

RM85 105 °C sensitive

miniature relays



- Ambient temperature up to 105 °C
- CTI 250
- For PCB and plug-in sockets
- DC coils - sensitive, insulation class F: 155 °C
- Applications: in household equipment, in temperature controllers
- Compliance with standard EN 60335-1
- Recognitions, certifications, directives: RoHS,    

Contact data

Number and type of contacts		1 NO
Contact material		AgNi, AgNi/Au hard gold plating, AgSnO₂
Rated / max. switching voltage	AC	250 V / 400 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au hard gold plating, 10 V AgSnO ₂
Rated load (capacity)	AC1	16 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	DC1	16 A / 24 V DC (see Fig. 2)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Motor load	acc. to UL 508	1/2 HP 240 V AC, 4,9 FLA, single-phase motor ❶
	AC3 acc. to IEC 60947-4-1	0,5 kW 240 V AC, single-phase motor
Min. switching current		5 mA AgNi, 2 mA AgNi/Au hard gold plating, 10 mA AgSnO ₂
Max. inrush current		30 A AgSnO ₂
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 ₂
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	DC	5, 6, 9, 10, 12, 18, 24, 48 V
Must release voltage		DC: ≥ 0,1 U _n
Operating range of supply voltage		see Table 1 and Fig. 3
Rated power consumption	DC	0,25 W

Insulation according to 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
Contact - coil distance	• clearance	≥ 10 mm
	• creepage	≥ 10 mm

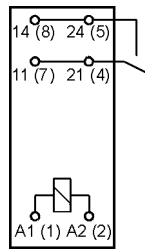
General data

Operating / release time (typical values)		8 ms / 3 ms
Electrical life	• resistive AC1	> 10 ⁵ 16 A, 230 V AC, 70 °C
(number of cycles)		> 2 x 10 ⁴ 16 A, 230 V AC, 105 °C
		> 1,7 x 10 ⁵ 10 A, 230 V AC, 105 °C
		> 2,8 x 10 ⁵ 8 A, 230 V AC, 105 °C
		> 3,2 x 10 ⁵ 6 A, 230 V AC, 105 °C
	• cosφ	see Fig. 1
	• DC L/R=40 ms	> 10 ⁵ 0,15 A, 220 V DC
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	• storage	-40...+105 °C
(non-condensation and/or icing)	• operating	-40...+105 °C
Cover protection category		IP 40 EN 60529
Environmental protection		RTII EN 61810-7
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 For single phase motors for 110-120 V AC do not use motors with higher FLA than given for 240 V AC.

RM85 105 °C sensitive miniature relays

Connection diagram (pin side view)

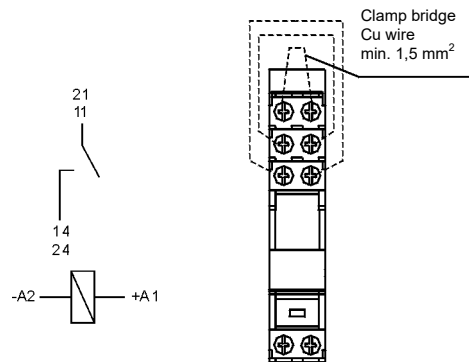


1 NO

Terminal (pin)	A1(1); A2(2)	21(4); 24(5); 11(7); 14(8)
[mm]	Ø 0,6	0,5 x 0,9
Drilling hole:		
• for relays Ø 1,3 + 0,1 mm		
• for sockets Ø 1,5 + 0,1 mm		

RM85 105 °C sensitive terminals are doubled for each contact. Both terminals are to be used while connecting to load.

Connection of GZ.80 sockets



Note: Loads above 12 A (GZT80, GZM80) or 10 A (GZS80, GZF80, GZMB80) require bridging pairs of terminals: 11 with 21, 14 with 24. Loads up to 12 A or 10 A do not require bridging of common terminals (such bridges may be fixed, however).

Mounting, sockets and accessories for relays

Relays **RM85 105 °C sensitive** are designed for: • direct PCB mounting • plug-in sockets.

