48x05
EC32
EC35
EC50
ES32
faston
G2M
G4
G4/2
GD35
GD50
GOP11
GOP14
GOP8
GS4
GUC11
GZ11
GZ14
GZ14U
GZ14Z
GZ2
GZ4
GZ8
GZM2
GZM3
GZM4
GZM80
GZM92
GZMB2
GZMB4
GZMB80

GZP11
GZP8
GZS11
GZS8
GZS80
GZS92
GZT2
GZT3
GZT4
GZT80
GZT92
GZU11
GZU8
GZY2G
inrush
MT-PI-
MT-T..-
MT-TSD-
MT-TUA-
MT-TUB-
PI6-1P
PI6-1T
PI6W-1P
PI84,GZM80
PI84,GZT80
PI85,GZM80
PI85,GZT80
PIR15
PIR2,GZM2
PIR2M,GZ2
PIR3,GZM3
PIR4,GZM4
PIR6W-1P-
PIR6W-1PS
PIR6WB-1PS
PIR6WBT-1Z-
PIR6WT-1Z
PS11
PW80
PZ11
PZ8
R15-2CO
R15-3CO
R15-4CO
R2
R20
R2M
R3
R30

R4
R4T-R4
RA2
RG25
RM40
RM50
RM699B
RM83
RM84
RM84SMT
RM85
RM85faston
RM85inrush
RM85SMT
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RMB851
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RSM822
RSM954
RSM957
RUC
RUC-M
RY2
S2M
SU4/2D
SU4/2L
SU4D
SU4L
T-R4
TR4N1CO,2CO
TR4N4CO
TR-EI1P-UNI
TR-EI2P-UNI
TR-EM1P-UNI
TR-EM2P-UNI
TR-ES2P-UNI

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Plug-in sockets and accessories

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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

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 ❹	with socket	–	–
RUC faston 4,8x0,5	direct	with socket ❺ direct	with socket ❺ direct ❻	on request	4,8 x 0,5 mm
RUC faston 6,3x0,8	–	direct	direct ❻	on request	6,3 x 0,8 mm
RUC-M	direct	with socket ❺ direct	with socket ❺ direct ❻	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-...-❼	–	–	direct	–	–
PIR6WB-1PS-...-❼	–	–	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 ❾	–	direct	direct	–	–

❹ Available socket to be mounted behind the assembly panel - **GZ14Z**. ❺ 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. ❻ Version with adaptor (V) or (H). ❼ **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
❽ With time module T(COM3)

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.

Type of relay	Rated current [A] (0 – 5 – 10 – 15 – 20 – 25 – 30)
Subminiature signal relays	
RSM822	
RSM954	
RSM957	
Miniature relays	
RM40	1 CO: 5 A / 1 NO: 8 A
RM50	
RM699B	$AgSnO_2$
RM84	
RM84 SMT	
RMB841	
RM85	
RM85 ❶	480 V AC
RM85 inrush	
RM85 105 °C sensitive	
RM85 SMT	
RM85 faston	
RMB851	
RM87	
RM87 sensitive	
RM87N SMT	
RM96	
RM83	
RM92	
RM94	
RA2 ❷	1 CO: 20 A / 12 A (NO/NC), 1 NO: 20 A, 2 NO: 2 x 12,5 A
Miniature industrial relays	
R2	WT: 12 A, PCB: 10 A
R3	
R4	
RY2	
R2M	

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.

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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
								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.

Type of relay	Rated current
	0 — 5 — 10 — 15 — 20 — 25 — 30 [A]
Industrial relays of small dimensions	
R15 - 2 CO	
R15 - 3 CO	
R15 - 4 CO	
RUC	
RUC-M	
RG25	
R20	2 NO: 25 A; 1 NO: 30 A
R30	1 CO: 20 A / 10 A (NO/NC); 1 NO: 30 A
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-...-❶	T,C O: R: $AgSnO_2$
PIR6WB-1PS-...-❶	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; 1 CO: 16 A
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

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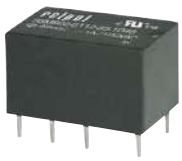
RSM822

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

RM50

Miniature relays - electromagnetic

page 36

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

Miniature relays - electromagnetic

page 39

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

Miniature relays - electromagnetic

page 43

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

Miniature relays - electromagnetic

page 47

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

Przekaźniki miniaturowe - elektromagnetyczne; bistable with one coil

str. 51

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**)

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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

RM85 faston

Miniature relays - electromagnetic

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)

page 73

RMB851

Przekaźniki miniaturowe - elektromagnetyczne; bistable with one coil

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**)

str. 76

RM87

Miniature relays - electromagnetic

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

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RM87 sensitive

Miniature relays - electromagnetic

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

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RM87N SMT

Miniature relays - electromagnetic

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

page 85

RM96

Miniature relays - electromagnetic

page 89

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

Miniature relays - electromagnetic

page 93

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

Miniature relays - electromagnetic

page 97

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

Miniature relays - electromagnetic

page 101

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

Miniature relays - automotive relays

page 105

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

Industrial relays - electromagnetic

page 109

R3 - contacts 3 CO

page 114

R4 - contacts 4 CO

page 118

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

RY2

Industrial relays - electromagnetic

page 123

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

Industrial relays - electromagnetic

page 127

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**)

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R15 - contacts 2 CO

page 131

R15 - contacts 3 CO

page 131

R15 - contacts 4 CO

page 135

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**)

RUC faston 4,8 x 0,5

page 139

RUC faston 6,3 x 0,8

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-M
faston 4,8 x 0,5

Industrial relays - electromagnetic; with permanent magnet whose magnetic field blows the electric arc between the contacts; **for high DC loads**

page 144

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

Industrial relays - electromagnetic

page 148

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

Industrial relays - electromagnetic

page 152

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

Industrial relays - electromagnetic

page 155

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

Industrial relays - electromagnetic; to control power in photovoltaic systems which generate electric energy

page 158

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

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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

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PI6-1P

Interface relays

page 193

Output circuit - contacts: 1 CO ($AgSnO_2$)
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

Interface relays

page 195

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

Interface relays; with socket PI6W-1P -...

page 197

Output circuit - contacts: 1 CO (RM699BV - $AgSnO_2$)
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

Interface relays; with universal socket PI6W-1PS -...

page 200

Output circuit - contacts: 1 CO (RM699BV - $AgSnO_2$); 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

Interface relays; with universal socket PI6WB-1PS -...; spring terminals

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page 203

Output circuit - contacts: 1 CO (RM699BV - $AgSnO_2$); 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, Ii + Ip, 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

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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

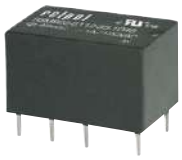
Subminiature relays are applied in e.g. telecommunication devices, office equipment, alarm systems, measurement devices, medical monitoring devices, AV devices, control sensors.

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.



• 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.

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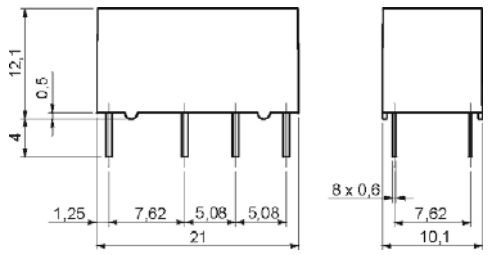
Coil data - DC voltage version, sensitive — Table 1

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	± 10%	2,25	4,5
S005	5	125	± 10%	3,75	7,5
S006	6	180	± 10%	4,50	9,0
S009	9	405	± 10%	6,75	13,5
S012	12	720	± 10%	9,00	18,0
S024	24	2 880	± 10%	18,00	36,0

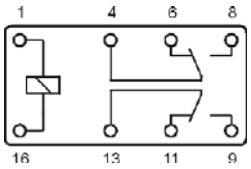
Coil data - DC voltage version, standard — Table 2

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	± 10%	36,00	72,0

Dimensions

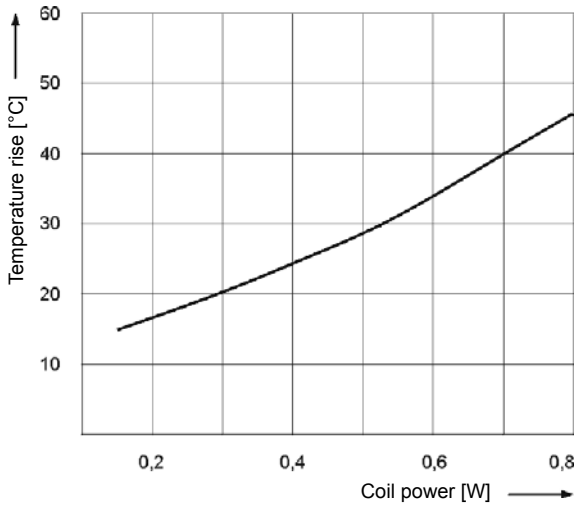


Connection diagram (pin side view)

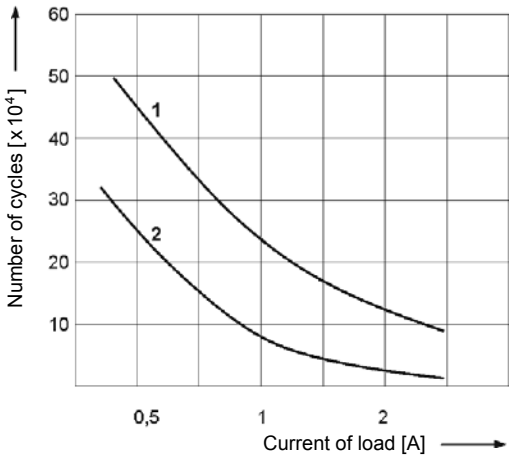


2 CO

Coil temperature rise — Fig. 1



Electrical life — Fig. 2



1 - resistive load 24 V DC
2 - inductive load 24 V DC L/R=40 ms

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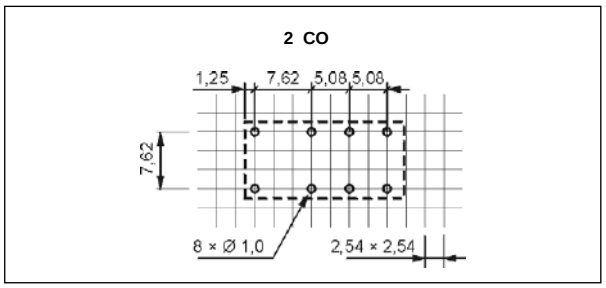
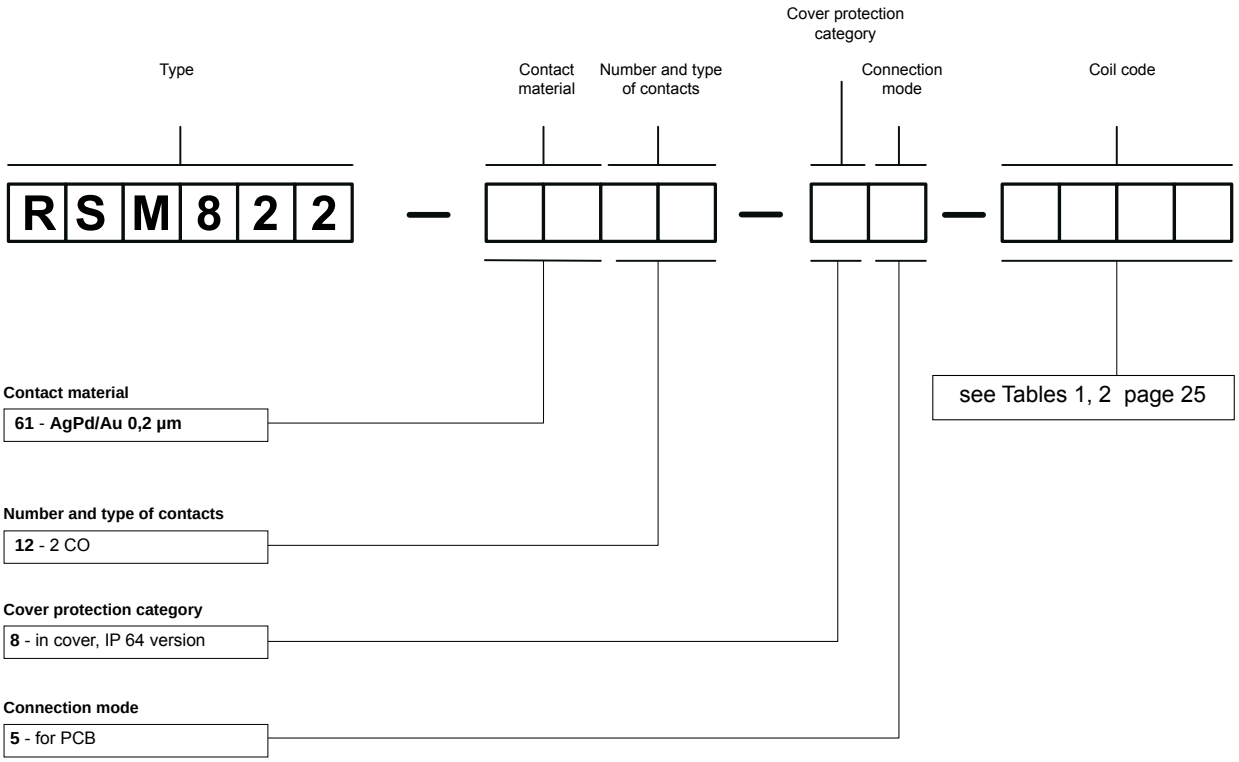
Pinout (solder side view)



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

- 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	3 A / 120 V AC
	DC1	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.

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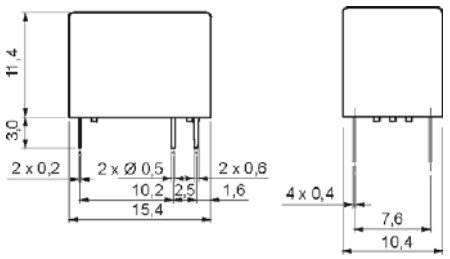
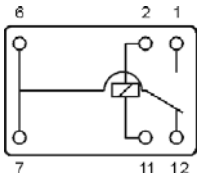
Coil data - DC voltage version, sensitive — Table 1

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	± 10%	2,25	3,9
1005	5	69	± 10%	3,75	6,5
1006	6	100	± 10%	4,50	7,8
1009	9	225	± 10%	6,75	11,7
1012	12	400	± 10%	9,00	15,6
1024	24	1 600	± 10%	18,00	31,2

Dimensions

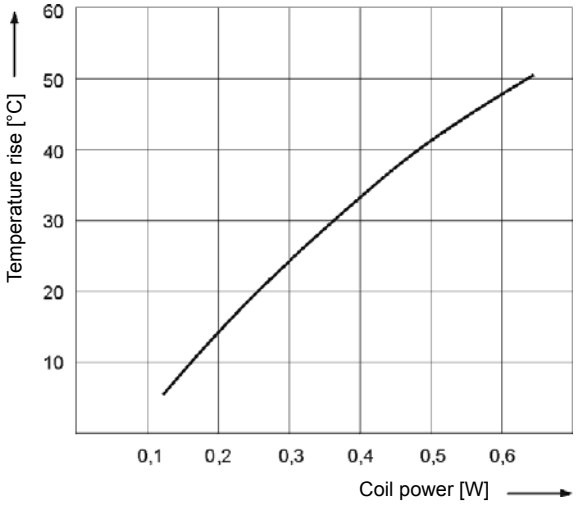


Connection diagram (pin side view)

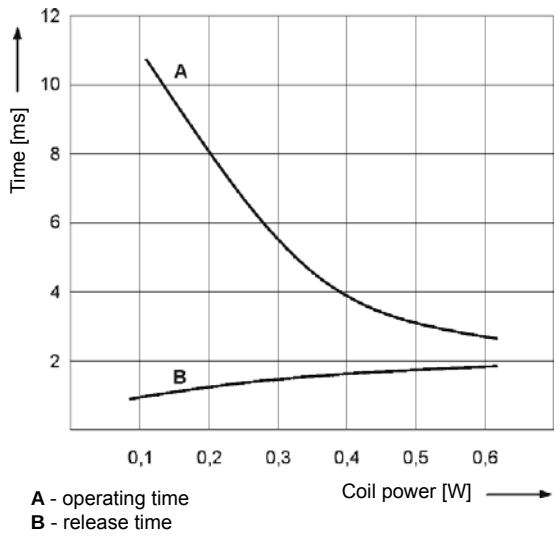


1 CO

Coil temperature rise — Fig. 1



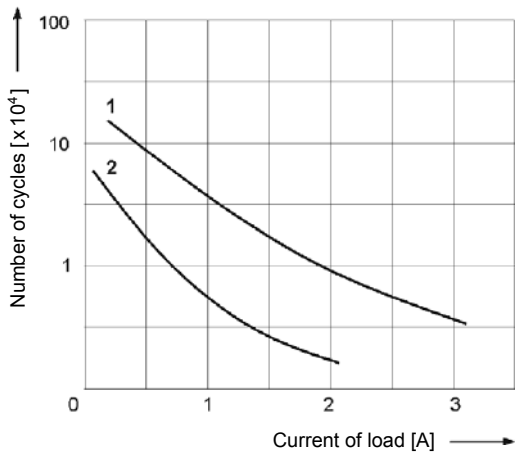
Operating / release time — Fig. 2



A - operating time
B - release time

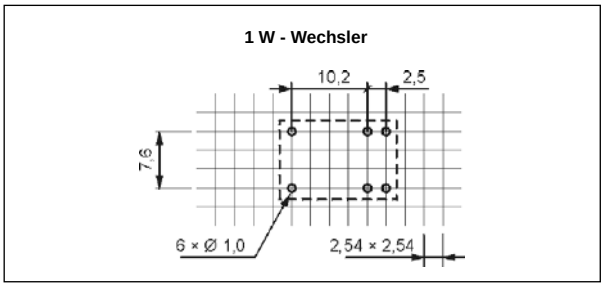
Electrical life

Fig. 3



1 - resistive load 24 V DC
2 - inductive load 24 V DC L/R=40 ms

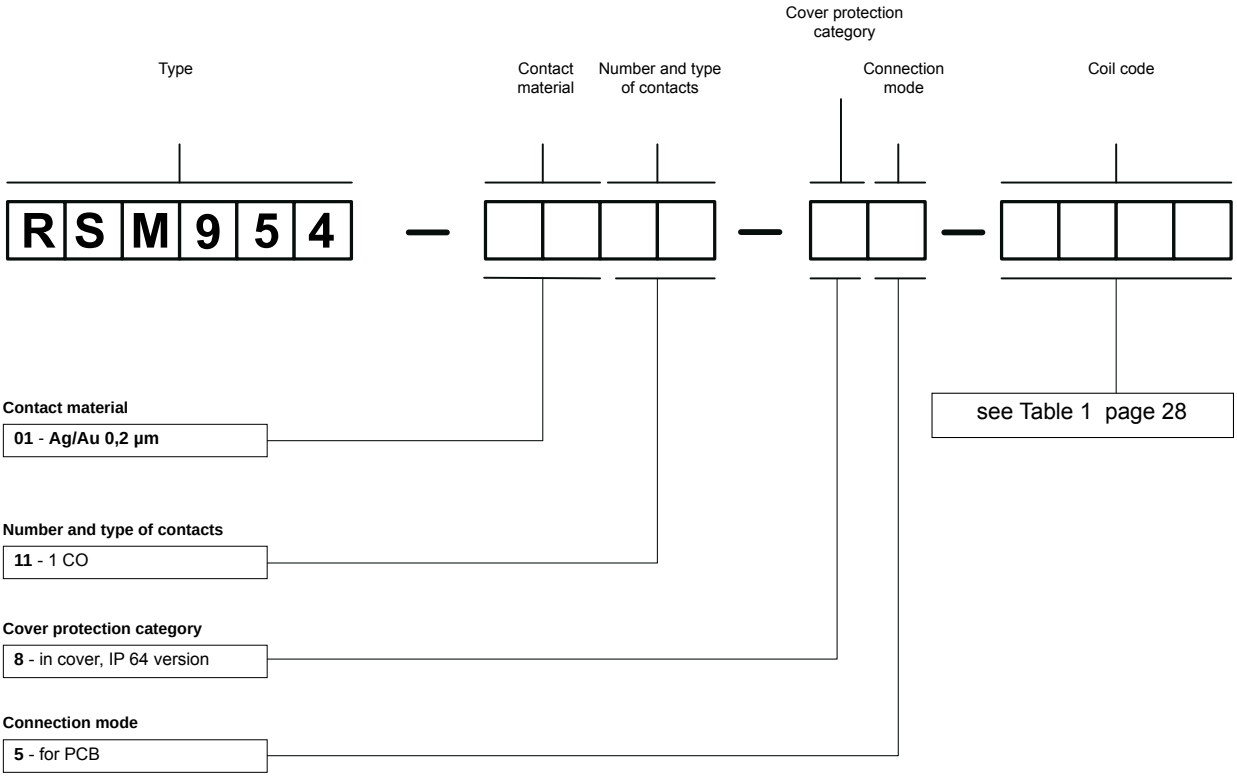
Pinout (solder side view)



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 µm, coil voltage 5 V DC, in cover IP 64

- 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

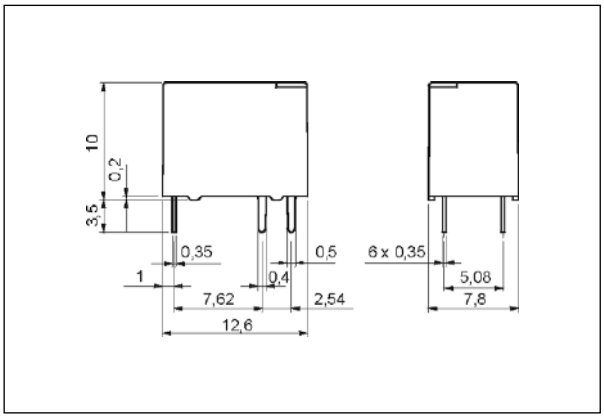
Operating / release time (typical values)		5 ms / 5 ms	
Electrical life (number of cycles)			
• resistive AC1	1 800 cycles/hour	> 10^5	2 A, 120 V AC
• resistive DC1	1 800 cycles/hour	> 10^5	2 A, 24 V DC
Mechanical life	18 000 cycles/hour	> 10^7	
Dimensions (L x W x H)		12,6 x 7,8 x 10 mm	
Weight		2,2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

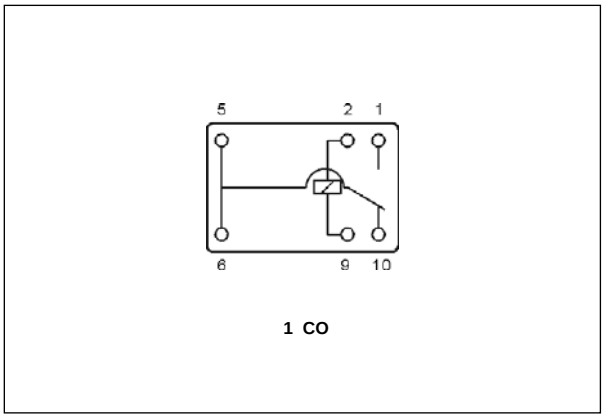
Coil data - DC voltage version, sensitive — Table 1

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

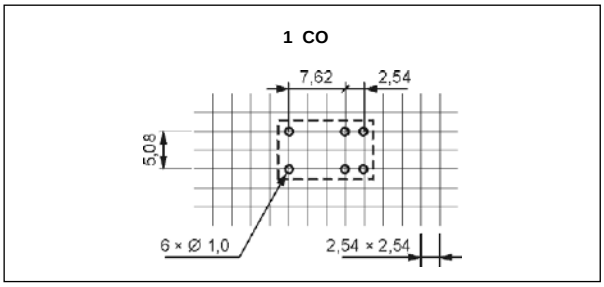
Dimensions



Connection diagram (pin side view)



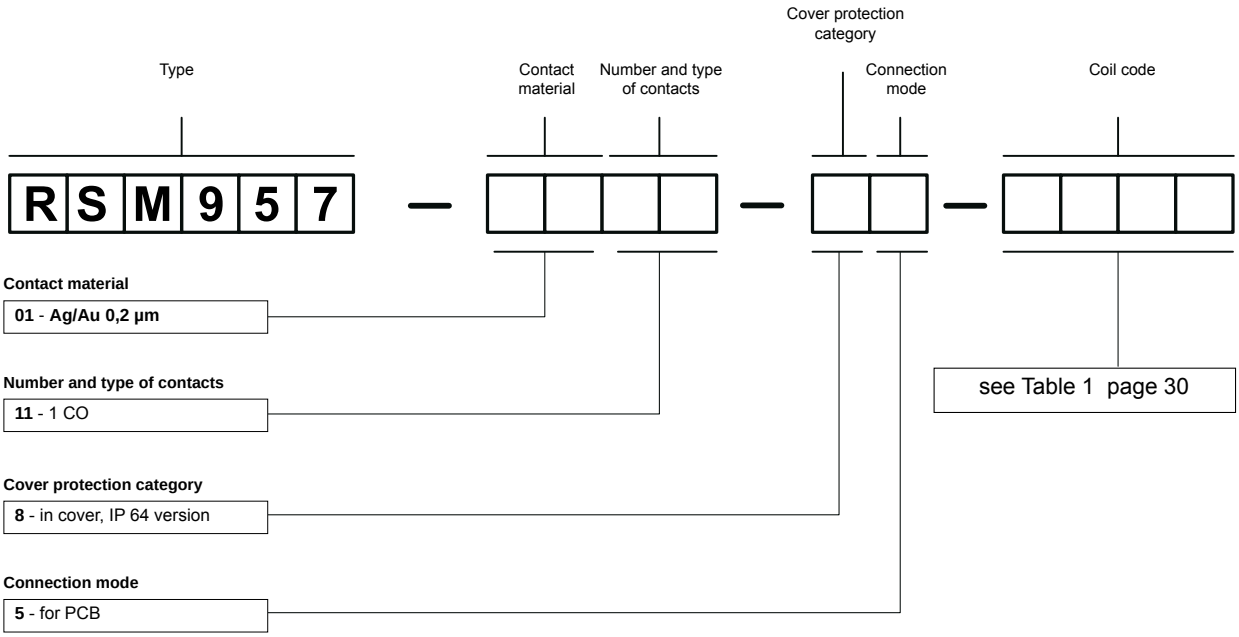
Pinout (solder side view)



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

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❶ **RM85** for switching higher voltages
❷ **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.

- 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	1 CO: 5 A / 250 V AC	1 NO: 8 A / 250 V AC
	DC1	1 CO: 5 A / 30 V DC	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.

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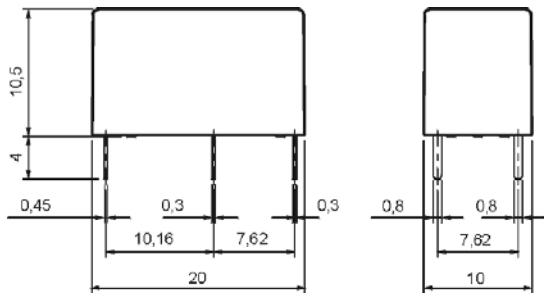
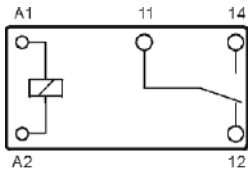
Coil data - DC voltage version Table 1

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	± 10%	2,25	4,5
1005	5	125	± 10%	3,75	7,5
1006	6	180	± 10%	4,50	9,0
1009	9	405	± 10%	6,75	13,5
1012	12	720	± 10%	9,00	18,0
1024	24	2 880	± 10%	18,00	36,0
1048	48	11 520	± 10%	36,00	72,0

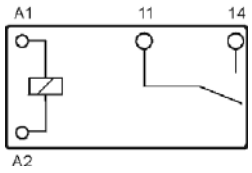
Dimensions



Connection diagrams (pin side view)

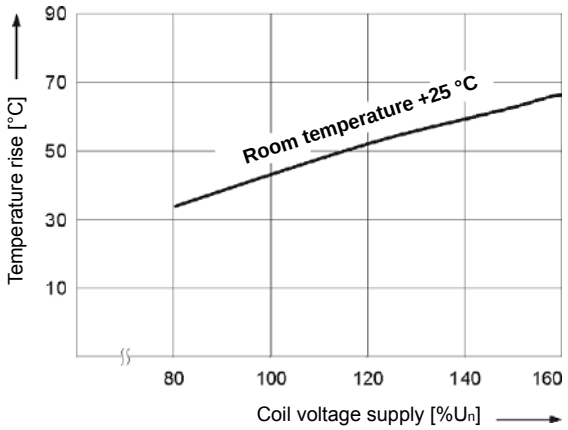


1 CO



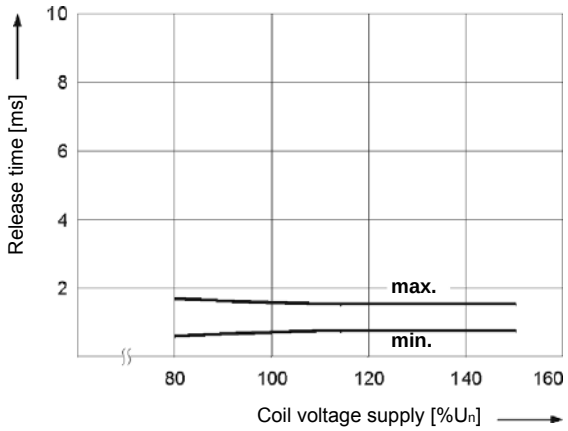
1 NO

Coil temperature rise Fig. 1



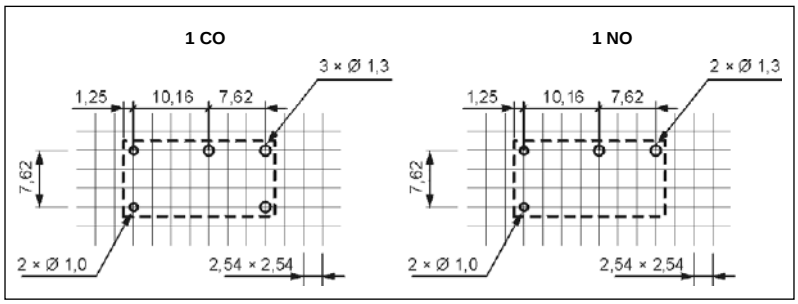
Coil temperature increment over the ambient temperature +25 °C, depended on coil voltage supply.

