Section Updated 04 / 2012

## 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**



## EntelliGuard® G Circuit Breakers

EntelliGuard® G circuit breakers are the newest line of GE low-voltage circuit breakers, the next step in the evolution of a line known for exceptional reliability. The breaker's new advanced features provide ultimate system performance without sacrificing safety or dependability. EntelliGuard® G are available in UL 489, UL 1066 (ANSI), and IEC ratings.

See Section 6 for complete information about EntelliGuard® G Circuit Breakers.

## UL/CSA File Numbers

Power Break® Breakers.....E11592/LR10263
MicroVersaTrip® Plus and MicroVersaTrip® PM, EntelliGuard® TU Trip Unit and Power+ Trip Units.....E11592/LR10263
MicroVersaTrip®, EntelliGuard® TU 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
EntelliGuard® TU Digital Test Kit.....DEH-4568A
EntelliGuard® TU Conversion/Upgrade Kits.....DET-722C
EntelliGuard® TU Conversion Kits.....DEH-3456
EntelliGuard® TU Conversion Kits.....DEH-3456
Drawout Position Switch.....DEH-40528
Stop Block Kit.....DEH-40466

## Power Break® II Circuit Breakers Trip Units

Power+ Trip Unit.....DEH-049
Installation Operation and Maintenance Manual for the UL Version of the EntelliGuard® TU Trip Unit.....DEH-4567

## Power Break® II Circuit Breakers

MicroVersaTrip® Plus and MicroVersaTrip® PM Rating Plugs.....GEH-5933
EntelliGuard® TU Rating Plugs.....DEH-41318
Enclosures 800-2000A.....GEH-6503

## Power Break® II Insulated Case Switches

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

## 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).

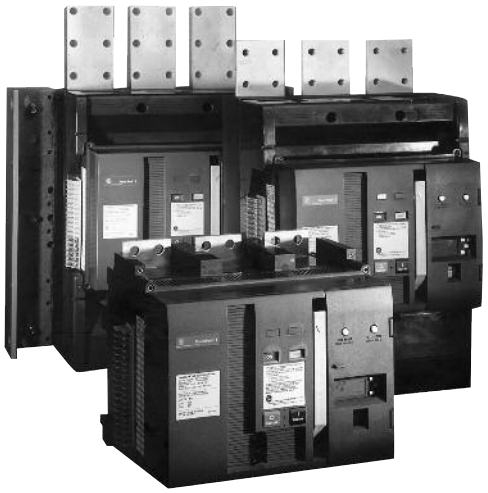
## Greater Convenience and Operational Safety

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.

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) | EntelliGuard® TU | Trip Types | | Molded Case Switch | Max IC @ 480V (kA) | Max Voltage Rating (ac) | Max Frame (Amperes) |
|---|---|---|---|---|---|---|---|---|
| | | | Power+ | MicroVersaTrip® Plus/PM | | | | |
| Power Break® II | | | | | | | | |
| Standard | 800 | X | X | X | | 65 | 600 | 800 |
| | 1600 | X | X | X | | 65 | 600 | 2000 |
| | 2000 | X | X | X | | 65 | 600 | 2000 |
| | 3000 | X | X | X | | 100 | 600 | 3000 |
| | 4000 | X | X | X | | 100 | 600 | 4000 |
| Hi-Break | 800 | X | X | X | | 100 | 600 | 800 |
| | 1600 | X | X | X | | 100 | 600 | 2000 |
| | 2000 | X | X | X | | 100 | 600 | 2000 |
| | 3000 | X | X | X | | 150 | 600 | 3000 |
| | 4000 | X | X | X | | 150 | 600 | 4000 |
| Molded Case Switch | 800 | | | | X | 30[1] | 600 | 800 |
| | 1600 | | | | X | 40[1] | 600 | 2000 |
| | 2000 | | | | X | 40[1] | 600 | 2000 |
| | 2500 | | | | X | 42[1] | 600 | 2500 |
| | 3000 | | | | X | 42[1] | 600 | 3000 |
| | 4000 | | | | X | 42[1] | 600 | 4000 |

[1]Molded case switch ratings are short time @ 600Vac, not interrupting current. See page 5-21 for withstand ratings.

## EntelliGuard® TU Trip Units

New capabilities in the EntelliGuard® TU Trip Unit provide ultimate system reliability and selectivity without sacrificing circuit protection. This superior addition enhances the Power Break® II breaker with a Waveform Recognition Instantaneous Algorithm that eliminates costly downtime due to nuisance tripping. It enables harmonic analysis four cycles prior and after an event, and discerns whether a downstream breaker/fuse is clearing the fault. The unit also includes Zone Selective Interlocking Instantaneous-out (can be used as a feeder and downstream device with a power circuit breaker upstream) which delivers simultaneous and independent ZSI of Short Time, Ground Fault and Instantaneous protection, providing the ability to overlap the Instantaneous on the Main and Feeder breakers. Together, these innovative abilities achieve HRC2 with currents as high as 100kA with simultaneous flash protection and selectivity.

The EntelliGuard® TU Trip Unit offers optimum circuit safety and arc flash protection with the Reduced Energy Let-Through function, providing a faster instantaneous trip that may be used if faster and more sensitive protection is required temporarily. It is commonly referred to as an "Arc Flash Switch" or "Maintenance Switch".

The new and improved trip unit design delivers selectivity tools not previously available in GE circuit breakers:


## Exclusive EntelliGuard® TU Trip Unit Features

### Designed for Flexibility

—A wide range of continuous adjustment Long Time delays ensure the circuit breaker can be exactly adjusted in to your selectivity and protection needs.
—Multiple Short Time diagonal bands tune your protection to exactly where it needs to be.
—Flexible time current settings and curves -Standard Long Time characteristics exactly mimic the curve of a thermal magnetic circuit breaker.
—Flexible Time Current Curves: 44 Long Time Shapes $I^2T$ and $I^4T$ (fuse), 3 Short Time $I^2T$ slopes, Short Time adjustable in 55 ms increments, a Selective Ground Fault curve

### Instantaneous Protection

—Instantaneous pick-up is adjustable up to 15 times the plug rating on frames 800-2000A, 13 times on 3000A frames and up to 9 times on 4000A frames.
—A separately adjustable fast instantaneous trip- useful for when the circuit must provide the best possible protection and arc flash performance while sustaining normal load.
—An override instantaneous - provides fast tripping for the largest bolted fault currents to minimize potential damage.
—Up to 17 Short Time bands allow you to set your circuit breaker to sustain load requirements without slowing protection.
—Ground Fault Alarm via I/O or Modbus Communications
—Ground fault protection with faster time bands, multiple slopes and the ability to coordinate a 1200A ground fault with an 800A circuit breaker – a ratio four times better than in previous generation trip units

### Maintenance and Diagnostics

—Universal trip plug fits any trip unit.
—Flexible serial communication via Modbus RTU
—Integrates directly into GE's EnerVista® Power Management System.
—Large backlit LCD with detailed, easy-to-see descriptions.
—Health status via breaker LED indicating normal operation, errors, pickup, and trips while providing non-volatile memory with a continuous self-testing microprocessor
—Lithium battery to eliminate need for external power for set-up and review
—10 event Log with Date/Time Stamp: Stores the last 10 events. Date/Time with 24Vdc Power.
—Thermal Memory
—WaveForm Capture: 40 Samples/Cycle, 4 cycles prior and 4 cycles post event in COMTrade format.
—Free set-up software

### 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.

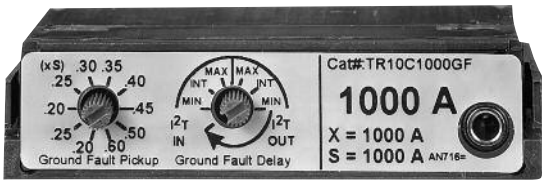
Power+ trip units provide a complete range of standard and optional overcurrent and ground-fault protective functions.


### 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 $I^2t$ ON/OFF selection.
—Adjustable Ground Fault (G) Pickup, 0.2 - 0.6S, and delay[1] (3 bands) with $I^2t$ ON/OFF selection and trip indicator.
—Upgradeable Ground Fault function with use of appropriate ground fault rating plug.

[1]Limited by breaker frame size above 2000A.

### 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:

**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.**

### 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.

### 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


NOTE: MICROVERSATRIP® TRIP UNITS IN LEGACY STATUS WILL BE OBSOLETE WHEN INVENTORY IS DEPLETED. REMANUFACTURED MVT TRIP UNITS ARE AVAILABLE. SEE PAGE 6-57 FOR DETAILS.

### EntelliGuard® TU Trip Unit Characteristics

| Envelope Size | Frame Max. Ampere Rating | Sensor Rating (Amperes) (S) | Long Time: Current Setting (C ) (Pick-Up) Multiple of Rating Plug Amperes (X) | Long Time: Delay[2] (Seconds) Thermal Type (C-Bands) | Long Time: Delay[2] (Seconds) Fuse Type (F-Bands) | Short Time: Pick-up (Multiple of Current Settings (C) | Short Time: Delay (Seconds) |
|---|---|---|---|---|---|---|---|
| 800 | 800 | 200, 400, 800 | 0.5 thru 1.0 in Increments of 0.05 | 0.20 | 0.025 | 1.5 thru 9.0 in Increments of 0.5 | $I^2T$ in[1] Minimum - .046 Intermediate- .186 Maximum - .418 |
| | | | | 0.60 | 0.025 | | |
| | | | | 1.21 | 0.025 | | |
| 1600 | 1600 | 800, 1000, 1600 | | 1.61 | 0.032 | | |
| | | | | 2.41 | 0.044 | | |
| | | | | 3.21 | 0.059 | | |
| | | | | 4.02 | 0.078 | | |
| 2000 | 2000 | 2000 | | 4.82 | 0.100 | | |
| | | | | 5.62 | 0.130 | | |
| | | | | 6.43 | 0.170 | | |
| | 2500 | 1000, 2000, 2500 | | 7.23 | 0.220 | | $I^2T$ out[2] .025, .033, .042, .058, .092, .117, .158, .183, .217, .350, .417 |
| | | | | 8.04 | 0.270 | | |
| 3000 | | | | 9.64 | 0.350 | | |
| | | | | 11.20 | 0.440 | | |
| | 3000 | 3000 | | 12.90 | 0.550 | | |
| | | | | 14.50 | 0.690 | | |
| | | | | 16.10 | 0.870 | | |
| 4000 | 4000 | 4000 | | 17.70 | 1.100 | | |
| | | | | 19.30 | | | |

