COETZER OPTICAL SYSTEMS (Pty) Ltd

How much spacing between primary distribution boxes

Overview

Note that sufficient working space is relative to the clear space in front, between, and above electrical equipment.

Key Takeaways

Primary distribution boxes should be spaced to allow safe access, proper ventilation, and compliance with electrical standards, typically maintaining at least 0.5–1 meter between units depending on installation type and local codes.General Guidelines for Spacing

Physical clearance: Distribution boxes must have sufficient space around them for maintenance, inspection, and safe operation. A minimum of 0.5 meters (50 cm) is often recommended between adjacent boxes in residential or commercial installations, while industrial setups may require 1 meter or more depending on the size and heat dissipation needs . Ventilation and heat dissipation: Proper spacing ensures that heat generated by circuit breakers, busbars, and other components does not accumulate, which could reduce equipment lifespan or cause overheating . Avoid placing boxes in confined spaces without airflow. Access for wiring and components: Adequate spacing allows electricians to safely route cables, connect busbars, and install protective devices such as MCBs, RCDs, or surge protection devices (SPDs). For SPDs, specific spacing rules apply: for example, at least 5 meters between two voltage-limiting SPDs and 10 meters between a voltage-switching SPD and a voltage-limiting SPD to ensure proper surge protection . Compliance with standards: Spacing should follow local electrical codes and international standards such as IEC 61439, IEC 60670, or UL/NEC, which may specify minimum clearances for safety, accessibility, and fire prevention . Mounting considerations: Surface-mounted boxes may require more lateral spacing for cable entry and maintenance, while flush-mounted boxes embedded in walls may need additional clearance in front for door operation and component access .

Practical Recommendations
• Maintain at least 0.5 meters between residential or small commercial distribution boxes.

• For industrial or high-capacity installations, consider 1 meter or more to allow for heat dissipation and safe access.

• Ensure front clearance of 1 meter for maintenance and emergency access.

• Follow SPD-specific spacing rules if surge protection devices are installed within or near the distribution boxes .

• Always verify spacing against local electrical codes and manufacturer recommendations for the specific DB box model. By following these spacing guidelines, you ensure safe operation, easy maintenance, and compliance with electrical safety standards, while also optimizing the performance and longevity of your distribution system.

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