

Relay Protection Correspondence Table

Article Overview

Relay protection correspondence tables map protective relay functions to standard device numbers, helping engineers identify, select, and apply relays according to ANSI/IEEE or IEC standards.

Overview of Relay Device Numbering

Protective relays are commonly identified by standard device numbers defined by ANSI/IEEE C37.2 in North America and by IEC 60617/617 internationally . These numbers correspond to specific relay functions, making it easier to design, document, and maintain protection schemes. Letters or suffixes are often added to indicate application-specific variations (e.g., 86T for a transformer lockout relay, 59B for bus overvoltage, 50N for instantaneous overcurrent), .

Common ANSI/IEEE Device Numbers

Device Number	Function	Example Application
50	Instantaneous Overcurrent	Line or feeder protection
51	Time-Overcurrent	Phase or ground protection
50N / 51N	Neutral Instantaneous / Time-Overcurrent	Ground fault protection
27	Undervoltage	Bus or transformer undervoltage
59	Overvoltage	Bus or transformer overvoltage
46	Negative Sequence	Unbalanced load or phase loss
87	Differential	Transformer, generator, or bus differential protection
86	Lockout	Trip and lockout of equipment
81	Frequency	Over/under frequency protection
32	Directional Power	Directional power or reverse power protection

Suffixes like T (transformer), B (bus), or N (neutral) specify the application context .

IEC Device Numbering

IEC standards use different symbols and terminology but serve the same purpose: to identify relay functions consistently across diagrams and documentation . IEC numbers are often accompanied by graphical symbols in schematics, which are standardized under IEC 60617.

Practical Use in Protection Schemes

Relay protection correspondence tables are used to:

- o Select appropriate relays for generators, transformers, lines, and capacitor banks .
- o Design protection circuits including trip, close, indication, and alarm functions.
- o Ensure coordination between relays for selective tripping and system reliability.
- o Reference in testing and commissioning procedures for substations .

Additional Notes

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- o Modern relays include electromechanical, digital, and electronic types, with timing, monitoring, and interface functions .
- o Tables often include time ranges, operating characteristics, and terminal connections for practical implementation .
- o Using a correspondence table ensures reliability, selectivity, and speed in isolating faults while minimizing disruption to the rest of the system .

In summary, a Relay Protection Correspondence Table provides a standardized mapping of relay functions to device numbers, facilitating proper selection, application, and documentation of protective relays in power systems according to ANSI/IEEE or IEC standards .

To assist the Protection Engineer in converting from one system to the other, a select list of ANSI device numbers and their IEC

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

This publication contains new and updated information as indicated in the following table. The protection and control devices in

The document provides a comprehensive ANSI table listing various electrical devices and their corresponding designations, ranging

This document lists standard device numbers for protective relays used in North America according to ANSI/IEEE Standard C37.2

Name two protective devices For what purpose is IEEE device 52 is used? Why are seal-in and 52a contacts used in

In electric power systems and industrial automation, ANSI Device Numbers can be used to identify equipment and devices in a

This online protective relay testing seminar follows Chris Werstiuk (author of The Relay Testing Handbook) as he tests a relay from

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

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

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and terminology using

On the other hand, unselective protection operation in the extra high voltage network - i.e. at the national grid level- may endanger

Three-phase thermal overload (feeders & cables) Three-phase thermal overload protection for generators
Three

This document lists standard electrical power system device function numbers from ANSI C37.2. It includes 99 device functions

A printable reference covering protection relay device numbers, CT ratios, pickup settings, time-current coordination, and selectivity

There are two methods for indicating protection relay functions in common use. One is given in ANSI Standard and uses a

This document lists 57 ANSI codes and their corresponding descriptions of protection devices and functions. The codes cover a wide

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