

**SPECIFICATION FOR  
“SB” SINGLE POLE POWER BLOCKS  
or engineering approved equivalent per the specification below**

**1. SUMMARY**

This specification covers the technical requirements of the SB single pole power blocks for use in low-voltage power distribution applications where electrical connections between live parts are required.

**2. COMPLIANCE REQUIREMENTS**

- a. ANSI/UL1059 “Terminal Blocks” (Recognized by Underwriters Laboratories under this category)  
or,
- b. ANSI/UL1953 “Terminal Blocks” (Listed by Underwriters Laboratories under this category)
- c. IEC 60947-7-1
- d.  $U_i = 1000V$  AC/DC IEC minimum 600 V UL or 1000V UL in function of the model
- e. Short circuit current rated up to 100 KA – As per UL
- f. RoHS 2002/95/EC Compliant
- g. CE marked
- h. EAC certificate or Customs Union certificate
- i. Flame retardant as per UL 94 V-0
- j. Flame retardant as per IEC® 60695-2-11 (Glow Wire Test 960 °C)
- k. Low Smoke
- l. Halogen Free

**3. PRODUCT COMPOSITION**

**a. Connection block and connection terminals (screws)**

The connection block should be made of tinned copper or tinned Aluminum and the connection terminals (screws) be made of low carbon steel with tin plating.

The design of the connection block/connection terminal should yield a 95% fill ratio\* and allow for connection to a solid or standard cable with or without a ferule or to a busbar, to a Flexible Busbar or Braid with Solid Palm. The design should allow for visual inspection of the wire and confirmation of connection. It should also allow for copper and aluminum cables to be connected on the same block without any risk of galvanic corrosion.

Power blocks rated at 160A or above should have a voltage detection and measurement feature.

\*the fill ratio is the ratio between the major diameter of the connection terminal and the size of the hole in the connection block itself.

**b. Housing**

The housing should be made of self-extinguishable resin rated to class V0 according to UL 94. It should be halogen free.

The housing should be design to be connected onto a DIN rail and should have holes on the backside for a direct connection to a panel. It should also be stackable with other similar distribution blocks. DIN rail clip should be a 2 positions design (open/close)

**c. Cover**

The cover should be made of self-extinguishable material rated to class V0 according to UL 94, be transparent and hinged to the housing or removable therefore providing direct access to the connection terminals (screws) for maintenance purposes. It should include a screw retaining feature, be halogen free and marked with the operating current and operating voltage of the distribution block according to IEC and UL.

**4. PRODUCT CHARACTERISTICS**

**a. Physical**

The assembly should be IP20 finger safe.

**b. Environmental**

Ambient temperature ranges

Applications per IEC 60947-7-1: -5°C to 40°C (with allowable temperature rise of 45K)

Applications per UL 1059 or UL 1953: -40°C to 40°C (with allowable temperature rise of 30K)

Derating according to Ambient* Temperature (°C) to maintain working temperature of 85°C									
Ambient Temperature (°C)	30°	35°	40°	45°	50°	55°	60°	65°	70°
Derating Coefficient (d)	1	1	1	0.94	0.88	0.82	0.75	0.67	0.58
*environment around the terminal blocks inside the enclosure									

### c. Performance

The blocks should be tested per IEC 60974-7-1 and to UL1059, or UL1953.

The maximum operating voltage should be 1000V AC and 1500V DC per IEC.

The performance for each block of a certain rating should be as follow:

