# Lexman LX-M-2000 Auto Calibration Digital Multimeter User Guide



Contents



## Lexman LX-M-2000 Auto Calibration Digital Multimeter

## Product Information

- **Product Name:** Multimetro digitale auto-ranging
- **LX-M-2000 Origin:** Made in CHINA
- **Dimensions:** 155mmx76.5mmx49mm
- **Weight:** 255g (with batteries)
- **Compatible Probes:** LX-M-1000-01

## Product Usage Instructions:

1. **Battery Installation:**
    - Open the back cover by loosening the two screws.
    - Insert two AAA 1.5V batteries according to the polarity markings.
    - Close the back cover and tighten the screws.
2. **General Maintenance:**
    - Maintenance and servicing should be performed by qualified professionals or designated departments.
3. **Replacing the Fuse:**
    - To replace the fuse, loosen the two screws on the back cover and remove the cover.
    - Locate the fuse(s) F1 and F2 and replace them with the specified models (F1: 6x32mm F 600mA H 600V, F2: 6x25mm or 6x32mm F 10A H 600V).
    - Replace the back cover and tighten the screws.
4. **Measurement of AC/DC Voltage:**
    - Connect the black test lead to the COM input and the red test lead to the VΩmA input.
    - Set the function dial to the desired voltage range (e.g., 600.0mV, 6.000V, etc.).
    - Touch the test leads to the circuit or component you want to measure.
    - Read the voltage value displayed on the LCD screen.

5. **Current Measurement:**
    - For DC current measurement, move the function dial to the desired current range (e.g., 600.0mA, 6A, etc.).
    - Connect the black test lead to the COM input and the red test lead to the 10A input.
    - Touch the test leads to the circuit or component you want to measure.
    - Read the current value displayed on the LCD screen.
6. **Temperature Measurement:**
    - Connect the temperature probe (thermocouple K) to the temperature input.
    - Set the function dial to the temperature range.
    - Place the temperature probe on the object you want to measure.
    - Read the temperature value displayed on the LCD screen.

**Note:** Please refer to the user manual for detailed instructions and safety precautions.
For any further assistance or inquiries, please contact our customer support.

## Introduction

LX-M-2000 is a palm sized multimeter with automatic calibration. This CE certified multimeter is CAT III 600V which can withstand 6000kV surge voltage. The LX-M-2000 is designed with high voltage warning and over range alarm, making this series great for a wide range of measurement needs.

**Features**
Smart appearance with comfy handle.
**Pass 2-meter drop test.**
Large LCD screen with 6000 counts display, true RMS measurement, fast ADC digital converter (3 times/s).
**Overload protection with alert.**
Extensive range for capacitance measurement, short response time. E.g. When measuring 10mF, response time 6s.
**Support NCV, frequency (LX-M-2000).**
Support up to 600V/10A AC/DC current and voltage measurement. Backlight installed for dim occasions.

**Energy saving.**
Open box inspection

Open the package box and take out of the device. Please check whether the following items are deficient or damaged and contact your supplier immediately if they are.

- User manual …….. 1 pc
- Test leads …… 1 pc
- K-type thermocouple ….. 1 pc

## Safety instructions

### Safety standards

- CE, EN 61326-1 : 2021; EN 61326-2-2: 2021
- EN 61010-1:2010/A1 : 2019 ;EN IEC 61010-2-033;2021/A11:2021
- CAT III 600V, double insulation standard, over voltage standard, over voltage standard, and RoHS, pollution

grade II.

## Safety instructions

1. Do not use the device if the rear covered up or it will pose a shock hazard.
2. Do not use the device if the device or test leads appear damaged or if you suspect that the device is not operating properly. Pay particular attention to the insulation layers.
3. During measurement, keep your fingers behind the finger guard. Do not input over 600V voltage between the device and the grounding.
4. Use caution to measure voltage DC 60V or AC 30Vms.
5. Never input voltage and current exceeding yhe value listed on the device.
6. Functional dial should be switched to proper position.
7. Do not switch the functional dial during measuring.
8. Do not change the internal circuit of the device in order to avoid the damage to the device a,d users.
9. Replace the fuse with the specified model.
10. To avoid false reading, replace the battery when the battery indicator appears.
11. Do not use or store the device in high temperature, high humidity, flammable, explosive or strong magnetic field environments.
12. Use damp cloth to clean the case; do not use detergent containing solvents or abradants.
13. Before each use verify meter operation by measuring a known voltage or current. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

