

Miniature Circuit Breakers

RI20

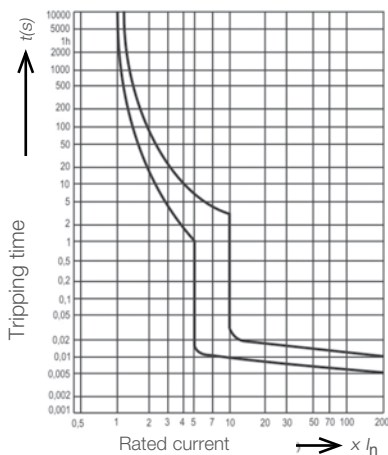


Number of poles		1 + N
Tripping characteristic		B, C, D
Rated current	A	2, 6, 10, 16, 20, 25, 32
Rated voltage	V	230
Rated frequency	Hz	50
Rated short-circuit capacity	kA	4.5
Terminal capacity	mm ²	1 - 10
Mounting		to 35 mm wide mounting rail accordance with EN 60715
Ambient temperature	°C	-5 ...+40

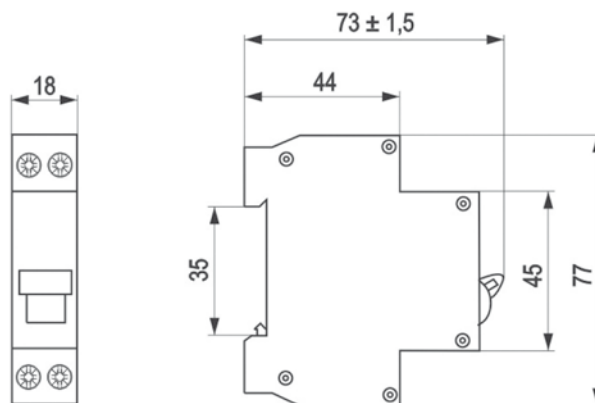
TECHNICAL DATA

Changed rated values regarding ambient temperature								
Rated current (A)	Ambient temperature							
	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C	60 °C
2	1.18	1.14	1.09	1.05	1	0.96	0.90	0.86
6	1.17	1.13	1.09	1.04	1	0.96	0.91	0.84
10	1.21	1.16	1.10	1.06	1	0.94	0.88	0.82
16	1.18	1.13	1.09	1.04	1	0.94	0.91	0.84
20	1.17	1.13	1.09	1.04	1	0.96	0.91	0.84
25	1.18	1.13	1.09	1.04	1	0.96	0.91	0.84
32	1.17	1.13	1.09	1.04	1	0.96	0.91	0.84

TRIPPING CHARACTERISTICS



DIMENSIONS



CONNECTION DIAGRAM



Miniature Circuit Breakers

RI 50



- RI 50 is used for the protection of installations and devices (overload and short circuit), and as a disconnecter in case of electric shock
- Simple and quick fixing to a 35 mm mounting rail in accordance with EN 60715
- 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

