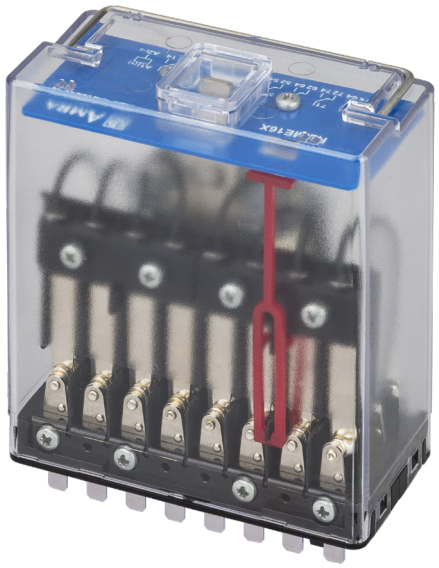
INSTANTANEOUS MONOSTABLE RELAY WITH 8 CHANGE-OVER CONTACTS

RMMX SERIES

USER SECTORS

- Power generation
- Nuclear
- Power transmission
- Rolling stock
- Fixed railway installations
- Shipbuilding
- Petroleum industry
- Heavy industry



RMM

PRODUCT ADVANTAGES

- Plug-in monostable instantaneous relay
- Compact dimensions than RMM Series
- Solid and rugged construction for heavy or intensive duty
- Long electrical life expectancy and exceptional endurance
- Operation using d.c. or a.c. power supply (directly, without rectifiers or diodes)
- Magnetic arc blow-out (optional) for higher breaking capacity
- Self-cleaning knurled contacts
- Mechanical optical device (standard) or Led (optional for d.c. versions) indicating energized status of coil
- Transparent cover, with access for manual operation (standard) and pull-out handle
- Retaining clip for secure locking of relay on socket
- Positive mechanical keying for relay and socket

DESCRIPTION

RMMX relays line are derived from models in theRGMX line, offering the same specifications and performance and available with a generous number of contacts (8): in short, highly reliable products providing top performance and suitable for applications in particularly harsh and unsettled environments, such as high voltage electricity distribution stations and medium voltage substations. The mechanical design of the relay is such as to allow the development of **numerous custom solutions**, in the event that the standard models do not fully respond to the required performance parameters.

Thanks to its high breaking capacity, the relay is suitable for controlling **heavy duty loads** with intensive switching frequency, where safety and continuity of operation are all-important.

Versatility in manufacture allows the production of relays with any voltage between 12 and 250Vd.c./380Va.c.

Manual operation is specified for all models, allowing tests to be conducted in the absence of any power supply.

The contacts used are of a type designed to give top performance both with high and strongly inductive d.c. loads, and with particularly low loads; inclusion of the magnetic arc blow-out function (optional) helps to achieve a considerable **increase in breaking capacity.**

Knurled contacts ensure not only better self-cleaning characteristics, but also lower ohmic resistance thanks to multiple points of electrical connection, thereby extending the electrical life expectancy of the component.

Benefiting from careful selection of materials, plus the technical and professional skills of human resources involved in design and production, this is a product suitable for the most demanding of environments.

Like all our relays, these models are assembled as part of a controlled manufacturing process in which every step of production is verified by the next step in succession.

Each relay is calibrated and tested individually, by hand, so as to guarantee top reliability.

Model	Number of contacts	Magnetic arc blow-out
RMM.x2X	8	
RMM.x6X	8	•

FOR CONFIGURATION OF PRODUCT CODE, SEE "ORDERING SCHEME" TABLE

Coil specifications	RMM.x2X-x6X
Nominal voltages Un	**DC: 12-24-48-110-125-132-220** (1) **- AC: 12-24-48-110-125-230-380-440** (1-2)
Consumption at Un (DC/AC)	3W / 6.5 VA (3) - 11.5 VA (4)
Operating range	DC: 80÷115% Un - AC: 85÷110% Un
Type of duty	Continuous
Drop-out voltage (5)	DC: > 5% Un - AC : > 15% Un

(1) Other values on request.
(2) Maximum value, AC = 380V 50Hz - 440V 60Hz.
(3) In operation.
(4) On pick-up.
(5) Limit value for supply voltage, expressed as % of the nominal value, beneath which the relay is certain to be de-energized.

