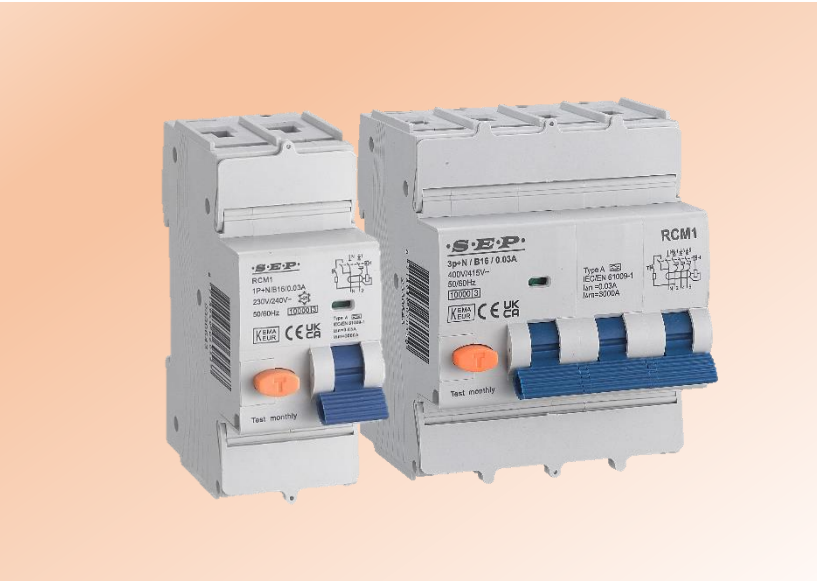
RCBO RCM1

Data Sheet V1.2



The RCM1 RCBO's (residual current-breaker with overload protection) is the best solution for protection against overcurrent and earth fault currents. The RCM1 comes in 1p+n 36mm width (2 modules) and in 3p+n 72mm width (4 modules) and this in combination with a high breaking capacity of 10kA. The series ensures the best possible safety for people and equipment. The diversity in range and types makes it the one solution for almost every situation.

RCM1 residual current breaker with overcurrent protection

RCM1 is a RCBO compliant to product standard IEC/EN 61009 and with the following main technical features

- Breaking capacity 10kA
- Electromagnetic (IEC/EN 61009-2-1)
- Type A, A[G], A[S]
- Sensitivity 10, 30, 100, 300 mA
- Tripping characteristics B – C
- 1p+n rated current up to 63A
- 3p+n 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 25mm² cables.
- Terminal cover with sealing possibility for operator safety
- Toggle can be sealable in ON-OFF positions true a position inside attribute
- Family feeling in the SEP PRO range modular components

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

Weverstraat 4
9403 VJ Assen
The Netherland

www.sep-europe.com
www.schotmanelektro.eu

RCBO's RCM1

Technical Data

				RCM1-2	RCM1-4
	Type			**RCM1-2**	**RCM1-4**
	Standards			IEC/EN 61009-1; IEC/EN 61009-2-1	
	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)			A – A[G] – A[S]	
	Number of poles			1p+n	3p+n
	Rated current	In	A	6 ≤ In ≤ 63	6 ≤ In ≤ 40
	Rated sensitivity	IΔn	A	0.01 - 0.03 - 0.1 - 0.3	0.03 - 0.1 - 0.3
	Rated voltage	Ue	V	230 / 240	230 / 400
	Operating time	Type A		instantaneous	
		Type A[G]		10ms delay	
		Type A[S]		40ms delay	
	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	10.000	
	Rated breaking capacity acc. to IEC/EN 60947-2 (only referring to short circuit test)	Ultimate Icu	kA	10 - (15*)	
		Service Ics	kA	7.5 - (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 RCM1

