

MINIATURE CIRCUIT BREAKERS

SU200MR Datasheet

Branch protection acc. to CSA C22.2 No.5 / UL 489



The SU200MR is a high-performance circuit breaker with ring cable lug connections compliant with UL, CSA and IEC standards. The integrated captive connecting screws simplify the connection of electric lines with extra protection and time saving. As part of the proven product range System pro M compact®, SU 200 MR can be combined with most of the UL 489 and CSA 22.2 No. 5 approved components.

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01 SU201MR / SU203MR
miniature circuit breakers

Features

- High performance MCB with 10 kA interrupting capacity acc. to UL 489 / CSA 22.2 No. 5 and 15 kA breaking capacity acc. to IEC/EN 60947-2
- Certified up to $I_n = 35\text{ A}$ at 480 Y/277 V AC acc. to UL 489 / CSA 22.2 No. 5
- 40 °C reference temperature acc. to UL and CSA
- Current limiting acc. to UL 489
- Clear contact position indication in red/green ("real CPI")
- Laser printing provides clear product information on device
- Robust thermoplastic housing material for better protection against external influences
- Unique, patented twin terminal for wiring up to 35 mm² with captive screws
- Ring terminals for ring-tongue applications

Standards and approvals

Standards

UL 489
CSA 22.2. No. 5
IEC/EN 60947-2

Approvals

UL 489	US
CSA 22.2. No. 5	CA
VDE	DE

Miniature Circuit Breaker SU200MR

Technical data

General data	
Standards	UL 489, CSA 22.2 No. 5, IEC/EN 60947-2
Poles	1P, 2P, 3P, 4P
Rated current I_n	0.2 - 63 A
Rated frequency f	50/60 Hz
Tripping characteristics	K
UL / CSA	
Rated voltage	1P: 240 Vac up to 63A 1P: 277 Vac up to 35A 2P +: 240 Vac up to 63A 2P +: 480Y / 277 Vac up to 35A
Short-circuit current rating (SCCR)	10 kA
Application	Ring tongue terminal, not for general use
Reference temperature for tripping characteristics	40 °C
Electrical endurance	6,000 ops. (AC), 1 cycle (1s.-ON, 9s.-OFF)
Mechanical data	
Housing	Insulation group I, RAL 7035
Toggle	Insulation group II, black, sealable
Contact position indication	Real CPI (green OFF / red ON)
Protection degree acc. to EN 60529	IP20, 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	5g - 20 cycles at 5...150...5 Hz with load 0.8 I_n
Environmental conditions acc. to DIN 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
Installation	
Terminal	Ring tongue terminal
Cross section of conductors (top/bottom)	18 - 4 AWG
Torque	2.8 Nm 25 in.-lbs.
Screw driver	No. 2 Pozidrive
Mounting	On DIN rail 35 mm, acc. to EN 60715 by fast clip
Mounting position	any
Supply side	top or bottom
Dimensions and weight	
Mounting dimensions acc. to DIN 43880	Mounting dimension 1
Pole dimensions (H x D x W)	115 x 69 x 17.5
Pole weight	approx. 125 g
Combinations with auxiliary elements	
Integrated auxiliary switch	No
Signal contact/auxiliary switch, shunt trip	Yes
Undervoltage release	No Undervoltage release



Miniature Circuit Breaker SU200MR

Tripping characteristics

1) The thermal releases are calibrated to a nominal reference ambient temperature of 40 °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.

3) As from operating temperature (after $I_1 > 1\text{ h}$)

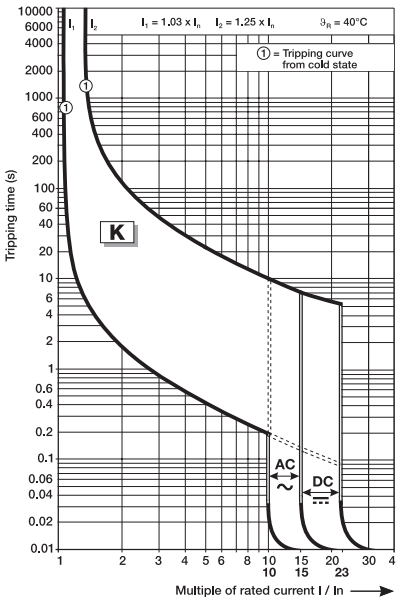
Current limiting

Nominal current A	Voltage V	Current A	Power factor	I_{peak} kA	I^2t kA²S
≤ 35	480Y/277	10,000	0.45-0.5	9.5	80.0
> 35	240	10,000	0.45-0.5	8.0	110.0

