





# RM85

## miniature relays



- 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
- Available special versions: with transparent cover ❶;  
with the increased dielectric strength of the contact clearance ❷
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,    

### Contact data

Number and type of contacts		1 CO, 1 NO ❷
Contact material		<b>AgNi</b> , AgNi/Au hard gold plating, AgSnO <sub>2</sub>
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au hard gold plating, 10 V AgSnO <sub>2</sub>
Rated load (capacity)	AC1 AC15 AC3 DC1 DC13	16 A / 250 V AC 3 A / 120 V      1,5 A / 240 V (B300) 750 W (single-phase motor) 16 A / 24 V DC (see Fig. 3) 0,22 A / 120 V    0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au hard gold plating, 10 mA AgSnO <sub>2</sub>
Max. inrush current		30 A AgSnO <sub>2</sub>
Rated current		16 A
Max. breaking capacity	AC1	4 000 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		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

### Coil data

Rated voltage	50/60 Hz AC DC	12 ... 240 V 3 ... 110 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, 2 and Fig. 4, 5
Rated power consumption	AC DC	0,75 VA 0,4 ... 0,48 W

### Insulation according to PN-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	• between coil and contacts • contact clearance	5 000 V AC      type of insulation: reinforced 1 000 V AC      type of clearance: micro-disconnection 2 000 V AC      contact 1 NO, type of clearance: full-disconnection ❷
Contact - coil distance	• clearance • creepage	≥ 10 mm ≥ 10 mm

### General data

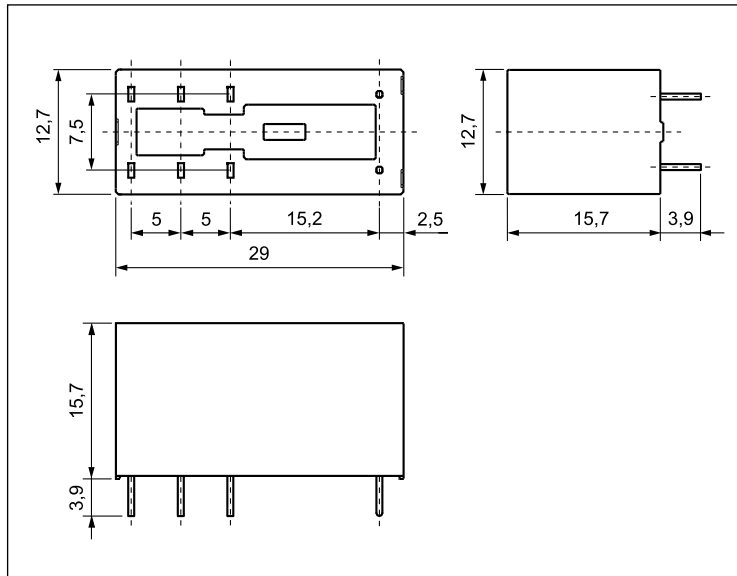
Operating / release time (typical values)		7 ms / 3 ms
Electrical life (number of cycles)		
• resistive AC1		> 0,7 x 10 <sup>5</sup> 16 A, 250 V AC > 10 <sup>4</sup> 20 A, 250 V AC, 85 °C (RM85-3021-25-1...)
• cosφ		see Fig. 2
• DC L/R=40 ms		> 10 <sup>5</sup> 0,15 A, 220 V DC
Mechanical life (cycles)		> 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	• storage • operating	-40...+85 °C AC: -40...+70 °C DC: -40...+85 °C    -20...+70 °C ❶
Cover protection category		IP 40 ❶ or IP 67      PN-EN 60529
Environmental protection		RTII ❶ or RTIII      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 relate to the standard versions of the relays. ❶ Relate to the special versions - relays with transparent cover, only available with IP 40 and RTII, operating temperature -20...+70 °C. See "Ordering codes". ❷ 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".

