

UL Listed power distribution blocks



Catalog symbol:

- PDB__(poles)

Description:

Eaton's Bussmann® series high Short-Circuit Current Rating (SCCR) power distribution blocks provide up to 200 kA SCCR and help achieve compliance with National Electrical Code (NEC®) and OSHA requirements by resolving a common SCCR "weak link" in industrial control panels.

Available in 1-, 2- and 3-pole panel mount versions with popular lineside and loadside port configurations, these blocks are UL® Listed and provide the requisite spacing between uninsulated opposite polarities or ground by meeting the UL 1953 1" through air and 2" over surface spacings required per UL 508A for feeder circuit applications and per NEC for field installations.

To increase application flexibility, these blocks feature dual-wire rated ports that accept copper or aluminum conductors while retaining a UL Listed status.

Optional covers are available to enhance electrical safety.

Catalog number example:

PDB323-3 is a 3-pole PDB323

Where:

- The prefix "PDB323" defines the block's lineside characteristics (i.e., one conductor port per pole that accepts 350 kcmil - #6 Cu/Al conductors) and the loadside characteristics (i.e., six (6) conductor ports per pole that each accepts #4 - #14 Cu or #4 - #12 Al conductors).
- The suffix "3" in this example defines this as a three-pole block.
- See the catalog number table for details on the available lineside/loadside characteristics.

How to order:

From the catalog number table, select the catalog number that defines the desired lineside/loadside port and conductor characteristics.

Add to the catalog number the suffix that defines the desired pole configuration. Note, you must select from the available number of poles for each catalog number. These appear in the second column of the catalog number tables.

Specifications:

Ratings

- Volts: 600 V
- Amps: 175 to 310 A
- SCCR: 200 kA (see table for circuit protection details)

Flammability rating

- UL 94 V0

Agency information

- UL 1953 Listed, Guide QPQS, File E256146
- CSA® Certified, Class 6228-01, File 47235

Conductors†

- Stranded 75°C copper and aluminum
- Higher temperature rated conductors permitted with appropriate derating

† As specified in the catalog number table.



Powering Business Worldwide

Catalog numbers:

