PROSTER 189E

Proster TRMS 6000 Counts Auto Range Digital Multimeter Model 189E User Manual

Model: 189E

1. Introduction

Thank you for choosing the Proster TRMS 6000 Counts Auto Range Digital Multimeter Model 189E. This device is designed for accurate and reliable measurement of various electrical parameters. It features True RMS (TRMS) for precise readings on non-sinusoidal waveforms, auto-ranging for ease of use, and a clear backlit display. This manual provides detailed instructions for safe operation, setup, and maintenance of your multimeter.

Image 1.1: Proster Digital Multimeter Model 189E. This image shows the front view of the multimeter with its display and control buttons.

2. Safety Information

WARNING: To avoid possible electric shock, fire, or personal injury, please read all safety information before using the product.

- Always ensure the multimeter is in the correct function and range before making measurements.
- Do not exceed the maximum input values for any function. This multimeter is rated for DC/AC 600V CAT III overvoltage standard.
- Inspect test leads for damaged insulation or exposed metal before use. Replace if damaged.
- Do not use the multimeter if it appears damaged or if the case is open.
- Exercise extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Keep fingers behind the finger guards on the test probes during measurements.
- Remove test leads from the circuit before changing functions.
- Replace batteries when the low battery indicator appears to ensure accurate readings.

3. Package Contents

Verify that all items listed below are included in your package. If any items are missing or damaged, please contact customer support.

- Proster Rotary Dial Multimeter (Model 189E)
- Test Leads (1 pair, red and black)
- AAA Batteries (2 included)
- K-type Thermocouple
- User Manual

Image 3.1: Included components. This image displays the multimeter, test leads, batteries, thermocouple, and user manual that come with the product.

4. Product Overview

The Proster 189E Multimeter features an innovative turntable design for function selection and a clear, backlit LCD display.

Image 4.1: Innovative Turntable Design. This image highlights the rotary dial and the digital display, showing how the arrow points to the selected measurement function.

The multimeter's display provides digital readings and an analog-style representation. It also includes buttons for additional functions such as HOLD, REL (Relative Measurement), and a power button.

Image 4.2: Backlight and Flashlight. This image illustrates the bright, adjustable backlight of the LCD screen and the integrated flashlight for use in low-light conditions.

5. Setup

5.1 Battery Installation

The Proster 189E Multimeter requires two AAA batteries (included).

1. Locate the battery compartment on the back of the multimeter.
2. Use a screwdriver to open the battery compartment cover.
3. Insert two AAA batteries, ensuring correct polarity (+ and -).
4. Replace the battery compartment cover and secure it with the screw.

The multimeter will automatically power off after 15 minutes of inactivity to conserve battery life. This feature can be overridden if needed (refer to the original user manual for specific instructions on overriding auto-power off).

6. Operating Instructions

The Proster 189E Multimeter features auto-ranging, simplifying measurements by automatically selecting

the appropriate range.

6.1 Power On/Off

Press the power button (usually marked with a circle and a vertical line) to turn the multimeter on or off.

6.2 Function Selection

Rotate the central dial gear clockwise or counter-clockwise to select the desired measurement function. The LCD arrow will point to the currently selected function.

6.3 Connecting Test Leads

Always connect the black test lead to the "COM" (Common) jack. Connect the red test lead to the appropriate input jack based on the measurement type:

- **VΩHzCAPTemp:** For Voltage, Resistance, Frequency, Capacitance, and Temperature measurements.
- **mAμA:** For milliampere and microampere current measurements.
- **20A:** For high current measurements up to 20 Amperes.

6.4 AC/DC Voltage Measurement

To measure voltage:

1. Rotate the dial to the "V~" (AC Voltage) or "V-" (DC Voltage) position.
2. Connect the black test lead to the COM jack and the red test lead to the VΩHzCAPTemp jack.
3. Connect the test probes in parallel to the circuit or component you wish to measure.
4. Read the voltage value on the display.

Image 6.1: AC/DC Voltage Measurement. This image demonstrates connecting the multimeter to an AC outlet and a DC battery for voltage readings.

6.5 AC/DC Current Measurement

To measure current:

1. Rotate the dial to the "A~" (AC Current) or "A-" (DC Current) position.
2. Connect the black test lead to the COM jack. Connect the red test lead to the mAμA jack for small currents or the 20A jack for larger currents.
3. **WARNING:** Connect the test probes in series with the circuit. Never connect in parallel when measuring current, as this can damage the multimeter and the circuit.
4. Read the current value on the display.

6.6 Resistance Measurement

To measure resistance:

1. Rotate the dial to the "Ω" (Resistance) position.
2. Connect the black test lead to the COM jack and the red test lead to the VΩHzCAPTemp jack.
3. Ensure the circuit or component is de-energized before measuring resistance.

4. Connect the test probes across the component.
5. Read the resistance value on the display.

Image 6.2: Temperature and Resistance Measurement. This image shows the multimeter measuring the temperature of water using the thermocouple and the resistance of a resistor.

