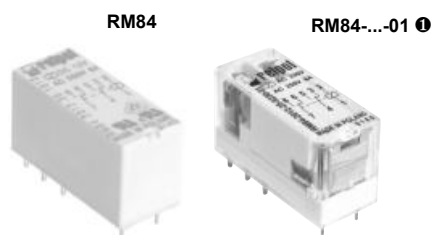


# RM84

## 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 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 CO, 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)          | <div>AC1 8 A / 250 V AC</div> <div>AC15 3 A / 120 V 1,5 A / 240 V (B300)</div> <div>AC3 550 W (single-phase motor)</div> <div>DC1 8 A / 24 V DC (see Fig. 3)</div> <div>DC13 0,22 A / 120 V 0,1 A / 250 V (R300)</div> |
| 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                                                                                                                                                                                                                                                                                          |
| Overvoltage category        | III                                                                                                                                                                                                                                                                                                          |
| Insulation pollution degree | 3                                                                                                                                                                                                                                                                                                            |
| Dielectric strength         | <div>• between coil and contacts 5 000 V AC type of insulation: reinforced</div> <div>• contact clearance 1 000 V AC type of clearance: micro-disconnection</div> <div>• pole - pole 2 000 V AC contacts 2 NO, type of clearance: full-disconnection ②</div> <div>2 500 V AC type of insulation: basic</div> |
| 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                              |
| • 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 -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"

# RM84

## miniature relays

**Coil data - DC voltage version**

**Table 1**

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

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

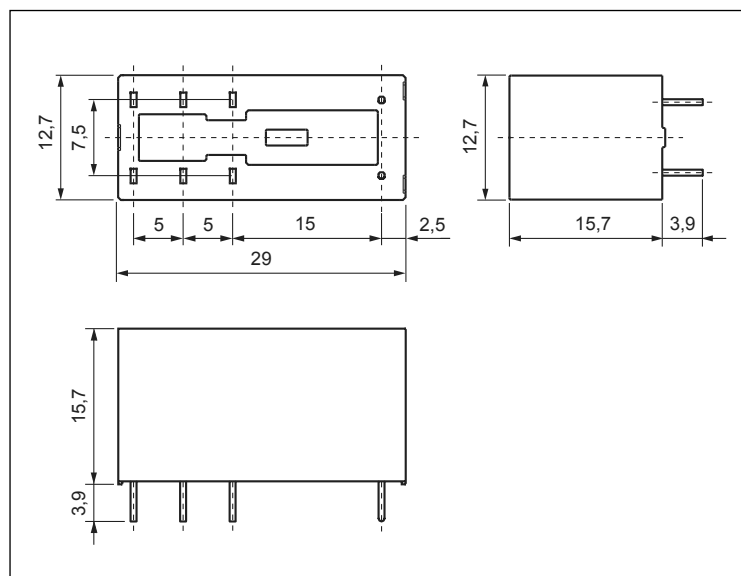
**Coil data - AC 50/60 Hz voltage version**

**Table 2**

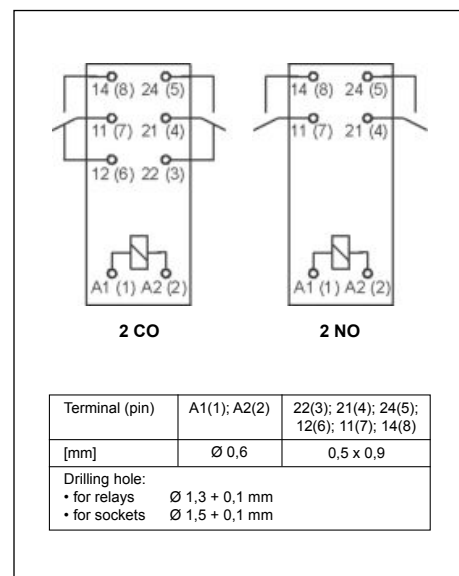
| Coil code   | Rated voltage<br>V AC | Coil resistance<br>at 20 °C<br>$\Omega$ | Acceptable<br>resistance     | Coil operating range<br>V AC 50 Hz |                 |
|-------------|-----------------------|-----------------------------------------|------------------------------|------------------------------------|-----------------|
|             |                       |                                         |                              | min. (at 20 °C)                    | max. (at 20 °C) |
| 5012        | 12                    | 100                                     | $\pm 10\%$                   | 9,6                                | 13,2            |
| <b>5024</b> | <b>24</b>             | <b>400</b>                              | <b><math>\pm 10\%</math></b> | <b>19,2</b>                        | <b>28,8</b>     |
| 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           |
| <b>5230</b> | <b>230</b>            | <b>38 500</b>                           | <b><math>\pm 10\%</math></b> | <b>184,0</b>                       | <b>276,0</b>    |
| 5240        | 240                   | 42 500                                  | $\pm 15\%$                   | 192,0                              | 288,0           |

