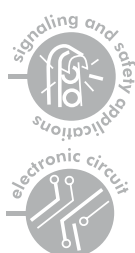


2013 - 2014



The leading position

of the manufacturer of electromagnetic relays in Europe

provides for Relpol's presence
in markets worldwide.



Commercial Partnerships of Relpol S.A.

RELPOL M Minsk / Belarus

RELPOL ELTIM Sankt-Petersburg / Russia

RELPOL ALTERA Kiev / Ukraine

Awards, certifications

2003 year

- **Europroduct 2003** for the narrow-profile line of relays PI6 and digital protection system CZIP
- **Elektroproduct 2003** for relays R2, R3, R4 and sockets GZT2, GZT3, GZT4 for the relays

2004 year

- **Gold Medal of Automaticon Trade Show 2004** for interface relays PI6
- **The Cup of the Minister of Economy and Labor** for the CZIP system, at the **Energetab Trade Show 2004**

2006 year

- Prize at the **Energetab Trade Show 2006** for programmable relays NEED
- **The Product of the Year** for the line of relays T-R4

2007 year

- **Gold Medal of Automaticon Trade Show 2007** for programmable relays NEED
- **The Product of the Year** for programmable relays NEED

2008 year

- **Gold Medal of Automaticon Trade Show 2008** for time relays PIR6WT-1Z

2010 year

- **Elektroproduct 2009**, award in Automation Category for programmable relays NEED
- **The Polish Promotion Emblem "Poland Now"** - prize in the Best Product Category, for the systems of stationary radioactive and nuclear radiation monitors SMP GreenLine
- **Bronze Medal of Energetab Trade Show 2010** for system SMP GreenLine

2013 year

- **Elektroproduct 2012**, award in Automation Category for time relays MT-T



Innovative features of our technological solutions and reliability of our products are confirmed by numerous recognitions and certifications BBJ, VDE, UL, CSA, GOST, LR, CCCs, AUCOTEAM GmbH, RoHS and by prizes and awards.





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❶ RM85 for switching higher voltages
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Relay mounting options

Type of relay	Method of mounting					
	For PCB mounting		On panel mounting	35 mm rail mount acc. to PN-EN 60715	Cover with mounting flange - on panel mounting	Flat insert connectors - faston
Subminiature signal relays						
RSM822	direct	—	—	—	—	—
RSM954	direct	—	—	—	—	—
RSM957	direct	—	—	—	—	—
Miniature relays						
RM40	direct	—	—	—	—	—
RM50	direct	—	—	—	—	—
RM699BV, RSR30 ❶	direct	—	—	with socket	—	—
RM699BH	direct	—	—	—	—	—
RM84	direct	with socket	with socket	with socket	—	—
RM84 SMT	direct	—	—	—	—	—
RMB841	direct	with socket	with socket	with socket	—	—
RM85	direct	with socket	with socket	with socket	—	—
RM85 ❷	direct	—	—	—	—	—
RM85 inrush	direct	with socket	with socket	with socket	—	—
RM85 105 °C sensitive	direct	with socket	with socket	with socket	—	—
RM85 SMT	direct	—	—	—	—	—
RM85 faston	direct	—	—	—	—	6,3 x 0,8 mm
RMB851	direct	with socket	with socket	with socket	—	—
RM87N	direct	with socket	with socket	with socket	—	—
RM87N sensitive	direct	with socket	with socket	with socket	—	—
RM87L	direct	with socket	with socket	with socket	—	—
RM87L sensitive	direct	with socket	with socket	with socket	—	—
RM87P	direct	with socket	with socket	with socket	—	—
RM87P sensitive	direct	with socket	with socket	with socket	—	—
RM87N SMT	direct	—	—	—	—	—
RM96 1 CO	direct	—	with socket	with socket	—	—
RM96 1 NO, 1 NC	direct	—	—	—	—	—
RM83	direct	with socket	—	—	—	—
RM92	direct	with socket	—	—	—	—
RM94	direct	with socket	—	—	—	—
RA2 ❸	direct	—	—	—	—	—
Miniature industrial relays						
R2	direct	with socket	with socket	with socket	—	—
R3	—	—	with socket	with socket	—	—
R4	direct	with socket	with socket	with socket	—	—
RY2	—	—	with socket	with socket	on request	4,8 x 0,5 mm
R2M	direct	with socket	with socket	with socket	—	—

❶ Solid state relay types **RSR30** - see catalogue "Solid state relays" and www.relpol.com.pl ❷ **RM85** for switching higher voltages

❸ **RA2** - automotive relays

Relay mounting options

Type of relay	Method of mounting				
	For PCB mounting	On panel mounting	35 mm rail mount acc. to PN-EN 60715	Cover with mounting flange - on panel mounting	Flat insert connectors - faston
Industrial relays of small dimensions					
R15 - 2 CO	direct	with socket	with socket	—	—
R15 - 3 CO	direct	with socket	with socket	—	—
R15 - 4 CO	—	with socket ④	with socket	—	—
RUC faston 4,8x0,5	direct	with socket ⑤ direct	with socket ⑤ direct ⑥	on request	4,8 x 0,5 mm
RUC faston 6,3x0,8	—	direct	direct ⑥	on request	6,3 x 0,8 mm
RUC-M	direct	with socket ⑤ direct	with socket ⑤ direct ⑥	on request	4,8 x 0,5 mm
RG25	—	—	direct	—	—
R20	—	direct	—	standard	6,3 x 0,8 mm
R30	direct	—	—	—	—
RS35, RS50	direct	—	—	—	—
Interface relays					
PI84 with socket GZT80	—	direct	direct	—	—
PI85 with socket GZT80	—	direct	direct	—	—
PI84 with socket GZM80	—	direct	direct	—	—
PI85 with socket GZM80	—	direct	direct	—	—
PIR2 with socket GZM2	—	direct	direct	—	—
PIR3 with socket GZM3	—	direct	direct	—	—
PIR4 with socket GZM4	—	direct	direct	—	—
PIR2M with socket GZ2	—	direct	direct	—	—
PI6-1P	—	—	direct	—	—
PI6-1T	—	—	direct	—	—
PIR6W-1P-...	—	—	direct	—	—
PIR6W-1PS-...-⑦	—	—	direct	—	—
PIR6WB-1PS-...-⑦	—	—	direct	—	—
Installation relays					
MT-PI-...	—	—	direct	—	—
Time relays					
MT-TUA-...	—	—	direct	—	—
MT-TUB-...	—	—	direct	—	—
MT-T-...	—	—	direct	—	—
MT-TSD-...	—	—	direct	—	—
TR4N 4 CO	—	—	direct	—	—
TR4N 1 CO, 2 CO	—	—	direct	—	—
T-R4	—	with socket	with socket	—	—
PIR15...T ⑧	—	direct	direct	—	—

④ Available socket to be mounted behind the assembly panel - **GZ14Z**. ⑤ For RUC faston 4,8 x 0,5 and RUC-M, with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC / DC. ⑥ Version with adaptor (V) or (H). ⑦ R - operational electromagnetic relay type **RM699BV** in PIR6W-1PS-...-R. **TIC/O** - operational solid state relay type **RSR30** in PIR6W-1PS-...-T (or C or O) - see catalogue "Solid state relays" and www.relpol.com.pl
 ⑧ With time module T(COM3)

Relay selection table

Mounting options	Coil	Type of relay	Number and type of contacts									
			CO - changeover NO - normally open NC - normally closed									
direct PCB mounting with plug-in socket PCB mounting panel mounting 35 mm rail mount acc. to PN-EN 60715 Others	AC DC AC/DC		1 CO	1 NO	1 NC	2 CO	2 NO	2 NC	3 CO	3 NO	4 CO	Others
Subminiature signal relays												
		RSM822										
		RSM954										
		RSM957										
Miniature relays												
		RM40										
		RM50										
		RM699B										
		RM84										
		RM84 SMT										
		RMB841										
		RM85										
		RM85 ❶										
		RM85 inrush										
		RM85 105 °C sensitive										
		RM85 SMT										
		RM85 faston										
		RMB851										
		RM87										
		RM87 sensitive										
		RM87N SMT										
		RM96										
		RM83										
		RM92										
		RM94										
		RA2 ❷										
Miniature industrial relays												
		R2										
		R3										
		R4										
		RY2										
		R2M										

❶ RM85 for switching higher voltages

❷ RA2 - automotive relays

How to use the table:

Select the number and type of contacts, please. Then, select a relay depending on its rated current, type of terminals and coil voltage.

Relay selection table

Type of relay	Rated current					

❶ RM85 for switching higher voltages

❷ RA2 - automotive relays

The ordering code structure provides for formulation of **numerous variants**. Not all of them are defined as standard ones and, thus, not all of them are included in the product line. However, **deliveries of special versions according to the customer's specification are possible**. Please, contact with Relpol S.A. or our local representatives for details. The data of the devices may be changed with no prior notice.

Relay selection table

Mounting options		Coil	Type of relay	Number and type of contacts									
direct PCB mounting with plug-in socket PCB mounting panel mounting 35 mm rail mount acc. to PN-EN 60715 Others	AC DC AC/DC			CO - changeover NO - normally open NC - normally closed									
				1 CO	1 NO	1 NC	2 CO	2 NO	2 NC	3 CO	3 NO	4 CO	Others
Industrial relays of small dimensions													
			R15 - 2 CO										
			R15 - 3 CO										
			R15 - 4 CO										
			RUC										
			RUC-M										
			RG25										
			R20										
			R30										
			RS35, RS50										
Interface relays													
			PI84 with socket GZT80										
			PI85 with socket GZT80										
			PI84 with socket GZM80										
			PI85 with socket GZM80										
			PIR2 with socket GZM2										
			PIR3 with socket GZM3										
			PIR4 with socket GZM4										
			PIR2M with socket GZ2										
			PI6-1P										
			PI6-1T										
			PIR6W-1P-...										
			PIR6W-1PS-...-❶										
			PIR6WB-1PS-...-❶										
Installation relays													
			MT-PI-...										
Time relays													
			MT-TUA-...										
			MT-TUB-...										
			MT-T-...										
			MT-TSD-...										
			TR4N 4 CO										
			TR4N 1 CO, 2 CO										
			T-R4										
			PIR15...T with module T(COM3)										

❶ R - operational electromagnetic relay type **RM699BV** in PIR6W.-1PS-...-R.

T/C/O - operational solid state relay type **RSR30** in PIR6W.-1PS-...-T (or C or O) - see catalogue "Solid state relays" and www.relpol.com.pl

How to use the table:

Select the number and type of contacts, please. Then, select a relay depending on its rated current, type of terminals and coil voltage.

Relay selection table

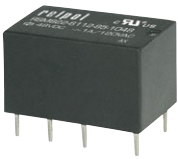
Type of relay	Rated current						
	[A]						
	0	5	10	15	20	25	30
Industrial relays of small dimensions							
R15 - 2 CO							
R15 - 3 CO							
R15 - 4 CO							
RUC							
RUC-M							
RG25							
R20	2 NO: 25 A						
R30	1 CO: 20 A / 10 A (NO/NC)						
RS35, RS50	RS35: 35 A, RS50: 48 A						
Interface relays							
PI84 with socket GZT80							
PI85 with socket GZT80							
PI84 with socket GZM80							
PI85 with socket GZM80							
PIR2 with socket GZM2							
PIR3 with socket GZM3							
PIR4 with socket GZM4							
PIR2M with socket GZ2							
PI6-1P	AgSnO ₂						
PI6-1T							
PIR6W-1P-...	AgSnO ₂						
PIR6W-1PS-...-①	T,C	O	R: AgSnO ₂				
PIR6WB-1PS-...-①	T,C	O	R: AgSnO ₂				
Installation relays							
MT-PI-...	2 CO, 2 NO: 8 A						
	1 CO, 1 NO: 16 A						
Time relays							
MT-TUA-...							
MT-TUB-...							
MT-T-...							
MT-TSD-...							
TR4N 4 CO							
TR4N 1 CO, 2 CO	2 CO: 8 A						
T-R4	1 CO: 16 A						
PIR15...T with module T(COM3)							

① R - operational electromagnetic relay type **RM699BV** in PIR6W.-1PS-...-R.

T/C/O - operational solid state relay type **RSR30** in PIR6W.-1PS-...-T (or C or O) - see catalogue "Solid state relays" and www.relpol.com.pl

The ordering code structure provides for formulation of **numerous variants**. Not all of them are defined as standard ones and, thus, not all of them are included in the product line. However, **deliveries of special versions according to the customer's specification are possible**. Please, contact with Relpol S.A. or our local representatives for details. The data of the devices may be changed with no prior notice.

Subminiature signal relays

RSM822	Subminiature relays - electromagnetic
 page 24	Contacts: 2 CO Rated load: AC1 - 1 A / 120 V AC; DC1 - 2 A / 24 V DC Coils: DC - 3 ... 24 V (sensitive), 48 V (standard) Mounting: for PCB
RSM954	Subminiature relays - electromagnetic
 page 27	Contacts: 1 CO Rated load: AC1 - 3 A / 120 V AC; DC1 - 3 A / 24 V DC Coils: DC - 3 ... 24 V Mounting: for PCB
RSM957	Subminiature relays - electromagnetic
 page 30	Contacts: 1 CO Rated load: AC1 - 2 A / 120 V AC; DC1 - 2 A / 24 V DC Coils: DC - 3 ... 24 V (sensitive) Mounting: for PCB

RM40	Miniature relays - electromagnetic
 str. 33	Contacts: 1 CO, 1 NO Rated load: 1 CO - AC1 - 5 A / 250 V AC; DC1 - 5 A / 30 V DC 1 NO - AC1 - 8 A / 250 V AC; DC1 - 8 A / 30 V DC Coils: DC - 3 ... 48 V Mounting: for PCB

Miniature relays

RM50  page 36	Miniature relays - electromagnetic Contacts: 1 CO, 1 NO Rated load: AC1 - 10 A / 240 V AC; DC1 - 15 A / 24 V DC Coils: DC - 3 ... 48 V Mounting: for PCB
RM699B  page 39	Miniature relays - electromagnetic Contacts: 1 CO Rated load: AC1 - 6 A / 250 V AC; DC1 - 6 A / 24 V DC Coils: DC - 5 ... 60 V Mounting: for PCB, for plug-in sockets Accessories: sockets - PI6W-1P (page 207)
RM84  page 43	Miniature relays - electromagnetic Contacts: 2 CO, 2 NO Rated load: AC1 - 8 A / 250 V AC; DC1 - 8 A / 24 V DC Coils: DC - 3 ... 110 V; AC - 12 ... 240 V Available special versions: with increased contact gap, in transparent cover Mounting: for PCB, for plug-in sockets Accessories: screw terminals sockets - GZT80, GZM80, GZS80; spring terminals sockets - GZMB80; sockets for PCB - EC 50, PW80, GD50 (pages 246-248); signalling / protecting modules type M... for sockets: GZT80, GZM80, GZS80, GZMB80
RM84 SMT  page 47	Miniature relays - electromagnetic Contacts: 2 CO, 2 NO Rated load: AC1 - 8 A / 250 V AC; DC1 - 8 A / 24 V DC Coils: DC - 3 ... 110 V; AC - 12 ... 240 V Mounting: for surface mounting SMT
RMB841  str. 51	Przełączniki miniaturowe - elektromagnetyczne; bistable with one coil Contacts: 2 NO Rated load: AC1 - 8 A / 250 V AC; DC1 - 8 A / 24 V DC Coils: DC - 3 ... 24 V Available special versions: in transparent cover Mounting: for PCB, for plug-in sockets Accessories: screw terminals sockets - GZT80, GZM80, GZS80; spring terminals sockets - GZMB80; sockets for PCB - EC 50, PW80, GD50 (pages 246-248)

Miniature relays

RM85	Miniature relays - electromagnetic
 page 54	Contacts: 1 CO, 1 NO Rated load: AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC Coils: DC - 3 ... 110 V; AC - 12 ... 240 V Available special versions: with increased contact gap, in transparent cover Mounting: for PCB, for plug-in sockets Accessories: screw terminals sockets - GZT80, GZM80, GZS80; spring terminals sockets - GZMB80; sockets for PCB - EC 50, PW80, GD50 (pages 246-248); signalling / protecting modules type M... for sockets: GZT80, GZM80, GZS80, GZMB80
RM85 special version	Miniature relays - electromagnetic, for switching higher voltages - up to 480 V AC
 page 58	Contacts: 1 NO Rated load: AC1 - 5 A / 480 V AC; DC1 - 16 A / 24 V DC Coils: DC - 3 ... 110 V Mounting: for PCB
RM85 inrush	Miniature relays - electromagnetic
 page 61	Contacts: 1 NO Rated load: AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC Coils: DC - 3 ... 110 V Mounting: for PCB, for plug-in sockets Accessories: screw terminals sockets - GZT80, GZM80, GZS80; spring terminals sockets - GZMB80; sockets for PCB - EC 50, PW80, GD50 (pages 246-248); signalling / protecting modules type M... for sockets: GZT80, GZM80, GZS80, GZMB80
RM85 105 °C sensitive	Miniature relays - electromagnetic, ambient temperature up to 105 °C
 page 65	Contacts: 1 NO Rated load: AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC Coils: DC - 5 ... 48 V (sensitive) Mounting: for PCB, for plug-in sockets Accessories: screw terminals sockets - GZT80, GZM80, GZS80; spring terminals sockets - GZMB80; sockets for PCB - EC 50, PW80, GD50 (pages 246-248); signalling / protecting modules type M... for sockets: GZT80, GZM80, GZS80, GZMB80
RM85 SMT	Miniature relays - electromagnetic
 page 69	Contacts: 1 CO, 1 NO Rated load: AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC Coils: DC - 3 ... 110 V; AC - 12 ... 240 V Mounting: for surface mounting SMT

Miniature relays

RM85 faston	Miniature relays - electromagnetic
 page 73	Contacts: 1 NO Rated load: AC1 - 20 A / 250 V AC; DC1 - 20 A / 24 V DC Coils: DC - 5 ... 48 V (sensitive) Mounting: for PCB, for flat insert connectors - faston 250 (6,3 x 0,8 mm)
RMB851	Przełączniki miniaturowe - elektromagnetyczne; bistable with one coil
 str. 76	Contacts: 1 NO Rated load: AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC Coils: DC - 3 ... 24 V Available special versions: in transparent cover Mounting: for PCB, for plug-in sockets Accessories: screw terminals sockets - GZT80, GZM80, GZS80; spring terminals sockets - GZMB80; sockets for PCB - EC 50, PW80, GD50 (pages 246-248)
RM87	Miniature relays - electromagnetic
 page 79	Contacts: 1 CO, 1 NO Rated load: AC1 - 12 A / 250 V AC; DC1 - 12 A / 24 V DC Coils: DC - 3 ... 110 V; AC - 12 ... 240 V Available special versions: with increased contact gap, in transparent cover Mounting: for PCB, for plug-in sockets Accessories: screw terminals sockets - GZT80, GZM80, GZS80, GZT92, GZM92, GZS92; spring terminals sockets - GZMB80; sockets for PCB - EC 50, PW80, GD50, EC 35, GD35 (pages 246-249); signalling / protecting modules type M... for sockets: GZT80, GZM80, GZS80, GZT92, GZM92, GZS92, GZMB80
RM87 sensitive	Miniature relays - electromagnetic
 page 79	Contacts: 1 NO Rated load: AC1 - 10 A / 250 V AC; DC1 - 10 A / 24 V DC Coils: DC - 5 ... 48 V (sensitive) Mounting: for PCB, for plug-in sockets Accessories: screw terminals sockets - GZT80, GZM80, GZS80, GZT92, GZM92, GZS92; spring terminals sockets - GZMB80; sockets for PCB - EC 50, PW80, GD50, EC 35, GD35 (pages 246-249); signalling / protecting modules type M... for sockets: GZT80, GZM80, GZS80, GZT92, GZM92, GZS92, GZMB80
RM87N SMT	Miniature relays - electromagnetic
 page 85	Contacts: 1 CO, 1 NO Rated load: AC1 - 12 A / 250 V AC; DC1 - 12 A / 24 V DC Coils: DC - 3 ... 110 V; AC - 12 ... 240 V Mounting: for surface mounting SMT

Miniature relays

RM96  page 89	Miniature relays - electromagnetic Contacts: 1 CO, 1 NO, 1 NC Rated load: AC1 - 8 A / 250 V AC; DC1 - 8 A / 24 V DC Coils: DC - 5 ... 48 V Mounting: 1 CO - for PCB, for plug-in sockets 1 NO, 1 NC - for PCB Accessories: screw terminals sockets - ES 32 (page 249); signalling / protecting modules type M... for sockets ES 32
RM83  page 93	Miniature relays - electromagnetic Contacts: 1 CO, 1 NO, 1 NC Rated load: AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC Coils: DC - 5 ... 110 V (standard), 110 V (sensitive) Available special versions: in transparent cover Mounting: for PCB, for plug-in sockets Accessories: sockets for PCB - EC 50, PW80, GD50 (pages 247-248)
RM92  page 97	Miniature relays - electromagnetic Contacts: 1 CO, 1 NO, 1 NC Rated load: AC1 - 8 A / 250 V AC; DC1 - 8 A / 24 V DC Coils: DC - 6 ... 80 V (standard), 5 ... 60 V (sensitive) Available special versions: in transparent cover Mounting: for PCB, for plug-in sockets Accessories: sockets for PCB - EC 35, GD35 (page 249)
RM94  page 101	Miniature relays - electromagnetic Contacts: 2 CO, 2 NO, 2 NC Rated load: AC1 - 8 A / 250 V AC; DC1 - 8 A / 24 V DC Coils: DC - 6 ... 110 V (standard), 5 ... 110 V (sensitive) Available special versions: in transparent cover Mounting: for PCB, for plug-in sockets Accessories: sockets for PCB - EC 50, PW80, GD50 (pages 247-248)
RA2  page 105	Miniature relays - automotive relays Contacts: 1 CO, 1 NO, 2 NO Rated current: 1 CO (NO/NC) - 20 A / 12 A; 1 NO - 20 A; 2 NO - 2 x 12,5 A Coils: DC - 5 ... 48 V Mounting: for PCB

R2 - contacts 2 CO



page 109

Industrial relays - electromagnetic

Contacts: 2 CO, 3 CO, 4 CO

Rated load:

2 CO - **AC1 - 12 A / 250 V AC; DC1 - 12 A / 24 V DC**

3 CO - **AC1 - 10 A / 250 V AC; DC1 - 10 A / 24 V DC**

4 CO - **AC1 - 6 A / 250 V AC; DC1 - 6 A / 24 V DC**

Coils: DC - 5 ... 220 V; AC - 6 ... 240 V

Additional features:

standard - mechanical indicator (W), lockable front test button (T)

option - light indicator - LED diode (L), surge suppression element - diode (D)

Mounting:

R2, R4 - for plug-in sockets, for PCB

R3 - for plug-in sockets

Accessories:

R2 - screw terminals sockets - GZT2, GZM2;

spring terminals sockets - GZMB2;

sockets for PCB - SU4/2D;

solder terminals sockets - SU4/2L, G4/2 (**pages 250-251**);

R3 - screw terminals sockets - GZT3, GZM3 (**pages 251-252**);

R4 - screw terminals sockets - GZT4, GZM4, GZ4, GS4;

spring terminals sockets - GZMB4;

sockets for PCB - SU4D;

solder terminals sockets - SU4L, G4 (**pages 252-254**);

signalling / protecting modules type M... for sockets:

GZT2, GZM2, GZMB2, GZT3, GZM3, GZT4, GZM4, GZMB4

R3 - contacts 3 CO



page 114

R4 - contacts 4 CO



page 118

RY2



page 123

Industrial relays - electromagnetic

Contacts: 2 CO

Rated load: **AC1 - 12 A / 250 V AC; DC1 - 12 A / 30 V DC**

Coils: DC - 5 ... 220 V; AC - 6 ... 240 V

Additional features: option - light indicator - LED diode (L),

surge suppression element - diode (D)

Mounting: for plug-in sockets, for flat insert connectors - faston 187 (4,8 x 0,5 mm)

- direct on panel (cover with mounting flange)

Accessories: screw terminals sockets - GZY2G (**page 255**)

R2M



page 127

Industrial relays - electromagnetic

Contacts: 2 CO

Rated load: **AC1 - 5 A / 250 V AC; DC1 - 5 A / 24 V DC**

Coils: DC - 6 ... 110 V; AC - 6 ... 240 V

Mounting: for plug-in sockets, for PCB

Accessories: screw terminals sockets - GZ2; sockets for PCB - S2M;

solder terminals sockets - G2M (**page 255**)

R15 - contacts 2 CO



page 131

Industrial relays - electromagnetic

Contacts: 2 CO, 3 CO, 4 CO

Rated load: **AC1 - 10 A / 250 V AC; DC1 - 10 A / 24 V DC**

Coils: DC - 6 ... 220 V; AC - 6 ... 240 V; DC - 0,1 ... 2,5 A; AC - 0,1 ... 4,5 A

Additional features:

R15 - 2 CO, 3 CO standard - mechanical indicator (W), lockable front test button (T)

R15 - 2 CO, 3 CO option - light indicator - LED diode (L),

surge suppression element - diode (D), varistor (V)

R15 - 4 CO option - test button without block functions (K),

light indicator - LED diode (L), surge suppression element - diode (D)

Mounting: for plug-in sockets

Accessories:

R15 - 2 CO - screw terminals sockets, for mounting: on 35 mm rail mount or on panel - PZ8, GZS8, GZP8; on 35 mm rail mount - GZU8; on panel - GZ8;

solder terminals sockets - GOP8 (pages 256-257)

R15 - 3 CO - screw terminals sockets, for mounting: on 35 mm rail mount or on panel - PS11, PZ11, GZS11, GZP11; on 35 mm rail mount - GZU11; on panel - GZ11;

solder terminals sockets - GOP11 (pages 257-259)

R15 - 4 CO - screw terminals sockets, for mounting: on 35 mm rail mount - GZ14U; on panel - GZ14; on panel, behind: GZ14Z;

solder terminals sockets - GOP14 (pages 259-260)

R15 - contacts 3 CO



page 131

R15 - contacts 4 CO



page 135

RUC faston 4,8 x 0,5



page 139

Industrial relays - electromagnetic

Contacts: 2 CO, 3 CO, 2 NO, 3 NO

(available special versions 2 NO, 3 NO with contact gap ≥ 3 mm)

Rated load: **AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC**

Coils: DC - 6 ... 220 V (standard), 12 ... 220 V (reinforced); AC - 6 ... 400 V

Additional features: option - test button without block functions (K),

light indicator - LED diode (L)

Mounting:

RUC faston 4,8 x 0,5 - for plug-in sockets, direct on panel (cover with mounting flange), direct on 35 mm rail mount (cover with adaptors: vertical V, horizontal H)

RUC faston 6,3 x 0,8 - direct on panel (cover with mounting flange),

direct on 35 mm rail mount (cover with adaptors: vertical V, horizontal H)

RUC - for PCB

Accessories: screw terminals sockets - GUC11 (page 260)

RUC faston 6,3 x 0,8



page 139

RUC-M faston 4,8 x 0,5  page 144	Industrial relays - electromagnetic; with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC loads Contacts: 1 NO (double-break), 2 NO Rated load: AC1 - 16 A / 250 V AC; DC1 - 12 A (1 NO); 4,5 A (2 NO) / 220 V DC Coils: DC - 12 ... 220 V (reinforced); AC - 12 ... 240 V Additional features: option - light indicator - LED diode (L) Mounting: for plug-in sockets, direct on panel (cover with mounting flange), direct on 35 mm rail mount (cover with adaptors: vertical V, horizontal H), for PCB Accessories: screw terminals sockets - GUC11 (page 260)
RG25  page 148	Industrial relays - electromagnetic Contacts: 2 NO Rated load: AC1 - 25 A / 400 V AC; DC1 - 25 A / 24 V DC Coils: DC - 12 ... 220 V; AC - 12 ... 400 V Mounting: direct on 35 mm rail mount
R20  page 152	Industrial relays - electromagnetic Contacts: 1 NO, 2 NO Rated load: 1 NO - AC1 - 30 A / 250 V AC 2 NO - AC1 - 25 A / 250 V AC Coils: DC - 12 ... 110 V; AC - 24 ... 230 V Mounting: for flat insert connectors - faston 250 (6,3 x 0,8 mm) - direct on panel (cover with mounting flange)
R30  page 155	Industrial relays - electromagnetic Contacts: 1 CO, 1 NO Rated load: 1 CO (NO/NC) - AC1 - 20 A / 10 A / 240 V AC; DC1 - 20 A / 10 A / 30 V DC 1 NO - AC1 - 30 A / 240 V AC; DC1 - 30 A / 30 V DC Coils: DC - 12 ... 24 V Mounting: for PCB
RS35, RS50  page 158	Industrial relays - electromagnetic; to control power in photovoltaic systems which generate electric energy Contacts: 2 NO Rated load: RS35 - AC1 - 35 A / 250 V AC; DC1 - 35 A / 24 V DC RS50 - AC1 - 48 A / 250 V AC; DC1 - 48 A / 24 V DC Coils: DC - 5 ... 110 V Mounting: for PCB

PI84 - GZT80

Interface relays; with plug-in socket GZT80



page 162

Contacts: 2 CO

Rated load: **AC1 - 8 A / 250 V AC; DC1 - 8 A / 24 V DC**

Coils: DC - 12 ... 110 V; AC - 12 ... 230 V

Set: electromagnetic relay RM84, plug-in socket GZT80, module type M..., clip GZT80-0040, description plate GZT80-0035

Mounting: direct on 35 mm rail mount or on panel

Accessories: interconnection strip ZGGZ80

PI85 - GZT80

Interface relays; with plug-in socket GZT80



page 166

Contacts: 1 CO

Rated load: **AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC**

Coils: DC - 12 ... 110 V; AC - 12 ... 230 V

Set: electromagnetic relay RM85, plug-in socket GZT80, module type M..., clip GZT80-0040, description plate GZT80-0035

Mounting: direct on 35 mm rail mount or on panel

Accessories: interconnection strip ZGGZ80

PI84 - GZM80

Interface relays; with plug-in socket GZM80



page 170

Contacts: 2 CO

Rated load: **AC1 - 8 A / 250 V AC; DC1 - 8 A / 24 V DC**

Coils: DC - 12 ... 110 V; AC - 12 ... 230 V

Set: electromagnetic relay RM84, plug-in socket GZM80, module type M..., clip GZT80-0040, description plate GZT80-0035

Mounting: direct on 35 mm rail mount or on panel

Accessories: interconnection strip ZGGZ80

PI85 - GZM80

Interface relays; with plug-in socket GZM80



page 174

Contacts: 1 CO

Rated load: **AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC**

Coils: DC - 12 ... 110 V; AC - 12 ... 230 V

Set: electromagnetic relay RM85, plug-in socket GZM80, module type M..., clip GZT80-0040, description plate GZT80-0035

Mounting: direct on 35 mm rail mount or on panel

Accessories: interconnection strip ZGGZ80

PIR2 - GZM2	Interface relays; with plug-in socket GZM2
 page 178	Contacts: 2 CO Rated load: AC1 - 12 A / 250 V AC; DC1 - 12 A / 24 V DC Coils: DC - 12 ... 110 V; AC - 12 ... 230 V Set: electromagnetic relay R2, plug-in socket GZM2, module type M..., clip GZT4-0040, description plate GZT4-0035 Mounting: direct on 35 mm rail mount or on panel Accessories: interconnection strip ZGGZ4
PIR3 - GZM3	Interface relays; with plug-in socket GZM3
 page 182	Contacts: 3 CO Rated load: AC1 - 10 A / 250 V AC; DC1 - 10 A / 24 V DC Coils: DC - 12 ... 110 V; AC - 12 ... 230 V Set: electromagnetic relay R3, plug-in socket GZM3, module type M..., clip GZT4-0040, description plate GZT4-0035 Mounting: direct on 35 mm rail mount or on panel Accessories: interconnection strip ZGGZ4
PIR4 - GZM4	Interface relays; with plug-in socket GZM4
 page 186	Contacts: 4 CO Rated load: AC1 - 6 A / 250 V AC; DC1 - 6 A / 24 V DC Coils: DC - 12 ... 110 V; AC - 12 ... 230 V Set: electromagnetic relay R4, plug-in socket GZM4, module type M..., clip GZT4-0040, description plate GZT4-0035 Mounting: direct on 35 mm rail mount or on panel Accessories: interconnection strip ZGGZ4
PIR2M - GZ2	Interface relays; with plug-in socket GZ2
 page 190	Contacts: 2 CO Rated load: AC1 - 5 A / 250 V AC; DC1 - 5 A / 24 V DC Coils: DC - 6 ... 110 V; AC - 6 ... 230 V Set: electromagnetic relay R2M, plug-in socket GZ2, clip GZ2 1060, two spring clamps GZ2 1111 Mounting: direct on 35 mm rail mount or on panel

PI6-1P  page 193	Interface relays Output circuit - contacts: 1 CO (AgSnO₂) Rated load: AC1 - 6 A / 250 V AC; DC1 - 6 A / 24 V DC Input circuit: DC - 12 ... 36 V; AC/DC - 24 ... 230 V Indicator: LED diode Mounting: direct on 35 mm rail mount Accessories: interconnection strip ZG20
PI6-1T  page 195	Interface relays Output circuit - triac: 1 NO Rated load: AC1 - 1,2 A / 400 V AC Input circuit: DC - 5..32 V; AC/DC - 24 ... 230 V Indicator: LED diode Mounting: direct on 35 mm rail mount Accessories: interconnection strip ZG20
PIR6W-1P  page 197	Interface relays; with socket PI6W-1P -... Output circuit - contacts: 1 CO (RM699BV - AgSnO₂) Rated load: AC1 - 6 A / 250 V AC; DC1 - 6 A / 24 V DC Input circuit: DC - 12 ... 36 V; AC/DC - 24 ... 230 V Indicator: LED diode Mounting: direct on 35 mm rail mount Accessories: interconnection strip ZG20
PIR6W-1PS  page 200	Interface relays; with universal socket PI6W-1PS -... Output circuit - contacts: 1 CO (RM699BV - AgSnO₂); triac, transistor: 1 NO (RSR30) Rated load: 1 CO - AC1 - 6 A / 250 V AC; DC1 - 6 A / 24 V DC 1 NO (triac) - AC1 - 1 A / 240 V AC; 1 NO (transistors) - DC1 - 1 A / 48 V DC, 2 A / 24 V DC Input circuit: DC - 6 ... 60 V; AC/DC - 24 ... 230 V Indicator: LED diode Mounting: direct on 35 mm rail mount Accessories: interconnection strip ZG20
PIR6WB-1PS CAGE CLAMP®  page 203	Interface relays; with universal socket PI6WB-1PS -...; spring terminals Output circuit - contacts: 1 CO (RM699BV - AgSnO₂); triac, transistor: 1 NO (RSR30) Rated load: 1 CO - AC1 - 6 A / 250 V AC; DC1 - 6 A / 24 V DC 1 NO (triac) - AC1 - 1 A / 240 V AC; 1 NO (transistors) - DC1 - 1 A / 48 V DC, 2 A / 24 V DC Input circuit: DC - 6 ... 60 V; AC/DC - 24 ... 230 V Indicator: LED diode Mounting: direct on 35 mm rail mount Accessories: interconnection strip ZG20

MT-PI	Installation relays; modular cover
 page 209	Contacts: 1 CO, 2 CO, 1 NO, 2 NO Rated load: 1 CO, 1 NO - AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC 2 CO, 2 NO - AC1 - 8 A / 250 V AC; DC1 - 8 A / 24 V DC Coils: 1 CO, 2 CO - DC - 12 ... 48 V; AC - 115 ... 230 V 1 NO, 2 NO - AC - 230 V; AC/DC - 12 ... 115 V Indicator: LED diode Mounting: direct on 35 mm rail mount
MT-TUA	Time relays; modular cover
 page 213	Multifunctions - 10 time functions (E, Wu, Bp, Bi, T, R, Ws, Wa, Esa, B) + function ON / OFF; 8 time ranges - setting time T Output circuit - contacts: 1 CO Rated load: AC1 - 10 A / 250 V AC; DC1 - 10 A / 24 V DC Input circuit: AC/DC - 12...240 V; external control contact Indicator: LEDs diode Mounting: direct on 35 mm rail mount
MT-TUB	Time relays; modular cover
 page 217	Multifunctions - 10 time functions (E, Wu, Bp, Bi, Ra, Esf, Wi, Wst, Est, Esp) + function ON / OFF; 8 time ranges - setting time T Output circuit - contacts: 1 CO Rated load: AC1 - 10 A / 250 V AC; DC1 - 10 A / 24 V DC Input circuit: AC/DC - 12...240 V; external control contact Indicator: LEDs diode Mounting: direct on 35 mm rail mount
MT-T..	Time relays; modular cover
 page 221	Single-functions - 7 versions (time functions: ER, EWa, EWs, EWu + NWu, li + lp, WsWa, Wt); 7 time ranges - independent setting times T1 and T2 Output circuit - contacts: 1 CO Rated load: AC1 - 10 A / 250 V AC; DC1 - 10 A / 24 V DC Input circuit: AC/DC - 12...240 V; external control contact Indicator: LEDs diode Mounting: direct on 35 mm rail mount
MT-TSD	Time relays; modular cover
 page 225	Star-Delta start-up 7 time ranges - setting time T1: 0,05 s ... 1 h; time T2: 0,05 s ... 1 s Output circuit - contacts: 2 x 1 CO Rated load: AC1 - 10 A / 250 V AC; DC1 - 10 A / 24 V DC Input circuit: AC/DC - 12...240 V Indicator: LEDs diode Mounting: direct on 35 mm rail mount

Time relays

TR4N - 4 CO	Time relays; compact cover
 page 228	Multifunctions - 10 time functions (E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B) + function ON / OFF; 8 time ranges - setting time T Output circuit - contacts: 4 CO Rated load: AC1 - 6 A / 250 V AC; DC1 - 6 A / 24 V DC Input circuit: AC - 115 ... 230 V; AC/DC - 12 ... 24 V; external control contact Indicator: LEDs diode Mounting: direct on 35 mm rail mount
TR4N - 1 CO, 2 CO	Time relays; compact cover
 page 232	Multifunctions - 10 time functions (E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B) + function ON / OFF; 8 time ranges - setting time T Output circuit - contacts: 1 CO, 2 CO Rated load: 1 CO - AC1 - 16 A / 250 V AC; DC1 - 16 A / 24 V DC 2 CO - AC1 - 8 A / 250 V AC; DC1 - 8 A / 24 V DC Input circuit: AC - 115 ... 230 V; AC/DC - 12 ... 24 V; external control contact Indicator: LEDs diode Mounting: direct on 35 mm rail mount
T-R4 - GZM4	Time relays; with plug-in socket GZM4 or GZT4, GZMB4
 page 236	Single-functions - 4 versions (time functions: E, Wu, Bp, Bi) 7 time ranges - settings time T (0,1 s ... 100 h) Output circuit - contacts: 4 CO Rated load: AC1 - 6 A / 230 V AC Input circuit: DC - 12 ... 24 V; AC - 24 ... 230 V Indicator: LEDs diode; Mounting: for plug-in sockets Accessories: screw terminals sockets, for mounting on 35 mm rail mount or on panel - GZM4, GZT4; spring terminals sockets, for mounting on 35 mm rail mount - GZMB4
PIR15...T	Time relays; with time module T[COM3]
 page 240	Multifunctions - 8 time functions (E, Wu, Bp, Bi, R, Ws, Wa, Es) 8 time ranges - settings time T (0,1 s ... 10 d) Output circuit - contacts: 2 CO, 3 CO Rated load: AC1 - 10 A / 250 V AC; DC1 - 10 A / 24 V DC Input circuit: DC - 24 ... 220 V; AC - 24 ... 240 V; external control contact Set: electromagnetic relay R15 - 3 CO (2 CO), plug-in socket GZP11 (GZP8), time module T[COM3], clip GZP-0054, description plate GZP-0035 Indicator: LED diode; Mounting: direct on 35 mm rail mount or on panel

Subminiature signal relays

RSM822	24
RSM954	27
RSM957	30

Subminiature relays are applied in e.g. telecommunication devices, office equipment, alarm systems, measurement devices, medical monitoring devices, AV devices, control sensors.

Their major features which provide for their applications in electronic circuits as interface-control units are:

- miniature dimensions,
- high switching capacity,
- high resistance of the cover to difficult operating conditions,
- wide range of control voltages.

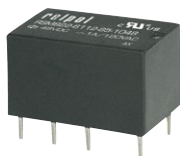
Space-saving of the electronic plates, low power consumption of the control circuits, a few applicable mounting technologies are only few of the advantages offered by the aforementioned features.

The relays are recognized and certified by: 

They meet the requirements of RoHS Directive.

RSM822

subminiature signal relays



- Subminiature monostable relays for switching low loads • **DC coils**
- **standard and sensitive of up to 48 V DC**, low coil power 0,20 W (sensitive version) or 0,36 W (standard version) • Mounting on printed circuit boards • Operation possible at high temperature and in chemical environment • Sealed, for wave soldering and cleaning • Applications: for telephone equipment, household equipment, office equipment, AV devices, control devices - remote control devices
- Recognitions, certifications, directives: RoHS, 

Contact data

Number and type of contacts		2 CO
Contact material		AgPd/Au 0,2 µm
Rated / max. switching voltage	AC	120 V / 120 V
Min. switching voltage		1 V
Rated load	AC1 DC1	1 A / 120 V AC 2 A / 24 V DC
Min. switching current		1 mA
Rated current		2 A
Max. breaking capacity	AC1	120 VA
Min. breaking capacity		1 mW
Contact resistance		≤ 100 mΩ

Coil data

Rated voltage	DC	3 ... 24 V sensitive version	48 V standard version
Must release voltage		DC: ≥ 0,1 U _n	
Operating range of supply voltage		see Tables 1, 2	
Rated power consumption	DC	0,20 W sensitive version	0,36 W standard version

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		≥ 1,3 mm	
• creepage		≥ 1,5 mm	

General data

Operating / release time (typical values)		8 ms / 4 ms sensitive version	6 ms / 4 ms standard version
Electrical life (number of cycles)			
• resistive AC1	1 800 cycles/hour	> 10 ⁵	1 A, 120 V AC
Mechanical life	18 000 cycles/hour	> 10 ⁷	
Dimensions (L x W x H)		21 x 10,1 x 12,1 mm	
Weight		4,8 g	
Ambient temperature	• operating	-30...+80 °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, sensitive

Table 1

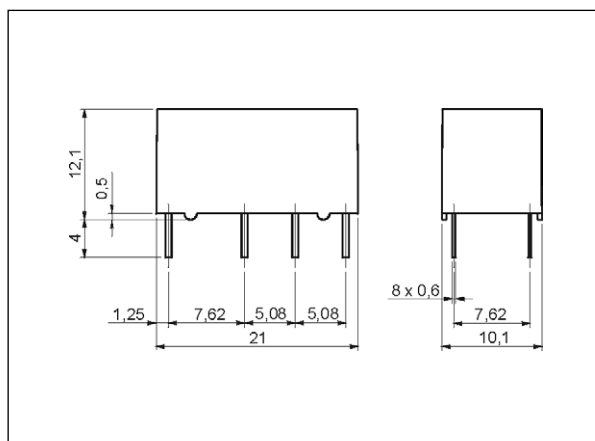
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S003	3	45	$\pm 10\%$	2,25	4,5
S005	5	125	$\pm 10\%$	3,75	7,5
S006	6	180	$\pm 10\%$	4,50	9,0
S009	9	405	$\pm 10\%$	6,75	13,5
S012	12	720	$\pm 10\%$	9,00	18,0
S024	24	2 880	$\pm 10\%$	18,00	36,0

Coil data - DC voltage version, standard

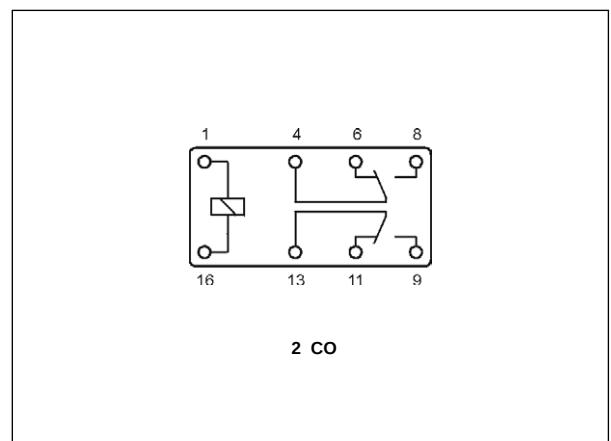
Table 2

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)
1048	48	6 400	$\pm 10\%$	36,00	72,0

Dimensions

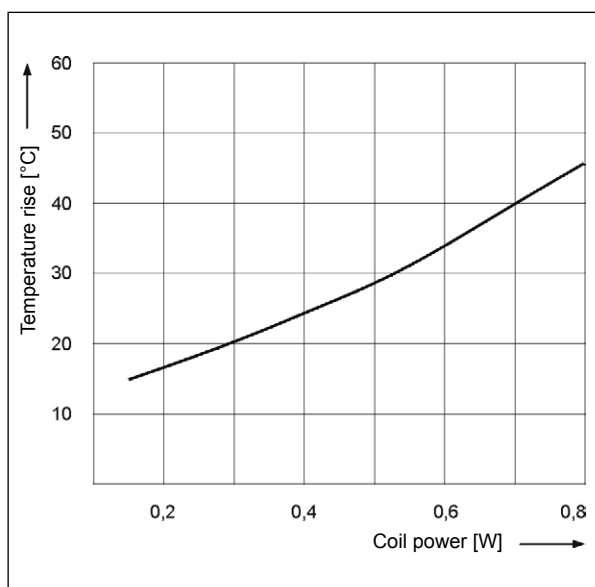


Connection diagram (pin side view)



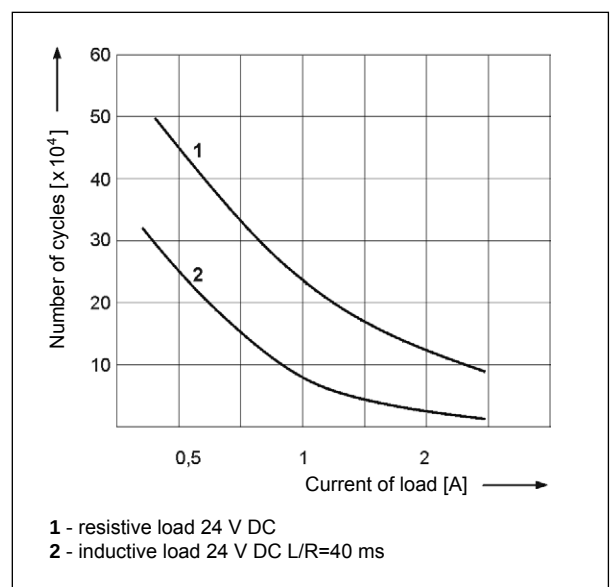
Coil temperature rise

Fig. 1



Electrical life

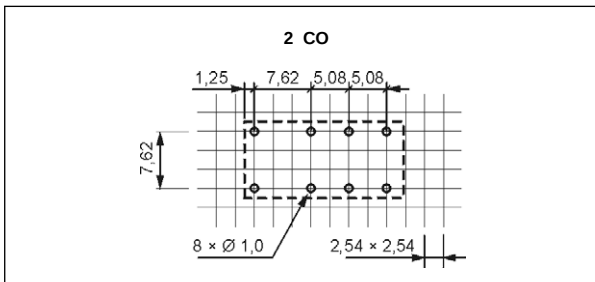
Fig. 2



RSM822

subminiature signal relays

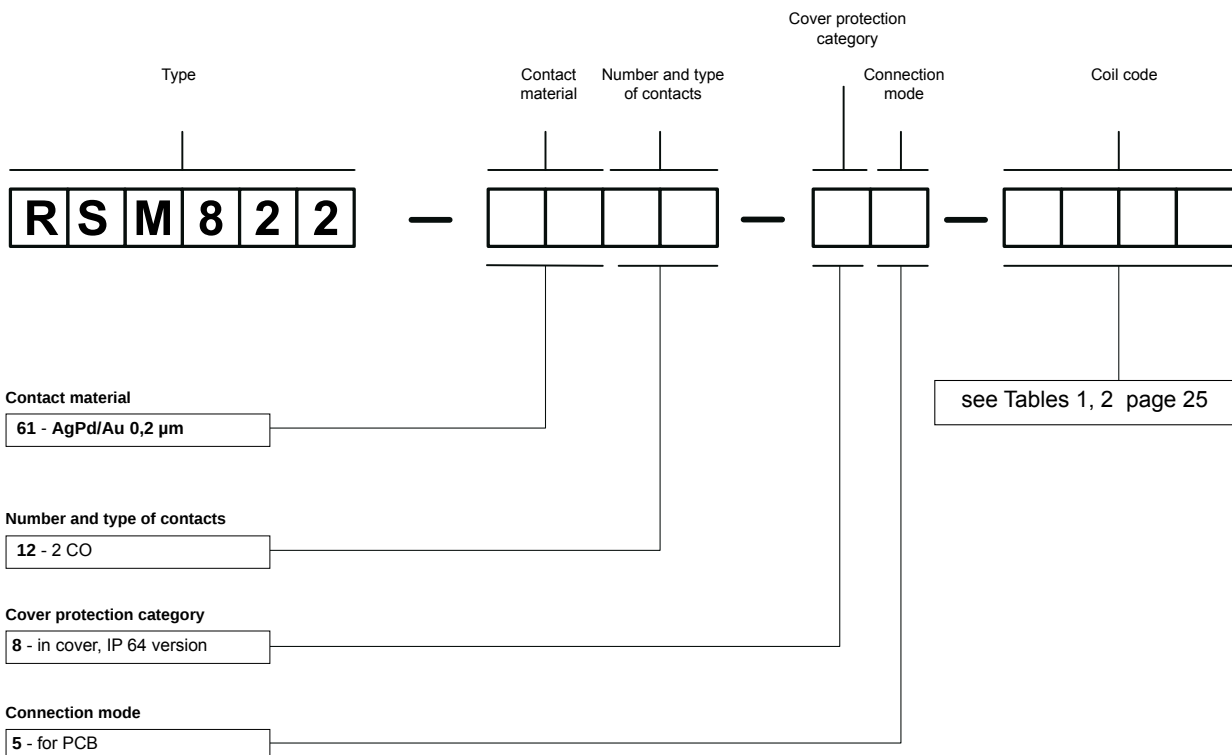
Pinout (solder side view)



Mounting

Relays **RSM822** are designed for direct PCB mounting.

Ordering codes

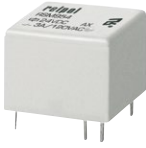


Examples of ordering code:

- RSM822-6112-85-S005** relay **RSM822**, for PCB, two changeover contacts, contact material AgPd/Au 0,2 µm, sensitive coil voltage 5 V DC, in cover IP 64
- RSM822-6112-85-1048** relay **RSM822**, for PCB, two changeover contacts, contact material AgPd/Au 0,2 µm, standard coil voltage 5 V DC, in cover IP 64

RSM954

subminiature signal relays



- Subminiature, monostable relays
- Small dimensions
- **DC coils of up to 24 V DC**, low coil power 0,36 W
- Sealed, for wave soldering and cleaning
- Applications: for telecommunication devices, office equipment, industrial control, etc.
- Recognitions, certifications, directives: RoHS, 

Contact data

Number and type of contacts		1 CO
Contact material		Ag/Au 0,2 µm
Rated / max. switching voltage	AC	120 V / 120 V
Min. switching voltage		5 V
Rated load	AC1 DC1	3 A / 120 V AC 3 A / 24 V DC
Min. switching current		10 mA
Rated current		3 A
Max. breaking capacity	AC1	360 VA
Min. breaking capacity		50 mW
Contact resistance		≤ 100 mΩ

Coil data

Rated voltage	DC	3 ... 24 V
Must release voltage		DC: ≥ 0,05 U _n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,36 W

Insulation according to PN-EN 60664-1

Dielectric strength		
• between coil and contacts	500 V AC	type of insulation: basic
• contact clearance	500 V AC	type of clearance: micro-disconnection
Contact - coil distance		
• clearance	≥ 1,2 mm	
• creepage	≥ 2 mm	

General data

Operating / release time (typical values)		8 ms / 4 ms
Electrical life (number of cycles)		
• resistive AC1	1 800 cycles/hour	> 10 ⁵ 3 A, 120 V AC
• resistive DC1	1 800 cycles/hour	> 10 ⁵ 3 A, 24 V DC
Mechanical life	18 000 cycles/hour	> 10 ⁷
Dimensions (L x W x H)		15,4 x 10,4 x 11,4 mm
Weight		3,5 g
Ambient temperature	• operating	-25...+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

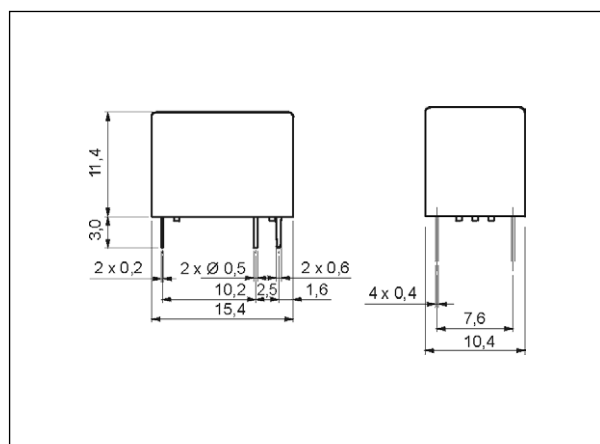
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version, sensitive

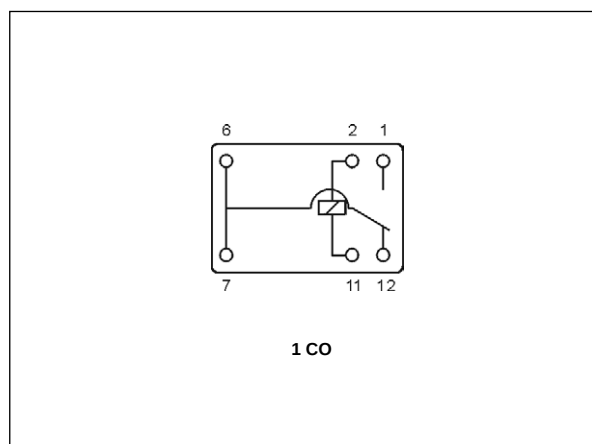
Table 1

Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	25	$\pm 10\%$	2,25	3,9
1005	5	69	$\pm 10\%$	3,75	6,5
1006	6	100	$\pm 10\%$	4,50	7,8
1009	9	225	$\pm 10\%$	6,75	11,7
1012	12	400	$\pm 10\%$	9,00	15,6
1024	24	1 600	$\pm 10\%$	18,00	31,2

Dimensions

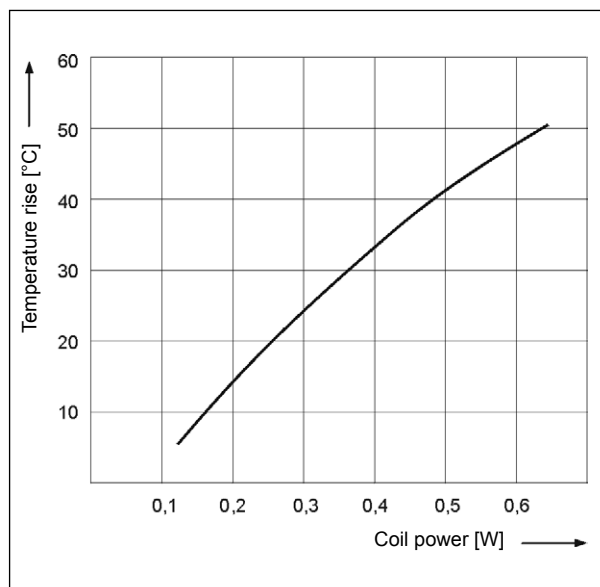


Connection diagram (pin side view)



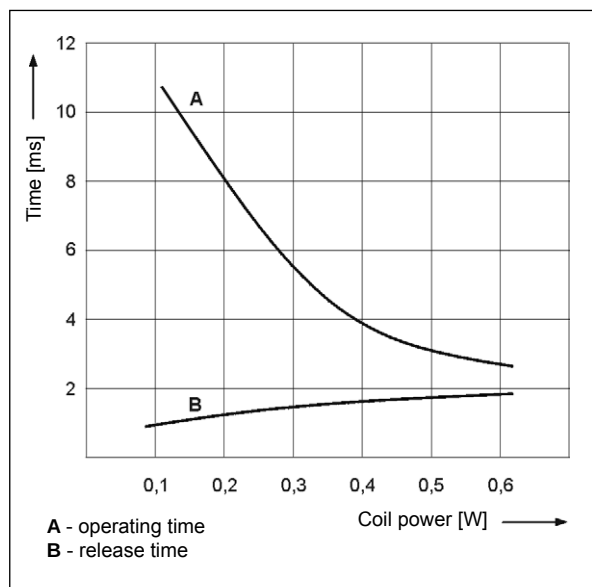
Coil temperature rise

Fig. 1



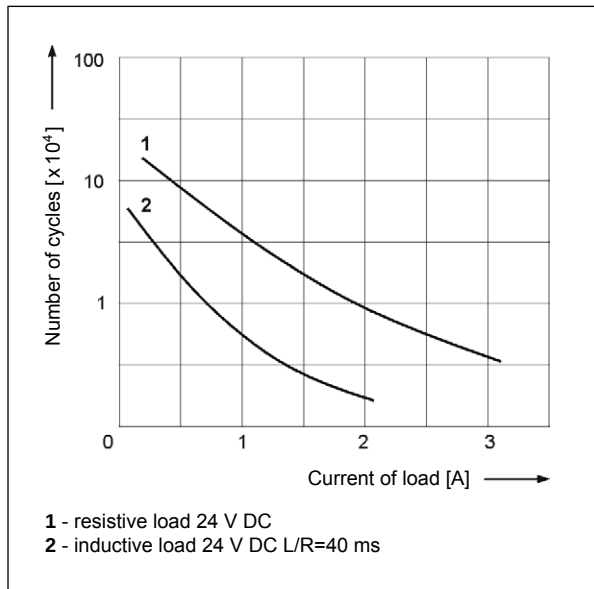
Operating / release time

Fig. 2

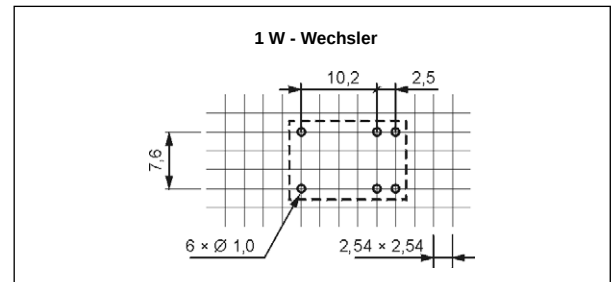


Electrical life

Fig. 3



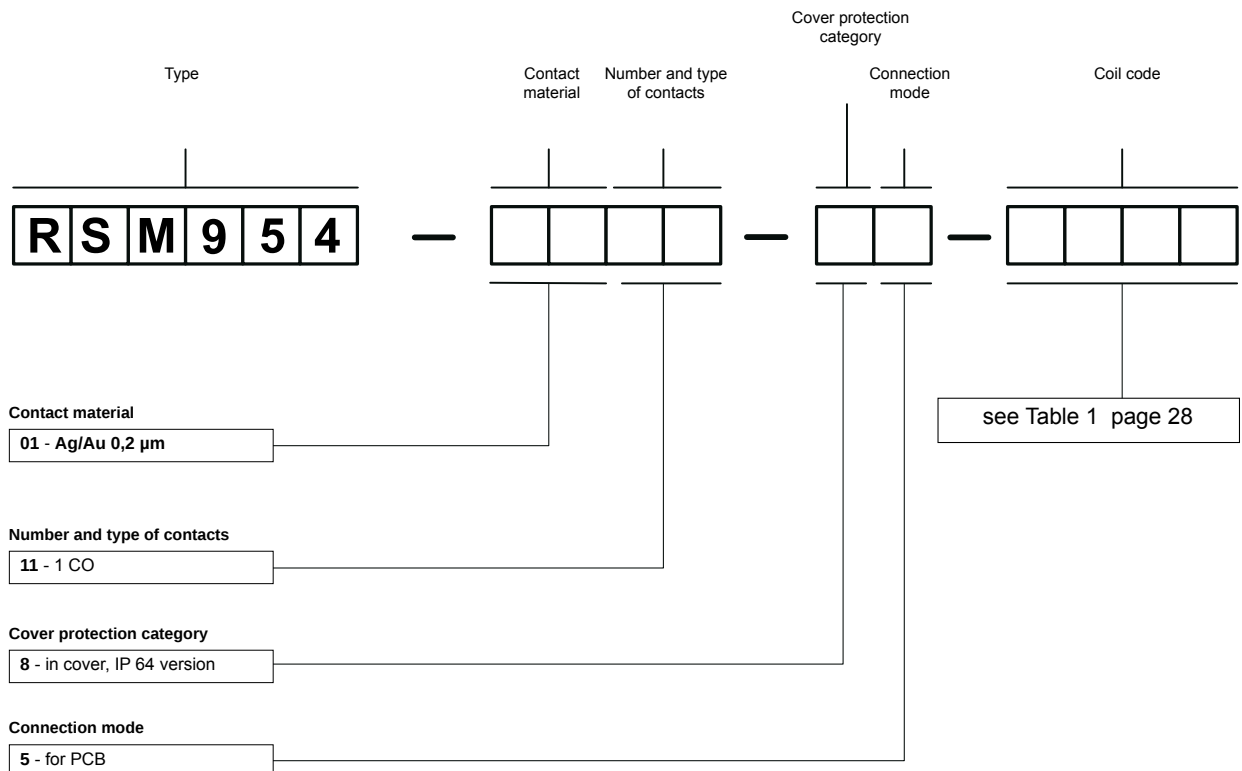
Pinout (solder side view)



Mounting

Relays **RSM954** are designed for direct PCB mounting.

Ordering codes



Example of ordering code:

RSM954-0111-85-1005

relay **RSM954**, for PCB, one changeover contact, contact material Ag/Au 0,2 μ m, coil voltage 5 V DC, in cover IP 64

RSM957

subminiature signal relays



- Subminiature, monostable relays
- Very small dimensions
- **DC coils - sensitive of up to 24 V DC**, low coil power 0,15...0,20 W
- Sealed, for wave soldering and cleaning
- Applications: for telecommunication devices, office equipment, industrial control, etc.
- Recognitions, certifications, directives: RoHS, 

Contact data

Number and type of contacts		1 CO
Contact material		Ag/Au 0,2 µm
Rated / max. switching voltage	AC	120 V / 125 V
Min. switching voltage		5 V
Rated load	AC1 DC1	2 A / 120 V AC 2 A / 24 V DC
Min. switching current		10 mA
Rated current		2 A
Max. breaking capacity	AC1	240 VA
Min. breaking capacity		50 mW
Contact resistance		≤ 100 mΩ

Coil data

Rated voltage	DC	3 ... 24 V
Must release voltage		DC: ≥ 0,05 U _n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,15 W 3 ... 12 V 0,20 W 24 V

Insulation according to PN-EN 60664-1

Dielectric strength		
• between coil and contacts	1 000 V AC	type of insulation: basic
• contact clearance	400 V AC	type of clearance: micro-disconnection
Contact - coil distance		
• clearance	≥ 0,6 mm	
• creepage	≥ 0,6 mm	

General data

Operating / release time (typical values)		5 ms / 5 ms
Electrical life (number of cycles)		
• resistive AC1	1 800 cycles/hour	> 10 ⁵ 2 A, 120 V AC
• resistive DC1	1 800 cycles/hour	> 10 ⁵ 2 A, 24 V DC
Mechanical life	18 000 cycles/hour	> 10 ⁷
Dimensions (L x W x H)		12,6 x 7,8 x 10 mm
Weight		2,2 g
Ambient temperature	• operating	-30...+70 °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, sensitive

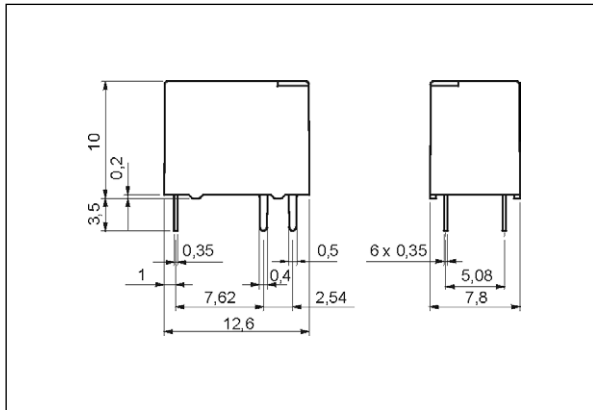
Table 1

Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S003	3	60	± 10%	2,4	3,9
S005	5	167	± 10%	4,0	6,5
S006	6	240	± 10%	4,8	7,8
S009	9	540	± 10%	7,2	11,7
S012	12	960	± 10%	9,6	15,6
S024	24	2 880	± 10%	18,0	31,2

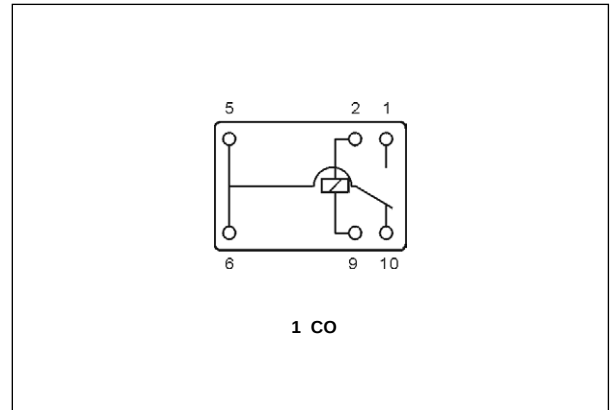
RSM957

subminiature signal relays

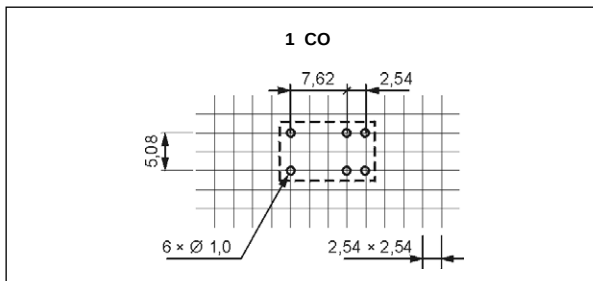
Dimensions



Connection diagram (pin side view)



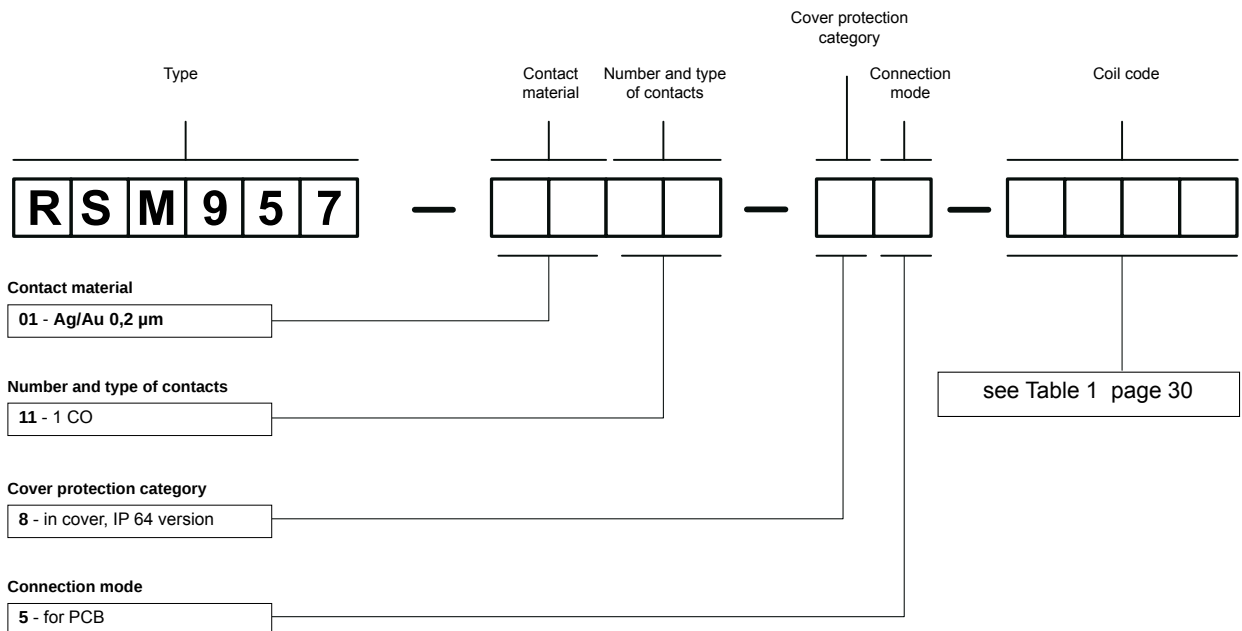
Pinout (solder side view)



Mounting

Relays **RSM957** are designed for direct PCB mounting.

Ordering codes



Example of ordering code:

RSM957-0111-85-S005

relay **RSM957**, for PCB, one changeover contact, contact material Ag/Au 0,2 µm, sensitive coil voltage 5 V DC, in cover IP 64

RM40.....	33
RM50.....	36
RM699B.....	39
RM84.....	43
RM84 SMT	47
RMB841	51
RM85.....	54
RM85 ①	58
RM85 inrush.....	61
RM85 105 °C sensitive	65
RM85 SMT	69
RM85 faston.....	73
RMB851	76
RM87, RM87 sensitive	79
RM87N SMT	85
RM96.....	89
RM83.....	93
RM92.....	97
RM94.....	101
RA2 ②	105

① RM85 for switching higher voltages
 ② RA2 - automotive relays

Miniature relays

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.

RM40

miniature relays



- 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 CO	1 NO
Contact material		1 CO: AgNi , AgNi/Au 3 µm	1 NO: AgSnO₂
Rated / max. switching voltage	AC	1 CO: 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 CO: 5 A / 250 V AC 1 CO: 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 CO: 5 A	1 NO: 8 A
Max. breaking capacity	AC1	1 CO: 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 (number of cycles)		
• resistive AC1 360 cycles/hour	> 10 ⁵	1 CO: 5 A, 250 V AC 1 NO: 8 A, 250 V AC
• resistive DC1 1 800 cycles/hour	> 10 ⁵	1 CO: 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

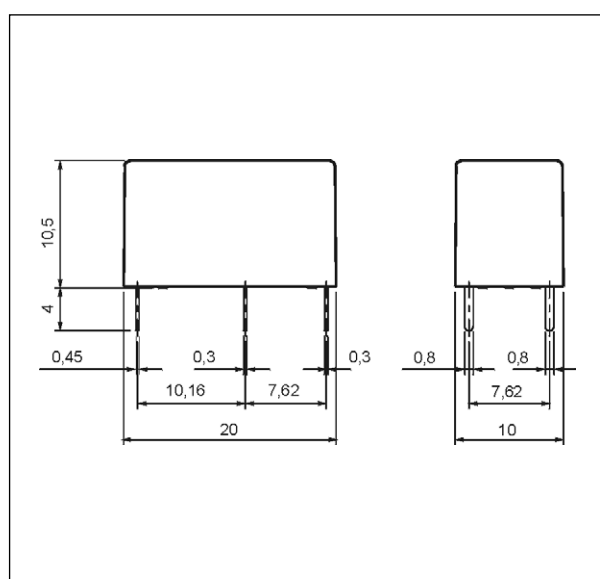
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version

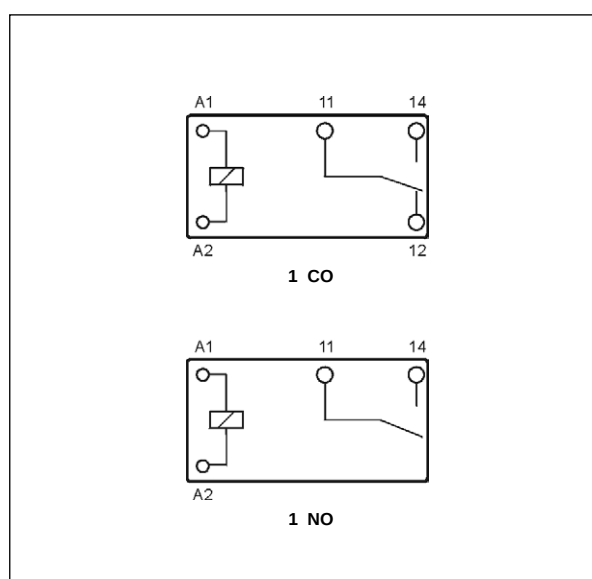
Table 1

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

Dimensions

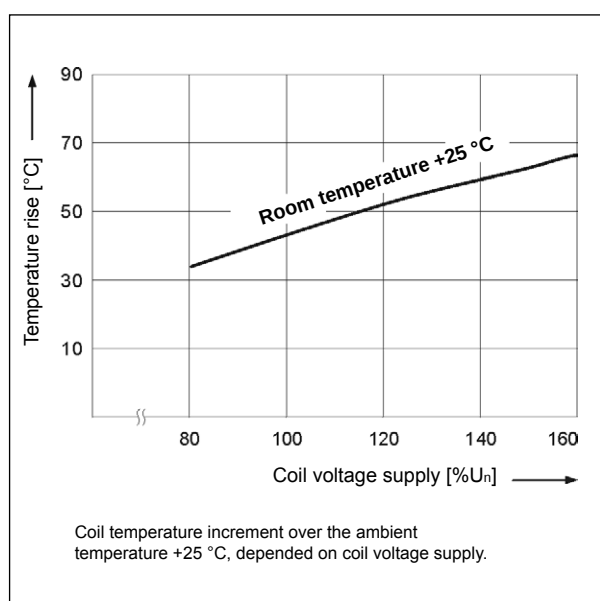


Connection diagrams (pin side view)



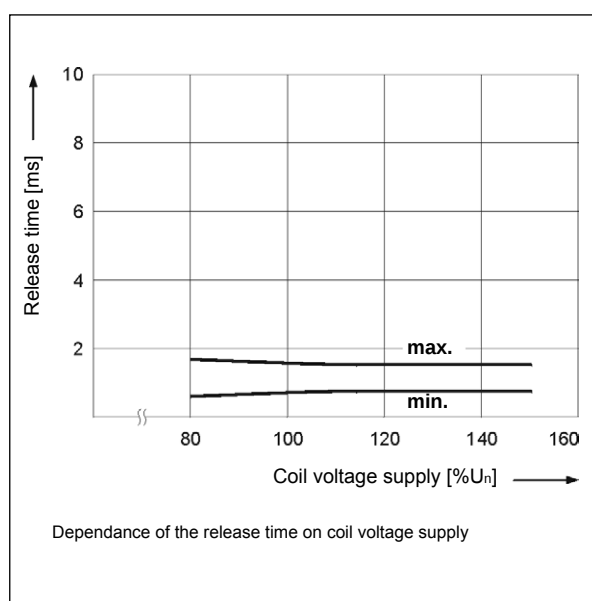
Coil temperature rise

Fig. 1

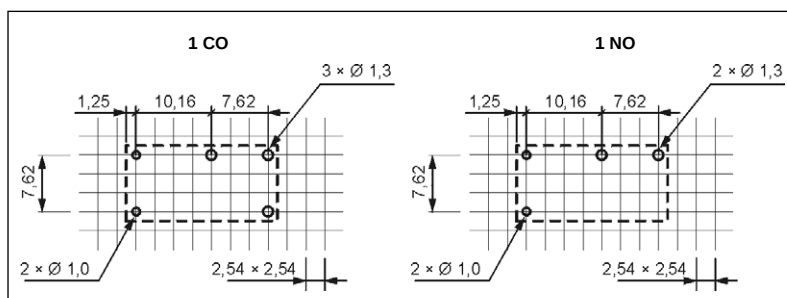


Release time

Fig. 2



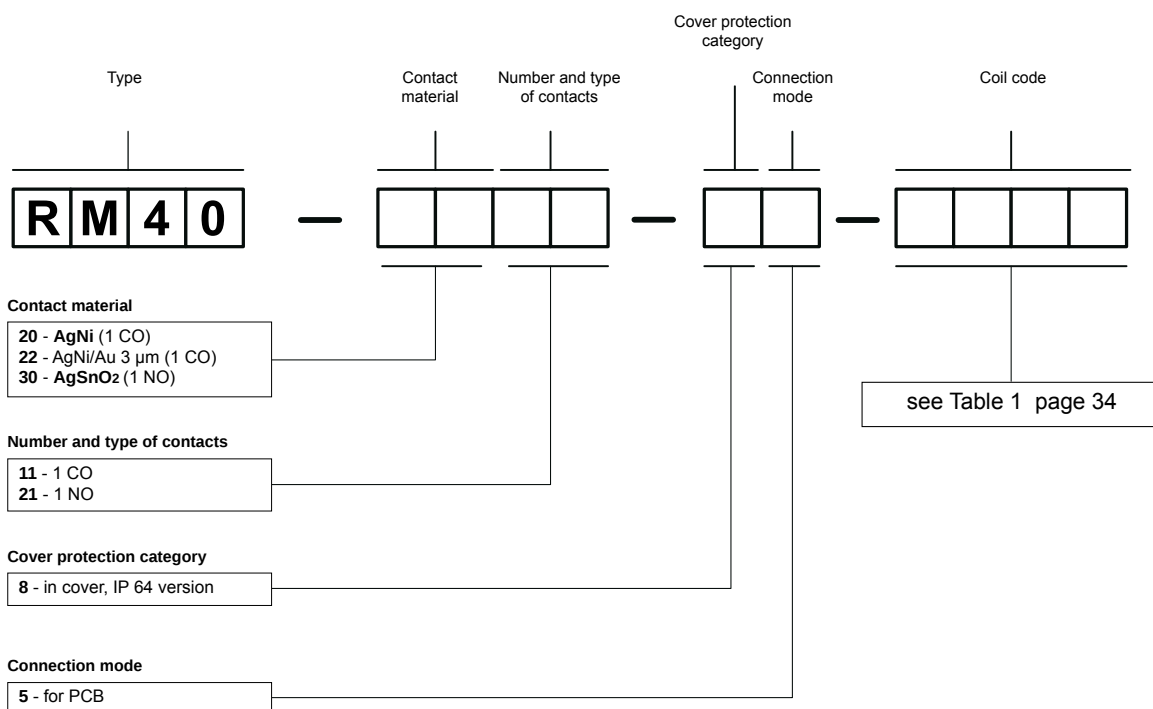
Pinout (solder side view)



Mounting

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

Ordering codes



Examples of ordering code:

RM40-2011-85-1003

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

RM40-3021-85-1024

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



- 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 CO, 1 NO
Contact material		AgSnO₂
Rated / max. switching voltage	AC	240 V / 277 V
Min. switching voltage		5 V
Rated load	AC1 DC1	10 A / 240 V AC 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 W 3 ... 24 V 0,45 W 48 V

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 (number of cycles)		
• 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

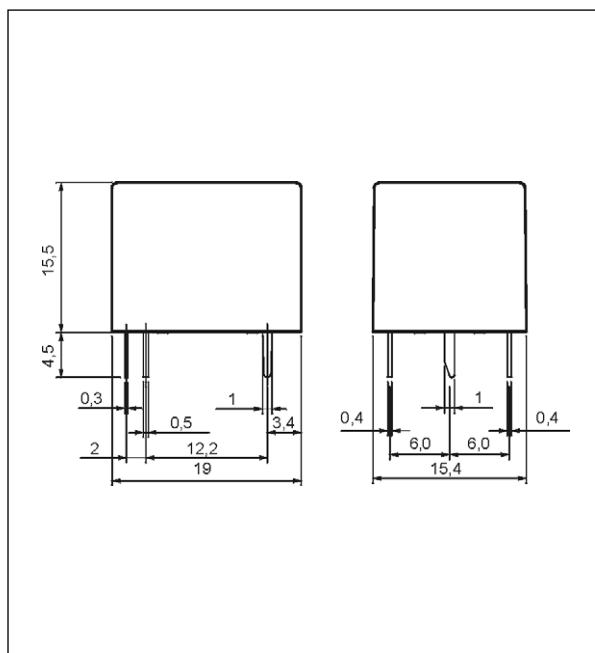
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version

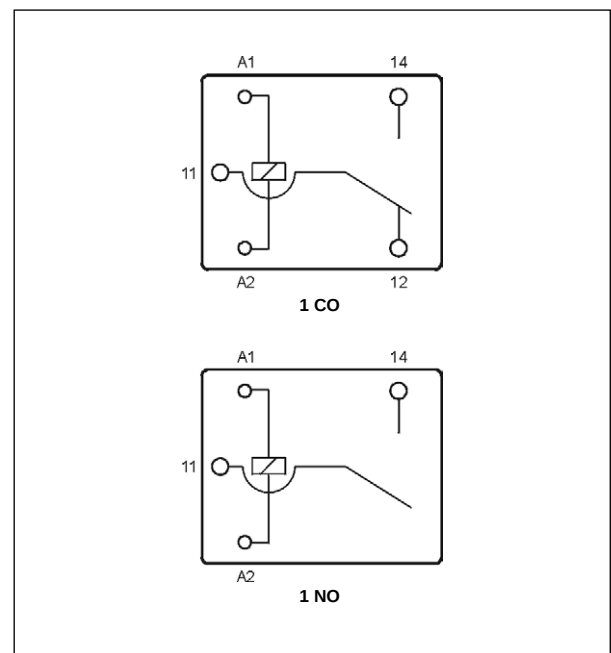
Table 1

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

Dimensions

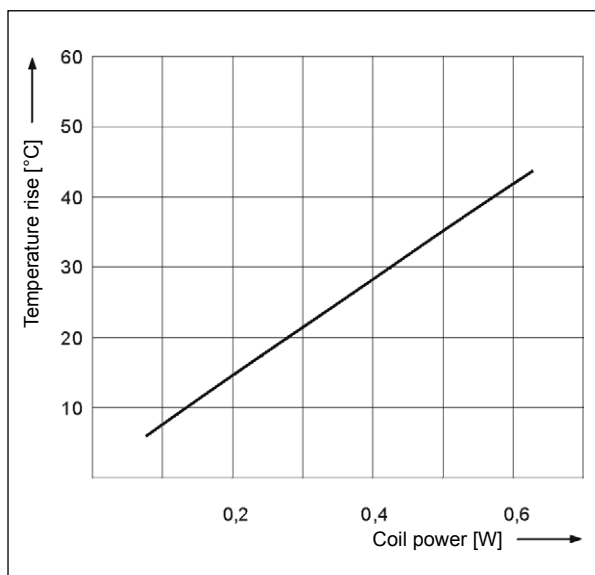


Connection diagrams (pin side view)



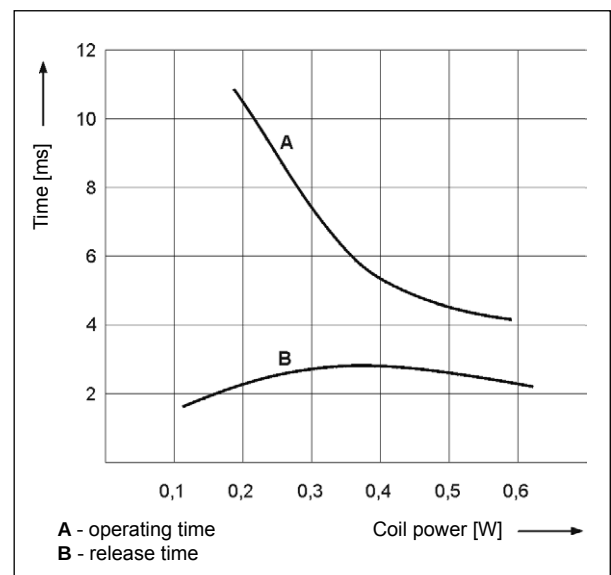
Coil temperature rise

Fig. 1



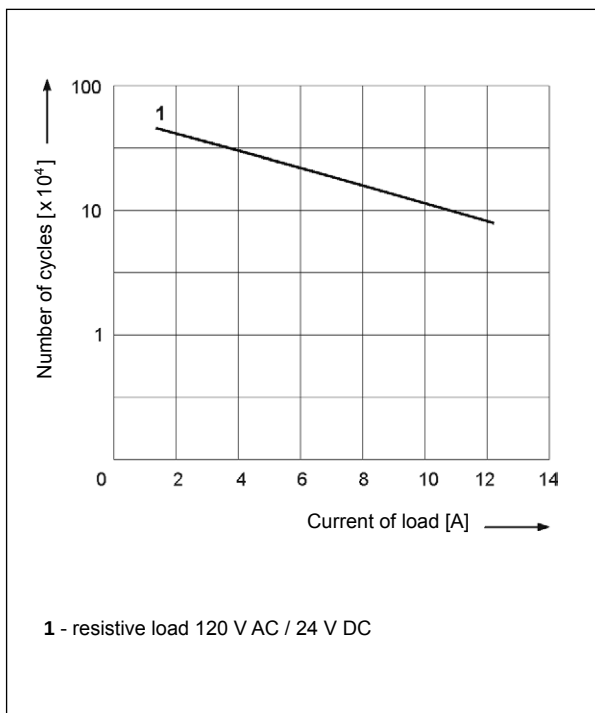
Operating / release time

Fig. 2

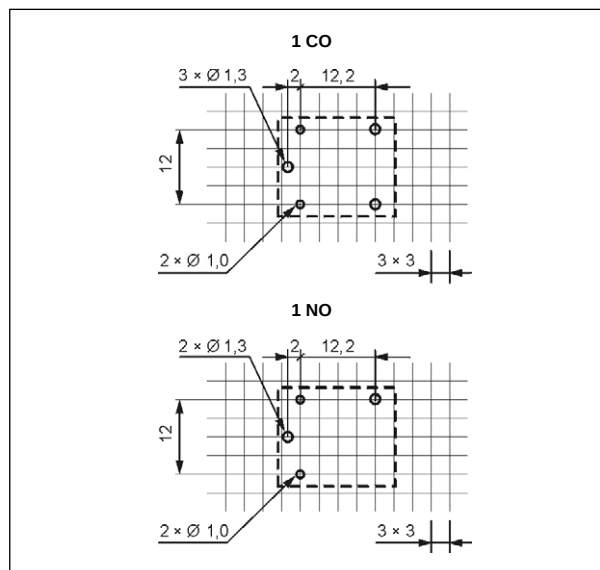


Electrical life

Fig. 3



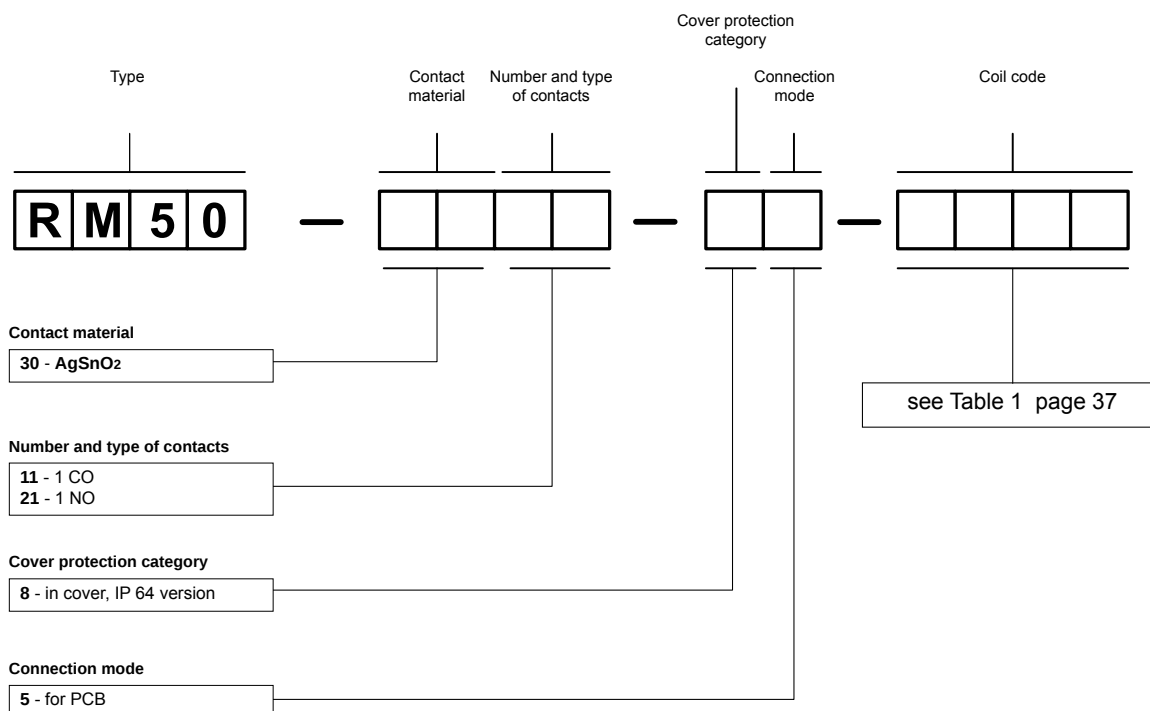
Pinout (solder side view)



Mounting

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

Ordering codes



Example of ordering code:

RM50-3011-85-1012

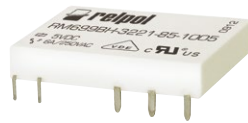
relay **RM50**, for PCB, one changeover contact, contact material AgSnO₂, coil voltage 12 V DC, in cover IP 64

RM699B

miniature relays

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 CO	
Contact material		AgSnO₂	AgSnO ₂ /Au 3 μm ❶
Max. switching voltage		400 V AC / 250 V DC	30 V AC / 36 V DC 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; 0,15 A / 250 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 W 5 ... 24 V 0,217 W 48, 60 V

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 (number of cycles)		
• 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. 260 °C
Soldering time		max. 5 s

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

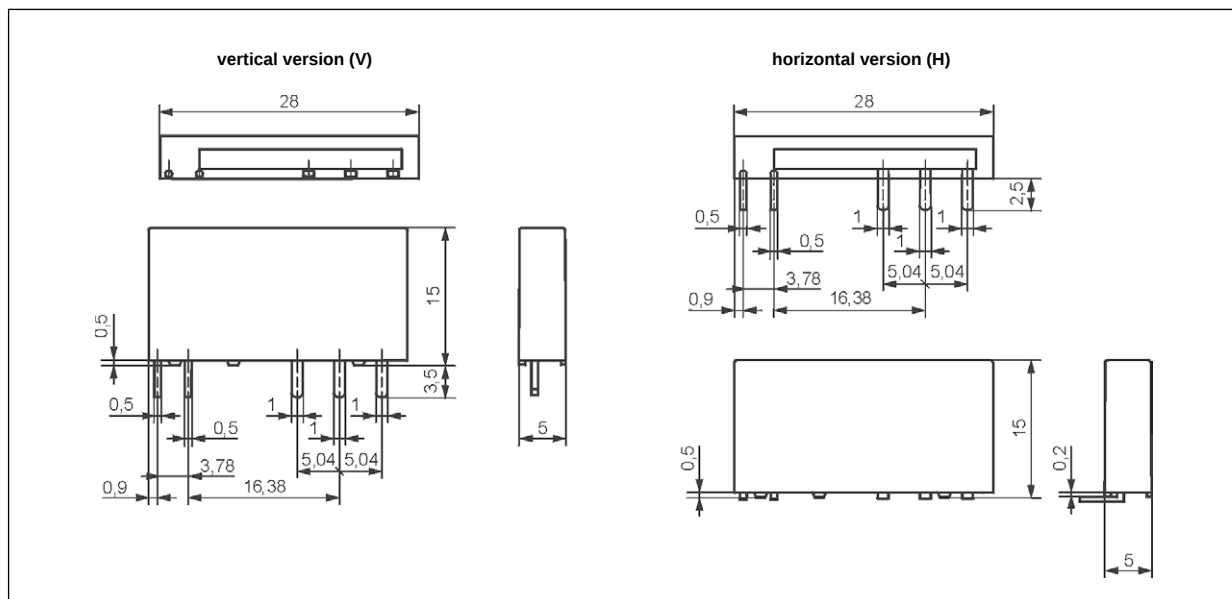
❶ For gold-plated contacts - when the maximum values given have been exceeded, the gold layer is destroyed. Then, the advantages of gold-plating disappear and the values are as for AgSnO₂ contacts (see beside), and electrical life of these contacts may be shorter than of normal contacts.

Coil data - DC voltage version

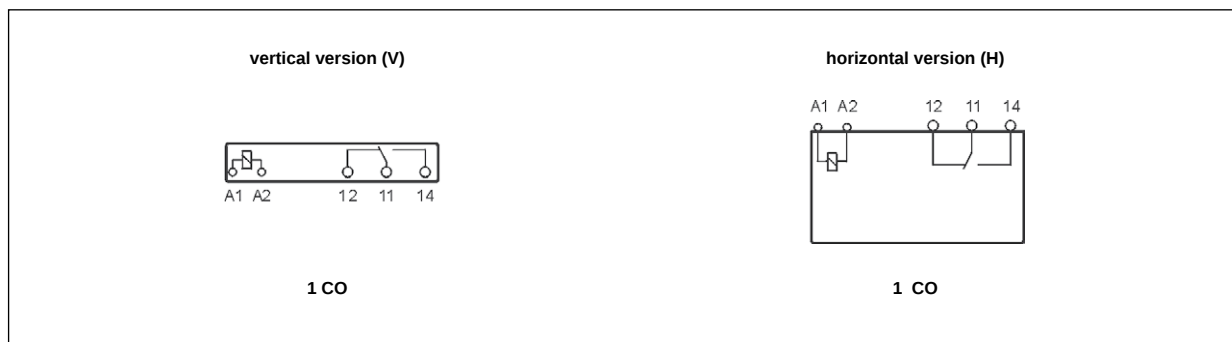
Table 1

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)
1005	5	147	$\pm 10\%$	3,75	7,5
1012	12	848	$\pm 10\%$	9,0	18,0
1024	24	3 390	$\pm 15\%$	18,0	36,0
1048	48	10 600	$\pm 15\%$	36,0	72,0
1060	60	20 500	$\pm 15\%$	45,0	90,0

Dimensions

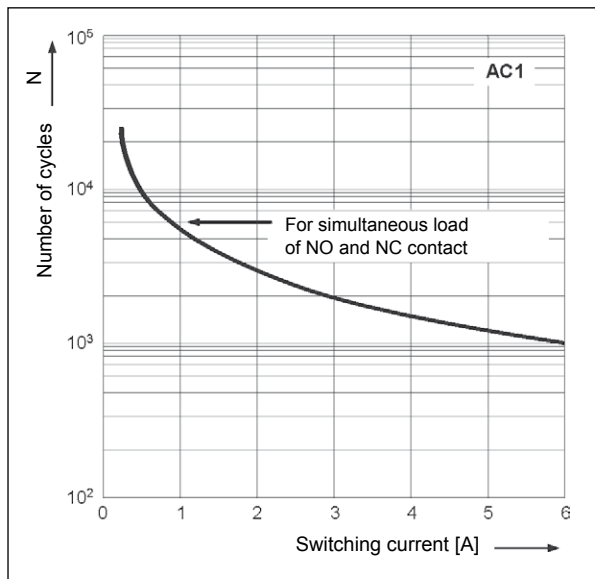


Connection diagrams (pin side view)



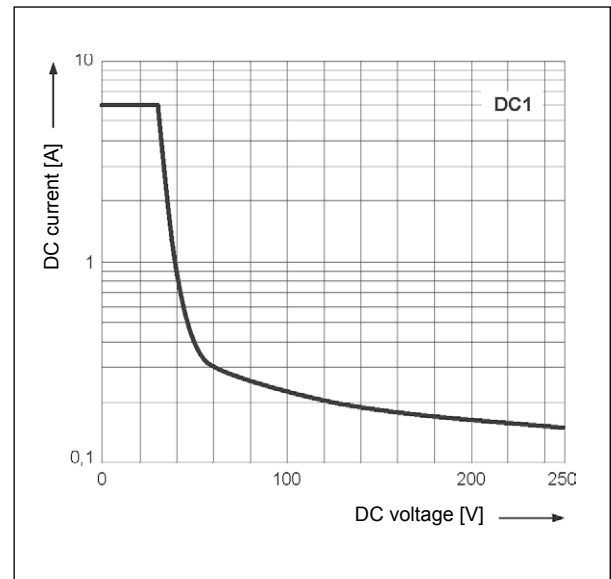
Electrical life at AC resistive current.
Switching frequency: 360 cycles/hour

Fig. 1



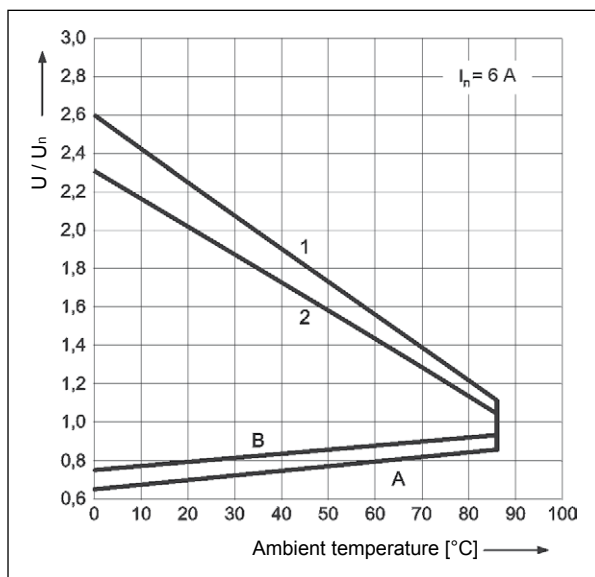
Max. DC resistive load breaking capacity

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 207).

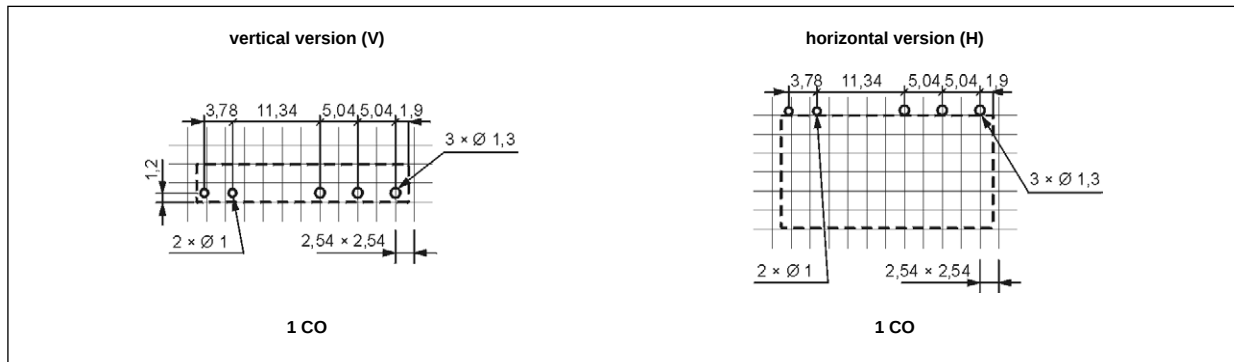
Relays **RM699B horizontal version (H)** are designed for direct PCB mounting.

PI6W-1P

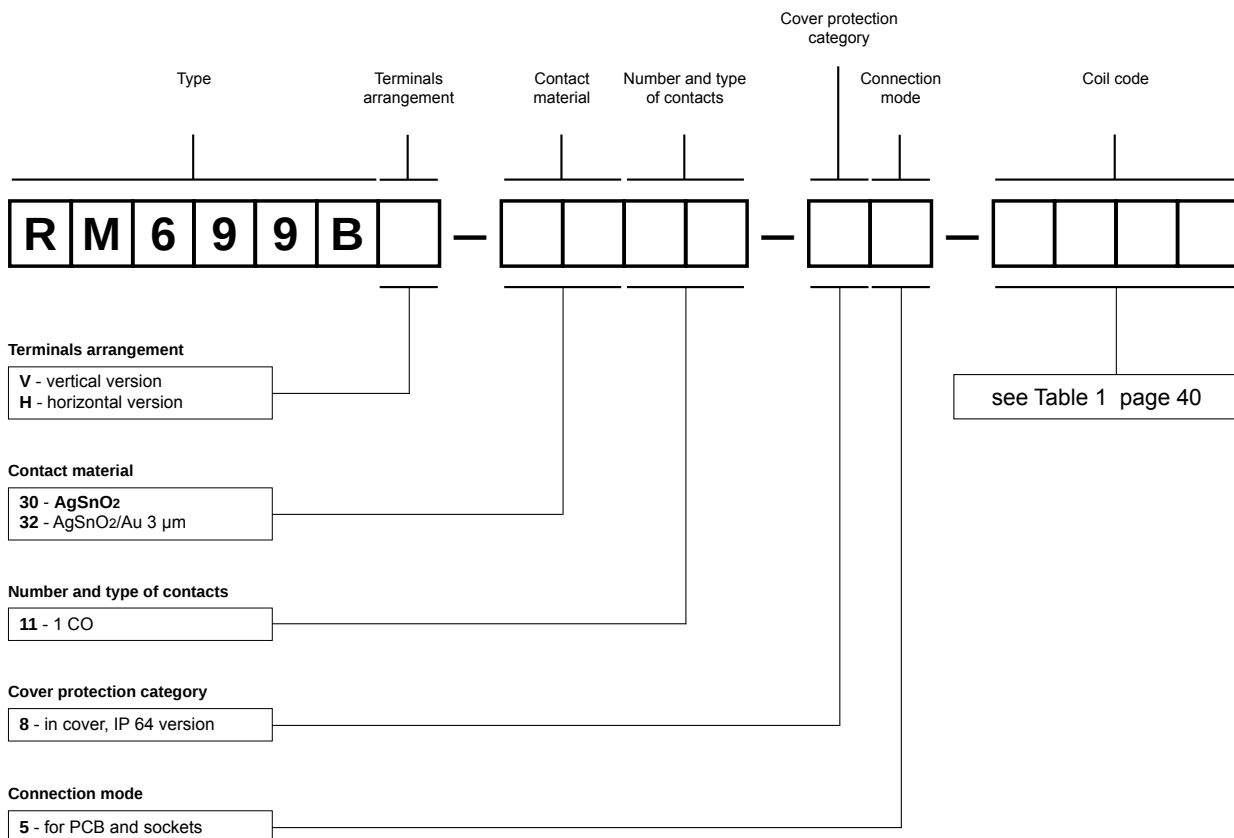
Plug-in sockets
for relays
RM699BV
or **RSR30**



Pinout (solder side view)



Ordering codes

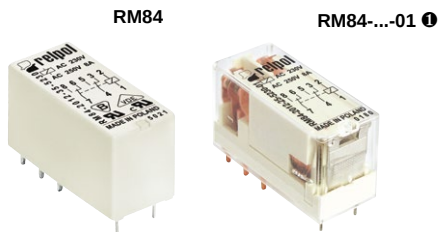


Examples of ordering code:

- RM699BV-3011-85-1012** relay **RM699B**, vertical version, for PCB and sockets, one changeover contact, contact material AgSnO₂, coil voltage 12 V DC, in cover IP 64
- RM699BH-3211-85-1005** Relais **RM699B**, horizontal version, for PCB, one changeover contact, contact material AgSnO₂/Au 3 µm, coil voltage 5 V DC, in cover IP 64

RM84

miniature relays



- Cadmium - free contacts • Height 15,7 mm
- 5000 V / 10 mm reinforced insulation
- For PCB and plug-in sockets
- Accessories: sockets and modules • AC and DC coils
- Available special versions: with transparent cover **1**;
with the increased dielectric strength of the contact clearance **2**
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,        

Contact data

Number and type of contacts		2 CO, 2 NO 2
Contact material		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	8 A / 250 V AC 3 A / 120 V 1,5 A / 240 V (B300) 550 W (single-phase motor) 8 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		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 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 • contact clearance • pole - pole	5 000 V AC type of insulation: reinforced 1 000 V AC type of clearance: micro-disconnection 2 000 V AC contacts 2 NO, type of clearance: full-disconnection 2 2 500 V AC type of insulation: basic
Contact - coil distance	• clearance • creepage	≥ 10 mm ≥ 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
• cosφ		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) / Weight		29 x 12,7 x 15,7 mm / 14 g
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+70 °C DC: -40...+85 °C -40...+70 °C 1
Cover protection category		IP 40 1 or IP 67 PN-EN 60529
Environmental protection		RTII 1 or RTIII PN-EN 116000-3
Shock resistance		20 g
Vibration resistance	(NO/NC)	10 g / 5 g 10...150 Hz
Solder bath temperature / Soldering time		max. 270 °C / max. 5 s

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

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

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

Coil data - DC voltage version

Table 1

Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	$\pm 10\%$	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.

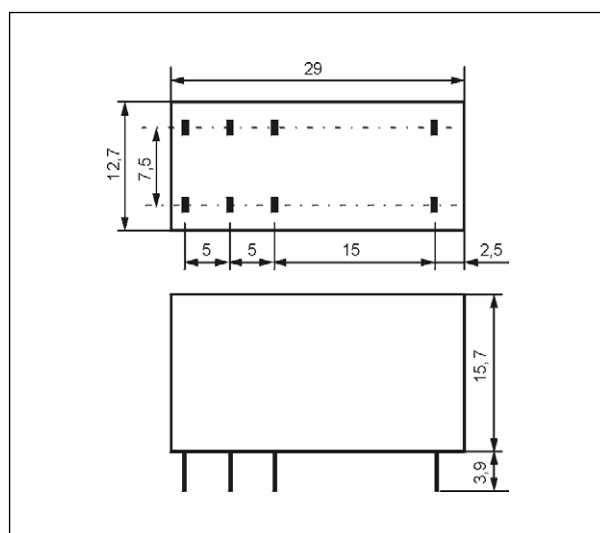
Coil data - AC 50/60 Hz voltage version

Table 2

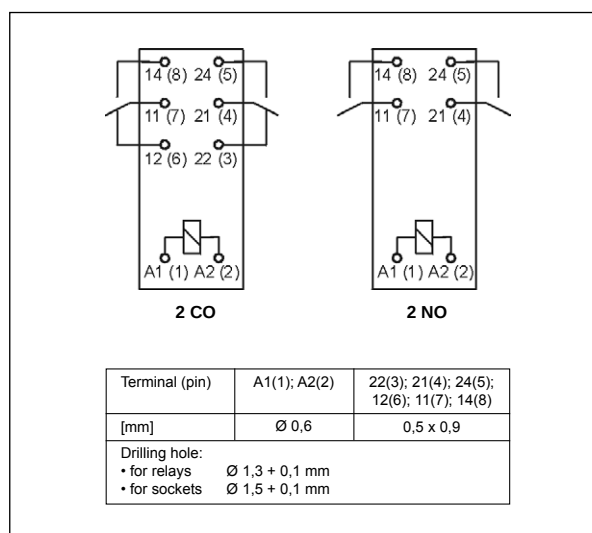
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
5048	48	1 550	$\pm 10\%$	38,4	57,6
5060	60	2 600	$\pm 10\%$	48,0	72,0
5110	110	8 900	$\pm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

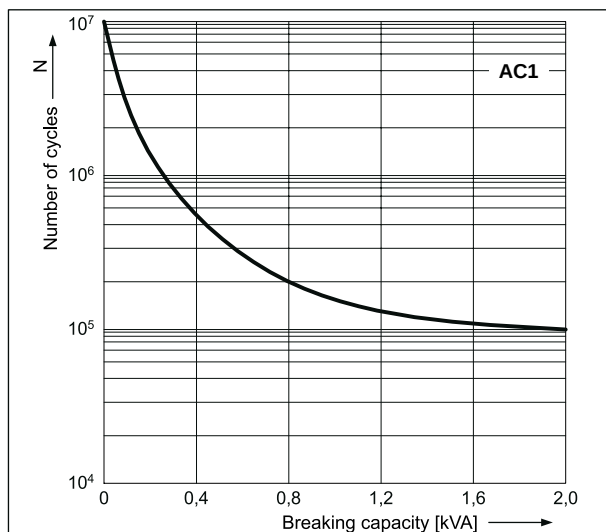


Connection diagrams (pin side view)



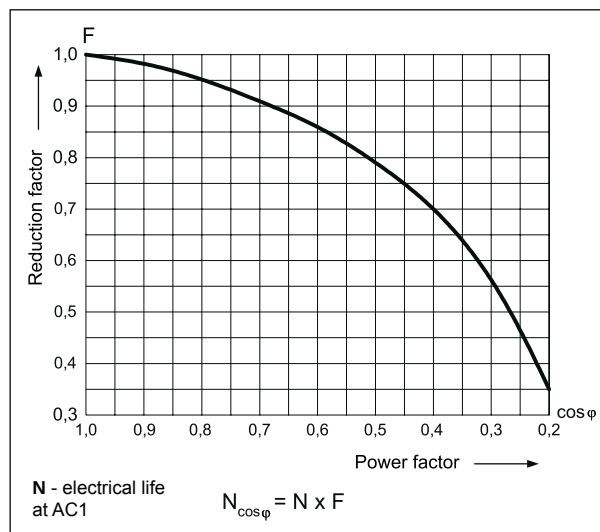
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



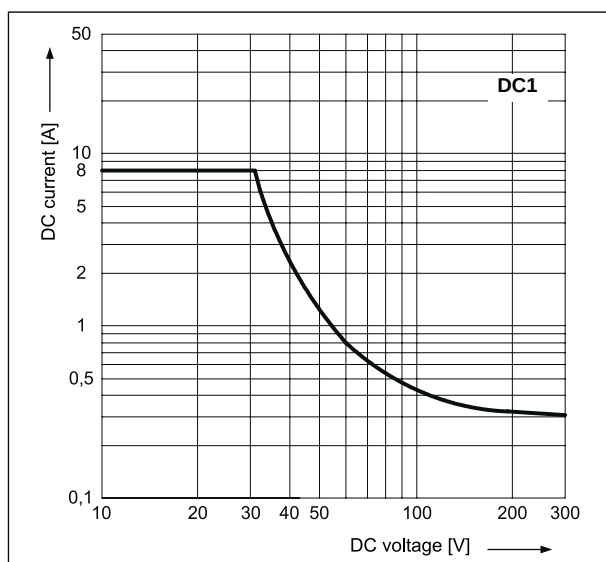
Electrical life reduction factor at AC inductive load

Fig. 2



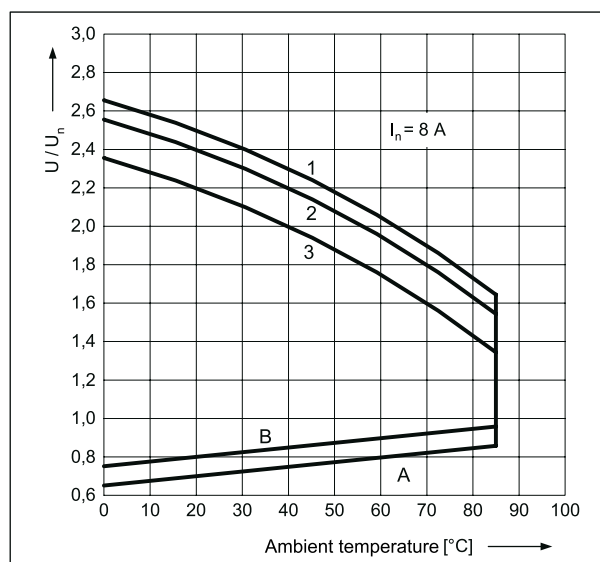
Max. DC resistive load breaking capacity

Fig. 3



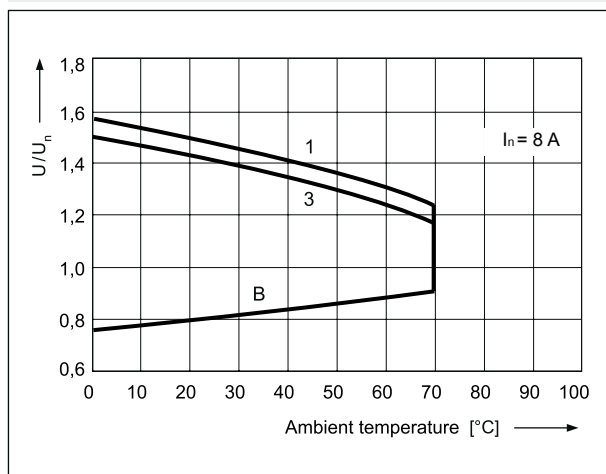
Coil operating range - DC

Fig. 4



Coil operating range - AC 50 Hz

Fig. 5



Description of Fig. 4 and 5

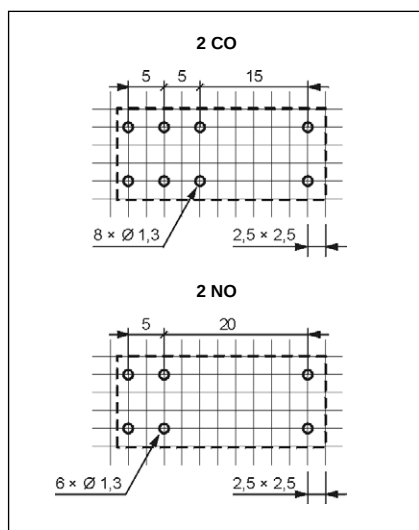
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

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)

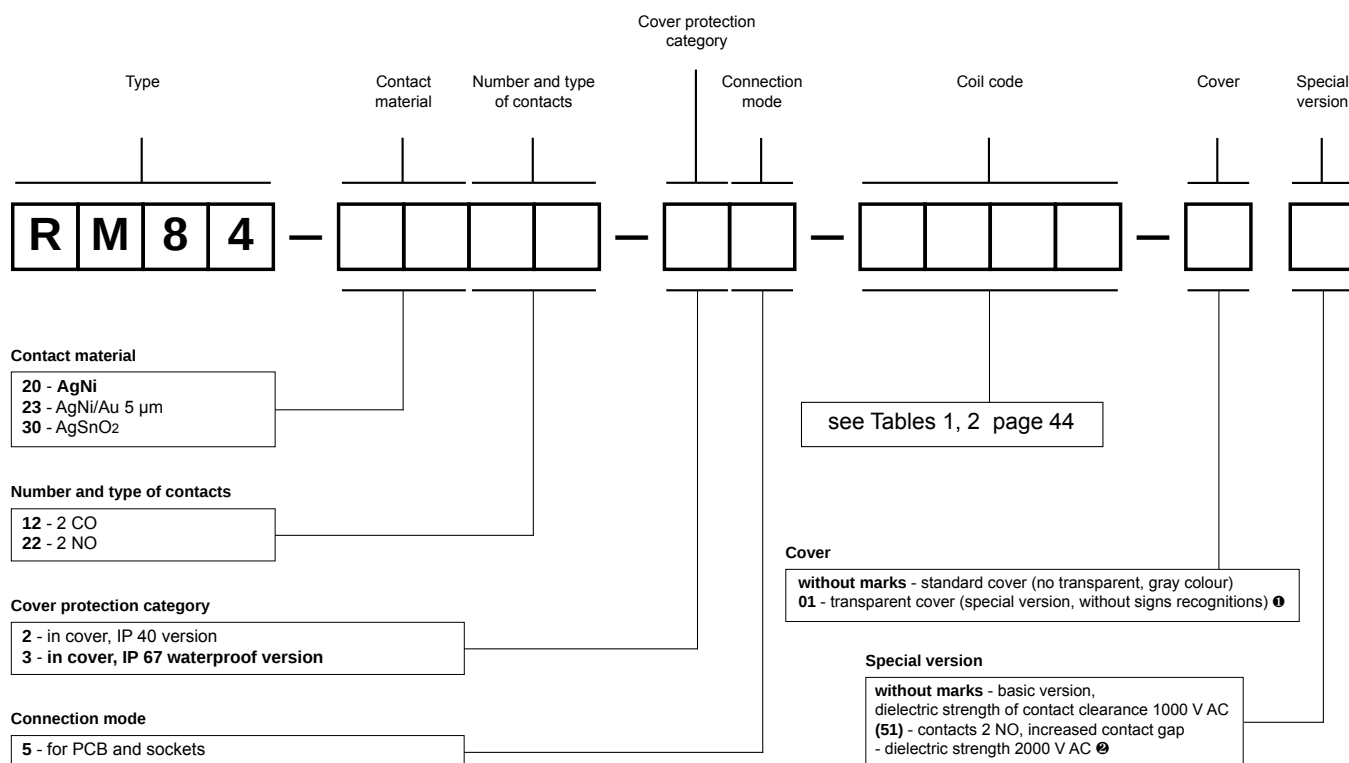


Mounting

Relays **RM84** ⑤ are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ④ and **GZM80** ④ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ④ with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw • spring terminals plug-in sockets **GZMB80** ⑤ with clip **GZMB80-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715. Signalling / protecting modules **type M...** are available with sockets (see page 261) • plug-in sockets for PCB mounting **EC 50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

- ⑤ For special version - relays in transparent cover: the distance of min. 5 mm between the mounting relays.
- ④ Plug-in sockets **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 262).
- ⑤ For sockets **GZMB80** - see page 247 (wire connection).

