

Miniature relays

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		Automotive relays	
		RA2	102

⚡ **RM85** with increased contact gap

Owing to their universality, miniature relays may be applied in alarm systems, as interface systems in industrial automation, power-electric systems, lighting control systems /e.g. in daylight-saving switches/, staircase lighting control systems, emergency lighting control systems, time relays as their output terminals, control systems of household and catering industry equipment, and in numerous electric systems.

The basic features of the miniature relays are:

- wide range of coil voltages,
- AC and DC coils,
- rated contact switching currents up to 20 A /depending on the relay type/,
- height from 10,5 to 26 mm /depending on the relay type/,
- high electric strength of the insulation,
- possibility of mounting on PCB, SMT and in plug-in sockets.

This type of relay is of high quality and reliability.

RM84 and RM85 relays are the basis for the interface relays of PI84 and PI85 types which are described in the section of "Interface relays".

The relays are recognized and certified by:       
They meet the requirements of RoHS Directive.



- Very small dimensions
- High switching capacity up to 5 A or 8 A
- Cover with enhanced sealing protects the relay in course of soldering and cleaning
- Applications: for household equipment, office machines, control devices, alarm systems, in industrial control, industrial controllers
- Recognitions, certifications, directives: RoHS,  

Contact data

Number and type of contacts		1 C/O	1 NO
Contact material		1 C/O: AgNi , AgNi/Au 3 µm	1 NO: AgSnO₂
Rated / max. switching voltage	AC	1 C/O: 250 V / 380 V	1 NO: 250 V / 440 V
Min. switching voltage		5 V AgNi, 1 V AgNi/Au 3 µm	5 V AgSnO ₂
Rated load	AC1 DC1	1 C/O: 5 A / 250 V AC 1 C/O: 5 A / 30 V DC	1 NO: 8 A / 250 V AC 1 NO: 8 A / 30 V DC
Min. switching current		10 mA AgNi, 1 mA AgNi/Au 3 µm	10 mA AgSnO ₂
Rated current		1 C/O: 5 A	1 NO: 8 A
Max. breaking capacity	AC1	1 C/O: 1 250 VA	1 NO: 2 000 VA
Min. breaking capacity		50 mW AgNi, 1 mW AgNi/Au 3 µm	50 mW AgSnO ₂
Contact resistance		≤ 100 mΩ	

Coil data

Rated voltage	DC	3 ... 48 V
Must release voltage		DC: ≥ 0,05 U _n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,20 W

Insulation according to PN-EN 60664-1

Dielectric strength		
• between coil and contacts	4 000 V AC	type of insulation: reinforced
• contact clearance	1 000 V AC	type of clearance: micro-disconnection
Contact - coil distance		
• clearance	≥ 5 mm	
• creepage	≥ 5 mm	

General data

Operating / release time (typical values)		8 ms / 4 ms
Electrical life		
• resistive AC1	360 cycles/hour	> 10 ⁵ 1 C/O: 5 A, 250 V AC 1 NO: 8 A, 250 V AC
• resistive DC1	1 800 cycles/hour	> 10 ⁵ 1 C/O: 5 A, 30 V DC 1 NO: 8 A, 30 V DC
Mechanical life	18 000 cycles/hour	> 10 ⁷
Dimensions (L x W x H)		20 x 10 x 10,5 mm
Weight		6 g
Ambient temperature	• operating	-40...+85 °C
Cover protection category		IP 64 PN-EN 60529
Shock resistance		10 g
Vibration resistance		1,5 mm DA (constant amplitude) 10...55 Hz
Solder bath temperature		max. 235 °C
Soldering time		max. 3,5 s

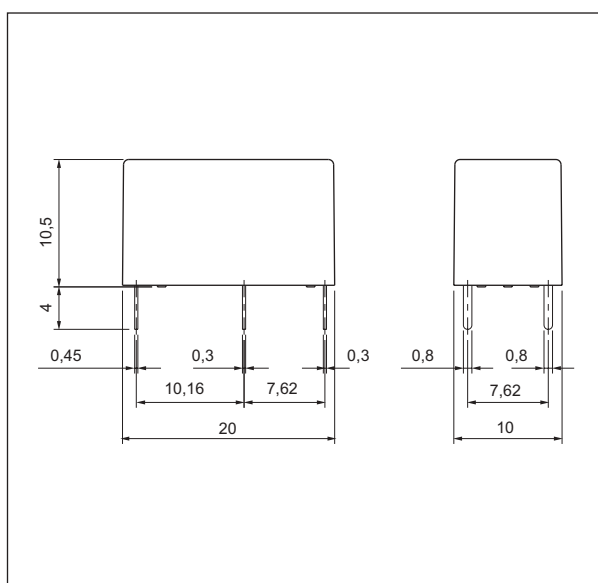
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version

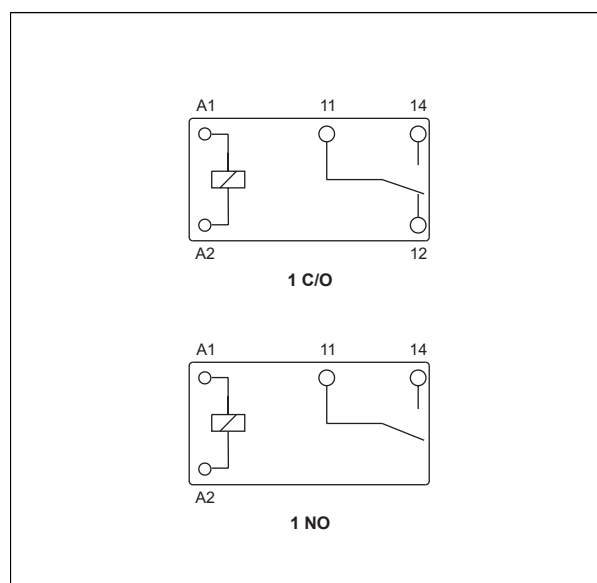
Table 1

Coil code	Rated voltage V DC	Coil resistance $\pm 10\%$ at 20°C Ω	Coil operating range at 20°C V DC		Power consumption mW
			min.	max.	
1003	3	45	2,25	4,5	200
1005	5	125	3,75	7,5	200
1006	6	180	4,50	9,0	200
1009	9	405	6,75	13,5	200
1012	12	720	9,00	18,0	200
1024	24	2 880	18,00	36,0	200
1048	48	11 520	36,00	72,0	200

Dimensions

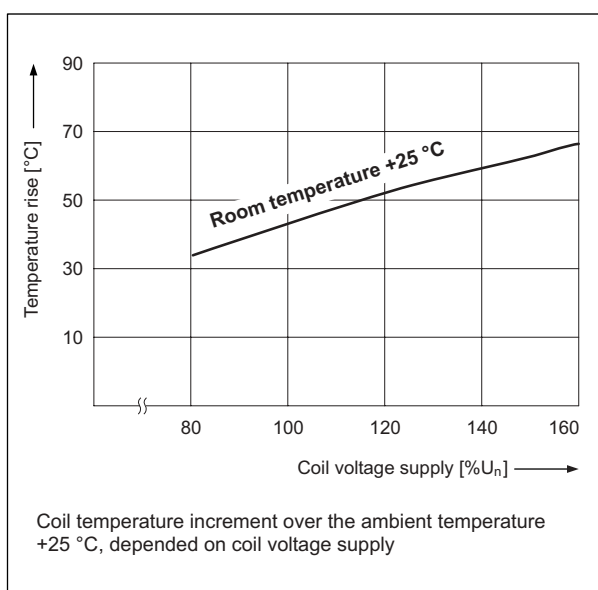


Connection diagrams (pin side view)



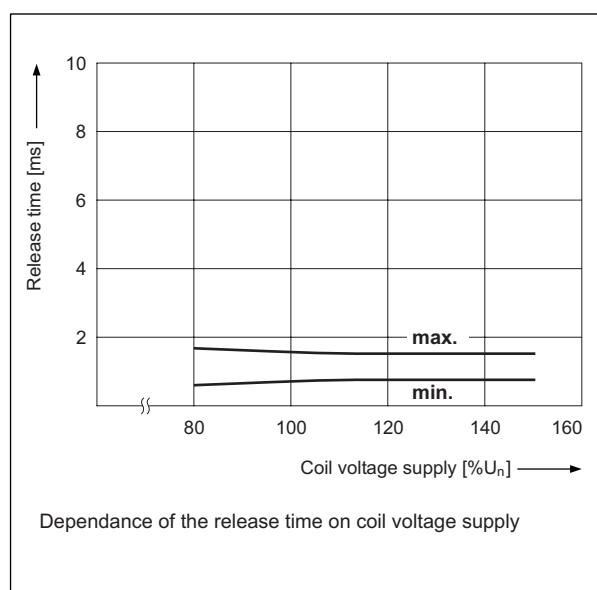
Coil temperature rise

Fig. 1

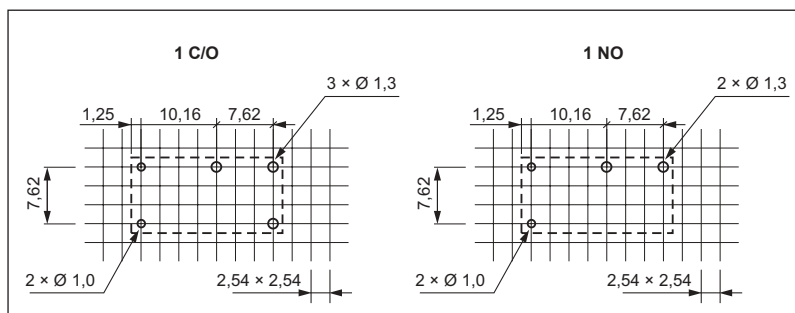


Release time

Fig. 2



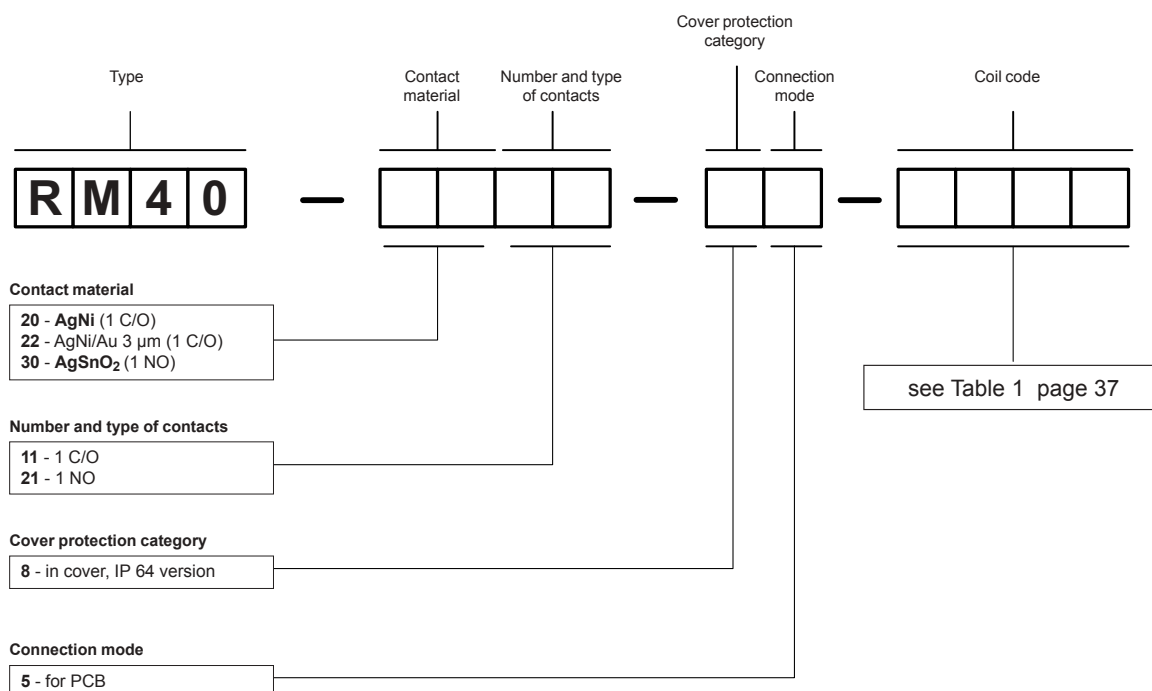
Pinout (solder side view)



Mounting

Relays **RM40** are designed for direct PCB mounting.

Ordering codes



Examples of ordering code:

RM40-2011-85-1003

relay **RM40**, contact material AgNi, with one changeover contact, in cover IP 64, for PCB, voltage version 3 V DC

RM40-3021-85-1024

relay **RM40**, contact material AgSnO₂, with one normally open contact, in cover IP 64, for PCB, voltage version 24 V DC



- Small dimensions
- Switching current up to 10 A / 15 A
- The plastics applied provide for the operation of the relays at high temperature and in chemical environment
- Sealed, for soldering
- Applications: for household equipment, office machines, audio equipment, coffee machines, control devices, etc.
- Recognitions, certifications, directives: RoHS, 

Contact data

Number and type of contacts		1 C/O, 1 NO
Contact material		AgSnO₂
Rated / max. switching voltage	AC	240 V / 277 V
Min. switching voltage		5 V
Rated load	AC1	10 A / 240 V AC
	DC1	15 A / 24 V DC
Min. switching current		15 mA
Rated current		12 A
Max. breaking capacity	AC1	3 000 VA
Min. breaking capacity		0,75 W
Contact resistance		≤ 100 mΩ

Coil data

Rated voltage	DC	3 ... 48 V
Must release voltage		DC: ≥ 0,05 U _n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,36...0,45 W

Insulation according to PN-EN 60664-1

Dielectric strength		
• between coil and contacts	1 000 V AC	type of insulation: basic
• contact clearance	500 V AC	type of clearance: micro-disconnection
Contact - coil distance		
• clearance	≥ 1,9 mm	
• creepage	≥ 1,9 mm	

General data

Operating / release time (typical values)		10 ms / 5 ms
Electrical life		
• resistive AC1	1 200 cycles/hour	> 10 ⁵ 7 A, 250 V AC
• resistive AC1	1 200 cycles/hour	> 3 x 10 ⁴ 12 A, 250 V AC
• resistive DC1	1 200 cycles/hour	> 5 x 10 ⁴ 15 A, 24 V DC
Mechanical life	18 000 cycles/hour	> 10 ⁷
Dimensions (L x W x H)		19 x 15,4 x 15,5 mm
Weight		11 g
Ambient temperature	• operating	-30...+55 °C
Cover protection category		IP 64 PN-EN 60529
Shock resistance		10 g
Vibration resistance		1,5 mm DA (constant amplitude) 10...55 Hz
Solder bath temperature		max. 235 °C
Soldering time		max. 3,5 s

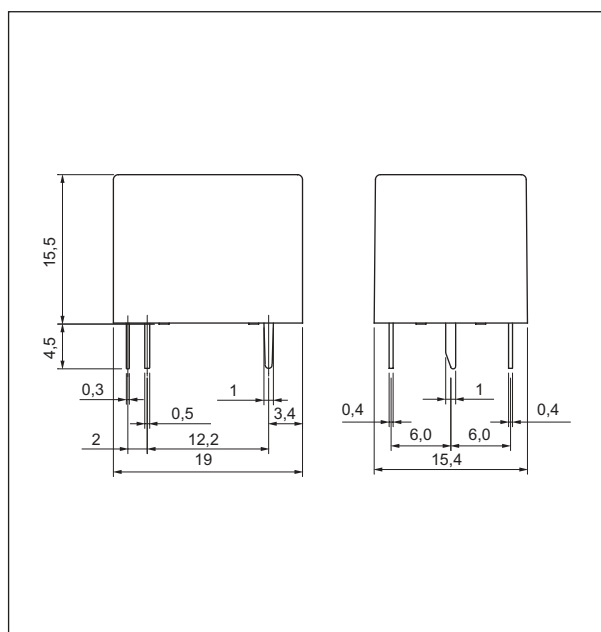
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version

Table 1

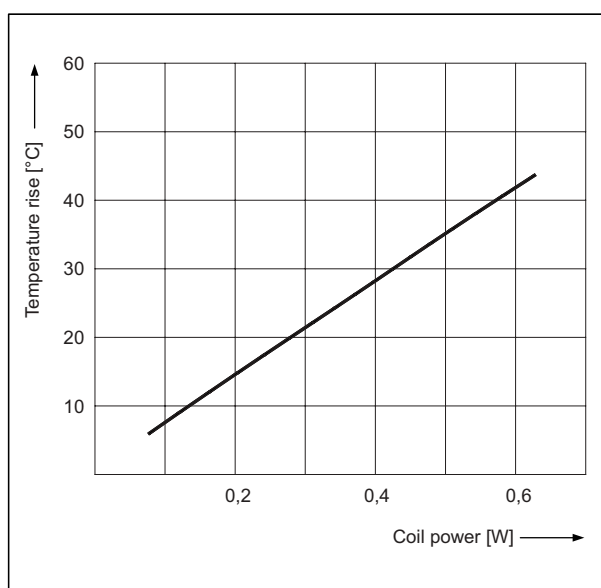
Coil code	Rated voltage V DC	Coil resistance $\pm 10\%$ at 20°C Ω	Coil operating range at 20°C V DC		Power consumption mW
			min.	max.	
1003	3	25	2,25	3,9	360
1005	5	70	3,75	6,5	360
1006	6	100	4,50	7,8	360
1009	9	225	6,75	11,7	360
1012	12	400	9,00	15,6	360
1018	18	900	13,50	23,4	360
1024	24	1 600	18,00	31,2	360
1048	48	6 400	38,40	62,4	450

Dimensions

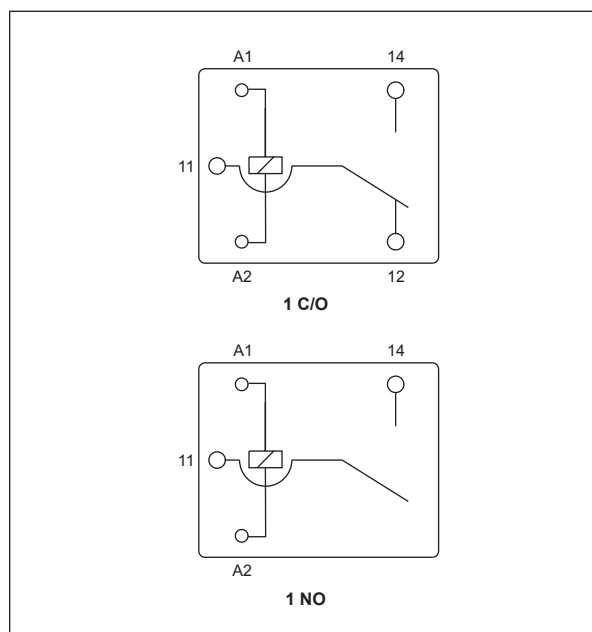


Coil temperature rise

Fig. 1

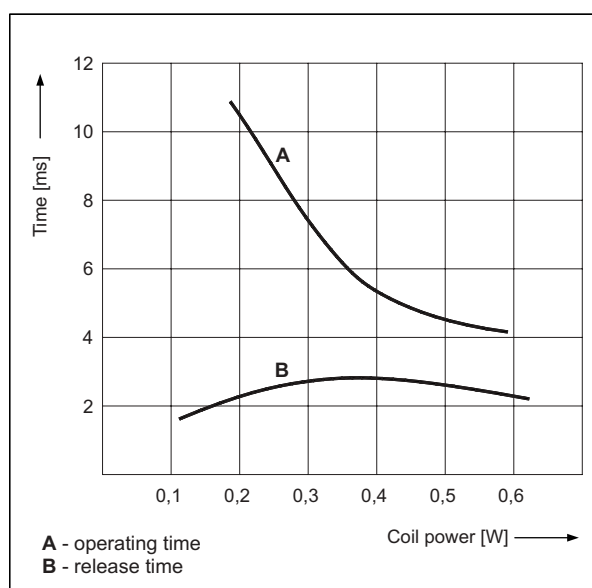


Connection diagrams (pin side view)



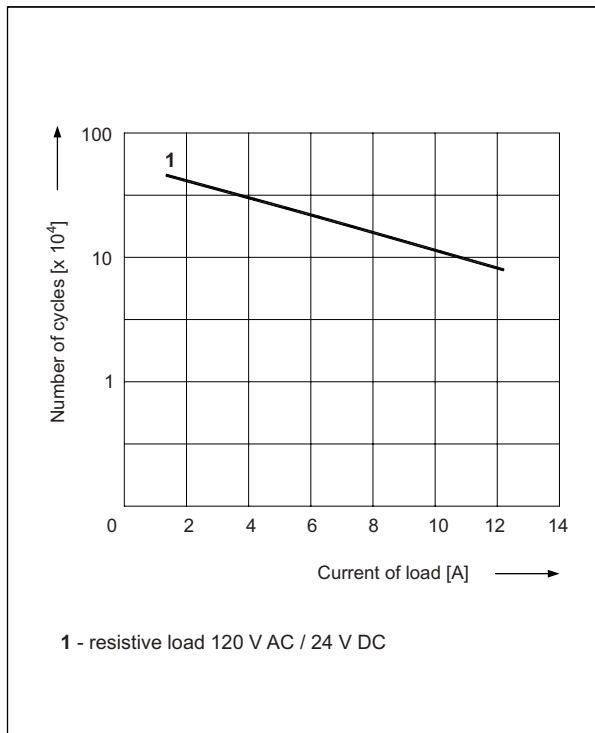
Operating / release time

Fig. 2

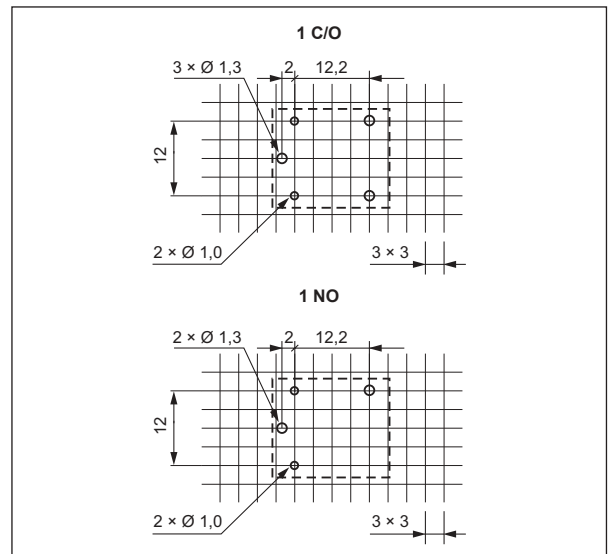


Electrical life

Fig. 3



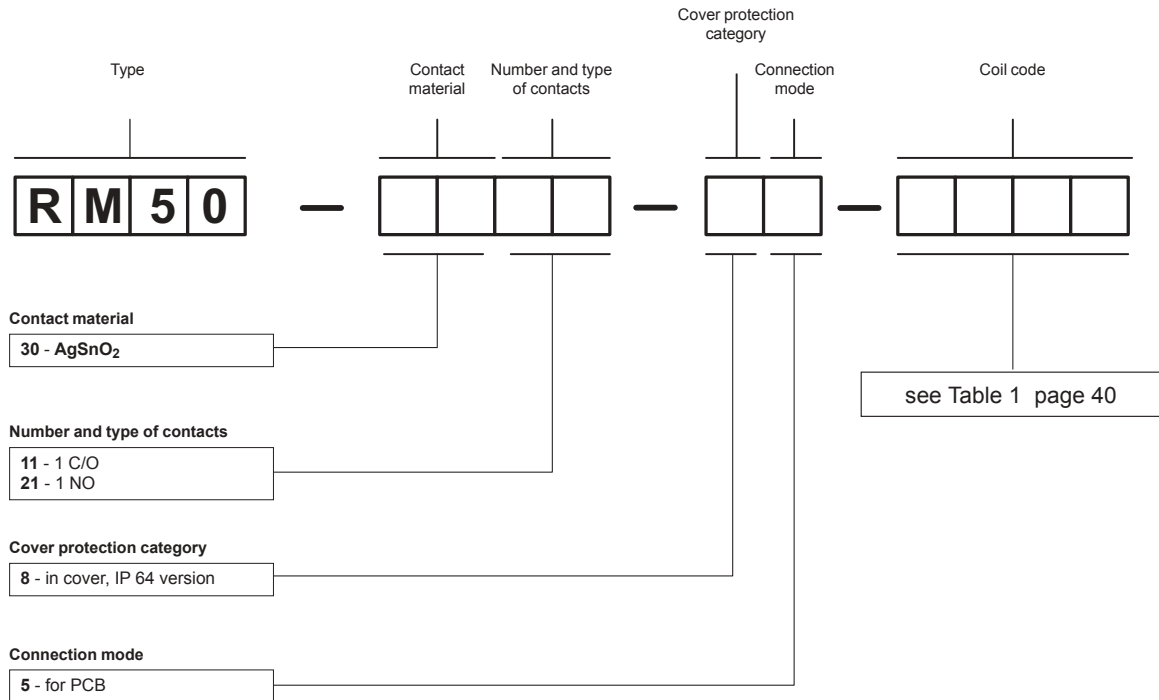
Pinout (solder side view)



Mounting

Relays **RM50** are designed for direct PCB mounting.

Ordering codes



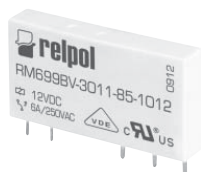
Example of ordering code:

RM50-3011-85-1012

relay **RM50**, contact material AgSnO₂, with one changeover contact, in cover IP 64, for PCB, voltage version 12 V DC

version (V)

version (H)



- Cover width only 5,0 mm
- Sealed for soldering and cleaning
- **Terminals arrangement: vertical version (V) and horizontal version (H)**
- Applications: for PLC's, industrial machinery, time relays, counters, temperature adjusters, measurement instruments, office equipment, etc.
- Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts		1 C/O	
Contact material		AgSnO₂	AgSnO ₂ /Au 3 µm ❶
Rated / max. switching voltage	AC	250 V / 400 V	– / 30 V ❶
Max. switching voltage	DC	250 V	36 V ❶
Min. switching voltage		10 V	5 V
Rated load	AC1	6 A / 250 V AC	0,05 A / 30 V AC ❶
	DC1	6 A / 24 V DC	0,05 A / 36 V DC ❶
Min. switching current		100 mA	10 mA
Max. inrush current		10 A 20 ms	0,1 A 20 ms ❶
Rated current		6 A	0,05 A ❶
Max. breaking capacity	AC1	1 500 VA	1,2 VA ❶
Min. breaking capacity		1 W	0,05 W
Contact resistance		≤ 100 mΩ 100 mA, 24 V	≤ 30 mΩ 10 mA, 5 V
Max. operating frequency			
• at rated load		AC1	360 cycles/hour
• no load			72 000 cycles/hour

Coil data

Rated voltage	DC	5 ... 60 V
Must release voltage		DC: ≥ 0,05 U _n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,17...0,217 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 V AC
Overvoltage category		III
Dielectric strength		
• between coil and contacts		4 000 V AC type of insulation: reinforced
• contact clearance		1 000 V AC type of clearance: micro-disconnection
Contact - coil distance		
• clearance		≥ 6 mm
• creepage		≥ 8 mm

General data

Operating / release time (typical values)		8 ms / 4 ms
Electrical life		
• resistive AC1		the NO and NC contact loaded (bilateral load): see Fig. 1 the NO contact loaded: > 3 x 10 ⁴ 6 A, 250 V AC
Mechanical life (cycles)		> 10 ⁷
Dimensions (L x W x H)		28 x 5 x 15 mm
Weight		6 g
Ambient temperature	• storage	-40...+85 °C
	• operating	-40...+85 °C
Cover protection category		IP 64 PN-EN 60529
Environmental protection		RTIII PN-EN 116000-3
Shock resistance		5 g
Vibration resistance		5 g 10...55 Hz
Solder bath temperature		max. 235 °C
Soldering time		max. 3,5 s

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

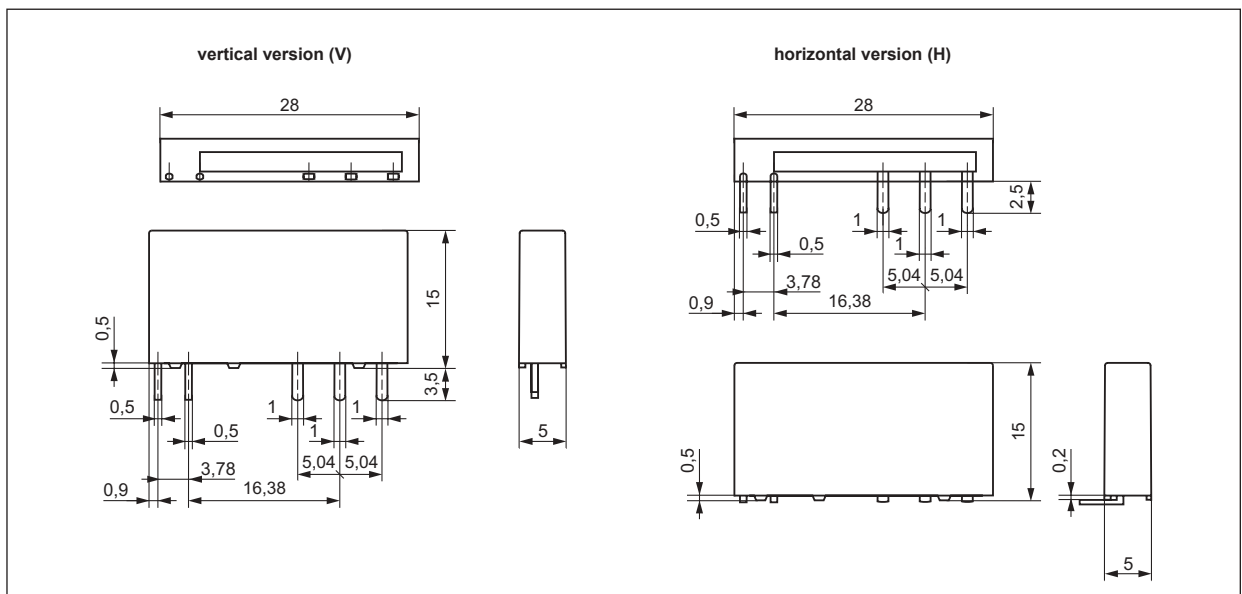
❶ For gold-plated contacts - when the maximum values given have been exceeded, the gold layer is destroyed. Then, the advantages of gold-plating disappear and the values are as for AgSnO₂ contacts (see beside). In consequence however, the life of the contact may be shorter than that of the normal power contact.

