen. The intelligent multimeter automatically detects and selects the required test function, AC/DC, voltage/current, resistance and continuity. Features temperature measurement capability, data-hold and auto-power-off function. Non-contact voltage detection (NCVD) enables one-handed use. 6000 count high precision measurements. Live test feature can test for live feeds with a single probe. LED work light. Rechargeable, supplied with USB-C charging cable. Include probes and thermocouple probe. High impact case. Supplied in a storage case. Conforms to EN 61010-2 CATIII 600V safety requirements for electrical equipment for measurement, control and laboratory use.

3. SPECIFICATION

3.1. GENERAL SPECIFICATION

Model No.:	**MM03**	Conformity:	EN 61010-2
Fuse Rating:	10A	Duty Cycle:	No
Nett Weight:	0.317kg	Continuity Audible:	Yes
AC Voltage Accuracy):	Range: 6/60/600V, Resolution: 0.001/0.01/0.1V, Accuracy: =-(0.8% +5 digits)	Diode Test:	Yes
DC Voltage (Accuracy):	Range: 6/60/600V, Resolution: 0.001/0.01/0.1V, Accuracy: =-(0.8% +5 digits)	Backlit/Torch	Yes
AC Current (Accuracy):	Range: 6/10A, Resolution: 0.001/0.01A, Accuracy: =-(3% +10 digits)	Transistor Test:	No
DC Current (Accuracy):	Range: 6/10A, Resolution: 0.001/0.01A, Accuracy: =-(2.5% of reading +10 digits)	Hi-Impact Rubber Case:	Yes
Resistance (Accuracy):	Range: 600/6k/60/600k (Ohm), Resolution: 0.1/1/0.01k/0.1k (Ohm), Accuracy: =-(1.2% +3 digits)	Digits x Height:	4 x 23mm
Auto Range:	Yes	Low Battery Indicator:	Yes
Auto Scan:	V/R/CONT	Battery:	Rechargeable 3.7V Li-ion
Capacitance (Accuracy):	6nF/60nF/600nF/6µF/60µF/600µF/60mF	Information:	Data-Hold, Auto-Power-Off, Integral Stand & Live Test
Temperature (Accuracy):	Range: -200°C to 1200°C -328°F to 2192°F, Resolution: 1°C, Accuracy: =-(5/1/2% + 4/3/5 digits)	Size (L x W x D):	158 x 82 x 23mm
Frequency (Accuracy):	Range: 6/60/600Hz, 6/60/600kHz, 6MHz, Resolution: 0.001/0.01/0.1Hz, 0.001/0.01/0.1kHz, 1kHz, Accuracy: =-(0.1% +3 digits)	Nett Weight:	0.317kg

3.2. ACCURACY VALUES

NOTE: Reference Conditions: Ambient temperature 18°C to 28°C, relative humidity not exceeding 80%. Condensation to be avoided.
NOTE: Altitude to be less than 2000m

3.2.1. DC VOLTAGE

Range	Resolution	Accuracy
6V	0.001V	±(0.8% of reading + 5 digits)
60V	0.01V	
600V	0.1V	

Maximum Input Voltage: 600V DC RMS
Minimum Measurable Voltage: 0.75V DC
In smart mode, press the SEL key to switch to auto-ranging mode.

3.2.2. AC VOLTAGE

Range	Resolution	Accuracy
6V	0.001V	±(1.0% of reading + 5 digits)
60V	0.01V	
600V	0.1V	

Maximum Input Voltage: 600V AC RMS.
Minimum Measurable Voltage: 0.75V AC
Frequency Response: 50HZ-1KHZ True RMS
In smart mode, press the SEL key to switch to auto-ranging mode.

