POWERCOMMAND® OTEC TRANSFER SWITCH

POWERCOMMAND® 40-01 CONTROL | OPEN TRANSITION

AUTOMATIC TRANSFER SWITCH | SERVICE ENTRANCE RATED | 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. The 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.

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.

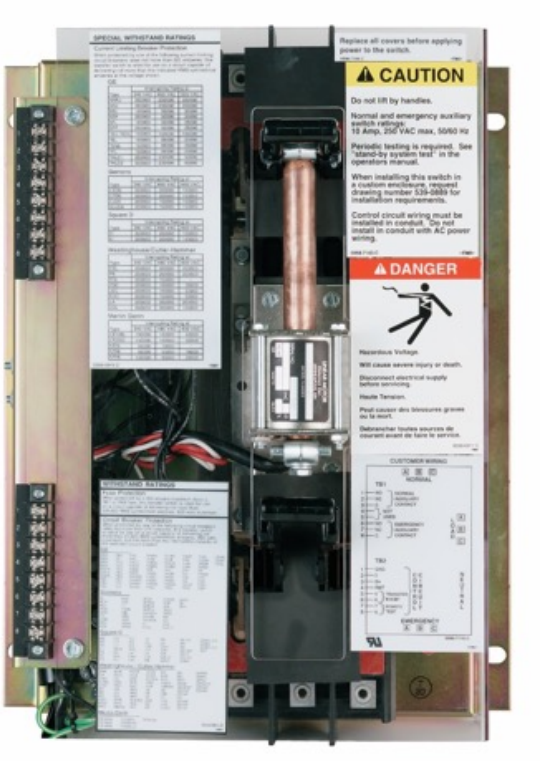
Complete product line – Cummins is a single source supplier with a wide range of equipment, accessories and services to suit virtually any backup power application.

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

Cummins®

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 this transfer switch.
- 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	
Voltage rating	240 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	-13 ˚F (-25 ˚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	Control tested to withstand voltage surges per EN60947-6-1.
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.
Overcurrent disconnect device	Service entrance switches have a Square D UL 489 listed molded case circuit breaker.

**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
B	225	65	LJM36250CU31X	A046F867	Micrologic 3.3 (LI)

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
B	225	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

**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 3R ENCLOSURE

Frame	Amperage rating (A)	Height		Width		Depth		Weight	
		in	mm	in	mm	in	mm	lb	kg
B	225	73.6	1869	32.3	820	19.7	499	580	263

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

		Outline Drawing
Frame	Amperage rating (A)	Type 3R
B	225	A065S434

WIRING DIAGRAM PART NUMBERS

		Wiring Diagram	
Frame	Amperage rating (A)	Utility to Genset (120 – 480 V)	Interconnection
B	150, 200, 225, 250	A065H781	A065H780

SUBMITTAL DETAIL

The Product codes below have been shortened for brevity. In long form, each four-letter product code will be preceded with a OTECSEX, where X = A, B, C, D or E. For example, OTECSEB_A044-7

Model

- 400

Poles

- A028 Poles – 3 (solid neutral)

Application

- A035 Utility-to-genset

Frequency

- A044 60 Hz

Phase

- A041 single phase, 2-wire or 3-wire

Voltage ratings

- R023 240V

Enclosure

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

Standards

- S043 Listing-UL 1008 certification

Control voltage

- M033 12V, Genset starting voltage

Warranty

- G009 1-year, comprehensive

Accessories

Refer to AC-170 Accessories specification sheet for more details.

PRE-CONFIGURED PRODUCT

Model Number	Frame	Amperage	Poles	Phase	Voltage	Service Entrance	Enclosure	Codes and Standards
A066Y119	B	225	3	1Ph	240	Yes	Type 3R	UL

CODES AND STANDARDS

UL	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.
NEMA	All switches comply with NEMA ICS 10.	**ISO®**	All switches are designed and manufactured in facilities certified to ISO 9001.
NFPA	All switches comply with NFPA 70, 99 and 110 (Level 1).	**EMC**	Display controllers meet the following Electromagnetic Compatibility (EMC) standards: ■ EN 61000-6-2 Generic Immunity Standard for the Industrial Environment. ■ EN 61000-6-4 Generic Emission Standard for the Industrial Environment.
IEEE	All switches comply with IEEE 446 Recommended Practice for Emergency and Standby Power Systems.		

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

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