Coil data - DC voltage version

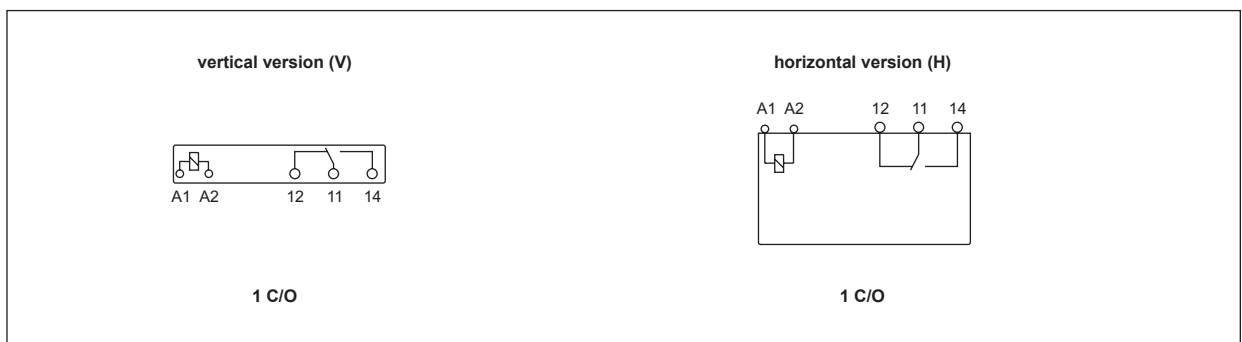
Table 1

Coil code	Rated voltage V DC	Coil resistance at 20°C Ω	Acceptable resistance	Coil operating range at 20°C V DC		Power consumption mW
				min.	max.	
1005	5	147	$\pm 10\%$	3,75	7,5	170
1012	12	848	$\pm 10\%$	9,0	18,0	170
1024	24	3 390	$\pm 15\%$	18,0	36,0	170
1048	48	10 600	$\pm 15\%$	36,0	72,0	217
1060	60	20 500	$\pm 15\%$	45,0	90,0	217

Dimensions

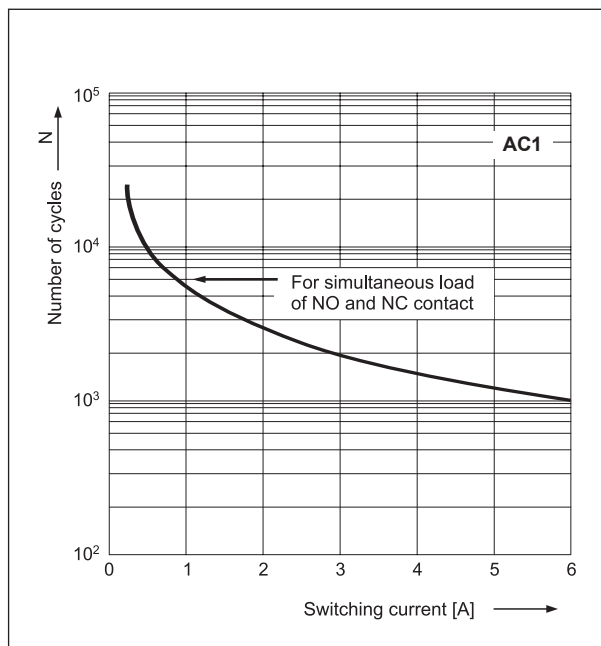


Connection diagrams (pin side view)



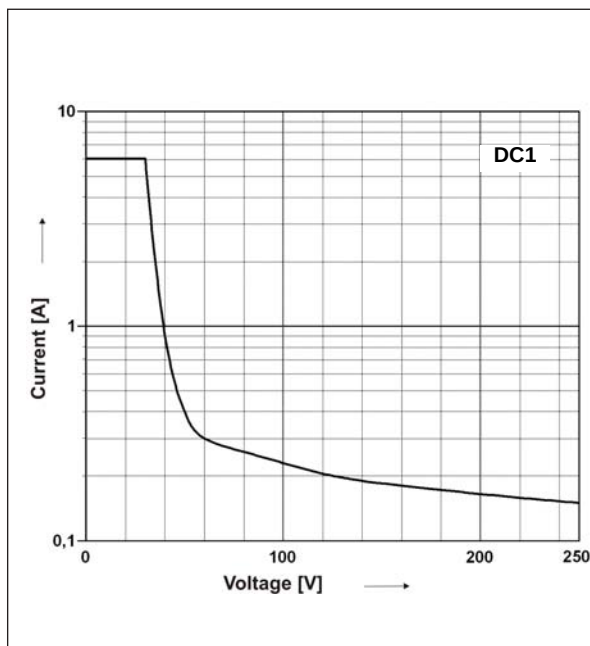
Electrical life at AC resistive current.
Switching frequency: 360 cycles/hour

Fig. 1



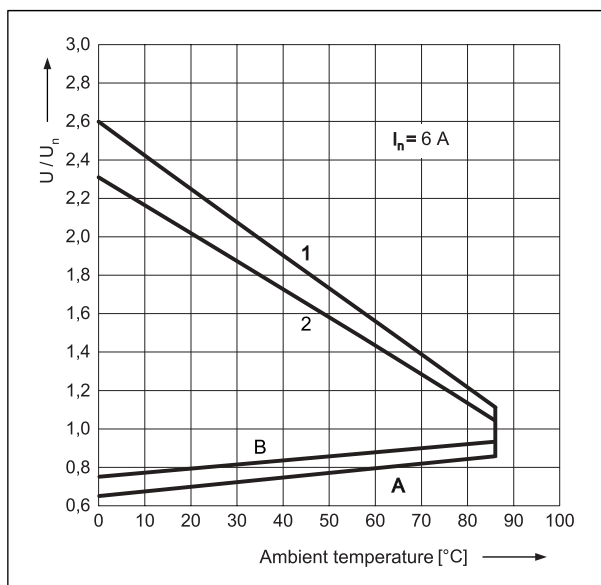
Max. DC resistive load breaking capacity

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).

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

1 - no load

2 - rated load

Mounting

Relays **RM699B vertical version (V)** are designed for:

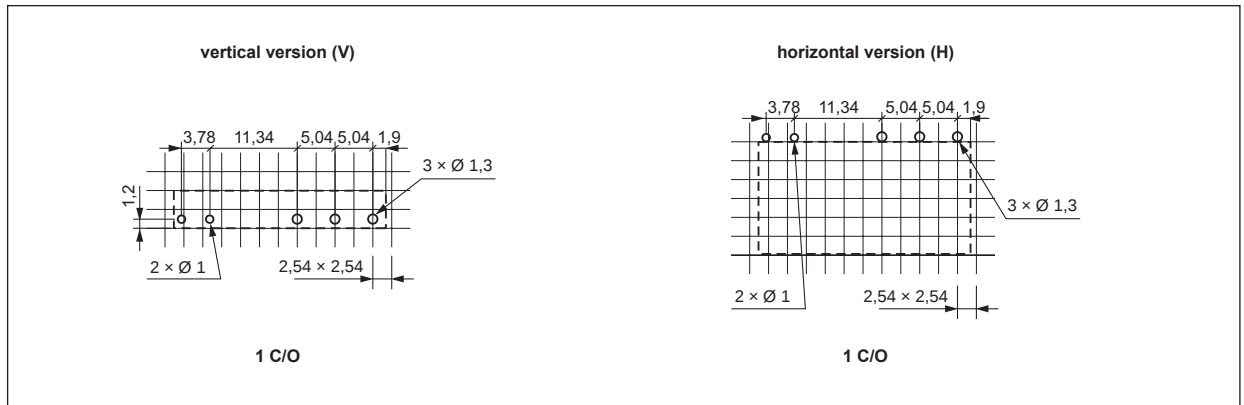
- direct PCB mounting
- sockets **PI6W-1P**, 35 mm rail mount acc. to PN-EN 60715 (see page 201).

Relays **RM699B horizontal version (H)** are designed for direct PCB mounting.

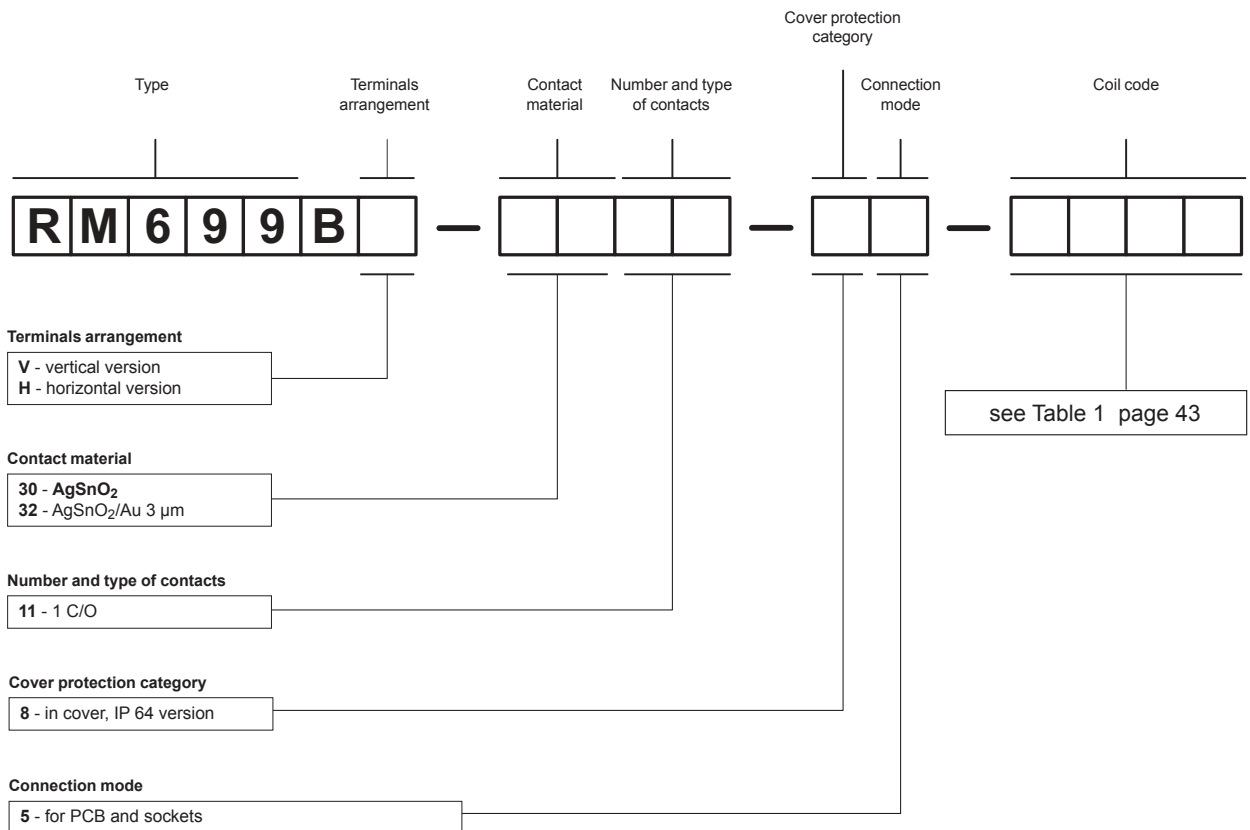


PI6W-1P

Pinout (solder side view)



Ordering codes



Examples of ordering code:

RM699BV-3011-85-1012

relay **RM699B**, vertical version, contact material AgSnO₂, with one changeover contact, in cover IP 64, for PCB and sockets, voltage version 12 V DC

RM699BH-3211-85-1005

relay **RM699B**, horizontal version, contact material AgSnO₂/Au 3 µm, with one changeover contact, in cover IP 64, for PCB, voltage version 5 V DC

RM84

RM84-...-01 ①



- 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	AgNi , AgNi/Au 5 µm, AgSnO ₂
Rated / max. switching voltage	AC 250 V / 440 V
Min. switching voltage	5 V AgNi, 5 V AgNi/Au 5 µm, 10 V AgSnO ₂
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 ₂
Max. inrush current	15 A AgSnO ₂
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 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	50/60 Hz AC	12 ... 240 V
	DC	3 ... 110 V
Must release voltage		AC: ≥ 0,15 U _n DC: ≥ 0,1 U _n
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	• 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 ⁵ 8 A, 250 V AC
• cos φ	see Fig. 2
• 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...+85 °C • operating AC: -40...+70 °C DC: -40...+85 °C
Cover protection category	IP 40 or IP 67 PN-EN 60529
Environmental protection	RTII or RTIII PN-EN 116000-3
Shock resistance	20 g
Vibration resistance	(NO/NC) 10 g / 5 g 10...150 Hz
Solder bath temperature	max. 270 °C
Soldering time	max. 5 s

The data in bold type pertain to the standard versions of the relays. ① Available special version: relays in transparent cover - see "Ordering codes"

② Available 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	$\pm 10\%$	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
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18	710	$\pm 10\%$	12,6	45,9
1024	24	1 440	$\pm 10\%$	16,8	61,2
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.

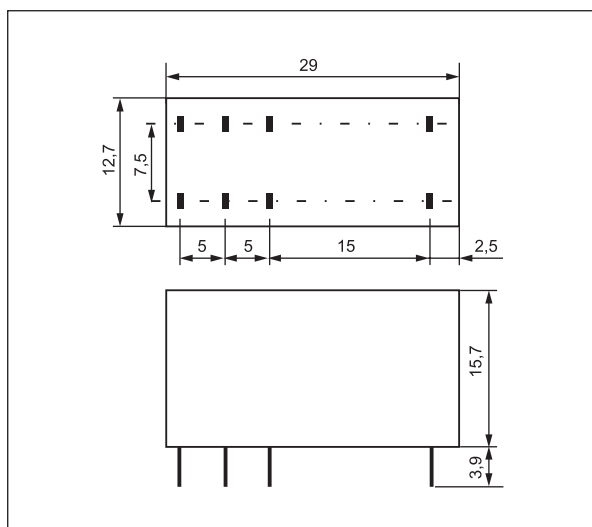
Coil data - AC 50/60 Hz voltage version

Table 2

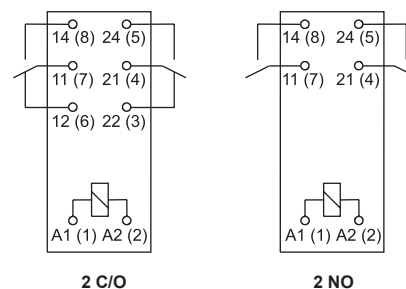
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
5048	48	1 550	$\pm 10\%$	38,4	57,6
5060	60	2 600	$\pm 10\%$	48,0	72,0
5110	110	8 900	$\pm 10\%$	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
5230	230	38 500	$\pm 10\%$	184,0	276,0
5240	240	42 500	$\pm 15\%$	192,0	288,0

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

Dimensions



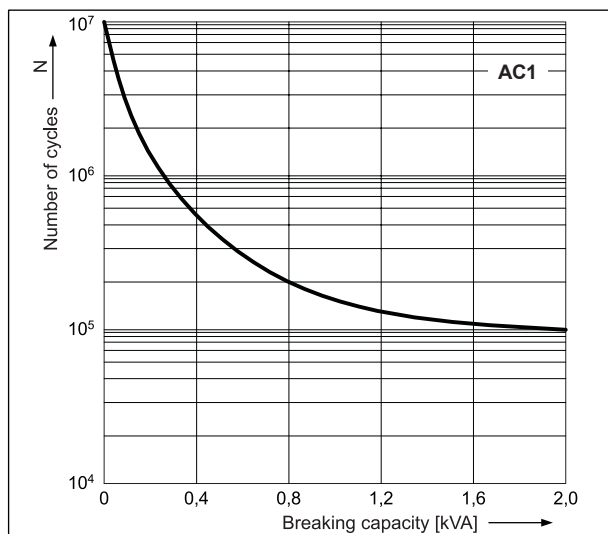
Connection diagrams (pin side view)



Terminal (pin)	A1(1); A2(2)	22(3); 21(4); 24(5); 12(6); 11(7); 14(8)
[mm]	$\varnothing 0,6$	$0,5 \times 0,9$
Drilling hole:		
• for relays $\varnothing 1,3 \pm 0,1$ mm		
• for sockets $\varnothing 1,5 \pm 0,1$ mm		

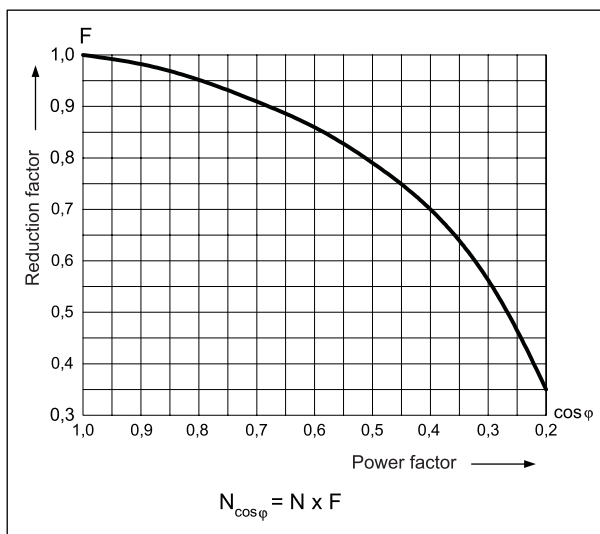
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



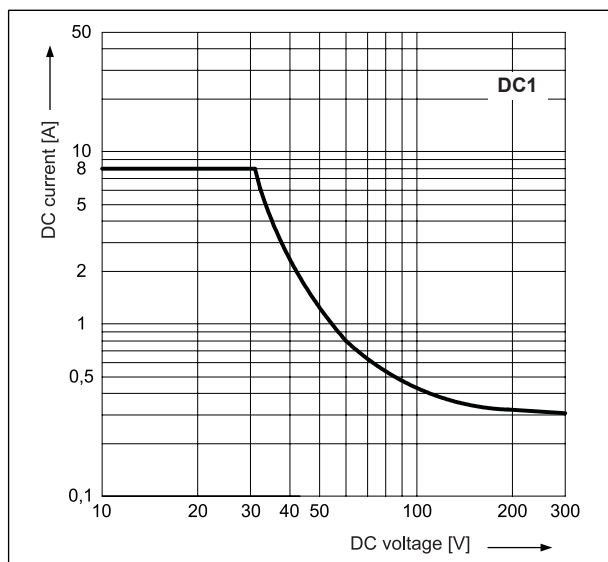
Electrical life reduction factor at AC inductive load

Fig. 2



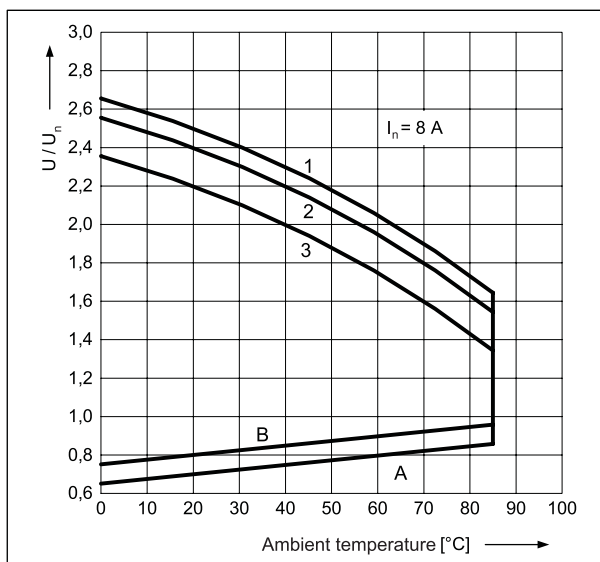
Max. DC resistive load breaking capacity

Fig. 3



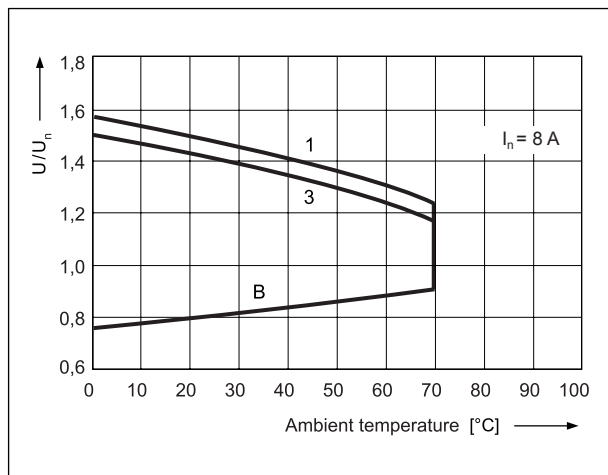
Coil operating range - DC

Fig. 4



Coil operating range - AC 50 Hz

Fig. 5



Description of Fig. 4 and 5

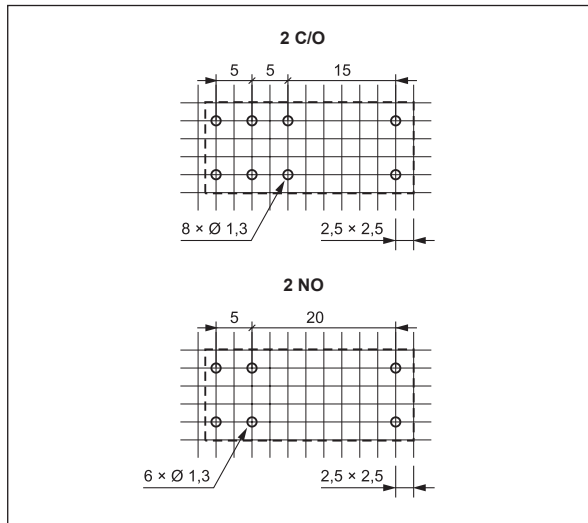
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

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

Pinout (solder side view)



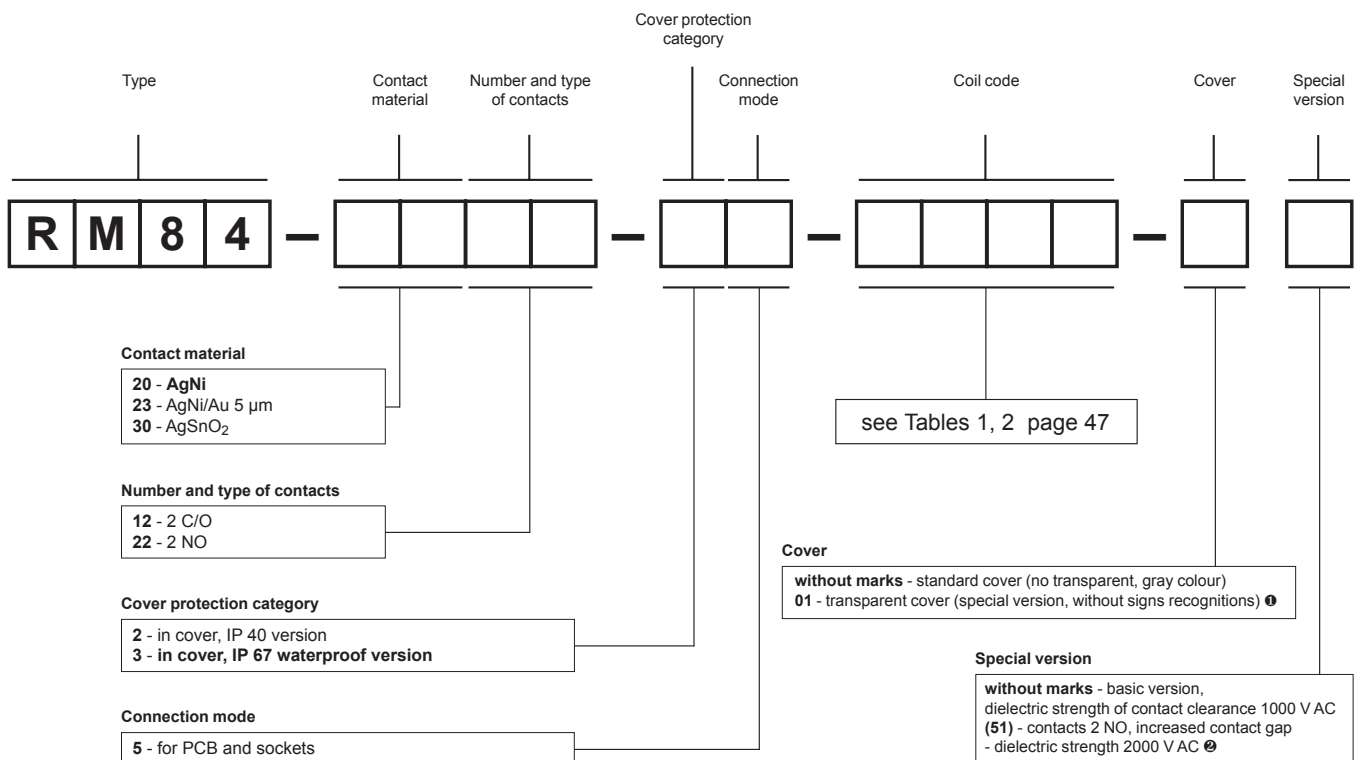
Mounting

Relays **RM84** are designed for:

- direct PCB mounting
- screw terminals plug-in sockets **GZT80** ③ and **GZM80** ③ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ③ 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.

