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Relay Protection Project Supported by China Project Network



Overview

2026 Top 10 Relay Manufacturers in China — A Field Guide for Protection & control relays (feeder, transformer, motor, line, capacitor, bus), bay controller.

Key Takeaways

The project “Key Technology of New Relay Protection System Adapted to High-proportion New Energy Power Supply Integration” is a leading Chinese initiative enhancing relay protection for modern power grids.Project Overview

This relay protection project was jointly completed by Xuji Electric, a subsidiary of China Electrical Equipment, Huazhong University of Science and Technology, and the State Grid Zhejiang Electric Power Research Institute. It focuses on adapting relay protection systems to power grids with a high proportion of new energy sources, such as solar and wind, ensuring reliability, selectivity, and fast response in modern power systems . The project has passed a technical achievement appraisal organized by the China Electrical Engineering Society, confirming its results are at the leading international level .

Key Technical Innovations
• Comprehensive Fault Direction Identification: The project developed methods to accurately identify fault directions in grids with diverse new energy sources, improving the reliability and selectivity of relay protection .

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• Fast Protection Technology for Transmission Lines: New techniques were introduced to enhance the speed and sensitivity of protection for transmission lines heavily integrated with renewable energy .

• Information-Interconnected Relay Protection System: A novel system architecture allows direct communication between substations, significantly improving backup protection reliability for grids with high renewable penetration .

Practical Applications

The relay protection devices and system solutions from this project have been applied in multiple substation projects, enhancing the safe operation of regional power grids with high renewable energy integration . These solutions are aligned with modern trends in digital substations, microcomputer-based relay protection, and AC/DC hybrid power grids, reflecting the latest theoretical and practical advancements in the field .

Industry and Market Context

China's relay protection sector is highly active, with top companies like NARI Relay Protection, Sifang NARI Control, and TBEA leading large-scale projects under the State Grid Corporation of China. By 2025, these companies collectively handled procurement packages totaling over 500 million yuan, demonstrating the scale and strategic importance of relay protection in China's power infrastructure .

Emerging Technologies

Recent research also explores digital twin-based relay protection mirror operation, which simulates real-time system behavior to optimize protection principles, interfaces, and human–computer interaction, further enhancing reliability and operational efficiency .

Conclusion

The China-supported relay protection project represents a major advancement in integrating renewable energy into power grids, combining innovative fault detection, fast protection, and inter-substation communication. It exemplifies China's leadership in modern relay protection technology, bridging academic research, industrial application, and large-scale grid deployment .

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To achieve reduction of the control cost and reflect fair competition among load users, this paper proposes a load-shedding control

Latest Progress in Theory and Technology of Relay

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China Electrical Equipment''s “Key Technology for New Relay

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Protection Relays in Power System: Chinese vs Imported Selection

With balanced performance, price and service, Chinese protection relays are the optimal solution for most medium

Artificial Intelligence Based Fault Diagnosis and Relay Protection ...

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Strategy for evaluating the status of relay protection ...

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Introduces a relay protection status evaluation method based on fuzzy support vector machines. Based on status

State-of-the-art in the industrial implementation of protective relay ...

The paper summarizes the operating principles of relay applications, the available measurements used by relays and

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(PDF) Development Analysis of Electric Power Relay Protection ...

In the paper, the development process of power system relay protection technology in China is introduced, and the development

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Protection Relays Market Size by Region 2025: China

The Chinese Protection Relays Market is rapidly expanding due to the country''s robust infrastructure projects,

Protection relays — ABB Group

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The main purpose of protection relays is to observe the electrical grid and make protection decisions autonomously so that flow of

Protective Relaying Coordination in Power Systems Comprising

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