Sockets for RM85 105 °C sensitive	Accessories			Additional features
	Retainer / retractor clips	Spring wire clips	Description plates	
Screw terminals sockets, 35 mm rail mount (acc. to EN 60715) or on panel mounting (one M3 screw)				
GZT80 ②	GZT80-0040	GZM80-0041	GZT80-0035	modules ④, strips ⑤
GZM80 ②	GZT80-0040	GZM80-0041	GZT80-0035	modules ④, strips ⑤
GZS80 ②	GZS-0040	GZM80-0041	TR	modules ④, strips ⑤
GZF80 ②	—	GZM80-0041	—	—
Spring terminals sockets, 35 mm rail mount (acc. to EN 60715)				
GZMB80 ② ③	GZMB80-0040	GZM80-0041	TR	modules ④
Sockets for PCB				
EC 50	—	MP16-2 ⑥, MH16-2	—	—
PW80	—	MH16-2	—	—
GD50	—	MP16-2 ⑥, MH16-2, GD-0016	—	—

② Sockets GZ.80: load connection - see page 2.
type M... - see page 9.

③ Sockets GZMB80: wire connection - see page 6.

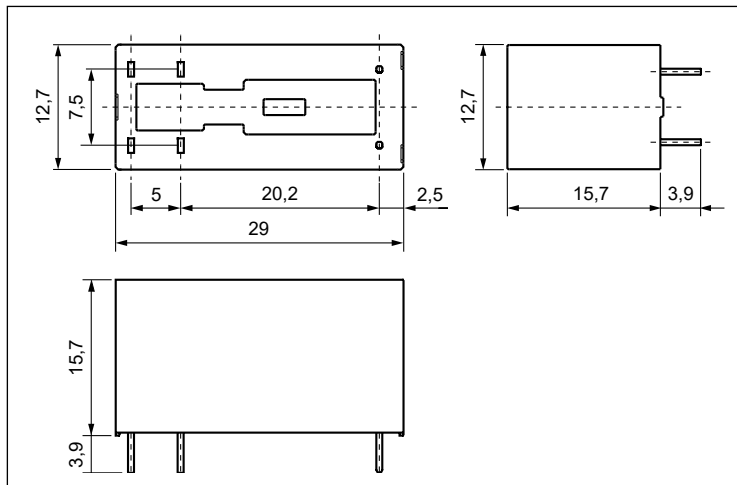
④ Signalling / protecting modules

⑤ Interconnection strips ZGGZ80 - see page 10.

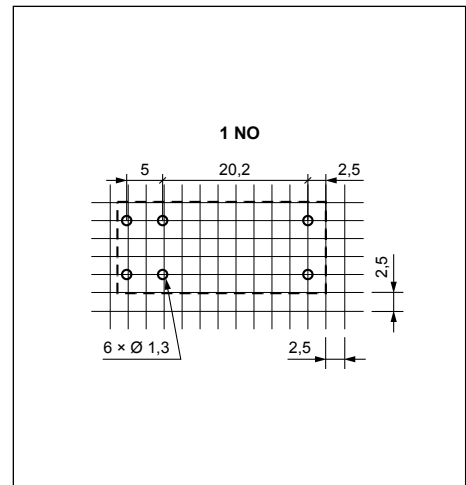
⑥ Plastic clips MP16-2.

RM85 105 °C sensitive miniature relays

Dimensions

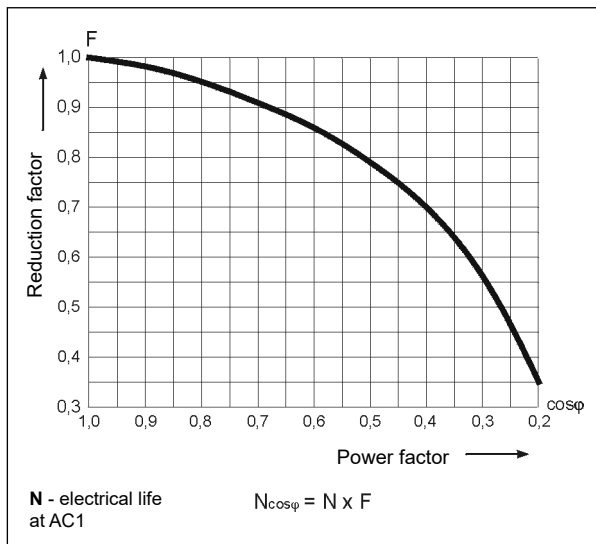


Pinout (solder side view)



