



(SE940747)

RXMB 1



(SE940748)

RXMC 1



(SE970874)

RXMB 2

Features

- Suitable for tripping, blocking, interlocking etc. in protection, control and industrial systems
- Indication of activated coils on some versions
- High speed operation, down to 4 ms
- Contacts for heavy duty or medium duty operation
- Long mechanical life
- High resistance to shock and vibration
- Semi protected and dust-proof
- Low power consumption
- Single- and multi-coil versions
- Multi-contact versions
- Pin compatible with earlier relay types

Application

The relays are intended for installations where high operating requirements exist on operating time, contact rating or else where normal relays of industrial type are not suitable.

The relays are especially suitable in protection and control circuits. They are also very suitable for use in high corrosive atmosphere or seismic areas. Tripping, interlocking and multiplying functions are easily achieved with single relays or combinations of relays.

Types RXMB 1, RXMB 2 and RXMC 1 are space saving relays with up to four separate relay units. The relays can be used as position repeat relays, as interposing relays, in automatic devices and as output relay in relay protection.

The relays can replace many other types of auxiliary relays like RXMA 1, RXMA 2, RXMM 1 etc.

RXMB 1 variant E can replace RXMK but contact data is different.

Design

The auxiliary relays in the COMBIFLEX system permit interchanging between various types of relays mainly because the coil terminals are connected to the same terminal on the plug-in base of the relay. Furthermore, relays having the same contact symbol can be interchanged without changing any connections.

Each relay consists mainly of a terminal plate with contact pins, a printed circuit board assembly with card-relays and a protective cover. The card-relays are high quality products to guarantee their intended function and a long mechanical life.

Design (cont'd)

The relays are intended to be mounted on a terminal base, which is available in different sizes, and they are fixed to the terminal base with two cross-head screws.

Ordering No., rated voltage, type designation and the symbol of the relay are printed on the front area of the protective cover.

Some of the relays are provided with light emitting diodes (LEDs) for the indication of activated coils, see ordering table.

All auxiliary relays operate within a range of 80-110% of the rated voltage. If the rated voltage is given as a voltage range, e.g. 110-125 V, the relays will operate within a range of 80-110% of each rated voltage between 110 and 125 V. Permissible temperature range is given in the data table.

RXMB 1

The RXMB 1 relay is available in different versions. It is mainly designed for dc supply and is built up with card-relay units with different contact symbols as shown below. The contacts are of medium duty type.

Variant A of the RXMB 1 relay is provided with built-in series resistors giving the relay a very short pick-up time. This version is suitable for use as a quick-operating trip relay. This relay has one LED per relay unit for indication of energized coil. The LEDs are either red or yellow, according to the ordering table.

The other variants B-E of the RXMB 1 relay are available with a number of different contact configurations, corresponding to

older types of ABB relays, e.g. like RXMA 1 variant C and RXMM 1 variant B. Variants B-E has no indications. Some of these variants are also available for ac supply.

RXMB 2

The RXMB 2 has from four to eight relays internally with two change-over contacts each. The relays may be used individually or in parallel for different applications.

The relay is available for standard AC or DC supplies. The RXMB 2 has a light beige non transparent polycarbonate cover.

RXMB 2 occupies two seats and can replace RXMA 2.

Please contact ABB Network Partner for more details.

RXMC 1

The relay is designed for dc supply and contains two auxiliary relay units. The RXMC 1 relay is available in two versions, one with 2 NO-contacts per relay unit and another with 3 NO-contacts per relay unit. The contacts of the relays are of heavy duty type.

In the version with 2+2 contacts, the coils are provided with built-in series resistors giving the relays a short pick-up time.

The relay has one LED per relay unit for indication of energized coil. The relay is available in two variants, one with red LEDs and the other with yellow LEDs.

