

**DON'T GET LEFT IN THE DARK . . .
WHEN YOU THROW THE SWITCH YOU
NEED SOMEONE YOU CAN COUNT ON.**



**COUNT ON
GENERAL SWITCHGEAR INC.**

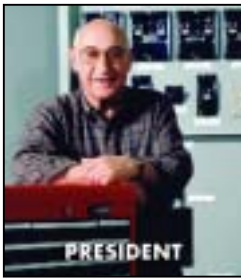
***FOR THE HIGHEST QUALITY
UL LISTED AND ANSI RATED
ELECTRICAL SWITCHGEAR***



General Switchgear Inc. (GSI) is an original equipment manufacturer (OEM) of custom electrical power distribution products. GSI guarantees its customers fast, personalized service, quality components, and custom-designed equipment at competitive prices. Founded in 1983, our manufacturing and engineering capabilities have expanded to fulfill the demand for a wide range of standard and custom-designed electrical power distribution equipment. As an experienced OEM, GSI can provide the following products:

- Dead Front Switchboards** (UL 891)
- Metal-Enclosed Low Voltage Power Circuit Breaker Switchgear** (ANSI C37.20.1) (UL 1558)
- Metal-Clad Switchgear** (ANSI C37.20.2) (UL 1670)
- Metal-Enclosed Interrupter Switchgear** (ANSI C37.20.3) (UL E151647)
- Unit Substations** (ANSI C37.121)
- Retrofit Circuit Breakers** (ANSI C37.59)
- Medium Voltage Controllers** (MVC)
- Power Distribution Centers** (WALK-IN ELECTRICAL ENCLOSURES WITH ENVIRONMENTAL CONTROLS)
- Metal-Enclosed Bus** (BUS DUCT)

- Automatic and Manual Transfer Switches**
- Protective Relays and Instrumentation Panels**
- Generator Control Switchgear**
- Neutral Grounding Resistors**
- Lead Acid and Nickel Cadmium Station Service Batteries**
- Mini-Power Centers**
- After Market Field Service**
- Optional Enclosure Types: NEMA-1, -3R, -4X (stainless steel), -12**
- Walk-in & Non Walk-in Enclosure Configurations**



Personalized Service

General Switchgear Inc.'s primary goal is to exceed our customers' expectations. In order to achieve this mark, GSI utilizes the knowledge, expertise, and resources of our experienced Engineering staff. This customer-oriented approach allows GSI to meet and usually exceed ANSI, NEMA, and UL standards where applicable.

Our customer-related efforts are carried one step further by adhering to a strict industrial quality-assurance program. All GSI equipment is thoroughly inspected and tested prior to final shipment. This is just one of many measures taken by General Switchgear Inc. to surpass the expectancies of our customers.

Quality Components

GSI offers another important value: peace of mind. General Switchgear Inc. uses high-quality components from manufacturers that extensively research, develop, and warranty their products. GSI integrates all components per manufacturer's factory specifications. GSI guarantees its equipment for either one year after the shipment date or one year after the date of energizing (extended warranty available upon request).

General Switchgear Inc.'s extensive component selection can result in cost savings for GSI customers. Leveraging our OEM status, GSI can use components from all major manufacturers (ABB, Cutler-Hammer, General Electric, Siemens and Square-D). This flexibility allows GSI to design and construct electrical switchgear using a varied component mixture. The end result is a product that is both tailored to exacting standards and cost-effective for you, the customer.

Benefits

Along with our commitment to high quality products, General Switchgear Inc.'s customers enjoy:

- ✓ **Custom-Designed Equipment**
Equipment can be constructed per applicable standards. This capability is achieved by leveraging GSI's in-house CAD, CNC, and Painting departments.
- ✓ **Competitive Pricing**
Greater economies of scale have led to improved pricing structures.
- ✓ **Fast Response Times**
Customers interface directly with the engineer assigned to their projects.
- ✓ **Short Delivery Schedules**
Drawing submittal packages and equipment shipment typically meet if not exceed customers requirements. In emergency situations, switchgear can be designed and built in less than 48 hours.