**Symbols**

| Symbol | Description |
|---|---|
|  | Low battery |
|  | Caution, possibility of electric shock |
| ~ | Alternating current |
|  | Direct current |
|  | Double insulation |
|  | Grounding |
|  | Warning |
|  | Comply with European Union Standards |
| **CAT III** | It is applicable to test and measuring circuits connected to the distribution part of the building' s low-voltage MAINS installation |

## GENERAL SPECIFICATIONS

1. Max voltage between input terminal and earth grounding : 600Vrms.
2. Fuse type : 10A Jack : F 10A H 600V Fuse 6x25mm (or 6x32mm)Φ Φ . mA/ Φ
3. Display count : 6000 overload indication : OL, refresh 3 times/s. Others :
4. Range : Auto
5. Backlight : Manual, shutdown after 30s.
6. Polarity : – for negative pole
7. Data hold indication : **H**
8. Low power indication :
9. Operating temperature : 0°C 40°C (32°F 104°F )
   Storage temperature : -10°C 50°C (14°F 122°F)
   Relative humidity : 75% at 0°C 30°C; 50% at 30°C 40°C.
10. Operating altitude : 0 2000m
11. Battery type : AAA 1.5Vx2
    Dimension : 155mmx76.5mmx49mm
12. Weight 255g (with batteries)
13. Electromagnetic compatibility : RF 1V/m, overall accuracy = specified accuracy + 5% of range

### STRUCTURE (SEE FIGURE 1)

Figure 1


### Buttons

- **SELECT** : cycle switch the functions through AC/DC mV range, frequency, resistance/diode/continuity, °C/°F.
- **REL** : the voltage, current and capacitance mode, press this button to remove the base.
- **HOLD/LIGHT** : press the button once to hold the reading. Press thid button for 2 seconds to turn on/off the backlight.

### Operation instructions

To avoid false reading, replace the battery if the battery low power symbol appears.
Also pay special attention to the warning sign besides the test lead housing, indicating that the tested voltage or current must not exceed the value listed on the device.

1. AC/DC voltage measurement (see figure 2)

**Switch the dial to ACV position**

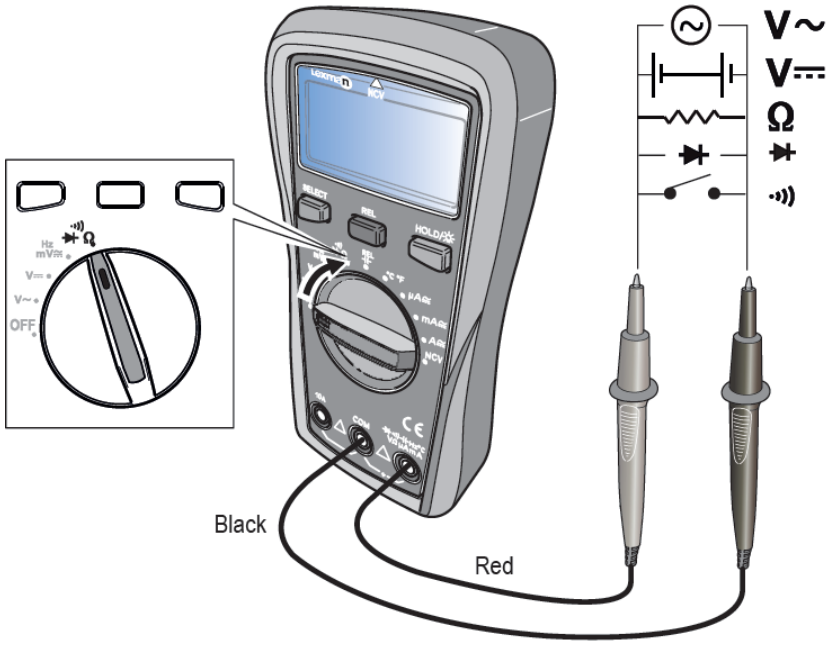
- Insert the red test lead to V mA jack, black to COM jack. Connect test leads with the load in parallel.
- At mV position, press SELECT to enter frequency measurement (10Hz 1MHz) Reading is displayed.

**Warning** : Do not input voltage over 600Vrms, or it may pose shock hazard Be cautious when measuring high voltage

**Note** :

- Before using the device, if the voltage is unknown, switch the dial to the maximum range position and reduce the range according to the practical reading.
- Test a known voltage to verify the device.
- When input impedance about 10M ,there may be errors when measurement high voltage. Input impedance 10k , measurement errors can be ignored ( 0.1%).

