

**Medium Voltage
Switchgear**

Bus-ways

**Low Voltage
Switch-gear**

Motor Control Centers

Panel Boards

**Power Factor
Improvement Plants**

Load Centers

**Circuit Breakers &
Enclosures**

MCCB

Power Circuit Breaker

Air Circuit Breaker

Safety Switches



General Electric

SQ - D

Telemecanique

Cutler Hammer

GENERAL ELECTRIC

Medium Voltage Switchgear

Metalclad Switchgear

4.16kV-250 MVA through

13.8kV-1500 MVA

Power/Vac®

Breaker Features

- 1. FRONT PANEL:** This 11-gauge steel front panel fits into a collar-frame in the equipment when the breaker is in the CONNECT position. It provides a metal barrier between the breaker compartment and the secondary device compartment. Well marked and easy-to-read operating controls and indicators include TRIP button, CLOSE button, OPEN/CLOSE indicator, CHARGE/DISCHARGE indicator, OPERATIONS counter and provision for manual charging the breaker.
- 2. PRIMARY DISCONNECT:** The primary disconnect finger set is rugged and easy to inspect. Designed for

optimum contact, built of silver-plated copper and tested for continuous and momentary currents. These disconnects provide proper contact integrity throughout the life of the gear for the critical primary disconnect function.

- 3. CONTACT EROSION INDICATOR:** GE Vacuum interrupter contacts seldom wear out over the normal duty life-span of a circuit breaker. Nevertheless, a contact erosion indicator is provided for inspection convenience. It is visible when the breaker is withdrawn from the compartment.
- 4. INTERRUPTER SUPPORT:** A rugged, high strength, track-resistant polyester glass support assembly firmly positions and holds the interrupter and primary conductors while providing insulation to ground and between phases. This support assembly can be removed quickly by disengaging six bolts. Only a simple alignment of

contact wipe is required in the unlikely event that the interrupter assembly needs to be replaced.

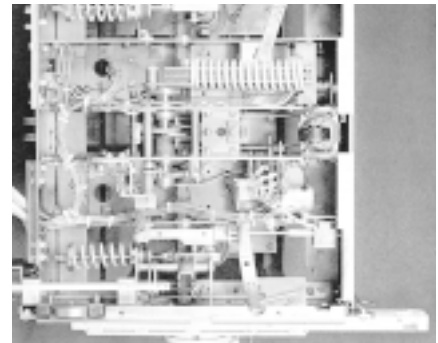
- 5. BREAKER MECHANISM:** Both ML-17 and ML-18 mechanisms use a spring-charged, stored-energy design that is mechanically and electrically trip-free and can be operated by dc control voltages of 48V, 125V, or 250V, or ac voltages of 115V and 230V. High quality mechanism parts are precision-tooled for operating consistency, reliability, maintenance ease and long life.
- 6. ROLL-IN OPTION:** A roll-in breaker designed for use in the lower compartment of indoor switchgear is available in all breaker ratings. The roll-in feature eliminates the need for a lift truck and reduces the required front aisle space. Upper compartments may be left blank or used as auxiliary compartments above 1200A and 2000A breakers. Above 3000A breakers, they must be left blank for ventilation. The breaker used for this option is the same as used for the two-high product, with the addition of an undercarriage.



Interrupter Support



Roll-in option



Breaker Mechanism

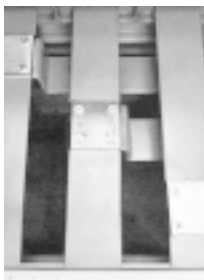
THESE SUPERIOR DESIGN FEATURES ARE STANDARD ON POWER/VAC® SWITCHGEAR

A. MAIN BUS COMPARTMENT is completely isolated by metal barriers. Bus bars are provided with high dielectric insulation and pass through track-resistant polyester glass barriers between cubicles. All main bus is tin-plated for positive contact and low resistance, and are insulated with preformed boots (not shown in this photo). Porcelain insulation to ground is optional.

B. SECONDARY DISCONNECTS combine the positive-contact reliability of a plug with the automatic, self-aligning convenience of sliding-type con-

tacts. While in the test position, secondary contacts are easily disengaged or reengaged by a linkage operated from the front of the circuit breaker.

C. CURRENT TRANSFORMERS are typically located behind a mechanically actuated safety shutter barrier that isolates the primary disconnects as the breaker is moved into the DISCONNECT position. Two single accuracy CT's per phase can be accommodated on both the



line and load sides of the breaker (as many as 12 CT's per breaker). CT's are front-accessible after removal of the shutter safety barrier.

D. VOLTAGE TRANSFORMERS meet all applicable industry standards

and are mounted in an easy-access roll-out tray.

E. DRY TYPE CONTROL POWER TRANSFORMERS have molded epoxy resin insulation and are mounted in a draw out tray for easy access. Ratings run through 15kVA

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single phase. When a higher rating, or 3 CPT's, are required, a key interlocked fused roll-out tray will be supplied with stationary CPT's mounted in the rear of the unit.

F. CABLE

COMPARTMENT in a basic two-breaker vertical section has ample space for termination of up to two 750 MCM cables per phase, including stress cone makeup. When only one breaker is required in a vertical section, the entire cable area space is available for use.

In two-high breaker equipment, a vertical steel trough serves as a separation barrier from the



other cable compartment. This duct is easily removed to facilitate initial installation of the "inside" cables. When the vertical steel duct is in place, there is still access to the "inside" terminations. The power cable compartment can be arranged to permit both sets of cables to



exit below or above.

G. PORTABLE BREAKER LIFT is provided for handling a breaker or roll-out during installation into a compartment, or during

removal for inspection or maintenance. Lifts for both indoor and outdoor equipment have interlocks on the lifting forks to lock the breaker in place during transporting.

Power/Vac® Features

1. Two-High Breaker

Stacking can save up to 50% in floor space for most applications, depending on the rating, and results in fewer shipping splits. In addition, cubicle dimensions are the same across all ratings so space requirements are clearly defined at the outset. System planning and lay-out are thus simplified.



2. Breakers Roll Along Side-Rails Into Position to assure proper alignment. Positive stops are provided in TEST/DISCONNECT and CONNECT positions. Movement to the CONNECT position is accomplished with a racking mechanism that can be manually, or (as an option) remote electrically operated from the front of the unit with the door closed.



3. Precision Tooling brings uniform quality to breaker and equipment parts and facilitates trouble-free field assembly and operation.

4. Transformer Roll-Out Trays can be mounted as a combination of two trays either in the top or bottom cubicles. The combination can be two sets of VT's or one VT

and one CPT up to 15 KVA in either the top or bottom section. The transformer primaries are connected with insulated bus and are automatically grounded when withdrawn.

5. A Rugged Steel Frame employs bolted reinforced gussets for added strength and dimensional integrity. Seismic-qualified versions are available. Grounded metal barriers isolate all high voltage compartments.

6. Easy Installation results because many foundations that are smooth and level don't require embedded floor steel or grouting. To reduce installation time, equipment can be lifted into place without using skids.

7. Ample Relay and Terminal Block Space accepts complex

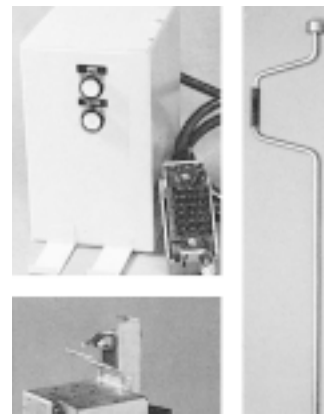


configurations and is compartmentalized by the front panel enclosing the breaker. Meters, relays, instruments and handles are positioned on compartment doors for easy reading or operation. Open doors are securely held with positive stops so breakers can be inserted and withdrawn without damaging control, indication or protective devices.

A Full Selection of Accessories

To facilitate inspection, maintenance and test operations, General Electric offers a full selection of devices and accessories for POWER/VAC metalclad switchgear.

A. OPTIONAL GROUND AND TEST DEVICES are manually or electrically operated and provide facilities for



grounding either the bus side or the outgoing cable side of the metalclad unit, or for "phasing out" operating circuits.

B. TEST CABINET provides a convenient means to close and trip breakers for maintenance or inspection.

C. OPTIONAL REMOTE RACKING DEVICE is portable and connects to a remote control panel via a 30 foot cable. It is motorized and electrically racks the breaker between the CONNECT and DISCONNECT positions with the door closed.

D. RACKING HANDLE manually operates the breaker racking mechanism to move the breaker between the CONNECT and TEST/DISCONNECT positions.

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POWER/VAC Circuit Breaker Characteristics

Symmetrical Rating Basis ANSI C37.06 (1987)*

Identification (6) & (7)		Rated Values								Related Required Capabilities				
Normal rms Voltage Class (kV)	Normal 3-phase Class (MVA)	Voltage		Insulation		Current		Rated Interrupting Time (Cycles)	Rated Permissible Tripping Delay, γ (Seconds)	Rated Maximum rms Voltage Divided by K (kV)	Current Values			
		Rated Maximum rms Voltage (kV) (1)	Rated Voltage Range Factor K (2)	Rated Withstand Test Voltage		Continuous rms Current Rating at 60 Hz (amperes)	Short circuit rms Current Rating (at Rated Max kV) (kA) (3) (4)				Maximum Symmetrical Interrupting Capability (5)	3 Sec Short time Current Carrying Capability	K times Related Short-circuit rms Current	Closing and Latching Capability peak amp (kA)
				Low Frequency rms Voltage (kV)	Crest Impulse Voltage (kV)									
4.16	250	4.76	1.24	19	60	1200	29	5	2	3.85	36	36	58	
4.16	250	4.76	1.24	19	60	2000	29	5	2	3.85	36	36	58	
4.16	250	4.76	1.24	19	60	3000	29	5	2	3.85	36	36	58	
4.16	350	4.76	1.19	19	60	1200	41	5	2	4.0	49	49	78	
4.16	350	4.76	1.19	19	60	2000	41	5	2	4.0	49	49	78	
4.16	350	4.76	1.19	19	60	3000	41	5	2	4.0	49	49	78	
4.16	350	4.76	1.19	19	60	3500	41	5	2	4.0	49	49	78	
4.16	350	4.76	1.19	19	60	4000*	41	5	2	4.0	49	49	78	
7.2	500	8.25	1.25	36	95	1200	33	5	2	6.6	41	41	66	
7.2	500	8.25	1.25	36	95	2000	33	5	2	6.6	41	41	66	
7.2	500	8.25	1.25	36	95	3000	33	5	2	6.6	41	41	66	
7.2	500	8.25	1.25	36	95	3500	33	5	2	6.6	41	41	66	
7.2	500	8.25	1.25	36	95	4000*	33	5	2	6.6	41	41	66	
13.8	500	15	1.30	36	95	1200	18	5	2	11.5	23	23	37	
13.8	500	15	1.30	36	95	2000	18	5	2	11.5	23	23	37	
13.8	500	15	1.30	36	95	3000	18	5	2	11.5	23	23	37	
13.8	750	15	1.30	36	95	1200	28	5	2	11.5	36	36	58	
13.8	750	15	1.30	36	95	2000	28	5	2	11.5	36	36	58	
13.8	750	15	1.30	36	95	3000	28	5	2	11.5	36	36	58	
13.8	750	15	1.30	36	95	3500	28	5	2	11.5	36	36	58	
13.8	750	15	1.30	36	95	4000*	28	5	2	11.5	36	36	58	
13.8	1000	15	1.30	36	95	1200	37	5	2	11.5	48	48	77	
13.8	1000	15	1.30	36	95	2000	37	5	2	11.5	48	48	77	
13.8	1000	15	1.30	36	95	3000	37	5	2	11.5	48	48	77	
13.8	1000	15	1.30	36	95	3500	37	5	2	11.5	48	48	77	
13.8	1000	15	1.30	36	95	4000*	37	5	2	11.5	48	48	77	
13.8 (8)	1500	15	1.00	36	95	1200	63	5	2	15.0	63	63	170	
13.8 (8)	1500	15	1.00	36	95	2000	63	5	2	15.0	63	63	170	
13.8 (8)	1500	15	1.00	36	95	3000	63	5	2	15.0	63	63	170	
13.8 (8)	1500	15	1.00	36	95	3500	63	5	2	15.0	63	63	170	
13.8 (8)	1500	15	1.00	36	95	4000*	63	5	2	15.0	63	63	170	

Non-Standard Breakers - High Close and Latch Capability

4.16	250	4.76	1.24	19	60	1200 2000	29	5	2	3.85	36	36	78
13.8	500	15	1.30	36	95	1200 2000	18	5	2	11.5	23	23	58
13.8	750	15	1.30	36	95	1200 2000	28	5	2	11.5	36	36	77

Notes Applying to Table

- (1) Maximum voltage for which the breaker is designed and the upper limit for operation.
- (2) k is the ratio of rated maximum voltage to the lower limit of the range of operating voltage in which the required symmetrical and asymmetrical interrupting capabilities vary in inverse proportion to the operating voltage.
- (3) To obtain the required symmetrical interrupting capability of a circuit breaker at an operating voltage between 1/K times rated maximum voltage and rated maximum voltage, the following formula shall be used:

$$\text{Required Symmetrical Interrupting Capability} = \text{Rated Short-circuit Current} \times \frac{\text{(Rated Max. Voltage)}}{\text{(Operating Voltage)}}$$

For operating voltages below 1/K times rated maximum voltage, the required symmetrical interrupting capability of the circuit breaker shall be equal to K times rated short-circuit current.

- (4) With the limitation stated in 5.10 of ANSI-C37.04-1991, all values apply for polyphase and line-to-line faults. For single

phase-to-ground faults, the specific conditions stated in 5.10.2.3 of ANSI-C37.04-1991 apply.

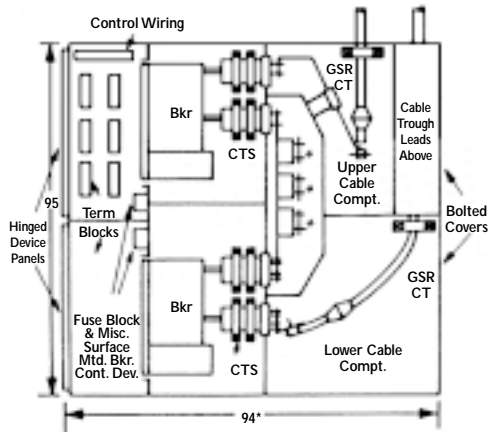
- (5) Current values in this column are not to be exceeded even for operating voltages below 1/K times rated maximum voltage. For voltages between rated maximum voltage and 1/times rated maximum voltage, follow (3) above.
- (6) NOTE: 1500 MVA not a listed rating according to ANSI C37.06 Table 2.1.
- (7) GE PowerVac circuit breakers are designed as type VB."Kv". "MVA" or type VB1."kV". "MVA". The VB designation applies to breakers with an ML-18 mechanism. All 3000 Amp continuous current rated and 1500mVA breakers are furnished with the ML-17 mechanism. All other 1200 and 2000 Amp rated breakers are furnished with the ML-18 mechanism except when a special application is required.
- (8) NOTE: GE reserves the right to improve the design and/or modify the specifications in this publication without notice.

*Fan cooled only.

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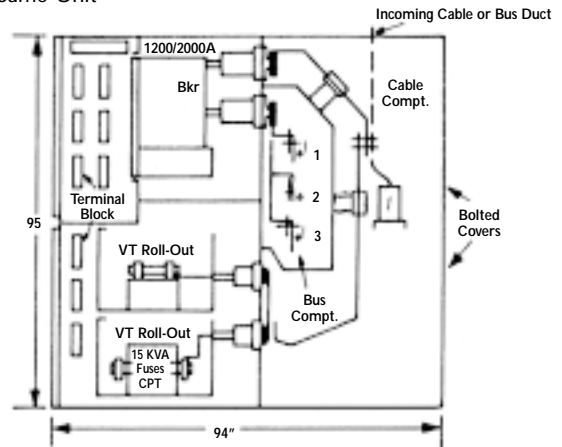
GENERAL ELECTRIC

Typical 2Bkr. Feeder Unit Clamp Type Term. For Cable Above



*STD. (82" Optional. See Note Under "Cable Compt.")

Typical Incoming Line Unit With Main Breaker & CPT & VT Roll-outs in Same Unit



*STD. (82" Optional - See Below)

BUS COMPARTMENT

- 1200A and 2000A: Copper standard.
- 3000A bus and 3500A bus is copper only.
- Bus supports designed for 80,000A momentary.
- All joints connected with 2 bolts and booted.
- Bus support insulation system:
 - Non-tracking polyester glass (std. 5kV & 15kV)
 - Porcelain inserts (optional)
 - Fluidized bed epoxy bus insulation.

CABLE COMPARTMENT

- Designed for up to 2-750 MCM/ Ø per breaker; cables above or below.
- CT's with greater than ANSI accuracy must be mounted in cable compartment and may limit such cases to one breaker per vertical section.
- Stress cone space of 21 inches is provided and use of pre-formed stress cones, such as GE Termimatic (TM), is recommended.
- * Certain simple cable compartment configurations such as clamp type terminations for one moderate-sized cable per phase, with or without Ground Sensor, permit a unit

Typical Equipment Section Views

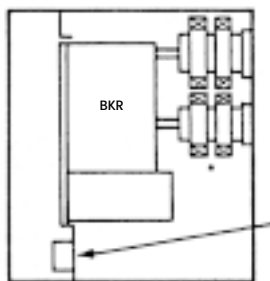
(1) Typical Breaker Units – 5/15 kV

(2) Typical Auxiliary Units – 5/15 kV

Upper 1200A or 2000A BKR.

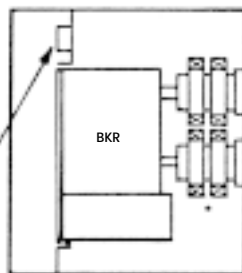
Lower 1200A, 2000A or 3000A BKR.

Alt. Lower: Fuses Only

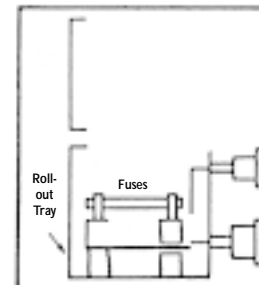


Bus Conn

Fuse Blocks & Misc
Surface Mtd Bkr
Control Devices



Bus Conn



Line/Bus conn.

To out going
conn.

Fuses for 3 Ø CPT or 1 Ø CPT >
15 kVA CPT and secondary break-
er located in Cable Compartment.

*Space for 4CTS Per Phase, 2 in Upper Studs & 2 on Lower Studs. Rating Range: 150A - 4000A Accuracy Per ANSI C37.20.

Typical Upper and Lower Unit Configurations

GENERAL ELECTRIC

Spectra Series Busway

GE's Spectra Series™ busway sets a new industry mark for convenience and performance. High current-carrying capacity. Superior short-circuit protection. Low voltage drop. Exclusive adjustable joint connectors. Compact design. All from a busway that's up to half the weight of other systems.

Low-weight design reduces labor costs.

GE's Spectra Series bus features a computer-designed aluminum housing that dramatically cuts busway weight up to 50%. Less weight means less labor – and significantly lower installation costs.

Spectra bus sections can often be hung with just a single drop rod hanger. And bus sections are quickly and easily joined by a single, positive bolt. You can carry, position, and install bus sections to form entire busway runs—without special assembly tools.

No other bus can match the installation simplicity and ease of Spectra bus.



Installation was never this easy.

Adjustable joints – an industry exclusive.

Spectra bus features a special joint connector that allows quick and easy $\pm 1/2$ " length adjustment – right in the field. It saves time and labor, and assures perfect installation every time.

Lightweight design doesn't mean lightweight performance.

GE engineers have broken the weight barrier with a system that provides the current-carrying capacity (up to 5,000 amps), short-circuit protection, and ruggedness you've always counted on from GE bus.

The Spectra bus not only handles the electrical demands of any project – it also helps save money. The busway's ultralow reactance and voltage-drop characteristics cut power loss to the absolute minimum.



Designed to cut power loss to the absolute minimum.

Epoxy insulation protects your investment.

GE has accumulated over 25 years pioneering sophisticated material coating. And now GE brings this experience to the electrical distribution industry by applying its most advanced epoxy insulation technology to Spectra bus. Unlike the mylar, PVC, and glass tape insulators used by other manufacturers, epoxy provides significantly longer life, higher impact strength, and better resistance to water absorption. For instance, epoxy has *twice* the impact strength of mylar – providing extra durability during shipment and installation. Epoxy also offers better thermal characteristics, allowing a 130° C rating (typical PVC-based busways are rated at 105° C).

Another important advantage of epoxy insulation is consistency. The insulation on typical busway is manually wrapped on, leaving the quality of the insulation dependent on the skill of the technician. Voids and air gaps are inevitable. Spectra bus, on the other hand, uses an automated process to coat epoxy on the conductors in a precisely defined and controlled manner. For consistent, repeatable quality. A higher degree of safety. And performance that protects your busway investment – and your equipment.

We built a better belleville – for long-lasting joint strength.

Ordinary belleville joints can lose significant holding force (up to one-third of original force) over time. This degradation can lead to joint and busway failure – and expensive downtime.

The combat compressive joint relaxation, GE engineers researched and selected their time-proven belleville spring that retains over 90% of its original contact pressure – for confident, long-term reliability and minimal maintenance.



Every bus bar is 100% integrity-tested – for absolute performance confidence.

Streamlined – yet durable.

Contemporary. Clean. Compact. Just a few of the words that describe Spectra bus. Its aluminum construction provides great strength and rigidity – plus natural corrosion resistance. With GE's Spectra bus, you can be confident of years of trouble-free operation.

Adapts quickly to changing requirements.

As your needs change, so can your busway. Spectra bus is designed to be taken apart, relocated, and reassembled – as many times as required – without loss of electrical or mechanical integrity. Tees, elbows, plugs, tap boxes, and other components can all be reused, maximizing the value of your busway investment.

A load of extras.

Removable isolation joints enable individual sections to be taken out of service without shutting down the entire system. For example, this allows electrical maintenance to be performed on a specific floor in a high rise – while leaving other floors energized.



Isolation Joints simplify maintenance

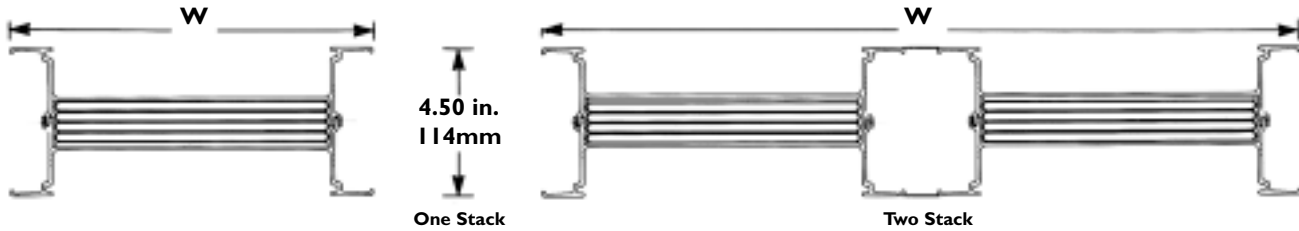
Additional benefits include up to 1600-amp tapoffs at bus joints; plug position locators for positive, safe installation; plug assist to simplify connection; and a standard 50% housing ground.

Easier installation and better performance – all the way down the line.

Looking for lightweight, high-performance, cost-saving busway? Get a load of the new Spectra Series busway from GE. It's just one of the many cost- and labor-saving products of our new Spectra Series line. For more busway information, write or call Electrolines

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GENERAL ELECTRIC



Plug-In and Feeder

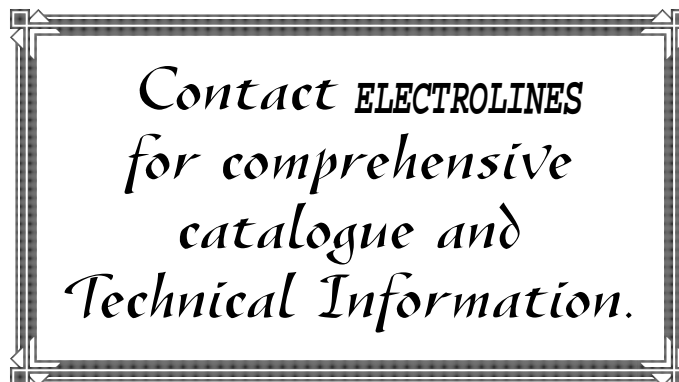
ALUMINUM

Ampere Rating	No. Stacks	"W" Width		Bar Width x .25 in	Short Circuit Rating - RMS SYM	Weight LBS/FT		$\Omega \times 10^{-3}/100FT$		Voltage Drop Volts/100Ft*	
		Inches	MM			3W	4W	R	X	.4 PF	.9 PF
225	1	4.38	111	1.09	50,000	4	5	5.99	1.72	1.35	2.39
400	1	4.38	111	1.09	50,000	4	5	6.54	1.50	2.76	4.53
600	1	4.38	111	1.63	85,000	5	6	4.52	1.28	1.97	2.99
800	1	5.63	143	2.88	100,000	6	7	2.48	.79	2.38	3.57
1000	1	6.13	156	3.38	100,000	7	8	2.17	.68	2.58	3.90
1200	1	7.00	178	4.25	125,000	8	9	1.73	.55	2.49	3.73
1350	1	8.50	216	5.75	150,000	9	10	1.24	.41	2.04	3.03
1600	1	9.25	235	6.50	150,000	10	12	1.12	.36	2.16	3.23
2000	1	11.00	279	8.25	150,000	12	15	.89	.29	2.15	3.21
2500	2	15.50	394	(2) 4.50	200,000	17	20	.82	.26	2.45	3.69
3000	2	18.00	457	(2) 5.75	200,000	19	23	.64	.21	2.33	3.47
4000	2	23.00	584	(2) 8.25	200,000	25	30	.45	.14	2.14	3.23

COPPER

Ampere Rating	No. Stacks	"W" Width		Bar Width x .25 in	Short Circuit Rating - RMS SYM	Weight LBS/FT		$\Omega \times 10^{-3}/100FT$		Voltage Drop Volts/100Ft*	
		Inches	MM			3W	4W	R	X	.4 PF	.9 PF
225	1	4.38	111	1.09	50,000	6	7	3.39	1.72	1.14	1.48
400	1	4.38	111	1.09	50,000	6	7	3.59	1.72	2.09	2.76
600	1	4.38	111	1.09	50,000	6	7	3.94	1.50	3.07	4.36
800	1	4.38	111	1.63	85,000	8	9	2.62	1.28	2.25	2.89
1000	1	5.00	127	2.25	100,000	10	12	1.90	.98	2.87	3.70
1200	1	5.63	143	2.88	100,000	12	15	1.49	.79	2.74	3.50
1350	1	6.13	156	3.38	100,000	14	17	1.27	.68	2.65	3.37
1600	1	7.00	178	4.25	125,000	16	20	1.00	.55	2.51	3.16
2000	1	8.50	216	5.75	150,000	21	26	.73	.41	2.31	2.90
2500	1	11.00	279	8.25	150,000	29	37	.50	.29	2.02	2.50
3000	2	15.00	381	(2) 4.25	200,000	32	40	.49	.28	2.35	2.93
4000	2	18.00	457	(2) 5.75	200,000	42	52	.37	.21	2.36	2.94
5000	2	23.00	584	(2) 8.25	200,000	58	74	.25	.14	1.98	2.48

*Concentrated 3 ϕ line-line. For distributed loads divide by 2.



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GENERAL ELECTRIC

Low Voltage Gear AV-LINE® SWITCHBOARDS

Five types of construction to fit any application ... a complete line-up of the features you need ... important options to choose from, too, like compact, easy-to-install panel motor control units for tough-job motor starting... state-of-the-art design... it all adds up to the safety, savings, and simplicity you've been looking for in a value-packed switchboard: AV-LINE.®

Select the protection level you need.

With AV-LINE® switchboards, you can select from a wide range of circuit breakers—low-voltage power circuit, molded-case, and Power Break® insulated-case breakers—along with high pressure contact or fusible switches. And with MicroVersaTrip® and Micro Versa-Trip® RMS-9 programmable trip devices, you can choose the precise level of protection you need, thanks to an eight-point trip adjustment switch, multiple time-delay bands and fast flexible functions: long-time, short-time, instantaneous, ground-fault, signalling, and system interlocking.

AV-LINE® SWITCHBOARDS —TYPES OF CONSTRUCTION

AV-LINE® switchboards are available with group or individually mounted, main and feeder devices. Group-mounted devices are front-accessible. Individually-mounted require front- and rear-accessibility Devices available include:

- Molded Case Circuit Breakers
- Insulated Case Circuit Breakers
- Low Voltage Power Circuit Breakers
- Fusible Switches

Ground fault protection and automatic transfer are available.

AV-LINE® switchboards meet Underwriters Laboratories No. 891

and NEMA PB2 Standards. AV-1 switchboards have group (panel)-mounted main and distribution sections.

AV-2 switchboards have individually-mounted main and group (panel)-mounted distribution sections.

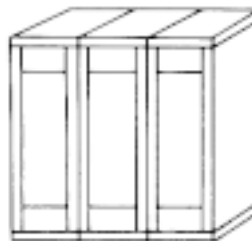
AV-3 switchboards have individually-mounted main and feeder sections. Feeder devices have external operating handles. Feeder device compartmentation and insulated/isolated main vertical bus in feeder section is available.

AV-4 switchboards consist of Power Break® main section and AV-3 distribution sections. All bus (main and feeders) is insulated/isolated, and devices compartmentalized.

AV-5 switchboards contain higher ampere rated feeders than are available in other switchboards types. All feeders are individually-mounted. Insulated/isolated bus is not available.

AV-LINE® Switchboard Types

GE AV-LINE® switchboards are available front-accessible with feeder devices group-mounted, and rear-accessible with feeders individually-mounted. There are five types to meet a variety of installation requirements.



AV-1

AV-1

Main and feeder devices are group-mounted maximum 1200A main and feeders, and 2000A main lugs. Front accessibility and rear alignment standard for mounting against a wall.

Group-Mounted Main and Feeders Front-Accessible

Maximum 1200A mains, 1200A feeders Rear alignment standard

Min. depth 15"

Main lugs to 2000A

All devices bolt on

Self-supporting. May be mounted against wall.

Insulated bus not available.

Main and Feeder Devices Group-Mounted

Molded case circuit breakers

E, F, J, K, TLB4 150-1200A

Fusible switches

QMR 30-1200A

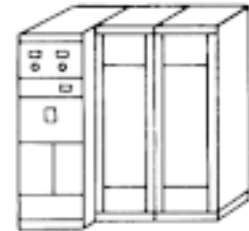
MicroVersaTrip® molded case circuit breakers

Current-limiting circuit breakers

Fuseless THLC 150-400A, TEL, TFL

Fused Tri-Break® 100-800A

PMCU Size 0-4 (feeder only)



AV-2

AV-2

Main device individually-mounted, feeders group-mounted. Maximum 4000A mains and 1200A feeders. Front accessibility and rear alignment standard. Rear access may be required for main. Side access may be required for busway entrance.