Release time Fig. 2



Dependance of the release time on coil voltage supply

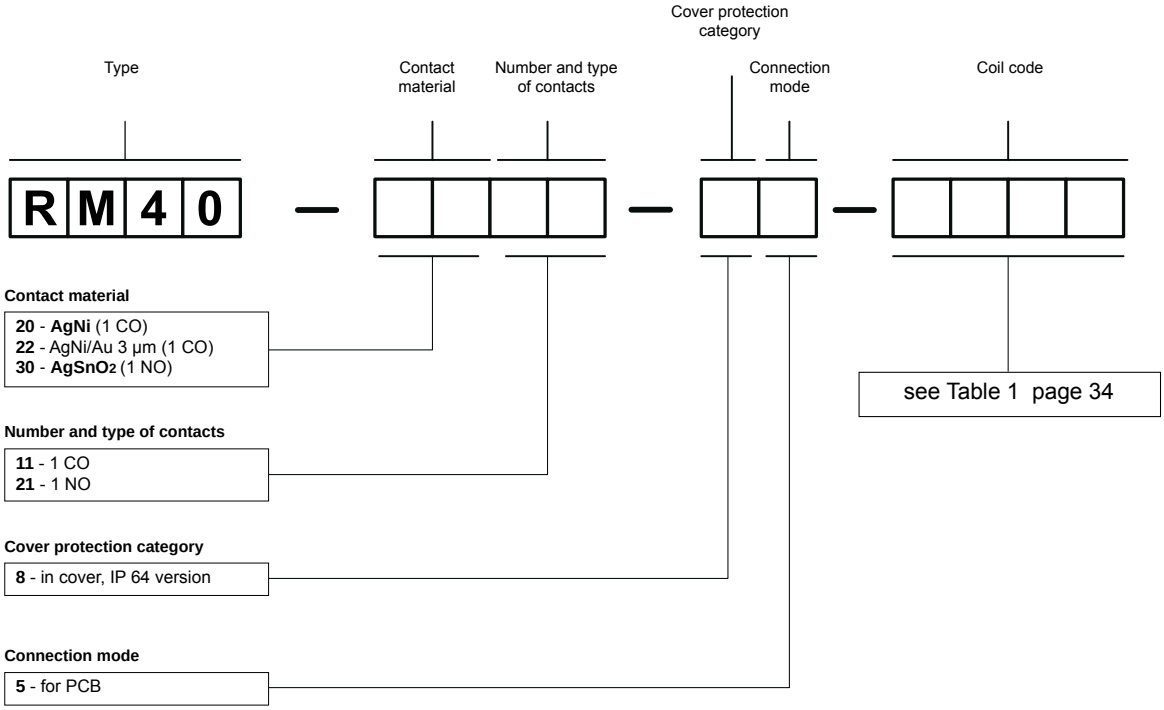
Pinout (solder side view)



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 $AgSnO_2$, coil voltage 24 V DC, in cover IP 64

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- 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, c UL us

Contact data

Number and type of contacts		1 CO, 1 NO
Contact material		**$AgSnO_2$**
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.

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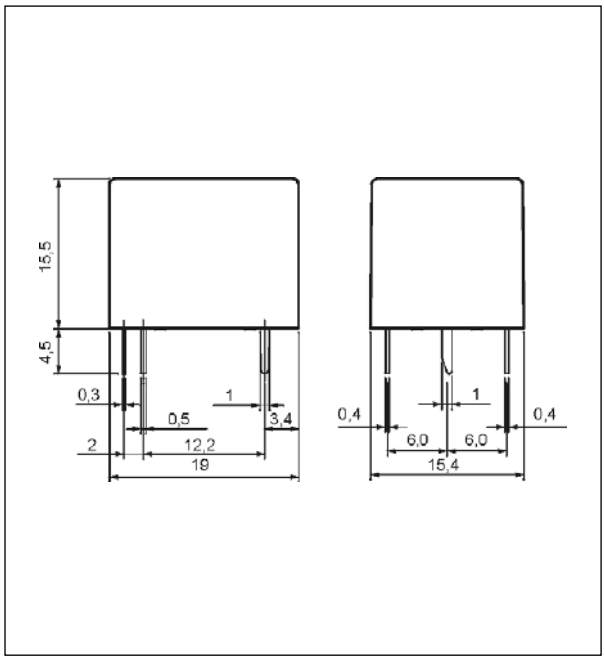
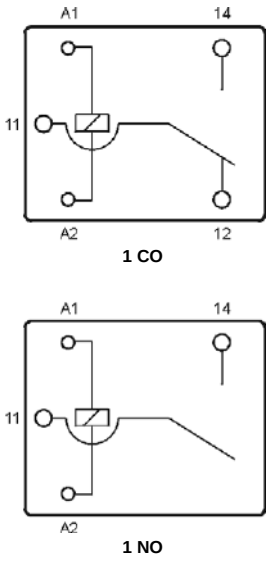
Coil data - DC voltage version — Table 1

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	± 10%	2,25	3,9
1005	5	70	± 10%	3,75	6,5
1006	6	100	± 10%	4,50	7,8
1009	9	225	± 10%	6,75	11,7
1012	12	400	± 10%	9,00	15,6
1018	18	900	± 10%	13,50	23,4
1024	24	1 600	± 10%	18,00	31,2
1048	48	6 400	± 10%	38,40	62,4

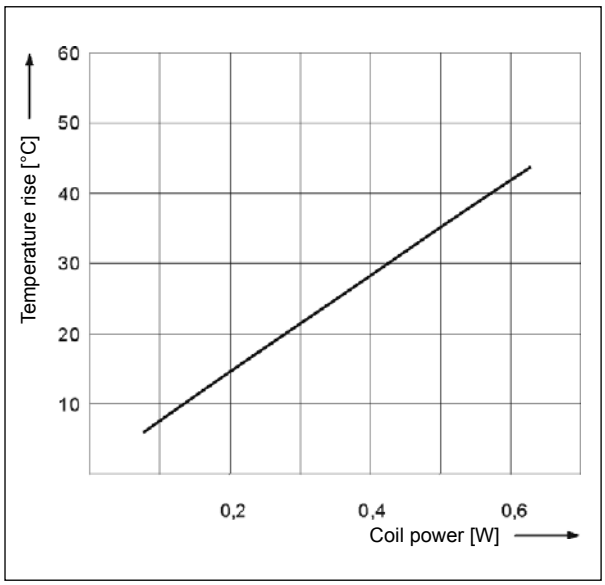
Dimensions



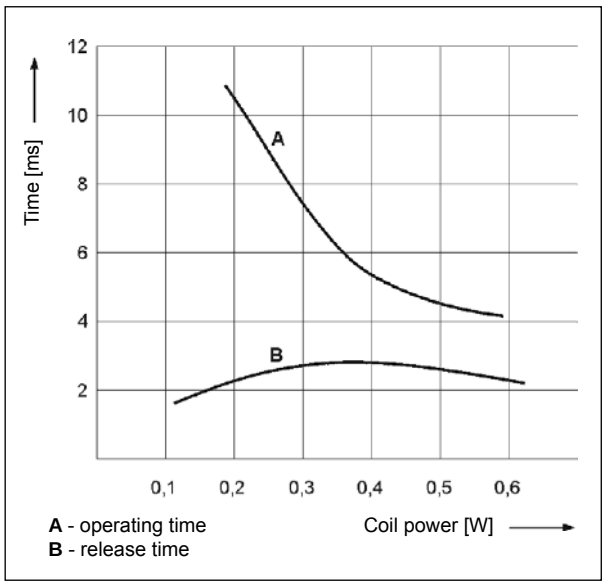
Connection diagrams (pin side view)



Coil temperature rise — Fig. 1



Operating / release time — Fig. 2



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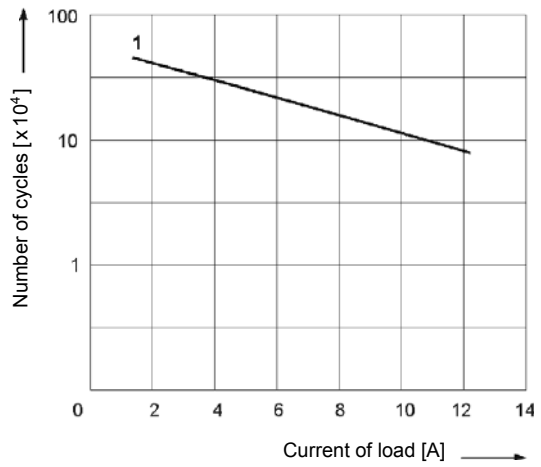
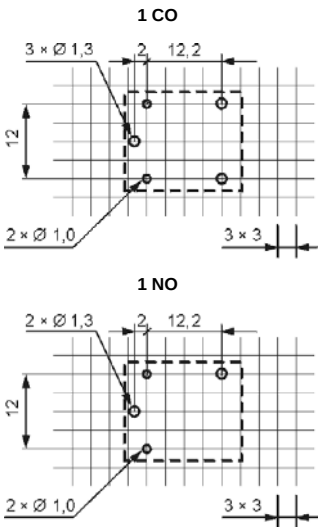
Electrical life

Fig. 3



1 - resistive load 120 V AC / 24 V DC

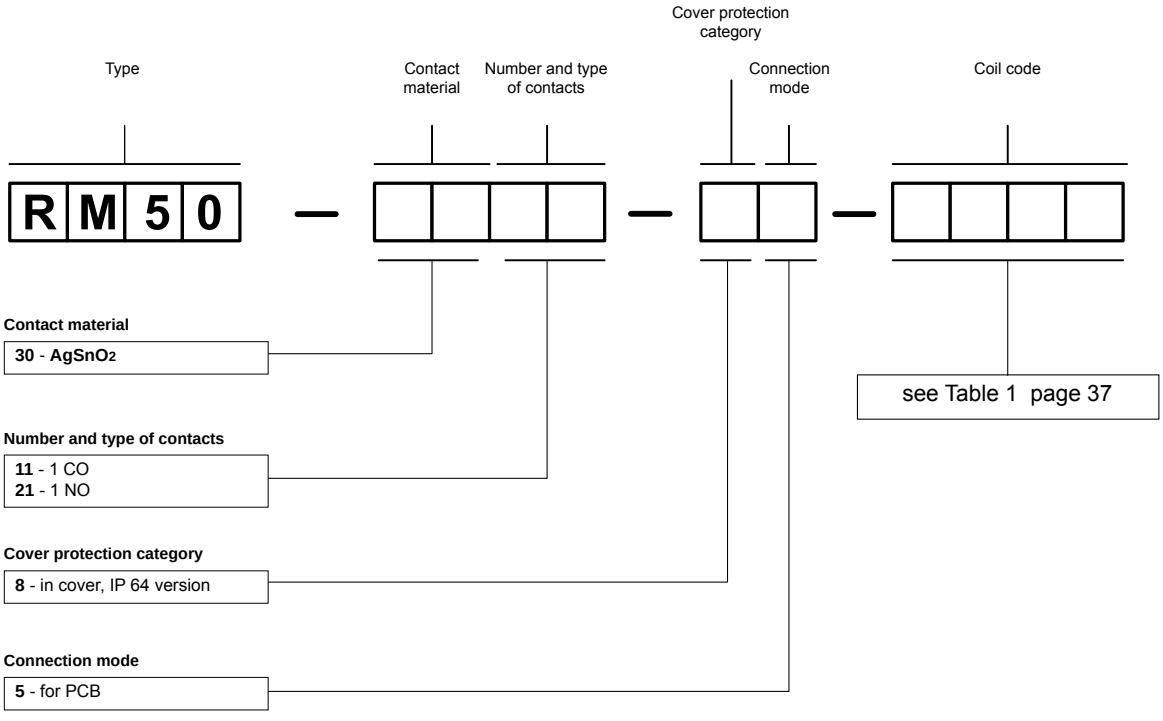
Pinout (solder side view)



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 $AgSnO_2$, coil voltage 12 V DC, in cover IP 64

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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		**$AgSnO_2$**	$AgSnO_2$/Au 3 µm ❶
Max. switching voltage		400 V AC / 250 V DC	30 V AC / 36 V DC ❶
Min. switching voltage		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 $AgSnO_2$ contacts (see beside), and electrical life of these contacts may be shorter than of normal contacts.

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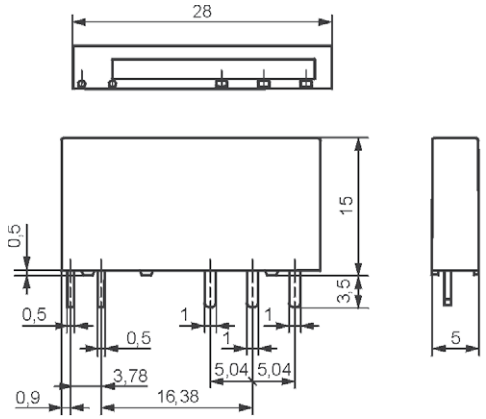
Coil data - DC voltage version Table 1

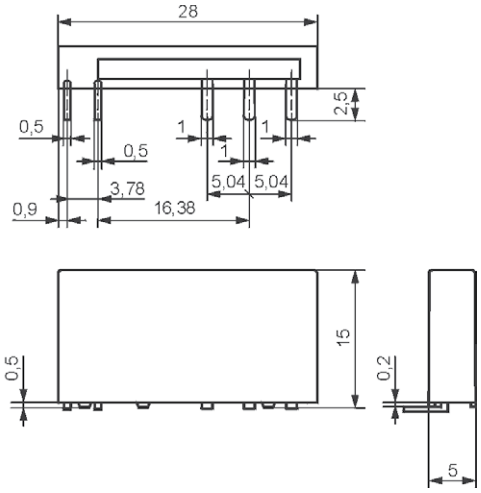
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1005	5	147	± 10%	3,75	7,5
1012	12	848	± 10%	9,0	18,0
1024	24	3 390	± 15%	18,0	36,0
1048	48	10 600	± 15%	36,0	72,0
1060	60	20 500	± 15%	45,0	90,0

Dimensions

vertical version (V)

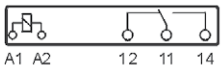


horizontal version (H)



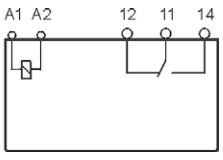
Connection diagrams (pin side view)

vertical version (V)



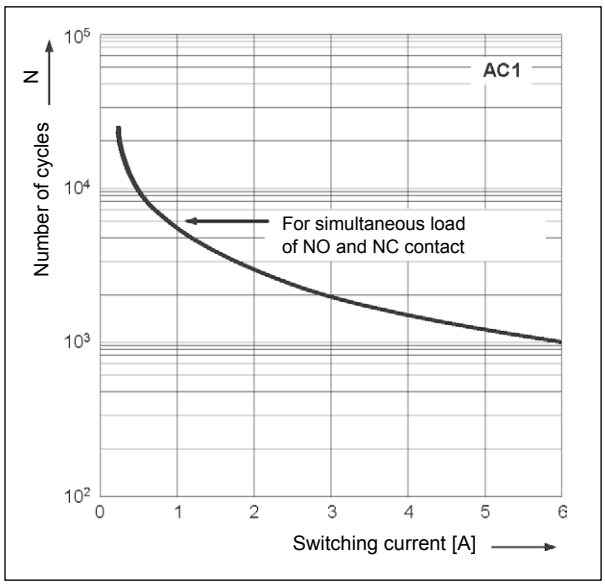
1 CO

horizontal version (H)

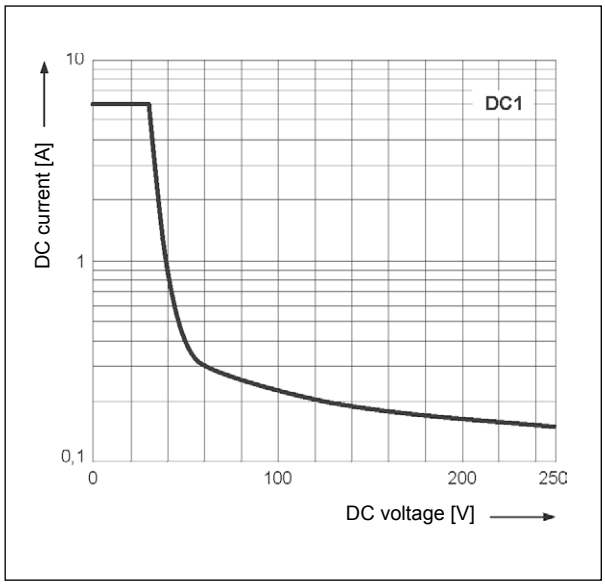


1 CO

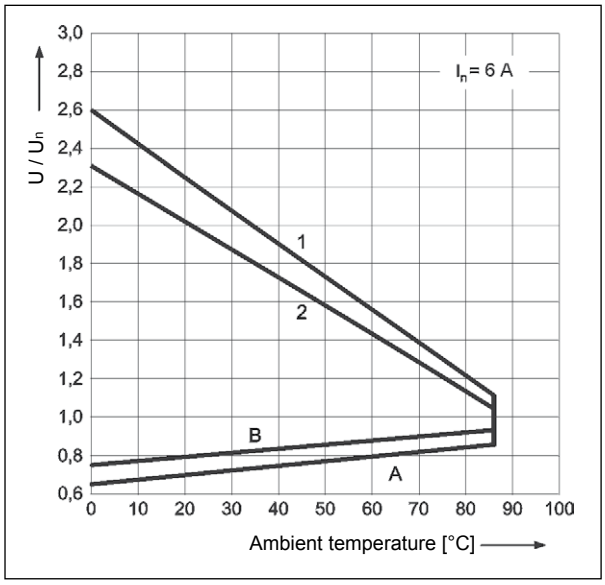
Electrical life at AC resistive current. Switching frequency: 360 cycles/hour Fig. 1



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).

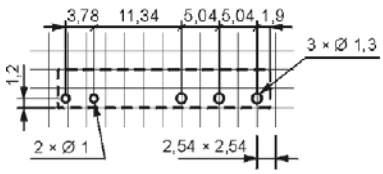
Relays **RM699B horizontal version (H)** are designed for direct PCB mounting.

PI6W-1P

Plug-in sockets
for relays
RM699BV
or RSR30

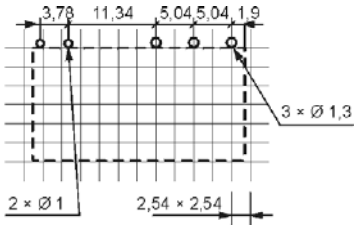
Pinout (solder side view)

vertical version (V)



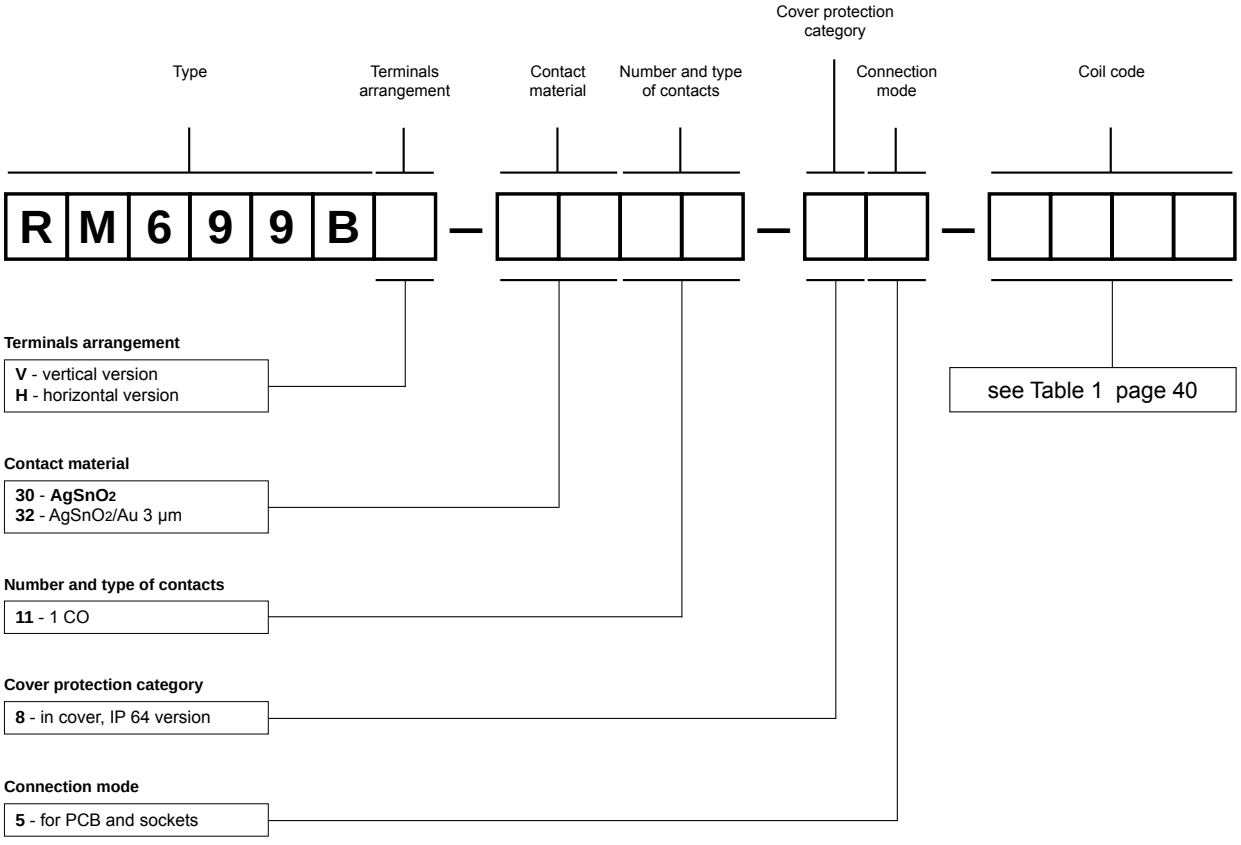
1 CO

horizontal version (H)



1 CO

Ordering codes



Examples of ordering code:

RM699BV-3011-85-1012 relay **RM699B**, vertical version, for PCB and sockets, one changeover contact, contact material $AgSnO_2$, coil voltage 12 V DC, in cover IP 64

RM699BH-3211-85-1005 Relais **RM699B**, horizontal version, for PCB, one changeover contact, contact material $AgSnO_2$/Au 3 µm, coil voltage 5 V DC, in cover IP 64

RM84

RM84-...-01 ❶

- 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 ❶; with the increased dielectric strength of the contact clearance ❷
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts		2 CO, 2 NO ❷
Contact material		**AgNi**, AgNi/Au 5 µm, $AgSnO_2$
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V $AgSnO_2$
Rated load (capacity)	AC1	8 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	550 W (single-phase motor)
	DC1	8 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA $AgSnO_2$
Max. inrush current		15 A $AgSnO_2$
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 1 W $AgSnO_2$
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC	12 ... 240 V
	DC	3 ... 110 V
Must release voltage		AC: ≥ 0,15 U_n DC: ≥ 0,1 U_n
Operating range of supply voltage		see Tables 1, 2 and Fig. 4, 5
Rated power consumption	AC	0,75 VA
	DC	0,4 ... 0,48 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		400 V AC	
Rated surge voltage		4 000 V 1,2 / 50 µs	
Overvoltage category		III	
Insulation pollution degree		3	
Dielectric strength	• between coil and contacts	5 000 V AC	type of insulation: reinforced
		1 000 V AC	type of clearance: micro-disconnection
	• contact clearance	2 000 V AC	contacts 2 NO, type of clearance: full-disconnection ❷
	• 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)		$> 3 \times 10^7$
Dimensions (L x W x H) / Weight		29 x 12,7 x 15,7 mm / 14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C -40...+70 °C 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		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.
❶ For special 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 contacts 2 NO: relays with increased contact gap, dielectric strength 2000 V AC - see "Ordering codes"

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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	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
1012	**12**	**360**	**± 10%**	**8,4**	**30,6**
1018	18	710	± 10%	12,6	45,9
1024	**24**	**1 440**	**± 10%**	**16,8**	**61,2**
1036	36	3 140	± 10%	25,2	91,8
1048	48	5 700	± 10%	33,6	122,4
1060	60	7 500	± 10%	42,0	153,0
1110	110	25 200	± 10%	77,0	280,0

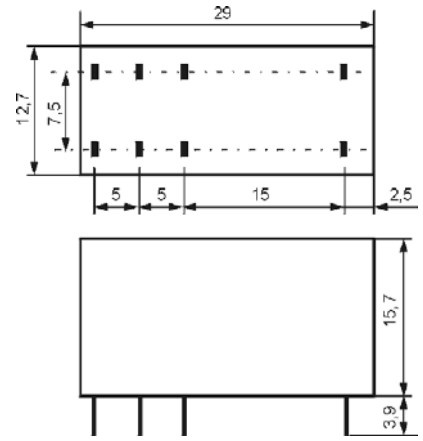
The data in bold type pertain to the standard versions of the relays.

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

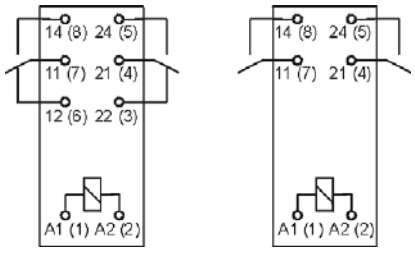
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	± 10%	9,6	13,2
5024	**24**	**400**	**± 10%**	**19,2**	**28,8**
5048	48	1 550	± 10%	38,4	57,6
5060	60	2 600	± 10%	48,0	72,0
5110	110	8 900	± 10%	88,0	132,0
5115	115	9 600	± 10%	92,0	138,0
5120	120	10 200	± 10%	96,0	144,0
5220	220	35 500	± 10%	176,0	264,0
5230	**230**	**38 500**	**± 10%**	**184,0**	**276,0**
5240	240	42 500	± 15%	192,0	288,0

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

Dimensions



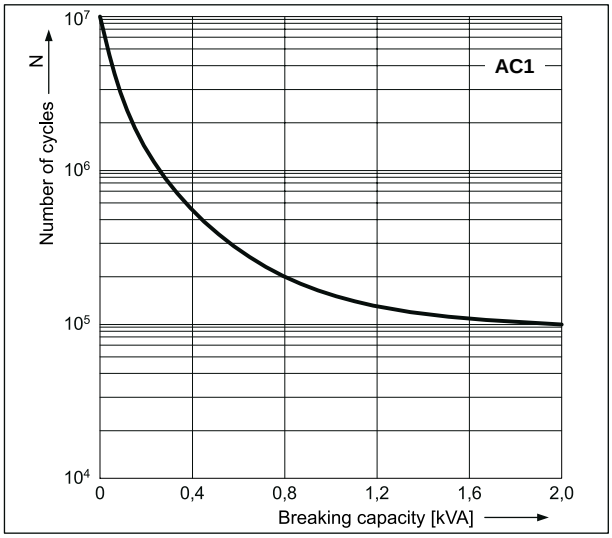
Connection diagrams (pin side view)



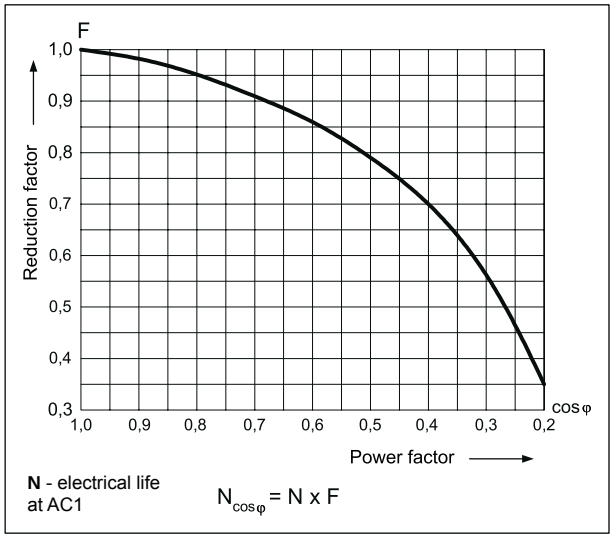
2 CO **2 NO**

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
Drilling hole: • for relays • for sockets	 Ø 1,3 + 0,1 mm Ø 1,5 + 0,1 mm	

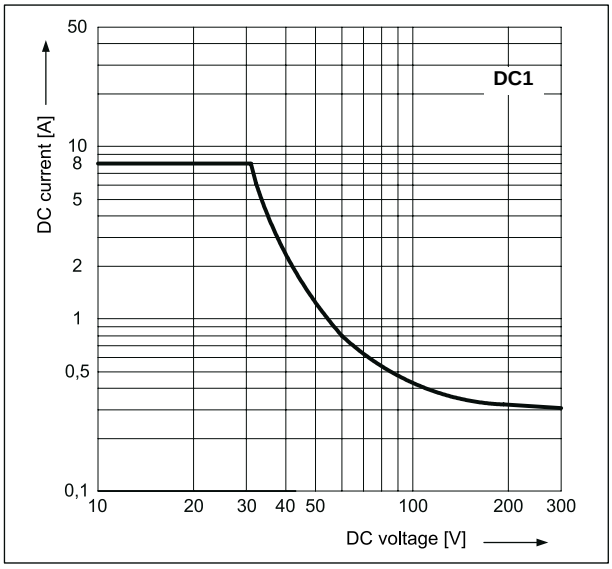
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



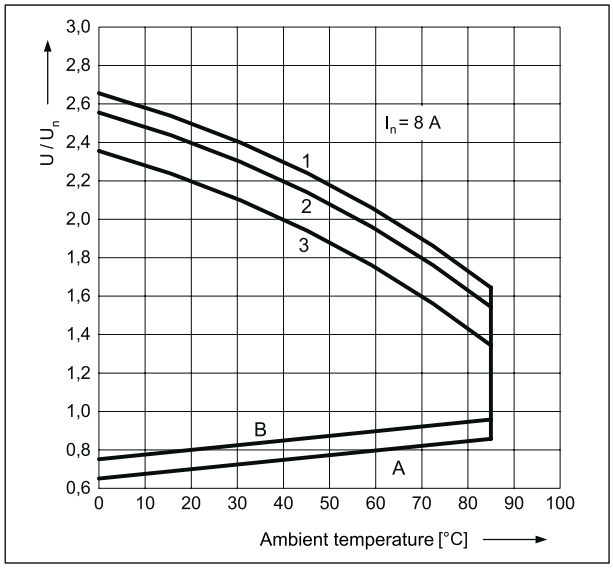
Electrical life reduction factor at AC inductive load Fig. 2



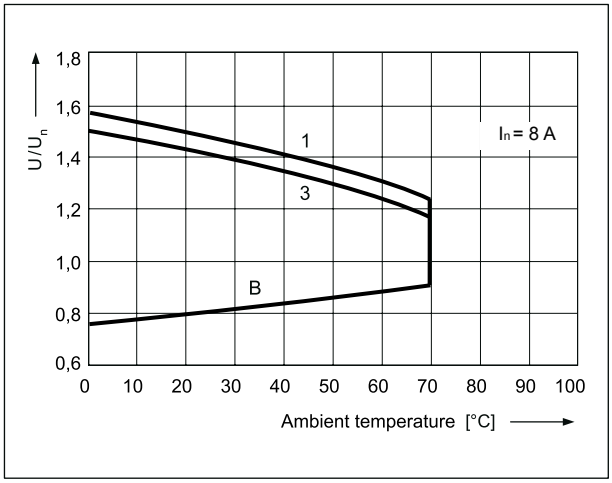
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



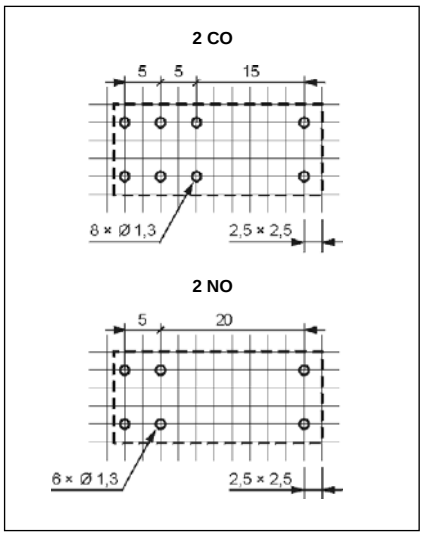
Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature after initial coil heating up with 1,1 U_n, at continues load of I_n on contacts. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
1, 2, 3 - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:
1 - no load
2 - 50% of rated load
3 - rated load

