

## Прекъсвач АВВ автоматичен двуполушен за DIN шина 2P, 10 А, 230 V, 15 кА, крива В, S202-B10



### Features

- Clear contact position indication in red/green ("real CPI")
- Unique, patented twin terminal with captive screws and an increased opening for cables up to max. 35 mm<sup>2</sup>, finger-proof (IP20)
- Busbar slot in the back for best visibility during installation
- High performance at an increased rated voltage for marine and industrial applications: 10 kA/15 kA at U = 440 V AC

acc. to IEC/EN 60947-2

- Individual product identification code

- Approved acc. to IEC/EN 60898-1, IEC/EN 60947-2 and

UL 1077/CSA 22.2 No. 235 for global use

## Miniature Circuit Breaker S 200/S 200 M

### Technical data

	S 200	S 200 M
<b>General Data</b>		
Standards	IEC/EN 60898-1, IEC/EN 60947-2 UL 1077	IEC/EN 60898-1, IEC/EN 60947-2 UL 1077, CSA 22.2 No. 235
Poles	1P, 2P, 3P, 4P, 1P+N, 3P+N	
Tripping Characteristics	B, C, D, K, Z	
Rated current $I_n$	0.5 up to 63 A	
Rated frequency	50/60 Hz	
Rated insulation voltage $U_i$	250 V AC (phase to ground), 500 V AC (phase to phase)	
Overtoltage Category	III	
Pollution Degree	3	
<b>IEC/EN 60898-1</b>		
Rated operational voltage $U_n$	1P: 230/400 V AC; 1P+N: 230 V AC; 2P, 3P, 4P: 400 V AC; 3P+N: 400 V AC	
Max. power frequency recovery voltage $U_{m, max}$	1P: 253 V AC; 1P+N: 253 V AC; 2P, 3P, 4P: 440 V AC; 3P+N: 440 V AC; 1P: 72 V DC; 2P: 125 V DC	
Min. operating voltage	12 V AC, 12 V DC	
Rated short-circuit capacity $I_{cs}$	6 kA	10 kA
Energy limiting class (B, C up to 40 A)	3	
Rated impulse withstand voltage $U_{imp}$ (1.2/50 $\mu$ s)	4 kV (test voltage 6.2 kV at sea level, 5 kV at 2,000 m)	
Dielectric test voltage	2.0 kV (50/60 Hz, 1 min)	
Reference temperature for tripping characteristics	B, C, D: 30 °C	
Electrical endurance	$I_n < 32$ A: 20,000 ops. (AC), 1,000 ops. (DC); one cycle 2 s - ON, 13 s - OFF $I_n \geq 32$ A: 10,000 ops. (AC), 1,000 ops. (DC); one cycle 2 s - ON, 28 s - OFF	
<b>IEC/EN 60947-2</b>		
Rated operational voltage $U_n$	1P: 230 V AC; 1P+N: 230 V AC; 2P, 3P, 4P: 440 V AC; 3P+N: 440 V AC	
Max. power frequency recovery voltage $U_{m, max}$	1P: 253 V AC; 1P+N: 253 V AC; 2P, 3P, 4P: 462 V AC; 3P+N: 462 V AC; 1P: 72 V DC; 2P: 125 V DC	
Min. operating voltage	12 V AC, 12 V DC	
Rated ultimate short-circuit breaking capacity $I_{cu}$	10 kA	15 kA
Rated service short-circuit breaking capacity $I_{cs}$	7.5 kA	$\leq 40$ A: 11.25 kA 50, 63 A: 7.5 kA
Rated impulse withstand voltage $U_{imp}$ (1.2/50 $\mu$ s)	4 kV (test voltage 6.2 kV at sea level, 5 kV at 2,000 m)	
Dielectric test voltage	2.0 kV (50/60 Hz, 1 min)	
Reference temperature for tripping characteristics	B, C, D: 55 °C; K, Z: 20 °C	
Electrical endurance	$I_n < 32$ A: 20,000 ops. (AC), 1,000 ops. (DC); one cycle 2 s - ON, 13 s - OFF $I_n \geq 32$ A: 10,000 ops. (AC), 1,000 ops. (DC); one cycle 2 s - ON, 28 s - OFF	
<b>UL/CSA</b>		
Rated voltage	1P: 277 V AC, 60 V DC 2...4P: 480 Y/277 V AC, 110 V DC	1P: 277 V AC, 60 V DC 2...4P: 480 Y/277 V AC, 125 V DC
Rated interrupting capacity	6 kA (AC), 10 kA (DC)	
Application	Suppl. prot. for general use. Application Codes: TC2, OL0, SC: U1	
Reference temperature for tripping characteristic	B, C, D, K, Z: 25 °C	
Electrical endurance	6,000 ops. (AC), 6,000 ops. (DC); one cycle 1 s - ON, 9 s - OFF	
<b>Mechanical data</b>		
Housing	Insulation group II, RAL 7035	Insulation group I, RAL 7035
Toggle	Insulation group II, black, sealable	
Contact position indication	Marking on toggle (I ON/OFF), Real CPI (red ON/green OFF)	
Protection degree acc. to EN 60529	IP20 <sup>1)</sup> , IP40 in enclosure with cover	
Mechanical endurance	20,000 ops.	
Shock resistance acc. to IEC/EN 60068-2-27	25 g, 2 shocks, 13 ms	
Vibration resistance acc. to IEC/EN 60068-2-6	5 g, 20 cycles at 5...150...5 Hz with load 0.8 I <sub>n</sub>	
Environmental conditions acc. to IEC/EN 60068-2-30	28 cycles with 55 °C/90-96 % and 25 °C/95-100 %	
Ambient temperature	-25 ... +55 °C	
Storage temperature	-40 ... +70 °C	

