

# RM83



## miniature relays

RM83

RM83-...-01



**RESISTANCE  
TO INRUSH  
CURRENT  
120 A (20 ms)**

- Miniature dimensions
- General purpose relays, designed for continuous operation\*
- **Version 1 NO AgSnO<sub>2</sub> - for special loads:**  
**resistance to inrush current 120 A (20 ms)**
- Protection category IP 40 or IP 67
- For PCB and plug-in sockets
- DC coils - standard and sensitive, insulation class F: 155 °C
- Available special versions: in transparent cover
- Recognitions, certifications, directives: RoHS,  

### Contact data

Number and type of contacts	1 CO, 1 NO, 1 NC
Contact material	<b>AgSnO<sub>2</sub></b>
Rated / max. switching voltage	AC 250 V / 400 V
Min. switching voltage	10 V
Rated load (capacity)	<div>AC1 16 A / 250 V AC 20 A / 250 V AC (UL)</div> <div>AC15 6 A / 120 V 3 A / 240 V (A300)</div> <div>DC1 16 A / 24 V DC (see Fig. 3)</div> <div>DC13 0,22 A / 120 V 0,1 A / 250 V (R300)</div>
Motor load	<div>acc. to UL 508 1/2 HP 240 V AC, 4,9 FLA, single-phase motor ❶</div> <div>AC3 acc. to IEC 60947-4-1 0,65 kW 240 V AC, single-phase motor</div>
Min. switching current	10 mA
Max. make current	30 A 1 NO, AgSnO <sub>2</sub>
Max. inrush current	<b>120 A 20 ms</b>
Rated current	16 A
Max. breaking capacity	AC1 4 000 VA
Min. breaking capacity	1 W
Contact resistance	≤ 100 mΩ
Max. operating frequency	<div>• at rated load AC1 600 cycles/hour</div> <div>• no load 72 000 cycles/hour</div>

### Coil data

Rated voltage	DC 5, 6, 9, 12, 18, 24, 36, 48, 60, 110 V	standard coil
	110 V	sensitive coil
Must release voltage	DC: ≥ 0,1 U <sub>n</sub>	
Operating range of supply voltage	see Table 1	
Rated power consumption	DC 0,6 W	5 ... 60 V standard coil
	0,6 W	110 V sensitive coil
	0,9 W	110 V standard coil

### Insulation according to EN 60664-1

Insulation rated voltage	400 V AC
Dielectric strength	4 000 V AC type of insulation: reinforced
• between coil and contacts	1 000 V AC type of clearance: micro-disconnection
• contact clearance	
Contact - coil distance	• clearance ≥ 8 mm
• creepage	≥ 8 mm

### General data

Operating / release time (typical values)	7 ms / 3 ms
Electrical life (number of cycles)	
• resistive AC1	> 10 <sup>5</sup> 16 A, 250 V AC
• at incandescent lamp load	> 10 <sup>5</sup> 1000 W, 230 V AC, 1 NO, AgSnO <sub>2</sub>
	> 3 x 10 <sup>4</sup> 3000 W, 230 V AC, 1 NO, AgSnO <sub>2</sub>
• at halogen lamp load	> 10 <sup>4</sup> 2500 W, 230 V AC, 1 NO, AgSnO <sub>2</sub>
• cosφ	see Fig. 2
• L/R=40 ms	> 10 <sup>5</sup> 0,12 A, 220 V DC
Mechanical life (cycles)	> 3 x 10 <sup>7</sup>
Dimensions (L x W x H)	IP 40: 29,2 x 13,1 x 25,1 mm
	IP 67: 29,2 x 13,1 x 25,6 mm
Weight	18 g
Ambient temperature	• storage -40...+85 °C
(non-condensation and/or icing)	• operating -40...+70 °C
Cover protection category	IP 40 or IP 67 EN 60529
Environmental protection	RTI or RTII EN 61810-1
Shock / vibration resistance	20 g / 10 g 10...150 Hz
Solder bath temperature / Soldering time	max. 270 °C / max. 5 s

The data in bold type relate to the standard versions of the relays. \*The relays are designed for continuous operation while maintaining the parameters declared in the data sheet. ❶ For single phase motors for 110-120 V AC do not use motors with higher FLA than given for 240 V AC.

version IP 40

version IP 67

The diagrams show the terminal block wiring for three types of relays: 1 CO, 1 NO, and 1 NC. Each diagram includes a terminal block with six terminals and a relay symbol with two coils.

