

RI 20N - B,C characteristics

Page 6-2



- Number of poles: 1+ N
- Tripping characteristics: B, C
- Rated current: 2 - 32 A
- Rated short capacity: 4.5 kA
- NF, CE

RI 50 - B,C characteristics

Page 6-4



- Number of poles: 1, 1+N, 2, 3, 3+N, 4
- Tripping characteristics: B, C
- Rated current: 6 - 63 A
- Rated short capacity: 6 kA
- SEMKO, CE
- Accessories

RI 60 - B,C,D characteristics - 10 kA

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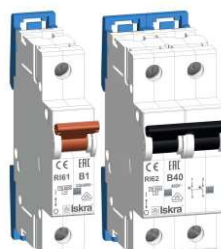


Replaced by RI 70

- Number of poles: 1, 1+N, 2, 3, 3+N, 4
- Tripping characteristics: B, C, D
- Rated current: 0.5 - 63 A
- Rated short capacity: 10 kA
- VDE, EAC, CE
- Accessories

RI 60J DC - C characteristics

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Replaced by RI 70J

- Number of poles: 1, 2
- Tripping characteristics: C
- Rated current: 0.5 - 63 A
- Rated short capacity: 4.5 kA
- EAC, CE

RI 100 - B characteristics - 10 kA

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- Number of poles: 1, 1+N, 2, 3, 3+N, 4
- Tripping characteristics: C
- Rated current: 80 - 125 A
- Rated short capacity: 10 kA
- SEMKO, CE

MINIATURE CIRCUIT BREAKERS OF RI SERIES ARE USED FOR SWITCHING, CONDUCTING AND SWITCHING-OFF THE CURRENT NOT ONLY IN NORMAL OPERATING CONDITIONS BUT ALSO IN SPECIAL CONDITIONS IN A CIRCUIT SUCH AS SHORT CIRCUIT. THEY ARE USED FOR OVERCURRENT PROTECTION OF HOUSE INSTALLATIONS, INDUSTRIAL ELECTRIC DISTRIBUTIONS AND DEVICES.

MINIATURE CIRCUIT BREAKERS - RI20N



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BENEFITS

- Number of poles 1 + N
- Tripping characteristics B, C
- Rated current 2, 4, 6, 10, 16, 20, 25, 32 A
- Rated voltage 230 V
- Rated frequency 50 Hz
- Rated short capacity 4.5 kA
- Mounting to 35 mm wide mounting rail acc. with EN 60715
- Ambient temperature -5 ... +40 °C

ORDERING DATA

- Miniature circuit breakers RI20N up to 32 A page 6-3
- Accessories page 6-11
- Connections page 6-27
- Example - Ordering data page 6-5
- Technical characteristics page 6-13
- Dimensions page 6-25

MINIATURE CIRCUIT BREAKERS - RI20N

RI20N - B characteristics

Type	Rated current I _n (A)	Rated voltage U _n (V)	Number of poles	Ordering No.	Weight (g)	Packaging (pcs)
RI20N B2	2	230	1 + N	30.100.408	120	10
RI20N B4	4	230	1 + N	30.100.368	120	10
RI20N B6	6	230	1 + N	30.100.369	120	10
RI20N B10	10	230	1 + N	30.100.370	120	10
RI20N B16	16	230	1 + N	30.100.371	120	10
RI20N B20	20	230	1 + N	30.100.372	120	10
RI20N B25	25	230	1 + N	30.100.373	120	10
RI20N B32	32	230	1 + N	30.100.374	120	10

4.5
kA

RI20N - C characteristics

Type	Rated current I _n (A)	Rated voltage U _n (V)	Number of poles	Ordering No.	Weight (g)	Packaging (pcs)
RI20N C2	2	230	1 + N	30.100.334	120	10
RI20N C4	4	230	1 + N	30.100.333	120	10
RI20N C6	6	230	1 + N	30.100.327	120	10
RI20N C10	10	230	1 + N	30.100.328	120	10
RI20N C16	16	230	1 + N	30.100.329	120	10
RI20N C20	20	230	1 + N	30.100.330	120	10
RI20N C25	25	230	1 + N	30.100.331	120	10
RI20N C32	32	230	1 + N	30.100.332	120	10

4.5
kA

6

ORDERING DATA

MINIATURE CIRCUIT BREAKERS - RI50



MINIATURE CIRCUIT BREAKERS OF RI 50 SERIES 50 ARE USED FOR THE PROTECTION OF INSTALLATIONS AND DEVICES (OVERLOAD AND SHORT CIRCUIT), AND AS A DISCONNECTOR IN CASE OF ELECTRIC SHOCK



BENEFITS

- Due the low permissible I^2t (let through) values can be used smaller size of metal boxes
- Low let-through energy under short-circuit conditions ensures longer life of contacts and reduces thermal stresses in the distribution circuit
- RI 50 reduces the energy loss due to a unique contact configuration and reduction of hot spots. Watt loss per pole for RI 50 is far lower than that specified in IEC/EN 60898
- An optional operating position
- IP20 degree of protection; IP40 degree of protection after installation in a distribution box
- An additional colour indication of the position of main contacts (red: contacts closed; green: contacts open)

TYPES

RI 51	single-pole
RI 51N	single pole + neutral pole
RI 52	two-pole
RI 53	three-pole
RI 53N	three-pole + neutral pole
RI 54	four pole

ORDERING DATA

Miniature circuit breakers RI50 up to 63 A	page 6-5
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Connections	page 6-27

Example - Ordering data	page 6-5
Technical characteristics	page 6-13
Dimensions	page 6-25

