PowerCommand®
B-Series – CBL Bypass Isolation Transfer Switch

PowerCommand® 80

Control Automatic (Open/Closed Transition)

150 A - 1000 A

DESCRIPTION

The B-Series bypass-isolation transfer switches combine a draw-out automatic transfer switch with isolation mechanism and a manual bypass transfer switch, to provide redundant power transfer and re-transfer capability where reliable power is paramount to the safety and vitality of our communities. These products are specifically designed to provide a convenient and robust means to satisfy the NFPA 70 Article 700 and 708 requirements for redundant transfer equipment.

The B-Series transfer switches are designed for operation and switching of electrical loads between primary and alternate power sources. They can be used in utility-generator set, utility-utility, generator set-generator set, or three-source system (dual standby) application types.

The B-Series transfer switches are suitable for use in emergency, legally required and optional standby applications. The integral automatic transfer switch control monitors both power sources, signals the generator set to start and automatically transfers the load to the alternate power source. When the preferred power source returns and has stabilized, the load is automatically transferred back.

The B-Series integral automatic transfer switches are available in closed transition operations. By briefly paralleling the two sources (for 100 ms or less), the transfer from the alternate source back to the normal source occurs without power interruption to the loads.

FEATURES

Position mechanism – The 3-position over-center mechanism allows for fast and consistent independent source actuation (i.e. source transfer is not dependent on the position of the opposing source). The Transfer Switch is either closed on Source 1, closed on Source 2 or in a center off, neutral position (not closed on either source). Thus, provides safe transfer operation for large stored-energy loads by allowing the residual voltage to decay to a safe level before transfer.

Ease of service and access – Built-in plug-and-play control with minimized point-to-point connections and compatible terminal markings simplify servicing. Access space is ample. Door-mounted controls are field- programmable; no special tools are required.

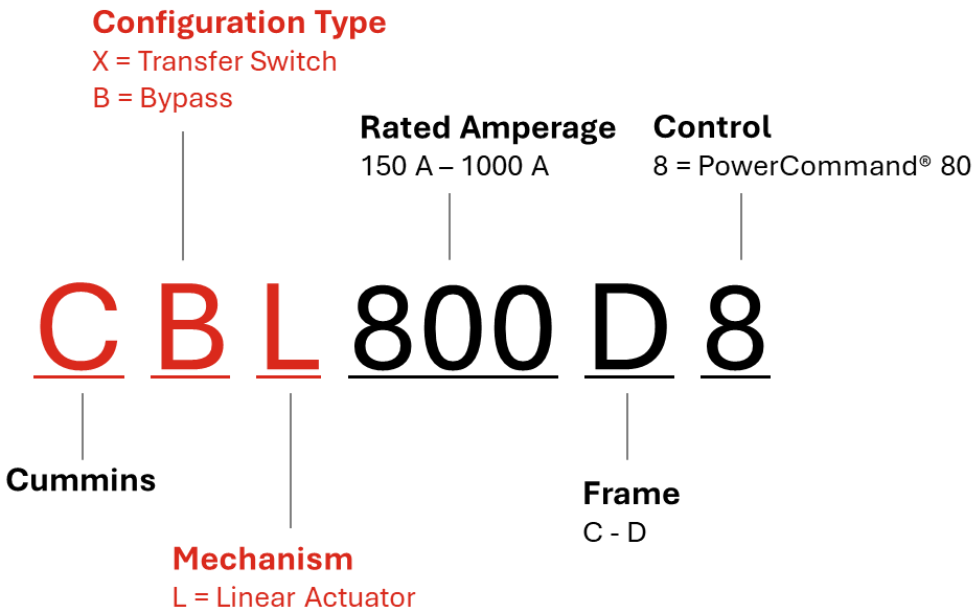
PowerCommand® 80 control – A sophisticated, fully featured microprocessor-based control with LED backlit colored LCD display and tactile-feel soft-buttons for ease of screen navigation and operation with gloves and in damp or dusty environments.

Withstand and Closing Ratings (WCR) – The B-Series - CBL Bypass Isolation Transfer Switches feature 0.05 s (3 cycle) Time Duration ratings, fuse ratings, and specific breaker ratings.

Complete power system provider – Cummins is a single source supplier and integrator of complete systems and services for ease of interconnection and reduced commissioning times.