Individually-Mounted Main, Group-Mounted Feeders, Front-Accessible

Maximum 4000A mains, 1200A feeders

Rear alignment standard

Depths: Mains 25"-60"

Feeders 20" min.

Insulated bus not available

Main, Sub-Main, Tie Devices, Individually-Mounted

Molded case circuit breakers

J, K 400-1200A

Fusible switches

QMR 400-1200A

GENERAL ELECTRIC



AV-3



AV-4



AV-5

MicroVersa Trip® circuit breakers
Tri-Break® circuit breakers
TB6, TB8, 600-800A
Current-limiting circuit breakers THLC
150-400A
Power Break® insulated case circuit
breakers 800-4000A
AKR low voltage power circuit
breakers fused and unfused 800-
4000A
High pressure contact switches 800-
4000A
Bolted pressure switches 800-4000A

AV-3

Main and feeder devices individually
mounted. Maximum 4000A mains,
1200A feeders (200A fusible). Front
and rear accessibility. Front and rear
alignment. Feeder devices can be com-
partmented. Barriers between sections
available. Feeder main and vertical bus
can be insulated/isolated.

Individually-Mounted Mains and Feeders

Rear accessible
Front and rear alignment
Depths-30-60"
Maximum 4000A mains; 1200A
feeders molded case circuit breakers,
200A fusible switches
Working space required behind
switchboard
Insulated bus available on feeders only
Feeders have external operating
handles Device compartmentation
available.

Main, Sub-Main, Tie Devices Individually- Mounted

Same as AV-2

Feeder Devices, Individually-Mounted

Molded case circuit breakers
E, F, J, K, TLB4 150-1200A
Micro Versa Trip® molded case circuit
breakers
Fusible switches
QMR 30-200A
Current-limiting circuit breakers
Fuseless THLC 150-400A, TEL, TFL
Fused Tri-Break® 100-800A

AV-4

Same as AV-3 except main and feeder
vertical and horizontal bus may be
insulated/isolated, and devices com-
partmented. Main section is a POWER
BREAK® switchboard main section and
is limited to molded case circuit
breakers, POWER BREAK® breakers,
and high pressure contact switches.

Individually-Mounted Mains and Feeders

Rear accessible
Front and rear alignment
Power Break® main section
AV-3 feeder section
Main and feeder bus
insulation/isolation available
Device compartmentation available
Depths 35-60"
Maximum 4000A mains; feeders
1200A molded case circuit breakers,
200A fusible switches
Working space required behind
switchboard
Feeders have external operating
handles

Main, Sub-Main, Tie Devices Individually- Mounted

Power Break® circuit breaker 800-
4000A

High pressure contact switches 800-
4000A

Feeder Devices, Individually-Mounted

Same as AV-3

AV-5

Main and feeder devices individually
mounted. Feeders higher ampere rated
than those available in AV-3, AV-4, and
sized as main devices. Front and rear
alignment. Front and rear accessibility.
Device compartmentation and insulat-
ed/isolated bus not available.

Individually-Mounted Mains and Feeders

Rear accessible
Front and rear alignment
Depths-35-60"
Maximum 4000A mains; 1600A®
feeders
Working space required
behind switchboard
Insulated bus and device
compartmentation *not* available
For use when feeders larger than
available in AV-3 are required

Main, Sub-Main, Tie, Devices Individually- Mounted

Same as AV-3

Feeder Devices

Individually-mounted
Power Break® circuit breaker 800-
1600Aⁱ
High pressure contact switch 800-
1600Aⁱ
Bolted pressure switch 800-1600Aⁱ
Low voltage Power Circuit Breaker
800-1600Aⁱ
Molded case circuit breakers
E, F, J, K, TLB4 150-1200A
Micro Versa Trip® molded case circuit
breakers
Current-limiting circuit breakers
Fuseless THLC 150-400A, TEL, TFL
Fused Tri-Break® 100-800A

GENERAL ELECTRIC

AKD – Switchgear



General description

AKD-8 Switchgear is industrial-duty equipment built to ANSI standards and uses 100% rated Low-Voltage AKR Power Circuit Breakers. It is designed to have more margin within its ratings to provide maximum continuity of service for those applications subject to severe duty, such as repetitive switching encountered with motor starting, power factor correction, demand control, load shedding, etc.

A major factor contributing to this extended continuity of service is the availability of renewal parts complete with detailed maintenance instructions and original equipment documentation. From a coordination standpoint, type AKR circuit breakers provide full selectivity with each other and with other protective devices. The bus sizing is based on temperature rise rather than on current density (as with switchboard construction).

AKD-8 switchgear is available with the following maximum nominal ratings:

- 600 Vac, 250 Vdc
- 5000 Aac, 6000 Adc
- 50/60 Hz
- 2200 Vac RMS dielectric
- 200 kA symmetrical short circuit

AKD-8 switchgear sections are provided in either 22", 30" or 38" widths.

It is designed to be operated in an ambient temperature between -30°C and 40°C.

Type AKR low-voltage power circuit breakers are available for AKD-8 switchgear in six frame sizes:

- 800A AKR-30, 30H, 30L
- 1600A AKR-50, 50H
- 2000A AKRT-50H
- 3200A AKR-75, 75H
- 4000A AKR-100
- 5000A AKR-125

All breakers can be equipped with current limiting fuses. AKRU-30 and AKRU-50 are provided with integrally mounted fuses, while a separate fuse carriage is required for AKRT-50H, AKR-75, AKR-100, and AKR-125.

Low-voltage circuit breakers rated 800/1600/2000 amps can be stacked in four-high combinations resulting in reduced floor space requirements. The 11-gauge, bolted modular-designed steel frame permits flexibility in arrangements of breakers and associated components.

AKD-8 switchgear houses low-voltage power circuit breakers, instrumentation, and other auxiliary circuit protective devices in single or multiple source configurations. AKD-8 switchgear can be applied either as a unit substation in indoor or outdoor construction.

AKD-8 switchgear is manufactured in GE's ISO 9002 certified facility in Burlington, Iowa. It complies with ANSI standards C37.20.1 and NEMA SG-5, and it is UL listed to standard 1558, file no. E76012. The switchgear has been conformance tested according to ANSI C37.51.

ANSI standards require that switchgear operate at the ratings of devices installed. Switchgear short circuit ratings are based on two 30-cycle withstand tests with 15-seconds interval, performed at 15% power factor and 635 Vac maximum. For switchboards, a single 3-cycle withstand test at 20% power factor and 600 Vac maximum is performed.

General Electric's AKD-8 low-voltage switchgear can help you meet today's challenges for greater productivity, increased operator safety and improved equipment reliability and maintainability.

GENERAL ELECTRIC

8000-Line Motor Control Centers



Fully integrated motor control centers

- Order management
- Coordinated drawings
- Applications support
- Mechanical transitions
- Start-up support

The traditional values pioneered in the 7700-Line Motor Control Center remain, but the 8000-Line has been significantly updated and improved. Added design flexibility and the latest component technology create an integrated product.

Now, you can add the application flexibility of solid-state reduced-voltage starters, Spectra RMS circuit breakers, programmable controls and ac adjustable

speed drives. This presents significant new opportunities for industrial users who are building new plants or updating existing facilities.

Technical data

Ratings

System	208, 240, 380, 575 volt; 50/60 Hz; 3ø4w, 3ø3w
Short circuit	22, 25, 42, 65, 100 kA symmetrical amperes
Bus bracing	42, 65, 100, kA symmetrical amperes
Horizontal/ Main/Neutral bus	600, 800, 1200 A aluminum (tin plated) 600, 800, 1000, 1200, 1600, 2000, A copper (tin- or silver-plated)

Vertical bus	300, 450, 600 A copper (tin- or silver-plated)
Ground bus	300, 600 A aluminum (tin- plated) 300, 600 A copper (tin- or silver-plated or unplated)
Standards	NEMA ICS 2-322, UL-845, CSA C22.2, EEMAC

Enclosures

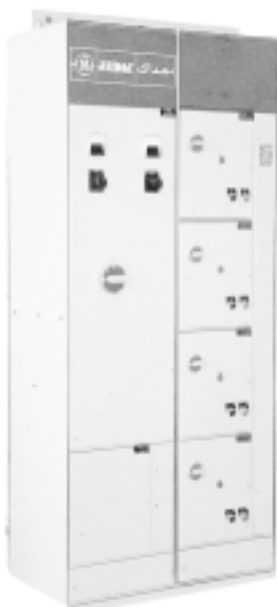
Types	Indoor, back-to-back, outdoor non walk-in, outdoor walk-in, outdoor walk-through NEMA 1 gasketed, NEMA 2 drip-proof, NEMA 3R rainproof, NEMA 12 dust- tight Seismic bracing - Zones 1 through 4
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Dimensions	78" or 90" high x 20", 24", 30", 36" or 40" wide x 13", 20", 22" or 30"
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Features & Options

- Insulated and isolated vertical bus with polyester barriers
- Vertical ground and load ground bus
- Horizontal and vertical bus shutters
- SIS wiring, ring terminals, wire markers
- Vacuum contactors
- Lighting and distribution panelboards
- Meter and relay panels
- Distribution transformers
- Solid state starters
- Drives
- PLCs

7700-Line Motor Control Centers



Design Features:

- Structures of heavy gauge steel provide reliable, permanent installation whether indoor or outdoor service is required. 7700-Line motor control centers stand up to severe environmental and service conditions.
- Each indoor section contains space for a 12-inch (305mm) high and a 6-inch (152mm) high isolated horizontal wireway compartment, one located at the top of the structure, the other at the bottom. The 12-inch (305mm) high compartment can be positioned at the top or bottom of the enclosure to best fit your incoming and outgoing cable schedule.
- For most configurations, an isolated, full-height vertical wireway is built into each section. This 4 5/8-inch (117mm) wide by 8-inch (203mm) deep wire trough provides convenient access for installation of power and control cable without disturbing adjacent unit compartments.
- Indoor Enclosures NEMA 1 General Purpose (standard) NEMA 1 Gasketed,

NEMA 2 Drip-proof, NEMA 12 Dust-tight.

- Outdoor Enclosures NEMA 3R non-walk-in (front only), NEMA 3R non-walk-in (back-to-back).
- A Zinc-phosphate primer treatment provides corrosion – resistance, topped off with light grey ANSI-61 finish. (Other colors upon request.)
- Designed and manufactured in accordance with NEMA ICS 2-322, U/L845 and IEC standards.
- Bracing for 25,000 Amperes RMS symmetrical fault current is standard. The main and vertical bus can be strengthened for short circuit capacities of 42,000, 65,000 and 100,000 A/C.
- Standard MCC main bus is 600 Amperes Tin-plated copper. We can also supply main bus ratings up to 2000 Amperes, 2500 Amperes.
- Vertical busbar standard ratings are 300-450-600 Amperes tin-plated or silver plated copper.
- Standard dimensions or section:
Height: 2286mm (90inch.)
Width: 508mm (20inch.)

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Depth: 508mm (20inch.) or 330mm (13inch.)

- Full drawout starter units simplify servicing. Safe unit replacement is easy with our drawout units. The power stab block is plugged into the vertical bus. Full drawout is possible because of split terminal boards. a positive system, wedge-shaped stabs, and mechanical insertion.
- Split terminals are next to the vertical wiring trough away from power devices,

to permit easy connection for field wiring. Split power terminal boards are available through 150 Amperes for full drawout of full-voltage non-reversing Size 4 starters.

- MCC is specifically designed to be interchangeable with previous General Electric motor control centers. No costly installation procedure or special hardware is needed to update your 7700/800 line center with a new vertical section or drawout unit.

- Size 1 and Size 2 starters can be interchanged in the same 305mm (12inch) high unit space. This makes system upgrading quick and easy by minimizing re-arrangement of the original layout.
- The operating handle mechanisms are of the G.E. TDR type (rotary-type). When the breaker is set in the ON position, the mechanism is locked and the door can not be opened. It can also be padlocked for additional security.

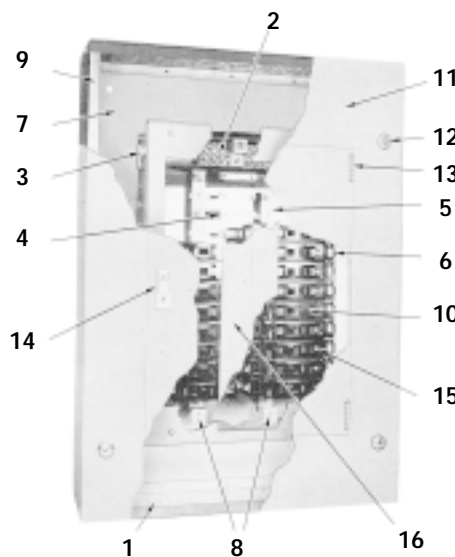
Panelboards

Types NAB, NHB Panelboards

Service—NAB, Max. 240V, ac; 125/250V, dc. NHB, Max. 600V, ac; 250V, dc

Mains — 800 A, main lugs or 600 A main breaker

Branches — **Standard** — 15-150A., 1-, 2-, 3-pole; Sub/feed—225 A. max. 2- & 3-pole



Features

1. **Ample variety of knockouts** supplied as standard in top and bottom of boxes.
2. **Solid neutral bar** has solderless mechanical type connectors.
3. **Panel frame is reinforced steel** for rigid support and accurate alignment of interior with front.
4. **Bus bars and connection straps are bolted together** and rigidly supported on molded insulators. Connection straps adequately rated for maximum branch-circuit capacity. Bus bars are located behind circuit breakers. Branch straps are anti-turn type.
5. **Sequence phasing of bus** – modular drilling of bus bars permits field rearrangement to maintain balanced phase loading.
6. **Solderless connectors** at load terminals of branch devices permit quick wiring.
7. **Code-size wiring gutters** provide ample space for wiring.
8. **Mains** – Panelboards are available with removable anti-turn solderless mechanical lugs or moldedcase circuit breakers in mains.
9. **Code-gage galvanized sheet-steel box** meets underwriters' standards. Full flanged for strength and rigidity.

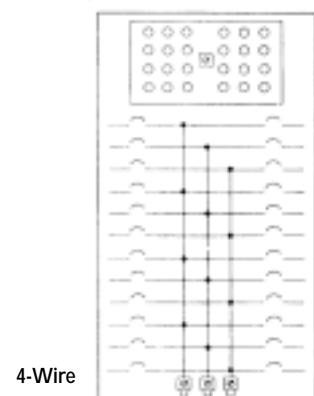
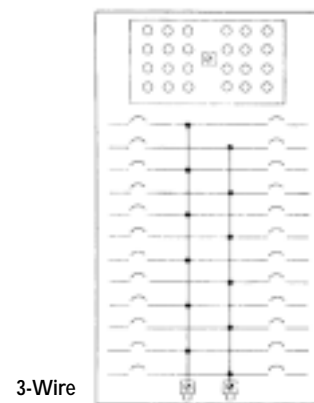
10. **Interchangeable branch-circuit protective units are quick-make, quick-break types.** Branch breakers are thermalmagnetic types and are trip-free on overload or short circuit. Panelboards utilize bolted-in breakers.
11. **Fronts are code-gage steel** with attractive grey finish over rust inhibitor. Available for flush or surface mounting.
12. **Rotating, quarter-turn trim clamps** are provided to permit easy attachment of front to box and compensate for any misalignment in box mounting.
13. **Semiconcealed hinges** provide neat appearance.
14. **Combination catch and lock**, flush-type, with milled key. On doors more than 48 inches high, a three-point combination catch and lock is provided with vault-type handle. All locks are keyed alike. **Directory card holder and card** provided for easy branch circuit identification. Installation instruction card included.
15. **Branch circuits clearly marked** to assure quick circuit identification and lessen possibility of switching wrong circuit.
16. **Dead-front shield** provides access to wiring gutters with front removed, without exposing bus compartment.

Standards

- National Electrical Code
- NEMA No. PB1
- Underwriters' Laboratories No. UL-67, Panelboards
- No. UL-50, Cabinets and Boxes
- U. S. Federal Specifications Circuit Breaker Panelboards Type 1, Class 1, per W-P-115a Circuit Breakers W-C-375b. For class, see molded-case circuit breaker selection table.

Typical Wiring Diagram

Types NLTO, NLAB



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Typical Modifications Available

1. Increased Gutters – side or end gutters.
2. Increased Depth.
3. Weatherproof Cabinets—with single door or door back-of-door.
4. Extra space in Cabinet—for time clock, current transformer, etc.
5. Dust-Resisting Cabinets—gasket furnished for door and between box and front.
6. Dripproof Cabinets—Drip hood on top of cabinet, or drip shield welded to front over door.
7. Increased Gage—10 gage maximum.
8. Special Knockouts or Drilling—drilling template must accompany order.
9. Remote Control Switches—mechanically held, 2- or 3-pole, 30-225 amperes or magnetically held 2 or 3 pole 30-300 amperes, starters.
10. Push-button, toggle, or momentary contact switch or pilot light
11. Handle Locking Device.
12. Sub-Feed Breakers, 225 amp. max.
13. Sub-Feed Lugs.
14. Split Bus or Meter Loop—one per panel, includes splitting bus bars and main lugs for separate section.
15. Increased Mains.
16. Special Colors.
17. Concealed Hinges.

Types NLTQ, NLAB Panelboards

NLTQ-Plug-Branch Breakers

NLAB Bolt-on Branch Breakers

Service—NLTQ, NLAB

–220/127, 380/220 or
415/240Vac Max.

Mains — 800 A, main lugs or 600 A
main breaker

Branches — **Standard** — 15-

150A., 1-, 2-, 3-pole;
Sub/feed—225 A. max. 2-
& 3-pole

Features

1. **Ample variety of knockouts supplied** as standard in top and bottom of boxes.
2. **Solid neutral bar** has solderless mechanical type connectors.
3. **Panel frame is reinforced steel** for rigid support and accurate alignment of interior with front.

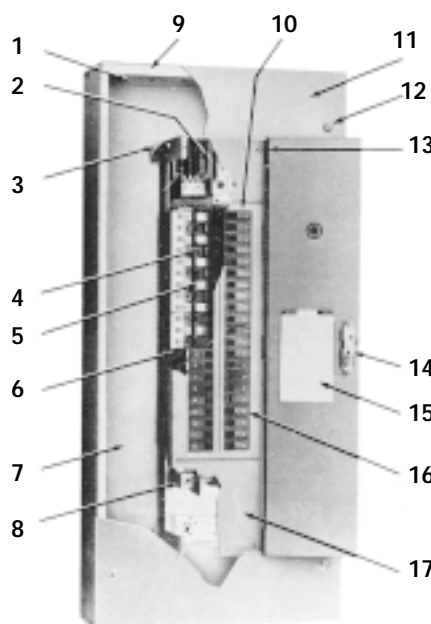
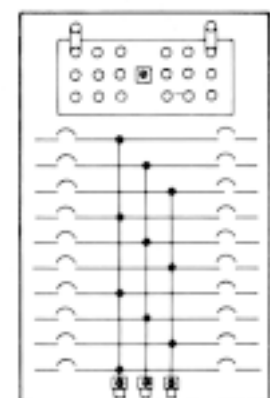
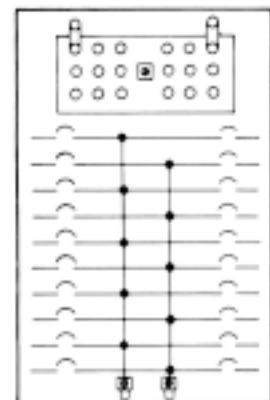
4. **Bus bars and connection straps are bolted together** and rigidly supported on molded insulators. Connection straps adequately rated for maximum branch-circuit capacity. Bus bars are located behind circuit breakers.
5. **Sequence phasing of bus** – modular drilling of bus bars permits field rearrangement to maintain balanced loading.
6. **Solderless connectors** at load terminals of branch devices permit quick wiring.
7. **Code-size wiring gutters** provide ample space for wiring.
8. **Mains** – Panelboards are available with removable anti-turn solderless mechanical lugs or molded-case circuit breakers in mains.
9. **Code-gage galvanized sheet-steel box meets Underwriters' standards.** Full flanged for strength and rigidity.
10. **Interchangeable branch-circuit protective units are quick-make, quick-break types.** Branch breakers are thermalmagnetic types and are trip-free on overload or short circuit. NLTQ panelboards feature plug-in breakers while NLAB utilize bolted-in breakers.
11. **Fronts are code-gage steel** with attractive grey finish over rust inhibitor. Available for flush or surface mounting.
12. **Rotating, quarter-turn trim clamps** are provided except on

column types to permit easy attachment of front to box and compensate for any misalignment in box mounting.

13. **Semiconcealed hinges** provide neat appearance.
14. **Combination catch and lock**, flush-type, with milled key. On doors more than 48 inches high, a three-point combination catch and lock is provided with vault-type handle. All locks are keyed alike.
15. **Directory card holder and card** provided for easy branch circuit identification. Installation instruction card included.
16. **Branch circuits clearly marked** to assure quick circuit identification and lessen possibility of switching wrong circuit.
17. **Dead-front shield** provides access to wiring gutters with front removed, without exposing bus compartment.

Underwriters' Laboratories Listing on all panels, except where noted, and are suitable for use as service entrance equipment.

Typical Wiring Diagram Types NAB, NHB

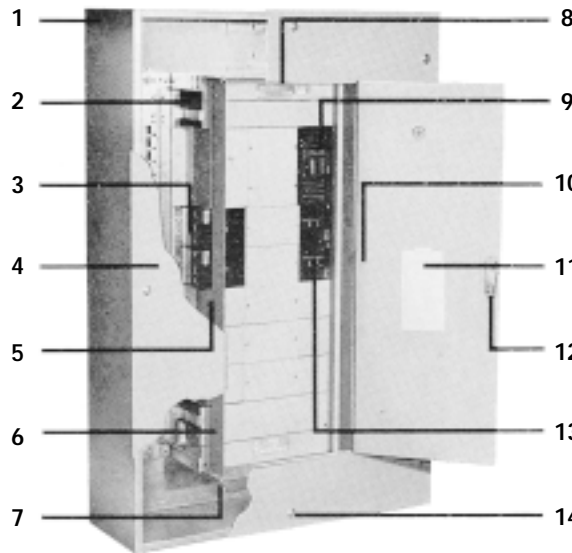


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Typical Modifications Available

1. Increased Gutters – side or end gutters.
2. Increased Depth.
3. Weatherproof Cabinets—with single door or door back-of-door.
4. Extra Space in Cabinet—for time clock, current transformers, etc.
5. Dust-Resisting Cabinets—gasket furnished for door and between box and front.
6. Increased Gage – 10 gage maximum.
7. Special Knockouts or Drilling—drilling template must accompany order.
8. Remote Control Switches – mechanically held 2 or 3 pole 30-225 amperes, magnetically held 2 or 3 pole 30-300 amperes, starters.
9. Push-button, Toggle, Momentary Contact Switch, or Pilot Light mounted in panelboard trim.
10. Handle Locking Devices.
11. Sub-Feed Breakers—225 amp. max.
12. Sub-Feed Lugs—one per panel, specify double main lug or thru-feed construction.
13. Split Bus or Meter Loop—one per panel, included splitting bus bars and main lugs for separate section.
14. Increased Mains
15. Special colors
16. Concealed Hinges



13. **Branch Circuits** clearly marked to assure quick circuit identification and lessen possibility of switching wrong circuit.
14. **Rotating, quarter-turn trim clamps** are provided to permit easy attachment of front to box and compensate for any misalignment in box mounting.

Typical Modifications Available

4. **Fronts are code-gage steel** with attractive gray finish over rust inhibitor. Available for flush or surface mounting.
5. **Code-size wiring gutters** provide ample space for wiring.
6. **Antu-turn branch straps.**
7. **Mains** – Panelboards are available with removable, anti-turn solderless mechanical lugs or molded-case circuit breakers in mains.
8. **Dead-front shield** Provides access to wiring gutters with front removed, without exposing bus compartment.
9. **Interchangeable branch-circuit protective units are quick-make, quick-break types.** Branch breakers are thermal-magnetic types and are trip-free on overload or short circuit.
10. **Semi-concealed hinges** provide neat appearance.
11. **Directory card holder and card** provided for easy branch circuit identification. Installation instruction card included.
12. **Combination catch and lock,** flush-type, with milled key. On doors more than 48 inches high, a three-point combination catch and lock is provided with vault-type handle. All locks are keyed alike.
1. Increased gutters – side or end gutters.
2. Increased depth.
3. Raintight cabinets—with single door, or door back-of-door.
4. Extra space in cabinet for time clock, current transformers, etc.
5. Dust-resisting cabinets—gasket furnished for door and between box and front.
6. Drip-proof cabinets—Drip hood on top of cabinet, or drip shield welded to front over door.
7. Increased gage—10 gage maximum.
8. Special knockouts or drilling—drilling template must accompany order.
9. Remote control switches—mechanically or magnetically held, 2- or 3-pole, 30-300 amperes.
10. Automatic transfer switches.
11. Push-button, toggle, momentary contact switch or pilot light—mounted in panelboard trim.
12. Handle locking devices.
13. Sub-feed lugs—one per panel, specify double main lug or thru-feed construction (1200 amp max.)
14. Split bus or meter loop—one per panel, includes splitting bus bars and main lugs for separate section.

Type CCB Panel board Circuit Breaker

Main Lugs
1200 Amperes Max.
Main Circuit Breaker
1200 Amperes Max.
600 Volts, ac.
250 Volts, dc.

Features

1. **Code-gage galvanized sheet-steel box** meets Underwriters standards. Full flanged for strength and rigidity.
2. **Panel frame is reinforced steel** for rigid support and accurate alignment of interior with front.
3. **Solderless connectors** at load terminals of branch devices permit quick wiring.

GENERAL ELECTRIC

Power Capacitors

Type GEMATIC™ Power Capacitors

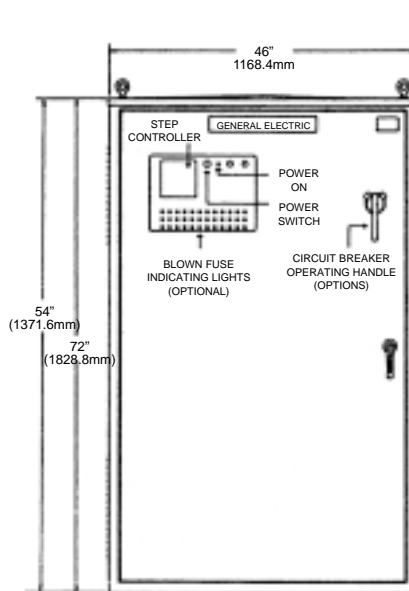
Enclosed Automatic Power Factor Control Equipment Three-phase, 60 Hertz 240, 480, 600 Volts.

Description

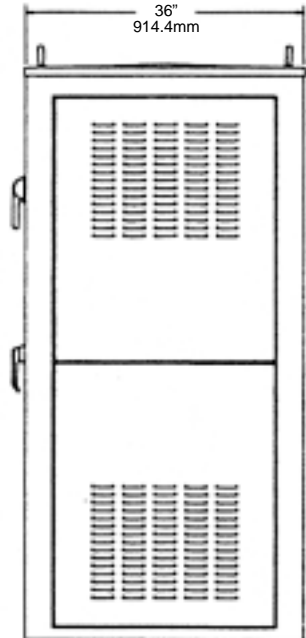
General Electric GEMATIC multi-step power factor control equipment automatically maintains desired power factor level, adjusting to system load requirements in selected kVAR steps. The solid-state control responds to a current signal from customer's current transformer and to a voltage signal from a potential transformer included in the equipment. These are complete packages including:

- Solid state multi-step power factor control
- Digital display of power factor and capacitor stages
- Trays of capacitor cells
- Contactors
- Inductors
- Potential transformer
- Single door
- Plated copper bus
- NEMA 1 enclosure (NEMA 3R or NEMA 12 optional)
- Three fuses for each step
- Modular construction easily uprated
- UL Listed. CSA Labeling available upon request.

GEMATIC equipments feature modular cell trays of GEM cells. GEM capacitor cells feature a metallized polypropylene film system providing a self-healing action and reduced energy losses. The GEM biodegradable



Front View



Right Side View

impregnant is a class IIIB combustible fluid. Discharge resistors on each cell reduce the cell voltage to 50 volts or less within one minute of the de-energization.

- The capacitor cells are single phase connected for 3 phase, each cell includes a UL Recognized pressure sensitive interrupter (PSI). Capacitors are designed for a maximum of 110% of rated voltage and 135% of rated current, and 135% of rated kVAR.

- CT to be supplied by customer. The power factor controller required a CT signal for operation. The CT primary should be sized for the **total phase current** to be compensated (capacitor current and load current). The CT secondary should be rated 5A. The CT is connected to one phase of the equipment, the factory installed PT is connected across the other two phases.

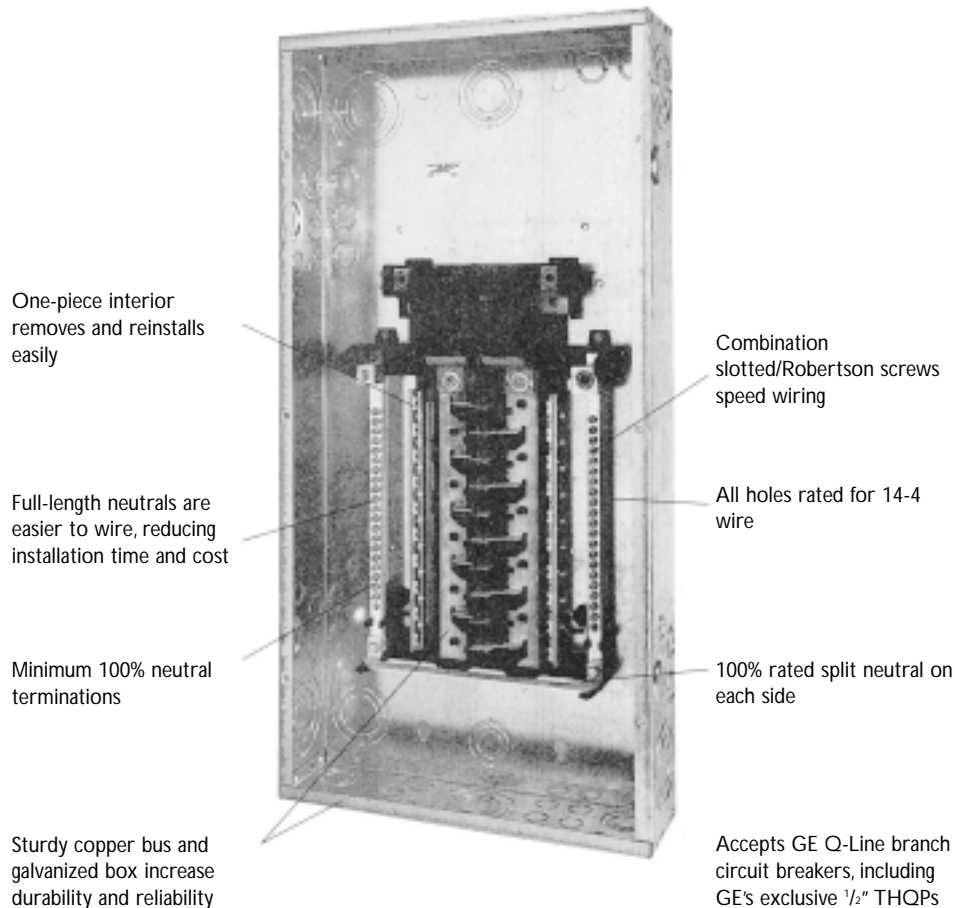
*For complete Range or Power Correction Equipment,
Please contact ELECTROLINES.*

GENERAL ELECTRIC

Load Centers New PowerMark Gold™ Load Centers

Key Features and Benefits

GE's new PowerMark Gold™ load centers give you higher performance for a lower installed cost



The PowerMark Gold load center represents the next generation in residential load centers. It reduces total installed cost through faster, easier installation; enhanced application flexibility; and reduced inventory requirements, while simultaneously delivering enhanced product quality.