Contact specifications		RMM.12X-16X-42X-46X	RMM.32X-36X-52X-56X-62X-66X-72X-76X
Number and type		8 CO, form C	
Current	Nominal (1)	10A	
	Maximum peak (2)	20A for 1min - 40A for 1s	
	Maximum pulse (2)	150A for 10ms	
Example of electrical life expectancy (3)		RMMEx2X: 0.5A - 110Vdc - L/R 40ms - 10^5 operations - 1,800 operations/hour RMMEx6X: 1A - 110 Vdc - L/R 40ms - 10^5 operations - 1,800 operations/hour	
Minimum load	Standard contacts	200 mW (10 V, 10 mA)	
	Gold-plated contacts	50 mW (5 V, 5 mA)	
Maximum breaking voltage		350 VDC / 440 VAC	
Contact material		AgCdO	
Operating time at Un (ms) (4)		DC - AC	DC
Pick-up (NC contact opening)		≤ 20 - ≤ 13	≤ 20
Pick-up (NO contact closing)		≤ 45 - ≤ 50	≤ 45
Drop-out (NO contact opening)		≤ 8 - ≤ 25	≤ 42
Drop-out (NC contact closing)		≤ 45 - ≤ 60	≤ 85

(1) On all contacts simultaneously, reduction of 30%.
(2) Maximum peak and pulse currents are those currents that can be handled, for a specified time, by the contact. They do not refer to steady or interrupted currents.
(3) For other examples, see electrical life expectancy curves.
(4) Unless specified otherwise, the operating time signifies until stabilization of the contact (including bounces).

Insulation	
Insulation resistance (at 500VCD)	
between electrically independent circuits and between these circuits and ground	> 10,000 MΩ
between open contact parts	> 10,000 MΩ
Withstand voltage at industrial frequency	
between electrically independent circuits and between these circuits and ground	2 kV (1 min) - 2.2 kV (1 s)
between open contact parts	2 kV (1 min) - 2.2 kV (1 s)
between adjacent contacts	2 kV (1 min) - 2.2 kV (1 s)
Impulse withstand voltage (1.2/50µs - 0.5J)	
between electrically independent circuits and between these circuits and ground	5 kV
between open contact parts	5 kV

Mechanical specifications

Mechanical life expectancy	20x10^6 operations
Maximum mechanical switching rate	3,600 operationss/h
Degree of protection	IP50 fitted to socket
Dimensions (mm)	45x90x100 (1)
Weight (g)	380

(1) Exludind output terminal

Environmental specifications

Operating temperature	-25 ÷ +55°C
Storage and shipping temperature	-25 ÷ +70°C
Relative humidity	Standard: 75% RH - Tropicalized: 95% RH
Fire behavior	V0

Standards and reference values

EN 61810-1, EN 61810-2, EN 61810-7	All-or-nothing relays
EN 60695-2-10	Fire behavior
EN 60529	Degree of protection provided by enclosures

Unless otherwise specified, products are designed and manufactured to the requirements of the European and International standards indicated above.
In accordance with EN 61810-1, all items of technical data are referred to ambient temperature 23 °C, atmospheric pressure 96kPa and 50% humidity.
Tolerance for coil resistance, nominal electrical input and nominal power is ±7%.

Configurations - Options

TROPICALIZATION	Surface treatment of coil with protective coating for use in conditions of RH 95%. This treatment serves to give the coil added protection against corrosion that could occur as a result of moisture reacting with certain chemical agents such as those found in acid or saline atmospheres.
GOLD PLATING	Surface treatment of contacts, blades and output terminals with gold, thickness ≥ 2µ. This treatment ensures long-term capacity of the contact to conduct low levels of current, even in adverse ambient conditions.
LED	Luminous indicator showing presence of power supply, wired in parallel with the coil, as alternative to mechanical optical indicator.
FLYBACK DIODE	Component connected in parallel with the coil designed to suppress overvoltages generated by the coil when de-energized.

Ordering scheme

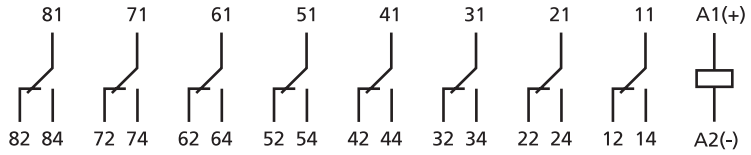
Product code	Application (1)	Configuration A	Configuration B	Label	Type of power supply	Nominal voltage (V) (2)	Finish (3)	Keying position code (4)
RMM	**E**: Energy **F**: Railway Fixed Equipment	1: Standard 3: Diode // 4: Gold plating 5: Led 6: Gold plating + Diode // 7: Diode // + Led	2X: 8 CO contacts 6X: 8 CO contacts with magnetic arc blow-out	F	C : Vdc A: Vac 50 Hz H: Vac 60 Hz	012 - 024 - 048 110 - 125 - 132 220 - 230 - 380 440	T: Tropicalized coil	XX