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

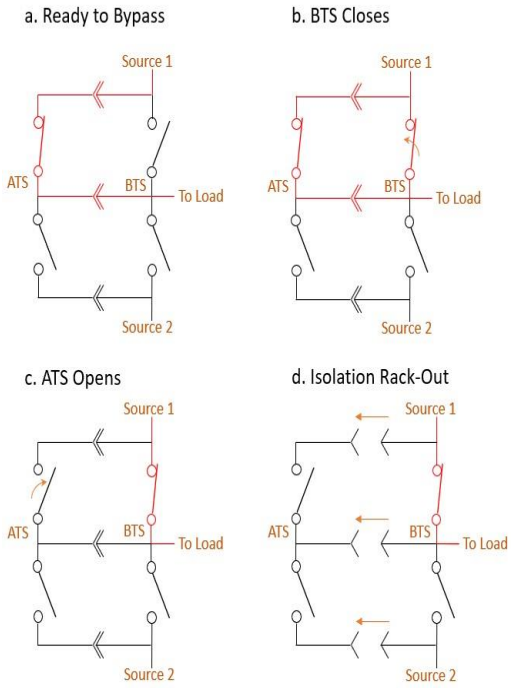
MODEL NAMING STRUCTURE



TRANSFER SWITCH MECHANISM

- The Automatic Transfer switch (ATS) mechanism is electrically operated and mechanically held in the Source 1 and Source 2 positions. The Manual Bypass Transfer Switch (BTS) is mechanically operated and mechanically held. Designed with operator safety as a top priority, the product comes standard with isolation shutters plus electrical (and mechanical interlocks for open and programmed transition only) to prevent inadvertent interconnection of the sources.
- Independent break-before-make action is used for both 3-pole and 4-pole / simultaneously switched neutral. This design allows use of sync check operation when required, or control of the operating speed of the transfer switch for proper transfer of motor and rectifier-based loads (programmed transition feature).
- For closed transition, transition, make-before-break action with the use of sync check allows for uninterrupted power when transferring between available sources.
- True 4-pole switching allows for proper ground (earth) fault sensing and consistent, reliable operation for the life of the transfer switch. The neutral poles of the transfer switch have the same ratings as the phase poles and are operated by a common crossbar mechanism, eliminating the possibility of incorrect neutral operation at any point in the operating cycle, or due to failure of a neutral operator.
- 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.
- Both the ATS and BTS mechanisms, including contact assemblies, are 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.

BYPASS TRANSFER SWITCH (BTS) AND ISOLATION MECHANISM



- Manual bypass switch mechanism allows the operator to select either the normal or emergency source by closing the bypass contacts. Visual indicators show bypass “source selected”, bypass "closed" or "open" to either source, and automatic transfer switch isolation or "disable." Bypass of the automatic switch is accomplished with permanently mounted, mechanically operated devices without disturbing the power supply to system loads, and without opening enclosure door.
- Isolation contacts allow the automatic transfer switch and the bypass switch to be separated electrically and mechanically.
- Protective safety shutters, cover the stationary power terminals on the bypass switch when the automatic transfer switch is isolated and removed.
- The draw out mechanism can be latched in one of three positions: “connected”, “test”, “isolated”. In the connected position the mechanism is locked. In the test position, the automatic switch is isolated, but the controls receive power. In the isolated position, the automatic switch is completely isolated.
- The bypass switch mechanism is identical to the automatic switch except it is mechanically operated rather than electrically operated. Mechanical interlocks prevent operation of the bypass or automatic switches in any mode that would result in the interconnection of the sources.

