Power Transfer for Mission-Critical Applications

ASCO Power Technologies™

ASCO 7000 SERIES
Low-Voltage Transfer Switches

ascopower.com

Life Is On Schneider Electric

ASCO 7000 SERIES Power Transfer Switches

ASCO 7000 SERIES Power Transfer Switches provide unmatched reliability and sophisticated control for the most demanding mission-critical backup power needs.

ASCO 7000 SERIES Transfer Switches are widely used in the most complex mission-critical hospital and healthcare facilities, enterprise and cloud-based data centers, telecommunication networks, water treatment plants, and any facility that requires the highest levels of power availability.

Every 7000 SERIES transfer switch is engineered-to-order to optimize switch functionality and provide facilities with the best solution for their specific application, and custom-engineering is available to meet any transfer switching need.

Backed by industry-leading technical support and service knowledge derived from a century of critical power switching experience, the 7000 SERIES solves the most demanding critical power challenges facing facilities today.

Power Knowledge

Transfer Switch Overview

"With nine hospitals on the line, ASCO helps me sleep well at night."

Tom M., Facility Engineering Director

7000 SERIES Power Transfer Switches

ASCO Power Transfer Switches are the standard of the industry. High-speed transfer of loads between alternate sources of power, regardless of ampacity, is achieved using a reliable, field-proven solenoid operating mechanism.

- Listed to UL 1008 Transfer Switch Equipment and Certified to CSA 22.2, No. 178
- Qualified and certified to IEC 60947-6-1, optional CE mark
- Rated up to 600 VAC, 30 through 4000 amps
- 3 to 18-Cycle Withstand and Closing Rating Standard, 30-Cycle WCR Optional
- High Withstand and Closing Rating, including Short-Time Ratings, support breaker coordination
- Solid, switched, or overlapping neutral configurations
- Front-replaceable main and arcing contacts on 800-4000 amp models
- Central terminal block for control connections on 260-4000 amp models
- Four auxiliary contacts: two closed when switch is in normal position and two closed when switch is in emergency position
- Local/remote communications to ASCO communication products
- Comprehensive 2, 5, or 10 year warranty

Power Knowledge

Basic Automatic Transfer Switch Functions

Three Pole 7000 SERIES Automatic Transfer Switch rated 1600 amps

7000 SERIES Power Switching Solutions

Automatic and Non-Automatic Transfer Switching

ASCO Transfer Switches are available in automatic and non-automatic types. For automatic transfer switches, the controller initiates transfer. For non-automatic transfer switches, a user initiates transfer between power sources using local or remote switches. ASCO 7000 SERIES Transfer Switches offer the following features:

- Rated up to 600VAC, sizes from 30 through 4000 amps
- Controller prevents inadvertent operation under low voltage conditions
- Low control circuit currents allow for long distances between remotely control switches and transfer switches
- Standard in-phase monitor for transferring motor loads
- Non-automatic models provide source acceptability lights to inform operator when sources are available to accept load

Power Knowledge

- Non-Automatic and Manual Transfer Switches for Backup Power Applications

Four Pole, Non-Automatic, Electrically-Operated 400 Amp Switch in a Type 1 Enclosure

Open Transition Transfer Switching

ASCO Transfer Switches are available with a standard, 2-position, open transition models that reliably transfer loads in a "break-before-make" sequence in less than 100 milliseconds. Open transition switches are suitable for a wide range of applications.

- 30 to 4000 amps
- Single-operator switching mechanism prevents simultaneous connection of both sources
- Available In-Phase Monitor can be activated for transferring motor loads

Delayed Transition Transfer Switching

ASCO Delayed Transition Transfer Switches transfer loads between power sources using a timed, load, disconnect position with an adjustable delay. Applications include older variable frequency drives, rectifier banks, and load management applications.

