

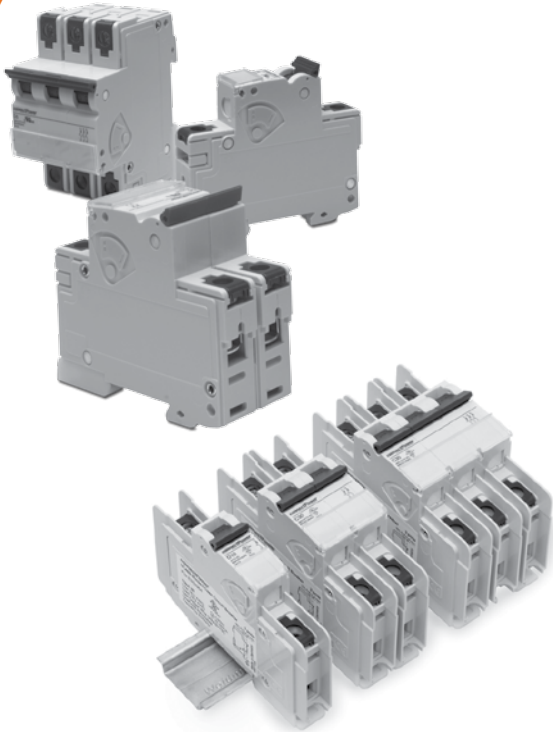
## Datasheet

### BR & SU Series

### UL489/CSA C22.2 No.5-02 (Branch rated) Circuit Breakers

### UL1077/CSA C22.2 No.235 Supplementary Protectors

**NEW**



Compared to traditional fuse installation, the UL489/CSA C22.2 No.5-02, UL1077/CSA C22.2 No.235 compliant circuit breakers listed here assist with the complex task of selecting correct types and characteristics and offer a less bulky installation solution. Our range of miniature, molded-case circuit breakers, in combination with our accessories for factory or on-site installation, offer enhanced control and monitoring capabilities. Installation kits include all parts and instructions to make the on-site job easy.

We supply UL489/CSA C22.2 No.5-02 and UL1077/CSA C22.2 No.235 compliant 1, 2 and 3-pole-type circuit breakers from 0.5 to 60 Ampere and with type C and D characteristics.

Attachments such as neutral switches, auxiliary contacts and shunt trips are also available for this system. All accessories for modern busbar installations are available in compliance with the relevant UL standards.

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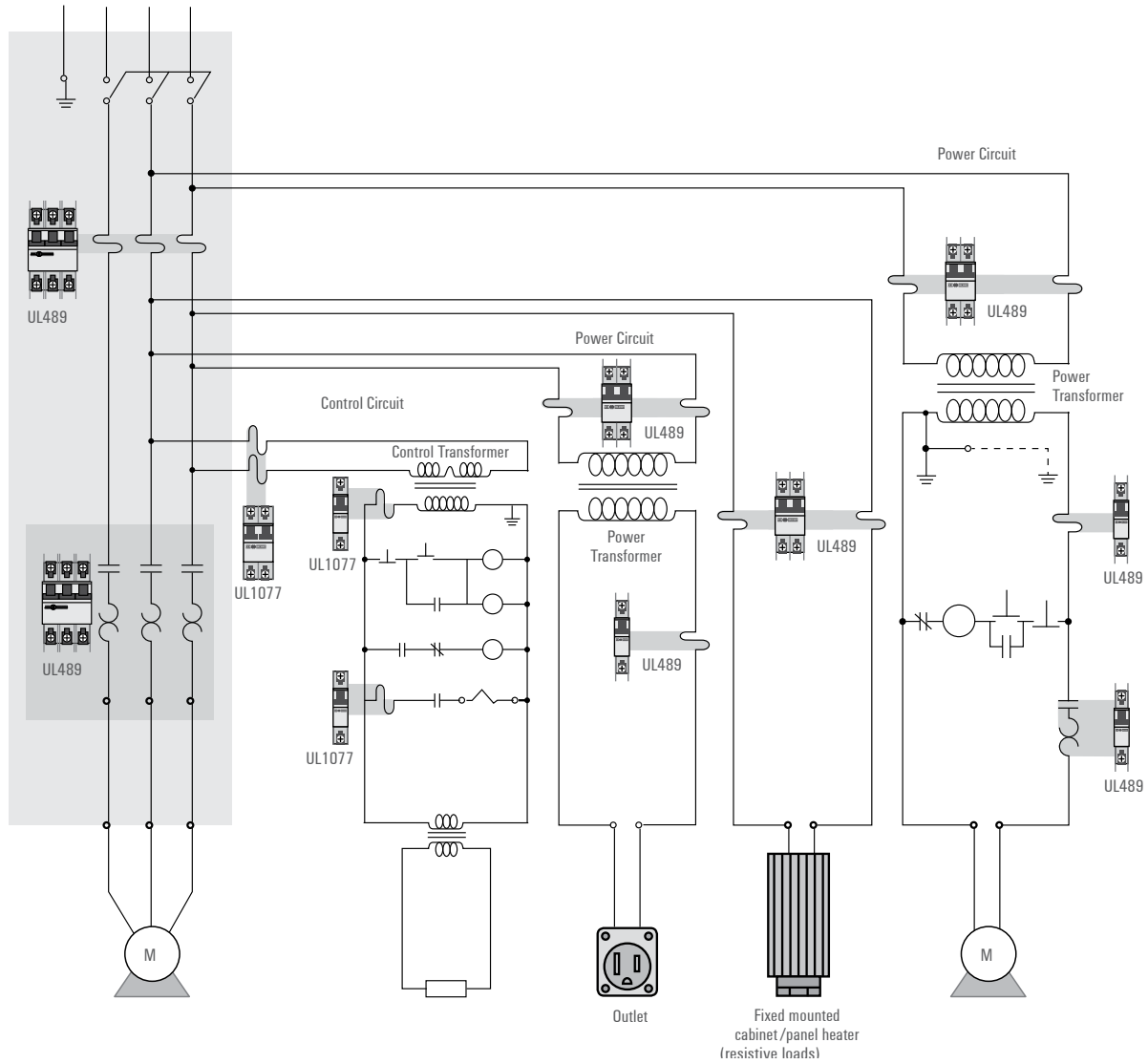
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## Application Schematic



Sizing of main branch circuit protector according to table 430.52 in NEC®

- **Dual Element (Time Delay) Fuse**  
 Maximum fuse = largest motor FLA x 175 %  
 + FLA of all other motors and general loads in group
- **Inverse Time Breaker**  
 Maximum circuit breaker = largest motor FLA x 250 %  
 + FLA of all other motors and general loads in group  
 (for other fuse/breaker types see table 430.52)



