
Zenith ZTG Series

Low-Voltage Automatic Transfer Switches
30-1200A UL, 40-3000A CSA (600V)



Zenith ZTG Series

ABB's Zenith 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 (200-260 amps - 480V)
- NFPA 70, 99, 101 and 110
- IEEE 446 and 241
- NEC 517, 700, 701 and 702
- NEMA ICS2-447
- UL 508 and 50
- ANSI C33.76
- ICS 6
- NEMA 250
- Equipment (Controls and Power Section)
- **Seismic Test Qualified to:**
 - IBC-2015
 - IEEE-693-2005
- 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

Fully Approved

- UL and CSA listed
- NFPA 70, 99 101 and 110
- IEEE 446 and 241
- NEC 517, 700, 701 and 702
- NEMA ICS2-447
- UL 508 and 50
- ANSI C33.76
- ICS 6
- NEMA 250
- IBC-2015
- IEEE-693-2005
- Ringing wave immunity per IEEE 472 (ANSI C37.90A)
- Conducted and Radiated Emissions per EN55022 Class B (CISPR 22) (Exceeds EN55011 & MILSTD 461 Class 3)
- ESD immunity test per EN61000-4-2 Class B (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 50µs, 0.5 & 4 kV)
- Conducted immunity test per EN61000-4-6 (ENV50141)
- Voltage dips and interruption immunity EN55011:2009+A1:2010

ZTG switches are equipped with ABB's Zenith MX150 microprocessor panel, which controls the operation and displays the status of the transferswitch'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 network interface

Design and Construction Features

- Close differential 3 phase under-voltage sensing of Source 1 (normal)—factory standard setting 90% pickup, 80% dropout (adjustable); under-frequency sensing of Source 1 factory setting 95% pickup (adjustable)
- Voltage and frequency sensing of the Source 2 (emergency)—factory standard setting 90% pickup voltage, 95% pickup frequency (adjustable)
- Test switch (fast test/load/no load) to simulate Source 1 (normal) failure—automatically bypassed should the Source 2 (emergency) fail
- NEMA Type 1 enclosure is standard—also available in open style or NEMA Types 3R, 4, 4X or 12
- Mechanical lug offered with ATS as standard
- Open Transition ATS perform break before make operation on all phases
- Open and Delayed Transition ATS mechanism does not allow both sources to be connected at the same time

Zenith ZTG Series

MX 150 Control Panel



Standard Features (MSTDG Option Pkg.)

6/P	Test Switch, Momentary
A3	Auxiliary Contact: Closed when the switch is in the Source 2 position (S2)
A4	Auxiliary Contact: Closed when the switch is in the Source 1 position (S1)
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
E	Engine Start Contact
EL/P	Event Log of 16 Events that track date, time, reason and action taken
J1E	Adjustable under frequency sensor for S2
K/P	Voltage and Frequency Indication for S1 and S2
L	Indicating LED Pilot Lights: <ul style="list-style-type: none"> • L1 Indicates switch in S2 position • L2 Indicates switch in S1 position • L3 Indicates S1 source available • L4 Indicates S2 source available
P1	Time Delay to Engine Start
Q2	Peak Shave / Remote Load Test
R50	In-Phase Monitor, self-adjusting
T	Time Delay on Retransfer to Normal: To delay retransfer to S1 (immediate retransfer on S2 failure)
R2E	Under voltage sensing of S2
S13	Microprocessor activated commit / no commit on transferring to S2
U	Time Delay for Engine Cool Down: Allows engine to run unloaded after switch retransfer to S1
W	Time Delay on Transfer to Emergency: To delay transfer to S2 after availability
YEN	Pushbutton Bypass of T & W Timers

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 S1 on Retransfer
DW	Time Delay from Neutral Switch Position to S2
LN/P	Center-Off position/Off Delay Timing indicating lights

Additional Standard Features (MEXEG Option Pkg.)

