

## Service Entrance Rated Automatic Transfer Switch with Integrated Load Center



### Standard Features

#### Transfer Switch

- UL 67 listed, file #E251086
- Service entrance rated
- 240 VAC/60 Hz
- 200 Amps
- Two-pole, single-phase open-transition transfer switch
- Contactor electrically and mechanically interlocked
- Double throw inherently interlocked design
- Solid neutral
- Contactor manually operable for maintenance purposes
- Silver alloy main contacts
- All models are 100% equipment rated and can be applied at the rated current without derating
- Auxiliary position-indicating contacts: one closed on normal position and one closed on emergency position
- Customer connection terminal block
- Square D 42-circuit type QO load center
- Panelboard rated 22,000 Amps at 240 VAC
- Square D thermal magnetic circuit breaker disconnects for normal and emergency sources
- NEMA Type 1 enclosure for indoor installation
- 2-year extended warranty

### Transient Voltage Surge Suppression Modules

- Normal and emergency source protection
- Lines protected AC: L-N, L-G, L-L, N-G
- Wired through disconnect to each source
- Easily replaced
- Self-resetting dual redundant varistor network
- Auxiliary contacts
- LED indications:
  - Power and ground present, full protection in all modes
  - Loss of power or loss of ground (auxiliary contact activated)
  - Protection fault (auxiliary contact and audible alarm activated)
- UL 1449 listing: 400 V
- Exceeds requirements of ANSI/IEEE C62.41 and C62.45

### MPAC™ 500 Controller

- User-friendly interface with easy-to-read international symbols
- Source available and contactor position indicators
- LED indication of system faults:
  - Failure to acquire standby source
  - Failure to transfer
  - Auxiliary switch fault
- Test button (with or without load)
- Exercise set button (with or without load)
  - Weekly 20-minute generator set exercise
- Single-phase voltage sensing on both sources,  $\pm 5\%$
- Line-to-line frequency sensing,  $\pm 2\%$  (emergency source)
- Fixed time delays

# Application Data

Time Delays *	
Time Delay	Factory Setting
Engine start	3 sec.
Transfer from Normal to Emergency	3 sec.
Retransfer from Emergency to Normal	6 min.
Engine cooldown	5 min.
Exercise run time	20 min.
Exercise interval	1 week
Failure to acquire Emergency source	78 sec.
Undervoltage dropout	0.5 sec.
Underfrequency dropout	3 sec.
* Optional accessory board allows time delay adjustments. See Accessories.	

Source Sensing	
Undervoltage dropout	80%
Undervoltage pickup	85%
Underfrequency dropout	90%
Underfrequency pickup	96%

Environmental Specifications	
Operating temperature:	-20°C to 70°C (-4°F to 158°F)
Storage temperature:	-40°C to 85°C (-40°F to 185°F)
Humidity:	5 to 95% noncondensing

Cable Sizes			
AL/CU UL-Listed Solderless Screw-Type Terminals for External Power Connections			
Switch Size, Amps	Range of Wire Sizes, Al/Cu		
	Disconnect Breakers	Neutral	Ground
200	(1) #4 AWG to 300 MCM	(1) #4 AWG to 250 MCM	(1) #14 AWG to #4 AWG

Contact Ratings	
Common fault	0.5 A @ 125 VAC 2 A @ 30 VDC SPST normally open (NO)
Engine start	2 A @ 30 VDC SPST normally closed (NC)
Normal failure	2 A @ 120 VAC SPST normally closed (NC)
Auxiliary contacts (Normal and Emergency)	15 A @ 277 VAC Form C
TVSS auxiliary contact (Normal and Emergency)	3 A @ 120 VAC Form C

Weights and Dimensions			
Weight, kg (lb.)	Dimensions, mm (in.)		
	H	W	D
41 (90)	1299 (51.1)	610 (24.0)	178 (7.0)

## Contactor Ratings with Coordinated Circuit Breakers

The transfer switches are UL listed at 240 VAC maximum. The contactor withstand current rating (WCR) per UL standards for the 200 ampere switch with supplied circuit breakers is 22,000 amps. Suitable for control of motors, electric discharge lamps, tungsten filament lamps and electric heating equipment where the sum of motor full-load ampere ratings and the ampere ratings of other loads do not exceed the ampere rating of the switch and the tungsten load does not exceed 30 percent of switch rating.

