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Truper MUT-33

TRUPER MUT-33 Digital Multimeter User Manual

Model: MUT-33

1. Introduction

This manual provides detailed instructions for the safe and effective use of your TRUPER MUT-33 Digital Multimeter. Please read this manual thoroughly before operating the device and retain it for future reference. The TRUPER MUT-33 is a compact digital multimeter designed for basic electrical measurements in various applications.

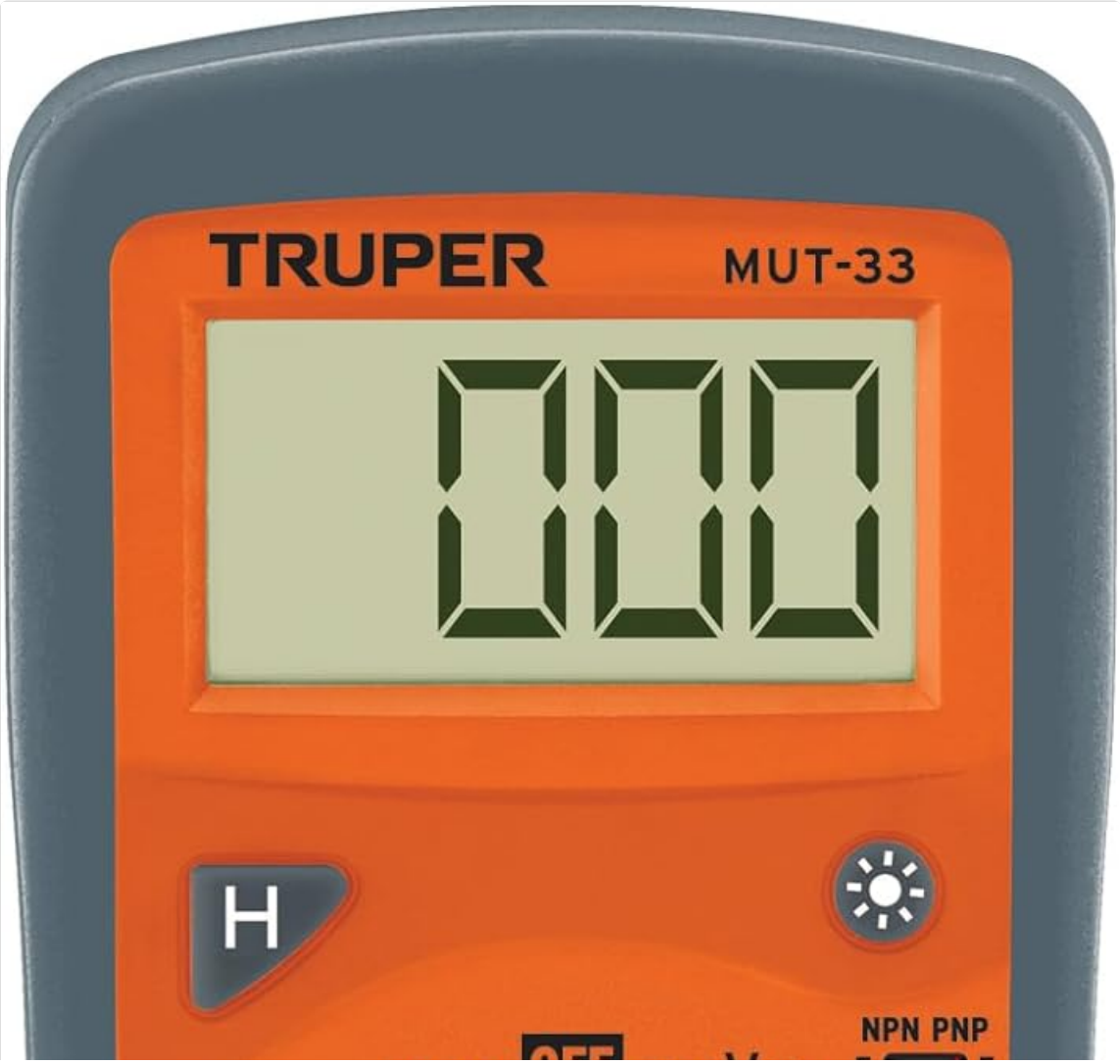



Figure 1: TRUPER MUT-33 Digital Multimeter. This image shows the front of the multimeter with its display, rotary switch, and input jacks.

2. Safety Information

Always observe safety precautions when using any electrical testing equipment. Failure to do so may result in injury or damage to the multimeter or equipment under test.

- Do not exceed the maximum input values specified for each range.
- Ensure the test leads are properly connected and the rotary switch is set to the correct function before making measurements.
- Never measure voltage on a circuit with the rotary switch set to current, resistance, or diode test.
- Exercise extreme caution when working with live circuits.
- Replace batteries when the low battery indicator appears to ensure accurate readings.
- Do not operate the multimeter if it appears damaged or if the test leads are compromised.

3. Product Overview and Components

Familiarize yourself with the main parts of your TRUPER MUT-33 Digital Multimeter.

