RCBO RCMB

Data Sheet V1.2

The RCMB is a type B wave form earth leakage sense RCBO's (residual current-breaker with overload protection). It's main use is in EV-, PV- and battery solutions (equipment without the 6mA declarations). The RCMB comes in 1p+n, 45mm width (2,5 modules) and in 3p+n, 81mm width (4,5 modules) and this in combination with a high breaking capacity of 6kA. The series ensures the best possible safety for people and equipment.

RCMB residual current breaker with overcurrent protection

RCMB is a RCBO compliant to product standard IEC/EN 61009, IEC/EN62423 and with the following main technical features

- Breaking capacity 6kA
- Electromagnetic (IEC/EN 61009-2-1)
- Type B
- Sensitivity 30, 300 mA
- Tripping characteristics B – C
- Rated current up to 40A

Application benefits

- Supply possible from top and bottom
- Fork type busbar connection (above and below) up to 16mm² and cable connection up to 35mm² cables.
- Toggle can be sealable in ON-OFF positions true a position inside attribute

SEP Europe®
Brand name of Schotman Elektro B.V.

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The Netherland

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www.schotmanelektro.eu

RCBO's RCMB

Technical Data

	Type			**RCMB-2**	**RCMB-4**
	Standards			IEC/EN 61009-1; IEC/EN 61009-2-1; IEC/EN 62423	
	Certification			CE, UKCA, CB, KEMA KEUR	
	Country of origin			CN	
	RoHS Compliance Status			Compliant, No Exemption	
Electrical features	Type (wave form of the earth leakage sensed)			B type (including A and AC)	
	Number of poles			1p+n	3p+n
	Rated current	In	A	6 ≤ In ≤ 40	6 ≤ In ≤ 40
	Rated sensitivity	IΔn	A	0.03 - 0.3	0.03 - 0.3
	Rated voltage	Ue	V	230 / 240	230 / 400
	Operating time	Type B		instantaneous	
	Insulation voltage	Ui	V	500 V AC	
	Overvoltage category			III	
	Pollution degree			2	
	Operating voltage of circuit test		V	187 - 264	230 - 485
	Rated frequency		Hz	50 - 60	
	Rated breaking capacity acc. to IEC/EN 61009-1	Icu	A	6.000	
	Rated breaking capacity acc. to IEC/EN 60947-2 (only referring to short circuit test)	Ultimate Icu	kA	6 - (10*)	
		Service Ics	kA	4.5 - (50% Icn*)	
	Rated residual breaking capacity IΔm according to EN 61009-1	IΔm	A	3.000	
	Rated impulse withstand voltage (1.2/50)	Uimp	kV	4	
	Dielectric test voltage at ind. freq. for 1 min.		kV	2.5 kV (50 / 60Hz, 1 min.)	
	Thermomagnetic release – characteristics	B: 3 In ≤ In ≤ 5 In		■	
		C: 5 In ≤ In ≤ 10 In		■	
	Energy limiting class acc. to EN 61009-1			3	
	Surge current resistance (wave 8/20)			3000	
Mechanical features	Housing			Insulation group I - II, RAL 7035	
	Toggle			Insulation group II, RAL 5017	
	Test button			Insulation group II, RAL 2000	
	Contact position indication			Green / Red window	
	Earth fault trip indication			White window	
	Electrical life	operations		4.000	
	Mechanical life	operations		10.000	
	Protection degree acc. to EN 60529	housing		IP4X	
		terminals		IP2X	
	Shock resistance acc. to IEC/EN 60068-2-27			25g - 2 shocks - 13ms	
	Vibration resistance acc. to IEC/EN 60068-2-6			0.1 mm or 1 g - 20 cycles at 5…150…5 Hz	
	Environmental conditions (damp heat) acc. to IEC/EN 60068-2-30		°C/RH	28 cycles with 55°C/90-96% and 25°C/95-100%	
	Reference temperature for setting of thermal element		°C	30	
	Ambient temperature (with daily average ≤ +35 °C)		°C	-25… +40	
	Storage temperature		°C	-40… +70	

* *IEC/EN 60947-2 certificate and test-report are not available at present, the use of these values is the responsibility of the user*

