



RM87N sensitive

- Cadmium - free contacts • Height 15,7 mm
- 5000 V / 10 mm reinforced insulation
- For PCB and plug-in sockets
- Accessories: sockets and modules
- **AC and DC coils - standard (RM87N, RM87L, RM87P), DC coils - sensitive (RM87N sensitive)**
- Recyclable packing
- Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts	1 C/O, 1 NO		
Contact material	AgNi , AgNi/Au 5 µm, AgSnO ₂		
Max. switching voltage	AC/DC	400 V / 300 V	
Min. switching voltage	5 V AgNi, 5 V AgNi/Au 5 µm, 10 V AgSnO ₂		
Rated load	AC1	12 A / 250 V AC standard version	10 A / 250 V AC sensitive version
	DC1	12 A / 24 V DC standard version	10 A / 24 V DC sensitive version
Min. switching current	5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA AgSnO ₂		
Max. inrush current	25 A AgSnO ₂ standard version		
Rated current	12 A standard version		
Max. breaking capacity	AC1	3 000 VA standard version	2 500 VA sensitive version
Min. breaking capacity	0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 1 W AgSnO ₂		
Contact resistance	≤ 100 mΩ		
Max. operating frequency	AC1	600 cycles/hour	
• at rated load		72 000 cycles/hour	

Coil data

Rated voltage	50/60 Hz AC	12...240 V standard version	
	DC	3...110 V standard version	5...48 V sensitive version
Must release voltage	AC: ≥ 0,15 U _n DC: ≥ 0,1 U _n		
Operating range of supply voltage	see Tables 1, 3 and Fig. 5, 7 standard version see Table 2 and Fig. 6 sensitive version		
Rated power consumption	AC	0,75 VA standard version	
	DC	0,4...0,48 W standard version	0,25 W sensitive version

Insulation

Insulation category	C250 / B400		
Insulation rated voltage	400 V AC		
Rated surge voltage	4 000 V AC		
Overvoltage category	III PN-EN 60664-1		
Insulation pollution degree	3		
Dielectric strength			
• between coil and contacts	5 000 V AC		
• contact clearance	1 000 V AC		
Contact - coil distance			
• clearance	≥ 10 mm		
• creepage	≥ 10 mm		

General data

Operating time (typical value)	7 ms				
Release time (typical value)	3 ms				
Electrical life					
• resistive AC1	> 10 ⁵ 12 A, 250 V AC standard version > 1,7 × 10 ⁵ 10 A, 250 V AC sensitive version see Fig. 2 > 10 ⁵ 0,15 A, 220 V DC				
Mechanical life (cycles)	> 3 × 10 ⁷				
Dimensions (L x W x H)	29 x 12,7 x 15,7 mm				
Weight	14 g				
Ambient temperature	• storage	-40...+85 °C			
	• operating	AC: -40...+70 °C DC: -40...+85 °C			
Cover protection category	IP 40 or IP 67				
Environmental protection	RTII PN-EN 116000-3				
Shock resistance	30 g				
Vibration resistance	10 g 10...150 Hz				
Solder bath temperature	max. 270 °C				
Soldering time	max. 5 s				

The data in bold type pertain to the standard versions of the relays.

RM87

miniature relays

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Coil data - standard DC voltage version

Table 1

Coil code	Rated voltage V DC	Coil resistance $\pm 10\%$ at 20 °C Ω	Coil operating range at 20 °C V DC	
			min.	max.
1003	3	22	2,1	7,6
1005	5	60	3,5	12,7
1006	6	90	4,2	15,3
1009	9	200	6,3	22,9
1012	12	360	8,4	30,6
1018	18	710	12,6	45,9
1024	24	1 440	16,8	61,2
1036	36	3 140	25,2	91,8
1048	48	5 700	33,6	122,4
1060	60	7 500	42,0	153,0
1110	110	25 200	77,0	280,0

The data in bold type pertain to the standard versions of the relays.