CDP	Clock Exerciser Load/No Load (Replaces CDT Exerciser Option)
VI	Voltage Imbalance Monitor (Three Phase)

Zenith ZTG Series Ordering Information

Example

ZTG000A00040F-ZEC01ZVC40MSTD

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

Z	T	G	0	0	0	A	0	0	0	4	0	F	-	Z	E	C	0	1	Z	V	C	4	0	M	S	T	D
1		2		3		4		5		6		7		8													

1	Model/Type
ZTG000	Standard (Open Transition)
ZDGD00	Delayed Transition
2	Control Panel
A0	Entelli-Switch 150 Microprocessor Control Unit
A4**	High withstand panel with MX150
3	Application
0	Utility - Generator
U	Utility - Utility
M	Manual Transfer
4	Ampere Size
004	40 amps
008	80 amps
010	100 amps
015	150 amps
020	200 amps
022	225 amps
026	260 amps
040	400 amps
060	600 amps
080	800 amps
100	1000 amps
120	1200 amps
160	1600 amps
200	2000 amps
260	2600 amps
300	3000 amps
5	Switched Poles
B	2 Poles
E	3 Poles
F	4 Poles
6	Enclosure Type
01	Type 1 Enclosure
12	Type 12 Enclosure
3R	Type 3R Enclosure
40	Type 4 Enclosure
4X	Type 4X Enclosure
00	Open Style Unit
7	Operational Voltage
AB	Table*
8	Accessories
MSTD	
MEXE	
MANO	

**Available for 1600-3000A product ONLY

*Operational Voltage

A	B	Voltage	Phase	Config.	Hz
1	0	120	1	2 wire	60
2	0	120/240	1	3 wire	60
2	2	110/220	1	3 wire	50
3	0	240	3	3 wire	60
3	1	208	3	3 wire	60
3	2	220	3	3 wire	50
3	5	139/240	3	4 wire	60
4	0	120/208	3	4 wire	60
4	1	127/220	3	4 wire	60
4	2	127/220	3	4 wire	50
5	0	480	3	3 wire	60
5	1	440	3	3 wire	60
5	2	440	3	3 wire	50
5	5	460	1	3 wire	50
5	7	480	1	2 wire	60
5	8	254/440	3	4 wire	60
6	0	575	3	3 wire	60
6	1	347/600	3	4 wire	60
6	3	575	1	2 wire	60
7	0	277/480	3	4 wire	60
7	1	277	1	2 wire	60
7	4	266/460	3	4 wire	60
7	5	460	3	3 wire	60
8	2	380	1	2 wire	50
9	0	240/416	3	4 wire	60
9	1	220/380	3	4 wire	60
9	2	220/380	3	4 wire	50
9	3	240/416	3	4 wire	50
9	7	380	3	3 wire	60

Note: Operating voltage must be specified at time of order. Only the most common voltages are shown above.

Zenith ZTG Series Ordering Information

Then choose additional accessories

6A
6AP
A1
A1E
A3
A4
A62
ATGEW-X
CTAP
DS
HT
LCM
M90
M90A
M90B
M91
M91A
M91B
MCM
OCVR-1SG
OCVR-1SS
T3/W3
UMD
VI
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.

UL 1008 Withstand and Closing Ratings

Please refer to ABB Publication TB-1102.

Options

Options

6A	Test Switch, Maintained
6AP	Test Switch, Maintained Programmable
A1	Auxiliary Contact, operates on Source 1 line failure
A1E	Auxiliary Contact, operates on Source 2 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
UMD/A62	Sequential Universal Motor Load Disconnect Circuit. Normally closed Auxiliary contacts for Motor Loads. Open 0-5 minutes prior to transfer, after transfer, or both in either direction then reclose in timed sequence after transfer.
ATGEW-X	Extended annual parts and labor warranty (1-4 years for a total of 5 years max.)
CTAP	Alarm panel on transfer to emergency w/silence button & light
DS	Inhibits transfer in either direction when in inhibit. Allows automatic operation when in Auto (Standard on 800A and above)
HT	Heater and Thermostat
MCM	Modbus RTU Communication Module

M90 Series Power Measurement Meters (Not available in NEMA 4 enclosure)