**Figure 2**




**Resistance measurement**

- Switch the dial to resistance position.
- Insert the red test lead to V mA jack, black to COM jack.
- Connect test leads with the load in parallel.
- Reading is displayed.

**Note** :

- If the resistor is open or over the range, the «OL» symbol will be displayed on the screen.
- Before measuring resistance, switch off the power supply of the circuit, and fully discharge all capacitors.
- When measuring low resistance, the test leads will produce 0.1 0.2 measurement error. To obtain accurate measurement, short the test leads and use REL function.
- If the resistance when shorted is more than 0.5 , please check if test leads are loosened or damaged.
- Resistance measurement can be used to inspect device's internal fuses (see figure 4b).
- Do not input over 600V between the device and the grounding.

**Continuity measurement (see figure 2)**

1. Switch the dial to continuity position
2. Insert the red test lead to V mA jack, black to COM jack. Connect test leads with the load in parallel.
3. Reading is displayed. Measurement resistance 51
4. circuit is open status. Measurement resistance 10 , circuit is in good conduction status, buzzer will go off.

**Warnings** :
Switch off the power supply to the circuit, and fully discharge all capacitors.

**Diode measurement (see figure 2)**

- Switch the dial to diode position.
- Insert the red test lead to V mA jack, black to COM jack.
- Red test lead to positive pole, black to negative pole.
- Reading is displayed.
- «OL» symbol appears when the diode is open polarity is reserved. For silicon PN junction, normal value : 500 800mV (0.5 0.8).

**Notes** :
Switch off the power supply to the circuit, and fully discharge all capacitors. Voltage for testing diode is about 4.0V/1.5mA.

**Capacitance measurement (see figure 3)**

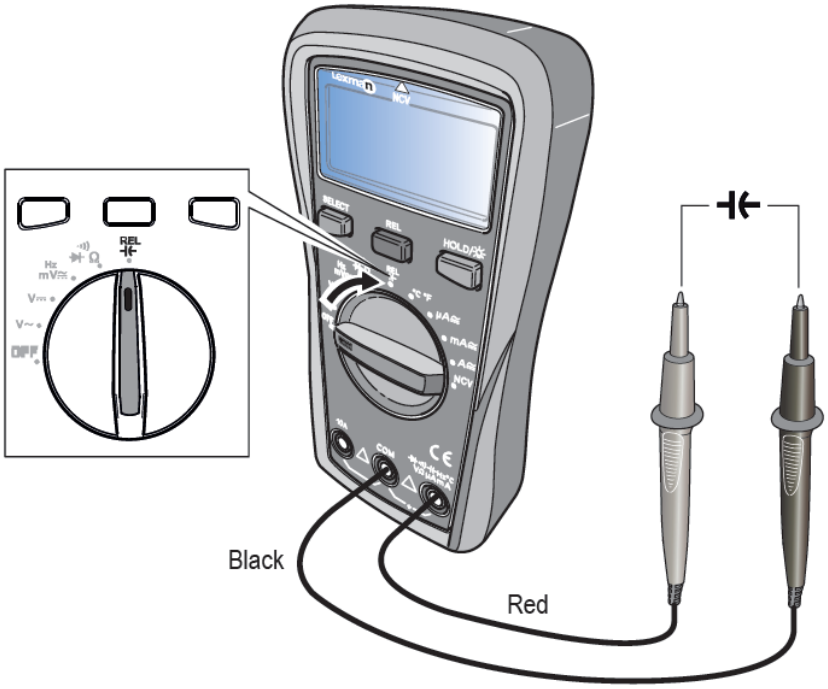
1. Switch the dial to capacitance measurement.
2. Insert the red test lead to V mA jack, black to COM jack. Red test lead to positive pole, black to negative pole.

**Notes** :

- Switch off the power supply to the circuit, and fully discharge all capacitors.
- Before measuring capacitors (especially for high voltage capacitors), please fully discharge them.
- If the tested capacitors is shorted or its capacity is over the specified range «OL» symbol will be displayed on the screen.
- When measuring large capacitors, it may take a few seconds to obtain steady readings.

- When there is no input, the device displays a fixed value (intrinsic capacitance).
- For small capacitance measurement, to ensure measurement accuracy, the measured value must be subtracted from intrinsic capacitance. Or users can measure small capacity capacitors with relative measurement function (REL) (the device will automatically subtrack the intrinsic capacitance).

