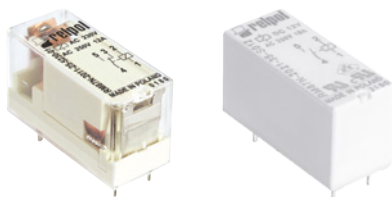


# RM87, RM87 sensitive miniature relays

112

RM87N-...-01 ①

RM87N sensitive



- CTI 250 • 5000 V / 10 mm reinforced insulation
- For PCB and plug-in sockets • **AC and DC coils - standard (RM87), DC coils - sensitive (RM87 sensitive)**, insulation class F: 155 °C
- Available special versions (only for RM87 - standard coil): with transparent cover ①; with the increased dielectric strength of the contact clearance ②
- Compliance with standard EN 60335-1
- Recognitions, certifications, directives: RoHS,

## Contact data

		RM87 - standard coil	RM87 sensitive - sensitive coil
Number and type of contacts		1 CO, 1 NO ②	1 NO
Contact material		<b>AgNi</b> , AgNi/Au hard gold plating, AgSnO <sub>2</sub>	
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>	
Rated load (capacity)		12 A / 250 V AC	10 A / 250 V AC
		AC15	3 A / 120 V 1,5 A / 240 V (B300)
		DC1	12 A / 24 V DC (see Fig. 3) 10 A / 24 V DC (see Fig. 4)
		DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Motor load acc. to UL 508		1/2 HP 240 V AC, 4,9 FLA, single-phase motor ③	
AC3 acc. to IEC 60947-4-1		0,5 kW 240 V AC, single-phase motor	
Min. switching current		5 mA AgNi, 2 mA AgNi/Au hard gold plating, 10 mA AgSnO <sub>2</sub>	
Max. inrush current		25 A AgSnO <sub>2</sub>	20 A AgSnO <sub>2</sub>
Rated current		12 A	10 A
Max. breaking capacity AC1		3 000 VA	2 500 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au hard gold plating, 1 W AgSnO <sub>2</sub>	
Contact resistance		≤ 100 mΩ	
Max. operating frequency		<ul style="list-style-type: none"> <li>• at rated load AC1: 600 cycles/hour</li> <li>• no load: 72 000 cycles/hour</li> </ul>	

## Coil data

Rated voltage 50/60 Hz AC		12, <b>24</b> , 48, 60, 110, 115, 120, 220, <b>230</b> , 240 V	—
DC		3, 5, 6, 9, 12, 18, <b>24</b> , 36, 48, 60, 110 V	5, 6, 9, 10, 12, 18, 24, 48 V
Must release voltage		AC: ≥ 0,15 U <sub>n</sub> DC: ≥ 0,1 U <sub>n</sub>	
Operating range of supply voltage		see Tables 1, 3 and Fig. 5, 7	
Rated power consumption AC		0,75 VA	—
DC		0,4 ... 0,48 W	0,25 W

