

# SIEMENS

## SB Encased Systems Breakers, Trip Units and Accessories

Pricing Guide

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# How to Order SB Encased Systems Breakers <sup>①</sup>

Description	Example Catalog Number	List \$ <sup>②</sup>	Example Catalog Number Explanation												
<b>1. Frames</b> Select basic breaker frame catalog number from <b>Table A</b> .	<b>SBS2016DV</b>	<b>13498.</b>	This catalog number represents a standard interrupting rated Encased Systems Breaker "SBS," 2000 ampere frame size "20"; 1600 max ampere rating "16"; drawout mounted with vertical bus orientation "DV"												
<b>2. Drawout Mechanisms</b> Select the proper stationary drawout element (cradle) for use with breaker frame selected in Step 1. Stationary drawout mechanism is not required if fixed mounted breaker was selected in Step 1. Select from <b>Table B</b> .	<b>SBS20DFV</b>	<b>2198.</b>	This catalog number represents the stationary drawout element (cradle) for a 2000 ampere frame size, standard interrupting rating, drawout mounted Encased Systems Breaker with vertical bus orientation.												
<b>3. Pressure Wire/Bus Connectors</b> For <u>fixed mounted</u> breakers only, select proper terminals for cable connection; or bus connectors for rear bus bar connection. Not required if drawout mounted breaker was selected in Step 1. Select from <b>Table C</b> .		<b>0.</b>	A drawout mounted breaker was selected in Step 1, therefore, terminals or bus "T" connectors are not required.												
<b>4. Trip Units</b> Select SB-EC Trip Unit or standard Type "TL" Trip Unit with proper function package from <b>Table D</b> and <b>E</b> or <b>Table L</b> respectively. Trip unit is not required for Non-Automatic Switches.	<b>SB16TP01G</b>	<b>3907.</b>	This catalog number represents a trip unit for a 1600 frame ampere rating Encased Systems Breaker with long and time delay, short time pickup and time time pickup delay, ground fault pickup and time delay and standard metering and alarm functions.												
<b>5. A premium type SB-EC Trip Unit requires the listed accessories shown. Refer to TABLES F, G and H.</b>  The standard Type "TL" Trip Unit does not use these accessories	<b>SBEPS</b>  <b>SBPTM480</b>  <b>SBECDAK</b>	<b>511.</b>  <b>449.</b>  <b>256.</b>	AN SB-EC Trip Unit was selected, therefore an External Power Supply is required for communications and metering functions. One required per SB-EC Trip Unit.  One PT Module per SB-EC Trip Unit is required for metering functions. Select according to system voltage. This catalog number represents a 480V system voltage Potential Transformer.  One wiring kit per SB-EC Trip Unit is required. Select according to Breaker Frame Size and mounting configuration. This wiring kit is for a 2000 A Frame Size, Drawout mounting.												
<b>6. Rating Plugs</b> Select the proper rating plug for the breaker ampere rating from <b>Table M</b> . Rating plug is not required for Non-Automatic Switches.	<b>16SB1200</b>	<b>194.</b>	This catalog number represents a 1200 ampere continuous current rating plug for a 1600 frame ampere rating breaker.												
<b>7. Electrical Operators</b> Select proper electrical operator, if required, for breaker frame size and control voltage from <b>Table N</b> .	<b>SBEO120</b>	<b>3239.</b>	This catalog number represents a 120 volt electrical operator for a 2000 ampere frame size Encased Systems Breaker. A Shunt Trip or Undervoltage Release should be ordered and priced separately.												
<b>8. Internal Accessories</b> List the required internal accessories catalog numbers from pages 8-12. List each catalog number and price separately.	<b>SBST120</b> <b>SBUV480</b> <b>SBAS6</b>	<b>421.</b> <b>421.</b> <b>539.</b>	120 VAC Control Power Shunt Trip for remote open 480 Volt AC, undervoltage release 3 NO (normally open), 3 NC (normally closed) auxiliary switches												
<b>9. External Accessories</b> List the required external accessories catalog numbers from pages 9-12. List each catalog number and price separately.	<b>SBWIN</b> <b>KISB</b> <b>SBPLD</b> <b>N16SB</b>	<b>611.</b> <b>790.</b> <b>105.</b> <b>247.</b>	Windows based function display and configuration software for PC Kirk Key Interlock on breaker Padlocking Device on drawout Neutral Sensor for 1600 frame ampere rating breaker												
<b>10. Secondary Contact Blocks</b> Proper secondary contact blocks for external control wiring must be provided on drawout mounted breakers. Select the proper catalog numbers based on the breaker trip unit functions and internal accessories that were selected in Steps 5, 6, 7 and 8 above. Select from <b>Table P</b> . Note: Secondary contact blocks are not required on fixed mounted breakers, but control terminal blocks and mounting brackets should be ordered for secondary control wiring on fixed mount breakers. Refer to page 9, <b>Table P</b> for additional information.	<b>SBSDLT</b> <b>SBSDRT</b> <b>SBSDRB</b>	<b>88.</b> <b>88.</b> <b>88.</b>	Secondary disconnects for this drawout breaker are required for certain trip unit functions, internal and external accessories as shown in <b>Table P</b> . This example requires the following:												
<b>Total List Price: 27650.</b>			<table border="1"> <thead> <tr> <th>Function/Accessory</th> <th>Contact Position</th> <th>Sliding Secondary Disconnect</th> </tr> </thead> <tbody> <tr> <td>Electrical Operator Undervoltage Release, Neutral CT, Shunt Trip</td> <td>LT</td> <td><b>SBSDLT</b></td> </tr> <tr> <td>Auxiliary Switches (3A &amp; 3B)</td> <td>RB</td> <td><b>SBSDRB</b></td> </tr> <tr> <td>SB-EC Trip Unit</td> <td>RT &amp; LB</td> <td><b>SBSDRT</b> <b>SBSDLB</b></td> </tr> </tbody> </table>	Function/Accessory	Contact Position	Sliding Secondary Disconnect	Electrical Operator Undervoltage Release, Neutral CT, Shunt Trip	LT	<b>SBSDLT</b>	Auxiliary Switches (3A & 3B)	RB	<b>SBSDRB</b>	SB-EC Trip Unit	RT & LB	<b>SBSDRT</b> <b>SBSDLB</b>
Function/Accessory	Contact Position	Sliding Secondary Disconnect													
Electrical Operator Undervoltage Release, Neutral CT, Shunt Trip	LT	<b>SBSDLT</b>													
Auxiliary Switches (3A & 3B)	RB	<b>SBSDRB</b>													
SB-EC Trip Unit	RT & LB	<b>SBSDRT</b> <b>SBSDLB</b>													

① Refer to SB Encased System Breakers Selection Guide for detailed selection information for SB breakers and related accessories.

② Refer to **Discount Schedule T** unless specified.