<sup>1)</sup> Also fulfilling the requirements acc. to the protection degree IPXXB

# Miniature Circuit Breaker S 200/S 200 M

## Technical data and tripping characteristics

	S 200	S 200 M
<b>Installation</b>		
Terminal	Failsafe bi-directional cylinder-lift terminal	
Cross-section of conductors (top/bottom)	solid, stranded: 35 mm <sup>2</sup> / 35 mm <sup>2</sup> flexible: 25 mm <sup>2</sup> / 25 mm <sup>2</sup> 14 – 4 AWG <sup>1)</sup>	
Cross-section of busbars (top/bottom)	10 mm <sup>2</sup> / 10 mm <sup>2</sup> 14 – 8 AWG <sup>2)</sup>	
Torque	2.8 Nm 18 in-lbs.	
Screwdriver	No. 2 Pozidrive	
Mounting	On DIN rail 35 mm acc. to EN 60715 by fast clip	
Mounting position	any	
Supply	optional	
<b>Dimensions and weight</b>		
Mounting dimensions acc. to DIN 43880	Mounting dimension 1	
Pole dimensions (H x D x W)	88 x 69 x 17.5	
Pole weight	approx. 115 g	
<b>Combination with auxiliary elements</b>		
Auxiliary contact	Yes	
Signal/auxiliary contact	Yes	
Shunt trip	Yes	
Undervoltage release	Yes	
Motor Operating Device	Yes	

<sup>1)</sup> AWG 18 – 4 acc. to UL 486A – 486B    <sup>2)</sup> AWG 18 – 8 acc. to UL 486A – 486B

