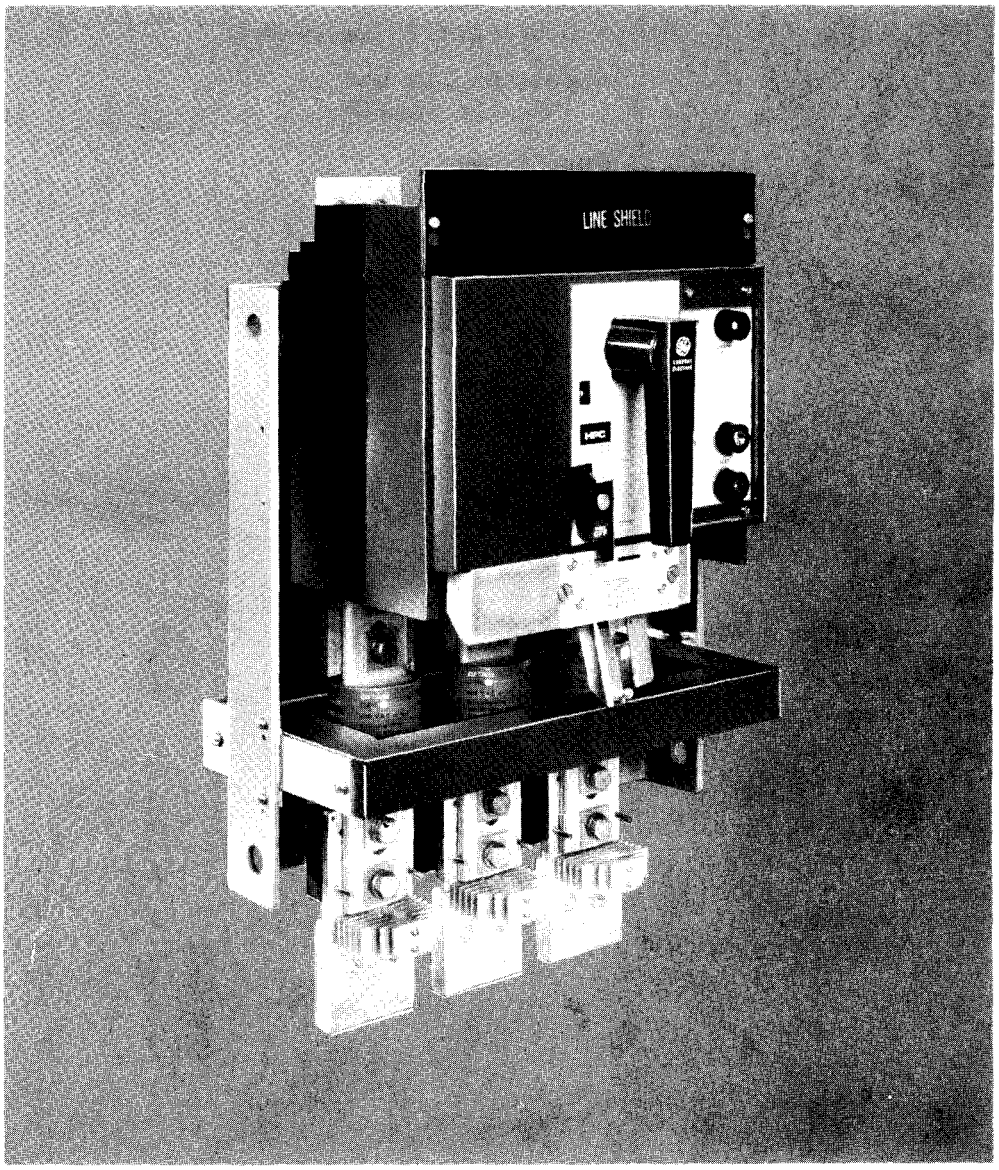
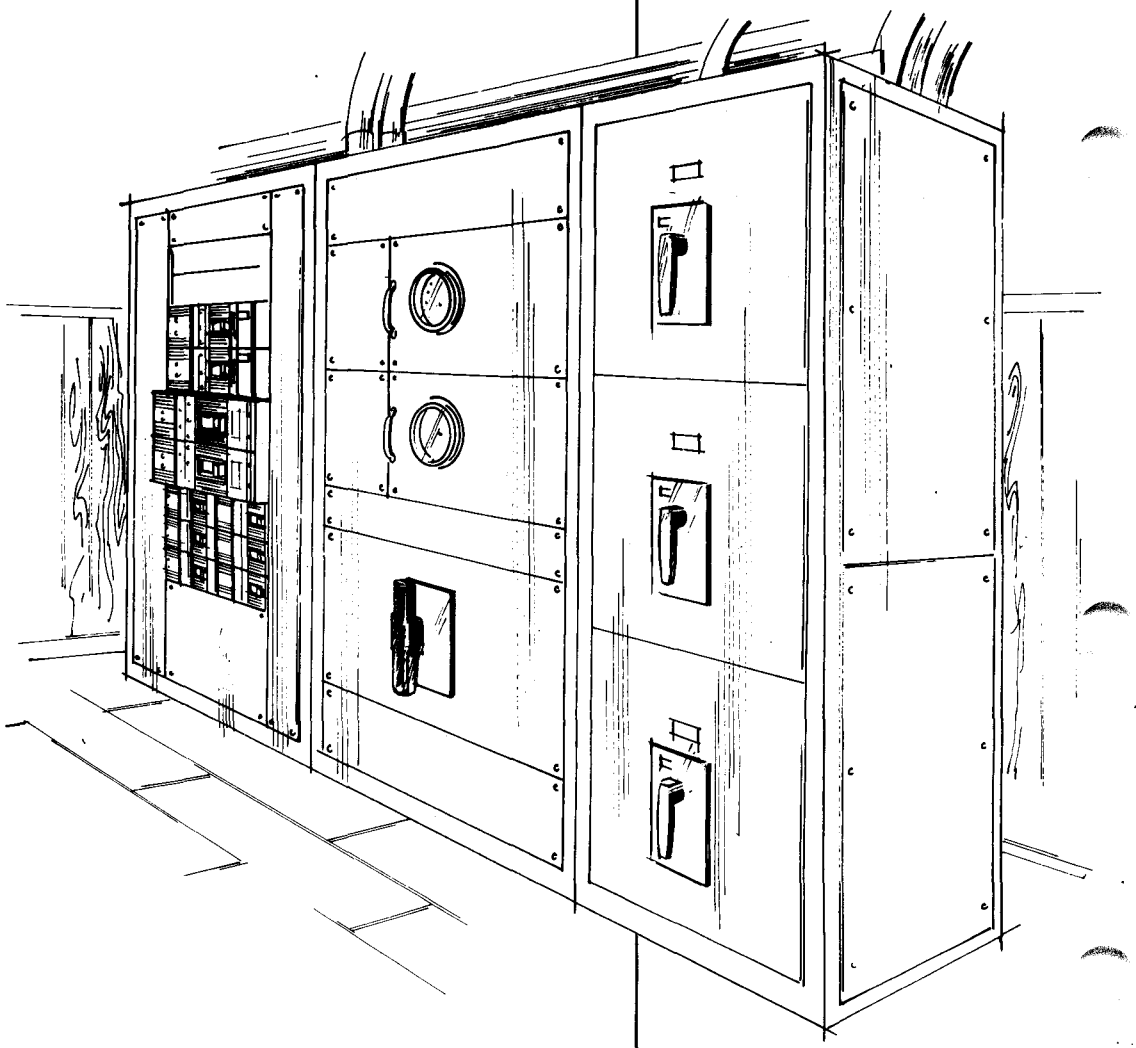
GE Electrical Distribution
& Control



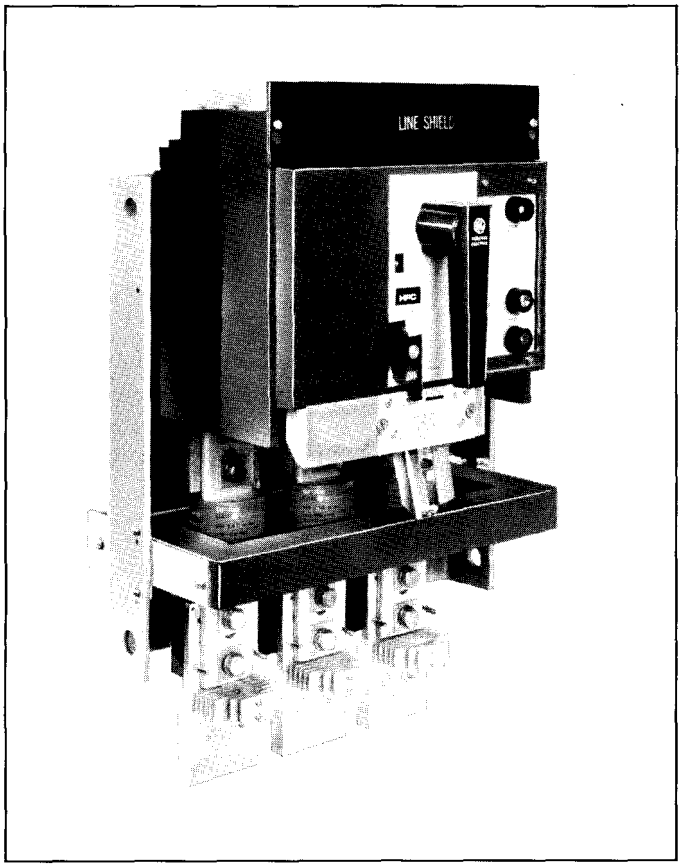
Type HPC High Pressure Contact Switches



UL Listed–Standard No. 977, "Fused Power Circuit Devices."

Features

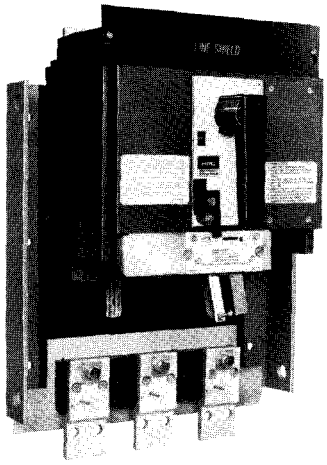
- High interrupting capability—12X minimum make *and* break without fuses to insure complete coordination with Class L fuses and with ground fault tripping.
- Integral self-powered, zero-sequence ground fault protection provides reliable solid state ground fault sensing; not dependent on control power.
- Top or bottom feed are same physical size for simplified bus and layout work and optimum flexibility for switchboard and panel builders.
- Compact and lightweight for greater switchboard loading and lower shipping costs.



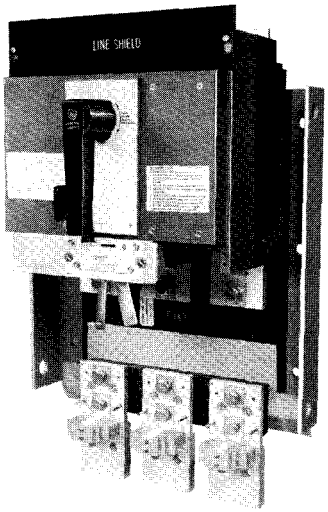
- **High Durability**
  High-dielectric strength, polyester glass reinforced insulating case for safe operation.
- **High Interrupting Capability**
  Arc chute of unique construction suppresses arcs and cools gases rapidly, providing quick arc interruption and extended switch life.
- **Extended Transient Voltage Withstandability**
  Integrally molded interphase partitions mesh with switch cover to completely isolate each pole.
- **Extended Switch Life**
  Multiple, preloaded butt-type movable contact arms pivoted in a solid copper block require no maintenance.
- **Positive "ON–OFF" Indication**
  Red (ON), Green (OFF), eliminates any question about the position of the switch contacts.
- **Easy Operation—Quick Mode**
  Extra heavy duty, low torque rotary operated closing mechanism. L-handle 800-1600A; T-handle 2000-4000A.
- **Emergency Open—Quick Break**
  Finger-tip "OFF" button instantly opens the switch contacts.
- **Positive Door and Switch Interlocking—No Fuse Access Door Required**
- **Fuse Mounting Bolts with Captive Washers for Ease of Mounting Fuses**

GE's Type HPC High Presure Contact Switches are butt-type, multiple contact fusible high-capacity interrupters for use as:

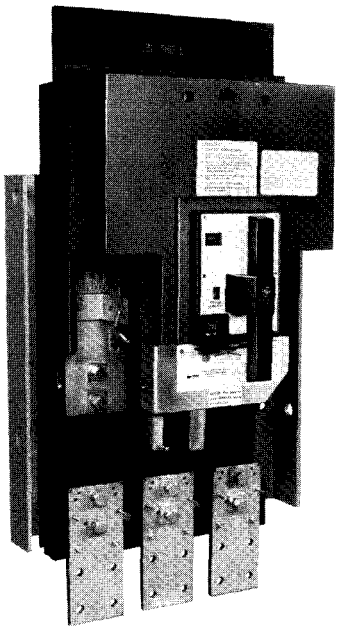
- **Main Service Disconnects**
- **Feeder Disconnects**
- **Branch Circuit Disconnects**
- **Motor Circuit Disconnects**



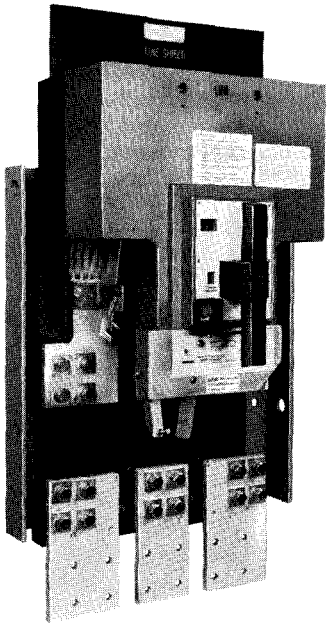
800A



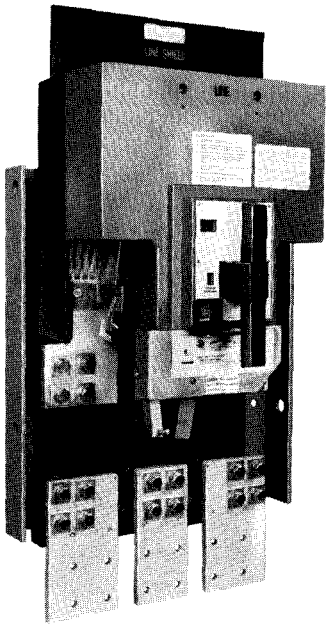
1200A and 1600A



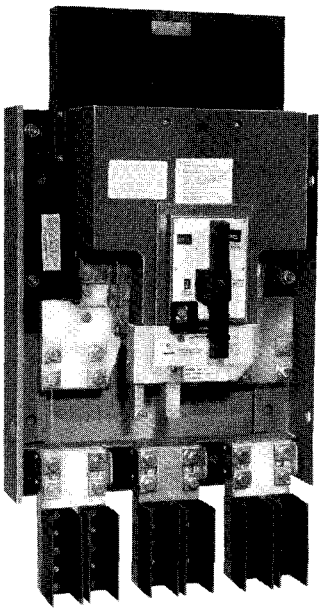
2000A



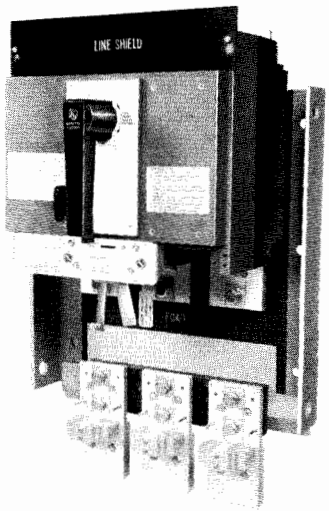
2500A



3000A



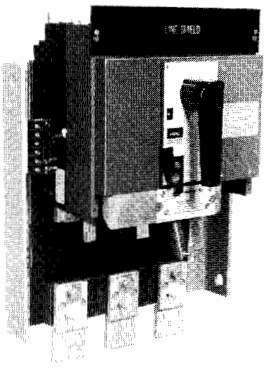
4000A



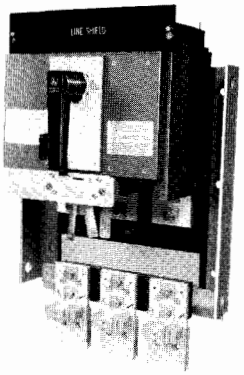
Top Feed

Bottom Feed

"Top feed" or "bottom feed" defines the physical position of the line and load terminals of the switch: at the top or at the bottom of the switch, depending on the application. The bottom feed or "line bottom" feature permits economical and simplified bus design or significantly less cable and cable bending when the power cables enter the switch enclosure or cubicle from ground or floor level. Top and bottom feed devices are the same size.



