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# POWERCOMMAND® OTEC TRANSFER SWITCH

**POWERCOMMAND® 40-01 CONTROL | OPEN TRANSITION | 40 A-1000 A  
AUTOMATIC TRANSFER SWITCH | SERVICE ENTRANCE RATED**

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## DESCRIPTION

The OTEC series transfer switch provides the basic features typically required for primary source and generator set monitoring, generator set starting and load transfer functions for emergency standby power applications. They are suitable for use in emergency, legally required, and optional standby circuits in commercial and light industrial applications. The OTEC transfer switch features the new PowerCommand® 40 control with a comprehensive feature list to suit a wide variety of ATS applications.

## FEATURES

**PowerCommand® 40-01 control** – A fully featured microprocessor-based control with LCD digital display and tactile-feel soft-switches for easy operation and screen navigation. Control highlights include Modbus communication, front panel PC software configuration. Advanced features include, three phase sensing on both sources, manual restore to S1, synch check, and event logging capability. Please see the S-6560 PowerCommand® 40-01 control specification sheet for the full description, benefits and features.

**Overcurrent disconnect device** – Square D UL Listed 489 molded case circuit breaker.

**Programmed transition** – Open transition timing can be adjusted to completely disconnect the load from both sources for a programmed time period, as recommended by NEMA MG-1 for transfer of inductive loads.

**Advanced transfer switch mechanism** – Unique bi-directional linear actuator provides virtually frictionless constant force, straight-line transfer switch action during automatic operation.



## Positive interlocking –

Mechanical and electrical interlocking prevent source-to-source connection through the power or control wiring.

**Main contacts** – Heavy-duty silver alloy contacts used with multi-leaf arc chutes are rated for motor loads or total system load transfer. They require no routine contact maintenance. Continuous load current not to exceed 80% of switch rating and tungsten loads not to exceed 30% of switch rating.

**Ease of service and access** – Single-plug harness connection and compatible terminal markings simplify servicing. Access space is ample. Door-mounted controls are field-programmable; no special tools are required.

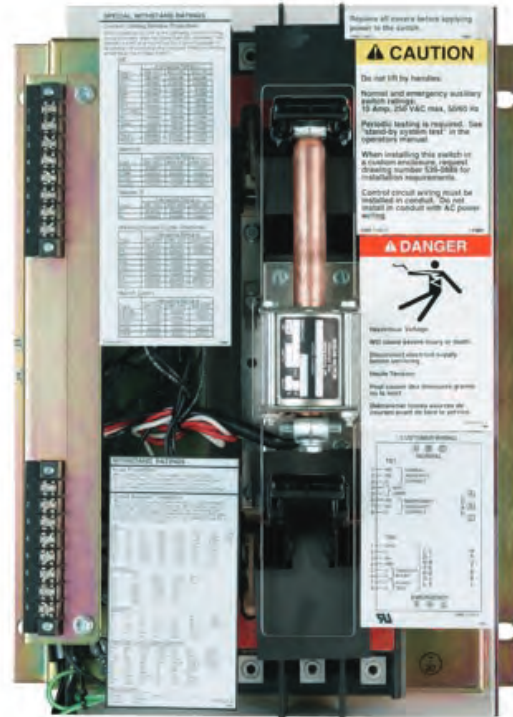
**Complete product line** – Cummins is a single source supplier with a wide range of equipment, accessories and services to suit virtually any backup power application.

**Warranty and service** - Products are backed by a comprehensive warranty and a worldwide network of distributors with factory-trained service technicians.