Figure 3



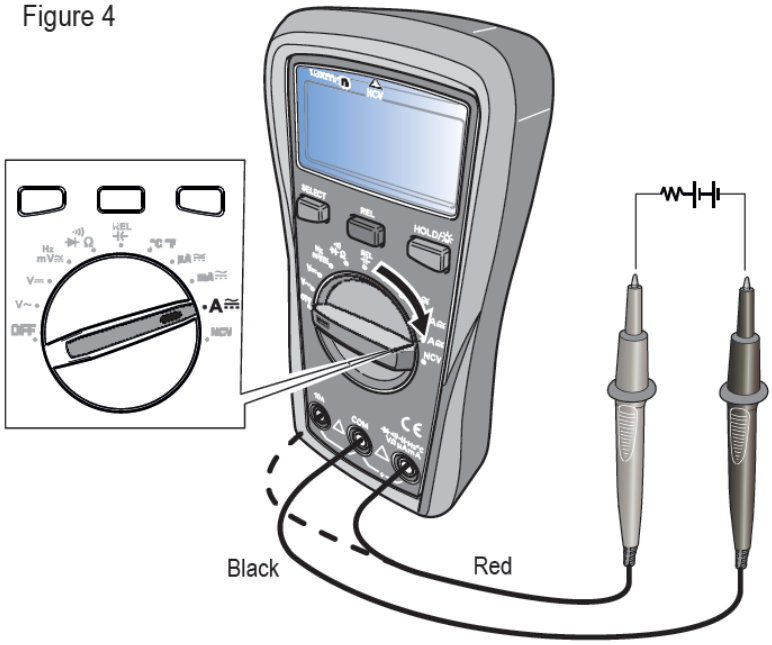

**AC/DC current measurement**

1. Switch the dial to AC/DC current position.
2. According to the current being measured. Insert the red test lead to V mA jack or 10A jack, black to COM jack.
3. Connect test leads with the circuit in series.
4. Reading is displayed.

**Notes** :

- Before measuring, switch off the power supply of the circuit.
- If the range of the measured current is unknown, select the maximum range and then accordingly reduce.
- There are fuses inside V mA jack and jack. Do not connect the test leads with any circuits in parallel.
- If the tested current is about 10A, each measurement time is about 10 seconds (less than 30s) and the next test should be after 15 minutes.

Figure 4



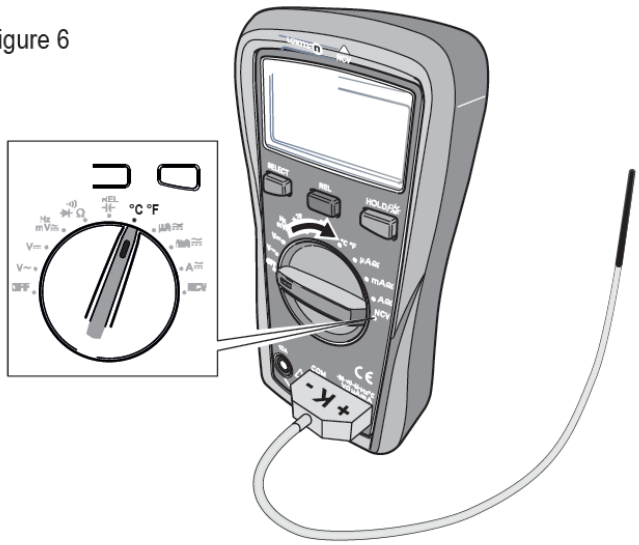

## Temperature measurement

1. Switch the dial to battery position.
2. insert K-type thermocouple to the device and place the test probes on the object under measurement.
3. Reading is displayed.

**Note** :

- Only K-type thermocouple is applicable.
- The measured temperature should be less than 250°C/482°F (°F = °C* 1.8+32).
- Turn on the device, after «OL» symbol appears, insert K-thermocouple into the device.

Figure 6



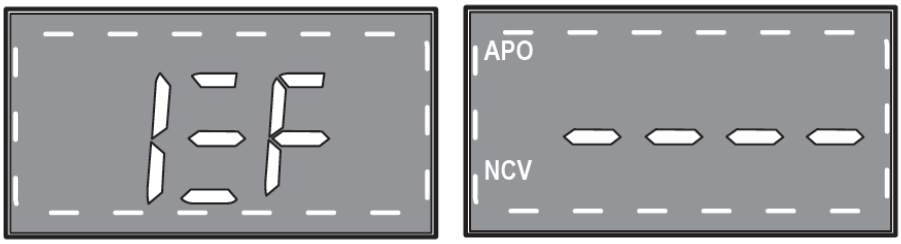
## NCV

Switch the dial to NCV position.
Place the device near the measured object. «-»symbol indicates the intensity of the electric field. More «—» and the higher the buzzer frequency, the higher the electric field intensity.

