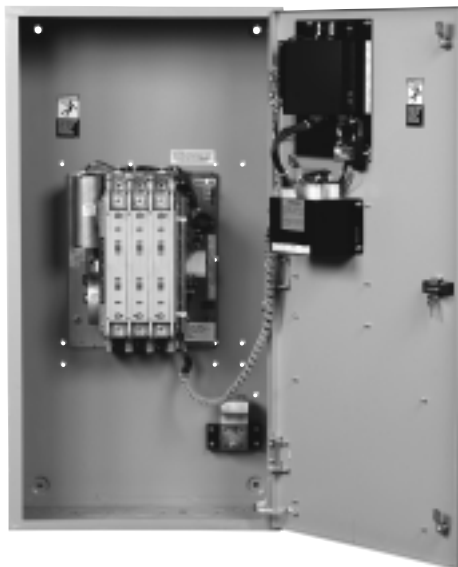




ZTG Series Automatic Transfer Switch



GE Zenith's ZTG Series switches are built for standard applications requiring the dependability and ease of operation found in a power contactor switch.

- Ratings 40 to 3000 amps (2, 3 or 4 poles)
- UL 1008 listed at 480 VAC
- CSA certified at 600 VAC (200-225 amp-480V)
- IEC listed at 480V
- Double throw, mechanically interlocked contactor mechanism
- Electrically operated, mechanically held
- Designed for emergency and standby applications
- Available in standard (ZTG) or delayed transition (ZTGD) models

ZTG switches are equipped with GE Zenith's next-generation MX150 microprocessor panel, which controls the operation and displays the status of the transfer switch's position, timers and available sources. As an embedded digital controller, the MX150 offers high reliability and ease of unattended operation across a range of applications. The MX150 features include:

- Timer and voltage/frequency settings adjustable without disconnection from the power section
- Built-in diagnostics with an LCD display for immediate troubleshooting

- LED/LCD indicators for ease of viewing and long life
- Nonvolatile memory—clock battery backup not required for standard switch operation
- Processor and digital circuitry isolated from line voltage
- Inputs optoisolated for high electrical immunity to transients and noise
- Communications header for network interface

Fully Approved

- UL, CSA and IEC listed
- Ringing wave immunity per IEEE 472 (ANSI C37.90A)
- Conducted and Radiated Emissions per EN55022 Class B (CISPR 11) (Exceeds EN55011 & MILSTD 461 Class 3)
- ESD immunity test per EN61000-4-2 (Level 4)
- Radiated RF, electromagnetic field immunity test per EN61000-4-3 (ENV50140) 10v/m
- Electrical fast transient/burst immunity test per EN61000-4-4
- Surge immunity test per EN61000-4-5 IEEE C62.41 (1.2 X 50ms, 5 & 8 kV)
- Conducted immunity test per EN61000-4-6 (ENV50141)
- Voltage dips and interruption immunity EN61000-4-11

Design and Construction Features

- Close differential 3 phase under-voltage sensing of the normal source—factory standard setting 90% pickup, 80% dropout (adjustable); under-frequency sensing of the normal source factory setting 95% pickup (adjustable)
- Voltage and frequency sensing of the emergency source—factory standard setting 90% pickup voltage, 95% pickup frequency (adjustable)
- Test switch (fast test/load/no load) to simulate normal source failure—automatically bypassed should the emergency source fail
- Type 1 enclosure is standard—also available in open style or Types 3R, 4 or 12

Standard Features and Options

Standard Features (MSTDG Option Pkg.)

6	Test Switch, Momentary
A3	Auxiliary Contact: Closed when the switch is in the emergency position
A4	Auxiliary Contact: Closed when the switch is in the normal position
Calibrate	Capabilities are available for Frequency and AB, BC, CA Phase to Phase voltage for both Sources.
CDT	Daily 7, 14, 28 timed exercise (CDT memory backup battery included), pushbutton/timer operation
DS	Inhibits transfer in either direction when in inhibit. Allows automatic operation when in Auto. (800-400 Amp units)
E	Engine Start Contact
EL/P	Event Log of 16 Events that track date, time, reason and action taken
K/P	Frequency Indication for S1 and S2
L	Indicating LED Pilot Lights: L1 Indicates switch in emergency position L2 Indicates switch in normal position L3 Indicates normal source available L4 Indicates emergency source available
P1	Time Delay to Engine Start: Standard setting 3 seconds, adjustable 0-10 seconds
R50	In-Phase Monitor, self-adjusting
T	Time Delay on Retransfer to Normal: To delay retransfer to normal source (immediate retransfer on generator set failure); standard setting 30 minutes, adjustable 0-30 minutes

