

Transfer panel LC open or delayed transition



> Specification sheet 80 - 500 Amp

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Description

The LC automatic transfer panel combines reliability and flexibility in a small, economical package for transferring loads between the utility and generator set.

The control monitors utility power. When utility power fails or is unsatisfactory, the control starts the generator set and transfers the load to the generator set. The switch automatically transfers loads back to the utility when acceptable utility power returns.



Switch mechanism meets IEC 60947-4-1 requirements



All switches comply with NEMA ICS 10.



This transfer switch is designed and manufactured in facilities certified to ISO9001.

Features

Positive interlocking - Mechanical and electrical contactor interlocking prevents source-to-source connection through the power or control wiring.

Electronic control - Reliable, digital electronic control system with system surge voltage isolation, under voltage monitoring on each power source, four standard normal/emergency source time delays, and diagnostic LEDs.

- High isolation transformers for AC power inputs
- LED lamps verify control status
- Choice of 2 control packages

Options

Delayed (programmed) transition - Available on panels rated from 250 to 500 Amps, this option helps prevent fuse blowing and circuit breaker tripping when transferring inductive loads such as large motors and transformers. Extends transfer time of the transfer panel mechanism to allow load induced voltages to decay prior to connection to the oncoming source.

Battery chargers - 2, 12 or 15 Amp battery chargers are available as factory installed options to reduce field wiring expense.

Three-wire start module - This option modifies the standard LC two-wire start circuit to a three-wire start system required by some generator sets.

Manual override switch - This key selector switch provides a manual transfer capability. The manual override switch uses the power from the source to which the switch will transfer, in order to bypass the control and transfer load.

Transfer panel mechanism

- Independent break-before-make action positively prevents source-to-source connections.
- 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.
- One Form A and one Form B auxiliary contact (for each source) is provided for customer use. Rated at 10A continuous to 600 VAC maximum.

Specifications

Operating temperature	-40 °F (-40 °C) to 122 °F (50 °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	Guidelines for location. Surge-test waveforms for location category B3, per IEEE C 62.41. Testing per guidelines in IEEE C 62.45.

Control

A choice of two control packages allows flexibility for determining the most suitable level of control for a given application:

Control package A

- Time delay start:** 3 seconds (fixed)
- Transfer time delay:** 3 seconds (fixed)
- Retransfer time delay:** 5 minutes (fixed)
- Stop delay:** 5 minutes (fixed)
- Undervoltage sensing:**
 - Single phase normal and emergency
 - Pickup: 85% of nominal (fixed)
 - Dropout: 75% of pickup (fixed)
- Remote test terminals**

Control package B

- Time delay start:** 0 to 15 seconds (adjustable)
- Transfer time delay:** 2 to 120 seconds (adjustable)
- Retransfer time delay:** 6 seconds to 30 minutes (adjustable)
- Stop delay:** 2 seconds to 10 minutes (adjustable)
- Undervoltage sensing:**
 - Three phase differential sensing on normal
 - Single phase emergency
 - Pickup: 85 to 100% of nominal (adjustable)
 - Dropout: 75 to 98% of pickup (adjustable)
- LED status indicators:** for source available and switch position on both normal and emergency
- Remote test terminals**
- Momentary test switch**
- Instant retransfer switch**
- Auto/manual retransfer switch**

Time-delay functions

Engine start: Prevents nuisance genset starts in the event of momentary power system variation or loss.

Transfer normal to emergency: Allows genset to stabilize before application of load. Prevents power interruption if normal source variation or loss is momentary.

Retransfer emergency to normal: Allows the utility to stabilize before retransfer of load. Prevents needless power interruption if return of normal source is momentary.

Engine stop: Maintains availability of the genset for immediate reconnection in the event that the normal source fails shortly after retransfer. Allows gradual genset cool down by running unloaded.

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Short circuit ratings

The contactors have been tested with the fuses listed below. The LC transfer panel must be protected by the specified fuse when used on a circuit capable of delivering not more than the maximum short circuit current listed in the table.