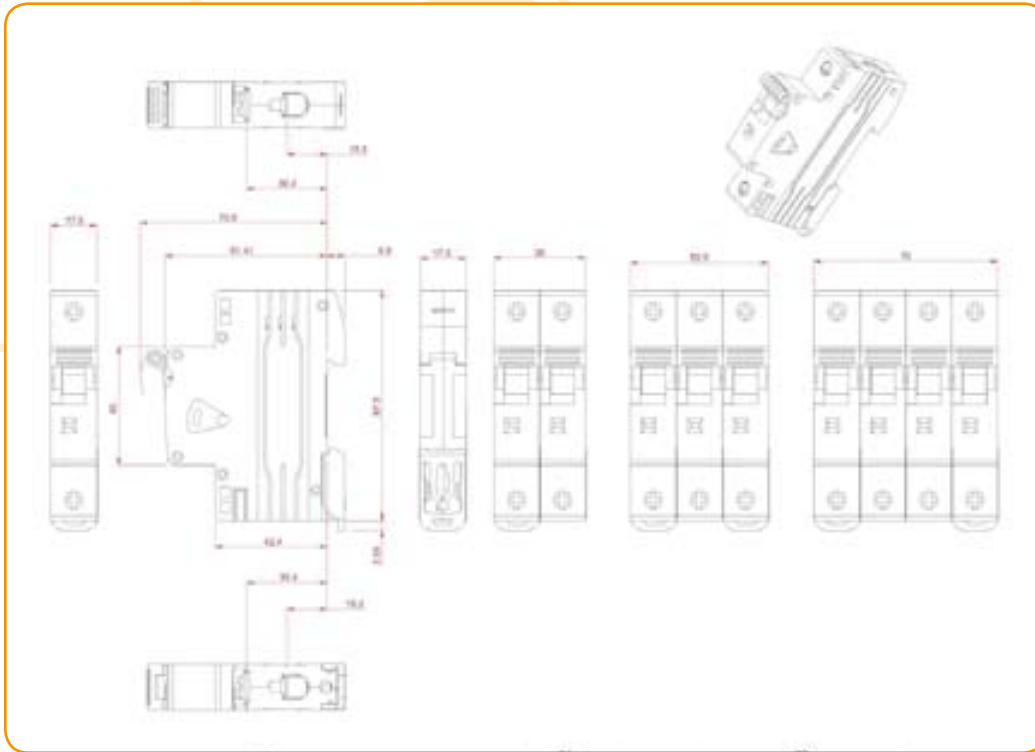
RI 51	single-pole
RI 51N	single-pole + neutral pole
RI 52	two-pole
RI 53	three-pole
RI 53N	three-pole + neutral pole
RI 54	four-pole

TECHNICAL DATA				
Standards				IEC/EN 60898
Approvals				SEMKO, GOST-R
No. of poles				1, 2, 3, 4, 1 + N, 3 + N
Tripping characteristic (IEC/EN 60898)				B, C
Rated voltage	single pole			230/400 AC
	multi-pole	U_n	V	400 AC
Insulation voltage		U_i	V	500
Impulse withstand voltage (1,2/50 μ s)		U_{imp}	kV	4
Rated frequency		f	Hz	50/60
Rated current		I_n	A	6 – 63 (characteristic B)
				0.5 – 63 (characteristic C)
Rated short-circuit capacity		I_{cn}	kA	10
Selectivity class				3
Terminal capacity		S	mm ²	up to 25
Ambient temperature			°C	-5 ... +40

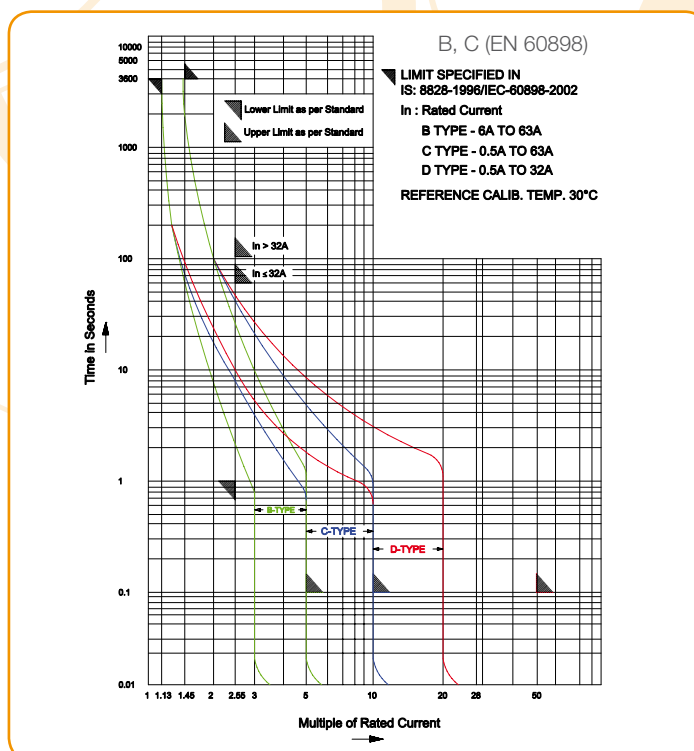
Miniature Circuit Breakers

RI 50

DIMENSIONS - Nova slika



TRIPPING CHARACTERISTIC



Miniature Circuit Breakers

RI 60



- RI 60 is used for over-current (overload and short-circuit) protection of installations and devices, and as a disconnector in case of electric shock
- RI 60 miniature circuit breakers are provided with two springs for assembly to a 35 mm wide mounting rail (EN 60715). The springs enable simple taking off irrespective of whether a busbar is positioned below or above
- Special springs are available for fixing miniature circuit breakers with two M5 screws
- A handle can be sealed in ON or OFF position
- Optional operation position
- Degree of protection IP20; degree of protection IP40 after installation in a distribution box
- Additional colour indication of the position of main contacts (red - contacts closed; green - contacts open)