# Frames

**Table A: Circuit Breaker Frames**

SBA Alternate Interrupting Rating ①				Drawout Breaker Element ②		
Breaker Frame		Fixed Mounted Breaker		Vertical Bus ③	Horizontal Bus ③	List \$
Frame ④ Size (A)	Max Ampere Rating ⑤ (A)	Catalog Number	List \$	Catalog Number	Catalog Number	
1200	400	SBA0804F	7919.	SBA0804DV	SBA0804DH	9420.
1200	800	SBA0808F	7919.	SBA0808DV	SBA0808DH	9420.
1200	1200	SBA1212F	10209.	SBA1212DV	SBA1212DH	13199.
2000	1200	SBA2012F	10209.	SBA2012DV	SBA2012DH	13199.
2000	1600	SBA2016F	10209.	SBA2016DV	SBA2016DH	13199.
2000	2000	SBA2020F	10985.	SBA2020DV	SBA2020DH	16014.
SBS Standard Interrupting Rating ①						
1200	400	SBS0804F	8535.	SBS0804DV	SBS0804DH	10290.
1200	800	SBS0808F	8535.	SBS0808DV	SBS0808DH	10290.
1200	1200	SBS1212F	10559.	SBS1212DV	SBS1212DH	13498.
2000	1200	SBS2012F	10559.	SBS2012DV	SBS2012DH	13498.
2000	1600	SBS2016F	10559.	SBS2016DV	SBS2016DH	13498.
2000	2000	SBS2020F	11316.	SBS2020DV	SBS2020DH	16455.
3200	2500	SBS3225F	21118.	SBS3225DV	—	26097.
3200	3200	SBS3232F	27315.	SBS3232DV	—	33354.
5000	2500	SBS4025F	48589.	SBS4025DV	—	61928.
5000	3200	SBS4032F	48589.	SBS4032DV	—	61928.
5000	4000	SBS4040F	48589.	SBS4040DV	—	61928.
5000	5000	SBS5050F	64235.	SBS5050DV	—	81871.
SBH High Interrupting Rating ①						
2000	800	SBH2008F	11554.	SBH2008DV	—	14414.
2000	1200	SBH2012F	11554.	SBH2012DV	—	16250.
2000	1600	SBH2016F	11554.	SBH2016DV	—	16250.
2000	2000	SBH2020F	13405.	SBH2020DV	—	18099.
3200	2500	SBH3225F	26808.	SBH3225DV	—	32273.
3200	3200	SBH3232F	34173.	SBH3232DV	—	41022.
5000	2500	SBH4025F	60143.	SBH4025DV	—	75244.
5000	3200	SBH4032F	60143.	SBH4032DV	—	75244.
5000	4000	SBH4040F	60143.	SBH4040DV	—	75244.
5000	5000	SBH5050F	77203.	SBH5050DV	—	96586.

**Non-Automatic Switches ⑥**

SBN Standard Withstand Rating ⑦				Drawout Switch Element ②		
Breaker Frame		Fixed Mounted Breaker		Vertical Bus ③	Horizontal Bus ③	List \$
Frame ④ Size (A)	Max Ampere Rating ⑤ (A)	Catalog Number	List \$	Catalog Number	Catalog Number	
1200	400	SBN0804F	4995.	SBN0804DV	SBN0804DH	7144.
1200	800	SBN0808F	4995.	SBN0808DV	SBN0808DH	7144.
1200	1200	SBN1212F	6574.	SBN1212DV	SBN1212DH	10052.
2000	1200	SBN2012F	6574.	SBN2012DV	SBN2012DH	10052.
2000	1600	SBN2016F	6574.	SBN2016DV	SBN2016DH	10052.
2000	2000	SBN2020F	7351.	SBN2020DV	SBN2020DH	12265.
3200	2500	SBN3225F	15744.	SBN3225DV	—	22541.
3200	3200	SBN3232F	20769.	SBN3232DV	—	28673.
5000	2500	SBN4025F	35644.	SBN4025DV	—	48084.
5000	3200	SBN4032F	35644.	SBN4032DV	—	48084.
5000	4000	SBN4040F	35644.	SBN4040DV	—	48084.
5000	5000	SBN5050F	46059.	SBN5050DV	—	62134.

① Interrupting ratings shown on following page.

② Requires additional stationary Drawout Element shown in **Table B**.

③ Primary bus connector orientation. Must match stationary drawout element selected from **Table B**. 1200 and 2000 ampere frame size bus connections may be oriented vertically or horizontally.

④ Breaker frame size refers to the physical envelope size.

⑤ Max ampere rating is determined by the current sensors in the breaker.

⑥ Trip units and rating plugs are not required for non-automated switches.

⑦ Withstanding rating is equal to the short time ratings shown on the following page.

# Ratings, Stationary Drawouts and Power Connectors

## UL Symmetrical RMS Amperes Interrupting Ratings (kA)

Optional Ratings and Application Voltages	Breaker Frame Size			
	1200A	2000A	3200A	5000A
<b>Alternate A. I. R. (kA): Blue Label "SBA"</b>				
@ 240V AC	65	85	N/A	N/A
@ 480V AC	65	65	N/A	N/A
@ 600V AC	42	50	N/A	N/A
<b>Standard A. I. R. (kA): Black Label "SBS"</b>				
@ 240V AC	100	100	150	150
@ 480V AC	100	100	100	100
@ 600V AC	65	65	85	85
<b>High A. I. R. (kA): Red Label "SBH"</b>				
@ 240V AC	N/A	200	200	200
@ 480V AC	N/A	150	150	150
@ 600V AC	N/A	100	100	100
<b>Short Time Rating</b> ① (kA), T = 0.5 Sec.	25	35	50	65

## IEC 947-2 Rating - Standard SBS

Interrupting Ratings Symmetrical RMS Amperes 50/60 Hz.	AC Voltages		Breaker Frame Size			
			1200A	2000A	3200A	5000A
415		Icu	100kA	100kA	100kA	100kA
		Ics	100kA	100kA	100kA	100kA
		Icw	25kA	35kA	50kA	65kA
690		Icu	65kA	65kA	65kA	65kA
		Ics	65kA	65kA	65kA	65kA
		Icw	25kA	35kA	50kA	65kA

## Table B: Stationary Drawout Element

Includes only the drawout mechanism or cell which must be installed in the switchboard. The appropriate Drawout Breaker Element should be selected from **Table A**.

### SBA

Breaker Frame		Stationary Drawout Element		
Frame Size	Ampere Rating	Vertical Bus ②	Horiz. Bus ②	List \$
1200	400	SBA08DFV	SBA08DFH	1756.
1200	800	SBA08DFV	SBA08DFH	1756.
1200	1200	SBA12DFV	SBA12DFH	2198.
2000	1200	SBA20DFV	SBA20DFH	2198.
2000	1600	SBA20DFV	SBA20DFH	2198.
2000	2000	SBA20DFV	SBA20DFH	2198.

### SBS

1200	400	SBS08DFV	SBS08DFH	1756.
1200	800	SBS08DFV	SBS08DFH	1756.
1200	1200	SBS12DFV	SBS12DFH	2198.
2000	1200	SBS20DFV	SBS20DFH	2198.
2000	1600	SBS20DFV	SBS20DFH	2198.
2000	2000	SBS20DFV	SBS20DFH	2198.
3200	2500	SBS32DFV	—	3287.
3200	3200	SBS32DFV	—	3287.
5000	2500	SBS40DFV	—	4095.
5000	3200	SBS40DFV	—	4095.
5000	4000	SBS40DFV	—	4095.
5000	5000	SBS50DFV	—	6353.

### SBH

2000	800	SBH20DFV	—	2419.
2000	1200	SBH20DFV	—	2419.
2000	1600	SBH20DFV	—	2419.
2000	2000	SBH20DFV	—	2419.
3200	2500	SBH32DFV	—	3768.
3200	3200	SBH32DFV	—	3768.
5000	2500	SBH40DFV	—	4846.
5000	3200	SBH40DFV	—	4846.
5000	4000	SBH40DFV	—	4846.
5000	5000	SBH50DFV	—	7104.

## Table C: Bus Connectors and Pressure Wire Connectors

### T-Connectors ③

For rear bus connected fixed mounted breakers, two connectors are required per pole for connecting bus bars to breaker stabs. T-connectors are rotatable 90 degrees for flexibility of bus connection on 1200 and 2000 ampere frames only.

Frame Size	Catalog Number	List \$
1200	SB12TCON	63.
2000	SB20TCON	88.
3200	SB32TCON	200.
5000 (4000A Max Rating)	SB40TCON	702.
5000	SB50TCON	702.

### Pressure Wire Connectors ③

For cable connected, fixed, mounted, front connected SBA rated breakers only. Two connectors are required per pole for connecting power cables to breaker stabs.

Frame Size	Connector Amp Rating	Cables per Connector	Connector Wire Range	Catalog Number	List \$
1200	800	1-3	1/0-500 kcmil Cu/Al	TA3K500SB	87.
1200	1200	1-4	250-500 kcmil Cu/Al	TA4N8500SB	138.
2000	1200	1-4	250-600 kcmil Cu/Al	TA4P8500SB	109.
2000	2000	1-6	250-600 kcmil Cu/Al	TA6R600SB	120.