Technical data

Table 1: RXMB 1 & RXMC 1

Type	RXMB 1 variant A	RXMB 1 variant B	RXMB 1 variant C
Rated voltage U_r	24, 48, 110-125, 220-250 V dc	24, 48, 110-125, 220-250 V dc 115 V, 50-60 Hz 230 V, 50-60 Hz	24, 48, 110-125, 220-250 V dc 115 V, 50-60 Hz 127 V, 58-60 Hz 230 V, 50-60 Hz
Duty range in % of U_r	80-110%	80-110%	80-110%
Pick-up time, typical values make/break contact	5,0/4,0 ms	8,0/6,5 ms	8,0/6,5 ms
Bounce time, typical values make contact	2,0 ms	4,0 ms	4,0 ms
Drop-out time, typical values make/break contact	5,0/4,0 ms	3,0/2,5 ms	3,0/2,5 ms
Pick-up value in % of U_r	45-70%	45-70% (ac ≤ 80%)	45-70% (ac ≤ 80%)
Drop-out value in % of U_r	>10%	>10% (ac ≤ 80%)	>10% (ac ≤ 80%)
Power consumption at $U_r =$ 24 V dc 48 V dc 110 V dc 220 V dc 115 V ac 127 V ac 230 V ac	1,1 W/ relay unit 1,2 W/ relay unit 1,2 W/ relay unit 1,4 W/ relay unit – – –	1.0 W/relay unit 1.0 W/relay unit 1.0 W/relay unit 1,0 W/relay unit 2.0 VA/relay unit 2.0 VA/relay unit 2.0 VA/relay unit	1.5-2 W/relay unit 1.5-2 W/relay unit 1.5-2 W/relay unit 1.5-2 W/relay unit 3-4 VA/relay unit 3-4 VA/relay unit 3-4 VA/relay unit
Permitted ambient temperature operative range	-20°C to +55°C	-20°C to +55°C	-20°C to +55°C
storage range	-40°C to +70°C	(ac: -20°C to +45°C) -40°C to +70°C	(ac: -20°C to +45°C) -40°C to +70°C
Degree of protection	IP 44 (acc. to IEC 529)	IP 44 (acc. to IEC 529)	IP 44 (acc. to IEC 529)

Type	RXMB 1 variant D	RXMB 1 variant E	RXMC 1
Rated voltage U_r	24, 110-125 V Is 115 V, 50-60 Hz 230 V, 50-60 Hz	115V, 50-60 Hz 127 V, 50-60 Hz 230 V, 50-60 Hz	24, 48, 110-125 220-250 V Is
Duty range in % of U_r	80-110%	80-110%	80-110%
Pick-up time, typical values make/break contact	8,0/6,5 ms	8,0/6,5 ms	6,5/- ms (2+2 contact) 10,0/.ms (3+3 contact)
Bounce time, typical values make contact	4,0 ms	4,0 ms	2,0 ms
Drop-out time, typical values make/break contact	3,0/2,5 ms	3,0/2,5 ms	3,0/2,5 ms
Pick-up value in % of U_r	45-70% (ac: ≤ 80%)	≤80%	45-70%
Drop-out value in % of U_r	>10% (ac >30%)	>30%	>10%

Technical data (cont'd)

Table 1: RXMB 1 & RXMC 1

Power consumption at $U_r =$ 24 V dc 48 V dc 110 V dc 220 V dc 115 V ac 127 V ac 230 V ac	0,5 W/ relay unit – 0,5 W/ relay unit – 1,0 VA/ relay unit – 1,0 VA/ relay unit	– – – – 2,0 VA/relay unit 2,5 VA/relay unit 2,0 VA/relay unit	1,1 W/relay unit 1,2 W/relay unit 1,2 W/relay unit 1,4 W/relay unit – – –
Permitted ambient temperature operative range storage range	-20°C to +55°C (ac -20°C to +45°C) -40°C to +70°C	-20°C to +55°C -40°C to +70°C	-20°C to +55°C -40°C to +70°C
Degree of protection	IP 44 (acc. to IEC 529)	IP 44 (acc. to IEC 529)	IP 44 (acc. to IEC 529)