Technical Data

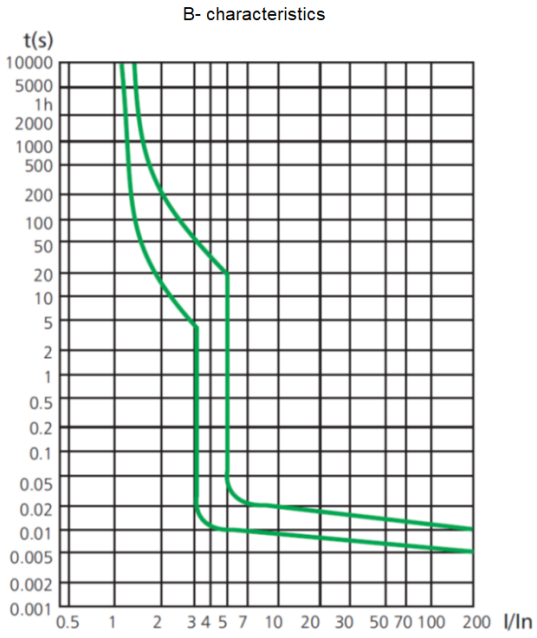
	Type			RCM1-2	RCM1-4
Installation	Terminal type	bottom / top		Twin-purpose terminal (lift / open-mouthed)	
	Terminal size for cables	bottom / top	mm²	25/35	
	Terminal size for PIN busbar	bottom / top	mm²	10/16	
	Terminal size for FORK busbar	bottom / top	mm²	M6 - 10/16	
	Solid /stranded wiring			1x 1mm² - 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	90 x 36 x 72	90 x 72 x 72
	Weight		kg	0,20	0,42
Packing	Packing A	QTY		1	1
		Dimensions (H x W x D)	mm	94 x 40 x 82	94 x 76 x 82
		Weight	kg	0,22	0,45
	Packing B *(x A)*	QTY		6	3
		Dimensions (H x W x D)	mm	256 x 102 x 90	237 x 102 x 90
		Weight	kg	1,33	1,38
	Packing C *(x B)*	QTY		60	30
		Dimensions (H x W x D)	mm	530 x 250 x 195	530 x 250 x 195
		Weight	kg	14,5	14,5
	CN-code			85362010	
Combination with auxiliary elements	Auxiliary contact			NA	
	Signal contact / auxiliary contact			NA	
	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.*