Electric Trip



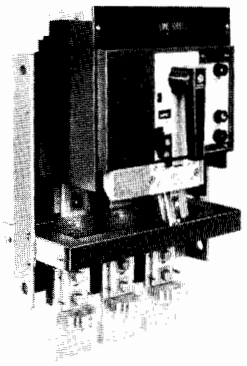
Manual Trip

Manual Trip

Use the "Push Off" button. Select the manual switch when ground fault or remote tripping are not required.

Electric Trip

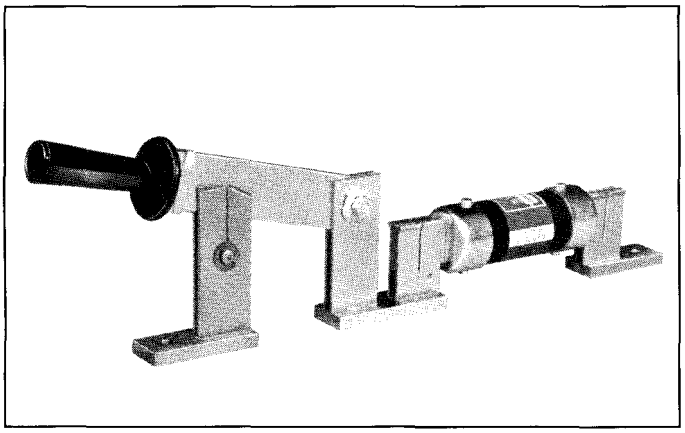
Specify "electric trip" (catalog numbers with suffix ET1 or ET2). This permits tripping from a remotely located push button, providing an added degree of safety and convenience. Electrically tripped devices can also be manually tripped by the "Push Off" button. GE Ground Bus® components can be used with an electrically tripped switch to provide zone selective ground fault protection.



Integral Ground Fault

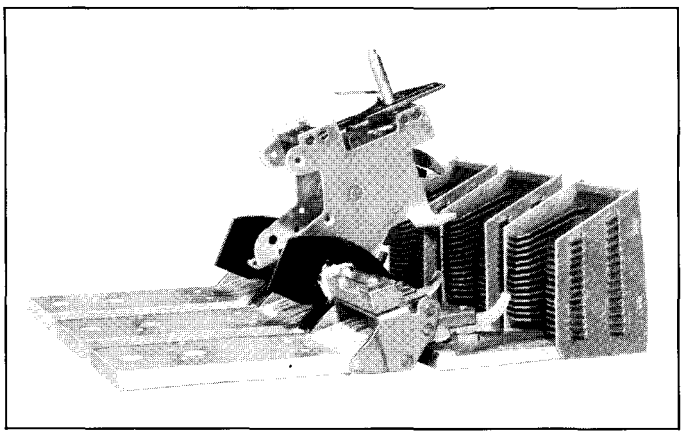
This unique system incorporates a zero-sequence current sensor and relay factor mounted as an integral part of the switch. It is self-powered and available with ground fault indicator and test functions. No control wiring is required except to tie in the "4th wire" neutral current sensor when applicable. Separate installation of the neutral current sensor is an added benefit of HPC with integral ground fault because it eliminates bringing the neutral busbar(s) out to the front of the switch and through the phase current sensor. The neutral sensor can therefore, be installed where most convenient.

In the early 1900's the equipment most commonly used for manual switching and disconnecting devices was the open knife switch. It consisted of a stationary "jaw", a movable "blade" pivoting in a hinge post and, for fusible forms, two fuse holders. It carried current adequately, but left "something to be desired" from a safety standpoint as a load-make, load-break device because it relied on the operator to open or close the blade quickly. Early forms of "bolted-pressure" contact switches employed this basic open knife switch concept with a "mechanism" used to open and close. They improved the current-carrying ability by adding "bolted" blade/jaw joints; but as interrupters, they were inadequate. Why? Because the "unbolting" of the joints and the large copper mass did not allow fast acceleration of the parting (or closing) blade . . . again a safety problem.



Open Knife Switch

GE's high pressure contact switch design improved on the original concept. GE uses high-conductivity silver/tungsten-carbide alloy contacts welded to multiple lower-mass arms which butt against stationary contacts welded on a copper pad. Each movable contact arm is spring-loaded against the stationary contact, achieving independent, low-resistance, high pressure "joints".



HPC Switch Mechanism

An over-center toggle mechanism with high-energy springs achieves higher acceleration of parting (or closing) "joints". This faster parting of arcing arms from the stationary members draws the arc more quickly into large arc quenchers which cool and rapidly extinguish the arc. All GE HPC switches are capable of repeatedly making and breaking 12X rated current at rated voltage (600V ac); UL requires breaking 12X rated current for Class I ground fault use only. In fact, it is this fast-acting operation that, for operator safety, necessitates this high interrupting capability. If the switch is closed on a low level fault and immediately opened, the switch must be capable of clearing the fault (before the current-limiting fuse has blown).

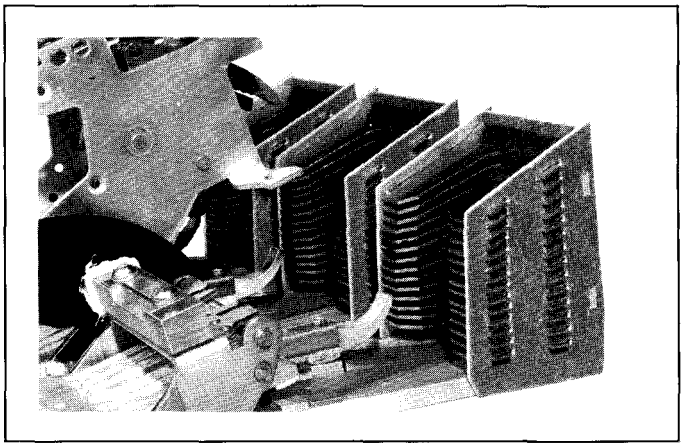
What Is A Fused Power Circuit Device?

GE type HPC switches are fusible interrupters designed for high available fault current systems. They are suitable for use as main service disconnects, feeder disconnects, or branch circuit disconnects. They can be used only with NEMA Class L current-limiting fuses and when so employed are suitable for use on systems capable of delivering up to 200,000 rms amperes symmetrical fault current at 600V ac, maximum.

They are UL listed in accordance with UL977, Standard for Safety, Fused Power Circuit Devices.

Why HPC?

The HPC design provides additional safety while meeting the same requirements as the older, more traditional, bolted-pressure contact switches in which the blade and jaw combination is squeezed together in the fully closed position. UL Standard 977 fully recognizes both constructions. The HPC provides the added benefit of inherent high interrupting capability . . . *it's designed-in.*



Contact Assembly

Related Testing Standards

All HPC switches are UL listed as "Fused Power Circuit Devices" and, as such, are type-tested using the following performance parameters:

Temperature Test

The device, installed in a minimum size test enclosure and fused with standard, typical, rated Class L fuses, must carry 100% rated current without:

1. The blowing of any fuse,
2. A temperature rise of more than 60°C (108°C) above room temperature at the switch terminals, and,
3. Any temperature rise that would adversely affect any insulating materials used.

Operation

An electrically operated switch must operate at 75% of its rated voltage; if used with ground fault tripping, it must operate at 55% of its rated voltage.

Endurance

An HPC switch must successfully complete the following number of no-load operations. No mechanical failure or undue wear of the deivce is permitted.

Table 1–No-Load Endurance Test Operations

Rating In Amperes	Number Of Operations
800	3500
1200	2500
1600	2000
2000	2000
2500	2000
3000	1000
4000	1000

200 Percent Overload

A fused power circuit device must successfully complete the following number of make and break operations at rated voltage and a maximum power factor of .70 through .80.

Table 2–200-Percent Overload Operations

Device Rating–Amperes	Number Of Operations	Rate Of Operation Per Minute
800	100	2
1200	100	1
1600 and larger	50	1

Dielectric Withstand

After the 200% overload, the switch must withstand for one minute without breakdown the application of a 60 Hertz potential of 1000 Volts, plus twice rated voltage (or 2200V for 600V rated devices). This potential is applied between (1) live parts and ground, (2) terminals of opposite polarity, and (3) line and load terminals with the switch open.

6X Close–Open and 12X Contact Opening

The switch must make and break 600% rated current. This test, however, may be combined with the "contact opening" test. *GE's HPC switches have all been tested at 1200% rated current, as required by the "contact opening" test, and they were completed as "close–open" tests.* The 12X requirement is specified for the "contact opening" tests for electrically tripped switches without integral lockout when used with Class I ground fault sensing and relaying equipment. A polyphase switch must complete three operations at rated voltage (open circuit) with power factor as shown below.

Table 3–Test Circuit Power Factor

Switch Ampere Rating	Power Factor
800–1200	0.45–0.50
1600–2500	0.25–0.30
3000–4000	0.15–0.20

Repeated Dielectric Withstand

The "12X" sample is again subject to a "twice-rated plus 1000V dielectric" as described above.

Short Circuit Withstand

A circuit of the maximum short circuit fault current (200KA) is closed on the switch. Test fuses, certified by UL to have Ip and I^2t let-through in excess of the Class L maximums permitted in UL198C High-Interrupting Capacity Fuses, Current Limiting Types, must be used. For reference, the maximum fuse let-throughs are as follows:

Cartridge Size (Amperes)	Test Fuse Rating (Amperes)	Maximum Threshold Ratio	Maximum Peak Let-Through Current (Amperes)	Maximum Clearing $I^2 \times 10^3$
601–800	800	30	80,000	10,000
801–1200	1200	30	120,000	15,000
1201–1600	1600	35	150,000	30,000
1601–2000	2000	35	165,000	40,000
2001–2500	2500	40	180,000	75,000
2501–3000	3000	40	200,000	100,000
3001–4000	4000	40	250,000	150,000

(Continued on next page)

After the short circuit withstand test, the ground fuse must not have blown; there shall not be any breakage which might impair the integrity of mounted live parts; the enclosure door shall not have blown open; and the switch must be capable of being opened by its manual means. Power factor for this test is 20% maximum. The test circuit is shown in Figure 1.

Circuit Closing Test

Using the same circuit as for the short circuit withstand test, the test circuit is closed by closing the HPC switch. For devices rated 150,000 or 200,000 rms amperes symmetrical, the closing test must also be conducted at 100,000 rms amperes at rated voltage.

Repeat Dielectric Withstand

After the closing test, the dielectric test is repeated, except the potential is twice rated voltage–that is 12000 volts.

Circuit For Withstand And Closing Tests

X – Variable tap air-core reactor

R – Variable resistor

SW – Closing Switch–may be located as shown or ahead of limiting impedance

F – Enclosure fuse

D – Device under text

R_S – Coaxial shunts for metering current

C.L. – Current-limiting fuses used during test. To be installed in switches or mounted externally as shown

DF – Dummy Face

Common connection of outer shells of coaxial shunts may be grounded if no other grounds on the circuit.

Supply Rated Voltage 3 Phase–60 Hertz

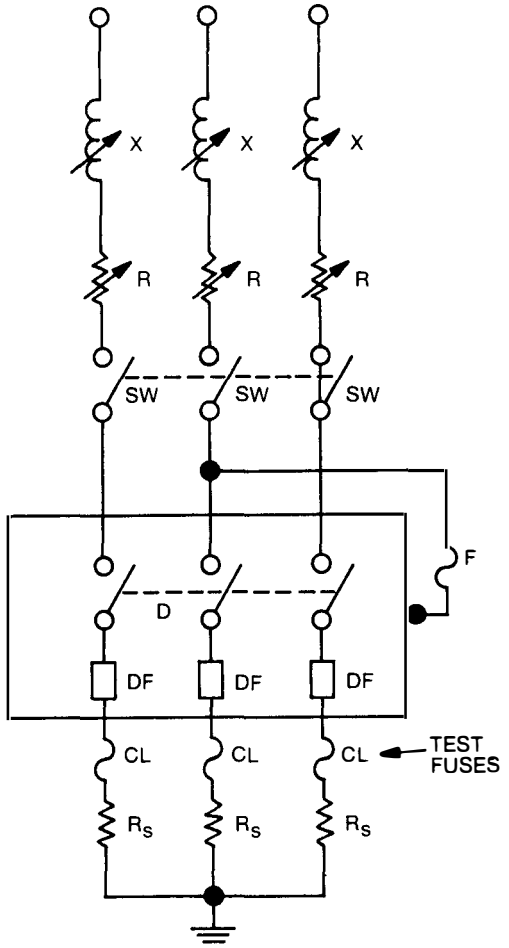


Figure 1.

Related Listing Standards And Recognition Authorities For HPC Switches

1. Listed by Underwriters' Laboratories, Inc. (UL) Standard for Safety No. 977, Fused Power Circuit Devices.
2. Certified by Canadian Standards Association (CSA). Applicable requirements are CSA Standard C22.2.
3. Approved by the City of New York, NY, Department of Public Works.
4. Approved by the State of California, Department of Industrial Relations, Division of Industrial Safety.

Versatile

The GE HPC switch utilizes a proven, overcenter toggle type, mechanism as the heart of the design. This mechanism provides the needed function for service disconnects to interrupt fault currents up to 200,000 amperes symmetrical at 600 volts ac. The GE HPC switch was specifically designed to comply with the National Electrical Code Article 230-65, which requires service equipment and its overcurrent protective devices to have short-circuit current rating equal to or greater than the available short-circuit current as its supply terminals.

Built-in Ground Fault Protection

The integral ground fault HPC switch provides system ground fault protection. The integral, solid state ground fault relay has a adjustable ground fault pickup point from 200 to 1100 amperes in six steps and ground fault time delay settings of minimum, intermediate and maximum. It is comletely self-powered and has a mechanical ground fault indicator and test functions which simulate an actual ground fault. Testing can be done with or without tripping the switch. External 120 V ac control power (200 volt-amperes min.) must be provided for testing only.