Pinout (solder side view)

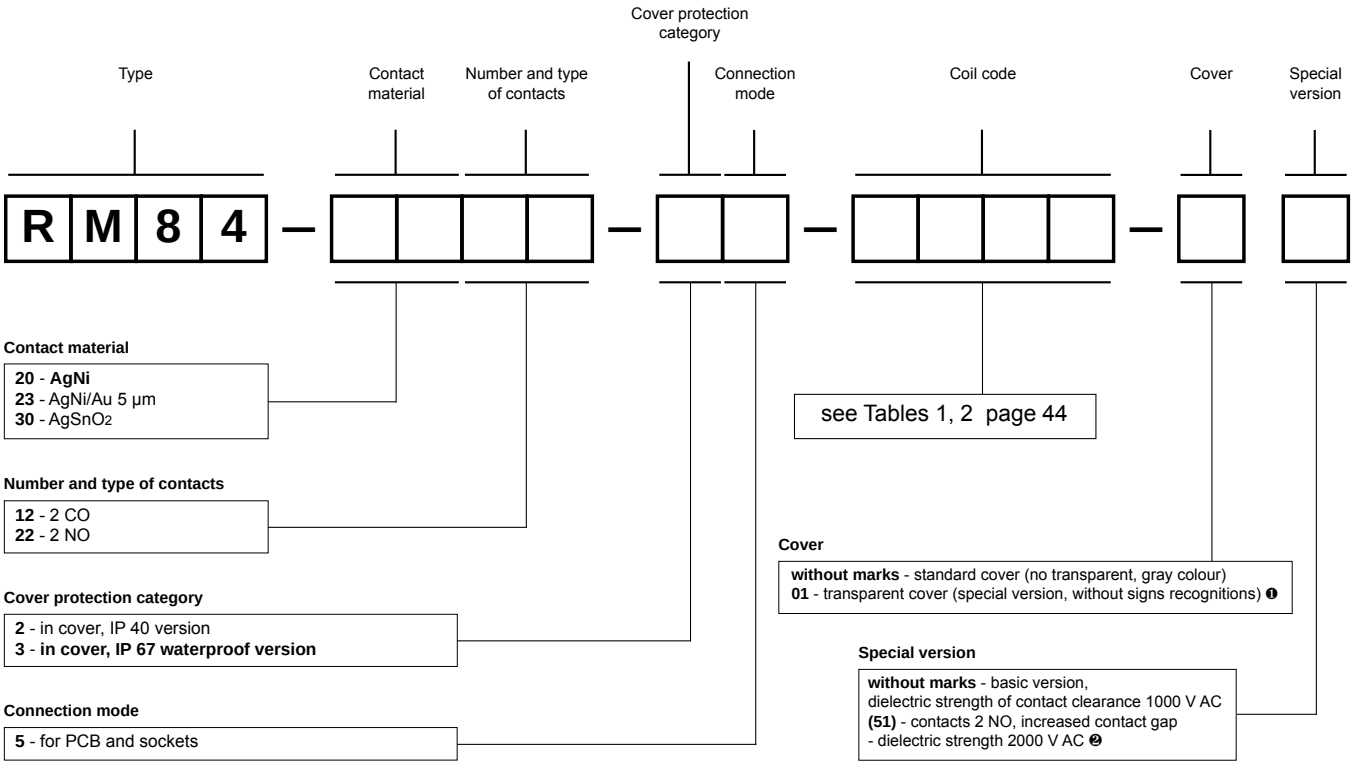


Mounting

Relays **RM84** ❸ are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ❹ and **GZM80** ❹ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❹ 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** ❺ 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-insockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

❸ For special version - relays in transparent cover: the distance of min. 5 mm between the mounting relays.
❹ Plug-in sockets **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 262).
❺ 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 $AgSnO_2$, 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

- 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	8 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	550 W (single-phase motor)
	DC1	8 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA $AgSnO_2$
Max. inrush current		15 A $AgSnO_2$
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 1 W $AgSnO_2$
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC	12 ... 240 V
	DC	3 ... 110 V
Must release voltage		AC: ≥ 0,15 U_n DC: ≥ 0,1 U_n
Operating range of supply voltage		see Tables 1, 2 and Fig. 4, 5
Rated power consumption	AC	0,75 VA
	DC	0,4 ... 0,48 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		400 V AC
Rated surge voltage		4 000 V 1,2 / 50 µs
Overvoltage category		III
Insulation pollution degree		3
Dielectric strength		
• between coil and contacts		5 000 V AC type of insulation: reinforced
• contact clearance		1 000 V AC type of clearance: micro-disconnection
• pole - pole		2 500 V AC type of insulation: basic
Contact - coil distance		
• clearance		≥ 10 mm
• creepage		≥ 10 mm

General data

Operating / release time (typical values)		7 ms / 3 ms
Electrical life (number of cycles)		
• resistive AC1		$> 10^5$ 8 A, 250 V AC
• cosϕ		see Fig. 2
• DC L/R=40 ms		$> 10^5$ 0,15 A, 220 V DC
Mechanical life (cycles)		$> 3 \times 10^7$
Dimensions (L x W x H)		29 x 13,2 x 17,7 mm
Weight		14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		20 g
Vibration resistance	(NO/NC)	10 g / 5 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

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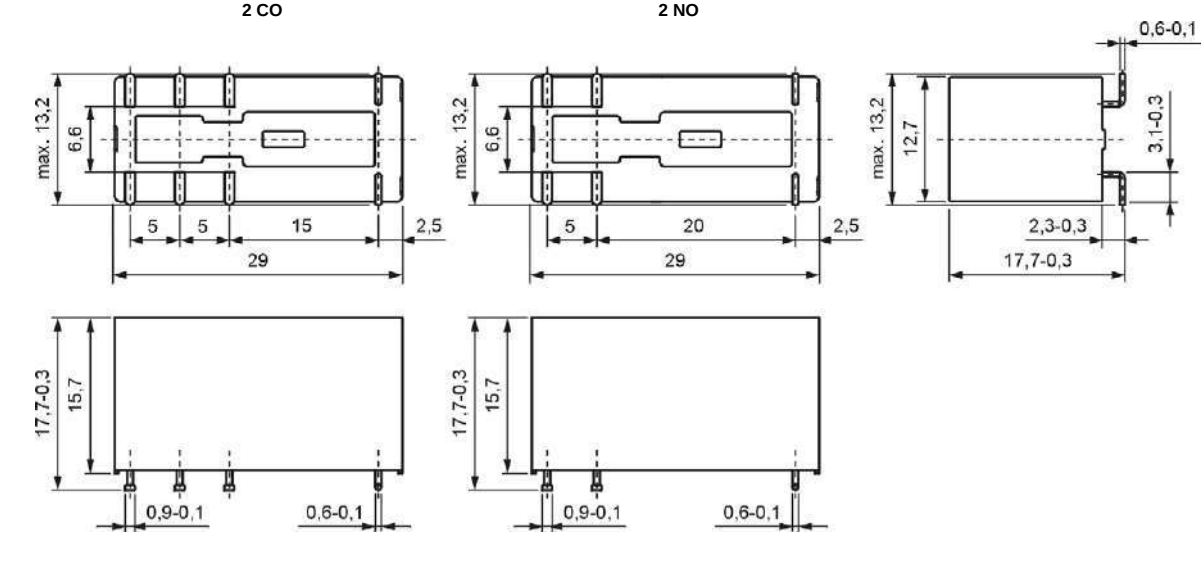
Coil data - DC voltage version Table 1

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	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
1012	12	360	± 10%	8,4	30,6
1018	18	710	± 10%	12,6	45,9
1024	24	1 440	± 10%	16,8	61,2
1036	36	3 140	± 10%	25,2	91,8
1048	48	5 700	± 10%	33,6	122,4
1060	60	7 500	± 10%	42,0	153,0
1110	110	25 200	± 10%	77,0	280,0

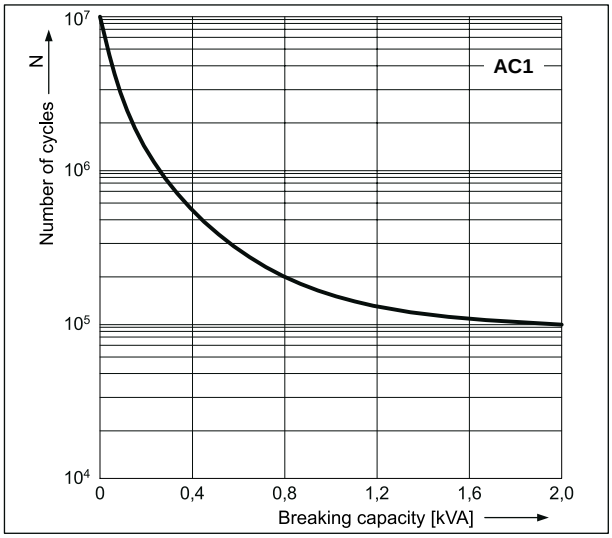
Coil data - AC 50/60 Hz voltage version Table 2

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	± 10%	9,6	13,2
5024	24	400	± 10%	19,2	28,8
5048	48	1 550	± 10%	38,4	57,6
5060	60	2 600	± 10%	48,0	72,0
5110	110	8 900	± 10%	88,0	132,0
5115	115	9 600	± 10%	92,0	138,0
5120	120	10 200	± 10%	96,0	144,0
5220	220	35 500	± 10%	176,0	264,0
5230	230	38 500	± 10%	184,0	276,0
5240	240	42 500	± 15%	192,0	288,0

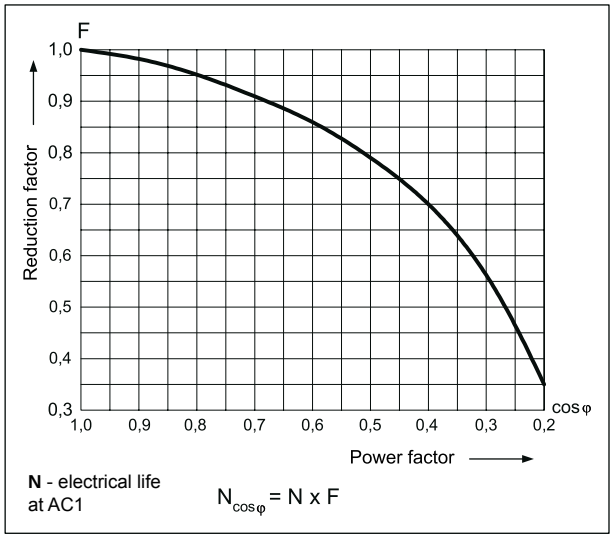
Dimensions



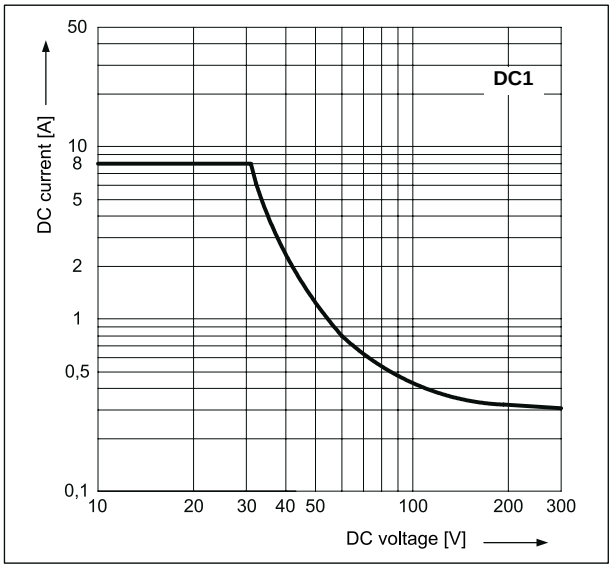
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



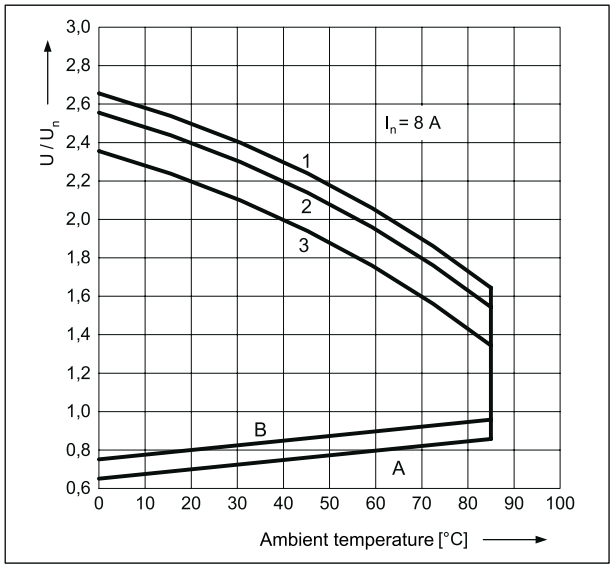
Electrical life reduction factor at AC inductive load Fig. 2



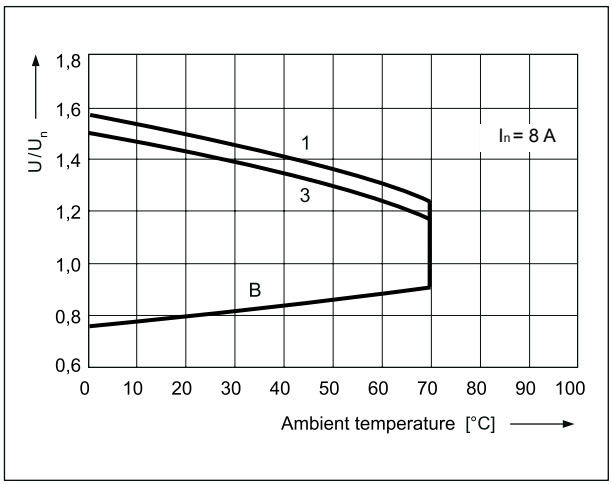
Max. DC resistive load breaking capacity Fig. 3



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

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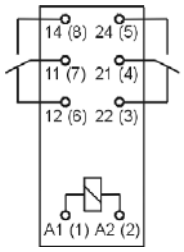
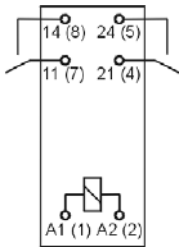
Connection diagrams (pin side view)



2 CO

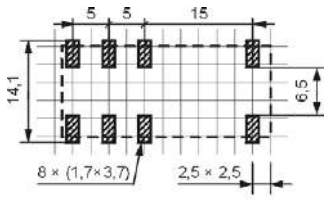


2 NO

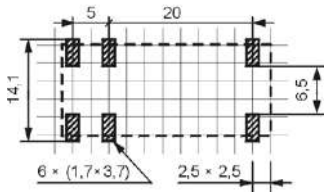
Terminal (pin)	A1(1); A2(2)	22(3); 21(4); 24(5); 12(6); 11(7); 14(8)
[mm]	Ø 0,6	0,5 x 0,9

Soldering areas (solder side view)

2 CO



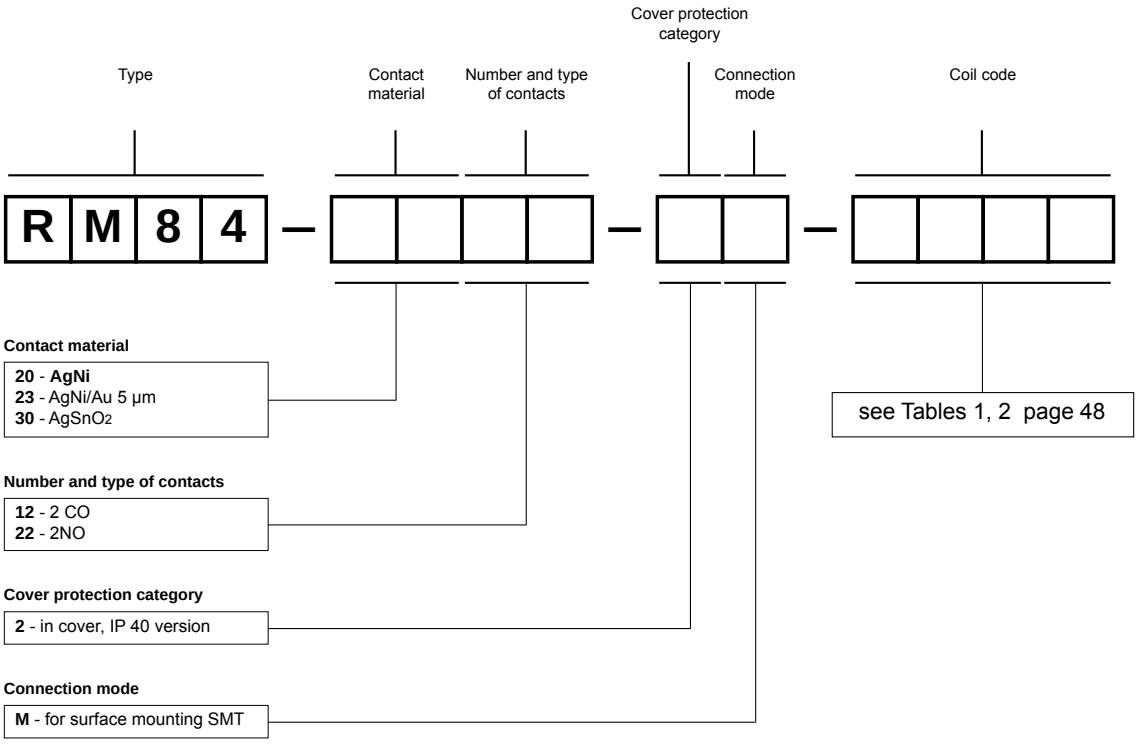
2 NO



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

RMB841-...-01 ❷

- Bistable with one coil ❶ • 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 ❷
- 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	8 A / 250 V AC
	DC1	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		3×10^4 8 A, 250 V AC
• DC L/R=40 ms		10^5 0,15 A, 220 V DC
Mechanical life (cycles)		2×10^6
Dimensions (L x W x H)		29 x 12,7 x 15,7 mm
Weight		14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	-20...+85 °C -20...+70 °C ❷
Cover protection category		IP 40 ❷ or **IP 67** PN-EN 60529
Environmental protection		RTII ❷ 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.
❶ Relays must be energizing only in pulse mode. Min. time of pulse duration 15 ms.
❷ For special version - relays in transparent cover: only available with IP 40 and RTII, operating temperature -40...+70 °C - see "Ordering codes"

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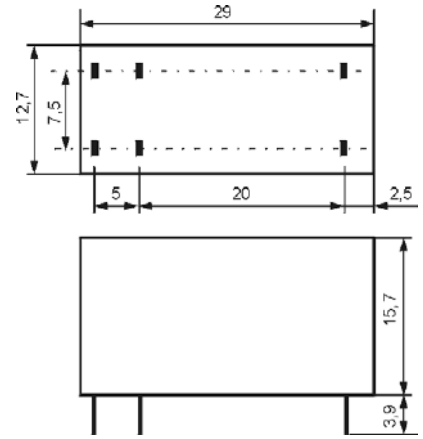
Coil data - DC voltage version

Table 1

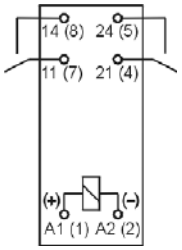
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Minimum pick-up voltage V DC (at 20 °C)	Reset ❸ - minimum voltage V DC (at 20 °C)
1003	3	10	± 10%	2,1	1,7
1005	5	28	± 10%	3,5	2,8
1006	6	40	± 10%	4,2	3,3
1012	**12**	**160**	**± 10%**	**8,4**	**6,6**
1024	**24**	**640**	**±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

The data in bold type pertain to the standard versions of the relays.
❸ Minimum voltage value required to reset the relay - open the contact.

Dimensions



Connection diagrams (pin side view)



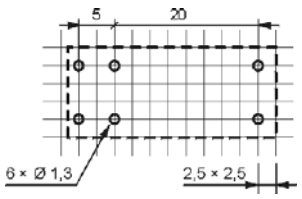
2 NO

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

Contact position not defined at delivery.
The polarization shown in the figures is required for on-position of the contacts.

Pinout (solder side view)

2 NO

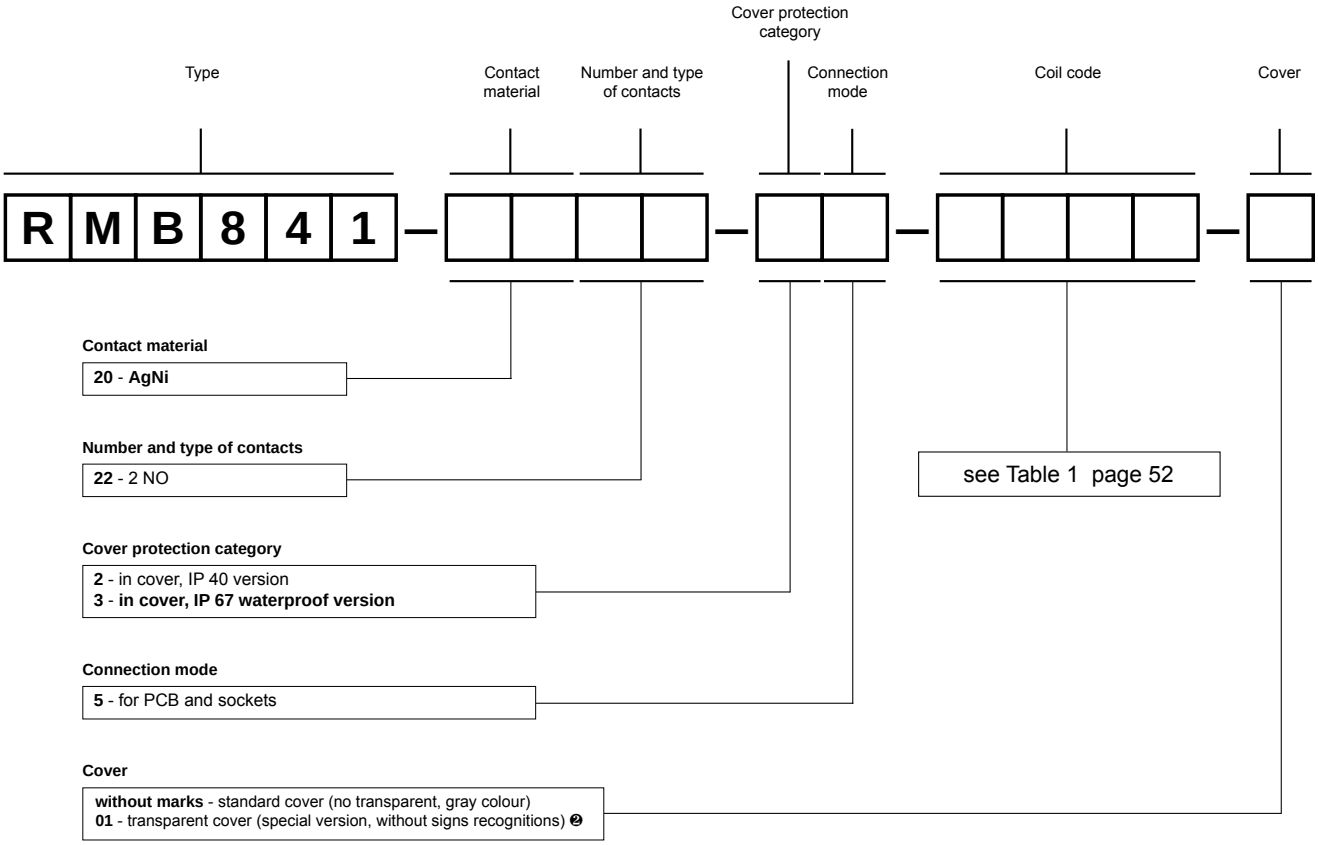


Mounting

Relays **RMB841** ❹ are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ❺ and **GZM80** ❺ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❺ 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** ❻ 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-insockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

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

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

RM85-...-01 ❶

- 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 ❶; with the increased dielectric strength of the contact clearance ❷
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts		1 CO, 1 NO ❷
Contact material		**AgNi**, AgNi/Au 5 µm, $AgSnO_2$
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V $AgSnO_2$
Rated load (capacity)	AC1	16 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	16 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA $AgSnO_2$
Max. inrush current		30 A $AgSnO_2$
Rated current		16 A
Max. breaking capacity	AC1	4 000 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 1 W $AgSnO_2$
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC	12 ... 240 V
	DC	3 ... 110 V
Must release voltage		AC: ≥ 0,15 U_n DC: ≥ 0,1 U_n
Operating range of supply voltage		see Tables 1, 2 and Fig. 4, 5
Rated power consumption	AC	0,75 VA
	DC	0,4 ... 0,48 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		400 V AC
Rated surge voltage		4 000 V 1,2 / 50 µs
Overvoltage category		III
Insulation pollution degree		3
Dielectric strength	• between coil and contacts	5 000 V AC type of insulation: reinforced
		1 000 V AC type of clearance: micro-disconnection
	• contact clearance	2 000 V AC contact 1 NO, type of clearance: full-disconnection ❷
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	-40...+85 °C
	• operating	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 - 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: 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	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
1012	**12**	**360**	**± 10%**	**8,4**	**30,6**
1018	18	710	± 10%	12,6	45,9
1024	**24**	**1 440**	**± 10%**	**16,8**	**61,2**
1036	36	3 140	± 10%	25,2	91,8
1048	48	5 700	± 10%	33,6	122,4
1060	60	7 500	± 10%	42,0	153,0
1110	110	25 200	± 10%	77,0	280,0

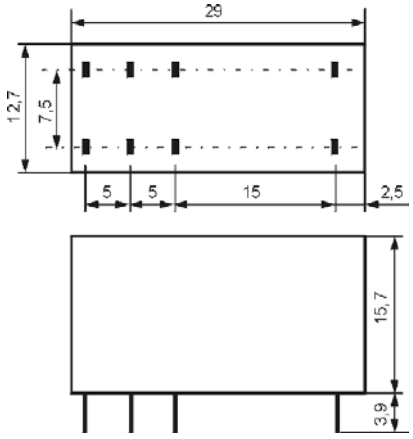
The data in bold type pertain to the standard versions of the relays.

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

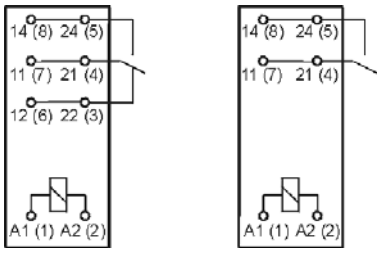
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	± 10%	9,6	13,2
5024	**24**	**400**	**± 10%**	**19,2**	**28,8**
5048	48	1 550	± 10%	38,4	57,6
5060	60	2 600	± 10%	48,0	72,0
5110	110	8 900	± 10%	88,0	132,0
5115	115	9 600	± 10%	92,0	138,0
5120	120	10 200	± 10%	96,0	144,0
5220	220	35 500	± 10%	176,0	264,0
5230	**230**	**38 500**	**± 10%**	**184,0**	**276,0**
5240	240	42 500	± 15%	192,0	288,0

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

Dimensions



Connection diagrams (pin side view)



1 CO **1 NO**

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
Drilling hole: • for relays • for sockets	 Ø 1,3 + 0,1 mm Ø 1,5 + 0,1 mm	

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

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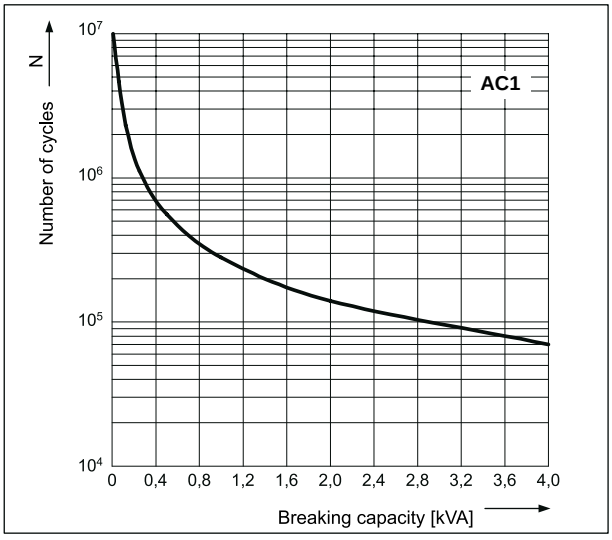
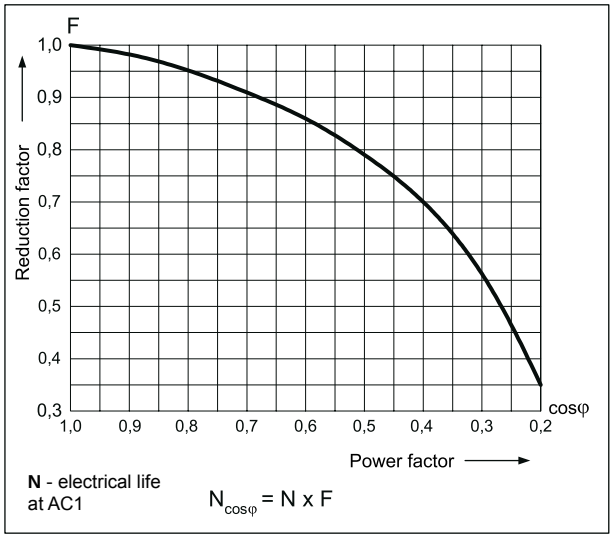
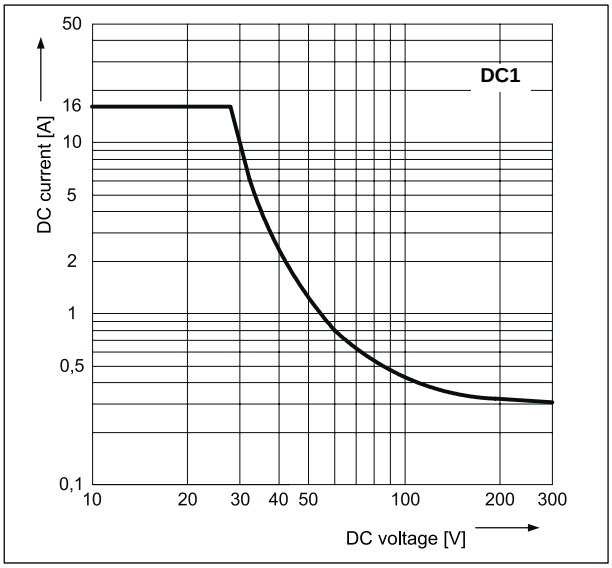
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



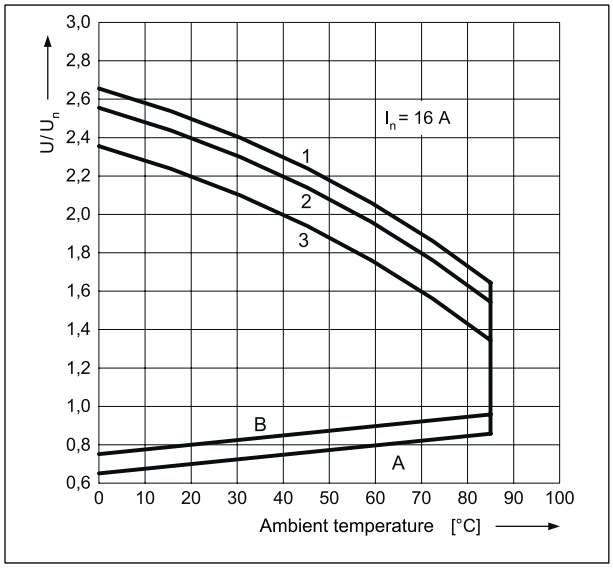
Electrical life reduction factor at AC inductive load Fig. 2