③ 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 AgSnO₂, 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) ① 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 ② with increased contact gap, in standard cover (no transparent, gray colour) IP 67, for PCB and sockets, voltage version 24 V DC



- Cadmium - free contacts
- Height 15,7 mm
- 5000 V / 10 mm reinforced insulation
- **For surface mounting SMT**
- AC and DC coils
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,



Contact data

Number and type of contacts		2 C/O
Contact material		AgNi , AgNi/Au 5 µm, AgSnO ₂
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V AgSnO ₂
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 ₂
Max. inrush current		15 A AgSnO ₂
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 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	50/60 Hz AC	12 ... 240 V
	DC	3 ... 110 V
Must release voltage		AC: ≥ 0,15 U _n DC: ≥ 0,1 U _n
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		
• between coil and contacts		5 000 V AC type of insulation: reinforced
• contact clearance		1 000 V AC type of clearance: micro-disconnection
• 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 ⁵ 8 A, 250 V AC
• cos φ		see Fig. 2
• 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 (17,7) mm
Weight		14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		20 g
Vibration resistance	(NO/NC)	10 g / 5 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

Coil data - DC voltage version

Table 1

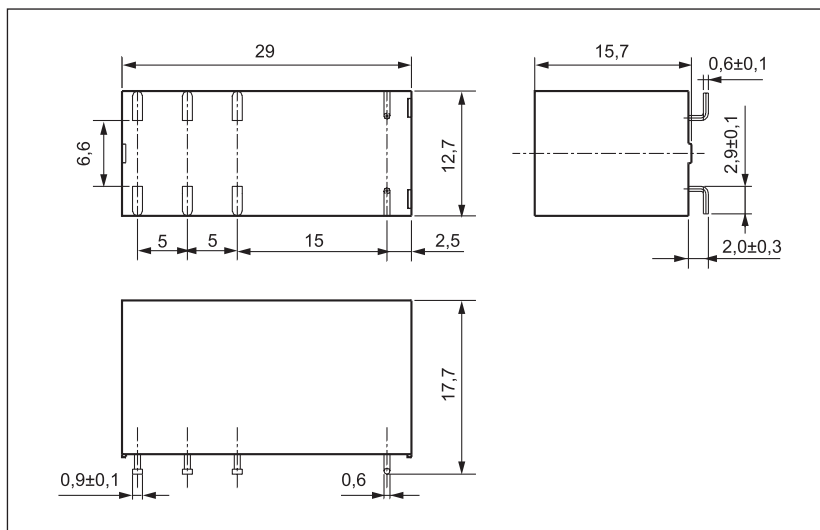
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	$\pm 10\%$	2,1	7,6
1005	5	60	$\pm 10\%$	3,5	12,7
1006	6	90	$\pm 10\%$	4,2	15,3
1009	9	200	$\pm 10\%$	6,3	22,9
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18	710	$\pm 10\%$	12,6	45,9
1024	24	1 440	$\pm 10\%$	16,8	61,2
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

Coil data - AC 50/60 Hz voltage version

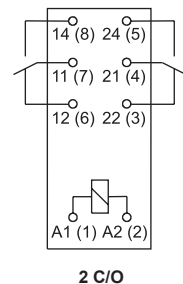
Table 2

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	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
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
5230	230	38 500	$\pm 10\%$	184,0	276,0
5240	240	42 500	$\pm 15\%$	192,0	288,0

Dimensions



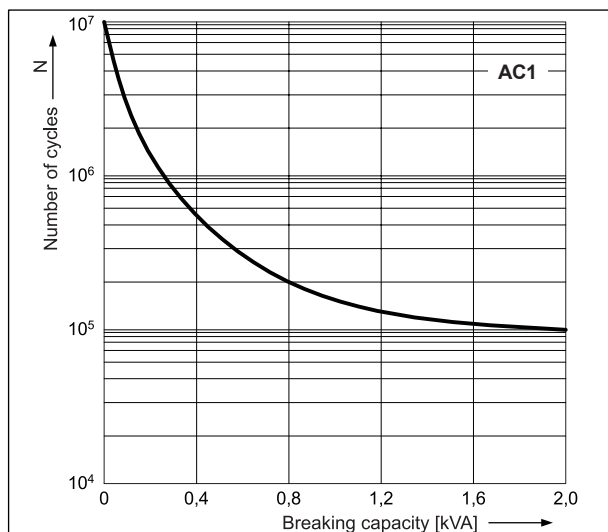
Connection diagram (pin side view)



Terminal (pin)	A1(1); A2(2)	22(3); 21(4); 24(5); 12(6); 11(7); 14(8)
[mm]	$\varnothing 0,6$	0,5 x 0,9

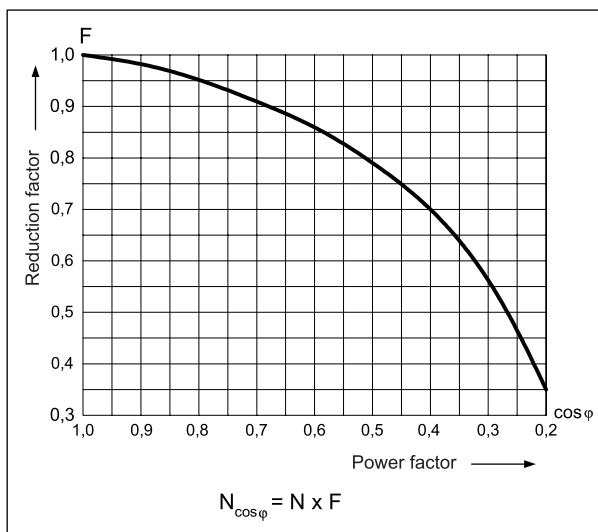
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



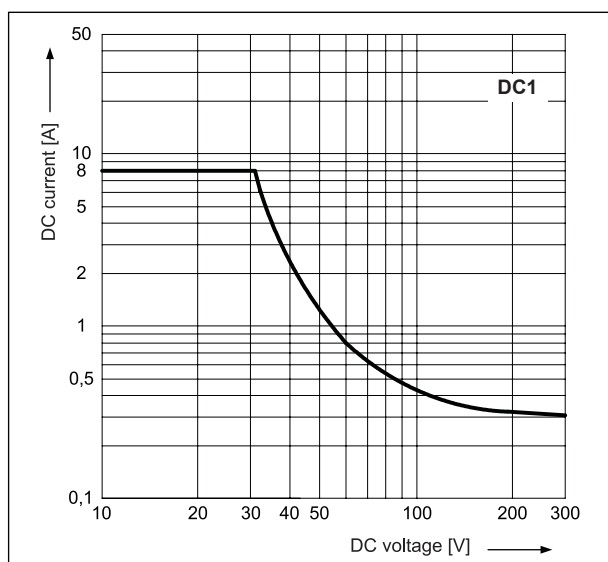
Electrical life reduction factor at AC inductive load

Fig. 2



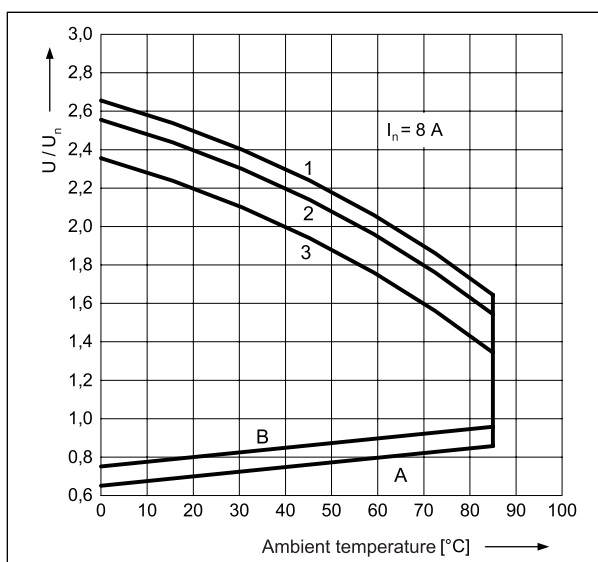
Max. DC resistive load breaking capacity

Fig. 3



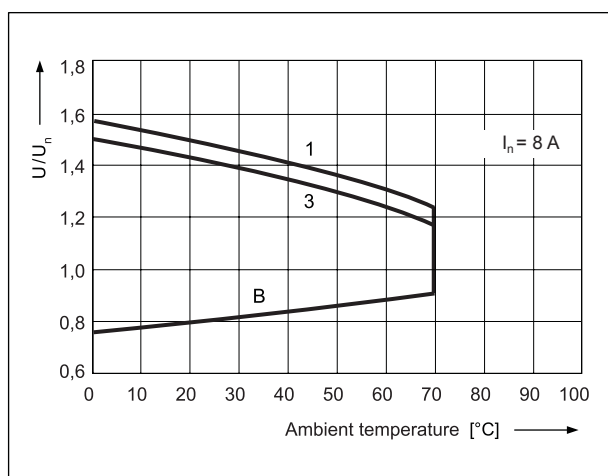
Coil operating range - DC

Fig. 4



Coil operating range - AC 50 Hz

Fig. 5



Description of Fig. 4 and 5

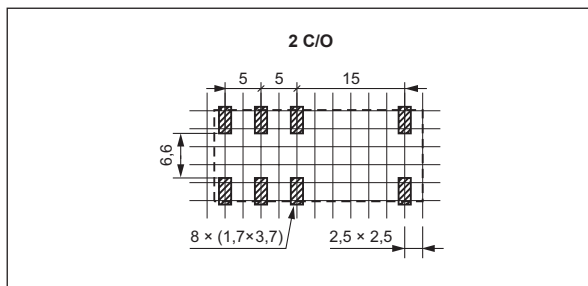
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

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

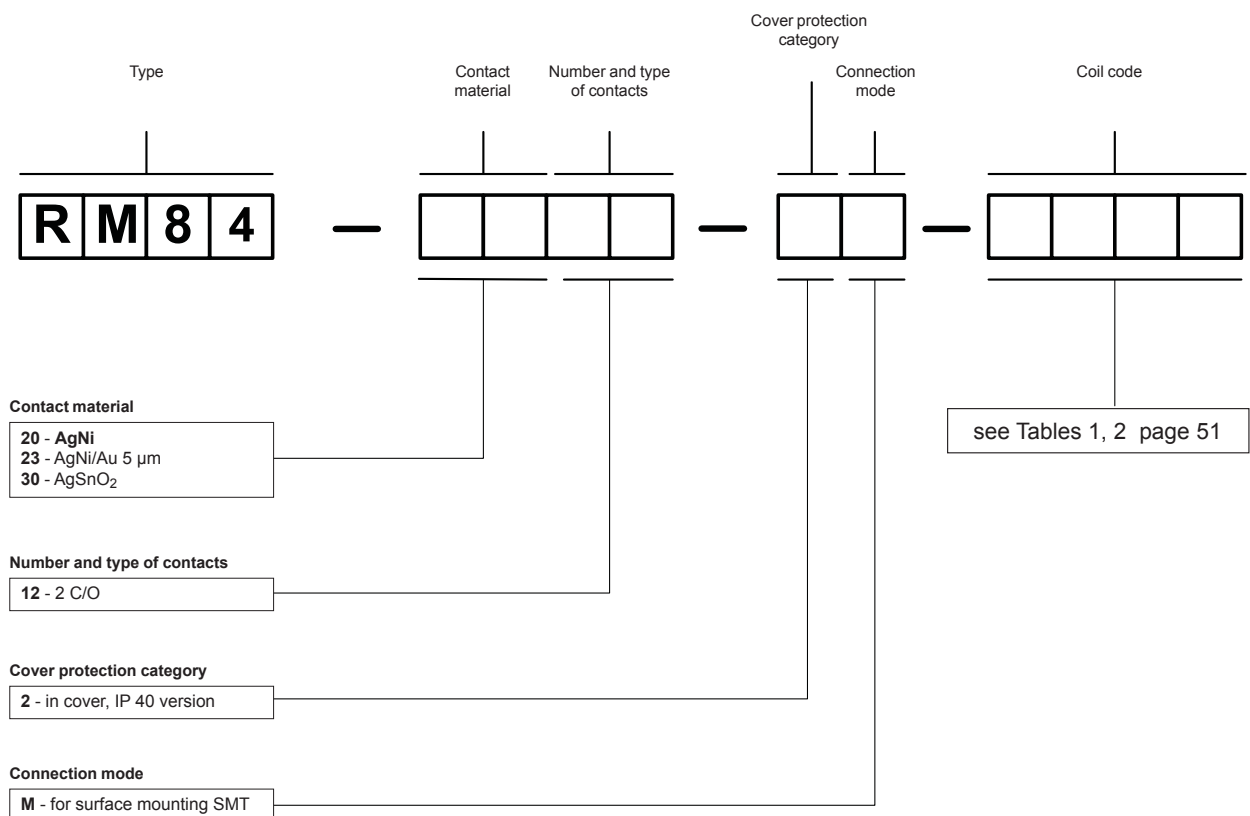
Soldering areas (solder side view)



Mounting

Relays **RM84 SMT** are designed for surface mounting SMT.

Ordering codes



Example of ordering code:

RM84-2012-2M-1024

relay **RM84 SMT**, contact material AgNi, with two changeover contacts, in cover IP 40, for surface mounting SMT, voltage version 24 V DC

RM85

RM85-...-01 ①



- 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	1 C/O, 1 NO ②
Contact material	AgNi , AgNi/Au 5 µm, AgSnO ₂
Rated / max. switching voltage	AC 250 V / 440 V
Min. switching voltage	5 V AgNi, 5 V AgNi/Au 5 µm, 10 V AgSnO ₂
Rated load (capacity)	AC1 16 A / 250 V AC AC15 3 A / 120 V 1,5 A / 240 V (B300) AC3 750 W (single-phase motor) DC1 16 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 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 5 µm, 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	50/60 Hz AC	12 ... 240 V
	DC	3 ... 110 V
Must release voltage		AC: ≥ 0,15 U _n DC: ≥ 0,1 U _n
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	• 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 contact 1 NO, type of clearance: full-disconnection ②
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	> 0,7 x 10 ⁵ 16 A, 250 V AC > 10 ⁴ 20 A, 250 V AC, 85 °C (RM85-3021-25-1...)
• cos φ	see Fig. 2
• 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...+85 °C • operating AC: -40...+70 °C DC: -40...+85 °C
Cover protection category	IP 40 or IP 67 PN-EN 60529
Environmental protection	RTII 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 pertain to the standard versions of the relays. ① Available special version: relays in transparent cover - see "Ordering codes"

② Available special version with contact 1 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	$\pm 10\%$	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
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18	710	$\pm 10\%$	12,6	45,9
1024	24	1 440	$\pm 10\%$	16,8	61,2
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.

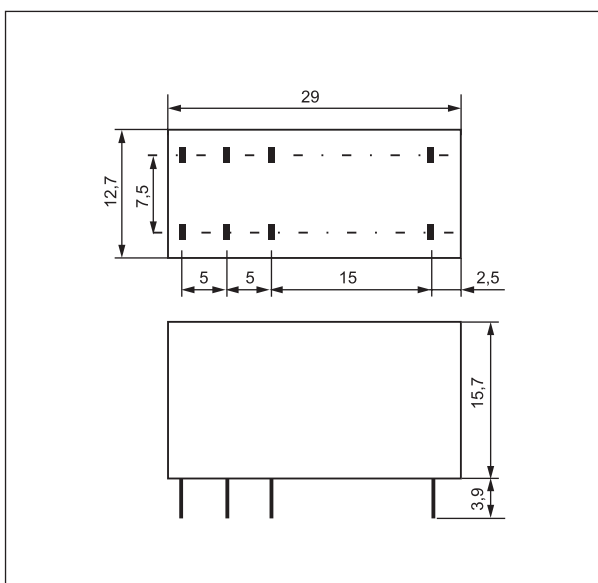
Coil data - AC 50/60 Hz voltage version

Table 2

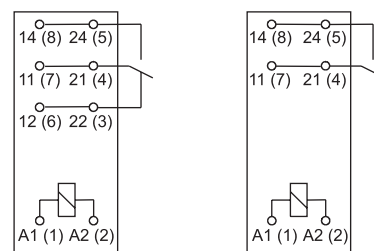
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
5048	48	1 550	$\pm 10\%$	38,4	57,6
5060	60	2 600	$\pm 10\%$	48,0	72,0
5110	110	8 900	$\pm 10\%$	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
5230	230	38 500	$\pm 10\%$	184,0	276,0
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)

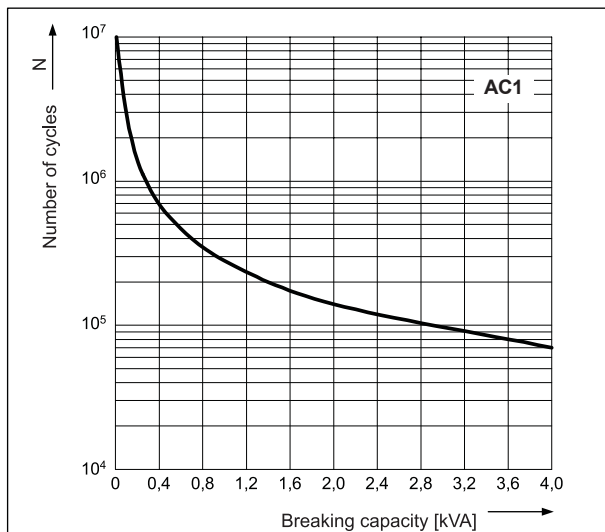


Terminal (pin)	A1(1); A2(2)	22(3); 21(4); 24(5); 12(6); 11(7); 14(8)
[mm]	$\varnothing 0,6$	$0,5 \times 0,9$
Drilling hole:		
• for relays $\varnothing 1,3 \pm 0,1$ mm		
• for sockets $\varnothing 1,5 \pm 0,1$ mm		

RM85 terminals are doubled for each contact.
Both terminals are to be used while connecting to load.

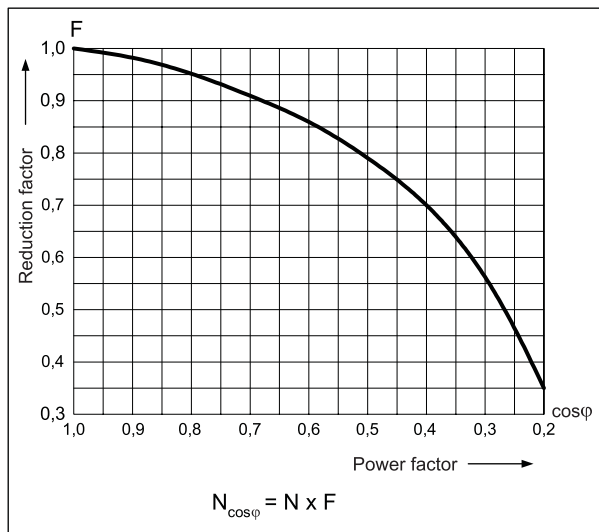
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



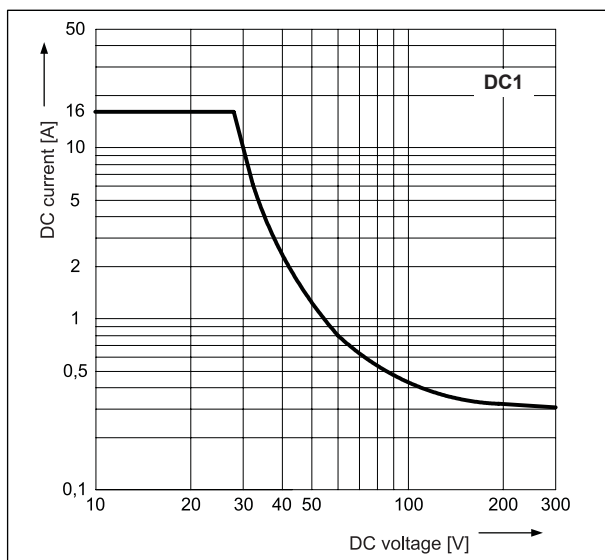
Electrical life reduction factor at AC inductive load

Fig. 2



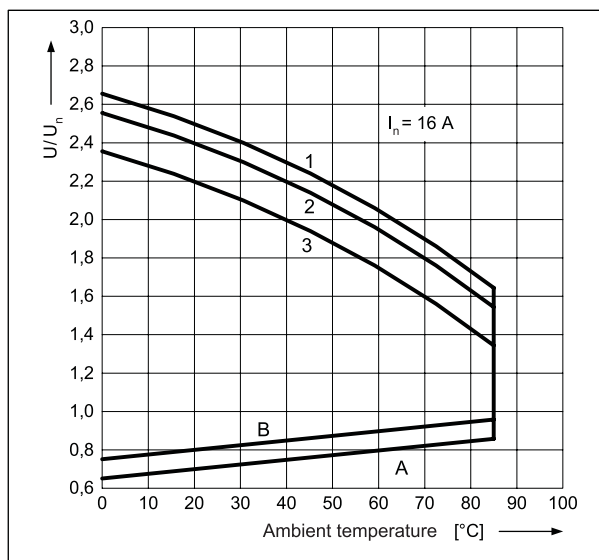
Max. DC resistive load breaking capacity

Fig. 3



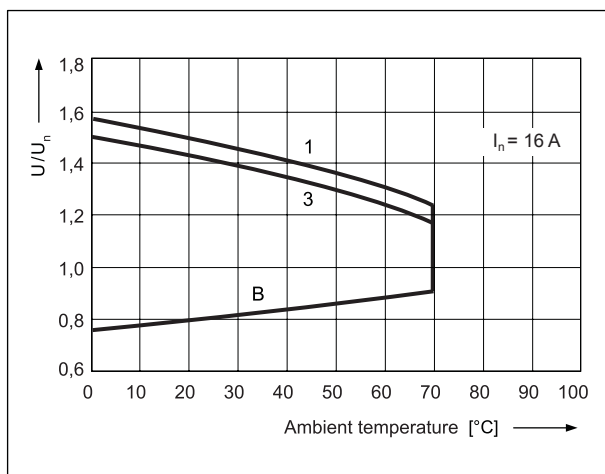
Coil operating range - DC

Fig. 4



Coil operating range - AC 50 Hz

Fig. 5



Description of Fig. 4 and 5

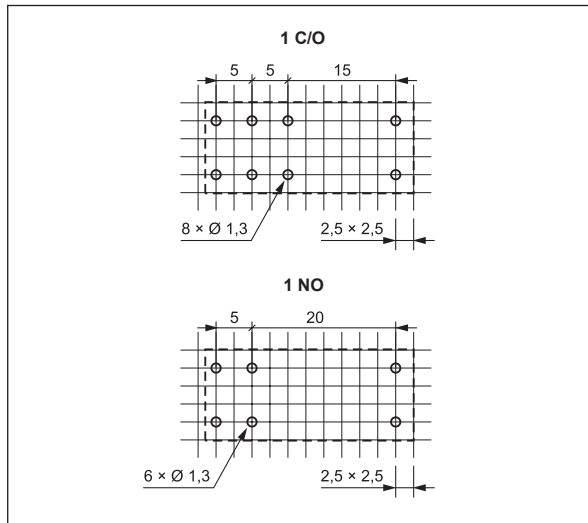
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

B - relations between make voltage and ambient temperature after initial coil heating up with $1,1 U_n$, at continuous 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

Pinout (solder side view)



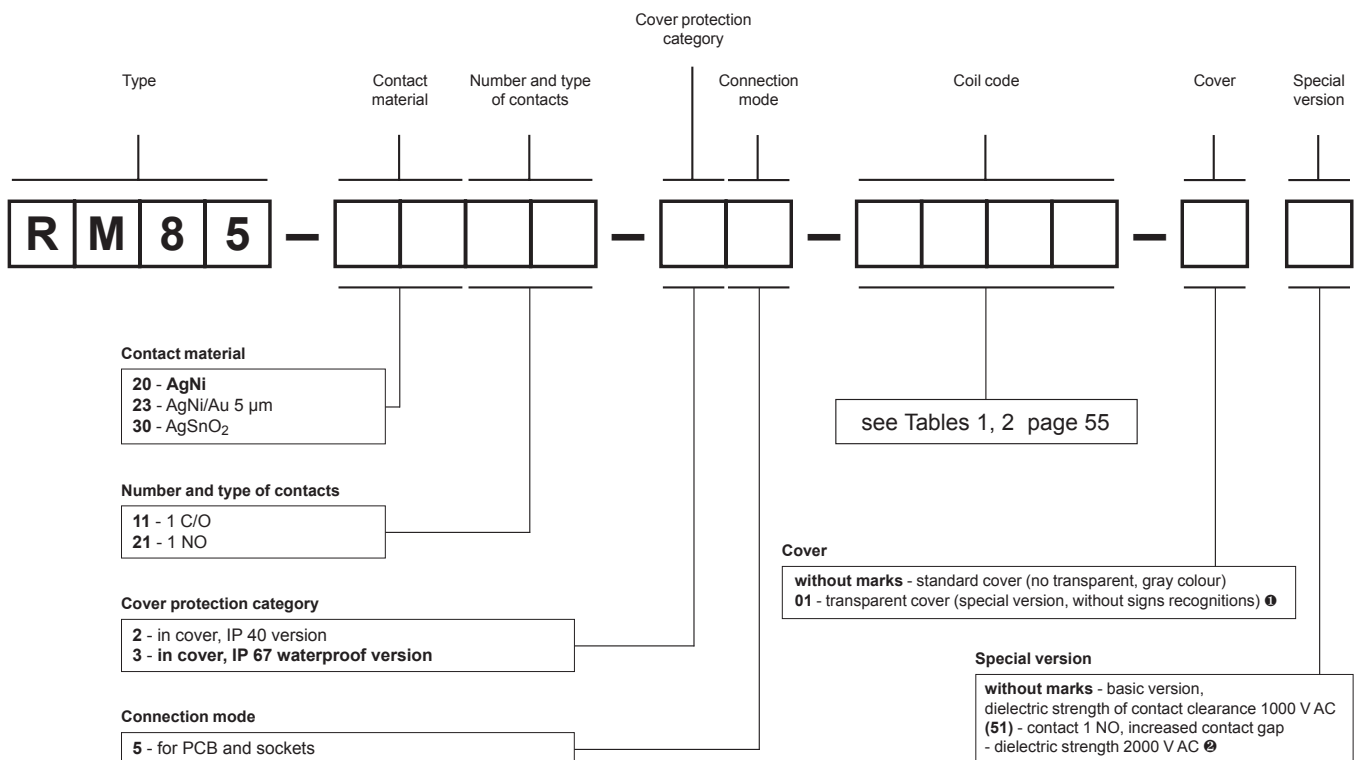
Mounting

Relays **RM85** are designed for:

- direct PCB mounting
- screw terminals plug-in sockets **GZT80** ③ and **GZM80** ③ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ③ 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**.

③ Plug-in sockets **GZT80**, **GZM80** and **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 261).

Ordering codes



Examples of ordering code:

RM85-3011-25-5024

relay **RM85**, contact material AgSnO₂, with one changeover contact, in standard cover (no transparent, gray colour) IP 40, for PCB and sockets, voltage version 24 V AC 50/60 Hz

RM85-2011-25-1012-01

relay **RM85**, contact material AgNi, with one changeover contact, in transparent cover (special version, without signs recognitions) ① IP 40, for PCB and sockets, voltage version 12 V DC

RM85-2321-35-1024 (51)

relay **RM85**, contact material AgNi/Au 5 µm, with one normally open contact, special version ② with increased contact gap, in standard cover (no transparent, gray colour) IP 67, for PCB and sockets, voltage version 24 V DC



- for high voltage switching
- Cadmium - free contacts
- Height 15,7 mm
- 5000 V / 10 mm reinforced insulation
- For PCB
- DC coils
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,



Contact data

Number and type of contacts		1 NO
Contact material		AgSnO₂
Rated / max. switching voltage	AC	250 V / 480 V
Min. switching voltage		10 V
Rated load (capacity)	AC1	5 A / 480 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	16 A / 24 V DC
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		10 mA
Max. inrush current		30 A
Rated current		16 A / 250 V AC
Max. breaking capacity	AC1	2 400 VA
Min. breaking capacity		1 W
Contact resistance		≤ 100 mΩ 100 mA, 24 V
Max. operating frequency		
• at rated load	AC1	360 cycles/hour
• no load		3 600 cycles/hour

Coil data

Rated voltage	D C	3 ... 110 V
Must release voltage		≥ 0,1 U _n
Operating range of supply voltage		see Table 1
Rated power consumption	D C	0,4 ... 0,48 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		480 V AC
Rated surge voltage		4 000 V 1,2 / 50 μs
Overvoltage category		III
Insulation pollution degree		2
Dielectric strength		
• between coil and contacts		5 000 V AC type of insulation: reinforced
• contact clearance		1 500 V AC type of clearance: micro-disconnection
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)		
• at resistive load	AC1	> 4 x 10 ⁴ 5 A, 480 V AC
Mechanical life	3 600 cycles/hour	> 3 x 10 ⁷
Load according to UL 508		Heavy Pilot Duty 480 V AC, 15 A make / 1,5 A break
Dimensions (L x W x H)		29 x 12,7 x 15,7 mm
Weight		14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	-40...+85 °C
Cover protection category		IP 40 or IP 67 PN-EN 60529
Environmental protection		RTII 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 pertain to the standard versions of the relays.