3.2.3. RESISTANCE

Range	Resolution	Accuracy
600Ω	0.1Ω	±(1.2% of reading + +3 digits)
6kΩ	1Ω	
60kΩ	0.01kΩ	
600kΩ	0.1kΩ	
6MΩ	0.001MΩ	±(2.0% of reading + 5 digits)
60MΩ	0.01MΩ	

Overload Protection: 250V DC/AC

3.2.4. CONTINUITY BUZZER

Function	Range	Resolution	Test Condition	
	100Ω	0.1Ω	Resistance not greater than 50Ω, the built-in buzzer sounds continuously	Open Circuit Voltage: About 3.9V

Overload Protection: 250V DC/AC

3.2.5. DC CURRENT

Range	Resolution	Accuracy
6A	0.001A	±(2.5% of reading + +10 digits)
10A	0.01A	

Overload Protection: 250V/10A fuse
Maximum Measuring Current: 10A

3.2.6. AC CURRENT

Range	Resolution	Accuracy
6A	0.001A	±(3.0% of reading + +10 digits)
10A	0.01A	

Overload Protection: 250V/10A fuse
Maximum Measuring Current: 10A

3.2.7. TEMPERATURE MEASUREMENT (K-TYPE PROBE)

Range	Resolution	Accuracy
-20°C~0°C	1°C	±(5.0% of reading + +4 digits)
1°C~400°C		±(1.0% of reading + +3 digits)
401°C~1000°C		±(2.0% of reading + 5 digits)
-4°F to 32°F	1°F	±(5.0% of reading + +8 digits)
33.8°F to 752°F		±(1.0% of reading + +6 digits)
753.8°F to 1832°F		±(2.0% of reading + +10 digits)

3.2.8. CAPACITANCE

Range	Resolution	Accuracy
6nF	0.001nF	±(4.5% of reading + 5 digits)
60nF	0.01nF	
600nF	0.1nF	
6µF	0.001µF	
60µF	0.01µF	
600µF	0.1µF	
60mF	0.001mF	

Overload Protection: 250V DC/AC

3.2.9. DIODE

Function	Resolution	Test Condition
	0.001V	Forward DC current: about 1mA; Open circuit voltage: about 3.9V. The display shows an approximate value of the diode's forward voltage drop.

Overload Protection: 250V DC/AC

3.2.10. FREQUENCY

Range	Resolution	Accuracy
6Hz	0.001Hz	±(0.1% of reading + +3 digits)
60Hz	0.01Hz	
600Hz	0.1Hz	
6kHz	0.001kHz	
60kHz	0.01kHz	
600kHz	0.1kHz	
6MHz	1kHz	

Input Sensitivity: 1.5V RMS; Overload Protection: 250V DC or AC peak (not exceeding 10 seconds) for frequency measurement

4. OPERATION

- **WARNING!**: When Low Battery symbol "  " appears, recharge immediately. Low battery can cause incorrect readings leading to electric shock or personal injury.

4.1. INSTRUMENT SYMBOLS AND CONTROLS

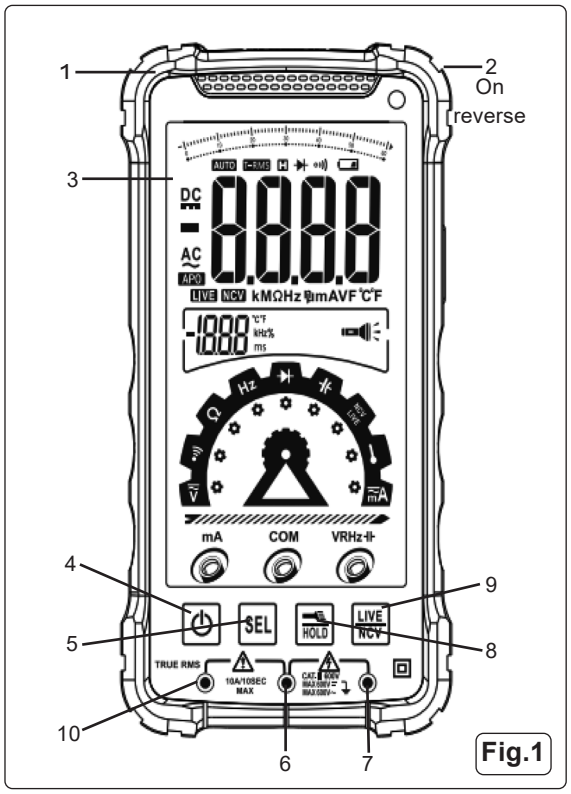

Fig.1

Item no.	Function
1	Non-contact voltage detection
2	Work light
3	Active Display
4	On/Off Button
5	SEL Button (Function Select and Switch Button)
6	COM Input Terminal
7	VRHZ-II - Red Probe Input Terminal
8	Data Hold and Work light
9	NCV and LIVE Button
10	Current Input Terminal

