



## Power Break® Insulated Case Circuit Breakers

In 1965 GE pioneered the design of insulated case circuit breakers when it introduced the original Power Break® circuit breaker. When GE introduced Power Break® II, the original benchmark for performance and reliability was dramatically improved for ac systems, while maintaining the original insulated case circuit breaker features in a contemporary, compact physical envelope.

### Insulated Case Circuit Breakers

#### Power Break® II

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**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

### UL/CSA File Numbers

Power Break® Breakers.....	E11592/LR10263
MicroVersaTrip® Plus and MicroVersaTrip® PM and Power+ Trip Units.....	E11592/LR10263
MicroVersaTrip® and Power+ Rating Plugs .....	E11592/LR10263
Accessories.....	E57253/LR10263
Molded Case Switches.....	E57546/LR16271

### Power Break® II Time Current Curve-Numbers

	Functions	Curve No.
Enhanced MicroVersaTrip Plus™ and MicroVersaTrip PM™ Trip Units	Long-time Delay with Instantaneous or Long-time Delay, Short-time Delay with Instantaneous	GES-9889
	Ground Fault	GES-9890

### Power Break® II Instructions for Breakers and Accessories

Power Break® II Circuit Breakers– 800-4000 A frames, 240-600 Vac.....	GEH-6270
Power Break® II Circuit Breakers– Draw-Out 800-4000 Ampere Frames .....	GEH-6271
Power Break® II Circuit Breakers– Draw-Out Substructure.....	GEH-6272
Power Break® II Circuit Breakers–Trip Unit.....	GEH-6273
Power Break® II Circuit Breaker Accessories– Auxiliary Switch Module.....	GEH-6274
Power Break® II Circuit Breaker Accessories– Bell Alarm-Alarm Only .....	GEH-6275
Power Break® II Circuit Breaker Accessories– Door Interlock.....	GEH-6276
Power Break® II Circuit Breaker Accessories– Lug Kits and T Studs.....	GEH-4546
Power Break® II Circuit Breaker Accessories– Bell Alarm with Lockout.....	GEH-6278
Power Break® II Circuit Breaker Accessories– Key Interlock Provision .....	GEH-6279
Power Break® II Circuit Breaker Accessories– Mechanical Counter .....	GEH-6280
Power Break® II Circuit Breaker Accessories– Motor Operator Mechanism .....	GEH-6281
Power Break® II Circuit Breaker Accessories– Push Button Cover.....	GEH-6282
Power Break® II Circuit Breaker Accessories– Remote Close.....	GEH-6283
Power Break® II Circuit Breaker Accessories– Shunt Trip.....	GEH-6284
Power Break® II Circuit Breaker Accessories– Undervoltage Release .....	GEH-6285
Power Break® II Circuit Breaker Accessories– Walking-Beam Interlock.....	GEH-6286
TVRMS2 Test Kit.....	GEK-97367
Power Break® II Circuit Breaker Accessories– Draw-Out Substructure Secondary Disconnect.....	GEH-6460

### Power Break® II Circuit Breaker Accessories–

Draw-Out Substructure Rail Kit.....	GEH-6440
Walking Beam Interlock 800A, 1600A, 2000A .....	GEH-6286
Walking Beam Interlock 2500-3000A.....	DEH-009
Walking Beam Interlock 4000A .....	DEH-010
Draw Out Mechanical Interlock 800-2000A .....	DEH-011
Draw Out Mechanical Interlock 2500-4000A.....	DEH-012
Neutral Kit.....	DEH-024
Hidden “ON” Button.....	DEH-025
High Voltage Shunt Trip.....	GEH-6519
High Voltage Under Voltage Release .....	GEH-6520
Under Voltage Release Time Delay Relay .....	GEJ-4699

### Power Break® II Circuit Breakers Trip Units

Power+ Trip Unit.....	DEH-049
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### Power Break® II Circuit Breakers

Rating Plugs.....	GEH-5933
Enclosures 800-2000A.....	GEH-6503

### Power Break® II Insulated Case Switches

800-4000A, 240-600 Vac.....	DEH-40380
Power+ Control Units.....	DEH-40381



# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

## Features

### Power Break® II Circuit Breakers

The Insulated Case Circuit Breaker—GE pioneered the design and created the name in 1965. GE Power Break® II insulated case circuit breakers are the latest in reliable, flexible and easy-to-use circuit protection.

Power Break® II circuit breakers are UL Listed, CSA and IEC-947-2 Certified for up to 200,000 amperes, at 240 volts rms symmetrical interrupting capacity without fuses or current limiters. These new insulated case circuit breakers rated 200-4000A can be applied on ac power systems through 600 volts. All breaker frames, except 4000A stationary, are UL Listed to carry 100% of their ampere rating continuously. All frames are suitable for reverse feeding.

All Power Break® II circuit breakers are available in two levels of interrupting capacity—"standard break" and "Hi-Break" breakers. Each interrupting level is available in both stationary and draw-out construction, with a full complement of control and signaling accessories.

Standard break breakers are designed to meet the majority of application requirements, calling for moderate levels of available short-circuit current.

Hi-Break breakers are specially designed to withstand the stresses, and safely interrupt high levels of short-circuit current found in some applications (from 65 to 200 kA rms symmetrical amperes—depending on voltage).

### Greater Convenience and Operational Safety

The controls and status indicators you need most are readily accessible. The flush-mounted handle, ON/OFF buttons, rating plug test receptacle, bell alarm reset buttons — with or without lockout — are easily reached and all are double-insulated from live components. And, for added security, a standard padlock device lets you prevent accidental or unauthorized closing of the breaker.

Power Break® II circuit breakers are versatile and designed for a wide variety of applications including temperature insensitive trip units, push-to-open and close control, charge-after-close operation, 3 cycle closing, UL listed (file E 11592) field installable accessories suitable for 50/60 Hz. All accessories and control wiring are prewired to dedicated, secondary terminal points on each breaker.

### Quick, Error-Free Installation of Universal Accessories

Drop-in bell alarm, bell alarm with manual reset lockout, shunt trip, shunt trip with lockout, and undervoltage release install in seconds. No special tools. No breaker disassembly. Just slide them into place. The modules are universal across all frame sizes and each is mechanically keyed to its compartment so you make the right connection, every time. These accessories are field installable and upgradable.



GE's innovative, modular, drop-in accessories provide the ultimate customer solution for field customization:

#### UL Listed

- Accessory combination (one each) shunt trip, undervoltage release, bell alarm (alarm only), bell alarm with lockout.
- Rated 12-250 Vdc through 12-240 Vac, continuous duty.

#### Complete installation in seconds without special tools, breaker disassembly or adjustment

- The user can select how protective trip unit functions, the shunt trip (with or without lockout), and UVR accessories interface with the bell alarm and bell alarm with lockout accessories: An overcurrent, shunt trip, or UVR trip can be set to actuate the bell alarm or bell alarm with lockout. Any combination of output actions based on inputs can be selected.
- Shunt trip and undervoltage trip targets are clearly displayed by the trip unit LCD.

#### Pre-wired wire harness makes field installation a snap for:

- Motor operator with remote charge indicator
- Auxiliary switches, up to 12-stage maximum
- Remote close solenoid

#### Additional field-installable accessories including:

- Kirk Key locks (4 maximum)
- Limited access ON/OFF cover
- Mechanical operations counter
- Door interlock
- Walking beam interlock for stationary and draw-out breakers.

#### Ratings for Global Use

- Performance ratings include IEC947-2 certification.



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers Power Break® II

## Construction Options

## Section 5

The interruption ratings and voltages shown in the table are maximum ratings. A circuit breaker of the type given in the left-hand column may be applied at the given circuit voltage in any electrical distribution system where the available fault current at the load terminals of the breaker does not exceed the value in the table. That circuit breaker type may also be applied at intermediate values of circuit voltage provided the available fault current at the load terminals of the breaker does not exceed the value in the table for the higher value of voltage.



### Insulated Case Circuit Breakers

	Circuit Breaker Envelope Size (Amperes)	Trip Types			Max IC @ 480V (kA)	Max Voltage Rating (ac)	Max Frame (Amperes)
		Power+	MicroVersaTrip® Plus/PM	Molded Case Switch			
<b>Power Break® II</b>							
Standard	800	X	X		65	600	800
	1600	X	X		65	600	2000
	2000	X	X		65	600	2000
	3000	X	X		100	600	3000
	4000	X	X		100	600	4000
Hi-Break	800	X	X		100	600	800
	1600	X	X		100	600	2000
	2000	X	X		100	600	2000
	3000	X	X		150	600	3000
	4000	X	X		150	600	4000
Molded Case Switch	800			X	30 <sup>1</sup>	600	800
	1600			X	40 <sup>1</sup>	600	2000
	2000			X	40 <sup>1</sup>	600	2000
	2500			X	42 <sup>1</sup>	600	2500
	3000			X	42 <sup>1</sup>	600	3000
	4000			X	42 <sup>1</sup>	600	4000

<sup>1</sup>Molded case switch ratings are short time @ 600Vac, not interrupting current. See page 5-12 for withstand ratings.



# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

Power + Trip Unit Features

## Section 5

### Power+ Trip Unit Systems

The Power+ trip unit system for Power Break® II insulated case breakers consist of the trip unit, the trip actuator, current sensors and rating plugs. The term “trip unit system” applies to the combination of these four components which form the solid-state circuit breaker tripping system.

Power+ trip units provide a complete range of standard and optional overcurrent and ground-fault protective functions.



### True RMS Sensing

The Power+ trip unit continues to use GE’s proven technique of measuring true rms currents of both sinusoidal and harmonically distorted waveforms. The frequent sampling (48 times per cycle per phase) allows precise calculations of true rms current. The sampling rate allows waveform measurements up to the 11th harmonic. GE’s true rms sensing avoids potential underprotection or overprotection problems associated with peak-sensing tripping systems.

### Accessory Integration

Four accessories are integrated through the Power+ trip unit. Drop-in shunt trip (with or without lockout), bell alarms (with or without lockout) and the undervoltage release modules fit into keyed pockets. They operate through the trip units, and not through any external mechanisms. All accessory wiring is prewired to secondary terminals, and no user wiring is necessary. When activated, the shunt trip (with or without lockout) and undervoltage release modules send a signal to the trip unit to energize the trip actuator and open the breaker.



Power+ Trip Target Module

### Trip Target Module (Optional)

**View Button:** Press the VIEW button to check the trip unit status.

**Reset Button:** Press the RESET button to clear any target that is set.

**Battery check:** Target modules use two standard, 3V, 16mm x 1.6mm, lithium batteries for viewing target information. Battery life depends upon use, but may be estimated at one year. When the batteries are energized, depressing the VIEW button will illuminate either a set target LED, i.e., LT or the BAT LED. Once target indicators are cleared, battery status is indicated by the BAT LED. Replacement batteries include Panasonic CR1616, Eveready E-CR1616BP, or Duracell DL1616B, which may be purchased commercially.

**Long-time pickup:** The long-time pickup indicator moves through two transitions. As the current in any phase reaches 95% of its setpoint; the LTPU LED begins to flash. As current increases, flashing frequency increases, until 100% of the pickup point is reached. At that moment, the LTPU LED stays on continuously until the long-time delay times out. Once the breaker has tripped on long-time, the OVL target will be stored in memory. To view the trip, press the VIEW button. To clear the target, press the RESET button.

**Short-time and instantaneous trips:** Short-time and instantaneous trips share the same trip target. The LTPU LED is not illuminated, since the time intervals between pickup and tripping are too short for either function. Once the breaker has tripped on short-time or instantaneous, the short target will be stored in memory. To view the trip, press the VIEW button. To clear the target, press the RESET button.

**Ground fault trip (Target02 only):** The trip target for a ground fault trip is the GF LED. To view the trip, press the view button. To clear the target, press the RESET button.

**Health monitor:** Trip unit health status “okay” is illustrated by slow blinking of the LTPU LED. It may be seen by depressing and holding the VIEW button. Sufficient power must be supplied to the trip unit via external test kit, power pack, or current transformers for the health monitor to be operational.