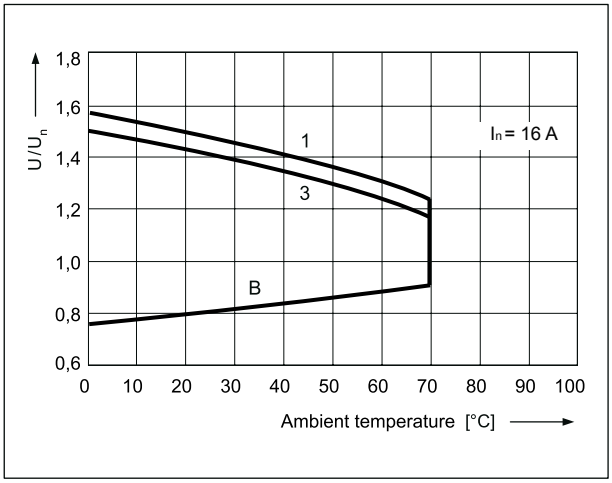
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



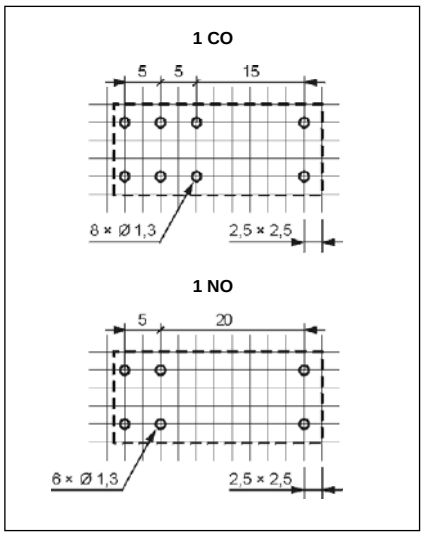
Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature after initial coil heating up with 1,1 U_n, at continues load of I_n on contacts. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
1, 2, 3 - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:
1 - no load
2 - 50% of rated load
3 - rated load

Pinout (solder side view)

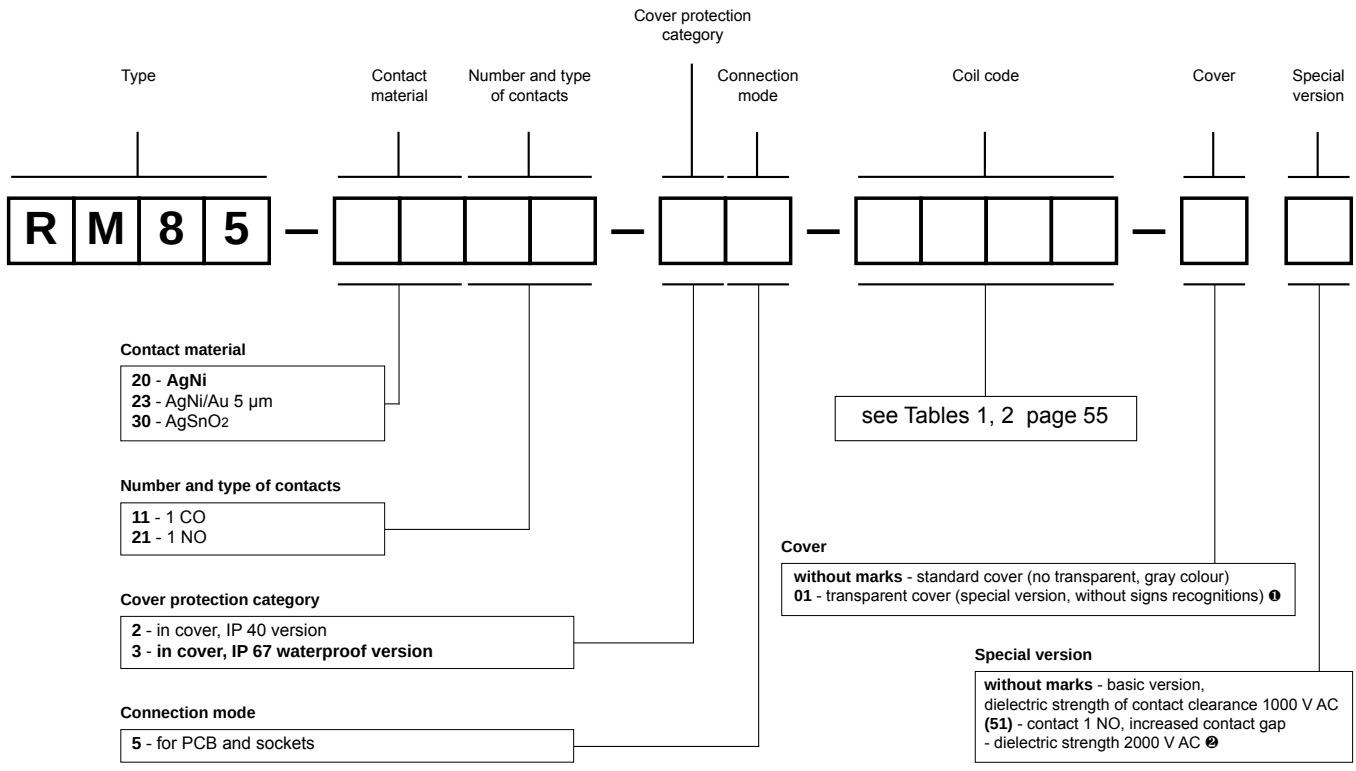


Mounting

Relays **RM85** ❸ are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ❹ ❺ and **GZM80** ❹ ❺ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❹ ❺ 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** ❹ ❻ 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.

❸ For special version - relays in transparent cover: the distance of min. 5 mm between the mounting relays.
❹ 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).
❺ Plug-in sockets **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 262).
❻ 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 $AgSnO_2$, 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

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- **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		**$AgSnO_2$**
Rated / max. switching voltage	AC	250 V / 480 V
Min. switching voltage		10 V
Rated load (capacity)	AC1	5 A / 480 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	16 A / 24 V DC
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		10 mA
Max. inrush current		30 A
Rated current		16 A / 250 V AC
Max. breaking capacity	AC1	2 400 VA
Min. breaking capacity		1 W
Contact resistance		≤ 100 mΩ 100 mA, 24 V
Max. operating frequency		
• at rated load	AC1	360 cycles/hour
• no load		3 600 cycles/hour

Coil data

Rated voltage	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	-40...+85 °C
	• operating	-40...+85 °C
Cover protection category		IP 40 or **IP 67** PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

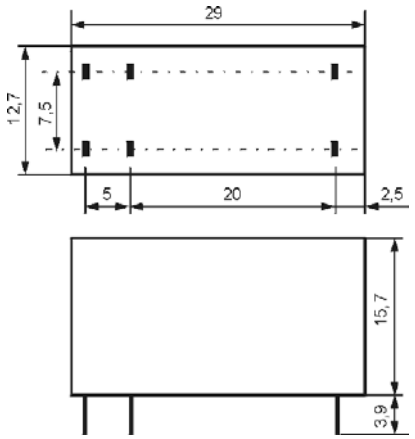
Coil data - DC voltage version

Table 1

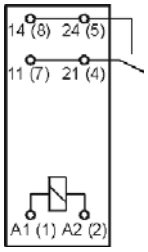
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
1012	**12**	**360**	**± 10%**	**8,4**	30,6
1018	18	710	± 10%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

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

Dimensions



Connection diagram (pin side view)



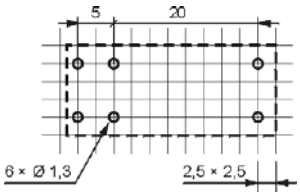
1 NO

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

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

Pinout (solder side view)

1 NO



Mounting

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

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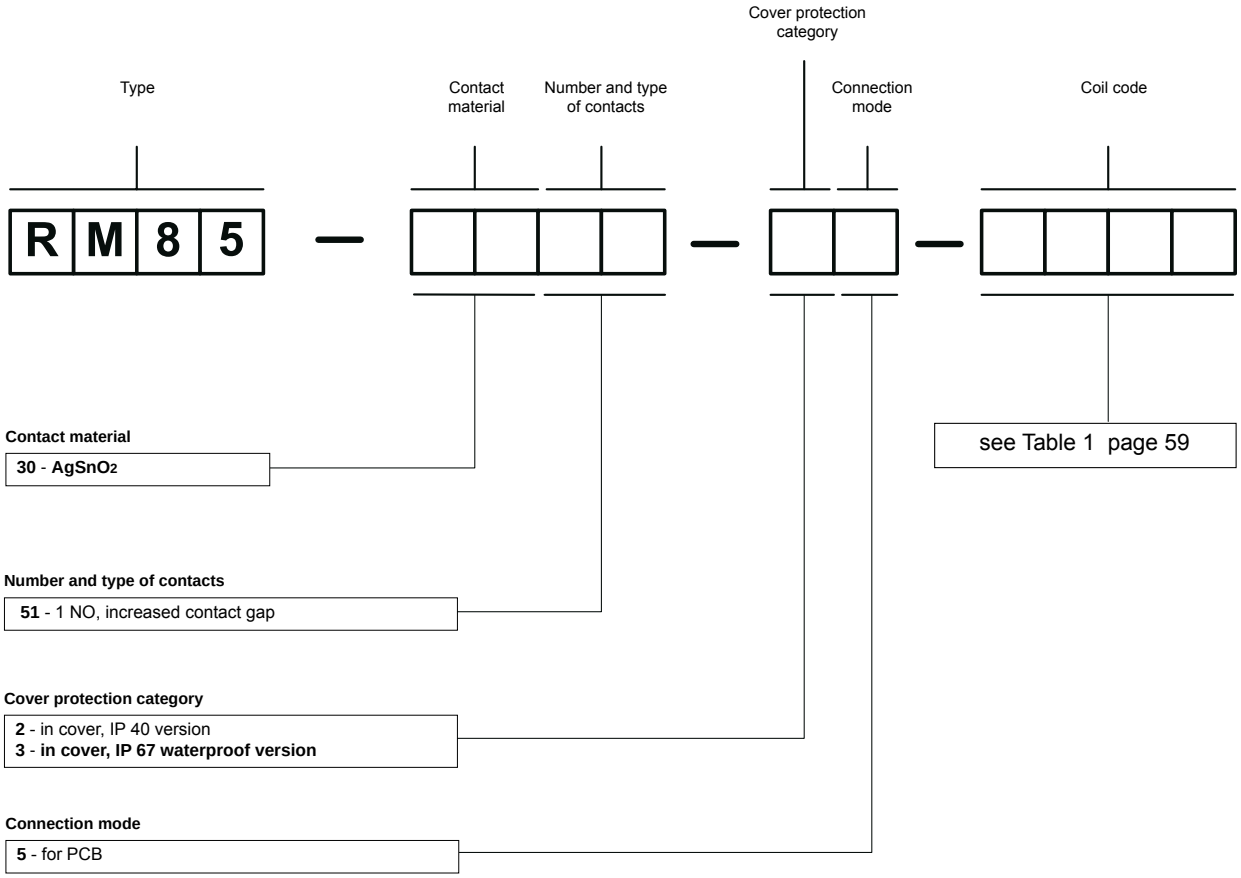
Ordering codes



Example of ordering code:

RM85-3051-35-1012 relay **RM85**, with increased contact gap, for PCB, one normally open contact, contact material $AgSnO_2$, coil voltage 12 V DC, in cover IP 67

- 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		**$AgSnO_2$**
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V
Rated load (capacity)	AC1	16 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	16 A / 24 V DC (see Fig. 2)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		10 mA
Max. inrush current		80 A 20 ms
Rated current		16 A
Max. breaking capacity	AC1	4 000 VA
Min. breaking capacity		1 W
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	DC	3 ... 110 V
Must release voltage		DC: ≥ 0,1 U_n
Operating range of supply voltage		see Table 1 and Fig. 3
Rated power consumption	DC	0,4 ... 0,48 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		400 V AC
Rated surge voltage		4 000 V 1,2 / 50 µs
Overvoltage category		III
Insulation pollution degree		3
Dielectric strength		
• between coil and contacts		5 000 V AC type of insulation: reinforced
• contact clearance		1 000 V AC type of clearance: micro-disconnection
Contact - coil distance		
• clearance		≥ 10 mm
• creepage		≥ 10 mm

General data

Operating / release time (typical values)		8 ms / 3 ms
Electrical life (number of cycles)		
• resistive AC1	600 cycles/hour	> 10^5 16 A, 250 V AC
• 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	-40...+85 °C
	• operating	-40...+85 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

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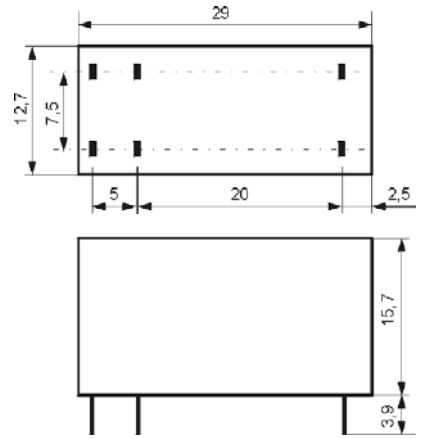
Coil data - DC voltage version Table 1

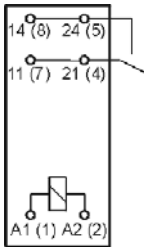
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
1012	**12**	**360**	**± 10%**	**8,4**	**30,6**
1018	18	710	±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

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

Dimensions



Connection diagram (pin side view)



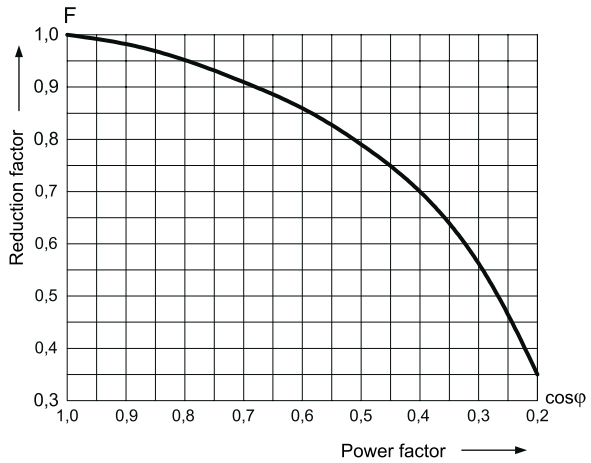
1 NO

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

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

Electrical life reduction factor at AC inductive load

Fig. 1

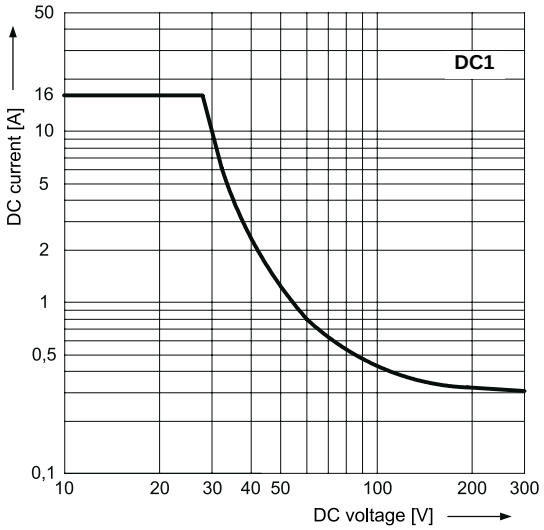


$N_{cos\varphi} = N \times F$

N - electrical life at AC1

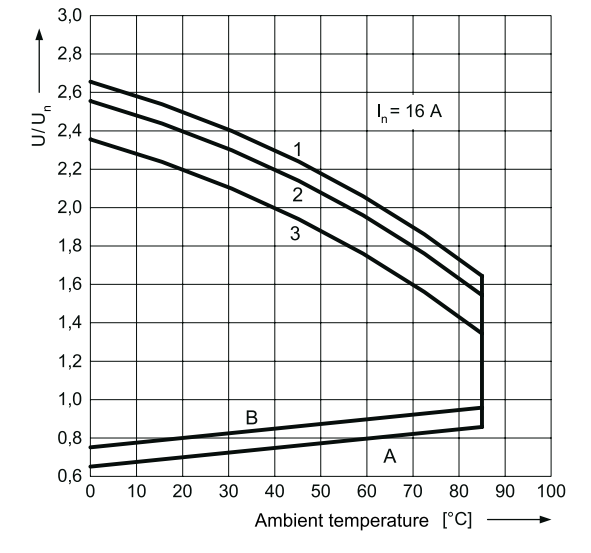
Max. DC resistive load breaking capacity

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

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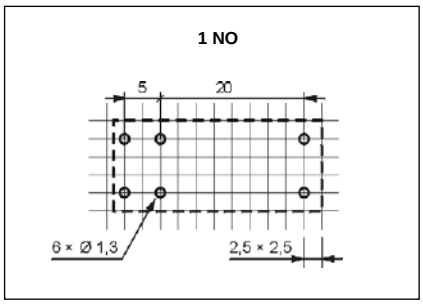
Pinout (solder side view)

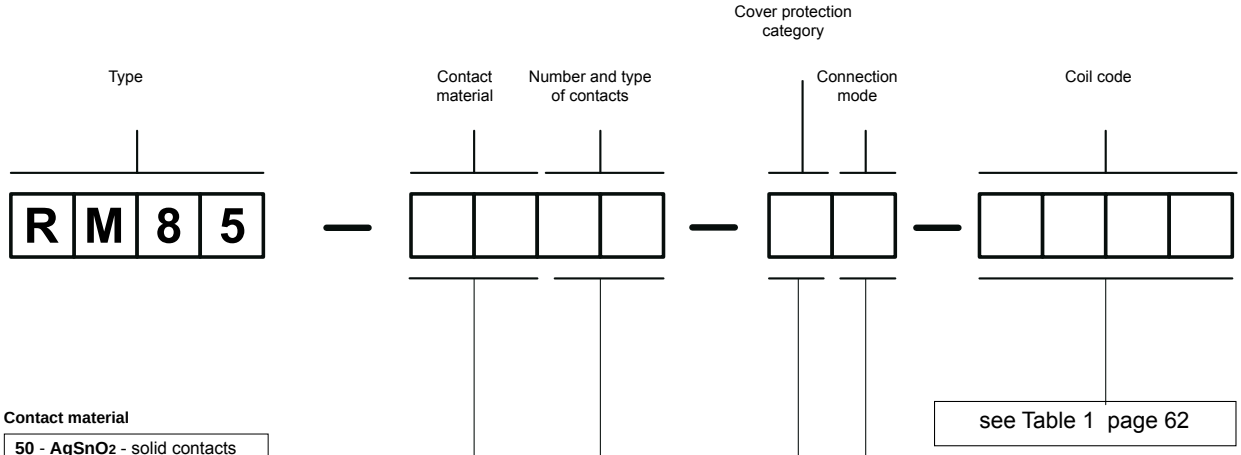


Mounting

Relays **RM85 inrush** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ❶ ❷ and **GZM80** ❶ ❷ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❶ ❷ 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** ❶ ❸ 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).
❸ For sockets **GZMB80** - see page 247 (wire connection).

Ordering codes



Contact material
50 - **AgSnO2** - solid contacts

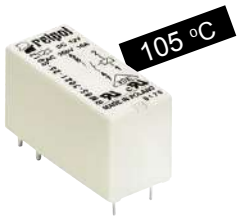
Number and type of contacts
21 - 1 NO

Cover protection category
2 - in cover, IP 40 version

Connection mode
5 - for PCB and sockets

Example of ordering code:

RM85-5021-25-1012 relay **RM85 inrush**, for PCB and sockets, one normally open contact, contact material $AgSnO_2$ - solid contacts, coil voltage 12 V DC, in cover IP 40



- 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 controlers
- 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, **$AgSnO_2$**
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V $AgSnO_2$
Rated load (capacity)	AC1	16 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	16 A / 24 V DC (see Fig. 2)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA $AgSnO_2$
Max. inrush current		30 A $AgSnO_2$
Rated current		16 A
Max. breaking capacity	AC1	4 000 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 1 W $AgSnO_2$
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	DC	5 ... 48 V
Must release voltage		DC: ≥ 0,1 U_n
Operating range of supply voltage		see Table 1 and Fig. 3
Rated power consumption	DC	0,25 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		400 V AC
Rated surge voltage		4 000 V 1,2 / 50 µs
Overvoltage category		III
Insulation pollution degree		3
Dielectric strength		
• between coil and contacts		5 000 V AC type of insulation: reinforced
• contact clearance		1 000 V AC type of clearance: micro-disconnection
Contact - coil distance		
• clearance		≥ 10 mm
• creepage		≥ 10 mm

General data

Operating / release time (typical values)		8 ms / 3 ms
Electrical life (number of cycles)	• resistive AC1	$> 10^5$ 16 A, 230 V AC, 70 °C
		$> 2 \times 10^4$ 16 A, 230 V AC, 105 °C
		$> 1,7 \times 10^5$ 10 A, 230 V AC, 105 °C
		$> 2,8 \times 10^5$ 8 A, 230 V AC, 105 °C
		$> 3,2 \times 10^5$ 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)		$> 3 \times 10^7$
Dimensions (L x W x H)		29 x 12,7 x 15,7 mm
Weight		14 g
Ambient temperature	• storage	-40...+105 °C
	• operating	-40...+105 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

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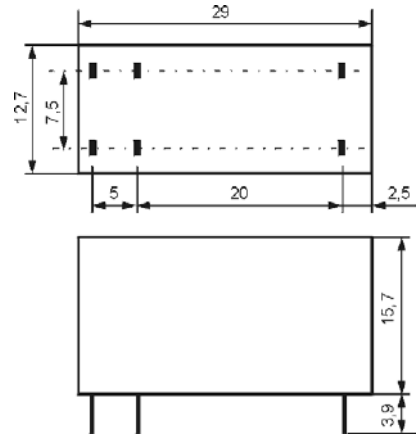
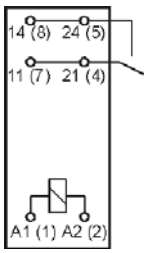
Coil data - DC voltage version, sensitive version Table 1

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

Dimensions



Connection diagram (pin side view)

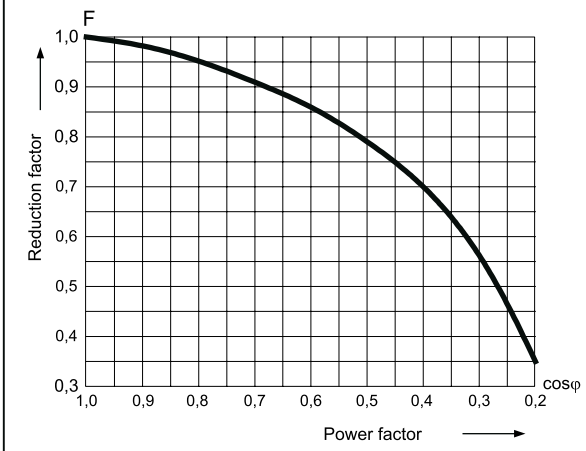


1 NO

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

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

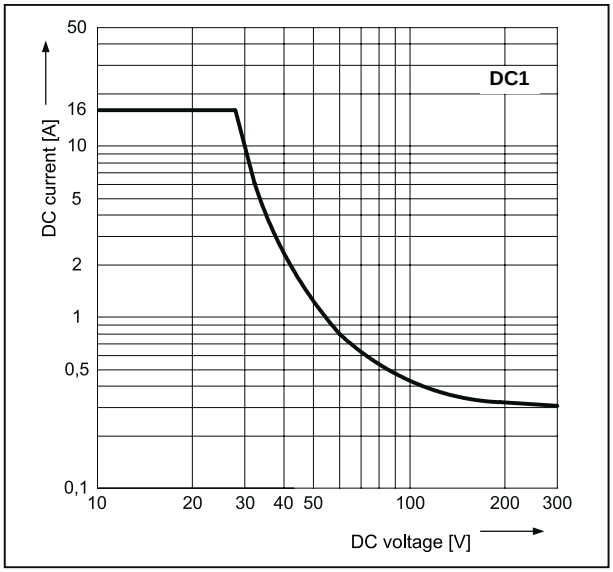
Electrical life reduction factor at AC inductive load — Fig. 1



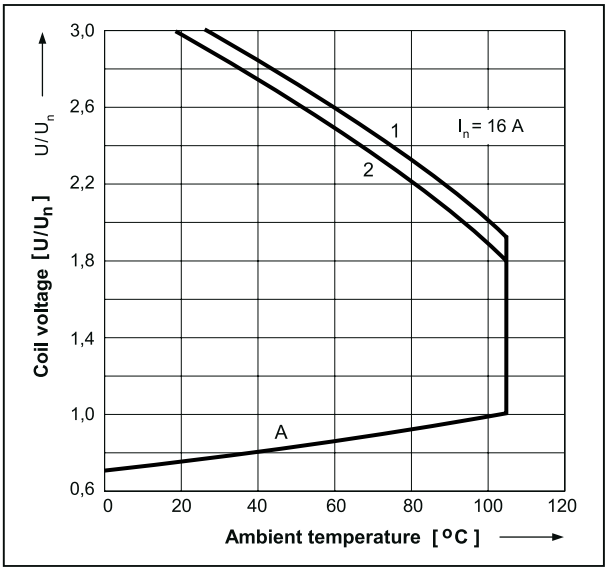
N - electrical life at AC1

$N_{cosj} = N \times F$

Max. DC resistive load breaking capacity — Fig. 2



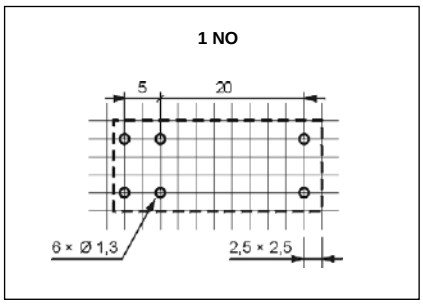
Coil operating range - DC — Fig. 3



Description of Fig. 3

A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
1, 2 - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:
1 - no load
2 - rated load

Pinout (solder side view)

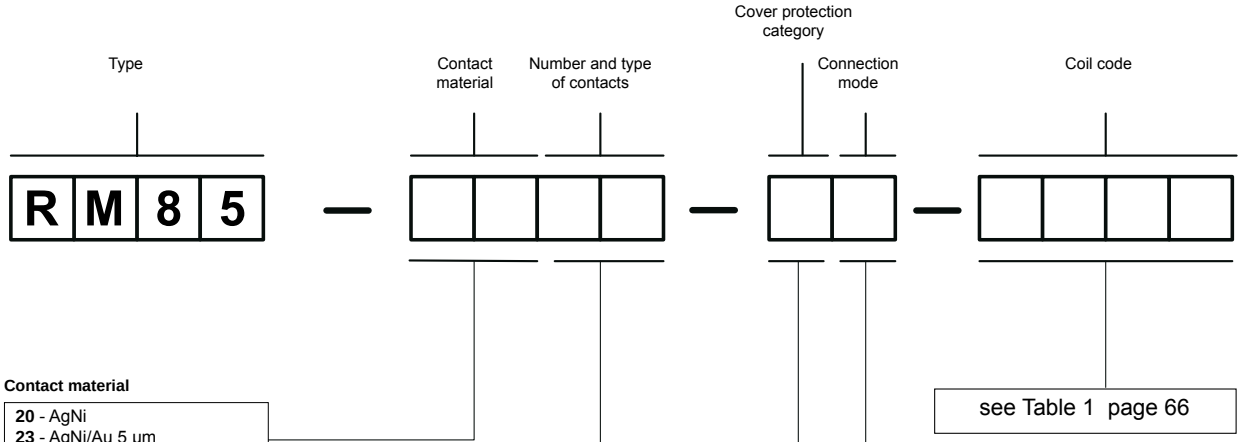


Mounting

Relays **RM85 105 ºC sensitive** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ❶ ❷ and **GZM80** ❶ ❷ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❶ ❷ 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** ❶ ❸ 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).
❸ For sockets **GZMB80** - see page 247 (wire connection).