# Branch Circuit Breakers

AC Version, C and D Characteristics

## Single Pole - D Curve

## Single Pole - C Curve

Current Ratings (amps)	Part No.	Description	Part No.	Description
0.5	<b>BR1D05AC</b>	Branch / 1P Cct Brkr / D Curve / 0.5A	<b>BR1C05AC</b>	Branch / 1P Cct Brkr / C Curve / 0.5A
1	<b>BR1D1AC</b>	Branch / 1P Cct Brkr / D Curve / 1A	<b>BR1C1AC</b>	Branch / 1P Cct Brkr / C Curve / 1A
2	<b>BR1D2AC</b>	Branch / 1P Cct Brkr / D Curve / 2A	<b>BR1C2AC</b>	Branch / 1P Cct Brkr / C Curve / 2A
3	<b>BR1D3AC</b>	Branch / 1P Cct Brkr / D Curve / 3A	<b>BR1C3AC</b>	Branch / 1P Cct Brkr / C Curve / 3A
5	<b>BR1D5AC</b>	Branch / 1P Cct Brkr / D Curve / 5A	<b>BR1C5AC</b>	Branch / 1P Cct Brkr / C Curve / 5A
10	<b>BR1D10AC</b>	Branch / 1P Cct Brkr / D Curve / 10A	<b>BR1C10AC</b>	Branch / 1P Cct Brkr / C Curve / 10A
15	<b>BR1D15AC</b>	Branch / 1P Cct Brkr / D Curve / 15A	<b>BR1C15AC</b>	Branch / 1P Cct Brkr / C Curve / 15A
20	<b>BR1D20AC</b>	Branch / 1P Cct Brkr / D Curve / 20A	<b>BR1C20AC</b>	Branch / 1P Cct Brkr / C Curve / 20A
25	<b>BR1D25AC</b>	Branch / 1P Cct Brkr / D Curve / 25A	<b>BR1C25AC</b>	Branch / 1P Cct Brkr / C Curve / 25A
30	<b>BR1D30AC</b>	Branch / 1P Cct Brkr / D Curve / 30A	<b>BR1C30AC</b>	Branch / 1P Cct Brkr / C Curve / 30A
40	<b>BR1D40AC</b>	Branch / 1P Cct Brkr / D Curve / 40A	<b>BR1C40AC</b>	Branch / 1P Cct Brkr / C Curve / 40A
50	<b>BR1D50AC</b>	Branch / 1P Cct Brkr / D Curve / 50A	<b>BR1C50AC</b>	Branch / 1P Cct Brkr / C Curve / 50A
60	<b>BR1D60AC</b>	Branch / 1P Cct Brkr / D Curve / 60A	<b>BR1C60AC</b>	Branch / 1P Cct Brkr / C Curve / 60A



## Double Pole - D Curve

## Double Pole - C Curve

Current Ratings (amps)	Part No.	Description	Part No.	Description
0.5	<b>BR2D05AC</b>	Branch / 2P Cct Brkr / D Curve / 0.5A	<b>BR2C05AC</b>	Branch / 2P Cct Brkr / C Curve / 0.5A
1	<b>BR2D1AC</b>	Branch / 2P Cct Brkr / D Curve / 1A	<b>BR2C1AC</b>	Branch / 2P Cct Brkr / C Curve / 1A
2	<b>BR2D2AC</b>	Branch / 2P Cct Brkr / D Curve / 2A	<b>BR2C2AC</b>	Branch / 2P Cct Brkr / C Curve / 2A
5	<b>BR2D5AC</b>	Branch / 2P Cct Brkr / D Curve / 5A	<b>BR2C5AC</b>	Branch / 2P Cct Brkr / C Curve / 5A
10	<b>BR2D10AC</b>	Branch / 2P Cct Brkr / D Curve / 10A	<b>BR2C10AC</b>	Branch / 2P Cct Brkr / C Curve / 10A
15	<b>BR2D15AC</b>	Branch / 2P Cct Brkr / D Curve / 15A	<b>BR2C15AC</b>	Branch / 2P Cct Brkr / C Curve / 15A
20	<b>BR2D20AC</b>	Branch / 2P Cct Brkr / D Curve / 20A	<b>BR2C20AC</b>	Branch / 2P Cct Brkr / C Curve / 20A
25	<b>BR2D25AC</b>	Branch / 2P Cct Brkr / D Curve / 25A	<b>BR2C25AC</b>	Branch / 2P Cct Brkr / C Curve / 25A
30	<b>BR2D30AC</b>	Branch / 2P Cct Brkr / D Curve / 30A	<b>BR2C30AC</b>	Branch / 2P Cct Brkr / C Curve / 30A
40	<b>BR2D40AC</b>	Branch / 2P Cct Brkr / D Curve / 40A	<b>BR2C40AC</b>	Branch / 2P Cct Brkr / C Curve / 40A
50	<b>BR2D50AC</b>	Branch / 2P Cct Brkr / D Curve / 50A	<b>BR2C50AC</b>	Branch / 2P Cct Brkr / C Curve / 50A
60	<b>BR2D60AC</b>	Branch / 2P Cct Brkr / D Curve / 60A	<b>BR2C60AC</b>	Branch / 2P Cct Brkr / C Curve / 60A



## Triple Pole - D Curve

## Triple Pole - C Curve

Current Ratings (amps)	Part No.	Description	Part No.	Description
1	<b>BR3D1AC</b>	Branch / 3P Cct Brkr / D Curve / 1A	<b>BR3C1AC</b>	Branch / 3P Cct Brkr / C Curve / 1A
2	<b>BR3D2AC</b>	Branch / 3P Cct Brkr / D Curve / 2A	<b>BR3C2AC</b>	Branch / 3P Cct Brkr / C Curve / 2A
5	<b>BR3D5AC</b>	Branch / 3P Cct Brkr / D Curve / 5A	<b>BR3C5AC</b>	Branch / 3P Cct Brkr / C Curve / 5A
10	<b>BR3D10AC</b>	Branch / 3P Cct Brkr / D Curve / 10A	<b>BR3C10AC</b>	Branch / 3P Cct Brkr / C Curve / 10A
15	<b>BR3D15AC</b>	Branch / 3P Cct Brkr / D Curve / 15A	<b>BR3C15AC</b>	Branch / 3P Cct Brkr / C Curve / 15A
20	<b>BR3D20AC</b>	Branch / 3P Cct Brkr / D Curve / 20A	<b>BR3C20AC</b>	Branch / 3P Cct Brkr / C Curve / 20A
25	<b>BR3D25AC</b>	Branch / 3P Cct Brkr / D Curve / 25A	<b>BR3C25AC</b>	Branch / 3P Cct Brkr / C Curve / 25A
30	<b>BR3D30AC</b>	Branch / 3P Cct Brkr / D Curve / 30A	<b>BR3C30AC</b>	Branch / 3P Cct Brkr / C Curve / 30A
40	<b>BR3D40AC</b>	Branch / 3P Cct Brkr / D Curve / 40A	<b>BR3C40AC</b>	Branch / 3P Cct Brkr / C Curve / 40A
50	<b>BR3D50AC</b>	Branch / 3P Cct Brkr / D Curve / 50A	<b>BR3C50AC</b>	Branch / 3P Cct Brkr / C Curve / 50A
60	<b>BR3D60AC</b>	Branch / 3P Cct Brkr / D Curve / 60A	<b>BR3C60AC</b>	Branch / 3P Cct Brkr / C Curve / 60A



## Accessories for Branch Circuit Breakers

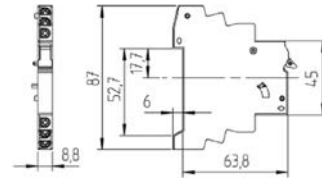


Module	Type of Contact	Contacts	Weight g / Each	Packing Unit	Part No.
<b>Auxiliary contact, for mounting on the right</b>					
1/2	1 auxiliary contact	1NO	35	6	<b>BAU10</b>
1/2	2 auxiliary contacts	1NO + 1NC	40	6	<b>BAU11</b>



Standards	UL489 and CSA C22.2 No. 5-02	
Rated operating currents	10 A / 240 V AC	
	3 A / 110 V DC	
	1 A / 220 V DC	
Minimum contact load	1 mA at 24 V DC	
Conductor cross sections		
Type of conductor *)	min.	max.
Single wire	1.0 mm <sup>2</sup> (AWG18)	2.5 mm <sup>2</sup> (AWG14)
Stranded wire	1.0 mm <sup>2</sup> (AWG18)	1.5 mm <sup>2</sup> (AWG16)
Stranded wire with ferrule	1.0 mm <sup>2</sup> (AWG18)	1.5 mm <sup>2</sup> (AWG16)
Torque	max. 0.8 Nm (7 lb.in)	

\*) Stripped length 8 - 9 mm ( ) values in brackets = measurement units for North America



### Lock-off/Lock-on device

Weight g / Each	Packing Unit	Part No.
2	10	<b>LD10</b>



## Accessories for Branch Circuit Breakers

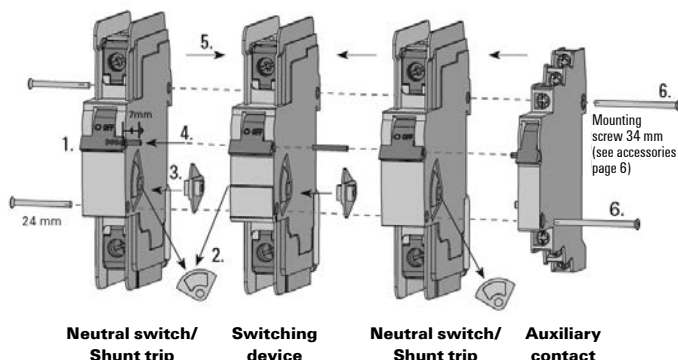
### Mounting Instructions of Accessories

#### Applies to BNS... and BST:

The accessory devices BNS... and BST can be installed on the right or left.

