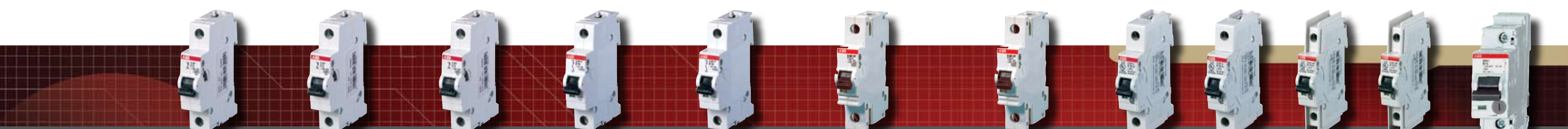



# Circuit Protection

## Miniature Circuit Breakers



Item	S200-B	S200-C, -D	S200-K	S200P-K	S200P-Z	S280UC-K	S280UC-Z	S200U-K	S200U-Z	S200UP-K	S200UP-Z	S500
Approvals:												
UL	1077	1077	1077	1077	1077	1077	1077	489	489	489	489	1077
CSA	C22.2 - No.235	C22.2 - No. 235	C22.2 - No. 235					C22.2 - No.5	C22.2 - No.5	C22.2 - No.5	C22.2 - No.5	C22.2 - No.235
VDE	0641, 0660	0660	0660	0660	0660	0660	0660	0660	0660	0660	0660	0641/6.78
IEC	898	898	947	947	947	947	947	947	947	947	947	898, 947
No. of poles:	1,2,3,4, 1+N, 3+N	1,2,3, 1+N, 3+N	1,2,3,4, 1+N, 3+N	1,2,3,4, 1+N, 3+N	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3, 3+N
Tripping characteristic:	B, C, D	K	K	K	Z	K	Z	K	Z	K	Z	B,C,D,K
Rated currents:	6 to 63A	0.5 to 63A	0.5 to 63A	0.2 to 63A	0.5 to 63A	0.2 to 63A	0.5 to 63A	0.2 to 63A	0.2 to 63A	0.2 to 25A	0.2 to 25A	0.1 to 63A
Minimum operating voltage:	12V	12V	12V	12V	12V	12V	12V	12V	12V	12V	12V	12V
UL/CSA rated voltage (50-60Hz)												
120VAC	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	18kA
240VAC	6kA	10kA	6kA	10kA	6kA	10kA	10kA	10kA	10kA	10kA	10kA	14kA
277VAC	6kA	6kA	6kA	6kA	6kA	6kA	6kA	6kA	6kA	6kA	6kA	14kA
480Y/277VAC	6kA	6kA	6kA	6kA	6kA	6kA	6kA	4.5kA for 0.2-40A 5kA for 50-63A	4.5kA for 0.2-40A 5kA for 50-63A	6kA	6kA	14kA@480Y/277VAC 6kA@600VAC
60VDC	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA
125VDC	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA	10kA
250VDC								4.5kA	4.5kA	4.5kA	4.5kA	
500VDC								4.5kA	4.5kA	4.5kA	4.5kA	
Rated voltage												
IEC single pole	240/415VAC	240/415VAC	240/415VAC	240/415VAC	240/415VAC	240/415VAC	240/415VAC	240/415VAC	240/415VAC	240/415VAC	240/415VAC	690VAC
IEC multi-pole	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC	60VDC 415VAC 110VDC


