

ZBTED

Low-Voltage Bypass/Isolation Delayed Transition Automatic and Manual Transfer Switches

- Ideal for inductive (motors/transformers, UPS) mission critical loads
- Adjustable ATS time delay in center "off" position
- Bypass/Isolation for ease of ATS maintenance/testing without load loss of power
- Ratings 100 to 4000 amperes



Ratings & Construction

- Ratings** – Voltage, Ampere and Pole configuration per Order Code
- Certifications** – UL 1008, CSA C22.2
- Certifications** – Third-party Seismic Certification to IBC 2006, 3.2g @ Ip = 1.5 (operation during event)
- Electrical Operator** – Momentarily energized, high-speed solenoid mechanism
- Mechanism** – Mechanically-held with mechanical interlock to inhibit connection of both sources to the load
- Contacts** – GE design and manufactured, silver tungsten alloy with separate arcing contacts on 600A and above ratings for high withstand and close-on capability
- Neutral Pole (4 pole only)** – Identical construction to phase poles with fully rated main and arcing contacts. Operation via same mechanism as phase poles to prevent sustained connection of source neutrals in separately derived systems, as last-break/first-make transfer.

Controller

- Construction** – Dual-processor based, with dedicated processor for high-speed Serial or Ethernet communications
- Source Sensing** – Direct 120-690V sensing and software configuration of rated voltage and frequency without the need for potential transformers, step-down transformers or DIP switches
- Control Wiring** – All customer connections at one location. All signals in/out relay-isolated via DIN-mounted relay/terminal blocks. All control wiring via factory-installed wiring harnesses.

Enclosure

- Type** – per Order Code

Display, Sensing & Time Delays

- Display** – ¼ VGA color graphical with embedded 'HELP' menus
- Annunciation** – High intensity LED for Source Availability (2), Source Connected (2), Transfer Inhibit (not in Auto)
- Source Fail/Restore** – Independently adjustable pickup & dropout of 3-phase U/O voltage, U/O Freq, Volts Balance plus Phase Rotation
- Time Delays** – Gen start, Source 2 stabilize, S1 → S2 transfer center-off delay, Source 2 fail override, Retransfer to Source 1, S2 → S1 transfer center-off delay, Gen cool down, Independent settings for Fast Test, Time Delay for Generator Voltage Sag
- Remote Access** – All parameters locally (front USB port) or remotely (serial or Ethernet) Adjustable

Control Group Options (see order code)

- Group A:** All standard features, Field re-programmable I/O (4 inputs, 4 outputs), Control Switches (Test with Load, Test no load, Fast Test, Alarm Reset, Auto/Man Re-transfer Source 1, Auto/Man Transfer both sources, Preferred Source select, Commit/No Commit Transfer to Gen, Time Delay Bypass)
- Group B:** All features from "A" plus: 10 User-configurable Analog & 10 Digital Alarms, 20-channel data logger, 10-channel waveform capture, Auto Load Shed (with voltage, frequency, and kW triggers)
- Group C:** All features from "B" plus: 4 additional field programmable inputs (total 8 inputs, 8 outputs)
- Group D:** All features from "C" plus: 4 additional field programmable inputs (total 12 inputs, 12 outputs) & GE Flexlogic™ user-configurable control logic
- Group M:** Manual ATS configuration

Additional Standard Features

- Engine Exerciser** – Configurable Periodic Exerciser (7 Event Daily, Weekly, 14 or 28 day) or Clock Exerciser Type (21 Event, 365 day Programmable)
- System Status Screen** – Active state of switch, display of all time delays and alarm conditions
- Event Recorder** – 256 Event, 1ms accuracy, clock sync via Network Time Protocol (NTP)
- Outage & Test Report Screen** – Date/time stamping of: outage or test event, start signal sent, Gen start time, connection to Gen, Max Gen Volts & Freq dip, return of utility, re-transfer to normal
- External Power Supply** – Standard 120VAC input for controller power and communication and 24 VDC input for remote control and annunciation when both sources de-energized
- Flexible Feature Assignment** – Field reassignable I/O for any/all control features
- Programmable Center-Off Position** – For transition of motor and regenerative loads

Optional Features (see order code)