Line/load port configuration	No. of poles	Current rating (A)	Lineside				Loadside					Max SCCR (kA)**	Catalog number
			Wire size (Str/ferrule unless noted)*	Wires per port	Torque N•m (Lb-in)	Ports/pole	Wire size (Str/ferrule unless noted)*	Wires per port	Torque N•m (Lb-in)	Ports/pole			
	1, 3	175	2/0 - #1 Cu/Al (Str)	1		1	2/0 - #1 Cu/Al (Str)	1		1	200	PDB204_	
			#2 - #3 Cu/Al	1	12.4 (110) ^{††}		#2 - #3 Cu/Al	1	12.4 (110) ^{††}				
			#4 - #8 Cu/Al	1			#4 - #8 Cu/Al	1					
			#10 - #12 Al (Str)	1	4.0 (35)		#10 - #12 Al (Str)	1	4.0 (35)				
			#10 - #14 Cu	1			#10 - #14 Cu	1					
			#4 - #8 Cu/Al	2	13.6 (120)		#4 - #8 Cu/Al	2	13.6 (120)				
	1, 3	175	2/0 - #1 Cu/Al (Str)	1		1	#4 - #6 Cu/Al (Str)	1	4.0 (35)	4	200	PDB220_	
			#2 - #3 Cu/Al	1	13.6 (120)		#8 Cu	1	2.8 (25)				
			#4 - #8 Cu/Al	1-2			#8 Al (Str)	1-2	2.8 (25)				
			#10 - #14 Cu	1-2			#10 - #14 Cu	1-2	2.3 (20)				
	1, 3	175	2/0 - #1 Cu/Al (Str)	1		1	1/4-20 x 3/4" Stud	—	—	1	200	PDB280_	
			#2 - #3 Cu/Al	1	13.6 (120)								
			#4 - #8 Cu/Al	1-2									
			#10 - #14 Cu	1-2									
	1, 2, 3	175	2/0 - #1 Cu/Al (Str)	1		1	#4 - #6 Cu/Al (Str)	1	4.0 (35)	6	200	PDB321_	
			#2 - #3 Cu/Al	1	13.6 (120)		#8 Al (Str)	1-2	2.8 (25)				
			#4 - #8 Cu/Al	1-2			#8 Cu	1	2.8 (25)				
			#10 - #12 Al (Str)	1	4.0 (35)		#10 - #12 Al (Str)	1	4.0 (35)				
			#10 - #14 Cu	1-2			#10 - #14 Cu	1-2	2.3 (20)				
	1, 3	310	350kcmil - 2/0 Cu/Al (Str)	1		1	#4 - #6 Cu/Al (Str)	1	4.0 (35)	6	200	PDB323_	
			1/0 Cu/Al (Str)	1-2	31.1 (275) [†]		#8 Al (Str)	1-2	2.8 (25)				
			#1 - #6 Cu/Al	1-2			#10 - #12 Al (Str)	1	4.0 (35)				
							#10 - #12 Cu	1	2.3 (20)				
							#10 - #14 Cu	2					
	1, 3	310	350kcmil - 2/0 Cu/Al (Str)	1		1	#4 - #6 Cu/Al (Str)	1	4.0 (35)	12	200	PDB370_	
			1/0 Cu/Al (Str)	1-2	31.1 (275) [†]		#8 Al (Str)	1-2	2.8 (25)				
			#1 - #6 Cu/Al	1-2			#10 - #12 Al (Str)	1	4.0 (35)				
							#10 - #14 Cu	1-2	2.3 (20)				
	1, 3	310	350kcmil - 2/0 Cu/Al (Str)	1		1	#2 - #3 Cu/Al (Str)	1	5.6 (50)	6	200	PDB371_	
							#4 - #8 Al (Str)	1	5.1 (45)				
							#6 - #8 Al (Str)	2					
							#4 Cu	1	4.5 (40)				
							#6 Cu	1-2	4.5 (40)				
							#8 Cu	1-2	4.0 (35)				
							#10 - #12 Cu	1-2	4.0 (35)				
							#14 Cu	2					
							1/0 - #3 Cu/Al (Str)	1	5.1 (45) ^{††}				
							#4 - #6 Cu/Al	1	4.5 (40) ^{††}				
			#8 Cu/Al	1	4.0 (35) ^{††}								
			#10 - #12 Cu	1	13.6 (120)								
			#6 - #14 Cu	2									
			#4 - #6 Al (Str)	2									

* 75°C wire (higher temperature rated wire acceptable with appropriate derating). Using a ferrule on a stranded conductor requires a correctly sized UL Listed ferrule (customer supplied) applied according to the manufacturer's specifications. Ferrule ratings apply to copper wire only.
 ** See pages 4 and 5 for the tested upstream overcurrent protective devices necessary for achieving these SCCRs.
 † Torque rating for dual wire and ferrule application is 30.5 N•m (270 Lb-in).
 †† Torque rating for ferrule application is 13.6 N•m (120 Lb-in).

Features and benefits

- High SCCRs up to 200 kA, assist in achieving high SCCR for a control panel per NEC and UL 508A requirements.
- In compliance with UL 1953 minimum spacing requirements for industrial control panel feeder and branch circuits.
- Optional covers available to reduce the risk of accidental contact with energized components.

Dual wire port application

- Rated for dual wire port application to increase the possible number of lineside and loadside connections. E.g., PDB220 can accept two wires into the lineside port (#4 - #14 Cu, #4 - #8 Al) and two wires per port (eight connections per pole total) on the loadside lug (#8 - #14 Cu, #8 Al).