Ratings–100% Equipment Ratings

Continuous current ratings permit use at 100% of nameplate ratings with rated Class L fuses. Per UL Stndard 977, no derating is necesary and all HPC switches are UL listed to carry 100% current when used in an appropriately sized ventilated enclosure.

Interrupting Capability—The HPC switches will fully coordinate with rated Class L fuses at all short circuit currents up to 200,000 amperes RMS symmetrical. Comparatively low level fault currents are the most common; it is very important that the switch, once closed on such a fault, be capable of clearing the fault since the fuse opening may be slower than the switch opening. Furthermore, these fault levels are often below the fuse threshold and the current-carrying effect of the fuse is minimal. *GE manual, electric trip, or integral ground fault HPC switches, equipped with Class L fuses, are fully capable of being opened or closed on any fault current of 200,000 amperes symmetriacl or less at 600 VAC.*

Easy Operation

Closing

Manual closing. Turning the switch "on" sets the mechanism. No other function need be performed to assure that the HPC switch is charged for interruption.

Opening

Manual "Push Off" button, electric trip, or integral ground fault trip. The operating mechanism responds to a manual release immediately upon actuation of the "off" button. The electric trip form provides the additional means of tripping the switch a Ground Break® relay or from a remote location. The electric trip and integral ground fault trip meet the UL requirements for operation at 55% of rated voltage on ground fault systems and have a *maximum* unlatching time of three cycles. All three forms are UL listed under Subject 977—Fused Power Circuit Devices.

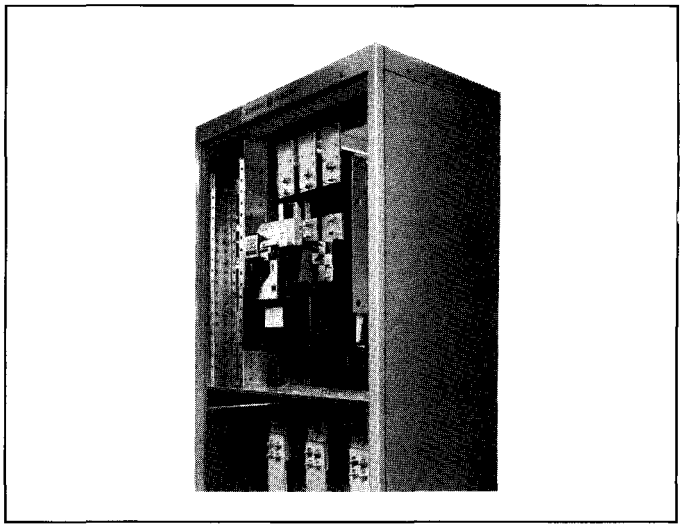


Figure 2. HPC's compact design and small handle eliminate the need for a separate fuse access door.

Systems Consideration

The HPC switch, in combination with Class L fuses, is designed for distribution systems having an available symmetrical fault current of up to 200,000 amperes at 600 volts ac. In addition, the switch is designed to close-in on and interrupt a wide range of currents, including normal switching duty currents and intermediate fault currents of at least 12 times the nameplate rating of the switch. This means full coordination with any UL listed rated size Class L fuse. Paragraph 31.1 of UL 977 only requires three 12X "interruptions" on contact opening operations at rated voltage for use with Class I ground fault sensing and relaying equipment. UL 977 does not, however, require "closing-in" on 12 times nameplate rated current.

Table 5

Switch Rating	Actual Make And Break Current RMS Amperes Symmetrical 600V ac, 3-Phase	Power Factor, % Max.
800	19,200	.50
1200	19,200	.50
1600	19,200	.30
2000	30,000	.30
2500	30,000	.30
3000	52,000	.20
4000	52,000	.20

4000A Switch Contact CLOSE-OPEN Test– No Fuses

Key to Oscillogram in Figure 3

a – Voltage timing trace (60 Hz)

b – "A"
c – "B"
d – "C"
} Phase current

e – "A"
f – "B"
g – "C"
} Voltage across switch contacts

Test Circuit—52,000 rms symmetrical, 600Vac, .2pf, 3 phase

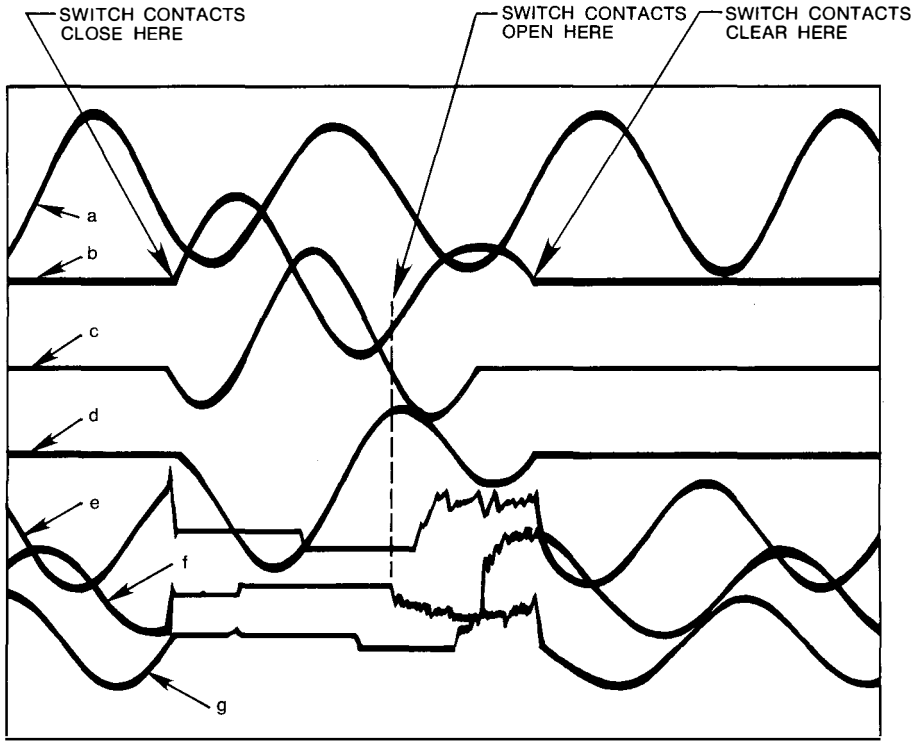


Figure 3.

Oscillogram of an actual close-open operation on a 52,000 rms, symmetrical available, 600 Vac, .2 pf, 3-phase circuit.

Equipment Use

The 800-4000A HPC switches are available as manual trip switches, electric trip, or with integral ground fault protection (all are of top feed or bottom feed configuration)—all with optional accessiries. They are primarily intended for use as switchboard mains and feeders and for separate service interrupters. The versatile bottom feed construction (see Figure 4) permits line cables or busbars entering at floor level to be terminated directly to the line terminals of the switch without costly "looping" to get to the top of the switch. See Figure 4a. Similarly, by using one top feed and one bottom feed HPC switch as feeders, as shown in Figure 5, each feeder disconnect can be bussed directly from the feeder bus to the HPC switches without long runs of adapter bussing. See Figure 5a.

Today's more sophisticated, higher energy-demand systems and their inherently higher short-circuit fault current capability require a fused interrupter designed specifically for this purpose. The HPC switch fills this need.

Bottom-Feed Safety

Simplified bus design achieved with bottom feed means: (1) easier bus maintenance, (2) fewer joints, (3) bus work is easily insulated and isolated for safer equipment.

Using Bottom-Feed HPC Switch

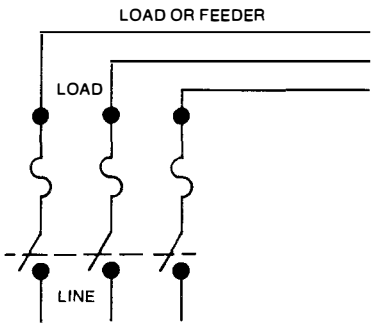


Figure 4.
Bottom feed service entrance equipment.

Without Bottom-Feed HPC Switch

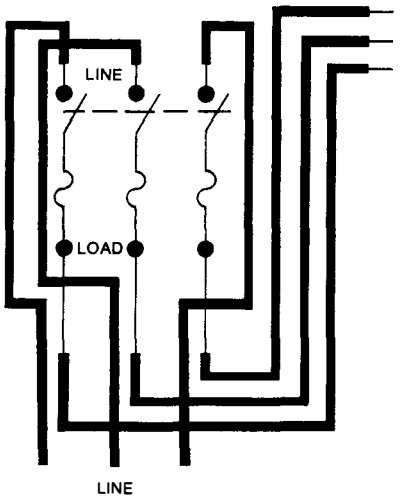


Figure 4a.
Service entrance bus, or cables must be looped up to line terminals at top of switch (noted by bold lines).

Using Bottom-Feed HPC Switch

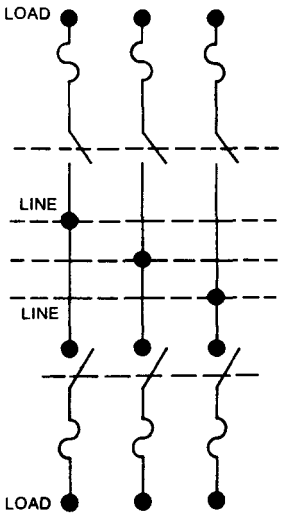


Figure 5.
Use of bottom-feed feeder disconnects simplifies switchboard construction and saves bussing.

Without Bottom-Feed HPC Switch

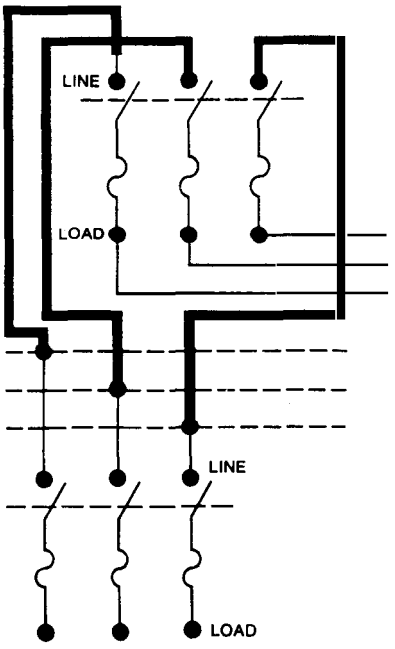
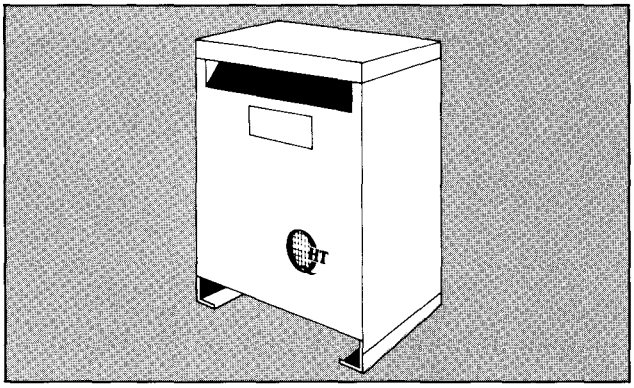


Figure 5a.
Bold lines show additional bussing required with two top-feed switches.

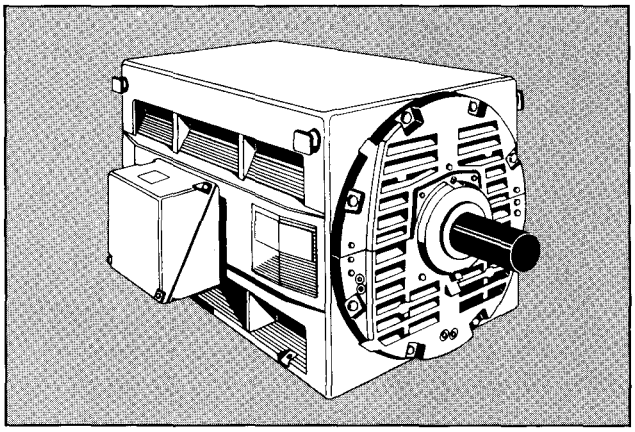
Transformer Disconnects

HPC switches can safely close-in on transformer inrush currents on the secondary side and can also be applied as transformer primary disconnects.



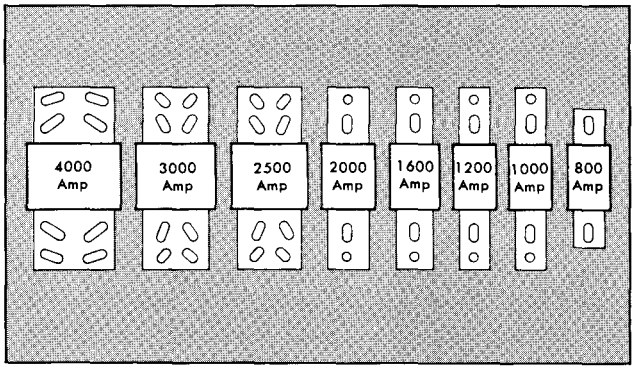
Large Motor Disconnects

Locked rotor currents of large ac motors can be safely interrupted by GE HPC switches. With their 12X make and break ratings, HPC switches can handle both the inrush (starting) current and locked rotor current. Sizing HPC switches at 115% of motor full-load current is acceptable from a disconnecting standpoint, but oversizing may be required to accommodate larger Class L fuses to permit motor starting without fuse blowing. UL Standard 977, fused power circuit devices, does not permit overfusing; HPC switches, therefore, have rejection pins to prevent such overfusing.



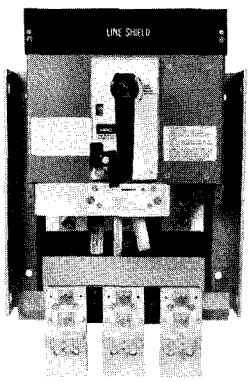
Future Upgrading Of Mains And Feeders

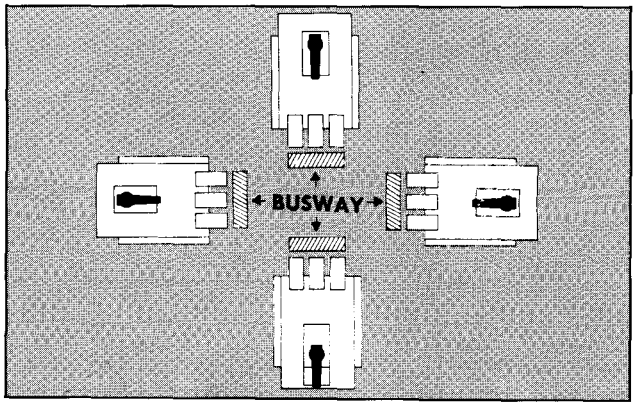
All HPC switches can be underfused down to the 800A Class L fuse frame size (601 amperes minimum). This ability to size the overcurrent protection to the immediate load requirements provides greater overload and short-circuit protection. Subsequent upgrading of the system only requires increasing fuse size and load conductors (if load conductors were not originally sized to the future load requirements).



Use In Any Configuration

Type HPC switches are suitable for mounting in all orientations and are therefore adaptable to busway use. The quick-make quick-break mechanism and latch is not sensitive to orientation.