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

### Dimensions

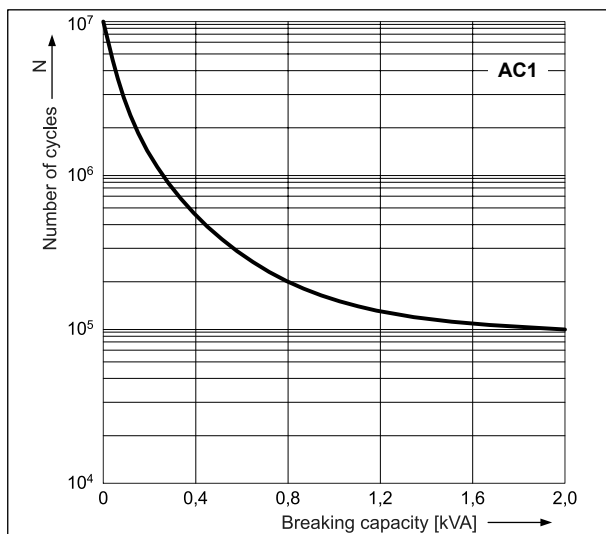


### Connection diagrams (pin side view)



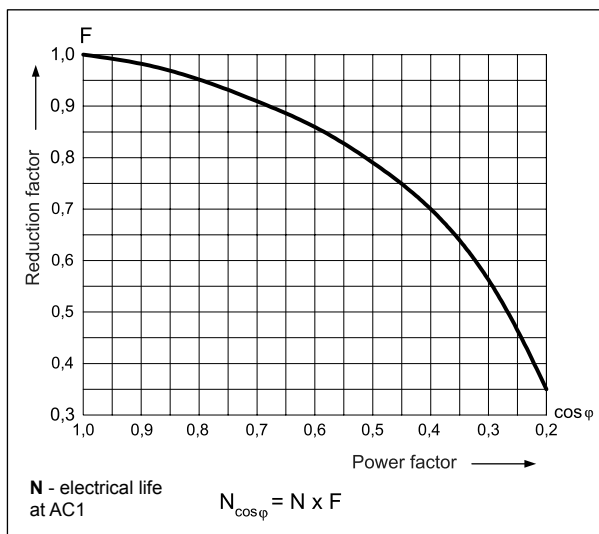
**Electrical life at AC resistive load.**  
Switching frequency: 600 cycles/hour

Fig. 1



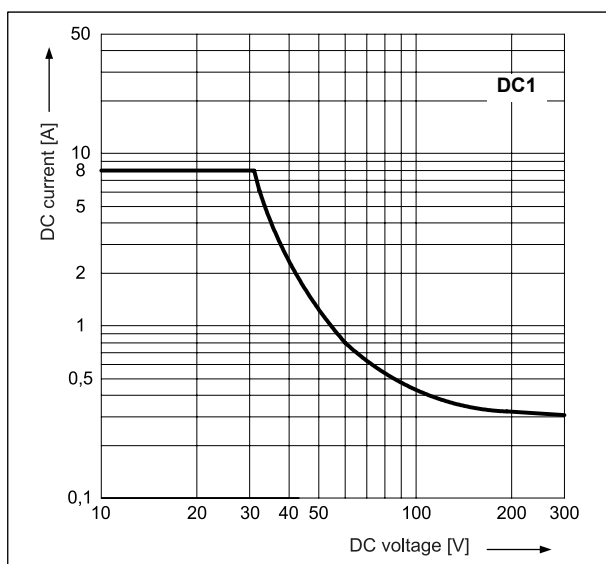
**Electrical life reduction factor at AC inductive load**

Fig. 2



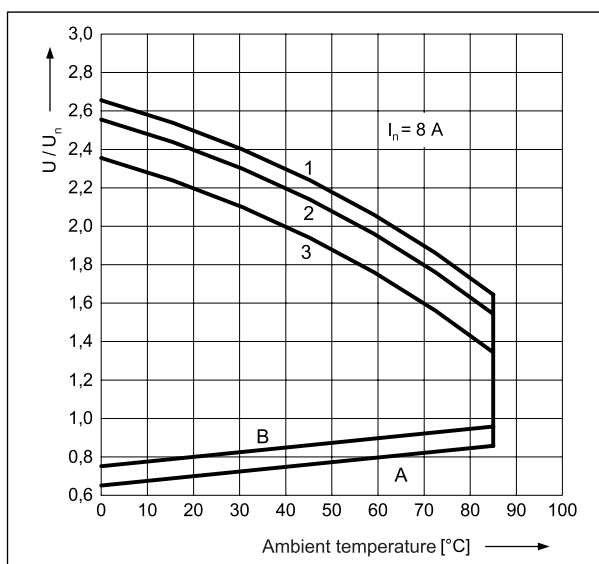
**Max. DC resistive load breaking capacity**

