



- Cadmium - free contacts
- Height 16 mm
- 5000 V / 10 mm reinforced insulation
- For PCB and sockets
- Accessories: sockets and modules
- Coil standard version: AC and DC; sensitive version: DC
- Recyclable packing

Contacts

Contact number & arrangement	1C/O, 1NO	
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	standard coil: 12 A / 250 V AC sensitive coil: 10 A / 250 V AC
	DC1	standard coil: 12 A / 24 V DC sensitive coil: 10 A / 24 V DC
Min. switching current	5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA AgSnO ₂	
Max. inrush current	standard coil: 25 A AgSnO ₂ sensitive coil: 20 A AgSnO ₂	
Rated current	standard coil: 12 A sensitive coil: 10 A	
Max. breaking capacity	AC1	standard coil: 3 000 VA sensitive coil: 2 500 VA
Min. breaking capacity	0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 1 W AgSnO ₂	
Resistance	≤ 100 mΩ	
Max. operating frequency	AC1	• at rated load 600 cycles/hour
		• no load 72 000 cycles/hour

Coil

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

Insulation

Insulation category	C250 / B400	
Insulation rated voltage	400 V AC	
Dielectric strength	• coil - contact 5 000 V AC	
	• contact - contact 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 standard coil: > 10 ⁵ 12 A, 250 V AC sensitive coil: > 1,7 x 10 ⁵ 10 A, 250 V AC see Fig. 2	
	• cos φ > 10 ⁵ 0,12 A, 220 V DC	
	• L/R=40 ms	
Mechanical life (cycles)	> 3 x 10 ⁷	
Dimensions (L x W x H)	29 x 12,7 x 15,7 mm	
Weight	14 g	
Ambient temperature:	• storing	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C
Cover protection category	IP 40 or IP 67	
Shock resistance	30 g	
Vibration resistance	10 g 10...150 Hz	
Solder bath temperature	max. 270 °C	
Soldering time	max. 5 s	

Standard contact material marked with bolt type.



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

Standard coil rated voltages marked with bold type.

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
S060	60	14 580	45,00	180,0

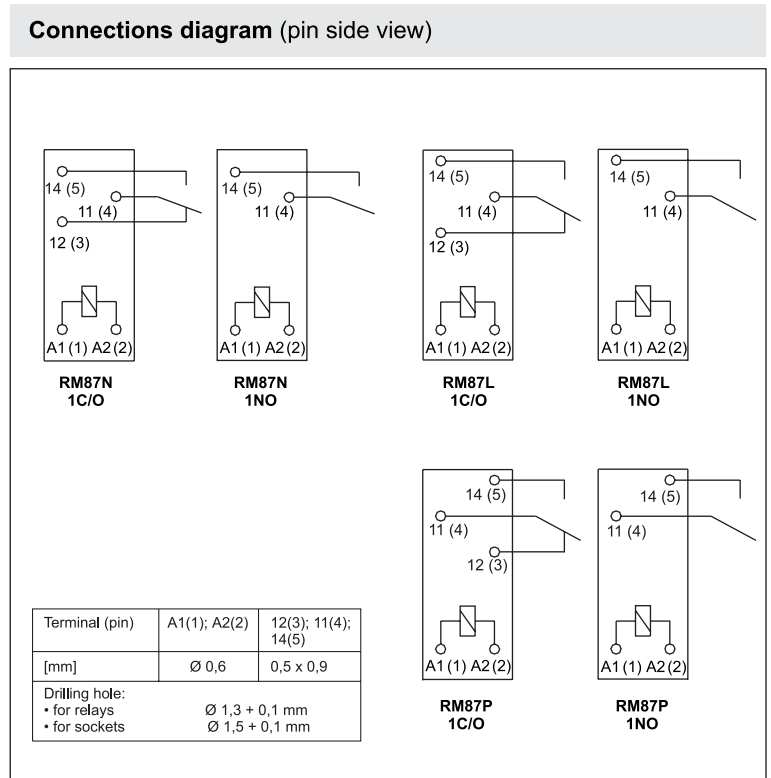
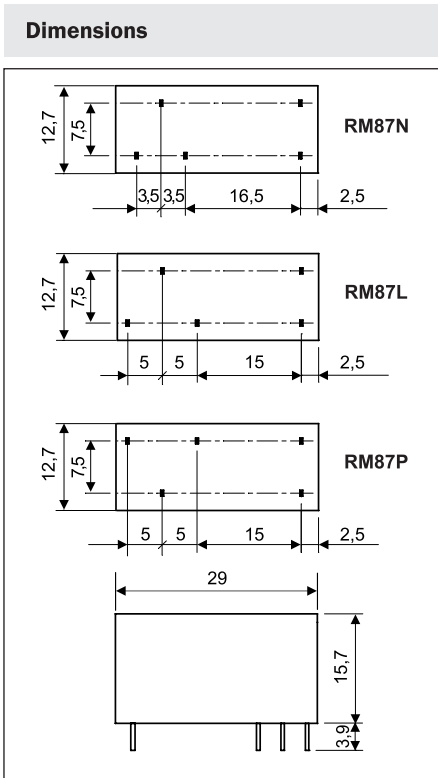
Coil data - AC 50/60 Hz voltage version