Product Features

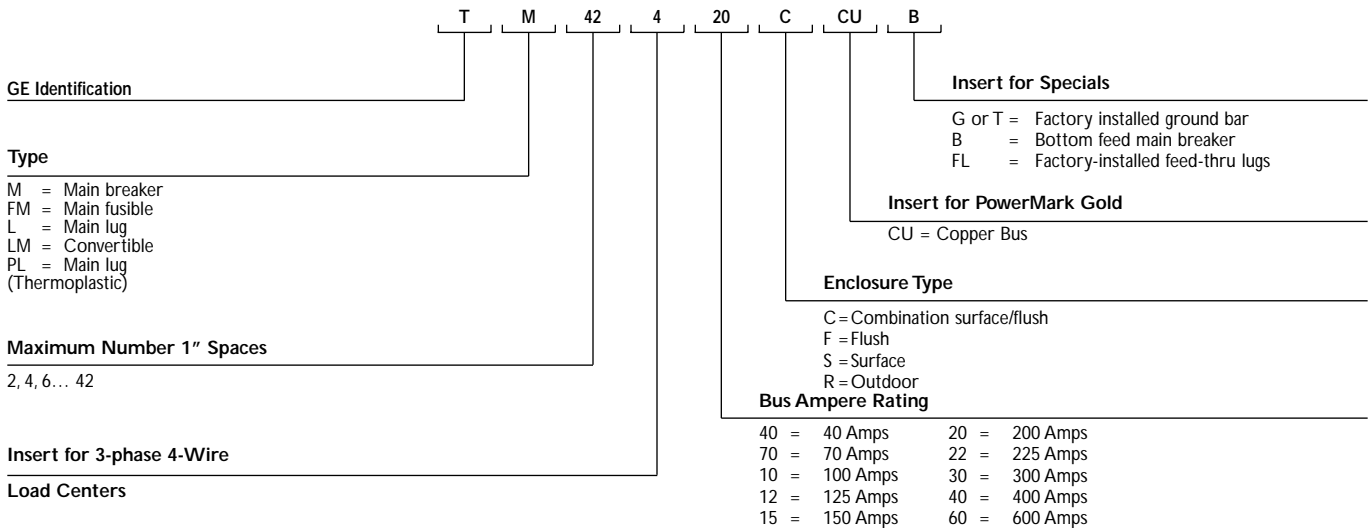
- Single phase, 100-225A, 12-42 circuits
- Copper bus with 22kAIC main standard, series rated 22/10
- Split neutrals extend the full length of the interior for ease of wiring
- Galvanized box and breaker mounting rails
- Easily removable, easily reinstallable interior
- Entire main lug line easily convertible to main breaker
- Combination surface/flush front with spring reinforced pan
- Front packed in inner carton for added protection
- Field installable feed-through lugs up to 200A
- Straight-through main wiring
- Clearly marked main breaker and circuit numbers stamped on front
- Available isolated ground bar
- Box is smaller and lighter and maintains optimum wire-bending space
- Fewer catalog numbers reduce inventory requirements while maintaining application flexibility

Electrolines Est.

GENERAL ELECTRIC

PowerMark Plus™ and Gold™ Load Centers

Catalog Number Guide for Load Centers
(Catalog number for illustrative purposes only)



ELECTROLINES - KSA

Electrolines, distributes a full line of electrical products, including distribution equipment, transformers, industrial controls, lamps, lighting, wiring devices, motors, drives, silicones, conduit, wire and accessories, boxes, fittings, enclosures, hazardous duty, components, fuse, ballast and lighting fixtures from other leading manufacturers.

GENERAL ELECTRIC

PowerMark Gold™ Circuit Breaker Load Centers

Tin Plated Copper Bus
22kAIC when used with THQMV or THHQL. Main UL Listed (Panelboards No. 67)
60°C/75°C Conductor Rating
Indoor Fronts Combination Surface/Flush
Suitable for Use as Service Entrance
Equipment when installed in accordance with the National Electrical Code

Single-phase, Three-Wire, 120/240 Volts ac Factory Installed Main Lugs – Field Convertible to Main Circuit Breaker

Main Ampere Rating	Maximum Spaces				Total 1-Pole Spaces	Indoor Type 1 Enclosure	Outdoor Type 3R Enclosure	Main Wire Size AWG/ kcmil Cu-AI	Equipment Ground Kit
	1" THQL		1/2" THQP			Catalog Number	Catalog Number		Order Separately
	1p	2p	1p	2p					
125	12	6	24	10	24	TLM1212CCU	TLM1212RCU	6-2/0 TLM2412RCU	TGK12 or TGK24
	16	8	16	6	24	TLM1612CCU	-		TGK12 or TGK24
		24	12	-	-	24	TLM2412CCU		TGK24
150	20	10	20	8	30	TLM2015CCU	-	1-3/0(Cu) 2-3/0(AI)	TGK32
	24	12	12	4	30	TLM2415CCU	TLM2415RCU		TGK24 or TGK32
200		12	6	24	10	24	-	TLM1220RCU 1-250(Cu) 2/0-250(AI)	TGK24
	16	8	32	14	32	TLM1620CCU	TLM1620RCU		TGK32
	20	10	40	18	40	TLM2020CCU	TLM2020RCU		TGK24 or TGK42
	32	16	16	6	40	TLM3220CCU	-		TGK32
	40	20	-	-	40	TLM4020CCU	TLM4020RCU		TGK42
225	42	20	-	-	42	TLM4222CCU	TLM4222RCU	1-300(Cu) 2/0-300(AI)	TGK42

Factory Installed Main Breaker

Main Ampere Rating	Maximum Spaces				Total 1-Pole Spaces	Indoor Type 1 Enclosure	Outdoor Type 3R Enclosure	Main Wire Size AWG/ kcmil Cu-AI	Equipment Ground Kit
	1" THQL		1/2" THQP			Catalog Number	Catalog Number		Order Separately
	1p	2p	1p	2p					
100	12	6	24	10	24	TM1210CCU	TM1210RCU	4-1/0	TGK12 or TGK24
	20	10	-	-	20	TM2010CCU	TM2010RCU		TGK24
	32	16	-	-	32	TM3210CCU	-		TGK32
125	12	6	24	10	24	TM1212CCU	TM1212RCU	1-2/0 TM2412RCU	TGK12 or TGK24
	16	8	16	6	24	TM1612CCU	-		TGK12 or TGK24
		24	12	-	-	24	TM2412CCU		TGK24
150	8	4	16	6	16	-	TM815RCUFL	1-3/0(Cu) 2-3/0(AI)	TGK24
	16	8	32	14	32	TM1615CCU	TM1615RCU		TGK24 or TGK32
	24	12	12	4	30	TM2415CCU	TM2415RCU		TGK24 or TGK32
	32	16	-	-	32	TM3215CCU	TM3215RCU		TGK32
200	8	4	16	6	16	-	TM820RCUFL	1-250(Cu) 2/0-250(AI)	TGK24
	16	8	32	16	32	TM1620CCU	-		TGK32
	20	10	40	20	40	TM2020CCU	TM2020RCU		TGK24 or TGK42
	32	16	16	6	40	TM3220CCU	TM3220RCU		TGK32
	40	20	-	-	40	TM4020CCU	TM4020RCU		TGK42
225	42	20	-	-	42	TM4222CCU	TM4222RCU	1-300(Cu) 2/0-300(AI)	TGK42

GENERAL ELECTRIC

PowerMark Plus™ and Gold™ Circuit Breaker Load Centers

UL Listed (Panelboards No. 67)
60°C/75°C Conductor Rating
Indoor Fronts Combination Surface/Flush
Suitable for Use as Service Entrance
Equipment when Installed in
Accordance with the National
Electrical Code
22,000 Amps RMS Symmetrical
Short Circuit Rating except
where noted



TLM2020CCU

Single-phase, Three-Wire, 120/240 Volts ac, Top Feed

Factory Installed Main Lugs – PowerMark Gold

Main Ampere Rating	Maximum Spaces				Total 1-Pole Spaces	Indoor Type 1 Enclosure	Outdoor Type 3R Enclosure	Main Wire Size AWG/ kcmil Cu-Al	Equipment Ground Kit	
	1" THQL		1/2" THQP			Catalog Number	Catalog Number		Order Separately	
	1p	2p	1p	2p						Cat. No.
40	2	1	4	1	4	TL240C	TL240R1	14-6(Cu)	TGL1	
	2	1	4	1	4	TLP240C	TPL240R	12-6(Al)	TGL1	
70	2	1	4	1	4	TL270C	TL270R1	6-2/0	TGL1	
	2	1	4	1	4	TL270C	TL270R1		TGL1	
125	2	1	4	1	4	TL212C	TPL212R	1-2/0	TGL1	
	4	2	8	3	8	TL412C	TL412R1		TGL1	
	4	2	8	3	8	TL412CT	TL412RT1		TGL1 Installed	
	4	2	8	3	8	-	TL412R2		TGL1	
	4	2	8	3	8	TPL412C	TPL412R		TGL1	
	4	2	8	3	8	TPL412CT	TPL412RT		TGL1 Installed	
	6	3	12	4	12	TLM612F1,S1	TLM612R		TGL2	
	8	4	16	6	16	TLM812F1,S1	TLM812R		TGL2	
	12	6	24	10	24	TLM1212CCU	TLM1212RCU		6-2/0	TGK12 or TGK24
	12	6	24	10	24	TLM1212CCUG	-			TGK24 Installed
150	16	8	16	6	24	TLM1612CCU	-	1-3/0(Cu) 2-3/0(Al)	TGK12 or TGK24	
	24	12	-	-	24	TLM2412CCU	TLM2412RCU		TGK24 or TGK32	
200	20	10	20	8	30	TLM2015CCU	-	1-250(Cu) 2/0-250(Al)	TGK32	
	24	12	12	4	30	TLM2415CCU	TLM2412RCU		TGK24 or TGK32	
	12	6	24	10	24	-	TLM1220RCU		TGK24	
	16	8	32	14	32	TLM1620CCU	TLM1620RCU		TGK32	
	16	8	32	16	32	TLM1620CCUG	-		TGK32 Installed	
	20	10	40	18	40	TLM2020CCU	TLM2020RCU		TGK24 or TGK42	
	20	10	40	18	40	TLM2020CCUG	-		TGK42 Installed	
32	16	16	6	40	TLM3220CCU	-	TGK32			
225	40	20	-	-	40	TLM4020CCU	TLM4020RCU	1-300(Cu) 2/0-300(Al)	TGK42	
	42	20	-	-	42	TLM4222CCU	TLM4222RCU		TGK42	
400	24	20	-	-	24	TL2440FS	TL2440R	(2)2/0-250	(2) TGL2	
	42	20	-	-	42	TL4240FS	TL4240R		(2) TGL2	
600	42	20	-	-	42	TL4260FS	TL4260R	(2)250-350(Cu) (2)350-500(Al)	(2) TGL2	

GENERAL ELECTRIC

PowerMark Plus™ and Gold™ Circuit Breaker Load Centers Main Breaker Factory Installed

UL Listed (Panelboards No. 67)
60°C/75°C Conductor Rating
Indoor Fronts Combination Surface/Flush
Suitable for Use as Service Entrance
Equipment when Installed in
Accordance with the National
Electrical Code

Single-phase, Three-Wire, 120/240 Volts ac, Top Feed Factory Installed Main Breaker – PowerMark Gold

Main Ampere Rating	Maximum Spaces				Total 1-Pole Spaces	Indoor Type 1 Enclosure	Outdoor Type 3R Enclosure	Main Wire Size AWG/ kcmil Cu-Al	Equipment Ground Kit
	1" THQL		1/2" THQP			Catalog Number	Catalog Number		Order Separately
	1p	2p	1p	2p					Cat. No.
100	8	4	16	6	16	TM810F1,S1	TM810R	4-1/0	TGL2
	12	6	24	10	24	TM1210CCU	TM1210RCU		TGK12 or TGK24
	12	6	24	10	24	TM1210CCUG	-		TGK24 Installed
	20	10	-	-	30	TM2010CCU	TM2010RCU		TGK24
	32	16	-	-	32	TM3210CCU	-		TGK32
125	12	12	24	10	24	TM1212CCU	TM1212RCU	1-2/0	TGK12 or TGK24
	12	12	24	10	24	TM1212CCUG	-		TGK24 Installed
	16	8	16	6	24	TM1612CCU	-		TGK12 or TGK24
	16	8	16	6	24	TM1612CCUG	-		TGK24 Installed
	24	12	-	-	24	TM2412CCU	-		TGK24
150	8	4	16	6	16	-	TM815RCUFL	1-3/0(Cu) 2-3/0(Al)	TGK24
	16	8	32	14	32	TM1615CCU	TM1615RCU		TGK24 or TGK32
	16	8	32	14	32	TM1615CCUG	-		TGK32 Installed
	24	12	12	4	30	TM2415CCU	TM2415RCU		TGK24 or TGK32
	32	16	-	-	32	TM3215CCU	TM3215RCU		TGK32
200	8	4	16	6	16	-	TM820RCUFL	1-250(Cu) 2/0-250(A)	TGK24
	16	8	32	16	32	TM1620CCU	-		TGK32
	16	8	32	16	32	TM1629CCUG	-		TGK32 Installed
	20	10	40	20	40	TM2020CCU	TM2020RCU		TGK24 or TGK42
	20	10	40	20	40	TM2020CCUG	-		TGK42 Installed
	32	16	16	6	40	TM3220CCU	TM3220RCU		TGK32
	40	20	-	-	40	TM4020CCU	TM4020RCU		TGK42
225	42	20	-	-	42	TM4222CCU	TM4222RCU	1-300(Cu) 2/0-300(Al)	TGK42
300	42	20	-	-	42	TM4230F,S	-	(2) TGL2	
400	24	12	-	-	24	-	TM2440R	(2)2/0-250	(2) TGL2
	42	20	-	-	42	TM4240F,S	TM4240R		(2) TGL2

GENERAL ELECTRIC

PowerMark Plus™ Circuit Breaker Load Centers

Three-phase

Main Circuit Breaker or Main Lugs

Factory Installed

UL Listed (Panelboard No. 67)

60°C/75°C Conductor Rating

10,000 Amps rms Symmetrical

Short Circuit Rating Standard
(Main Breaker)

22,000 Amps rms Symmetrical

Short Circuit Rating Optional

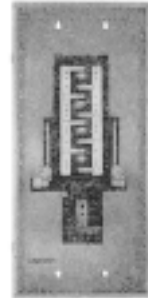
(Main Lugs, Main Breaker by field
replacing main breaker.)

Indoor Fronts Combination Surface/Flush

Suitable for Use as Service Entrance

Equipment When Installed in

Accordance the National Electrical Code



TM24420CB

Three Phase, Four-wire, 208Y/120 Volts ac, Top Feed, Main Lugs Factory Installed

Main Ampere Rating	Maximum Spaces			Total 1-Pole Spaces	Indoor Type 1 Enclosure	Outdoor Type 3R Enclosure	Main Wire Size AWG/ kcmil Cu-Al	Equipment Ground Kit
	1" THQL				Catalog Number	Catalog Number		Order Separately
	1-pole	2-pole	3-pole					
125	12	6	4	12	TL12412C	TL12412R	6-2/0	TGK12 or TGK24
150	18	8	6	18	TL18415C	TL18415R	1-3/0Cu or 2/0-3/0Al	TGK24 or TGK32 TGK24 or TGK32
	24	12	8	24	TL24415C	TL24415R		
200	18	8	6	18	TL18420C	TL18420R	1-250 Cu or 2/0-250 Al	TGK32 TGK32 TGK42
	30	14	10	30	TL30420C	TL30420R		
	42	20	14	42	TL42420C	TL42420R		
225	30	14	10	30	TL30422C	-	1-300 Cu or 2/0-300 Al	(2) TGL2 (2) TGL2 Indoor/ TGK42 Outdoor 3R
	42	20	14	42	TL42422C	TL42422R		
400	24	12	8	24	TL24440F, S	TL24440R	(2)2/0-250	(2)TGL2 (2) TGL2
	42	20	14	42	TL42440F, S	TL42440R		
600	42	20	14	42	TL42460F, S	TL42460R	(2)250-350 Cu or (2)350-500 Al	(2)TGL2

Three Phase, Four-wire, 208Y/120 Volts ac, Top Feed, Main Breaker Factory Installed

Main Ampere Rating	Maximum Spaces			Total 1-Pole Spaces	Indoor Type 1 Enclosure	Outdoor Type 3R Enclosure	Main Wire Size AWG/ kcmil Cu-Al	Equipment Ground Kit
	1" THQL				Catalog Number	Catalog Number		Order Separately
	1-pole	2-pole	3-pole					
100	12	6	4	12	TM12410C	-	6-1/0 Cu or 4-1/0 Al	TGK12 or TGK24 TGK24 or TGK32
	18	8	6	18	TM18410C	TM18410R		
125	30	14	10	30	TM30412C	TM30412R	1-3/0 Cu or /0-3/0 Al	TGK32
150	24	12	8	24	TM24415C	TM24415R	1-3/0 Cu or 2/0-3/0 Al	TGK32 TGK32 TGK42
	30	14	10	30	TM30415C	TM30415R		
	42	20	14	42	TM42415C	-		
200	30	14	10	30	TM30420C	TM30420R	1-250 Cu or 2/0-250 Al	TGK32 TGK42
	42	20	14	42	TM42420C	TM42420R		
225	42	20	14	42	TM42422C	TM42422R	1-300 Cu or 2/0-300 Al	(2)TGL2 Indoor/ TGK42 Outdoor
300	42	20	14	42	TM42430F,S	-	(1)6-600 or (2)2/0-250	(2)TGL2
400	42	20	14	42	TM42440F,S	TM42440R	(1)6-600 or (2)2/0-250	(2)TGL2

Electrolines Est.

GENERAL ELECTRIC

Molded Case Circuit Breakers Enclosures

70-1200 Amperes
240-600 Volts ac,
125-250 Volts dc
Suitable for use as service
equipment
60°C/75°C conductor
ratings.
Short circuit ratings
are equal to the rating
of the installed breaker.



Type 1,
indoor surface or
flush mounting



Type 3R
outdoor, raintight



Types 12K and 12 rotary
handle integral with
breaker



Types 4/4X
stainless steel,
watertight, dust tight

Breaker Type	Max. Amp Rating	Poles	Type 1 ^① Indoor	Type 3R ^② Outdoor	Type 12 ^③ Oil-tight/ Dust-tight	Type 4/4X Stainless Steel	Neutral Catalog Number	Neutral for Ground Fault	Current Trans. for Gd. Fault
THQL, THQL-GF, THQL	70	1,2,3	TQL70F ^④ TQL70S ^⑤	TQL70R	-	-	included	-	-
	100	1,2,3	TQL100F ^④ TQL100S ^⑤	TQL100R					
	125	1,2	TPL212C	TPL212R					
THQC, THHQC, TXQC,THQE	100	1,2,3	TQC100F ^④ TQC100S	TQC100R	-	-	included	-	-
TEB, TED,THED	100	2,3	TE100F TE100S	TE100R	TE100D TE100J ^⑥	TE100CS ^⑥	included	-	-
SE150	100	2,3	TE100F TE100S	TE100R	SE100D SE100J	SE100CS ^⑥	included	-	-
TED,THED	150	2,3	TE150F TE150S	TE150R	-	-	included	-	-
SE150	150	2,3	TE150F TE150S	TE150R	-	-	included	-	-
TB1	100	3	-	-	TB100J	-	included	-	-
TQD,THQD	225	2	-	TQD225NR ^④	-	-	included	-	-
		2,3	TQD225F ^④ TQD225S	TQD225R	-	-	included	-	-
TFJ TFK,THFK	225	2,3	TF225F TF225S ^⑤	TF225R	TF225D TF225J	TF225CS	TNIA225	-	-
SF250	250	2,3	TF225F TF225S	TF225R	SF250D SF250J	SF250CS	TNIA225	-	-
TJD,TJJ TJK,THJK	400 ⑦	2,3	TJ400F	TJ400R TJ400S	TJ400D	TJ400CS TJ400J	TNIA400	-	-
TB4	400	2,3	-	-	TB400J	-	TNIA400	-	-
TJK,THJK	600	2,3	TJ600F TJ600S	TJ600R	TJ600J	TJ600CS	TNIA400 ^⑧ TNIA600	-	-
TJ4V, THJ4V,TJL4V	600	3	TJ4V600F TJ4V600S	TJ4V600R	TJ4V600J	TJ4V600CS		TNIA400VG TNIA600VG	TSRG201 TSRG202 TSRG203 TSRG204 TSRG205 TSRG206
TJH TJL	600	3	TJ9V600F TJ9V600S	TJ9V600R	TJ9V600J	-	-	-	
SG400	400	2,3	SG400F SG400S	SG400R	SG400D SG400J	SG400CS	TNIA400	TNIA400VG	TSRG201 TSRG202 TSRG203 TSRG204
SG600	600	2,3	SG600F SG600S	SG600R	SG600J	-	TNIA600	TNIA600VG	TSRG205 TSRG206
TB6	600	3	-	-	TB800J	-	TNIA400 TNIA600	-	-
TB8	800	3	-	-	TB800J	-	TNIA400 TNIA600 TNIA800	-	-
TKMA, THKMA	1200	2,3	TK4V1200F TK4V1200S	TK4V1200R	TK1200J	-	TNIA400 ^⑧ TNIS600 ^⑧ TNIA800 TNIA1200 TNIA1200	-	-
TKL4V, TK4V	1200	3	TK4V1200F TK4V1200S	TK4V1200R	TKV1200J	-		TNIA800G TNIA1200G	- TSKG408 TSKG410 TSKG412
TKH,TKL	1200	3	-	-	TK9V1200J	-		-	-
SK1200	1200	2,3	TK4V1200F TK4V1200S	TKV1200R	SK1200J	-	TNIA400 TNIA600 TNIA800 TNIA1200 TNIA1200	TNIA800G TNIA1200G	TSKG408 TSKG410 TSK412

① F-flush; S-surface.
② 70-250 amp devices have removable closing cap. Larger ampere devices require field cut openings. Order hubs separately.

③ D = Type 12K with KO's
J = Type 12 without KO's
④ Suitable only for 2-pole breaker.
⑤ For three-pole breaker only.

⑥ Neutral not included; if required, order Catalog Number TN1100.
⑦ Do not use with TJ4V or THJ4V.
⑧ Do not use with TK4V or THJ4V.

⑨ Suitable for parallel 250 MCM maximum. If larger cable is applied, use 600-amp enclosure.
⑩ For 250A rating use copper cable only.
⑪ Add suffix X2 for 415Y240 Vac application

CROUSE-HINDS

EPC Circuit Breakers and Enclosures

Application:

EPC Circuit breakers and enclosures are used:

- for service entrance*, feeder or branch circuit protection for lighting, heating, appliance and motor circuits
- in areas made hazardous due to the presence of flammable vapors, gases or combustible dusts
- in damp, wet or corrosive locations
- indoors or outdoors at petroleum refineries, chemical or petrochemical plants and other process industry facilities where similar hazards exist
- to provide disconnect means, short circuit protection and thermal time delay overload protection

Features:

- Quick-opening covers—less than two turns to remove or install
- Three section design for ease of installation
- Water-shedding construction with female threads on top cover, male threads on bottom cover, and top cover skirted
- Specially located stops and locks insure

adequate thread engagement and prevent overtightening

- Separate replaceable mounting bracket attached to the rear of the body provides three-point suspension for quick installation and leveling – one keyhole slot at top and two open slots at bottom
- Bodies have two taper-tapped conduit hubs with integral bushings on the top, and two more directly below
- Mounting plates are supplied with all necessary holes and hardware to attach any of the circuit breakers. Breaker and interior mounting frames are easily removed as a unit, providing free access to the wiring chamber
- Breaker is operated by an external handle which can be padlocked in either “ON” or “OFF” positions by as many as three padlocks. Breaker is trip-free of the handle and will open under short circuit or overload, even if the handle is locked in the “ON” position

Standard Materials:

- Bodies and covers – copper-free-aluminum

Cl. I, Div. 1 & 2, Groups C,D
Cl. II, Div. 1, Groups E,F,G
Cl. II, Div. 2, Groups F,G
Cl. III
NEMA 3,4, 7CD,9EFG

Explosionproof
Dust-Ignitionproof
Raintight
Wet Locations
Watertight



- operating handles – copper-free aluminum
- Operating shafts – stainless steel
- Interior parts – sheet steel

Standard Finishes:

- Copper-free aluminum – natural
- Stainless steel – natural
- Sheet steel – electrogalvanized

Electrical Rating Ranges:

- 100, 150, 225, 250, 400 and 600 ampere frame sizes

EPCB Circuit Breakers

Application:

EPCB Circuit breakers are used:

- for service entrance, feeder or branch circuit protection for lighting, heating, appliance and motor circuits
- in areas made hazardous due to the presence of hydrogen or gases or vapors of equivalent hazard such as manufactured gas
- in damp, wet or corrosive locations
- indoors or outdoors in hydrogen areas of process industries, missile bases where hydrogen fuel is used and gas manufacturing plants, as well as in areas of lesser hazard
- to provide disconnect means, short circuit protection and thermal time delay overload protection

Features:

- Three section design and three-point suspension make installation and leveling quick and easy
- Covers are easily loosened by using a

bare or length of 3/4" conduit with the four driving lugs provided

- Bodies have tow taper-tapped conduit hubs with integral bushings located at the top, and two directly below
- Breaker and interior mounting frame are easily removed as a unit, providing free access to the wiring chamber
- Breaker is operated by an external handle which can be padlocked in either “ON” or “OFF” positions. Breaker is trip-free of the handle and will open under short circuit or overload, even if the handle is locked in the “ON” position
- When installing, seals suitable for Class I, Group B hazardous areas must be installed within 1 1/2" each conduit opening

Standard Materials:

- Bodies and covers – copper-free-aluminum
- operating handle – copper-free aluminum
- Operating shaft – stainless steel
- Interior parts – sheet steel

Cl. I, Div. 1 & 2, Groups B,C,D
Cl. II, Div. 1, Groups E,F,G
Cl. II, Div. 2, Groups F,G
Cl. III
NEMA 3,4, 7BCD,9EFG

Explosionproof
Dust-Ignitionproof
Raintight
Wet Locations
Watertight



Standard Finishes:

- Copper-free aluminum – natural
- Stainless steel – natural
- Sheet steel – electrogalvanized

Electrical Rating Ranges:

- 100, 150 and 225 ampere frame sizes

CROUSE-HINDS

FLB Circuit Breakers and Enclosures

Cl. I, Div. 1 & 2, Groups C,D
Cl. II, Div. 1, Groups E,F,G
Cl. II, Div. 2, Groups F,G
Cl. III
NEMA 3,4, 7CD,9EFG

Explosionproof
Dust-Ignitionproof
Raintight
Wet Locations
Watertight

Application:

FLB circuit breakers and enclosures are used:

- for service entrance, feeder or branch circuit protection for lighting, heating, appliance and motor circuits
- in areas made hazardous due to the presence of flammable vapors, gases or combustible dusts
- in damp, wet or corrosive locations
- indoors or outdoors at petroleum refineries, chemical or petrochemical plants and other process industry facilities where similar hazards exist
- to provide disconnect means, short circuit protection and thermal time delay overload protection

Features:

- Semi-cylindrical body shape for maximum strength at lowest practical weight
- Round threaded covers at each end, set at an angle to provide ready access to interior for ease of wiring

- Breaker is operated by an external handle which can be padlocked in either "ON" or "OFF" positions. Breaker is trip-free of the handle and will open under short circuit or overload even if the handle is locked in the "ON" position
- Bodies have vertical through feed conduit hubs of sizes given in the listings

Standard Materials:

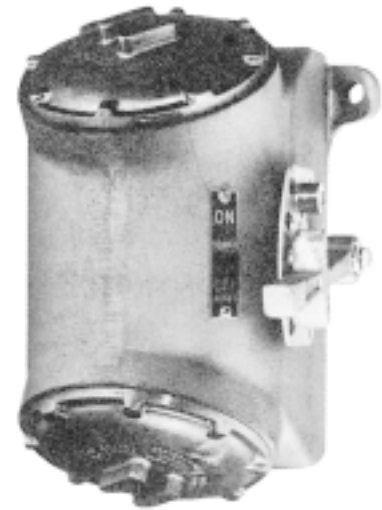
- Bodies, covers and operating handles – copper-free aluminum
- Operating shafts – stainless steel
- Interior parts – sheet steel

Standard Finishes:

- Copper-free aluminum – natural
- Stainless steel – natural
- Sheet steel – zinc electroplate with chromate finish

Electrical Rating Ranges:

- 100 and 225 ampere frame sizes



EFD and EFDC Circuit Breakers and Enclosures 120VAC, Single Pole

Cl. I, Div. 1 & 2, Groups B,C,D
Cl. II, Div. 1, Groups E,F,G
Cl. II, Div. 2, Groups F,G
Cl. III
NEMA 3, 7BCD,9EFG,12

Explosionproof
Dust-Ignitionproof
Raintight
Wet Locations

Application:

EFD circuit breakers and enclosures are used:

- for branch circuit protection for lighting, appliance, and motor circuits
- in areas made hazardous due to the presence of flammable vapors, gases or combustible dusts
- in corrosive locations
- for installation at petroleum refineries, chemical and petrochemical plants and other process industry facilities where similar hazards exist
- to provide disconnect means, short circuit protection and thermal time delay overload protection

Features:

- Small, compact enclosures with accurately ground, wide flange on both body and cover for flametight joint
- Dead-end (EFD) or through feed (EFDC) hubs 3/4" to 1" sizes
- Breaker mounted on cover and back wired for ease of installation

- Breaker can be padlocked in "ON" or "OFF" positions with trip-free handle mechanism

Standard Materials:

- Bodies and covers – *Feraloy*® iron alloy
- Operating handles – type 6/6 nylon
- Operating shaft – stainless steel

Standard Finishes:

- *Feraloy* – electrogalvanized and aluminum acrylic paint
- Type 6/6 nylon – black
- Stainless steel – natural

Electrical Ratings:

- Single pole – 120/240 vac max.
- Trip ratings – 15, 20 and 30 amp.



