Characteristics of Intelligent Substation Relay Protection



Overview

According to the requirements of the “four characteristics” of relay protection (i., reliability, selectivity, sensitivity, and speed), once there is a fault within the power grid, it is necessary to accurately, quickly, and effectively limit it to the minimum range to avoid. Then, due to the particularity of historical statistical data, a weight calculation method combining analytical hierarchy process (AHP) and entropy weight method is adopted to eliminate subjective factors in the weight calculation process. Meanwhile, the equipment operation risk level was. Ontario Hydro developed the Integrated Protection and Control System (IPACS), with the first system installed in 1992. Substations are critical nexus points in the power grid, transforming high-voltage electricity to ensure its safe and efficient delivery from power plants to millions of end-users.

Article Content

Strategy for evaluating the status of relay protection ...

According to the requirements of the “four characteristics” of relay protection (i.e., reliability, selectivity, sensitivity, and speed), once there is a fault within the power grid, it is

Multiobjective Optimization of Intelligent Substation Relay Protection ...

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The proposed optimization configuration method is validated on an actual substation, and the benefits of the substation relay protection system under different redundant configurations are

Fault diagnosis of intelligent substation relay protection ...

We aim to explore using the Transformer architecture to process complex and nonlinear data in substations, capture the spatiotemporal characteristics of fault modes through self-attention

Relay Protection Stability of Intelligent Substation

According to the characteristics of IS, combining the principle with practical application, this paper starts with the stability of RP of IS, combined with its own work experience, to construct an

Relay protection and safety technology for intelligent substation ...

To achieve information sharing and interoperability among intelligent electrical equipment in intelligent substations, the author proposes research on relay protection and security technology

Analysis of Smart Substation Relay Protection Debugging and

Therefore, the relay protection system of smart substation has become a key topic in the research field. This paper will discuss the debugging process and its application of relay protection in smart substation.

A state evaluation and fault diagnosis strategy for substation relay ...

The intelligent substation is equipped with many relay protection systems, each with unique hardware features that have a substantial influence on their operational lifespan, working

Centralized Substation Protection and Control

The system was developed starting with technology used for protection and control of HVDC substations, adding AC protection algorithms to the existing control system.

Modeling and Simulation of Intelligent Substation Relay Protection ...

The purpose of this paper is to study the modeling and simulation of relay protection in smart substations based on adaptive proxy models. This paper analyzes the DEVS modeling technology and

Protecting the Core: Securing Protection Relays in Modern

At the core of a modern substation lies the protection relay: an intelligent electronic device (IED) that plays a critical role in maintaining the stability of the power grid by...

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Research on Real-time Reliability of Relay Protection System in ...

Strengthening research on the relay protection system of intelligent substations and improving the reliability of the system are urgent problems that need to be solved.

Research on Intelligent Operation Inspection Fault Diagnosis Method

Therefore, the research on intelligent operation inspection fault diagnosis method of substation relay protection logic link is proposed. Using the three-tier node model framework, the relay protection

A state evaluation and fault diagnosis strategy for

The state assessment index system for the relay protection system of secondary equipment in an intelligent substation has been established. The

Artificial Intelligence Based Fault Diagnosis and Relay Protection ...

Zhu Xu studied the online monitoring and fault diagnosis technology analysis of the secondary circuit of intelligent substation relay protection . Zhang Ping studied the fault diagnosis technology for power

Multiobjective Optimization of Intelligent Substation Relay Protection ...

The relay protection system in intelligent substations ensures the safety and stable operation of power grids. While redundancy configurations enhance reliability, excessive redundancy

Analysis and Application of Relay Protection Technology in Intelligent ...

Through the analysis of the characteristics, application status and development trend of relay protection technology, this paper has certain reference significance for improving the safety of

Fault diagnosis technology of relay protection secondary circuit in ...

Based on the openness and sharing of intelligent substation information transmission; The relay protection of power system has the advantages of high safety, strong performance, automatic control

Modeling Method and Simulation Analysis of Smart Substation Protection ...

Process layer network and its intelligent electronic devices (IED) are the basic equipments that constitute the relay protection in smart substation. In order to further achieve the standardization and

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