Owner's Manual

ASCO® Series 165 Automatic Transfer Switches

rated 100, 200, & 230 amps, single phase, 240 V ac

for automatic 2–wire start generators

⚠ DANGER

DANGER is used in this manual to warn of risk of electrical shock from high voltages capable of causing shock, burns, or death.

⚠ WARNING

WARNING is used in this manual to warn of possible personal injury.

⚠ CAUTION

CAUTION is used in this manual to warn of possible equipment damage.

Installation should be performed by a licensed electrician and in accordance with the National Electrical Code (NEC) and all local electrical code requirements. Read and understand all instructions before installing, servicing, or operating. **Failure to do so could result in serious personal injuries or property damage.**

ASCO Series 165 Automatic Transfer Switches are Listed under the Underwriter's Laboratories Standard for Transfer Switch Equipment, UL–1008. They are intended for use only in optional standby systems in accordance with the National Electrical Code, NEC/NFPA 70, Article 702. This ATS is for use with 2–wire automatic start generators only.

Refer to ***Application Information 381339–219*** to confirm that you have selected the appropriate product for the intended installation.

Rating Label

Each Automatic Transfer Switch (ATS) has rating labels to define the loads and fault current withstand/ closing ratings. Refer to those label on the Transfer Switch for specific values.

⚠ WARNING

INJURY or SWITCH DAMAGE
Do not exceed the rating label values; it can cause personal injury or serious switch damage.

Nameplate

The Transfer Switch nameplate includes data for each specific ASCO Series 165 ATS. Use the switch only within the limits shown on this nameplate. A typical Catalog Number is also shown below with its elements explained:

ASCO® **Series 165**

Automatic Transfer Switch
for use on Standby Systems
Cat No 165A2200F3C
Ser No 123456
200 A BOM 999999
240 V 60 Hz

Typical only. Do not use these values.

Catalog number

165	A	2	200	F	3	C

- 165 — product designation
- A — neutral: A = solid neutral
- 2 — poles: 2 = 2 lines
- 200 — ampere rating: 100, 200, or 230 amps
- F — voltage code: F = 240 V AC
- 3 — control group code: 3 = automatic
- C — enclosure: C = Type 1, F = Type 3R

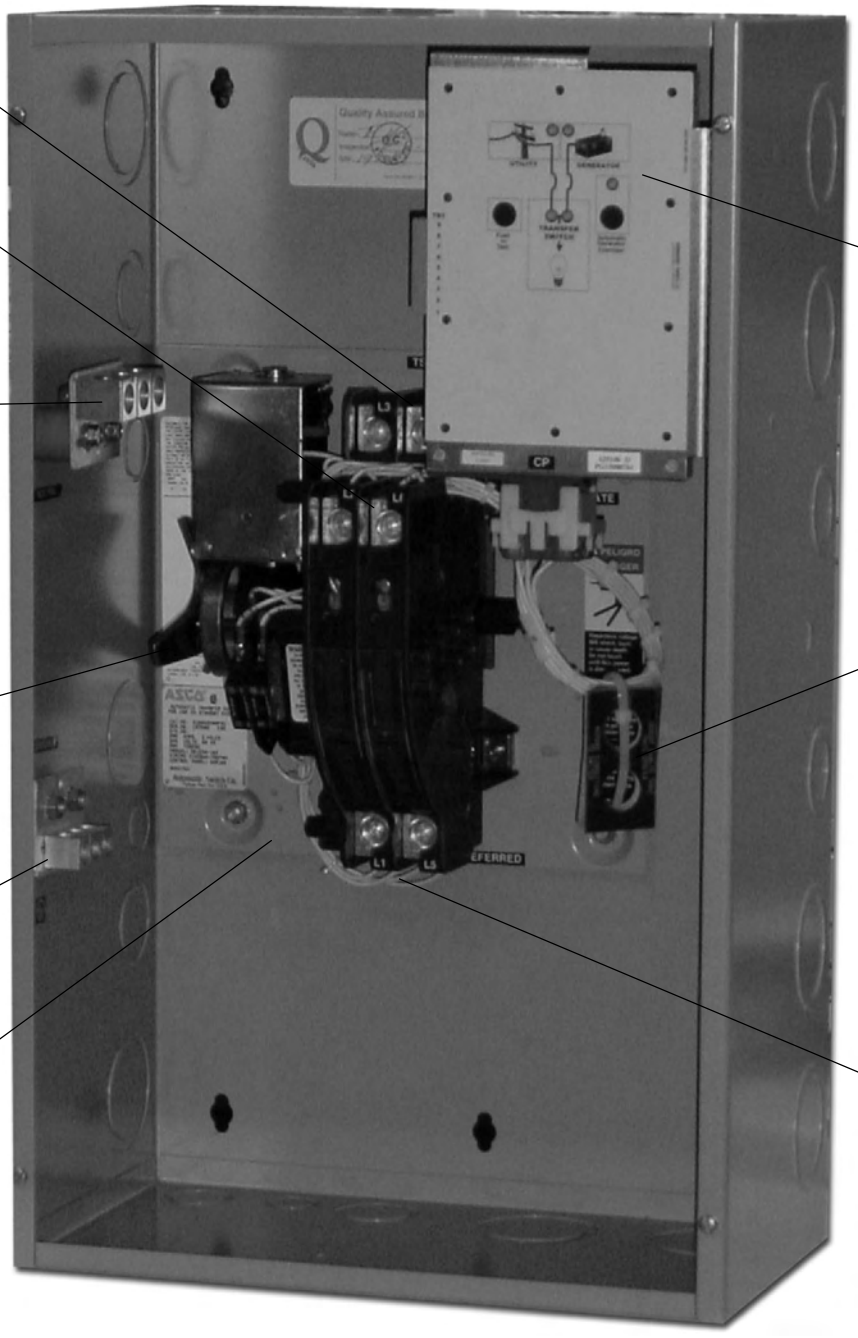
ASCO Power Technologies
50 Hanover Road, Florham Park, New Jersey 07932–1591 USA
1 800 937–2726 (ASCO), for service call 1 800 800–2726 (ASCO) www.asco.com