### Tripping characteristics

Acc. to	Tripping characteristics	Rated current $I_n$	Thermal release <sup>3)</sup>		Tripping time	Electromagnetic release <sup>4)</sup>	
			Currents: conventional non-tripping current $I_t$	conventional tripping current $I_{tr}$		Range of instantaneous tripping	Tripping time
IEC/EN 60898-1	B	6 to 63 A	$1.13 \cdot I_n$	$1.45 \cdot I_n$	> 1 h < 1 h <sup>5)</sup>	$3 \cdot I_n$ $5 \cdot I_n$	0.1 ... 45 s ( $I_n \leq 32$ A)/0.1 ... 90 s ( $I_n > 32$ A) < 0.1 s
	C	0.5 to 63 A	$1.13 \cdot I_n$	$1.45 \cdot I_n$	> 1 h < 1 h <sup>5)</sup>	$5 \cdot I_n$ $10 \cdot I_n$	0.1 ... 15 s ( $I_n \leq 32$ A)/0.1 ... 30 s ( $I_n > 32$ A) < 0.1 s
	D	0.5 to 63 A	$1.13 \cdot I_n$	$1.45 \cdot I_n$	> 1 h < 1 h <sup>5)</sup>	$10 \cdot I_n$ $20 \cdot I_n$	0.1 ... 4 s ( $I_n \leq 32$ A)/0.1 ... 8 s ( $I_n > 32$ A) < 0.1 s
IEC/EN 60947-2	K	0.5 to 63 A	$1.05 \cdot I_n$	$1.2 \cdot I_n$	> 1 h < 1 h <sup>5)</sup>	$10 \cdot I_n$ $14 \cdot I_n$	> 0.2 s < 0.2 s
	Z	0.5 to 63 A	$1.05 \cdot I_n$	$1.2 \cdot I_n$	> 1 h < 1 h <sup>5)</sup>	$2 \cdot I_n$ $3 \cdot I_n$	> 0.2 s < 0.2 s

<sup>3)</sup> The thermal releases are calibrated to a nominal reference ambient temperature; for B, C, D the reference value is 30 °C, for K and Z the reference value is 20 °C. In the case of higher ambient temperatures, the current values fall by approx. 6 % for each 10 K temperature rise.

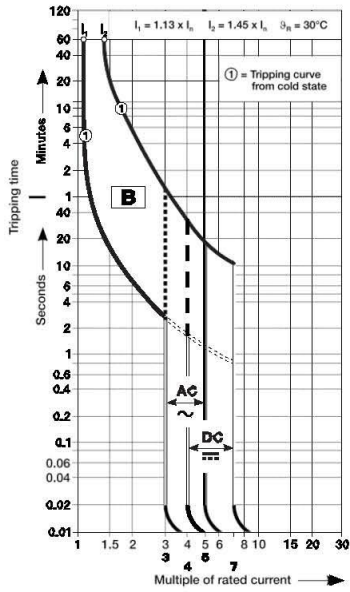
<sup>4)</sup> The indicated tripping values of electromagnetic tripping devices apply to a frequency of 50/60 Hz. The thermal release operates independent of frequency.

<sup>5)</sup> As from operating temperature (after  $I_n > 1$  h)

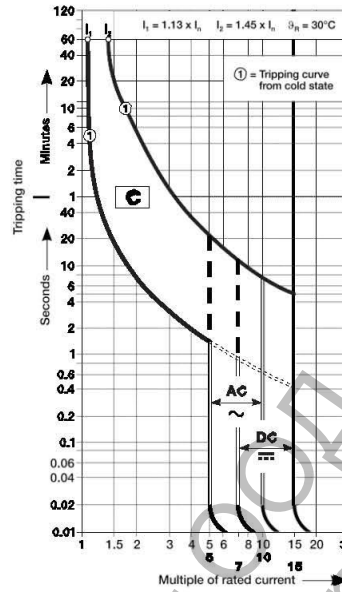
# Miniature Circuit Breaker S 200/S 200 M