## Insulation according to EN 60664-1

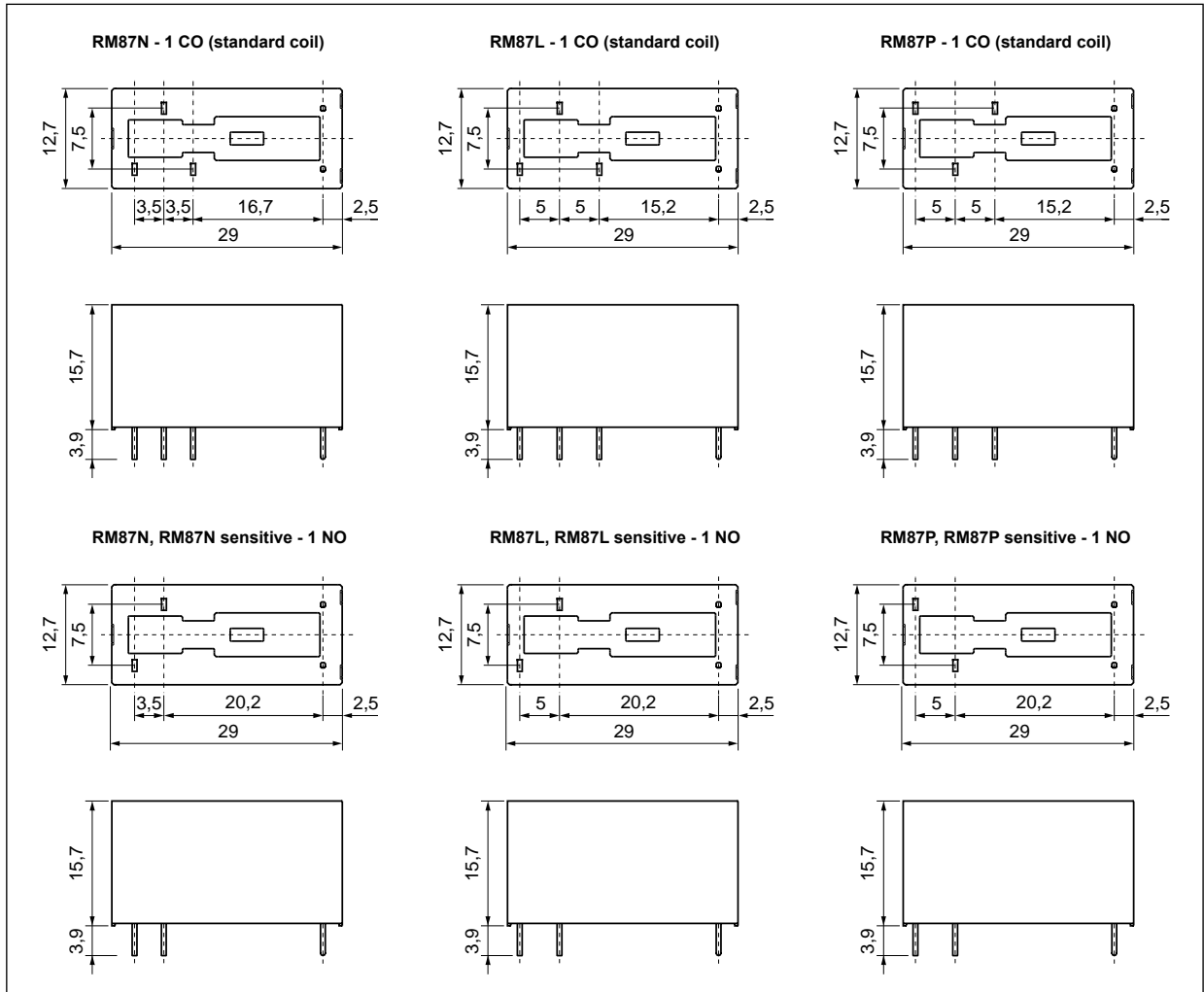
Insulation rated voltage		400 V AC	
Rated surge voltage		4 000 V 1,2 / 50 μs	
Overvoltage category		III	
Insulation pollution degree		3	
Dielectric strength		<ul style="list-style-type: none"> <li>• between coil and contacts: 5 000 V AC type of insulation: reinforced</li> <li>• contact clearance: 1 000 V AC type of clearance: micro-disconnection</li> <li>2 000 V AC contact 1 NO, type of clearance: full-disconnection ②</li> </ul>	
Contact - coil distance		<ul style="list-style-type: none"> <li>• clearance: ≥ 10 mm</li> <li>• creepage: ≥ 10 mm</li> </ul>	

## General data

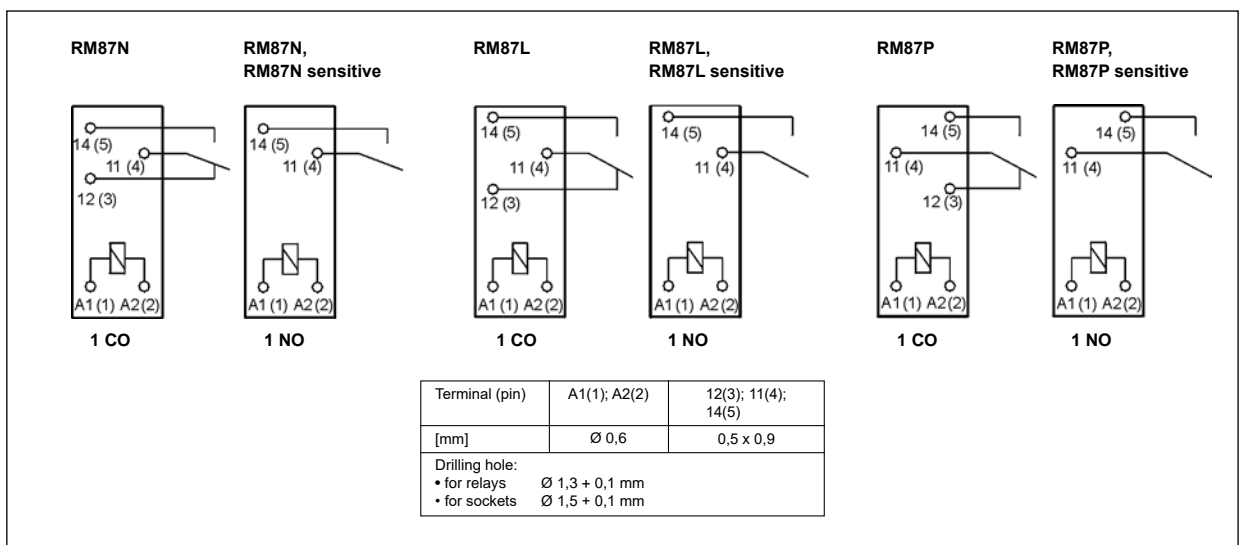
Operating / release time (typical values)		7 ms / 3 ms	
Electrical life (number of cycles)		<ul style="list-style-type: none"> <li>• resistive AC1: &gt; 10<sup>5</sup> 12 A, 250 V AC</li> <li>• cosφ: see Fig. 2</li> <li>• DC L/R=40 ms: &gt; 10<sup>5</sup> 0,15 A, 220 V DC</li> </ul>	
Mechanical life (cycles)		> 3 x 10 <sup>7</sup>	
Dimensions (L x W x H) / Weight		29 x 12,7 x 15,7 mm / 14 g	
Ambient temperature (non-condensation and/or icing)		<ul style="list-style-type: none"> <li>• storage: -40...+85 °C</li> <li>• operating: AC: -40...+70 °C DC: -40...+85 °C -20...+70 °C ①</li> </ul>	
Cover protection category		IP 40 ① or IP 67	EN 60529
Environmental protection		RTII ① or RTIII	EN 61810-7
Shock / vibration resistance		30 g / 10 g 10...150 Hz	
Solder bath temperature / Soldering time		max. 270 °C / max. 5 s	

