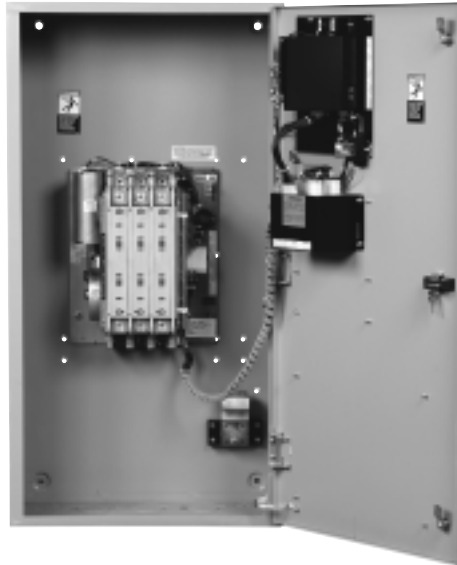




## ZTG Series Automatic Transfer Switch



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. (800-4000 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.
- 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).

**U** Time Delay for Engine Cool Down: Allows engine to run unloaded after switch retransfer to normal.

**W** Time Delay on Transfer to Emergency: To delay transfer to emergency after verifying emergency source available.

**YEN** Pushbutton Bypass of T & W Timers

**Q2** Peak Shave / Remote Load Test

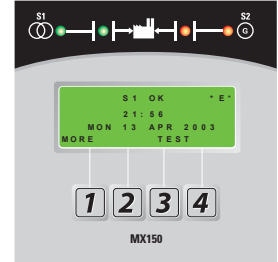
When specified for use with a ZTGD Series delayed transition switch, the control panel also includes the following:

**DT** Time Delay from Neutral Switch Position to Normal on Retransfer.

**DW** Time Delay from Neutral Switch Position to Emergency.

**S13** Center-Off position/Off Delay Timing indicating lights

## MX150 Control Panel



(Front View)

## 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)

**NOTE:**

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

## Options

<b>6A</b>	Test Switch, Maintained / Momentary	<b>M80 SERIES POWER MEASUREMENT METERS</b>
<b>6AP</b>	Test Switch, Maintained / Momentary, utilizing Keypad	<b>M80</b> Digital Meter w/Display of Amps, Volts, Frequency
<b>A1</b>	Auxiliary Contact, operates on Source 1 line failure	<b>M82A</b> Digital Meter w/Display of Amps, Watts, Volts, Frequency, KVA, KVAR, PF, etc.
<b>A1E</b>	Auxiliary Contact, operates on Source 1 line failure	<b>M83A</b> Digital Meter w/Display of Amps, Watts, Volts, Frequency, KVA, KVAR, PF, etc. Plus THD capability w/Modbus RS485 part
<b>A3</b>	Auxiliary Contacts: Closed when the transfer switch is in Source 2 position.	<b>T3/W3</b> Elevator Pre-Signal Auxiliary Contacts: Open 0-60 seconds prior to transfer to either direction, re-closes after transfer.
<b>A4</b>	Auxiliary Contacts: Closed when the transfer switch is in Source 1 position.	<b>UMD</b> 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.
<b>A62</b>	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	<b>VI</b> Voltage Imbalance Monitor (Three Phase)
<b>CTAP</b>	Alarm panel on transfer to emergency w/silence button & light	<b>ZNET</b> Network communications interface card
<b>DS</b>	Inhibits transfer in either direction when in inhibit. Allows automatic operation when in Auto. (40-600 Amp units)	
<b>HT</b>	Heater and Thermostat	

## Reference Charts

<b>Testing Standards</b>	
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 50 $\mu$ s, 5 & 8 kV
Conducted immunity test	EN61000-4-6 (ENV50141)
Voltage dips and interruption immunity	EN61000-4-11