Figure 7


**Intensity of electric field.**

- « EF » : 0~50mV
- ”-”:50-100mV
- ”-”:100-150mV
- ‘’—’’:150-200mV
- ‘’—”:> 200mV




## Specifications techniques

- Accuracy: ± (% of reading + numerical value in least significant digit slot), 1 year warranty.
- Ambient temperature : 23°C + 5°C (73.4F ± 9°F).
- Ambient humidity : ≤ 75% RH

**Note** :
To ensure accuracy, operating temperature should be within 18°C – 28°C.
Temperature coefficient – 0.1* (specified accuracy)/°C (< 18°C or >28°C)

**DC voltage**

| Range<br>Position | Resolution | Accuracy |
|---|---|---|
| 600.0mV | 0.1mV | ±(0.7%+3) |
| 6.000V/6000mV | 0.001V/1mV | ±(0.5%+2) |
| 60.00V | 0.01V | ±(0.8%+1) |
| 600.0V | 0.1V | ±(0.7%+3) |

Input impedance : About 10M Ω
Results might be unstable at mV range when no load is connected. the value becomes stable once the load is connected. Least significant digit ≤ ±3.
Max input voltage : ± 600V, when the voltage ≥ 610V, «OL» symbol appears and the buzzer goes off.
Overload protection : 600Vrms (AC/DC)..

**AC voltage**

| Range<br>Position | Résolution | Accuracy |
|---|---|---|
| 600.0mV | 0.1mV | ±(1.0%+2) |
| 6.000V | 0.001V/1mV | ±(0.7%+3) |
| 60.00V | 0.01V | ±(1.0%+2) |
| 600.0V | 0.1V | ±(1.2%+3) |
| 10Hz 1MHz | 0.01VHz/0.001MHz | ±(0.1%+5) |

Input impedance : About 10MΩ
Display sine wave true RMS. Frequency response : 40Hz -400Hz. Max input voltage : 600Vrms. when the voltage ≥ 610V, «OL» symbol appears and the buzzer goes off
Overload protection : 600Vrms (AC/DC)
Frequency sensitivity about 300mV.

**Resistance measurement**

| Range<br>Position | Resolution | Accuracy |
|---|---|---|
| 600.0 | 0.1 | ±(1.0%+2) |
| 6.000k /6000 | 0.1k /1 | ±(0.8%+2) |
| 60.00k | 0.01k | ±(0.8%+2) |
| 600.0k | 0.1k | ±(0.8%+2) |
| 60.00M | 0.01M | ±(2.0%+5) |

Measurement result = reading of resistor – reading of shorted test leads overload protection : 600Vrms.

**Continuity, Diode**

| Position | Resolution | Remark |
|---|---|---|
|  | 0.1 | **Set value**<br>Open circuit : resistance >50Ω, no beep. Well-connected circuit : resis tance ≤ 10Ω continuous beeps. |
|  | 0.001V | Open circuit voltage : 4V, test current: about 1.5mA<br>Open circuit voltage : 2.1V, test current: about 1mA.<br>Silicon PN junction voltage : 0.5 -0.8V. |

Overload protection : 600Vrms.

**Capacitance**

| RAnge | Resolution | Accuracy |
|---|---|---|
| 9.999nF | 0.001nF | Mode REL : ±(4%+10) |
| 99.99nF | 0.01nF | ±(4%+5) |
| 999.9nF | 0.1nF | ±(4%+5) |
| 9.999μF | 0.001μF | ±(4%+5) |
| 99.99μF | 0.01μF | ±(4%+5) |
| 999.9μF | 0.1μF | ±(4%+5) |
| 9.999MF | 0.001MF | ±10% |

- Overload protection : 600V-PTC
- Test capacitance 200nF, adapt REL mode.

**Temperature**

| Range | | | Resolution | Accuracy |
|---|---|---|---|---|
| °C | -40 1000°C | -40 40° | 1°C | ±4% °C |
| | | -40 500°C | | ±(1.0%+4) |
| | | 500 1000°C | | ±(2.0%+4) |
| °F | -40 1832°F | -40 104°F | 1°F | ±5% °F |
| | | 104 932°F | | ±(1.5%+5) |
| | | 932 1832°F | | ±(2.5%+5) |

- Overload protection : 600V.
- K-Type thermocouple is only applicable for temperature less than 250°C/482°F.

