Data sheet

System pro *M* compact®
Miniature circuit breaker S 200 S

The miniature circuit breaker S 200 S extends the established ABB System pro *M* compact® product range. Thanks to the tool-free screwless terminal technology the S 200 S can be wired far more quickly and easily than standard screw-type circuit breakers. All kinds of cables can be connected. Rigid cables and flexible cables with end sleeves can be plugged in the screwless terminal directly. The easy-to-use, smooth-running terminal lever only needs to be pushed to connect flexible cables without end sleeves or to disconnect the wiring.

Features

- Screwless terminal on the load side allows easy, fast and save wiring
  - Cables can be connected and removed without any tools
  - 2 cables up to 4 mm² are directly pluggable
  - Rigid cables and flexible cables with or without end sleeves can be connected
- Best visibility conditions for the wiring due to the arrangement of the terminal openings
- Comfortable and exact voltage measurement on the load side due to the easily accessible measurement point
- Improved terminal on the supply side for cables up to 35 mm²
- Approved according to IEC/EN 60898-1 for global use
- Fully compatible with all System pro *M* compact® devices and accessories

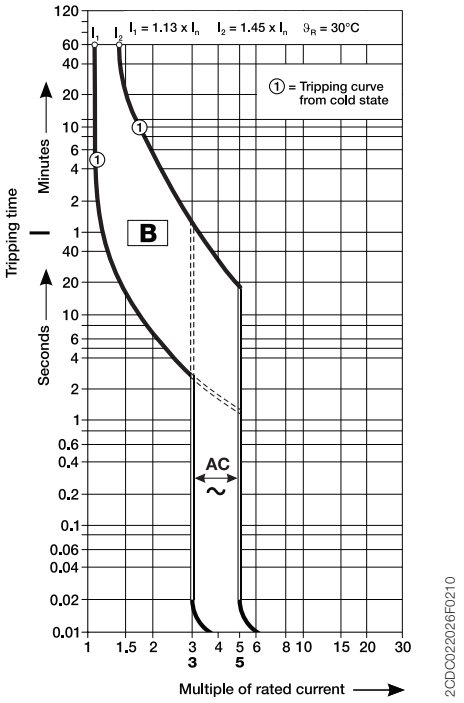
Miniature circuit breaker S 200 S
Technical data

General data		
Standards		IEC/EN 60898-1
Number of poles		1P, 3P
Tripping characteristics		B, C
Rated current I_n		6 ... 20 A
Rated frequency f		50/60 Hz
Data acc. to IEC/EN 60898-1		
Rated operational voltage U_e		1P: 230 V AC; 3P: 400 V AC
Power frequency recovery voltage (U_{max})		1P: 253 V AC; 3P: 440 V AC
Minimum operational voltage		12 V AC
Rated insulation voltage U_i	Phase to ground	250 V AC
	Phase to phase	440 V AC
Rated short-circuit capacity I_{cn}		6 kA
Energy limiting class		3
Overvoltage category		III
Pollution degree		2
Rated impulse withstand voltage U_{imp} (1.2/50 µs)		4 kV (6.2 kV @ sea level; 5.0 kV @ 2,000 m)
Dielectric test voltage		50/60 Hz, 1 min.: 2 kV
Reference temperature for tripping characteristics		30 °C
Electrical endurance		20,000 operations
Mechanical data		
Housing material		Insulation group II, RAL 7035
Toggle		Insulation group II, black, sealable
Contact position indication		Marking on toggle (I ON / 0 OFF)
Degree of protection		IP20, IP40 in enclosure with cover
Mechanical endurance		20,000 operations
Resistance to shock acc. to IEC/EN 60068-2-27		25g, 2 shocks, 13 ms
Resistance to vibrations acc. to IEC/EN 60068-2-6		5g, 20 cycles at 5...150...5 Hz with load 0.8 In
Environmental conditions acc. to IEC/EN 60068-2-30		28 cycles with 55 °C / 90-96% and 25 °C / 95-100%
Ambient air temperature	Operation	-25 ... +55 °C
	Storage	-40 ... +70 °C
Installation		
Terminal	Line-side	Failsafe bi-directional cylinder-lift terminal
	Load-side	Screwless terminal (2 openings for one cable each)
Cross-section of conductors	Line-side	35 mm²
	Load-side	1 ... 4 mm² (rigid or flexible wires without end sleeves)
		1 ... 2.5 mm² (flexible wires with end sleeves)
Cross-section of busbars	Line-side	10 mm²
	Load-side	–
Tightening torques		2.8 Nm
Recommended screw driver		Pozidrive 2
Mounting on DIN rail		On DIN rail 35 mm acc. to EN 60715 by fast clip
Mounting position		Any
Supply		Bottom
Dimensions and weight		
Mounting dimensions acc. DIN 43880		Mounting dimension 1
Pole dimensions (H x D x W)		89.0 x 69.0 x 17.5 mm
Pole weight		0.100 kg
Combination with auxiliary elements		
Auxiliary contact, signal contact, shunt trip, undervoltage release		Yes

