

GTEC transfer switch open transition



> **Specification sheet**
40 - 1250 Amp

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Description

The GTEC automatic transfer switch combines reliability and flexibility in a small, economical package for transferring loads between a utility and a generator set, or between two generators.

The PowerCommand® microprocessor control monitors utility and emergency standby generator power. When utility power fails or is unsatisfactory, the control starts the generator then transfers the load from the utility to the generator. Once stable utility power returns, the switch automatically transfers the load back to the utility.

High-pressure silver alloy contacts withstand thousands of switching cycles without burning, pitting, or welding. They require no routine contact maintenance and provide 100% continuous current ratings.

The fully integrated controller is designed for practical functionality, with LED indicators and digital push-buttons for ease of operator use.



All switches meet IEC 60947-6-1 AC31B.



All switches bear the CE mark.



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

Features

Microprocessor control - A standard, fully featured microprocessor-based control. Software-enabled features, settings, and adjustments are available for ease of setup and accuracy.

Advanced transfer switch mechanism - True transfer switch mechanism with make-before-break action.

Manual operation - Standard handle can be used to manually operate the switch after the power source has been properly disconnected.

Positive interlocking - Mechanical interlocking prevents source-to-source connection through the power contacts.

Main contacts - Heavy-duty silver alloy contacts with multi-leaf arc chutes are rated for 100% load interruption.

Easy service/access - Door-mounted controls, ample access space, and compatible terminal markings allow for easy access. User-friendly controller is easily configurable in the field.

Product lines, accessories and services - Cummins Power Generation offers a wide range of accessories and services to suit your requirements.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

PowerCommand microprocessor control

- Simple, easy-to-use control provides transfer switch information and operator controls
- LED lamps for source availability and source connected indication, exercise mode, and test mode. LED status lamps also provided for control set-up and configuration.
- Control pushbuttons to initiate test, override time delays, and set exercise time.
- Field-configurable for in-phase or programmed transition.
- Integral exerciser clock.
- Control is prototype-tested to withstand voltage surges per EN 60947-6-1.
- Gold-flashed generator start contacts



Control functions

Under-voltage sensing: All phases on the normal source, and single phase on generator source. Normal Source Pickup: adjustable 80-95%; Dropout: adjustable 70-90% of nominal voltage; Generator Source Pickup: 90%, Dropout: 75% of nominal voltage.

Over-voltage sensing: All phases on the normal source. Source Pickup: 120%, Dropout: 125%

Under-frequency sensing: Generator Source Pickup: 90% of nominal frequency; Dropout: 85% of nominal frequency. Normal Source Pickup: 80%; Dropout: 70%

Over-frequency sensing: Normal Source Pickup: 130%; Dropout: 140%.

Operating modes: Open transition with programmed transition (adjustable 0-10 seconds); Open transition with in-phase monitor and programmed transition backup; Exercise mode; and Test mode.

In-phase: Configurable for initiation of transfer functions when sources are in phase. Includes the ability to enable programmed transition as a backup, so that if sources are not in-phase within 120 seconds, the system will retransfer using the programmed transition function.

Exerciser clock: Switch is furnished with an integral engine exerciser configurable for operation on a 7, 14, 21, or 28-day cycle with a fixed exercise period duration of 20 minutes. A 12-hour exerciser time offset allows for the convenient resetting of exercise time by 12 hours, without having to reprogram the timer. Software selectable capability allows for the exercising of the generator with or without load.

Time-delay functions

Engine start: Prevents nuisance genset starts due to momentary power system variation or loss. Adjustable: 0-10 seconds; default: 3 seconds.

Transfer normal to emergency: Allows genset to stabilize before application of load. Prevents power interruption if normal source variation or loss is momentary. Allows staggered transfer of loads in multiple transfer switch systems. Adjustable 0-300 seconds, default 5 seconds.

Retransfer emergency to normal: Allows the utility to stabilize before retransfer of load. Prevents needless power interruption if return of normal source is momentary. Allows staggered transfer of loads in multiple transfer switch systems. Adjustable 0-30 minutes, default 10 minutes.

Genset stop: Maintains availability of the genset for immediate reconnection in the event that the normal source fails shortly after transfer. Allows gradual genset cool down by running unloaded. Adjustable 0-30 minutes, default 10 minutes.

Programmed transition: Controls the speed of operation of the transfer switch power contacts to allow load generated voltages from inductive devices to decay prior to connecting a live source. Adjustable 0-10 seconds, default 0 seconds.

Elevator signal: Provides a relay output contact for the elevator signal relay (load disconnect). The signal can also be configured to provide a post-transfer delay of the same duration. Adjustable: 0-300 seconds (requires optional elevator signal relay for use).

Options

Elevator signal relay: Provides a relay output contact for the signal relay function.

Programmable exerciser clock: Provides a fully-programmable 7-day clock to provide greater flexibility in scheduling exercise periods than standard integral exerciser. Peaking function feature allows for generator operation during periods of high utility rates.

Manual restore: Provides a key switch on the front door to allow the operator to control when the switch transfers to the normal source.

Enclosure coating color: Green paint is available as an option.

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Transfer switch mechanism



- A powerful and economical solenoid powers GTEC transfer switches.
- Independent break-before-make action is common for 2-pole, 3-pole and 4-pole switches. On 4-pole switches, this action prevents the objectionable ground currents and nuisance ground fault tripping that can result from overlapping neutral designs.
- 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.
- Long-life, high pressure, silver alloy contacts resist burning and pitting. Contacts are mechanically held in both normal and emergency positions for reliable, quiet operation.