- Serial Communications** – High speed, up to 115k Baud Modbus RTU
- Ethernet Communications** – Fast Ethernet, (10/100 Mbit), Modbus TCP/IP
- Power Quality Metering** – True RMS metering, including THD% (up to 8th order)
- Load Shed** – Ability to transfer to de-energized normal source or center position in event of generator overload
- Integral Surge Protective Device (SPD)** – Load-connected medium or high exposure type
- Integral Battery Charger** – 3 or 10A, 12 or 24VDC type
- Lugs** – Compression lugs in lieu of standard mechanical lugs on 100A-1200A switches
- Lugs** – Mechanical or Compression lugs in lieu of standard rear-bus connection on 1600-4000A switches



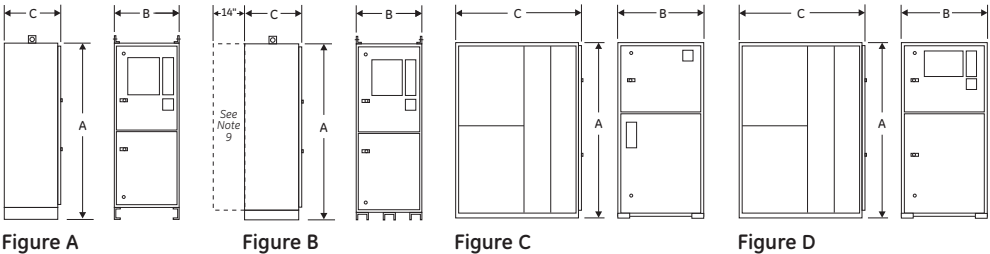
Order Code – Abbreviated Product Configuration

(see full Product Brochure, Publication DEA-405, for full configuration)

Z		D													X
Product Type Z2* = Bypass/Isolation Vertical Construction Z3** = Bypass/Isolation Horizontal Construction * 1600-3000 Amperage Excluded ** Applicable to 1600-3000 Amperage	Operation D = Delayed Transition	Amperage C = 100 D = 150 F = 225 G = 260 I = 400 J = 600 K = 800 L = 1000 M = 1200 N = 1600 O = 2000 P = 2600 Q = 3000 R = 4000	# of Poles 2 = 2 Pole 3 = 3 Pole 4 = 4 Pole	Application S = Util-Gen U = Util-Util G = Gen-Gen	NEMA Enclosure X = None (Open) H = NEMA 1 w/Adapter Bay I = NEMA 3R w/Adapter Bay J = NEMA 3R/Heater & Thermostat/Adapter Bay K = NEMA 4 w/Adapter Bay L = NEMA 12 w/Adapter Bay M = NEMA 4X w/Adapter Bay	Voltage Code 70 = 277/480V, 3PH, 4W, 60Hz 20 = 120/240V, 1PH, 3W, 60Hz 40 = 120/208V, 3PH, 4W, 60Hz 92 = 220/380V, 3PH, 4W, 50Hz 50 = 480V, 3PH, 3W, 60Hz 38 = 120/208/240V, 3PH, 4W, High-Leg Delta, 60Hz 30 = 240V, 3PH, 3W, 60Hz 31 = 208V, 3PH, 3W, 60Hz 61L = 347/600V, 3PH, 4W, 60Hz (see full product brochure for other options)	Metering & Accessories X = None A = Load Shed D = PQ Metering (see full product brochure for other options)	Ground Bus X = None 1 = Ground bus-Mech Lugs (Qty. 3) #14-1/0-GB1 2 = Ground bus-Mech Lugs (Qty. 6) #8-1/0-GB2 (see full product brochure for other options)	SPD (Load-Side Connected) 100A - 1200A Rating X = None A = 65kA B = 80kA C = 100kA 1600A - 4000A Rating X = None D = 100kA E = 150kA F = 200kA G = 300kA (see full product brochure for other options)	Battery Charger X = None 1 = Battery Charger-12 Volt-3 Amp 2 = Battery Charger-12 Volt-10 Amp (see full product brochure for other options)	Control Group Options A = Group "A" B = Group "B" C = Group "C" D = Group "D" M = Group "M"	Lug Options X = Std lugs or Rear bus (per chart below) (see full product brochure for lug option details)	Communications X = None S = CCM S-Modbus RTU (Serial) communication module E = CCM E Modbus TCP/IP (Ethernet) communication module plus Modbus RTU (Serial) communication module	Controller Language 1 = English	

