

What is the sensitivity of the relay protection



Article Overview

Relay protection sensitivity refers to the ability of a protective relay to detect the smallest fault current within its designated protection zone and operate reliably under actual system conditions.

Understanding Relay Sensitivity

Sensitivity is a critical parameter in relay protection, ensuring that the relay responds to faults even when the fault current is minimal. A relay must be sufficiently sensitive to operate reliably under the least operating conditions that can occur in the protected zone, without being triggered by normal load currents or transient disturbances (EEP), . In practical terms, sensitivity is often expressed as the minimum percentage of the rated current that will cause the relay to operate. For example, a relay with a sensitivity of 20% of its rated current will trip if the current exceeds 20% of the nominal value under fault conditions.

Importance of Sensitivity

- **Fault Detection:** High sensitivity ensures that even low-magnitude faults, such as those with high resistance or occurring at the far end of a line, are detected and isolated (ABB), .
- **System Reliability:** Proper sensitivity prevents undetected faults, which could escalate into larger system disturbances or equipment damage (LinkedIn), .
- **Coordination:** Sensitivity must be balanced with selectivity to ensure that only the...

Article Content

Mar 12, 2026

Selectivity and sensitivity of overcurrent relay protections

Overcurrent protections are the first protections that have been used to protect the equipment in the event of faults and abnormal

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Protective Relay Basics

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

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Assessing the Sensitivity of Relay Protection

Based on simple examples of the generator-transformer unit protection from symmetrical short circuits, it was shown

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What is Protection Relay?

What is Protection Relay? Protection relays have a crucial role in maintaining the safety, reliability, and integrity of

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

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

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Protection Function Testing Procedure

Protection Function Testing Procedure: Step-by-step guide for stability, sensitivity & differential relay tests ensuring

Aug 01, 2025

Types of Protective Relays

This article covers various types of protective relays, such as overcurrent, directional, and differential relays, highlighting their

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ASSESSING THE SENSITIVITY OF RELAY PROTECTION

One of the main requirements to relay protection is the sensitivity requirement, which implies consistent tripping during the short

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Maximizing line protection reliability, speed, and sensitivity

Protection relay is designed based on the basis of selectivity, reliability, speed and sensitivity . One of protection

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Assessing the Sensitivity of Relay Protection

This article explores the issues of enhanced sensitivity of multi-parameter relay protection using long-range redundancy

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13 terms concerning relaying, measurements, and breakers used by

Terminology in relay protection It's not unusual to see graduates and engineers from other disciplines experience

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Selectivity and sensitivity of overcurrent relay protections

The paper discusses the conditions for setting the overcurrent protection and how they determine the sensitivity and selectivity of

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Protective relay

Electromechanical protective relays at a hydroelectric generating plant. The relays are in round glass cases. The rectangular devices

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The fundamentals of protection relay co-ordination and time ...

Among the various possible methods used to achieve correct relay co-ordination are those using either time or

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Basic protection relay knowledge

Relion protection and control relays for several application reduce complexity. Long term cost reduction (TCO) for trainings and

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Protective Relaying Principles and Applications

Protective Relaying Principles and Applications The article provides an overview of protective relaying principles and their

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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

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Protective Relays and Monitoring Relays Selection Guide: Types ...

Both protective relays and monitoring relays may be sensitive to voltages, power or phase, current, or frequency. Protective relays

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Relay protection sensitivity integrated optimal placement and capacity ...

To examined whether the smallest faults can be detected within the protected zone, the relay protection sensitivity

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Types of Electrical Protection Relays or Protective Relays

□□ Key learnings: Protective Relay Definition: A protective relay is an automatic device that senses abnormal conditions

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Protective Relays: Types, Working Principle & Uses

Protective relays should be tested as part of the full protection system, not just as standalone devices. A relay can

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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

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Protective Relay | Fundamental Requirements of Protective Relay

A Protective Relay is a device that detects the fault and initiates the operation of the circuit breaker to isolate the defective element

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Lecture 4 | PDF

This document discusses the desirable attributes of power system protection, including dependability, security, sensitivity, selectivity,

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What is a Protective Relay? Principle, Advantages, Applications

Protective Relay Principle A protective relay is an electrical component that is designed to trip a circuit breaker when a

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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.

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Sensitivity and Selectivity of Time Overcurrent Relay Protection in ...

The overcurrent relay protection is the most commonly used against line to line faults in medium voltage power lines. The main

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Module 6-Relay Setting Principles For Transmission Line Protection PDF

The document discusses relay setting principles for transmission line protection. It begins by outlining the four key characteristics of

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