Automation Upgrade of Ring Main Unit Distribution Network



Overview

At Schneider Electric, we bring advanced technology and innovation to your grid through our exclusive range of smart ring main units, ensuring safety and efficiency in upgrades.

Key Takeaways

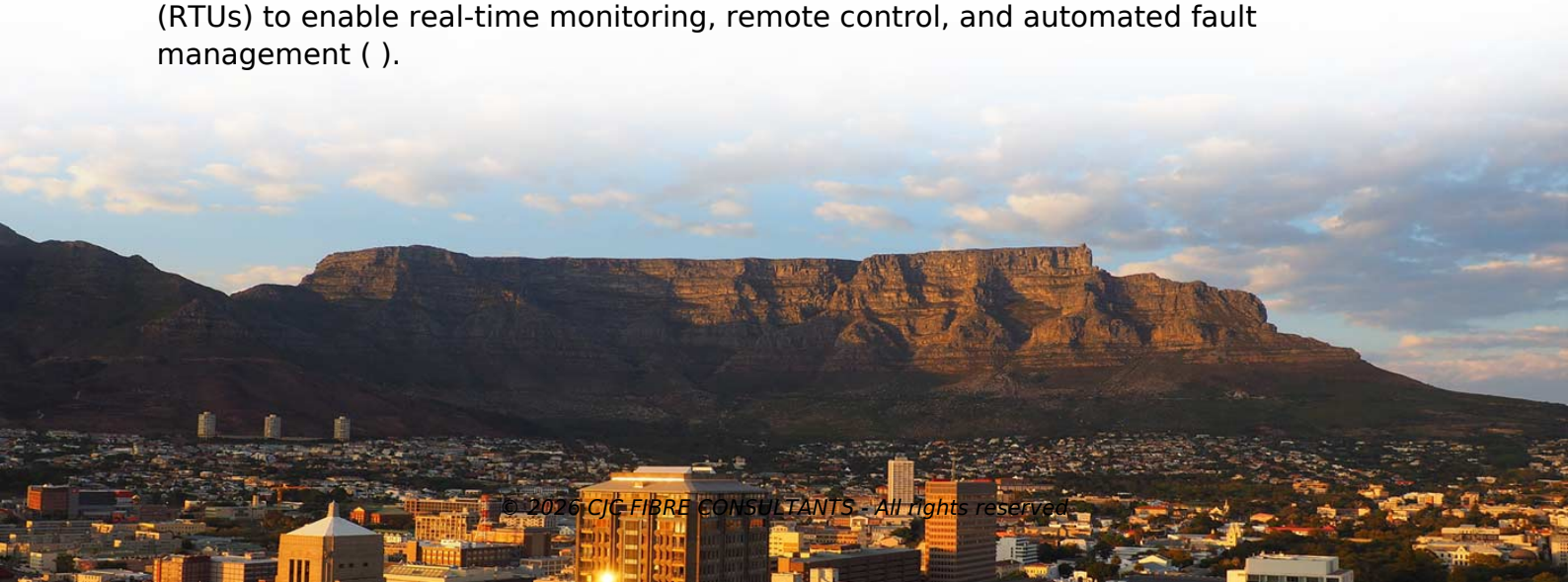
Automating Ring Main Units (RMUs) enhances reliability, enables self-healing, and integrates smart grid functionalities in medium-voltage distribution networks.

Overview of RMU Automation

A Ring Main Unit (RMU) is a compact, metal-enclosed switchgear used in medium-voltage (MV) distribution networks, typically ranging from 7. 2 kV to 36 kV, to connect loads and transformers in a ring topology ( ).

Traditional RM

Us provide basic switching and protection, while smart RMUs integrate digital technologies such as sensors, communication modules, and remote terminal units (RTUs) to enable real-time monitoring, remote control, and automated fault management ( ).



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Key Benefits of Automation

Enhanced Reliability and Self-Healing: Automated RMUs support FLISR (Fault Location, Isolation, and Service Restoration), allowing the network to quickly isolate faults and restore service, minimizing outage duration and improving SAIDI metrics ( ). Remote Monitoring and Control: Integration with SCADA systems and RTUs like PowerLogic T300 enables operators to monitor voltage, current, and equipment status remotely, reducing the need for on-site interventions ( ). Predictive Maintenance: Condition monitoring using thermal sensors, partial discharge sensors, and analytics allows utilities to anticipate failures and schedule maintenance efficiently, lowering operational costs ( ).

