

RM84



RM84-...-01



- 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 ①; with the increased dielectric strength of the contact clearance ②
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,

## Contact data

Number and type of contacts		2 C/O, 2 NO ②
Contact material		<b>AgNi</b> , AgNi/Au 5 µm, AgSnO <sub>2</sub>
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V AgSnO <sub>2</sub>
Rated load (capacity)	AC1	8 A / 250 V AC
	AC15	3 A / 120 V      1,5 A / 240 V (B300)
	AC3	550 W (single-phase motor)
	DC1	8 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V    0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA AgSnO <sub>2</sub>
Max. inrush current		15 A AgSnO <sub>2</sub>
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 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	12 ... 240 V
	DC	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	0,75 VA
	DC	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
Overtoltage category		III
Insulation pollution degree		3
Dielectric strength	• between coil and contacts	5 000 V AC    type of insulation: reinforced
	• contact clearance	1 000 V AC    type of clearance: micro-disconnection
		2 000 V AC    contacts 2 NO, type of clearance: full-disconnection ②
	• pole - pole	2 500 V AC    type of insulation: basic
Contact - coil distance	• clearance	≥ 10 mm
	• creepage	≥ 10 mm

## General data

Operating / release time (typical values)		7 ms / 3 ms
Electrical life (number of cycles)		
• resistive AC1		> 10 <sup>5</sup> 8 A, 250 V AC
• cos φ		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	-40...+85 °C
	• operating	AC: -40...+70 °C    DC: -40...+85 °C    -40...+70 °C ①
Cover protection category		IP 40 ① or IP 67    PN-EN 60529
Environmental protection		RTII ① or RTIII    PN-EN 116000-3
Shock resistance		20 g
Vibration resistance	(NO/NC)	10 g / 5 g    10...150 Hz
Solder bath temperature / Soldering time		max. 270 °C / max. 5 s

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

① For special version - relays in transparent cover: only available with IP 40 and RTII, operating temperature -40...+70 °C - see "Ordering codes"

② For special version with contacts 2 NO: relays with increased contact gap, dielectric strength 2000 V AC - see "Ordering codes"

**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 pertain to the standard versions of the relays.

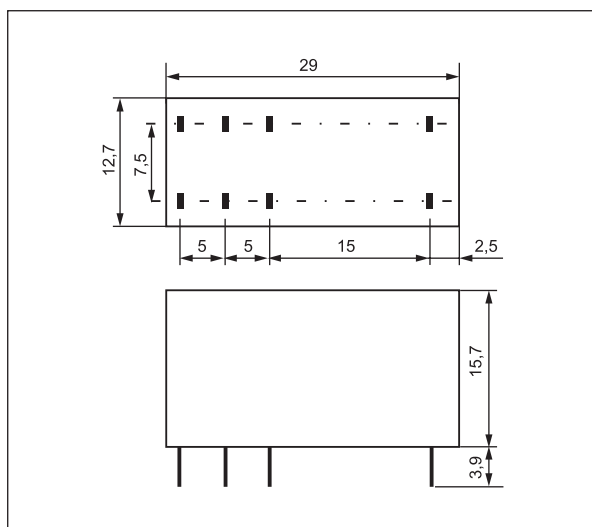
**Coil data - AC 50/60 Hz voltage version**

Table 2

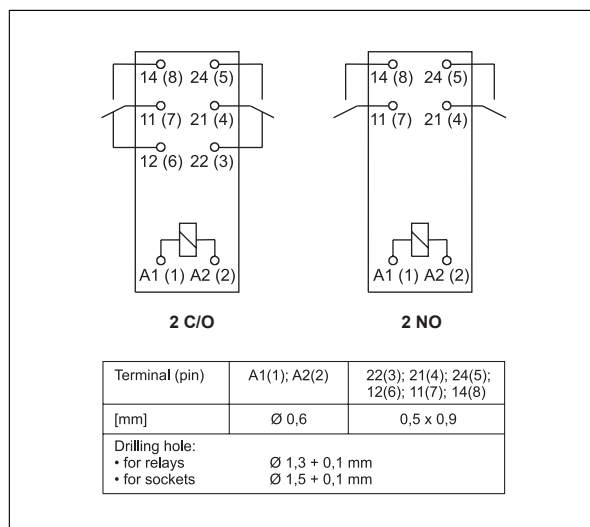
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	± 10%	9,6	13,2
<b>5024</b>	<b>24</b>	<b>400</b>	<b>± 10%</b>	<b>19,2</b>	<b>28,8</b>
5048	48	1 550	± 10%	38,4	57,6
5060	60	2 600	± 10%	48,0	72,0
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 pertain to the standard versions of the relays.

