ciciglow XL830L

ciciglow XL830L Digital Multimeter User Manual

Model: XL830L

1. Introduction

The ciciglow XL830L is a compact and reliable digital multimeter designed for a wide range of electrical measurements. It features a clear LCD display with backlight, ensuring accurate readings even in low-light conditions. This instrument is suitable for use in households, laboratories, factories, and by radio enthusiasts, offering stable performance, high precision, and robust overload protection.

This manual provides essential information for the safe and effective use of your XL830L Digital Multimeter. Please read it thoroughly before operation.

2. Safety Information

WARNING: To avoid electrical shock or damage to the meter, please observe the following safety precautions.

- Always remove test leads from the circuit before changing functions or ranges.
- Do not apply more than the rated voltage, as marked on the meter, between the input terminals or between any terminal and earth ground.
- Use extreme caution when working with voltages above 60V DC or 30V AC RMS. Such voltages pose a shock hazard.
- Before measuring current, ensure the meter's fuses are intact and the test leads are connected to the correct input jacks.
- Before opening the meter case to replace the battery or fuse, disconnect the test leads from any circuit and turn off the meter.
- Do not operate the meter if the case is open or if it appears damaged.
- Always remove test leads before opening the case to avoid electrical shock. Refer to the manual for detailed instructions.

Figure 2.1: Back view of the XL830L Multimeter, highlighting the safety warning regarding lead removal before opening the case.

3. Product Features

- LCD display with backlight for clear and accurate data readings, maximum display value of 1999.
- Thickened silicone body for shockproof and fall-proof durability.
- High precision, high reliability, and clear reading with overload protection function.
- Includes overload protection, on-off measurement (continuity), data hold, and low battery indication functions.
- Capable of measuring AC/DC voltage, DC current, resistance, diode, and triode (hFE).
- Ideal for solving automotive and household appliance electrical problems.

4. Package Contents

Upon unpacking, please verify that all items listed below are present and undamaged:

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

Figure 4.1: The XL830L Multimeter and its standard accessories.

5. Product Overview

Figure 5.1: Front panel of the XL830L Digital Multimeter.

Key Components:

- **LCD Display:** Shows measurement readings, units, and function indicators.
- **Rotary Switch:** Used to select measurement functions and ranges.
- **HOLD Button:** Freezes the current reading on the display.
- **BACK LIGHT Button:** Activates the display backlight.
- **Input Jacks:**
  - **COM (Common) Jack:** For the black (negative) test lead.
  - **VΩmA Jack:** For the red (positive) test lead when measuring voltage, resistance, and current up to 200mA.
  - **10ADC Jack:** For the red (positive) test lead when measuring DC current from 200mA up to 10A.
- **hFE Socket:** For testing transistors (PNP/NPN).

6. Setup

6.1 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 meter.
3. Use a screwdriver to remove the screw securing the cover.
4. Carefully remove the cover.
5. Insert a 9V (6F22 type) battery, observing the correct polarity (+/-).
6. Replace the battery compartment cover and secure it with the screw.

6.2 Connecting Test Leads

1. Insert the black test lead into the **COM** (Common) jack.
2. For most measurements (voltage, resistance, diode, and current up to 200mA), insert the red test lead into the **VΩmA** jack.
3. For measuring high DC current (up to 10A), insert the red test lead into the **10ADC** jack.

Figure 6.1: Multimeter with test leads connected for general measurements.

7. Operating Instructions

Always ensure the correct function and range are selected before making any measurement. If the value to be measured is unknown, start with the highest range and work downwards.

Figure 7.1: Example of using the XL830L Multimeter to measure components on a circuit board.

7.1 Measuring DC Voltage (V–)

1. Set the rotary switch to the desired DC Voltage (V–) range.
2. Connect the red test lead to the **VΩmA** jack and the black test lead to the **COM** jack.
3. Connect the test leads in parallel across the component or circuit to be measured.
4. Read the voltage value on the LCD display.

7.2 Measuring AC Voltage (V–)

1. Set the rotary switch to the desired AC Voltage (V–) range.
2. Connect the red test lead to the **VΩmA** jack and the black test lead to the **COM** jack.
3. Connect the test leads in parallel across the AC source or component.
4. Read the voltage value on the LCD display.

7.3 Measuring DC Current (A–)

1. Set the rotary switch to the desired DC Current (A–) range.
2. 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. Connect the black test lead to the **COM** jack.

3. Turn off the power to the circuit. Break the circuit and connect the meter in series with the load.
4. Apply power to the circuit and read the current value on the LCD display.

7.4 Measuring Resistance (Ω)

1. Set the rotary switch to the desired Resistance (Ω) range.
2. Connect the red test lead to the **VΩmA** jack and the black test lead to the **COM** jack.
3. Ensure the circuit is de-energized before measuring resistance.
4. Connect the test leads across the component to be measured.
5. Read the resistance value on the LCD display.

7.5 Diode Test

1. Set the rotary switch to the Diode symbol (→|).
2. Connect the red test lead to the **VΩmA** jack and the black test lead to the **COM** jack.
3. Connect the red lead to the anode and the black lead to the cathode of the diode. The display will show the forward voltage drop.
4. Reverse the leads. The display should show 'OL' (Overload) for a good diode.

7.6 Transistor hFE Test

1. Set the rotary 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 LCD display.

7.7 Data Hold Function

Press the **HOLD** button to freeze the current reading on the display. Press it again to release the hold function.

7.8 Backlight Function

Press the **BACK LIGHT** button to turn on the display backlight. Press it again to turn it off. The backlight may automatically turn off after a short period to conserve battery life.

8. Maintenance

8.1 Cleaning

Wipe the meter with a damp cloth and mild detergent. Do not use abrasives or solvents. Keep the input terminals free from dirt and moisture.

8.2 Battery Replacement

When the battery symbol appears on the LCD, the battery needs to be replaced. Follow the steps in Section 6.1 Battery Installation to replace the 9V battery.

8.3 Fuse Replacement

If the current measurement function does not work, the fuse may be blown. Fuse replacement should only be performed by qualified personnel. Refer to the specifications for the correct fuse type.

9. Troubleshooting

- **No display or faint display:** Check battery installation and charge. Replace battery if necessary.
- **Incorrect readings:** Ensure test leads are correctly inserted into the appropriate jacks. Verify the rotary switch is set to the correct function and range. Check for damaged test leads.
- **Current measurement not working:** Check the fuse. If blown, replace with the correct type and rating.
- **'OL' (Overload) displayed:** The measured value exceeds the selected range. Select a higher range or ensure the circuit is within the meter's capabilities.

10. Specifications

Figure 10.1: Physical dimensions of the XL830L Multimeter.

Feature	Specification
DC Voltage (V–)	200mV, 2V, 20V, 200V, 600V
AC Voltage (V–)	200V, 600V

Feature	Specification
DC Current (A–)	200µA, 2mA, 20mA, 200mA, 10A
Resistance (Ω)	200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ
Diode Test	Yes
Transistor hFE Test	Yes (PNP/NPN)
Input Impedance	1MΩ
Display	3-digit LCD, 45x20mm (1.8x0.8in)
Backlight	Yes
Data Hold	Yes
Low Battery Indication	Yes
Power Supply	9V Battery (6F22 type, not included)
Dimensions	135 x 67 x 33mm (5.3 x 2.6 x 1.3in)
Weight	240g (8.5oz)

11. Warranty and Support

For warranty information or technical support regarding your ciciglow XL830L Digital Multimeter, please refer to the purchase documentation or contact the retailer/manufacturer directly. Keep your proof of purchase for any warranty claims.

Manufacturer: ciciglow