EFD dead end



EFDC through feed

CROUSE-HINDS

GUSC Auxiliary Circuit Breaker Enclosures

Cl. I, Div. 1 & 2, Groups BC,D
Cl. II, Div. 1, Groups E,F,G
Cl. II, Div. 2, Groups F,G
Cl. III
NEMA 3,4, 7BCD,9EFG

Explosionproof
Dust-Ignitionproof
Raintight
Wet Locations

Application:

GUSC auxiliary circuit breaker enclosures are used:

- for manual control of motor operated appliances and other small loads, when used in series with motor branch circuit fuses or circuit breakers as required by NEC.
- Not intended for branch circuit overcurrent or short circuit protection.
- As follows for Standard Units:
- in areas made hazardous due to the presence of flammable vapors, gases or highly combustible dusts
- in damp, wet or corrosive locations
- indoors or outdoors at petroleum refineries, chemical and petrochemical plants and other process industry facilities where similar hazards exist

As follows for Group B units:

- in areas made hazardous due to the presence of hydrogen or gases or vapors of equivalent hazard such as manufactured gas

Features:

- Compact rectangular enclosures with round threaded covers
- Operating handles may be padlocked in either "ON" or "OFF" positions. Breakers are trip-free of the handle and will open under short circuit or overload, even if handles are locked in the "ON" position
- Bodies are furnished with 3/4" vertical through feed conduit hubs.
- On group B Unit installations, seals suitable for Class I, Group B hazardous areas must be installed within 1 1/2" of each conduit opening



Standard Materials:

- Bodies – Feraloy® iron alloy
- Covers and operating handles – copper-free aluminum
- Operating shafts – stainless steel
- Interior parts – sheet steel

EBMB Circuit Breakers and Enclosures

Cl. I, Div. 1 & 2, Groups C,D
Cl. II, Div. 1, Groups E,F,G
Cl. II, Div. 2, Groups F,G
Cl. III
NEMA 3,3R,4,7CD,9EFG,12

Explosionproof
Dust-Ignitionproof
Raintight
Wet Locations
Watertight

Application:

Spectrum EBMTM hinged cover motor control enclosures are used:

- For general motor control and circuit protection – indoors and outdoors – in damp, wet, dirty, dusty hazardous locations without the need for a protective shelter.
- In areas where frequent washdowns are necessary or where heavy rain or water spray is prevalent.
- To provide line disconnect means and short circuit protection.
- For service entrance, feeder or branch circuit protection for lighting, heating, appliance and motor circuits.
- On switchcracks or other assemblies where it's desired that motor control be centrally located.

Features:

- Rugged, corrosion resistant, cast copper-free aluminum construction (Less than 0.4 of 1%).
- Circuit breaker operating handle located through the right side wall of the body permits visual confirmation of correct component assembly and operation.
- Total compliance to the wiring end room requirements of the National Electrical Code®.
- Semi-clamshell enclosure design, with an external flanged ground joint between body and cover makes interior components more

accessible.

- Minimum enclosure-to-enclosure spacing with little interference between the opened cover and an adjacent enclosure.
- Copper-free aluminum hinges allow the cover to swing well out of the way.
- Stainless steel, quick release, captive, hex head cover bolts. Stainless steel springs provide clear indication cover bolts are fully retracted from body.
- Versatile, internal operating mechanisms allow for field adjustment to accommodate popular manufacturers' breakers.
- Simple, straightforward installation of breaker on pre-drilled mounting plate within enclosure. Mounting plate also field removable.
- Circuit breaker external operating handle can be padlocked in either "ON" or "OFF" positions.
- Neoprene cover gasket permanently attached to the cover seals out moisture.
- Bodies have top and bottom drilled and tapped entrances for power conduits and control conduits. Removable reducers are supplied, as standard, to accommodate smaller size conduits. All conduit entrances are plugged.
- Tap-on mounting feet.

Electrical Rating Ranges:

- Circuit breakers – 100, 150, 225, 250, 400, 600, 800, 1000** ampere frame sizes



Spectrum EBM motor control enclosures accommodate popular makes of circuit breakers.

CROUSE-HINDS

NCB Circuit Breakers Enclosures

600VAC/250VDC Heavy Duty

Application:

NCB circuit breakers are for use in conjunction with a variety of heating, lighting and power circuits to provide disconnect means and short circuit protection.

- Enclosures are made of *Krydon*[®], Crouse-Hinds high impact strength fiberglass-reinforced polyester material having excellent corrosion resistance and stability to heat
- Unitized, strong and durable enclosure construction provides longer service life for equipment
- Enclosure has hinged access door which opens 160° for easy wiring and maintenance. Three screws for door frame are hidden behind access door.
- Access door may be padlocked to prevent unauthorized access

Electrical Rating Ranges:

- 100, 150, 225, 250 and 400 amp frames

Corrosion-Resistant
Dusttight
Watertight
Weatherproof
NEMA 3,4X, 12



Circuit breaker enclosure with built-in *Krydon* material handle

N2PB Circuit Breaker Panelboards

Factory Sealed Single & Two-Pole Breakers

Application:

N2PB panelboards are for use in central control and protection of a large number of feeder or branch circuits and for housing circuit breakers in Class I, Division 2, Groups C&D, hazardous areas.

Features:

- Enclosures are made of *Krydon*[®], Crouse-Hinds high impact strength fiberglass-reinforced polyester material with excellent corrosion resistance and stability to heat
- Enclosure access door provided with stainless steel thumb screws for easy access. Access door may be padlocked to prevent unauthorized access
- Circuit breakers are contained in compact, individual factory sealed enclosures suitable for Class I, Division 2, Groups C & D, hazardous areas

Size Ranges:

Panel Designation	Max. No. of Breakers	
	Single-Pole	Two-Pole
N2PB1426	12	6
N2PB2426	24	12

Cl. I, Div. 2, Groups C,D
Cl. II, Div. 2, Groups F,G

Watertight
Weatherproof
Corrosion-Resistant
Dusttight

NEMA 3,7CD (Div. 2), 9FG (Div. 2), 12

Electrical Rating Ranges:

- Circuit breakers
- Single-pole – 120/240 vac max.
- Two-pole – 120/240 vac max.
- Trip ratings – 15, 20 and 30 amp.



Circuit breaker panelboard - open view

CROUSE-HINDS

D2PB Division 2 Circuit Breaker Panelboards

Cl. I, Div. 2, Groups C, D
NEMA 3,7CD (Div. 2), 12
Dusttight
Raintight

Wet Locations

Factory Sealed Single & Two-Pole Circuit Breakers

Application:

D2PB panelboards are designed specifically for use:

- in Class 1, Division 2, Groups C, D hazardous areas where flammable vapors or gases may be present due to accident or abnormal locations.
- in damp, wet or corrosive locations
- indoors or outdoors in Division 2 area of petroleum refineries, chemical and petrochemical plants, and other process industry facilities

Features:

- Enclosures are of external flange design, which makes the interior completely accessible when the cover is removed
- Provided with concealed mounting, which is made possible by having four clearance holes for lag screws or mounting bolts in the back of the enclosure, one in each corner.
- The interior sub-assembly, consisting of a mounting plate, main terminal blocks, and circuit breakers, is removable as a complete unit
- Ample gutter space is provided for ease of field wiring
- Circuit breakers are contained in compact, individual factory sealed enclosures suitable for Class 1, Division 2, Groups C, D hazardous areas. The individual enclosures are easily removed and replaced, therefore changing or adding individual circuit breakers will not present a problem
- The main cover, which is gasketed to exclude dirt and moisture, is attached to

the body with hex head bolts and is removed only when installing the panelboard or making wiring changes. In the center of the main cover is a gasketed hinged door, which provides access only to the circuit breaker operating handles, and is held closed by two quick-release catches. The door can be locked by as many as 3 padlocks to prevent unauthorized operation

- Tapped conduit openings are provided for main conduit and branch circuits. Standard openings can be reduced or plugged to meet most installation requirements.
- Circuit breakers are arranged in two vertical rows and have the circuit numbers marked on the handles. The left row is numbered 1, 3, 5, 7, etc. and the right row 2, 4, 6, 8, etc. Identifying information may be typed on the circuit directory card attached to the inside of the hinged door

Standard Materials:

- Bodies, covers and hinged doors – copper-free aluminum
- Breaker operating handles – type 6/6 nylon
- Interior parts – sheet steel

Standard Finishes:

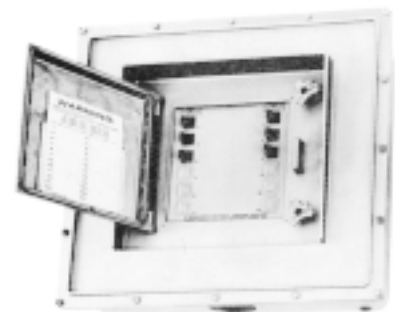
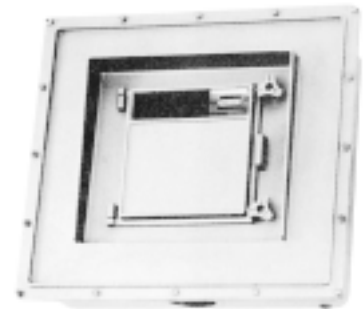
- Copper-free aluminum – natural
- Type 6/6 nylon – natural (black)
- Sheet steel – electrogalvanized with chromate finish

Size Ranges:

Panel Size	Max. No. of Breakers	
	Single-Pole	Two-Pole
1	12	6
2	24	12

Electrical Rating Ranges:

- Circuit breakers
- Single-pole – 120/240vac max
- Two-pole – 120/240vac max
- Trip ratings – 15, 20 and 30 amp



PowerPlus™ Panelboards

Lighting and Heat Tracing

EPL Series

D2L Series (Div. 2)

Cl. I, Div. 1 & 2, Groups B, C, D
Cl. II, Div. 1, Groups E, F, G
Cl. II, Div. 2, Groups F, G
Cl. III
NEMA 3, 4, 7BCD, 9EFG, 12

CSA Enc. 3, 4, 5
Explosionproof
Dust-Ignitionproof
Factory Sealed
Wet Locations
Watertight

PowerPlus factory sealed Panelboards provide flexibility and labor savings when installed, and for future changes in the field. Panels are prewired to maximum circuit capacity and ratings with field replaceable factory sealed components.

Applications:

EPL and D2L PowerPLUS panelboards are used:

- in areas made hazardous by the presence of flammable gases and vapors, and combustible dusts.
- in areas subject to weather, dampness and corrosion.

- for branch power distribution and circuit protection to motors, valves, pumps, lighting, heat tracing, receptacles, etc.
- for indoor and outdoor applications in petroleum refineries, chemical and petrochemical plants, and other process industry facilities where similar hazards exist.
- in areas where flammable vapors or gases or highly combustible dusts may be present due to accidental or abnormal conditions.
- to accommodate up to 100 amp branch loads.

Standard Materials:

- Body and cover – cast copper-free aluminum
- Gasket – neoprene
- Hinges and operating handles – extruded aluminum (copper-free)
- Operating shafts and bushings, cover bolts, washers, and retractile springs – stainless steel
- Circuit breaker operators – die cast aluminum (copper-free)
- Lifting bracket – cold rolled steel

Standard Finishes:

- Aluminum – natural
- Stainless steel – natural
- Cold rolled steel – electrogalvanized

Electrolines Est.

CROUSE-HINDS

Features:

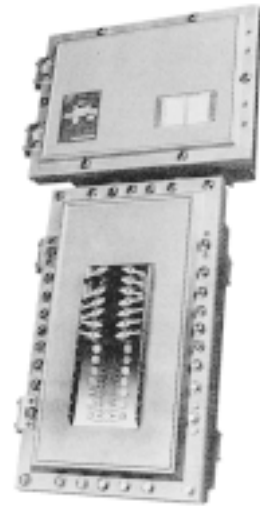
- Factory-sealed, no external seals required for most branch circuits.
- Fully wired from circuit breaker housing to pre-numbered terminals in wiring compartment.
- Copper-free aluminum hinges allow the cover to swing well out of the way.
- Stainless steel, quick release, captive hex-head bolts with spring loaded action provide a clear indication that cover bolts are fully retracted from body.
- Cast copper-free aluminum construction (less than 0.4 of 1%) provide excellent resistance to corrosion.
- External flange design-wide unobstructed cover opening provides a completely accessible interior for wiring.
- Neoprene cover gasket provides a watertight seal to meet NEMA 4/CSA ENC. 4/IP65 requirements, and provides superior protection for enclosed equipment against water and corrosion.

- External operating handles for circuit breakers can be padlocked in either "ON" or "OFF" positions.
- Furnished with (1) 3 1/2" and (12) 1 1/2" conduit openings, all with Crouse-Hinds LNR conduit liner bushings.
- Available with or without main circuit breaker.
- Breather and drain provided for each enclosure.
- Isolated neutral and ground bar provided.

Electrical Ratings:

Branch Breaker (120/240VAC Bolt-ON) Trip Ratings:

- 1,2,3-pole
10, 15, 20, 25, 30, 40, 45, 50, 55, 60, 70, 80, 90, 100 amp
- GFI type, 1, 2-pole (5mA sensitivity) 15, 20, 25, 30, 40 amp
- EPD type, 1 2-pole(30mA sensitivity) 15, 20, 25, 30, 40 amp



D2LB Lighting Panelboard

PowerPlus™ Panelboards

Power EXD Series D2D Series (Div. 2)

Cl. I, Div. 1 & 2, Groups B,C,D	Explosionproof
Cl. II, Div. 1, Groups E,F,G	Dust-Ignitionproof
Cl. II, Div. 2, Groups F,G	Wet Locations
Cl. III	Watertight
NEMA 3, 4, 7BCD, 9EFG, 12	Factory Sealed

Applications:

EXD and D2D PowerPlus panelboards are used:

- in areas made hazardous by the presence of flammable gases and vapors, and combustible dusts.
- in areas subject to weather, dampness and corrosion
- for indoor and outdoor applications in petroleum refineries, chemical and petrochemical plants, and other process industry facilities where similar hazards exist.
- in areas where flammable vapors or gases or highly combustible dusts may be present due to accidental or abnormal conditions.
- to accommodate up to 100 amp branch loads.

Standard Materials:

- Body and cover – cast copper-free aluminum
- Gasket – neoprene
- Hinges and operating handles – extruded aluminum (copper-free)
- Operating shafts and bushings, cover bolts, washers, and retractile springs – stainless steel
- Circuit breaker operators – die cast aluminum (copper-free)
- Lifting bracket – cold rolled steel

Standard Finishes:

- Aluminum – natural
- Stainless steel – natural
- Cold rolled steel – electrogalvanized

Features:

- Factory-sealed, no external seals required for branch circuits.

- Fully wired from circuit breaker housing to pre-numbered terminals in wiring compartment.
- Copper-free aluminum hinges allow the cover to swing well out of the way.
- Stainless steel, quick release, captive hex-head bolts with spring loaded action provide a clear indication that cover bolts are fully retracted from body.
- Cast copper-free aluminum construction (less than 0.4 of 1%) provides excellent resistance to corrosion.
- External flange design – wide unobstructed cover opening provides a completely accessible interior for wiring.
- Neoprene cover gasket provides a watertight seal to meet NEMA 4 requirements, and provides superior protection for enclosed equipment against water and corrosion.
- External operating handles for circuit breakers can be padlocked in either "ON" or "OFF" positions.
- Furnished with (1) 3 1/2" and (12) 1 1/2" conduit openings, all with Crouse-Hinds LNR conduit liner bushings.
- Available with or without main circuit breaker.

Circuit Breaker Ratings:
(Westinghouse, Series C)

Circuit Breaker Trip Ratings:

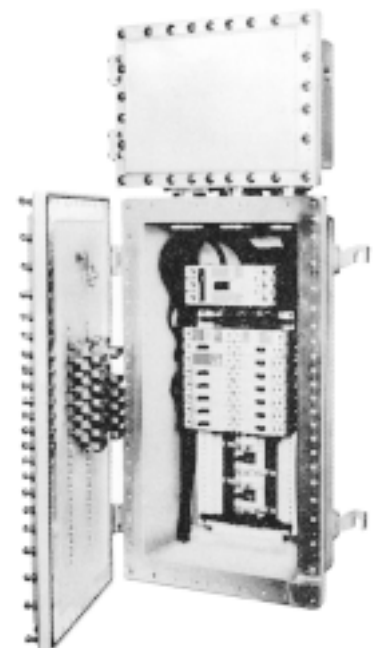
- 15, 20, 30, 40, 50, 60, 70, 80, 90, 100 amp
- EHD frame circuit breakers
Single-Pole – 277 VAC or 125 VDC
Two and Three-Pole – 480 VAC or 250 VDC
- FDB frame (600 VAC)

Main Breaker Trip Ratings:

- 70, 100, 150, 200, 225 amp
- JDB frame circuit breakers
Two and Three-Pole – 600 VAC or 250 VDC
Main Lugs: 225 amp

Circuit Capacity:

Maximum Number of Breaker Spaces:	
Single-pole	30
Two-pole	14
Three-pole	10



EXD Panelboard

GENERAL ELECTRIC

GE Molded Case Circuit Breakers

Quick Reference Guide Ratings do not apply to molded case switches.

TLB High Interrupting Lines (UL File E11592; Fixed Thermal Magnetic Trip Units)

Circuit Breaker Type	Ampere Rating	No. Poles	Maximum Voltage Rating		UL Listed Interrupting Ratings—rms Symmetrical Amps (In Thousands)								Dimensions (In.)						Approx. Ship Wt./Std. Pack	
					ac Voltage				dc Voltage				H	W	D	A	B	C		E
					120	120/240	240	277	480	600	125	250								
TLB4	250-400	3	480	—	—	—	85	—	65	—	—	—	13 ¹ / ₁₆	5 ²³ / ₃₂	4 ⁷ / ₈	5 ²³ / ₃₂	4 ¹⁷ / ₃₂	1 ³ / ₄	¹⁹ / ₃₂	—

THLC Current Limiting Line (UL File E11592; Fixed Thermal Magnetic Trip Units)

THLC1	15-150	3	600	—	—	—	200	—	200	50 ^A	—	—	8 ³ / ₁₆	4 ¹ / ₈	4 ³ / ₁₆	5 ³ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₁₆	³ / ₈	—
THLC2	125-225	3	600	—	—	—	200	—	200	50	—	—	11 ⁷ / ₁₆	5 ²³ / ₃₂	4 ⁷ / ₈	5 ²³ / ₃₂	4 ¹⁷ / ₃₂	1 ³ / ₄	¹⁹ / ₃₂	—
THLC4	250-400	3	600	—	—	—	200	—	200	50	—	—	13 ¹ / ₁₆	5 ²³ / ₃₂	4 ⁷ / ₈	5 ²³ / ₃₂	4 ¹⁷ / ₃₂	1 ³ / ₄	¹⁹ / ₃₂	—

^A 15-50A THLC1 rated 480 Vac max., 150kA.

Molded Case Switches Short Circuit Withstand Rating

Spectra RMS switches include a fixed, high-set instantaneous trip.

Q-Line and TEB Molded Case Switches Short Circuit Withstand Rating^ç

Molded Case Switch Catalog Number	Maximum Rating Protective Device [®]		Short Circuit Withstand Rating
	Voltage	Amps	Amps rms Sym.
TQL,TQB,TQC21Y60	120/240	60	10,000
TQL,TQB,TQC21Y10	120/240	100	10,000
TQL,TQB,TQC22Y60	240	60	10,000
TQL,TQB,TQC22Y100	240	100	10,000
TQL,TQB,TQC32Y60	240	60	10,000
TQL,TQB,TQC32Y100	240	100	10,000
TEB111Y100	240	100	10,000
TEB122Y100	240	100	10,000
TEB132Y100	240	100	10,000

^ç Q-Line and TEB molded case switches have a 10,000 amp symmetrical short circuit withstand rating when protected by a fuse or circuit breaker rated 10,000 amps IC or greater and whose ampere rating does not exceed the ampere rating of the switch.

[®] Protective device must be on line side of molded case switch.

^④ Three-pole, 600 volt switches cover 2-pole, 600 volt and 2- and 3-pole, 480 volt switches.

[®] The maximum withstand rating is limited by the application to the value set forth in this table or the short circuit rating of the upstream fuse or circuit breaker, **whichever is less**. The upstream protective device must have an instantaneous trip function or element and its rated ampacity.

Molded Case Switch Ampere Rating	Catalog Number	Protective Device ^④		Short Circuit Withstand Rating	
		Type	Max. Amp Rating	Amps rms Sym.	Max. Voltage
100	TED113Y100	Any fuse or circuit breaker rated 10,000A 240V	100	10,000	240
100	TED134Y100	TED134100	100	14,000	480
100	SEDA36ANO100	See Note 5	100	200,000	240
150	TED136Y150	TED136150	150	25,000	600
150	SEDA36ANO150	TED134150 See Note 5	150	14,000	600
225	TFJ236Y225	TED,THED TFJ,TFK,THFK Class J Fuse	150 225 400	14,000	600
250	SFDA36ANO250	See Note 5	250	14,000	600
225	TQD32Y225	TQD	225	200,000	240
400	TJD432Y400	TJD Class T Fuse	400 400	14,000	240
400	SGDA36ANO400	See Note 5	400	22,000	240
400	TJJ436Y400	TFJ,TFK,THFK TJJ,THJK, TJ4V,THJ4V THJ9V Class J Fuse	225 400 400	100,000 42,000 18,000 22,000 30,000	480 600 600 600 480
600	SGDA36ANO600	See Note 5	600	100,000	240
600	TJK636Y600	TJJ,THJK, TJ4V,THJ4V THJ9V Class J Fuse TJK,THJK, TJ4V,THJ4V, THJ9V	400 600 600	100,000 42,000 22,000 30,000	480 600 600 480
800	SKDA36ANOK00	See Note 5	800	200,000	240
800	TKMA836Y800	TJK,THJK, TJ4V,THJ4V, THJ9V TKM,THKM, TK4V,THK4V, THK9V Class L Fuse	600 800 800	65,000 42,000 22,000 30,000	480 600 600 480
1200	SKDA36AN1200	See Note 5	1200	100,000	240
1200	TKMA3Y1200	TJK,THJK, TJ4V,THJ4V, THJ9V TKM,THKM, TK4V,THK4V THJ9V Class L Fuse	600 1200 1200	65,000 42,000 22,000 30,000	480 600 600 480

GENERAL ELECTRIC

Q Line Circuit Breakers

Types TQL, THQL, TQB, THQB
10-125 Amps
10,000 Amps IC, UL HACR Listed

Ampere Rating	TQL, THQL Plug-in Catalog Number	TQB, THQB Bolt-on Catalog Number
---------------	----------------------------------	----------------------------------

Single-pole, 120/240 Volts ac

10	TQL1110	TQB1110
15	THQL1115	THQB1115
20	THQL1120	THQB1120
25	THQL1125	THQB1125
30	THQL1130	THQB1130
35	THQL1135	THQB1135
40	THQL1140	THQB1140
45	THQL1145	THQB1145
50	THQL1150	THQB1150
60	THQL1160	THQB1160
70	THQL1170	THQB1170



THQL1120



THHQL1120

Two-pole, 120/240 Volts ac

10	TQL2110	TQB2110
15	THQL2115	THQB2115
20	THQL2120	THQB2120
25	THQL2125	THQB2125
30	THQL2130	THQB2130
35	THQL2135	THQB2135
40	THQL2140	THQB2140
45	THQL2145	THQB2145
50	THQL2150	THQB2150
60	THQL2160	THQB2160
70	THQL2170	THQB2170
80	THQL2180	THQB2180
90	THQL2190	THQB2190
100	THQL21100	THQB21100
110	THQL21110	-
125	THQL21125	-



THQB2115



THHQB2115

Two-pole, 240 Volts ac

10	TQL22010	TQB22010
15	THQL22015	THQB22015
20	THQL22020	THQB22020
25	THQL22025	THQB22025
30	THQL22030	THQB22030
35	THQL22035	THQB22035
40	THQL22040	THQB22040
45	THQL22045	THQB22045
50	THQL22050	THQB22050
60	THQL22060	THQB22060
70	THQL22070	THQB22070
80	THQL22080	THQB22080
90	THQL22090	THQB22090
100	THQL22100	THQB22100



THQL32015



THHQL32015

Three-pole, 240 Volts ac

10	TQL32010	TQB32010
15	THQL32015	THQB32015
20	THQL32020	THQB32020
25	THQL32025	THQB32025
30	THQL32030	THQB32030
35	THQL32035	THQB32035
40	THQL32040	THQB32040
45	THQL32045	THQB32045
50	THQL32050	THQB32050
60	THQL32060	THQB32060
70	THQL32070	THQB32070
80	THQL32080	THQB32080
90	THQL32090	THQB32090
100	THQL32100	THQB32100

Types THHQL, THHQB, THHQC
10-100 Amps
22,000 Amps IC, UL HACR Listed

Ampere Rating	Plug-in Catalog Number	Bolt-on Catalog Number
---------------	------------------------	------------------------

Single-pole, 120/240 Volts ac

15 ^①	THHQL1115	THHQB1115
20 ^①	THHQL1120	THHQB1120
25	THHQL1125	THHQB1125
30	THHQL1130	THHQB1130
35	THHQL1135	THHQB1135
40	THHQL1140	THHQB1140
45	THHQL1145	THHQB1145
50	THHQL1150	THHQB1150
60	THHQL1160	THHQB1160
70	THHQL1170	THHQB1170

Two-pole, 120/240 Volts ac

15	THHQL2115	THHQB2115
20	THHQL2120	THHQB2120
25	THHQL2125	THHQB2125
30	THHQL2130	THHQB2130
35	THHQL2135	THHQB2135
40	THHQL2140	THHQB2140
45	THHQL2145	THHQB2145
50	THHQL2150	THHQB2150
60	THHQL2160	THHQB2160
70	THHQL2170	THHQB2170
80	THHQL2180	THHQB2180
90	THHQL2190	THHQB2190
100	THHQL21100	THHQB21100
100	THHQL21110	-
125	THHQL21125	-

Two-pole, 240 Volts ac

15	THHQL22015	THHQB22015
20	THHQL22020	THHQB22020
25	THHQL22025	THHQB22025
30	THHQL22030	THHQB22030
35	THHQL22035	THHQB22035
40	THHQL22040	THHQB22040
45	THHQL22045	THHQB22045
50	THHQL22050	THHQB22050
60	THHQL22060	THHQB22060
70	THHQL22070	THHQB22070
80	THHQL22080	THHQB22080
90	THHQL22090	THHQB22090
100	THHQL22100	THHQB22100

Three-pole, 240 Volts ac

15	THHQL32015	THHQB32015
20	THHQL32020	THHQB32020
25	THHQL32025	THHQB32025
30	THHQL32030	THHQB32030
35	THHQL32035	THHQB32035
40	THHQL32040	THHQB32040
45	THHQL32045	THHQB32045
50	THHQL32050	THHQB32050
60	THHQL32060	THHQB32060
70	THHQL32070	THHQB32070
80	THHQL32080	THHQB32080
90	THHQL32090	THHQB32090
100	THHQL32100	THHQB32100

① UL Listed as swd (switching duty) rated. Suitable for switching 120-volt ac fluorescent lighting loads.

GENERAL ELECTRIC

E150 Line Circuit Breakers

10-150 Amperes 120-600 Volts ac 125, 250 Volts dc

Single-pole—Includes Cu/Al load lugs only. If line lugs are required, add suffix “WL” to Catalog Number.

Types TEB, TED, THED—

Non-interchangeable Trip



One-pole Two-pole Three-pole

Ampere Rating	Type TEB	Type TED		Type THED
	120V ac 125V dc Catalog Number	277V ac 125V dc Catalog Number	347 Volts ac Catalog Number	347 Volts ac Catalog Number
10	TEB111010	TED113010		
15	TEB111015	TED113015	TED114015	THED114015
20	TEB111020	TED113020	TED114020	THED114020
25	TEB111025	TED113025	TED114025	THED114025
30	TEB111030	TED113030	TED114030	THED114030
35	TEB111035	TED113035	-	-
40	TEB111040	TED113040	-	-
45	TEB111045	TED113045	-	-
50	TEB111050	TED113050	-	-
60	TEB111060	TED113060	-	-
70	TEB111070	TED113070	-	-
80	TEB111080	TED113080	-	-
90	TEB111090	TED113090	-	-
100	TEB111100	TED113100	-	-
100NA	TEB111Y100	TED113Y100	-	-

Two-pole—Includes Cu/Al line and load lugs.

Ampere Rating	Type TEB	Type TED	Type THED, Hi-Break
	240V ac, 250V dc Catalog Number	480V ac, 250V dc Catalog Number	480V ac, 250V dc Catalog Number
10	TEB122010WL	TED124010WL	
15	TEB122015WL	TED124015WL	THED124015WL
20	TEB122020WL	TED124020WL	THED124020WL
25	TEB122025WL	TED124025WL	THED124025WL
30	TEB122030WL	TED124030WL	THED124030WL
35	TEB122035WL	TED124035WL	THED124035WL
40	TEB122040WL	TED124040WL	THED124040WL
45	TEB122045WL	TED124045WL	THED124045WL
50	TEB122050WL	TED124050WL	THED124050WL
60	TEB122060WL	TED124060WL	THED124060WL
70	TEB122070WL	TED124070WL	THED124070WL
80	TEB122080WL	TED124080WL	THED124080WL
90	TEB122090WL	TED124090WL	THED124090WL
100	TEB122100WL	TED124100WL	THED124100WL
100NA	TEB122Y100	TED124Y100	-
150NA	-	TED124Y150	-

Three-pole—Includes Cu/Al line and load lugs.

