Jyving XL830L

Jyving XL830L Handheld Digital Multimeter User Manual

Model: XL830L

1. Introduction

The Jyving XL830L is a compact, battery-powered handheld digital multimeter designed for measuring DC and AC voltage, DC current, resistance, diode, and transistor (HFE) values. It features a 15mm high LCD display with backlight for clear readings and automatic polarity indication. This manual provides essential information for safe and effective operation of your multimeter.

Figure 1: Jyving XL830L Digital Multimeter with included test leads and user manual.

2. Safety Information

To ensure safe operation and service of the meter, follow these safety precautions:

- Always ensure the meter is in the correct range and function before making measurements.
- Do not exceed the maximum input values for any range.
- Exercise extreme caution when working with live circuits. High voltages can be dangerous.
- Never connect the meter to a voltage source when the rotary switch is set to current, resistance, or diode/continuity mode.
- Disconnect the test leads from the circuit before changing functions or ranges.
- Do not use the meter if it appears damaged or if the test leads are damaged.
- Replace the battery when the low battery indicator appears to ensure accurate readings.
- Keep hands and fingers behind the probe barriers of the test leads during measurements.

3. Product Overview

The XL830L multimeter features a clear LCD display, a central rotary switch for function and range selection,

and input jacks for test leads. Understanding these components is key to proper operation.