#### Mounting

1. Bring the blue knobs of all devices into the "OFF" position
2. Remove grey cover from the switching device and attachment
3. Insert drive plate between the switching device and BNS... or BST
4. Insert connecting pin into the knob (insertion depth approx. 7 mm)
5. Combine switching device and BNS... or BST
6. Screw the devices together (observe correct screw length)

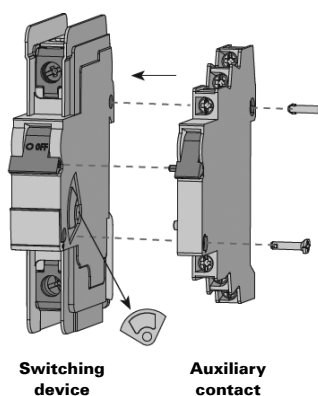


#### Applies to BAU...

The auxiliary contact BAU... can only be installed on the right.

#### Installation

1. Flick the blue switches of all devices to the "OFF" position
2. Remove the grey cover from the switching device and attachment
3. Combine switching device and BAU...
4. Insert connection screws and connect the two devices by turning the screws 90°
5. After installation, close and open to check correct operation

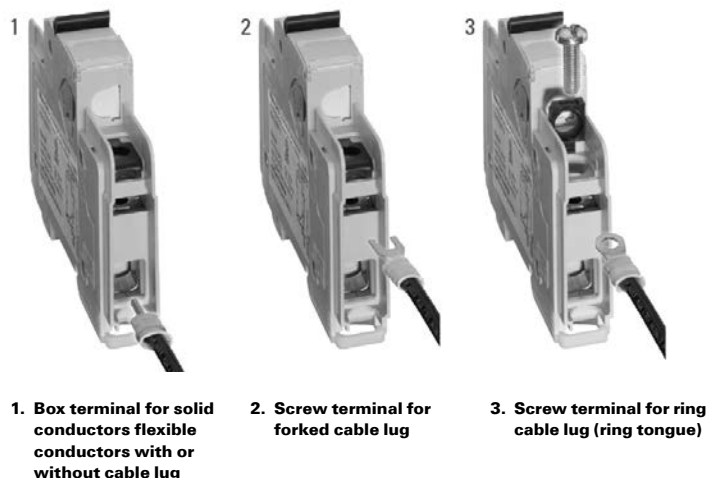


#### Applies to all switching devices BNS..., BST and BAU...

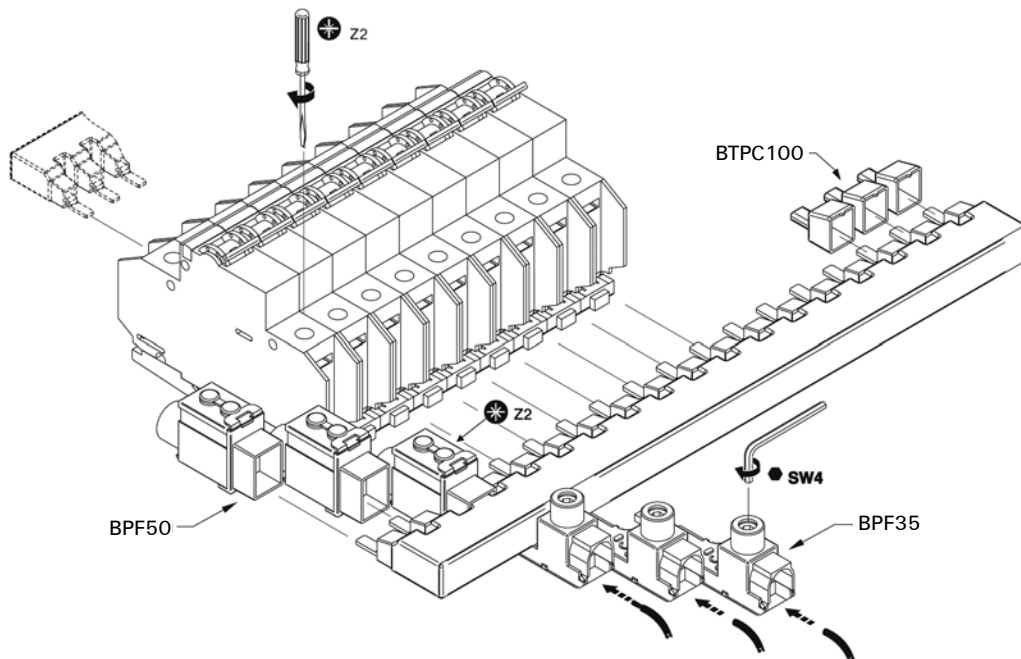
The load and mains can be connected into either the top or bottom (Line/Load Reversible).

#### Design of the terminals

- Optical detection of screw position
- Increased breaking resistance if the screwdriver becomes jammed
- Universal connecting terminals, suitable for connecting all known cable lugs such as ring or forked cable lugs and pin terminals
- Ring cable lugs can be connected by opening the flap and removing the connecting screw
- Can also be used for applications that require ring cable lugs (e.g. nuclear power stations)
- DIN EN 50274, VDE 0660-514 compliant protection against contact with live parts is fully guaranteed



# Busbar and Accessories for Branch Circuit Breakers (UL489/CSA C22.2 No.5-02)



- Designed for a load up to 115A
- suitable accessories as connection terminals and contact protection
- Busbars may not be shortened

Description	Part No.
Busbar/Branch Protection/1ph/6Poles	<b>BB106</b>
Busbar/Branch Protection/1ph/12Poles	<b>BB112</b>
Busbar/Branch Protection/1ph/18Poles	<b>BB118</b>
Busbar/Branch Protection/1ph/12Poles	<b>BB206</b>
Busbar/Branch Protection/2ph/12Poles	<b>BB212</b>
Busbar/Branch Protection/2ph/18Poles	<b>BB218</b>
Busbar/Branch Protection/3ph/6Poles	<b>BB306</b>
Busbar/Branch Protection/3ph/12Poles	<b>BB312</b>
Busbar/Branch Protection/3ph/18Poles	<b>BB318</b>
PwrFeed Term - 35mm <sup>2</sup>	<b>BPF35</b>
PwrFeed Term - 50mm <sup>2</sup>	<b>BPF50</b>
Touch Protection 3Caps	<b>BTPC100</b>



### Mounting screw 34 mm

to connect the auxiliary contact and shunt trip or neutral switch to the switching devices

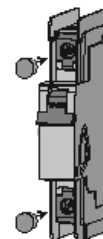
Packing Unit	Part No.
10 pieces	<b>MS34</b>



### Touch-protection caps

to cover the connecting screws on the switching devices, neutral switches and shunt trips for increased touch protection