- 1 CO (Common):** The terminal block has terminals 14 (8), 24 (5), 11 (7), 21 (4), 12 (6), and 22 (3). The common contact (C) is connected to terminal 14 (8). The normally open contact (NO) is connected to terminal 11 (7). The normally closed contact (NC) is connected to terminal 12 (6). The relay symbol shows two coils connected to terminals A1 (1) and A2 (2).
- 1 NO (Normally Open):** The terminal block has terminals 14 (8), 24 (5), 11 (7), 21 (4), 12 (6), and 22 (3). The common contact (C) is connected to terminal 14 (8). The normally open contact (NO) is connected to terminal 11 (7). The normally closed contact (NC) is connected to terminal 12 (6). The relay symbol shows two coils connected to terminals A1 (1) and A2 (2).
- 1 NC (Normally Closed):** The terminal block has terminals 11 (7), 21 (4), 12 (6), and 22 (3). The common contact (C) is connected to terminal 11 (7). The normally open contact (NO) is connected to terminal 12 (6). The normally closed contact (NC) is connected to terminal 21 (4). The relay symbol shows two coils connected to terminals A1 (1) and A2 (2).

Terminal (pin)	A1(1); A2(2)	21(4); 11(7)	22 (3); 24 (5); 12 (6); 14 (8)
[mm]	0,4 x 1,1	0,2 x 1,1	0,4 x 1,1
Drilling hole: • for relays Ø 1,3 + 0,1 mm • for sockets Ø 1,5 + 0,1 mm			

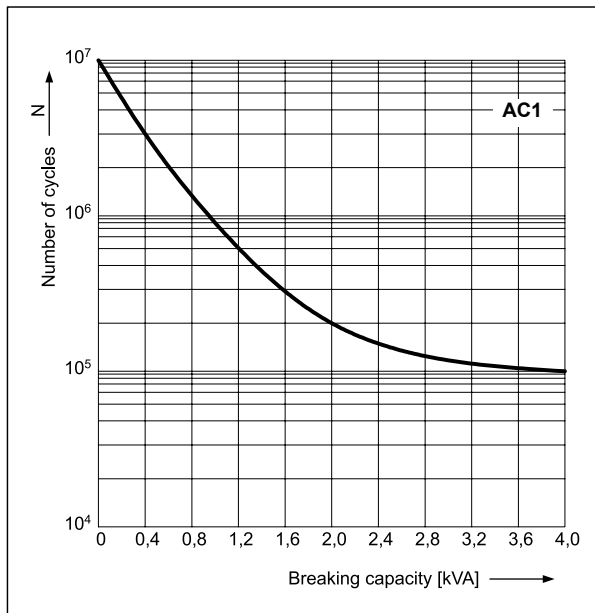
**RM83** terminals are doubled for each contact.  
Both terminals are to be used while connecting to load.

The diagrams illustrate the reinforcement layout for three different slab types:

- 1 CO:** Shows a grid of reinforcement bars. Dimensions include 1.2, 5, 5, 15, and 2.5. A callout indicates  $8 \times \varnothing 1.3$ .
- 1 NO:** Shows a grid of reinforcement bars. Dimensions include 1.2, 5, 20, and 2.5. A callout indicates  $6 \times \varnothing 1.3$ .
- 1 NC:** Shows a grid of reinforcement bars. Dimensions include 6.2, 5, 15, and 2.5. A callout indicates  $6 \times \varnothing 1.3$ .

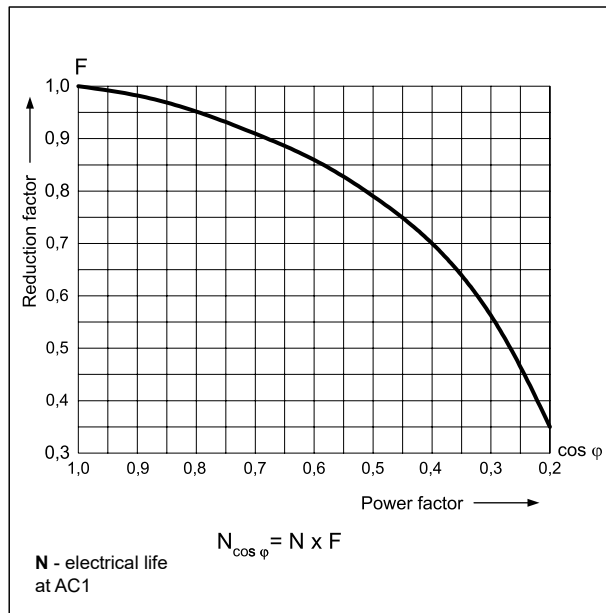
**Electrical life at AC resistive load.**  
Switching frequency: 600 cycles/hour