Ordering codes



Examples of ordering code:

RM84-3012-25-5024

relay **RM84**, for PCB and sockets, two changeover contacts, contact material AgSnO₂, coil voltage 24 V AC 50/60 Hz, in standard cover (no transparent, gray colour) IP 40

RM84-2012-25-1012-01

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

RM84-2322-35-1024 (51)

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

RM84 SMT

miniature relays



- Cadmium - free contacts
- Height 17,7 mm
- 5000 V / 10 mm reinforced insulation
- **For surface mounting SMT** - for manual soldering
- AC and DC coils
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,      

Contact data

Number and type of contacts		2 CO, 2 NO
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	8 A / 250 V AC 3 A / 120 V 1,5 A / 240 V (B300) 550 W (single-phase motor) 8 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		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 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
• 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
• cosφ		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 13,2 x 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		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

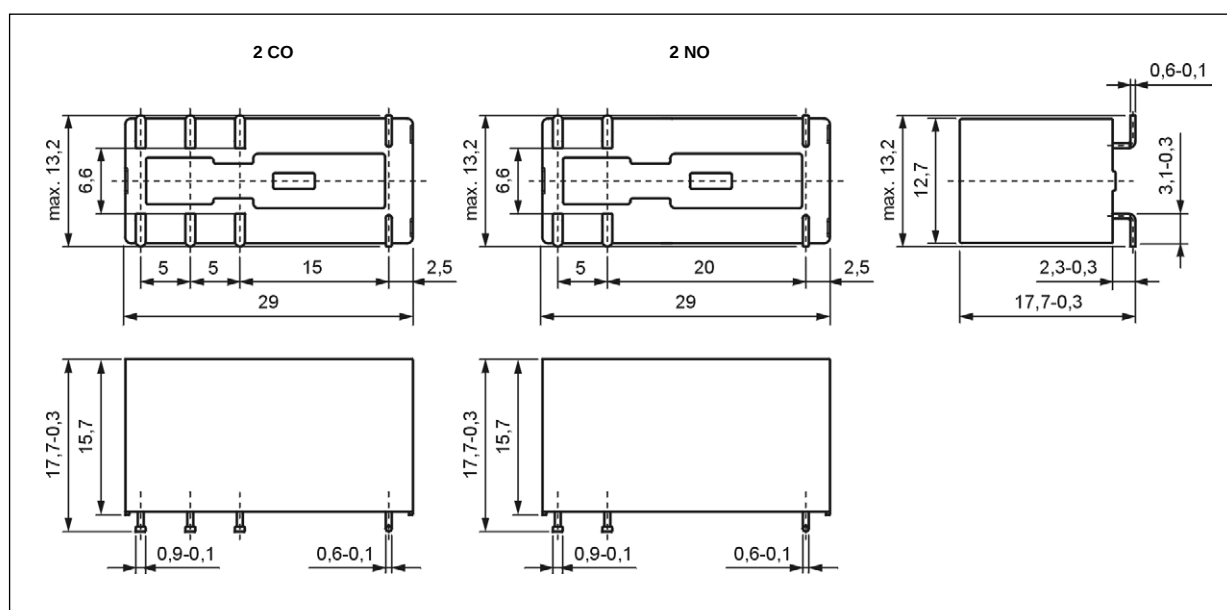
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	$\pm 10\%$	2,1	7,6
1005	5	60	$\pm 10\%$	3,5	12,7
1006	6	90	$\pm 10\%$	4,2	15,3
1009	9	200	$\pm 10\%$	6,3	22,9
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18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

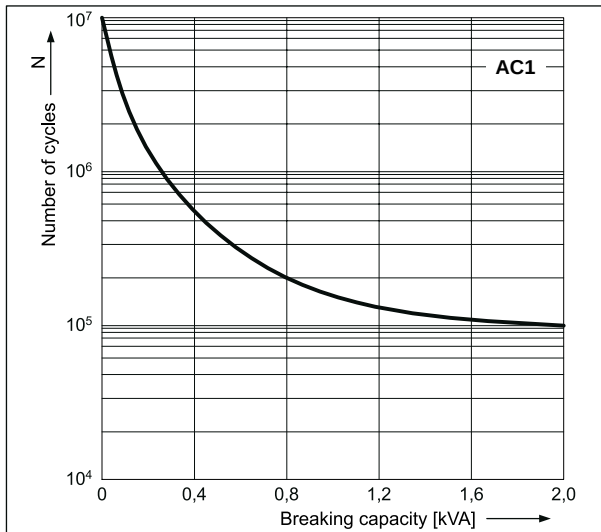
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
5048	48	1 550	$\pm 10\%$	38,4	57,6
5060	60	2 600	$\pm 10\%$	48,0	72,0
5110	110	8 900	$\pm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



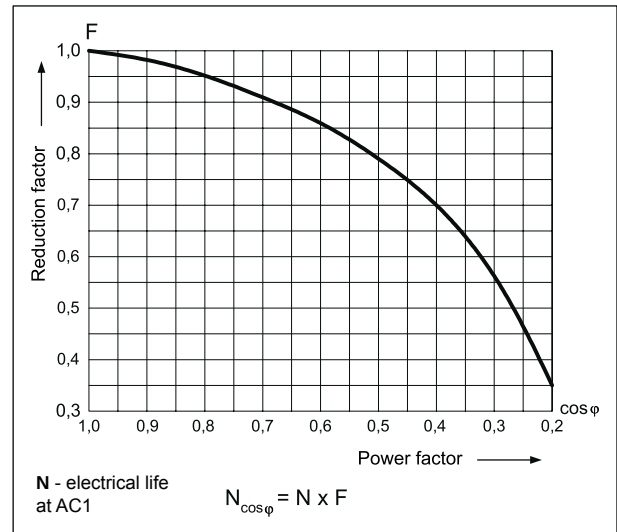
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



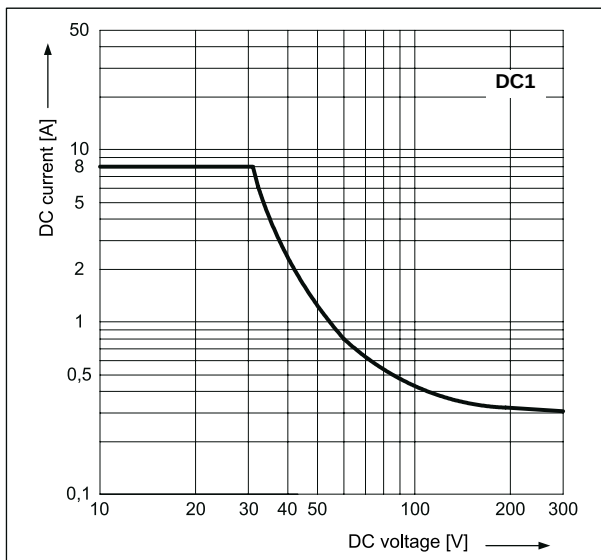
Electrical life reduction factor at AC inductive load

Fig. 2



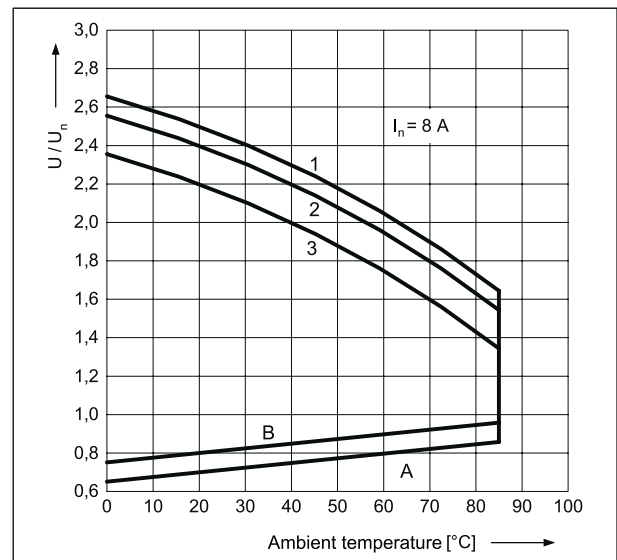
Max. DC resistive load breaking capacity

Fig. 3



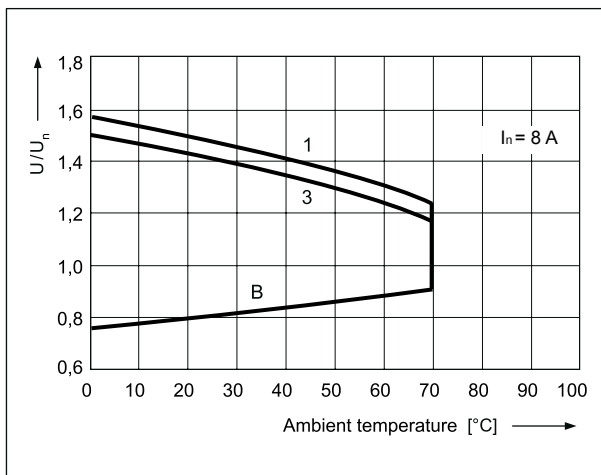
Coil operating range - DC

Fig. 4



Coil operating range - AC 50 Hz

Fig. 5



Description of Fig. 4 and 5

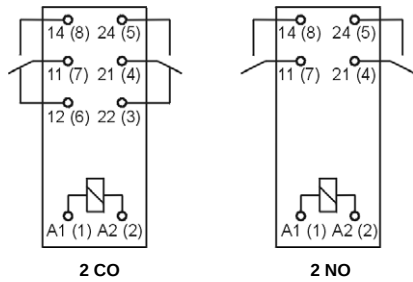
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

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:

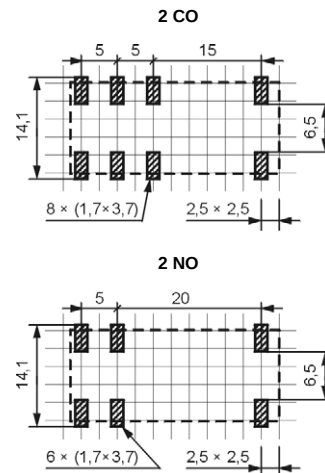
- 1** - no load
- 2** - 50% of rated load
- 3** - rated load

Connection diagrams (pin side view)



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

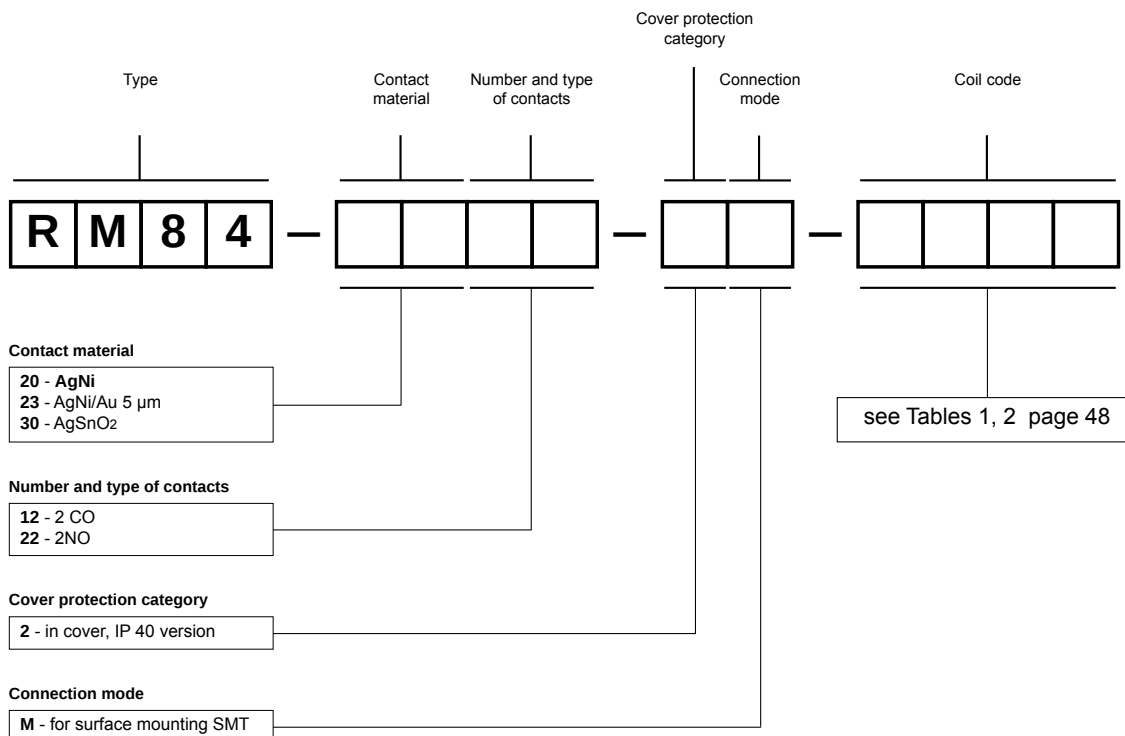
Soldering areas (solder side view)



Mounting

Relays **RM84 SMT** are designed for surface mounting SMT - for manual soldering.

Ordering codes



Examples of ordering code:

RM84-2012-2M-1024 relay **RM84 SMT**, for surface mounting SMT, two changeover contacts, contact material AgNi, coil voltage 24 V DC, in cover IP 40

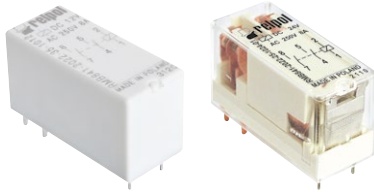
RM84-2322-2M-5012 relay **RM84 SMT**, for surface mounting SMT, two normally open contacts, contact material AgNi/Au 5 µm, coil voltage 12 V AC 50/60 Hz, in cover IP 40

RMB841

miniature relays, bistable with one coil

RMB841

RMB841-...-01 ②



- Bistable with one coil ① • Cadmium - free contacts
- Height 15,7 mm • 5000 V / 10 mm reinforced insulation
- For PCB and plug-in sockets • Accessories: sockets • DC coils
- Available special version: with transparent cover ②
- Applications: battery-powered devices;
other devices where the minimum power consumption is critical
- Compliance with standards: PN-EN 60335-1, PN-EN 61810-1, UL508
- Recognitions, certifications, directives: RoHS

Contact data

Number and type of contacts		2 NO
Contact material		AgNi
Rated / max. switching voltage	AC	250 V / 400 V
Max. switching voltage		250 V
Min. switching voltage		5 V
Rated load (capacity)	AC1 DC1	8 A / 250 V AC 8 A / 24 V DC
Min. switching current		5 mA
Max. inrush current		15 A
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,3 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 ... 24 V
Minimum voltages of	• pick-up / reset position	0,7 U _n / 0,55 U _n
Supply voltage pulse duration time		min. 15 ms / max. 1 min.
Rated power consumption	DC	0,9 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)		3 ms / 2 ms
Electrical life (number of cycles)		
• resistive AC1	3 x 10 ⁴	8 A, 250 V AC
• DC L/R=40 ms	10 ⁵	0,15 A, 220 V DC
Mechanical life (cycles)	2 x 10 ⁶	
Dimensions (L x W x H)		29 x 12,7 x 15,7 mm
Weight		14 g
Ambient temperature	• storage • operating	-40...+85 °C -20...+85 °C -20...+70 °C ②
Cover protection category		IP 40 ② or IP 67 PN-EN 60529
Environmental protection		RTII ② or RTIII PN-EN 116000-3
Shock resistance	• for contact state	11 g / 18 g open / closed contact
Vibration resistance	• for contact state	10 g / 5 g open / closed contact 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 Relays must be energizing only in pulse mode. Min. time of pulse duration 15 ms.

② For special version - relays in transparent cover: only available with IP 40 and RTII, operating temperature -40...+70 °C - see "Ordering codes"

Coil data - DC voltage version

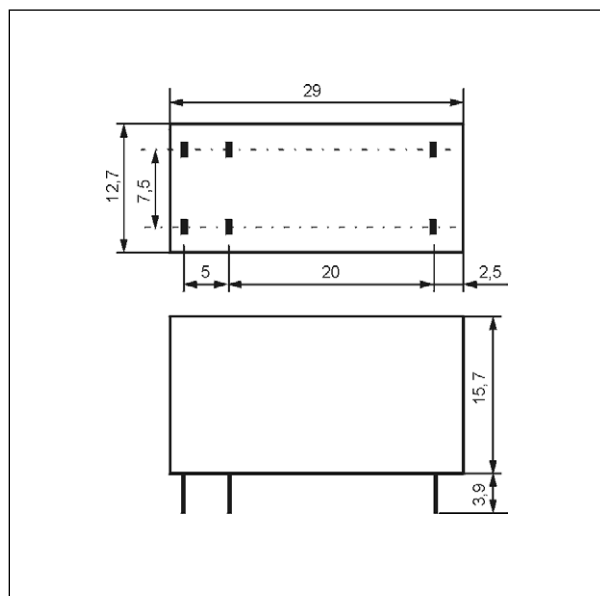
Table 1

Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Minimum pick-up voltage V DC (at 20 °C)	Reset ④ - minimum voltage V DC (at 20 °C)
1003	3	10	$\pm 10\%$	2,1	1,7
1005	5	28	$\pm 10\%$	3,5	2,8
1006	6	40	$\pm 10\%$	4,2	3,3
1012	12	160	$\pm 10\%$	8,4	6,6
1024	24	640	$\pm 10\%$	16,8	13,2

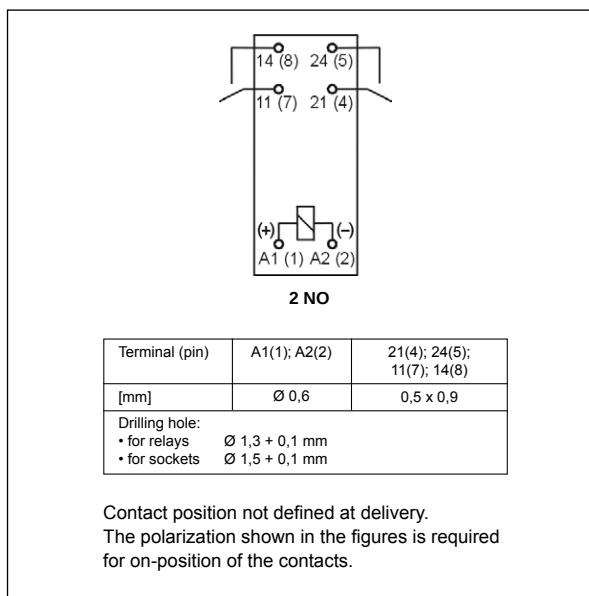
The data in bold type pertain to the standard versions of the relays.

④ Minimum voltage value required to reset the relay - open the contact.

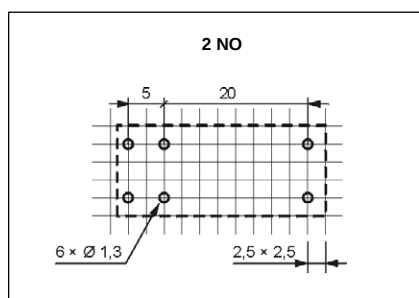
Dimensions



Connection diagrams (pin side view)



Pinout (solder side view)



Mounting

Relays **RMB841** ④ are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ⑤ and **GZM80** ⑥ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ⑥ with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw • spring terminals plug-in sockets **GZMB80** ⑥ with clip **GZMB80-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 • plug-in sockets for PCB mounting **EC 50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

④ For special version - relays in transparent cover: the distance of min. 5 mm between the mounting relays.

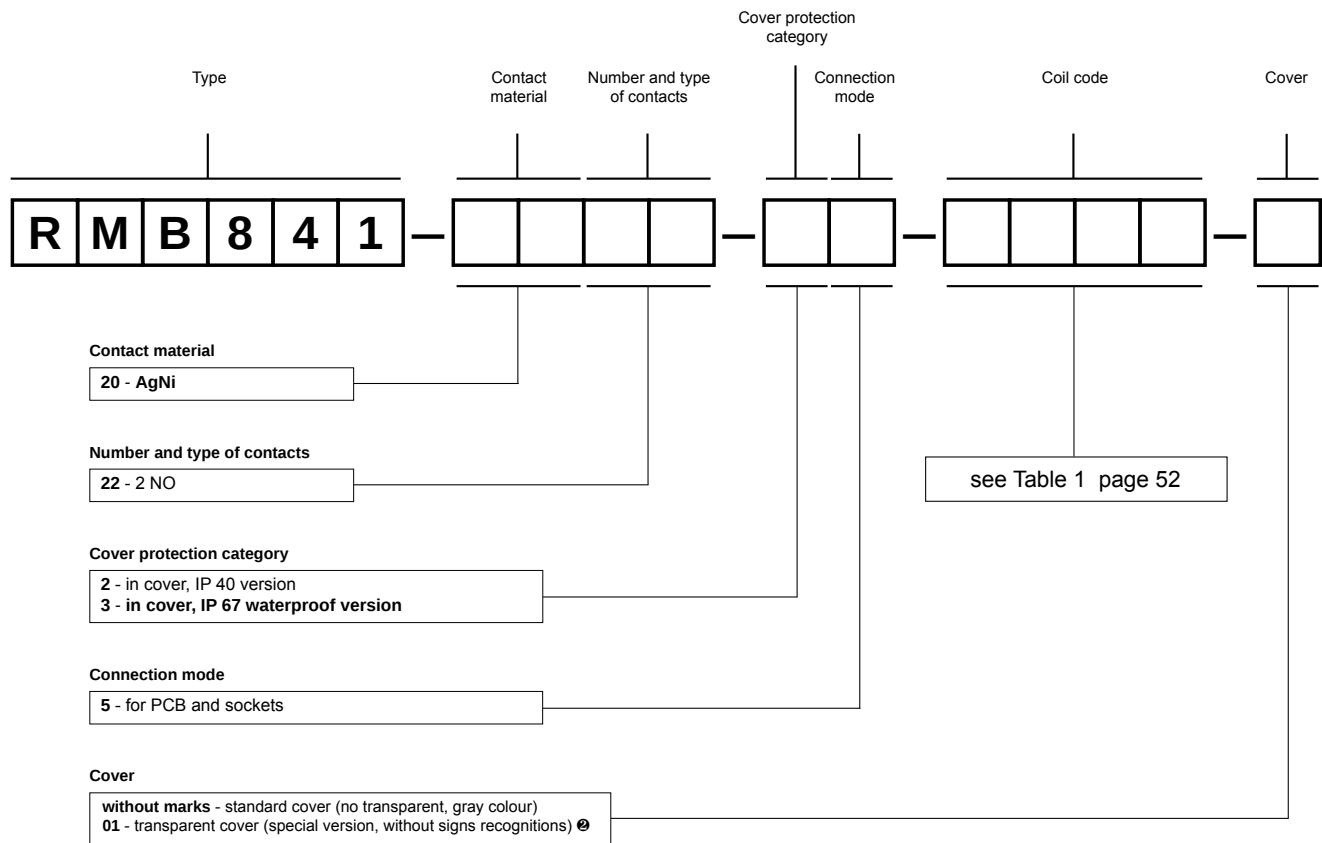
⑤ Plug-in sockets **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 262).

⑥ For sockets **GZMB80** - see page 247 (wire connection).

RMB841

miniature relays, bistable with one coil

Ordering codes



Examples of ordering code:

RMB841-2022-35-1012

relay **RMB841**, for PCB and sockets, two normally open contacts, contact material AgNi, coil voltage 12 V DC, in standard cover (no transparent, gray colour) IP 67

RMB841-2022-25-1024-01

relay **RMB841**, for PCB and sockets, two normally open contacts, contact material AgNi, coil voltage 24 V DC, in transparent cover (special version, without signs recognitions) IP 40

GZMB80

Spring terminals
plug-in socket
for RM84, RM85...,
RMB841, RMB851,
RM87L, RM87P
- see page 247.



RM85

miniature relays

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 CO, 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 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 1 000 V AC type of clearance: micro-disconnection
	• contact clearance	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...)
• cosφ		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) / Weight		29 x 12,7 x 15,7 mm / 14 g
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+70 °C DC: -40...+85 °C -40...+70 °C ①
Cover protection category		IP 40 ① or IP 67 PN-EN 60529
Environmental protection		RTII ① or RTIII PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		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.

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

② For special version with 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.

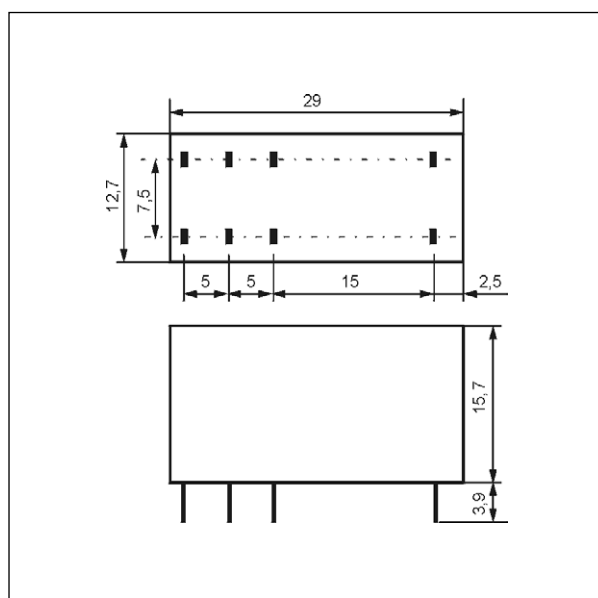
Coil data - AC 50/60 Hz voltage version

Table 2

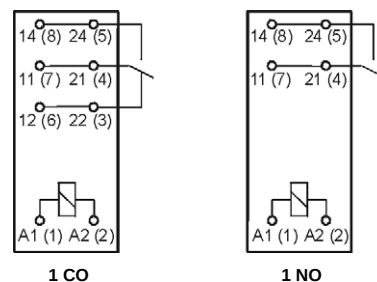
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
5048	48	1 550	$\pm 10\%$	38,4	57,6
5060	60	2 600	$\pm 10\%$	48,0	72,0
5110	110	8 900	$\pm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

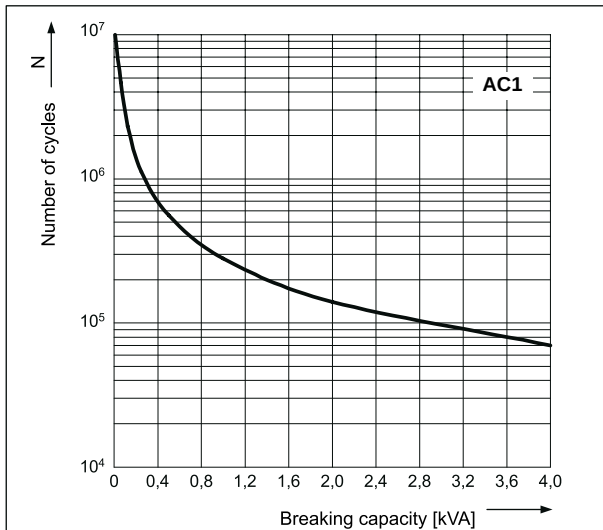


Terminal (pin)	A1(1); A2(2)	22(3); 21(4); 24(5); 12(6); 11(7); 14(8)
[mm]	$\varnothing 0,6$	$0,5 \times 0,9$
Drilling hole:		
• for relays	$\varnothing 1,3 \pm 0,1 \text{ mm}$	
• for sockets	$\varnothing 1,5 \pm 0,1 \text{ mm}$	

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

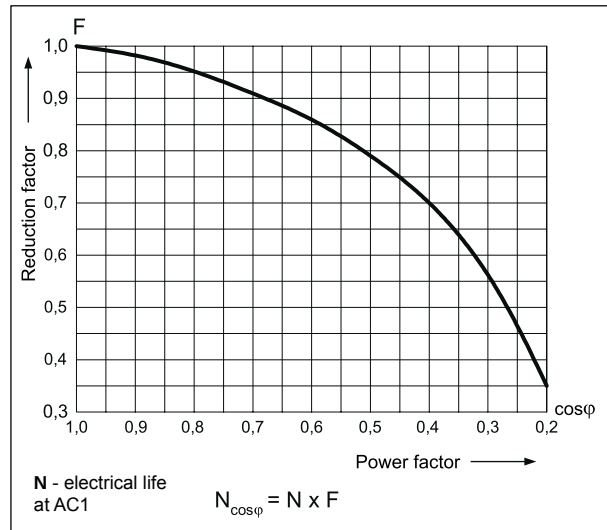
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



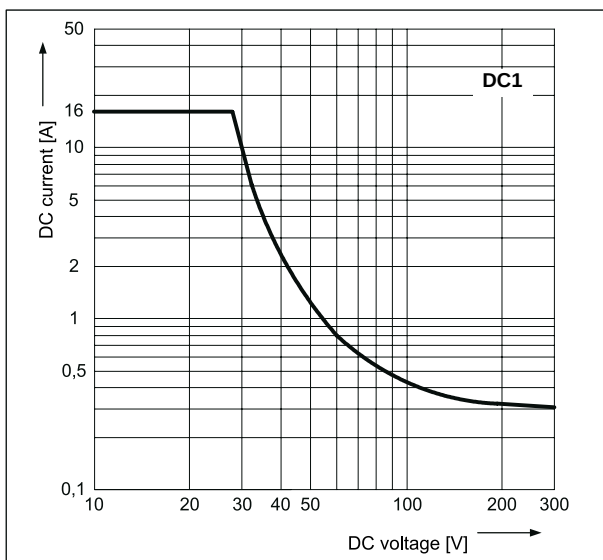
Electrical life reduction factor at AC inductive load

Fig. 2



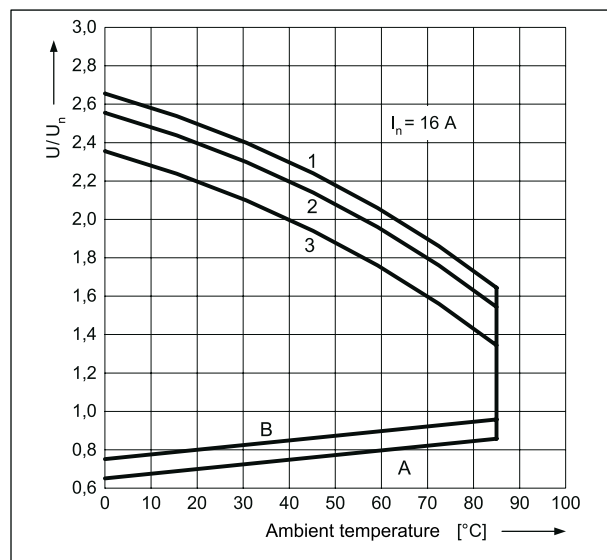
Max. DC resistive load breaking capacity

Fig. 3



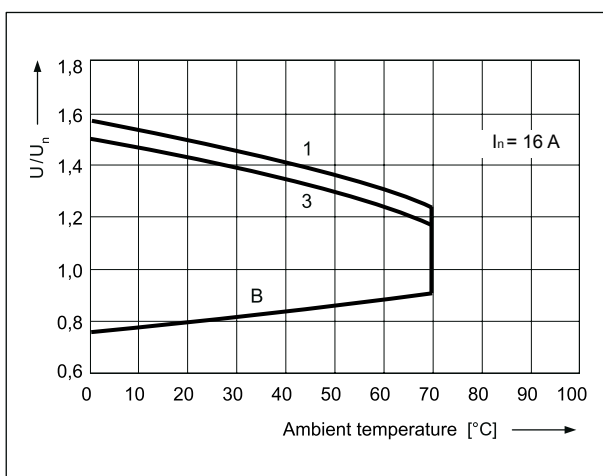
Coil operating range - DC

Fig. 4



Coil operating range - AC 50 Hz

Fig. 5



Description of Fig. 4 and 5

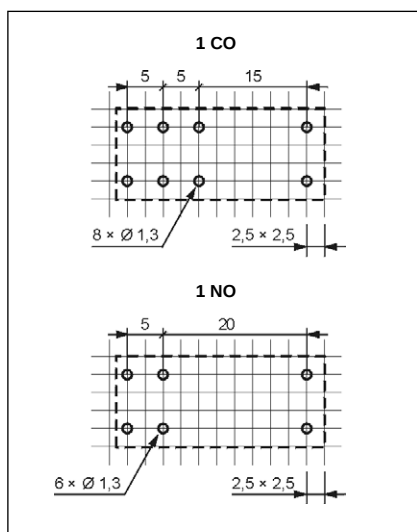
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

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)

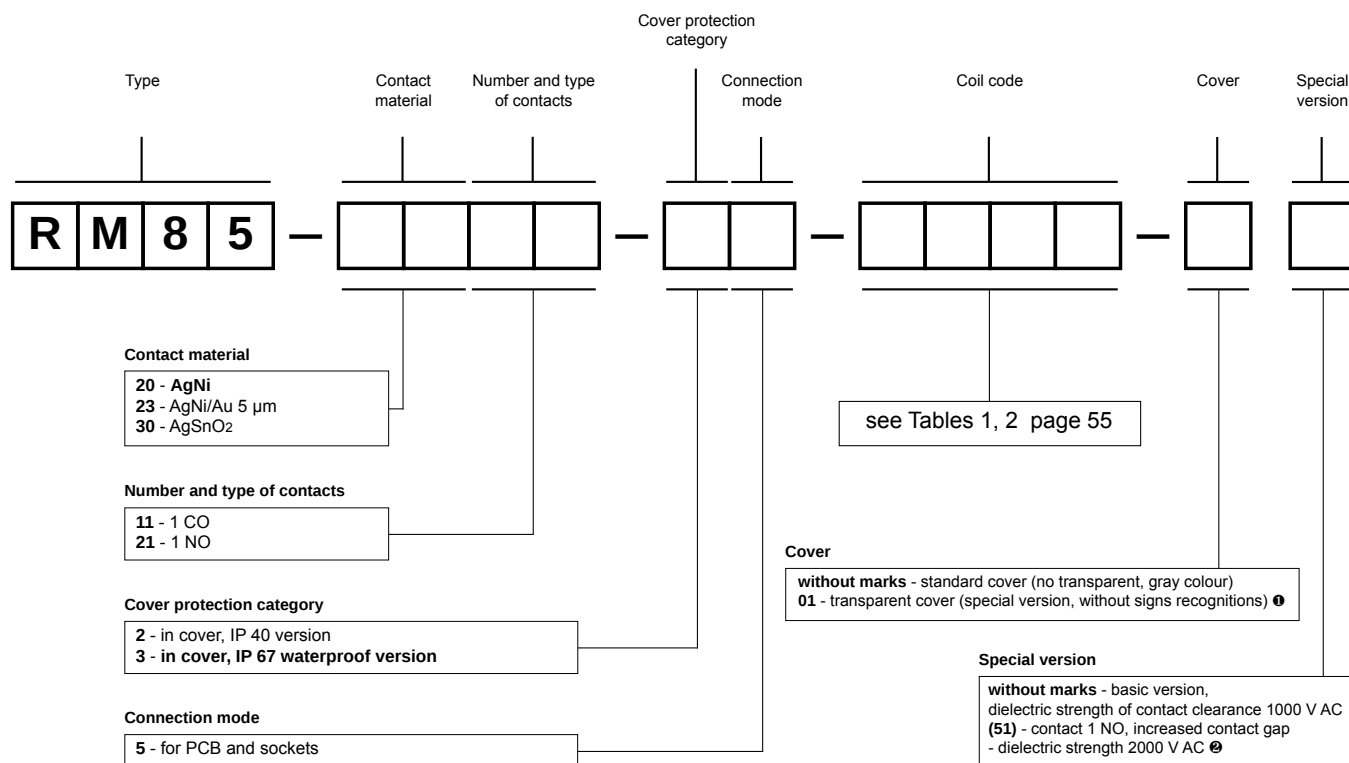


Mounting

Relays **RM85** ④ are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ④ ⑤ and **GZM80** ④ ⑤ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ④ ⑤ with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw • spring terminals plug-in sockets **GZMB80** ④ ⑤ with clip **GZMB80-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715. Signalling / protecting modules **type M...** are available with sockets (see page 261) • plug-in sockets for PCB mounting **EC 50** with clip **MP16-2**, **MH16-2**; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, **GD-0016**, **MH16-2**.

- ④ For special version - relays in transparent cover: the distance of min. 5 mm between the mounting relays.
- ⑤ Loads above 12 A (**GZT80**, **GZM80**) or 10 A (**GZS80**, **GZMB80**) require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see pages 167, 175 (PI85 - connection).
- ⑥ Plug-in sockets **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 262).
- ⑦ For sockets **GZMB80** - see page 247 (wire connection).

Ordering codes



Examples of ordering code:

RM85-3011-25-5024

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

RM85-2011-25-1012-01

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

RM85-2321-35-1024 (51)

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

RM85 for switching higher voltages miniature relays



- **Switching voltage 480 V AC**
- 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 AC15 AC3 DC1 DC13	5 A / 480 V AC 3 A / 120 V 1,5 A / 240 V (B300) 750 W (single-phase motor) 16 A / 24 V DC 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	DC	3 ... 110 V
Must release voltage		≥ 0,1 U _n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	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)		
• resistive AC1		> 4 x 10 ⁴ 5 A, 480 V AC
Mechanical life	3 600 cycles/hour	> 3 x 10 ⁷
Electromagnetic 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 • operating	-40...+85 °C -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.

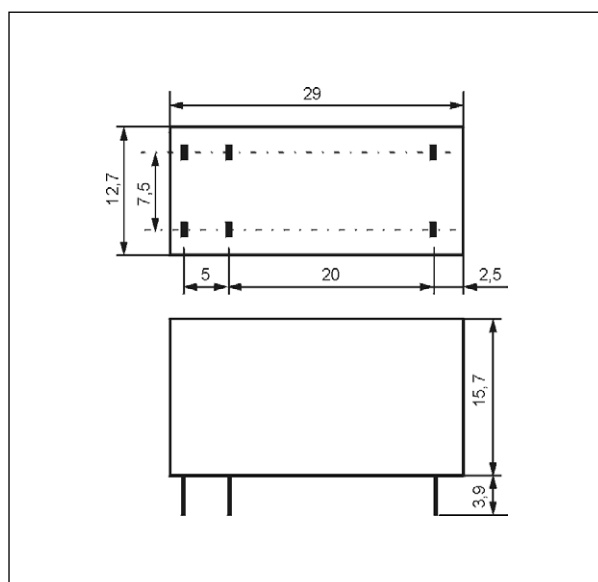
Coil data - DC voltage version

Table 1

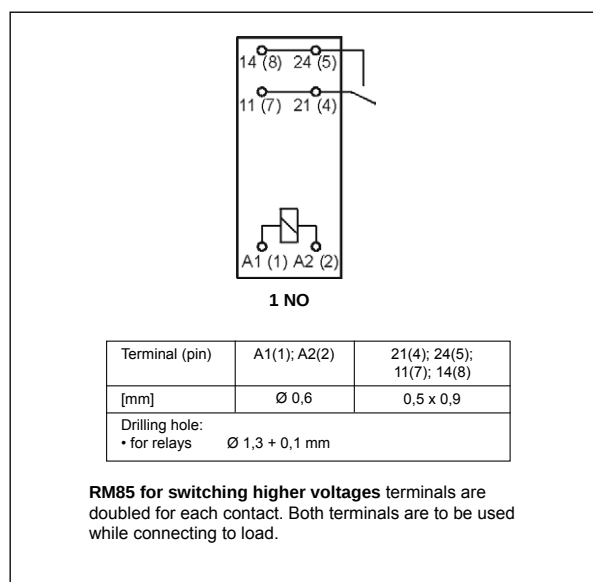
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	$\pm 10\%$	2,1	7,6
1005	5	60	$\pm 10\%$	3,5	12,7
1006	6	90	$\pm 10\%$	4,2	15,3
1009	9	200	$\pm 10\%$	6,3	22,9
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18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

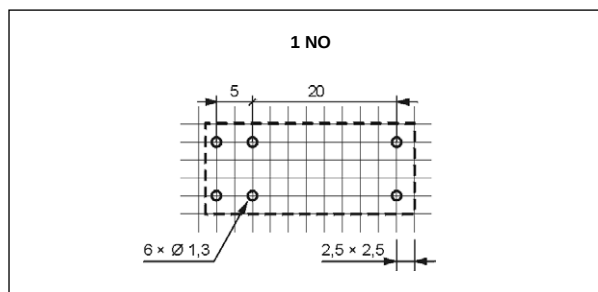
Dimensions



Connection diagram (pin side view)



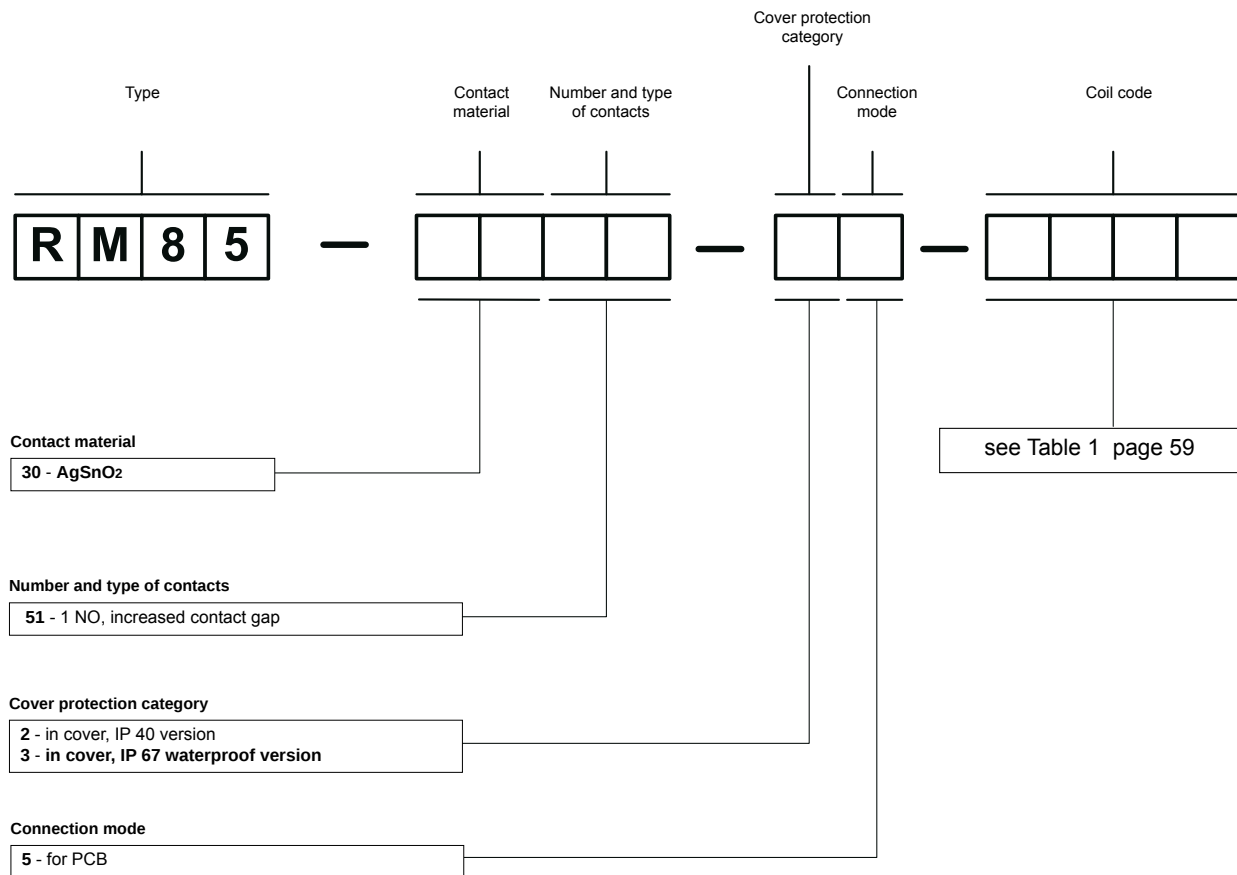
Pinout (solder side view)



Mounting

Relays **RM85 for switching higher voltages** are designed for direct PCB mounting.

Ordering codes



Example of ordering code:

RM85-3051-35-1012

relay **RM85**, with increased contact gap, for PCB, one normally open contact, contact material AgSnO₂, coil voltage 12 V DC, in cover IP 67

RM85 inrush miniature relays



- 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
- DC coils • Accessories: sockets and modules
- 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 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. 2) 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
• cosφ		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 • operating	-40...+85 °C -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.

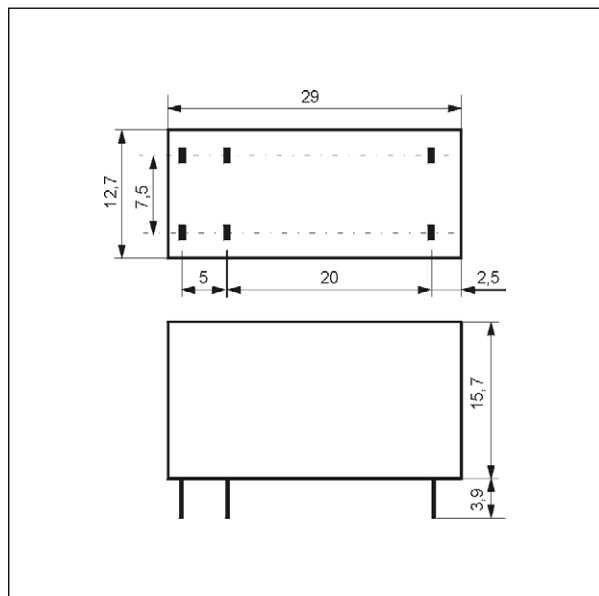
Coil data - DC voltage version

Table 1

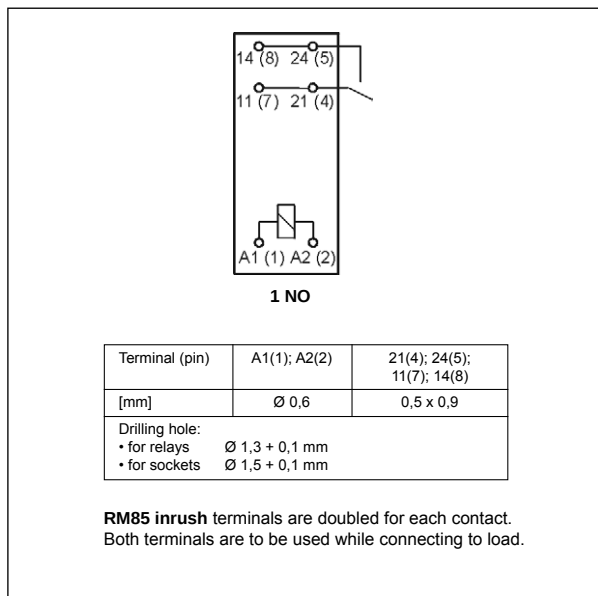
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	$\pm 10\%$	2,1	7,6
1005	5	60	$\pm 10\%$	3,5	12,7
1006	6	90	$\pm 10\%$	4,2	15,3
1009	9	200	$\pm 10\%$	6,3	22,9
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18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

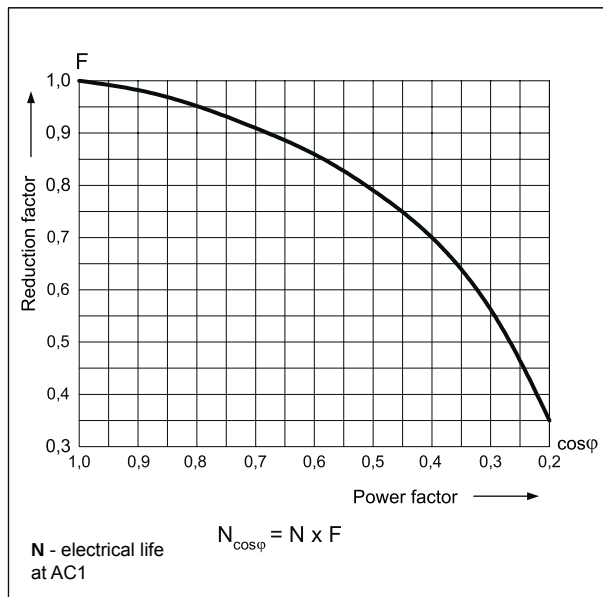


Connection diagram (pin side view)



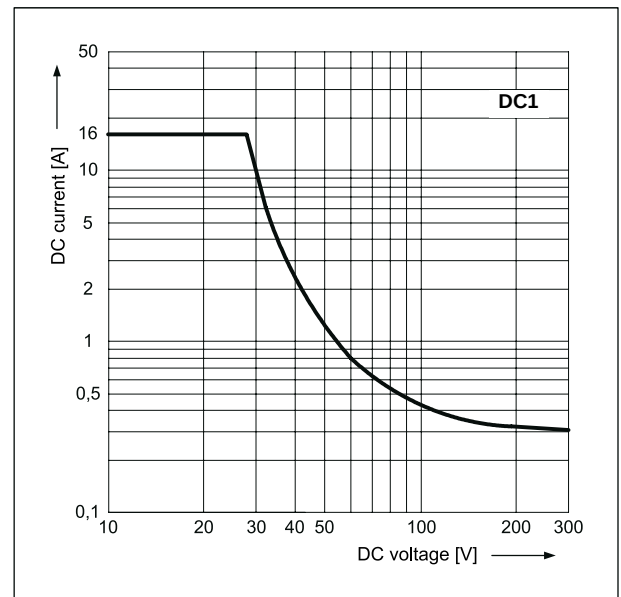
Electrical life reduction factor at AC inductive load

Fig. 1



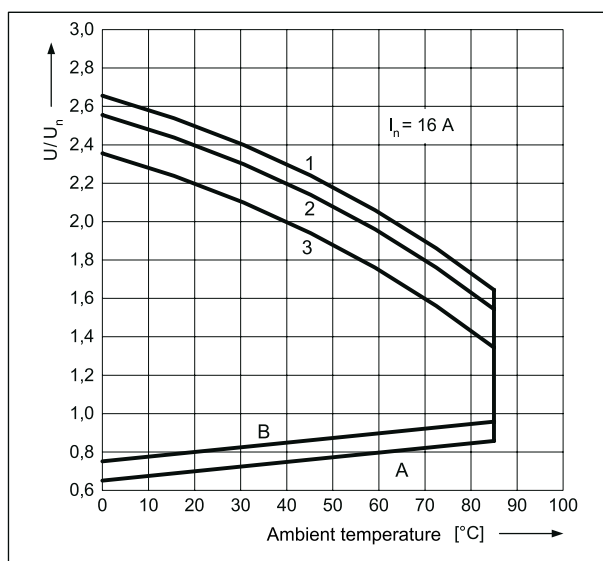
Max. DC resistive load breaking capacity

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).

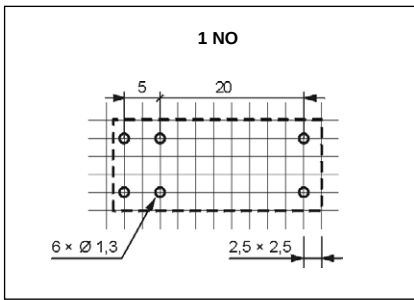
1, 2, 3 - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:

- 1 - no load
- 2 - 50% of rated load
- 3 - rated load

RM85 inrush

miniature relays

Pinout (solder side view)



Mounting

Relays **RM85 inrush** are designed for:

- direct PCB mounting
- screw terminals plug-in sockets **GZT80** ❶❷ and **GZM80** ❶❷ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❶❸ with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw
- spring terminals plug-in sockets **GZMB80** ❶❹ with clip **GZMB80-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715.

Signalling / protecting modules **type M...** are available with sockets (see page 261)

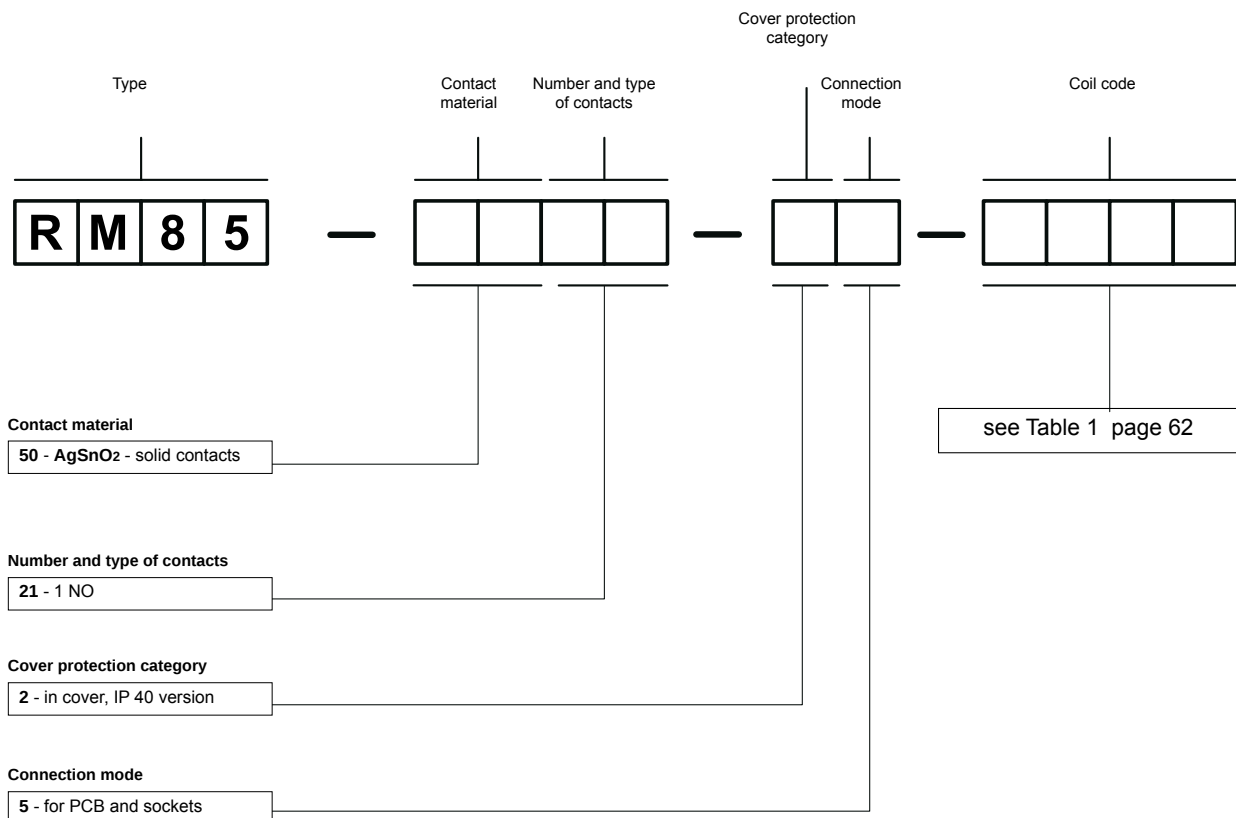
- plug-in sockets for PCB mounting **EC 50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

❶ Loads above 12 A (GZT80, GZM80) or 10 A (GZS80, GZMB80) require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see pages 167, 175 (PI85 - connection).

❷ Plug-in sockets **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 262).

❹ For sockets **GZMB80** - see page 247 (wire connection).

Ordering codes



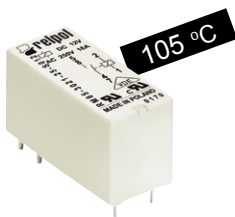
Example of ordering code:

RM85-5021-25-1012

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

RM85 105 °C sensitive

miniature relays



- 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 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. 2) 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
	• cosφ	see Fig. 1
	• DC L/R=40 ms	> 10 ⁵ 0,15 A, 220 V DC
Mechanical life (cycles)		> 3 x 10 ⁷
Dimensions (L x W x H)		29 x 12,7 x 15,7 mm
Weight		14 g
Ambient temperature	• storage • operating	-40...+105 °C -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.

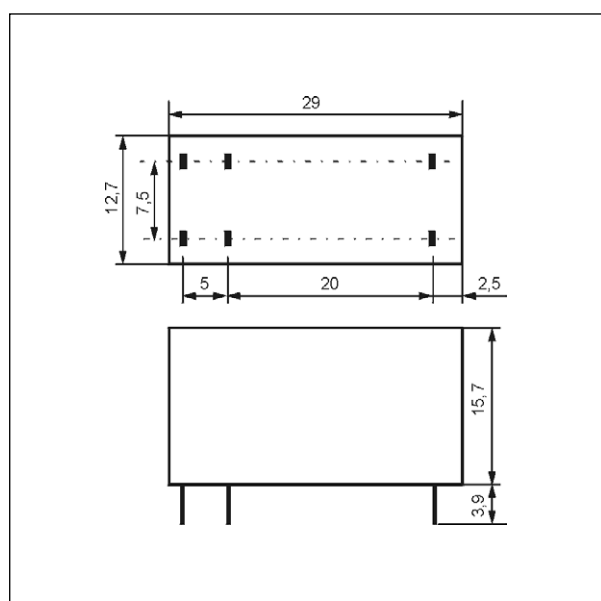
RM85 105 °C sensitive miniature relays

Coil data - DC voltage version, sensitive version

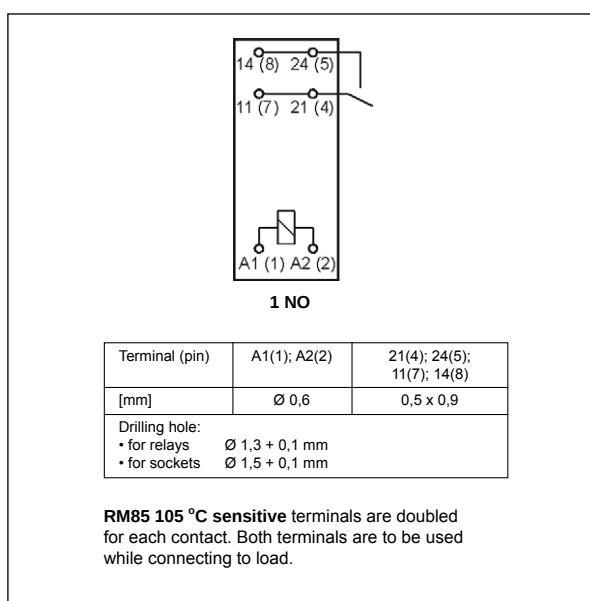
Table 1

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

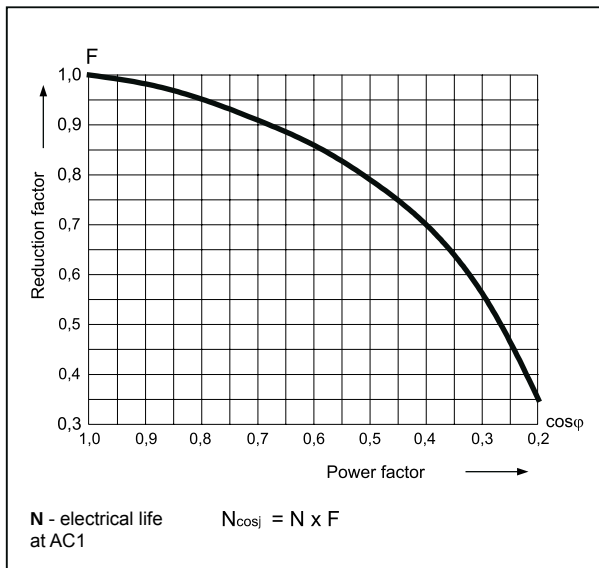


Connection diagram (pin side view)



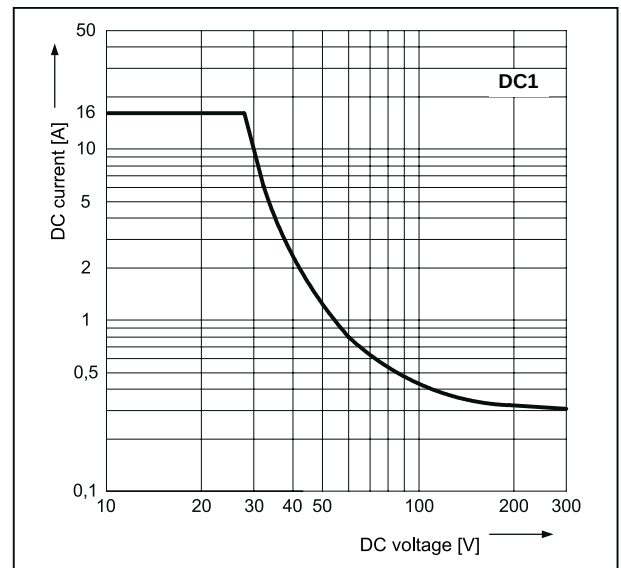
**Electrical life reduction factor
at AC inductive load**

Fig. 1



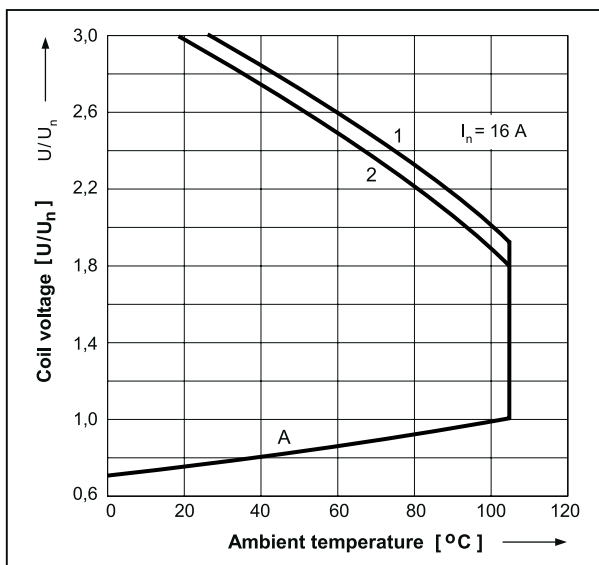
Max. DC resistive load breaking capacity

Fig. 2



Coil operating range - DC

Fig. 3



Description of Fig. 3

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

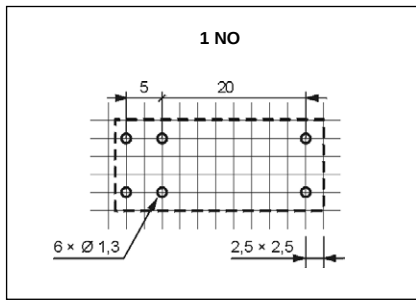
1, 2 - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:

1 - no load

2 - rated load

RM85 105 °C sensitive miniature relays

Pinout (solder side view)



Mounting

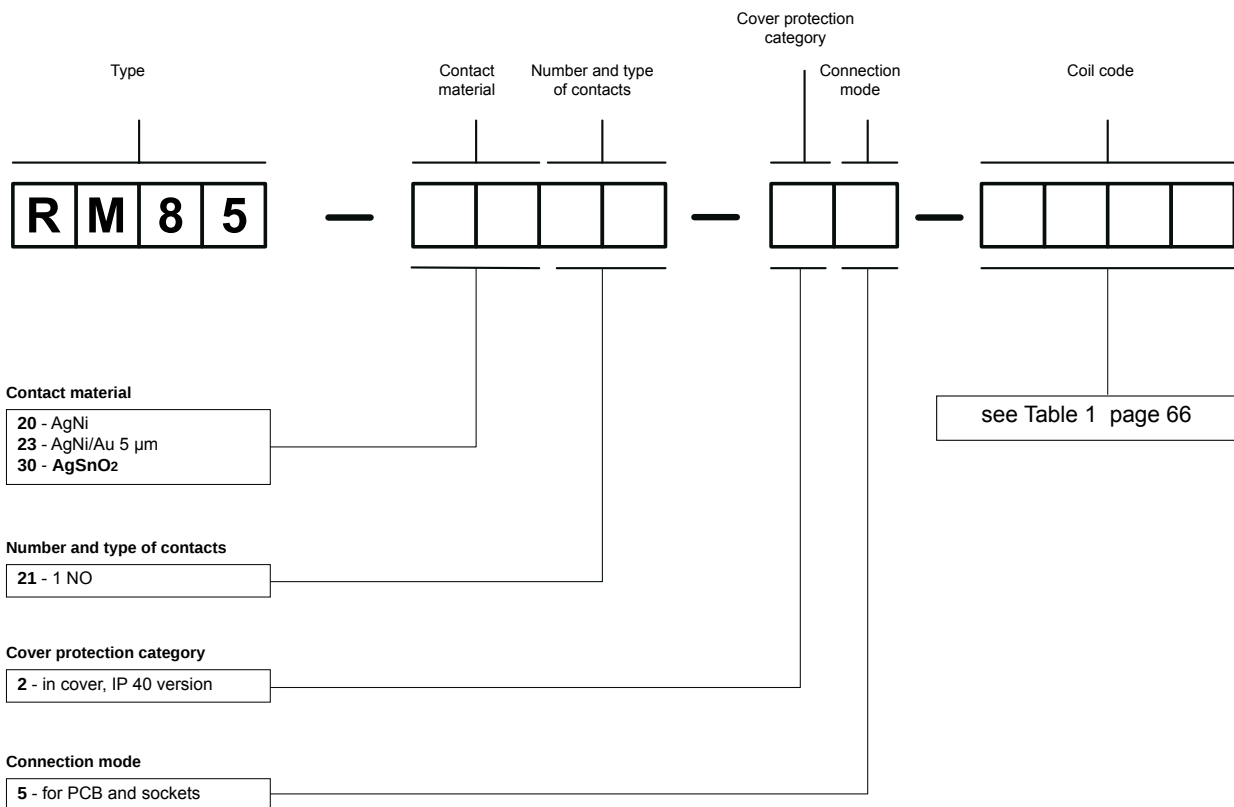
Relays **RM85 105 °C sensitive** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80 ① ②** and **GZM80 ① ②** with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80 ① ②** with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw • spring terminals plug-in sockets **GZMB80 ① ③** with clip **GZMB80-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715. Signalling / protecting modules **type M...** are available with sockets (see page 261) • plug-in sockets for PCB mounting **EC 50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

① Loads above 12 A (GZT80, GZM80) or 10 A (GZS80, GZMB80) require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see pages 167, 175 (PI85 - connection).

② Plug-in sockets **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 262).

③ For sockets **GZMB80** - see page 247 (wire connection).

Ordering codes



Examples of ordering code:

RM85-3021-25-S012

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

RM85-2321-25-S005

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

RM85 SMT

miniature relays



- Cadmium - free contacts
- Height 17,7 mm
- 5000 V / 10 mm reinforced insulation
- **For surface mounting SMT** - for manual soldering
- AC and DC coils
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,    

Contact data

Number and type of contacts		1 CO, 1 NO
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
• cosφ		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 13,2 x 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

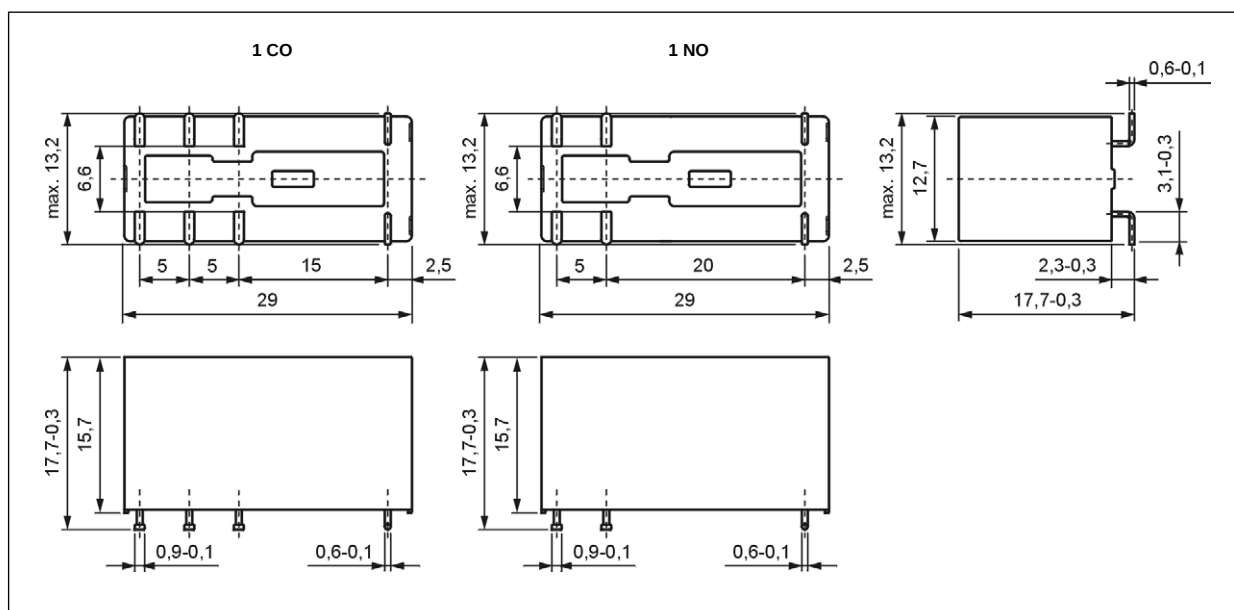
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	$\pm 10\%$	2,1	7,6
1005	5	60	$\pm 10\%$	3,5	12,7
1006	6	90	$\pm 10\%$	4,2	15,3
1009	9	200	$\pm 10\%$	6,3	22,9
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18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

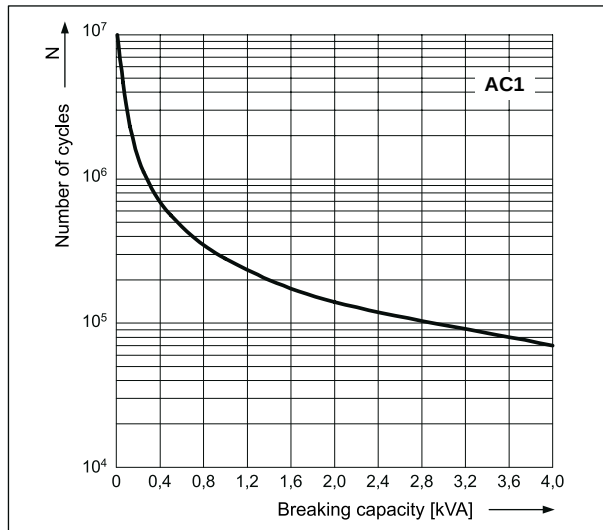
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
5048	48	1 550	$\pm 10\%$	38,4	57,6
5060	60	2 600	$\pm 10\%$	48,0	72,0
5110	110	8 900	$\pm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



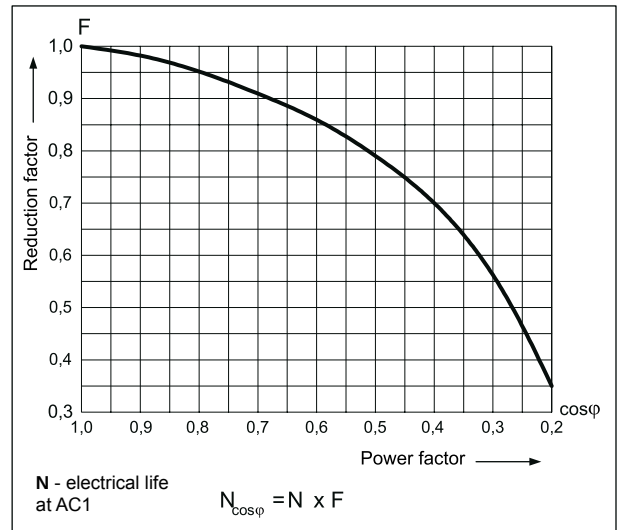
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



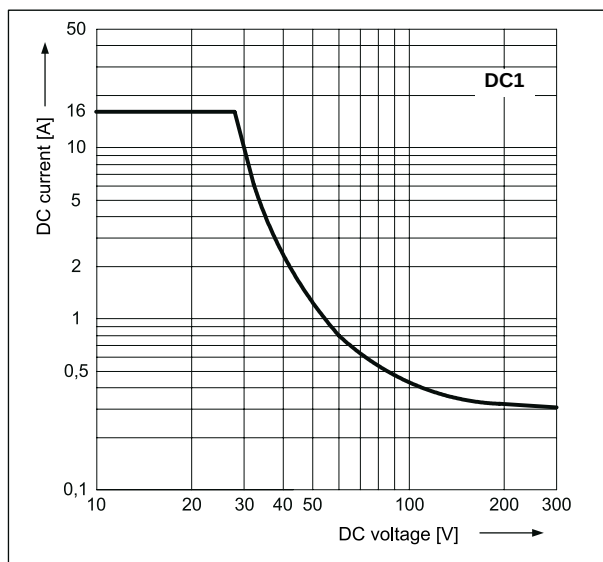
Electrical life reduction factor at AC inductive load

Fig. 2



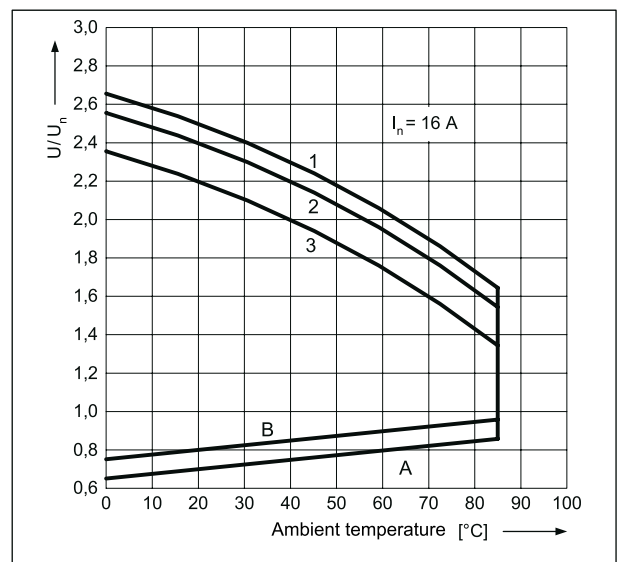
Max. DC resistive load breaking capacity

Fig. 3



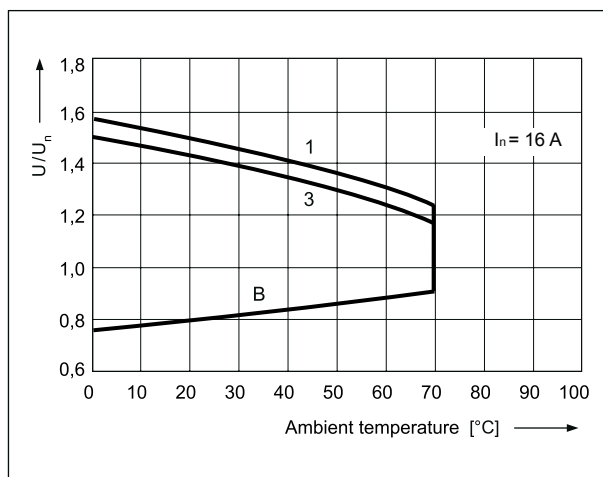
Coil operating range - DC

Fig. 4



Coil operating range - AC 50 Hz

Fig. 5



Description of Fig. 4 and 5

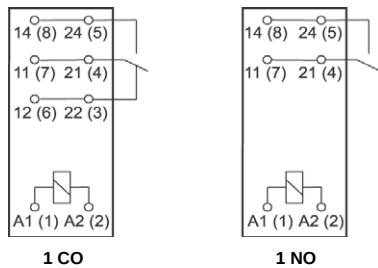
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

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

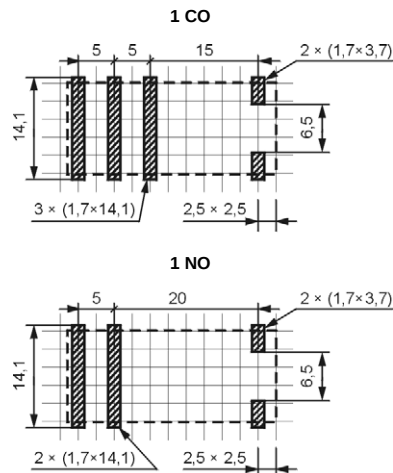
Connection diagrams (pin side view)



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

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

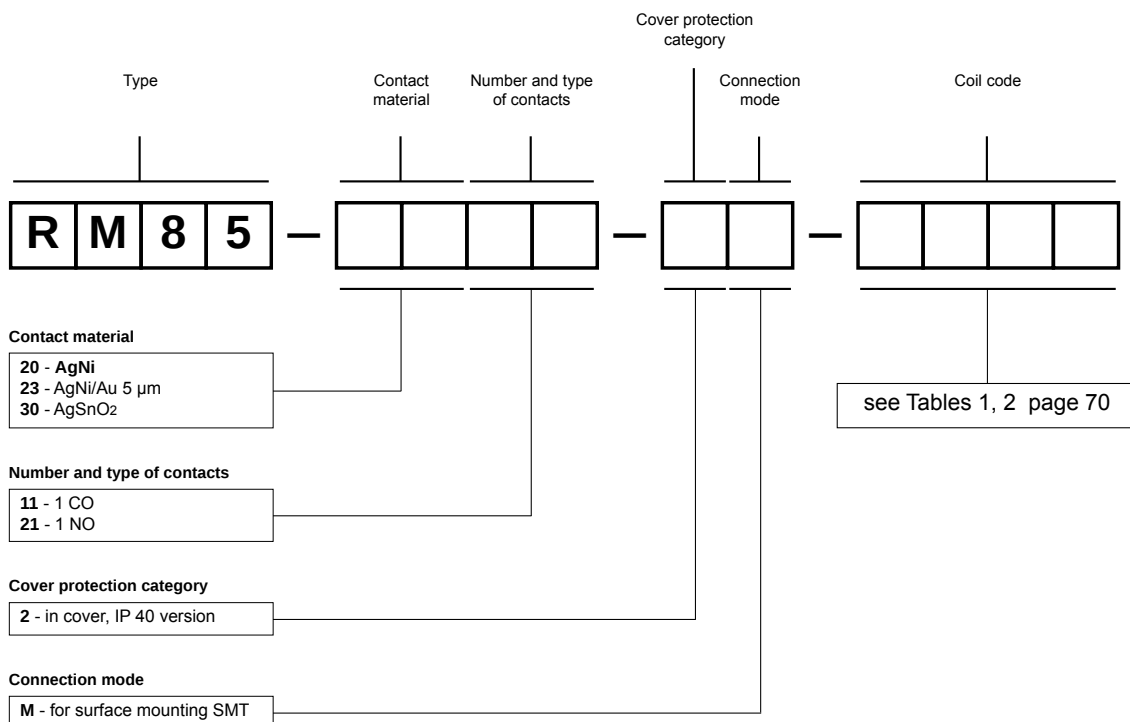
Soldering areas (solder side view)



Mounting

Relays RM85 SMT are designed for surface mounting SMT - for manual soldering.

Ordering codes



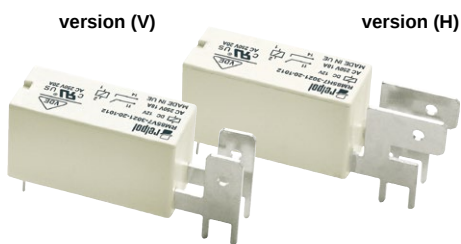
Examples of ordering code:

RM85-2011-2M-1024 relay RM85 SMT, for surface mounting SMT, one changeover contact, contact material AgNi, coil voltage 24 V DC, in cover IP 40

RM85-2321-2M-5012 relay RM85 SMT, for surface mounting SMT, one normally open contact, contact material AgNi/Au 5 µm, coil voltage 12 V AC 50/60 Hz, in cover IP 40

RM85 faston

miniature relays



- 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 AC15 AC3 DC1 DC13	20 A / 250 V AC 3 A / 120 V 1,5 A / 240 V (B300) 750 W (single-phase motor) 20 A / 24 V DC 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
• cosφ		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 • operating	-40...+105 °C -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.

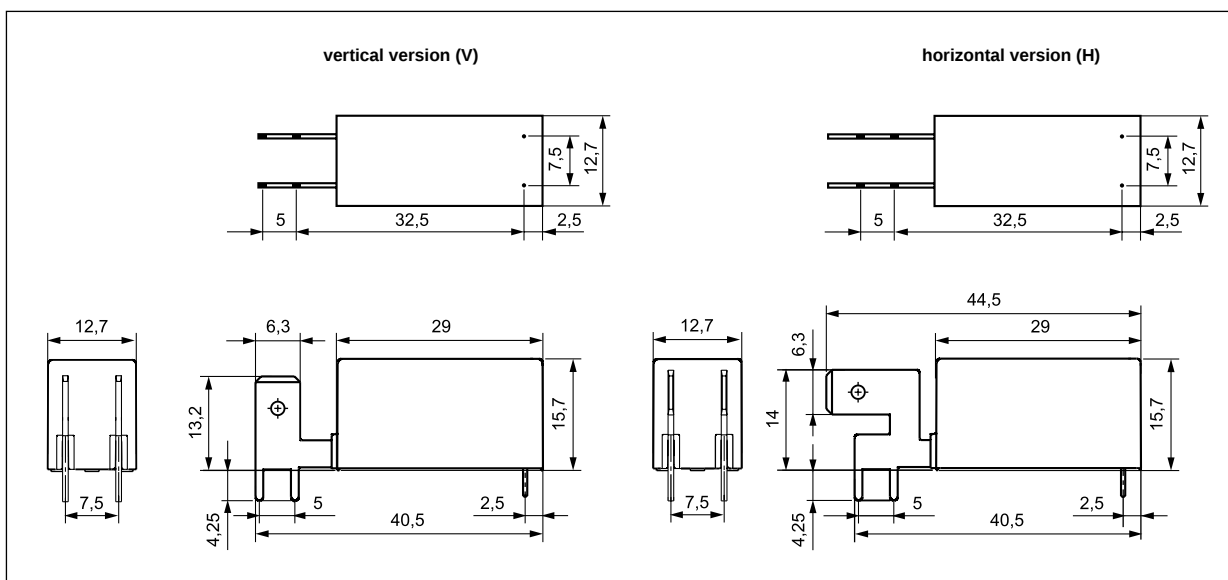
Coil data - DC voltage version, sensitive version

Table 1

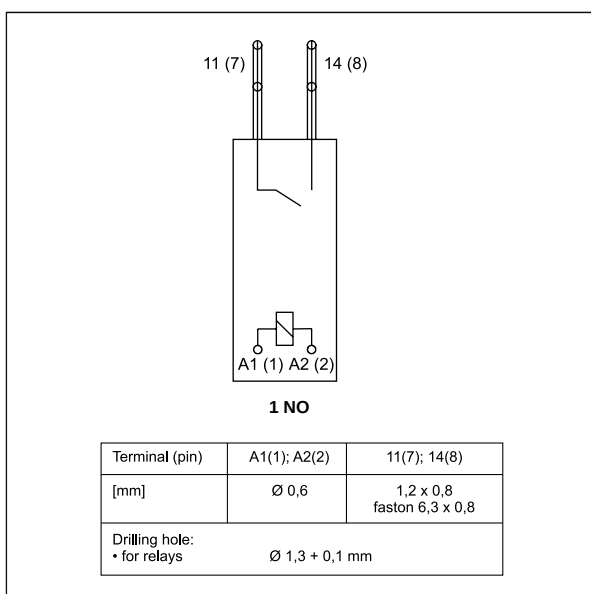
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S005	5	102	$\pm 10\%$	3,75	15,0
S006	6	144	$\pm 10\%$	4,50	18,0
S009	9	330	$\pm 10\%$	6,75	27,0
S010	10	380	$\pm 10\%$	7,50	30,0
S012	12	580	$\pm 10\%$	9,00	36,0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

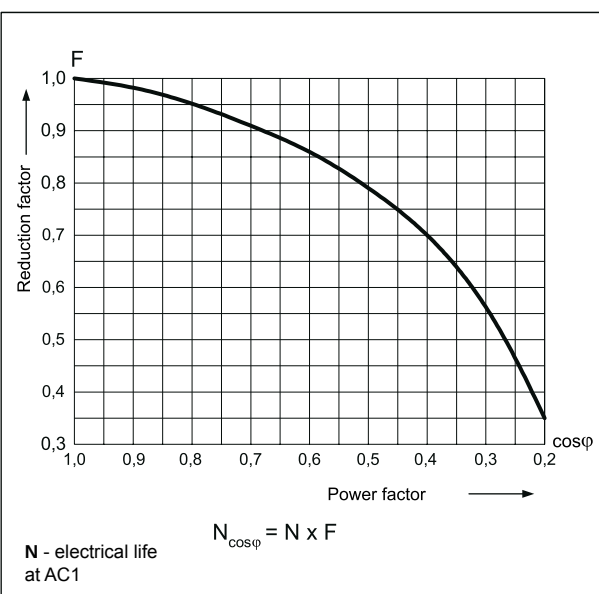


Connection diagram (pin side view)



Electrical life reduction factor at AC inductive load

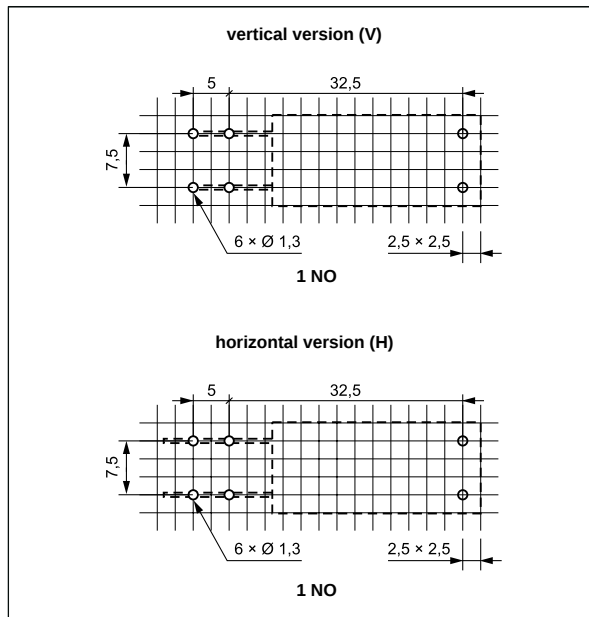
Fig. 1



RM85 faston

miniature relays

Pinout (solder side view)

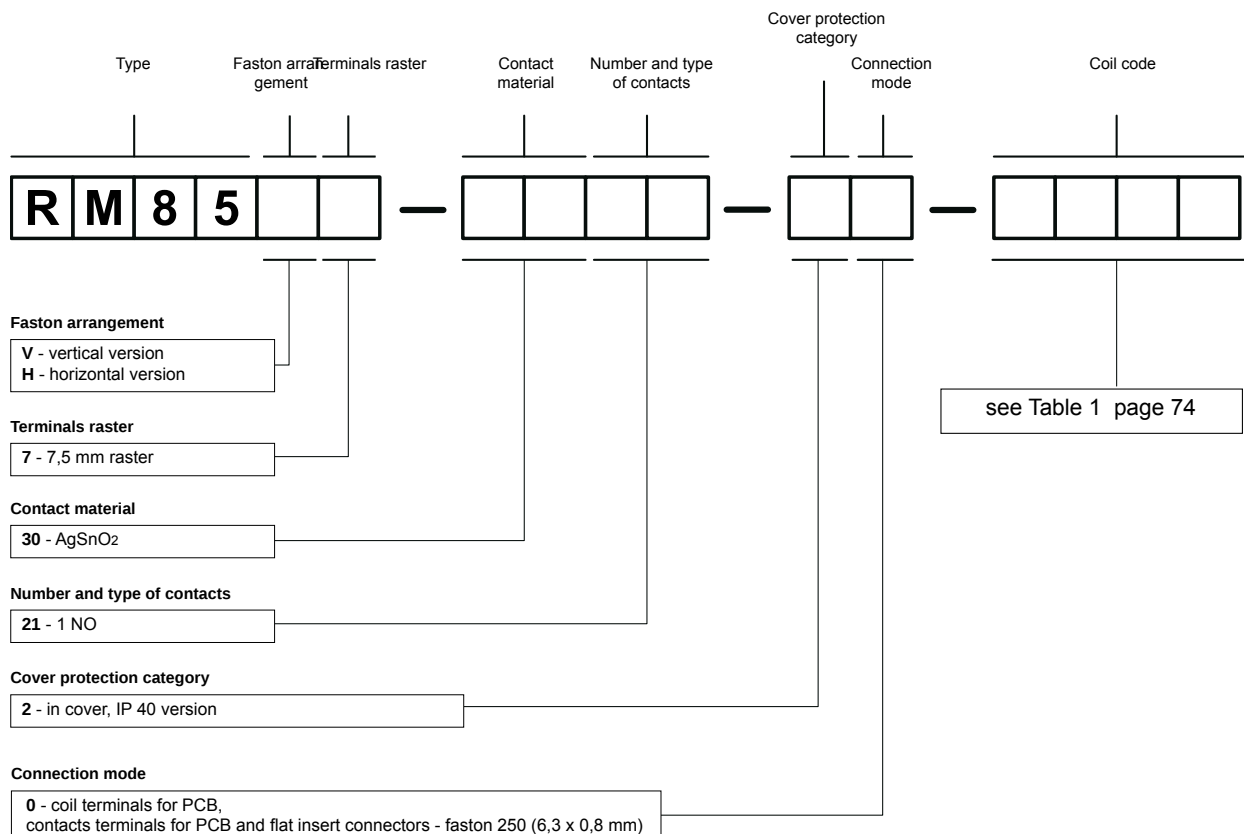


Mounting

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



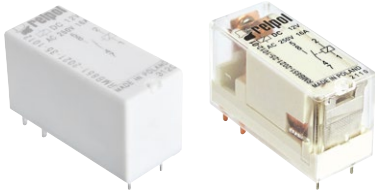
Example of ordering code:

RM85V7-3021-20-S012

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

RMB851

RMB851-....-01 ②



- Bistable with one coil ① • Cadmium - free contacts
- Height 15,7 mm • 5000 V / 10 mm reinforced insulation
- For PCB and plug-in sockets • Accessories: sockets • DC coils
- Available special version: with transparent cover ②
- Applications: battery-powered devices;
other devices where the minimum power consumption is critical
- Compliance with standards: PN-EN 60335-1, PN-EN 61810-1, UL508
- Recognitions, certifications, directives: RoHS

Contact data

Number and type of contacts		1 NO
Contact material		AgNi
Rated / max. switching voltage	AC	250 V / 400 V
Max. switching voltage		250 V
Min. switching voltage		5 V
Rated load (capacity)	AC1 DC1	16 A / 250 V AC 16 A / 24 V DC
Min. switching current		5 mA
Max. inrush current		30 A
Rated current		16 A
Max. breaking capacity	AC1	4 000 VA
Min. breaking capacity		0,3 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 ... 24 V
Minimum voltages of	• pick-up / reset position	0,7 U _n / 0,55 U _n
Supply voltage pulse duration time		min. 15 ms / max. 1 min.
Rated power consumption	DC	0,9 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
• contact clearance		1 000 V AC
		type of insulation: reinforced type of clearance: micro-disconnection
Contact - coil distance		
• clearance		≥ 10 mm
• creepage		≥ 10 mm

General data

Operating / release time (typical values)		3 ms / 2 ms
Electrical life (number of cycles)		
• resistive AC1		3 x 10 ⁴ 16 A, 250 V AC
• DC L/R=40 ms		10 ⁵ 0,15 A, 220 V DC
Mechanical life (cycles)		5 x 10 ⁶
Dimensions (L x W x H)		29 x 12,7 x 15,7 mm
Weight		14 g
Ambient temperature	• storage • operating	-40...+85 °C -20...+85 °C -20...+70 °C ②
Cover protection category		IP 40 ② or IP 67 PN-EN 60529
Environmental protection		RTII ② or RTIII PN-EN 116000-3
Shock resistance	• for contact state	11 g / 18 g open / closed contact
Vibration resistance	• for contact state	10 g / 5 g open / closed contact 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 Relays must be energizing only in pulse mode. Min. time of pulse duration 15 ms.

② For special version - relays in transparent cover: only available with IP 40 and RTII, operating temperature -40...+70 °C - see "Ordering codes"

Coil data - DC voltage version

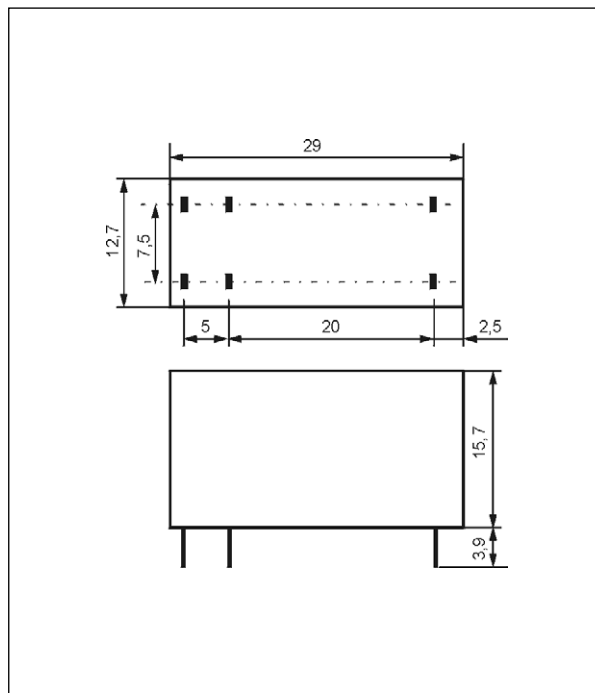
Table 1

Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Minimum pick-up voltage V DC (at 20 °C)	Reset ④ - minimum voltage V DC (at 20 °C)
1003	3	10	$\pm 10\%$	2,1	1,7
1005	5	28	$\pm 10\%$	3,5	2,8
1006	6	40	$\pm 10\%$	4,2	3,3
1012	12	160	$\pm 10\%$	8,4	6,6
1024	24	640	$\pm 10\%$	16,8	13,2

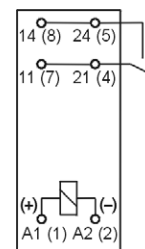
The data in bold type pertain to the standard versions of the relays.

④ Minimum voltage value required to reset the relay - open the contact.

Dimensions



Connection diagrams (pin side view)



1 NO

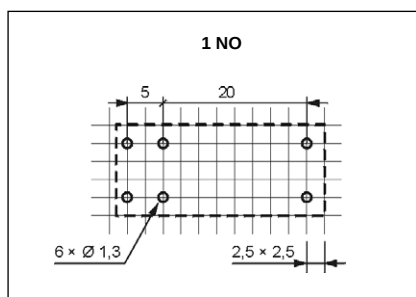
Terminal (pin)	A1(1); A2(2)	21(4); 24(5); 11(7); 14(8)
[mm]	$\varnothing 0,6$	$0,5 \times 0,9$
Drilling hole:		
• for relays	$\varnothing 1,3 \pm 0,1$ mm	
• for sockets	$\varnothing 1,5 \pm 0,1$ mm	

Contact position not defined at delivery.

The polarization shown in the figures is required for on-position of the contacts.

RMB851 terminals are doubled for each contact.
Both terminals are to be used while connecting to load.

Pinout (solder side view)



Mounting

Relays RMB851 ④ are designed for:

- direct PCB mounting
- screw terminals plug-in sockets GZT80 ⑤ ⑥ and GZM80 ⑤ ⑥ with clip GZT80-0040 or GZM80-0041;
- plug-in sockets GZS80 ⑤ ⑥ with clip GZS-0040 or GZM80-0041, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw
- spring terminals plug-in sockets GZMB80 ⑤ ⑦ with clip GZMB80-0040 or GZM80-0041, 35 mm rail mount acc. to PN-EN 60715
- plug-in sockets for PCB mounting EC 50 with clip MP16-2, MH16-2;
- plug-in sockets PW80 with clip MH16-2;
- plug-in sockets GD50 with clip MP16-2, GD-0016, MH16-2.

④ For special version - relays in transparent cover: the distance of min. 5 mm between the mounting relays.

⑤ Loads above 12 A (GZT80, GZM80) or 10 A (GZS80, GZMB80) require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see pages 167, 175 (PI85 - connection).

⑥ Plug-in sockets GZT80, GZM80, GZS80 may be linked with interconnection strip type ZGGZ80 (see page 262).

⑦ For sockets GZMB80 - see page 247 (wire connection).

RMB851

miniature relays, bistable with one coil

Ordering codes

Type	Contact material	Number and type of contacts	Cover protection category	Connection mode	Coil code	Cover
RMB851						
Contact material 20 - AgNi Number and type of contacts 21 - 1 NO Cover protection category 2 - in cover, IP 40 version 3 - in cover, IP 67 waterproof version Connection mode 5 - for PCB and sockets Cover without marks - standard cover (no transparent, gray colour) 01 - transparent cover (special version, without signs recognitions) ☉						

see Table 1 page 77

Examples of ordering code:

RMB851-2021-35-1012

relay **RMB851**, for PCB and sockets, one normally open contact, contact material AgNi, coil voltage 12 V DC, in standard cover (no transparent, gray colour) IP 67

RMB851-2021-25-1024-01

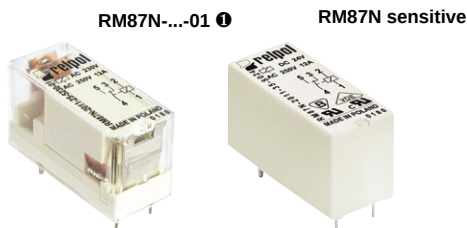
relay **RMB851**, for PCB and sockets, one normally open contact, contact material AgNi, coil voltage 24 V DC, in transparent cover (special version, without signs recognitions) IP 40

GZMB80

Spring terminals
plug-in socket
for RM84, RM85...,
RMB841, RMB851,
RM87L, RM87P
- see page 247.



RM87, RM87 sensitive miniature relays



- Cadmium - free contacts • Height 15,7 mm
- 5000 V / 10 mm reinforced insulation • For PCB and plug-in sockets
- Accessories: sockets and modules • **AC and DC coils - 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

		RM87 standard version	RM87 sensitive version
Number and type of contacts		1 CO, 1 NO ❷	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 AC15 AC3 DC1 DC13	12 A / 250 V AC 3 A / 120 V 1,5 A / 240 V (B300) 750 W (single-phase motor) 12 A / 24 V DC (see Fig. 3) 0,22 A / 120 V 0,1 A / 250 V (R300)	10 A / 250 V AC 10 A / 24 V DC (see Fig. 4)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA AgSnO ₂	
Max. inrush current		25 A AgSnO ₂	20 A AgSnO ₂
Rated current		12 A	10 A
Max. breaking capacity	AC1	3 000 VA	2 500 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		600 cycles/hour	
• at rated load	AC1	72 000 cycles/hour	
• no load			

Coil data

Rated voltage	50/60 Hz AC DC	12 ... 240 V 3 ... 110 V	— 5 ... 48 V
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	see Table 2 and Fig. 6
Rated power consumption	AC DC	0,75 VA 0,4 ... 0,48 W	— 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 • contact clearance	5 000 V AC 1 000 V AC 2 000 V AC	type of insulation: reinforced type of clearance: micro-disconnection 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 (number of cycles)	• resistive AC1 • cosφ • DC L/R=40 ms	> 10 ⁵ 12 A, 250 V AC see Fig. 2 > 10 ⁵ 0,15 A, 220 V DC	> 1,7 x 10 ⁵ 10 A, 250 V AC
Mechanical life (cycles)		> 3 x 10 ⁷	
Dimensions (L x W x H) / Weight		29 x 12,7 x 15,7 mm / 14 g	
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+70 °C DC: -40...+85 °C	-40...+70 °C ❶
Cover protection category		IP 40 ❶ or IP 67 PN-EN 60529	
Environmental protection		RTII ❶ or RTIII PN-EN 116000-3	
Shock resistance		30 g	
Vibration resistance		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 For special version (only for RM87 - standard version) - relays in transparent cover: only available with IP 40 and RTII, operating temperature -40...+70 °C - see "Ordering codes" ❷ For special version with contact 1 NO (only for RM87 - standard version): relays with increased contact gap, dielectric strength 2000 V AC - see "Ordering codes"

RM87, RM87 sensitive

miniature relays

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

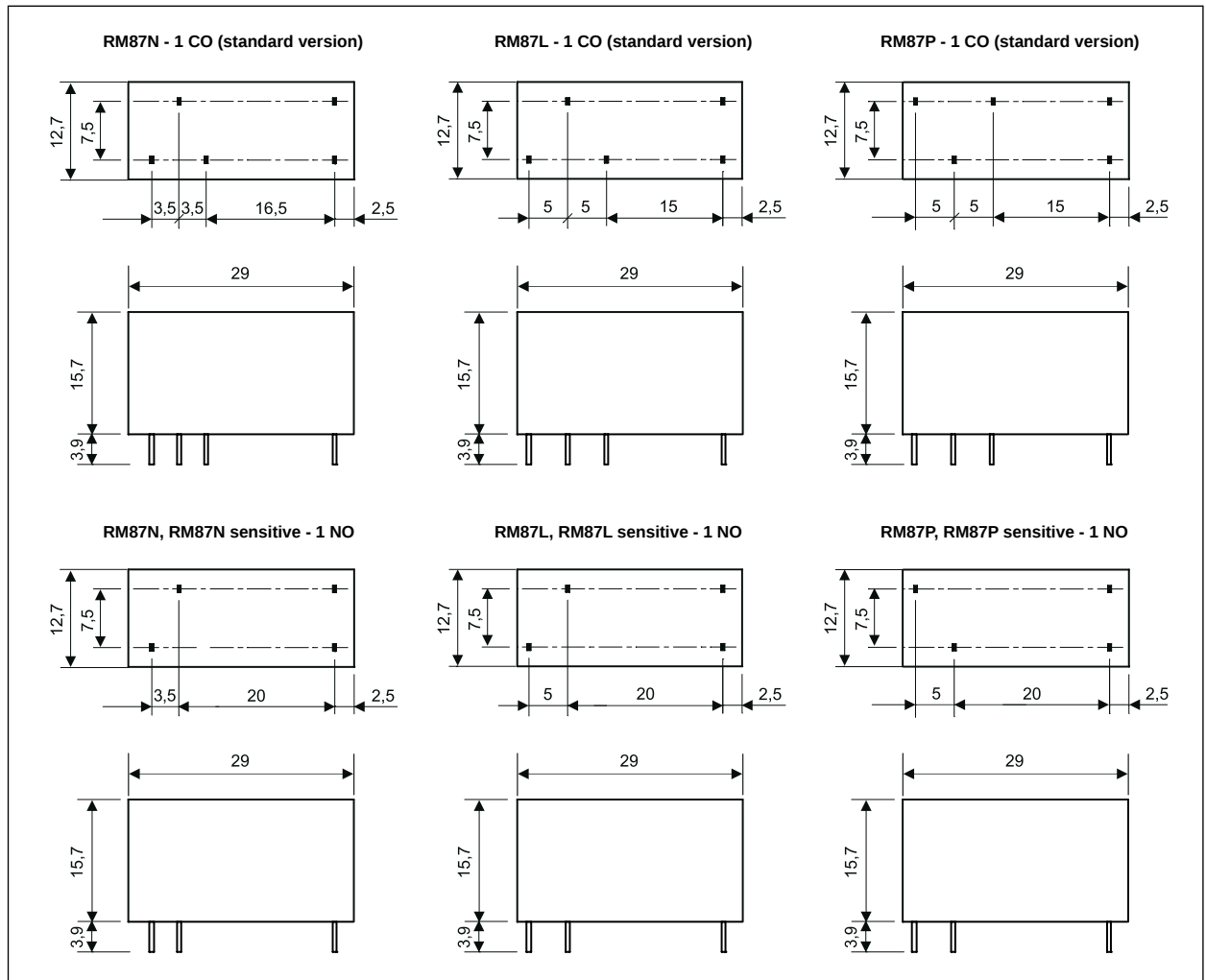
Table 3

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

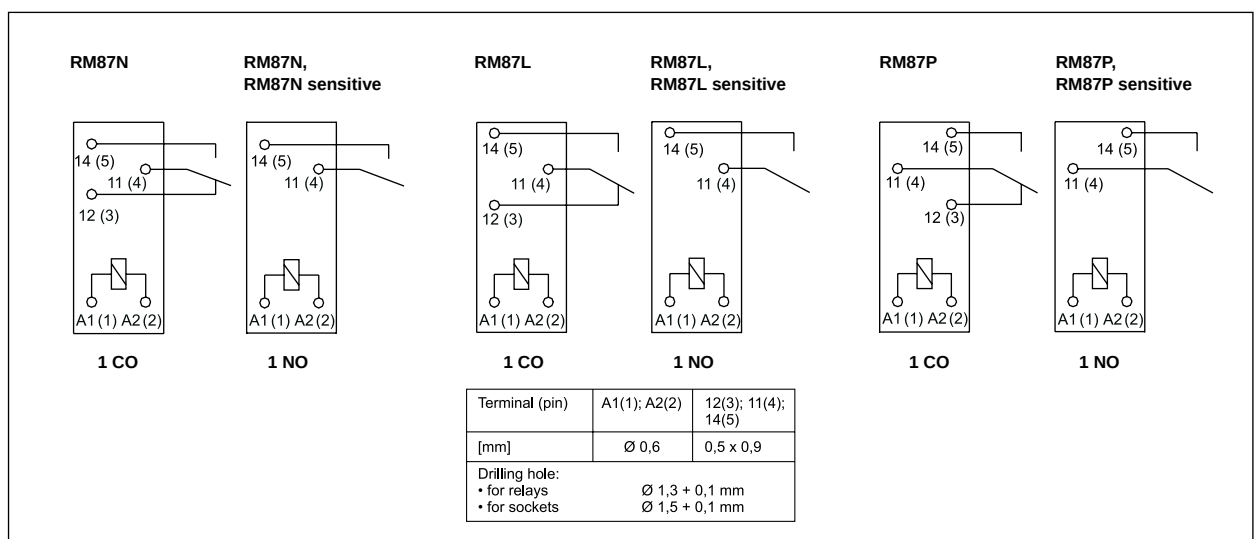
The data in bold type pertain to the standard versions of the relays.

RM87, RM87 sensitive miniature relays

Dimensions



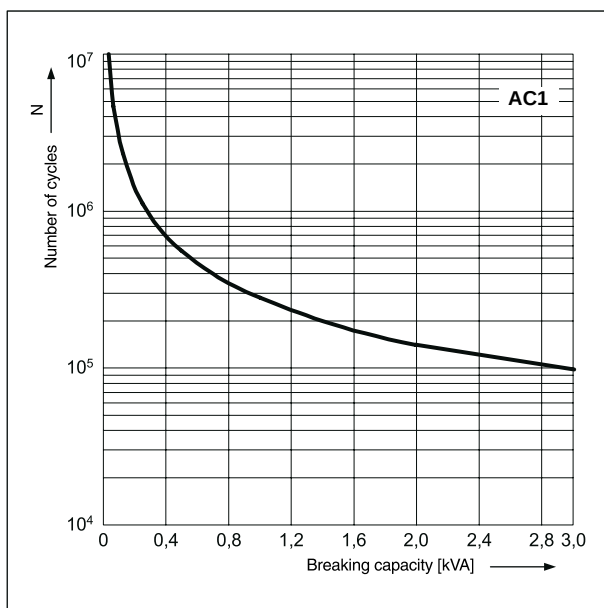
Connection diagrams (pin side view)



RM87, RM87 sensitive miniature relays

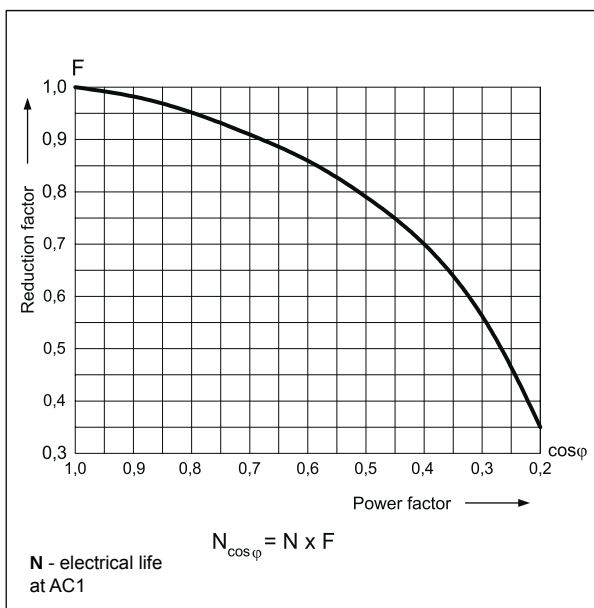
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



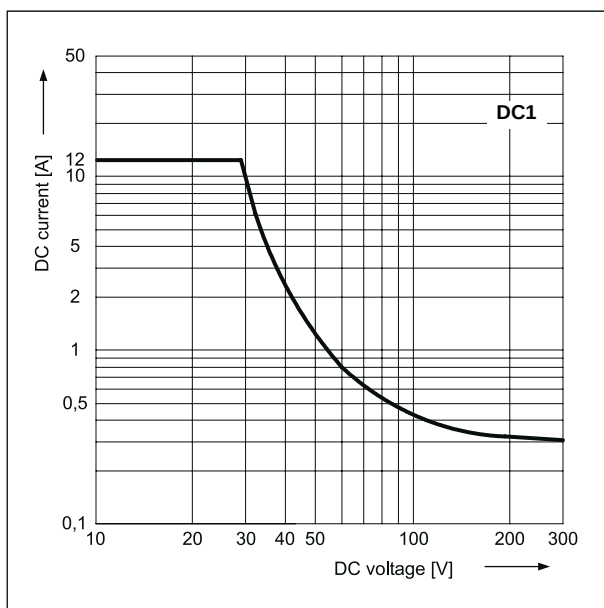
Electrical life reduction factor at AC inductive load

Fig. 2



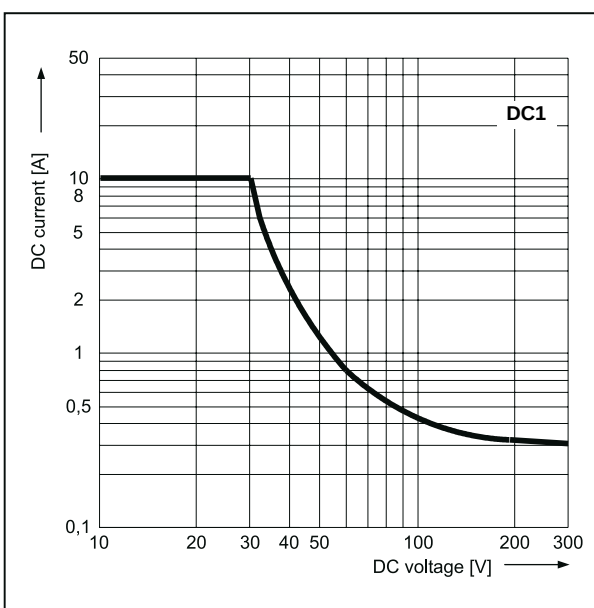
Max. DC resistive load breaking capacity - standard version

Fig. 3



Max. DC resistive load breaking capacity - sensitive version

Fig. 4



GZMB80

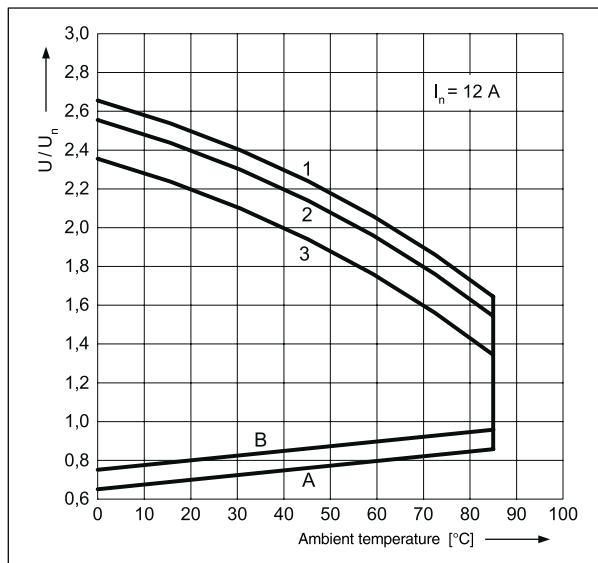
Spring terminals
plug-in socket
for RM84, RM85...,
RMB841, RMB851,
RM87L, RM87P
- see page 247.