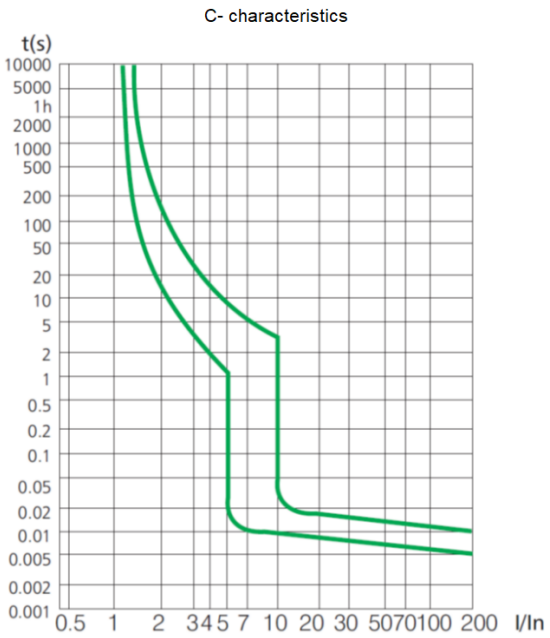
RCBO's RCM1

Technical Data

Tripping characteristics



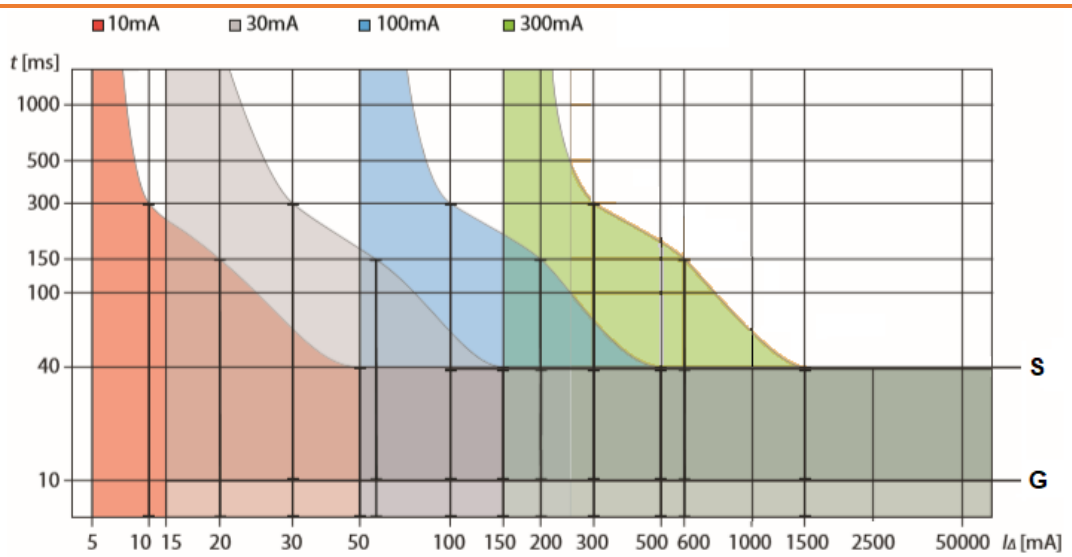
B: 3 In ≤ In ≤ 5 In



C: 5 In ≤ In ≤ 10 In

Tripping Characteristics (IEC/EN 61008)

Tripping characteristics, tripping time range and selectivity of instantaneous, surge current-proof [G] and surge current-proof – selective [S] residual current devices.



RCBO's RCM1

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 *RCM1*

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
50	63	60.8	57	55	50	47.2	45.3	44	42,8	41,5	40.1
63	78	74.2	70.3	65.2	63	60.2	58.6	57.2	55.8	53.9	50.6

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 RCM1

Technical Data

Power loss, resistance, voltage drop

RCM1-2 (1p+N)

In [A]	Component resistance [mΩ]	Component voltage drop [V]	Component power loss [W]
6	53,7	0,3	1,9
10	19,9	0,2	2,0
13	20,0	0,3	3,4
16	12,8	0,2	3,3
20	7,0	0,1	2,8
25	5,5	0,1	3,4
32	4,9	0,2	5,1
40	4,7	0,2	7,5
50	4,4	0,2	10,9
63	4,1	0,3	16,3

Power loss, resistance, voltage drop

RCM1-4 (3p+n)

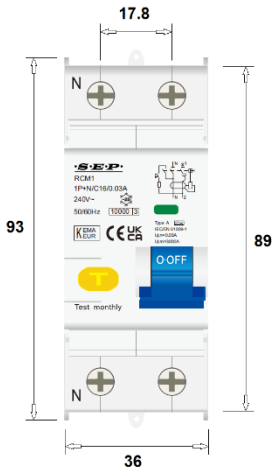
In [A]	Component resistance [mΩ]	Component voltage drop [V]	Component power loss [W]
6	136,3	0,8	4,9
10	50,5	0,5	5,0
16	32,4	0,5	8,3
20	17,8	0,4	7,1
25	13,9	0,3	8,7
32	12,5	0,4	12,8
40	11,9	0,5	19,1