### Dimensions

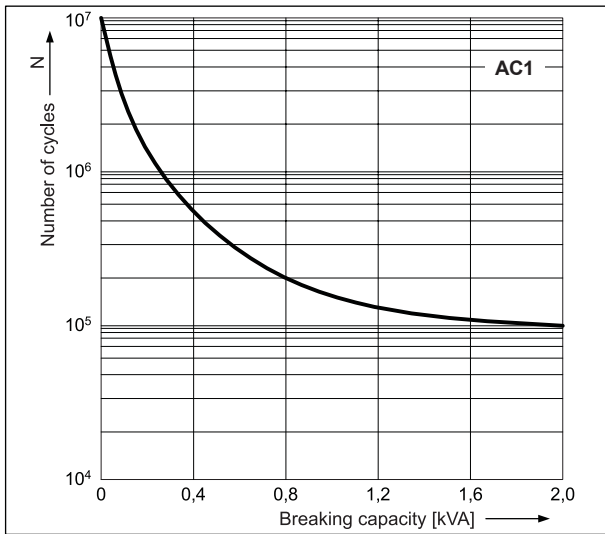


### Connection diagrams (pin side view)



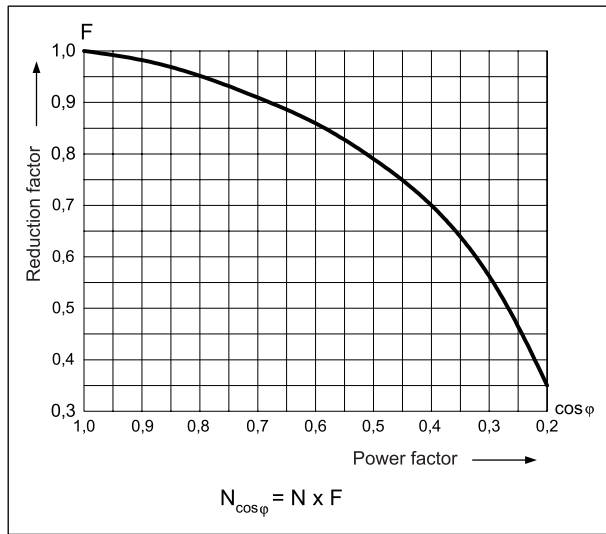
Electrical life at AC resistive load.  
Switching frequency: 600 cycles/hour

Fig. 1



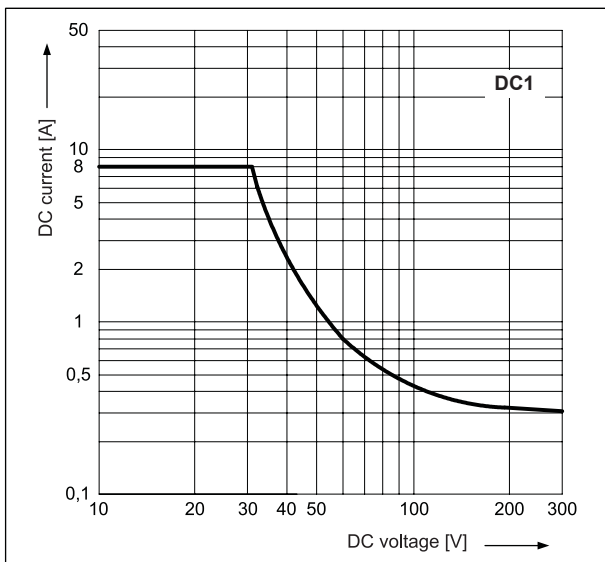
Electrical life reduction factor  
at AC inductive load