RM87, RM87 sensitive miniature relays

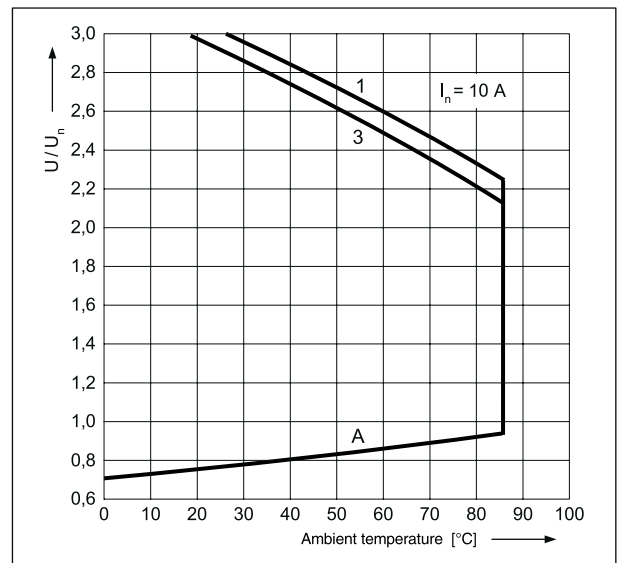
Coil operating range - DC
- standard version

Fig. 5



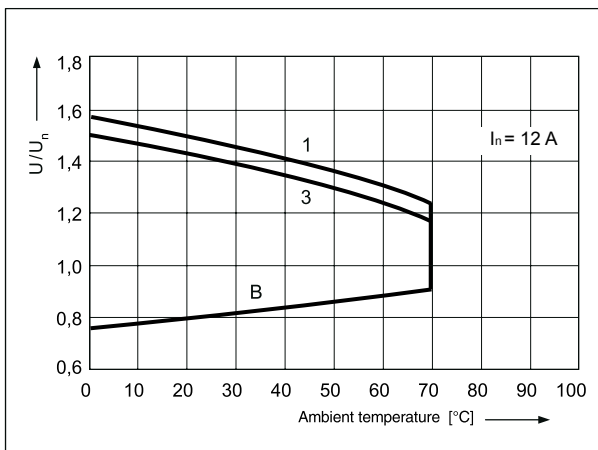
Coil operating range - DC
- sensitive version

Fig. 6



Coil operating range - AC 50 Hz

Fig. 7



Description of Fig. 5, 6 and 7

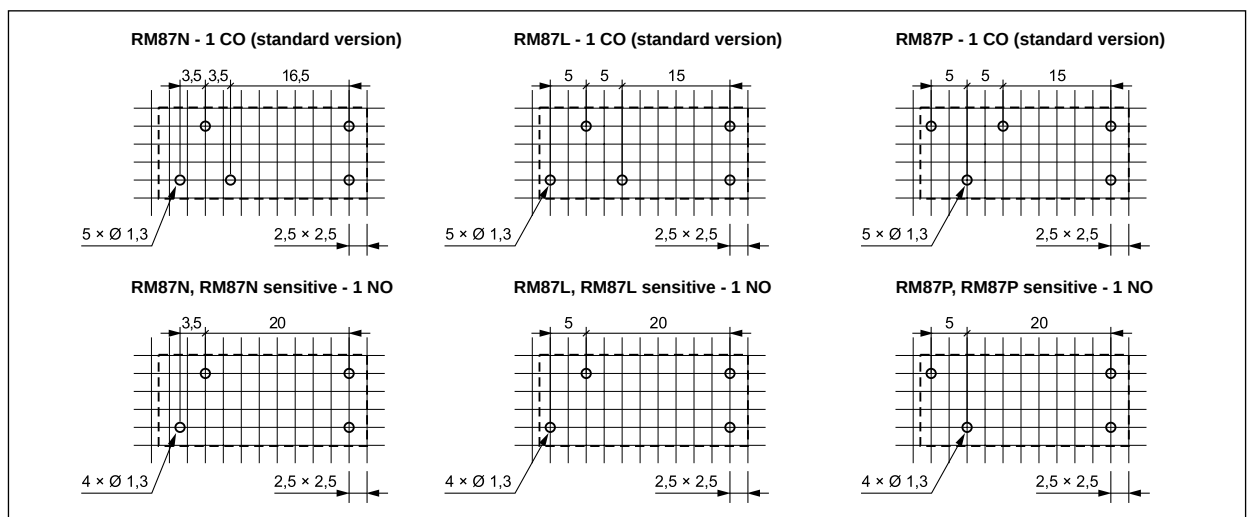
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

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



RM87, RM87 sensitive miniature relays

Mounting

Relays **RM87N** ①, **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 261) • plug-in sockets for PCB mounting **EC 35** with clip **MP16-2**, MH16-2; plug-in sockets **GD35** with clip **MP16-2**, GD-0016, MH16-2.

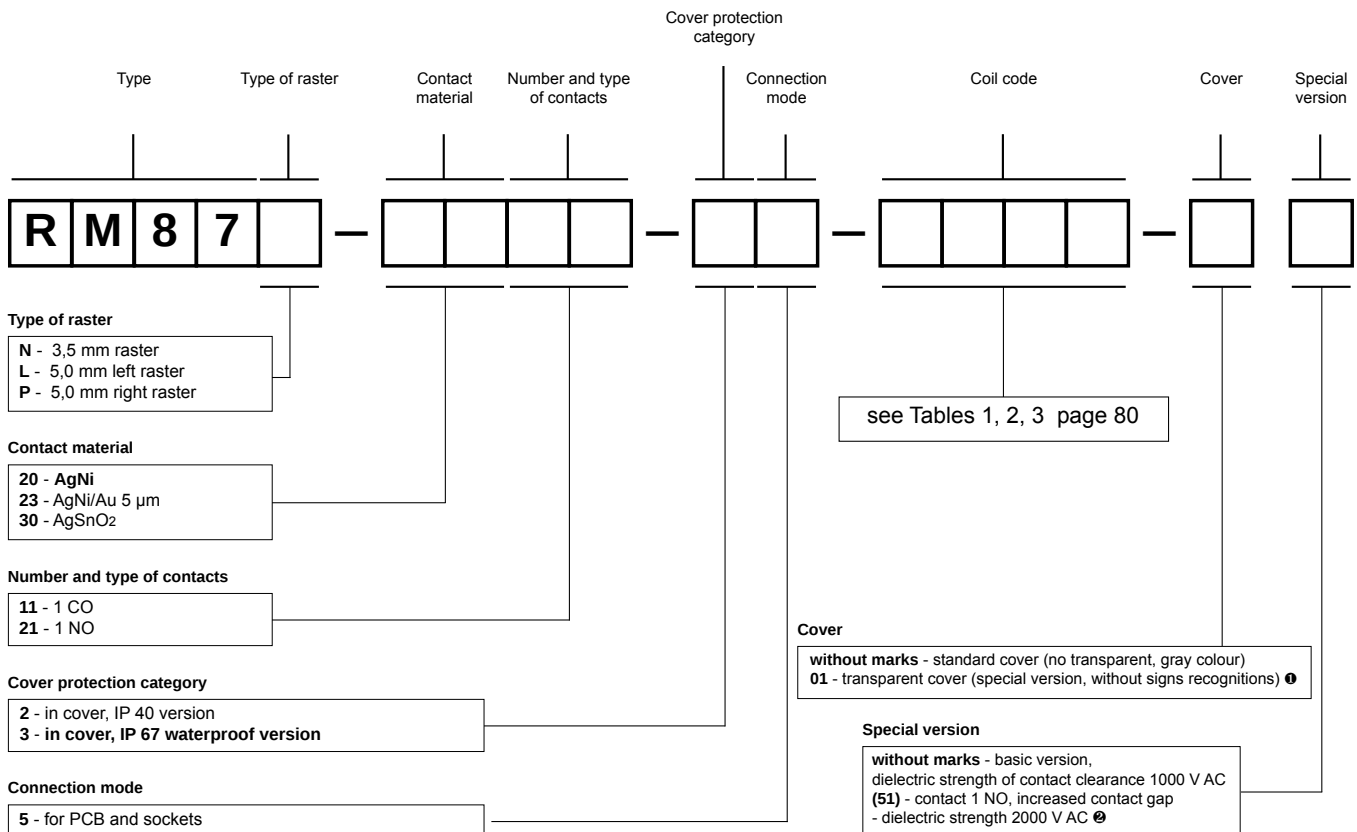
Relays **RM87L** ③, **RM87L sensitive**, **RM87P** ④, **RM87P sensitive** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ④ and **GZM80** ④ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ④ with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw • spring terminals plug-in sockets **GZMB80** ④ ⑤ with clip **GZMB80-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715. Signalling / protecting modules **type M...** are available with sockets (see page 261) • plug-in sockets for PCB mounting **EC 50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

① For special version (only for RM87 - standard version) - relays in transparent cover: the distance of min. 5 mm between the mounting relays.

② Plug-in sockets **GZT92**, **GZM92**, **GZS92** and **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 262).

⑤ For sockets **GZMB80** - see page 247 (wire connection).

Ordering codes



Examples of ordering code:

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

RM87N SMT

miniature relays



- Cadmium - free contacts
- Height 17,7 mm
- 5000 V / 10 mm reinforced insulation
- **For surface mounting SMT** - for manual soldering
- AC and DC coils
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,       

Contact data

Number and type of contacts		1 CO, 1 NO
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	12 A / 250 V AC 3 A / 120 V 1,5 A / 240 V (B300) 750 W (single-phase motor) 12 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		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 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
Overtoltage category		III
Insulation pollution degree		3
Dielectric strength		
• between coil and contacts		5 000 V AC type of insulation: reinforced
• contact clearance		1 000 V AC type of clearance: micro-disconnection
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
• cosφ		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 13,2 x 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.

RM87N SMT

miniature relays

Coil data - DC voltage version

Table 1

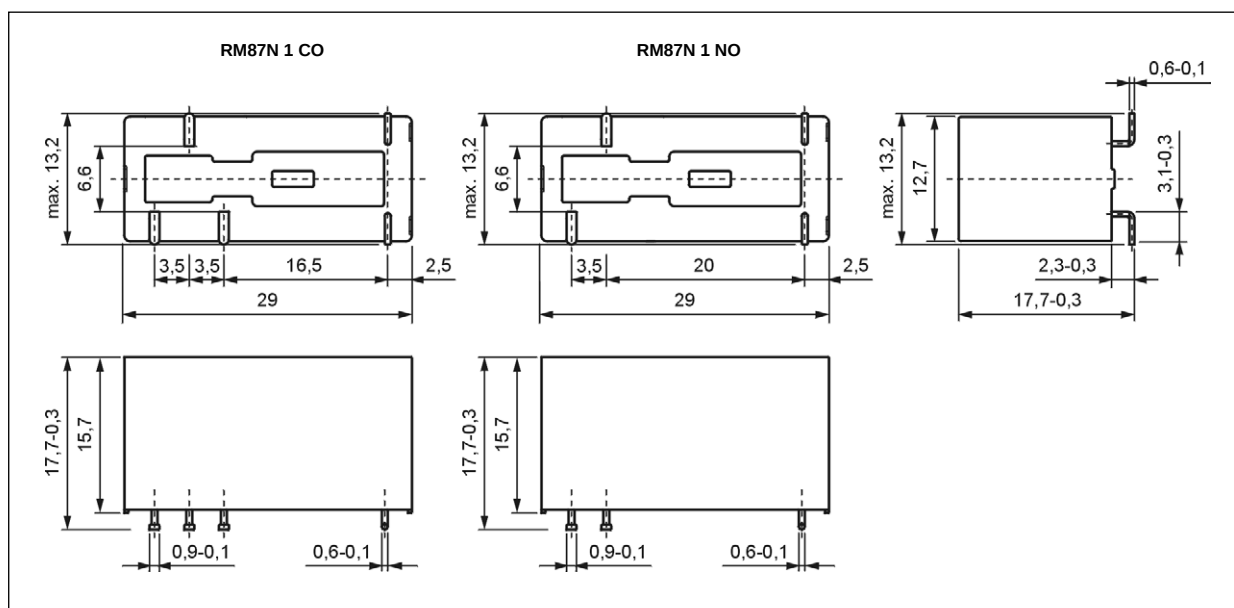
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	$\pm 10\%$	2,1	7,6
1005	5	60	$\pm 10\%$	3,5	12,7
1006	6	90	$\pm 10\%$	4,2	15,3
1009	9	200	$\pm 10\%$	6,3	22,9
1012	12	360	$\pm 10\%$	8,4	30,6
1018	18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

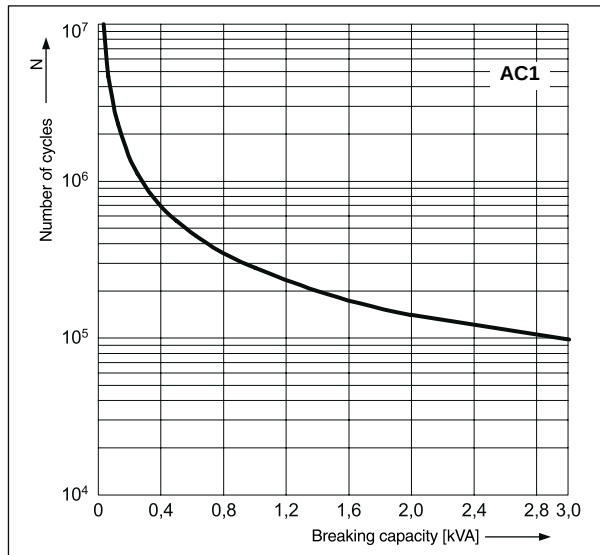
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	$\pm 10\%$	9,6	13,2
5024	24	400	$\pm 10\%$	19,2	28,8
5048	48	1 550	$\pm 10\%$	38,4	57,6
5060	60	2 600	$\pm 10\%$	48,0	72,0
5110	110	8 900	$\pm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



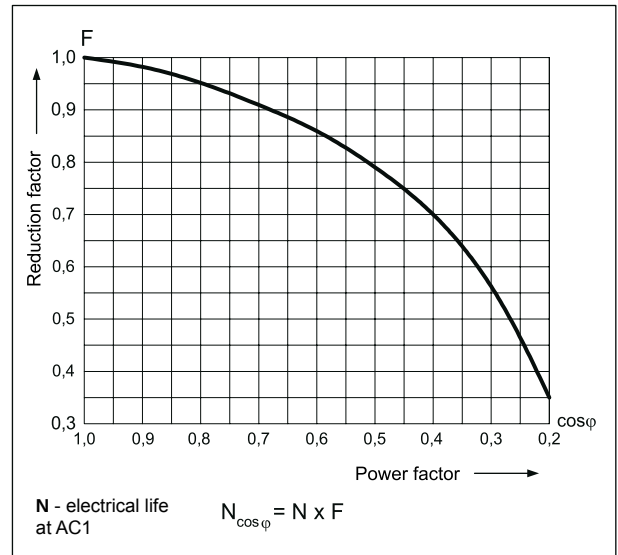
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



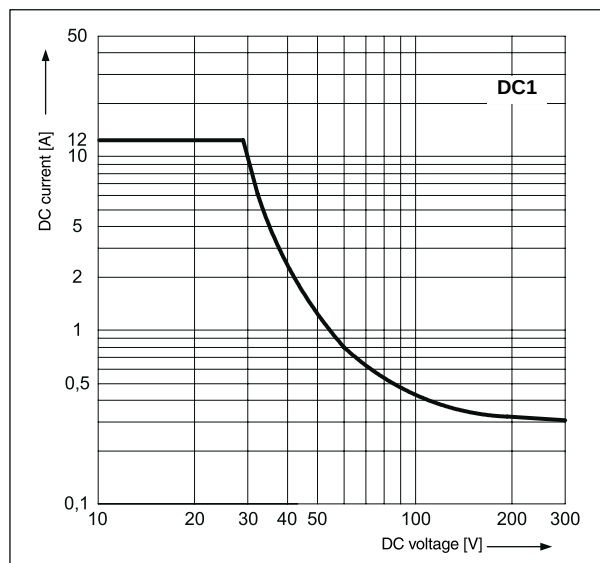
Electrical life reduction factor at AC inductive load

Fig. 2



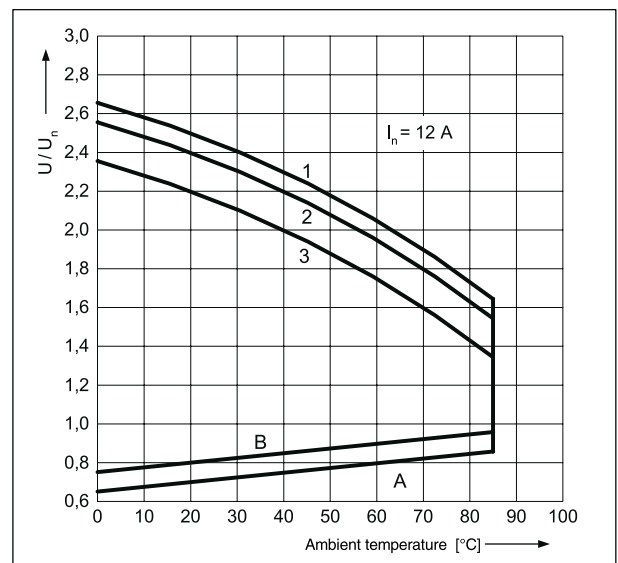
Max. DC resistive load breaking capacity

Fig. 3



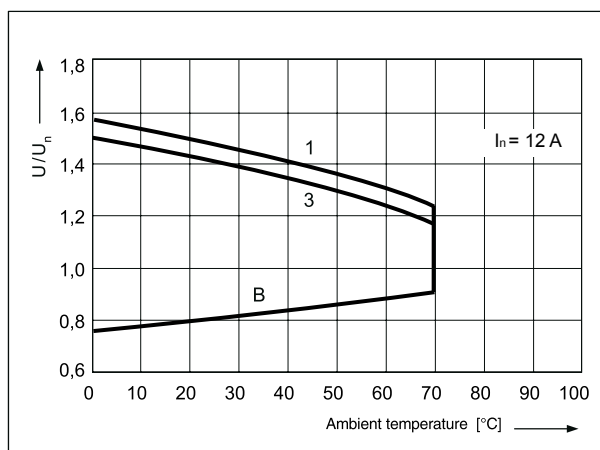
Coil operating range - DC

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).

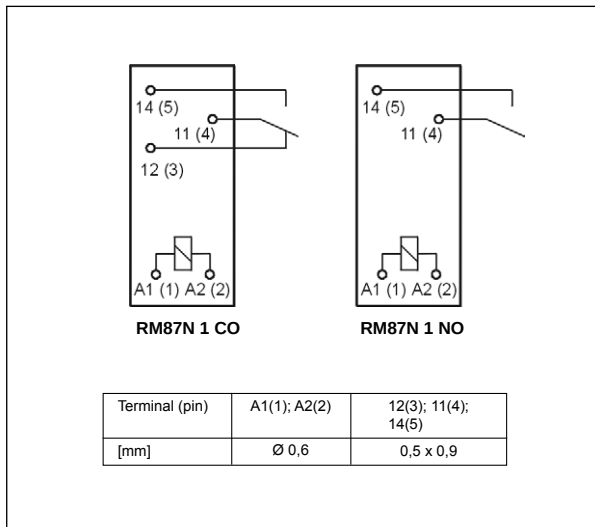
1, 2, 3 - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:

- 1** - no load
- 2** - 50% of rated load
- 3** - rated load

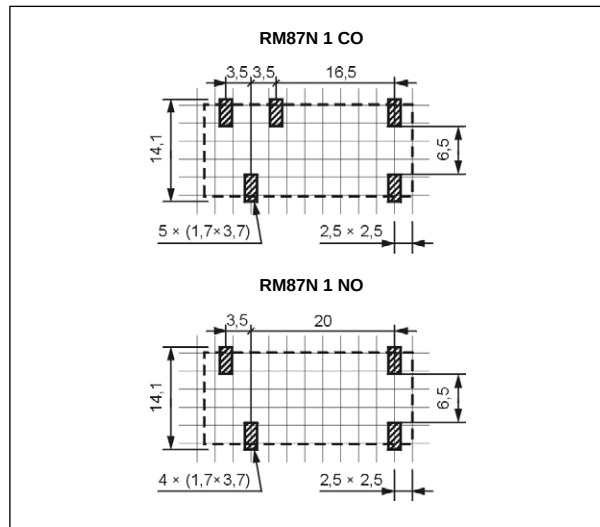
RM87N SMT

miniature relays

Connection diagrams (pin side view)



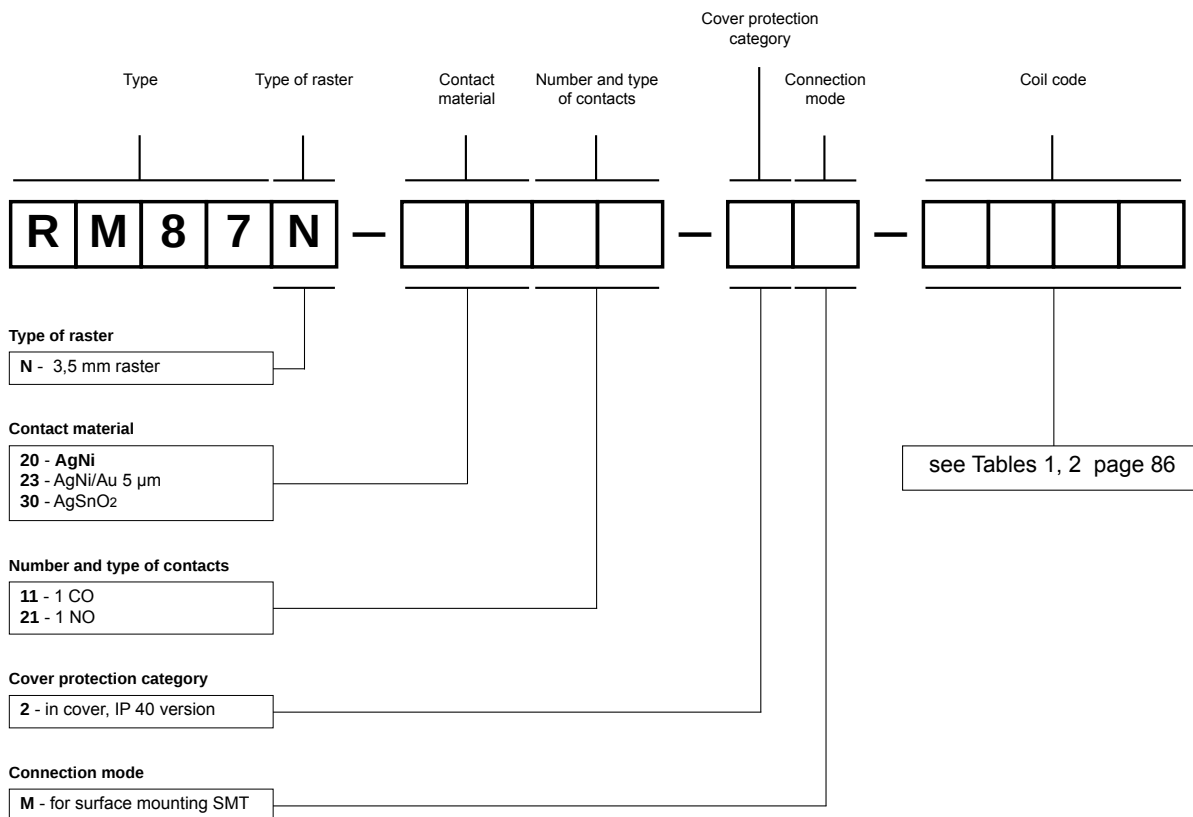
Soldering areas (solder side view)



Mounting

Relays **RM87N SMT** are designed for surface mounting SMT - for manual soldering.

Ordering codes



Examples of ordering code:

RM87N-2011-2M-1024 relay **RM87N SMT**, 3,5 mm raster, for surface mounting SMT, one changeover contact, contact material AgNi, coil voltage 24 V DC, in cover IP 40

RM87N-2321-2M-5012 relay **RM87N SMT**, 3,5 mm raster, for surface mounting SMT, one normally open contact, contact material AgNi/Au 5 µm, coil voltage 12 V AC 50/60 Hz, in cover IP 40

RM96

miniature relays



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

Contact data

Number and type of contacts		1 CO, 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 AC15 AC3 DC1 DC13	8 A / 250 V AC 3 A / 120 V 1,5 A / 240 V (B300) 370 W (single-phase motor; 0,5 HP / 250 V AC UL 508) 8 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 , 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 and Fig. 4
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 (number of cycles)		
• resistive AC1		> 10 ⁵ 8 A, 250 V AC
• cosφ		see Fig. 2
Mechanical life (cycles)		> 2 x 10 ⁷
Motor load according to UL 508		0,25 HP 120 V AC, single-phase motor
Dimensions (L x W x H)		1 CO: 30 x 10 x 16,2 mm 1 NO, 1 NC: 28 x 10 x 16,2 mm
Weight		11 g
Ambient temperature	• storage • operating	-40...+85 °C -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.

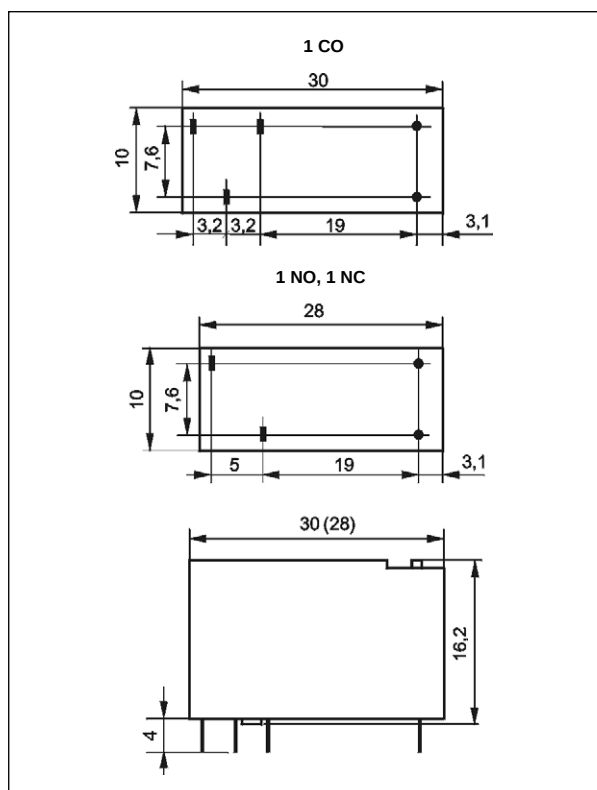
Coil data - DC voltage version

Table 1

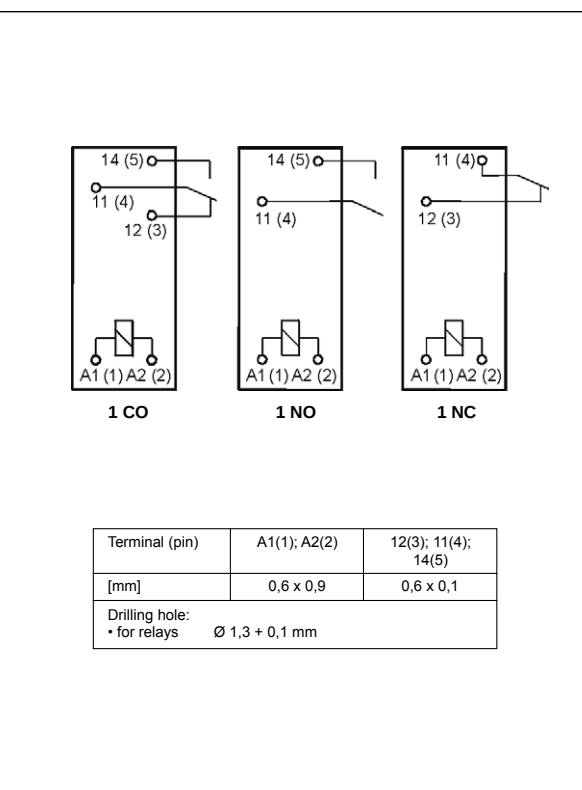
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1005	5	110	$\pm 10\%$	3,5	12,0
1006	6	160	$\pm 10\%$	4,2	14,5
1009	9	360	$\pm 10\%$	6,3	22,0
1012	12	660	$\pm 10\%$	8,4	29,5
1018	18	1 500	$\pm 10\%$	12,6	44,0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

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

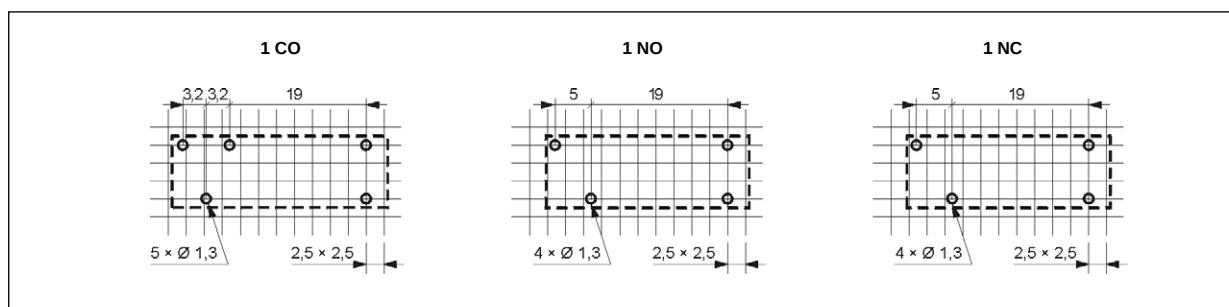
Dimensions



Connection diagrams (pin side view)

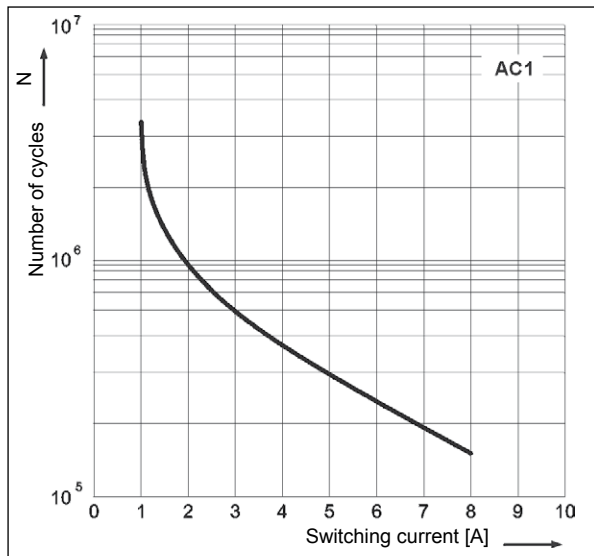


Pinout (solder side view)



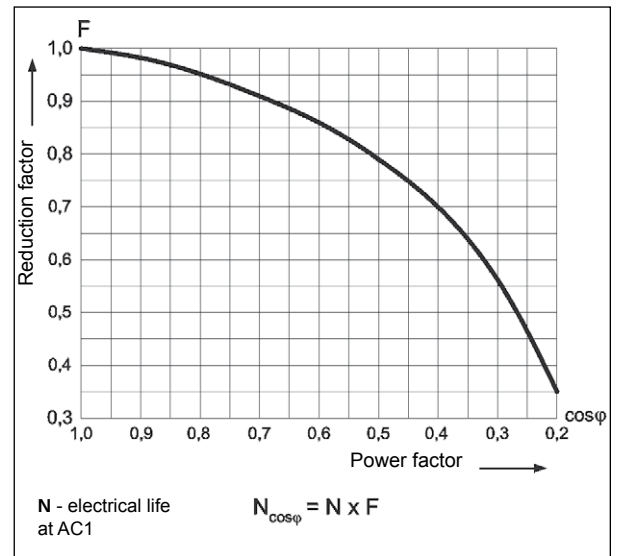
Electrical life at AC resistive current.
 $U_n = 230 \text{ V AC}$ - version 1NO

Fig. 1



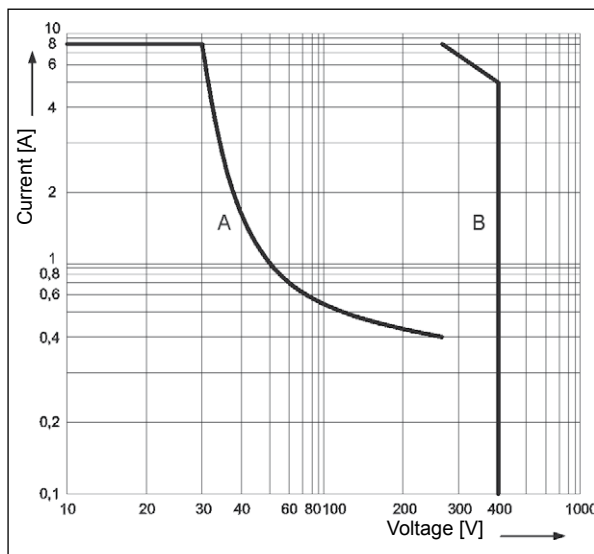
Electrical life reduction factor at AC inductive load

Fig. 2



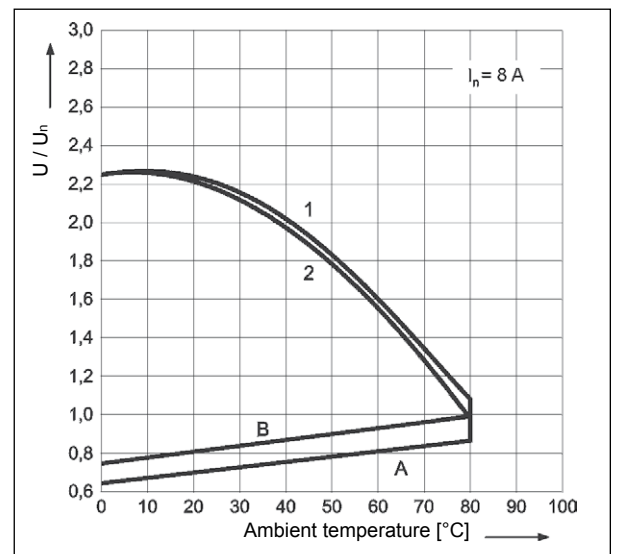
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1

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).

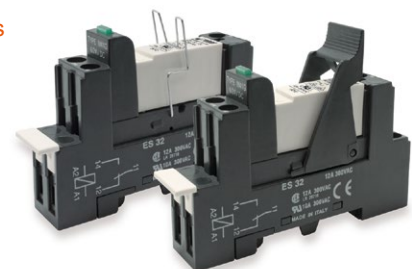
1, 2 - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:

1 - no load

2 - rated load

ES 32

Screw terminals
plug-in socket
for RM96 1 CO
- see page 249.



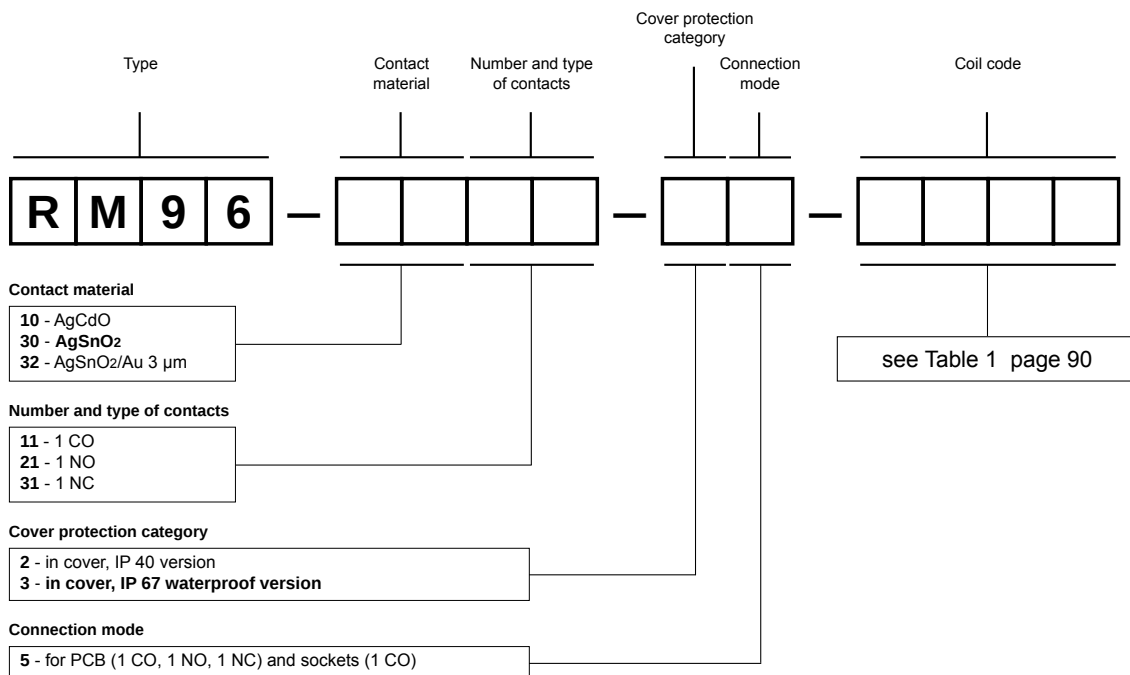
Mounting

Relays **RM96 1 CO** (one changeover contact) are designed for: • direct PCB mounting • screw terminals plug-in sockets **ES 32** with clip **MS 16** 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 261).

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

❶ Plug-in sockets **ES 32** may be linked with interconnection strip type **ZGGZ80**.

Oznaczenia kodowe do zamówień



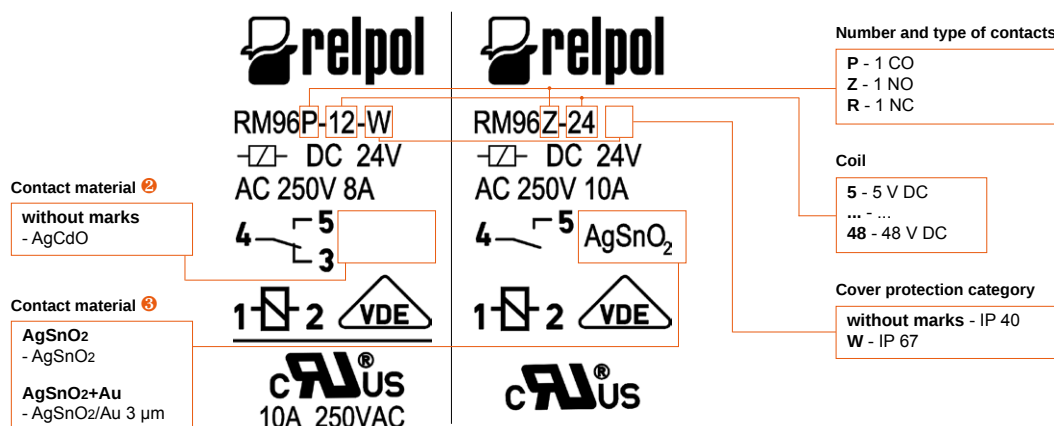
Examples of ordering codes:

RM96-1011-35-1012 relay **RM96**, for PCB and sockets, one changeover contact, contact material AgCdO, coil voltage 12 V DC, in cover IP 67

RM96-3021-25-1024 relay **RM96**, for PCB, one normally open contact, contact material AgSnO₂, coil voltage 24 V DC, in cover IP 40

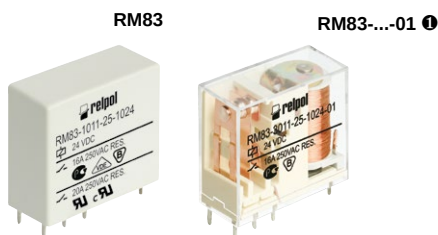
Print on relay cover

Type marking on relays cover **RM96** do not match the ordering codes (examples of marking for **RM96-1011-35-1012** and **RM96-3021-25-1024**).



RM83

miniature relays



- 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 CO, 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 (number of cycles)		
• 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
• cosφ		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 For special version - relays in transparent cover - see "Ordering codes".

Coil data - DC voltage version, standard

Table 1

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

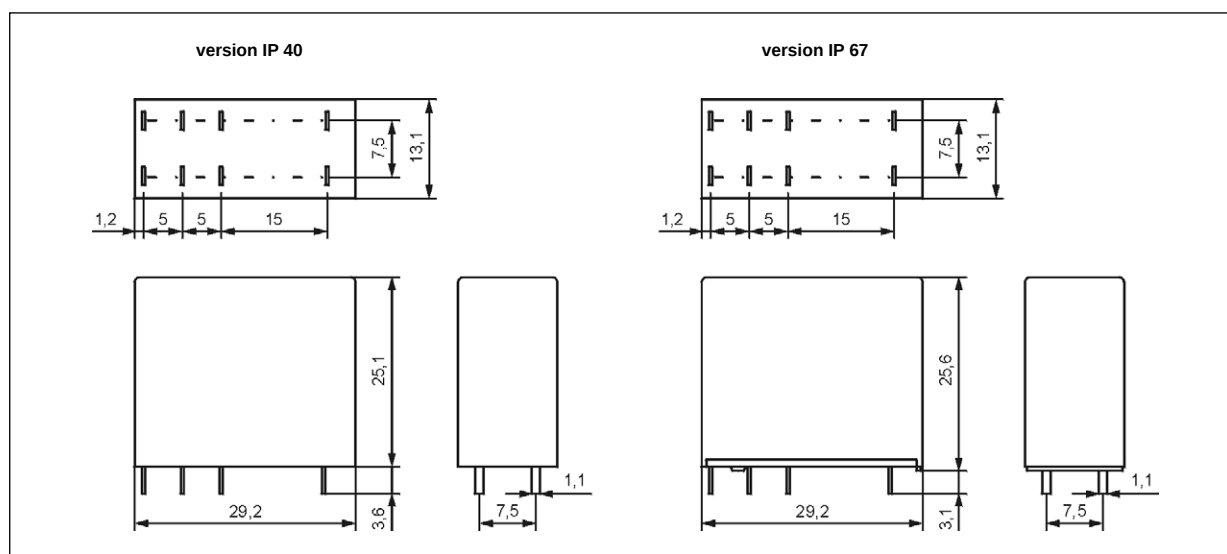
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version, sensitive

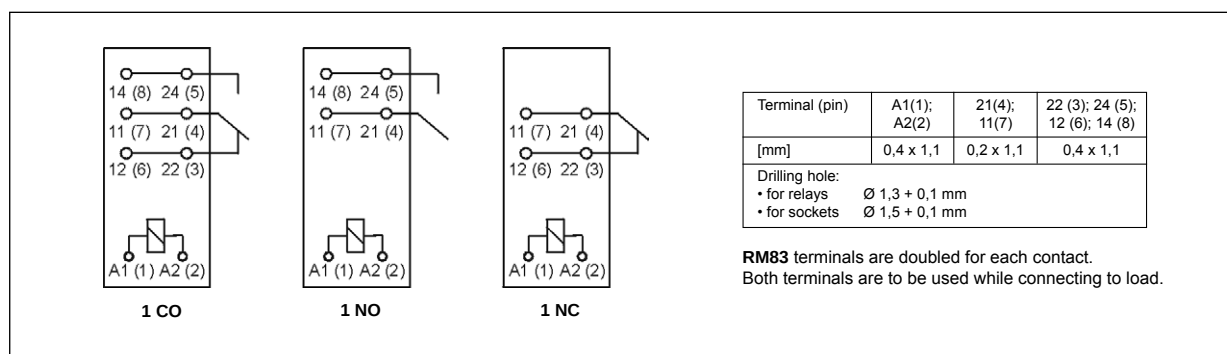
Table 2

Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S110	110	20 500	$\pm 10\%$	77,0	188,0

Dimensions

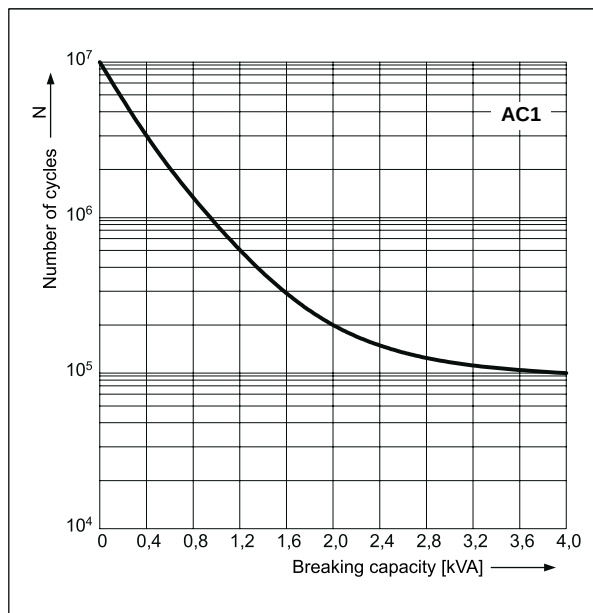


Connection diagrams (pin side view)



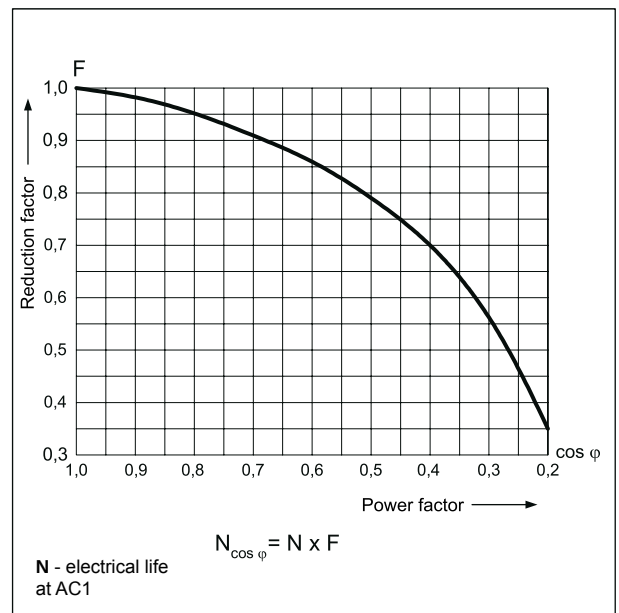
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



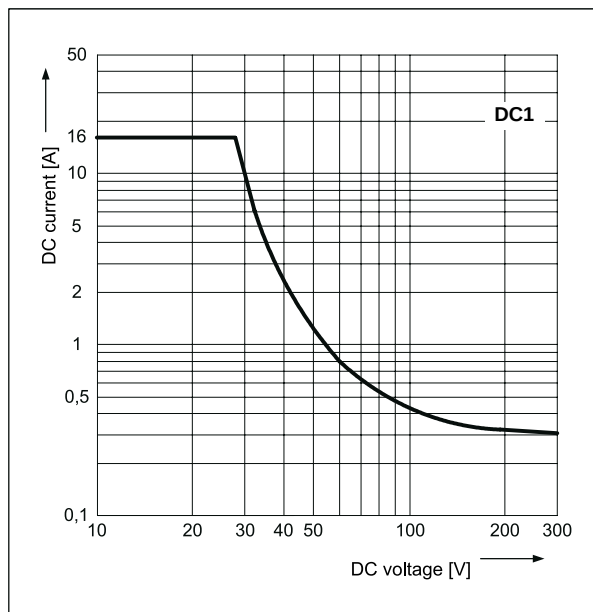
Electrical life reduction factor at AC inductive load

Fig. 2



Max. DC resistive load breaking capacity

Fig. 3

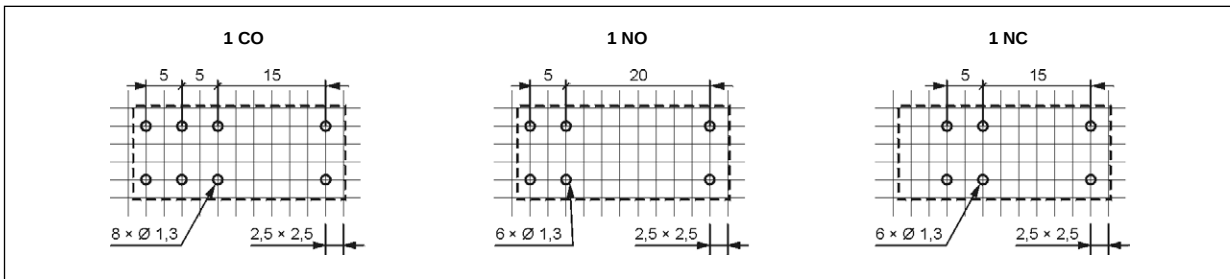


Mounting

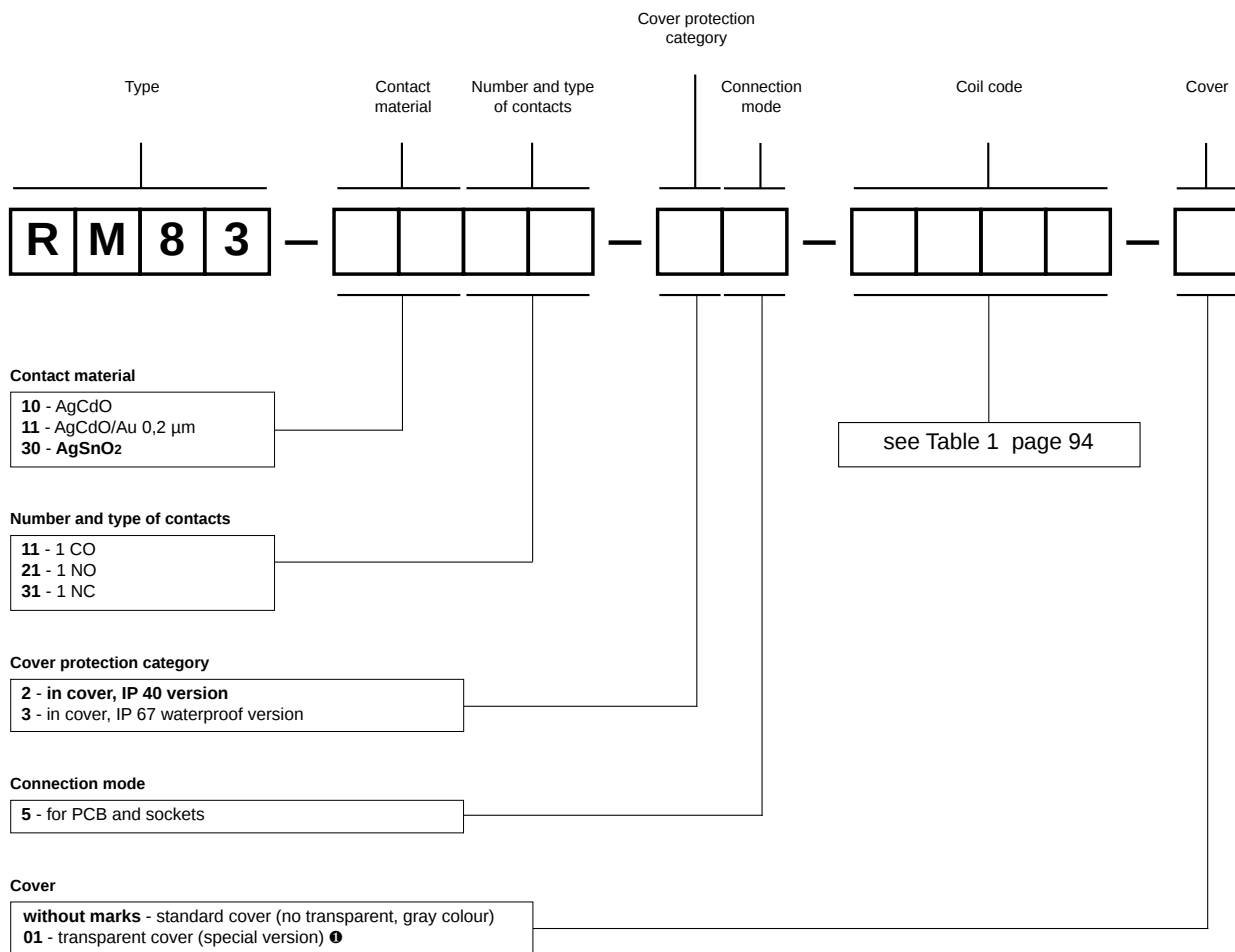
Relays **RM83** are designed for:

- direct PCB mounting
- plug-in sockets for PCB mounting **EC 50** 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**, for PCB and sockets, one changeover contact, contact material AgSnO₂, coil voltage 24 V DC, in standard cover (no transparent, gray colour) IP 40

RM83-3011-25-S110

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

RM83-3021-35-1012-01

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

RM92

miniature relays

RM92



RM92-...-01 ①



- 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 CO, 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 (number of cycles)		
• resistive AC1		> 2 x 10 ⁵ 8 A, 250 V AC
• cosφ		see Fig. 1
Mechanical life (cycles)		> 3 x 10 ⁷
Motor load according to UL 508		0,25 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.

① For special version - relays in transparent cover - see "Ordering codes".

Coil data - DC voltage version, standard

Table 1

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

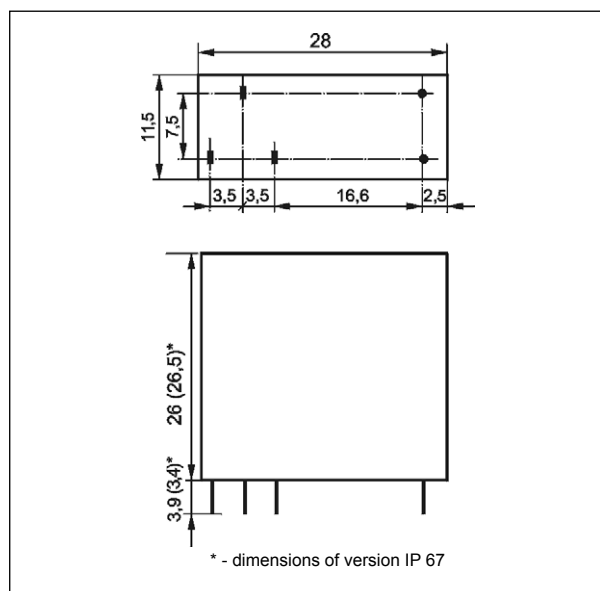
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version, sensitive

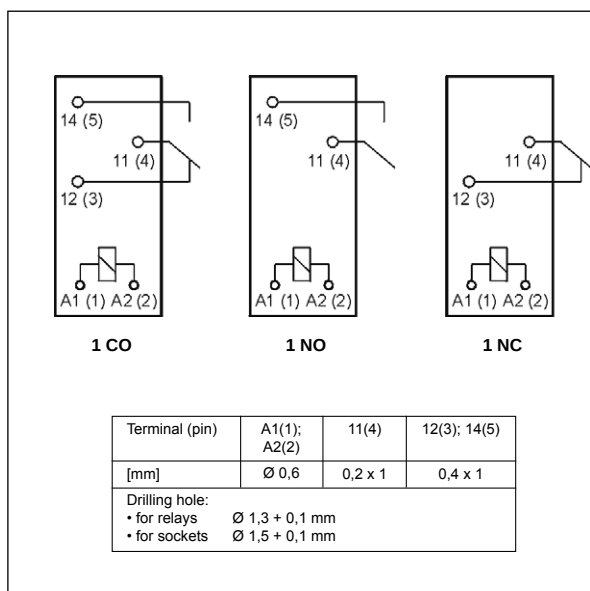
Table 2

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

Dimensions



Connection diagrams (pin side view)

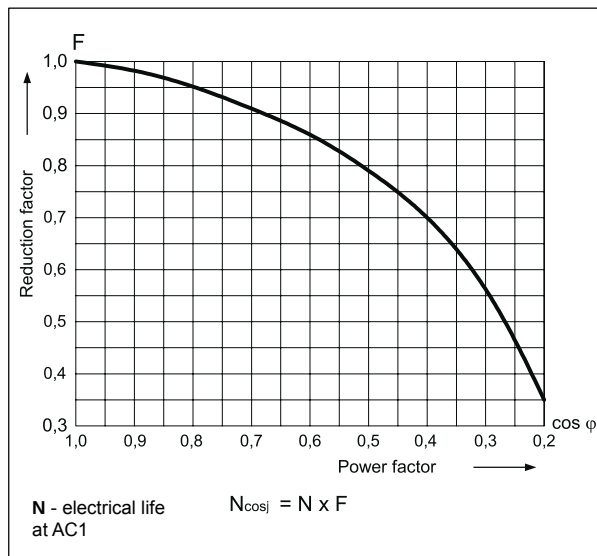


Mounting

Relays **RM92** are designed for: • direct PCB mounting • plug-in sockets for PCB mounting **EC 35** with clip **MP25-2**, MH25-2, GD-0025, RM81-0001; plug-in sockets **GD35** with clip **MP25-2**, GD-0025, MH25-2, RM81-0001.

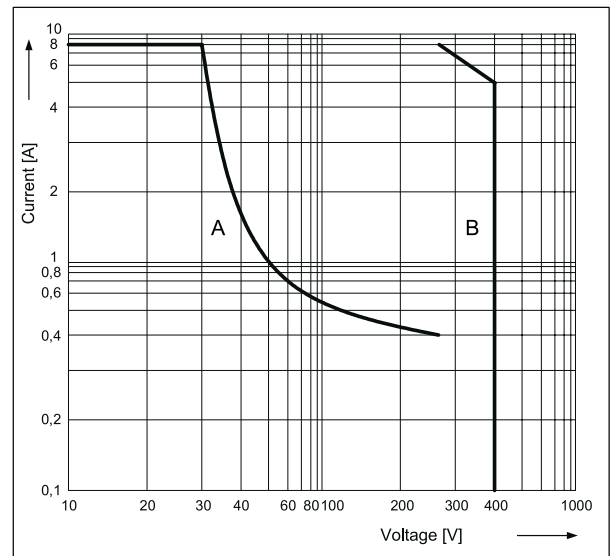
Electrical life reduction factor at AC inductive load

Fig. 1



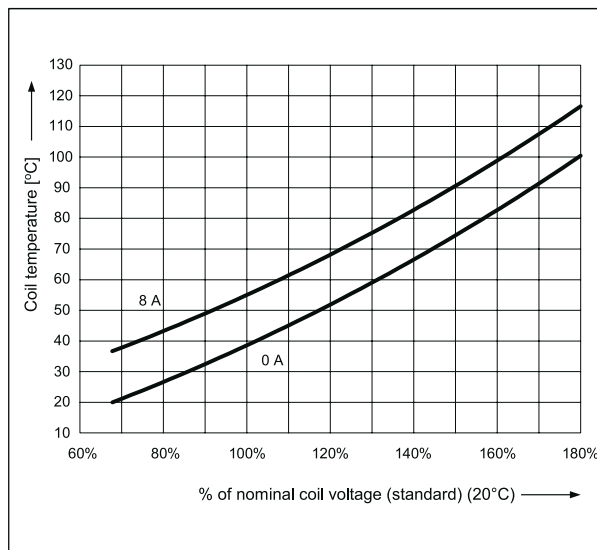
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1

Fig. 2



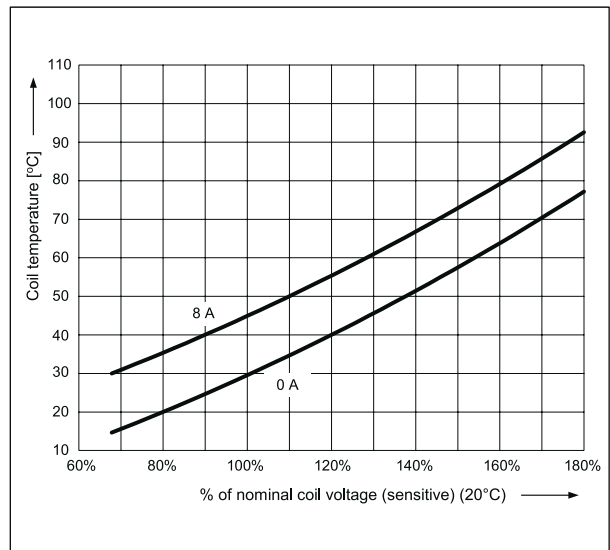
Coil temperature rise - standard version

Fig. 3

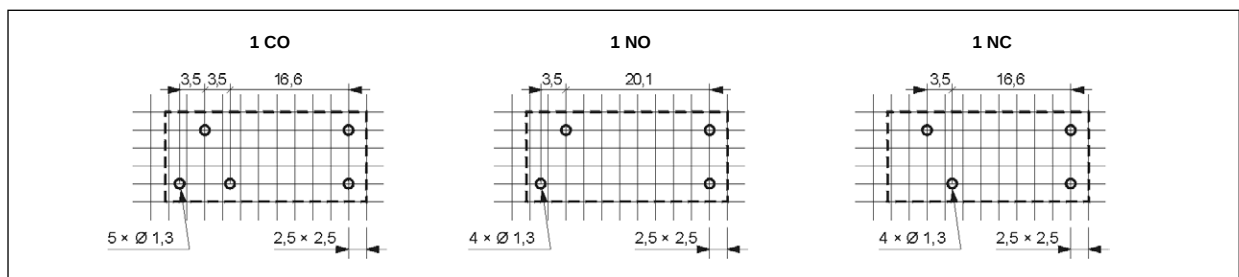


Coil temperature rise - sensitive version

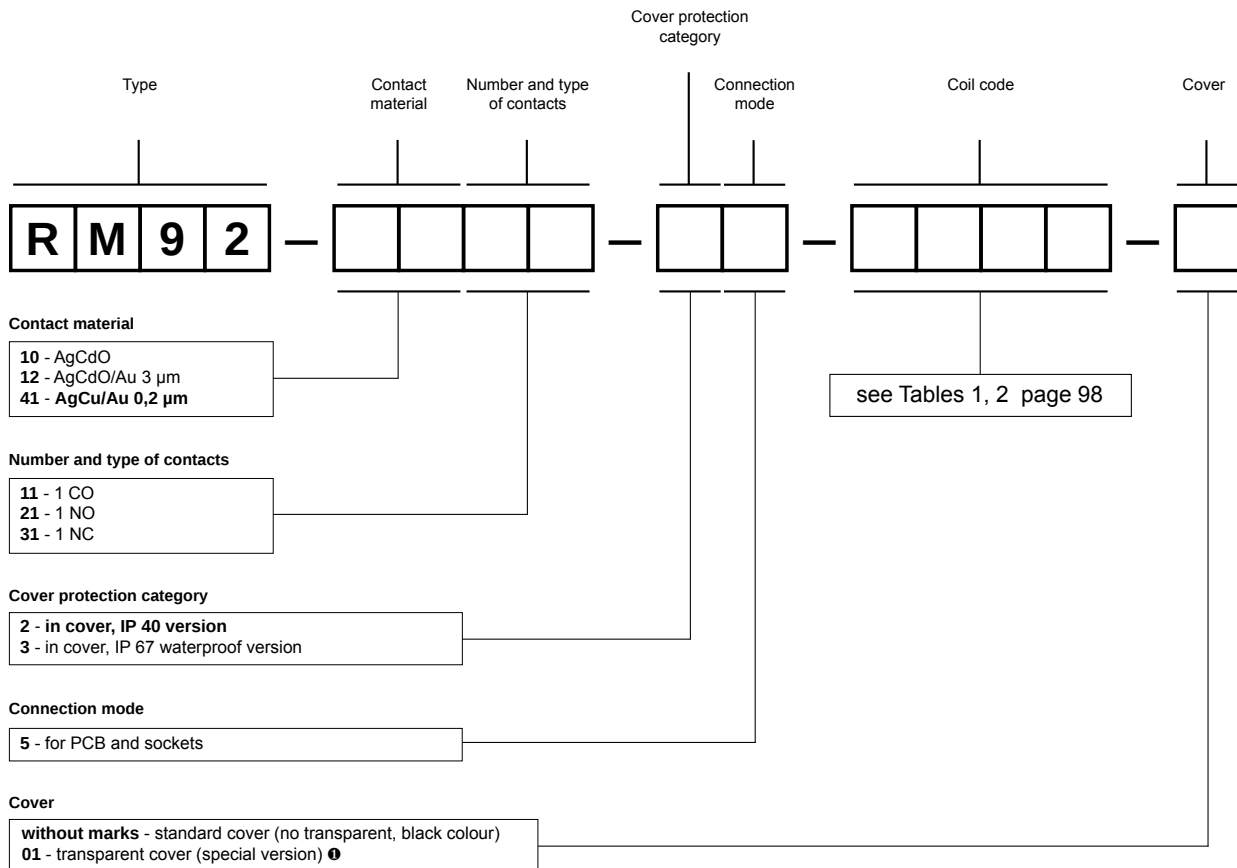
Fig. 4



Pinout (solder side view)



Ordering codes

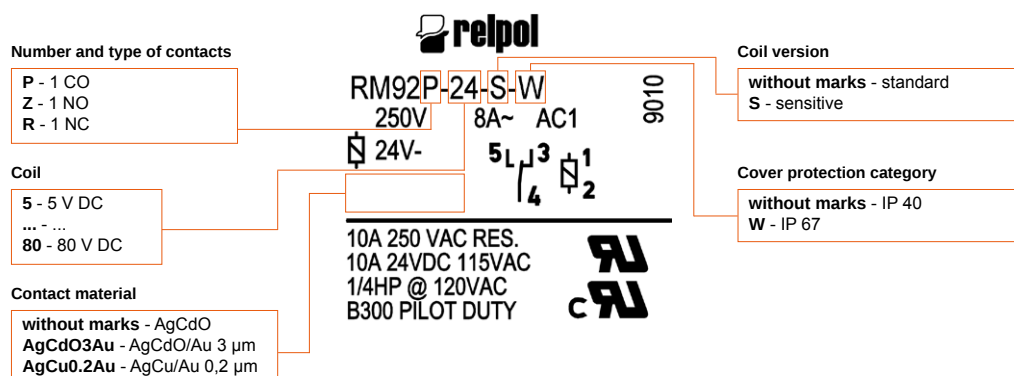


Examples of ordering codes:

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

Print on relay cover

Type marking on relays cover **RM92** do not match the ordering codes (example of marking for **RM92-1011-35-S024**).

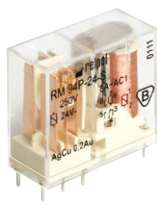


RM94

miniature relays



RM94



RM94-...-01 ①

- 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 CO, 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 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 ... 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 (number of cycles)		
• resistive AC1		> 2 x 10 ⁵ 8 A, 250 V AC
• cosφ		see Fig. 1
Mechanical life (cycles)		> 3 x 10 ⁷
Motor load according to UL 508		0,125 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 • operating	-40...+85 °C -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.

① For special version - relays in transparent cover - see "Ordering codes".

Coil data - DC voltage version, standard

Table 1

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

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

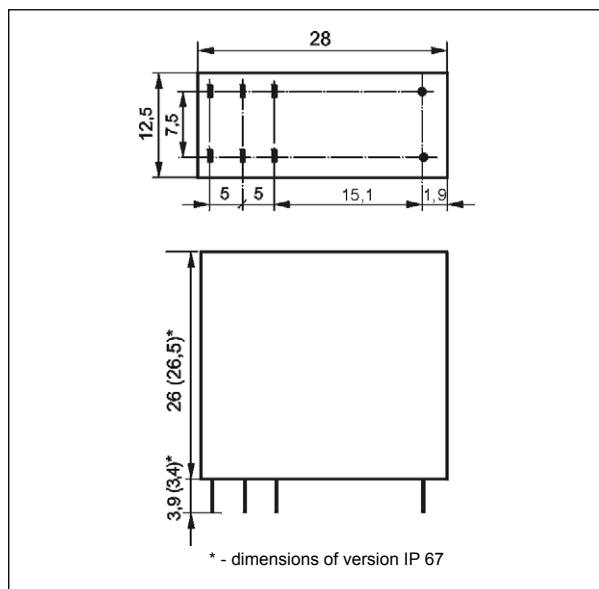
Coil data - DC voltage version, sensitive

Table 2

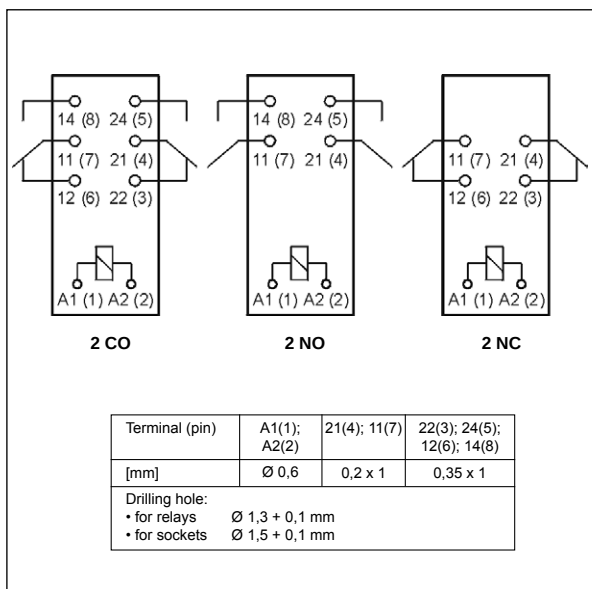
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S005	5	47	$\pm 10\%$	3,5	8,5
S006	6	70	$\pm 10\%$	4,4	10,3
S012	12	270	$\pm 10\%$	8,8	20,3
S024	24	1 100	$\pm 10\%$	17,5	41,0
S036	36	2 000	$\pm 10\%$	24,0	55,0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

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

Dimensions



Connection diagrams (pin side view)

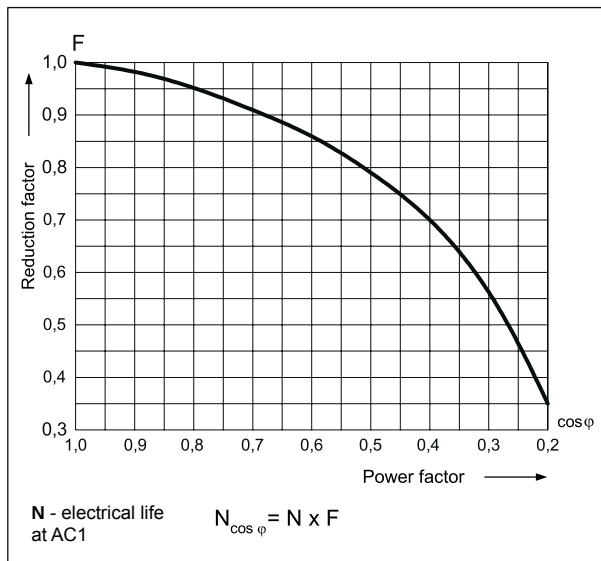


Mounting

Relays **RM94** are designed for: • direct PCB mounting • plug-in sockets for PCB mounting **EC 50** 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.

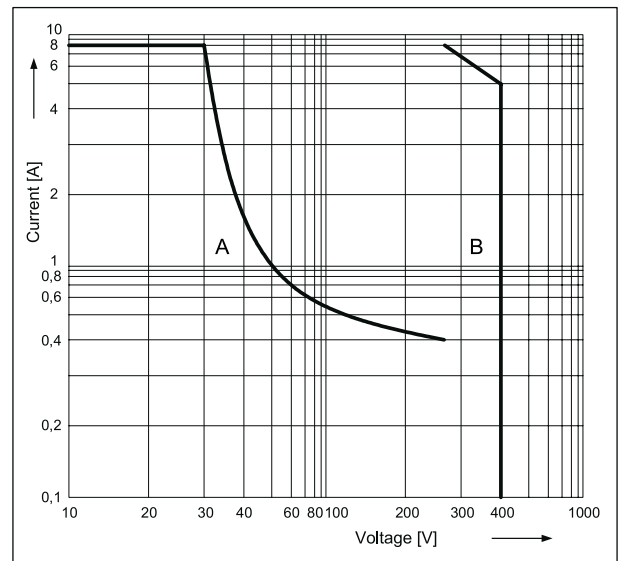
Electrical life reduction factor at AC inductive load

Fig. 1



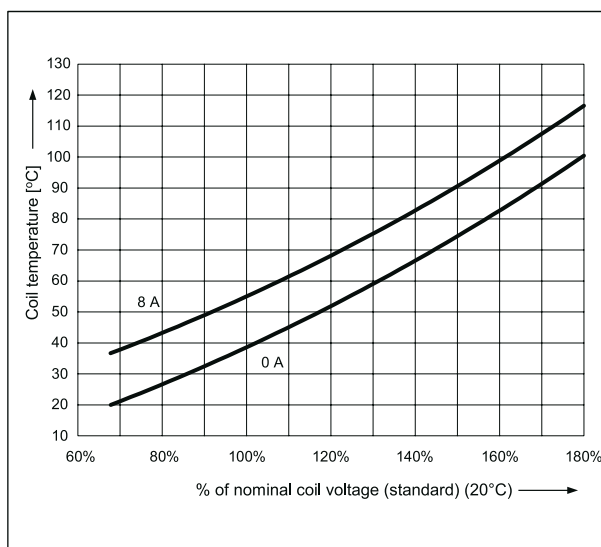
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1

Fig. 2



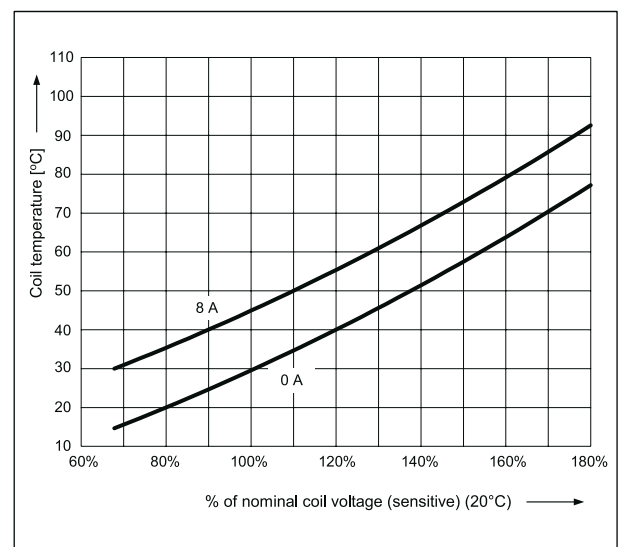
Coil temperature rise - standard version

Fig. 3

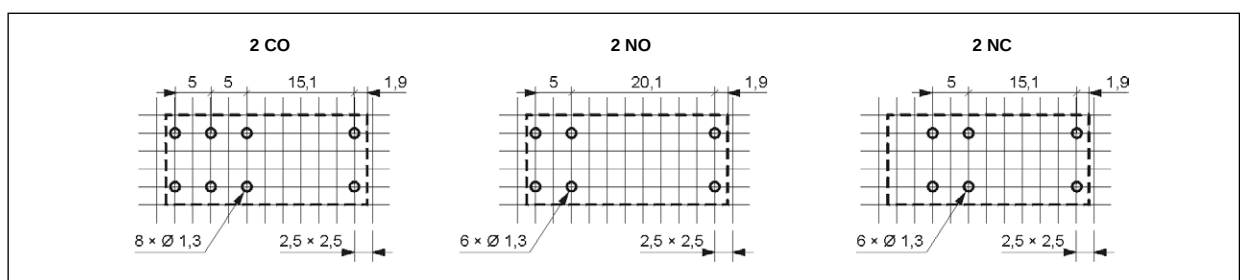


Coil temperature rise - sensitive version

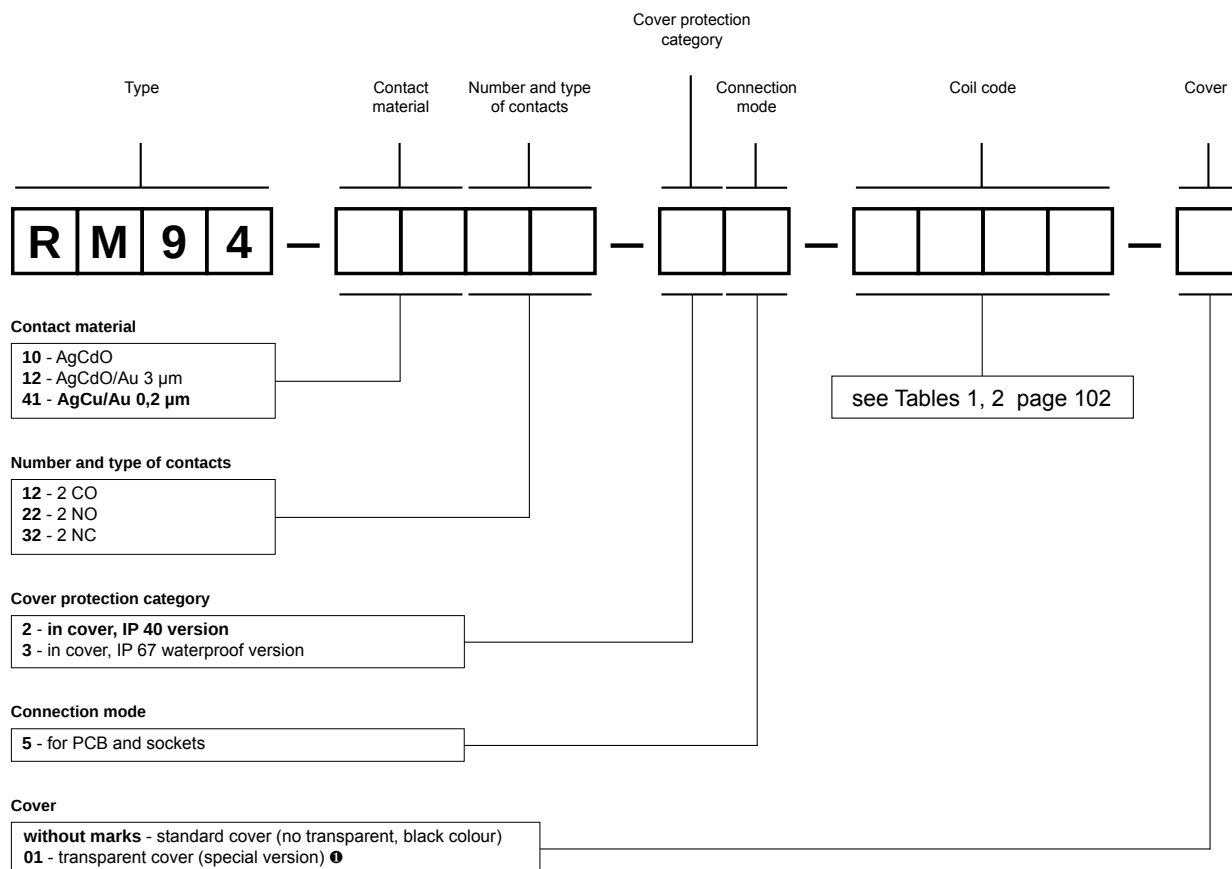
Fig. 4



Pinout (solder side view)



Ordering codes

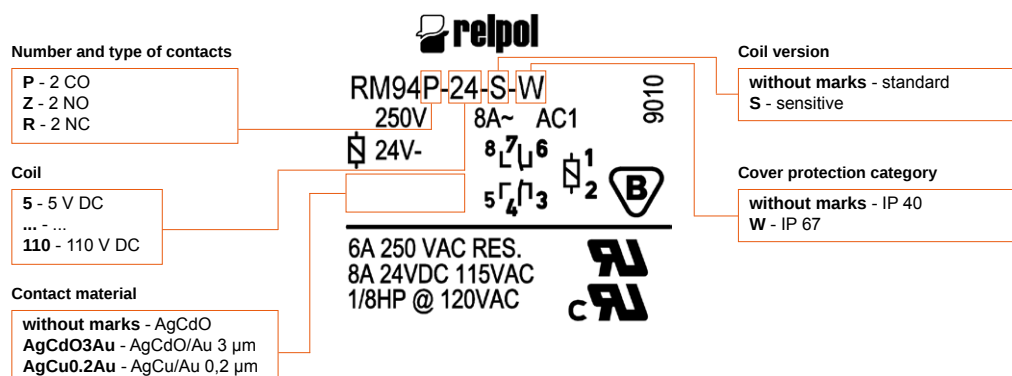


Examples of ordering codes:

- RM94-4112-25-1024** relay **RM94**, for PCB and sockets, two changeover contacts, contact material AgCu/Au 0,2 µm, coil voltage 24 V DC, in standard cover (no transparent, black colour) IP 40
- RM94-4122-35-S024** relay **RM94**, for PCB and sockets, two normally open contacts, contact material AgCu/Au 0,2 µm, sensitive coil voltage 24 V DC, in standard cover (no transparent, black colour) IP 67
- RM94-4132-35-1012-01** relay **RM94**, for PCB and sockets, two normally closed contacts, contact material AgCu/Au 0,2 µm, coil voltage 12 V DC, in transparent cover (special version) IP 67

Print on relay cover

Type marking on relays cover **RM94** do not match the ordering codes (example of marking for **RM94-1012-35-S024**).





- Cadmium - free contacts • Miniature dimensions
- Automotive applications
- High resistance to inrush current
- For PCB
- Following relays versions are available:
 - RA2** - standard design
 - RAW2** - narrow pin layout design
- Recognitions, certifications, directives: RoHS, 

Contact data

Number and type of contacts		1 CO, 1 NO, 2 NO
Contact material		AgSnO₂
Rated / max. switching voltage	DC	60 V / 60 V
Min. switching voltage		1 V
Min. switching current		10 mA
Max. inrush current		1 CO: 110 A / 50 A (NO/NC) 1 NO: 110 A 2 NO: 2 x 110 A
Rated current		1 CO: 20 A / 12 A (NO/NC) 1 NO: 20 A 2 NO: 2 x 12,5 A
Max. breaking capacity		1 CO: 270 W / 162 W (NO/NC) 1 NO: 270 W 2 NO: 2 x 168 W
Min. breaking capacity		1 W
Contact resistance		≤ 3 mΩ
Max. operating frequency		
• at rated load	AC1	900 cycles/hour 2 s ON / 2 s OFF
• at motor load		450 cycles/hour 2 s ON / 6 s OFF
• at incandescent lamp load		120 cycles/hour 2 s ON / 30 s OFF
• no load		36 000 cycles/hour

Coil data

Rated voltage	DC	5 ... 48 V
Must release voltage		DC: ≥ 0,15 U _n
Operating range of supply voltage		see Table 1
Must operate voltage		≤ 0,6 U _n
Rated power consumption	DC	1,44 W

Insulation

Insulation rated voltage		60 V AC
Dielectric strength		
• between coil and contacts		500 V AC
• contact clearance		500 V AC
Contact - coil distance		
• clearance		≥ 1 mm
• creepage		≥ 1 mm

General data

Operating / release time (typical values)		10 ms / 3 ms
Electrical life		
• resistive DC1		1 CO: > 10 ⁵ 20 A / 12 A (NO/NC), 13,5 V DC 1 NO: > 10 ⁵ 20 A, 13,5 V DC 2 NO: > 10 ⁵ 2 x 12,5 A, 13,5 V DC
Mechanical life (cycles)		> 10 ⁷
Dimensions (L x W x H)		IP 00: 18,6 x 13,0 x 18,5 mm IP 40: 20,5 x 15,3 x 19,7 mm
Weight		12 g
Ambient temperature	• storage • operating	-40...+100 °C -40...+85 °C
Cover protection category		IP 40 or IP 00 (without cover) PN-EN 60529
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)
1005	5	18	$\pm 10\%$	4,0	6,6
1006	6	24	$\pm 10\%$	4,8	8,0
1009	9	55	$\pm 10\%$	7,2	12,0
1012	12	100	$\pm 10\%$	9,6	16,0
1015	15	152	$\pm 10\%$	12,0	20,0
1018	18	230	$\pm 10\%$	14,4	23,9
1024	24	390	$\pm 10\%$	19,2	31,9
1048	48	1 590	$\pm 10\%$	38,4	63,8

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

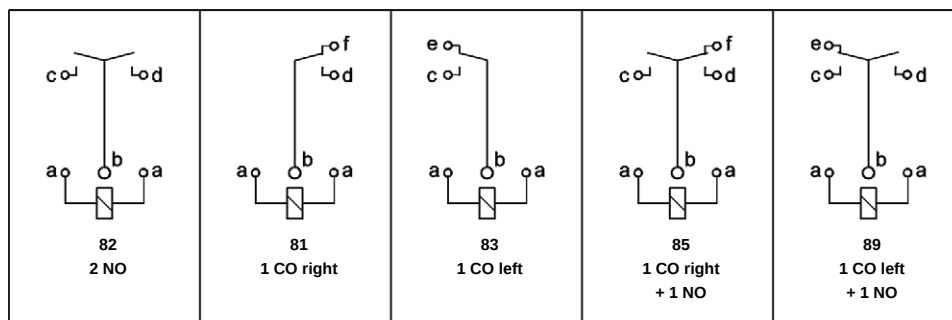
Connection diagrams (pin side view)

Relay terminals:

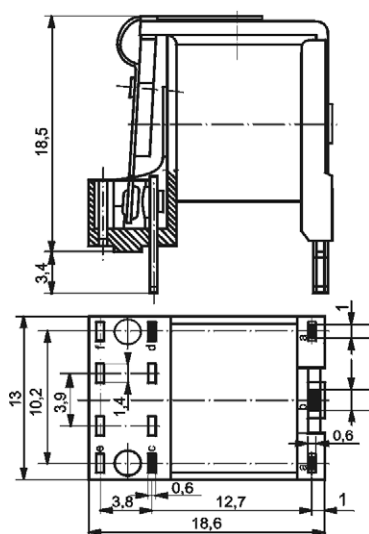
c, d, e, f - 0,6 x 1,4 mm

a - 0,6 x 1,0 mm

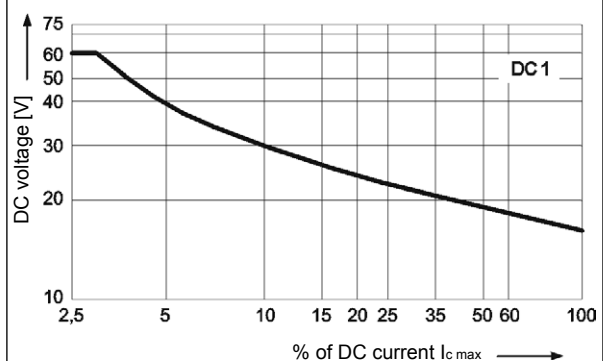
b - 1,0 x 1,5 mm



Dimensions



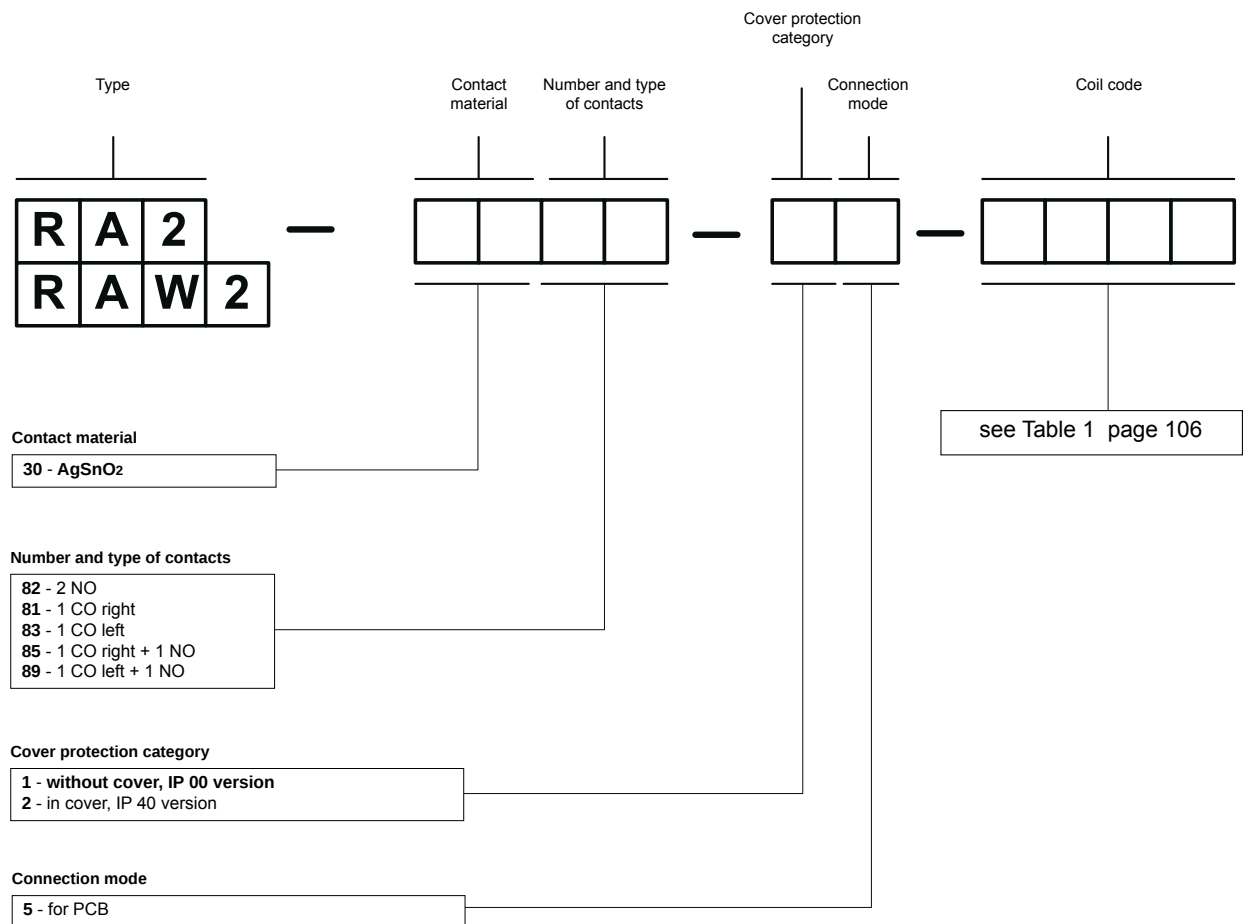
Max. DC resistive load breaking capacity Fig. 1



Mounting

Relays RA2 are designed for direct PCB mounting.

Ordering codes



Examples of ordering codes:

- RA2-3081-15-1012** relay **RA2**, for PCB, one right changeover contact, contact material AgSnO₂, coil voltage 12 V DC, without cover IP 00
- RAW2-3082-25-1024** relay **RAW2** with narrow pin layout design, for PCB, two normally open contacts, contact material AgSnO₂, coil voltage 24 V DC, in cover IP 40

mA AgNi, 5 mA AgNi/Au 0,2 µm, 2 mA AgNi/Au 5 µm

miniature industrial

R2.....	109
R3.....	114
R4.....	118
RY2.....	123
R2M.....	127

industrial of small dimensions

R15 - 2 CO, 3 CO	131
R15 - 4 CO	135
RUC	139
RUC-M	144
RG25.....	148
R20	152
R30	155
RS35, RS50	158

Industrial relays

Industrial relays are applied mainly in industrial and power automation systems, in signaling and protection systems, in other control and electric drives systems.

The basic features of industrial relays are:

- contact number: from 1 to 4, rated contact switching currents up to 48 A (depending on the relay type),
- versions with coil overvoltage suppression,
- versions with flag indicators and manual relay test pushbuttons with the possibility of latching the normally open contacts closed,
- mounting on PCB, plug-in sockets, 35 mm rails; screw and spring terminals of plug-in sockets, and via flat connecting inserts.

The main products of Relpol S.A. have been successfully applied in industrial automation for many years. Their reliability and quality have been acknowledged by numerous prizes and awards, and by the Customers' satisfaction.

R2, R3 and R4 relays are the basis for the interface relays of PIR2, PIR3 and PIR4 types which are described in the section of „Interface relays”.

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

R2

miniature industrial relays



12 A / 250 V AC

• Relays of general application • For plug-in sockets: 35 mm rail mount acc. to PN-EN 60715; on panel mounting; PCB mounting • For PCB and soldering connections - option • Miniature dimensions • Cadmium - free contacts • AC and DC coils • WT (mechanical indicator + lockable front test button) - standard features of relays for plug-in sockets. Relays may be provided with the test buttons (no latching) and plugs - page 265 • Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railroad standard,      

Contact data

Number and type of contacts		2 CO
Contact material		AgNi , AgNi/Au 0,2 µm
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V
Rated load (capacity)	AC1 AC15 AC3 DC1 DC13	12 A / 250 V AC ❶ 10 A / 250 V AC ❷ 3 A / 120 V 1,5 A / 240 V (B300) 370 W (single-phase motor) 12 A / 24 V DC (see Fig. 3) ❶ 10 A / 24 V DC ❷ 0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA
Max. inrush current		24 A
Rated current		12 A ❶ 10 A ❷
Max. breaking capacity	AC1	3 000 VA ❶ 2 500 VA ❷
Min. breaking capacity		0,3 W
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	1 200 cycles/hour
• no load		18 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC DC	6 ... 240 V 5 ... 220 V
Must release voltage		AC: ≥ 0,2 U _n DC: ≥ 0,1 U _n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC DC	1,6 VA 0,9 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 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		2 500 V AC type of insulation: basic
• contact clearance		1 500 V AC type of clearance: micro-disconnection
• pole - pole		2 500 V AC type of insulation: basic
Contact - coil distance		
• clearance		≥ 2,5 mm
• creepage		≥ 4 mm

General data

Operating / release time (typical values)		AC: 10 ms / 8 ms DC: 13 ms / 3 ms
Electrical life		
• resistive AC1		> 10 ⁵ 12 A, 250 V AC
• cos φ		see Fig. 2
Mechanical life (cycles)		> 2 x 10 ⁷
Dimensions (L x W x H)		27,5 x 21,2 x 35,6 mm ❶ 27,5 x 21,1 x 33,5 mm ❷ 27,5 x 21,2 x 33 mm ❸
Weight		35 g
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+55 °C DC: -40...+70 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTI PN-EN 116000-3
Shock resistance	(NO/NC)	10 g / 5 g
Vibration resistance		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 For plug-in sockets version: standard (WT) ❷ For PCB version ❸ For version with threaded bolt

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 55 °C)
1005	5	28	$\pm 10\%$	4,0	5,5
1006	6	40	$\pm 10\%$	4,8	6,6
1012	12	160	$\pm 10\%$	9,6	13,2
1024	24	640	$\pm 10\%$	19,2	26,4
1048	48	2 600	$\pm 10\%$	38,4	52,8
1060	60	4 000	$\pm 10\%$	48,0	66,0
1080	80	7 100	$\pm 10\%$	64,0	88,0
1110	110	13 600	$\pm 10\%$	88,0	121,0
1125	125	16 000	$\pm 10\%$	100,0	137,5
1220	220	54 000	$\pm 10\%$	176,0	242,0

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	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	9,8	$\pm 10\%$	4,8	6,6
5012	12	39,5	$\pm 10\%$	9,6	13,2
5024	24	158	$\pm 10\%$	19,2	26,4
5042	42	470	$\pm 10\%$	33,6	46,2
5048	48	640	$\pm 10\%$	38,4	52,8
5060	60	930	$\pm 10\%$	48,0	66,0
5080	80	1 720	$\pm 10\%$	64,0	88,0
5110	110	3 450	$\pm 10\%$	88,0	121,0
5115	115	3 610	$\pm 10\%$	92,0	127,0
5120	120	3 770	$\pm 10\%$	96,0	132,0
5127	127	4 000	$\pm 10\%$	101,6	139,0
5220	220	15 400	$\pm 10\%$	176,0	242,0
5230	230	16 100	$\pm 10\%$	184,0	253,0
5240	240	16 800	$\pm 10\%$	192,0	264,0

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

EUROPRODUCT 2002

for electromagnetic relays

R2...WT, R3...WT, R4...WT

with sockets **GZT2, GZT3, GZT4**

ELECTROPRODUCT 2003

for electromagnetic relays

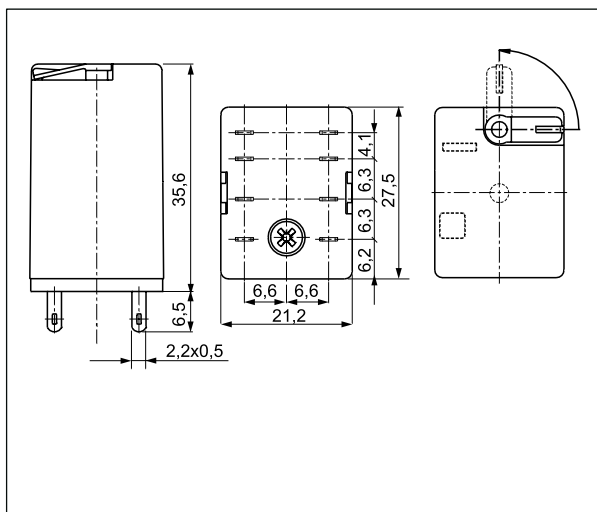
R2, R3, R4



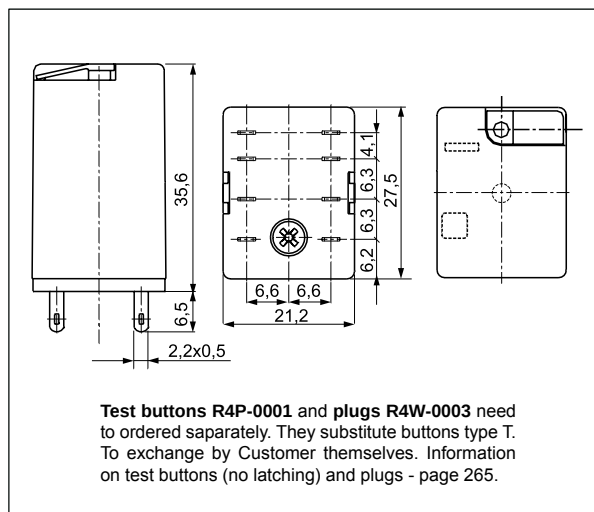
R2

miniature industrial relays

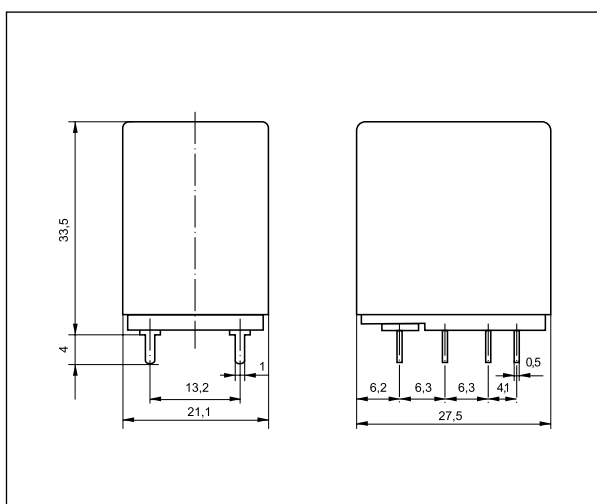
Dimensions - plug-in version (WT), with lockable front test button type T



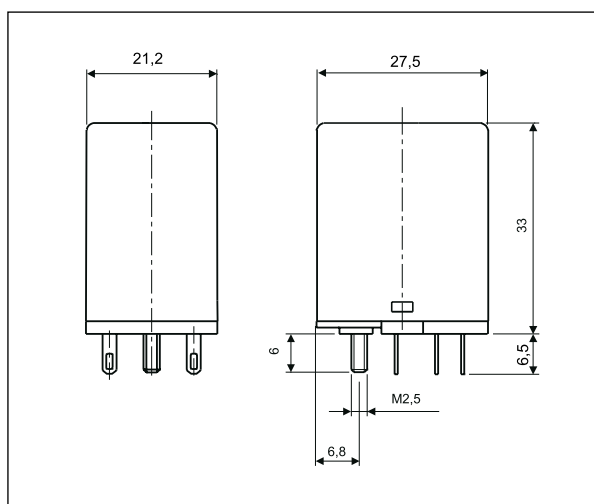
Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)



Dimensions - PCB version (without WT)



Dimensions - version with threaded bolt



Mounting

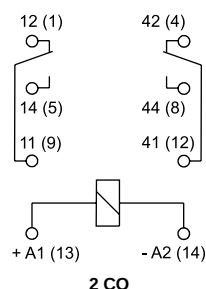
Relays R2 are offered in versions: • standard WT (mechanical indicator + lockable front test button), for plug-in sockets. In standard version of relays (WT) is possibility self-exchange of button type T for test button R4P-0001 (no latching) or plug R4W-0003 (no manual operation). Test buttons (no latching) and plugs need to be ordered separately • for PCB (without WT) • with threaded bolt.

GZMB2

Spring terminals
plug-in socket for R2
- see page 250.



Connection diagram (pin side view)

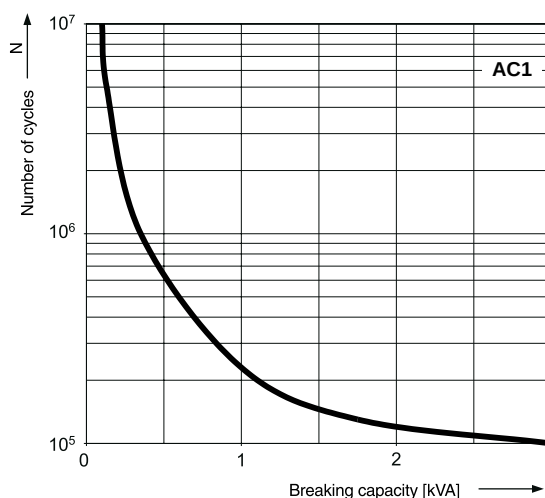


Note: the indicated polarity of the supply refers to the relays with extra equipment **D** - surge suppression element (diode) - for DC coils only.

Relay terminals for PCB 0,5 x 1 mm	
Drilling hole:	
• for relays	Ø 1,3 + 0,1 mm
• for sockets	Ø 1,5 + 0,1 mm

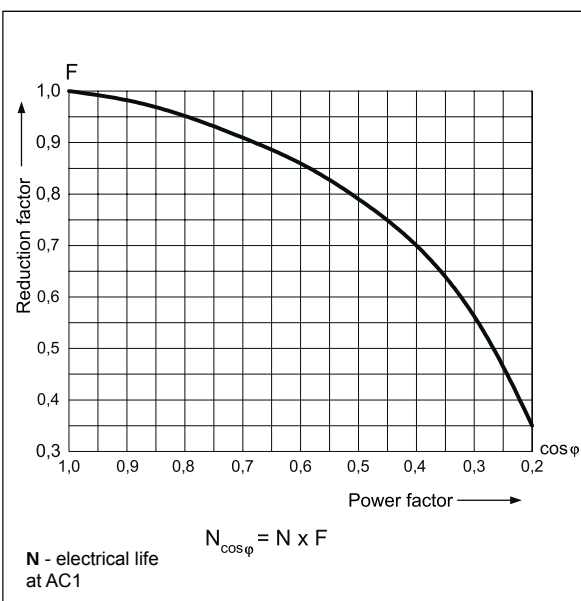
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

Fig. 1



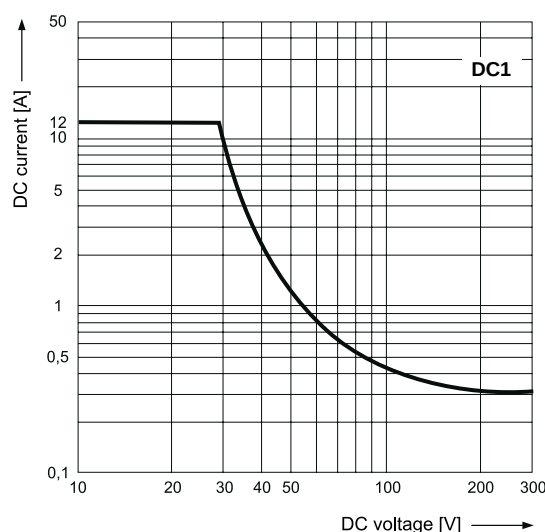
Electrical life reduction factor at AC inductive load

Fig. 2



Max. DC resistive load breaking capacity

Fig. 3



Mounting

Relays **R2** are designed for: • screw terminals plug-in sockets **GZT2** ① and **GZM2** ① with clip **GZT4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • spring terminals plug-in sockets **GZMB2** ② with clip **GZMB4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715. Signalling / protecting modules type **M...** are available with sockets (see page 261) • plug-in sockets for PCB mounting **SU4/2D** with clip **G4 1053** (WT) or **G4 1050** (without WT) • solder terminals sockets **SU4/2L** with clip **G4 1053** (WT) or **G4 1050** (without WT) and spring clamp **G4 1040** • solder terminals sockets **G4/2** with clip **G4 1053** (WT) or **G4 1050** (without WT) • direct PCB mounting.

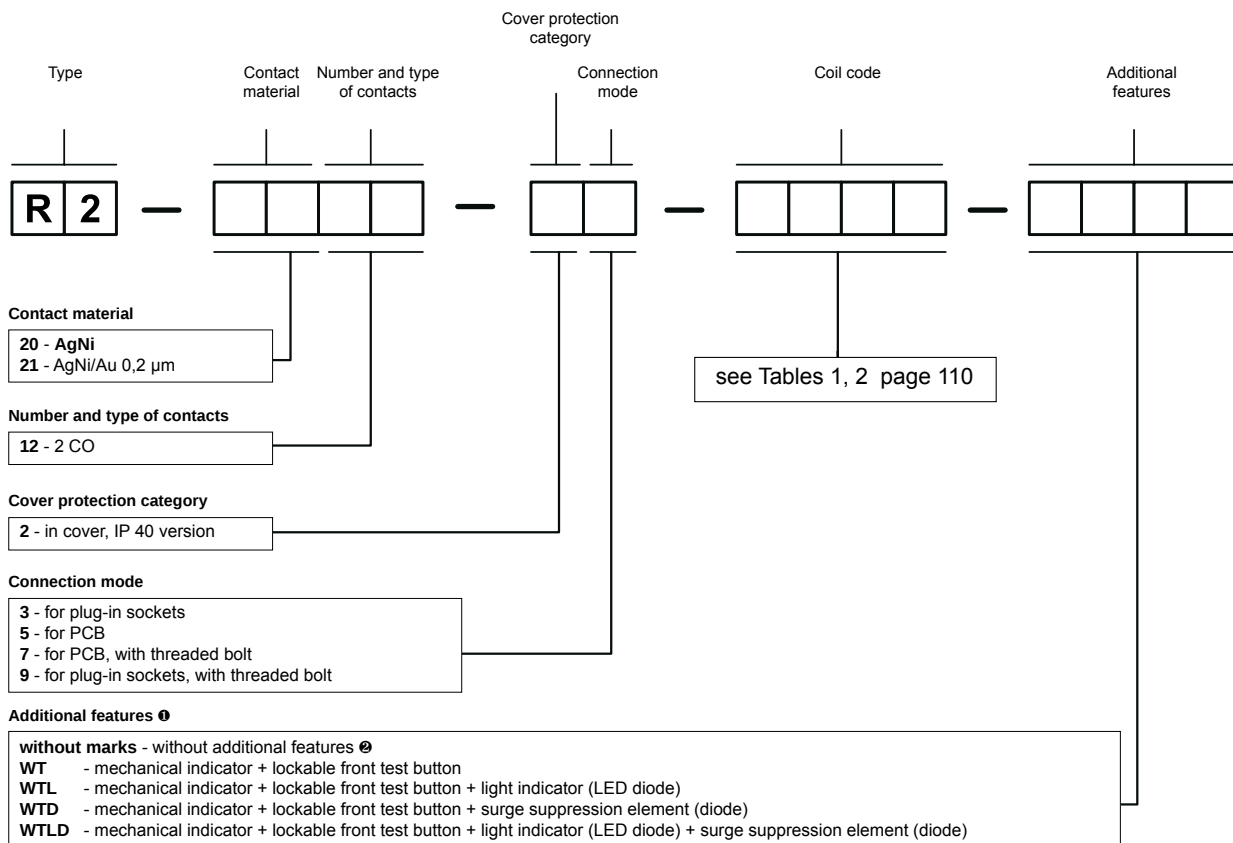
① Plug-in sockets **GZT2**, **GZM2** may be linked with interconnection strip type **ZGGZ4** (see page 263).

② For sockets **GZMB2** - see page 250 (wire connection).

Contact material selection for different load types

- AgNi - for resistive or inductive loads,
- AgNi/Au 0,2 µm - Au protects the contact surface during storage.

Ordering codes



❶ WT - standard features of relays for plug-in sockets. WTD, WTLD - only for DC coils

❷ Refer relays for PCB and with threaded bolt

Test buttons (no latching) and plugs need to be ordered separately. They substitute buttons type T. To exchange by Customer themselves.

Information on test buttons (no latching) and plugs - page 265.

- Button R4P-0001-A - orange colour (AC coils)
- Button R4P-0001-D - green colour (DC coils)
- Plug R4W-0003-A - orange colour (AC coils)
- Plug R4W-0003-D - green colour (DC coils)

Note:

For relays with additional features **D** - surge suppression element (diode) (versions WTD and WTLD) - fixed supply polarity compulsory for the DC load of coils: +A1(13) / -A2(14). The polarity is indicated on the relay cover. For other versions of the relays with DC coils any polarity is possible.

Examples of ordering codes:

- R2-2012-23-1024-WT** relay R2, for plug-in sockets, two changeover contacts, contact material AgNi, coil voltage 24 V DC, with mechanical indicator and lockable front test button, in cover IP 40
- R2-2012-25-5024** relay R2, for PCB, two changeover contacts, contact material AgNi, coil voltage 24 V AC 50/60 Hz, in cover IP 40

R3

miniature industrial relays



10 A / 250 V AC

• Relays of general application • For plug-in sockets: 35 mm rail mount acc. to PN-EN 60715; on panel mounting • Miniature dimensions • Cadmium - free contacts • AC and DC coils • WT (mechanical indicator + lockable front test button) - standard features of relays for plug-in sockets. Relays may be provided with the test buttons (no latching) and plugs - page 265

• Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railroad standard,      

Contact data

Number and type of contacts		3 CO
Contact material		AgNi , AgNi/Au 0,2 µm
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V
Rated load (capacity)	AC1 AC15 AC3 DC1 DC13	10 A / 250 V AC 3 A / 120 V 1,5 A / 240 V (B300) 370 W (single-phase motor) 10 A / 24 V DC (see Fig. 3) 0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA
Max. inrush current		20 A
Rated current		10 A
Max. breaking capacity	AC1	2 500 VA
Min. breaking capacity		0,3 W
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	1 200 cycles/hour
• no load		18 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC DC	6 ... 240 V 5 ... 220 V
Must release voltage		AC: ≥ 0,2 U _n DC: ≥ 0,1 U _n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC DC	1,6 VA 0,9 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 V AC
Rated surge voltage		with AC coils: 2 500 V 1,2 / 50 µs with DC coils: 4 000 V 1,2 / 50 µs
Overvoltage category		III
Insulation pollution degree		3
Dielectric strength		
• between coil and contacts		2 500 V AC type of insulation: basic
• contact clearance		1 500 V AC type of clearance: micro-disconnection
• pole - pole		2 500 V AC type of insulation: basic
Contact - coil distance		
• clearance		≥ 2,5 mm
• creepage		≥ 4 mm

General data

Operating / release time (typical values)		AC: 10 ms / 8 ms DC: 13 ms / 3 ms
Electrical life		
• resistive AC1		> 10 ⁵ 10 A, 250 V AC
• cosφ		see Fig. 2
Mechanical life (cycles)		> 2 x 10 ⁷
Dimensions (L x W x H)		27,5 x 21,2 x 35,6 mm ❶ 27,5 x 21,2 x 33 mm ❷
Weight		35 g
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+55 °C DC: -40...+70 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTI PN-EN 116000-3
Shock resistance	(NO/NC)	10 g / 5 g
Vibration resistance		5 g 10...150 Hz

The data in bold type pertain to the standard versions of the relays. ❶ For plug-in sockets version: standard (WT) ❷ For version with threaded bolt

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 55 °C)
1005	5	28	$\pm 10\%$	4,0	5,5
1006	6	40	$\pm 10\%$	4,8	6,6
1012	12	160	$\pm 10\%$	9,6	13,2
1024	24	640	$\pm 10\%$	19,2	26,4
1048	48	2 600	$\pm 10\%$	38,4	52,8
1060	60	4 000	$\pm 10\%$	48,0	66,0
1080	80	7 100	$\pm 10\%$	64,0	88,0
1110	110	13 600	$\pm 10\%$	88,0	121,0
1125	125	16 000	$\pm 10\%$	100,0	137,5
1220	220	54 000	$\pm 10\%$	176,0	242,0

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

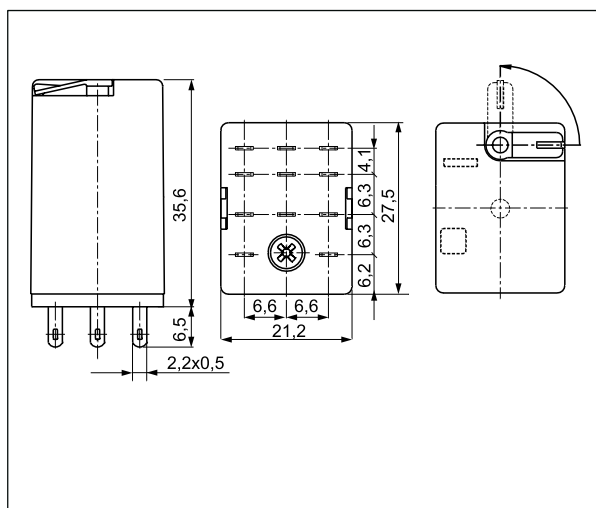
Coil data - AC 50/60 Hz voltage version

Table 2

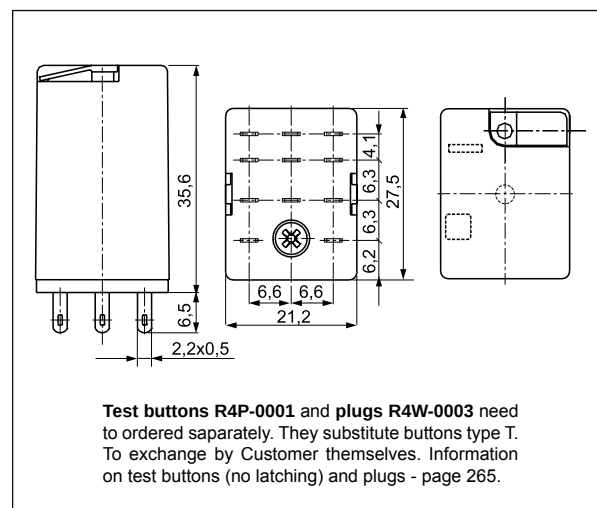
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	9,8	$\pm 10\%$	4,8	6,6
5012	12	39,5	$\pm 10\%$	9,6	13,2
5024	24	158	$\pm 10\%$	19,2	26,4
5042	42	470	$\pm 10\%$	33,6	46,2
5048	48	640	$\pm 10\%$	38,4	52,8
5060	60	930	$\pm 10\%$	48,0	66,0
5080	80	1 720	$\pm 10\%$	64,0	88,0
5110	110	3 450	$\pm 10\%$	88,0	121,0
5115	115	3 610	$\pm 10\%$	92,0	127,0
5120	120	3 770	$\pm 10\%$	96,0	132,0
5127	127	4 000	$\pm 10\%$	101,6	139,0
5220	220	15 400	$\pm 10\%$	176,0	242,0
5230	230	16 100	$\pm 10\%$	184,0	253,0
5240	240	16 800	$\pm 10\%$	192,0	264,0

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

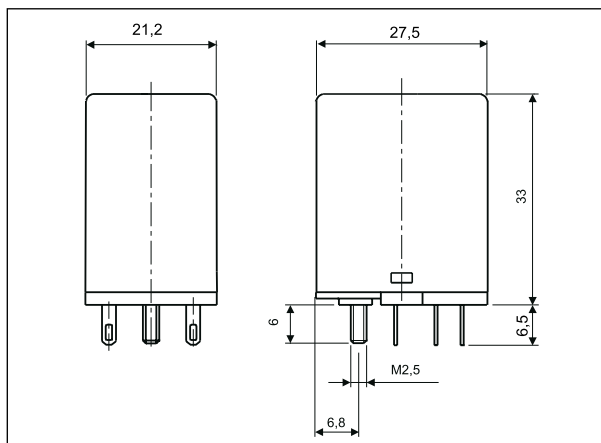
**Dimensions - plug-in version (WT),
with lockable front test button type T**



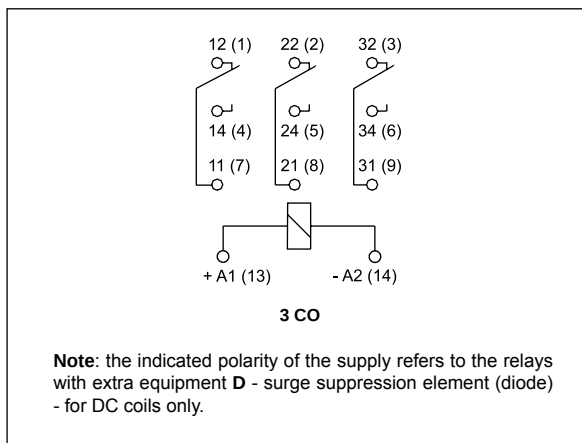
**Dimensions - plug-in version, with test button
(no latching) or with plug (no manual operation)**



Dimensions - version with threaded bolt

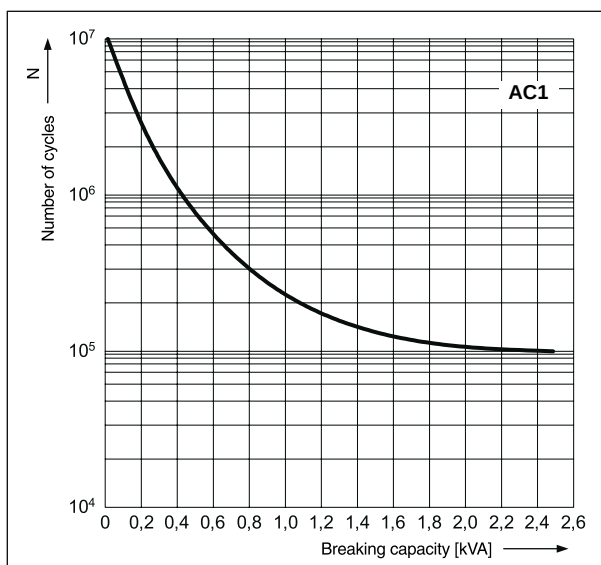


Connection diagram (pin side view)



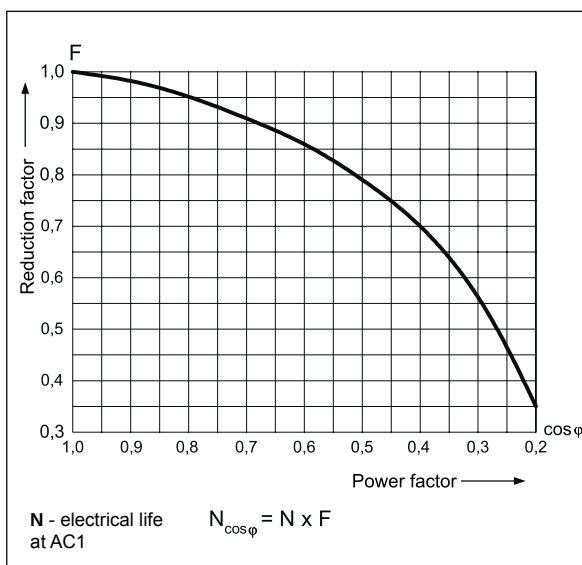
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

Fig. 1



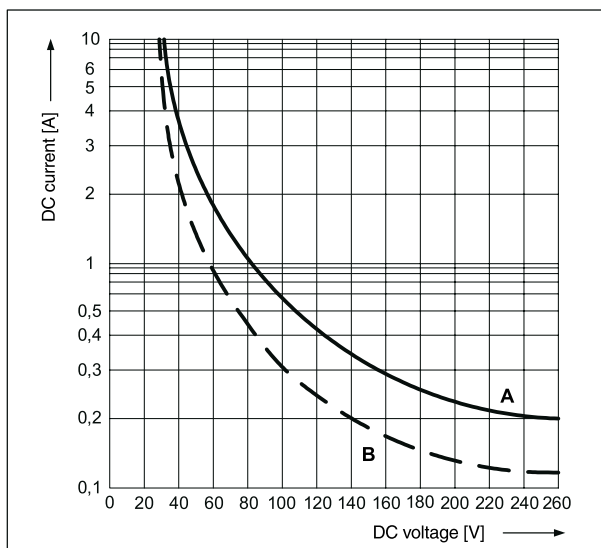
Electrical life reduction factor at AC inductive load

Fig. 2



Max. DC breaking capacity A - resistive load DC1 B - inductive load L/R = 40 ms

Fig. 3



Mounting

Relays **R3** are offered in versions: • standard **WT** (mechanical indicator + lockable front test button), for plug-in sockets. In standard version of relays (**WT**) is possibility self-exchange of button type **T** for test button **R4P-0001** (no latching) or plug **R4W-0003** (no manual operation). Test buttons (no latching) and plugs need to ordered separately • with threaded bolt.