## Tripping characteristics

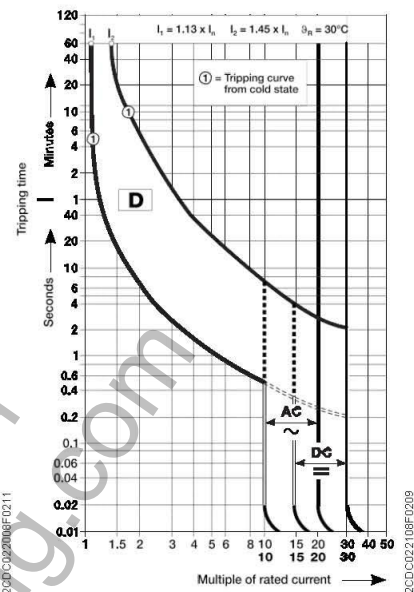
B characteristic



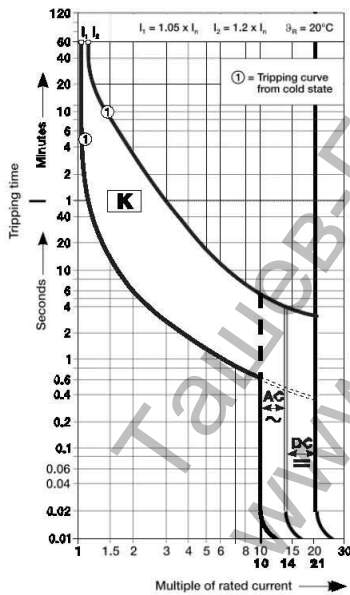
C characteristic



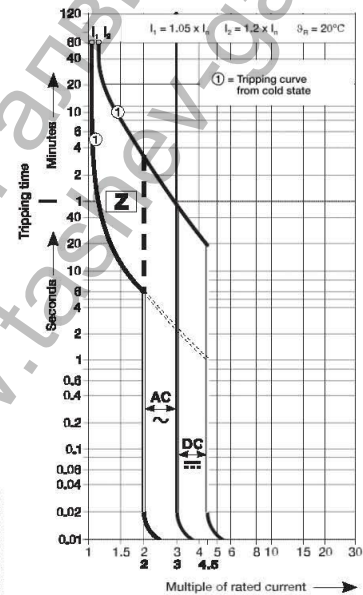
D characteristic



K characteristic



Z characteristic



# Miniature Circuit Breaker S 200/S 200 M

## Derating

### Deviating ambient temperature

For installations of miniature circuit breakers at other temperatures than the reference value derating factors have to be considered.

The rated value of the current of a miniature circuit breaker refers to a reference ambient temperature of 30 °C for circuit

breakers with the characteristics B, C and D and 20 °C for circuit breakers with the characteristics K and Z. The following table contains the derating of the load capability at ambient temperatures from -40 °C to 70 °C for the characteristics B, C, D, K and Z.

