

Calculation of Relay Protection Setting Voltage



AI Overview

Relay protection voltage settings are determined by calculating the pickup voltage or current based on CT ratios, plug setting multipliers (PSM), and the relay's operating characteristics to ensure selective and reliable fault clearance.

Understanding Relay Settings

Relay protection settings define the threshold at which a relay operates to isolate faults. The key parameters include:

- **Pickup Current/Voltage:** The minimum current or voltage at which the relay begins to operate. For voltage relays, this is the voltage at which the relay trips.
- **Plug Setting Multiplier (PSM):** Ratio of fault current (or voltage) to the relay's pickup value, indicating how severe a fault must be to trigger the relay .
- **Time Multiplier Setting (TMS):** Adjusts the relay's operating time; higher TMS increases the delay, while lower TMS speeds up operation .

Step-by-Step Calculation

- **Determine the Rated CT or VT Values:** Identify the current transformer (CT) or voltage transformer (VT) ratio. For example, a CT with a 600/5 A ratio converts 600 A primary current to 5 A secondary current.
- **Select the Plug Setting (PS):** Decide the percentage of the CT or VT rated secondary current/voltage that will serve as the relay pickup. For instance, a 250% plug setting means the relay will pick up at 2.5 times the rated secondary current....

Article Content

Apr 13, 2026

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

Mar 02, 2026

Generator Protection Relay Setting Calculations

Learn generator protection relay settings: voltage/current inputs, overvoltage, undervoltage. Electrical engineering presentation.

Feb 28, 2026

MODEL SETTING CALCULATIONS FOR TYPICAL IEDs LINE PROTECTION SETTING ...

In addition to setting criteria guide lines prepared by Subcommittee on relay/protection under Task Force for Power System Analysis

Sep 30, 2025

Setting Calculation Method and Protection Coordination for Relay ...

Then, the electrical engineering software is used to perform a more accurate setting calculation and protection coordination. Also, the

May 27, 2026

RELAY SETTING CALCULATION

Calculation for Transformer Differential Protection 87T settings : ... Rated Current @ 67 MVA at Highest tap= $MVA \times 1000 / \sqrt{3}$ x

Jul 12, 2026

Generator Protection Relay Setting Calculation

The document provides sample calculations for settings relay protection for generator protection. It includes calculations for voltage

Jul 11, 2026

Power System Protective Relays: Principles & Practices

Abstract: Protective relays and devices have been developed over 100 years ago to provide “last line” of defense for the electrical

May 01, 2026

Relay Setting Calculation Overview | PDF | Volt | Relay

The calculations are performed to determine appropriate relay settings that ensure protection and coordination within the power

Mar 01, 2026

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

May 28, 2026

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),

Dec 16, 2025

Generator Protection Calculations Settings | PDF | Relay | Capacitor

This document provides guidance on setting calculations for generator protection relays. It discusses voltage and current inputs,

Aug 28, 2025

How to Calculate Motor Protection Relay Settings Step

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

Aug 13, 2025

Protection Settings: Calculating, Administering and Testing ADMO at ...

Calculated (for settings that have not yet been implemented in the relay) In operation (relay files (dex, pcmp, etc.)) Protection setting

Sep 09, 2025

Relay Coordination Study: Selectivity Calculations | EEP

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

Oct 09, 2025

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

Effective relay protection in HV/MV substations requires a thorough approach encompassing calculations, precise

Jun 04, 2026

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

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

Jun 23, 2026

Relay Settings Calculations – Protection Relay

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

Apr 05, 2026

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

Plug Setting Multiplier (PSM): The ratio of the fault current to the relay's pickup current, critical for relay operation.

Apr 02, 2026

2C73 Setting Guide

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

Jun 05, 2026

Overcurrent Protection Settings Guide | PDF | Relay | Engineering

The document discusses overcurrent protection calculations and settings for a power system network. It provides a single line

Apr 04, 2026

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

Plug setting multiplier of relay is referred as ratio of fault current in the relay to its pick up current. Suppose we have

Mar 01, 2026

CALCULATION AND SETTING OF RELAYS IN TRANSMISSION

The proposal itself and define the different protection zones should be based on impedance lines to be determined by the calculation

Nov 09, 2025

Distribution Automation Handbook

When the protection is implemented using a voltage relay, the selected setting must be equal to or exceed the calculated stabilizing

Contact Us

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