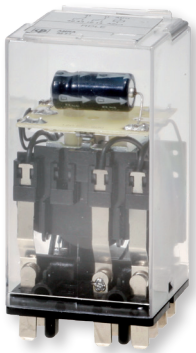


## RDL • RQL SERIES

### OVERVIEW

- Plug-in oscillating monostable relay
- High performance, compact dimensions
- Solid and rugged construction for heavy or intensive duty
- Very high electrical life expectancy and exceptional endurance
- Magnetic arc blow-out for higher breaking capacity
- Self-cleaning knurled contacts
- Operation using d.c. or a.c. power supply with a single product
- Retaining clip for secure locking of relay on socket
- Label holder in cover for customer's use
- Positive mechanical keying for relay and socket



RDLE



RGLL

### APPLICATIONS



Shipbuilding



Petroleum industry



Heavy industry



Power generation



Power distribution



Railway equipment

### DESCRIPTION

The RDL and RGL series are made up of 2 relay models with 2 change-over contacts, having a flasher logic function. This function is called for generally when the application requires a cyclical change in status of the output contacts with the coil constantly under power. RDL and RGL relays are derived from the RDM and RGM series, respectively, and have the same electromechanical specifications. The logic function is provided through the adoption of an electronic circuit comprising analogue components, carefully selected to the end of achieving a notably fast switching frequency in combination with high immunity to EMC interference. The switching frequency is non-adjustable, factory set at between 55 and 90 changes per minute, depending on the environmental operating specifications.

The contacts used are of a type designed to give good levels of performance both with high and strongly inductive d.c. loads, and with particularly low loads such as interface signals; 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.

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 transport and distribution systems, and fixed equipment used in the railway sector.

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.)

Like all AMRA relays, models of the RDL and RGL 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.

Models	Number of contacts	Capacity of contacts	Magnetic arc blow-out
RDLE13	2	10A	•
RGLE13	2	12A	

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

Coil data	RDL_13	RGL_13
Nominal voltages Un	AC / DC : 12-24-48-110-125-220 <sup>(1)</sup>	
Consumption at Un (DC/AC)	3.5W	5W
Operating range	DC: 80...120% Un	
Type of duty	Continuous	
Drop-out voltage <sup>(2)</sup>	> 5% Un	

(1) Other values on request.

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

Contact data	RDL_13	RGL_13
Number and type	2 SPDT, form C	
Current	Nominal	10A
	Maximum peak <sup>(1)</sup>	13A for 1min - 20A for 1s
	Maximum pulse <sup>(1)</sup>	100A for 10ms
Example of electrical life expectancy	0.2A - 110Vdc - L/R 40ms - 1.5x10 <sup>5</sup> operations - 1,800 operations/hour	
Minimum load	Standard contacts	200mW (10V, 10mA)
	Gold-plated contacts	50mW (5V, 5mA)
Maximum breaking voltage	250 Vdc / 300 Vac	350 Vdc / 440 Vac
Contact material	AgCdO (moving contacts) - AgNi (fixed contacts)	

(1) 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.

Insulation	
Insulation resistance (at 500Vdc) 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.) - 2.2kV (1 s)
between open contact parts	2 kV (1 min.) - 2.2kV (1 s)
between adjacent contacts	2 kV (1 min.) - 2.2kV (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	RDL_13	RGL_13
Mechanical life expectancy	20x10 <sup>6</sup> operations	
Maximum switching rate	3600 operations/hour	
Degree of protection	IP40	
Dimensions (mm)	40x40x75 <sup>(1)</sup>	45x50x112 <sup>(1)</sup>
Weight (g)	130	310

(1) Output terminals excluded.

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 behaviour	V0

## Standards and reference values

EN 61810-1, EN 61810-2, EN 61810-7  
 EN 60695-2-10  
 EN 50082-2  
 EN 60529

Electromechanical elementary relays  
 Fire behaviour  
 Electromagnetic compatibility  
 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  $\pm 7\%$ .

## 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 $\geq 2\mu$ . This treatment ensures long-term capacity of the contact to conduct lower currents.

## Ordering scheme

Product code	Application <sup>(1)</sup>	Configuration A	Configuration B	Type of power supply	Nominal voltage (V) <sup>(2)</sup>	Finish <sup>(3)</sup>	Keying position code <sup>(4)</sup>
RDL	E: Energy	1: Standard	3: 2 SPDT contacts	T: Vdc/Vac	012 - 024 - 048	T: Tropicalized coil	xx
RGL	F: Railway Fixed Equipment	4: Gold plating			110 - 120 - 220		

RDL	E	4	3	T	048	T	
RDLE43-T048/T = ENERGY series relay with 2 SPDT gold-plated contacts, magnetic arc blow-out and 48V 50Hz tropicalized coil.							
RGL	F	1	3	T	110		
RGLF13-T110 = RGL RAILWAY series relay, fixed equipment, with 2 SPDT contacts, magnetic arc blow-out and 110Vac/dc 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 catalogue "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 catalogue "STATIONS SERIES – LV15-LV16-LV20".

(2) Other values on request.

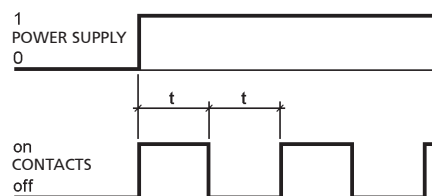
(3) Optional value.

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

## Wiring diagram



## Functional diagram

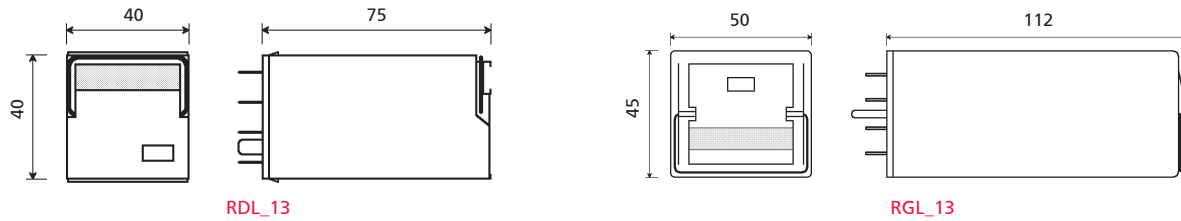


RDL.13, RGL.13

## Time delay

Pulses per minute	55 - 90
Operating cycle	50%
Pulse length	Fixed duration

## Dimensions



RDL\_13

RGL\_13

Sockets and retaining clips		RDL_13		RGL_13	
Type of installation	Type of outputs	Socket	Clip	Socket	Clip
Wall or DIN H35 rail mounting	Screw	PAVD161	VM1822	PAVG161	VM1222
Flush mounting	Double faston (4.8 x 0.8 mm)	-	-	PRDG161	VM1222
	Screw	PRVD161	-	PRVG161	VM1222
PCB-mount		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.