U	Time Delay for Engine Cool Down: Allows engine to run unloaded after switch retransfer to normal; standard setting 5 minutes, adjustable 0-60 min.
W	Time Delay on Transfer to Emergency: To delay transfer to emergency after verifying emergency source available; standard setting 1 second, adjustable 0-5 minutes
YEN	Pushbutton Bypass of T & W Timers
Q2	Peak Shave / Remote Load Test
When specified for use with a ZTGD Series delayed transition switch, the control panel also includes the following:	
DT	Time Delay from Neutral Switch Position to Normal on Retransfer: Standard setting 5 seconds, adjustable 1-10 minutes
DW	Time Delay from Neutral Switch Position to Emergency: Standard setting 5 seconds, adjustable 1-10 minutes
S13	Center-Off position/Off Delay Timing indicating lights

Additional Standard Features (MEXEG Option Pkg.)

A3	Auxiliary Contact: Closed when the switch is in the emergency position
A4	Auxiliary Contact: Closed when the switch is in the normal position
CDP	Clock Exerciser Load/No Load (Replaces CDT)
VI	Voltage Imbalance Monitor (Three Phase)

MX150 Control Panel



(Front View)

NOTE:

For applications requiring additional options or other configurations, use GE Zenith ZTS Series switches as described in Bulletin O-5064.

Options

6A Test Switch, Maintained / Momentary

6AP Test Switch, Maintained / Momentary, utilizing Keypad

A1 Auxiliary Contact, operates on Source 1 line failure

A1E Auxiliary Contact, operates on Source 1 line failure

A3 Auxiliary Contacts: Closed when the transfer switch is in Source 2 position.

A4 Auxiliary Contacts: Closed when the transfer switch is in Source 1 position.

A62 Motor Load Disconnect Circuit: 1 N.C. operates during transfer; adjustable (not available on ZTGD models or models with R50); includes timing indicator lamp; adjustable 1-30 seconds

B9 Battery charger connections.

CTAP Alarm panel on transfer to emergency w/silence button & light

DSA Disconnect Switch: Permits transfer in "AUTO" position and inhibits transfer in "INHIBIT" position.

F Fan contact, operates when generator is running.

HT Heater and Thermostat

M80 SERIES POWER MEASUREMENT METERS

M80 Digital Meter w/Display of Amps, Volts, Frequency

M82A Digital Meter w/Display of Amps, Watts, Volts, Frequency, KVA, KVAR, PF, etc.

M83A Digital Meter w/Display of Amps, Watts, Volts, Frequency, KVA, KVAR, PF, etc. Plus THD capability w/Modbus RS485 part

N1 Running Time Indicator for Engine Running (Door Mounted Counter)

N2 Operation Counter (Door Mounted Counter)

Q3 Inhibit Transfer to Emergency: Input circuit to inhibit transfer to emergency; 120 VAC or 24 VDC

T3/W3 Elevator Pre-Signal Auxiliary Contacts: Open 0-60 seconds prior to transfer to either direction, re-closes after transfer.

UMD Universal Motor Load Disconnect Circuit: Auxiliary Contact opens 0-60 seconds prior to transfer in either direction, re-closes after transfer. Can be configured by end user for Pre-transfer, Post-transfer, or both.

VI Voltage Imbalance Monitor (Three Phase)

ZNET Network communications interface card

Reference Charts

Testing Standards	
UL, CSA and IEC listed	UL 1008, CSA 22.2 No. 178, IEC 947-6-1
Ringing wave immunity	IEEE 472 (ANSI C37.90A)
Conducted and Radiated Emissions	EN55022 Class B (CISPR 11) (Exceeds EN55011 & MILSTD 461 Class 3)
ESD immunity test	EN61000-4-2 (Level 4)
Radiated RF, electromagnetic field immunity test	EN61000-4-3 (ENV50140) 10v/m
Electrical fast, transient/burst immunity test	EN61000-4-4
Surge immunity test	EN61000-4-5 IEEE C62.41 1.2 X 50μs, 5 & 8 kV
Conducted immunity test	EN61000-4-6 (ENV50141)
Voltage dips and interruption immunity	EN61000-4-11

AL/CU UL Listed Solderless Screw-Type Terminals for External Power Connections			
Switch Size (Amps)	Normal, Emergency and Load Terminals		
	Cables per Pole	Range of Wire Sizes	
40	1	#8 to 3/0 AWG	6-70 mm
80			
100			
150			
200, 225		#6 AWG to 250 MCM	10-120 mm
260, 300, 400		#4 AWG to 600 MCM	16-300 mm
600	2	#2 AWG to 600 MCM	25-300 mm
800, 1000, 1200	4		
1600, 2000, 2600, 3000	8	#2 AWG to 600 MCM	25-300 mm