### Standard and Optional Protective Functions

Standard and optional protective functions are available for Power+ trip units. The breaker settings are programmed in multiples of “X” (rating plug ampere values), “S” (current sensor ampere rating values), and “C” (the long-time setting in amperes—multiply long-time setting by rating plug ampere rating).

#### Standard

- Adjustable Long-Time (L) Pickup, 0.5 - 1.0X, with four delay bands.
- Adjustable Instantaneous (I) Pickup, 1.5 - 15X.1

#### Options

- Overload, Short Circuit, and Short-Time local trip indicators with overload pickup warning and health monitor.
- Adjustable Short-Time (S) Pickup, 1.5 - 9.0C, and delay (3 bands) with I<sup>2</sup>t ON/OFF selection.
- Adjustable Ground Fault (G) Pickup, 0.2 - 0.6S, and delay<sup>1</sup> (3 bands) with I<sup>2</sup>t ON/OFF selection and trip indicator.
- Upgradeable Ground Fault function with use of appropriate ground fault rating plug.

<sup>1</sup>Limited by breaker frame size above 2000A.



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications



# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

Enhanced MicroVersaTrip® Trip Unit Features

## Section 5

### Enhanced MicroVersaTrip® Trip Units

Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM trip units give you two new ways to monitor and control the Power Break® II breaker with unprecedented ease. Through the simple keypad, the trip unit lets you program and display a variety of functions including tripping characteristics, remote communications, status information and protective relaying, and allows integration with GE POWER LEADER® Power Management Systems. The trip unit display also allows viewing of many standard metering parameters as well as pickup alarms, trip target indications and fault status information.

Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM trip units continue to use GE's proven technique of measuring true rms currents (and voltages for MicroVersaTrip® PM trip units) of both sinusoidal and harmonically distorted waveforms. The frequent sampling (64 times per cycle) allows precise calculations of true rms current. The sampling rate allows waveform measurements up to the 31st harmonic to achieve accuracies of 99%. GE's true rms sensing avoids potential underprotection or overprotection problems associated with peak-sensing tripping systems. The enhanced trip unit design includes a wide range of functions and adds many new features:

### UL Listed Field-Interchangeable

#### Non-volatile trip targets display/Cold setup capability

- Replaceable long-life batteries provide trip target indications and cold setup capability—without the need for external power or a battery pack.

#### Trip operations counter

- The number of long-time, short-time, instantaneous and ground fault trips are individually counted and displayed.

#### Trip information

- On overcurrent faults, the trip unit displays fault pickup, the type of fault, the magnitude of the fault current and the phase the fault occurred on.
- Display indicates when a shunt trip or undervoltage release trip has opened the breaker.

#### New display

- Ergonomic, 5-button keypad
- New targets with international symbols
- High-resolution LCD display for local 3-phase ammetering
- New status and setup displays for greater ease of use
- 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, UL Listed trip units and rating plugs with test set jack for TVRMS2 test set.
- EMI immunity per ANSI C37.90.



Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM Trip Units have been specifically designed to integrate with the extensive capabilities offered by Power Break® II circuit breakers.

### Features exclusive to MicroVersaTrip® PM Trip Units

#### Communications

- All information can be viewed on the LCD display or communicated over a POWER LEADER® Power Management System network.

#### Demand/peak demand

- The trip unit can display a rolling average of power demand and peak power demand at user-selected intervals from 5 to 60 minutes.

#### Local and remote metering

- Amps, volts, frequency
- Real power, total power
- Accumulated energy

#### Protective relays include:

- Current and voltage unbalance
- Overvoltage
- Undervoltage
- Power reversal
- Power reversal direction setup



# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

Trip Unit Characteristics

## Section 5

### Power+ Trip Unit Characteristics

Envelope Size	Frame Max. Ampere Rating	Sensor Rating (Amperes) (S)	Long-Time		Short-Time	
			Current Setting (C) (Pick-Up) Multiple of Rating Plug Amperes (X)	Delay <sup>1</sup> (Seconds 4 Bands)	Pick-up (Multiple of Current Setting) (C)	Delay (Seconds 3 Bands)
2000	800	200, 400, 800	0.5, 0.6, 0.7, 0.8, 0.9, 0.95 and 1.0	2.4, 4.9, 9.8, 20	1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 7.0, and 9.0	$I^2T_{in}^1$ .10, .21, .35
	1600	800, 1000, 1600		2.4, 4.9, 9.8, 20		
	2000	2000		2.4, 4.9, 9.8, 20		
3000	2500, 3000	1000, 2000, 2500, 3000		2.4, 4.9, 9.8, 20		$I^2T_{out}^2$ .10, .21, .35
4000	4000	4000		2.4, 4.9, 9.8, 20		

### Power+ Trip Unit Characteristics (continued)

Envelope Size	Adjustable Instantaneous Pick-Up without ST (Multiple of Rating Plug Amperes) (X)	Adjustable Instantaneous Pick-Up with ST (Multiple of Rating Plug Amperes) (X)	Ground Fault	
			Pick-Up (Multiple of Sensor Ampere Rating)	Delay <sup>3</sup> (Seconds 3 Bands)
2000	1.5 thru 10.0	1.5 thru 15.0	0.20 thru 0.60	$I^2T_{in}^4$ .10, .21, .35
			0.20 thru 0.60	
			0.20 thru 0.60	
3000	1.5 thru 10.0	1.5 thru 13.0	0.20 thru 0.37	$I^2T_{out}^2$ .10, .21, .35
4000	1.5 thru 9.0	1.5 thru 9.0	0.20 thru 0.30	

### Enhanced MicroVersaTrip® Plus and PM Trip Unit Characteristics

Envelope Size	Frame Max. Ampere Rating	Sensor Rating (Amperes) (S)	Long-Time		Short-Time	
			Current Setting (C) (Pick-Up) Multiple of Rating Plug Amperes (X)	Delay <sup>2</sup> (Seconds)	Pick-up (Multiple of Current Setting) (C)	Delay (Seconds)
800	800	200, 400, 800	0.5 thru 1.0 in increments of 0.05	2.4, 4.9, 9.8, 20	1.5 thru 9.0 in increments of 0.5	$I^2T_{in}^1$ 0.40
1600	1600	800, 1000, 1600		2.4, 4.9, 9.8, 20		
2000	2000	2000		2.4, 4.9, 9.8, 20		
3000	2500	1000, 2000, 2500		2.4, 4.9, 9.8, 20		$I^2T_{out}^2$ .10, .21, .35
4000	4000	4000		2.4, 4.9, 9.8, 20		

### Trip Unit Characteristics (continued)

Envelope Size	Adjustable Instantaneous Pick-Up without ST (Multiple of Rating Plug Amperes) (X)	Adjustable Instantaneous Pick-Up with ST (Multiple of Rating Plug Amperes) (X)	High Range Instantaneous (Multiple of Frame Short-Time Rating) (H)	Ground Fault		
				Pick-Up (Multiple of Sensor Ampere Rating)	Delay With $I^2T$ In Seconds	Delay <sup>3</sup> With $I^2T$ Out Seconds
800	1.5 thru 10.0 in 0.5 increments	1.5 thru 15.0 in 0.5 increments	1.0	0.20 thru 0.60 in increments of 0.01	.44 at 200% of pick-up at lower limit of band	.10, .21, .35
1600	1.5 thru 10.0 in 0.5 increments	1.5 thru 15.0 in 0.5 increments		0.20 thru 0.60 in increments of 0.01		.10, .21, .35
2000	1.5 thru 10.0 in 0.5 increments	1.5 thru 15.0 in 0.5 increments		0.20 thru 0.60 in increments of 0.01		.10, .21, .35
3000	1.5 thru 10.0 in 0.5 increments	1.5 thru 13.0 in 0.5 increments		0.20 thru 0.37 in increments of 0.01		.10, .21, .35
4000	1.5 thru 9.0 in 0.5 increments	1.5 thru 9.0 in 0.5 increments		0.20 thru 0.30 in increments of 0.01		.10, .21, .35

<sup>1</sup>Time delay shown at 600% of current setting at lower limit of band.

<sup>2</sup>Time delay shown at lower limit of each band. All pick-up tolerances are  $\pm 10\%$ .

<sup>3</sup>Time delay shown at lower limit of each band. Ground fault pick-up not to exceed 1200 amperes.

<sup>4</sup>Time delay shown at 200% of pick-up at lower limit of band.

**X = Rating plug amps**

**S = Sensor amp rating**

**C = Long-time current setting (pick-up)**

**H = Short-Time Rating**



Publications and Reference: See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers

## Power Break® II Circuit Breakers

Trip Unit Characteristics (continued)

## Section 5

### Additional Features and Characteristics Exclusive to the Enhanced MicroVersaTrip® PM Trip Unit<sup>1</sup>

Function	Description	Trip Unit Suffix		
		M (Metering)	P (Relaying)	PM (Metering & Relaying)
Communications	—POWER LEADER Communications Bus Link	STD	STD	STD
Amperes (A, kA) <sup>2</sup>	Selectable Phase Current ±2.5%	STD	STD	STD
Voltage (V)	L-L or L-N Volts ±1.5%	•		•
Energy (kWh, MWh, GWh)	Total Energy Usage on Brkr ±4%	•		•
Real Power (kW/MW)	L-L or L-N Power ±4%	•		•
Total Power (kVA/MVA)	L-L or L-N Power ±4%	•		•
Frequency (Hz)	Circuit Frequency ± 1Hz	•		•
Demand & Peak Demand (kW)		•		•
Under Voltage Trip	—Adjustable pickup 50-90% —Adjustable delay, 1-15 seconds OFF		•	•
Over Voltage Trip	—Adjustable pickup, 110-150% —Adjustable delay, 1-15 seconds OFF		•	•
Voltage Unbalance	—Adjustable pickup, 10-50% —Adjustable delay, 1-15 seconds OFF		•	•
Current Unbalance	—Adjustable pickup, 10-50% —Adjustable delay, 1-15 seconds OFF		•	•
Power Reversal	—Adjustable pickup, 10-990 kW —Adjustable delay, 1-15 seconds OFF —Power Reversal Direction		•	•

<sup>1</sup> MicroVersaTrip PM™ functions require 24 Vdc control power.

<sup>2</sup> Ampere reading also standard on MicroVersaTrip Plus trip units.





# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

Product Number Nomenclature System

### Power Break® II Circuit Breaker Product Numbers

<b>S</b>	<b>S</b>	<b>D</b>	<b>08</b>	<b>*</b>	<b>02</b>	<b>H<sup>1</sup></b>
<b>Power Break® II Breaker Type</b>						<b>Auxiliary Function</b>
S = Standard break						H = High-range instantaneous current sensors
H = Hi-Break® breaker						Blank = Standard current sensors
<b>Construction</b>						<b>Current Sensor Rating</b>
D = Drawout						02 = 200 A    20 = 2000 A
F = Stationary, front connected						04 = 400 A    25 = 2500 A
B = Back connected, 2500 – 3000 A only						08 = 800 A    30 = 3000 A
						10 = 1000 A    40 = 4000 A
						16 = 1600 A
<b>Frame Rating</b>						<b>Trip Unit Type and Rating</b>
08 = 800 A    25 = 2500 A						B2/D2 = 2000 A maximum
16 = 1600 A    30 = 3000 A						B3/D3 = 2500 A, 3000 A
20 = 2000 A    40 = 4000 A						B4/D4 = 4000 A
						Y = Insulated case switch
						B for Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM trip unit
						D for Power+™

<sup>1</sup>High-range instantaneous sensors only available on MicroVersaTrip® Plus and MicroVersaTrip® PM units.

NOTE: This information is provided only for use interpreting product numbers. It cannot be used to build product numbers.