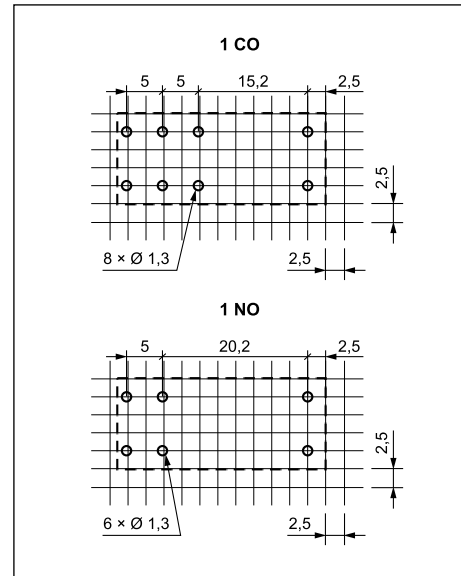
# RM85

## miniature relays

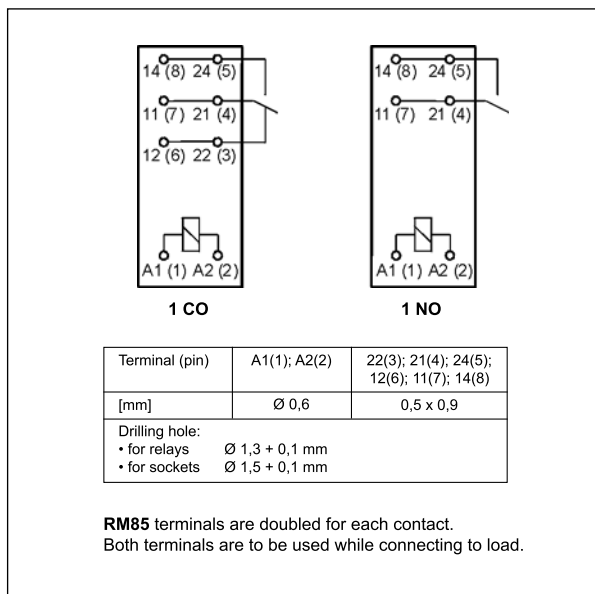
### Dimensions



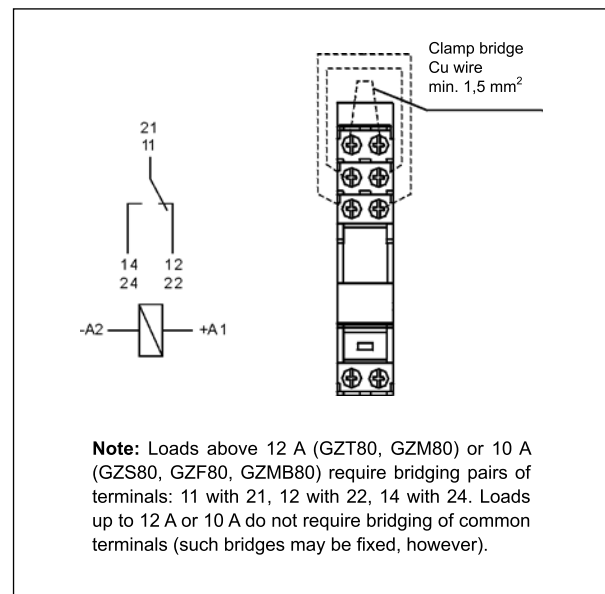
### Pinout (solder side view)