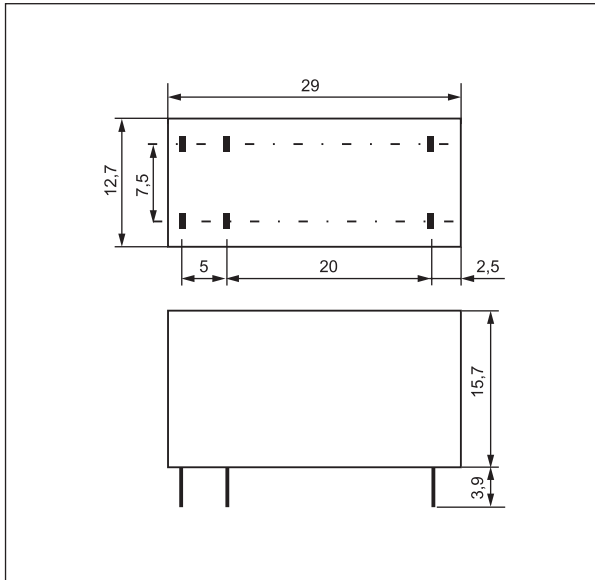
Coil data - DC voltage version

Table 1

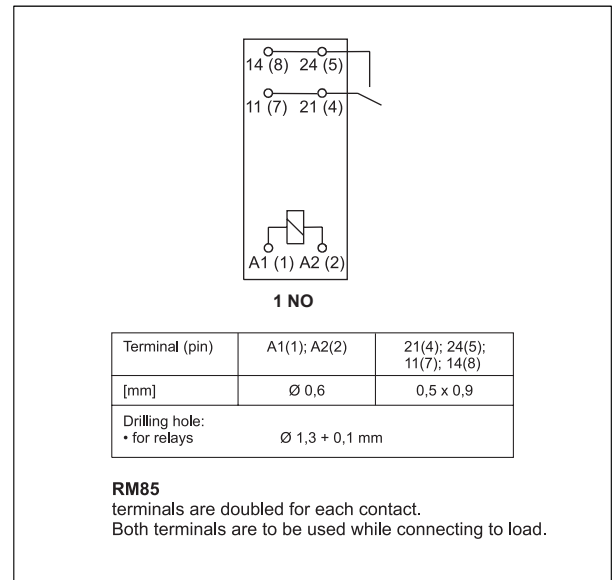
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	$\pm 10\%$	2,1	7,6
1005	5	60	$\pm 10\%$	3,5	12,7
1006	6	90	$\pm 10\%$	4,2	15,3
1009	9	200	$\pm 10\%$	6,3	22,9
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18	710	$\pm 10\%$	12,6	45,9
1024	24	1 440	$\pm 10\%$	16,8	61,2
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.

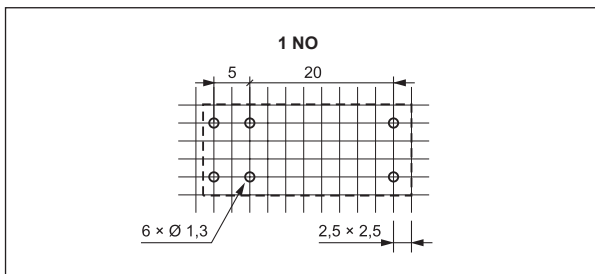
Dimensions



Connection diagram (pin side view)



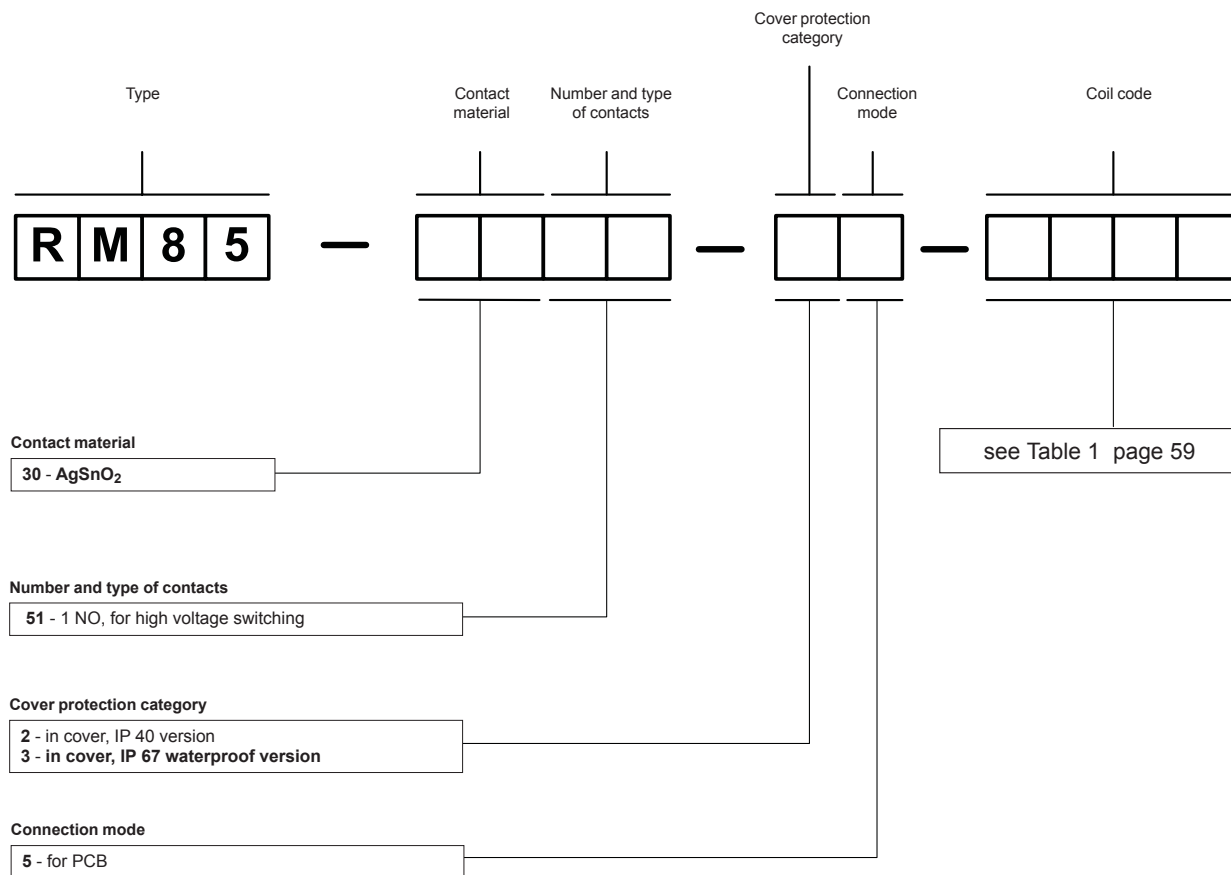
Pinout (solder side view)



Mounting

Relays **RM85** for high voltage switching for direct PCB mounting. for high voltage switching

Ordering codes



Example of ordering code:

RM85-3051-35-1012

relay **RM85**, contact material AgSnO₂, with one normally open contact, for high voltage switching, in cover IP 67, for PCB, voltage version 12 V DC



- Cadmium - free contacts • Height 15,7 mm • **Resistance to inrush current 80 A (20 ms)** • 5000 V / 10 mm reinforced insulation
- For PCB and plug-in sockets
- Accessories: sockets and modules • DC coils
- Applications: for motor operation control, lighting, electromagnetic valves, and many other applications
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,     

Contact data

Number and type of contacts		1 NO
Contact material		AgSnO₂
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V
Rated load (capacity)	AC1	16 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	16 A / 24 V DC (see Fig. 2)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		10 mA
Max. inrush current		80 A 20 ms
Rated current		16 A
Max. breaking capacity	AC1	4 000 VA
Min. breaking capacity		1 W
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	3 ... 110 V
Must release voltage		DC: ≥ 0,1 U _n
Operating range of supply voltage		see Table 1 and Fig. 3
Rated power consumption	DC	0,4 ... 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		5 000 V AC type of insulation: reinforced
• contact clearance		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 (number of cycles)		
• resistive AC1	600 cycles/hour	> 10 ⁵ 16 A, 250 V AC
• cos φ		see Fig. 1
• resistive DC1	600 cycles/hour	> 10 ⁵ 16 A, 24 V DC
• inductive AC3, I = 3,5 A		> 2,5 x 10 ⁵
• at incandescent lamp load, 1000 W		> 0,9 x 10 ⁵
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...+85 °C
	• operating	-40...+85 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII 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 pertain to the standard versions of the relays.

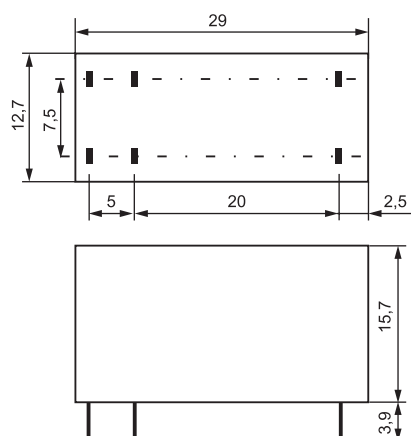
Coil data - DC voltage version

Table 1

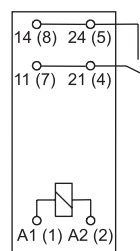
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	$\pm 10\%$	2,1	7,6
1005	5	60	$\pm 10\%$	3,5	12,7
1006	6	90	$\pm 10\%$	4,2	15,3
1009	9	200	$\pm 10\%$	6,3	22,9
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18	710	$\pm 10\%$	12,6	45,9
1024	24	1 440	$\pm 10\%$	16,8	61,2
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.

Dimensions



Connection diagram (pin side view)



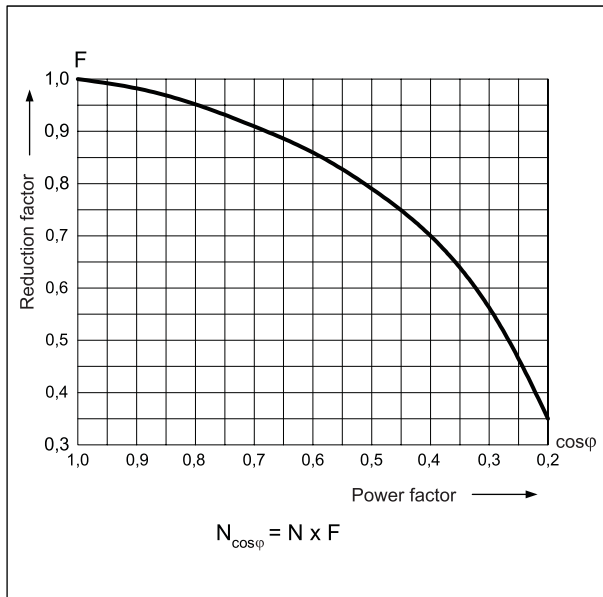
1 NO

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

RM85 inrush terminals are doubled for each contact.
Both terminals are to be used while connecting to load.

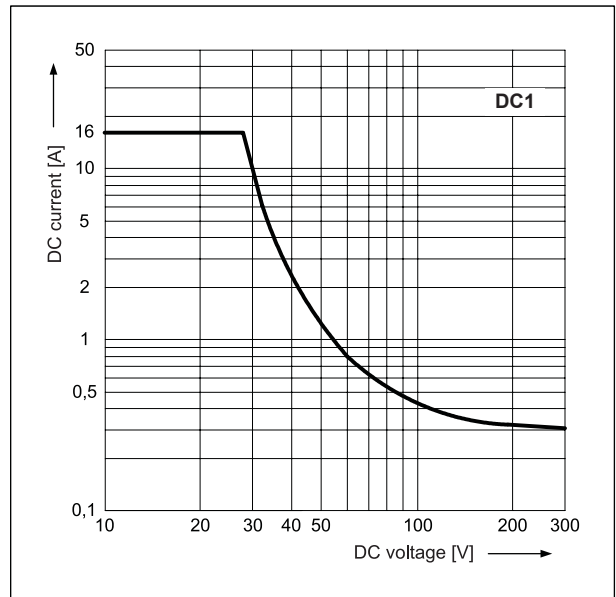
**Electrical life reduction factor
at AC inductive load**

Fig. 1



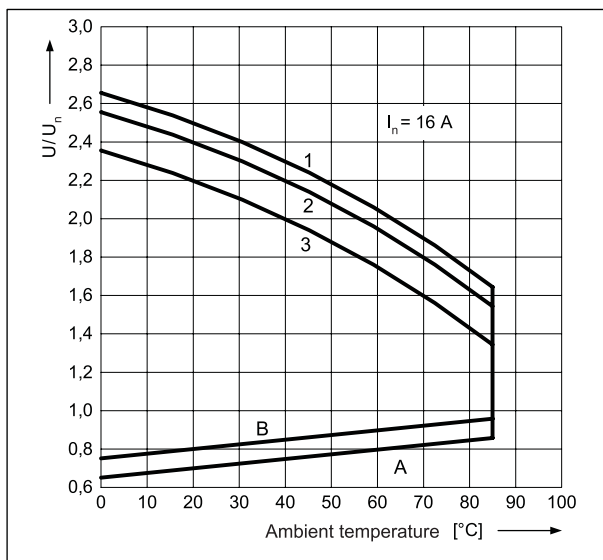
Max. DC resistive load breaking capacity

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).

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).

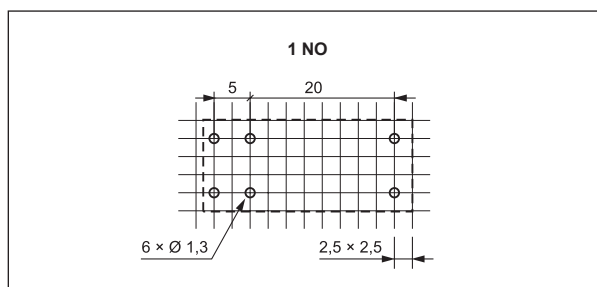
1, 2, 3 - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:

1 - no load

2 - 50% of rated load

3 - rated load

Pinout (solder side view)



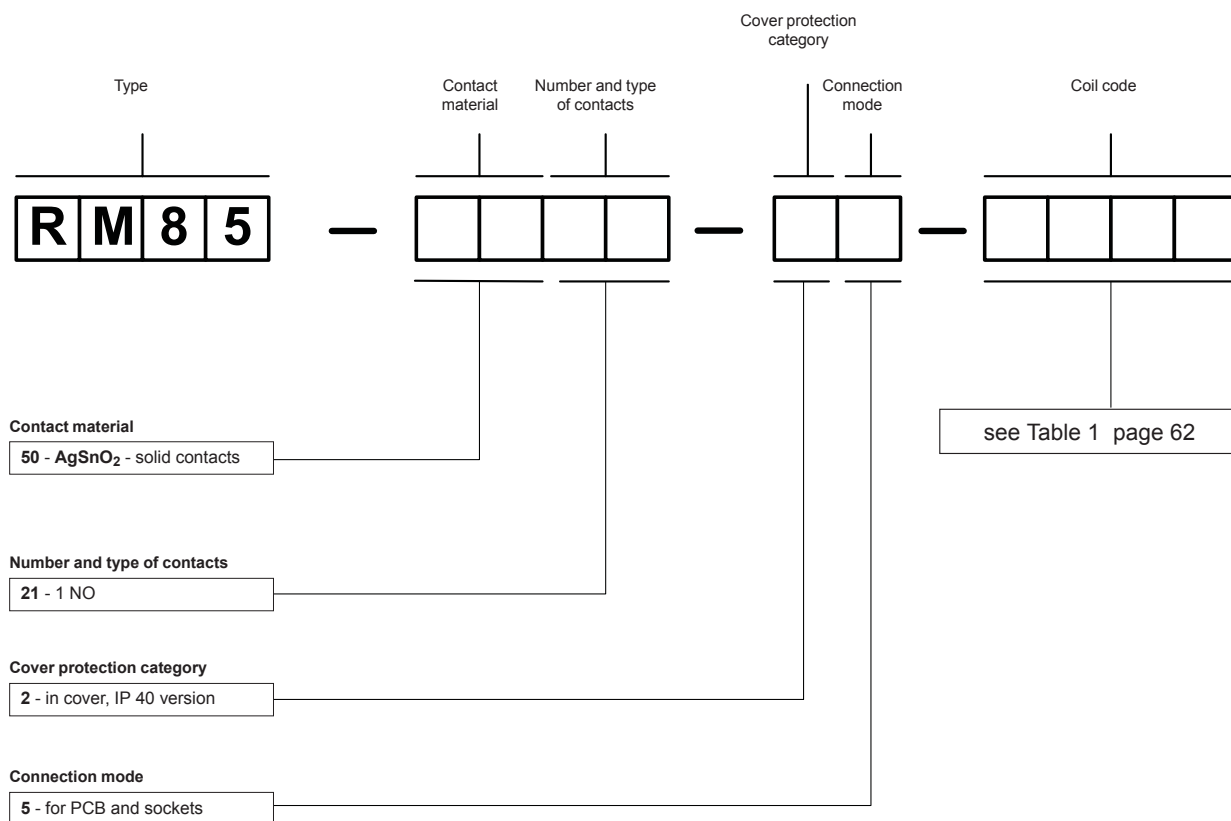
Mounting

Relays **RM85 inrush** are designed for:

- direct PCB mounting
- screw terminals plug-in sockets **GZT80** ❶ and **GZM80** ❶ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❶ 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.

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

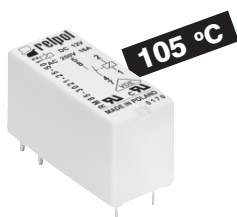
Ordering codes



Example of ordering code:

RM85-5021-25-1012

relay **RM85 inrush**, contact material AgSnO₂ - solid contacts, with one normally open contact, in cover IP 40, for PCB and sockets, voltage version 12 V DC



- For PCB and plug-in sockets
- Accessories: sockets and modules
- DC coils - sensitive
- Ambient temperature up to 105 °C
- Applications: in household equipment, in temperature controllers
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,     

Contact data

Number and type of contacts		1 NO
Contact material		AgNi, AgNi/Au 5 µm, AgSnO₂
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V AgSnO ₂
Rated load (capacity)	AC1	16 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	16 A / 24 V DC (see Fig. 2)
	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 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 5 µm, 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 ... 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 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		5 000 V AC type of insulation: reinforced
• contact clearance		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
	• cos φ	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
	• operating	-40...+105 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII 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

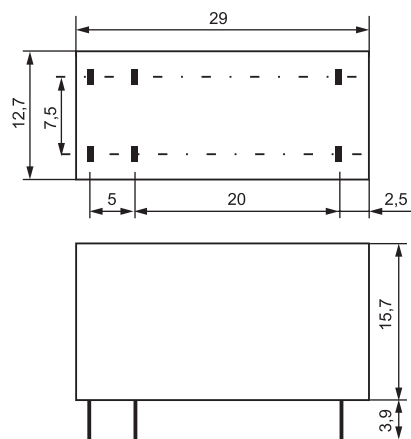
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version, sensitive version

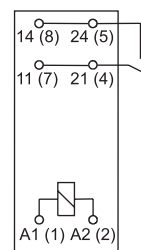
Table 1

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)
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

Dimensions



Connection diagram (pin side view)



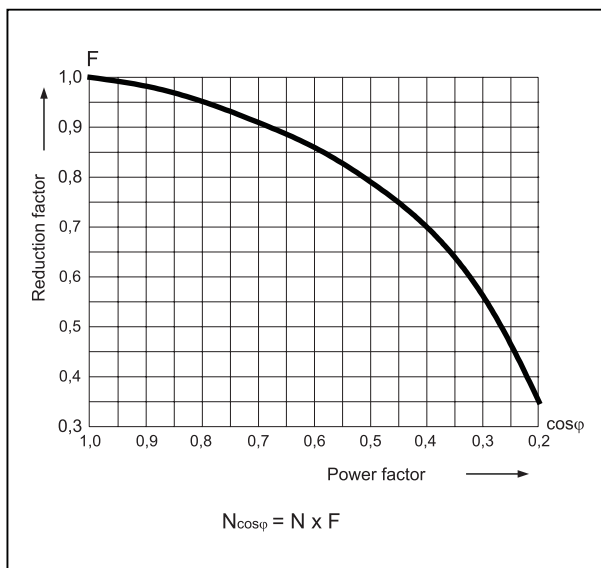
1 NO

Terminal (pin)	A1(1); A2(2)	21(4); 24(5); 11(7); 14(8)
[mm]	$\varnothing 0,6$	$0,5 \times 0,9$
Drilling hole:		
* for relays		
* for sockets		

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

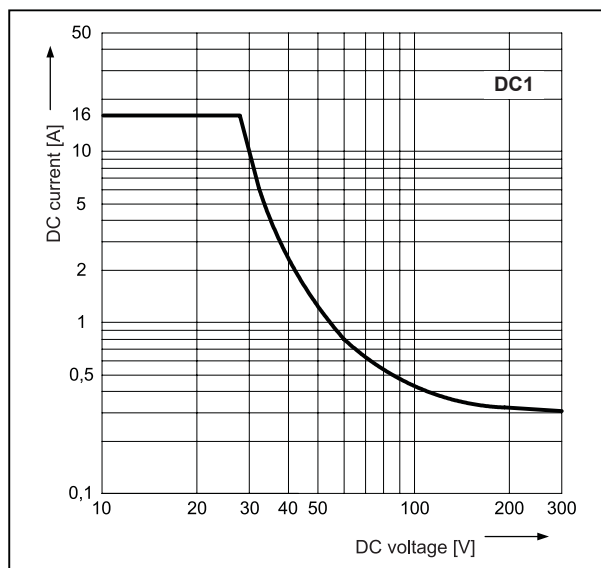
Electrical life reduction factor at AC inductive load

Fig. 1



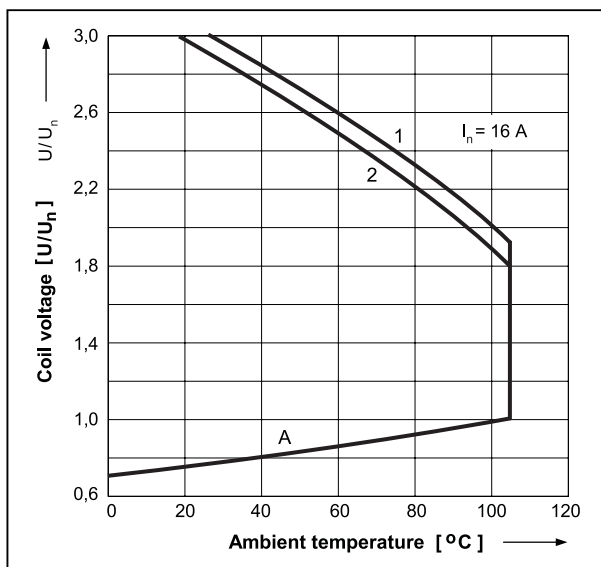
Max. DC resistive load breaking capacity

Fig. 2



Coil operating range - DC

Fig. 3



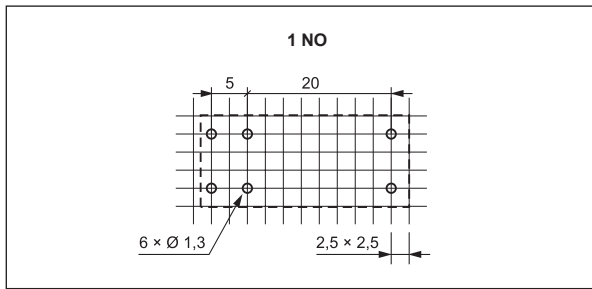
Description of Fig. 3

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

Pinout (solder side view)



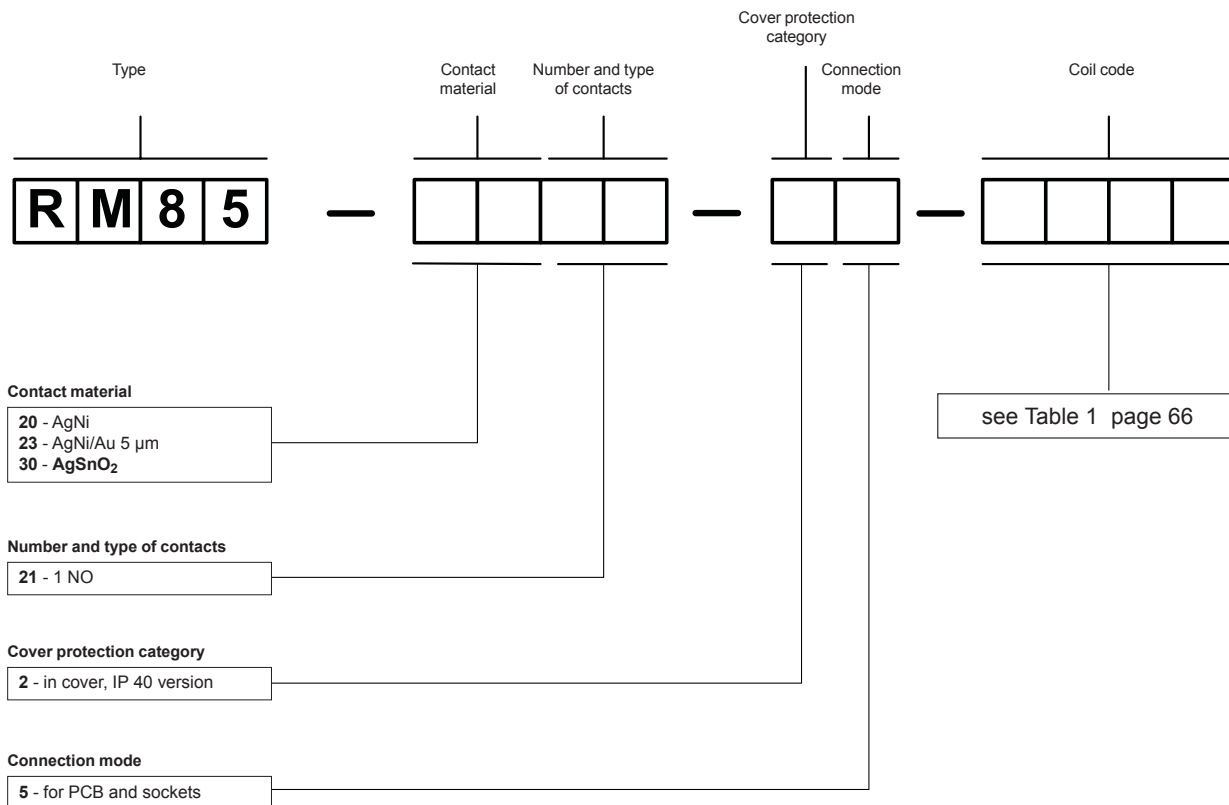
Mounting

Relays **RM85 105 °C sensitive** are designed for:

- direct PCB mounting • screw terminals plug-in sockets **GZT80** ① and **GZM80** ① with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ① 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.

① Plug-in sockets **GZT80**, **GZM80** and **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 261).

Ordering codes



Examples of ordering code:

RM85-3021-25-S012

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

RM85-2321-25-S005

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



- Cadmium - free contacts
- Height 15,7 mm
- 5000 V / 10 mm reinforced insulation
- **For surface mounting SMT**
- AC and DC coils
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,



Contact data

Number and type of contacts		1 C/O
Contact material		AgNi , AgNi/Au 5 µm, AgSnO ₂
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V AgSnO ₂
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 5 µm, 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 5 µm, 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	50/60 Hz AC DC	12 ... 240 V 3 ... 110 V
Must release voltage		AC: ≥ 0,15 U _n DC: ≥ 0,1 U _n
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		5 000 V AC type of insulation: reinforced
• contact clearance		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)		7 ms / 3 ms
Electrical life (number of cycles)		
• resistive AC1		> 0,7 x 10 ⁵ 16 A, 250 V AC
• cos φ		see Fig. 2
• 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 (17,7) mm
Weight		14 g
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII 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 pertain to the standard versions of the relays.

