

Automatic Control Principle of Intelligent Distribution Box



AI Overview

An intelligent distribution box automatically manages power distribution, monitors electrical parameters, and ensures safety using integrated control modules, sensors, and communication systems.

Core Components

- Main Control Module:** Acts as the brain of the system, typically including a microcontroller or PLC, which processes input signals, executes control logic, and communicates with monitoring platforms.
- Output Control Module:** Controls the power supply to individual sockets or circuits, enabling automatic switching on/off based on commands from the main controller or abnormal conditions.
- Electric Quantity Acquisition Module:** Measures voltage, current, and power consumption in real time, providing data for monitoring and decision-making.
- Card Reading Lock Control Module:** Uses RFID or similar technology to authorize access and trigger power supply to specific sockets, enhancing security.
- Communication Module:** Transmits real-time data to a monitoring platform for remote supervision and management.
- Safety Modules:** Includes leakage protection, circuit breakers, and residual current devices to automatically cut off power during faults.

Automatic Control Workflow

- Authorization and Activation:** The card reader verifies user credentials. Upon successful authentication, the main control module activates the corresponding output control module to supply power.
- Real-Time Monitoring:** The electric quantity acquisition module continuously measures electrical parameters. The main controller evaluates these readings to detect anomalies such as overloads or leakage.
- Automatic Switching:** If abnormal conditions are detected, the output control module or safety devices automatically disconnect the affected circuit to prevent hazards.
- Remote Control and Changeover:** In systems with multiple power sources, such as utility and generator, automatic phase changeover can be a...

Article Content

Study on Automatic Monitoring of Electricity Consumption for ...

Study on Automatic Monitoring of Electricity Consumption for Maintenance of Low-Voltage Intelligent Distribution Boxes in Power Systems Haoyu Liu 1, Yuqi Cai 1, Hongbin Zhou 1, Neng Wang 1,

Key Technical Approaches for Intelligent Distribution Systems

Intelligent control: Use intelligent terminals and controllers to implement automated control and regulation of the distribution system, achieving dynamic load balancing, voltage

Bivocom IoT Electrical Panel: Smart Power Distribution Solutions

Its compact size fits confined spaces like corridor distribution boxes. Panel Adaptability: In retrofitted residential panels, it eliminates manual meter reading by automatically sending usage data

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Abstract Disclosed are an intelligent distribution box and a control method thereof, which can minimize human electric shock accidents.

How to create an intelligent distribution architecture with ABB

In this session, we will show how ABB satisfies customer needs and supports them throughout the whole project journey, from the idea down to the detailed documentation and instructions to execute it.

Construction of intelligent power distribution system in box-type ...

Abstract and Figures Based on the field-bus technology and combined with the industrial control products, the intelligent power distribution system in box-type substation was investigated.

Technical Details and Application Scheme of Industrial Intelligent ...

The industrial intelligent distribution box system is the core infrastructure for power distribution and control, designed to achieve precise power supply, safety protection, and intelligent

Intelligent Power Distribution Box Solution

Compared with the traditional power distribution box, it is safer to cut off the strong power supply remotely, and it can save energy through the timing mode while controlling the equipments

Design and Construction of a 60a Smart Distribution Board with Real ...

To integrate automation features into the distribution board, allowing for remote control and smart scheduling of connected electrical appliances. To implement safety mechanisms within the smart

Building a Smart Distribution Panel: The Ultimate DIY Project

Conclusion Building your own smart distribution panel is a rewarding and empowering DIY project that unlocks a world of possibilities for intelligent power management.

Smart Three-Phase Electrical Panel Based on IoT Integration and ...

It underscores the integration of intelligent control components into a conventional power distribution network, offering a complete and visually accessible depiction of the three-phase electrical

POWER DISTRIBUTION BOX – Smart Home Automation | KinCony

Smart Distribution Box Solution Powered by KinCony B32M + B16M Controllers The KinCony Smart Distribution Box is a professional intelligent electrical control solution designed for smart homes,

Distribution Automation | Siemens

Automatic source transfer automatically transfers critical loads to an alternate source in the event of a loss of voltage incident. Overload reduction handles

Design of Intelligent Distribution Control System Based on BP Neural ...

This paper mainly describes the status quo of intelligent distribution system, the realistic role of neural network algorithm and the advantages of intelligent distribution system based on the algorithm

Principle of Intelligent Communication Distribution Box

This paper presents the design and implementation of a smart power distribution box that utilizes IoT technology for real-time power monitoring and fault detection in residential settings. It integrates

SMART DISTRIBUTION BOARD FOR HOME APPLIANCES

SMART DISTRIBUTION BOARD The paper discusses the transformative impact of smart distribution boards on electrical systems, highlighting their key features and components. These boards integrate

Main functions and application fields of intelligent distribution box ...

9. Remote control, mobile phones, tablets, laptops and other terminal equipment can be used for remote monitoring of various power lines. Application field of intelligent distribution box Its applicable places

Study on Automatic Monitoring of Electricity Consumption for ...

At present, the trend of global industrial transformation is more and more inclined to intelligence. With the continuous development and use of power electronics technology, low-voltage distribution boxes

Research on intelligent distribution network automation design

This paper summarizes the development of distribution network automation in China, and analyses the shortcomings of traditional distribution automation with the background of intelligent

Principle of Intelligent Communication Distribution Box

The intelligent distribution box comprises multiple electrical devices, the electrical devices at least comprising a common power supply module, a main input intelligent circuit breaker, at least one

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Design of a Smart Distribution Panelboard Using IoT Connectivity and ...

Electric load management through continuous monitoring and intelligent controlling has become a pressing requirement, particularly in light of rising electrical energy costs. The main

Design of Intelligent Distribution Control System Based on BP Neural ...

Intelligent power distribution system is based on the needs of users and in accordance with the standard specifications of the power distribution system under the premise of secondary development of a set

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