6.7 Diode Test

To test a diode:

1. Rotate the dial to the Diode symbol position.
2. Connect the black test lead to the COM jack and the red test lead to the VΩHzCAPTemp jack.
3. Connect the red probe to the anode and the black probe to the cathode of the diode. A forward voltage drop will be displayed.
4. Reverse the probes. The display should show "OL" (Open Loop) for a good diode.

6.8 Continuity Test

To test for continuity:

1. Rotate the dial to the Continuity symbol position (often shared with Diode).
2. Connect the black test lead to the COM jack and the red test lead to the VΩHzCAPTemp jack.

3. Connect the test probes across the circuit or component.
4. If there is continuity (low resistance), the multimeter will emit an audible beep.

6.9 Capacitance Measurement

To measure capacitance:

1. Rotate the dial to the Capacitance symbol position.
2. Connect the black test lead to the COM jack and the red test lead to the VΩHzCAPTemp jack.
3. Ensure the capacitor is fully discharged before measurement to prevent damage to the multimeter.
4. Connect the test probes across the capacitor.
5. Read the capacitance value on the display.

6.10 Temperature Measurement

To measure temperature:

1. Rotate the dial to the "°C/°F" (Temperature) position.
2. Connect the K-type thermocouple to the VΩHzCAPTemp and COM jacks, observing polarity.
3. Place the thermocouple tip on or in the object whose temperature you wish to measure.
4. Read the temperature value on the display.

6.11 NCV (Non-Contact Voltage) Test

The NCV function allows for detection of AC voltage without direct contact.

1. Rotate the dial to the "NCV" position.
2. Move the top part of the multimeter near the conductor or outlet.
3. The multimeter will indicate the presence of AC voltage with visual (LEDs) and audible (beeps) alarms. The frequency of beeps and LED flashes increases with stronger voltage.

Image 6.3: NCV Test. This image shows the multimeter detecting non-contact voltage near an electrical outlet, with visual and audible alarms indicated.

6.12 LIVE Wire Detection

The LIVE function helps identify live wires.

1. Rotate the dial to the "LIVE" position.
2. Insert the red test probe into the VΩHzCAPTemp jack.
3. Touch the red probe to the wire or terminal you suspect is live.
4. The multimeter will indicate a live wire with visual and audible alarms.

6.13 Data Hold Function

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

6.14 Backlight and Flashlight

Short press the "HOLD" button (with the sun icon) to adjust the screen backlight brightness. Long press the "REL" button (with the flashlight icon) to turn the flashlight on or off for illumination in dark areas.

7. Maintenance

7.1 Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

7.2 Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in the "Battery Installation" section (5.1).

7.3 Storage

If the multimeter is not used for an extended period, remove the batteries to prevent leakage and damage. Store the device in a cool, dry place.

8. Troubleshooting

- **No Display/Power On:** Check battery installation and ensure batteries are not depleted. Replace if necessary.
- **Inaccurate Readings:**
  - Ensure test leads are properly connected to the correct input jacks.
  - Verify the selected function matches the measurement type.
  - Check battery level; low batteries can affect accuracy.
  - Ensure the circuit is de-energized for resistance or capacitance measurements.
- **Multimeter Beeps Excessively:** The device is designed to beep upon function selection and certain operations. This is normal. If beeping is constant and unexpected, re-check connections and function selection.
- **"OL" (Overload) Display:** This indicates the measured value exceeds the multimeter's current range. Ensure you are not attempting to measure values beyond the device's specifications.

9. Specifications

Parameter	Value
Model Number	189E
Display	6000 Counts, TRMS
DC Voltage Range	Up to 1000V (±0.5%+3)
AC Voltage Range	Up to 750V (±0.5%+5)
DC Current Range	Up to 20A (±1.5%+30)
AC Current Range	Up to 20A (±1.5%+30)
Resistance Range	Up to 100MΩ (±0.8%+3)
Capacitance Range	Up to 60mF (±2.0%+8)
Frequency Range	10Hz to 10MHz (±0.1%+2)

Parameter	Value
Temperature Range	-20°C to 1300°C (-4°F to 1832°F) (±1.5%+15)
Safety Rating	CAT III 600V
Power Source	2 x AAA Batteries
Dimensions	15 x 7 x 3.3 cm
Weight	200 g

10. Warranty and Support

Proster products are designed for reliability and performance. For warranty information or technical support, please refer to the contact details provided with your purchase or visit the official Proster website. Keep your purchase receipt as proof of purchase for warranty claims.

11. Product Videos

The following videos provide additional visual guidance on using your Proster Multimeter.

11.1 Multimeter Overview and Features

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Video 11.1: This video provides a general overview of the Proster Multimeter, demonstrating its various functions and user interface. (Duration: 7:50)

11.2 Basic Measurement Demonstrations

Your browser does not support the video tag.

Video 11.2: This video illustrates basic measurement procedures, such as voltage or current testing, using the multimeter. (Duration: 3:28)