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Metrel MD 1160

Metrel MD 1160 Bipolar Voltage Detector User Manual

Model: MD 1160 | Brand: Metrel

1. INTRODUCTION

The Metrel MD 1160 Bipolar Voltage Detector is a robust and reliable instrument designed for safe and accurate electrical measurements. It is developed and tested in compliance with EN 61243-3/VDE0682 standards. This device allows for voltage measurement, continuity testing, unipolar phase testing, and rotating field detection.

Voltage is indicated via clear LEDs, divided into intervals from 12 V to 690 V, and also as a true effective value on the integrated LCD screen.

2. SAFETY INFORMATION

Read this manual thoroughly before operating the device. Failure to follow safety instructions may result in electric shock, fire, or personal injury.

- This device is rated for Measurement Category (Lov): CAT III 1000 V, CAT IV 600 V. Always observe these limits.
- Do not use the device if it appears damaged or if any part of the insulation is compromised.
- Ensure the test leads are in good condition before each use.
- The device has an IP64 protection type, meaning it is protected against dust ingress and splashing water from any direction. However, it is not waterproof.
- Always verify the functionality of the voltage detector on a known voltage source before and after use.
- Do not attempt to open or modify the device. Refer all servicing to qualified personnel.

3. PRODUCT OVERVIEW

The Metrel MD 1160 features a clear LCD display and LED indicators for various measurements. It is designed for ease of use and reliability in electrical testing environments.



Image 1: Metrel MD 1160 Bipolar Voltage Detector. This image shows the front view of the device, highlighting its robust design and clear display area.

Key Features:

- LCD display for true effective voltage values.
- LED voltage indicators (12 V to 690 V AC/DC).
- Continuity test with acoustic and visual signals.
- Unipolar phase test for 100 V to 690 V AC.
- Rotating field test.
- Integrated LED illumination for measurement points.
- Pluggable 4 mm test adapter for secure contact with socket contacts.
- Polarity test.

4. SETUP

The Metrel MD 1160 is battery-powered. Before initial use, or if the display is dim, ensure that the batteries are correctly installed and have sufficient charge.

Battery Installation:

1. Locate the battery compartment on the device.
2. Open the battery compartment cover.

3. Insert the required batteries, observing the correct polarity (+/-) as indicated inside the compartment.
4. Close the battery compartment cover securely.

Note: The device will perform a self-test upon power-up. If the device does not power on or shows a low battery indicator, replace the batteries.

5. OPERATING INSTRUCTIONS

Always ensure the device is functioning correctly by testing it on a known voltage source before and after use.

5.1 Voltage Measurement (AC/DC)

1. Connect the test probes to the points where voltage is to be measured.
2. The voltage will be indicated by the illuminated LEDs corresponding to the voltage range (12 V to 690 V).
3. The precise voltage value will be displayed on the LCD screen.
4. For DC voltage, the polarity will also be indicated.

5.2 Continuity Test

1. Ensure the circuit under test is de-energized.
2. Connect the test probes across the component or circuit path to be tested for continuity.
3. If continuity is detected, the device will emit an acoustic signal and provide a visual indication.

5.3 Unipolar Phase Test

This test is suitable for AC voltages between 100 V and 690 V.

1. Hold the device firmly and touch one test probe to the conductor to be tested.
2. If a phase voltage is present, the device will indicate it.

5.4 Rotating Field Test

This function is used to determine the phase sequence in three-phase systems.

1. Connect the test probes to the three phases of the system.
2. The device will indicate the direction of the rotating field (e.g., clockwise or counter-clockwise, depending on the specific model's indicators).

5.5 Polarity Test

When measuring DC voltage, the device automatically indicates the polarity of the voltage.

1. Connect the test probes to the DC voltage source.
2. The LCD will display the voltage value along with a '+' or '-' symbol to indicate polarity.

6. MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your Metrel MD 1160.

- **Cleaning:** Clean the device with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- **Storage:** Store the device in a dry, cool place, away from direct sunlight and extreme temperatures. If storing for extended periods, remove the batteries to prevent leakage.
- **Battery Replacement:** Replace batteries promptly when the low battery indicator appears to ensure accurate measurements. Dispose of used batteries according to local regulations.
- **Inspection:** Regularly inspect the test leads and the device casing for any signs of damage. Do not use if damaged.

7. TROUBLESHOOTING

If you encounter issues with your Metrel MD 1160, refer to the following common troubleshooting steps:

- **No Display/Device Not Powering On:** Check if the batteries are correctly installed and have sufficient charge. Replace batteries if necessary.
- **Inaccurate Readings:** Ensure proper contact between the test probes and the circuit. Verify that the voltage being measured is within the specified operating range of the device (12 V to 690 V AC/DC).
- **No Continuity Indication:** Ensure the circuit is de-energized. Check for open circuits or faulty components.
- **Intermittent Operation:** Check for loose battery connections or damaged test leads.

If the problem persists after attempting these steps, contact Metrel customer support or a qualified service technician.

8. SPECIFICATIONS

Parameter	Value
Model Type	MD 1160
Manufacturer Model Number	20992241
Voltage Measurement Range (AC/DC)	12 V to 690 V
Measurement Category	CAT III 1000 V, CAT IV 600 V
Display Type	LCD, Acoustic (for continuity)
Protection Type	IP64
Power Source	Battery powered
Dimensions (L x W x H)	24 x 6 x 2 cm
Weight	200 grams
Minimum Operating Voltage	12 Volts
Compliant Specifications	CE, CSA

9. WARRANTY AND SUPPORT

Metrel provides a warranty for its products against defects in materials and workmanship. For specific warranty terms and conditions, please refer to the documentation included with your purchase or visit the official Metrel website.

Spare parts for this model are available for 1 year within the EU.

For technical support, service, or warranty claims, please contact your local Metrel distributor or the Metrel customer service department. Contact information can typically be found on the Metrel website or in your product packaging.