Tripping characteristics	Rated current $I_n$ A	Maximum operating current at ambient temperature T											
		A	- 40 °C	- 30 °C	- 20 °C	- 10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C	60 °C
B, C, D	0.5	0.67	0.65	0.62	0.60	0.58	0.55	0.53	0.50	0.47	0.44	0.41	0.37
	1.0	1.33	1.29	1.25	1.20	1.15	1.11	1.05	1.00	0.94	0.88	0.82	0.75
	1.6	2.13	2.07	2.00	1.92	1.85	1.77	1.69	1.60	1.51	1.41	1.31	1.19
	2.0	2.67	2.58	2.49	2.40	2.31	2.21	2.11	2.00	1.89	1.76	1.63	1.49
	3.0	4.0	3.9	3.7	3.6	3.5	3.3	3.2	3.0	2.8	2.6	2.4	2.2
	4.0	5.3	5.2	5.0	4.8	4.6	4.4	4.2	4.0	3.8	3.5	3.3	3.0
	6.0	8.0	7.7	7.5	7.2	6.9	6.6	6.3	6.0	5.7	5.3	4.9	4.5
	8.0	10.7	10.3	10.0	9.6	9.2	8.8	8.4	8.0	7.5	7.1	6.5	6.0
	10.0	13.3	12.9	12.5	12.0	11.5	11.1	10.5	10.0	9.4	8.8	8.2	7.5
	13.0	17.3	16.8	16.2	15.6	15.0	14.4	13.7	13.0	12.3	11.5	10.6	9.7
	16.0	21.3	20.7	20.0	19.2	18.5	17.7	16.9	16.0	15.1	14.1	13.1	11.9
	20.0	26.7	25.8	24.9	24.0	23.1	22.1	21.1	20.0	18.9	17.6	16.3	14.9
	25.0	33.3	32.3	31.2	30.0	28.9	27.6	26.4	25.0	23.6	22.0	20.4	18.6
	32.0	42.7	41.3	39.9	38.5	37.0	35.4	33.7	32.0	30.2	28.2	26.1	23.9
	40.0	53.3	51.6	49.9	48.1	46.2	44.2	42.2	40.0	37.7	35.3	32.7	29.8
	50.0	66.7	64.5	62.4	60.1	57.7	55.3	52.7	50.0	47.1	44.1	40.8	37.3
	63.0	84.0	81.3	78.6	75.7	72.7	69.6	66.4	63.0	59.4	55.6	51.4	47.0
K, Z	0.5	0.66	0.64	0.61	0.59	0.56	0.53	0.50	0.47	0.43	0.40	0.35	0.31
	1.0	1.32	1.27	1.22	1.17	1.12	1.06	1.00	0.94	0.87	0.79	0.71	0.61
	1.6	2.12	2.04	1.96	1.88	1.79	1.70	1.60	1.50	1.39	1.26	1.13	0.98
	2.0	2.65	2.55	2.45	2.35	2.24	2.12	2.00	1.87	1.73	1.58	1.41	1.22
	3.0	4.0	3.8	3.7	3.5	3.4	3.2	3.0	2.8	2.6	2.4	2.1	1.8
	4.0	5.3	5.1	4.9	4.7	4.5	4.2	4.0	3.7	3.5	3.2	2.8	2.4
	6.0	7.9	7.6	7.3	7.0	6.7	6.4	6.0	5.6	5.2	4.7	4.2	3.7
	8.0	10.8	10.2	9.8	9.4	8.9	8.5	8.0	7.5	6.9	6.3	5.7	4.9
	10.0	13.2	12.7	12.2	11.7	11.2	10.6	10.0	9.4	8.7	7.9	7.1	6.1
	13.0	17.2	16.6	15.9	15.2	14.5	13.8	13.0	12.2	11.3	10.3	9.2	8.0
	16.0	21.2	20.4	19.6	18.8	17.9	17.0	16.0	15.0	13.9	12.6	11.3	9.8
	20.0	26.5	25.5	24.5	23.5	22.4	21.2	20.0	18.7	17.3	15.8	14.1	12.2
	25.0	33.1	31.9	30.6	29.3	28.0	26.5	25.0	23.4	21.7	19.8	17.7	15.3
	32.0	42.3	40.8	39.2	37.5	35.8	33.9	32.0	29.9	27.7	25.3	22.6	19.6
	40.0	52.9	51.0	49.0	46.9	44.7	42.4	40.0	37.4	34.6	31.6	28.3	24.5
	50.0	66.1	63.7	61.2	58.6	55.9	53.0	50.0	46.8	43.3	39.5	35.4	30.6
	63.0	83.3	80.3	77.2	73.9	70.4	66.8	63.0	58.9	54.6	49.8	44.5	38.6

### Influence of adjacent devices

If several miniature circuit breakers are installed directly side by side with high load on all poles, a correction factor has to be applied to the rated current (see table). If distance pieces are used, the factor is not to be considered.

No. of adjacent devices	Factor F
1	1
2, 3	0.9
4, 5	0.8
≥ 6	0.75

Example

Installation of 8 adjacent miniature circuit breakers S201-C16 at 40 °C ambient temperature