① Withstand ratings are equal to the short time ratings.

② Primary bus connector orientation. Must match drawout breaker selected from **Table A**. 1200 and 2000 ampere frame bus connections may be oriented vertically or horizontally.

③ Select either T-Connectors or Pressure Wire Connectors according to application. 2 each required per pole (i.e. one for line side and one for load side).

# SB-EC Trip Units

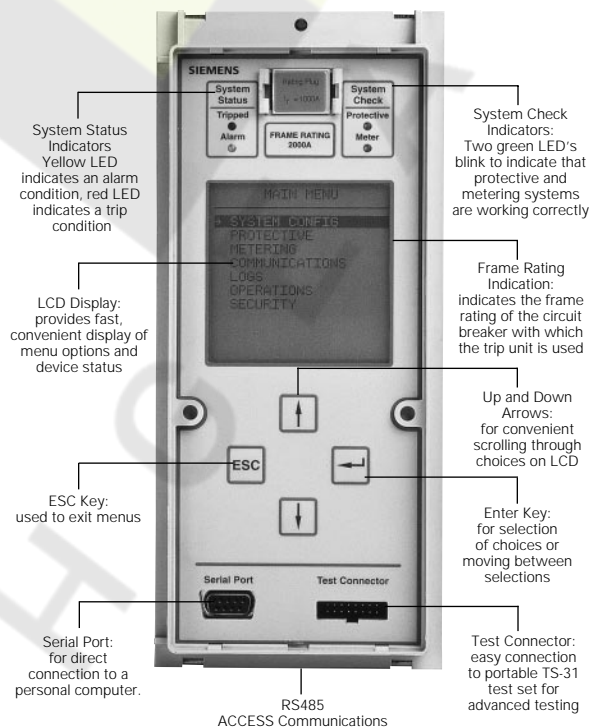
Two types of interchangeable trip units for the SB Encased Systems Breakers are available. The basic type "TL" Trip Unit features a full range of industry standard protective settings. The high-performance Systems Breaker Energy Communicating Trip Unit (SB-EC Trip Unit) offers advanced metering, protective relaying, time-stamped logs,

and power quality monitoring functions, including an integral keypad and LCD graphical display for menu-driven system configuration and real-time voltage and current waveforms displays. Both units offer unique models to provide an efficient combination of options versus cost for each application.

**Table D - SB-EC Trip Units**

Features	Models and List Prices			
	SBxxTP01	SBxxTP01G	SBxxTP02	SBxxTP02G
<b>Integral Keypad and Display</b> Voltage/Current Waveform Displays	✓	✓	✓	✓
<b>Protective Functions</b> Long Time, Short Time, Instantaneous	✓	✓	✓	✓
<b>Metering Functions</b> Volts, Amps, P.F., Frequency, Watts, VARs, VA, Crest Factor, Amp and Watt Demand, Voltage and Current Waveforms, Voltage and Current Unbalance	✓	✓	✓	✓
<b>Communications</b> PC (RS-232), ACCESS (RS-485), ZSI	✓	✓	✓	✓
<b>Counters &amp; Test Functions</b> Breaker Test (Trip/No Trip), Mechanical Counter, Interruption Level, Fault Counter	✓	✓	✓	✓
<b>Security</b> Password Protection	✓	✓	✓	✓
<b>Event Log</b> Time-stamped-10 Most Recent Alarms	✓	✓	✓	✓
<b>Trip Log</b> Time-stamped-5 Most Recent Trips	✓	✓	✓	✓
<b>Alarms</b> (Alarm Only) Overcurrent, Gnd. Overcurrent, Over Amp Demand, Over kW, Over kW Demand, Over KVAR, Over KVA, Under/Over P.F.	✓	✓	✓	✓
<b>Advanced Alarms</b> Total Harmonics			✓	✓
<b>Min./Max. Logs</b> Volt/Amp, Power, PF, Freq., %THD			✓	✓
<b>Harmonic Analysis</b> Up to 19th Per Phase, THD			✓	✓
<b>Protective Relay Functions (Alarm and/or Trip)</b> Neutral Overcurrent, Current Balance, Under/Over Voltage, Voltage Unbalance, Reverse Power, Under/Over Frequency			✓	✓
<b>Ground Fault Protection</b> Residual or Ground Return		✓		✓
<b>List \$</b>	<b>2808.</b>	<b>3907.</b>	<b>3174.</b>	<b>4274.</b>

**SB-EC Trip Unit**



## How To Order SB-EC Trip Units

There are four available models built around a full function overcurrent protective unit, including Communications, Basic Alarms and Logs, Metering with Waveform Displays, Operation and Fault Counters, and Security Features as standard. A Potential Transformer Module and External Power Supply are required for Communications and Metering Functions along with a Rating Plug and Auxiliary Wiring Kit for trip unit operation and must be ordered separately. The PT Module and Power Supply are external, panel mounted components. Refer to the following tables.

Example SB-EC Trip Unit Order:

**SB04TP01G Trip Unit** ① + **SBEPS Power Supply** ② + **SBPTM480 PT Module** ③ + **SBECDAK Wire Kit** ④

① Refer to **Tables D & E** ② Refer to **Table F** ③ Refer to **Table G** ④ Refer to **Table H**

**Table E - SB-EC Trip Unit Catalog Numbering**

Breaker Type	SB Frame Rating (A)	SB-EC Trip Unit	Trip Unit Functionally (See Table 2)	Ground Fault Protection <sup>①</sup>
SB	04	TP	01	G
SB	04 = 400 08 = 800 12 = 1200 16 = 1600 20 = 2000 25 = 2500 32 = 3200 50 = 5000	TP	01 = standard model including real-time voltage and current waveform displays, overcurrent protection, metering and communications  02 = premium model including real-time voltage and current waveform displays, overcurrent protection, metering and communications + protective relay functions + min/max logs + power quality harmonic analysis	G = ground fault protection  Blank = no ground fault protection

① For 4000A EC Trip Unit rating, order 5000A SB Frame Breaker and specify type '50' EC Trip Unit rating per Table E.

# SB-EC Trip Unit Accessories

## Required SB-EC Trip Unit Accessories

**Table F: SB-EC External Power Supply**

Catalog Number	Input Voltage	List \$
<b>SBEPS</b>	120 VAC	511.
<b>SBEPS24</b>	24 VDC	

Note: One power supply can power up to three trip units. Max wire length between trip unit and power supply is 50 feet.

**Table G: SB-EC Potential Transformer (PT) Modules**

Catalog Number	Systems Voltage (VAC)	List \$
<b>SBPTM240</b>	240	449.
<b>SBPTM480</b>	480	
<b>SBPTM600</b>	600	

Note: One PT module can power up to three trip units when the line side bus is common. Max wire length between PT module and each trip unit is 50 feet.

## Additional SB-EC Trip Unit Accessories

All other SB Breaker Internal and External Accessories may be used with the SB-EC Trip Unit except the Remote Indicator Panel (type **SBRIP**), Auxiliary Power Module (type **SBAPM**), Ground Fault Monitor, (type **SBGFM**), and Plug-in Display Module (type **SBDM**).

**Table J: SB-EC Remote Open/Close and Alarm Relay Accessory**

Catalog Number	System Voltage	Additional Relay Contact	List \$
<b>SBECDMR120</b>	120V AC	Alarm Contact	770.
<b>SBECBA120</b>		Bell Alarm	
<b>SBECDMR24</b>	24V DC	Alarm Contact	
<b>SBECBA24</b>		Bell Alarm	
<b>SBECDMR48</b>	48V DC	Alarm Contact	
<b>SBECBA48</b>		Bell Alarm	
<b>SBECDMR125</b>	125V DC	Alarm Contact	
<b>SBECBA125</b>		Bell Alarm	

Note: This accessory is required only for remote breaker open/close operation via R5232 or RS485 communications. This accessory cannot be supplied in addition to the Bell Alarm or Display Module Relay. This accessory requires the Shunt Trip and Electric Motor Operator Accessories' control voltage to be the same as this accessory.

