



RELAYS

INSTANTANEOUS MONOSTABLE RELAYS WITH 2-4 CONTACTS

RCM | RDM SERIES

USER SECTORS



Power generation



Nuclear



Power transmission



Rolling stock



Fixed railway installations



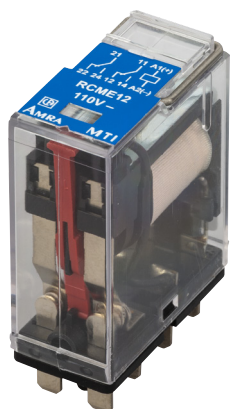
Shipbuilding



Petroleum industry



Heavy industry



RCME



RDME

PRODUCT ADVANTAGES

- Compact plug-in instantaneous monostable relays
- High performance, compact dimensions
- Self-cleaning knurled contacts
- Magnetic arc blow-out for higher breaking capacity
- Fitted with mechanical optical contact status indicator as standard
- Relay coupled automatically to socket, with no need for a retaining clip
- Operation using DC or AC power supply (directly, without rectifiers or diodes)
- Wide variety of configurations and customizations
- Also available in current-monitoring version
- Also available in PCB-mount version
- Transparent cover, pull-out handle
- Label holder in cover for customer's use
- Positive mechanical keying for relay and socket

DESCRIPTION

The **C and D series** are made up of 2 basic models with 2 and 4 change-over contacts, respectively, having similar electrical specifications.

With their **compact dimensions** and **optimum performance**, these relays are suitable for the widest imaginable range of applications, from controlling devices such as HV/MV breakers to the supervision of low power logic circuits. The contacts used are designed to give good levels of performance both with **high and strongly inductive DC loads**, and with particularly **low loads** such as interface signals; inclusion of the magnetic arc blow-out function (optional) helps to achieve a significant 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.

The construction of the relays and their simplified mechanical design combine to ensure these products offer **high reliability in operation**, as proven by their use **for over 40 years** in electrical energy transmission and distribution systems, and fixed equipment used in the railway sector. Benefiting from careful selection of materials, coupled with the tech-

nical and professional skills of human resources involved in design and production, this family of relays has found favor with many customers.

Like all Chauvin Arnoux relays, the models in the C and D series are assembled as part of a controlled manufacturing process in which every step of production is verified by the next step in succession. In effect, **each relay is calibrated and tested individually**, by hand, in such a way as to guarantee **top reliability**.

Versatility in manufacture allows the production of relays with any voltage in the range 12 to 220VDC/440VAC, and with a variety of operating ranges adaptable to **various application requirements**. Typical sectors of use are among the **most demanding**, such as, for example, electricity generating stations, electrical transformer stations, fixed equipment for railways, or industries using continuous production processes (chemical and petrochemical, rolling mills, cement factories, etc.). To simplify the operations of installing the relay on the various dedicated sockets, the sockets themselves are equipped with special catches allowing the installer to dispense with retaining clips, although these remain available as accessories.

Models	Number of contacts	Magnetic arc blow-out	PCB-mount
RCMEx2 - RCMFx2	2		
RCMMx2	2		•
RCMEx6 - RCMFx6	2	•	
RCMMx6	2	•	•
RDMEx2 - RDMFx2	4		
RDMMx2	4		•
RDMEx6 - RDMFx6	4	•	
RDMMx6	4	•	•

TO COMPOSE THE PRODUCT CODE, SEE THE "ORDERING SCHEME" TABLE

Coil specifications	RCM	RDM
Nominal voltages Un	DC: 12-24-48-110-125-132-144-220 ⁽¹⁾ - AC: 12-24-48-110-125-220-230-380-440 ⁽¹⁻²⁾	
Power consumption Un (DC/AC)	2W ⁽³⁾ / 3.2VA ⁽⁴⁾ - 4VA ⁽⁵⁾	2.5W / 5VA ⁽⁴⁾ - 7.5VA ⁽⁵⁾
Operating range	DC: 80...120 % Un - AC : 85...110 % Un	
Type of duty	Continuous	
Droup-out voltage ⁽⁶⁾	DC: > 5 % Un - AC: > 15 % Un	

(1) Other values on request.

(2) Maximum AC value = 380V 50Hz - 440V 60Hz.

(3) 2.3W for 220Vdc.

(4) In operation.

(5) On pick-up.

(6) Limit value for supply voltage, expressed as % of the nominal value, beneath which the relay is certain to be de-energized.