Fig. 3



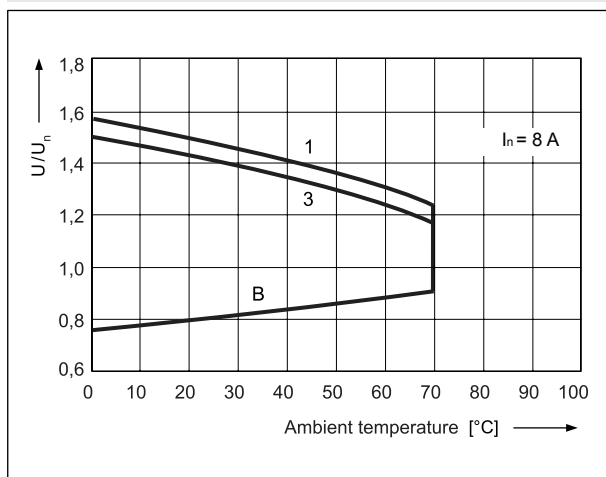
**Coil operating range - DC**

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  $1,1 U_n$  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

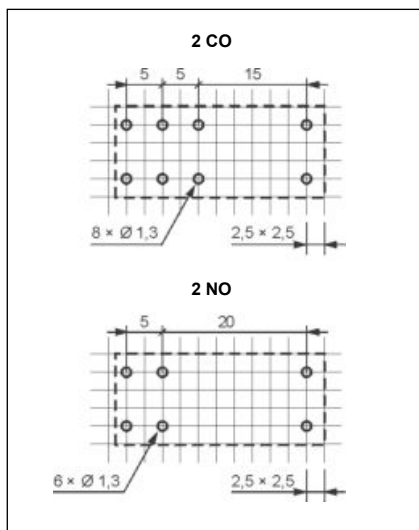
**2** - 50% of rated load

**3** - rated load

# RM84

## miniature relays

### Pinout (solder side view)



### Mounting

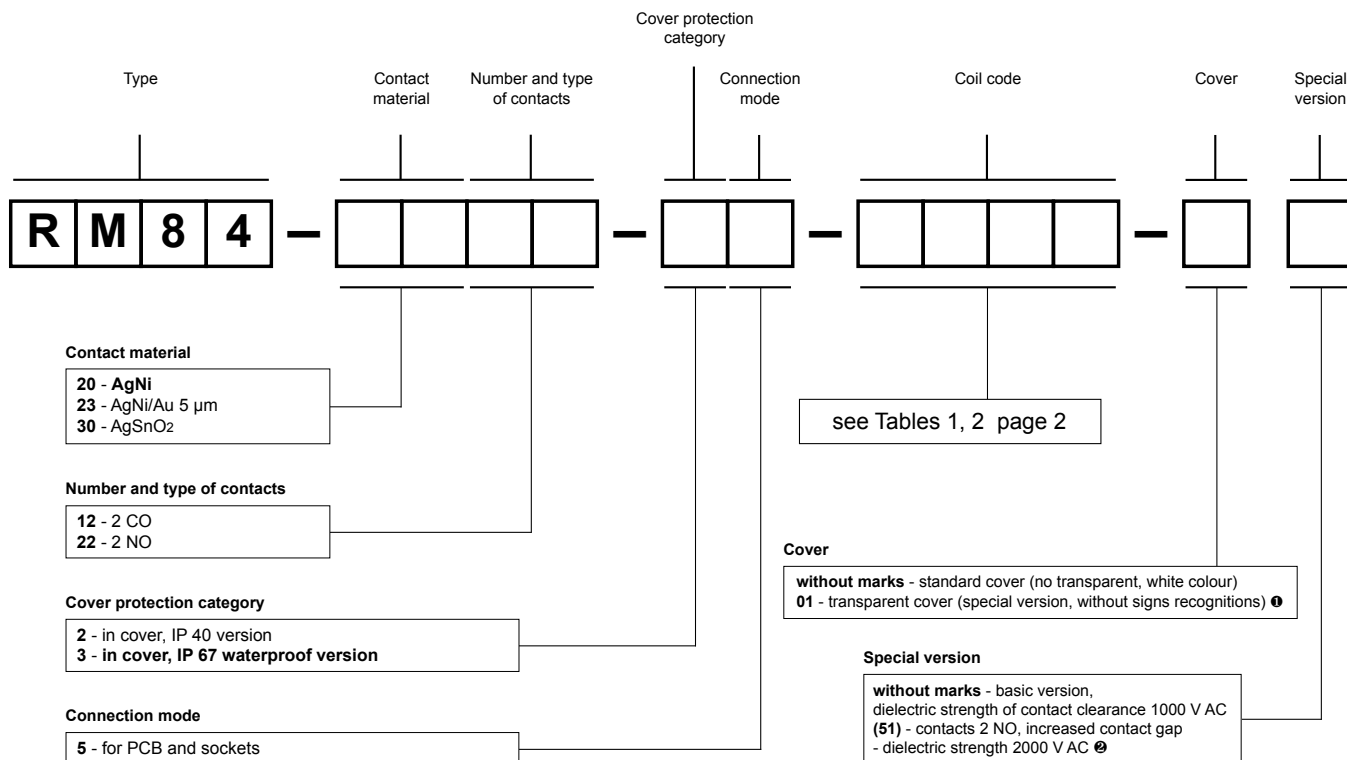
Relays **RM84** ③ are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ④ and **GZM80** ④ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ④ with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw • spring terminals plug-in sockets **GZMB80** ⑤ with clip **GZMB80-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715. Signalling / protecting modules **type M...** are available with sockets (see page 8) • 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.