"GSI is fast and accommodating to my special requirements. On short notice, they recently replaced a 225 KVA with a 750 KVA transformer in the same tight space."

**- Mark Bauserman,
Executive Director of Electrical Engineering for Paramount Pictures Studios**

"General Switchgear Inc. saved us money by designing and building Bull Switches using our own existing breakers. They also recently provided SASCO (Electrical Contractor) with twelve Bull switches for two state-of-the-art sound stages (stages 10 & 11) that we are building."

**- Henry Rosales,
Department Head for Hollywood Center Studios**

"Through Tuesday, Howard and I worked together to design the new switchgear layout that would match the existing conduit and meet the current 5kV utility metering requirement for Salt River Project. By the end of the day, I issued a purchase order to deliver the new switchgear on Monday morning, just 6 days away. Thank you for all your support and help in making this a successful replacement. We were very happy with your equipment and especially your service. Thank you for a job well done."

**- Greg Russell,
Project Manager at Sturgeon Electric**

"I have called on GSI recently and in the past, they delivered quality equipment back then and they still do today."

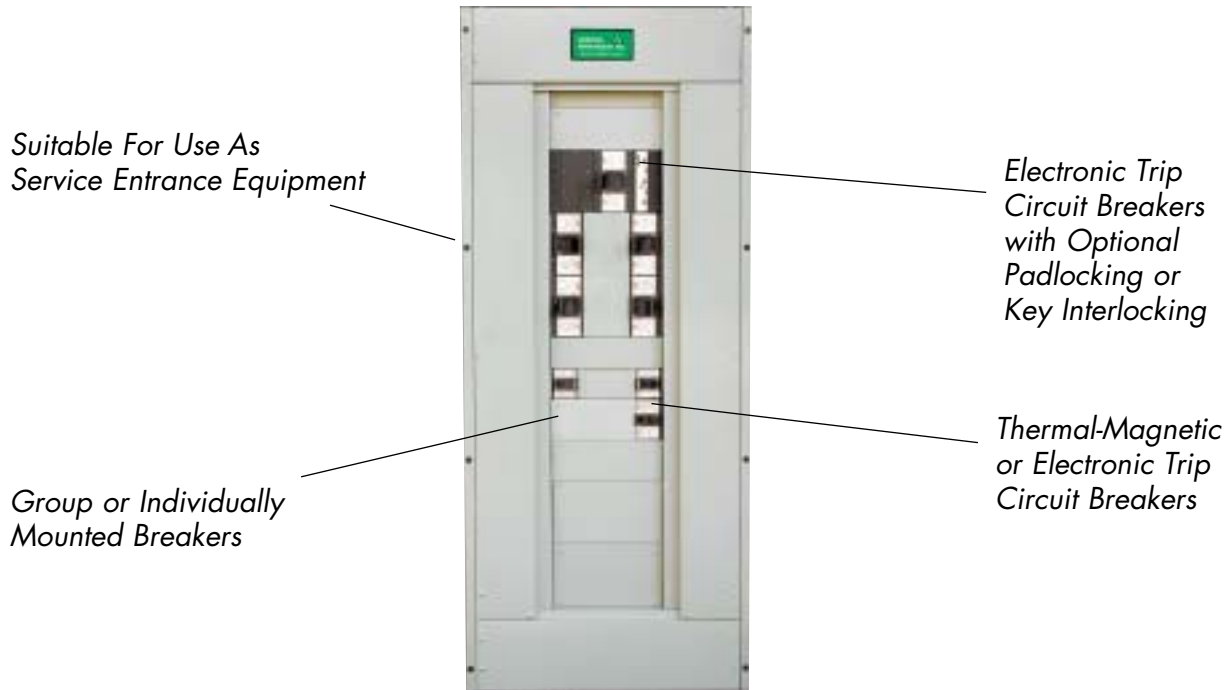
**- Paul Reiman,
Foreman for Hollywood Center Studios**

"My customer's primary source could not meet the six-week delivery requirement for thirty-three (33), 250A-1000A manual transfer switches with receptacles; therefore, I turned to GSI because of their experience with 'hot' jobs. I've used GSI in the past for fast-turn-around projects with special construction requirements and they have come through for me each time."

