

Setting values in relay protection



Article Overview

Relay protection values are set by calculating the pickup current, plug setting multiplier (PSM), and time setting multiplier (TSM) to ensure proper fault detection and coordination.

Key Parameters

1. Pickup Current (I_{pickup}): This is the minimum current at which the relay begins to operate. It is determined based on the system load and the current transformer (CT) ratio. For example, if a CT has a ratio of 200/1 A and the relay is set at 150%, the secondary current for a 1000 A primary fault is 5 A, which becomes the reference for relay operation . 2. Plug Setting Multiplier (PSM): PSM is the ratio of the actual fault current in the relay to its pickup current. It determines how fast the relay operates according to the inverse definite minimum time (IDMT) curve. Higher PSM values result in faster tripping. PSM is calculated as: $PSM = \text{Fault Current} / \text{Pickup Current}$ Adjusting the plug position changes the number of active turns in the relay coil, which modifies the pickup current . 3. Time Setting Multiplier (TSM): TSM scales the base operating time obtained from the relay's characteristic curve. It is used to coordinate upstream and downstream relays, ensuring selective tripping. Lower TSM values result in faster tripping, while higher values provide backup protection. The actual operating time is: $\text{Operating Time} = \text{Base Time from PSM Curve} \times \text{TSM}$.

Steps to Set Relay Protection Values

- Collect System Data:
- Full-load current, short-circuit current, CT ratios, and cable/transformer ratings.
- Determine the maximum and minimum fault currents expected....

Article Content

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

1. Relay Protection Calculations Relay protection calculations determine the threshold values and parameters for the

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Philosophy of a good relay protection settings for machines and ...

Relay protection objectives The objectives of the protection system are: to limit damage to people and to the plant,

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Distribution Automation Handbook

If these currents differ from each other as to the amplitude or phase angle or both more than allowed by the setting values of the

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Basics of Protective Relaying and Design Principles

Rules for protecting a network using overcurrent relays. Requirements for instrumentation (number and locations of instrument

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

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Generator Protection Relay Settings

The document provides recommended settings for various generator protection relays according to IEEE C37.102. It lists the

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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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RELAY SETTING CALCULATION

To determine stability voltage for through fault V_s'' Voltage across the relay at IFS (VS) CT Resistance (RCT)

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Over Current Relay Setting Calculator

Our Overcurrent Relay Setting Calculator will accurately calculate your overcurrent relay settings. Enter rated current,

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Overcurrent Protection Relay Settings: Best Guide

Learn how to set overcurrent protection relay settings with a clear, step-by-step guide. Understand pickup settings,

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Relay Setting Calculation Overview

The document provides calculations for relay settings for different components in a power system network. It calculates the fault

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

Protection relays employ a wide range of configurable parameters to identify defects & trip the breaker in a controlled

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How to Determine Optimal Settings for Power System Protection Relays

Learn about the best methods and tools to choose the right settings for power system protection relays, and improve your network

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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 Settings Calculations

To avoid relay mal-operation, set Slope 2 as high as possible. Normally, a high Slope 2 setting causes slow tripping for evolving

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Protection Basics

Protection System Elements Protective relays Circuit breakers CTs and VTs (instrument transformers) Communications channels

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

When studying electrical protective relays, we often use specific terms. To understand how different protective relays

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RELAY SETTING CALCULATION

2.2 115/13.8KV Transformer LV Restricted Earth Fault Protection Relay Setting Circuit Ref : Aux.

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Relay Protection Simulation and Testing of Online Setting Value ...

Analyzing the feasibility of modifying setting values on the condition of the running line without exiting the protection function is of

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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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Practical handbook for relay protection engineers | EEP

Relay protection circuitry This handbook covers the code of practice in protection circuitry

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Basic protection relay knowledge

On the other hand, unselective protection operation in the extra high voltage network – i.e. at the national grid level- may endanger

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CALCULATION AND SETTING OF RELAYS IN TRANSMISSION

Abstract. This article deals with the issue of protective relays in terms of protecting high voltage lines. At the beginning of the article it

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Practical handbook for relay protection engineers | EEP

Also principles of various protective relays and schemes including special protection schemes like differential,

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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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Relay Protection Simulation and Testing of Online Setting Value ...

The protection settings management system based on the scheme has realized function of on-line download and

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