- Dual wire applications are only viable when using two wires of the same size, stranding, and insulating and conductor material in the same port.

Ferrule terminal application

- Busmann series PDB power distribution blocks are rated for use with UL Listed ferrules (see catalog number table for details).
- Ferrule applications allow for the use of a broader range of conductor stranding and simulate a more efficient, solid wire connection with the PDB terminal port.
- Always use UL Listed ferrules in accordance with the manufacturer’s specifications and instructions.

Selecting SCCR power distribution blocks and terminal blocks

Short-circuit current rated power distribution blocks

Busmann series power distribution blocks have three distinct styles to match different application needs. There are the PDBFS_ and PDB_ high short-circuit current rated power distribution blocks and the 16_ power terminal blocks. The differences are whether the power distribution blocks are enclosed or not, and whether they are UL 1953 Listed power distribution blocks or UL 1059 Recognized power terminal blocks, which have different minimum spacing requirements. The table on this page will assist you in selecting which block is right for your application.

Why these are important

Per the NEC and OSHA, equipment cannot be installed in an electrical system at a location where the available fault (short-circuit) current is greater than the equipment’s SCCR.

Further, equipment SCCRs are required in the 2014 NEC and for UL 508A Listed control panels. Marking the equipment SCCR on control panels (NEC 409.110), industrial machinery electrical panels

(NEC 670.3(A)), and HVAC equipment (NEC 440.4(B)) is required by the NEC.

Power distribution and terminal blocks not marked with a component SCCR are typically one of the weakest links in a control panel’s equipment SCCR and may limit the equipment SCCR to no more than 10 kA. The PDBFS_ and PDB_ products have the increased spacing required for use in feeder circuits of equipment listed to UL 508A (UL 1059 terminal blocks must be evaluated for proper spacings). Also, for building wiring systems, the PDBFS_ and PDB_ power distribution blocks can be used to meet the 2014 NEC requirements in section 376.56(B) for power distribution blocks in wireways.

See the last page of this data sheet for SCCR tools and resources to help you further understand and solve your SCCR needs.

Selection table

This table provides an overview of the three Busmann series power distribution and terminal blocks mentioned above. For details on the PDBFS blocks, see data sheet number 10536. For the 16_ blocks, see data sheet numbers 10533 (UL Recognized power distribution blocks), 10534 (splicer blocks) and 10535 (stud blocks).

Catalog symbol	UL status	Enclosed	High SCCR*	Spacing ** 1" air, 2" surface	UL 508A panel branch circuit	UL 508A panel feeder circuit	HVAC UL 1995	Wireways NEC 376.56(B) (requires UL 1953)
PDBFS_	UL 1953 Listed power distribution blocks	Yes***	Yes	Yes	Yes	Yes	Yes	Yes
PDB_	UL 1953 Listed power distribution blocks	No†	Yes	Yes	Yes	Yes	Yes	Yes, with optional cover
16_	UL 1059 Recognized terminal blocks	No†	Yes	No††	Yes	No††	Yes	No

* When protected by proper fuse class with maximum ampere rating specified or smaller.

** For details, see PDB and TB minimum spacing requirements for equipment table below.

*** IP20 finger-safe under specific conditions, see data sheet no. 10536, page 5.

† Optional covers are available. Not IP20, but provide a safety benefit.

†† No, except: Yes, if single pole units installed with proper spacings.

Power distribution and terminal block minimum spacing requirements for equipment

UL standard	Spacing between live parts of opposite polarity		Spacing between live parts and grounded parts or enclosure @ 600 V
	Through air @ 600 V	Over surface @ 600 V	
508A feeder circuits	1"	2"	1"
508A branch circuits	3/8"	1/2"	1/2"
1995 HVAC	3/8"	1/2"	1/2"

Note: Refer to specific UL standards for complete spacing details.