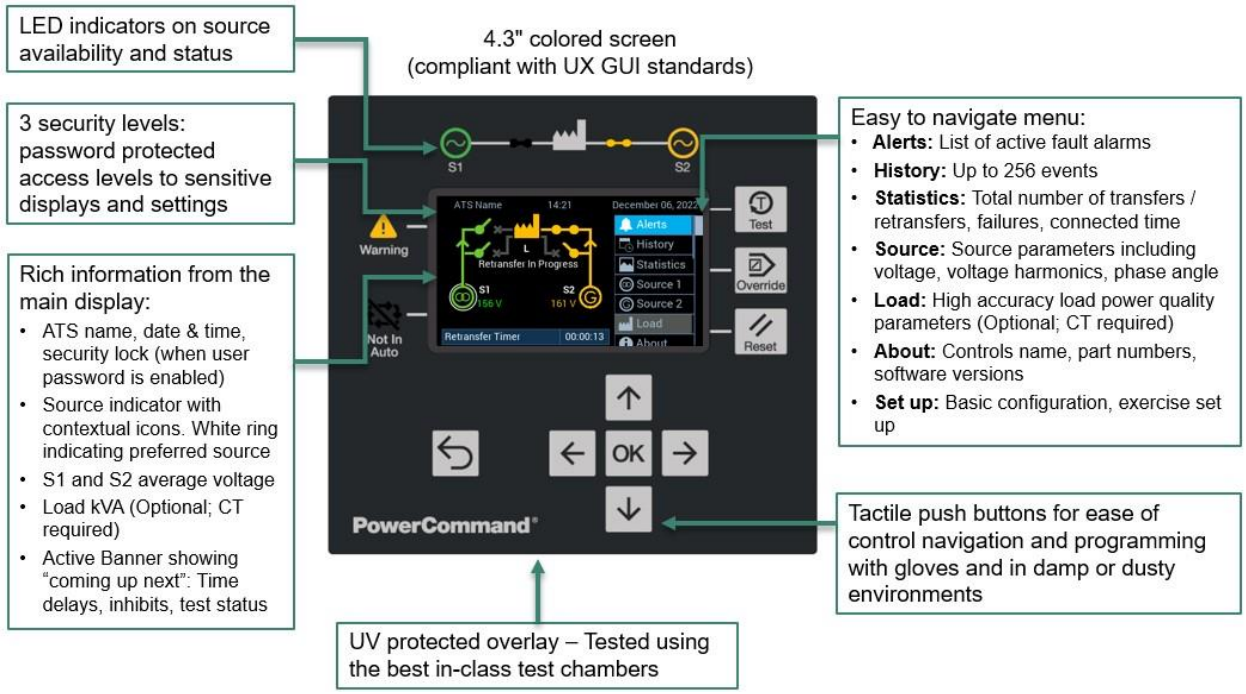
SPECIFICATIONS

Voltage rating	Up to 600 VAC, 50 or 60 Hz
Arc interruption	Multiple leaf arc chutes provide dependable arc interruption.
Neutral bar	A full current-rated solid neutral bar with lugs is optional 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 Vac maximum. UL recognized, and CSA-certified.
Operating temperature	-40 ˚F (-40 ˚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 (3,048 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*	External manual operator is provided via the bypass and isolation mechanism, providing quick make/quick-break operation under load.

Note: See Operator Manual for further details.

NEXT-GENERATION AUTOMATIC TRANSFER SWITCH (ATS) CONTROL

- The revolutionary PowerCommand® 80 transfer switch control delivers unrivaled adaptability, connectivity, and intelligence.
- Highly advanced and customizable control designed to work in a wide variety of applications.
- Integrated advanced high-accuracy metering with harmonic analysis capability provides a simplified but highly accurate way to monitor and detect power quality problems and capture energy usage data.
- Integrated automatic load management capability provides the ability to easily set up downstream load management schemes without the need for additional hardware or complicated setup.
- Fully integrated networking solutions (Modbus® RS485 and TCP/IP communications).
- Integrated control dc power supply provides the capability to connect up to three independent dc sources.
- Detailed event logging with enhanced fault codes, alert lists, power event history, and source statistics enhances diagnostic capability during service events and provides the ability to meet any reporting requirements.
- Please see the PowerCommand® 80 control specification sheet for the full description, benefits and features.



UL 1008 SHORT-CIRCUIT WITHSTAND/CLOSING (WCR) CURRENT RATINGS

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.

Transfer switch (A)	MCCB protection			Special circuit breaker protection		
	WCR @ volts max with specific manufacturers MCCBs	Max MCCB ratings	Drawing reference	With specific current limiting breakers (CLB)	Max CLB rating	Drawing reference
150, 225, 260, 300, 400, 600	85,000 at 480 65,000 at 600	1200 A	A056M836	200,000 at 480 100,000 at 600	1200 A 100,000 at 600	A048J544
600, 800, 1000	85,000 at 480 65,000 at 600	1400 A	A056M548	200,000 at 480 100,000 at 600	1400 A 100,000 at 600	A048J546