### Accessory Product Numbers

<b>SP</b>	<b>AS</b>	<b>240</b>	<b>AB4D</b>	<b>R</b>
<b>Power Break® II Breaker</b>			<b>Extender</b>	
<b>Device Type</b>			R = Field installable kit	
AS = Auxiliary switch <sup>2</sup>			Blank = Factory installed	
BAA = Bell alarm, alarm only <sup>2</sup>				
BAL = Bell alarm with lockout <sup>2</sup>				
COUNTER = Mechanical counter <sup>2</sup>				
DIL = Defeatable door interlock				
DOSD = Drawout secondary disconnects				
DOWB = Drawout mechanical interlock				
DSS = Substructure shutter kit				
E = Electric operator <sup>2</sup>				
HDOS = Hi-Break rated drawout substructure				
K4 = Kirk key lock (4 maximum) <sup>2</sup>				
PBCOVER = Pushbutton cover <sup>2</sup>				
RCS = Remote close solenoid <sup>2</sup>				
SDOD = Standard rated drawout substructure				
ST = Shunt trip <sup>2</sup>				
STL = Shunt trip with lockout <sup>2</sup>				
UV = Undervoltage release				
WB = Walking beam for stationery breakers				
08 = 800A T-stud				
20 = 1600 thru 2000A T-stud				
S20 = 2000A T-stud (3000 frame)				
S25 = 2500A T-stud				
S30 = 3000A T-stud				
S40 = 4000A T-stud				
RAILS = Rail kit				
LUGA = Lug adapter kit				
B = Enclosure				
			<b>Auxiliary Switch Extender</b>	
			AB4 = Auxiliary switch, type AB with 4 elements	
			AB8 = Auxiliary switch, type AB with 8 elements	
			AB12 = Auxiliary switch, type AB with 12 elements	
			(add suffix "D" for Drawout construction)	
			<b>Voltage, unless otherwise stated</b>	
			012 = 12 Vdc	
			024 = 24 Vdc	
			048 = 48 Vdc	
			120/125 = 120 Vac or 125 Vdc	
			240/250 = 240 Vac and 250 Vdc	
			250 = 250 Vdc	
			480 = 480 Vac	
			600 = 600 Vac	
			08 = 800 A    25 = 2500 A	
			16 = 1600 A    30 = 3000 A	
			20 = 2000 A    40 = 4000 A	
			BCA = Back connected aluminum	
			BCC = Back connected copper	
			FCA = Front connected aluminum terminal T-stud	
			FCA = Front connected copper terminal T-stud	
			LFCC = Front connected copper, long stud	
			36B = 36 secondary disconnects, breaker	
			36C = 36 secondary disconnects, substructure	

<sup>2</sup>Device Product Number requires an extender "R" for field installable kit version only.

NOTE: This information is provided only for use interpreting product numbers. It cannot be used to build product numbers.



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

## Section 5

Product Number Nomenclature System

### Power+ Trip Unit Product Numbers

	<b>D2</b>	<b>20</b>	<b>LSI</b>	<b>T1</b>	<b>R<sup>1</sup></b>	
<b>Trip Unit Type and Rating</b>						<b>Replacement or New</b>
D2 = Power Break® II Power+ Trip Unit: 2000 A sensor maximum						R = Replacement trip unit (Blank) = New
D3 = Power Break® II Power+ Trip Unit: 3000 A sensor maximum						
D4 = Power Break® II Power+ Trip Unit: 4000 A sensor maximum						<b>Trip unit options</b>
						T1 = Target Module without ground fault target
						T2 = Target Module with ground fault target
						(Blank) = Factory Installed
<b>Current Sensor Rating</b>						<b>Auxiliary functions</b>
02 = 200 A    20 = 2000 A						LI = Long-time and Instantaneous
04 = 400 A    25 = 2500 A						LSI = Long-time, Short-time, Instantaneous
08 = 800 A    30 = 3000 A						
10 = 1000 A    40 = 4000 A						
16 = 1600 A						

<sup>1</sup>Device Product Number requires an extender "R" for field installable kit version only.

NOTE: This information is provided only for use interpreting product numbers. It cannot be used to build product numbers.

### Power+ Rating Plug Product Numbers

	<b>TR</b>	<b>10</b>	<b>C</b>	<b>800</b>	<b>GF</b>	
<b>Trip Unit Type Rating</b>						<b>Ground Fault Function</b>
TR = Trip unit rating plug All Power+, MicroVersaTrip® Plus, and MicroVersaTrip® PM rating plugs						Blank = No ground fault GF = Ground fault
<b>Current Sensor Rating</b>						<b>Rating Plug Ampere Rating</b>
02 = 200 A    20 = 2000 A						100 = 100 A    800 = 800 A
04 = 400 A    25 = 2500 A						150 = 150 A    1000 = 1000 A
08 = 800 A    30 = 3000 A						200 = 200 A    1100 = 1100 A
10 = 1000 A    40 = 4000 A						225 = 225 A    1200 = 1200 A
16 = 1600 A						250 = 250 A    1500 = 1500 A
						300 = 300 A    1600 = 1600 A
						400 = 400 A    2000 = 2000 A
						450 = 450 A    2500 = 2500 A
						500 = 500 A    3000 = 3000 A
						600 = 600 A    3600 = 3600 A
						700 = 700 A    4000 = 4000 A
<b>Trip Unit Type</b>						
C = Power+ trip unit rating plugs						

#### Power+ Target Module Product Numbers

TARGET00 = Blank insert for Target Module  
TARGET01 = Target Module without ground fault target  
TARGET02 = Target Module with ground fault target

NOTE: This information is provided only for use interpreting product numbers. It cannot be used to build product numbers.



# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

Product Number Nomenclature System

## Section 5

### MicroVersaTrip® Plus and MicroVersaTrip® PM Trip Unit Product Numbers

	<b>B2</b>	<b>20</b>	<b>LSI</b>	<b>GZ1</b>	<b>PM</b>	<b>R<sup>1</sup></b>	
<b>Trip Unit Type and Rating</b>							<b>Replacement or New</b>
B2 = Power Break® II Enhanced MicroVersaTrip Plus® or PM Trip Unit: 2000 A Sensor maximum							R = Replacement trip unit (Blank) = New
B3 = Power Break® II Enhanced MicroVersaTrip Plus® or PM Trip Unit: 3000 A Sensor maximum							
B4 = Power Break® II Enhanced MicroVersaTrip Plus® or PM Trip Unit: 4000 A Sensor maximum							
							<b>Trip Unit Options</b>
							Options for MicroVersaTrip® PM trip units only. Must select one:
							P = Protective relays & communications
							M = Metering & communications
							PM = Protective relays, metering, & communications
							(Blank) = MicroVersaTrip® Plus trip unit
							<b>Ground Fault Functions</b>
							G = Ground fault
							GD = Ground fault defeatable (not UL listed)
							GZ1 = Ground fault; ground fault only zone selective interlock
							GZ2 = Ground fault and short-time selective interlock
							GDZ2 = Ground fault defeatable (not UL listed); ground fault and short-time selective interlock
							(Blank) = None
<b>Current Sensor Rating</b>							
02 = 200 A    20 = 2000 A							
04 = 400 A    25 = 2500 A							
08 = 800 A    30 = 3000 A							
10 = 1000 A    40 = 4000 A							
16 = 1600 A							
<b>Auxiliary Functions</b>							
LI = Long-time and instantaneous							
LSI = Long-time, short-time, instantaneous							
LSH = Long-time, short-time, high-range instantaneous							

<sup>1</sup>Device Product Number requires an extender "R" for field installable kit version only.

NOTE: This information is provided only for use interpreting product numbers. It cannot be used to build product numbers.

### Rating Plug Product Numbers (MicroVersaTrip® Plus and PM)

	<b>TR</b>	<b>10</b>	<b>B</b>	<b>800</b>	
<b>Device Type</b>					<b>Rating Plug Ampere Rating</b>
TR = Trip unit rating plug All MicroVersaTrip® Plus and MicroVersaTrip® PM rating plugs					100 = 100 A    1000 = 1000 A
					150 = 150 A    1200 = 1200 A
					200 = 200 A    1500 = 1500 A
					225 = 225 A    1600 = 1600 A
					300 = 300 A    2000 = 2000 A
					400 = 400 A    2500 = 2500 A
					500 = 500 A    3000 = 3000 A
					600 = 600 A    3600 = 3600 A
					700 = 700 A    4000 = 4000 A
					800 = 800 A
<b>Current Sensor Rating</b>					<b>Trip Unit Type</b>
2 = 200 A    20 = 2000 A					B = All Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM trip unit rating plugs
4 = 400 A    25 = 2500 A					
8 = 800 A    30 = 3000 A					
10 = 1000 A    40 = 4000 A					
16 = 1600 A					

NOTE: This information is provided only for use interpreting product numbers. It cannot be used to build product numbers.



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

Interrupting Capacity and Withstand Ratings

## Section 5

The interruption ratings and voltages shown in the table are maximum ratings. A circuit breaker of the type given in the left-hand column may be applied at the given circuit voltage in any electrical distribution system where the available fault current at the load terminals of the breaker does not exceed the value in the table. That circuit breaker type may also be applied at intermediate values of circuit voltage provided the available fault current at the load terminals of the breaker does not exceed the value in the table for the higher value of voltage.

### Power Break® II Interrupting Capacity and Short-time Ratings—rms Symmetrical kA

Frame	800A	1600 to 2000A	2500-3000A	4000A
UL 489 Ratings, 50/60 Hz Standard				
240V	65	85	100	100
480V	65	65	100	100
600V	42	50	85	85
Hi-Break				
240V	100	125	200	200
480V	100	100	150	150
600V	65	65	100	100
Short Time <sup>1</sup>				
(0.5 sec)	25	40	42	42
IEC-947-2 Ratings 415, 50/60 Hz				
I <sub>CU</sub>	—	75	75 <sup>2</sup>	85
I <sub>CS</sub>	—	56	45 <sup>2</sup>	25
I <sub>CW</sub> (1 sec)	—	40	50 <sup>2</sup>	50

<sup>1</sup>Applies to high range instantaneous or "H" option.

<sup>2</sup>Must use 4000A construction.

Complete dimensions and weight information can be found in the Power Break® II application guide GET-8052.

### Stationary and Draw-out Switch Withstand Ratings—rms Symmetrical kA

Switch Frame (Amperes)	Short-time Rating, rms Sym Amperes @ 600 Vac Max., 500 ms Max.	Breaker Frame Size (Amperes)	Maximum Short Circuit Withstand Rating When Protected By Power Break® II Circuit Breakers						Suitable on 200,000 rms Sym Ampere Fault Circuit When Protected by Class L Fuses As Follows	
			Standard Break PB II Circuit Breaker			Hi-Break PB II Circuit Breaker			Line Side Max. Fuse Ampere Rating	Load Side Max. Fuse Ampere Rating
			240 Vac	480 Vac	600 Vac	240 Vac	480 Vac	600 Vac		
800	30	800	65	65	50	100	100	65	2000	800
1600	40	1600	65	65	50	125	100	65	2500	1600
2000	40	2000	65	65	50	125	100	65	2500	2000
2500	42	2500	100	100	85	200	150	100	2500	2500
3000	42	3000	100	100	85	200	150	100	4000	3000
4000	42	4000	100	100	85	200	150	100	4000	4000



# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

### How To Order

#### How To Order

All Power Break® II circuit breakers are available in two levels of interrupting capacity – “Standard break” and “Hi-Break” breakers. Each interrupting level is available in both stationary and draw-out construction, are suitable for reverse feed, and have a full complement of control and signaling accessories. Power Break® II circuit breaker frames are factory configured for either the enhanced MicroVersaTrip® Plus or MicroVersaTrip® PM trip units.

1. Determine the type of frame; stationary or draw-out.
2. Determine the required breaker frame, interrupting current level, short-time rating and load requirements. Select the appropriate frame product number and list price on page 5-14.
3. Select the basic enhanced MicroVersaTrip® unit to match frame ampere rating from page 5-15.
4. Select and price the trip unit suffix from pages 5-15 and 5-16 to match the required trip functions. Refer to page 5-7 for trip unit characteristics. The trip unit will be installed in the frame.
5. Select and price the required rating plug from page 5-17. The sensor rating of the frame must match the sensor rating of the plug. Rating plugs will be shipped separately.
6. Internal accessories should be priced separately from pages 5-19 through 5-24. Accessories will be installed in the frame. Order internal accessories ending with “R” for field installation separately.
7. Select and price externally mounted accessories, such as, pushbutton cover, key interlock provisions, lug kits and T-studs from pages 5-23 through 5-26.
8. If a draw-out breaker is required, the draw-out substructure is priced separately from page 5-28. The draw-out breaker is shipped including breaker, trip unit, and breaker secondary disconnects for control and accessory wiring. The substructure secondary disconnects are priced separately from page 5-28.
9. Order substructure accessories, such as shutters, mechanical interlocks, racking tool and lifting bar from page 5-29.