MINIATURE CIRCUIT BREAKERS - RI50

RI50 - B characteristics

6
kA

Type	Rated current I _n (A)	Rated voltage U _n (V)	Number of poles	Ordering No.	Weight (g)	Packaging (pcs)
RI51 B6	6	240	1	786.091.006	100	12
RI51 B10	10	240	1	786.091.007	100	12
RI51 B16	16	240	1	786.091.008	100	12
RI51 B20	20	240	1	786.091.009	100	12
RI51 B25	25	240	1	786.091.010	100	12
RI51 B32	32	240	1	786.091.011	100	12
RI51 B40	40	240	1	786.091.012	100	12
RI51 B50	50	240	1	786.091.013	100	12
RI51 B63	63	240	1	786.091.014	100	12
RI51N B6	6	240/415	1 + N	786.091.015	200	6
RI51N B10	10	240/415	1 + N	786.091.016	200	6
RI51N B16	16	240/415	1 + N	786.091.017	200	6
RI51N B20	20	240/415	1 + N	786.091.018	200	6
RI51N B25	25	240/415	1 + N	786.091.019	200	6
RI51N B32	32	240/415	1 + N	786.091.020	200	6
RI51N B40	40	240/415	1 + N	786.091.021	200	6
RI51N B50	50	240/415	1 + N	786.091.022	200	6
RI51N B63	63	240/415	1 + N	786.091.023	200	6
RI52 B6	6	240/415	2	786.091.024	200	6
RI52 B10	10	240/415	2	786.091.025	200	6
RI52 B16	16	240/415	2	786.091.026	200	6
RI52 B20	20	240/415	2	786.091.027	200	6
RI52 B25	25	240/415	2	786.091.028	200	6
RI52 B32	32	240/415	2	786.091.029	200	6
RI52 B40	40	240/415	2	786.091.030	200	6
RI52 B50	50	240/415	2	786.091.031	200	6
RI52 B63	63	240/415	2	786.091.032	200	6
RI53 B6	6	415	3	786.091.033	300	4
RI53 B10	10	415	3	786.091.034	300	4
RI53 B16	16	415	3	786.091.035	300	4
RI53 B20	20	415	3	786.091.036	300	4
RI53 B25	25	415	3	786.091.037	300	4
RI53 B32	32	415	3	786.091.038	300	4
RI53 B40	40	415	3	786.091.039	300	4
RI53 B50	50	415	3	786.091.040	300	4
RI53 B63	63	415	3	786.091.041	300	4
RI53N B6	6	415	3 + N	786.091.042	400	3
RI53N B10	10	415	3 + N	786.091.043	400	3
RI53N B16	16	415	3 + N	786.091.044	400	3
RI53N B20	20	415	3 + N	786.091.045	400	3
RI53N B25	25	415	3 + N	786.091.046	400	3
RI53N B32	32	415	3 + N	786.091.047	400	3
RI53N B40	40	415	3 + N	786.091.048	400	3
RI53N B50	50	415	3 + N	786.091.049	400	3
RI53N B63	63	415	3 + N	786.091.050	400	3
RI54 B6	6	415	4	786.091.051	400	3
RI54 B10	10	415	4	786.091.052	400	3
RI54 B16	16	415	4	786.091.053	400	3
RI54 B20	20	415	4	786.091.054	400	3
RI54 B25	25	415	4	786.091.055	400	3
RI54 B32	32	415	4	786.091.056	400	3
RI54 B40	40	415	4	786.091.057	400	3
RI54 B50	50	415	4	786.091.058	400	3
RI54 B63	63	415	4	786.091.059	400	3



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ORDERING DATA

MINIATURE CIRCUIT BREAKERS - RI50

RI50 - C characteristics

6
kA

Type	Rated current I _n (A)	Rated voltage U _n (V)	Number of poles	Ordering No.	Weight (g)	Packaging (pcs)
RI51 C6	6	240	1	786.091.100	100	12
RI51 C10	10	240	1	786.091.101	100	12
RI51 C16	16	240	1	786.091.102	100	12
RI51 C20	20	240	1	786.091.103	100	12
RI51 C25	25	240	1	786.091.104	100	12
RI51 C32	32	240	1	786.091.105	100	12
RI51 C40	40	240	1	786.091.106	100	12
RI51 C50	50	240	1	786.091.107	100	12
RI51 C63	63	240	1	786.091.108	100	12
RI51N C6	6	240/415	1 + N	786.091.109	200	6
RI51N C10	10	240/415	1 + N	786.091.110	200	6
RI51N C16	16	240/415	1 + N	786.091.111	200	6
RI51N C20	20	240/415	1 + N	786.091.112	200	6
RI51N C25	25	240/415	1 + N	786.091.113	200	6
RI51N C32	32	240/415	1 + N	786.091.114	200	6
RI51N C40	40	240/415	1 + N	786.091.115	200	6
RI51N C50	50	240/415	1 + N	786.091.116	200	6
RI51N C63	63	240/415	1 + N	786.091.117	200	6
RI52 C6	6	240/415	2	786.091.118	200	6
RI52 C10	10	240/415	2	786.091.119	200	6
RI52 C16	16	240/415	2	786.091.120	200	6
RI52 C20	20	240/415	2	786.091.121	200	6
RI52 C25	25	240/415	2	786.091.122	200	6
RI52 C32	32	240/415	2	786.091.123	200	6
RI52 C40	40	240/415	2	786.091.124	200	6
RI52 C50	50	240/415	2	786.091.125	200	6
RI52 C63	63	240/415	2	786.091.126	200	6
RI53 C6	6	415	3	786.091.127	300	4
RI53 C10	10	415	3	786.091.128	300	4
RI53 C16	16	415	3	786.091.129	300	4
RI53 C20	20	415	3	786.091.130	300	4
RI53 C25	25	415	3	786.091.131	300	4
RI53 C32	32	415	3	786.091.132	300	4
RI53 C40	40	415	3	786.091.133	300	4
RI53 C50	50	415	3	786.091.134	300	4
RI53 C63	63	415	3	786.091.135	300	4
RI53N C6	6	415	3 + N	786.091.136	400	3
RI53N C10	10	415	3 + N	786.091.137	400	3
RI53N C16	16	415	3 + N	786.091.138	400	3
RI53N C20	20	415	3 + N	786.091.139	400	3
RI53N C25	25	415	3 + N	786.091.140	400	3
RI53N C32	32	415	3 + N	786.091.141	400	3
RI53N C40	40	415	3 + N	786.091.142	400	3
RI53N C50	50	415	3 + N	786.091.143	400	3
RI53N C63	63	415	3 + N	786.091.144	400	3
RI54 C6	6	415	4	786.091.145	400	3
RI54 C10	10	415	4	786.091.146	400	3
RI54 C16	16	415	4	786.091.147	400	3
RI54 C20	20	415	4	786.091.148	400	3
RI54 C25	25	415	4	786.091.149	400	3
RI54 C32	32	415	4	786.091.150	400	3
RI54 C40	40	415	4	786.091.151	400	3
RI54 C50	50	415	4	786.091.152	400	3
RI54 C63	63	415	4	786.091.153	400	3