### 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) | RELT without ST | RELT with ST | Ground Fault: Pick-Up (Multiple of Sensor Ampere Rating) | Ground Fault: Delay with $I^2T$ in Seconds | Ground Fault: Slope Bands | Ground Fault: Fixed Delay |
|---|---|---|---|---|---|---|---|---|
| 800 | 2.0 thru 10.0 in 0.5 increments | 2.0 thru 15.0 in 0.5 increments | 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 | .44 at 200% of pick-up at lower level of band | $I^2t$ - .385 $I^4T$ - .179 SGF - .553 | 0.058 0.092 0.117 0.158 0.183 0.217 0.350 0.417 0.517 0.617 0.717 0.817 0.917 |
| 1600 | 2.0 thru 10.0 in 0.5 increments | 2.0 thru 15.0 in 0.5 increments | 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 | | | |
| 2000 | 2.0 thru 10.0 in 0.5 increments | 2.0 thru 15.0 in 0.5 increments | 1.5 thru 10.0 in 0.5 increments | 1.5 thru 13.0 in 0.5 increments | 0.20 thru 0.60 in increments of 0.01 | | | |
| 3000 | 2.0 thru 10.0 in 0.5 increments | 2.0 thru 13.0 in 0.5 increments | 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 | | | |
| 4000 | 2.0 thru 9.0 in 0.5 increments | 2.0 thru 9.0 in 0.5 increments | 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 | | | |

### Additional Features and Characteristics of the EntelliGuard® TU Trip Unit

| Function | Description | Trip Unit Character 9: 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | X | A[3] | B[3] | C[3] | D[3] | E[3] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metering** | | | | | | | | | | | | | | | | |
| Communications | Modbus Communications Bus Link | | • | | | | • | | • | | | • | | | • | • |
| Amperes (A, kA)[2] | Selectable Phase Current ± 2.5% | • | • | | • | • | • | | • | | • | • | • | • | • | • |
| 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) | | | | | • | • | • | | • | | | | • | • | • | • |
| **Relaying** | | | | | | | | | | | | | | | | |
| 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, 10-990kW Adjustable delay, 1-15 seconds OFF Power Reversal Direction | | | | | • | | | • | | | | | • | | • |
| **Data Acquisition - Waveform Capture** | | | | | | | • | | • | | | | | | • | • |
| **RELT** | | • | • | | • | • | • | | • | | | | | | | |

[3]Used when Ground Fault Alarm is needed via the output contact.

### Additional Features and Characteristics of the EntelliGuard® TU Trip Unit

| Trip Unit Character 3 | Zone Selective Interlocking | Power Break® II |
|---|---|---|
| Z | ZSI, Short time and GF; user selectable | • |
| T | Z + IOC ZSI; user selectable | •[1] |
| X | NONE SELECTED | • |

[1]Instantaneous out only. [2]Time delay shown at lower limit of each band. All pick-up tolerances are ±10%.

### Power+ Trip Unit Characteristics

| Envelope Size | Frame Max. Ampere Rating | Sensor Rating (Amperes) (S) | Long-Time: Current Setting (C) (Pick-Up) Multiple of Rating Plug Amperes (X) | Long-Time: Delay[1] (Seconds 4 Bands) | Short-Time: Pick-up (Multiple of Current Setting) (C) | Short-Time: 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 | | | | |
| | 2000 | 2000 | | | | $I^2T$ out[2] .10, .21, .35 |
| 3000 | 2500, 3000 | 1000, 2000, 2500, 3000 | | | | |
| 4000 | 4000 | 4000 | | | | |

### 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) | Ground Fault: Delay[3] (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 |
| | 1.5 thru 10.0 | 1.5 thru 15.0 | 0.20 thru 0.60 | |
| | 1.5 thru 10.0 | 1.5 thru 15.0 | 0.20 thru 0.60 | $I^2T$ out[2] .10, .21, .35 |
| 3000 | 1.5 thru 10.0 | 1.5 thru 13.0 | 0.20 thru 0.37 | |
| 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: Current Setting (C) (Pick-Up) Multiple of Rating Plug Amperes (X) | Long-Time: Delay[2] (Seconds) | Short-Time: Pick-up (Multiple of Current Setting) (C) | Short-Time: 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 | | | | |
| 2000 | 2000 | 2000 | | | | |
| 3000 | 2500 | 1000, 2000, 2500 | | | | $I^2T$ out[2] .10, .21, .35 |
| | 3000 | 3000 | | | | |
| 4000 | 4000 | 4000 | | | | |

### 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) | Ground Fault: Delay With $I^2T$ In Seconds | Ground Fault: Delay[3] 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 | | |
| 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 | | |
| 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 | | |
| 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 | | |

[1] Time delay shown at 600% of current setting at lower limit of band.
[2] Time delay shown at lower limit of each band. All pick-up tolerances are ± 10%.
[3] Time delay shown at lower limit of each band. Ground fault pick-up not to exceed 1200 amperes.
[4] Time delay shown at 200% of pick-up at lower limit of band.

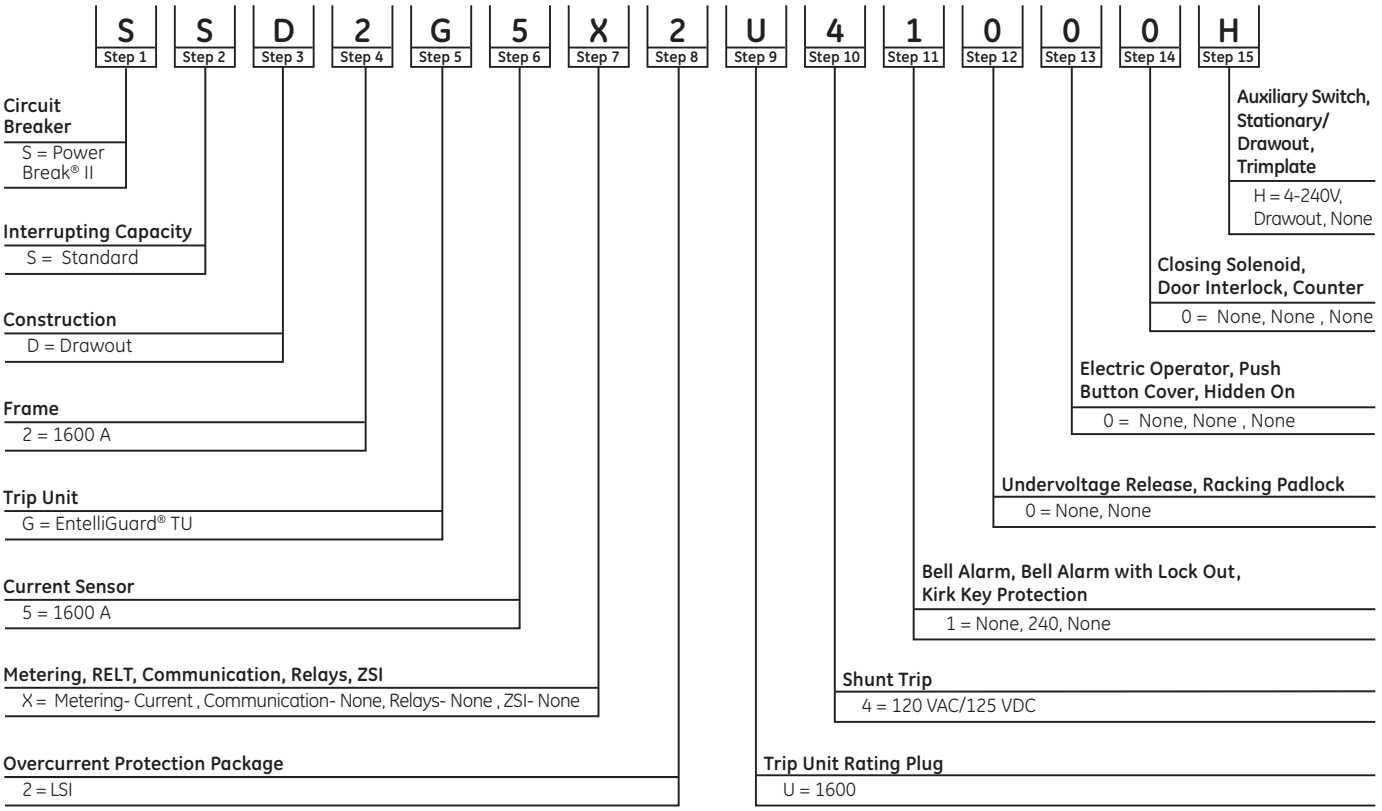
**X = Rating plug amps**
**S = Sensor amp rating**
**C = Long-time current setting (pick-up)**
**H = Short-Time Rating**

## Additional Features and Characteristics Exclusive to the Enhanced MicroVersaTrip® PM Trip Unit[1]

| Function | Description | Trip Unit Suffix | | |
|---|---|---|---|---|
| | | M (Metering) | P (Relaying) | PM (Metering & Relaying) |
| Communications | —POWER LEADER Communications Bus Link | STD | STD | STD |
| Amperes (A, kA)[2] | 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%<br>—Adjustable delay, 1-15 seconds OFF | | • | • |
| Over Voltage Trip | —Adjustable pickup, 110-150%<br>—Adjustable delay, 1-15 seconds OFF | | • | • |
| Voltage Unbalance | —Adjustable pickup, 10-50%<br>—Adjustable delay, 1-15 seconds OFF | | • | • |
| Current Unbalance | —Adjustable pickup, 10-50%<br>—Adjustable delay, 1-15 seconds OFF | | • | • |
| Power Reversal | —Adjustable pickup, 10-990 kW<br>—Adjustable delay, 1-15 seconds OFF<br>—Power Reversal Direction | | •<br><br>• | •<br><br>• |

[1] MicroVersaTrip PM™ functions require 24 Vdc control power.
[2] Ampere reading also standard on MicroVersaTrip Plus trip units.