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	$\pm 10\%$	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
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18	710	$\pm 10\%$	12,6	45,9
1024	24	1 440	$\pm 10\%$	16,8	61,2
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

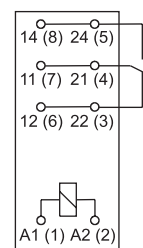
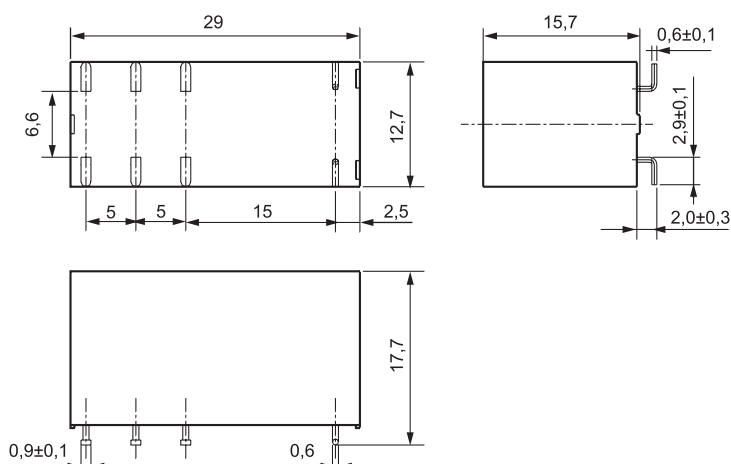
Coil data - AC 50/60 Hz voltage version

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	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
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
5230	230	38 500	$\pm 10\%$	184,0	276,0
5240	240	42 500	$\pm 15\%$	192,0	288,0

Dimensions

Connection diagram (pin side view)



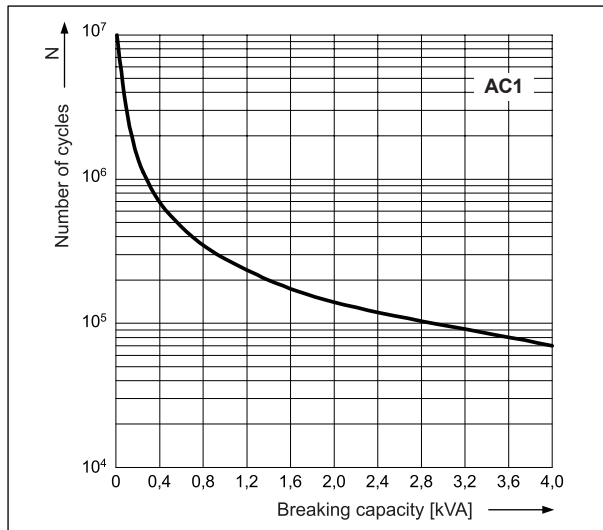
1 C/O

Terminal (pin)	A1(1); A2(2)	22(3); 21(4); 24(5); 12(6); 11(7); 14(8)
[mm]	$\varnothing 0,6$	$0,5 \times 0,9$

RM85 SMT terminals are doubled for each contact. Both terminals are to be used while connecting to load.

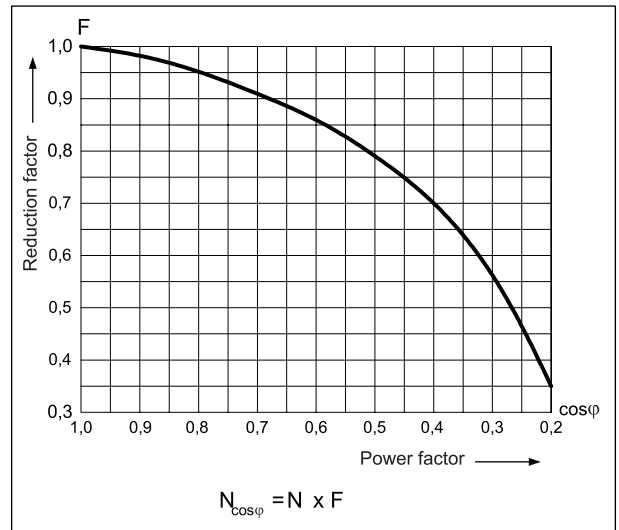
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



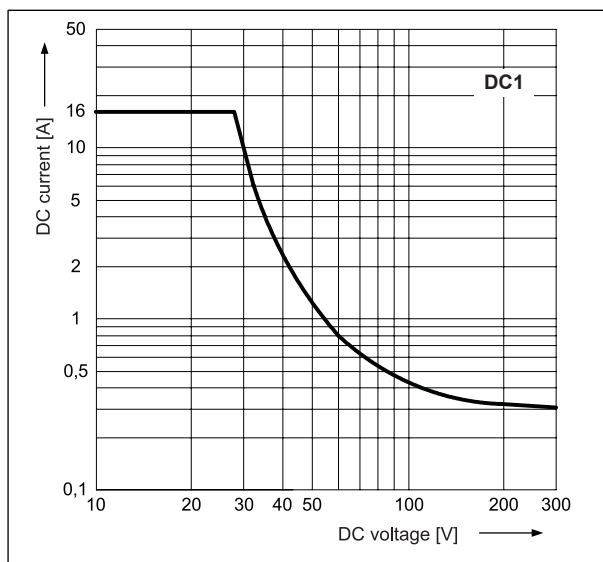
Electrical life reduction factor at AC inductive load

Fig. 2



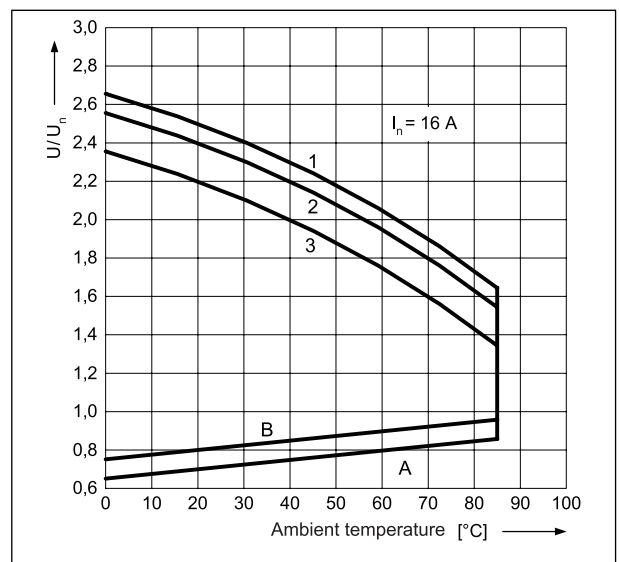
Max. DC resistive load breaking capacity

Fig. 3



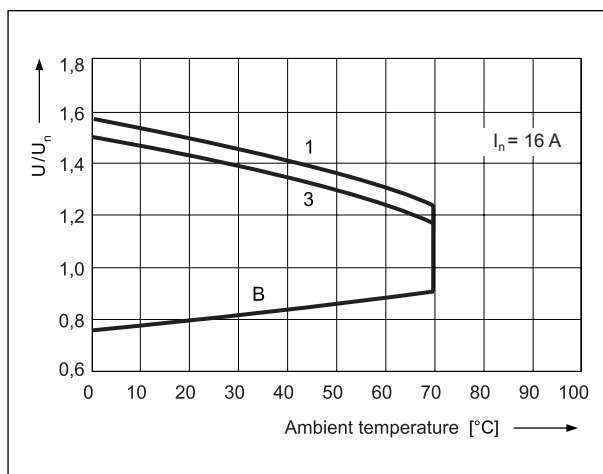
Coil operating range - DC

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

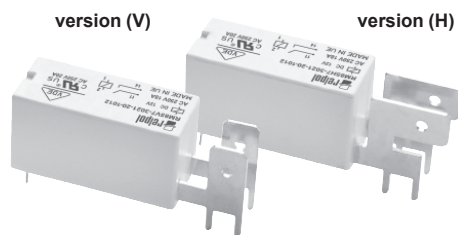
Relays **RM85 SMT** are designed for surface mounting SMT.

Ordering codes

Example of ordering code:

RM85-2011-2M-1012

relay **RM85 SMT**, contact material AgNi, with one changeover contact, in cover IP 40,
for surface mounting SMT, voltage version 12 V DC



• Cadmium - free contacts • Height 15,7 mm • 5000 V / 10 mm reinforced insulation • **Coil terminals for PCB, contacts terminals for PCB and flat insert connectors - faston 250 (6,3 x 0,8 mm), faston arrangement: vertical version (V) and horizontal version (H)** • DC coils - sensitive • Ambient temperature up to 105 °C • Applications: for control of operation of heating elements and motors of household equipment and catering industry devices, for control of electromagnetic valves, in many other applications • Compliance with standard PN-EN 60335-1

• Recognitions, certifications, directives: RoHS,    

Contact data

Number and type of contacts		1 NO
Contact material		AgSnO₂
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V
Rated load (capacity)	AC1	20 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	20 A / 24 V DC
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		10 mA
Max. inrush current		30 A
Rated current		20 A
Max. breaking capacity	AC1	5 000 VA
Min. breaking capacity		1 W
Contact resistance		≤ 100 mΩ 100 mA, 24 V
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	DC	5 ... 48 V
Must release voltage		DC: ≥ 0,1 U _n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,25 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		5 000 V AC type of insulation: reinforced
• contact clearance		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 (number of cycles)		
• resistive AC1		> 2 x 10 ⁴ 20 A, 250 V AC, 85 °C
		> 1,5 x 10 ⁵ 10 A, 250 V AC, 105 °C
• cos φ		see Fig. 1
Mechanical life (cycles)		> 3 x 10 ⁷
Dimensions (L x W x H)		vertical version (V): 40,5 x 12,7 x 15,7 mm
		horizontal version (H): 44,5 x 12,7 x 15,7 mm
Weight		16 g
Ambient temperature	• storage	-40...+105 °C
	• operating	-40...+105 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII 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 pertain to the standard versions of the relays.

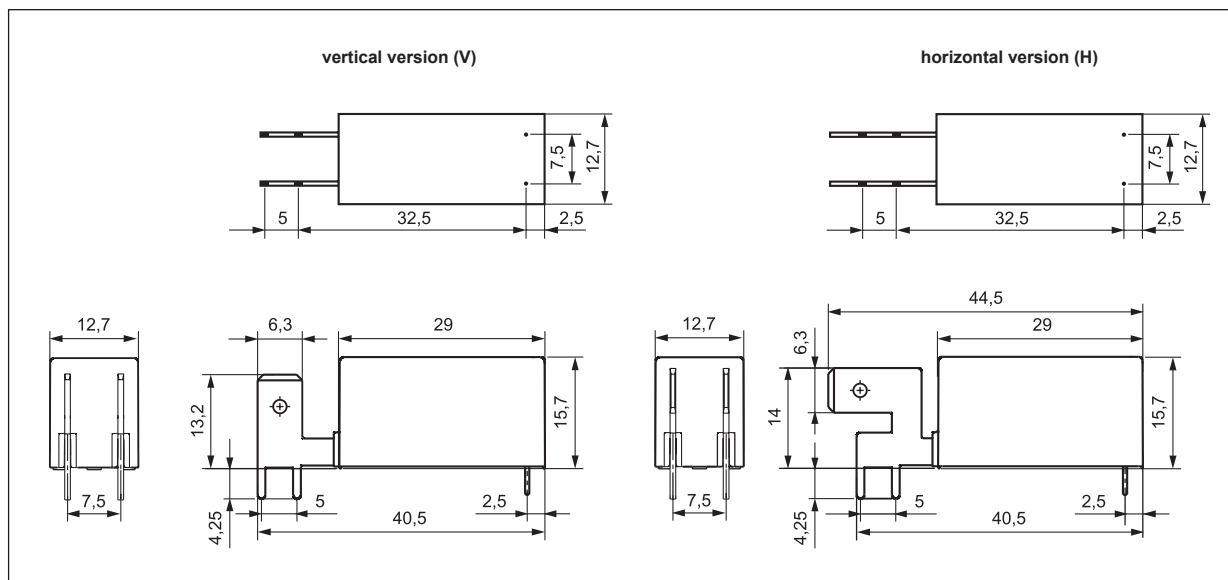
Coil data - DC voltage version, sensitive version

Table 1

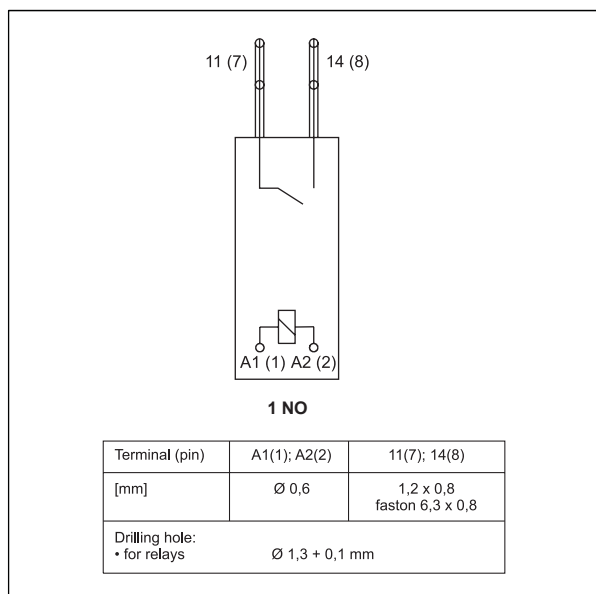
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S005	5	102	$\pm 10\%$	3,75	15,0
S006	6	144	$\pm 10\%$	4,50	18,0
S009	9	330	$\pm 10\%$	6,75	27,0
S010	10	380	$\pm 10\%$	7,50	30,0
S012	12	580	$\pm 10\%$	9,00	36,0
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

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

Dimensions

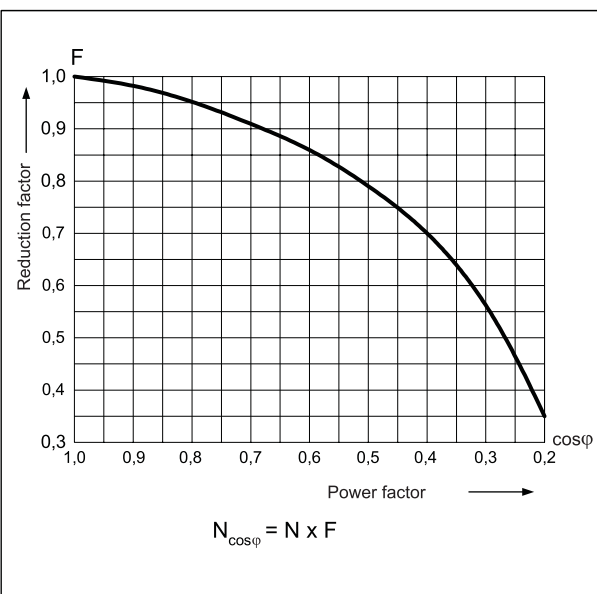


Connection diagram (pin side view)

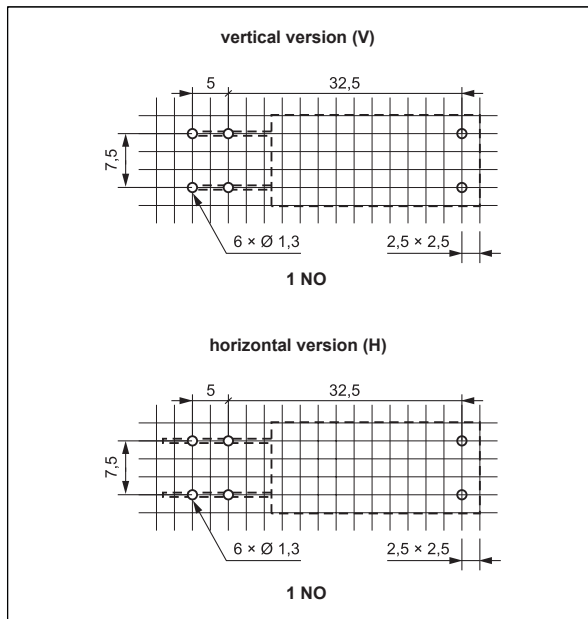


Electrical life reduction factor at AC inductive load

Fig.1



Pinout (solder side view)

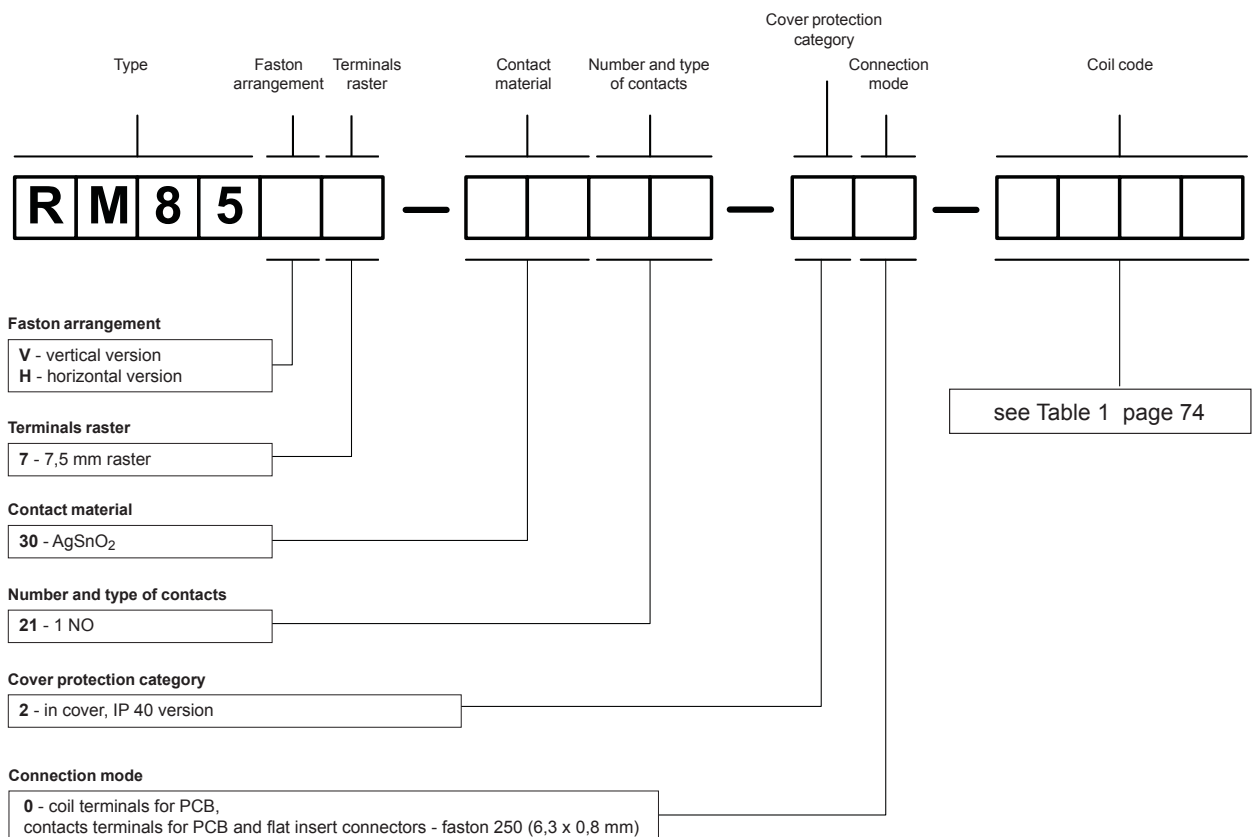


Mounting

Relays **RM85 faston** are designed for:

- direct PCB mounting
- connection of load with flat insert connectors
- faston 250 (6,3 x 0,8 mm).

Ordering codes



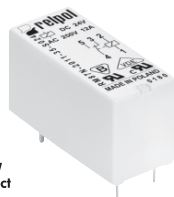
Example of ordering code:

RM85V7-3021-20-S012

relay **RM85 faston**, vertical version, 7,5 mm terminals raster, contact material AgSnO₂, with one normally open contact, in cover IP 40, coil terminals for PCB, contacts terminals for PCB and flat insert connectors - faston 250 (6,3 x 0,8 mm), sensitive voltage version 12 V DC

RM87N-...-01 ❶

RM87N sensitive



- 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 - standard (RM87), DC coils - sensitive (RM87 sensitive)**
- 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 C/O, 1 NO ❷ standard version	1 NO sensitive version
Contact material		AgNi , AgNi/Au 5 µm, AgSnO ₂	
Rated / max. switching voltage	AC	250 V / 440 V	
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V AgSnO ₂	
Rated load (capacity)	AC1	12 A / 250 V AC standard version	10 A / 250 V AC sensitive version
	AC15	3 A / 120 V	1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)	
	DC1	12 A / 24 V DC standard version (see Fig. 3)	10 A / 24 V DC sensitive version (see Fig. 4)
	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 ₂	
Max. inrush current		25 A AgSnO ₂ standard version	20 A AgSnO ₂ sensitive version
Rated current		12 A standard version	10 A sensitive version
Max. breaking capacity	AC1	3 000 VA standard version	2 500 VA sensitive version
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 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	50/60 Hz AC	12 ... 240 V standard version	
	DC	3 ... 110 V standard version	5 ... 48 V sensitive version
Must release voltage		AC: ≥ 0,15 U _n DC: ≥ 0,1 U _n	
Operating range of supply voltage		see Tables 1, 3 and Fig. 5, 7 standard version see Table 2 and Fig. 6 sensitive version	
Rated power consumption	AC	0,75 VA standard version	
	DC	0,4 ... 0,48 W standard version	0,25 W sensitive version

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	• resistive AC1	> 10 ⁵	12 A, 250 V AC standard version
(number of cycles)	• cos φ	> 1,7 x 10 ⁵	10 A, 250 V AC sensitive version
	• 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 • operating	-40...+85 °C AC: -40...+70 °C DC: -40...+85 °C	
Cover protection category		IP 40 or IP 67	PN-EN 60529
Environmental protection		RTII or RTIII	PN-EN 116000-3
Shock / vibration resistance		30 g / 10 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. ❶ Available special version (only for RM87 - standard version): relays in transparent cover - see "Ordering codes" ❷ Available special version with contact 1 NO (only for RM87 - standard version): relays with increased contact gap, dielectric strength 2000 V AC - see "Ordering codes"

Coil data - DC voltage version, RM87 - standard 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	$\pm 10\%$	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
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18	710	$\pm 10\%$	12,6	45,9
1024	24	1 440	$\pm 10\%$	16,8	61,2
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 - DC voltage version, RM87 sensitive - sensitive version

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)
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	400	$\pm 10\%$	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

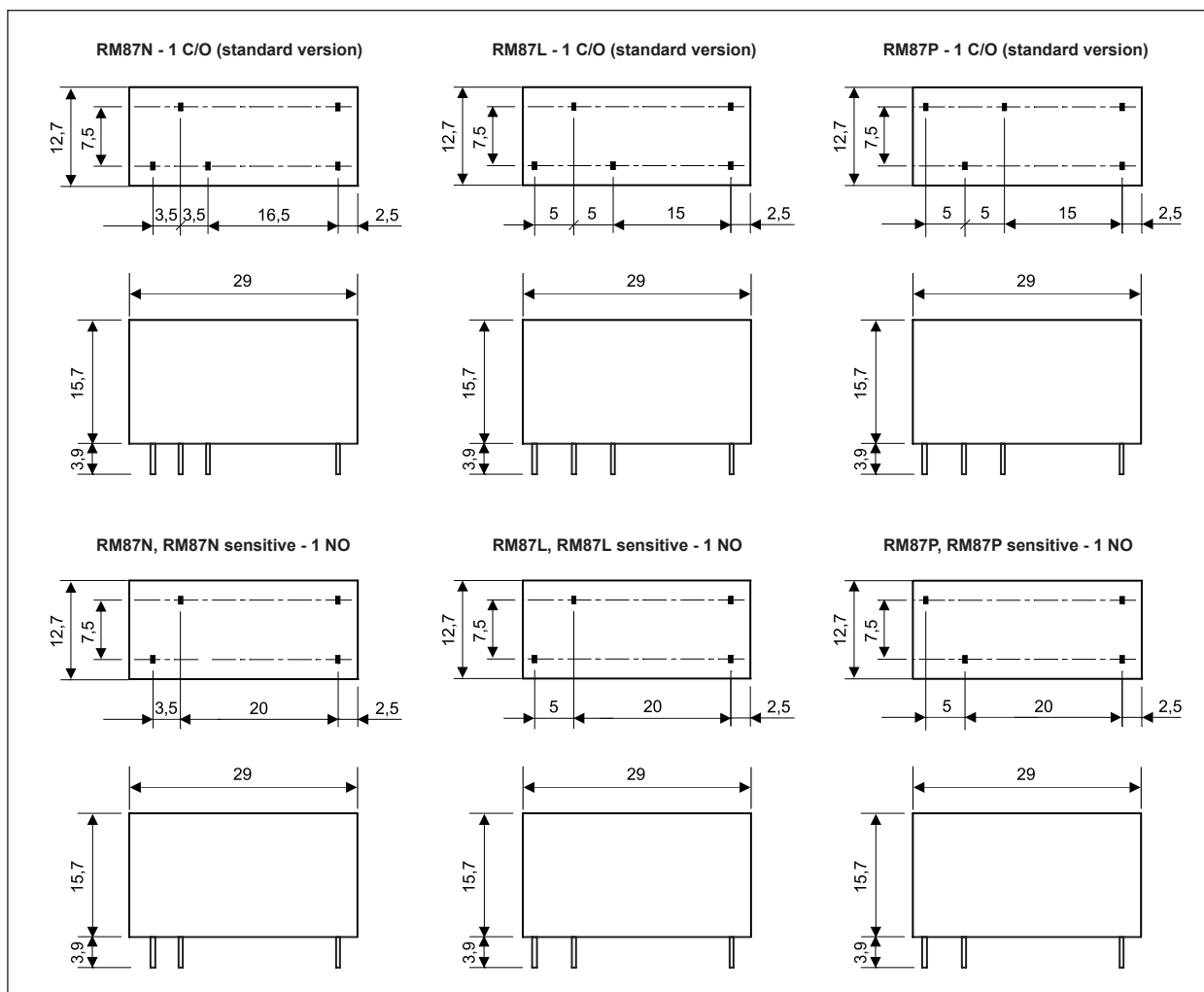
Coil data - AC 50/60 Hz voltage version, RM87 - standard version

Table 3

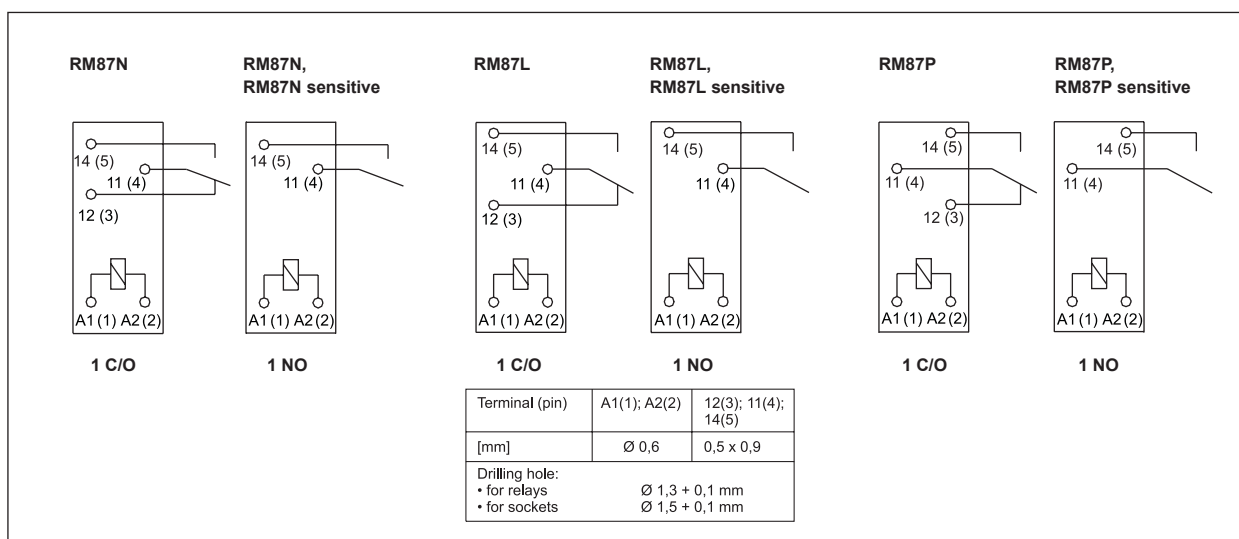
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
5048	48	1 550	$\pm 10\%$	38,4	57,6
5060	60	2 600	$\pm 10\%$	48,0	72,0
5110	110	8 900	$\pm 10\%$	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
5230	230	38 500	$\pm 10\%$	184,0	276,0
5240	240	42 500	$\pm 15\%$	192,0	288,0