- 150 through 4000 amps
- Mechanical interlocks to prevent interconnection of both sources
- LED Indicator for load disconnect position
- Adjustable time delay for load disconnect position

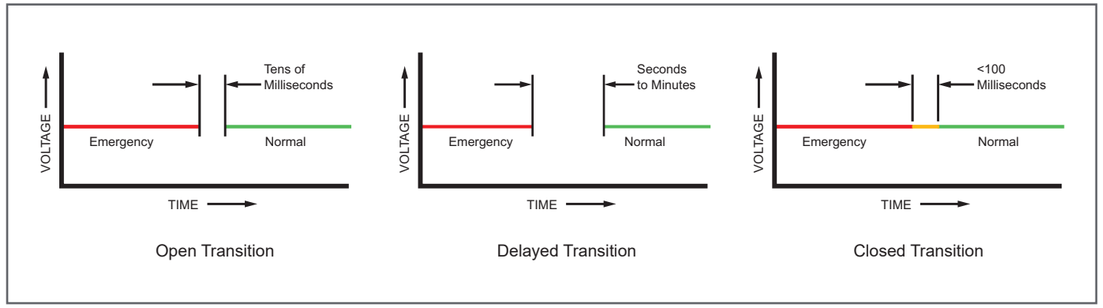
Closed Transition Transfer Switching

ASCO Automatic Closed Transition Transfer Switches overlap the normal and emergency source to transfer without power interruption. The switch transfers in a make-before-break sequence if both power sources are within acceptable parameters. Control logic continuously monitors source conditions and automatically selects open or closed transition according to real-time values.

- Available 150 through 4000 amps
- Closed Transition Transfer occurs passively without directly controlling the engine-generator set
- Overlap time is less than 100 milliseconds
- Indications for failure-to-synchronize and extended parallel time

Power Knowledge

- Transferring Motor Loads between Power Sources
- Transition Mode Basics
- Transferring Loads with Zero Power Interruption



7000 SERIES Bypass-Isolation Switches

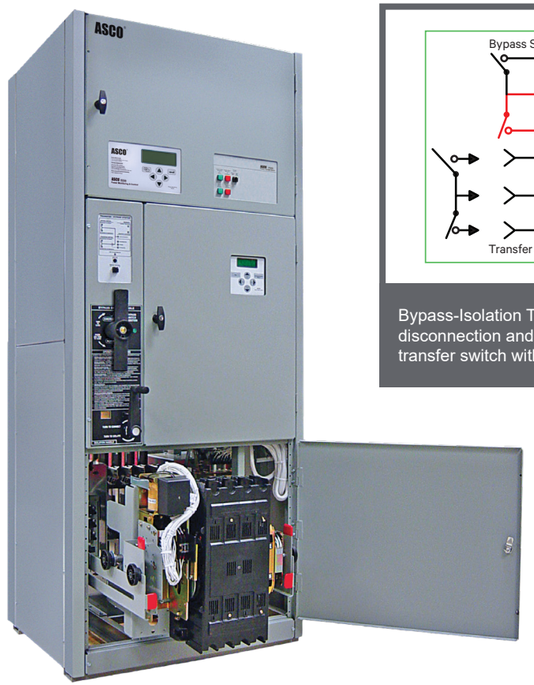
Bypass-Isolation Automatic Transfer Switches

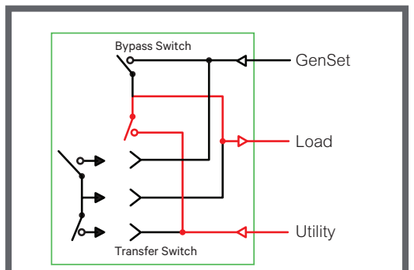
ASCO Bypass-Isolation Automatic Transfer Switches are available in open transition, closed transition, and delayed transition designs. The bypass-isolation features allow the primary automatic transfer switch to be inspected, tested, and maintained without interrupting power to the load. They also provide redundant power transfer if the ATS is disabled or removed from service.

- 150 to 4000 amps
- Bypass switch and transfer switch have identical electrical ratings
- Mechanical interlocks prevent unintended operation
- Bypass contacts carry current only during bypass operation
- Draw-out design eases transfer switch maintenance
- Bypass switch is rated for use as a 3-position manual transfer switch
- Bypass and isolation functions require only two permanently mounted operating handles
- Mechanical indicators show bypass and transfer switch positions
- Shallow depth, front-connected, or rear-connected designs

Power Knowledge

3D Bypass Switch Animation





Bypass-Isolation Transfer Switch allow disconnection and draw-out of the primary transfer switch without disrupting power to loads.