### How to Select Power Break® II




### Step 1 Circuit Breaker (Example)

| Breaker Type | Character 1 |
|---|---|
| Power Break® II | S |

### Step 2 Interrupting Capacity (Example)

| Interrupting Type | Character 2 |
|---|---|
| Standard | S |
| High Break | H |

### Step 3 Construction (Example)

| Construction Type | Character 3 |
|---|---|
| Stationary Front Connected | F |
| Stationary Back Connected | B |
| Drawout | D |

### Step 4 Frame Ratings

| Frame Rating | Character 4 |
|---|---|
| 800A | 1 |
| 1600A | 2 |
| 2000A | 3 |
| 2500A | 4 |
| 3000A | 5 |
| 4000A | 6 |

### Step 5 Trip Unit (Example)

| Trip Unit Type | Character 5 |
|---|---|
| Power + | D |
| Enhanced MVT® | B |
| Enhanced MVT® PM | C |
| EntelliGuard® TU | G |
| Switch w/PP | Y |

### Step 6 Current Sensor (Example)

| Sensor Rating | Character 6 |
|---|---|
| 200A | 1 |
| 400A | 2 |
| 800A | 3 |
| 1000A | 4 |
| 1600A | 5 |
| 2000A | 6 |
| 2500A | 7 |
| 3000A | 8 |
| 4000A | 9 |

### Step 7 Metering, RELT, Communication, Relays, ZSI (Example)

| Trip Unit Type + Features | Character 7 |
|---|---|
| **POWER +** | **X** |
| Metering | None |
| Communication | None |
| Relays | None |
| ZSI | None |

| **ENHANCED MVT®** | **X** | **A** | **B** |
|---|---|---|---|
| Metering | Current | Current | Current |
| Communication | None | None | None |
| Relays | None | None | None |
| ZSI | None | GF | GF&ST |

| **ENHANCED MVT® PM** | **C** | **D** | **E** | **F** | **G** | **H** | **J** | **K** | **L** |
|---|---|---|---|---|---|---|---|---|---|
| Metering | Current | Current | Current | Full | Full | Full | Full | Full | Full |
| Communication | COMNET | COMNET | COMNET | COMNET | COMNET | COMNET | COMNET | COMNET | COMNET |
| Relays | P | P | P | None | None | None | P | P | P |
| ZSI | None | GF | GF&ST | None | GF | GF&ST | None | GF | GF&ST |

| **ENTELLIGUARD® TU** | **X** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **J** | **K** | **L** | **M** | **N** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Metering | Current | Current | Current | Current[1] | | Full | Full[1] | | Full | Full[1] | Current | Current | Current | Current[1] |
| RELT | None | RELT | RELT | None[1] | | RELT | None[1] | | RELT | None[1] | None | RELT | RELT | None[1] |
| Communication | None | None | Modbus | Modbus[1] | | Modbus | Modbus[1] | | Modbus | Modbus[1] | None | None | Modbus | Modbus[1] |
| Relays | None | None | None | None[1] | | None | None[1] | | YES | YES[1] | None | None | None | None[1] |
| ZSI | None | None | None | None[1] | | None | None[1] | | None | None[1] | GF&ST | GF&ST | GF&ST | GF&ST[1] |

| Trip Unit Type + Features | Character 7 (continued) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ENTELLIGUARD® TU** | **P** | **Q** | **R** | **V** | **W** | **Y** | **Z** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| Metering | | Full | Full[1] | | Full | Full[1] | Current[1] | Current[1] | Current[1] | Current[1] | | Full[1] | Full[1] | | Full[1] | Full[1] |
| RELT | | RELT | None[1] | | RELT | None[1] | None[1] | RELT[1] | RELT[1] | None[1] | | RELT[1] | None[1] | | RELT[1] | None[1] |
| Communication | | Modbus | Modbus[1] | | Modbus | Modbus[1] | None[1] | None[1] | Modbus[1] | Modbus[1] | | Modbus[1] | Modbus[1] | | Modbus[1] | Modbus[1] |
| Relays | | None | None[1] | | YES | YES[1] | None[1] | None[1] | None[1] | None[1] | | None[1] | None[1] | | YES[1] | YES[1] |
| ZSI | | GF&ST | GF&ST[1] | | GF&ST | GF&ST[1] | GFST&I[1] | GFST&I[1] | GFST&I[1] | GFST&I[1] | | GFST&I[1] | GFST&I[1] | | GFST&I[1] | GFST&I[1] |

[1] Zone Selective Intantaneous Ground Fault & Short Time & Instantaneous (out)

### Step 8 Overcurrent Protection Package (Example)

| Character 8 | Package |
|---|---|
| X | None (switch) |
| 1 | LI |
| 2 | LSI[1] |
| 3 | LSIG[1] |
| 4 | LSIGA[1] |
| 5 | LSIGD[1] |
| 6 | LSH |

| Character 8 | Package |
|---|---|
| 7 | LSHG |
| 8 | LIG |
| 9 | LIGA |
| A | LIGD |
| B | LSHGA |
| C | LSHGD |
| D | LSIH |

[1]EntelliGuard® TU Trip Unit only offers these

### Step 9 Trip Unit Rating Plug (Example)

| Character 9 | EntelliGuard® TU Trip Unit | MicroVersaTrip® Plus and Enhanced MicroVersaTrip® PM Trip Unit | Power + | Rating Plug | Availability by Current Sensor Rating (shaded areas indicate availability) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | | | | X | 200 | 400 | 800 | 1000 | 1600 | 2000 | 2500 | 3000 | 4000 |
| A | • | • | • | 100 | | | | | | | | | |
| B | • | • | • | 150 | | [2] | | | | | | | |
| C | • | • | • | 200 | | | | | | | | | |
| D | • | • | • | 225 | | | | | | | | | |
| E | • | • | • | 250 | | | | | | | | | |
| F | • | • | • | 300 | | | [2] | | | | | | |
| G | • | | | 350 | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] |
| H | • | • | • | 400 | | | | [2] | | | | | |
| I | • | • | • | 450 | | | | | | | | | |
| J | • | • | • | 500 | | | | | | | | | |
| K | • | • | • | 600 | | | | | [2] | | | | |
| L | • | • | • | 700 | | | | | | | | | |
| M | | • | | 750 | | | | | | [2] | | | |
| N | • | • | • | 800 | | | | | | [2] | | | |
| O | • | | | 900 | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] |
| P | • | • | • | 1000 | | | | | | | | | |
| Q | • | • | • | 1100 | | | | | | | | | |
| R | • | • | • | 1200 | | | | | | | | [2] | |
| S | • | | | 1250 | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] |
| T | • | • | • | 1500 | | | | | | | | | |
| U | • | • | • | 1600 | | | | | | | | | |
| V | • | | | 1900 | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] |
| W | • | • | • | 2000 | | | | | | | | | |
| Y | • | | | 2200 | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] |
| Z | • | | | 2400 | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] |
| 1 | • | • | • | 2500 | | | | | | | | | |
| 2 | • | • | • | 3000 | | | | | | | | | |
| 3 | • | | | 3200 | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] |
| 4 | • | • | • | 3600 | | | | | | | | | |
| 5 | • | • | • | 4000 | | | | | | | | | |

[2]Exclusive for MicroVersaTrip® Plus and Enhanced MicroVersaTrip® PM Trip Unit Rating Plugs

[3]Exclusive for EntelliGuard® TU Trip Unit Rating Plugs only

## Step 10 Shunt Trip (Example)

| Character 10 | Voltage | With Lockout | Without Lockout |
|---|---|---|---|
| 0 | None | | • |
| 1 | 12Vdc | | • |
| 2 | 24Vac/24Vdc | | • |
| 3 | 48Vac/48Vdc | | • |
| 4 | 120Vac/125Vdc | | • |
| 5 | 208Vac | | • |
| 6 | 240Vac/250Vdc | | • |
| 7 | 480Vac | | • |
| 8 | 600Vac | | • |
| H | 12Vdc | • | |
| J | 24Vac/24Vdc | • | |
| K | 48Vac/48Vdc | • | |
| L | 120Vac/125Vdc | • | |
| M | 208Vac | • | |
| N | 240Vac/250Vdc | • | |
| P | 480Vac | • | |
| R | 600Vac | • | |

## Step 11 Bell Alarm, Bell Alarm With Lockout, Kirk Key Provision (Example)

| Character 11 | Bell Alarm | Bell Alarm w/Lockout[1] | Kirk Key Provision[2] |
|---|---|---|---|
| 0 | None | None | None |
| 1 | None | 240 | None |
| 2 | None | 600 | None |
| 4 | 240 | None | None |
| 5 | 240 | 240 | None |
| 6 | 240 | 600 | None |
| 8 | 600 | None | None |
| 9 | 600 | 240 | None |
| A | 600 | 600 | None |
| G | None | None | 4 |
| H | None | 240 | 4 |
| J | None | 600 | 4 |
| L | 240 | None | 4 |
| M | 240 | 240 | 4 |
| N | 240 | 600 | 4 |
| R | 600 | None | 4 |
| S | 600 | 240 | 4 |
| T | 600 | 600 | 4 |

[1]Bell Alarm ratings Vac

[2]Kirk Key Provision number of key locks 1-4

Note: 600Vac module not UL Listed.

## Step 12 UnderVoltage Release, Racking Padlock (Example)

| Character 12 | UnderVoltage Release | Racking Padlock[3] |
|---|---|---|
| 0 | None | None |
| 1 | 24Vac | None |
| 2 | 48Vac | None |
| 3 | 120Vac | None |
| 4 | 208Vac | None |
| 5 | 240Vac | None |
| 6 | 480Vac | None |
| 7 | 600Vac | None |
| 8 | 24Vdc | None |
| 9 | 24Vdc | None |
| A | 48Vdc | None |
| B | 125Vdc | None |
| C | 250Vdc | None |
| G | None | All |
| H | 24Vac | All |
| J | 48Vac | All |
| K | 120Vac | All |
| L | 208Vac | All |
| M | 240Vac | All |
| N | 480Vac | All |
| P | 600Vac | All |
| R | 12Vdc | All |
| S | 24Vdc | All |
| T | 48Vdc | All |
| U | 125Vdc | All |
| V | 250Vdc | All |

[3]Frame Rating

## Step 13 Electric Operator, Push Button Cover, Hidden On (Example)

| Character 13 | Electric Operator | Push Button Cover | Hidden On |
|---|---|---|---|
| 0 | None | None | None |
| 1 | 120Vac | None | None |
| 2 | 240Vac | None | None |
| 3 | 24Vdc | None | None |
| 4 | 48Vdc | None | None |
| 5 | 72Vdc | None | None |
| 6 | 125Vdc | None | None |
| 8 | None | YES | None |
| 9 | 120Vac | YES | None |
| A | 240Vac | YES | None |
| B | 24Vdc | YES | None |
| C | 48Vdc | YES | None |
| D | 72Vdc | YES | None |
| E | 125Vdc | YES | None |
| G | None | None | YES |
| H | 120Vac | None | YES |
| J | 240Vac | None | YES |
| K | 24Vdc | None | YES |
| L | 48Vdc | None | YES |
| M | 72Vdc | None | YES |
| N | 125Vdc | None | YES |
| R | None | YES | YES |
| S | 120Vac | YES | YES |
| T | 240Vac | YES | YES |
| U | 24Vdc | YES | YES |
| V | 48Vdc | YES | YES |
| W | 72Vdc | YES | YES |
| X | 125Vdc | YES | YES |