Integration with Smart Grids and DERs: Automated RMUs facilitate the connection of distributed energy resources (DERs) and support grid decarbonization and decentralization efforts ( ).

Implementation Considerations

Heuristic Methods for FLISR: Manual switches can be upgraded to automated RMUs based on reliability value calculations, prioritizing feeders with longer lengths or higher criticality ( ).

RT

U Integration: Modular RTU systems provide fault indication, protection relay functions, and HMI interfaces, enabling self-healing grid operations and power quality monitoring ( ). Environmental and Safety Factors: Modern RMUs are designed for indoor or outdoor installation, with SF6-free options for environmental sustainability and robust enclosures for harsh conditions ( ).

Applications

Automated RM

Us are deployed in secondary substations, industrial facilities, hospitals, airports, and renewable energy plants, where reliable and flexible power distribution is critical ( ). They allow electricity to flow through multiple paths, ensuring continuity even during line faults.

Conclusion

Upgrading RM

Us with automation transforms medium-voltage distribution networks into smart, self-healing systems. This enhances reliability, reduces operational costs, supports renewable integration, and provides real-time visibility and control over the network, making it a cornerstone of modern smart grid development ( ).

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Article Content

AUTOMATION OF RING MAIN UNIT

This project introduces a Heuristic Method suitable for FLISR scheme implementation: select manually operated medium voltage isolation switches are upgraded to automated and/or tele-controllable Ring

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At Schneider Electric, we bring advanced technology and innovation to your grid through our exclusive range of smart ring main units, ensuring safety and efficiency in upgrades.

Automating Ring Main Units

Offering Ring Main Unit solution options across different stages of your network development. Our Ring Main Units (RMUs) are available automation-ready with integrated Remote Terminal Units (RTUs).

RMU Digital Upgrade Automating secondary distribution networks

The existing manually operated SafeRing / SafePlus 12-24kV gas-insulated Ring Main Unit (RMU) portfolio from ABB is enhanced with RMU Digital Upgrade packages, to meet the increasing

RTU Automation for MV/LV Substations & RMUs | ELVAC

With the gradual development of automation in distribution networks, automation is constantly being improved on SS as well. Through these investments, power distribution companies get information

Ring Main Unit (RMU) for Smart Grids

You can make your power grid smarter by using automation features in a Ring Main Unit. Automation lets you control and manage the flow of electricity without being on-site.

Ring Main Unit Controller: Drivers, Sensing & Comms

This page explains how to design an RMU controller that safely drives actuators, reads reliable position and health feedback, manages isolated power and communications with cybersecurity, and stays

Switchgear Upgrades

Digital Upgrades are ready-made packages easily pluggable to existing RMUs, enabling the distribution network operator to meet the usually limited out of service time acceptable by the grid consumers.

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A New Distributed Intelligent Distribution Ring Main Unit ...

In order to solve the problems such as insufficient perception ability of distribution equipment, low level of intelligence, and difficulty in accessing distribution automation system, this

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A leading ring main unit solution for accelerating grid modernization with future-ready feeder automation and enhanced energy reliability.

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A COMPREHENSIVE REVIEW OF RMU DESIGNS AND THEIR

Email: deenamin.eee@gmail This paper provides a comprehensive review of Ring Main Unit (RMU) technology and its applications in urban and rural electrical distribution systems, analyzing a total of

Ring Main Units: An Integral Part of Modern Electrical Distribution ...

Ensure safe, reliable, and efficient power distribution with advanced Ring Main Units (RMUs) for modern electrical networks.

Ring Main Unit: Key to Efficient Power Distribution

Discover the crucial role of Ring Main Units (RMUs) in power distribution, enhancing network redundancy and smart grid integration. Learn about eco-friendly alternatives, predictive

(PDF) Developments in ring main unit design for improved MV network ...

In the current AC grid, a distribution network is commonly realised as a ring where the individual loads are supplied from a ring main unit (RMU) .

2026 Top Ring Main Unit Substation Innovations and Benefits?

The 2026 innovations in Ring Main Unit (RMU) substations represent a significant leap in energy distribution technology. These advanced units focus on enhanced automation.

Real-time Ring Main Unit (RMU) Monitoring System for Distribution Network

An overhead line is usually used in electric power transmission and distribution system to transmit electrical energy along with large distances. The overhead lines are replaced by underground cables

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Ring Main Unit (RMU)

Ring Main Unit (RMU) is a switchgear device used in secondary distribution systems, i.e., between the distribution substation and the end consumer to ensure continuous power supply and

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

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