Bypass-Isolation Transfer Switch, J-Frame, 150-600 amps

Product Details

Bypass-Isolation Transfer Switches

7000 SERIES Service Entrance Switches

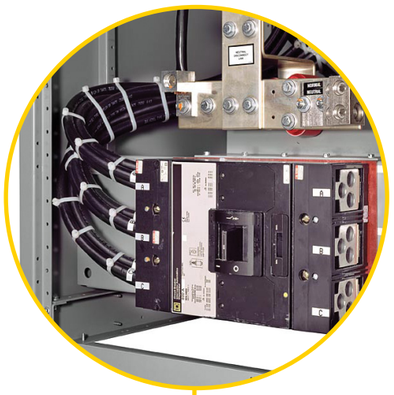
Service Entrance Power Transfer Switches

The ASCO Service Entrance Power Transfer Switch combines automatic power switching with a disconnect and over-current protection device for the utility source. These switches are installed at facilities that have a single utility feed and a single emergency power source. A circuit breaker serves as the utility disconnect. This product is available up to 600V and 4000 amps in Standard, Delayed, Closed Transition, and Bypass-Isolation configurations.

- Available from 70 to 4000 amps, up to 600V
  - 70 - 400 amp listed to UL 1008
  - 600 - 4000 amp listed to UL 891
- UL 1008 Listed transfer mechanism
- Disconnect and over-current protective device on the utility source. 70 to 2000 amp models use molded case circuit breakers; 2500 to 4000 amp models use insulated case circuit breakers.
- Disconnect links on Neutral and Ground
- Internet-enabled monitoring and control

Power Knowledge

Applications for Service Entrance Automatic Transfer Switches



Service Entrance Breaker

Product Details

Service Entrance Transfer Switches

Custom-Engineered Transfer Switches

Optimized Solutions for Mission-Critical Performance

Create an exact power control solutions by integrating service equipment and protective devices and incorporating distribution equipment while accommodating unique application requirements. Custom engineered devices can save space, reduce delivery times, streamline installation and commissioning, enhance quality control, and reduce overall cost.

Power Knowledge

Benefits of Custom-Engineered Transfer Switches

Integrated Distribution Breakers

Common distribution breaker applications include:

- Panels to house molded case circuit breakers
- Insulated case circuit breakers, with or without drawout capability
- Manually or electrically operated circuit breakers

Automatic Transfer Switchboard

- Connects multiple automatic transfer switches together in a common switchboard
- Two ASCO 2000 ampere automatic bypass-isolation transfer switches
- Circuit breakers on the normal and load sides of each switch
- An ammeter and voltmeter are also located on the load side of each switch

Three Source System

- Sequential transfer switches select between alternative power sources
- Normal, emergency, and/or load circuit breakers
- Protective relays, when required
- Available metering for normal, emergency

Transfer Switches can be custom-engineered to integrate service entrance equipment, distribution equipment, and more.

Additional Available Custom Features

These examples are just a few of the configurations and features available through custom-engineered solutions. Additional possibilites include:

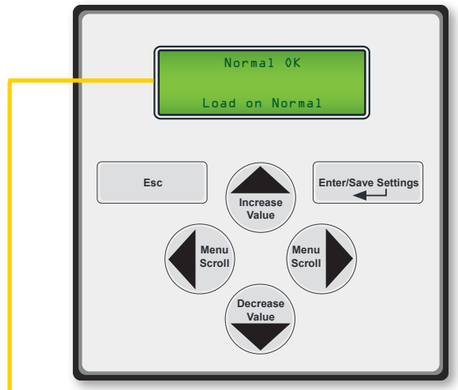
- Custom Metering
- Source Fusing
- Bus Riser
- Utility-Specified Compartments

For more information, contact an authorized ASCO Power Technologies Representative.

7000 SERIES Controls and Indicators

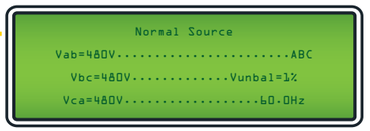
Group 5 Controller

The 7000 SERIES Group 5 Controller is reliable and field-proven. It provides all of the voltage, frequency, control, timing, and diagnostic functions required for most emergency and standby power applications.