ZBTED Model, Dimensions and Weights								
Ampere Rating	Poles	NEMA 1 Enclosed				Weight		Application Notes
		Height (A)	Width (B)	Depth (C)	Reference Figure	Open Type	NEMA 1	
100, 150 225, 260 400	2, 3 4	83 (2109)	30 (762)	28.5 (724)	A	310 (141) 380 (173)	1280 (580) 1385 (628)	1 - 7, 9
600	3 4	90 (2286) 90 (2286)	36 (914) 40 (1016)	28.3 (737) 28.3 (737)	B	660 (299) 770 (349)	1435 (651) 1540 (699)	
800, 1000 1200	3 4	90 (2286) 90 (2286)	40 (1016) 46 (1168)	28.3 (737) 28.3 (737)		C	765 (347) 910 (413)	1485 (674) 1590 (721)
1600, 2000 2600	3 4	80 (2023) 80 (2023)	40.6 (1031) 46.1 (1171)	64.6 (1640) 64.6 (1640)	D		1978 (897) 2275 (1032)	4044 (1835) 4431 (2010)
3000	3 4	80 (2023) 80 (2023)	40.6 (1031) 46.1 (1171)	64.6 (1640) 64.6 (1640)		D	2572 (1166) 3049 (1383)	4456 (2021) 4977 (2258)
4000	3 4	90 (2286) 90 (2286)	47.5 (1206) 54 (1372)	80.8 (2051) 80.8 (2051)			4310 (1955) 5510 (2499)	4730 (2145) 5930 (2690)

- APPLICATION NOTES:**
- Metric dimensions (cm) and weights (Kg) shown in parenthesis adjacent to English measurements in inches and pounds.
 - Includes 1.25" door projection beyond base depth. Allow a minimum of 3" additional depth for projection of handle, light, switches, pushbuttons, etc.
 - All dimensions and weights are subject to change without notice.
 - NEMA 3R, 4, 4X and 12 enclosure dimensions may differ than NEMA 1 shown above. Consult the factory for details.
 - Special lug arrangements may require different enclosure dimensions. See full product brochure (DEA-405) for details.
 - Packing materials must be added to weights shown. Allow 15% additional weight for cartons, skids, crates, etc.
 - Add 4" in height for removable lifting lugs.
 - Lug adapters for 3000-4000A limits may be staggered length for ease of entrance. Consult the factory for details.
 - 100-1200A standard configuration is top cable entry. 14" adapter bay is required for bottom cable entry. Consult the factory for details.
 - 1600-4000A switches have ventilation louvers on both sides and rear of enclosure. Louvers must be clear for airflow with standard cable connections.



ZBTED Model - Delayed Transition Transfer/Bypass-Isolation Switches

The ZBTED Delayed Transition Transfer Switch with a timed center-off position is available in a bypass configuration. The ZBTED Model Bypass incorporates the features of both the ZBTE Bypass-Isolation Switch and the ZTED unit for transfer of large motor loads, transformers, UPS systems or load shedding to a neutral "Off" position. Reference the ZTED unit features and operation discussion for more details.

UL 1008 Withstand and Closing Ratings

Please refer to GE Publication TB-1102

AL-CU UL Listed Mechanical Lugs			
Switch Size Amps	Normal, Emergency & Load Terminals		
	Cables/Pole	Wire Ranges	
ZBTED			
100, 150, 225	1	3/0 to 250 MCM	
260	1	#4 to 600 MCM	
400	1	#4 to 600 MCM	
600	2	#2 to 600 MCM	
800, 1000, 1200	4	#2 to 600 MCM	
1600, 2000, 2600, 3000, 4000	*	*	

- Notes:**
- Line and load terminals are located in rear and arranged for bus bar connection. Terminal lugs are available as an accessory. See full product brochure (DEA-405) for option details.
 - Fully rated neutral provided on 3 phase, 4 wire system



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