International Code for Relay Protection



Overview

To assist the Protection Engineer in converting from one system to the other, a select list of ANSI device numbers and their IEC equivalents are given in the following figure.

Key Takeaways

International relay protection function codes are standardized identifiers, primarily ANSI/IEEE device numbers, used to denote specific protective relay functions in electrical power systems. Overview of ANSI/IEEE Device NumbersANSI/IEEE device numbers are defined in Standard C37. 2 and are widely used to identify the functions of protective relays, circuit breakers, and other control devices in power systems.

Each number corresponds to a specific protective function, such as overcurrent, differential protection, or voltage monitoring. Historically, each device performed a single function, but modern microprocessor-based relays can perform multiple functions, often denoted as "Multifunction Devices" (device 11) while still referencing individual function numbers in schematics.

Common ANS

I Device Numbers50/51 – Instantaneous/Time Overcurrent Relay50N/51N – Neutral Overcurrent Relay27 – Undervoltage Relay59 – Overvoltage Relay59N – Neutral Overvoltage Relay87 – Differential Protection (87T for transformers, 87G for generators)46 – Negative Sequence Overcurrent (phase unbalance protection)79 – Reclosing Relay86 – Lockout Relay Suffixes are used to indicate specific conditions or connections, such as G for ground, N for neutral, or T for transformer-specific protection.

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IEC Standards and Symbols

The IE

C 60617 and IEC 617 standards provide graphical symbols and terminology for relay functions, which differ from the ANSI numbering system.

IE

C symbols are often used in international documentation and can be mapped to ANSI numbers for cross-reference. For example, an ANSI 50/51 overcurrent relay corresponds to an IEC overcurrent symbol with a time-delay indication.

Application in Protection Systems

Relay function codes are used in: Single-line diagrams to indicate the type of protection applied to each circuit or equipmentRelay settings and coordination studies to ensure proper operation during faultsDocumentation and maintenance to identify relay functions and their operational logic Modern relays may combine multiple ANSI functions in one device, but the function codes remain essential for clarity in design, operation, and troubleshooting.

Summary

International relay protection function codes provide a standardized method to identify and communicate relay functions across different systems and regions. ANSI/IEEE device numbers are widely used in North America, while IEC symbols are common internationally. Understanding both systems and their mappings is crucial for protection engineers to design, operate, and maintain reliable electrical power systems.

Article Content

ANSI codes and IEC Relay Symbols – Electrical Engineering

To assist the Protection Engineer in converting from one system to the other, a select list of ANSI device numbers and their IEC equivalents are given in the following figure.

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

Protection and Control Device Numbers and Functions

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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.

ANSI Codes for Protective Relays | PDF | Relay | Switch

The document lists 99 international codes and their corresponding descriptions of protective devices used in drawings of circuits for protective relaying in power systems.

International Codes For Protections

The document lists various devices and relays used in electrical systems, including their functions such as starting, stopping, and monitoring. It includes terms like ''master contactor'', ''overspeed device'',

Protection Relay

In the design of electrical power systems, the ANSI Standard Device Numbers denote what features a protective device supports (such as a relay or circuit breaker). These types of

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

IEC 60255-1:2022

This document covers the main technologies in use today; other emerging technologies present specific EMC and safety issues but the philosophy in this document will be applied. This second edition

IEC 60255 1xx: Protection relay functional standards for all

Authors: Thierry Bardou, Andrea Bonetti, Volker Leitloff, and Murty Yalla The International Electrotechnical Commission (IEC) is currently working on a new series of standards that covers the

ANSI/IEEE Relay Protection Codes

This document lists ANSI/IEEE protection codes that are used to identify different types of protective relay devices and monitoring equipment. There are over 100 codes listed ranging from 1 to 99 for

IEC 60255-1:2022

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IEC 60255-1:2022 specifies common rules and requirements applicable to measuring relays and protection equipment, including any combination of equipment to form a distributed protection

ANSI codes and IEC Relay Symbols – Electrical Engineering

There are two methods for indicating protection relay functions in common use. One is given in ANSI Standard and uses a numbering system for various functions. The functions are supplemented by

Relay symbols and device numbers; selection from IEC 617-, IEEE

Rate-of-rise relay is a relay that func-tions on an excessive rate of rise of current. Control power disconnecting device is a disconnecting device, such as a knife switch, circuit breaker, or pull-out

Appendix 2 ANSI/IEC Relay Symbols

Appendix 2 ANSI/IEC Relay Symbols There are two methods for indicating protection relay functions in common use. One is given in ANSI Standard C37-2, and uses a numbering system

IEEE PSRCC and IEC Standards for Protective Relays

TC 95, Measuring Relays and Protection Equipment -protective relay standards. TC 57, Power System Management And Associated Information Exchange - relaying communications and power system

Protection Relay | ANSI Codes Used In Relays | IEEE International Codes ...

Protection Relay| ANSI Codes used in Relays NUMERICAL RELAY/ PROTECTION RELAY/ ANSI CODES Relays, ANSI, IEEE International Codes | for Protection Relay | Equipment use in | electrical power Sub ...

IEC Protection Relay Codes PDF

IEC Protection relay Codes.pdf - Free download as PDF File (.pdf), Text File (.txt) or read online for free.

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

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This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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