



6-FUNCTION AUTO-RANGING DIGITAL MULTIMETER

MODEL NO: **MM01**

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.
- ✓ 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.
- ✓ **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.
- ✓ 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, replace 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

Intelligent multimeter automatically detects and selects the required test function, AC/DC, voltage/current, resistance and continuity. Features data-hold, auto-power-off function, and a low battery indicator. Non-contact voltage detection (NCVD) enables one-handed use. 4000 Count high precision measurements. Easy-to-read LCD and LED worklight. Conforms to EN 61010-2 CATIII 600V safety requirements for electrical equipment for measurement, control and laboratory use.

3. SPECIFICATION

MODEL: MM01			
DC Voltage (Accuracy):	Range: 4/40/400/600V, Resolution: 0.001/0.01/0.01/1V, Accuracy: $\pm (1\% + 3 \text{ digits} / 1\% + 3 \text{ digits})$	Transistor Test:	NO
AC Voltage (Accuracy):	Range: 4/40/400/600V, Resolution: 0.001/0.01/0.01/1V, Accuracy $\pm(1.2\% + 5 \text{ digits} / 1.5\% + 10 \text{ digits})$	Hi-Impact Rubber Case:	YES
DC Current (Accuracy):	Range: 400mA, Resolution: 0.1mA, Accuracy: $\pm (1.2\% \text{ reading} + 3 \text{ digits})$	Digits x Height:	4 x 16mm
AC Current (Accuracy):	Range: 400mA, Resolution: 0.1mA, Accuracy: $\pm(1.5\% + 3 \text{ digits})$	Low Battery Indicator:	YES
Resistance (Accuracy):	4K Ω /40K Ω /400K Ω (Ohm), Resolution: 0.001/0.01/0.1 (Ohm), Accuracy: $\pm(1.2\% + 5 \text{ digits})$	Battery:	2 x 1.5V AAA (supplied)
Resistance (Accuracy):	Range: 4M Ω /40M Ω (Ohm), Resolution: 0.001M/0.01M (Ohm), Accuracy: $\pm(2\% + 5 \text{ digits})$	Information:	Data-Hold, Auto-Power-Off & Live Test
Temperature (Accuracy):	NO	Size (L x W x D):	142 x 92 x 38mm
Capacitance (Accuracy):	NO	Nett Weight:	0.156kg
Duty Cycle:	NO	Conformity:	EN 61010-2
Continuity:	YES		
Diode Test:	NO		
Backlit/Torch:	YES		

3.1. ENVIRONMENTAL CONDITIONS FOR USE

- 3.1.1. 600V CAT III, Pollution level: 2, Altitude <2000m
- 3.1.2. Working environment temperature and humidity: 0-40°C (<80% RH, not considered when <10°C).
- 3.1.3.; Storage environment temperature and humidity: -10-50°C (<70% RH, remove the battery).
- 3.1.4. Temperature coefficient: 0.1 accuracy/°C (<18°C or >28°C).
- 3.1.5. Measure the maximum allowable voltage between the ground: 600V DC or 600V AC RMS.
- 3.1.6. Conversion rate: circa 3 times/second.
- 3.1.7. Display: 3000 Counts LCD display, automatically displaying unit symbols according to measurement function gear.
- 3.1.8. Over range indication: The LCD will display "OL".
- 3.1.9. Low battery voltage indication: When battery voltage is lower than normal operating voltage, "🔋" will be displayed.
- 3.1.10. Input polarity indication: Automatically displays "-" symbol.

3.2. ACCURACY INDEX

- 3.2.1. Accuracy: + - (a% reading + digits).
- 3.2.2. Reference conditions: ambient temperature 18°C to 28°C, relative humidity not greater 80.

3.3. DC VOLTAGE

- 3.3.1. Input impedance: 10M Ω .
- 3.3.2. Maximum input voltage: 600V DC or 600V AC effective value.
- 3.3.3. Minimum measured voltage: 0.5V DC or 1V AC.
- 3.3.4. Frequency response: 50Hz - 60Hz True RMS.