RCBO's RCM1

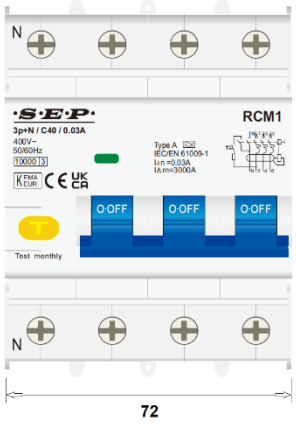
Technical Data

Overall dimensions

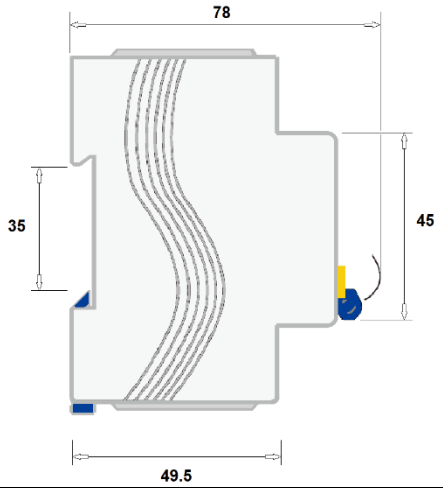
All measurements in mm



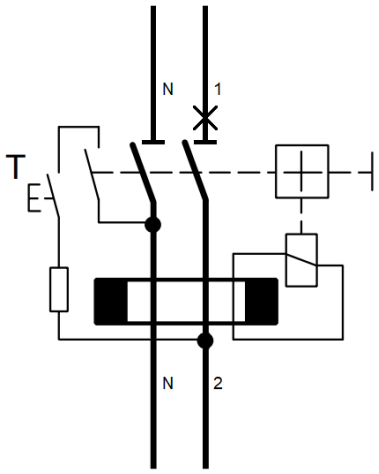
RCM1-2 (1p+N)



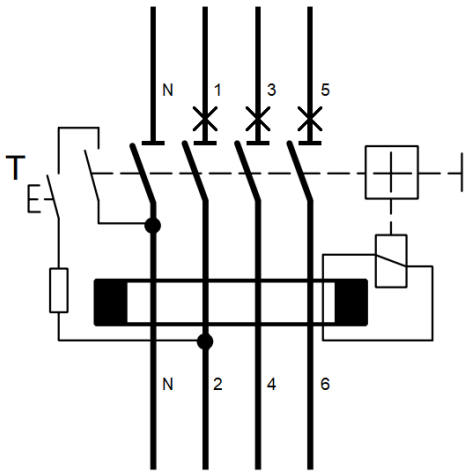
RCM1-4 (3p+N)



Connection diagram



RCM1-2 (1p+n)



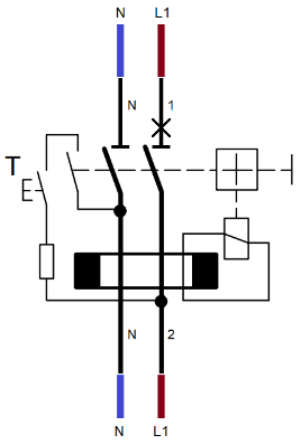
RCM1-4 (3p+n)

RCBO's RCM1

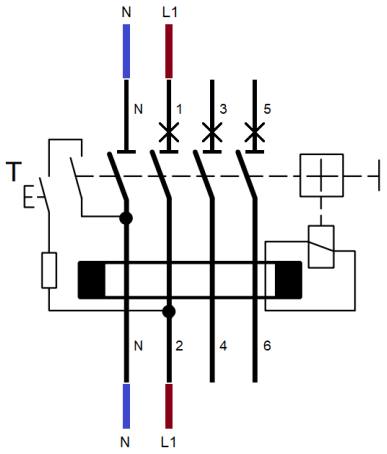
Technical Data

Wiring options

1 Phase systems



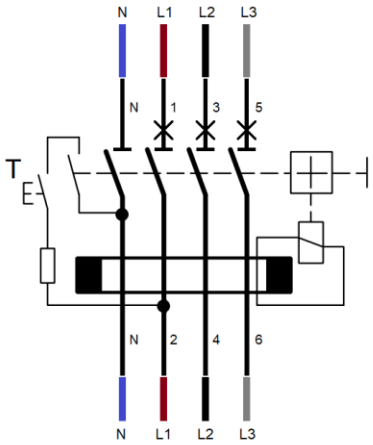
RCM1-2 (1p+n)