Contact specifications		RCM		RDM	
Number and type		2 CO, form C		4 CO, form C	
Current	Nominal ⁽¹⁾	10A			
	Maximum peak ⁽²⁾	13A for 1min - 20A for 1s			
	Maximum pulse ⁽²⁾	100A for 10ms			
Example of electrical life expectancy ⁽³⁾		RCM.x2 - RDM.x2: 0.2A - 110Vdc - L/R 40ms - 500,000 operations – 1,800 operations/hour RCM.x6 - RDM.x6: 0.5A - 110Vdc - L/R 40ms - 150,000 operations – 1,800 operations/hour			
Minimum load	Standard contacts	200mW (10V, 10mA)			
	Gold-plated contact	50mW (5V, 5mA)			
Maximum drop-out voltage		250 Vdc / 300 Vac			
Contact material		AgCdO (moving contacts) - AgNi (fixed contacts)			
Operating time at Un (ms) ⁽⁴⁾		RCM.12-16-42-46	RCM.32-36-62-66	RDM.12-16-42-46	RDM.32-36-62-66
		DC - AC	DC	DC - AC	DC
	Pick-up (NC contact opening)	≤ 10 - ≤ 10	≤ 10	≤ 14 - ≤ 10	≤ 14
	Pick-up (NO contact closing)	≤ 19 - ≤ 18	≤ 19	≤ 23 - ≤ 17	≤ 23
	Drop-out (NO contact opening)	≤ 4 - ≤ 8	≤ 11	≤ 5 - ≤ 8	≤ 32
	Drop-out (NC contact closing)	≤ 16 - ≤ 19	≤ 28	≤ 14 - ≤ 19	≤ 45

(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, operating times are understood as comprising stabilization of the contact (inclusive of bounces).

Insulation	
Insulation resistance (at 500Vdc)	
between electrically independent circuits and between these circuits and ground	> 1,000 MΩ
between open contact parts	> 1,000 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	3 kV



Mechanical specifications

Mechanical life expectancy		20x10 ⁶ operations	
Maximum switching rate	Mechanical	3,600 operations/hour	
Protection (with relay mounted)		IP40	
		RCM	RDM
Dimensions (mm)		40x20x50 ⁽¹⁾	40x40x50 ⁽¹⁾
Weight (g)		60	115

1. Excluding output terminals.



Environmental specifications

Operating temperature	-25 to +55 °C
Storage and shipping temperature	-25 to +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	Electromechanical elementary relays
EN 60695-2-10	Fire behavior
EN 61000	Electromagnetic compatibility
EN 60529	Degree of protection provided by enclosures

Unless otherwise specified, products are designed and manufactured according 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 the coil with protective coating for use with RH 95%.
GOLD PLATING	Surface treatment of contacts, blades and output terminals with gold-cobalt alloy, thickness ≥2μ. This treatment ensures long-term capacity of the contact to conduct lower currents.
LED	LED 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 (type 1N4007) 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⁾
RCM (2 contacts)	E: Energy / Railway fixed M: For PCB mounting	1: Standard 3: Diode // 4: Gold plating 5: LED	2: Standard	F	C: Vdc A: Vac 50Hz H: Vac 60 Hz	012 - 024 - 048 110 - 125 - 132 144 - 220 - 230 380 - 440	T: Tropicalized coil	xx
RDM (4 contacts)		6: Gold plating + Diode // 7: Diode // + LED	6: With magnetic blow-out					

Example

RCM	E	4	2	F	A	048	T	
RGME37F -A048T = ENERGY series relay with 2 CO gold-plated contacts, 48V 50Hz tropicalized coil								
RDM	E	1	6	F	C	110		DH
RGMF17F-C110-DH = RAILWAY series relay, fixed equipment, with 4 CO gold-plated contacts, magnetic arc blow-out, 110Vdc coil and keying position DH								

(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".

M: PCB-mount models. Specifications as per "Energy" application but with output terminals suitable for soldering to PCB.

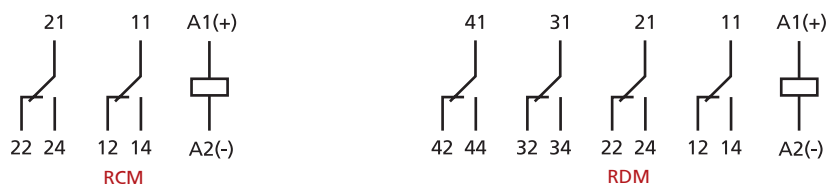
Also available is the STATIONS series, with ENEL approved material meeting LV15/LV16 specifications. For list of ENEL compliant and type-approved products, consult dedicated catalog "STATIONS SERIES – LV15-LV16-LV20"

(2) Other values on request. Voltages 380V and 440V available as Vac only.