③ For special version - relays in transparent cover: the distance of min. 5 mm between the mounting relays.

④ Plug-in sockets **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 9).

⑤ For sockets **GZMB80** - see page 6 (wire connection).

### Ordering codes



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

② For special version with contacts 2 NO: relays with increased contact gap, dielectric strength 2000 V AC

Examples of ordering code:

**RM84-3012-25-5024**

relay **RM84**, for PCB and sockets, two changeover contacts, contact material AgSnO<sub>2</sub>, coil voltage 24 V AC 50/60 Hz, in standard cover (no transparent, white colour) IP 40

**RM84-2012-25-1012-01**

relay **RM84**, for PCB and sockets, two changeover contacts, contact material AgNi, coil voltage 12 V DC in transparent cover (special version, without signs recognitions) IP 40

**RM84-2322-35-1024 (51)**

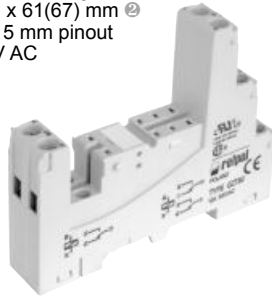
relay **RM84**, special version with increased contact gap, for PCB and sockets, two normally open contacts, contact material AgNi/Au 5 µm, coil voltage 24 V DC, in standard cover (no transparent, white colour) IP 67

# Plug-in sockets and accessories

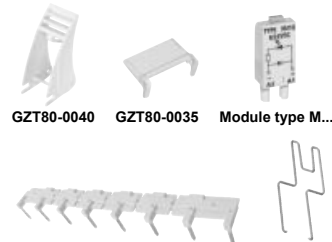
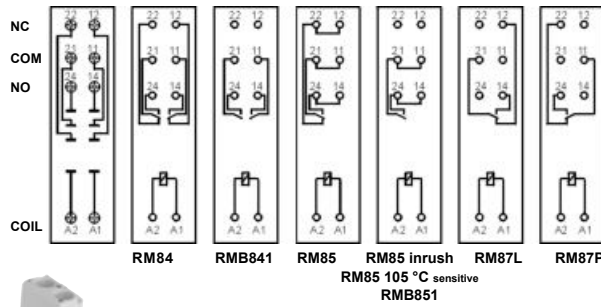
## GZT80

For RM84, RM85,  
RM85 inrush,  
RM85 105 °C sensitive,  
RMB841, RMB851,  
RM87L, RM87L sensitive,  
RM87P, RM87P sensitive

Screw terminals  
Max. tightening moment  
for the terminal: 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 ③

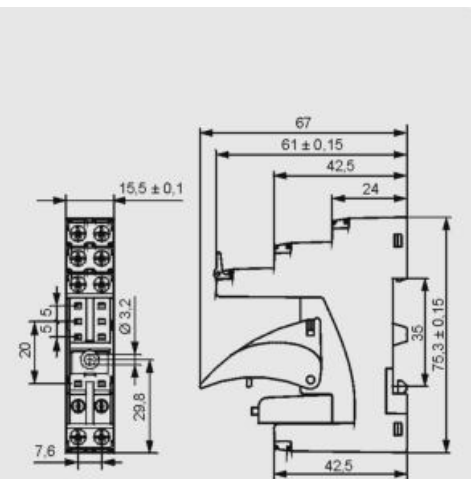


### Accessories ①

ZGGZ80

GZM80-0041

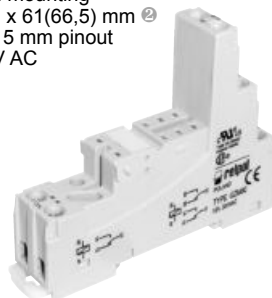
### Dimensions



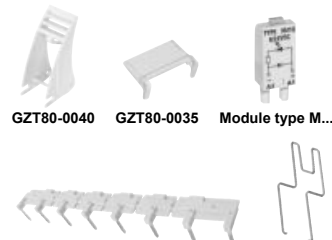
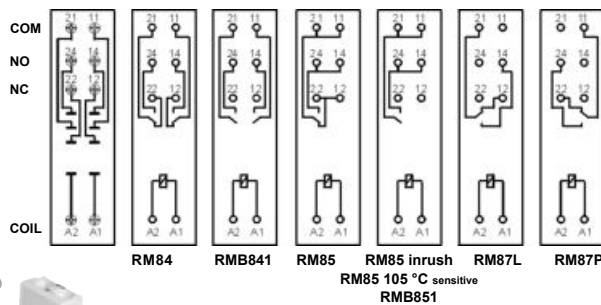
## GZM80