Ordering codes



Contact material

20 - AgNi
23 - AgNi/Au 5 µm
30 - **$AgSnO_2$**

Number and type of contacts

21 - 1 NO

Cover protection category

2 - in cover, IP 40 version

Connection mode

5 - for PCB and sockets

Examples of ordering code:

RM85-3021-25-S012 relay **RM85 105 ºC sensitive**, for PCB and sockets, one normally open contact, contact material $AgSnO_2$, sensitive coil voltage 12 V DC, in cover IP 40

RM85-2321-25-S005 relay **RM85 105 ºC 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

- 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	16 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	16 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA $AgSnO_2$
Max. inrush current		30 A $AgSnO_2$
Rated current		16 A
Max. breaking capacity	AC1	4 000 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 1 W $AgSnO_2$
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC	12 ... 240 V
	DC	3 ... 110 V
Must release voltage		AC: ≥ 0,15 U_n DC: ≥ 0,1 U_n
Operating range of supply voltage		see Tables 1, 2 and Fig. 4, 5
Rated power consumption	AC	0,75 VA
	DC	0,4 ... 0,48 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		400 V AC
Rated surge voltage		4 000 V 1,2 / 50 µs
Overvoltage category		III
Insulation pollution degree		3
Dielectric strength		
• between coil and contacts		5 000 V AC type of insulation: reinforced
• contact clearance		1 000 V AC type of clearance: micro-disconnection
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	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

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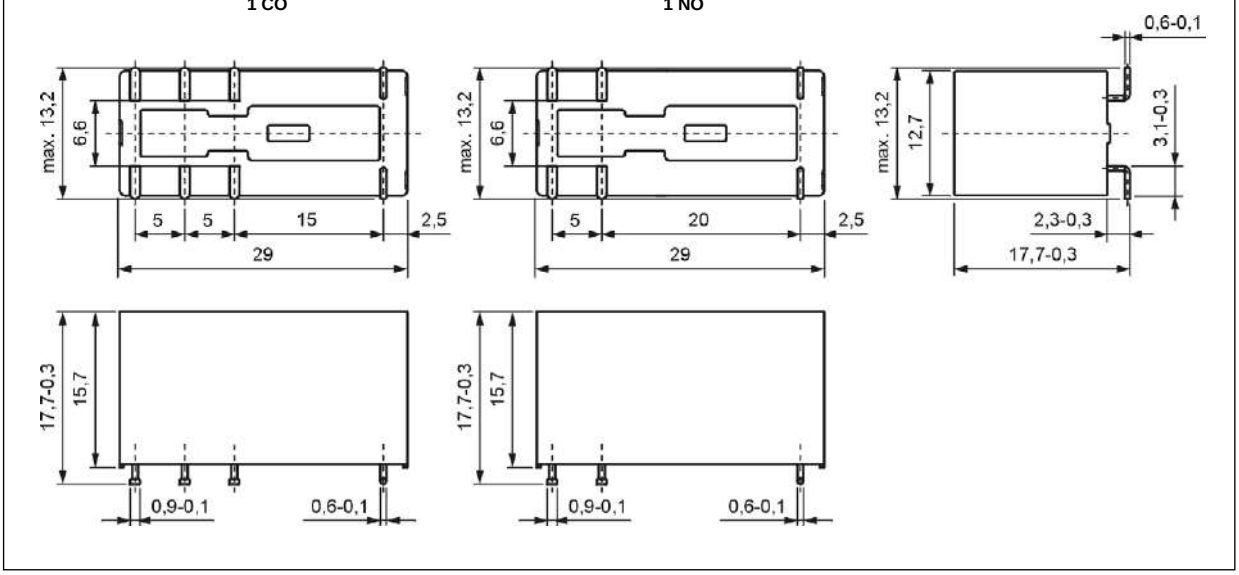
Coil data - DC voltage version Table 1

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	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
1012	12	360	± 10%	8,4	30,6
1018	18	710	± 10%	12,6	45,9
1024	24	1 440	± 10%	16,8	61,2
1036	36	3 140	± 10%	25,2	91,8
1048	48	5 700	± 10%	33,6	122,4
1060	60	7 500	± 10%	42,0	153,0
1110	110	25 200	± 10%	77,0	280,0

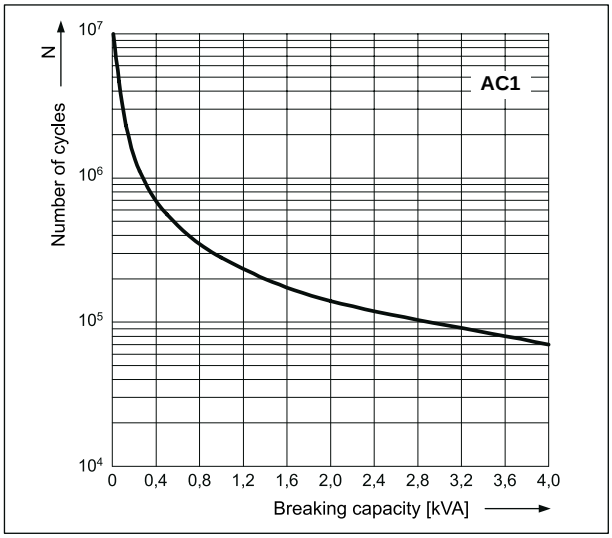
Coil data - AC 50/60 Hz voltage version Table 2

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	± 10%	9,6	13,2
5024	24	400	± 10%	19,2	28,8
5048	48	1 550	± 10%	38,4	57,6
5060	60	2 600	± 10%	48,0	72,0
5110	110	8 900	± 10%	88,0	132,0
5115	115	9 600	± 10%	92,0	138,0
5120	120	10 200	± 10%	96,0	144,0
5220	220	35 500	± 10%	176,0	264,0
5230	230	38 500	± 10%	184,0	276,0
5240	240	42 500	± 15%	192,0	288,0

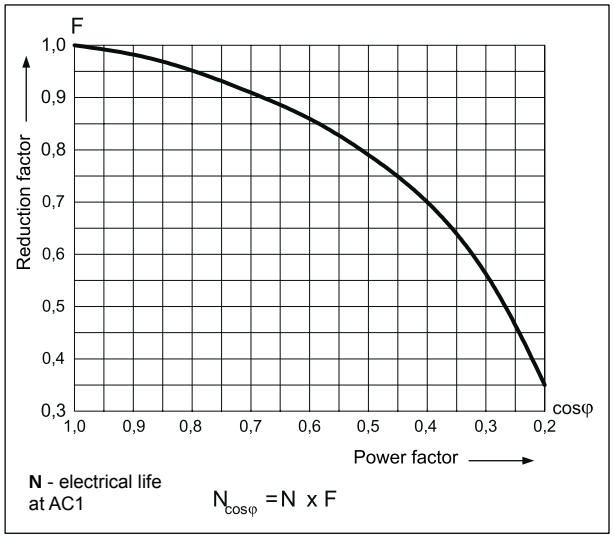
Dimensions



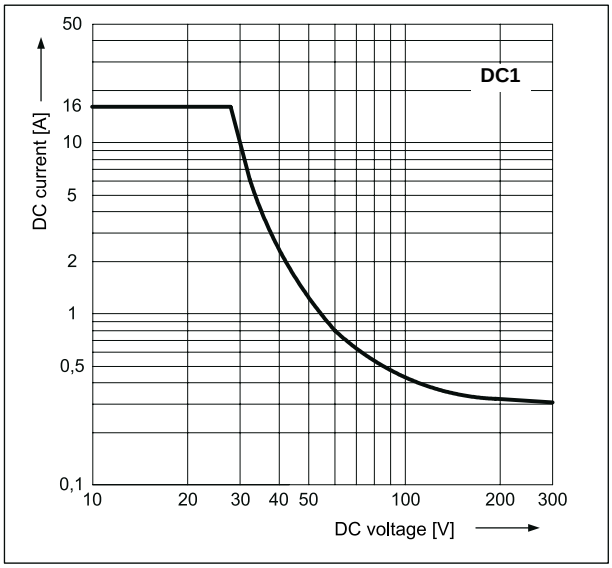
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



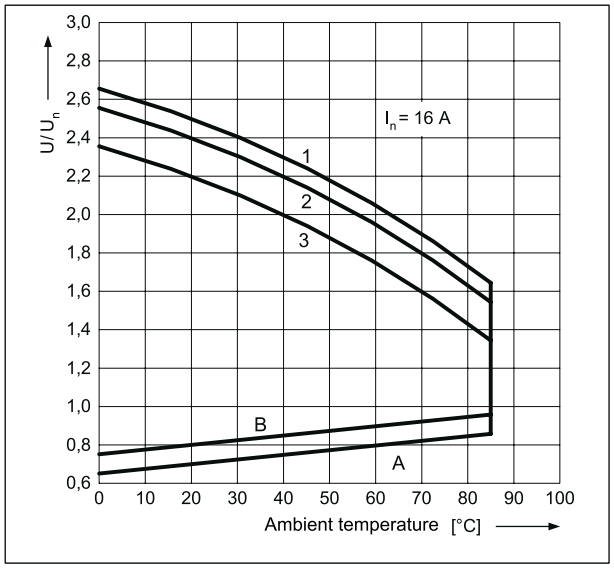
Electrical life reduction factor at AC inductive load Fig. 2



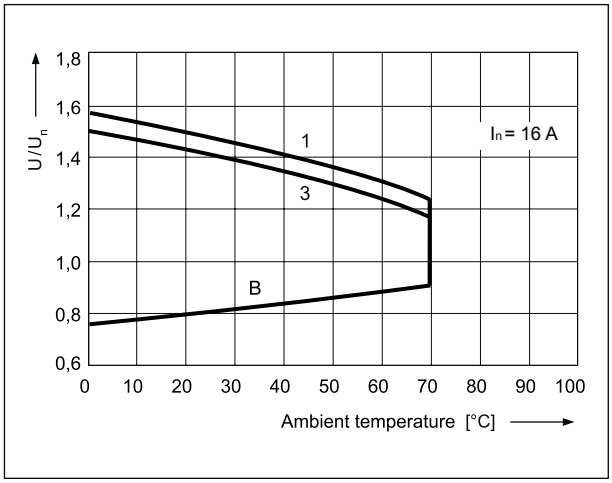
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



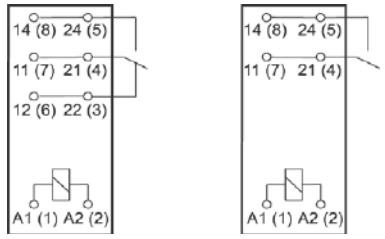
Coil operating range - AC 50 Hz Fig. 5



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

Connection diagrams (pin side view)



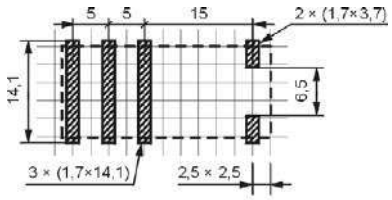
1 CO **1 NO**

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

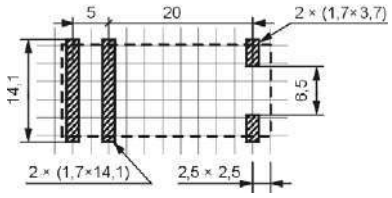
RM85 SMT terminals are doubled for each contact.
Both terminals are to be used while connecting to load.

Soldering areas (solder side view)

1 CO



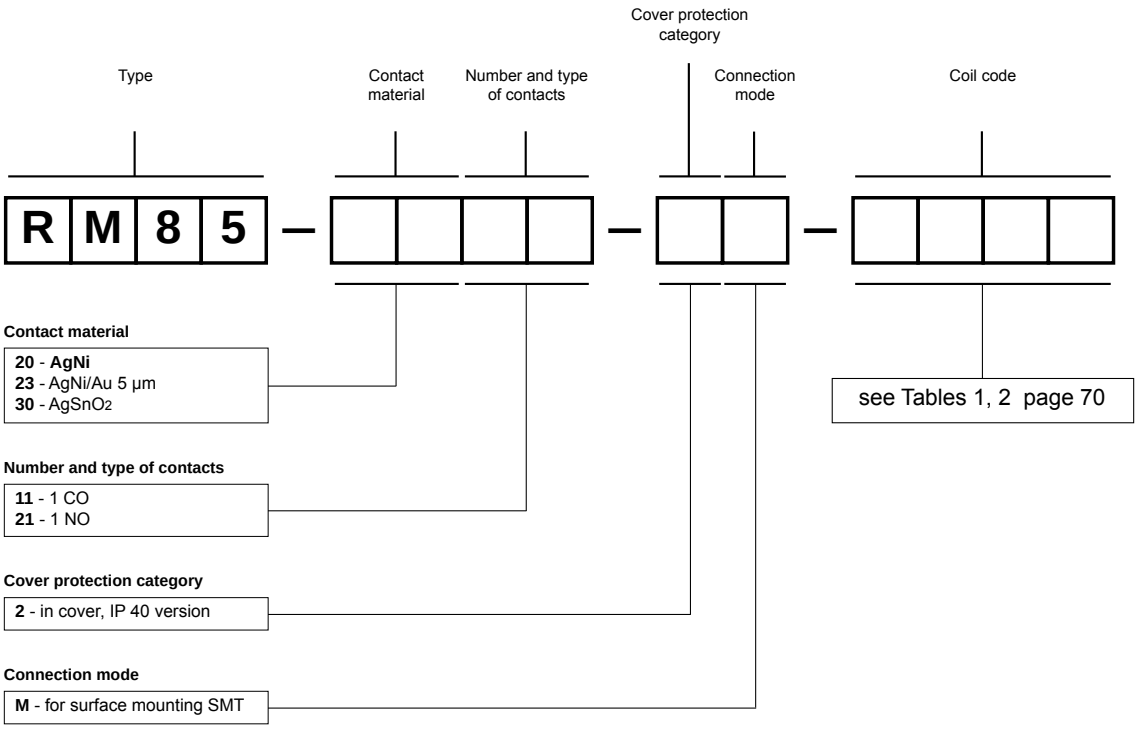
1 NO



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

version (V) version (H)

• 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		**$AgSnO_2$**
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V
Rated load (capacity)	AC1	20 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	20 A / 24 V DC
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		10 mA
Max. inrush current		30 A
Rated current		20 A
Max. breaking capacity	AC1	5 000 VA
Min. breaking capacity		1 W
Contact resistance		≤ 100 mΩ 100 mA, 24 V
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	DC	5 ... 48 V
Must release voltage		DC: ≥ 0,1 U_n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,25 W

Insulation according to PN-EN 60664-1

Insulation rated voltage	400 V AC
Rated surge voltage	4 000 V 1,2 / 50 µs
Overvoltage category	III
Insulation pollution degree	3
Dielectric strength	
• between coil and contacts	5 000 V AC type of insulation: reinforced
• contact clearance	1 000 V AC type of clearance: micro-disconnection
Contact - coil distance	
• clearance	≥ 10 mm
• creepage	≥ 10 mm

General data

Operating / release time (typical values)		8 ms / 3 ms
Electrical life (number of cycles)		
• resistive AC1		> 2 x 10^4 20 A, 250 V AC, 85 °C
		> 1,5 x 10^5 10 A, 250 V AC, 105 °C
• 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	-40...+105 °C
	• operating	-40...+105 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

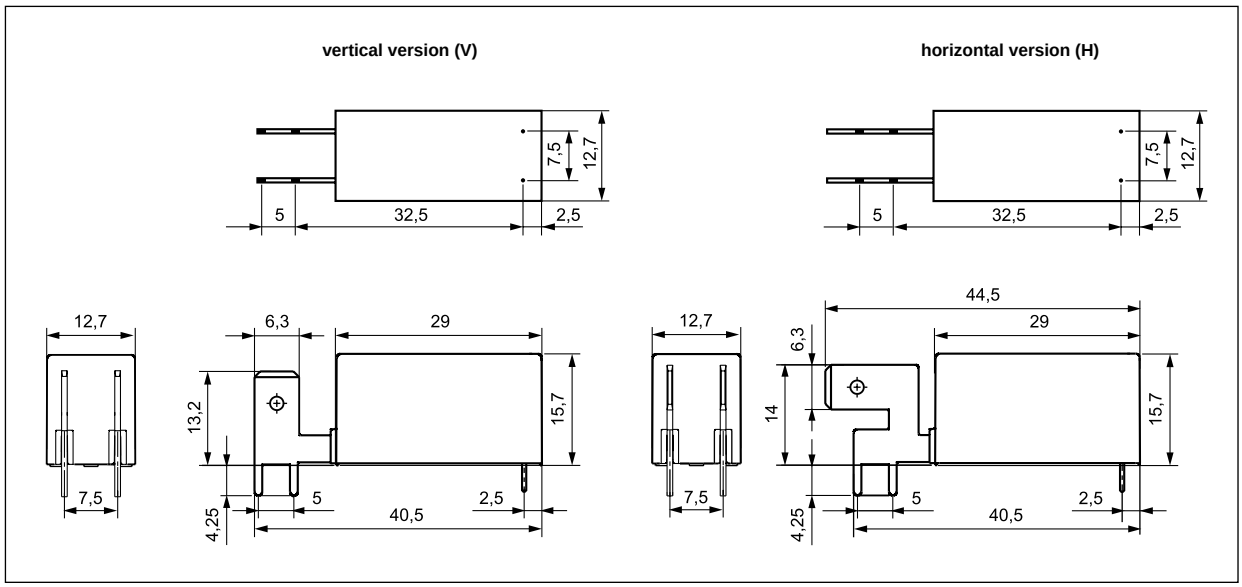
Coil data - DC voltage version, sensitive version

Table 1

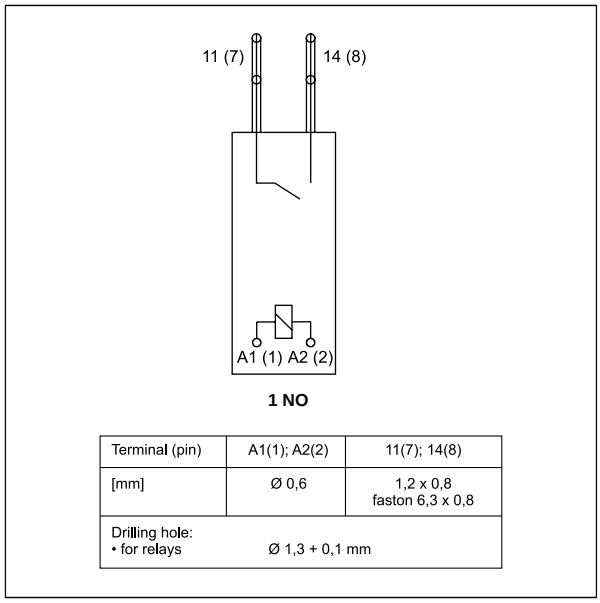
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S005	5	102	± 10%	3,75	15,0
S006	6	144	± 10%	4,50	18,0
S009	9	330	± 10%	6,75	27,0
S010	10	380	± 10%	7,50	30,0
S012	**12**	**580**	**± 10%**	**9,00**	**36,0**
S018	18	1 300	± 10%	13,50	54,0
S024	**24**	**2 300**	**± 10%**	**18,00**	**72,0**
S048	48	9 340	± 10%	36,00	144,0

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

Dimensions



Connection diagram (pin side view)

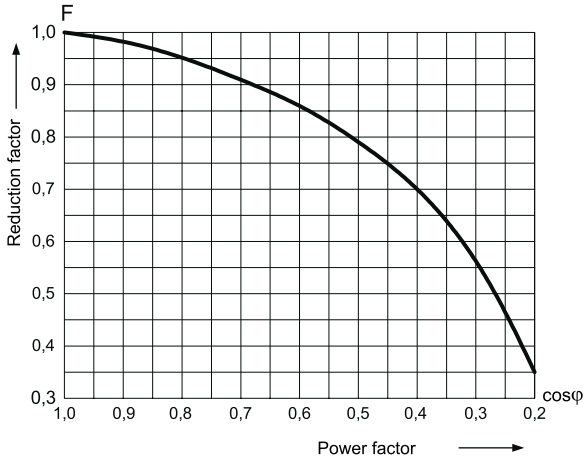


1 NO

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

Electrical life reduction factor at AC inductive load

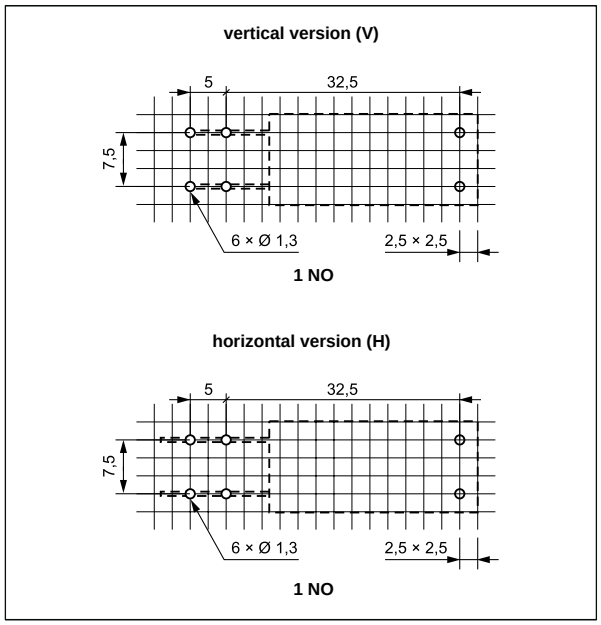
Fig.1



$N_{cos\varphi} = N \times F$

N - electrical life at AC1

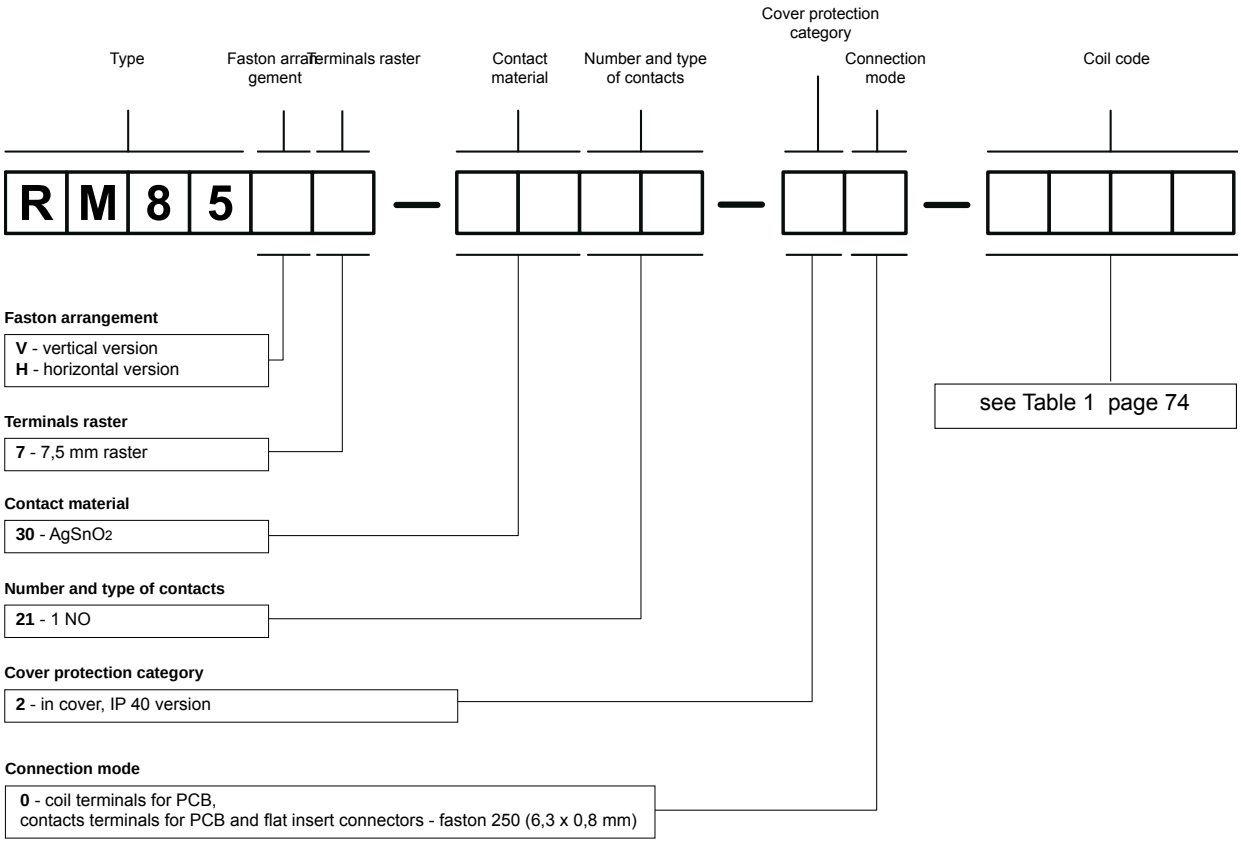
Pinout (solder side view)



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 $AgSnO_2$, sensitive coil voltage 12 V DC, in cover IP 40

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RMB851

RMB851-...-01 ❷

- Bistable with one coil ❶ • 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 ❷
- 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	16 A / 250 V AC
	DC1	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 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)		3 ms / 2 ms
Electrical life (number of cycles)		
• resistive AC1		3×10^4 16 A, 250 V AC
• DC L/R=40 ms		10^5 0,15 A, 220 V DC
Mechanical life (cycles)		5×10^6
Dimensions (L x W x H)		29 x 12,7 x 15,7 mm
Weight		14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	-20...+85 °C -20...+70 °C ❷
Cover protection category		IP 40 ❷ or **IP 67** PN-EN 60529
Environmental protection		RTII ❷ 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.
❶ Relays must be energizing only in pulse mode. Min. time of pulse duration 15 ms.
❷ For special version - relays in transparent cover: only available with IP 40 and RTII, operating temperature -40...+70 °C - see "Ordering codes"

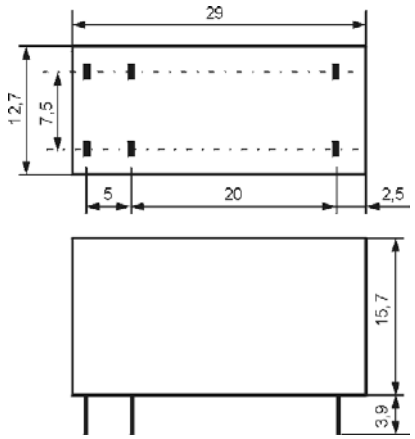
Coil data - DC voltage version

Table 1

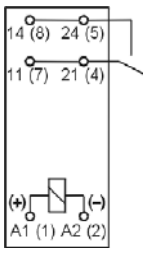
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Minimum pick-up voltage V DC (at 20 °C)	Reset ❸ - minimum voltage V DC (at 20 °C)
1003	3	10	± 10%	2,1	1,7
1005	5	28	± 10%	3,5	2,8
1006	6	40	± 10%	4,2	3,3
1012	**12**	**160**	**± 10%**	**8,4**	**6,6**
1024	**24**	**640**	**±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

The data in bold type pertain to the standard versions of the relays.
❸ Minimum voltage value required to reset the relay - open the contact.

Dimensions



Connection diagrams (pin side view)



1 NO

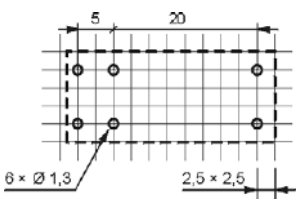
Terminal (pin)	A1(1); A2(2)	21(4); 24(5); 11(7); 14(8)
[mm]	Ø 0,6	0,5 x 0,9
Drilling hole: • for relays • for sockets	 Ø 1,3 + 0,1 mm Ø 1,5 + 0,1 mm	

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)

1 NO



Mounting

Relays **RMB851** ❹ are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ❺ ❻ and **GZM80** ❺ ❻ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❺ ❻ 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** ❺ ❼ 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.

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

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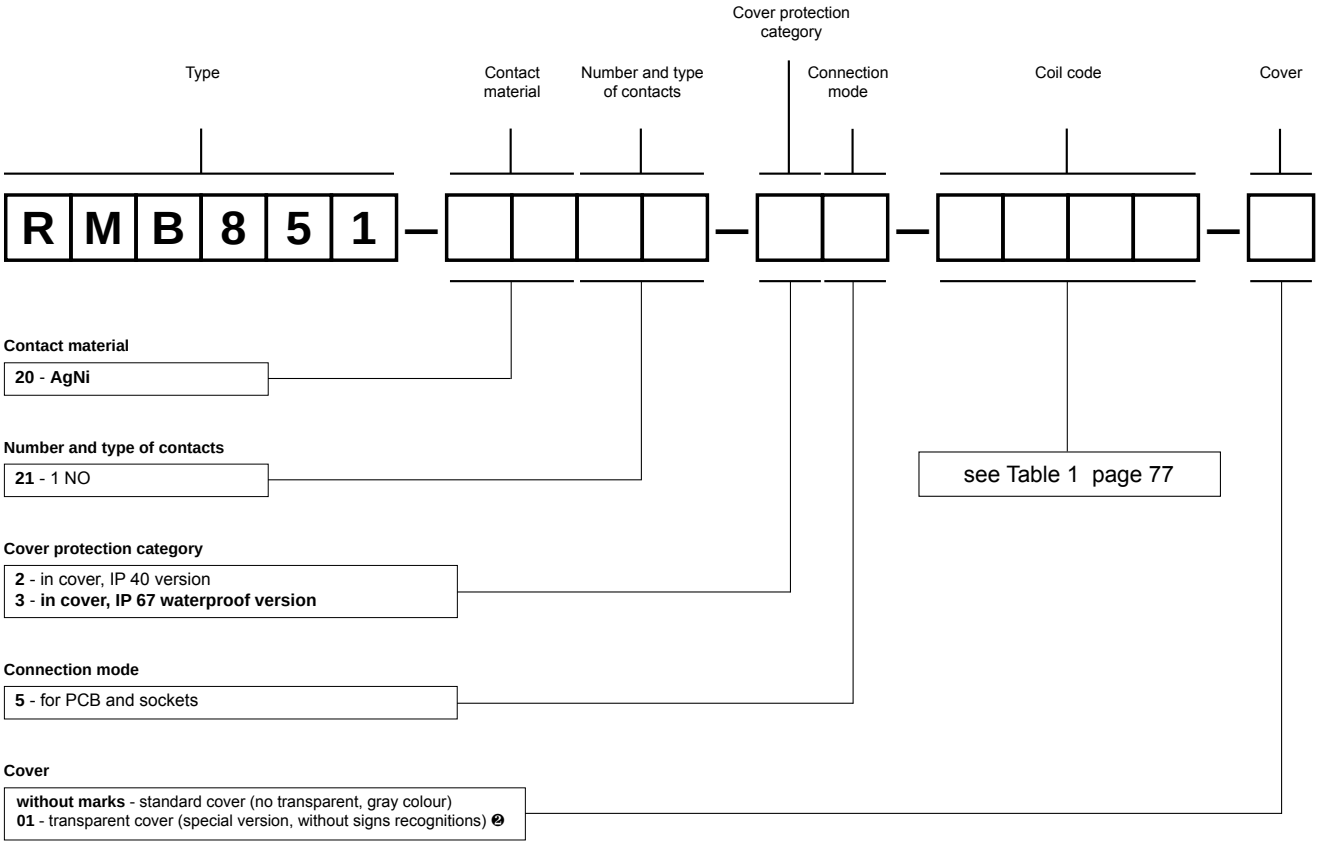
Ordering codes



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.

RM87N-...-01 ❶ RM87N sensitive

- Cadmium - free contacts • Height 15,7 mm
- 5000 V / 10 mm reinforced insulation • For PCB and plug-in sockets
- Accessories: sockets and modules • **AC and DC coils - standard (RM87), DC coils - sensitive (RM87 sensitive)**
- Available special versions: with transparent cover ❶; with the increased dielectric strength of the contact clearance ❷
- Compliance with standard PN-EN 60335-1
- Recognitions, certifications, directives: RoHS,

Contact data		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, $AgSnO_2$	
Rated / max. switching voltage	AC	250 V / 440 V	
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V $AgSnO_2$	
Rated load (capacity)	AC1	12 A / 250 V AC	10 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)	
	AC3	750 W (single-phase motor)	
	DC1	12 A / 24 V DC (see Fig. 3)	10 A / 24 V DC (see Fig. 4)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)	
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA $AgSnO_2$	
Max. inrush current		25 A $AgSnO_2$	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			
• at rated load	AC1	600 cycles/hour	
• no load		72 000 cycles/hour	
Coil data			
Rated voltage	50/60 Hz AC	12 ... 240 V	–
	DC	3 ... 110 V	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	0,75 VA	–
	DC	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		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 ❷
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	$> 1,7 \times 10^5$ 10 A, 250 V AC
• cosϕ		see Fig. 2	
• DC L/R=40 ms		$> 10^5$ 0,15 A, 220 V DC	
Mechanical life (cycles)		$> 3 \times 10^7$	
Dimensions (L x W x H) / Weight		29 x 12,7 x 15,7 mm / 14 g	
Ambient temperature	• storage	-40...+85 °C	
	• operating	AC: -40...+70 °C DC: -40...+85 °C	-40...+70 °C 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"

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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	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
1012	12	360	± 10%	8,4	30,6
1018	18	710	± 10%	12,6	45,9
1024	**24**	**1 440**	**± 10%**	**16,8**	**61,2**
1036	36	3 140	± 10%	25,2	91,8
1048	48	5 700	± 10%	33,6	122,4
1060	60	7 500	± 10%	42,0	153,0
1110	110	25 200	± 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	± 10%	3,75	15,0
S006	6	144	± 10%	4,50	18,0
S009	9	330	± 10%	6,75	27,0
S010	10	400	± 10%	7,50	30,0
S012	12	580	± 10%	9,00	36,0
S018	18	1 300	± 10%	13,50	54,0
S024	24	2 300	± 10%	18,00	72,0
S048	48	9 340	± 10%	36,00	144,0

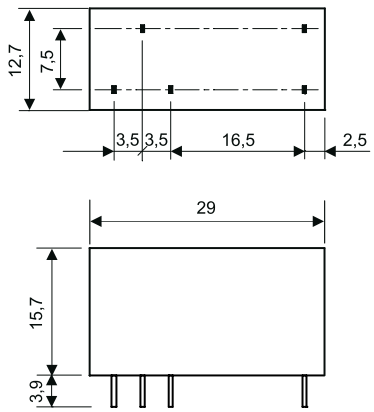
Coil data - AC 50/60 Hz voltage version, **RM87** - standard version — Table 3

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	± 10%	9,6	13,2
5024	**24**	**400**	**± 10%**	**19,2**	**28,8**
5048	48	1 550	± 10%	38,4	57,6
5060	60	2 600	± 10%	48,0	72,0
5110	110	8 900	± 10%	88,0	132,0
5115	115	9 600	± 10%	92,0	138,0
5120	120	10 200	± 10%	96,0	144,0
5220	220	35 500	± 10%	176,0	264,0
5230	**230**	**38 500**	**± 10%**	**184,0**	**276,0**
5240	240	42 500	± 15%	192,0	288,0

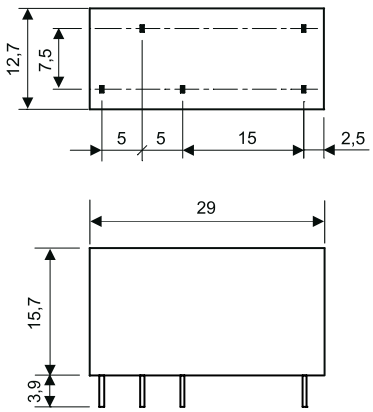
The data in bold type pertain to the standard versions of the relays.