Example

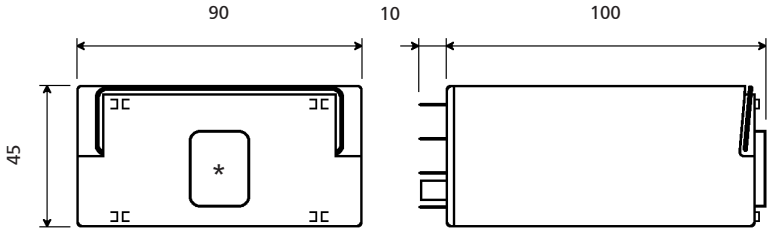
RMM	E	4	6X	F	A	024		
RMME46XF-A024 = ENERGY series relay with 8 gold-plated contacts, magnetic arc blow-out and 24Vac coil.								
RMM	**F**	**1**	**2X**	**F**	**C**	**110**	**T**	
RMMF12XF-C110/T = Standard RAILWAY series relay with 8 contacts and 110Vdc tropicalized coil.								

(1) **ENERGY :** all applications except for railway.
RAILWAYS, FIXED EQUIPMENT: application on fixed power systems and electrical railway traction. For list of RFI compliant and type-approved products, consult dedicated catalog "RAILWAY SERIES – RFI APPROVED".
Also available is the **STATIONS** series, with ENEL approved material meeting LV15/LV16 specifications. For list of ENEL compliant and type-approved products, consult dedicated catalog "STATIONS SERIES – LV15-LV16-LV20".
(2) Other values on request. Voltages 380V and 440V available as Vac only.
(3) (4) Optional value. Positive mechanical keying is applied according to the manufacturer's product model.

Wiring diagram

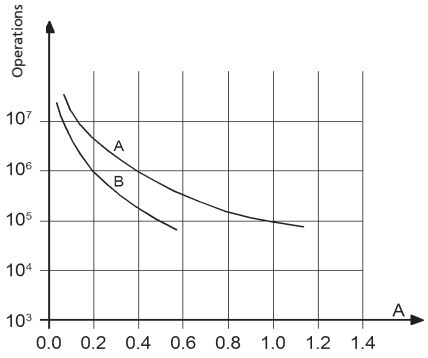


Dimensions



(*) access to the manual operating lever

Electrical life expectancy



Contact loading: 110Vdc, L/R 40 ms
Curve A: RMM.x6X
Curve B: RMM.x2X

RMM.x2X			
U	I (A)	L/R (ms)	Operations
110 Vdc	0.5	40	1,000,000
110 Vdc	0.6	10	300,000
120 Vdc	0.7	40	50,000
125 Vdc	1.2	0	1,000,000
220 Vdc	0.1	40	100,000
220 Vdc	0.25	10	100,000
U	I (A)	cosφ	Operations
110 Vac	1	1	2,000,000
110 Vac	1	0.5	1,500,000
110 Vac	5	1	1,000,000
110 Vac	5	0.5	500,000
220 Vac	0.5	1	2,000,000
220 Vac	1	0.5	600,000
220 Vac	5	1	650,000
220 Vac	5	0.5	600,000

RMM.x6X			
U	I (A)	L/R (ms)	Operations
24 Vdc	1	0	7,000,000
24 Vdc	1	40	3,000,000
24 Vdc	2	40	2,000,000
24 Vdc	5	0	3,000,000
24 Vdc	5	40	200,000
24 Vdc	9	0	800,000
48 Vdc	5	20	200,000
110 Vdc	0.4	40	1,000,000
110 Vdc	1	40	100,000
110 Vdc	10	0	100,000
U	I (A)	cosφ	Operations
220 Vac	5	0.5	100,000
220 Vac	10	1	100,000
230 Vac	1	0.7	2,500,000
230 Vac	3	0.7	1,200,000

Switching frequency: 1,200 operations/hour

Sockets and retaining clips

Type of installation	Type of outputs	Modèle	Retaining clip
Wall or DIN rail mounting	Screw	96IP20-I DIN	RMC48
	Retaining clip	PAIR320	
Flush mounting	Double faston (4.8 x 0.8 mm)	ADF4	
	Retaining clip	PRIR320	

Mounting tips

The preferred mounting position is on the wall, with the relay positioned horizontally in the reading direction on the nameplate.
To ensure correct use of the relays, they should be spaced apart by at least 20 mm in the vertical; this will allow the heat generated by the coils to rise and dissipate as necessary. Check the distances according to the socket used. Distances can be reduced depending on the environmental application conditions and on the relay duty cycle.
Retaining clips are used to ensure that the relay is secured correctly to the socket.
No special maintenance is required.
Condensation can form inside the relay when powered up and the outside ambient temperature is cold; this is quite normal and does not affect the operation of the relay. The plastic materials of the relay do not possess hygroscopic properties.