## Molded Case Circuit Breakers



UL 489 CSA C22.2	Tmax T1 1P	Tmax T1	Tmax T2	Isomax S3	Tmax T3	Tmax T4	Tmax T5	Isomax S6	Isomax S7	Isomax S8	
Frame size [A]	100	100	100	150	225	225	250	400 - 600 <sup>Ⓢ</sup>	800	1200	1600, 2000, 2500
Number of poles [N]	1	3,4	3,4	2,3,4	2,3,4	3,4	3,4	2,3,4	2,3,4	2,3,4	3
Rated voltage AC (50-60Hz) [V]	347	600/347	480	600	600	600/347	600	600	600	600	600
Rated voltage DC [V]	500	500	500	500	500	500	500	500	500	500	500
Interrupting ratings											
AC 240V [kA]	B	N	S H	N H L	N S	N S H L V	N S H L V	N S H L V	N S H L V	H	V
277V [kA]	18 <sup>Ⓢ</sup>			65 100 150	50 65	65 100 150 200 200	65 100 150 200 200	65 100 150 200 200	65 150 200	100	125
347V [kA]	14 <sup>Ⓢ</sup>			14 14 25	10 10	18 25 35 65 100 150	18 25 35 65 100 150	18 25 35 65 100 150	25 35 42		
480V [kA]		22 <sup>Ⓢ</sup>	35 65	25 50 83 <sup>Ⓢ</sup>	25 35	25 35 65 100 150	25 35 65 100 150	25 35 65 100 150	50 65 100	65	100
600V [kA]		10		14 14 25	10 10	18 25 35 65 100	18 25 35 65 100	18 25 35 65 100	25 35 42	50	85
DC 250V - 2 poles in series [kA]		25			25 35						
500V - 3 poles in series [kA]		25			25 35						
500V - 2 poles in series [kA]				35 50 65 50 20 35 50	25 35	25 35 50 65 100	25 35 50 65 100	25 35 50 65 100	35 50 65		
600V - 3 poles in series [kA]				20 35 50	20 35 50	16 25 35 50 65	16 25 35 50 65	16 25 35 50 65	20 35 50		
Trip units											
Thermal Magnetic Fixed	■	■	■	■	■	■	■	■	■	■	■
Adjustable Thermal Magnetic											
Electronic											
Magnetic Only											
Versions											
Molded Case Circuit Breaker	■	■	■	■	■	■	■	■	■	■	■
Molded Case Switch											
Motor Circuit Protector											
100% Rated											
IEC 60947-2											
Rated uninterrupted current, I <sub>n</sub> [A]	160	160	160	250	250	250 - 320	400 - 630	630 - 800	1250 - 1600	2000, 2500, 3200	
Number of poles [N]	1	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	
Rated service voltage, U <sub>e</sub> AC (50-60Hz) [V]	240	690	690	690	690	690	690	690	690	690	
Rated service voltage, U <sub>e</sub> DC [V]	125	500	500	500	500	500	500	500	500	500	
Rated ultimate short circuit breaking capacity, I <sub>cu</sub> AC (50-60 Hz)											
B	B C N	N S H L									
220/230V [kA]	25	25 40 50	65 85 100 120	For IEC Use	50 85	N S H L V	N S H L V	N S H L V	N S H L V	H V	
380/415V [kA]		10 15 25 35	36 50 70 85		36 50	36 50 70 120 200	36 50 70 120 200	36 50 70 120 200	36 50 70 120 200	85 120	
440V [kA]		10 15 22	30 45 55 75		25 40	30 40 65 100 180	30 40 65 100 180	30 45 50 80	40 55 80	70 100	
500V [kA]		8 10 15	25 30 36 50		20 30	25 30 50 85 150	25 30 50 85 150	25 35 40 65	35 45 70	50 70	
690V [kA]		3 4 6	6 7 8 10		5 8	20 25 40 70 80	20 25 40 70 80	20 22 25 30	20 25 35	40 50	
DC 250V - 2 poles in series [kA]		16 25 36	36 50 70 85		36 50	36 50 70 120 200	36 50 70 120 200	35 50 65 100			
250V - 3 poles in series [kA]		20 30 40	40 55 85 100		40 55						
500V - 2 poles in series [kA]		16 25 36	36 50 70 85		36 50	25 36 50 70 100	25 36 50 70 100	20 35 50 65			
500V - 3 poles in series [kA]		16 25 36	36 50 70 85		36 50	16 25 36 50 70	16 25 36 50 70	16 20 35 50			
750V - 3 poles in series [kA]											
Trip units											
Thermal Magnetic Fixed	■	■	■	■	■	■	■	■	■	■	
Adjustable Thermal Magnetic											
Electronic											
Magnetic Fixed											
Magnetic Only											
UL 489 CSA C22.2 and IEC 60947-2											
Dimensions H [in/mm]	5.12/130	5.12/130	5.12/130	6.70/170	5.9/150	6.07/205	6.07/205	10.55/268	15.98/406	16.75/400	
W 1p or 3p [in/mm]	1/25.4	3/76	3.54/90	4.13/105	4.13/105	4.13/105	5.51/140	8.27/210	8.27/210	15.98/406	
W 4p [in/mm]		4/102	4.72/120	5.51/140	5.51/140	5.51/140	7.24/184	11.02/280	11.02/280	21.89/556	
D [in/mm]	2.76/70	2.76/70	2.76/70	4.07/103.5	2.76/70	4.07/103.5	4.07/103.5	5.45/138.5	5.45/138.5	9.53/242	
Mechanical life [No. operations]	25,000	25,000	25,000	25,000	25,000	20,000	20,000	10,000	10,000	10,000	
Electrical life @ 415VAC [No. operations]	8000	8000	8000	10,000 (150) 8,000 (225)	8000	8000(250A)-6000(320A)	7000(400A)-5000(630A)	7000(300A)-5000(800A)	7000(1250A)-5000(1600A)	2500(2500A)-1500(3200A)	
	120	120	120	120	120	120	60	60	20	20(2500A)-10(3200A)	