For RM84, RM85,  
RM85 inrush,  
RM85 105 °C sensitive,  
RMB841, RMB851,  
RM87L, RM87L sensitive,  
RM87P, RM87P sensitive

Screw terminals  
Max. tightening moment  
for the terminal: 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 ③

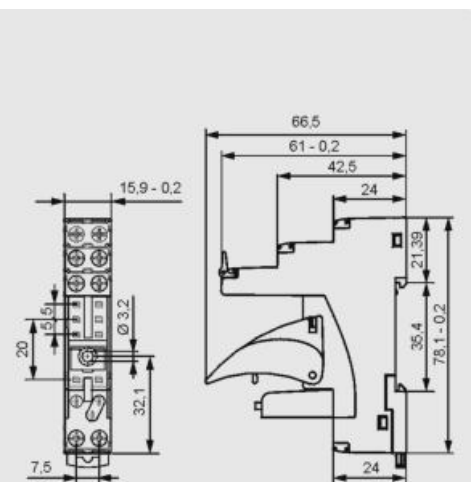


### Accessories ①

ZGGZ80

GZM80-0041

### Dimensions



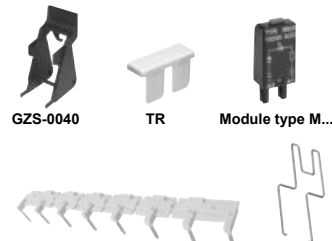
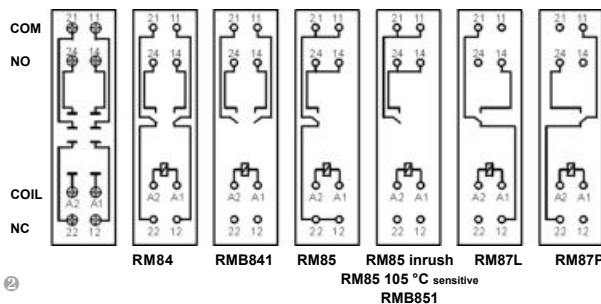
## GZS80

For RM84, RM85,  
RM85 inrush,  
RM85 105 °C sensitive,  
RMB841, RMB851,  
RM87L, RM87L sensitive,  
RM87P, RM87P sensitive

Screw terminals  
Max. tightening moment  
for the terminal: 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 ③

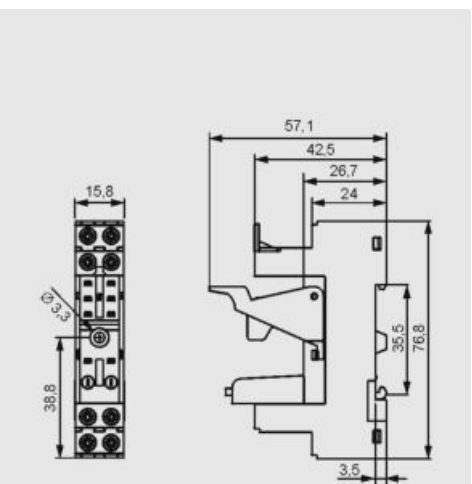


### Accessories ①

ZGGZ80

GZM80-0041

### Dimensions



① Mounting and sub-assemblies of accessories in the socket - see page 7. Signalling / protecting modules type M... - see page 8. ② In the bracket the height of socket with retainer / retractor clip is shown. ③ For RM85, RM85 inrush, RM85 105 °C sensitive, RMB851: loads above 12 A (GZT80, GZM80) or 10 A (GZS80, GZMB80) require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see [www.repol.com.pl](http://www.repol.com.pl); For RMB841, RMB851 - see [www.repol.com.pl](http://www.repol.com.pl) (energizing of bistable relays)

## Plug-in sockets and accessories

### GZMB80

For RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RMB841, RMB851, RM87L, RM87L sensitive, RM87P, RM87P sensitive

Spring terminals  
Max. cross section of the cables:

1 x 0,2...1,5 mm<sup>2</sup>

(1 x 24...16 AWG)

Length of the cable deinsulation: 9...11 mm

35 mm rail mount

acc. to PN-EN 60715

97 x 16 x 45,2(69) mm

Two poles, 5 mm pinout

10 A, 300 V AC



GZMB80-0040



TR

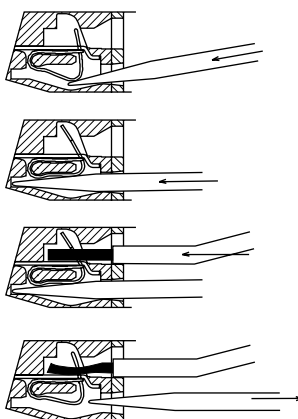
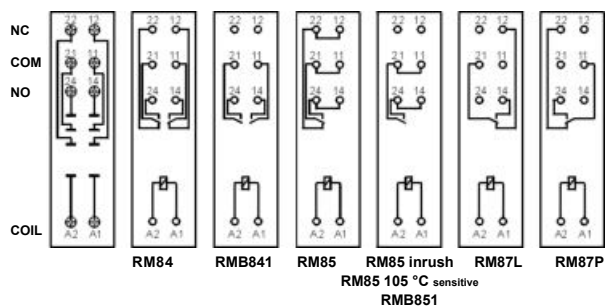


Module type M...

