

## Bistable relays RXMD 1 and RXMD 2

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### Features

- LED indication of activated coil
- High speed operation
- Medium duty contacts
- Long mechanical life
- High resistance to shock and vibration
- Low power consumption

### Application

The RXMD 1 and RXMD 2 relays are intended for general power system latching relay installations. The relays are available for electrical operation only.

The relays are particularly suitable in protection and control circuits. They are well encapsulated and therefore also suitable for use in applications with corrosive or polluted atmosphere. The relays have a high resistance to shock and vibration due to low mass armatures. The operating time is short; about 4ms. The relays have change over contacts that can be used for making or breaking operation. This makes the offered configurations more universally applicable.



Type RXMD 1 and RXMD 2 can be used as position-indication relays for circuit-breakers and disconnect-switches or other applications not requiring heavy-duty contacts, or where a compact design is required to reduce panel space.

The relays are pin compatible with earlier types, for example, RXMVE 1 or RXMVB 2. The RXMD 1 and RXMD 2 relays are therefore suitable as substitutes and as spare part replacement for RXMVE 1 and RXMVB 2 relays in light to medium duty contact applications where our published data suffice. In particular the DC interrupting rating for the contacts differ from the heavy duty contacts of RXMVB 2. Manual operation is not available.



## Design description

### RXMD 1 and RXMD 2

Relays having the same contact symbol can be interchanged without changing any connections.

Each relay consists of a terminal base plate with contact pins, one or two printed circuit board assemblies equipped with relays and the protective cover. The high quality guarantees their intended function and a long mechanical life. The relays are intended to be mounted on a terminal base, available in different sizes. The relays are fixed to the terminal base with Phillips No. 2 style captive screws.

Ordering number, rated voltage, type designation and the symbol of the relay is printed on the front of the protective cover.

The bistable auxiliary relays are provided with one LED which indicates for one of the two positions when the relay is continuously energized.

The relays operate within a range of 80-110% of the rated voltage. Permissible temperature range is given in the data table.

RXMD 1 and RXMD 2 are bistable auxiliary remanence type relays with two windings. The contacts of the relays are of the medium duty type. One of the windings is used to operate the contacts into one position, and the other winding resets the contacts back to the first position. The relay can be continuous energized or pulse operated, which means that the contacts remain in their last position if the supply voltage drops. If one of the coils is energized and then the other coil is energized the relay will remain in the first position.

## Technical data

**Table 1: General**

Bistable relay		RXMD 1	RXMD 2
Rated voltage $U_r$		24 V, 48 V, 110 V, 125 V, 220 V or 250 V DC	
Duty range in % of $U_r$		80-110%	
Typical pick-up values in % of $U_r$		65-75 %	
Pick-up time, typical values	Make contact	4,0 ms	
	Break contact	4,0 ms	
Bounce time, typical value	Make contact	4,0 ms	
		200 ms (This is the minimum time required for safe operation from de-energizing one of the coils until the same coil can be energized again. This time also applies as the maximum change over time when one of the coils loses energization after both coil has been energized simultaneously.)	
Degree of protection	24 V DC	1.0 W	2.0 W
	48 V DC	1.3 W	2.6 W
	110 V DC	1.5 W	3.0 W
	125 V DC	1.6 W	3.2 W
	220 V DC	1.3 W	2.6 W
	250 V DC	1.5 W	3.0 W

**Table 2: Contact data**

Outputs		Rated values	
Maximum system voltage		250 V AC/DC	
Break voltage	Min.	20 V AC/DC	
	Max.	250 V AC/DC	
Current carrying capacity	Min.	1.0 mA	
	Max.	5 A	
Making and conducting capacity $L/R > 10$ ms, 200 ms / 1 s 4 s		-	
	50 V AC, $\cos j = 1.0$	1500 VA	
	250 V AC, $\cos j = 0.4$	1200 VA	
Breaking capacity	DC, $L/R = 40$ ms	24 V	2.0 A
		48 V	0.7 A
		110 V	0.2 A
		220 V	0.15 A