Upstream fusing for SCCR and minimum enclosure data

This table contains the tested SCCR levels for each PDBFS power distribution block using the specified lineside and loadside conductors and Bussmann series Class J, RK1, RK5 and T fuses. Using these tested SCCR levels also requires the power distribution block be installed in an enclosure with the minimum size indicated for each catalog number.

Catalog number	Conductors (AWG or kcmil)		Fuse class and maximum amps*					SCCR	Minimum enclosure size (in)
	Lineside	Loadside	G SC (480 V)	J LPJ	RK1 LPN-RK (250 V) LPS-RK (600 V)	RK5 FRN-R (250 V) FRS-R (600 V)	T JJN (300 V) JJS (600 V)		
PDB204-1, -3	2/0 - #8	2/0 - #8	—	200	100	60	200	200 kA	16 x 16 x 6.75
PDB220-1, -3	2/0 - #8	#4 - #12	—	200	100	60	200	200 kA	16 x 16 x 6.75
		#4 - #14	60	175	100	30	175	100 kA	
PDB280-1, -3	2/0 - #8	Stud	—	200	100	60	200	200 kA	16 x 16 x 6.75
PDB321-1, -2, -3	2/0 - #8	#4 - #12	—	400	200	100	400	200 kA	24 x 20 x 6.75
		#4 - #14	60	175	100	30	175	100 kA	
PDB323-1, -3	350 - #4	#4 - #8	—	400	200	100	400	200 kA	24 x 20 x 6.75
		#4 - #12	60	175	100	30	175	100 kA	
PDB370-1, -3	350 - #4	#4 - #8	—	400	200	100	400	200 kA	24 x 20 x 6.75
		#4 - #14	60	175	100	30	175	100 kA	
PDB371-1, -3	350 - #4	1/0 - #6	—	400	200	100	400	200 kA	24 x 20 x 6.75
		1/0 - #12	60	175	100	30	175	100 kA	

Ampacities 75°C per NEC Table 310.16 and UL 508A Table 28.1.

* Class CC 30 A (LP-CC-30, FNQ-R-30, KTK-R-30) or less are suitable for all SCCRs in this table.

Upstream circuit breakers for SCCR and minimum enclosure data

This table contains the tested SCCR levels for each PDB power distribution block using the specified lineside and loadside conductors and Eaton circuit breakers. Using these tested SCCR levels also requires the power distribution block be installed in an enclosure with the minimum size indicated for each catalog number.

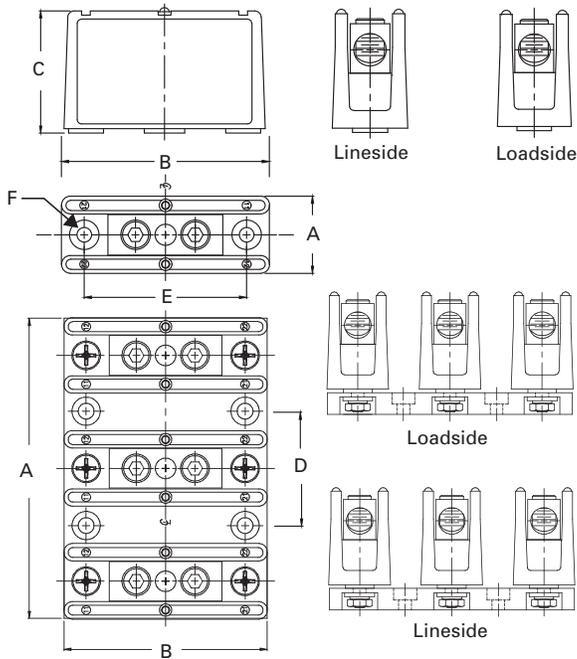
PDB_ SCCR as rated with Eaton circuit breakers