Range	Resolution ratio	Accuracy
4V	0.001V	$\pm (0.8\% \text{ reading} + 3 \text{ Digits})$
40V	0.01V	
400V	0.1V	
600V	1V	$\pm (1.0\% \text{ reading} + 3 \text{ Digits})$

3.4. ALTERNATING VOLTAGE

- 3.4.1. Input impedance: 10MΩ
- 3.4.2. Maximum input voltage: 600V DC or 600V AC effective value.
- 3.4.3. Maximum measured voltage: 0.5V DC OR 1V AC.
- 3.4.4. Frequency response: 50HZ - 60HZ True RMS.

Range	Resolution ratio	Accuracy
4V	0.001V	± (1.2% reading+5 Digits)
40V	0.01V	
400V	0.1V	
600V	1V	± (1.5% reading+10 digits)

Digits)
 Digits)
 Digits)
 Digits)

3.5. RESISTANCE

- 3.5.1. Overload protection: 250V DC/AC

Range	Resolution ratio	Accuracy
4K	0.001KΩ	± (1.2% reading+ 5 digits)
40KΩ	0.01KΩ	
400KΩ	0.1KΩ	
4MΩ	0.001MΩ	
40MΩ	0.01MΩ	± (2.0% reading+5 digits)

3.6. DC CURRENT

- 3.6.1. Overload protection: 250V/400mA safety tube.
- 3.6.2. Minimum measurement current: 0.5mA.

Range	Resolution ratio	Accuracy
400mA	0.1mA	± (1.2% reading+ 3 digits)

3.7. AC CURRENT

- 3.7.1. Overload protection; 250V/400mA safety tube.
- 3.7.2. Minimum measurement current: 0.5mA

Range	Resolution ratio	Accuracy
400mA	0.1mA	± (1.5% reading+ 3 digits)

3.8. BUZZER ON/OFF

- 3.8.1. Overload protection: 250V DC/AC

Function	Range	Resolution ratio	Test conditions	
	100Ω	1Ω	The resistance shall not be greater than 500, and the built-in buzzer shall continuously emit sound.	Open circuit voltage: about 1V

4. OPERATION

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

4.1. INSTRUMENT SYMBOLS AND CONTROLS

Item no.	Function
1	Non-contact voltage detection
2	Work light
3	Active Display
4	Torch and NCV button
5	On/Off and function selection.
6	Lock data and screen backlight
7	Current input terminal
8	COM input
9	V input terminal

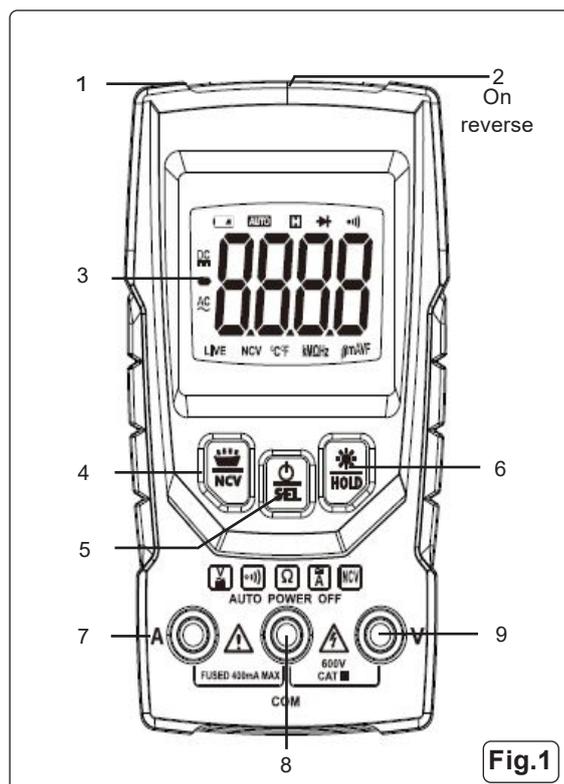


Fig.1

Key	Function Description
 SEL	Switch on/off and function switching button
 HOLD	Data Hold and Backlight Buttons
 NCV	NCV and flashlight buttons