FUSE PROTECTION

Transfer switch (A)	WCR @ volts max. with current limiting fuses	Max fuse, size and type	Drawing reference
150, 225, 260, 300, 400, 600	200,000 at 600	600 A Class J, RK1, RK5 or 1200 A Class L, T	A056M836
600, 800, 1000	200,000 at 600	600 A Class J, RK1, RK5, 1200 A Class T, or 2000 A Class L	A056M548

3-CYCLE RATINGS

Transfer switch (A)	WCR @ volts max 3 cycle rating	Max MCCB rating	Drawing reference
150, 225, 260, 300, 400, 600	25,000 at 600	1200 A	A056M836
600, 800, 1000	42,000 at 600	1400A	A056M548

TRANSFER SWITCH LUG CAPACITIES

All lugs are 90ºC rated and accept copper or aluminium wire unless indicated otherwise.

Amp rating	Cables per phase	Size
150, 225, 260, 300, 400	1	#3/0 AWG to 600 MCM CU-AL
	2	#3/0 AWG to 250 MCM CU-AL
150, 225, 260[1], 300, 400[1]	2	#2 AWG to 600 MCM CU-AL
600	2	250 MCM to 500 MCM CU-AL
600[1]	2	#2 AWG to 600 MCM CU-AL
800, 1000	4[2]	250 MCM to 500 MCM CU-AL
800, 1000[1]	3	300 MCM to 750 MCM CU-AL

Note 1: Optional lug capacities on accessories spec sheet PDAC-166.

Note 2: Four-wire for neutral bar is 3-pole only.

ENCLOSURE DIMENSIONS

Frame	Amperage Rating (A)	Measurements		NEMA Rated Enclosures for Indoor		NEMA Rated Enclosures for Indoor & Outdoor		
				Type 1	Type 12	Type 3R	Type 4	Type 4X
C	150-600	Dimension (mm/in)	W	914/36				
			D	639/25.2			623/24.5	
			H	2115/83.2				
		Approximate Weight max (kg/lb)		365/805.3			367/810	
D	600-1000	Dimension (mm/in)	W	1214/47.8				
			D	762/30	745/29.3	762/30	745/29.3	
			H	2286/90				
		Approximate Weight max (kg/lb)		532/1172.7	535/1179.1	533/1174.3	535/1179.1	535/1179.1

CBL-B-SERIES DRAWING PART NUMBERS

Frame	Amperage Rating (A)	Outline Drawing				WCR Label	Wiring Diagram			
		Type 1	Type 3R	Type 12	Type 4 & 4X	0.05 s [3-cycle]	Open/ Delayed Transition	Closed Transition	Inter-connect U-G**	Inter-connect G-G***
C	150-600	A074R931			A074R932	A056M836	A074C700* A074C701	A074C707* A074C708	A074C709	A074C710
D	600-1000	A074R933	A074R934	A074R935		A056M548				

* Up to 480 V
** U-G stands for Utility-Generator Set
*** G-G stands for Generator Set-Generator Set

SUBMITTAL DETAIL

Amperage ratings

- ❒ 150 A
- ❒ 225 A
- ❒ 260 A
- ❒ 300 A
- ❒ 400 A
- ❒ 600 A
- ❒ 800 A
- ❒ 1000 A

Voltage ratings

- ❒ R038 190 V
- ❒ R021 208 V
- ❒ R022 220 V
- ❒ R023 240 V
- ❒ R024 380 V
- ❒ R025 416 V
- ❒ R035 440 V
- ❒ R026 480 V
- ❒ R027 600 V

Pole configuration

- ❒ A028-7 Poles - 3 (solid neutral)
- ❒ A029-7 Poles - 4 (switched neutral)

Frequency

- ❒ A044 60 Hertz
- ❒ A045 50 Hertz

Transfer mode

- ❒ A077-7 Open transition/in-phase
- ❒ A078-7 Open transition/programmed
- ❒ A079-7 Closed transition

Application

- ❒ A035-7 Utility-to-genset
- ❒ A036-7 Utility-to-utility
- ❒ A037-7 Genset-to-genset

System options:

- ❒ A089-7 1-phase, 3-wire
- ❒ A090-7 3-phase, 3-wire
- ❒ A091-7 3-phase, 4-wire

Standards

- ❒ A046-7 UL 1008/CSA certification
- ❒ A064-7 NFPA 20 compliant
- ❒ A080-7 Seismic certification Control options