## Transient Voltage Surge Suppression Modules

TVSS Specifications	
Maximum surge current ( $I_{MAX}$ ):	100kA (8/20 $\mu$ s)
Maximum continuous operating voltage:	140 VAC
Long duration current pulse (10/1,000 $\mu$ s) capability:	3,600 A (tested)
Audible alarm:	90 dB
EMI/RFI attenuation:	-75 dB maximum, 100kHz to 100MHz
EMC compliance:	
BS EN 60950:	1992
BS EN 61000-6-2:	1999
Let-through voltage:	435 V @ 3kA (8/20 $\mu$ s) 730 V @ 100kA(8/20 $\mu$ s)
Ratings in compliance with IEC 61643-1:	
$I_{MAX}$	100kA
$I_{IMP}$	6kA (10/350) current per phase

## Codes and Standards

The transfer switch\* meets or exceeds the requirements of the following specifications:

- Underwriters Laboratories UL 1008, Transfer Switch Equipment
  - Underwriters Laboratories UL 67, Enclosed Panel Boards
  - Underwriters Laboratories UL 508, Standard for Industrial Control Equipment
  - NFPA 70, National Electrical Code
  - NFPA 110, Emergency and Standby Power Systems
  - IEEE Standard 446, IEEE Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
  - NEMA Standard IC10-1993 (formerly ICS2-447), AC Automatic Transfer Switches
  - EN61000-4-5 Surge Immunity Class 4 (voltage sensing and programmable inputs only)
  - EN61000-4-4 Fast Transient Immunity Severity Level 4
  - IEC Specifications for EMI/EMC Immunity:
    - CISPR 11, Radiated and Conducted Emissions, Class B
    - IEC 1000-4-2, 2001, Electrostatic Discharge
    - IEC 1000-4-3, 2002, Radiated Immunity
    - IEC 1000-4-4, 2001, Electrical Fast Transients (Bursts)
    - IEC 1000-4-5, 2001, Surge Voltage Immunity
    - IEC 1000-4-6, 2003, Conducted RF Immunity
    - IEC 1000-4-8, Magnetic Field Immunity
    - IEC 1000-4-11, Voltage Dips and Interruptions
  - ANSI C37.90.1 (IEEE472), 2000, EFT/Surge Relay Systems
- \* Transfer switch excluding transient voltage surge suppression (TVSS)

## Accessories

### Accessory board

- Alarm horn indicates system faults
- Adjustable time delays:
  - Engine start
  - Engine cooldown
  - Transfer, Normal to Emergency
  - Transfer, Emergency to Normal
  - Exercise run time
- Inputs and Outputs:
  - Remote start/stop input (loaded)
  - Generator set supplying load output:  
10A @ 120 V form 1A normally open (NO)  
contact
- External alarm module connection
- Dip switches:
  - 1 week/2 week exerciser
  - Momentary/maintained external start/stop input:  
Selects momentary (1 second) push button or  
maintained contact closure for remote start/  
stop signal
  - Audible alarm disable

Accessory Board Adjustable Time Delays		
Time Delay	Range	Increment
Engine cooldown	1-10 min.	1 minute
Engine start	1-10 sec.	1 second
Transfer from Normal to Emergency	1-10 sec.	1 second
Retransfer from Emergency to Normal	3-30 min.	3 minutes
Exercise run time	5-50 min.	5 minutes
Exercise interval	1 week/2 week (DIP switch)	

### Extended 5-year warranty

Availability is subject to change without notice. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler® generator distributor for availability.

**DISTRIBUTED BY:**