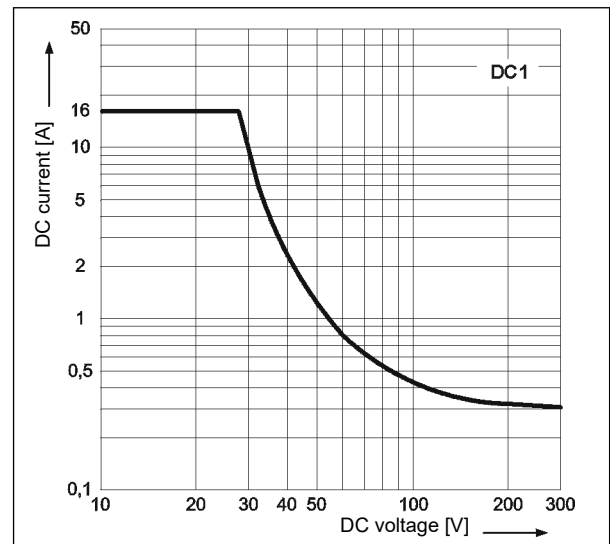
Electrical life reduction factor at AC inductive load

Fig. 1



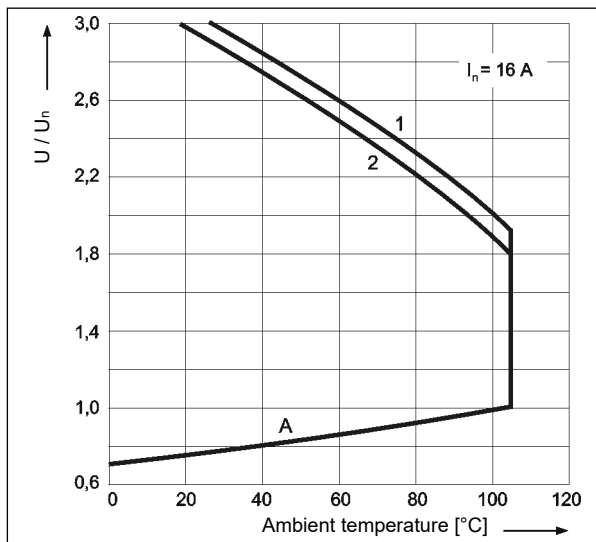
Max. DC resistive load breaking capacity

Fig. 2



Coil operating range - DC

Fig. 3



Description of Fig. 3

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).