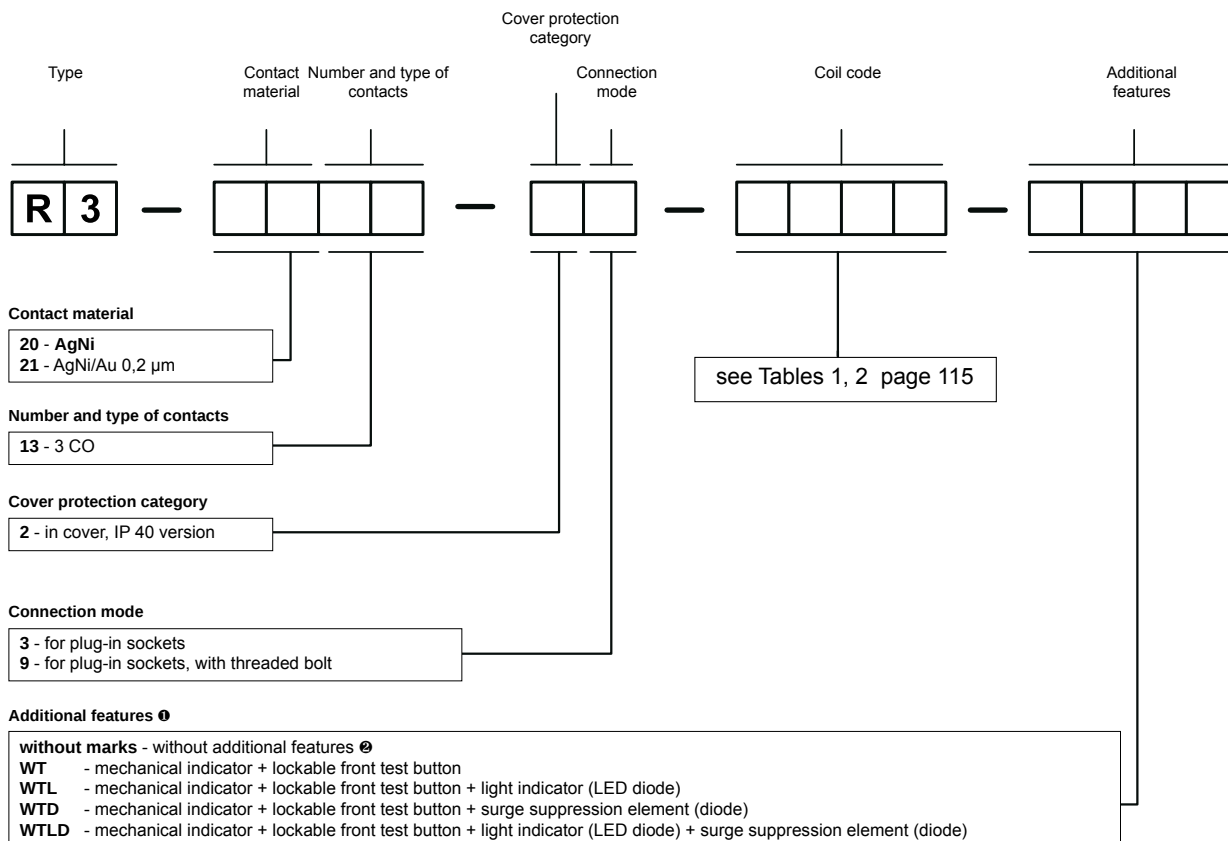
Relays **R3** are designed for: • screw terminals plug-in sockets **GZT3** ❶ and **GZM3** ❶ with clip **GZT4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. Signalling / protecting modules **type M...** are available with sockets.

❶ Plug-in sockets **GZT3**, **GZM3** may be linked with interconnection strip type **ZGGZ4** (see page 263).

Contact material selection for different load types

- AgNi - for resistive or inductive loads,
- AgNi/Au 0,2 µm - Au protects the contact surface during storage.

Ordering codes



① WT - standard features of relays for plug-in sockets. WTD, WTLD - only for DC coils

② Refer relays with threaded bolt

Test buttons (no latching) and plugs need to be ordered separately. They substitute buttons type T. To exchange by Customer themselves. Information on test buttons (no latching) and plugs - page 265.

- Button R4P-0001-A - orange colour (AC coils)
- Button R4P-0001-D - green colour (DC coils)
- Plug R4W-0003-A - orange colour (AC coils)
- Plug R4W-0003-D - green colour (DC coils)

Note:

For relays with additional features **D** - surge suppression element (diode) (versions WTD and WTLD) - fixed supply polarity compulsory for the DC load of coils: +A1(13) / -A2(14). The polarity is indicated on the relay cover. For other versions of the relays with DC coils any polarity is possible.

Example of ordering code:

R3-2013-23-1024-WT relay R3, for plug-in sockets, three changeover contacts, contact material AgNi, coil voltage 24 V DC, with mechanical indicator and lockable front test button, in cover IP 40

R4

miniature industrial relays



6 A / 250 V AC

• Relays of general application • Relays of general application • For plug-in sockets: 35 mm rail mount acc. to PN-EN 60715; on panel mounting; PCB mounting • For PCB and soldering connections - option • Miniature dimensions • Cadmium - free contacts • AC and DC coils • WT (mechanical indicator + lockable front test button) - standard features of relays for plug-in sockets. Relays may be provided with the test buttons (no latching) and plugs - page 265 • **Have obtained LR Type Approval Certificate (Lloyd's Register) - R4...WT** • Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railroad standard,       

Contact data

Number and type of contacts		4 CO
Contact material		AgNi , AgNi/Au 0,2 µm, AgNi/Au 5 µm
Rated / max. switching voltage	AC	250 V / 250 V
Min. switching voltage		10 V AgNi, 10 V AgNi/Au 0,2 µm, 5 V AgNi/Au 5 µm
Rated load (capacity)	AC1 AC15 AC3 DC1 DC13	6 A / 250 V AC 1,5 A / 120 V 0,75 A / 240 V (C300) 125 W (single-phase motor) 6 A / 24 V DC (see Fig. 3) 0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA
Max. inrush current		12 A
Rated current		6 A
Max. breaking capacity	AC1	1 500 VA
Min. breaking capacity		0,3 W AgNi, 0,3 W AgNi/Au 0,2 µm, 0,1 W AgNi/Au 5 µm
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	1 200 cycles/hour
• no load		18 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC DC	6 ... 240 V 5 ... 220 V
Must release voltage		AC: ≥ 0,2 U _n DC: ≥ 0,1 U _n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC DC	1,6 VA 0,9 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 V AC
Rated surge voltage		2 500 V 1,2 / 50 µs
Overvoltage category		II
Insulation pollution degree		2
Dielectric strength		
• between coil and contacts		2 500 V AC type of insulation: basic
• contact clearance		1 500 V AC type of clearance: micro-disconnection
• pole - pole		2 000 V AC type of insulation: basic
Contact - coil distance		
• clearance		≥ 1,6 mm
• creepage		≥ 3,2 mm

General data

Operating / release time (typical values)		AC: 10 ms / 8 ms DC: 13 ms / 3 ms
Electrical life		
• resistive AC1		> 10 ⁵ 6 A, 250 V AC
• cosφ		see Fig. 2
Mechanical life (cycles)		> 2 x 10 ⁷
Dimensions (L x W x H)		27,5 x 21,2 x 35,6 mm ❶ 27,5 x 21,1 x 33,5 mm ❷ 27,5 x 21,2 x 33 mm ❸
Weight		35 g
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+55 °C DC: -40...+70 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTI PN-EN 116000-3
Shock resistance	(NO/NC)	10 g / 5 g
Vibration resistance		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 For plug-in sockets version: standard (WT) ❷ For PCB version ❸ For version with threaded bolt

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 55 °C)
1005	5	28	$\pm 10\%$	4,0	5,5
1006	6	40	$\pm 10\%$	4,8	6,6
1012	12	160	$\pm 10\%$	9,6	13,2
1024	24	640	$\pm 10\%$	19,2	26,4
1048	48	2 600	$\pm 10\%$	38,4	52,8
1060	60	4 000	$\pm 10\%$	48,0	66,0
1080	80	7 100	$\pm 10\%$	64,0	88,0
1110	110	13 600	$\pm 10\%$	88,0	121,0
1125	125	16 000	$\pm 10\%$	100,0	137,5
1220	220	54 000	$\pm 10\%$	176,0	242,0

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	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	9,8	$\pm 10\%$	4,8	6,6
5012	12	39,5	$\pm 10\%$	9,6	13,2
5024	24	158	$\pm 10\%$	19,2	26,4
5042	42	470	$\pm 10\%$	33,6	46,2
5048	48	640	$\pm 10\%$	38,4	52,8
5060	60	930	$\pm 10\%$	48,0	66,0
5080	80	1 720	$\pm 10\%$	64,0	88,0
5110	110	3 450	$\pm 10\%$	88,0	121,0
5115	115	3 610	$\pm 10\%$	92,0	127,0
5120	120	3 770	$\pm 10\%$	96,0	132,0
5127	127	4 000	$\pm 10\%$	101,6	139,0
5220	220	15 400	$\pm 10\%$	176,0	242,0
5230	230	16 100	$\pm 10\%$	184,0	253,0
5240	240	16 800	$\pm 10\%$	192,0	264,0

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

EUROPRODUCT 2002
for electromagnetic relays
R2...WT, R3...WT, R4...WT
with sockets **GZT2, GZT3, GZT4**

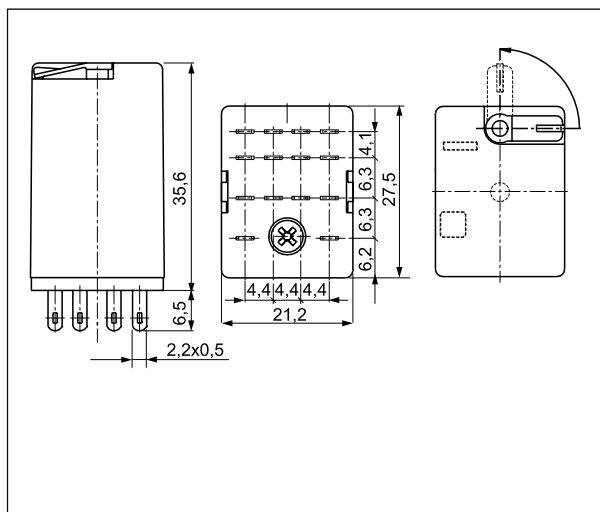
ELECTROPRODUCT 2003
for electromagnetic relays
R2, R3, R4



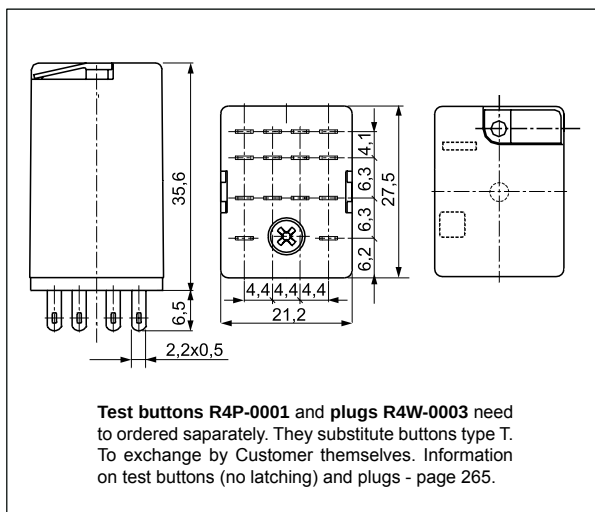
R4

miniature industrial relays

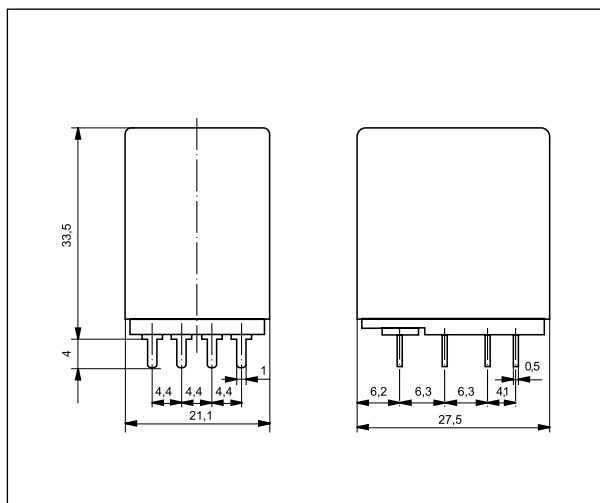
Dimensions - plug-in version (WT), with lockable front test button type T



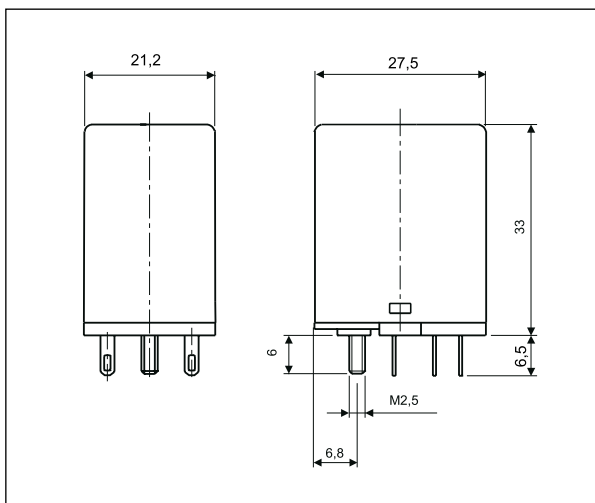
Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)



Dimensions - PCB version (without WT)



Dimensions - version with threaded bolt



Mounting

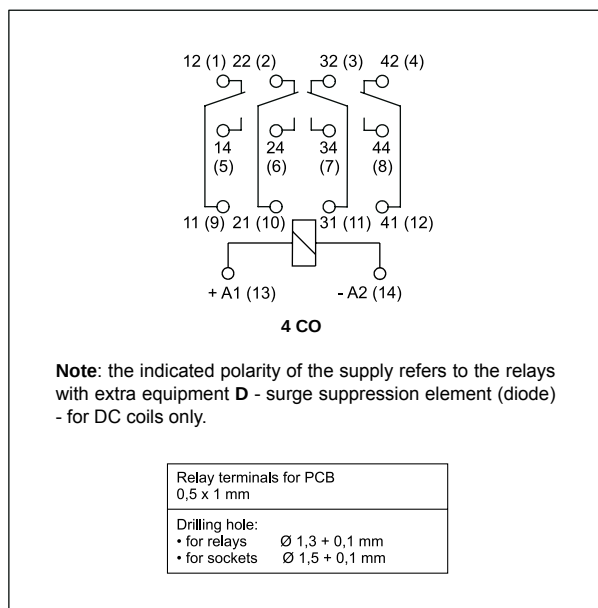
Relays R4 are offered in versions: • standard WT (mechanical indicator + lockable front test button), for plug-in sockets. In standard version of relays (WT) is possibility self-exchange of button type T for test button R4P-0001 (no latching) or plug R4W-0003 (no manual operation). Test buttons (no latching) and plugs need to be ordered separately • for PCB (without WT) • with threaded bolt.

GZMB4

Spring terminals
plug-in socket for R4
- see page 253.

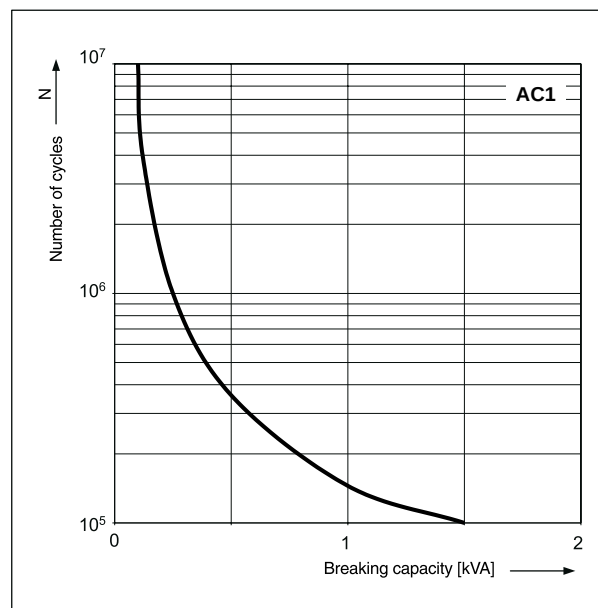


Connection diagram (pin side view)



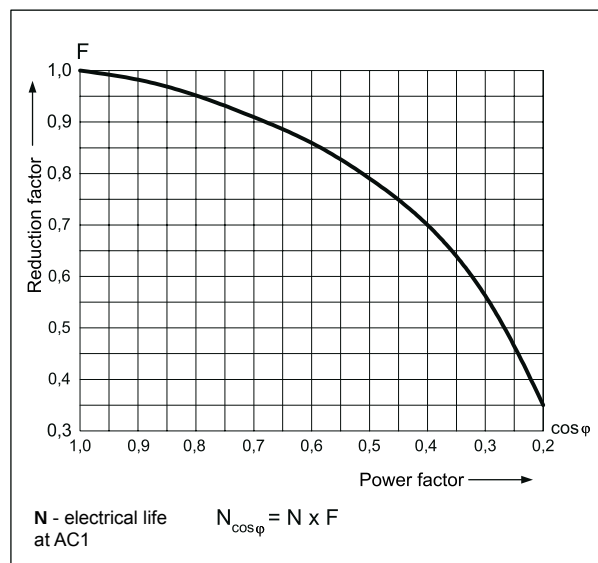
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1



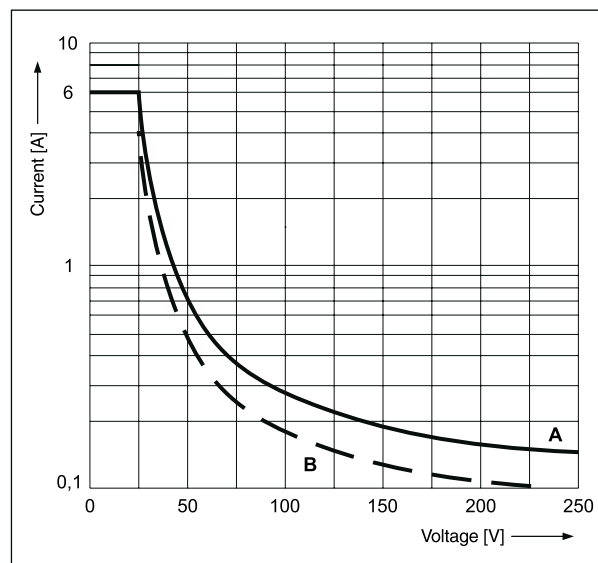
Electrical life reduction factor
at AC inductive load

Fig. 2



Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms

Fig. 3



Mounting

Relays **R4** are designed for: • screw terminals plug-in sockets **GZT4** ① and **GZM4** ① with clip **GZT4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • spring terminals plug-in sockets **GZMB4** ② with clip **GZMB4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715. Signalling / protecting modules **type M...** are available with sockets (see page 261) • screw terminals plug-in sockets **GZ4** with clip **G4 1052** or plug-in sockets **GS4** with clip **GS4-0036**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • plug-in sockets for PCB mounting **SU4D** with clip **G4 1053** (WT) or **G4 1050** (without WT) • solder terminals sockets **SU4L** with clip **G4 1053** (WT) or **G4 1050** (without WT) and spring clamp **G4 1040** • solder terminals sockets **G4** with clip **G4 1053** (WT) or **G4 1050** (without WT) • direct PCB mounting..

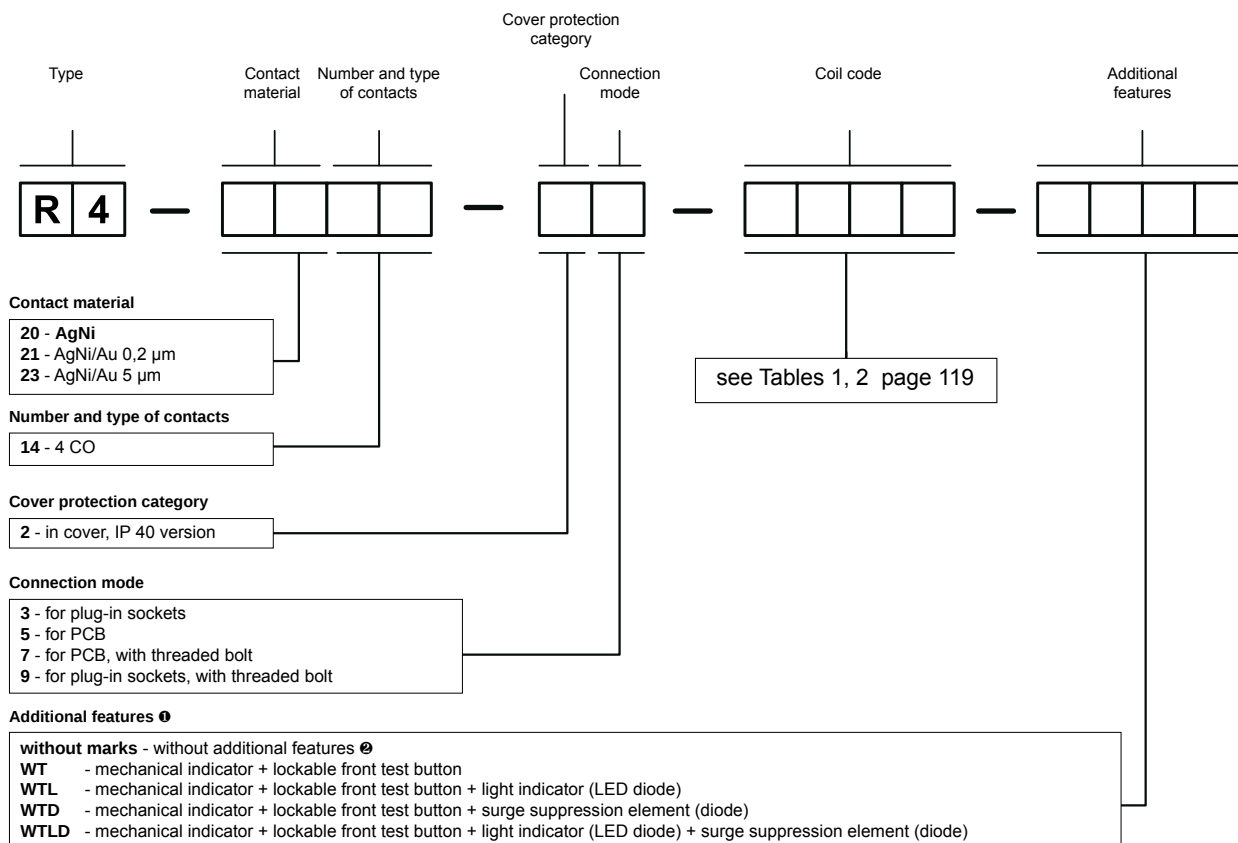
① Plug-in sockets **GZT4**, **GZM4** may be linked with interconnection strip type **ZGGZ4** (see page 263).

② For sockets **GZMB4** - see page 253 (wire connection).

Contact material selection for different load types

- **AgNi** - for resistive or inductive loads,
- **AgNi/Au 0,2 µm** - Au protects the contact surface during storage,
- **AgNi/Au 5 µm** - for small resistive loads in control circuits.

Ordering codes



❶ WT - standard features of relays for plug-in sockets. WTD, WTLTD - only for DC coils

❷ Refer relays for PCB and with threaded bolt

Test buttons (no latching) and plugs need to be ordered separately. They substitute buttons type T. To exchange by Customer themselves.

Information on test buttons (no latching) and plugs - page 265.

- Button R4P-0001-A - orange colour (AC coils)
- Button R4P-0001-D - green colour (DC coils)
- Plug R4W-0003-A - orange colour (AC coils)
- Plug R4W-0003-D - green colour (DC coils)

Note:

For relays with additional features **D** - surge suppression element (diode) (versions WTD and WTLTD) - fixed supply polarity compulsory for the DC load of coils: +A1(13) / -A2(14). The polarity is indicated on the relay cover. For other versions of the relays with DC coils any polarity is possible.

Example of ordering code:

R4-2014-23-5230-WTL relay R4, for plug-in sockets, four changeover contacts, contact material AgNi, coil voltage 230 V AC 50/60 Hz, with mechanical indicator and lockable front test button and light indicator (LED diode), in cover IP 40



- Relays of general application
- For plug-in sockets: 35 mm rail mount acc. to PN-EN 60715; on panel mounting
- For direct mounting on panel - cover with mounting flange
- Flat insert connectors - faston 187 (4,8 x 0,5 mm)
- Recognitions, certifications, directives: RoHS,  

Contact data

Number and type of contacts		2 CO
Contact material		AgNi , AgCdO
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 10 V AgCdO
Rated load	AC1 DC1	12 A / 250 V AC 12 A / 30 V DC
Min. switching current		5 mA AgNi, 10 mA AgCdO
Max. inrush current		20 A
Rated current		12 A
Max. breaking capacity	AC1	3 000 VA
Min. breaking capacity		0,3 W AgNi, 1 W AgCdO
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	1 200 cycles/hour
• no load		18 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC DC	6 ... 240 V 5 ... 220 V
Must release voltage		AC: ≥ 0,2 U _n DC: ≥ 0,1 U _n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC DC	1,6 VA 0,9 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 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	2 500 V AC	type of insulation: basic
• 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		≥ 2,6 mm
• creepage		≥ 4 mm

General data

Operating / release time (typical values)		15 ms / 10 ms
Electrical life		
• resistive AC1		> 10 ⁵ 12 A, 250 V AC
• cosφ		see Fig. 2
Mechanical life (cycles)		> 10 ⁷
Dimensions (L x W x H)		27,5 x 21,1 x 34,5 mm ❶
Weight		35 g
Ambient temperature	• storage • operating	-40...+70 °C -40...+55 °C
Cover protection category		IP 40 PN-EN 60529
Shock resistance		10 g
Vibration resistance		5 g 15...150 Hz

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

❶ For plug-in sockets version: standard

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 55 °C)
1005	5	28	$\pm 10\%$	4,0	5,5
1006	6	40	$\pm 10\%$	4,8	6,6
1012	12	160	$\pm 10\%$	9,6	13,2
1024	24	640	$\pm 10\%$	19,2	26,4
1048	48	2 600	$\pm 10\%$	38,4	52,8
1060	60	4 000	$\pm 10\%$	48,0	66,0
1080	80	7 100	$\pm 10\%$	64,0	88,0
1110	110	13 600	$\pm 10\%$	88,0	121,0
1125	125	16 000	$\pm 10\%$	100,0	137,5
1220	220	54 000	$\pm 10\%$	176,0	242,0

Coil data - AC 50/60 Hz voltage version

Table 2

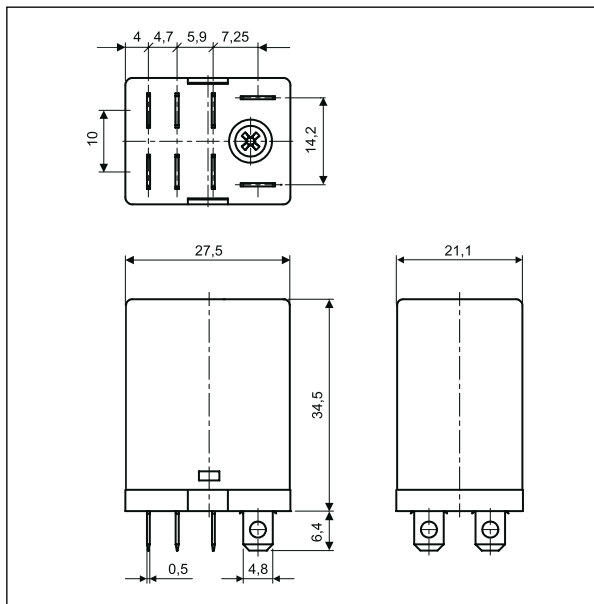
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	9,8	$\pm 10\%$	4,8	6,6
5012	12	39,5	$\pm 10\%$	9,6	13,2
5024	24	158	$\pm 10\%$	19,2	26,4
5042	42	470	$\pm 10\%$	33,6	46,2
5048	48	640	$\pm 10\%$	38,4	52,8
5060	60	930	$\pm 10\%$	48,0	66,0
5080	80	1 720	$\pm 10\%$	64,0	88,0
5110	110	3 450	$\pm 10\%$	88,0	121,0
5120	120	3 770	$\pm 10\%$	96,0	132,0
5127	127	4 000	$\pm 10\%$	101,6	139,7
5220	220	15 400	$\pm 10\%$	176,0	242,0
5230	230	16 100	$\pm 10\%$	184,0	253,0
5240	240	16 800	$\pm 10\%$	192,0	264,0

GZY2G

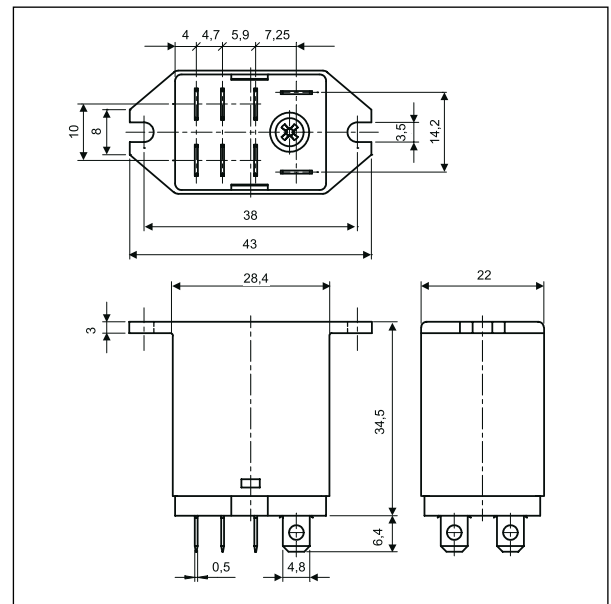
Screw terminals
plug-in sockets
for RY2
- see page 255.



Dimensions - plug-in version (standard)

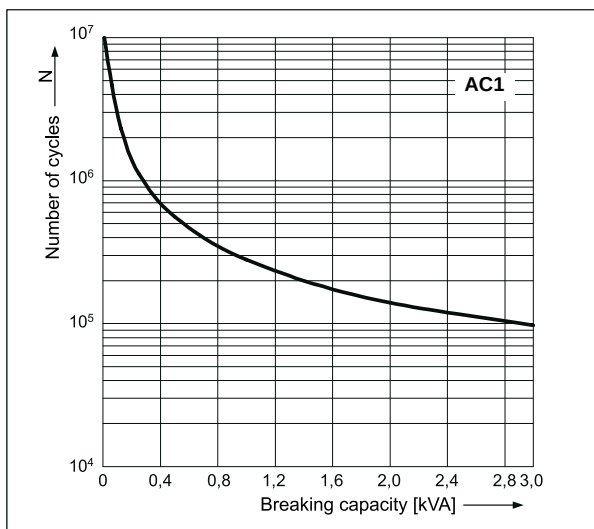


Dimensions - version with mounting flange in the upper wall of the cover



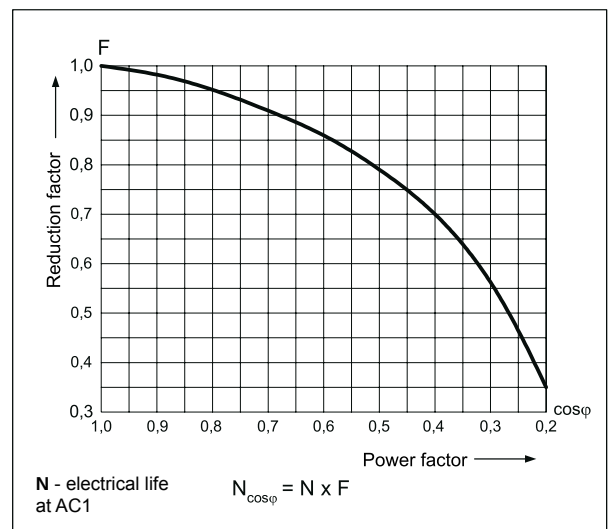
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

Fig. 1

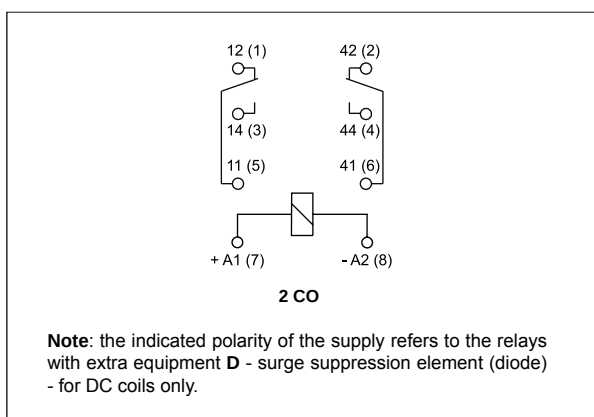


Electrical life reduction factor at AC inductive load

Fig. 2



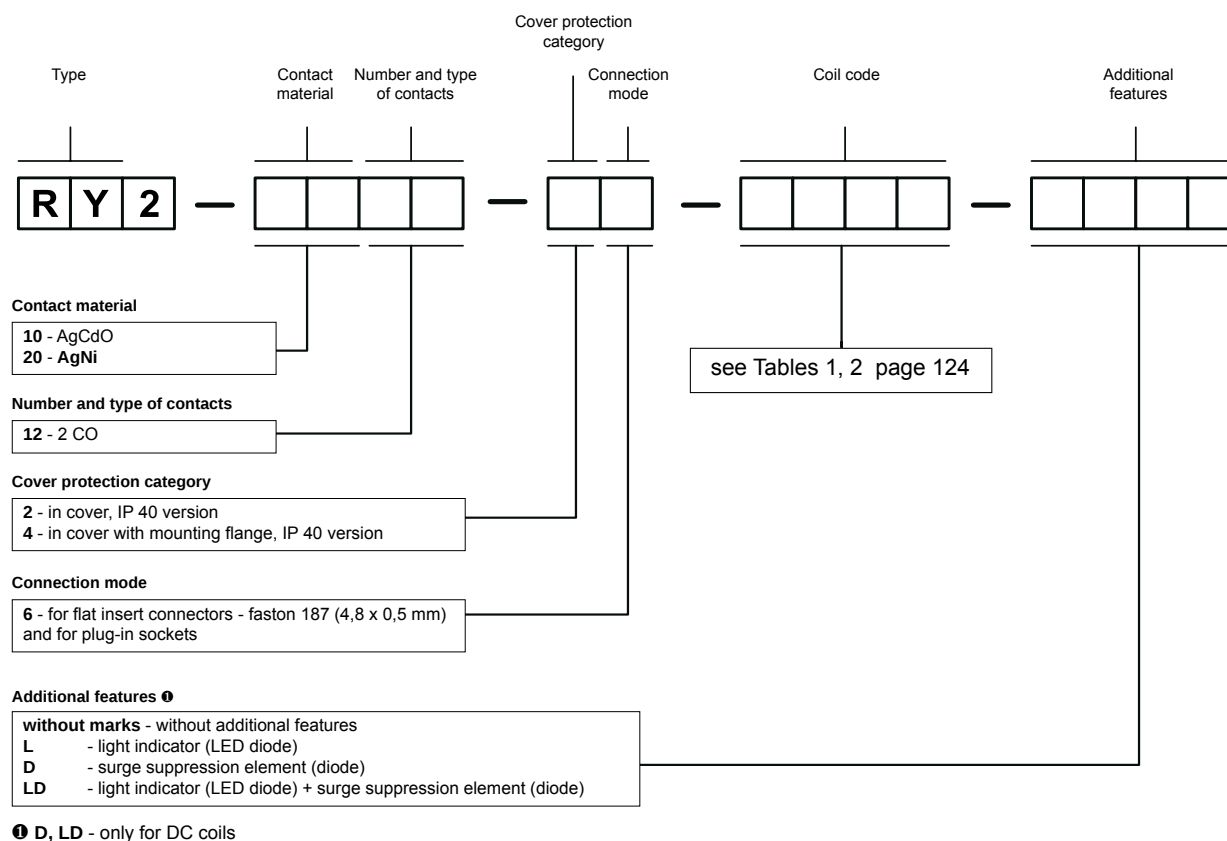
Connection diagram (pin side view)



Mounting

Relays R_Y2 are offered in versions: • standard, for plug-in sockets • with mounting flange in the upper wall of the cover. Relays **R_Y2** are designed for: • screw terminals plug-in sockets **GZY2G**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • flat insert connectors - faston 187 (4,8 x 0,5 mm), relays are direct on panel mounting with two M3 screws - cover with mounting flange.

Ordering codes



Note:

For relays with additional features **D** - surge suppression element (diode) (versions **D** and **LD**) - fixed supply polarity compulsory for the DC load of coils: +A1(7) / -A2(8). The polarity is indicated on the relay cover. For other versions of the relays with DC coils any polarity is possible.

Examples of ordering codes:

RY2-2012-26-1024 relay **R_Y2**, for plug-in sockets, two changeover contacts, contact material AgNi, coil voltage 24 V DC, in cover IP 40

RY2-2012-26-5230-L relay **R_Y2**, for plug-in sockets, two changeover contacts, contact material AgNi, coil voltage 230 V AC 50/60 Hz, with light indicator (LED diode), in cover IP 40



- Relays of general application
- For plug-in sockets: 35 mm rail mount acc. to PN-EN 60715; on panel mounting
- For PCB and for soldering connections
- AC and DC coils
- Recognitions, certifications, directives: RoHS,   

Contact data

Number and type of contacts		2 CO
Contact material		AgNi , AgNi/Au 0,2 µm, AgSnO ₂
Rated / max. switching voltage	AC	250 V / 250 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 0,2 µm, 10 V AgSnO ₂
Rated load	AC1 DC1	5 A / 250 V AC 5 A / 24 V DC
Min. switching current		5 mA AgNi, 5 mA AgNi/Au 0,2 µm, 10 mA AgSnO ₂
Rated current		5 A
Max. breaking capacity	AC1	1 250 VA
Min. breaking capacity		0,3 W AgNi, 0,3 W AgNi/Au 0,2 µm, 1 W AgSnO ₂
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	1 200 cycles/hour
• no load		36 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC DC	6 ... 240 V 6 ... 110 V
Must release voltage		≥ 0,05 U _n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC DC	1,2 VA 0,9 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 V AC
Rated surge voltage		2 500 V 1,2 / 50 µs
Overvoltage category		II
Insulation pollution degree		3
Dielectric strength		
• between coil and contacts	2 000 V AC	type of insulation: basic
• contact clearance	1 000 V AC	type of clearance: micro-disconnection
• pole - pole	2 000 V AC	type of insulation: basic
Contact - coil distance		
• clearance		≥ 3 mm
• creepage		≥ 4 mm

General data

Operating / release time (typical values)		AC: 8 ms / 7 ms	DC: 10 ms / 3 ms
Electrical life			
• resistive AC1		> 2 x 10 ⁵	5 A, 250 V AC
• cosφ		see Fig. 2	
Mechanical life (cycles)		> 10 ⁷	
Dimensions (L x W x H)		27,5 x 14 x 32,9 mm	
Weight		22 g	
Ambient temperature	• storage • operating	-40...+70 °C -40...+55 °C	
Cover protection category		IP 40	PN-EN 60529
Shock resistance		10 g	
Vibration resistance		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.

Note: relays with AgNi contacts can be used up to 5 A at resistive and inductive load.

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 55 °C)
1006	6	47	$\pm 10\%$	4,8	6,6
1012	12	188	$\pm 10\%$	9,6	13,2
1024	24	750	$\pm 10\%$	19,2	26,4
1048	48	2 660	$\pm 10\%$	38,4	52,8
1060	60	4 000	$\pm 10\%$	48,0	66,0
1080	80	7 100	$\pm 10\%$	64,0	88,0
1110	110	13 480	$\pm 10\%$	88,0	121,0

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

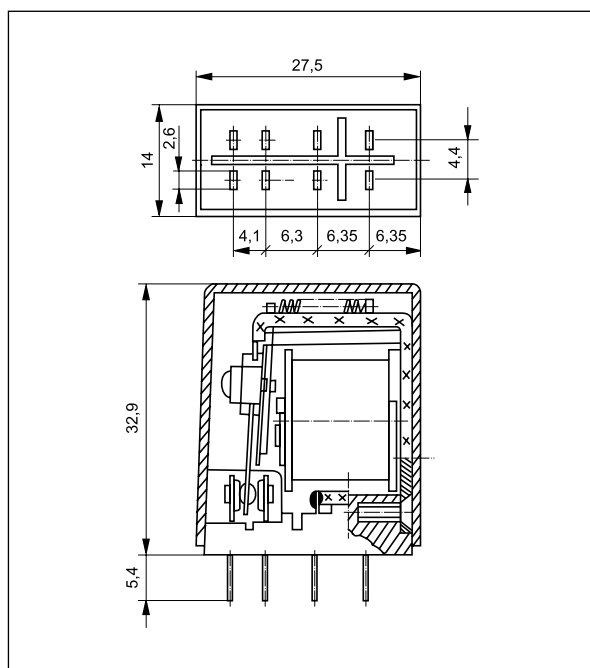
Coil data - AC 50/60 Hz voltage version

Table 2

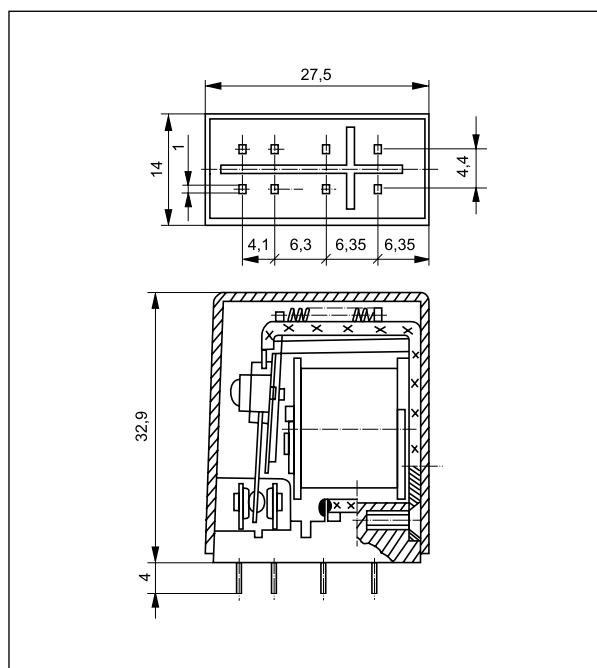
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	16	$\pm 10\%$	4,8	6,6
5012	12	68	$\pm 10\%$	9,6	13,2
5024	24	270	$\pm 10\%$	19,2	26,4
5050	50	1 150	$\pm 10\%$	40,0	55,0
5100	100	5 590	$\pm 10\%$	80,0	110,0
5110	110	5 670	$\pm 10\%$	88,0	121,0
5115	115	5 990	$\pm 10\%$	92,0	126,0
5120	120	6 390	$\pm 10\%$	96,0	132,0
5220	220	21 470	$\pm 10\%$	176,0	242,0
5230	230	21 470	$\pm 10\%$	184,0	253,0
5240	240	25 390	$\pm 10\%$	192,0	264,0

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

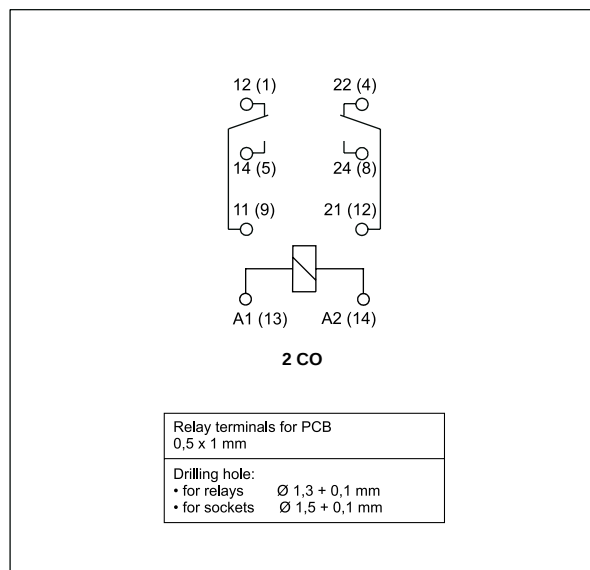
Dimensions - plug-in version



Dimensions - PCB version

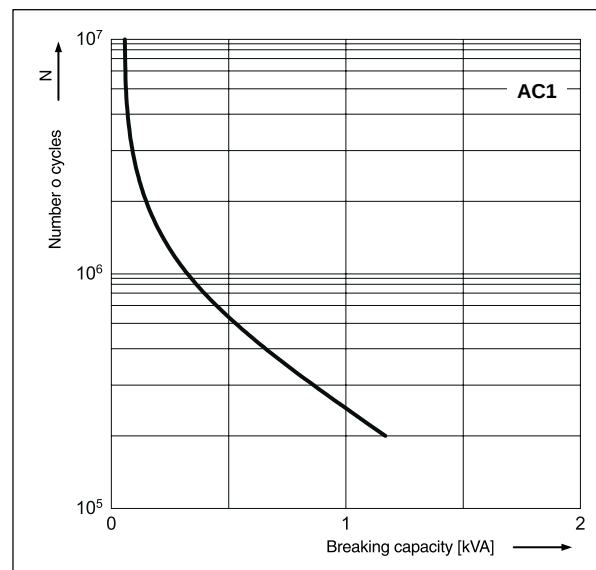


Connection diagram (pin side view)



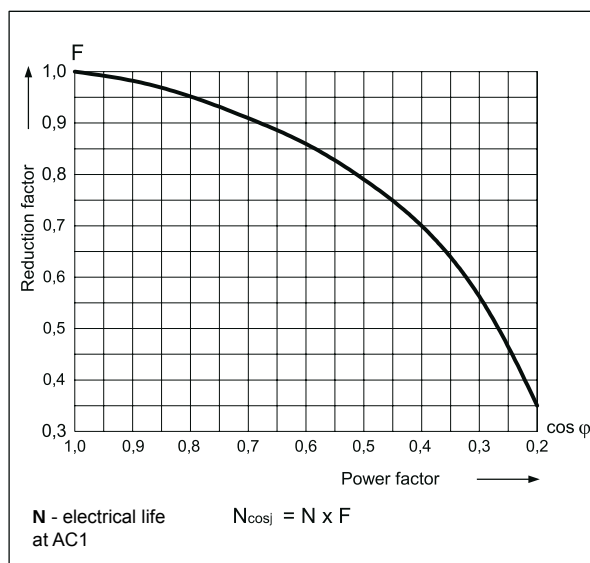
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

Fig. 1



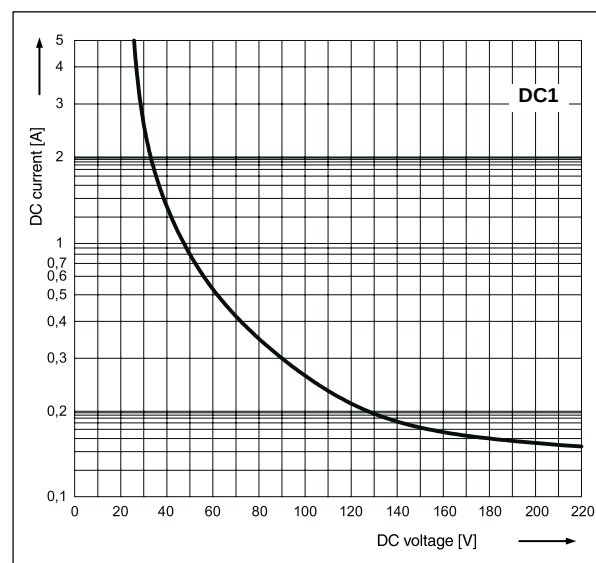
Electrical life reduction factor at AC inductive load

Fig. 2



Max. DC resistive load breaking capacity

Fig. 3



Mounting

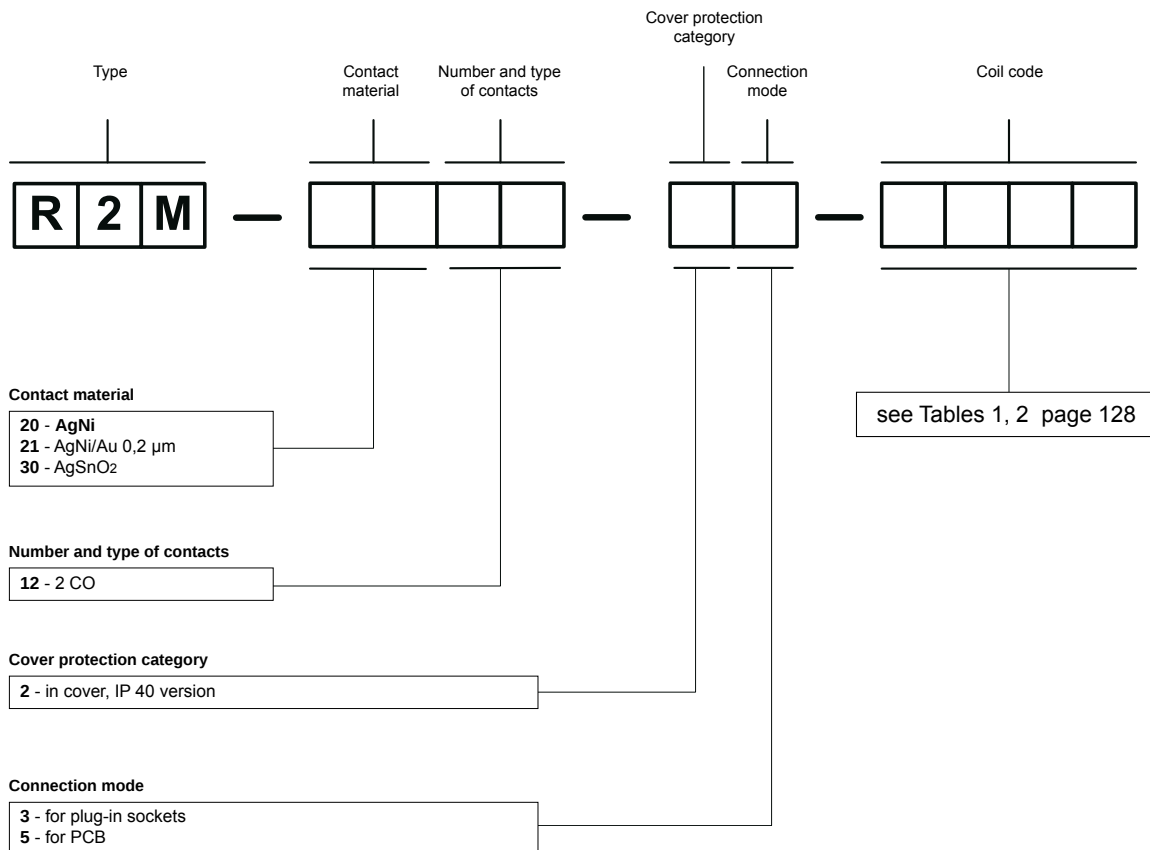
Relays **R2M** are designed for:

- screw terminals plug-in sockets **GZ2** with clip **GZ2 1060** and spring clamp **GZ2 1111**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws
- plug-in sockets for PCB mounting **S2M** with clip **G4 1050**
- solder terminals sockets **G2M** with clip **G4 1050** and spring clamp **G2M 1020**
- direct PCB mounting.

Contact material selection for different load types

- **AgNi** - for resistive or inductive loads,
- **AgNi/Au 0,2 µm** - Au protects the contact surface during storage,
- **AgSnO₂** - for capacitive loads or incandescent lamp loads.

Ordering codes



Examples of ordering codes:

R2M-2012-23-5230 relay **R2M**, for plug-in sockets, two changeover contacts, contact material AgNi, coil voltage 230 V AC 50/60 Hz, in cover IP 40

R2M-2012-25-1024 relay **R2M**, for PCB, two changeover contacts, contact material AgNi, coil voltage 24 V DC, in cover IP 40

PIR2M

Interface relay:
relay R2M
and socket GZ2
- see page 190



R15 - 2 CO, 3 CO

industrial relays of small dimensions



R15 - 2 CO



R15 - 3 CO

• Relays of general application • For plug-in sockets: 35 mm rail mount acc. to PN-EN 60715; on panel mounting; solder terminals • Contacts AgNi • Coils AC and DC • WT (mechanical indicator + lockable front test button) - standard features of relays in cover, for plug-in sockets. Relays may be provided with the test buttons (no latching) and plugs - page 265 • **Have obtained LR Type Approval Certificate (Lloyd's Register)** • Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railroad standard,       

Contact data

Number and type of contacts	2 CO, 3 CO
Contact material	AgNi , AgNi/Au 0,2 µm, AgNi/Au 5 µm
Rated / max. switching voltage	AC 250 V / 440 V
Min. switching voltage	10 V AgNi, 10 V AgNi/Au 0,2 µm, 5 V AgNi/Au 5 µm
Rated load (capacity)	AC1 10 A / 250 V AC 10 A / 277 V AC UL 508 AC15 3 A / 120 V 1,5 A / 240 V (B300) AC3 370 W (single-phase motor; 0,5 HP / 240 V AC UL 508) DC1 10 A / 24 V DC (see Fig. 3) DC13 0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current	5 mA
Max. inrush current	20 A
Rated current	10 A
Max. breaking capacity	AC1 2 500 VA
Min. breaking capacity	0,3 W AgNi, 0,3 W AgNi/Au 0,2 µm, 0,05 W AgNi/Au 5 µm
Contact resistance	≤ 100 mΩ
Max. operating frequency	
• at rated load	AC1 1 200 cycles/hour
• no load	12 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC 6 ... 240 V
	DC 6 ... 220 V
Must release voltage	AC: ≥ 0,15 U _n DC: ≥ 0,1 U _n
Operating range of supply voltage	see Tables 1, 2
Rated power consumption	AC: 2,8 VA 50 Hz 2,5 VA 60 Hz DC: 1,5 W

Insulation according to PN-EN 60664-1

Insulation rated voltage	250 V AC
Rated surge voltage	2 500 V 1,2 / 50 µs
Overvoltage category	III
Insulation pollution degree	3
Dielectric strength	
• between coil and contacts	2 500 V AC type of insulation: basic
• contact clearance	1 500 V AC type of clearance: micro-disconnection
• pole - pole	2 000 V AC type of insulation: basic
Contact - coil distance	
• clearance	≥ 3 mm
• creepage	≥ 4,2 mm

General data

Operating / release time (typical values)	AC: 12 ms / 10 ms DC: 18 ms / 7 ms
Electrical life	
• resistive AC1	> 2 x 10 ⁵ 10 A, 250 V AC
• cosφ	see Fig. 2
Mechanical life (cycles)	> 2 x 10 ⁷
Dimensions (L x W x H)	35 x 35 x 54,4 mm
Weight	83 g
Ambient temperature	• storage -40...+85 °C
	• operating AC: -40...+55 °C DC: -40...+70 °C
Cover protection category	IP 40 PN-EN 60529
Environmental protection	RTI PN-EN 116000-3
Shock resistance	10 g
Vibration resistance	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.

R15 - 2 CO, 3 CO

industrial relays of small dimensions

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 55 °C)
1006	6	28	$\pm 10\%$	4,8	6,6
1012	12	110	$\pm 10\%$	9,6	13,2
1024	24	430	$\pm 10\%$	19,2	26,4
1048	48	1 750	$\pm 10\%$	38,4	52,8
1060	60	2 700	$\pm 10\%$	48,0	66,0
1110	110	9 200	$\pm 10\%$	88,0	121,0
1120	120	11 000	$\pm 10\%$	96,0	132,0
1220	220	37 000	$\pm 10\%$	176,0	242,0

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

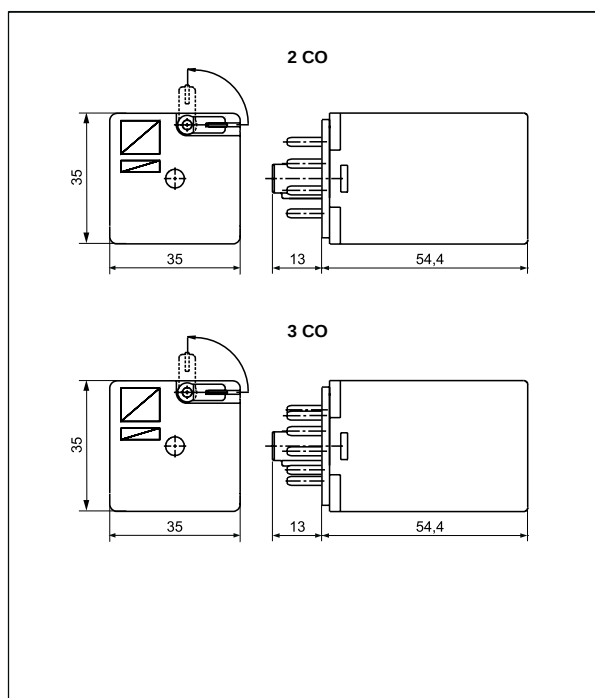
Coil data - AC 50/60 Hz voltage version

Table 2

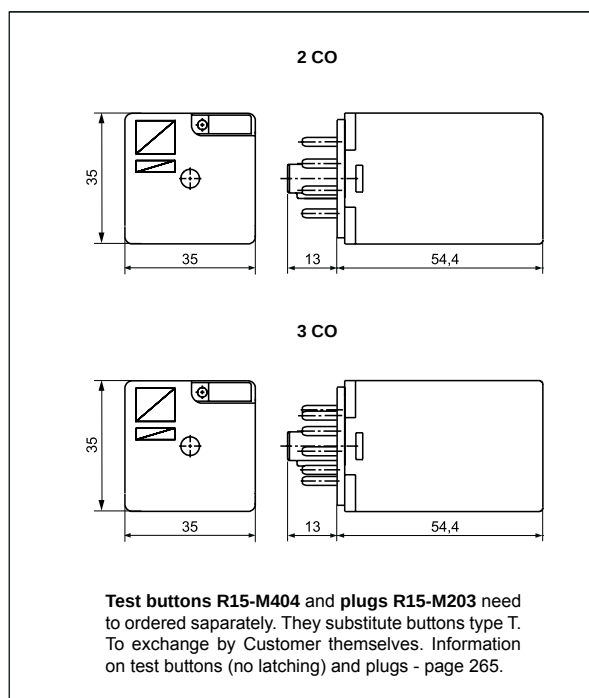
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	4,3	$\pm 15\%$	4,8	6,6
5012	12	18,5	$\pm 15\%$	9,6	13,2
5024	24	75	$\pm 15\%$	19,2	26,4
5048	48	305	$\pm 15\%$	38,4	52,8
5060	60	475	$\pm 15\%$	48,0	66,0
5115	115	1 840	$\pm 15\%$	92,0	126,5
5120	120	1 910	$\pm 15\%$	96,0	132,0
5220	220	6 980	$\pm 15\%$	176,0	242,0
5230	230	7 080	$\pm 15\%$	184,0	253,0
5240	240	7 760	$\pm 15\%$	192,0	264,0

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

Dimensions - plug-in version (WT),
with lockable front test button type T

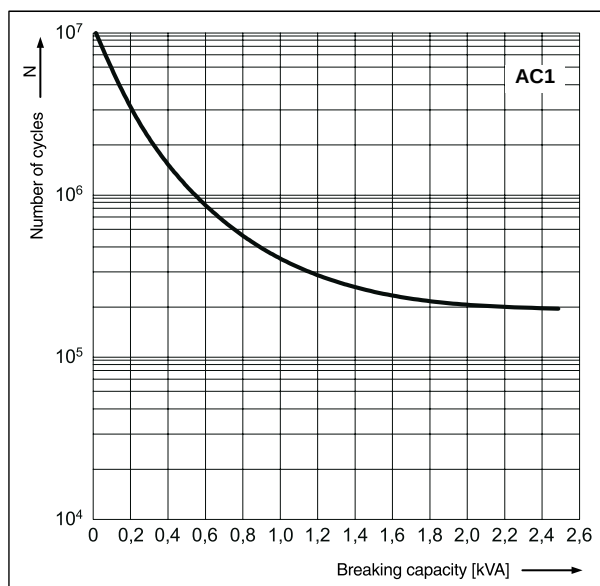


Dimensions - plug-in version, with test button
(no latching) or with plug (no manual operation)



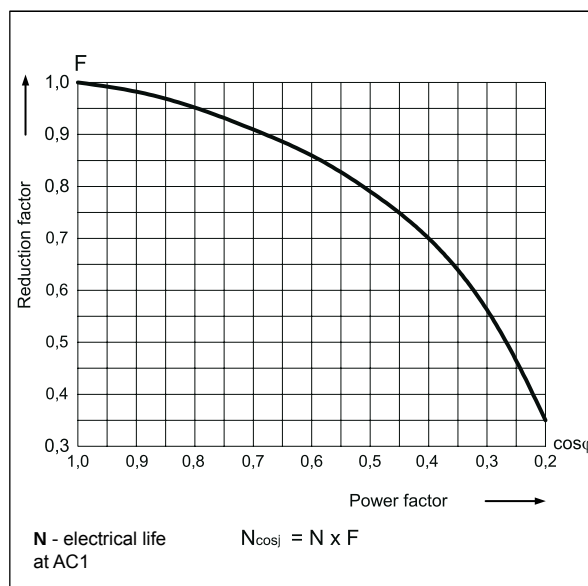
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1



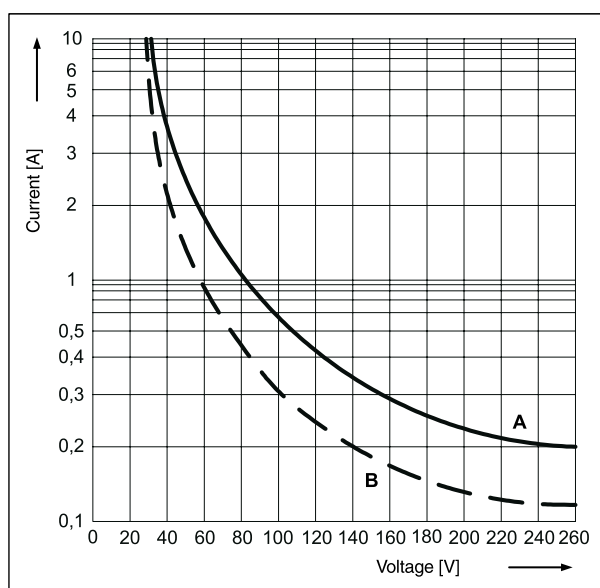
Electrical life reduction factor at AC inductive load

Fig. 2

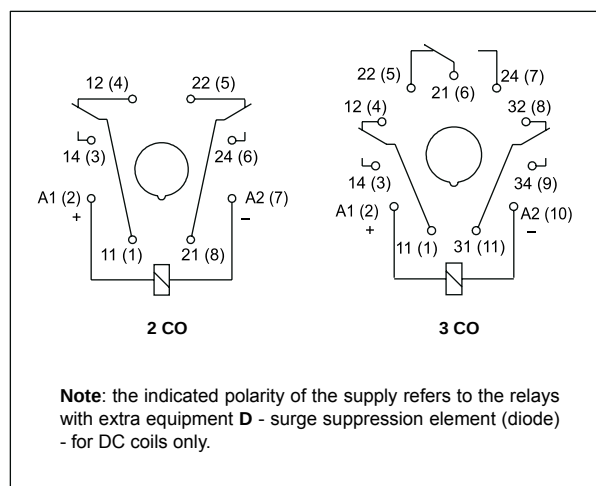


Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms

Fig. 3



Connection diagrams (pin side view)



Mounting

Relays **R15 - 2 CO** are designed for: • screw terminals plug-in sockets **PZ8** with clip **PZ11 0031**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • screw terminals plug-in sockets **GZU8** with clip **GZU 1052**, 35 mm rail mount acc. to PN-EN 60715 • screw terminals plug-in sockets **GZ8** with clip **GZ 1050**, on panel mounting with two M3 screws • screw terminals plug-in sockets **GZS8**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • screw terminals plug-in sockets **GZP8** with clip **GZP-0054**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • solder terminals sockets **GOP8** with clip **R159 1051** and spring clamp **R15 5922** • direct PCB mounting.

Relays **R15 - 3 CO** are designed for: • screw terminals plug-in sockets **PS11** and **PZ11** with clip **PZ11 0031**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • screw terminals plug-in sockets **GZU11** with clip **GZU 1052**, 35 mm rail mount acc. to PN-EN 60715 • screw terminals plug-in sockets **GZ11** with clip **GZ 1050**, on panel mounting with two M3 screws • screw terminals plug-in sockets **GZS11**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • screw terminals plug-in sockets **GZP11** with clip **GZP-0054**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • solder terminals sockets **GOP11** with clip **R159 1051** and spring clamp **R15 5922** • direct PCB mounting.

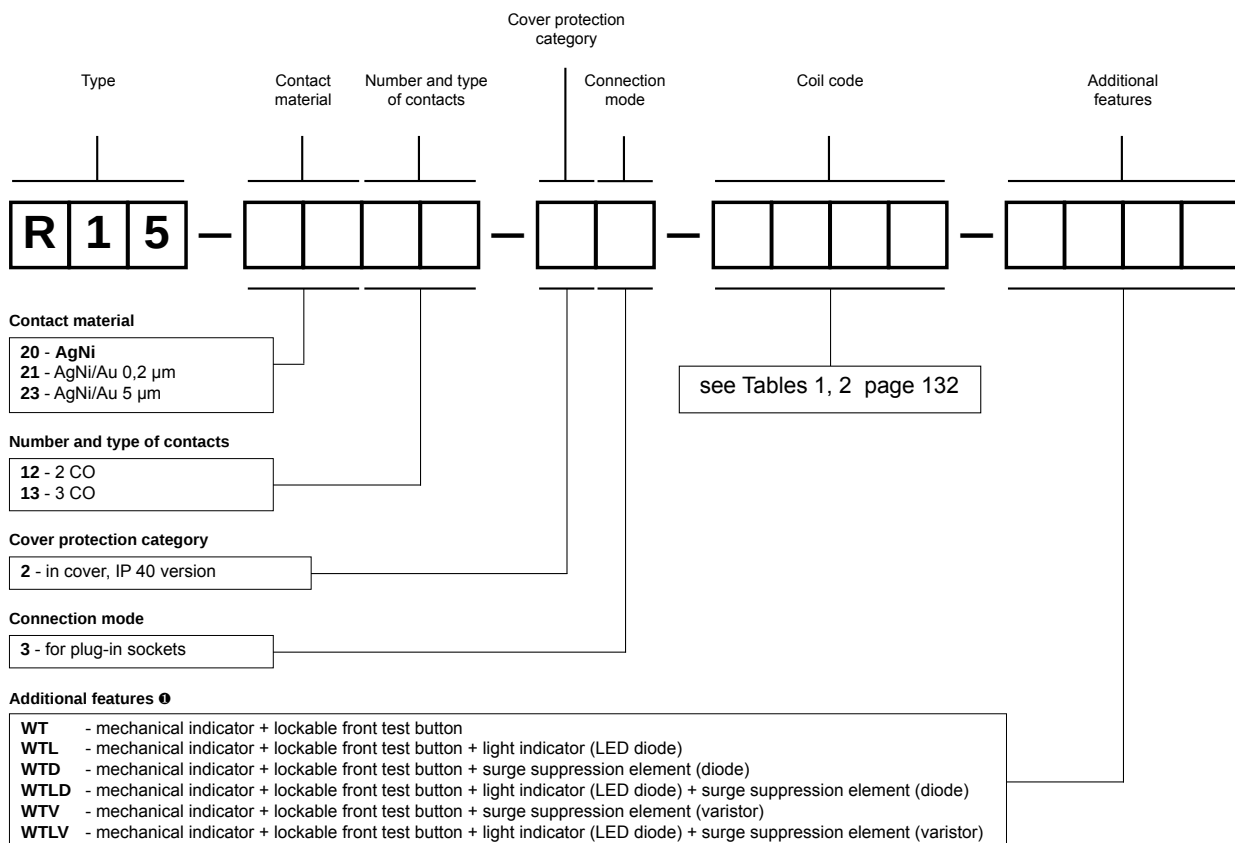
R15 - 2 CO, 3 CO

industrial relays of small dimensions

Mounting

Relays R15 - 2 CO, 3 CO are offered in version: • standard WT (mechanical indicator + lockable front test button), for plug-in sockets. In standard version of relays (WT) is possibility self-exchange of button type T for test button R15-M404 (no latching) or plug R15-M203 (no manual operation). Test buttons (no latching) and plugs need to ordered separately.

Ordering codes



❶ WT - standard features of relays for plug-in sockets. WTD, WTLD - only for DC coils, WTV, WTLV - only for AC coils

Test buttons (no latching) and plugs need to ordered separately. They substitute buttons type T. To exchange by Customer themselves. Information on test buttons (no latching) and plugs - page 265.

- Button R15-M404-A - orange colour (AC coils)
- Button R15-M404-D - green colour (DC coils)
- Plug R15-M203-A - orange colour (AC coils)
- Plug R15-M203-D - green colour (DC coils)

Note:

For relays with additional features **D** - surge suppression element (diode) (versions WTD and WTLD) - fixed supply polarity compulsory for the DC load of coils: +A1(2) / -A2(7) for R15 - 2 CO and +A1(2) / -A2(10) for R15 - 3 CO. The polarity is indicated on the relay cover. For other versions of the relays with DC coils any polarity is possible.

Examples of ordering codes:

- R15-2012-23-1024-WT** relay R15, for plug-in sockets, two changeover contacts, contact material AgNi, coil voltage 24 V DC, with mechanical indicator and lockable front test button, in cover IP 40
- R15-2013-23-5230-WTL** relay R15, for plug-in sockets, three changeover contacts, contact material AgNi, coil voltage 230 V AC 50/60 Hz, with mechanical indicator and lockable front test button and light indicator (LED diode), in cover IP 40

R15 - 4 CO

industrial relays of small dimensions



- Relays of general application
- For plug-in sockets: 35 mm rail mount acc. to PN-EN 60715; on panel mounting; solder terminals
- Coils AC and DC
- Recognitions, certifications, directives: RoHS,     

Contact data

Number and type of contacts	4 CO
Contact material	AgCdO , AgCdO/Au 0,2 µm, AgCdO/Au 5 µm
Rated / max. switching voltage	AC 250 V / 440 V
Min. switching voltage	10 V AgCdO, 10 V AgCdO/Au 0,2 µm, 5 V AgCdO/Au 5 µm
Rated load (capacity)	AC1 10 A / 250 V AC 10 A / 277 V AC UL 508 AC15 3 A / 120 V 1,5 A / 240 V (B300) AC3 370 W (single-phase motor; 0,5 HP / 240 V AC UL 508) DC1 10 A / 24 V DC (see Fig. 3) DC13 0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current	10 mA AgCdO, 10 mA AgCdO/Au 0,2 µm, 5 mA AgCdO/Au 5 µm
Max. inrush current	20 A
Rated current	10 A
Max. breaking capacity	AC1 2 500 VA
Min. breaking capacity	0,5 W AgCdO, 0,5 W AgCdO/Au 0,2 µm, 0,05 W AgCdO/Au 5 µm
Contact resistance	≤ 100 mΩ
Max. operating frequency	
• at rated load	AC1 1 200 cycles/hour
• no load	12 000 cycles/hour

Coil data

Rated voltage	50 Hz, 60 Hz AC	6 ... 240 V
	DC	6 ... 220 V
Must release voltage		AC: ≥ 0,15 U _n DC: ≥ 0,1 U _n
Operating range of supply voltage		see Tables 1, 3, 4
Rated power consumption		AC: 2,8 VA 50 Hz 2,5 VA 60 Hz DC: 1,5 W

Insulation according to PN-EN 60664-1

Insulation rated voltage	250 V AC
Rated surge voltage	2 500 V 1,2 / 50 µs
Overvoltage category	III
Insulation pollution degree	3
Dielectric strength	
• between coil and contacts	2 500 V AC type of insulation: basic
• contact clearance	1 500 V AC type of clearance: micro-disconnection
• pole - pole	2 000 V AC type of insulation: basic
Contact - coil distance	
• clearance	≥ 3 mm
• creepage	≥ 3,2 mm

General data

Operating / release time (typical values)	AC: 12 ms / 10 ms DC: 18 ms / 7 ms
Electrical life	
• resistive AC1	> 2 x 10 ⁵ 10 A, 250 V AC
• cosφ	see Fig. 2
Mechanical life (cycles)	> 2 x 10 ⁷
Dimensions (L x W x H)	35 x 42,5 x 54,5 mm
Weight	95 g
Ambient temperature	• storage -40...+85 °C
	• operating AC: -40...+55 °C DC: -40...+70 °C
Cover protection category	IP 40 PN-EN 60529
Environmental protection	RTI PN-EN 116000-3
Shock resistance	10 g
Vibration resistance	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.

R15 - 4 CO

industrial relays of small dimensions

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 55 °C)
1006	6	28	$\pm 10\%$	4,8	6,6
1012	12	110	$\pm 10\%$	9,6	13,2
1024	24	430	$\pm 10\%$	19,2	26,4
1048	48	1 750	$\pm 10\%$	38,4	52,8
1060	60	2 700	$\pm 10\%$	48,0	66,0
1110	110	9 200	$\pm 10\%$	88,0	121,0
1120	120	11 000	$\pm 10\%$	96,0	132,0
1220	220	37 000	$\pm 10\%$	176,0	242,0

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

Coil data - AC 50 Hz voltage version, basic

Table 3

Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
3006	6	4,8	$\pm 15\%$	4,8	6,6
3012	12	20	$\pm 15\%$	9,6	13,2
3024	24	72	$\pm 15\%$	19,2	26,4
3048	48	360	$\pm 15\%$	38,4	52,8
3060	60	520	$\pm 15\%$	48,0	66,0
3115	115	2 100	$\pm 15\%$	92,0	126,5
3120	120	2 300	$\pm 15\%$	96,0	132,0
3220	220	7 000	$\pm 15\%$	176,0	242,0
3230	230	7 900	$\pm 15\%$	184,0	253,0
3240	240	8 300	$\pm 15\%$	192,0	264,0

Coil data - AC 60 Hz voltage version, special

Table 4

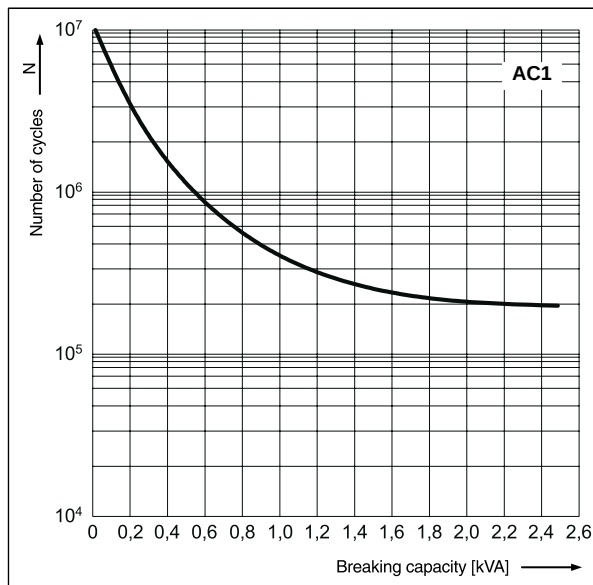
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
6006	6	4,8	$\pm 15\%$	4,8	6,6
6012	12	17	$\pm 15\%$	9,6	13,2
6024	24	65	$\pm 15\%$	19,2	26,4
6048	48	310	$\pm 15\%$	38,4	52,8
6060	60	490	$\pm 15\%$	48,0	66,0
6110	110	1 760	$\pm 15\%$	88,0	121,0
6120	120	2 000	$\pm 15\%$	96,0	132,0
6220	220	6 900	$\pm 15\%$	176,0	242,0
6230	230	7 000	$\pm 15\%$	184,0	253,0
6240	240	7 100	$\pm 15\%$	192,0	264,0

R15 - 4 CO

industrial relays of small dimensions

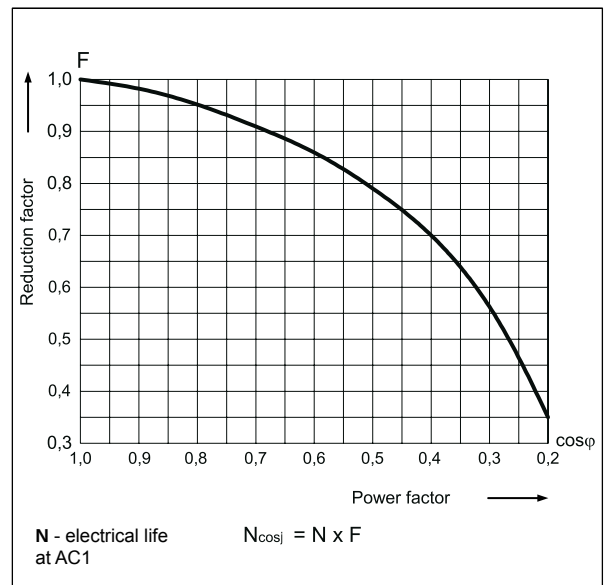
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1



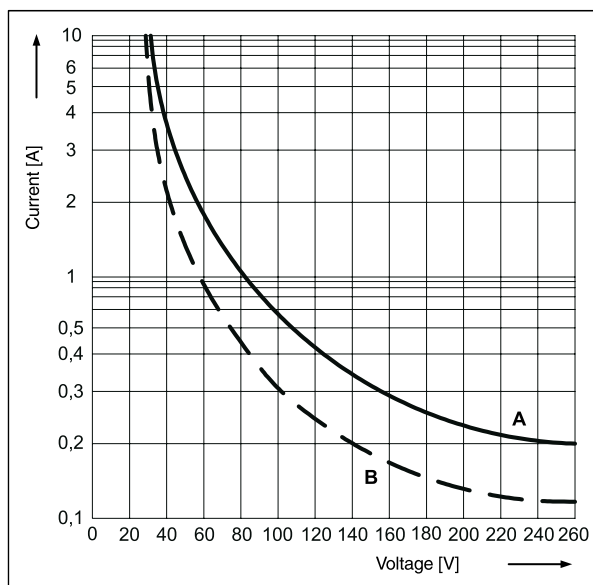
Electrical life reduction factor at AC inductive load

Fig. 2

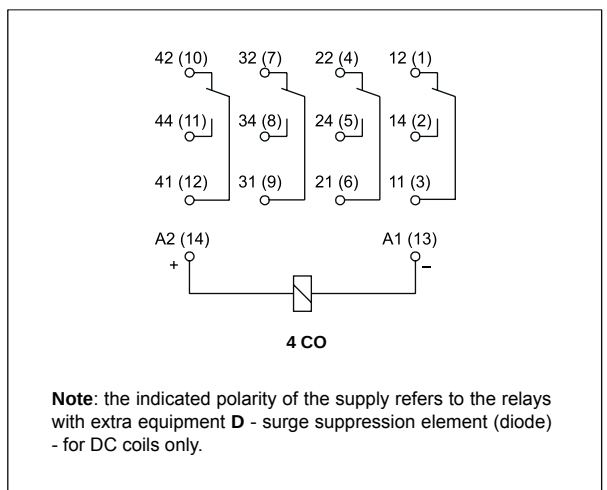


Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms

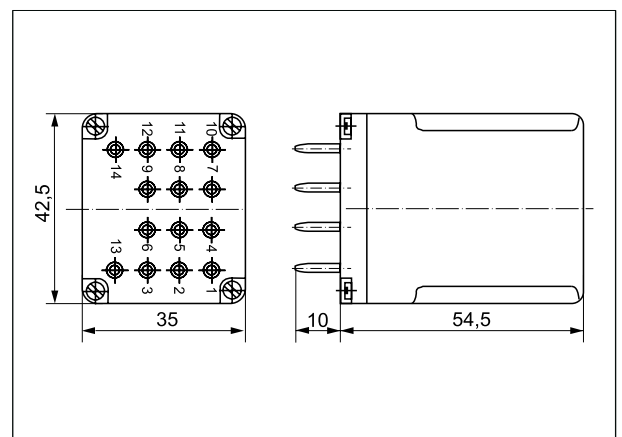
Fig. 3



Connection diagram (pin side view)



Dimensions



R15 - 4 CO

industrial relays of small dimensions

Mounting

Relays **R15 4 - CO** are designed for:

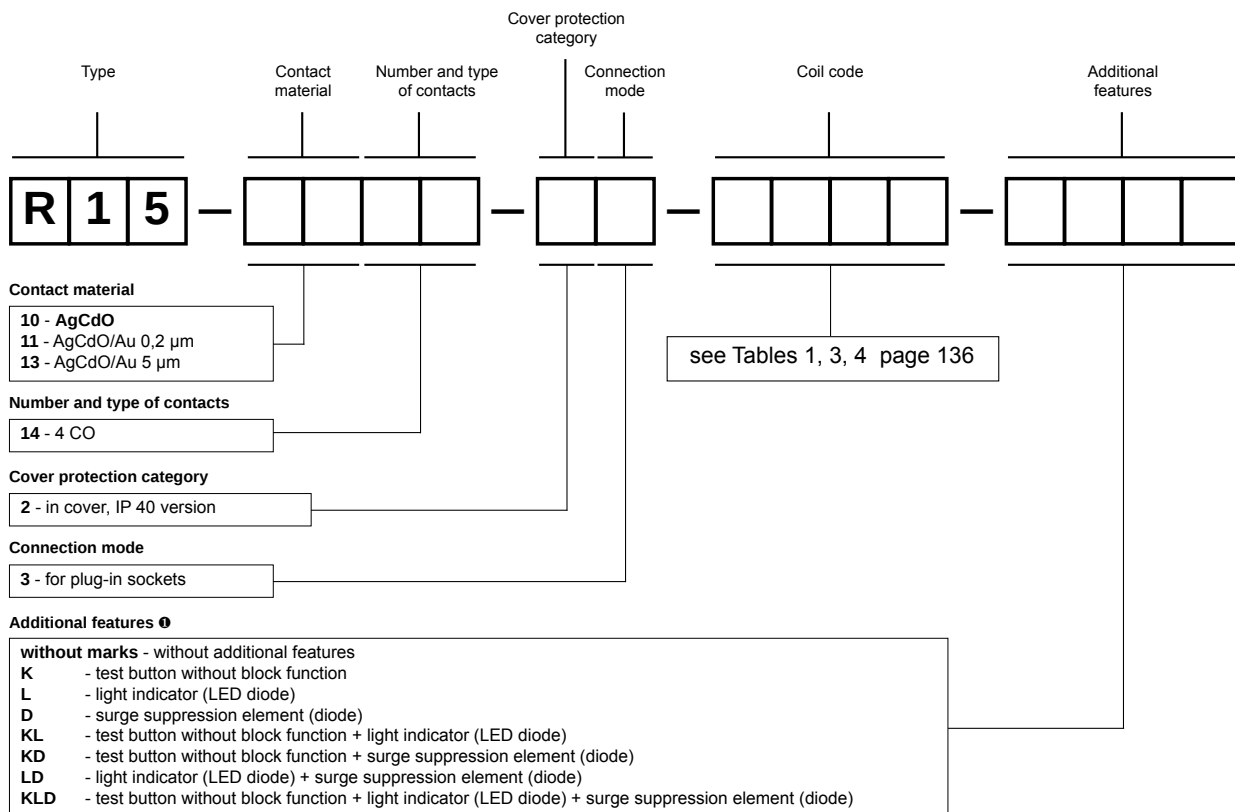
- screw terminals plug-in sockets **GZ14U** with clip **GZ14 0737**, 35 mm rail mount acc. to PN-EN 60715
- screw terminals plug-in sockets **GZ14** with clip **GZ14 0737**, on panel mounting with two M3 screws
- screw terminals plug-in sockets **GZ14Z** with clip **GZ14 0737**, on panel mounting with two M3 screws
- solder terminals sockets **GOP14** with clip **R15 0736** and spring clamp **R15 5922**.

GZ14Z

Screw terminals plug-in socket for R15 - 4 CO to be mounted behind the assembly panel - see page 260.



Ordering codes



 D, KD, LD, KLD - only for DC coils

Note:

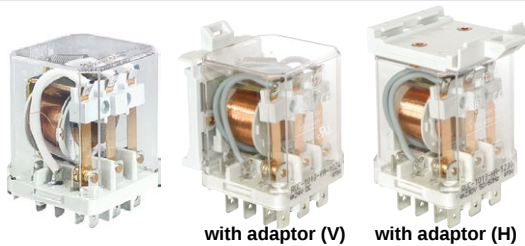
For relays with additional features **D** - surge suppression element (diode) (versions D, KD, LD, KLD) - fixed supply polarity compulsory for the DC load of coils: -A1(13) / +A2(14). The polarity is indicated on the relay cover. For other versions of the relays with DC coils any polarity is possible.

Examples of ordering codes:

- R15-1014-23-1024-KD** relay **R15**, for plug-in sockets, four changeover contacts, contact material AgCdO, coil voltage 24 V DC, with test button without block function and surge suppression element (diode), in cover IP 40
- R15-1114-23-3230-KL** relay **R15**, for plug-in sockets, four changeover contacts, contact material AgCdO/Au 0,2 µm, coil voltage 230 V AC 50 Hz, with test button without block function and light indicator (LED diode), in cover IP 40

RUC

industrial relays of small dimensions



with adaptor (V)

with adaptor (H)

• Power relays of general application • AC and DC coils • Mounting: in sockets; 35 mm rail mount acc. to PN-EN 60715; on panel; PCB
• Versions: faston 187 (4,8 x 0,5 mm); faston 250 (6,3 x 0,8 mm) • 3 mm contact gap (option - only in versions with normally open contacts) • Additional features: K - test button; L - light indicator (LED) • Applications: control of electromagnets; systems of heating, cooling, ventilation, air conditioning; control with single-phase and three-phase motors; catering industry machines and equipment; automation systems; photoelectric systems; etc.

• Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts		2 CO, 3 CO, 2 NO, 3 NO	2 NO, 3 NO with contact gap ≥ 3 mm
Contact material		AgCdO, AgNi	
Rated / max. switching voltage	AC	400 V / 440 V	230 V / 250 V ❶
Min. switching voltage		5 V AgNi, 10 V AgCdO	
Rated load	AC1 DC1	16 A / 250 V AC or 10 A / 400 V AC	16 A / 250 V AC ❶
		16 A / 24 V DC (see Fig. 3)	
Min. switching current		5 mA AgNi, 10 mA AgCdO	
Max. inrush current		40 A	
Rated current		16 A	
Max. breaking capacity	AC1	4 000 VA	
Min. breaking capacity		0,3 W AgNi, 1 W AgCdO	
Contact resistance		≤ 100 m Ω	
Max. operating frequency			
• at rated load	AC1	1 200 cykl/h	
• no load		12 000 cykl/h	

Coil data

Rated voltage	AC DC	6 ... 240 V 50/60 Hz 6 ... 220 V	400 V 50 Hz ❶
Must release voltage		AC: $\geq 0,15 U_n$	DC: $\geq 0,1 U_n$
Operating range of supply voltage		see Tables 1, 2, 3, 4	
Rated power consumption	AC DC	2,8 VA 50 Hz 1,5 W	2,5 VA 60 Hz 1,7 W with contact gap ≥ 3 mm

Insulation according to PN-EN 60664-1

Insulation rated voltage		400 V AC	
Rated surge voltage		4 000 V 1,2 / 50 μ s	
Overvoltage category		III	
Insulation pollution degree		2	
Dielectric strength	• between coil and contacts	2 500 V AC 1 500 V AC	type of insulation: basic type of clearance: micro-disconnection
	• contact clearance	2 500 V AC	with contact gap ≥ 3 mm, type of clearance: full-disconnection
	• pole - pole	2 500 V AC	type of insulation: basic
Contact - coil distance	• clearance	≥ 5 mm 2 CO, 2 NO	≥ 4 mm 3 CO, 3 NO
	• creepage	≥ 8 mm 2 CO, 2 NO	≥ 5 mm 3 CO, 3 NO

General data

Operating / release time (typical values)		20 ms / 15 ms	
Electrical life	• resistive AC1 • $\cos\phi$	$> 10^5$ 16 A, 250 V AC	$> 10^5$ 10 A, 400 V AC
		see Fig. 2	
Mechanical life (cycles)		$> 10^7$	
Motor load according to UL 508		2 CO: 0,33 HP 120 V AC, single-phase motor 0,5 HP 240 V AC, single-phase motor 3 CO: 0,33 HP 120 V AC, single-phase motor 0,5 HP 240 V AC, single-phase motor 3 CO: 0,5 HP 240 V AC, three-phase motor	
Dimensions (L x W x H)		RUC faston 4,8 x 0,5 ❷	RUC faston 6,3 x 0,8 ❸
Weight		80 g ❹	85 g ❺
Ambient temperature	• storage • operating	-40...+85 °C	
		AC: -40...+55 °C 3 CO, 3 NO / 16 A	(+70 °C 2 CO, 2 NO / 16 A)
		DC: -40...+55 °C 3 CO, 3 NO / 16 A	(+70 °C 3 CO, 3 NO / 10 A; 2 CO, 2 NO / 16 A)
Cover protection category		IP 00	PN-EN 60529
Shock / vibration resistance		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 For RUC faston 4,8 x 0,5 with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC / DC. ❷ For plug-in sockets version: 36,1 x 38,6 x 45,5 mm. For version: with (V) adaptor: 58,75 x 38,6 x 45,9 mm; with (H) adaptor: 46,8 x 38,6 x 62,45 mm. For version with mounting flange: 66,3 x 38,6 x 36,1 mm. For PCB version: 36,1 x 38,6 x 52,5 mm. ❸ For version: with (V) adaptor: 62,4 x 38,6 x 45,9 mm; with (H) adaptor: 46,8 x 38,6 x 66,1 mm. For version with mounting flange: 66,3 x 38,6 x 36,1 mm. ❹ Weight of plug-in sockets version and PCB version (RUC faston 4,8 x 0,5). ❺ Weight of version with (V) or (H) adaptor, and version with mounting flange.

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 55 °C)
1006	6	28	$\pm 10\%$	4,8	6,6
1012	12	110	$\pm 10\%$	9,6	13,2
1024	24	430	$\pm 10\%$	19,2	26,4
1042	42	1 340	$\pm 10\%$	33,6	46,2
1048	48	1 750	$\pm 10\%$	38,4	52,8
1060	60	2 700	$\pm 10\%$	48,0	66,0
1110	110	9 200	$\pm 10\%$	88,0	121,0
1120	120	11 000	$\pm 10\%$	96,0	132,0
1220	220	37 000	$\pm 10\%$	176,0	242,0

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

Coil data - DC voltage version, reinforced

Table 2

Coil code ⑨	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 55 °C)
W012	12	85	$\pm 10\%$	9,6	13,2
W024	24	345	$\pm 10\%$	19,2	26,4
W048	48	1 370	$\pm 10\%$	38,4	52,8
W110	110	7 300	$\pm 10\%$	88,0	121,0
W220	220	30 000	$\pm 10\%$	176,0	242,0

⑨ For version with contact gap ≥ 3 mm.

Coil data - AC 50/60 Hz voltage version

Table 3

Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	4,3	$\pm 10\%$	4,8	6,6
5012	12	18,5	$\pm 10\%$	9,6	13,2
5024	24	75	$\pm 10\%$	19,2	26,4
5115	115	1 840	$\pm 10\%$	92,0	126,5
5120	120	1 910	$\pm 10\%$	96,0	132,0
5220	220	6 980	$\pm 10\%$	176,0	242,0
5230	230	7 080	$\pm 10\%$	184,0	253,0
5240	240	7 760	$\pm 10\%$	192,0	264,0

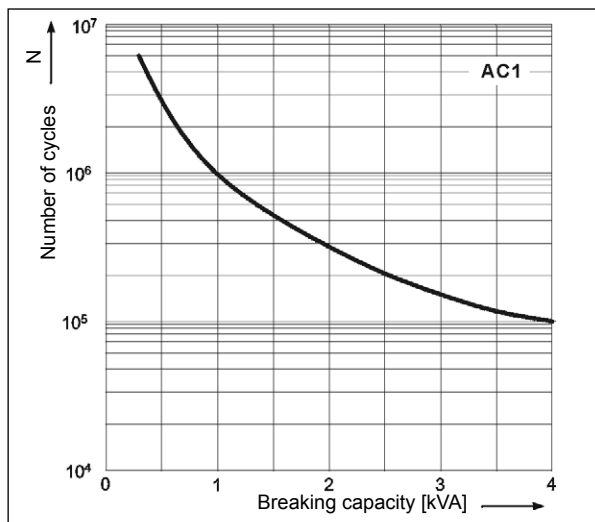
Coil data - AC 50 Hz voltage version

Table 4

Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
3400	400	21 500	$\pm 10\%$	320,0	440,0

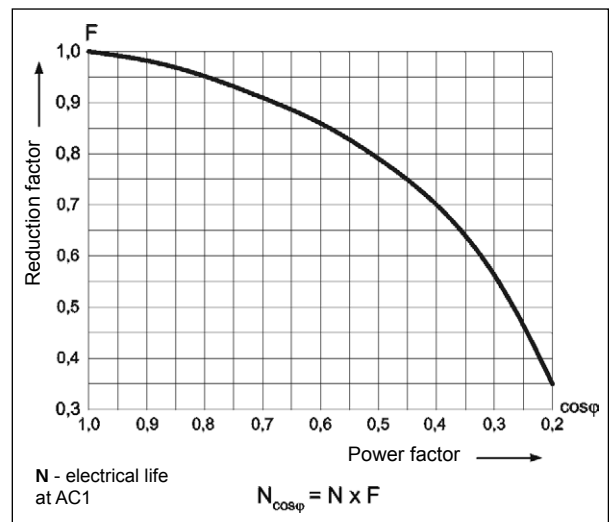
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1



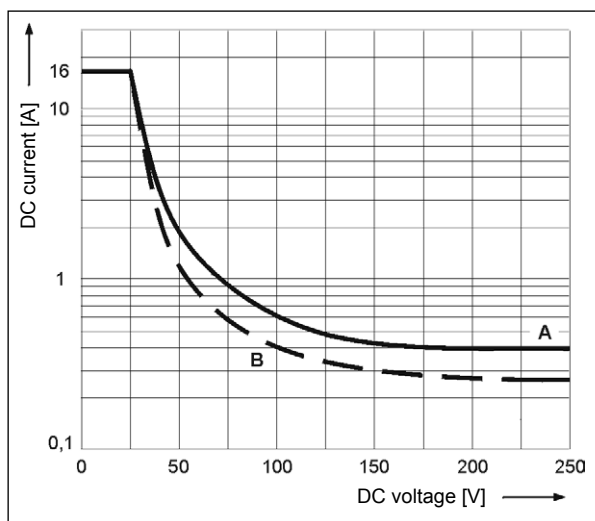
Electrical life reduction factor at AC inductive load

Fig. 2

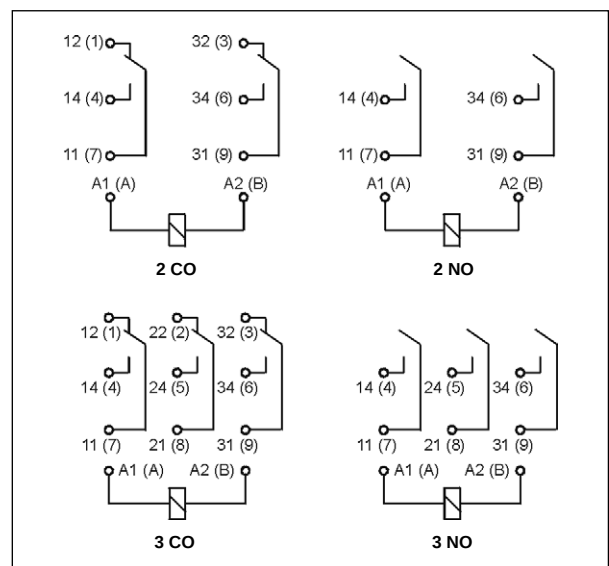


Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms

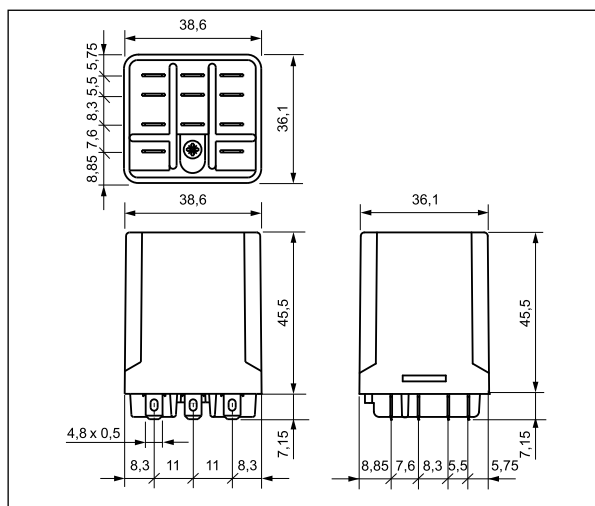
Fig. 3



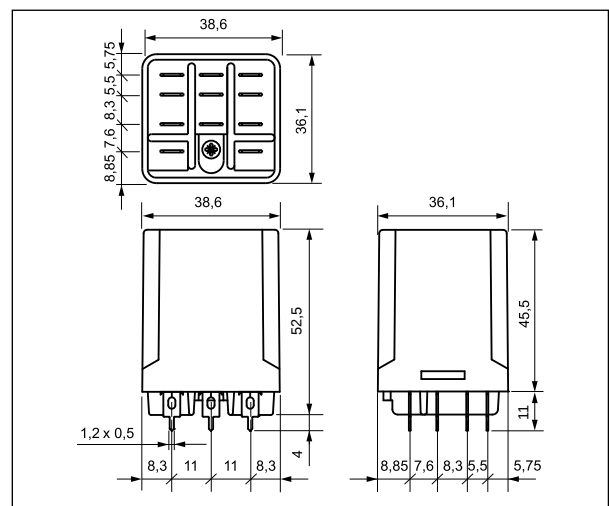
Connection diagrams (pin side view)



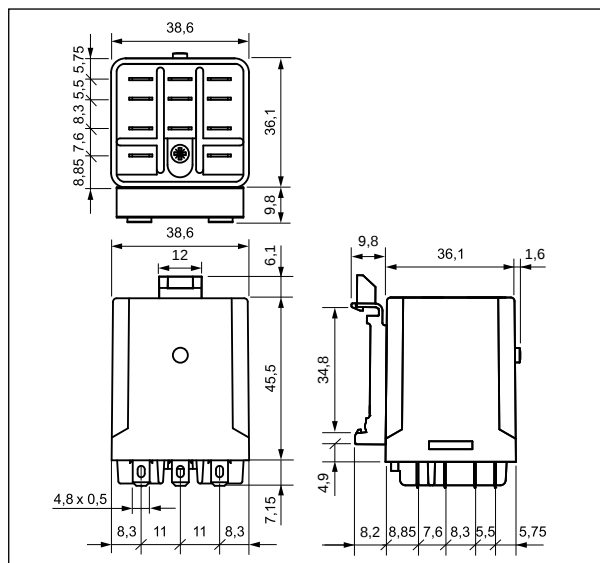
Dimensions - RUC faston 4,8 x 0,5
- plug-in version (standard)



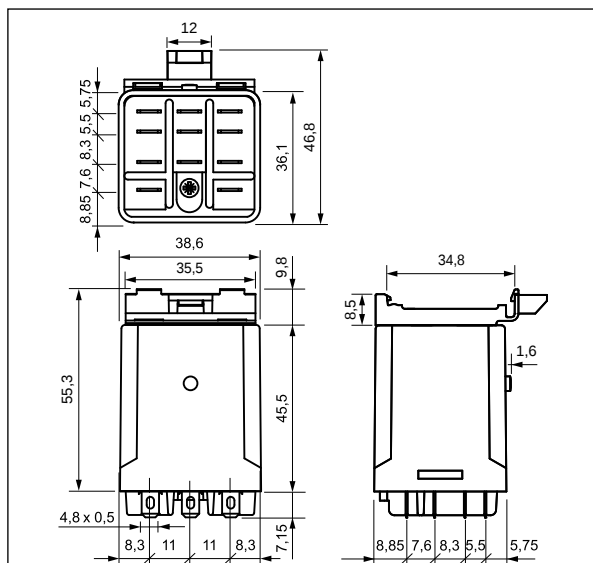
Dimensions - RUC faston 4,8 x 0,5
- PCB version



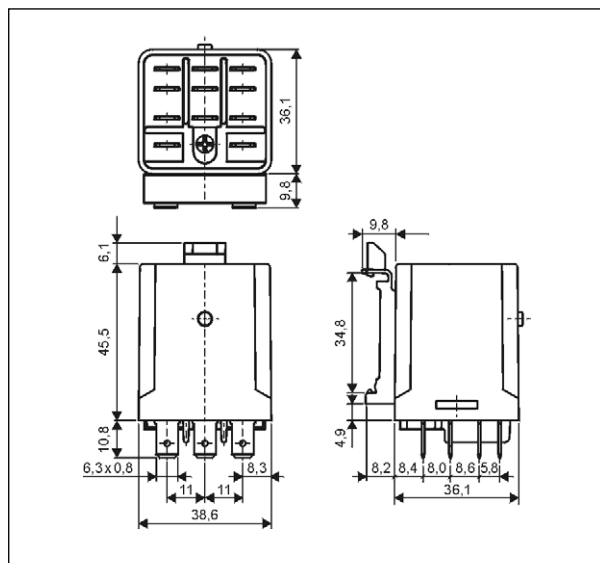
Dimensions - RUC faston 4,8 x 0,5
- version with vertical adaptor (V)



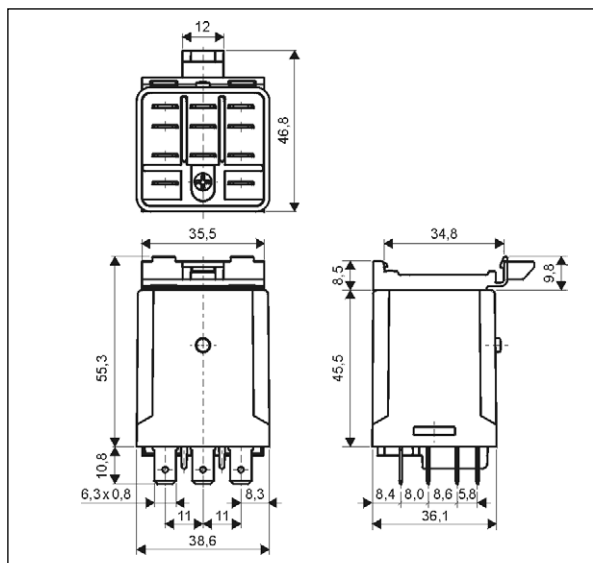
Dimensions - RUC faston 4,8 x 0,5
- version with horizontal adaptor (H)



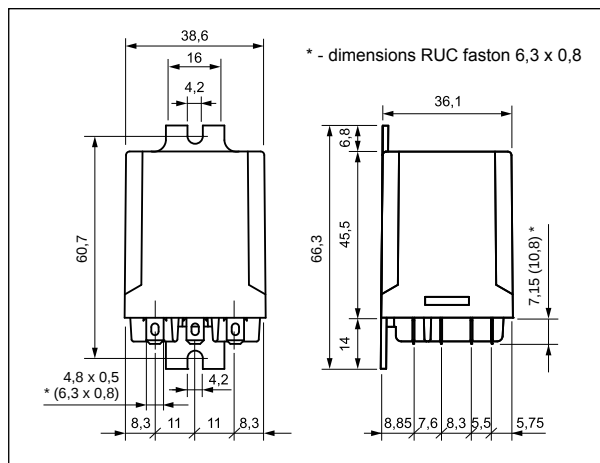
Dimensions - RUC faston 6,3 x 0,8
- version with vertical adaptor (V)



Dimensions - RUC faston 6,3 x 0,8
- version with horizontal adaptor (H)



Dimensions - RUC faston 4,8 x 0,5 (faston 6,3 x 0,8)
- version with mounting flange in the wall of the cover



* - dimensions RUC faston 6,3 x 0,8

Mounting

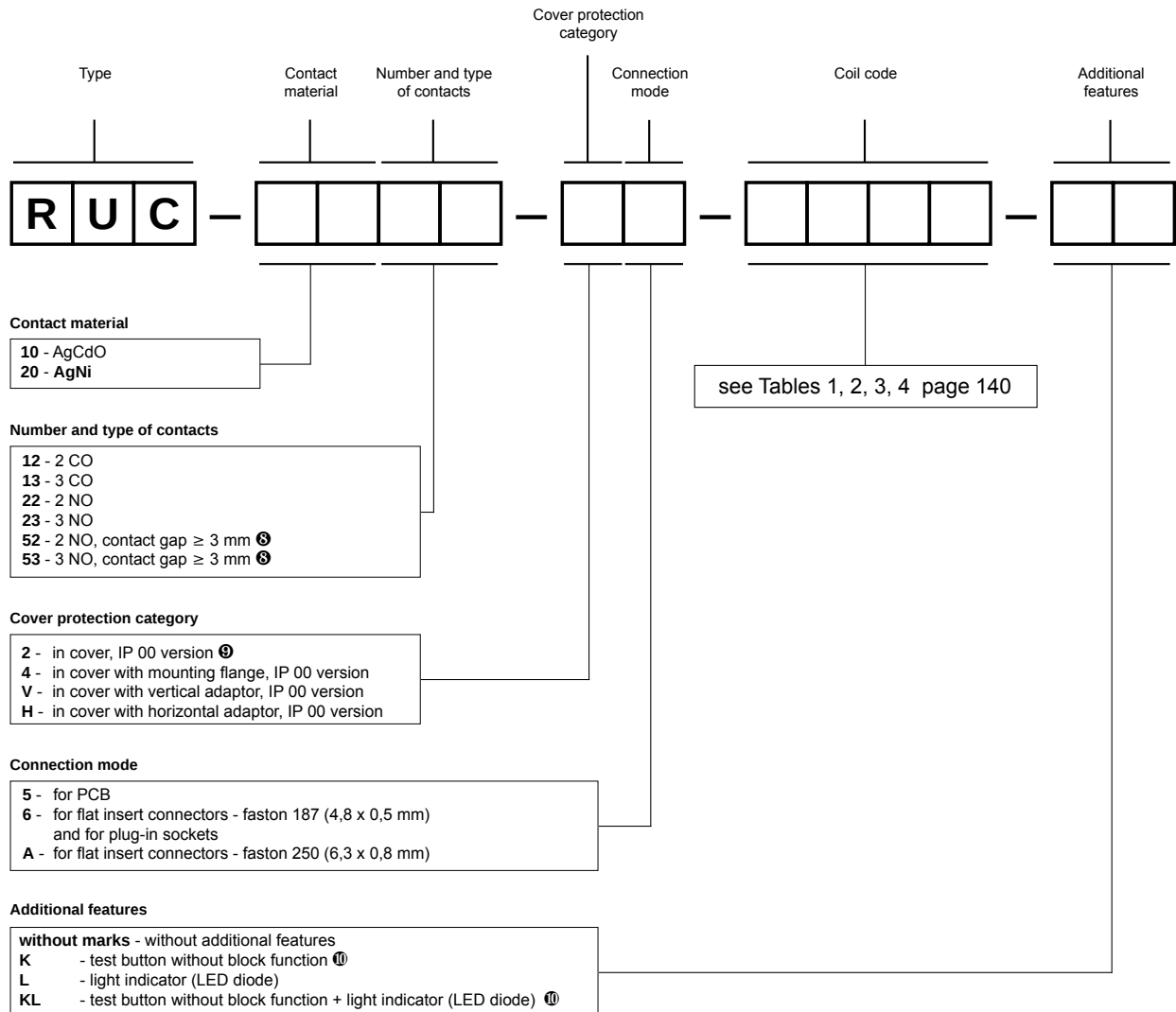
Relays RUC are offered in versions:

- standard, for screw terminals plug-in sockets **GUC11** ① with clip **MBA**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws
- with mounting flange in the wall of the cover, on panel mounting with two M4 screws, flat insert connectors - faston 187 (4,8 x 0,5 mm) or faston 250 (6,3 x 0,8 mm)
- with vertical (V) or horizontal (H) adaptors for direct mounting on 35 mm rail mount acc. to PN-EN 60715, flat insert connectors - faston 187 (4,8 x 0,5 mm) or faston 250 (6,3 x 0,8 mm)
- for direct PCB mounting ②.

② Relays unavailable with (V) or (H) adaptor, and cover with mounting flange.

① For RUC faston 4,8 x 0,5 with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC / DC.

Ordering codes



⑤ For versions with reinforced DC coils: W012, W024, W048, W110, W220 and with AC coils.

⑥ Only for version RUC faston 4,8 x 0,5.

⑩ Additional features is not available in versions of relays with contact gap ≥ 3 mm.

Examples of ordering codes:

- RUC-2053-26-W024** relay **RUC**, faston 187 (4,8 x 0,5 mm), with contact gap ≥ 3 mm, for plug-in sockets GUC11, three normally open contacts, contact material AgNi, reinforced coil voltage 24 V DC, in cover IP 00
- RUC-2013-V6-3400-KL** relay **RUC**, faston 187 (4,8 x 0,5 mm), for flat insert connectors, with vertical adaptor (V), three changeover contacts, contact material AgNi, coil voltage 400 V AC 50 Hz, with test button without block function and light indicator (LED diode), in cover IP 00
- RUC-2052-HA-W220-L** relay **RUC**, faston 250 (6,3 x 0,8 mm), for flat insert connectors, with contact gap ≥ 3 mm, with horizontal adaptor (H), two normally open contacts, contact material AgNi, reinforced coil voltage 220 V DC, with light indicator (LED diode), in cover IP 00
- RUC-1022-25-5024** relay **RUC**, for PCB, two normally open contacts, contact material AgCdO, coil voltage 24 V AC 50/60 Hz, in cover IP 00

RUC-M

industrial relays for DC loads



with adaptor (V)

with adaptor (H)

• **Relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC loads** • AC and DC coils • Mounting: in sockets; 35 mm rail mount acc. to PN-EN 60715; on panel; PCB • Version: faston 187 (4,8 x 0,5 mm) • Contact gap: 3 mm (version 2 NO); 6 mm (version 1 NO) • Additional features: L - light indicator (LED) • Applications: control of electromagnets; systems of heating, cooling, ventilation, air conditioning; control with single-phase and three-phase motors; catering industry machines and equipment; automation systems; photoelectric systems; etc. • Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts	1 NO (double-break)	2 NO
Contact material	AgCdO	
Rated / max. switching voltage	250 V DC; 250 V AC / 350 V DC; 440 V AC ❶	
Min. switching voltage	10 V	
Rated load	DC1	16 A / 24 V DC; 14 A / 110 V DC 12 A / 220 V DC
	DC L/R=40 ms	16 A / 24 V DC; 5,4 A / 110 V DC 3 A / 220 V DC
	AC1	16 A / 250 V AC
Min. switching current	10 mA	
Max. inrush current	40 A 20 ms	
Rated current	16 A	
Min. breaking capacity	1 W	
Contact resistance	≤ 100 mΩ	
Max. operating frequency	1 200 cycles/hour	
• at rated load	AC1	12 000 cycles/hour
• no load		

Coil data

Rated voltage	50/60 Hz AC	12 ... 240 V	
	DC	12 ... 220 V	
Must release voltage		AC: ≥ 0,15 U _n	DC: ≥ 0,1 U _n
Operating range of supply voltage		AC: 0,85...1,1 U _n	DC: 0,8...1,1 U _n see Tables 1, 2
Rated power consumption	AC	2,8 VA	
	DC	1,7 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 • contact clearance • pole - pole	2 500 V AC 4 000 V AC 2 500 V AC	type of insulation: basic type of clearance: full-disconnection contacts 2 NO, type of insulation: basic
Contact - coil distance	• clearance	≥ 6,3 mm	
	• creepage	≥ 8 mm	

General data

Operating / release time (typical values)	20 ms / 15 ms	
Electrical life		
• resistive DC1	> 2 x 10 ⁵ 12 A, 220 V DC	> 2 x 10 ⁵ 4,5 A, 220 V DC
• DC L/R=40 ms	> 2 x 10 ⁵ 3 A, 220 V DC	> 2 x 10 ⁵ 0,45 A, 220 V DC
Mechanical life (cycles)	> 2 x 10 ⁷	
Dimensions (L x W x H)	36,1 x 38,6 x 45,5 mm ❷	
Weight	80 g ❸	85 g ❹
Ambient temperature	• storage	-40...+85 °C
	• operating	-40...+70 °C
Cover protection category	IP 00	PN-EN 60529
Shock resistance	10 g	
Vibration resistance	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 For RUC-M with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC / DC.