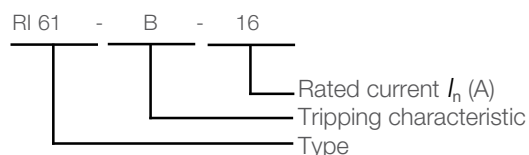
Types

RI 61	single-pole
RI 61N	single-pole + neutral pole
RI 61J	single-pole (for DC circuits)
RI 62	two-pole
RI 62J	two-pole (for DC circuits)
RI 63	three-pole
RI 63N	three-pole + neutral pole
RI 64	four-pole

TECHNICAL DATA

				AC	DC
Standards				IEC/EN 60898, IEC/EN 60947-2	
Approvals				VDE, GOST-R	
No. of poles				1, 2, 3, 4, 1 + N, 3 + N	1, 2
Tripping characteristic (IEC/EN 60898)				B, C, D, M	C, M
Rated voltage	U_n	V	230/400	-	
Rated DC voltage	U_n	V	max. 40 - 1 pole for $t=15$ ms	440 - 2-pole 220 - 1-pole	
Rated insulation voltage	U_i	V	500		
Rated frequency	f	Hz	50/60	-	
Rated current	I_n	A	0.2 to 63		
Short-circuit capacity	I_{cn}	kA	10	4.5	
Selectivity class				3	
Terminal capacity	Cu	S	mm ²	1.5 ... 25	
	Al			2.5 ... 25	
Ambient temperature				-25 ... +55	
Vibration resistance				3 g (8 - 50 Hz)	

