

Relay protection current line number



Overview

- 1 - Master Element
- 2 - Time-delay Starting or Closing Relay
- 3 - Checking or Interlocking Relay, complete Sequence
- 4 - Master Protective.

Key Takeaways

The ANSI device number for overcurrent protection on a line is typically 50/51, where 50 denotes instantaneous overcurrent and 51 denotes time overcurrent. Overview of ANSI Device Numbers

ANSI/IEEE device numbers are standardized codes used to identify the function of protective relays in electrical power systems. Each number corresponds to a specific protection function, and suffixes or additional numbers can indicate variations, such as neutral connection, ground protection, or multiple devices on the same line.

Current-Based Line Protection

For line current protection, the most commonly used ANSI device numbers are:

- 50 - Instantaneous Overcurrent Relay: Trips immediately when current exceeds a preset threshold, providing fast protection against short circuits.
- 51 - Time Overcurrent Relay: Trips after a time delay that is inversely proportional to the magnitude of the overcurrent, allowing coordination with upstream or downstream devices.
- 51N / 50N - Neutral Overcurrent Relay: Protects against overcurrent in the neutral conductor, often used in grounded systems.

- 51G / 50G – Ground Overcurrent Relay: Provides protection against ground faults by detecting residual or zero-sequence currents . Suffix numbers (e.g., 51-1, 51-2) are used when multiple overcurrent relays are installed on the same line to distinguish between them .

Additional Considerations

Modern microprocessor-based relays can combine multiple functions in a single device, but the ANSI numbers are still used in single-line diagrams to indicate which protective functions are active . Directional overcurrent relays, which consider the direction of fault current, are often used in distribution networks and are also identified using the 50/51 series with directional logic .

Summary

For relay protection of line currents, the standard ANSI device numbers are:

- 50 – Instantaneous overcurrent
- 51 – Time overcurrent
- 50N / 51N – Neutral overcurrent
- 50G / 51G – Ground overcurrent These numbers are widely used in documentation, schematics, and relay settings to ensure proper protection and coordination in electrical power systems .

Article Content

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Protection and Control Device Numbers and Functions

ANSI Standard Device Numbers & Common Acronyms ANSI Standard Device Numbers & Common Acronyms

Protection Relay

In the design of electrical power systems, the ANSI Standard Device Numbers denote what features a protective

Intro to Relays #2

This article will explain the basics of the relay numbers used to design a relay's functionality.

Protection Basics

Ground fault protection for these systems is usually provided by residual protection, either calculated by relay or by

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The document outlines standard device numbers for protective relays, such as 50 for instantaneous overcurrent and 51 for time

Understanding Protection Relays

In overcurrent, the four most used common types of protection relays are 50, 50N, 51, and 51N. In this post, we will

ANSI/IEEE Function Number Codes

For example, we can tell the left-hand current transformer monitoring current in line 1 activates relay number 1 because that is the

Protective Relay Basics Part 2

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

Protective Relay: Working, Types, and Applications

Overcurrent Relay: Operates when current exceeds a preset limit. Differential Relay:

Protective relay

In electrical engineering, a protective relay is a relay device designed to trip a circuit breaker when a fault is detected. : 4 The first

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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

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The Basics Of Overcurrent Protection

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Protection relays

Protection relays Numerical relays are based on the use of microprocessors. The first numerical relays were released in 1985. A big

Protection Relay - ANSI Standards

Directional overcurrent protection for impedance and solidly earthed systems, based on measured or calculated

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Protective Relays: Types, Working Principle & Uses

Protective relays are power system protection devices that monitor current, voltage, frequency, impedance, or

Microsoft PowerPoint

Very little ground current (less damage) Big neutral voltage shift Must insulate line-to-line voltage May run system while trying to find

Protection relay selection table

Protection relay selection table Please note before using selection table! number = Number of stages, shots, X =

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Directional voltage relay 5 Thermal relays only - not direct temperature measurement 6 Dependent on exact relay type 7 Many

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Protective Relay : Working, Types, Circuit & Its Applications

There are different types of relays available and each type is used based on the requirement. So this article discusses an overview of

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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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For transmission line protection, distance protection is used which is based on ohm's law that measures voltage and

Fundamental overcurrent, distance and differential protection ...

Essential protection principles The aim of this technical article is to cover the most important principles of four

Decoding ANSI Codes for Protection Relays

And do you know what role ANSI Codes play in protection relays? Keep on reading to find your answers! In today's

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