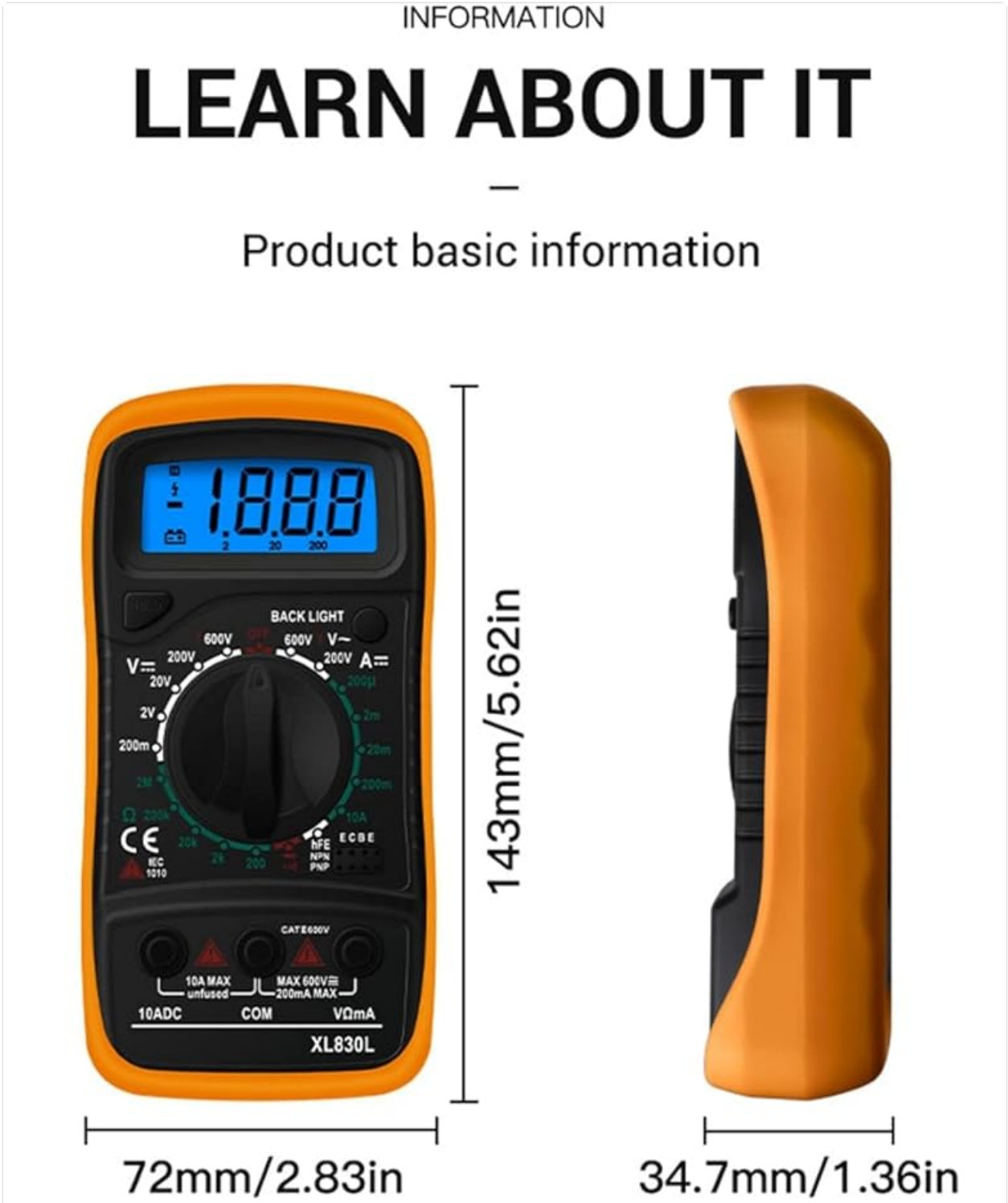

Figure 2: Front panel layout and key features of the XL830L Digital Multimeter.

3.1 Key Components

- **LCD Display:** 15mm high, 1999 count display with backlight. Shows measurement values, units, polarity, and low battery indicator.
- **Rotary Switch:** Used to select the desired measurement function (Voltage, Current, Resistance, Diode, HFE) and range.
- **HOLD Button:** Freezes the current reading on the display.
- **BACK LIGHT Button:** Activates the blue backlight for improved visibility in low-light conditions.
- **Input Jacks:**
  - **COM (Common):** Connect the black test lead here for all measurements.
  - **VΩmA:** Connect the red test lead here for voltage, resistance, diode, and current measurements up to 200mA.
  - **10ADC:** Connect the red test lead here for DC current measurements between 200mA and 10A.
- **HFE Socket:** For testing NPN and PNP transistors.

4. Setup

4.1 Battery Installation

The XL830L multimeter requires a 9V battery (not included) for operation.

1. Ensure the multimeter is turned off.
2. Locate the battery compartment on the back of the unit.
3. Remove the screw securing the back cover and gently open it.
4. Connect a 9V battery to the battery clips, observing correct polarity.
5. Place the battery inside the compartment and replace the back cover, securing it with the screw.

4.2 Connecting Test Leads

Always connect the black test lead to the COM jack. Connect the red test lead to the VΩmA jack for most measurements, or to the 10ADC jack for high current measurements.

5. Operating Instructions

Before making any measurement, ensure the test leads are correctly inserted into the appropriate input jacks and the rotary switch is set to the desired function and range.

5.1 DC Voltage Measurement (V=)

1. Set the rotary switch to the desired DC Voltage (V=) range (e.g., 20V, 200V, 600V). If the voltage is unknown, start with the highest range and decrease as needed.
2. Connect the black test lead to the COM jack and the red test lead to the VΩmA jack.
3. Connect the test probes across the component or circuit to be measured, observing polarity.
4. Read the voltage value on the LCD display.