MX100 Control Setting Ranges			
Control Function		Range	Factory Setting
Normal Line Sensing – Under-voltage	Dropout	75-98%	80%
	Pickup	85-100%	90%
Normal Line Sensing – Under-frequency	Dropout	2Hz below pickup	Set
	Pickup	90-100%	90%
Emergency Line Sensing – Under-voltage	Dropout	75-98%	80%
	Pickup	85-100%	90%
Emergency Line Sensing – Under-frequency	Dropout	2Hz below pickup	Set
	Pickup	90-100%	95%
Time Delay – Engine Start	(Acc. P1)	0-10 seconds	3 seconds
Time Delay – Engine Cool Down	(Acc. U)	0-5 minutes	5 minutes
Time Delay – Transfer to Emergency	(Acc. W)	0-15 seconds	1 second
Time Delay – Retransfer to Normal	(Acc. T)	0-30 minutes	30 minutes
Time Delay – Motor Disconnect or Transfer Presignal	(Acc. A6, or T3/W3)	1-30 seconds	5 seconds
Delayed Transition Time Delays	(DT, DW)	1-30 seconds	5 seconds

Z	T	G				A	0						-						
Base Model			Type			Control Panel		Config.	Ampere Size			Switched Poles	Enclosure Type	Operational Voltage		Accessories			
0 0 0 Standard (Open Transition)			A 0 MX150 Microprocessor Control Unit			0 Utility - Generator		0 0 4 40 amps	B 2 Poles			C Type 1 Enclosed	0 2 120/240V 1Ø, 3 wire, 60Hz		S T D				
D 0 0 Delayed Transition						U Utility - Utility		0 0 8 80 amps	E 3 Poles			S Special Enclosure	2 1 120/208V 1Ø, 3 wire, 60Hz		E X E Then choose additional accessories				
						M Manual		0 1 0 100 amps	F 4 Poles			X Open Style Unit	0 3 240V 3Ø, 3 wire, 60Hz		6A				
								0 1 5 150 amps					3 1 208V 3Ø, 3 wire, 60Hz		6AP				
								0 2 0 200 amps					3 2 220V 3Ø, 3 wire, 50Hz		A1				
								0 2 2 225 amps					3 8 120/240V 3Ø, 4 wire, 60Hz		A1E				
								0 2 6 260 amps					0 4 120/208V 3Ø, 4 wire, 60Hz		A3				
								0 4 0 400 amps					4 1 127/220V 3Ø, 4 wire, 60Hz		A4				
								0 6 0 600 amps					0 5 480V 3Ø, 3 wire, 60Hz		A62				
								0 8 0 800 amps					5 1 440V 3Ø, 3 wire, 60Hz		B9				
								1 0 0 1000 amps					5 2 440V 3Ø, 3 wire, 50Hz		CTAP				
								1 2 0 1200 amps					5 3 440V 1Ø, 2 wire, 60Hz		DSA				
								1 6 0 1600 amps					0 6 575V 3Ø, 3 wire, 60Hz		F				
								2 0 0 2000 amps					6 1 347/600V 3Ø, 4 wire, 60Hz		HT				
								2 6 0 2600 amps					0 7 277/480V 3Ø, 4 wire, 60Hz		Manual				
								3 0 0 3000 amps					0 9 240/416V 3Ø, 4 wire, 60Hz		M80				
													9 1 220/380V 3Ø, 4 wire, 60Hz		M82				
													9 2 220/380V 3Ø, 4 wire, 50Hz		M83A				
													9 3 240/416V 3Ø, 4 wire, 50Hz		N1				
															N2				
															Q3				
															T3/W3				
															UMD				
															VI				
															ZNET				
															None				

Switch Types

- Standard:** Unless otherwise noted, the standard switch with quick transfer will be supplied.
- Delayed Transition:** When ordered as the ZTGD, the delayed transition switch offers time delay during transfer from one position to the other. This is primarily for transfer of large motor or inductive loads. The operation of the delayed transition switch is totally independent of the synchronism of the power sources, eliminating the need for in-phase monitors or extensive motor-disconnect control wiring between the transfer switch and motor control centers.

Example

ZTGD00A0040E-C04STD

This number string shows the correct format for a ZTG Series Automatic Transfer Switch with delayed transition, an MX150 microprocessor control unit, Utility - Generator, 400 amps, 3 pole, NEMA Type 1 enclosure, 120/208V 3Ø, 4 wire, 60 Hz system with the standard group of accessories.