RCBO's RCMB

Technical Data

	Type			RCMB-2	RCMB-4
Installation	Terminal type	bottom / top		Twin-purpose terminal (lift / open-mouthed)	
	Terminal size for cables	bottom / top	mm²	25/35	
	Terminal size for PIN busbar	bottom / top	mm²	10/16	
	Terminal size for FORK busbar	bottom / top	mm²	M6 - 10/16	
	Solid /stranded wiring			1x 1mm² - 35mm² 2 x 1mm² - 16mm² *	
	Flexible wires with or without ferrules			1x 1mm² - 25mm² 2 x 1mm² - 10mm² *	
	Tightening torque	bottom / top		2 Nm	
	Stripping length of the cable			10mm	
	Mounting			on DIN rail EN 60715 (35mm) by means of mounting clip	
	Mounting position			Any	
	Supply from			Top / bottom terminals	
	Dimensions (H x W x D)		mm	89 x 45 x 72	89 x 81 x 72
	Weight		kg	0,22	0,43
Packing	Packing A	QTY		1	1
		Dimensions (H x W x D)	mm	90 x 50 x 80	92 x 88 x 80
		Weight	kg	0,23	0,44
	Packing B *(x A)*	QTY		4	2
		Dimensions (H x W x D)	mm	215 x 100 x 88	182 x 100 x 88
		Weight	kg	1,38	1,33
	Packing C *(x B)*	QTY		40	20
		Dimensions (H x W x D)	mm	505 x 195 x 195	505 x 195 x 195
		Weight	kg	10	10
	CN-code			85362010	
Combination with auxiliary elements	Auxiliary contact			Yes	
	Signal contact / auxiliary contact			Yes	
	Shunt trip			NA	
	Auxiliary contact for bottom fitting			NA	
	Undervoltage release			NA	
	Overvoltage release			NA	
	Motor operating device			NA	

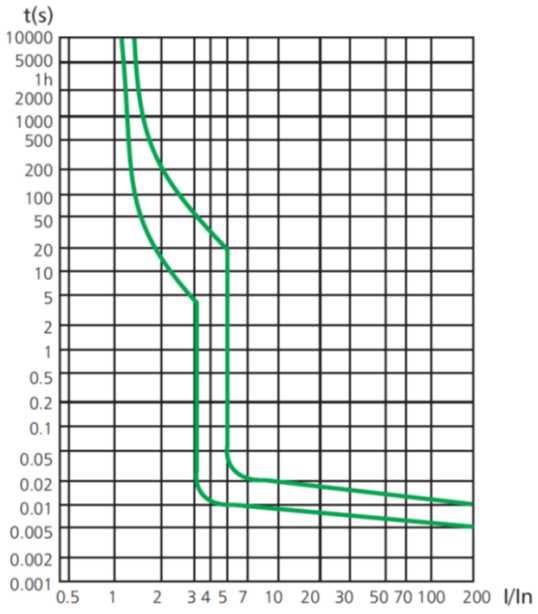
* *Check local installation rules, this type of connection is not advised. Special add-on terminals are available.*