Tripping characteristic K

Rated current I_n	Thermal release ¹⁾		Electromagnetic release ²⁾		
	Currents: conventional non-tripping current I_1	conventional tripping current I_2	Tripping time	Currents: hold current surges	trip at least at Tripping time
0.5 to 63 A	$1.03 \cdot I_n$	$1.25 \cdot I_n$	> 1 h < 1 h	not applicable	
	$1.03 \cdot I_n$	$1.25 \cdot I_n$	> 2 h < 1 h ³⁾	$10 \cdot I_n$	$14 \cdot I_n$ > 0.2 s < 0.2 s

K characteristic



2CDC022003F0216

Internal resistance and power loss

Rated current	Internal resistance per pole ⁴⁾	Power loss per pole ⁴⁾
0.2	25300	1.01
0.3	13700	1.23
0.5	4740	1.19
0.75	2067	1.16
1	1270	1.27
1.5	610	1.56
2	442	1.77
3	140	1.26
4	109	1.75
5	50	1.26
6	54	1.94
8	22	1.41
10	18.2	1.82
13	14.8	2.50
15	8.1	1.83
16	11.1	2.83
20	8.5	3.40
25	5.5	3.43
30	3.8	3.39
32	4.6	4.70
35	3.9	4.76
40	2.8	4.40
50	1.7	4.25
60	1.7	6.18
63	1.9	7.56

⁴⁾ 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 SU200MR Temperature Derating

Deviating ambient temperature

The rated value of the current of a miniature circuit breaker of SU200MR series refers to a reference ambient temperature of 40 °C acc. to UL489 o UL/CSA. The following table shows derating factors for ambient temperature from -40 °C to 70 °C for the characteristics K.

Standard	Rated current I_n A	Maximum operating current at ambient temperature T											
		-40°C	-30°C	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C
UL 489	0.2	0.27	0.26	0.25	0.24	0.23	0.22	0.22	0.21	0.20	0.19	0.19	0.18
	0.3	0.40	0.39	0.37	0.36	0.35	0.33	0.32	0.31	0.30	0.29	0.28	0.27
	0.5	0.67	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.5	0.48	0.46	0.45
	0.75	1.00	0.97	0.93	0.90	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	1	1.34	1.29	1.24	1.20	1.16	1.12	1.08	1.04	1	0.96	0.93	0.89
	1.6	2.13	2.06	1.99	1.92	1.85	1.78	1.72	1.66	1.6	1.54	1.48	1.43
	2	2.67	2.58	2.49	2.40	2.31	2.23	2.15	2.07	2	1.93	1.85	1.79
	3	4.01	3.87	3.73	3.60	3.47	3.35	3.23	3.11	3	2.89	2.78	2.68
	4	5.35	5.16	4.97	4.80	4.63	4.46	4.30	4.15	4	3.85	3.71	3.57
	5	6.69	6.45	6.22	6.00	5.78	5.58	5.38	5.19	5	4.82	4.64	4.47
	6	8.02	7.74	7.46	7.20	6.94	6.69	6.45	6.22	6	5.78	5.56	5.36
	8	10.70	10.32	9.95	9.59	9.25	8.92	8.60	8.30	8	7.70	7.42	7.14
	10	13.37	12.90	12.44	11.99	11.56	11.15	10.75	10.37	10	9.63	9.27	8.93
	13	17.38	16.76	16.17	15.59	15.03	14.50	13.98	13.48	13	12.52	12.06	11.61
	15	20.06	19.34	18.65	17.99	17.35	16.73	16.13	15.56	15	14.45	13.91	13.40
	16	21.40	20.63	19.90	19.19	18.50	17.84	17.21	16.59	16	15.41	14.84	14.29
	20	26.75	25.79	24.87	23.98	23.13	22.30	21.51	20.74	20	19.26	18.55	17.86
	25	33.43	32.24	31.09	29.98	28.91	27.88	26.88	25.93	25	24.08	23.18	22.33
	30	40.12	38.69	37.31	35.98	34.69	33.45	32.26	31.11	30	28.89	27.82	26.79
	32	42.79	41.27	39.79	38.37	37.01	35.69	34.41	33.18	32	30.82	29.68	28.58
	35	46.81	45.14	43.53	41.97	40.47	39.03	37.64	36.30	35	33.71	32.46	31.26
	40	53.49	51.58	49.74	47.97	46.26	44.61	43.01	41.48	40	38.52	37.09	35.72
	50	66.87	64.48	62.18	59.96	57.82	55.76	53.77	51.85	50	48.15	46.37	44.65
	60	80.24	77.38	74.61	71.95	69.39	66.91	64.52	62.22	60	57.78	55.64	53.58
	63	84.25	81.24	78.35	75.55	72.85	70.25	67.75	65.33	63	60.67	58.42	56.26