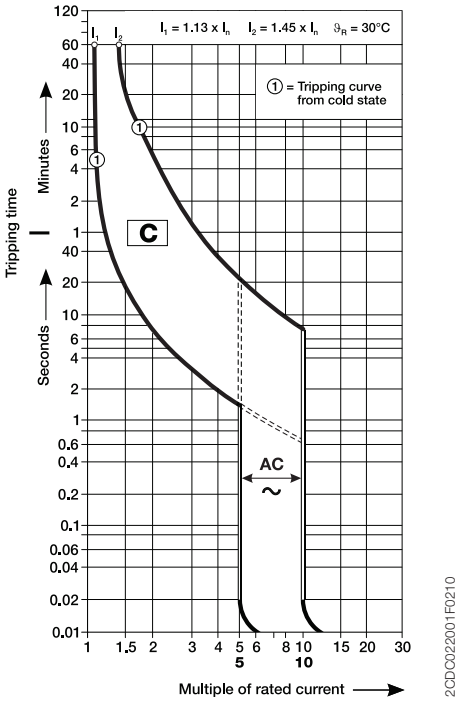
Miniature circuit breaker S 200 S
Tripping characteristics, internal resistance and power loss

Tripping characteristics

B characteristic



C characteristic



Tripping characteristics acc. to IEC/EN 60898-1

Tripping characteristic	Rated current	Thermal release [1]			Electromagnetic release [2]		
		Currents		Tripping time	Range of instantaneous tripping		Tripping time
		conventional non-tripping current I_1	conventional tripping current I_2				
B	6 to 20 A	1.13 · I_n		> 1 h	3 · I_n		0.1 ... 45 s
			1.45 · I_n	< 1 h		5 · I_n	< 0.1 s
C	6 to 20 A	1.13 · I_n		> 1 h	5 · I_n		0.1 ... 15 s
			1.45 · I_n	< 1 h		10 · I_n	< 0.1 s

[1] The thermal releases are calibrated to a nominal reference ambient temperature; for B and C the reference value is 30 °C. In the case of higher ambient temperatures, the current values fall by approx. 6 % for each 10 K temperature rise.

[2] The indicated tripping values of electromagnetic tripping devices apply to a frequency of 50/60 Hz. The thermal release operates independent of frequency.

Internal resistance and power loss

Tripping characteristic	Rated current I_n	Internal resistance per pole [1]	Power loss per pole [1]
	A	mΩ	W
B, C	6	52.1	2.16
C	8	22.9	1.65
B, C	10	19.0	2.20
B, C	13	13.7	2.62
B, C	16	9.1	3.28
B, C	20	6.2	3.14

[1] Internal resistances and power loss are subject to application-specific and environment-specific conditions and are therefore to be considered as typical values.

Miniature circuit breaker S 200 S
Derating

For installations of miniature circuit breakers at other temperatures than the reference value and installations of several miniature circuit breakers directly side by side, derating factors have to be considered.

Deviating ambient temperature

The rated value of the current of a miniature circuit breaker with B and C characteristic refers to a reference ambient temperature of 30 °C.

The following table contains the derating of the load capability at ambient temperatures from –40 to 70 °C for the characteristics B and C.

