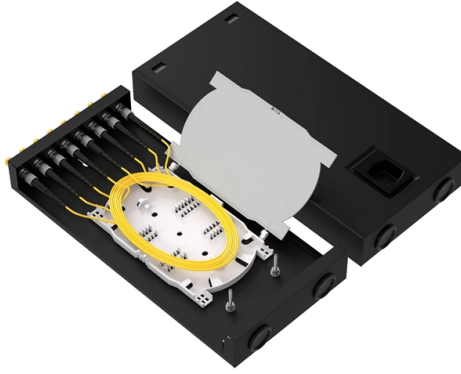


# Wiring Standards for Dual Power Distribution Boxes



## Overview

2024 Electric Service Requirements Manual (LADWP) This manual is for electronic distribution only and is designed to provide you with the most current information.

## Key Takeaways

A dual-power distribution box is wired to connect a primary and backup power source through contactors and relays, ensuring automatic switching and uninterrupted power supply.

A dual-power distribution box, also known as a dual-power automatic transfer switch (ATS), is designed to maintain continuous power by switching between a main source (Source A) and a backup source (Source B) when outages occur. It is commonly used in industrial, commercial, and sensitive residential applications to protect equipment from downtime.

### Wiring Principles

- Power Input Connections
  - Connect the primary power source to one air switch or input terminal.
  - Connect the backup power source to a separate air switch or input terminal.
  - Ensure that both sources are properly grounded and insulated.
- Contactor Configuration
  - Use two AC contactors to manage the switching between the two power sources.

- The primary source is typically connected to the non-delayed contactor, while the backup source is connected to the delayed contactor to prevent simultaneous connection .
- Align the same phase of both sources to maintain phase synchronization and avoid short circuits.
- Load Connections
- Connect the output terminals of the contactors to the load circuits.
- Ensure that neutral and ground wires are properly connected to the neutral bar and grounding terminal inside the distribution box .
- Priority and Automatic Switching
- Designate the priority source (usually the main utility supply).
- The system automatically switches to the backup source if the primary fails and returns to the main source once it is restored .
- Intermediate or time relays can be used to control the switching delay and prevent rapid toggling.

#### Safety and Testing

- Inspection: Before wiring, check insulation, conductivity, and grounding of all components .
- Simulation Test: Use a low-current test source (e.g., three-phase 5A) to simulate live operation and verify switching functionality .
- Switch Testing: Test each source individually and in automatic mode to ensure proper contactor operation, phase alignment, and uninterrupted power delivery .
- Precautions: Always turn off all power sources before starting installation and verify with a voltage tester. Follow explosion-proof or protective standards if applicable .

#### Additional Considerations

- Ensure the distribution box is compatible with the system voltage and current ratings.
- Use proper protective devices such as MCBs, fuses, or surge protectors to safeguard equipment .
- Maintain clear labeling of primary and backup circuits for easier maintenance and troubleshooting. By following these wiring principles and safety procedures, a dual-power distribution box can reliably provide uninterrupted power while protecting connected equipment from outages and electrical faults .

## Article Content

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Wiring diagram shows both PNP and NPN wiring. Actual units use PNP status indicator, NPN status indicator, or neither. Dimensions

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Covers and canopies. All pull boxes, junction boxes, and fittings shall be provided with covers. If metal covers are used, they shall be

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Primary windings are comprised of wire conductors, either aluminum or copper. Secondary windings are either full

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The distribution box typically contains circuit breakers or fuses to protect the electrical

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At its core, an electrical distribution box (or distribution board) is a metal or plastic enclosure

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