### Step 14 Closing Solenoid, Door Interlock, Counter (Example)

| Character 14 | Closing Solenoid[1] | Door Interlock | Counter |
|---|---|---|---|
| 0 | None | None | None |
| 1 | 120Vac | None | None |
| 2 | 240Vac | None | None |
| 3 | 24Vdc | None | None |
| 4 | 48Vdc | None | None |
| 5 | 72Vdc | None | None |
| 6 | 125Vdc | None | None |
| 8 | None | YES | None |
| 9 | 120Vac | YES | None |
| A | 240Vac | YES | None |
| B | 24Vdc | YES | None |
| C | 48Vdc | YES | None |
| D | 72Vdc | YES | None |
| E | 125Vdc | YES | None |
| G | None | None | YES |
| H | 120Vac | None | YES |
| J | 240Vac | None | YES |
| K | 24Vdc | None | YES |
| L | 48Vdc | None | YES |
| M | 72Vdc | None | YES |
| N | 125Vdc | None | YES |
| R | None | YES | YES |
| S | 120Vac | YES | YES |
| T | 240Vac | YES | YES |
| U | 24Vdc | YES | YES |
| V | 48Vdc | YES | YES |
| W | 72Vdc | YES | YES |
| X | 125Vdc | YES | YES |

### Step 15 Auxiliary Switch, Stationary/Draw-out, Trimplate (Example)

| Character 15 | Auxiliary Switch | Stationary/Draw-out | Trimplate |
|---|---|---|---|
| 0 | None | Stationary | None |
| 1 | 4-240V | Stationary | None |
| 2 | 8-240V | Stationary | None |
| 3 | 12-240V | Stationary | None |
| 4 | 4-600V | Stationary | None |
| 5 | 8-600V | Stationary | None |
| 8 | None | Stationary | YES |
| 9 | 4-240V | Stationary | YES |
| A | 8-240V | Stationary | YES |
| B | 12-240V | Stationary | YES |
| C | 4-600V | Stationary | YES |
| D | 8-600V | Stationary | YES |
| G | None | Drawout | YES |
| H | 4-240V | Drawout | None |
| J | 8-240V | Drawout | None |
| K | 12-240V | Drawout | None |
| L | 4-600V | Drawout | None |
| M | 8-600V | Drawout | None |
| R | None | Drawout | YES |
| S | 4-240V | Drawout | YES |
| T | 8-240V | Drawout | YES |
| U | 12-240V | Drawout | YES |
| V | 4-600V | Drawout | YES |
| W | 8-600V | Drawout | YES |

## Power Break® II Circuit Breaker Frame Product Numbers

| S | S | D | 08 | * | 02 | H[1] |
|---|---|---|---|---|---|---|

**Power Break® II Breaker Type**

**Current Interrupting Capacity**
- S = Standard break
- H = Hi-Break® breaker

**Construction**
- D = Drawout
- F = Stationary, front connected
- B = Back connected, 2500 – 3000 A only

**Frame Rating**
- 08 = 800 A  25 = 2500 A
- 16 = 1600 A  30 = 3000 A
- 20 = 2000 A  40 = 4000 A

**Trip Unit Type and Rating**
- B2/D2 = 2000 A maximum
- B3/D3 = 2500 A, 3000 A
- B4/D4 = 4000 A
- Y = Insulated case switch
- B for Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM trip unit
- D for Power+™

**Current Sensor Rating**
- 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

**Auxiliary Function**
- H = High-range instantaneous current sensors
- Blank = Standard current sensors

NOTE: SEE PAGE 5-11 FOR POWER BREAK® II UPDATED ORDERING NOMENCLATURE

[1]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

| SP | AS | 240 | AB4D | R |
|---|---|---|---|---|

**Power Break® II Breaker**

**Device Type**
- AS = Auxiliary switch[2]
- BAA = Bell alarm, alarm only[2]
- BAL = Bell alarm with lockout[2]
- COUNTER = Mechanical counter[2]
- DIL = Defeatable door interlock
- DOSD = Drawout secondary disconnects
- DOWB = Drawout mechanical interlock
- DSS = Substructure shutter kit
- E = Electric operator[2]
- HDOS = Hi-Break rated drawout substructure
- K4 = Kirk key lock (4 maximum)[2]
- PBCOVER = Pushbutton cover[2]
- RCS = Remote close solenoid[2]
- SDOD = Standard rated drawout substructure
- ST = Shunt trip[2]
- STL = Shunt trip with lockout[2]
- 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

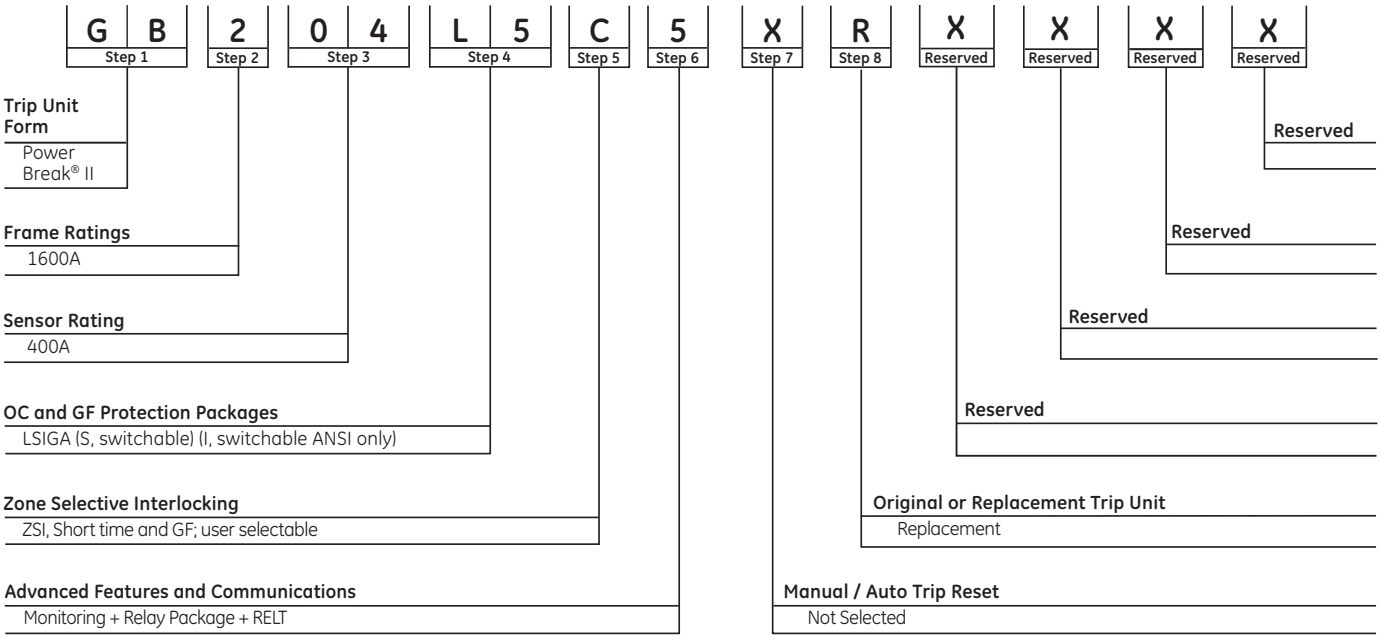
**Voltage, unless otherwise stated**
- 012 = 12 Vdc
- 024 = 24 Vdc
- 048 = 48 Vdc
- 120/125 = 120 Vac or 125 Vdc
- 240/250 = 240 Vac and 250 Vdc
- 250 = 250 Vdc
- 480 = 480 Vac
- 600 = 600 Vac
- 08 = 800 A  25 = 2500 A
- 16 = 1600 A  30 = 3000 A
- 20 = 2000 A  40 = 4000 A
- BCA = Back connected aluminum
- 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

**Auxiliary Switch Extender**
- 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)

**Extender**
- R = Field installable kit
- Blank = Factory installed

[2]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.

### Entelliguard® TU Trip Unit Product Numbers




### Step 1 EntelliGuard® Trip Unit Form

| Character 1 & 2 | Trip Unit Form |
|---|---|
| GA | PB1 (UL) |
| GB | PB2 (UL) |

### Step 2 Frame Ratings

| Character 3 | Frame Rating (amperes) | PowerBreak® I / II |
|---|---|---|
| 1 | 800A | • |
| 2 | 1600A | • |
| 3 | 2000A | • |
| 4 | 2500A | • |
| 5 | 3000A | • |
| 6 | 3200A | |
| 7 | 4000A | • |

### Step 3 Sensor Rating (Amperes)

| Character 4 & 5 | Sensor Rating (Amperes) |
|---|---|
| 02 | 200 |
| 04 | 400 |
| 08 | 800 |
| 10 | 1000 |
| 12 | 1200 |
| 14 | |
| 15 | |
| 16 | 1600 |
| 20 | 2000 |
| 25 | 2500 |
| 30 | 3000 |

### Step 4 OC and GF Protection Packages

| Character 6 & 7 | Protection | PowerBreak® I / II |
|---|---|---|
| L3 | LSI (S, switchable) (I, Non-switchable) | • |
| L4 | LSIG (S, switchable) (I, Non-switchable) (G, Non-Switchable Ground Fault Trip) | • |
| L5 | LSIGA (S, switchable) (I, Non-switchable) (G, Non-Switchable Ground Fault Alarm) | • |
| L6 | LSIC (S, switchable) (I, Non-switchable) (C, Non-Switchable External Ground Fault Trip) | |
| L7 | LSICA (S, switchable) (I, Non-switchable) (C, Non-Switchable External Ground Fault Alarm) | |
| L8 | LSIGDA* (S, G, A all switchable) (I, Non-switchable) | • |
| L9 | LSIGCDA* (S, G, C, A all switchable) (I, Non-switchable) | |

NOTE: All options include both the Circuit Break $I^2T$ and Fuse $I^4T$ curves

### Step 5 Zone Selective Interlocking

| Character 8 | Zone Selective Interlocking | PowerBreak® II |
|---|---|---|
| Z | ZSI, Short time and GF; user selectable | • |
| T | Z + IOC ZSI; user selectable | •[1] |
| X | NONE SELECTED | • |

[1]Instantaneous out only (used as a feeder).

