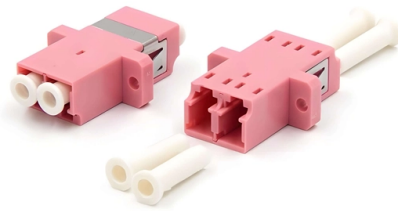


What does the relay protection setting unit I_e mean



AI Overview

In relay protection, ' I_e ' typically represents the rated or reference current for earth fault protection, used as a basis for setting the relay's pick-up current.

Definition and Context
The unit ' I_e ' is commonly used in overcurrent and earth fault relays to indicate the rated secondary current of the current transformer (CT) for earth fault protection. It serves as a reference for calculating the relay's pick-up current, which determines the minimum current at which the relay will operate. For example, if a relay is set to operate at 50% of ' I_e ', it will trip when the earth fault current reaches half of the rated CT secondary current.

Relationship to Other Relay Settings
Current Setting (CS or Plug Setting): The relay pick-up current is often expressed as a multiple or percentage of ' I_e '. For instance, a setting of $0.2 I_e$ means the relay will pick up at 20% of the rated earth fault current.
Plug Setting Multiplier (PSM): PSM is the ratio of the actual fault current in the relay to the pick-up current. It is calculated using ' I_e ' as the reference for the relay's rated current.
Time Multiplier Setting (TMS): TMS adjusts the operating time of the relay. While TMS affects the speed of operation, the pick-up threshold is still based on ' I_e '.

Practical Example
Suppose a CT has a secondary rating of 1 A for earth fault protection. If the relay is set to $0.3 I_e$, the relay will operate when the secondary current reaches 0.3 A. If a fault occurs and the secondary current rises to 0.6 A, the relay will trip according to the time determined by the TMS and the fault current magnitude.

Summary
' I_e ' = rated secondary current for earth fault protection
Used as a reference for relay pick-up current
Integral to calculating PSM and coordinating relay operation
Ensures selective and reliable protection of electrical systems
Understanding ' I_e ' is essential for correctly setting earth fault relays and ensuring proper coordination with other protective devices in...

Article Content

Relays Part 5: Special Terms Frequently Used in Protective Relays

Summary From the article, we have defined several terms used in describing protective relays below: Pick-up current is the minimum current that allows the electromagnetic relay to initiate

Welcome to Channel Dive | Channel Dive

Welcome to Channel Dive. We're Informa TechTarget's new publication, focused on delivering daily news and analysis for executives at North

The basics of power system protection that every

Introduction to relay protection Protection is the branch of electric power engineering concerned with the principles of design and operation of

Introduction to Protective Relaying | Electric Power Measurement and ...

Introduction to Protective Relaying What are Protective Relays, or Protection Relays? Protective relays are used in industrial power generation and supply systems to open and isolate branch circuits in the

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 faults (external-to-internal faults).

Protection Basics

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

Protection relay selection table

Protection relay selection table Please note before using selection table! number = Number of stages, shots, X = Function supported inputs or outputs O = Function available as option

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

PDF file

Protection and Control Device Numbers and Functions

A relay that functions when the ratio of voltage to frequency exceeds a preset value. The relay may have an instantaneous or a time characteristic.

Setting the generator protective relay functions

Protective relay functions and data This technical article will cover the gathering of information needed to calculate protective relay settings, the setting calculations for the various

Relay Settings Calculations

Introduction This technical report refers to the electrical protections of all 132kV switchgear. All calculations are based on the available documentation/ information. These settings may be

Protective Relay Basics

The objective of this presentation is to convey a basic understanding of protective relays to an audience of engineers already familiar with low voltage protective device coordination.

Power System Protective Relays: Principles & Practices

This presentation reviews the established principles and the advanced aspects of the selection and application of protective relays in the overall protection system, multifunctional numerical devices

Practical handbook for relay protection engineers | EEP

The most important requisite of the protective relay is reliability since they supervise the circuit for a long time before a fault occurs. If a fault then occurs, the relays must respond instantly

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 & selected manner. Understanding each setting facilitates proper relay

What Is a Unit Protection Relay? What Does It Do, How Does It Work

A correctly selected, correctly set and correctly tested unit protection relay is one of the most critical safety layers in generation and power conversion facilities. In the next stage, the tests and

Protection Basics

Ground fault protection for these systems is usually provided by residual protection, either calculated by relay or by external CT residual connection to IN input

Terminologies used in Protective Relaying

A unit protection is a protective system in which the protection zone is clearly defined by the CT boundaries. Such systems work for internal faults only, meaning it will only trip the breaker if

Protective Relaying Philosophy and Design Guidelines

System faults outside the protective zones of the relays for a single contingency primary equipment outage (line, transformer, etc.) or a single contingency failure of another relay scheme.

Protection and Control Device Numbers and Functions

The protection and control devices in electrical equipment can be referred to by numbers, with appropriate suffix letters when necessary, according to the functions they perform.

Protection Relay Setting Interactive Calculator | FIRGELLI

Protection relay setting is the process of choosing the current threshold and time delay at which a relay trips a circuit breaker during a fault. The goal is to isolate only the faulted section —

Line protection calculations and setting guidelines for relays ...

Protection Settings The documents presented should serve as a model to various utilities in preparing similar documents for setting protection relays installed at 220kV, 400kV and

Power System Protective Relays: Principles & Practices

Protective relays and devices have been developed over 100 years ago to provide “last line” of defense for the electrical systems. They are intended to quickly identify a fault and isolate it so the balance of

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