PEAKMETER PM2116S

PEAKMETER PM2116S Digital Clamp Meter Instruction Manual

Model: PM2116S

1. Introduction

The PEAKMETER PM2116S is a compact, automatic range digital clamp meter designed for precise electrical measurements. It features automatic identification of measurement functions and ranges, simplifying operation. This instrument is suitable for measuring AC/DC voltage, AC/DC current, resistance, and frequency, along with continuity and Non-Contact Voltage (NCV) detection. Its portable design and high precision make it an essential tool for various electrical testing applications.
Key features include a 6000-count display, data hold, backlight, and automatic shutdown to conserve battery life. The device is built with overload protection across all ranges and adheres to safety standards EN61010-1, EN61010-2-033, EN61326, and CAT III 600V.

2. Safety Information

To ensure safe operation and prevent damage to the meter, please read and follow all safety instructions carefully before use. Keep this manual for future reference.

- **WARNING:** To avoid electrical shock, do not operate the meter with the battery cover open.
- Always ensure the test leads are in good condition and properly connected before making any measurements.
- Do not exceed the maximum input limits for any function. The maximum voltage between the measurement terminal and ground is 600V DC or 600V AC.
- 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 clamp jaws are properly closed around a single conductor.
- Do not attempt to measure current on circuits with voltages exceeding the meter's rated capacity.
- If the meter displays an "OL" (Overload) indication, the input value exceeds the selected range. Disconnect immediately to prevent damage.
- Replace batteries promptly when the low battery indicator appears to ensure accurate readings.
- The meter is designed for use in environments up to 2000m operating height.

- Adhere to the safety rating CAT III 600V.

3. Product Overview

Familiarize yourself with the components of your PEAKMETER PM2116S Digital Clamp Meter.

Figure 3.1: Front view of the PEAKMETER PM2116S Digital Clamp Meter with labeled components.

1. **Current Clamp Jaws:** Used for non-contact AC/DC current measurement.

2. **Jaw Trigger:** Opens the current clamp jaws.
3. **NCV Sensor:** Detects non-contact voltage.
4. **LCD Display:** Shows measurement readings, units, and indicators.
5. **Function Buttons:**
    - **Power Button (Red Circle with Line):** Turns the meter ON/OFF.
    - **SEL/NCV Button:** Selects measurement modes (e.g., AC/DC for voltage/current, Resistance/Continuity/Diode) and activates NCV function.
    - **Hold/Backlight Button (Square with Star):** Holds the current reading on the display; long press activates/deactivates backlight.
6. **Input Jacks:**
    - **COM Jack:** Common input for the black test lead.
    - **VΩHz Jack:** Input for the red test lead for voltage, resistance, and frequency measurements.

Figure 3.2: Back view showing the battery compartment.

4. Setup

4.1. Battery Installation

The PEAKMETER PM2116S requires two 1.5V AAA batteries for operation. Ensure batteries are installed correctly before use.

1. Ensure the meter is turned OFF.
2. Locate the battery compartment cover on the back of the meter (refer to Figure 3.2).
3. Use a screwdriver to loosen the screw securing the battery cover.
4. Remove the battery cover.
5. Insert two 1.5V AAA batteries, observing the correct polarity (+ and -) as indicated inside the compartment.
6. Replace the battery cover and tighten the screw securely.

Note: If the low battery indicator appears on the display, replace the batteries immediately to maintain measurement accuracy.

5. Operating Instructions

This section details how to perform various measurements using your clamp meter.

5.1. Power ON/OFF

- Press the red Power Button (①) to turn the meter ON. The display will show "AUTO" indicating automatic range selection.
- Press and hold the Power Button (①) for approximately 2 seconds to turn the meter OFF.
- The meter features an automatic shut-down function after 10 minutes of inactivity to save battery life.

5.2. Automatic Measurement (V/Ω/A Auto Scan)

The PM2116S automatically identifies and measures AC/DC voltage, resistance, and continuity when the test leads are connected to the VΩHz and COM jacks. For current measurement, use the clamp jaws.

5.3. AC/DC Voltage Measurement

1. Insert the red test lead into the VΩHz jack and the black test lead into the COM jack.
2. Connect the test leads across the circuit or component to be measured.
3. The meter will automatically detect and display the AC or DC voltage. If both AC and DC components are present, press the **SEL/NCV** button to switch between AC and DC readings.
4. The display will show the voltage value and the corresponding unit (V, mV).

5.4. AC/DC Current Measurement (Clamp)

1. Ensure no test leads are connected to the input jacks.
2. Press the jaw trigger to open the clamp jaws.
3. Enclose a single conductor (not a power cord containing multiple wires) with the clamp jaws. Ensure the jaws are fully closed.
4. The meter will automatically detect and display the AC or DC current. Press the **SEL/NCV** button to switch between AC and DC current readings if needed.
5. The display will show the current value and the corresponding unit (A, mA).
6. **Important:** For accurate AC/DC current measurement, ensure only one conductor passes through the clamp jaws.