❷ For plug-in sockets version. For version: with (V) adaptor: 58,75 x 38,6 x 45,9 mm; with (H) adaptor: 46,8 x 38,6 x 62,45 mm.

For version with mounting flange: 66,3 x 38,6 x 36,1 mm. For PCB version: 36,1 x 38,6 x 52,5 mm.

❸ Weight of plug-in sockets version and PCB version. ❹ Weight of version with (V) or (H) adaptor, and version with mounting flange.

Coil data - DC voltage version

Table 1

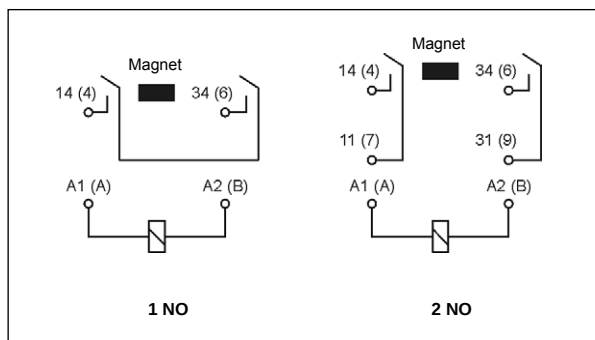
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 55 °C)
W012	12	85	$\pm 10\%$	9,6	13,2
W024	24	345	$\pm 10\%$	19,2	26,4
W048	48	1 370	$\pm 10\%$	38,4	52,8
W110	110	7 300	$\pm 10\%$	88,0	121,0
W220	220	30 000	$\pm 10\%$	176,0	242,0

Coil data - AC 50/60 Hz voltage version

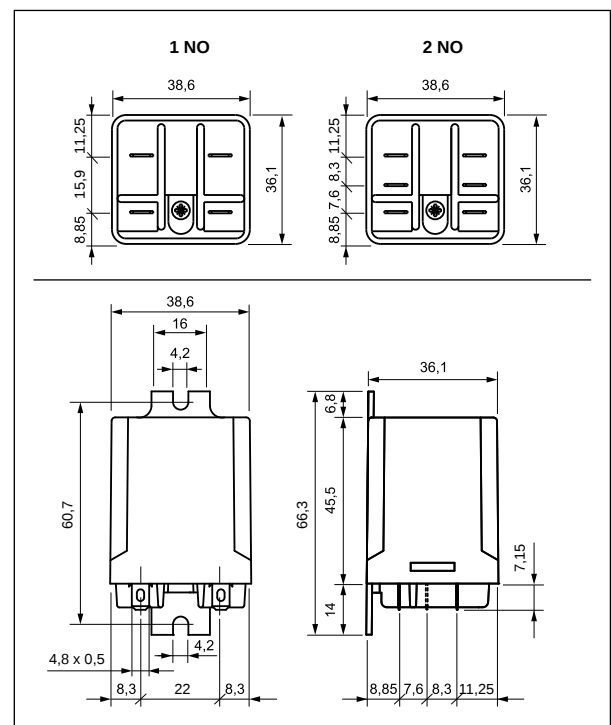
Table 2

Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5012	12	18,5	$\pm 10\%$	9,6	13,2
5024	24	75	$\pm 10\%$	19,2	26,4
5115	115	1 840	$\pm 10\%$	92,0	126,5
5120	120	1 910	$\pm 10\%$	96,0	132,0
5230	230	7 080	$\pm 10\%$	184,0	253,0
5240	240	7 760	$\pm 10\%$	192,0	264,0

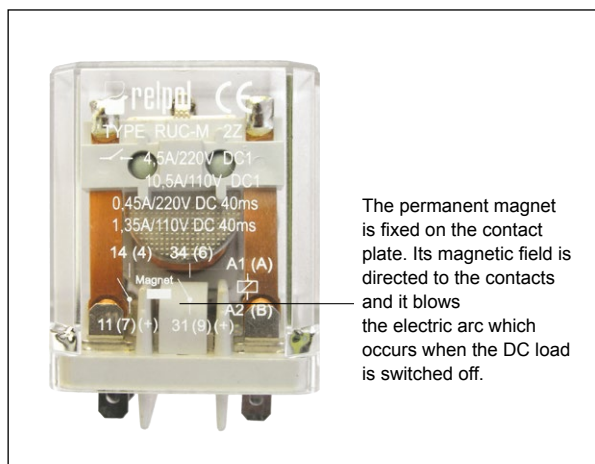
Connection diagrams (pin side view)



Dimensions - version with mounting flange in the wall of the cover



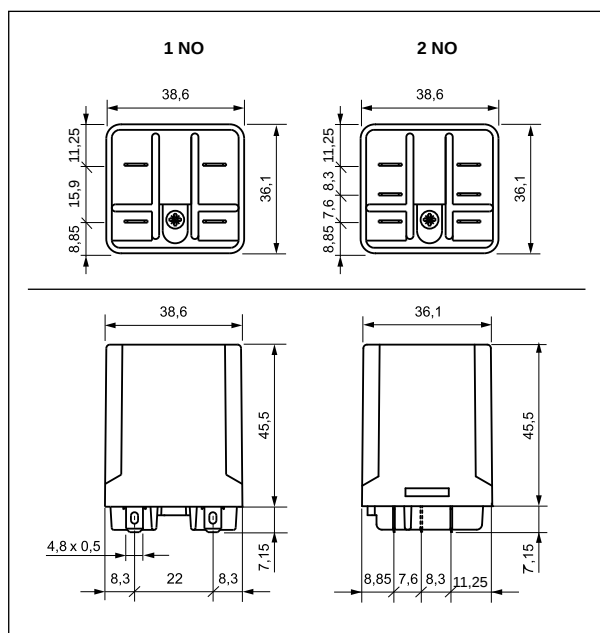
Design



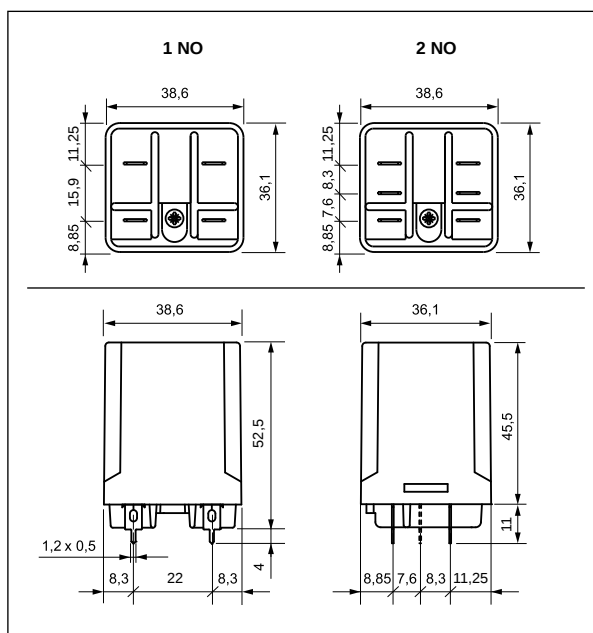
RUC-M

industrial relays for DC loads

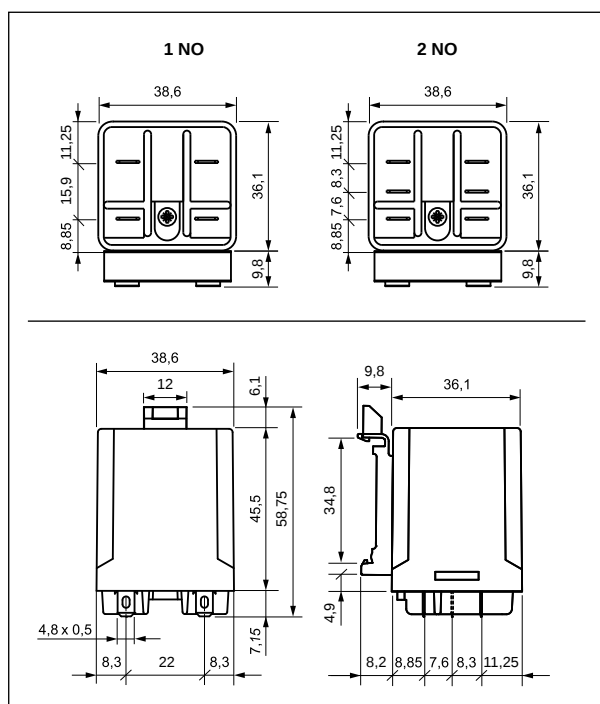
Dimensions - plug-in version (standard)



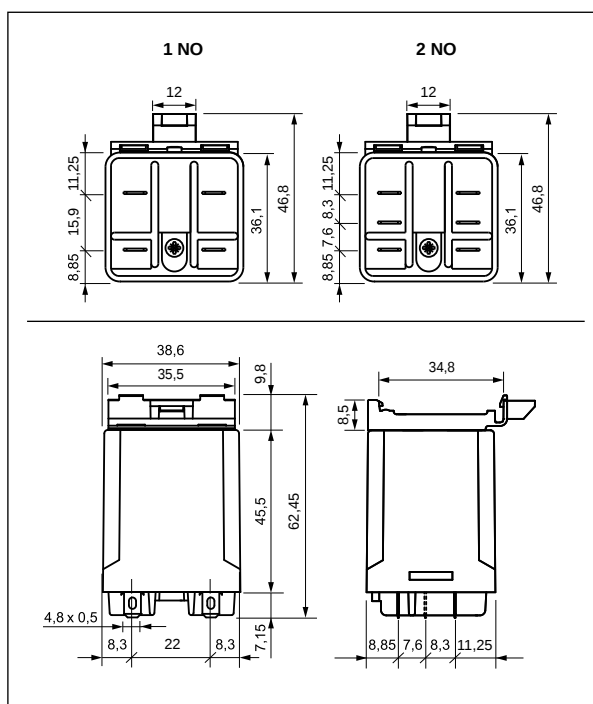
Dimensions - PCB version



Dimensions - version with vertical adaptor (V)



Dimensions - version with horizontal adaptor (H)



Mounting

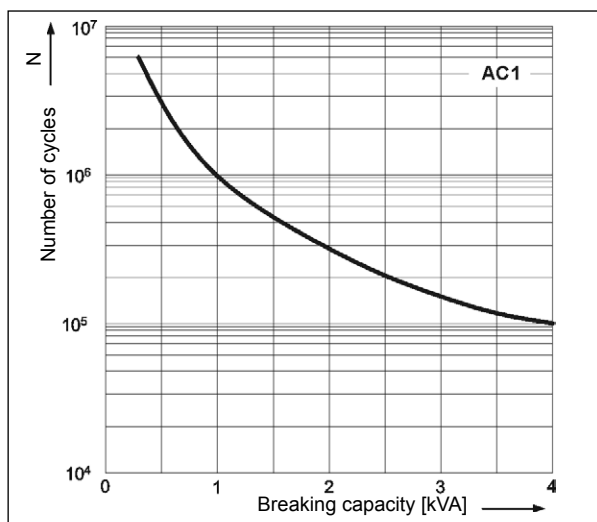
Relays RUC-M are offered in versions: • standard, for screw terminals plug-in sockets **GUC11** ① with clip **MBA**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • with mounting flange in the wall of the cover, on panel mounting with two M4 screws, flat insert connectors - faston 187 (4,8 x 0,5 mm) • with vertical (V) or horizontal (H) adaptors for direct mounting on 35 mm rail mount acc. to PN-EN 60715, flat insert connectors - faston 187 (4,8 x 0,5 mm) • for direct PCB mounting ②.

② Relays unavailable with (V) or (H) adaptor, and cover with mounting flange.

① For RUC-M with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC/DC.

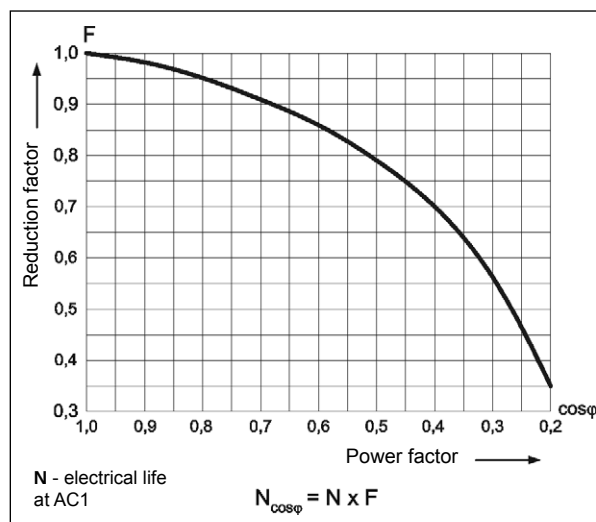
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1

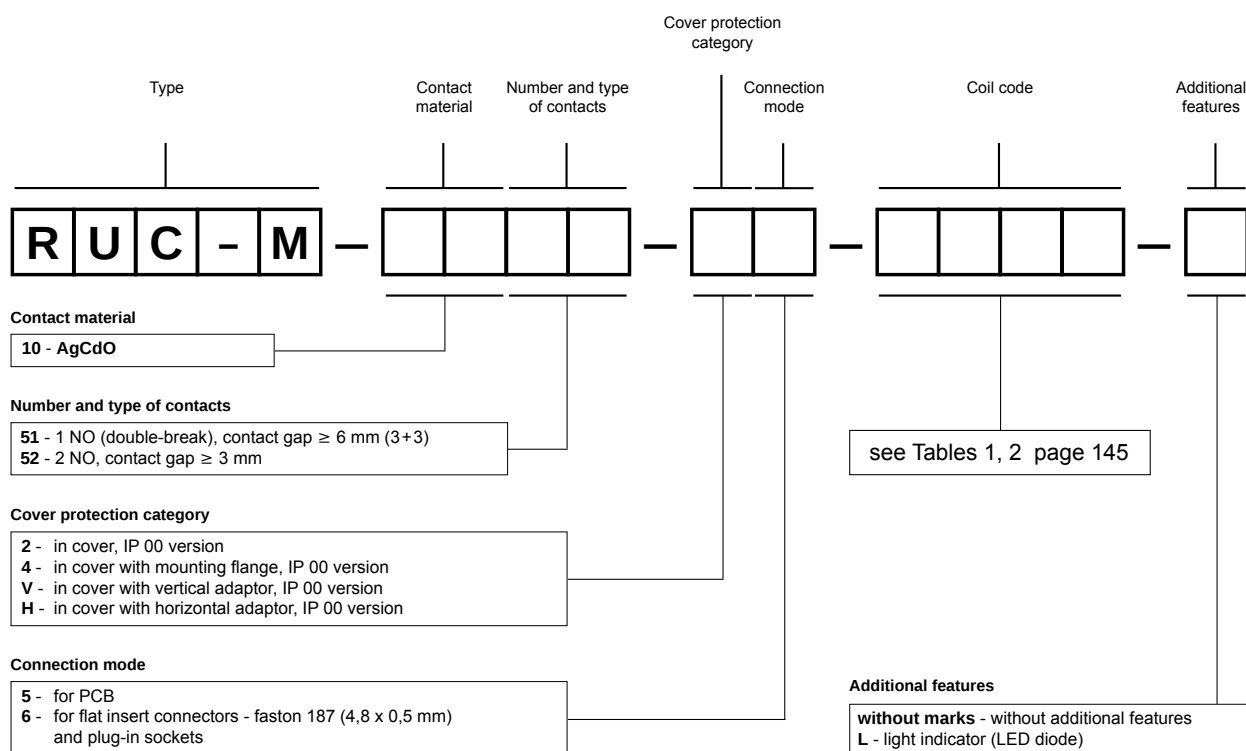


Electrical life reduction factor at AC inductive load

Fig. 2



Ordering codes



Examples of ordering codes:

- RUC-M-1051-26-W024** relay RUC-M, faston 187 (4,8 x 0,5 mm), with contact gap ≥ 6 mm (3+3), for plug-in sockets GUC11, one normally open contact (double-break), contact material AgCdO, reinforced coil voltage 24 V DC, in cover IP 00
- RUC-M-1052-V6-5230-L** relay RUC-M, faston 187 (4,8 x 0,5 mm), for flat insert connectors, with contact gap ≥ 3 mm, with vertical adaptor (V), two normally open contacts, contact material AgCdO, coil voltage 230 V AC 50/60 Hz, with light indicator (LED diode), in cover IP 00
- RUC-M-1051-25-5024** relay RUC-M, with contact gap ≥ 6 mm (3+3), for PCB, one normally open contact (double-break), contact material AgCdO, coil voltage 24 V AC 50/60 Hz, in cover IP 00



- Power relays of general application • AC and DC coils
- High breaking capacity: AC1 - 10 kVA; AC3 - 6 kVA
- 35 mm rail mount acc. to PN-EN 60715 • High insulation dielectric strength
- Applications: control of electromagnets; systems of heating, cooling, ventilation, air conditioning; control with single-phase motors; catering industry machines and equipment; automation systems; photoelectric systems; etc.
- Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts		2 NO
Contact material		AgCdO
Rated / max. switching voltage	AC	400 V / 440 V
Min. switching voltage		10 V
Rated load (capacity)	AC1 AC3 DC1 DC13	25 A / 400 V AC 15 A / 400 V AC 25 A / 24 V DC (see Fig. 3) 0,30 A / 120 V 0,15 A / 250 V (R300)
Min. switching current		10 mA
Max. inrush current		40 A
Rated current		25 A
Max. breaking capacity	AC1 AC3	10 000 VA 6 000 VA
Min. breaking capacity		1 W
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1 AC3	600 cycles/hour 600 cycles/hour
• no load		3 600 cycles/hour

Coil data

Rated voltage	50 Hz AC DC	12 ... 400 V 12 ... 220 V
Must release voltage		≥ 0,1 U _n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC DC	3,0 VA 1,7 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		1 500 V AC type of clearance: micro-disconnection
• pole - pole		5 000 V AC type of insulation: reinforced
Contact - coil distance		
• clearance		≥ 6 mm
• creepage		≥ 8 mm

General data

Operating / release time (typical values)		20 ms / 20 ms
Electrical life		
• resistive AC1		> 10 ⁵ 25 A, 400 V AC
• cosφ		see Fig. 2
Mechanical life (cycles)		> 10 ⁶
Dimensions (L x W x H)		26 x 49 x 72 mm
Weight		130 g
Ambient temperature	• storage • operating	-25...+85 °C -25...+85 °C
Cover protection category		IP 20 PN-EN 60529
Shock resistance		10 g
Vibration resistance		5 g 10...150 Hz

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 55 °C)
1012	12	85	$\pm 10\%$	9,6	13,2
1024	24	340	$\pm 10\%$	19,2	26,4
1048	48	1 350	$\pm 10\%$	38,4	52,8
1110	110	7 600	$\pm 10\%$	88,0	121,0
1220	220	30 000	$\pm 10\%$	176,0	242,0

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

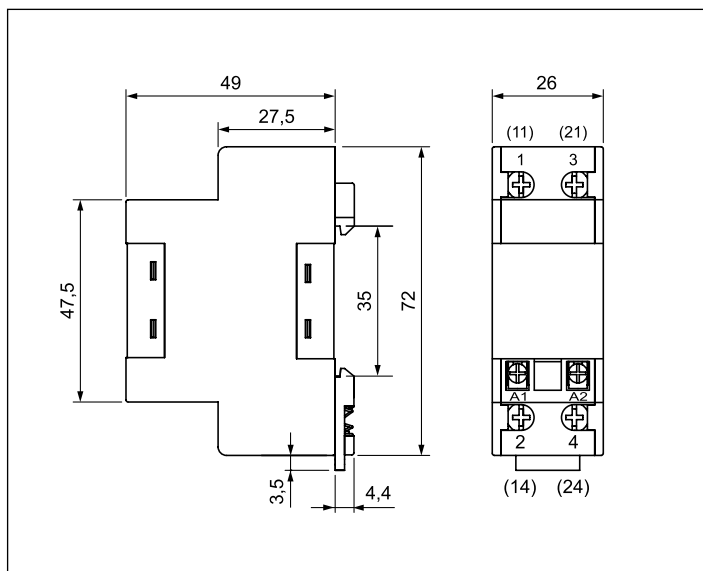
Coil data - AC 50 Hz voltage version

Table 2

Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
3012	12	17	$\pm 10\%$	8,4	13,2
3024	24	76	$\pm 10\%$	16,8	26,4
3110	110	1 600	$\pm 10\%$	77,0	121,0
3230	230	6 800	$\pm 10\%$	161,0	253,0
3400	400	18 600	$\pm 10\%$	280,0	440,0

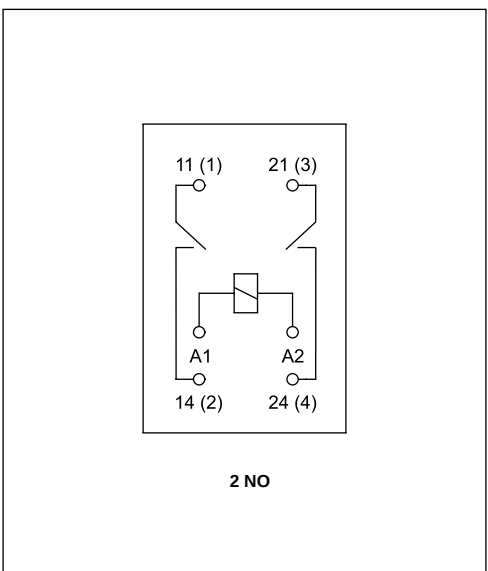
The data in bold type pertain to the standard versions of the relays.

Dimensions



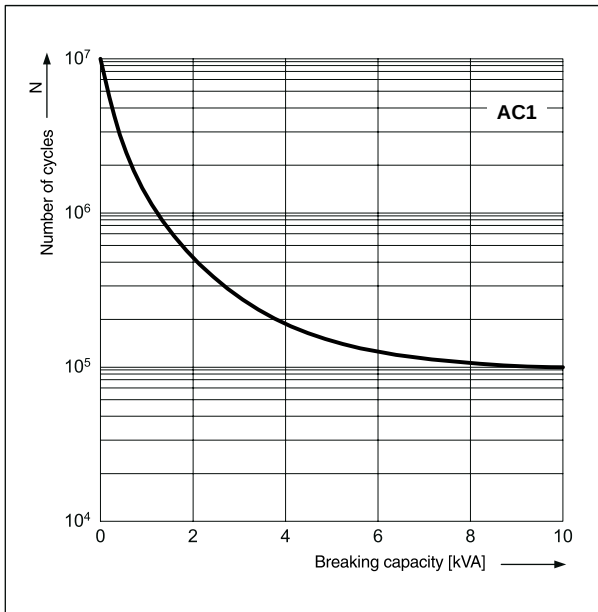
Connection diagram

(screw terminals side view)



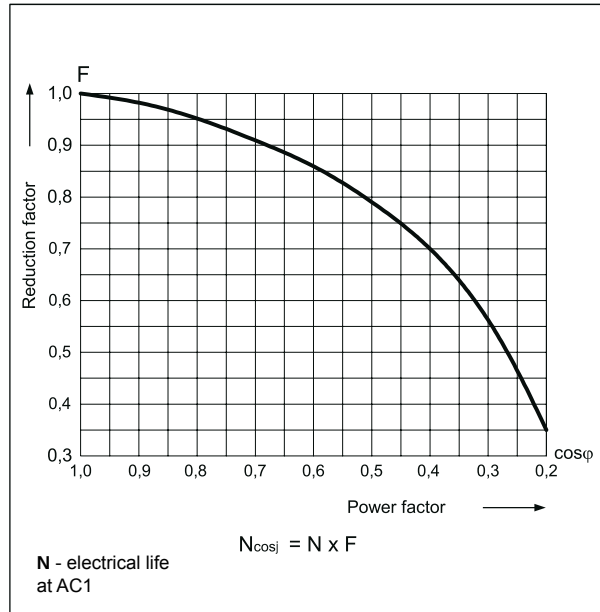
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



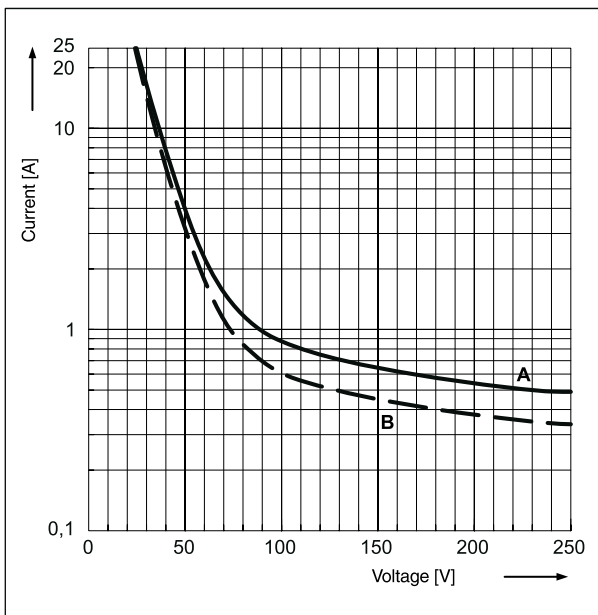
Electrical life reduction factor at AC inductive load

Fig. 2



Max. DC breaking capacity
A - resistive load DC1
B - inductive load $L/R = 40$ ms

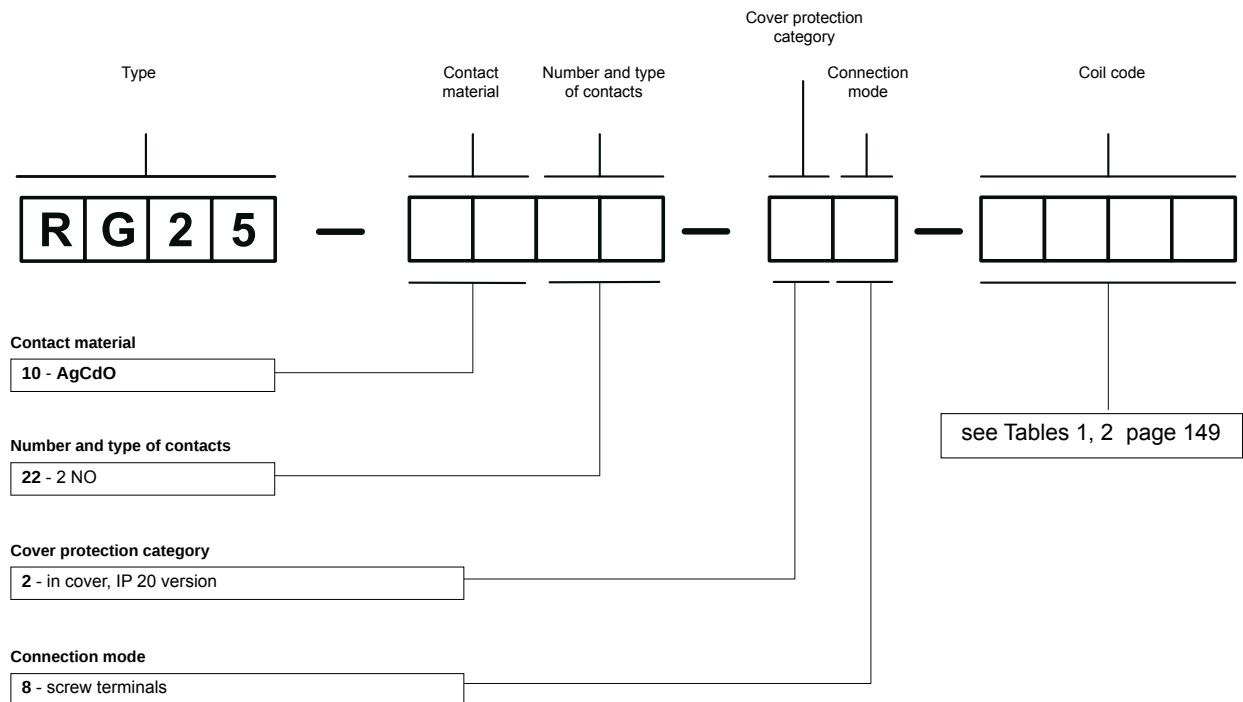
Fig. 3



Mounting

Relays **RG25** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - screw terminals of coil downwards. **Connections:** max. cross section of the cables: 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 9 mm, max. tightening moment for the terminal: 0,7 Nm.

Ordering codes



Example of ordering code:

RG25-1022-28-3230

relay **RG25**, screw terminals, two normally open contacts, contact material AgCdO, coil voltage 230 V AC 50 Hz, in cover IP 20

R20

industrial relays of small dimensions



- High switching capacity up to 30 A
- „Bridge” type contacts which open the circuit with double break
- Flat insert connectors - faston faston 250 (6,3 x 0,8 mm)
- High resistance to interference • High strength of insulation
- Applications: household equipment; air-conditioning and ventilation systems; audio equipment; control devices; automation systems; photoelectric systems; etc.
- Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts		1 NO, 2 NO
Contact material		AgSnO₂
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V
Rated load	AC1	1 NO: 30 A / 250 V AC
Min. switching current		10 mA
Rated current		1 NO: 30 A
Max. breaking capacity	AC1	1 NO: 7 000 VA
Min. breaking capacity		0,1 W
Contact resistance		≤ 100 mΩ

Coil data

Rated voltage	50/60 Hz AC	24 ... 230 V
	DC	12 ... 110 V
Must release voltage		DC: ≥ 0,1 U _n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC	1,7 VA 24, 48 V
	DC	1,9 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 V AC
Dielectric strength		
• between coil and contacts	4 000 V AC	type of insulation: reinforced
• contact clearance	2 000 V AC	type of clearance: full-disconnection
Contact - coil distance		
• clearance	≥ 9 mm	
• creepage	≥ 11 mm	

General data

Operating / release time (typical values)		30 ms / 30 ms
Electrical life		
• resistive AC1	1 200 cycles/hour	10 ⁵ 1Z: 30 A, 250 V AC
		2Z: 25 A, 250 V AC
Mechanical life (cycles)		> 10 ⁷
Dimensions (L x W x H)		67 x 33 x 35 mm
Weight		90 g
Ambient temperature	• operating	-25...+75 °C
Cover protection category		IP 50 PN-EN 60529
Shock resistance		10 g
Vibration resistance		1,5 mm DA (constant amplitude) 10...55 Hz

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

Coil data - DC voltage version

Table 1

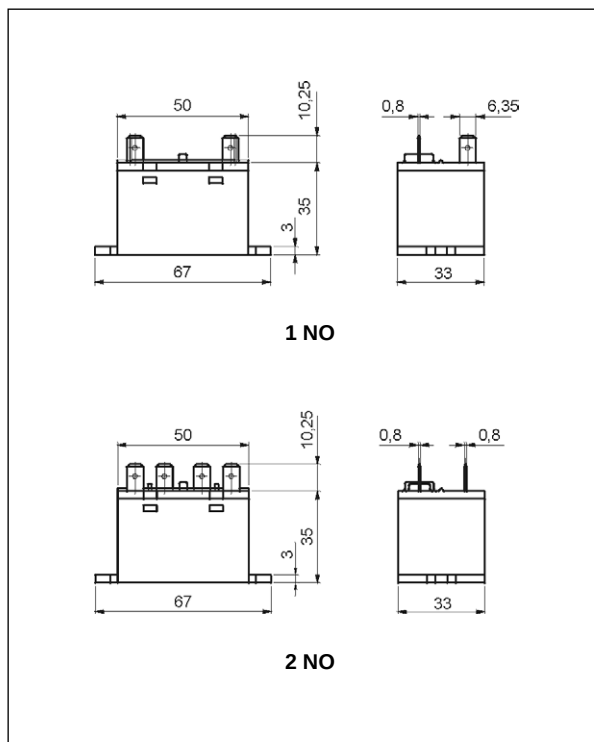
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1012	12	75,8	$\pm 10\%$	9,0	13,2
1024	24	303	$\pm 10\%$	18,0	26,4
1110	110	6 400	$\pm 10\%$	82,5	121,0

Coil data - AC 50/60 Hz voltage version

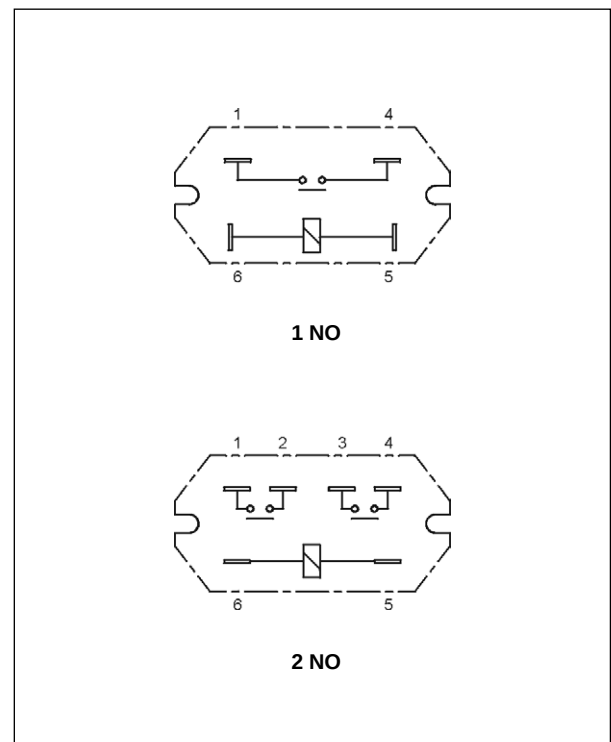
Table 2

Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 20 °C)
5024	24	338	$\pm 10\%$	18,0	26,4
5048	48		$\pm 10\%$	36,0	52,8
5115	115	5 260	$\pm 10\%$	86,3	126,5
5230	230	21 000	$\pm 10\%$	172,5	253,0

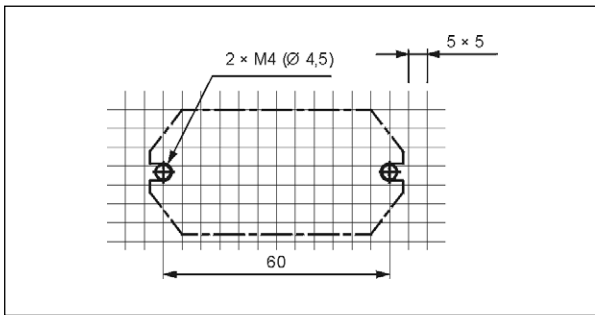
Dimensions



Connection diagrams (pin side view)



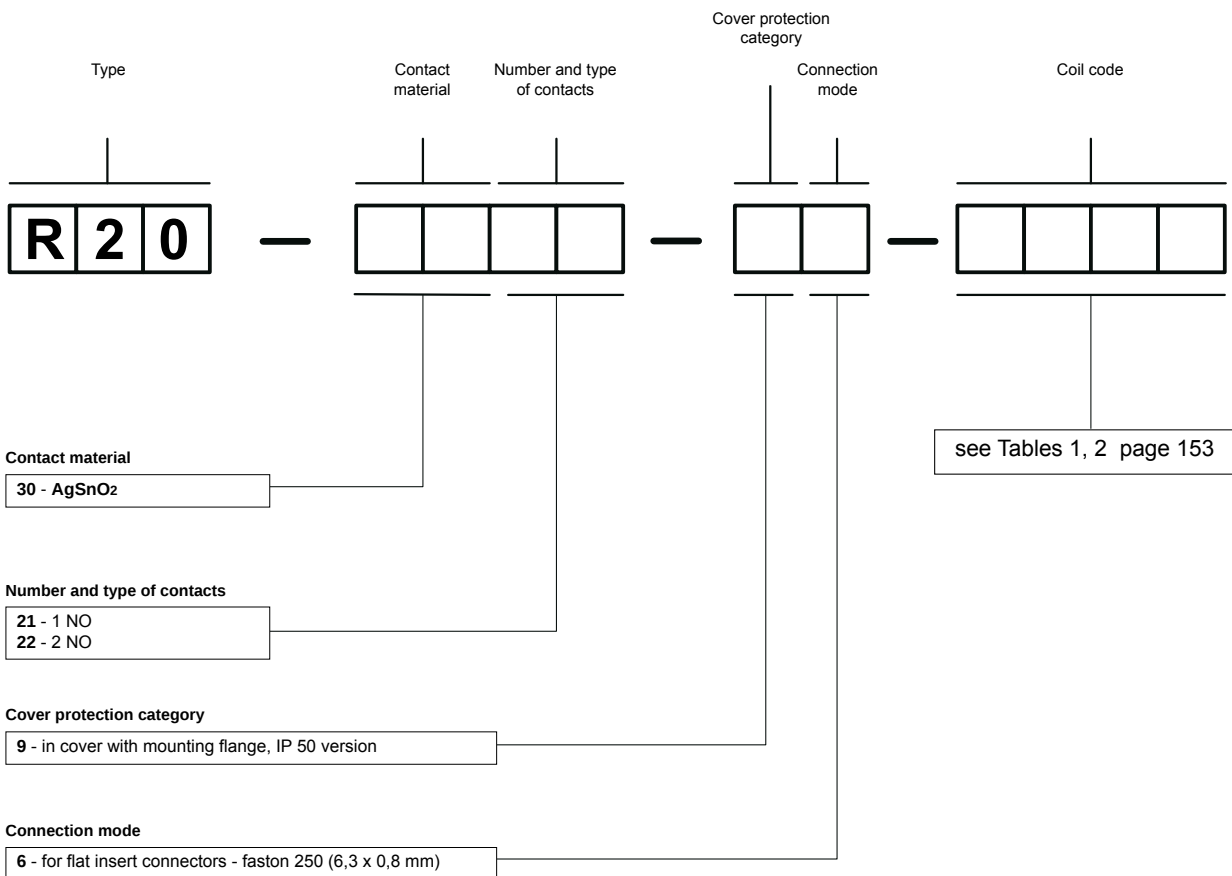
Pinout



Mounting

Relays **R20** are designed for flat insert connectors - faston 250 (6,3 x 0,8 mm), relays are direct on panel mounting with two M4 screws.

Ordering codes



Example of ordering code:

R20-3021-96-1012

relay **R20**, for flat insert connectors - faston 250 (6,3 x 0,8 mm), one normally open contact, contact material AgSnO₂, coil voltage 12 V DC, in cover with mounting flange IP 50

R30

industrial relays of small dimensions



- High switching capacity up to 30 A
- For PCB
- Applications: systems of heating, ventilation; automotive electric systems; photoelectric systems; other electric applications
- Recognitions, certifications, directives: RoHS, 

Contact data

Number and type of contacts		1 CO, 1 NO	
Contact material		AgSnO₂	
Rated / max. switching voltage	AC	240 V / 250 V	
Min. switching voltage		10 V	
Rated load	AC1 DC1	1 CO: 20 A / 10 A (NO/NC) / 240 V AC 1 CO: 20 A / 10 A (NO/NC) / 30 V DC	1 NO: 30 A / 240 V AC 1 NO: 30 A / 30 V DC
Min. switching current		10 mA	10 mA
Rated current		1 CO: 20 A / 10 A (NO/NC)	1 NO: 30 A
Max. breaking capacity	AC1 AC3	1 CO: 4 800 VA 0,5 HP 240 V AC	1 NO: 7 200 VA 0,5 HP 240 V AC
Min. breaking capacity		0,1 W	
Contact resistance		≤ 100 mΩ	

Coil data

Rated voltage	DC	12 ... 24 V
Must release voltage		DC: ≥ 0,05 U _n
Operating range of supply voltage		see Table 1
Must operate voltage		≤ 0,8 U _n
Rated power consumption	DC	1,0 W

Insulation according to PN-EN 60664-1

Insulation rated voltage	250 V AC
Overvoltage category	II
Flammability degree	V-0 UL94
Insulation resistance	> 100 MΩ 500 V DC, 60 s
Dielectric strength	
• between coil and contacts	1 500 V AC type of insulation: basic
• contact clearance	1 500 V AC type of clearance: micro-disconnection

General data

Operating / release time (typical values)	15 ms / 10 ms
Electrical life	
• resistive AC1 1 200 cycles/hour	10 ⁵ 1 CO: 20 A / 10 A (NO/NC), 240 V AC 1 NO: 30 A, 240 V AC
Mechanical life (cycles)	> 10 ⁷
Dimensions (L x W x H)	32,2 x 27,5 x 20,5 mm
Weight	22 g
Ambient temperature • operating	-30...+55 °C
Cover protection category	IP 64 PN-EN 60529
Shock resistance	5 g
Vibration resistance	1,5 mm DA (constant amplitude) 10...55 Hz

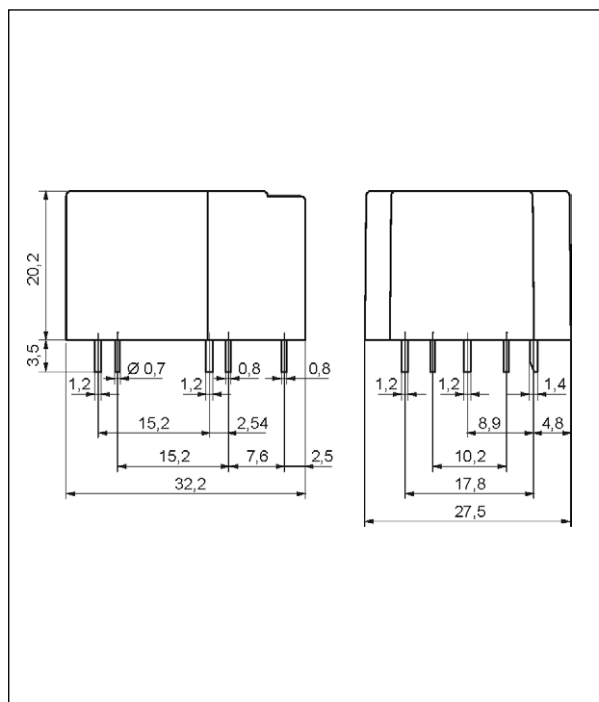
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version

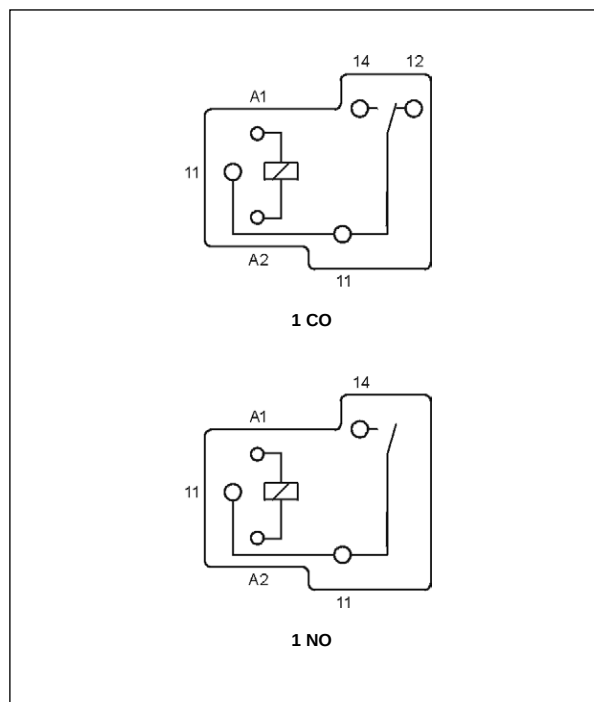
Table 1

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)
1012	12	155	$\pm 10\%$	9,6	18
1024	24	660	$\pm 10\%$	19,2	36

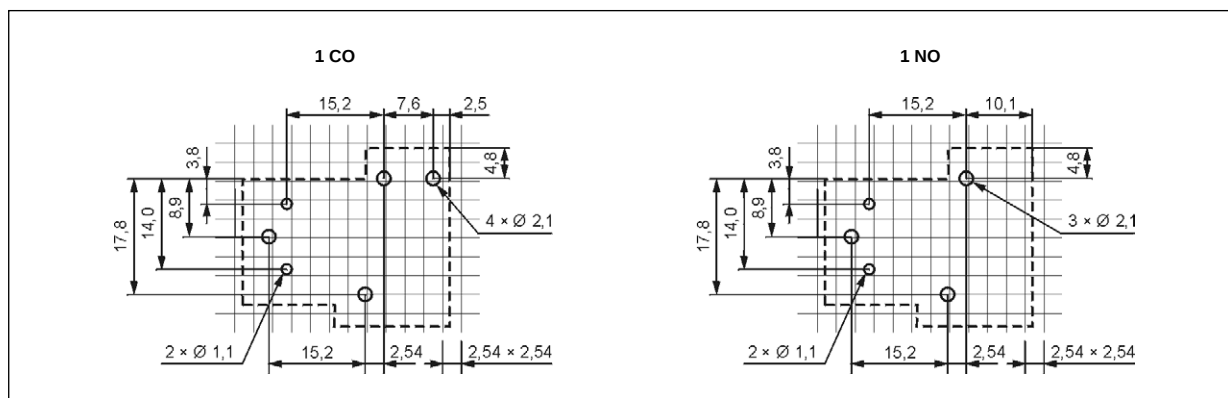
Dimensions



Connection diagrams (pin side view)



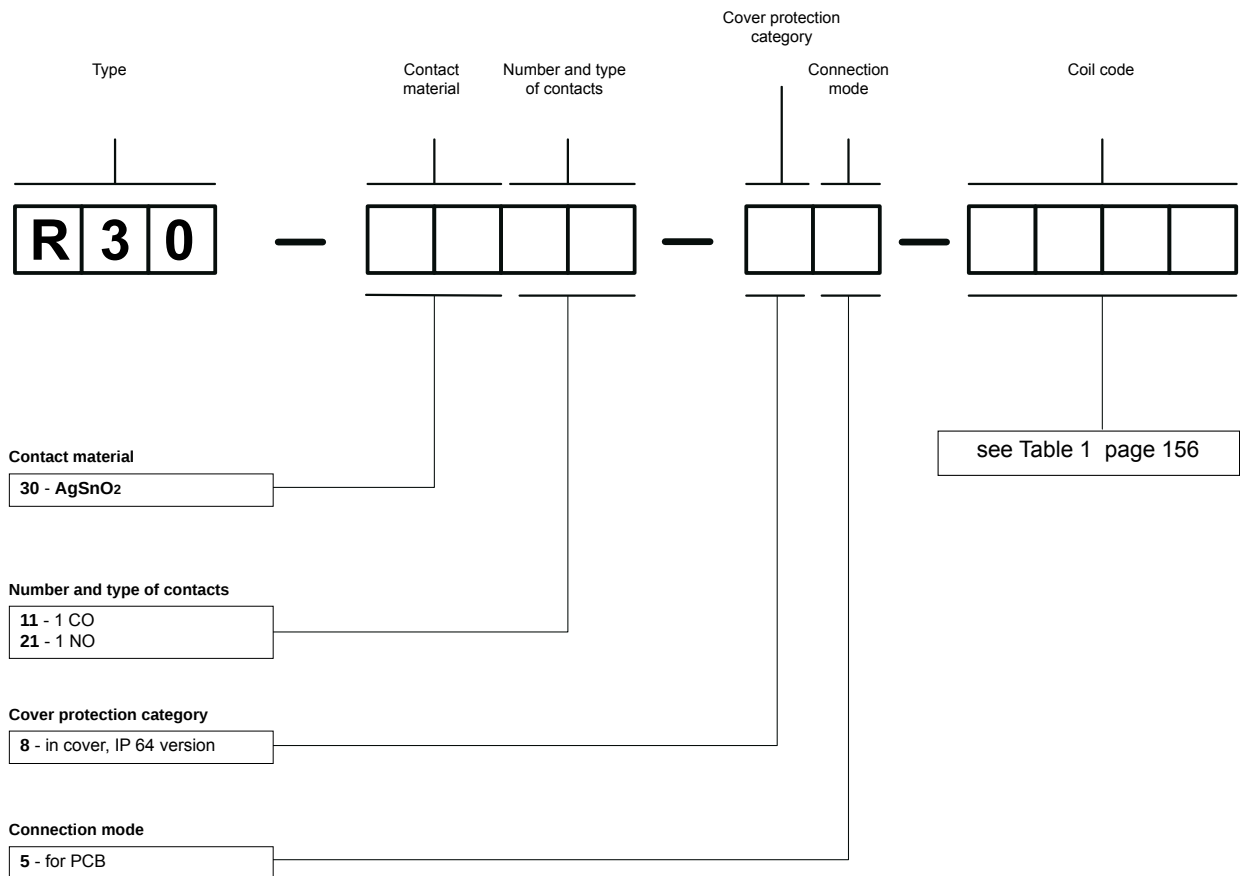
Pinout (solder side view)



Mounting

Relays **R30** are designed for direct PCB mounting.

Ordering codes



Examples of ordering codes:

R30-3011-85-1012

relay **R30**, for PCB, one changeover contact, contact material AgSnO₂, coil voltage 12 V DC, in cover IP 64

R30-3021-85-1024

relay **R30**, for PCB, one normally open contact, contact material AgSnO₂, coil voltage 24 V DC, in cover IP 64

RS35, RS50

industrial relays for solar systems



RS35



RS50

Relays to control power in photovoltaic systems which generate electric energy

- Max. switching current: 35 A (version RS35); 50 A (version RS50)
- 5000 V / 10 mm reinforced insulation • Contact gap: RS35 $\geq 2,2$ mm; RS50 $\geq 1,85$ mm • Holding power 0,1 W
- For PCB • DC coils • Reinforced insulation, acc. PN-EN 60730-1 (VDE 0631, part 1); PN-EN 60335-1 (VDE 0700, part 1)
- Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts		2 NO	
Contact material		AgSnO₂	
Rated / max. switching voltage	AC	250 V / 440 V	
Min. switching voltage		10 V	
Rated load	AC1 DC1	RS35: 35 A / 250 V AC RS35: 35 A / 24 V DC	RS50: 48 A / 250 V AC RS50: 48 A / 24 V DC
Min. switching current		10 mA	10 mA
Rated current		RS35: 35 A	RS50: 50 A
Max. breaking capacity	AC1 DC1	RS35: 8 750 VA RS35: 90 W 0,3 A / 300 V	RS50: 12 500 VA RS50: 90 W 0,3 A / 300 V
Min. breaking capacity		1 W	
Contact resistance		≤ 50 m Ω	
Max. operating frequency			
• at rated load	AC1	360 cycles/hour	
• no load		3 600 cycles/hour	
Coil data			
Rated voltage	DC	5 ... 110 V	
Must release voltage		DC: $\geq 0,05$ U _n	
Operating range of supply voltage		0,75...2,0 U _n	see Table 1
Rated power consumption	DC	0,48 W	
Power consumption at pickup voltage		0,3 W	
Max. continuous dissipation		1,9 W	20 °C
Insulation according to PN-EN 60664-1			
Insulation rated voltage		250 V AC	
Rated surge voltage		6 000 V	1,2 / 50 μ s
Overvoltage category		III	
Insulation pollution degree		3	
Insulation resistance		1000 M Ω	
Dielectric strength			
• between coil and contacts		5 000 V AC	type of insulation: reinforced
• contact clearance		2 500 V AC	type of clearance: full-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)		40 ms / 5 ms	
Electrical life			
• resistive AC1		3 x 10 ⁴ 35 A, 250 V AC, 20 °C	10 ⁴ 50 A, 250 V AC, 20 °C
• AC7a		3 x 10 ⁴ 35 A, 250 V AC, 20 °C	3 x 10 ⁴ 50 A, 250 V AC, 20 °C
Mechanical life (cycles)		10 ⁶	
Dimensions (L x W x H)		40 x 25 x 49,2 mm	
Weight		105 g	
Ambient temperature	• storage • operating	-40...+105 °C -40...+85 °C	
Cover protection category		IP 40	PN-EN 60529
Environmental protection		RTI	PN-EN 116000-3
Shock resistance		10 g	
Vibration resistance		1,5 mm DA (constant amplitude)	10...55 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.

RS35, RS50

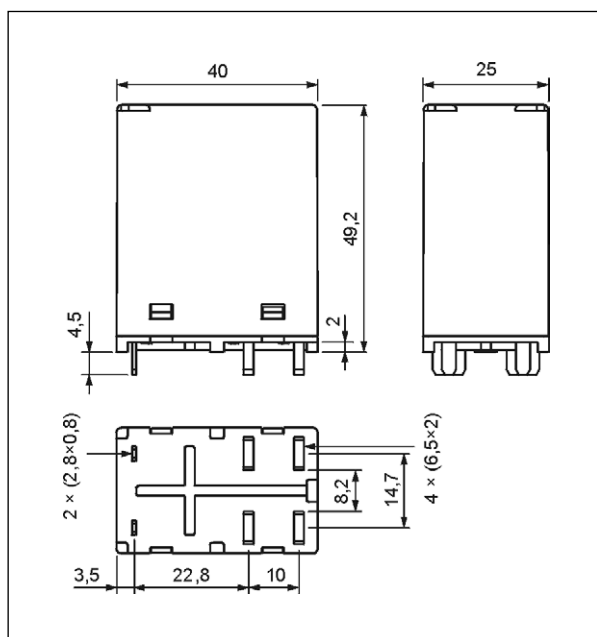
industrial relays for solar systems

Coil data - DC voltage version

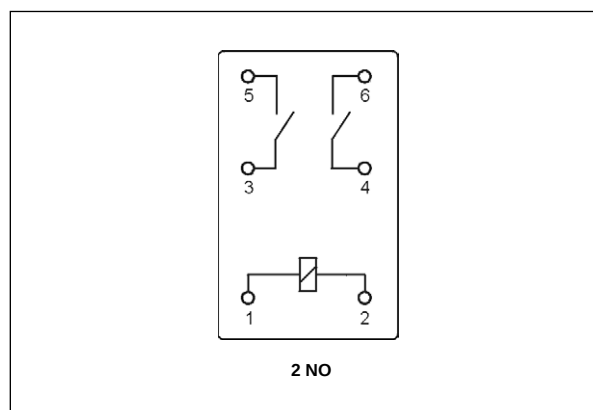
Table 1

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 55 °C)
1005	5	50	$\pm 10\%$	3,75	10
1009	9	170	$\pm 10\%$	6,75	18
1012	12	300	$\pm 10\%$	9,00	24
1018	18	675	$\pm 10\%$	13,50	36
1024	24	1 200	$\pm 10\%$	18,00	48
1110	110	25 000	$\pm 10\%$	82,50	220

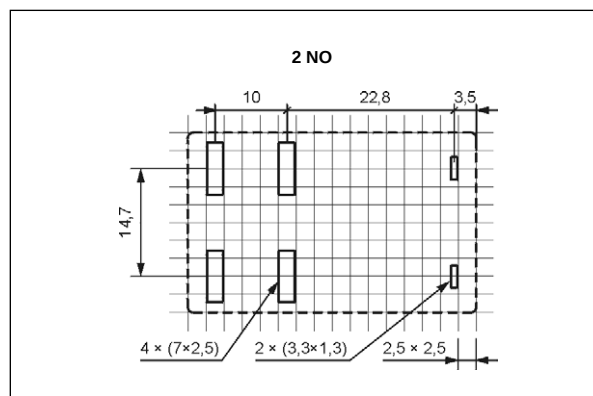
Dimensions



Connection diagrams (pin side view)



Pinout (solder side view)



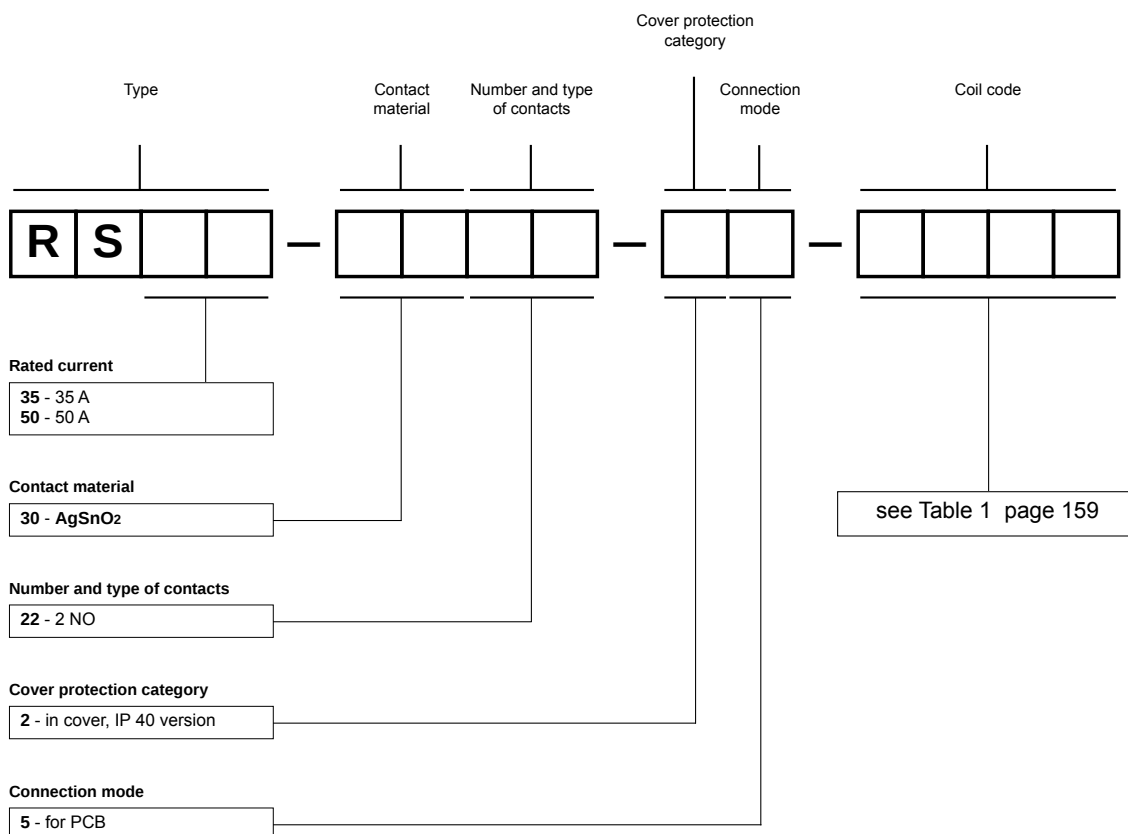
RS35, RS50

industrial relays for solar systems

Mounting

Relays **RS35**, **RS50** are designed for direct PCB mounting.

Ordering codes



Examples of ordering code:

- RS35-3022-25-1005** relay **RS35**, rated current 35 A, for PCB, two normally open contacts, contact material AgSnO₂, coil voltage 5 V DC, in cover IP 40
- RS50-3022-25-1110** relay **RS50**, rated current 50 A, for PCB, two normally open contacts, contact material AgSnO₂, coil voltage 110 V DC, in cover IP 40



with plug-in sockets

PI84 with socket GZT80	162
PI85 with socket GZT80	166
PI84 with socket GZM80	170
PI85 with socket GZM80	174

PIR2 with socket GZM2	178
PIR3 with socket GZM3	182
PIR4 with socket GZM4	186
PIR2M with socket GZ2	190

in narrow-profile covers

PI6-1P	193
PI6-1T	195

PIR6W-1P-... ..	197
PIR6W-1PS-... ..	200
PIR6WB-1PS-... ..	203
PI6W-1P	207

Interface relays

The interface relays perform the function of input/output separation in the applications with PLC controllers, and they are applied in numerous other electric devices as interface and output elements.

The basic features of the relays are:

- quick mounting,
- separation of control circuits from output circuits,
- coil overvoltage suppression devices,
- light indicators of operation,
- number of contacts: from 1 to 4.

The high quality and reliability of the interface relays have been proved by their numerous successful applications. Miniature and industrial relays of the types: RM699BV, RM84, RM85, R2, R3, R4 are the basis for these relays.

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

PI84 with socket GZT80 interface relays

RM84 + GZT80



- Interface relay **PI84 with socket GZT80** consists of:
electromagnetic relay **RM84**, grey plug-in socket **GZT80**, signalling / protecting module: version **LD** - M41G or M43G (L - LED green, D - diode, polarization N: +A1/-A2); version **LV** - M91G or M93G (L - LED green, V - varistor), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**
- 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw
- May be linked with interconnection strip type **ZGGZ80**
- Recognitions, certifications, directives: recognitions RM84, RoHS,

Contact data

Number and type of contacts		2 CO
Contact material		AgNi
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V
Rated load (capacity)	AC1 AC15 AC3 DC1 DC13	8 A / 250 V AC 3 A / 120 V 1,5 A / 240 V (B300) 550 W (single-phase motor) 8 A / 24 V DC (see Fig. 3) 0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA
Max. inrush current		15 A
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,3 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	50/60 Hz AC DC	12 ... 230 V 12 ... 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		300 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		
• resistive AC1		> 10 ⁵ 8 A, 250 V AC
• cosφ		see Fig. 2
• DC 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)		75,3 x 15,5 x 67 mm
Weight		62 g
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 20 PN-EN 60529
Environmental protection		RM84: RTII GZT80: RT0 PN-EN 116000-3
Shock resistance		20 g
Vibration resistance	(NO/NC)	10 g / 5 g 10...150 Hz

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

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)
12DC	12	360	± 10%	8,4	30,6
24DC	24	1 440	± 10%	16,8	61,2
110DC	110	25 200	± 10%	77,0	280,0

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

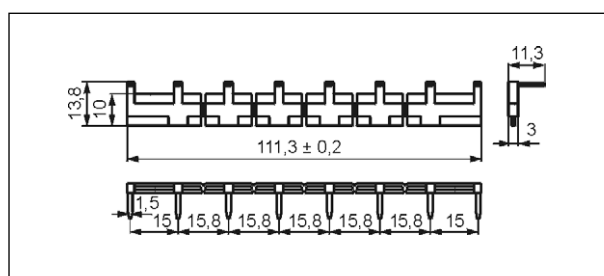
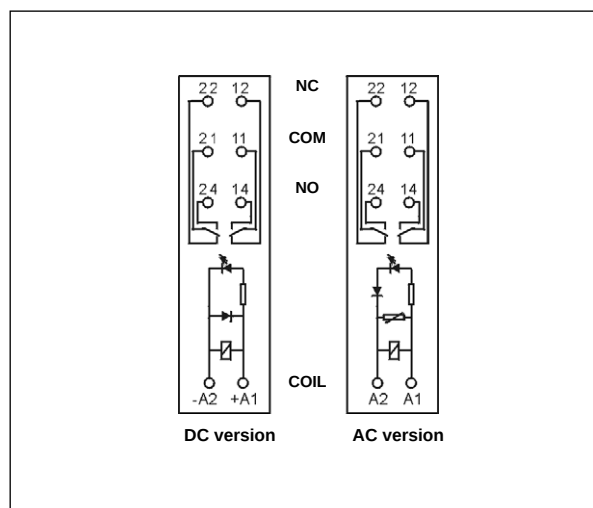
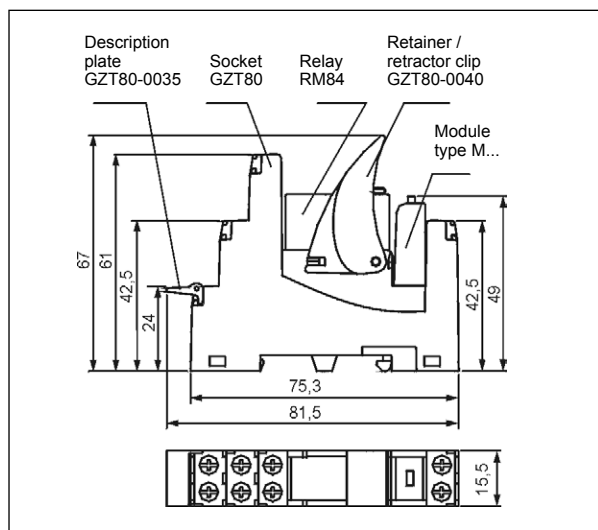
Table 2

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)
12AC	12	100	± 10%	9,6	13,2
24AC	24	400	± 10%	19,2	26,4
120AC	120	10 200	± 10%	96,0	144,0
230AC	230	38 500	± 10%	184,0	253,0

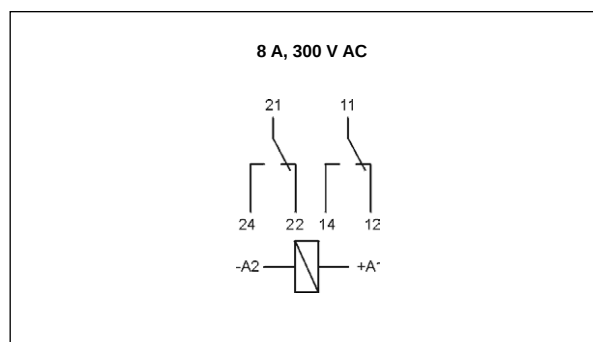
The data in bold type pertain to the standard versions of the relays.

Connection diagrams

Connection diagrams
(screw terminals side view)

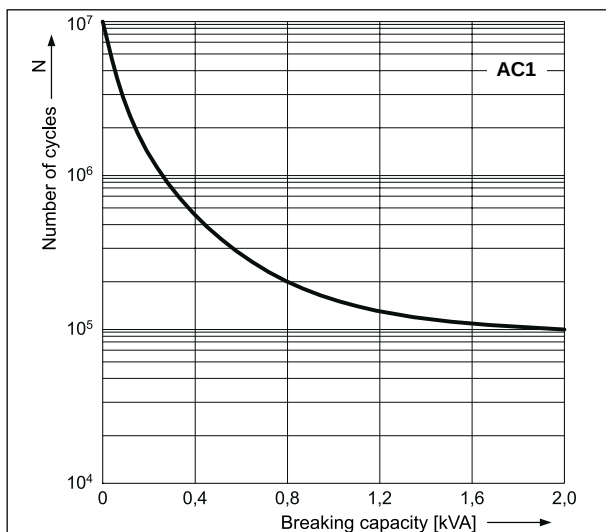
Interconnection strip type **ZGGZ80**

Connection of GZT80



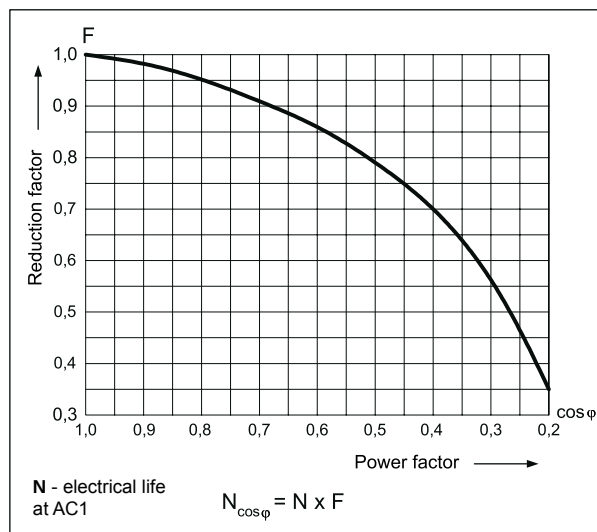
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



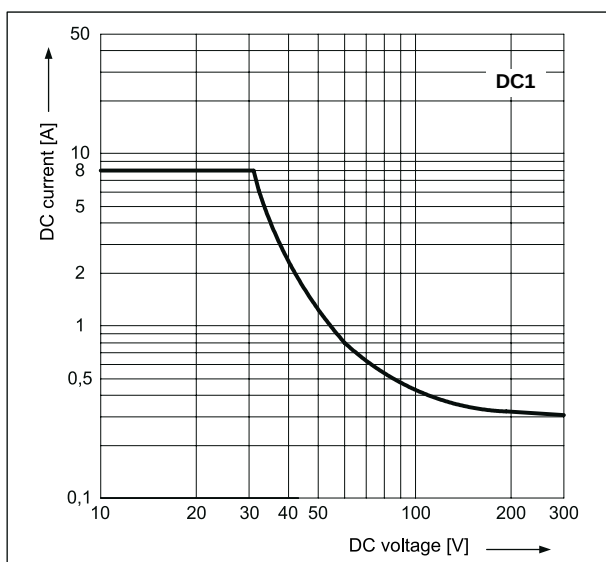
Electrical life reduction factor at AC inductive load

Fig. 2



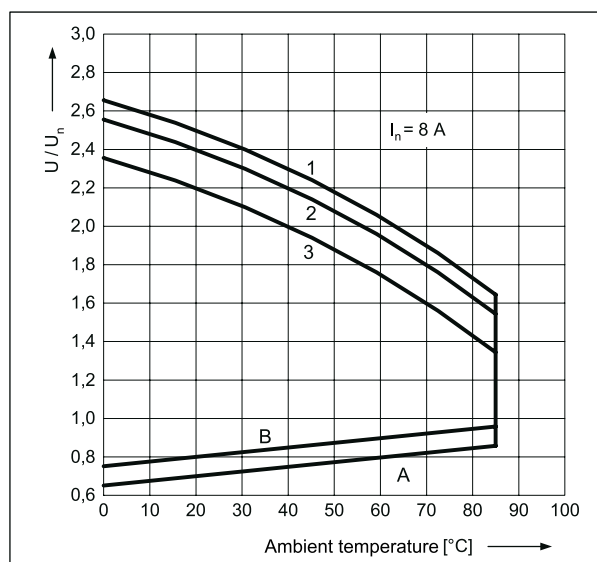
Max. DC resistive load breaking capacity

Fig. 3



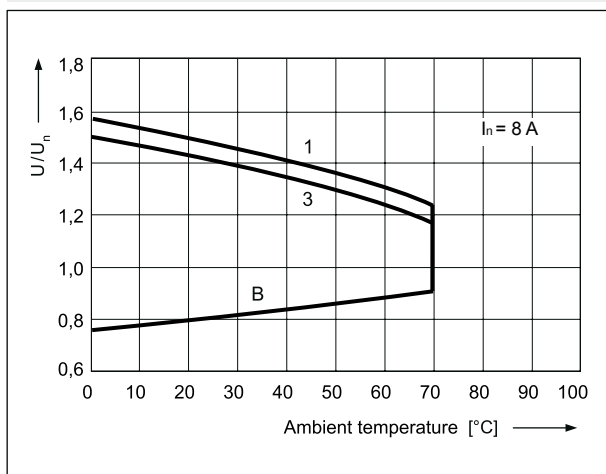
Coil operating range - DC

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

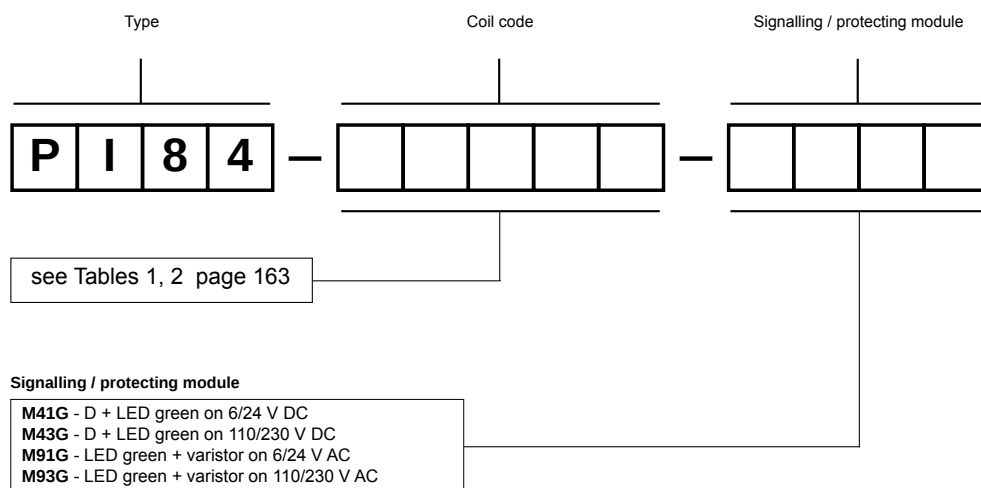
3 - rated load

Mounting

Relays **PI84 with socket GZT80** ❶ are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw. **Connections:** max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,7 Nm.

❶ Plug-in sockets **GZT80** may be linked with interconnection strip type **ZGGZ80**. Strip **ZGGZ80** bridges common input signals, maximum permissible current is 10 A / 250 V AC. Possibility of connection of 8 sockets. Colours of strips: **ZGGZ80-1** grey, **ZGGZ80-2** black.

Ordering codes



Examples of ordering codes:

PI84-12DC-M41G

interface relay **PI84**, which consists of: relay **RM84** with coil 12 V DC, grey plug-in socket **GZT80** (screw terminals), signalling / protecting module **M41G** (version **LD**: L - LED green, D - diode, polarization N: +A1/-A2), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**

PI84-24AC-M91G

interface relay **PI84**, which consists of: relay **RM84** with coil 24 V AC 50/60 Hz, grey plug-in socket **GZT80** (screw terminals), signalling / protecting module **M91G** (version **LV**: L - LED green, V - varistor), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**

PI85 with socket GZT80 interface relays

RM85 + GZT80



- Interface relay **PI85 with socket GZT80** consists of:
electromagnetic relay **RM85**, grey plug-in socket **GZT80**, signalling / protecting module: version **LD** - M41G or M43G (L - LED green, D - diode, polarization N: +A1/-A2); version **LV** - M91G or M93G (L - LED green, V - varistor), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**
- 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw
- May be linked with interconnection strip type **ZGGZ80**
- Recognitions, certifications, directives: recognitions RM85, RoHS,  

Contact data

Number and type of contacts		1 CO
Contact material		AgNi
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V
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
Max. inrush current		30 A
Rated current		16 A
Max. breaking capacity	AC1	4 000 VA
Min. breaking capacity		0,3 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	50/60 Hz AC DC	12 ... 230 V 12 ... 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		300 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		
• resistive AC1		> 0,7 x 10 ⁵ 16 A, 250 V AC
• cosφ		see Fig. 2
• DC 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)		75,3 x 15,5 x 67 mm
Weight		62 g
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 20 PN-EN 60529
Environmental protection		RM85: RTII GZT80: RT0 PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz

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)
12DC	12	360	$\pm 10\%$	8,4	30,6
24DC	24	1 440	$\pm 10\%$	16,8	61,2
110DC	110	25 200	$\pm 10\%$	77,0	280,0

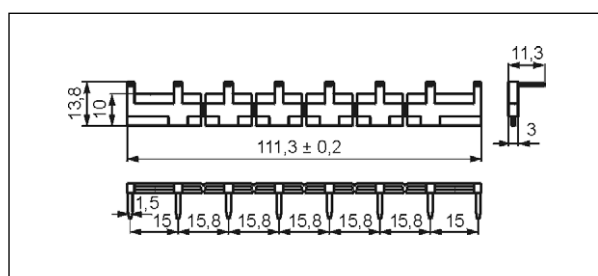
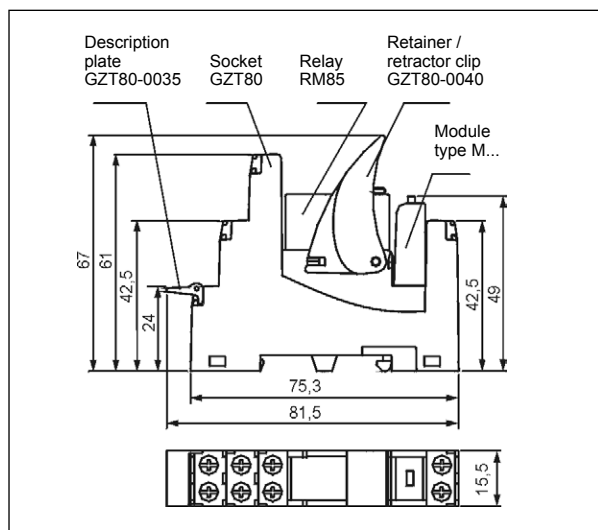
The data in bold type pertain to the standard versions of the relays.

Coil data - AC 50/60 Hz voltage version
Table 2

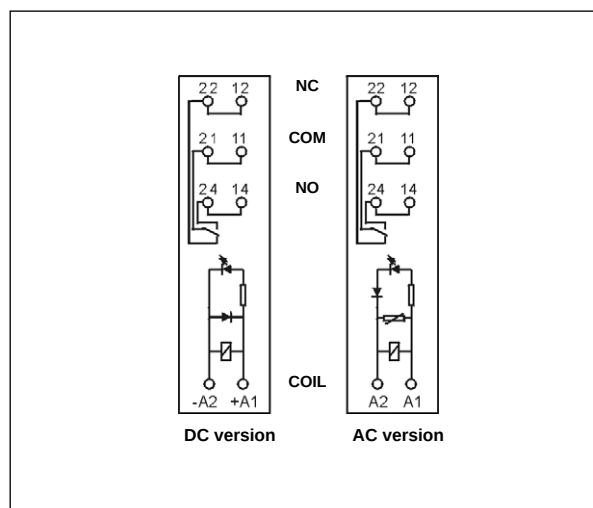
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
12AC	12	100	$\pm 10\%$	9,6	13,2
24AC	24	400	$\pm 10\%$	19,2	26,4
120AC	120	10 200	$\pm 10\%$	96,0	144,0
230AC	230	38 500	$\pm 10\%$	184,0	253,0

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

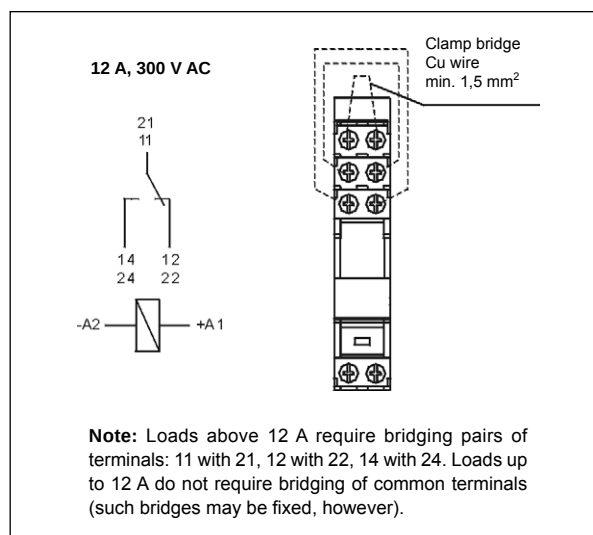
Dimensions


Interconnection strip type ZGGZ80

Connection diagrams (screw terminals side view)

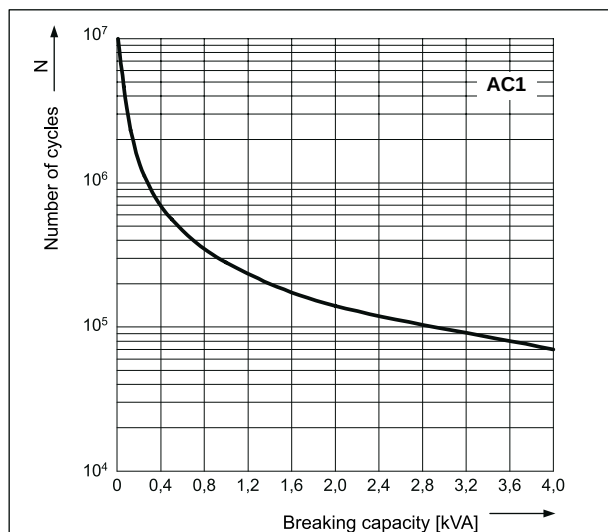


Connection of GZT80



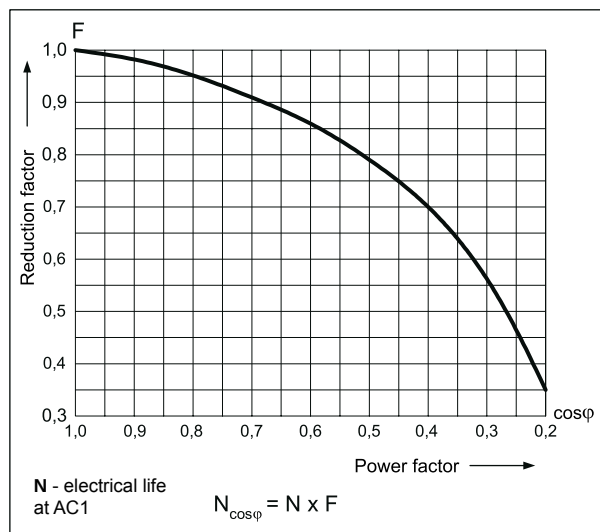
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



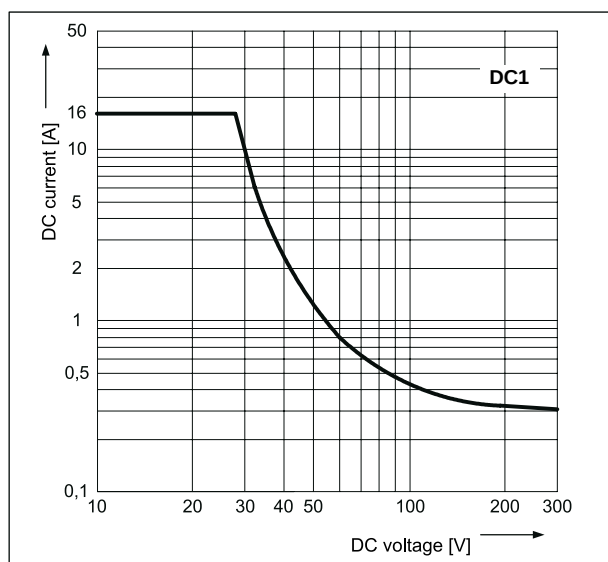
Electrical life reduction factor at AC inductive load

Fig. 2



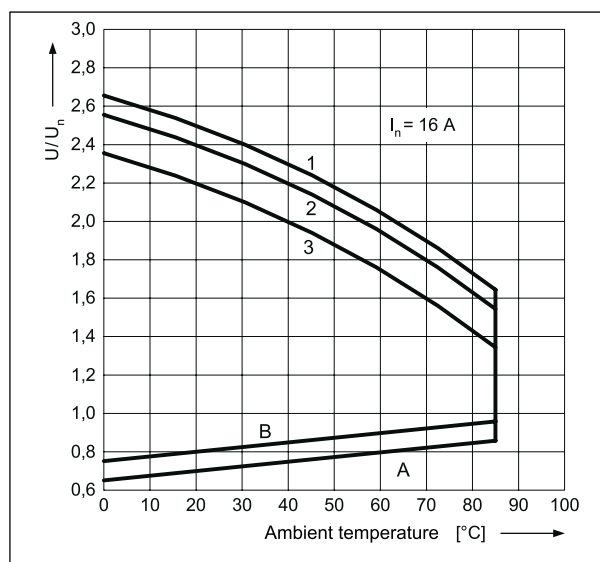
Max. DC resistive load breaking capacity

Fig. 3



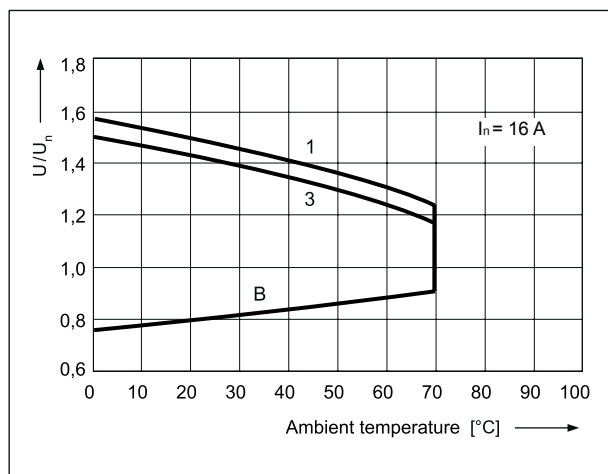
Coil operating range - DC

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

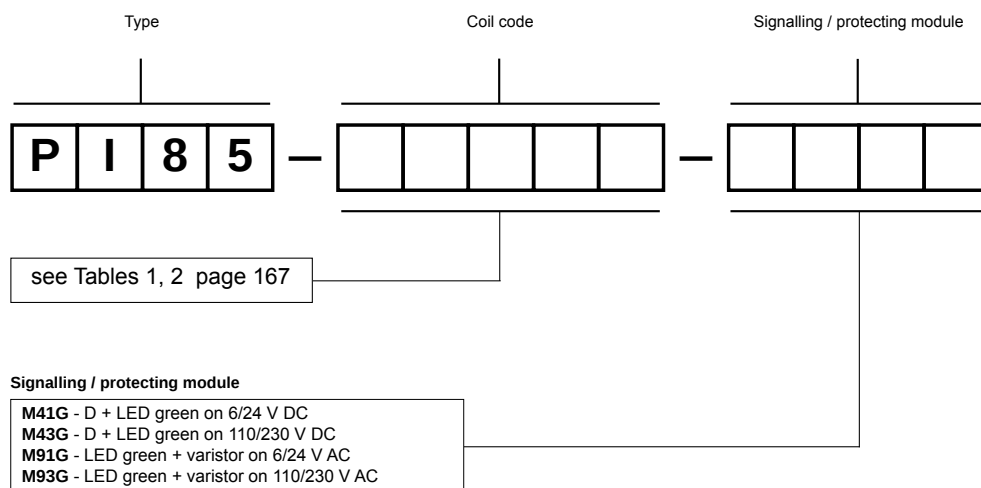
3 - rated load

Mounting

Relays **PI85 with socket GZT80** ① are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw. **Connections:** max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,7 Nm.

① Plug-in sockets **GZT80** may be linked with interconnection strip type **ZGGZ80**. Strip **ZGGZ80** bridges common input signals, maximum permissible current is 10 A / 250 V AC. Possibility of connection of 8 sockets. Colours of strips: **ZGGZ80-1** grey, **ZGGZ80-2** black.

Ordering codes



Examples of ordering codes:

PI85-12DC-M41G

interface relay **PI85**, which consists of: relay **RM85** with coil 12 V DC, grey plug-in socket **GZT80** (screw terminals), signalling / protecting module **M41G** (version **LD**: L - LED green, D - diode, polarization N: +A1/-A2), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**

PI85-24AC-M91G

interface relay **PI85**, which consists of: relay **RM85** with coil 24 V AC 50/60 Hz, grey plug-in socket **GZT80** (screw terminals), signalling / protecting module **M91G** (version **LV**: L - LED green, V - varistor), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**

PI84 with socket GZM80 interface relays

RM84 + GZM80



- Interface relay **PI84 with socket GZM80** consists of:
electromagnetic relay **RM84**, grey plug-in socket **GZM80**, signalling / protecting module: version **LD** - M41G or M43G (L - LED green, D - diode, polarization N: +A1/-A2); version **LV** - M91G or M93G (L - LED green, V - varistor), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**
- 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw
- May be linked with interconnection strip type **ZGGZ80**
- Recognitions, certifications, directives: recognitions RM84, RoHS,

Contact data

Number and type of contacts		2 CO
Contact material		AgNi
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V
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
Max. inrush current		15 A
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,3 W
Contact resistance		≤ 100 mΩ
Max. operating frequency	AC1	600 cycles/hour
		72 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC	12 ... 230 V
	DC	12 ... 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		300 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		
• resistive AC1		> 10 ⁵ 8 A, 250 V AC
• cosφ		see Fig. 2
• cosφ = 0,4		> 10 ⁵ 3 A, 250 V AC
• DC 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)		78,1 x 15,9 x 66,5 mm
Weight		59 g
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 20 PN-EN 60529
Environmental protection		RM84: RTII GZM80: RT0 PN-EN 116000-3
Shock resistance		20 g
Vibration resistance		10 g / 5 g 10...150 Hz

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)
012DC	12	360	$\pm 10\%$	8,4	30,6
024DC	24	1 440	$\pm 10\%$	16,8	61,2
110DC	110	25 200	$\pm 10\%$	77,0	280,0

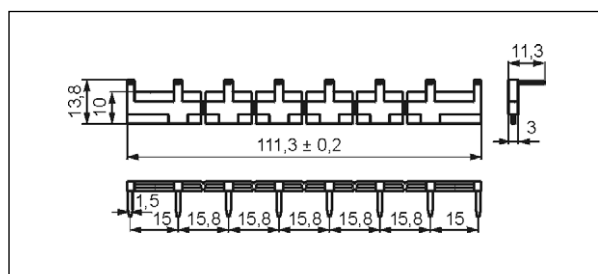
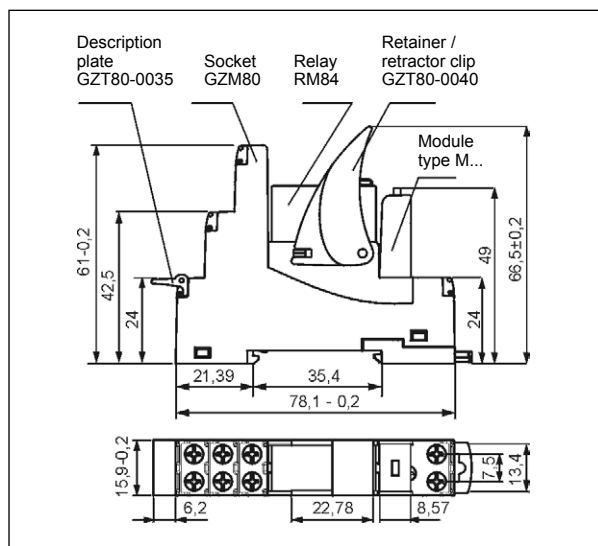
The data in bold type pertain to the standard versions of the relays.

Coil data - AC 50/60 Hz voltage version
Table 2

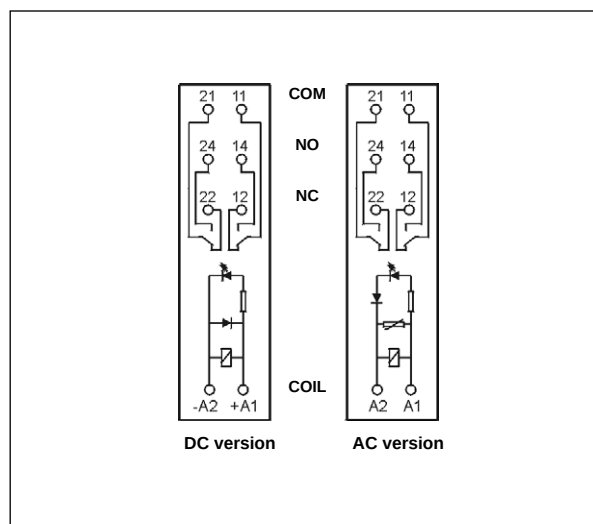
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
012AC	12	100	$\pm 10\%$	9,6	13,2
024AC	24	400	$\pm 10\%$	19,2	26,4
120AC	120	10 200	$\pm 10\%$	96,0	144,0
230AC	230	38 500	$\pm 10\%$	184,0	253,0

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

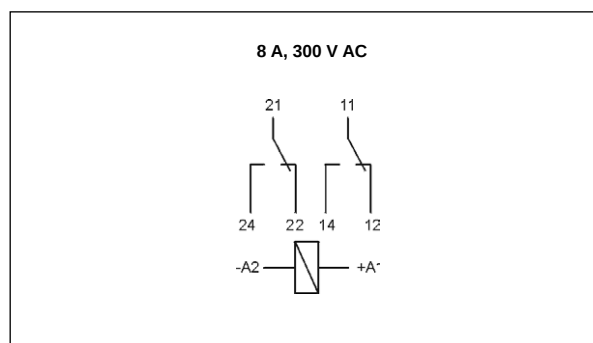
Dimensions


Interconnection strip type ZGGZ80

Connection diagrams (screw terminals side view)

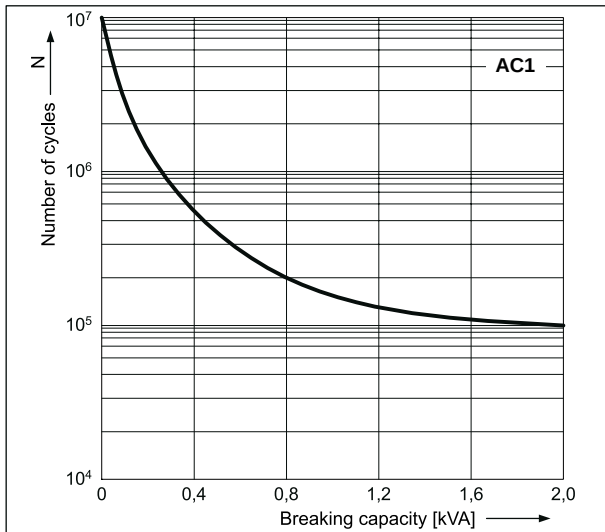


Connection of GZM80



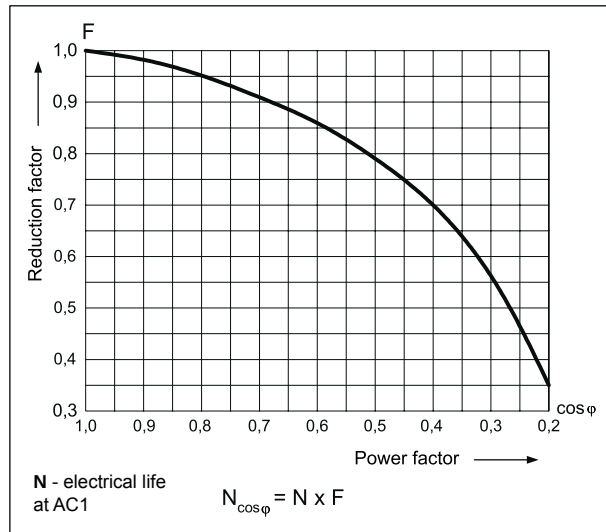
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



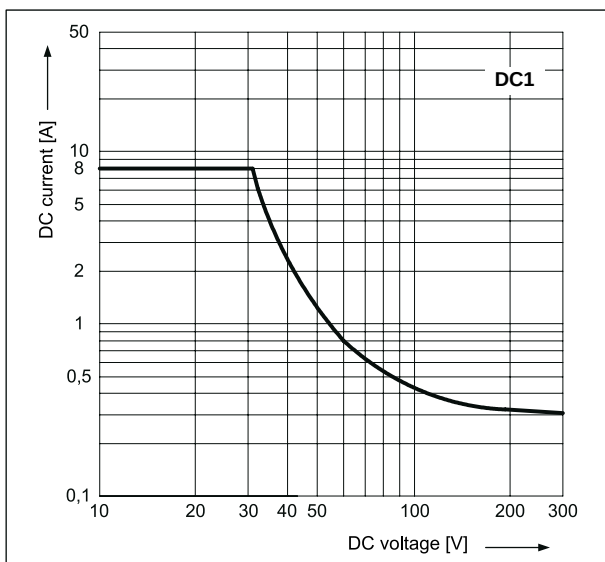
Electrical life reduction factor at AC inductive load

Fig. 2



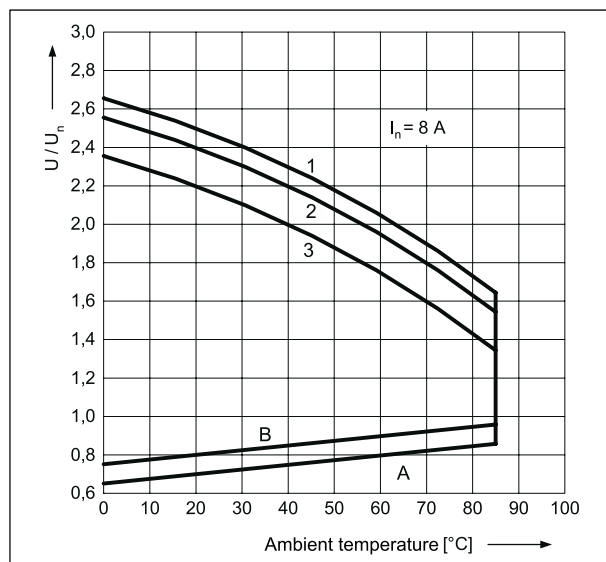
Max. DC resistive load breaking capacity

Fig. 3



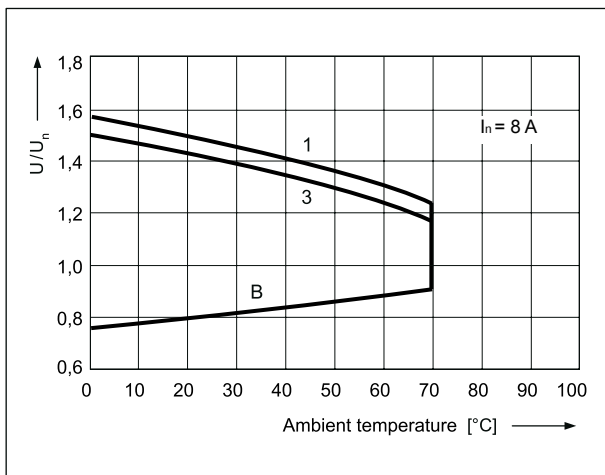
Coil operating range - DC

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:

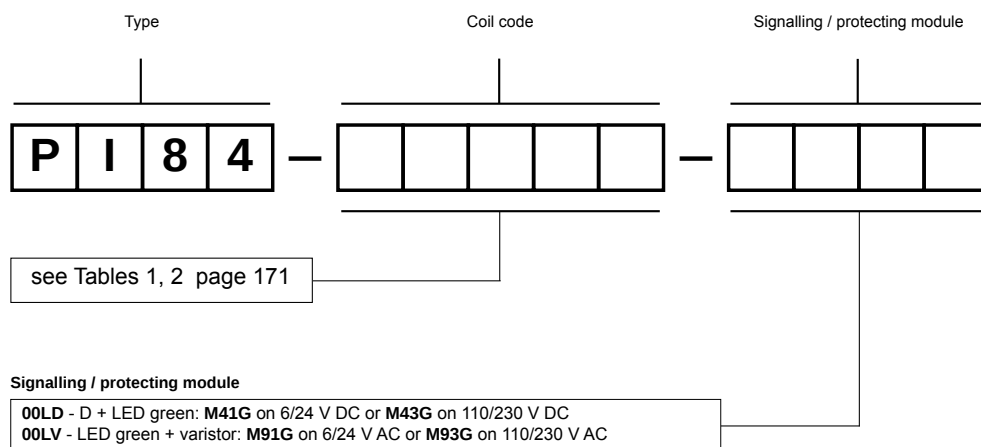
- 1** - no load
- 2** - 50% of rated load
- 3** - rated load

Mounting

Relays **PI84 with socket GZM80** ① are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw. **Connections:** max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,7 Nm.

① Plug-in sockets **GZM80** may be linked with interconnection strip type **ZGGZ80**. Strip **ZGGZ80** bridges common input signals, maximum permissible current is 10 A / 250 V AC. Possibility of connection of 8 sockets. Colours of strips: **ZGGZ80-1** grey, **ZGGZ80-2** black.

Ordering codes



Examples of ordering codes:

PI84-012DC-00LD

interface relay **PI84**, which consists of: relay **RM84** with coil 12 V DC, grey plug-in socket **GZM80** (screw terminals), signalling / protecting module **M41G** (version **LD**: L - LED green, D - diode, polarization N: +A1/-A2), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**

PI84-230AC-00LV

interface relay **PI84**, which consists of: relay **RM84** with coil 24 V AC 50/60 Hz, grey plug-in socket **GZM80** (screw terminals), signalling / protecting module **M91G** (version **LV**: L - LED green, V - varistor), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**

PI85 with socket GZM80 interface relays

RM85 + GZM80



- Interface relay **PI85 with socket GZM80** consists of:
electromagnetic relay **RM85**, grey plug-in socket **GZM80**, signalling / protecting module: version **LD** - M41G or M43G (L - LED green, D - diode, polarization N: +A1/-A2); version **LV** - M91G or M93G (L - LED green, V - varistor), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**
- 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw
- May be linked with interconnection strip type **ZGGZ80**
- Recognitions, certifications, directives: recognitions RM85, RoHS,

Contact data

Number and type of contacts		1 CO
Contact material		AgNi
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V
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
Max. inrush current		30 A
Rated current		16 A
Max. breaking capacity	AC1	4 000 VA
Min. breaking capacity		0,3 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	50/60 Hz AC DC	12 ... 230 V 12 ... 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		300 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		
• resistive AC1		> 0,7 x 10 ⁵ 16 A, 250 V AC
• cosφ		see Fig. 2
• DC 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)		78,1 x 15,9 x 66,5 mm
Weight		59 g
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 20 PN-EN 60529
Environmental protection		RM85: RTII GZM80: RT0 PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz

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)
012DC	12	360	$\pm 10\%$	8,4	30,6
024DC	24	1 440	$\pm 10\%$	16,8	61,2
110DC	110	25 200	$\pm 10\%$	77,0	280,0

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

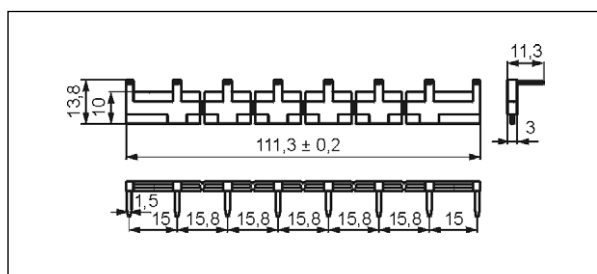
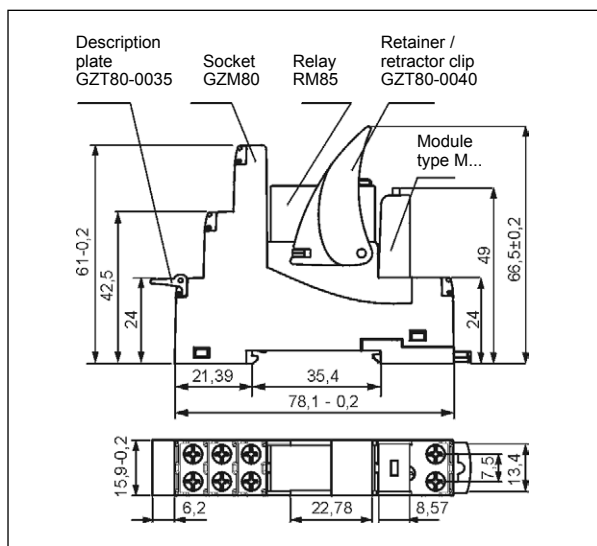
Coil data - AC 50/60 Hz voltage version

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)
012AC	12	100	$\pm 10\%$	9,6	13,2
024AC	24	400	$\pm 10\%$	19,2	26,4
120AC	120	10 200	$\pm 10\%$	96,0	144,0
230AC	230	38 500	$\pm 10\%$	184,0	253,0

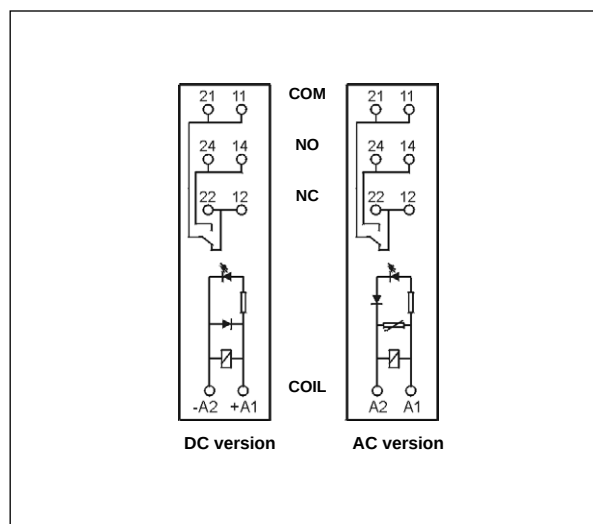
The data in bold type pertain to the standard versions of the relays.

Dimensions

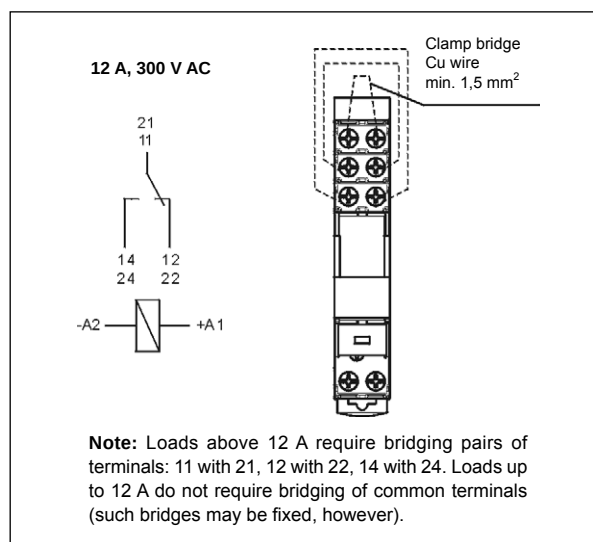


Interconnection strip type ZGGZ80

Connection diagrams (screw terminals side view)

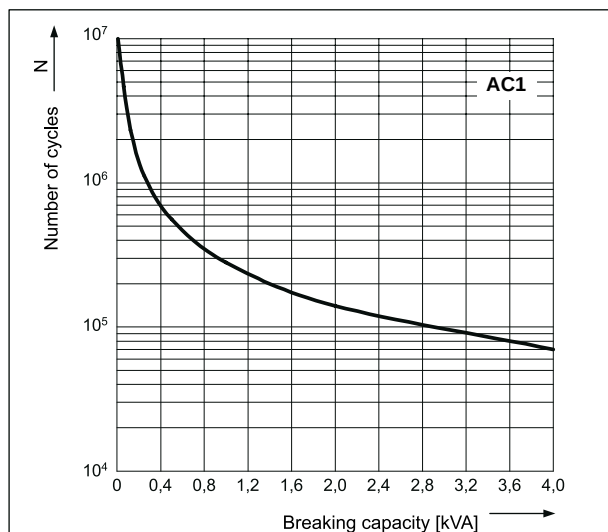


Connection of GZM80



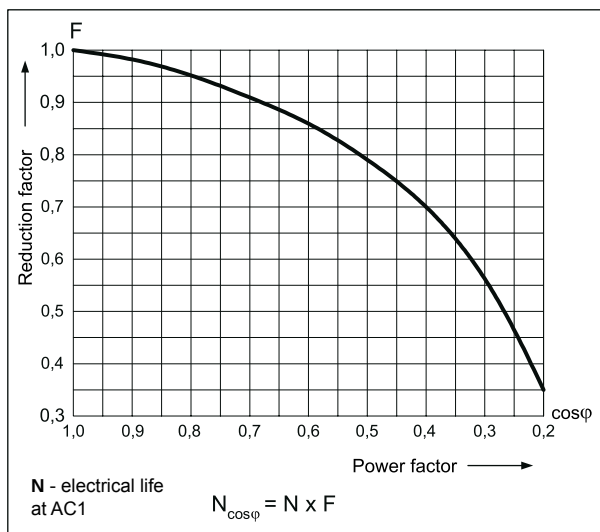
**Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour**

Fig. 1



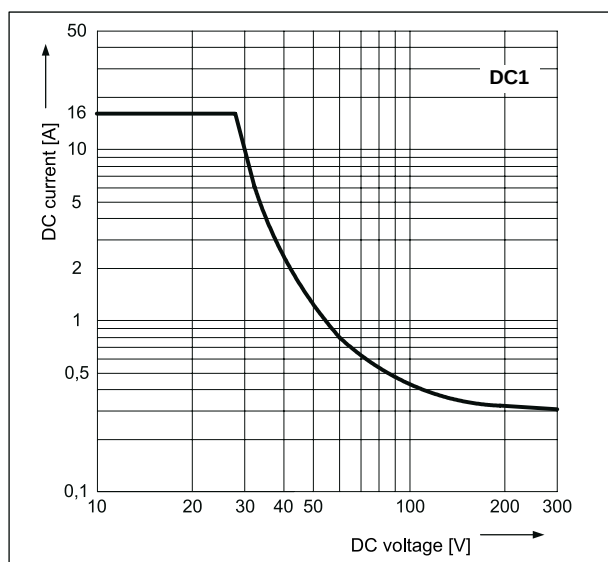
**Electrical life reduction factor
at AC inductive load**

Fig. 2



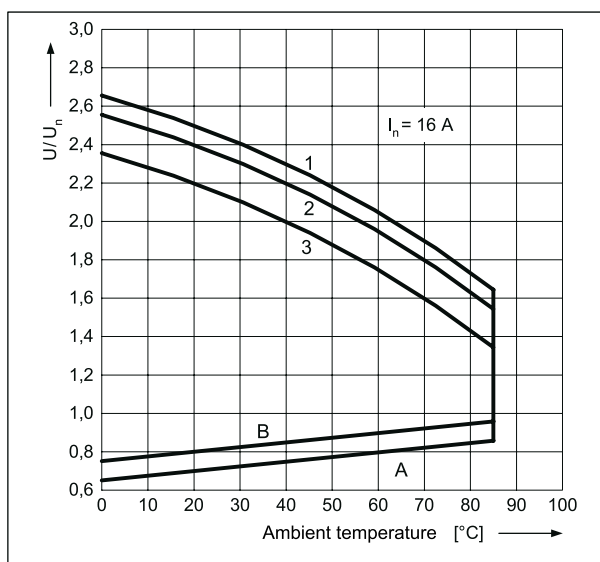
Max. DC resistive load breaking capacity

Fig. 3



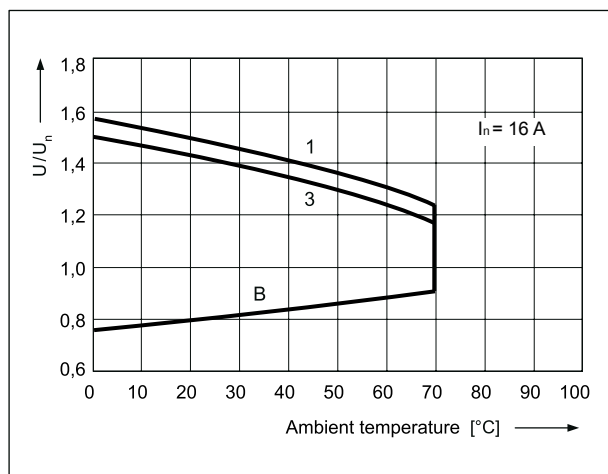
Coil operating range - DC

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:

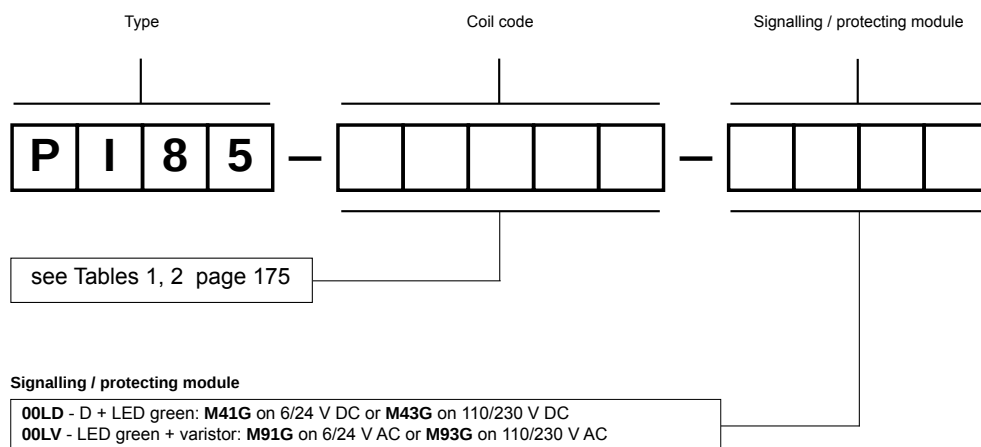
- 1** - no load
- 2** - 50% of rated load
- 3** - rated load

Mounting

Relays **PI85 with socket GZM80** ① are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw. **Connections:** max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,7 Nm.

① Plug-in sockets **GZM80** may be linked with interconnection strip type **ZGGZ80**. Strip **ZGGZ80** bridges common input signals, maximum permissible current is 10 A / 250 V AC. Possibility of connection of 8 sockets. Colours of strips: **ZGGZ80-1** grey, **ZGGZ80-2** black.