Packing Unit	Part No.
100 pieces	<b>TPC</b>





## Technical Data for Branch Circuit Breakers (AC)

Characteristic *		C	D
Application		Lighting Wiring protection Control circuits Business equipment Appliances Motors low inrush	Transformers Power supplies Heaters Motors high inrush Reactive load
Number of poles		1 - 3; 1 + N; 3 + N	
Standards		UL489 and CSA-22.2 Nr. 5-09	
Interrupting capacity		10 kA	
Back-up fuse ≤ 10 kA interrupting capacity		none	
Rated voltage AC 50/60 Hz 0.3 - 32 A		277 / 480 V	
Rated voltage AC 50/60 Hz 40 - 63 A		240 V	
Rated current range		0.5 - 60 A	0.5 - 60 A
Test currents	Thermal not tripping I <sub>1</sub> (A) > 1 h	1.05 x I <sub>N</sub>	1.05 x I <sub>N</sub>
	Thermal tripping I <sub>2</sub> (A) < 1 h	1.35 x I <sub>N</sub>	1.35 x I <sub>N</sub>
	Electromagnetic not tripping I <sub>4</sub> (A) > 0.1 s	5 x I <sub>N</sub>	10 x I <sub>N</sub>
	Electromagnetic tripping I <sub>5</sub> (A) < 0.1 s	10 x I <sub>N</sub>	16 x I <sub>N</sub>
Reference calibration temperature of the thermal tripping		40 °C Influence of the ambient temperature on the thermal release: Decrease of the current values with higher ambient temperature and increase with lower temperatures of approximately 5 % per 10 °C difference in temperature	
Frequency range of the electromagnetic trip		16 2/3 to 60 Hz With higher frequencies, the electromagnetic tripping values increase by approximately a factor of 1.1 at 100 Hz; 1.2 at 200 Hz; 1.3 at 300 Hz; 1.4 at 400 Hz; 1.5 for DC	
Ambient temperature		-25 °C to +55 °C	
Storage temperature		-40 °C to +70 °C	
Device depth according to DIN 43880		68 mm	
Mechanical life		10,000 switching cycles (ON / OFF)	
Protection cover		Finger safe and safe to back of hand according to DIN EN 50274, VDE 0660-5 14	
Degree of protection acc. EN / IEC 60529		IP20	
Installation position		any	
Mounting		DIN-rail according to DIN EN 60715 35 mm	
Lockability		The handle can be secured against manual switching in the on and off position by a lead seal	
Climatic resistance		Humid heat constant according to DIN EN 60068-2-78 Humid heat cycle according to DIN EN 60068-2-30	
Vibration resistance		> 15 g according to DIN EN 60068-2-59 during a load with I <sub>1</sub>	
Resistance to mechanical shocks		25 g 11 ms	
Approvals - BR... items		cULus marking, UL file E359964, ref standards UL489 and CAN/CSA-C22.2 No. 5 (2002)	
Approvals - BAU..., BNS..., BST... items		cULus marking, UL file E362204, ref standards UL489 and CAN/CSA-C22.2 No. 5 (2002)	
Approvals - BB..., BPF..., BTPC... items		pending	

\* Other switching devices in B and Z characteristics available on request

### Interrupting capacity acc. to IEC 60947-2, DIN EN 60947-2

Characteristic *	C, D		
1pole	0.5 - 60 A	240 V	15 kA
2pole / 3pole	0.5 - 60 A	415 V	15 kA
2pole / 3pole	40 - 60 A	415 V	10 kA

## Technical Data for Branch Circuit Breakers

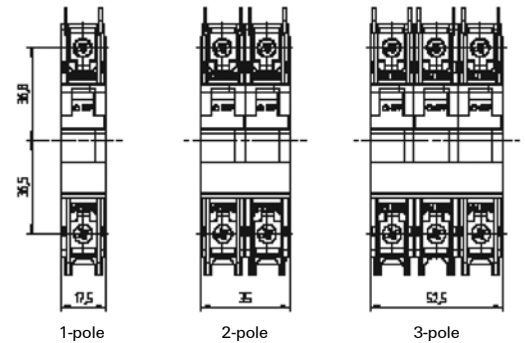


Type of conductor *)	Conductor Cross Sections			
	Box Terminal Bottom		Box Terminal Top	
	max.	min.	max.	min.
Single wire	35 mm <sup>2</sup> (AWG2)	1.0 mm <sup>2</sup> (AWG18)	25 mm <sup>2</sup> (AWG3)	1.0 mm <sup>2</sup> (AWG18)
Multiple wire	35 mm <sup>2</sup> (AWG2)	16 mm <sup>2</sup> (AWG6)	25 mm <sup>2</sup> (AWG3)	16 mm <sup>2</sup> (AWG6)
Stranded wire	25 mm <sup>2</sup> (AWG3)	1.0 mm <sup>2</sup> (AWG18)	16 mm <sup>2</sup> (AWG6)	1.0 mm <sup>2</sup> (AWG18)
Stranded wire with ferrule	16 mm <sup>2</sup> (AWG6)	1.0 mm <sup>2</sup> (AWG18)	16 mm <sup>2</sup> (AWG6)	1.0 mm <sup>2</sup> (AWG18)
Busbar cable lug	up to 3 mm thickness		up to 1.5 mm thickness	
Combined, conductor and busbar or cable lug	up to 35 mm <sup>2</sup> and up to 2 mm thickness		not possible	
Torque	max. 2.5 Nm (22.2 lb.in)			

\*) Stripped lengths: 12 - 14 mm at the bottom, 10 - 12 mm at the top

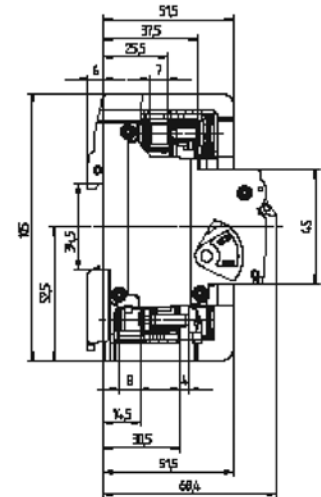
( ) values in brackets = measurement units for North America Copper conductor with sheath insulation for 60/75 °C

Dimension drawings product range BR



### Internal Resistance for Product Range BR

Rated Current [A]	Trip Characteristic	
	C [Ohm]	D [Ohm]
0.3	16.8620	16.8620
0.5	6.8540	6.0009
1.0	1.7000	1.7560
1.6	0.5870	0.5870
2.0	0.4190	0.4190
3.0	0.2020	0.2020
4.0	0.1090	0.1090
5.0	0.0654	0.0654
6.0	0.0528	0.0491
8.0	0.0278	0.0240
10	0.0216	0.0187
12	0.0084	0.0085
13	0.0084	0.0085
15/16	0.0085	0.0076
20	0.0067	0.0064
25	0.0050	0.0041
30/32	0.0032	0.0027
40	0.0025	0.0022
50	0.0019	0.0018
60	0.0018	0.0017

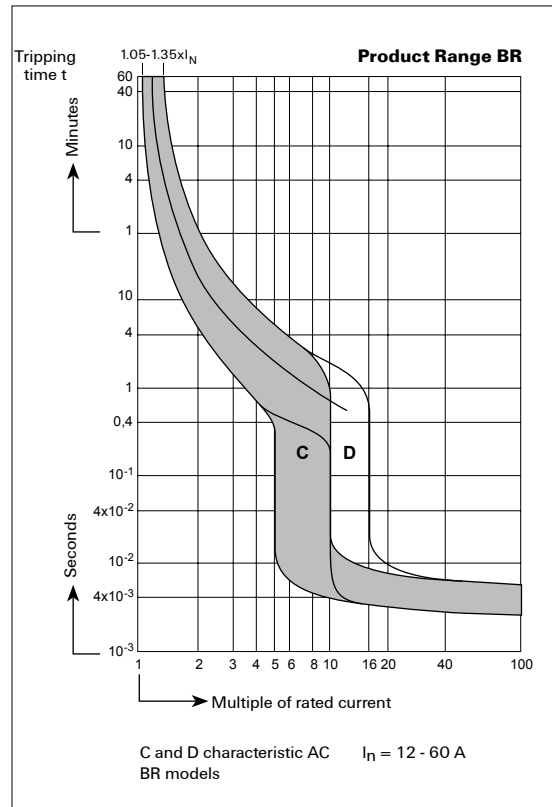
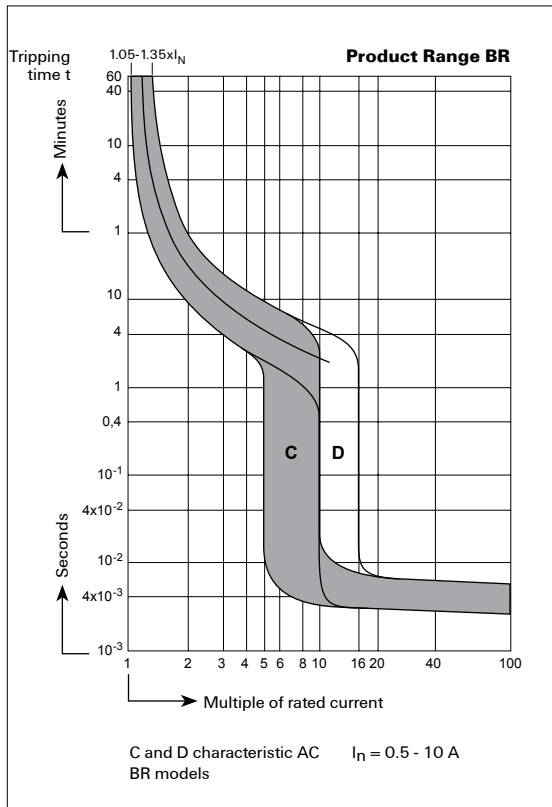






