



ZTGSE /ZTGDSE Automatic Transfer Switch

While providing the functionality of an automatic transfer switch the ZTGSE integrates the utility circuit breaker, optional transient voltage surge suppression and power monitor into one simple coordinated package.

- Suitable for use as Service Entrance equipment.
- Ratings 40 to 3000 amps (2, 3 or 4 poles).
- UL 1008 listed at 480 VAC.
- Double throw, mechanically interlocked contactor mechanism.
- Electrically operated, mechanically held.
- Designed for emergency and standby applications.
- Optional Load center for multiple loadside connections available up to 240 volts.
- Additional options include battery charger, GFP, shunt trip selector, power monitor and TVSS.
- Available with delayed transition feature.

ZTGSE 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

- UL891, UL1008, CSA 22.2
- 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

- Includes Normal (Source 1) molded or insulated case style circuit breaker 2 or 3 pole.
- Includes mechanical lug connections for cables.
- 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.
- NEMA Type 1 enclosure is standard with optional NEMA 3R, 4, 4X, 12 available.
- Ground fault protection is available on all sizes.
- Disconnect link on Neutral and Ground.

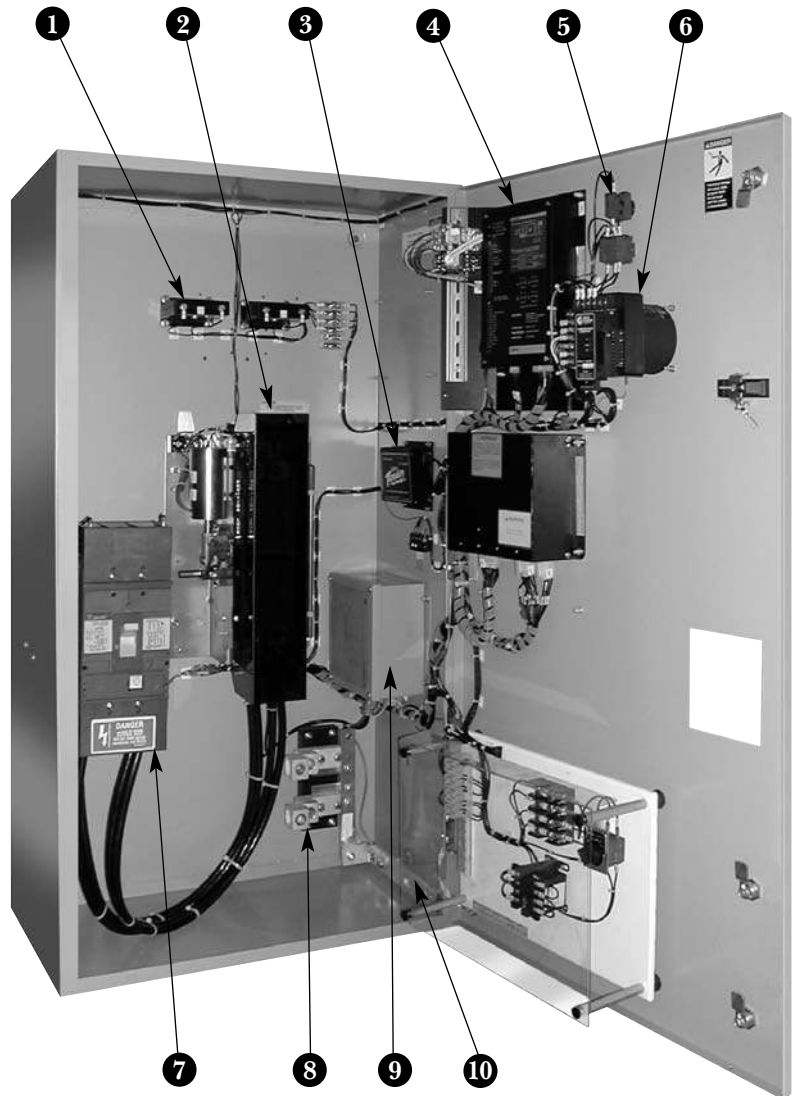
Left: GE ZTGSE Series Transfer Switch rated 480 VAC, 400 Amps with optional shunt trip selector and digital multifunction meter.

