



GE Zenith Controls

Product Bulletin

ZT3000 Series Multi-Source Switching Systems



The power needs of a facility may require more than a single standby genset, however, source type and availability, technical issues and budget needs may not allow for paralleling multiple engine generators or other more typical solutions.

It is with these requirements in mind that GE Zenith offers the ZT3000 series of multi-source switching systems. Based on GE Zenith's proven ZTS series of automatic transfer switches, the ZT3000 series integrates multiple power switching sections with custom controls to meet and exceed the customers' requirements for reliable source transfer.

The ZT3000 series is available in several basic configurations and may be outfitted with a myriad of switch types and accessories available with the ZTS series of products. The 3000 series is available in a common enclosure (NEMA 1 and special enclosure types are available) with units intercabled, however, the customer may select interbus (600-4000 amps) as well as separate enclosures (power interconnections not supplied). In addition, several versions of the product line may be specified to include service entrance ratings.

The ZT3000 series is designed with flexibility in mind. Systems may be configured to include:

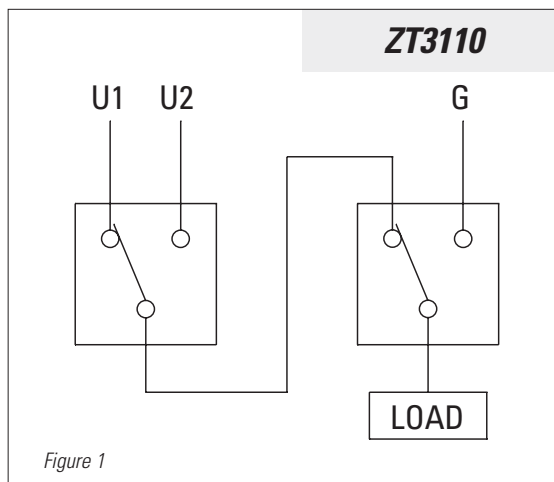
- Load Priority Selection
- "First Up" Generator Sensing
- Prime Source Selection
- Service Entrance Protection
- Load Interlock/Demand Sensing

GE Zenith ZT3100 Series: Three-Source Transfer Systems

The ZT3100 is designed to switch a single load between three available sources of power. These sources may be multiple utilities, generator sets or combinations of the two.

ZT3110

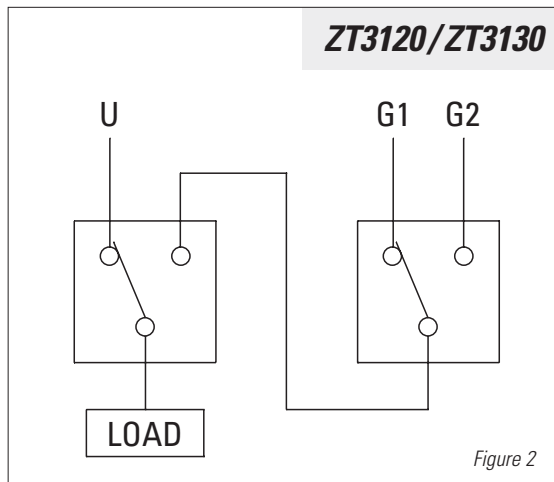
When the primary source fails, the master transfer switch connects the load to the secondary utility. Should this source also fail, the engine generator will start and the source selector transfer switch will connect the load to the genset when it reaches proper operating parameters. (Figure 1)



This unit is utility preferred, that is if either utility source becomes available, the logic of the system will transfer the load to the available utility and then shut down the genset until the next utility failure.

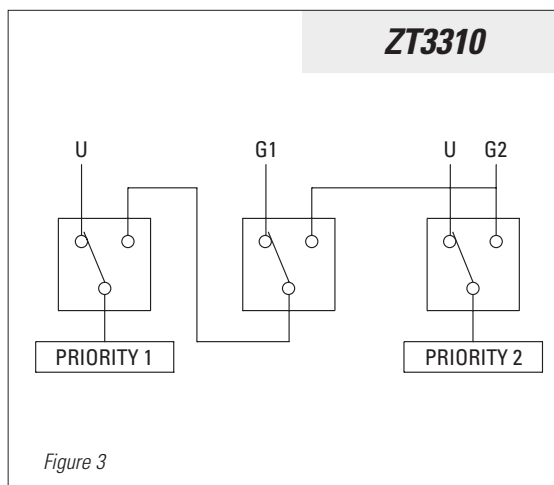
ZT3120 and ZT3130

In place of a second utility, the owner may install a second generator set to act as standby. He then may employ two different logic schemes depending on his facility requirements. (Figure 2)



The ZT3120 starts BOTH engine gensets when a utility failure occurs and the load is connected to the first available genset. The second set will run on a standby timer for a period of 5 minutes to verify that the first set will continue to run and then shut down. If the connected genset fails, the second set will restart and assume the load until utility restoration.

The ZT3130 operates in a similar mode, however, the user is supplied with a prime genset selector switch which causes only one of the sets to start on utility failure and act as the primary standby unit. Either unit may be so selected. If the primary unit does not assume the load within a preset period (usually 10 seconds), the secondary unit will be started and the load transferred to it. The primary unit remains the first standby



set and if it successfully starts and maintains operating parameters, the load will be transferred to it and the secondary unit will be shut down until the next failure.

ZT3310

Unlike the 3100 series which transfers one load between multiple sources, the ZT3300 series is designed to allow routing of an available source to a critical load while disconnecting a less essential load from its source until the critical load is reconnected to its prime feeder.