Short circuit ratings using current-limiting fuses:

Model	Maximum interrupting rating	AC-1 resistive loads		AC-3 motor loads
		g1, gL fuse	gG fuse	aM fuse
LC 80	50,000 A	100 A	80 A	63 A
LC 125	50,000 A	125 A	125 A	100A
LC 250	80,000 A		250 A	160 A
LC 275	80,000 A		315 A	200 A
LC 350	80,000 A		400 A	315 A
LC 500	80,000 A		500 A	400 A

Maximum operational current (amperes)

Model	IEC Utilization category			
	AC-1 resistive loads			AC-3 motor loads
	≤ 40 °C	≤ 55 °C	≤ 70 °C	≤ 55 °C
LC 80	80	70	55	50
LC 125	125	100	80	80
LC 250	250	220	170	150
LC 275	275	240	180	185
LC 350	350	300	250	265
LC 500	500	430	340	400

Enclosures

The transfer panel and control are mounted in a single door, key locking, general purpose enclosure (similar to IP30).

Dimensions – general purpose

Model	Height		Width		Depth				Weight		Outline drawing
	in	mm	in	mm	Door closed		Door open		lb	kg	
					in	mm	in	mm			
LC 80	29.00	737	18.00	457	13.06	332	28.12	715	120	55	310-1237
LC 125	29.00	737	18.00	457	13.06	332	28.12	715	120	55	310-1237
LC 250	29.00	737	18.00	457	13.06	332	28.12	715	120	55	310-1237
LC 275	29.00	737	18.00	457	13.06	332	28.12	715	120	55	310-1237
LC 350	34.00	864	12.50	546	13.06	332	31.62	805	155	70	310-1238
LC 500	34.00	864	12.50	546	13.06	332	31.62	805	155	70	310-1238

Dimensions – open construction, minimum enclosure requirements

Model	Height		Width		Depth		Weight		Outline drawing
	in	mm	in	mm	Door closed		lb	kg	
					in	mm			
LC 80	29.00	737	18.00	457	10.25		62	28	310-1239
LC 125	29.00	737	18.00	457	10.25		65	29	310-1239
LC 250	29.00	737	18.00	457	10.25		95	43	310-1239
LC 275	29.00	737	18.00	457	10.25		105	47	310-1239
LC 350	34.00	864	12.50	546	10.25		115	52	310-1239
LC 500	34.00	864	12.50	546	10.25		125	56	310-1239

Transfer panel lug capacities

Model	Lug capacity
LC 80	3 to 10 AWG CU
LC 125	2 to 10 AWG CU
LC 250	Not supplied
LC 275	Not supplied
LC 350	Not supplied
LC 500	Not supplied

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Submittal detail – options

Model designation

- 80
- 125
- 250
- 275
- 350
- 500

Voltage ratings

- R020 120*
- R021 208
- R022 220
- R023 240
- R024 380
- R025 416
- R035 440
- R026 480

* Line to neutral voltage

Frequency

- A044 60 Hertz
- A045 50 Hertz

Enclosure

- B001 Type 1: General purpose indoor (similar to IEC type IP30)
- B004 Open Construction: No enclosure - includes Automatic Transfer Switch and Controls

System options

- A041 Single Phase, 2-wire or 3-wire
- A042 Three Phase, 3-wire or 4-wire

Mechanical latching

- A005 Mechanically held normal side
- A007 Mechanically held normal and emergency sides

Standards

- A080 Seismic certification

Control package

- C021 Control package A
- C022 Control package B

Programmed transition

- J027 Programmed transition 0.1-3 sec
- J028 Programmed transition 0.1-30 sec

Battery chargers

- K001 2 A, 12/24 V
- KB59 15 A, 12 V
- KB60 12 A, 24 V

Application modules

- M002 3-wire start module
- N014 Manual override switch

Cummins Power Generation

Americas

1400 73rd Avenue N.E.
Minneapolis, MN 55432 USA
Phone: 763 574 5000
Fax: 763 574 5298

Europe, CIS, Middle East and Africa

Manston Park Columbus Ave.
Manston Ramsgate
Kent CT 12 5BF United Kingdom
Phone 44 1843 255000
Fax 44 1843 255902

Asia Pacific

10 Toh Guan Road #07-01
TT International Tradepark
Singapore 608838
Phone 65 6417 2388
Fax 65 6417 2399

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