Coil data - sensitive DC voltage version (only for RM87N)

Table 2

Coil code	Rated voltage V DC	Coil resistance $\pm 10\%$ at 20 °C Ω	Coil operating range at 20 °C V DC	
			min.	max.
S005	5	102	3,75	15,0
S006	6	144	4,50	18,0
S009	9	330	6,75	27,0
S010	10	400	7,50	30,0
S012	12	580	9,00	36,0
S018	18	1 300	13,50	54,0
S024	24	2 300	18,00	72,0
S048	48	9 340	36,00	144,0

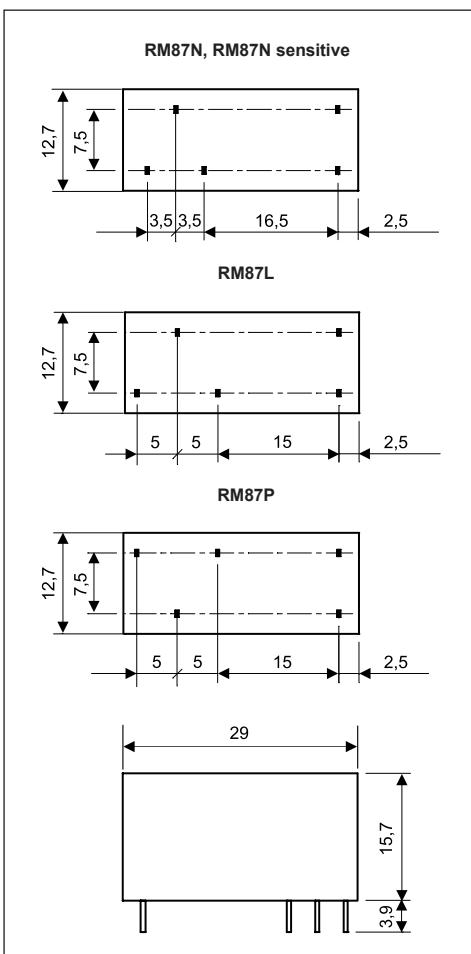
Coil data - AC 50/60 Hz voltage version

Table 3

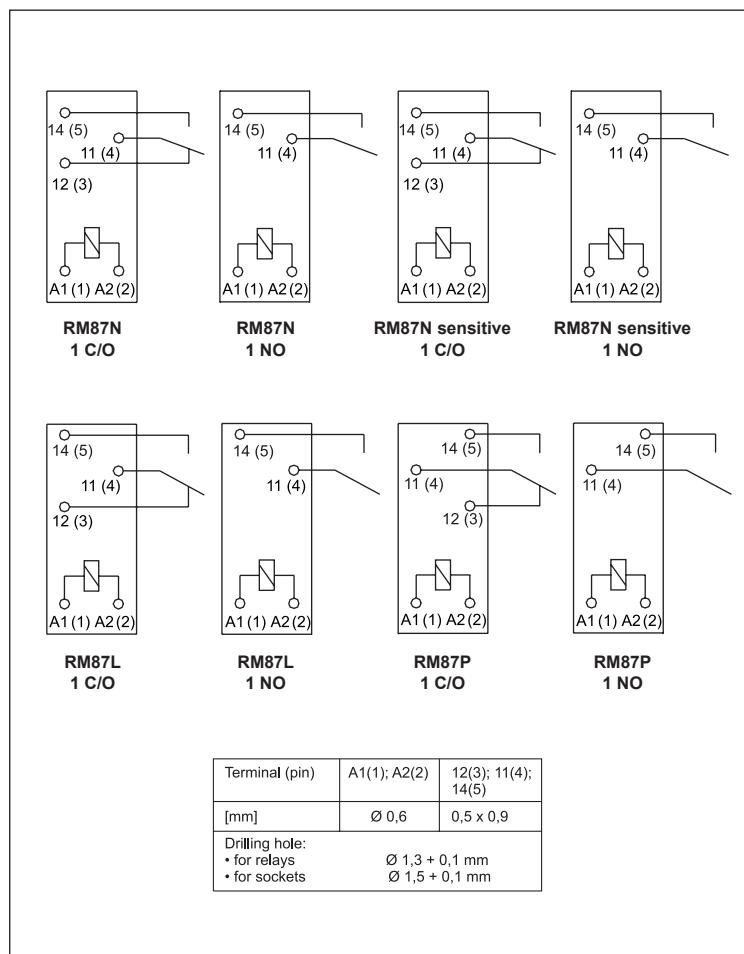
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range at 20 °C V AC - 50 Hz	
				min.	max.
5012	12	100	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
5048	48	1 550	$\pm 10\%$	38,4	57,6
5060	60	2 600	$\pm 10\%$	48,0	72,0
5110	110	8 900	$\pm 10\%$	88,0	132,0
5115	115	9 600	$\pm 10\%$	92,0	138,0
5120	120	10 200	$\pm 10\%$	96,0	144,0
5220	220	35 500	$\pm 10\%$	176,0	264,0
5230	230	38 500	$\pm 10\%$	184,0	276,0
5240	240	42 500	$\pm 15\%$	192,0	288,0