**Table K: SB-EC Trip Unit Retrofit Kit**

Frame Size	Catalog Number	List \$
1200, 2000, 3200	<b>SBECAKT</b>	256.
5000	<b>SB4ECAKT</b>	

Note: Field installable by Siemens Field Service personnel only. This accessory for retrofitting existing SB Breaker installations with SB-EC Trip Units. Trip Unit and required accessories should be ordered separately.

**Table H: SB-EC Wire Kit Accessories**

Catalog Number	Frame Size	Description	List \$
<b>SBECDAK</b>	1200,	Drawout	256.
<b>SBECFAK</b>	2000	Fixed Mount	
<b>SB3ECDAK</b>	3200	Drawout	
<b>SB3ECFAK</b>		Fixed Mount	
<b>SB4ECDAK</b>	5000	Drawout	
<b>SB4ECFAK</b>		Fixed Mount	

Note: Select one wire kit per trip unit according to mounting configuration. Factory wired.

## Communications

Open-protocol communications allows all SB Trip Units to be integrated into Siemens supervisory software (WinPM™ V4.0) and other popular third party energy monitoring networks. Protocol Converters are available from the Siemens ACCESS Group for connection to a variety of open and proprietary automation protocols, including Profibus DP, LonWorks, the Siemens S7 PLC, and many other third party PLCs. Refer to Bulletin IPIM-2211A for additional information. EIA-232 communications is also available for local PC communication and trip unit configuration via Siemens SBWin™ software.

No additional accessory devices are required for integration of the SB-EC Trip Unit into the ACCESS™ Communication System. A Multiplexer/Translator (Catalog No. **MTZ**) and Expansion Plug communication components are always required for Zone Selective Interlocking and must be ordered separately. Refer to page 13 for additional information.

## Remote Automatic Operation

Remote, automatic open and close operation of the breaker is possible via the SB-EC Trip Unit's EIA-485 or EIA-232 communication ports or a hard-wire input. Remote operation using a communication port requires a protocol converter or Siemens WinPM™ V4.0 software for EIA-485 Networked Communications or SBWin™ software for EIA-232 PC Communications for the following required accessories. The Shunt Trip and Remote Open/Close Relay accessories are required for the remote open function, and the Electrical Operator accessory is required in addition for both remote open and close operations.

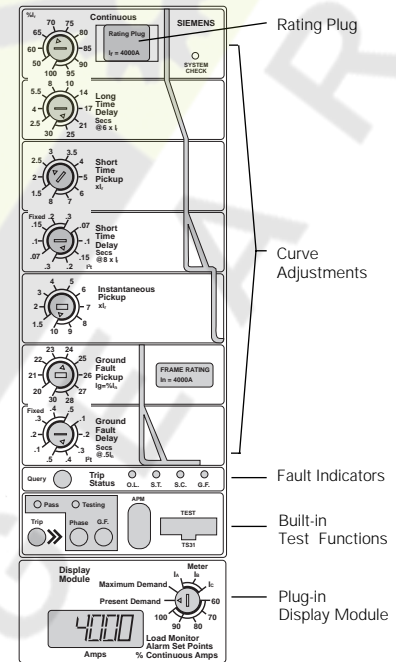
Remote, automatic operation via a hard-wire input uses the following accessories with optional control voltages available. Only the Shunt Trip Accessory is necessary for the remote open function, and the Electrical Operator is additionally required for both remote open and close operations.

# Type "TL" Trip Units

Table L: Type "TL" Trip Units

Trip Unit Function	Catalog Number					
	SB <sup>①</sup>	T <sup>②</sup>				
Adjustable Continuous Current	X	X	X	X	X	X
Adjustable Long Time Delay	X	X	X	X	X	X
Adjustable Short Time Pickup		X	X		X	X
Adjustable Short Time Delay (I <sup>2</sup> t)		X	X		X	X
Adjustable Short Time Delay (Fixed)		X	X		X	X
Adjustable Instantaneous Pickup	X	X		X		X
Adjustable Ground Fault Pickup <sup>③</sup>				X	X	X
Adjustable Ground Fault Time Delay (I <sup>2</sup> t) <sup>③</sup>				X	X	X
Adjustable Ground Fault Time Delay (Fixed) <sup>③</sup>				X	X	X
Fixed Instantaneous Override	X	X	X	X	X	X
Internal Watchdog	X	X	X	X	X	X
Integral Testing Functions	X	X	X	X	X	X
Local Trip Indication:						
Overload	X	X	X	X	X	X
Short Time		X	X		X	X
Short Circuit	X	X	X	X	X	X
Ground Fault				X	X	X
Access Communications Compatibility <sup>④</sup>	X	X	X	X	X	X
<b>Catalog Number Suffix <sup>②</sup></b>	<b>LI</b>	<b>LSI</b>	<b>LS</b>	<b>LIG</b>	<b>LSG</b>	<b>LSIG</b>
<b>List \$</b>	<b>886.</b>	<b>1613.</b>	<b>1239.</b>	<b>1556.</b>	<b>2337.</b>	<b>2736.</b>

- ① Insert appropriate breaker frame ampere rating designation into catalog number. See example below.
- ② Add appropriate catalog number suffix as required. See example below.
- ③ For 3 phase, 4 wire systems, order correct 4th wire (neutral) transformer as separate item. See page 10.
- ④ Expansion Plug and Multiplexer/Translator required. See pages 12 and 13.



The interchangeable trip unit system of the SB breaker showcases the latest advancements in microprocessor controlled circuit protection technology. Using the speed and power of its microprocessor to drive sophisticated digital sampling techniques, the SB trip unit measures the true heating content of the current waveform (RMS current) hundreds of times each second, effectively eliminating nuisance tripping due to the presence of harmonics and other "noise" on the system.

All standard trip units feature:

- Integral Testing Functions
- Built-in Trip Indicators
- Instantaneous "Override"
- Continuous Self-Diagnostic "Watchdog"
- System LED on front cover

Available protective function adjustments include:

- Continuous Current
- Long Time Delay
- Short Time Pickup and Delay
- Instantaneous Pickup
- Ground Fault Pickup and Delay

Choose the appropriate function package and catalog number as shown below:

**Example: S B 20 T L S G**

Breaker Frame Ampere Rating      Catalog Number Suffix

2000 ampere breaker ampere rating with:

- Adjustable Continuous Current
- Adjustable Long Time Delay
- Adjustable Short Time Pickup and Time Delay
- Adjustable Ground Fault Pickup and Time
- Delay Breaker Ampere Ratings:  
04 = 400, 08 = 800, 12 = 1200,  
16 = 1600, 20 = 2000, 25 = 2500,  
32 = 3200, 40 = 4000

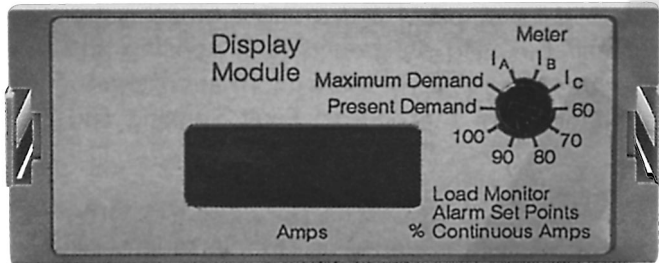


# Type "TL" Trip Unit Accessories

## Plug-in Display Module

The Plug-in Display Module can be added to the type "TL" electronic trip unit only to provide digital current readout of each phase in amperes. The module also provides load monitor set points at 60, 70, 80, 90 and 100% of the continuous ampere setting. Also provided are two ampere demand functions. May be used in conjunction with the Alarm Relay on page 10 or the Bell Alarm and Alarm Relay Combination Module on page 9 for remote alarming. UL listed for field installation.