Rated current  $I_n = 16$  A

$$I_n = 15.1 \text{ A} \times 0.75 = 11.33 \text{ A}$$

Result: The operating current can only add up to max. 11.33 A

# Miniature Circuit Breaker S 200/S 200 M

## Internal resistance and power loss

### Internal resistance and power loss per pole

Rated current $I_n$ A	Tripping characteristic							
	B, C <sup>1)</sup>		D		K		Z	
	Internal resistance $R_i$ mΩ	Power loss $P_p$ W	Internal resistance $R_i$ mΩ	Power loss $P_p$ W	Internal resistance $R_i$ mΩ	Power loss $P_p$ W	Internal resistance $R_i$ mΩ	Power loss $P_p$ W
0.5	5500	1.4	4300	1.1	4300	1.1	8100	2.4
1.0	1440	1.4	1250	1.25	1250	1.25	2100	2.3
1.6	630	1.6	600	1.5	600	1.5	1000	2.8
2.0	460	1.8	410	1.6	410	1.65	619	2.5
3.0	150	1.3	130	1.2	130	1.2	235	2.4
4.0	110	1.8	105	1.7	105	1.7	149	2.4
6.0	55	2.0	52	1.9	52	1.9	75	3.2
8.0	23	1.5	24	1.5	24	1.5	27	2.0
10.0	19	2.1	16	1.6	13.5	1.4	24	2.7
13.0	14	2.3	14	2.2	13.5	1.4	—	—
16.0	8.5	2.5	8.5	2.5	7.7	2.0	10.9	2.8
20.0	6.25	2.5	6.1	2.3	6.7	2.7	6.0	2.4
25.0	5.0	3.2	4.3	3.1	4.6	2.9	4.5	3.3
32.0	3.6	3.7	3.5	3.6	3.5	3.6	3.5	3.6
40.0	3.0	4.8	2.2	4.2	2.2	4.2	2.5	4.1
50.0	1.3	3.25	1.25	2.9	1.25	3.1	1.5	4.1
63.0	1.2	4.8	1.2	4.8	1.0	4.4	1.3	5.2

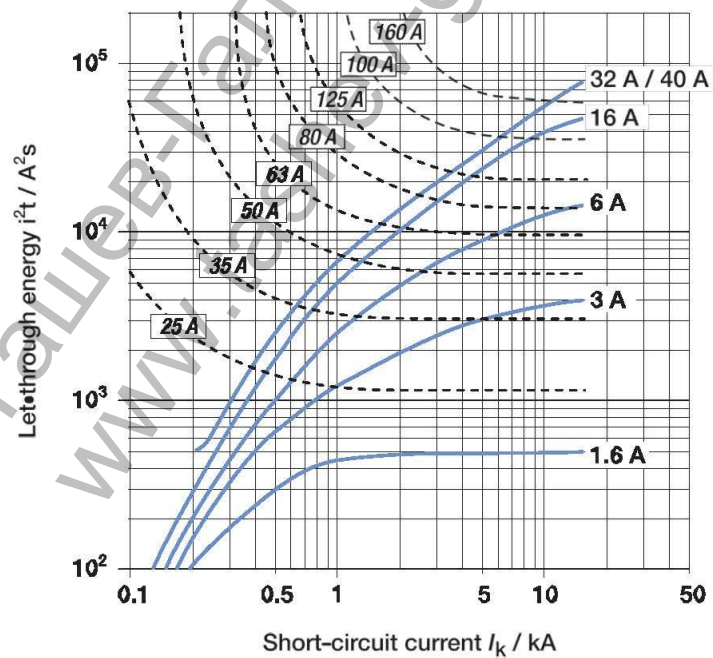
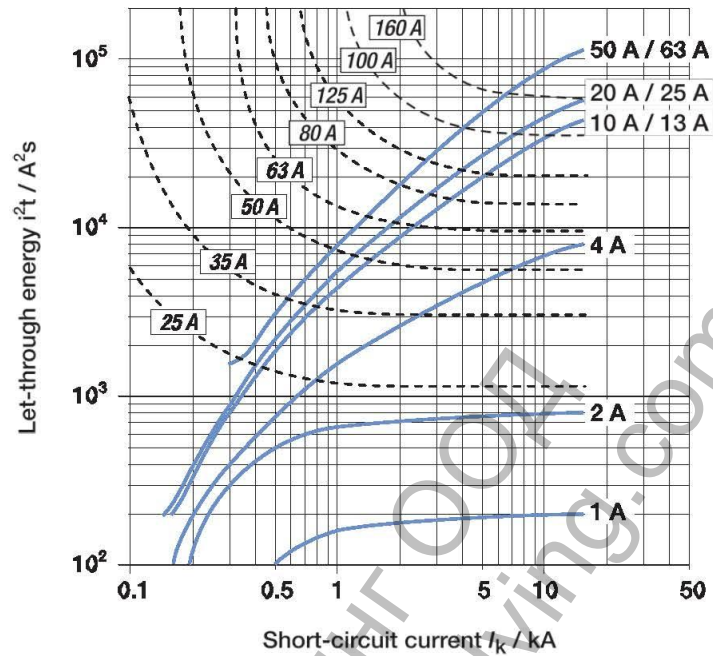
<sup>1)</sup> Current ratings 0.5 – 4 A, 8 A apply to C characteristic only