Character	Illustration
	Battery under voltage indicator/low battery power. ⚠ To avoid electric shock or personal injury caused by incorrect readings, the battery should be replaced as soon as possible when the low voltage symbol appears.
	Automatic shutdown function indication
	Negative input polarity indication
	AC input indication
	DC input indication
	The instrument is in on-off test mode
	Indicates automatic range mode
	The instrument is in data hold mode
	The instrument is in non-contact AC voltage detection mode
	The instrument is in the live line voltage detection mode
	The instrument is in temperature detection mode
	The instrument is in resistance detection mode
	The instrument is in capacitive detection mode
	The instrument is in frequency detection mode
	The instrument is in current detection mode

4.2. AUTOMATIC MEASUREMENT MODE

- * **DO NOT** measure any voltage higher than the effective value of 600V DC or 600V AC to prevent electric shock or damage to the instrument.
 - * **DO NOT** apply a voltage exceeding the effective value of 600V DC or 600V AC between the common terminal and the ground to prevent electric shock or damage to the instrument.
- 4.2.1. In automatic mode device can automatically measure AC/DC voltage, resistance and ON/OFF.
 - 4.2.2. On start up, the unit sets to automatic measurement mode.
 - 4.2.3. Connect the black test pen to the COM input socket and the red test pen to the V input socket.
 - 4.2.4. Use a probe to measure the voltage, resistance and short circuit point of the circuit to be tested at both ends (in parallel with the circuit to be tested).
 - 4.2.5. At this time the LCD display will simultaneously display the corresponding measured voltage and resistance values. When measuring DC voltage, the display will simultaneously display the voltage polarity connected to the red probe.

4.3. MANUAL MEASUREMENT MODE

- 4.3.1. On start up, the unit sets to automatic measurement mode.
- 4.3.2. Press SEL button to switch between DC voltage, AC voltage, resistance, ON/OFF, DC current and AC current.
- 4.3.3. When measuring DC voltage less than 0.5V, AC voltage less than 1V, the displayed resistance value may appear because the minimum measured DC voltage of the unit is 0.5V and minimum AC voltage is 1V.
- 4.3.4. When measuring a low current circuit, in order to measure accurately, first short circuit both probes and record the resistance of the short circuit. After measuring the circuit resistance subtract the short circuit resistance value.
- 4.3.5. When measuring a high resistant circuit it will take several seconds for the reading to stabilise. This is normal with high resistance measurements.
- 4.3.6. When the unit is open circuit or the resistance value being read is too large, the display will show "OL" indicating the value measured is out of range.

4.4. NCV TEST (NON-CONTACT VOLTAGE DETECTION)

- 4.4.1. Briefly press the NCV key and then place the top of the unit (see fig.1.1 for location) close to the conductor. If AC voltage is sensed the unit will display detected signal strength and a buzzer will sound an alarm.
- WARNING!** Even if no indication is given, voltage may be present.
 - * **DO NOT** rely on non-contact voltage detectors to determine if electricity or voltage is present. Detection can be affected by factors such as socket design, insulation thickness and type.
- NOTE:** When a voltage is input, the buzzer will sound to indicate the presence of an induced voltage.
- NOTE:** External sources of interference such as motors, flash lamps etc. may suppress a non-contact voltage detection.

5. MAINTENANCE

NOTE: There are no user serviceable components in the unit other than the batteries. To remove/ replace the batteries, ensure the unit is turned off and probes removed. Use a screwdriver to remove the battery cover (on rear face). Remove / replace the batteries, refit the cover and ensure it is securely in place.

- 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.



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