Miniature Circuit Breaker SU200MR Derating

Influence of adjacent devices, internal resistance and power loss

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	0.95
3	0.9
4	0.86
5	0.82
6	0.795
7	0.78
8	0.77
9	0.76
> 9	0.76

Internal resistance and power loss per pole

Rated current (A)	K tripping characteristics	
	Internal resistance ⁽¹⁾ (mΩ)	Power loss (W)
0.2	25300	1.01
0.3	13700	1.23
0.5	4740	1.19
0.75	2067	1.16
1	1270	1.27
1.5	610	1.56
2	442	1.77
3	140	1.26
4	109	1.75
5	50	1.26
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⁽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 SU200MR

Accessory overview and dimensional drawing

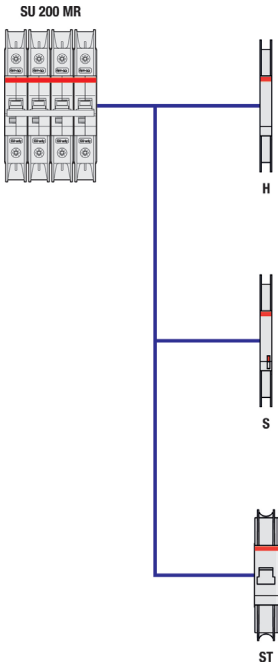
H:
Auxiliary contact
(S2C-H6RU)

S/H:
Signal contact
(S2C-S6RU)

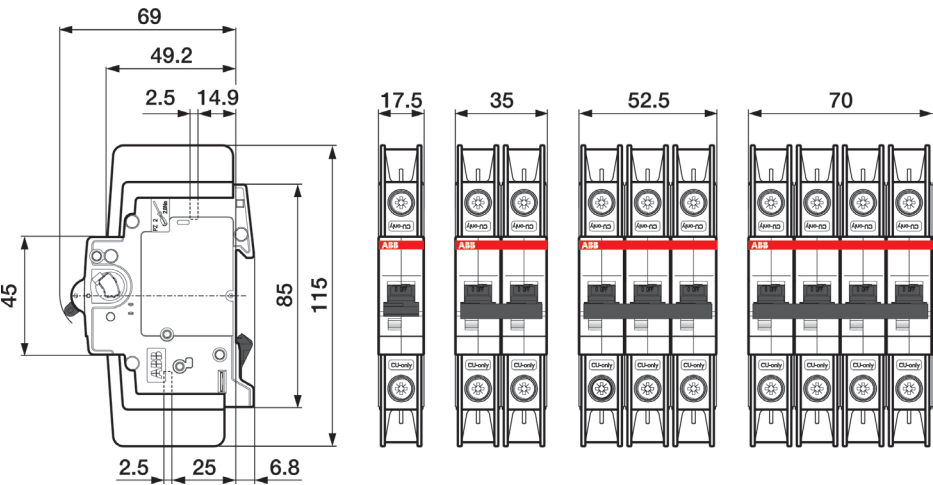
ST:
Shunt trip for
SU200MR MCB
(S2C-A...U)

The certification of the accessories has been done with one accessory only. The number of electrical operations is limited to 4,000 operations for the maximum combinations and the combinations including shunt trips.

Accessory overview



Dimensional drawings



Miniature Circuit Breaker SU200MR

Ordering data characteristic K

1 pole	Box Qty	Weight each (kg)	Rated current	Part number
	10	0.140	0.2 A	SU201MR-K0.2
			0.3 A	SU201MR-K0.3
			0.5 A	SU201MR-K0.5
			0.75 A	SU201MR-K0.75
			1.0 A	SU201MR-K1
			1.6 A	SU201MR-K1.6
			2.0 A	SU201MR-K2
			3.0 A	SU201MR-K3
			4.0 A	SU201MR-K4
			5.0 A	SU201MR-K5
			6.0 A	SU201MR-K6
			8.0 A	SU201MR-K8
			10.0 A	SU201MR-K10
			13.0 A	SU201MR-K13
			15.0 A	SU201MR-K15
			16.0 A	SU201MR-K16
			20.0 A	SU201MR-K20
			25.0 A	SU201MR-K25
			30.0 A	SU201MR-K30
			32.0 A	SU201MR-K32
			35.0 A	SU201MR-K35
			40.0 A	SU201MR-K40
			50.0 A	SU201MR-K50
			60.0 A	SU201MR-K60
			63.0 A	SU201MR-K63