Table 2: RXMB 2

Type	RXMB 2 variant A	RXMB 2 variant B	RXMB 2 variant C
Rated voltage U_r	24, 48, 110-125, 220-250 V dc 230 V, 50-60 Hz	24, 48, 110-125, 220-250 V dc	24, 48, 110-125, 220-250 V dc
Duty range in % of U_r	80-110%	80-110%	80-110%
Pick-up time, typical values make/break contact	8,0/6,5 ms	8,0/6,5 ms	8,0/6,5 ms
Bounce time, typical values make contact	4,0 ms	4,0 ms	4,0 ms
Drop-out time, typical values make/break contact	3,0/2,5 ms	3,0/2,5 ms	3,0/2,5 ms
Pick-up value in % of U_r	45-70% (ac ≤ 80%)	45-70%	45-70%
Drop-out value in % of U_r	>10% (ac ≤ 80%)	>10%	>10%
Power consumption at $U_r =$ 24 V dc 48 V dc 110 V dc 220 V dc 230 V ac	0,5 W/ relay unit – 0,5 W/ relay unit – 1,0 VA/relay unit	2,5 W/relay unit 2,5 W/relay unit 2,5 W/relay unit 2,5 W/relay unit –	4 W/relay unit 4 W/relay unit 4 W/relay unit 4 W/relay unit –
Permitted ambient temperature operative range storage range	-20°C to +55°C (ac: -20°C to +45°C) -40°C to +70°C	-20°C to +55°C -40°C to +70°C	-20°C to +55°C -40°C to +70°C
Degree of protection	IP 44 (acc. to IEC 529)	IP 44 (acc. to IEC 529)	IP 44 (acc. to IEC 529)

Table 3: Insulation tests

	Test values	Ref. standard
Dielectric test between coil and contacts, between contacts and between the relays across open contacts	2,0 kV, 50 Hz, 1 min 1,0 kV, 50 Hz, 1 min (RXMB) 2,0 kV, 50 Hz, 1 min (RXMC)	IEC 255-5
Impulse voltage test	5,0 kV, 1,2/50 μ s, 0,5 J	IEC 255-5

Table 4: Mechanical tests

	Ref. standard
Vibration test	IEC 255-21-1, class II
Shock and bump test	IEC 255-21-2, class II
Seismic test	IEC 255-21-3, class II

Table 5: Contact data

	RXMB 1, RXMB 2	RXMC 1
Highest system voltage	250 V ac, dc	250 V ac, dc
Break voltage	Max. 250 V ac, dc Min. 20 V ac, dc	Max. 250 V ac, dc Min. 20 V ac, dc
Contact current *) continuously for closed contact	Max 5 A*) Min 1,0 mA	Max 6 A*) Min 0,1 A
Making and conducting capacity L/R>10 ms, 200 ms/1 s 4 s	– 14 A	30/20 A –
Breaking capacity 250 V ac, $\cos\phi = 1,0$ 250 V ac, $\cos\phi = 0,4$ dc, L/R = 40 ms 24 V 48 V 110 V 220 V	1500 VA 1200 VA 2,0 A 0,7 A 0,2 A 0,15 A	2000 VA 1700 VA 5,0 A 2,5 A 0,3 A 0,2 A