# Curves for Branch Circuit Breakers

AC



## Supplementary Circuit Breakers



Our range of UL1077/CSA C22.2 No.235 supplementary protectors can be used where additional protection is required in control circuits. Combined with the accessories it also offers enhanced monitoring and control capabilities.

Single Pole - D Curve			Single Pole - C Curve	
Current Ratings (amps)	Part No.	Description	Part No.	Description
0.5	<b>SU1D05AC</b>	Suppl / 1P Cct Brkr / D Curve / 0.5A	<b>SU1C05AC</b>	Suppl / 1P Cct Brkr / C Curve / 0.5A
1	<b>SU1D1AC</b>	Suppl / 1P Cct Brkr / D Curve / 1A	<b>SU1C1AC</b>	Suppl / 1P Cct Brkr / C Curve / 1A
2	<b>SU1D2AC</b>	Suppl / 1P Cct Brkr / D Curve / 2A	<b>SU1C2AC</b>	Suppl / 1P Cct Brkr / C Curve / 2A
3	<b>SU1D3AC</b>	Suppl / 1P Cct Brkr / D Curve / 3A	<b>SU1C3AC</b>	Suppl / 1P Cct Brkr / C Curve / 3A
5	<b>SU1D5AC</b>	Suppl / 1P Cct Brkr / D Curve / 5A	<b>SU1C5AC</b>	Suppl / 1P Cct Brkr / C Curve / 5A
10	<b>SU1D10AC</b>	Suppl / 1P Cct Brkr / D Curve / 10A	<b>SU1C10AC</b>	Suppl / 1P Cct Brkr / C Curve / 10A
15	<b>SU1D15AC</b>	Suppl / 1P Cct Brkr / D Curve / 15A	<b>SU1C15AC</b>	Suppl / 1P Cct Brkr / C Curve / 15A
20	<b>SU1D20AC</b>	Suppl / 1P Cct Brkr / D Curve / 20A	<b>SU1C20AC</b>	Suppl / 1P Cct Brkr / C Curve / 20A
25	<b>SU1D25AC</b>	Suppl / 1P Cct Brkr / D Curve / 25A	<b>SU1C25AC</b>	Suppl / 1P Cct Brkr / C Curve / 25A
30	<b>SU1D30AC</b>	Suppl / 1P Cct Brkr / D Curve / 30A	<b>SU1C30AC</b>	Suppl / 1P Cct Brkr / C Curve / 30A
40	<b>SU1D40AC</b>	Suppl / 1P Cct Brkr / D Curve / 40A	<b>SU1C40AC</b>	Suppl / 1P Cct Brkr / C Curve / 40A
50	<b>SU1D50AC</b>	Suppl / 1P Cct Brkr / D Curve / 50A	<b>SU1C50AC</b>	Suppl / 1P Cct Brkr / C Curve / 50A
60	<b>SU1D60AC</b>	Suppl / 1P Cct Brkr / D Curve / 60A	<b>SU1C60AC</b>	Suppl / 1P Cct Brkr / C Curve / 60A



Double Pole - D Curve			Double Pole - C Curve	
Current Ratings (amps)	Part No.	Description	Part No.	Description
0.5	<b>SU2D05AC</b>	Suppl / 2P Cct Brkr / D Curve / 0.5A	<b>SU2C05AC</b>	Suppl / 2P Cct Brkr / C Curve / 0.5A
1	<b>SU2D1AC</b>	Suppl / 2P Cct Brkr / D Curve / 1A	<b>SU2C1AC</b>	Suppl / 2P Cct Brkr / C Curve / 1A
2	<b>SU2D2AC</b>	Suppl / 2P Cct Brkr / D Curve / 2A	<b>SU2C2AC</b>	Suppl / 2P Cct Brkr / C Curve / 2A
5	<b>SU2D5AC</b>	Suppl / 2P Cct Brkr / D Curve / 5A	<b>SU2C5AC</b>	Suppl / 2P Cct Brkr / C Curve / 5A
10	<b>SU2D10AC</b>	Suppl / 2P Cct Brkr / D Curve / 10A	<b>SU2C10AC</b>	Suppl / 2P Cct Brkr / C Curve / 10A
15	<b>SU2D15AC</b>	Suppl / 2P Cct Brkr / D Curve / 15A	<b>SU2C15AC</b>	Suppl / 2P Cct Brkr / C Curve / 15A
20	<b>SU2D20AC</b>	Suppl / 2P Cct Brkr / D Curve / 20A	<b>SU2C20AC</b>	Suppl / 2P Cct Brkr / C Curve / 20A
25	<b>SU2D25AC</b>	Suppl / 2P Cct Brkr / D Curve / 25A	<b>SU2C25AC</b>	Suppl / 2P Cct Brkr / C Curve / 25A
30	<b>SU2D30AC</b>	Suppl / 2P Cct Brkr / D Curve / 30A	<b>SU2C30AC</b>	Suppl / 2P Cct Brkr / C Curve / 30A
40	<b>SU2D40AC</b>	Suppl / 2P Cct Brkr / D Curve / 40A	<b>SU2C40AC</b>	Suppl / 2P Cct Brkr / C Curve / 40A
50	<b>SU2D50AC</b>	Suppl / 2P Cct Brkr / D Curve / 50A	<b>SU2C50AC</b>	Suppl / 2P Cct Brkr / C Curve / 50A
60	<b>SU2D60AC</b>	Suppl / 2P Cct Brkr / D Curve / 60A	<b>SU2C60AC</b>	Suppl / 2P Cct Brkr / C Curve / 60A





**Triple Pole - D Curve**

**Triple Pole - C Curve**

Current Ratings (amps)	Part No.	Description	Part No.	Description
1	<b>SU3D1AC</b>	Suppl / 3P Cct Brkr / D Curve / 1A	<b>SU3C1AC</b>	Suppl / 3P Cct Brkr / C Curve / 1A
2	<b>SU3D2AC</b>	Suppl / 3P Cct Brkr / D Curve / 2A	<b>SU3C2AC</b>	Suppl / 3P Cct Brkr / C Curve / 2A
5	<b>SU3D5AC</b>	Suppl / 3P Cct Brkr / D Curve / 5A	<b>SU3C5AC</b>	Suppl / 3P Cct Brkr / C Curve / 5A
10	<b>SU3D10AC</b>	Suppl / 3P Cct Brkr / D Curve / 10A	<b>SU3C10AC</b>	Suppl / 3P Cct Brkr / C Curve / 10A
15	<b>SU3D15AC</b>	Suppl / 3P Cct Brkr / D Curve / 15A	<b>SU3C15AC</b>	Suppl / 3P Cct Brkr / C Curve / 15A
20	<b>SU3D20AC</b>	Suppl / 3P Cct Brkr / D Curve / 20A	<b>SU3C20AC</b>	Suppl / 3P Cct Brkr / C Curve / 20A
25	<b>SU3D25AC</b>	Suppl / 3P Cct Brkr / D Curve / 25A	<b>SU3C25AC</b>	Suppl / 3P Cct Brkr / C Curve / 25A
30	<b>SU3D30AC</b>	Suppl / 3P Cct Brkr / D Curve / 30A	<b>SU3C30AC</b>	Suppl / 3P Cct Brkr / C Curve / 30A
40	<b>SU3D40AC</b>	Suppl / 3P Cct Brkr / D Curve / 40A	<b>SU3C40AC</b>	Suppl / 3P Cct Brkr / C Curve / 40A
50	<b>SU3D50AC</b>	Suppl / 3P Cct Brkr / D Curve / 50A	<b>SU3C50AC</b>	Suppl / 3P Cct Brkr / C Curve / 50A
60	<b>SU3D60AC</b>	Suppl / 3P Cct Brkr / D Curve / 60A	<b>SU3C60AC</b>	Suppl / 3P Cct Brkr / C Curve / 60A



