

Relay protection using PLC



Article Overview

PLC-based relay protection integrates programmable logic controllers with protection relays to provide adaptive, selective, and automated protection for electrical networks and industrial systems.

Overview of PLC-Based Relay Protection

PLC-based relay protection systems combine protection relays with programmable logic controllers (PLCs) to monitor, control, and protect electrical equipment such as feeders, motors, transformers, and generators. The PLC acts as a data concentrator and logic processor, reading inputs from relays and sensors, executing protection logic, and issuing commands to breakers or actuators. This approach allows for adaptive protection, where relay settings can adjust dynamically to network conditions, improving reliability and selectivity.

Key Components

- **Protection Relays:** Modern numerical relays provide functions such as overcurrent, earth fault, under/overvoltage, phase failure, phase unbalance, differential protection, and reverse power monitoring. They often support IEC 60255-compliant measurement accuracy and communication via Modbus, Profibus, Profinet, or Ethernet/IP.
- **PLC:** The PLC executes logic for line sectionalizing, load shedding, and breaker control. It can operate automatically based on relay inputs or manually via an HMI interface. Ladder logic or structured text is commonly used for programming.



Article Content

Protection relays — ABB Group

ABB's smart protection technology ensures smooth and safe everyday life without blackouts. ABB released its first programmable

Protective relay

Electromechanical protective relays at a hydroelectric generating plant. The relays are in round glass cases. The rectangular devices

SEL-751 Feeder Protection Relay | Schweitzer Engineering Laboratories

The SEL-751 Feeder Protection Relay is ideal for directional overcurrent, fault location, arc-flash detection, and high-impedance fault

PLCs vs. Relays in Industrial Automation: Key Differences

Explore why PLC is preferred over relay in industrial automation. Learn about their simplified wiring, flexibility, and improved

PLC Relay with Circuit Breaker

PLC Relay with Circuit Breaker: Enhancing Safety and Control in Industrial Automation Introduction In the evolving world of industrial

ASED ADAPTIVE RELAY PROTECTION SYSTEM

Taking into account the peculiarities of modern microprocessor-based relay protection devices, we propose a structural diagram

Protection Relays in PLC & Automation Control Panel

Improve PLC panel reliability with coordinated protection relay integration. Contact our engineering team for IEC-compliant designs.

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Line Sectionalizing Using A, PLC And ABB Protective Relays ABSTRACT: With the advent of utility deregulation, uptime and minimal

Section2_EP3

The practical sessions covering the calculation of fault currents, selection of appropriate relays and relay coordination as well as

Protection Relays in PLC & Automation Control Panel

Protection relays in PLC and automation control panels are used to safeguard feeders, process drives, auxiliary systems, and critical

Protective Relays

Protect critical components in your power system with a wide range of SEL protective relays covering applications and use cases

PLC Relay with Circuit Breaker

The combination of a PLC relay with a circuit breaker is foundational in modern industrial control systems. It offers a balance

Protection Relays in PLC & Automation Control Panel

Protection relays in a PLC & Automation Control Panel are the intelligence layer that coordinates fault detection, selectivity, and safe

safety relays and PLCs

I am having trouble trying to get my head around using safety relays in PLC controlled machinery. I want to install a PLC into a

Contact Us

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