Specifications

Voltage rating	Transfer switches up to 480 VAC, 50 Hz or 60 Hz.
Amperage rating	Transfer switches rated for 40 through 2000 continuous amperes.
Arc interruption	Multiple leaf arc chutes cool and quench the arcs. Barriers prevent interphase flashover.
Neutral bar	A full current-rated neutral bar is standard on enclosed 3-pole transfer switches.
Auxiliary contacts	Two contacts rated at 5A continuous at 100 VAC or 2.5A continuous at 200 VAC (one for each source) are provided for customer use. Wired to terminal block for easy access.
Operating temperature	-30° C (-22° F) to 60° C (140° F)
Storage temperature	-25° C (-13° F) to 55° C (131° F)
Humidity	Up to 90% at 20°C
Altitude	Up to 2,000 m (6,561 ft) without derating
Total transfer time (source-to-source)	Will not exceed 100 msec with normal voltage applied to the actuator and without programmed transition enabled.
Manual operating handle	Transfer switches are equipped with a removable operating handle which allows operation during servicing in order to facilitate troubleshooting with sources of power disconnected.

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Short circuit ratings

The transfer switches listed below must be protected by fuses. The following WCR ratings are available when protecting the transfer switch with a fuse. Short circuit ratings are stated in symmetrical RMS amperes.

Fuse protection

Transfer switch ampere	WCR @ volts max. with current limiting	Max fuse, size and type
40, 63	26,000 @ 480	RT16NT-00 63A
100, 125	26,000 @ 480	RT16NT-00 125A
160, 200, 225, 250	38,000 @ 480	RT16NT-2 250A
350, 400, 500	50,000 @ 480	RT16NT-3 500A
630, 800	55,000 @ 480	RT16NT-4 800A
1000, 1250	65,000 @ 480	RT16NT-4 1250A

Enclosures

The transfer switch and control are mounted in a key-locking enclosure. Enclosures meet IEC 60947-6-1 standard.

Dimensions - IP32

Amp rating	Height		Width		Door closed		Door open		Weight 3-pole type		Outline drawing
	in	mm	in	mm	in	mm	in	mm	lb	kg	
40, 63	31.4	800	23.6	600	8.8	226	31.4	800	101.4	46	0500-6004
100, 125	31.4	800	23.6	600	8.8	226	31.4	800	105.8	48	0500-6004
160, 200, 225, 250	39.3	1000	31.4	800	8.8	226	39.3	1000	125.6	57	0500-6005
350, 400, 500	39.3	1000	31.4	800	8.8	226	39.3	1000	143.3	65	0500-6005
630, 800	53.9	1370	29.2	742	24.8	631	53.0	1348	385.8	175	0500-6006
1000, 1250	53.9	1370	29.2	742	24.8	631	53.0	1348	405.6	184	0500-6006

Dimensions - IP54

Amp rating	Height		Width		Door closed		Door open		Weight		Outline drawing
	in	mm	in	mm	in	mm	in	mm	lb	kg	
40, 63	34.0	864	23.3	598	11.6	296	30.6	778	110.2	50	0500-4559
100, 125	34.0	864	23.3	598	11.6	296	30.6	778	110.2	50	0500-4559
160, 200, 225, 250	41.8	1064	31.6	804	11.6	296	39.0	991	143.3	65	0500-4560
350, 400, 500	41.8	1064	31.6	804	11.6	296	39.0	991	143.3	65	0500-4560
630, 800	53.9	1370	29.5	750	26.6	676	51.9	1319	414.4	188	0500-4561
1000, 1250	53.9	1370	29.5	750	26.6	676	51.9	1319	414.4	188	0500-4561

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Submittal detail – options

Amperage ratings

- 40
- 63
- 100
- 125
- 160
- 200
- 225
- 250
- 350
- 400
- 500
- 630
- 800
- 1000
- 1250

Voltage (line-to-line) ratings

- R971 110
- R972 115
- R973 120
- R974 127
- R975 139
- R976 220
- R977 230
- R978 240
- R979 255
- R980 277

Pole Configuration

- A027 Poles - 2 (solid neutral)
- A028 Poles - 3 (solid neutral)
- A029 Poles - 4 (switched neutral)

Frequency

- A044 60 Hertz
- A045 50 Hertz

Application

- A035 Utility-to-genset
- A037 Genset-to-genset

System Options

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

Enclosure

- B004 Open construction: no enclosure - includes automatic transfer switch and controls (N/A on 1600, 2000A)
- B901 IP32 general purpose indoor
- B014 IP54 general purpose outdoor
- P152 Enclosure paint color: Green

Control voltage

- M033 12V, Genset starting voltage
- M034 24V, Genset starting voltage

Control options

- J030 External exercise clock
- M032 Elevator signal relay
- S006 Manual restore switch

Battery chargers

- K001 2 amps, 12/24 volts

Auxiliary relays

Relays are factory installed. All relays provide (2) sets of form C (DPDT) contacts rated 5A @ 250 VAC. Relay terminals accept (1) 0.75 mm to (2) 4 mm wires per terminal.

- L101 24 VDC Coil - installed, not wired (for customer use).
- L102 24 VDC Coil - emergency position - relay energized when GTEC in Source 2 (emergency) position.
- L103 24 VDC Coil - normal position - relay energized when GTEC in Source 1 (normal) position
- L201 12 VDC coil installed, not wired (for customer use)
- L202 12 VDC coil - emergency position - relay energized when GTEC in Source 2 (emergency) position
- L203 12 VDC coil - normal position - relay energized when GTEC in Source 1 (normal) position

Warranty

- Warranty: 12 months from commissioning to a maximum 18 months after date of sale.

Cummins Power Generation

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