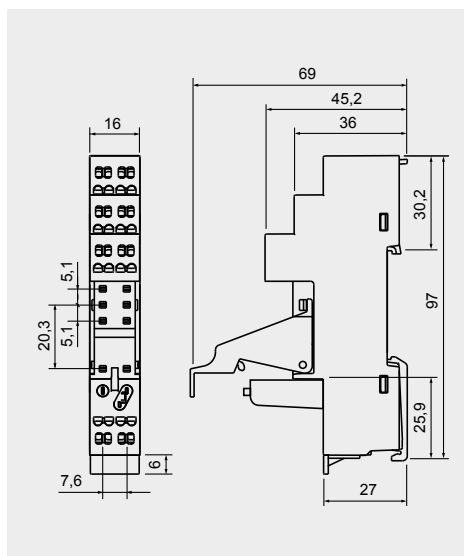


GZM80-0041

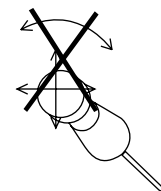
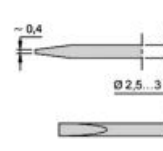
### Connection diagrams



### Dimensions



The drawings present the sequence of operations in course of inserting wires to the spring terminal, and the recommended screwdriver to be used for opening of case springs, comply with the DIN 5264 FORM „A“.



### Accessories

### Wire connection

### EC 50

For RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RMB841, RMB851, RM87L, RM87L sensitive, RM87P, RM87P sensitive, RM83, RM94

For PCB

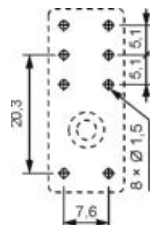
31,3 x 12,7 x 9 mm

Two poles, 5 mm pinout

8 A, 300 V AC



### Pinout



MP25-2



MH25-2



RM81-0001



MP16-2



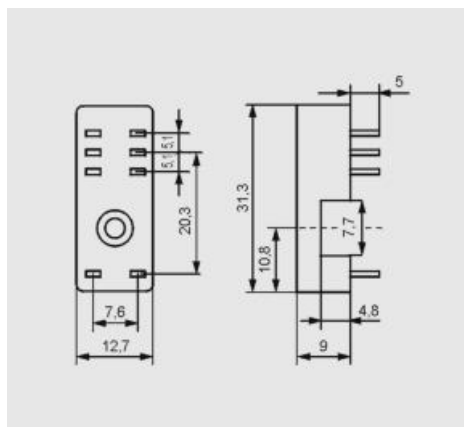
MH16-2



GD-0025

### Accessories

### Dimensions



### PW80

For RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RMB841, RMB851, RM87L, RM87L sensitive, RM87P, RM87P sensitive, RM83, RM94

For PCB

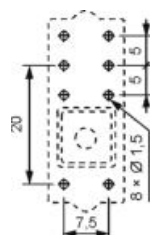
34,6 x 12,9 x 6,6 mm

Two poles, 5 mm pinout

8 A, 250 V AC



### Pinout



MH25-2



RM81-0001



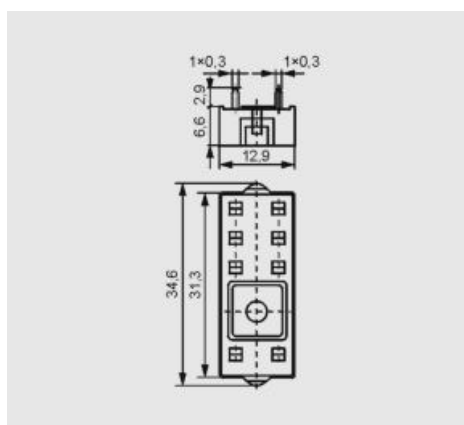
MH16-2



GD-0025

### Accessories

### Dimensions



① Mounting and sub-assemblies of accessories in the socket - see page 7. Signalling / protecting modules type M... - see page 8. ② In the bracket the height of socket with retainer / retractor clip is shown. ③ For RM85, RM85 inrush, RM85 105 °C sensitive, RMB851: loads above 12 A (GZT80, GZM80) or 10 A (GZS80, GZMB80) require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see [www.repol.com.pl](http://www.repol.com.pl); For RMB841, RMB851 - see [www.repol.com.pl](http://www.repol.com.pl) (energizing of bistable relays)

