

The function of control wires in distribution boxes



Article Overview

Control wires in distribution boxes transmit signals to operate, monitor, and protect electrical circuits, enabling safe and efficient system control.

Overview of Control Wires

Control wires are distinct from power-carrying conductors; they carry low-current signals used to control devices such as relays, contactors, circuit breakers, and indicators inside a distribution box. Their primary purpose is not to supply power, but to enable communication and control between components, ensuring the system operates safely and efficiently.

Key Functions

- **Circuit Operation Control** Control wires connect switches, push buttons, and relays to the circuits they manage. For example, they allow a motor starter to be activated remotely or a lighting circuit to be switched on/off without directly handling high-voltage lines.
- **Monitoring and Indication** These wires transmit signals to indicators, LEDs, or meters, providing real-time status of circuits, such as whether a breaker is on or off, or if a fault has occurred. This helps technicians quickly identify issues and maintain the system.
- **Safety and Protection** Control wires are integral to protective functions. They carry signals from sensors or protective devices (like residual current devices or overload relays) to trip breakers or activate alarms in case of overloads, short circuits, or ear...

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- Control and distribution board (consumer unit) - Surge protective devices - Earth resistance between the electrode and the point

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Distribution board

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What Is a Distribution Box?

What to Look for When Choosing a Distribution Box If you're going to buy a distribution box, there are several things

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