Withstand Current Ratings per UL 1008				
ZTG Switch Ratings (Amps)	Maximum Circuit Amps When Used With		ZTGD Switch Ratings (Amps)	Maximum Circuit Amps When Used With
	Current Limiting Fuse ZTG/ZTGD	Specific Coordinated Breaker Rating		
40, 80	200,000	30,000	40, 80, 100,	50,000
100, 150			150, 225,	
200, 225		50,000	260, 400	
260, 400				
600, 800		65,000	600, 800	65,000
1000, 1200		85,000	1000, 1200	85,000
1600, 2000	100,000	100,000	1600, 2000	100,000
2600, 3000			2600, 3000	

Dimensional Specifications

ZTG and ZTGD Series Transfer Switches								
Model	Ampere Rating	Poles	NEMA 1 Enclosed				Weight	App. Notes
			Height (A)	Width (B)	Depth (C)	Ref. Fig.	NEMA 1	
ZTG	40, 80, 100	2, 3	24 (61)	18 (46)	10.75 (27)	A	57 (26)	1 – 6
	150, 200	4	24 (61)	18 (46)	10.75 (27)	A	60 (27)	
	225	2, 3 4	36 (91)	24 (61)	14.13 (36)	A	150 (68) 155 (70)	1 – 6
ZTGD	40, 80, 100, 150, 225,	2, 3	46 (117)	24 (61)	14.13 (36)	A	180 (82) 185 (84)	1 – 5
	260, 400	4	46 (117)	24 (61)	14.13 (36)	A	220 (100) 230 (102)	
ZTG	225, 260	2, 3	46 (117)	24 (61)	14.13 (36)	A	175 (80)	1 – 5
	300, 400	4	46 (117)	24 (61)	14.13 (36)	A	180 (82)	
	600	2, 3	66 (168)	24 (61)	19.75 (50)	B	400 (181)	1 – 5, 7
		4	74 (188)	30 (76)	19.75 (50)	B	450 (204)	
	800, 1000, 1200	2, 3	74 (188)	30 (76)	19.75 (50)	B	475 (215)	1 – 5, 7
		4	74 (188)	30 (76)	19.75 (50)	B	560 (254)	
	1600, 2000	3	90 (229)	30 (76)	48 (122)	C	1010 (458)	1 – 5, 7, 8
	2600, 3000	4	90 (229)	36 (91)	48 (122)	C	1160 (526)	

Application Notes:

1. Metric dimensions (cm) and weights (kg) shown in parentheses adjacent to English measurements.
2. Includes 1.25" door projection beyond base depth. Allow a minimum of 3" additional depth for projection of handle, lights, switches, pushbuttons, etc.
3. All dimensions and weights are approximate and subject to change without notice.
4. Packing materials must be added to weights shown. Allow 15% additional weight for cartons, skids, crates, etc.
5. Special enclosure (NEMA 3R, 4, 12, etc.) dimensions and layouts may differ. Consult factory for details.
6. ZTG 40-200 may require larger enclosure depending on options specified. Consult factory for details.
7. Add 3" in height for lifting eyes.
8. Ventilation louvers on rear of enclosure at 3000 amps. One side or rear must be clear for airflow with standard cable connections.

Reference Figures

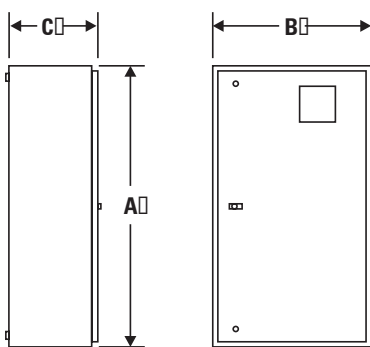


Figure A

ZTG Series Transfer Switch
(40-400 amp)

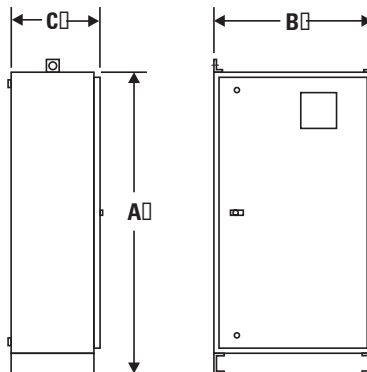


Figure B

ZTG Series Transfer Switch
(600-1200 amp)

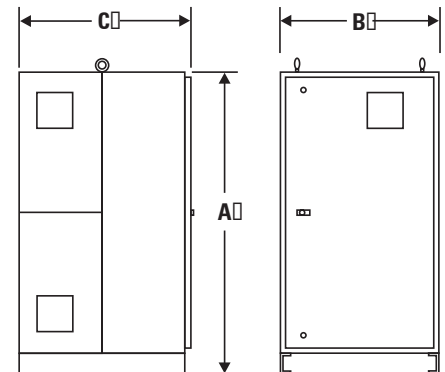


Figure C

ZTG Series Transfer Switch
(1600-3000 amp)



GE Zenith Controls

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