Fig. 1



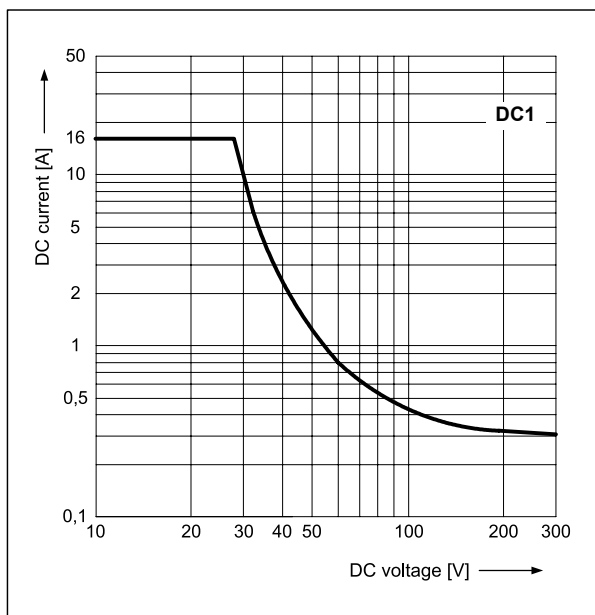
**Electrical life reduction factor at AC inductive load**

Fig. 2



**Max. DC resistive load breaking capacity**

Fig. 3



**Mounting, sockets and accessories for relays**

Relays **RM83** are designed for:

- direct PCB mounting
- plug-in sockets.

Sockets for RM83	Accessories
	Spring wire clips
Sockets for PCB	
PW80	MH25-2
EW50	MP25-2 Ⓢ, MH25-2
EC 50	MP25-2 Ⓢ, MH25-2
GD50	MP25-2 Ⓢ, MH25-2

Ⓢ Plastic clips MP25-2.

#### 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.

**Coil data - DC voltage version, standard**

**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)
1005	5	49	± 10%	3,5	8,9
1006	6	68	± 10%	4,2	10,6
1009	9	110	± 10%	6,3	15,9
<b>1012</b>	<b>12</b>	<b>260</b>	<b>± 10%</b>	<b>8,4</b>	<b>21,2</b>
1018	18	550	± 10%	12,6	31,8
<b>1024</b>	<b>24</b>	<b>1 100</b>	<b>± 10%</b>	<b>16,8</b>	<b>42,5</b>
1036	36	2 100	± 10%	25,2	63,7
1048	48	4 400	± 10%	33,6	85,0
1060	60	7 000	± 10%	42,0	106,2
1110	110	13 000	± 10%	77,0	140,0

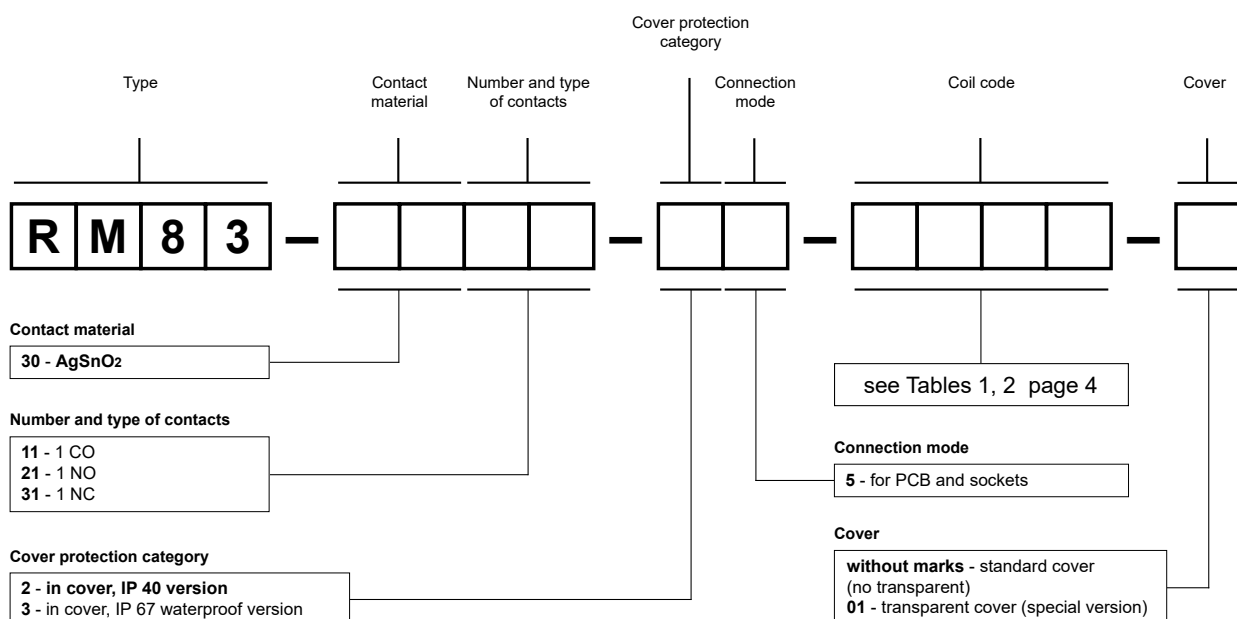
The data in bold type relate to the standard versions of the relays.