The data in bold type pertain to the standard versions of the relays.

Dimensions

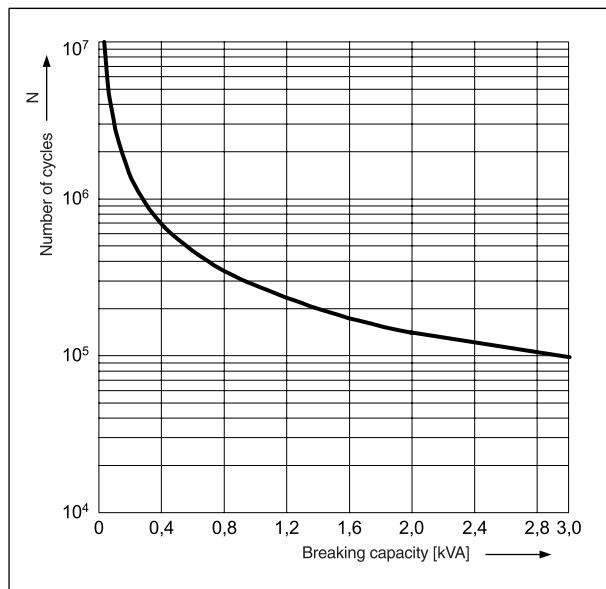


Connections diagrams (pin side view)



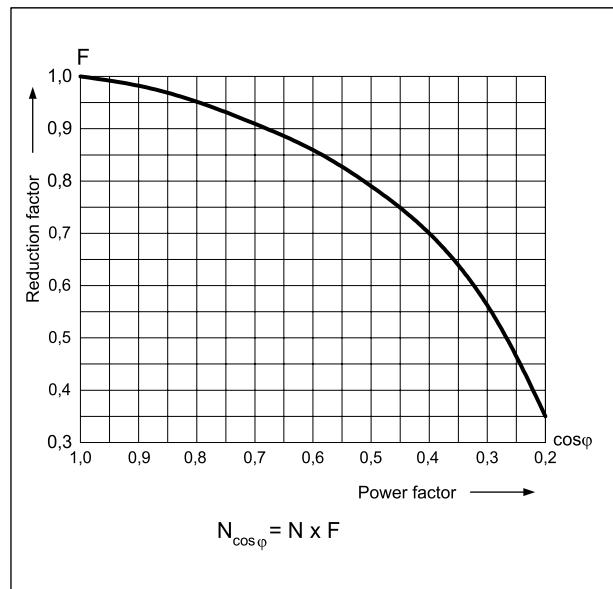
Electrical life at AC resistive load.
Maximum switching frequency at rated load