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ORDERING DATA

RI50

Auxiliary contacts

Type	Ordering No.	Weight (g)	Packaging (pcs)
PS50E-11	786.091.154	42	1

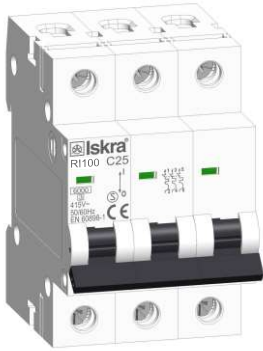
Shunt trip release

Type	Control voltages U _c (V)	Ordering No.	Weight (g)	Packaging (pcs)
VC50E 230	230	786.091.155	82	1

Undervoltage release

Type	Control voltages U _c (V)	Ordering No.	Weight (g)	Packaging (pcs)
PC50E 230	110 - 415	786.091.156	78	1

MINIATURE CIRCUIT BREAKERS - R1100



MINIATURE CIRCUIT BREAKERS OF RI 100 SERIES ARE USED FOR SWITCHING, CONDUCTING AND SWITCHING-OFF THE CURRENT NOT ONLY IN NORMAL OPERATING CONDITIONS BUT ALSO IN SPECIAL CONDITIONS IN A CIRCUIT SUCH AS SHORT CIRCUIT. THEY ARE USED FOR OVERCURRENT PROTECTION OF HOUSE INSTALLATIONS, INDUSTRIAL ELECTRIC DISTRIBUTIONS AND DEVICES.



BENEFITS

- High rated short-circuit breaking capacity up to 10 kA on IEC 60947-2/ IEC 60898-1 standard
- Service life of product has been greatly enhanced through special designed tripping mechanism
- Long-time and reliable operation
- Enclosure and functional parts made from imported plastics with flame-retardant, heat-resistant, and impulse-proof properties
- Compact and modularized design
- Convenient mounting

TYPES

RI 101	single-pole
RI 101N	single pole + neutral pole
RI 102	two-pole
RI 103	three-pole
RI 103N	three-pole + neutral pole
RI 104	four pole

ORDERING DATA

Miniature circuit breakers RI100 up to 125 A	page 6-18
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Example - Ordering data	page 6-13
Technical characteristics	page 6-15
Dimensions	page 6-25

MINIATURE CIRCUIT BREAKERS - RI100

RI100 - C characteristics

Type	Rated current I _n (A)	Rated voltage U _n (V)	Number of poles	Ordering No.	Weight (g)	Packaging (pcs)
RI101 C80	80	230	1	786.101.250	160	8
RI101 C100	100	230	1	786.101.251	160	8
RI101 C125	125	230	1	786.101.252	160	8

10
kA

RI100 - C characteristics

Type	Rated current I _n (A)	Rated voltage U _n (V)	Number of poles	Ordering No.	Weight (g)	Packaging (pcs)
RI101N C80	80	230/400	1 + N	786.101.253	320	4
RI101N C100	100	230/400	1 + N	786.101.254	320	4
RI101N C125	125	230/400	1 + N	786.101.255	320	4

10
kA

RI100 - C characteristics

Type	Rated current I _n (A)	Rated voltage U _n (V)	Number of poles	Ordering No.	Weight (g)	Packaging (pcs)
RI102 C80	80	230/400	2	786.101.256	320	4
RI102 C100	100	230/400	2	786.101.257	320	4
RI102 C125	125	230/400	2	786.101.258	320	4

10
kA

RI100 - C characteristics

Type	Rated current I _n (A)	Rated voltage U _n (V)	Number of poles	Ordering No.	Weight (g)	Packaging (pcs)
RI103 C80	80	400	3	786.101.259	490	2
RI103 C100	100	400	3	786.101.260	490	2
RI103 C125	125	400	3	786.101.261	490	2

10
kA

RI100 - C characteristics

Type	Rated current I _n (A)	Rated voltage U _n (V)	Number of poles	Ordering No.	Weight (g)	Packaging (pcs)
RI103N C80	80	230/400	3 + N	786.101.262	640	2
RI103N C100	100	230/400	3 + N	786.101.263	640	2
RI103N C125	125	230/400	3 + N	786.101.264	640	2

