

Relay Protection Return Coefficient Curve



Article Overview

The Relay Protection Return Coefficient Curve represents the relationship between fault current multiples and relay operating time, helping ensure proper coordination and selectivity in overcurrent protection systems.

Overview

The Return Coefficient Curve is a graphical representation used in overcurrent relay protection to determine how quickly a relay will operate based on the magnitude of the fault current relative to its pickup setting. It is closely linked to IDMT (Inverse Definite Minimum Time) characteristics, where the relay operating time decreases as the fault current increases. This curve ensures that the relay nearest to the fault trips first, while upstream relays provide backup protection if the primary relay fails .

Key Parameters

- Plug Setting Multiplier (PSM): Indicates how many times the actual current exceeds the relay's pickup current. A higher PSM results in faster relay operation .
- Time Setting Multiplier (TSM): Scales the base operating time from the relay's characteristic curve. Lower TSM values produce faster tripping, while higher TSM values allow upstream relays to operate later, maintaining selectivity .
- Grading Time: The intentional time difference between consecutive protection stages to ensure proper discrimination. Longer grading times are required for inverse time relays to account for measurement inaccuracies and high fault currents .

Function in Protection Coordination...

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These curves can be used in conjunction with the motor time-current curve for a normal start to set protective relays and breakers for

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The value of the return coefficient for the relay of maximum action is less than 1, and for the relay of minimum action more than 1. To

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The selectivity diagram is a set of specific time/current curves which shows all the time/current curves, that is, the operating

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Of these curves several are defined by the following equation and coefficients given in the table. The remaining curves listed which

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Instruction Manual

This function block defines a custom characteristic curve of an inverse-time overcurrent protection element. It implements the

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IcFpu IbFpu 51PA2 IaFpu Protection: Time ove

Table: defines the time curve as a lookup table. The first column is the ratio of the actual current divided by the pickup current. The

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Delgado Relay Protection Reference

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The document outlines various standard curves used in overcurrent protection relays, including U.S. curves, IEC curves, and ANSI

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Electromechanical Relays

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Inverse Time Overcurrent Relay Overview

The document discusses inverse time overcurrent relays and curves. It explains the different types of overcurrent relays and their

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Relay Coordination Calculator | IEC IDMT TCC Curve

To successfully use an IDMT relay curve calculator, you must master the two main adjustable parameters on any

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This paper presents the ABB PCD Control Protection Curves, detailing the ANSI and IEC standards for trip times and reset times

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Protection Coordination Calculator — TCC Curves, Relay Settings

The calculator plots time-current characteristic (TCC) curves for circuit breakers and fuses using manufacturer data and

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Protective Relay Basics Part 2

Part 1: Protective relay compared to low voltage circuit breaker. Review fundamental concepts, components, and terminology using

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The Interactive Relay Protection Reference

Compare relay curves, review pickup assumptions, and explain grading margins before a detailed study or setting revision. Walk

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