Catalog no.	Suitable copper conductors kcmil/AWG		SCCR, RMS Sym, kA	Volts max	Overcurrent protection circuit breaker required		Minimum enclosure size (in.)
	Lineside	Loadside			Type	Max amp	
PDB220	2/0 - #8	#4 - #10	65	480	EGC125, E125C, EGH125, E125H	125	16 x 16 x 6.75
	2/0 - #8	#12	22	480	EGC125, E125C, EGE125, E125E, EGS125, E125S, EGH125, E125H	125	
	2/0 - #8	#14	14	480	EGC125, E125C, EGB125, E125B, EGE125, E125E, EGS125, E125S, EGH125, E125H	125	
PDB321	2/0 - #8	#4 - #10	65	480	EGC125, E125C, EGH125, E125H	125	24 x 20 x 6.75
	2/0 - #8	#12	22	480	EGC125, E125C, EGE125, E125E, EGS125, E125S, EGH125, E125H	125	
	2/0 - #8	#14	14	480	EGC125, E125C, EGB125, E125B, EGE125, E125E, EGS125, E125S, EGH125, E125H	125	
PDB323	350 - #4	#4 - #6	65	480	JGH250, J250H	250	24 x 20 x 6.75
	350 - #4	#8	42	480	JGH250, J250H	250	
	350 - #4	#10	14	480	JGH250, J250H, JGE250, J250E, JGS250, J250S,	250	
	350 - #4	#4 - #6	65	480	JGC250, J250C, JGU250, J250U, JGX250, J250X	250	
		#8	42				
		#10	25				
PDB370	350 - #4	#4 - #6	65	480	JGH250, J250H	250	24 x 20 x 6.75
	350 - #4	#8	42	480	JGH250, J250H	250	
	350 - #4	#10	14	480	JGH250, J250H, JGE250, J250E, JGS250, J250S,	250	
	350 - #4	#4 - #6	65	480	JGC250, J250C, JGU250, J250U, JGX250, J250X	250	
		#8	42				
PDB371	350 - #4	#4 - #6	65	480	JGH250, J250H	250	24 x 20 x 6.75
	350 - #4	#8	42	480	JGH250, J250H	250	
	350 - #4	#10	14	480	JGH250, J250H, JGE250, J250E, JGS250, J250S,	250	
	350 - #4	#4 - #6	65	480	JGC250, J250C, JGU250, J250U, JGX250, J250X	250	
		#8	50				
		#10	25				

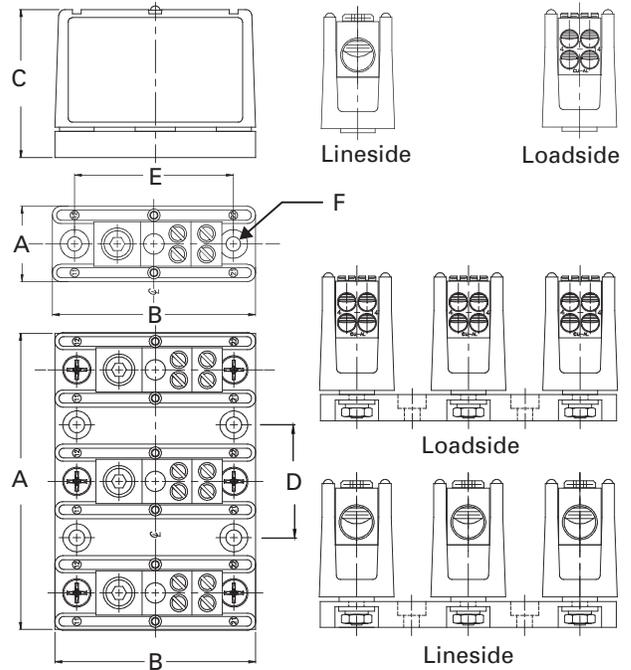
Dimensions — in (mm)