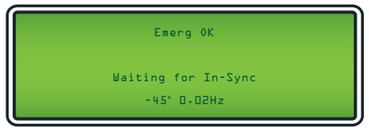


- Touch pad programming
- Displays active timers
- On-board diagnostics
- Password protection
- Voltage and frequency sensing
- Status and control functions

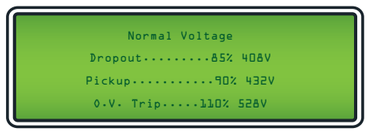
Source Status



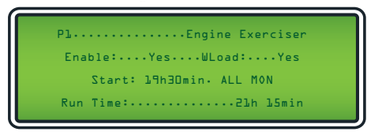
In-phase Transfer Status



Voltage and Frequency Settings



Engine Exerciser

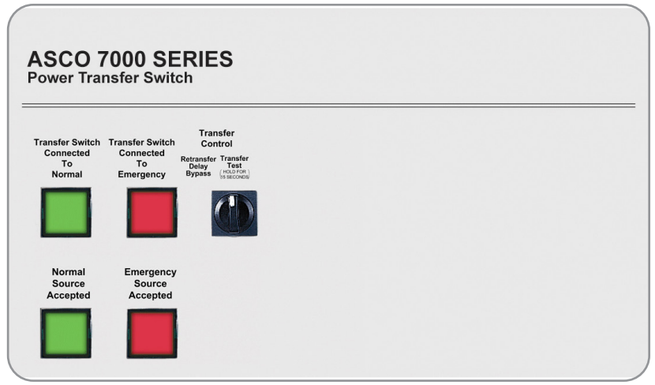


Product Details

Group 5 Controller

Control Switches and Indicating Lights

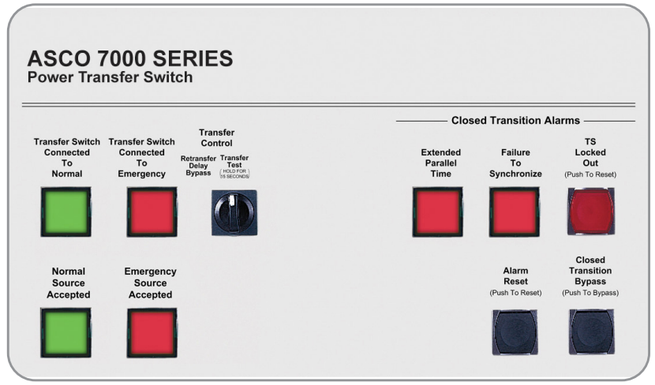
- Switch position indicating lights
- Source acceptability indicator lights
- Three-position selector switch:
  - Automatic: Normal position
  - Test: Simulate normal source failure
  - Reset Delay Bypass: Bypass transfer and re-transfer time delays



Control Switches and Indicating Lights for Closed Transition Switches

Additional controls and Indicators for:

- *Extended Parallel Time* - Provides visual indication when the pre-set extended parallel time has been exceeded. The controls automatically open the emergency or normal main contacts. Separate contact also available to shunt trip external breaker.
- *Failure To Synchronize* - Visually displays a failure to synchronize alarm if the time delay settings are exceeded during closed transition transfer operation.
- *Transfer Switch Locked Out* - Prevents transfer in either direction if the extended parallel time is exceeded.
- *Alarm Reset* - Resets extended parallel and failure to synchronize alarms.
- *Closed Transition Bypass* - Pushbutton allows transfer between sources in an open transition mode.



Transfer Switch Communications and Metering

Options to Customize Functionality and Increase Value

Product Details

- 5300 SERIES Annunciators
- 5700 SERIES Annunciator

Remote Annunciation

Monitor Power Equipment Status from Anywhere

Monitoring and control transfer switches from across the room, building, or from Internet.