The data in bold type relate to the standard versions of the relays. ① Relate to the special versions - relays with transparent cover, only available with IP 40 and RTII, operating temperature -20...+70 °C. See "Ordering codes". ② Relate to the special versions - relays with one normally open contact 1 NO, with increased contact gap - dielectric strength 2000 V AC, only available with DC coils. See "Ordering codes". ③ For single phase motors for 110-120 V AC do not use motors with higher FLA than given for 240 V AC.

## Dimensions

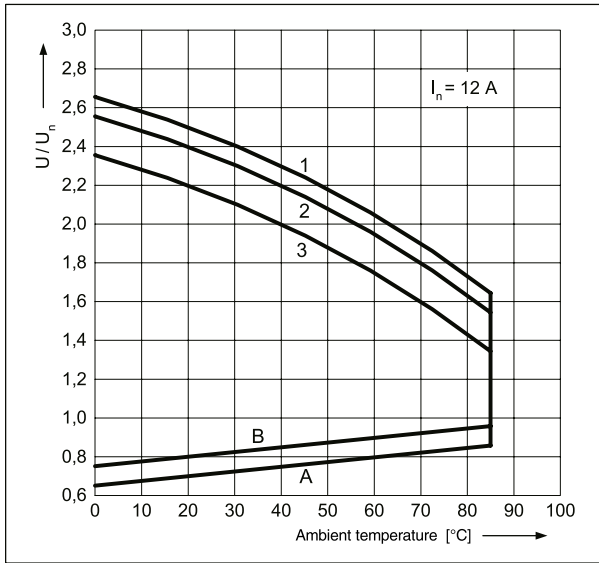


## Connection diagrams (pin side view)



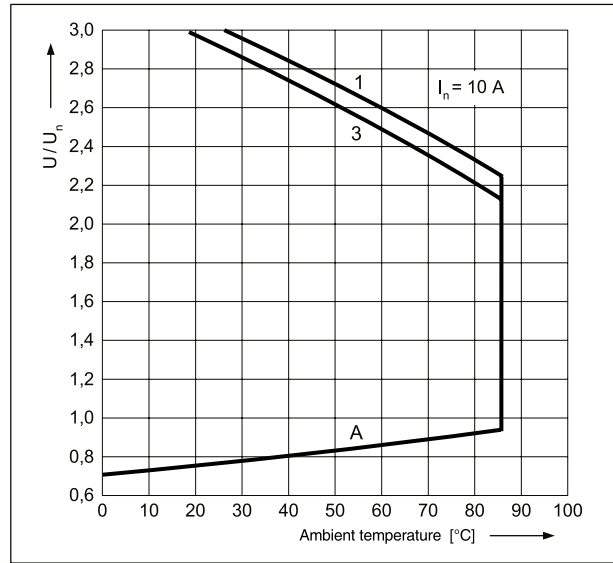
**Coil operating range - DC**  
- standard coil

