Adicor Photonics Europe S.A.

Relay protection start and return values

AI Overview

Relay start (pick-up) value is the threshold at which a relay begins to operate, and the return (drop-out) value is the level at which it resets after operation.Pick-Up Value (Start Value)The pick-up value is the minimum current or voltage at which a protective relay initiates operation. For example, in overcurrent protection, the relay will start tripping when the current exceeds the configured pick-up setting. This value defines the sensitivity of the protection system: if set too low, the relay may trip unnecessarily (nuisance tripping); if set too high, it may fail to detect actual faults, compromising system safety. Pick-up values are determined based on maximum load currents, minimum fault currents, and system voltage levels to ensure reliable operation under all conditions .Drop-Out Value (Return Value)The drop-out value is the level at which the relay resets after it has operated. It is typically lower than the pick-up value, creating a hysteresis that prevents the relay from repeatedly operating near the threshold. This ensures stable relay operation and avoids oscillations or chatter in the protection system .Importance in Relay ProtectionEnsures reliable fault detection and isolation of faulty sections.Maintains system stability by preventing unnecessary tripping of upstream or downstream devices.Provides coordination with other relays in the network to achieve selectivity, so only the closest breaker to the fault operates .Testing MethodsSecondary Injection Testing: Applies current or voltage signals directly to the relay inputs. It is safe, fast, and does not require high power, making it ideal for commissioning and maintenance .Primary Injection Testing: Injects current directly into the primary circuit (through CTs, busbars, or breakers) to verify the entire protection path, including transformers and circuit breakers .Practical ConsiderationsPick-up and drop-out values must be carefully calculated based on system load, fault levels, and relay characteristics.Hysteresis between pick-up and drop-out prevents relay instability during fluctuating currents.Proper setting...

Article Content

Primary and Secondary Injection Relay Testing: Pick-Up

In substation commissioning and maintenance, one of the most important tests is verifying the pick-up and drop-out values of protection relays.

Protective Relay Basics

Traditionally, protective relays were electromechanical devices utilizing induction disk, coils, contacts, and solenoid elements to determine protective characteristics.

Power System Protective Relays: Principles & Practices

These curves can be used in conjunction with the motor time-current curve for a normal start to set protective relays and breakers for motor thermal protection during starting and running conditions.

How Protection Relays Solve Electrical Problems

How do protection relays solve electrical problems? Stage 1 – Early stages of a failure Stage 2 – During a failure Stage 3 – After a failure

Protective Relaying Terminologies Definition

Protective Relaying Terminologies Definition: The various terminologies used in the protective relaying are, Protective Relay Relay Time Breaker Time Pickup Pickup Value Dropout or Reset Time Delay

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 connected on protection CT of ratio 200/1 A and current setting is 150%.

Distance Protection Working Principle & Fault Location Detection

Distance Protection Relay Working When the fault occurs at point X in the protected zone then the voltage drops while current increases. Thus the ratio of V/I. the impedance reduces. This is the

Basic protection relay knowledge

A fast and selective arc fault mitigation for air-insulated LV & MV switchgear and Relion protection and control relays and sensor technology protect staff and plant facilities for many years.

Testing the pick-up value of overlapping protection elements/functions ...

The more protection functions that are active in a relay or protection cabinet, the more difficult it is to test the individual functions. In particular, testing the pick-up values of all individual

Feeder Protection Relay Operation Manual

Parameter names are shown in italics, for example: The function can be enabled and disabled with the Operation setting. Parameter values are indicated with quotation marks, for example: The

(Protection) Relay Guides

The scope of study involves calculating the settings for protective relays to achieve selectivity during faults ocurring in the electrical network for the 13.8 kV and 4.16 kV projects.

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 systems. They are intended to quickly identify a fault and isolate it so the

SEL-700G Generator Protection Relay Hands-On Exercises

Purpose In these exercises, you will develop SEL-700G settings to provide protection for a sample generator. Generator and transformer data along with single- and three-line diagrams are provided.

Relay Settings Calculations

Protection selectivity is partly considered in this report, and could be also revaluated. Names of parameters in this calculation may differ from those in appropriate device.

Practical handbook for relay protection engineers | EEP

Relay protection circuitry This handbook covers the code of practice in protection circuitry including standard lead and device numbers, mode of connections at terminal strips, colour codes in

Protective Relay Basics Part 2

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

Electrical Relay and Solid State Relays for Switching

Electrical Relays can also be divided into mechanical action relays called “Electromechanical Relays” and those which use semiconductor

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 work, it''s essential to know these terms. Key terms include: Pick up

What are "pick-up", "dropout" and "rated" voltages in a Relay datasheet?

The relay is guaranteed to pull in when a voltage of 70% of the rated voltage is applied at 23°C coil temperature. The coil can get hot from the environment and it can get much hotter as a

Fundamentals of Modern Protective Relaying

A primary motor protective element of the motor protection relay is the thermal overload element and this is accomplished through motor thermal image modeling. This model must account for thermal

Relays Part 4: The Protective Relay Basic Theory

The types of protective relays that exist are overcurrent, electromechanical, directional, distance, pilot, and differential relays. The circuit diagram of the protective relay is made up of current

IEC Relay Symbols and Functions Guide | PDF | Relay | Switch

Relay Symbol - Free download as PDF File (.pdf), Text File (.txt) or read online for free. This document provides symbols and designations for relay protection devices based on IEC 617 standards.

Protection Relay Tripping Circuit

A protection relay tripping circuit connects relays to breakers for fast fault isolation. Key components include trip/close coils and anti-pumping relays. Proper design, testing, and

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