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

Dimensions

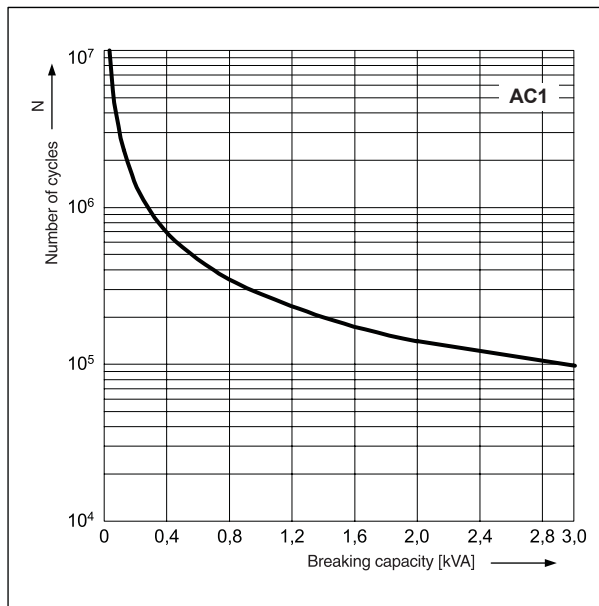


Connection diagrams (pin side view)



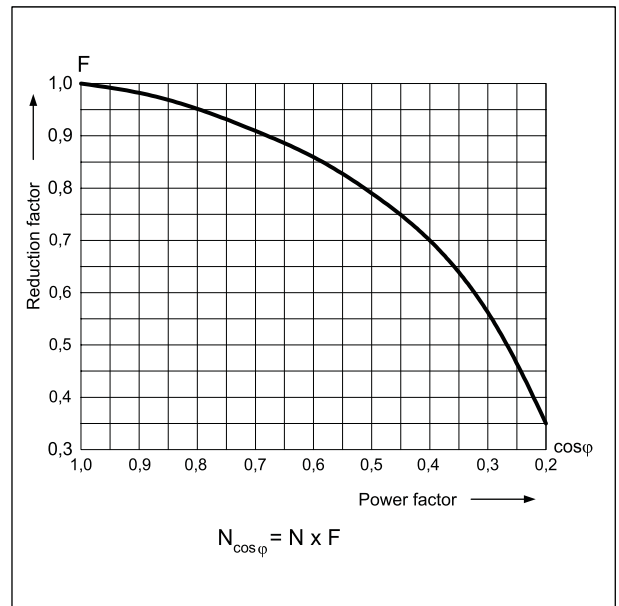
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



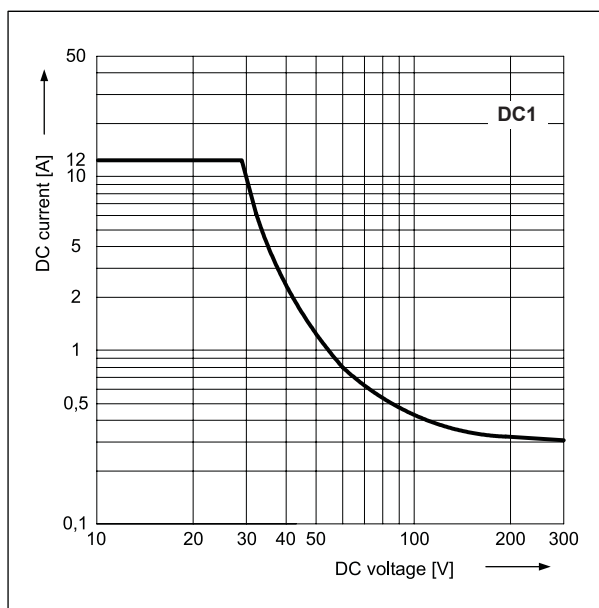
Electrical life reduction factor at AC inductive load

Fig. 2



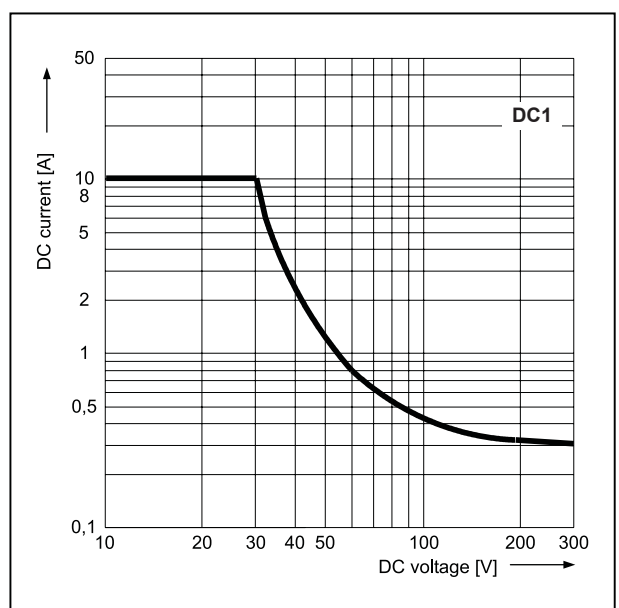
Max. DC resistive load breaking capacity - standard version

Fig. 3



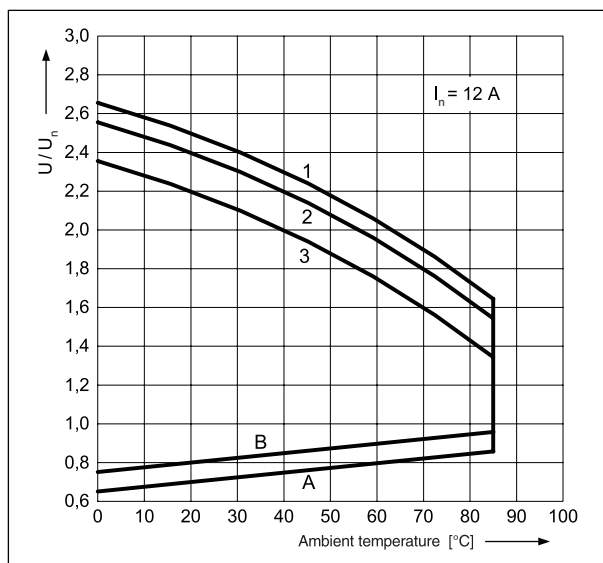
Max. DC resistive load breaking capacity - sensitive version

Fig. 4



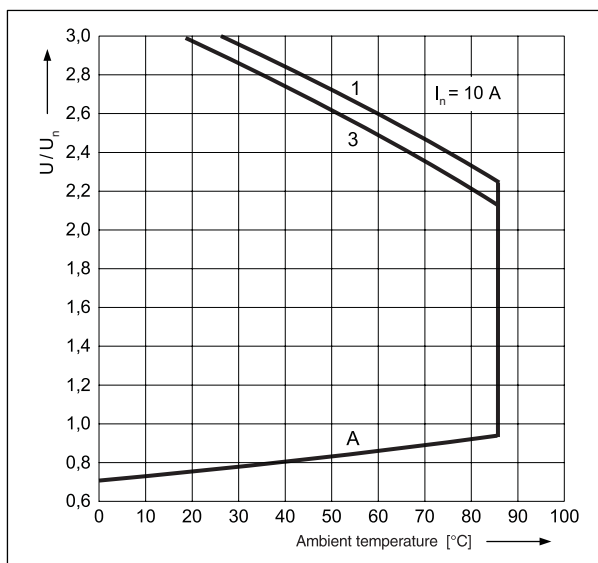
**Coil operating range - DC
- standard version**

Fig. 5



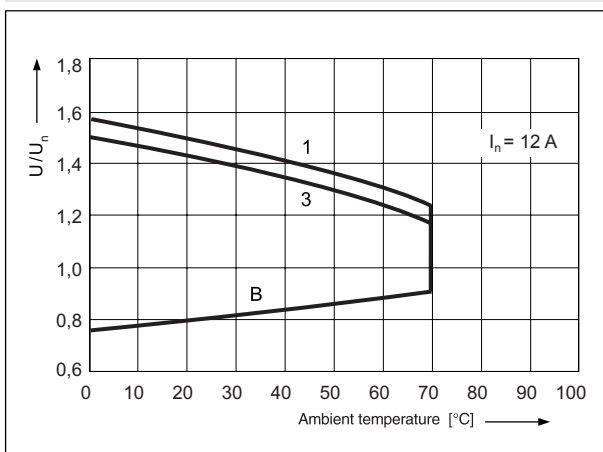
**Coil operating range - DC
- sensitive version**

Fig. 6



Coil operating range - AC 50 Hz

Fig. 7



Description of Fig. 5, 6 and 7

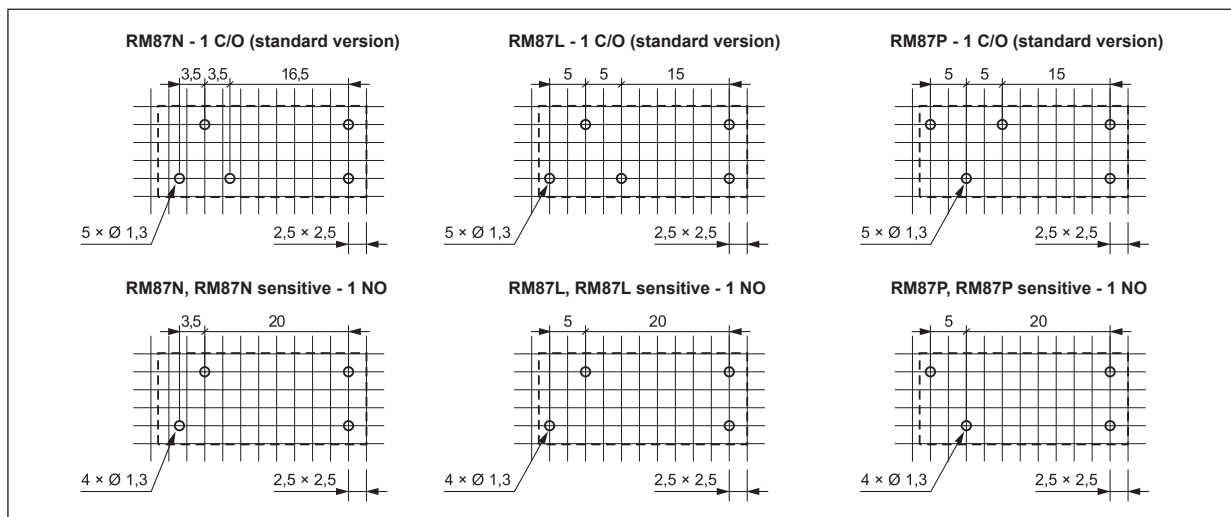
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

B - relations between make voltage and ambient temperature after initial coil heating up with $1,1 U_n$ at continuous 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

Pinout (solder side view)



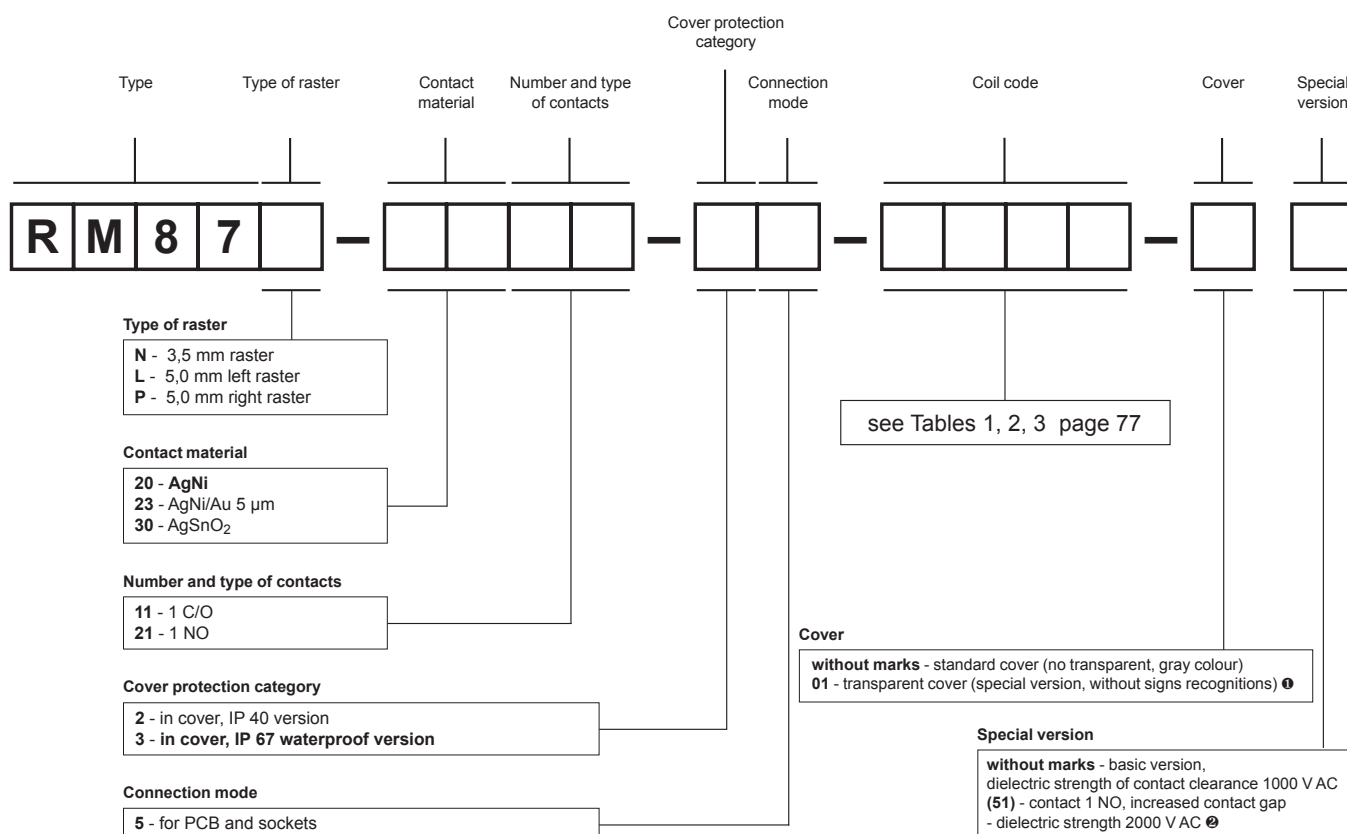
Mounting

Relays **RM87N**, **RM87N sensitive** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT92** ② and **GZM92** ② with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS92** ② 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 **EC35** with clip **MP16-2**, MH16-2; plug-in sockets **GD35** with clip **MP16-2**, GD-0016, MH16-2.

Relays **RM87L**, **RM87L sensitive**, **RM87P**, **RM87P sensitive** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ② and **GZM80** ② with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ② 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.

② Plug-in sockets **GZT92**, **GZM92**, **GZS92** and **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 261).

Ordering codes



Examples of ordering code:

- RM87N-2011-25-1012-01** relay **RM87N**, 3,5 mm raster, contact material AgNi, with one changeover contact, in transparent cover (special version, without signs recognitions) ① IP 40, for PCB and sockets, voltage version 12 V DC
- RM87N-2021-35-1024 (51)** relay **RM87N**, 3,5 mm raster, contact material AgNi, with one normally open contact, special version ② with increased contact gap, in standard cover (no transparent, gray colour) IP 67, for PCB and sockets, voltage version 24 V DC
- RM87P-3021-25-S012** relay **RM87P sensitive**, 5 mm right raster, contact material AgSnO₂, with one normally open contact, in standard cover (no transparent, gray colour) IP 40, for PCB and sockets, sensitive voltage version 12 V DC



- Cadmium - free contacts
- Height 15,7 mm
- 5000 V / 10 mm reinforced insulation
- **For surface mounting SMT**
- AC and DC coils
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,     

Contact data

Number and type of contacts		1 C/O
Contact material		AgNi , AgNi/Au 5 µm, AgSnO ₂
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V AgSnO ₂
Rated load (capacity)	AC1	12 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	12 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 ₂
Max. inrush current		25 A AgSnO ₂
Rated current		12 A
Max. breaking capacity	AC1	3 000 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 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	50/60 Hz AC	12 ... 240 V
	DC	3 ... 110 V
Must release voltage		AC: ≥ 0,15 U _n DC: ≥ 0,1 U _n
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		
• between coil and contacts		5 000 V AC type of insulation: reinforced
• contact clearance		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)		7 ms / 3 ms
Electrical life (number of cycles)		
• resistive AC1		> 10 ⁵ 12 A, 250 V AC
• cos φ		see Fig. 2
• 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 (17,7) mm
Weight		14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII 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 pertain to the standard versions of the relays.

Coil data - DC voltage version

Table 1

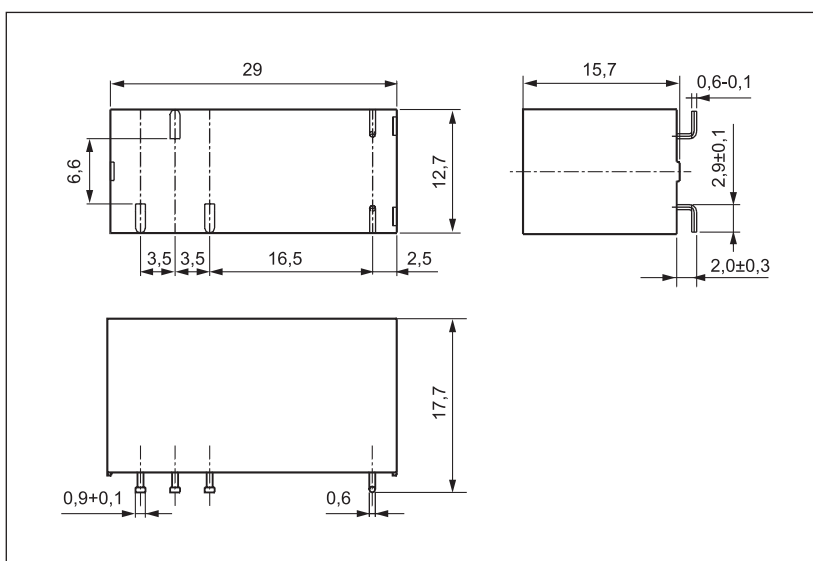
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	$\pm 10\%$	2,1	7,6
1005	5	60	$\pm 10\%$	3,5	12,7
1006	6	90	$\pm 10\%$	4,2	15,3
1009	9	200	$\pm 10\%$	6,3	22,9
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18	710	$\pm 10\%$	12,6	45,9
1024	24	1 440	$\pm 10\%$	16,8	61,2
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

Coil data - AC 50/60 Hz voltage version

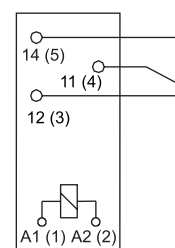
Table 2

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	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
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
5230	230	38 500	$\pm 10\%$	184,0	276,0
5240	240	42 500	$\pm 15\%$	192,0	288,0

Dimensions



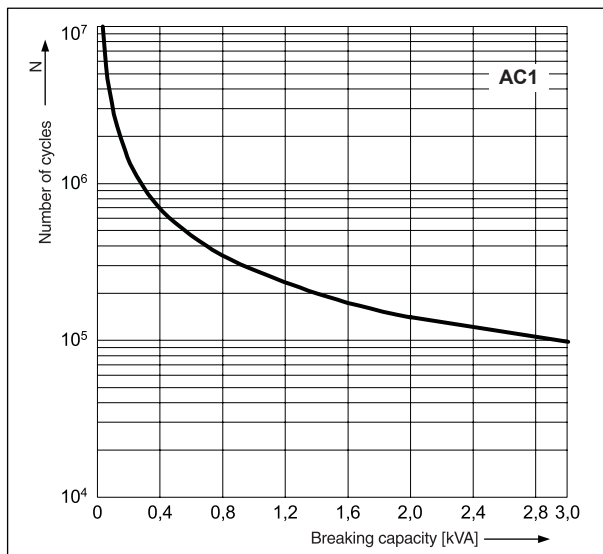
Connection diagram (pin side view)


RM87N
1 C/O

Terminal (pin)	A1(1); A2(2)	12(3); 11(4); 14(5)
[mm]	Ø 0,6	0,5 x 0,9

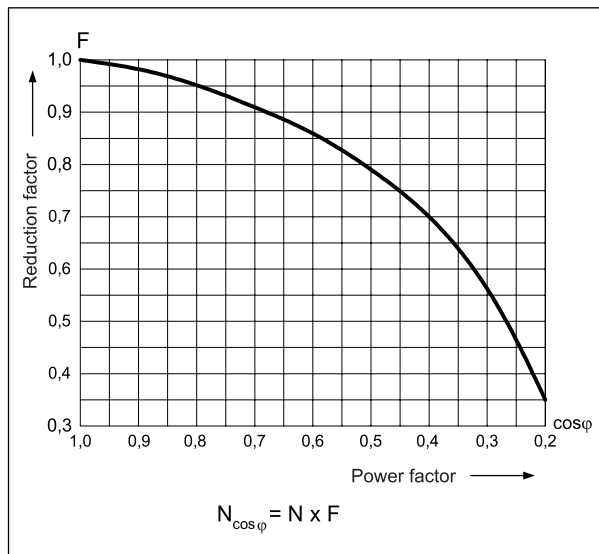
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



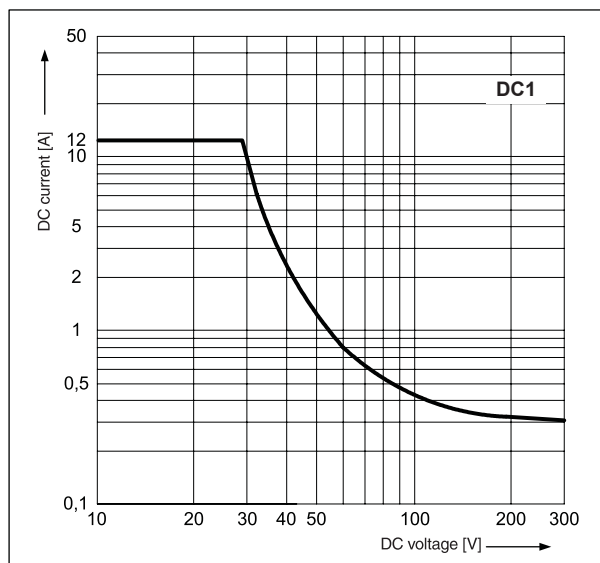
Electrical life reduction factor at AC inductive load

Fig. 2



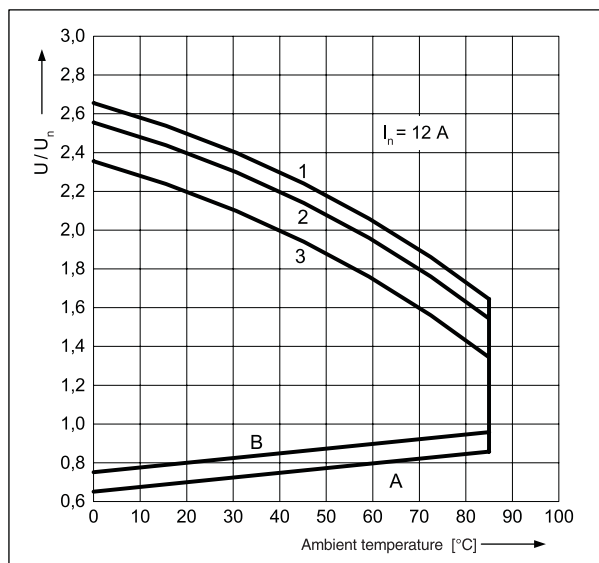
Max. DC resistive load breaking capacity

Fig. 3



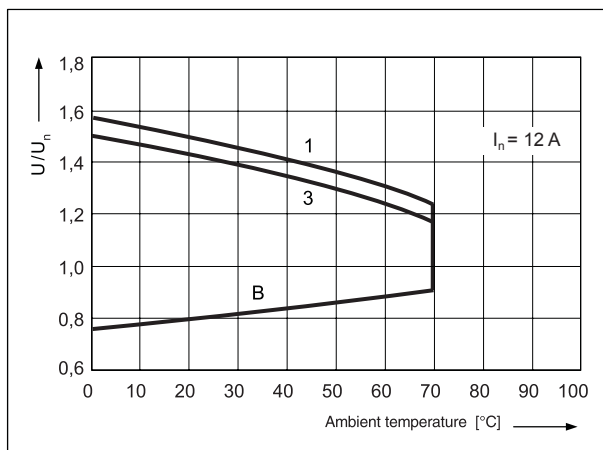
Coil operating range - DC

Fig. 4



Coil operating range - AC 50 Hz

Fig. 5



Description of Fig. 4 and 5

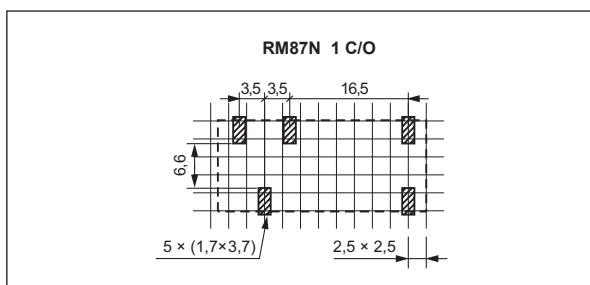
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

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

Soldering areas (solder side view)



Mounting

Relays **RM87N SMT** are designed for surface mounting SMT.