Ampere Rating	Type TEB	Type TED	Type TED	Type THED, Hi-Break	
	240 Volts ac Catalog Number	480 Volts ac Catalog Number	600 Volts ac Catalog Number	480 Volts ac Catalog Number	600 Volts ac Catalog Number
10	TEB132010WL	TED134010WL	-	-	-
15	TEB132015WL	TED134015WL	TED136015WL	-	THED136015WL
20	TEB132020WL	TED134020WL	TED136020WL	-	THED136020WL
25	TEB132025WL	TED134025WL	TED136025WL	-	THED136025WL
30	TEB132030WL	TED134030WL	TED136030WL	-	THED136030WL
35	TEB132035WL	TED134035WL	TED136035WL	-	THED136035WL
40	TEB132040WL	TED134040WL	TED136040WL	-	THED136040WL
45	TEB132045WL	TED134045WL	TED136045WL	-	THED136045WL
50	TEB132050WL	TED134050WL	TED136050WL	-	THED136050WL
60	TEB132060WL	TED134060WL	TED136060WL	-	THED136060WL
70	TEB132070WL	TED134070WL	TED136070WL	-	THED136070WL
80	TEB132080WL	TED134080WL	TED136080WL	-	THED136080WL
90	TEB132090WL	TED134090WL	TED136090WL	-	THED136090WL
100	TEB132100WL	TED134100WL	TED136100WL	-	THED136100WL
110	-	TED134110WL	TED136110WL	THED134110WL	THED136110WL
125	-	TED134125WL	TED136125WL	THED134125WL	THED136125WL
150	-	TED134150WL	TED136150WL	THED134150WL	THED136150WL
100NA	TEB132Y100	TED134YT100	TED136YT100	-	-
150NA	-	TED134YT150	TED136YT150	-	-

Electrolines Est.

GENERAL ELECTRIC

F225 Line Circuit Breakers

70-250 Amperes-TFJ Non-Interchangeable Trip

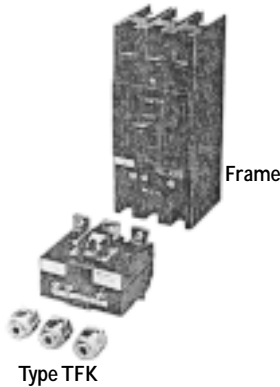
70-225A TFK, THFK Interchangeable Trip

480 or 600 volts ac

250 Volts dc

Type TFJ—Non-interchangeable Trip

Includes line and load lugs. Suitable for reverse feed.



Ampere Rating	Adjustable Trip Range Amp		Complete Breaker 480V ac Max	Complete Breaker 600V ac Max	Copper/ Aluminum Lugs	Wire Size		
	Lo	Hi	Catalog Number	Catalog Number				
			Two-pole		Three-pole			
70	600	900	TFJ224070WL	TFJ236070WL	TCAL24	#4-300 kcmil		
80	700	1000	TFJ224080WL	TFJ236080WL				
90	600	900	TFJ224090WL	TFJ236090WL				
100	600	1250	TFJ224100WL	TFJ236100WL				
110	660	1250	TFJ224110WL	TFJ236110WL				
125	600	1250	TFJ224125WL	TFJ236125WL				
150	700	1500	TFJ224150WL	TFJ236150WL				
175	800	1750	TFJ224175WL	TFJ236175WL				
200	900	2000	TFJ224200WL	TFJ236200WL				
225	1000	2250	TFJ224225WL	TFJ236225WL				
250	1000	2250	-	TFJ236250WL				
225NA	-	-	TFJ226Y225	TFJ236Y225			TCAL24	-

Types TFK, THFK—Interchangeable Trip

Ampere Rating	Adjustable Trip Range Amp		Complete Circuit Breaker Includes Line and Load Lugs		Trip Unit Only	Frame Only	Terminal Lugs for Front Connection (Copper/Aluminum)	
	Lo	Hi	Standard Catalog Number	Hi-Break Catalog Number	Use with Standard and Hi-Break Frames	Catalog Number	Catalog Number (Order 1 line and 1 load per pole)	Wire Size

Two-pole, 480 Volts ac Max., 250 Volts dc Max.

70	600	900	TFK224070WL	THFK224070WL	TFK226T070	TFK224F000 Standard Frame	TCAL24	#4-300 kcmil			
80	700	1000	TFK224080WL	THFK224080WL	TFK226T080						
90	600	900	TFK224090WL	THFK224090WL	TFK226T090						
100	600	1250	TFK224100WL	THFK224100WL	TFK226T100						
110	660	1250	TFK224110WL	THFK224110WL	TFK226T110						
125	600	1250	TFK224125WL	THFK224125WL	TFK226T125						
150	700	1500	TFK224150WL	THFK224150WL	TFK226T150						
175	800	1750	TFK224175WL	THFK224175WL	TFK226T175						
200	900	2000	TFK224200WL	THFK224200WL	TFK226T200						
225	1000	2250	TFK224225WL	THFK224225WL	TFK226T225						
225NA	-	-	TFK226Y225	-	TFKY2				THFK224F000 Hi-Break Frame		

Three-pole, 600 Volts ac Max., 250 Volts dc Max.

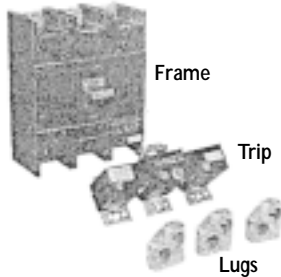
70	600	900	TFK236070WL	THFK236070WL	TFK236T070	TFK236F000 Standard Frame	TCAL24	#4-300 kcmil			
80	700	1000	TFK236080WL	THFK236080WL	TFK236T080						
90	600	900	TFK236090WL	THFK236090WL	TFK236T090						
100	600	1250	TFK236100WL	THFK236100WL	TFK236T100						
110	660	1250	TFK236110WL	THFK236110WL	TFK236T110						
125	600	1250	TFK236125WL	THFK236125WL	TFK236T125						
150	700	1500	TFK236150WL	THFK236150WL	TFK236T150						
175	800	1750	TFK236175WL	THFK236175WL	TFK236T175						
200	900	2000	TFK236200WL	THFK236200WL	TFK236T200						
225	1000	2250	TFK236225WL	THFK236225WL	TFK236T225						
225A Mag Only	600 1000	1400 2250	- -	- -	TFK236TM1225 TFK236TM2225				THFK236F000 Hi-Break Frame		
225NA	-	-	TFK236Y225	-	TFKY3						

GENERAL ELECTRIC

J600 Line Circuit Breakers

125-600 Amperes 600 volts ac 250 Volts dc

Type TJJ—Non-interchangeable Trip (Includes Line and Load Lugs)
Suitable for reverse feed.



Ampere Rating	Adjustable Trip Range Amp		2-pole, 400-amp Frame 600V ac, 250V dc	3-pole, 400-amp Frame 600 Volts ac	Copper/ Aluminum Lugs	Wire Size
	Lo	Hi	Catalog Number	Catalog Number		
125	375	1250	TJJ426125WL	TJJ436125WL	TCAL43 Included in price of breaker	(1)6-600 kcmil (2)2/0-250 kcmil
150	450	1500	TJJ426150WL	TJJ436150WL		
175	525	1750	TJJ426175WL	TJJ436175WL		
200	600	2000	TJJ426200WL	TJJ436200WL		
225	675	2250	TJJ426225WL	TJJ436225WL		
250	750	2500	TJJ426250WL	TJJ436250WL		
300	900	3000	TJJ426300WL	TJJ436300WL		
350	1050	3500	TJJ426350WL	TJJ436350WL		
400	1200	4000	TJJ426400WL	TJJ436400WL		
400NA	-	-	TJJ426Y400	TJJ436Y400WL		

Type TJK

Types TJK, THJK Interchangeable Trip

Ampere Rating	Adjustable Trip Range Amp		Complete Circuit Breaker Includes Line and Load Lugs		Frame Only	Trip Unit Only	Terminal Lugs for Front Connection (Copper/Aluminum)	
	Lo	Hi	Standard Catalog Number	Hi-Break Catalog Number	Catalog Number	Use with Standard and Hi-Break Frames	Catalog Number (Order 2per pole)	Wire Size

400-amp Frame Two-pole

125	375	1250	TJK426125WL	THJK426125WL	TJK426F000 Standard Frame	TJK436T125	TCAL43	(1) 6-600 kcmil or Twin 2/0-250
150	450	1500	TJK426150WL	THJK426150WL		TJK436T150		
175	525	1750	TJK426175WL	THJK426175WL		TJK436T175		
200	600	2000	TJK426200WL	THJK426200WL		TJK436T200		
225	675	2250	TJK426225WL	THJK426225WL		TJK436T225		
250	750	2500	TJK426250WL	THJK426250WL		TJK436T250		
300	900	3000	TJK426300WL	THJK426300WL		TJK436T300		
350	1050	3500	TJK426350WL	THJK426350WL		TJK436T350		
400	1200	4000	TJK426400WL	THJK426400WL		TJK436T400		
400NA	-	-	TJK426Y400	-		TJKY3		

Three-pole

125	375	1250	TJK436125WL	THJK436125WL	TJK436F000 Standard Frame	TJK436T125	TCAL43	(1) 6-600 kcmil or Twin 2/0-250 kcmil
150	450	1500	TJK436150WL	THJK436150WL		TJK436T150		
175	525	1750	TJK436175WL	THJK436175WL		TJK436T175		
200	600	2000	TJK436200WL	THJK436200WL		TJK436T200		
225	675	2250	TJK436225WL	THJK436225WL		TJK436T225		
250	750	2500	TJK436250WL	THJK436250WL		TJK436T250		
300	900	3000	TJK436300WL	THJK436300WL		TJK436T300		
350	1050	3500	TJK436350WL	THJK436350WL		TJK436T350		
400	1200	4000	TJK436400WL	THJK436400WL		TJK436T400		
400A Mag Only	600 1200 350	2000 4000 1000	- - -	- - -		THJK436F000 Hi-Break Frame		
400NA	-	-	TJK436Y400	-	TJKY3			

600-amp Frame Two-pole

250	750	2500	TJK626250WL	THJK626250WL	TJK626F000 Standard Frame	TJK636T250	TCAL43	(1) 6-600 kcmil or Twin 2/0-250 kcmil	
300	900	3000	TJK626300WL	THJK626300WL		TJK636T300			
350	1050	3500	TJK626350WL	THJK626350WL		TJK636T350			
400	1200	4000	TJK626400WL	THJK626400WL		TJK636T400			
450	1350	4500	TJK626450WL	THJK626450WL		TJK636T450			
500	1500	5000	TJK626500WL	THJK626500WL	TJK636T500	TCAL63			Twin 4/0-350 kcmil-Cu or Twin 300-500 kcmil-Al
600	1800	6000	TJK626600WL	THJK626600WL	TJK636T600				
600NA	-	-	TJK626Y600	-	TJKY36				

Three-pole

250	750	2500	TJK636250WL	THJK636250WL	TJK636F000 Standard Frame	TJK636T250	TCAL43	(1) 6-600 kcmil or Twin 2/0-250 kcmil	
300	900	3000	TJK636300WL	THJK636300WL		TJK636T300			
350	1050	3500	TJK636350WL	THJK636350WL		TJK636T350			
400	1200	4000	TJK636400WL	THJK636400WL		TJK636T400			
450	1350	4500	TJK636450WL	THJK636450WL		TJK636T450			
500	1500	5000	TJK636500WL	THJK636500WL	TJK636T500	TCAL63			Twin 4/0-350 kcmil-Cu or Twin 300-500 kcmil-Al
600	1800	6000	TJK636600WL	THJK636600WL	TJK636T600				
600A Mag Only	600 1800	2000 6000	- -	- -	THJK636F000 Hi-Break Frame				
600NA	-	-	TJK636Y600	-	TJKY36				

Electrolines Est.

GENERAL ELECTRIC

K1200 Line Circuit Breakers

300-1200 Amperes 600 volts ac 250 Volts dc

Types TKM, THKM Interchangeable Trip

Ampere Rating	Adjustable Trip Range Amp		Complete Circuit Breaker Includes Line and Load Lugs		Frame Only	Trip Unit Only	Terminal Lugs for Front Connection (Copper/Aluminum)	
	Lo	Hi	Standard Catalog Number	Hi-Break Catalog Number	Catalog Number	Use with Standard and Hi-Break Frames	Catalog Number (Order 2per pole)	Wire Size

800-ampere Frame Two-pole

300	900	3000	TKMA826300WL	THKMA826300WL	TKM826F000 Standard Frame	TKMA836T300	TCAL61	(2) 2/0-500 kcmil
350	1050	3500	TKMA826350WL	THKMA826350WL		TKMA836T350		
400	1200	4000	TKMA826400WL	THKMA826400WL		TKMA836T400		
450	1350	4500	TKMA826450WL	THKMA826450WL		TKMA836T450		
500	1500	5000	TKMA826500WL	THKMA826500WL		TKMA836T500		
600	1800	6000	TKMA826600WL	THKMA826600WL		TKMA836T600		
700	2100	6400	TKMA826700WL	THKMA826700WL	THKM826F000 Hi-Break Frame	TKMA836T700	TCAL81	(3) 3/0-500 kcmil
800	2400	6400	TKMA826800WL	THKMA826800WL		TKMA836T800		
800NA	-	-	TKMA826Y800	-		TKMAY3		

Three-pole

300	900	3000	TKMA836300WL	THKMA836300WL	TKM836F000 Standard Frame	TKMA836T300	TCAL61	(2) 2/0-500 kcmil
350	1050	3500	TKMA836350WL	THKMA836350WL		TKMA836T350		
400	1200	4000	TKMA836400WL	THKMA836400WL		TKMA836T400		
450	1350	4500	TKMA836450WL	THKMA836450WL		TKMA836T450		
500	1500	5000	TKMA836500WL	THKMA836500WL		TKMA836T500		
600	1800	6000	TKMA836600WL	THKMA836600WL		TKMA836T600		
700	2100	6400	TKMA836700WL	THKMA836700WL	THKM836F000 Hi-Break Frame	TKMA836T700	TCAL81	(3) 3/0-500 kcmil
800	2400	6400	TKMA836800WL	THKMA836800WL		TKMA836T800		
800 Mag Only	1200 2400	4000 8000	- -	- -		TKMA836TM48 TKMA836TM68		
800NA	-	-	TKMA836Y800	-		TKMAY3		

1200-ampere Frame Two-pole

600	1800	6000	TKMA20600WL	THKMA20600WL	TKM2F Standard Frame	TKMA3T0600	TCAL81	(3) 3/0-500 kcmil
700	2100	6400	TKMA20700WL	THKMA20700WL		TKMA3T0700		
800	2400	6400	TKMA20800WL	THKMA20800WL		TKMA3T0800		
1000	3000	10000	TKMA21000WL	THKMA21000WL	THKM2F Hi-Break Frame	TKMA3T1000	TCAL121	(4) 250-350 kcmil Cu (4)35-500 kcmil Al
1200	3600	10000	TKMA21200WL	THKMA21200WL		TKMA3T1200		
1000NA	-	-	TKMA2Y1000	-				
1200NA	-	-	TKMA2Y1200	-		TKMA3Y12		

Three-pole

600	1800	6000	TKMA30600WL	THKMA30600WL	TKM3F Standard Frame	TKMA3T0600	TCAL81	(3) 3/0-500 kcmil
700	2100	6400	TKMA30700WL	THKMA30700WL		TKMA3T0700		
800	2400	6400	TKMA30800WL	THKMA30800WL		TKMA3T0800		
1000	3000	10000	TKMA31000WL	THKMA31000WL	THKM3F Hi-Break Frame	TKMA3T1000	TCAL121	(4) 250-350 kcmil Cu (4) 350-500 kcmil Al
1200	3600	10000	TKMA31200WL	THKMA31200WL		TKMA3T1200		
1200 Mag Only	1800 2400	6000 8000	- -	- -	TKMA3TM512 TKMA3TM612			
1000NA	-	-	TKMA3Y1000	-				
1200NA	-	-	TKMA3Y1200	-		TKMA3Y12		

GENERAL ELECTRIC

Spectra RMS™ Molded Case Circuit Breakers

Spectra RMS™ breakers provide true RMS sensing. A short-time function is standard on all breakers—for an extra level of motor and transformer protection. The entire line is available in IC ratings to 200kA @ 240 Vac and 100kA @ 480 Vac.

FRAME DESIGNATION & AMPACITIES

Frame Type	Sensor Amp	Rating Plugs
SE150	30	15-30
	60	40-60
	100	70-100
	150	110-150
SF250	250	70-250
SG600	400	125-400
	600	250-600
SK1200	800	300-800
	1200	600-1200

INTERRUPTING CAPACITIES

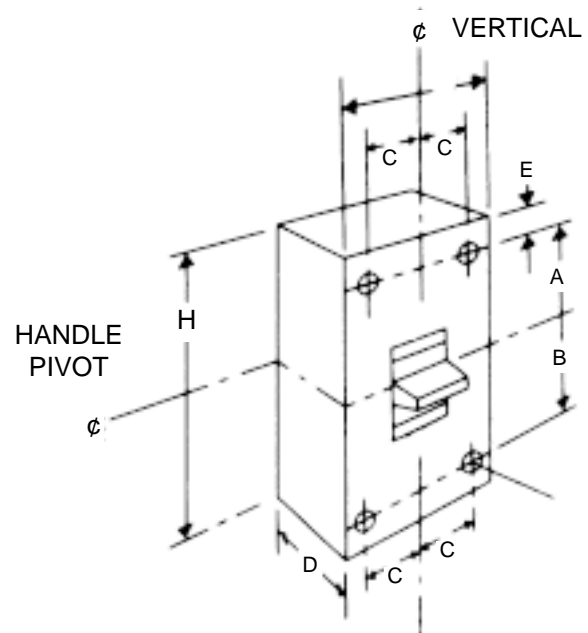
Frame Type	Frame Designation Prefix	Interrupting Capacity, RMS Sym kA		
		240	480	600
SE150	SEDA	18	14	14
	SEHA	65	25	18
	SELA	100	65	25
	SEPA	200	100	25
SE250	SFHA	65	25	18
	SFLA	100	65	25
	SFLA	100	65	25
	SFLA	200	100	25
SG600	SGDA	65	-	-
	SGHA	65	35	25
	SGLA	100	65	65
	SGPA	200	100	65
SK1200	SKHA	65	50	25
	SKLA	100	65	42
	SKLA	100	65	42
	SKPA	200	100	65

DIMENSIONS

Circuit Breaker Frame Type	Poles	Dimensions inches (mm)						
		H	W	D	A	B	C	E
SE150	2 3	6.31(160.3)	4.12(104.8)	3.38(85.9)	2.82(71.6)	2.06(52.3)	.69(17.5)	.72(18.3)
SF250	2 3	10.12(257.0)	4.12(104.8)	3.81(96.8)	3.88(98.6)	3.88(98.5)	.69(17.5)	1.19(30.2)
SG600	2 3	10.09 (256.3)	5.50(139.7)	3.81(96.8)	4.45(113.0)	3.30(83.8)	.91(23.1)	1.18(30.0)
SK1200	2 3	15.50 (393.7)	8.25(209.6)	5.50(139.7)	8.56(217.4)	5.69(144.5)	1.38(34.9)	.62(15.8)

LUGS, LUG COVERS, AND BUS COVERS

Accessory	For Use With	Wire Range (Qty)		Catalog Number
		Copper	Aluminum	
Plated extruded aluminum lugs for terminating copper or aluminum cables	SE150	#12-3/0	#12-3/0	TCAL18
	SF250	#8-350 kcmil	#8-350 kcmil	TCAL29
	SG600	(2) 2/0-400 kcmil or (1) #6-600 kcmil	(2) 2/0-500 kcmil or (1) #6-600 kcmil	TCLK265
				TCLK365
Replacement Lug Covers and End Covers	SK1200	(3) 3/0-500 kcmil (4) 250-350 kcmil	(3) 3/0-500 kcmil (4) 250-500 kcmil	(Upper) (Lower) TCAL81 TCAL91
				TCAL121 TCAL131
	SE150	-	-	SE3LCK (252B1661G1)
	SF250	-	-	SF3LCK (252B1659G1)
SG600	-	-	SG1LCK (331A1770G1)	
			SG1BCK (331A1770G2)	
SK1200	-	-	SK1LCK (252B1660G1)	
Plated Copper Lugs	SE150	#12-3/0	-	TC018
	SF250	#8-350 kcmil	-	TC029
	SG600	(2) 2/0-400 kcmil or (1) #6-600 kcmil	-	TCOK265
			-	TCOK365
SK1200	(3) 250-500 kcmil (4) 250-400 kcmil	-	(Upper) (Lower) TC081A TC091	
		-	TC0121 TC0131	



GENERAL ELECTRIC

Select Internal Accessories

All Spectra RMS™ circuit breakers from the SE150 through the SK1200, including instantaneous-trip Mag-Break® breakers and Molded Case Switches, use the same UL Listed, field-installable internal accessories that do not require cover removal to install. UL File No. E57253. Installation instructions – GEH-5551 (Shunt Trip and UVR) and GEH-5593 (Auxiliary Switch and Bell Alarm).

AUXILIARY SWITCH

Table

Auxiliary Switch Cat. No.	No. of Switch Elements	Switch Rating
SAUXPAB1	1 form C	5A @ 240 Vac/
SAUXPAB2	2 form C	0.5A @ 125 Vdc
SAUXGAB1	1 form C	GOLD-PLATED CONTACTS
SAUXGAB2	2 form C	0.5A @ 30V

Auxiliary Switches provide remote indication of whether the circuit breaker main contacts are opened or closed via open or closed SPDT switch elements.

BELL ALARM SWITCH

Table

Bell Alarm Switch Cat. No.	No. of Switch Elements	Switch Rating
SABAP1	1 form C	5A @ 240 Vac/ 0.5A @ 125 Vdc
SABAG1	1 form C	GOLD-PLATED CONTACTS 0.5A @ 30V

All Bell Alarm Switch provides remote indication of whether the circuit breaker has been tripped via open or closed SPDT switch elements, but remains unchanged during "On/Off" circuit breaker operation.

UNDERVOLTAGE RELEASE

Table

Undervoltage Cat. No.	Voltage		Peak Current (mA)
	ac	dc	
SAUV1	120	125	200
SAUV2	240	250	200
SAUV3	24	24	100
SAUV4	48	48	100

The Undervoltage Release provides automatic circuit breaker tripping when there is a power loss or major dip (to 35%-70% of rated voltage) in accessory control voltage. Ac devices are rated for 50-400 Hz and UL Listed for 50-60 Hz. Cat. No. SAUV1 may be used with time delay unit Cat. No. TD110A530 or TD1000 (120 Vac input, 125 Vdc output).

SHUNT TRIP

Table

Shunt Trip Cat. No.	Voltage		Current (mA)	
	ac	dc	Inrush	Cont
SAST1	120	125	500	6.0
SAST2	240	250	400	5.0
SAST3	24	24	300	10.0
SAST4	48	48	300	10.0

For remote tripping of breaker, use with momentary close contact. Not recommended for use with latching relay contact since electronics in Shunt Trip will pulse power to the coil if continuously energized, and breaker shut tripping upon reclosure will be delayed 1-2 seconds at rated control voltage. (A short circuit trip would be instantaneous.)

If maintained (latching relay) contact must be used and delayed shunt tripping is not acceptable, use bell alarm in series with control power for SE150 and SF250 frames and auxiliary switch for SG600 and SK1200 breakers.

These devices are suitable for use with Ground Fault Sensing and Relaying Equipment. Maximum VA is 75. Ac devices are rated for 50-400 Hz and UL Listed for 50-60 Hz.

Spectra RMS™ Circuit Breakers with MicroVersaTripPlus & MicroVersa PM Digital RMS Trip System

• **Micro Versa Trip Digital RMS Trip System** – expanded functionality in the same space-saving size of standard Spectra RMS breakers. **Standard**

- 3-phase Ammeter with ±4% accuracy.
- Adjustable Long Time (L) pickup, 0.5-1.0X, and delay (3-4 bands).
- Adjustable Instantaneous (I) pickup, 1.5-10X.
- Local Overload and Short Circuit Trip Indicators(T) with overload pickup warning.
- Interchangeable trip rating plugs with test set jack for TVRMS test set.
- Digital LCD display with four-button keypad for function selection and set point adjustment and sealable, clear Lexan® cover for tamper-resistant settings.
- True RMS sensing for accurate response to high harmonic content waveforms.
- EMI immunity per ANSI C37.90.

Optional

- Adjustable Short Time (S) pickup, 1.0-9.0C, and delay (4 bands) with I²t ON/OFF selection.
- Adjustable Ground fault (G) pickup, 0.2-1.0S, and delay (4 bands) with I²t ON/OFF selection and trip indicator. The 4 short time and ground fault delay bands provide broader system selectivity.
- **World Standards** – All frames rated to UL, CSA, IEC 947-2, and JIS.
- **Universal internal accessories** – uses the same front-mounted, field-installable shunt trips, undervoltage releases, bell alarms, and auxiliary switches as standard Spectra RMS breakers.

- **Accessory lead routing left or right** – side channels mean no extra space required for accessory leads.
- **Current Limiting** – SG600 frames rated 65kA and 100kA @ 480Vac are UL Listed as current limiting.
- **Reverse Feed** – Front-mounted interchangeable rating plugs mean all frames are UL Listed for reverse feed.
- **Wide Current Setting Range** – Interchangeable rating plugs combined with 5 current sensors and 0.5-1.0X long time pickup yield ampere ratings from 30 to 1200A.
- **100% Continuous Current Rated** – Optionally available for 100% UL continuous current rating applications.
- **Interrupting Capacities** – RMS Symmetrical kA

– UL, CSA

	Vac		
Frame	240	480	600
SGH	65	35	25
SGL	100	65	65
SGP	200	100	65
SKH	65	50	25
SKL	100	65	42
SKP	200	100	65

Electrolines Est.

GENERAL ELECTRIC

Interrupting Capacities

- IEC 947-2, Icu, JIS

Frame	Vac			
	220-240	380-415	500	690
SGH	65	25	18	-
SGL	100	65	35	22
SGP	200	100	65	35
SKH	65	50	25	-
SKL	100	65	42	14
SKP	140	70	50	18

- IEC 947-2, Ics

Frame	Vac			
	220-240	380-415	500	690
SGH	33	13	9	-
SGL	50	33	18	11
SGP	100	50	33	18
SKH	16	13	13	-
SKL	25	16	21	14
SKP	35	25	25	18

Catalog Numbers

	Description	Code	
Frame Designation	SG600	G	
	SK1200	K	
IC/Capacity Rating Standard UL Rating	65kA @ 480 Vac	LB	
	100kA @ 480 Vac	PB	
	100% Continuous UL Rating	65kA @ 480 Vac	LL
		100kA @ 480 Vac	PP
Poles/Max. UL Voltage	3 poles, 600 Vac	36	
Trip System	MicroVersaTrip® Plus	B	
	MicroVersaTrip® PM with Metering and POWER LEADER™ Communications Bus	C	
	MicroVersaTrip® PM with Metering, POWER LEADER™ Communications Bus and Protective Relays	D	
Overcurrent Protection Functions	LIT	A	
	LSIT	B	
	LIGT	C	
	LSIGT	D	
Sensor Amperes	150A	0150	
	G Frame 400A	0400	
	600A	0600	
	K Frame 800A	0800	
	1200A	1200	

S G LL 36 B A 0150

Frame Types	Sensor Amps	Current Rating	Rating Plug	Frame Types	Sensor Amps	Current Rating	Rating Plug
SGHB,	150	60	SRPG150B60	SKHB,	800	300	SRPK800B300
SGHH,		80	SRPG150B80	SKHH,		400	SRPK800B400
SGLB,		100	SRPG150B100	SKLB,		500	SRPK800B500
SGLL,		125	SRPG150B125	SKLL,		600	SRPK800B600
SGPB,		150	SRPG150B150	SKPB,		700	SRPK800B700
SGPP	400	150	SRPG400B150	SKPP		800	SRPK800B800
		200	SRPG400B200			1200	SRPK1200B600
		225	SRPG400B225			700	SRPK1200B700
		250	SRPG400B250			800	SRPK1200B800
		300	SRPG400B300			1000	SRPK1200B1000
		350	SRPG400B350			1200	SRPK1200B1200
		400	SRPG400B400				
		600	300			SRPG600B300	
		400	SRPG600B400				
		450	SRPG600B450				
500	SRPG600B500						
600	SRPG600B600						

Electrolines Est.