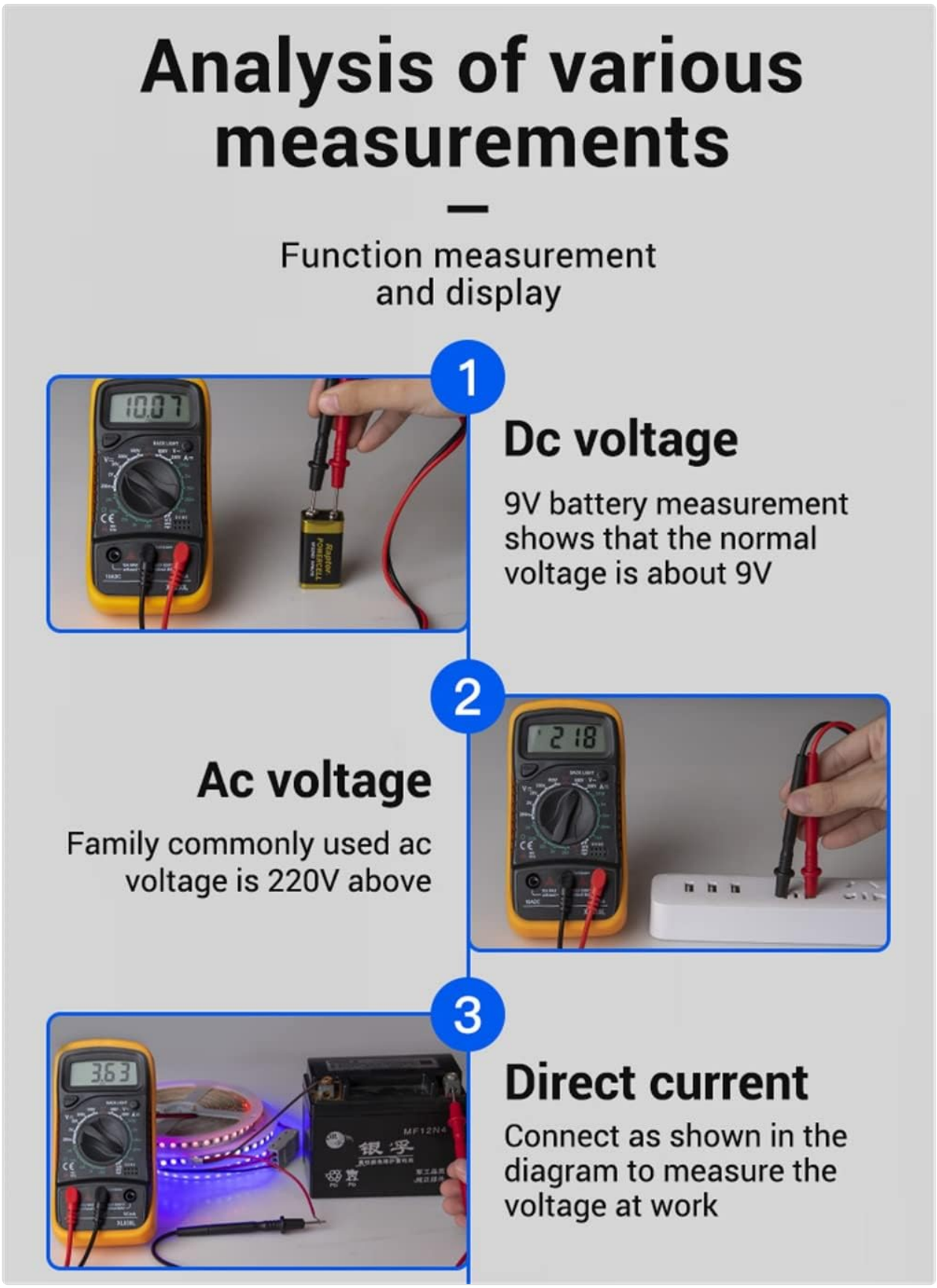

Figure 3: Measuring DC voltage. The display shows 10.07V, indicating a 9V battery is being tested.

5.2 AC Voltage Measurement (V~)

1. Set the rotary switch to the desired AC Voltage (V~) range (e.g., 200V, 600V).
2. Connect the black test lead to the COM jack and the red test lead to the VΩmA jack.
3. Connect the test probes across the AC voltage source. Polarity is not critical for AC voltage.
4. Read the voltage value on the LCD display.