Table 3

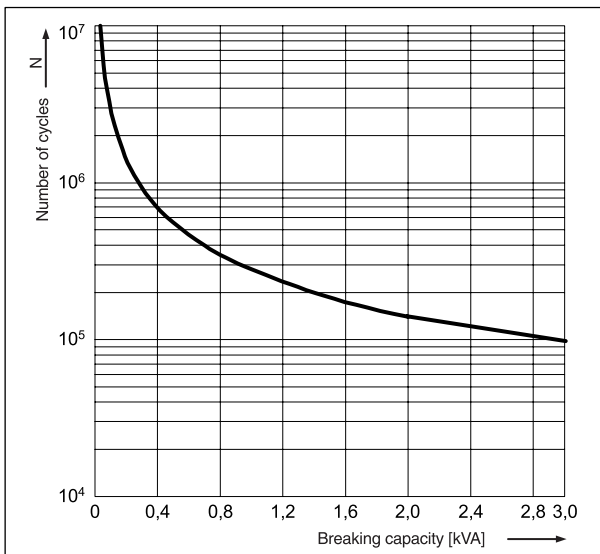
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Tolerance of resistance	Coil operating range at 20 °C V AC	
				min.	max.
5012	12	100	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
5048	48	1 550	$\pm 10\%$	38,4	57,6
5060	60	2 600	$\pm 10\%$	48,0	72,0
5110	110	8 900	$\pm 10\%$	88,0	132,0
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

Standard coil rated voltages marked with bold type.

