GE Zenith Controls

Product Bulletin

ZTS Series
Automatic Transfer Switches

Specification Assistance

GE Zenith offers a complete range of product guide specifications to help you determine your needs.

For more information, please consult your local GE Zenith representative, our factory or our website at ***www.geindustrial.com***.

Since its introduction, the GE Zenith ZTS Series of transfer switches has become a hallmark of quality and performance. Reliability resulting from superior design and heavy duty construction has made the ZTS the industry standard for critical installations. Our emphasis on research and development, design improvements, materials, manufacturing methods, quality assurance, and service yields products that have been proven in hundreds of thousands of applications.

Subsequent to the first ZTS units installed, our engineering staff has been dedicated to the improvement and expansion of our line. Today, GE Zenith offers the widest selection of transfer switch products worldwide.

- ZTS Automatic Transfer Switches
  40-4000 Amps
- ZTSD Delayed Transition Transfer Switches
  40-4000 Amps
- ZTSCT Closed Transition Transfer Switches
  100-4000 Amps
- ZBTS Automatic Transfer/Bypass Switches
  100-4000 Amps
- ZBTSD Delayed Transition Bypass Switches
  100-4000 Amps
- ZBTSCT Closed Transition Bypass Switches
  100-4000 Amps

All ZTS products meet or exceed industry requirements allowing specification and installation confidence.

- UL 1008 listed through 480 VAC
- CSA C22.2 No. 178 listed through 600 VAC
- IEC 947-6-1 listed through 480 VAC

- Codes and Standards
  - ✓ NFPA 70, 99, 101, 110
  - ✓ IEEE 446, 241
  - ✓ NEC 517, 700, 701, 702
  - ✓ NEMA ICS2-447
- Controls tested in accordance with:
  - ✓ IEEE 472 (ANSI C37.90A)
  - ✓ EN55022 Class B (CISPR 11)
    (Exceeds EN55011 & MILSTD 461 Class 3)
  - ✓ EN61000-4-2 (Level 4)
  - ✓ EN61000-4-3 (ENV50140) 10 v/m
  - ✓ EN61000-4-4
  - ✓ EN61000-4-5, IEEE C62.41 (1.2 X 50ms, 5 & 8 kV)
  - ✓ EN61000-4-6 (ENV50141)
  - ✓ EN61000-4-11
- Enclosures meet the requirements of:
  - ✓ UL 508, 50
  - ✓ ANSI C33.76
  - ✓ ICS 6
  - ✓ NEMA 250
- Quality System:
  - ✓ ISO 9001 Registered

Electrical Ratings

- Ratings 40 to 4000 amperes
- 2, 3 or 4 Poles
- Open type, NEMA 1, 3R, 4, 4X and 12
- Available to 600 VAC, 50 or 60 Hz
- Suitable for emergency and standby applications on all classes of load, 100% tungsten rated through 400 amps
- UL 1008 listed at 480 VAC
- CSA C22.2 No. 178 certified at 600 VAC
- IEC 947-6-1 listed at 480 VAC

Performance Features

- Contact transfer speed less than 100 milliseconds
- High close-in and withstand capability
- Temperature rise test per UL 1008 conducted after overload and endurance tests - exceeds UL requirements
- Available in ZTS (utility-generator), ZTSU (utility-utility), ZTSG (generator-generator) and ZTSM (manual) configurations

Design and Construction Features

- Double throw, interlocked operation
- Electrically operated, mechanically held by a simple, over-center mechanism
- Segmented silver tungsten alloy contacts with separate arcing contacts on 225 amp and above
- Arc quenching grids, enclosed arc chambers, and wide contact air gap for superior source-to-source isolation on all units
- Control circuit disconnect plug and drive inhibit switch for safe maintenance
- Components accessible for inspection and maintenance without removal of the switch or power conductors
- Mechanical indicator and contact chamber cover designed for inspection, safety and position designation

The **ZTS Series** is the building block of our transfer switch product line. This ruggedly built power contactor family of switches has been specifically designed for transfer switch duty with dependability, versatility and user friendliness of prime concern.

ZTS switches are available in open type construction for switchboard installation or NEMA enclosed to the customer's specifications. The power panel components, consisting of power switching contacts, drive mechanism and terminal lugs, are mounted on a specially formed panel. Logic devices including microprocessor control auxiliary time delays and special accessory equipment are assembled on the door for ease of maintenance and separation from the power section. They are connected with a numbered wiring harness equipped with a disconnect plug that allows isolation of the control panel for maintenance.

