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PEAKMETER PM8233D

PEAKMETER Digital Multimeter PM8233D User Manual

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1. INTRODUCTION

The PEAKMETER PM8233D is a compact, handheld, and battery-operated digital multimeter designed for a wide range of electrical measurements. This device is engineered to meet IEC61010-1 & CAT III 600V overvoltage category and features double insulation for enhanced safety. It is capable of measuring AC and DC voltage, AC and DC current, resistance, and frequency. Additionally, it includes useful functions such as Max Value Hold and Data Hold. The multimeter also features overload protection and an automatic power-off function to conserve battery life.



Figure 1: PEAKMETER PM8233D Digital Multimeter.

2. SAFETY INFORMATION

To ensure safe operation and avoid damage to the meter, please read this manual carefully before use. Adhere to all safety warnings and precautions.

- Always ensure the test leads are properly connected and the function switch is set to the correct range before making any measurements.
- Do not apply voltage or current that exceeds the maximum specified limits for each range.
- Exercise extreme caution when working with voltages above 60V DC or 30V AC RMS, as these pose a shock hazard.
- Before measuring current, ensure the circuit is de-energized and the meter is connected in series with the load.
- Before measuring resistance or continuity, ensure the circuit is de-energized and all capacitors are discharged.
- Replace the battery immediately when the low battery indicator appears to ensure accurate readings.
- Do not operate the meter if it appears damaged or if the protective casing is removed.
- The meter is designed with overload protection using a PTC protection circuit for resistance and frequency

measurements.

- This device meets safety standards EN61010-1, EN61010-2-033, EN61326, and CAT III 600V.

3. PRODUCT FEATURES

The PEAKMETER PM8233D Digital Multimeter offers the following key features:

- **2000 Counts Display:** Provides clear and precise readings.
- **Auto Ranging DMM:** Automatically selects the appropriate measurement range.
- **DC/AC Voltage Measurement:** Capable of measuring both direct and alternating current voltages.
- **DC/AC Current Measurement:** Measures direct and alternating currents.
- **Resistance Measurement:** For checking circuit resistance.
- **Diode Test:** For testing diode functionality.
- **Continuity Test:** Audible indication for circuit continuity.
- **Data Hold Function:** Freezes the displayed reading for easy recording.
- **Max Value Hold Function:** Captures and displays the maximum measured value.
- **Backlight:** Improves visibility in dimly lit environments.
- **Low Battery Indication:** Alerts when battery replacement is needed.
- **Overload Protection:** Protects the meter from damage due to excessive input.
- **Auto Power Off:** Automatically turns off the meter after 15 minutes of inactivity to save battery.
- **Compact and Handheld Design:** Easy to carry and use in various settings.
- **Convenience Slot:** Integrated slot on the back for storing test probes, preventing loss and improving portability.



Figure 2: Feature comparison between PM8233D and PM8233E models.

4. SETUP

4.1. Battery Installation

The PM8233D multimeter is powered by a DC 9V 6F22 battery.

1. Ensure the multimeter is turned off.
2. Locate the battery compartment cover on the back of the unit.
3. Unscrew the retaining screw(s) and carefully remove the cover.
4. Connect the 9V battery to the battery clips, observing correct polarity.
5. Place the battery into the compartment and replace the cover, securing it with the screw(s).

4.2. 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:

- For Voltage, Resistance, Diode, and Continuity measurements: Connect the red lead to the "VΩHz" jack.
- For Current (up to 200mA) measurements: Connect the red lead to the "mA" jack.
- For High Current (up to 10A) measurements: Connect the red test lead to the "10A" jack.

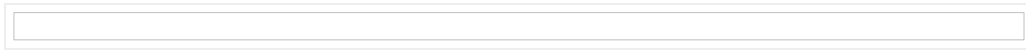


Figure 3: Test probes stored in the convenience slot on the back of the multimeter.

5. OPERATING INSTRUCTIONS

5.1. Power On/Off and Auto Power Off

To turn on the multimeter, rotate the function switch to any desired measurement position. The meter will automatically power off after approximately 15 minutes of inactivity to conserve battery life. To reactivate, simply rotate the function switch or press a button.

5.2. Measuring DC Voltage

1. Connect the black test lead to the "COM" jack and the red test lead to the "VΩHz" jack.
2. Rotate the function switch to the "V" (DC Voltage) position. The meter is auto-ranging.
3. Connect the test probes across the DC voltage source or component to be measured.
4. Read the voltage value on the display.



Figure 4: Example of DC Voltage measurement setup.

5.3. Measuring AC Voltage

1. Connect the black test lead to the "COM" jack and the red test lead to the "VΩHz" jack.
2. Rotate the function switch to the "V~" (AC Voltage) position. The meter is auto-ranging.
3. Connect the test probes across the AC voltage source or component to be measured.
4. Read the voltage value on the display.



Figure 5: Example of AC Voltage measurement setup.

5.4. Measuring DC Current

1. **Important:** De-energize the circuit before connecting the meter.
2. Connect the black test lead to the "COM" jack.
3. For currents up to 200mA, connect the red test lead to the "mA" jack. For currents up to 10A, connect the red test lead to the "10A" jack.
4. Rotate the function switch to the "A" (DC Current) position.
5. Open the circuit where current is to be measured and connect the meter in series with the load.
6. Re-energize the circuit and read the current value on the display.



Figure 6: Example of DC Current measurement setup.

5.5. Measuring AC Current

1. **Important:** De-energize the circuit before connecting the meter.
2. Connect the black test lead to the "COM" jack.
3. For currents up to 200mA, connect the red test lead to the "mA" jack. For currents up to 10A, connect the red test lead to the "10A" jack.