**Switching Devices Supplementary Protector**

Rated Current $i_n$ A	Rated Voltage Volt AC	Weight g/Each	Packing Unit	Test Currents * Electromagnetic		Part No.
				Not Tripping $I_2$ A	Tripping $I_3$ A	
<b>Neutral switch</b>						
0.5 - 60	277/480	150	5	400	700	<b>SNS63A</b>



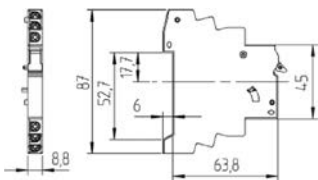
\* additional electromagnetic protection

## Accessories for Supplementary Circuit Breakers



### Auxiliary contact

Module	Type of Contact	Contacts	Part No.	Weight g/ Each	Packing Unit
1/2	1 auxiliary contact	1NO	<b>SAU10</b>	35	10
1/2	2 auxiliary contacts	1NO + 1NC	<b>SAU11</b>	40	10



Standards	Acc. to IEC 60947-5-1, DIN EN 60947-5-1, VDE 0660-200, UL508	
Rated operating currents	10 A / 240 V AC 3 A / 110 V DC 1 A / 220 V DC	
Minimum contact load	1 mA at 24 V DC	
Conductor cross sections		
Type of conductor *)	min.	max.
Single wire	1.0 mm <sup>2</sup> (AWG18)	2.5 mm <sup>2</sup> (AWG14)
Stranded wire	1.0 mm <sup>2</sup> (AWG18)	1.5 mm <sup>2</sup> (AWG16)
Stranded wire with ferrule	1.0 mm <sup>2</sup> (AWG18)	1.5 mm <sup>2</sup> (AWG16)
Torque	max. 0.8 Nm (7 lb.in)	

\*) Stripped length 8 - 9 mm



### Shunt trip

Module	Rated Operating Voltage	Max. Operating Current at Un (t < 10 ms)	Part No.	Weight g/ Each	Packing Unit
1	24 V UC	0.6 A	<b>SST24V</b>	105	5
1	110 - 240 V UC, 415 V AC	0.25 A at 110 V 0.5 A at 240 V 0.58 A at 277 V	<b>SST110V</b>	105	5



### Lock-off/Lock-on device

Packing Unit	Weight g/ Each	Part No.
10	2	<b>LD10</b>



## Accessories for Supplementary Circuit Breakers

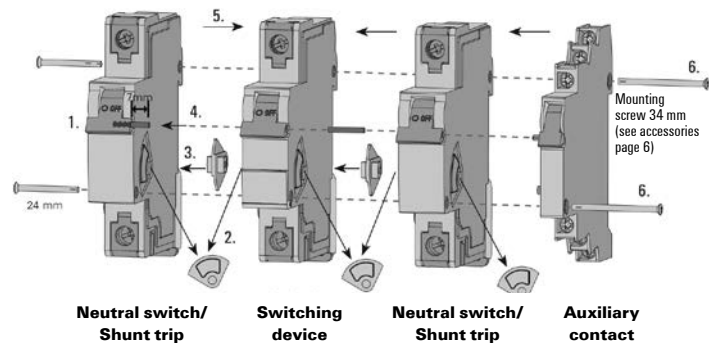
### Mounting Instructions of Accessories

#### Applies to SNS63A and SAU...:

The accessory devices SNS63A and SAU... can be installed on the right or left. The auxiliary contact H... UM can only be installed on the right.

#### Mounting:

1. Flick the blue switches of all devices to the "OFF" position
2. Remove the grey cover from the switching device and attachment
3. Insert the drive plate between the switching device and SNS63A and SAU...
4. Insert the connecting pin into the switch (insertion depth approx. 7 mm)
5. Combine switching device and SNS63A and SAU...
6. Screw devices together (observe correct screw length)

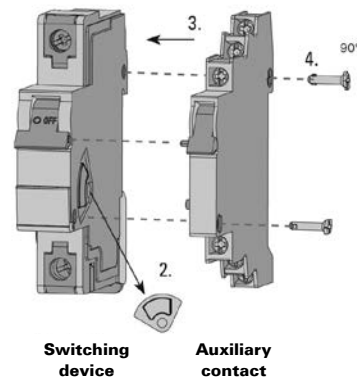


#### Applies to SAU...:

The auxiliary contact SAU... can only be installed on the right.

#### Installation:

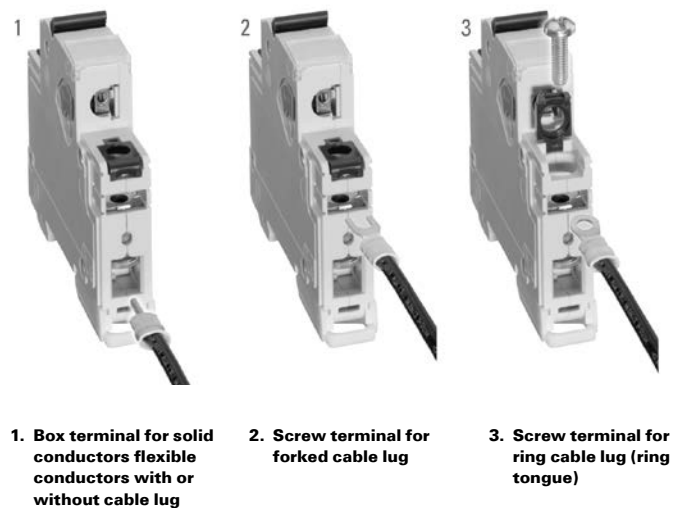
1. Flick the blue switches of all devices to the "OFF" position
2. Remove the grey cover from the switching device
3. Combine switching device and SAU...
4. Insert connection screws and connect the two devices by turning the screws by 90°
5. After installation close and open to check operation



#### Applies to all switching devices SAU..., SNS and SST...

#### Design of the terminals

- Optical detection of screw position
- Increased breaking resistance if the screwdriver becomes jammed
- Universal connecting terminals, suitable for connecting all known cable lugs such as ring or forked cable lugs and pin terminals
- Ring cable lugs can be connected by opening the flap and removing the connecting screw
- Can also be used for applications that require ring cable lugs (e.g. nuclear power stations)
- DIN EN 50274, VDE 0660-514 compliant protection against contact with live parts is fully guaranteed