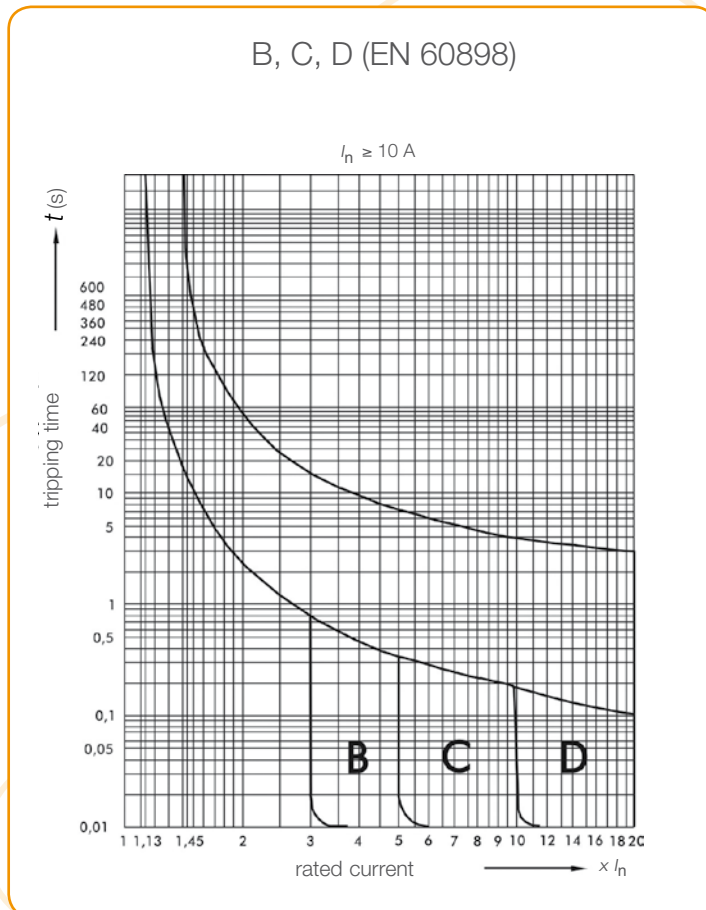
ORDERING DATA



Miniature Circuit Breakers

RI 60

TRIPPING CHARACTERISTIC



ACCESSORIES

AUXILIARY AND SIGNAL CONTACTS

- They are used with RI 60 miniature circuit breakers and RV 60 disconnection switches (0.5 module width).
- Delivered as a single unit or with RI 60 or RV 60, respectively; mounted on the left side by means of pins and screw.
- Serve for signalling of contact position of the breaker
- Degree of protection IP20
- Types:
 - PKJ, 2PKJ – one or two auxiliary changeover contacts; position of contacts corresponds to the position of the main contacts of the breaker
 - PKJ + SKJ – one auxiliary changeover contact and one signal change over contact (fault indicating contact)
 - PKJ + SKJ + TEST – test button with two functions is added: signalling the position of signal contacts and testing of control circuit (non-stable change of position of the contacts) by slight movement of push-button upwards and downwards without change of contact position of the breaker

TECHNICAL DATA

Standards			IEC/EN 60947-5-1
Rated insulation voltage	U_i	V	400
Rated operational voltage	U_e	V	230
Rated thermal current	I_{th}	A	16
Rated operational current			
AC-15	I_e	A	4 ($U_e = 230 \text{ V}$)
DC-13			0.5 ($U_e = 110 \text{ V}$)*
Terminal capacity	S	mm ²	0.5 ... 2.5

*Connection of two auxiliary contacts in series at 220 V

Miniature Circuit Breakers

RI 60

SHUNT TRIP RELEASE VC

- Used with RI 60 miniature circuit breakers and RV 60 disconnection switches.
- Enables remote switch-off.
- Available as a single unit or together with RI 60 or RV 60; mounted on the the right side by means of pins and screw.

TECHNICAL DATA

Standards				IEC/EN 60947-1
Control voltages	AC	U_c	V	12, 24, 48, 60, 110, 230, 400
	DC			24, 48, 110
Range of control voltage		U_c	%	70 ... 110
Max. tripping current (at coil voltage)	AC		A (V)	6 (12); 2.8 (24); 0.8 (48); 0.9 (60); 0.5 (110); 0.6 (230); 0.5 (400)
	DC			3 (24); 2 (48); 0.6 (110)
Rated frequency		f	Hz	50
Tripping time			ms	≤ 50
Terminal capacity		S	mm ²	1.5 ... 6

UNDERVOLTAGE RELEASE PC 60

- Used with RI 60, RI 120 miniature circuit breakers and RV 60, RV 120 disconnection switches;
- Protection of the load in the event of voltage drop (between 85% and 35% of its control voltage); uncontrolled restarting is prevented;
- Indication of release position green/red;
- Mounted on the right side of the breaker;
- Test button for the correct function control;
- Degree of protection IP 20

TECHNICAL DATA

Standards			IEC/EN 60947-1
Control voltage	U_c	V	24, 48, 120, 230, 400
Rated frequency	f	Hz	50
Coil power consumption		W	3
Mechanical endurance		op. c.	10,000
Terminal capacity	S	mm ²	0.75 ... 2,5

OTHER ACCESSORIES

Busbar - universal

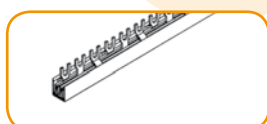
(for one-pole circuit breakers and one-pole circuit breakers with an auxiliary switch)



Designation	Length (m)	Cross-section (mm ²)
G-1L-210 / 12 iso	0.21	12
G-1L-1000 / 12 iso	1	12
G-2L-1000 / 10	1	12

Busbar - fork-type, 3-phase

(for three-pole circuit breakers and one-pole circuit breakers in three-phase circuits)

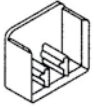


Designation	Length (m)	Cross-section (mm ²)
G-3L-1000 / 10 C	1	10
G-3L-1000 / 16 C	1	16
G-4L-1000 / 16	1	16

Miniature Circuit Breakers

RI 60

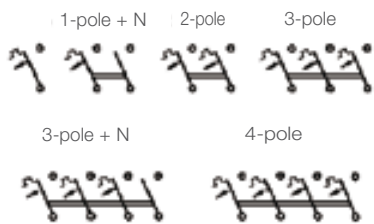
End caps (for three-phase busbars)