RCBO's RCMB

Technical Data

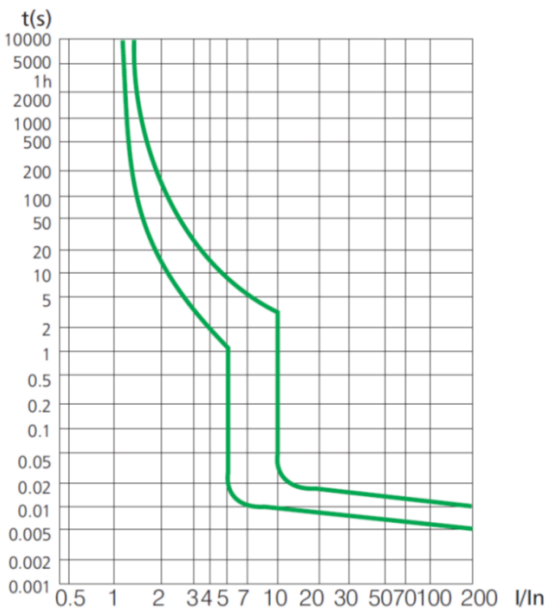
Tripping characteristics

B- characteristics



B: 3 In ≤ In ≤ 5 In

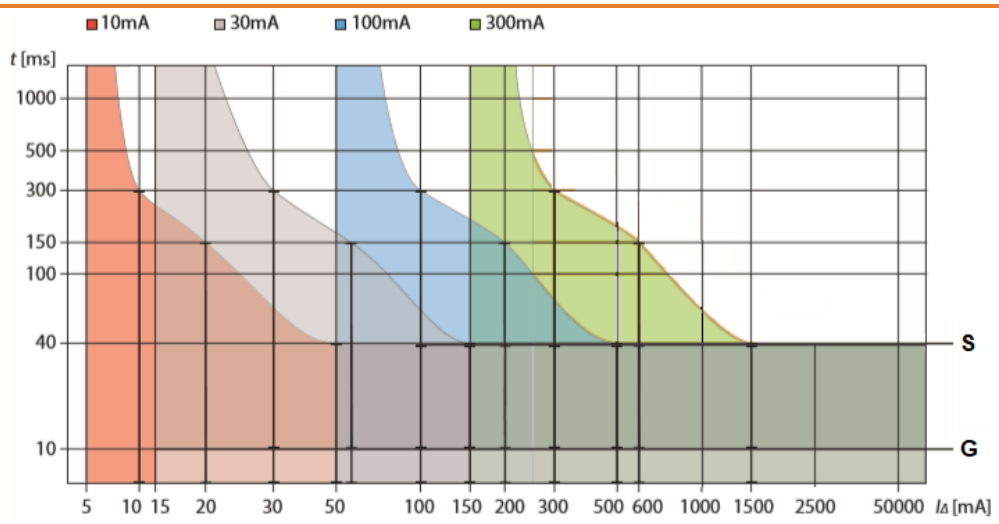
C- characteristics



C: 5 In ≤ In ≤ 10 In

Tripping Characteristics (IEC/EN 61008)

Tripping characteristics, tripping time range and selectivity of instantaneous residual current devices (surge current-proof [G] and surge current-proof [S] - residual current devices are not available in the RCMB series).



RCBO's RCMB

Technical Data

Performance in altitude*

Elevation [m]	2000	3000	4000	5000	6000
Rated current [A]	1 x In	0,95 x In	0,92 x In	0,90 x In	0,88 x In
Rated voltage [V]	1 x Un	0,85 x Un	0,75 x Un	0,65 x Un	0,55 x Un

** the RCBO is designed for standard level operations, performance information on higher altitude is not available*

Derating in temperature *RCMB*

Max operating current depending on the ambient temperature (daily average ≤ +35 °C) of characteristics type B and C.

In [A]	Ambient temperature [°C]										
	-25	**-15**	**-5**	**10**	**30**	**40**	**45**	**55**	**60**	**65**	**70**
6	7.0	6.8	6.6	6.4	6	5.7	5.6	5.3	5.2	5.1	4.9
10	12.3	11.9	11.4	10.8	10	9.5	9.3	8.8	8.6	8.4	8.1
13	15.1	14.7	14.3	13.7	13	12.5	12.3	11.8	11.6	11.3	11.1
16	19.1	18.6	18	17.1	16	15.2	14.9	14.1	13.8	13.4	13
20	24.8	23.9	23	21.7	20	19	18.5	17.5	17	16.5	16.1
25	31.4	30.2	29.1	27.3	25	23.9	23.3	22.1	21.6	21.1	20.4
32	40.1	38.6	37.1	34.9	32	30.4	29.6	28	27.3	26.5	25.7
40	51	49	47	44	40	38.1	37.1	35.1	34.1	33.1	32.1

Influence of adjacent devices

Number of devices	1	2-3	4-5	6-9	≥10
Correction factor	1	0,9	0,8	0,7	0,6

These values are provided by recommendation IEC 61439-1 and standards EN 61439-1. In order to avoid having to use these coefficients there must be good ventilation and the devices must be kept apart using the spacing element article number 2119000010 (0.5 module).

