How to calculate the loss of the distribution box

Article Overview

The loss of a distribution box can be calculated as the difference between the energy supplied to the box and the energy delivered to consumers, expressed in kWh or as a percentage of input energy.

Step 1: Identify Energy Input and Output

To calculate losses, first determine:

• Energy Input (E): Total energy supplied to the distribution box (kWh)
• Energy Billed or Delivered (B): Energy actually delivered to consumers connected to the box (kWh) The distribution box loss (DL) is then: DL = E − B The percentage loss is: DL% = (DL / E) × 100 For example, if a distribution box receives 10,000 kWh and delivers 8,000 kWh, the loss is 2,000 kWh, or 20% of the input energy .

Step 2: Consider Technical Losses

Technical losses occur due to:

• Transformer losses: Core (no-load) losses and copper (load-dependent) losses
• Conductor losses: I^2R losses in primary and secondary lines
• Other equipment losses: Switchgear, fuses, and connections Technical losses can be further divided into:
• Fixed losses: Constant losses when the transformer is energized, independent of l...

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