ZTS Series Method of Operation

When the normal source voltage fails or drops to a predetermined point (usually 80% of nominal), if required, a circuit is closed to start the engine generator set. When the emergency source reaches 90% of rated voltage and 95% of rated frequency, the drive solenoid is energized through the emergency coil control relay, causing the main contacts to disconnect the load from the normal source and connect it to the emergency source. After the drive solenoid has completed its electrical stroke and is seated, the emergency coil control relay opens to disconnect it. The transfer switch is now mechanically locked in the emergency position.

When normal voltage is restored to a predetermined point (usually 90% of nominal), the control voltage sensing energizes. The normal side coil relay closes, and after the drive solenoid has completed its electrical stroke and is seated, the coil control relay opens to disconnect it. The transfer switch is now mechanically locked in the normal position.

Drive Mechanism

All GE Zenith ZTS switches employ the simple "over-center" principle to achieve a mechanically locked position in either normal or emergency and GE Zenith's high speed drive assures contact transfer in 100 ms or less. High contact pressure and positive mechanical lock allow for high withstand and closing ratings, far exceeding UL requirements. All ZTS units are listed with UL umbrella breaker, severe breaker and current limiting fuse ratings.

Neutral Switching

The GE Zenith ZTS Series is available in true four pole designs for multi-source power systems that require neutral switching. The neutral contact is on the same shaft as the associated main contacts. This ensures positive operation, and avoids any possibility that the neutral contact will fail to open or close, as is possible when the neutral pole is an add-on accessory. The neutral contacts are identical to the main contacts, having the same current carrying and high withstand/closing ratings as the mains. They are designed to *break last and make first* to reduce the possibility of transients while switching the neutral.

Safe Manual Operation

The ZTS manual operator consists of a large, easy-to-use handle that fits securely for manual operation during installation and maintenance or in an emergency.

The ZTS may be provided with an operator inhibit switch to disconnect the electrical drive prior to maintenance. Fully enclosed wrap-around arc covers shield the main contacts and mechanical components, preventing operator exposure during manual operation.

Transferring Large Motor or Highly Inductive Loads

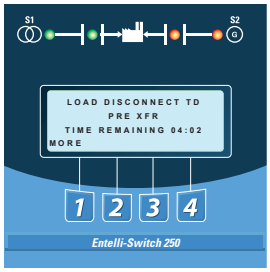
Some loads, especially large motors, receive severe mechanical stress if power is trans-ferred out of phase while the motor is still rotating. Also, back EMF generated by a motor may result in excess currents that can blow fuses or trip circuit breakers. GE Zenith offers four solutions to these problems:

1. Universal Motor Disconnect (UMD): This load control disconnects a large motor via its control circuit for an adjustable period of time prior to transfer in either direction. For switching multiple motors, GE Zenith Accessory A62 disconnects the motors prior to transfer and brings them back on line sequentially.

2. Accessory R50: This is an in-phase monitor that compares the phase angle between both sources of power and prevents transfer until the two are approxi-mately in phase (within a self adjusting range). GE Zenith's high speed transfer action coupled with the MX series microprocessor control logic ensure closures at or near zero degree phase difference.

3. Series ZTSD: GE Zenith offers delayed transition switching on transfer switches rated 40 amperes and above – the GE Zenith ZTSD Series. This programmed center-off position allows for the full decay of rotating motors or transformer fields. It can also be used for load shedding of selected circuits or other appli-cations which require a means to disconnect the load from either source. Major UPS system manu-facturers recommend delayed transition switches for proper restart sequencing of their systems.

4. Series ZTSCT: GE Zenith's series of closed transition switches combine ZTSD operation during a source failure with a highly engineered control system that allows momentary paralleling (100 ms) of two acceptable sources, thereby limiting the impact of transfer on the load.



LEDs are used in a recognizable line configuration for continuous monitoring of switch position. A new LCD display shows source availability, exercise time delay operation and system source condition. A new simplified adjustment is featured for voltage, frequency and time delay settings.

The control operates off a close differential 3 phase under-voltage sensing of source 1, factory standard setting 90% pickup, 80% dropout; under-frequency sensing of source 1 factory setting 95% pickup; voltage and frequency sensing of source 2, factory standard setting 90% pickup voltage, 95% pickup frequency. All factory settings are operator adjustable (see table below).