System Coordination And Selectivity

HPC integral ground fault protection was developed specifically to coordinate with the various overcurrent and ground fault protective devices commonly used in today's modern distribution systems. Figure 8, page 14 is a reduced copy of the HPC integral ground fault time-current curves, GES-6177. Curves on page 15 incorporate time-current curves for related protective devices. It is to be noted the ground fault trip curves are situated well to the left of the fuse curves indicating, for all levels of ground fault currents, the switch will be tripped by the ground fault sensing before the main fuse blows.

Likewise, Figure 9 shows that downstream branch circuit fusing will open on a ground fault current before the HPC ground fault sensing will trip the main disconnect. It is this "knee" in the ground fault curves that permits a 60A RK5 fuse and a 200A Class J fuse to clear the downstream branch circuit ground fault without tripping the main or feeder disconnects.

Thus, branch circuits using up to 60A–80A Class RK5 time delay fuses, or up to 200A–250A Class J fuses, will be cleared without the integral ground fault tripping the upstream (main or feeder) HPC switch. This degree of system selectivity and coordination cannot be surpassed with other systems except at the sacrifice of longer delay time.

For specific values of branch fusing which will coordinate with the integral ground fault curve, it is highly recommended a coordination study be undertaken using actual manufacturer's total-clearing time curves and GES-6177.

Fast Unlatching Time

Minimum unlatching time of the HPC switch with integral ground fault protection is 0.03 seconds for ground fault currents in excess of 8 times the pick-up setting with the time delay set on minimum. For ground fault currents below 8 times the pick-up setting, the trip time increases inversely with the current. This inverse relationship for ground fault currents up to about eight times the pick-up setting produces the unique "knee" in the time-current curve.

Integrating Memory Circuitry

Because of the inherently intermittent and erratic nature of arcing ground faults, a memory circuit has been incorporated in the Type THP Ground Fault. This built-in memory integrates intermittent ground faults of magnitude lower than the trip set without relay resetting until the summed current reaches the trip set and then generates a trip signal. Damage to equipment from these low level faults is greatly reduced. Competitive devices will not even respond to repeated ground faults below the trip set level.

Figure 6 below shows how the memory circuit operates.

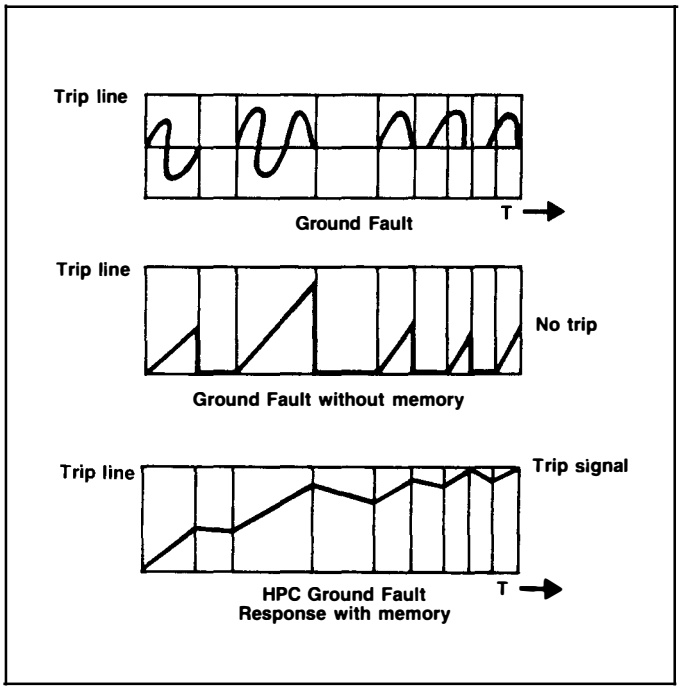
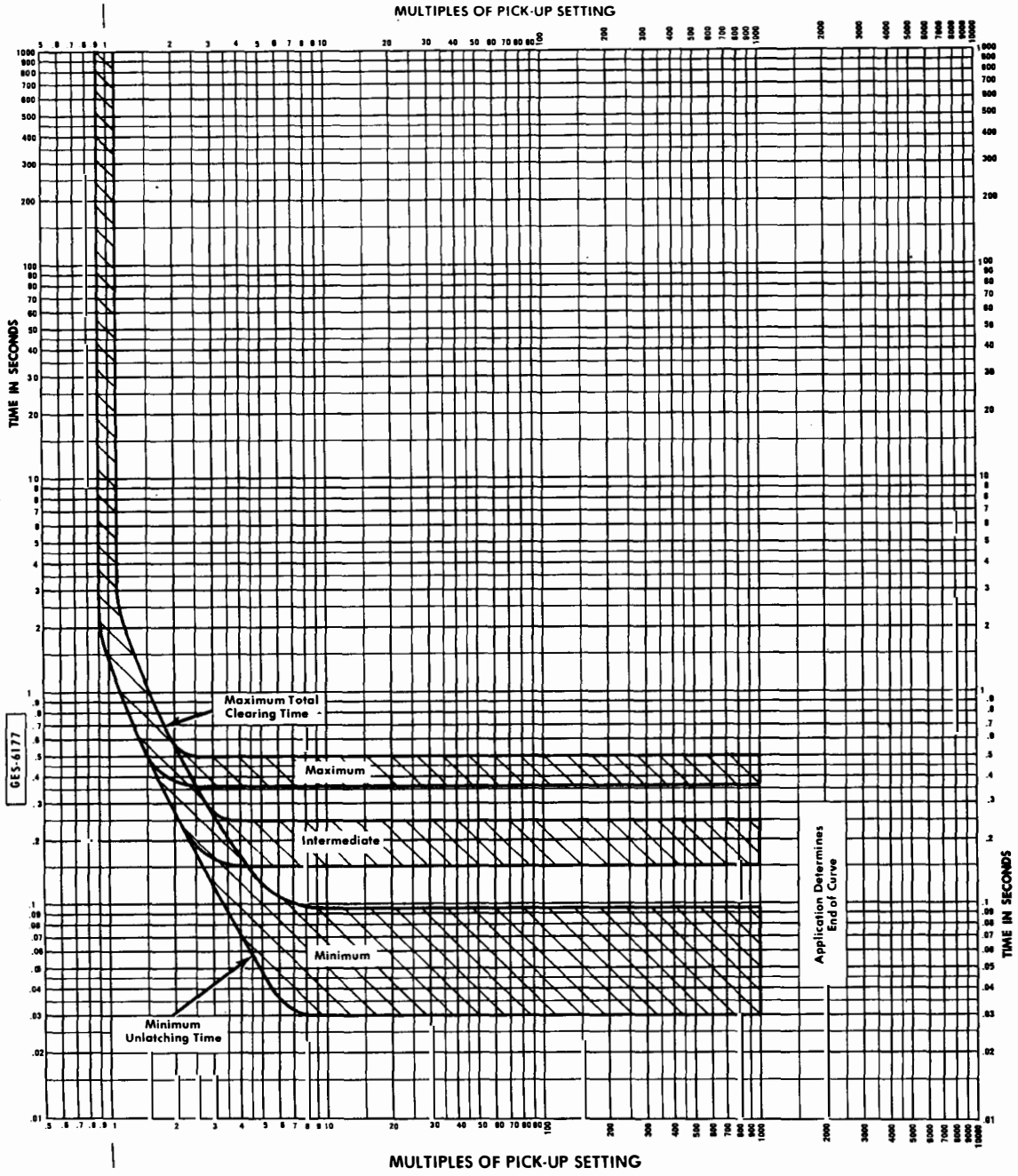


Figure 6. HPC integral ground fault has built-in memory.

Trip-time Curves For Integral Ground Fault Function



GENERAL ELECTRIC

HIGH PRESSURE CONTACT SWITCH

TYPE THP

Integral Ground Fault Device
Ground Fault Pick-up and Delay
Time-current Curves

(Curves apply at 50 60 Hertz and from 20 C to +55 C ambient)

GES-6177

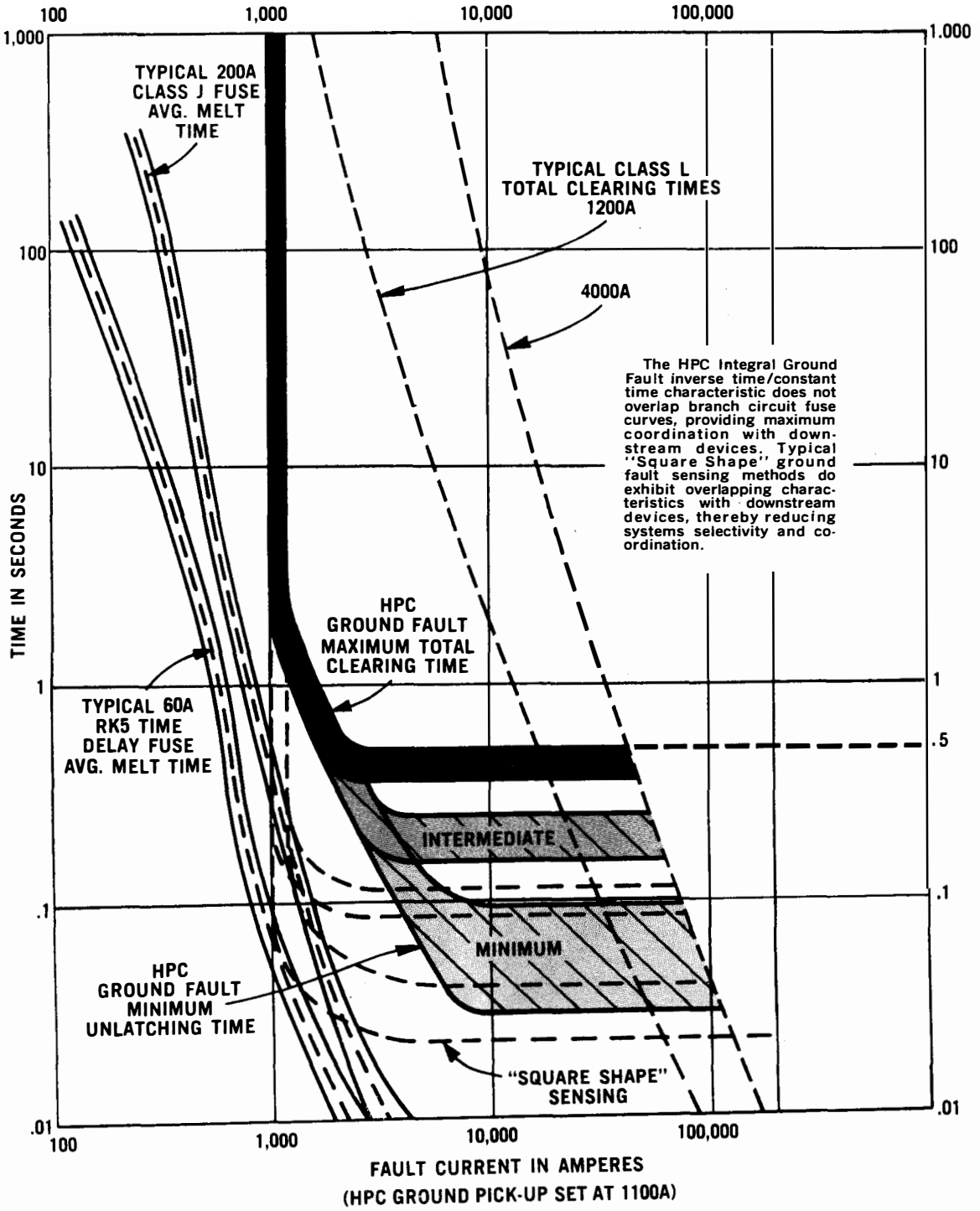
THPC/THPR Switch Ratings
800, 1200, 1600, 2000, 2500, 3000, 4000 amperes

Voltage Rating
600 volts ac

Frequency Rating
50/60 Hertz

Adjustments
Ground Fault Unit
Pick-up Current 200, 300 400 600, 800, 1100 amperes ± 10%
Delay Time Bands Maximum, intermediate and minimum

Coordination And Selectivity Of Downstream Overcurrent Devices



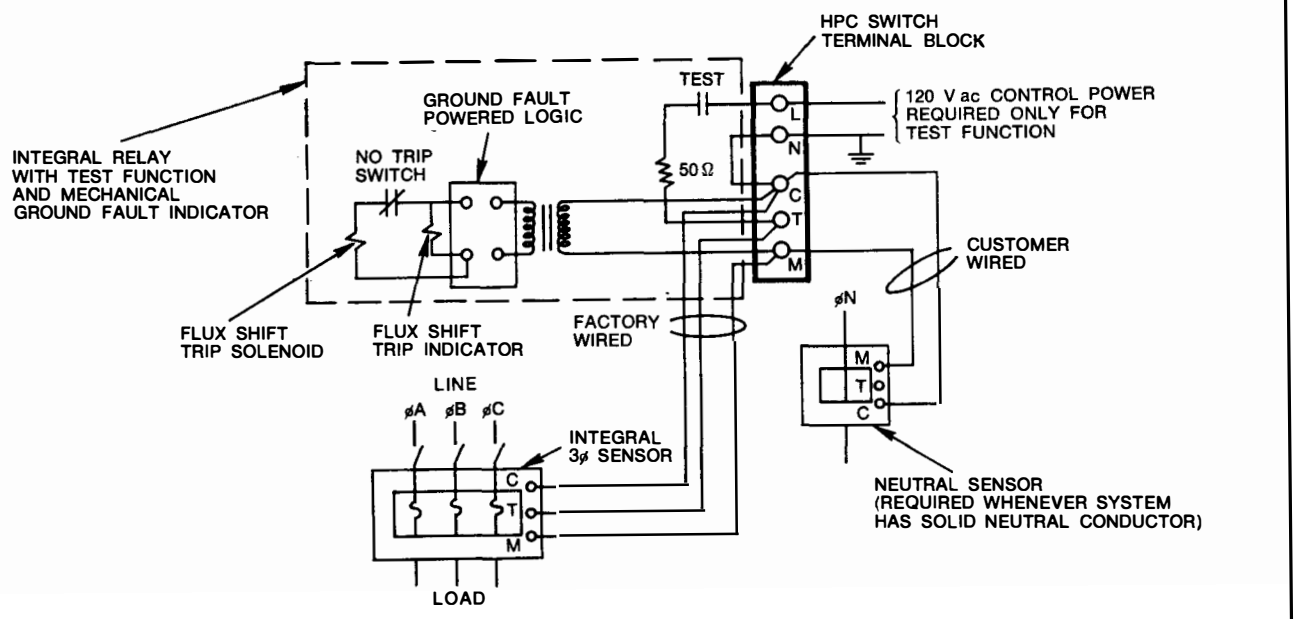


Figure 9. Block diagram

HPC Integral Ground Fault Test Procedures

The reliability of the HPC integral ground fault system is excellent. However, since testing is so convenient, it is recommended that a test be performed monthly, or after the HPC switch has experienced a fault of any kind.

On-site Tests

First connect 120V ac, 60 Hz external control power of at least 200 volt-amperes to terminals L and N as shown in Figure 9 above.

System Test Without Service Interruption

(Can also be done with switch in "open" position if control power is then available.)

1. Push and hold silver "no trip" button.
2. Push red test button. (Indicator should pop out within two seconds.)
3. Release red test button after several seconds, regardless of test result. Then release silver button.
4. Push indicator flush to reset it.