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	70 °C
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

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

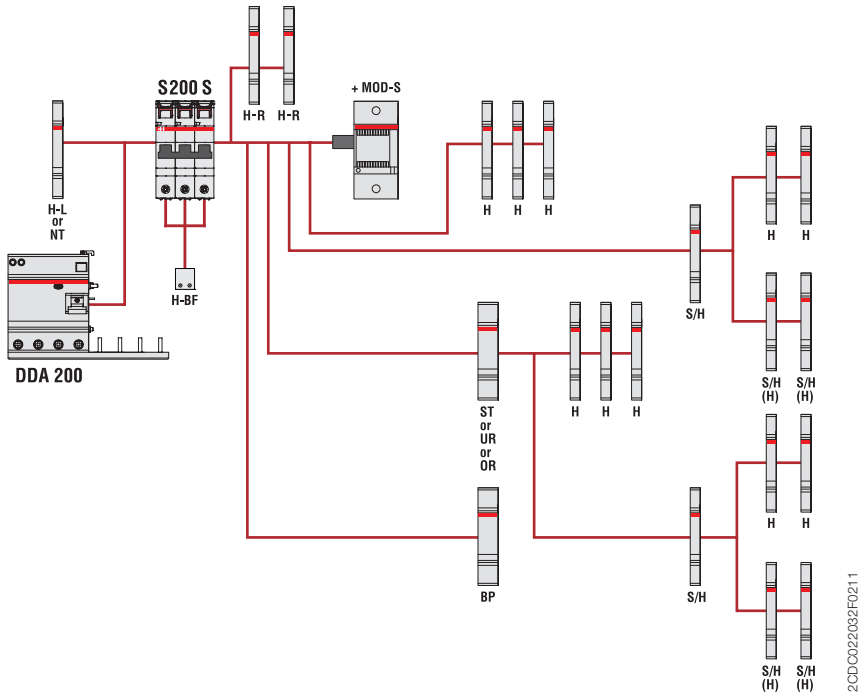
Example

S201S-C16 at T = 40 °C

Type of use	Values to use	Calculation	Result
Load at ambient temperature	I_n(40 °C)		I_n = 15.1 A
Load at ambient temperature with 8 adj. devices	I_n(40 °C), Factor F	15.1 A x 0.75	I_n = 11.33 A

Miniature circuit breaker S 200 S
Accessories, dimensional drawing and approvals

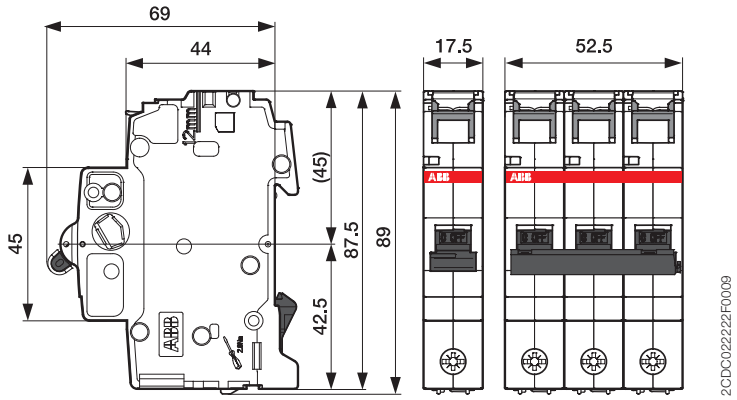
Accessory overview



H	Auxiliary contact (changeover contact)
S/H	Signal/auxiliary contact
S/H (H)	Signal/auxiliary contact used as auxiliary contact
ST	Shunt trip
UR	Undervoltage release
OR	Overvoltage release
MOD-S(*)	Motor operating device
H-L	Auxiliary contact to be mounted on the left
H-R	Auxiliary contact to be mounted on the right (2 contacts)
H-BF	Auxiliary contact, bottom fitting (1 per pole)
BP	Mechanical tripping device
NT	Neutral disconnector

(*) In case of using S 200 S coupled with DDA 200, MOD-S doesn't operate in case of earth-leakage fault.