A test is standard (fast test/load/no load) to simulate source 1 failure - automatically bypassed should source 2 fail.

More Enhanced Features

- Available in ALL transfer modes:
  - ~ Open, Delayed & Bypass
  - ~ Closed (with newly integrated transition control)
- User-friendly programmable engine exerciser, used for the engine generator with or without load, at ANY interval in a one-year period
- Operating voltages available in a single controller for most domestic and international applications
- Real-time display of ATS status, including active timer(s)
- Multiple levels of user-defined password protection
- Serial communications allowing connectivity with other ATS's, paralleling switchgear, and SCADA systems
- Time-tested synchronous logic automatically measures phase angle and frequency allowing disturbance-free transfer
- Unsurpassed statistical ATS/System monitoring available in real-time
- T3/W3 elevator pre-signal. Automatically bypassed if the selected source fails, minimizing time an elevator is without power
- Universal Motor Disconnect (UMD) sends a pre-signal, post-signal or both to any motor control center. Not bypassed in an outage, the UMD ensures safety in the event of a single phase loss
- Voltage unbalance detection standard
- Extensive 2/5/10 Warranty

Performance Features

- UL, CSA and IEC listed
- Ringing wave immunity per IEEE 472 (ANSI C37.90A)
- Condusted 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 for 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

Technical Benefits

- Separate line voltage components for controller isolation
- Inputs optoisolated for high electrical immunity to transients and noise
- Built-in electrical operator protection
- Simplified maintenance – major components are easily replaceable
- Close differential under-voltage sensing of the normal source
- Voltage and frequency sensing of the emergency source (all settings are adjustable)

ZTS Series
Accessory Group Matrix

Accessories	Group Packages					
	MSTDS	MEXES	MCONS	MSENS	MSPES	MPSGS
6P	●	●	●	●	●	●
A1	○	●	●	●	●	●
A1E	○	●	●	●	●	●
A3	●	❷	❷	❷	❷	❸
A4	●	❷	❷	❷	❷	❸
Calibrate	●	●	●	●	●	●
CDT	●					
CDP		●	●	●	●	●
**DS	●	●	●	●	●	●
*DT	●	●	●	●	●	●
*DW	●	●	●	●	●	●
E	●	●	●	●	●	●
EL/P	●	●	●	●	●	●
K/P	●	●	●	●	●	●
L1	●	●	●	●	●	●
L2	●	●	●	●	●	●
L3	●	●	●	●	●	●
L4	●	●	●	●	●	●
*LN	●	●	●	●	●	●
P1	●	●	●	●	●	●
Q2	○	●	●	●	●	●
Q3	○	○	●	○	●	●
Q7	○	○	●	●	●	●
R1-1	○	○	○	●	●	●
R1-3	○	○	○	●	●	●
R15	○	○	○	○	○	●
*R15D	○	○	○	○	○	●
R16	○	●	●	●	●	●
R50	●	●	●	●	●	●
S5P	◪	◪	◪		●	
S12P	◪	◪	◪	●		●
S13P	●	●	●	●	●	●
T	●	●	●	●	●	●
T3/W3	②	②	❷	②	❷	❷
U	●	●	●	●	●	●
UMD	②	②	❷	②	❷	❷
VI	●	●	●	●	●	●
W	●	●	●	●	●	●
YEN	●	●	●	●	●	●

● Standard Accessory included in the group package.
○ Optional Accessory not included but can be added to group package.
◪ Optional Accessory. Can not be used with accessory having the same symbol.
— N/A
②❷ Denotes an Accessory with 2 circuits as a standard.
❸ Denotes an Accessory with 3 circuits as a standard.

* Delayed Transition Units Only.
** Optional for 40-400 Amp

6P
Microprocessor activated test switch (Momentary)

6A
Hardwired test switch (Maintained)

6AP
Microprocessor activated test switch (Maintained)

6B
Hardwired test switch (Maintained Auto - Momentary Test) Key operated

6C
Hardwired test switch (Maintained Auto - Maintained Test) Key operated

A1
Auxiliary Contact S.P.D.T. - Normal (Source 1) Failure

A1E
Auxiliary Contact S.P.D.T. - Emergency (Source 2) Failure

A3
Auxiliary Contact - closed in emergency (source 2) Additional available (10 max.) on ZTS and need to be specified

A4
Auxiliary Contact - closed in normal (source 1) Additional available (10 max.) on ZTS and need to be specified

A62
Motor disconnect and staged restart (1 contact)

AB3
Auxiliary Contact - closed in bypass emergency (source 2) (S.P.D.T.) (Standard up to 400A) Additional available (10 max.) on ZTS and need to be specified

AB4
Auxiliary Contact - closed in bypass normal (source 1) (S.P.D.T.) (Standard up to 400A) Additional available (10 max.) on ZTS and need to be specified

B9
Battery charger (ships separate from ATS)- semi-float 5 amp (need to specify input/output voltage and type LA, N, FL)

Calibrate
Microprocessor activated calibration feature

CDP
Programmable exerciser daily, 7/14/28/365 days user-selectable, with or without load.