Max IEC Current	Max UL Current	Line side : Nbre of connection	Line side Min and Max conductor size	Load side : Nbre of connection	Load side Min and Max conductor size	Max working voltage IEC	Max working voltage UL	IEC Icw for 1sec (kA RMS)	IEC IPk (kA)	UL SCCR (kA RMS)
100 A	85 A	1 Cable	6 - 16 mm <sup>2</sup> #16 - #4	1 Cable	6 - 16 mm <sup>2</sup> #16 - #4	1,000 VAC 1,500 VDC	1,000 VAC/DC	3	25	100
110 A	85 A	1 Cable	6 - 16 mm <sup>2</sup> #16 - #4	1 Cable	6 - 16 mm <sup>2</sup> #16 - #4	1,000 VAC 1,500 VDC	1,000 VAC/DC	3	22	100
170 A	150 A	1 Cable	10 - 35 mm <sup>2</sup> #8 - 1/0	1 Cable	10 - 35 mm <sup>2</sup> #8 - 1/0	1,000 VAC 1,500 VDC	1,250 VAC/DC	6	25	100
185 A	150 A	1 Cable	10 - 35 mm <sup>2</sup> #8 - 1/0	1 Cable	10 - 35 mm <sup>2</sup> #8 - 1/0	1,000 VAC 1,500 VDC	1,250 VAC/DC	6	22	100
230 A	200 A	1 Cable	35 - 70 mm <sup>2</sup> #2 - 3/0	1 Cable	35 - 70 mm <sup>2</sup> #2 - 3/0	1,000 VAC 1,500 VDC	1,000 VAC/DC	14,4	42	100
250 A	200 A	1 Cable	35 - 70 mm <sup>2</sup> #2 - 3/0	1 Cable	35 - 70 mm <sup>2</sup> #2 - 3/0	1,000 VAC 1,500 VDC	1,000 VAC/DC	14,4	42	100
330 A	255 A	Flat Conductor	Flexibar 2X20X1 - 5X20X1 IBS/IBSB 50 - 70 mm <sup>2</sup>	1 Cable	35 - 120 mm <sup>2</sup> #6 - 250 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	14,4	42	100
400 A	255 A	1 Cable	35 - 120 mm <sup>2</sup> #6 - 250 kcmil	1 Cable	35 - 120 mm <sup>2</sup> #6 - 250 kcmil	1,000 VAC, 1,500 VDC	1,250 VAC/DC	14,4	42	100
400 A	255 A	1 Cable	35 - 120 mm <sup>2</sup> #6 - 250 kcmil	1 Cable	35 - 120 mm <sup>2</sup> #6 - 250 kcmil	1,000 VAC, 1,500 VDC	1,250 VAC/DC	14,4	42	100
550 A	255 A	1 Cable	35 - 120 mm <sup>2</sup> #6 - 250 kcmil	2 Cables	(2) 35 - 120 mm <sup>2</sup> (2) #6 - 250 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	14,4	42	100
670 A	335 A	1 Cable	95 - 240 mm <sup>2</sup> 3/0 - 400 kcmil	2 Cables	(2) 35 - 120 mm <sup>2</sup> (2) #2 - 250 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	28,8	51	100
600 A	335 A	1 Cable	95 - 240 mm <sup>2</sup> 3/0 - 400 kcmil	2 Cables	(2) 35 - 120 mm <sup>2</sup> (2) #2 - 250 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	28,8	51	100
450 A	335 A	Flat Conductor	Flexibar 2x20x1 - 5x24x1 IBS/IBSB 100 mm <sup>2</sup>	1 Cable	95 - 240 mm <sup>2</sup> 3/0 - 400 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	28,8	51	100
405 A	335 A	Flat Conductor	Flexibar 2x20x1 - 5x24x1 IBS/IBSB 100 mm <sup>2</sup>	1 Cable	95 - 240 mm <sup>2</sup> 3/0 - 400 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	28,8	51	100
480 A	335 A	Flat Conductor	Flexibar 2x20x1 - 5x24x1 IBS/IBSB 100 mm <sup>2</sup>	2 Cables	(2) 35 - 120 mm <sup>2</sup> (2) #2 - 250 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	28,8	51	100
500 A	335 A	Flat Conductor	Flexibar 2x20x1 - 5x24x1 IBS/IBSB 100 mm <sup>2</sup>	2 Cables	(2) 35 - 120 mm <sup>2</sup> (2) #2 - 250 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	28,8	51	100
430 A	255 A	Flat Conductor	Flexibar 2X20X1 - 5X20X1 IBS/IBSB 50 - 70 mm <sup>2</sup>	2 Cables	(2) 35 - 120 mm <sup>2</sup> (2) #2 - 250 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	14,4	42	100
610 A	335 A	1 Cable	95 - 240 mm <sup>2</sup> 3/0 - 400 kcmil	1 Cable	95 - 240 mm <sup>2</sup> 3/0 - 400 kcmil	1,000 VAC, 1,500 VDC	1,250 VAC/DC	28,8	51	100
500 A	335 A	1 Cable	95 - 240 mm <sup>2</sup> 3/0 - 400 kcmil	1 Cable	95 - 240 mm <sup>2</sup> 3/0 - 400 kcmil	1,000 VAC, 1,500 VDC	1,250 VAC/DC	28,8	51	100
860 A	545 A	1 Cable	240 - 500 mm <sup>2</sup> 400 - 1,000 kcmil	1 Cable	240 - 500 mm <sup>2</sup> 400 - 1,000 kcmil	1,000 VAC, 1,500 VDC	1,250 VAC/DC	60	51	100
870 A	545 A	1 Cable	240 - 500 mm <sup>2</sup> 400 - 1,000 kcmil	1 Cable	240 - 500 mm <sup>2</sup> 400 - 1,000 kcmil	1,000 VAC, 1,500 VDC	1,250 VAC/DC	60	51	100
750 A	410 A	Flat Conductor	Flexibar 2x20x1 - 8x32x1 IBS/IBSB 100 - 240 mm <sup>2</sup>	1 Cable	240 - 500 mm <sup>2</sup> 400 - 1,000 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	60	51	100
800 A	545 A	Flat Conductor	Flexibar 2x20x1 - 8x32x1 IBS/IBSB 100 - 240 mm <sup>2</sup>	1 Cable	240 - 500 mm <sup>2</sup> 400 - 1,000 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	60	51	100
910 A	760 A	Flat Conductor	Flexibar 2x20x1 - 8x32x1 IBS/IBSB 240 mm <sup>2</sup>	2 Cables	(2) 35 - 240 mm <sup>2</sup> (2) #2 - 500 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	60	52	100
1,020 A	545 A	1 Cable	240 - 500 mm <sup>2</sup> 400 - 1,000 kcmil	2 Cables	(2) 35 - 300 mm <sup>2</sup> (2) #2 - 600 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	72	75	100
1,150 A	840 A	2 Cables	(2) 35 - 300 mm <sup>2</sup> (2) #2 - 600 kcmil	2 Cables	(2) 35 - 300 mm <sup>2</sup> (2) #2 - 600 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	72	75	100
1,420 A	1,260 A	Flat Conductor	Flexibar 2X20X1 - 10X50X1	3 Cables	(3) 35 - 300 mm <sup>2</sup> (3) #2 - 600 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	72	75	100
1,940 A	1,680 A	Flat Conductor	Flexibar 6X50X1 - 10X80X1	4 Cables	(4) 35 - 300 mm <sup>2</sup> (4) #2 - 600 kcmil	1,000 VAC, 1,500 VDC	1,000 VAC/DC	96	105	100

\* Connection of the rectangular shape input conductor to the connection block should not require the input conductor to be drilled or punch. Connection of the rectangular shape conductor need to keep the IP20 rating with any size of conductor.

## **5. SUPPLIER'S QUALIFICATION AND QUALITY CONTROL**

- a. Supplier shall be ISO9001:2000 certified and quality control be done accordingly.
- b. Supplier shall be following a health & safety program at least as stringent as the United States Occupational Health & Safety Administration program.