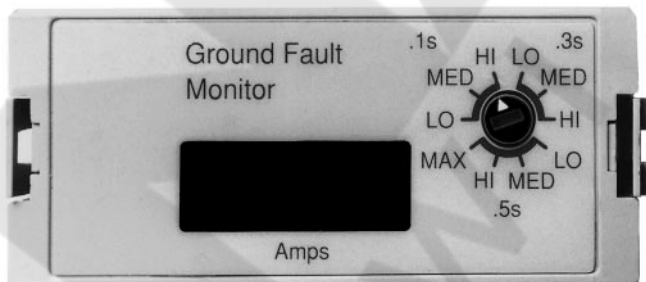
<b>Catalog Number</b>	<b>List \$</b>
<b>SBDM</b>	<b>1756.</b>



## Ground Fault Monitor

The Ground Fault Monitor can be used in type "TL" electronic trip units only supplied with or without the ground fault protection function. It allows the user to locally monitor the ground fault current in amperes without tripping the breaker. Three ground fault pickup levels based on the breaker frame ampere rating are provided for each of the three fixed ground fault time delay bands (0.1, 0.3 and 0.5 seconds). May be used in conjunction with the Alarm Relay or the Bell Alarm and Alarm Relay Combination Module. The combinations allow applications such as Ground Fault Warning only, when used with TL Trip Units without Ground Fault Protection, or may provide an alarm for Ground Fault indication at a lower level than the Ground Fault protection level set for TL Trip Units specified with Ground Fault protection. See page 9 for remote alarming. UL listed for field installation.

<b>Catalog Number</b>	<b>List \$</b>
<b>SBGFM</b>	<b>2253.</b>



## Rating Plugs

**Table M: Rating Plugs for SB-EC and Type "TL" Trip Units**  
Select the proper Rating Plug based on the maximum continuous current rating of the load served and the breaker frame ampere rating.

Breaker Max Ampere Rating	Rating Plug Ampere Rating	Catalog Number	List \$
400	200	04SB200	194.
	225	04SB225	
	250	04SB250	
	300	04SB300	
	350	04SB350	
800	400	04SB400	
	450	08SB400	
	500	08SB450	
	600	08SB500	
	600	08SB600	
1200	700	08SB700	
	800	08SB800	
	800	12SB600	
	700	12SB700	
	800	12SB800	
1600	1000	12SB1000	
	1200	12SB1200	
	1200	16SB800	
	1000	16SB1000	
	1200	16SB1200	
2000	1600	16SB1600	
	1000	20SB1000	
	1200	20SB1200	
	1600	20SB1600	
	2000	20SB2000	
2500	1600	25SB1600	
	2000	25SB2000	
	2500	25SB2500	
3200	1600	32SB1600	
	2000	32SB2000	
	2500	32SB2500	
	3000	32SB3000	
	3200	32SB3200	
4000	2000	40SB2000	
	2500	40SB2500	
	3000	40SB3000	
	3200	40SB3200	
	4000	40SB4000	
5000	2500	50SB2500	
	3000	50SB3000	
	3200	50SB3200	
	4000	50SB4000	
	5000	50SB5000	

# Internal and External Accessories

**Table N: Electrical Operators**

Electric Operators function to automatically charge the SB breaker's stored energy mechanism. Each operator includes a Remote Closing Solenoid for closing the breaker from a remote location and an electronic controller which provides anti-pump protection and remote charging capability and indication. The Closing Coil Interlock (CCX) option allows the customer to block the operation of the closing coil by adding an external electrical contact/interlock in the breaker's closing coil circuit. A Shunt Trip or Under Voltage Release should be ordered and priced separately for remote opening of the breaker. UL listed for field installation.

Electrical Operators				CCX Option		
Frame Sizes	Voltage		Catalog Number	List \$	Catalog Number w/CCX Option	List \$
	AC	DC				
1200 2000 3200	120	—	SBEO120	3239.	SBEO120CCX	3458.
	—	24	SBEO24		SBEO24CCX	
	—	48	SBEO48		SBEO48CCX	
	—	125	SBEO125		SBEO125CCX	
5000	120	—	SB4EO120	3239.	SB4EO120CCX	3458.
	—	24	SB4EO24		SB4EO24CCX	
	—	48	SB4EO48		SB4EO48CCX	
	—	125	SB4EO125		SB4EO125CCX	

**Electrical Operators With Electric Close**

Electric Operators with Local Electric Close provide an electric close pushbutton on the breaker escutcheon that can be electrically interlocked with an external control circuit. The Closing Coil Interlock Option is also available on operators equipped with Local Electric Close. Factory installation only. Note that "Push to Close" and "Push to Open" pushbutton operators are provided on the breaker escutcheon as standard. Note: Order 'CSS' option to defeat anti-pump circuit to allow a maintained close signal during charging when breaker is closed then opens. Consult Factory for Cat. #.

Electrical Operators with Local Electric Close				CCX Option		
Frame Sizes	Voltage		Catalog Number	List \$	Catalog Number w/CCX Option	List \$
	AC	DC				
1200 2000 3200	120	—	SBEO120LEC	3667.	SBEO120LECCCX	3885.
	—	24	SBEO24LEC		SBEO24LECCCX	3458.
	—	48	SBEO48LEC		SBEO48LECCCX	3458.
	—	125	SBEO125LEC		SBEO125LECCCX	3885.
5000	120	—	SB4EO120LEC	3667.	SB4EO120LECCCX	3885.
	—	24	SB4EO24LEC		SB4EO24LECCCX	3885.
	—	48	SB4EO48LEC		SB4EO48LECCCX	3885.
	—	125	SB4EO125LEC		SB4EO125LECCCX	3885.

**Table P: Secondary Contact Blocks**

Contact blocks are required for secondary control wiring. Sliding Secondary Disconnects are required on drawout mounted breakers, and Control Terminal Blocks are required for fixed mounted breakers. The appropriate number and location of contact blocks should be selected from the table below based on the features

and accessories ordered on each circuit breaker. Control Terminal Blocks require a mounting bracket as shown below. All Sliding Secondary Disconnects or Control Terminal Blocks should be priced separately.

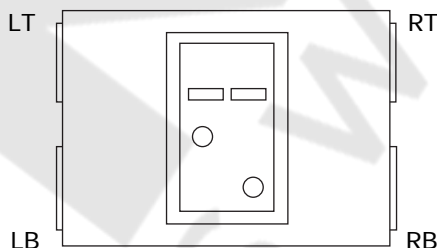
Contact Block Position	Accessory											
	Electric Operator	Remote Closing Solenoid	Shunt Trip	Under-voltage Release	Neutral Sensor	CCX Option or Remote ① Indication Panel	Zone Interlock and ACCESS	Bell Alarm ① or Display Module Relay or Remote Open/Close Relay	SB-EC Trip Unit External Power Supply and PT Module	Auxiliary Switches		
										1A and 1B 2A and 2B 3A and 3B	4A and 4B ② 5A and 5B ② 6A and 6B ②③	
LT	X	X	X	X	X							
LB						X	X		X			
RT								X	X		X	
RB										X	X	

**Sliding Secondary Disconnects**

Contact Position	Catalog Number	List \$
LT	SBSDLT	88.
LB	SBSDLB	
RT	SBSDRT	
RB	SBSDBR	

**Control Terminal Blocks**

Contact Position	Catalog Number	List \$
LT	SBTBLT	88.
LB	SBTBLB	
RT	SBTBRT	
RB	SBTBRR	



Secondary Contact Block Locations

**Mounting Bracket for Terminal Block**

For mounting Control Terminal Blocks to fixed mounted breakers. One bracket required for mounting locations LT and LB and a separate bracket required for mounting locations RT and RB.

Catalog Number	List \$
SBTBM	53.00

- ① Remote Indicator Panel, Bell Alarm, Display Module Relay and Remote Open/Close Relay are mutually exclusive accessories. Only one may be used per breaker.
- ② 4A and 4B, 5A and 5B, 6A and 6B auxiliary switches available in type Form-C only with SB-EC Trip Unit. See Auxiliary Switch selection table on page 9.
- ③ 6A and 6B auxiliary switches available in type Form-C only when used with Bell Alarm and Alarm Relays. See Auxiliary Switch table on page 9.

