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› PerGar XL830L Digital Multimeter User Manual

PerGar XL830L

PerGar XL830L Digital Multimeter User Manual

Model: XL830L

1. INTRODUCTION

The PerGar XL830L is a compact, handheld digital multimeter designed for measuring AC/DC voltage, DC current, resistance, diode, and transistor (hFE) parameters. It features a clear LCD display with backlight, overload protection, data hold, and a low battery indicator. Its durable silicone casing provides shock and drop resistance, making it suitable for various applications in laboratories, factories, and for general household electrical diagnostics.

2. SAFETY INFORMATION

Please read and understand all safety instructions before operating this multimeter. Failure to follow these instructions may result in electric shock, fire, or damage to the meter.

- Always ensure the test leads are properly connected and the function switch is set to the correct range before making any measurements.
- Do not attempt to measure voltages or currents exceeding the maximum rated values for each range.
- Exercise extreme caution when working with live circuits. High voltages can be dangerous.
- Never use the multimeter if it appears damaged or if the test leads are frayed or broken.
- Remove the test leads from the circuit before changing functions or ranges.
- Replace the battery when the low battery indicator appears to ensure accurate readings.
- To avoid electrical shock, remove test leads before opening the case. Refer to the manual for battery replacement.



Image: Back view of the XL830L multimeter showing the battery compartment cover and a warning label. The label advises to remove test leads before opening the case to avoid electrical shock and to read the manual for safety.

3. PRODUCT OVERVIEW

3.1 Components

- **LCD Display:** Shows measurement readings, units, and function indicators.
- **Function/Range Switch:** Rotary switch to select measurement type (Voltage, Current, Resistance, Diode, hFE) and range.
- **"HOLD" Button:** Freezes the current display reading.
- **"BACK LIGHT" Button:** Activates the display backlight for better visibility in low-light conditions.
- **Input Jacks:**
 - **"VΩmA" Jack:** Positive input for voltage, resistance, and current (up to 200mA).
 - **"COM" Jack:** Common (negative) input for all measurements.

- **"10ADC" Jack:** Positive input for DC current measurements exceeding 200mA (up to 10A).
- **hFE Socket:** For testing transistors (PNP/NPN).
- **Test Leads:** Red (positive) and Black (negative) leads for connecting to circuits.

3.2 Dimensions



Image: The XL830L digital multimeter with its physical dimensions indicated. The device measures approximately 135mm (5.3in) in height, 67mm (2.6in) in width, and 33mm (1.3in) in depth. The LCD display area is 45mm (1.8in) by 20mm (0.8in).

4. SETUP

4.1 Battery Installation

1. Ensure the multimeter is turned OFF and disconnect all test leads.
2. Locate the battery compartment cover on the back of the unit.
3. Remove the screw(s) securing the cover and carefully open it.

4. Insert a new 9V (6F22) battery, observing the correct polarity.
5. Replace the battery compartment cover and secure it with the screw(s).

4.2 Connecting Test Leads

- For most measurements (voltage, resistance, diode, continuity, and current up to 200mA), insert the black test lead into the "COM" jack and the red test lead into the "VΩmA" jack.
- For DC current measurements exceeding 200mA (up to 10A), insert the red test lead into the "10ADC" jack and the black test lead into the "COM" jack.