M90	EPM2200 True RMS Digital Meter with display (Amps, Volts, Power, Energy, Power Factor and Frequency). 3 Line LED Display. 50/60 Hz Universal Operation. 1 or 3 phase. Standard Modbus RTU RS485 communications capability. 40 - 1200 Amps.
M90A	Adds Pre-Wiring for Enervista Viewpoint Monitoring of M90 Accessory & ATS Status using Modbus RS485 Serial Communications
M90B	Adds Pre-Wiring for Enervista Viewpoint Monitoring of M90 Accessory & ATS Status using Ethernet TCP/IP Communications
M91	EPM6000 True RMS Digital Meter with display (Amps, Volts, Power, Energy, Power Factor and Frequency, THD). Certified energy and demand metering. Meets ANSI C12.20 and IEC 687 Accuracy Classes. Front IrDA Port Laptop Connection. Standard Modbus RTU RS485 or DNP 3.0 communications capability.
M91A	Adds Pre-Wiring for Enervista Viewpoint Monitoring of M91 Accessory & ATS Status using Modbus RS485 Serial Communications
M91B	Adds Pre-Wiring for Enervista Viewpoint Monitoring of M91 Accessory & ATS Status using Ethernet TCP/IP Communications
OCVR-1SG	Lockable see-through microprocessor cover for NEMA 3R or 12
OCVR-1SS	Lockable see-through microprocessor and meters cover for NEMA 3R or 12
T3/W3	Elevator Pre-Signal Auxiliary Contacts: Open 0-60 seconds prior to transfer to either direction, re-closes after transfer.
UMD/A62	Universal Motor Load Disconnect Circuit: Auxiliary Contact opens 0-5 minutes 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)

Note: For additional options or other configurations, contact the ABB factory.

Reference Charts

Testing Standards

UL and CSA listed	UL 1008, CSA 22.2 No. 178
Ringing wave immunity	IEEE 472 (ANSI C37.90A)
Conducted and radiated emissions	EN55022 Class B (CISPR 22) (Exceeds EN55011 & MILSTD 461 Class 3)
ESD immunity test	EN61000-4-2 Class B (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, 0.5 to 4 kV
Conducted immunity test	EN61000-4-6 (ENV50141)
Voltage dips and interruption immunity	EN61000-4-11

ZTG AL/CU UL Listed Solderless Screw-Type Terminals for External Power Connections*

Switch Size (Amps)	Normal, Emergency and Load Terminals			
	Cables per Phase & Neutral	Range of Wire Sizes		
40	1	#8 to 3/0	8-85 mm ²	
80		#6 to 250 MCM	13-127 mm ²	
100			#6 to 350 MCM	13-177 mm ²
150				#4 to 600 MCM
200, 225			2	#2 to 600 MCM
260		4		#2 to 600 MCM
400	8		#2 to 600 MCM	33-304 mm ²
600			#2 to 600 MCM	33-304 mm ²
800, 1000, 1200				
1600, 2000, 2600, 3000				

* For ZTGD Series data, contact the ABB factory

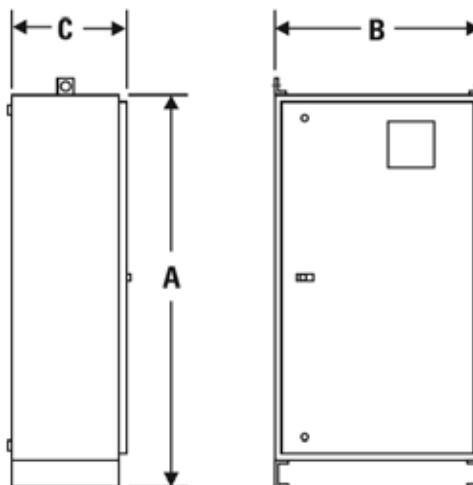
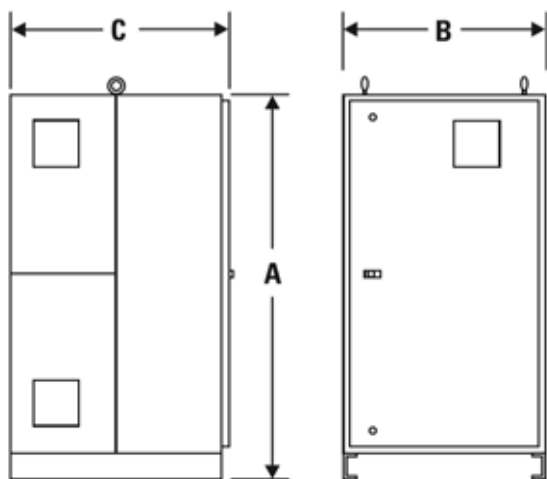
Standard MX150 Control Setting Ranges