#### Pricing Example—Stationary Breaker

2000 ampere stationary frame, 65 kA, 480 V IC rating, 2000 ampere sensor, 800 ampere rating plug, trip unit functions including long-time (L), short-time (S), Instantaneous (I), MicroVersaTrip® PM trip unit, field installed 120 Vac electric (motor) operator, 24 Vdc remote close solenoid, 24 Vdc undervoltage release module.

Description	Product Number	List Price GO-245A
Frame	SSF20B220	\$7790.00
Trip Unit	B220LSIPM	\$2283.00
Rating Plug	TR20B800	\$89.00
Electric Operator-factory installed	SPE120	\$1838.00 <sup>1</sup>
Remote Close Solenoid-factory installed	SPRCS024	\$315.00 <sup>1</sup>
Undervoltage Release-factory installed	SPUV024DC	\$328.00 <sup>1</sup>

<sup>1</sup>GO-245B



SSF20B220



Draw-out in Substructure

#### Pricing Example—Draw-out Breaker

1600 ampere draw-out frame, 100 kA, 480 V IC rating, 1000 ampere sensor, 600 ampere rating plug, trip unit functions including long-time (L), short-time (S), high range instantaneous (H), factory installed accessories including: 120 Vac electric (motor) operator; 24 Vdc remote close solenoid; 24 Vdc shunt trip; draw-out substructure; draw-out secondary disconnect; draw-out shutter.

Description	Product Number	List Price GO-245A
Frame	SHD16B210H	\$10182.00
Trip Unit and Suffix Adder	B210LSH	\$1350.00
Rating Plug	TR10B600	\$89.00
Electric Operator	SPE120	\$1838.00 <sup>1</sup>
Remote Close Solenoid	SPRCS024	\$315.00 <sup>1</sup>
Shunt Trip	SPST024	\$328.00 <sup>1</sup>
Drawout Substructure	SPHDOS16	\$1403.00 <sup>1</sup>
Substructure Secondary Disconnect	SPDOSD36S	\$283.00 <sup>1</sup>
Substructure Shutter Kit	SPDSS20	\$501.00 <sup>1</sup>



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

## Frame Selection

## Section 5



### Basic Frame Selection—Stationary

Circuit Breaker Envelope Size (Amperes)	Circuit Breaker Frame Size (Amperes)	Current Sensor (Amperes)	Standard Break		Hi-Break	
			Product Number <sup>1</sup>	List Price <sup>2</sup> GO-245A	Product Number <sup>1</sup>	List Price <sup>2</sup> GO-245A
800	800	200	SSF08*202,H	\$6006.00	SHF08*202,H	\$6500.00
		400	SSF08*204,H	\$6006.00	SHF08*204,H	\$6500.00
		800	SSF08*208,H	\$6006.00	SHF08*208,H	\$6500.00
1600	1600	800	SSF16*208,H	\$7342.00	SHF16*208,H	\$8165.00
		1000	SSF16*210,H	\$7342.00	SHF16*210,H	\$8165.00
		1600	SSF16*216,H	\$7342.00	SHF16*216,H	\$8165.00
2000	2000	2000	SSF20*220,H	\$7790.00	SHF20*220,H	\$9124.00
		1000	SSF25*210,H	\$8569.00	SHF25*210,H	\$10035.00
			SSB25*210,H	\$8569.00	SHB25*210,H	\$10035.00
		2000	SSF25*220,H	\$8569.00	SHF25*220,H	\$10035.00
			SSB25*220,H	\$8569.00	SHB25*220,H	\$10035.00
		3000	2500	2000	SSF25*325,H	\$15107.00
SSB25*325,H	\$15107.00				SHB25*325,H	\$18930.00
3000	SSF30*330,H			\$19229.00	SHF30*330,H	\$24101.00
	SSB30*330,H			\$19229.00	SHB30*330,H	\$24101.00
4000	4000	4000	SSF40*440 <sup>3</sup>	\$31714.00	SHF40*440 <sup>3</sup>	\$38691.00

### Basic Frame Selection—Draw-out (without substructure)

Circuit Breaker Envelope Size (Amperes)	Circuit Breaker Frame Size (Amperes)	Current Sensor (Amperes)	Standard Break		Hi-Break	
			Product Number <sup>1</sup>	List Price <sup>2</sup> GO-245A	Product Number <sup>1</sup>	List Price <sup>2</sup> GO-245A
800	800	200	SSD08*202,H	\$7085.00	SHD08*202,H	\$7597.00
		400	SSD08*204,H	\$7085.00	SHD08*204,H	\$7597.00
		800	SSD08*208,H	\$7085.00	SHD08*208,H	\$7597.00
1600	1600	800	SSD16*208,H	\$9205.00	SHD16*208,H	\$10182.00
		1000	SSD16*210,H	\$9205.00	SHD16*210,H	\$10182.00
		1600	SSD16*216,H	\$9205.00	SHD16*216,H	\$10182.00
2000	2000	2000	SSD20*220,H	\$9604.00	SHD20*220,H	\$11118.00
		1000	SSD25*210,H	\$10563.00	SHD25*210,H	\$12229.00
			SSD25*220,H	\$10563.00	SHD25*220,H	\$12229.00
		2500	SSD25*325,H	\$18234.00	SHD25*325,H	\$22431.00
			SSD30*330,H	\$22819.00	SHD30*330,H	\$28125.00
		4000	4000	4000	SSD40*440,H	\$38007.00

<sup>1</sup>Add 'H' suffix to product number for high-range instantaneous protection. Price adder is on trip unit only. High-range instantaneous feature available only with MicroVersaTrip® Plus or MicroVersaTrip® PM.

<sup>2</sup>Prices shown include basic "Power+ LI" trip unit but do not include rating plug.

<sup>3</sup>80% rated.

\*Replace \* with B for MicroVersaTrip® Plus or PM trip unit; or D for Power+™ trip unit.





# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

## Trip Unit Selection

### How to Order

1. Determine the basic trip unit product number.
2. Determine the type of trip unit, Power+, MicroVersaTrip® Plus or MicroVersaTrip® PM trip unit.
3. Select the trip unit suffix representing the protection function to complete trip unit product number.
4. Determine list price adder to breaker frame list price on page 5-14.
5. Order rating plug separately. Pricing does not include rating plug price.
6. For replacement trip units, add suffix "R". Check Elitenet® for List Price and GO schedule.

### Example:

1600 Ampere frame, 1000 ampere sensor, Long-time (L). Short-time (S), Instantaneous (I), MicroVersaTrip® PM with metering only. Order B210LSIM (**List price adder: \$1,733.00, GO-245A**). The replacement trip unit product number would be B210LSIMR.

### Power Break® II Trip Unit Suffix Power+ Trip Unit Suffix Selection

Trip Unit Suffix <sup>1</sup>	List Price Adder, GO-245A	Trip Indicators		Long-Time (L)	Short-Time (ST)	Inst. (I)
		L/ST/I <sup>1</sup>	GF <sup>2</sup>			
Adjustable	Instantaneous					
LI	No Price Adder	—	—	•	—	•
LIT1	\$140.00	•	—	•	—	•
LIT2	\$160.00	•	•	•	—	•
LSI	\$683.00	—	—	•	•	•
LSIT1	\$823.00	•	—	•	•	•
LSIT2	\$843.00	•	•	•	•	•

<sup>1</sup>For high-range instantaneous or zone selective interlocking select MicroVersaTrip® Plus or PM trip units.

<sup>2</sup>For ground fault-protection, select appropriate rating plug.

### Basic Trip Unit Selection

Frame Size (Amperes)	Frame Rating (Amperes)	Sensor (Amperes)	Power+™ Trip Units	Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM Trip Units
800	800	200	D202	B202
		400	D204	B204
		800	D208	B208
1600-2000	1600	800	D208	B208
		1000	D210	B210
		1600	D216	B216
		2000	D220	B220
		1000	D210	B210
2500-3000	2500	2000	D220	B220
		2500	D325	B325
		3000	D330	B330
		4000	D440	B440

### MicroVersaTrip® Plus with Selectable Phase Ammeter—Trip Indicators Standard

Trip Unit Suffix <sup>3</sup>	List Price Adder, GO-245A <sup>3</sup>	Trip Indicators	Selectable Phase Ammeter	Long-Time (L)	Short-Time (ST)	Inst. (I)	High Inst. (H)	Ground Fault (G) <sup>4</sup>	GF Zone Interlock (Z1) <sup>5</sup>	GF/ST Zone Interlock (Z2) <sup>5</sup>
<b>Adjustable Instantaneous</b>										
LI	\$300.00	•	•	•		•				
LIG	\$958.00	•	•	•		•		•		
LIGZ1	\$1250.00	•	•	•		•		•	•	
LSI	\$983.00	•	•	•	•	•				
LSIG	\$1640.00	•	•	•	•	•		•		
LSIGZ1	\$1933.00	•	•	•	•	•		•	•	
LSIGZ2	\$2225.00	•	•	•	•	•		•		•
<b>Fixed High Range Instantaneous<sup>6</sup></b>										
LSH	\$1350.00	•	•	•	•		•			
LSHG	\$2008.00	•	•	•	•		•	•		
LSHGZ1	\$2300.00	•	•	•	•		•	•	•	
LSHGZ2	\$2593.00	•	•	•	•		•	•		•

<sup>3</sup>Add suffix to basic trip unit product number. Make List Price Addition for trip unit suffix.

<sup>4</sup>For single-phase 3 wire or 3-phase, 4-wire applications, order appropriate neutral current sensor and price separately, page 5-27. Defeatable Ground Fault (not UL Listed) is available. Use code GD in place of G. Add **List Price \$250.00, GO-245A**, to the price of the trip unit.

<sup>5</sup>Requires purchase of Zone Selective Interlock module(s) Type TIM1 (120 Vac control voltage). **List Price \$402.00, GO-245B**.

<sup>6</sup>Not available on 4000A stationary breaker frame.



