

Wiring of the intelligent lighting module in the distribution box



Overview

It supports connections for 2 to 16 luminaires and includes specific modules for different output configurations.

Key Takeaways

Intelligent lighting distribution boxes are typically wired using a combination of standard power wiring and digital control interfaces like DALI, allowing individual and group control of lighting circuits while maintaining safety and flexibility.

Power Supply Wiring

The distribution box should be connected to a stable AC power source, typically three-phase four-wire wye or single-phase, depending on the system requirements. Ungrounded delta configurations are not recommended. Ensure that the branch circuit voltage matches the lighting equipment and that the wiring capacity meets the total load requirements.

All power wiring must comply with local electrical codes, NFPA 70, and IEEE standards. Green ground wires should be properly connected and not relocated (). Control Wiring (DALI or KNX) For intelligent control, DALI (Digital Addressable Lighting Interface) is commonly used.



DAL

It allows each ballast or fixture to be individually addressed and grouped into up to 16 groups for flexible control. Wiring is simplified because DALI communication lines can share conduits with power wiring, subject to local code.

Each DAL

It typically uses a two-wire bus with polarity-insensitive connections, and the total bus length and number of devices must follow the DALI standard (). If using KNX DALI gateways, the distribution box integrates both KNX and DALI networks, enabling advanced functions such as scene control, color tuning, occupancy sensing, and load shedding. Proper addressing and group assignment should be configured using the manufacturer's software tools ().

Safety and Installation Considerations

Turn off power at the breaker or fuse before installation or maintenance (). Ensure fixtures and distribution box are rated for environmental conditions, including temperature, humidity, and potential exposure to dust or moisture. Follow manufacturer wiring diagrams for correct terminal connections, including neutral, live, and ground.

Avoid making or altering open holes in the enclosure to maintain safety and integrity (). Verify that supporting structures comply with mechanical load and wind resistance requirements.

Wiring Diagram Reference

Manufacturers like Intelligent Lighting Controls and flex7 provide detailed wiring diagrams for their distribution boxes, showing connections for power, DALI bus, and optional control interfaces. These diagrams should be followed precisely to ensure proper operation and compliance with safety standards ().

Summary

Wiring an intelligent lighting distribution box involves: Connecting a compliant AC power supply with proper grounding. Installing a DALI or KNX DALI control bus for intelligent control. Following manufacturer wiring diagrams and local electrical codes.

Ensuring environmental and mechanical compliance for long-term reliability. This approach ensures maximum control, energy efficiency, and safe operation of the intelligent lighting system.

Article Content

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Fix the box on a smooth, flat surface or using drop rod fixings. You can use optional track fixings. Ensure that there is easy access to the wiring compartment and all connectors once the box is in place.

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