Key Accessories



Closed View

1. EPM 5300 Power Sensing Meter
2. Shunt Trip Circuit
3. MX150 Microprocessor Controller
4. Service Disconnect Breaker



Open View

1. Current Transformers
2. Power Panel (2-pole shown)
3. Generator Battery Charger
4. MX150 Microprocessor Controller
5. Shunt Trip Circuit
6. GE EPM 5300 Power Sensing Meter
7. GE PowerBreak™ Service Disconnect Breaker
8. Neutral Lugs
9. GE Tranquell Transient Voltage Surge Suppressor
10. Ground Bus

MX150 Control Panel



(Front View)

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

K/P Voltage and Frequency Indication for S1 and S2

L Indicating LED Pilot Lights:
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

R50 In-Phase Monitor, self-adjusting

T Time Delay on Retransfer to Normal: To delay retransfer to S1 (immediate retransfer on generator set failure).

J1E Adjustable under frequency sensor for S2

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

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 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.)

A3 Additional Auxiliary Contact: Closed when the switch is in the S2 position

A4 Additional Auxiliary Contact: Closed when the switch is in the S1 position

CDP Clock Exerciser Load/No Load (Replaces CDT)

VI Voltage Imbalance Monitor (Three Phase)

ZTGSE Transfer Switch 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.

A62 Sequential Universal Motor Load Disconnect Circuit. Normally closed Auxiliary contacts for Motor Loads. Open 0-60 seconds prior to transfer, after transfer, or both in either direction then reclose in timed sequence after transfer.

ATGEW Extended annual parts and labor warranty (1-4 years for a total of 5 years max.)

BB Auxiliary Contact, circuit breaker position two form C

BC12 Generator battery charger, 12VDC 3 Amp.

BC24 Generator battery charger, 24 VDC 3 Amp.

CTAP Alarm panel on transfer to emergency w/silence button & light

GFP Ground fault protection, includes electronic trip, long time, short time and instantaneous trip.

HT3 Heater and Thermostat for ZTGSE

M80 SERIES POWER MEASUREMENT METERS

(Not available in NEMA 4 enclosure)

M80 Digital Meter w/Display of Amps, Volts, Frequency

M82A Digital Meter w/Display of Amps, Watts, Volts, Frequency, KVA, KVAR, PF, etc. with Modbus RS485 port.

M83A Digital Meter w/Display of Amps, Watts, Volts, Frequency, KVA, KVAR, PF, etc. Plus THD capability w/Modbus RS485 port

OCVR-1SG Lockable see-through microprocessor cover for NEMA3R or 12

OCVR-1SS Lockable see-through microprocessor and meters cover for NEMA3R or 12

STS Shunt trip selector switch, Source 1 service entrance. Includes position indicating lamps and generator start inhibit circuit. Standard on NEMA 3R enclosures.

T3/W3 Elevator Pre-Signal Auxiliary Contacts: Open 0-60 seconds prior to transfer to either direction, re-closes after transfer.

TVSSN Transient Voltage Surge Suppressor, installed on normal side 100kA per mode.

TVSSL Transient Voltage Surge Suppressor, installed on load side 100kA per mode.

TVSSE Transient Voltage Surge Suppressor, installed on emergency side 100kA per mode.

UMD 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)

LCM Lonworks communications interface card

MCM Modbus RTU communications interface card

ECM Ethernet Converter Module

NOTE:

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

Testing Standards	
UL, CSA	UL 1008, UL891, CSA 22.2
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 50µs, 5 & 8 kV
Conducted immunity test	EN61000-4-6 (ENV50141)
Voltage dips and interruption immunity	EN61000-4-11

AL/CU UL Listed Solderless Screw-Type Terminals for External Power Connections							
	Switch Size (Amps)	Normal Terminals (MCCB)		Emergency & Load Terminals (ATS)			
		Cables per Pole	Range of Wire Sizes	Cables per Pole	Range of Wire Sizes		
ZTGSE	40, 80	1	#12 - 3/0	3 - 85 mm ²	1	#8 - 3/0	8 - 85 mm ²
	100, 150	1	#8 - 350 MCM	8 - 177 mm ²	1	#8 - 3/0	8 - 85 mm ²
	200	1	#8 - 350 MCM	8 - 177 mm ²	1	#6 - 250 MCM	13 - 127 mm ²
	225	1 or 2	(2) 2/0 - 500 MCM or (1) #6 - 600 MCM	(2) 67 - 253 mm ² or (1) 13 - 304 mm ²	1	#6 - 250 MCM	13 - 127 mm ²
	260				1	#6 - 350 MCM	13 - 177 mm ²
	400	1 or 2	3/0 - 500 MCM	85 - 253 mm ²	2	#2 - 600 MCM	33 - 304 mm ²
	600				1 or 2	(1) #4 - 600 MCM or (2) 1/0 - 250 MCM	(1) 21 - 304 mm ² or (2) 53 - 127 mm ²
800	4	250 - 500 MCM	127 - 253 mm ²	4	#2 - 600 MCM	33 - 304 mm ²	
ZTGDE	40, 80	1	#12 - 3/0	3 - 85 mm ²	1	#8 - 3/0	8 - 85 mm ²
	100, 150, 200	1	#8 - 350 MCM	8-177 mm ²	1 or 2	(1) #4 - 600 MCM or (2) 1/0 - 250 MCM	(1) 21 - 304 mm ² or (2) 53 - 127 mm ²
	225, 260, 400	1 or 2	(2) 2/0 - 500 MCM or (1) #6 - 600 MCM	(2) 67 - 253 mm ² or (1) 13 - 304 mm ²			
	600	3	3/0 - 500 MCM	85 - 253 mm ²	2	#2 - 600 MCM	33 - 304 mm ²
	800	4	250 - 500 MCM	127 - 253 mm ²	4	#2 - 600 MCM	33 - 304 mm ²