RCBO's RCMB

Technical Data

Power loss, resistance, voltage drop

RCMB-2 (1p+N)

In [A]	Component resistance [mΩ]	Component voltage drop [V]	Component power loss [W]
6	55,5	0,3	2,0
10	20,6	0,2	2,1
16	13,2	0,2	3,4
20	7,3	0,1	2,9
25	5,6	0,1	3,5
32	5,1	0,2	5,2
40	4,9	0,2	7,8

Power loss, resistance, voltage drop

RCMB-4 (3p+n)

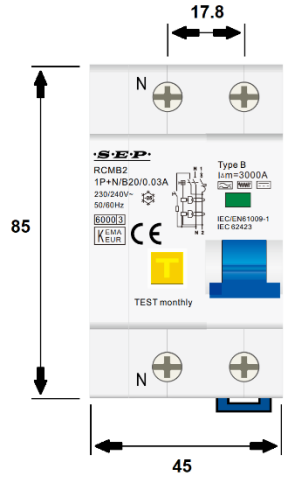
In [A]	Component resistance [mΩ]	Component voltage drop [V]	Component power loss [W]
6	138,1	0,8	5,0
10	51,2	0,5	5,1
16	32,9	0,5	8,4
20	18,1	0,4	7,2
25	14,0	0,4	8,8
32	12,7	0,4	13,0
40	12,1	0,5	19,4

RCBO's RCMB

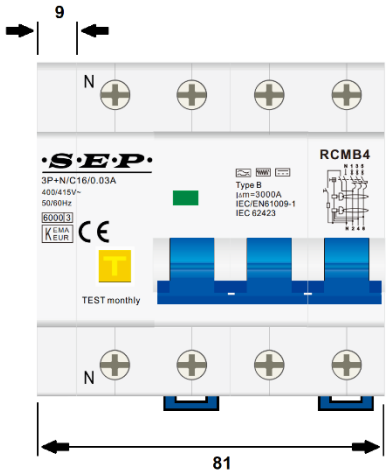
Technical Data

Overall dimensions

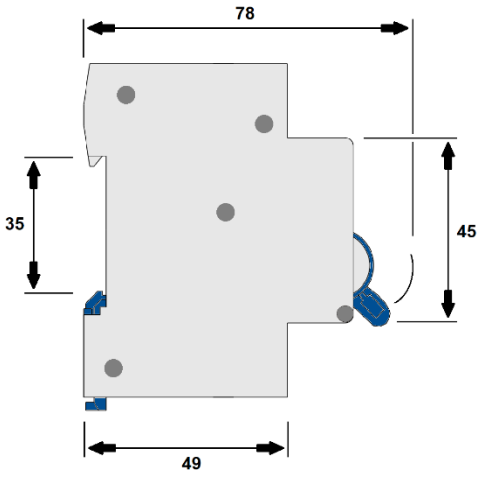
All measurements in mm



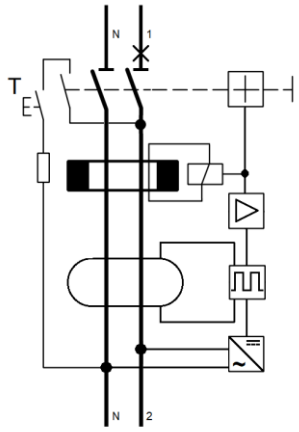
RCMB-2 (1p+N)



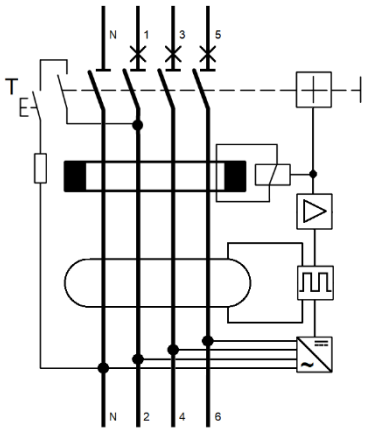
RCMB-4 (3p+N)



Connection diagram



RCMB-2 (1p+n)



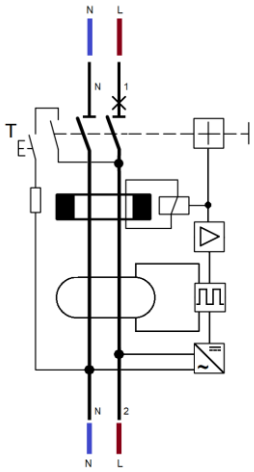
RCMB-4 (3p+n)