**- Travis Tiner,
B&K Electric Supply**

Dead Front Switchboards (UL891)

GSI builds switchboards with voltage ratings up to 600V and with ampacity ratings up to 6000A. GSI supplies switchboards with special metering and relaying requirements, service entrance, and optional utility underground pull and metering sections (see list of ratings on page 7).



Metal-Enclosed Low Voltage Power Circuit Breaker Switchgear (ANSI C37.20.1) (UL 1558)

GSI manufactures Metal-Enclosed Low Voltage Power Circuit-Breaker switchgear with special bussing configurations that are designed and manufactured to suit customers needs. NEMA-3R enclosures are also available with a walk-in type construction.



Metal-Clad Switchgear (ANSI C37.20.2) (UL 1670)

General Switchgear Inc. offers a wide selection of circuit breakers, protective relays, and components. GSI can supply switchgear with voltage ratings up to 34.5 kV.

Instrumentation and Annunciators

Indoor Enclosure



Protective Relays

Vacuum Circuit Breakers
(ANSI Standards C37.04,
C37.06 & C37.09)

Metal-Enclosed Interrupter Switchgear (ANSI C37.20.3) (UL E151647)

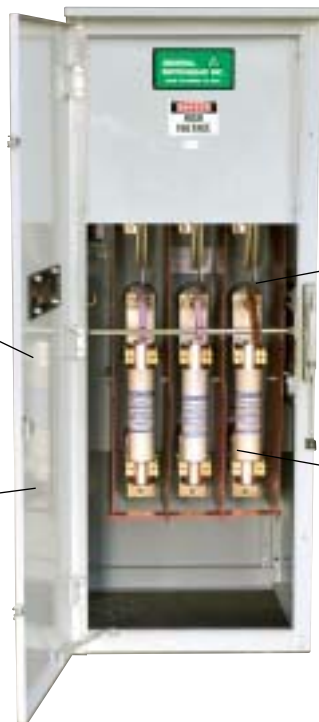
GSI produces Load Interrupter switchgear from single-section fused switches to service entrance line-ups with utility-metering compartments (see list of ratings on page 9).

2.4 kV to 34.5 kV
Voltage Rating

Load Interrupter
Switch

200A to 1200A
Current Rating

Current-Limiting or
Expulsion Type Fusing



Unit Substations (ANSI C37.121)

General Switchgear Inc. can package its switchboard and switchgear sections with transformers to provide Unit Substations. GSI combines its equipment with dry-type, epoxy-cast, and liquid-filled transformers that are built by leading transformer manufacturers. GSI will provide a complete assembly and verify both the fit and electrical interconnection to ensure a worry-free installation.



Retrofit Circuit Breakers (ANSI C37.59)

Much of the existing switchgear in operation today is nearing the end of its reliable life expectancy (approximately 20 years). This problem has forced many users to decide whether to leave their existing switchgear in place until it fails, or replace it with new switchgear.

General Switchgear Inc. offers its customers another option: Retrofitted Circuit Breakers. GSI begins its retrofit process by taking an existing air circuit breaker and removing both its operating mechanism and contacts. Then, either a new vacuum or SF6 circuit breaker is mounted on the frame of the existing breaker, along with bus to the bushing. The retrofit breaker is finally wired to the secondary control-disconnect and racked into the existing cell for final testing.

General Switchgear Inc. is in the forefront of retrofit breaker technology, having retrofitted almost all makes of circuit breakers at 600V, 5kV, and 15kV. GSI has provided these types of circuit breakers to both utility and industrial users alike for more than twenty years.

Benefits of retrofitted circuit breakers include:

Low Cost

The cost of modernizing is minimized because only the breaker is replaced.

Minimal Down Time

Service interruption is just a short time to "rack" the old breaker out and install the new retrofitted breaker into the cell.



New Circuit Breaker

The most important part of the switchgear is replaced with a new SF6 or vacuum-circuit breaker.