Standard MX150 Control Setting Ranges				
	Control Function	Range	Factory Setting	
MSTDG	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	88-98%	90%
		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	
Event Exerciser	(CDT)	5-60min.-1,7,14 or 28 days load or no load	20 min. - 7 days no load	
MESEG	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	(T3W3)	0-60 seconds	20 seconds
	Sequential Motor Load Disconnect	(A62)	0-10 hours	5 seconds
	Motor Load Disconnect	(UMD)	0-5 minutes	15 seconds

Dimensional Specifications

Dimensions											
Model	Amp Rtg	Poles	NEMA 1 Enclosure				NEMA 3R Enclosure				App. Notes
			H	W	D	Fig.	H	W	D	Fig.	
ZTGSE/ ZTGDSE	40-80	2, 3, 4	51(130)	28(71)	16(41)	A	51(130)	29(74)	20(51)	A	1 - 5
	100-200	2, 3, 4	51(130)	28(71)	16(41)	A	51(130)	29(74)	20(51)	A	1 - 5
	225	2, 3, 4	51(130)	28(71)	16(41)	A	51(130)	29(74)	20(51)	A	1 - 5
	260	2, 3, 4	51(130)	28(71)	16(41)	A	51(130)	29(74)	20(51)	A	1 - 5
	400	2, 3, 4	51(130)	28(71)	16(41)	A	51(130)	29(74)	20(51)	A	1 - 5
	600	2, 3, 4	73(185)	34(86)	20(51)	B	73(185)	34(86)	24(61)	B	1 - 6
	800	2, 3 4	73(185) 73(185)	34(86) 40(102)	20(51) 20(51)	B B	73(185) 73(185)	34(86) 40(102)	24(61) 24(61)	B B	1 - 6

Weights				
Model	Amp Rtg	Poles	NEMA 1 Wt.	NEMA 3R Wt.
ZTGSE	40-80	2	157(71)	212(96)
		3	159(72)	214(97)
		4	163(74)	218(99)
	100-200	2	162(74)	217(99)
		3	164(75)	219(99)
		4	168(76)	223(101)
	225	2	169(77)	224(102)
		3	171(78)	226(103)
		4	175(79)	230(104)
	260	2	178(81)	233(106)
		3	183(83)	238(108)
		4	187(85)	242(110)
400	2	254(115)	309(140)	
	3	265(120)	320(145)	
	4	289(131)	344(156)	
600	2	467(212)	552(250)	
	3	483(219)	568(257)	
	4	512(232)	597(271)	
800	2	567(257)	652(296)	
	3	577(262)	662(300)	
	4	662(300)	767(348)	
ZTGDSE	40-400	2	262(119)	317(144)
		3	273(124)	328(149)
		4	296(134)	351(159)
	600	2	475(215)	560(254)
		3	491(222)	576(261)
		4	520(236)	605(274)
	800	2	570(259)	655(297)
		3	580(263)	665(302)
		4	665(302)	770(349)

Reference Figures

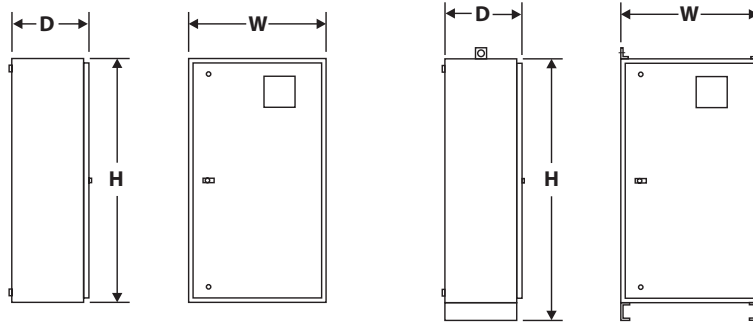


Figure A
ZTGSE Series Transfer Switch
(40-400 Amp)