## TRANSFER SWITCH MECHANISM

- A bi-directional linear motor actuator powers the transfer switch. This design provides virtually friction-free, constant force, straight-line transfer switch action with no complex gears or linkages.
- Independent break-before-make action is used for both 3-pole and 4- pole/switched neutral switches. On 4-pole/switched neutral switches, this action prevents objectionable ground currents and nuisance ground fault tripping that can result from overlapping designs.
- A mechanical interlock prevents simultaneous closing of normal and emergency contacts.
- Electrical interlocks prevent simultaneous closing signals to normal and emergency contacts and interconnection of normal and emergency sources through the control wiring.
- High pressure silver alloy contacts resist burning and pitting. Separate arcing surfaces further protect the main contacts. Contacts are mechanically held in both normal and emergency positions for reliable, quiet operation.
- Contact wear is reduced by multiple leaf arc chutes that cool and quench the arcs. Barriers separate the phases to prevent interphase flashover. A transparent protective cover allows visual inspection while inhibiting inadvertent contact with energized components.



- Switch mechanism, including contact assemblies, is UL 1008 certified to verify suitability for applications requiring high endurance switching capability for the life of the transfer switch. Withstand and closing ratings are validated using the same set of contacts, further demonstrating the robust nature of the design.

## SPECIFICATIONS

<b>Voltage rating</b>	Up to 480 V AC, 50 or 60 Hz.
<b>Arc interruption</b>	Multiple leaf arc chutes provide dependable arc interruption.
<b>Neutral bar</b>	A full current-rated neutral bar with lugs is standard on enclosed 3-pole transfer switches.
<b>Auxiliary contacts</b>	Two isolated contacts (one for each source) indicating switch position are provided for customer use. Contacts are normally open, and close to indicate connection to the source. Wired to terminal block for easy access. Rated at 10 A Continuous and 250 V AC maximum.
<b>Operating temperature</b>	-13 °F (-25 °C) to 140 °F (60 °C)
<b>Storage temperature</b>	-40 °F (-40 °C) to 140 °F (60 °C)
<b>Humidity</b>	Up to 95 % relative, non-condensing
<b>Altitude</b>	Up to 10,000 ft (3,000 m) without derating
<b>Surge withstand ratings</b>	Control tested to withstand voltage surges per EN60947-6-1.
<b>Total transfer time (source-to-source)</b>	Will not exceed 6 cycles at 60 Hz with normal voltage applied to the actuator and without programmed transition enabled.
<b>Manual operation*</b>	Transfer switch mechanisms are equipped with means to manually transfer. All sources must be de-energized before manual operation is attempted.
<b>Overcurrent disconnect device</b>	Service entrance switches have a Square D UL 489 listed molded case circuit breaker. 1000 Amp switches also have a current transformer and integral residual ground fault protection

\*See Operator Manual for further details.

### TRANSITION MODES

**Open delayed transition** – In this transition mode the time required for the transfer switch to transfer between sources is adjustable so that the load-generated voltages decay to a safe level before connecting to an energized source. Recommended by NEMA MG-1 to prevent nuisance tripping breakers and load damage. Adjustable 0.5 secs - 10 minutes, and default 0.5 seconds.

**Open in-phase translation** – Initiates open transition transfer when in-phase monitor senses both sources are in phase (voltage, phase and frequency). Operates in a break-before-make sequence. Includes ability to enable programmed transition as a backup. The module waits indefinitely for synchronization unless the ‘Return to programmed transition’ function is active in which case after 2 minutes it performs a programmed delayed transfer

### UL 1008 WITHSTAND AND CLOSING RATINGS (WCR)

Withstand and Closing Ratings (WCR) are stated in symmetrical RMS amperes.

Frame	Amperage	With specific MCCB (kA at 480V)	Square-D breaker part number	Cummins part number	Trip unit
A (3-pole only)	40	35	HGM36040	0320-2346-75	Standard Thermal Magnetic
	70		HGM36070	0320-2346-74	
	100		HGM36100	A035E003	
	125		HGM36125	0320-2346-73	
B	150, 200, 225, 250	65	LJM36250CU31X	A046F867	Micrologic 3.3 (LI)
C	300, 400, 600	65	PJM36060U31C	0320-2410-02	Micrologic 3.0 (LI)
D	800	65	RJF36080U31A	A058R115	Micrologic 3.0A (LI)
	1000	65	RJF36100U44A	0320-2563-01	Micrologic 6.0A (LSIG)