**DC Current**

| Range<br>Position | Resolution | Accuracy |
|---|---|---|
| 600.0μA | 0.1μA | ±(1.0%+3) |
| 6000μA | 1μA | ±(1.0%+3) |
| 60.00mA | 0.01mA | ±(1.0%+3) |
| 600.0mA | 0.1mA | ±(1.0%+3) |
| 6A | 0.001A | ±(1.2%+5) |
| 10.00A | 0.01A | ±(1.2%+5) |

- Overload protection : 600Vrms.
- μ A mA range : F1 Fuse Φ 6x32mm F 600mA H 600V.
- Φ10A range : F2 Fuse 6x25mm (or 6x32mm) F 10A H 600VΦ .
- Input current 10A, buzzer goes off; input current 10.10A «OL» symbol appears.

**AC Current**

| Range<br>Position | Resolution | Accuracy |
|---|---|---|
| 600.0µA | 0.1µA | ±(1.2%+3) |
| 6000µA | 1µA | |
| 60.00mA | 0.01mA | |
| 600.0mA | 0.1mA | |
| 6A | 0.001A | ±(1.5%+5) |
| 10.00A | 0.01A | |

- Frequency response : 40 400Hz.
- Display : true RMS.
- Accuracy guarantee range : 5-100% of the range, shorted circuit allows least significant digit 2.
- Input current 10A, buzzer goes off; input current 10.10A «OL» symbol appears.
- Overload protection : (similar to DC current).

**Maintenance**

Warnings :
To avoid electric shock, make sure the probes are disconnected from the measured circuit before removing the rear cover.
Make sure the rear cover is tightly screwed before using the instrument.

**General maintenance**

- Clean the case with a damp cloth and detergent. Do not use abradants or solvents.
- If there is any malfunction, stop using the device and send it to maintenance.
- The maintenance and service must be implemented by qualified professionals or designated departments.

## Replacements

**Battery replacement :**
The avoid false reading, replace the battery when the battery indicator appears.

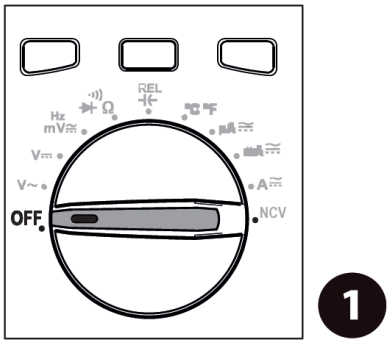
- Battery specification : AAA 1.5V x 2.

Switch the dial to «OFF» position and remove the test leads from the input terminal.
Take off the protective case. Loosen the screw on battery cover; remove the cover to replace the batterie. Please identify the positive  and negative pole.

**Fuse replacement (this replacement must be done by a professional worker) :**
Switch the dial to «OFF» position and remove the test leads from the input terminal.
Loosen both screws on the rear cover, and then remove the rear cover to replace the fuse.

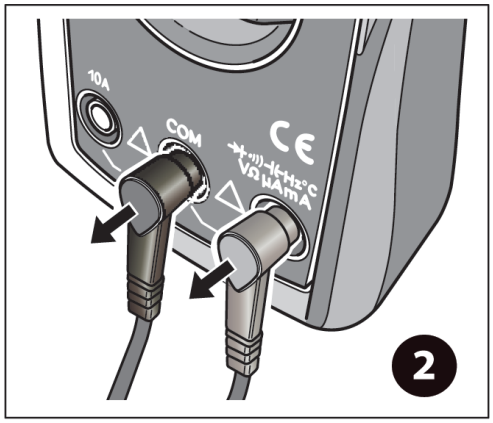
**Fuse specification :**

- F1 Fuse 6x32mm F 600mA H 600V.
- F2 Fuse 6x25mm (or 6x32mm) F 10A H 600V.




1

Position OFF

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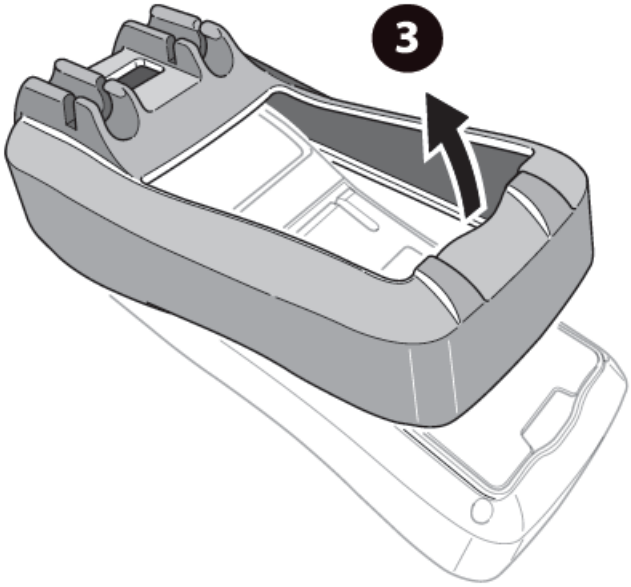