Ⓢ In15A = 10kA @ 277VAC      Ⓢ 15 - 30A = 65kA @ 480VAC      Ⓢ 1600 - 2000A only  
 Ⓢ In15A = 35kA @ 240VAC, 14kA @ 480VAC      Ⓢ 400A only      Ⓢ Not available in 600A

## Air Circuit Breakers



UL 1066	E1	E2	E3	E4	E6
Levels of performance	B-A	N-A	S-A	H-A	V-A
Frame size [A]	800	800	1600	800	800
Rated short circuit current [kA]	1200	1200	1200	1200	1200
Capacity of neutral pole for four-pole circuit breakers [%I <sub>cu</sub> ]	100	100	100	100	100
Rated ultimate breaking capacity under short circuit I <sub>cu</sub>					
240V [kA]	42	50	42	65	85
480V [kA]	42	50	42	65	85
600V [kA]	42	50	42	65	85
Rated short time current [kA]	42	50	42	65	85
IEC 60947-2					
Levels of performance	B	N	S	L	N
Currents: rated uninterrupted current (at 40°C) I <sub>n</sub> [A]	800	800	1600	1000	800
[A]	1000	1000	2000	1250	1000
[A]	1250	1250	1600	1250	1600
[A]	1600	1600	2000	1600	2000
Capacity of neutral pole for four-pole circuit breakers [%I <sub>cu</sub> ]	100	100	100	100	100
Rated ultimate breaking capacity under short circuit I <sub>cu</sub>					
220/230/380/400/415V [kA]	42	50	42	65	85
440V [kA]	42	50	42	65	85
500/525V [kA]	42	50	42	65	85
660/690V [kA]	42	50	42	65	85
Rated service breaking capacity under short circuit I <sub>cs</sub>					
220/230/380/400/415V [kA]	42	50	42	65	85
440V [kA]	42	50	42	65	85
500/525V [kA]	42	50	42	65	85
660/690V [kA]	42	50	42	65	85
Rated short time withstand current I <sub>cs</sub> (1s) [kA]	42	50	42	65	85
UL 1066 and IEC 60947-2					
Overall dimensions					
Fixed: H = 418mm/16.46 in; D = 302mm/11.89 in					
W (3 poles/4 poles) [mm]	296/386	296/386	404/530	566/656	748 <sup>Ⓢ</sup>
W (3 poles/4 poles) [in]	11.65/15.2	11.65/15.2	15.91/20.82	22.28/25.83	29.37
Draw out: H = 461mm/18.15 in; D = 396.5mm/15.61 in					