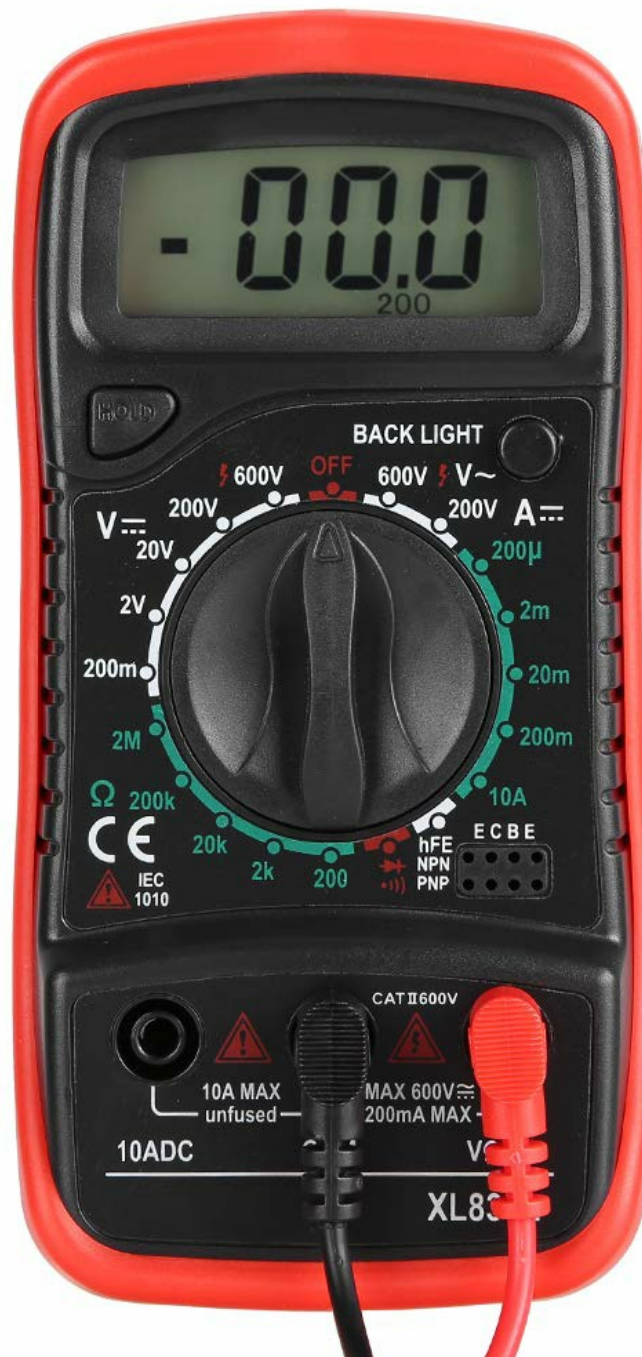


Image: An angled view of the XL830L digital multimeter with the red and black test leads properly connected to the input jacks. The red lead is in the VΩmA jack and the black lead is in the COM jack.

5. OPERATING INSTRUCTIONS

Before taking any measurement, ensure the test leads are correctly connected and the function switch is set to the desired measurement type and range.

5.1 DC Voltage Measurement (V=)

1. Set the function switch to the desired "V=" range (e.g., 20V, 200V, 600V). If the voltage is unknown, start with the highest range and decrease as needed.
2. Connect the red test lead to the positive (+) side of the circuit and the black test lead to the negative (-) side.
3. Read the voltage value on the LCD display.

5.2 AC Voltage Measurement (V~)

1. Set the function switch to the desired "V~" range (e.g., 200V, 600V). If the voltage is unknown, start with the highest range.
2. Connect the test leads across the AC voltage source.
3. Read the voltage value on the LCD display.

5.3 DC Current Measurement (A=)

1. **IMPORTANT:** Current measurements require the multimeter to be connected in series with the circuit. Turn off power to the circuit before connecting the meter.
2. Set the function switch to the desired "A=" range (e.g., 200 μ A, 2mA, 20mA, 200mA, 10A).
3. For currents up to 200mA, connect the red lead to "V Ω mA" and the black lead to "COM".
4. For currents up to 10A, connect the red lead to "10ADC" and the black lead to "COM".
5. Break the circuit and connect the multimeter in series.
6. Apply power to the circuit and read the current value.

5.4 Resistance Measurement (Ω)

1. Ensure the circuit or component is de-energized before measuring resistance.
2. Set the function switch to the desired " Ω " range (e.g., 200 Ω , 2k Ω , 20k Ω , 200k Ω , 2M Ω).
3. Connect the test leads across the component to be measured.
4. Read the resistance value on the LCD display.

