

National Standard Relay Protection Icons



Overview

However, relay symbols vary depending on function, contact arrangement, operating principle, and industry standards.

Key Takeaways

Relay protection icons are standardized symbols used in ANSI and IEC systems to represent relay functions in electrical schematics, ensuring clear communication and safety compliance.

Overview of Standards

ANSI (American National Standards Institute) uses a numbering system to identify relay functions, often supplemented with letters to indicate variations or amplifications of the function. For example, ANSI device number 50 represents an instantaneous overcurrent relay, while 51 represents a time-overcurrent relay. This system is widely used in North America and is particularly common in power system protection documentation. IEC (International Electrotechnical Commission), on the other hand, employs graphical symbols to represent relay functions, as defined in IEC 60617. These symbols are more visual and are used internationally, including in Europe and Asia. IEC symbols often depict the relay coil, contacts, and operating mechanism in a schematic-friendly format.

Common Relay Symbols

Relay symbols can be categorized based on their function:

- **Operating Device / Relay Coil:** Represents the relay's electromagnetic coil that actuates contacts. Variants include self-restoring, remanent, or directional relays.

- **Contacts:** Shown as normally open (NO) or normally closed (NC), sometimes with multiple outputs for different current thresholds or time-delay characteristics .
- **Measuring Relays:** Symbols indicate relays that operate based on current, voltage, or differential measurements, often used in protection schemes for overcurrent, undervoltage, or earth fault detection .
- **Static or Semiconductor Relays:** Represented with specific symbols showing solid-state operation instead of mechanical contacts .

Practical Application

Relay symbols are essential in electrical schematics, construction drawings, and protection system design. They allow engineers and technicians to:

- Identify relay types and functions quickly.
- Understand the operating conditions and interconnections in protection circuits.
- Ensure compliance with safety and design standards across different regions ([ANSI vs IEC]), .

Conversion Between ANSI and IEC

Many engineers use conversion tables to map ANSI device numbers to IEC graphical symbols. This is particularly useful when working on international projects or when integrating equipment from different standards . For example, an ANSI 50 (instantaneous overcurrent relay) corresponds to a specific IEC symbol depicting the relay coil and contact arrangement for overcurrent protection.

Resources

For detailed charts and downloadable symbols, engineers can refer to:

- ANSI and IEC relay symbol lists ().
 - Relay electrical schematic symbols charts for contacts, coils, and indicators ().
 - Electrical construction drawing standards (NEIS) for North American symbols ().
- These resources provide a comprehensive reference for designing, reading, and troubleshooting relay protection systems.

Article Content

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Relay Symbol - Free download as PDF File (.pdf), Text File (.txt) or read online for free. This document provides symbols and

Symbols for Electrical Construction Drawings

This standard contains symbols commonly and primarily used on electrical construction drawings. Related symbols are organized

Relay Symbols: Complete List - Asutpp

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Electrical Symbols Guide 2026: IEC vs ANSI Standards

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This document provides a comparison of symbols and codes used to represent common electrical and industrial components in

ANSI device numbers

It may surprise some to learn that this standard—or more accurately its AIEE predecessor—is one of the oldest IEEE standards in

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

Typical Electrical Drawing Symbols and Conventions.

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Relay Symbol Types, Functions, and Meanings

However, relay symbols vary depending on function, contact arrangement, operating principle, and industry standards.

Relay Symbol Guide: Diagram, Types, and PCB Design Explained

Learn how to read relay schematic symbols. Discover SPDT, SPST, and solid-state types, NO/NC states, and how to map symbols

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[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

[ANSI/IEC Relay Symbols Comparison | PDF](#)

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[Relays Symbol Types, Functions, and Standard Electrical](#)

Relay symbols show how relays work and connect in a circuit. This article explains the different types of relays, their functions, and

[Relay Symbol Guide: Diagram, Types, and PCB Design Explained](#)

4. Distinguish between IEC and ANSI symbol standards 5. Read relay symbols step-by-step 6. Map relay symbol to PCB footprint 7.

[Relay Symbols: Complete List - Asutpp](#)

We'll explore symbols for various relay types—all-or-nothing, measuring, and static—looking at general forms as well as application

[Relay Electrical Schematic Symbols Chart](#)

The Relay Electrical Schematic Symbols Chart is an invaluable tool for any engineer, offering a fast and reliable way

[Protection and Control Device Numbers and Functions](#)

The International Electrotechnical Commission (IEC) standards 617 and 60617 also provide different symbols and terminology for

[Electrical Relay Diagram and PID Symbols](#)

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[Protection relay selection table](#)

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

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IEC Electrical Schematics Symbols Standard electrical IEC symbols also known as IEC 60617 (British Standard BS 3939) used to

All Types of Relay Symbols and Its Basics

The relay diagrams below demonstrate the operational logic of standard relays. 1.1 Sample Wiring Diagrams for a

ANSI Codes & IEC Symbols for Protection Relays | Standard Codes ...

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Electric Relay Symbols – Asutpp

Electric Relay Symbols Electric relay is a device designed to produce sudden predetermined changes in one or more electric output

SCHEMATIC REPRESENTATION OF POWER SYSTEM

Working Group Assignment Report on common practices in the representation of protection and control relaying. The

Relay Symbol Types, Functions, and Meanings

The symbol for a relay indicates how relays connect and work in a circuit. However, relay

Protective Relay Basics

Fundamental concepts and terminology will be taught using the electromechanical overcurrent relay as a foundation and then these

Relay Symbols & Device Numbers: IEC/ANSI Standards

IEC/ANSI relay symbols, device numbers, and functions for protective relay systems. Electrical engineering technical specification.

relay symbols and device numbers iiec37

2. time-delay starting or closing relay is a device that functions to give a desired amount - of time delay before or after any point of

Mnemonics and designations of symbols for measuring relays,

Symbols for measuring relays are symbols in which the functional behaviour of an element, mostly because of its complexity, is

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Protection Basics

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

ANSI (IEEE) Protective Device Numbering

The widely used United States standard ANSI/IEEE C37.2 "Electrical Power System Device Function Numbers,

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

