PowerCommand® GTEC Transfer Switch



PowerCommand® 40-02/12 Control Open Transition

40 A - 2000 A

DESCRIPTION

GTEC transfer switches combine reliability and flexibility in a small, economic package for transferring loads between a utility and a generator set, or between two generators.

The 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. When stable utility power returns, the switch automatically transfers the load back to the utility.

For genset-to-genset applications, the generator set that is connected to the utility side of the control is the lead genset. If the lead generator set goes down or is taken offline, the transfer switch starts the second generator set and transfers the load.

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

FEATURES

PowerCommand® 40-02/12 control – A sophisticated, fully featured microprocessor-based control with LCD digital display and tactile-feel soft-switches for easy operation and screen navigation. Please see the PowerCommand® 40-02/12 control specification sheet S-6561 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. Recommended for inductive loads to prevent nuisance tripping.

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

Manual operation – Standard removable handle can be used to manually operate the switch after the power source has been completely disconnected.

Multi-voltage rating – The multiple selectable voltage setting is adjustable. So GTEC can be applied to voltages from 110 V to 277 V without external transformers.

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

Main contacts – Silver alloy contacts with multi-leaf arc chutes are rated for 100% load interruption. They require no routine contact maintenance and provide 100% Continuous current ratings.

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





- A powerful, economical AC solenoid operates GTEC transfer switches.
- Independent break-before-make action is used for 2-pole, 3-pole and 4-pole switches. On 4-pole/switched neutral switches, this action prevents the objectionable ground currents and nuisance ground fault tripping that can result from overlapping designs.
- 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. Protective covers for lugs are available.

SPECIFICATIONS

Voltage rating	Up to 480 V AC, 50 or 60 Hz.
Arc interruption	Multiple leaf arc chutes provide dependable arc interruption.
Neutral bar	A full current-rated neutral bar 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 5 amps Continuous at 100 V AC or 2.5 amps Continuous at 200 V AC.
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 % at 20 ˚C
Altitude	Up to 6,561 ft (2,000 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 100msec with normal voltage applied to the actuator and without programmed transition enabled.
Manual operation*	Transfer switches are equipped with a removable operating handle which allows operation during servicing to facilitate troubleshooting with sources of power

* 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.

ACCESSORIES

Elevator signal relay (M032) – Provides relay output contacts for sending a load-disconnect warning signal to the elevator control. Transfer/re-transfer delay time is selectable for 0, 1, 2, 3, 5, 30, 120 or 300 seconds.

Manual restore (S006) – Provides a key switch on the front door to allow the operator to control when the switch transfers to the available normal source.

ELECTRICAL PERFORMANCE

The GTEC transfer switch products have been fully tested and verified to the requirements in IEC 60947-6-1, IEC 61439-1 and IEC 61439-2 with resistive or slightly inductive loads; use outside of these applications negates any guarantee of performance or durability for the below utilization category.

Frame	Amperage rating (A)	Utilization Category	Operation Category	Application
A-F	40 - 1250	AC-31	A	Non-inductive or slightly inductive loads
G	1600 - 2000	AC-31	B	

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

FUSE PROTECTION

Frame	Amperage rating (A)	WCR rating (kA)	Fuse size and type
A	40, 63	26	RT16NT-00 63 A IEC NH Fuse type
B	100, 125	26	RT16NT-00 125 A IEC NH Fuse type
C	160, 200, 225, 250	38	RT16NT-2 250 A IEC NH Fuse type
D	350, 400, 500	50	RT16NT-3 500 A IEC NH Fuse type
E	630, 800	55	RT16NT-4 800 A IEC NH Fuse type
F	1000, 1250	65	RT16NT-4 1250 A IEC NH Fuse type
G	1600, 2000	120	KRP-C 3000 A Class L Fuse type