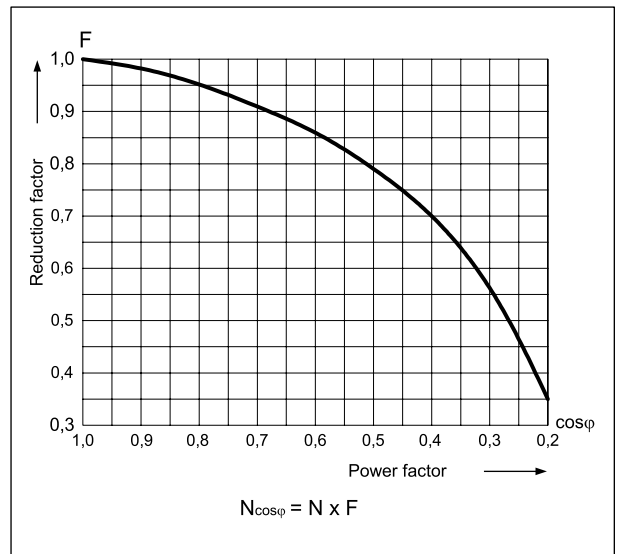




Electrical life at AC resistive load Fig. 1

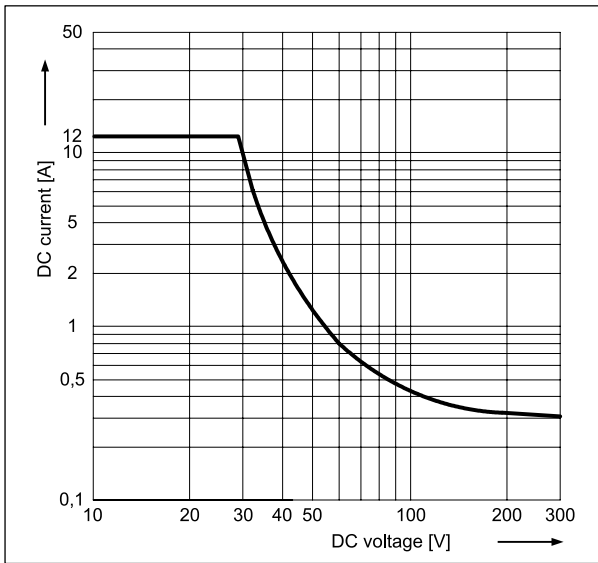


Electrical life reduction factor at AC inductive load Fig. 2



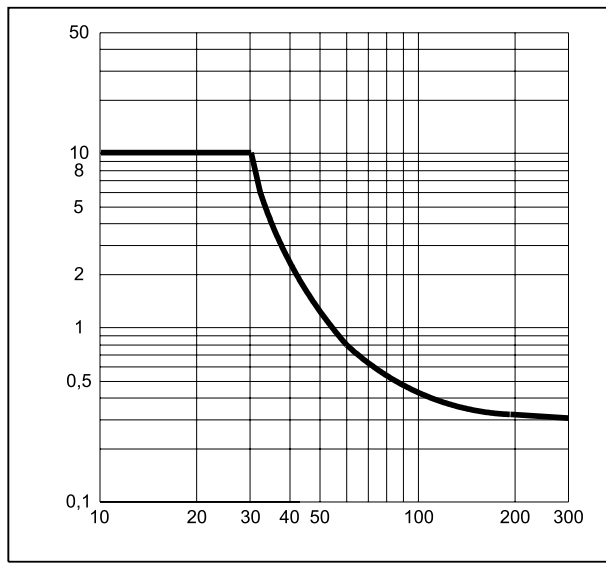
Max. DC resistive load breaking capacity - standard version

Fig. 3



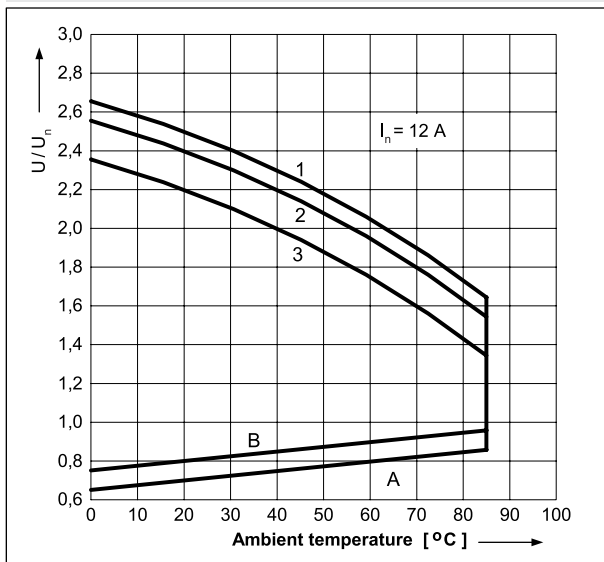
Max. DC resistive load breaking capacity - sensitive version

Fig. 4



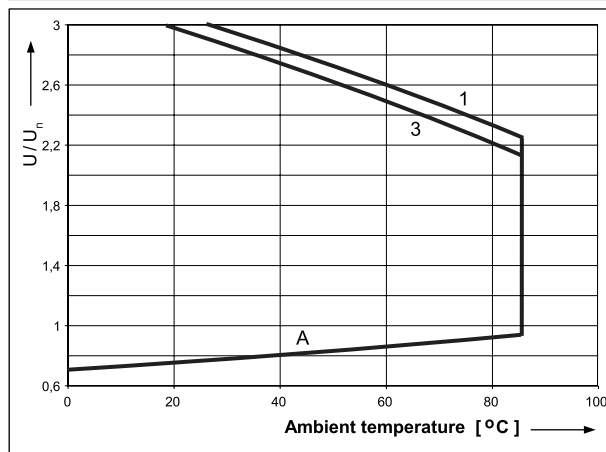
Coil operating range - DC - standard version

Fig. 5



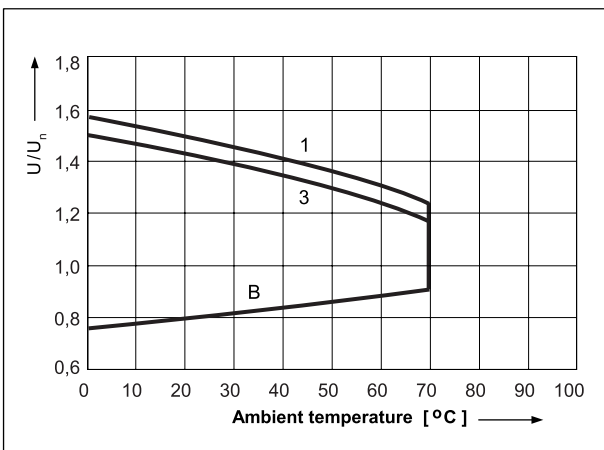
Coil operating range - DC - sensitive version

Fig. 6



Coil operating range - AC

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

Relays **RM87N** are designed for: • direct PCB mounting • screw terminals sockets **GZT92** and **GZM92** with clip **GZT80-0040**, 35 mm DIN rail mount, EN 50022 or on panel mounting. **M...** type signalling and protection plug-in modules are available with sockets (see page 170) • terminals sockets for PCB mounting **GW92** with clip **MH16-2**.

Relays **RM87L**, **RM87P** are designed for: • direct PCB mounting • screw terminals sockets **GZT80** and **GZM80** with clip **GZT80-0040**, 35 mm DIN rail mount, EN 50022 or on panel mounting. **M...** type signalling and protection plug-in modules are available with sockets (see page 170) • terminals sockets for PCB mounting **PW80** and **GW80** with clip **MH16-2**.

Ordering codes