Ordering codes

Type	Type of raster	Contact material	Number and type of contacts	Cover protection category	Connection mode	Coil code
R M 8 7 N						
Type of raster N - 3,5 mm raster						
Contact material 20 - AgNi 23 - AgNi/Au 5 µm 30 - AgSnO₂						
Number and type of contacts 11 - 1 C/O						
Cover protection category 2 - in cover, IP 40 version						
Connection mode M - for surface mounting SMT						

see Tables 1, 2 page 83

Example of ordering code:

RM87N-2011-2M-1012 relay **RM87N SMT**, 3,5 mm raster, contact material AgNi, with one changeover contact, in cover IP 40, for surface mounting SMT, voltage version 12 V DC



- Height 16,2 mm • IP 40 and IP 67
- For PCB (1 C/O, 1 NO, 1 NC) and plug-in sockets (1 C/O)
- Accessories: sockets and modules for 1 C/O
- DC coils
- Recyclable packing
- Terminals: 3,2 mm for version 1 C/O,
5,0 mm for version 1 NO and 1 NC
- Recognitions, certifications, directives: RoHS,    

Contact data

Number and type of contacts		1 C/O, 1 NO, 1 NC
Contact material		AgSnO₂ , AgSnO ₂ /Au 3 µm, AgCdO
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V AgSnO ₂ , 5 V AgSnO ₂ /Au 3 µm, 10 V AgCdO
Rated load (capacity)	AC1	8 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	370 W (single-phase motor, 1/2 HP / 250 V AC UL 508)
	DC1	8 A / 24 V DC (see Fig. 1)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		10 mA AgSnO ₂ , 2 mA AgSnO ₂ /Au 3 µm, 5 mA AgCdO
Max. inrush current		15 A
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		1 W AgSnO ₂ , 0,05 W AgSnO ₂ /Au 3 µm, 0,5 W AgCdO
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 ... 48 V
Must release voltage		DC: ≥ 0,1 U _n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,22...0,3 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		4 000 V AC type of insulation: reinforced
• contact clearance		1 000 V AC type of clearance: micro-disconnection
Contact - coil distance		
• clearance		≥ 8 mm
• creepage		≥ 8 mm

General data

Operating / release time (typical values)		10 ms / 5 ms
Electrical life		
• resistive AC1		> 10 ⁵ 8 A, 250 V AC
• cos φ		see Fig. 3
Mechanical life (cycles)		> 2 x 10 ⁷
Motor load according to UL 508		1/4 HP 120 V AC, single-phase motor
Dimensions (L x W x H)		1 C/O: 30 x 10 x 16,2 mm 1 NO, 1 NC: 28 x 10 x 16,2 mm
Weight		11 g
Ambient temperature	• storage	-40...+85 °C
	• operating	-40...+80 °C
Cover protection category		IP 40 or IP 67 PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		20 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

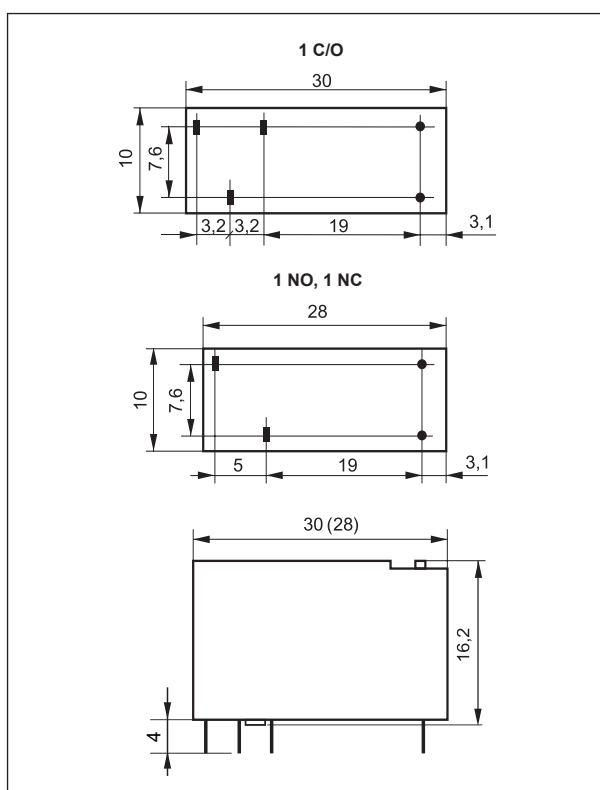
Coil data - DC voltage version

Table 1

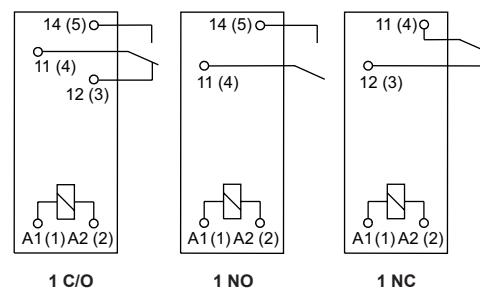
Coil code	Rated voltage V DC	Coil resistance $\pm 10\%$ at 20 °C Ω	Coil operating range at 20 °C V DC	
			min.	max.
1005	5	110	3,5	12,0
1006	6	160	4,2	14,5
1009	9	360	6,3	22,0
1012	12	660	8,4	29,5
1018	18	1 500	12,6	44,0
1024	24	2 200	16,8	54,0
1048	48	8 000	33,6	102,0

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

Dimensions

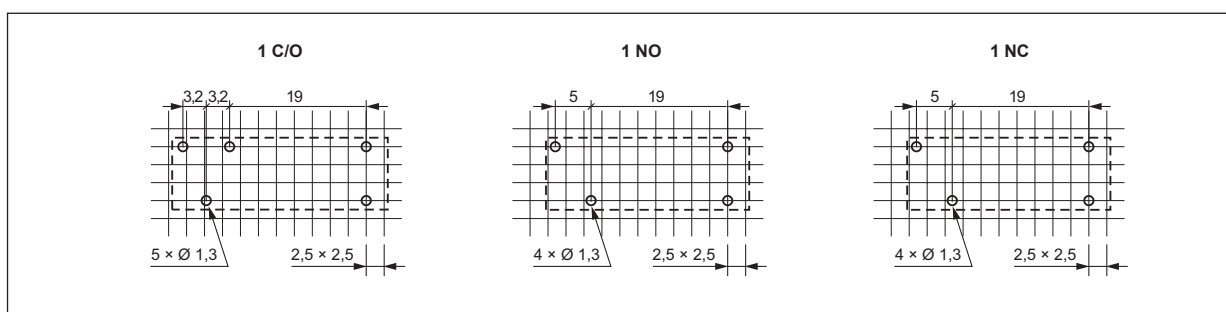


Connection diagrams (pin side view)



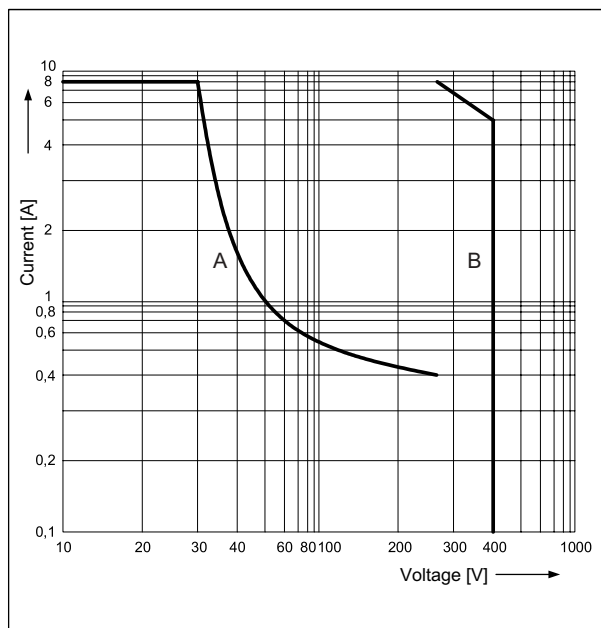
Terminal (pin)	A1(1); A2(2)	12(3); 11(4); 14(5)
[mm]	0,6 x 0,9	0,6 x 1
Drilling hole: • for relays	$\varnothing 1,3 \pm 0,1$ mm	$\varnothing 1,5 \pm 0,1$ mm

Pinout (solder side view)



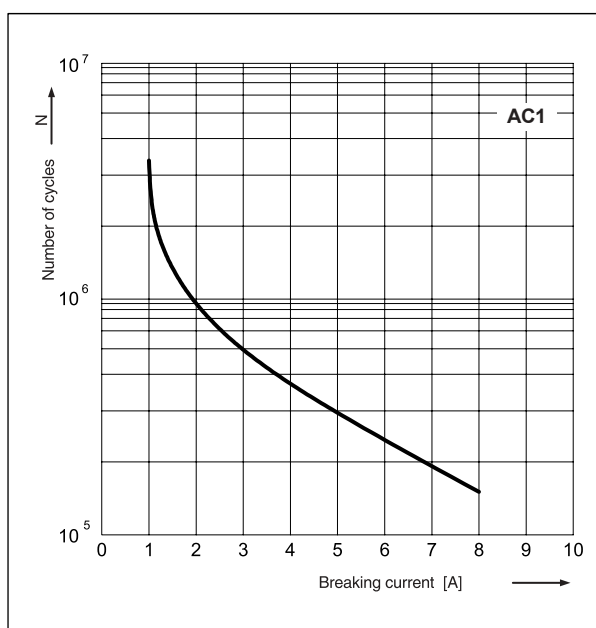
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1

Fig. 1



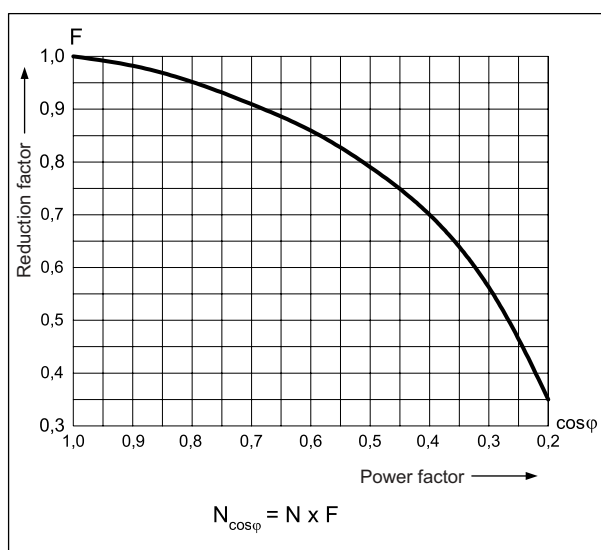
Electrical life at AC1 resistive load for version 1 NO

Fig. 2



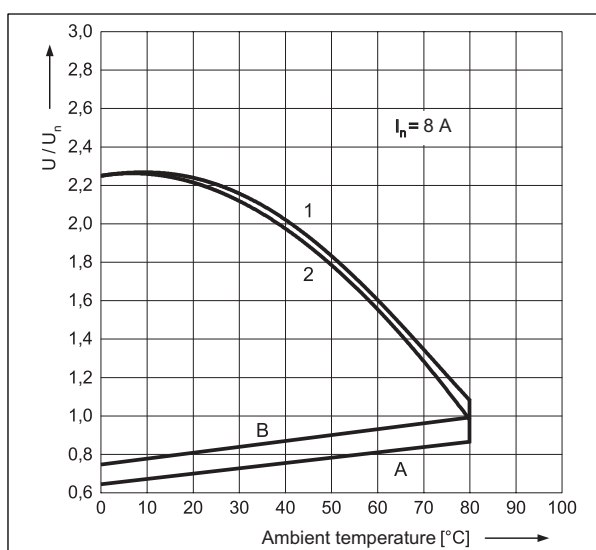
Electrical life reduction factor at AC inductive load

Fig. 3



Coil operating range - DC

Fig. 4



Description of Fig. 4

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

- 1** - no load
- 2** - rated load

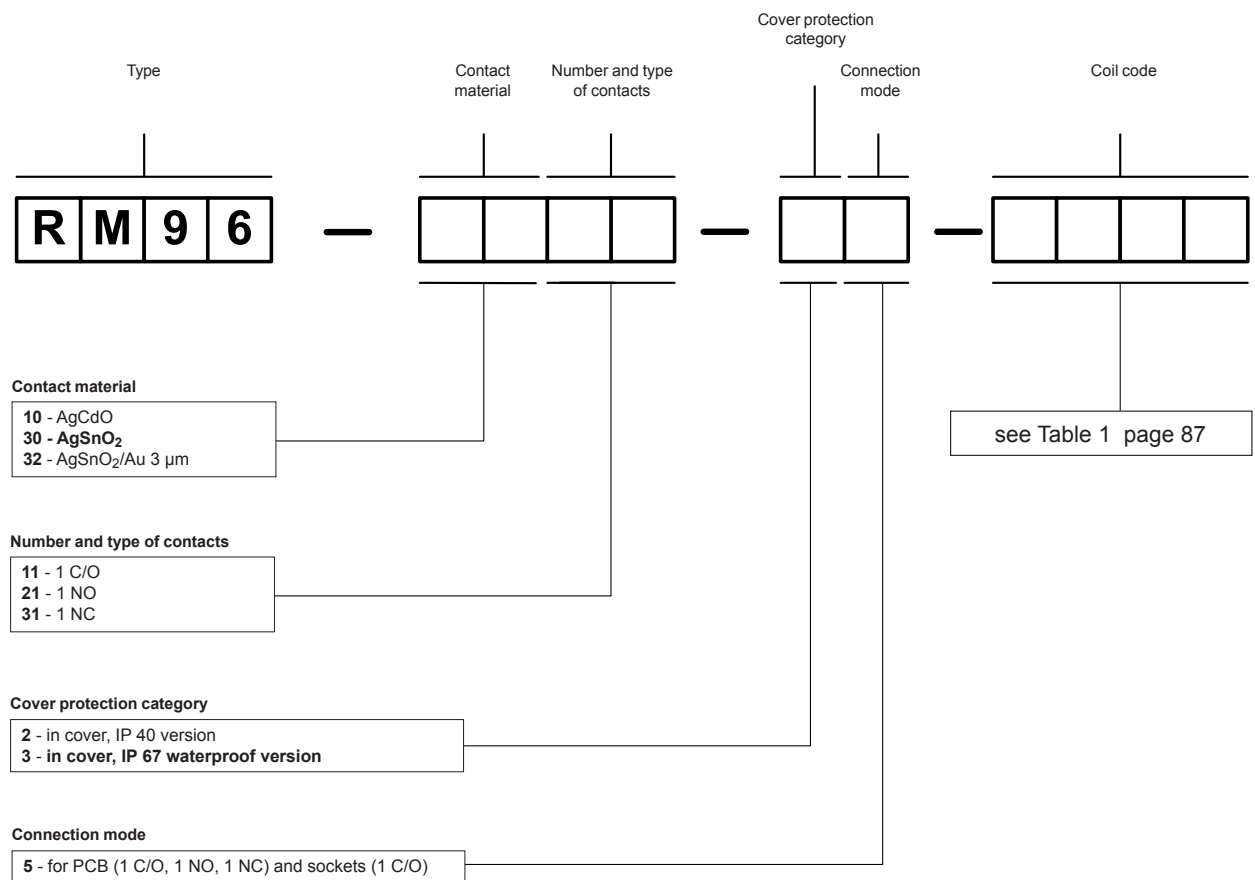
Mounting

Relays **RM96 1 C/O** (one changeover contact) are designed for: • direct PCB mounting • screw terminals plug-in sockets **ES 32** with clip **MS16** 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).

Relays **RM96 1 NO** (one normally open contact) and **RM96 1 NC** (one normally closed contact) are designed for direct PCB mounting.

Plug-in sockets **ES 32** may be linked with interconnection strip type **ZGGZ80** (see page 261).

Ordering codes



Examples of ordering codes:

RM96-3011-35-1012 relay **RM96**, contact material AgSnO₂, with one changeover contact, in cover IP 67, for PCB and sockets, voltage version 12 V DC

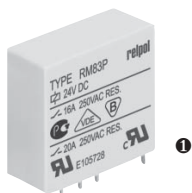
RM96-3031-25-1024 relay **RM96**, contact material AgSnO₂, with one normally closed contact, in cover IP 40, for PCB, voltage version 24 V DC

Print on relay cover

Type marking on relays cover **RM96** do not match the ordering codes.

Example of marking:

RM96P-24-W **RM96P** - relay **RM96**, with one changeover contact
24 - voltage version 24 V DC
W - in cover, IP 67 waterproof version



- Miniature dimensions • General purpose relays

- **Version 1 NO AgSnO₂ 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

- Recognitions, certifications, directives: RoHS,     

Contact data

Number and type of contacts		1 C/O, 1 NO, 1 NC
Contact material		AgSnO₂ , AgCdO, AgCdO/Au 0,2 μm
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V AgSnO ₂ , 10 V AgCdO, 10 V AgCdO/Au 0,2 μm
Rated load (capacity)	AC1 AC15 AC3 DC1 DC13	16 A / 250 V AC 6 A / 120 V 3 A / 240 V (A300) 550 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		10 mA AgSnO ₂ , 5 mA AgCdO, 5 mA AgCdO/Au 0,2 μm
Max. inrush current		30 A 1 NO, AgSnO ₂
Rated current		16 A
Max. breaking capacity	AC1	4 000 VA
Min. breaking capacity		1 W AgSnO ₂ , 0,5 W AgCdO, 0,5 W AgCdO/Au 0,2 μm
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 ... 110 V standard version 110 V sensitive version
Must release voltage		DC: ≥ 0,1 U _n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,6 W 5 ... 60 V standard version 0,6 W 110 V sensitive version 0,9 W 110 V standard version

Insulation according to PN-EN 60664-1

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

General data

Operating / release time (typical values)		7 ms / 3 ms
Electrical life		
• resistive AC1		> 10 ⁵ 16 A, 250 V AC
• at incandescent lamp load		> 10 ⁵ 1000 W, 230 V AC 1 NO, AgSnO ₂
		> 3 x 10 ⁴ 3000 W, 230 V AC 1 NO, AgSnO ₂
• at halogen lamp load		> 10 ⁴ 2500 W, 230 V AC 1 NO, AgSnO ₂
• cos φ		see Fig. 2
• L/R=40 ms		> 10 ⁵ 0,12 A, 220 V DC
Mechanical life (cycles)		> 3 x 10 ⁷
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 • operating	-40...+85 °C -40...+70 °C
Cover protection category		IP 40 or IP 67 PN-EN 60529
Shock resistance		20 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

❶ Special version available: relays in transparent cover - see "Ordering codes".

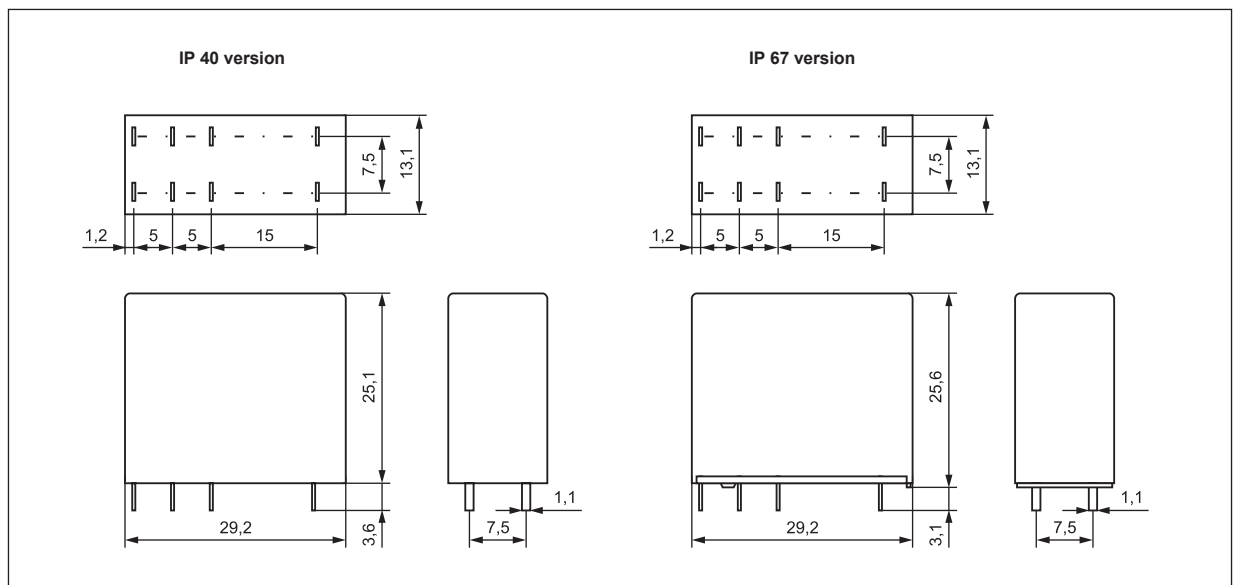
Coil data - DC voltage version

Table 1

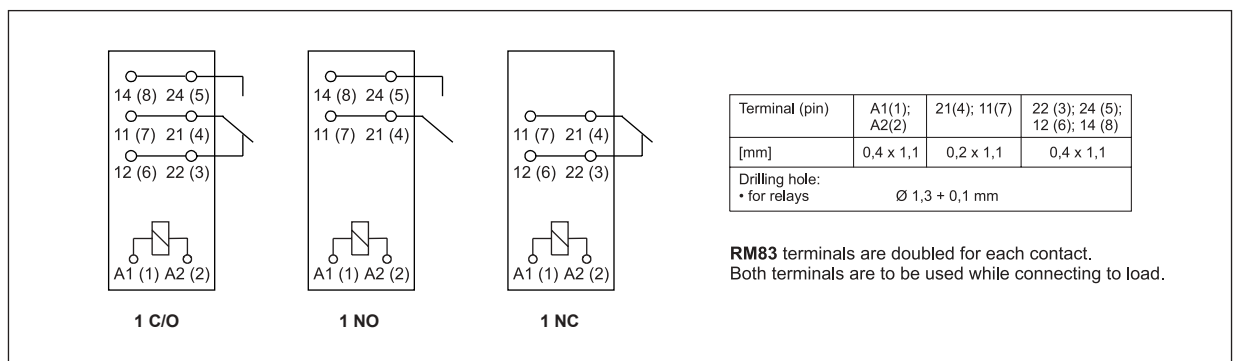
Coil code		Rated voltage V DC	Coil resistance ± 10% at 20 °C Ω	Coil operating range at 20 °C V DC	
standard version	sensitive version			min.	max.
1005	—	5	49	3,5	8,9
1006	—	6	68	4,2	10,6
1009	—	9	110	6,3	15,9
1012	—	12	260	8,4	21,2
1018	—	18	550	12,6	31,8
1024	—	24	1 100	16,8	42,5
1036	—	36	2 100	25,2	63,7
1048	—	48	4 400	33,6	85,0
1060	—	60	7 000	42,0	106,2
1110	—	110	13 000	77,0	140,0
—	S110	110	20 500	77,0	188,0

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

Dimensions

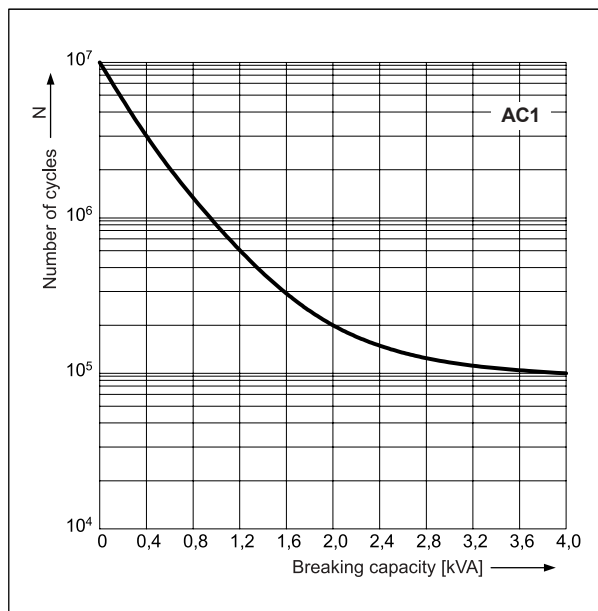


Connection diagrams (pin side view)



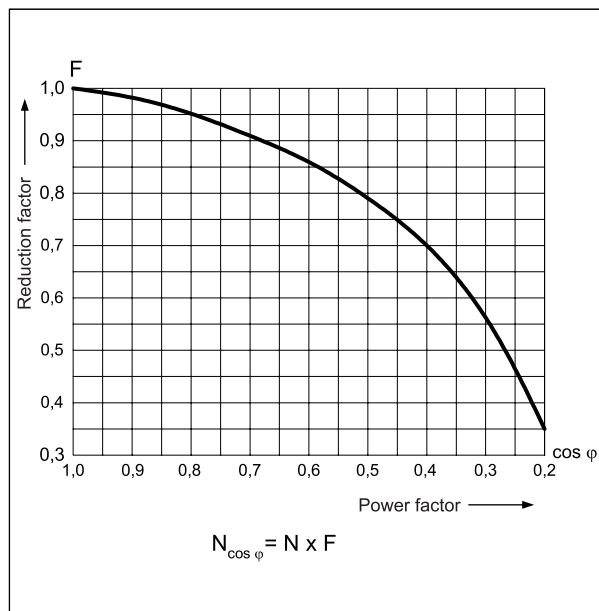
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



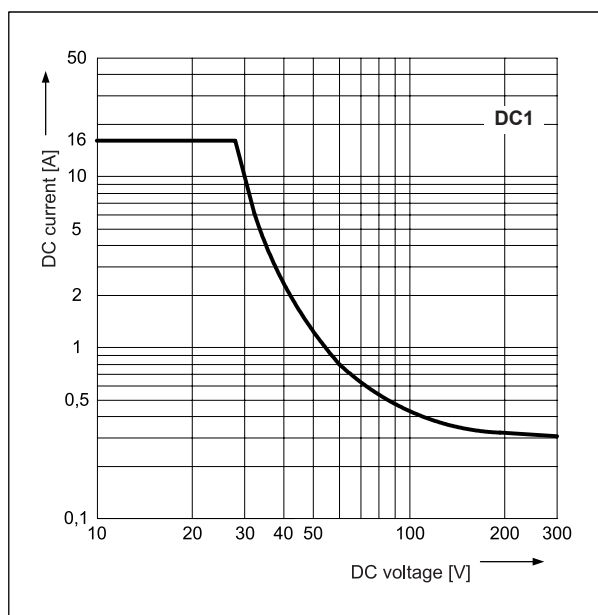
Electrical life reduction factor
at AC inductive load

Fig. 2



Max. DC resistive load breaking capacity

Fig. 3

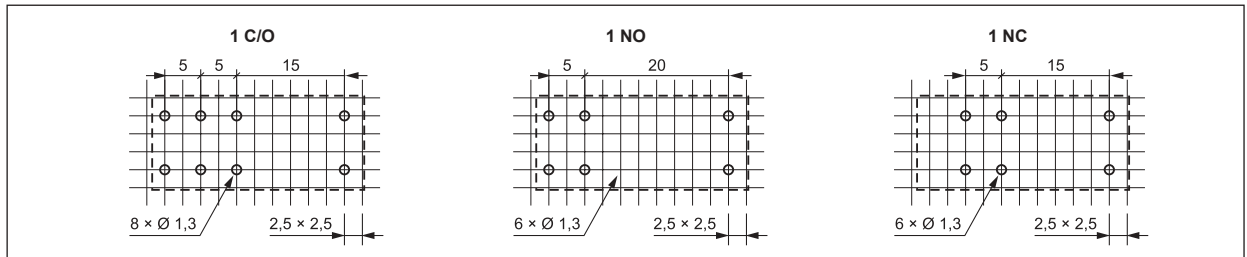


Mounting

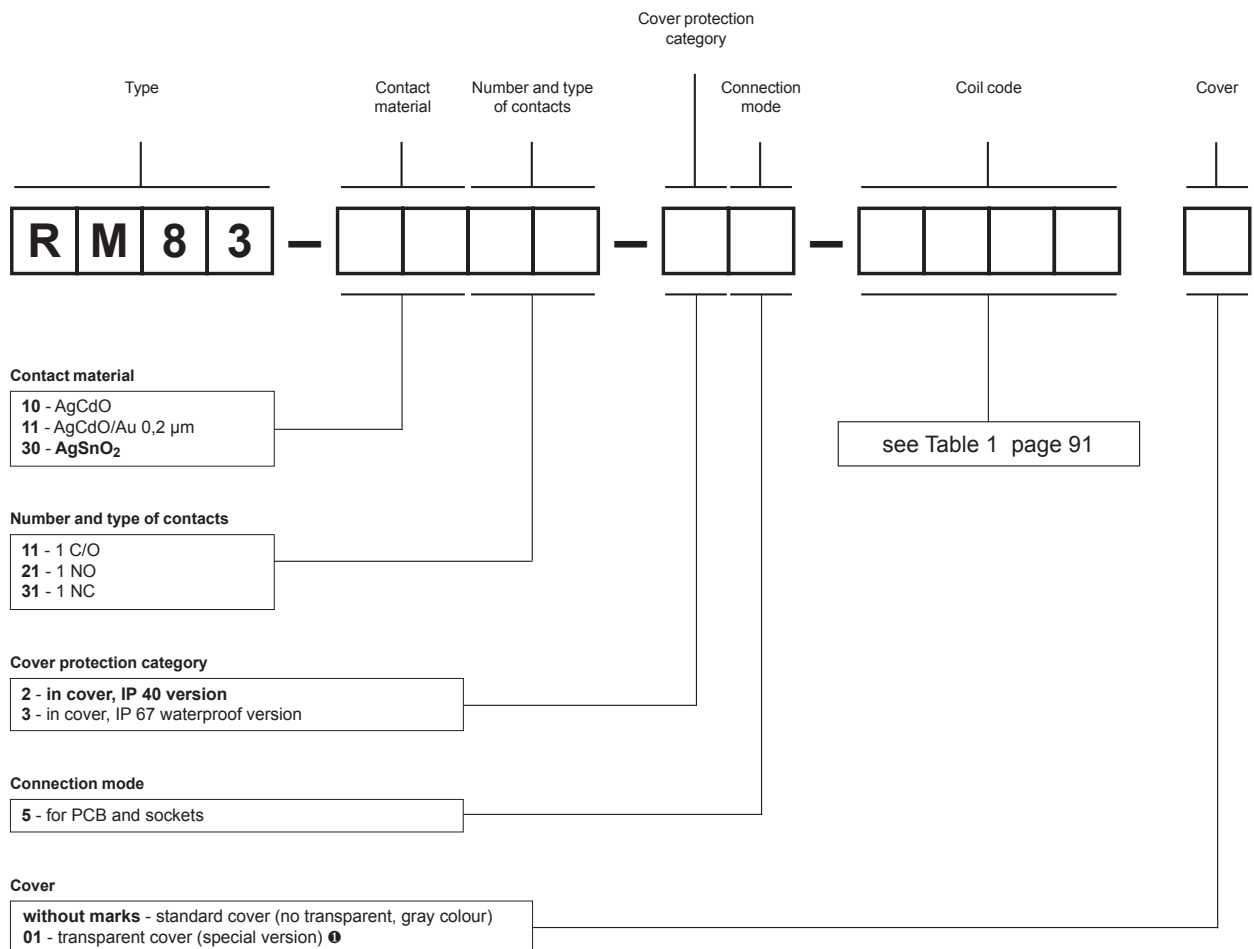
Relays **RM83** are designed for:

- direct PCB mounting
- plug-in sockets for PCB mounting **EC50** with clip **MP25-2**, MH25-2, GD-0025, RM81-0001; plug-in sockets **PW80** with clip **MH25-2**, GD-0025, RM81-0001; plug-in sockets **GD50** with clip **MP25-2**, GD-0025, MH25-2, RM81-0001.