System Test With Service Interruption

1. Push red test button. (Switch should open, and indicator should pop out with two seconds.)
2. Release red test button after several seconds, regardless of test result.
3. Push indicator flush to reset it.
4. Reclose switch to restore service.

Fourth Wire Sensor Mounting Instructions

For Split-core Sensors:

1. Bolt the two halves of the split core sensors together, using the hardware provided, and torque bolts to 70 inch pounds.
2. Attach jumper strap with hardware provided to both halves of split core sensor. Torque strap mounting screws to 20 inch pounds.

For Solid And Split-core Sensors:

3. Attach sensor to supporting brackets with a minimum of four bolts for the rectangular sensors and two bolts for the round sensors. bolt torque should not exceed 45 inch pounds.

Customer Settings

For access to the customer adjustment knobs, remove screws retaining Lexan® window and lift off.

A coordination study of the specific electrical distribution system is the proper way to determine the customer settings of pickup current and delay time. A compromise must usually be made between maximum continuity (both settings on maximum) and maximum safety (both settings on minimum). Very often, main or feeder switches would be set at 600A ground fault pickup to be selective with lighting breakers, whereas branch circuit switches would be set at 200A pickup. The delay time setting would be minimum unless normal overloads or selectivity with downstream interrupters required more time delay.

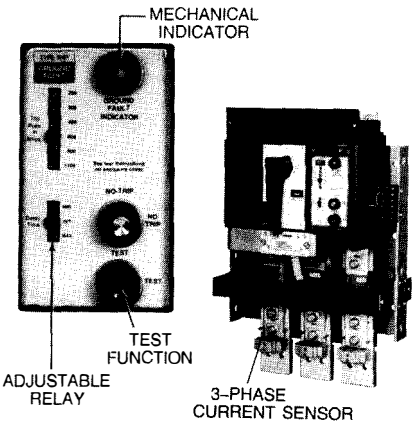
HPC Switches Listed On This Page Have Integral Ground Fault & Trippable Mechanism

All HPC switches with integral ground fault protection require a fourth wire (neutral) current sensor for three-phase, four-wire systems. After making your switch selection from Table A, see Table B for ordering the appropriate fourth-wire current sensor for your system.

Table A–Switches with 3-phase current sensor, adjustable relay with test function and mechanical ground fault indicator.

(Catalog Number Suffix G3T for top feed devices and BG3T for bottom feed devices. For additional components, refer to column on right side of page.)

Ampere Rating	Top Feed Cat. No. ①	Bottom Feed Cat. No. ①	Net Wt. Lbs. (Approx.)
800	THPR3608G3T	THPR3609BG3T	105
1200	THPR3612G3T	THPR3612BG3T	105
1600	THPR3616G3T	THPR3616BG3T	105
2000	THPC3620G3T	THPC3602BG3T	195
2500	THPC3625G3T	THPC3625BG3T	210
3000	THPC3630G3T	THPC3630BG3T	210
4000	THPC3640G3T	THPC3640BG3T	540



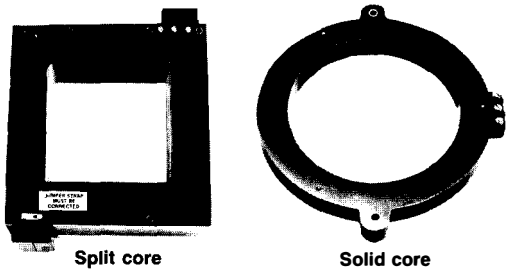
Note: In addition, a four-wire current sensor is required for complete protection

① Includes fuse mounting hardware and door-catch interlock bracket. Fuses are not included.

Table B–

Fourth-wire (neutral) current sensors for use with switches listed in Table A.

Sensor Cat. No.	Inside Dimensions	Core Construction	Thermal Rating	Net Wt. Lbs. (Approx.)
TGS0002	2.5″ Dia.	Solid	1600A	3
TGS0005	5″ Dia.	Solid	2500A	4
TGS0008	8″ Dia.	Solid	3000A	7
TGS0408	4″ x 8″	Split	4000A	15
TGS0808	8″ x 8″	Split	4000A	25



Split core Solid core

Current Sensors

For Swithces Without Integral Ground Fault Protection

Table C–Switches with electric trip for use with Ground Break® components or for remote tripping application.

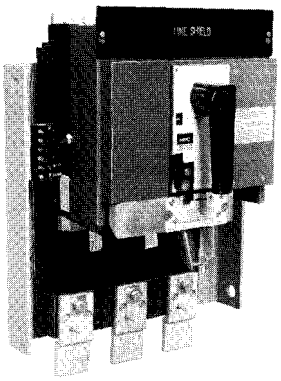
(Catalog Number Suffix ET1 for Top Feed Devices and BET1 for Bottom Feed Devices.)

Application

For resistance-grounded systems or where zone selective interlocking is required, electric trip HPC switches with Ground Break system components are recommended.

Requires 120 or 240V ac control power. For 480V ac operation use suffix ET2 or BET2 in place of ET1 or BET1.

Ampere Rating	Top Feed Cat. No. ① ②	Bottom Feed Cat. No. ① ②	New Weight Lbs. (Approx.)
800	THPR3608ET1	THPR3608BET1	75
1200	THPR3612ET1	THPR3612BET1	80
1600	THPR3616ET1	THPR3616BET1	80
2000	THPC3620ET1	THPC3620BET1	165
2500	THPC3625ET1	THPC3625BET1	180
3000	THPC3630ET1	THPC3630BET1	180
4000	THPC3640ET1	THPC3640BET1	429

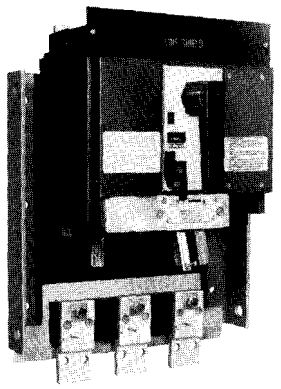


HPC with electric trip.

Table D–Manual Operation

HPC switches, manually operated, for feeder disconnects not requiring ground fault protection or remote tripping.

Ampere Rating	Top Feed Cat. No. ①	Bottom Feed Cat. No. ①	Net Weight Lbs. (Approx.)
800	THPR3608	THPR3608B	75
1200	THPR3612	THPR3612B	80
1600	THPR3616	THPR3616B	80
2000	THPC3620	THPC3620B	165
2500	THPC3625	THPC3625B	180
3000	THPC3630	THPC3630B	180
4000	THPC3640	THPC3640B	429



HPC manually operated

① Includes fuse mounting hardware and door-catch interlock bracket. Fuses not included.

② Electric trip switch (suffix ET1 or BET1) requires 120 or 240 volts ac control power. For 480 volts ac operation, change switch Catalog Number suffix to ET2 (top feed) or BET2 (bottom feed).

The following UL listed accessories are available for use with 800–4000A HPC high pressure contact switches as indicated:

Internal Accessories

Blown fuse protector
Auxiliary switch elements

External Accessories

Provision for Kirk Key
Bus connection adapter
Lug kits

Blown-fuse Protector

Factory installed only. Provides single-phase protecton by tripping switch when a fuse blows or when switch is closed with a blown fuse or no fuse installed. Suitable for system voltage of 208 to 600Vac. Mounted internally. Does not provide protection of single-phasing of the power source.

Switch Ampere Rating	Single-phase Protector Catalog Number
800–1600A	THPRFP
2000–4000A	THPCFP

Auxiliary Switch

Factory installed only—mounts internally. Provides remote indication of main contact position.

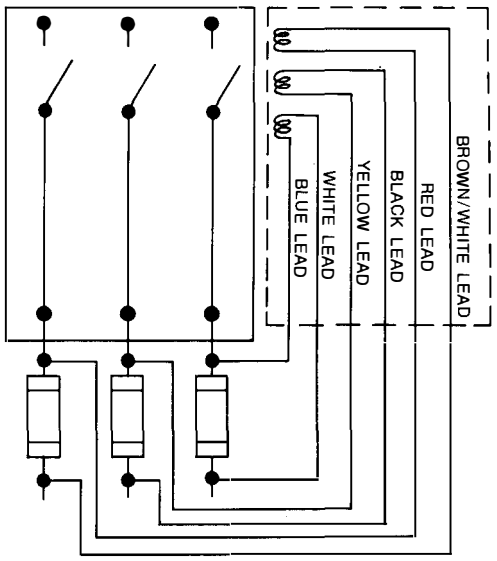
Switch elements are form "C", single-pole, double-throw. Leads are connected to externally mounted terminal block. Order one terminal block THPCB1 for one or two switches; order two THPCB1 for three or four switches. Specify and price switches and terminal blocks separately.

Switch element ratings: ¼ ampere at 250V dc; ½ ampere at 125V dc; 6 ampere at 240V ac.

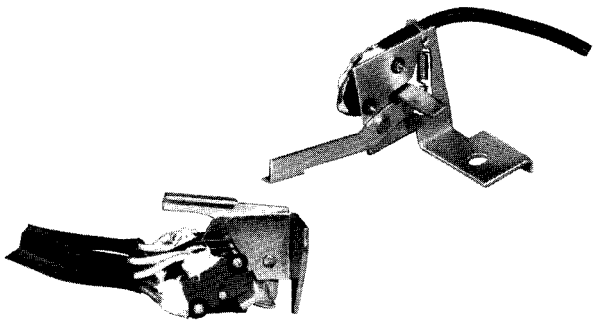
No. Of Switch Elements	Auxiliary Switch Catalog Number	
	For 800–1600A Swiches	For 2000–4000A Switches
1	TPAS2AB1L	TSAS2AB1R
2	TPAS2AB2L	TSAS2AB2R
3	TPAS1AB3L	TSAS2AB3R
4	TPAS2AB4L	TSAS2AB4R

Lug Kits–800–1600A Switches

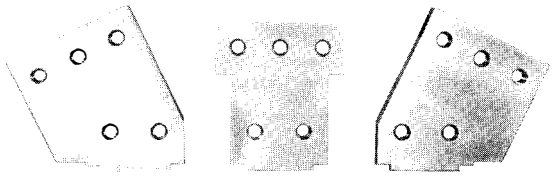
Field-installed only. Kits consist of terminal adapter strap(s) and hardware for line or load end and do not include lugs. Choice of lug kits must be ordered separately from the table below.



Blown fuse protector



Auxiliary switch



800A lug adapter

For Use With Terminal Adapter

Without Terminal Adapter

Switch Ampere Rating	Adapter Cat. No. ①	Cat. No. Lug Kits (CU–AL)		Max. Lugs Per Pole Line Or Load End	Direct Mounting Lugs–Use Without Adpater		
		(1) #2–600MCM (2) #1/0–250MCM	(1) 3/0–800MCM CU (1) 250–800MCM AL		(3) 300–750MCM CU, (3) 300–800MCM AL	(4) 300–750MCM CU or (4) 300–800MCM AL	
						Line Only	Load Only
800	THPCLUGA08	TPLUG106	TPLUG108	3	THPLUG308	.....	.....
1200	TPLUGA16	.....	TPLUG108	6	.....	TPLUG408	THPCLUG408
1600	TPLUGA16	.....	TPLUG108	6	.....	TPLUG408	THPCLUG408

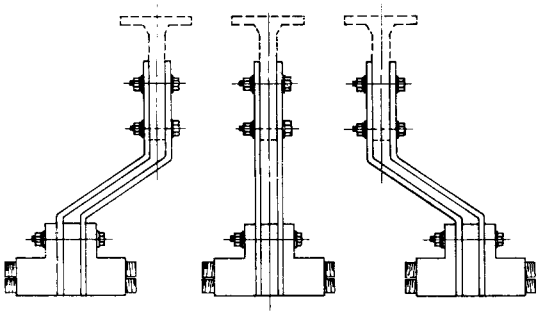
① Also suitable for use with Anderson Versa-Crimp® Type VCEL, Cat. No's. VCEL-050-12H1 or VCEL-075-12H1.

Lug Kits–2000–4000A Switches

Field installed only. To terminate line and load cables. Must be used in conjunction with 2000–4000A bus-connection adaptor listed below.

Each lug kit includes lugs, straps and hardware for three-phase line or load connections. Each cable lug accommodates 1–3/0 CU or 250MCM AL to 800MCM CU–AL. The table below indicates number of lugs per phase. Accepts Anderson Versa Crimp® when lugs are remolded from straps.

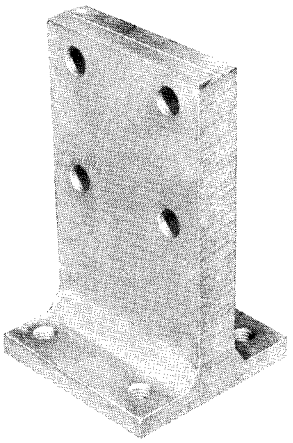
Ampere Rating	Catalog Number	No. Of Lugs Per Phase
2000	TSLUG20	6
2500	TSLUG25	7
3000	TSLUG30	9
4000	TSLUG40	11



Bus-connection Adpator

Field installed only. May be used to adapt line and load terminals of switch to vertical or horizontal bus arrangements, or to other bus configurations. These required for line or load connections on three-phase bus.

Switch Ampere Rating	Bus-connection Adaptor Catalog Number
800	THPC08FCA
1200–1600	TP16FCA
2000	TS20FCA
2500	TS25FCA
3000	TS30FCA
4000	(5) TS40FCA (1) TS40LFCA



Provison For Customer Installation Of Key Interlock

Switch Ampere Rating	Catalog Number	No. Of Poles
800	TPK01	1
1200	TPK01B ①	2
1600	TPK02	3
	TPK03	
2000	THPCPGL	1
2500		2
3000		3
4000		

① Provison Only—Requires customer to supply Kirk Key Interlock, Type F. Key removable with bolt extended. Bolt flush when withdrawn. Use only with bottom feed 800–1600A.