### TRANSFER SWITCH LUG CAPACITIES

Frame	Amperage rating (A)	Emergency and load power cables		Emergency and load neutral cables		Service power cables		Service neutral	
		Cables per phase	Cable size	Number of Cables	Cable size	Cables per phase	Cable size	Number of Cables	Cable size
A	40, 70, 100, 125	1	#12 AWG-2/0 CU/AL Emerg #14 AWG-2/0 CU/AL Load	2	#14 AWG-2/0 CU/AL	1	#14 AWG-3/0 CU/AL	1	#14 AWG-2/0 CU/AL
B	150, 200, 225, 250	1	#6 AWG-400 MCM CU/AL	2	#6 AWG-400 MCM CU/AL	1	#2 OWG-600 MCM CU or #2 AWG-500 MCM AL	1	#6 AWG-400 MCM CU/AL
C	300, 400, 600	2	250-500 MCM CU/AL	4	250-500 MCM CU/AL	3	3/0-500 MCM CU/AL	2	250-500 MCM CU/AL
D	800, 1000	4	250-500 MCM CU/AL	8	250-500 MCM CU/AL	4	#2 AWG-600 MCM CU/AL	4	250-500 MCM CU/AL

\*All lugs 90°C rated and accept copper or aluminum wire unless indicated otherwise.  
Refer to the latest NFPA 70 Article 310 - Conductors for general wiring for the ampacity calculations.

## ENCLOSURE

The transfer switch and control are wall-mounted in a key-locking enclosure. Wire bend space complies with 2017 NEC.

### OTEC SERVICE ENTRANCE DIMENSIONS – TRANSFER SWITCH IN UL TYPE 1 ENCLOSURE

Frame	Amperage rating (A)	Height		Width		Depth		Weight	
		in	mm	in	mm	in	mm	lb	kg
A	40, 70, 100, 125, 3-pole	45.8	1164	32	814	16.3	413	300	136
B	150, 200, 225, 250	73.6	1869	32.3	820	19.7	499	500	227
C	300, 400, 600	74.5	1892	34.4	873	20.1	510.4	520	236
D	800, 1000	90	2286	39	991	26.3	667	920	417

### OTEC NON-SERVICE ENTRANCE DIMENSIONS – TRANSFER SWITCH IN UL TYPE 3R, OR 12 ENCLOSURE

Frame	Amperage rating (A)	Height		Width		Depth		Weight	
		in	mm	in	mm	in	mm	lb	kg
A	40, 70, 100, 125, 3-pole	45.8	1164	32	814	16.3	413	340	154
B	150, 200, 225, 250	73.6	1869	32.3	820	19.7	499	580	263
C	300, 400, 600	74.5	1892	34.4	873	20.1	510.4	600	272
D	800, 1000	90	2286	39	991	26.3	667	920	417

## ENCLOSURE ACCESS FOR CABLE INSTALLATION AND MAINTENANCE

All frames allow for top, side, and bottom cable entry. NEC Requires Minimum 36" Front Access. Additional front clearance is needed to remove the mechanism. Refer to the outline drawing.

### OTEC DRAWING PART NUMBERS

Frame	Amperage rating (A)	Outline Drawing
		Type 1, 3R, or 12
A	40, 70, 100, 125 (3-pole)	A065S433
B	150, 200, 225, 250	A065S434
C	300, 400, 600	A065S435
D	800, 1000	A065S436

### WIRING DIAGRAM PART NUMBERS

Frame	Amperage rating (A)	Wiring Diagram	
		Utility to Genset (120 – 480 V)	Interconnection
A	40, 70, 100, 125 (3-pole)	A065K034	A065H780
B	150, 200, 225, 250	A065H781	
C	300, 400, 600		
D	800, 1000		