Warranty

GSI's retrofit circuit breakers are warranted as new circuit breakers.

Quality

All retrofitted circuit breakers are tested to ANSI standards; Short Circuit and BIL tests are also available.



DEAD FRONT SWITCHBOARDS

(UL 891)

Switchboard Section Ratings

Voltage Ratings		Current Ratings	Bus Bracing
120/240 V, 1Ø3W	480 V, 3Ø3W	800 A	50,000 A
240 V, 3Ø3W	480Y/277 V, 3Ø4W	1200 A, 2000 A	65,000 A
208Y/120 V 3Ø4W	600 V, 3Ø3W	3000 A, 4000 A	100,000 A

Other ratings available. Consult GSI for additional information.

Breaker Ratings

Frame Size	Trip Rating	Trip Type*	Maximum Interrupting Current			Mounting Space	Minimum Width
			240 VAC	480 VAC	600 VAC		
Group Mounted Breakers							
150 A	15 A - 150 A	T/M	150 kA	85 kA	25 kA	5%	38"
250 A	40 A - 250 A	Electronic	150 kA	100 kA	35 kA	5%	38"
400 A	160 A - 400 A	Electronic	150 kA	100 kA	35 kA	6%	38"
600 A	240 A - 600 A	Electronic	150 kA	100 kA	42 kA	8%	38"
800 A	320 A - 800 A	Electronic	150 kA	100 kA	42 kA	8%	46"
1200 A	400 A - 1200 A	Electronic	150 kA	85 kA	50 kA	16%	46"
Individually Mounted Breakers							
1600 A	640 A - 1600 A	Electronic	120 kA	100 kA	85 kA	50%	30"
2000 A	800 A - 2000 A	Electronic	120 kA	100 kA	85 kA	50%	30"
2500 A	1000 A - 2500 A	Electronic	120 kA	100 kA	85 kA	50%	30"
3000 A	1200 A - 3000 A	Electronic	150 kA	100 kA	85 kA	50%	30"
4000 A	1600 A - 4000 A	Electronic	150 kA	100 kA	85 kA	100%	38"

* T/M - Thermal Magnetic Trip Unit. Electronic Trip Units available with LI, LSI and LSIg adjustments.

Dimensions (Foot-Print)

Maximum Breaker Frame	Indoor (NEMA-1)				Outdoor (NEMA-3R)			
	Width	Depth	Height	Weight	Width	Depth	Height	Weight
Group Mounted Breakers								
≤600 A	38"	15"	90"	1,000 lbs	38"	21"	91.5"	1,200 lbs
≥800 A	46"	15"	90"	1,200 lbs	46"	21"	91.5"	1,400 lbs
Individually Mounted Breakers								
2000 A	30"	24"	90"	1,000 lbs	30"	30"	91.5"	1,200 lbs
3000 A	30"	30"	90"	1,500 lbs	30"	36"	91.5"	1,700 lbs
4000 A	38"	48"	90"	2,000 lbs	38"	54"	91.5"	2,200 lbs

Custom dimensions are available. Consult GSI for details.

Features

Standard Features	Available Options
<ul style="list-style-type: none"> UL Label Lugs on load terminals Copper bus 14 gauge HRPO steel enclosure Painted ANSI 61, light gray with epoxy primer and polyurethane enamel 	<ul style="list-style-type: none"> Service Entrance Equipment Key interlocks User metering and control Utility metering 100 % rated breakers Motor operated breakers Auxiliary contacts on breakers Shunt trip on breakers Under voltage trip on breakers Alarm contacts on breakers Special color paint 10 or 12 gauge HRPO steel enclosure Rear doors on outdoor enclosure Bottom plates Galvanized steel base Pull box Transformer connection Structural steel base with bitumen compound on outdoor enclosures Consult factory for other available options



Warning: High Voltage
Electrical Shock Hazard
See instructions for safety

CAUTION
High Voltage

DANGER
HIGH
VOLTAGE

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METAL ENCLOSED INTERRUPTER SWITCHGEAR (ANSI C37.20.3) (UL E151647)