Fig. 1



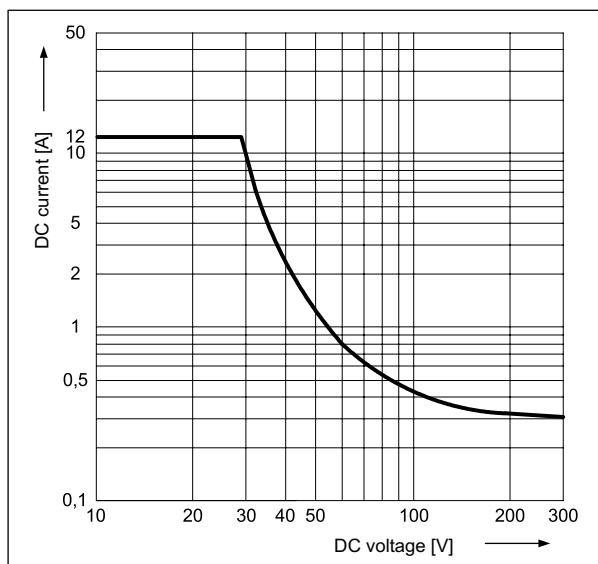
Electrical life reduction factor
at AC inductive load

Fig. 2



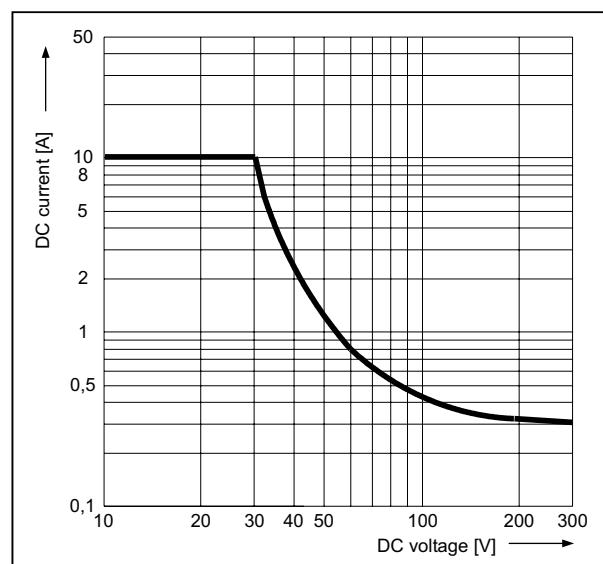
**Max. DC resistive load breaking capacity
- standard version**

Fig. 3



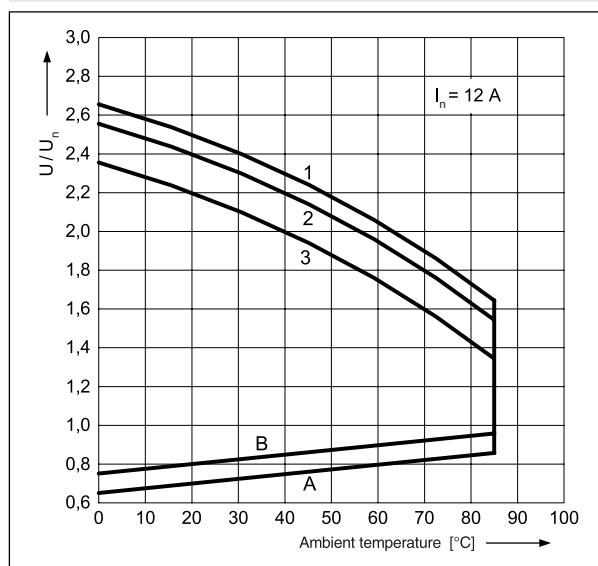
**Max. DC resistive load breaking capacity
- sensitive version**