# Internal and External Accessories

## Shunt Trips

Allows the breaker to be opened from a remote location. Included is an auxiliary switch for remote indication of breaker "open" or "closed" status. UL listed for field installation.

Frame Sizes	Voltage		Catalog Number	List \$
	AC	DC		
1200 2000	120	—	SBST120	421.
	240	—	SBST240	
	480	—	SBST480	
	—	12	SBST12	
	—	24	SBST24	
	—	48	SBST48	
	—	125	SBST125	
3200 5000	120	—	SB4ST120	
	240	—	SB4ST240	
	480	—	SB4ST480	
	—	12	SB4ST12	
	—	24	SB4ST24	
	—	48	SB4ST48	
	—	125	SB4ST125	

## Remote Closing Solenoids (Shunt Close)

For use with manually operated breakers. Allows the breaker to be closed from a remote location if the breaker is fully charged and ready to close. Included is an auxiliary switch for remote spring charged indication. A Remote Closing Solenoid is provided at no charge on electrically operated breakers. UL listed for field installation. The factory-installed Local Electric Close option provides an electric close pushbutton on the breaker escutcheon that can be electrically interlocked with an external control circuit.

Frame Sizes	Voltage		Catalog Number	List \$	Catalog Number w/CCX Option	List \$
	AC	DC				
1200 2000	120	—	SBRCS120	421.	SBRCS120LEC	848.
	—	24	SBRCS24		SBRCS24LEC	
	—	48	SBRCS48 ①		SBRCS48LEC ①	
	—	125	SBRCS125 ①		SBRCS125LEC ①	
3200 5000	120	—	SB4RCS120	421.	SB4RCS120LEC	848.
	—	24	SB4RCS24		SB4RCS24LEC	
	—	48	SB4RCS48 ①		SB4RCS48LEC ①	
	—	125	SB4RCS125 ①		SB4RCS125LEC ①	

① Add "D" suffix letter for drawout application.

## Auxiliary Switches

Each pair of A and B Auxiliary Contacts includes 1 NO and 1 NC isolated contacts. Each pair of A/B Form-C contacts includes 1 NO and 1 NC Form-C contact (e.g. 6A/6B Form-C includes 6 isolated Form-C contacts, for a total of 12 contacts). UL listed for field installation.

Frame Sizes	Contact Configuration	Catalog Number	List \$
1200 2000	1A and 1B	SBAS2	219.
	2A and 2B	SBAS4	359.
	3A and 3B	SBAS6	539.
	4A and 4B ①	SBAS8	717.
	4A/4B Form-C ②	SBAS8EC	717.
	5A and 5B ①	SBAS10	903.
	6A and 6B ①③	SBAS12	1068.
	6A/6B Form-C ②	SBAS12EC	1068.
	6A/6B Form-C ①	SBAS12TL	1068.
	3200 5000	1A and 1B	SB4AS2
2A and 2B		SB4AS4	359.
3A and 3B		SB4AS6	539.
4A and 4B ①		SB4AS8	717.
4A/4B Form-C ②		SB4AS8EC	717.
5A and 5B ①		SB4AS10	903.
6A and 6B ①③		SB4AS12	1068.
6A/6B Form-C ②		SB4AS12EC	1068.
6A/6B Form-C ①		SB4AS12TL	1068.

## Undervoltage Releases

UL listed for field installation.

Frame Sizes	Voltage		Catalog Number	List \$
	AC	DC		
1200 2000	120	—	SBUV120	421.
	240	—	SBUV240	
	480	—	SBUV480	
	600	—	SBUV600	
	—	12	SBUV12	
	—	24	SBUV24	
	—	48	SBUV48	
	—	125	SBUV125	
	3200 5000	120	—	
240		—	SB4UV240	
480		—	SB4UV480	
600		—	SB4UV600	
—		12	SB4UV12	
—		24	SB4UV24	
—		48	SB4UV48	
—		125	SB4UV125	

## Bell Alarm and Alarm Relay Combination Module

This unit is an internally mounted accessory that interfaces directly with any trip unit. In addition to all enabled SB-EC Trip Unit protective relay functions, it provides one NO Bell Alarm contact for remotely indicating that a breaker has tripped due to an overload, short circuit, short-time delay, or ground fault. The bell alarm's contact is a latching type and remote reset capability is provided. One NO alarm relay contact is also provided for ground fault monitor or plug-in display module alarming and all SB-EC trip unit alarm functions. Auxiliary Switches 6A and 6B available in type Form-C only when used with this accessory. See Auxiliary Switch table below.

Frame Sizes	Voltage		Catalog Number	List \$
	AC	DC		
1200 2000	120	—	SBBADMR120	544.
	—	24	SBBADMR24	
	—	48	SBBADMR48	
	—	125	SBBADMR125	

## Bell Alarms

The Bell Alarm accessory provides 1 NO and NC (Form C) alarm contact that operates only when the breaker opens automatically due to an overload, short circuit, short time delay or ground fault in addition to SB-EC Trip Unit protective relaying functions. The Alarm Relay, Remote Indicator Panel and Remote Open/Close Relay accessories cannot be supplied in addition to the Bell Alarm. If a Bell Alarm is supplied, Auxiliary Switches 6A and 6B available in type Form-C only when used with this accessory. This relay is a latching type with remote or local reset capability.

Frame Sizes	Voltage		Catalog Number	List \$
	AC	DC		
1200 2000	120	—	SBBA120	421.
	—	24	SBBA24	
	—	48	SBBA48	
	—	125	SBBA125	

① Not available with the SB-EC Trip Unit.

② Not available with the Type TL Trip Unit.

③ Not available with Bell Alarm or Alarm Relay accessories.

# Internal and External Accessories

## Alarm Relays

The Alarm Relay provides 1 NO and NC (Form C) contact. When used with the "TL" Trip Unit Display Module or Ground Fault Monitor, the relay changes state when the current set-point is exceeded. When used with the SB-EC Trip Unit, the relay changes state whenever an alarm is active. If the current falls below the set point or the alarm is no longer active, the contact returns to its normal state. The Bell Alarm, Remote Indicator Panel, and Remote Open/Close Relay accessories cannot be supplied in addition to the Alarm Relay. Auxiliary Switches 6A and 6B are available in type Form-C only with this accessory. See Aux Switch table on page 9.

Voltage		Catalog Number	List \$
AC	DC		
120	—	<b>SBDMR120</b>	421.
—	24	<b>SBDMR24</b>	
—	48	<b>SBDMR48</b>	
—	125	<b>SBDMR125</b>	

## Local Bell Alarm Reset Operator

The Local Bell Alarm Reset Operator provides a Bell Alarm reset button on the breaker escutcheon for use with the Bell Alarm, Bell Alarm and Alarm Relay Combination Module, and the Remote Open/Close Relay with Bell Alarm Contact. Factory installed only. May not be used with the Local Electric Close Operator option provided for the Electrical Operator.

Catalog Number	List \$
<b>SBLBAR</b>	<b>219.</b>

## Remote Indication Panels

Provides remote indication of breaker trip status for use with the Type "TL" Trip Units only. Externally mounted panels include four LED indicators: overload, short time, short circuit and ground fault. Also provided are four independent relays for remote indication, plus display module indication and relay functions. Requires a 120 volt control power source. This accessory cannot be supplied in addition to the Bell Alarm or Alarm Relay.

Catalog Number	List \$
<b>SBRIP120</b>	<b>830.</b>

## Neutral Current Transformers

For use with SB breakers with ground fault protective functions and being applied in three phase four wire systems incorporating standard residual ground fault sensing schemes.