3 pole	Box Qty	Weight each (kg)	Rated current	Part number
	3	0.420	0.2 A	SU203MR-K0.2
			0.3 A	SU203MR-K0.3
			0.5 A	SU203MR-K0.5
			0.75 A	SU203MR-K0.75
			1.0 A	SU203MR-K1
			1.6 A	SU203MR-K1.6
			2.0 A	SU203MR-K2
			3.0 A	SU203MR-K3
			4.0 A	SU203MR-K4
			5.0 A	SU203MR-K5
			6.0 A	SU203MR-K6
			8.0 A	SU203MR-K8
			10.0 A	SU203MR-K10
			13.0 A	SU203MR-K13
			15.0 A	SU203MR-K15
			16.0 A	SU203MR-K16
			20.0 A	SU203MR-K20
			25.0 A	SU203MR-K25
			30.0 A	SU203MR-K30
			32.0 A	SU203MR-K32
			35.0 A	SU203MR-K35
			40.0 A	SU203MR-K40
			50.0 A	SU203MR-K50
			60.0 A	SU203MR-K60
			63.0 A	SU203MR-K63

2 pole	Box Qty	Weight each (kg)	Rated current	Part number
	5	0.280	0.2 A	SU202MR-K0.2
			0.3 A	SU202MR-K0.3
			0.5 A	SU202MR-K0.5
			0.75 A	SU202MR-K0.75
			1.0 A	SU202MR-K1
			1.6 A	SU202MR-K1.6
			2.0 A	SU202MR-K2
			3.0 A	SU202MR-K3
			4.0 A	SU202MR-K4
			5.0 A	SU202MR-K5
			6.0 A	SU202MR-K6
			8.0 A	SU202MR-K8
			10.0 A	SU202MR-K10
			13.0 A	SU202MR-K13
			15.0 A	SU202MR-K15
			16.0 A	SU202MR-K16
			20.0 A	SU202MR-K20
			25.0 A	SU202MR-K25
			30.0 A	SU202MR-K30
			32.0 A	SU202MR-K32
			35.0 A	SU202MR-K35
			40.0 A	SU202MR-K40
			50.0 A	SU202MR-K50
			60.0 A	SU202MR-K60
			63.0 A	SU202MR-K63

4 pole	Box Qty	Weight each (kg)	Rated current	Part number
	2	0.560	0.2 A	SU204MR-K0.2
			0.3 A	SU204MR-K0.3
			0.5 A	SU204MR-K0.5
			0.75 A	SU204MR-K0.75
			1.0 A	SU204MR-K1
			1.6 A	SU204MR-K1.6
			2.0 A	SU204MR-K2
			3.0 A	SU204MR-K3
			4.0 A	SU204MR-K4
			5.0 A	SU204MR-K5
			6.0 A	SU204MR-K6
			8.0 A	SU204MR-K8
			10.0 A	SU204MR-K10
			13.0 A	SU204MR-K13
			15.0 A	SU204MR-K15
			16.0 A	SU204MR-K16
			20.0 A	SU204MR-K20
			25.0 A	SU204MR-K25
			30.0 A	SU204MR-K30
			32.0 A	SU204MR-K32
			35.0 A	SU204MR-K35
			40.0 A	SU204MR-K40
			50.0 A	SU204MR-K50
			60.0 A	SU204MR-K60
			63.0 A	SU204MR-K63



Miniature Circuit Breaker SU200MR

Instruction for use

Instructions for use

Only

or

ring cable lugs

Rated voltage

480Y/277 V AC

Insulated only

A	B	C
max. 11.0 mm (0.43")	max. 12.2 mm (0.48")	Suitable for M5 (0.20")

Rated voltage

240/240 V AC

Insulated only

A	B	C
max. 14.0 mm (0.55")	max. 12.2 mm (0.48")	Suitable for M5 (0.20")

CU only

60/75°C

(140/167°F)

PZ 2 Torque: 2.8 Nm (25lb-in)

max. 2.0 mm

(0.08")

2CDC 022 003 F0211

Ring Tongue Terminal, Special purpose - Not for general use

Installation Instructions

Please insert or withdraw the cable lug only when the screw is completely open.

Please make sure that the terminal screw penetrates the ring lug hole properly and completely during tightening.

Please ensure that the screw is securely tightened before applying any mechanical force on the cable / cable lug.

Do not apply abnormal downward pressure on the screw during tightening or loosening of the screw.

F = max. 30 N

F = Maximum to operate