Symbol	Explanation
	Low battery indicator symbol indicates low battery level
APO	Auto power-off function indicator
	Negative input polarity indicator
	AC input indicator
	DC input indicator
	Meter in continuity test mode
AUTO	Indicates auto-ranging mode
H	Meter in data hold mode
NCV	Meter in non-contact AC voltage detection mode
LIVE	Meter in live wire function mode
	Meter in diode mode
Hz	Meter in frequency mode
	Meter in resistance mode
	Meter in capacitance mode
	Meter in current mode

4.2. READING HOLD MODE

NOTE: Reading Hold mode "HOLD" allows the current reading to be held on the display. Changing the measurement function position or pressing the button again can exit Reading Hold mode.

To enter and exit Reading Hold "HOLD" mode follow the following.

Briefly press the button, the reading will be held, and the hold symbol will simultaneously display on the LCD.

Pressing the "HOLD" button again will return the meter to normal measurement mode.

Press and hold the "HOLD" button to turn on the flashlight, and press and hold again to turn it off.

4.3. NCV MEASUREMENT AND LIVE WIRE (LIVE) MEASUREMENT

Press the "LIVE NCV" button to perform NCV measurements. Press the "LIVE NCV" button again to enter Live Wire (LIVE) measurement mode.

4.4. POWER ON/OFF FUNCTION

Press and hold the "⏻" button to turn on, defaulting to automatic measurement mode. Press and hold the "⏻" button again to turn off the meter.

4.5. AUTOMATIC MEASUREMENT MODE

NOTE: To prevent electric shock or damage to the meter, **DO NOT** measure voltages exceeding 600V DC or 600V AC.
Avoid applying more than 600V DC or 600V AC between the common terminal and earth to ensure safety and prevent meter damage.
NOTE: In automatic mode, the meter can measure AC/DC voltage, resistance, and continuity automatically.

4.5.1. Once powered on, the meter will switch to “Auto” measurement mode automatically.
4.5.2. Connect the black test lead to the COM input jack and the red test lead to the VRHZ-II- input jack.
4.5.3. Use the test leads to measure the voltage, resistance, or continuity across the circuit to be tested (in parallel with the circuit).
4.5.4. The LCD display will simultaneously show the measured voltage and resistance values. When measuring DC voltage, the display will also indicate the polarity of the voltage connected to the red probe. If the measured resistance is less than 50 ohms, the buzzer will sound an alarm.
4.5.5. **NOTE:** When measuring DC voltage below 0.75V or AC voltage below 0.75V, resistance values may be displayed since the minimum measurable voltage for this product is 0.75V.
4.5.6. For accurate low resistance measurements, first short-circuit the test leads to obtain the resistance value of the short-circuited leads, and then subtract this value from the measured resistance.
4.5.7. In the 60M range, it may take a few seconds for the readings to stabilize. This is normal for high resistance measurements.
4.5.8. If meter is open-circuited or the resistance value of the object being measured is too high, the display will show “OL,” indicating that the measurement value is out of range.

4.6. NCV TEST (NON-CONTACT VOLTAGE DETECTION)

4.6.1. Press the NCV button and bring the top of the meter close to a conductor. If the meter detects AC voltage, it will indicate the signal strength on the screen: low voltage as -, medium as --, high as ----. The buzzer will emit alarm sounds of different frequencies based on the detected signal strength.
NOTE: Voltage may still be present even if no indication is shown. **DO NOT** rely solely on the non-contact voltage detector to determine if a wire is live. The detection operation can be affected by factors such as outlet design, insulation thickness, and type.
4.6.2. When voltage is applied to the meter’s input terminals, the presence of induced voltage will also cause the buzzer to sound.
4.6.3. External sources of interference (such as flashlights, motors, etc.) may trigger false positives in non-contact voltage detection.

4.7. LIVE WIRE TEST (LIVE)

Press the NCV button twice, the screen displays LIVE. Insert the red probe into the VRHZ-II- terminal, and plug the red probe into the power socket. If the meter displays ---H, it indicates a live wire.

