How many digits should be used for relay protection circuit numbering

Overview

In electric power systems and industrial automation, ANSI Device Numbers can be used to identify equipment and devices in a system such as relays, circuit breakers, or instruments. The device numbers are enumerated in ANSI/IEEE Standard C37.2 Standard for Electrical Power System Device Function Numbers, Acronyms, and Contact Designations.

Key Takeaways

Relay protection circuits are numbered using two-digit ANSI/IEEE device numbers, typically ranging from 1 to 99, with optional suffixes for specific applications.Numbering Convention

Protective relays and associated devices in electrical power systems are identified using ANSI/IEEE C37.2 standard device numbers, which are two-digit numbers from 1 to 99. Each number corresponds to a specific function, such as overcurrent, differential, or voltage protection (e.g., 50 for instantaneous overcurrent, 51 for time-overcurrent, 87 for differential protection) .

Suffix Letters and Numbers
• Suffix letters are added to indicate special applications or connections. For example:
• G for ground (51G for ground overcurrent) or generator (87G for generator differential)

• N for neutral (59N for neutral displacement protection)

• X, Y, Z for auxiliary devices

• Suffix numbers distinguish multiple devices of the same type in the same equipment, such as 51–1, 51–2 .
Multi-Function Relays

Modern microprocessor-based relays can perform multiple functions. In such cases, combined numbering is used, e.g., 50/51 for a relay providing both instantaneous and time-delayed overcurrent protection .

Practical Guidelines
• Always use two-digit numbers for the main device function.

• Add letters or numbers as suffixes only when necessary to clarify the specific application or to differentiate multiple devices.

• Maintain consistency across schematics and documentation to ensure clear communication among engineers and operators . By following this convention, relay protection circuits are clearly identified, standardized, and easily interpretable in system diagrams, technical specifications, and maintenance documentation.

Article Content

ANSI device numbers

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A Guide to ANSI/IEEE Function Numbers

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Intro to Relays #2

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Protection Relay

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Existing panels with labels and circuit-breaker numbers that differ from the current standard scheme, but have connected equipment

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This document provides symbols and designations for relay protection devices based on IEC 617 standards. It includes: 1) Block

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Protection relay selection table

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

Table of ANSI IEEE Standard Device Numbers

This table details ANSI IEEE Standard Device Numbers as used for protective relaying in North America. Suffixes for numbers are

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(power system device function numbers) A relay that functions when the circuit admittance, impedance, or reactance increases or

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NOTE: This function is not applied to a device connected in the secondary circuit of current transformers in a normally grounded

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