10
kA

RI100 - C characteristics

Type	Rated current I _n (A)	Rated voltage U _n (V)	Number of poles	Ordering No.	Weight (g)	Packaging (pcs)
RI104 C80	80	400	4	786.101.265	640	2
RI104 C100	100	400	4	786.101.266	640	2
RI104 C125	125	400	4	786.101.267	640	2

10
kA

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ORDERING DATA

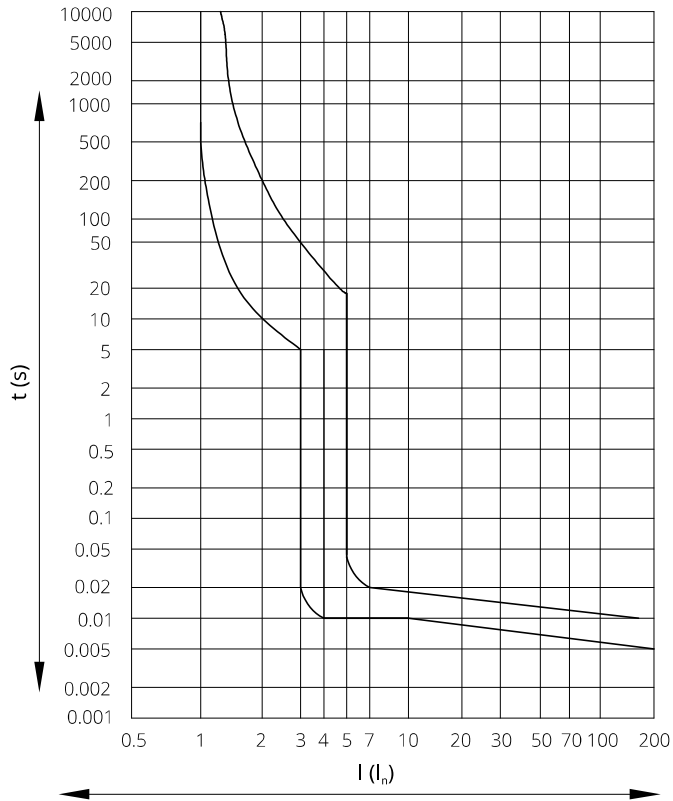
MINIATURE CIRCUIT BREAKERS - RI20N

Type	Symbol	Unit	RI20N
Area of use			AC systems
Standards			IEC/EN 60898
Approvals			NF, CE
Number of poles			1+N
Tripping characteristics			B, C
Rated currents	I_n	A	2 ... 32
Rated voltage	U_n	V	230
Rated impulse withstand voltage	U_{imp}	kV	4
Rated insulation voltage	U_i	V	500
Rated frequency	f	Hz	50
Rated short-circuit breaking capacity	$I_{cu} I_{cn}$	kA	4,5
Selectivity class			3
Electrical endurance		op.c.	4000
Mechanical endurance		op.c.	100 000
Terminal capacity		mm ²	1 ... 10
Screw type			M4
Screw head			PZ2
Tightening torque		Nm	2
Mounting			35 mm DIN rail
Degree of protection			IP 20
Ambient temperature		°C	-25 ... 55
Altitude		m	up to 3000
Above max. altitude the voltages U_i and U_n are reduced by 1.2%, nominal rating I_n is reduced by 0.4% for every additional 100 m			
Mounting position			any
Resistance against vibrations			3 g (8 ... 50 Hz)