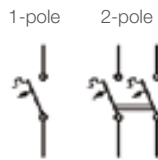
Designation	Cross-section (mm ²)
EK-C-3/10	10
EK-C-2+3/16	16

CONNECTION DIAGRAM

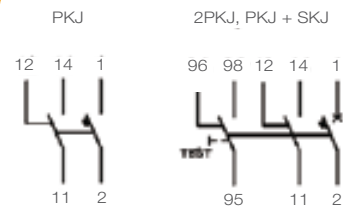
AC



DC

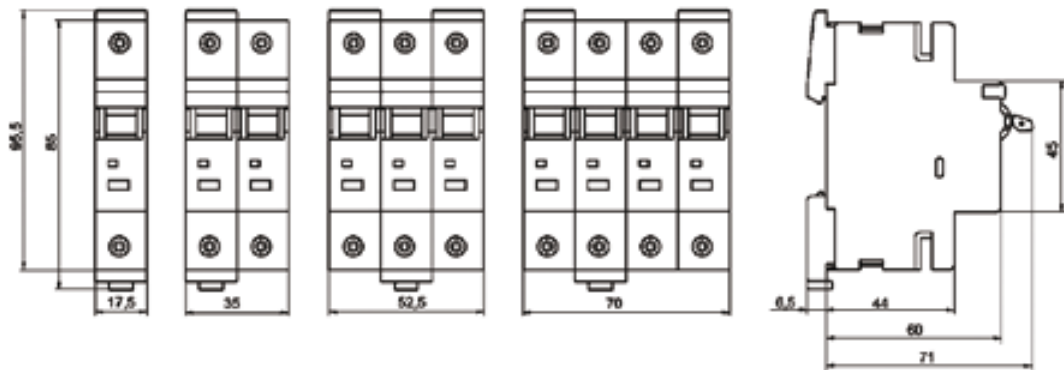


AUXILIARY CONTACTS

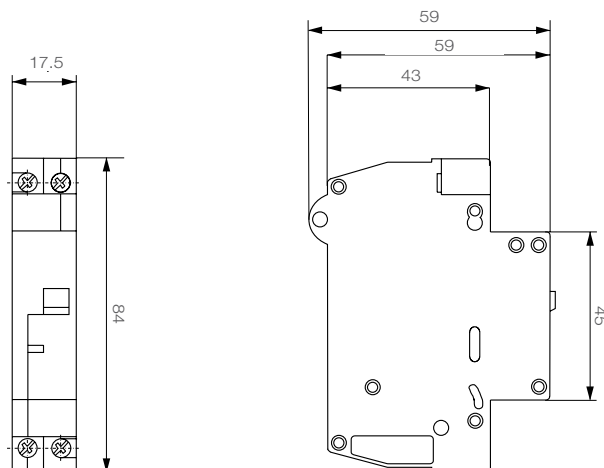


DIMENSIONS

RI 60, RV 60



PC 60



Miniature Circuit Breakers

RI 120



- They are used for protecting house and industrial installations.
- RI 120 miniature circuit breakers are provided with two springs for assembly to a 35 mm wide mounting rail in accordance with EN 60715. The springs enable simple taking off irrespective of whether a busbar is positioned below or above.
- A handle can be sealed in ON or OFF position.
- Optional operation position.
- Degree of protection IP20; degree of protection IP40 after installation in a distribution box.

