

# 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)

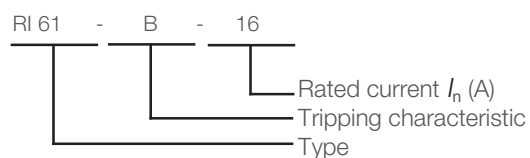
## Types

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 <sup>2</sup>	1.5 ... 25	
	Al			2.5 ... 25	
Ambient temperature				-25 ... +55	
Vibration resistance				3 g (8 - 50 Hz)	

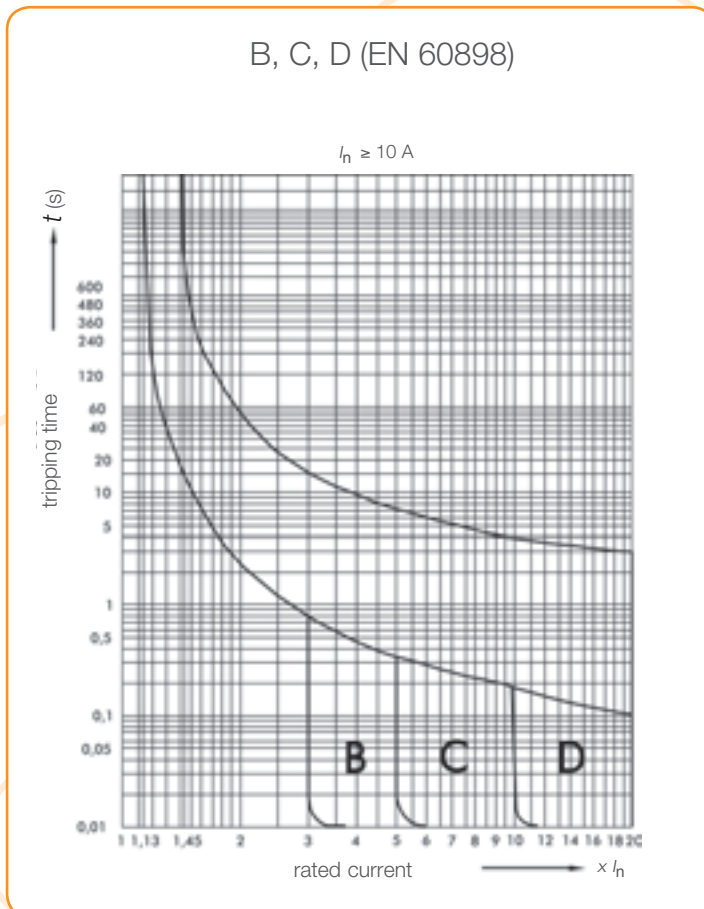
## ORDERING DATA



# 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 <sup>2</sup>	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 <sup>2</sup>	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 <sup>2</sup>		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 <sup>2</sup> )
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 <sup>2</sup> )
G-3L-1000 / 10 C	1	10
G-3L-1000 / 16 C	1	16
G-4L-1000 / 16	1	16

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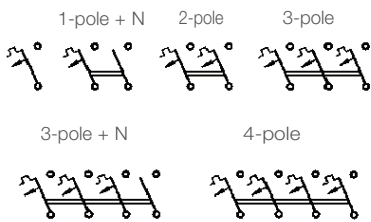
End caps (for three-phase busbars)



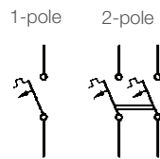
Designation	Cross-section (mm <sup>2</sup> )
EK-C-3/10	10
EK-C-2+3/16	16

### CONNECTION DIAGRAM

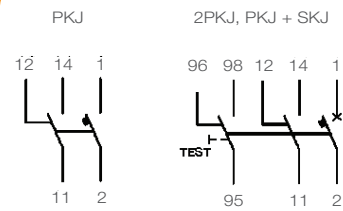
AC



DC

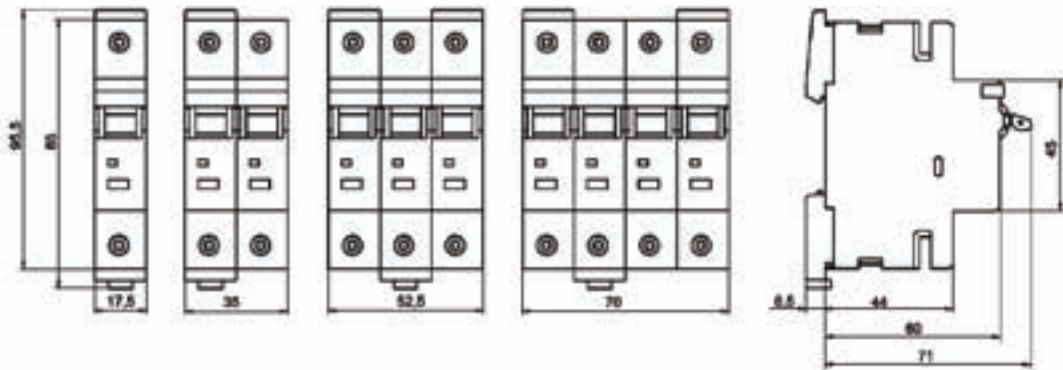


AUXILIARY CONTACTS



### DIMENSIONS

RI 60, RV 60



PC 60

