Is there any noise from the high-voltage distribution box



Overview

That is more than the electric field required to break the intermolecular bond of the air molecules. Hence the air particle around the lines gets ionized and start moving freely.

Key Takeaways

High-voltage distribution boxes often make noise due to corona discharge, transformer vibrations, and environmental factors, which are usually normal but can indicate maintenance needs.

Corona Discharge

One of the primary causes of noise in high-voltage equipment is corona discharge, which occurs when the electric field around conductors ionizes the surrounding air. This creates a faint, continuous electrical discharge that produces a buzzing or crackling sound. The intensity of this noise increases with higher voltages, sharp points or nicks on conductors, and humid or rainy conditions, as moisture enhances air conductivity and amplifies the discharge sound.

Corona discharge can also produce a faint visible glow near the conductors and minor energy loss known as corona loss.



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Transformer Hum and Magnetostriction

Transformers inside distribution boxes can generate a low-frequency hum due to magnetostriction, where the transformer core slightly changes shape as the magnetic field fluctuates with alternating current. This vibration occurs at twice the mains frequency (e.g., 120 Hz in North America) and can be amplified by poor installation, rigid mounting, or reflective enclosures. Even well-designed transformers produce some hum, but improper mounting or resonance with the foundation can make it more noticeable.

Environmental and Maintenance Factors

Environmental conditions such as humidity, rain, fog, and wind can intensify noise from both corona discharge and transformer vibrations. Additionally, loose connections, worn insulators, or surface contamination on conductors can create small arcs, producing a raspy buzz or intermittent crackling. Regular inspection and maintenance help identify these issues and prevent potential energy loss or equipment damage.

Summary

In most cases, the buzzing or humming from a high-voltage distribution box is normal and results from the combination of corona discharge and transformer vibrations. However, unusually loud or irregular noises may indicate insulator problems, loose connections, or other maintenance needs, and should be checked by qualified personnel to ensure safe and reliable operation.

Article Content

Why does a humming sound occurs in high voltage transmission lines?

That is more than the electric field required to break the intermolecular bond of the air molecules. Hence the air particle around the lines gets ionized and start moving freely. And during

Power line noise

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The noise has been identified as coming from the electrical distribution box which is attached to a cement wall that runs up all three floors in my bedroom as a firewall. See pic below.

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