381333–163 C

ASCO POWER TECHNOLOGIES CANADA PO Box 1238, 17 Airport Road, Brantford, Ontario, Canada N3T 5T3
telephone 519 758–8450, fax 519 758–0876, for service call 1 888 234–2726 (ASCO) www.asco.ca

EMERSON Network Power

TABLE OF CONTENTS



Series 165 Automatic Transfer Switch in Type 1 enclosure (cover removed)

SPECIFICATIONS

ENCLOSED AUTOMATIC TRANSFER SWITCH

Enclosure Size
- Type 1 . . . . . 24" H x 14¼" W x 8" D (610 mm H x 362 mm W x 203 mm D)
- Type 3R . . . . . 25" H x 14¾" W x 8½" D (635 mm H x 375 mm W x 216 mm D)

Weight
- Type 1 enclosure . . . . . 67 lb
- Type 3R enclosure . . . . . 82 lb

Temperature
- Operating . . . –4° F to +122° F(–20° C to +50° C)
- Storage . . . . –67° F to +149° F(–55° C to +65° C)

TRANSFER SWITCH

Poles 2

Voltage (nominal) . . . . . 220–240 V ac single phase

Frequency (nominal) . . . . . 60 Hz

Current (depending upon the unit) 100, 200, or 230 amps

Withstand / Close–On Current . . . . . 10,000 amps RMS Symmetrical amps 240 V ac max. for any circuit breaker, manufacturer, or Type per National Electrical Code, NEC/NFPA 70

100 amp. Transfer Switch power terminals accept wire sizes one #14 to 4/0 AWG AL or CU

200 amp. Transfer Switch power terminals accept wire sizes one #14 to 4/0 AWG CU (copper only)

230 amp. Transfer Switch power terminals accept wire sizes one #14 to 4/0 AWG CU (copper only)

CONTROLLER

Voltage (nominal) . . . . . 220–240 V ac
- Pickup (source acceptable) . . . . . 204 V ac
- Dropout (source unacceptable) . . . . . 180 V ac

Frequency (nominal) alternate (generator) source . 60 Hz
- Pickup (source acceptable) . . . . . 57 Hz
- Dropout (source unacceptable) . . . . . 54 Hz

Generator control contacts
- Start / Stop spdt 5 A max / 300 mA min at 30 V dc max. terminals accept #22 to #14 AWG stranded copper wire per terminal

Time Delays
- Ignore preferred (utility) source outages . . . . . 3 sec.
- Ignore alternate (generator) source outages . . . . 15 sec.
- Load transfer to alternate (generator) source . . . 15 sec.
- Load retransfer to preferred (utility) source . . . . . 5 min.
- Generator cooldown period (after load retransfer) 1 min.

Automatic Generator Exerciser
- Repeat time . . . . . every 14 days
- Duration . . . . . 20 minutes

INTRODUCTION

INTRODUCTION

ASCO Series 165 Automatic Transfer Switches are Listed under the Underwriter's Laboratories Standard for Transfer Switch Equipment, UL–1008. They are intended for use only in optional standby systems in accordance with the National Electrical Code, NEC/NFPA 70, Article 702.

This automatic transfer switch is intended for standby power applications in residential or light commercial use only.

⚠ WARNING

The Series 165 Automatic Transfer Switch is not for emergency or life–support systems.

This product is not intended for emergency or life–support systems.

If you have more stringent application requirements contact ASCO for other products suitable for critical applications.