### Step 6 Advanced Features and Communications

| Character 9 | Features and Communications | PowerBreak® II |
|---|---|---|
| 1 | RELT | • |
| 2 | Modbus Protocol + RELT | • |
| 4 | Monitoring + RELT | • |
| 5 | Monitoring + Relay Package + RELT | • |
| 6 | Monitoring + Data Acquisition, Modbus Protocol + RELT | • |
| X | NONE SELECTED | • |
| A[2] | Modbus Protocol (W/O RELT) | • |
| B[2] | Monitoring (W/O RELT) | • |
| C[2] | Monitoring + Relay Package (W/O RELT) | • |
| D[2] | Monitoring + Data Acquisition, Modbus Protocol (W/O RELT) | • |
| E[2] | Monitoring + Data Acquisition + Relay Package, Modbus (W/O RELT) | • |

[2]Options A - E are only available when output contact is needed for functions other than RELT

### Step 7 Manual/Auto Trip Reset

| Character 10 | Manual/Auto Trip Reset | PowerBreak® II |
|---|---|---|
| X | NONE SELECTED[3] | • |

[3]Feature not available for legacy breakers

### Step 8 Original or Replacement Trip Unit

| Character 11-15 | Original or Replacement Trip Unit |
|---|---|
| RXXXX | Replacement trip unit (shipped loose) |

### EntelliGuard® TU Trip Unit Rating Plug Product Numbers

| GTP | 1100 | U | 12 | 25 |
|---|---|---|---|---|

**Trip Unit Type Rating**

GTP = Trip unit rating plug EntelliGuard® TU Trip Unit

**Rating Plug Ampere Rating**

| | |
|---|---|
| 0060 = 60 A | 1000 = 1000 A |
| 0080 = 80 A | 1100 = 1100 A |
| 0100 = 100 A | 1200 = 1200 A |
| 0125 = 125 A | 1500 = 1500 A |
| 0150 = 150 A | 1600 = 1600 A |
| 0200 = 200 A | 1700 = 1700 A |
| 0225 = 225 A | 1800 = 1800 A |
| 0250 = 250 A | 1900 = 1900 A |
| 0300 = 300 A | 2000 = 2000 A |
| 0350 = 350 A | 2200 = 2200 A |
| 0400 = 400 A | 2400 = 2400 A |
| 0450 = 450 A | 2500 = 2500 A |
| 0500 = 500 A | 3000 = 3000 A |
| 0600 = 600 A | 3200 = 3200 A |
| 0700 = 700 A | 3600 = 3600 A |
| 0750 = 750 A | 4000 = 4000 A |
| 0800 = 800 A | 5000 = 5000 A |
| 0900 = 900 A | 6000 = 6000 A |

**Trip Unit Type**

U = Universal Trip Plug

**Largest Current Sensor Rating**

| | |
|---|---|
| 01 = 150 A | 16 = 1600 A |
| 02 = 200 A | 20 = 2000 A |
| 03 = 225 A | 25 = 2500 A |
| 04 = 400 A | 30 = 3000 A |
| 06 = 600 A | 32 = 3200 A |
| 07 = 630 A | 40 = 4000 A |
| 08 = 800 A | 50 = 5000 A |
| 10 = 1000 A | 60 = 6000 A |
| 12 = 1200 A | 64 = 6400 A |
| 13 = 1250 A | |

**Smallest Current Sensor Rating**

| | |
|---|---|
| 01 = 150 A | 16 = 1600 A |
| 02 = 200 A | 20 = 2000 A |
| 03 = 225 A | 25 = 2500 A |
| 04 = 400 A | 30 = 3000 A |
| 06 = 600 A | 32 = 3200 A |
| 07 = 630 A | 40 = 4000 A |
| 08 = 800 A | 50 = 5000 A |
| 10 = 1000 A | 60 = 6000 A |
| 12 = 1200 A | 64 = 6400 A |
| 13 = 1250 A | |

## Power+ Trip Unit Product Numbers

**D2 | 20 | LSI | T1 | R[1]**

**Trip Unit Type and Rating**

| | |
|---|---|
| D2 = Power Break® II Power+ Trip Unit: 2000 A sensor maximum | |
| D3 = Power Break® II Power+ Trip Unit: 3000 A sensor maximum | |
| D4 = Power Break® II Power+ Trip Unit: 4000 A sensor maximum | |

**Current Sensor Rating**

| | |
|---|---|
| 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 | |

**Auxiliary functions**

| |
|---|
| LI = Long-time and Instantaneous |
| LSI = Long-time, Short-time, Instantaneous |

**Trip unit options**

| |
|---|
| T1 = Target Module without ground fault target |
| T2 = Target Module with ground fault target |
| (Blank) = Factory Installed |

**Replacement or New**

| |
|---|
| R = Replacement trip unit |
| (Blank) = New |

[1]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

**TR | 10 | C | 800 | GF**

**Trip Unit Type Rating**

TR = Trip unit rating plug
All Power+, MicroVersaTrip® Plus, and MicroVersaTrip® PM rating plugs

**Current Sensor Rating**

| | |
|---|---|
| 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 | |

**Trip Unit Type**

| |
|---|
| C = Power+ trip unit rating plugs |

**Rating Plug Ampere Rating**

| | |
|---|---|
| 100 = 100 A | 800 = 800 A |
| 150 = 150 A | 1000 = 1000 A |
| 200 = 200 A | 1100 = 1100 A |
| 225 = 225 A | 1200 = 1200 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 |

**Ground Fault Function**

| |
|---|
| Blank = No ground fault |
| GF = Ground fault |

**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.

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

| B2 | 20 | LSI | GZ1 | PM | R[1] |
|---|---|---|---|---|---|

**Trip Unit Type and Rating**

| |
|---|
| B2 = Power Break® II Enhanced MicroVersaTrip Plus® or PM Trip Unit: 2000 A Sensor maximum |
| 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 |

**Current Sensor Rating**

| | |
|---|---|
| 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 | |

**Auxiliary Functions**

| |
|---|
| LI = Long-time and instantaneous |
| LSI = Long-time, short-time, instantaneous |
| LSH = Long-time, short-time, high-range instantaneous |

**Ground Fault Functions**

| |
|---|
| 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 |

**Trip Unit Options**

| |
|---|
| 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 |

**Remanufactured**

| |
|---|
| RM = Remanufactured Trip Unit |
| RX = Exchanged Trip Unit |

[1]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)

| TR | 10 | B | 800 |
|---|---|---|---|

**Device Type**

TR = Trip unit rating plug
All MicroVersaTrip® Plus and MicroVersaTrip® PM rating plugs

**Current Sensor Rating**

| | |
|---|---|
| 2 = 200 A | 20 = 2000 A |
| 4 = 400 A | 25 = 2500 A |
| 8 = 800 A | 30 = 3000 A |
| 10 = 1000 A | 40 = 4000 A |
| 16 = 1600 A | |

**Rating Plug Ampere Rating**

| | |
|---|---|
| 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 | |

**Trip Unit Type**

B = All Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM trip unit rating plugs

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

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[1] | | | | |
| (0.5 sec) | 25 | 40 | 42 | 42 |
| IEC-947-2 Ratings 415, 50/60 Hz | | | | |
| $I_{cu}$ | — | 75 | 75[2] | 85 |
| $I_{cs}$ | — | 56 | 45[2] | 25 |
| $I_{cw}$ (1 sec) | — | 40 | 50[2] | 50 |

[1] Applies to high range instantaneous or "H" option.
[2] 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 |

## How To Order

Power Break® II's were previously ordered as separate product numbers for the Frame, Trip Unit, Accessories, etc. In 2008, they transitioned to a single 15 digit product number.

1. **Determine your 15 digit number by using the BuyLog® or the digitized configurator.**
2. Check Elitenet for price and availability. Note: Because the number of possible combinations is in the millions, only product numbers that have been ordered are in EliteNet. If the number is not available in Elitenet, email the request to load the part to GE.1STOP_REPLY (GE, Appl & Light, consultant) (GE.1STOP_REPLY@GE.com)
3. Once the product number is loaded and pricing finalized, the product can be ordered.
4. Note: Substructures/Cassettes, Neutral CT's, T-Studs, Drawout Secondary disconnects are ordered separately from the 15 digit number.

SSF20B220 Frame

## Pricing Example–Stationary Breaker SSF3G6H2N001130

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), EntelliGuard® TU trip unit, field installed 120 Vac electric (motor) operator, 24 Vdc remote close solenoid, 24 Vdc undervoltage release module.

**Note: See Power Break® II Price Configurator for pricing. Contact sales representative for configurator.**

Draw-out in Substructure

## Pricing Example—Draw-out Breaker SHD2B4X6K200130

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.

**Note: See Power Break® II Price Configurator for pricing. Contact sales representative for configurator.**

| Description | Product Number | List Price GO-245B |
|---|---|---|
| Drawout Substructure | SPHDOS16 | **$1403.00** |
| Substructure Secondary Disconnect | SPDOSD36S | **$283.00** |
| Substructure Shutter Kit | SPDSS20 | **$501.00** |

## Basic Frame Selection—Stationary

| Circuit Breaker Envelope Size (Amperes) | Circuit Breaker Frame Size (Amperes) | Current Sensor (Amperes) | Standard Break Product Number[1] | Hi-Break Product Number[1] |
|---|---|---|---|---|
| 800 | 800 | 200 | SSF08*202,H | SHF08*202,H |
| | | 400 | SSF08*204,H | SHF08*204,H |
| | | 800 | SSF08*208,H | SHF08*208,H |
| 1600 | 1600 | 800 | SSF16*208,H | SHF16*208,H |
| | | 1000 | SSF16*210,H | SHF16*210,H |
| | | 1600 | SSF16*216,H | SHF16*216,H |
| 2000 | 2000 | 2000 | SSF20*220,H | SHF20*220,H |
| 3000 | 2500 | 1000 | SSF25*210,H | SHF25*210,H |
| | | | SSB25*210,H | SHB25*210,H |
| | | 2000 | SSF25*220,H | SHF25*220,H |
| | | | SSB25*220,H | SHB25*220,H |
| | | 2500 | SSF25*325,H | SHF25*325,H |
| | | | SSB25*325,H | SHB25*325,H |
| | 3000 | 3000 | SSF30*330,H | SHF30*330,H |
| | | | SSB30*330,H | SHB30*330,H |
| 4000 | 4000 | 4000 | SSF40*440[3] | SHF40*440[3] |

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

| Circuit Breaker Envelope Size (Amperes) | Circuit Breaker Frame Size (Amperes) | Current Sensor (Amperes) | Standard Break Product Number[1] | Hi-Break Product Number[1] |
|---|---|---|---|---|
| 800 | 800 | 200 | SSD08*202,H | SHD08*202,H |
| | | 400 | SSD08*204,H | SHD08*204,H |
| | | 800 | SSD08*208,H | SHD08*208,H |
| 1600 | 1600 | 800 | SSD16*208,H | SHD16*208,H |
| | | 1000 | SSD16*210,H | SHD16*210,H |
| | | 1600 | SSD16*216,H | SHD16*216,H |
| 2000 | 2000 | 2000 | SSD20*220,H | SHD20*220,H |
| 3000 | 2500 | 1000 | SSD25*210,H | SHD25*210,H |
| | | 2000 | SSD25*220,H | SHD25*220,H |
| | | 2500 | SSD25*325,H | SHD25*325,H |
| | 3000 | 3000 | SSD30*330,H | SHD30*330,H |
| 4000 | 4000 | 4000 | SSD40*440,H | SHD40*440,H |

[1] 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.
[2] 80% rated.
*Replace * with B for MicroVersaTrip® Plus or PM trip unit: or D for Power+™ trip unit.