Neutral Sensors for 800–4000A Type HPC Switches (All Dimensions In Inches)

Round Sensors

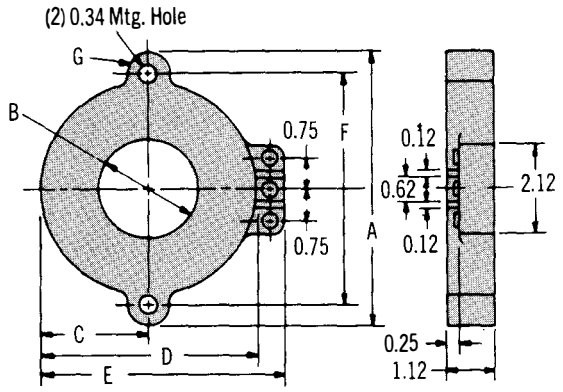


Figure 1. Round Sensors

Catalog Number	A	B	C	D	E	F	G
TGS0002	6.62	2.50	2.56	5.12	5.75	5.62	0.50
TGS0005	9.50	5.00	3.94	7.88	8.50	8.50	0.50
TGS0008	12.75	8.00	10.88	11.50	11.50	0.62	

Rectangular Sensors

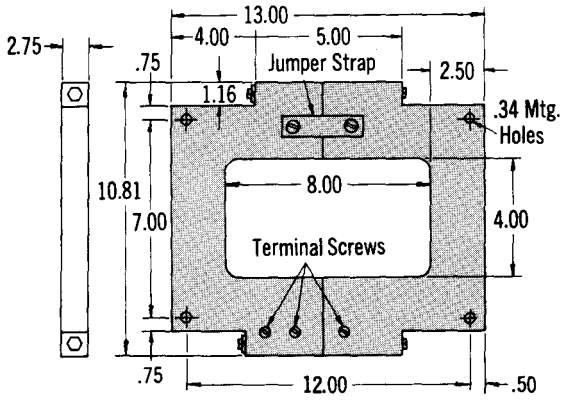


Figure 2. No. TGS0408

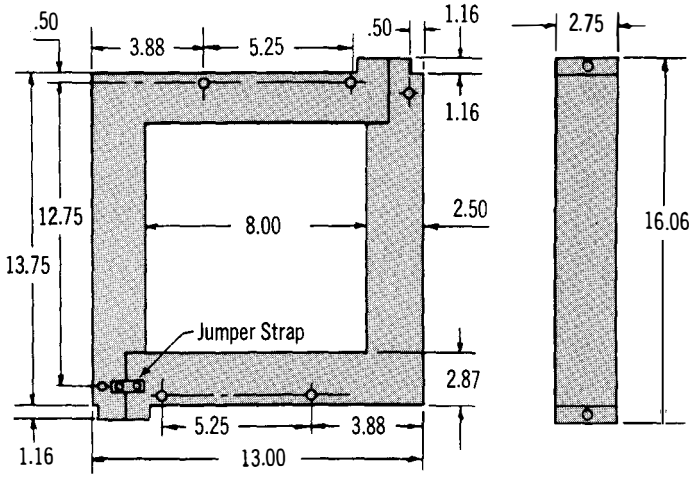


Figure 3. No. TGS0808

NOTE: Other optional neutral sensor sizes and constructions are available from Ground Break® components. See GET-2964 and other pages of this publication.

Ground Fault Protective Products for Resistance Or Solid-state ground ac Electrical Systems

Description

The Ground Break system of solid-state ground fault signaling relays, sensors and monitor panels can be used with electric trip HPC switches. These components can be combined to provide zone-selective interlocking for optimum system selectivity. The built-in memory function integrates intermittent faults with time providing protection against low-level arcing faults. The components which comprise a complete system are:

Current Sensor

Solid- or split-core construction for easy installation, includes an integral test winding for checkout of the complete system. A large variety of window sizes are available.

Solid-state Relay

Used in conjunction with devices having an electric trip, or shunt trip, this relay will sense ground currents and cause the interruptor to open when these currents reach a preselected value for a preselected length of time. Optional zone selective interlocking is available for a fully coordinated system. This type of relay initiates an instantaneous trip when a fault occurs in its own zone. In addition it will block upstream zone selective relays for a preset delay time to allow the down stream breaker to clear the fault.

Monitor Panel

Provides a ground-fault indicator, control power indicator and TEST and RESET buttons. The control circuitry offers the ability to test the complete Ground Break system with or without tripping the interruptor.

Features

- Instantaneous zone-selective trip for optimum system coordination and protection.
- Heavy-duty design permits direct operation of electric trip and alarm devices without external relays.
- Dependable operation–solid-state relay, cast insulated sensor.
- Two NO contacts, one of which is electrically isolated from the electronic device.
- Output contact rating 5 amperes continuous, 30 amperes inrush, up to 240V ac or 125V dc.
- Adjustable pickup and delay time.
- Split-core sensors easily adapt to new or existing equipment.
- Memory function for system protection against intermittent arcing faults.

How To Order

Specify appropriate relay, sensor and monitor panel catalog number from Table below. For additional application information, refer to GET-2964.

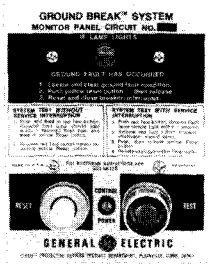


Figure 4. Monitor Panel

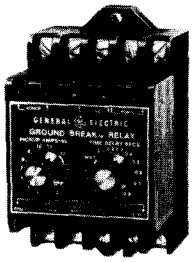


Figure 5. Solid-state Relay

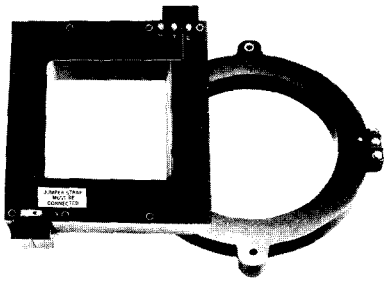


Figure 6. Current Sensors

Ground Break Components

Control Voltage	Adjustable Trip Range Amperes		Solid-state Relays		Monitor Panels①		Current Sensors			
			Standard	Zone Selective	With GF Indicator Light Cat. No.	With Mechanical Target GF Indicator Cat. No.	Window Diameter (Inches)	Catalog Number	Construction	Test Winding
	LO	HI	Catalog Number	Catalog Number						
120 Vac 125 Vdc 48 Vdc 32 Vdc 24 Vdc	5 5 5 5 5	60 60 60 60 60	TGSR06 TGSR06 TGSR06B TGSR06C TGSR06D	TGSR06Z TGSR06Z TGSR06BZ TGSR06CZ TGSR06DZ	TGSMP TGSMPA TGSMPB TGSMPC TGSMPD	TGSMA	2½ 5 8	TGS0002 TGS0005 TGS0008	Round–Solid Core	Yes
							4 × 8 4 × 18 4 × 24 4 × 32 8 × 8 8 × 10 8 × 18 8 × 24 8 × 32 8 × 38 11 × 13	TGS0408 TGS0418 TGS0424 TGS0432 TGS0808 TGS0810 TGS0818 TGS0824 TGS0832 TGS0838 TGS1113	Rectangular Split Core	Yes
120 Vac 125 Vdc 48 Vdc 32 Vdc 24 Vdc	100 100 100 100 100	1200 1200 1200 1200 1200	TGSR12 TGSR12 TGSR12B TGSR12C TGSR12D	TGSR12Z TGSR12Z TGSR12BZ TGSR12CZ TGSR12DZ	TGSMP TGSMPA TGSMPB TGSMPC TGSMPD	TGSMA				

① Monitor panel requires 120 volts ac for test system function.

All Dimensions Are In Inches

Relay and Monitor Panel

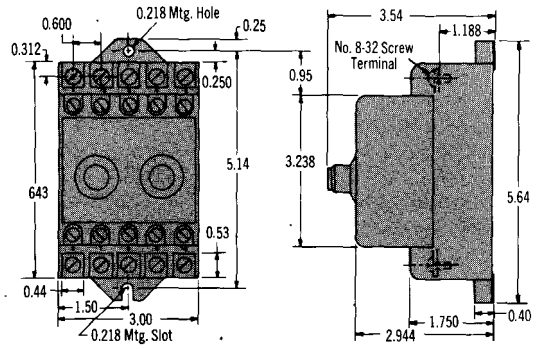


Figure 1. Relay

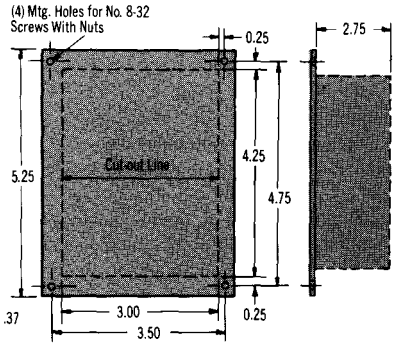


Figure 2. Monitor Panel (flush-mounted)

Round And Rectangular Sensors

These sensors are suitable for use with integral ground fault HPC switches as the neutral current transformer when the system is single-phase, three-wire, or three-phase, four-wire.

Dimensions

Clearance of 1″ must be maintained between all conductors and inside surfaces of the sensors, except as noted in Figures 5 and 8. Clearance reduced to ½ inch for TGS0005 and to zero for TGS0002.

Round Sensors (Figure 3)

Cat. No.	A	B	C	D	E	F	G
TGS0002	6.62	2.50	2.56	5.12	5.75	5.62	0.50
TGS0005	9.50	5.00	3.94	7.88	8.50	8.50	0.50
TGS0008	12.75	8.00	5.44	10.88	11.50	11.50	0.62

Rectangular Sensors (Figures 4, 5, 6, 7, & 8)

Catalog Number	No. Of Mtg. Holes	A	B	C	Fig. No.
TGS0408	4	.....	.....	.....	7
TGS0418	6	23.00	18.00	2.12	6
TGS0424	6	;29.00	24.00	5.12	6
TGS0432	10	37.00	32.00	0.62	6
TGS0808	4	.....	.....	.....	5
TGS0818	6	23.00	18.00	2.12	5
TGS0824	6	;29.00	24.00	5.12	5
TGS0832	10	37.00	32.00	0.62	5
TGS0838	10	43.00	38.00	3.62	5
TGS1113	4	.....	.....	.....	8

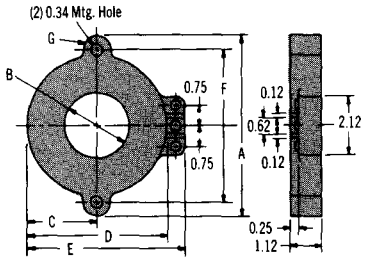


Figure 3. Round Sensor

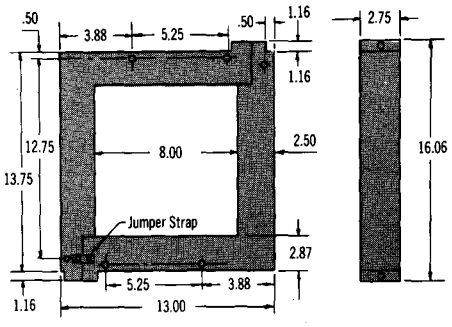


Figure 4. No. TGS0808

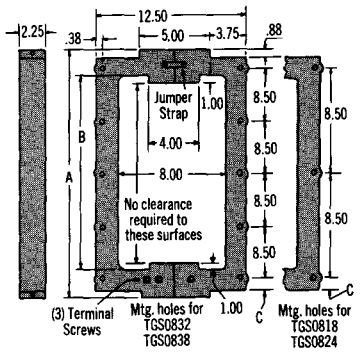


Figure 5. Rectangular Sensor

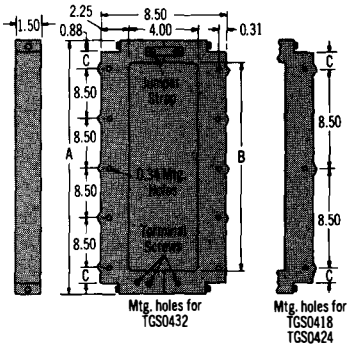


Figure 6. Rectangular Sensor

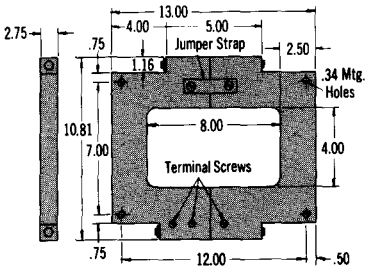


Figure 7. No. TGS0408

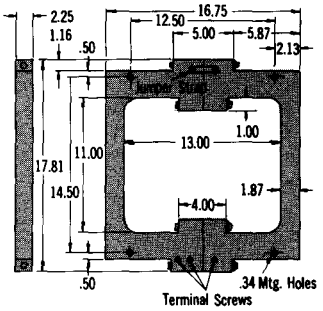


Figure 8. No. TGS1113

The sketches and tables below provide a quick reference for overall sizes of all switches, 800–4000 amperes. More detailed dimensional information is contained in the outlines that follow through page 28.

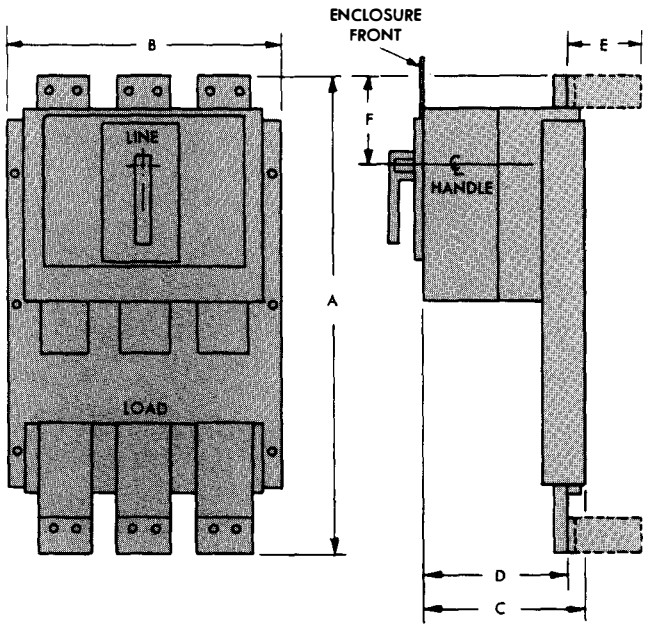


Figure 1.

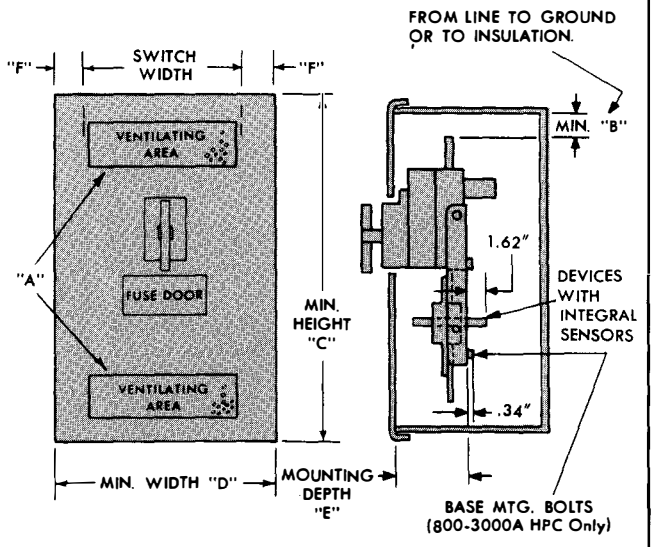


Figure 2.

Overall Estimating Dimensions–Figure 1.

Switch Ampere Rating ①	A	B	C	D	E	F
800	24.31	18.00	8.66	7.69	.....	4.96
1200 } 1600 }	26.72	18.00	8.66	7.69	.....	4.76
2000 } 2500 } 3000 }	36.00	19.25⑦	9.38	8.25	.....	15.56
4000	40.00②	22.38③	11.12	9.24	12.75 (8ø) 7.75 (A&Cø)	18.19

Application Information

Data	Switch Ampere Rating				
	800–1600A	2000–	2500A	3000A	4000A
Outline Drawing	139C4219	139C4114 Sh. 2	139C4114 Sh. 3	139C4114 Sh. 3	139C4114 Sh. 6
Approx. Shpg. Wt. ⑧	85 lbs. 115 lbs.	190 lbs. 220 lbs.	205 lbs. 235 lbs.	205 lbs. 235 lbs.	429 lbs. 464 lbs.
Approx. Net. Wt. ⑧	75 lbs. 105 lbs.	165 lbs. 195 lbs.	180 lbs. 210 lbs.	180 lbs. 210 lbs.	505 lbs. 540 lbs.
Connectors Cat. No.	THPC08FCA⑧ TP16FCA⑤	TS20FCA (Optional)	TS25FCA (Optional)	TS30FCA (Optional)	1-TS40LFCA 5-TS40FCA④

① For Cat. No's. with suffix "B" (bottom feed), invert drawing.