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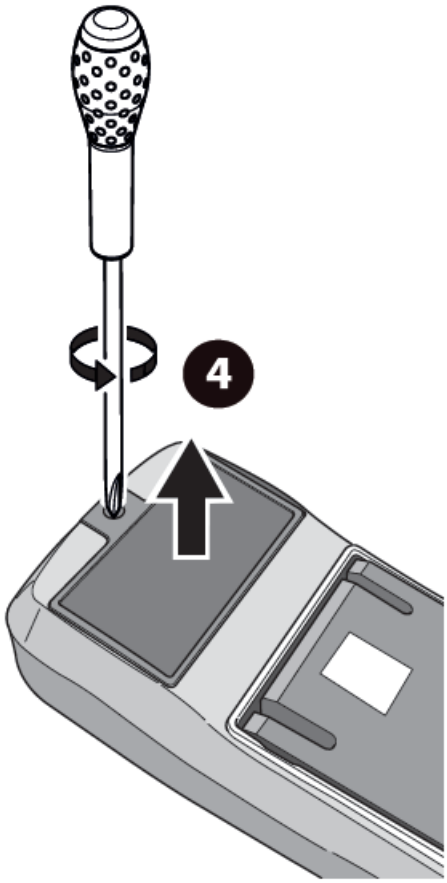
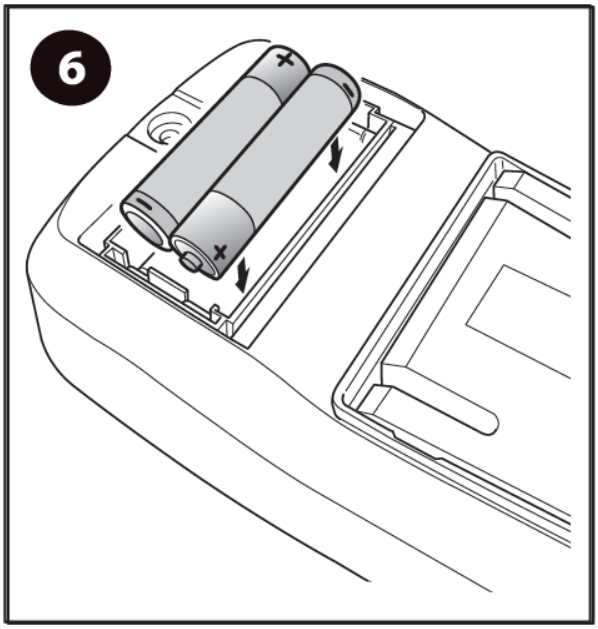
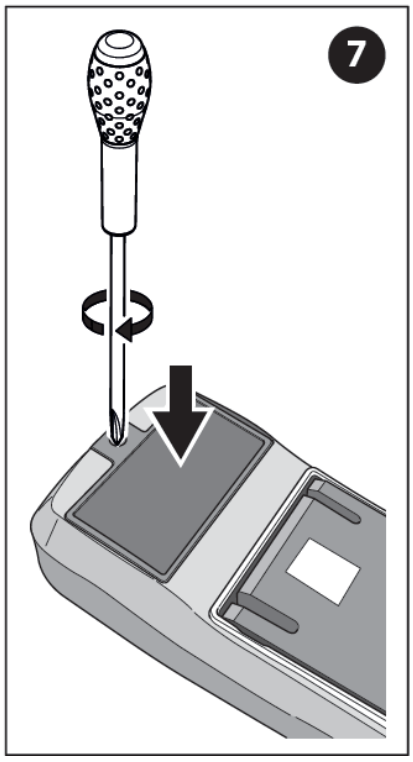
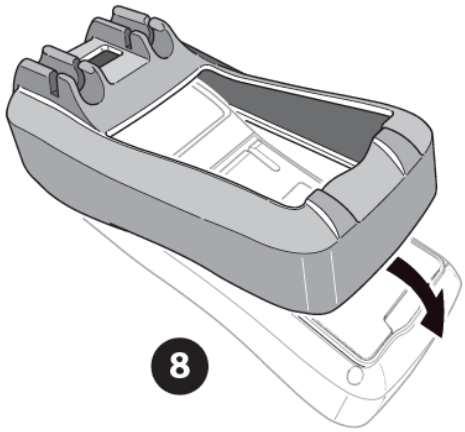


4


The probe replacement LEXMAN LX-M-1000-01 If insulation on probe is damaged, replace it.