GENERAL ELECTRIC

Type AKR Power Circuit Breakers with MicroVersaTrip® Trip Units



Features

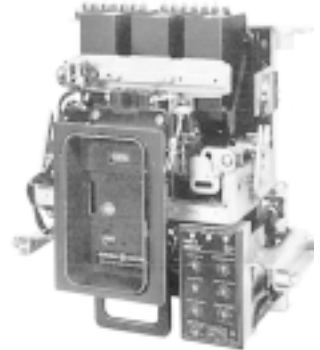
- Intended for use in commercial, industrial, and utility applications.
- For use as feeders or mains, and in such applications as capacitor switching, motor circuits, generators, and resistance welding.
- 100% rated, 40°C room ambient temperature
- 6 frame sizes: AKR-30, H/AKR-50, H/AKRT-50H/AKR-75, 75H/AKR-100/AKR-125.
- RMS digital sensing of sinusoidal and non-sinusoidal currents by the solid-state trip device. MicroVersaTrip® Trip Units provide accurate and predictable overload and short-circuit protection for distribution systems that include ac and dc variable speed drives, rectifiers, induction heating, and other loads that cause non-sinusoidal currents.
- Electromechanical trip devices for dc ratings: Types EC-1, EC-1B, EC-2A
- Fault trip indicators with MicroVersa Trip trip units
- Easy access to major components
- Multi-contact design
- Stored energy closing—manual and electrical
- Complete line of accessories
- Short-circuit ratings through 200,000 amps
- Metal frame construction provides rigidity and endurance

MicroVersaTrip® Digital RMS Trip Systems

- Digital LCD display with five-button keypad for function selection and set point adjustment, and a sealable, clear Lexan® cover for tamper-resistant settings.
- True RMS sensing for accurate response to high harmonic content waveforms for overload, short circuit, and ground fault protection
- 50/60 Hz operation
- Interchangeable trip rating plugs with test set jack for TVRMS test set
- EMI immunity per ANSI C37.90.
- Integral long-life battery for cold setup and trip target viewing
- Two trip unit options:
 - MicroVersaTrip Plus trip units for overcurrent protection
 - MicroVersaTrip PM trip units for metering, protective relaying, and GE POWER LEADER™ communications

MicroVersaTrip Standard

- 3-phase Ammeter with $\pm 2\%$ accuracy
- Adjustable long-time (L) pickup, 0.5-1.1x, with four delay bands
- Adjustable instantaneous (I) pickup, 1.5-15X
- Local overload, short circuit, trip indicators (T) with overload pickup warning, trip operations counter
- Test set initiated trip indication



Options

- Adjustable short-time (S) pickup, 1.0-9.0C, and delay (3 bands with I^t ON/OFF selection)
- Adjustable ground fault (G) pickup, 0.2-0.6S, and delay (3 bands) with I^t ON/OFF selection and trip indicator
- High range instantaneous fixed at 1.0H. Zone selective interlocking for short-time and/or ground fault
- Switchable instantaneous/short-time (OFF) and ground fault (OFF) (non-UL)
- Defeatable ground fault function (non-UL)

MicroVersaTrip PM™ Trip Units Additional Options

- POWER LEADER communications system link with user-selectable address assignment for commnet communication
- Metering
 - 3-phase Voltmeter, $\pm 2\%$ @ 1X, configurable for Wye and Delta systems.
 - Frequency Meter, $\pm 1\text{Hz}$
 - kW Meter, $\pm 3.5\%$
 - kVA Meter, $\pm 3.5\%$
 - kWh Meter, $\pm 3.5\%$

Protective Relaying—user selectable in any combination from 1 to 5 relays

- Current Unbalance Relay
 - Adjustable pickup, 10-50%
 - Adjustable delay, 1-15 seconds, OFF
- Overvoltage Relay
 - Adjustable delay, 110-150%
 - Adjustable delay, 1-15 seconds, OFF
- Voltage Unbalance Relay
 - Adjustable pickup, 10-50%
 - Adjustable delay, 1-15 seconds, OFF
- Power Reversal Relay
 - Adjustable pickup, 10-990kW
 - Normal powerflow direction

Note: MicroVersa Trip PM functions require 24Vdc control power

GENERAL ELECTRIC

Type AKR Circuit Breakers Ratings

100-5000 Amperes
600 Volts ac, 50/60 Hertz
100-2000 Amperes
250 Volts dc

50/60 Hz ac Current Ratings

Rated Voltage (Nominal) ac	Breaker Type	Frame Size (Amps)	Short-circuit Rating-rms Symmetrical kA	
			With Instantaneous Trip	Short-time Interrupting Rating
600	AKR-30	800	30	30
	AKR-30H		42	42
	AKR-50	1600	42	42
	AKR-50H		65	65
	AKRT-50H	2000	65	65
	AKR-75	3200	65	65
	AKR-75H		85	85
	AKR-100	4000	85	85
	AKR-125	5000	85	85
480	AKR-30	800	30	30
	AKR-30H		42	42
	AKR-50	1600	50	50
	AKR-50H		65	65
	AKRT-50H	2000	65	65
	AKR-75	3200	65	65
	AKR-75H		85	85
	AKR-100	4000	85	85
	AKR-125	5000	85	85
240	AKR-30	800	42	30
	AKR-30H		50	42
	AKR-50	1600	65	50
	AKR-50H		65	65
	AKRT-50H	2000	65	65
	AKR-75	3200	85	65
	AKR-75H		130	85
	AKR-100	4000	130	85
	AKR-125	5000	130	85

Overcurrent Trip Device Current Ratings in Amperes

Breaker Frame	MicroVersaTrip® 50/60 Hz ac		EC Device Rating dc ⑤
	Sensor Rating Amps (s)	Rating Plug Amps (x)	
AKR-30 AKR-30H	150	60, 80, 100, 125, 150	100, 125, 150, 175, 200 225, 250, 300, 350 400, 500, 600
	400	150, 200, 225, 250 300, 400	
	800	300, 400, 450, 500, 600, 700, 800	
AKR-50 AKR-50H	800	300, 400, 450, 500 600, 700, 800	200, 225, 250, 300 350, 400, 500, 600 800, 1000, 1200, 1600 2000
	1600	600, 800, 1000, 110, 1200, 1600	
AKRT-50H	2000	800, 1000, 1200 1500, 1600, 2000	-
AKR-75④ AKR-75H⑤	3200	1200, 1600, 2400. 3200	-
AKR-100⑤	4000	1600, 2000, 2500 3000, 3600, 4000	-
AKR-125⑤	5000	5000	-

x = Rating plug amps s = Sensor amp rating

Fused Breaker Ratings Max. 600V ac 50/60 Hz

Breaker Type	Frame Size (Amps)	Fuse Rating Amps①		Interrupting Rating rms Symmetrical kA
		Min.	Max.	
AKRU	800	300	1600	200
AKRU-50 AKRT-50H ②	1600	450	2500	200
AKR-75 ②	3200	2000	4000	200
AKR-100 ②	4000	2000	5000	200

250V dc Current Ratings with EC Trip Device Only

Breaker Type	Frame Size Amps	Short Circuit kA
AKR-30	800	25
AKR-50	2000	50

Minimum EC Trip Ratings Amps at 250V dc

Breaker Type	With Instantaneous Trip	With Short-time trip Characteristic③		
		2C	2B	2A
AKR-30	100	175	200	250
AKR-50	200	350	400	500

① The maximum fuse rating is the largest fuse which tests show will result in proper performance of the breaker and fuse in combination under short circuit conditions.

② Fuses are mounted on separate fuse roll-out element.

③ Refer to time-current curves
GES-6000 (for EC-1) and
GES-6005 (for EC-1B).

④ Observe minimum overcurrent trip ratings.

⑤ AKR-75/75H/100/125 not available for dc applications.

GENERAL ELECTRIC

Power Break® Circuit Breakers

Rugged, Durable Construction Combined with Accuracy, Versatility, and Coordination



The General Electric line of POWER BREAK® insulated case circuit breakers offers the rugged, reliable type of system protection critical for heavy-duty applications. POWER BREAK circuit breakers are rated up to 200,000 amperes rms symmetrical interrupting capacity without fuses or current limiters. The POWER BREAK design consists of five physical envelope sizes from 200 to 4000 amperes.

POWER BREAK is a versatile breaker, designed for a wide variety of applications with features such as—temperature insensitive trip units—push-to-open and close buttons—maximum five-cycle closing time—field installable rating plugs to change ampere ratings—U/L listed, field installable accessories—easy to operate, rotary, stored energy operating mechanism.

A full line of selective tripping characteristics can be used to provide overcurrent protection from overloads, short-circuits and ground faults. Additionally, trip indicators are available to aid in fault diagnosis.

POWER BREAK circuit breakers offer application flexibility for ac as well as dc power systems with ratings up to 700 volts dc and 750 volts ac.

The custom tailored support required for today's exacting applications is available with a full line of POWER BREAK draw-out structures, interlocks, internal accessories, electrical operators, connectors, and a solid-stat test kit.

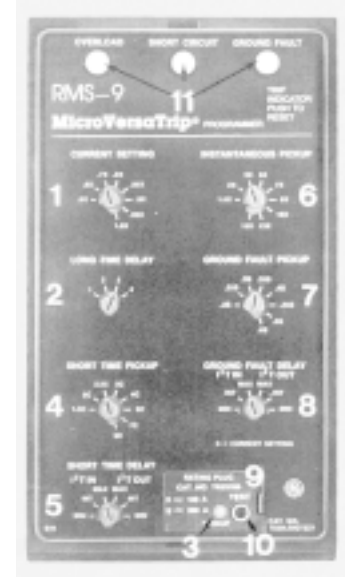
GENERAL ELECTRIC

Power Break® Circuit Breakers with Enhanced MicroVersaTrip Plus™ and MicroVersaTrip PM™ Trip Units

Features

- High-dielectric strength, glass reinforced insulating case for increased durability and safety of operation.
- Interphase barrier partitions mesh with breaker cover to completely isolate each pole for high transient voltage withstandability.
- Green (OFF), Red (ON), indicators display the position of the breaker contacts.
- Extra heavy-duty, low torque handle mechanism for simple, stored energy charging.
- Easy quick-make, quick-break close/open operation.
- Complete line of accessories, UL-Listed for field installation.
- Short circuit ratings through 200,000 Amps.
- RMS digital sensing of sinusoidal and non-sinusoidal currents by the solid-state trip device.
- Field-installable, interchangeable rating plugs.
- Two trip unit options:
MicroVersaTrip Plus trip units for overcurrent protection.
MicroVersaTrip PM trip units for metering, protective relays, and GE POWER LEADER communications.

- Digital LCD display with five-button keypad for function selection and setpoint adjustment, and a sealable clear Lexan® cover for tamper-resistant set
- True RMS sensing for accurate response to high harmonic content waveforms for Long-Time, Short-Time, and Ground Fault protection.
- 50/60 Hz operation
- Interchangeable trip rating plugs with test set jack for TVRMS2 test set
- EMI immunity per ANSI C37.90.
- Integral long-life battery for cold setup and trip target viewing



MicroVersaTrip PM Trip Unit

MicroVersaTrip PM trip unit adds power management system capability, advanced metering, and protective relays to the basic functions of MicroVersaTrip Plus. MicroVersaTrip PM trip units communicate directly on the GE POWER LEADER communications bus.

MicroVersaTrip Plus Trip Unit

MicroVersaTrip Plus Trip units utilize a digital, LCD display with a five-button keypad to provide local setup and readout of trip settings. A selectable phase ammeter and trip indicators are standard, as is a clear plastic cover.

Power Break Circuit Breaker with enhanced MicroVersaTrip Plus & MicroVersaTrip PM Trip Units

Frame Size	Frame Size (Amps)	Sensor Rating (Amps)	Stationery		Draw-out	
			Standard Break	Hi-Break®	Standard Break	Hi-Break®
800	800	200	TP82TT	THP82TT	TC82TT	THC82TT
		400	TP84TT	THP84TT	TC84TT	THC84TT
		800	TP88TT	THP88TT	TC88TT	THC88TT
1600	1600	1000	TP1610TT	THP1610TT	TC1610TT	THC1610TT
		1600	TP1616TT	THP1616TT	TC1616TT	THC1616TT
2000	2000	2000	TP2020TT	THP2020TT	TC2020TT	THC2020TT
3000	2500	1000	TP2510TT	THP2510TT	TC2510TT	THC2510TT
		2000	TP2520TT	THP2520TT	TC2520TT	THC2520TT
		2500	TP2525TT	THP2525TT	TC2525TT	THC2525TT
	3000	TP3030TT	THP3030TT	TC3030TT	THC3030TT	
4000	4000	4000	TP4040T	THP4040T	TC4040TT	THC4040TT

GE POWER CONTROLS

RECORD - Moulded Case Circuit Breakers

Basic Units Use



The RECORD circuit breakers are suitable for 3 levels of performances:

- Normal RECORD, type D
- High breaking capacity RECORD type DH,
- Limiter RECORD, type D...L.

By adding or replacing elements, it is possible to perform following functions:

- Ground leakage protection,
- Visible isolation,
- Low magnetic threshold protection,
- Protection selectivity.

As variant:

- Branch circuit breakers for low voltage subscriber,
- Source changeover switches for replacement source,
- Switches for controlling and isolating circuits.

Description

Within an isolating box, the RECORD circuit breaker contains:

- 2, 3 or 4 poles.
- A mechanism enabling a fully visible isolation:
The control lever can only indicate the "OFF" position if all the contacts are actually open and separated by a distance greater than:
 - 9 mm for D125
 - 15 mm for D160, D250
 - 20 mm for D400, D630, D800, D1250,
- 1 indicator indicating the exact position of the contacts:
 - Red : contact closed
 - White : contact open, unit tripped
 - Green : contact open, fully visible isolation,
- 1 release unit:
 - Integrated for D125, D160, D250
 - Interchangeable for D400, D630, D800, D1250 containing:
 - One trip push-button
 - Compensated thermal elements from -5°C to +40°C adjustable from :
 - 0,75 to 1 for D125, D160, D250
 - 0,8 to 1 for D400, D630, D800, D1250
 - Adjustable magnetic releases (fixed for D125)

- As an option : rating error protection device, wiring isolation.

Withdrawable RECORD D800 and D1250 have a fixed part built with plug-in and withdrawal control by crank with isolation shutter and position indicator option.

Versions :

- Standard magneto-thermal
- Low threshold type A magnetor-thermal
- Magnetic type B (D125) magnetic only
- Magneto-thermal type SM or S
- Fixed, selective magnetic releases
- For direct current.

Possibility of lead sealing the access (on the front panel) against adjustments.

Auxiliaries, accessories

The RECORD circuit breakers can receive :

- Auxiliaries :
 - Display contacts (ON-OFF, fault)
 - Voltmetric releases (shunt type ST, undervoltage type UV)
- Installation, connection accessories :
 - Terminals, terminal covers,
- Locks by padlock or lock or keylock.

Service withstand

The RECORD circuit breakers and complementary devices, complies to structure II of standard NF C 63-100 :

- Relative humidity : 80% at 55°C and 95% at 45°C. (Hot and humid weather).

Structure

The RECORD circuit breakers are structured as :

- Fixed unit, Front or Rear terminals.
- Withdrawable unit, front terminals or rear terminals.

The withdrawable version contains:

- A monoblock isolating fixed part, protection degree IP2X,
- A safety system at withdrawal,
- An upline-dowline error prevention device,

Accreditation & certification

IEC 947-2

BS, CEI, NB, NF C, VDE

ASEFA - BUREAU VERITAS - GERMANISCHER LLYOD -

LLYOD's REGISTER OF SHIPPING - RINA

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GE POWER CONTROLS

Characteristics according to IEC 947-2



	D125	D125 L	D160	DH160	D160 L	D250	DH250	D250 L	
Rated insulation voltage (V) U_i	500	500	690	690	690	690	690	690	
Rated impulse withstand voltage (kV) U_{imp}	8	8	8	8	8	8	8	8	
Rated operational voltage (V) U_e	500	500	690	690	690	690	690	690	
Conventional thermal current at 40°C (A) I_{th}	100	100	160	160	160	250	250	230	
Rated ultimate short-circuit breaking capacity (kA) I_{cu}									
50/60 Hz AC voltage :									
■ 240V	100	130	70	80	130	70	80	130	
■ 415V	22 (2)	100	30	50	100	35	50	100	
■ 500V	10	100	12	14	70	20	22	80	
■ 690V	—	—	5	7	25	7	8	30	
DC voltage : L/R = 15 ms (*) ■ 250V	30	100	20	40	100	35	50	100	
Rated service short-circuit breaking capacity I_{cs}									
50/60 Hz AC current : $I_{cs} = \dots \% I_{cu}$	50	100	75	75	75	75	75	75	
DC current : L/R = 15 ms (*) : $I_{cs} = \dots \% I_{cu}$	50	100	75	75	75	75	75	75	
Rated short-circuit making capacity (1)(kA) I_{cm}	220	286	154	176	286	154	176	286	
Utilization category	A	A	A	A	A	A	A	A	
Number of poles	2-3-4	2-3-4	3-4	3-4	3-4	3-4	3-4	3-4	
Suitability for isolation (Visible breaking indication)	•	•	•	•	•	•	•	•	
Endurance (number of operating cycles)									
Mechanical (total) / Electrical	10000/5000	10000/5000	10000/4000	10000/4000	10000/4000	10000/4000	10000/4000	10000/4000	
Fault elimination time (ms)	8	2	8	8	3,5	8	8	3,5	
Pollution degree	3	3	3	3	3	3	3	3	
Over-current releases (integrated)									
Fixed or adjustable	Adjustable		Adjustable			Adjustable			
Inverse time delay over-current operation	Rated current (A)		Rated current (A)			Rated current (A)			
Ambient temperature compensation between -5°C to +40°C	In at 40°C	Adjustment	I_e (max.) (A)	In at 40°C	Adjustment	I_e (max.) (A)	In at 40°C	Adjustment	I_e (max.) (A)
	N (3)	min. max.	50°C 60°C	N (3)	min. max.	50°C 60°C	N (3)	min. max.	50°C 60°C
	16	— 12 16	15 14,5	25	18 25	23,5 22,5	125 63	90 125	118,5 112,5
	25	— 18 25	23,5 22,5	40	25 30 40	38 36	160 100	120 160	152 144
	40	25 30 40	38 36	63	40 45 63	59,5 56,5	200 100	150 200	190 180
	63	40 45 63	60 57	100	63 75 100	95 90	250 125	180 250	237,5 225
	80	40 60 80	76 72	125	63 90 125	118,5 112,5			
	100	63 75 100	95 90	160	100 120 160	152 144			
	125	63 90 125	118 112				D250 W/D	D250 L, D250 M	Fixed
	D125 M W/D	D125 L fixed					200 100	120 200	190 180
	95/120* 63/63*	60/90* 95/120*	90/115* 85/120*				230 125	150 230	215 205
	*Rating 125								
	D125 L W/D						D250 I, D250 M	W/D	
	90/110* 63/63*	60/90* 90/110*	85/100* 80/90*				180 100	120 180	170 160
	*Rating 125						205 100	150 205	195 185
Instantaneous short-circuit releases (fixed or adjustable)									
	Fixed			Adjustable			Adjustable		
	Rated current in (A)	Operational threshold (A)		Rated current in (A)	Adjustment range(A) mini maxi		Rated current (A)	Adjustment range (A) mini maxi	
Standard release	16	200		25	250 300		160	800 1900	
	25	300		40	320 480		200	1000 2400	
	40	480		63	440 750		250	1250 2500	
	63	750		100	600 1200				
	80	1000		125	750 1500				
	100	1200		160	800 1900				
	125	1200							
Type A release	25	90		40	240 300		200	275 750	
Low magnetic	40	130		63	250 315		250	625 1500	
	63	260		100	300 500				
	80	400		125	300 500				
	100	400		160	375 625				
	125	1200							
Type B release	63	750							
Magnetic only	80	1000							
	100	1200							
	125	1200							
Type SM release				100	2000		160	2500	
Selective				125	2000		200	2500	
				160	2000		250	2500	

(*) Number of poles participating in the breaking

(1) Maxi under 240V

■ 125V = : all circuit breakers 2 poles

(2) 12 kA for 16A rating

■ 250V = : D125- D125L : 4 poles ; other circuit breakers : 2 poles (3) Reduced neutral

GE POWER CONTROLS

Characteristics according to IEC 947-2



Rated insulation voltage (V)	Ui
Rated impulse withstand voltage (kV)	U imp
Rated operational voltage (V)	Ue
Conventional thermal current at 40°C (A)	Ith
Rated ultimate short-circuit breaking capacity (kA)	Icu
50/60 Hz AC voltage :	<ul style="list-style-type: none"> ■ 240 V ■ 415V ■ 500 V ■ 690V ■ 1000V (4)
DC voltage : L/R = 15 ms (*)	■ 250/500 V
Rated service short-circuit breaking capacity	Ics
50/60 Hz AC current : Ics = ... % Icu	
DC current : L/R = 15 ms (*) : Ics = ...% Icu	
Rated short-circuit making capacity (1)(kA)	Icm
Utilization category	
Number of poles	
Suitability for isolation (Visible breaking indication)	
Endurance (number of operating cycles)	
Mechanical (total) / Electrical	
Fault elimination time (ms)	
Pollution degree	
Over-current releases (interchangeable)	
Inverse time delay over-current operation	
Ambient temperature compensation	
between -5°C to +40°C	

	D400	DH400	D400 L			
Rated insulation voltage (V)	690	690	690			
Rated impulse withstand voltage (kV)	8	8	8			
Rated operational voltage (V)	690	690	690			
Conventional thermal current at 40°C (A)	400	400	400			
Rated ultimate short-circuit breaking capacity (kA)						
50/60 Hz AC voltage :	50	70	130			
DC voltage : L/R = 15 ms (*)	35	50	100			
Rated service short-circuit breaking capacity	30	35	50			
50/60 Hz AC current : Ics = ... % Icu	10	12	18			
DC current : L/R = 15 ms (*) : Ics = ...% Icu	-	-	10			
Rated short-circuit making capacity (1)(kA)	60/40	85/50	100/60			
Utilization category						
Number of poles	100	75	75			
Suitability for isolation (Visible breaking indication)	100	75	75			
Endurance (number of operating cycles)	105	154	286			
Mechanical (total) / Electrical	A	A	A			
Fault elimination time (ms)	3-4	3-4	3-4			
Pollution degree	.	.	.			
Over-current releases (interchangeable)	5000/2000	5000/2000	5000/2000			
Inverse time delay over-current operation	8	8	6			
Ambient temperature compensation	3	3	3			
between -5°C to +40°C	Adjustable					
	Rated current (A)					
	In at 40°C	Adjustment	Ie (max.) (A)			
	N (3)	min.	max.	50°C	60°C	
	250	125	200	250	237	225
	320	160	250	320	304	288
	400	200	320	400	380	360

D400 W/D	
370	200
320	370
340	310

Instantaneous short-circuit releases

Standard release

Type A release
Low magnetic

Type S release
Selective

Type C release
Magnetic only
for DC operation

Adjustable

Rated current in (A)	Adjustment range(A)	
	mini	maxi
320	1900	3850
400	2000	4800

320	750	1200
400	960	1700

250	3000
320	3850
400	4800

(*) Number of poles participating in the breaking
 ■ 250 V = : 2 poles
 ■ 500 V = : 3 poles

(1) Maxi under 240 V
 (2) No thermal release in DC operation
 (3) Reduced neutral
 (4) Made on request

Distribution Equipment



GE POWER CONTROLS



D630	DH630	D630 L
690	690	690
8	8	8
690	690	690
630	630	630

70	80	130
35	50	100
20	25	60
10	12	25
-	-	12
60/40	85/50	100/60

75	75	75
75	75	75
105	154	286
A	A	A
3-4	3-4	3-4
.	.	.

5000/2000	5000/2000	
12	12	6
3	3	3

Adjustable
Rated current(A)

In at 40°C	N (3)	Adjustment		Ie (max.) (A)	
		min.	max.	50°C	60°C
400	200	320	400	370	340
500	250	400	500	460	425
630 (2)	320	500	630	580	535

D630 W/D					
460	250	400	460	425	390
580 (2)	320	500	580	535	495

Rated current in (A)	Adjustment range (A)	
	min	maxi
400	2000	4000
500	2500	5000
630	3150	5000

500	1000	2000
630	1250	2500

500	5000	
630	5000	

D800	DH800
690	690
8	8
690	690
800	800

70	80
50	70
25	35
15	20
-	-
60/40	80/50

75	75
75	75
154	176
A	A
3-4	3-4
.	.

5000/2000	
12	12
3	3

Adjustable
Rated current(A)

In at 40°C	N (30)	Adjustment		Ie (max.) (A)	
		min.	max.	50°C	60°C
630 (2)	320	500	630	580	535
800 (2)	400	630	800	760	720

D800 W/D					
600 (2)	320	500	600	550	505
720 (2)	400	630	720	675	635

Rated current in (A)	Adjustment range (A)	
	mini	maxi
630	3150	5000
800	4000	6400

630	1250	2500
800	2000	3000

630	5000	
800	6400	

D1250
690
8
690
1250

60
60
35
25
21
50/70

75
75
132
A
3-4
.

5000/1000	5000/1000	3000/1000
20		
3		

Adjustable
Rated current(A)

In at 40°C	N (3)	Adjustment		Ie (max.) (A)	
		min.	max.	50°C	60°C
1000(2)	500	800	1000	950	850
1250(2)	630	1000	1250	1150	1050

Rated current in (A)	Adjustment range (A)	
	mini	maxi
1000	5000	10000
1250	6250	12500

1000	2400	4000
1250	3000	5000

1000	5000	10000
1250	6250	12500

3000 6000

GE POWER CONTROLS

SPECTRONIC SP/SPE - Air Circuit Breakers

General features

• SP 800 to 2500 A

Rated short-circuit breaking capacity (IEC 947-2) : 35 to 60 kA

• SPE 800 to 1250 A

Rated short-circuit breaking capacity (IEC 947-2) : 25 to 36 kA

The SPECTRONIC range combines the legendary reliability of our air circuit breakers with :

- A design adapted to the new panelboards
- Hi-tech protection relays

Main advantages :

- Original design to combine reliability and longevity,
- Optimal service : total selectivity is insured, even at closing on short-circuit,
- Optimal rationalization : same overall dimensions for the 2 ranges from 800A to 1600A,
- Safety ensured by fully visible breaking.

Characteristics

Circuit breaker

Rated insulation voltage (V)	Ui
Rated impulse voltage (kV)	U imp
Rated maximum nominal voltage (V)	Ue
Rated current at 40°C (A)	Ith
Rated ultimate short-circuit breaking capacity (kA)	
Alternating current 50/60 Hz :	<ul style="list-style-type: none"> ■ 415 V ■ 500 V ■ 690 V (2)
Rated service short-circuit breaking capacity (kA)	Ics
Alternating current 50/60 Hz :	<ul style="list-style-type: none"> ■ 415 V ■ 500 V ■ 690 V (2)
Rated peak short-circuit making current (kA peak)	Icm
RMS short time withstand current : 1 sec.	Icw
	<ul style="list-style-type: none"> ■ 415 V (kA eff) ■ 500 V (kA eff)
Utilization category	
Number of poles	
Suitability for isolation (Visible breaking indication)	
Endurance (Number of operating cycles)	
Mechanical (Total)	
Electrical (at 415 V) (3)	
Mean time between maintenances	
Power dissipation (Withdrawable, 3 Poles) (W)	
4th pole conventional thermal current (A)	
Pollution degree	

SP	SP						SPE		
	800	1000	1250	1600	2000	2500	800	1000	1250
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
8	8	8	8	8	8	8	8	8	8
690	690	690	690	690	690	690	690	690	690
800	1000	1250	1600	2000	2500	800	1000	1250	
Icu									
55	55	55	55	60	60	36	36	36	
35	35	40	40	40	40	25	25	25	
35	35	35	35	35	35	-	-	-	
50	50	50	50	55	55	36	36	36	
35	35	40	40	40	40	25	25	25	
35	35	35	35	35	35	-	-	-	
120	120	120	120	130	130	75	75	75	
50	50	50	50	55	55	36	36	36	
35	35	35	35	35	35	25	25	25	
B	B	B	B	B	B	B	B	B	
3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	
	•	•	•	•	•	•	•	•	•
10000	10000	10000	10000	10000	10000	10000	10000	10000	
10000	10000	10000	10000	10000	10000	10000	10000	10000	
3500	3000	2500	1500	1500	1500	1500	1500	1500	
150	200	300	400	300	500	100	150	230	
800	1000	1250	1600	1250	1250	800	1000	1250	
3	3	3	3	3	3	3	3	3	

(1) For IP32 to the open air

(2) Structure upon request

(3) To guarantee this number of operations, it is necessary to check the spark arrester and the arc chute "Maintenance frequency" (Replace them when necessary).

This can be done easily on site.

Conformity, tropicalization, anti-corrosion treatment

Conformity

- The SP-SPE circuit breakers are built according to the following standards :
IEC 947-2, BS, CEI, NBN, NFC, VDE
- Certification : BUREAU VERITAS, LLOYD'S REGISTER OF SHIPPING, GERMANISCHER LLOYD, ASEFA

Tropicalization

Class I (Standard) :
Relative humidity of 80% at 40°C
(Hot and dry or damp climate of temperate zones).
Class II
Relative humidity of 95% at 45°C (Hot and damp climate).

Anti-corrosion treatment

For special atmospheres, consult us.

GE POWER CONTROLS

Fixed Circuit breaker



Description

Fitted at the factory with a control panel which provide IP30 protection degree.

For panel mounting, a seal and a cover are supplied as standard feature to :

- Insure protection degree (IP 20)
- Provide aesthetic finish of door cut-out

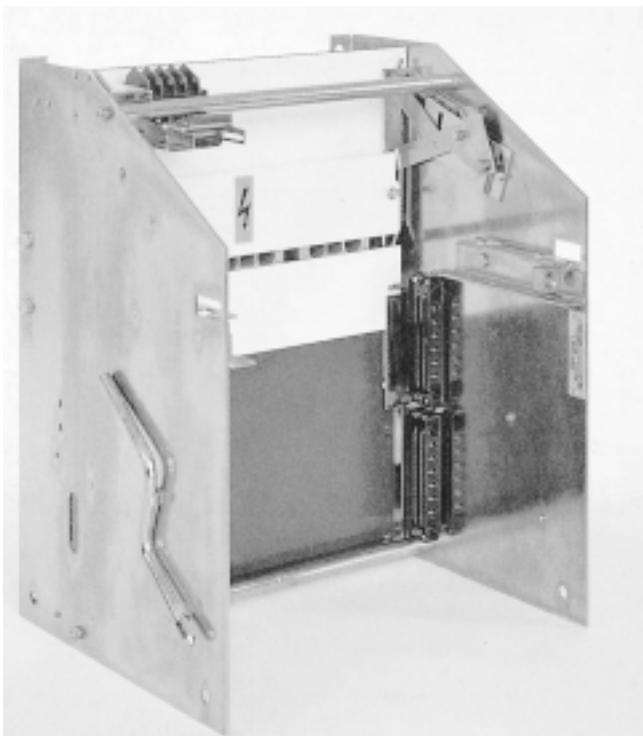
Installation

- Fastened to two vertical uprights or to an horizontal surface.
- Main connections by rear horizontal terminal board or front terminals.
- Connections to the auxiliary circuits by terminals located at the front of the unit.

Power supply orientation

Up to 415V, either on the upper or lower terminal boards.
Beyond 415V, only on the upper terminal boards.

Withdrawable circuit breaker



Description

The circuit breaker is mounted in a cradle fitted with slides that enable two breaker positions : "Inserted and "Withdrawn-isolated".

The operations are performed by screw-nut systems, controlled by two removable cranks.

Automatic tripping of the breaker at insertion and at withdrawal.

Automatic withdrawal of the auxiliary wiring simultaneous with the main circuit by wiring isolating device (24 circuits).

For installation inside cabinet, a seal and a cover are supplied as standard to provide IP20 protection degree when the panel door is closed.

Breaker withdrawable : door closed or door open.

Installation

- Fastening on vertical upright by rear surface or on a horizontal surface by adding L-pieces on side faces.
- Main connections by front or rear terminals boards.
- Connection of auxiliary circuits laterally by disconnectable clips.

Power supply orientation

Up to 415V, either on the upper or lower terminal boards.
Beyond 415V, only on the upper terminal boards.

GE POWER CONTROLS

RV : Protection and monitoring unit



Description

The RV unit is powered by the current transformers and performs following current protections :

- Overload protection (LT)
- Short-circuit protection (ST et I)
- Ground fault protection (GF)

To adapt to the new electrical distribution needs, RV protection and monitoring units feature a range completed with specialized units, providing large operating range:

1 - RV types of releases

	LT	LTD	ST-1	GF	N
RV 03	•		•		
RV 04	•		•		•
RV 13	•	•	•		
RV 14	•	•	•		•
RV 23	•	•	•	•	

2 - RV setting ranges

		setting points
LT	(x Ir)	0.5 - 0,6 - 0,7 - 0,8 - 0,9 - 1
LTD	(s)	5 - 15 - 40 / time delay at 6 Ir
ST	(x Ir)	2 - 3 - 4 - 6 - 8 - 10
Delay	(ms)	0 - 50 - 100 - 200 - 300 - 500
I	(x Ir)	2 - 3 - 5 - 8 - 10 - OFF
GF	(x In)	0.25 - 0,3 - 0,4 - 0,5 - 0,6 - 0,7
Delay	(ms)	200 - 300 - 400

3- The RV options

To facilitate the Spectronic circuit breakers integration within automated systems, the RV unit can receive (all or part) following modules :

A - Positive fault indication and display (LT, ST, I,GF)

- Local display by LED diodes
- Remote indication by relay contacts (dry contacts).

