

## Aexit DT-830B

# Aexit DT-830B Digital Multimeter User Manual

## 1. INTRODUCTION

The Aexit DT-830B is a compact, handheld 3 1/2 digit digital multimeter designed for measuring DC and AC voltage, DC current, resistance, diode forward voltage drop, and transistor hFE. It is an essential tool for electrical testing, troubleshooting, and maintenance in various applications. This manual provides detailed instructions for safe and effective use of the device.

## 2. SAFETY INFORMATION

To ensure safe operation and prevent damage to the multimeter or injury, please read and follow all safety instructions carefully.

- **Electrical Shock Hazard:** Always remove test leads from the circuit before opening the multimeter case. Do not attempt to measure voltages or currents exceeding the specified maximum limits.
- **Fire Hazard:** To prevent fire, ensure that the fuse is correctly installed and has the specified rating of 0.5A/250V. Do not use the multimeter if the fuse is blown or incorrectly rated.
- **Battery Safety:** Use only a 9V (NEDA1604 or 6F22) battery for power. Replace the battery when the low battery indicator appears on the display.
- **Inspection:** Before each use, inspect the test leads for any damage to the insulation. Do not use if leads are damaged.
- **Operating Environment:** Do not operate the multimeter in wet conditions or in the presence of explosive gases or fumes.

## 3. PRODUCT OVERVIEW

### 3.1 Features

- 3 1/2 digit LCD display with a maximum reading of 1999.
- Low voltage battery indicator.
- Overload protection for various ranges (0.5A/250V fuse for mA range, 10A unfused for 10A range).
- Measures DC Voltage, AC Voltage, DC Current, Resistance, Diode, and Transistor hFE.

- Compact and handheld design for portability.

### 3.2 Components



**Figure 1:** Front view of the Aexit DT-830B Digital Multimeter showing the LCD display, rotary switch, and input jacks. Key components visible include the 3 1/2 digit LCD screen at the top, the central rotary switch for function and range selection, and the input jacks (VΩmA, 10ADC, COM) at the bottom right. The various measurement ranges for DCV, ACV, DCA, Resistance, Diode, and hFE are clearly marked around the rotary switch.

1. **LCD Display:** Shows measurement readings, polarity, and low battery indicator.
2. **Rotary Switch:** Used to select the desired measurement function and range.
3. **VΩmA Jack:** Input terminal for voltage, resistance, and current measurements (except 10A DC).
4. **10ADC Jack:** Input terminal for 10A DC current measurements.
5. **COM Jack:** Common (negative) input terminal for all measurements.

6. **hFE Socket:** Socket for testing NPN/PNP transistors.

## 4. SETUP

### 4.1 Battery Installation

The DT-830B multimeter requires one 9V (NEDA1604 or 6F22) battery for operation.

1. Ensure the multimeter is turned OFF and all test leads are disconnected.
2. Locate the battery compartment cover on the back of the unit.
3. Carefully remove the screw(s) securing the battery cover.
4. Remove the cover and connect a new 9V battery to the battery clip, observing correct polarity.
5. Place the battery into the compartment and replace the cover, securing it with the screw(s).



**Figure 2:** Back view of the Aexit DT-830B Digital Multimeter showing the battery compartment and safety warnings. This image shows the rear casing of the DT-830B Digital Multimeter. A prominent warning label is visible, advising users to remove inputs before opening the case to avoid electrical shock and to install a 0.5A/250V fuse to prevent fire. The power supply requirement of a 9V (6F22) battery is also stated. The battery compartment is located on the back, typically secured by screws.

## 5. OPERATING INSTRUCTIONS

Before taking any measurements, ensure the battery is installed and the test leads are in good condition.

## 5.1 General Measurement Procedure

1. Insert the black test lead into the COM jack.
2. Insert the red test lead into the V $\Omega$ mA jack for most measurements, or the 10ADC jack for high current measurements.
3. Turn the rotary switch to the desired function and range. If the value is unknown, start with the highest range and decrease as needed.
4. Connect the test probes to the circuit or component under test.
5. Read the measurement value on the LCD display.
6. After measurement, disconnect the test leads and turn the rotary switch to the OFF position.

## 5.2 Measuring DC Voltage (DCV)

1. Set the rotary switch to the desired DCV range (e.g., 20V, 200V, 1000V).
2. Connect the red test lead to the positive (+) side of the DC voltage source and the black test lead to the negative (-) side.
3. Read the voltage value on the display.