Control options

- ❒ D403-7 Integrated PC80 high accuracy power quality metering
- ❒ L214-7 Load shed from standby source
- ❒ L215-7 Start Signal Integrity for Multiple ATS systems
- ❒ M079-7 Integral control power supply

Customer input/output

- ❒ M076-7 Standard - 5 digital inputs, 6 digital outputs, 4 dry-contact outputs
- ❒ M077-7 Premium - includes Standard plus 2 digital inputs and 6 digital outputs

Protective relays

- ❒ M045-7 Paralleling timer and lockout relays, ANSI/IEEE 62PL and 86
- ❒ M047-7 Paralleling timer and lockout and reverse power relays, three phase, ANSI/IEEE 62PL, 86 and 32R

Auxiliary relays

Relays are UL listed and factory installed. All relays provide two normally closed isolated contacts rated 10 A at 600 VAC Relay terminals accept from one 18 gauge to two 12-gauge wires per terminal.

- ❒ L101-7 24 VDC coil - installed, not wired (for customer use)
- ❒ L102-7 24 VDC coil - emergency position – relay energized when switch in source 2 (emergency) position
- ❒ L103-7 24 VDC coil - normal position – relay energized when switch in source 1 (normal) position
- ❒ L201-7 12 VDC coil - installed, not wired (for customer use)
- ❒ L202-7 12 VDC coil - emergency position – relay energized when switch in source 2 (emergency) position
- ❒ L203-7 12 VDC coil - normal position – relay energized when switch in source 1 (normal) position

Control Voltage

- ❒ M033-7 12V DC, Genset Starting Voltage
- ❒ M034-7 24V DC, Genset Starting Voltage

Enclosure

- ❒ B001-7 Type 1: Indoor use, provides some protection against dirt (similar to IEC type IP30)
- ❒ B002-7 Type 3R: Intended for outdoor use, provides some protection from dirt, rain and snow (similar to IEC type IP34)
- ❒ B003-7 Type 4: Indoor or outdoor use, provides some protection from wind-blown dust and water spray (similar to IEC type IP65)
- ❒ B004-7 Open Construction: No enclosure - includes automatic transfer switch and controls (call factory for dimensions)
- ❒ B010-7 Type 12: Indoor use, some protection from dust (similar to IEC type IP61)
- ❒ B025-7 Type 4X: Stainless steel, indoor or outdoor use, provides some protection from corrosion (similar to IEC Type IP65)

Miscellaneous

- ❒ M080-7 Anti-condensation cabinet heater

Warranty

- ❒ G012-7 Transfer Switch Warranty – 2 year comprehensive – base
- ❒ G014-7 Transfer Switch Warranty – 3 year comprehensive
- ❒ G007-7 Transfer Switch Warranty – 5 year comprehensive
- ❒ G015-7 Transfer Switch Warranty – 10 year comprehensive

Shipping

- ❒ A050-7 Packing - Standard
- ❒ A051 Packing - Export box

Accessories

- ❒ AC-166 Accessories specification sheet

CODES AND STANDARDS

UL	All switches are **UL 1008** Listed with **UL 50E** Type Rated cabinets and UL Listed CU-AL terminals.	NEMA National Electrical Manufacturers Association	All switches comply with **NEMA ICS 10**.
NFPA	All switches comply with **NFPA 20**, **70**, **99** and **110 (Level 1)**.	IEEE	All switches comply with **IEEE 446** Recommended Practice for Emergency and Standby Power Systems.
NEC®	Suitable for use in emergency, legally required and Standby and Critical Operations Power Systems (COPS) applications per **NEC 700**, **701**, **702** and **708**.	RoHS	All switches are **RoHS** compliant.
IBC®	All switches are certified to IBC 2021.	ISO	All switches are designed and manufactured in facilities certified to **ISO 9001**.
EMC	All switches have been tested to meet the following Electromagnetic Compatibility (**EMC**) standards: **EN 61000-4-3** Radiated Immunity **EN 61000-4-4** Electrical Fast Transients **EN 61000-4-2** Electrostatic Discharge **EN 61000-4-6** Conducted Immunity **EN 61000-4-8** Power Frequency Magnetic Field **EN 61000-6-2** Generic Immunity Standard		

For more information contact your local Cummins distributor or visit power.cummins.com
Our energy working for you™

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