**Coil data - DC voltage version, sensitive**

**Table 2**

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)
S110	110	20 500	± 10%	77,0	188,0

## Ordering codes



Examples of ordering code:

**RM83-3011-25-1024**

relay **RM83**, for PCB and sockets, one changeover contact, contact material AgSnO<sub>2</sub>, coil voltage 24 V DC, in standard cover (no transparent) IP 40

**RM83-3011-25-S110**

relay **RM83**, for PCB and sockets, one changeover contact, contact material AgSnO<sub>2</sub>, sensitive coil voltage 110 V DC, in standard cover (no transparent) IP 40

**RM83-3021-35-1012-01**

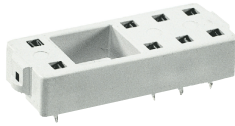
relay **RM83**, for PCB and sockets, one normally open contact, contact material AgSnO<sub>2</sub>, coil voltage 12 V DC, in transparent cover (special version) IP 67

## Sockets and accessories

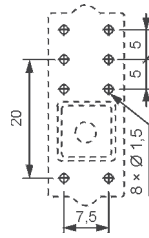
### PW80

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

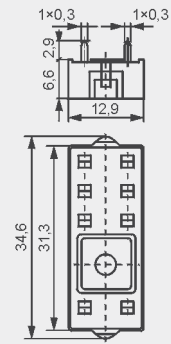


MH16-2  
(RM84/85/87)



MH25-2  
(RM83)

#### Dimensions



#### Accessories

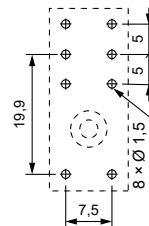
### EW50

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

For PCB  
30,2 x 13 x 9,4 mm  
Two poles, 5 mm pinout  
10 A, 250 V AC



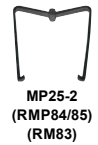
#### Pinout



MP16-2  
(RM84/85/87)



MH16-2  
(RM84/85/87)

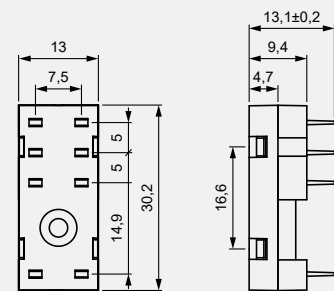


MP25-2  
(RMP84/85)  
(RM83)



MH25-2  
(RMP84/85)  
(RM83)

#### Dimensions

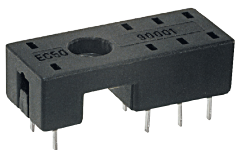


#### Accessories

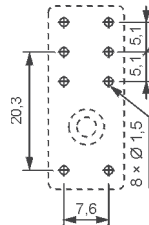
### EC 50

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



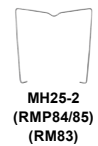
MP16-2  
(RM84/85/87)



MH16-2  
(RM84/85/87)

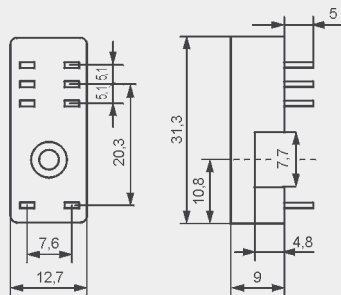


MP25-2  
(RMP84/85)  
(RM83)



MH25-2  
(RMP84/85)  
(RM83)

#### Dimensions



#### Accessories

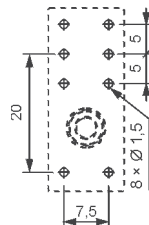
### GD50

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



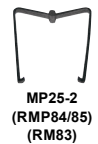
MP16-2  
(RM84/85/87)



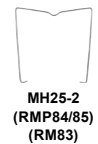
GD-0016  
(RM84/85/87)



MH16-2  
(RM84/85/87)

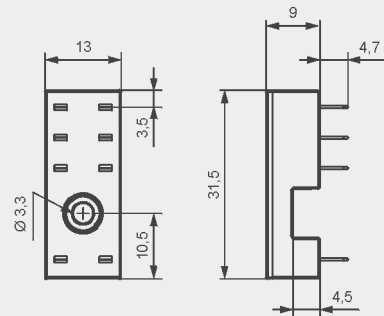


MP25-2  
(RMP84/85)  
(RM83)



MH25-2  
(RMP84/85)  
(RM83)

#### Dimensions



#### Accessories