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

- 1 - no load
- 2 - rated load

RM85 105 °C sensitive

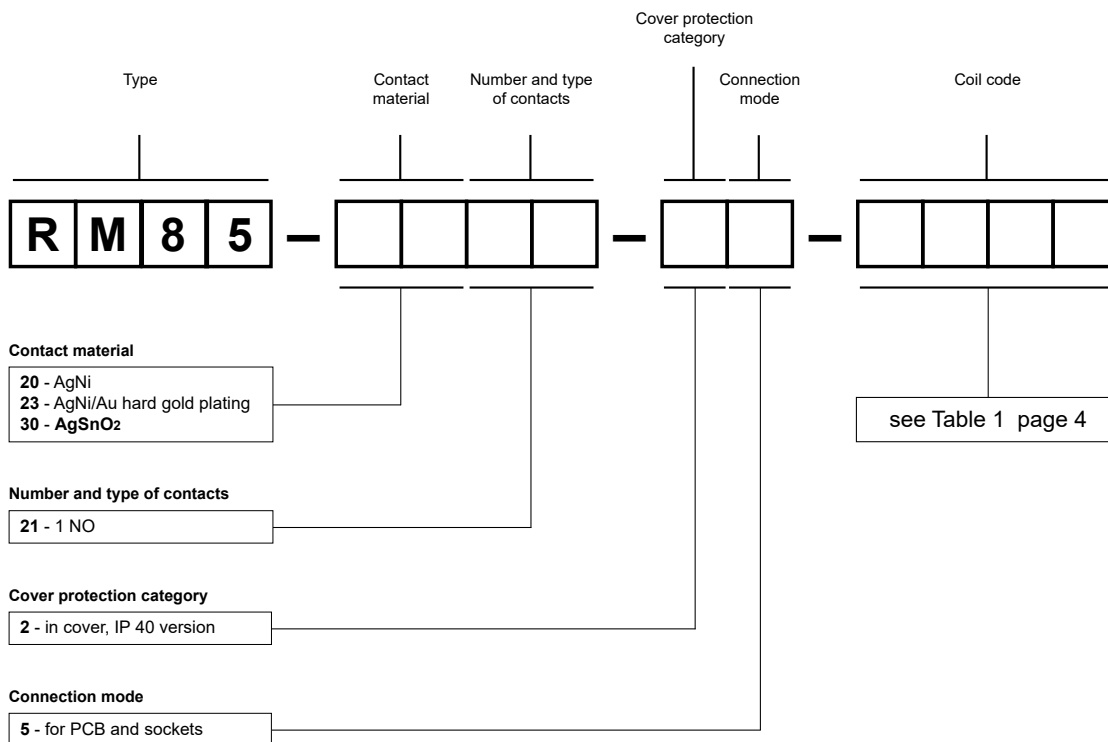
miniature relays

Coil data - DC voltage version, sensitive

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)
S005	5	102	$\pm 10\%$	3,75	15,0
S006	6	144	$\pm 10\%$	4,50	18,0
S009	9	330	$\pm 10\%$	6,75	27,0
S010	10	380	$\pm 10\%$	7,50	30,0
S012	12	580	$\pm 10\%$	9,00	36,0
S018	18	1 300	$\pm 10\%$	13,50	54,0
S024	24	2 300	$\pm 10\%$	18,00	72,0
S048	48	9 340	$\pm 10\%$	36,00	144,0

Ordering codes



Examples of ordering code:

RM85-3021-25-S012

relay **RM85 105 °C sensitive**, for PCB and sockets, one normally open contact, contact material AgSnO₂, sensitive coil voltage 12 V DC, in cover IP 40

RM85-2321-25-S005

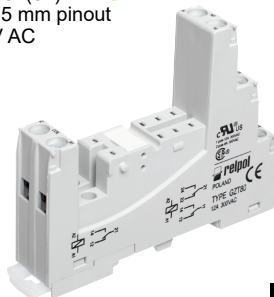
relay **RM85 105 °C sensitive**, for PCB and sockets, one normally open contact, contact material AgNi/Au hard gold plating, sensitive coil voltage 5 V DC, in cover IP 40

Plug-in sockets and accessories

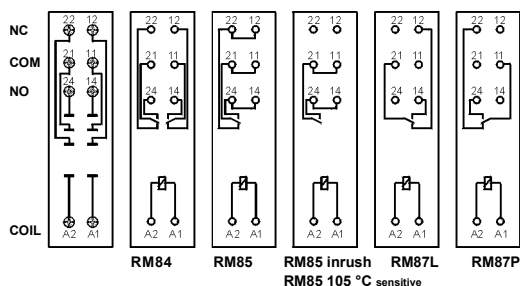
GZT80

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

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to EN 60715
or on panel mounting
80 x 15,6 x 61(67) mm ②
Two poles, 5 mm pinout
12 A, 300 V AC



Connection diagrams ⑧

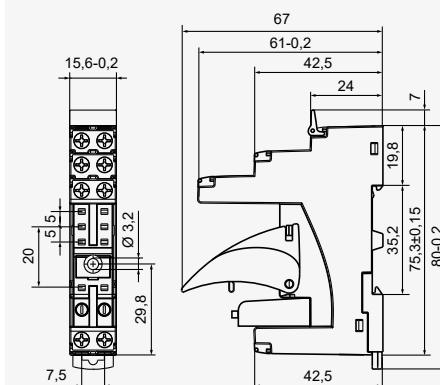


Accessories ①

ZGGZ80

GZM80-0041

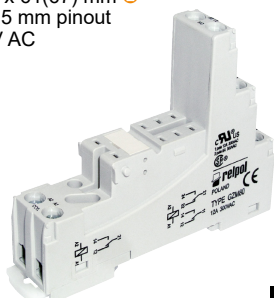
Dimensions



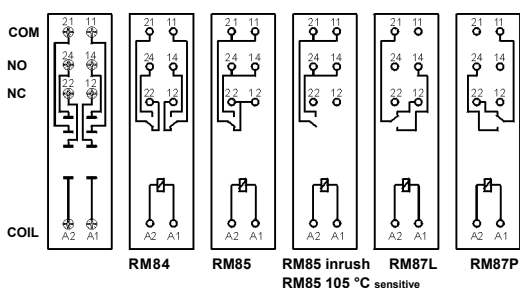
GZM80

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

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to EN 60715
or on panel mounting
81,6 x 15,9 x 61(67) mm ②
Two poles, 5 mm pinout
12 A, 300 V AC



