Challenges

Reliably transfer loads between two or more power sources.
Service and maintain equipment without disrupting power to loads.
Transfer loads without impacting downstream equipment.
Add capability for a “backup-to-the-backup”.
Reduce equipment space requirements.

What do these challenges have in common?
All of them can be solved by using transfer switches.

ASCO Solutions

ASCO Transfer Switches make backup power possible. They enhance power availability by transferring electrical loads to alternate sources of power. From simple backup solutions to mission-critical facilities, transfer switches connect backup power to enhance safety and sustain operations.

Healthcare

Critical Power Management Systems
Transfer Switches
Load Banks
Power Control Systems

Supporting Information: Testing Hospital Backup Sources
ASCO Solutions
Critical Power Equipment for a Wide Range of Applications

Data Center
Maximum Uptime

Commercial Building
Business Continuity

Residential Healthcare Facilities
Occupant Safety & Comfort

Small Business/Critical Operations
Public Service

Telecom
Public Safety & Consumer Satisfaction

Water Treatment Plant
Environmental Protection

Transfer Switches
Transfers Switches
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Integrated Quick Connects
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Transfer Switch Basics

Transfer switches are installed in power distribution systems between power sources and electrical loads. Transfer switches safely switch loads between two isolated sources of power.

Automatic transfer switches provide the following essential functions without human intervention:

- Carry rated current continuously
- Detect power failure on primary source
- Start alternate power source
- Transfer load
- Sense restoration of power to primary power source
- Re-transfer load to primary source

Every ASCO Transfer Switch offers Withstand and Closing Ratings indicating the amount of current it can withstand under short circuit conditions. ASCO Transfer Switches also offer Time-Based Ratings to support selective coordination of fault-clearing devices used in power distribution systems to obtain these ratings.

Transfer switch models differ by type of operation:

- **Automatic**: Automatic models switch loads to emergency power and back again whenever outages occur, without human intervention.
- **Non-Automatic**: Non-Automatic models use operator initiated, local or remote electrical controls to transfer loads on command.
- **Manual**: The simplest type, manual transfer switches require a person to operate a mechanical switching mechanism.

Supporting Information:
- Transfer Switch Mechanism Basics
- UL 1008 Transfer Switch Withstand and Closing Ratings
- Performance Testing for Transfer Switches
- UL 1008 – Standard for Safety – Transfer Switch Equipment
- ASCO Engineering Application Information
- Non-Automatic & Manual Transfer Switches for Backup Power Applications
Design and Integrations

Integrating functions extends transfer switch value

Standard Transfer Switch

Bypass-Isolation Transfer Switch

Service Entrance Transfer Switch

Neutral Configurations

Transfer switches differ by neutral configurations

Solid Neutral

Switched Neutral

Overlapping Neutral

Reliably transfer electrical load between sources of power.

Bypass feature enables concurrent maintainability - Isolation of transfer mechanism facilitates service and repair.

Simplify design, procurement, and installation by incorporating service disconnect in a transfer switch enclosure or lineup.

Standard configuration for power distribution systems with a single grounding electrode.

Switched neutral for transferring load between separately grounded systems.

Overlapping neutral for transferring load between separately derived systems without interrupting neutral connectivity.

"With nine hospitals on the line, ASCO helps me sleep well at night." Tom M., Facility Engineering Director

Supporting Information: Switching the Neutral Conductor

Supporting Information: Application & Design Factors for Transfer & Bypass-Isolation Switches Part 1 and Part 2

Applications for Service Entrance Automatic Transfer Switches

8
Transition Modes
Switch mechanisms differ by transfer sequence

Open Transition
- “Break-Before-Make” Operation
- Popular for Resistive & Mixed Loads
- Used Across a Wide Range of Facilities & Industries
- Standard In-Phase Transfer Capability

Delayed Transition
- “Break-Wait-Make” Operation
- Inductive & Motor Load Applications
- Allows Residual Voltages of Motors & Inductive Devices to Decay Prior to Avoid Damaging Transient Currents

Closed Transition
- “Make-Before-Break” Transfers without Momentary Power Interruption
- Reduces Electrical Disturbance to Downstream Loads when Transferring Between Two Live Sources
- For Mission-Critical Operations, Healthcare Facilities, & Data Centers

Soft Load Transition
- Ramps Down One Source While Increasing Power from a Source
- Avoids Excessive Block Loading of Generators
- Useful Where Load Exceeds 80% of Generator Capacity

Custom-Engineered Transfer Switches and Distribution
“Value-Added Transfer Switches”
Custom switches increase value by integrating service, distribution, and control features in custom-engineered designs.

Customization options include:
- Integrated Distribution Breakers
- Source Fusing
- Bus Riser

Custom-Engineered Transfer Switches can offer:
- Reduced Space Requirements
- Reduced Lead and Construction Times
- Reduced Installation Labor
- Enhanced Quality Control

Supporting Information: Transition Modes for Automatic Transfer Switches Part 1 and Part 2
Supporting Information: Benefits of Custom-Engineered Transfer Switches
Transfer Switch Product Lines

7000 SERIES
Custom engineered for healthcare, data center, and mission critical facilities. They are the industry leading technology for the widest range of applications.

- Hospitals
- Data Centers
- Mission Critical Facilities

4000 SERIES
Sophisticated control for large commercial and industrial loads. 4000 SERIES switches have premium features in a configured-to-order solution.

- Large Commercial Applications
- Large Industrial Facilities
- Water Treatment Plants

SERIES 300
Standard designs for commercial and light industrial facilities that are simple to procure, install and commission.

- Outpatient Healthcare Facilities
- Small & Midsize Businesses
- Light Industrial Applications
- Integrated & Stand-Alone Quick Connects

SERIES 185
Economical designs for homes and small businesses.

- Small Businesses
- Residential Applications

Resource Finder

<table>
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<th>Product Series</th>
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Available Resources

- Low Voltage Web Page
- Medium Voltage Web Page
- Product Brochure
- Pub.3040
- Pub.3144
- Pub.1195
- Pub.3214

View Supporting Documentation
- White Papers
- Technical Articles
- Videos

View Transfer Switch Papers
View Transfer Switch Articles
View Transfer Switch Videos