CDT
Exerciser no load timer. Increased functionality no longer requires a jumper.

CTAP
Chicago transfer alarm panel mounted in door of enclosure. Includes 3 aux. contacts and fuse.

DS
Disconnect Switch. Disconnects source voltage to transfer power panel

DT *(Delayed Transition Only)*
Time Delay from Neutral Switch position to Source 1 on retransfer

DW *(Delayed Transition Only)*
Time Delay from Neutral Switch position to Source 2 on retransfer

E
Engine Start Relay

EL/P
Event log of last 16 events

F
Fan contact, closed when engine runs.

HT(1)(2)
Heater and Thermostat 208/240V (1) 380/600V (2) mounted and interwired in enclosure. (requires larger enclosure for 40-200A)

K
Frequency Meter - Door mounted

K/P
Frequency Indication on the controller

L
LNP Center-off position LCD-Indicator
Indicating LED lights:
- **L1** Indicates Switch in Source 2 position.
- **L2** Indicates Switch in Source 1 position.
- **L3** Indicates Source 1 available.
- **L4** Indicates Source 2 available.

M1
Single Phase Amp Meter

M2
Three Phase Amp Meter

M80
Digital Meter Measures and displays true RMS volts, amps and frequency in a three-phase power system.

M82
Digital Meter Includes M80 functions plus Watts, KVA, KVAR, PF, etc. w/Modbus RS485 port

M83
Digital Meter Includes M82 functions plus THD capability and Modbus RS485 port

M84
Digital Meter Includes M83 functions plus unbalance 128 samples/cycle data logging, waveform capture and sag/swell capture.

M85
Digital Meter Includes M84 functions plus unbalance 256 samples/cycle data logging, waveform capture and sag/swell capture.

M86
Digital Meter Includes M85 functions plus large graphical screen display with Ethernet communications port.

N1
Running Time Indicator - Door mounted

N2
Operation Counter - Door Mounted

P1
Engine Start Timer (adjustable to 6 sec.)

P2
Engine Start Timer (adjustable to 300 sec.)

Q2
Peak shave/remote load test/area protection - Relay (S.P.D.T.) (Need to specify voltage - 120 VAC, 24 VAC, 24 VDC - 120V default standard)

Q3
Inhibit transfer to emergency (Source 2) (load add relay) - Relay (S.P.D.T.) (Need to specify voltage - 120 VAC, 24 VAC, 24 VDC - 120V default standard)

Q7
Inhibit transfer to normal (Source 1) - Relay (S.P.D.T.) (Need to specify voltage - 120 VAC, 24 VAC, 24 VDC - 120V default standard)

R1-1/R1-3
Over Voltage sensing for normal (Source 1) single (R1-1) or three (R1-3) phase

R15/R15D
Load Shed. Should Source 2 become overloaded, a signal can be given to switch to the dead or Mid position.

R16
Phase rotation sensing of Normal (Source 1) and Emergency (Source 2)

R26/R26D
Interruptable Power Rate Provisions.
Allow transfer out of Source 1 position to Mid position or dead Source 2. Alarm and Pre-Signal circuit included. (Need to specify voltage - 120 VAC, 24 VAC, 24 VDC - 120V default standard)

R50
In Phase monitor between Normal (Source 1) and Emergency (Source 2) to allow transfer

S5P
Microprocessor activated auto/manual retransfer selector switch for trnsferring to Normal (Source 1) (includes microprocessor activated YN accessory)

S12P
Microprocessor activated auto/manual retransfer selector switch for trnsferring to Normal (Source 1) (includes microprocessor activated YN & YE accessory)

S13P
Microprocessor activated commit/no commit on transferring to Emergency (Source 2) (with enable/disable)

S14
Keyed selector switch for (retransfer to normal-test-auto)

SW1
Auto/Off/Start Engine control selector - Door mounted (keyed or non-keyed operation available)

SW2
Auto/Off Engine control selector - Door mounted (keyed or non-keyed operation available)

SW3
Source Priority Selector Switch - Door mounted Allows selection of Source 1 or Source 2 to be the Prime Source. Transfer Switch will transfer to selected Prime Source if that Source is available. (keyed or non-keyed operation available)

T
Retransfer to normal adjustable time delay

T3/W3
Pre-signal contact on transfer to Normal (Source 1) or Emergency (Source 2) during test.