Fig. 4



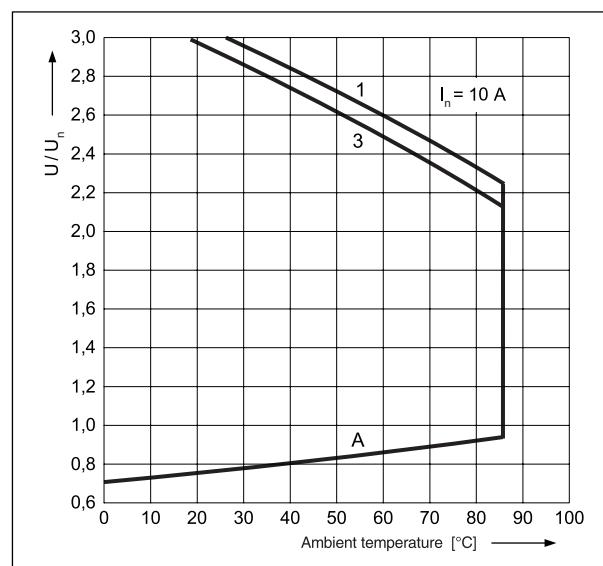
**Coil operating range - DC
- standard version**

Fig. 5



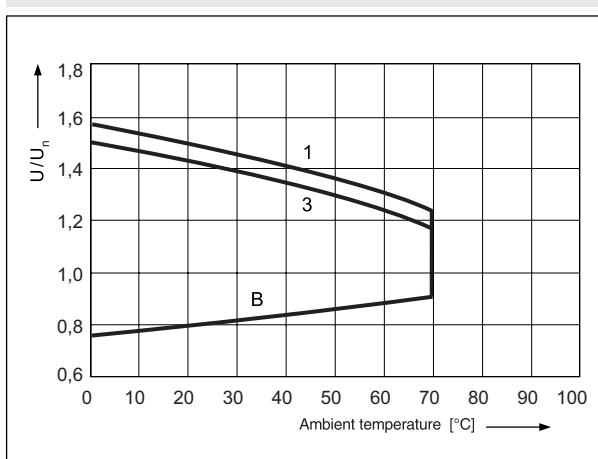
**Coil operating range - DC
- sensitive version**

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).

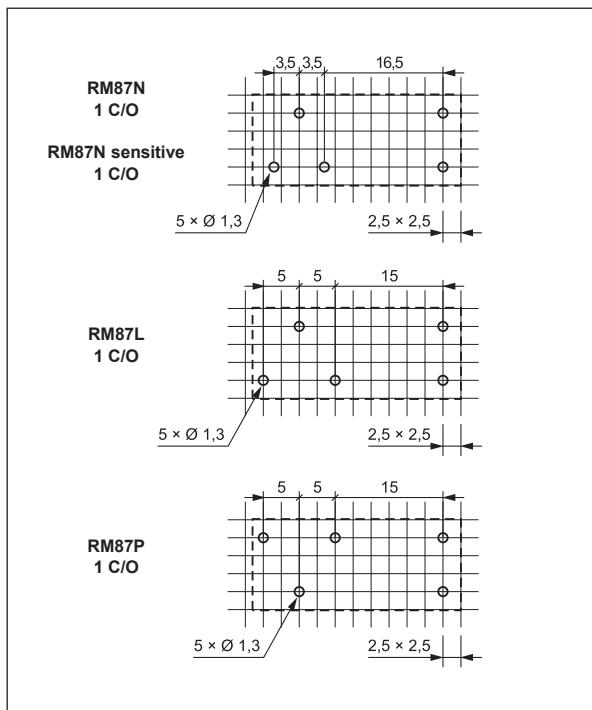
1, 2, 3 - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:

1 - no load

2 - 50% of rated load

3 - rated load

Mounting openings raster (solder side view)