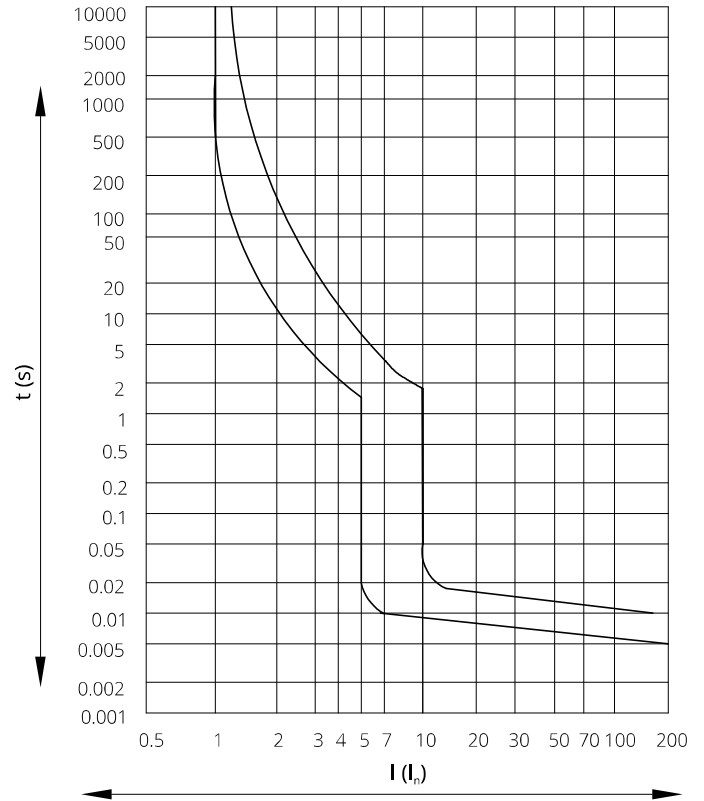
MINIATURE CIRCUIT BREAKERS - RI20N

Tripping characteristics

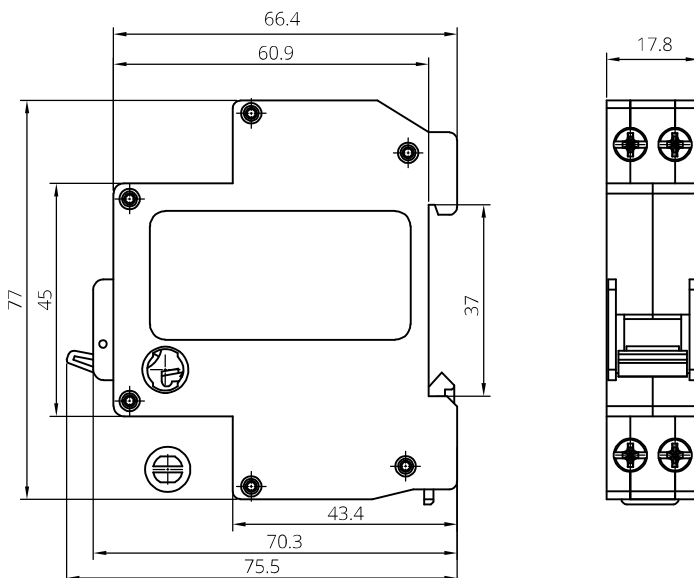
Characteristics B acc. to EN 60 898



Characteristics C acc. to EN 60 898



Dimensions



MINIATURE CIRCUIT BREAKERS - RI50

Type	Symbol	Unit	RI50
Area of use			AC systems
Standards			IEC/EN 60898-1
Approvals			SEMKO, CE
Number of poles			1,1+N, 2, 3, 3+N, 4
Tripping characteristics			B, C
Rated currents	I_n	A	6 ... 63
Rated voltage	U_n	V	240/415 (single-pole) 415 (multi-pole)
Rated DC voltage	U_n	V	60 (single-pole) 110 (multi-pole)
Max. time constant for DC voltage	t	ms	15/60 V DC max.
Rated impulse withstand voltage	U_{imp}	kV	4
Rated insulation voltage	U_i	V	500
Rated frequency	f	Hz	50/60
Rated short-circuit breaking capacity	I_{cu} , I_{cs}	kA	6
Service short-circuit breaking capacity	I_{cs}	kA	6
Selectivity class			3
Electrical endurance		op.c.	4000
Mechanical endurance		op.c.	100 000
Terminal capacity		mm ²	up to 25
Screw type			M5
Screw head			PZ2
Tightening torque		Nm	2
Mounting			35 mm DIN rail acc. to EN 60715
Degree of protection			IP 20
Ambient temperature		°C	-25 ... 55
Altitude Above max. altitude the voltages U_i and U_n are reduced by 1.2%, nominal rating I_n is reduced by 0.4% for every additional 100 m		m	up to 3000
Mounting position			any
Resistance against vibrations			3 g (8 ... 50 Hz)
Accessories			Auxiliary contact PS50E-11 Shunt trip release VC50E Undervoltage release PC50E

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TECHNICAL DATA

MINIATURE CIRCUIT BREAKERS - ACCESSORIES

RI50

AUXILIARY CONTACT BLOCK

Type	Symbol	Unit	PS 50E-11
Standards			IEC/EN 60947-5-1
Number of contacts			1 change-over *
Rated operational voltage	U_e	V	230
Rated insulation voltage	U_i	V	400
Rated frequency	f	Hz	50/60
Rated thermal current	I_{th}	A	6
Rated operational current	I_e		AC-15: 230 V / 4 A DC-13: 110 V / 0.4
Rated unconditional short-circuit current		A	800
Fuse gG		A	6
Mounting			on left side of device
Degree of protection			IP 20
Terminal capacity	S	mm ²	0.5 ... 2.5 (Cu wire)
Screw type			M2.5
Screw head			PZ2
Tightening torque			1

* Change-over contacts indicate the position of main contacts of circuit breaker

UNDERVOLTAGE RELEASE

Type	Symbol	Unit	PC 50E
Standards			IEC/EN 60947-1
Rated voltage	U_n	V	230
Rated frequency	f	Hz	50
Power consumption	P	W	3
Mounting			Right side of device
Terminal capacity	S	mm ²	0.75 ... 2.5
Screw type			M5
Screw head			PZ2
Tightening torque		Nm	2
Degree of protection			IP 20
Operating limits			Pick-up voltage: 85% U_n Drop-out voltage: 35% U_n

SHUNT RELEASE

Type	Symbol	Unit	VC 50E
Standards			IEC/EN 60947-1
Rated voltage	U_n	V	230 *
Rated impulse withstand voltage	U_{imp}	kV	4
Rated making overvoltage		kV	4
Rated frequency	f	Hz	50/60
Max. switching off current (voltage of VC)		A (V)	0.9 (125); 0.6 (230); 0.3 (400)
Mounting			on right side of circuit breaker (switch)
Degree of protection			IP 20
Terminal capacity	S	mm ²	1.5 ... 6
Screw type			M5
Screw head			PZ2
Tightening torque		Nm	2.5
Operating limits			70 ... 110 % U_n
Tripping time		ms	max. 50