Connection diagrams ⑧

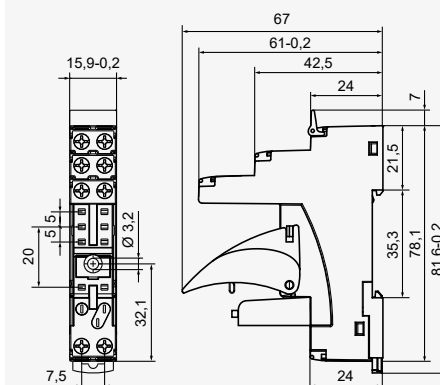


Accessories ①

ZGGZ80

GZM80-0041

Dimensions



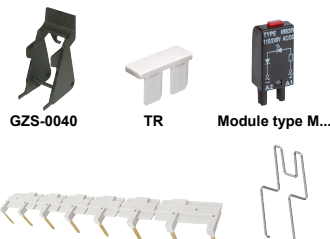
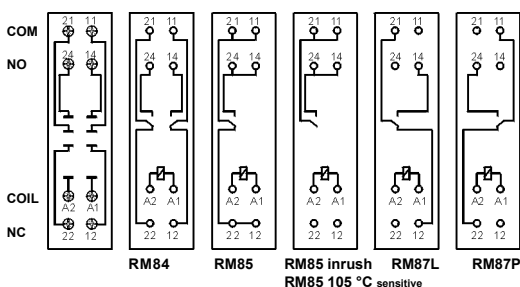
GZS80

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

Screw terminals
Max. tightening moment
for the terminal: 0,5 Nm
35 mm rail mount
acc. to 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 ⑧

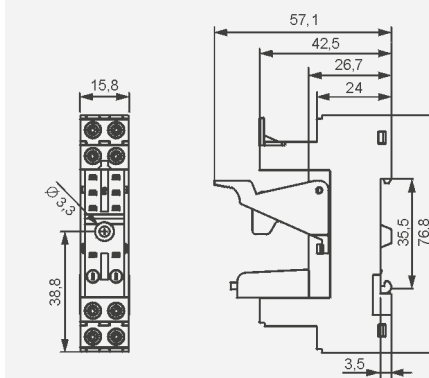


Accessories ①

ZGGZ80

GZM80-0041

Dimensions



① Mounting and sub-assemblies of accessories in the socket - see page 7. Signalling / protecting modules type M... - see page 9. ② In the bracket the height of socket with retainer / retractor clip is shown. ⑧ For RM85..., RMP85: 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 catalog "Relays" and www.repol.com.pl

Plug-in sockets and accessories

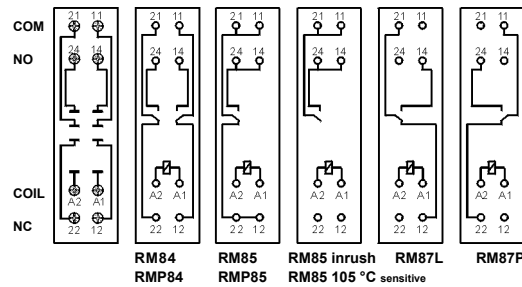
GZF80

For RM84, RM85,
RM85 inrush,
RM85 105 °C sensitive,
RM87L, RM87L sensitive,
RM87P, RM87P sensitive,
RMP84, RMP85