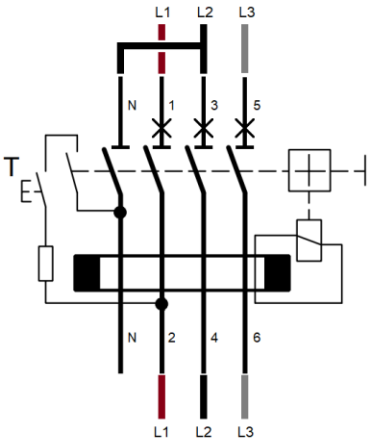
RCM1-4 (3p+n)

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 RCM1

Order codes – B characteristic

			RCM1-2 (1p+n)			RCM1-4 (3p+n)		
								
Curve	**IΔn**	**Inom**	**A**	**A[G]**	**A[S]**	**A**	**A[G]**	**A[S]**
B	10mA	6 A	3104542106	-	-	-	-	-
		10 A	3104542110	-	-	-	-	-
		13 A	3104542113	-	-	-	-	-
		16 A	3104542116	-	-	-	-	-
		20 A	3104542120	-	-	-	-	-
		25 A	3104542125	-	-	-	-	-
		32 A	3104542132	-	-	-	-	-
		40 A	3104542140	-	-	-	-	-
	30mA	6 A	3104542006	3104710010	-	3104672006	3104720010	-
		10 A	3104542010	3104710020	-	3104672010	3104720020	-
		13 A	3104542013	3104710030	-	-	-	-
		16 A	3104542016	3104710040	-	3104672016	3104720030	-
		20 A	3104542020	3104710050	-	3104672020	3104720040	-
		25 A	3104542025	3104710060	-	3104672025	3104720050	-
		32 A	3104542032	3104710070	-	3104672032	3104720060	-
		40 A	3104542040	3104710080	-	3104672040	3104720070	-
		50 A	3104542050	3104710090	-	-	-	-
		63A	3104542063	3104710100	-	-	-	-
	100mA	6 A	3104542206	3104710110	-	3104672206	3104720080	-
		10 A	3104542210	3104710120	-	3104672210	3104720090	-
		13 A	3104542213	3104710130	-	-	-	-
		16 A	3104542216	3104710140	3104810010	3104672216	3104720100	3104820010
		20 A	3104542220	3104710150	3104810020	3104672220	3104720110	3104820020
		25 A	3104542225	3104710160	3104810030	3104672225	3104720120	3104820030
		32 A	3104542232	3104710170	3104810040	3104672232	3104720130	3104820040
		40 A	3104542240	3104710180	3104810050	3104672240	3104720140	3104820050
		50 A	3104542250	3104710190	3104810060	-	-	-
		63 A	3104542263	3104710200	3104810070	-	-	-
	300mA	6 A	3104542306	3104710210	-	3104672306	3104720150	-
		10 A	3104542310	3104710220	-	3104672310	3104720160	-
		13 A	3104542313	3104710230	-	-	-	-
		16 A	3104542316	3104710240	3104810080	3104672316	3104720170	3104820060
		20 A	3104542320	3104710250	3104810090	3104672320	3104720180	3104820070
		25 A	3104542325	3104710260	3104810100	3104672325	3104720190	3104820080
		32 A	3104542332	3104710270	3104810110	3104672332	3104720200	3104820090
		40 A	3104542340	3104710280	3104810120	3104672340	3104720210	3104820100
		50 A	3104542350	3104710290	3104810130	-	-	-
		63 A	3104542363	3104710300	3104810140	-	-	-