Breaker Ampere Rating	Catalog Number	List \$
400	<b>N04SB</b>	247.
800	<b>N08SB</b>	
1200	<b>N12SB</b>	
1600	<b>N16SB</b>	
2000	<b>N20SB</b>	
2500	<b>N25SB</b>	
3200	<b>N32SB</b>	
4000	<b>N40SB</b>	
5000	<b>N50SB</b>	

## Cell Position Switches

Indicate position of breaker element (connected or test) in drawout. Available as set of 1 NO and 1 NC isolated contacts. UL listed for field installation.

Frame Sizes	Contact Configuration	Catalog Number	List \$
1200 2000	1A and 1B	<b>CEL 1</b>	<b>186.</b>
	2A and 2B	<b>CEL 2</b>	<b>372.</b>
	3A and 3B	<b>CEL 3</b>	<b>555.</b>
	4A and 4B	<b>CEL 4</b>	<b>737.</b>
3200 5000	1A and 1B	<b>4CEL1</b>	<b>186.</b>
	2A and 2B	<b>4CEL2</b>	<b>372.</b>
	3A and 3B	<b>4CEL3</b>	<b>555.</b>
	4A and 4B	<b>4CEL4</b>	<b>737.</b>

## Dead Front Shields

Mount to the front of the SB breaker to prevent inadvertent contact with live, current-carrying parts. UL listed for field installation.

Frame Sizes	Catalog Number	List \$
1200	<b>SB08DF</b>	112.
2000	<b>SB20DF</b>	
3200	<b>SB32DF</b>	
5000	<b>SB40DF</b>	

## Drawout Safety Shutters

Provide a sliding barrier to prevent contact with live parts when a drawout breaker is in the unlocked position or removed from the Stationary Drawout Element. Factory or field installation.

Frame Sizes	Catalog Number	List \$
1200	<b>SBSS08</b>	<b>406.</b>
2000	<b>SBSS20</b>	<b>406.</b>
3200	<b>SBSS32</b>	<b>674.</b>
5000	<b>SBSS40</b>	<b>815.</b>

## Lifting Bracket

Allows drawout SB breakers to be lifted with mechanical hoists.

Catalog Number	List \$
<b>SBLD</b> (For Drawout Mounted 1200, 2000 and 3200A Frames)	<b>196.</b>
<b>SBLD4</b> (For Drawout Mounted 5000A Frame)	<b>209.</b>

## Breaker Closing Blocking Devices

Covers the Close pushbutton on the breaker escutcheon to prevent closing breaker manually without special tool. UL listed for field installation.

Description	Catalog Number	List \$
Breaker Closing Blocking Device	<b>SBBD</b>	<b>70.</b>

# Internal and External Accessories

## Key Interlocks

Key Interlocks can be installed at the factory or supplied by the customer. Customer supplied Key Interlocks require pre-installed factory mounted "provision only for Key Interlock" to be installed.

Factory installed interlocks are mounted in the cover of the breaker. Only one interlock can be installed per breaker. Cover-mounted Key Interlocks are not field addable.

As many as four customer supplied Key Interlock tumblers can be field installed on the "provision only for Key Interlocks." One provision must be ordered for each SB breaker requiring field installed interlocks. Order Key Interlocks from Kirk or Superior as follows:

Fixed Breakers:

Kirk Key Lock Type F   Both with 0.375" bolt projection, bolt  
Superior Lock Type B-4003 extended with key removed

Drawout Breakers:

Kirk Key Lock Type FN   Bolt with 0.375" bolt projection, bolt extended  
Superior Lock Type B-7003 with key removed and modified per Siemens drawing #122274

## Factory Mounted Key Interlocks (All Frames)

Catalog Number	List \$
KISB (Kirk) SISB (Superior)	790.

## Provision Only For Key Interlock

Frame Sizes	Fixed Breaker		Drawout Breaker	
	Catalog Number	List \$	Catalog Number	List \$
1200	KIPOF	617.	8KIPOD	617.
2000	KIPOF		20KIPOD	
3200	32KIPOF		32KIPOD	
5000	40KIPOF		40KIPOD	

## Mechanical Interlocks

Factory installed only. Used to mechanically interlock two circuit breakers so that only one can be closed at a time but both can be open at the same time. Factory prepared breakers are required and must be ordered with the Mechanical Interlock. The interlocking is accomplished by utilizing a cable interlock system between breakers. Specify mounting of the circuit breakers as adjacent vertical or horizontal and center to center dimension.

Frame Size	Maximum Center-to-Center Distance		Maximum Center-to-Center Distance For "L12" Suffix	
	Horizontal	Vertical	Horizontal	Vertical
1200A Fixed Mount	38"	38"	110"	110"
1200A Drawout	32"	38"	104"	110"
2000A Fixed Mount	38"	38"	110"	110"
2000A Drawout	32"	36"	104"	108"
3200A Fixed Mount	38"	36"	110"	108"
3200A Drawout	32"	30"	104"	102"
5000A Fixed Mount	32"	36"	104"	108"
5000A Drawout	26"	30"	98"	102"

## Mechanical Interlocks For Fixed Mounted Breaker

Frame Sizes	Catalog Number	List \$
1200	SBMIF08 ①	2182.
2000	SBMIF20 ①	
3200	SBMIF32 ①	
5000	SBMIF40 ①	

① Add "L12" suffix for extended cable length.

## Mechanical Interlocks For Drawout Mounted Breaker

Frame Size	Catalog Number	List \$
1200	SBMID08 ②	2182.
2000	SBMID20 ②	
3200	SBMID32 ②	
5000	SBMID40 ②	

② Add "L12" suffix for extended cable length.

## Breaker Padlocking Devices

Padlock on breaker allows the Open pushbutton to be padlocked in the depressed position. UL listed for field installation.

Description	Catalog Number	List \$
Padlock on Breaker	SBPLB	70.

Padlock on drawout allows breaker to be padlocked in one of three drawout positions: connected, test or unlocked. UL listed for field installation.

Description	Catalog Number	List \$
Padlock on Drawout	SBPLD	105.

# External Accessories and ACCESS™ Communications

## Test Kit

For field testing the SB Encased System Breaker. The test kit can test the following breaker functions by phase:

- Time
- Instantaneous
- Current Transformer Continuity
- Short Time
- Ground Fault

Catalog Number	List \$
TS31	12372.

## ACCESS™ Communications ①

All SB Circuit Breaker trip units feature two levels of communication: Zone Selective Interlocking (ZSI) and ACCESS™ System Open-protocol communications. The SB-EC Trip Unit is fully equipped for direct integration into ACCESS™ or compatible communication systems.

A Multiplexer/Translator (MTZ) and Expansion Plug are required whenever Zone Selective Interlocking is specified for any trip unit.

A Multiplexer/Translator (MTA) and Expansion Plug are required for the Type "TL" trip unit when full ACCESS™ communications is specified. The MTA also has Zone Selective Interlocking capability. Refer to Bulletin IPIM-2211A for additional information.

Siemens WinPM™ V4.0 supervisory software delivers a powerful energy management system providing sophisticated monitoring capability to a host computer and other components in the electrical distribution system at an affordable cost. It also provides process control, including peak demand, trend analysis, waveform analysis, and harmonic calculations and displays. These functions help pinpoint energy consumption, power quality issues, and the energy cost of any process. Outages and potential outages can be quickly diagnosed and plans can be generated for expansion and preventative plant maintenance. Refer to Bulletins IPIM-2211A for additional information.

Communications is accomplished via EIA-485 twisted pair wire or modem, providing communications to a remote site and allowing access to multiple plants. WinPM™ V4.0 utilizes a Windows DDE (dynamic data exchange) server that allows data exchange to other Windows software such as spreadsheets and word-processors.

Protocol Converters are available from the Siemens ACCESS group for connection to a variety of open and proprietary automation protocols as part of the ACCESS™ product line, including Profibus DP, LonWorks, the Siemens S7 PLC, and many other third party PLCs and associated networks.

The SB-EC Trip Unit's EIA-232 communications port provides additional PC communications for available trip unit data displays and trip unit configuration via Siemens SBWin™ software.