Ordering codes



Examples of ordering codes:

PI85-012DC-00LD

interface relay **PI85**, which consists of: relay **RM85** with coil 12 V DC, grey plug-in socket **GZM80** (screw terminals), signalling / protecting module **M41G** (version **LD**: L - LED green, D - diode, polarization N: +A1/-A2), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**

PI85-230AC-00LV

interface relay **PI85**, which consists of: relay **RM85** with coil 24 V AC 50/60 Hz, grey plug-in socket **GZM80** (screw terminals), signalling / protecting module **M91G** (version **LV**: L - LED green, V - varistor), retainer / retractor clip **GZT80-0040** (plastic), white description plate **GZT80-0035**

PIR2 with socket GZM2 interface relays



R2 + GZM2

- Interface relay **PIR2 with socket GZM2** consists of:
electromagnetic relay **R2**, grey plug-in socket **GZM2**, signalling / protecting module: version **LD** - M41G or M42G or M43G (L - LED green, D - diode, polarization N: +A1/-A2); version **LV** - M91G or M92G or M93G (L - LED green, V - varistor), retainer / retractor clip **GZT4-0040** (plastic), white description plate **GZT4-0035**
- 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws
- May be linked with interconnection strip type **ZGGZ4** • Recognitions, certifications, directives: recognitions R2, RoHS, AUCOTEAM GmbH Berlin - railway standards,

Contact data

Number and type of contacts		2 CO	CE
Contact material		AgNi	
Rated / max. switching voltage	AC	250 V / 440 V	
Min. switching voltage		5 V	
Rated load (capacity)	AC1 AC15 AC3 DC1 DC13	12 A / 250 V AC 3 A / 120 V 1,5 A / 240 V (B300) 370 W (single-phase motor) 12 A / 24 V DC (see Fig. 3) 0,22 A / 120 V 0,1 A / 250 V (R300)	
Min. switching current		5 mA	
Max. inrush current		24 A	
Rated current		12 A	
Max. breaking capacity	AC1	3 000 VA	
Min. breaking capacity		0,3 W	
Contact resistance		≤ 100 mΩ	
Max. operating frequency			
• at rated load	AC1	1 200 cycles/hour	
• no load		18 000 cycles/hour	
Coil data			
Rated voltage	50/60 Hz AC DC	12 ... 230 V 12 ... 110 V	
Must release voltage		AC: ≥ 0,2 U _n DC: ≥ 0,1 U _n	
Operating range of supply voltage		see Tables 1,2	
Rated power consumption	AC DC	50 Hz: 1,6 VA 60 Hz: 1,3 VA 0,9 W	
Insulation according to PN-EN 60664-1			
Insulation rated voltage		250 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		2 500 V AC	type of insulation: basic
• contact clearance		1 500 V AC	type of clearance: micro-disconnection
• pole - pole		2 500 V AC	type of insulation: basic
Contact - coil distance			
• clearance		≥ 2,5 mm	
• creepage		≥ 4 mm	
General data			
Operating / release time (typical values)		AC: 10 ms / 8 ms DC: 13 ms / 3 ms	
Electrical life			
• resistive AC1		> 10 ⁵ 12 A, 250 V AC	
• cosφ		see Fig. 2	
Mechanical life (cycles)		> 2 x 10 ⁷	
Dimensions (L x W x H)		75 x 27 x 82 mm	
Weight		97 g	
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+55 °C DC: -40...+70 °C	
Cover protection category		IP 20 PN-EN 60529	
Environmental protection		R2: RTI GZM2: RT0 PN-EN 116000-3	
Shock resistance	(NO/NC)	10 g / 5 g	
Vibration resistance		5 g 10...150 Hz	

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 55 °C)
012DC	12	160	$\pm 10\%$	9,6	13,2
024DC	24	640	$\pm 10\%$	19,2	26,4
048DC	48	2 600	$\pm 10\%$	38,4	52,8
110DC	110	13 600	$\pm 10\%$	88,0	121,0

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

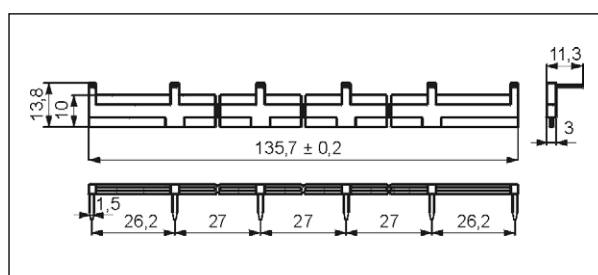
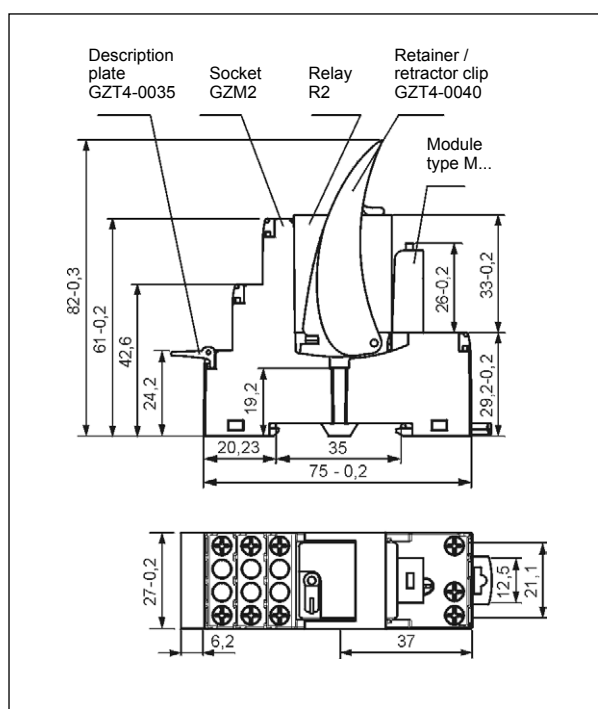
Coil data - AC 50/60 Hz voltage version

Table 2

Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
012AC	12	39,5	$\pm 10\%$	9,6	13,2
024AC	24	158	$\pm 10\%$	19,2	26,4
048AC	48	640	$\pm 10\%$	38,4	52,8
120AC	120	3 770	$\pm 10\%$	96,0	132,0
230AC	230	16 100	$\pm 10\%$	184,0	253,0

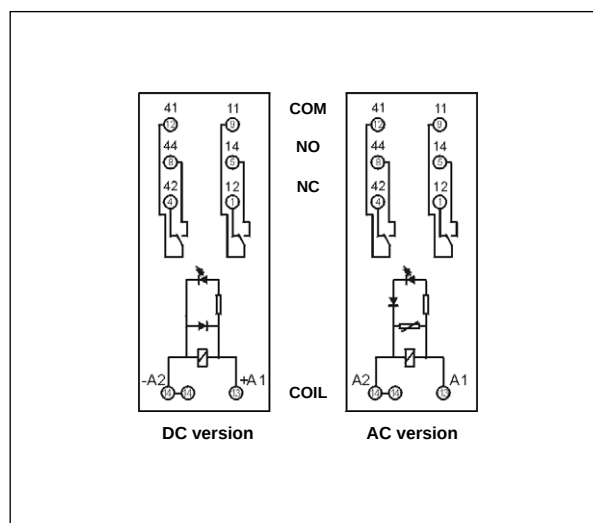
The data in bold type pertain to the standard versions of the relays.

Dimensions



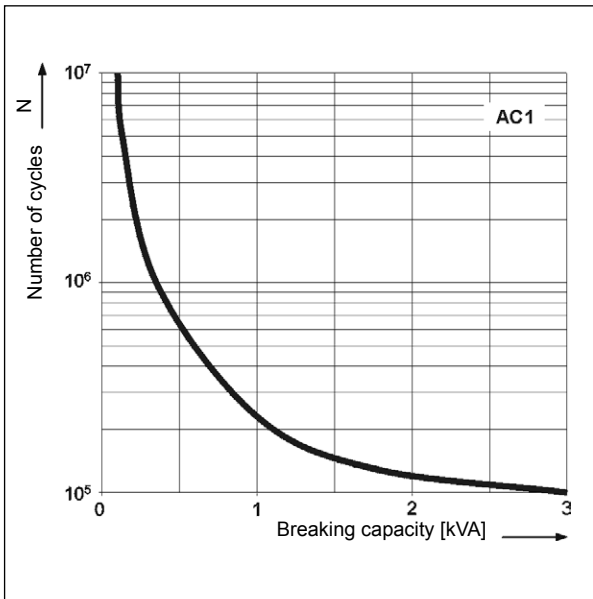
Interconnection strip type **ZGGZ4**

Connection diagrams (screw terminals side view)



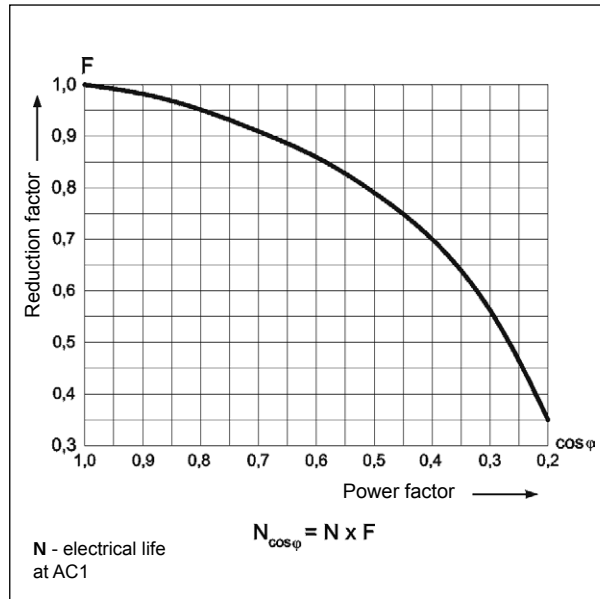
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1



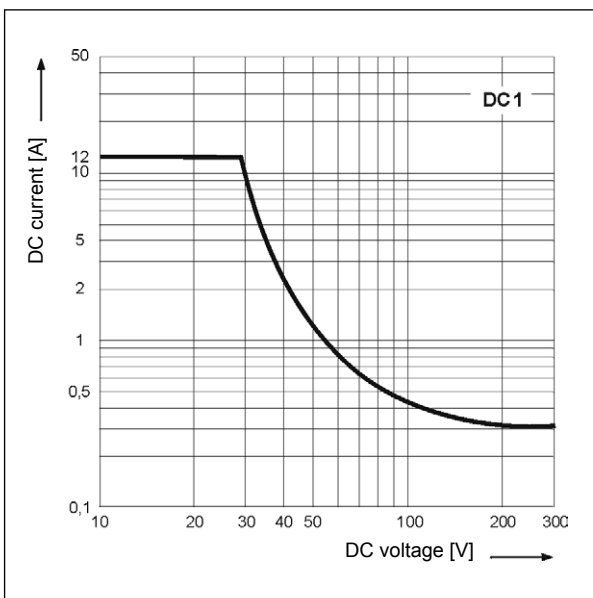
Electrical life reduction factor at AC inductive load

Fig. 2



Max. DC resistive load breaking capacity

Fig. 3

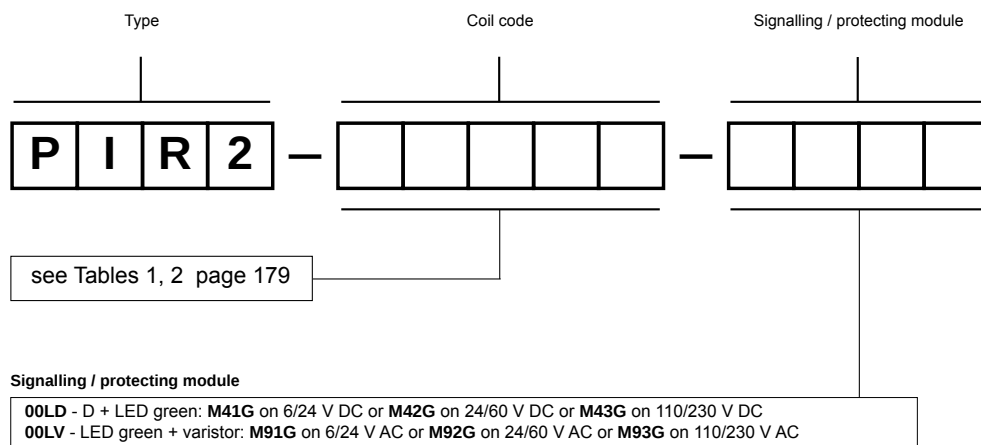


Mounting

Relays **PIR2 with socket GZM2** ① are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. **Connections:** max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,7 Nm.

① Plug-in sockets **GZM2** may be linked with interconnection strip type **ZGGZ4**. Strip **ZGGZ4** bridges common input signals, maximum permissible current is 10 A / 250 V AC. Possibility of connection of 6 sockets. Colours of strips: **ZGGZ4-1** grey, **ZGGZ4-2** black.

Ordering codes



Examples of ordering codes:

PIR2-012DC-00LD

interface relay **PIR2**, which consists of: relay **R2** with coil 12 V DC, grey plug-in socket **GZM2** (screw terminals), signalling / protecting module **M41G** (version **LD**: L - LED green, D - diode, polarization N: +A1/-A2), retainer / retractor clip **GZT4-0040** (plastic), white description plate **GZT4-0035**

PIR2-230AC-00LV

interface relay **PIR2**, which consists of: relay **R2** with coil 230 V AC 50/60 Hz, grey plug-in socket **GZM2** (screw terminals), signalling / protecting module **M93G** (version **LV**: L - LED green, V - varistor), retainer / retractor clip **GZT4-0040** (plastic), white description plate **GZT4-0035**

PIR3 with socket GZM3 interface relays



R3 + GZM3

- Interface relay **PIR3 with socket GZM3** consists of:
electromagnetic relay **R3**, grey plug-in socket **GZM3**, signalling / protecting module: version **LD** - M41G or M42G or M43G (L - LED green, D - diode, polarization N: +A1/-A2); version **LV** - M91G or M92G or M93G (L - LED green, V - varistor), retainer / retractor clip **GZT4-0040** (plastic), white description plate **GZT4-0035**
- 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws
- May be linked with interconnection strip type **ZGGZ4** • Recognitions, certifications, directives: recognitions R3, RoHS, AUCOTEAM GmbH Berlin - railway standards,

Contact data

Number and type of contacts		3 CO	CE
Contact material		AgNi	
Rated / max. switching voltage	AC	250 V / 440 V	
Min. switching voltage		5 V	
Rated load (capacity)	AC1	10 A / 250 V AC	
	AC15	3 A / 120 V 1,5 A / 240 V (B300)	
	AC3	370 W (single-phase motor)	
	DC1	10 A / 24 V DC (see Fig. 3)	
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)	
Min. switching current		5 mA	
Max. inrush current		20 A	
Rated current		10 A	
Max. breaking capacity	AC1	2 500 VA	
Min. breaking capacity		0,3 W	
Contact resistance		≤ 100 mΩ	
Max. operating frequency			
• at rated load	AC1	1 200 cycles/hour	
• no load		18 000 cycles/hour	

Coil data

Rated voltage	50/60 Hz AC	12 ... 230 V	
	DC	12 ... 110 V	
Must release voltage		AC: ≥ 0,2 U _n DC: ≥ 0,1 U _n	
Operating range of supply voltage		see Tables 1,2	
Rated power consumption	AC	50 Hz: 1,6 VA 60 Hz: 1,3 VA	
	DC	0,9 W	

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 V AC	
Rated surge voltage		with AC coils: 2 500 V 1,2 / 50 μs with DC coils: 4 000 V 1,2 / 50 μs	
Overvoltage category		III	
Insulation pollution degree		3	
Dielectric strength			
• between coil and contacts		2 500 V AC	type of insulation: basic
• contact clearance		1 500 V AC	type of clearance: micro-disconnection
• pole - pole		2 500 V AC	type of insulation: basic
Contact - coil distance			
• clearance		≥ 2,5 mm	
• creepage		≥ 4 mm	

General data

Operating / release time (typical values)		AC: 10 ms / 8 ms DC: 13 ms / 3 ms	
Electrical life			
• resistive AC1		> 10 ⁵ 10 A, 250 V AC	
• cosφ		see Fig. 2	
Mechanical life (cycles)		> 2 x 10 ⁷	
Dimensions (L x W x H)		75 x 27 x 82 mm	
Weight		107 g	
Ambient temperature	• storage	-40...+85 °C	
	• operating	AC: -40...+55 °C DC: -40...+70 °C	
Cover protection category		IP 20 PN-EN 60529	
Environmental protection		R3: RTI GZM3: RT0 PN-EN 116000-3	
Shock resistance	(NO/NC)	10 g / 5 g	
Vibration resistance		5 g 10...150 Hz	

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 55 °C)
012DC	12	160	$\pm 10\%$	9,6	13,2
024DC	24	640	$\pm 10\%$	19,2	26,4
048DC	48	2 600	$\pm 10\%$	38,4	52,8
110DC	110	13 600	$\pm 10\%$	88,0	121,0

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

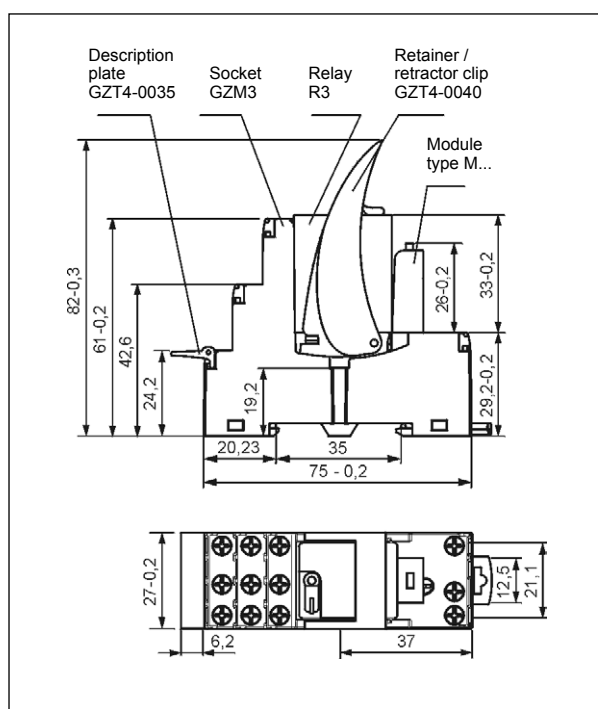
Coil data - AC 50/60 Hz voltage version

Table 2

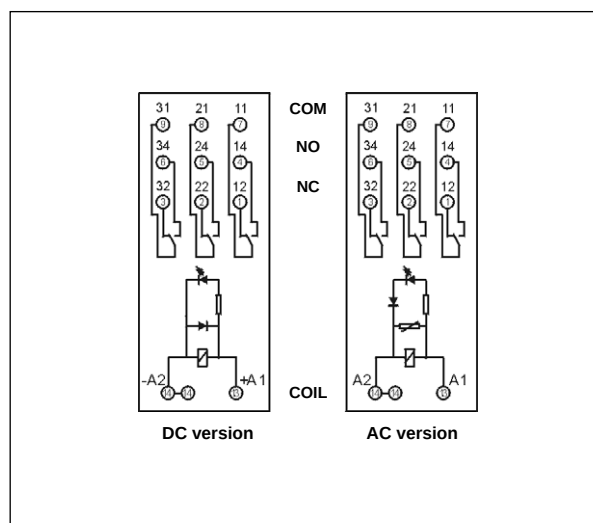
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
012AC	12	39,5	$\pm 10\%$	9,6	13,2
024AC	24	158	$\pm 10\%$	19,2	26,4
048AC	48	640	$\pm 10\%$	38,4	52,8
120AC	120	3 770	$\pm 10\%$	96,0	132,0
230AC	230	16 100	$\pm 10\%$	184,0	253,0

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

Dimensions



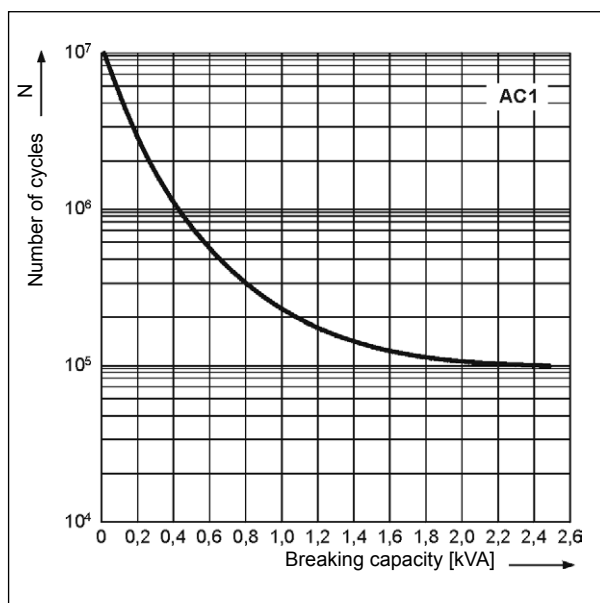
Connection diagrams (screw terminals side view)



Interconnection strip type **ZGGZ4**

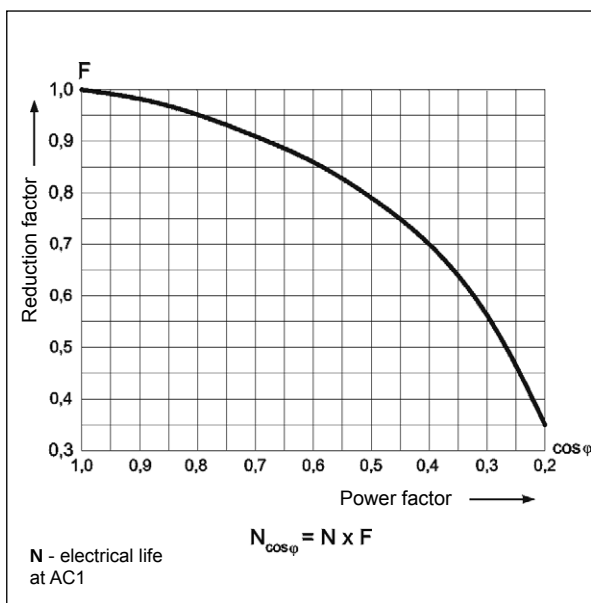
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1



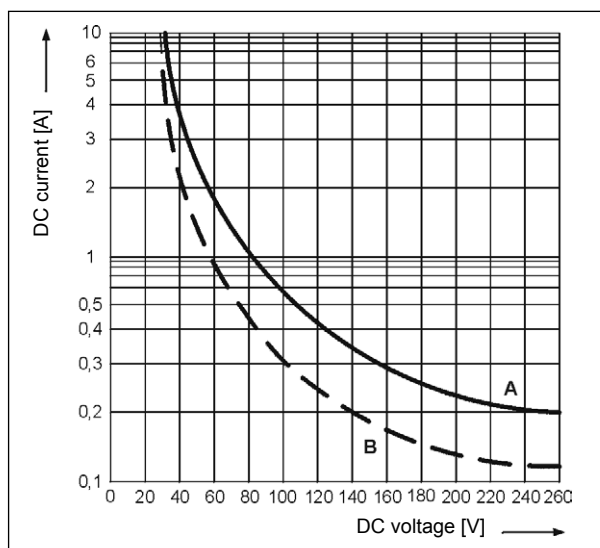
Electrical life reduction factor at AC inductive load

Fig. 2



Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms

Fig. 3

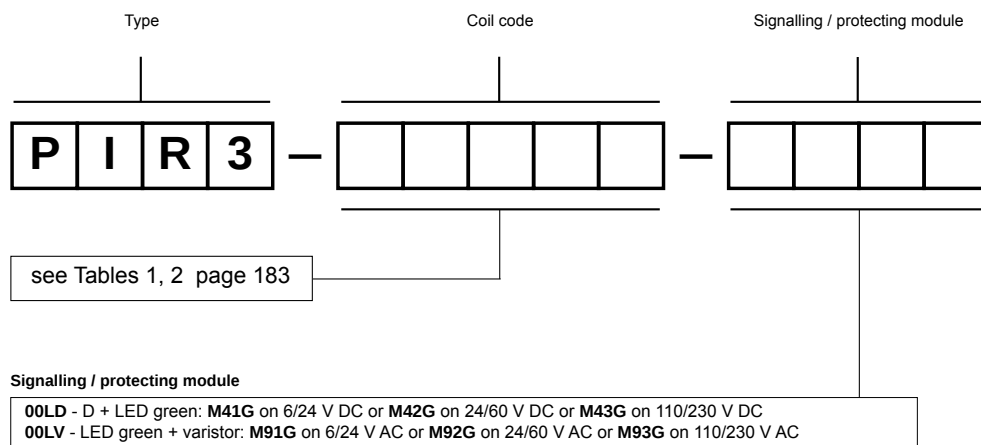


Mounting

Relays **PIR3 with socket GZM3** ① are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. **Connections:** max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,7 Nm.

① Plug-in sockets **GZM3** may be linked with interconnection strip type **ZGGZ4**. Strip **ZGGZ4** bridges common input signals, maximum permissible current is 10 A / 250 V AC. Possibility of connection of 6 sockets. Colours of strips: **ZGGZ4-1** grey, **ZGGZ4-2** black.

Ordering codes



Examples of ordering codes:

PIR3-012DC-00LD

interface relay **PIR3**, which consists of: relay **R3** with coil 12 V DC, grey plug-in socket **GZM3** (screw terminals), signalling / protecting module **M41G** (version **LD**: L - LED green, D - diode, polarization N: +A1/-A2), retainer / retractor clip **GZT4-0040** (plastic), white description plate **GZT4-0035**

PIR3-230AC-00LV

interface relay **PIR3**, which consists of: relay **R3** with coil 230 V AC 50/60 Hz, grey plug-in socket **GZM3** (screw terminals), signalling / protecting module **M93G** (version **LV**: L - LED green, V - varistor), retainer / retractor clip **GZT4-0040** (plastic), white description plate **GZT4-0035**

PIR4 with socket GZM4 interface relays



R4 + GZM4

- Interface relay **PIR4 with socket GZM4** consists of:
electromagnetic relay **R4**, grey plug-in socket **GZM4**, signalling / protecting module: version **LD** - M41G or M42G or M43G (L - LED green, D - diode, polarization N: +A1/-A2); version **LV** - M91G or M92G or M93G (L - LED green, V - varistor), retainer / retractor clip **GZT4-0040** (plastic), white description plate **GZT4-0035**
- 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws
- May be linked with interconnection strip type **ZGGZ4** • Recognitions, certifications, directives: recognitions R4, RoHS, AUCOTEAM GmbH Berlin - railway standards,

Contact data

Number and type of contacts		4 CO	CE
Contact material		AgNi	
Rated / max. switching voltage	AC	250 V / 250 V	
Min. switching voltage		5 V	
Rated load (capacity)	AC1 AC15 AC3 DC1 DC13	6 A / 250 V AC 1,5 A / 120 V 0,75 A / 240 V (C300) 125 W (single-phase motor) 6 A / 24 V DC (see Fig. 3) 0,22 A / 120 V 0,1 A / 250 V (R300)	
Min. switching current		5 mA	
Max. inrush current		12 A	
Rated current		6 A	
Max. breaking capacity	AC1	1 500 VA	
Min. breaking capacity		0,3 W	
Contact resistance		≤ 100 mΩ	
Max. operating frequency			
• at rated load	AC1	1 200 cycles/hour	
• no load		18 000 cycles/hour	
Coil data			
Rated voltage	50/60 Hz AC DC	12 ... 230 V 12 ... 110 V	
Must release voltage		AC: ≥ 0,2 U _n DC: ≥ 0,1 U _n	
Operating range of supply voltage		see Tables 1,2	
Rated power consumption	AC DC	50 Hz: 1,6 VA 60 Hz: 1,3 VA 0,9 W	
Insulation according to PN-EN 60664-1			
Insulation rated voltage		250 V AC	
Rated surge voltage		2 500 V 1,2 / 50 μs	
Overvoltage category		II	
Insulation pollution degree		2	
Dielectric strength			
• between coil and contacts		2 500 V AC	type of insulation: basic
• contact clearance		1 500 V AC	type of clearance: micro-disconnection
• pole - pole		2 000 V AC	type of insulation: basic
Contact - coil distance			
• clearance		≥ 1,6 mm	
• creepage		≥ 3,2 mm	
General data			
Operating / release time (typical values)		AC: 10 ms / 8 ms DC: 13 ms / 3 ms	
Electrical life			
• resistive AC1		> 10 ⁵ 6 A, 250 V AC	
• cosφ		see Fig. 2	
Mechanical life (cycles)		> 2 x 10 ⁷	
Dimensions (L x W x H)		75 x 27 x 82 mm	
Weight		108 g	
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+55 °C DC: -40...+70 °C	
Cover protection category		IP 20 PN-EN 60529	
Environmental protection		R4: RTI GZM4: RT0 PN-EN 116000-3	
Shock resistance	(NO/NC)	10 g / 5 g	
Vibration resistance		5 g 10...150 Hz	

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 55 °C)
012DC	12	160	$\pm 10\%$	9,6	13,2
024DC	24	640	$\pm 10\%$	19,2	26,4
048DC	48	2 600	$\pm 10\%$	38,4	52,8
110DC	110	13 600	$\pm 10\%$	88,0	121,0

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

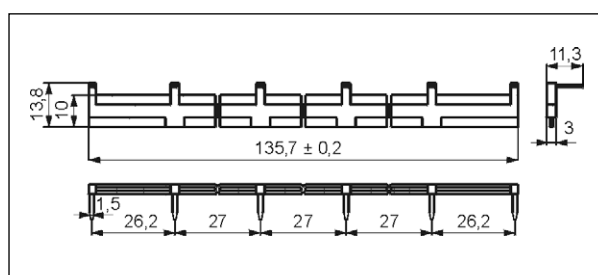
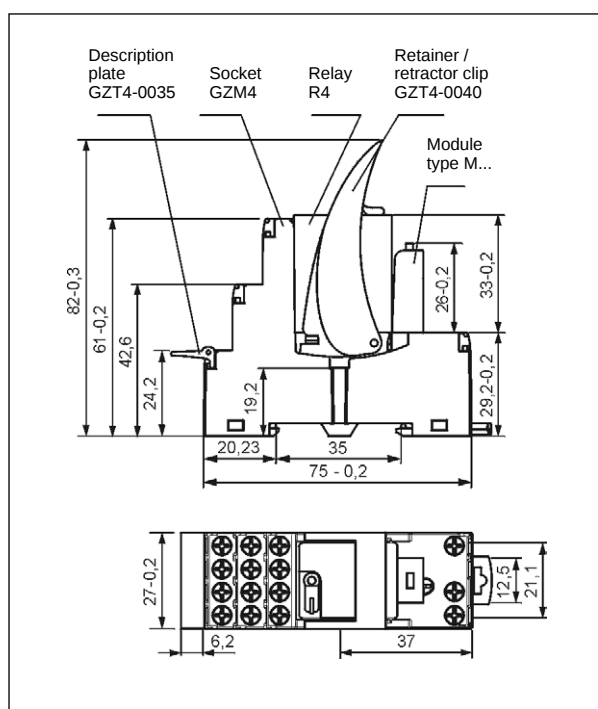
Coil data - AC 50/60 Hz voltage version

Table 2

Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
012AC	12	39,5	$\pm 10\%$	9,6	13,2
024AC	24	158	$\pm 10\%$	19,2	26,4
048AC	48	640	$\pm 10\%$	38,4	52,8
120AC	120	3 770	$\pm 10\%$	96,0	132,0
230AC	230	16 100	$\pm 10\%$	184,0	253,0

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

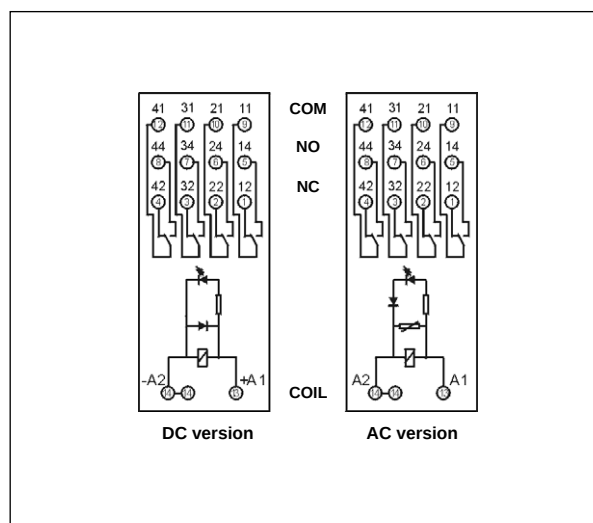
Dimensions



Interconnection strip type **ZGGZ4**

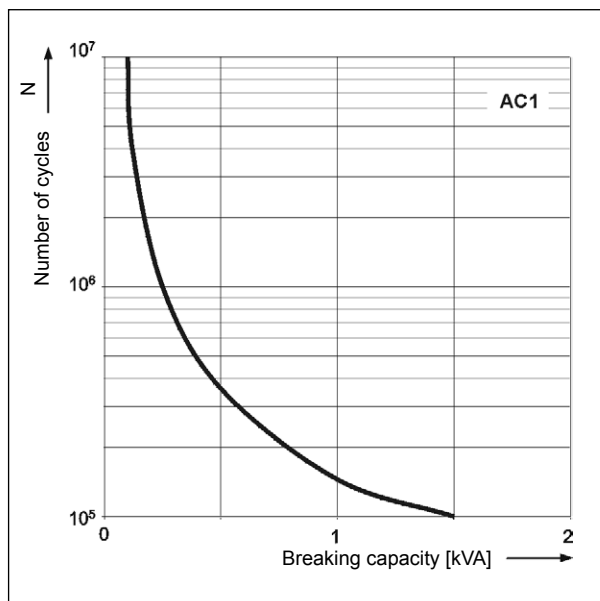
Connection diagrams

(screw terminals side view)



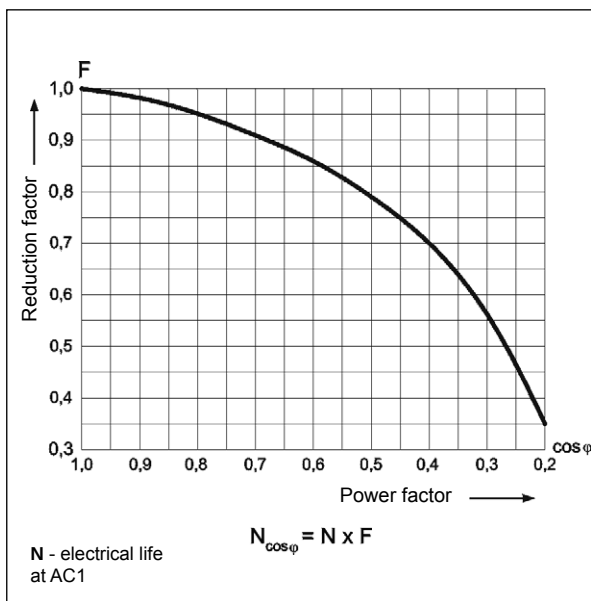
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1



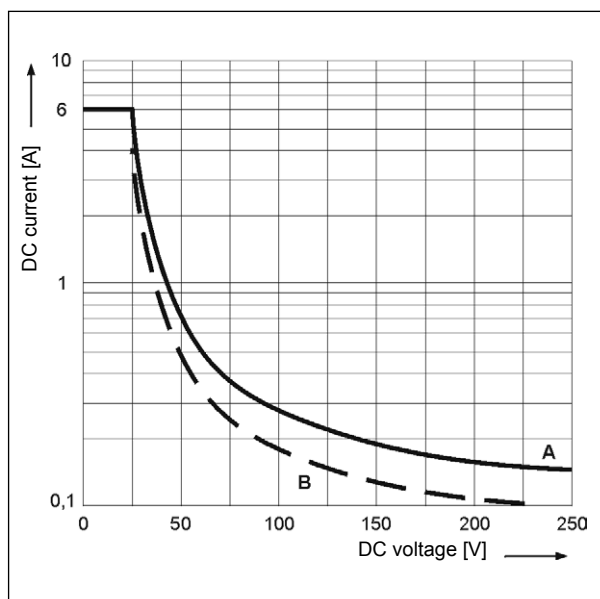
Electrical life reduction factor at AC inductive load

Fig. 2



Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms

Fig. 3

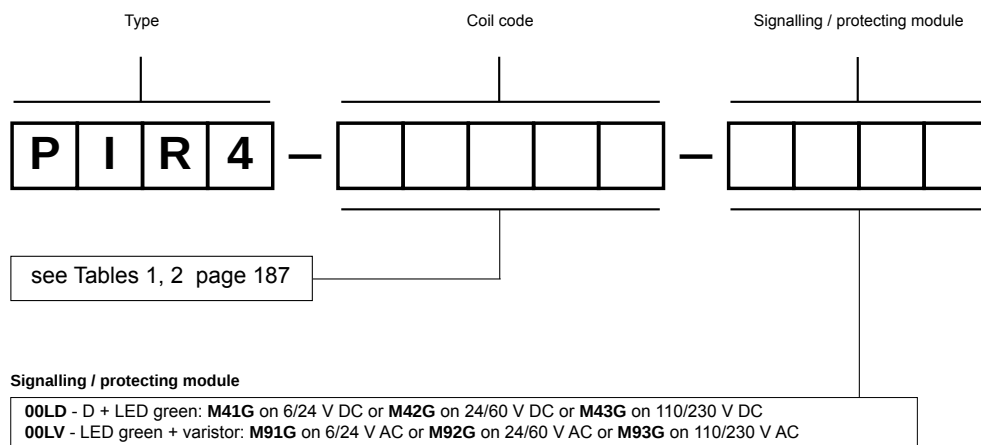


Mounting

Relays **PIR4 with socket GZM4** ① are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. **Connections:** max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,7 Nm.

① Plug-in sockets **GZM4** may be linked with interconnection strip type **ZGGZ4**. Strip **ZGGZ4** bridges common input signals, maximum permissible current is 10 A / 250 V AC. Possibility of connection of 6 sockets. Colours of strips: **ZGGZ4-1** grey, **ZGGZ4-2** black.

Ordering codes



Examples of ordering codes:

PIR4-012DC-00LD

interface relay **PIR4**, which consists of: relay **R4** with coil 12 V DC, grey plug-in socket **GZM4** (screw terminals), signalling / protecting module **M41G** (version **LD**: L - LED green, D - diode, polarization N: +A1/-A2), retainer / retractor clip **GZT4-0040** (plastic), white description plate **GZT4-0035**

PIR4-230AC-00LV

interface relay **PIR4**, which consists of: relay **R4** with coil 230 V AC 50/60 Hz, grey plug-in socket **GZM4** (screw terminals), signalling / protecting module **M93G** (version **LV**: L - LED green, V - varistor), retainer / retractor clip **GZT4-0040** (plastic), white description plate **GZT4-0035**

PIR2M with socket GZ2 interface relays

R2M + GZ2



- Interface relay **PIR2M with socket GZ2** consists of: electromagnetic relay **R2M**, black plug-in socket **GZ2**, spring wire clip **GZ2 1060**, two spring clamps **GZ2 1111**
- 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws
- Recognitions, certifications, directives: recognitions R2M, RoHS,

Contact data

Number and type of contacts		2 CO
Contact material		AgNi
Rated / max. switching voltage	AC	250 V / 250 V
Min. switching voltage		5 V
Rated load (capacity)	AC1 DC1	5 A / 250 V AC 5 A / 24 V DC (see Fig. 3)
Min. switching current		5 mA
Rated current		5 A
Max. breaking capacity	AC1	1 250 VA
Min. breaking capacity		0,3 W
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	1 200 cycles/hour
• no load		36 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC DC	6 ... 230 V 6 ... 110 V
Must release voltage		≥ 0,05 U _n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC DC	1,2 VA 0,9 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 V AC
Rated surge voltage		2 500 V 1,2 / 50 μs
Overvoltage category		II
Insulation pollution degree		3
Dielectric strength		
• between coil and contacts	2 000 V AC	type of insulation: basic
• contact clearance	1 000 V AC	type of clearance: micro-disconnection
• pole - pole	2 000 V AC	type of insulation: basic
Contact - coil distance		
• clearance		≥ 3 mm
• creepage		≥ 4 mm

General data

Operating / release time (typical values)		AC: 8 ms / 7 ms	DC: 10 ms / 3 ms
Electrical life			
• resistive AC1		≥ 2 x 10 ⁵	5 A, 250 V AC
• cosφ		see Fig. 2	
Mechanical life (cycles)		≥ 10 ⁷	
Dimensions (L x W x H)		65,2 x 20 x 60,6 mm	
Weight		45 g	
Ambient temperature	• storage • operating	-40...+70 °C -40...+55 °C	
Cover protection category		IP 00	PN-EN 60529
Shock resistance		10 g	
Vibration resistance		5 g 10...150 Hz	

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 55 °C)
006DC	6	47	$\pm 10\%$	4,8	6,6
012DC	12	188	$\pm 10\%$	9,6	13,2
024DC	24	750	$\pm 10\%$	19,2	26,4
048DC	48	2 660	$\pm 10\%$	38,4	52,8
110DC	110	13 480	$\pm 10\%$	88,0	121,0

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

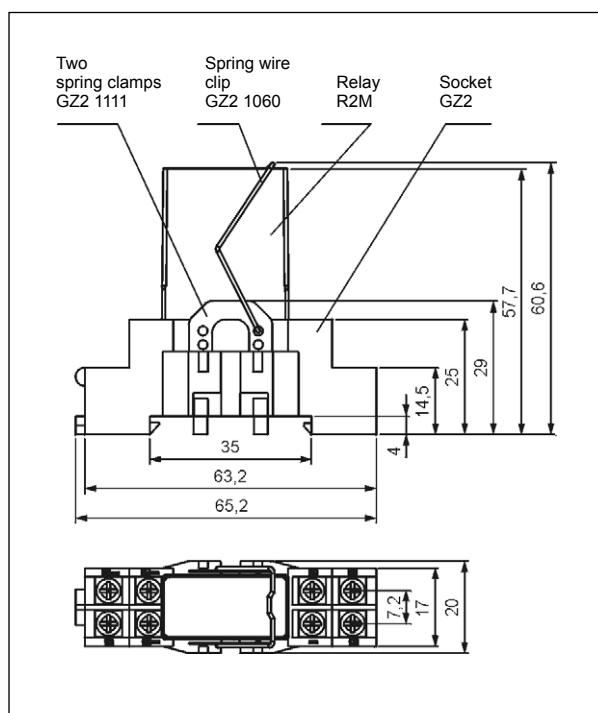
Coil data - AC 50/60 Hz voltage version

Table 2

Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
006AC	6	16	$\pm 10\%$	4,8	6,6
012AC	12	68	$\pm 10\%$	9,6	13,2
024AC	24	270	$\pm 10\%$	19,2	26,4
115AC	115	5 990	$\pm 10\%$	92,0	126,0
230AC	230	21 470	$\pm 10\%$	184,0	253,0

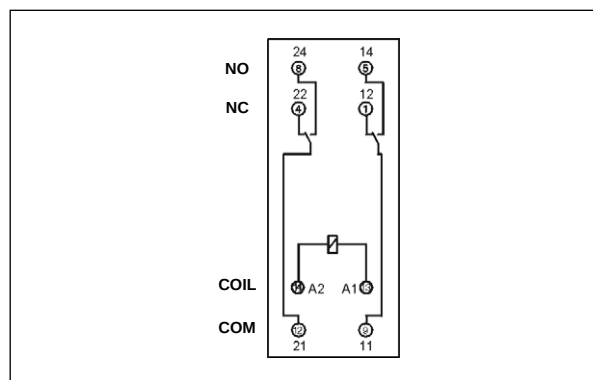
The data in bold type pertain to the standard versions of the relays.

Dimensions



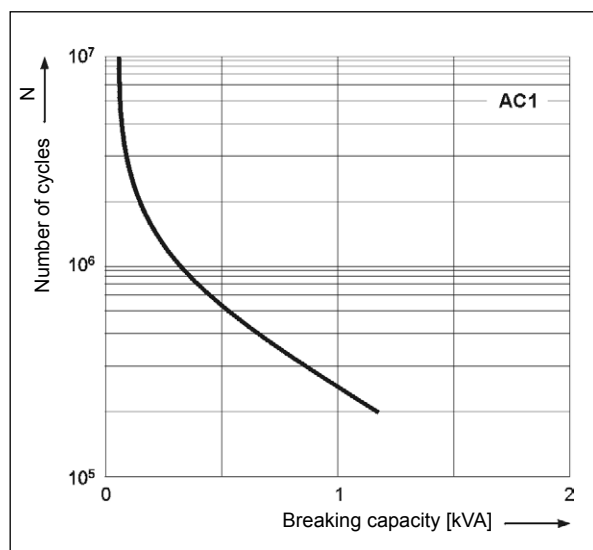
Connection diagrams

(screw terminals side view)



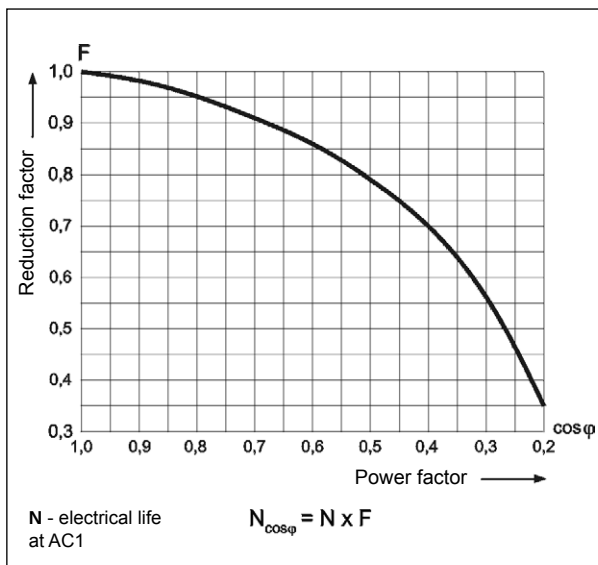
**Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour**

Fig. 1



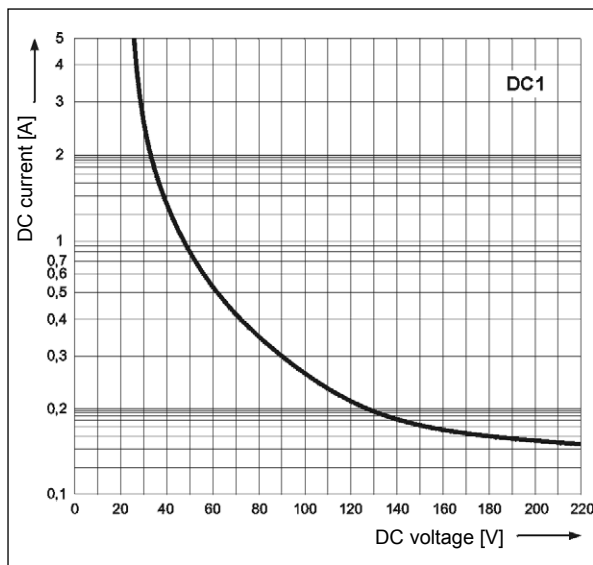
**Electrical life reduction factor
at AC inductive load**

Fig. 2



Max. DC resistive load breaking capacity

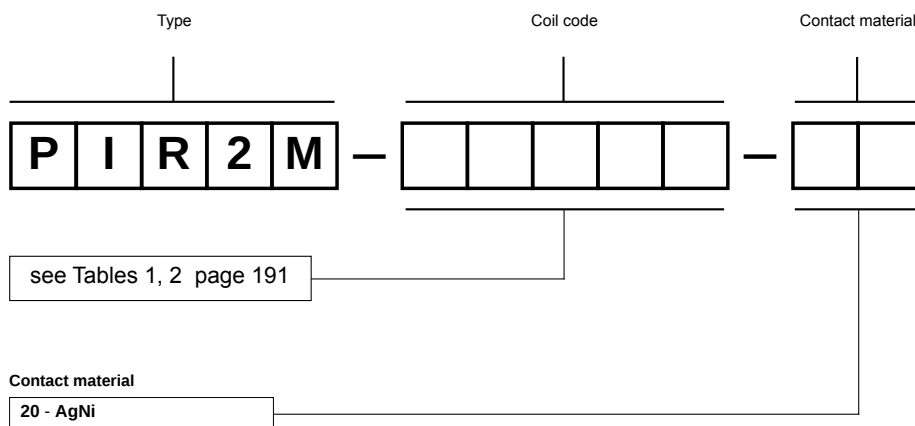
Fig. 3



Mounting

Relays **PIR2M with socket GZ2** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. **Connections:** max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,7 Nm.

Ordering codes



Examples of ordering codes:

PIR2M-012DC-20

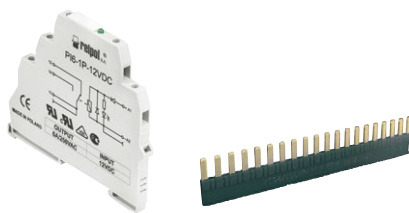
interface relay **PIR2M**, which consists of: relay **R2M** with coil 12 V DC (contact material AgNi), black socket **GZ2** (screw terminals), spring wire clip **GZ2 1060**, two spring clamps **GZ2 1111**

PIR2M-230AC-20

interface relay **PIR2M**, which consists of: relay **R2M** with coil 230 V AC 50/60 Hz (contact material AgNi), black socket **GZ2** (screw terminals), spring wire clip **GZ2 1060**, two spring clamps **GZ2 1111**

PI6-1P

interface relays



- Width 6,2 mm
- Interface relay **PI6-1P** - with 1 CO contact output
- 35 mm rail mount acc. to PN-EN 60715
- May be linked with interconnection strip type **ZG20**
- Equipped in LED green
- Version for long control lines, with anti-interference filter (**PI6-1P-230VAC/DC-10** ②)

• Recognitions, certifications, directives: : RoHS,

Contact data

Number and type of contacts		1 CO	
Contact material		AgSnO ₂	AgSnO ₂ /Au 3 μm ❶
Max. switching voltage		400 V AC / 250 V DC	30 V AC / 36 V DC ❶
Min. switching voltage	AC / DC	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; 0,15 A / 250 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	AC1	360 cycles/hour 72 000 cycles/hour	
• at rated load			
• no load			
Input circuit			
Rated voltage	DC	12 ... 36 V	
	AC: 50/60 Hz AC/DC	24 ... 230 V	
Must release voltage		AC: ≥ 0,2 U _n	AC: ≥ 0,35 U _n ❷ DC: ≥ 0,1 U _n
Operating range of supply voltage		see Table 1	
Must operate voltage		AC and DC: ≤ 0,8 U _n	AC: 0,6...0,85 U _n ❷ DC: ≤ 0,8 U _n ❷
Input polarization current		AC: 8 mA < I _p < 10 mA 230 V AC ❷	
Rated power consumption	DC	0,3 ... 0,7 W	
	AC/DC	0,3 ... 1,6 VA / 0,3 ... 1,6 W	
Max. length of control line		≤ 300 m	AC control voltage ❷
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	• input - output	4 000 V AC	50/60 Hz, 1 min., type of insulation: reinforced
	• input - output	6 000 V	1,2 / 50 μs
	• mass - input, output	2 500 V AC	50/60 Hz, 1 min.
	• contact clearance	1 000 V AC	50/60 Hz, 1 min., type of clearance: micro-disconnection
Input - output distance	≥ 6 mm / ≥ 8 mm		
• clearance / creepage			
General data			
Operating time (typical value)		AC: 7 ms	DC: 6 ms
Release time (typical value)		AC: 15 ms	DC: 10 ms
Electrical life	• resistive AC1	> 0,6 x 10 ⁵	6 A, 250 V AC
	• cos ϕ = 0,4	> 2 x 10 ⁵	2 A, 250 V AC
	• resistive DC1	10 ⁵	6 A, 30 V DC
Mechanical life (cycles)		> 2 x 10 ⁷	
Dimensions (L x W x H)		93,8 x 6,2 x 80 mm	
Weight		40 g	
Ambient temperature	• storage	-40...+70 °C	
	• operating	-40...+55 °C	-40...+60 °C 12, 24 V DC
		-40...+40 °C 230 V AC ❷	-40...+50 °C 230 V DC ❷
Protection category		IP 20	PN-EN 60529
Environmental protection		RTI	PN-EN 116000-3
Shock / vibration resistance		10 g / 5 g 10...500 Hz	

The data in bold type pertain to the standard versions of the relays. ① 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), and electrical life of these contacts may be shorter than of normal contacts. ② Refers version for long control lines (max. 300 m) **PI6-1P-230VAC/DC-10** - relay with integrated anti-interference filter (desigend on the basis of appropriately selected elements R and C, and Zener diode), resistant to occurrence of induced voltages in long distances of control wires.

Input data

Table 1

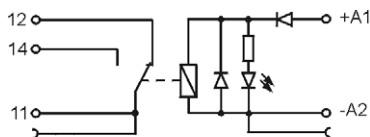
Interface relay code	Rated input voltage U_n	Power of input circuit	Input - voltage range V	
			min. (at 20 °C)	max. (at 55 °C)
PI6-1P-12VDC	12 V DC	0,3 W	9,6	14,4
PI6-1P-24VDC	24 V DC	0,4 W	19,2	28,0
PI6-1P-36VDC	36 V DC	0,7 W	28,8	40,0
PI6-1P-24VAC/DC	24 V AC/DC	0,5 VA / 0,5 W	19,2	26,4
PI6-1P-42VAC/DC	42 V AC/DC	0,3 VA / 0,3 W	33,6	50,0
PI6-1P-115VAC/DC	115 V AC/DC	0,8 VA / 0,8 W	92,0	130,0
PI6-1P-230VAC/DC	230 V AC/DC	0,8 VA / 0,8 W	184,0	253,0
PI6-1P-230VAC/DC-10 ②	230 V AC/DC	1,6 VA / 1,6 W	196,0	253,0
PI6-1P-12VDC-01 ①	12 V DC	0,3 W	9,6	14,4
PI6-1P-24VDC-01 ①	24 V DC	0,4 W	19,2	28,0
PI6-1P-36VDC-01 ①	36 V DC	0,7 W	28,8	40,0
PI6-1P-24VAC/DC-01 ①	24 V AC/DC	0,5 VA / 0,5 W	19,2	26,4
PI6-1P-230VAC/DC-01 ①	230 V AC/DC	0,8 VA / 0,8 W	184,0	253,0

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

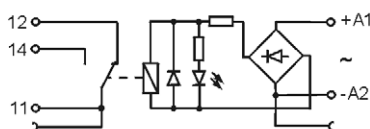
① Version with gold-plated contacts. ② Version for long control lines (max. 300 m), with anti-interference filter.

Connection diagrams

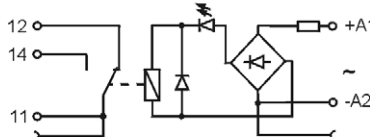
PI6-1P-12VDC, PI6-1P-12VDC-01
PI6-1P-24VDC, PI6-1P-24VDC-01
PI6-1P-36VDC, PI6-1P-36VDC-01



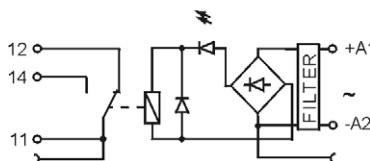
PI6-1P-24VAC/DC, PI6-1P-24VAC/DC-01
PI6-1P-42VAC/DC



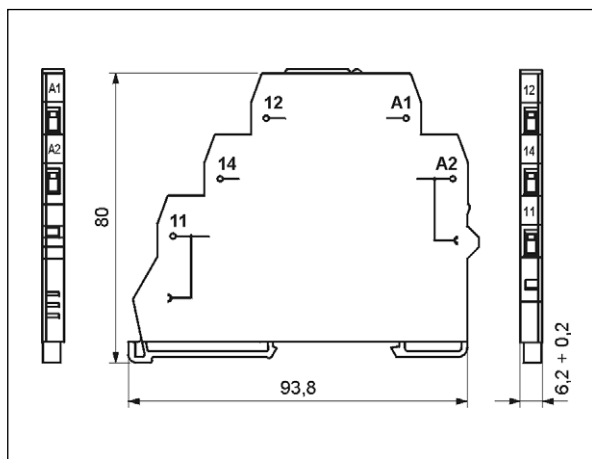
PI6-1P-115VAC/DC
PI6-1P-230VAC/DC, PI6-1P-230VAC/DC-01



PI6-1P-230VAC/DC-10



Dimensions



Mounting

Relays **PI6-1P** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 8 mm, max. tightening moment for the terminal: 0,3 Nm.

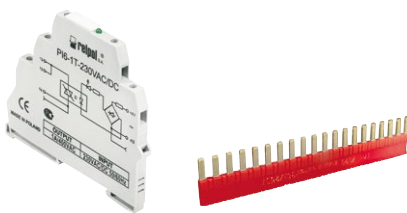
PI6-1P may be linked with interconnection strip type **ZG20**. Strip **ZG20** bridges common input or output signals, maximum permissible current is 36 A / 250 V AC. Colours of strips: **ZG20-1** red, **ZG20-2** black, **ZG20-3** blue (see page 196).

Ordering codes

Ordering codes **PI6-1P** are specified in Table 1, „Interface relay code” column.

PI6-1T

interface relays



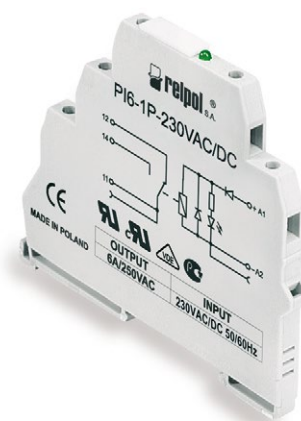
- Width 6,2 mm
- Interface relay **PI6-1T** - with triac output
- 35 mm rail mount acc. to PN-EN 60715
- May be linked with interconnection strip type **ZG20**
- Equipped in LED green
- Recognitions, certifications, directives: : RoHS,  

Output circuit - Triac

Number and type of outputs		1 NO
Rated / max. switching voltage	AC	400 V / 440 V
Min. switching voltage	AC	20 V
Rated load	AC1	1,2 A / 400 V AC
Min. switching current		10 mA
Max. non-repeat surge current		30 A $t=20$ ms
Rated current		1,2 A
I^2t for fusing		5,1 A ² s $t=1-10$ ms
dI/dt		50 A/ μ s
dV/dt		40 V/ μ s
Input circuit		
Rated voltage	DC	5...32 V
	AC: 50/60 Hz AC/DC	24 ... 230 V
Turn-off voltage		AC: $\geq 0,2 U_n$ DC: $\geq 0,1 U_n$
Rated power consumption	DC	0,3 W 5...32 V DC at 24 V
	AC/DC	0,3 VA / 0,3 W 24 V AC/DC
	AC/DC	1,6 VA / 1,6 W 230 V AC/DC
Insulation according to PN-EN 60664-1		
Insulation rated voltage		600 V AC
Insulation pollution degree		2
Dielectric strength	• input - output	4 000 V AC 50/60 Hz, 1 min., type of insulation: reinforced
General data		
Operating time		10 ms max. (zero turn-on)
Release time		10 ms max.
Dimensions (L x W x H)		93,8 x 6,2 x 80 mm
Weight		40 g
Ambient temperature	• storage	-40...+70 °C
	• operating	-40...+55 °C
Protection category		IP 20 PN-EN 60529
Environmental protection		RTI PN-EN 116000-3
Shock resistance		10 g
Vibration resistance		5 g 10...500 Hz

EUROPRODUCT 2003
for interface relays **PI6**

Gold medal
AUTOMATICON 2004
for interface relays **PI6**



PI6-1T

interface relays

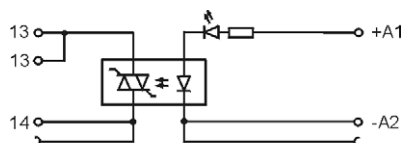
Input data

Table 1

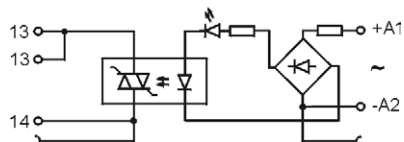
Interface relay code	Rated input voltage U_n	Power of input circuit
PI6-1T-5...32VDC	5...32 V DC	0,3 W at 24 V
PI6-1T-24VAC/DC	24 V AC/DC	0,3 VA / 0,3 W
PI6-1T-230VAC/DC	230 V AC/DC	1,6 VA / 1,6 W

Connection diagrams

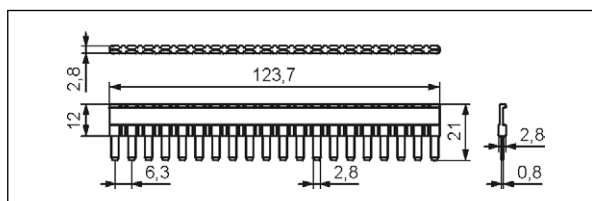
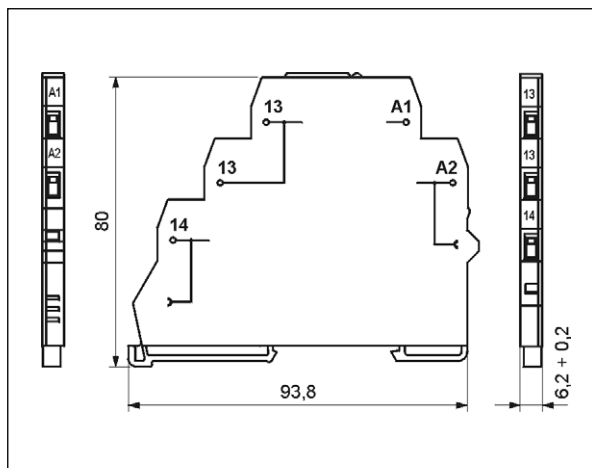
PI6-1T-5...32VDC



PI6-1T-24VAC/DC PI6-1T-230VAC/DC



Dimensions



Interconnection strip type ZG20

Ordering codes

Ordering codes **PI6-1T** are specified in Table 1, „Interface relay code” column.

Mounting

Relays **PI6-1T** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 8 mm, max. tightening moment for the terminal: 0,3 Nm.

PI6-1T may be linked with interconnection strip type **ZG20**. Strip **ZG20** bridges common input or output signals, maximum permissible current is 36 A / 250 V AC. Colours of strips: **ZG20-1** red, **ZG20-2** black, **ZG20-3** blue.



Interconnection strip ZG20:
bridging of common
input or output signals.



ZG20

PIR6W-1P-... interface relays

RM699BV + PI6W-1P-...



- Width 6,2 mm • Interface relay **PIR6W-1P-...** consists of: screw terminals socket, with electronic **PI6W-1P-...**, miniature operational relay - electro-magnetic **RM699BV** ❶
- 35 mm rail mount acc. to PN-EN 60715 • May be linked with interconnection strip type **ZG20** • Equipped in LED green • Version for long control lines, with anti-interference filter (**PIR6W-1P-230VAC/DC-10** ❷)
- Accessories: description plates **PI6W-1246**

• Recognitions, certifications, directives: RoHS,

Output circuit (RM699BV) - contact data ❶

Number and type of contacts	1 CO	
Contact material	AgSnO₂	AgSnO ₂ /Au 3 μm ❷
Max. switching voltage	400 V AC / 250 V DC	30 V AC / 36 V DC ❷
Min. switching voltage	10 V	5 V
Rated load	AC1 DC1	6 A / 250 V AC 6 A / 24 V DC; 0,15 A / 250 V DC
Min. switching current	100 mA	10 mA
Max. inrush current	10 A 20 ms	0,1 A 20 ms ❷
Rated current	6 A	0,05 A ❷
Max. breaking capacity	AC1	1 500 VA 1,2 VA ❷
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	AC1	360 cycles/hour 72 000 cycles/hour

Input circuit

Rated voltage	DC AC: 50/60 Hz AC/DC	12 ... 36 V 24 ... 230 V
Must release voltage	AC: ≥ 0,2 U _n	AC: ≥ 0,35 U _n ❸ DC: ≥ 0,1 U _n
Operating range of supply voltage	see Table 1	
Must operate voltage	AC and DC: ≤ 0,8 U _n	AC: 0,6...0,85 U _n ❸ DC: ≤ 0,8 U _n ❸
Rated power consumption	DC AC/DC	0,3 W 0,3 ... 2,1 VA / 0,3 ... 1,0 W
Max. length of control line	≤ 300 m	AC control voltage ❹

Insulation according to PN-EN 60664-1

Insulation rated voltage	250 V AC	
Rated surge voltage	4 000 V 1,2 / 50 μs	
Overtoltage category	III	
Insulation pollution degree	3	
Dielectric strength	• input - output • input - output • mass - input, output • contact clearance	4 000 V AC 50/60 Hz, 1 min., type of insulation: reinforced 6 000 V 1,2 / 50 μs 2 500 V AC 50/60 Hz, 1 min. 1 000 V AC 50/60 Hz, 1 min., type of clearance: micro-disconnection
Input - output distance • clearance / creepage	≥ 6 mm / ≥ 8 mm	

General data

Operating time (typical value)	AC: 11 ms DC: 8 ms AC/DC: 20 ms at U=0,85 U _n ❸
Release time (typical value)	AC: 15 ms DC: 10 ms AC/DC: 18 ms ❸
Electrical life	• resistive AC1 • cos φ = 0,4
Mechanical life (cycles)	> 2 x 10 ⁷
Dimensions (L x W x H) / Weight	98,5 x 6,2 x 85,5 mm / 45 g
Ambient temperature	• storage • operating
Protection category	IP 20 PN-EN 60529
Environmental protection	RTI PN-EN 116000-3
Shock resistance	10 g
Vibration resistance	5 g 10...500 Hz

The data in bold type pertain to the standard versions of the relays. ❶ Characteristics of the contact capacity of relays **PIR6W-1P-...** with **RM699BV** - see page 39. ❷ 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), and electrical life of these contacts may be shorter than of normal contacts. ❸ Refers version for long control lines (max. 300 m) **PIR6W-1P-230VAC/DC-10** - relay which includes the socket **PI6W-1P-230VAC/DC-10** with integrated anti-interference filter (designed on the basis of appropriately selected elements R and C, and Zener diode), resistant to occurrence of induced voltages in long distances of control wires, and operational miniature relay **RM699BV-3011-85-1060**. ❹ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays.

Input data

Table 1

Interface relay code	Input - voltage range V	
	min.	max.
PIR6W-1P-12VDC	9,6	14,4
PIR6W-1P-24VDC	19,2	28,0
PIR6W-1P-36VDC	28,8	40,0
PIR6W-1P-24VAC/DC	19,2	26,4
PIR6W-1P-42VAC/DC	33,6	50,0
PIR6W-1P-115VAC/DC	92,0	130,0
PIR6W-1P-230VAC/DC ①	184,0	253,0
PIR6W-1P-230VAC/DC-10 ③ ④	196,0 ⑤	253,0
PIR6W-1P-12VDC-01 ②	9,6	14,4
PIR6W-1P-24VDC-01 ②	19,2	28,0
PIR6W-1P-36VDC-01 ②	28,8	40,0
PIR6W-1P-24VAC/DC-01 ②	19,2	26,4
PIR6W-1P-42VAC/DC-01 ②	33,6	50,0
PIR6W-1P-115VAC/DC-01 ②	92,0	130,0
PIR6W-1P-230VAC/DC-01 ② ④	184,0	253,0

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

② Version with gold-plated contacts.

③ Version for long control lines (max. 300 m), with anti-interference filter.

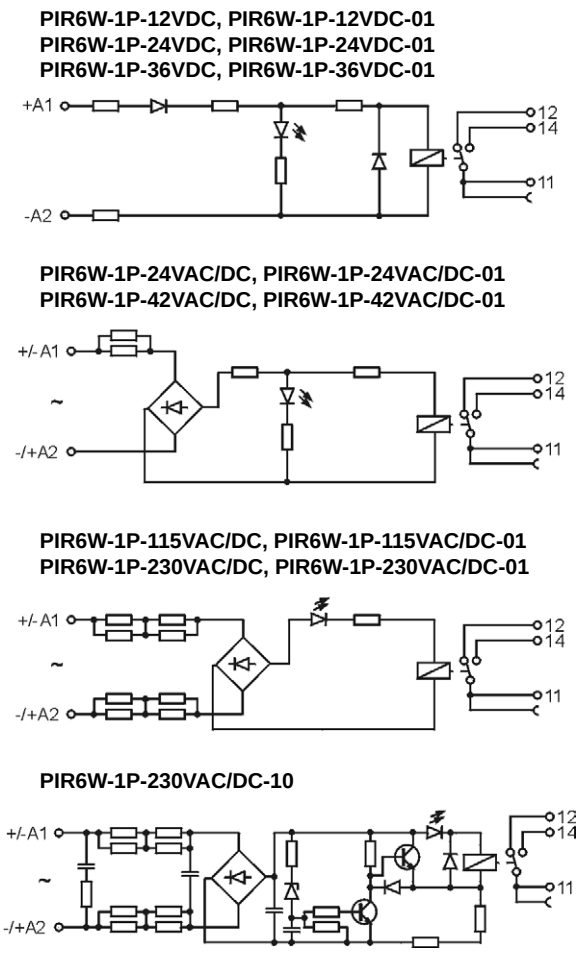
④ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays.

⑤ 196,0 V at supply voltage AC; 184,0 V at supply voltage DC

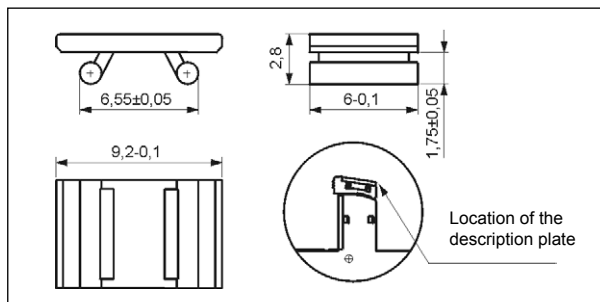
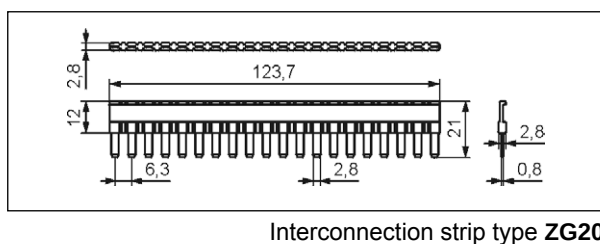
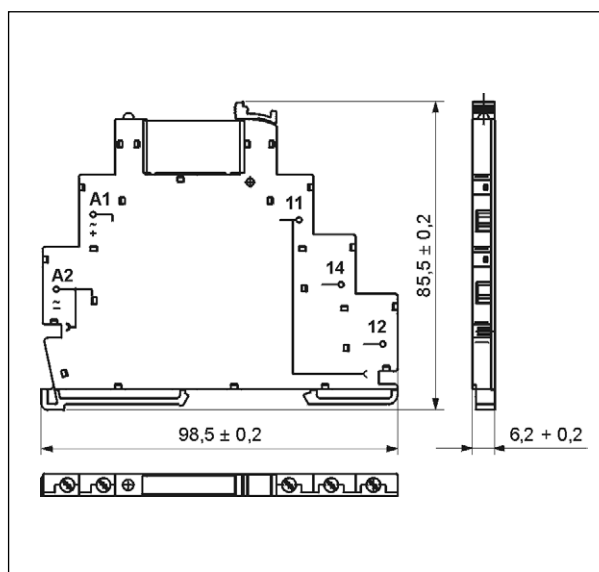
Ordering codes

Ordering codes **PIR6W-1P-...** are specified in Tables 1, 2, „Interface relay code” column.

Connection diagrams



Dimensions



Description plate **PI6W-1246**

Mounting

Relays **PIR6W-1P-...** ④ are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 9 mm, max. tightening moment for the terminal: 0,3 Nm.

Interface relay **PIR6W-1P-...** consists of: screw terminals socket, with electronic **PI6W-1P-...**, miniature operational relay - electromagnetic **RM699BV**.

PIR6W-1P-... may be linked with interconnection strip type **ZG20**. Strip **ZG20** bridges common input or output signals, maximum permissible current is 36 A / 250 V AC. Colours of strips: **ZG20-1** red, **ZG20-2** black, **ZG20-3** blue. Description plates of **PI6W-1246** type are offered for **PIR6W-1P-...** relays; they are delivered with the relays, not mounted.

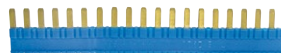
④ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays.



PI6W-1P-...



RM699BV



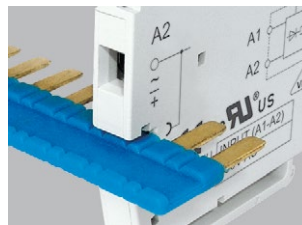
ZG20



PI6W-1246



Green LED:
signalling the operation
status of the relay.



Interconnection strip ZG20:
bridging of common
input or output signals.



Movable ejector: protection
and easy replacement
of the operational relay.

Table of codes

Table 2

Interface relay code	Rated input voltage U _n ⑥	Power of input circuit	Socket code	Operational relay code	Rated voltage of operational relay U _s ⑥
PIR6W-1P-12VDC	12 V DC	0,3 W	PI6W-1P-12VDC	RM699BV-3011-85-1012	12 V DC
PIR6W-1P-24VDC	24 V DC	0,3 W	PI6W-1P-24VDC	RM699BV-3011-85-1024	24 V DC
PIR6W-1P-36VDC	36 V DC	0,3 W	PI6W-1P-36VDC	RM699BV-3011-85-1024	24 V DC
PIR6W-1P-24VAC/DC	24 V AC/DC	0,3 VA / 0,3 W	PI6W-1P-24VAC/DC	RM699BV-3011-85-1024	24 V DC
PIR6W-1P-42VAC/DC	42 V AC/DC	0,4 VA / 0,4 W	PI6W-1P-42VAC/DC	RM699BV-3011-85-1024	24 V DC
PIR6W-1P-115VAC/DC	115 V AC/DC	0,9 VA / 0,9 W	PI6W-1P-115VAC/DC	RM699BV-3011-85-1024	24 V DC
PIR6W-1P-230VAC/DC ④	230 V AC/DC	0,8 VA / 0,8 W	PI6W-1P-230VAC/DC	RM699BV-3011-85-1060	60 V DC
PIR6W-1P-230VAC/DC-10 ④ ④	230 V AC/DC	2,1 VA / 1,0 W	PI6W-1P-230VAC/DC-10	RM699BV-3011-85-1060	60 V DC
PIR6W-1P-12VDC-01 ②	12 V DC	0,3 W	PI6W-1P-12VDC	RM699BV-3211-85-1012	12 V DC
PIR6W-1P-24VDC-01 ②	24 V DC	0,3 W	PI6W-1P-24VDC	RM699BV-3211-85-1024	24 V DC
PIR6W-1P-36VDC-01 ②	36 V DC	0,3 W	PI6W-1P-36VDC	RM699BV-3211-85-1024	24 V DC
PIR6W-1P-24VAC/DC-01 ②	24 V AC/DC	0,3 VA / 0,3 W	PI6W-1P-24VAC/DC	RM699BV-3211-85-1024	24 V DC
PIR6W-1P-42VAC/DC-01 ②	42 V AC/DC	0,4 VA / 0,4 W	PI6W-1P-42VAC/DC	RM699BV-3211-85-1024	24 V DC
PIR6W-1P-115VAC/DC-01 ②	115 V AC/DC	0,9 VA / 0,9 W	PI6W-1P-115VAC/DC	RM699BV-3211-85-1024	24 V DC
PIR6W-1P-230VAC/DC-01 ② ④	230 V AC/DC	0,8 VA / 0,8 W	PI6W-1P-230VAC/DC	RM699BV-3211-85-1060	60 V DC

The data in bold type pertain to the standard versions of the relays. ② Version with gold-plated contacts. ③ Version for long control lines (max. 300 m), with anti-interference filter. ④ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays. ⑥ It shall be remarked that rated input voltage of the operational relay U_s not always complies with the rated input voltage U_n (which is important on ordering operational relays for sockets).

PIR6W-1PS-...

interface relays

RM699BV + PI6W-1PS-... RSR30 + PI6W-1PS-...



- Width 6,2 mm • Interface relay **PIR6W-1PS-...** consists of: screw terminals universal socket, with electronic **PI6W-1PS-...**, miniature operational relay - electromagnetic **RM699BV** or solid state **RSR30** ①
- 35 mm rail mount acc. to PN-EN 60715 • May be linked with interconnection strip type **ZG20** • Equipped in LED green
- Accessories: description plates **PI6W-1246**
- Recognitions, certifications, directives: RoHS,    

Output circuit (RM699BV) - contact data ①

Number and type of contacts (code of output)	1 CO (R) ②	1 CO (R-01) ②
Contact material	AgSnO₂	AgSnO ₂ /Au 3 μm ②
Max. switching voltage	400 V AC / 250 V DC	30 V AC / 36 V DC ②
Min. switching voltage	10 V	5 V
Rated load	AC1 DC1	0,05 A / 30 V AC ② 0,05 A / 36 V DC ②
Min. switching current	100 mA	10 mA
Max. inrush current	10 A 20 ms	0,1 A 20 ms ②
Rated current	6 A	0,05 A ②
Max. breaking capacity	AC1 1 500 VA	1,2 VA ②
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	AC1	
• at rated load	360 cycles/hour	
• no load	72 000 cycles/hour	

Output circuit (RSR30) - output data ①

Type of output (code of output)	Triac (T) ② max. 2 A	Transistor (C) ② max. 1 A	Transistor (O) ② max. 2 A
Number and type of outputs	1 NO	1 NO	1 NO
Rated voltage	240 V AC	48 V DC	24 V DC
Max. output voltage	280 V AC	60 V DC	32 V DC
Min. output voltage	12 V AC	1,5 V DC	1,5 V DC
Rated continuous output current	AC1 DC1	1 A	2 A
Min. making capacity current	50 mA	1 mA	1 mA
Max. off-state leakage current (rest condition)	1,5 mA	1 mA	1 mA
Max. on-state voltage drop on the connection (operating state)	1,2 V	0,4 V	0,24 V
Operating switching frequency		10 Hz	10 Hz

Input circuit

Rated voltage	DC AC: 50/60 Hz AC/DC	6 ... 60 V 24 ... 230 V
Must release voltage		AC: ≥ 0,2 U _n DC: ≥ 0,1 U _n
Operating range of supply voltage		0,8...1,2 U _n 0,85...1,2 U _n 6 V DC
Must operate voltage		≤ 0,8 U _n ≤ 0,85 U _n 6 V DC
Rated power consumption	DC AC/DC	0,2 ... 0,5 W 0,5 ... 1,2 VA / 0,4 ... 1,2 W

Insulation according to PN-EN 60664-1

Insulation rated voltage	250 V AC
Rated surge voltage	4 000 V 1,2 / 50 μs
Overvoltage category	III
Insulation pollution degree	3
Dielectric strength	• input - output • input - output • mass - input, output • contact clearance
	4 000 V AC 50/60 Hz, 1 min., type of insulation: reinforced 6 000 V 1,2 / 50 μs 2 500 V AC 50/60 Hz, 1 min. 1 000 V AC 50/60 Hz, 1 min., output R and R-01, type of clearance: micro-disconnection
Input - output distance	≥ 6 mm / ≥ 8 mm
Mass - input, output distance	≥ 3 mm / ≥ 3,6 mm

The data in bold type pertain to the standard versions of the relays. ① Characteristics of the contact capacity of relays **PIR6W-1PS-...** with **RM699BV** - see page 39; **PIR6W-1PS-...** with **RSR30** - see catalogue "Solid state relays" and www.relpol.com.pl ② 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), and electrical life of these contacts may be shorter than of normal contacts. ③ Type of outputs: **R** - contacts AgSnO₂; **R01** - contacts AgSnO₂/Au 3 μm; **T** - triac; **C** - transistor; **O** - transistor.

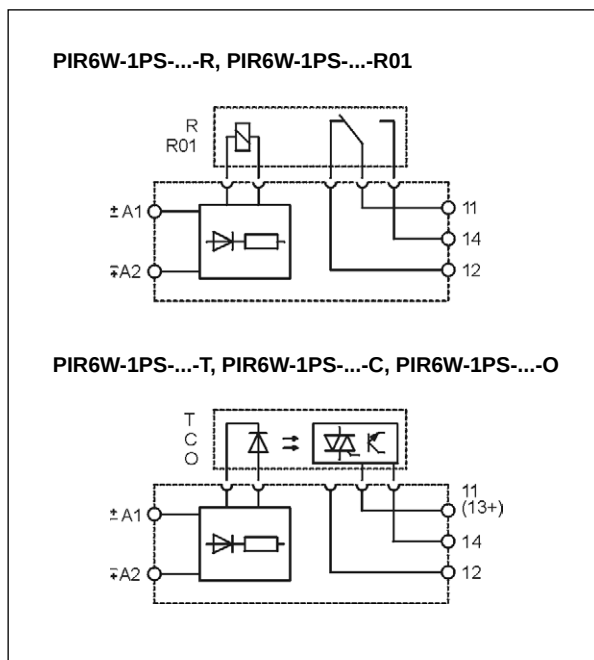
PIR6W-1PS-...

interface relays

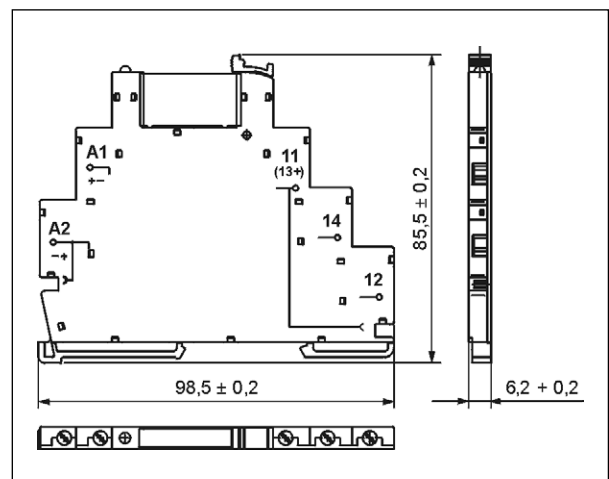
General data

Operating time (typical value)	PIR6W-1PS-...-R/-R01: DC: 8 ms AC/DC: 20 ms PIR6W-1PS-...-T: DC: 100 μ s AC/DC: 10 ms PIR6W-1PS-...-C/-O: DC: 50 μ s AC/DC: 10 ms
Release time (typical value)	PIR6W-1PS-...-R/-R01: DC: 10 ms AC/DC: 25 ms PIR6W-1PS-...-T: DC: 1/2 cycle + 1 ms AC/DC: 30 ms PIR6W-1PS-...-C/-O: DC: 600 μ s AC/DC: 20 ms
Electrical life • resistive AC1	PIR6W-1PS-...-R: > 0,5 x 10 ⁵ 6 A, 250 V AC
Mechanical life (cycles)	PIR6W-1PS-...-R/-R01: > 10 ⁷
Dimensions (L x W x H)	98,5 x 6,2 x 85,5 mm
Weight	45 g
Ambient temperature • storage • operating	PIR6W-1PS-...-R/-R01/-T: -40...+70 °C ...-C/-O: -25...+70 °C PIR6W-1PS-...-R/-R01: -40...+55 °C ...-T/-C/-O: -20...+55 °C PIR6W-1PS-230VAC/DC-R/-R01: -40...+50 °C ...-C/-O: -20...+50 °C
Protection category	IP 20 PN-EN 60529
Environmental protection	RTI PN-EN 116000-3
Shock resistance	10 g
Vibration resistance	5 g 10...500 Hz

Connection diagrams



Dimensions



Ordering codes

Ordering codes **PIR6W-1PS-...** are specified in Table 1, „Interface relay code” column.

Mounting

Relays **PIR6W-1PS-...** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 9 mm, max. tightening moment for the terminal: 0,3 Nm.

Interface relay **PIR6W-1PS-...** consists of: screw terminals universal socket, with electronic **PI6W-1PS-...**, miniature operational relay - electromagnetic **RM699BV** or solid state **RSR30**.

PIR6W-1PS-... may be linked with interconnection strip type **ZG20** (see pages 198-199). Description plates of **PI6W-1246** type are offered for **PIR6W-1PS-...** relays (see pages 198-199).



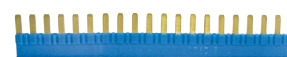
PI6W-1PS-...



RM699BV



RSR30



ZG20



PI6W-1246

PIR6W-1PS-...

interface relays

Table of codes

Table 1

Interface relay code	Rated input voltage U_n ②	Power of input circuit	Socket code	Operational relay code	Rated voltage of operational relay U_s ④
PIR6W-1PS-6VDC-R	6 V DC	0,3 W	PI6W-1PS-6VDC	RM699BV-3011-85-1005	5 V DC
PIR6W-1PS-12VDC-R	12 V DC	0,2 W	PI6W-1PS-12/24VDC	RM699BV-3011-85-1012	12 V DC
PIR6W-1PS-24VDC-R	24 V DC	0,3 W	PI6W-1PS-12/24VDC	RM699BV-3011-85-1024	24 V DC
PIR6W-1PS-36VDC-R	36 V DC	0,3 W	PI6W-1PS-36VDC	RM699BV-3011-85-1024	24 V DC
PIR6W-1PS-48VDC-R	48 V DC	0,4 W	PI6W-1PS-48VDC	RM699BV-3011-85-1024	24 V DC
PIR6W-1PS-60VDC-R	60 V DC	0,5 W	PI6W-1PS-60VDC	RM699BV-3011-85-1024	24 V DC
PIR6W-1PS-24VAC/DC-R	24 V AC/DC	0,5 VA / 0,4 W	PI6W-1PS-24VAC/DC	RM699BV-3011-85-1012	12 V DC
PIR6W-1PS-42VAC/DC-R	42 V AC/DC	0,5 VA / 0,4 W	PI6W-1PS-42VAC/DC	RM699BV-3011-85-1024	24 V DC
PIR6W-1PS-115VAC/DC-R	115 V AC/DC	1,2 VA / 1,2 W	PI6W-1PS-115VAC/DC	RM699BV-3011-85-1024	24 V DC
PIR6W-1PS-230VAC/DC-R	230 V AC/DC	1,2 VA / 1,2 W	PI6W-1PS-230VAC/DC	RM699BV-3011-85-1048	48 V DC
PIR6W-1PS-6VDC-R01 ②	6 V DC	0,3 W	PI6W-1PS-6VDC	RM699BV-3211-85-1005	5 V DC
PIR6W-1PS-12VDC-R01 ②	12 V DC	0,2 W	PI6W-1PS-12/24VDC	RM699BV-3211-85-1012	12 V DC
PIR6W-1PS-24VDC-R01 ②	24 V DC	0,3 W	PI6W-1PS-12/24VDC	RM699BV-3211-85-1024	24 V DC
PIR6W-1PS-36VDC-R01 ②	36 V DC	0,3 W	PI6W-1PS-36VDC	RM699BV-3211-85-1024	24 V DC
PIR6W-1PS-48VDC-R01 ②	48 V DC	0,4 W	PI6W-1PS-48VDC	RM699BV-3211-85-1024	24 V DC
PIR6W-1PS-60VDC-R01 ②	60 V DC	0,5 W	PI6W-1PS-60VDC	RM699BV-3211-85-1024	24 V DC
PIR6W-1PS-24VAC/DC-R01 ②	24 V AC/DC	0,5 VA / 0,4 W	PI6W-1PS-24VAC/DC	RM699BV-3211-85-1012	12 V DC
PIR6W-1PS-42VAC/DC-R01 ②	42 V AC/DC	0,5 VA / 0,4 W	PI6W-1PS-42VAC/DC	RM699BV-3211-85-1024	24 V DC
PIR6W-1PS-115VAC/DC-R01 ②	115 V AC/DC	1,2 VA / 1,2 W	PI6W-1PS-115VAC/DC	RM699BV-3211-85-1024	24 V DC
PIR6W-1PS-230VAC/DC-R01 ②	230 V AC/DC	1,2 VA / 1,2 W	PI6W-1PS-230VAC/DC	RM699BV-3211-85-1048	48 V DC
PIR6W-1PS-6VDC-T	6 V DC	0,2 W	PI6W-1PS-6VDC	RSR30-D05-A1-24-020-1	5 V DC
PIR6W-1PS-12VDC-T	12 V DC	0,2 W	PI6W-1PS-12/24VDC	RSR30-D12-A1-24-020-1	12 V DC
PIR6W-1PS-24VDC-T	24 V DC	0,3 W	PI6W-1PS-12/24VDC	RSR30-D24-A1-24-020-1	24 V DC
PIR6W-1PS-36VDC-T	36 V DC	0,3 W	PI6W-1PS-36VDC	RSR30-D24-A1-24-020-1	24 V DC
PIR6W-1PS-48VDC-T	48 V DC	0,4 W	PI6W-1PS-48VDC	RSR30-D24-A1-24-020-1	24 V DC
PIR6W-1PS-60VDC-T	60 V DC	0,5 W	PI6W-1PS-60VDC	RSR30-D24-A1-24-020-1	24 V DC
PIR6W-1PS-24VAC/DC-T	24 V AC/DC	0,5 VA / 0,4 W	PI6W-1PS-24VAC/DC	RSR30-D12-A1-24-020-1	12 V DC
PIR6W-1PS-42VAC/DC-T	42 V AC/DC	0,5 VA / 0,4 W	PI6W-1PS-42VAC/DC	RSR30-D24-A1-24-020-1	24 V DC
PIR6W-1PS-115VAC/DC-T	115 V AC/DC	1,0 VA / 1,0 W	PI6W-1PS-115VAC/DC	RSR30-D24-A1-24-020-1	24 V DC
PIR6W-1PS-6VDC-C	6 V DC	0,2 W	PI6W-1PS-6VDC	RSR30-D05-D1-04-025-1	5 V DC
PIR6W-1PS-12VDC-C	12 V DC	0,2 W	PI6W-1PS-12/24VDC	RSR30-D12-D1-04-025-1	12 V DC
PIR6W-1PS-24VDC-C	24 V DC	0,3 W	PI6W-1PS-12/24VDC	RSR30-D24-D1-04-025-1	24 V DC
PIR6W-1PS-36VDC-C	36 V DC	0,3 W	PI6W-1PS-36VDC	RSR30-D24-D1-04-025-1	24 V DC
PIR6W-1PS-48VDC-C	48 V DC	0,4 W	PI6W-1PS-48VDC	RSR30-D24-D1-04-025-1	24 V DC
PIR6W-1PS-60VDC-C	60 V DC	0,5 W	PI6W-1PS-60VDC	RSR30-D24-D1-04-025-1	24 V DC
PIR6W-1PS-24VAC/DC-C	24 V AC/DC	0,5 VA / 0,4 W	PI6W-1PS-24VAC/DC	RSR30-D12-D1-04-025-1	12 V DC
PIR6W-1PS-42VAC/DC-C	42 V AC/DC	0,5 VA / 0,4 W	PI6W-1PS-42VAC/DC	RSR30-D24-D1-04-025-1	24 V DC
PIR6W-1PS-115VAC/DC-C	115 V AC/DC	1,0 VA / 1,0 W	PI6W-1PS-115VAC/DC	RSR30-D24-D1-04-025-1	24 V DC
PIR6W-1PS-230VAC/DC-C	230 V AC/DC	1,0 VA / 1,0 W	PI6W-1PS-230VAC/DC	RSR30-D48-D1-04-025-1	48 V DC
PIR6W-1PS-6VDC-O	6 V DC	0,2 W	PI6W-1PS-6VDC	RSR30-D05-D1-02-040-1	5 V DC
PIR6W-1PS-12VDC-O	12 V DC	0,2 W	PI6W-1PS-12/24VDC	RSR30-D12-D1-02-040-1	12 V DC
PIR6W-1PS-24VDC-O	24 V DC	0,3 W	PI6W-1PS-12/24VDC	RSR30-D24-D1-02-040-1	24 V DC
PIR6W-1PS-36VDC-O	36 V DC	0,3 W	PI6W-1PS-36VDC	RSR30-D24-D1-02-040-1	24 V DC
PIR6W-1PS-48VDC-O	48 V DC	0,4 W	PI6W-1PS-48VDC	RSR30-D24-D1-02-040-1	24 V DC
PIR6W-1PS-60VDC-O	60 V DC	0,5 W	PI6W-1PS-60VDC	RSR30-D24-D1-02-040-1	24 V DC
PIR6W-1PS-24VAC/DC-O	24 V AC/DC	0,5 VA / 0,4 W	PI6W-1PS-24VAC/DC	RSR30-D12-D1-02-040-1	12 V DC
PIR6W-1PS-42VAC/DC-O	42 V AC/DC	0,5 VA / 0,4 W	PI6W-1PS-42VAC/DC	RSR30-D24-D1-02-040-1	24 V DC
PIR6W-1PS-115VAC/DC-O	115 V AC/DC	1,0 VA / 1,0 W	PI6W-1PS-115VAC/DC	RSR30-D24-D1-02-040-1	24 V DC
PIR6W-1PS-230VAC/DC-O	230 V AC/DC	1,0 VA / 1,0 W	PI6W-1PS-230VAC/DC	RSR30-D48-D1-02-040-1	48 V DC

The data in bold type pertain to the standard versions of the relays. ② Version with gold-plated contacts. ④ It shall be remarked that rated input voltage of the operational relay U_s not always complies with the rated input voltage U_n (which is important on ordering operational relays for sockets).

PIR6WB-1PS-...

interface relays with spring terminals

RM699BV + PI6WB-1PS-... RSR30 + PI6WB-1PS-...



- Width 6,2 mm • Interface relay **PIR6WB-1PS-...** consists of: spring terminals ❶ universal socket, with electronic **PI6WB-1PS-...**, miniature operational relay - electromagnetic **RM699BV** or solid state **RSR30** ❷
- 35 mm rail mount acc. to PN-EN 60715 • May be linked with interconnection strip type **ZG20** • Equipped in LED green • Version for long control lines, with anti-interference filter (**PIR6WB-1P-230VAC/DC-10** ❸)
- Accessories: description plates **PI6W-1246**
- Recognitions, certifications, directives: RoHS,

Output circuit (RM699BV) - contact data ❷

Number and type of contacts (code of output)	1 CO (R) ❶	1 CO (R-01) ❶
Contact material	AgSnO ₂	AgSnO ₂ /Au 3 μm ❸
Max. switching voltage	400 V AC / 250 V DC	30 V AC / 36 V DC ❸
Min. switching voltage	10 V	5 V
Rated load	AC1 DC1	0,05 A / 30 V AC ❸ 0,05 A / 36 V DC ❸
Min. switching current	100 mA	10 mA
Max. inrush current	10 A 20 ms	0,1 A 20 ms ❸
Rated current	6 A	0,05 A ❸
Max. breaking capacity	AC1 1 500 VA	1,2 VA ❸
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	AC1	360 cycles/hour 72 000 cycles/hour
• at rated load		
• no load		

Output circuit (RSR30) - output data ❷

Type of output (code of output)	Triac (T) ❶ max. 2 A	Transistor (C) ❶ max. 1 A	Transistor (O) ❶ max. 2 A
Number and type of outputs	1 NO	1 NO	1 NO
Rated voltage	240 V AC	48 V DC	24 V DC
Max. output voltage	280 V AC	60 V DC	32 V DC
Min. output voltage	12 V AC	1,5 V DC	1,5 V DC
Rated continuous output current	AC1 DC1	1 A	2 A
Min. making capacity current	50 mA	1 mA	1 mA
Max. off-state leakage current (rest condition)	1,5 mA	1 mA	1 mA
Max. on-state voltage drop on the connection (operating state)	1,2 V	0,4 V	0,24 V
Operating switching frequency		10 Hz	10 Hz

Input circuit

Rated voltage	DC AC: 50/60 Hz AC/DC	6 ... 60 V 24 ... 230 V
Must release voltage		AC: ≥ 0,2 U _n AC: ≥ 0,35 U _n ❹ DC: ≥ 0,1 U _n
Operating range of supply voltage		0,8...1,2 U _n 0,85...1,2 U _n 6 V DC
Must operate voltage		≤ 0,8 U _n ≤ 0,85 U _n 6 V DC AC: 0,6...0,85 U _n ❹
Rated power consumption	DC AC/DC	0,2 ... 0,5 W 0,5 ... 1,2 VA / 0,4 ... 1,2 W
Max. length of control line		≤ 300 m AC control voltage ❹

Insulation according to PN-EN 60664-1

Insulation rated voltage	250 V AC
Rated surge voltage	4 000 V 1,2 / 50 μs
Overvoltage category	III
Insulation pollution degree	3
Dielectric strength	• input - output • input - output • contact clearance
	4 000 V AC 50/60 Hz, 1 min., type of insulation: reinforced 6 000 V 1,2 / 50 μs 1 000 V AC 50/60 Hz, 1 min., output R and R-01, type of clearance: micro-disconnection
Input - output distance	≥ 6 mm / ≥ 8 mm
• clearance / creepage	

The data in bold type pertain to the standard versions of the relays. ❶ Spring fixing terminals for electric wires (cage springs CAGE CLAMP® - is the registered trademark of WAGO Kontakttechnik GmbH & Co. KG, Germany). ❷ Characteristics of the contact capacity of relays **PIR6WB-1PS-...** with **RM699BV** - see page 39; **PIR6WB-1PS-...** with **RSR30** - see catalogue "Solid state relays" and www.relpol.com.pl ❸ 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), and electrical life of these contacts may be shorter than of normal contacts. ❹ Refers version for long control lines (max. 300 m) **PIR6WB-1P-230VAC/DC-10** - relay which includes the socket **PI6WB-1P-230VAC/DC-10** with integrated anti-interference filter (designed on the basis of appropriately selected elements R and C, and Zener diode), resistant to occurrence of induced voltages in long distances of control wires, and operational miniature relay **RM699BV-3011-85-1060**. ❺ Type of outputs: **R** - contacts AgSnO₂; **R01** - contacts AgSnO₂/Au 3 μm; **T** - triac; **C** - transistor; **O** - transistor.

PIR6WB-1PS-...

interface relays with spring terminals

General data

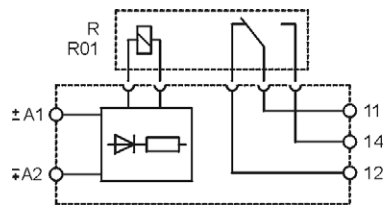
Operating time (typical value)	PIR6WB-1PS-...-R/-R01: DC: 8 ms AC/DC: 20 ms PIR6WB-1PS-...-T: DC: 100 μ s AC/DC: 10 ms PIR6WB-1PS-...-C/-O: DC: 50 μ s AC/DC: 10 ms
Release time (typical value)	PIR6WB-1PS-...-R/-R01: DC: 10 ms AC/DC: 25 ms (18 ms ④) PIR6WB-1PS-...-T: DC: 1/2 cycle + 1 ms AC/DC: 30 ms PIR6WB-1PS-...-C/-O: DC: 600 μ s AC/DC: 20 ms
Electrical life • resistive AC1	PIR6WB-1PS-...-R: > 0,5 x 10 ⁵ 6 A, 250 V AC
Mechanical life (cycles)	PIR6WB-1PS-...-R/-R01: > 10 ⁷
Dimensions (L x W x H)	98,3 x 6,2 x 84,6 mm
Weight	55 g
Ambient temperature • storage	PIR6WB-1PS-...-R/-R01/-T: -40...+70 °C ...-C/-O: -25...+70 °C PIR6WB-1P-230VAC/DC-10 ⑤: -25...+70 °C
• operating	PIR6WB-1PS-...-R/-R01: -40...+55 °C ...-T/-C/-O: -25...+55 °C PIR6WB-1PS-230VAC/DC-R/-R01/-C/-O: -25...+50 °C ⑥ PIR6WB-1P-230VAC/DC-10 ⑤: -25...+50 °C ⑥
Protection category	IP 20 PN-EN 60529
Environmental protection	RTI PN-EN 116000-3
Shock resistance	10 g
Vibration resistance	5 g 10...500 Hz

④ Version for long control lines (max. 300 m), with anti-interference filter.

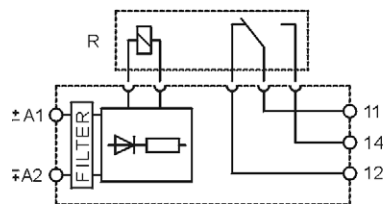
⑥ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays.

Connection diagrams

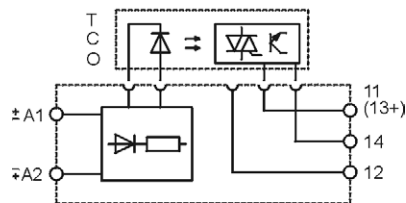
PIR6WB-1PS-...-R, PIR6WB-1PS-...-R01



PIR6WB-1P-230VAC/DC-10



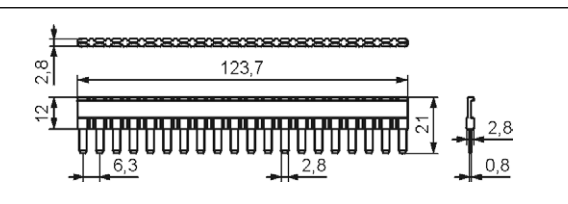
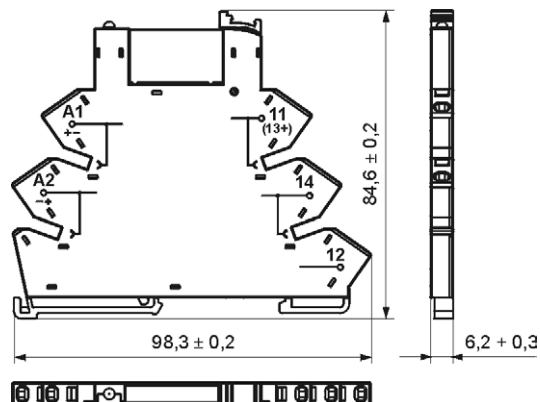
PIR6WB-1PS-...-T, PIR6WB-1PS-...-C, PIR6WB-1PS-...-O



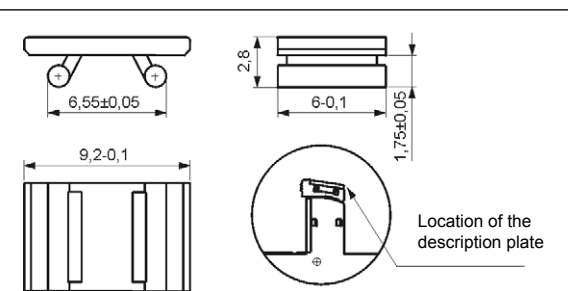
Ordering codes

Ordering codes **PIR6WB-1PS-...** are specified in Table 1, „Interface relay code” column.

Dimensions



Interconnection strip type **ZG20**



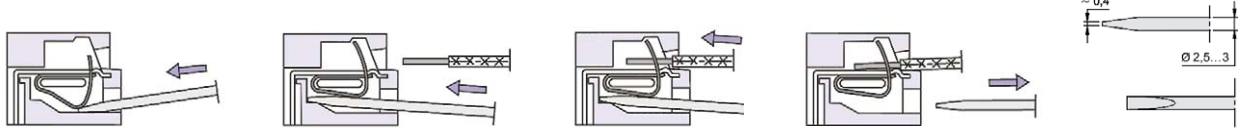
Description plate **PI6W-1246**

PIR6WB-1PS-...

interface relays with spring terminals

Wire connection

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



Mounting

Relays **PIR6WB-1PS-...** ⑥ are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. **Connections:** max. cross section of the cables: 1 x 0,22...2,5 mm² (1 x 24...14 AWG), length of the cable deinsulation: 9 mm.

Interface relay **PIR6WB-1PS-...** consists of: spring terminals universal socket, with electronic **PI6WB-1PS-...**, miniature operational relay - electromagnetic **RM699BV** or solid state **RSR30** ⑥.

PIR6WB-1PS-... may be linked with interconnection strip type **ZG20**. Strip **ZG20** bridges common input or output signals, maximum permissible current is 36 A / 250 V AC. Colours of strips: **ZG20-1** red, **ZG20-2** black, **ZG20-3** blue. Description plates of **PI6W-1246** type are offered for **PIR6WB-1PS-...** relays; they are delivered with the relays, not mounted.

⑥ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays.



PI6WB-1PS-...



RM699BV



RSR30



ZG20



PI6W-1246



Green LED:
signalling the operation
status of the relay.



Interconnection strip ZG20:
bridging of common
input or output signals.



Movable ejector: protection
and easy replacement
of the operational relay.

PIR6WB-1PS-...-R

Interface relay:
socket **PI6WB-1PS-...**
and relay **RM699BV**



PIR6WB-1PS-...

interface relays with spring terminals

Table of codes

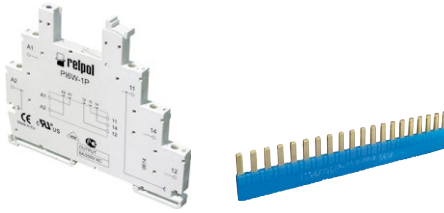
Table 1

Interface relay code	Rated input voltage Un ⑦	Power of input circuit	Socket code	Operational relay code	Rated voltage of operational relay Us ⑦
PIR6WB-1PS-6VDC-R	6 V DC	0,3 W	PI6WB-1PS-6VDC	RM699BV-3011-85-1005	5 V DC
PIR6WB-1PS-12VDC-R	12 V DC	0,2 W	PI6WB-1PS-12/24VDC	RM699BV-3011-85-1012	12 V DC
PIR6WB-1PS-24VDC-R	24 V DC	0,3 W	PI6WB-1PS-12/24VDC	RM699BV-3011-85-1024	24 V DC
PIR6WB-1PS-36VDC-R	36 V DC	0,3 W	PI6WB-1PS-36VDC	RM699BV-3011-85-1024	24 V DC
PIR6WB-1PS-48VDC-R	48 V DC	0,4 W	PI6WB-1PS-48VDC	RM699BV-3011-85-1024	24 V DC
PIR6WB-1PS-60VDC-R	60 V DC	0,5 W	PI6WB-1PS-60VDC	RM699BV-3011-85-1024	24 V DC
PIR6WB-1PS-24VAC/DC-R	24 V AC/DC	0,5 VA / 0,4 W	PI6WB-1PS-24VAC/DC	RM699BV-3011-85-1012	12 V DC
PIR6WB-1PS-42VAC/DC-R	42 V AC/DC	0,5 VA / 0,4 W	PI6WB-1PS-42VAC/DC	RM699BV-3011-85-1024	24 V DC
PIR6WB-1PS-115VAC/DC-R	115 V AC/DC	1,2 VA / 1,2 W	PI6WB-1PS-115VAC/DC	RM699BV-3011-85-1024	24 V DC
PIR6WB-1PS-230VAC/DC-R ⑥	230 V AC/DC	1,2 VA / 1,2 W	PI6WB-1PS-230VAC/DC	RM699BV-3011-85-1048	48 V DC
PIR6WB-1P-230VAC/DC-10 ④ ⑤	230 V AC/DC	2,1 VA / 1,0 W	PI6WB-1P-230VAC/DC-10	RM699BV-3011-85-1060	60 V DC
PIR6WB-1PS-6VDC-R01 ⑧	6 V DC	0,3 W	PI6WB-1PS-6VDC	RM699BV-3211-85-1005	5 V DC
PIR6WB-1PS-12VDC-R01 ⑧	12 V DC	0,2 W	PI6WB-1PS-12/24VDC	RM699BV-3211-85-1012	12 V DC
PIR6WB-1PS-24VDC-R01 ⑧	24 V DC	0,3 W	PI6WB-1PS-12/24VDC	RM699BV-3211-85-1024	24 V DC
PIR6WB-1PS-36VDC-R01 ⑧	36 V DC	0,3 W	PI6WB-1PS-36VDC	RM699BV-3211-85-1024	24 V DC
PIR6WB-1PS-48VDC-R01 ⑧	48 V DC	0,4 W	PI6WB-1PS-48VDC	RM699BV-3211-85-1024	24 V DC
PIR6WB-1PS-60VDC-R01 ⑧	60 V DC	0,5 W	PI6WB-1PS-60VDC	RM699BV-3211-85-1024	24 V DC
PIR6WB-1PS-24VAC/DC-R01 ⑧	24 V AC/DC	0,5 VA / 0,4 W	PI6WB-1PS-24VAC/DC	RM699BV-3211-85-1012	12 V DC
PIR6WB-1PS-42VAC/DC-R01 ⑧	42 V AC/DC	0,5 VA / 0,4 W	PI6WB-1PS-42VAC/DC	RM699BV-3211-85-1024	24 V DC
PIR6WB-1PS-115VAC/DC-R01 ⑧	115 V AC/DC	1,2 VA / 1,2 W	PI6WB-1PS-115VAC/DC	RM699BV-3211-85-1024	24 V DC
PIR6WB-1PS-230VAC/DC-R01 ⑧ ⑥	230 V AC/DC	1,2 VA / 1,2 W	PI6WB-1PS-230VAC/DC	RM699BV-3211-85-1048	48 V DC
PIR6WB-1PS-6VDC-T	6 V DC	0,2 W	PI6WB-1PS-6VDC	RSR30-D05-A1-24-020-1	5 V DC
PIR6WB-1PS-12VDC-T	12 V DC	0,2 W	PI6WB-1PS-12/24VDC	RSR30-D12-A1-24-020-1	12 V DC
PIR6WB-1PS-24VDC-T	24 V DC	0,3 W	PI6WB-1PS-12/24VDC	RSR30-D24-A1-24-020-1	24 V DC
PIR6WB-1PS-36VDC-T	36 V DC	0,3 W	PI6WB-1PS-36VDC	RSR30-D24-A1-24-020-1	24 V DC
PIR6WB-1PS-48VDC-T	48 V DC	0,4 W	PI6WB-1PS-48VDC	RSR30-D24-A1-24-020-1	24 V DC
PIR6WB-1PS-60VDC-T	60 V DC	0,5 W	PI6WB-1PS-60VDC	RSR30-D24-A1-24-020-1	24 V DC
PIR6WB-1PS-24VAC/DC-T	24 V AC/DC	0,5 VA / 0,4 W	PI6WB-1PS-24VAC/DC	RSR30-D12-A1-24-020-1	12 V DC
PIR6WB-1PS-42VAC/DC-T	42 V AC/DC	0,5 VA / 0,4 W	PI6WB-1PS-42VAC/DC	RSR30-D24-A1-24-020-1	24 V DC
PIR6WB-1PS-115VAC/DC-T	115 V AC/DC	1,0 VA / 1,0 W	PI6WB-1PS-115VAC/DC	RSR30-D24-A1-24-020-1	24 V DC
PIR6WB-1PS-6VDC-C	6 V DC	0,2 W	PI6WB-1PS-6VDC	RSR30-D05-D1-04-025-1	5 V DC
PIR6WB-1PS-12VDC-C	12 V DC	0,2 W	PI6WB-1PS-12/24VDC	RSR30-D12-D1-04-025-1	12 V DC
PIR6WB-1PS-24VDC-C	24 V DC	0,3 W	PI6WB-1PS-12/24VDC	RSR30-D24-D1-04-025-1	24 V DC
PIR6WB-1PS-36VDC-C	36 V DC	0,3 W	PI6WB-1PS-36VDC	RSR30-D24-D1-04-025-1	24 V DC
PIR6WB-1PS-48VDC-C	48 V DC	0,4 W	PI6WB-1PS-48VDC	RSR30-D24-D1-04-025-1	24 V DC
PIR6WB-1PS-60VDC-C	60 V DC	0,5 W	PI6WB-1PS-60VDC	RSR30-D24-D1-04-025-1	24 V DC
PIR6WB-1PS-24VAC/DC-C	24 V AC/DC	0,5 VA / 0,4 W	PI6WB-1PS-24VAC/DC	RSR30-D12-D1-04-025-1	12 V DC
PIR6WB-1PS-42VAC/DC-C	42 V AC/DC	0,5 VA / 0,4 W	PI6WB-1PS-42VAC/DC	RSR30-D24-D1-04-025-1	24 V DC
PIR6WB-1PS-115VAC/DC-C	115 V AC/DC	1,0 VA / 1,0 W	PI6WB-1PS-115VAC/DC	RSR30-D24-D1-04-025-1	24 V DC
PIR6WB-1PS-230VAC/DC-C ⑥	230 V AC/DC	1,0 VA / 1,0 W	PI6WB-1PS-230VAC/DC	RSR30-D48-D1-04-025-1	48 V DC
PIR6WB-1PS-6VDC-O	6 V DC	0,2 W	PI6WB-1PS-6VDC	RSR30-D05-D1-02-040-1	5 V DC
PIR6WB-1PS-12VDC-O	12 V DC	0,2 W	PI6WB-1PS-12/24VDC	RSR30-D12-D1-02-040-1	12 V DC
PIR6WB-1PS-24VDC-O	24 V DC	0,3 W	PI6WB-1PS-12/24VDC	RSR30-D24-D1-02-040-1	24 V DC
PIR6WB-1PS-36VDC-O	36 V DC	0,3 W	PI6WB-1PS-36VDC	RSR30-D24-D1-02-040-1	24 V DC
PIR6WB-1PS-48VDC-O	48 V DC	0,4 W	PI6WB-1PS-48VDC	RSR30-D24-D1-02-040-1	24 V DC
PIR6WB-1PS-60VDC-O	60 V DC	0,5 W	PI6WB-1PS-60VDC	RSR30-D24-D1-02-040-1	24 V DC
PIR6WB-1PS-24VAC/DC-O	24 V AC/DC	0,5 VA / 0,4 W	PI6WB-1PS-24VAC/DC	RSR30-D12-D1-02-040-1	12 V DC
PIR6WB-1PS-42VAC/DC-O	42 V AC/DC	0,5 VA / 0,4 W	PI6WB-1PS-42VAC/DC	RSR30-D24-D1-02-040-1	24 V DC
PIR6WB-1PS-115VAC/DC-O	115 V AC/DC	1,0 VA / 1,0 W	PI6WB-1PS-115VAC/DC	RSR30-D24-D1-02-040-1	24 V DC
PIR6WB-1PS-230VAC/DC-O ⑥	230 V AC/DC	1,0 VA / 1,0 W	PI6WB-1PS-230VAC/DC	RSR30-D48-D1-02-040-1	48 V DC

The data in bold type pertain to the standard versions of the relays. ④ Version with gold-plated contacts. ⑤ Version for long control lines (max. 300 m), with anti-interference filter. ⑥ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays. ⑦ It shall be remarked that rated input voltage of the operational relay Us not always complies with the rated input voltage Un (which is important on ordering operational relays for sockets).

PI6W-1P

socket 6,2 mm

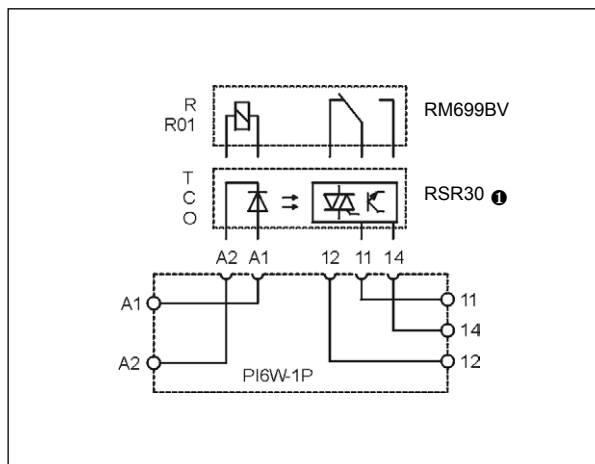


- Width 6,2 mm • Socket **PI6W-1P** without electronic
- Co-operate with relays: electromagnetic **RM699BV** or solid state **RSR30** ①
- The input voltage complies with the voltage of the operational relay applied
- 35 mm rail mount acc. to PN-EN 60715
- May be linked with interconnection strip type **ZG20**
- Accessories: description plates **PI6W-1246**
- Recognitions, certifications, directives: RoHS,

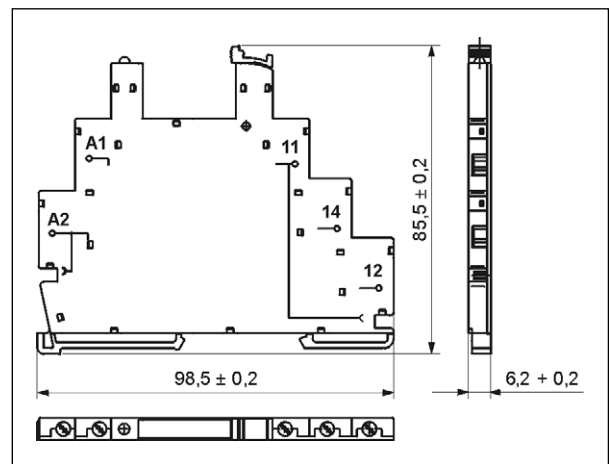
Output circuit

Number and type of contacts / outputs		RM699BV: 1 CO		RSR30: 1 NO ❶
Max. voltage		400 V AC / 250 V DC		
Max. load	AC1	6 A / 250 V AC		
Rated current		6 A		
Insulation according to PN-EN 60664-1				
Insulation rated voltage		250 V AC		
Rated surge voltage		4 000 V 1,2 / 50 µs		
Overvoltage category		III		
Insulation pollution degree		3		
Dielectric strength	• input - output	4 000 V AC	50/60 Hz, 1 min., type of insulation: reinforced	
	• input - output	6 000 V	1,2 / 50 µs	
Input - output distance		≥ 6 mm / ≥ 8 mm		
• clearance / creepage				
General data				
Dimensions (L x W x H)		98,5 x 6,2 x 85,5 mm		
Weight		40 g		
Ambient temperature	• storage	-40...+70 °C		
	• operating	-40...+55 °C -40...+60 °C 12, 24 V DC		
Protection category		IP 20	PN-EN 60529	
Environmental protection		RTI	PN-EN 116000-3	

Connection diagram



Dimensions



Ordering codes

Ordering codes: **PI6W-1P**.