B - Load monitoring

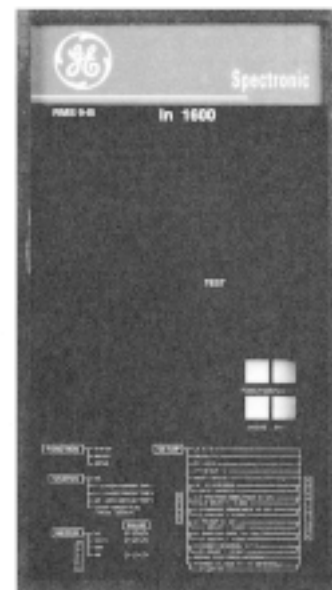
- Threshold setting : (0.5 - 0,6 - 0,7 - 0,8 - 0,9 - 1.0) x Ir
- Stabilized changeover (anti-hunting) by :
 - Time delay at closing of 60 seconds.
 - Desactivation at 0.8xthreshold level
- Remote transmission by dry contacts.

C - Ammeter

A digital ammeter permanently displays the current intensity on the most loaded phase.

The current on the other phases is available by local monitoring.

RMS9 : Protection and measurement unit



Description

The RMS 9 is powered by the current transformers. The unit perform all the necessary current protections as well as the measurement (RMS) of all the network parameters.

Besides providing above functions, the communicating model of RMS 9 can also operate remote event measurement and recording.

1 - Standard protection functions

- Overload protection (Long time LT)
- Short-circuit protection (Short time, Instantaneous ST,I)
- Ground fault protection (GF)

2 - RMS9 setting ranges

		Setting points
LT	(x Ir)	0.5 - 1 (step of 0,05)
LTD	(s)	3 -6 - 12 - 25 / to 6 Ir
ST	(x Ir)	1,5 - 9 (step of 0,5)
Delay	(ms)	100 - 210 - 350
I	(x Ir)	1,5 - 15 (step of 0,5)
GF	(x Ir)	0,2 - 0,6 (step of 0,01)
Delay	(ms)	100 - 210 - 350

GE POWER CONTROLS

SPECTRONIC S/L - Air Circuit Breakers

General features

- **Selective S : 800 to 6400A**
With total discrimination guarantee
Rated short-circuit breaking capacity (IEC 947-2) : 55 to 120 kA
- **Limiting L : 640 to 2000A**
With very high interrupting capacity
Short-circuit breaking capacity (IEC 947-2) : 130 kA

The SPECTRONIC range combines the known reliability of our air circuit breakers with :

- A design adapted to the new panelboards
- Hi-tech protection relays



Selective S circuit breakers : technical data

Circuit breaker

	S 800	S 1000	S 1250	S 1600	S 2000	S 2500	S 3200	S 4000	S 5000	S 6400
Rated insulation voltage (V)	Ui									
Rated impulse voltage (kV)	U imp									
Rated maximum nominal voltage (V)	Ue									
Rated current at 40°C (1) (A)	Ith									
Rated ultimate short-circuit breaking capacity (kA)	Icu									
Alternating current 50/60 Hz : ■ 415 V	55	55	65	65	65	70	85	90	120	120
■ 500 V	55	55	55	55	55	65	70	85	100	100
■ 690 V (2)	40	40	40	40	40	40	50	50	70	70
Rated service short-circuit breaking capacity (kA)	Ics									
Alternating current 50/60 Hz : ■ 415 V	55	55	55	55	55	65	70	85	100	100
■ 500 V	55	55	55	55	55	65	70	85	100	100
■ 690 V (2)	40	40	40	40	40	40	50	50	70	70
Rated peak short-circuit making current (kA peak)	Icm									
RMS short time withstand current (415 V)	Icw									
■ 0,5 s. (kA eff)	55	55	55	55	65	70	-	-	-	-
■ 1 s. (kA eff)	50	50	55	55	65	70	85	90	120	120
Utilization category	B	B	B	B	B	B	B	B	B	B
Number of poles	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4
Suitability for isolation (Visible breaking indication)	•	•	•	•	•	•	•	•	•	•
Endurance (Number of operating cycles)										
Mechanical (Total)	20000	20000	20000	20000	20000	20000	10000	10000	5000	5000
Electrical (at 415 V) (3)	20000	20000	20000	20000	20000	20000	10000	10000	5000	5000
Mean time between maintenances	3500	3000	2500	2000	1500	1500	1500	1500	1500	1500
Power dissipation (Withdrawable, 3 Poles) (W)	150	200	300	400	400	500	920	1000	1320	1310
4th pole conventional thermal current (A)	800	1000	1250	1600	2000	2500	3200	4000	5000	6400
Pollution degree	3	3	3	3	3	3	3	3	3	3

Conformity, tropicalization, anti-corrosion treatment

Conformity

- The S circuit breakers are built according to the following standards :
IEC 947-2, BS, CEI, NBN, NFC, VDE
- Certification : BUREAU VERITAS, LLOYD'S REGISTER OF SHIPPING, GERMANISCHER LLOYD, ASEFA

Tropicalization

- Class I (Standard) :
Relative humidity of 80% at 40°C (Hot and dry or damp climate of temperate zones).
- Class II
Relative humidity of 95% at 45°C (Hot and damp climate).

Anti-corrosion treatment

For special atmospheres, consult us.

GE POWER CONTROLS

Limiter L circuit breakers : technical data

Circuit breaker

		L 640	L 1000	L 1250	L 1600	L 2000
Rated insulation voltage (V)	Ui	1000	1000	1000	1000	1000
Rated impulse voltage (kV)	U imp	8	8	8	8	8
Rated maximum nominal voltage *(V)	Ue	690	690	690	690	690
Rated current at 40°C (1) (A)	Ith	640	1000	1250	1600	2000
Rated ultimate short-circuit breaking capacity (kA)	Icu					
	Alternating current 50/60 Hz : ■ 415 V	130	130	130	130	130
	■ 500 V	100	100	100	100	100
	■ 690 V	60	60	60	60	60
Rated service short-circuit breaking capacity (kA)	Ics					
	Alternating current 50/60 Hz : ■ 415 V	130	130	130	130	130
	■ 500 V	100	100	100	100	100
	■ 690 V	60	60	60	60	60
Rated peak short-circuit making current (kA peak)	Icm	290	290	290	290	290
Fault elimination time (ms.)		8	8	8	8	8
Utilization category		A	A	A	A	A
Number of poles		3-4	3-4	3-4	3-4	3-4
Suitability for isolation (Visible breaking indication)		•	•	•	•	•
Endurance (Number of operating cycles)						
	Mechanical (Total)	20000	20000	20000	20000	20000
	Electrical (at 415 V) (2)	20000	20000	20000	20000	20000
Mean time between maintenances		1500	1500	1500	1500	1500
Power dissipation (Withdrawable, 3 Poles) (W)		135	230	220	270	420
4th pole conventional thermal current (A)		640	1000	1250	1600	2000
Pollution degree		3	3	3	3	3

Conformity, tropicalization, anti-corrosion treatment

Conformity

- The L circuit breakers are built according to the following standards :
IEC 947-2, BS, CEI, NBN, NFC, VDE
- Certification : BUREAU VERITAS,
LLOYD'S REGISTER OF SHIPPING, GERMANISCHER LLOYD.

Tropicalization

- Class I (Standard) :
Relative humidity of 80% at 40°C
(Hot and dry or damp climate of temperate zones).
- Class II
Relative humidity of 95% at 45°C (Hot and damp climate).

Anti-corrosion treatment

For special atmospheres, consult us.

Fixed circuit breaker

Description

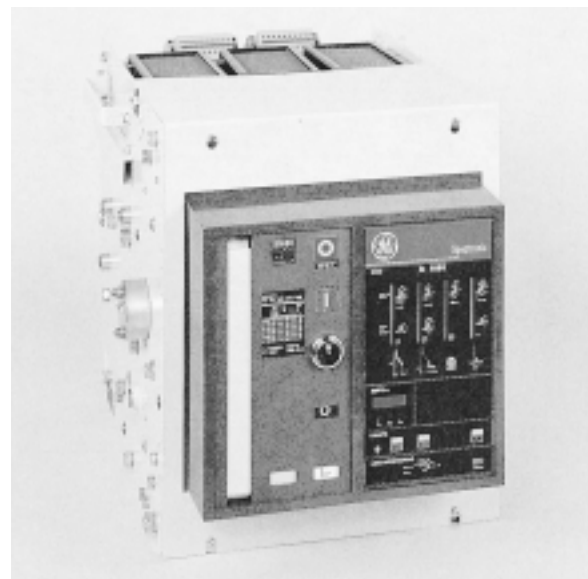
Equipped at factory with an IP32 face plate, receiving a gasket, delivered with the breaker, easily fitted to on door or panel, and a front cover providing an IP2X protection degree.

Installation

- Fastening by side L-pieces with built-in ground connection. By cross members on circuit breakers.
S 5000 - 6400 (Vertical or horizontal).
- Connection by horizontal terminal strip rear connectors, (Vertical on vertical S 5000 - 6400).

Power supply

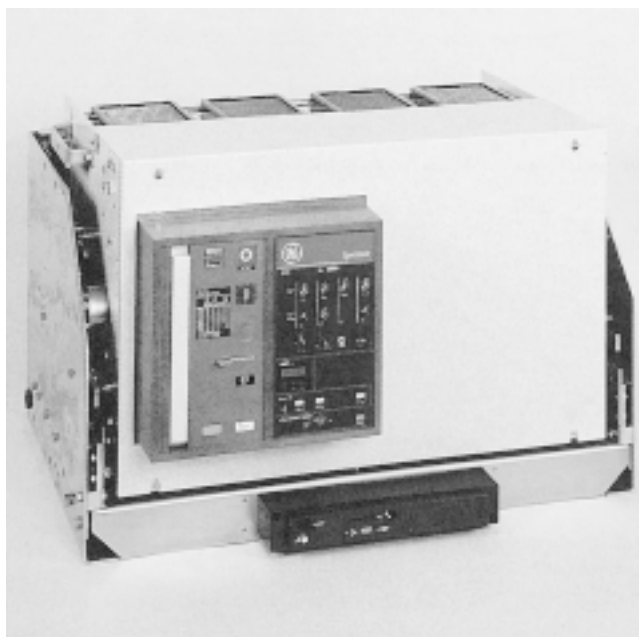
- Up to 500 V (415 V for the L circuit breakers), either on the upper or the lower lugs.
- At higher voltage to the upper lugs or right connectors on vertical breakers (Breakers seen from the front).



Electrolines Est.

GE POWER CONTROLS

Withdrawable circuit breaker



Arrangement

- Ratings ≤ 4000 A
Cradle equipped with retractable rails enabling 3 circuit breaker positions : "Connected", "Test", "Disconnected-isolated", plus an "Extracted" position.
- Ratings 5000 – 6400 A (Vertical)
Cradle equipped with guide rails in which are engaged the rollers equipping the breaker, enabling 2 circuit breaker positions : "Plugged-in", "Withdrawn-isolated".

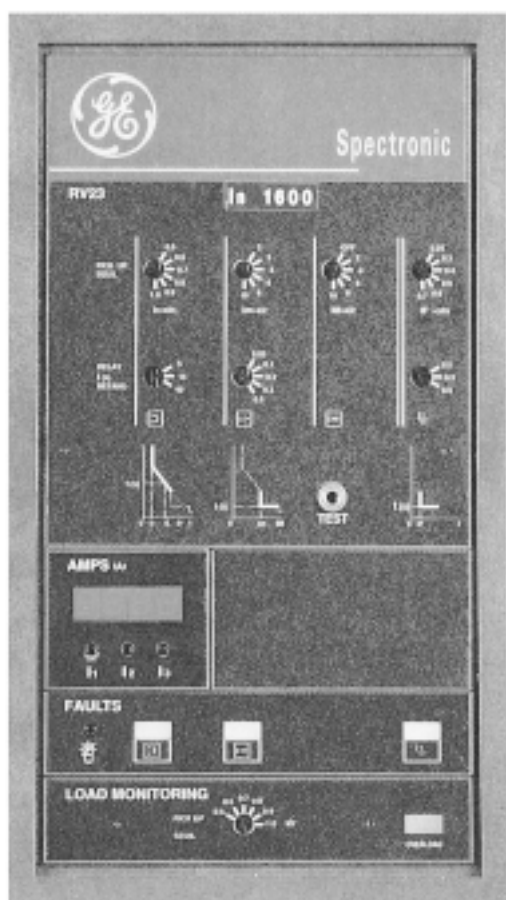
Like the fixed breaker, the withdrawable circuit breaker is delivered with front cover, face plate, gasket and ammeter (On request).

The plug-in operation, which can be done with the door closed, uses a screw-nut system, actuated by a removable crank. Tripping the circuit breaker before introducing the crank guarantees safety when withdrawing.

Power supply

- Up to 500 V (415 V for the L circuit breakers), either on the upper or the lower lugs.
- At higher voltage to the upper lugs or right connectors on vertical breakers (Breakers seen from the front).

RV : Protection and monitoring unit



Description

The RV unit is powered by the current transformers and performs following current protections :

- Overload protection (LT)
- Short-circuit protection (ST el I)
- Ground fault protection (GF)

To adapt to the new electrical distribution needs, RV protection and monitoring units feature a range completed with specialized units, providing large operating range:

1- The RV range

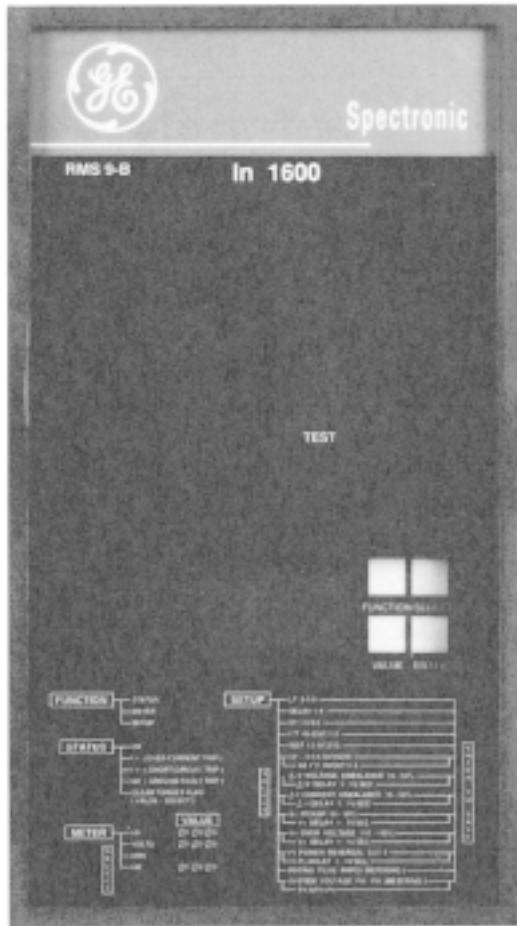
	LT	LTD	ST-1	GF	N
RV 03	•		•		
RV 04	•		•		•
RV 13	•	•	•		
RV 14	•	•	•		•
RV 23	•	•	•	•	

2 - RV setting ranges

		setting points
LT	(x Ir)	0,5 - 0,6 - 0,7 - 0,8 - 0,9 - 1
LTD	(s)	5 - 15 - 40 / time delay at 6 Ir
ST	(x Ir)	2 - 3 - 4 - 6 - 8 - 10
Delay	(ms)	0 - 50 - 100 - 200 - 300 - 500
I	(x Ir)	2 - 3 - 5 - 8 - 10 - OFF
GF	(x Ir)	0,25 - 0,3 - 0,4 - 0,5 - 0,6 - 0,7
Delay	(ms)	200 - 300 - 400

GE POWER CONTROLS

RMS9 : Protection and monitoring unit



Description

The RMS 9 is powered by the current transformers. The unit perform all the necessary current protections as well as the measurement (RMS) of all the network parameters. Besides providing above functions, the communicating model of RMS 9 can also operate remote event measurement and recording.

1 - Standard protection functions

- Overload protection (Long time LT)
- Short-circuit protection (Short time, Instantaneous ST, I)
- Ground fault protection (GF)

2 - RMS 9B setting ranges

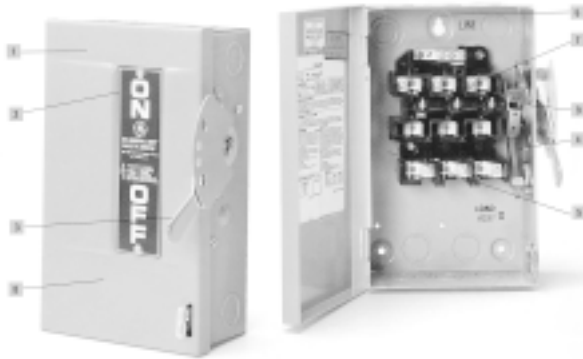
		setting points
LT	(x Ir)	0,5 - 1 (Step of 0,05)
LTD	(s)	3 - 6 - 12 - 16/Delay at 6 Ir
ST	(x Ir)	1,5 - 9 (Step of 0,5)
Delay	(ms)	100 - 210 - 350
I	(x Ir)	1,5 - 15 (Step of 1,5)
GF	(x Ir)	0,2 - 0,3 (Step of 0,02)
Delay	(ms)	100 - 210 - 350

ELECTROLINES

The single source

GENERAL ELECTRIC

GE Safety Switches



1. GE's General Duty switches are available for residential and light commercial applications, indoor or outdoor applications.
2. Extra-large and legible ON/OFF label takes the guesswork out of safety.
3. Bright red handle is easy to see, easy to grip.
4. Direct-drive, quick-make, quick-break mechanism provides long life and positive ON/OFF indication.
5. Wide, unobstructed gutter and removable interior make wire pulling quick and easy.
6. Positive three-point mounting speeds installation, simplifies ganging in close quarters.
7. Silver plated stationary/movable contacts.
8. Galvannealed steel for superior rust protection in outdoor applications.
9. Silver-plated visible blades inform you whether the switch is ON or OFF.

General Duty Safety Switches

GE's General Duty Type TG Safety Switches are designed for residential or light commercial applications duty is not severe.

The general duty line is available in 30-600

amps, 240 Vac, 250 Vdc maximum in both no-fuse and fusible units. Enclosure types include UL (NEMA) Type 1 (indoor) and Type 3R (outdoor). The UL listed short circuit rating is 10,000 rms symmetrical amps as standard. When Class R fuses and fuse kits are installed, our 30-200 amp switches have a UL listed short circuit rating of 100,000 rms symmetrical amps.

GE's General Duty Safety Switch is suitable for use as service entrance equipment when installed in accordance with the National Electrical Code.

All switches are UL listed and CSA certified under (UL98 Enclosed Switches/CSA-C22.2 No. 4-M89) and meet or exceed NEMA Enclosed Switch Standard KS1-1990.

General Duty Type TG

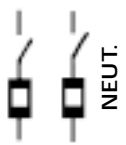
30-600 Amperes 240 Volts ac, 250 Volts dc Max.

Schematic Diagram	Max. Ampere Rating	Indoor, Type 1 Enclosure ^A Catalog Number	Outdoor, Type 3R Enclosure ^C Catalog Number	Horsepower Ratings					
				240 Volts ac				dc	
				NEC Standard		Time Delay		125 Volts	250 Volts
1-ph	3-ph	1-ph	3-ph						

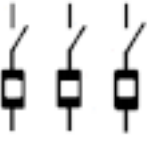
Fusible

Two-pole, 120/240 and 240 Volts ac; 250 Volts dc (30-100 amps only)

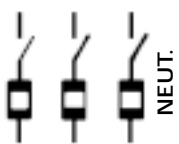
Three-wire SN, 240 Volts ac

	30	TG3221	TG3221R	1½	3	3	7½	2	5
	60	TG3222	TG3222R	3	7½	10	15	3	10
	100	TG3223	TG3223R	7½	15	15	30	-	20
	200	TG3224	TG3224R	15	25	15	50	-	-
	400	TG3225	TG3225R	-	50	-	100	-	-
	600	TG3226	TG3226R	-	75	-	100	-	-

Three-pole, 240 Volts ac

	30	TG4321	TG4321R	1½	3	3	7½	-	5
	60	TG4322	TG4322R	3	7½	10	15	3	10
	100	TG4323	TG4323R	7½	15	15	30	-	20
	200	TG4324	TG4324R	15	25	15	50	-	-
	400	TG3325	TG3325R	-	50	-	100	-	-
	600	TG3326	TG3326R	-	75	-	100	-	-

Four-wire SN, 208/120 and 240 Volts ac

	30	TG4321	TG4321R	1½	3	3	7½	-	5
	60	TG4322	TG4322R	3	7½	10	15	3	10
	100	TG4323	TG4323R	7½	15	15	30	-	20
	200	TG4324	TG4324R	15	25	15	50	-	-
	400	TG4325	TG3325R Plus TN165	-	50	-	100	-	-
	600	TG4326	TG3326R Plus TN166	-	75	-	100	-	-

Electrolines Est.

GENERAL ELECTRIC

General Duty Type TG (Cont.)


30-600 Amperes 240 Volts ac, 250 Volts dc Max.

Schematic Diagram	Max. Ampere Rating	Indoor, Type 1 Enclosure ^A	Outdoor, Type 3R Enclosure ^C	Horsepower Ratings					
				240 Volts ac				dc	
		Catalog Number	Catalog Number	NEC Standard		Time Delay		125 Volts	250 Volts
				1-ph	3-ph	1-ph	3-ph		

No Fuse

Two-pole, 240 Volts ac (Use three-pole switch for two-pole application); 250 Volts dc (30-100 amps only)

Three-pole, 240 Volts ac or Two-pole with Switching Neutral

	30	TGN3321	TGN3321R	3	7½	3	7½	-	5
	60	TGN3322	TGN3322R	10	15	10	15	3	10
	100	TGN3323	TGN3323R	15	30	15	30	-	20
	200	TGN3324	TGN3324R	15	50	15	50	-	-
	400	TGN3325	Available in heavy duty, type TH models	-	100	-	100	-	-
	600	TGN3326		-	100	-	100	-	-

Heavy Duty Safety Switches Type TH

30-1200 Amperes 240 Volts ac, 250 Volts dc Max.

GE's Heavy Duty Safety Switches Type TH are designed for applications where safety, high performance, and continuity of service are essential.

The heavy duty line is available in 30-1200 amps, 600 Vac, 600 Vdc maximum, no-fuse and fusible units. Enclosure types include UL (NEMA) Type 1 (indoor), Type 3R (outdoor), Type 4/4x Stainless Steel (water and dust-tight), and Type 5/12 and JIC (drip and dust-tight). When used with Class R or J fuses, 30-600 amp switches have a UL listed short circuit rating of 200,000 rms symmetrical amps.

Type TC 800-1200 amps switches used with Class L fuses are good for 100,000 rms symmetrical amps. GE's Heavy Duty Safety Switches are suitable for use as service entrance equipment when installed in accordance with the National Electrical Code.

Heavy Duty Safety Switches are UL listed and CSA certified under (UL98 Enclosed Switches/CSA-C22.2 No. 4-M89) and meet NEMA Enclosed Safety Switches meet Federal Specification WS-865C for heavy duty switches.

Type TH Interrupting and Withstandability Ratings

Switch Rating (Amps)	Interrupting Rating rms Amps, 600 Volt ac 3-ph	Fuse Cleaning ^{1†} (Amps ² x Seconds x 10 ³)
30	360	50
60	1200	200
100	1200	500
200	3,400	2,000
400	10,000	2,000
600	10,000	12,000



- GE's Heavy Duty switches are available for commercial and industrial applications.
- Highly visible ON/OFF label takes the guesswork out of safety.
- Unique red "donut" handle molded out of GE SE1 Noryl Thermoplastic is easy to see, easy to grip. Ideal for hook stick operation.
- Coin-proof defeatable dual interlocks meet all safety inspection requirements.
- Wide, unobstructed gutter and removable interior make wire pulling quick and easy.
- Positive three-point mounting speeds installation, simplifies ganging in close quarters.
- Exclusive SE1 Noryl resin arc shield helps provide maximum UL listed horsepower ratings while guarding against accidental contact with live parts.
- Accessories, such as auxiliary switch kits, are quickly field installable.
- Silver-plated visible blades inform you whether the switch is ON or OFF.
- Direct-drive, quick-make, quick-break mechanism provides long life and positive ON/OFF indication.
- Spring-reinforced fuse clips, suitable for Class H, K, J, or R fuses, assure reliable contact for cool operation.
- Cu-Al lugs 60/75°C rated permit greater wire selection.
- Galvannealed steel for superior rust protection in outdoor applications.

Electrolines Est.

GENERAL ELECTRIC

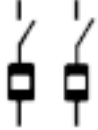
Safety Switches, Heavy Duty Type TH (Cont.)

30-1200 Amperes 240 Volts ac, 250 Volts dc Max.

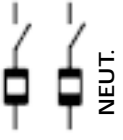
240 Volts—Fusible

Schematic Diagram	Max. Ampere Rating	Indoor Type 1 Catalog Number	Outdoor Type 3R Catalog Number	Water- and Dust-tight Types 4/4X Stainless Steel Catalog Number	Drip- and Dust-tight Type 5, 12 and JIC Without Knockouts Catalog Number	Horsepower Ratings					
						240 Volts ac				125 Volts	250 Volts
						NEC Std		Time Delay			
1-ph	3-ph	1-ph	3-ph								


Two-pole, 240 Volts ac-250 Volts dc

	30	TH3221	TH3221R	TH2221SS	TH2221J	1 1/2	3	3	7 1/2	-	5
	60	TH3222	TH3222R	TH2222SS	TH2222J	3	7 1/2	10	15	5	10
	100	TH3223	TH3223R	TH3223SS	TH3223J	7 1/2	15	15	30	-	20
	200	TH3224	TH3224R	TH3224SS	TH3224J	15	25	-	60	-	40
	400	TH3225	TH3225R	TH3225SS	TH3225J	-	50	-	125	-	50
	600	TH3226	TH3226R	TH3226SS	TH3226J	-	75	-	200	-	50
	800	TC72267	TC72267R	-	-	-	-	-	-	-	-
	1200	TC72268	TC72268R	-	-	-	-	-	-	-	-

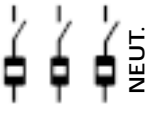
Three-wire SN, 120/240 and 240 Volts ac

	30	TH3221	TH3221R	TH3221SS	TH3221J	1 1/2	3	3	7 1/2	-	5
	60	TH3222	TH3222R	TH3222SS	TH3222J	3	7 1/2	10	15	5	10
	100	TH3223	TH3223R	TH3223SS	TH3223J	7 1/2	15	15	30	-	20
	200	TH3224	TH3224R	TH3224SS	TH3224J	15	25	-	60	-	40
	400	TH3225	TH3225R	TH3225SS	TH3225J	-	50	-	125	-	50
	600	TH3226	TH3226R	TH3226SS	TH3226J	-	75	-	200	-	50
	800	TC72267 plus TNI67	TC72267R plus TNI67	-	-	-	-	-	-	-	-
	1200	TC72268 plus TNI68A	TC72268R plus TNI68	-	-	-	-	-	-	-	-

Three-pole, 240 Volts ac

	30	TH4321	TH4321R	TH3321SS	TH3321J	1 1/2	3	3	7 1/2	-	5
	60	TH4322	TH4322R	TH3322SS	TH3322J	3	7 1/2	10	15	5	10
	100	TH4323	TH4323R	TH4323SS	TH4323J	7 1/2	15	15	30	-	20
	200	TH4324	TH4324R	TH4324SS	TH4324J	15	25	-	60	-	40
	400	TH4325	TH4325R	TH4325SS	TH4325J	-	50	-	125	-	50
	600	TH4326	TH4326R	TH4326SS	TH4326J	-	75	-	200	-	50
	800	TC72367	TC72367R	-	-	-	-	-	-	-	-
	1200	TC72368	TC72368R	-	-	-	-	-	-	-	-

Four-wire SN, 208/120 and 240 Volts ac

	30	TH4321	TH4321R	TH3321SS	TH4321J	1 1/2	3	3	7 1/2	-	5
	60	TH4322	TH4322R	TH4322SS	TH4322J	3	7 1/2	10	15	5	10
	100	TH4323	TH4323R	TH4323SS	TH4323J	7 1/2	15	15	30	-	20
	200	TH4324	TH4324R	TH4324SS	TH4324J	15	25	-	60	-	40
	400	TH4325	TH3325R plus TNI65	TH4325SS	TH4325J	-	50	-	125	-	50
	600	TH4326	TH3326R plus TNI66	TH4326SS	TH4326J	-	75	-	200	-	50
	800	TC72367 plus TNI67	TC72367R plus TNI67	-	-	-	-	-	-	-	-
	1200	TC72368 plus TNI68A	TC72368R plus TNI68A	-	-	-	-	-	-	-	-

Heavy Duty Safety Switches with 317 Stainless Steel Type NEMA 4/4X, Water & Dust-tight

30-1200 Amperes 240, 480 and 600 Volts ac, 600 Volts dc

- Superior corrosion resistance and high temperature strength
- Excellent resistance to reducing acids and similar media
- Excellent resistance to pitting corrosion due to chlorides

Max. Ampere Rating	Volts	Catalog Number	Max. Ampere Rating	Volts	Catalog Number
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240/600 Volts—Fusible

30	600	TH2261SSDC3	30	600	THN3361SS317
30	240	TH3221SS317	60	600	THN3362SS317
30	600	TH3361SS317	100	600	THN3363SS317
60	600	TH3362SS317	600	600	THN3366SS317
100	600	TH3363SS317			
200	600	TH3364SS317			

600 Volts—Non-Fusible

Electrolines Est.

GENERAL ELECTRIC

Safety Switches, Heavy Duty Type TH (Cont.)