5.5 Diode Test

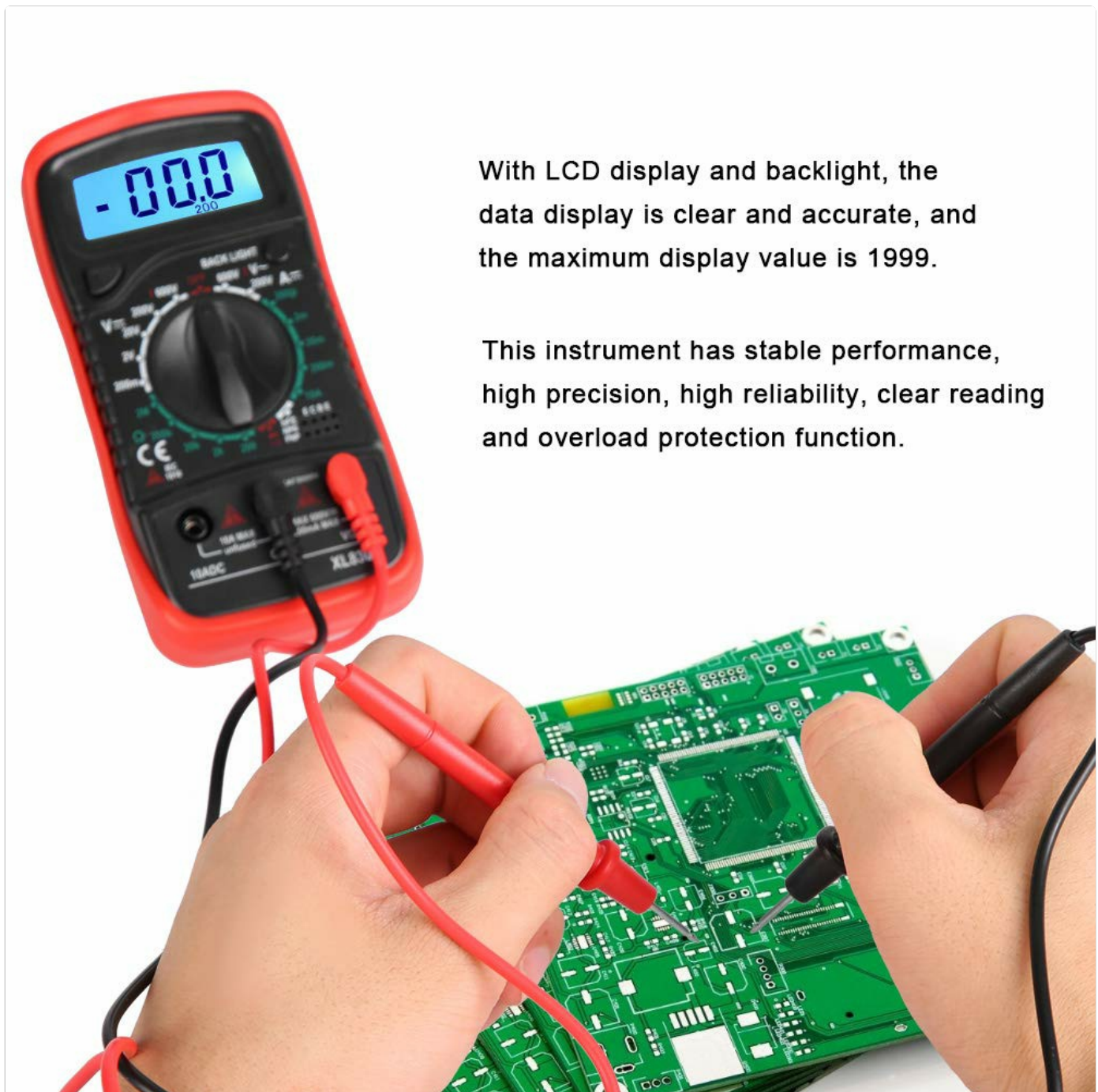
1. Set the function switch to the "Diode" symbol.
2. Connect the red test lead to the anode and the black test lead to the cathode of the diode.
3. A forward voltage drop will be displayed for a good diode. Reverse the leads; the display should show "OL" (Open Loop) for a good diode.

