Relay Protection Auxiliary Devices



Overview

Auxiliary relay devices support protective relays by extending contact capacity, amplifying signals, and enabling remote control.

Key Takeaways

Auxiliary equipment in relay protection systems supports, amplifies, and executes the actions of primary protective relays to ensure reliable fault detection and system safety.

Role and Function

Auxiliary relays do not make protection decisions themselves but are essential for executing the commands of primary protective relays. They extend contact capacity, amplify signals, and enable remote control, ensuring that trip signals, alarms, and interlocking functions operate reliably under stress or repeated use. They are particularly important in complex installations where a single protective relay output may need to trip multiple breakers, initiate alarms, and provide status feedback to SCADA systems.

Types of Auxiliary Equipment

Common auxiliary devices include: Electro-mechanical relays: Such as Reyrolle 7PG11, 7PG15, and 7PG17, which provide tripping, control, and supervision functions with multiple contacts and high-speed operation. Trip circuit supervision relays: Monitor the integrity of breaker trip coils and wiring, generating alarms if failures occur. Test blocks and CT shorting devices: Facilitate safe testing and maintenance of protection circuits without disrupting system operation.

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Lockout relays (ANSI device 86): Require manual reset after a fault, ensuring safe re-energization. Integration with Protective RelaysProtective relays detect abnormal conditions such as overcurrent, differential faults, or voltage anomalies and decide when to isolate faulted equipment. Auxiliary relays carry these decisions into the real world by operating trip coils, energizing alarms, or coordinating multiple outputs.

They act as a bridge between relay logic and physical action, preventing overloads and ensuring electrical safety.

Practical Considerations

Contact ratings must match the load to avoid degradation when repeatedly driving trip coils. Coil-voltage compatibility is critical to prevent nuisance operations. Arrangement of contacts can affect whether a fault clears cleanly or leaves the system in an unsafe intermediate state.

Auxiliary relays are foundational in breaker coordination schemes, ensuring that protection sequences operate predictably and reliably.

Applications

Auxiliary equipment is widely used in: Switchgear and substations for medium- and high-voltage systems. Industrial and utility power systems to enhance protection reliability.

Automation and SCAD

A integration, providing status feedback and remote control capabilities. In summary, relay protection auxiliary equipment is indispensable for reliable power system protection, ensuring that primary relays' decisions are executed safely, accurately, and consistently across complex electrical networks.

Article Content

Auxiliary Relay In Electrical Protection Systems

Auxiliary relay devices support protective relays by extending contact capacity, amplifying signals, and enabling remote control. Common in switchgear and automation, they enhance fault detection,

Protective Relays: Types, Working Principle & Uses

Learn how protective relays detect faults, trip breakers, coordinate protection zones, and protect feeders, transformers, motors, generators, and lines.

The essentials of necessary auxiliary relays in tripping

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Tripping circuit breakers and operating alarms in control and protection applications usually require more than one relay contact. Tripping

Auxiliary relays

Auxiliary relays are intended for installations where high operating requirements exist, either in terms of operating time or contact rating (heavy breaking duty), or

Protection and Control Device Numbers and Functions

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.

Power System Protective Relays: Principles & Practices

Protective relays and devices have been developed over 100 years ago to provide “last line” of defense for the electrical systems. They are intended to quickly identify a fault and isolate it so the balance of

Auxiliary relays

These relays are especially suitable for protection and control circuits, highly corrosive environments, or regions where there is an increased expectation of seismic activity.

ANSI device numbers

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.

Auxiliary Relay in Substation Protection:

Auxiliary relays receive protective relay signals and use multiple contacts to trip both breaker coils simultaneously, activate alarms, stop auto-reclosing, and send fault information to control rooms.

132/33kV, 31.5MVA Transformer Protection Schematics (PDF)

132/33kV, 31.5MVA Transformer Protection The provided schematics detail the comprehensive control, protection, metering, and operational logic for a 132/33kV, 31.5MVA Power

Protection Relay Testing and Commissioning R

PROTECTION RELAY TESTING AND COMMISSIONING The testing and verification of protection devices and arrangements introduces a number of issues. This happens because the main function

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Auxiliary Modules Market in Colombia | Report

Colombia''s auxiliary modules market encompasses a range of electronic and electromechanical components that support, condition, protect, or interface with primary control and

SIPROTEC Compact 7SX800

SIPROTEC 7SX800 - Universal protection relay SIPROTEC 7SX800 - the universal protection device for all your medium-voltage applications impresses with high performance and an extensive function

National Grid Corporation of the Philippines hiring RELAY PROTECTION ...

Undertakes the detailed preparation of bidding documents consisting of technical specifications, data sheets, plans and drawings, bill of materials and scope of works of relay

DL/T 2958-2025 Technical requirement for flood disaster response of ...

This document specifies the overall requirements for substation relay protection and safety automatic devices in response to flood disasters, including preventive measures, early warning and evacuation,

Reyrolle protection relays

PROTECTION RELAYS Reyrolle protection relays The comprehensive range of Reyrolle products provides the total protection requirements of distribution markets and industrial applications – ranging

Kbsa Protecting Shelly Pro 3EM From Overvoltage An

PRO 3EM Protection.pdf Prerequisites Before implementing over- and under- voltage protection for the Shelly Pro 3EM, several prerequisites must be met to ensure proper installation and functionality. A

Types of Electrical Protection Relays or Protective Relays

□□ Key learnings: Protective Relay Definition: A protective relay is an automatic device that senses abnormal conditions in electrical circuits and triggers actions to isolate faults. Types of

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