Fig. 2



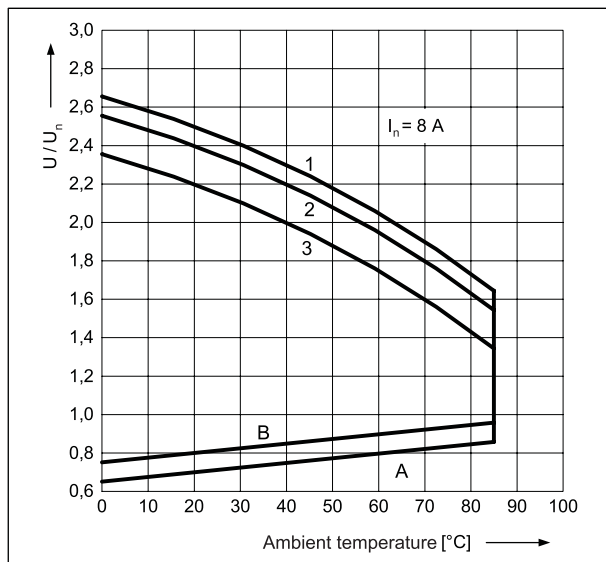
Max. DC resistive load breaking capacity

Fig. 3



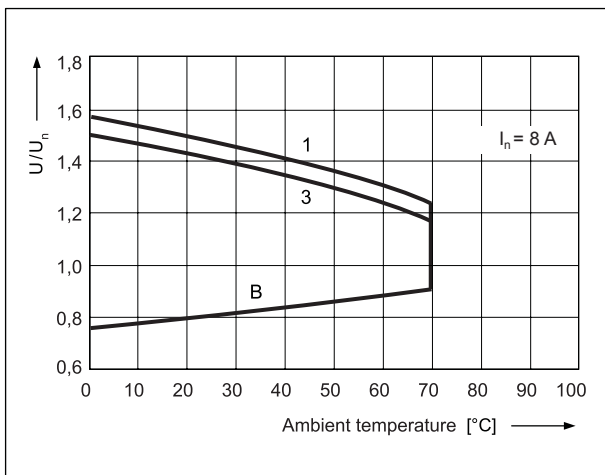
Coil operating range - DC

Fig. 4



Coil operating range - AC 50 Hz

Fig. 5



Description of Fig. 4 and 5

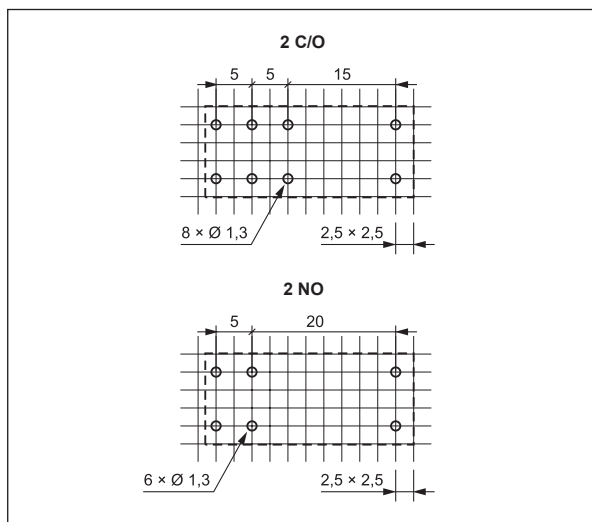
**A** - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

**B** - relations between make voltage and ambient temperature after initial coil heating up with 1,1 U<sub>n</sub>, at continues load of I<sub>n</sub> 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

