

How to calculate the current during the secondary relay protection stage



Overview

Base Current Calculation: Calculate the base current: $I_{base} = S_{base} / (\sqrt{3} * V_{base})$ Secondary Current Calculation: Calculate the secondary current: $I_{secondary} = I_{fault} / CT_{ratio}$ Base Current Calculation: Calculate the base current: $I_{base} = S_{base} / (\sqrt{3} * V_{base})$ Secondary Current Calculation: Calculate the secondary current: $I_{secondary} = I_{fault} / CT_{ratio}$ Use this Protection Relay Setting Calculator to calculate pickup current, time multiplier settings (TMS), operating time, coordination time interval (CTI), and plug setting multiplier (PSM) using fault current, CT ratio, and IEC 60255 curve parameters. These calculations are critical in industrial. Pick Up Current Definition: The current level at which the relay begins to operate, overcoming the controlling force. Essential tool for relay technicians, protection engineers, and commissioning specialists. For a three phase transformer: $FLC = kVA \times 1000 / (\sqrt{3} \times Voltage)$ For a single phase transformer: $FLC = kVA \times 1000 / Voltage$ The calculated current becomes the base value for selecting breakers. Relay protection calculations determine the threshold values and parameters for the protective relays based on the substation's operational and design requirements.

Article Content

Current Transformer (CT) Guide: Accuracy & Selection

1. Why Current Transformers Matter In medium and low voltage systems, high primary currents cannot be fed directly into meters, relays, or data acquisition devices. A Current Transformer (CT) safely ...

Relay Pick Up Current and Settings | PDF | Relay | Force

This document discusses key terms related to electrical protective relays and provides examples of calculating settings for overcurrent relays. It defines pick up current, current setting, plug setting ...

Relay Protection in HV/MV Substations: Calculations, Settings ...

Protection engineers calculate the maximum load current, the minimum fault current, and the full range of possible voltage levels to ensure relay performance under all conditions.

Overcurrent Relay Setting Calculator

This calculator determines the pickup current, Time Multiplier Setting (TMS), and suggests a curve type (SI, VI, EI) for overcurrent relays, adhering to IEC 60255 standards for protection coordination.

Transformer Secondary Protection Sizing - Complete Engineering ...

Transformer secondary protection sizing is critical for ensuring reliable fault protection, proper relay coordination, and optimized breaker selection in power distribution systems. Learn ...

Calculation Tools for Distribution System Protection

This calculator performs basic distribution system protection calculations, including base current, secondary current, plug setting multiplier, and relay operating time.

Relay Protection Settings (PSM, TSM, EL, OL, MF)

Plug Setting Multiplier (PSM) indicates how many times the determined relay secondary current (typically the CT secondary) exceeds the relay pickup (plug) current.

Protection Relay Setting Interactive Calculator | FIRGELLI

Use this Protection Relay Setting Calculator to calculate pickup current, time multiplier settings (TMS), operating time, coordination time interval (CTI), and plug setting multiplier (PSM) ...

Relay Testing Calculator | Free Testing Tool | EleCalculator

This calculator supports comprehensive relay testing including pickup/dropout voltage tests, timing tests, contact resistance measurements, and insulation resistance tests.

Relay Coordination Study: Selectivity Calculations | EEP

The fault current depicted in the selectivity diagrams represents the maximum short-circuit current of the relevant switchgear, as determined by short-circuit current calculations, ...

Pick Up Current | Current Setting | Plug Setting Multiplier and Time ...

From current setting we calculate the pick current of the relay. Say current setting of the relay is 150 % therefore pick up current of the relay is $1 \times 150\% = 1.5 \text{ A}$.

Contact Us

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