Unomor N12AB3LB13J37JX8C

Unomor Portable High Sensitivity Physics Electrometer User Manual

Brand: Unomor | **Model:** N12AB3LB13J37JX8C

1. Product Overview

The Unomor Portable High Sensitivity Physics Electrometer is an experimental and teaching instrument designed for accurate measurement and detection of static electricity. It is suitable for various educational and laboratory settings, providing reliable and precise results for physics experiments.

Key Characteristics:

- High sensitivity for accurate and reliable measurements.
- Features high-precision measurement scales for detailed experimental requirements.
- User-friendly design for simple operation, accessible to students and professionals.
- Constructed from durable acrylic, plastic, and metal components.
- Equipped with a physical foil for enhanced sensitivity in detecting static electricity.

Figure 1: The Unomor Portable High Sensitivity Physics Electrometer, showing its transparent casing and internal components.

2. Setup Instructions

The electrometer is designed for immediate use with minimal setup required. Follow these steps to prepare the instrument for operation:

1. **Unpacking:** Carefully remove the electrometer from its packaging. Inspect the device for any visible damage during transit.
2. **Placement:** Place the electrometer on a stable, level surface in a clean, dry environment. Ensure the area is free from strong air currents or vibrations that could affect measurements.
3. **Environmental Considerations:** For optimal performance, operate the electrometer in an environment with stable temperature and humidity. Avoid placing it near sources of strong electromagnetic fields.

Figure 2: The electrometer positioned on a laboratory workbench, ready for experimental use.

3. Operating Instructions

The electrometer is used to detect and measure the presence of static electric charges. Its high sensitivity allows for precise observation of electrostatic phenomena.

3.1. Basic Operation for Static Electricity Detection

1. **Preparation:** Ensure the electrometer is on a stable surface and the internal foil is hanging freely.
2. **Charging an Object:** Take an object (e.g., a plastic rod, balloon) and charge it by rubbing it with a suitable material (e.g., wool, silk).
3. **Detection:** Slowly bring the charged object close to the metal plate (terminal) at the top of the electrometer. Do not touch the plate initially.
4. **Observation:** Observe the movement of the internal foil. If the object is charged, the foil will deflect, indicating the presence of static electricity. The degree of deflection corresponds to the magnitude of the charge.
5. **Discharging:** To discharge the electrometer, touch the metal plate with your finger or a grounded conductor. The foil should return to its original position.

3.2. Understanding Measurements

The electrometer features a scale that allows for quantitative observation of charge. The deflection angle of the foil can be correlated with the amount of charge present. For precise measurements, refer to specific experimental protocols or calibration procedures relevant to your educational curriculum.

Figure 3: A hand holding the electrometer, illustrating its compact size and ease of handling during experiments.

4. Maintenance

Proper maintenance ensures the longevity and accuracy of your electrometer.

- **Cleaning:** Wipe the exterior of the electrometer with a soft, dry, lint-free cloth. Avoid using abrasive cleaners or solvents, as they may damage the acrylic and plastic components.
- **Internal Components:** Do not attempt to clean or adjust the internal foil or other delicate components unless specifically instructed by a qualified supervisor.
- **Storage:** Store the electrometer in a cool, dry place, away from direct sunlight and extreme temperatures. Keep it in its original packaging or a protective case when not in use to prevent dust accumulation and physical damage.
- **Handling:** Handle the instrument with care to avoid dropping or subjecting it to impacts, which could affect its calibration or structural integrity.

Figure 4: Two electrometers displayed on a desk, indicating their suitability for classroom or multiple-unit setups.

5. Troubleshooting

If you encounter issues with your electrometer, consider the following common troubleshooting steps:

- **No Foil Deflection:**
  - Ensure the object being used is sufficiently charged. Try rubbing it more vigorously or with a different material.
  - Verify that the electrometer's metal plate is clean and free of any insulating residue.
  - Check for excessive humidity in the environment, which can dissipate static charges quickly.
- **Inconsistent Readings:**
  - Ensure the electrometer is placed on a stable, non-conductive surface.
  - Minimize air currents around the instrument during experiments.
  - Confirm that there are no other charged objects or strong electromagnetic fields nearby that could interfere with readings.
- **Physical Damage:** If the foil is bent or damaged, it may affect accuracy. Contact customer support for guidance.

Figure 5: The electrometer shown in a classroom environment, highlighting its educational application.

6. Specifications

Product Dimensions	4.49 x 4.13 x 2.91 inches (11.40 x 10.50 x 7.40 cm)
Weight	4 ounces
Model Number	N12AB3LB13J37JX8C
Materials	Acrylic, Plastic, Metal
Color	Transparent
Manufacturer	Unomor

Figure 6: Diagram showing the dimensions of the Unomor Electrometer.

7. Warranty and Support

For warranty information and customer support, please refer to the documentation included with your product packaging or visit the official Unomor website. If you have any questions regarding the operation, maintenance, or troubleshooting of your electrometer, please contact Unomor customer service.

Unomor Store Link: Visit the Unomor Store on Amazon