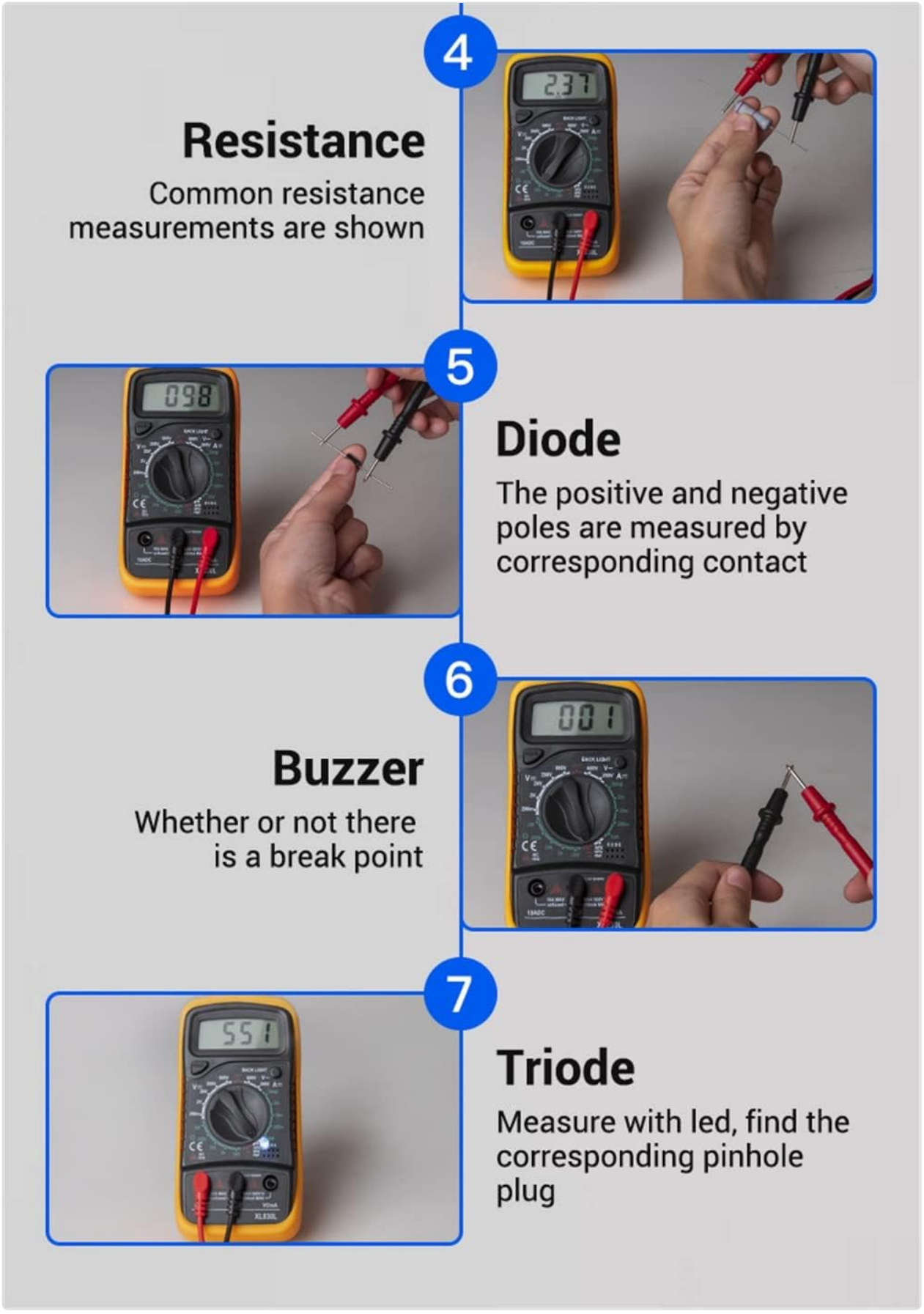

Figure 4: Measuring AC voltage from a power outlet. The display shows 218V.

5.3 DC Current Measurement (A=)

Caution: Always connect the meter in series with the circuit when measuring current. Never connect it in parallel across a voltage source.

1. Turn off power to the circuit.
2. Set the rotary switch to the desired DC Current (A=) range (e.g., 200µA, 2mA, 20mA, 200mA, 10A).
3. Connect the black test lead to the COM jack. For currents up to 200mA, connect the red test lead to the VΩmA jack. For currents up to 10A, connect the red test lead to the 10ADC jack.
4. Break the circuit and connect the multimeter in series with the load.
5. Apply power to the circuit.
6. Read the current value on the LCD display.

Figure 5: Measuring DC current for an LED strip. The display shows 3.63A.

5.4 Resistance Measurement (Ω)

Caution: Ensure the circuit is de-energized and all capacitors are discharged before measuring resistance.

1. Set the rotary switch to the desired Resistance (Ω) range (e.g., 200Ω, 2KΩ, 20KΩ, 200KΩ, 2MΩ).
2. Connect the black test lead to the COM jack and the red test lead to the VΩmA jack.
3. Connect the test probes across the resistor or component to be measured.
4. Read the resistance value on the LCD display.

Figure 6: Measuring resistance. The display shows 2.37KΩ.

5.5 Diode Test (→|)

Caution: Ensure the circuit is de-energized before performing a diode test.