**Warnings** :
If the test leads need to be replaced, you must use a new one which should meet EN 61010-031 standard, rated CAT III 600V, 10A or better.

## About probes

**Introduction**
The LX-M-1000-01 probes are compatible with the following Lexman products: LX-M-2000, LX-M-1000, LX-M-2100, LX-M-1000-02.

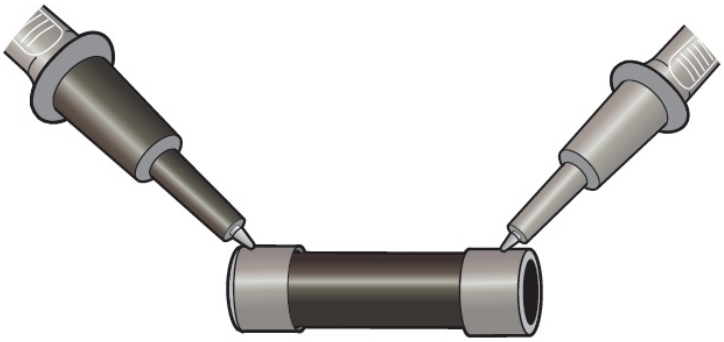
**Symbols**

| Symbol | Description |
|---|---|
|  | Warning |
|  | Double insulation |
|  | Comply with European Union Standards |

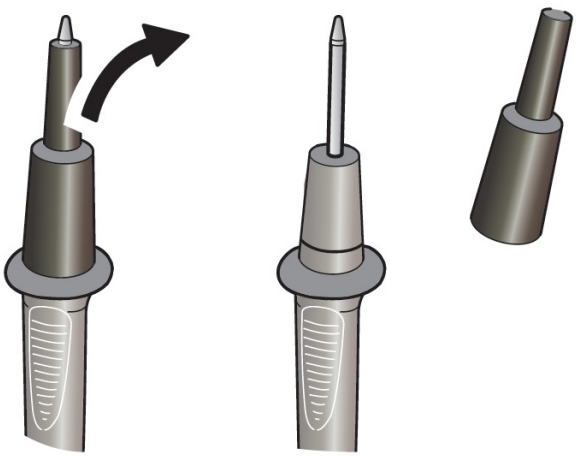
## GENERAL SPECIFICATIONS

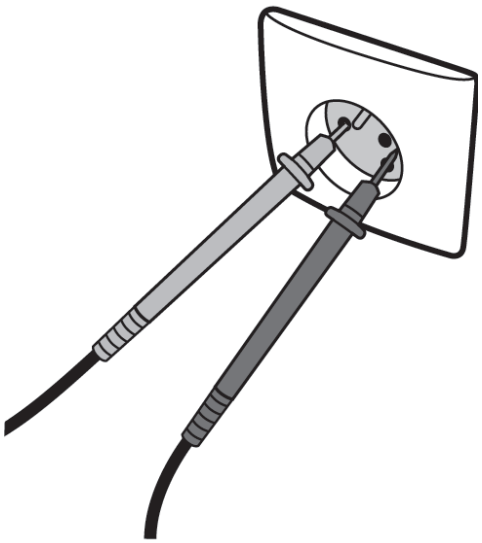
| | |
|---|---|
| Model | LX-M-1000-01 |
| AC/DC current | 10A |
| Electrical safety | CAT II 1000V CAT III 1000V CAT IV 600 V |

**Operating instructions**
For example, to check the continuity of a fuse, plug the black probe on the COM port and the red probe on the ” ” port of the multimeter. Then follow the instructions of your multimeter to select the correct setting for the continuity test.



**Warning** :
The probes are equipped with plastic caps to guarantee the highest level of security to the user during operations (CAT III/ CAT IV). These caps can be removed to allow deeper penetration of the probes if needed (sockets voltage tests for example) but with a reduced level of security.





## Documents / Resources

| | |
|---|---|
|  | Lexman LX-M-2000 Auto Calibration Digital Multimeter [pdf] User Guide<br>LX-M-2000 Auto Calibration Digital Multimeter, LX-M-2000, Auto Calibration Digital Multimeter, Calibration Digital Multimeter, Digital Multimeter, Multimeter |