Mounting

Sockets **PI6W-1P** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 9 mm, max. tightening moment for the terminal: 0,3 Nm.

PI6W-1P may be linked with interconnection strip type **ZG20** (see pages 198-199). Description plates of **PI6W-1246** type are offered for **PI6W-1P** sockets (see pages 198-199).

① Solid state relays **RSR30** type - see catalogue "Solid state relays" and www.relpol.com.pl



Installation relays

Electromagnetic relays of the MT-PI-... series in installation module cover, designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715.

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

MT-PI-... installation relays



- Installation relays - electromagnetic • AC, DC and AC/DC coils • Cover - installation module, width 17,5 mm • Load of AC1 up to 16 A / 250 V (versions 1 CO, 1 NO) and up to 8 A / 250 V (versions 2 CO, 2 NO)
- Light indicator (LED diode) - supply voltage
- Application: automatic systems in buildings - in cooperation with control timers, switches, control switches; electric systems; industrial automation and power engineering automation; switchgears of modular equipment
- Recognitions, certifications, directives

Contact data

Number and type of contacts		1 CO, 1 NO	2 CO, 2 NO
Contact material		AgNi	
Max. switching voltage		400 V AC / 300 V DC	
Min. switching voltage		5 V	
Rated load	AC1	16 A / 250 V AC	8 A / 250 V AC
	DC1	16 A / 24 V DC	8 A / 24 V DC
Min. switching current		5 mA	
Max. inrush current		30 A 	15 A
Rated current		16 A	8 A
Max. breaking capacity	AC1	4 000 VA	2 000 VA
Min. breaking capacity		0,3 W	
Contact resistance		≤ 100 mΩ	
Max. operating frequency			
• at rated load • no load	AC1	600 cycles/hour	
		72 000 cycles/hour	

Coil data

Rated voltage	• versions 1 CO, 2 CO • versions 1 NO, 2 NO	50/60 Hz AC DC 50 Hz AC AC: 50 Hz AC/DC	115 ... 230 V 12 ... 48 V 230 V 12 ... 115 V
Must release voltage	AC: ≥ 0,15 U _n DC: ≥ 0,05 U _n		
Operating range of supply voltage	0,85...1,1 U _n AC: 50/60 Hz see Tables 1, 2, 3, 4		
Rated power consumption	• versions 1 CO, 2 CO • versions 1 NO, 2 NO	AC DC DC AC AC/DC AC/DC	≤ 1,0 VA 115 V AC, 230 V AC, AC: 50 Hz ≤ 0,5 W 12 V DC ≤ 0,65 W 24 V DC, 48 V DC ≤ 0,5 VA 230 V AC, AC: 50 Hz ≤ 0,75 VA / 0,75 W 12 V AC/DC, AC: 50 Hz ≤ 0,65 VA / 0,65 W 24 V AC/DC, 48 V AC/DC, 115 V AC/DC, AC: 50 Hz

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 V AC	
Rated surge voltage		4 000 V 1,2 / 50 μs	
Overvoltage category		II	
Insulation pollution degree		1	
Flammability degree		contact plate: V-0 cover: V-1 UL94	
Dielectric strength	• between coil and contacts	3 000 V AC	contacts 1 CO and 2 CO, type of insulation: basic
		4 000 V AC	contacts 1 NO and 2 NO, type of insulation: reinforced
	• contact clearance	1 000 V AC	type of clearance: micro-disconnection
	• pole - pole	2 000 V AC	contacts 2 CO, type of insulation: basic
		2 500 V AC	contacts 2 NO, type of insulation: basic

General data

Operating / release time (typical values)		15 ms / 20 ms	
Mechanical life (cycles)		> 10 ⁷	
Dimensions (L x W x H)		90  x 17,5 x 63,5 mm	
Weight		60 g	65 g
Ambient temperature	• storage	-40...+70 °C	
	• operating	-20...+45 °C	
Cover protection category		IP 20	PN-EN 60529
Relative humidity		up to 90%	
Shock resistance		15 g	
Vibration resistance (NO/NC)		9 g / 5 g 10...150 Hz	

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

^① UL only for 15 A.

^② Length with 35 mm rail taps: 98,8 mm.

Coil data - DC voltage version (contacts 1 CO, 2 CO)

Table 1

Coil code	Coil operating range V DC	Coil operating range V DC	
		min. (at 20 °C)	max. (at 55 °C)
1012	12	10,2	13,2
1024	24	20,4	26,4
1048	48	40,8	52,8

Coil data - AC 50/60 Hz voltage version (contacts 1 CO, 2 CO)

Table 2

Coil code	Coil operating range V AC	Coil operating range V AC	
		min. (at 20 °C)	max. (at 55 °C)
5115	115	97,8	126,5
5230	230	195,5	253,0

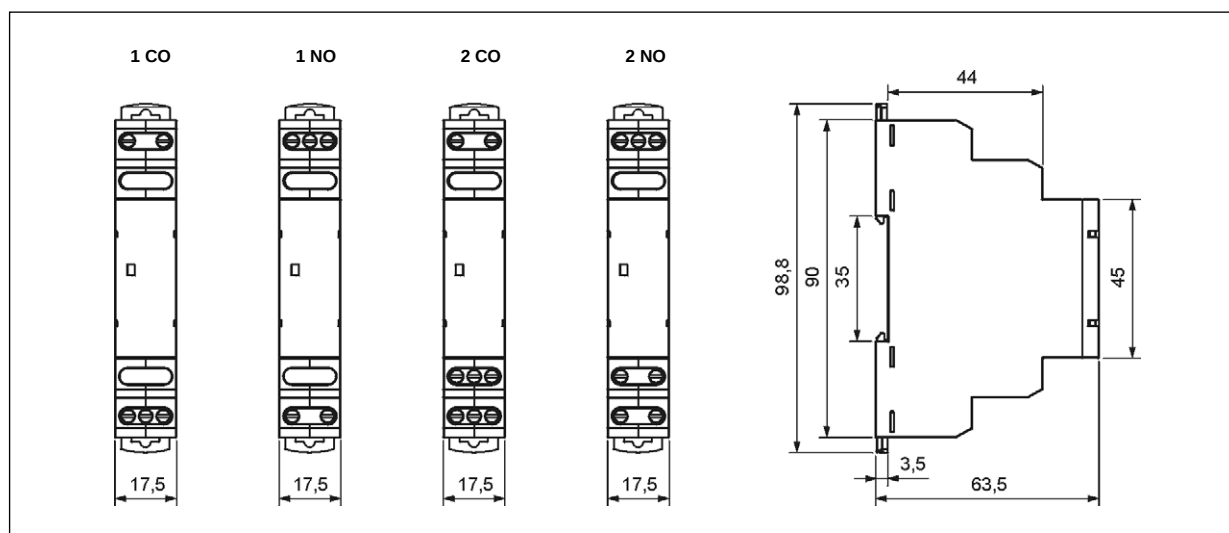
Coil data - AC/DC 50 Hz voltage version (contacts 1 NO, 2 NO)

Table 3

Coil code	Coil operating range V AC/DC	Coil operating range V AC/DC	
		min. (at 20 °C)	max. (at 55 °C)
8012	12	10,2	13,2
9024 ⑤	24 V AC/DC ⑤	20,4	26,4
	230 V AC ⑤	195,5	253,0
8048	48	40,8	52,8
8115	115	97,8	126,5

⑤ Selection of supply voltage via wires connection: 24 V AC/DC - to the terminals A1-A2; 230 V AC - to the terminals A1-A3.

Dimensions



Connection diagrams

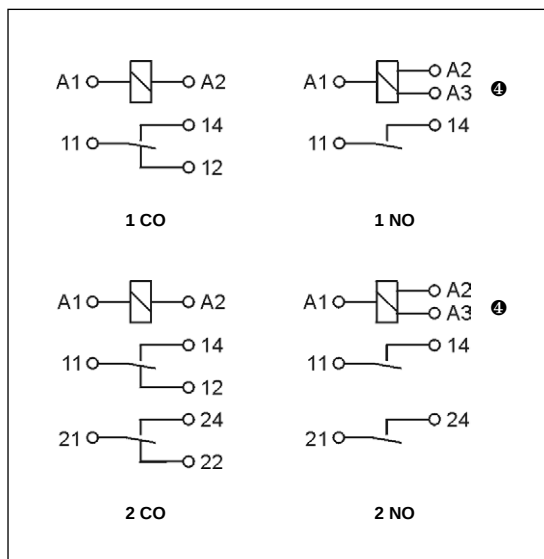


Table of codes

Table 4

Installation relay code		Rated coil voltage
contacts 1 CO, 1 NO	contacts 2 CO, 2 NO	
MT-PI-17S-11-1012	MT-PI-17S-12-1012	12 V DC
MT-PI-17S-11-1024	MT-PI-17S-12-1024	24 V DC
MT-PI-17S-11-1048	MT-PI-17S-12-1048	48 V DC
MT-PI-17S-11-5115	MT-PI-17S-12-5115	115 V AC 50/60 Hz
MT-PI-17S-11-5230	MT-PI-17S-12-5230	230 V AC 50/60 Hz
MT-PI-17S-21-8012	MT-PI-17S-22-8012	12 V AC/DC
MT-PI-17S-21-8048	MT-PI-17S-22-8048	48 V AC/DC
MT-PI-17S-21-8115	MT-PI-17S-22-8115	115 V AC/DC
MT-PI-17S-21-9024	MT-PI-17S-22-9024	24 V AC/DC
⑤	⑤	230 V AC 50 Hz

⑤ Selection of supply voltage via wires connection:

24 V AC/DC - to the terminals A1-A2; 230 V AC - to the terminals A1-A3.

④ Terminal A3 occurs only in versions MT-PI-17S-21-9024, MT-PI-17S-22-9024; used to supply relays with rated voltage 230 V AC 50 Hz - connection to the terminals A1-A3.

Mounting

Relays **MT-PI-...** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any.
Connections: max. cross section of the cables: $1 \times 2,5 \text{ mm}^2 / 2 \times 1,5 \text{ mm}^2$ ($1 \times 14 / 2 \times 16 \text{ AWG}$), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,6 Nm.

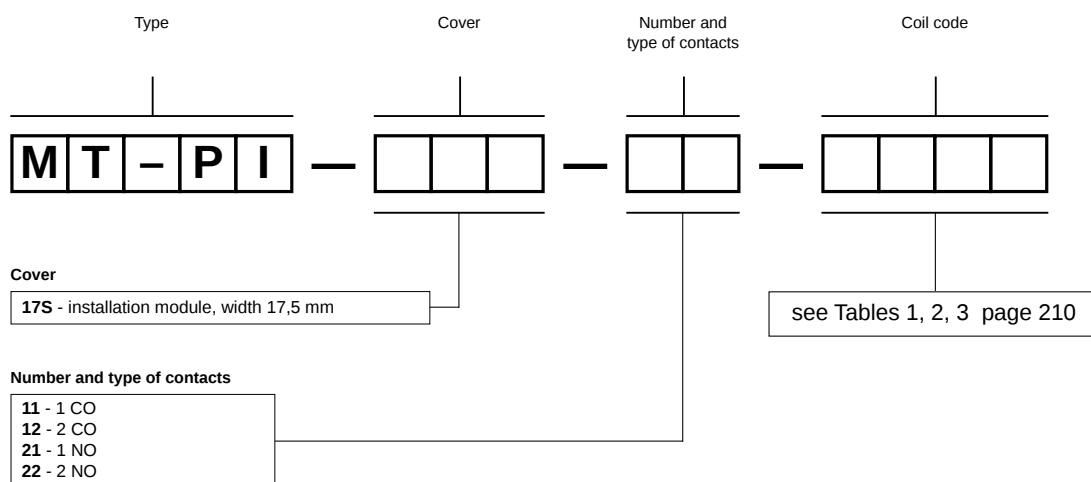


Two taps:
easy assembly on 35 mm rail,
firm tapping (top and bottom).



Green LED:
signalling the operation
status of the relay.

Ordering codes ⑥



Example of ordering code ⑥:

MT-PI-17S-22-9024

relay **MT-PI-...**, cover - installation module, width 17,5 mm, two normally open contacts, contact material AgNi, coil voltage 230 V AC 50 Hz or 24 V AC/DC AC: 50 Hz ⑥

⑥ Ordering codes **MT-PI-...** are specified in Table 4, "Installation relay code" column.

installation module covers

MT-TUA-...	213
MT-TUB-...	217
MT-T-...	221
MT-TSD-...	225

TR4N 4 CO	228
TR4N 1 CO, 2 CO.....	232

industrial covers

T-R4	236
PIR15...T with module T[COM3]	240

Time relays

Multifunction and single-function universal time relays for power-generation and industrial automation.

Time relays of MT-T-... series in installation module cover, designed for 35 mm rail mount acc. to PN-EN 60715.

TR4N, T-R4, PIR15...T time relays are universal and highly reliable components of electrical systems in power-generation and industrial automation. They are also used in other electrical applications. They perform various time functions with high precision in systems. They are distinguished by their high switching capacity, long mechanical and electrical life. They are highly resistant to atmospheric conditions. They meet the requirements of electromagnetic compatibility. They are designed for mounting on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting.

The relays are recognized and certified by: **CE** **PC** ; certification pending: **RU** **c RU**_{us}
They meet the requirements of RoHS Directive.



- **Multifunction time relay (10 time functions; 8 time ranges)**
- Cadmium - free contacts • AC/DC input voltages
- Cover - installation module, width 17,5 mm
- Direct mounting on 35 mm rail mount acc. to PN-EN 60715
- Application: in low-voltage systems
- Compliance with standard PN-EN 61812-1
- Recognitions, certifications, directives:

Output circuit - contact data

Number and type of contacts		1 CO
Contact material		AgNi
Max. switching voltage		400 V AC / 300 V DC
Rated load	AC1 DC1	10 A / 250 V AC 10 A / 24 V DC; 0,3 A / 250 V DC
Rated current		10 A / 250 V AC
Max. breaking capacity	AC1	16 A / 250 V AC
Min. breaking capacity		0,3 W 5 V, 5 mA
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour

Input circuit

Rated voltage	AC: 50/60 Hz AC/DC	12...240 V	terminals (+)A1 – (-)A2
Operating range of supply voltage		0,9...1,1 U _n	
Rated power consumption	AC DC	≤ 4,5 VA AC: 50 Hz ≤ 1,5 W	
Range of supply frequency	AC	48...63 Hz	

Control contact S ①

- min. voltage ②
 - min. time of pulse duration ②
- 0,7 U_n
AC: ≥ 50 ms DC: ≥ 20 ms

Insulation according to PN-EN 60664-1

Insulation rated voltage		250 V AC
Rated surge voltage		2 500 V 1,2 / 50 μs
Overvoltage category		II
Insulation pollution degree		1
Flammability degree		V-0 UL94
Dielectric strength	• input - output • contact clearance	2 500 V AC type of insulation: basic 1 000 V AC type of clearance: micro-disconnection

General data

Electrical life	• resistive AC1	> 0,5 x 10 ⁵ 10 A, 250 V AC
Mechanical life (cycles)		> 3 x 10 ⁷
Dimensions (L x W x H) / Weight		90 ③ x 17,5 x 63,5 mm / 64 g
Ambient temperature	• storage • operating	-40...+70 °C -20...+45 °C
Cover protection category		IP 20 PN-EN 60529
Relative humidity		up to 85%
Shock / vibration resistance		15 g / 0,35 mm 10...55 Hz

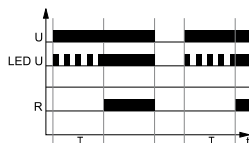
Time module data

Functions		E, Wu, Bp, Bi, T, R, Ws, Wa, Esa, B permanent switching ON and OFF
Time ranges		1 s ④; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment		smooth - (0,1...1) x time range
Setting accuracy		± 5% ⑤ ④
Repeatability		± 0,5% ④
Values affecting the timing adjustment	• temperature • humidity	± 0,05% / °C ± 0,05% / %HR
Recovery time		≤ 50 ms
LED indicator		green LED U ON - indication of supply voltage U green LED U flashing - measurement of T time yellow LED R ON/OFF - output relay status

① The control terminal S is activated by connection to A1 terminal via the external control contact S. ② Where the control signal is recognizable.
③ Length with 35 mm rail taps: 98,8 mm. ④ For first range setpoint (1 s) setting accuracy and repeatability are smaller than the given ones in technical parameters (significant influence of the operational relay operating time, processor start-time, and the moment of supply switching as referred to the AC supply course). ⑤ Calculated from the final range values, for the setting direction from minimum to maximum.

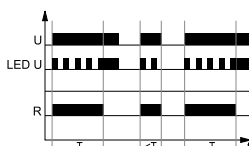
Time functions

E - ON delay.



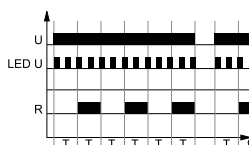
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



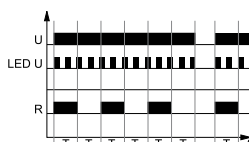
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



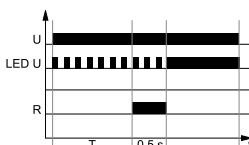
Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Bi - Symmetrical cyclical operation pulse first.



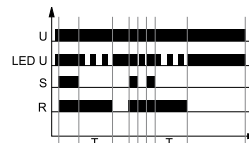
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

T - Generation of the 0,5 s pulse after the interval T.



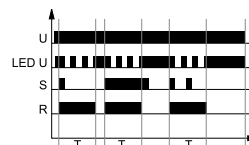
Applying the supply voltage U starts the interval T. After the interval T has lapsed, the output relay switches on for 0,5 s (the time of the NO contact of the output relay).

R - OFF delay with the control contact S.



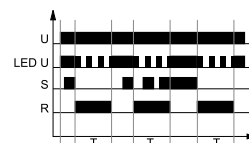
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches on the output relay R. Opening of the control contact S starts the set time of the delayed switching off of the output relay R. After the interval T has lapsed, the output relay R switches off. If the control contact S is closed during the interval T, the already measured time is reset, and the output relay R is switched on again. The OFF delay of the output relay R will start when the control contact S is opened again.

Ws - Single shot for the set interval triggered by closing of the control contact S.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R is switched off. In the course of the interval T, any opening of the control contact S does not affect the function to be performed. The output relay R may be switched on again for the set interval, after the interval T has lapsed, by closing the control contact S again.

Wa - ON for the set interval triggered with the control contact S.

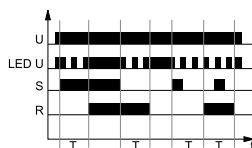


The input of the time relay is supplied with voltage U continuously. Closing of the control contact S does not start the interval T, and it does not change the position of the output relay R. Opening of the control contact S immediately switches on the output relay R for the set time. After the interval T has lapsed, the output relay R switches off. Opening and closing of the control contact S in the course of the interval T does not affect the function to be performed. The output relay R may be switched on again for the set interval with another closing and opening of the control contact S.

U - supply voltage; R - output state of the relay; S - control contact state; T - measured time; t - time axis

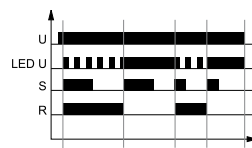
Time functions

Esa - ON and OFF delay with the control contact S.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T - on-delay of the output relay R. After the interval T has lapsed, the output relay R switches on. Opening of the control contact S begins further measurement of the interval T - off-delay of the output relay R, and after the interval has lapsed, the output relay switches off. In case the time for which the control contact S is closed in the course of measurement of the on-delay of the output relay R is shorter than the set interval T, the output relay R will switch on after the set interval T, and the output relay R will remain in on position for the interval T. When the output relay R is in on position, closing of the control contact S does not affect the function to be performed.

B - Cyclical operation controlled with closing of the control contact S.



The input of the time relay is supplied with U voltage continuously. Closing of the control contact S immediately switches on the output relay R. Each next closing of the control contact S results in a change of the status of the output relay R to an opposite one (the feature of a bistable relay).

Permanent switching ON and OFF.

The functions ON and OFF are selected with TIME potentiometer. In the ON function, the normally open contacts are closed all the time whereas in the OFF function they are open. The position of the FUNC potentiometer is of no significance in these functions as is the preset measurement time. The ON or OFF functions are used for the time relay operation control in electric systems.

U - supply voltage; R - output state of the relay; S - control contact state; T - measured time; t - time axis

Additional functions

Supply diode: it is lit permanently when the time is not being measured. In course of the T time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time.

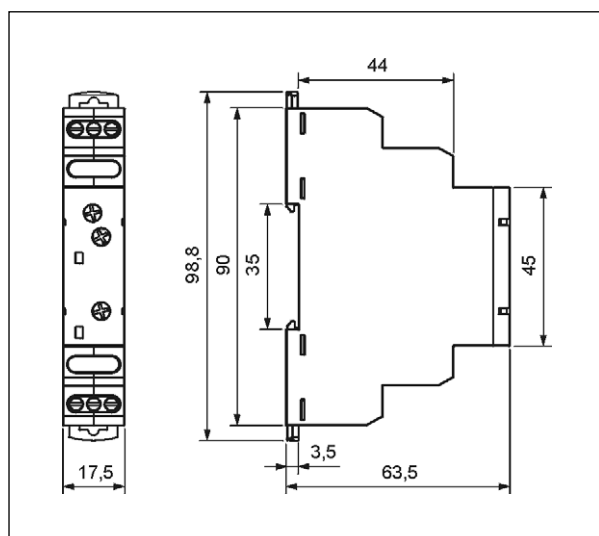
Adjustment of the set values:

- the values of time and range are read in the course of the relay's operation. The set values may be modified at any moment,
- no change of the function is possible in the course of the relay's operation. Any change of the settings of the relay shall be read only after the supply voltage has been switched off and on again.

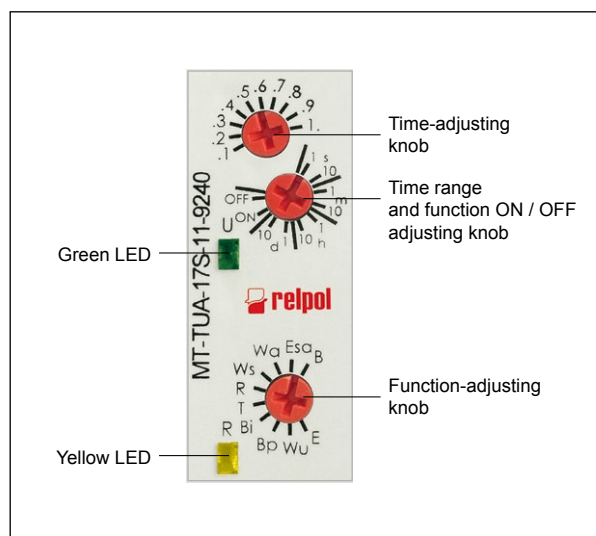
Release: depending on the function to be performed, the relay is released with the supply voltage or by connection of the S contact to the A1 line. For DC supply, the positive pole must be connected to the A1 line. The level of the S contact activation is adjusted automatically depending on the supply voltage.

Supply: the relay may be supplied with DC voltage or AC voltage 48...63 Hz of 10,8...250 V. A programmed control of the supply voltage has been applied so the processor shall not start operation if the voltage is lower than approximately 10 V. The supply voltage is permanently monitored in course of the operation of the relay. When the voltage drops below 9 V for more than 50 ms, the relay shall be reset. Owing to this, the regeneration time is programmed to 50 ms, and it does not depend on the tolerance of the elements.

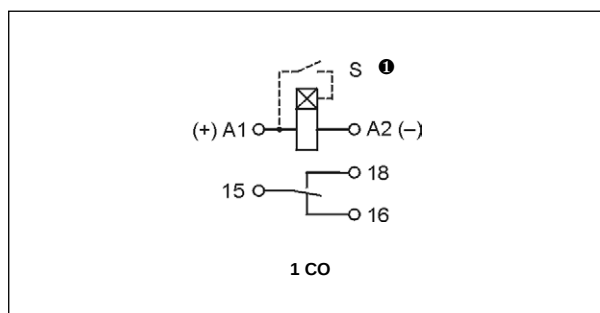
Dimensions



Front panel description



Connection diagram



i The control terminal S is activated by connection to A1 terminal via the external control contact S.

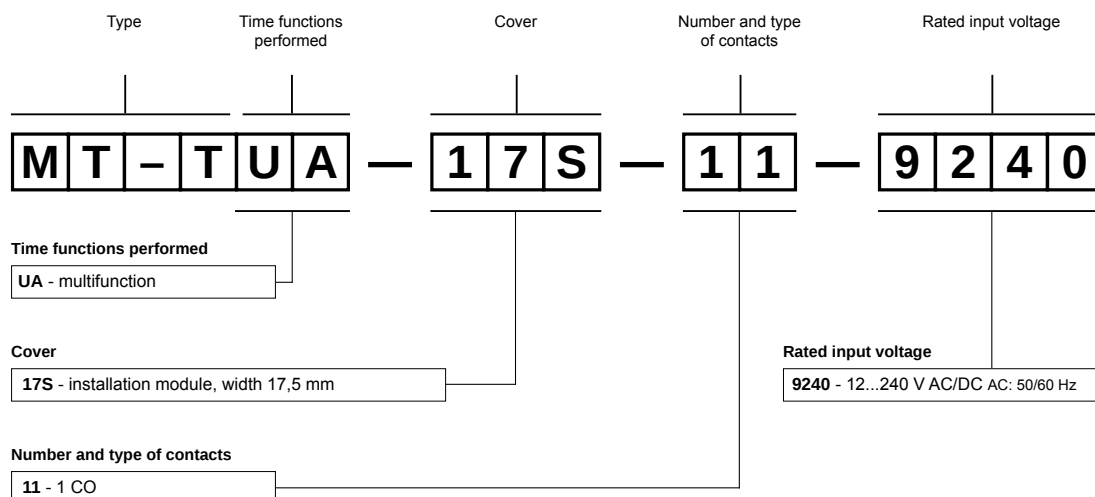
Mounting

Relays **MT-TUA-...** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,6 Nm.

Two taps:
easy assembly on 35 mm rail,
firm tapping (top and bottom).



Ordering codes



Example of ordering code:

MT-TUA-17S-11-9240

time relay **MT-TUA-...**, multifunction (relay perform 10 functions), cover - installation module, width 17,5 mm, one changeover contact, contact material AgNi, rated input voltage 12...240 V AC/DC AC: 50/60 Hz



- **Multifunction time relay (10 time functions; 8 time ranges)**
- Cadmium - free contacts • AC/DC input voltages
- Cover - installation module, width 17,5 mm
- Direct mounting on 35 mm rail mount acc. to PN-EN 60715
- Application: in low-voltage systems
- Compliance with standard PN-EN 61812-1
- Recognitions, certifications, directives:

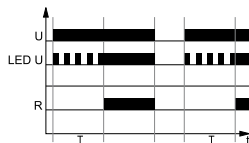
Output circuit - contact data

Number and type of contacts		1 CO
Contact material		AgNi
Max. switching voltage		400 V AC / 300 V DC
Rated load	AC1 DC1	10 A / 250 V AC 10 A / 24 V DC; 0,3 A / 250 V DC
Rated current		10 A / 250 V AC
Max. breaking capacity	AC1	16 A / 250 V AC
Min. breaking capacity		0,3 W 5 V, 5 mA
Contact resistance		≤ 100 mΩ
Max. operating frequency • at rated load	AC1	600 cycles/hour
Input circuit		
Rated voltage	AC: 50/60 Hz AC/DC	12...240 V terminals (+)A1 – (-)A2
Operating range of supply voltage		0,9...1,1 U _n
Rated power consumption	AC DC	≤ 4,5 VA AC: 50 Hz ≤ 1,5 W
Range of supply frequency	AC	48...63 Hz
Control contact S ①		
• min. voltage ②		0,7 U _n
• min. time of pulse duration ③		AC: ≥ 50 ms DC: ≥ 20 ms
Insulation according to PN-EN 60664-1		
Insulation rated voltage		250 V AC
Rated surge voltage		2 500 V 1,2 / 50 μs
Overvoltage category		II
Insulation pollution degree		1
Flammability degree		V-0 UL94
Dielectric strength	• input - output • contact clearance	2 500 V AC type of insulation: basic 1 000 V AC type of clearance: micro-disconnection
General data		
Electrical life	• resistive AC1	> 0,5 x 10 ⁵ 10 A, 250 V AC
Mechanical life (cycles)		> 3 x 10 ⁷
Dimensions (L x W x H) / Weight		90 ④ x 17,5 x 63,5 mm / 64 g
Ambient temperature	• storage • operating	-40...+70 °C -20...+45 °C
Cover protection category		IP 20 PN-EN 60529
Relative humidity		up to 85%
Shock / vibration resistance		15 g / 0,35 mm 10...55 Hz
Time module data		
Functions		E, Wu, Bp, Bi, Ra, Esf, Wi, Wst, Est, Esp permanent switching ON and OFF
Time ranges		1 s ⑤; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment		smooth - (0,1...1) x time range
Setting accuracy		± 5% ⑤ ④
Repeatability		± 0,5% ④
Values affecting the timing adjustment	• temperature • humidity	± 0,05% / °C ± 0,05% / %HR
Recovery time		≤ 50 ms
LED indicator		green LED U ON - indication of supply voltage U green LED U flashing - measurement of T time yellow LED R ON/OFF - output relay status

① The control terminal S is activated by connection to A1 terminal via the external control contact S. ② Where the control signal is recognizable.
③ Length with 35 mm rail taps: 98,8 mm. ④ For first range setpoint (1 s) setting accuracy and repeatability are smaller than the given ones in technical parameters (significant influence of the operational relay operating time, processor start-time, and the moment of supply switching as referred to the AC supply course). ⑤ Calculated from the final range values, for the setting direction from minimum to maximum.

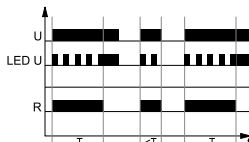
Time functions

E - ON delay.



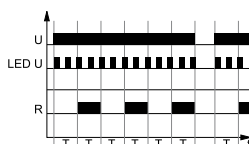
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



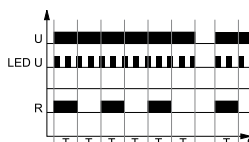
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



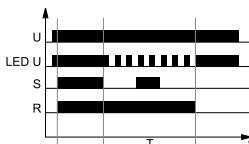
Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Bi - Symmetrical cyclical operation pulse first.



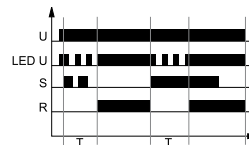
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Ra - OFF delay with the control contact S, without extension of the interval T.



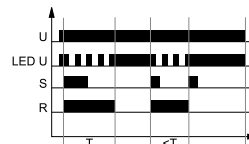
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches on the output relay R. Opening of the control contact S starts the set time of the delayed switching off of the output relay R. After the interval T has lapsed, the output relay R switches off. Opening or closing of the control contact S within the interval T does not affect the function to be performed.

Esf - ON delay with the control contact S without the interval T extension.



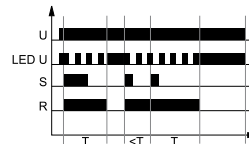
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T - on-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains in this position until the control contact S is closed again, which instantly switches the output relay off for the time T, and after the interval T has lapsed, the output relay R switches on again. In the course of measurement of the interval T, opening or closing of the control contact S does not affect the status of the output relay R. The output relay R may be switched on again after the current cycle has been completed.

Wi - ON for the set interval controlled by closing of the control contact S, with the function of switching off the output relay R prior to the lapse of the interval T.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R is switched off. Any next closing of the control contact S switches on the output relay R again. In case the control contact S is closed again during the interval T, the output relay is immediately switched off, and the measured interval is cancelled. In the course of the interval T, any opening of the control contact S does not affect the function to be performed.

Wst - ON for the set interval by closing the control contact S, with extension of the interval T - extension of the time of switching on the output relay R.

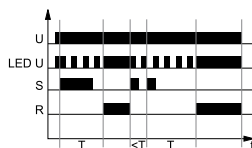


The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R is switched off. The next closing of the control contact S immediately switches on the output relay R for the interval T. In case the control contact S is closed within the interval T, the measured time is cancelled, and the interval T starts again.

U - supply voltage; R - output state of the relay; S - control contact state; T - measured time; t - time axis

Time functions

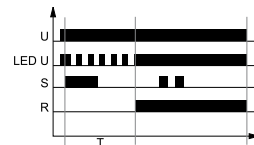
Est - ON delay with closing of the control contact, with the interval T extended.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T, and after the interval T has lapsed, the output relay R switches on and remains in this position until the supply voltage U is interrupted. Closing of the control contact S resets the thus far measured time and starts the new interval T.

U - supply voltage; R - output state of the relay;
S - control contact state; T - measured time; t - time axis

Esp - ON delay - one cycle, with the control contact S.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T, and after the interval T has lapsed, the output relay R switches on and remains in this position until the supply voltage U is interrupted. When the output relay R is on, opening or closing of the control contact S does not affect its status.

Permanent switching ON and OFF.

The functions ON and OFF are selected with TIME potentiometer. In the ON function, the normally open contacts are closed all the time whereas in the OFF function they are open. The position of the FUNC potentiometer is of no significance in these functions as is the preset measurement time. The ON or OFF functions are used for the time relay operation control in electric systems.

Additional functions

Supply diode: it is lit permanently when the time is not being measured. In course of the T time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time.

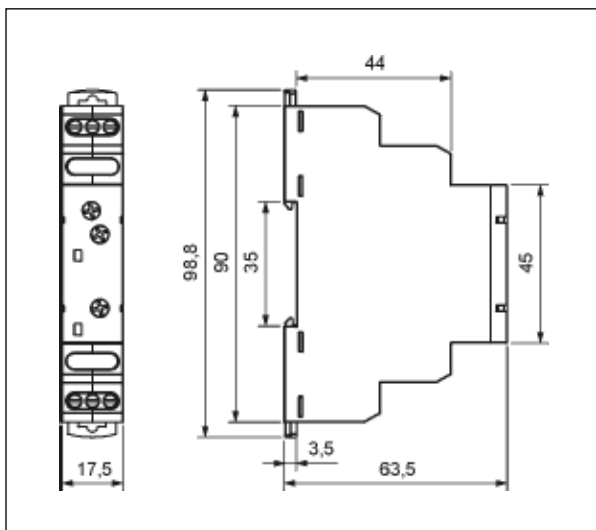
Adjustment of the set values:

- the values of time and range are read in the course of the relay's operation. The set values may be modified at any moment,
- no change of the function is possible in the course of the relay's operation. Any change of the settings of the relay shall be read only after the supply voltage has been switched off and on again.

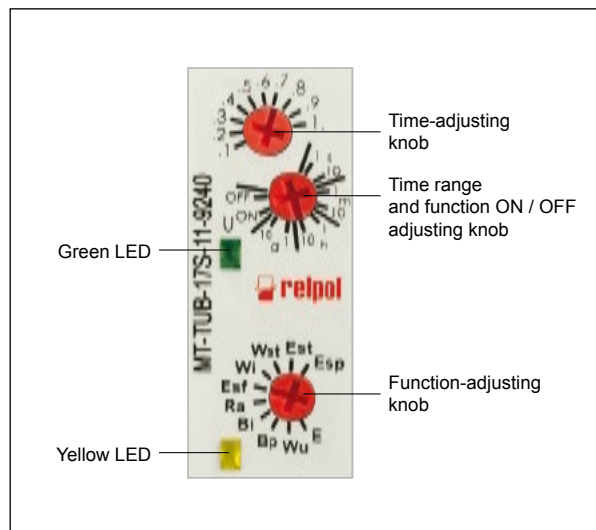
Release: depending on the function to be performed, the relay is released with the supply voltage or by connection of the S contact to the A1 line. For DC supply, the positive pole must be connected to the A1 line. The level of the S contact activation is adjusted automatically depending on the supply voltage.

Supply: the relay may be supplied with DC voltage or AC voltage 48...63 Hz of 10,8...250 V. A programmed control of the supply voltage has been applied so the processor shall not start operation if the voltage is lower than approximately 10 V. The supply voltage is permanently monitored in course of the operation of the relay. When the voltage drops below 9 V for more than 50 ms, the relay shall be reset. Owing to this, the regeneration time is programmed to 50 ms, and it does not depend on the tolerance of the elements.

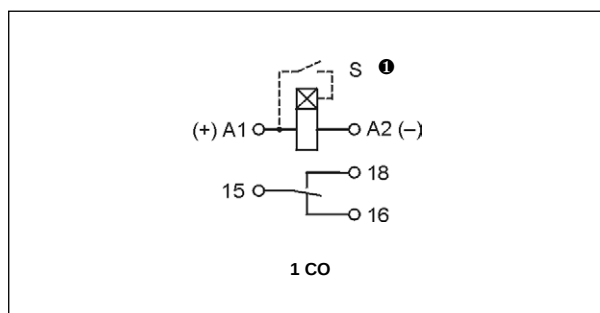
Dimensions



Front panel description



Connection diagram



i The control terminal S is activated by connection to A1 terminal via the external control contact S.

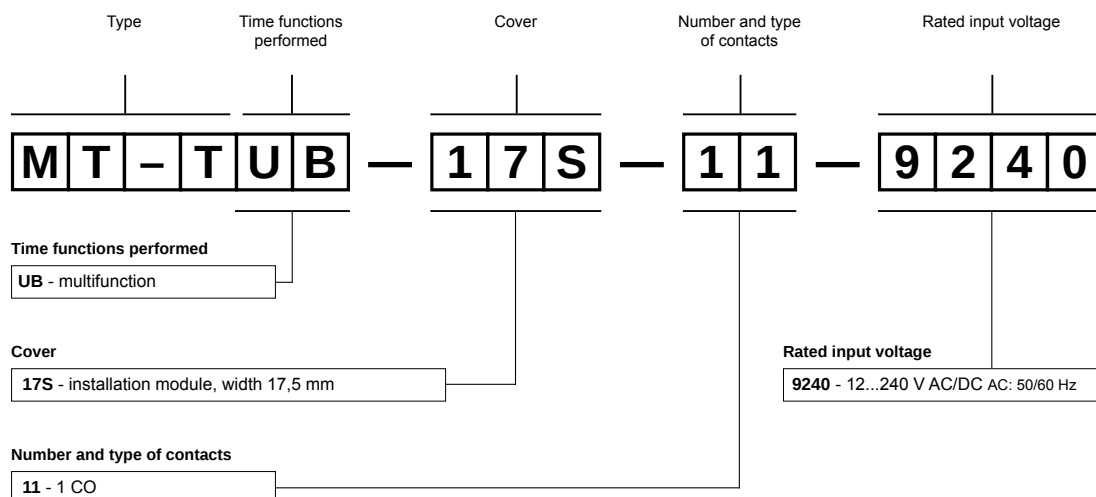
Mounting

Relays **MT-TUB-...** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,6 Nm.

Two taps:
easy assembly on 35 mm rail,
firm tapping (top and bottom).



Ordering codes



Example of ordering code:

MT-TUB-17S-11-9240

time relay **MT-TUB-...**, multifunction (relay perform 10 functions), cover - installation module, width 17,5 mm, one changeover contact, contact material AgNi, rated input voltage 12...240 V AC/DC AC: 50/60 Hz



- Time relays with independently controlled times T1 and T2 (7 versions of relays with 1 time function ①; 7 time ranges)
- Cadmium - free contacts • AC/DC input voltages
- Cover - installation module, width 17,5 mm
- Direct mounting on 35 mm rail mount acc. to PN-EN 60715
- Application: in low-voltage systems
- Compliance with standard PN-EN 61812-1
- Recognitions, certifications, directives:

Output circuit - contact data

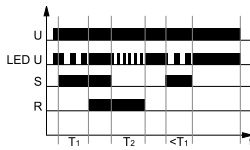
Number and type of contacts		1 CO	
Contact material		AgNi	
Max. switching voltage		400 V AC / 300 V DC	
Rated load	AC1	10 A / 250 V AC	
	DC1	10 A / 24 V DC; 0,3 A / 250 V DC	
Rated current		10 A / 250 V AC	
Max. breaking capacity		AC1	16 A / 250 V AC
Min. breaking capacity		0,3 W 5 V, 5 mA	
Contact resistance		≤ 100 mΩ	
Max. operating frequency		600 cycles/hour	
• at rated load AC1			
Input circuit			
Rated voltage	AC: 50/60 Hz AC/DC	12...240 V	terminals (+)A1 – (-)A2
Operating range of supply voltage		0,9...1,1 U _n	
Rated power consumption	AC	≤ 4,5 VA	AC: 50 Hz
	DC	≤ 1,5 W	
Range of supply frequency	AC	48...63 Hz	
Control contact S ②			
• min. voltage ③		0,7 U _n	
• min. time of pulse duration ③		AC: ≥ 50 ms	DC: ≥ 20 ms
Insulation according to PN-EN 60664-1			
Insulation rated voltage		250 V AC	
Rated surge voltage		2 500 V 1,2 / 50 μs	
Overvoltage category		II	
Insulation pollution degree		1	
Flammability degree		V-0 UL94	
Dielectric strength	• input - output	2 500 V AC	type of insulation: basic
	• contact clearance	1 000 V AC	type of clearance: micro-disconnection
General data			
Electrical life	• resistive AC1	> 0,5 x 10 ⁵	10 A, 250 V AC
Mechanical life (cycles)		> 3 x 10 ⁷	
Dimensions (L x W x H) / Weight		90 ④ x 17,5 x 63,5 mm / 64 g	
Ambient temperature	• storage	-40...+70 °C	
	• operating	-20...+45 °C	
Cover protection category		IP 20	PN-EN 60529
Relative humidity		up to 85%	
Shock / vibration resistance		15 g / 0,35 mm 10...55 Hz	
Time module data			
Functions ①		ER, EWa, EWs, EWu + NWu, li + lp, WsWa, Wt	
Time ranges		1 s ⑤; 10 s; 1 min.; 10 min.; 1 h; 10 h; 100 h	
Timing adjustment		smooth - (0,1...1) x time range	
Setting accuracy		± 5% ⑥ ⑤	
Repeatability		± 0,5% ⑤	
Values affecting the timing adjustment	• temperature	± 0,05% / °C	
	• humidity	± 0,05% / %HR	
Recovery time		≤ 50 ms	
LED indicator		green LED U ON - indication of supply voltage U green LED U slow flashing - measurement of T1 time green LED U fast flashing - measurement of T2 time yellow LED R ON/OFF - output relay status	

① Codes of versions - see "Ordering codes", page 224 and descriptions of time functions, pages 222, 223. ② The control terminal S is activated by connection to A1 terminal via the external control contact S. ③ Where the control signal is recognizable. ④ Length with 35 mm rail taps: 98,8 mm. ⑤ For first range setpoint (1 s) setting accuracy and repeatability are smaller than the given ones in technical parameters (significant influence of the operational relay operating time, processor start-time, and the moment of supply switching as referred to the AC supply course). ⑥ Calculated from the final range values, for the setting direction from minimum to maximum.

Time functions ①

ER - ON delay and OFF delay with control contact S. Independent T1 and T2 settings.

Relay code: **MT-TER-17S-11-9240**



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T1, and after it has lapsed, the output relay R switches on. Opening of the control contact S starts the interval T2, and after it has lapsed, the output relay R switches off. In case the control contact S is closed in the course of the interval T2, the measured time is reset and the output relay R remains switched on. In case the control contact S is closed for time shorter than T1, the unit will not switch the output relay R on.

EWa - OFF delay and breaking time delay with opening of the control contact S; independent settings of T1 and T2 intervals.

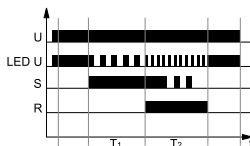
Relay code: **MT-TEA-17S-11-9240**



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S switches on the output relay R. Opening of the control contact S starts the interval T1, and after the interval has lapsed, the output relay R switches off for the interval T2. Following the interval T2, the output relay R will be switched on again when the control contact S is closed on the lapse of the interval. In the course of the intervals T1 and T2 the position of the control contact S is of no importance.

EWs - ON delay and ON for the set time with closing of the control contact S; independent settings of T1 and T2 intervals.

Relay code: **MT-TES-17S-11-9240**



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T1, and after the interval has lapsed, the output relay R switches on for the interval T2. Following the interval T2, the output relay switches off, and the circuit awaits for the control contact S to be closed again. In the course of the intervals T1 and T2 the position of the control contact S is of no importance.

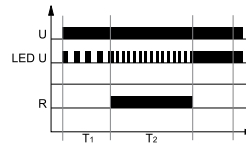
U - supply voltage; R - output state of the relay;
S - control contact state; T1, T2 - measured times; t - time axis

① Codes of versions - see "Ordering codes", page 224 and descriptions of time functions, pages 222, 223.

EWu + NWu - ON delay for the set interval or switching ON for the set interval - switching OFF for the set interval - continuous ON with the control contact S; independent settings of T1 and T2 intervals.

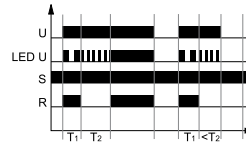
Relay code: **MT-TEU-17S-11-9240**

function EWu



When the control contact S is open, application of the supply voltage U starts operation in the EWu function - the interval T1, and after the interval T1 has lapsed, the output relay switches on for the interval T2.

function NWu



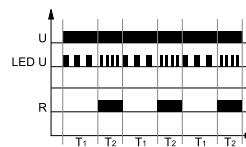
When the control contact S is closed, application of the supply voltage U starts operation in the NWu function - from switching on the output relay R for the interval T1, and after the interval T1 has lapsed, the output relay switches off for the interval T2, and following the interval T2, the output relay R switches on for continuous time.

In the course of the relay operation, closing of the control contact S at any time will cause reset and the operation in the NWu function will start whereas opening of the control contact S at any time will cause reset and the operation in the EWu function will start.

li + Ip - Cyclical operation in two independent intervals T1 and T2; operation in the function li or Ip depending on the position of the control contact S.

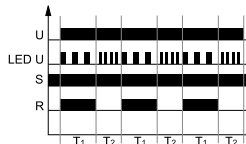
Relay code: **MT-TIP-17S-11-9240**

function Ip



Application of the supply voltage U when the control contact S is open start the cyclical operation in the Ip function - from the interval T1 (time of switching off the output relay R), following which the output relay R is switched on for the interval T2. The cyclical operation continues until the supply voltage U is interrupted.

function li



When the control contact S is closed, application of the supply voltage U starts operation in the li function - from switching on the output relay R for the interval T1, and after the interval T1 has lapsed, the output relay switches off for the interval T2. The cyclical operation continues until the supply voltage U is interrupted.

In the course of the relay operation, closing of the control contact S at any time will cause reset and the operation in the li function will start whereas opening of the control contact S at any time will cause reset and the operation in the Ip function will start.

Time functions ①

WsWa - ON for the set intervals T1 and T2 with the control contact S; independent settings of T1 and T2 intervals.

Relay code: **MT-TSA-17S-11-9240**

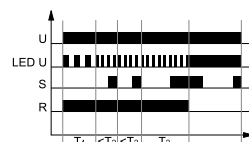


The input of the time relay is supplied with voltage U continuously. Closing of the control contact S switches the output relay R for the interval T1, and after the interval has lapsed, the relay R is switched off. Opening of the control contact S switches on the output relay R for the interval T2. If the control contact S is open when the interval T1 lapses, the output relay R will remain on for the interval T2. If the control contact S is closed when the interval T2 lapses, the output relay R will remain on for the interval T1.

U - supply voltage; R - output state of the relay;
S - control contact state; T1, T2 - measured times; t - time axis

Wt - Monitoring of the sequence of pulses. Switching on is extended with consecutive pulses / closings of the contact S; independent settings of T1 and T2 intervals.

Relay code: **MT-TWT-17S-11-9240**



On applying the supply voltage U the output relay R is switched on for the set interval t1. After the interval T1 has lapsed, the interval T2 starts with the output relay R still switched on. For the output relay to switch on, the control contact S must be closed and then opened (single pulse) during the interval T2, which cancels the time already measured and starts the interval T2 again. In case of absence of a single pulse prior to lapse of the interval T2, the output relay R will switch off, and it may be switched on after the supply voltage has been interrupted and applied again.

① Codes of versions - see "Ordering codes", page 224 and descriptions of time functions, pages 222, 223.

Additional functions

Supply diode: it is lit permanently when the time is not being measured. In course of the T1 time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time. For the T2 time, the period is 250 ms.

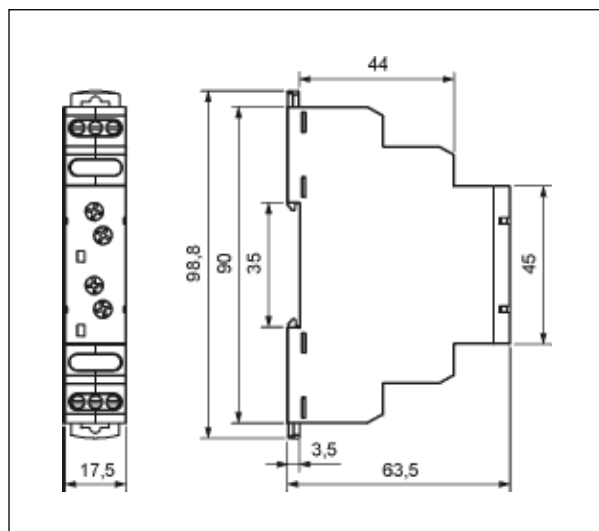
Adjustment of the set values: the values of time and range are read in the course of the relay's operation. The set values may be modified at any moment.

Release:

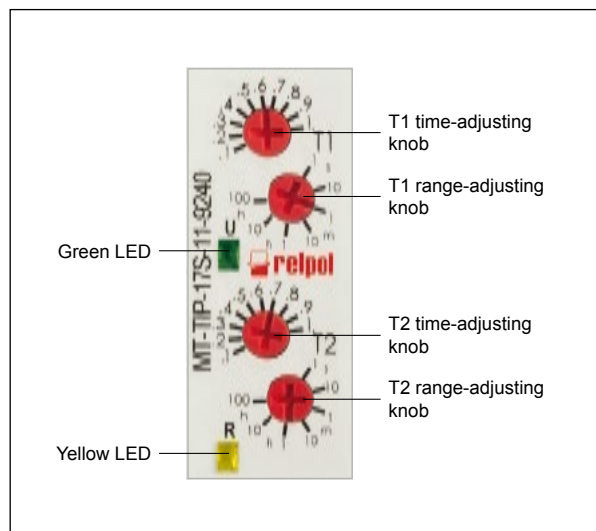
- for the versions MT-TEU-..., MT-TIP-...: the relay is released with the supply voltage,
- for other versions: the relay is released by connection of the S contact to the A1 line. For DC supply, the positive pole must be connected to the A1 line. The level of the S contact activation is adjusted automatically depending on the supply voltage.

Supply: the relay may be supplied with DC voltage or AC voltage 48...63 Hz of 10,8...250 V. A programmed control of the supply voltage has been applied so the processor shall not start operation if the voltage is lower than approximately 10 V. The supply voltage is permanently monitored in course of the operation of the relay. When the voltage drops below 9 V for more than 50 ms, the relay shall be reset. Owing to this, the regeneration time is programmed to 50 ms, and it does not depend on the tolerance of the elements.

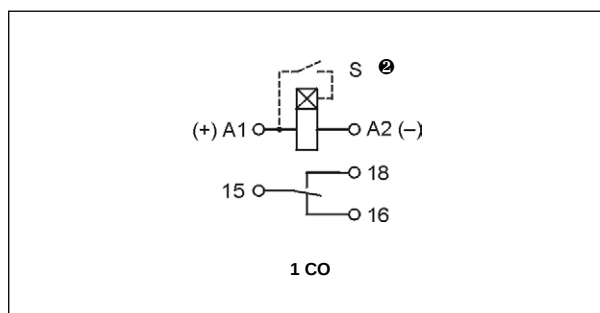
Dimensions



Front panel description



Connection diagram



❶ Codes of versions - see "Ordering codes", page 224 and descriptions of time functions, pages 222, 223.

❷ The control terminal S is activated by connection to A1 terminal via the external control contact S.

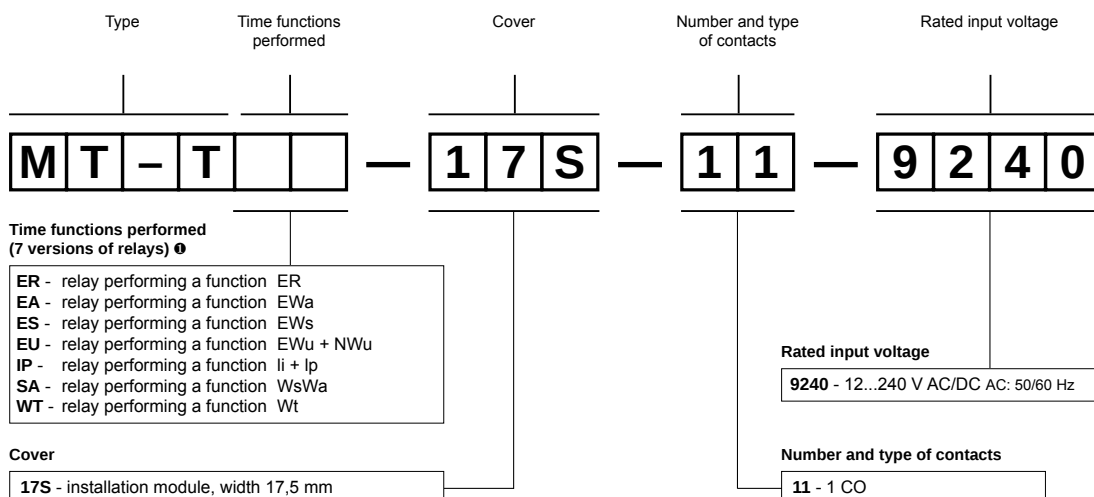
Mounting

Relays **MT-T...-... ❶** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,6 Nm.

Two taps:
easy assembly on 35 mm rail,
firm tapping (top and bottom).



Ordering codes ❶



Example of ordering code:

MT-TIP-17S-11-9240

time relay **MT-TIP-...**, single-function (relay perform function li + lp), cover - installation module, width 17,5 mm, one changeover contact, contact material AgNi, rated input voltage 12...240 V AC/DC AC: 50/60 Hz



- **Star-Delta start-up with independently controlled times T1 and T2 (1 time function; 7 time ranges)**
- Cadmium - free contacts • AC/DC input voltages
- Cover - installation module, width 17,5 mm
- Direct mounting on 35 mm rail mount acc. to PN-EN 60715
- Application: in low-voltage systems
- Compliance with standard PN-EN 61812-1
- Recognitions, certifications, directives:

Output circuits - contact data

Number and type of contacts		2 x 1 CO	
Contact material		AgNi	
Max. switching voltage		400 V AC / 300 V DC	
Rated load	AC1	10 A / 250 V AC	
	DC1	10 A / 24 V DC; 0,3 A / 250 V DC	
Rated current		10 A / 250 V AC	
Max. breaking capacity		AC1	16 A / 250 V AC
Min. breaking capacity		0,3 W 5 V, 5 mA	
Contact resistance		≤ 100 mΩ	
Max. operating frequency			
• at rated load	AC1	600 cycles/hour	
Input circuit			
Rated voltage	AC: 50/60 Hz AC/DC	12...240 V	terminals (+)A1 – (-)A2
Operating range of supply voltage		0,9...1,1 U _n	
Rated power consumption	AC	≤ 4,5 VA	AC: 50 Hz
	DC	≤ 1,5 W	
Range of supply frequency	AC	48...63 Hz	
Insulation according to PN-EN 60664-1			
Insulation rated voltage		250 V AC	
Rated surge voltage		2 500 V 1,2 / 50 μs	
Overvoltage category		II	
Insulation pollution degree		1	
Flammability degree		V-0 UL94	
Dielectric strength	• input - outputs	2 500 V AC	type of insulation: basic
	• contact clearance	1 000 V AC	type of clearance: micro-disconnection
General data			
Electrical life	• resistive AC1	> 0,5 x 10 ⁵	10 A, 250 V AC
Mechanical life (cycles)		> 3 x 10 ⁷	
Dimensions (L x W x H)		90 ① x 17,5 x 63,5 mm	
Weight		84 g	
Ambient temperature	• storage	-40...+70 °C	
	• operating	-20...+45 °C	
Cover protection category		IP 20	PN-EN 60529
Relative humidity		up to 85%	
Shock resistance		15 g	
Vibration resistance		0,35 mm 10...55 Hz	
Time module data			
Functions		SD	
Time ranges (start-up for the star) T1		10 s; 30 s; 1 min.; 3 min.; 10 min.; 30 min.; 1 h	
Timing adjustment T1		smooth - (0,05...1) x time range	
Transit time (adjustable) ② T2		smoothly within the range 0,05...1 s (linear adjustment of time)	
Setting accuracy		± 5% ③	
Repeatability		± 3%	
Values affecting the timing adjustment	• temperature	± 0,05% / °C	
	• humidity	± 0,05% / %HR	
Recovery time		≤ 50 ms	
LED indicator		green LED U ON - indication of supply voltage U green LED U flashing - measurement of T1 and T2 times yellow LEDs ON/OFF - contactors switching signal	

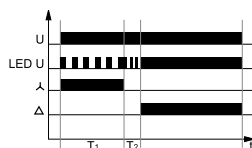
① Length with 35 mm rail taps: 98,8 mm.

② Pause time between switching off the star contactor and switching on the delta contactor.

③ Calculated from the final range values, for the setting direction from minimum to maximum.

Time functions

SD - Star-Delta start-up



When the supply voltage U is applied, the operating star-contact (15-18) becomes closed, which is signaled with illumination of the yellow LED. Measurement of the set time T1 starts, and the green LED flashes at 500 ms. After the T1 time has lapsed, the star contact is disconnected and the relay begins measuring the T2 time, which is signaled with the green LED flashing at 250 ms. After the T2 time has lapsed, the delta contact (25-28) is switched on together with the yellow LED, and the green LED remains illuminated.

U - supply voltage; T1, T2 - measured times; t - time axis

Additional functions

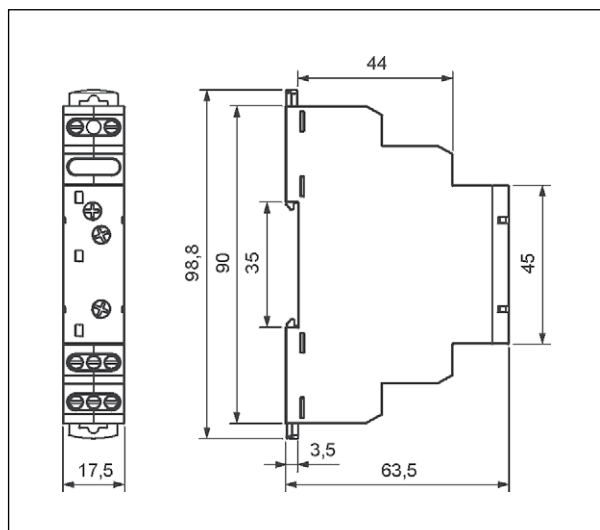
Supply diode: it is lit permanently when the time is not being measured. In course of the T1 time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time. For the T2 time, the period is 250 ms.

Adjustment of the set values: the values of time and range are read in the course of the relay's operation. The set values may be modified at any moment.

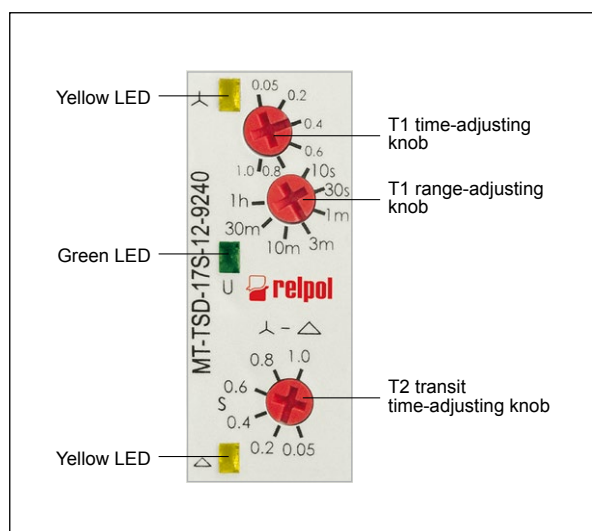
Release: the relay is released with the supply voltage.

Supply: the relay may be supplied with DC voltage or AC voltage 48...63 Hz of 10,8...250 V. A programmed control of the supply voltage has been applied so the processor shall not start operation if the voltage is lower than approximately 10 V. The supply voltage is permanently monitored in course of the operation of the relay. When the voltage drops below 9 V for more than 50 ms, the relay shall be reset. Owing to this, the regeneration time is programmed to 50 ms, and it does not depend on the tolerance of the elements.

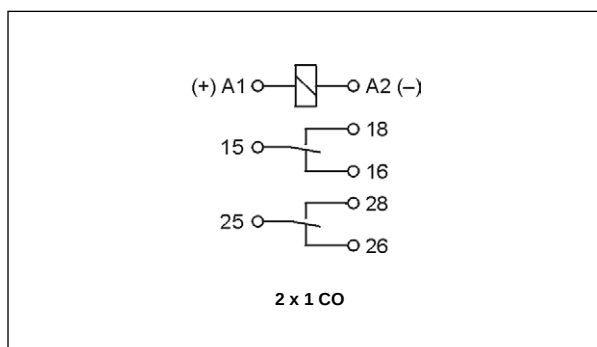
Dimensions



Front panel description



Connection diagram



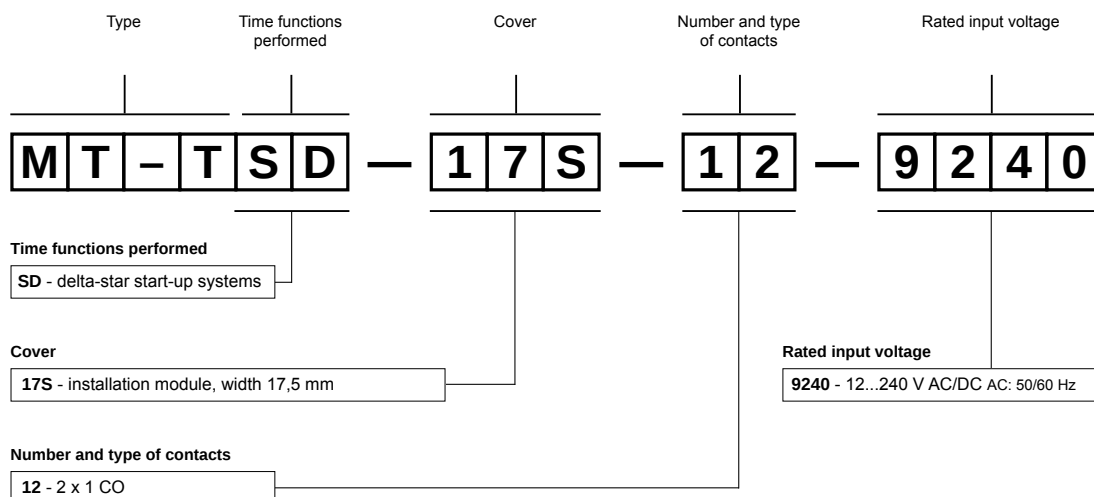
Mounting

Relays **MT-TSD-...** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,6 Nm.



Two taps:
easy assembly on 35 mm rail,
firm tapping (top and bottom).

Ordering codes



Example of ordering code:

MT-TSD-17S-12-9240

time relay **MT-TSD-...**, single-function (relay perform function SD), cover - installation module, width 17,5 mm, one changeover contact, contact material AgNi, rated input voltage 12...240 V AC/DC AC: 50/60 Hz

TR4N 4 CO

time relays



- 10-function electronic time relays in compact cover
- Cadmium - free contacts
- AC and AC/DC input voltages
- Direct mounting on 35 mm rail mount acc. to PN-EN 60715
- The main advantages of application: simple selection of the performed function, possibility to control a few circuits (4 changeover contacts), esthetic design in the control cabinet
- The switching capacity of contacts as in R4 electromagnetic relay
- Compliance with standard PN-EN 61812-1
- Recognitions, certifications, directives:

Output circuits - contact data

Number and type of contacts		4 CO	
Contact material		AgNi	
Max. switching voltage		250 V AC / 250 V DC	
Rated load	AC1	6 A / 250 V AC	
	DC1	6 A / 24 V DC; 0,15 A / 250 V DC	
Rated current		6 A	
Max. breaking capacity		AC1	1 500 VA
Min. breaking capacity		0,3 W 5 V, 5 mA	
Contact resistance		≤ 100 mΩ	
Max. operating frequency		AC1	1 200 cycles/hour 18 000 cycles/hour
• at rated load			
• no load			
Input circuit			
Rated voltage	50/60 Hz AC	115 ... 230 V	
	AC: 50/60 Hz AC/DC	12 ... 24 V	
Operating range of supply voltage		0,9...1,1 U _n	12 V AC/DC
		0,85...1,1 U _n	24 V AC/DC, 115 V AC, 230 V AC
Rated power consumption	AC	2,2 VA	115 V AC, 230 V AC
	AC/DC	1,0 VA / 1,0 W	12 V AC/DC, 24 V AC/DC
Range of supply frequency	AC	48...63 Hz	
	AC/DC	48...100 Hz	
Control contact S ①			
• min. voltage ②		0,6 U _n	
• min. time of pulse duration ②		AC: ≥ 25 ms	DC: ≥ 15 ms
Insulation according to PN-EN 60664-1			
Insulation category		B250	
Overvoltage category		II	
Insulation pollution degree		2	
Flammability degree		V-1 UL94	
Dielectric strength			
• input - outputs		2 500 V AC	type of insulation: basic
• contact clearance		1 500 V AC	type of clearance: micro-disconnection
Input - outputs distance			
• clearance		≥ 1,6 mm	
• creepage		≥ 3,2 mm	
General data			
Electrical life			
• resistive AC1		> 10 ⁵	6 A, 250 V AC
Mechanical life (cycles)		> 2 x 10 ⁷	
Dimensions (L x W x H)		90 x 36 x 55 mm	
Weight		115 g	
Ambient temperature	• storage	-40...+70 °C	
	• operating	-20...+55 °C	
Cover protection category		IP 20	PN-EN 60529
Environmental protection		RTI	PN-EN 116000-3
Shock resistance		(NO/NC)	10 g / 5 g
Vibration resistance		0,35 mm DA 10...55 Hz	

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

① The control terminal S is activated by connection to A1 terminal via the external control contact S.

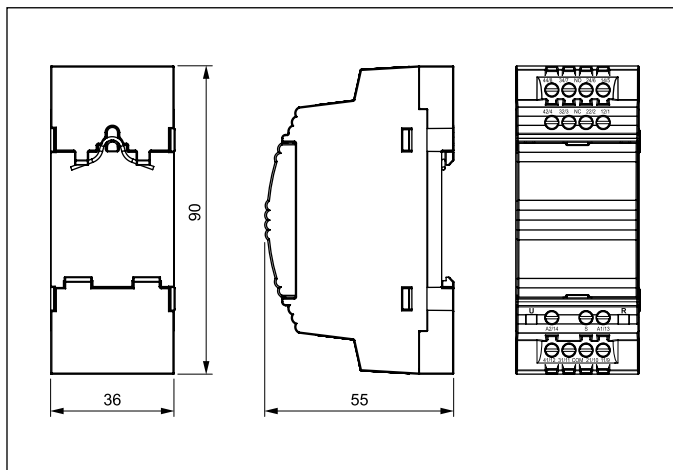
② Where the control signal is recognizable.

Time module data

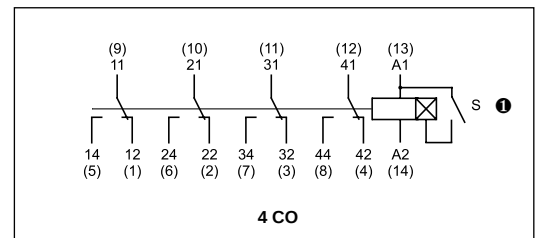
Functions	E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B permanent switching ON and OFF
Time ranges	1 s ⑤; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment	smooth - (0,1...1) x time range
Setting accuracy	± 5% (calculated from the final range values) ⑥
Repeatability	± 0,5% ⑥
Temperature influence	± 0,01% / °C
Recovery time	90 ms
LED indicator	green LED - indication of supply voltage U yellow LED - indication of time period T and the status of outputs after the time T has been measured ④

⑤ For first range setpoint (1 s) setting accuracy and repeatability are smaller than the given ones in technical parameters (significant influence of the operational relay operating time). Recommend to set measuring time by experimental method. ④ The yellow LED - T time measurement (pulsating); excited operational relay; time not measured (steady light); de-excited operational relay, time not measured (no light).

Dimensions



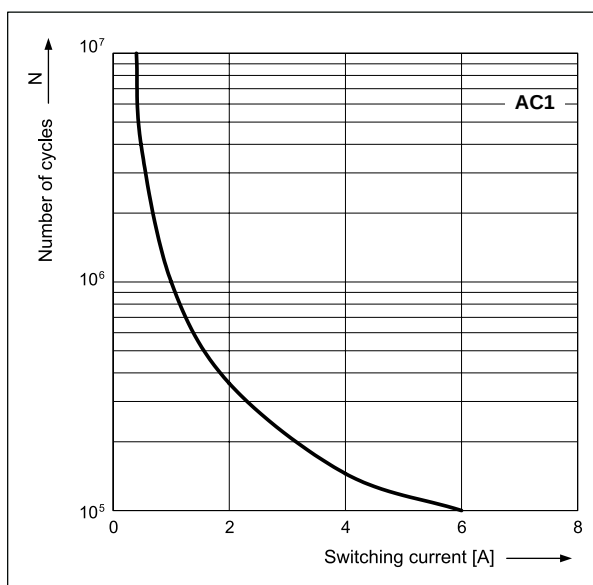
Connections diagram



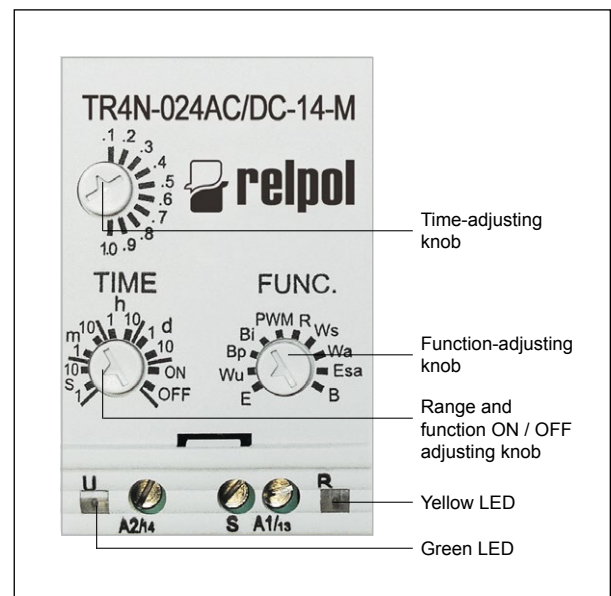
① The control terminal S is activated by connection to A1 terminal via the external control contact S.

Electrical life at AC resistive current. Switching frequency: 1 200 cycles/hour

Fig. 1

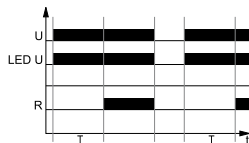


Front panel description



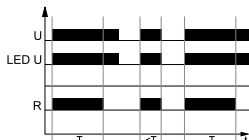
Time functions

E - ON delay.



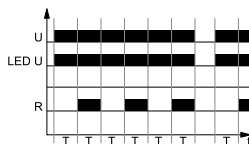
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



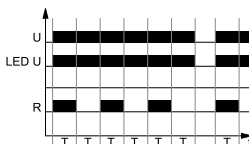
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



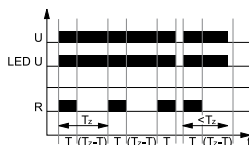
Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Bi - Symmetrical cyclical operation pulse first.



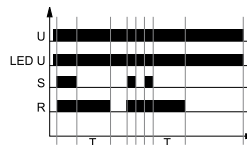
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

PWM - Pulse width modulation.



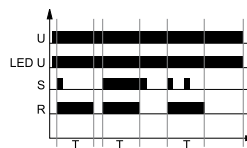
Set the relay to a single T_z cycle which is one of the time ranges available for a time relay. The cycle shall be set with the time selection knob. Then, set the interval T, i.e. the ON time of the output relay R with the time fine setting knob. The interval T may be set from 0.1 to 1.0 of the time range (T_z cycle). Applying the supply voltage U immediately switches on the output relay R for the set interval, and after the interval has lapsed, the output relay R switches off for the time left until the set time T_z . After the T_z time, consecutive cycles start and are continued until the supply voltage U is interrupted. In the course of the PWM function, the ON time of the output relay R may be changed, and such change does not affect the interval of the T_z cycle. The changed ON time of the output relay R shall be realized starting from the new T_z cycle following the change.

R - OFF delay with the control contact S.



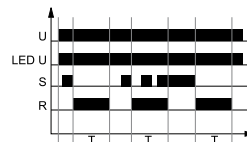
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches on the output relay R. Opening of the control contact S starts the set time of the delayed switching off of the output relay R. After the interval T has lapsed, the output relay R switches off. If the control contact S is closed during the interval T, the already measured time is reset, and the output relay R is switched on again. The OFF delay of the output relay R will start when the control contact S is opened again.

Ws - Single shot for the set interval triggered by closing of the control contact S.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R is switched off. In the course of the interval T, any opening of the control contact S does not affect the function to be performed. The output relay R may be switched on again for the set interval, after the interval T has lapsed, by closing the control contact S again.

Wa - ON for the set interval triggered with the control contact S.



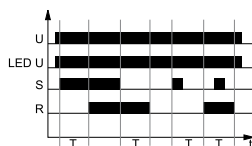
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S does not start the interval T, and it does not change the position of the output relay R. Opening of the control contact S immediately switches on the output relay R for the set time. After the interval T has lapsed, the output relay R switches off. Opening and closing of the control contact S in the course of the interval T does not affect the function to be performed. The output relay R may be switched on again for the set interval with another closing and opening of the control contact S.



U - supply voltage; R - output state of the relay; S - control contact state; T_z - value of the set interval; T - measured time; t - time axis

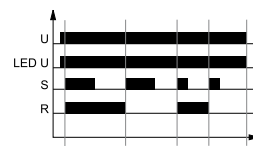
Time functions

Esa - ON and OFF delay with the control contact S.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T - on-delay of the output relay R. After the interval T has lapsed, the output relay R switches on. Opening of the control contact S begins further measurement of the interval T - off-delay of the output relay R, and after the interval has lapsed, the output relay switches off. In case the time for which the control contact S is closed in the course of measurement of the on-delay of the output relay R is shorter than the set interval T, the output relay R will switch on after the set interval T, and the output relay R will remain in on position for the interval T. When the output relay R is in on position, closing of the control contact S does not affect the function to be performed.

B - Cyclical operation controlled with closing of the control contact S.



The input of the time relay is supplied with U voltage continuously. Closing of the control contact S immediately switches on the output relay R. Each next closing of the control contact S results in a change of the status of the output relay R to an opposite one (the feature of a bistable relay).

Permanent switching ON and OFF.

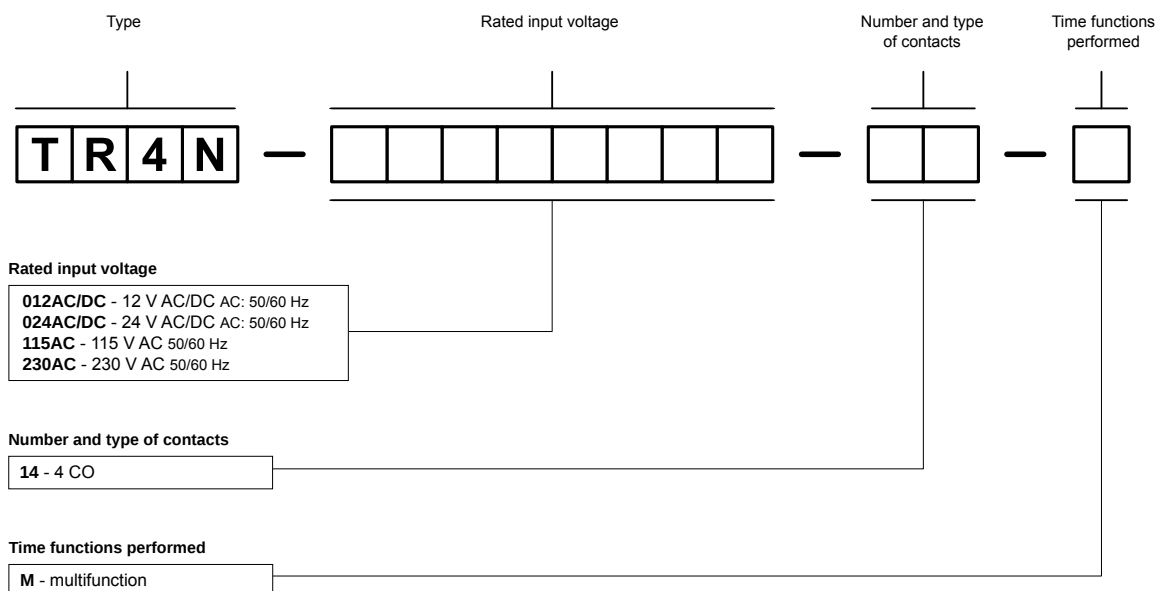
The functions ON and OFF are selected with TIME potentiometer. In the ON function, the normally open contacts are closed all the time whereas in the OFF function they are open. The position of the FUNC potentiometer is of no significance in these functions as is the preset measurement time. The ON or OFF functions are used for the time relay operation control in electric systems.

U - supply voltage; R - output state of the relay; S - control contact state; Tz - value of the set interval; T - measured time; t - time axis

Mounting

Relays **TR4N 4 CO** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,6 Nm.

Ordering codes



Examples of ordering codes:

TR4N-230AC-14-M

time relay **TR4N 4 CO**, multifunction (relay perform 10 functions), four changeover contacts, contact material AgNi, rated input voltage 230 V AC 50/60 Hz

TR4N-024AC/DC-14-M

time relay **TR4N 4 CO**, multifunction (relay perform 10 functions), four changeover contacts, contact material AgNi, rated input voltage 24 V AC/DC AC: 50/60 Hz

TR4N 1 CO, 2 CO

time relays



- 10-function electronic time relays in compact cover • Cadmium - free contacts • AC and AC/DC input voltages • Direct mounting on 35 mm rail mount acc. to PN-EN 60715 • The main advantages of application: simple selection of the performed function, possibility to control one or two circuits (1 or 2 changeover contacts), esthetic design in the control cabinet • The switching capacity of contacts as in RM85 (1 CO) or RM84 (2 CO) electromagnetic relay • Compliance with standard PN-EN 61812-1
- Recognitions, certifications, directives:

Output circuits - contact data

Number and type of contacts		1 CO	2 CO
Contact material		AgNi	AgNi
Max. switching voltage		440 V AC / 300 V DC	440 V AC / 300 V DC
Rated load	AC1 DC1	16 A / 250 V AC 16 A / 24 V DC; 0,3 A / 250 V DC	8 A / 250 V AC 8 A / 24 V DC; 0,3 A / 250 V DC
Rated current		16 A	8 A
Max. breaking capacity	AC1	4 000 VA	2 000 VA
Min. breaking capacity		0,3 W 5 V, 5 mA	
Contact resistance		≤ 100 mΩ	
Max. operating frequency			
• at rated load	AC1	600 cycles/hour	
• no load		18 000 cycles/hour	
Input circuit			
Rated voltage	50/60 Hz AC AC: 50/60 Hz AC/DC	115 ... 230 V 12 ... 24 V	
Operating range of supply voltage		0,9...1,2 U _n 12 V AC/DC 0,85...1,2 U _n 24 V AC/DC, 115 V AC, 230 V AC	
Rated power consumption	AC AC/DC	1,3 VA 115 V AC 0,5 VA / 0,5 W 12 V AC/DC	1,7 VA 230 V AC 0,7 VA / 0,7 W 24 V AC/DC
Range of supply frequency	AC AC/DC	48...63 Hz 48...100 Hz	
Control contact S ①			
• min. voltage ②		0,6 U _n	
• min. time of pulse duration ②		AC: ≥ 25 ms	DC: ≥ 15 ms
Insulation according to PN-EN 60664-1			
Insulation category		B250	
Overvoltage category		III	
Insulation pollution degree		2	
Flammability degree		V-1 UL94	
Dielectric strength			
• input - outputs		2 000 V AC	type of insulation: basic
• contact clearance		1 000 V AC	type of clearance: micro-disconnection
Input - outputs distance			
• clearance		≥ 10 mm	
• creepage		≥ 10 mm	
General data			
Electrical life			
• resistive AC1		> 0,7 x 10 ⁵ 16 A, 250 V AC	> 10 ⁵ 8 A, 250 V AC
Mechanical life (cycles)		> 3 x 10 ⁷	
Dimensions (L x W x H)		90 x 17,6 x 55 mm	
Weight		67 g	
Ambient temperature	• storage • operating	-40...+70 °C -20...+55 °C	
Cover protection category		IP 20 PN-EN 60529	
Environmental protection		RTI PN-EN 116000-3	
Shock resistance		15 g	
Vibration resistance		0,35 mm DA 10...55 Hz	

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

① The control terminal S is activated by connection to A1 terminal via the external control contact S.

② Where the control signal is recognizable.

TR4N 1 CO, 2 CO

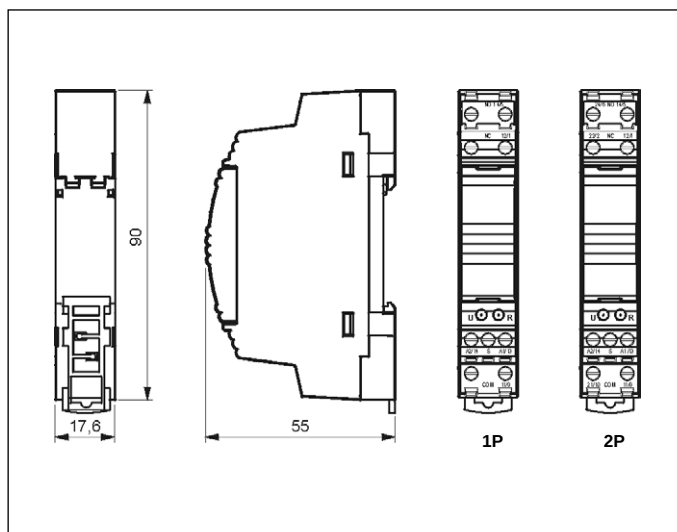
time relays

Time module data

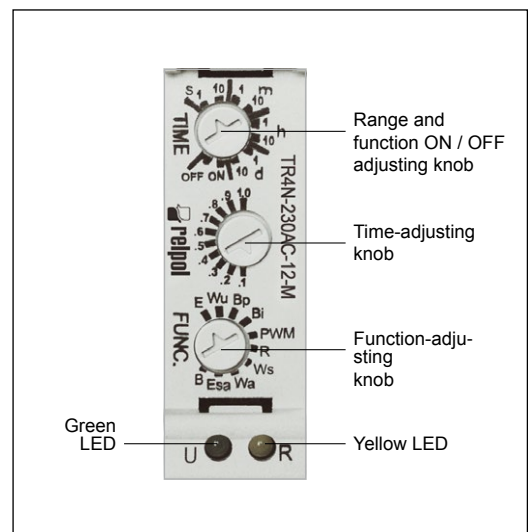
Functions	E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B permanent switching ON and OFF
Time ranges	1 s ③; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment	smooth - (0,1...1) x time range
Setting accuracy	± 5% (calculated from the final range values) ③
Repeatability	± 0,5% ③
Temperature influence	± 0,01% / °C
Recovery time	80 ms
LED indicator	green LED - indication of supply voltage U yellow LED - indication of time period T and the status of outputs after the time T has been measured ④

③ For first range setpoint (1 s) setting accuracy and repeatability are smaller than the given ones in technical parameters (significant influence of the operational relay operating time). Recommend to set measuring time by experimental method. ④ The yellow LED - T time measurement (pulsating); excited operational relay; time not measured (steady light); de-excited operational relay, time not measured (no light).

Dimensions

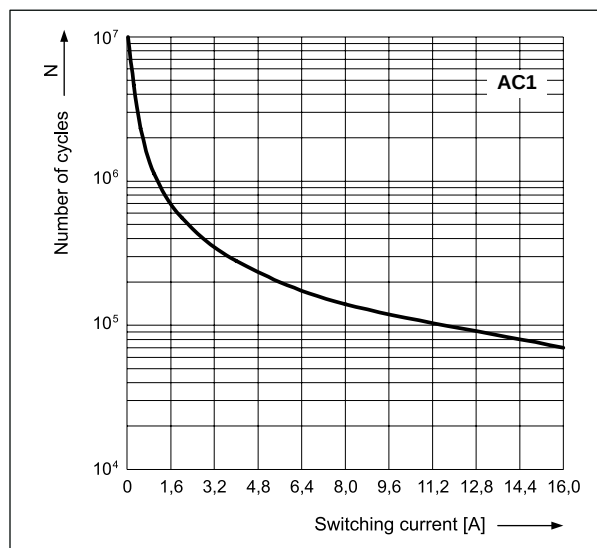


Front panel description



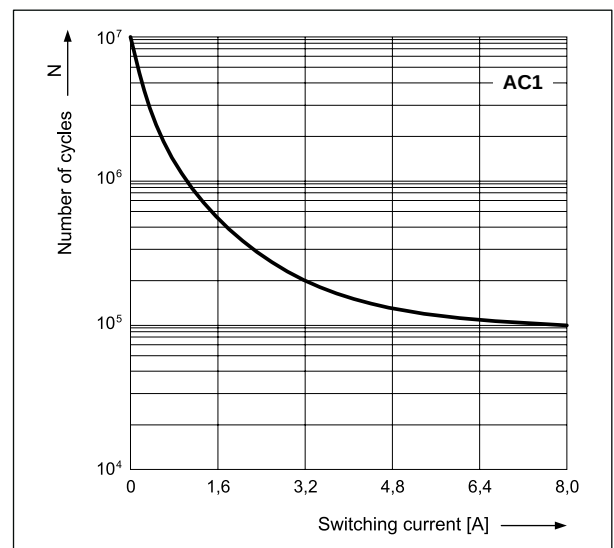
Electrical life at AC resistive current.
Switching frequency: 600 cycles/hour
- TR4N 1 CO

Fig. 1



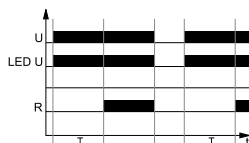
Electrical life at AC resistive current.
Switching frequency: 600 cycles/hour
- TR4N 2 CO

Fig. 2



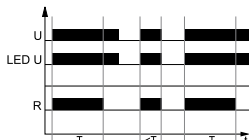
Time functions

E - ON delay.



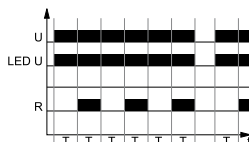
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



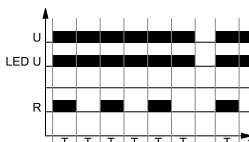
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



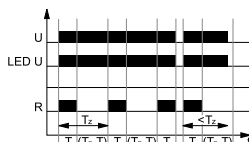
Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Bi - Symmetrical cyclical operation pulse first.



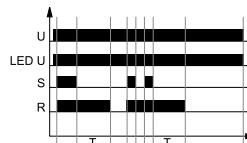
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

PWM - Pulse width modulation.



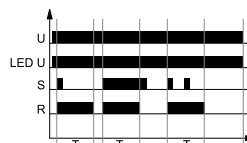
Set the relay to a single Tz cycle which is one of the time ranges available for a time relay. The cycle shall be set with the time selection knob. Then, set the interval T, i.e. the ON time of the output relay R with the time fine setting knob. The interval T may be set from 0.1 to 1.0 of the time range (Tz cycle). Applying the supply voltage U immediately switches on the output relay R for the set interval, and after the interval has lapsed, the output relay R switches off for the time left until the set time Tz. After the Tz time, consecutive cycles start and are continued until the supply voltage U is interrupted. In the course of the PWM function, the ON time of the output relay R may be changed, and such change does not affect the interval of the Tz cycle. The changed ON time of the output relay R shall be realized starting from the new Tz cycle following the change.

R - OFF delay with the control contact S.



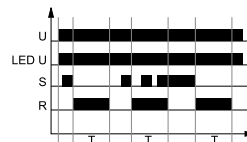
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches on the output relay R. Opening of the control contact S starts the set time of the delayed switching off of the output relay R. After the interval T has lapsed, the output relay R switches off. If the control contact S is closed during the interval T, the already measured time is reset, and the output relay R is switched on again. The OFF delay of the output relay R will start when the control contact S is opened again.

Ws - Single shot for the set interval triggered by closing of the control contact S.



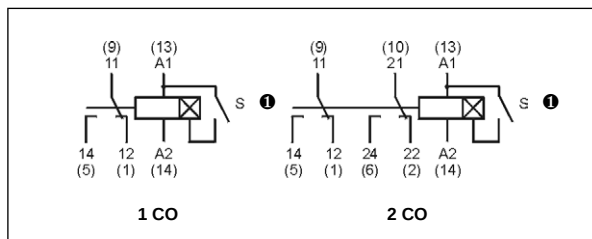
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R is switched off. In the course of the interval T, any opening of the control contact S does not affect the function to be performed. The output relay R may be switched on again for the set interval, after the interval T has lapsed, by closing the control contact S again.

Wa - ON for the set interval triggered with the control contact S.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S does not start the interval T, and it does not change the position of the output relay R. Opening of the control contact S immediately switches on the output relay R for the set time. After the interval T has lapsed, the output relay R switches off. Opening and closing of the control contact S in the course of the interval T does not affect the function to be performed. The output relay R may be switched on again for the set interval with another closing and opening of the control contact S.

Connections diagrams



① The control terminal S is activated by connection to A1 terminal via the external control contact S.

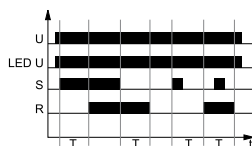
U - supply voltage; R - output state of the relay; S - control contact state; Tz - value of the set interval; T - measured time; t - time axis

TR4N 1 CO, 2 CO

time relays

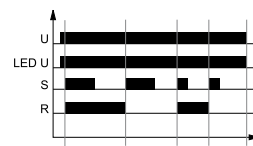
Time functions

Esa - ON and OFF delay with the control contact S.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T - on-delay of the output relay R. After the interval T has lapsed, the output relay R switches on. Opening of the control contact S begins further measurement of the interval T - off-delay of the output relay R, and after the interval has lapsed, the output relay switches off. In case the time for which the control contact S is closed in the course of measurement of the on-delay of the output relay R is shorter than the set interval T, the output relay R will switch on after the set interval T, and the output relay R will remain in on position for the interval T. When the output relay R is in on position, closing of the control contact S does not affect the function to be performed.

B - Cyclical operation controlled with closing of the control contact S.



The input of the time relay is supplied with U voltage continuously. Closing of the control contact S immediately switches on the output relay R. Each next closing of the control contact S results in a change of the status of the output relay R to an opposite one (the feature of a bistable relay).

Permanent switching ON and OFF.

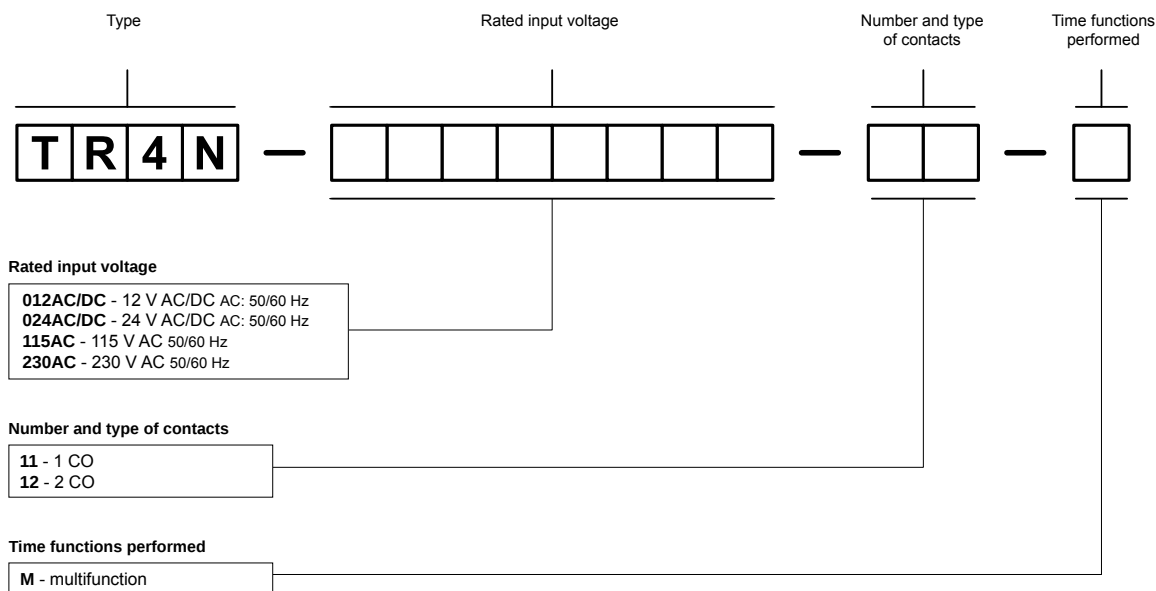
The functions ON and OFF are selected with TIME potentiometer. In the ON function, the normally open contacts are closed all the time whereas in the OFF function they are open. The position of the FUNC potentiometer is of no significance in these functions as is the preset measurement time. The ON or OFF functions are used for the time relay operation control in electric systems.

U - supply voltage; R - output state of the relay; S - control contact state; Tz - value of the set interval; T - measured time; t - time axis

Mounting

Relays **TR4N 1 CO, 2 CO** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. **Connections:** max. cross section of the cables: 1 x 2,5 mm² / 2 x 1,5 mm² (1 x 14 / 2 x 16 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,6 Nm.

Ordering codes



Examples of ordering codes:

TR4N-230AC-11-M

time relay **TR4N 1 CO**, multifunction (relay perform 10 functions), one changeover contact, contact material AgNi, rated input voltage 230 V AC 50/60 Hz

TR4N-024AC/DC-12-M

time relay **TR4N 2 CO**, multifunction (relay perform 10 functions), two changeover contacts, contact material AgNi, rated input voltage 24 V AC/DC AC: 50/60 Hz

T-R4

time relays



- Single-function, single-voltage time relays offered in the following versions: **T-R4E** - relay with time function E, **T-R4Wu** - relay with time function Wu, **T-R4Bp** - relay with time function Bp, **T-R4Bi** - relay with time function Bi • Cadmium - free contacts • AC and DC input voltages • For plug-in sockets, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting • Applications: as time systems in electric circuits of machines, technological lines, in automation systems, etc.
- Recognitions, certifications, directives: recognitions R4, **CE**

Output circuits - contact data

Number and type of contacts	4 CO
Contact material	AgNi
Max. switching voltage	250 V AC / 250 V DC
Rated load	AC1 6 A / 230 V AC
Max. inrush current	12 A
Rated current	6 A
Max. breaking capacity	AC1 1 500 VA
Min. breaking capacity	0,3 W 5 V, 5 mA
Contact resistance	≤ 100 mΩ
Max. operating frequency	
• at rated load	AC1 1 200 cycles/hour
• no load	18 000 cycles/hour
Input circuit	
Rated voltage	50/60 Hz AC 24 ... 230 V
	DC 12 ... 24 V
Must release voltage	AC: ≥ 0,2 U _n DC: ≥ 0,1 U _n
Operating range of supply voltage	0,8...1,1 U _n see Tables 1, 2
Rated power consumption	AC 2,2 VA
	DC 1,2 W
Range of supply frequency	48...63 Hz
Insulation according to PN-EN 60664-1	
Insulation rated voltage	250 V AC
Overvoltage category	III
Dielectric strength	
• input - outputs	2 500 V AC type of insulation: basic
• contact clearance	1 500 V AC type of clearance: micro-disconnection
• pole - pole	2 000 V AC type of insulation: basic
Input - outputs distance	
• clearance	≥ 1,6 mm
• creepage	≥ 3,2 mm
General data	
Operating / release time (typical values)	10 ms / 8 ms
Electrical life	
• resistive AC1	> 10 ⁵ 6 A, 250 V AC
• cosφ	see Fig. 2
Mechanical life (cycles)	> 2 x 10 ⁷
Dimensions (L x W x H)	T-R4 + GZM4: 75 x 27 x 91,5 mm
	T-R4 + GZT4: 76,3 x 27 x 90 mm
	T-R4 + GZMB4: 95 ① x 31 x 90 mm
	T-R4: 27,5 x 21,2 x 62,5 mm
Weight	T-R4 + GZM4: 123 g T-R4 + GZT4: 113 g
	T-R4 + GZMB4: 124 g T-R4: 49 g
Ambient temperature	• storage -20...+85 °C
	• operating -20...+55 °C
Cover protection category	IP 20 (with socket) PN-EN 60529
Environmental protection	T-R4: RTI GZM4: RT0 PN-EN 116000-3
Shock resistance	(NO/NC) 10 g / 5 g
Vibration resistance	5 g 10...150 Hz

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

① Length with 35 mm rail taps: 100 mm.

Time module data

Functions	E, Wu, Bp, Bi
Time ranges	1 s ❶; 10 s; 1 min.; 10 min.; 1 h; 10 h; 100 h
Timing adjustment	range - with the range-adjusting knob / switch; within the range - with the time-adjusting knob / potentiometer
Setting accuracy	± 5% (calculated from the final range values) ❶
Repeatability	± 1% ❶
Temperature influence	± 0,01% / °C
Recovery time	100 ms
LED indicator	green LED - indication of supply voltage U yellow LED - indication of time period T and the status of outputs after the time T has been measured ❷

❶ For first range setpoint (1 s) setting accuracy and repeatability are smaller than the given ones in technical parameters (significant influence of the operational relay operating time). Recommend to set measuring time by experimental method. ❷ The yellow LED - T time measurement (pulsating); excited operational relay; time not measured (steady light); de-excited operational relay, time not measured (no light).

Input data - DC voltage version

Table 1

Input voltage code	Rated input voltage U_n V DC	Input resistance at 20 °C Ω	Acceptable resistance	Input - voltage range V DC	
				min. (at 20 °C)	max. (at 55 °C)
1012	12	160	± 10%	9,6	13,2
1024	24	640	± 10%	19,2	26,4

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

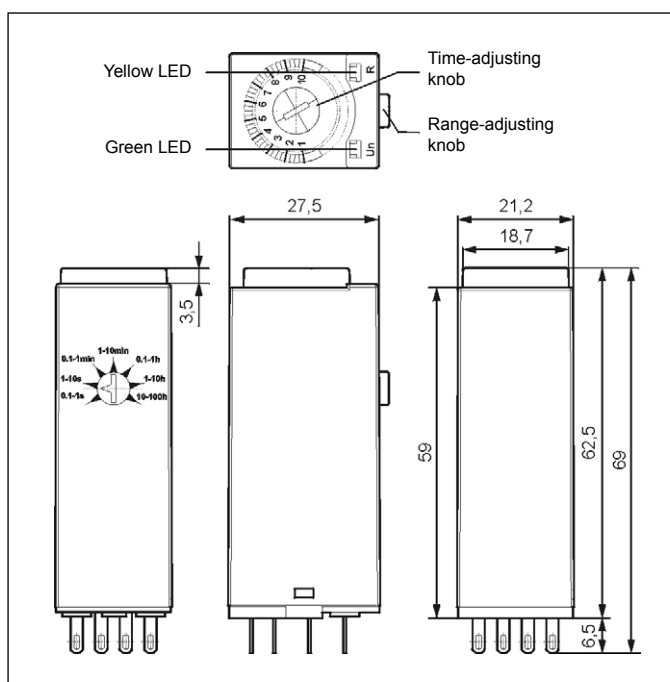
Input data - AC 50/60 Hz voltage version

Table 2

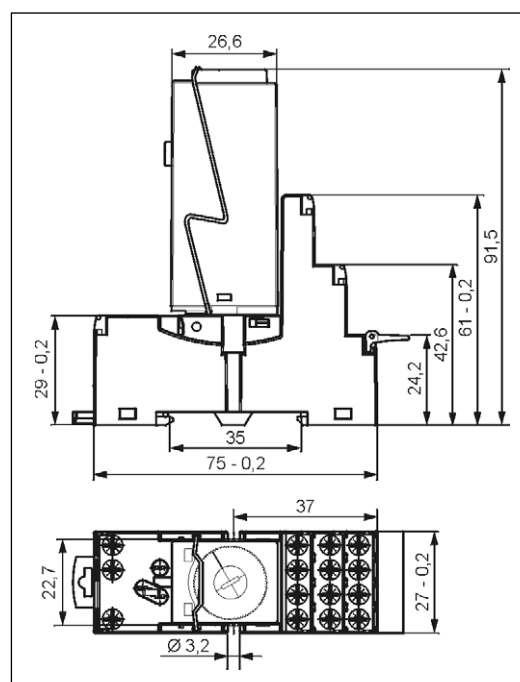
Input voltage code	Rated input voltage U_n V AC	Input resistance at 20 °C Ω	Acceptable resistance	Input - voltage range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5024	24	158	± 10%	19,2	26,4
5115	115	3 610	± 10%	92,0	127,0
5230	230	16 100	± 10%	184,0	253,0

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

Dimensions - T-R4

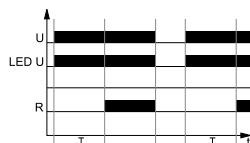


Dimensions - T-R4 with socket GZM4



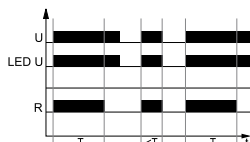
Time functions

E - ON delay.



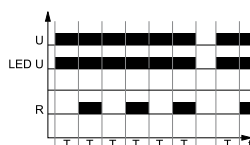
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

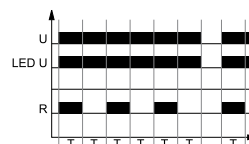
Bp - Symmetrical cyclical operation pause first.



Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

U - supply voltage; R - output state of the relay;
T - measured time; t - time axis

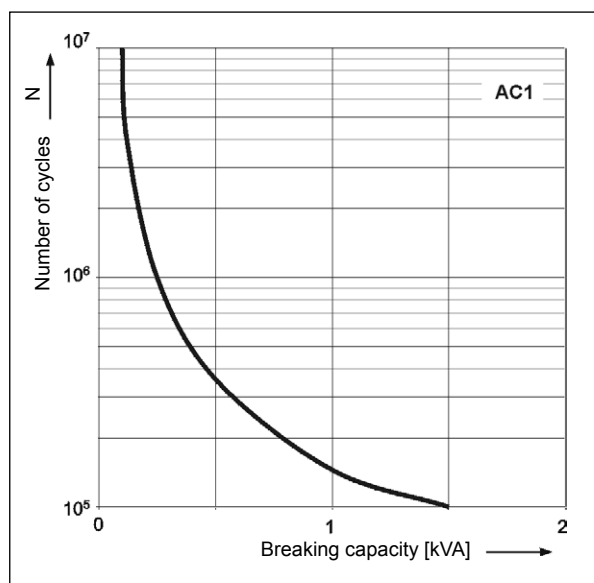
Bi - Symmetrical cyclical operation pulse first.



Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

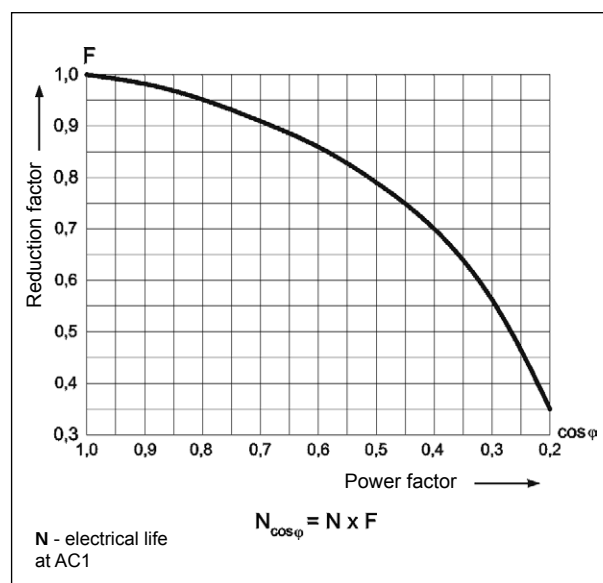
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1



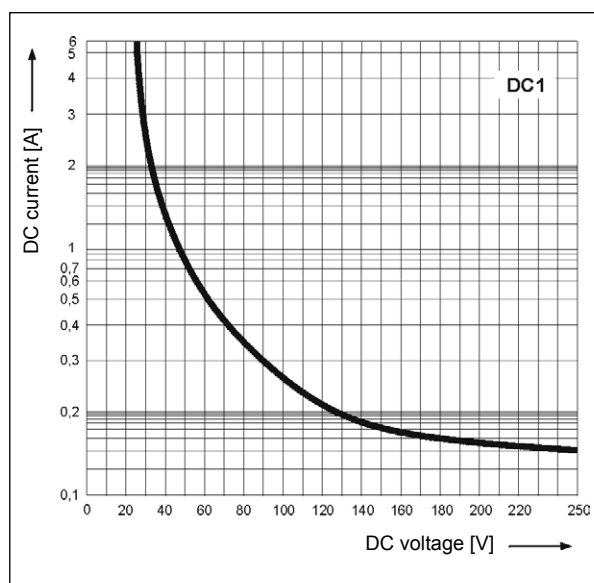
Electrical life reduction factor at AC inductive load

Fig. 2

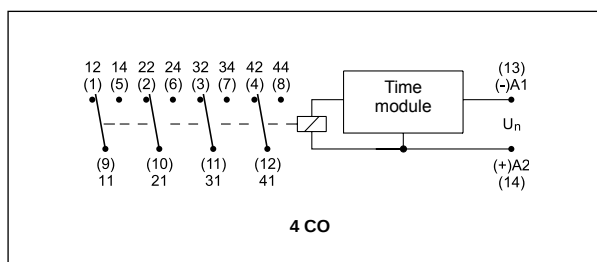


Max. DC resistive load breaking capacity

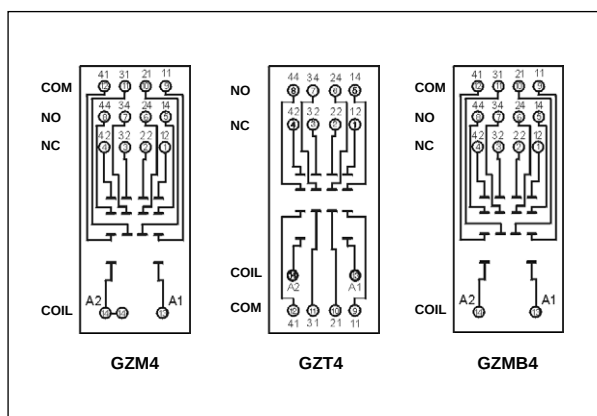
Fig. 3



Connection diagram



Connection diagrams - sockets for T-R4



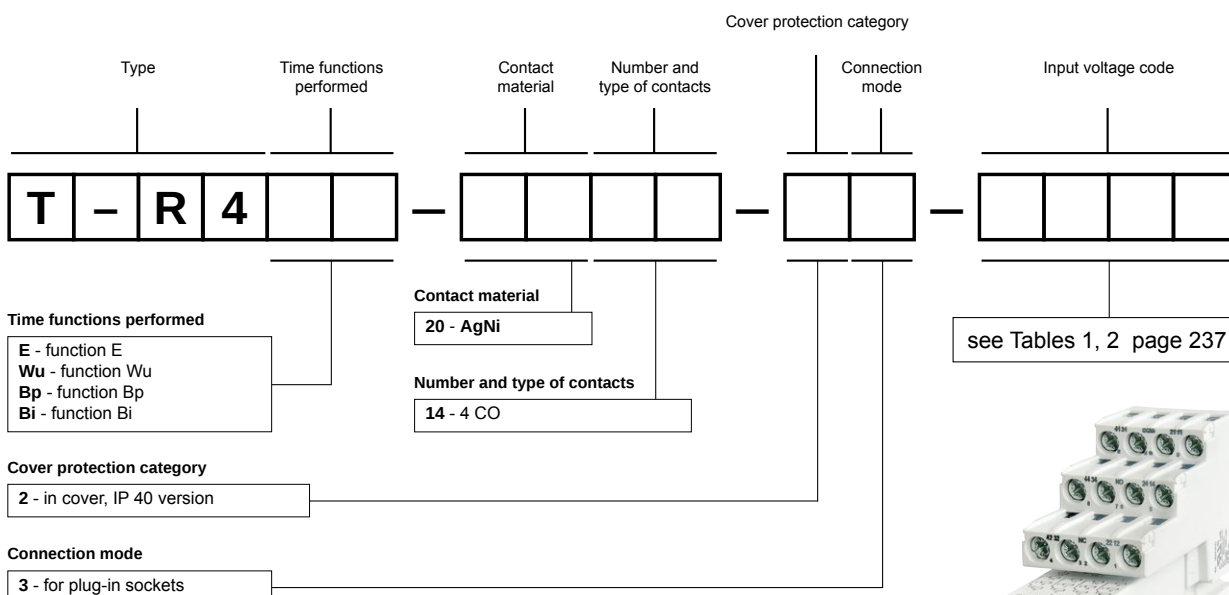
Mounting

Relays **T-R4E**, **T-R4Wu**, **T-R4Bp**, **T-R4Bi** are designed for screw terminals plug-in sockets **GZM4** ❶ ❷ and **GZT4** ❶ ❷, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. **Connections:** max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,7 Nm • spring terminals plug-in sockets **GZMB4** ❸ ❹, 35 mm rail mount acc. to PN-EN 60715. **Connections:** max. cross section of the cables: 1 x 0,2...1,5 mm² (1 x 24...16 AWG), length of the cable deinsulation: 9...11 mm.

❶ Plug-in sockets **GZT4**, **GZM4** may be linked with interconnection strip type **ZGGZ4** (see page 263). ❷ For sockets **GZT4**, **GZM4** are offered clips TR4-2000 and description plates GZT4-0035. ❸ For sockets **GZMB4** are offered clips TR4-2000 and description plates TR. ❹ For sockets **GZMB4** - see page 253 (wire connection).

Separate T-R4 control circuits from load circuits (T-R4 contacts)	GZM4: yes GZT4: no GZMB4: yes
Increased dielectric strength spacing between coil and contacts clamps	GZM4: min. 5 kV GZT4: min. 4 kV GZMB4: min. 4 kV
Double A2(14) terminal is introduced for easy wiring in electrical devices	GZM4: yes GZT4: no GZMB4: yes

Ordering codes



Example of ordering code:

T-R4E-2014-23-1012

time relay **T-R4**, single-function (relay perform function **E** - ON delay), for plug-in sockets, four changeover contacts, contact material AgNi, rated input voltage 12 V DC, in cover IP 40



T-R4 + GZM4

PIR15...T with time module T(COM3) time relays



R15 - 3 CO
+ GZP11
+ T (COM3)

- Time relay **PIR15 - 3 CO (standard)** consists of: electromagnetic relay **R15 - 3 CO**, black plug-in socket **GZP11**, time module **T(COM3)**, spring wire clip **GZP-0054**, white description plate **GZP-0035**
- Time relay **PIR15 - 2 CO** consists of: electromagnetic relay **R15 - 2 CO**, black plug-in socket **GZP8**, time module **T(COM3)**, spring wire clip **GZP-0054**, white description plate **GZP-0035**
- 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws
- Recognitions, certifications, directives: recognitions R15, RoHS,

Output circuits - contact data

Number and type of contacts		2 CO, 3 CO	
Contact material		AgNi	
Max. switching voltage		440 V AC / 250 V DC	
Rated load (capacity)	AC1	10 A / 250 V AC	
	AC15	3 A / 120 V 1,5 A / 240 V (B300)	
	AC3	370 W (single-phase motor; 0,5 HP / 240 V AC UL 508)	
	DC1	10 A / 24 V DC (see Fig. 3)	
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)	
Max. inrush current		20 A	
Rated current		10 A	
Max. breaking capacity		AC1	2 500 VA
Min. breaking capacity		0,3 W 5 V, 5 mA	
Contact resistance		≤ 100 mΩ	
Max. operating frequency		AC1	1 200 cycles/hour
• at rated load			12 000 cycles/hour
• no load			
Input circuit			
Rated voltage of output relay R15	50/60 Hz AC	24 ... 240 V	
	DC	24 ... 220 V	
Supply voltage of time module T(COM3)		24...240 V AC/DC (uniwersal module)	
Operating range of supply voltage		0,85...1,1 U _n see Tables 1, 2	
Rated power consumption	AC	3,0 VA	
	DC	2,0 W	
Range of supply frequency		48...63 Hz	
Control contact (B1) S ❶			
• min. time of pulse duration ❷		100 ms	
Insulation according to PN-EN 60664-1			
Insulation rated voltage		250 V AC	
Overvoltage category		III	
Dielectric strength			
• input - outputs		2 500 V AC	type of insulation: basic
• contact clearance		1 500 V AC	type of clearance: micro-disconnection
• pole - pole		2 000 V AC	type of insulation: basic
Input - outputs distance			
• clearance		≥ 3 mm	
• creepage		≥ 4,2 mm	
General data			
Operating / release time (typical values)		AC: 12 ms / 10 ms	DC: 18 ms / 7 ms
Electrical life			
• resistive AC1		> 2 x 10 ⁵ 10 A, 250 V AC	
• cosφ		patrz Wykres 2	
Mechanical life (cycles)		> 2 x 10 ⁷	
Dimensions (L x W x H)		73 x 38,2 x 85,4 mm	
Weight		3 CO: 175 g	2 CO: 168 g
Ambient temperature	• storage	-40...+70 °C	
	• operating	-40...+55 °C	
Cover protection category		IP 20	PN-EN 60529
Environmental protection		R15: RTI GZP11, GZP8: RT0	PN-EN 116000-3
Shock resistance		10 g	
Vibration resistance		5 g 10...500 Hz	

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

① The control terminal B1 is activated by connection to A1 terminal via the external control contact S.