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

<b>MX150 Control Setting Ranges</b>			
<b>Control Function</b>		<b>Range</b>	<b>Factory Setting</b>
Source 1 Line Sensing – Under-voltage	Dropout	75-98%	80%
	Pickup	85-100%	90%
Source 2 Line Sensing – Under-voltage	Dropout	75-98%	80%
	Pickup	85-100%	90%
Source 2 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)	0-60 minutes	5 minutes
Time Delay – Transfer to Emergency	(Acc. W)	0-5 minutes	1 second
Time Delay – Retransfer to Normal	(Acc. T)	0-60 minutes	30 minutes
Time Delay – Motor Disconnect or Transfer Presignal	(Acc. UMD, or T3/W3)	0-60 seconds	20 seconds
Delayed Transition Time Delays	(DT, DW)	0-10 minutes	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)	MX150 Microprocessor Control Unit	Utility - Generator	40 amps	2 Poles	Type 1 Enclosure	120/240V 1Ø, 3 wire, 60Hz	S T D	
D 0 0	Delayed Transition		Utility - Utility	80 amps	3 Poles	Type 12 Enclosure	120/208V 1Ø, 3 wire, 60Hz	E X E	Then choose additional accessories
			Manual	100 amps	4 Poles	Type 3R Enclosure	240V 3Ø, 3 wire, 60Hz	6A	
				150 amps		Type 3X Enclosure	208V 3Ø, 3 wire, 60Hz	6AP	
				200 amps		Type 4 Enclosure	220V 3Ø, 3 wire, 50Hz	A1	
				225 amps		Type 4X Enclosure	120/240V 3Ø, 4 wire, 60Hz	A1E	
				260 amps		Open Style Unit	120/208V 3Ø, 4 wire, 60Hz	A3	
				400 amps			127/220V 3Ø, 4 wire, 60Hz	A4	
				600 amps			480V 3Ø, 3 wire, 60Hz	A62	
				800 amps			440V 3Ø, 3 wire, 60Hz	CTAP	
				1000 amps			440V 3Ø, 3 wire, 50Hz	DS	
				1200 amps			440V 3Ø, 3 wire, 60Hz	HT	
				1600 amps			440V 1Ø, 2 wire, 60Hz	M80	
				2000 amps			575V 3Ø, 3 wire, 60Hz	M82A	
				2600 amps			347/600V 3Ø, 4 wire, 60Hz	M83A	
				3000 amps			277/480V 3Ø, 4 wire, 60Hz	T3/W3	
							240/416V 3Ø, 4 wire, 60Hz	UMD	
							220/380V 3Ø, 4 wire, 60Hz	VI	
							220/380V 3Ø, 4 wire, 50Hz	ZNET	
							240/416V 3Ø, 4 wire, 50Hz	None	

## Switch Types

- Standard:** Unless otherwise noted, the standard switch with quick transfer will be supplied.
- Delayed Transition:** When ordered as the ZTG<sub>D</sub>, 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-N0140STD

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, 80 100, 150 200, 225	200,000	30,000	40, 80, 100, 150, 225, 260, 400	50,000
260, 400		50,000	600, 800	
600, 800		65,000	1000, 1200	85,000
1000, 1200		85,000	1600, 2000	100,000
1600, 2000 2600, 3000		100,000	2600, 3000	

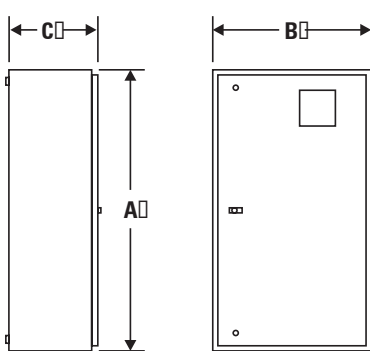
# Dimensional Specifications

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)	
ZTG	225	2, 3	36 (91)	24 (61)	14.13 (36)	A	150 (68)	1 – 6
		4					155 (70)	
ZTGD	40, 80, 100, 150, 225,	2, 3	46 (117)	24 (61)	14.13 (36)	A	180 (82)	1 – 5
	260, 400	4	46 (117)	24 (61)	14.13 (36)	A	185 (84)	
ZTG	225, 260	2, 3	46 (117)	24 (61)	14.13 (36)	A	175 (80)	1 – 5
		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,	
2600, 3000	4	90 (229)	36 (91)	48 (122)	C	1160 (526)	7, 8	

**Application Notes:**

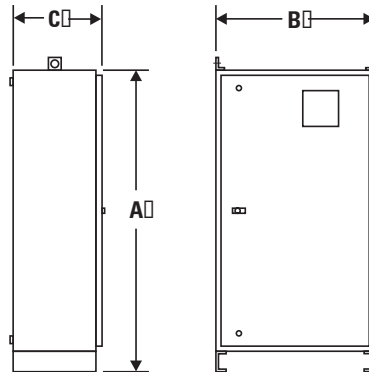
1. Metric dimensions (cm) and weights (kg) shown in parentheses adjacent to English measurements.
2. Includes 1.25" door projection beyond base depth. Allow a minimum of 3" additional depth for projection of handle, lights, switches, pushbuttons, etc.
3. All dimensions and weights are approximate and 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



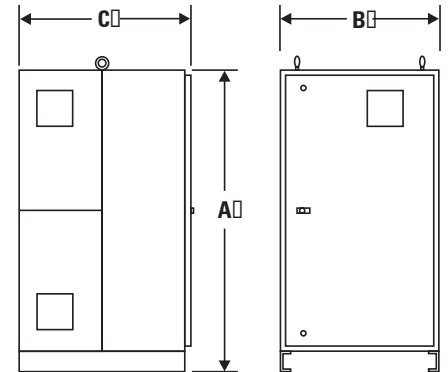
**Figure A**

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)