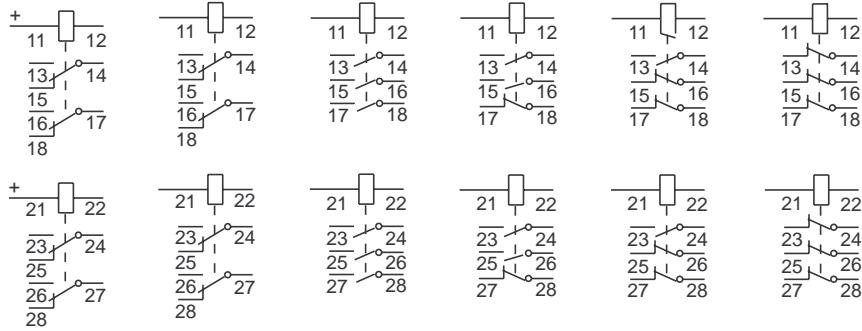
Table 6: Additional general data

	RXMB 1	RXMB 2	RXMC 1
Dimensions	2U, 6C	2 U, 12 C	2U, 6C
Weight	300 g	450 g	300 g

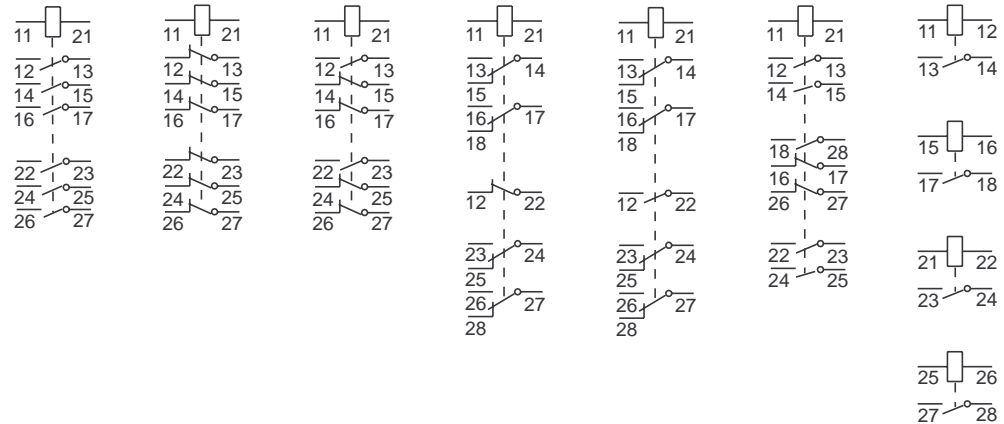
Diagrams

RXMB 1

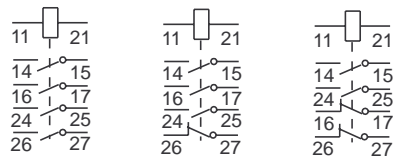
Variant 1MRK 000	A 440- 640-	D 802-	B 803-	B 804-	B 805-	B 806-
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Variant 1MRK 000	C 863-	C 864-	C 866-	C 872-	C 873-	C 874-	D 500-
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Variant 1MRK 001	E 149-	E 151-	E 152-
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RXMB 2

Variant 1MRK 001	A 580-	B 585-	C 588-	C 589-

RXMC 1

Variant 1MRK 000	450- 650-	460- 660-

Replacement list

This list shows auxiliary relays of new design having pin-compatible connections for direct replacement. Please note that contact and coil data differ.