Dimensional drawing



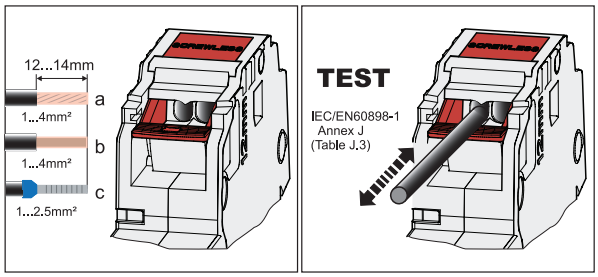
Approvals

VDE	VDE	Germany
IMQ	IMQ	Italy
KEMA	KEMA	Netherlands
NF	LCIE	France
ÖVE	ÖVE	Austria
SEV	SEV	Switzerland

Miniature circuit breaker S 200 S
Instructions for use

Connection and disconnection of different types of cables on the load side

Type of cables and cross sections



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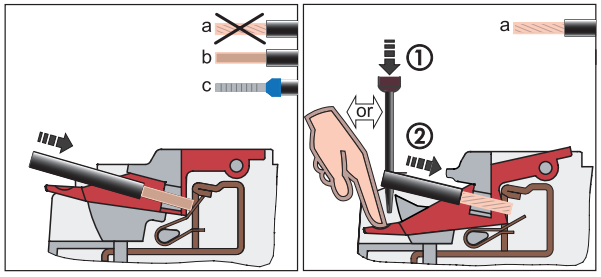
Connection of cables



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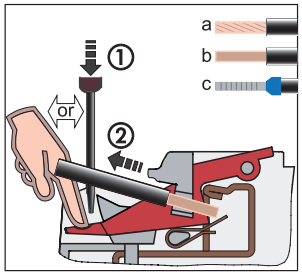
– Connection of one cable per opening
– Rigid and flexible cables with end sleeves may be directly connected.
– If flexible cables without end sleeves are to be connected, the terminal must be opened. Splicing of the wires must be avoided.
– The cable must be inserted into the terminal either as far as possible or in such a way that a sufficient connection is obvious.
– The tightness of the connection must be checked.

Disconnection of cables



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– The cables may only be removed after operating the terminal's opening mechanism.
– If one cable is removed, the correct position of the remaining cable must be checked.

Processing instructions

The screwless terminal at the load side of the S 200 S is designed so that copper cables basically may be connected without further preparation. If end sleeves are used as splicing protection for flexible cables, the compression of the end sleeves must comply with the pull-out forces in accordance with standard IEC/EN 60898-1 table J.3.

Recommended tools for flexible cables with end sleeves
Crimp tool with trapezoid compression profile

Wire stripping length / size of end sleeves for all cables
Wire stripping length and end sleeve length 12 (+2) mm

Distribution boards with metal cover
The distance from a metallic cover to the "shoulder" of the miniature circuit breaker must be at least 6 mm on the load side due to the arrangement of the easily accessible measurement point.

Miniature circuit breaker S 200 S
Order data


2CDC021001S0010

S201S


2CDC021002S0010

S203S

Tripping characteristic	Number of poles	Rated current I_n A	Type	Order code	Packing unit PCE	Weight per PCE kg
B	1	6	S201S-B6	2CDS251002R0065	10	0.100
		10	S201S-B10	2CDS251002R0105	10	0.100
		13	S201S-B13	2CDS251002R0135	10	0.100
		16	S201S-B16	2CDS251002R0165	10	0.100
		20	S201S-B20	2CDS251002R0205	10	0.100
	3	6	S203S-B6	2CDS253002R0065	1	0.300
		10	S203S-B10	2CDS253002R0105	1	0.300
		13	S203S-B13	2CDS253002R0135	1	0.300
		16	S203S-B16	2CDS253002R0165	1	0.300
		20	S203S-B20	2CDS253002R0205	1	0.300
C	1	6	S201S-C6	2CDS251002R0064	10	0.100
		8	S201S-C8	2CDS251002R0084	10	0.100
		10	S201S-C10	2CDS251002R0104	10	0.100
		13	S201S-C13	2CDS251002R0134	10	0.100
		16	S201S-C16	2CDS251002R0164	10	0.100
		20	S201S-C20	2CDS251002R0204	10	0.100
	3	6	S203S-C6	2CDS253002R0064	1	0.300
		8	S203S-C8	2CDS253002R0084	1	0.300
		10	S203S-C10	2CDS253002R0104	1	0.300
		13	S203S-C13	2CDS253002R0134	1	0.300
		16	S203S-C16	2CDS253002R0164	1	0.300
		20	S203S-C20	2CDS253002R0204	1	0.300

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