Catalog No.	Width		Length		Height		F (Hole)
	A	B	C	D	E	F (Hole)	
PDB204-3, PDB220-3, PDB280-3	4.25 (108)	2.88 (73)	2.13 (54)	1.62 (41)	2.25 (57)	0.22 (6)	
PDB323-3, PDB370-3, PDB371-3	6.30 (160)	5.50 (140)	3.70 (94)	3.25 (83)	4.75 (121)	0.22 (6)	
PDB323-1, PDB370-1, PDB371-1	1.98 (50)	4.00 (102)	3.33 (84)	—	3.37 (86)	0.21 (5.3) x 0.41 (10)	
PDB204-1, PDB220-1, PDB280-1	1.07 (27)	2.88 (73)	1.75 (44)	—	2.25 (57)	0.20 (5)	
PDB321-1	1.98 (50)	4.00 (102)	3.33 (84)	—	3.37 (86)	0.21 (5.3) x 0.41 (10)	
PDB321-2	3.60 (91)	4.00 (102)	3.33 (84)	1.62 (41)	3.37 (86)	0.21 (5.3) x 0.41 (10)	
PDB321-3	5.20 (132)	4.00 (102)	3.33 (84)	3.23 (82)	3.37 (86)	0.21 (5) x 0.41 (10)	