② With integral ground fault, length is 42 inches.

③ With integral ground fault, overall width is 25.38 inches.

④ Included in price of 4000 A switch, but must be ordered separately.

⑤ Ventilating openings can be in alternate locations but must provide equivalent ventilating area.

Enclosure Dimensions, Volume And Ventialtion Requirements–Figure 2

Data	Switch Ampere Rating					
	800A	1200–1600A	2000A	2500A	3000A	4000A
Min. Volume (Cubic Inches)	8,400	11,100	28,000	28,000	30,000	54,650
"A" Min. Ventilation Top and Bottom⑥ (Square Inches)	23	63	63	172	172	189
"B" Min. Line to Grd. (Inches)	2	2	2	2	2	9
"C" Min. Height (Inches)	28	30	40	40	40	52
"D" Min. Line to Grd. (Inches)	25	25	25	25	25	30
"E" Mounting Depth (Inches)	8.66	8.66	9.38	9.38	9.38	11.12
"F" Min. to Gnd. or Insulation (Inches)	3.5	3.5	3	3	3	3

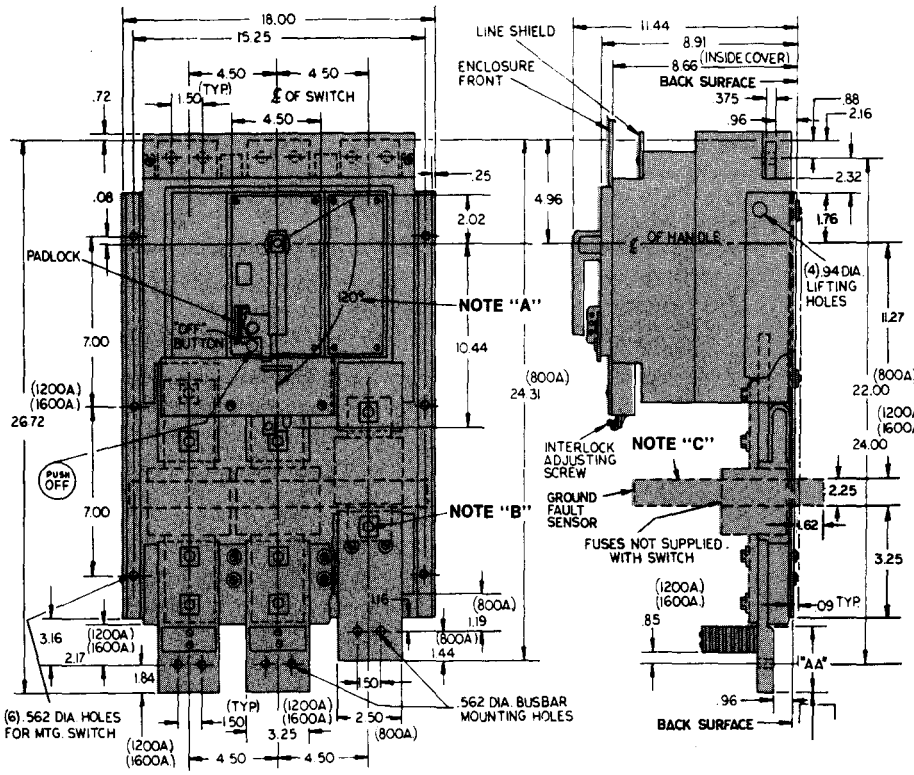
⑥ Second wt with integral ground-fault.

⑦ Overall width of 3000A switch with integral ground-fault is 23.75 inches.

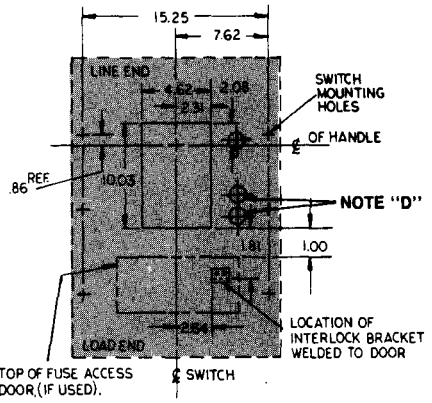
⑧ 800A only (optional).

⑧ 1200 and 1600A (optional).

Dimensions (for estimating only)
800–1600 Amperes



Panelboard Door Cut-out for Top Feed Devices



Front Details

HPC SWITCH	"AA"
800A	2.50
1200A	3.38
1600A	3.38

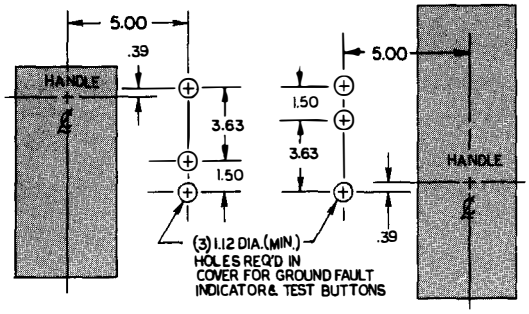
NOTE "A"–To CLOSE switch, actuate handle once 120° counterclockwise. To OPEN switch, push OFF button or turn handle counterclockwise.

NOTE "B"–Typical ½-13 bolt for fuse connections supplied with switch.

NOTE "C"–Integral ground fault sensor, supplied with ground fault accessory using Cat. No. suffixes G3T and BG3T. Extends as shown.

NOTE "D"–Three (3) holes required for ground fault push buttons and target accessory with Cat. No. suffix ending in "T".

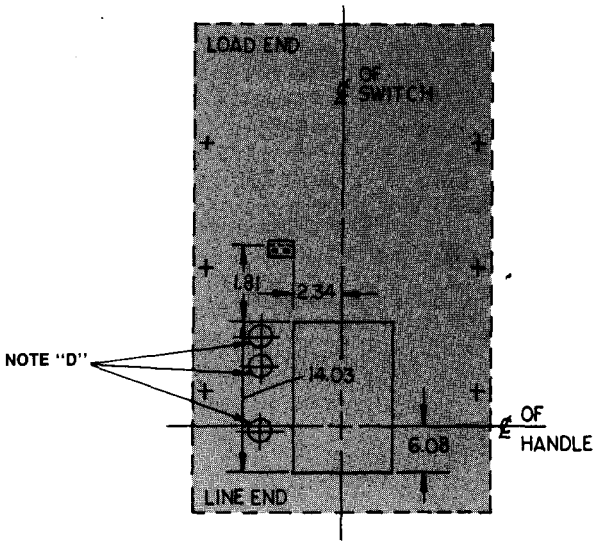
Switches with integral ground fault (Catalog No's. with suffix "G3T" or "BG3T")



"Line-Top" Devices (Suffix G3T)

"Line-Bottom" Devices (Suffix BG3T)

Panelboard Door Cut-out for Bottom Feed Devices

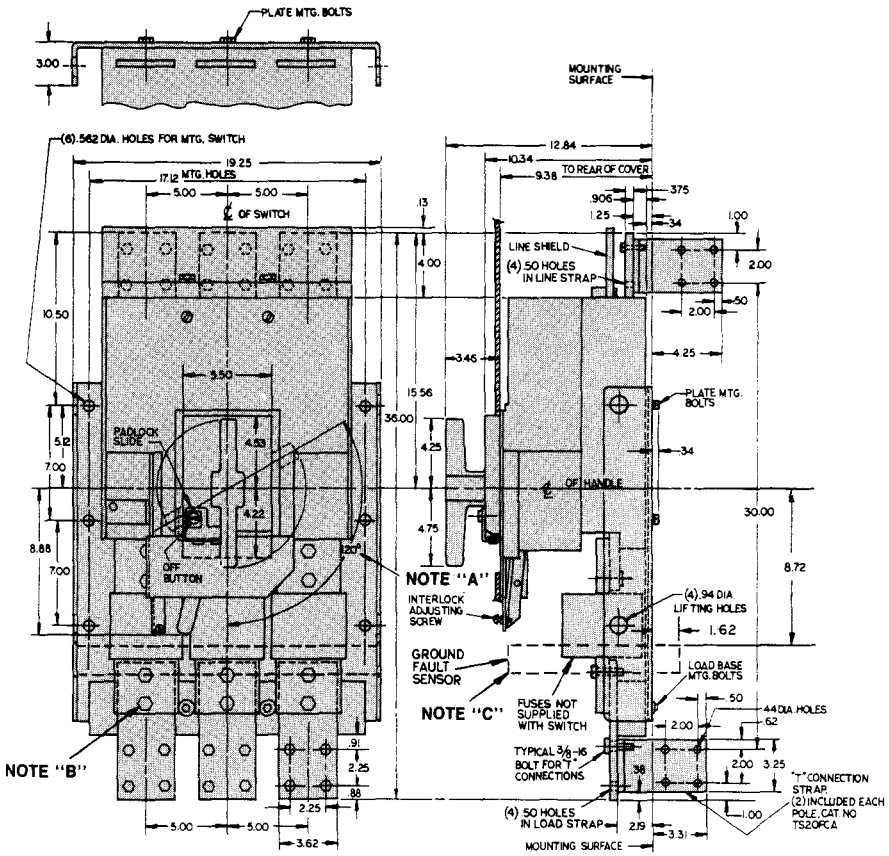


Front Detail

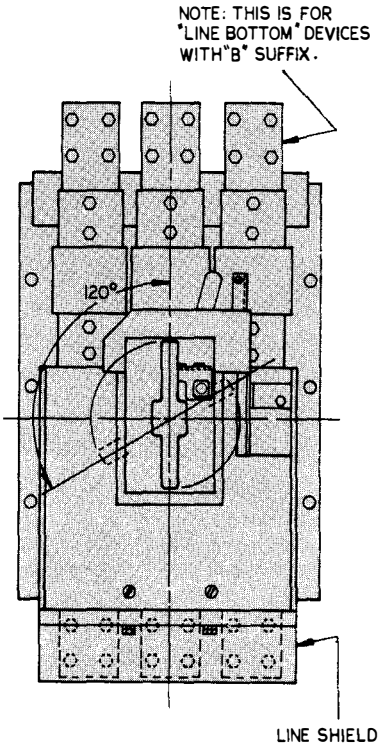
For Complete Details Order Outline Drawing 139C4219—Sheet 1

Dimensions (for estimating only)
2000 Amperes

Top Feed



Bottom Feed



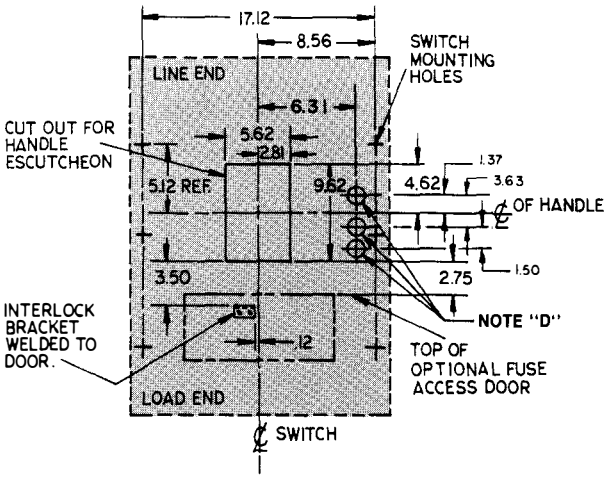
NOTE "A"–To CLOSE switch, actuate handle 3 times 120° counterclockwise. To OPEN switch, push OFF button or turn handle counterclockwise.

NOTE "B"–Typical ½-13 bolt for fuse connections supplied with switch.

NOTE "C"–Integral ground fault sensor, supplied with ground fault accessory using Cat. No. suffixes G3T and BG3T. Extends as shown.

NOTE "D"–Three (3) holes required for ground fault push buttons and target accessory with Cat. No. suffix ending in "T".

Panelboard Door Cut-out for Top Feed Devices

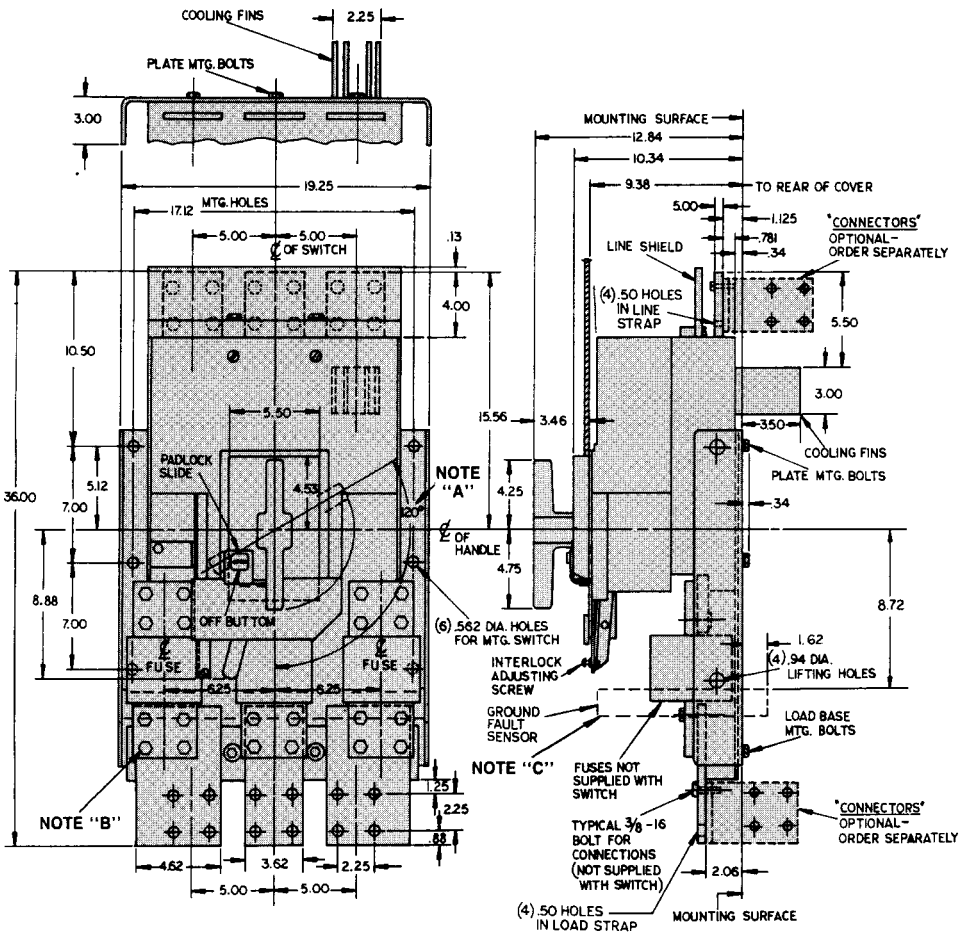


Front Detials (Invert for Bottom Feed Devices

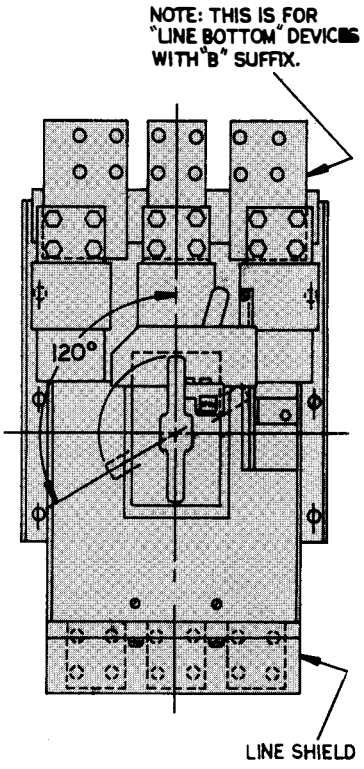
For Complete Details Order Outline Drawing 139C4114—Sheet 2

Dimensions (for estimating only)
2500–3000 Amperes

Top Feed



Bottom Feed



NOTE "A"–To CLOSE switch, actuate handle 3 times 120° counterclockwise. To OPEN switch, push OFF button or turn handle counterclockwise.