	Control Function	Range	Factory Setting
MSTDG	Source 1 Line Sensing – Under-voltage Dropout/Pickup	75-98%	80%
		85-100%	90%
	Source 2 Line Sensing – Under-voltage Dropout/Pickup	75-98%	80%
		85-100%	90%
	Source 2 Line Sensing – Under-frequency Dropout/Pickup	88-98%	90%
		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 Source 2 (Acc. W)	0-5 minutes	1 second
	Time Delay – Retransfer to Source 1 (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	
Event Exerciser (CDT)	5-60 min. - 1, 7, 14 or 28 days load or no load	20 min. - 7 days no load	
MEXEG	Programmable Event Exerciser (CDP)	365 day cycle, load or no load	0 min. - 7 days no load
	Voltage Imbalance (VI)	5-20% nominal; 10-30 sec.	10% Fail, 8% Restore; 30 sec.
Options	Elevator Pre-Signal (T3/W3)	0-60 seconds	20 seconds
	Sequential Motor Load Disconnect (A62)	0-5 minutes	20 seconds
	Motor Load Disconnect (UMD)	0-60 seconds	5 seconds

Dimensional and Weight Specifications

ZTG and ZTGD Model, Dimensions and Weight

Model	Ampere Rating	Poles	NEMA 1			Ref. Figure	Weight		Application Notes	
			Height (A)	Width (B)	Depth (C)		Open Type	NEMA 1		
ZTG	40, 80 100, 150 200	2, 3 4	24 (61) 46 (117) 66 (168) 74 (188) 90 (229)	18 (46) 24 (61) 24 (61) 40 (102) 35.5 (90)	11 (28) 14 (36) 19.5 (50) 19.5 (50) 48 (122)	A	14 (6)	69 (31)	1-6	
	225	2, 3 4					20 (9)	75 (34)		
		2, 3 4					59 (27)	69 (31)		
	260	2, 3 4					70 (32)	75 (34)		
		2, 3 4					59 (27)	114 (52)		
	400	2, 3 4					70 (32)	125 (57)		
		2, 3 4				59 (27)	168 (76)			
	600	2, 3 4				71 (32)	180 (82)			
		2, 3 4				81 (37)	224 (102)			
		800				2, 3 4	81 (37)	214 (97)		
						2, 3 4	190 (86)	460 (209)		
		1000, 1200				2, 3 4	210 (95)	490 (222)		
						2, 3 4	190 (86)	475 (216)		
	1600, 2000	3 4				210 (95)	560 (254)			
3 4		740 (336)	1375 (624)							
2600, 3000		3 4	830 (376)	1480 (671)						
		3 4	740 (336)	1375 (624)						
ZTGD		40, 80 100, 150 200, 225	2, 3 4	46 (117) 66 (168) 74 (188) 90 (229)	24 (61) 24 (61) 40 (102) 35.5 (90)	14 (36) 19.5 (50) 19.5 (50) 48 (122)	A	18 (8)	127 (58)	1-6
		260, 400	2, 3 4					24 (11)	133 (60)	
	2, 3 4		65 (29)					176 (80)		
	600	2, 3 4	76 (34)					188 (85)		
		2, 3 4	77 (35)					221 (100)		
	800, 1000, 1200	2, 3 4	87 (39)					230 (104)		
		2, 3 4	210 (95)				475 (215)			
	1600, 2000	3 4	230 (104)				560 (254)			
		3 4	740 (336)				1375 (624)			
		2600, 3000	3 4				830 (376)	1480 (671)		
			3 4				740 (336)	1375 (624)		
	830 (376)	4	1480 (671)				1-5, 7-8			

Reference Figures
**Figure A****Figure B****Figure C**

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, 4X, 12, etc.) dimensions and layouts may differ. Consult the ABB factory for details.
6. A ZTG(D) 40-225A, when ordered with the following options, will require a larger enclosure: A62(T), Digital Meter, HT, OCVR-1SG, OCVR-1SS. Contact the ABB factory for dimensions.
7. Add 3" in height for removable lifting eyes.
8. If cabinet has louvers, then one set of louvers must be clear for airflow with standard cable connections.



Contact us

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