NOTE: SEE POWER BREAK® II UPDATED NOMENCLATURE ON PG. 5-11 FOR PRODUCT NUMBER AND SEE POWER BREAK® II CONFIGURATOR FOR PRICING.

### How to Order

1. Determine the basic trip unit product number.
2. Determine the type of trip unit, EntelliGuard® TU , 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. Order rating plug separately. Pricing does not include rating plug price.
5. 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. The replacement trip unit product number would be B210LSIMR.

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

| Trip Unit Suffix[1] | | Trip Indicators | | Long-Time (L) | Short-Time (ST) | Inst. (I) |
|---|---|---|---|---|---|---|
| Adjustable | Instantaneous | L/ST/I[1] | GF[2] | | | |
| LI | | — | — | • | — | • |
| LIT | | • | — | • | — | • |
| LIT2 | | • | • | • | — | • |
| LSI | | — | — | • | • | • |
| LSIT1 | | • | — | • | • | • |
| LSIT2 | | • | • | • | • | • |

[1] For high-range instantaneous or zone selective interlocking select MicroVersaTrip® Plus or PM trip units.
[2] For ground fault-protection, select appropriate rating plug.

### Basic Trip Unit Selection

| Frame Size (Amperes) | Frame Rating (Amperes) | Sensor (Amperes) | EntelliGuard® TU Trip Unit | Power+™ Trip Units | Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM Trip Units |
|---|---|---|---|---|---|
| 800 | 800 | 200 | GB102 | D202 | B202 |
| | | 400 | GB105 | D204 | B204 |
| | | 800 | GB108 | D208 | B208 |
| 1600-2000 | 1600 | 800 | GB108 | D208 | B208 |
| | | 1000 | GB210 | D210 | B210 |
| | | 1600 | GB316 | D216 | B216 |
| | 2000 | 2000 | GB320 | D220 | B220 |
| 2500-3000 | 2500 | 1000 | GB310 | D210 | B210 |
| | | 2000 | GB420 | D220 | B220 |
| | | 2500 | GB425 | D325 | B325 |
| | 3000 | 3000 | GB530 | D330 | B330 |
| 4000 | 4000 | 4000 | GB740 | D440 | B440 |

### EntelliGuard® TU with Selectable Phase Ammeter - Trip Indicators Standard

| Suffix 1[1] | Overcurrent Protections | Trip Indicators | Selectable Phase Ammeter | Long-Time (L) | Long-Time with Fuse Settings (J) | Switchable Short-Time (ST) | Inst (I) | Ground Fault (G) | Ground Fault Alarm (GA) | GF/ST Zone Interlock (ZSI)[3] |
|---|---|---|---|---|---|---|---|---|---|---|
| L3** | LSI (S, switchable) | • | • | • | | • | • | | | opt. |
| L4** | LSIG (S, switchable) | • | • | • | | • | • | • | • | opt. |
| L5** | LSIGA (S, switchable) | • | • | • | | • | • | | • | opt. |
| L8** | LSIGDA (GF/S, switchable)[2] | • | • | • | | • | • | • | • | opt. |

[1] Add suffix to basic trip unit to product number. Make list price addition for trip unit suffix.
[2] Defeatable/Switchable Ground Fault, not UL Listed.

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

| Trip Unit Suffix[3] | Trip Indicators | Selectable Phase Ammeter | Long-Time (L) | Short-Time (ST) | Inst. (I) | High Inst. (H) | Ground Fault (G)[4] | GF Zone Interlock (Z1)[5] | GF/ST Zone Interlock (Z2)[5] |
|---|---|---|---|---|---|---|---|---|---|
| **Adjustable Instantaneous** | | | | | | | | | |
| LI | • | • | • | | • | | | | |
| LIG | • | • | • | | • | | • | | |
| LIG Z1 | • | • | • | | • | | • | • | |
| LSI | • | • | • | • | • | | | | |
| LSIG | • | • | • | • | • | | • | | |
| LSIGZ1 | • | • | • | • | • | | • | • | |
| LSIGZ2 | • | • | • | • | • | | • | | • |
| **Fixed High Range Instantaneous[6]** | | | | | | | | | |
| LSH | • | • | • | • | | • | | | |
| LSHG | • | • | • | • | | • | • | | |
| LSHGZ1 | • | • | • | • | | • | • | • | |
| LSHGZ2 | • | • | • | • | | • | • | | • |

[3] Add suffix to basic trip unit product number. Make List Price Addition for trip unit suffix.
[4] For single-phase 3 wire or 3-phase, 4-wire applications, order appropriate neutral current sensor and price separately, page 5-36. 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.
[5] Requires purchase of Zone Selective Interlock module(s) Type TIM1 (120 Vac control voltage). **List Price $402.00, GO-245B.**
[6] Not available on 4000A stationary breaker frame.

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

| Trip Unit Suffix[1] | Trip Indicators | Selectable Phase Ammeter | Long-Time (L) | Short-Time (ST) | Inst. (I) | High Inst. (H) | Ground Fault (G)[2] | GF Zone Interlock (Z1)[3] | GF/ST Zone Interlock (Z2)[3] |
|---|---|---|---|---|---|---|---|---|---|
| **Adjustable Instantaneous** | | | | | | | | | |
| LIM | • | • | • | | • | | | | |
| LIGM | • | • | • | | • | | • | | |
| LIGZ1M | • | • | • | | • | | • | • | |
| LSIM | • | • | • | • | • | | | | |
| LSIGM | • | • | • | • | • | | • | | |
| LSIGZ1M | • | • | • | • | • | | • | • | |
| LSIGZ2M | • | • | • | • | • | | • | | • |
| **Fixed High Range Instantaneous[4]** | | | | | | | | | |
| LSHM | • | • | • | • | | • | | | |
| LSHGM | • | • | • | • | | • | • | | |
| LSHGZ1M | • | • | • | • | | • | • | • | |
| LSHGZ2M | • | • | • | • | | • | • | | • |

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

| Trip Unit Suffix[1] | Trip Indicators | Selectable Phase Ammeter | Long-Time (L) | Short-Time (ST) | Inst. (I) | High Inst. (H) | Ground Fault (G)[2] | GF Zone Interlock (Z1)[3] | GF/ST Zone Interlock (Z2)[3] |
|---|---|---|---|---|---|---|---|---|---|
| **Adjustable Instantaneous** | | | | | | | | | |
| LIP | • | • | • | | • | | | | |
| LIGP | • | • | • | | • | | • | | |
| LIGZ1P | • | • | • | | • | | • | • | |
| LSIP | • | • | • | • | • | | | | |
| LSIGP | • | • | • | • | • | | • | | |
| LSIGZ1P | • | • | • | • | • | | • | • | |
| LSIGZ2P | • | • | • | • | • | | • | | • |
| **Fixed High Range Instantaneous[4]** | | | | | | | | | |
| LSHP | • | • | • | • | | • | | | |
| LSHGP | • | • | • | • | | • | • | | |
| LSHGZ1P | • | • | • | • | | • | • | • | |
| LSHGZ2P | • | • | • | • | | • | • | | • |

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

| Trip Unit Suffix[1] | Trip Indicators | Selectable Phase Ammeter | Long-Time (L) | Short-Time (ST) | Inst. (I) | High Inst. (H) | Ground Fault (G)[2] | GF Zone Interlock (Z1)[3] | GF/ST Zone Interlock (Z2)[3] |
|---|---|---|---|---|---|---|---|---|---|
| **Adjustable Instantaneous** | | | | | | | | | |
| LIPM | • | • | • | | • | | | | |
| LIGPM | • | • | • | | • | | • | | |
| LIGZ1PM | • | • | • | | • | | • | • | |
| LSIPM | • | • | • | • | • | | | | |
| LSIGPM | • | • | • | • | • | | • | | |
| LSIGZ1PM | • | • | • | • | • | | • | • | |
| LSIGZ2PM | • | • | • | • | • | | • | | • |
| **Fixed High Range Instantaneous[4]** | | | | | | | | | |
| LSHPM | • | • | • | • | | • | | | |
| LSHGPM | • | • | • | • | | • | • | | |
| LSHGZ1PM | • | • | • | • | | • | • | • | |
| LSHGZ2PM | • | • | • | • | | • | • | | • |

[1] Add suffix to basic trip unit product number. Make List Price Addition for trip unit suffix.

[2] For single-phase 3 wire or 3-phase, 4-wire applications, order appropriate neutral current sensor and price separately, page 5-36. 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.

[3] Requires purchase of Zone Selective Interlock module(s) Type TIM1 (120 Vac control voltage). **List Price $402.00, GO-245B.**

[4] Not available on 4000A stationary breaker frame.


NOTE: SEE POWER BREAK® II NOMENCLATURE ON PG. 5-11 FOR PRODUCT NUMBER AND SEE POWER BREAK® II CONFIGURATOR FOR PRICING. CONTACT SALES REPRESENTATIVE FOR CONFIGURATOR.