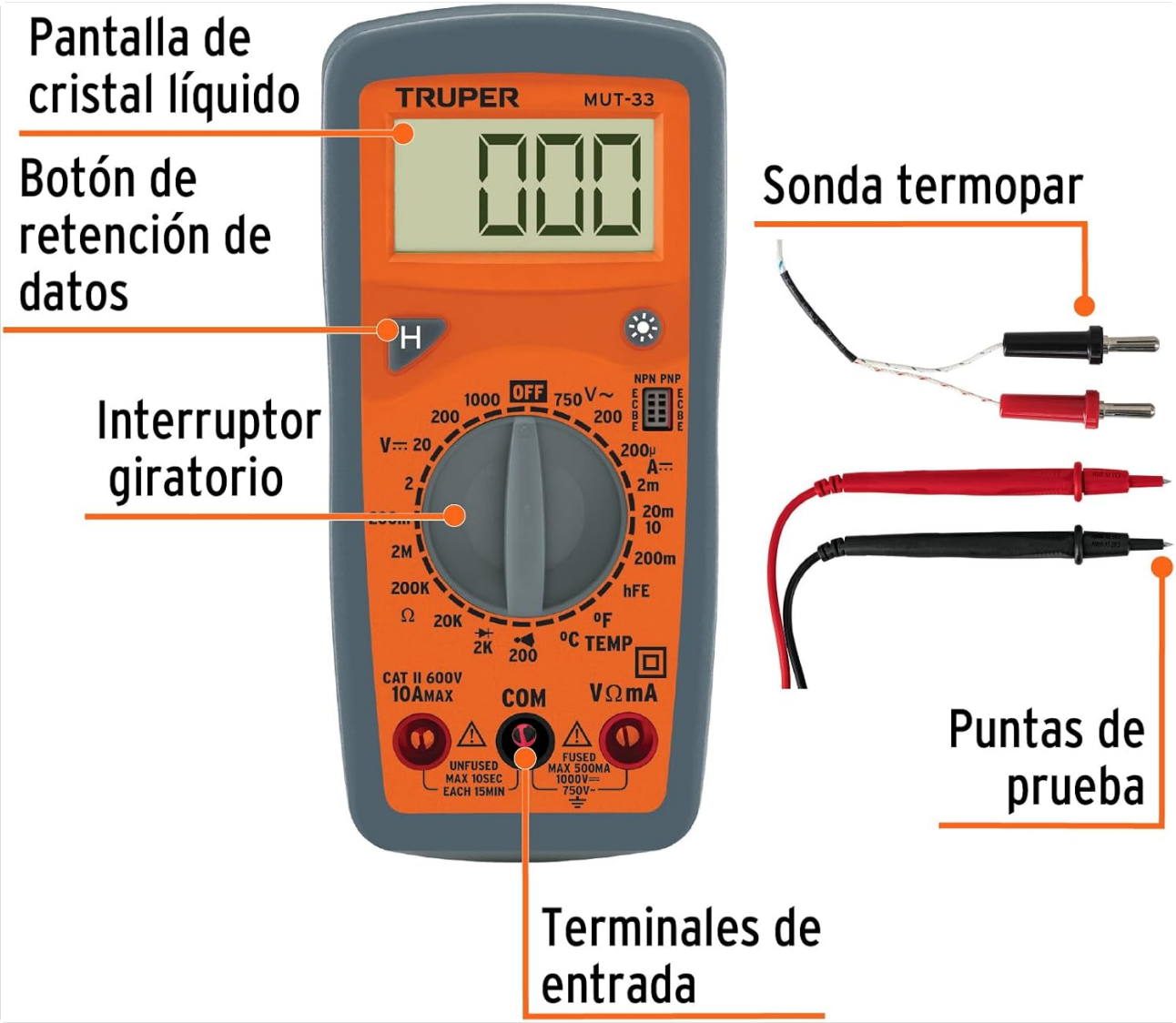

Figure 2: Labeled components of the TRUPER MUT-33. This image highlights key parts: 1. Liquid crystal display, 2. Data hold button, 3. Rotary switch, 4. Thermocouple probe, 5. Input terminals, 6. Test leads.

1. **Liquid Crystal Display (LCD):** Shows measurement readings, units, and other indicators.
2. **Data Hold Button (H):** Press to freeze the current reading on the display. Press again to release.
3. **Rotary Switch:** Used to select the desired measurement function and range.
4. **Thermocouple Probe:** For temperature measurements.
5. **Input Terminals:**
    - **COM (Common):** Negative input terminal for all measurements.
    - **VΩmA:** Positive input terminal for voltage, resistance, and current (up to 500mA) measurements.
    - **10A MAX:** Positive input terminal for high current measurements (up to 10A).
6. **Test Leads:** Red and black leads used to connect the multimeter to the circuit under test.





Figure 3: Included accessories: Test leads (red and black) and a thermocouple probe for temperature measurements.