* Other rated voltage of AC and DC on request

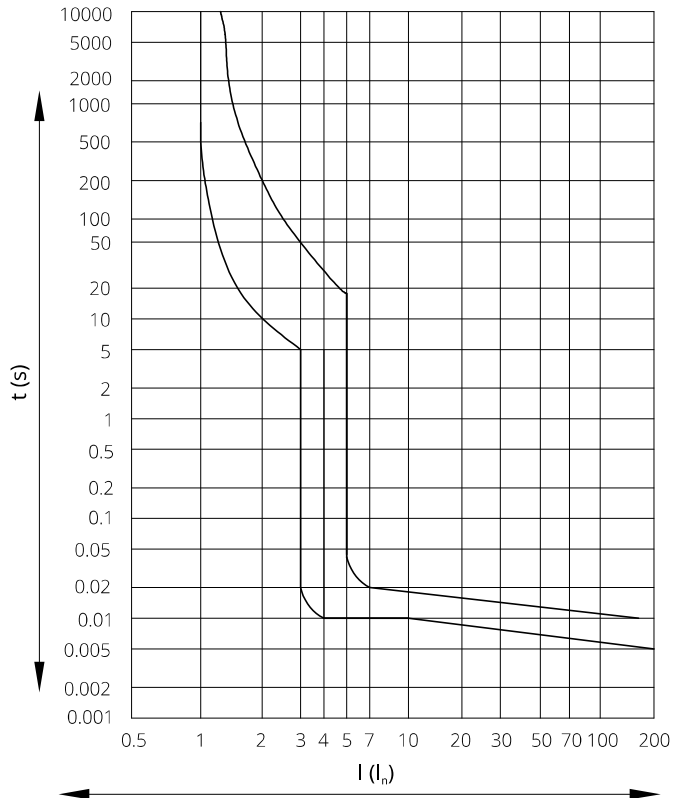
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TECHNICAL DATA

