
POWERCOMMAND® OTEC TRANSFER SWITCH

POWERCOMMAND® 40 CONTROL | OPEN TRANSITION | 125–600 A
AUTOMATIC TRANSFER SWITCH | HOME AND SMALL BUSINESS

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 front panel PC software configuration with 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.

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 100% 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.

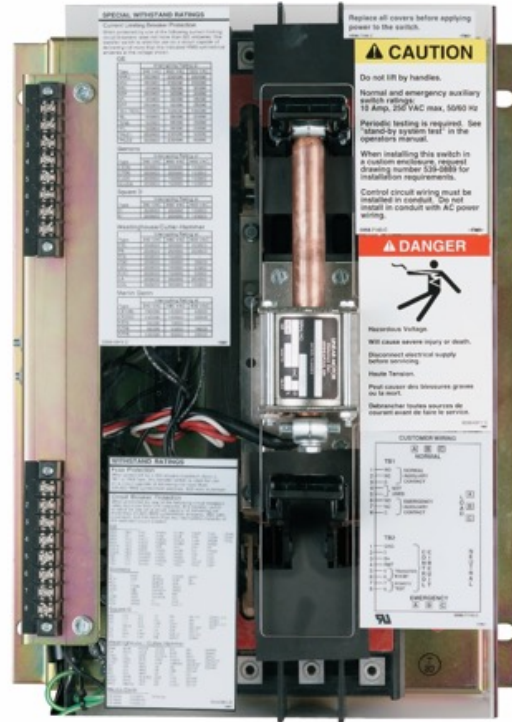
Complete product line – Cummins is a single source supplier with a wide range of equipment, accessories and services to suit virtually any backup power application.

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



TRANSFER SWITCH MECHANISM

- Transfer switch mechanism is electrically operated and mechanically held in the Source 1 and Source 2 positions. The transfer switch incorporates electrical and mechanical interlocks to prevent inadvertent interconnection of the sources.
- Independent break-before-make action is used for this transfer switch.
- 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. 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

Voltage rating	Up to 480 V AC 60 Hz.
Arc interruption	Multiple leaf arc chutes provide dependable arc interruption.
Neutral bar	A full current-rated neutral bar with lugs is standard on enclosed 3-pole transfer switches.
Auxiliary contacts	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.
Operating temperature	-22 °F (-30 °C) to 140 °F (60 °C)
Storage temperature	-40 °F (-40 °C) to 140 °F (60 °C)
Humidity	Up to 95 % relative, non-condensing
Altitude	Up to 10,000 ft (3,000 m) without derating
Surge withstand ratings	Voltage surge performance and testing in compliance with the requirements of IEEE C62.41 (Category B3) and IEEE C62.45.
Total transfer time (source-to-source)	Will not exceed 6 cycles at 60 Hz with normal voltage applied to the actuator and without programmed transition enabled.
Manual operation*	Transfer switch mechanisms are equipped with means to manually transfer. All sources must be de-energized before manual operation is attempted.

*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)

The transfer switches listed below must be protected by circuit breakers or fuses. Referenced drawings include detailed listings of specific breakers or fuse types that must be used with the respective transfer switches. Consult with your distributor/dealer to obtain the necessary drawings. Withstand and Closing Ratings (WCR) are stated in symmetrical RMS amperes.

TIME BASED RATINGS: 0.05S (3-CYCLES AT 60 HZ)

Frame	Amperage rating (A)	WCR (kA at Vmax and below)	Max. MCCB rating (A)	Drawing reference
C	400, 600	25 at 600 V	1200	A056M829

BREAKER PROTECTION

Frame	Amperage rating (A)	MOLDED CASE CIRCUIT BREAKER (MCCB) PROTECTION				SPECIAL CIRCUIT BREAKER PROTECTION		
		With specific manufacturers MCCB (kA at 480V)	With specific manufacturers MCCB (kA at 600V)	Max MCCB ratings (A)	Drawing reference	With specific Current limiting breakers (kA at 600V)	Max. Current limiting breakers CLB rating (A)	Drawing reference
A	125	14	14	225	A050J441	200	225	A048J566
B	225	30	30	400	A048E949	200	400	A051D533
C	400, 600	65	65	1200	A056M829	200	1200	A048J564