*All WCR values are at 480 V max with current limiting fuse

CIRCUIT BREAKER PROTECTION

Frame	Amperage rating (A)	Rated Conditional Short-Circuit Current (kA at 190-480V)	Max breaker rating (A)	Specified circuit breaker protection manufacturer, model and type
A	40, 63	5	63	Schneider: NSX160FTM, EZD100, NSD100F, NSD100K Siemens: 3VU, 3RV1, 3VT1 ABB: Isomax S1, S2X80, Sim100
B	100, 125	10	125	Schneider: NSX160FTM, NSD160K Siemens: 3VL, 3VT1 ABB: Isomax S2, Isomax S3, S3X, Sim250
C	160, 200, 225, 250	10	250	Schneider: NSX250NTM, NSD250K Siemens: 3VL, 3VT2 ABB: Isomax S3, S4X, Sim250
D	350, 400, 500	10	500	Schneider: NSX630NTM, NSD630K Siemens: 3VL,3VT3 ABB: Isomax S4, S6X, Sim500
E	630, 800	16	800	Schneider: MT08, MT10, NW08 Siemens: 3VL, 3WT, 3VT4 ABB: Isomax S6, E1B, E1N, E1S
F	1000, 1250	25	1250	Schneider: MT12, NW16 Siemens: 3VL, 3WT, 3VT5 ABB: Isomax S7, E2B, E2L
G	1600, 2000	40	2000	Schneider: MT20, MT25, NW20, NW25 Siemens: 3WT ABB: E1N, E2N, E2S, E3S

**All WCR values are at 480 V max with current limiting fuse*

ENCLOSURE

The transfer switch and control are mounted in a key-operated locked enclosure. Enclosures meet IEC 60947- 6-1, IEC 61439-1 and IEC 61439-2 standards. Standard enclosure is ANSI 49 Gray.

DIMENSIONS – TRANSFER SWITCH IN IP32 AND 1P54 ENCLOSURES

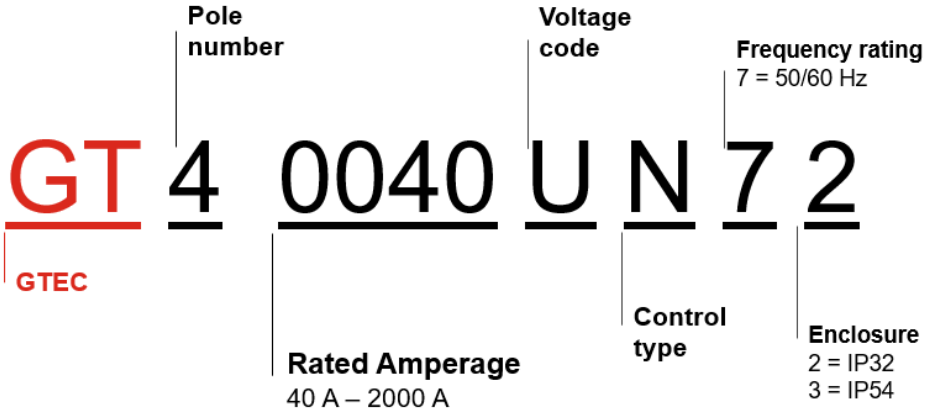
Frame	Amperage (A)	Height		Width		Depth		Weight		Outline drawing
		in	mm	in	mm	in	mm	lb	kg	
A	40, 63	27	680	22.4	570	9.1	231	106	48	A065V089
B	100, 125									
C	160, 200, 225, 250	37.4	950	25.6	650	9.1	231	139	63	A065V174
D	350, 400, 500									
E	630, 800	54	1370	30	750	24.8	630	415	188	A065V183
F	1000, 1250									
G	1600, 2000	81.3	2065	39.4	1000	45.4	1154	893	405	A065V102

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.

MODEL NAMING STRUCTURE

The model number is made up of code segments that designate various features or options.



Poles

- 3 Poles (solid neutral)
- 4 Poles (switched neutral)

Current ratings

- 20, 40, 63, 100, 125, 160, 200, 225, 250, 350, 400, 500, 630, 800, 1000, 1250, 1600, 2000 A

Control type

- N = 12 VDC, Powered Line-to-Neutral Sensing Control
- Q = 24 VDC, Powered Line-to-Neutral Sensing Control

Frequency

- 50/60 Hz

Voltage code

- U = Multi-voltage 110/119 – 277/480 V
- Y = 220/380 V, 230/400 V, 240/416 V

Revision letter

Factory assigned (A through Z)

Specification number

Factory assigned (000 to 999)