TECHNICAL DATA

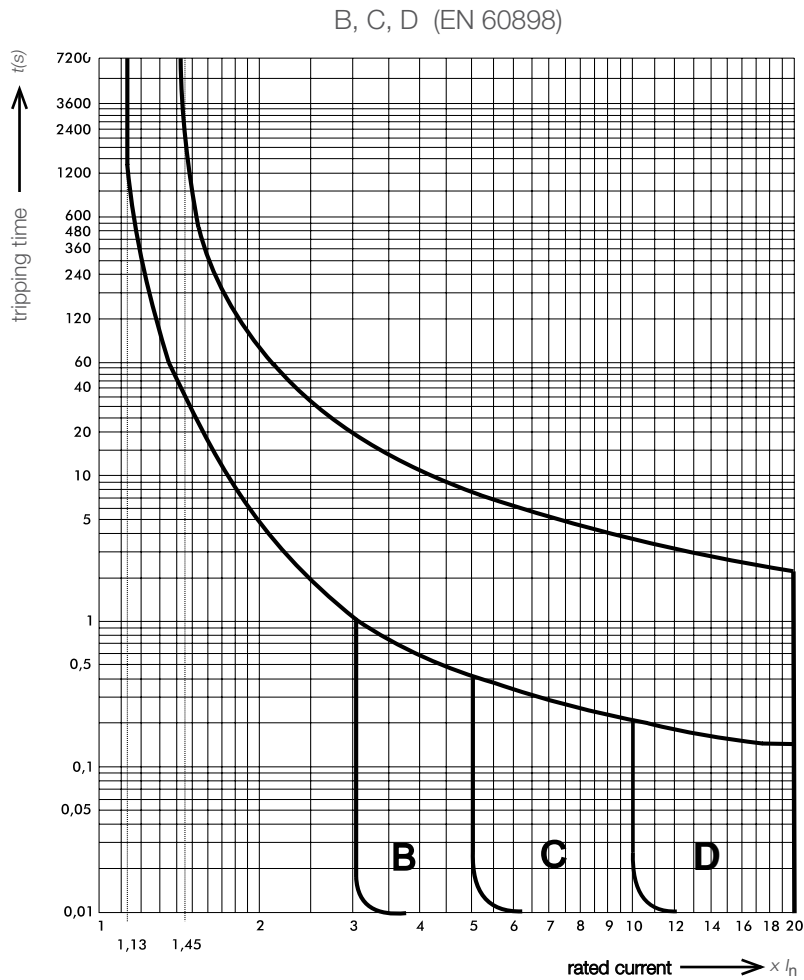
Standards			IEC/EN 60898-1
No. of poles			1, 2, 3, 4, 1 + N; 3 + N
Tripping characteristic			B, C, D
Rated voltage	U_n	V	230, 230/400, 400
Rated DC voltage	U_n	V	max. 110 – 1 pole for $T_1 = 4$ ms
Rated insulation voltage	U_i	V	690 V
Rated frequency	f	Hz	50/60
Rated current	I_n	A	40, 50, 63, 80, 100, 125
Short-circuit breaking capacity		kA	10 (15)*
Selectivity class			3
Ambient temperature		°C	-5 ... +40
Terminal capacity	S	mm ²	2.5 ... 50
Accessories			Shunt trip release VC