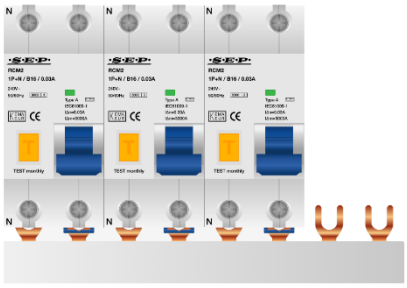
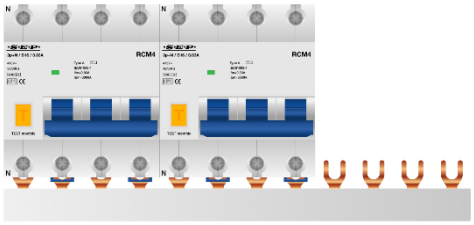
RCBO's RCM1

Order codes – C characteristics

			RCM1-2 (1p+n)			RCM1-4 (3p+n)		
								
Curve	**IΔn**	**Inom**	**A**	**A[G]**	**A[S]**	**A**	**A[G]**	**A[S]**
C	10mA	6 A	3104552106	-	-	-	-	-
		10 A	3104552110	-	-	-	-	-
		13 A	3104552113	-	-	-	-	-
		16 A	3104552116	-	-	-	-	-
		20 A	3104552120	-	-	-	-	-
		25 A	3104552125	-	-	-	-	-
		32 A	3104552132	-	-	-	-	-
		40 A	3104552140	-	-	-	-	-
	30mA	6 A	3104552006	3104710310	-	3104682006	3104720220	-
		10 A	3104552010	3104710320	-	3104682010	3104720230	-
		13 A	3104552013	3104710330	-			-
		16 A	3104552016	3104710340	-	3104682016	3104720240	-
		20 A	3104552020	3104710350	-	3104682020	3104720250	-
		25 A	3104552025	3104710360	-	3104682025	3104720260	-
		32 A	3104552032	3104710370	-	3104682032	3104720270	-
		40 A	3104552040	3104710380	-	3104682040	3104720280	-
		50 A	3104552050	3104710390	-	-	-	-
		63A	3104552063	3104710400	-	-	-	-
	100mA	6 A	3104552206	3104710410	-	3104682206	3104720290	-
		10 A	3104552210	3104710420	-	3104682210	3104720300	-
		13 A	3104552213	3104710430	-			-
		16 A	3104552216	3104710440	3104810150	3104682216	3104720310	3104820110
		20 A	3104552220	3104710450	3104810160	3104682220	3104720320	3104820120
		25 A	3104552225	3104710460	3104810170	3104682225	3104720330	3104820130
		32 A	3104552232	3104710470	3104810180	3104682232	3104720340	3104820140
		40 A	3104552240	3104710480	3104810190	3104682240	3104720350	3104820150
		50 A	3104552250	3104710490	3104810200	-	-	-
		63 A	3104552263	3104710500	3104810210	-	-	-
	300mA	6 A	3104552306	3104710510	-	3104682306	3104720360	-
		10 A	3104552310	3104710520	-	3104682310	3104720370	-
		13 A	3104552313	3104710530	-			-
		16 A	3104552316	3104710540	3104810220	3104682316	3104720380	3104820160
		20 A	3104552320	3104710550	3104810230	3104682320	3104720390	3104820170
		25 A	3104552325	3104710560	3104810240	3104682325	3104720400	3104820180
		32 A	3104552332	3104710570	3104810250	3104682332	3104720410	3104820190
		40 A	3104552340	3104710580	3104810260	3104682340	3104720420	3104820200
		50 A	3104552350	3104710590	3104810270	-	-	-
		63 A	3104552363	3104710600	3104810280	-	-	-