Dimensions

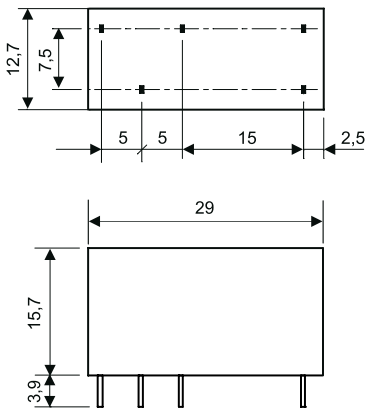
RM87N - 1 CO (standard version)



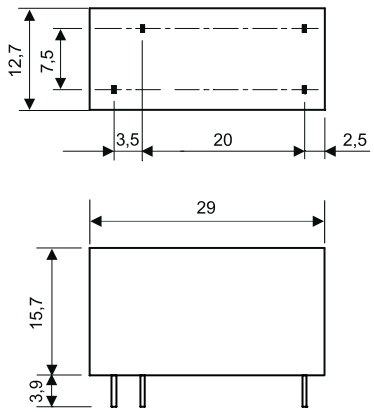
RM87L - 1 CO (standard version)



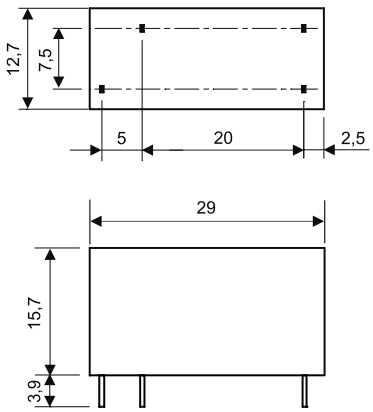
RM87P - 1 CO (standard version)



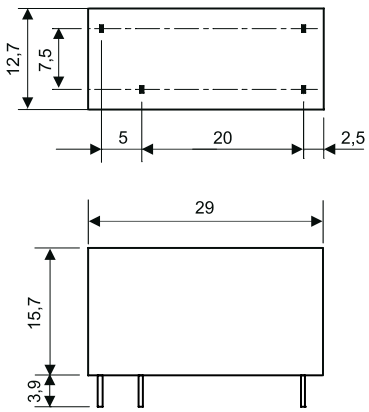
RM87N, RM87N sensitive - 1 NO



RM87L, RM87L sensitive - 1 NO

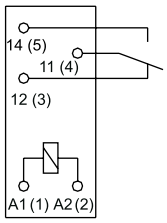


RM87P, RM87P sensitive - 1 NO



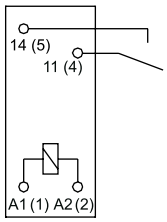
Connection diagrams (pin side view)

RM87N



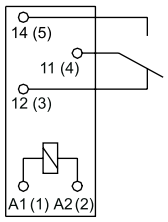
1 CO

RM87N, RM87N sensitive



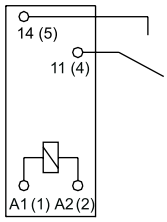
1 NO

RM87L



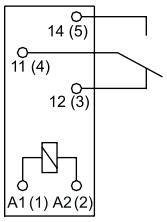
1 CO

RM87L, RM87L sensitive



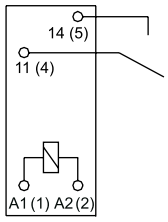
1 NO

RM87P



1 CO

RM87P, RM87P sensitive



1 NO

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

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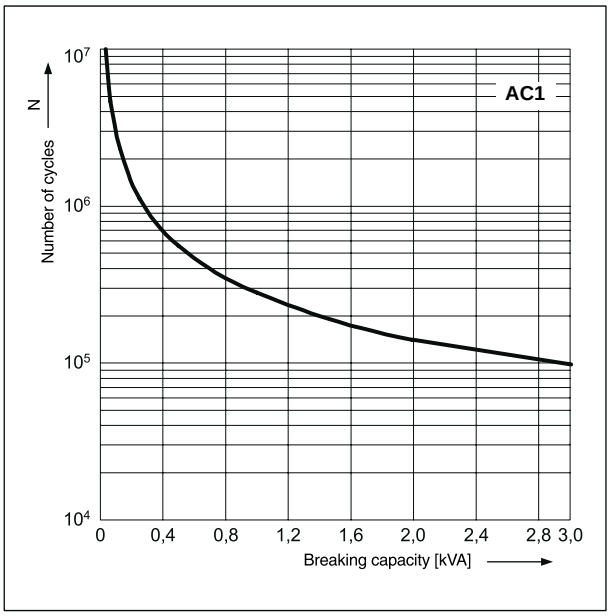
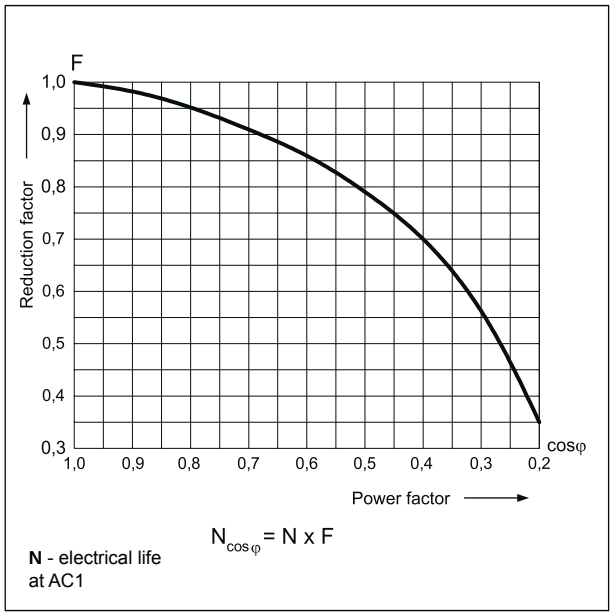
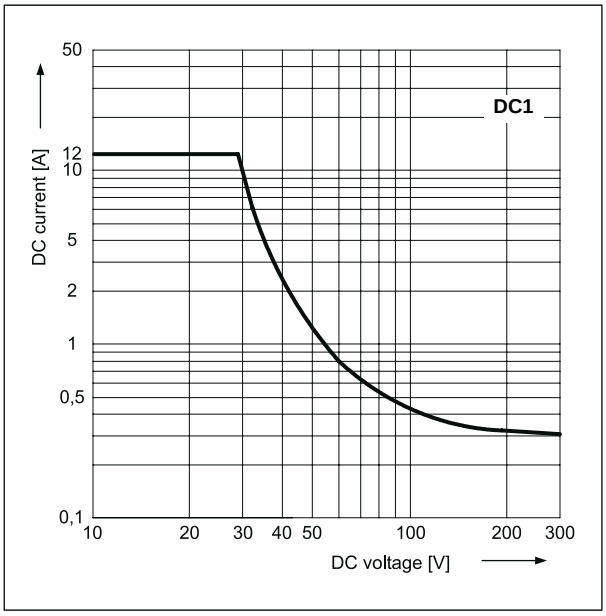
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour Fig. 1



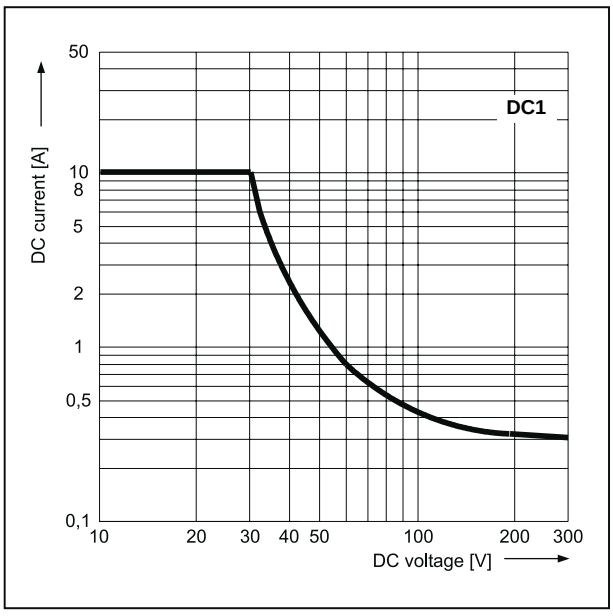
Electrical life reduction factor
at AC inductive load Fig. 2



Max. DC resistive load breaking capacity
- standard version Fig. 3



Max. DC resistive load breaking capacity
- sensitive version Fig. 4

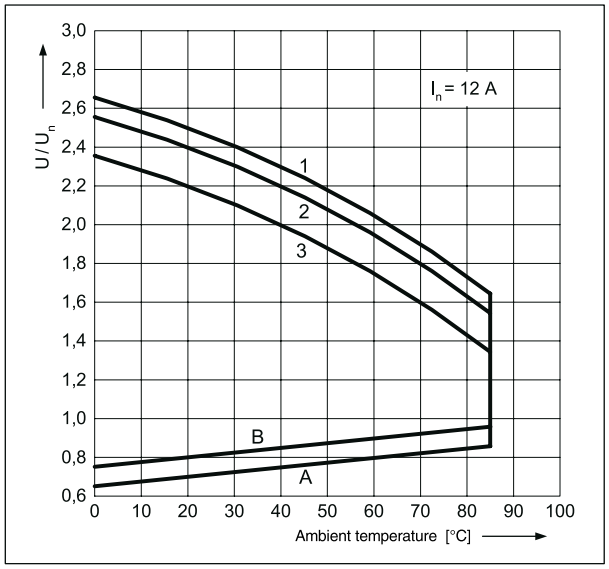


GZMB80

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

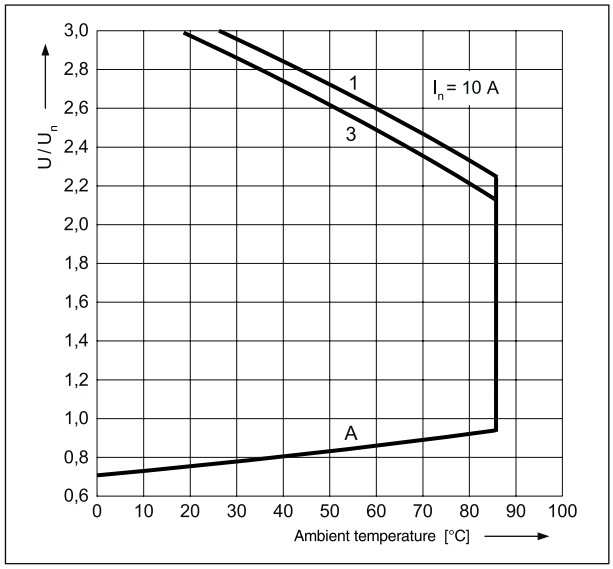
Coil operating range - DC
- standard version

Fig. 5



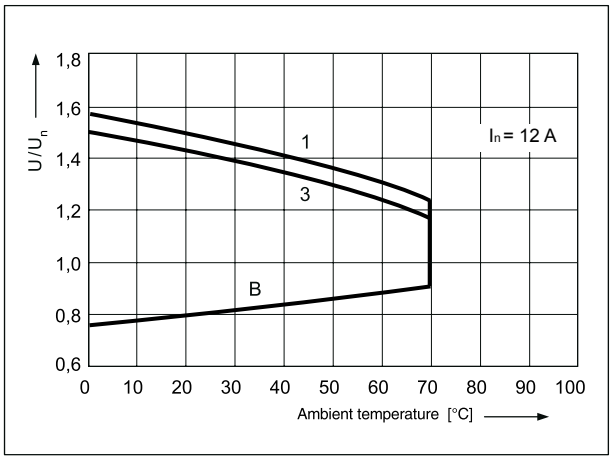
Coil operating range - DC
- sensitive version

Fig. 6



Coil operating range - AC 50 Hz

Fig. 7

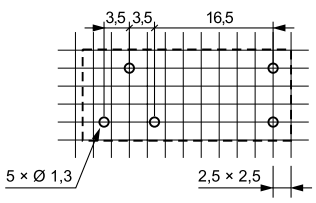


Description of Fig. 5, 6 and 7

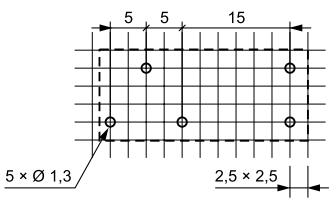
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature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

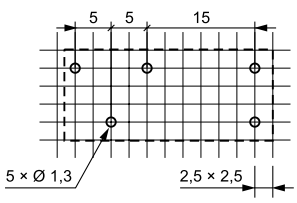
RM87N - 1 CO (standard version)



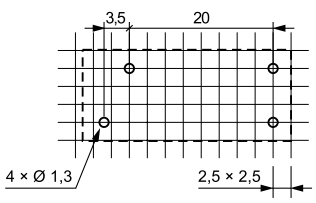
RM87L - 1 CO (standard version)



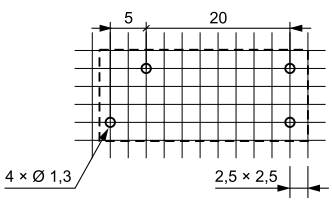
RM87P - 1 CO (standard version)



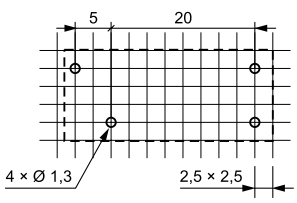
RM87N, RM87N sensitive - 1 NO



RM87L, RM87L sensitive - 1 NO



RM87P, RM87P sensitive - 1 NO



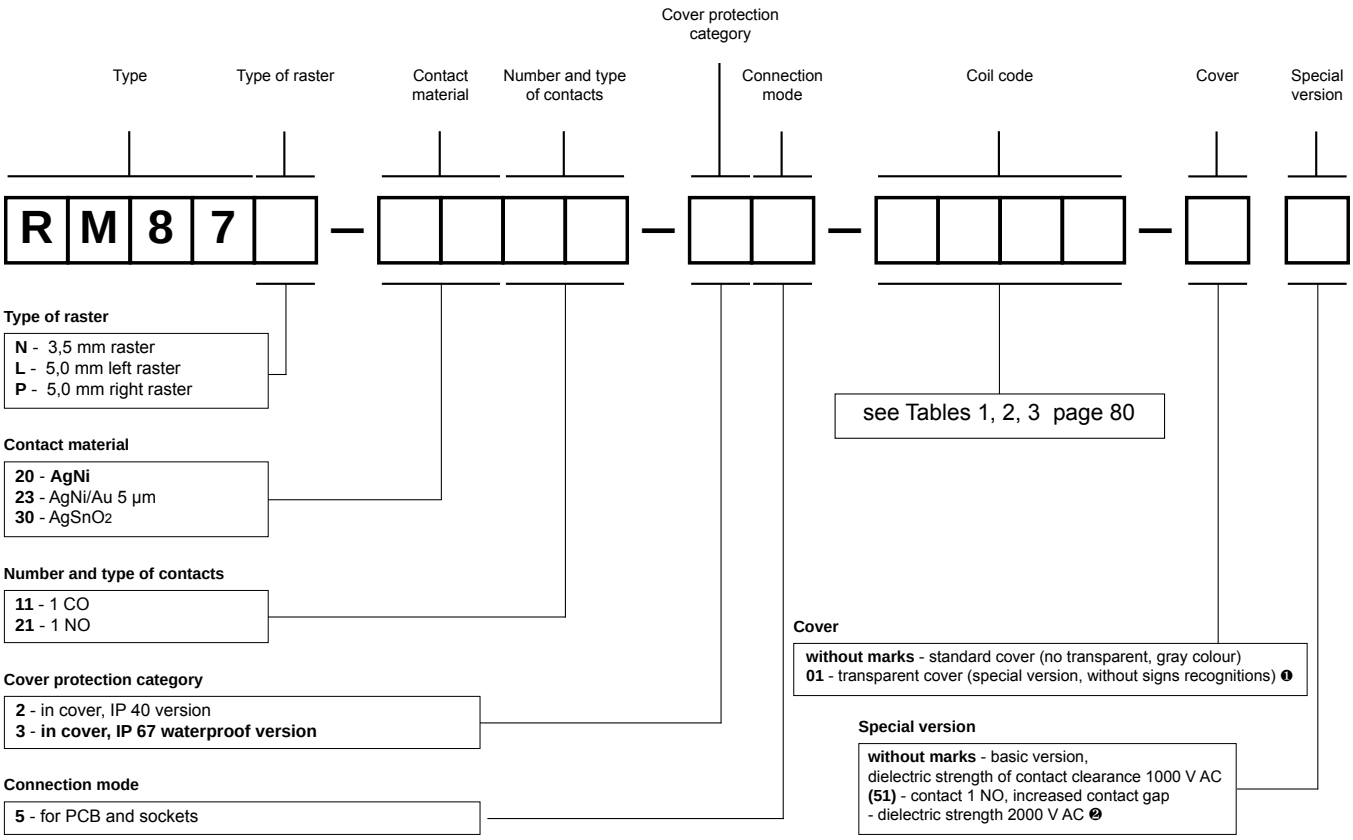
Mounting

Relays **RM87N** ❸, **RM87N sensitive** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT92** ❹ and **GZM92** ❹ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS92** ❹ 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** ❸, **RM87L sensitive**, **RM87P** ❸, **RM87P sensitive** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ❹ and **GZM80** ❹ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❹ 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** ❹ ❺ 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.

❸ For special version (only for RM87 - standard version) - relays in transparent cover: the distance of min. 5 mm between the mounting relays.
❹ Plug-in sockets **GZT92**, **GZM92**, **GZS92** and **GZT80**, **GZM80**, **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 262).
❺ 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 $AgSnO_2$, sensitive coil voltage 12 V DC, in standard cover (no transparent, gray colour) IP 40

- 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	12 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	12 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA $AgSnO_2$
Max. inrush current		25 A $AgSnO_2$
Rated current		12 A
Max. breaking capacity	AC1	3 000 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 1 W $AgSnO_2$
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC	12 ... 240 V
	DC	3 ... 110 V
Must release voltage		AC: ≥ 0,15 U_n DC: ≥ 0,1 U_n
Operating range of supply voltage		see Tables 1, 2 and Fig. 4, 5
Rated power consumption	AC	0,75 VA
	DC	0,4 ... 0,48 W

Insulation according to PN-EN 60664-1

Insulation rated voltage		400 V AC
Rated surge voltage		4 000 V 1,2 / 50 µs
Overvoltage category		III
Insulation pollution degree		3
Dielectric strength		
• between coil and contacts		5 000 V AC type of insulation: reinforced
• contact clearance		1 000 V AC type of clearance: micro-disconnection
Contact - coil distance		
• clearance		≥ 10 mm
• creepage		≥ 10 mm

General data

Operating / release time (typical values)		7 ms / 3 ms
Electrical life (number of cycles)		
• resistive AC1		$> 10^5$ 12 A, 250 V AC
• cosϕ		see Fig. 2
• DC L/R=40 ms		$> 10^5$ 0,15 A, 220 V DC
Mechanical life (cycles)		$> 3 \times 10^7$
Dimensions (L x W x H)		29 x 13,2 x 17,7 mm
Weight		14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

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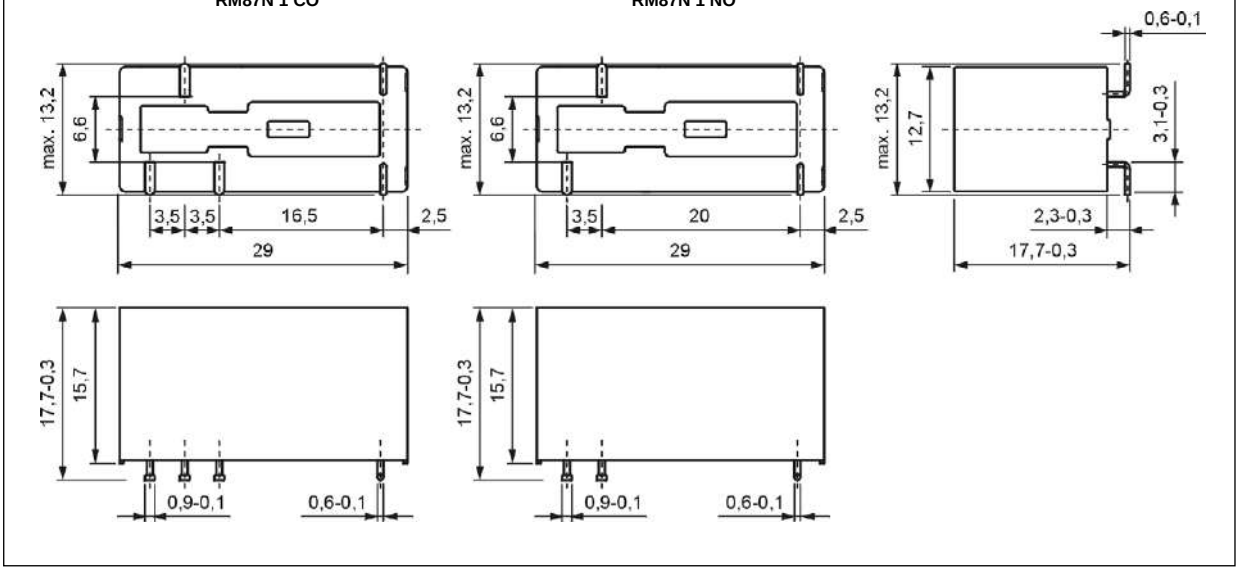
Coil data - DC voltage version Table 1

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	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
1012	12	360	± 10%	8,4	30,6
1018	18	710	± 10%	12,6	45,9
1024	24	1 440	± 10%	16,8	61,2
1036	36	3 140	± 10%	25,2	91,8
1048	48	5 700	± 10%	33,6	122,4
1060	60	7 500	± 10%	42,0	153,0
1110	110	25 200	± 10%	77,0	280,0

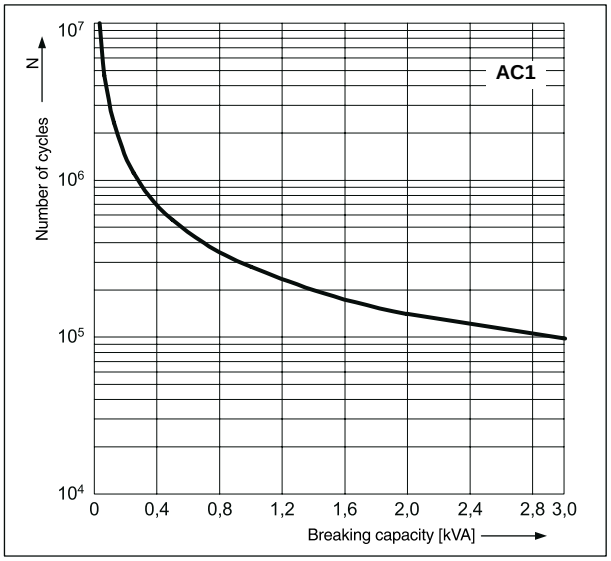
Coil data - AC 50/60 Hz voltage version Table 2

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	± 10%	9,6	13,2
5024	24	400	± 10%	19,2	28,8
5048	48	1 550	± 10%	38,4	57,6
5060	60	2 600	± 10%	48,0	72,0
5110	110	8 900	± 10%	88,0	132,0
5115	115	9 600	± 10%	92,0	138,0
5120	120	10 200	± 10%	96,0	144,0
5220	220	35 500	± 10%	176,0	264,0
5230	230	38 500	± 10%	184,0	276,0
5240	240	42 500	± 15%	192,0	288,0

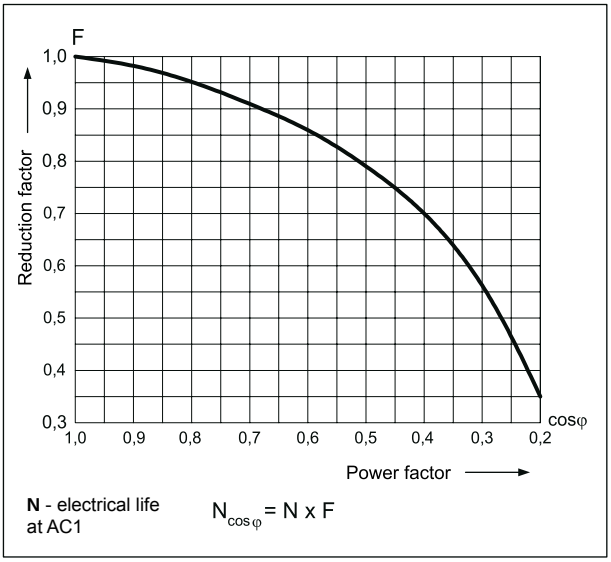
Dimensions



Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



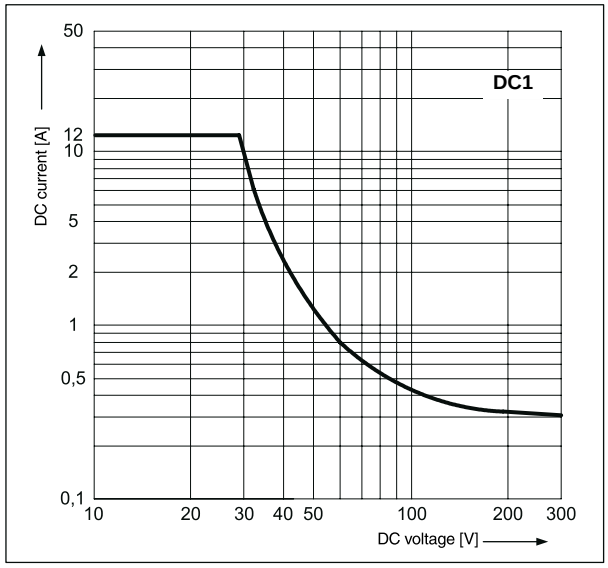
Electrical life reduction factor at AC inductive load Fig. 2



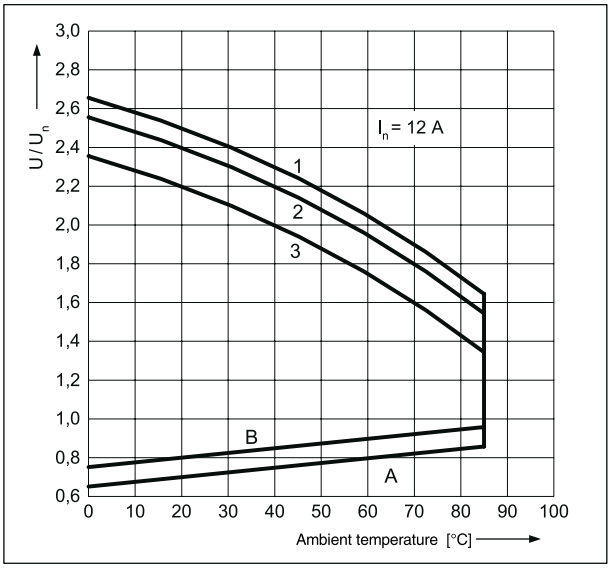
N - electrical life at AC1

$N_{\cos\varphi} = N \times F$

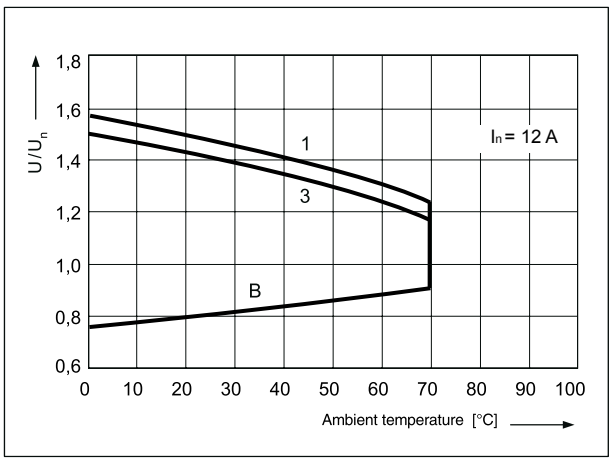
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



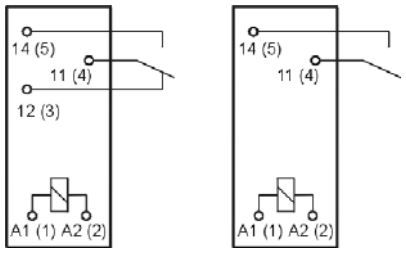
Coil operating range - AC 50 Hz Fig. 5



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

Connection diagrams (pin side view)

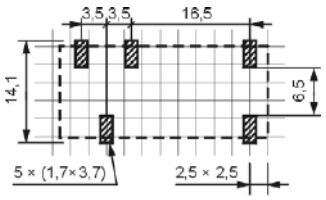


RM87N 1 CO RM87N 1 NO

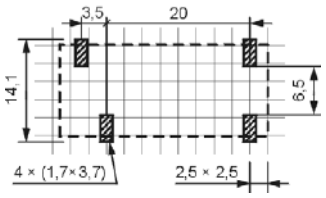
Terminal (pin)	A1(1); A2(2)	12(3); 11(4); 14(5)
[mm]	Ø 0,6	0,5 x 0,9

Soldering areas (solder side view)

RM87N 1 CO



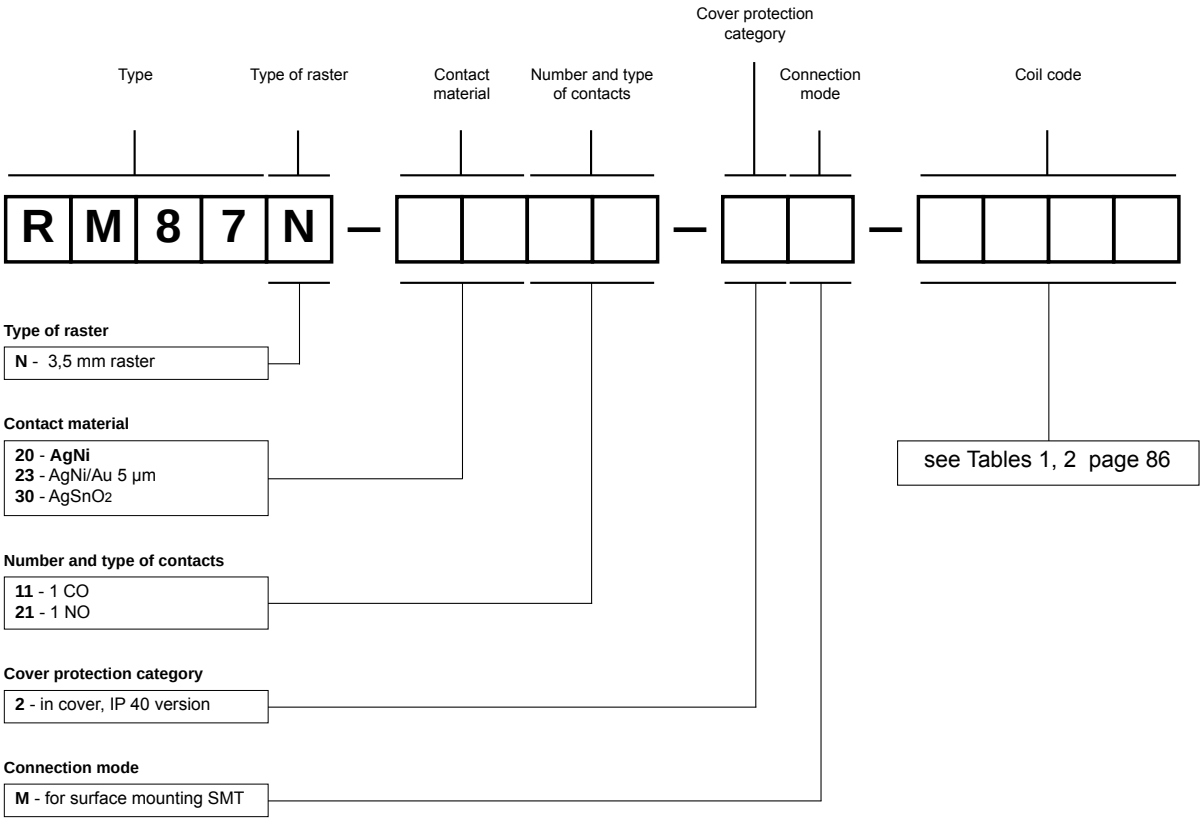
RM87N 1 NO



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

- 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		**$AgSnO_2$**, $AgSnO_2$/Au 3 µm, AgCdO
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V $AgSnO_2$, 5 V $AgSnO_2$/Au 3 µm, 10 V AgCdO
Rated load (capacity)	AC1	8 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	370 W (single-phase motor; 0,5 HP / 250 V AC UL 508)
	DC1	8 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		10 mA $AgSnO_2$, 2 mA $AgSnO_2$/Au 3 µm, 5 mA AgCdO
Max. inrush current		15 A
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		1 W $AgSnO_2$, 0,05 W $AgSnO_2$/Au 3 µm, 0,5 W AgCdO
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	DC	5 ... 48 V
Must release voltage		DC: ≥ 0,1 U_n
Operating range of supply voltage		see Table 1and 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	-40...+85 °C
	• operating	-40...+80 °C
Cover protection category		IP 40 or **IP 67** PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		20 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

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Coil data - DC voltage version

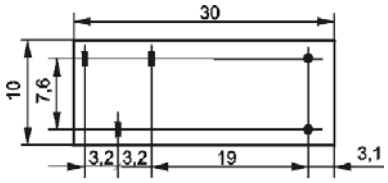
Table 1

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	± 10%	3,5	12,0
1006	6	160	± 10%	4,2	14,5
1009	9	360	± 10%	6,3	22,0
1012	**12**	**660**	**± 10%**	**8,4**	**29,5**
1018	18	1 500	± 10%	12,6	44,0
1024	**24**	**2 200**	**± 10%**	**16,8**	**54,0**
1048	48	8 000	± 10%	33,6	102,0

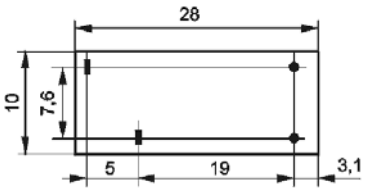
The data in bold type pertain to the standard versions of the relays.