② Where the control signal is recognizable.

Time module data

Functions	E, Wu, Bp, Bi, R, Ws, Wa, Es
Function adjustment ③	selection with microswitches
Time ranges	1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment ③	range - with microswitches; within the range - with a potentiometer
Setting accuracy / Repeatability	± 1% / 0,2%
Temperature influence	± 0,01% / °C
Recovery time	150 ms
LED indicator	green LED - indication of time period T and the status of outputs after the time T has been measured ④

③ Settings of switches - see below. ④ The green LED - T time measurement (pulsating); excited operational relay; time not measured (steady light); de-excited operational relay, time not measured (no light).

Settings of switches ④

Function adjustment	E	Wu	Bi	Bp	R	Ws	Wa	Es
switches 1, 2, 3								
Timing adjustment (max.)	1 s	10 s	1 min.	10 min.	1 h	10 h	1 d	10 d
switches 4, 5, 6								

Input data - DC voltage version

Table 1

Input voltage code	Rated input voltage U_n V DC	Input resistance at 20 °C Ω	Acceptable resistance	Input - voltage range V DC	
				min. (at 20 °C)	max. (at 55 °C)
024DC	24	430	± 10%	19,2	26,4
048DC	48	1 750	± 10%	38,4	52,8
060DC	60	2 700	± 10%	48,0	66,0
110DC	110	9 200	± 10%	88,0	121,0
120DC	120	11 000	± 10%	96,0	132,0
220DC	220	37 000	± 10%	176,0	242,0

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

Input data - AC 50/60 Hz voltage version

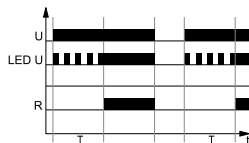
Table 2

Input voltage code	Rated input voltage U_n V AC	Input resistance at 20 °C Ω	Acceptable resistance	Input - voltage range V AC	
				min. (at 20 °C)	max. (at 55 °C)
024AC	24	75	± 15%	19,2	26,4
048AC	48	305	± 15%	38,4	52,8
060AC	60	475	± 15%	48,0	66,0
110AC	110	1 700	± 15%	88,0	121,0
120AC	120	1 910	± 15%	96,0	132,0
230AC	230	7 080	± 15%	184,0	253,0
240AC	240	7 760	± 15%	192,0	264,0

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

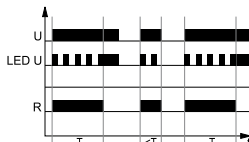
Time functions

E - ON delay.



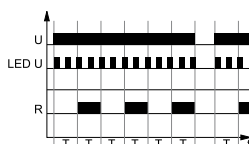
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



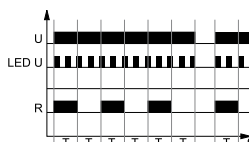
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



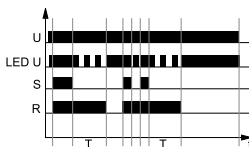
Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Bi - Symmetrical cyclical operation pulse first.



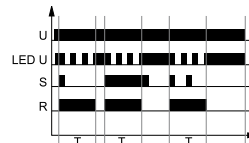
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

R - OFF delay with the control contact S.



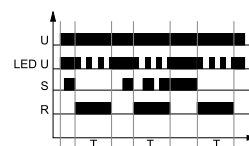
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches on the output relay R. Opening of the control contact S starts the set time of the delayed switching off of the output relay R. After the interval T has lapsed, the output relay R switches off. If the control contact S is closed during the interval T, the already measured time is reset, and the output relay R is switched on again. The OFF delay of the output relay R will start when the control contact S is opened again.

Ws - Single shot for the set interval triggered by closing of the control contact S.



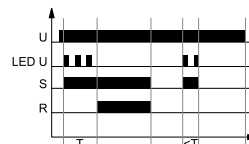
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R is switched off. In the course of the interval T, any opening of the control contact S does not affect the function to be performed. The output relay R may be switched on again for the set interval, after the interval T has lapsed, by closing the control contact S again.

Wa - ON for the set interval triggered with the control contact S.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S does not start the interval T, and it does not change the position of the output relay R. Opening of the control contact S immediately switches on the output relay R for the set time. After the interval T has lapsed, the output relay R switches off. Opening and closing of the control contact S in the course of the interval T does not affect the function to be performed. The output relay R may be switched on again for the set interval with another closing and opening of the control contact S.

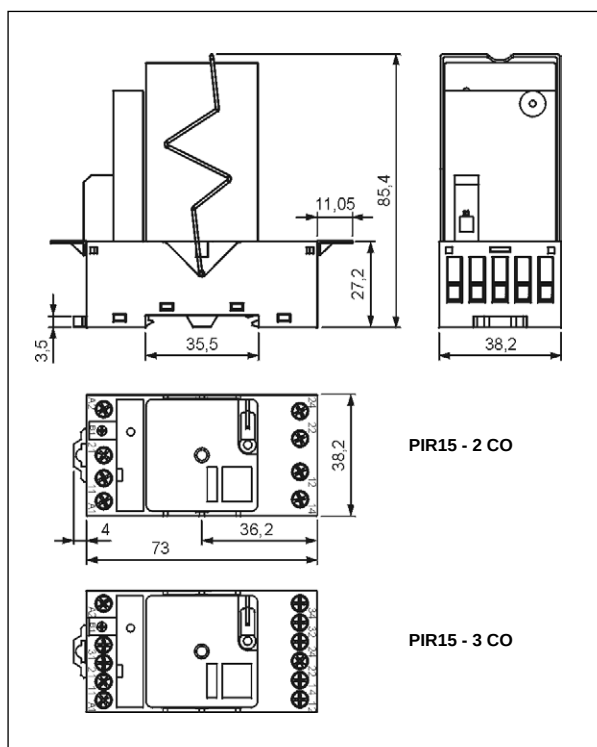
Es - ON delay with the control contact S.



The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T - on-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains in this position until the control contact S is opened. In case the control contact S is closed for time shorter than the set interval T, the output relay R will not activate.

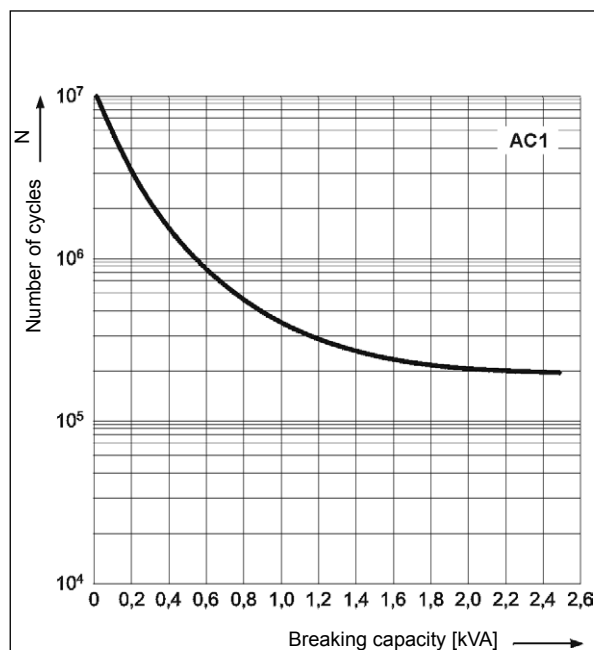
U - supply voltage; R - output state of the relay; S - control contact state; T, T1, T2 - measured times; t - time axis

Dimensions



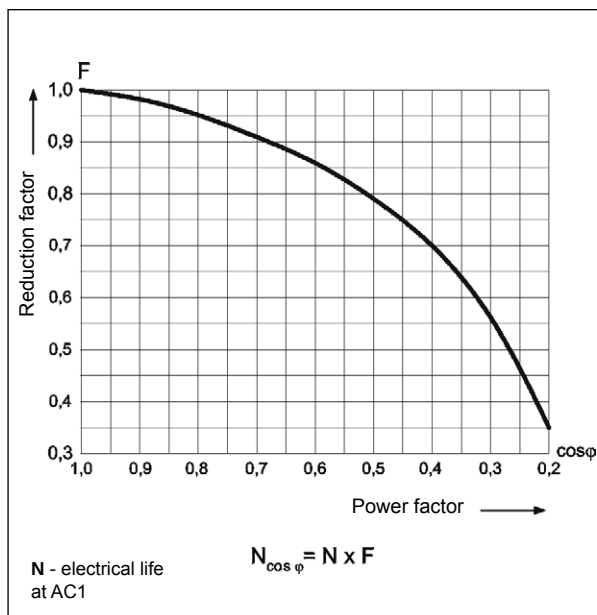
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

Fig. 1



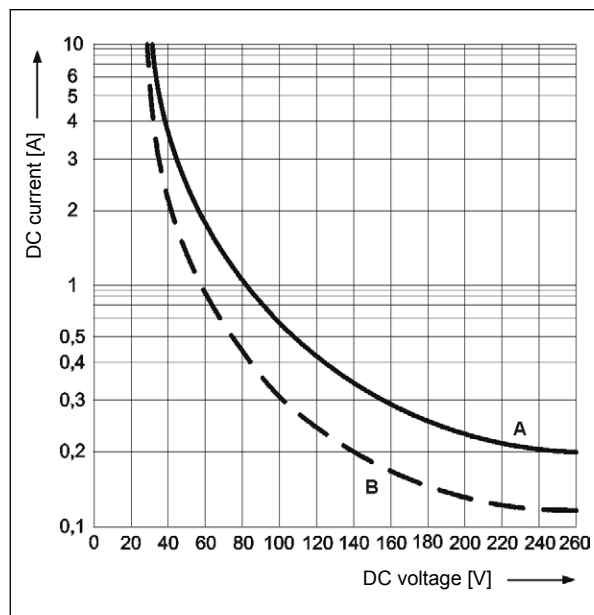
Electrical life reduction factor at AC inductive load

Fig. 2



Max. DC breaking capacity A - resistive load DC1 B - inductive load L/R = 40 ms

Fig. 3

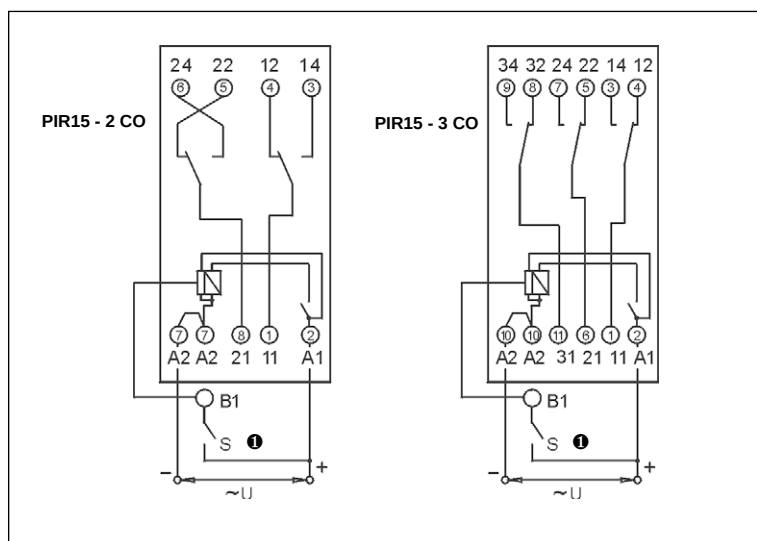


Mounting

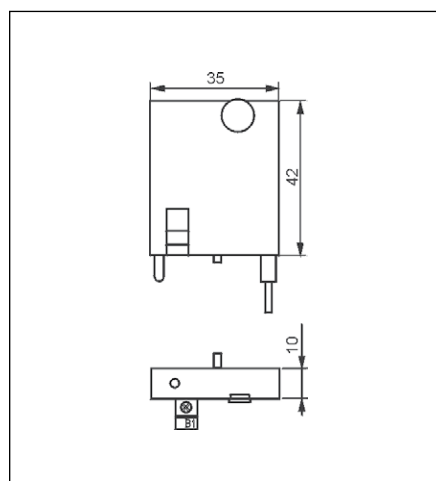
Relays PIR15...T are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. **Connections:** max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 0,5 Nm.

PIR15...T with time module T(COM3) time relays

Connection diagrams (screw terminals side view)



Dimensions - time module T(COM3)



❶ The control terminal B1 is activated by connection to A1 terminal via the external control contact S.

Ordering codes

Type	Number and type of contacts	Input voltage code	Connection mode	Contact material	Options
P I R 1 5					
Number and type of contacts 2 - 2 CO 3 - 3 CO		see Tables 1, 2 page 241	Connection mode 0 - with socket (35 mm rail mount acc. to PN-EN 60715)	Contact material 0 - AgNi	Options T - time module T(COM3)

Examples of ordering codes:

PIR153-230AC-00T

time relay **PIR15 - 3 CO**, which consists of: relay **R15 - 3 CO** (contact material AgNi, rated input voltage 230 V AC 50/60 Hz), black plug-in socket **GZP11** (screw terminals), time module **T(COM3)**, spring wire clip **GZP-0054**, white description plate **GZP-0035**

PIR152-024DC-00T

time relay **PIR15 - 2 CO**, which consists of: relay **R15 - 2 CO** (contact material AgNi, rated input voltage 24 V DC), black plug-in socket **GZP8** (screw terminals), time module **T(COM3)**, spring wire clip **GZP-0054**, white description plate **GZP-0035**



T(COM3)

Plug-in sockets and accessories

GZT80, GZM80, GZS80	246
GZMB80, EC 50, PW80	247
GD50, GZT92, GZM92, GZS92	248
EC 35, GD35, ES 32, EC 32	249
GZT2, GZM2, GZMB2	250
SU4/2D, SU4/2L, G4/2, GZT3	251
GZM3, GZT4, GZM4, GZ4	252
GS4, GZMB4, SU4D	253
SU4L, G4	254
GZY2G, GZ2, S2M, G2M	255
PZ8, GZU8, GZ8, GZS8	256
GZP8, GOP8, PS11, PZ11	257
GZU11, GZ11, GZS11, GZP11	258
GOP11, GZ14U, GZ14, GOP14	259
GZ14Z, GUC11, PI6W-1P	260
Mounting and sub-assemblies of the relay and accessories in the socket	254
Signalling / protecting modules type M...	261
Interconnection strip ZGGZ80	262
Interconnection strip ZGGZ4	263
Additional features for industrial relays.....	264
Test buttons (no latching) and plugs	265
Plug-in sockets and accessories availability index.....	266
Plug-in sockets technical data	268

Plug-in sockets are designed for miniature and industrial relays. They provide for mounting of the relays in printed circuits, on 35 mm rail mount acc. to PN-EN 60715, and on panel mounting.

GZT..., GZM..., GZS..., GZ..., GZU... series are the sockets with screw terminals for mounting on 35 mm rail mount acc. to PN-EN 60715, and on panel mounting. GZMB... serie are the sockets with spring terminals for mounting on 35 mm rail mount acc. to PN-EN 60715.

The sockets have the following features:

- current circuits load: up to 12 A,
- available plug-in sockets with separation of input (coil) from output (contacts), i.e. coil terminals on one side of the socket, and contact terminals on another side,
- adapted for mounting signalling / protecting modules type M... - sockets of GZT..., GZM..., GZS..., GZMB..., ES 32 series.

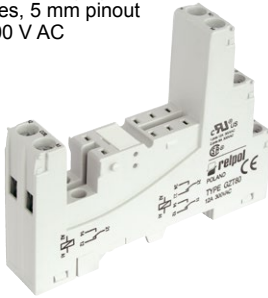
The screw terminals plug-in sockets are recognized and certified by: 

Plug-in sockets and accessories

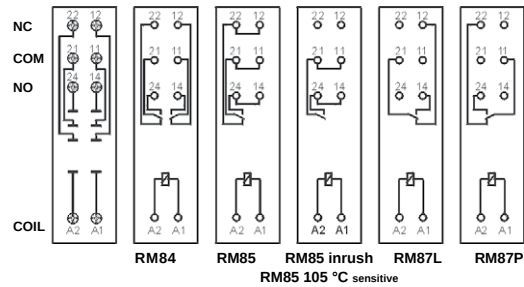
GZT80

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

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



Connection diagrams ①

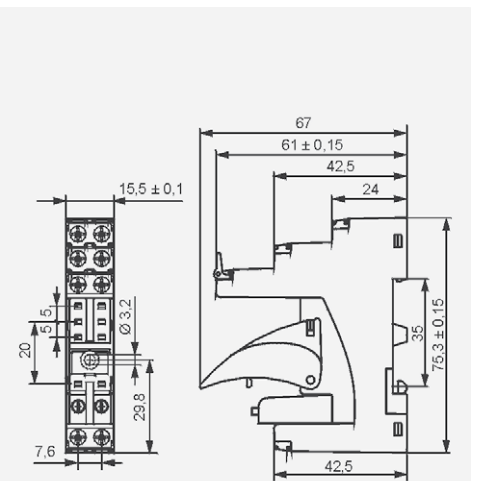


Accessories ①

ZGGZ80

GZM80-0041

Dimensions



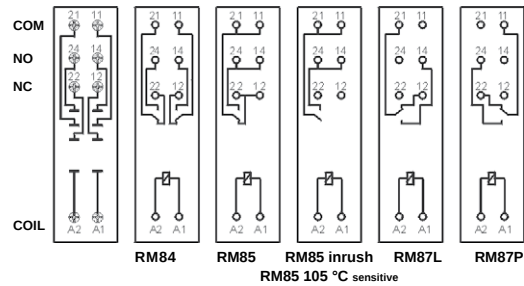
GZM80

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

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



Connection diagrams ①

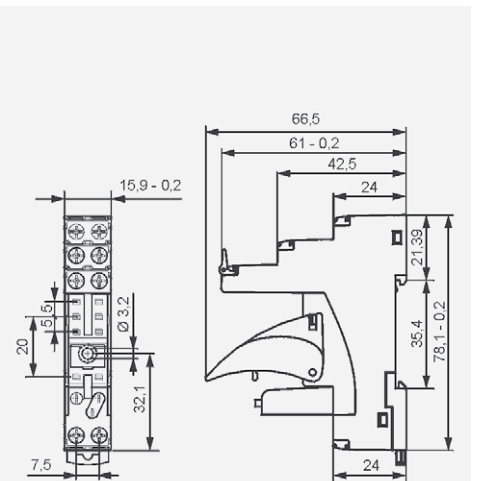


Accessories ①

ZGGZ80

GZM80-0041

Dimensions



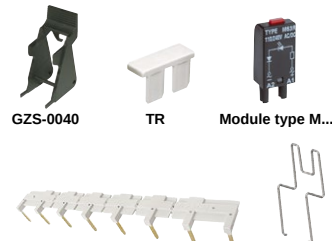
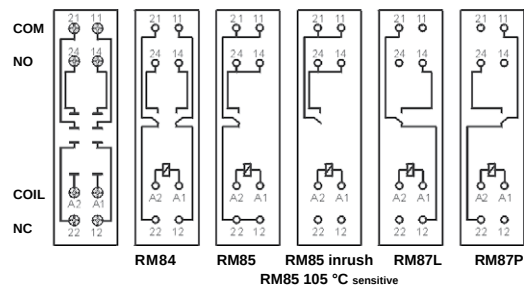
GZS80

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

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



Connection diagrams ①

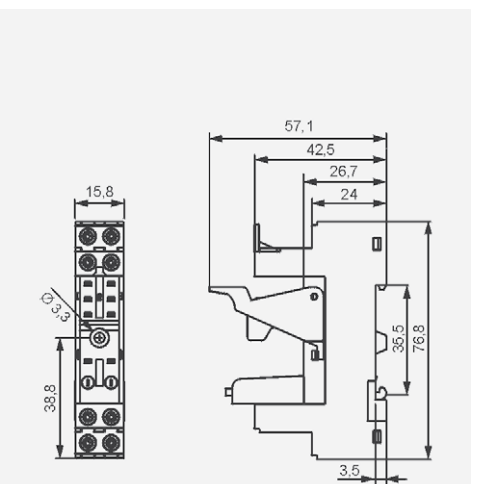


Accessories ①

ZGGZ80

GZM80-0041

Dimensions



① Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261. ② In the bracket the height of socket with retainer / retractor clip is shown. ③ For RM85, RM85 inrush, RM85 105 °C sensitive: loads above 12 A (GZT80, GZM80) or 10 A (GZS80, GZMB80) require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see pages 177, 185 (PI85 - connection). For RMB841, RMB851 - see pages 52, 77 (energizing of bistable relays)

Plug-in sockets and accessories

GZMB80

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

Spring terminals

Max. cross section of the cables:
1 x 0,2...1,5 mm²

(1 x 24...16 AWG)

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

35 mm rail mount

acc. to PN-EN 60715

97 x 16 x 45,2(69) mm

Two poles, 5 mm pinout

10 A, 300 V AC



GZMB80-0040



TR

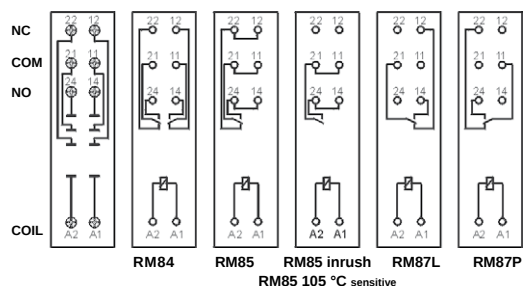


Module type M...

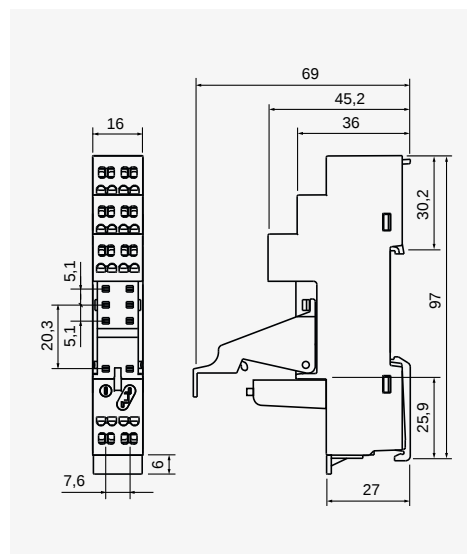


GZM80-0041

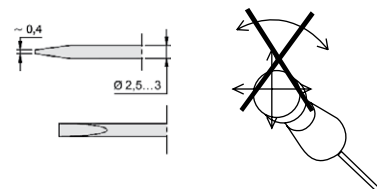
Connection diagrams ⑥



Dimensions



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



Accessories ①

Wire connection

EC 50

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

For PCB

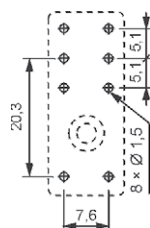
31,3 x 12,7 x 9 mm

Two poles, 5 mm pinout

8 A, 300 V AC



Pinout



MP25-2



MH25-2



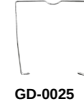
RM81-0001



MP16-2



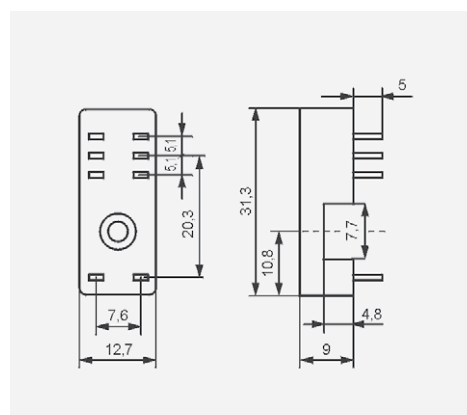
MH16-2



GD-0025

Accessories

Dimensions



PW80

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

For PCB

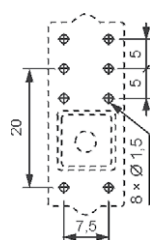
34,6 x 12,9 x 6,6 mm

Two poles, 5 mm pinout

8 A, 250 V AC



Pinout



MH25-2



RM81-0001



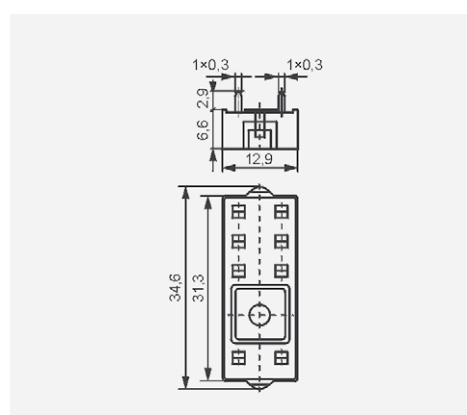
MH16-2



GD-0025

Accessories

Dimensions



① Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261. ② In the bracket the height of socket with retainer / retractor clip is shown. ③ For RM85, RM85 inrush, RM85 105 °C sensitive: loads above 12 A (GZT80, GZM80) or 10 A (GZS80, GZMB80) require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see pages 177, 185 (PI85 - connection). For RMB841, RMB851 - see pages 52, 77 (energizing of bistable relays)

Plug-in sockets and accessories

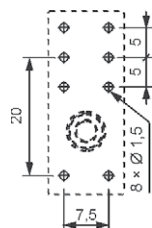
GD50

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

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



Pinout



RM81-0001



MP25-2

GD-0025



MH25-2



MP16-2

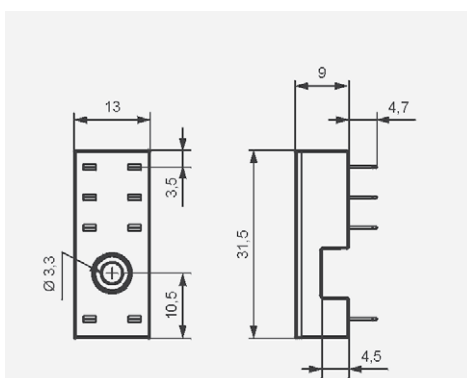
GD-0016



MH16-2

Accessories

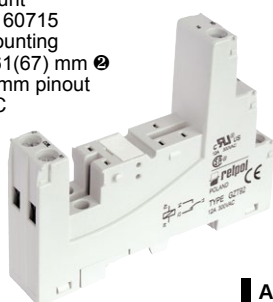
Dimensions



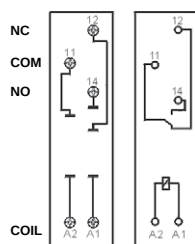
GZT92

For RM87N, RM87N sensitive

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
75,3 x 15,5 x 61(67) mm ②
One pole, 3,5 mm pinout
12 A, 300 V AC



Connection diagrams



RM87N

GZT80-0035

Module type M...



GZT80-0040

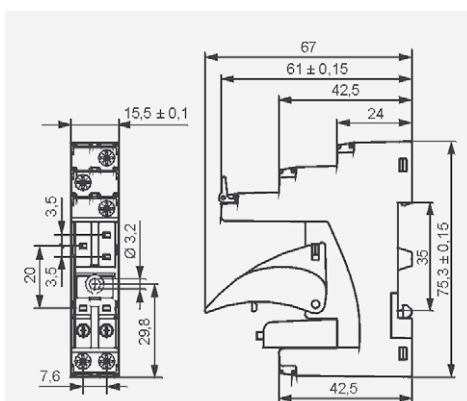


ZGGZ80

GZM80-0041

Accessories ①

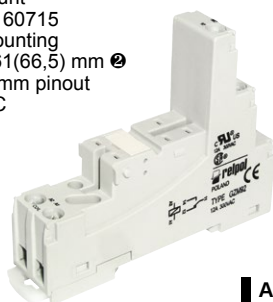
Dimensions



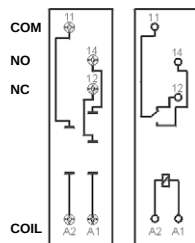
GZM92

For RM87N, RM87N sensitive

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
78,1 x 15,9 x 61(66,5) mm ②
One pole, 3,5 mm pinout
12 A, 300 V AC



Connection diagrams



RM87N

GZT80-0035

Module type M...



GZT80-0040

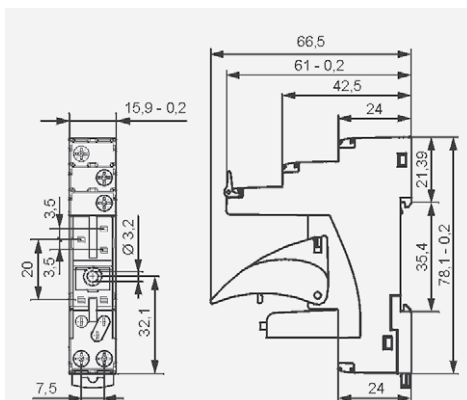


ZGGZ80

GZM80-0041

Accessories ①

Dimensions



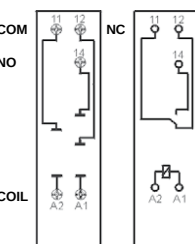
GZS92

For RM87N, RM87N sensitive

Screw terminals
Max. tightening moment
for the terminal: 0,5 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
76,8 x 15,8 x 42,5(57,1) mm ②
One pole, 3,5 mm pinout
12 A, 300 V AC



Connection diagrams



RM87N

TR

Module type M...



GZS-0040

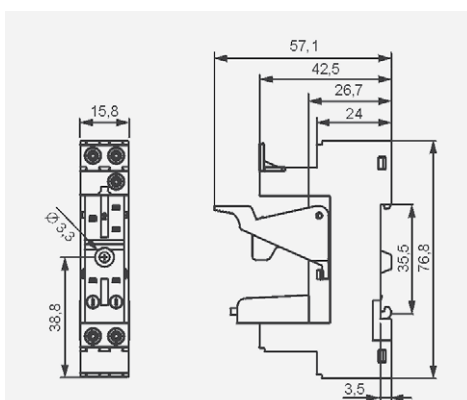


ZGGZ80

GZM80-0041

Accessories ①

Dimensions



① Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261.
② In the bracket the height of socket with retainer / retractor clip is shown.

Plug-in sockets and accessories

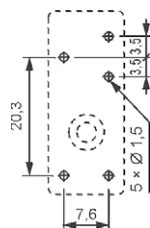
EC 35

For RM87N, RM87N sensitive, RM92

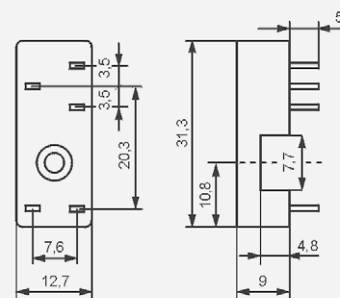
For PCB
31,3 x 12,7 x 9 mm
One pole, 3,5 mm pinout
12 A, 300 V AC



Pinout



Dimensions



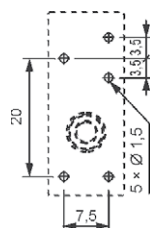
GD35

For RM87N, RM87N sensitive, RM92

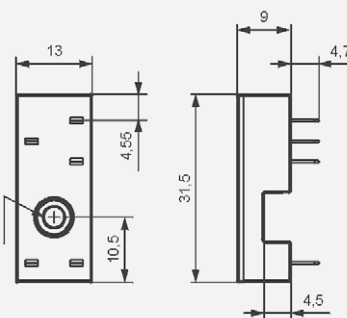
For PCB
31,5 x 13 x 9 mm
One pole, 3,5 mm pinout
12 A, 300 V AC



Pinout



Dimensions



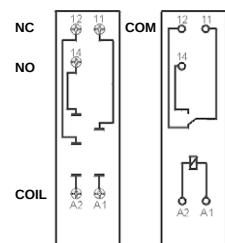
ES 32

For RM96 1 CO

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715 or on panel
mounting
75 x 15,5 x 42,5(59) mm ②
One pole, 3,2 mm pinout
12 A, 300 V AC

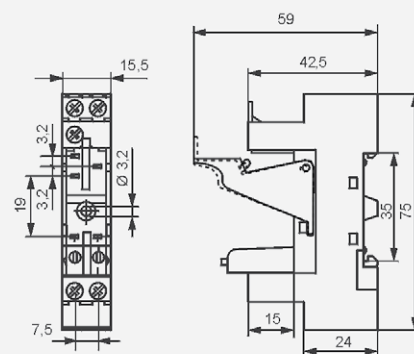


Connection diagrams



Accessories ①

Dimensions

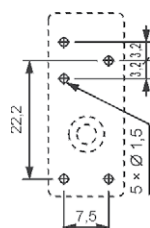


EC 32

For PCB
31 x 12,7 x 9 mm
One pole, 3,2 mm pinout
12 A, 300 V AC

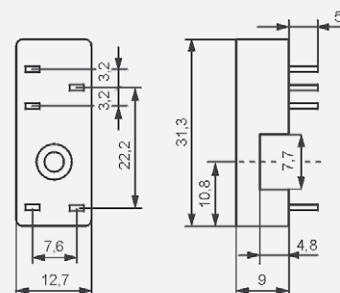


Pinout



Accessories

Dimensions



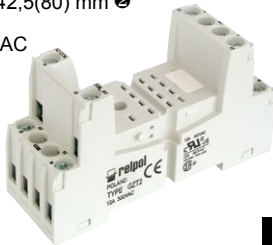
① Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261.
② In the bracket the height of socket with retainer / retractor clip is shown.

Plug-in sockets and accessories

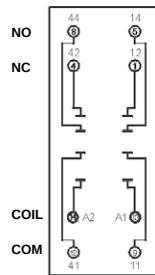
GZT2

For R2

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
76,3 x 27 x 42,5(80) mm ②
Two poles
12 A, 300 V AC



Connection diagram



GZT4-0040

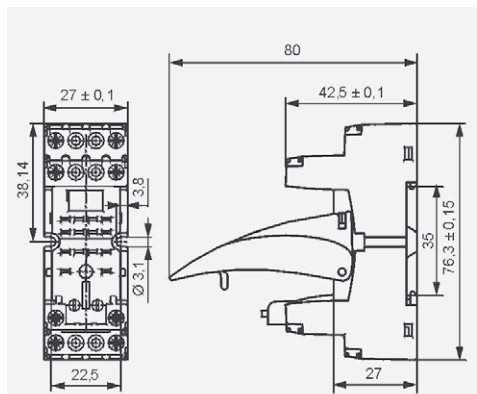
G4 1052



GZT4-0035

Module type M...

Dimensions



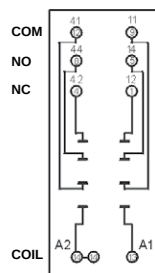
GZM2

For R2

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
75 x 27 x 61(82) mm ②
Two poles
12 A, 300 V AC



Connection diagram



GZT4-0040

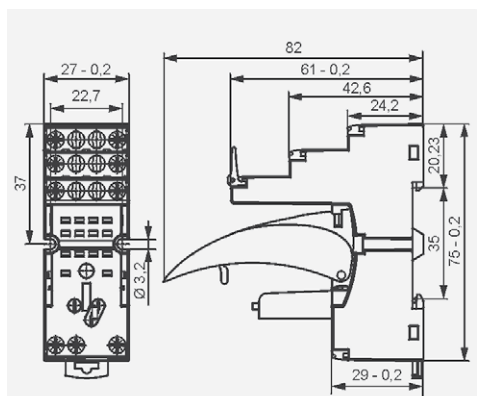
G4 1052



GZT4-0035

Module type M...

Dimensions



GZMB2

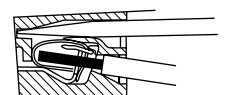
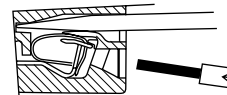
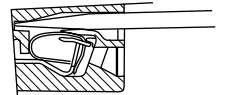
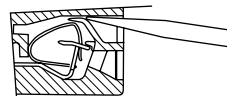
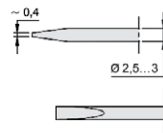
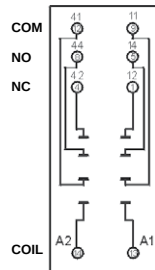
For R2

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

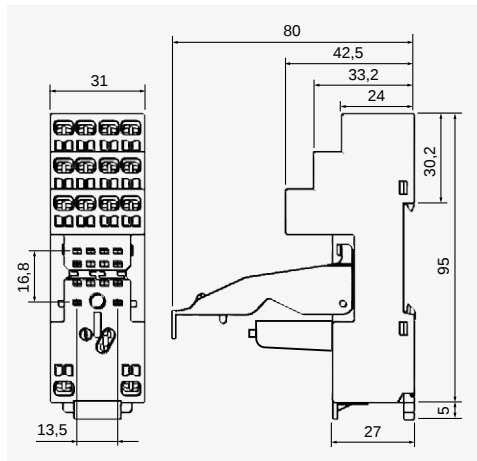
35 mm rail mount
acc. to PN-EN 60715
95 x 31 x 42,5(80) mm ②
Two poles
10 A, 300 V AC



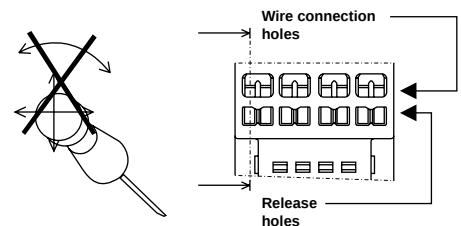
Connection diagram



Dimensions



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



GZMB4-0040



TR



Module type M...



G4 1052

Accessories ①

Wire connection

- ① Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261.
② In the bracket the height of socket with retainer / retractor clip is shown.

Plug-in sockets and accessories

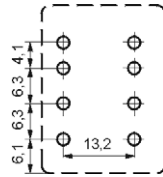
SU4/2D

For R2

For PCB
29,6 x 21,5 x 11 mm
Two poles
12 A, 250 V AC



Pinout

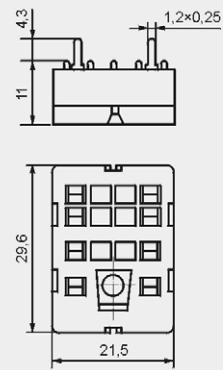


Accessories ①

G4 1053

G4 1050

Dimensions



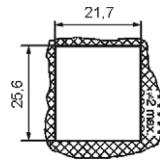
SU4/2L

For R2

Solder terminals
29,6 x 21,5 x 18,1 mm
Two poles
12 A, 250 V AC



Dimensions of opening on panel mounting



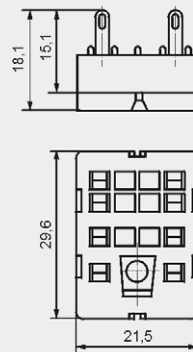
Accessories ①

G4 1053

G4 1050

G4 1040

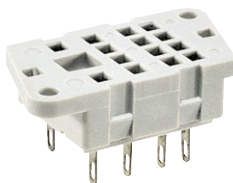
Dimensions



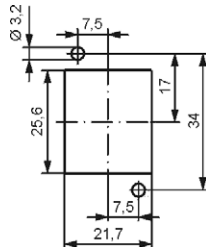
G4/2

For R2

Solder terminals
40,5 x 21,5 x 18,1 mm
Two poles
12 A, 250 V AC



Pinout of openings on panel mounting

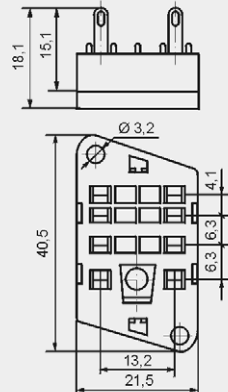


Accessories ①

G4 1053

G4 1050

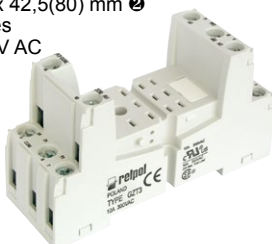
Dimensions



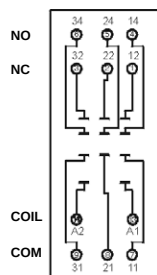
GZT3

For R3

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
76,3 x 27 x 42,5(80) mm ②
Three poles
10 A, 300 V AC



Connection diagram



ZGGZ4



GZT4-0040

G4 1052

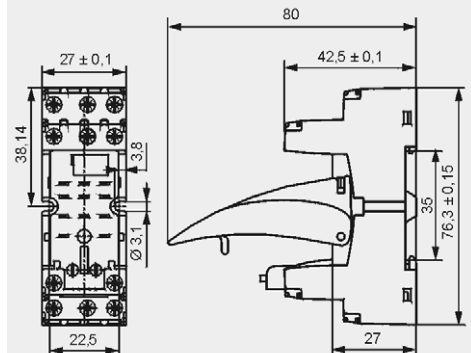


GZT4-0035

Module type M...

Accessories ①

Dimensions



① Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261.

② In the bracket the height of socket with retainer / retractor clip is shown. ③ G4 1053 - for R2...WT, R4...WT relays; G4 1050 - for R2, R4 without WT

Plug-in sockets and accessories

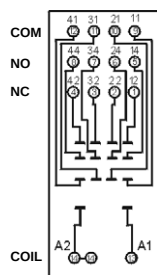
GZM3

For R3

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
75 x 27 x 61(82) mm ②
Three poles
10 A, 300 V AC



Connection diagram



ZGGZ4

GZT4-0040

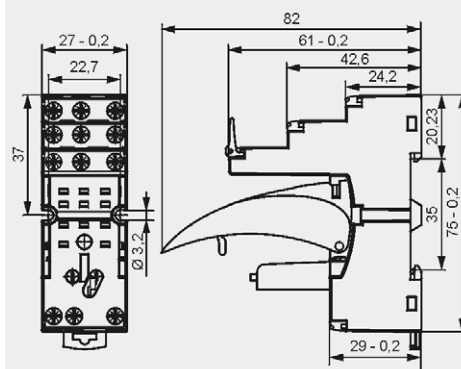
G4 1052



GZT4-0035

Module type M...

Dimensions



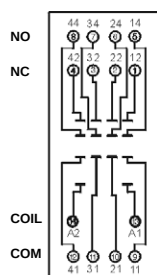
GZT4 ⑥

For R4, T-R4

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
76,3 x 27 x 42,5(80) mm ②
Four poles
6 A, 300 V AC



Connection diagram



ZGGZ4

TR4-2000

GZT4-0040

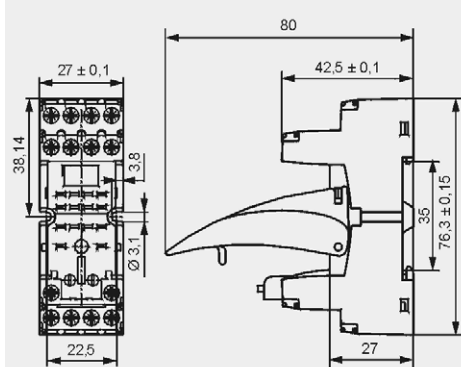
G4 1052



GZT4-0035

Module type M...

Dimensions



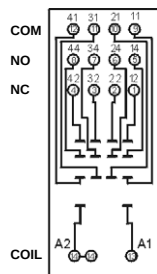
GZM4

For R4, T-R4

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
75 x 27 x 61(82) mm ②
Four poles
6 A, 300 V AC



Connection diagram



ZGGZ4

TR4-2000

GZT4-0040

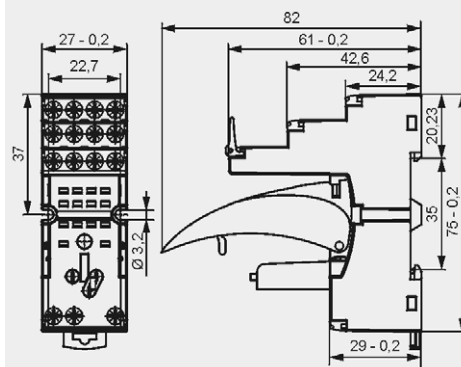
G4 1052



GZT4-0035

Module type M...

Dimensions



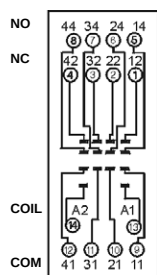
GZ4

For R4

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
66,4 x 29,5 x 29 mm
Four poles
10 A, 300 V AC

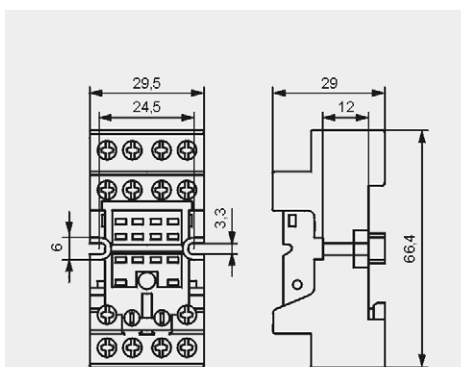


Connection diagram



G4 1052

Dimensions



Accessories

① Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261. ② In the bracket the height of socket with retainers / retractors clip is shown. ⑥ For R4 relays: G4 1052, GZT4-0040, GZMB-0040, GZT4-0035, TR, module type M...; for T-R4 relays: TR4-2000, GZT4-0035, TR

Plug-in sockets and accessories

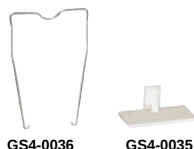
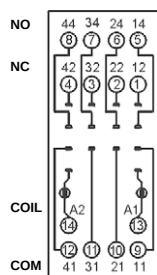
GS4

For R4

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
67 x 30,8 x 30 (~63,7) mm ⑦
Four poles
6 A, 300 V AC

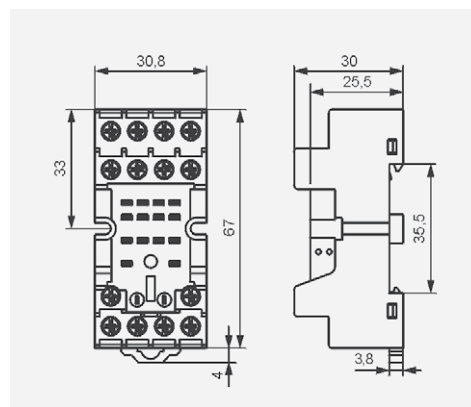


Connection diagram



Accessories

Dimensions



GZMB4

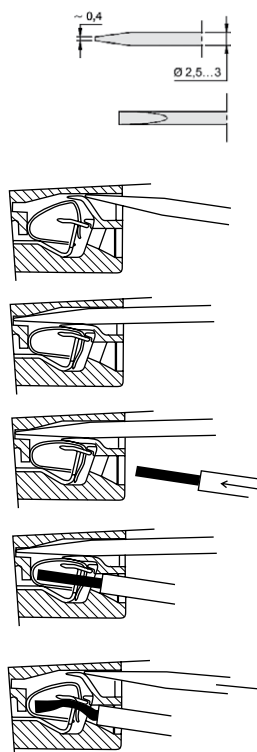
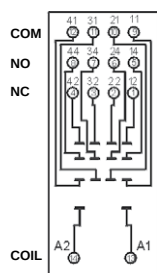
For R4, T-R4

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

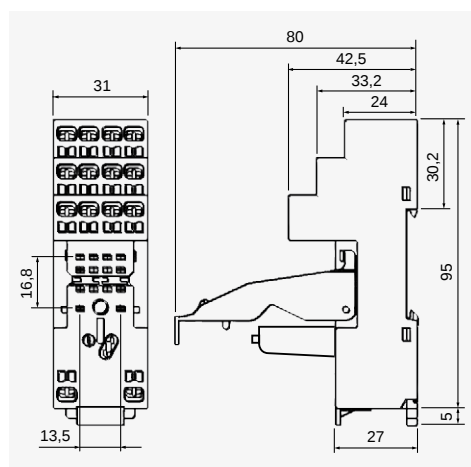
35 mm rail mount
acc. to PN-EN 60715
95 x 31 x 42,5(80) mm ②
Four poles
10 A, 300 V AC



Connection diagram



Dimensions



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



GZMB4-0040



TR



Module type M...



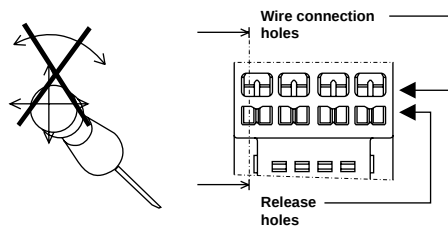
G4 1052



TR4-2000

Accessories ① ⑥

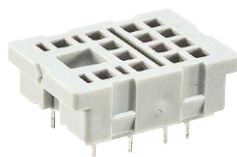
Wire connection



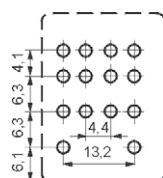
SU4D

For R4

For PCB
29,6 x 21,5 x 11 mm
Four poles
6 A, 250 V AC



Pinout

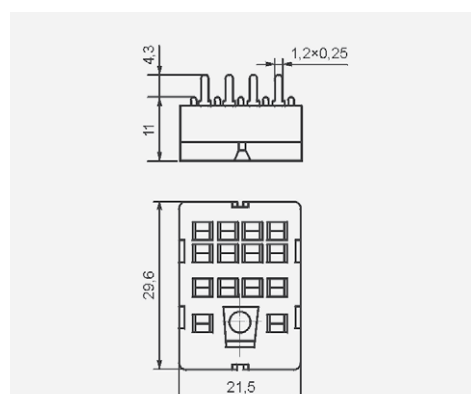


Accessories ④

G4 1053

G4 1050

Dimensions



① Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261. ② In the bracket the height of socket with retainer / retractor clip is shown. ④ G4 1053 - for R2...WT, R4...WT relays; G4 1050 - for R2, R4 without WT ⑥ For R4 relays: G4 1052, GZT4-0040, GZMB-0040, GZT4-0035, TR, module type M...; for T-R4 relays: TR4-2000, GZT4-0035, TR ⑦ In the bracket the height of socket with spring wire clip is shown.

Plug-in sockets and accessories

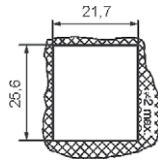
SU4L

For R4

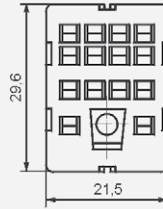
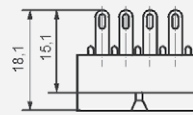
Solder terminals
29,6 x 21,5 x 18,1 mm
Four poles
6 A, 250 V AC



Dimensions of opening on panel mounting



Dimensions



Accessories ④

G4 1053

G4 1050

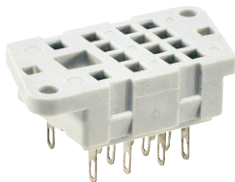
G4 1040



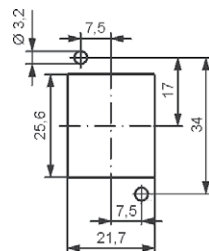
G4

For R4

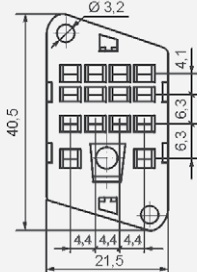
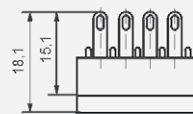
Solder terminals
40,5 x 21,5 x 18,1 mm
Four poles
6 A, 250 V AC



Pinout of openings on panel mounting



Dimensions



Accessories ④

G4 1053

G4 1050



④ G4 1053 - for R2...WT, R4...WT relays; G4 1050 - for R2, R4 without WT

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

Signalling / protecting module
type M...

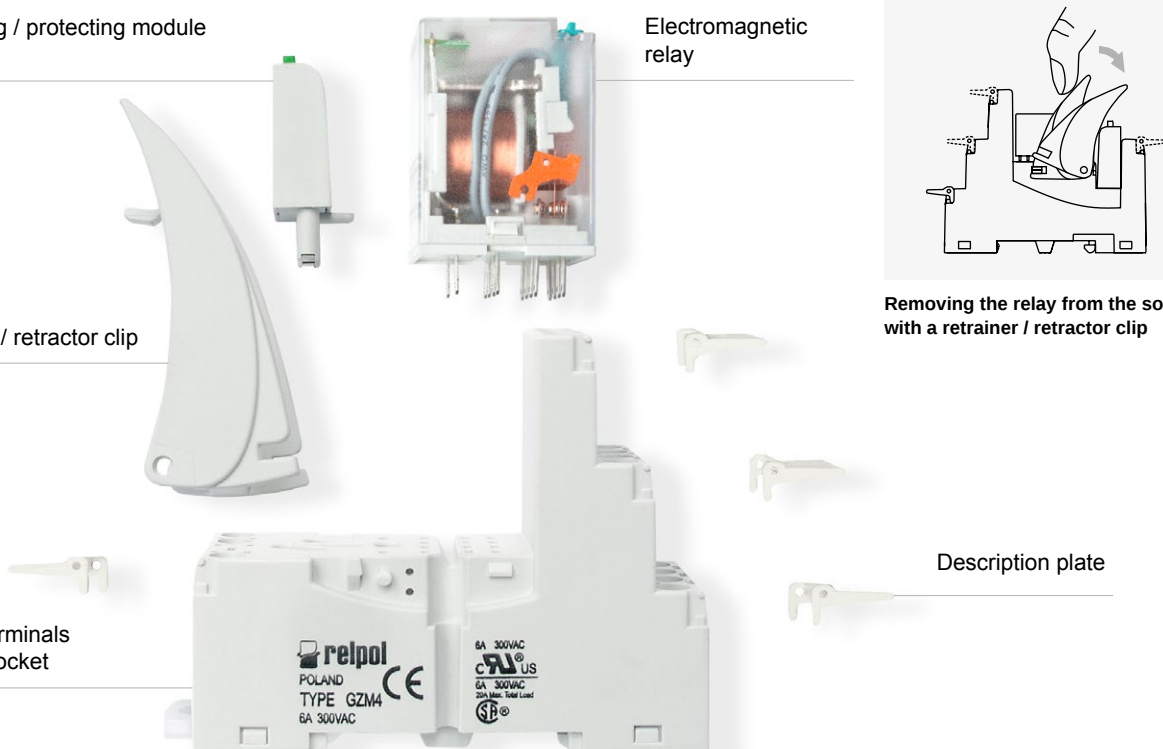
Electromagnetic
relay

Retainer / retractor clip

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

Screw terminals
plug-in socket

Description plate



Plug-in sockets and accessories

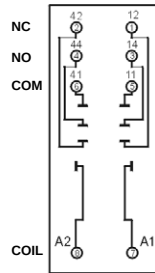
GZY2G

For RY2

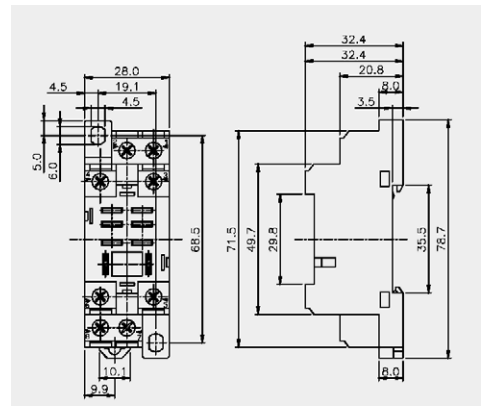
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
78,7 x 28 x 32,4 mm
Two poles
12 A, 250 V AC



Connection diagram



Dimensions



Accessories

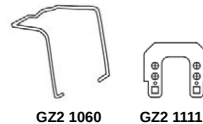
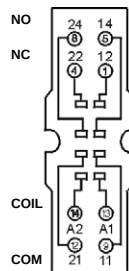
GZ2

For R2M

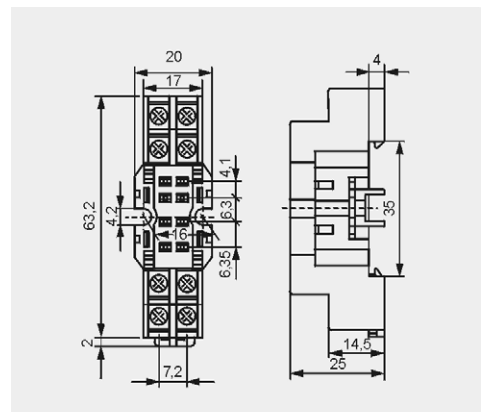
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
65,2 x 20 x 25 mm
Two poles
7 A, 250 V AC



Connection diagram



Dimensions

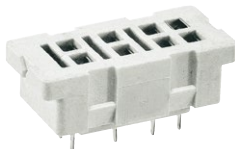


Accessories

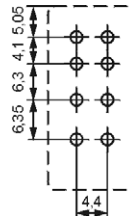
S2M

For R2M

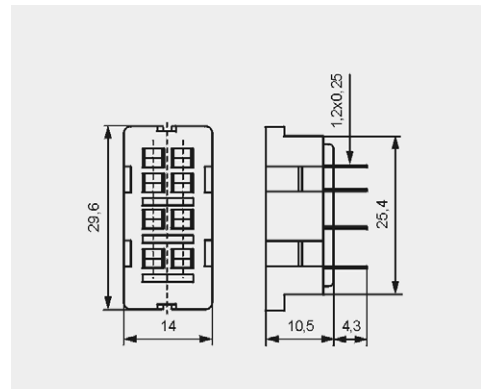
For PCB
29,6 x 14 x 10,5 mm
Two poles
5 A, 250 V AC



Pinout



Dimensions

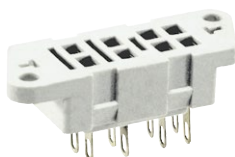


Accessories

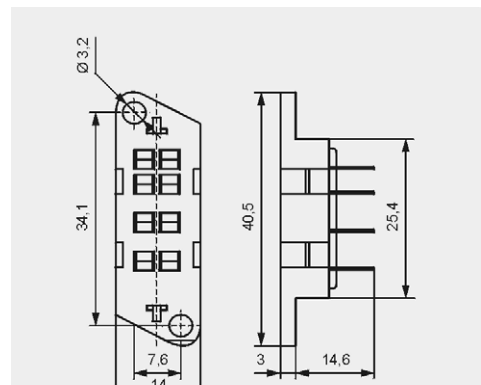
G2M

For R2M

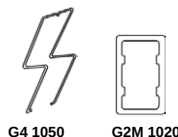
Solder terminals
40,5 x 14 x 10,5 mm
Two poles
5 A, 250 V AC



Dimensions



Accessories



Plug-in sockets and accessories

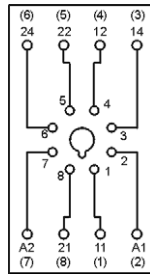
PZ8 ⑥

For R15 - 2 CO

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
68,2 x 38 x 24,2 mm
Two poles
10 A, 250 V AC



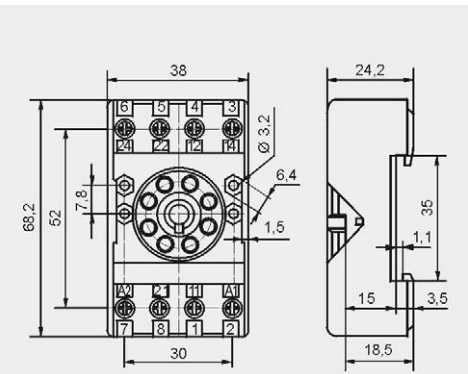
Connection diagram



Accessories

PZ11 0031

Dimensions



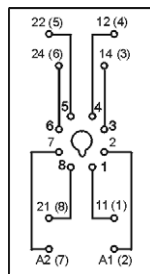
GZU8

For R15 - 2 CO

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
82 x 35,5 x 25,7 mm
Two poles
10 A, 300 V AC



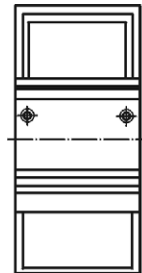
Connection diagram



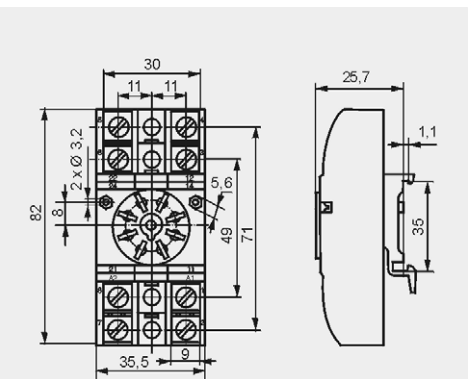
Accessories

GZU 1052

Adaptor



Dimensions



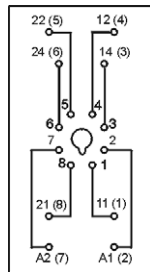
GZ8

For R15 - 2 CO

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
On panel mounting
82,8 x 35,5 x 22,5 mm
Two poles
10 A, 300 V AC



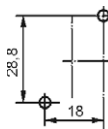
Connection diagram



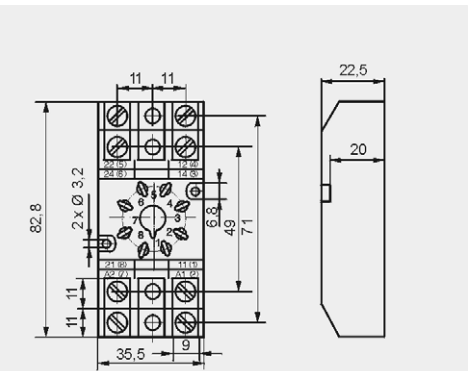
Accessories

GZ 1050

Mounting dimensions



Dimensions



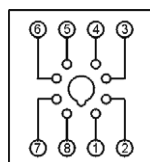
GZS8

For R15 - 2 CO

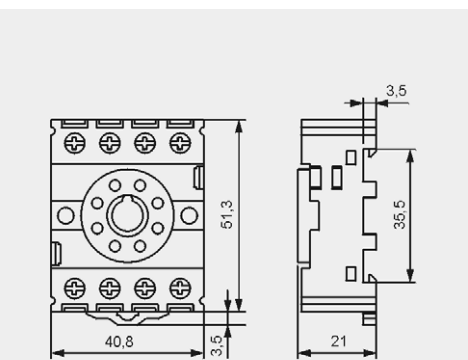
Screw terminals
Max. tightening moment
for the terminal: 1,0 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
51,3 x 40,8 x 21 mm
Two poles
10 A, 300 V AC



Connection diagram



Dimensions



⑥ Have obtained LR Type Approval Certificate (Lloyd's Register).

Plug-in sockets and accessories

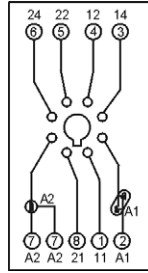
GZP8

For R15 - 2 CO

Screw terminals
Max. tightening moment
for the terminal: 0,5 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
73 x 38,2 x 27,2 mm
Two poles
12 A, 300 V AC



Connection diagram



Time module T(COM3)



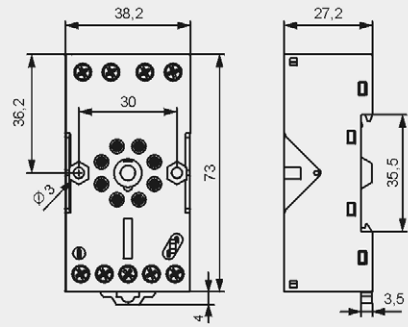
GZP-0054



GZP-0035

Accessories

Dimensions



GOP8

For R15 - 2 CO

Solder terminals
47,2 x 32 x 22 mm
Two poles
10 A, 250 V AC



Accessories

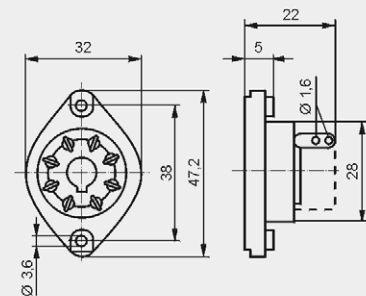


R159 1051



R15 5922

Dimensions



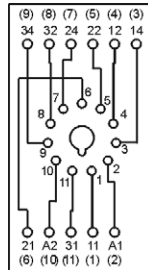
PS11 6

For R15 - 3 CO

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
68,2 x 38 x 24,2 mm
Three poles
10 A, 250 V AC



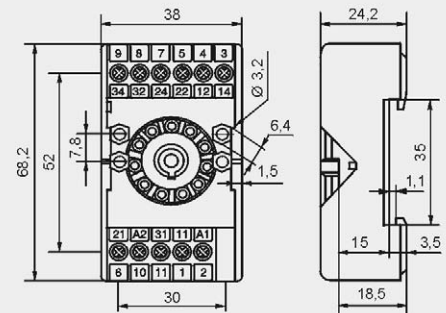
Connection diagram



PZ11 0031

Accessories

Dimensions



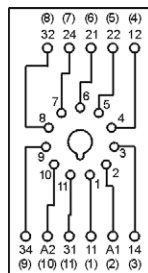
PZ11 6

For R15 - 3 CO

Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
68,2 x 38 x 24,2 mm
Three poles
10 A, 250 V AC



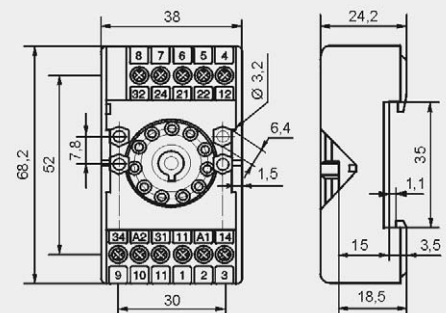
Connection diagram



PZ11 0031

Accessories

Dimensions



6 Have obtained LR Type Approval Certificate (Lloyd's Register).

Plug-in sockets and accessories

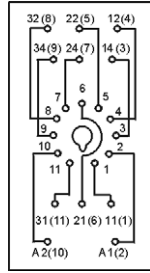
GZU11

For R15 - 3 CO

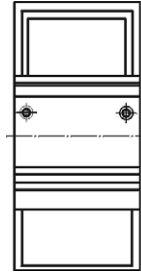
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
82 x 35,5 x 25,7 mm
Three poles
10 A, 250 V AC



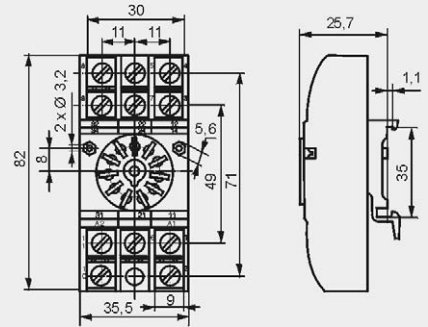
Connection diagram



Adaptor



Dimensions



Accessories

GZU 1052

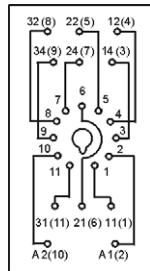
GZ11

For R15 - 3 CO

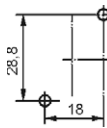
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
On panel mounting
82,8 x 35,5 x 22,5 mm
Three poles
10 A, 250 V AC



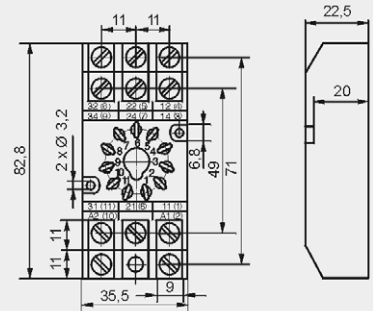
Connection diagram



Mounting dimensions



Dimensions



Accessories

GZ 1050

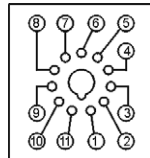
GZS11

For R15 - 3 CO

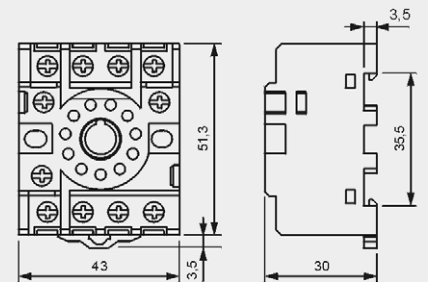
Screw terminals
Max. tightening moment
for the terminal: 1,0 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
51,3 x 43 x 30 mm
Three poles
10 A, 300 V AC



Connection diagram



Dimensions



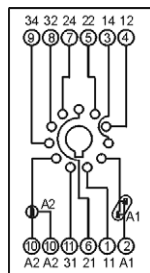
GZP11

For R15 - 3 CO

Screw terminals
Max. tightening moment
for the terminal: 0,5 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
73 x 38,2 x 27,2 mm
Three poles
12 A, 300 V AC

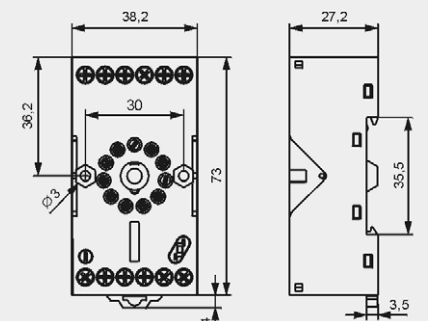


Connection diagram



Time module T(COM3)

Dimensions



Accessories

GZP-0054

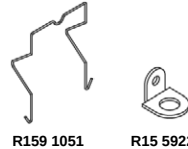
GZP-0035

Plug-in sockets and accessories

GOP11

For R15 - 3 CO

Solder terminals
47,2 x 32 x 22 mm
Three poles
10 A, 250 V AC

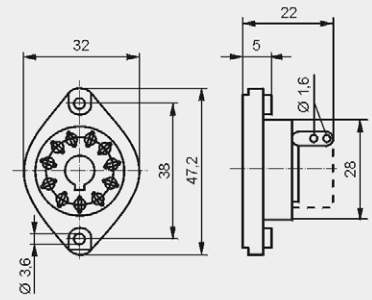


Accessories

R159 1051

R15 5922

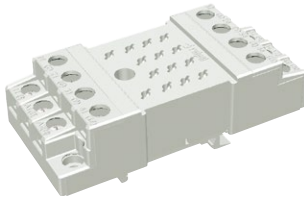
Dimensions



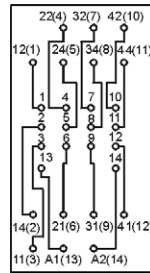
GZ14U

For R15 - 4 CO

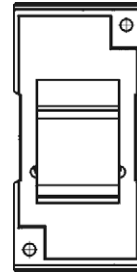
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
96,8 x 46,4 x 33,3 mm
Four poles
10 A, 250 V AC



Connection diagram



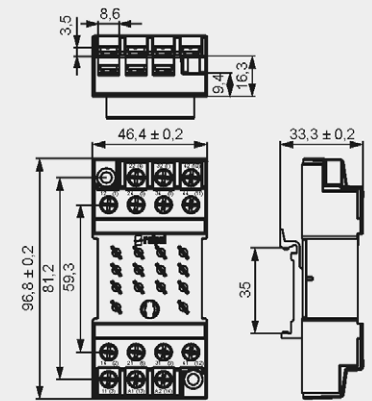
Adaptor



Accessories

GZ14 0737

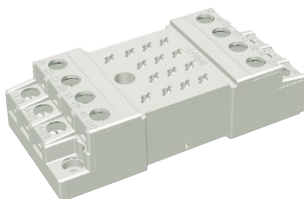
Dimensions



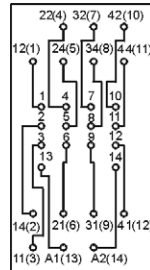
GZ14

For R15 - 4 CO

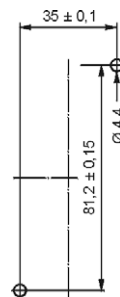
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
On panel mounting
96,8 x 46,4 x 24,5 mm
Four poles
10 A, 250 V AC



Connection diagram



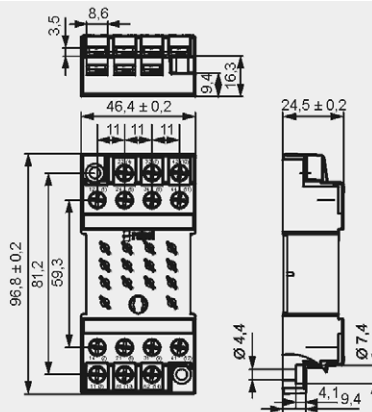
Mounting dimensions



Accessories

GZ14 0737

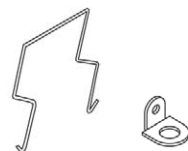
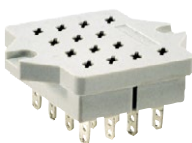
Dimensions



GOP14

For R15 - 4 CO

Solder terminals
50 x 42 x 23 mm
Four poles
10 A, 250 V AC

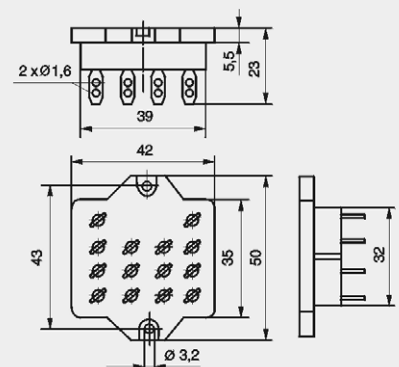


Accessories

R15 0736

R15 5922

Dimensions



Plug-in sockets and accessories

GZ14Z

For R15 - 4 CO

Screw terminals

Max. tightening moment
for the terminal: 0,7 Nm

On panel mounting, behind

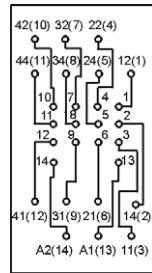
92,2 x 46 x 23 mm

Four poles

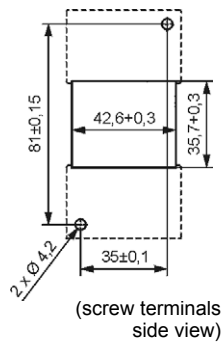
10 A, 250 V AC



Connection diagram

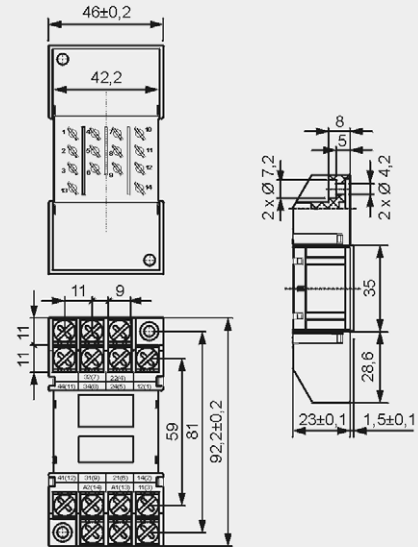


Mounting dimensions



GZ14 0737

Dimensions



Accessories

GUC11 ⑥

For RUC faston 4,8x0,5, RUC-M

Screw terminals

Max. tightening moment
for the terminal: 0,7 Nm

35 mm rail mount

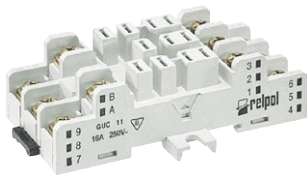
acc. to PN-EN 60715

or on panel mounting

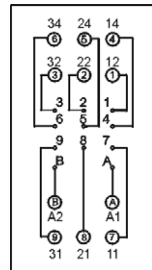
82 x 42,2 x 26,5 mm

Three poles

16 A, 250 V AC

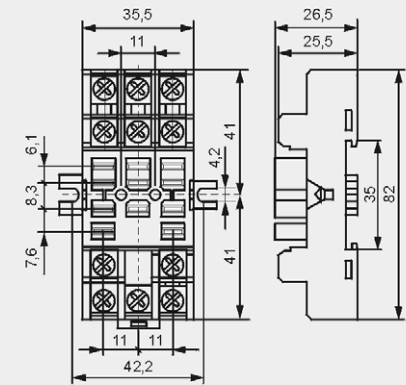


Connection diagram



MBA

Dimensions



Accessories

PI6W-1P

For RM699BV, RSR30 ⑦

Screw terminals

Max. tightening moment
for the terminal: 0,3 Nm

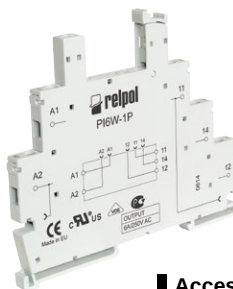
35 mm rail mount

acc. to PN-EN 60715

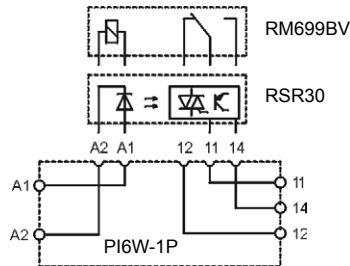
98,5 x 6,2 x 85,5 mm

One pole

6 A, 250 V AC



Connection diagram

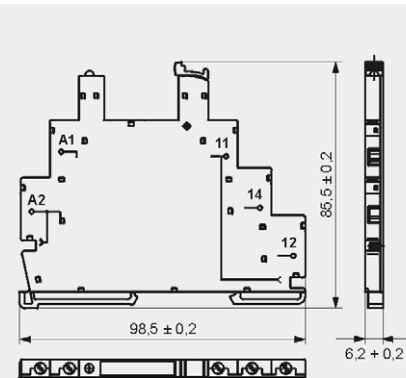


ZG20



PI6W-1246

Dimensions



⑥ For RUC faston 4,8 x 0,5 and RUC-M, with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC / DC.

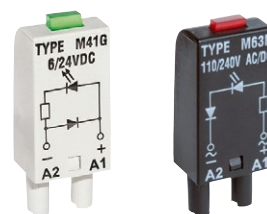
⑦ Solid state relays RSR30 type - see catalogue "Solid state relays" and www.repol.com.pl

For sockets type:

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

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

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

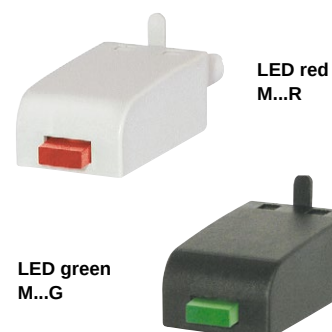


Modules type M...	Layout	Voltage	Type of module ① ②
Module D (polarization P) It limits overvoltage on DC coils.		6/230 V DC	M21P
Module D (polarization N) It limits overvoltage on DC coils.		6/230 V DC	M21N
Module LD (polarization P) It limits overvoltage on DC coils. Coil energizing indication.		6/24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

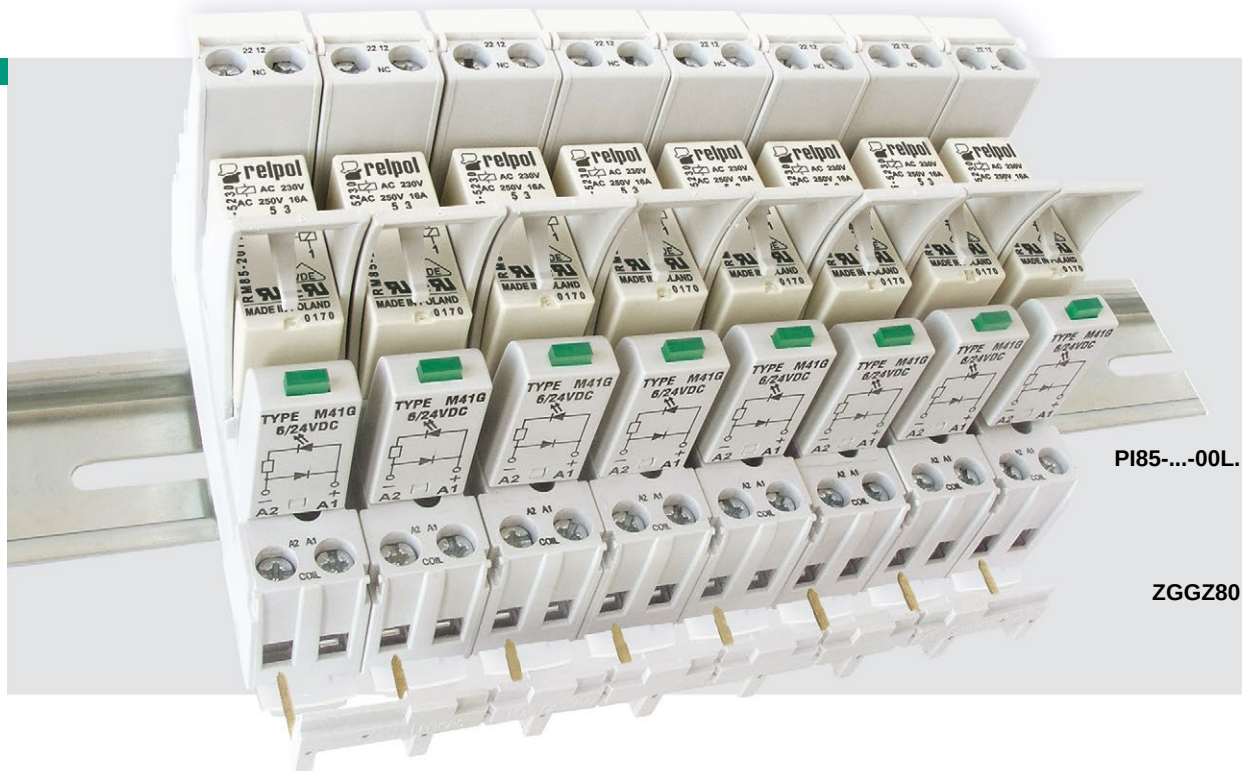
① M...R - LED red, M...G - LED green

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

MODULE type M...



Interconnection strips ZGGZ80



PI85-...-00L.

ZGGZ80

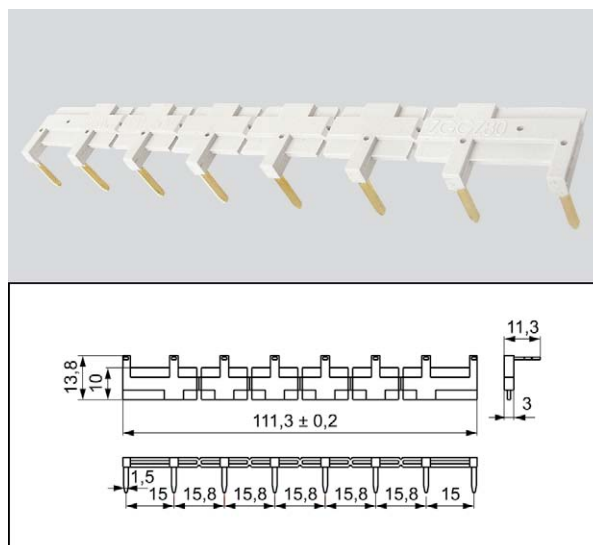
ZGGZ80 for:

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

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

Interconnection strip ZGGZ80

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



Interconnection strips ZGGZ4



PIR2-...-00L.

ZGGZ4

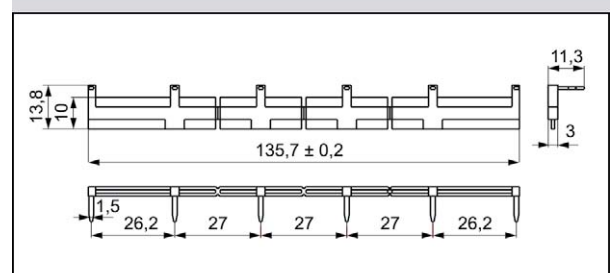
ZGGZ4 for:

Plug-in sockets	Relays for plug-in sockets	Interface relays ①
GZT2	R2...WT	PIR2-...-00L. (GZM2 + R2...WT)
GZM2		PIR3-...-00L. (GZM3 + R3...WT)
GZT3	R3...WT	PIR4-...-00L. (GZM4 + R4...WT)
GZM3		
GZT4	R4...WT	
GZM4		

① Interface relay PIR2 (PIR3, PIR4) is offered as a set: plug-in socket GZM2 (GZM3, GZM4) + miniature industrial relay R2 (R3, R4) + signalling / protecting module type M... + retainer / retractor clip GZT4-0040 + description plate GZT4-0035.

Interconnection strip ZGGZ4

- designed for the co-operation with plug-in sockets of miniature industrial relays and with interface relays PIR2, PIR3 and PIR4, which are equipped with screw terminals; sockets and relays are mounted on 35 mm rail mount acc. to PN-EN 60715,
- bridges common input signals (coil terminals A1 or A2) or output signals - see photo at the top,
- maximum permissible current is 10 A / 250 V AC,
- possibility of connection of 6 sockets or relays,
- colours of strips: **ZGGZ4-1** grey, **ZGGZ4-2** black.



Additional features for industrial relays

WT - mechanical indicator + lockable front test button; basic features of standard industrial relays: R2, R3, R4, R15 - 2 CO, 3 CO - for plug-in sockets. **Detailed information** for individual relays: see "Ordering codes - Additional features".

Type ❶	Description	For industrial relays
W	mechanical indicator	R2, R3, R4, R15 - 2 CO, 3 CO
T	lockable front test button, orange colour - AC coils, green colour - DC coils	R2, R3, R4, R15 - 2 CO, 3 CO
L	light indicator (LED diode), located inside the relay	R2, R3, R4, RY2, R15 - 2 CO, 3 CO, 4 CO RUC, RUC-M
D	surge suppression element (diode) - only for DC coils	R2, R3, R4, RY2, R15 - 2 CO, 3 CO, 4 CO
V	surge suppression element (varistor) - only for AC coils	R15 - 2 CO, 3 CO
K	test button without block function	R15 - 4 CO RUC

❶ Available combinations:

WT, WTL, WTD, WTL D - in relays R2, R3, R4 for plug-in sockets

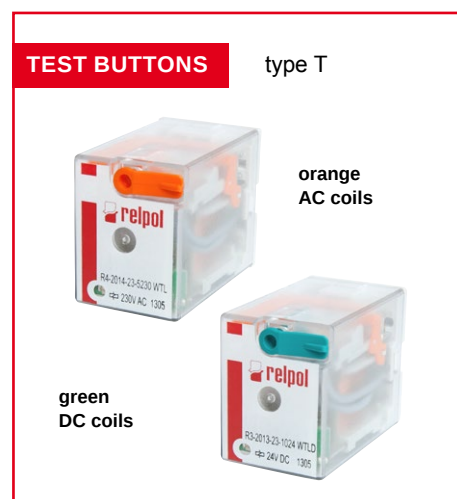
L, D, LD - in relays RY2 for plug-in sockets

WT, WTL, WTD, WTL D, WTV, WTL V - in relays R15 - 2 CO, 3 CO for plug-in sockets

K, L, D, KL, KD, LD, KLD - in relays R15 - 4 CO for plug-in sockets

K, L, KL - in relays RUC

L - in relays RUC-M



Test buttons (no latching) and plugs

Test buttons are recommended for R2...WT, R3...WT, R4...WT, R15...WT 2 CO, R15...WT 3 CO relays - **for applications that do not allow permanent contact latching**. By manual operation (pressing the button) relay contacts can get switched for as long time as long the button is pressed. Contacts return to initial position as soon as pressure is released from the button. Those operations can be done while the coil is deenergized.

Button **R4P-0001** or **R15-M404** can be easily inserted by the Customer after removal of button type **T** (see Fig. 2). Button type **T** can be removed with screwdriver as shown on Fig. 1.

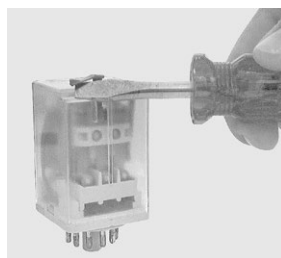


Fig. 1

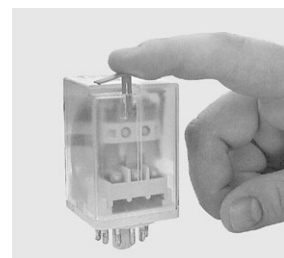
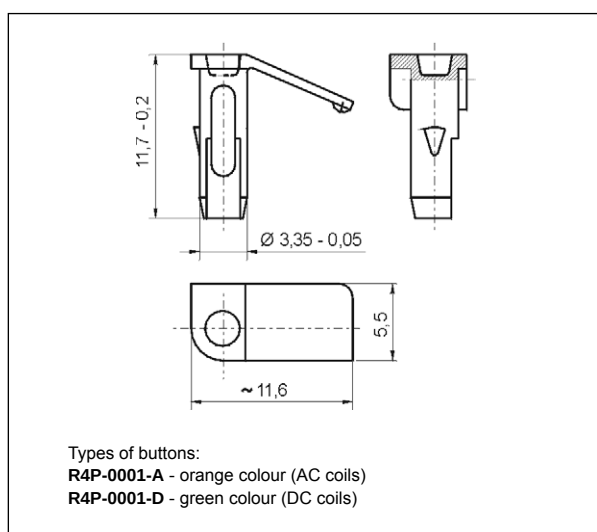
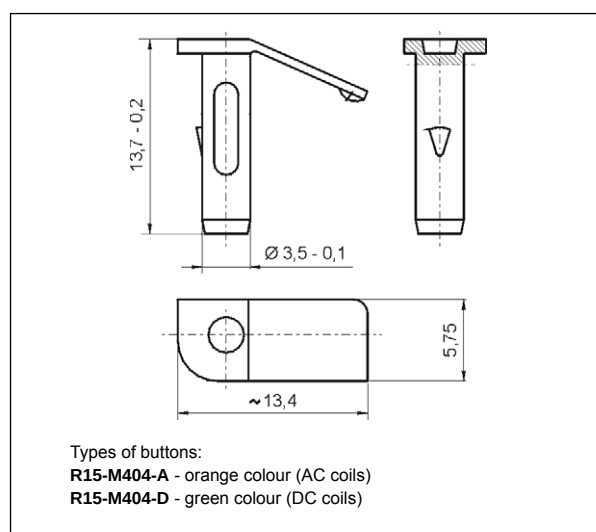


Fig. 2

Dimensions - test button R4P-0001 for relays R2...WT, R3...WT, R4...WT

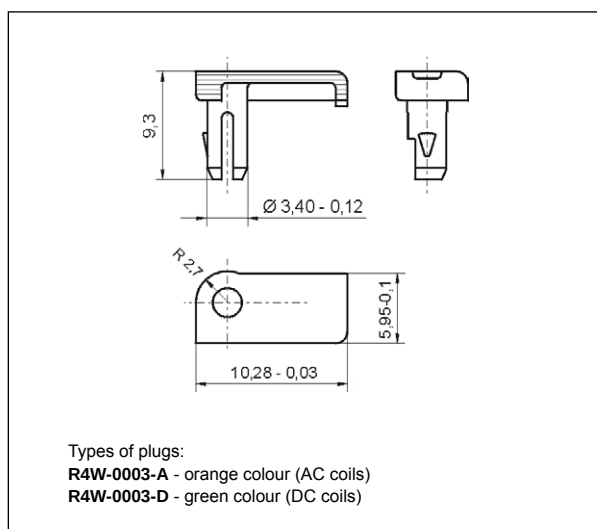


Dimensions - test button R15-M404 for relays R15...WT - 2 CO, 3 CO

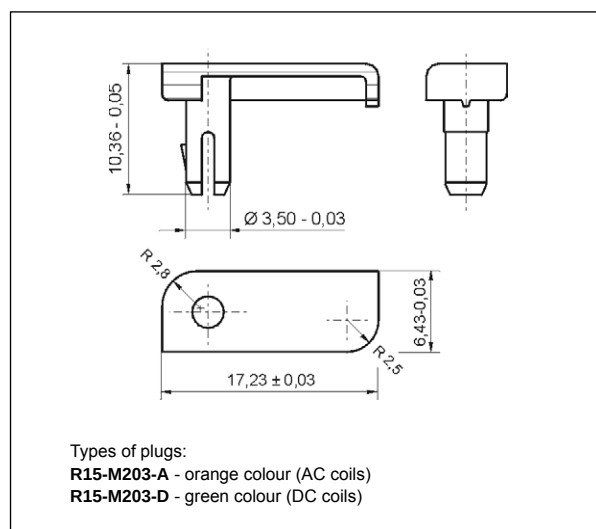


Plugs R4W-0003 or **R15-M203** can substitute button type **T** if **manual operation (latching and testing) is not allowed**. Changing button type **T** for plug can be done by Customer themselves in the same way as changing button type **T** for button (no latching).

Dimensions - plug R4W-0003 for relays R2...WT, R3...WT, R4...WT



Dimensions - plug R15-M203 for relays R15...WT - 2 CO, 3 CO



Plug-in sockets and accessories availability index

The relays not specified in the table are designed for other manners of mounting.

Type of relay	Plug-in sockets			
	Screw terminals on panel mounting	35 mm rail mount acc. to PN-EN 60715	Spring terminals	For PCB
Miniature relays				
RM699BV, RSR30 ❶	–	PI6W-1P	–	–
RM84	(GZT80, GZM80 ❷), GZS80 ❸	(GZT80, GZM80 ❷), GZS80 ❸	GZMB80 ❹	(EC 50, PW80, GD50 ❺)
RM85, RM85 inrush, RM85 105 °C sensitive	(GZT80, GZM80 ❷), GZS80 ❸	(GZT80, GZM80 ❷), GZS80 ❸	GZMB80 ❹	(EC 50, PW80, GD50 ❺)
RMB841, RMB851	(GZT80, GZM80 ❷), GZS80 ❸	(GZT80, GZM80 ❷), GZS80 ❸	GZMB80 ❹	(EC 50, PW80, GD50 ❺)
RM87N, RM87N sensitive	(GZT92, GZM92 ❷), GZS92 ❸	(GZT92, GZM92 ❷), GZS92 ❸	–	(EC 35, GD35 ❺)
RM87L, RM87L sensitive	(GZT80, GZM80 ❷), GZS80 ❸	(GZT80, GZM80 ❷), GZS80 ❸	GZMB80 ❹	(EC 50, PW80, GD50 ❺)
RM87P, RM87P sensitive	(GZT80, GZM80 ❷), GZS80 ❸	(GZT80, GZM80 ❷), GZS80 ❸	GZMB80 ❹	(EC 50, PW80, GD50 ❺)
RM96 1 CO	ES 32	ES 32	–	–
RM83	–	–	–	(EC 50, PW80, GD50 ❺)
RM92	–	–	–	(EC 35, GD35 ❺)
RM94	–	–	–	(EC 50, PW80, GD50 ❺)
Miniature industrial relays				
R2	(GZT2, GZM2 ❸)	(GZT2, GZM2 ❸)	GZMB2 ❹	SU4/2D ❿
R3	GZT3, GZM3	GZT3, GZM3	–	–
R4	(GZT4, GZM4 ❸) GZ4 ❷, GS4 ❹	(GZT4, GZM4 ❸) GZ4 ❷, GS4 ❹	GZMB4 ❹	SU4D ❿
RY2	GZY2G	GZY2G	–	–
R2M	GZ2 ❶	GZ2 ❶	–	S2M ❷
Industrial relays of small dimensions				
R15 - 2 CO	PZ8 ❸, GZ8 ❹, GZS8, GZP8 ❺	PZ8 ❸, GZU8 ❹, GZS8, GZP8 ❺	–	–
R15 - 3 CO	(PS11, PZ11 ❸), GZ11 ❹, GZS11, GZP11 ❺	(PS11, PZ11 ❸), GZU11 ❹, GZS11, GZP11 ❺	–	–
R15 - 4 CO	GZ14, GZ14Z	GZ14U	–	–
RUC faston 4,8x0,5, RUC-M	GUC11	GUC11	–	–
Time relays				
T-R4	GZT4, GZM4 ❷	GZT4, GZM4 ❷	GZMB4 ❷	–

❶ Solid state relays RSR30 type - see catalogue "Solid state relays" and www.repol.com.pl ❷ For sockets GZT80, GZT92, GZM80, GZM92 apply retainer / retractor clips GZT80-0040 or spring wire clips GZM80-0041 and description plates GZT80-0035 ❸ For sockets GZS80, GZS92 apply retainer / retractor clips GZS-0040 or spring wire clips GZM80-0041 and description plates TR ❹ For sockets GZMB80 apply retainer / retractor clips GZMB80-0040 or spring wire clips GZM80-0041 and description plates TR. For sockets GZMB80 not applicable interconnection strips ZGGZ80 ❺ For sockets EC 35, EC 50, GD35, GD50 apply: plastic clips MP16-2, MP25-2; spring wire clips MH16-2, MH25-2, GD-0025, RM81-0001. For sockets GD35, GD50 apply also spring wire clips GD-0016. For sockets PW80 apply spring wire clips MH16-2, MH25-2, GD-0025, RM81-0001 ❻ For sockets GZT2, GZT4, GZM2, GZM4 apply retainer / retractor clips GZT4-0040 or spring wire clips G4 1052 and description plates GZT4-0035 ❼ For sockets GZ4 apply spring wire clips G4 1052 ❽ For sockets GS4 apply spring wire clips GS4-0036 and description plates GS4-0035 ❾ For sockets GZMB2, GZMB4 apply retainer / retractor clips GZMB4-0040 or spring wire clips G4 1052 and description plates TR. For sockets GZMB2, GZMB4 not applicable interconnection strips ZGGZ4 ❿ For sockets SU4/2D, SU4D, SU4/2L, SU4L, G4/2, G4 apply spring wire clips G4 1053, G4 1050. For sockets SU4/2L, SU4L apply also spring clamps G4 1040

Plug-in sockets and accessories availability index

Relays mounting options are specified in the table, pages 4-5.

Sockets		Accessories		
Solder terminals	Retainer / retractor clips	Spring wire clips	Description plates	Additional features
–	–	–	PI6W-1246	ZG20
–	GZT80-0040 ②, GZS-0040 ③, GZMB80-0040 ④	GZM80-0041 ② ③ ④, (MP16-2, MH16-2, GD-0016 ⑤)	GZT80-0035 ②, TR ③ ④	M..., ZGGZ80 ④
–	GZT80-0040 ②, GZS-0040 ③, GZMB80-0040 ④	GZM80-0041 ② ③ ④, (MP16-2, MH16-2, GD-0016 ⑤)	GZT80-0035 ②, TR ③ ④	M..., ZGGZ80 ④
–	GZT80-0040 ②, GZS-0040 ③, GZMB80-0040 ④	GZM80-0041 ② ③ ④, (MP16-2, MH16-2, GD-0016 ⑤)	GZT80-0035 ②, TR ③ ④	ZGGZ80 ④
–	GZT80-0040 ②, GZS-0040 ③	GZM80-0041 ② ③ ④, (MP16-2, MH16-2, GD-0016 ⑤)	GZT80-0035 ②, TR ③	M..., ZGGZ80
–	GZT80-0040 ②, GZS-0040 ③, GZMB80-0040 ④	GZM80-0041 ② ③ ④, (MP16-2, MH16-2, GD-0016 ⑤)	GZT80-0035 ②, TR ③ ④	M..., ZGGZ80 ④
–	GZT80-0040 ②, GZS-0040 ③, GZMB80-0040 ④	GZM80-0041 ② ③ ④, (MP16-2, MH16-2, GD-0016 ⑤)	GZT80-0035 ②, TR ③ ④	M..., ZGGZ80 ④
–	MS 16, GZMB80-0040	GZM80-0041	TR	M..., ZGGZ80
–	–	(MP25-2, MH25-2, GD-0025, RM81-0001 ⑤)	–	–
–	–	(MP25-2, MH25-2, GD-0025, RM81-0001 ⑤)	–	–
–	–	(MP25-2, MH25-2, GD-0025, RM81-0001 ⑤)	–	–
SU4/2L, G4/2 ⑩	GZT4-0040 ⑥, GZMB4-0040 ⑥	G4 1052 ⑥ ⑦ ⑧, (G4 1053, G4 1050 ⑩)	GZT4-0035 ⑥, TR ⑧	M..., ZGGZ4 ⑧, R4P-0001, R4W-0003
–	GZT4-0040	G4 1052	GZT4-0035	M..., ZGGZ4, R4P-0001, R4W-0003
SU4L, G4 ⑩	GZT4-0040 ⑥, GZMB4-0040 ⑥	G4 1052 ⑥ ⑦ ⑧, GS4-0036 ⑥, (G4 1053, G4 1050 ⑩)	GZT4-0035 ⑥, GS4-0035 ⑥, TR ⑧	M... ⑦, ZGGZ4 ⑧, R4P-0001, R4W-0003
–	–	–	–	–
G2M ②	–	GZ2 1060 ①, G4 1050 ②	–	–
GOP8 ⑥	–	PZ11 0031 ③, (GZ 1050, GZU 1052 ④), GZP-0054 ⑤, R159 1051 ⑥	GZP-0035 ⑤	R15-M404, R15-M203, T(COM3) ⑤
GOP11 ⑥	–	PZ11 0031 ③, (GZ 1050, GZU 1052 ④), GZP-0054 ⑤, R159 1051 ⑥	GZP-0035 ⑤	R15-M404, R15-M203, T(COM3) ⑤
GOP14 ⑥	–	GZ14 0737, R15 0736 ⑥	–	–
–	–	MBA	–	–
–	–	TR4-2000	GZT4-0035, TR ⑦	ZGGZ4 ⑦

① For sockets GZ2 apply spring wire clips GZ2 1060 and spring clamps GZ2 1111 ② For sockets S2M, G2M apply spring wire clips G4 1050. For sockets G2M apply also spring clamps G2M 1020 ③ For sockets PZ8, PS11, PZ11 apply spring wire clips PZ11 0031 ④ For sockets GZ8, GZ11 apply spring wire clips GZ 1050. For sockets GZU8, GZU11 apply spring wire clips GZU 1052 ⑤ For sockets GZP8, GZP11 apply spring wire clips GZP-0054, description plates GZP-0035 and time modules T(COM3) ⑥ For sockets GOP8, GOP11 apply spring wire clips R159 1051 and spring clamps R15 5922. For sockets GOP14 apply spring wire clips R15 0736 and spring clamps R15 5922 ⑦ For sockets GZT4, GZM4 apply description plates GZT4-0035. For sockets GZMB4 apply description plates TR. For sockets GZMB4 not applicable interconnection strips ZGGZ4

Plug-in sockets technical data

Type	Terminals	Signs credits	Insulation (PN-EN 60664-1)		
				Dielectric strength 50/60 Hz, 1 min.	
			Rated load	between coil and contacts	pole - pole
For RM699BV, RSR30 ❶					
PI6W-1P	screw terminals	cRUus, VDE, CE	6 A / 300 V AC	4 000 V AC	–
For RM84, RMB841, RM85, RM85 inrush, RM85 105 °C sensitive, RMB851, (RM87L, RM87P ❷)					
GZT80	screw terminals	RUus, CSA, CE	12 A / 300 V AC	5 000 V AC	3 000 V AC
GZM80	screw terminals	cRUus, CSA CE	12 A / 300 V AC	5 000 V AC	3 000 V AC
GZS80	screw terminals	cRUus, CE	10 A / 300 V AC	4 000 V AC	2 500 V AC
GZMB80	spring terminals	cRUus	10 A / 300 V AC	4 000 V AC	4 000 V AC
For RM84, RMB841, RM85, RM85 inrush, RM85 105 °C sensitive, RMB851, (RM87L, RM87P ❷), RM83, RM94					
EC 50	for PCB		8 A / 300 V AC	2 500 V AC	2 500 V AC
PW80	for PCB		8 A / 250 V AC	2 000 V AC	2 000 V AC
GD50	for PCB	RU	8 A / 300 V AC	2 000 V AC	2 000 V AC
For RM87N ❸					
GZT92	screw terminals	cRUus, CSA, CE	12 A / 300 V AC	5 000 V AC	–
GZM92	screw terminals	cRUus, CSA, CE	12 A / 300 V AC	5 000 V AC	–
GZS92	screw terminals	cRUus, CE	12 A / 300 V AC	4 000 V AC	–
For RM87N ❸, RM92					
EC 35	for PCB		12 A / 300 V AC	2 500 V AC	–
GD35	for PCB	RU	12 A / 300 V AC	2 000 V AC	–
Do RM96 1 CO					
ES 32	screw terminals	CE	12 A / 300 V AC	2 500 V AC	–
For miniature relays					
EC 32	for PCB		12 A / 300 V AC	2 500 V AC	–
For R2					
GZT2	screw terminals	cRUus, CSA, CE	12 A / 300 V AC	3 000 V AC	3 000 V AC
GZM2	screw terminals	cRUus, CSA, CE	12 A / 300 V AC	4 000 V AC	3 000 V AC
GZMB2	spring terminals	RU, CSA	10 A / 300 V AC	4 000 V AC	4 000 V AC
SU4/2D	for PCB	cRUus, CSA	12 A / 250 V AC	2 500 V AC	2 500 V AC
SU4/2L	solder terminals	cRUus, CSA, CE	12 A / 250 V AC	2 500 V AC	2 500 V AC
G4/2	solder terminals	cRUus, CSA, CE	12 A / 250 V AC	2 500 V AC	2 500 V AC
For R3					
GZT3	screw terminals	cRUus, CSA, CE	10 A / 300 V AC	3 000 V AC	3 000 V AC
GZM3	screw terminals	cRUus, CSA, CE	10 A / 300 V AC	4 000 V AC	3 000 V AC

① Solid state relays **RSR30** type - see catalogue "Solid state relays" and www.repol.com.pl

② Also RM87L sensitive, RM87P sensitive

③ Also RM87N sensitive

Plug-in sockets technical data

General data			Connections (mounting)			
Number of poles	Weight	Ambient temperature (operating)	Protection category (PN-EN 60529)	Max. cross section of the cables (stranded)	Length of the cable deinsulation	Max. tightening moment for the terminal
1	40 g	-40...+55 °C	IP 20	1 x 2,5 / 2 x 1,5 mm ²	9 mm	0,3 Nm
2	41 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,7 Nm
2	46 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,7 Nm
2	37 g	-40...+85 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,5 Nm
2	41,8 g	-25...+85 °C	IP 20	1 x 0,2...1,5 mm ²	9...11 mm	–
2	4 g	-40...+85 °C	–	–	–	–
2	4 g	-40...+85 °C	–	–	–	–
2	4 g	-40...+85 °C	–	–	–	–
1	35 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,7 Nm
1	40 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,7 Nm
1	33 g	-40...+85 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,5 Nm
1	4 g	-40...+85 °C	–	–	–	–
1	4 g	-40...+85 °C	–	–	–	–
1	37 g	-40...+85 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,5 Nm
1	4 g	-40...+85 °C	–	–	–	–
2	52 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,7 Nm
2	68 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,7 Nm
2	65 g	-25...+85 °C	IP 20	1 x 0,2...1,5 mm ²	9...11 mm	–
2	6 g	-40...+70 °C	–	–	–	–
2	6 g	-40...+70 °C	–	2 x 0,75 mm ²	–	–
2	6 g	-40...+70 °C	–	2 x 0,75 mm ²	–	–
3	60 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,7 Nm
3	68 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,7 Nm

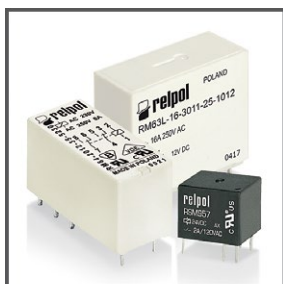
Plug-in sockets technical data

Type	Terminals	Signs credits	Insulation (PN-EN 60664-1)		
				Dielectric strength 50/60 Hz, 1 min.	
			Rated load	between coil and contacts	pole - pole
For R4, T-R4					
GZT4	screw terminals	cRUus, CSA, CE	6 A / 300 V AC	3 000 V AC	3 000 V AC
GZM4	screw terminals	cRUus, CSA, CE	6 A / 250 V AC	4 000 V AC	3 000 V AC
GZMB4	spring terminals	RU, CSA	10 A / 300 V AC	4 000 V AC	4 000 V AC
For R4					
GZ4	screw terminals	CE	10 A / 300 V AC	2 500 V AC	2 000 V AC
GS4	screw terminals	cRUus, CE	6 A / 250 V AC	2 500 V AC	2 000 V AC
SU4D	for PCB	cRUus, CSA	6 A / 250 V AC	2 500 V AC	2 000 V AC
SU4L	solder terminals	cRUus, CSA, CE	6 A / 250 V AC	2 500 V AC	2 000 V AC
G4	solder terminals	cRUus, CSA, CE	6 A / 250 V AC	2 500 V AC	2 000 V AC
For RY2					
GZY2G	screw terminals	CE	12 A / 250 V AC	2 000 V AC	2 000 V AC
For R2M					
GZ2	screw terminals	CE	7 A / 250 V AC	2 000 V AC	2 000 V AC
S2M	for PCB	cRUus	5 A / 250 V AC	2 000 V AC	2 000 V AC
G2M	solder terminals	cRUus, CE	5 A / 250 V AC	2 000 V AC	2 000 V AC
For R15 - 2 CO					
PZ8	screw terminals	RU, CSA, CE	10 A / 250 V AC	2 500 V AC	2 500 V AC
GZU8	screw terminals	RU, CSA, CE	10 A / 300 V AC	2 500 V AC	2 500 V AC
GZ8	screw terminals	CSA, CE	10 A / 300 V AC	2 500V AC	2 500 V AC
GZS8	screw terminals	CE	10 A / 300 V AC	2 000 V AC	2 000 V AC
GZP8	screw terminals	cRUus, CE	12 A / 300 V AC	4 000 V AC	2 500 V AC
GOP8	solder terminals	CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
For R15 - 3 CO					
PS11	screw terminals	RU, CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
PZ11	screw terminals	RU, CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZU11	screw terminals	RU, CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZ11	screw terminals	CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZS11	screw terminals	CE	10 A / 300 V AC	2 000 V AC	2 000 V AC
GZP11	screw terminals	cRUus, CE	12 A / 300 V AC	2 500 V AC	2 000 V AC
GOP11	solder terminals	CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
For R15 - 4 CO					
GZ14U	screw terminals	CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZ14	screw terminals	CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GOP14	solder terminals	CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZ14Z	screw terminals	CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
For RUC faston 4,8 x 0,5, RUC-M					
GUC11	screw terminals	CE	16 A / 250 V AC	2 000 V AC	2 000 V AC

Plug-in sockets technical data

General data			Connections (mounting)			
Number of poles	Weight	Ambient temperature (operating)	Protection category (PN-EN 60529)	Max. cross section of the cables (stranded)	Length of the cable deinsulation	Max. tightening moment for the terminal
4	64 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,7 Nm
4	74 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,7 Nm
4	75 g	-25...+85 °C	IP 20	1 x 0,2...1,5 mm ²	9...11 mm	–
4	40 g	-40...+70 °C	IP 20	2 x 1,5 mm ²	7 mm	0,7 Nm
4	40 g	-40...+70 °C	IP 20	2 x 1,5 mm ²	7 mm	0,7 Nm
4	7 g	-40...+70 °C	–	–	–	–
4	7 g	-40...+70 °C	–	–	–	–
4	8 g	-40...+70 °C	–	2 x 0,75 mm ²	–	–
2	54 g	-25...+55 °C	IP 20	2 x 2,5 mm ²	7 mm	0,7 Nm
2	35 g	-40...+70 °C	IP 00	2 x 2,5 mm ²	7 mm	0,7 Nm
2	8 g	-40...+70 °C	–	–	–	–
2	8 g	-40...+70 °C	–	–	–	–
2	55 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	7 mm	0,7 Nm
2	70 g	-40...+70 °C	IP 00	2 x 2,5 mm ²	9,5 mm	0,7 Nm
2	80 g	-40...+70 °C	IP 00	2 x 2,5 mm ²	9,5 mm	0,7 Nm
2	32 g	-40...+70 °C	IP 00	2 x 2,5 mm ²	7 mm	1,0 Nm
2	50 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,5 Nm
2	25 g	-40...+70 °C	–	–	–	–
3	55 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	7 mm	0,7 Nm
3	55 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	7 mm	0,7 Nm
3	70 g	-40...+70 °C	IP 00	2 x 2,5 mm ²	9,5 mm	0,7 Nm
3	80 g	-40...+70 °C	IP 00	2 x 2,5 mm ²	9,5 mm	0,7 Nm
3	46 g	-40...+70 °C	IP 00	2 x 2,5 mm ²	7 mm	1,0 Nm
3	55 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	6,5 mm	0,5 Nm
3	27 g	-40...+70 °C	–	–	–	–
4	120 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	9,5 mm	0,7 Nm
4	120 g	-40...+70 °C	IP 20	2 x 2,5 mm ²	9,5 mm	0,7 Nm
4	35 g	-40...+70 °C	–	–	–	–
4	120 g	-40...+55 °C	IP 00	2 x 2,5 mm ²	9,5 mm	0,7 Nm
3	75 g	-40...+70 °C	IP 00	2 x 2,5 mm ²	9 mm	0,7 Nm

You have not found the relay you wanted? The catalogue does not show the information about the switching capacity for the type of load you are looking for?
Detailed contact data is presented on the last page of the catalogue
and at **www.relpol.com.pl**



subminiature
and miniature relays



industrial and
installation relays



interface relays



NEED –
programmable relays



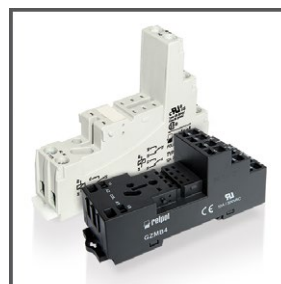
time relays



monitoring relays



solid state relays



plug-in sockets
for relays



contactors, thermal
overload relays



softstarts



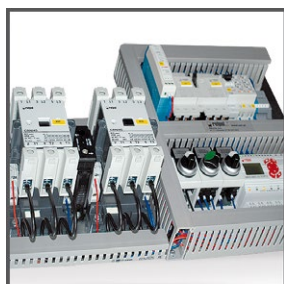
motor protection
circuit breakers



power supply



overvoltage arresters



SZR – automation
modules



SMP – radiation
portal monitors



CZIP-PRO –
protection relays



Declaration of conformity RoHS

RELPOL S.A.

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68-200 Żary, Poland

Relpol S.A. hereby confirms that
relays and plug-in sockets for relays
supplied by our company meet
the requirements of the Directive
2002/95/EC - RoHS
and **2011/65/EU - RoHS2.**

11.07.2012

Date

A. Hyska
Quality and Environmental
Management
Department Director
Andrzej Hyska



The offer of Relpol S.A. includes the following products:

subminiature signal relays

rated switching capacity: from 1 A to 3 A, coil voltage range: from 3 V to 48 V DC

miniature relays

rated switching capacity: from 5 A to 20 A

industrial relays

rated switching capacity: from 5 A to 48 A, mounting: to plug-in sockets on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting, for PCB

interface relays

rated switching capacity: from 0,5 A to 16 A, number of contacts: from 1 to 4

plug-in sockets for relays

for PCB, for 35 mm rail mount acc. to PN-EN 60715 or on panel mounting

contactors

rated switching power: from 2,2 kW to 200 kW /at 400 V/

motor protection circuit breakers

setting range: from 0,1 A to 63 A

time relays

single- and multifunction time relays, wide range of time adjustments

monitoring relays

monitoring of current, voltage, temperature, level

NEED programmable relays

versions: 8 inputs / 4 relay outputs, 16 inputs / 8 relay outputs, with LCD display, without LCD display, supply voltages: 12 V DC, 24 V DC, 220 V DC, 230 V AC, programming: LAD, STL, LED indicators of the relay and input / output status

DIN rail power supply

for automation systems, output circuit: 12 V DC, 24 V DC, rated currents: from 1,5 A to 20 A

solid state relays

rated load currents: from 1 A to 100 A, switching at zero or at any time

overvoltage arresters

classes I, II and III, available with changeover signal contact

CZIP-PRO protection relays

digital protection, automation, measurement, control and communication system for MV switchgears

SMP system

radiation portal monitors

Due to the permanent development policy, Relpol S.A. reserves the right to introduce changes of data and characteristics of the products. The devices shall be operated by skilled personnel in accordance with the regulations in force pertaining to electrical systems. The technical data are of informational nature. Thus, Relpol S.A. does not accept any liability for inappropriate use of the presented products.

PRECAUTIONS

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

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