

Calculation of Current Relay Protection Settings



Article Overview

Relay protection current calculation involves determining the pickup current, plug setting multiplier (PSM), and time multiplier setting (TMS) to ensure selective and reliable fault isolation.

Key Concepts

Pickup Current (I_p): The minimum current at which a relay begins to operate, overcoming the controlling force of the relay. It is influenced by the relay coil turns and the current flowing through the coil, and can be adjusted as a percentage of the CT's rated secondary current . **Plug Setting Multiplier (PSM):** The ratio of the fault current to the relay's pickup current. It determines how quickly the relay responds to overcurrent conditions. PSM is critical for coordinating relays in a network . **Time Multiplier Setting (TMS):** Adjusts the relay's operating time according to the selected inverse-time characteristic. Higher TMS values increase the delay, allowing downstream relays to operate first, ensuring selectivity .

Calculation Steps

- **Determine Load and Fault Currents:** Identify the normal load current and the maximum fault current expected at the relay location.
- **Select Pickup Current:** Typically set slightly above the maximum load current to avoid nuisance tripping. For example, 125% of load current is common .
- **Calculate PSM:** $PSM = \frac{\text{Fault Current}}{\text{Pickup Current}}$ This ratio helps determine the relay's operating time from the time-current characteristic curve

Article Content

Oct 29, 2025

The fundamentals of protection relay co-ordination and time/current ...

Among the various possible methods used to achieve correct relay co-ordination are those using either time or

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Over Current Relay Setting Calculations

Over Current Relay Setting Calculations This document outlines the calculation of over current relay settings for low and high

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Setting the generator protective relay functions

Protective relay functions and data This technical article will cover the gathering of information needed to calculate

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PSM and TMS Settings Calculation of a Relay: Protection

PSM and TMS Settings are used to specify the tripping limits of a relay when a fault occurs. How to calculate the

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Setting Proteksi Trafo Distribusi

Protection Setting Calculation - Free download as PDF File (.pdf), Text File (.txt) or read online for free. This document provides

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Relay Settings Calculations – Protection Relay

This technical report refers to the electrical protection of all 132kV switchgear. These settings may be reevaluated

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Relay Coordination Study: Selectivity Calculations | EEP

The scope of study involves calculating the settings for protective relays to achieve selectivity during faults occurring in

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Protection Relay Setting Interactive Calculator | FIRGELLI

With this Protection Relay Setting Calculator, you'll be able to work out pickup current, time multiplier settings (TMS),

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Relay Setting Calculation for Motors Electrical Engineering

SID The calculated settings are tabulated in a schedule and co-ordination curves demonstrating grading for the over current

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2C73 Setting Guide

The protection relay must remain stable under maximum through fault conditions, when a voltage is developed across the protection

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Relay Settings Calculations – Electrical Engineering

This technical report refers to the electrical protection of all 132kV switchgear. These settings may be re-evaluated during the

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Basics of Protective Relaying and Design Principles

Particularly, the following issues are re-enforced: load flow and short-circuit calculations, selecting the protective equipment, setting

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FEEDER PROTECTION CALCULATIONS & SETTINGS

Relay coordination is the process of selecting settings that will assure that the relays will operate in a reliable and selective way. In

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Distribution Automation Handbook

When the protection is implemented using a current relay, the current value at which the relay should operate must be determined

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Relay Settings Calculations

During CT saturation, current resulting from CT errors appears as differential current and can cause relay mal-operation. To avoid

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A comprehensive guide to correct calculation for transformer ...

By following calculations meticulously, engineers can ensure the optimal performance of the relay in differential

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

PSM (Plug Setting Multiplier) settings must be in accordance with IEC 60255-151 which specifies performance

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Over Current Relay Setting Calculator

Conclusion The Over Current Relay Setting Calculator simplifies a complex process, providing precise relay settings for optimal

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Relay setting calculation|IDMT relay|Protection|Electrical Technology ...

In this video we have explained calculation for IDMT over current relay setting

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Protection Basics

Protective Relaying System Current Transformers Voltage Transformers (VTs) (CTs) Relay

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Relay Setting Calculation Overview | PDF | Volt | Relay

The document provides calculations for relay settings for different components in a power system network.

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Over Current Relay Setting Calculator

Enter rated current, Plug Setting Multiplier (PSM), and Time Dial Setting (TDS) to calculate relay pickup current and

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Overload relay setting and calculation

How to Set Overload Relay Protection An overload relay is a crucial device for motor control, designed to prevent motors from

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How to Calculate Motor Protection Relay Settings Step

Calculate thermal overload, overcurrent, ground fault, and differential relay settings with

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A Guide for Calculating Step Distance Relay Settings

The relay setting development process should include a series of steps that guides the settings engineer to achieve reliable and

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Overcurrent Relay Setting Calculations

Over current relays provide protection against overcurrent in power systems. They sense overcurrent and trigger circuit breakers to

Contact Us

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