5310 – LED annunciator – Single ATS

5350 – LED annunciator – up to 8 ATSs

5705 – Interactive CPMA-based graphical annunciator – up to 8 ATSs

Product Details

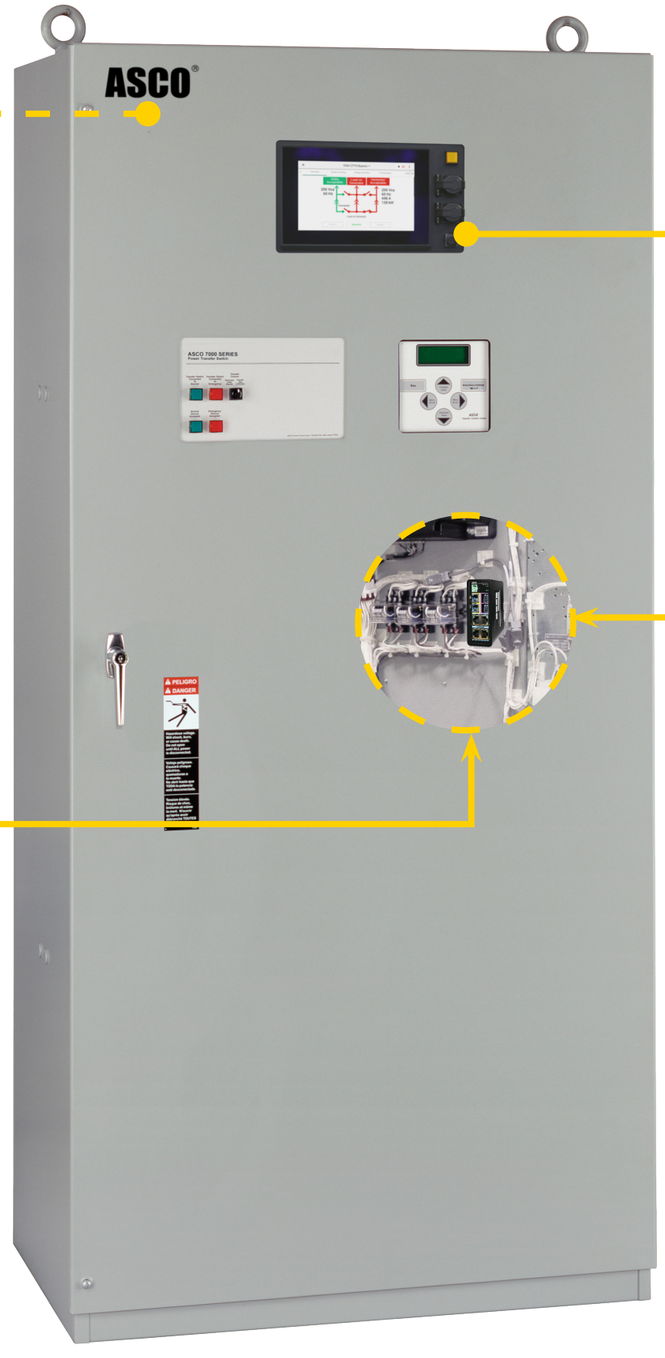
- 5170 Connectivity Module
- 5701 Gateway

Communication

Turn Transfer Switches into Power Information Portals

5170 Connectivity Module – Makes status and power information from a single switch available to via ModBUS, SNMP, and web pages.

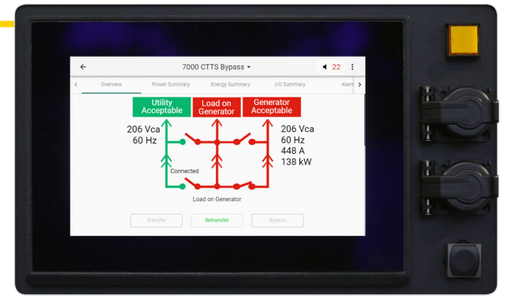
5701 8 Device Gateway – Provides centralized monitoring of up to 8 power devices through a transfer switch. Connects generators, transfer switches, load banks, and more to web pages for increased monitoring and control.



Touch Display Interface

Advanced Graphical Display and Control

5370 – Graphically displays information from transfer switches and power devices. Touch display transfers, re-transfers, initiates engine start, and configures transfer switch settings.



Product Details

- 5370 Touch Display Interface

Metering

Transfer Switches are the Perfect Place to Monitor Power Flow, Power Conditions, and Power Events

5210 Power Meter – Provides deeper insight into circuit status and conditions.

PowerLogic PM 8000 – Schneider Electric's compact, high-performance, power meter simplifies power quality and maximizes versatility.