RXMM → RXMB, RXMA → RXMB and RXMK → RXMB

Table 7: Replacement list for auxiliary relays type RXMM, RXMA and RXMK

Old type	Replacement		
RXMM 1	RXMB 1	Coil	Indication (diode)
RK214002-AD	1MRK 000 440-AD	24 V DC	red
RK214002-AH	1MRK 000 440-AH	48 V DC	red
RK214002-AN	1MRK 000 440-AN	110-125 V DC	red
RK214002-AS	1MRK 000 440-AS	220-250 V DC	red
RK214002-AD	1MRK 000 640-AD	24 V DC	yellow
RK214002-AH	1MRK 000 640-AH	48 V DC	yellow
RK214002-AN	1MRK 000 640-AN	110-125 V DC	yellow
RK214002-AS	1MRK 000 640-AS	220-250 V DC	yellow
RK214002- *	1MRK 000 802-BN	115 V AC, 50-60 Hz	–
RK214002- *	1MRK 000 802-BS	230 V AC, 50-60 Hz	–
RK214003-AD	1MRK 000 803-AD	24 V DC	–
RK214003-AH	1MRK 000 803-AH	48 V DC	–
RK214003-AN	1MRK 000 803-AN	110-125 V DC	–
RK214003-AS	1MRK 000 803-AS	220-250 V DC	–
RK214003- *	1MRK 000 803-BN	115 V AC, 50-60 Hz	–
RK214003- *	1MRK 000 803-BS	230 V AC, 50-60 Hz	–
RK214004-AD	1MRK 000 804-AD	24 V DC	–
RK214004-AH	1MRK 000 804-AH	48 V DC	–
RK214004-AN	1MRK 000 804-AN	110-125 V DC	–
RK214004-AS	1MRK 000 804-AS	220-250 V DC	–
RK214004- *	1MRK 000 804-BN	115 V AC, 50-60 Hz	–
RK214004- *	1MRK 000 804-BS	230 V AC, 50-60 Hz	–
RK214005-AD	1MRK 000 805-AD	24 V DC	–
RK214005-AH	1MRK 000 805-AH	48 V DC	–
RK214005-AN	1MRK 000 805-AN	110-125 V DC	–
RK214005-AS	1MRK 000 805-AS	220-250 V DC	–
RK214005- *	1MRK 000 805-BN	115 V AC, 50-60 Hz	–
RK214005- *	1MRK 000 805-BS	230 V AC, 50-60 Hz	–
RK214006-AD	1MRK 000 806-AD	24 V DC	–
RK214006-AH	1MRK 000 806-AH	48 V DC	–
RK214006-AN	1MRK 000 806-AN	110-125 V DC	–
RK214006-AS	1MRK 000 806-AS	220-250 V DC	–
RK214006- *	1MRK 000 806-BN	115 V AC, 50-60 Hz	–
RK214006- *	1MRK 000 806-BS	230 V AC, 50-60 Hz	–

*) AC versions are not available for RXMM1

Table 7: Replacement list for auxiliary relays type RXMM, RXMA and RXMK

Old type	Replacement		
RXMA 1	RXMB 1	Coil	Indication (diode)
RK211063-AD	1MRK 000 863-AD	24 V DC	–
RK211063-AH	1MRK 000 863-AH	48 V DC	–
RK211063-AN	1MRK 000 863-AN	110-125 V DC	–
RK211063-AS	1MRK 000 863-AS	220-250 V DC	–
RK211064-AD	1MRK 000 864-AD	24 V DC	–
RK211064-AH	1MRK 000 864-AH	48 V DC	–
RK211064-AN	1MRK 000 864-AN	110-125 V DC	–
RK211064-AS	1MRK 000 864-AS	220-250 V DC	–
RK211066-AD	1MRK 000 866-AD	24 V DC	–
RK211066-AH	1MRK 000 866-AH	48 V DC	–
RK211066-AN	1MRK 000 866-AN	110-125 V DC	–
RK211066-AS	1MRK 000 866-AS	220-250 V DC	–
RK211072-AD	1MRK 000 872-AD	24 V DC	–
RK211072-AH	1MRK 000 872-AH	48 V DC	–
RK211072-AN	1MRK 000 872-AN	110-125 V DC	–
RK211072-AS	1MRK 000 872-AS	220-250 V DC	–
RK211073-AD	1MRK 000 873-AD	24 V DC	–
RK211073-AH	1MRK 000 873-AH	48 V DC	–
RK211073-AN	1MRK 000 873-AN	110-125 V DC	–
RK211073-AS	1MRK 000 873-AS	220-250 V DC	–
RK211074-AD	1MRK 000 874-AD	24 V DC	–
RK211074-AH	1MRK 000 874-AH	48 V DC	–
RK211074-AN	1MRK 000 874-AN	110-125 V DC	–
RK211074-AS	1MRK 000 874-AS	220-250 V DC	–
RXMA 2	RXMB 2	Coil	Indication
RK211 185-AD	1MRK001 585-AD	24 V DC	–
RK211 185-AH	1MRK001 585-AH	48 V DC	–
RK211 185-AN	1MRK001 585-AN	110-125 V DC	–
RK211 185-AS	1MRK001 585-AS	220-250 V DC	–
RK211 188-AD	1MRK001 588-AD	24 V DC	–
RK211 188-AH	1MRK001 588-AH	48 V DC	–
RK211 188-AN	1MRK001 588-AN	110-125 V DC	–
RK211 188-AS	1MRK001 588-AS	220-250 V DC	–
RK211 189-AD	1MRK001 589-AD	24 V DC	–
RK211 189-AH	1MRK001 589-AH	48 VDC	–
RK211 189-AN	1MRK001 589-AN	110-125 VDC	–
RK211 189-AS	1MRK001 589-AS	220-250 VDC	–