Internal resistances are subject to application-specific and environment-specific conditions and are therefore to be considered as typical values.

# Miniature Circuit Breaker S 200/S 200 M

## Let-through energy $I^2t$

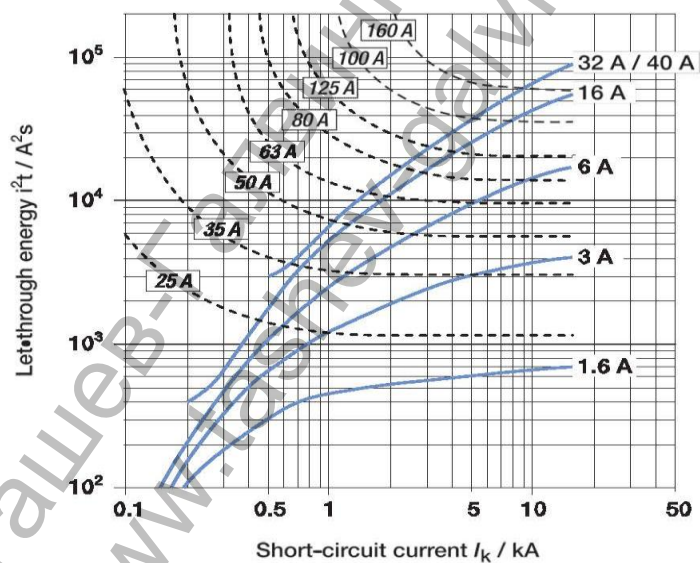
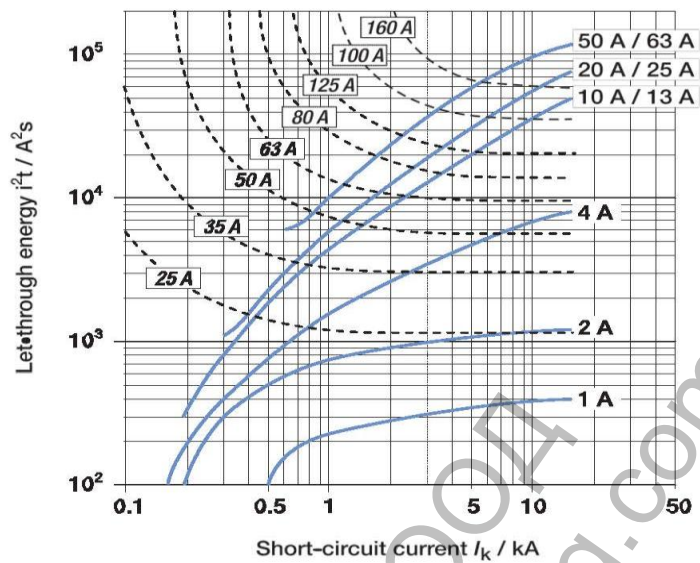
Characteristics B, C - 230/400 V let-through energy



# Miniature Circuit Breaker S 200/S 200 M

## Let-through energy $I^2t$

Characteristics D, K - 230/400 V let-through energy



8 - 2CDC002157D0202

Продукт: [Прекъсвач АВВ автоматичен двуполушен за DIN шина 2P, 10 A, 230 V, 15 kA, крива В, S202-B10](#)

Категория: [Прекъсвачи миниатюрни автоматични](#)

Бранд: [АВВ](#)

Категория бранд: [Прекъсвач АВВ](#)