## Technical data

**Table 3: Electromagnetic compatibility (EMC), immunity test**

All tests are performed together with the DC/DC-converter, RXTUG 22H

Test	Severity	Standard
Surge	1 and 2 kV	IEC 61000-4-5, class 3
AC injection	500 V AC	SS 436 15 03, PL 4
Power frequency magnetic field	1000 A/m	IEC 61000-4-8
1 MHz burst	2.5 kV	IEC 60255-22-1, class 3
Spark	4-8 kV	SS 436 15 03, PL 4
Fast transient	4 kV	IEC 60255-22-4, class 4
Electrostatic discharge at normal service with cover on	6 kV (contact)	IEC 60255-22-2, class 3
	8 kV (air)	IEC 60255-22-2, class 3
	6 kV, indirect application	IEC 61000-4-2, class 3

**Table 4: Electromagnetic compatibility (EMC), emission tests**

All tests are performed together with the DC/DC-converter, RXTUG 22H

Test	Severity	Standard
Conducted	0.15-30 MHz, class A	EN 50081-2
Radiated	30-1000 MHz, class A	EN 50081-2

**Table 5: CE-demand**

Test	Severity
Immunity	EN 50082-2
Emission	EN 50081-2
Low voltage directive	EN 50178

**Table 6: Insulation tests**

Test	Severity	Standard
Dielectric	2.0 kV AC, 1 min	IEC 60255-27
	1.0 kV AC, 1 min	
Impulse voltage	5 kV, 1.2/50 ms, 0.5 J	IEC 60255-27
Insulation resistance	> 100 MW at 500 V DC	IEC 60255-27

**Table 7: Mechanical test**

Test	Severity	Standard
Vibration	Response: 1 g, 10-150-10 Hz	IEC 60255-21-1, class 2
	Endurance: 2 g, 10-150-10 Hz, 20 sweeps	IEC 60255-21-1, class 2
Shock	Response: 5 g, 11 ms, 3 pulses	IEC 60255-21-2, class 1
	Withstand: 15 g, 11 ms, 3 pulses	
Bump	Withstand: 10 g, 16 ms, 1000 pulses	IEC 60255-21-2, class 1
Seismic	X-axis: 3 g, 1-50-1 Hz	IEC 60255-21-3, class 2, extended (Method A)
	Y-axis: 3 g, 1-50-1 Hz	
	Z-axis: 2 g, 1-50-1 Hz	

**Table 8: Climatic conditions**

Climatic condition	Partially weather protected locations, switchgear environment, class 3K3
Storage	-40° C to +70° C
Permitted ambient temperature	-20° C to +55° C

**Table 9: Weight and dimensions**

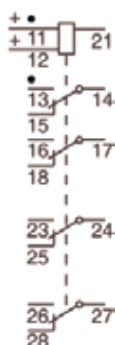
Equipment	Weight	Height	Width
RXMD 1	Approximately 0.25 kg	2U	6C
RXMD 2	Approximately 0.45 kg	2U	12C

## Diagrams

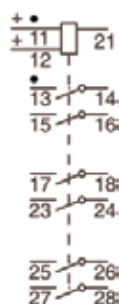
### Terminal diagrams

**RXMD 1**

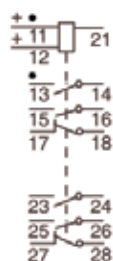
1MRK 001 602-nn



1MRK 001 603-nn



1MRK 001 604-nn



1MRK 001 605-nn

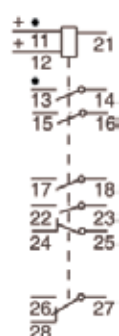


**RXMD 1**

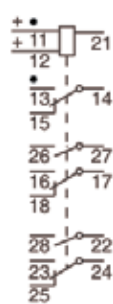
1MRK 001 606-nn



1MRK 001 607-nn



1MRK 001 609-nn and 610-nn



**Note:**

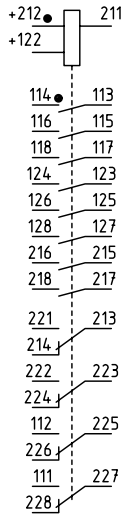
1. When the winding terminal marked with a dot is positive, the contact moves to the position marked with a dot.
2. Some of the above RXMD 1 models are configurable per the obsolete RXMVE 1 previous contact symbols, see table below:

Old RXMVE 1	New replacement RXMD 1
RK 257 002-nn and 008-nn	1MRK 001 602-nn
RK 257 003-nn	1MRK 001 603-nn
RK 257 004-nn	1MRK 001 604-nn
RK 257 005-nn	1MRK 001 605-nn
RK 257 006-nn	1MRK 001 606-nn
RK 257 007-nn	1MRK 001 607-nn

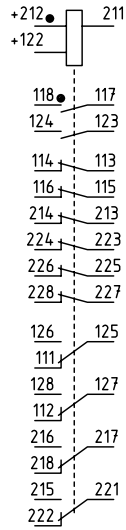
Note that there is a common DC negative coil connection on the RXMD 1 whereas the RXMVE 1 were separated.

**RXMD 2**

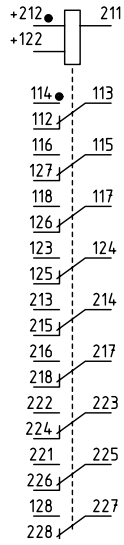
1MRK 001 984-nn



1MRK 001 985-nn



1MRK 001 986-nn



**Note:**

1. When the winding terminal marked with a dot is positive, the contact moves to the position marked with a dot.
2. The above RXMD 2 models are configurable per RXMVB 2 previous contact symbols, see table below:

RXMVB 2	RXMD 2
RK 251 204-nn	1MRK 001 984-nn
RK 251 205-nn	1MRK 001 985-nn
RK 251 206-nn	1MRK 001 986-nn

Note that the RXMD 2 relays are not identically configured like the RXMVB 2. There are more contacts but not heavy duty contacts on RXMD 2 and also the common DC negative coil connection. Please compare wiring diagrams and check required data before replacing in the field.

## Ordering of RXMD 1 and RXMD 2

Data to specify:

- Type of relay
- Quantity
- Ordering number, for example 1MRK 001 6xx-xx

**Table 10: Ordering data RXMD 1**

Type of relay	Ordering number	Rated DC voltage						Indication
		24 V	48 V	110 V	125 V	220 V	250 V	
RXMD 1	1MRK 001 602-	AD	AH	AN	AP	AS	AT	Yellow
	1MRK 001 603-	AD	AH	AN	AP	AS	AT	Yellow
		-	-	KN	-	KS	-	Red
	1MRK 001 604-	AD	AH	AN	AP	AS	AT	Yellow
	1MRK 001 605-	AD	AH	AN	AP	AS	AT	Yellow
	1MRK 001 606-	AD	AH	AN	AP	AS	AT	Yellow
	1MRK 001 607-	AD	AH	AN	AP	AS	AT	Yellow
	1MRK 001 608-	AD	AH	AN	AP	AS	AT	Yellow
1MRK 001 609-	AD	AH	AN	AP	AS	AT	Red	

**Table 11: Ordering data RXMD 2**

Type of relay	Ordering number	Rated DC voltage						Indication
		24 V	48 V	110 V	125 V	220 V	250 V	
RXMD 2	1MRK 001 984-	AD	AH	AN	AP	AS	AT	Yellow
	1MRK 001 985-	AD	AH	AN	AP	AS	AT	Yellow
	1MRK 001 986-	AD	AH	AN	AP	AS	AT	Yellow

## Related documents

Document related to COMBIFLEX® assemblies	Identity number
Buyer's guide, Connection and installation components in COMBIFLEX®	1MRK 513 003-BEN
Buyer's guide, Relay mounting systems	1MRK 514 001-BEN