Warranty

- 1 year comprehensive

Shipping

- Packing - export box

Part Number	Model Number	Description (Amperage, Pole, Control type, Enclosure)
GTECA		
A065W776	GT40040UN72	40A,4P,12V, IP32
A065W780	GT40040UN73	40A, 4P, 12V, L-L, IP54
A065Z132	GT30063UN72	63A, 3P, 12V, L-N, IP32
A066A012	GT30063UN73	63A, 3P, 12V, L-N, IP54
A066A016	GT40063UN72	63A, 4P, 12V, L-N, IP32
A066A017	GT40063UN73	63A, 4P, 12V, L-L, IP54
GTECB		
A066A018	GT30100UN72	100A, 3P, 12V, L-N, IP32
A066A026	GT40100UN72	100A, 4P, 12V, L-N, IP32
A066A043	GT40100UN73	100A, 4P, 12V, L-N, IP54
A066A045	GT30125UN72	125A, 3P, 12V, L-N, IP32
A066A324	GT40125UN72	125A, 4P, 12V, L-N, IP32
A066A326	GT40125UN73	125A, 4P, 12V, L-N, IP54
GTECC		
A066A327	GT30160UN72	160A, 3P, 12V, L-N, IP32
A066A331	GT40160UN72	160A, 4P, 12V, L-N, IP32
A066A334	GT40160UN73	160A, 4P, 12V, L-N, IP54
A066A341	GT30250UN72	250A, 3P, 12V, L-N, IP32
A066A489	GT30250UN73	250A, 3P, 12V, L-N, IP54
A066A491	GT40250UN72	250A, 4P, 12V, L-N, IP32
A066A577	GT40250UN73	250A, 4P, 12V, L-N, IP54
GTECD		
A066A604	GT30350UN72	350A, 4P, 12V, L-N, IP32
A066A610	GT40350UN72	350A, 4P, 12V, L-N, IP32
A066A612	GT40350UN73	350A, 4P, 12V, L-N, IP54
A066A613	GT30400UN72	400A, 3P, 12V, L-N, IP32
A066A614	GT30400UN73	400A, 3P, 12V, L-N, IP54
A066A616	GT40400UN72	400A, 4P, 12V, L-N, IP32
A066A624	GT40400UN73	400A, 4P, 12V, L-N, IP54
A066A628	GT30500UQ72	500A, 3P, 24V, L-N, IP32
A066A631	GT30500UQ73	500A, 3P, 24V, L-N, IP54
A066A632	GT40500UQ72	500A, 4P, 24V, L-N, IP32
A066A633	GT40500UQ73	500A, 4P, 24V, L-N, IP54

Part Number	Model Number	Description (Amperage, Pole, Control type, Enclosure)
GTECE		
A066A642	GT30630UQ72	630A, 3P, 24V, L-N, IP32
A066A646	GT30630UQ73	630A, 3P, 24V, L-N, IP54
A066A756	GT40630UQ72	630A, 4P, 24V, L-N, IP32
A066A757	GT40630UQ73	630A, 4P, 24V, L-N, IP54
A066A758	GT30800UQ72	800A, 3P, 24V, L-N, IP32
A066A759	GT30800UQ73	800A, 3P, 24V, L-N, IP54
A066A776	GT40800UQ72	800A, 4P, 24V, L-N, IP32
A066A781	GT40800UQ73	800A, 4P, 24V, L-N, IP54
GTECF		
A066C039	GT31000UQ72	1000A, 3P, 24V, L-N, IP32
A066C215	GT31000UQ73	1000A, 3P, 24V, L-N, IP54
A066C216	GT41000UQ72	1000A, 4P, 24V, L-N, IP32
A066C555	GT41000UQ73	1000A, 4P, 24V, L-N, IP54
A066C558	GT31250UQ72	1250A, 3P, 24V, L-N, IP32
A066C559	GT31250UQ73	1250A, 3P, 24V, L-N, IP54
A066C560	GT41250UQ72	1250A, 4P, 24V, L-N, IP32
A066C561	GT41250UQ73	1250A, 4P, 24V, L-N, IP54
A066C563	GT41250UQ72	1250A, 4P, 24V, L-N, IP32
GTECG		
A066C580	GT31600YQ72	1600A, 3P, 220V, 24V, L-N, IP32/54
A066C593	GT32000YQ72	2000A, 3P, 220V, 24V, L-N, IP32/54
A066C595	GT41600YQ72	1600A, 4P, 220V, 24V, L-N, IP32/54
A066C596	GT42000YQ72	2000A, 4P, 220V, 24V, L-N, IP32/54
A066C779	GT42000YQ73	2000A, 4P, 220V, 24V, L-N, IP32/54
A066C781	GT31600YQ73	1600A, 3P, 220V, 24V, L-N, IP32/54
A066C784	GT41600YQ73	1600A, 4P, 220V, 24V, L-N, IP32/54

CODES AND STANDARDS

IEC	Switches are third-party certified as meeting IEC 60947-6-1, IEC 61439-1 & IEC 61439-2 standards AC-31A: 40-1250 A AC-31B: 1600-2000 A.	ISO®	All switches are designed and manufactured in facilities certified to **ISO 9001**.
CCC	40-1250 A switches are CCC certified by the China Quality Certification Centre.	CE	All switches bear the CE mark.
EMC	All switches have been tested to 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.		



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

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