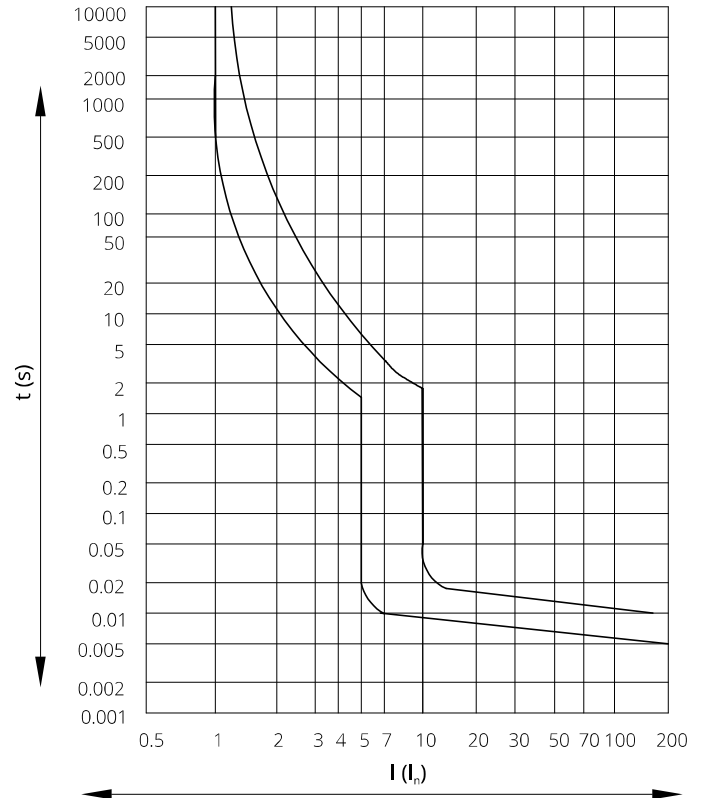
MINIATURE CIRCUIT BREAKERS - RI50

Tripping characteristics

Characteristics B acc. to EN 60 898



Characteristics C acc. to EN 60 898



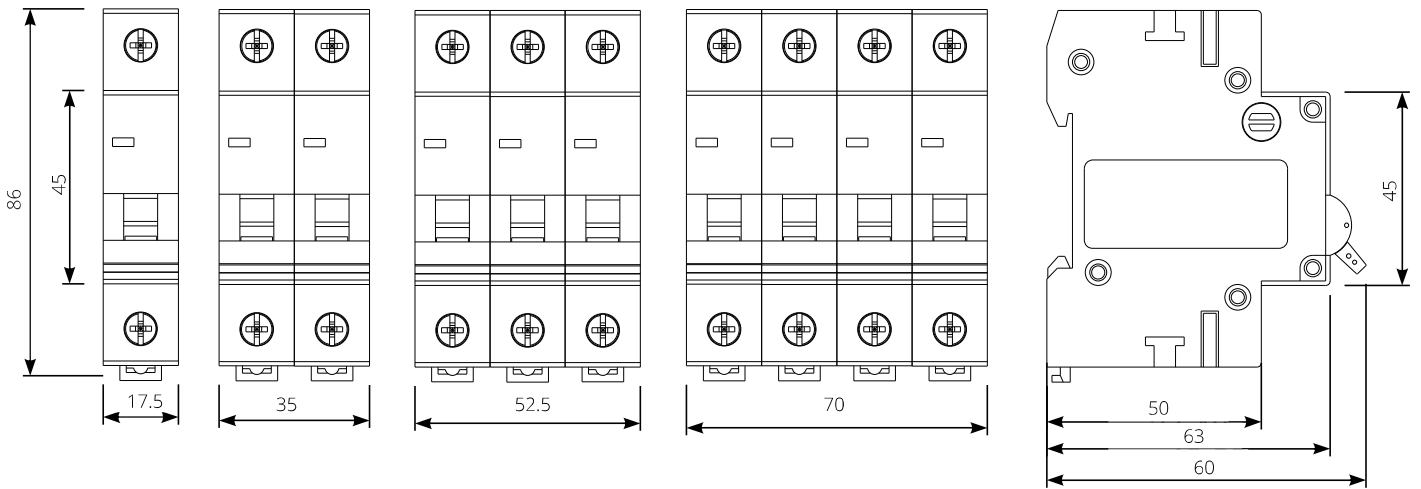
MINIATURE CIRCUIT BREAKERS - RI50

RI51

RI52

RI52 +N
RI53

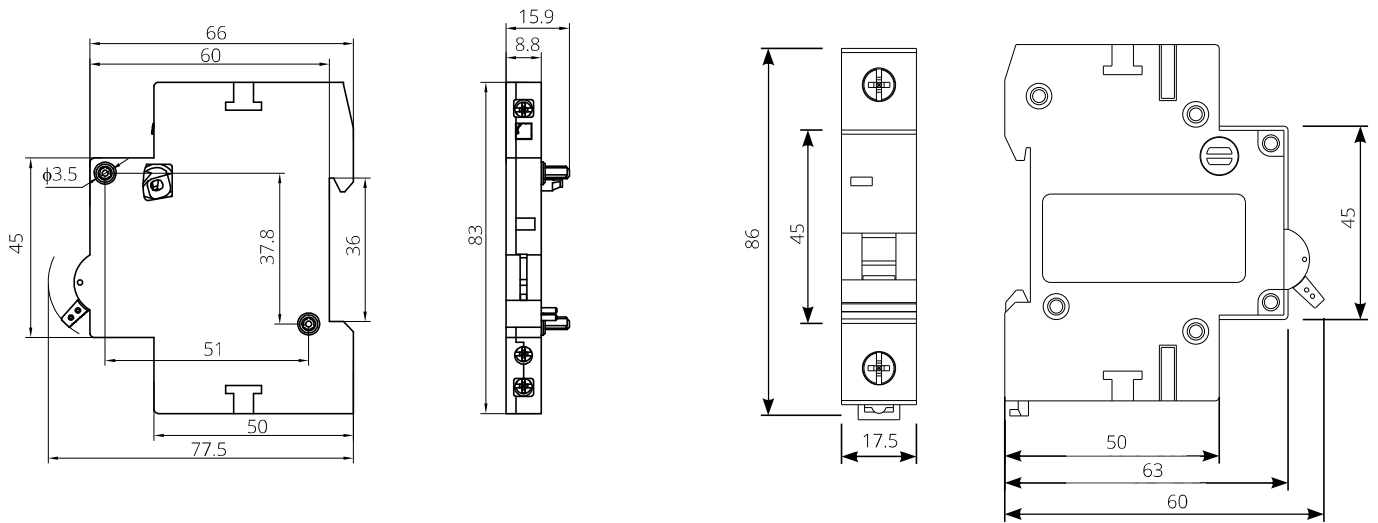
RI53 +N
RI54



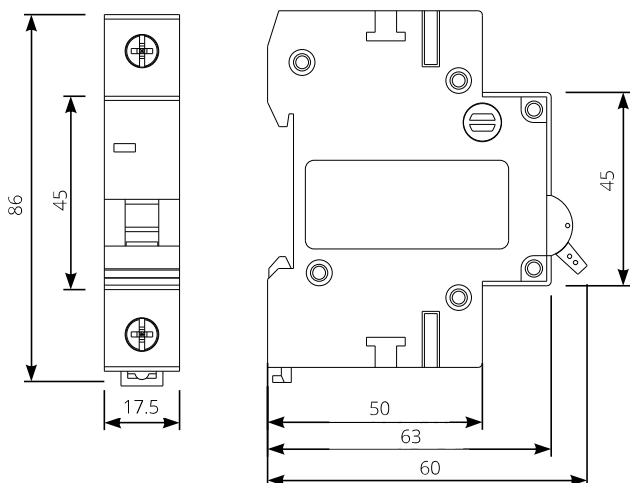
6

AUXILIARY CONTACT PS50E-11

SHUNT TRIP RELEASE VC50E



UNDervOLTAGE RELEASE PC50E



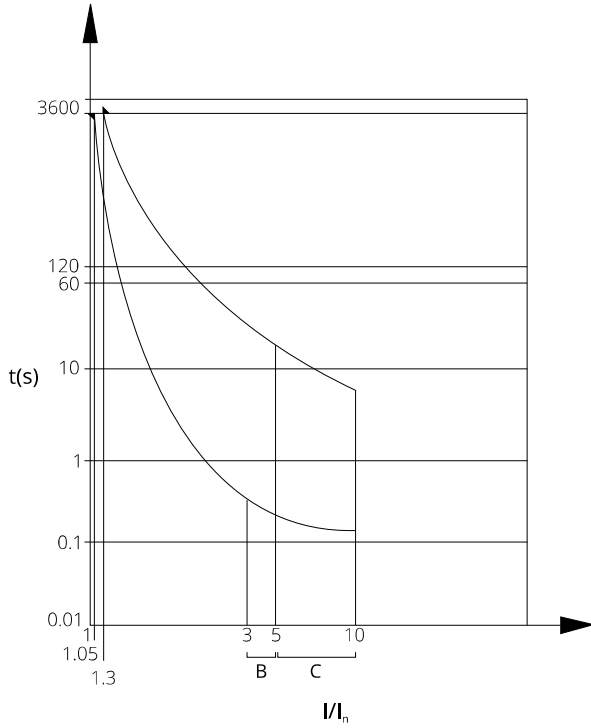
DIMENSIONS

MINIATURE CIRCUIT BREAKERS - RI100

Type	Symbol	Unit	RI100
Area of use			AC systems
Standards			IEC/EN 60947-2
Approvals			SEMKO, CE
Number of poles			1,1+N, 2, 3, 3+N, 4
Tripping characteristics			C
Rated currents	I_n	A	80, 100, 125
Rated voltage	U_n	V	230, 230/400, 400
Rated DC voltage	U_n	V	max. 60
Max. time constant for DC voltage	t	ms	3
Rated impulse withstand voltage	U_{imp}	kV	4
Rated insulation voltage	U_i	V	690
Rated frequency	f	Hz	50/60
Rated short-circuit breaking capacity	I_{sur}, I_{cs}	kA	10
Service short-circuit breaking capacity	I_{cs}	kA	7.5
Selectivity class			3
Electrical endurance		op.c.	4000
Mechanical endurance		op.c.	10 000
Terminal capacity		mm ²	1 ... 50
Screw type			M5
Screw head			PZ2
Tightening torque		Nm	3.5
Mounting			35 mm DIN rail acc. to 60715, with clip on panel
Degree of protection			IP 20 IP 40 from the front panel
Ambient temperature		°C	-10 ... 50
Altitude		m	up to 3000
Above max. altitude the voltages U_i and U_n are reduced by 1.2%, nominal rating I_n is reduced by 0.4% for every additional 100 m			
Mounting position			any
Resistance against vibrations			3 g (8 ... 50 Hz)