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

## Section 5

### Trip Unit Selection

#### MicroVersaTrip® PM with Metering and Communications—Trip Indicators Standard

Trip Unit Suffix <sup>1</sup>	List Price Adder, GO-245A <sup>1</sup>	Trip Indicators	Selectable Phase Ammeter	Long-Time (L)	Short-Time (ST)	Inst. (I)	High Inst. (H)	Ground Fault (G) <sup>2</sup>	GF Zone Interlock (Z1) <sup>3</sup>	GF/ST Zone Interlock (Z2) <sup>3</sup>
<b>Adjustable Instantaneous</b>										
LIM	\$1050.00	•	•	•		•				
LIGM	\$1708.00	•	•	•		•		•		
LIGZ1M	\$2000.00	•	•	•		•		•	•	
LSIM	\$1733.00	•	•	•	•	•				
LSIGM	\$2390.00	•	•	•	•	•		•		
LSIGZ1M	\$2683.00	•	•	•	•	•		•	•	
LSIGZ2M	\$2975.00	•	•	•	•	•		•		•
<b>Fixed High Range Instantaneous<sup>4</sup></b>										
LSHM	\$2100.00	•	•	•	•		•			
LSHGM	\$2758.00	•	•	•	•		•	•		
LSHGZ1M	\$3050.00	•	•	•	•		•	•	•	
LSHGZ2M	\$3343.00	•	•	•	•		•	•		•

#### MicroVersaTrip® PM with Protective Relays and Communications—Trip Indicators Standard

Trip Unit Suffix <sup>1</sup>	List Price Adder, GO-245A <sup>1</sup>	Trip Indicators	Selectable Phase Ammeter	Long-Time (L)	Short-Time (ST)	Inst. (I)	High Inst. (H)	Ground Fault (G) <sup>2</sup>	GF Zone Interlock (Z1) <sup>3</sup>	GF/ST Zone Interlock (Z2) <sup>3</sup>
<b>Adjustable Instantaneous</b>										
LIP	\$850.00	•	•	•		•				
LIGP	\$1508.00	•	•	•		•		•		
LIGZ1P	\$1800.00	•	•	•		•		•	•	
LSIP	\$1533.00	•	•	•	•	•				
LSIGP	\$2190.00	•	•	•	•	•		•		
LSIGZ1P	\$2483.00	•	•	•	•	•		•	•	
LSIGZ2P	\$2775.00	•	•	•	•	•		•		•
<b>Fixed High Range Instantaneous<sup>4</sup></b>										
LSHP	\$1900.00	•	•	•	•		•			
LSHGP	\$2558.00	•	•	•	•		•	•		
LSHGZ1P	\$2850.00	•	•	•	•		•	•	•	
LSHGZ2P	\$3143.00	•	•	•	•		•	•		•

#### MicroVersaTrip® PM with Metering, Protective Relays and Communications—Trip Indicators Standard

Trip Unit Suffix <sup>1</sup>	List Price Adder, GO-245A <sup>1</sup>	Trip Indicators	Selectable Phase Ammeter	Long-Time (L)	Short-Time (ST)	Inst. (I)	High Inst. (H)	Ground Fault (G) <sup>2</sup>	GF Zone Interlock (Z1) <sup>3</sup>	GF/ST Zone Interlock (Z2) <sup>3</sup>
<b>Adjustable Instantaneous</b>										
LIPM	\$1600.00	•	•	•		•				
LIGPM	\$2288.00	•	•	•		•		•		
LIGZ1PM	\$2550.00	•	•	•		•		•	•	
LSIPM	\$2283.00	•	•	•	•	•				
LSIGPM	\$2940.00	•	•	•	•	•		•		
LSIGZ1PM	\$3233.00	•	•	•	•	•		•	•	
LSIGZ2PM	\$3525.00	•	•	•	•	•		•		•
<b>Fixed High Range Instantaneous<sup>4</sup></b>										
LSHPM	\$2650.00	•	•	•	•		•			
LSHGPM	\$3308.00	•	•	•	•		•	•		
LSHGZ1PM	\$3600.00	•	•	•	•		•	•	•	
LSHGZ2PM	\$3893.00	•	•	•	•		•	•		•

<sup>1</sup>Add suffix to basic trip unit product number. Make List Price Addition for trip unit suffix.

<sup>2</sup>For single-phase 3 wire or 3-phase, 4-wire applications, order appropriate neutral current sensor and price separately, page 5-27. Defeatable Ground Fault (not UL Listed) is available. Use code GD in place of G. Add List price \$250.00, GO-245A, to the price of the trip unit.

<sup>3</sup>Requires purchase of Zone Selective Interlock module(s) Type TIM1 (120 Vac control voltage). List Price \$402.00, GO-245B.

<sup>4</sup>Not available on 4000A stationary breaker frame.



# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

Enhanced MicroVersaTrip®, Rating Plug Selection

## Section 5

### Power Break® II Rating Plug Selection

Frame Size (Amperes)	Sensor Rating (Amperes)	Current Rating (Amperes)	Power+ Trip Unit Standard Rating Plugs	Power+ Trip Unit Ground Fault Rating Plugs	Enhanced MicroVersaTrip® Plus and Enhanced MicroVersaTrip® PM Trip Unit Rating Plugs	
			List Price \$89.00 GO-245A	List Price \$747.00 GO-245A	List Price \$89.00 GO-245A	
800	200	100	TR2C100	TR2C100GF	TR2B100	
		150	TR2C150	TR2C150GF	TR2B150	
		200	TR2C200	TR2C200GF	TR2B200	
		150	-	-	TR4B150	
		200	TR4C200	TR4C200GF	TR4B200	
		225	TR4C225	TR4C225GF	TR4B225	
	400	250	TR4C250	TR4C250GF	TR4B250	
		300	TR4C300	TR4C300GF	TR4B300	
		400	TR4C400	TR4C400GF	TR4B400	
		300	-	-	TR8B300	
		400	TR8C400	TR8C400GF	TR8B400	
		450	TR8C450	TR8C450GF	TR8B450	
800-1600	800	500	TR8C500	TR8C500GF	TR8B500	
		600	TR8C600	TR8C600GF	TR8B600	
		700	TR8C700	TR8C700GF	TR8B700	
		800	TR8C800	TR8C800GF	TR8B800	
		400	-	-	TR10B400	
		600	TR10C600	TR10C600GF	TR10B600	
	1000	800	TR10C800	TR10C800GF	TR10B800	
		1000	TR10C1000	TR10C1000GF	TR10B1000	
		600	-	-	TR16B600	
		800	TR16C800	TR16C800GF	TR16B800	
		1000	TR16C1000	TR16C1000GF	TR16B1000	
		1100	TR16C1100	TR16C1100GF	TR16B1100	
1600	1600	1200	TR16C1200	TR16C1200GF	TR16B1200	
		1600	TR16C1600	TR16C1600GF	TR16B1600	
		750	-	-	TR20B750	
		800	-	-	TR20B800	
		1000	TR20C1000	TR20C1000GF	TR20B1000	
		1200	TR20C1200	TR20C1200GF	TR20B1200	
	2000	2000	1500	TR20C1500	TR20C1500GF	TR20B1500
			1600	TR20C1600	TR20C1600GF	TR20B1600
			2000	TR20C2000	TR20C2000GF	TR20B2000
			400	-	-	TR10B400
			600	TR10C600	TR10C600GF	TR10B600
			800	TR10C800	TR10C800GF	TR10B800
2500		1000	1000	TR10C1000	TR10C1000GF	TR10B1000
			750	-	-	TR20B750
			800	-	-	TR20B800
			1000	TR20C1000	TR20C1000GF	TR20B1000
			1200	TR20C1200	TR20C1200GF	TR20B1200
			1500	TR20C1500	TR20C1500GF	TR20B1500
	2000	1600	TR20C1600	TR20C1600GF	TR20B1600	
		2000	TR20C2000	TR20C2000GF	TR20B2000	
		1600	TR25C1600	TR25C1600GF	TR25B1600	
		2000	TR25C2000	TR25C2000GF	TR25B2000	
		2500	TR25C2500	TR25C2500GF	TR25B2500	
		1200	-	-	TR30B1200	
3000	3000	1600	-	-	TR30B1600	
		2000	TR30C2000	TR30C2000GF	TR30B2000	
		2500	TR30C2500	TR30C2500GF	TR30B2500	
		3000	TR30C3000	TR30C3000GF	TR30B3000	
		1600	TR40C1600	TR40C1600GF	TR40B1600	
		2000	TR40C2000	TR40C2000GF	TR40B2000	
	4000	4000	2500	TR40C2500	TR40C2500GF	TR40B2500
			3000	TR40C3000	TR40C3000GF	TR40B3000
			3600	TR40C3600	TR40C3600GF	TR40B3600
			4000	TR40C4000	TR40C4000GF	TR40B4000

### Power+ Target Module

Power+ trip units are designed to accept an optional field-installable target module. The target module indicates long-time pickup, battery status, trip unit health status, and whether a breaker trip was caused by an overload, a short circuit or a ground fault. Target modules are available with or without ground fault indication.

Trip Indicator		Product Number	List Price GO-245A
L/ST/1	Ground Fault		
-	-	TARGET00	\$60.00
•	-	TARGET01	\$140.00
•	•	TARGET02	\$160.00



MicroVersaTrip® and MicroVersaTrip® PM Rating Plug



Power+ Trip Target Module



Publications and Reference: See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers Power Break® II Molded Case Switch

Stationary and Draw-out Switch Selection

## Section 5

### How to Order

1. Choose a frame from the Molded Case Switch Frame tables below
2. Select a Control Unit from the Control Unit table below. The sensor rating of the control unit should match the sensor rating of the switch. Choose a control unit with suffix T2 to get ground fault target indication.
3. Select a rating plug from the table to the right.
4. Select all other accessories just as for any Power Break® II Circuit Breaker.

### Molded Case Switch Frames—Stationary

Switch Envelope Size (Amperes)	Switch Frame Size (Amperes)	Current Sensor Rating (Amperes)	Product Number	List Price GO-245D
800	800	800	SSF08Y208	<b>\$3119.00</b>
1600	1600	1600	SSF16Y216	<b>\$4099.00</b>
2000	2000	2000	SSF20Y220	<b>\$4609.00</b>
3000	2500	2500	SSF25Y325	<b>\$7334.00</b>
		2500	SSB25Y325	<b>\$7334.00</b>
	3000	3000	SSF30Y330	<b>\$12411.00</b>
		3000	SSB30Y330	<b>\$10204.00</b>

### Molded Case Switch Frames—Draw-out<sup>1</sup>

Switch Envelope Size (Amperes)	Switch Frame Size (Amperes)	Current Sensor Rating (Amperes)	Product Number	List Price GO-245D
800	800	800	SSD08Y208	<b>\$4061.00</b>
1600	1600	1600	SSD16Y216	<b>\$5913.00</b>
2000	2000	2000	SSD20Y220	<b>\$6426.00</b>
3000	2500	2500	SSD25Y325	<b>\$10204.00</b>
	3000	3000	SSD30Y330	<b>\$15864.00</b>
	4000	4000	SSD40Y440	<b>\$25526.00</b>

<sup>1</sup>Use only with Hi-Break draw-out substructure.

### Control Units

Switch Envelope Size (Amperes)	Switch Frame Size (Amperes)	Sensor (Amperes)	Product Number	List Price Adder GO-245A
800	800	800	D208	<b>\$0.00</b>
			D208T2	<b>\$160.00</b>
1600	1600	1000	D210	<b>\$0.00</b>
			D210T2	<b>\$160.00</b>
		1600	D216	<b>\$0.00</b>
			D216T2	<b>\$160.00</b>
2000	2000	2000	D220	<b>\$0.00</b>
			D220T2	<b>\$160.00</b>
		1000	D210	<b>\$0.00</b>
			D210T2	<b>\$160.00</b>
		2000	D220	<b>\$0.00</b>
			D220T2	<b>\$160.00</b>
3000	2500	2000	D325	<b>\$0.00</b>
			D325T2	<b>\$160.00</b>
	3000	3000	D330	<b>\$0.00</b>
			D330T2	<b>\$160.00</b>
4000	4000	4000	D440	<b>\$0.00</b>
			D440T2	<b>\$160.00</b>

### Power Break® II Rating Plug Selection

Basic Control Unit	Current Rating (Amperes)	Power + Standard Rating Plug List Price \$89.00 GO-245A	Power + Ground Fault Rating Plug List Price \$747.00 GO-245A
D208	800	TR8C800	TR8C800GF
D210	1000	TR10C1000	TR10C1000GF
D216	1600	TR16C1600	TR16C1600GF
D220	2000	TR20C2000	TR20C2000GF
D325	2500	TR25C2500	TR25C2500GF
D330	3000	TR30C3000	TR30C3000GF
D440	4000	TR40C4000	TR40C4000GF

### Ordering Example

1600 ampere drawout switch; factory installed 120 Vac electric (motor) operator; 24 Vdc remote close solenoid; 24 Vdc shunt trip; drawout substructure; drawout secondary disconnect; drawout shutter.

