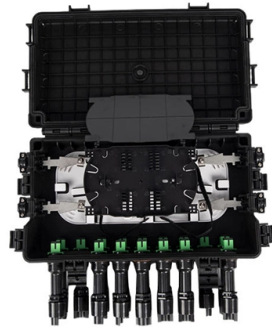


Measuring the grounding of the distribution box using a megohmmeter



Overview

How to Check and Measure Ground Resistance Using a Meggers are particularly useful for assessing the integrity of electrical insulation and grounding systems.

Key Takeaways

A Megohmmeter (Megger) test measures the ground resistance of a distribution box to ensure proper earthing and electrical safety, with recommended resistance typically below 5 ohms. Purpose of the Test

The Megger test for grounding evaluates the resistance between the grounding electrode and earth, confirming that the distribution box is properly earthed. Proper grounding prevents electrical shock, equipment damage, and ensures compliance with safety standards such as NEC, IEEE, and IEC.

Recommended Ground Resistance

- IEEE/NFPA standards: < 5 ohms
- IEC/BS EN 62561-2: 5-10 ohms
- NEC 250.56: Maximum 25 ohms; sensitive applications up to 50 ohms If resistance exceeds recommended values, additional ground rods or corrective measures may be required.

Equipment Needed

- Megohmmeter (Megger): Can be analog or digital, with specific settings for ground resistance measurement.

- Leads and probes: For 2-point, 3-point, or clamp-on testing.
 - Optional clamps: For stakeless testing without disconnecting the ground conductor .
- Step-by-Step Procedure
- Safety First: De-energize the distribution box and disconnect the earth lead from the main panel if using traditional 2- or 3-point testing .
 - Select Test Method:
 - 3-point method: Uses a current electrode and a potential electrode placed in the soil at measured distances from the ground rod.
 - Clamp-on/stakeless method: Measures ground resistance without disconnecting the system, ideal for live or bonded systems .
 - Connect the Megger: Attach the leads to the distribution box ground and the test electrodes or clamps according to the Megger model instructions .
 - Apply Test Voltage: Activate the Megger to apply a high DC voltage and measure resistance. Digital Meggers display the resistance directly, while analog models require reading the scale .
 - Record Results: Compare the measured resistance with recommended values. If resistance is too high, inspect the grounding system and consider adding rods or improving soil conductivity .
 - Reconnect and Verify: After testing, reconnect any disconnected ground leads and ensure the system is safe for operation.

Tips for Accurate Testing

- Ensure soil moisture is adequate, as dry soil can increase resistance readings.
- Avoid testing near metallic structures or parallel grounds that may interfere with measurements.
- Follow the manufacturer's instructions for your specific Megger model.
- Use personal protective equipment and maintain safe distances from live circuits if performing stakeless testing .

Conclusion

Performing a Megohmmeter test on a distribution box is essential for verifying grounding integrity. Using proper procedures, equipment, and safety precautions ensures accurate readings, compliance with standards, and protection of both personnel and electrical equipment .

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Many testers have an additional test range measuring in kilohms (kW). This measurement is typically made at only a few volts, and is

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