U
Engine stop /cool adjustable cool down timer

UMD
Pre and ppost transfer output adjustable time range. Functions in both directions. Includes 2 circuits. Additional circuits available.

VI
Voltage imbalance between phases (3 Phase only)

W
Adjustabvle time delay on transfer to Emergency (Source 2)

YEN
Bypass transfer timers function (soft switch in control)

ZNET
Microprocessor Communication Module

ZTS Series
Withstand Ratings

GE Zenith ZTS Series Automatic Transfer Switches have been subjected to an extensive test program to show that they comply with and exceed UL 1008 standards, as well as the various performance specifications used by most government agencies and major electrical engineering firms throughout the world. The primary test to ensure the quality and dependability of an automatic transfer switch is its ability to close into and withstand high fault currents. The table shows the Underwriters Laboratories and Canadian Standards certified withstand and closing current ratings in symmetrical RMS amperes at 480 and 600 volts AC.

GE Zenith ZTS Switches Rated for Total Systems or Motor Loads (1)		Withstand and Closing Current Ratings per UL 1008 and CSA							
GE Zenith Model No.	UL 1008 ZTS Switch Rating	Current Limiting Fuse			Specific Coordinated Breaker Rating (3)			Any Molded Case Breaker Rating	
		Maximum Fuse Size Amps	Maximum Circuit Amps at 480 VAC (UL)	Maximum Circuit Amps at 600 VAC (CSA)	Maximum Circuit Breaker Size Amps	Maximum Circuit Amps at 480 VAC (UL)	Maximum Circuit Amps at 600 VAC (CSA)	Maximum Circuit Amps at 480 VAC (UL)	Maximum Circuit Amps at 600 VAC (CSA)
ZTS4 (2)	40	50	200,000	200,000	400	30,000	22,000	10,000	10,000
ZTS8 (2)	80	100	200,000	200,000	400	30,000	22,000	10,000	10,000
ZTS10 (2)	100	125	200,000	200,000	400	30,000	22,000	10,000	10,000
ZTS15 (2)	150	200	200,000	200,000	400	30,000	22,000	10,000	10,000
ZTS22 (2)	225	300	200,000	200,000	800	50,000	42,000	35,000	35,000
ZTS26 (2)	260	350	200,000	200,000	800	50,000	42,000	35,000	35,000
ZTS40 (2)	400	600	200,000	200,000	800	50,000	42,000	35,000	35,000
ZTS60	600	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZTS80	800	1000	200,000	150,000	1600	65,000	50,000	50,000	42,000
ZTS100	1000	1250	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZTS120	1200	1500	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZTS160	1600	2000	200,000	150,000	2500	100,000	85,000	100,000	85,000
ZTS200	2000	2500	200,000	150,000	2500	100,000	85,000	100,000	85,000
ZTS300	3000	4000	200,000	150,000	4000	100,000	85,000	100,000	85,000
ZTS400	4000	6000	200,000	150,000	5000	100,000	85,000	100,000	85,000
ZBTS10 (2)	100	125	200,000	200,000	800	50,000	42,000	35,000	35,000
ZBTS15 (2)	150	200	200,000	200,000	800	50,000	42,000	35,000	35,000
ZBTS22 (2)	225	300	200,000	200,000	800	50,000	42,000	35,000	35,000
ZBTS26 (2)	260	350	200,000	200,000	800	50,000	42,000	35,000	35,000
ZBTS40 (2)	400	600	200,000	200,000	800	50,000	42,000	35,000	35,000
ZBTS60	600	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZBTS80	800	1000	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZBTS100	1000	1250	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZBTS120	1200	1500	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZBTS160	1600	2000	200,000	150,000	2500	100,000	85,000	100,000	85,000
ZBTS200	2000	2500	200,000	150,000	2500	100,000	85,000	100,000	85,000
ZBTS300	3000	4000	200,000	150,000	4000	100,000	85,000	100,000	85,000
ZBTS400	4000	6000	200,000	150,000	5000	100,000	85,000	100,000	85,000
ZTSD4 (2)	40	50	200,000	200,000	800	50,000	42,000	35,000	35,000
ZTSD8 (2)	80	100	200,000	200,000	800	50,000	42,000	35,000	35,000
ZTSD10 (2)	100	125	200,000	200,000	800	50,000	42,000	35,000	35,000
ZTSD15 (2)	150	200	200,000	200,000	800	50,000	42,000	35,000	35,000
ZTSD22 (2)	225	300	200,000	200,000	800	50,000	42,000	35,000	35,000
ZTSD26 (2)	260	350	200,000	200,000	800	50,000	42,000	35,000	35,000
ZTSD40 (2)	400	600	200,000	200,000	800	50,000	42,000	35,000	35,000
ZTSD60 (2)	600	750	200,000	200,000	800	65,000	50,000	50,000	42,000
ZTSD80 (2)	800	1000	200,000	N/A	1200	65,000	N/A	50,000	N/A
ZTSD100 (2)	1000	1250	200,000	200,000	1600	85,000	65,000	50,000	42,000
ZTSD120 (2)	1200	1500	200,000	200,000	1600	85,000	65,000	50,000	42,000