Pinout (solder side view)



Ordering codes



Examples of ordering code:

RM83-3011-25-1024

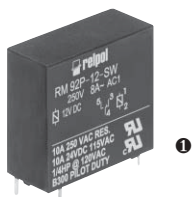
relay **RM83**, contact material AgSnO₂, with one changeover contact, in standard cover (no transparent, gray colour) IP 40, for PCB and sockets, voltage version 24 V DC

RM83-3011-25-S110

relay **RM83**, contact material AgSnO₂, with one changeover contact, in standard cover (no transparent, gray colour) IP 40, for PCB and sockets, sensitive voltage version 110 V DC

RM83-3021-35-1012-01

relay **RM83**, contact material AgSnO₂, with one normally open contact, in transparent cover (special version) ① IP 67, for PCB and sockets, voltage version 12 V DC



- Miniature dimensions
- General purpose relays
- Protection category IP 40 or IP 67
- For PCB and plug-in sockets
- DC coils - standard and sensitive
- Recognitions, certifications, directives: RoHS,  

Contact data

Number and type of contacts		1 C/O, 1 NO, 1 NC
Contact material		AgCu/Au 0,2 µm , AgCdO, AgCdO/Au 3 µm
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V AgCu/Au 0,2 µm, 10 V AgCdO, 5 V AgCdO/Au 3 µm
Rated load	AC1 DC1	8 A / 250 V AC 8 A / 24 V DC
Min. switching current		5 mA AgCu/Au 0,2 µm, 5 mA AgCdO, 2 mA AgCdO/Au 3 µm
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,5 W AgCu/Au 0,2 µm, 0,5 W AgCdO, 0,05 W AgCdO/Au 3 µm
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	6 ... 80 V standard version 5 ... 60 V sensitive version
Must release voltage		DC: ≥ 0,1 U _n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	DC	0,8 W standard version 0,5 W sensitive version

Insulation according to PN-EN 60664-1

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

General data

Operating / release time (typical values)		6 ms / 2 ms
Electrical life		
• resistive AC1		> 2 x 10 ⁵ 8 A, 250 V AC
• cos φ		see Fig. 2
Mechanical life (cycles)		> 3 x 10 ⁷
Motor load according to UL 508		1/4 HP 120 V AC, single-phase motor
Dimensions (L x W x H)		IP 40: 28 x 11,5 x 26 mm IP 67: 28 x 11,5 x 26,5 mm
Weight		17 g
Ambient temperature	• storage • operating	-40...+85 °C -40...+70 °C
Cover protection category		IP 40 or IP 67 PN-EN 60529
Shock resistance		20 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

i Special version available: relays in transparent cover - see "Ordering codes".

Coil data - standard DC voltage version

Table 1

Coil code	Rated voltage V DC	Coil resistance $\pm 10\%$ at 20 °C Ω	Coil operating range at 20 °C V DC	
			min.	max.
1006	6	58	4,0	9,4
1012	12	170	7,4	16,2
1024	24	740	15,4	33,6
1036	36	1 600	23,5	50,0
1048	48	3 200	31,0	70,0
1060	60	5 000	38,0	87,0
1080	80	10 000	55,0	125,0

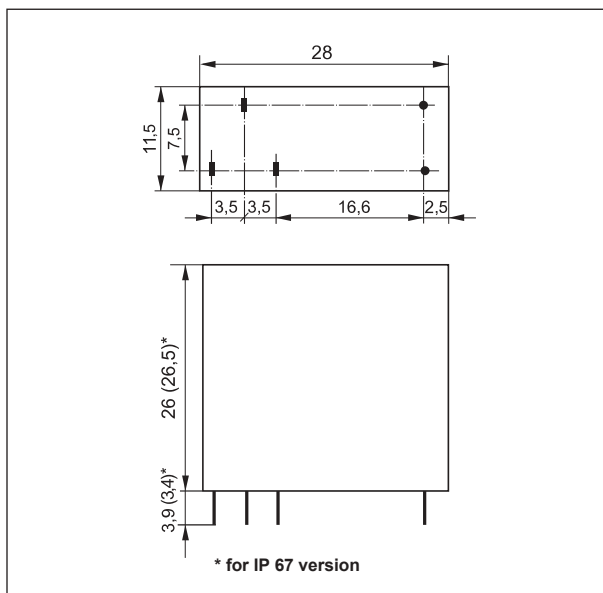
The data in bold type pertain to the standard versions of the relays.

Coil data - sensitive DC voltage version

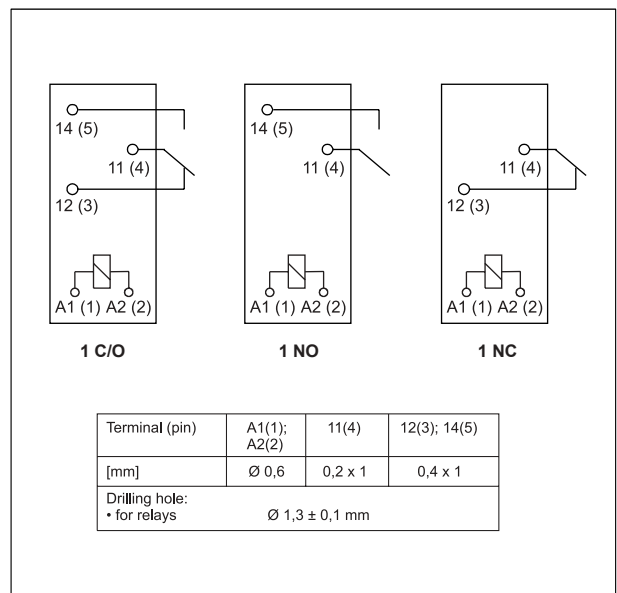
Table 2

Coil code	Rated voltage V DC	Coil resistance $\pm 10\%$ at 20 °C Ω	Coil operating range at 20 °C V DC	
			min.	max.
S005	5	47	3,2	8,5
S006	6	80	4,2	11,0
S012	12	330	8,3	22,5
S024	24	1 200	16,8	43,0
S036	36	2 700	25,0	64,0
S048	48	4 700	32,8	85,0
S060	60	7 200	42,0	105,0

Dimensions



Connection diagrams (pin side view)

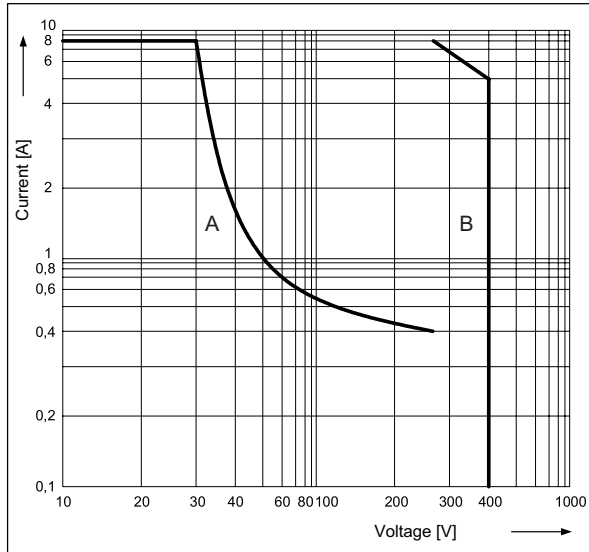


Mounting

Relays **RM92** are designed for: • direct PCB mounting • plug-in sockets for PCB mounting **EC35** with clip **MP25-2**, MH25-2, GD-0025, RM81-0001; plug-in sockets **GD35** with clip **MP25-2**, GD-0025, MH25-2, RM81-0001.

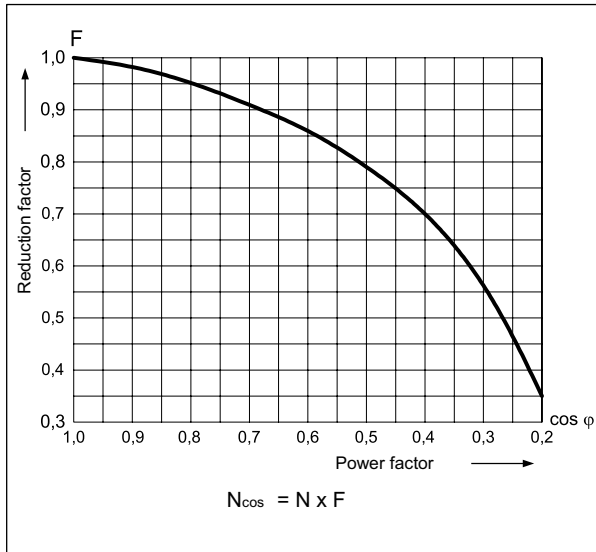
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1

Fig. 1



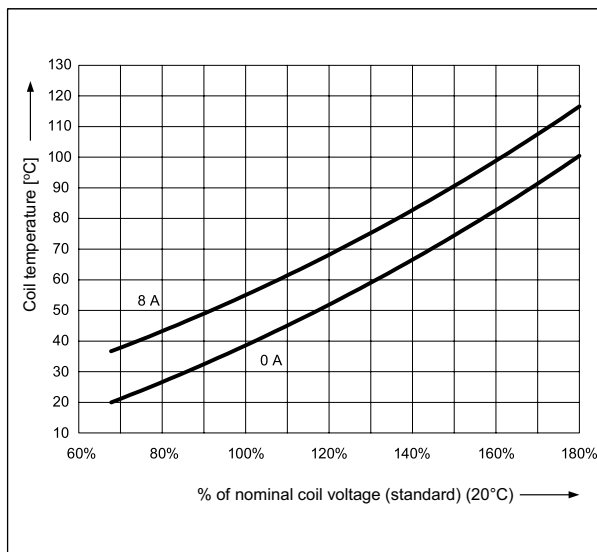
Electrical life reduction factor at AC inductive load

Fig. 2



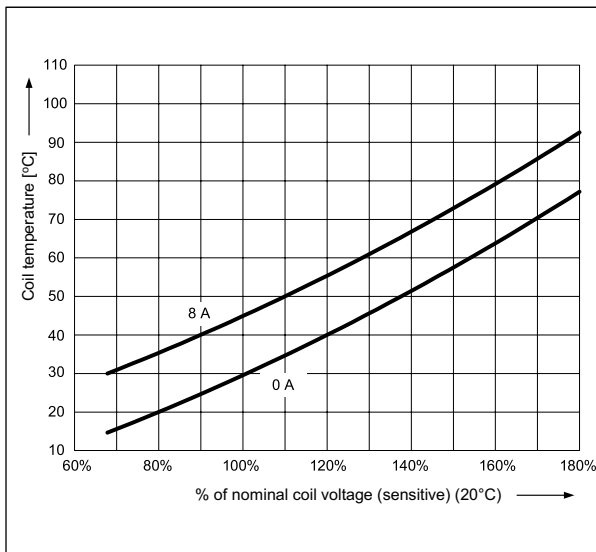
Coil temperature rise - standard version

Fig. 3

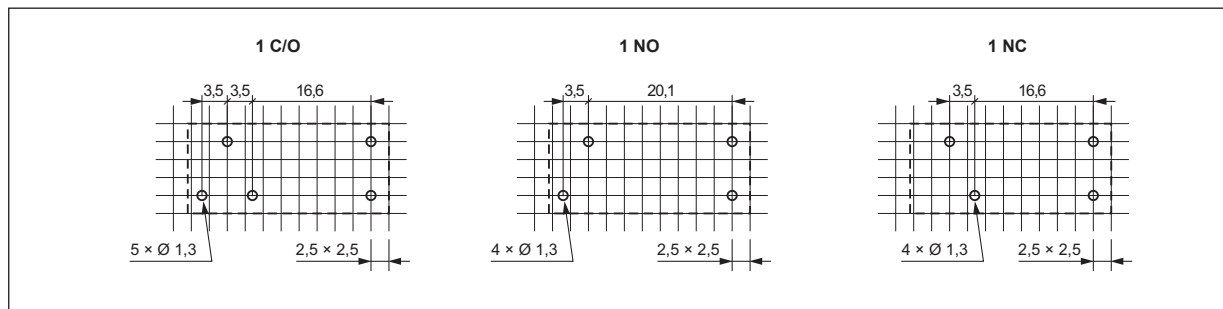


Coil temperature rise - sensitive version

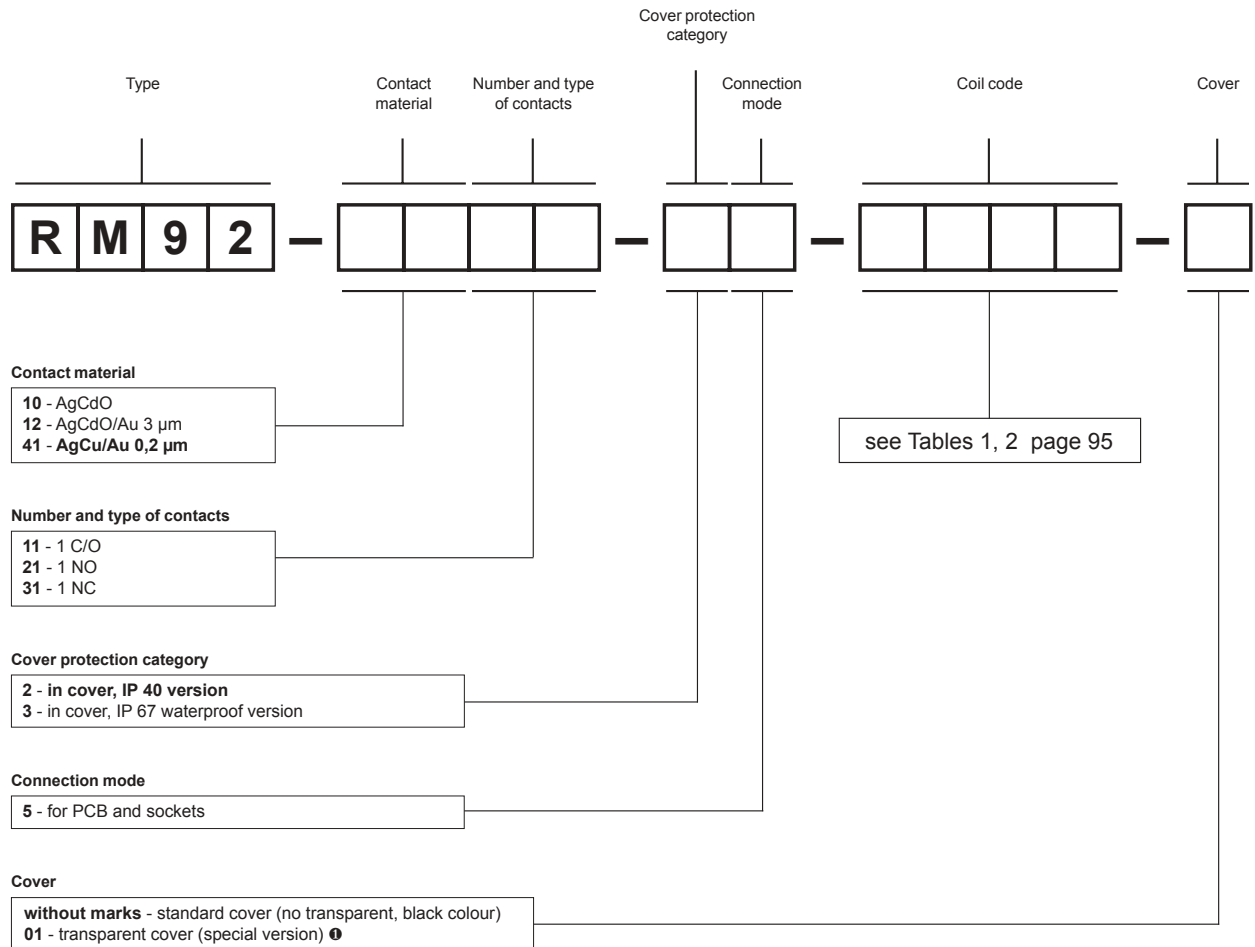
Fig. 4



Pinout (solder side view)



Ordering codes



Examples of ordering codes:

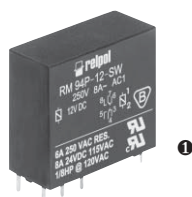
RM92-4111-25-1024	relay RM92 , contact material AgCu/Au 0,2 µm, with one changeover contact, in standard cover (no transparent, black colour) IP 40, for PCB and sockets, voltage version 24 V DC
RM92-4121-35-S024	relay RM92 , contact material AgCu/Au 0,2 µm, with one normally open contact, in standard cover (no transparent, black colour) IP 67, for PCB and sockets, sensitive voltage version 24 V DC
RM92-4131-35-1012-01	relay RM92 , contact material AgCu/Au 0,2 µm, with one normally closed contact, in transparent cover (special version) ❶ IP 67, for PCB and sockets, voltage version 12 V DC

Print on relay cover

Type marking on relays cover **RM92** do not match the ordering codes.

Examples of marking:

RM92P-24-W	RM92P - relay RM92 , with one changeover contact
	24 - voltage version 24 V DC
	W - in cover, IP 67 waterproof version
RM92P-24-S-W	RM92P - relay RM92 , with one changeover contact
	24 - voltage version 24 V DC
	S - sensitive version
	W - in cover, IP 67 waterproof version



- Miniature dimensions
- General purpose relays
- Protection category IP 40 or IP 67
- For PCB and plug-in sockets
- DC coils - standard and sensitive
- Recognitions, certifications, directives: RoHS,     

Contact data

Number and type of contacts		2 C/O, 2 NO, 2 NC
Contact material		AgCu/Au 0,2 µm , AgCdO, AgCdO/Au 3 µm
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V AgCu/Au 0,2 µm, 10 V AgCdO, 5 V AgCdO/Au 3 µm
Rated load	AC1	8 A / 250 V AC
	DC1	8 A / 24 V DC
Min. switching current		5 mA AgCu/Au 0,2 µm, 5 mA AgCdO, 2 mA AgCdO/Au 3 µm
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,5 W AgCu/Au 0,2 µm, 0,5 W AgCdO, 0,05 W AgCdO/Au 3 µm
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	6 ... 110 V standard version	5 ... 110 V sensitive version
Must release voltage		DC: ≥ 0,1 U _n	
Operating range of supply voltage		see Tables 1, 2	
Rated power consumption	DC	0,8 W standard version	0,5 W sensitive version

Insulation according to PN-EN 60664-1

Insulation rated voltage		400 V AC
Dielectric strength		
• between coil and contacts	4 000 V AC	type of insulation: reinforced
• contact clearance	1 000 V AC	type of clearance: micro-disconnection
• pole - pole	2 500 V AC	type of insulation: basic
Contact - coil distance		
• clearance	≥ 8 mm	
• creepage	≥ 8 mm	

General data

Operating / release time (typical values)		7 ms / 2 ms
Electrical life		
• resistive AC1		> 2 x 10 ⁵ 8 A, 250 V AC
• cos φ		see Fig. 2
Mechanical life (cycles)		> 3 x 10 ⁷
Motor load according to UL 508		1/8 HP 120 V AC, single-phase motor
Dimensions (L x W x H)		IP 40: 28 x 12,5 x 26 mm IP 67: 28 x 12,5 x 26,5 mm
Weight		20 g
Ambient temperature	• storage	-40...+85 °C
	• operating	-40...+70 °C
Cover protection category		IP 40 or IP 67 PN-EN 60529
Shock resistance		20 g
Vibration resistance	(2 NO/2 NC)	10 g / 5 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

❶ Special version available: relays in transparent cover - see "Ordering codes".

Coil data - standard DC voltage version

Table 1

Coil code	Rated voltage V DC	Coil resistance $\pm 10\%$ at 20 °C Ω	Coil operating range at 20 °C V DC	
			min.	max.
1006	6	47	3,9	8,5
1012	12	170	7,9	16,2
1024	24	740	16,8	33,6
1036	36	1 350	22,0	45,5
1048	48	3 200	34,0	70,0
1060	60	5 000	42,0	87,0
1096	96	10 000	61,0	125,0
1110	110	13 000	77,0	140,0

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

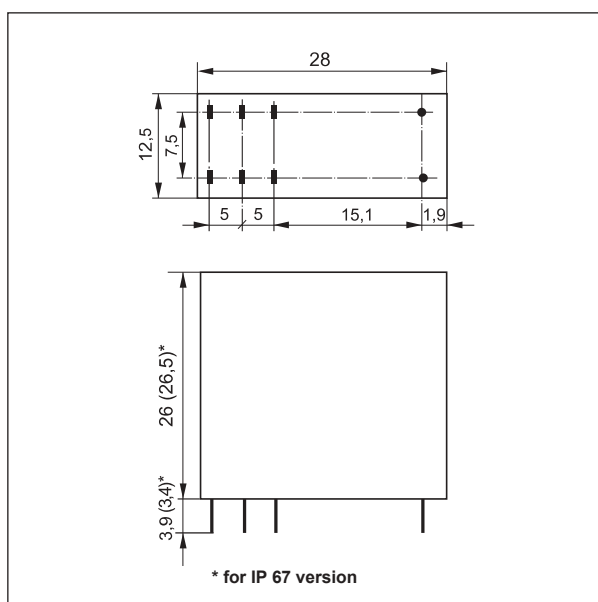
Coil data - sensitive DC voltage version

Table 2

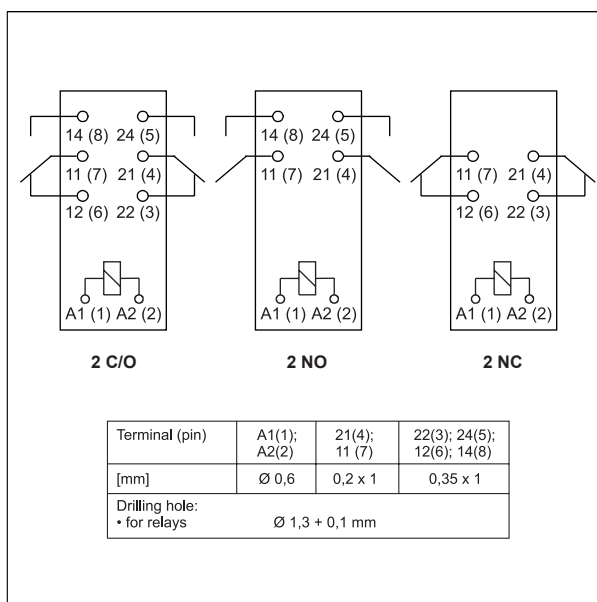
Coil code	Rated voltage V DC	Coil resistance $\pm 10\%$ at 20 °C Ω	Coil operating range at 20 °C V DC	
			min.	max.
S005	5	47	3,5	8,5
S006	6	70	4,4	10,3
S012	12	270	8,8	20,3
S024	24	1 100	17,5	41,0
S036	36	2 000	24,0	55,0
S048	48	4 400	35,0	82,0
S060	60	6 500	44,0	100,0
S110	110	20 000	88,0	188,0

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

Dimensions



Connection diagrams (pin side view)

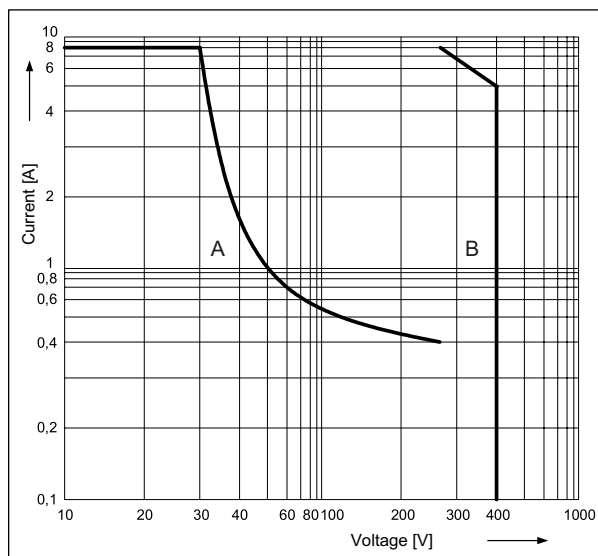


Mounting

Relays **RM94** are designed for: • direct PCB mounting • plug-in sockets for PCB mounting **EC50** with clip **MP25-2**, MH25-2, GD-0025, RM81-0001; plug-in sockets **PW80** with clip **MH25-2**, GD-0025, RM81-0001; plug-in sockets **GD50** with clip **MP25-2**, GD-0025, MH25-2, RM81-0001.

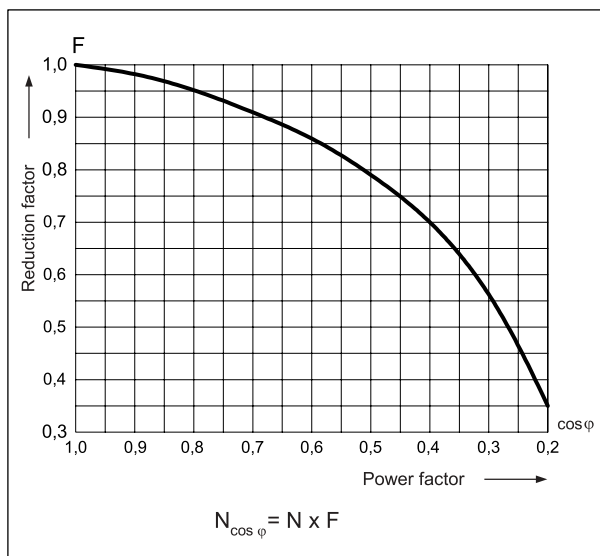
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1

Fig. 1



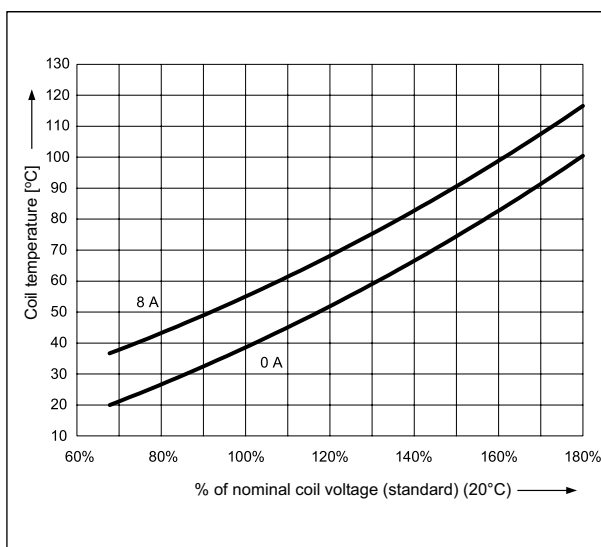
Electrical life reduction factor
at AC inductive load

Fig. 2



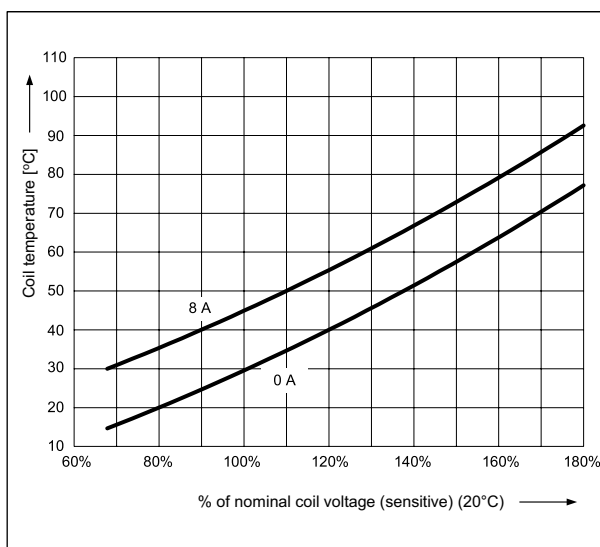
Coil temperature rise - standard version

Fig. 3



Coil temperature rise - sensitive version

Fig. 4



Pinout (solder side view)