Description	Product Number	List Price
Frame	SSD16Y216	<b>\$5913.00<sup>1</sup></b>
Control Unit	D216	<b>\$0.00<sup>2</sup></b>
Rating Plug	TR16C1600	<b>\$89.00<sup>2</sup></b>
Electric Operator	SPE120	<b>\$1838.00<sup>3</sup></b>
Remote Close Solenoid	SPRCS024	<b>\$315.00<sup>3</sup></b>
Shunt Trip	SPST024	<b>\$328.00<sup>3</sup></b>
Drawout Substructure	SPHDS16	<b>\$1403.00<sup>3</sup></b>
Substructure Secondary Disconnect	SPDOSD365	<b>\$283.00<sup>3</sup></b>
Substructure Shutter Kit	SPDSS20	<b>\$501.00<sup>3</sup></b>

<sup>1</sup>GO-245D

<sup>2</sup>GO-245A

<sup>3</sup>GO-245B



# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

### Stationary and Draw-out Breaker Accessories

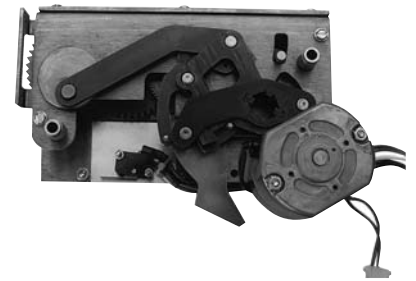
All devices UL Listed for factory or field installation except where noted.

#### Accessories—Stationary and Draw-out Breakers

The complete line of Power Break® II breaker accessories may be either factory or field installed to meet user needs. The electronic shunt trip, the bell alarm, the bell alarm with mechanical lockout, and the undervoltage release modules are drop-in from the front of the breaker, interchangeable across all frames, and require no field internal wiring or breaker disassembly. Auxiliary switch modules are available in groups of 4, 8 or 12, NO/NC single-pole, double-throw (SPDT) switches. Their installation simply involves removal of breaker cover, installation of the switch module, routing of wiring and installation of the pre-wired terminal block and re-installation of the cover. Auxiliary switches are also interchangeable across all Power Break® II breaker frames.

#### Electrical Operator

The electrical operator mounts inside the front cover of the manually operated breaker. This accessory can be added to any Power Break® II breaker in the factory or the field to provide electrical spring charging and charge indication. **For remote closing, the remote close solenoid must be priced and ordered separately.** All breakers are prewired to dedicated secondary terminals for easy field installation. When electrical operation is used, either a shunt trip or an undervoltage release must be ordered and priced separately.

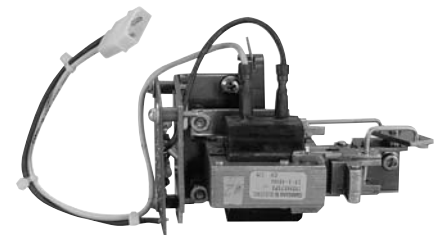


Electrical Operator

Ratings Vac	Ratings Vdc	Field Installable Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
120	-	SPE120R	\$1671.00	SPE120	\$1838.00
240	-	SPE240R	\$1869.00	SPE240	\$2056.00
-	24	SPE024R	\$1869.00	SPE024	\$2056.00
-	48	SPE048R	\$1869.00	SPE048	\$2056.00
-	72	SPE072R	\$1869.00	SPE072	\$2056.00
-	125	SPE125R	\$1869.00	SPE125	\$2056.00

#### Remote Close Solenoid

This accessory provides an electrically operated solenoid which, when energized, closes the breaker. It is suitable for control interlock schemes in which manual closing capability would not be convenient or desirable. The breaker is provided with a manual close button, which can be replaced by the Hidden "ON" Button accessory and/or sealed using the Limited Access Pushbutton Cover accessory. The remote close accessory is continuously rated and has an anti-pump feature, which prevents a motor operated breaker from repeatedly closing into a fault. Closing control voltage must be removed and re-applied for each breaker closure.



Remote Close Solenoid

Ratings Vac	Ratings Vdc	Field Installable Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
120	-	SPRCS120R	\$286.00	SPRCS120	\$315.00
240	-	SPRCS240R	\$286.00	SPRCS240	\$315.00
-	24	SPRCS024R	\$286.00	SPRCS024	\$315.00
-	48	SPRCS048R	\$286.00	SPRCS048	\$315.00
-	72	SPRCS072R	\$286.00	SPRCS072	\$315.00
-	125	SPRCS125R	\$286.00	SPRCS125	\$315.00



Publications and Reference: See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

### Stationary and Draw-out Breaker Accessories

All devices UL Listed for factory or field installation except where noted.

#### Shunt Trip

The shunt trip accessory is an electronic module, which provides remote control capability to open the circuit breaker. When activated, the shunt trip module sends a signal to the trip unit to open the breaker. This allows the trip unit to record, display, distinguish and communicate (in MicroVersaTrip® PM trip units) that the opening event was initiated by the shunt trip device. The shunt trip is continuously rated and requires no cut-off switch. When energized, the shunt trip supplies +24Vdc power to the trip unit to power the display.



Shunt Trip Module

Ratings Vac	Ratings Vdc	Field Installable Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
-	12	SPST012R	\$301.00	SPST012	\$328.00
24	24	SPST024R	\$301.00	SPST024	\$328.00
48	48	SPST048R	\$301.00	SPST048	\$328.00
120	125	SPST120R	\$301.00	SPST120	\$328.00
208	-	SPST208R	\$301.00	SPST208	\$328.00
240	250	SPST240R	\$301.00	SPST240	\$328.00
480	-	SPST480R <sup>1</sup>	\$301.00	SPST480 <sup>1</sup>	\$328.00
600	-	SPST600R <sup>1</sup>	\$301.00	SPST600 <sup>1</sup>	\$328.00

<sup>1</sup>Kit contains externally mounted transformer.

#### Shunt Trip with Lockout Module

The shunt trip with lockout is identical to the regular shunt trip, but when energized, it will also prevent closure of an "open" breaker by mechanically blocking both manual and electrical closing. When energized, the closing springs will not discharge, the movable contacts will not move; the contacts are "kiss free."

Ratings Vac	Ratings Vdc	Field Installable Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
-	12	SPSTL012R	\$401.00	SPSTL012	\$428.00
24	24	SPSTL024R	\$401.00	SPSTL024	\$428.00
48	48	SPSTL048R	\$401.00	SPSTL048	\$428.00
120	125	SPSTL120R	\$401.00	SPSTL120	\$428.00
208	-	SPSTL208R	\$401.00	SPSTL208	\$428.00
240	250	SPSTL240R	\$401.00	SPSTL240	\$428.00
480	-	SPSTL480R <sup>1</sup>	\$401.00	SPSTL480	\$428.00
600	-	SPSTL600R <sup>1</sup>	\$401.00	SPSTL600	\$428.00

<sup>1</sup>Kit contains externally mounted transformer.





# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

### Stationary and Draw-out Breaker Accessories

All devices UL Listed for factory or field installation except where noted.

#### Undervoltage Release Module

The undervoltage release is an electronic module used to open the circuit breaker when the monitored voltage drops below 35-60% of its rated value. The undervoltage release "resets" when the monitored voltage is re-established allowing the circuit breaker to re-close (the sealing voltage of the UVR is 60-85% of its rated voltage).

An undervoltage release trip operation is produced by the MicroVersaTrip® Plus unit in response to a signal from the undervoltage release module. This allows the trip unit to record, display, distinguish and communicate (in MicroVersaTrip® PM trip units) that the breaker opening event was due to undervoltage release. Operation of the undervoltage release module will prevent breaker contact closure, i.e. "kiss-free" operation. When energized, the undervoltage release supplies +24 Vdc power to the trip unit to power the display.



Undervoltage Release Module

Ratings Vac	Ratings Vdc	Field Installable Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
24	-	SPUV024ACR	\$301.00	SPUV024AC	\$328.00
48	-	SPUV048ACR	\$301.00	SPUV048AC	\$328.00
120	-	SPUV120ACR	\$301.00	SPUV120AC	\$328.00
208	-	SPUV208ACR	\$301.00	SPUV208AC	\$328.00
240	-	SPUV240ACR	\$301.00	SPUV240AC	\$328.00
480	-	SPUV480ACR <sup>1</sup>	\$301.00	SPUV480AC <sup>1</sup>	\$328.00
600	-	SPUV600ACR <sup>1</sup>	\$301.00	SPUV600AC <sup>1</sup>	\$328.00
-	12	SPUV012DCR	\$301.00	SPUV012DC	\$328.00
-	24	SPUV024DCR	\$301.00	SPUV024DC	\$328.00
-	48	SPUV048DCR	\$301.00	SPUV048DC	\$328.00
-	125	SPUV125DCR	\$301.00	SPUV125DC	\$328.00
-	250	SPUV250DCR	\$301.00	SPUV250DC	\$328.00

<sup>1</sup>Kit contains externally mounted transformer.

#### Time Delay Module for UVR

The time delay module prevents nuisance tripping due to momentary loss of voltage. The module has 120 Vac input and 125 Vdc output and must be used with the 125 Vdc UVR.

Description	Product Number	List Price GO-245B
Time Delay Module (0.1 to 1.0 second delay)	SPUVTD	\$430.00

#### Bell Alarm (Alarm Only)

The bell alarm module is used to signal breaker "tripped" status to other accessories (e.g., external alarm devices, indicating lights, relays, or logic circuits) for remote indication and interlocking functions. The bell alarm response is configurable by means of rear-mounted DIP switches on the trip unit. The bell alarm can be made to operate in response to an overcurrent (including ground fault) or protective relay trip and/or a shunt trip operation, and/or operation of the undervoltage release module. It is not actuated as a result of normal breaker "ON/OFF" operation.

This module provides a visual, mechanical pop-out target, which protrudes through the face of the circuit breaker door when it operates. The bell alarm may be reset manually by depressing the mechanical target, or automatically by closing the breaker.

The bell alarm is provided with one SPDT switch with control power duty contacts as shown in the auxiliary switch accessories.



Bell (Alarm Only)

Ratings Vac	Ratings Vdc	Field Installable Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
240	125-250	SPBAA240R	\$124.00	SPBAA240	\$135.00
600	125-250	SPBAA600R <sup>1</sup>	\$124.00	SPBAA600 <sup>1</sup>	\$135.00

<sup>1</sup>600 Vac module not UL Listed.



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers

## Power Break® II Circuit Breakers

### Stationary and Draw-out Breaker Accessories

All devices UL Listed for factory or field installation except where noted.

#### Bell Alarm With Lockout

The bell alarm with lockout module combines both the bell alarm and a manual lockout function. The bell alarm switch operates identically to the standard bell alarm module, except that the mechanical pop-out target must be manually reset before the breaker can be closed.

Operation of the bell alarm with lockout module can be independently set by means of setting the DIP switches at the rear of the trip unit. Current rating of the single SPDT switch is identical to the auxiliary switch accessories.

Ratings Vac	Ratings Vdc	Field Installable Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
240	125-250	SPBAL240R	\$124.00	SPBAL240	\$135.00
600	125-250	SPBAL600R <sup>1</sup>	\$124.00	SPBAL600 <sup>1</sup>	\$135.00

<sup>1</sup>600 Vac module not UL Listed.



Bell Alarm with Mechanical Reset Lockout

#### Auxiliary Switch

An auxiliary switch signals the circuit breaker's primary contact position (i.e., OPEN or CLOSED) to other devices, such as indicating lights, relays or logic circuits. This enables the user to provide remote indication, interlocking or control operations as a function of breaker primary contact position. The auxiliary switch operation is independent of the method by which the breaker is opened or closed. The auxiliary switch does not distinguish between a "tripped" or "open" condition. The auxiliary switch contacts follow the main breaker contacts on opening and precede them on closing.

Auxiliary switch modules are available with 4, 8 or 12 NO/NC (SPDT) switches for control power duty ac/dc ratings. When ordered for field installation, an auxiliary switch module comes pre-wired to its own terminal board, which mounts with one screw to the left of the breaker. A special accessory, available for draw out breakers, comes pre-wired to the breaker secondary disconnect. All switch ratings are 6A at 120V-600 Vac, 1/2A at 125 Vdc and 1/4A at 250 Vdc.