### Power Break® II Rating Plug Selection

| Frame Size (Amperes) | Sensor Rating (Amperes) | Current Rating (Amperes) | Power+ Trip Unit Standard Rating Plugs List Price $89.00 GO-245A | Power+ Trip Unit Ground Fault Rating Plugs List Price $747.00 GO-245A | Enhanced MicroVersaTrip® Plus and Enhanced MicroVersaTrip® PM Trip Unit Rating Plugs List Price $89.00 GO-245A | EntelliGuard® TU Trip Unit Rating Plugs List Price $130.00 GO-329R |
|---|---|---|---|---|---|---|
| 800 | 200 | 100 | TR2C100 | TR2C100GF | TR2B100 | GTP0100U0103 |
| | | 150 | TR2C150 | TR2C150GF | TR2B150 | GTP0150U0104 |
| | | 200 | TR2C200 | TR2C200GF | TR2B200 | GTP0200U0204 |
| | 400 | 150 | – | – | TR4B150 | GTP0150U0104 |
| | | 200 | TR4C200 | TR4C200GF | TR4B200 | GTP0200U0204 |
| | | 225 | TR4C225 | TR4C225GF | TR4B225 | GTP0225U0306 |
| | | 250 | TR4C250 | TR4C250GF | TR4B250 | GTP0250U0407 |
| | | 300 | TR4C300 | TR4C300GF | TR4B300 | GTP0300U0408 |
| | | 400 | TR4C400 | TR4C400GF | TR4B400 | GTP0400U0410 |
| 800-1600 | 800 | 300 | – | – | TR8B300 | GTP0300U0408 |
| | | 400 | TR8C400 | TR8C400GF | TR8B400 | GTP0400U0410 |
| | | 450 | TR8C450 | TR8C450GF | TR8B450 | GTP0450U0612 |
| | | 500 | TR8C500 | TR8C500GF | TR8B500 | GTP0500U0613 |
| | | 600 | TR8C600 | TR8C600GF | TR8B600 | GTP0600U0616 |
| | | 700 | TR8C700 | TR8C700GF | TR8B700 | GTP0700U0816 |
| | | 800 | TR8C800 | TR8C800GF | TR8B800 | GTP0800U0820 |
| 1600 | 1000 | 400 | – | – | TR10B400 | GTP0400U0410 |
| | | 600 | TR10C600 | TR10C600GF | TR10B600 | GTP0600U0616 |
| | | 800 | TR10C800 | TR10C800GF | TR10B800 | GTP0800U0820 |
| | | 1000 | TR10C1000 | TR10C1000GF | TR10B1000 | GTP1000U1025 |
| | 1600 | 600 | – | – | TR16B600 | GTP0600U0616 |
| | | 800 | TR16C800 | TR16C800GF | TR16B800 | GTP0800U0820 |
| | | 1000 | TR16C1000 | TR16C1000GF | TR16B1000 | GTP1000U1025 |
| | | 1100 | TR16C1100 | TR16C1100GF | TR16B1100 | GTP1100U1225 |
| | | 1200 | TR16C1200 | TR16C1200GF | TR16B1200 | GTP1200U1232 |
| | | 1600 | TR16C1600 | TR16C1600GF | TR16B1600 | GTP1600U1640 |
| 2000 | 2000 | 750 | – | – | TR20B750 | GTP0750U0820 |
| | | 800 | – | – | TR20B800 | GTP0800U0820 |
| | | 1000 | TR20C1000 | TR20C1000GF | TR20B1000 | GTP1000U1025 |
| | | 1200 | TR20C1200 | TR20C1200GF | TR20B1200 | GTP1200U1232 |
| | | 1500 | TR20C1500 | TR20C1500GF | TR20B1500 | GTP1500U1640 |
| | | 1600 | TR20C1600 | TR20C1600GF | TR20B1600 | GTP1600U1640 |
| | | 2000 | TR20C2000 | TR20C2000GF | TR20B2000 | GTP2000U2050 |
| 2500 | 1000 | 400 | – | – | TR10B400 | GTP0400U0410 |
| | | 600 | TR10C600 | TR10C600GF | TR10B600 | GTP0600U0616 |
| | | 800 | TR10C800 | TR10C800GF | TR10B800 | GTP0800U0820 |
| | | 1000 | TR10C1000 | TR10C1000GF | TR10B1000 | GTP1000U1025 |
| | 2000 | 750 | – | – | TR20B750 | GTP0750U0820 |
| | | 800 | – | – | TR20B800 | GTP0800U0820 |
| | | 1000 | TR20C1000 | TR20C1000GF | TR20B1000 | GTP1000U1025 |
| | | 1200 | TR20C1200 | TR20C1200GF | TR20B1200 | GTP1200U1232 |
| | | 1500 | TR20C1500 | TR20C1500GF | TR20B1500 | GTP1500U1640 |
| | | 1600 | TR20C1600 | TR20C1600GF | TR20B1600 | GTP1600U1640 |
| | | 2000 | TR20C2000 | TR20C2000GF | TR20B2000 | GTP2000U2050 |
| | 2500 | 1600 | TR25C1600 | TR25C1600GF | TR25B1600 | GTP1600U1640 |
| | | 2000 | TR25C2000 | TR25C2000GF | TR25B2000 | GTP2000U2050 |
| | | 2500 | TR25C2500 | TR25C2500GF | TR25B2500 | GTP2500U2564 |
| 3000 | 3000 | 1200 | TR30C1200 | TR30C1200GF | TR30B1200 | GTP1200U1232 |
| | | 1600 | TR30C1600 | TR30C1600GF | TR30B1600 | GTP1600U1640 |
| | | 2000 | TR30C2000 | TR30C2000GF | TR30B2000 | GTP2000U2050 |
| | | 2500 | TR30C2500 | TR30C2500GF | TR30B2500 | GTP2500U2564 |
| | | 3000 | TR30C3000 | TR30C3000GF | TR30B3000 | GTP3000U3064 |
| 4000 | 4000 | 1600 | TR40C1600 | TR40C1600GF | TR40B1600 | GTP1600U1640 |
| | | 2000 | TR40C2000 | TR40C2000GF | TR40B2000 | GTP2000U2050 |
| | | 2500 | TR40C2500 | TR40C2500GF | TR40B2500 | GTP2500U2564 |
| | | 3000 | TR40C3000 | TR40C3000GF | TR40B3000 | GTP3000U3064 |
| | | 3600 | TR40C3600 | TR40C3600GF | TR40B3600 | GTP3600U4064 |
| | | 4000 | TR40C4000 | TR40C4000GF | TR40B4000 | GTP4000U4064 |


MicroVersaTrip® and MicroVersaTrip® PM Rating Plug


Power+ Trip Target Module


EntelliGuard® TU Rating Plug

### 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** |

## 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.

## Power Break® II Rating Plug Selection

| Basic Control Unit | Current Rating (Amperes) | Power + Standard Rating Plug | Power + Ground Fault Rating Plug |
|---|---|---|---|
| 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 |

## Molded Case Switch Frames—Stationary

| Switch Envelope Size (Amperes) | Switch Frame Size (Amperes) | Current Sensor Rating (Amperes) | Product Number |
|---|---|---|---|
| 800 | 800 | 800 | SSF08Y208 |
| 1600 | 1600 | 1600 | SSF16Y216 |
| 2000 | 2000 | 2000 | SSF20Y220 |
| 3000 | 2500 | 2500 | SSF25Y325 |
| | | | SSB25Y325 |
| | 3000 | 3000 | SSF30Y330 |
| | | | SSB30Y330 |

## Molded Case Switch Frames—Draw-out[1]

| Switch Envelope Size (Amperes) | Switch Frame Size (Amperes) | Current Sensor Rating (Amperes) | Product Number |
|---|---|---|---|
| 800 | 800 | 800 | SSD08Y208 |
| 1600 | 1600 | 1600 | SSD16Y216 |
| 2000 | 2000 | 2000 | SSD20Y220 |
| 3000 | 2500 | 2500 | SSD25Y325 |
| | 3000 | 3000 | SSD30Y330 |
| 4000 | 4000 | 4000 | SSD40Y440 |

[1]Use only with Hi-Break draw-out substructure.

## Control Units

| Switch Envelope Size (Amperes) | Switch Frame Size (Amperes) | Sensor (Amperes) | Product Number |
|---|---|---|---|
| 800 | 800 | 800 | D208 |
| | | | D208T2 |
| 1600 | 1600 | 1000 | D210 |
| | | | D210T2 |
| | | 1600 | D216 |
| | | | D216T2 |
| 2000 | 2000 | 2000 | D220 |
| | | | D220T2 |
| 3000 | 2500 | 1000 | D210 |
| | | | D210T2 |
| | | 2000 | D220 |
| | | | D220T2 |
| | | 2500 | D325 |
| | | | D325T2 |
| | 3000 | 3000 | D330 |
| | | | D330T2 |
| 4000 | 4000 | 4000 | D440 |
| | | | D440T2 |

## Ordering Example SSD2Y4A2H200220

1600 ampere drawout switch; factory installed 240 Vac electric (motor) operator; 240 Vac remote close solenoid; 24 Vac/DC shunt trip; drawout substructure; drawout secondary disconnect; drawout shutter.

**Note: See Power Break® II updated nomenclature on page 5-11 for product number and see Power Break® II configurator for pricing. Contact sales representative for configurator.**

## Power Break® II Circuit Breakers

### Stationary and Draw-out Breaker Accessories

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

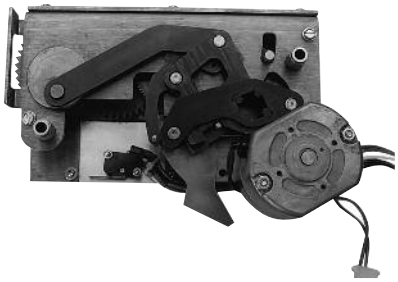
### Accessories—Stationary and Draw-out Breakers

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.

| 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** |

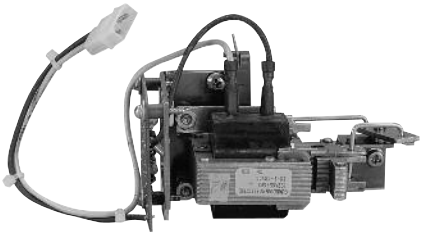


Electrical Operator

### 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.

| 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** |



Remote Close Solenoid

## 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[1] | **$301.00** | SPST480[1] | **$328.00** |
| 600 | – | SPST600R[1] | **$301.00** | SPST600[1] | **$328.00** |

[1]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[1] | **$401.00** | SPSTL480 | **$428.00** |
| 600 | – | SPSTL600R[1] | **$401.00** | SPSTL600 | **$428.00** |

[1]Kit contains externally mounted transformer.

## 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[1] | **$301.00** | SPUV480AC[1] | **$328.00** |
| 600 | – | SPUV600ACR[1] | **$301.00** | SPUV600AC[1] | **$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** |

[1]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[1] | **$124.00** | SPBAA600[1] | **$135.00** |

[1]600 Vac module not UL Listed.

## 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[1] | **$124.00** | SPBAL600[1] | **$135.00** |

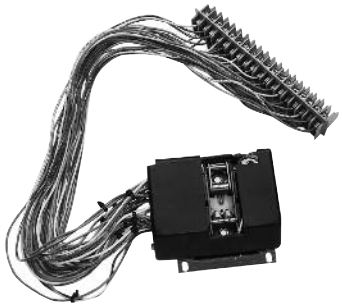
[1]600 Vac module not UL Listed.


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.

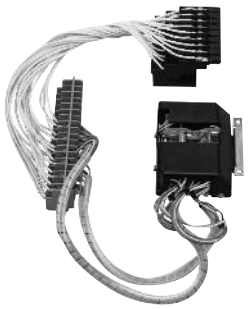


Auxiliary Switch with Pre-wired Secondary Terminals for Stationary Breaker

### 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[1] | **$268.00** | SPAS600AB4[1] | **$293.00** |
| 600 | 125-250 | 8 | SPAS600AB8R[1] | **$564.00** | SPAS600AB8[1] | **$616.00** |

[1]600 Vac module not UL Listed.



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

### 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[1] | **$551.00** | SPAS600AB4D[1] | **$576.00** |
| 600 | 125-250 | 8 | SPAS600AB8DR[1] | **$847.00** | SPAS600AB8D[1] | **$899.00** |

[1]600 Vac module not UL Listed.