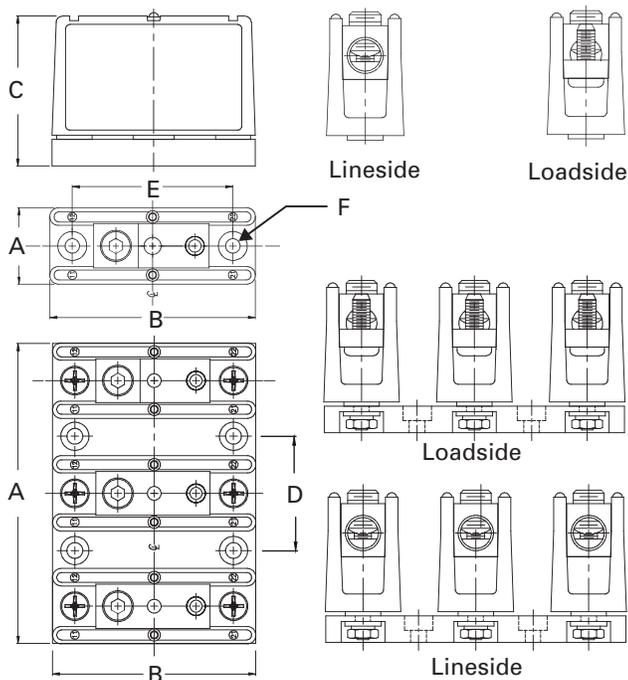
PDB204



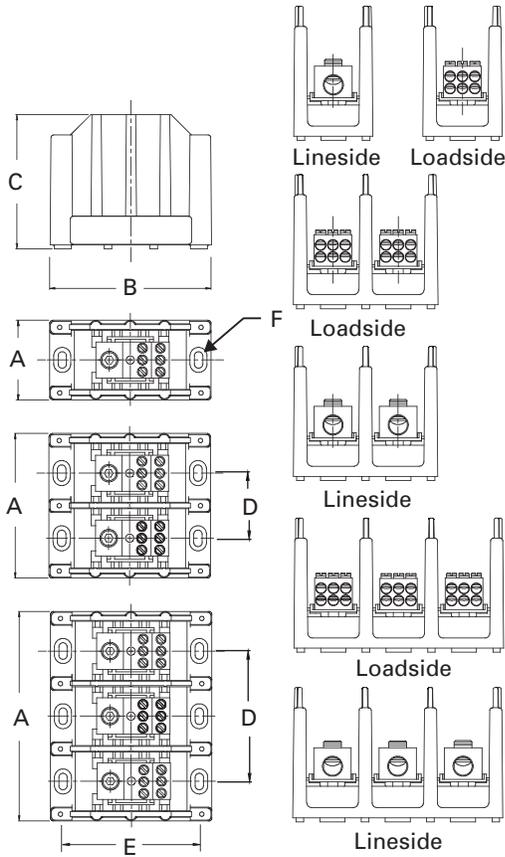
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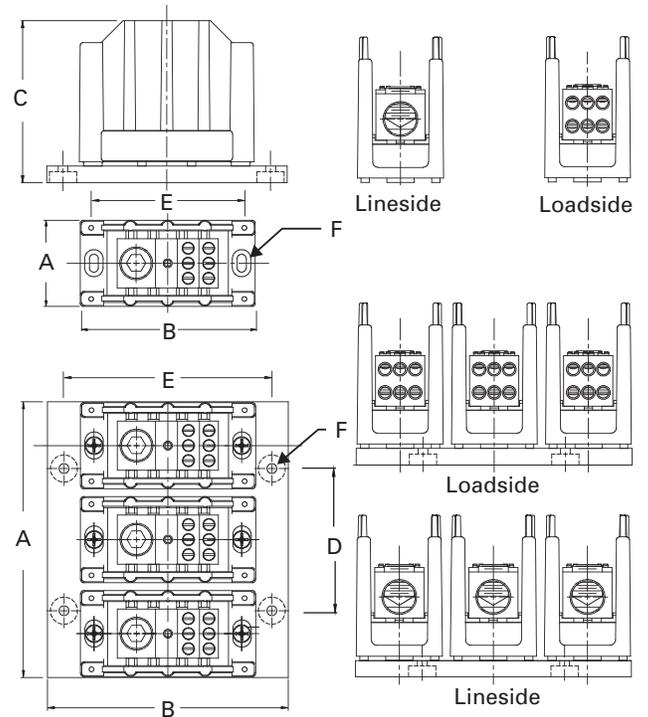
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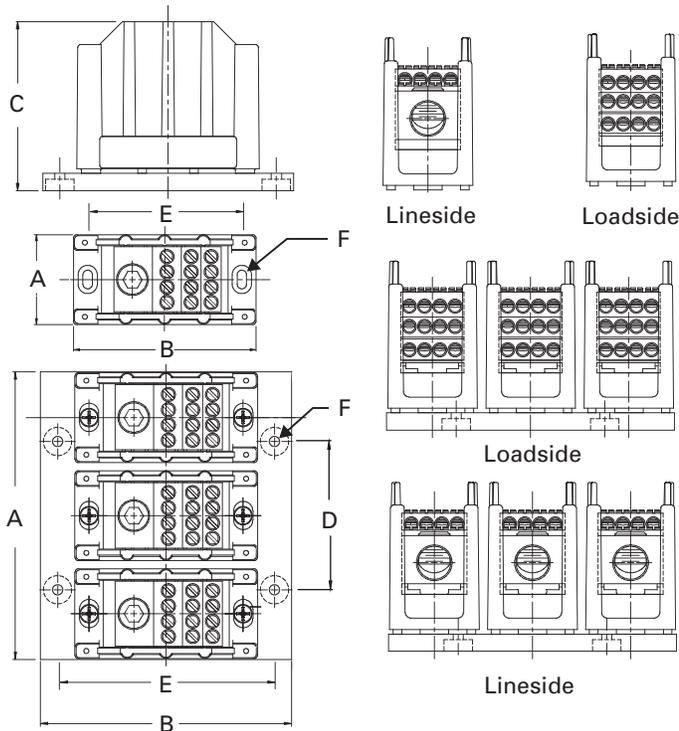
PDB321