Product Details

- 5210 Power Meter
- PowerLogic PM 8000

7000 SERIES Optional Accessories

Time Delays and Extended Control Power	
1G1	Auxiliary power connections provide for external 24VDC source to power control panel and power manager/meter when normal and emergency sources are not present or the switch is in isolation mode. Allows for use of full range of extended engine starting time delay feature 1C (0-60min 59 sec).
1GB1	Same as accessory 1G1 except using 120-volt AC external input.
1PS1	Extended control power ride-through (approx. 25 seconds) for Group 5 ATS controller and select communications and metering accessories, e.g. Acc. 72EE2, 72FC, 135L, etc.
Manual Controls for Automatic Transfer Switches	
6DL	Selector switch for automatic/manual re-transfer to normal. Automatic bypass if emergency fails.
Indicators and Customer Control Circuits	
30A	Load-shed circuit initiated by opening of a customer-supplied contact.
30B3	24 VDC load-shed circuit initiated by removal of customer-supplied control voltage. (6, 12, 48, 120 VDC and 120 VAC also available).
31BG	Provides 2 sets of Form C contacts rated at 6A for each of the following status signals: normal source acceptability, emergency source acceptability, pre/post transfer signal.
99	"Push-to-Test" feature on all pilot light indicators.
Communications	
72EE2	Offers remote Ethernet monitoring via open Mod bus and SNMP protocols, email notifications and embedded monitoring web pages. (Catalog No. 5170 for stand-alone product).
107G	Provides Building Monitoring Systems with transfer switch, bypass, and load power metering information in Modbus TCP/IP, BACnet IP, and SNMP Protocols. Compatible with any Accessory 150 Technology Package or 72EE2.
Surge Protection : ASCO 430 TVSS, rated 200 kA per phase	
73CC1	Normal source protection. (3Ø, 4wire WYE)
73CC2	Emergency source protection. (3Ø, 4wire WYE)
73CC3	Load side protection. (3Ø, 4wire WYE)
Special Applications	
29A	Manual selector switch for designating one of two utility feeds as the preferred source.
111A	Generator - to - Generator for Standby Applications
125A	Seismic Certification to International Building Code for electrical equipment
131	Certification of compliance with the American Recovery & Reinvestment Act (Buy American Provision)
Bypass-Isolation Switch Options	
14A1	Auxiliary contact to close in "Bypass to Normal" position.
14B1	Auxiliary contact to close in "Bypass to Emergency" position.
14T	Auxiliary contact to close when transfer switch is in "Automatic" position.
14U	Auxiliary contact to close when transfer switch is in "Isolate" position.
14V	Auxiliary contact to close when transfer switch is in "Test" position.
82E	LED Bypass status indicator, optional on G frame, 1600 to 4000 amps only. Standard for all other switches.
Meter and Communication Combinations	
135L	ASCO Digital Power Meter monitors load source voltage, frequency, and current and calculating Power, Energy, and Power Factor.
150A	ASCO Digital Power Meter (Acc. 135L), Backup Power Source (Acc. 1PS1), Communications Module (Acc. 72EE2)
150B	5210 Power Meter with Moxa IO (Acc. 135SB), Backup Power Source (Acc. 1PS1), Comm. Module (Acc. 72EE2)
Heater	
44A	120VAC, 208-240VAC and/or 440-480VAC Accessory 44 Strip heater designed to keep humidity and/or temperature inside ATS enclosure within acceptable levels. Includes mounting bracket with strip heater, thermostat, and terminal block.

~~Note: Other distribution voltages and kA ratings available.~~

Withstand and Closing Ratings

Withstand and Closing Ratings for all 7000 SERIES Power Transfer Switches, including 0.5 second (30-cycle) designs.