4. Setup

4.1. Battery Installation

The TRUPER MUT-33 requires two AA batteries (included). To install or replace batteries:

1. Ensure the multimeter is turned OFF.
2. Locate the battery compartment on the back of the multimeter.
3. Unscrew the battery cover and remove it.
4. Insert two AA batteries, observing the correct polarity (+ and -).
5. Replace the battery cover and secure it with the screw.

4.2. Connecting Test Leads

For most measurements (voltage, resistance, diode, capacitance, frequency, and current up to 500mA):

- Connect the black test lead to the **COM** input jack.
- Connect the red test lead to the **VΩmA** input jack.

For high current measurements (up to 10A):

- Connect the black test lead to the **COM** input jack.
- Connect the red test lead to the **10A MAX** input jack.

For temperature measurements:

- Connect the thermocouple probe to the **VΩmA** and **COM** input jacks, observing polarity if applicable (usually red to VΩmA, black to COM).

5. Operating Instructions

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

5.1. Measuring DC Voltage (V–)

1. Connect the red lead to **VΩmA** and the black lead to **COM**.
2. Set the rotary switch to the desired DC Voltage range (e.g., 2V, 20V, 200V, 1000V). If the voltage is unknown, start with the highest range and decrease as needed.
3. Connect the test leads across the component or circuit to be measured, observing polarity.
4. Read the voltage value on the LCD.

5.2. Measuring AC Voltage (V~)

1. Connect the red lead to **VΩmA** and the black lead to **COM**.
2. Set the rotary switch to the desired AC Voltage range (e.g., 200V, 750V). If the voltage is unknown, start with the highest range.
3. Connect the test leads across the component or circuit to be measured. Polarity is not critical for AC voltage.

4. Read the voltage value on the LCD.

5.3. Measuring DC Current (A–)

CAUTION: Never connect the multimeter in parallel with a voltage source when measuring current. Always connect in series with the load.

1. Determine the expected current. For currents up to 500mA, connect the red lead to **VΩmA**. For currents up to 10A, connect the red lead to **10A MAX**. Connect the black lead to **COM**.
2. Set the rotary switch to the appropriate DC Current range (e.g., 200µA, 2mA, 20mA, 200mA, 10A).
3. Open the circuit where the current is to be measured and connect the multimeter in series.
4. Read the current value on the LCD.

5.4. Measuring Resistance (Ω)

CAUTION: Ensure the circuit is de-energized before measuring resistance. Do not measure resistance on live circuits.

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

5.5. Diode Test (→|←)

1. Connect the red lead to **VΩmA** and the black lead to **COM**.
2. Set the rotary switch to the Diode Test position.
3. Connect the red lead to the anode and the black lead to the cathode of the diode. A forward voltage drop (typically 0.5V to 0.8V for silicon diodes) will be displayed.
4. Reverse the leads. The display should show "OL" (Open Loop) for a good diode.

5.6. 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 sockets in the hFE test socket on the multimeter.
4. Read the hFE value on the LCD.

5.7. Temperature Measurement (°C / °F)

1. Connect the thermocouple probe to the **VΩmA** and **COM** input jacks.
2. Set the rotary switch to the °C or °F position.
3. Place the tip of the thermocouple probe on the object or in the environment whose temperature is to be measured.
4. Read the temperature value on the LCD.

6. Maintenance

6.1. Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in Section 4.1. Prompt battery replacement ensures accurate measurements and proper device function.

6.2. Cleaning

To clean the multimeter, wipe the case with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the device is turned off and disconnected from any circuits before cleaning.

6.3. Fuse Replacement

The multimeter is protected by fuses. If the current measurement function stops working, the fuse may need replacement. Refer to the specifications for the correct fuse type. Fuse replacement should only be performed by qualified personnel.

7. Troubleshooting

Problem	Possible Cause	Solution
No display or dim display	Dead or low batteries	Replace batteries (Section 4.1)
"OL" (Overload) displayed	Measurement exceeds selected range or open circuit	Select a higher range or check for open circuit/broken lead.
Incorrect readings	Incorrect function/range selected, poor lead connection, or low battery	Verify settings, ensure secure connections, replace batteries.
Current measurement not working	Blown fuse	Replace fuse (refer to Section 6.3).

8. Specifications

Feature	Detail
Brand	Truper
Model	MUT-33
Power Source	Battery Powered (2 AA batteries, included)
Item Weight	250 Grams (8.8 ounces)
Product Dimensions (L x W x H)	1.89 x 4.8 x 5.98 inches
Min. Operating Voltage	2 Volts (DC)
Measurement Type	Multimeter
Battery Cell Type	Alkaline

Feature	Detail
DC Voltage Ranges	200mV, 2V, 20V, 200V, 1000V
AC Voltage Ranges	200V, 750V
DC Current Ranges	200µA, 2mA, 20mA, 200mA, 10A
Resistance Ranges	200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ
Diode Test	Yes
Transistor hFE Test	Yes
Temperature Measurement	Yes (with thermocouple)
Safety Rating	CAT II 600V

9. Warranty and Support

For warranty information and technical support, please refer to the documentation included with your purchase or visit the official Truper website. Keep your purchase receipt as proof of purchase for warranty claims.
For further assistance, please contact Truper customer service.

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