30-1200 Amperes 240, 480 and 600 Volts ac, 600 Volts dc

Safety Switches

Schematic Diagram	Max. Ampere Rating	Indoor Type 1	Outdoor Type 3R	Water- and Dust-tight Types 4/4X Stainless Steel	Drip- and Dust-tight Type 5, 12 and JIC Without Knockouts	Horsepower Ratings						
						ac				dc		
		Catalog Number	Catalog Number	Catalog Number	Catalog Number	NEC Std		Time Delay		125 Volts	125 Volts	250 Volts
						480V	600V	480V	600V			
						1-ph	3-ph	1-ph	3-ph			

600 Volts—Fusible

Two-pole, 600 Volts dc												
	30	TH2261DC	TH2261RDC	TH2261SSDC	TH2261JDC	-	-	-	-	-	-	15
	60	TH2262DC	TH2262RDC	TH2262SSDC	TH2262JDC	-	-	-	-	-	-	25
	100	TH2263DC	TH2263RDC	TH2263SSDC	TH2263JDC	-	-	-	-	-	-	25
Three-pole, 480, 480Y/277 and 600 Volts ac-250 Volts dc												
	30	TH3361	TH3361R	TH3361SS	TH3361J	5	7½	15	20	-	5	-
	60	TH3362	TH3362R	TH3362SS	TH3362J	15	15	30	50	-	10	-
	100	TH3363	TH3363R	TH3363SS	TH3363J	25	30	60	75	-	20	-
	200	TH3364	TH3364R	TH3364SS	TH3364J	50	60	125	150	-	40	-
	400	TH3365	TH3365R	TH3365SS	TH3365J	100	125	250	350	-	50	-
	600	TH3366	TH3366R	TH3366SS	TH3366J	150	200	400	500	-	50	-
	800	TC72367	TC72367R	-	-	-	-	-	-	-	-	-
1200	TC72368	TC72368R	-	-	-	-	-	-	-	-	-	
Four-pole, 480 and 600 Volts ac						2-ph	2-ph	2-ph	2-ph			
	30	TH6661	TH6661	-	TH6661	7½	10	20	25	-	5	-
	60	TH6662	TH6662	-	TH6662	15	20	40	50	-	10	-
	100	TH6663	TH6663	-	TH6663	25	30	50	50	-	20	-
	200	TH6664	TH6664	-	TH6664	50	50	-	-	-	40	-

600 Volts—No Fuse

Two-pole, 600 Volts dc												
	30	THN2261DC	THN2261RDC	THN2261SSDC	THN2261JDC	480V 1-ph	600V 3-ph	480V 1-ph	600V 3-ph	-	-	15
	60	THN2262DC	THN2262RDC	THN2262SSDC	THN2262JDC	-	-	-	-	-	-	25
	100	THN2263DC	THN2263RDC	THN2263SSDC	THN2263JDC	-	-	-	-	-	-	25
Three-pole, 480 and 600 Volts ac-250 Volts dc or Two-pole with Switching Neutral												
	30	THN3321	-	-	-	3	10	-	-	3	5	-
	30	THN3361	THN3361R	THN3361SS	THN3361J	3	10	20	30	3	5	-
	60	THN3362	THN3362R	THN3362SS	THN3362J	10	20	50	60	5	10	-
	100	THN3363	THN3363R	THN3363SS	THN3363J	20	40	75	100	-	20	-
	200	THN3364	THN3364R	THN3364SS	THN3364J	30	60	125	150	-	40	-
	400	THN3365	THN3365R	THN3365SS	THN3365J	-	125	250	350	-	50	-
	600	THN3366	THN3366R	THN3366SS	THN3366J	-	200	400	500	-	50	-
800	TC36367	-	-	-	-	-	-	-	-	-	-	
1200	TC36368	-	-	-	-	-	-	-	-	-	-	
Four-pole, 480 and 600 Volts ac						-	10	20	25	-	5	-
	30	THN6661	THN6661	-	THN6661	-	10	20	25	-	5	-
	60	THN6662	THN6662	-	THN6662	-	20	40	50	-	10	-
	100	THN6663	THN6663	-	THN6663	-	30	50	50	-	20	-
	200	THN6664	THN6664	-	THN6664	-	50	-	50	-	40	-

Mill Duty Safety Switches



- GE's Mill Duty switches are available for mill, foundry, and heavy industrial applications.
- All-steel handle with a highly visible red "donut" type grip directly drives the heavy duty switch mechanism. Switch handle accepts three padlocks in OFF position.
- Manual interlock lever permits contact inspection when switch is OFF.
- Standard NEMA 12 enclosure protects interior from dust, lint, fibers, coolants, metal filings, and other non-corrosive contaminants; stainless steel NEMA 4/4x additionally shields interior from hosedowns, splashing, and falling liquids. Interlocks on all enclosures assure gasket compression before switch can be turned ON.
- Trim, space-saving enclosures; three-point mounting; unobstructed side wiring gutter, easily removable cover and interior.
- Spring-reinforced fuse clips, suitable for Class H, K, J, or R fuses, assure reliable contact for cool operation.
- Equipment ground lugs supplied; lugs approved for both copper and aluminum wire; 60/75°C rated tang lugs are field convertible to compression (crimp) connectors.
- Clean, modern appearance; permanent acrylic-polyester nameplate with UV inhibitors provides clear ON/OFF indication.

Electrolines Est.

GENERAL ELECTRIC

Mill Duty Safety Switches (Cont.) Type TH

30-600 Amperes 240, 480 and 600 Volts ac, 250 and 600 Volts dc

GE's Mill Duty Safety Switches are designed specifically for application in steel mills, cement foundries, and other industries where heavy use and difficult environments create potentially hazardous conditions.

GE's Mill Duty Safety Switches offer full-line availability 30-600 amps; 600 Vac, 600 Vdc

maximum, no-fuse and fusible units. Enclosure types include UL (NEMA) Type 12 and Type 4/4x Stainless Steel.

Horsepower ratings are to UL listed maximums; published I²t ratings are available. Short circuit ratings are UL listed to 200,000 rms symmetrical amps when

Class J or R fuses are installed.

All Mill Duty Safety Switches are UL listed and CSA certified under (UL98 Enclosed Switches/CSA-C22.2 No. 4-M89), meet Federal Specification WS-865C for heavy duty switches, and meet NEMA Enclosed Safety Switch Standard KS1-1990.

Type TH Interrupting and Withstandability Ratings


Switch Rating (Amps)	Interrupting Rating rms Amps, 600 Volt ac 3-ph	Fuse Cleaning ^{1†} (Amps ² x Seconds x 10 ³)
30	360	50
60	1200	200
100	1200	500
200	3,400	2,000
400	10,000	6,000
600	10,000	12,000

240 Volts—Fusible


Schematic Diagram	Max. Ampere Rating	Type 12	Type 4/4X Stainless Steel	Horsepower Ratings						
				ac				dc		
		Catalog Number	Catalog Number	240 Volts		240 Volts		125 Volts	250 Volts	600 Volts
				1-ph	3-ph	1-ph	3-ph			

240 Volts—Fusible


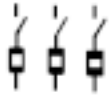
Two-pole, 240 Volts ac—250 Volts dc

	30	TH2221M	TH2221MSS	1½	—	3	—	—	5	—
	60	TH2222M	TH2222MSS	3	—	10	—	5	10	—
	100	TH2223M	TH2223MSS	7½	—	15	—	—	20	—
	200	TH2224M	TH2224MSS	15	—	—	—	—	40	—

Three-pole, 240 Volts ac

	30	TH3321M	TH3321MSS	1½	3	3	7½	—	5	—
	60	TH3322M	TH3322MSS	3	7½	10	15	5	10	—
	100	TH3323M	TH3323MSS	7½	15	15	30	—	20	—
	200	TH3324M	TH3324MSS	15	25	—	60	—	40	—
	400	TH3325M	TH3325MSS	—	50	—	125	—	50	—
	600	TH3326M	TH3326MSS	—	75	—	200	—	50	—

240 Volts—No Fuse Use 600-volt switches 600 Volts—Fusible



Two-pole, 600 Volts dc				ac				dc		
				480V 3-ph	600V 3-ph	480V 3-ph	600V 3-ph	125V	250V	600V
	30	TH2261MDC	TH2261MSSDC	—	—	—	—	—	—	15
	60	TH2262MDC	TH2262MSSDC	—	—	—	—	—	—	25
	100	TH2263MDC	TH2263MSSDC	—	—	—	—	—	—	25
Three-pole, 480 and 600 Volts ac—250 Volts dc										
	30	TH3361M	TH3361MSS	5	7½	15	20	—	5	—
	60	TH3362M	TH3362MSS	15	15	30	50	5	10	—
	100	TH3363M	TH3363MSS	25	30	60	75	—	20	—
	200	TH3364M	TH3364MSS	50	60	125	150	—	40	—
	400	TH3365M	TH3365MSS	100	125	250	350	—	50	—
	600	TH3366M	TH3366MSS	150	200	400	500	—	50	—

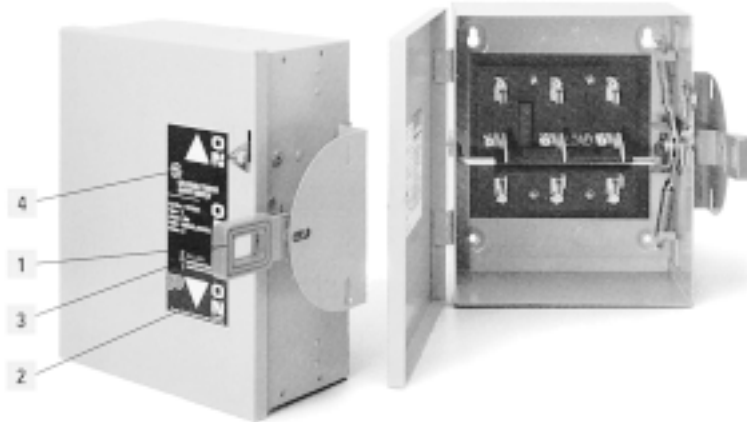
GENERAL ELECTRIC

Spec-Setter™ Safety Switches, Mill Duty Type TH (Cont.)

30-600 Amperes 240, 480 and 600 Volts ac, 250 and 600 Volts dc

600 Volts—No Fuse

				ac				dc		
				240V 1-ph	240V 3-ph	480V 3-ph	600V 3-ph	125V	250V	600V
Two-pole, 600 Volts dc										
	30	TH2261MDC	TH2261MSSDC	-	-	-	-	-	-	15
	60	TH2262MDC	TH2262MSSDC	-	-	-	-	-	-	25
	100	TH2263MDC	TH2263MSSDC	-	-	-	-	-	-	25
Three-pole, 480 and 600 Volts ac—250 Volts dc										
	30	THN3361M	THN3361MSS	3	10	20	30	3	5	-
	60	THN3362M	THN3362MSS	10	20	50	60	5	10	-
	100	THN3363M	THN3363MSS	20	40	75	100	-	20	-
	200	THN3364M	THN3364MSS	30	60	125	150	-	40	-
	400	THN3365M	THN3365MSS	-	125	250	350	-	50	-
	600	THN3366M	THN3366MSS	-	200	400	500	-	50	-



1. Unique red "donut" handle is easy to see, easy to grip. Ideal for hook stick operation.
2. Vivid acrylic-polyester ON-OFF-ON nameplate for positive identification. Takes the guesswork out of safety.
3. Three position lockable handle (ON-OFF-ON).
4. Safety cover interlock.

Double-Throw Safety Switches

GE's full line of no-fuse Double-Throw Safety Switches is designed for application where safety, high performance, and continuity of service are essential.


The TC line is available in 30-600 amps, 600 Vac, 250 Vdc maximum for no-fuse applications. Enclosures are UL (NEMA) Type 1 (indoor).

TC Double-Throw Safety Switches are UL listed (UL98 Enclosed Switches). They meet Federal Specification WS-865C for enclosed switches; meet or exceed NEMA Enclosed Switch Standard KS1-1900, Type GD for 30-600 amps.


Double-throw Type TC

Schematic Diagram	Max. Ampere Rating	Indoor Type 1 Enclosure	Horsepower Ratings			Lug Wire Size AWG/kc mil Cu only
			NEC Standard			
			240V, 3-ph	480V, 3-ph	600V, 3-ph	

240 Volts ac, 250 Volts dc

	30	TC35321	2	-	-	14-8
	60	TC35322	3	-	-	14-4
	100	TC35323	7½	-	-	14-1/0
	200	TC35324	15	-	-	6-250
	400	TC35325	30	-	-	(2) 1/0-250
	600	TC35326	50	-	-	(2) 3/0-350

600 Volts ac, 250 Volts dc

	30	TC35362	10	10	10	14-4
	60	TC35362	10	10	10	14-4
	100	TC35363	15	15	15	14-1/0
	200	TC35364	30	30	30	6-250
	400	TC35365	-	-	-	(2) 1/0-250
	600	TC35366	-	-	-	(2) 3/0-350

Solid Neutrals – Not UL Listed, Factory Installed

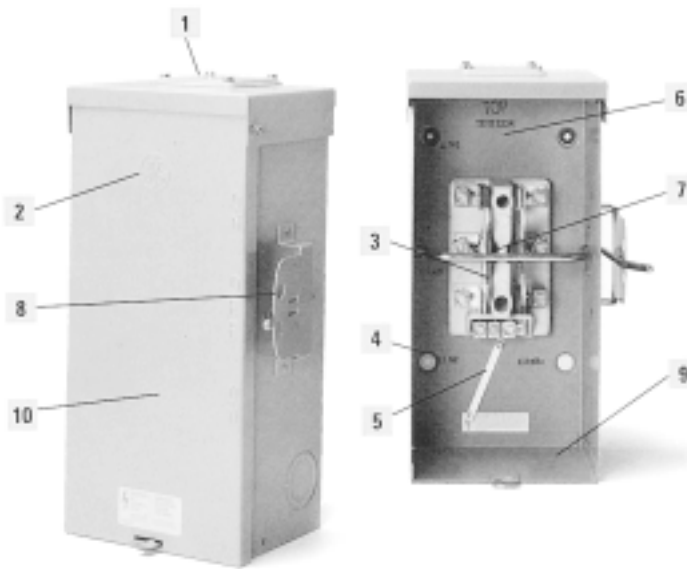
Switch Ampere Rating	Catalog Number
30-100	Order by
200-600	Description

GENERAL ELECTRIC

Fusible Double-Throw Safety Switches 30-400 Amperes

Max. Ampere Rating	Fusible Double-Throw Safety Switches Type NEMA 1 240 Vac	Fusible Double-Throw Safety Switches Type NEMA 3R 240 Vac Add Suffix	Fusible Double-Throw Safety Switches Type NEMA 1, 600 Vac
30	TDT3321	R	TDT3361
60	TDT3322	R	TDT3362
100	TDT3323	R	TDT3363
200	TDT3324	R	TDT3364
400	TDT3325	—	TDT3365
600	TDT3326	—	—

Max. Horsepower Rating with Time-delay fuses						250V dc
Single-phase ac			Three-phase ac			
240V	480V	600V	240V	480V	600V	
3	7½	10	7½	15	20	5
10	20	25	15	30	50	10
15	30	40	30	60	75	20
15	50	50	60	125	150	40
—	—	—	125	100	125	50
—	—	—	75	—	—	50



1. Threaded hole in top of box makes it easy to install.
2. Code-gauge steel box fitted with drip-shield for protection against rain; resists corrosion, rust, chipping.
3. Silver-plated copper current-carrying parts prevent oxidation, assure low-resistance contact; cool operation.
4. Mounting holes permit quick, easy installation.
5. Bonding strap can be used to ground neutral for service entrance applications.
6. Ample wiring space provided within compact enclosure.
7. Positive make and break provided by fiber loop straps between knife blade contacts and one-piece operating yoke.
8. Provision for locking handle in ON or OFF position; protects against accidental contact with live parts.
9. Concentric knockouts are conveniently located, easy to remove.
10. Galvannealed steel enclosures for superior rust protection in outdoor applications.

Emergency Power Transfer Switches, Type TC

GE's Emergency Power Transfer Switches are specifically designed to permit the connection of power from a standby generator or other emergency source of electricity.

The switch is a no-fuse unit, available in three-wire SN (120/24D Vac), 100 and 200 amp ratings or four-wire SN (240 Vac), 200 amp rating. The enclosure is surface-mounted, rain-tight NEMA Type 3R (outdoor). The switch is ideally suited for outdoor applications in rural dwellings and farm buildings. Its side-operated handle can be locked in either the ON or OFF position.

Type TC Emergency Power Transfer Switches are UL listed (UL98 Enclosed Switches). The switches are suitable for use as service entrance equipment when installed in accordance with the National Electrical Code.

Schematic Diagram	Max. Ampere Rating	Raintight Type 3R Enclosure	Lug Wire Size AWG/kcmil Cu/Al
		No-Fuse Catalog Number	

Three-wire SN, 120/240 Volts ac

Schematic Diagram	Max. Ampere Rating	Raintight Type 3R Enclosure No-Fuse Catalog Number	Lug Wire Size AWG/kcmil Cu/Al
	100 200	TC10323R TC10324R	12-1 6-250

Four-wire SN, 240 Volts ac

Schematic Diagram	Max. Ampere Rating	Raintight Type 3R Enclosure No-Fuse Catalog Number	Lug Wire Size AWG/kcmil Cu/Al
	200	TC10424R	6-250



GENERAL ELECTRIC

Safety Switches, Accessories

For Type 1 and 3R Enclosures

30-600 Amperes: TG and TH
800-1200 Amperes: TC

Equipment Ground Kits

Switch Ampere Rating	Catalog Number	Lug Wire Size AWG/kcmil		Std Pkg
		Copper	Aluminum	
30-60	TGL1	(4) 14-8 (3) 14-4	(4) 14-8 (3) 6-4	20
100-200	TNG3	(3) 10-1/0	(3) 10-1/0	1
400-600	TGL6	(3) 2-250	(3) 2-250	1

Optional Copper Lug Neutrals

Neutral Ampere Rating	Catalog Number	Lug Wire Size AWG/kcmil CU Only	Std Pkg
30-60 Fusible	TNII62CL	14-2	1
30-60 No Fuse	TNIIA62CL	14-2	1
100	TNII63CL	14-1/0	1
200	TNII64CL	1/0-250	1
400-600	TNII66CL	(2) 1/0-600	1

Neutral Kits—Insulated, Groundable and Bondable

Switch Ampere Rating	Catalog Number		Lug Wire Size (AWG/kcmil)		Std Pkg
	Fusible	No Fuse	Copper Wire	Aluminum Wire	
30-240V	TN121	TN121	14-8	12-8	1
30-600V	TN162	TN162	14-2	12-2	1
60	TNIA62	TN162	14-2	12-2	1
100	TNIA63	TN163	10-1/0	10-1/0	1
200	TNIA64	1-300	1-300	1	1
400	TN165	(1) 2-600 or (2) 1/0-250	(1) 2-600 or (2) 1/0-250	1	
	TN165A	(1) 350-800	(1) 350-800	1	
600	TN166	(2) 4-500	(2) 4-500	1	
800	TN167 (6) 1/0-250	(3) 2-600 or (6) 1/0-250	(3) 2-600 or	1	
1200	TN168A	(4) 3/0-800	(4) 250-800	1	

Switching Neutral: Order standard switch of required number of poles and use dummy fuse in neutral pole.

Lug Wire Sizes Line and Load Terminal

Switch Ampere Rating	Wire Range AWG/kcmil	
	Copper	Aluminum
30 (250V)	14-8	12-8
30 (600V)	12-2	12-2
60	12-2	12-2
100	10-1/0	10-1/0
200	2-250	2-250
400	(1) 2-600 or (2) 1/0-250	(1) 2-600 or (2) 1/0-250
600	(2) 4-500	(2) 4-500
800	(3) 2-600 (6) 1/0-250	(3) 2-600 or (6) 1/0-250
1200	(4) 3/0-800	(4) 3/0-800

Auxiliary Contact Kits—Auxiliary contacts open before switch blades. UL Listed for field or factory installation.

Safety Switch Rating, Type 1 and 3R	Field Installed Catalog Number (Std. Pkg.-1)	Switch Suffix for Factory Installed	Contacts	Contact Ratings
TH, THN, 30A, 2 and 3 poles	THAUX21D	A21D	DPDT	10A, 125/250Vac .3A, 125Vdc .15A, 250Vdc
	THAUX61S	A61S	SPDT	
TH, THN, 60-200A, 2 and 3 poles	THAUX64D	A64D	DPDT	15A, 125/250Vac 15A, 480/600Vac .50A, 125Vdc .25A, 250Vdc
TH, THN, 200A, 6 poles	THAUX66D2	A66D2	DPDT	
TH, THN, 400-600A, 2 and 3 poles TH, THN, 30-100A, 6 poles 400-600A, 6 poles	THAUX66D	A66D	DPDT	
TC, 800-1200A, 2 and 3 poles	-	-	SPDT	15A, 125/250Vac .50A, 125Vdc .25A, 250Vdc
TC, double throw	-	-	SPDT	15A, 125/250Vac .50A, 125Vdc .25A, 250Vdc

Special Phenolic Nameplates (15 letters maximum)

Catalog No.	Qty. (same wording)
75C141109P109	1-5 6-10

Semidust-tight Door Gasket Kits

Switch Ampere Rating	Kit Cat No. (Field Mounted)	Std Pkg
Types TH Indoor, TG and TH Outdoor Switches		
30-100	THG106	1
200	THG107	1
400 and 600	THG108	1

Neutral Kits—Insulated, Groundable and Bondable

Volts	ac		Break Normal Current	dc (Resistive)	
	Inrush Current			Volts	Break Normal Current
	N.C.	N.O.			
115	30	15	15	0.5	
230	30	15	15	0.25	
460	30	15	15	-	
575	15	15	2	-	

GENERAL ELECTRIC

Enclosure Types

NEMA 1 enclosures are suitable for indoor use primarily to provide protection against contact with the enclosed equipment and where unusual service environments do not exist.

NEMA 3R enclosures are intended for outdoor use to provide a degree of protection against falling rain, sleet, and external enclosure ice formation.

NEMA 4, 4x enclosures are intended for indoor or outdoor use to provide a degree of protection against windblown dust and rain, and splashing or hose-directed water and external enclosure ice formation. Additionally, these enclosures meet 4x description by providing a degree of protection against corrosion.

NEMA 5, 12 enclosures are intended for indoor use primarily to provide a degree of protection against settling airborne and circulating dust, falling dirt, and dripping, non-corrosive liquids.

Special Purpose GE Safety Switches

GE provides the following special purpose safety switches to satisfy a variety of unique applications:

SIX-POLE SWITCHES are available in 30-200 amp; 600 Vac, 250 Vdc maximum. Provided in a single enclosure rated Type 1, 3R, 5 and 12.

INTERLOCKED RECEPTACLE SWITCHES are offered in a Type 12 enclosure, 60 amp rating, 600 Vac maximum.

COPPER LUG SWITCHES are available in 30-600 amp; 600 Vac, 250 Vdc maximum. Enclosure types include Type 1, 4/4x, 5 and 12.

PLUG-FUSE SWITCHES in GE Valox® enclosures (Type 1) are available in one and two-pole designs, 240 Vac maximum.

AIR CONDITIONER DISCONNECTS are provided in fusible and no-fuse designs; 30 and 60 amp ratings; steel and phenolic enclosures.

Accessories

GE Safety Switches provide a full line of factory and field-installable accessories to customize for our customers' special applications:

EQUIPMENT GROUND KITS available for 30-600 amp safety switches.

INSULATED, GROUNDABLE AND BONDABLE NEUTRAL KITS for 30-1200 amp safety switches.

COPPER LUG NEUTRALS for 30-600 amp safety switches.

UL LISTED FACTORY OR FIELD INSTALLABLE AUXILIARY CONTACT KITS in both single pole double-throw and double pole double-throw.

SEMI-DUST-TIGHT DOOR GASKET, field installable.

KEY INTERLOCKS (factory installed) available for TH switches Types 1, 5, 12, 4/4x, and Mill Duty.

FUNGUS MOISTURE PROOFING for 30-600 amp switches.

SPECIAL PHENOLIC NAMEPLATES are customized to your specifications.

**ELECTROLINES
provides
you one-stop
shopping for all
your electrical
needs.**

**30,000 discrete
electrical products
in stock.**

CROUSE-HINDS

EBM Disconnect Switches and Enclosures

600 V AC Heavy Duty

Application:

EBM series hinged cover disconnect switches are used:

- to disconnect motor, lighting and other circuits.
- in locations made hazardous by the presence of flammable or vapors or ignitable dusts.
- indoors or outdoors in damp, wet and dirty locations, or in areas where frequent washdowns, heavy rain or water spray is prevalent.
- to provide disconnect means and short circuit protection, (fusible version).
- on switchracks or other assemblies where it is desired that motor control be centrally located.

Features:

- Rugged corrosion resistant cast copper-free aluminum construction (less than 0.4 of 1%).
- Switch operating handle is located through the right side wall of the body, permits visual confirmation of correct alignment and operation.
- Total compliance to the wiring end room requirements of the National Electrical Code.
- Semi-clamshell enclosure design, with an external flanged ground joint between body and cover makes interior components more accessible.
- Minimum enclosure-to-enclosure spacing with little interference between the opened cover and an adjacent enclosure.
- Copper-free aluminum hinges allow the cover to swing well out of the way.
- Stainless steel quick release captive hex-head cover bolts. Stainless steel springs provide clear indication that cover bolts are fully retracted from the body.
- Switch operating handle can be pad-locked in either the "ON" or "OFF" position.

- Neoprene cover gasket permanently attached to the cover, seals out moisture.
- Bodies have top and bottom drilled and tapped conduit entrances for power and conduits. Removable reducers are supplied as standard, to accommodate smaller size conduits. All conduit entrances are plugged.
- Tap on mounting feet.

Standard Materials:

- Body and cover – copper-free aluminum
- Operating handle – copper-free aluminum
- Operating shaft and bushing – stainless steel
- Interior parts – sheet steel, electro-galvanized
- Cover bolts, washers and retractile springs – stainless steel

Electrical Rating Ranges:

- 600 VAC
 - 30, 60 and 100 Amp.
- NOTE: 200 Amp. switch available. Consult US.

Ordering Information:

To order an enclosure complete with the disconnect switch, select the catalog number (based on the necessary rating of the switch), from the listing below.

Max. HP Rating

Amp Rating	AC Polyphase			DC using 2 poles only
	200/240V	440/480V	550/600V	
Non-Fusible				
30	10	20	25	7½
60	20	40	60	15
100	30	75	75	25
Fusible				
30	–	5	7½	5
60	–	15	15	10
100	15	25	30	20

Explosionproof
Dust-Ignitionproof
Watertight
Wet Locations



Enclosures only, without the disconnect switch, can be ordered. Select the catalog number for the required enclosure from the listing below.

Enclosure

With Switch 600VAC Cat. #	Without Switch Cat. #
EBMBB FD W30360	EBMBB FD
EBMBB FD W60360	EBMBB FD
EBMBD FD W10360	EBMBD FD
EBMBB FD W30361	EBMBB FD
EBMBB FD W60361	EBMBB FD
EBMBD FD W10361	EBMBD FD

CROUSE-HINDS

FLS Enclosed Switches

Heavy Duty

Cl. I, Div. 1 & 2, Groups C,D
Cl. II, Div. 1, Groups E,F,G
Cl. II, Div. 2, Groups F,G
Cl. III
NEMA 3,4, 7CD,9EFG,12

Explosionproof
Dust-Ignitionproof
Watertight
Wet Locations

Application:

FLS heavy duty enclosed switches are used:

- in a rigid metallic conduit system for surface mounting adjacent to or remote from equipment being controlled.
- as disconnect switches for main feed or individual motor control
- to prevent arcing of the enclosed switch from causing ignition of a specific hazardous atmosphere, or atmospheres, external to the enclosure
- in industrial areas such as chemical plants, oil and gas refineries, paint and varnish manufacturing plants, gasoline bulk loading terminals, grain elevators, grain processing industries, coal processing or handling areas and metal handling or finishing areas where atmosphere may contain hazardous gases and/or dust
- in non-hazardous area where sturdy, durable enclosures are required

Features:

- Enclosed devices are unfused, visible blade motor circuit switches.
- Rugged cast metal enclosures with mounting lugs and taper tapped hubs with integral bushings, in through feed arrangement.
- Interior of the enclosures is readily accessible through threaded cover openings at each end, set at an angle to facilitate wiring.
- Threaded covers and a threaded type operating shaft and bushing provide quick assembly and easy maintenance.
- A padlock can be used to lock the operating handle in an "ON" or "OFF" position.

- Body and cover threads treated with lubricant at factory to provide raintightness.

Standard Materials:

- Body – *Feraloy*® iron alloy
- Cover – copper-free aluminum
- Shaft – stainless steel
- Shaft bushings – stainless steel

Standard Finishes:

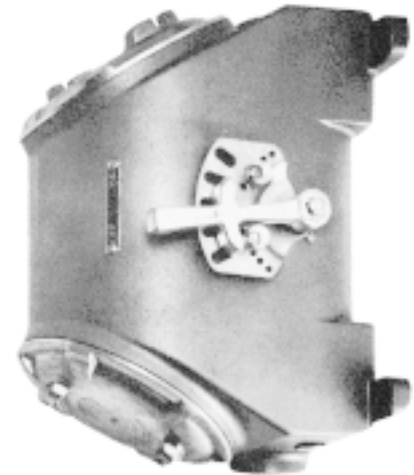
- *Feraloy* – electrogalvanized and aluminum acrylic paint
- Copper-free aluminum – natural
- Stainless steel – natural

Options:

- FLS enclosed switches with auxiliary contacts

Size Ranges:

- Hub size – 1" to 1 1/2" incl. (through feed)

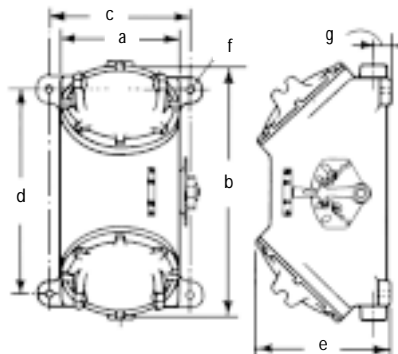


Furnished with Non-Fusible, Visible Blade Motor Circuit Switch

Switch Ratings

Amperes	Maximum HP – 3 Phase Volts AC				Through Feed Hub Size	Enclosure With 3-Pole Switch Cat. #
	125	240	480	600		
30	5	10	20	25	1	FLS30364-1-33
60	7 1/2	20	40	50	1 1/4	FLS60364-1-44
100	20	40	75	100	1 1/2	FLS10364-1-55

Dimensions*



Series	a	b	c	d	e	f	g
FLS30364	7 1/2	13 1/8	8 1/2				
FLS60364	7 1/2	13 1/8	8 1/2				
FLS10364	7 3/4	17	9				
FLS30364	9 3/4	9 1/8	7 1/16	1 3/4			
FLS60364	9 3/4	1 3/4	7 1/16	9 3/4			
FLS10364	5 5/8	9 1/4	7 1/16	1 5/8			

* Dimensions are approximate, not for construction purposes.

Electrolines Est.