

# RM12




## miniature relays

RM12 1 CO




RM12 1 NO



- DC coils - of up to 60 V DC, insulation class F: 155 °C
- CTI 250 • Reinforced insulation
- For PCB
- Terminals: 3,2 mm for version 1 CO, 5,04 mm for version 1 NO
- Compliance with standards: EN 61810-1, EN 60730-1, EN 60335-1, UL 508, CSA 22.2 No.14-95
- Recognitions, certifications, directives: RoHS,   

### Contact data

Number and type of contacts		1 CO, 1 NO
Contact material		<b>AgNi</b> , AgNi/Au hard gold plating, AgSnO <sub>2</sub> , AgSnO <sub>2</sub> /Au hard gold plating
Rated / max. switching voltage	AC	250 V / 400 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au hard gold plating 10 V AgSnO <sub>2</sub> , 5 V AgSnO <sub>2</sub> /Au hard gold plating
Rated load	AC1 DC1	8 A / 250 V AC 8 A / 24 V DC
Motor load	acc. to UL 508	1/2 HP 240 V AC, 4,9 FLA, single-phase motor 
Min. switching current		5 mA AgNi, 2 mA AgNi/Au hard gold plating 10 mA AgSnO <sub>2</sub> , 2 mA AgSnO <sub>2</sub> /Au hard gold plating
Max. inrush current		10 A
Rated current		8 A
Max. breaking capacity	AC1	2000 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au hard gold plating 1 W AgSnO <sub>2</sub> , 0,05 W AgSnO <sub>2</sub> /Au hard gold plating
Contact resistance		≤ 100 mΩ 100 mA, 24 V
Max. operating frequency	• at rated load AC1 • no load	360 cycles/hour 18 000 cycles/hour

### Coil data


Rated voltage	DC	5, 6, 9, 12, 18, 24, 48, 60 V
Must release voltage		DC: ≥ 0,1 U <sub>n</sub>
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,25 W

### Insulation according to EN 60664-1

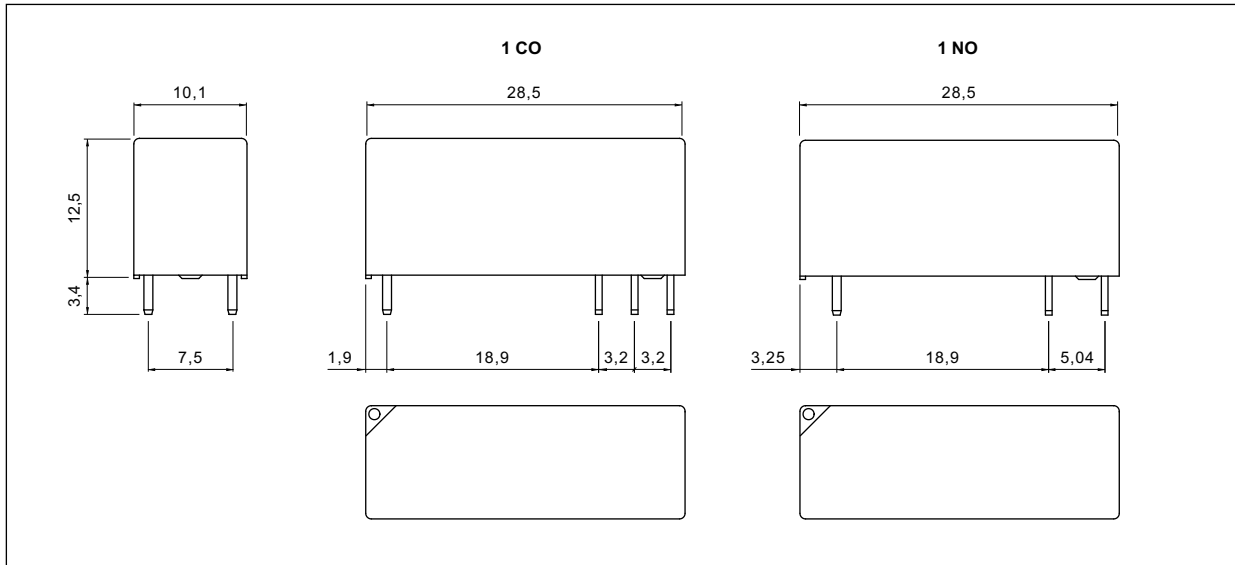
Insulation rated voltage		400 V AC
Rated surge voltage		4 000 V 1,2 / 50 μs
Overvoltage category		III IEC 61810-5
Insulation pollution degree		3
Flammability class		V-0 UL 94
Insulation group (contact plate)		IIIa
Tracking resistance category		2 UL 508
Dielectric strength	• between coil and contacts • contact clearance	5 000 V AC 1 min., type of insulation: reinforced 1 000 V AC 1 min., type of clearance: micro-disconnection
Contact - coil distance	• clearance • creepage	≥ 8 mm ≥ 8 mm