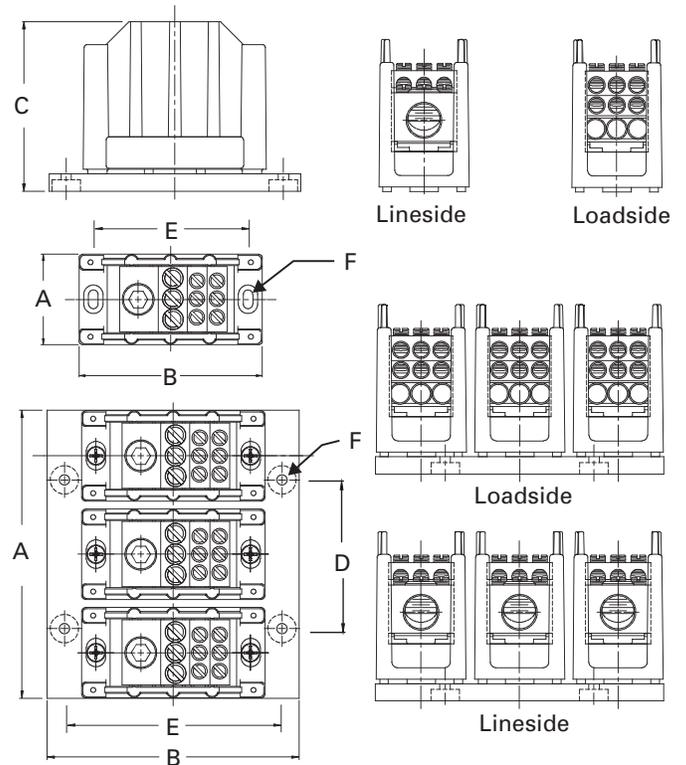
PDB323



PDB370



PDB371



Optional covers

Electrical safety can be enhanced by installing optional covers. From the table below, order the cover catalog number that matches the block catalog number. Order the quantity indicated in the "order quantity" column. E.g., the 3-pole block PDB204-3 requires ordering three CPB162-1 covers (one cover for each pole).

Block catalog no.	Poles	Cover catalog no.	Order quantity
PDB204-1	1	CPB162-1	1
PDB204-3	3	CPB162-1	3
PDB220-1	1	CPB162-1	1
PDB220-3	3	CPB162-1	3
PDB280-1	1	CPB162-1	1
PDB280-3	3	CPB162-1	3
PDB323-1	1	CPDB-1	1
PDB323-3	3	CPDB-1	3
PDB370-1	1	CPDB-1	1
PDB370-3	3	CPDB-1	3
PDB371-1	1	CPDB-1	1
PDB371-3	3	CPDB-1	3
PDB321-1	1	CPDB-1*	1
PDB321-2	2	CPDB-2*	1
PDB321-3	3	CPDB-3*	1

* For the PDB321-_ blocks, order one cover for each block (not per pole).

SCCR tools and resources

Eaton offers many resources that help customers understand and assess their SCCR needs.

Please use the following whenever you have questions, concerns or just need help with SCCR ratings.

Engineering services for SCCR

OSCAR™ compliance software eliminates the guesswork in equipment SCCR calculations.

This innovative OSCAR compliance software assists customer compliance with new Code and standards requirements for short-circuit current ratings as they relate to control panels, equipment and assemblies. Go to **OSCAR.eaton.com** and request a seven-day free trial.

If your equipment SCCR needs improvement, contact the Bussmann Application Engineers for a free design review. Call toll-free 1-855-BUSSMANN (855-287-7626) or email **FuseTech@eaton.com**.

Online SCCR tools and publications

- Free SCCR Protection Suite online tool. An easy, fast way to search for components and their SCCR. Visit **sccr.eaton.com**.
- Application notes:
 - Developing an effective SCCR plan for facilities and purchasers of industrial equipment — publication no. 10367
 - Developing an equipment SCCR standard for manufacturers of industrial equipment — publication no. 10368
 - Four steps to determine equipment SCCR — publication no. 10538
 - Equipment SCCR made easy brochure — publication no. 10374
 - SPD (Selecting Protective Devices) handbook; over 250 pages covering the application of overcurrent protective devices, SCCR and more — publication no. 3002

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