### Connection diagrams (pin side view)

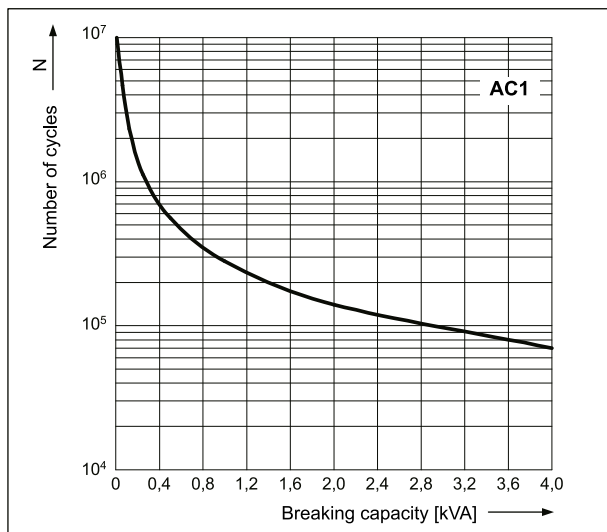


### Connection of GZ... sockets



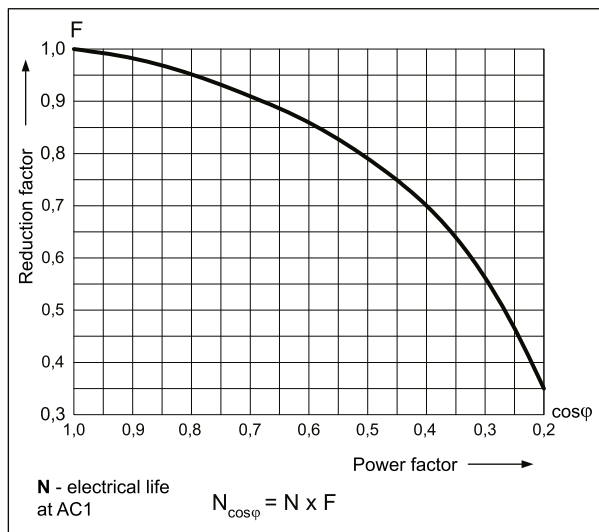
**Electrical life at AC resistive load.**  
Switching frequency: 600 cycles/hour

Fig. 1



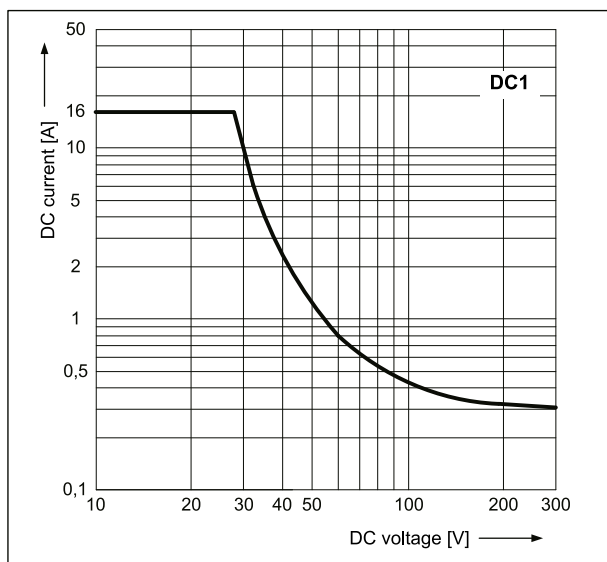
**Electrical life reduction factor at AC inductive load**

Fig. 2



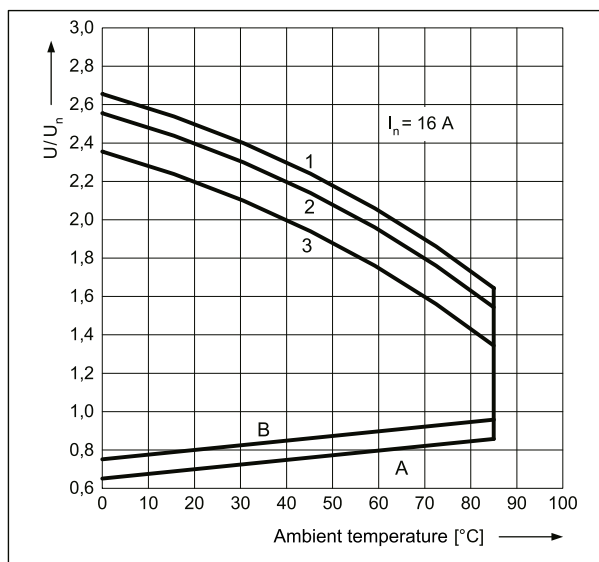
**Max. DC resistive load breaking capacity**