Frame	Switch Rating (Amps)		Current Limiting Fuses				Specific Breaker			Time Based				Short Time Ratings[1] (sec)							
														480V Max.				600V Max.			
	Transfer Switches	Bypass Switches	480V Max.	600V Max.	Max Size, A	Class	240V Max.	480V Max.	600V Max.	Time (sec)	240V Max.	480V Max.	600V Max.	0.13	0.2	0.3	0.5	0.1	0.13	0.3	0.5
D	30	-	100kA	-	300	J	22kA	22kA	10kA	0.025	10kA	10kA	10kA	-				-			
			200kA	35kA	200	J															
			35kA	35kA	200	RK1															
D	70, 100	-	35kA	35kA	200	RK1	150kA	85kA	25kA	0.025	10kA	10kA	10kA	-				-			
			200kA	35kA	200	J															
D	150	-	35kA	35kA	200	RK1	150kA	85kA	25kA	0.025	10kA	10kA	10kA	-				-			
			200kA	35kA	200	J															
D	200	-	200kA	35kA	200	J	200kA	85kA	14kA	0.025	10kA	10kA	10kA	-				-			
			35kA	35kA	200	RK1															
D	230	-	100kA	-	300	J	200kA	85kA	14kA	0.025	10kA	10kA	-	-				-			
J	150, 200, 260	150, 200, 230, 260	200kA	200kA	600	J	200kA	200kA	42kA	0.05	65kA	42kA[2]	35kA	7.5kA		-		-			
					800	L															
J	400	400	200kA	200kA	600	J	65kA	50kA	42kA	0.05	65kA	42kA[2]	35kA	7.5kA		-		-			
					800	L															
J	600	600	200kA	200kA	800	L	65kA	85kA	42kA	0.05	65kA	42kA[2]	35kA	7.5kA[3]		-		-			
			200kA	200kA	600	J															
H[4]	600	600	200kA	200kA	1600	L	65kA	150kA	65kA	0.05	50kA	50kA	50kA	36kA		-		36kA		-	
P[4]	600	600	200kA	200kA	1600	L	65kA	150kA	65kA	0.05	50kA	50kA	50kA	36kA		30kA		36kA		-	
P[4]	800	800 - 1200	200kA	200kA	1600	L	65kA	150kA	65kA	0.05	50kA	50kA	50kA	36kA		30kA		36kA		-	
H	800 - 1200	800 - 1200	200kA	200kA	1600[5]	L	65kA	150kA	65kA	0.05	50kA	50kA	50kA	36kA		-		36kA		-	
Q[4]	600-1600	600-1600	200kA	200kA	2000	L	65kA	65kA	65kA	0.05	65kA	65kA	65kA	50kA				50kA			
S[4]	800 - 1200	800 - 1200	200kA	200kA	2500	L	100kA	100kA	65kA	0.05	100kA	100kA	65kA	65kA				65kA			
G[4]	1000 - 1200	1000 - 1200	200kA	200kA	2000	L	85kA	85kA	85kA	0.05	85kA	85kA	85kA	-				-			
G	1600 - 2000 (Front Connected TS Only)		200kA	200kA	2500	L	85kA	85kA	85kA	0.05	85kA	85kA	85kA	42kA		36kA		-			
G[4]	1600 - 2000	1600 - 2000	200kA	200kA	3000	L	200kA	200kA	100kA	0.05	100kA	100kA	100kA	42kA		36kA		42kA		-	
S[4]	1600 - 2000	1600 - 2000	200kA	200kA	2500	L	100kA	100kA	85kA	0.05	100kA	100kA	85kA	85kA		65kA		85kA		65kA	
G	2600 - 3000	2600 - 3000	200kA	200kA	4000	L	125kA[6]	125kA[6]	100kA	0.05	100kA	100kA	100kA	42kA		36kA		42kA		-	
G[4]	3200	-	200kA	-	4000	L	100kA	100kA	-	0.05	100kA	100kA	-	-				-			
G	4000	4000	200kA	200kA	5000	L	100kA	100kA	100kA	0.05	100kA	100kA	100kA	85KA		65kA		65kA			
U[4]	2600 - 4000	2600 - 4000	200kA	200kA	5000	L	125kA	125kA	125kA	0.05	125kA	125kA	125kA	100kA				100kA			

Notes:

1. Short Time Ratings are provided for selective coordination of overcurrent protection devices.
2. Switches utilizing overlapping neutral (code C) have 35kA, 0.05-second, time-based rating at 480V max.
3. Short Time Rating applies to 600A bypass switch only. The 600A transfer switch does not have a Short Time Rating.
4. These frames are only available in the 7000 SERIES product line.
5. Max. fuse rating is 1200A on front-connected H-frame switches.
6. Rating shown is for bypass switches only. Transfer switch rating is 100kA.

All units are RMS Symmetrical Amperes.

All Withstand and Closing Rating (WCR) values are established by testing in accordance with UL 1008. For the latest raings, including transfer switch ratings when used with specific circuit breakers, see **ASCO Publication 1128** for more WCR information.

Application characteristics may permit higher WCRs for certain switch sizes.
Contact ASCO Power Technologies for more information.

Contact ASCO for Service Entrance Switch ratings.

Power Knowledge

- UL 1008 Transfer Switch Withstand and Closing Ratings
- Performance Testing for Transfer Switches

Additional 7000 SERIES Transfer Switch Information

Transfer Switches	Controls	Technical Information	
Bypass-Isolation	Group 5 Controller & Power Control Center	Drawings	Withstand and Closing Ratings
Service Entrance		Wiring Diagrams	Weights, Dimensions & Ordering Info

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