Auxiliary Switch with Pre-wired Secondary Terminals for Stationary Breaker

#### Auxiliary Switches for Stationary Breakers

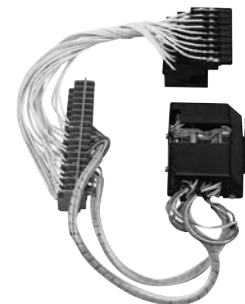
Ratings Vac	Ratings Vdc	No. of SPDT Switch Elements (Contacts)	Field Installable Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
240	125-250	4	SPAS240AB4R	\$268.00	SPAS240AB4	\$293.00
240	125-250	8	SPAS240AB8R	\$564.00	SPAS240AB8	\$616.00
240	125-250	12	SPAS240AB12R	\$651.00	SPAS240AB12	\$710.00
600	125-250	4	SPAS600AB4R <sup>1</sup>	\$268.00	SPAS600AB4 <sup>1</sup>	\$293.00
600	125-250	8	SPAS600AB8R <sup>1</sup>	\$564.00	SPAS600AB8 <sup>1</sup>	\$616.00

<sup>1</sup>600 Vac module not UL Listed.

#### Auxiliary Switches for Draw-out Breakers

Ratings Vac	Ratings Vdc	No. of SPDT Switch Elements (Contacts)	Field Installable Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
240	125-250	4	SPAS240AB4DR	\$551.00	SPAS240AB4D	\$576.00
240	125-250	8	SPAS240AB8DR	\$847.00	SPAS240AB8D	\$899.00
240	125-250	12	SPAS240AB12DR	\$934.00	SPAS240AB12D	\$993.00
600	125-250	4	SPAS600AB4DR <sup>1</sup>	\$551.00	SPAS600AB4D <sup>1</sup>	\$576.00
600	125-250	8	SPAS600AB8DR <sup>1</sup>	\$847.00	SPAS600AB8D <sup>1</sup>	\$899.00

<sup>1</sup>600 Vac module not UL Listed.



Auxiliary Switch with Pre-wired Secondary Terminals for Draw-out Breaker



# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

### Stationary and Draw-out Breaker Accessories

All devices UL Listed for factory or field installation except where noted.

#### Mechanical Operations Counter

The mechanical operations counter is mounted behind the front cover of the breaker. It is viewable through a rectangular knockout window opening in the breaker cover. It is a five-digit, non-resettable counter, which is actuated each time the breaker is opened by any means.

Field Installed Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
SPCOUNTERR	\$100.00	SPCOUNTER	\$125.00



Mechanical Operations Counter

#### Limited Access Pushbutton Cover

This accessory limits access to "ON/OFF" control of a breaker to authorized personnel. The pushbutton cover accessory consists of transparent hinged covers that can be individually sealed to the limited access assembly. Both the "ON" and "OFF" buttons can be pilot drilled to allow use of a 1/8" rod to operate either one or both pushbuttons.

Field Installed Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
SPPBCOVERR	\$80.00	SPPBCOVER	\$90.00



Breaker with limited access pushbutton cover assembly installed

#### Hidden "ON" Button

The hidden "ON" button is assembled to the mechanism behind an unlabeled, false pushbutton. Manual closing of the breaker can only be performed by means of a small diameter rod. This accessory is used to limit access to the manual "ON" control to authorized personnel.

Field Installed Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
SPPBNONR	\$64.00	SPPBNON	\$64.00



Activating the breaker closing mechanism through the hole in the Hidden "ON" Button

#### Maintenance/Repair Parts

Description	Product Number	List Price	GO Schedule
Top Cover and Rating Labels	SPBII-REPLACE_COVER <sup>1</sup>	\$600.00	148C
Replacement MVT Door	10054335P1	\$20.00	148G
Replacement Powerplus Door	10054335P2	\$16.00	148G
Stop Block Kit w/Installation Tool	SPBUMPERKIT	\$175.00	148C
Stop Block Kit (no tools)	SPBUMPNTKIT	\$90.00	148C

<sup>1</sup>Special handling and order entry required to preserve UL Listing of breaker. Contact Post Sale Service for additional details of special process.



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

### Stationary and Draw-out Breaker Accessories

All devices UL Listed for factory or field installation except where noted.

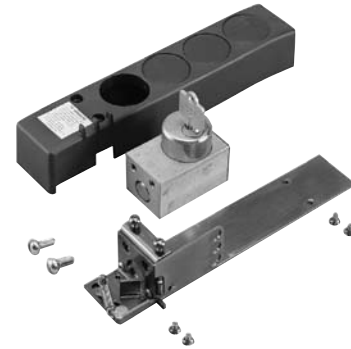
#### Key Interlock Provisions

The key interlock provision enables the user to mount a one- to four-cylinder, narrow-faced, Kirk-type FN or Superior customer-supplied lock on the face of the breaker. This accessory provides mounting for key interlocks that are furnished by the customer. The key interlock provision works in conjunction with the padlock provision. The key interlock extends a lever through the padlock hasp when the key is turned to the key removal or bolt extended position. Additionally, the accessory provides a hasp for mounting three padlocks with 1/4" to 3/8" diameter shanks.

#### Key Interlock Reference Table

Product Number	Number of Locks	Kirk Key Lock Product Number	Superior Product Number
SPK4	1	KFN00001 <sup>1</sup>	S105827Y
SPK4	2	KFN00002 <sup>1</sup>	S105828Y
SPK4	3	KFN00003 <sup>1</sup>	S105829Y
SPK4	4	KFN00004 <sup>1</sup>	S105827-4Y

<sup>1</sup>Final digit may be 0, 1, 2 or 3 depending on number of key removal positions.



Key Interlock Kit (lock not included)

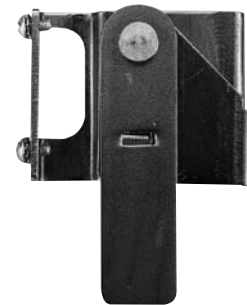
#### Product Numbers, Key Interlock Provisions

Circuit Breaker Envelope Size (Amps)	Number of Key Locks	Field Installed Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
All	1 to 4	SPK4R	\$355.00	SPK4	\$426.00

#### Door Interlock

The door interlock provides interlocking of the circuit breaker compartment's hinged door so that the breaker must be in the "OFF" position before the door can be opened. The door interlock is defeatable with a small tool to allow authorized access.

Field Installed Product Number	List Price GO-245B	Factory Installed Product Number	List Price GO-245B
SPDILR	\$173.00	SPDIL	\$208.00



Door Interlock

#### Padlock Provisions (Standard)

Padlocking provisions are standard on all Power Break® II circuit breakers. When the breaker is in the open position, and the padlock hasp is raised at least 1/4", the breaker cannot be closed mechanically or electrically. The hasp accepts up to three padlocks with 1/4" to 3/8" diameter shanks.

#### Walking Beam Interlocks—Stationary Breakers Only

Walking beam interlocks are mechanical devices used to prevent two adjacent circuit breakers from both being in the "ON" or closed position at the same time. However, both breakers can be in the "OFF" or open position.

Circuit Breaker Envelope Size (Amperes)	Product Number	List Price GO-245B
800, 1600 and 2000	SPWB20	\$1228.00
3000	SPWB30	\$1228.00
4000	SPWB40	\$1228.00



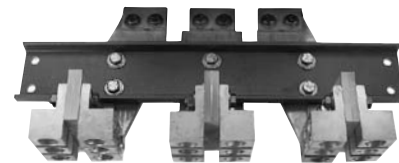
# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

### Stationary Breaker Mounting Kits

All devices UL Listed for factory or field installation except where noted.

#### Lug Adapter Kits

Kits pre-mount to bus structure allowing cabling or bussing to be completed prior to breaker mounting. Accepts either lugs or crimp-type connector terminals. Kit includes adapter and hardware for either a three-pole line-side, or a three-pole load-side connection. (Lugs not included).



2000 Ampere Power Break® II breaker with SPLUGA20 lug adapter kit and 18 lugs (TPLUG108)

Frame Rating (Amperes)	Product Number	Suitable for use with up to:	List Price GO-245B
800	TPLUGA08	3 TPLUG108 Lugs or 3 crimp Lugs <sup>1</sup> per pole	\$78.50
1600	TPLUGA16 <sup>2</sup>	6 TPLUG108 lugs or 6 crimp Lugs <sup>1</sup> per pole	\$389.00
2000	SPLUGA20 <sup>3</sup>	6 TPLUG108 Lugs or 6 crimp Lugs <sup>1</sup> per pole	\$487.00

<sup>1</sup>Anderson No. VCEL-075-12H1 or equivalent

<sup>2</sup>T-Studs - TP16FCA - included with adapter

<sup>3</sup>T-Studs - SP20FCA - included with adapter



Type TPLUG206

#### Lug Kits

Kits accept Cu/Al wire and are suitable for direct mounting to the breaker. When ordering Type TPLUG kits, order one kit per line or load pole. Example: A complete set of lugs for the line side of an 800A frame, 400A trip breaker would be Qty 3-TPLUG106 lugs.

When ordering TSLUG kits order one kit per line or load side; TSLUG kits require use of T-studs. Example: A complete set of lugs for a 3000A frame, 2500A trip breaker would be Qty 1-TSLUG25. T-Studs would also be required.



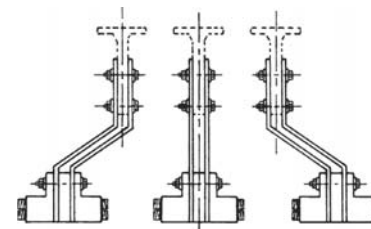
Type TPLUG408

Circuit Breaker Envelope Size (Amperes)	Max Rating (Amperes)	Product Number	Lug Per Kit	Max. Cables Per Pole	Wire Range kcmil Cu/Al	List Price GO-245B
800	400	TPLUG106	1	1	(2) #2 2-600	\$18.50
	600	TPLUG206	1	2	(2) #2 2-600	\$27.50
	800	TPLUG308	1	3	(3) 300-750	\$32.00
1600	800	TPLUG108 <sup>4</sup>	1	3	3/0-800	\$23.00
	800	TPLUG108 <sup>4</sup>	1	6	3/0-800	\$23.00
	1600	TPLUG408	1	4	500-800	\$39.00
2000	2000	TPLUG108 <sup>4</sup>	1	6	3/0-800	\$23.00
	800	TSLUG08	9	3	3/0-800	\$274.00
	1200	TSLUG12	12	4	3/0-800	\$296.00
3000	1600	TSLUG16	15	5	3/0-800	\$345.00
	2000	TSLUG20	18	6	3/0-800	\$383.00
	2500	TSLUG25	21	7	3/0-800	\$418.00
4000	3000	TSLUG30	27	9	3/0-800	\$630.00
	4000	TSLUG40	27	9	3/0-800	\$1045.00



Type TPLUG308

<sup>4</sup>For use with adapter kit only. See table above.



Type TSLUG20



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

Stationary Breaker Mounting Kits, Wall Mounted Enclosures, Floor Mounted Enclosures  
All devices UL Listed for factory or field installation except where noted.

### T-Studs

T-studs mount directly to the breaker, and can be rotated for either vertical or horizontal bus connection. 4000 ampere T-studs are for vertical bus bars only. Product number includes one stud. Both copper and aluminum T-studs are tin-plated.

### T-Studs—Front Connected Breaker

Circuit Breaker Frame Size (Amperes)	Max. Rating (Amperes)	Product Number	List Price GO-245B
800	800	SP08FCA <sup>1</sup>	\$36.00
800	800	SP08FCC <sup>2</sup>	\$36.00
2000	800-2000	SP20FCA <sup>1</sup>	\$49.00
2000	800-2000	SP20FCC <sup>2</sup>	\$49.00
2500	2000	SPS20FCA <sup>1</sup>	\$48.75
2500	2500	SPS25FCC <sup>2</sup>	\$51.50
3000	3000	SPS30FCC <sup>2</sup>	\$181.50
4000	4000	SPS40FCC <sup>2</sup>	\$240.50
4000	4000	SPS40LFCC <sup>2,3</sup>	\$395.00

### T-Studs—Back Connected Breaker

Circuit Breaker Frame Size (Amperes)	Max. Rating (Amperes)	Product Number	List Price GO-245B
2500	2000	SPS20BCA <sup>1,4</sup>	\$48.75
2500	2500	SPS25BCC <sup>2,4</sup>	\$51.50
3000	3000	<sup>2,5</sup>	\$181.50

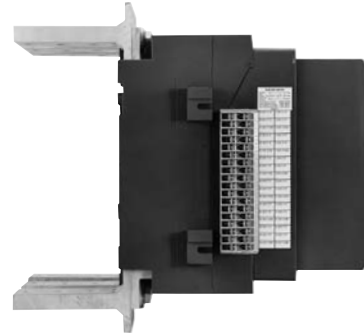
<sup>1</sup>Aluminum

<sup>2</sup>Copper

<sup>3</sup>Extra long stud. Alternate with SPS40FCC for ease of installation.