Fig. 3



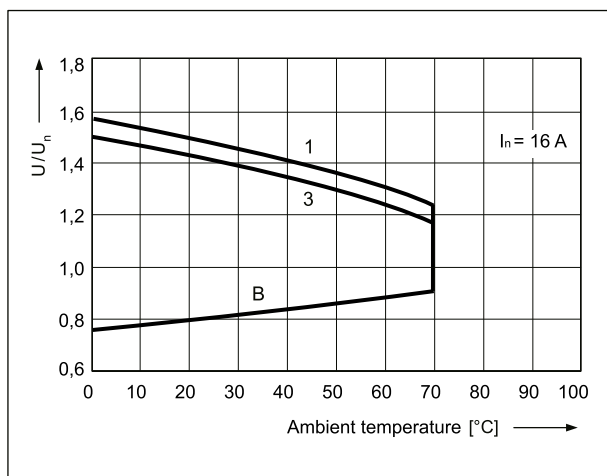
**Coil operating range - DC**

Fig. 4



**Coil operating range - AC 50 Hz**

Fig. 5



**Description of Fig. 4 and 5**

**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 **RM85** ④ are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ④ ⑤ and **GZM80** ④ ⑤ with clip **GZT80-0040** or **GZM80-0041**; sockets **GZS80** ④ ⑤ with clip **GZS-0040** or **GZM80-0041**; sockets **GZF80** ④ with clip **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw • spring terminals plug-in sockets **GZMB80** ④ ⑤ with clip **GZMB80-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715. Signalling / protecting modules **type M...** ⑦ are available with sockets (see page 10) • plug-in sockets for PCB mounting **EC 50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

④ Relate to the special versions - relays with transparent cover: the distance of min. 5 mm between the mounting relays. ⑤ Loads above 12 A (GZT80, GZM80) or 10 A (GZS80, GZF80, GZMB80) require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see page 2. ⑥ Plug-in sockets **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 11). ⑦ For sockets **GZMB80** - see page 7 (wire connection). ⑧ For sockets **GZF80** not applicable modules type **M...**

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)
1003	3	22	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
<b>1012</b>	<b>12</b>	<b>360</b>	<b>± 10%</b>	<b>8,4</b>	<b>30,6</b>
1018	18	710	± 10%	12,6	45,9
<b>1024</b>	<b>24</b>	<b>1 440</b>	<b>± 10%</b>	<b>16,8</b>	<b>61,2</b>
1036	36	3 140	± 10%	25,2	91,8
1048	48	5 700	± 10%	33,6	122,4
1060	60	7 500	± 10%	42,0	153,0
1110	110	25 200	± 10%	77,0	280,0