## Plug-in sockets and accessories

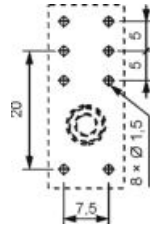
### GD50

For RM84, RM85, RM85 inrush,  
RM85 105 °C sensitive,  
RMB841, RMB851,  
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



RM81-0001



MP25-2



GD-0025



MH25-2



MP16-2



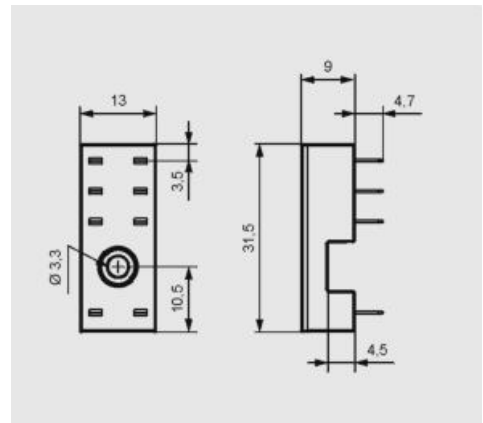
GD-0016



MH16-2

#### Accessories

#### Dimensions



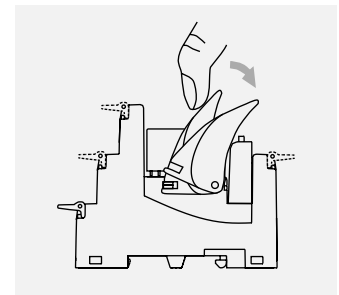
## Mounting and sub-assemblies of the relay and accessories in the socket

Retainer / retractor clip

Electromagnetic  
relay

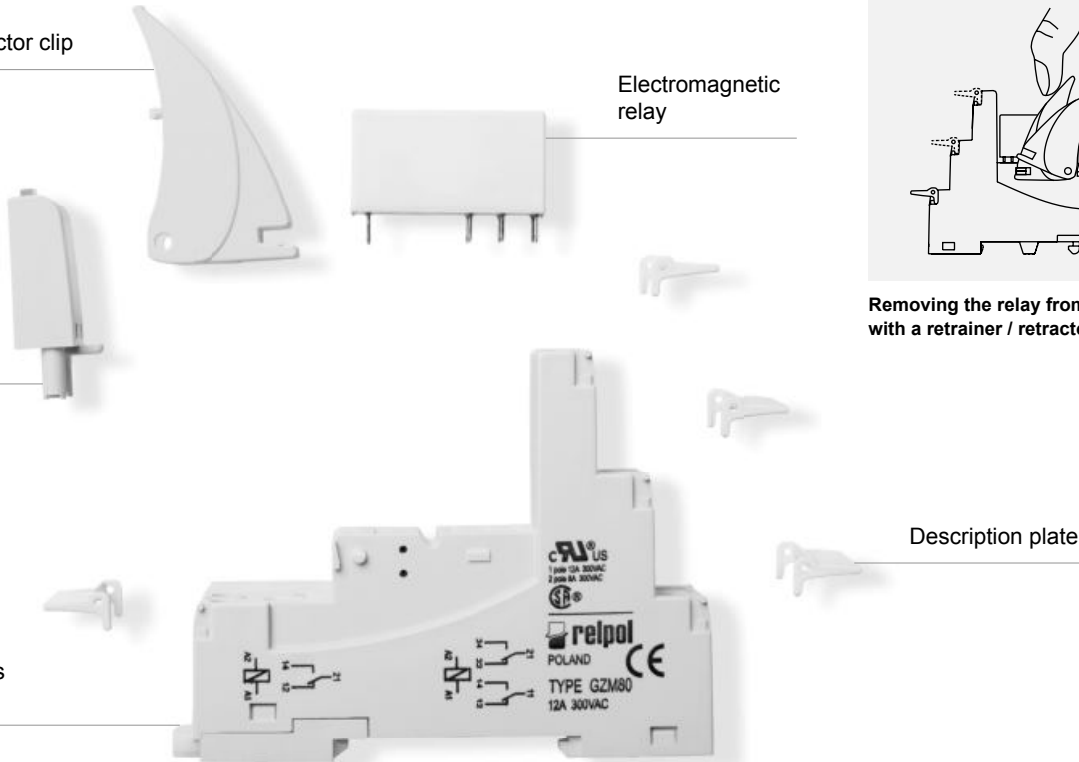
Signalling  
/ protecting  
module  
type M...

Screw terminals  
plug-in socket



Removing the relay from the socket  
with a retractor / retractor clip

Description plate



#### PRECAUTIONS:

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. 2. Never touch any live parts of the device. 3. Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. 4. In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.

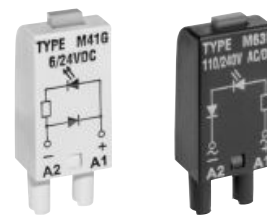
## Signalling / protecting modules type M...