1. For each rating attained in above table, the heat run was performed after the overload and endurance tests.
2. These models also listed for 100% tungsten lamp loads.
3. Consult factory for coordinated breaker types and ratings.
4. All transfer switches are rated in coordination with the protective device installed. Lower rated devices than those shown may be utilized and the system rated accordingly.
5. Consult the factory for IEC ratings.

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		Maximum Fuse Size Amps	Maximum Circuit Amps at 480 VAC (UL)	Maximum Circuit Amps at 600 VAC (CSA)	Maximum Circuit Breaker Size Amps	Maximum Circuit Amps at 480 VAC (UL)	Maximum Circuit Amps at 600 VAC (CSA)	Maximum Circuit Amps at 480 VAC (UL)	Maximum Circuit Amps at 600 VAC (CSA)
ZTSD160 (2)	1600	2000	200,000	200,000	2500	100,000	85,000	100,000	85,000
ZTSD200 (2)	2000	2500	200,000	200,000	2500	100,000	85,000	100,000	85,000
ZTSD300 (2)	3000	4000	200,000	200,000	4000	100,000	85,000	100,000	85,000
ZTSD400 (2)	4000	6000	200,000	200,000	5000	100,000	85,000	100,000	85,000
ZTSCT10 (2)	100	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZTSCT15 (2)	150	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZTSCT22 (2)	220	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZTSCT26 (2)	260	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZTSCT40 (2)	400	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZTSCT60	600	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZTSCT80	800	1000	200,000	N/A	1200	65,000	N/A	50,000	N/A
ZTSCT100	1000	1250	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZTSCT120	1200	1500	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZTSCT160	1600	2000	200,000	150,000	2500	100,000	85,000	100,000	85,000
ZTSCT200	2000	2500	200,000	150,000	2500	100,000	85,000	100,000	85,000
ZTSCT300	3000	4000	200,000	150,000	4000	100,000	85,000	100,000	85,000
ZTSCT400	4000	6000	200,000	150,000	5000	100,000	85,000	100,000	85,000
ZBTSD10 (2)	100	125	200,000	200,000	800	50,000	42,000	35,000	35,000
ZBTSD15 (2)	150	200	200,000	200,000	800	50,000	42,000	35,000	35,000
ZBTSD22 (2)	225	300	200,000	200,000	800	50,000	42,000	35,000	35,000
ZBTSD26 (2)	260	350	200,000	200,000	800	50,000	42,000	35,000	35,000
ZBTSD40 (2)	400	600	200,000	200,000	800	50,000	42,000	35,000	35,000
ZBTSD60	600	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZBTSD80	800	1000	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZBTSD100	1000	1250	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZBTSD120	1200	1500	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZBTSD160	1600	2000	200,000	150,000	2500	100,000	85,000	100,000	85,000
ZBTSD200	2000	2500	200,000	150,000	2500	100,000	85,000	100,000	85,000
ZBTSD300	3000	4000	200,000	150,000	4000	100,000	85,000	100,000	85,000
ZBTSD400	4000	6000	200,000	150,000	5000	100,000	85,000	100,000	85,000
ZBTSCT10 (2)	100	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZBTSCT15 (2)	150	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZBTSCT22 (2)	225	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZBTSCT26 (2)	260	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZBTSCT40 (2)	400	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZBTSCT60	600	750	200,000	150,000	800	65,000	50,000	50,000	42,000
ZBTSCT80	800	1000	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZBTSCT100	1000	1250	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZBTSCT120	1200	1500	200,000	150,000	1600	85,000	65,000	50,000	42,000
ZBTSCT160	1600	2000	200,000	150,000	2500	100,000	85,000	100,000	85,000
ZBTSCT200	2000	2500	200,000	150,000	2500	100,000	85,000	100,000	85,000
ZBTSCT300	3000	4000	200,000	150,000	4000	100,000	85,000	100,000	85,000
ZBTSCT400	4000	6000	200,000	150,000	5000	100,000	85,000	100,000	85,000