### General data

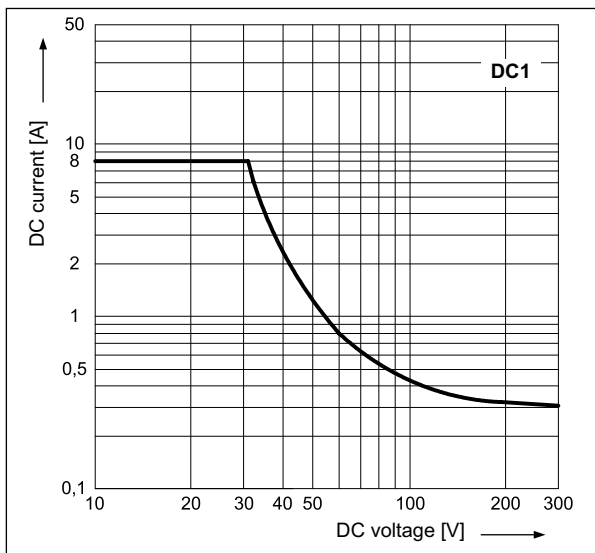
Operating / release time (typical values)		10 ms / 5 ms
Electrical life (number of cycles)	• resistive AC1 • resistive DC1	10 <sup>5</sup> 1 NO, 8 A, 250 V AC, 70 °C (VDE) 6,5 x 10 <sup>4</sup> 1 CO (NO side), 8 A, 250 V AC, 70 °C (VDE) 5 x 10 <sup>4</sup> 1 NO, 8 A, 250 V AC, 85 °C (VDE) > 10 <sup>5</sup> 8 A, 24 V DC
Mechanical life	18 000 cycles/hour	10 <sup>7</sup>
Load according to UL 508		10 A 277 V AC, general purpose B300 inductive load (Pilot Duty)
Dimensions (L x W x H)		28,5 x 10,1 x 12,5 mm
Weight		8 g
Ambient temperature (non-condensation and/or icing)	• storage • operating	-40...+85 °C -40...+85 °C
Cover protection category		IP 40 or <b>IP 67</b> EN 60529
Environmental protection		RTII EN 61810-7
Shock resistance	(NO/NC)	10 g / 5 g EN 60068-2-27, Test Ea
Vibration resistance	(NO/NC)	10 g / 5 g 10...150 Hz EN 60068-2-6, Test Fc

The data in bold type relate to the standard versions of the relays.  For single phase motors for 110-120 V AC do not use motors with higher FLA than given for 240 V AC.

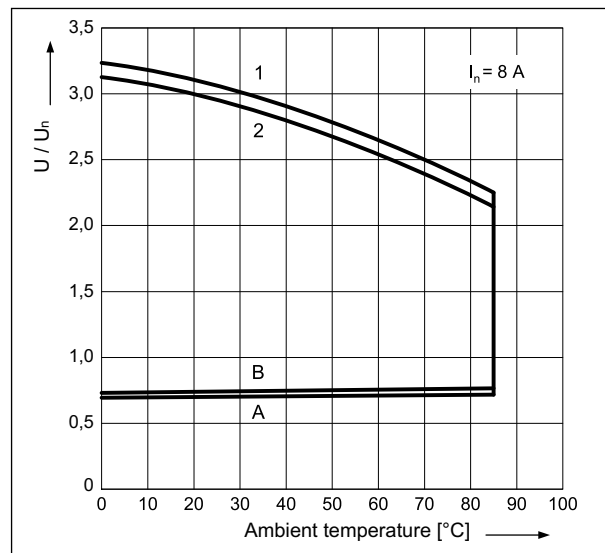
## Dimensions



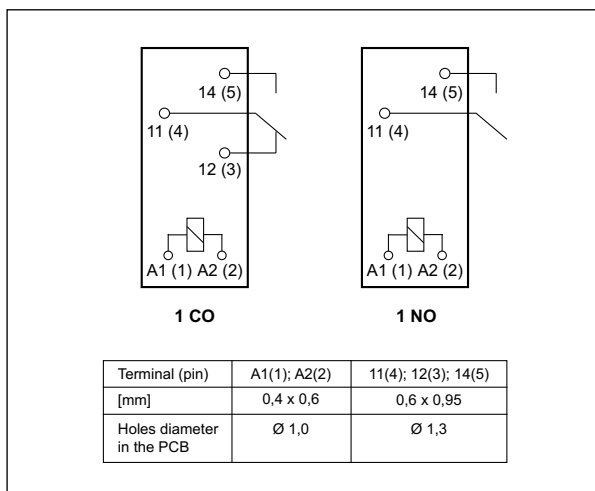
Max. DC resistive load breaking capacity Fig. 1