4.8. DIODE MEASUREMENT

4.8.1. After powering on, the meter will automatically switch to “Auto” automatic measurement mode. Press the SEL button toswitch to diode measurement mode.
4.8.2. Connect the black test lead to the COM input jack and the red test lead to the VRHZ-II- input jack.
4.8.3. Connect the black and red test leads to the two terminals of the diode being tested.
4.8.4. If the object being tested is a diode, place the red and black probes on the positive and negative terminals of the diode, respectively. The meter will display the forward bias voltage of the diode being tested. If the test leads are reversed or connected oppositely to the diode’s polarity, the meter will display “OL”. In a circuit, a normal diode should produce a forward voltage drop between 0.5V and 0.8V; however, the reverse bias reading will depend on the resistance changes in other channels between the two probes.

4.9. CAPACITANCE MEASUREMENT

❑ **WARNING!**: To avoid damage to the meter or the device under test, disconnect all power sources from the circuit being tested and fully discharge all high-voltage capacitors before measuring capacitance. Use the DC voltage range to ensure that the capacitors have been discharged.
× **DO NOT** measure any voltage higher than 250V DC or 250V AC RMS to prevent electric shock or damage to the meter.
4.9.1. After powering on, the meter will automatically switch to “Auto” automatic measurement mode. Press the SEL button to switch to capacitance measurement mode.
4.9.2. Connect the black test lead to the COM input jack and the red test lead to the VRHZ-II- input jack.

4.9.3. Use the test leads to measure the capacitance of the capacitor being tested and read the measurement value from the LCD display.
NOTE: When measuring large capacitances, stabilizing the reading takes some time and when measuring polarized capacitors, pay attention to the corresponding polarity to avoid damaging the meter.

4.10. FREQUENCY MEASUREMENT

4.10.1. After powering on, the meter will automatically switch to “Auto” automatic measurement mode. Press the SEL button to switch to Hz measurement mode.
4.10.2. Connect the black test lead and the red test lead to the COM input jack and the VRHZ-II- input jack, respectively.
4.10.3. Use the test leads to measure and read the measurement value from the LCD display.

4.11. TEMPERATURE MEASUREMENT

4.11.1. After powering on, the meter will automatically switch to “Auto” automatic measurement mode. Press the SEL button to switch to temperature measurement mode.
4.11.2. Connect the thermocouple’s black input end and the red test lead to the COM input jack and the VRHZ-II- input jack, respectively. The display will show the temperature value along with the Fahrenheit symbol.
4.11.3. Read the measurement value from the LCD display.

4.12. AC/DC CURRENT MEASUREMENT

4.12.1. After powering on, the meter will automatically switch to “Auto” automatic measurement mode. Press the SEL button to switch to the measurement mode, press again in the current mode to switch to AC current.
4.12.2. Connect the black input end and the red test lead to the COM input jack and the mA input jack, respectively, for measurement in series with the circuit.
4.12.3. Read the measurement value from the LCD display. When measuring DC current, the display will also show the current polarity connected to the red probe.

5. MAINTENANCE

NOTE: The meter contains NO serviceable parts. **DO NOT** remove rear cover.
5.1. If any abnormality is observed with the meter and the test leads, it should be discontinued from use immediately and sent for repair.
5.2. Ensure it is not used until it has been checked and found to be safe.
5.3. When servicing the meter test leads, use only specified replacement parts.
5.4. To avoid electric shock or damage to the meter or user, **DO NOT** get the inside of the meter wet. Before cleaning or storing the meter disconnect the test leads and any other connections.
5.5. Regularly clean the meter’s case using a damp cloth and mild detergent. Avoid using abrasives or solvents. If the input jacks are dirty or moist, they may impact readings.
5.6. To clean the input jacks, turn off the meter and unplug all test leads from the input jacks. Remove any dirt from the jacks.
5.7. Use a fresh cotton ball dampened with cleaner or lubricant to clean each jack. The lubricant prevents moisture-related contamination of the jacks.

6. END OF LIFE

6.1. When disposing of this item ensure you operate in accordance with local and national regulations. Also see and understand Footer information below.

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 (WEEE). 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.

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.

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.

REGISTER YOUR PURCHASE HERE

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