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

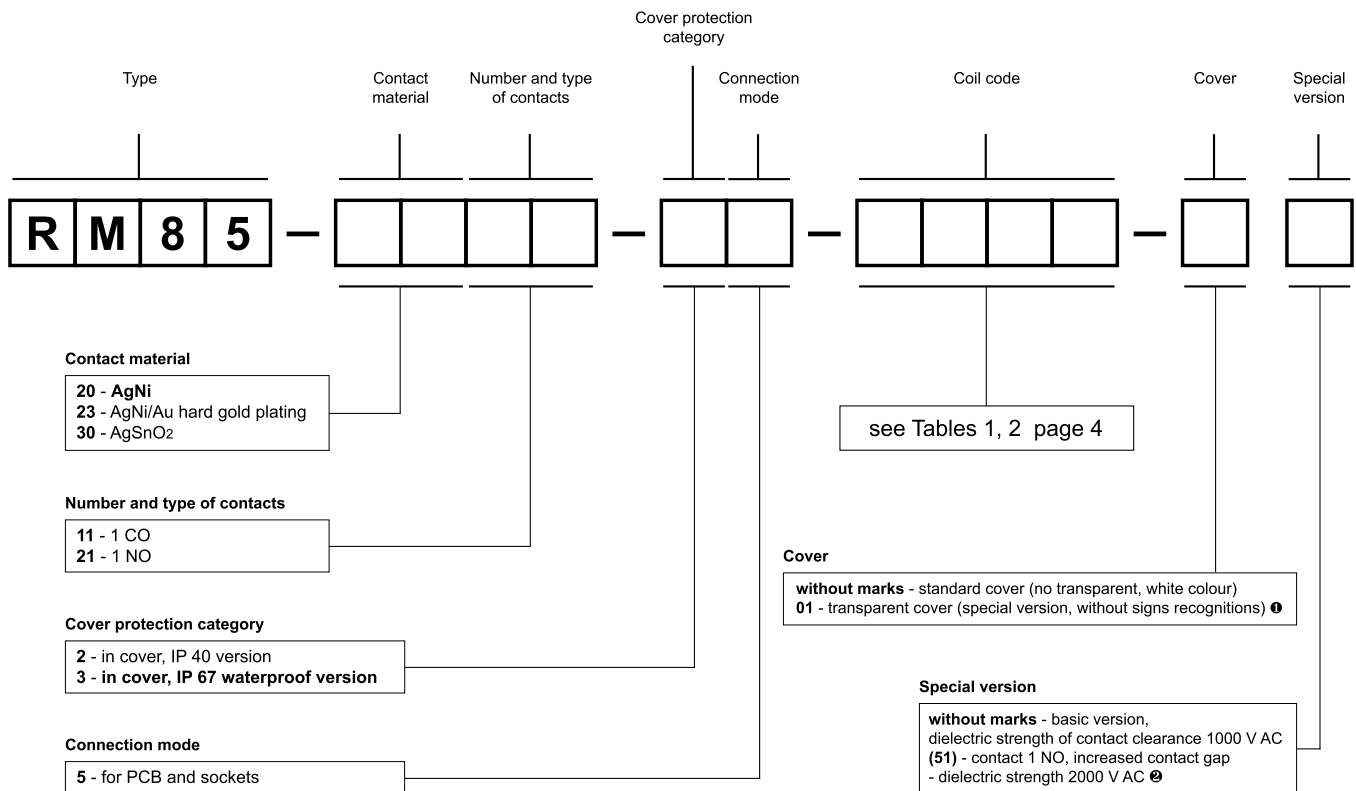
Coil data - AC 50/60 Hz voltage version

Table 2

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

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

## Ordering codes



① 01: special version - relay with transparent cover, only available with IP 40 and RTII, operating temperature -20...+70 °C ② (51): special version - relay with one normally open contact 1 NO, with increased contact gap - dielectric strength 2000 V AC, only available with DC coil

Examples of ordering code:

**RM85-3011-25-5024**

relay **RM85**, for PCB and sockets, one changeover contact, contact material AgSnO<sub>2</sub>, coil voltage 24 V AC 50/60 Hz, in standard cover (no transparent, white colour) IP 40

**RM85-2011-25-1012-01**

relay **RM85**, for PCB and sockets, one changeover contact, contact material AgNi, coil voltage 12 V DC, with transparent cover (special version, without signs recognitions) IP 40

**RM85-2321-35-1024 (51)**

relay **RM85**, special version with increased contact gap, for PCB and sockets, one normally open contact, contact material AgNi/Au hard gold plating, coil voltage 24 V DC, in standard cover (no transparent, white colour) IP 67