Relay Protection Distribution Network Automation Upgrade Version



Overview

Modification and upgrade and upgrade services allows modifying the product throughout the entire product life cycle.

Key Takeaways

Upgrading relay protection in distribution networks involves replacing legacy relays with modern digital relays that support automation, IEC 61850 communication, enhanced diagnostics, and cybersecurity.

Modern Relay Upgrade Approaches

Lifecycle Replacement Services: ABB offers Maintenance Exchange Unit services that allow utilities to replace older relay models (e.g., 615 series, REX 521, RE500, REF 542plus) with the latest versions while retaining customer-specific configurations. This ensures extended service life, updated hardware and software, and full lifecycle support.

Vendor-

Specific Upgrades: Hitachi Energy REF650: Designed for medium-voltage distribution grids, the REF650 integrates protection, control, and automation functions. It provides modularity, enhanced security, and an intuitive interface, enabling autonomous and responsive grid operation while supporting distribution automation applications. Schneider Electric Easergy P3 & P5: These relays replace legacy MiCOM P20 and P11x platforms.

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They offer advanced digital protection algorithms, IEC 61850 Edition 2 compatibility, improved diagnostics, modern HMI, and cybersecurity features, making them suitable for digital substations and feeder protection upgrades. Integration with Distribution AutomationDistribution Automation (DA) applications, such as remote-controlled switches, automatic reclosers, fault detection, and voltage/reactive power control, impact relay settings and system configuration. Modern relays are designed to coordinate with DA systems, ensuring selectivity, stability, and reliability even during automatic sectionalization or reconfiguration.

Key D

A considerations for relay upgrades include: Ensuring relay settings adapt to dynamic network configurations. Maintaining proper coordination with automatic circuit reclosers and sectionalizers. Supporting real-time communication and data exchange for fault location and system monitoring.

Digital Substation and Standards Compliance

Modern relay upgrades often involve digital substation integration, including: IEC 61850 communication protocols for interoperability.

GOOS

E messaging and process bus integration for fast control and protection signaling. Precision time synchronization for accurate event recording and wide-area monitoring. These features enable relays to function as intelligent electronic devices (IEDs) that support automation, improve operational efficiency, and reduce operational expenditure.

Practical Benefits of Upgrading

Enhanced protection accuracy and selectivity. Improved system reliability and resilience. Seamless integration with smart grid and automation technologies.

Long-term lifecycle support and vendor-backed maintenance. Advanced diagnostics and monitoring for predictive maintenance. Upgrading relay protection in distribution networks is therefore a strategic step toward modern, automated, and resilient power systems, ensuring compatibility with evolving grid standards and automation requirements.

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Article Content

Life cycle services for distribution protection and control relays

Modification and upgrade and upgrade services allows modifying the product throughout the entire product life cycle. When requirements change, the relay functionality can be easily modified or the

Life cycle services for distribution protection and control relays

The Maintenance Exchange Unit service provides a turnkey solution for replacing older protection relay versions no longer in production with the latest one, with full availability of ABB''s life cycle services

Relays-Online

The modular e-business platform is the one place where you will find most of the needed functionality to take your daily power distribution protection and control business to the next level.

SIPROTEC Protection Relays | Siemens

Siemens'' universal protection relays portfolio includes products such as SIPROTEC 7SX800 and 7SX85 to provide flexibility and cost savings. Our devices cover a wide range of

Protection Relays

Technical resources and thought leadership for protection and control P&C relays for transmission, transformer, distribution feeders, bus, motors, generators, IEC 61850 process bus and digital meters.

Network Protection And Automation Guide

Since 1966, the Network Protection and Automation Guide (formerly the Protective Relays Application Guide) has been the definitive reference textbook for protection engineers and technicians.

The Development of System for Automatic Adaptive Change of Relay ...

At present, problems in the implementation of relay protection can arise due to the integration of distributed energy resources into the distribution network. With the integration of distributed energy

Protection and Supervisory Control System□Transmission

Substation Automation System enhances control and monitoring function by integration of protection relays and other IEDs (Intelligent Electronic Devices) and improves the management of power network.

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Formal performance analysis of optimal relays-based protection

These approaches formally modeled and verified the fault detection, isolation, and restoration techniques in power distribution networks while considering the impact of the failure of

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Corporate

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When configuring an Action Group in Azure Monitor, one of the most powerful notification options is a secure webhook. This allows you to send alerts to an...

Compute Platform Versions for Azure API management service

Background Information: For Azure API Management (APIM) service users, you may notice that we''ve been upgrading the API Management compute platform version - the Azure

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Firmware Update of Relion® relays Descriptio

The firmware update concept provides possibility for the customer to update the software of their Relion® protection and control relays from ABB Distribution Solutions. It helps customers to keep

Grid automation protection and control

Grid automation protection and control Power distribution systems are undergoing a major evolution with distributed generation from renewables gaining ground as

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Life cycle services for distribution protection and control relays

Optimizing the use of existing products The modification and upgrade services provide an opportunity to continue using the existing relays although requirements change, thus extending the lifetime of the

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

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