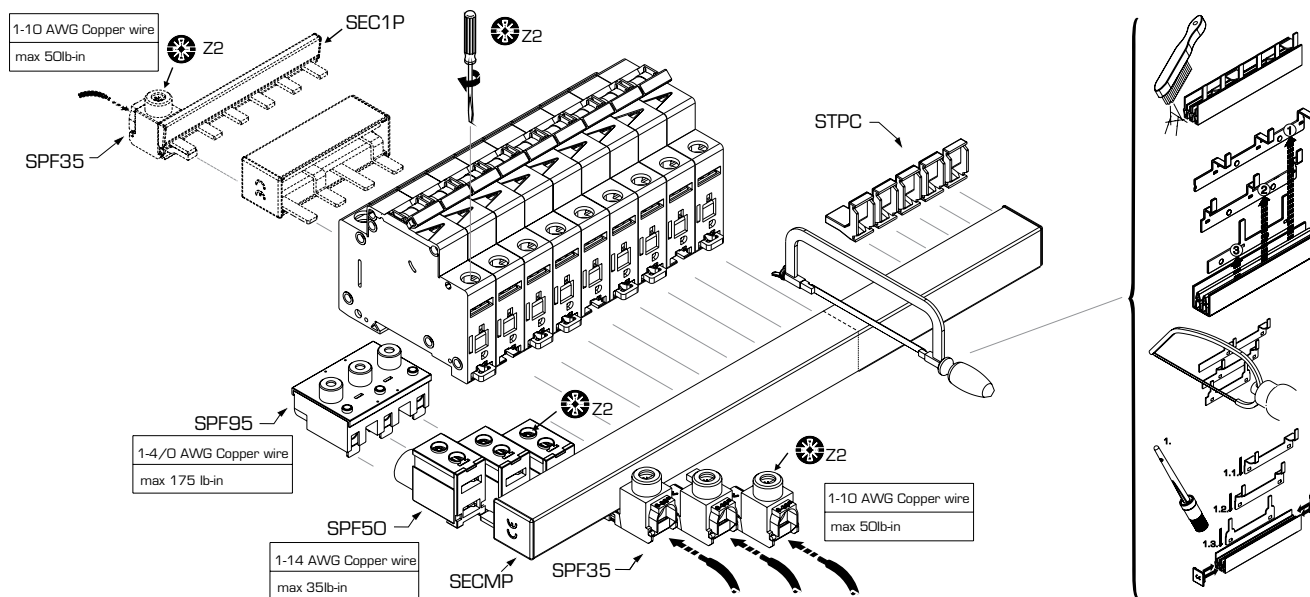


1. Box terminal for solid conductors flexible conductors with or without cable lug

2. Screw terminal for forked cable lug

3. Screw terminal for ring cable lug (ring tongue)

# Busbar and Accessories for Supplementary Circuit Breakers (UL1077/CSA C22.2 No.235)



## General Data

	SPF35
$U_e$	1000 V AC/DC
$f$	50/60 Hz
$U_{imp}$	-
$I_e$	115 A
	# 1-10 AWG 60°C Cu
	0.56 in
	All SB models
$U_e$	1P 600 V AC 1000V DC 2/3P 600V AC
$f$	50/60 Hz
$U_{imp}$	-
$I_e$	18mm <sup>2</sup> / 25mm <sup>2</sup>
Infeed at the start of the busbar	80A@40 °C / 100A@30°C
Infeed at the center of the busbar	160A@40°C / 200A@30°C

	SPF50
$U_e$	1000V AC/DC
$f$	50/60 Hz
$U_{imp}$	-
$I_e$	115 A
	# 1-14 AWG 75°C Cu
	0.56 in
	SPF95
$U_e$	600V AC/DC
$f$	50/60 Hz
$U_{imp}$	-
$I_e$	200 A
	# 1-4/0 AWG 75°C Cu
	1 in

Description	Part No.
Busbar/Supplementary Protection/1ph/6Poles	<b>SB106</b>
Busbar/Supplementary Protection/1ph/12Poles	<b>SB112</b>
Busbar/Supplementary Protection/Aux/1ph/37Poles	<b>SB1A37</b>
Busbar/Supplementary Protection/2ph/12Poles	<b>SB212</b>
Busbar/Supplementary Protection/2ph/18Poles	<b>SB218</b>
Busbar/Supplementary Protection/Aux/2ph/38Poles	<b>SB2A38</b>
Busbar/Supplementary Protection/3ph/12Poles	<b>SB312</b>
Busbar/Supplementary Protection/3ph/39Poles	<b>SB339</b>
Busbar/Supplementary Protection/Aux/3ph/48Poles	<b>SB3A48P</b>
PwrFeed Term - 35mm <sup>2</sup>	<b>SPF35</b>
PwrFeed Term - 50mm <sup>2</sup>	<b>SPF50</b>
PwrFeed Term - 95mm <sup>2</sup>	<b>SPF95</b>
Touch Protection 5Caps	<b>STPC</b>
Endcap/1P busbars	<b>SEC1P</b>
Endcap/multi-P busbars	<b>SECMP</b>

## Technical Data for Supplementary Circuit Breakers

Characteristic		C	D
Application		Lighting, Control circuits Wiring protection, Business equipment Appliances	Control transformers Power supplies Reactive load
Number of poles		1 - 3; 1 + N; 3 + N	
Standards		UL1077 and CSA-22.2 No.235	
Interrupting capacity		see data sheet for use in the USA and Canada	
Current limiting class		3	
Max. back-up fuse		see data sheet for use in the USA and Canada	
Rated voltage AC		277 / 480 V	
Rated current range		0.5 - 60 A	0.5 - 60 A
Test currents	Thermal not tripping $I_1 (A) > 1 \text{ h}$	$1.13 \times I_N$	$1.13 \times I_N$
	Thermal tripping $I_2 (A) < 1 \text{ h}$	$1.45 \times I_N$	$1.45 \times I_N$
	Electromagnetic not tripping $I_4 (A) > 0,1 \text{ s}$	$5 \times I_N$	$10 \times I_N$
	Electromagnetic tripping $I_5 (A) < 0,1 \text{ s}$	$10 \times I_N$	$16 \times I_N$
Reference calibration temperature of the thermal tripping		30° C + 5° C Influence of the ambient temperature on the thermal release: Decrease of the current values with higher ambient temperature and increase with lower temperatures of approximately 5% per 10°C difference in temperature	
Frequency range of the electromagnetic trip		16 <sup>2</sup> / <sub>3</sub> to 60 Hz	
Ambient temperature		-25 °C to +55 °C	
Storage temperature		-40 °C to +70 °C	
Device depth according to DIN 43880		68 mm	
Mechanical life		10,000 cycles (ON / OFF)	
Protection cover		Finger safe and safe to back of hand according to DIN EN 50274/ VDE0660-514	
Insulation group acc. to DIN/VDE 0110		C at 250 V AC B at 400 V AC	
Degree of protection acc. to EN/IEC 60529		IP20	
Installation position		any	
Mounting		DIN-rail according to DIN EN 60715 35 mm	
Lockability		The handle can be secured against manual switching in the on and off position by a lead seal	
Climatic resistance		Humid heat constant according to DIN EN 60068-2-78 Humid heat cycle according to DIN EN 60068-2-30	
Vibration resistance		> 15 g according to DIN EN 60068-2-59 during a load with $I_1$	
Resistance to mechanical shocks		25g 11ms	
Approvals - SU... items		cRUus marking, UL file E359481, ref standards UL1077 and CSA-C22.2 No. 235	
Approvals - SAU..., SNS..., SST... items		UL marking, UL file E362205, ref standards UL1077 and CSA-C22.2 No. 14	
Approvals - SB..., SPF..., STPC..., SEC... items		pending	

## Technical Data for Supplementary Circuit Breakers



### Conductor cross sections

Type of conductor *)	Box Terminal Bottom		Box Terminal Top	
	max.	min.	max.	min.
Single wire	35 mm <sup>2</sup> (AWG2)	1 mm <sup>2</sup> (AWG18)	25 mm <sup>2</sup> (AWG3)	1 mm <sup>2</sup> (AWG18)
Multiple wire	35 mm <sup>2</sup> (AWG2)	16 mm <sup>2</sup> (AWG6)	25 mm <sup>2</sup> (AWG3)	16 mm <sup>2</sup> (AWG6)
Stranded wire	25 mm <sup>2</sup> (AWG3)	1 mm <sup>2</sup> (AWG18)	16 mm <sup>2</sup> (AWG6)	1 mm <sup>2</sup> (AWG18)
Stranded wire with ferrule	16 mm <sup>2</sup> (AWG6)	1 mm <sup>2</sup> (AWG18)	16 mm <sup>2</sup> (AWG6)	1 mm <sup>2</sup> (AWG18)
<b>Busbar cable lug</b>	up to 3 mm thickness		up to 1.5 mm thickness	
<b>Torque</b>	max. 2.3 Nm (20 lb.in)			