Load Interrupter Switch Ratings

Nominal Voltage kV rms	Maximum Voltage kV rms	Rated Continuous Current Amps rms	Rated Interrupt Current Amps rms	Fault Close Current Asym. Amps rms	Momentary Current Asym. Amps rms	Short Time Rating Amps	UL Listing	Catalog Number (Indoor, NEMA-1, construction)*
4.16	5.0	200	200	20,000	20,000	12,000	YES	LIS0502
4.16	5.0	600	600	40,000	40,000	25,000	YES	LIS0506
		1,200	1,200	61,000	61,000	25,000 38,000	YES YES	LIS0506X LIS0512
13.8	15.0	600	600	40,000	40,000	25,000	YES	LIS1506
		1,200	1,200	61,000	61,000	25,000 38,000	YES YES	LIS1506X LIS1512
24.9	25.8	600	600	28,000	40,000	25,000	NO	LIS2506
	29.0	1,200	1,200	28,000	61,000	25,000	NO	LIS2512
34.5	38.0	600	400	28,000	40,000	25,000	NO	LIS2906
		600	400	20,000	40,000	5,000	NO	LIS3806

*Add -3R to catalog number for outdoor (NEMA-3R) construction.

Fuse Ratings

Fuse Type	Voltage Rating (Max.)	Current Rating Range	Interrupting Rating rms sym.	Mounting Type Amps
Current-Limiting (Gould Shawmut or Equal)				
CS-3	5.5 kV	5E to 450E	63,000	Clip
CL-14	5.5 kV	10E to 600E	63,000	Clip-Lock
Bolt-In	5.5 kV	750E to 900E	63,000	Bolt-on
CS-3	15.5 kV	5E to 200E	50,000	Clip
CL-14	15.5 kV	10E to 300E	50,000	Clip-Lock
Boric Acid (Cutler-Hammer)				
RBA-200	5.5 kV	10E to 200E	19,000	Clamp-on
RBA-400	5.5 kV	1/2E to 400E	37,500	Clamp-on
RBA-800	5.5 kV	450E to 720E	37,500	Bolt-on (Piggy-Back)
RBA-200	15.5 kV	10E to 200E	14,400	Clamp-on
RBA-400	15.5 kV	1/2E to 400E	29,400	Clamp-on
RBA-800	15.5 kV	450E to 720E	29,400	Bolt-on (Piggy-Back)

Consult GSI for fusing of 25 kV and 38 kV load interrupter switches

Features

- Standard Features**
- UL Label (5 kV and 15 kV only)
 - Mechanical interlock on fuse door
 - Clamp-type lugs on line terminals
 - Copper bus with silver plated joints
 - 12 gauge HRPO steel enclosure
 - Painted ANSI 61, light gray with epoxy primer and polyurethane enamel
 - Structural steel base with bitumen compound on outdoor enclosures
- Available Options**
- Key interlocks
 - Duplex switch configuration
 - Inverted switch
 - Cable terminators, potheads and roof bushings
 - Surge arresters
 - User and Utility metering
 - Lights and receptacle
 - Motor operated with vacuum bottles
 - Auxiliary contacts
 - Barriers between switch and fuse compartment
 - Porcelain insulators
 - Insulated bus
 - Special color paint
 - 10 gauge HRPO steel enclosure
 - Pull box
 - Transformer connection
 - Rear doors on outdoor enclosure
 - Bottom plates
 - Galvanized steel base
 - Space heater
 - Thermostat for space heater
 - Consult factory for other available options

Dimensions (Foot-Print)

Switch	Indoor (NEMA-1)				Outdoor (NEMA-3R)			
	Width	Depth	Height	Weight	Width	Depth	Height	Weight
5 kV/200A	25"	25"	66"	300 lbs	25"	25"	66.0"	300 lbs
5 kV	41"	42"	90"	1,200 lbs	41"	48"	91.5"	1,400 lbs
15 kV	41"	46"	90"	1,300 lbs	41"	52"	91.5"	1,500 lbs
25kV-38kV	Consult GSI				Consult GSI			

Custom dimensions are available. Consult GSI for details.



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