① Consult Siemens ACCESS™ Group or Bulletin IPIM-2211A for additional information on Siemens ACCESS™ components.

## SBWin™ Software

Siemens SBWin™ software provides Windows-based PC communications for displaying and storing trip unit data displays and for system configuration of SB-EC Trip Units via its EIA 232 communications port. Remote open/close operation when used with the Remote Open/Close Relay is also possible.

Catalog Number	List \$
SBWIN	611.

## Type "TL" Trip Unit Auxiliary Power Module

A device used to bring power into the SB breaker type "TL" electronic trip unit only so that the trip unit can be tested via the integral testing functions when the breaker is withdrawn from the Stationary Drawout Element. It is required to trip the breaker's shunt trip when no primary power is applied to the breaker or when "bench testing" the electronic trip unit.

Catalog Number	List \$
SBAPM	385.

## Expansion Plug

The Expansion Plug is an electronic interface and isolation module necessary to integrate a breaker into an ACCESS System. One Expansion Plug is required for each circuit breaker in the system and is used to interface SB Breaker trip units to the Multiplex/Translator. The Expansion Plug is *always* necessary for zone interlocking or full ACCESS communications for the Type TL trip unit. An Expansion Plug is not required for ACCESS communications using the SB-EC Trip Unit but is required for zone interlocking. Factory or Siemens Field Service field installable only.

Type of Mounting	800-2000A Cat. No. ①	3200, 4000-5000A Cat. No. ①	List \$
Fixed	EPSBFMK	EPSB4FMK	187.
Drawout	EPSBDMK	EPSB4DMK	

## Communication and Zone Selective Interlocking Component Selection Guide

Required Accessory	Trip Unit and Application		
	SB-EC for ZSI ②	"TL" for ZSI	"TL" for Access Communications and/or ZSI ③
MTZ ③	X	X	
MTA ③			X
EPSBxxMK ④	X	X	
MTCBxxCable ⑤	X	X	X

① One EP required per Trip Unit when specified.

② No additional components are required for the SB-EC Trip Unit to communicate over the ACCESS Bus.

③ The MTA can also accommodate an SB-EC Trip Unit for ZSI functionality.

④ Replace xx in catalog number with 08, 15 or 25 for required cable length of 8', 15' or 25' respectively. One cable required per EP when specified.

⑤ One MTA or MTZ can accommodate eight trip units. Multiple MT's can be connected via MTC cables.

# External Accessories and ACCESS™ Communications

## Multiplexer/Translator (MT)

The Multiplexer/Translator is a mini-computer that collects data from different components integrated into the ACCESS communications system and transmits the data to other components in the system. The Multiplexer/Translator can receive data from as many as eight (8) field devices and multiple Multiplexer/ Translators can be connected together as required via MTC cables.

A Multiplexer/Translator (MTZ) and Expansion Plug are required whenever Zone Selective Interlocking is specified for any trip unit.

A Multiplexer/Translator (MTA) and Expansion Plug are required for the Type "TL" trip unit when full ACCESS™ communications is specified. The MTA also has Zone Selective Interlocking capability. Refer to Bulletin IPIM-2211A for additional information.

## MT For Zone Selective Interlocking (ZSI) Only

Catalog Number	List \$
MTZ	1740.

Always required for Zone Interlocking.

(Discount Schedule F)

## MT Full Access Communications Plus Zone Selective Interlocking

Catalog Number	List \$
MTA	3876.

Required for Type "TL" Trip Unit when ACCESS Communications and Zone Selective Interlocking (ZSI) is specified. (Discount Schedule F)

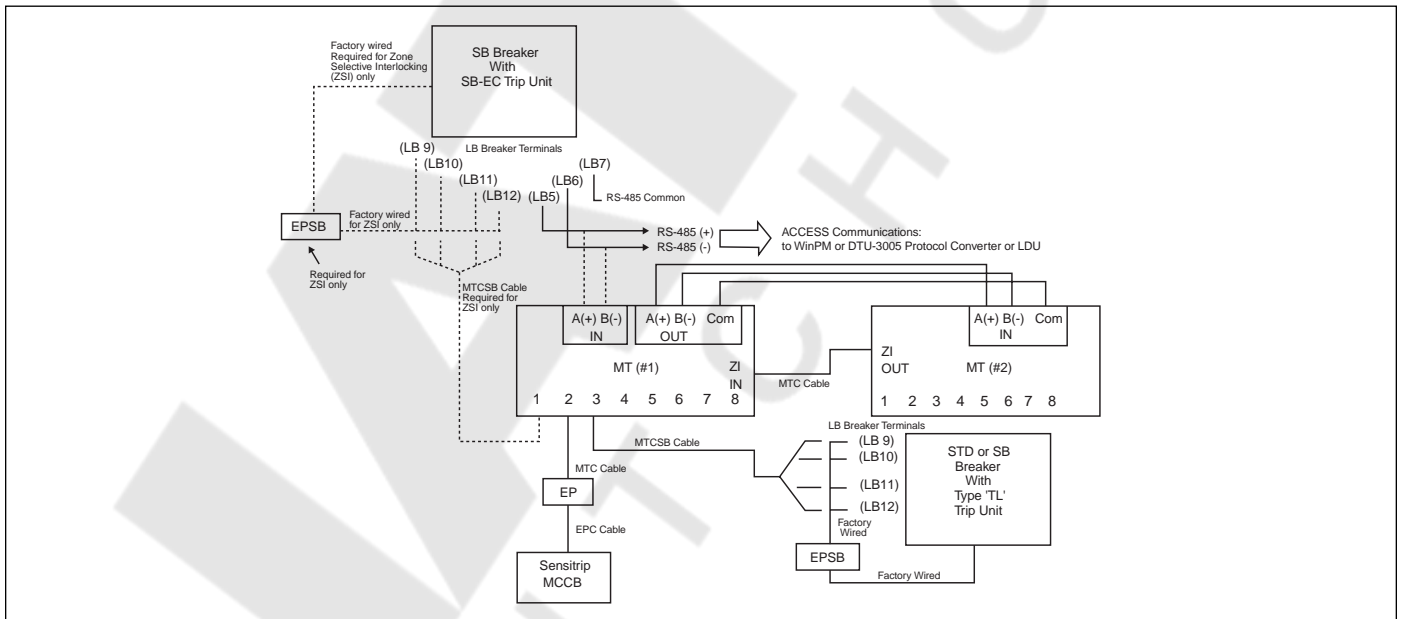
## Local Display Unit (LDU)

The LDU provides a central viewing point for up to 32 ACCESS devices, including SB Trip Units, Sensitrip MCCB Trip Units and 4300 Power Meters. The display features a 4x20 backlit LCD read-out of real-time metering and configuration data. The device is menu driven and features a "self learn" mode to automatically configure itself for the ACCESS devices on the network. Panel-mountable for switchboard applications, with simple 2-wire RS-485 communication connectivity.

## Local Display Unit

Catalog Number	List \$
LDU100	1201.

## ACCESS™ - System Connection Diagram



## Cables and Connectors

ACCESS communications system components can be connected together using standard, commercially available cables and connectors. Refer to Information and Instruction Guide IPIM-2211A for specific cable and connector specifications and requirements. Cables and connectors can be ordered per the table below. Select longer length when unsure of mounting configuration.

Catalog Number	Description ①	List \$
MTCSB08	Telephone cable, 8', used between Expansion Plug and Multiplexer/Translator	70.
MTCSB15	Telephone cable, 15', used between Expansion Plug and Multiplexer/Translator	105.
MTCSB25	Telephone cable, 25', used between Expansion Plug and Multiplexer/Translator	139.
MTC08	Telephone cable, 8' used between multiple Multiplexer/Translators	70.
MTC15	Telephone cable, 15' used between multiple Multiplexer/Translators	105.
MTC25	Telephone cable, 25' used between multiple Multiplexer/Translators	139.

① Alternate cable lengths available by special order. Contact your local sales office for details.

(Discount Schedule F)



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