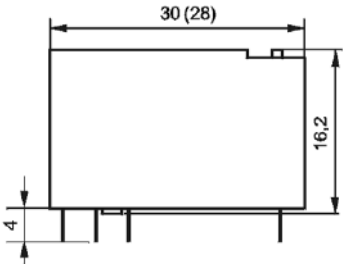
Dimensions

1 CO

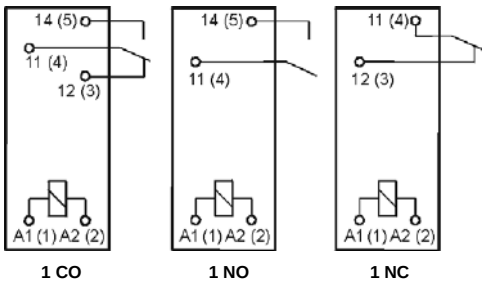


1 NO, 1 NC





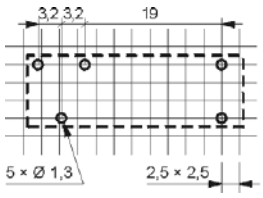
Connection diagrams (pin side view)



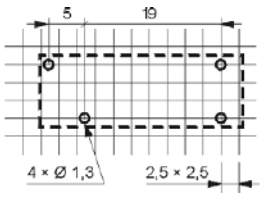
Terminal (pin)	A1(1); A2(2)	12(3); 11(4); 14(5)
[mm]	0,6 x 0,9	0,6 x 0,1
Drilling hole: • for relays	Ø 1,3 + 0,1 mm	

Pinout (solder side view)

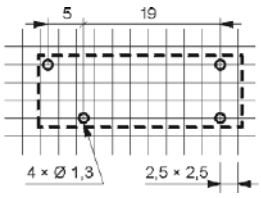
1 CO



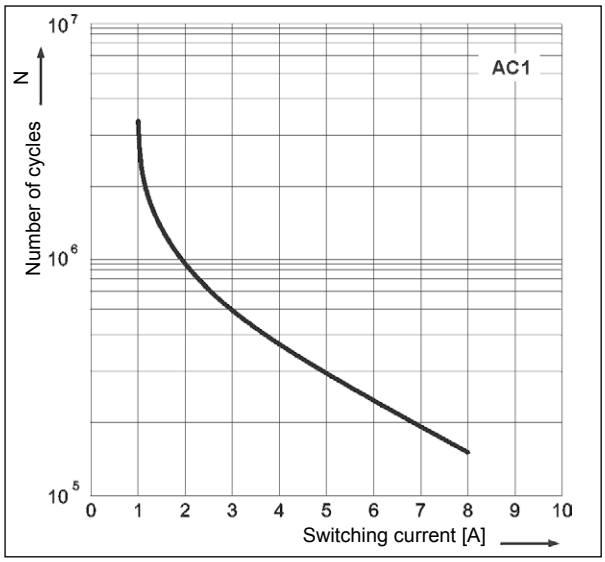
1 NO



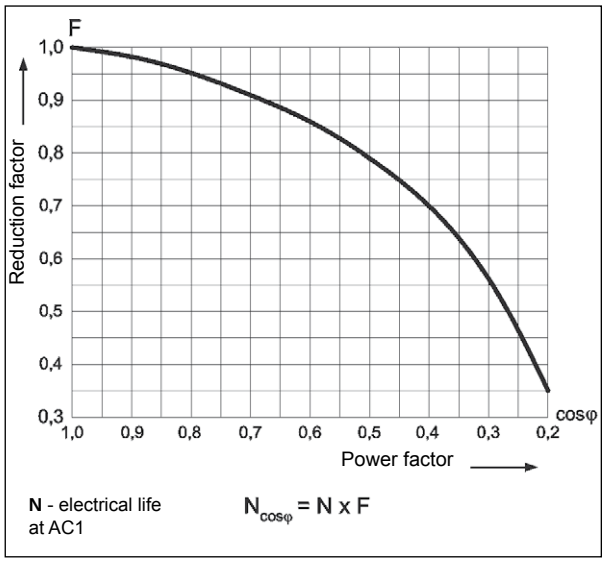
1 NC



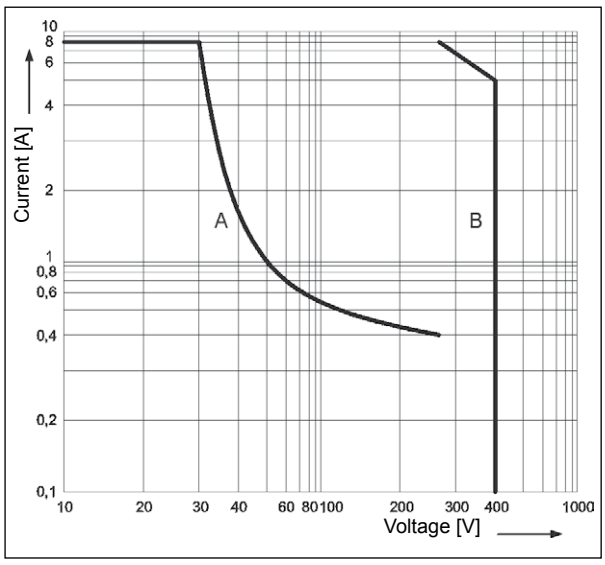
Electrical life at AC resistive current.
U_n = 230 V AC - version 1NO — Fig. 1



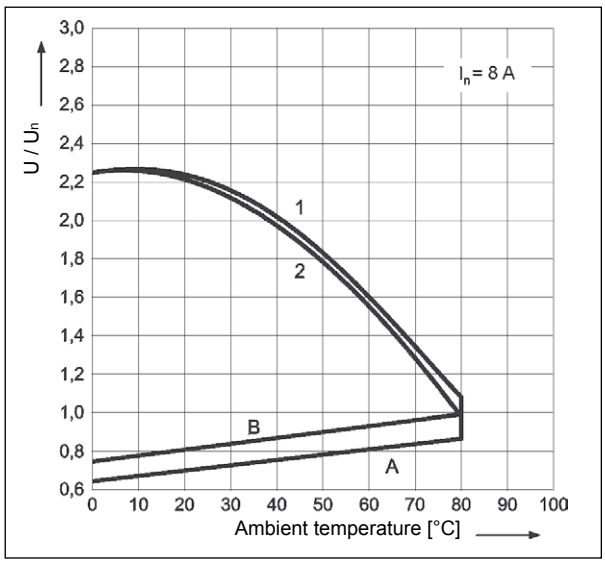
Electrical life reduction factor at AC inductive load — Fig. 2



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.

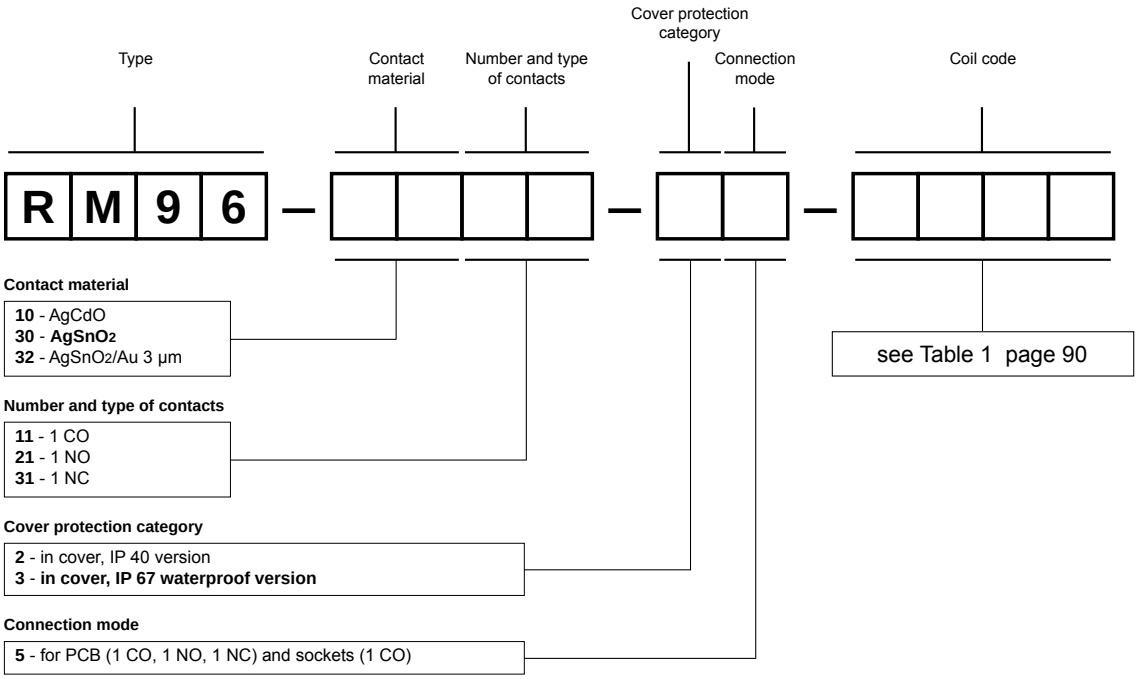
Mounting

Relays **RM96 1 CO** (one changeover contact) are designed for: • direct PCB mounting • screw terminals plug-in sockets **ES 32** ❶ 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



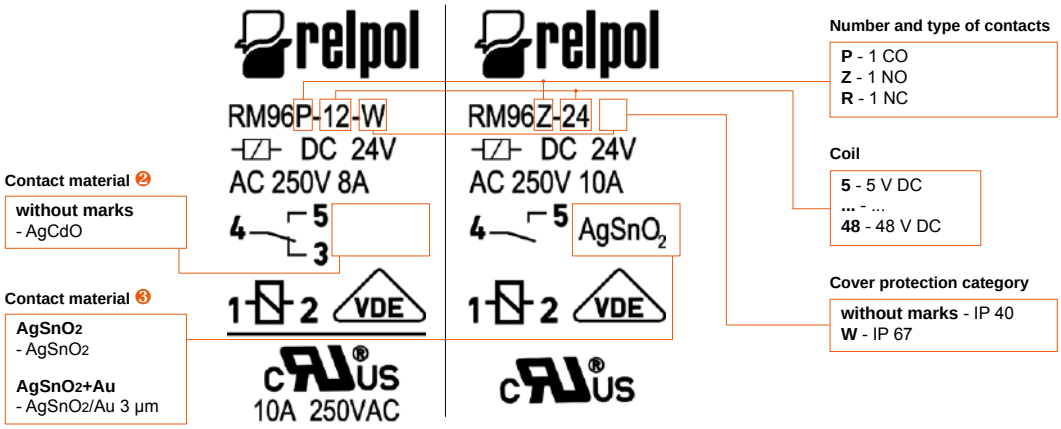
Examples of ordering codes:

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 $AgSnO_2$, 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** ❷ and **RM96-3021-25-1024** ❸).



RM83

RM83-...-01 ❶

- Miniature dimensions • General purpose relays
- **Version 1 NO $AgSnO_2$ - 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		**$AgSnO_2$**, 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	16 A / 250 V AC
	AC15	6 A / 120 V 3 A / 240 V (A300)
	AC3	550 W (single-phase motor)
	DC1	16 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		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	-40...+85 °C
	• operating	-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".

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Coil data - DC voltage version, standard

Table 1

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

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

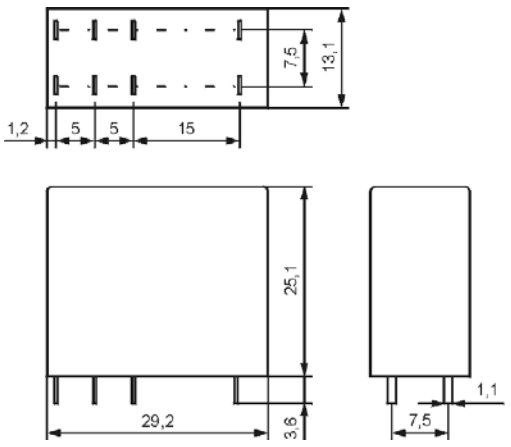
Coil data - DC voltage version, sensitive

Table 2

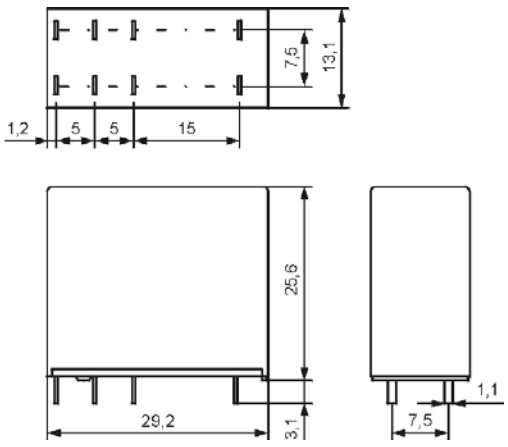
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S110	110	20 500	± 10%	77,0	188,0

Dimensions

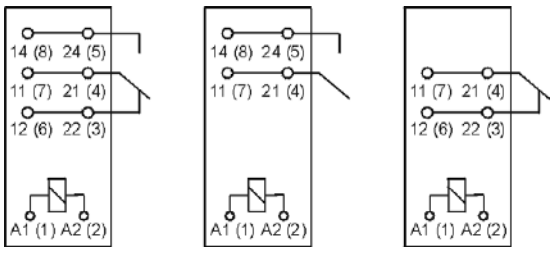
version IP 40



version IP 67



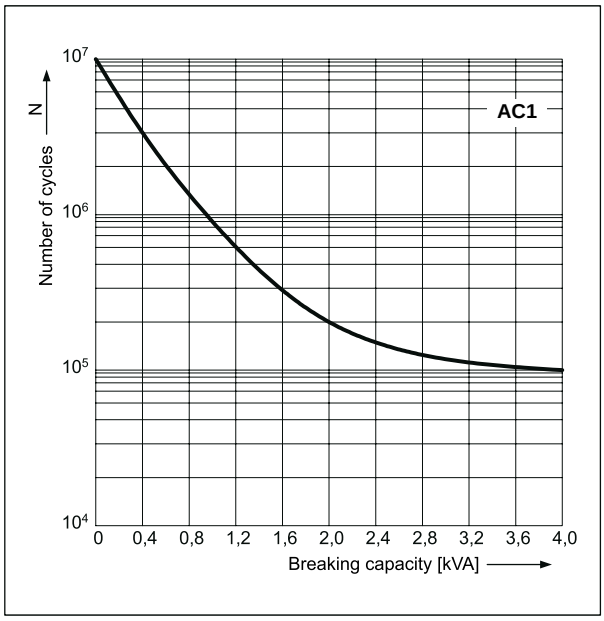
Connection diagrams (pin side view)



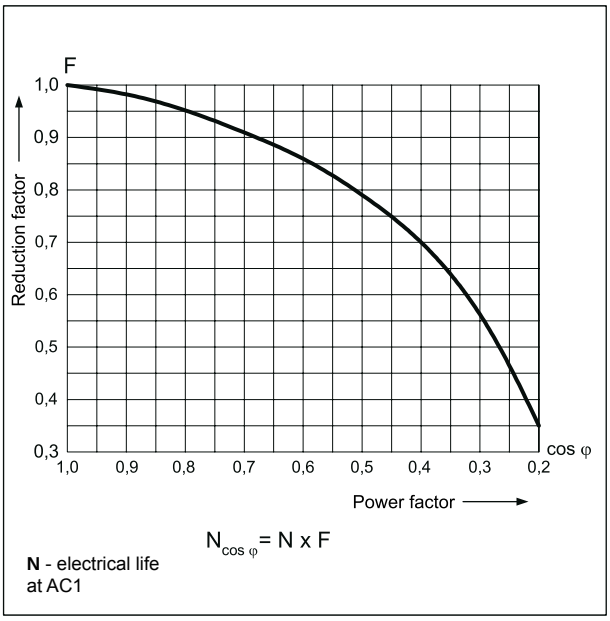
Terminal (pin)	A1(1); A2(2)	21(4); 11(7)	22 (3); 24 (5); 12 (6); 14 (8)
[mm]	0,4 x 1,1	0,2 x 1,1	0,4 x 1,1
Drilling hole: • for relays Ø 1,3 + 0,1 mm • for sockets Ø 1,5 + 0,1 mm			

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

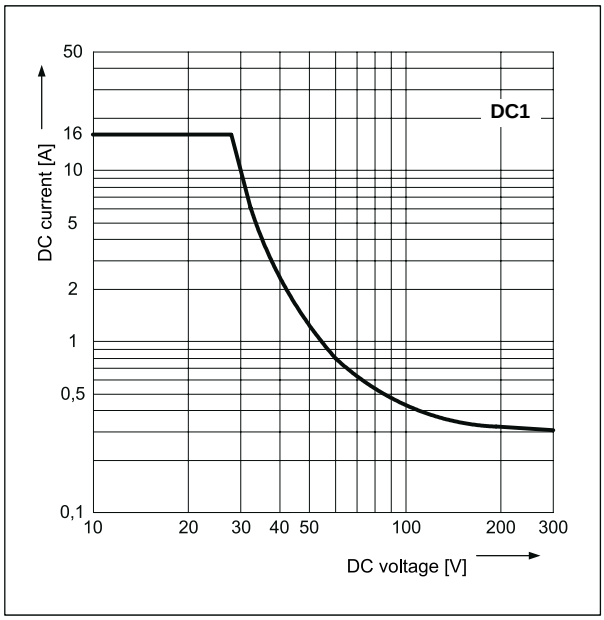
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



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.

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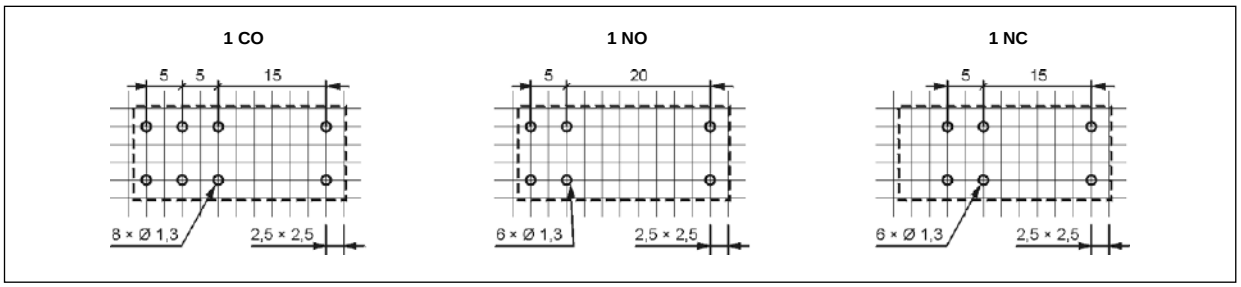
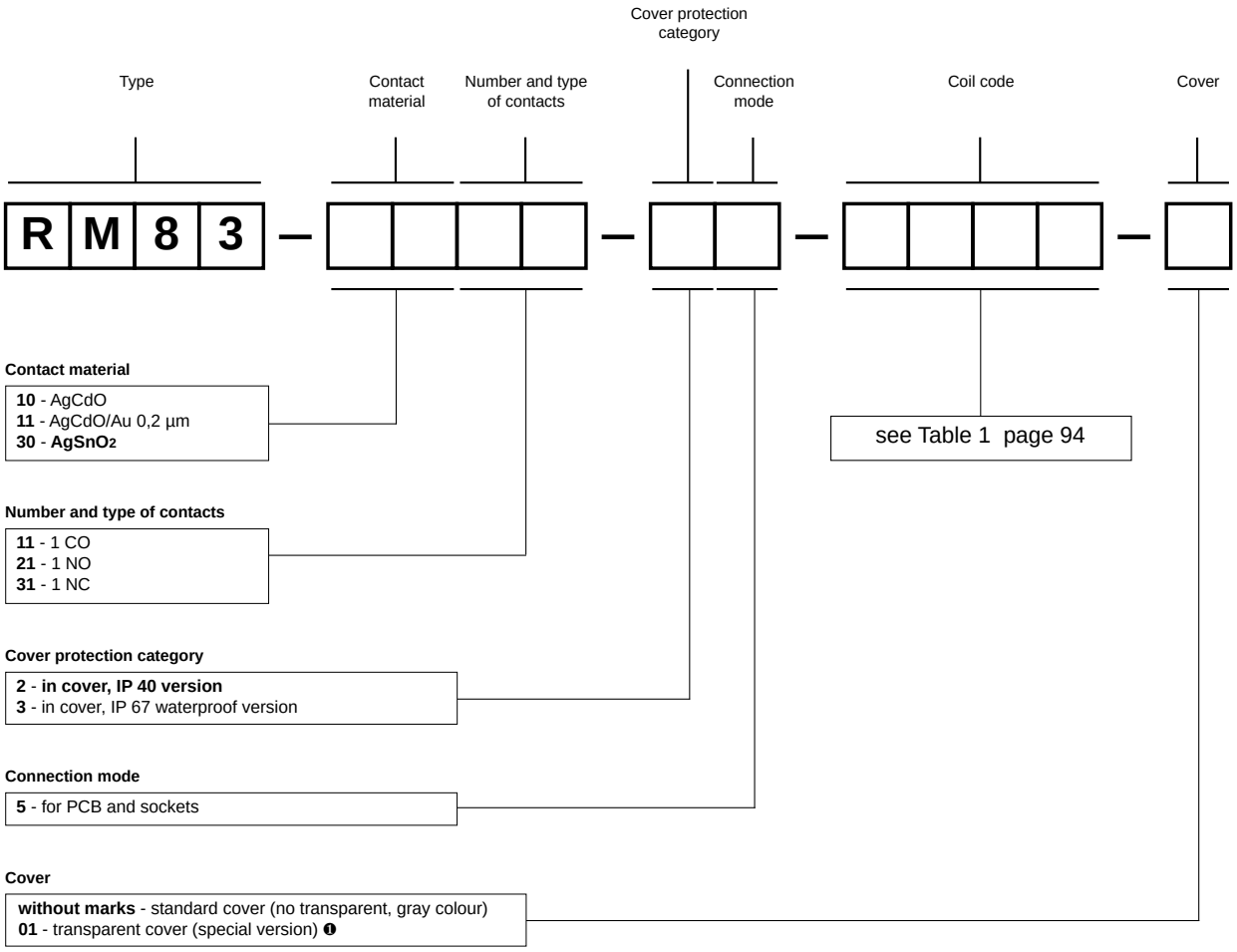
Pinout (solder side view)



Ordering codes



Examples of ordering code:

RM83-3011-25-1024 relay **RM83**, for PCB and sockets, one changeover contact, contact material $AgSnO_2$, 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 $AgSnO_2$, 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 $AgSnO_2$, coil voltage 12 V DC, in transparent cover (special version) IP 67

RM92

RM92-...-01 ❶

- 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	8 A / 250 V AC
	DC1	8 A / 24 V DC
Min. switching current		5 mA AgCu/Au 0,2 µm, 5 mA AgCdO, 2 mA AgCdO/Au 3 µm
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,5 W AgCu/Au 0,2 µm, 0,5 W AgCdO, 0,05 W AgCdO/Au 3 µm
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	DC	6 ... 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	-40...+85 °C
	• operating	-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".

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Coil data - DC voltage version, standard — Table 1

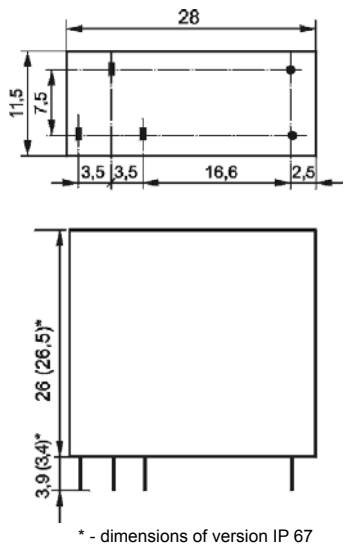
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1006	6	58	± 10%	4,0	9,4
1012	12	170	± 10%	7,4	16,2
1024	**24**	**740**	**± 10%**	**15,4**	**33,6**
1036	36	1 600	± 10%	23,5	50,0
1048	48	3 200	± 10%	31,0	70,0
1060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

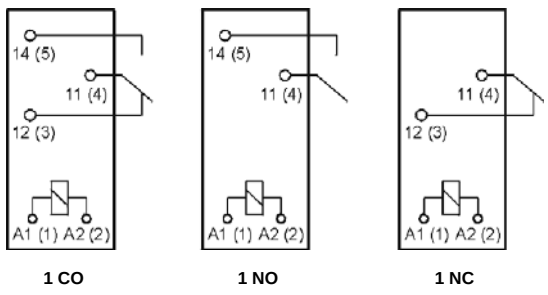
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S005	5	47	± 10%	3,2	8,5
S006	6	80	± 10%	4,2	11,0
S012	12	330	± 10%	8,3	22,5
S024	24	1 200	± 10%	16,8	43,0
S036	36	2 700	± 10%	25,0	64,0
S048	48	4 700	± 10%	32,8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

Dimensions



* - dimensions of version IP 67

Connection diagrams (pin side view)

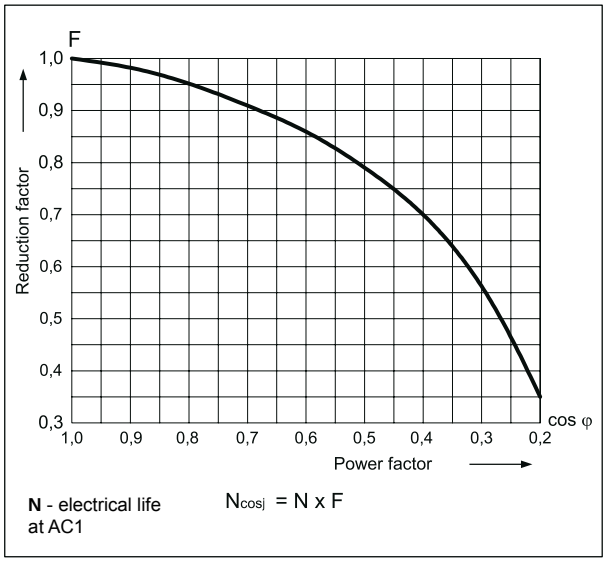


Terminal (pin)	A1(1); A2(2)	11(4)	12(3); 14(5)
[mm]	Ø 0,6	0,2 x 1	0,4 x 1
Drilling hole: • for relays Ø 1,3 + 0,1 mm • for sockets Ø 1,5 + 0,1 mm			

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.