The automatic transfer switch helps provide safe connection of the alternate source (generator) to the electrical load after disconnecting the preferred source (utility). It contains a double–throw, electromechanical switching device for inherent isolation of the preferred and alternate sources. This isolation prevents the danger of connecting the utility to the generator which could cause damage or personal injury. The automatic transfer switch's digital controller provides continuous monitoring of both power sources and a start/stop signal to the generator.

INSTALLATION

Installation of the ASCO Series 165 automatic transfer switch must be performed by a licensed electrician. It must be installed according to the National Electrical Code and all local electrical code requirements. Refer to the installation drawing and wiring diagram.

⚠ CAUTION

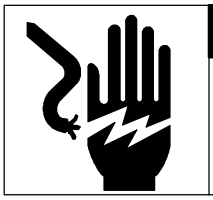
MALFUNCTION or SHORTENED LIFE
Protect the unit from construction grit and metal chips to prevent malfunction or shortened life.

Remove the enclosure cover and inspect the unit for shipping damage. If damage is evident do not install the unit. Type 1 enclosure is for indoor use only (refer to local codes for Type 4 use). Mount the automatic transfer switch vertically to a rigid supporting structure. Level all mounting points with flat washers behind the holes to avoid distortion of enclosure.

ELECTRICAL LINE CONNECTIONS

Installation wiring must be performed by a licensed electrician in accordance with the National Electrical Code (NEC) and all local electrical code requirements.

The automatic transfer switch must be protected by suitably sized circuit breakers feeding the preferred and alternate source terminals. The ratings of the circuit breakers must be based on the requirements of the National Electrical Code for its nameplate ampere and short circuit withstand ratings. See the wiring diagram provided with the unit.

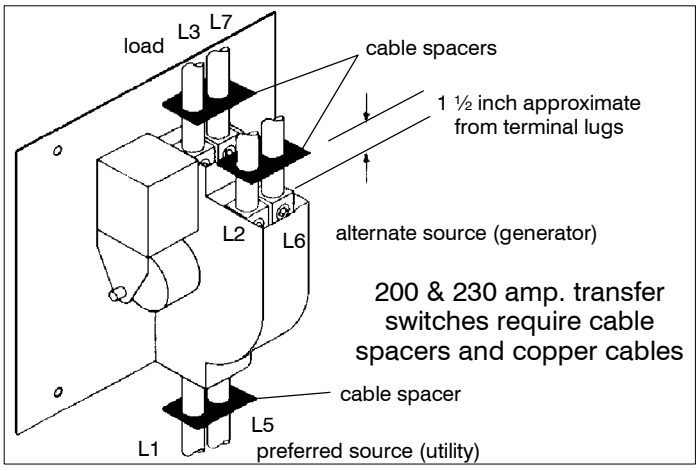


⚠ DANGER

ELECTROCUTION HAZARD
Turn off utility power and turn off the generator to prevent electrocution when wiring the transfer switch.

CABLE SPACERS (200 and 230 amp. units)

Three cable spacers are included with 200 and 230 ampere size transfer switches. Run the power cables through the cable spacers as shown here and position the cable spacers approximately 1½ inches from the terminal lugs. Use copper cables for 200 and 230 amp. transfer switches.



⚠ CAUTION

CABLE LOOSENING DUE TO SHORT–CIRCUIT. Install 3 cable spacers 1½ in. from terminal lugs to prevent cables from loosening in a short–circuit condition.

CABLE CONNECTIONS (see wiring diagram)

Prepare the wires for connection as follows: strip the insulation; avoid nicking or ringing the conductors when stripping the cable. Remove surface oxides from conductors by cleaning with a wire brush. Apply electrical joint compound and wipe away excess. Insert prepared cable into lug and tighten the lug to the torque specified on the rating label on the transfer switch.

Connect the preferred source (utility) line 1 and 2 wires to the terminal lugs marked ***L1*** and ***L5*** at the bottom. Connect the alternate source (generator) line 1 and 2 wires to the terminal lugs marked ***L2*** and ***L6*** at the upper middle. Connect the load line 1 and 2 wires to the terminal lugs marked ***L3*** and ***L7*** at the top of the transfer switch. Neutral and ground terminals are provided.

GENERATOR STARTING CONTACTS

Before wiring the generator starting contacts refer to the generator manufacturer's installation manual for requirements. Make all connections to the controller with the generator battery disconnected. Verify that the ignition switch is in the OFF position. Connect the generator starting contacts to the appropriate terminals on terminal block TB7 on the Controller (CP). See the wiring diagram provided with the unit.

For wiring convenience terminal block TB7 has a removable plug. Reconnect the plug with terminal screws facing inward.

⚠ CAUTION

CONTROLLER DAMAGE. Observe polarity when connecting the generator battery to the controller. Refer to wiring diagram. Be sure to reinstall the TB7 block with terminal screws facing inward.