<sup>4</sup>Six T-studs at no charge when ordered with breaker

<sup>5</sup>Supplied with integral T-stud



2000A Breaker with "T" Studs Mounted

### Trimplate

Factory Installed Product Number	Field Installable Product Number	List Price GO-245B
SPTRIMPLATE	SPTRIMPLATER	\$64.00





# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

Neutral Current Sensors and POWER LEADER Accessories

### Neutral Current Sensors<sup>1</sup>

Breaker Frame (Amperes)	Circuit Breaker Sensor Rating (Amperes)	Neutral Sensor Rating or Tap Settings (Amperes)	Product Number	List Price GO-245B
800	200	200	TSVG302	\$266.00
	400	400/200	TSVG304A	\$266.00
	400	600/300 <sup>2</sup>	TSVG306A	\$266.00
800-1600	800	800/400	TSVG308A	\$266.00
	1000	800/400 <sup>2</sup>	TSVG808A	\$266.00
1600	1000	1000/500	TSVG810A	\$266.00
	1600	1200/600 <sup>2</sup>	TSVG812A	\$266.00
	1600	1600/1000	TSVG816A	\$266.00
2000	2000	2000/1000	TSVG820A	\$266.00
	1000	800/400 <sup>2</sup>	TSVG808A	\$266.00
	1000	1000/500	TSVG810A	\$266.00
3000	1000	1200/600 <sup>2</sup>	TSVG812A	\$266.00
	1000	1600/1000 <sup>2</sup>	TSVG816A	\$266.00
	2000	2000/1200	TSVG820A	\$266.00
4000	2500	2500/1800	TSVG825A	\$266.00
	3000	3000/2400	TSVG830A	\$266.00
	4000	4000/3000	TSVG940A	\$266.00

<sup>1</sup>Match neutral current sensor rating (or tap setting) to circuit breaker sensor rating.

<sup>2</sup>For use with multiple source ground fault protection schemes. Rating does not match MicroVersaTrip® Plus or PM frame sensor.

### MicroVersaTrip® Portable Test Kit

The test kit product number TVRMS2 is a portable, battery-powered, test kit which provides for trip unit health checks and functional trip and no-trip tests. It also provides defeat of the ground-fault function and can be used in conjunction with high-current test equipment. The test kit can be used to provide +24V power to the trip unit for cold set-up and viewing of trip targets. This test kit is for use with RMS-9, Epic, MicroVersaTrip® Plus and MicroVersaTrip® PM trip units. The kit uses six rechargeable ni-cad or standard alkaline "D" cells supplied by the customer. Kit can also be powered by 120 Vac source.

Description	Product Number	List Price GO-245B
Portable Test Kit	TVRMS2	\$3000.00

### MicroVersaTrip® Portable Power Pack

The handheld MicroVersaTrip® portable battery pack provides an independent power source for Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM trip units as an alternative to the TVRMS2 test set. The power pack is used to power up the trip unit to set or adjust trip set points when the breaker is on the bench or otherwise not powered up. It connects to the trip unit through the rating plug test jack. It requires three (3) standard 9 Vdc alkaline batteries (not included).

Description	Product Number	List Price GO-245B
MicroVersaTrip® Plus and PM Portable Power Pack	TVPBP	\$75.00



Neutral Current Sensor

### POWER LEADER® Power Supplies

Power supply for furnishing 24Vdc control power for MicroVersaTrip® Plus and PM trip units.

Description	System Requirements (price separately)	Product Number	List Price GO-104A
1.5 ampere power supply Price one PLPS4G01 for each line-up, 45 trip units and 100 ft. maximum.	Input power, 100VA (85-265Vac or 100-370Vdc)	PLPS4G01	\$1250.00

### Reference

Instructions	GEH-6492
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### POWER LEADER® Voltage Conditioner

Conditions and scales 120Vac to 1.76 Vac for use by the trip unit for voltage sensing. Provides transient protection. Voltage conditioners require isolation PTs.

Description	System Requirements (price separately)	Product Number	List Price GO-104A
Supplies isolated bus voltage signal to MicroVersaTrip® PM trip units.	One set of 3 voltage conditioners required for each voltage sensing location. PTs also required.	PLVC1G01	\$200.00 per set

### Reference

Instructions	GEH-5946
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### Rating Plug Removal Tool

Product Number	List Price GO-135S
TRTOOL	\$12.00



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

## Draw-out Breaker Accessories

## Section 5

### Features

- Draw-outs through 4000 amperes are UL Listed, 100% rated
- Modular design for simplified installation—6 basic sizes—800, 1600, 2000, 2500, 3000, 4000—5 inch pole centers
- Screw racking mechanism provides positive racking motion
- Self aligning primary and secondary disconnects
- Four position draw-out—engaged, test, disengaged, fully withdrawn—simplifies system testing and inspection
- Breaker position indicator clearly shows breaker position
- Provisions for padlocking breaker in test or disengaged position
- Mechanical interlock logic prevents movement of a closed breaker
- Suitable for reverse feeding

### Description

The draw-out assembly consists of a substructure housing unit designed as a compact self-supporting unit and a draw-out breaker which must be ordered separately. The substructure contains mounting holes, self-supporting male plugs and extendable rails, and can be ordered separately for installation in your switchboard or enclosure.

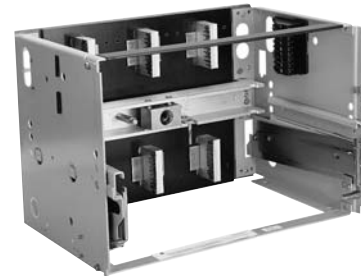
The Power Break® II draw-out breaker is a self-contained, heavy-duty assembly designed to offer simplified breaker inspection without de-energizing the main bus structure.

The draw-out breaker comes complete with racking mechanism drive, wheels, primary and secondary disconnects and cooperating interlock systems.

Accessories such as dead-front shutters, by-pass switches (position switches), and padlock devices are available and field installable.



Draw-out Breaker in Substructure



1600-ampere substructure for standard break breaker

### OEM Substructures

Substructures are available for both standard and Hi-Break Power Break® II breakers. Holes are provided for bolting on a shelf or supports. Holes are also provided in the primary stabs for bolting to busbars or terminal lugs. Substructure secondary disconnects are ordered and priced separately. Order Hi-Break substructures for use with Power Break® II switches.

Frame Rating (Amperes)	Standard Break Product Number	List Price GO-245B	Hi-Break Product Number	List Price GO-245B
800	SPSDOS08	\$671.00	SPHDOS08	\$724.00
1600	SPSDOS16	\$1300.00	SPHDOS16	\$1403.00
2000	SPSDOS20	\$1892.00	SPHDOS20	\$2040.00
2500	SPSDOS25	\$2048.00	SPHDOS25	\$2207.00
3000	SPSDOS30	\$2739.00	SPHDOS30	\$2951.00
4000	SPSDOS40	\$6916.00	SPHDOS40	\$7455.00

### Secondary Disconnect for Draw-out Breakers

Control wiring is connected through draw-out secondary disconnects in the "TEST" and "CONNECTED" positions only. Up to 72 control circuits are possible through 36 position plug-style secondary disconnect blocks factory mounted to each side of draw-out breakers. One substructure disconnect (SPDOSD36S) must be ordered for each breaker when accessories or communications are used. When auxiliary switches are used along with any other electrical accessory or communications, two disconnects must be ordered.

Location	Product Number	List Price GO-245B
Substructure	SPDOSD36S	\$283.00
Breaker <sup>1</sup>	SPDOSD36B	\$283.00

<sup>1</sup>Order for replacement only. Included and factory wired with draw-out breaker.



# Insulated Case Circuit Breakers Power Break® II Circuit Breakers

### Draw-out Breakers and Accessories

All devices UL Listed for factory or field installation except where noted.

#### Shutter Kit

This field installable kit provides shutters used to prevent unintentional contact with potentially live primary disconnect stabs when a breaker is racked out of an energized switchboard compartment.

Frame Rating	Product Number	List Price GO-245B
800-2000A	SPDSS20	\$501.00
3000A	SPDSS30	\$501.00
4000A	SPDSS40	\$501.00

#### By-Pass Switch

Provides positive indication that the draw-out breaker or switch primary contact fingers are fully connected to the main bus in the substructure. Switch contacts change states only after the primary fingers are fully connected when the breaker is being moved from the DISCONNECTED position through the TEST position and into the CONNECTED position.

May be used to provide control circuit continuity or downstream signaling that the draw-out breaker is connected in addition to the visual position indicator on the draw-out substructure. The By-pass switch accessory does not indicate either the TEST or DISCONNECTED position. The switch assembly mounts on the stationary frame and the actuator mounts to the carriage. Switch contacts are rated at 10A at 600 Vac, 0.75A at 125 Vdc, and 0.25A at 250 Vdc.

Number of Switch Elements	Product Number	List Price GO-245B
2 NO/2 NC	TDOBP2L	\$177.00
4 NO/4 NC	TDOBP4L	\$256.00
6 NO/6 NC	TDOBP6L	\$336.00

#### Racking Padlock Provision

The racking padlock provides a means for the user to prevent racking tool engagement, thereby preventing movement of the breaker between the DISCONNECTED, TEST and CONNECTED positions.

Frame Rating	Product Number	List Price GO-245B
All	TDOPC	\$46.00

#### Lifting Bar

The lifting bar provides a means of safely lifting a draw-out circuit breaker. A chain hook can be attached to the central hole in the lifting bar or a 1" diameter black iron pipe can be put through the two holes above the hooks, allowing two people to carry the breaker below waist level from either side of the breaker.

**One lifting bar is supplied with every five draw-out breakers at no charge.**

Frame Rating	Product Number	List Price GO-245B
All	TDOLB	\$104.00

#### Racking Tool

The racking tool is a drive wrench with a square 1/2" socket that engages the racking mechanism of the draw-out breaker. One racking tool is supplied with every five draw-out breakers at no charge.

Frame Rating	Product Number	List Price GO-245B
All	TDORT	\$70.00

#### Mechanical Interlocks

Mechanical interlocks provide the same function as the walking beam accessory for stationary breakers, except they are used with two draw-out breakers: mounted on common compartment centerline, in either the same vertical section or adjacent vertical sections.

Envelope Size	Product Number	List Price GO-245B
800-2000	SPDOWB20	\$1310.00
2500-4000	SPDOWB40	\$1310.00

#### Rail Kit

This field installable rail kit may be used to shorten the two standard OEM substructure rails by 3-1/2 inches.

Product Number	List Price GO-245B
SPRAILS	\$310.00

#### Position Switch

Provides positive indication when the draw-out breaker or switch primary contact fingers have been fully withdrawn from the main bus connections. Switch contacts change state only after the primary fingers are fully disconnected when the breaker is being moved from the CONNECTED position through the TEST position and into the DISCONNECTED position.

May be used as part of a safety interlocking system in addition to the visual indicator on the draw-out substructure. The Position Switch accessory does not indicate either the TEST or CONNECTED position. The switch assembly mounts on the stationary frame and the actuator mounts to the carriage. Switch contacts are rated at 10A at 600 Vac, 0.75A at 125 Vdc, and 0.25A at 250 Vdc.

Number of Switch Elements	Product Number	List Price GO-245B
2 NO/2 NC	SDOPS2L	\$177.00
4 NO/4 NC	SDOPS4L	\$256.00
6 NO/6 NC	SDOPS6L	\$336.00



**Publications and Reference:** See Section 22 for a complete list of additional product-related publications