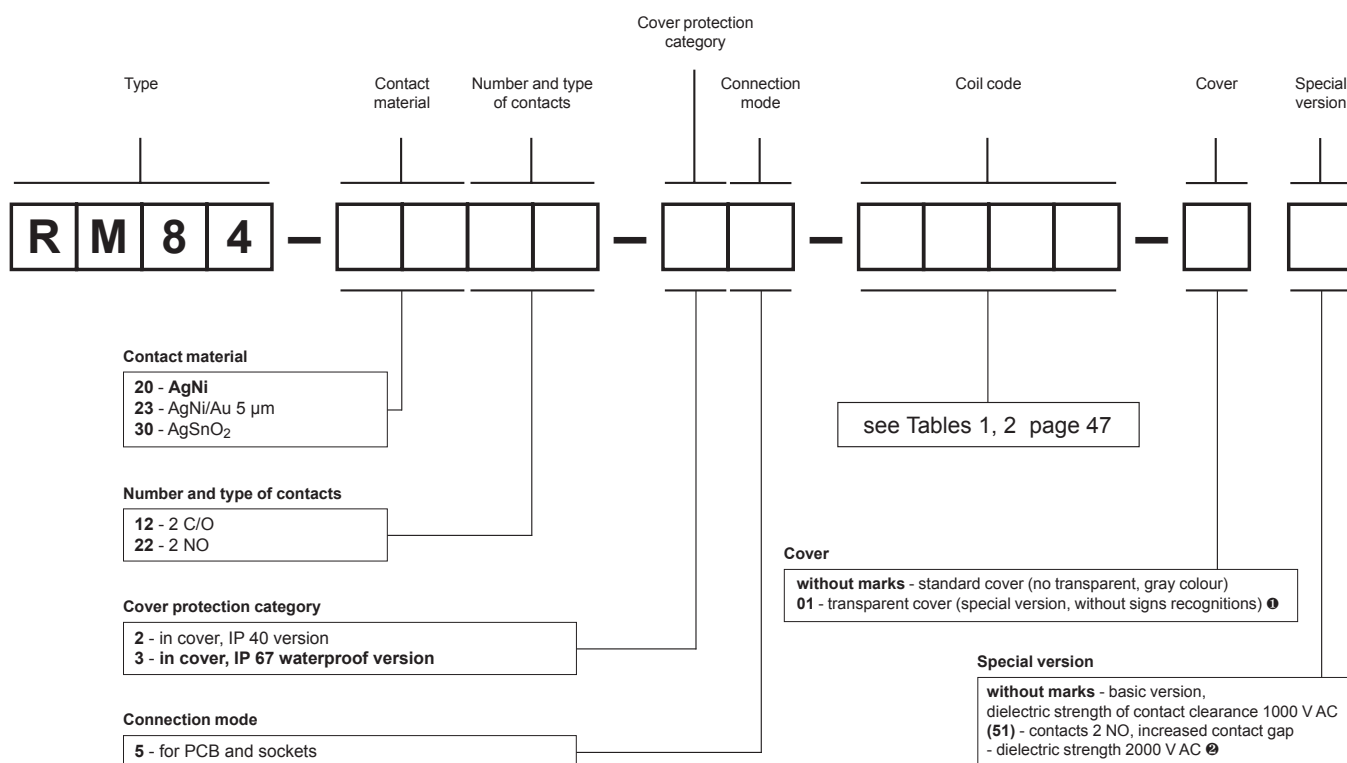
Relays **RM84** are designed for:

- direct PCB mounting
- screw terminals plug-in sockets **GZT80** and **GZM80** with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw. Signalling / protecting modules **type M...** are available with sockets (see page 250)
- plug-in sockets for PCB mounting **EC50** 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**.

Ⓢ For special version - relays in transparent cover: keep the distance between the mounting relays min. 5 mm.

Ⓣ Plug-in sockets **GZT80**, **GZM80** and **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 261).