5.6 Transistor (hFE) Test

1. Set the function switch to the "hFE" position.
2. Identify if the transistor is NPN or PNP.
3. Insert the transistor's emitter, base, and collector leads into the corresponding holes in the hFE socket.
4. Read the hFE value (DC current gain) on the display.

5.7 Continuity Test

1. Set the function switch to the "Continuity" symbol (often shared with Diode or Resistance).
2. Connect the test leads across the component or circuit path.
3. If there is continuity (low resistance), the buzzer will sound, and the display will show a low resistance value. If open, it will show "OL".



With LCD display and backlight, the data display is clear and accurate, and the maximum display value is 1999.

This instrument has stable performance, high precision, high reliability, clear reading and overload protection function.

Image: A PerGar XL830L digital multimeter displaying a reading while its test leads are connected to a circuit board. The LCD screen is illuminated, showing a clear numerical value.



Image: A PerGar XL830L digital multimeter being used to measure components within an electrical panel. The multimeter's display shows a reading, and the test leads are connected to various terminals.

5.8 Data Hold Function

Press the "HOLD" button to freeze the current reading on the display. Press it again to release the hold and resume live measurements.

5.9 Backlight Function

Press the "BACK LIGHT" button to turn on the display backlight. This improves visibility in dimly lit environments. Press it again to turn off the backlight.



Image: Front view of the XL830L digital multimeter with its LCD display illuminated by the backlight, showing a clear reading.



Image: The PerGar XL830L digital multimeter shown with its red and black test leads. The device is ready for connection to a circuit.

6. MAINTENANCE

- **Cleaning:** Wipe the meter with a damp cloth and mild detergent. Do not use abrasives or solvents.
- **Battery Replacement:** Replace the 9V battery when the low battery indicator appears on the display. Refer to Section 4.1 for instructions.
- **Storage:** If the meter is not used for an extended period, remove the battery to prevent leakage and store it in a cool, dry place.
- **Calibration:** This meter is factory calibrated. For professional use, periodic calibration by a qualified technician is recommended to ensure continued accuracy.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
No display or faint display	Dead or low battery	Replace the 9V battery.
"OL" (Overload) displayed	Measurement exceeds selected range or open circuit	Select a higher range or check for an open circuit.
Incorrect readings	Incorrect function/range selected, poor test lead connection, or faulty component	Verify function/range, ensure secure connections, or test the component separately.
No continuity beep	Open circuit or high resistance	Check the circuit for breaks or high resistance points.

8. SPECIFICATIONS

Parameter	Range	Accuracy
DC Voltage (V=)	200mV, 2V, 20V, 200V, 600V	±0.5%
AC Voltage (V~)	200V, 600V	±1.0%
DC Current (A=)	200µA, 2mA, 20mA, 200mA, 10A	±1.0% (200µA-200mA), ±2.0% (10A)
Resistance (Ω)	200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ	±1.0%
Diode Test	Yes	Forward voltage drop
Transistor (hFE) Test	PNP & NPN	hFE value
Continuity Buzzer	Yes	Audible tone for low resistance
Max Display	1999 counts	
Display Type	3-bit semi LCD with backlight	
Power Supply	9V Battery (6F22, not included)	
Dimensions	135 x 67 x 33 mm (5.3 x 2.6 x 1.3 in)	
Weight	Approx. 240g (8.5oz)	

9. PACKAGE CONTENTS

- 1 x PerGar XL830L Digital Multimeter
- 2 x Test Leads (Red and Black)
- 1 x English User Manual

10. WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the contact details provided by your retailer or visit the official PerGar website. Keep your purchase receipt as proof of purchase for any warranty claims.

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