4. Rotate the function switch to the "A~" (AC Current) position.
5. Open the circuit where current is to be measured and connect the meter in series with the load.
6. Re-energize the circuit and read the current value on the display.

5.6. Measuring Resistance

1. **Important:** Ensure the circuit is de-energized and all capacitors are discharged before measuring resistance.
2. Connect the black test lead to the "COM" jack and the red test lead to the "VΩHz" jack.
3. Rotate the function switch to the "Ω" (Resistance) position. The meter is auto-ranging.
4. Connect the test probes across the component to be measured.
5. Read the resistance value on the display.



Figure 7: Example of Resistance measurement setup.

5.7. Diode Test

1. **Important:** Ensure the circuit is de-energized and all capacitors are discharged.
2. Connect the black test lead to the "COM" jack and the red test lead to the "VΩHz" jack.
3. Rotate the function switch to the "Diode" position.
4. Connect the red probe to the anode and the black probe to the cathode of the diode. The display will show the forward voltage drop.
5. Reverse the probes. The display should show "OL" (Open Loop) for a good diode.

5.8. Continuity Test

1. **Important:** Ensure the circuit is de-energized and all capacitors are discharged.
2. Connect the black test lead to the "COM" jack and the red test lead to the "VΩHz" jack.
3. Rotate the function switch to the "Continuity" position.
4. Connect the test probes across the circuit or component.
5. If the resistance is below approximately 50Ω, the buzzer will sound, indicating continuity.

5.9. 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.

5.10. Max Value Hold Function

The PM8233D supports Max Value Hold. Consult the specific button on your device (often labeled "MAX" or combined with "HOLD") to activate this feature. This function captures and displays the highest reading detected during a measurement session.

5.11. Backlight

Press the "Backlight" button (often combined with "HOLD" or a dedicated button) to turn the display backlight on or off, improving visibility in low-light conditions.

6. MAINTENANCE

6.1. Cleaning

Wipe the meter's casing with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the meter is completely dry before use.

6.2. Battery Replacement

When the low battery indicator appears on the display, replace the 9V battery as described in the "Battery Installation" section (4.1). Always use a fresh 9V 6F22 battery.

6.3. Fuse Replacement (if applicable)

The PM8233D has internal overload protection. If current measurement functions cease to work, it may indicate a blown fuse. Fuse replacement should only be performed by qualified personnel. Refer to the specifications for the correct fuse type and rating.

7. TROUBLESHOOTING

- **Meter does not power on:**

- Check if the battery is correctly installed and has sufficient charge. Replace if necessary.
- Ensure the function switch is rotated to an active measurement position.

- **No reading or "OL" (Overload) displayed:**

- Ensure test leads are properly connected to the correct jacks and the circuit.
- Verify the function switch is set to the appropriate measurement type and range.
- For resistance/continuity, ensure the circuit is de-energized.
- "OL" can indicate a value exceeding the meter's range or an open circuit.

- **Inaccurate readings:**

- Check battery level; low battery can affect accuracy.
- Ensure test leads are not damaged and connections are secure.
- Verify the correct measurement function and range are selected.
- Ensure there is no external interference affecting the measurement.

- **Buzzer does not sound during continuity test:**

- Ensure the function switch is in the continuity position.
- Check if the circuit resistance is above the continuity threshold (approx. 50Ω).

8. SPECIFICATIONS

The following table details the technical specifications for the PEAKMETER PM8233D Digital Multimeter.

Measurement Type	Range	Accuracy
DC Voltage	200mV/2V/20V/200V	±(0.5%+2)
	600V	±(0.8%+2)
AC Voltage	2V/20V/200V	±(1.0%+3)
	600V	±(1.2%+3)

Measurement Type	Range	Accuracy
DC Current	200 μ A/2mA/20mA/200mA	$\pm(1.5\%+3)$
AC Current	200 μ A/2mA/20mA/200mA	$\pm(1.5\%+4)$
Resistance	200 Ω /2k Ω /20k Ω /200k Ω /2M Ω	$\pm(0.8\%+2)$
	20M Ω	$\pm(1.0\%+2)$
Temperature	-20°C 1000°C / 0°F 1800°F	$\pm(3.0\%+3)$

General Specifications:

- **Display:** 2000 Counts
- **Auto Range:** Yes
- **Data Hold:** Yes
- **Backlight:** Yes
- **Diode Test:** Yes
- **Continuity:** Yes
- **Maximum Value Hold:** Yes
- **Power Supply:** DC 9V 6F22 Battery
- **Weight:** Approximately 110g
- **Dimensions:** 140mm × 67mm × 30mm
- **Safety Rating:** EN61010-1, EN61010-2-033, EN61326, CAT III 600V
- **Overload Protection:** PTC protection circuit for resistance, frequency measurement
- **Auto Power Off:** After 15 minutes of inactivity
- **Operating Temperature:** 0°C to 40°C (32°F to 104°F)
- **Storage Temperature:** -10°C to 50°C (14°F to 122°F)
- **Humidity:** Less than 80% RH (non-condensing)

9. WARRANTY AND SUPPORT

The PEAKMETER PM8233D Digital Multimeter typically comes with a manufacturer's warranty covering defects in materials and workmanship. Please refer to the warranty card included with your product or contact your retailer for specific warranty terms and conditions.

For technical support, troubleshooting assistance, or service inquiries, please contact PEAKMETER customer service or your authorized dealer. Keep your purchase receipt as proof of purchase for warranty claims.

Manufacturer: PEAKMETER

Model Number: EC-PM8233D

Country of Origin: China