\*) Stripped length: bottom 12 - 14 mm, top 10 - 12 mm

### Interrupting capacity and maximum back-up fuse for use in the USA and Canada

Characteristic	C and D				
Standards	UL1077 and CSA-22.2 No.235				
	Number of poles	Maximum rated voltage [V]	Rated current [A]	Interrupting capacity [kA]	Maximum back-up fuse [A]
Interrupting capacity at rated voltage	1 / 1 + N	277	0.5 - 10	10	70 A
	1 / 1 + N	277	12 - 60	10	4 x I <sub>N</sub>
Ambient temperature 40 °C	2 / 3 / 3 + N	480	0.5 - 10	10	70 A
	2 / 3 / 3 + N	480	12 - 60	10	4 x I <sub>N</sub>

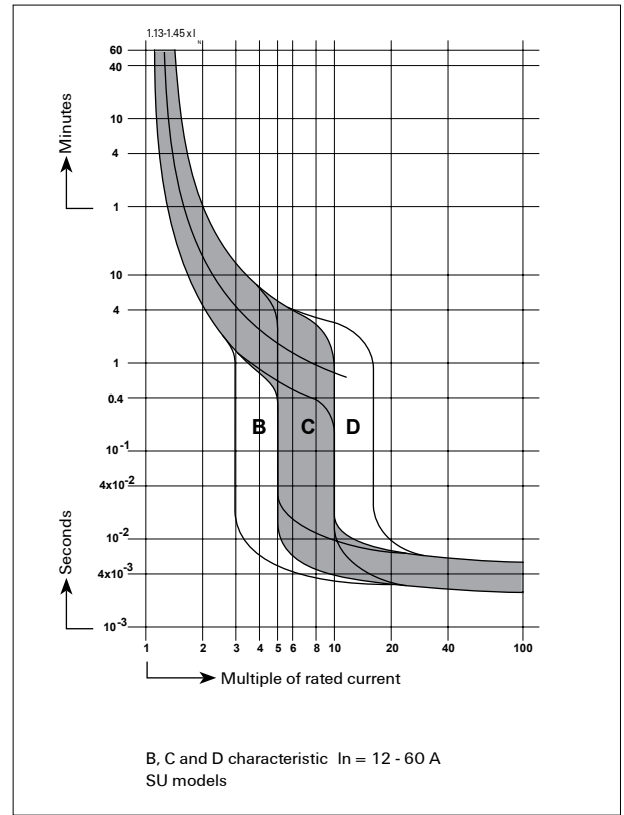
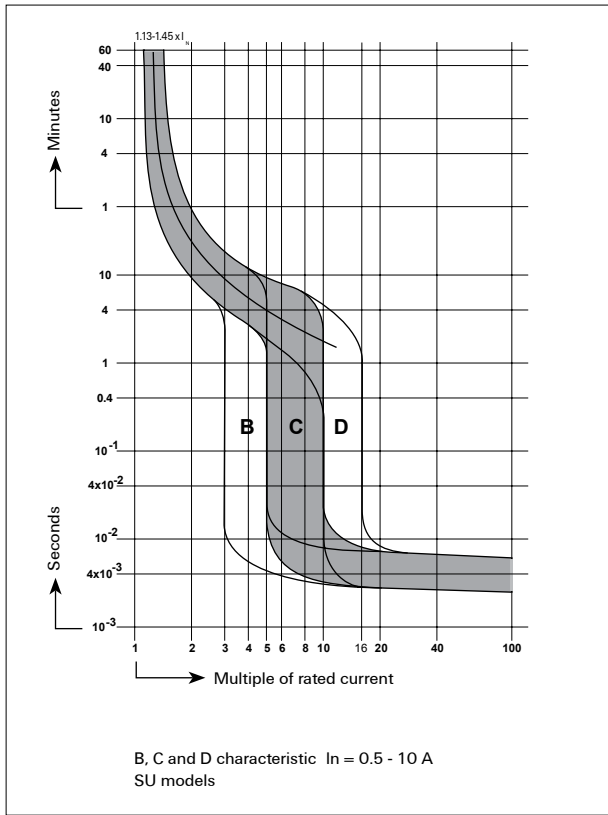
### Internal resistance for Product Range SU

Rated Current [A]	Trip Characteristic	
	C [Ohm]	D [Ohm]
0.5	6.8540	6.0009
1.0	1.7000	1.7560
2.0	0.4190	0.4190
3.0	0.2020	0.2020
4.0	0.1090	0.1090
5.0	0.0654	0.0654
6.0	0.0528	0.0491
8.0	0.0278	0.0240
10	0.0216	0.0187
12/13	0.0084	0.0085
15/16	0.0085	0.0076
20	0.0067	0.0064
25	0.0050	0.0041
30/32	0.0032	0.0027
40	0.0025	0.0022
50	0.0019	0.0018
60	0.0018	0.0017

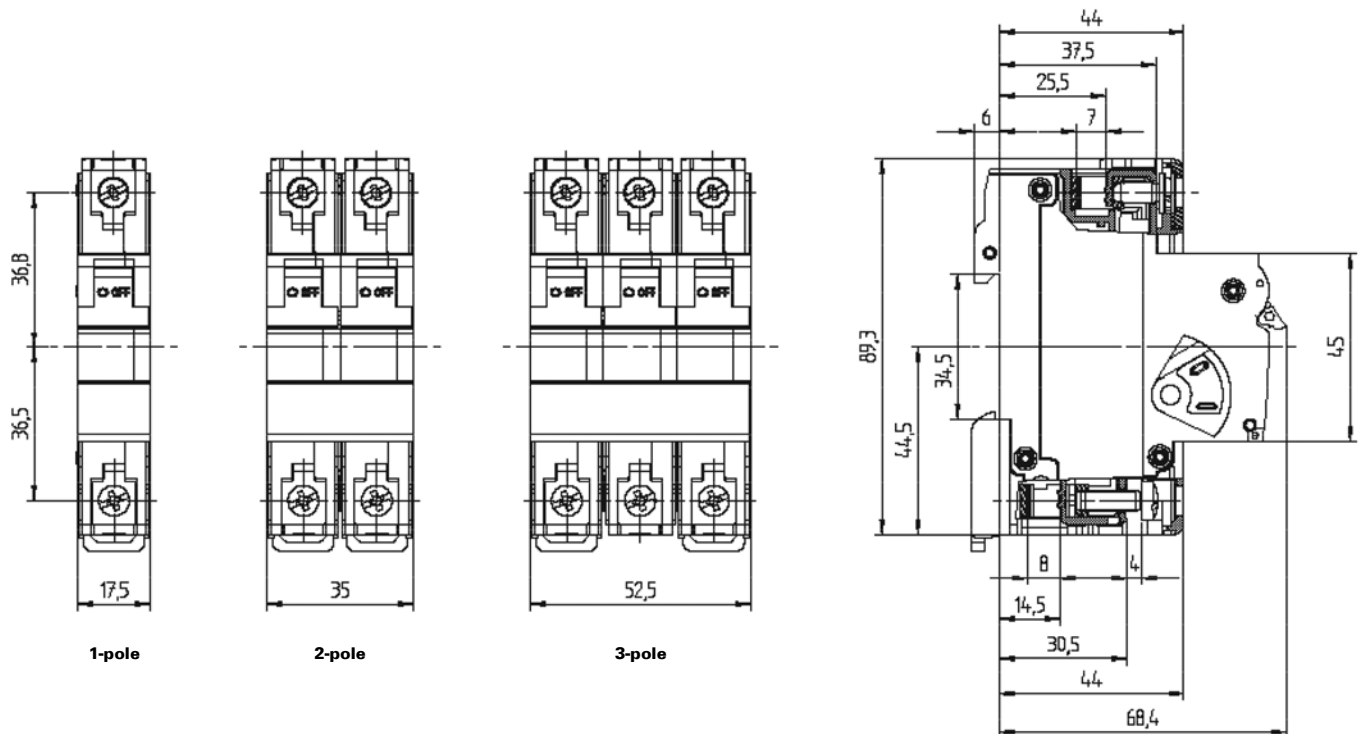




### Curves for Supplementary Circuit Breakers



### Dimension Drawings for SU models









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