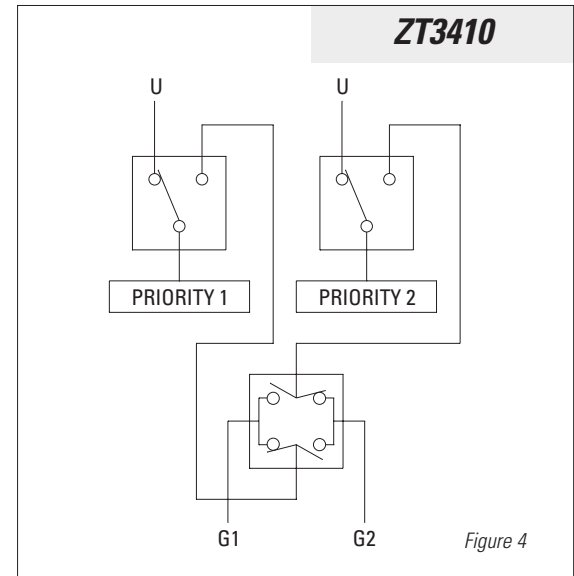
To accomplish this requirement, GE Zenith offers a full range of options in switching mechanisms and sequence of operation.

The ZT3310 incorporates three ZTS series power sections combined into a common switching system. Each load is provided with its own ZTS transfer switch for standard operation. The third switch is interlocked with the rest of the system to shunt power to the Priority 1 (critical) load should there be a failure of both the critical load utility and dedicated generator. In operation, each load is serviced by its respective genset. Upon failure of the utility each set is started as required to service its load. If however after a time delay (normally 10 seconds) the critical load is not being fed by its utility or genset, the Priority 2 load is shed to a neutral position and the power selector switch transfers the secondary generator to feed the critical load. (Figure 3, Page 2)

If either source available to the critical load is restored to operating parameters, the power selector switch will retransfer the available genset to the Priority 2 load allowing its transfer switch to return to the emergency position.

ZT3410

The ultimate in power source selection, the ZT3410 employs a 6-pole power selector switch and operates on a “1st up” principle to feed the critical load. ZTS transfer switches are employed on both loads and the emergency side of each ATS is fed by the power



selector switch. When a utility failure occurs, both gensets are started and the first available unit feeds the critical load through automatic operation of the power selection switch. The second generator, if required, operates to feed the secondary load. If the alternate genset is not required, it will run on a 5 minute verification timer and shut down. (Figure 4)

During emergency operation of the entire system, if the genset feeding the critical load should fail, the power selector switch will reverse and automatically feed the other standby genset to the primary load. Should this need arise, the secondary transfer switch is load shed to a neutral position to await power availability.

Ordering Information

ZT3 Series	Designation	Ampere Sizes	Poles
3110	3 source transfer system	40-4000	2, 3, 4
3120	3 source transfer system	40-4000	2, 3, 4
3130	3 source transfer system	40-4000	2, 3, 4
3310	Load priority system	40-4000	2, 3, 4
3410	Load priority system	40-4000	2, 3, 4

Notes:

- 1 - Available in ZTS, ZTSD, ZBTS and ZBTSD
- 2 - Available with SE (service entrance) option (600-4000 amps)
- 3 - Available in cable or bus connection (bus available 600-4000 amp ATS and all bypass sizes)

- 4 - 1600-4000 amp bypass systems are shipped in separate enclosure sections
- 5 - 1600-4000 amp systems are available **only** as interbus (no cable) from the factory if interconnection is requested

Accessories Included

Each base transfer switch includes the accessory package detailed below.

Module 25

A1	Auxiliary Contact Energized on Normal (SPDT)	P1	Time Delay – Engine Start (Adjustable)
A1E	Auxiliary Contact Energized on Emergency (SPDT)	Q2	Peak Shave/Remote Load Test: Input for peak shave or remote load test; includes automatic return to normal if emergency source fails and normal is present; 120 VAC or 24 VDC
A3	Auxiliary Contact – Closed in Emergency Position	Q3	Inhibit Transfer: Input circuit to inhibit transfer to emergency; 120 VAC or 24 VDC
A4	Auxiliary Contact – Closed in Normal Position	R1	Over Voltage – Normal Source
A6	Timed Load Disconnect Prior to Transfer (Adjustable)	R8	Over Voltage – Emergency Source
C/D	Load/No-load exerciser clock (specify 7, 14 or 365 day)	R16	Phase Sequence Sensing
E	Engine Start Contact	R17	Under-voltage Sensing: Emergency (3 phase)
J2E	Over/Under Frequency – Normal Source	R50	In-phase monitor (if delayed transition units are not specified)
J2N	Over/Under Frequency – Emergency Source	T	Time Delay – Retransfer to Normal (Adjustable)
L1	Pilot Light – Transfer Switch in Normal Position	U	Time Delay – Engine Cooldown (Adjustable)
L2	Pilot Light – Transfer Switch in Emergency Position	W	Time Delay – Transfer to Emergency (Adjustable)
L3	Pilot Light – Emergency Power Available	YEN	Time Delay Bypass Switch (T & W Timers)
L4	Pilot Light – Normal Power Available		

Each system, as applicable to its sequence of operation, will be provided with the necessary control logic and selector switches to accomplish the following (as applicable):

- Load shed to neutral position (secondary load transfer switches)
- Prime standby source selection
- Interlocks

Specify When Ordering

1	Series number of product	8	Interbus or intercable (common enclosures only)
2	Ampere size	9	Verified sequence of operation desired
3	Number of poles	10	Accessories beyond module chosen
4	System voltage (i.e. 277/480)	11	Provide gen-set battery voltage with dual engine systems for source selection interlocks
5	Additional accessories as required		
6	Switch configurations (standard, delayed transition, bypass, etc.)		
7	Common or separate enclosures		



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