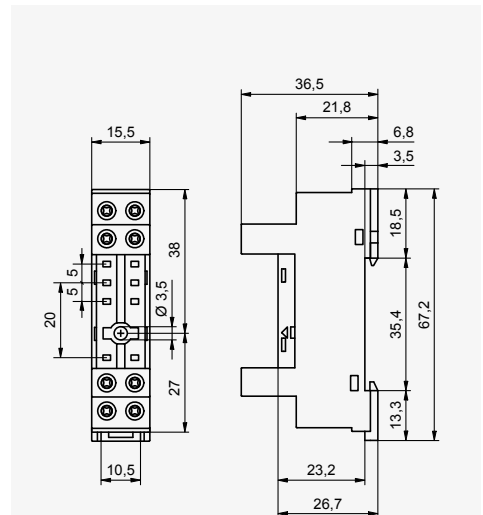
Screw terminals
Max. tightening moment
for the terminal: 0,5 Nm
35 mm rail mount
acc. to EN 60715
or on panel mounting
67,2 x 15,5 x 36,5 mm
Two poles, 5 mm pinout
10 A, 250 V AC



Connection diagrams ③



Dimensions



Accessories ①

GZM80-0041 GZ80-1001

GZMB80

For RM84, RM85,
RM85 inrush,
RM85 105 °C sensitive,
RM87L, RM87L sensitive,
RM87P, RM87P sensitive,
RMP84, RMP85

Spring terminals
Max. cross section
of the cables:
1 x 0,2...1,5 mm²
(1 x 24...16 AWG)
Stripping length: 9...11 mm

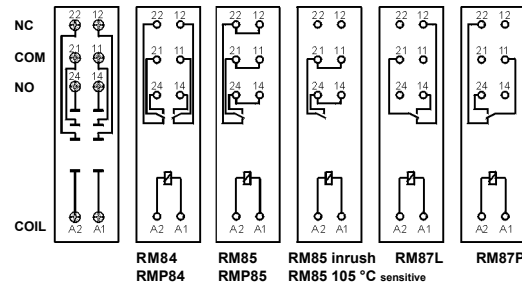
35 mm rail mount
acc. to EN 60715
97 x 16 x 45,2(69/78) mm ②
Two poles, 5 mm pinout
10 A, 300 V AC



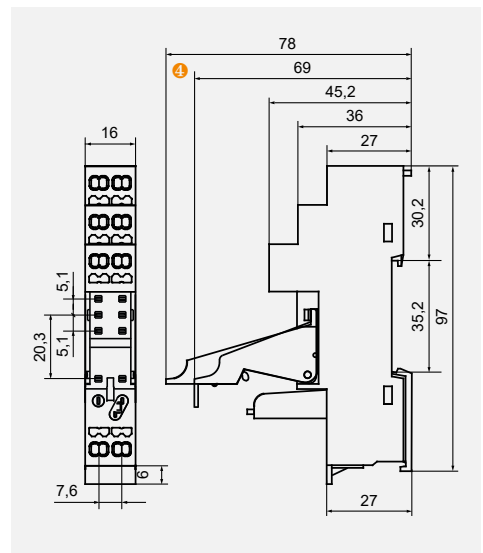
Module type M...



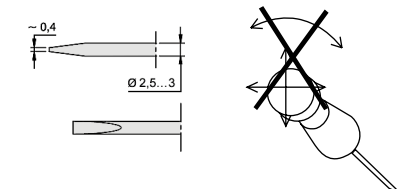
Connection diagrams ③



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".