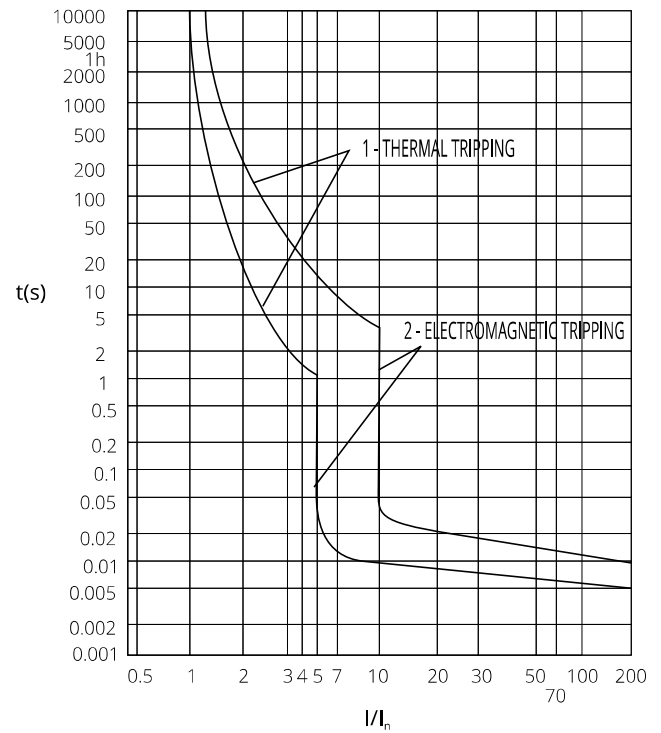
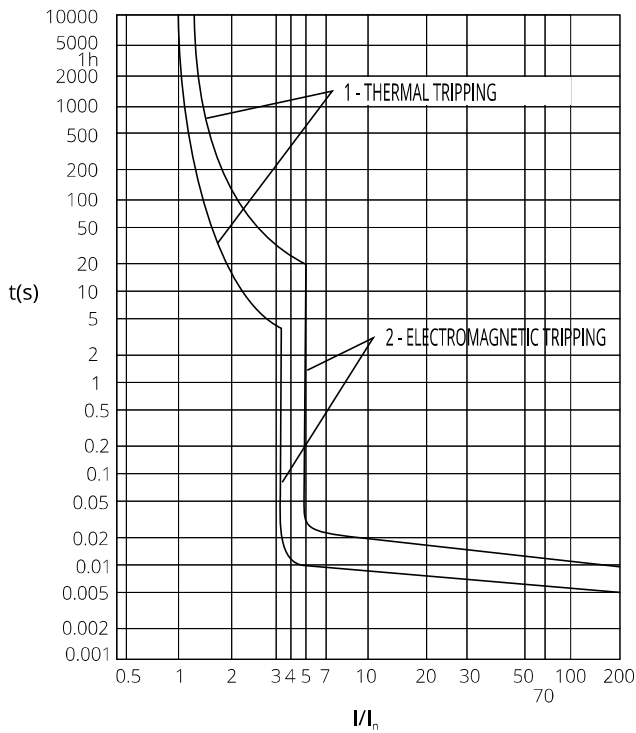
MINIATURE CIRCUIT BREAKERS - RI100

Tripping characteristics



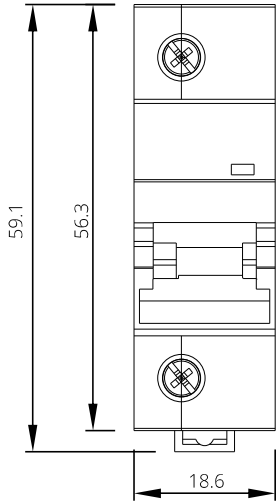
B type

C type

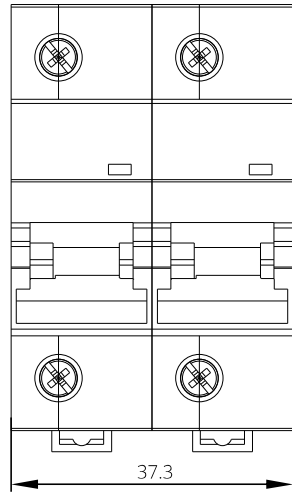


MINIATURE CIRCUIT BREAKERS - RI100

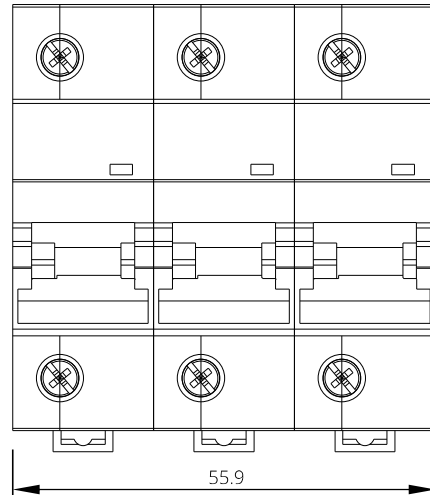
RI101



RI102
RI102+N



RI103



RI103+N
RI104