Mounting

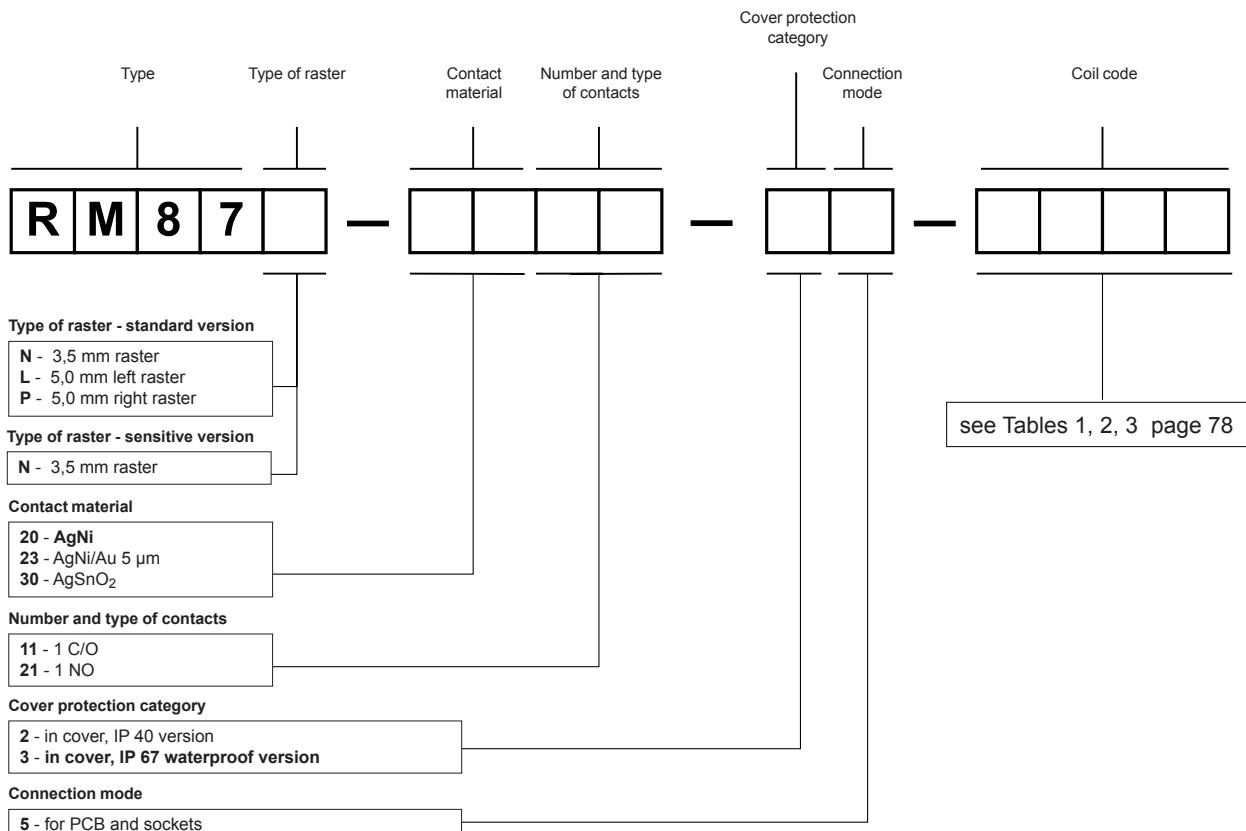
Relays **RM87N, RM87N sensitive** are designed for:

- direct PCB mounting • screw terminals plug-in sockets **GZT92** and **GZM92** with clip **GZT80-0040**, 35 mm DIN rail mount, EN 50022 or on panel mounting. Signalling / protecting modules type **M...** are available with sockets (see page 198) • plug-in sockets for PCB mounting **EC35** with clip **MH16-2**.

Relays **RM87L, RM87P** are designed for:

- direct PCB mounting • screw terminals plug-in sockets **GZT80** and **GZM80** with clip **GZT80-0040**, 35 mm DIN rail mount, EN 50022 or on panel mounting. Signalling / protecting modules type **M...** are available with sockets (see page 198) • plug-in sockets for PCB mounting **PW80** and **EC50** with clip **MH16-2**.

Ordering codes



Example of ordering code:

RM87N-2011-25-1012 relay RM87, 3,5 mm raster, contact material AgNi, with one changeover contact, in cover IP 40, for PCB and sockets, voltage version 12 V DC