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What type of distribution box should be used with CF



Overview

The Main Distribution Box-Cable floor (MDB-CF) is the heart of the Global IFS Cable Floor Modular Wiring System.

Key Takeaways

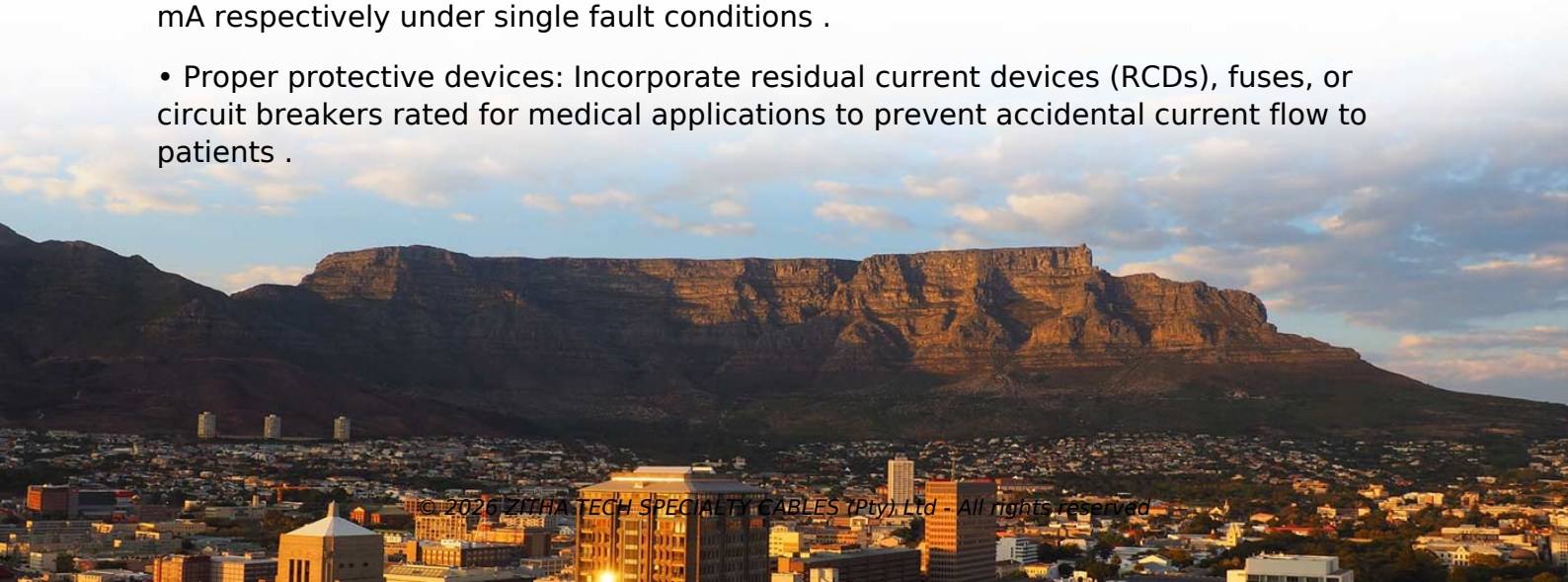
For CF-classified medical equipment, a distribution box must provide high isolation, low leakage currents, and compliance with IEC 60601-1 standards.Key Considerations

CF (Cardiac Floating) equipment is designed for direct or low-impedance patient connections, meaning any leakage current can pose a significant risk. Therefore, the distribution box used must ensure:

• High isolation: Minimum input-to-output isolation of 4,000 VAC and input-to-ground isolation of 1,500 VAC, with output-to-ground isolation of at least 1,500 VAC .

• Low leakage currents: Maximum leakage currents under normal conditions should not exceed 100 µA to the equipment case and 500 µA to earth, rising to 500 µA and 1 mA respectively under single fault conditions .

• Proper protective devices: Incorporate residual current devices (RCDs), fuses, or circuit breakers rated for medical applications to prevent accidental current flow to patients .



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• Compliance with standards: The distribution box should meet IEC 60601-1, IEC 61439, and other relevant regional safety standards .

Recommended Distribution Box Features

• Material and Enclosure: Use a metal or high-quality fire-resistant plastic enclosure with adequate impact resistance and heat dissipation .

• Internal Layout: Include DIN rails for breakers, terminal blocks for hard-wired connections, and sufficient spacing to prevent capacitive coupling that could increase leakage currents .

• Circuit Segregation: Separate circuits for CF equipment from general-purpose loads to minimize interference and ensure patient safety .

• Surge Protection: Include surge protective devices (SPDs) to protect sensitive medical electronics .

• Modular Design: Consider modular or customizable distribution boxes to accommodate future expansion or additional CF equipment .

Practical Example

A Main Distribution Box-Cable Floor (MDB-CF) is an example of a modular distribution box suitable for sensitive applications. It provides isolated connectors, color-coded for voltage differentiation, and can be fitted with terminal blocks for hard-wired connections, ensuring safe and organized power distribution .

Summary

When selecting a distribution box for CF-classified medical equipment:

• Prioritize isolation and low leakage currents.

• Ensure compliance with IEC 60601-1 and other relevant standards.

• Use modular, well-organized enclosures with proper protective devices.

• Separate CF circuits from general loads to maintain patient safety. This approach ensures both regulatory compliance and the highest level of safety for patients connected to CF medical devices.

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