Fig. 5



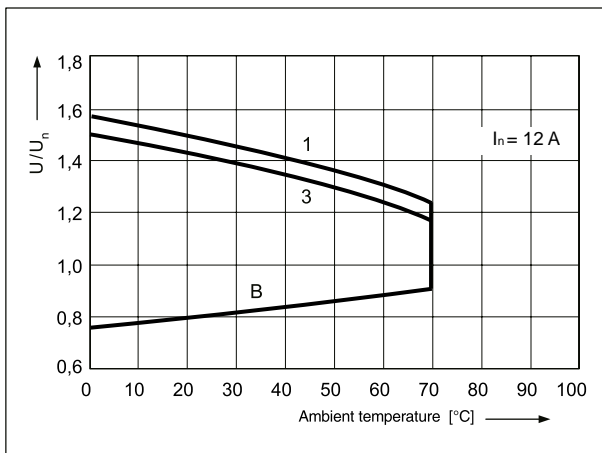
**Coil operating range - DC**  
- sensitive coil

Fig. 6



**Coil operating range - AC 50 Hz**

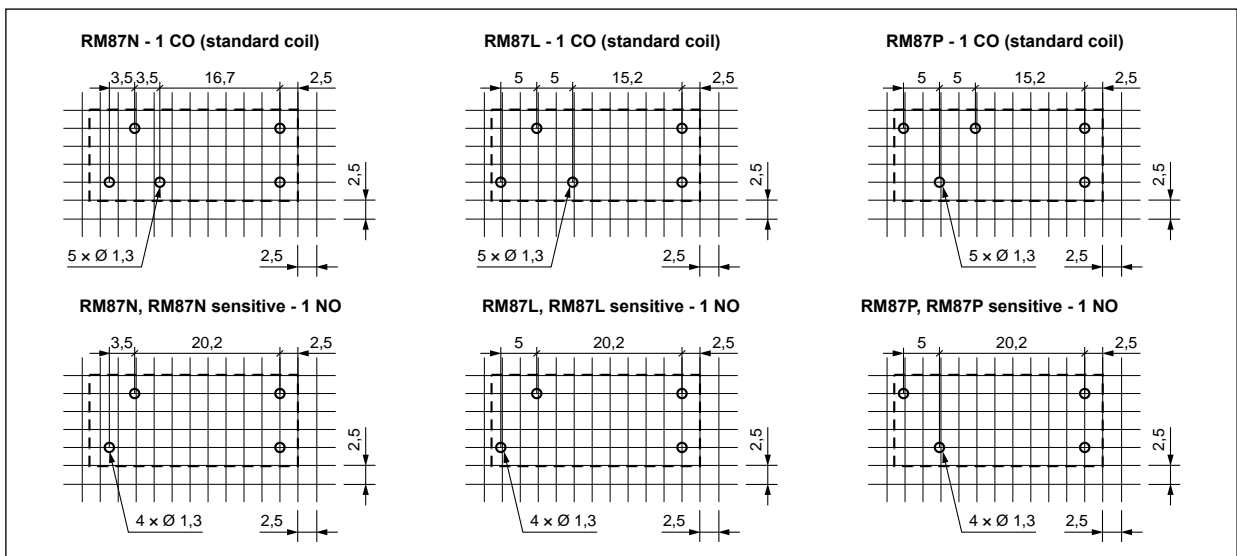
Fig. 7



**Description of Fig. 5, 6 and 7**

**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, 3** - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:  
**1** - no load  
**2** - 50% of rated load  
**3** - rated load

