

Article Overview

Relay protection handover standards ensure safe, coordinated, and reliable transfer of control and responsibility for protective relays in power systems, guided by IEC 60255 and IEEE C37 series standards.

Overview of Relay Protection Handover

Relay protection handover involves the transfer of operational responsibility for protective relays and associated equipment between operators, substations, or protection schemes. The primary goal is to maintain system reliability and safety, ensuring that faults are detected and isolated promptly without affecting the rest of the power system. Handover procedures are critical during maintenance, commissioning, or operational shifts.

Key Standards and Guidelines

- o IEC 60255-1:2022 This standard specifies common rules and requirements for measuring relays and protection equipment, including distributed protection schemes. It ensures uniformity in testing, control, monitoring, and process interface equipment, which is essential for safe handover between systems or operators.

- o IEEE C37.113-2025 Focused on AC transmission line protection, this guide addresses coordination of relay settings, operating times, characteristics, and communication channels. It provides engineers with guidance on applying relays to protect transmission lines, which is crucial during handover to maintain continuity of protection.

o Practical Handover Practices

- o Documentation: Relay settings, device numbers, and functional definitions must be clearly recorded and shared during handover.

- o Testing and Verification: Before handover, relays and associated circuits (close/trip, indication, alarm) should be tested to confirm correct operation.

- o Coordination: Ensure that relays are properly coordinated with upstream and downstream devices to prevent misoperation during faults.

- o Battery and Power Checks: Station batteries and auxiliary power systems must be verified to ensure relays operate reliably during handover.

- o Communication Channels: For relays using teleprotection or distributed schemes, communication links must be verified to maintain synchronization and fault detection.

Functional Requirements During Handover

- o Reliability: Relays must operate correctly under actual system conditions.

- o Selectivity: Only the faulty section should be isolated, avoiding unnecessary tripping of healthy circuits.

- o Speed: Relays must respond promptly to faults to minimize system disruption.

o Sensitivity: Relays should detect faults accurately without false operations .

Conclusion

Relay protection handover standards combine technical specifications, operational procedures, and testing protocols to ensure safe and reliable transfer of responsibility. Compliance with IEC 60255-1:2022 and IEEE C37.113-2025, along with thorough documentation, testing, and coordination, is essential for maintaining system stability and protecting personnel and equipment during relay handover operations .

Non-Standard Test relay applications should be avoided since protection settings should be produced in line with appropriate

A fast and selective arc fault mitigation for air-insulated LV & MV switchgear and Relion protection and control relays and sensor

This handbook covers the code of practice in protection circuitry including standard lead and device numbers, mode of

These standards aim to ensure uniformity and compatibility across different manufacturers

Scope: Concepts and applications of AC transmission line protection are presented in this guide. Many important issues, such as

PROTECTION RELAY TESTING AND COMMISSIONING The testing and verification of protection devices and arrangements

In short, standards in the new IEC 60255-1xx series are relevant and important for everyone whose work involves relay

The handbook for protection engineers includes guidelines on protective circuitry, protective relay principles, and testing procedures

This standard establishes a common reproducible basis for designing and evaluating relays and relay systems. Scope: This standard

It highlights the urgent need for a paradigm shift in protection strategies to counter technical constraints, outdated standards, and

IEEE Power System Relay Collection: VuSpec™ Power system relaying standards concentrate on the

application, design,

Protection Relays The relay is a well known and widely used component. Applications range from classic panel built

Abstract: Protective relays and devices have been developed over 100 years ago to provide "last line" of defense for the electrical

The International Electrotechnical Commission (IEC) is currently working on a new series of standards that covers the

This powerful collection contains over 184 IEEE Standards, Guides, and Recommended Practices, including Errata & Interpretations

The crisis of traditional relay protection: A disruption of the technological paradigm Using the high short-circuit currents and system

Web: <https://bssoda.pl>