### Ordering codes



Examples of ordering code:

- RM84-3012-25-5024** relay **RM84**, contact material AgSnO<sub>2</sub>, with two changeover contacts, in standard cover (no transparent, gray colour) IP 40, for PCB and sockets, voltage version 24 V AC 50/60 Hz
- RM84-2012-25-1012-01** relay **RM84**, contact material AgNi, with two changeover contacts, in transparent cover (special version, without signs recognitions) Ⓢ IP 40, for PCB and sockets, voltage version 12 V DC
- RM84-2322-35-1024 (51)** relay **RM84**, contact material AgNi/Au 5 µm, with two normally open contacts, special version Ⓣ with increased contact gap, in standard cover (no transparent, gray colour) IP 67, for PCB and sockets, voltage version 24 V DC

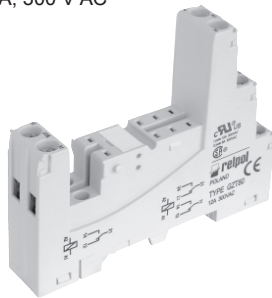
# Plug-in sockets and accessories

## for relays RM84, RM85, RM87L, RM87P

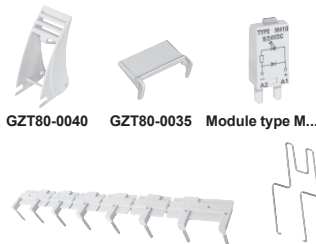
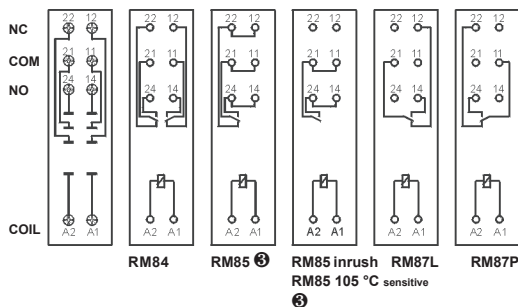
### GZT80

For RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RM87L, RM87L sensitive, RM87P, RM87P sensitive

Screw terminals  
Maximum screw torque: 0,7 Nm  
35 mm rail mount  
acc. to PN-EN 60715  
or on panel mounting  
75,3 x 15,5 x 61(67) mm ②  
Two poles, 5 mm pinout  
12 A, 300 V AC



### Connection diagrams

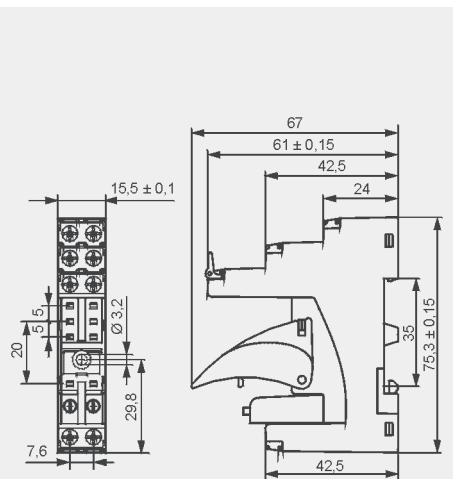


### Accessories ①

ZGG280

GZM80-0041

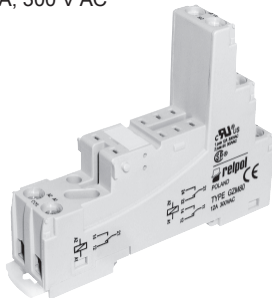
### Dimensions



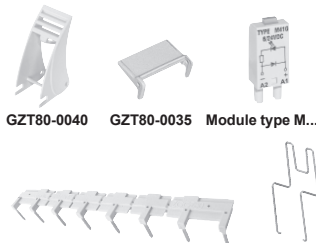
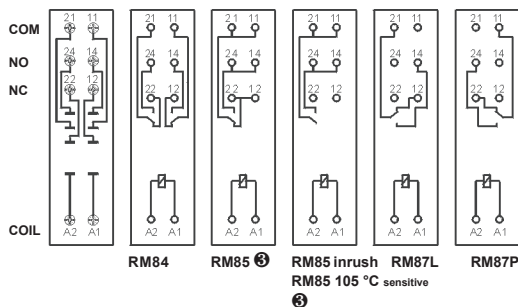
### GZM80

For RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RM87L, RM87L sensitive, RM87P, RM87P sensitive

Screw terminals  
Maximum screw torque: 0,7 Nm  
35 mm rail mount  
acc. to PN-EN 60715  
or on panel mounting  
78,1 x 15,9 x 61(66,5) mm ②  
Two poles, 5 mm pinout  
12 A, 300 V AC



### Connection diagrams

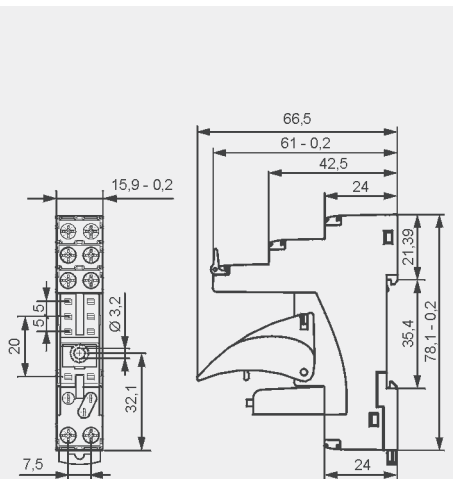


### Accessories ①

ZGG280

GZM80-0041

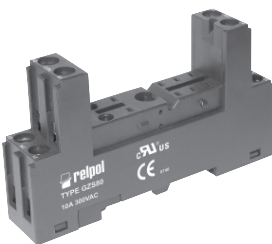
### Dimensions



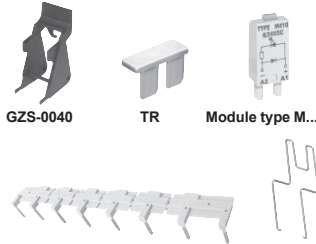
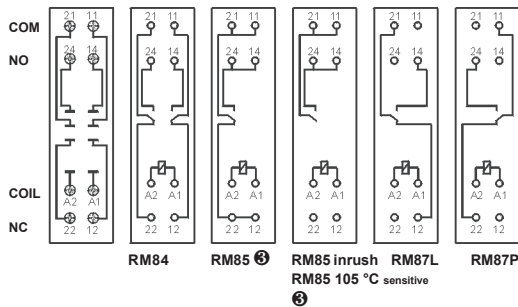
### GZS80

For RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RM87L, RM87L sensitive, RM87P, RM87P sensitive

Screw terminals  
Maximum screw torque: 0,5 Nm  
35 mm rail mount  
acc. to PN-EN 60715  
or on panel mounting  
76,8 x 15,8 x 42,5(57,1) mm ②  
Two poles, 5 mm pinout  
10 A, 300 V AC



### Connection diagrams

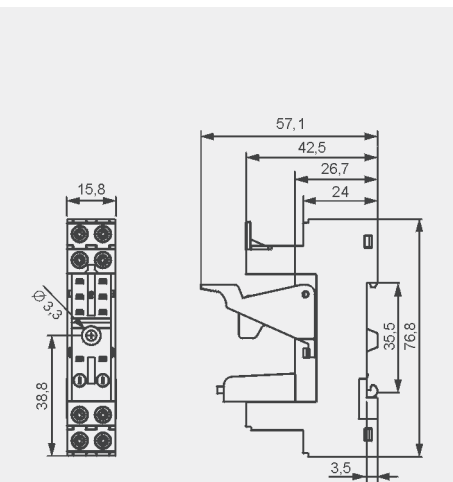


### Accessories ①

ZGG280

GZM80-0041

### Dimensions



① "Mounting and sub-assemblies of accessories in the socket" and "Signalling / protecting modules type M..." - see [www.repol.com.pl](http://www.repol.com.pl) - Product Guide - Type of relay - Additional information. ② In the bracket the height of socket with retainer / retractor clip is shown.

③ For RM85, RM85 inrush, RM85 105 °C sensitive: loads above 12 A require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24.