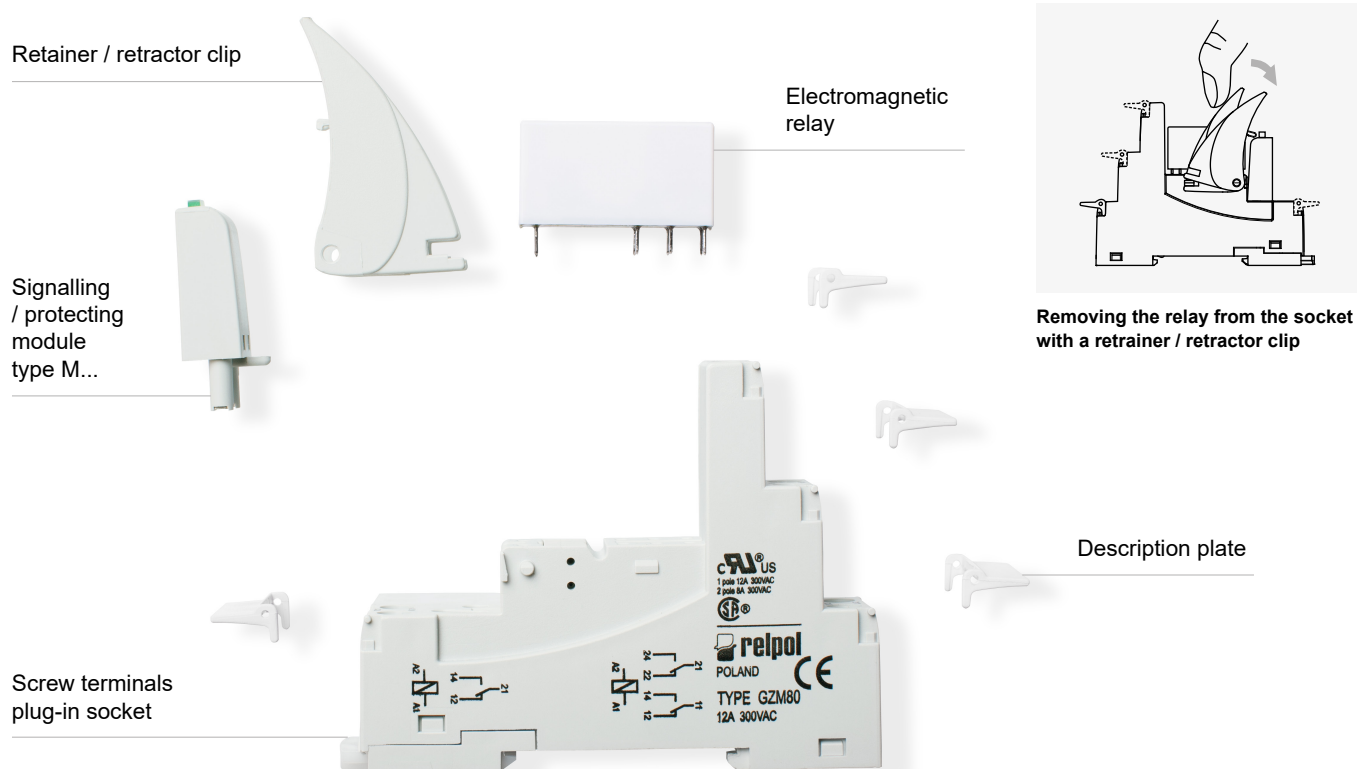


Accessories ① ④

Wire connection

① Mounting and sub-assemblies of accessories in the socket - see page 7. Signalling / protecting modules type M... - see page 9. ② In the bracket the height of socket with retainer / retractor clip is shown. ③ For RM85..., RMP85: 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 catalog "Relays" and www.repol.com.pl ④ Height of set: 69 mm (GZMB80-0040) or 78 mm (GZMB80-0025).

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



PRECAUTIONS:

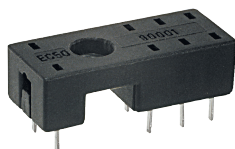
1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. 2. Never touch any live parts of the device. 3. Ensure that 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.

Plug-in sockets and accessories

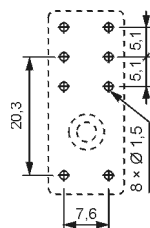
EC 50

For RM84, RM85, RM85 inrush,
RM85 105 °C sensitive,
RM87L, RM87L sensitive,
RM87P, RM87P sensitive,
RM83, RMP84, RMP85

For PCB
31,3 x 12,7 x 9 mm
Two poles, 5 mm pinout
12 A, 250 V AC



Pinout



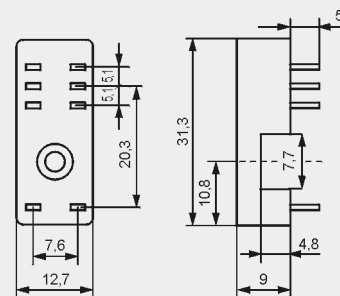
MP25-2 MH25-2



MP16-2 MH16-2

Accessories

Dimensions



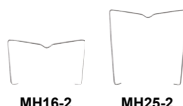
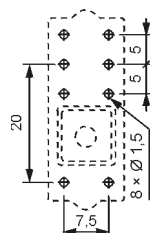
PW80