## 5.3 Measuring AC Voltage (ACV)

1. Set the rotary switch to the desired ACV range (e.g., 200V, 750V).
2. Connect the test leads across the AC voltage source. Polarity does not matter for AC voltage.
3. Read the voltage value on the display.

## 5.4 Measuring DC Current (DCA)

**Caution:** Never connect the multimeter in parallel with a voltage source when measuring current, as this can blow the fuse or damage the meter.

1. Set the rotary switch to the desired DCA range (e.g., 200 $\mu$ A, 2mA, 20mA, 200mA, 10A).
2. For currents up to 200mA, insert the red lead into the V $\Omega$ mA jack. For currents up to 10A, insert the red lead into the 10ADC jack.
3. Open the circuit where current is to be measured and connect the multimeter in series with the load.
4. Read the current value on the display.

## 5.5 Measuring Resistance ( $\Omega$ )

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

1. Set the rotary switch to the desired Resistance range (e.g., 200 $\Omega$ , 2k $\Omega$ , 20k $\Omega$ , 200k $\Omega$ , 2M $\Omega$ ).
2. Connect the test leads across the component whose resistance is to be measured.
3. Read the resistance value on the display.

## 5.6 Diode Test

1. Set the rotary switch to the Diode symbol ( $\rightarrow|$ ).
2. Connect the red test lead to the anode of the diode and the black test lead to the cathode. The display will show the forward voltage drop (typically 0.5V to 0.8V for silicon diodes).

3. Reverse the test leads. The display should show '1' (open circuit) for a good diode.

## 5.7 Transistor hFE Test

1. Set the rotary switch to the hFE position.
2. Determine 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 (DC current gain) value on the display.

## 6. MAINTENANCE

### 6.1 Battery Replacement

When the low battery symbol appears on the LCD, the battery needs to be replaced. Follow the steps outlined in Section 4.1.

### 6.2 Fuse Replacement

If the multimeter fails to measure current in the mA range, the fuse may be blown. The fuse is located inside the multimeter.

1. Ensure the multimeter is turned OFF and all test leads are disconnected.
2. Remove the battery compartment cover and the battery.
3. Carefully remove the screws holding the back casing of the multimeter.
4. Gently separate the two halves of the casing to access the circuit board.
5. Locate the fuse (typically a glass tube fuse).
6. Replace the blown fuse with a new one of the exact same rating: 0.5A/250V.
7. Carefully reassemble the multimeter, ensuring all screws are tightened.

### 6.3 Cleaning

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

## 7. TROUBLESHOOTING

- **No display or faint display:** Check battery installation. Replace the 9V battery if low.
- **No current measurement:** Check the fuse. Replace if blown (0.5A/250V). Ensure test leads are in the correct jacks (VΩmA or 10ADC) and the multimeter is connected in series.
- **Incorrect readings:** Ensure the rotary switch is set to the correct function and range. Check test lead connections. Ensure the circuit is de-energized for resistance measurements.
- **'1' or 'OL' on display:** This indicates an over-range condition. Select a higher range or check for an open circuit (for resistance/continuity).

## 8. SPECIFICATIONS

Parameter	Specification
Model	DT-830B
Display	3 1/2 Digit LCD, Max. 1999
DC Voltage (DCV)	200mV, 2000mV, 20V, 200V, 1000V
AC Voltage (ACV)	200V, 750V
DC Current (DCA)	200 $\mu$ A, 2000 $\mu$ A, 20mA, 200mA, 10A
Resistance ( $\Omega$ )	200 $\Omega$ , 2000 $\Omega$ , 20k $\Omega$ , 200k $\Omega$ , 2M $\Omega$
Diode Test	Yes
Transistor hFE Test	Yes
Power Supply	9V Battery (NEDA1604 or 6F22)
Overload Protection	0.5A/250V Fuse (mA range), 10A (unfused, 10A range)
Dimensions	Approx. 126 x 70 x 24 mm (4.96 x 2.76 x 0.94 inches)
Weight	Approx. 97.5g (3.44 ounces)

## 9. WARRANTY AND SUPPORT

For warranty information or technical support regarding your Aexit DT-830B Digital Multimeter, please refer to the retailer or manufacturer's official website where the product was purchased. Keep your purchase receipt as proof of purchase.