RCBO's RCMB

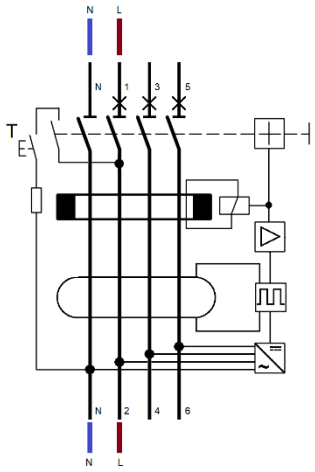
Technical Data

Wiring options

1 Phase systems



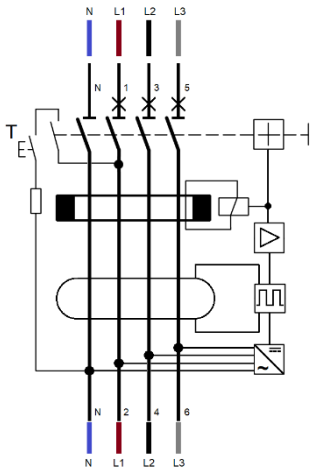
RCMB-2 (1p+n)



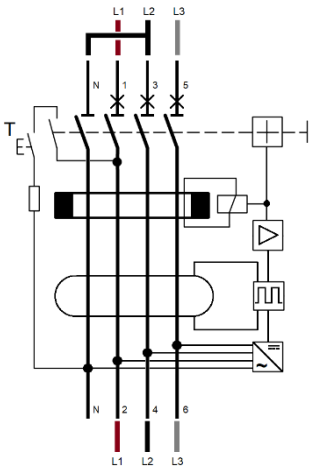
RCMB-4 (3p+n)

Wiring options

3 Phase systems



3 Phase and Neutral

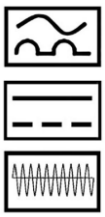


*3 Phase + bridge**

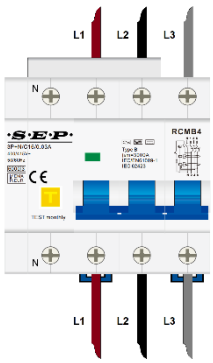
** If there is no neutral, the RCBO will be connected normally but a bridge (article no. 2305181002) will need to be added across terminals N/3, as shown, will cause a voltage drop which leaves the test circuit at a suitable normal operation range.*

RCBO's RCMB

Order codes

			RCMB-2 (1p+n) 		RCMB-4 (3p+n) 	
Type B	**IΔn**	**Inom**	**B characteristic**	**C characteristic**	**B characteristic**	**C characteristic**
	30mA	6 A	3104690010	3104690080	3104690510	3104690580
		10 A	3104690020	3104690090	3104690520	3104690590
		16 A	3104690030	3104690100	3104690530	3104690600
		20 A	3104690040	3104690110	3104690540	3104690610
		25 A	3104690050	3104690120	3104690550	3104690620
		32 A	3104690060	3104690130	3104690560	3104690630
		40 A	3104690070	3104690140	3104690570	3104690640
	300mA	6 A	3104690150	3104690220	3104690650	3104690720
		10 A	3104690160	3104690230	3104690660	3104690730
		16 A	3104690170	3104690240	3104690670	3104690740
		20 A	3104690180	3104690250	3104690680	3104690750
		25 A	3104690190	3104690260	3104690690	3104690760
		32 A	3104690200	3104690270	3104690700	3104690770
		40 A	3104690210	3104690280	3104690710	3104690780
		Auxiliary contact 1CO	3104000010			
		Alarming contact 1CO	3104000020			

Bridge connector

Reference image	Description	Code
	BRIDGE connector for 3 phase systems without neutral.	2305181002

RCBO's RCM1

Order codes accessories

Add-on terminals

Reference image	Wire size	PIN		FORK	
		Grey	Blue	Grey	Blue
	1x50mm2 solid/stranded 1x35mm2 flexible	2115900060	2115900120	2115900090	2115900150
	2x25mm2 solid/stranded 2x16mm2 flexible	2115900070	2115900130	2115900100	2115900160
	3x16mm2 solid/stranded 3x10mm2 flexible	2115900080	2115900140	2115900110	2115900170

Marker - spacer

Reference image	Description	Code
	Component Spacer 0,5mm	2119000010

Lockout

Reference image	Description	Code
	Lockout set - complete	2115909099
	Locking devices adaptor	2115909015
	Locking device screw adaptor	2115909010
	Padlock with 2 identical keys	2115909020
	Warning tag (English)	2115909030

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