### For sockets type:

GZT80, GZM80, GZS80, GZMB80, GZT92, GZM92, GZS92, ES 32,  
GZT2, GZM2, GZMB2, GZT3, GZM3, GZT4, GZM4, GZMB4

Modules type M... are parallelly connected with relay coil.

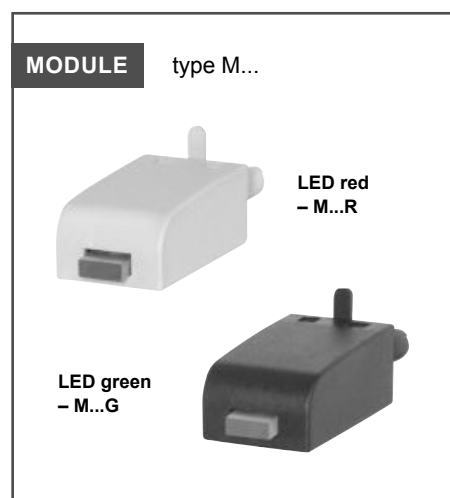
Polarity P: -A1/+A2. Polarity N: +A1/-A2.



| Modules type M...                                                                                      | Layout | Voltage                                          | Type of module ① ②                     |
|--------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------|----------------------------------------|
| <b>Module D (polarization P)</b><br>It limits overvoltage on DC coils.                                 |        | 6/230 V DC                                       | M21P                                   |
| <b>Module D (polarization N)</b><br>It limits overvoltage on DC coils.                                 |        | 6/230 V DC                                       | M21N                                   |
| <b>Module LD (polarization P)</b><br>It limits overvoltage on DC coils.<br>Coil energizing indication. |        | 6/24 V DC<br>24/60 V DC<br>110/230 V DC          | M31R, M31G<br>M32R, M32G<br>M33R, M33G |
| <b>Module LD (polarization N)</b><br>It limits overvoltage on DC coils.<br>Coil energizing indication. |        | 6/24 V DC<br>24/60 V DC<br>110/230 V DC          | M41R, M41G<br>M42R, M42G<br>M43R, M43G |
| <b>Module RC</b><br>It protects against EMC disturbance.<br>It limits overvoltage.                     |        | 6/24 V AC<br>24/60 V AC<br>110/240 V AC          | M51<br>M52<br>M53                      |
| <b>Module L</b><br>Coil energizing indication.                                                         |        | 6/24 V AC/DC<br>24/60 V AC/DC<br>110/230 V AC/DC | M61R, M61G<br>M62R, M62G<br>M63R, M63G |
| <b>Module LV</b><br>It limits overvoltage on AC and DC coils.<br>Coil energizing indication.           |        | 6/24 V AC/DC<br>24/60 V AC/DC<br>110/230 V AC/DC | M91R, M91G<br>M92R, M92G<br>M93R, M93G |
| <b>Module V</b><br>It limits overvoltage on AC and DC coils.<br>No indication.                         |        | 24 V AC<br>130 V AC<br>230 V AC                  | M71<br>M72<br>M73                      |
| <b>Module R</b><br>It limits overvoltage on AC coils.                                                  |        | 110/230 V AC                                     | M103                                   |

① M...R - LED red, M...G - LED green

② When ordering modules indicate their color: gray or black.



## Interconnection strips ZGGZ80



PI85-...-00L.  
(RM85 + GZM80)

ZGGZ80

### ■ ZGGZ80 for:

| Plug-in sockets | Relays for plug-in sockets                                                                | Interface relays ③            |
|-----------------|-------------------------------------------------------------------------------------------|-------------------------------|
| GZT80           | RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RMB841, RMB851, RM87L ④, RM87P ④, RM87N ④ | PI84-...-M...G (RM84 + GZT80) |
| GZM80           |                                                                                           | PI84-...-00L. (RM84 + GZM80)  |
| GZS80           |                                                                                           | PI85-...-M...G (RM85 + GZT80) |
| GZT92           |                                                                                           | PI85-...-00L. (RM85 + GZM80)  |
| GZM92           |                                                                                           |                               |
| GZS92           |                                                                                           |                               |
| ES 32           | RM96 1 CO                                                                                 |                               |

③ Interface relay **PI84** (**PI85**) is offered as a **set**: plug-in socket **GZT80** or **GZM80** + miniature relay **RM84** (**RM85**) + signalling / protecting module **type M...** + retainer / retractor clip **GZT80-0040** + description plate **GZT80-0035**. ④ Also versions RM87. sensitive

### ■ Interconnection strip ZGGZ80

- designed for the co-operation with plug-in sockets of miniature relays and with interface relays PI84 and PI85, which are equipped with screw terminals; sockets and relays are mounted on 35 mm rail mount acc. to PN-EN 60715,
- bridges common input signals (coil terminals A1 or A2) or output signals - see photo at the top,
- maximum permissible current is 10 A / 250 V AC,
- possibility of connection of 8 sockets or relays,
- colours of strips: **ZGGZ80-1** grey, **ZGGZ80-2** black.