5.5. Resistance Measurement

1. Insert the red test lead into the VΩHz jack and the black test lead into the COM jack.
2. Ensure the circuit or component to be measured is de-energized.
3. Connect the test leads across the component.
4. The meter will automatically display the resistance value and the corresponding unit (Ω, kΩ, MΩ).

5.6. Continuity Test

1. Insert the red test lead into the VΩHz jack and the black test lead into the COM jack.
2. Ensure the circuit or component is de-energized.
3. Connect the test leads across the component.
4. If the resistance is below approximately 50Ω, the buzzer will sound, indicating continuity. The display will show the resistance value.

5.7. Frequency Measurement (Voltage)

1. Insert the red test lead into the VΩHz jack and the black test lead into the COM jack.
2. Connect the test leads across the AC voltage source.
3. The meter will automatically display the frequency in Hertz (Hz).

5.8. Non-Contact Voltage (NCV) Detection

1. Press the **SEL/NCV** button to activate the NCV function. "NCV" will appear on the display.
2. Move the NCV sensor (top part of the clamp jaws) close to the conductor or outlet you want to test.
3. If AC voltage is detected, the meter will emit an audible beep and the NCV indicator light will flash. The intensity of the beeping and flashing indicates the strength of the detected voltage.

5.9. Data Hold

- During any measurement, press the **Hold/Backlight** button briefly to freeze the current reading on the display. "H" will appear on the screen.
- Press the button again to release the data hold and resume live measurements.

5.10. Backlight

- Press and hold the **Hold/Backlight** button for approximately 2 seconds to turn the display backlight ON or OFF.

6. Maintenance

6.1. Cleaning

- Wipe the meter's casing with a damp cloth and a mild detergent. Do not use abrasives or solvents.
- Keep the input jacks and clamp jaws free from dust and debris.

6.2. Battery Replacement

Refer to Section 4.1 for detailed instructions on battery replacement. Always replace both batteries at the same time with new 1.5V AAA batteries.

6.3. Storage

- If the meter is not used for an extended period, remove the batteries to prevent leakage and damage.
- Store the meter in a cool, dry place, away from direct sunlight and extreme temperatures.

7. Troubleshooting

This section addresses common issues you might encounter with your clamp meter.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Meter does not power ON.	Dead or incorrectly installed batteries.	Check battery polarity or replace batteries (refer to Section 4.1).
"OL" (Overload) displayed.	Input value exceeds the measurement range.	Disconnect the test leads immediately. Ensure the measurement is within the meter's specifications.
Inaccurate readings.	Low battery, dirty test leads/jacks, or external interference.	Replace batteries. Clean test leads and input jacks. Move away from strong electromagnetic fields.
No continuity beep.	Circuit resistance is too high, or circuit is open.	Verify the circuit is closed and resistance is below 50Ω. Check test leads for damage.
NCV not detecting voltage.	NCV function not activated, or voltage is too low.	Press the **SEL/NCV** button to activate NCV. Ensure the NCV sensor is close to the live conductor.

8. Specifications

The following table outlines the technical specifications of the PEAKMETER PM2116S Digital Clamp Meter.

Measurement Function	Range	Accuracy
DC Voltage	0.5V ~ 600V	±(0.5%+3)
DC Current	6A / 60A / 100A	±(2.5%+5)
AC Voltage	1.0V ~ 600V	±(0.8%+5)
AC Current	6A / 60A / 100A	±(2.5%+5)
Resistance	0Ω ~ 6kΩ	±(0.8%+3)
Frequency	40Hz ~ 1000Hz	±1.0% rdg

General Specifications:

- **Display:** 6000 counts LCD
- **Over Range Display:** '0L' or '-0L'
- **Sampling Time:** Approximately 3 times/second
- **Automatic Shut-down:** 10 minutes
- **Overload Protection:** Throughout the range
- **Temperature Coefficient:** Less than 0.1 × accuracy/°C
- **Polarity Indication:** Automatic indication, '-' indicates negative
- **Max. Voltage (Terminal to Ground):** 600V DC or 600V AC
- **Power Supply:** 2 x 1.5V AAA Batteries
- **Net Weight:** 115g (batteries not included)
- **Gross Weight:** 250g
- **Dimensions:** 158mm x 55mm x 29mm
- **Jaw Size:** Ø20mm

- **Safety Rating:** EN61010-1, EN61010-2-033, EN61326, CAT III 600V
- **Operating Height:** Max. 2000m

9. Warranty and Support

This PEAKMETER product is designed for reliability and durability. For warranty information or technical support, please refer to the documentation provided at the time of purchase or contact your retailer. Keep your purchase receipt as proof of purchase.
For further assistance, please visit the official PEAKMETER website or contact their customer service department.