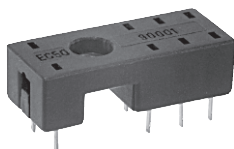
# Plug-in sockets and accessories

for relays RM84, RM85, RM87L, RM87P, RM83, RM94

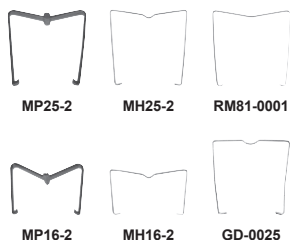
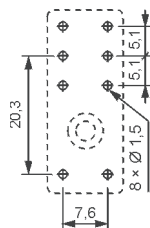
## EC50

For RM84, RM85, RM85 inrush,  
RM85 105 °C sensitive,  
RM87L, RM87L sensitive,  
RM87P, RM87P sensitive,  
RM83, RM94

For PCB  
31,3 x 12,7 x 9 mm  
Two poles, 5 mm pinout  
8 A, 300 V AC

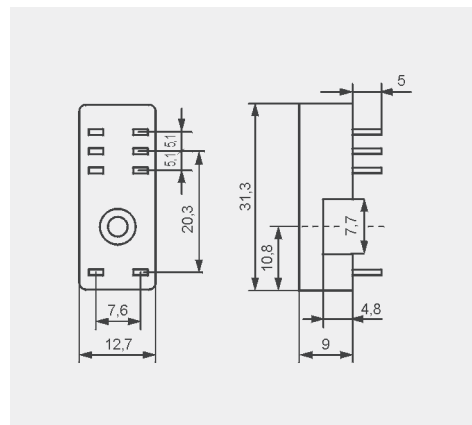


### Pinout



### Accessories

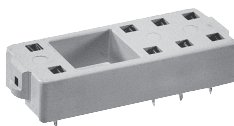
### Dimensions



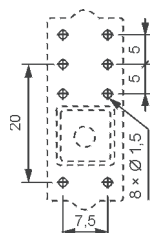
## PW80

For RM84, RM85, RM85 inrush,  
RM85 105 °C sensitive,  
RM87L, RM87L sensitive,  
RM87P, RM87P sensitive,  
RM83, RM94

For PCB  
34,6 x 12,9 x 6,6 mm  
Two poles, 5 mm pinout  
8 A, 250 V AC

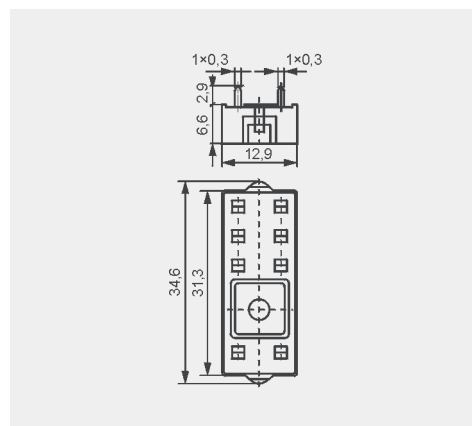


### Pinout



### Accessories

### Dimensions



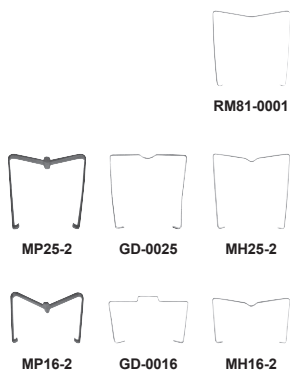
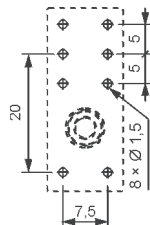
## GD50

For RM84, RM85, RM85 inrush,  
RM85 105 °C sensitive,  
RM87L, RM87L sensitive,  
RM87P, RM87P sensitive,  
RM83, RM94

For PCB  
31,5 x 13 x 9 mm  
Two poles, 5 mm pinout  
8 A, 300 V AC



### Pinout



### Accessories

### Dimensions