Coil operating range - DC Fig. 2



## Connection diagrams (pin side view)



## Description of Fig. 2

**A** - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

**B** - relations between make voltage and ambient temperature after initial coil heating up with  $1,1 U_n$  at continues load of  $I_n$  on contacts. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

**1, 2** - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:

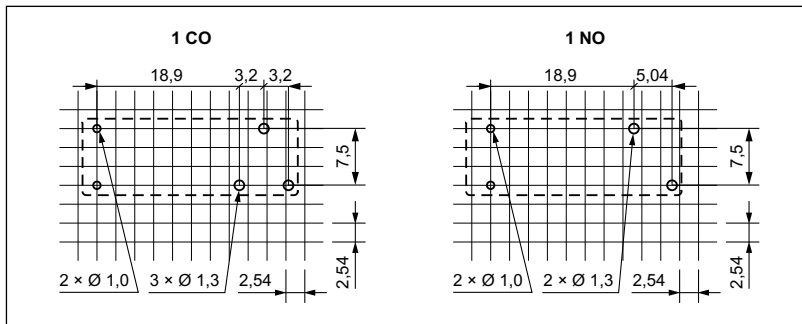
**1** - no load

**2** - rated load

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### Pinout (solder side view)



### Mounting

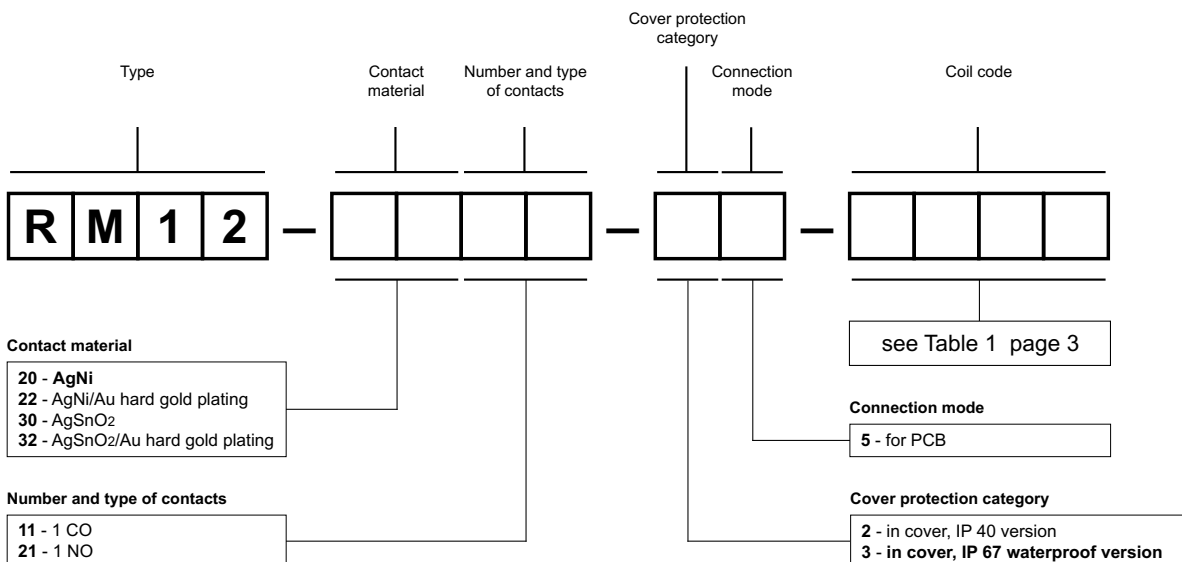
Relays **RM12** are designed for direct PCB mounting.

### Coil data - DC voltage version

Table 1

Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1005	5	102	± 10%	3,5	15,0
1006	6	144	± 10%	4,2	18,0
1009	9	330	± 10%	6,3	27,0
1012	12	580	± 10%	8,4	36,0
1018	18	1 300	± 10%	12,6	54,0
1024	24	2 300	± 10%	16,8	72,0
1048	48	8 800	± 10%	33,6	144,0
1060	60	14 000	± 10%	42,0	180,0

### Ordering codes



Examples of ordering codes:

**RM12-2011-35-1012**

relay **RM12**, for PCB, one changeover contact, contact material AgNi, coil voltage 12 V DC, in cover IP 67

**RM12-3021-25-1024**

relay **RM12**, for PCB, one normally open contact, contact material AgSnO<sub>2</sub>, coil voltage 24 V DC, in cover IP 40

### PRECAUTIONS:

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. 2. Never touch any live parts of the device. 3. Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. 4. In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.