1. Set the rotary switch to the Diode (→|) position.
2. Connect the black test lead to the COM jack and the red test lead to the VΩmA jack.
3. Connect the red probe to the anode and the black probe to the cathode of the diode. The display will show the forward voltage drop (typically 0.5V to 0.8V for silicon diodes).

4. Reverse the probes. The display should show "1" (open circuit) for a good diode.

Figure 7: Performing a diode test. The display shows 0.98V, indicating a forward voltage drop.

5.6 Continuity Test (♫)

Caution: Ensure the circuit is de-energized before performing a continuity test.

1. Set the rotary switch to the Continuity (♫) position.
2. Connect the black test lead to the COM jack and the red test lead to the VΩmA jack.

3. Touch the test probes across the component or circuit path.
4. If the resistance is below approximately 50Ω, the buzzer will sound, indicating continuity. The display will also show the resistance value.

Figure 8: Performing a continuity test. The display shows 001, indicating a low resistance path and the buzzer would sound.

5.7 Transistor HFE Test

Caution: Ensure the transistor is correctly identified as NPN or PNP before insertion.

1. Set the rotary switch to the HFE position.

2. Identify the transistor type (NPN or PNP) and its emitter (E), base (B), and collector (C) leads.
3. Insert the transistor leads into the corresponding holes in the HFE socket on the multimeter.
4. Read the HFE (DC current gain) value on the LCD display.

Figure 9: Performing a transistor HFE test. The display shows 551, indicating the transistor's gain.

6. Maintenance

6.1 Battery Replacement

When the low battery indicator (a battery symbol) appears on the display, replace the 9V battery as described in Section 4.1.

6.2 Fuse Replacement

The multimeter is protected by a F-200mA/250V fuse. If the current measurement function stops working, the fuse may need replacement. This procedure should only be performed by qualified personnel.

1. Ensure the multimeter is turned off and test leads are disconnected.
2. Remove the back cover as described for battery installation.
3. Carefully locate and replace the blown fuse with a fuse of the exact same type and rating (F-200mA/250V).
4. Replace the back cover and secure it with the screw.

6.3 Cleaning and Storage

- Wipe the meter with a damp cloth and mild detergent. Do not use abrasives or solvents.
- Store the meter in a dry, dust-free environment away from direct sunlight and extreme temperatures.
- Remove the battery if the meter is not to be used for an extended period to prevent leakage.

7. Troubleshooting

- **Display shows "1" or "OL":** This indicates an overrange condition. The measured value exceeds the selected range. Select a higher range or check for an open circuit.
- **Display shows "-":** Indicates negative polarity for DC measurements.
- **No display or faint display:** Check the 9V battery. Replace if necessary.
- **Inaccurate readings:** Check battery level, ensure test leads are fully inserted, and verify the correct function/range is selected.
- **Current measurement not working:** Check the F-200mA/250V fuse. Replace if blown.

8. Specifications

MULTIMETER

BLUE BACKLIT SCREEN

Different color screen, give you different wonderful

Figure 10: Physical dimensions of the XL830L Digital Multimeter.

Measurement Type	Range	Accuracy
DC Voltage	200mV, 2V, 20V, 200V	±0.5%
	600V	±0.8%
AC Voltage	200V, 600V	±1.2%
DC Current	200µA, 2mA, 20mA	±1%
	200mA	±1.5%
	10A	±3%
Resistance	200Ω, 2KΩ, 20KΩ, 200KΩ, 2MΩ	±0.8%

8.1 General Specifications

- **Max Display:** 1999 (3½ digits)
- **Polarity Indication:** Automatic, "-" for negative polarity
- **Overrange Indication:** Only figure "1" on the display
- **Low Battery Indication:** Battery symbol on display
- **Fuse Protection:** F-200mA/250V
- **Operating Temperature:** 0°C to 40°C (32°F to 104°F)
- **Storage Temperature:** -10°C to 50°C (14°F to 122°F)
- **Power:** 9V battery (NEDA 1604 or 6F22 type)
- **Dimensions:** Approximately 138mm x 69mm x 31mm (5.43in x 2.72in x 1.22in)
- **Weight:** Approximately 170g (including battery)

9. Warranty and Support

For warranty information or technical support, please refer to the product packaging or contact your retailer. Keep your purchase receipt as proof of purchase.