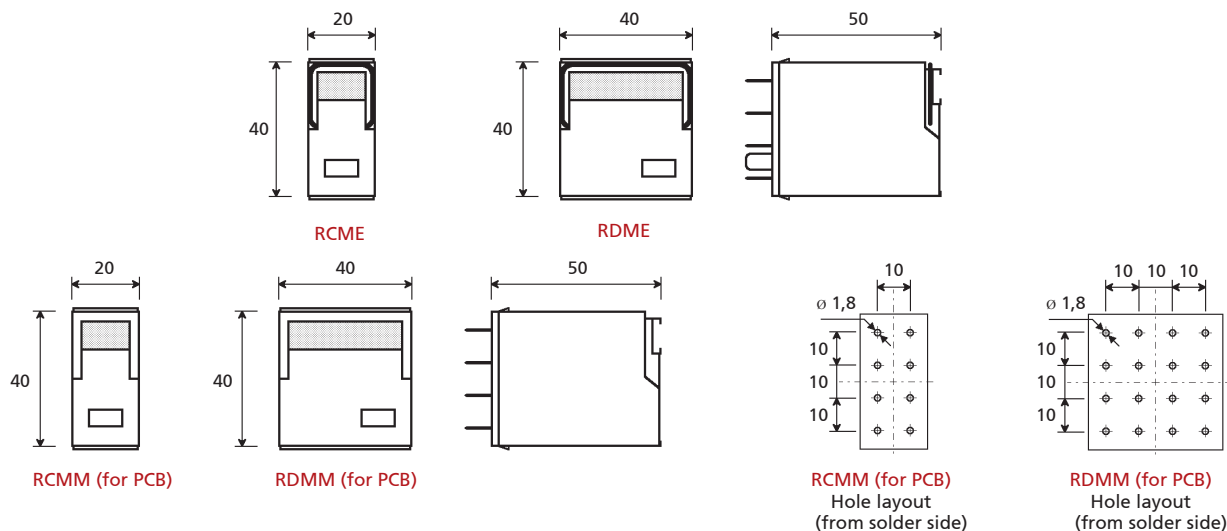
(3) Optional value.

(4) Optional value. The positive mechanical keying is applied according to the manufacturer's model.

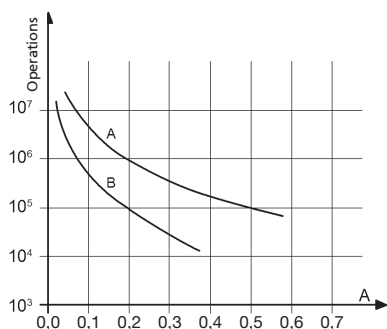
Wiring diagram



Dimensions



Electrical life expectancy



Contact loading: 110 Vdc, L/R 40 ms
Curve A : RCM.x6, RDM.x6
Curve B : RCM.x2, RDM.x2

RCM.12, RDM.12			
U	I (A)	L/R (ms)	Operations
110Vdc	0.2	40	500,000
220Vdc	0.2	10	80,000
U	I (A)	cosφ	Operations
110Vac	1	1	1,200,000
110Vac	1	0.5	1,000,000
110Vac	5	1	500,000
110Vac	5	0.5	300,000
220Vac	0.5	1	1,200,000
220Vac	1	0.5	500,000
220Vac	5	1	400,000
220Vac	5	0.5	300,000

Switching frequency: 1,200 operations/hour
(*) = 600 operations/hour

RCM.16, RDM.16			
U	I (A)	L/R (ms)	Operations
110Vdc	0.2	40	1,000,000
110Vdc	0.5	40	150,000
110Vdc	0.6	10	300,000
110Vdc	1	10	100,000 (*)
220Vdc	0.2	10	100,000
U	I (A)	cosφ	Operations
110Vac	1	1	2,000,000
110Vac	1	0.5	1,500,000
110Vac	5	1	950,000
110Vac	5	0.5	500,000
220Vac	0.5	1	2,000,000
220Vac	1	0.5	800,000
220Vac	5	1	600,000
220Vac	5	0.5	500,000

Sockets and retaining clips

Type of installation	Type of outputs	RCM	RDM	Retaining clip
Wall or DIN H35 rail mounting	Screw	PAVC081	PAVD161 PAVD164	VM1821
Flush mounting	Double faston (4.8 × 0.8 mm)	PRDC081	-	-
	Screw	PRVC081	PRVD161	-
PCB-mount	Solder	PRCC081	PRCD161	-

Mounting tips

The preferred mounting position is on the wall, with the relay positioned horizontally in the reading direction on the nameplate. For correct use of the relays, they should be spaced apart by at least 5 mm in the horizontal direction and 20 mm in the vertical direction. This is to allow correct upward dissipation of the heat generated by the coil. Set these distances according to the socket used. Distances can be reduced depending on the environmental application conditions and on the relay duty cycle. 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.