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 | SPBIICOVER[1] | **$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 |
| Visible "On" Button Conversion | SPPBRONR | **$64.00** | 245B |
| PB1 SM FR Door Interlock/Padlock | TSPL | **$106.00** | 148C |
| 800A PB1 to PB2 Stationary Retrofit Kit | SSF08TPCCR[2] | **$2000.00** | 148C |
| 1600A PB1 to PB2 Stationary Retrofit Kit | SSF16TPCCR[2] | **$4000.00** | 148C |
| 2000A PB1 to PB2 Stationary Retrofit Kit | SSF20TPCCR[2] | **$5000.00** | 148C |
| 2500A-4000A PB1 to PB2 Stationary Retrofit Kit | SSF40TPCCMR[3] | **$3000.00** | 148C |
| 2500A-4000A PB1 to PB2 Stationary Retrofit Kit | SSF40TPCCER[4] | **$3000.00** | 148C |

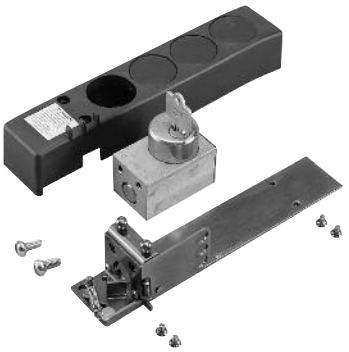
[1]Special handling and order entry required to preserve UL Listing of breaker. Contact Post Sale Service for additional details of special process.
[2]Manually or electrically operated
[3]Manually operated
[4]Electrically Operated

## 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 Kit (lock not included)

### Key Interlock Reference Table

| Product Number | Number of Locks | Kirk Key Lock Product Number | Superior Product Number |
|---|---|---|---|
| SPK4 | 1 | KFN00001[1] | S105827Y |
| SPK4 | 2 | KFN00002[1] | S105828Y |
| SPK4 | 3 | KFN00003[1] | S105829Y |
| SPK4 | 4 | KFN00004[1] | S105827-4Y |

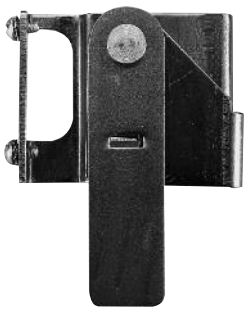
[1]Final digit may be 0, 1, 2 or 3 depending on number of key removal positions.

### 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.



Door Interlock

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

### 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** |

## 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).

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

[1]Anderson No. VCEL-075-12H1 or equivalent
[2]T-Studs - TP16FCA - included with adapter
[3]T-Studs - SP20FCA - included with adapter

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

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.

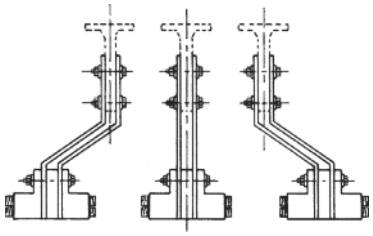
When ordering TSLUG kits order one kit per line or load side; TSLUG kits require use of T-studs. Example: A complete set of lugs for a 3000A frame, 2500A trip breaker would be Qty 1-TSLUG25. T-Studs would also be required.

| 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** |
| | 800 | TPLUG108[4] | 1 | 3 | 3/0-800 | **$23.00** |
| 1600 | 800 | TPLUG108[4] | 1 | 6 | 3/0-800 | **$23.00** |
| | 1600 | TPLUG408 | 1 | 4 | 500-800 | **$39.00** |
| 2000 | 2000 | TPLUG108[4] | 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** |
| | 1600 | TSLUG16 | 15 | 5 | 3/0-800 | **$345.00** |
| 3000 | 2000 | TSLUG20 | 18 | 6 | 3/0-800 | **$383.00** |
| | 2500 | TSLUG25 | 21 | 7 | 3/0-800 | **$418.00** |
| | 3000 | TSLUG30 | 27 | 9 | 3/0-800 | **$630.00** |
| 4000 | 4000 | TSLUG40 | 27 | 9 | 3/0-800 | **$1045.00** |

[4]For use with adapter kit only. See table above.

Type TPLUG408

Type TPLUG308



Type TSLUG20

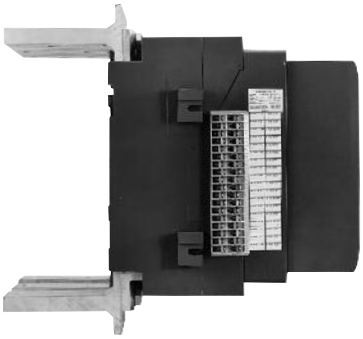
# Insulated Case Circuit Breakers
# Power Break® II Circuit Breakers

## 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.



2000A Breaker with "T" Studs Mounted

### T-Studs—Front Connected Breaker

| Circuit Breaker Frame Size (Amperes) | Max. Rating (Amperes) | Product Number | List Price GO-245B |
|---|---|---|---|
| 800 | 800 | SP08FCA[1] | **$36.00** |
| 800 | 800 | SP08FCC[2] | **$36.00** |
| 2000 | 800-2000 | SP20FCA[1] | **$49.00** |
| 2000 | 800-2000 | SP20FCC[2] | **$139.64** |
| 2500 | 2000 | SPS20FCA[1] | **$48.75** |
| 2500 | 2500 | SPS25FCC[2] | **$78.46** |
| 3000 | 3000 | SPS30FCC[2] | **$181.50** |
| 4000 | 4000 | SPS40FCC[2] | **$240.50** |
| 4000 | 4000 | SPS40LFCC[2,3] | **$395.00** |

### T-Studs—Back Connected Breaker

| Circuit Breaker Frame Size (Amperes) | Max. Rating (Amperes) | Product Number | List Price GO-245B |
|---|---|---|---|
| 2500 | 2000 | SPS20BCA[1,4] | **$48.75** |
| 2500 | 2500 | SPS25BCC[2] | **$51.50** |
| 3000 | 3000 | [2,4] | **$181.50** |

[1]Aluminum
[2]Copper
[3]Extra long stud. Alternate with SPS40FCC for ease of installation.
[4]Supplied with integral T-stud

### Trimplate

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

## Neutral Current Sensors[1]

| 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[2] | TSVG306A | **$266.00** |
| 800-1600 | 800 | 800/400 | TSVG308A | **$266.00** |
| 1600 | 1000 | 800/400[2] | TSVG808A | **$266.00** |
| | 1000 | 1000/500 | TSVG810A | **$266.00** |
| | 1600 | 1200/600[2] | TSVG812A | **$266.00** |
| | 1600 | 1600/1000 | TSVG816A | **$266.00** |
| 2000 | 2000 | 2000/1000 | TSVG820A | **$266.00** |
| 3000 | 1000 | 800/400[2] | TSVG808A | **$266.00** |
| | 1000 | 1000/500 | TSVG810A | **$266.00** |
| | 1000 | 1200/600[2] | TSVG812A | **$266.00** |
| | 1000 | 1600/1000[2] | TSVG816A | **$266.00** |
| | 2000 | 2000/1200 | TSVG820A | **$266.00** |
| | 2500 | 2500/1800 | TSVG825A | **$266.00** |
| | 3000 | 3000/2400 | TSVG830A | **$266.00** |
| 4000 | 4000 | 4000/3000 | TSVG940A | **$266.00** |

[1]Match neutral current sensor rating (or tap setting) to circuit breaker sensor rating.
[2]For use with multiple source ground fault protection schemes. Rating does not match EntelliGuard® TU and MicroVersaTrip® Plus or PM frame sensor.

Neutral Current Sensor

## Portable Test Set

The portable, battery-powered test kit provides self-tests and functional trip/no trip tests. It also provides defeat of the ground fault function and can be used in conjunction with high current test equipment. Interface is via a plug on the front of the trip unit and test can be conducted with the breaker in service. Test kits use either 120 Vac power source or internal batteries (not included).

| Description | Trip Unit Type | Product Number | List Price GO-245B |
|---|---|---|---|
| Portable Test Set | MicroVersaTrip® only | TVRMS2 | **$3000.00** |
| | EntelliGuard® TU, *micro*EntelliGuard™ only | GTUTK20 | **$3000.00** |

## Portable Battery Pack

The hand-held Portable Battery Pack provides an independent power source for EntelliGuard® TU, *micro*EntelliGuard™, MicroVersaTrip® Plus and MicroVersaTrip® PM trip units as an alternative to a test set. The battery 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. For *micro*EntelliGuard™ trip units, the battery pack connects to the trip unit through the 15-pin connector. A battery pack adapter cable is required. For MicroVersaTrip® Plus and MicroVersaTrip® PM trip units, the battery pack connects to the trip unit through the rating plug test jack. The battery pack requires three standard 9 Vdc alkaline batteries (not included).

| Description | Product Number | List Price GO-135S |
|---|---|---|
| Portable Battery Pack | TVPBP | **$75.00** |
| EntelliGuard® TU, *micro*EntelliGuard™ Battery Pack Adapter Cable | TVPBPACC | **$50.00[3]** |

**[3]GO-135M**

## POWER LEADER® Power Supplies

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

| Description | System Requirements (price separately) | Product Number | List Price G0-104A |
|---|---|---|---|
| 1.5 ampere power supply Price one PLPS4G01 for each line-up. 45 trip units[4] and 100 ft. maximum. | Input power, 100VA (85-265Vac or 100-370Vdc) | PLPS4G01 | **$1250.00** |

[4]20 trip units maximum for EntelliGuard® TU

## Reference

| | |
|---|---|
| Instructions | GEH-6492 |

## POWER LEADER® Voltage Conditioner

Conditions and scales 120 Vac 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 G0-104A |
|---|---|---|---|
| Supplies isolated bus voltage signal to EntelliGuard® TU and 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

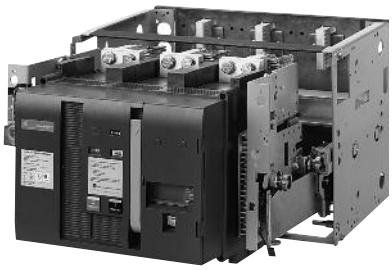
| | |
|---|---|
| Instructions | GEH-5946 |

## Rating Plug Removal Tool

| Product Number | List Price GO-135S |
|---|---|
| TRTOOL | **$12.00** |

### 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



Draw-out Breaker in Substructure

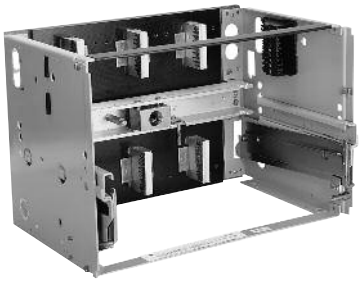
### Description

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.



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[1] | SPDOSD36B | **$283.00** |

[1]Order for replacement only. Included and factory wired with draw-out breaker.

## 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.

| 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.

| 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** |