ZTS Model Transfer Switches								
Ampere Rating	Poles	NEMA 1 Enclosed				Weight		Application Notes
		Height (A)	Width (B)	Depth (C)	Reference Figure	Open Type	NEMA 1	
40, 80 100, 150, 200	2, 3 4	24 (61) 24 (61)	18 (46) 18 (46)	11.13 (28) 11.13 (28)	A A	21 (10) 24 (11)	57 (26) 60 (27)	1 – 7
225 260, 400	2, 3 4	46 (117) 46 (117)	24 (61) 24 (61)	14.13 (36) 14.13 (36)	A A	70 (32) 75 (34)	165 (75) 170 (68)	1 – 7
600	2, 3 4	66 (168) 74 (188)	24 (61) 30 (76)	19.75 (50) 19.75 (50)	B B	165 (75) 185 (84)	380 (172) 430 (195)	1 – 8
800, 1000, 1200	2, 3 4	74 (188) 74 (188)	30 (76) 40 (102)	19.75 (50) 19.75 (50)	B B	190 (86) 210 (95)	455 (206) 540 (245)	1 – 8
1600 2000	3 4	90 (229) 90 (229)	30 (76) 36 (91)	48 (122) 48 (122)	C C	345 (156) 450 (204)	1010 (458) 1160 (526)	1 – 8
3000	3 4	90 (229) 90 (229)	30 (76) 36 (91)	48 (122) 48 (122)	C C	465 (211) 670 (304)	1130 (513) 1395 (633)	1 – 10
4000	3 4	90 (229) 90 (229)	40 (102) 46.5 (118)	60 (152) 60 (152)	C C	770 (349) 1025 (465)	1595 (723) 1850 (839)	1 – 10

Application Notes:

1. Metric dimensions (cm) and weights (Kg) shown in parenthesis adjacent to English measurements in inches and pounds.
2. Includes 1.25" door projection beyond base depth. Allow a minimum of 3" additional depth for projection of handle, light, switches, pushbuttons, etc.
3. All dimensions and weights are approximate and subject to change without notice.
4. Special enclosures (NEMA 3R, 4, 12, etc.) dimensions and layout may differ. Consult the GE Zenith factory for details.
5. Normal and emergency may be ordered inverted on any switch. The load may be inverted 600-1200 amps. Consult the factory for details.
6. Special lug arrangements may require different enclosure dimensions. For certified drawings, contact the GE Zenith factory.
7. Packing materials must be added to weights shown. Allow 15% additional weight for cartons, skids, crates, etc.
8. Add 4" in height for removable lifting lugs.
9. Lug adapters for 3000-4000 amp limits may be staggered length for ease of entrance. Consult the GE Zenith factory for details.
10. Ventilation louvers on both sides of enclosure at 3000 and 4000 amps. One must be clear for airflow with standard cable connections.