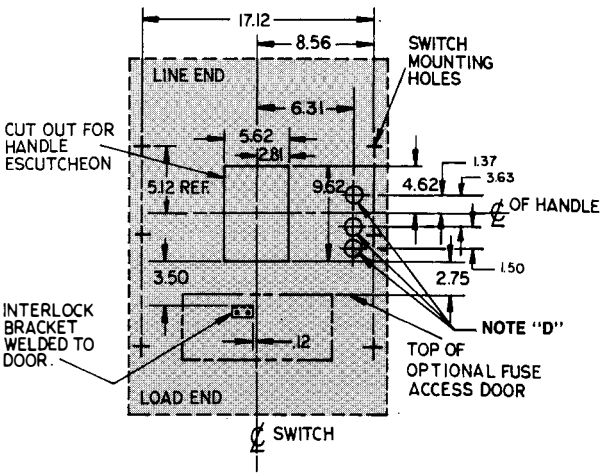
NOTE "B"–Typical ½-13 bolt for fuse connections supplied with switch.

NOTE "C"–Integral ground fault sensor, supplied with ground fault accessory using Cat. No. suffixes G3T and BG3T. Extends as shown. Overall width is 23.75 inches.

NOTE "D"–Three (3) holes required for ground fault push buttons and target accessory with Cat. No. suffix ending in "T".

For Complete Details Order Outline Drawing 139C4114—Sheet 3

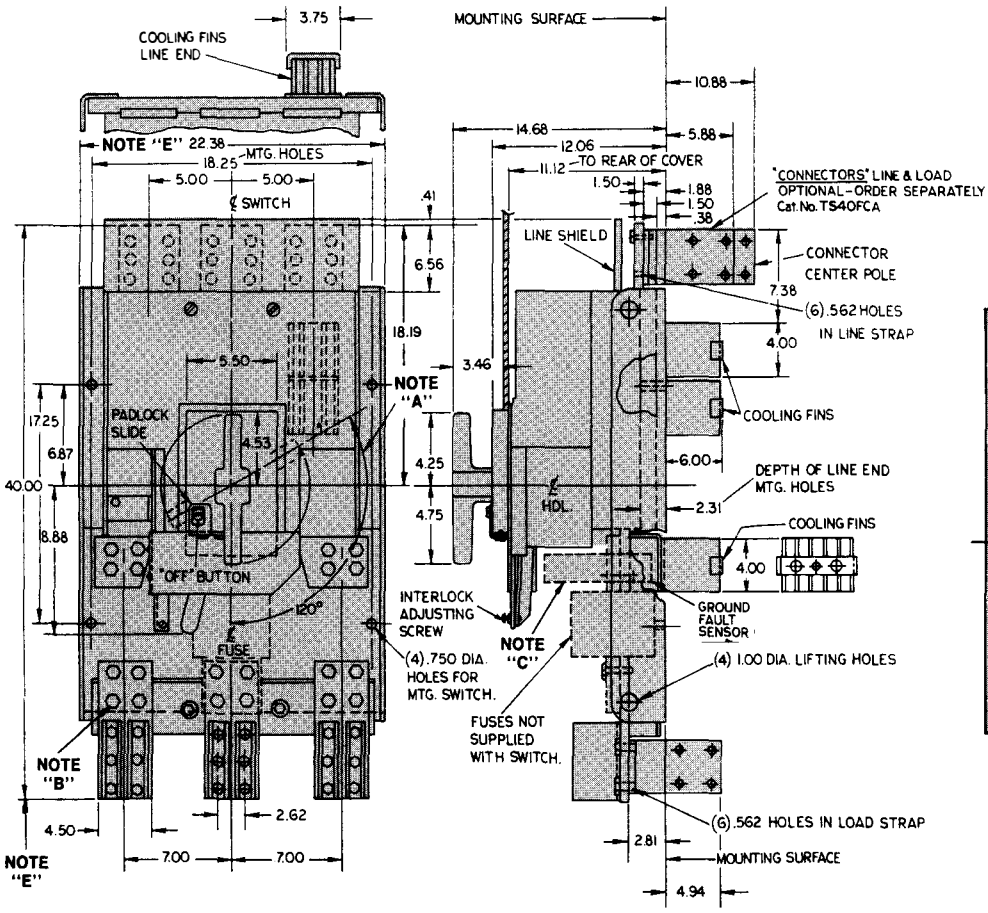
Panelboard Door Cut-out for Top Feed Devices



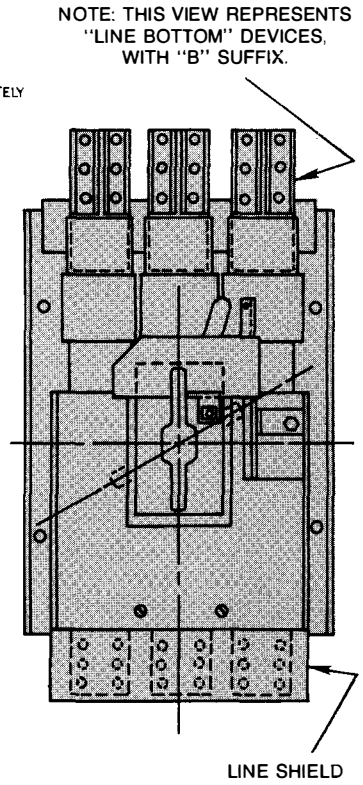
Front Details (Invert for Bottom Feed Devices)

Dimensions (for estimating only)
4000 Amperes

Top Feed



Bottom Feed



NOTE "A"–To CLOSE switch, actuate handle 3 times 120° counterclockwise. To OPEN switch, push OFF button or turn handle counterclockwise.

NOTE "B"–Typical ½-13 bolt for fuse connections supplied with switch.

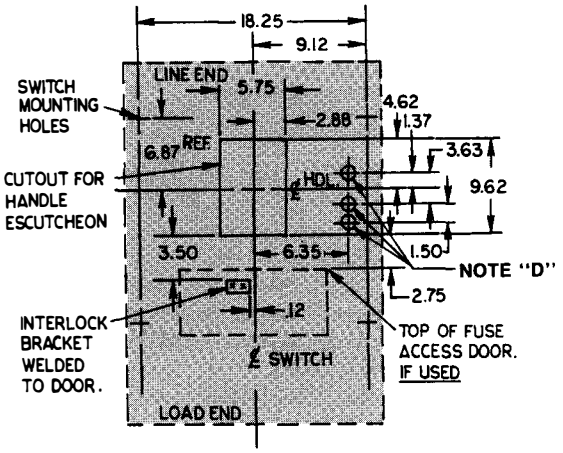
NOTE "C"–Integral ground fault sensor, supplied with ground fault accessory using Cat. No. suffixes G3T and BG3T. Extends as shown.

NOTE "D"–Three (3) holes required for ground fault push buttons and target accessory with Cat. No. suffix ending in "T".

NOTE "E"–4000A with integral ground fault: overall length 42.00 in. and overall width 25.38 in.

For Complete Details
Order Outline Drawing
139C4114—Sheet 6

Panelboard Door Cut-out for Top Feed Devices



Front Details
(Invert for Bottom Feed Devices)

Type HPC Switches With and Without Integral Ground Fault Protection

<table>
<tr><th>Description</th><th>Rating</th><th>Remarks</th></tr>
<tr><td>Ampere Ratings</td><td>800, 1200, 1600, 2000, 2500, 3000, and 4000A.</td><td></td></tr>
<tr><td>Voltage Ratings</td><td>600V ac Maximum, 60 Hz.</td><td>Can be used on any ac system up to 600V maximum.</td></tr>
<tr><td>Fusing</td><td>Rated or smaller size Class L fuses.</td><td>All switches can be underfused down to the lowest rating Class L fuse (601A).</td></tr>
<tr><td>Shot Circuit Rating</td><td>All switches are suitable for use on circuits capable of delivering not more than 200,000 rms amperes symmetrical fault current at 600V ac maximum, 1-phase or 3-phase, .20 power factor minimum</td><td>HPC switches have the same maximum short-circuit capability as UL Listed Class L fuses.</td></tr>
<tr><td>Switch Interrupting Capability</td><td>All switches will safely make and break 12 times rated current at 600V ac, 3-phase, for a maximum of three interruptions.</td><td>UL requires breaking 12X current on devices for Class 1 ground fault use only.</td></tr>
<tr><td>Short Circuit Withstandability, Amperes-Squared-Seconds</td><td>
<table>
<tr><th rowspan="2">Switch Ampere Rating</th><th colspan="2">Test Fuse At 100KA</th></tr>
<tr><th>$I^2t \times 10^3$</th><th>I_{peak}</th></tr>
<tr><td>800–1600</td><td>22,500</td><td>100,000</td></tr>
<tr><td>2000</td><td>36,880</td><td>123,000</td></tr>
<tr><td>2500–3000</td><td>112,000</td><td>188,000</td></tr>
<tr><td>4000</td><td>188,000</td><td>225,000</td></tr>
</table>
</td><td>I^2t (amp.^{2}-seconds) values based on actual UL test-fuse lot certification at 100,000 rms symmetrical, 600V ac, single-phase, .2 p.f. Although switch is UL listed at 200KA, prior to June 1975 all fuse certificaktion tests were at 100KA.</td></tr>
<tr><td>Coordination of Fuse I_{peak} and Switch Interrupting Capability on Low-Level Faults</td><td>
<table>
<tr><th>Fuse & Switch Rating</th><th>Fuse I_p (Approx.)</th><th>Switch Interrupting Capability</th><th>Ratio</th></tr>
<tr><td>800</td><td>8,000</td><td>19,200</td><td>24</td></tr>
<tr><td>1200</td><td>9,500</td><td>19,200</td><td>16</td></tr>
<tr><td>1600</td><td>14,000</td><td>19,200</td><td>12</td></tr>
<tr><td>2000</td><td>19,000</td><td>30,000</td><td>15</td></tr>
<tr><td>2500</td><td>24,000</td><td>30,000</td><td>12</td></tr>
<tr><td>3000</td><td>28,000</td><td>52,000</td><td>18</td></tr>
<tr><td>4000</td><td>40,000</td><td>52,000</td><td>13</td></tr>
</table>
</td><td>I_p is that short-circuit current which would cause the fuse to melt in approximately .25 seconds. The .25 second time is representative of the fastest one can turn on HPC switch and quickly turn off with push-to-trip button and the fuse has not yet cleared. Values of current are for time-delay Class L fuses.</td></tr>
</table>

Only For Switches With Integral Fault Protection

Description	Rating	Remarks
Current Transformer (Sensor) Ration	800:1	
Integral Test Winding Ratio	700:1	
Integral Ground Fault Thermal Rating	Thermal rating of integrally mounted 3-phase sensors is equal to the full, continuous ampere rating of the switch. This current is the maximum continuous current that will not overheat the sensor.	
Maximum Ground Fault Current Rating	40,000 Amperes for 0.5 seconds. 200,000 Amperes for 0.008 seconds.	High I^2t withstandability assures no damage to integral ground fault components.
Dielectric	Windings to mgt. bushing—1.5 kV Winding to CT window surface—2.2 kV Mounting bushings to CT window surface—2.2 kV	
Insulation	Cast epoxy—all sizes of integral sensors and separate Ground Break® fourth wire sensors.	Cast epoxy provides a rugged construction.
Adjustable Ground Fault Trip Range	200 to 100A in six (6) steps, tolerance ± 10%, but not exceeding 1200A when set at 1100A.	Permits pickup settings to be coordinated throughout the system.
Delay Time	Minimum—0.05 seconds. Intermediate—0.2 seconds. Maximum—0.4 seconds.	Minimum setting for minimum ground fault damage; maximum for greatest coordination.
Power Dissipation	None except during a ground fault.	Integral ground fault relay is powered by the actual ground fault.
Control Power for Ground Fault Trip Check	120V ac source, 20 volt-amperes, min.	Simulates ground fault for system check Customer must provide control power.
Fourth Wire Neutral Sensor Construction	**Sensor Catalog No. / Inside Dimensions / Type** TGS0002 — 2.5″ dia. — Solid Core TGS0005 — 5″ dia. — Solid Core TGS0008 — 8″ dia. — Solid Core TGS0408 — 4″ × 8″ — Split Core TGS0808 — 8″ × 8″ — Split Core	These sensors must be ordered separately from switch. They are mounted by customer in convenient location and wired with #14 AWG minimum wire size. Run should not exceed 100 feet and wires should not be harnessed with power conductors.

High Pressure Contact Switches (Fused Power Circuit Devices)

High pressure contact switches, GE Type HPC (800–4000A), shall be furnished and installed as indicated on the drawings.

Standards

The HPC switches shall be UL listed in accordance with Underwriters' Laboratories, Inc., Standard for Fused Power Circuit Devices, UL977, and shall bear the listing mark. They shall also be CSA certified.

Function

The HPC switch shall provide overcurrent and short circuit current protection with UL listed high-interrupting current-limiting Class L fuses and shall be UL listed as suitable for use on circuits capable of delivering up to 200,000 amperes rms symmetrical at 600V ac maximum. The switch and fuses shall be fully coordinated at all current levels, up to and including the maximum short circuit current.

All HPC switches shall be rated for "making" and "breaking" 12X currents at 600V ac for at least three operations.

Construction

Fused power circuit devices shall be butt-type contact construction with multiple, spring-loaded main arms and an arcing arm per pole. The switch shall be in a molded insulating case and cover having integrally molded interphase partitions.

The HPC switch shall be rated _____ amperes at 600V ac.

UL listed Accessories shall be provided as follows:

— Integral, self-powered ground-fault protection with mechanical ground-fault indicator, test function, adjustable pick-up current and delay time with inverse and constant time characteristics, and phase-current sensor.

— Electric trip for use on (120) (240) (480) V ac control power.

— Blown-fuse protector.

— Provision for key interlock.

— Auxiliary switches with (1) (2) (3) (4) single-pole, double-throw elements.

HPC switches, when specified with ground fault protection, shall be Type THP integral ground fault with adjustable pick-up current and adjustable time delay setting. The ground fault system shall be self-powered, and shall not require an external control power source except for test purposes. The ground fault relay shall have an internal memory circuit which integrates intermittent arcing ground faults with time.

For systems requiring zone selective interlocking, HPC electric trip switches and GE Ground-Break® components shall be used.

GE Electrical Distribution & Control

General Electric Company
41 Woodford Avenue, Plainville, CT 06062

GET-6205B 1189 BLE