Figure B
ZTGSE Series Transfer Switch
(600-800 Amp)

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. Add 4 inches in depth for NEMA 3R enclosure.
6. Add 3" in height for lifting eyes.
- 7. Contact factory for dimensional and weight information for 1000 Amps and above.**

Ordering Information

Z T G **S E O** **A O** **0** **0 0 4** **B** **N O 1** **A B** **M S T D G**

Base Model **Type** **Control Panel** **Config.** **Ampere Size** **Switched Poles** **Enclosure Type** **Operational Voltage** **Accessories**

S E O
Standard
(Open Transition
Transfer Switch)

A O
MX150
Microprocessor
Control Unit

0
Utility -
Generator

0 0 4
40 amps

B
2 Poles

N O 1
Type 1 Enclosure

A B
Consult Table Below

M S T D G

D S E
Standard
(Delayed Transition
Transfer Switch)

0 0 8
80 amps

E
3 Poles

N 3 R
Type 3R Enclosure

M E X E G

If Required, choose
additional accessories
on page 4.

0 1 0
100 amps

F
4 Poles

N 1 2
Type 12 Enclosure

0 1 5
150 amps

0 2 0
200 amps

0 2 2
220 amps

0 2 6
260 amps

0 4 0
400 amps

0 6 0
600 amps

0 8 0
800 amps

1 0 0
1000 amps

1 2 0
1200 amps

1 6 0
1600 amps

2 0 0
2000 amps

2 6 0
2600 amps

3 0 0
3000 amps

Example

ZTGSE0A0040E-N0140MSTDG

This number string shows the correct format for a ZTGSE Series Automatic Transfer Switch with an MX150 microprocessor control unit, Utility - Generator application, 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		
ZTGSE Switch Ratings (Amps)	Maximum Circuit Amps When Used With	
	Specific Coordinated Breaker Rating	Any Breaker Rating
40, 80, 100 150, 200, 225	30,000	10,000
260	35,000	10,000
400	50,000	35,000
600	50,000	35,000
800	65,000	50,000
1000, 1200	50,000	NA
1600, 2000	65,000	NA
2600, 3000	100,000	NA

ZTGSE Switch Ratings (Amps)	Maximum Circuit Amps When Used With	
	Specific Coordinated Breaker Rating	Any Breaker Rating
40, 80, 100 150, 200, 225, 260, 300, 400, 600	50,000	50,000
800	65,000	50,000
1000, 1200	50,000	NA
1600, 2000	65,000	NA
2600, 3000	100,000	NA

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: Will need to specify with order the operating voltage. Only the most common ones are shown here

Extensive Customer Service and Support

Supported by a worldwide network of factory-trained Authorized Service Centers, our Technical Service Representatives can provide you with field service, equipment parts and preventive maintenance.



Because emergency power systems are required to operate under the most adverse circumstances, site personnel may be called upon at any time to make decisions regarding the operation of the system, therefore training of these personnel is critical to the future of any installation.

GE Zenith Controls offers a variety of training options including on-site classes for project personnel, factory instruction on your equipment prior to shipment and service schools covering transfer switches and switchgear systems.

Product Overview

When you purchase emergency power equipment, reliability and quality are a necessity. GE Zenith Controls is committed to providing the highest level of quality demanded by the industry. Our complete product line will allow you to specify a total power management system while maintaining overall compatibility and the most comprehensive warranty in the industry.

Committed to the Customer

All team members at GE Zenith are aware of the critical situations in which our products are called upon to perform. With that understanding comes an obligation beyond merely fulfilling an order or turning out a product. Serving that obligation is our mission at GE Zenith Controls.

GE Zenith's team works with you from the first phone call through completed start-up. During the design phase, we can demonstrate our equipment at your site via GE Zenith's product display van. Then, working hand in hand with your consulting engineer, the contractor and the facility owner/operator, we'll ensure that the system fulfills both current and future needs.

"*Commitment to our customer*" has been GE Zenith's driving force for more than 75 years in the power control industry. This same sense of purpose and responsibility will continue as we address future power control challenges.



GE Consumer & Industrial

Zenith Controls Product Team - General Electric Company
1 Oak Hill Center, Chicago, IL 60559 USA
773 299-6600, Fax: 630 850-6899
www.geindustrial.com

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