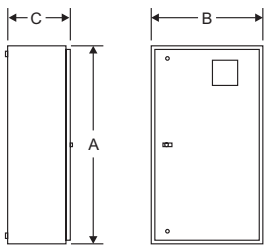

Figure A

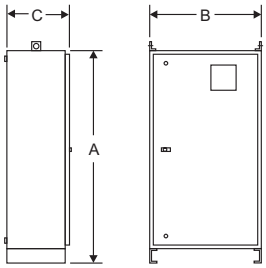

Figure B

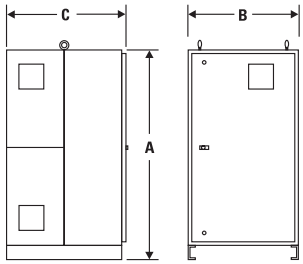

Figure C

AL-CU UL Listed Solderless Screw-Type Terminals for External Power Connections					
Switch Size Amps	Normal, Emergency, & Load Terminals		Switch Size Amps	Normal Emergency, & Load Terminals	
	Cables/ Pole	Wire Ranges		Cables/ Pole	Wire Ranges
40-150	1	#8 to 3/0 AWG	800/1000 /1200	4	#2 AWG to 600 MCM
225	1	#4 AWG to 600 MCM	1600	*	
260	1	#4 AWG to 600 MCM	2000		
400	1	#4 AWG to 600 MCM	3000		
600	2	#2 AWG to 600MCM	4000		

Notes:

* Line and load terminals are located in rear and arranged for bus bar connection. Termial lugs are available at additional cost. Contact factory for more details.

1. Special terminal lugs and neutral bars are available at additional cost. Contact factory and advise cable sizes and number of conductors per pole.
2. Fully rated solid neutral (3x standard normal power connection) provided when required by system voltage.
3. Normal and emergency may be ordered inverted on any switch. Load may be inverted 600-1200 amps. Consult the factory for details.
4. Lug adapters for 3000-4000 amp units may be staggered length for ease of entrance. Consult the factory for details.
5. Special lug arrangements may require different enclosure dimensions. For certified drawings, contact the GE Zenith factory.

Z						—											
Model/Type							**Control Panel**		**Config.**	**Ampere Size**			**Switched Poles**		**Enclosure Type**			**Operational Voltage**		**Accessories**				

Model/Type	Control Panel	Config.	Ampere Size	Switched Poles	Enclosure Type	Operational Voltage	Accessories
ZTS000 Standard (Open Transition)	B0 Entelli-Switch 250 Microprocessor Control Unit	0 Utility - Generator	004 40 amps	B 2 Poles	N01 Type 1 Enclosed	AB Consult Table Below	MSTDS
ZTSD00 Delayed Transition		U Utility - Utility	008 80 amps	E 3 Poles	N12 Type 12 Enclosure		MEXES
ZTSCT0 Closed Transition		M Manual	010 100 amps	F 4 Poles	N3R Type 3R Enclosure		MCONS
ZBTS00 Standard (Open Transition) w/ Bypass			015 150 amps		N04 Type 4 Enclosure		MSENS
ZBTSD0 Delayed Transition w/ Bypass			020 200 amps		N4X Type 4X Enclosure		MSPES
ZBTSCT Closed Transition w/ Bypass			022 225 amps		X00 Open Style Unit		MPSGS
			026 260 amps				Then choose additional accessories
			030 300 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				
			400 4000 amps				

Switch Types

- **Standard:** Unless otherwise noted, the standard switch with quick transfer will be supplied.
- **Delayed Transition:** When ordered as the ZTSD, 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.
- **Closed Transition:** When ordered as the ZTSCT, the closed transition switch offers two basic modes of operation. During a failure of one source or an out of specification condition, the ZTSCT Model operates as a standard delayed transition switch (ZTSD Model). This sequence allows clear separation of an unreliable source from an available one.
- **Bypass:** When ordered as the ZBTS, the bypass transition switch offers a draw-out mechanism, with electrical and mechanical interlocks for secure removal after load bypass. In this way the transfer switch and/or the control panel may be tested, isolated and removed for maintenance without load interruption.

Example

ZTSCT0B0040F-N0140STD

This number string shows the correct format for a ZTS Model Automatic Transfer Switch with closed transition, an Entelli-Switch 250 microprocessor control unit, Utility - Generator, 400 amps, 4 pole, NEMA Type 1 enclosure, 120/208V 3Ø, 4 wire, 60 Hz system with the standard group of accessories.

A	B	Voltage	Phase	Config.	Hz
1	0	120	1	2 wire	60
2	0	120/240	1	3 wire	60
2	1	120/208	3	3 wire	60
3	0	240	3	3 wire	60
3	1	208	3	3 wire	60
3	2	220	3	3 wire	50
3	3	120/240	3	4 wire	50
3	4	110/220	3	4 wire	60
3	5	139/240	3	4 wire	60
3	8	120/240	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
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	0	120/240	2	4/5 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.

GE Zenith Controls

A Product of GE Industrial Systems
General Electric Company
830 West 40th Street, Chicago, IL 60609 USA
773 299-6600, Fax: 630 850-6899
www.geindustrial.com