**Pinout (solder side view)**



## Mounting, sockets and accessories for relays

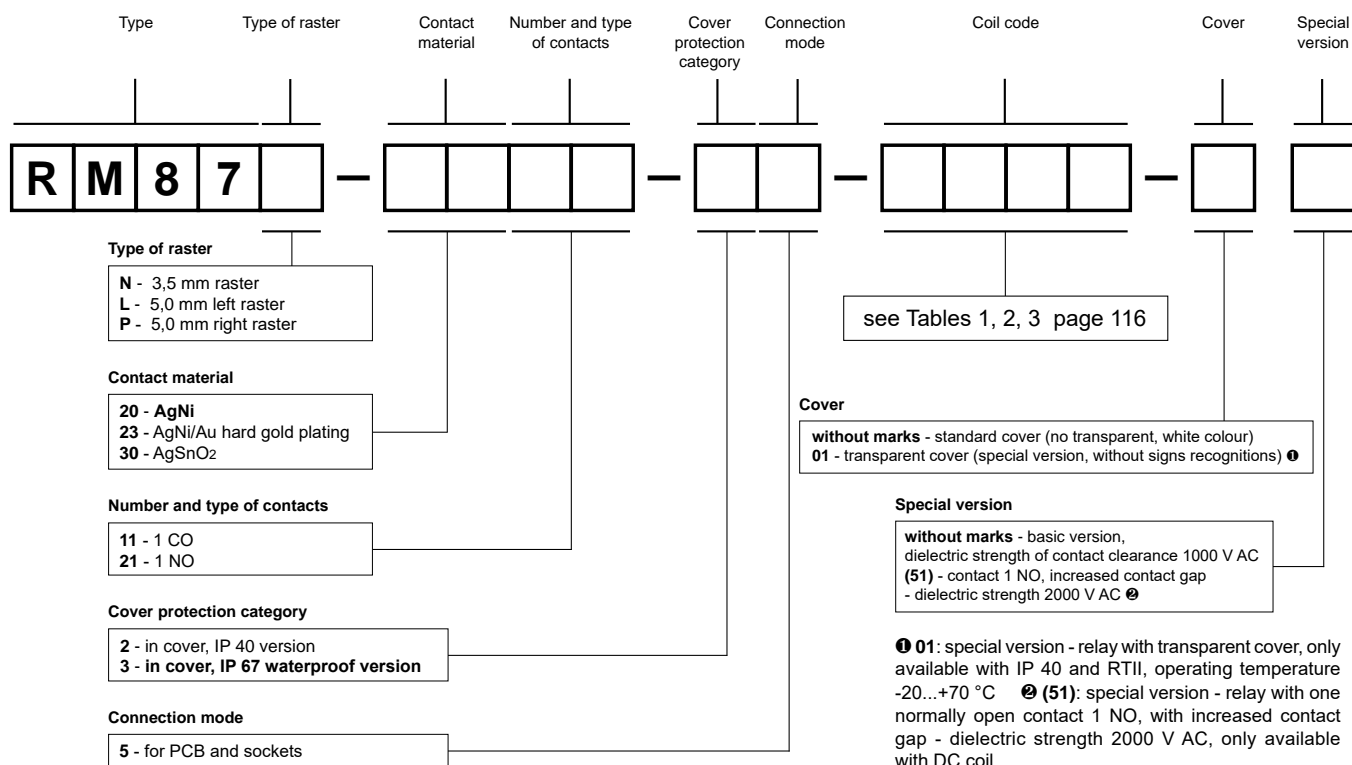
Relays **RM87N** ①, **RM87N sensitive** and **RM87L** ②, **RM87L sensitive**, **RM87P** ③, **RM87P sensitive** are designed for: • direct PCB mounting • plug-in sockets.

Sockets for RM87N ...	Sockets for RM87L ..., RM87P ...	Accessories			Additional features
		Retainer / retractor clips	Spring wire clips	Description plates	
<b>Screw terminals sockets</b> , 35 mm rail mount (acc. to EN 60715) or on panel mounting (one M3 screw)					
GZT92	GZT80	GZT80-0040	GZM80-0041	GZT80-0035	modules ④, strips ⑤
GZM92	GZM80	GZT80-0040	GZM80-0041	GZT80-0035	modules ④, strips ⑤
GZS92	GZS80	GZS-0040	GZM80-0041	TR	modules ④, strips ⑤
–	GZF80	–	GZM80-0041	–	–
<b>Spring terminals sockets</b> , 35 mm rail mount (acc. to EN 60715)					
–	GZMB80 ⑥	GZMB80-0040	GZM80-0041	TR	modules ④
<b>Sockets for PCB</b>					
EC 35	EC 50	–	MP16-2 ⑦, MH16-2	–	–
–	PW80	–	MH16-2	–	–
GD35	GD50	–	MP16-2 ⑧, MH16-2, GD-0016	–	–

① For relays with transparent cover: the distance at least 5 mm between the relays mounted side by side. ⑥ Sockets GZMB80: wire connection - see page 361. ⑦ Signalling / protecting modules type M... - see page 376. ⑧ Interconnection strips ZGGZ80 - see page 377. ④ Plastic clips MP16-2.

## Ordering codes

**RM87 sensitive** - sensitive coil: relays only available with one normally open contact.



Examples of ordering code:

**RM87N-2011-25-1024-01** relay **RM87N**, 3,5 mm raster, for PCB and sockets, one changeover contact, contact material AgNi, coil voltage 24 V DC, with transparent cover (special version, without signs recognitions) IP 40

**RM87P-3021-35-S012** relay **RM87P sensitive**, 5 mm right raster, for PCB and sockets, one normally open contact, contact material AgSnO<sub>2</sub>, sensitive coil voltage 12 V DC, in standard cover (no transparent, white colour) IP 67