RCBO's RCM1

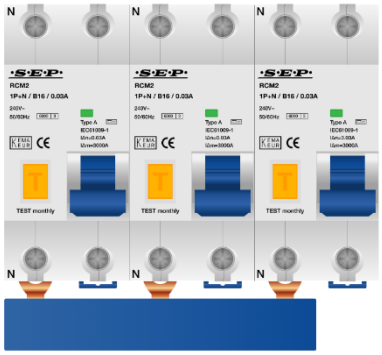
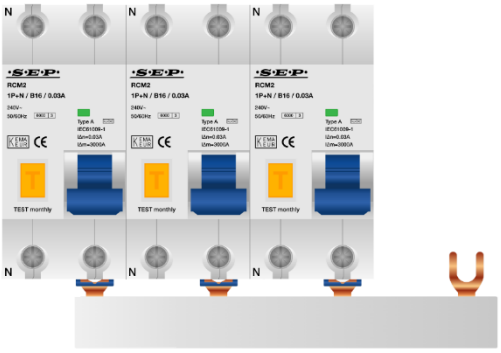
Order codes for connective rail

	RCM1-2	RCM1-4	10mm² (closed end - non cuttable) ΣI 63A 100A		16mm² (cut to size with end- caps) ΣI 80A 125A	
Busbar / connective rail type			***PIN***	***FORK***	**PIN**	**FORK**
2 pole (phase neutral) | N1-N1-N1… 	2	-	2305102004	2305112004	-	-
	3	-	2305102006	2305112006	2306020006	2306120006
	4	-	2305102008	2305112008	2306020008	2306120008
	5	-	2305102010	2305112010	2306020010	2306120010
	6	-	2305102012	2305112012	2306020012	2306120012
	7	-	2305102014	2305112014	2306020014	2306120014
	8	-	2305102016	2305112016	2306020016	2306120016
	9	-	2305102018	2305112018	2306020018	2306120018
	10	-	-	-	2306020020	2306120020
	11	-	-	-	2306020022	2306120022
	12	-	-	-	2306020024	2306120024
	27	-	-	-	2306160200	2306161200
3N pole (3 phase neutral) | N1-N2-N3…	6	-	2305105012	2305115012	2306050012	2306150012
	9	-	2305105018	2305115018	2306050018	2306150018
	12	-	-	-	2306050024	2306150024
	28	-	-	-	2306160500	2306161500
4 pole (3 phase neutral) | N123-N123… 	-	2	2305104008	2305114008	2306040008	2306140008
	-	3	2305104012	2305114012	2306040012	2306140012
	-	4	2305104016	2305114016	2306040016	2306140016
	-	5	-	-	2306040020	2306140020
	-	6	-	-	2306040024	2306140024
	-	14	-	-	2306160400	2306161400
Top Combi-rail | N123-N1-N2-N3-(N1) 	3	1	2305195310	2305195010	-	-
	4	1	2305195312	2305195012	-	-
Bottom Combi-rail | N123-N1-N2-N3-(N1) 	3	1	2305195110	2305195210	-	-
	4	1	2305195112	2305195212	-	-

** pictures are indicative – other combinations are possible*

RCBO's RCM1

Order codes for connective rail

Busbar / connective rail type	RCM1-2 	10mm² (closed end - non cuttable) ΣI 63A 100A		16mm² (cut to size with end- caps) ΣI 80A 125A	
		PIN	*FORK*	PIN	FORK
1 phase – neutral bar (35.6mm) 	2	2305171902	2305181902	-	-
	3	2305171903	2305181903	-	-
	4	2305171904	2305181904	-	-
	5	2305171905	2305181905	-	-
	6	2305171906	2305181906	2306019206	2306119206
	9	-	-	2306019209	2306119209
	12	-	-	2306019212	2306119212
	27	-	-	2306160121	2306161121
1 phase – phase bar (35.6mm) 	2	2305171002	2305181002	-	-
	3	2305171003	2305181003	-	-
	4	2305171004	2305181004	-	-
	5	2305171005	2305181005	-	-
	6	2305171006	2305181006	2306010206	2306110206
	9	-	-	2306010209	2306110209
	12	-	-	2306010212	2306110212
	27	-	-	2306160120	2306161120
	BRIDGE connector for 3 phase systems without neutral.	2305181002			
	Open mouth covers for busbar PIN/FORK	2115900010			

** pictures are indicative – other combinations are possible*

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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