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

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



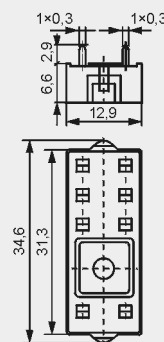
Pinout



MH16-2 MH25-2

Accessories

Dimensions



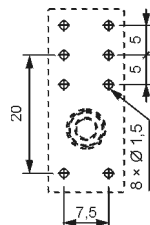
GD50

For RM84, RM85, RM85 inrush,
RM85 105 °C sensitive,
RM87L, RM87L sensitive,
RM87P, RM87P sensitive,
RM83, RMP84, RMP85

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



Pinout



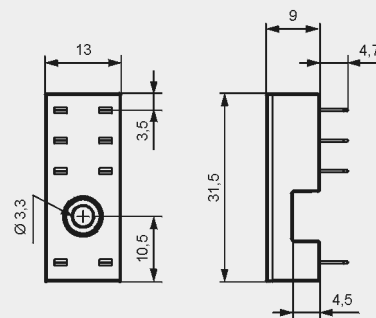
MP25-2 MH25-2



MP16-2 MH16-2 GD-0016

Accessories

Dimensions



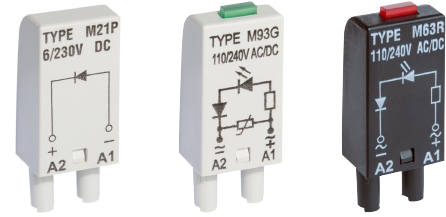
Signalling / protecting modules type M...

For sockets type:

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

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

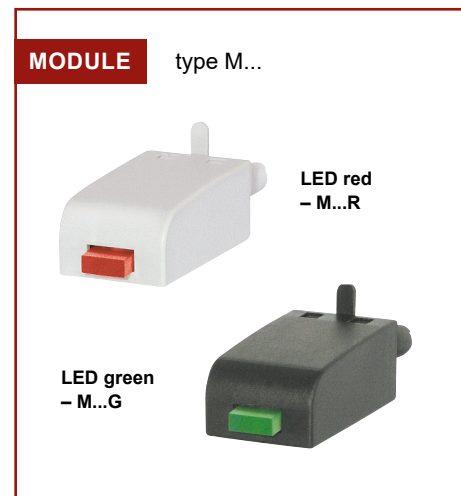
Polarity P: -A1/+A2. Polarity N: +A1/-A2.



Modules type M...	Layout	Voltage	Type of module ① ②
Module D (polarization P) It limits overvoltage on DC coils.		6/230 V DC	M21P
Module D (polarization N) It limits overvoltage on DC coils.		6/230 V DC	M21N
Module LD (polarization P) It limits overvoltage on DC coils. Coil energizing indication.		6/24 V DC 24/60 V DC 110/230 V DC	M31R, M31G M32R, M32G M33R, M33G
Module LD (polarization N) It limits overvoltage on DC coils. Coil energizing indication.		6/24 V DC 24/60 V DC 110/230 V DC	M41R, M41G M42R, M42G M43R, M43G
Module RC It protects against EMC disturbance. It limits overvoltage.		6/24 V AC/DC 24/60 V AC/DC 110/240 V AC/DC	M51 M52 M53
Module L Coil energizing indication.		6/24 V AC/DC 24/60 V AC/DC 110/240 V AC/DC	M61R, M61G M62R, M62G M63R, M63G
Module LV It limits overvoltage on AC and DC coils. Coil energizing indication.		6/24 V AC/DC 24/60 V AC/DC 110/240 V AC/DC	M91R, M91G M92R, M92G M93R, M93G
Module V It limits overvoltage on AC coils. No indication.		6/24 V AC 110/130 V AC 220/240 V AC	M71 M72 M73
Module R It limits harmful voltage on AC coils induced in long lines which causes unwanted making of the relay.		110/240 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-...-MS-...
(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, RM87L ④, RM87P ④, RM87N ④	PI84-...-TS-... (RM84 + GZT80)
GZM80		PI84-...-MS-... (RM84 + GZM80)
GZS80		PI85-...-TS-... (RM85 + GZT80)
GZT92		(RM85 inrush + GZT80)
GZM92		PI85-...-MS-... (RM85 + GZM80)
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 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.