Replacement list
(cont'd)

Table 7: Replacement list for auxiliary relays type RXMM, RXMA and RXMK

Old type	Replacement		
	RXMB *	Coil	Indication (diode)
RK225049-BN	1MRK 001 149-BN	115 V AC, 50-60 Hz	–
RK225049-BP	1MRK 001 149-BP	127 V AC, 50-60 Hz	–
RK225049-BS	1MRK 001 149-BS	230 V AC, 50-60 Hz	–
RK225051-BN	1MRK 001 151-BN	115 V AC, 50-60 Hz	–
RK225051-BP	1MRK 001 151-BP	127 V AC, 50-60 Hz	–
RK225051-BS	1MRK 001 151-BS	230 V AC, 50-60 Hz	–
RK225052-BN	1MRK 001 152-BN	115 V AC, 50-60 Hz	–
RK225052-BP	1MRK 001 152-BP	127 V AC, 50-60 Hz	–
RK225052-BS	1MRK 001 152-BS	230 V AC, 50-60 Hz	–

*) Contact data different

Ordering

Specify:

- Type
- Quantity
- Ordering No

Type	Ordering No.	Rated voltage						Indication		
		dc			50-60 Hz					
		24 V	48 V	110-125 V	220-250 V	115 V	127 V		230 V	
RXMB 1	1MRK 000	440-	AD	AH	AN	AS	-	-	-	red
		640-	AD	AH	AN	AS	-	-	-	yellow
		802-	-	-	-	-	BN	-	BS	-
		803-	AD	AH	AN	AS	BN	-	BS	-
		804-	AD	AH	AN	AS	BN	-	BS	-
		805-	AD	AH	AN	AS	BN	-	BS	-
		806-	AD	AH	AN	AS	BN	-	BS	-
		863-	AD	AH	AN	AS	BN	BP	BS	-
		864-	AD	AH	AN	AS	BN	BP	BS	-
		866-	AD	AH	AN	AS	BN	BP	BS	-
		872-	AD	AH	AN	AS	BN	BP	BS	-
		873-	AD	AH	AN	AS	BN	BP	BS	-
		874-	AD	AH	AN	AS	BN	BP	BS	-
RXMC 1	1MRK 001	500-	AD	AH	AN	-	-	-	BS	-
		149-					BN	BP	BS	
		151-					BN	BP	BS	
RXMB 2	1MRK 001	152-					BN	BP	BS	
		450-	AD	AH	AN	AS	-	-	-	red
		650-	AD	AH	AN	AS	-	-	-	yellow
		460-	AD	AH	AN	AS	-	-	-	red
RXMB 2	1MRK 001	660-	AD	AH	AN	AS	-	-	-	yellow
		580-	AD	AH	AN	AS	-	-	BS	-
		585-	AD	AH	AN	AS	-	-	-	-
		588-	AD	AH	AN	AS	-	-	-	-
		589-	AD	AH	AN	AS	-	-	-	-

Other variants available on request

References

Connection and installation components in COMBIFLEX

1MRK 513 003-BEN

Relay mounting systems

1MRK 514 001-BEN

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