FUSE PROTECTION

Frame	Amperage rating (A)	WCR with current limiting fuses (kA)	Fuse size and type	Drawing reference
A	125	200	200 A, Class: J, RK1, RK5, T	A050J441
B	225	200	1200 A Class L or T, or 600A class J, RK1, RK5	A048E949
C	400, 600	200	1200 A Class L or T, or 600A class J, RK1, RK5	A056M829

*All WCR values are at 600 V

TRANSFER SWITCH LUG CAPACITIES

Frame	Amperage rating (A)	Cables per phase	Size
A	125	1	#12 AWG-2/0
B	225	1	#6 AWG – 300MCM
C	400	2	One #4 AWG – 250 MCM
	600	2	250 – 500 MCM

**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.

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	125	27	686	20.5	521	12	305	82	37
B	225	35.5	902	26	660	16	406	165	75
C	400, 600	54	1372	25.5	648	18	457	225	102

DIMENSIONS – TRANSFER SWITCH IN UL TYPE 3R ENCLOSURE

Frame	Amperage rating (A)	Height		Width		Depth		Weight		Cabinet Type
		in	mm	in	mm	in	mm	lb	kg	
A	125	34	864	26.5	673	12.5	318	125	57	3R
B	225	42.5	1080	30.5	775	16	406	1118	97	3R
C	400, 600	59	1499	27.5	699	16.5	419	275	125	3R

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	Type 3R
A	125	0310-0544	0310-0453
B	225	0310-0414	0310-0454
C	400, 600	0310-1307	0310-1315

WIRING DIAGRAM PART NUMBERS

Frame	Amperage rating (A)	Wiring Diagram	
		Utility to Genset (480 V)	Interconnection
A	125	A065K034	A065H780
B	225		
C	400, 600		

SUBMITTAL DETAIL

Model

- 125 A
- 225 A
- 400, 600 A

Poles

- A028 Poles – 3 (solid neutral)

Application

- A035 Utility-to-genset

Frequency

- A044 60 Hz

Phase

- A041 single phase, 2-wire or 3-wire
- A042 three phase, 3-wire or 4-wire

Voltage ratings

- R021 208V

- R023 240V
- R026 480 V

Enclosure

- B001 Type 1: Indoor use, provides some protection against dirt (similar to IEC type IP30)
- B002 Type 3R: Intended for outdoor use, provides some protection from dirt, rain and snow (similar to IEC type IP34)

Standards

- A046 UL 1008/CSA certification

Control voltage

- M033 12V, Genset starting voltage






Warranty

- G009 1-year, comprehensive

Accessories

- AC-170 Accessories specification sheet

CODES AND STANDARDS

	All switches are UL 1008 Listed with UL 50E Type Rated cabinets and UL Listed CU-AL terminals.	NEC®	Suitable for use in emergency, legally required and Standby and Critical Operations Power Systems (COPS) applications per NEC 700, 701, 702 and 708.
	All switches comply with NEMA ICS 10.	ISO®	All switches are designed and manufactured in facilities certified to ISO 9001.
	All switches are certified to CSA C22.2 No. 178.1 switching of electrical energy in emergency or other systems, up to 600 VAC and 4 kA.	EMC	Display controllers meet the following Electromagnetic Compatibility (EMC) standards: <ul style="list-style-type: none"> ▪ EN 61000-6-2 Generic Immunity Standard for the Industrial Environment. ▪ EN 61000-6-4 Generic Emission Standard for the Industrial Environment.
	All switches comply with IEEE 446 Recommended Practice for Emergency and Standby Power Systems.		
	All switches comply with NFPA 70, 99 and 110 (Level 1).		

For more information, please contact your local Cummins distributor or visit cummins.com

Our energy working for you.™

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