* optional

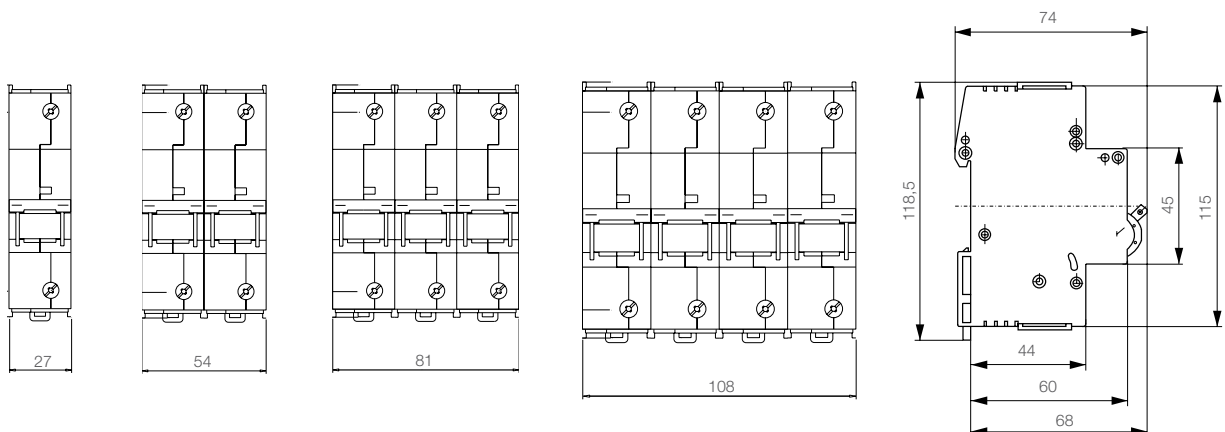
Miniature Circuit Breakers

RI 120

TRIPPING CHARACTERISTIC



DIMENSIONS



Miniature Circuit Breakers

RV 60, RV 120, RS



- They are used as main switches in house distribution boxes or as switches for individual electric circuits.
- A handle can be sealed in ON or OFF position.
- Assembly to 35 mm wide mounting rail in accordance with EN 60715.
- Optional operation position.
- Degree of protection IP20; degree of protection IP40 after installation in a distribution box.
- Additional colour indications of the position of main contacts (red – contacts closed, green – contacts open).
- External dimensions of RV 60 and RV 120 disconnection switches match with dimensions of RI 60 or RI 120 miniature circuit breakers.

DISCONNECTION SWITCH RV 60 - TECHNICAL DATA

Standards			IEC/EN 60947-3
No. of poles			1, 2, 3, 1 + N, 3 + N
Rated voltage	U_n	V	230/400
Rated frequency	f	Hz	50/60
Rated current	I_n	A	25, 63
Utilization category			AC-22A
Rated conditional short-circuit current		kA	3 (RV 60 63 A with 63 A gG back-up fuse) 6 (RV 60 63 A with 35 A gG back-up fuse) 10 (RV 60 25 A with 25 A gG back-up fuse)
Terminal capacity	S	mm ²	see page 70
Ambient temperature		°C	-25...+55
Vibration resistance			3 g (8 – 50 Hz)
Accessories			See accessories for RI 60 miniature circuit breaker

DISCONNECTION SWITCH RV 120 - TECHNICAL DATA

Standards			IEC/EN 60947-3
No. of poles			1, 2, 3, 1 + N, 3 + N
Rated voltage	U_n	V	230/400
Rated insulation voltage	U_i	V	690
Rated impulse voltage	U_{imp}	V	6000
Rated frequency	f	Hz	50
Rated thermal current	I_{th}	A	125
Rated current	I_n	A	100 (for utilization category AC-22A), 40 (for utilization category AC-23A)
Rated conditional short-circuit current		kA	3 (with 100 A gG back-up fuse), 6 (with 63 A gG back-up fuse)
Electrical endurance		op. c.	1500
Mechanical endurance		op. c.	10 000
Terminal capacity	S	mm ²	2,5...50
Ambient temperature		°C	-25...+55
Vibration resistance			3 g (8 - 50 Hz)

SIGNAL LAMP RS, RSB



- Assembly to a 35 mm wide mounting rail in accordance with EN 60715
- Optional operation position
- Degree of protection IP20, degree of protection IP40 after installation in a distribution box

TECHNICAL DATA

Standards			IEC/EN 60947-5-1
No. of poles			1
Rated voltage	AC	U_n	V
	DC		24, 48, 110, 230 24, 48, 110, 220
Light source			high capacity LED diode
Light source capacity		W	0,8
Colours			green - G, red - R, blue - B, transparent - T, yellow - Y
Illumination			constant - RS, blinking - RSB
Terminal capacity	S	mm ²	0,75...6
Ambient temperature		°C	-25...+55

Accessories

SURFACE MOUNTED (INO) and FLUSH MOUNTED (IPO) COMPACT DISTRIBUTION BOARDS

- Transparent or white door
- Additional terminals for PE- and N-conductors
- No. of modules from 4 to 36
- Protection class II
- Degree of protection IP40



TECHNICAL DATA

Type			INO-4	INO-12	INO-18	INO-24	INO-36
			IPO-4	IPO-12		IPO-24	IPO-36
Standards			IEC 60670-24				
Rated voltage	U_n	V	400				
Max. power dissipation	INO	W	12	22	22	24	26
	IPO		14	22		24	26
No. of modules			4 (+4)	12	18	24	36
PE- and N-conductor terminals			2 x 8	2 x 10	2 x 13	2 x 13	2 x 15
Ambient temperature		°C	-20 ... +70				
Dimensions	INO	mm	215 x 263 x 112	287 x 236 x 112	396 x 236 x 112	287 x 361 x 112	287 x 482 x 112
	IPO		211 x 232 x 70	283 x 232 x 70		283 x 357 x 70	283 x 482 x 70