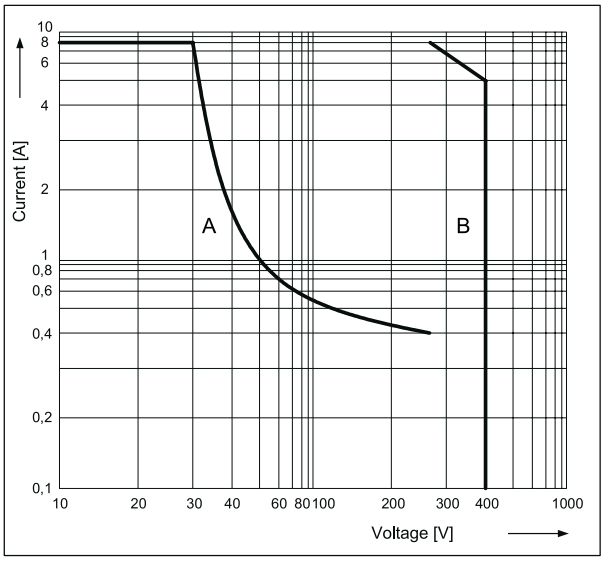
Electrical life reduction factor at AC inductive load Fig. 1



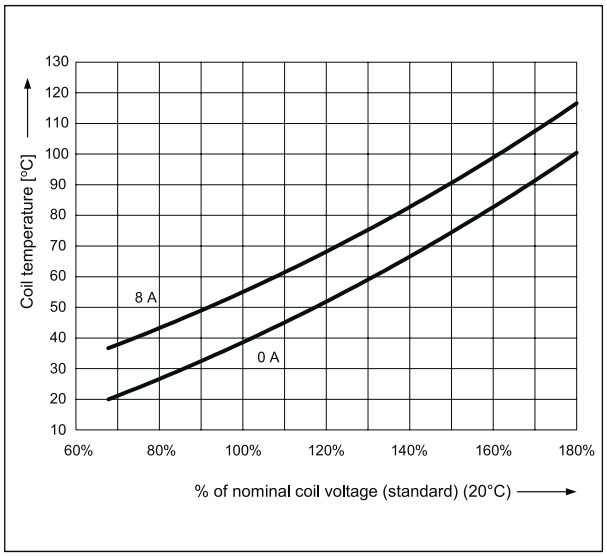
N - electrical life at AC1

$N_{cosj} = N \times F$

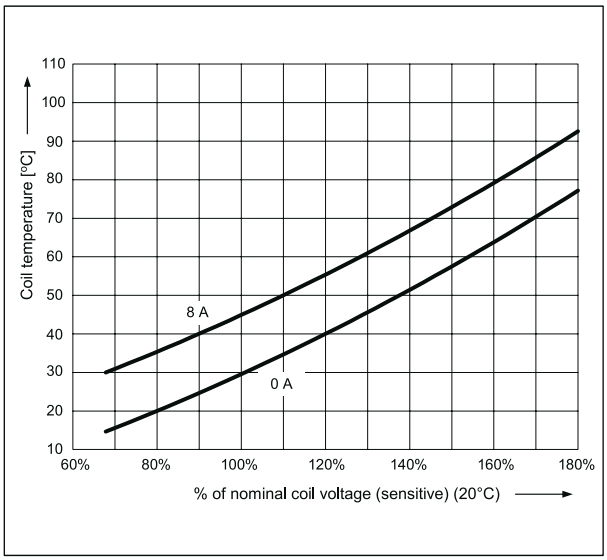
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1 Fig. 2



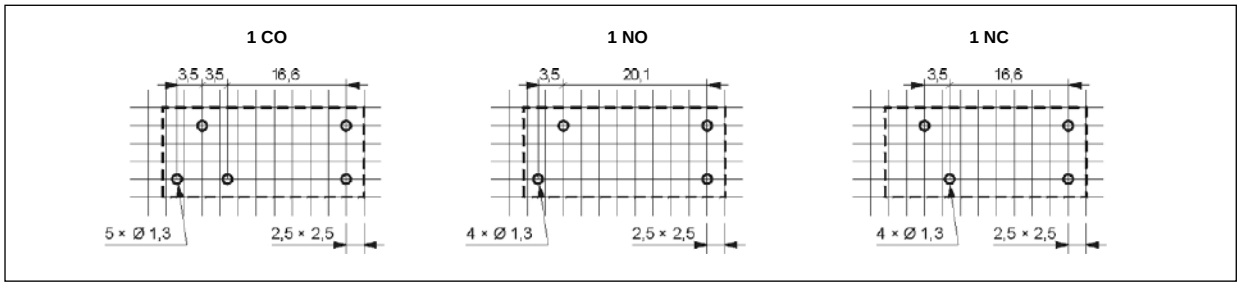
Coil temperature rise - standard version Fig. 3



Coil temperature rise - sensitive version Fig. 4



Pinout (solder side view)



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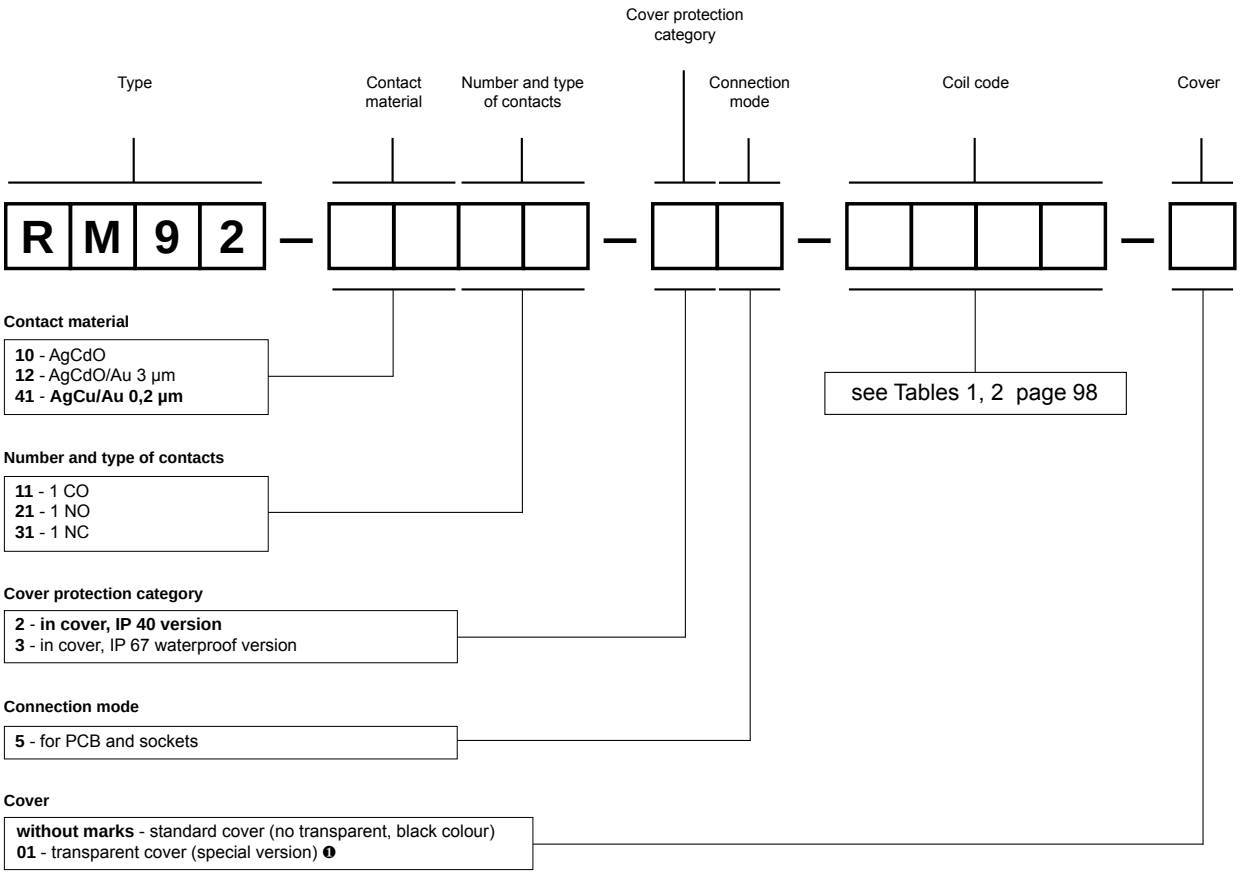
Ordering codes



Examples of ordering codes:

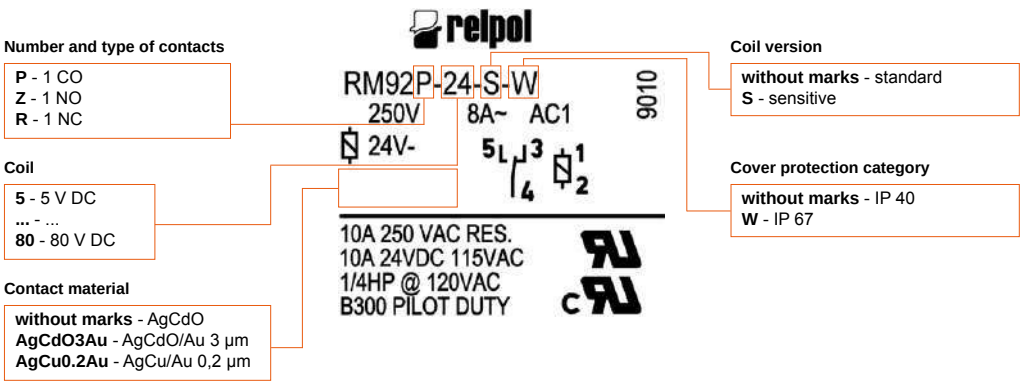
RM92-4111-25-1024 relay **RM92**, for PCB and sockets, one changeover contact, contact material AgCu/Au 0,2 µm, coil voltage 24 V DC, in standard cover (no transparent, black colour) IP 40

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

RM94-...-01 ❶

- 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	8 A / 250 V AC
	DC1	8 A / 24 V DC
Min. switching current		5 mA AgCu/Au 0,2 µm, 5 mA AgCdO, 2 mA AgCdO/Au 3 µm
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,5 W AgCu/Au 0,2 µm, 0,5 W AgCdO, 0,05 W AgCdO/Au 3 µm
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	DC	6 ... 110 V standard version 5 ... 110 V sensitive version
Must release voltage		DC: ≥ 0,1 U_n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	DC	0,8 W standard version
		0,5 W sensitive version

Insulation according to PN-EN 60664-1

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

General data

Operating / release time (typical values)		7 ms / 2 ms
Electrical life (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	-40...+85 °C
	• operating	-40...+70 °C
Cover protection category		**IP 40** or IP 67 PN-EN 60529
Shock resistance		20 g
Vibration resistance	(2 NO/2 NC)	10 g / 5 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

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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	± 10%	3,9	8,5
1012	**12**	**170**	**± 10%**	**7,9**	**16,2**
1024	**24**	**740**	**± 10%**	**16,8**	**33,6**
1036	36	1 350	± 10%	22,0	45,5
1048	48	3 200	± 10%	34,0	70,0
1060	60	5 000	± 10%	42,0	87,0
1096	96	10 000	± 10%	61,0	125,0
1110	110	13 000	± 10%	77,0	140,0

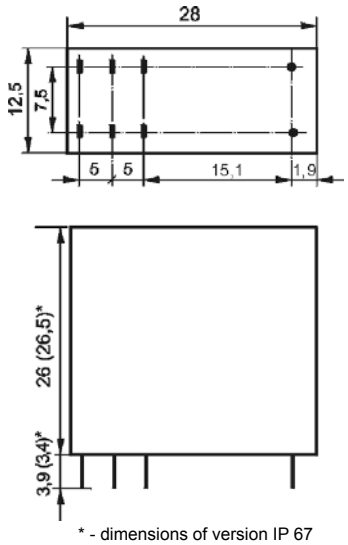
The data in bold type pertain to the standard versions of the relays.

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	± 10%	3,5	8,5
S006	6	70	± 10%	4,4	10,3
S012	**12**	**270**	**± 10%**	**8,8**	**20,3**
S024	**24**	**1 100**	**± 10%**	**17,5**	**41,0**
S036	36	2 000	± 10%	24,0	55,0
S048	48	4 400	± 10%	35,0	82,0
S060	60	6 500	± 10%	44,0	100,0
S110	110	20 000	± 10%	88,0	188,0

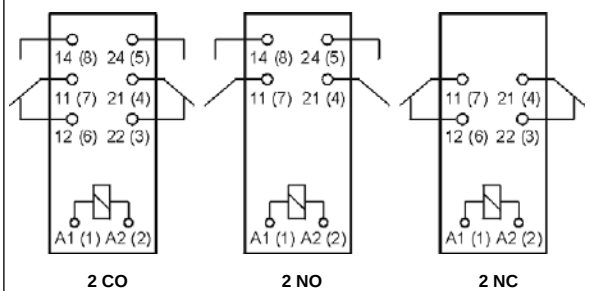
The data in bold type pertain to the standard versions of the relays.

Dimensions



* - dimensions of version IP 67

Connection diagrams (pin side view)

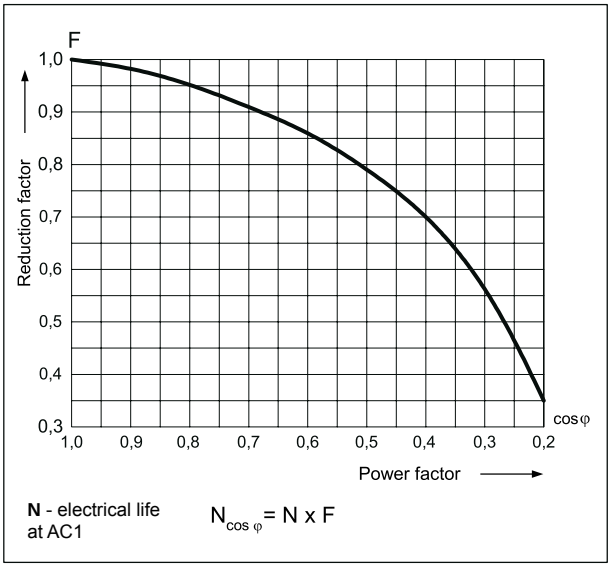


Terminal (pin)	A1(1); A2(2)	21(4); 11(7)	22(3); 24(5); 12(6); 14(8)
[mm]	Ø 0,6	0,2 x 1	0,35 x 1
Drilling hole: • for relays • for sockets	 Ø 1,3 + 0,1 mm Ø 1,5 + 0,1 mm		

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.

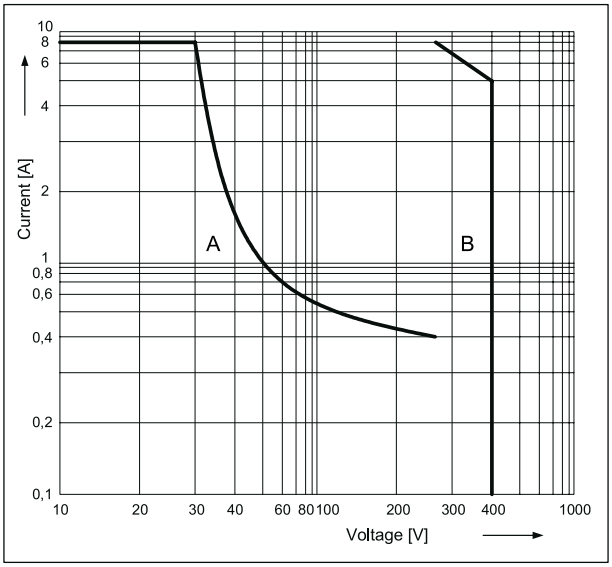
Electrical life reduction factor at AC inductive load Fig. 1



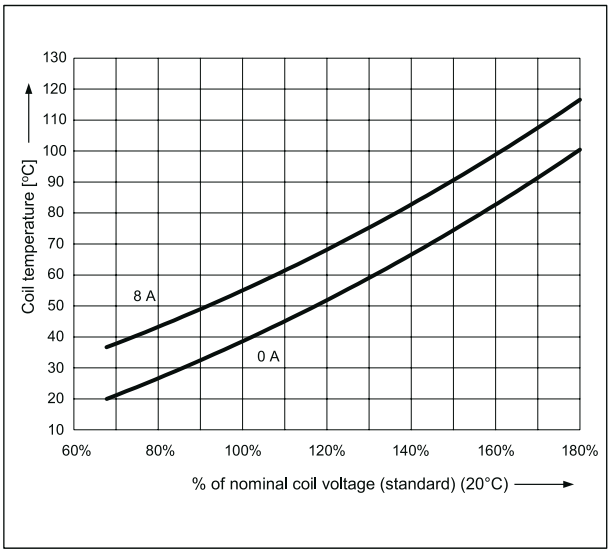
N - electrical life at AC1

$N_{\cos\varphi} = N \times F$

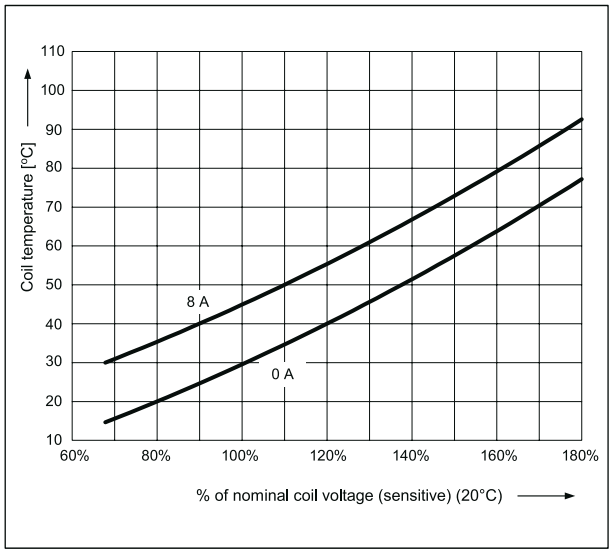
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1 Fig. 2



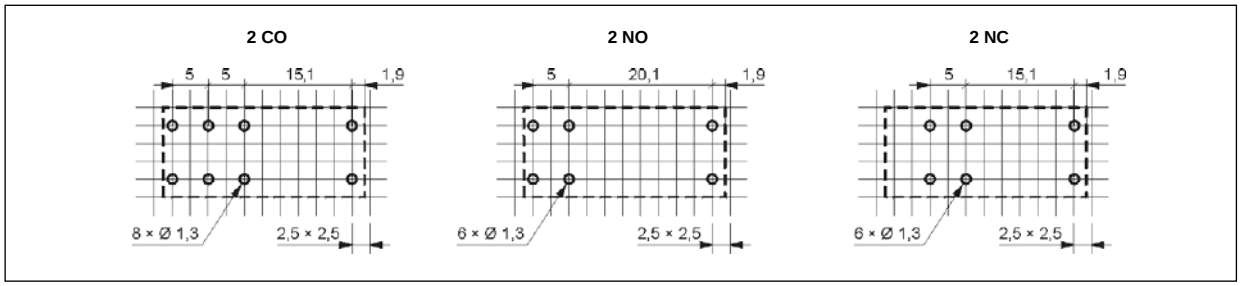
Coil temperature rise - standard version Fig. 3



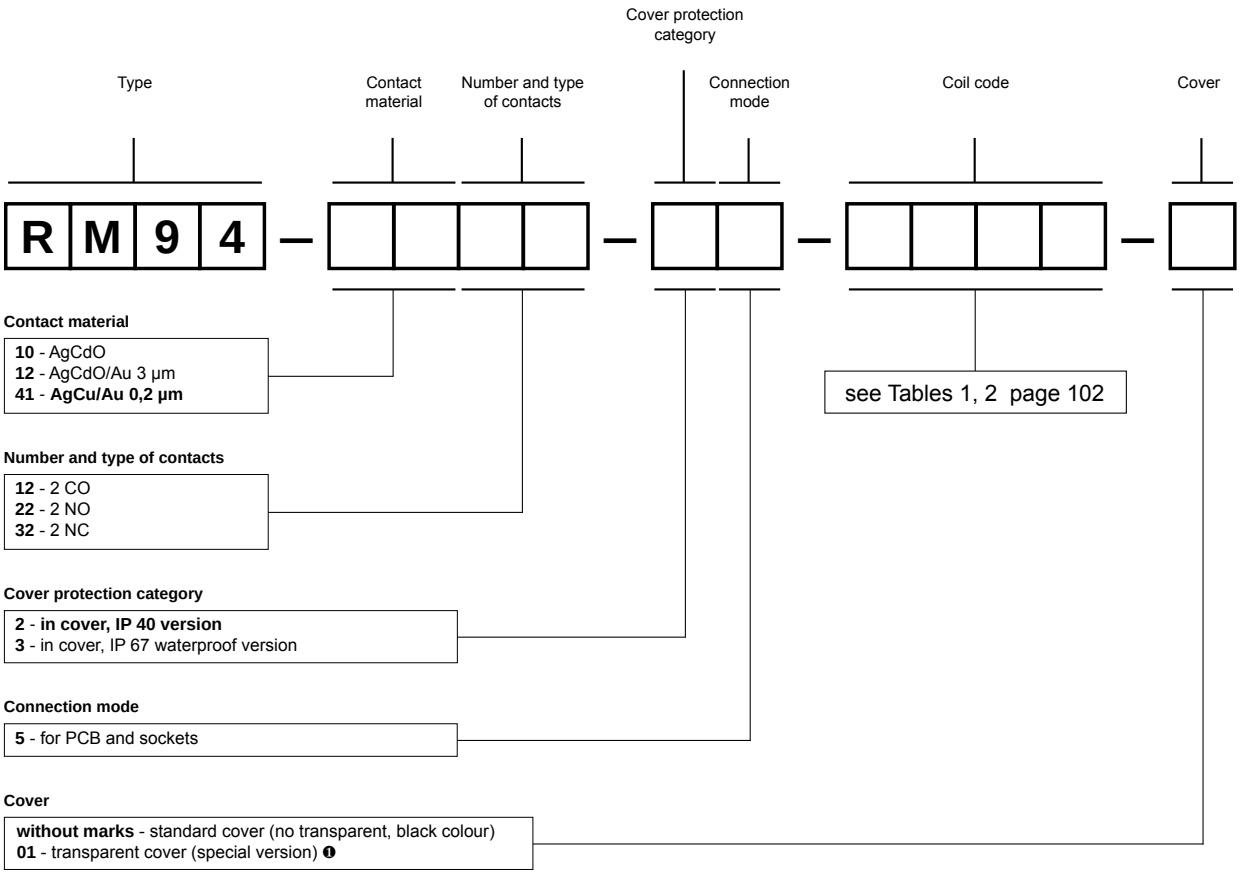
Coil temperature rise - sensitive version Fig. 4



Pinout (solder side view)



Ordering codes



Examples of ordering codes:

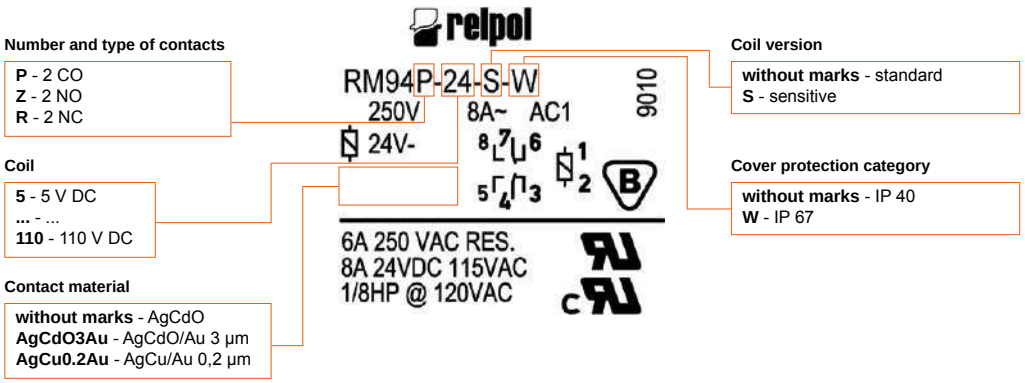
RM94-4112-25-1024 relay **RM94**, for PCB and sockets, two changeover contacts, contact material AgCu/Au 0,2 µm, coil voltage 24 V DC, in standard cover (no transparent, black colour) IP 40

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		**$AgSnO_2$**
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	-40...+100 °C
	• operating	-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.

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Coil data - DC voltage version

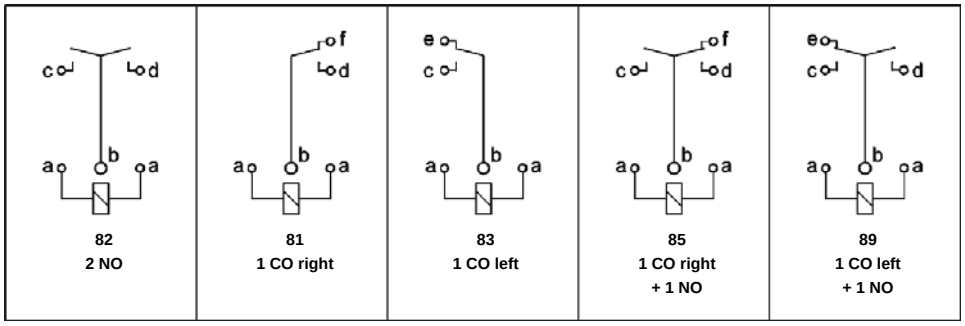
Table 1

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	± 10%	4,0	6,6
1006	6	24	± 10%	4,8	8,0
1009	9	55	± 10%	7,2	12,0
1012	**12**	**100**	**± 10%**	**9,6**	**16,0**
1015	15	152	± 10%	12,0	20,0
1018	18	230	± 10%	14,4	23,9
1024	24	390	± 10%	19,2	31,9
1048	48	1 590	± 10%	38,4	63,8

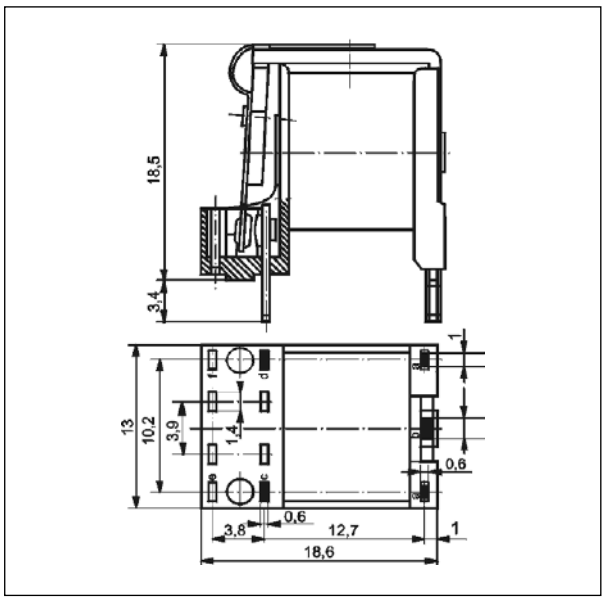
The data in bold type pertain to the standard versions of the relays.

Connection diagrams (pin side view)

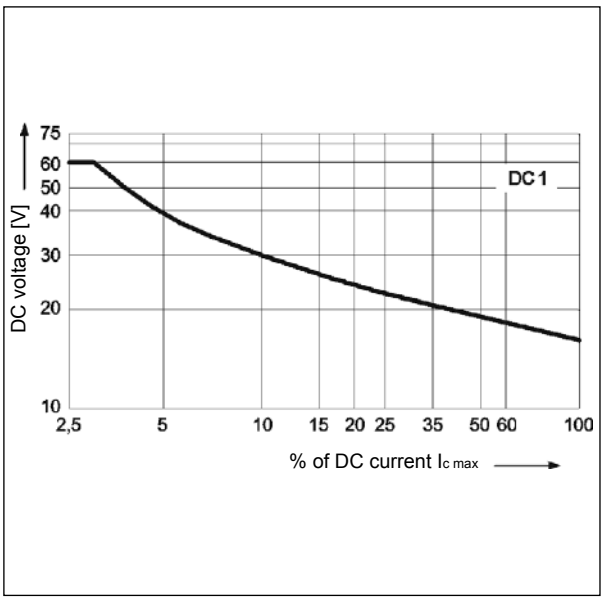
Relay terminals:
c, d, e, f - 0,6 x 1,4 mm **a** - 0,6 x 1,0 mm **b** - 1,0 x 1,5 mm



Dimensions



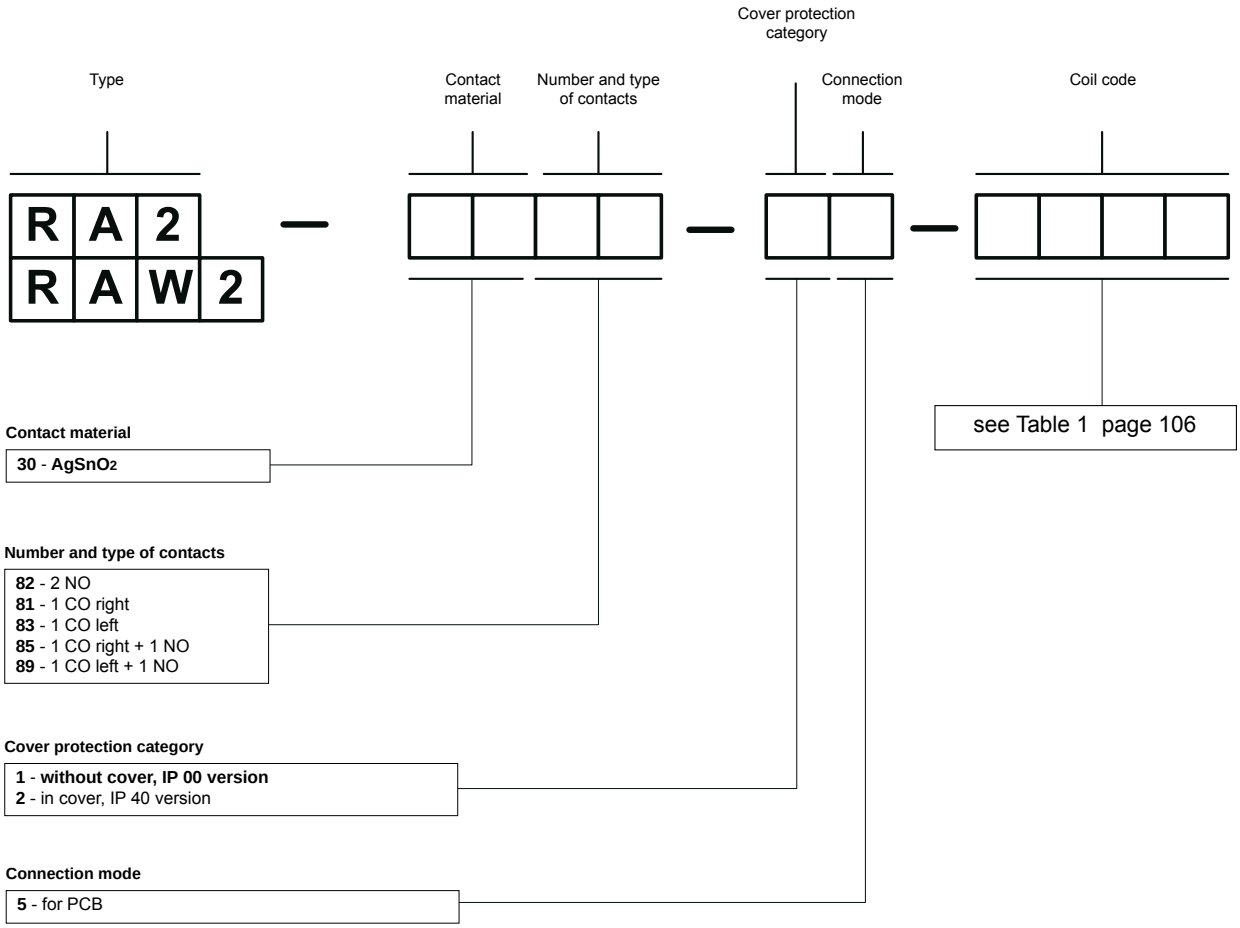
Max. DC resistive load breaking capacity Fig. 1



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 $AgSnO_2$, 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 $AgSnO_2$, coil voltage 24 V DC, in cover IP 40

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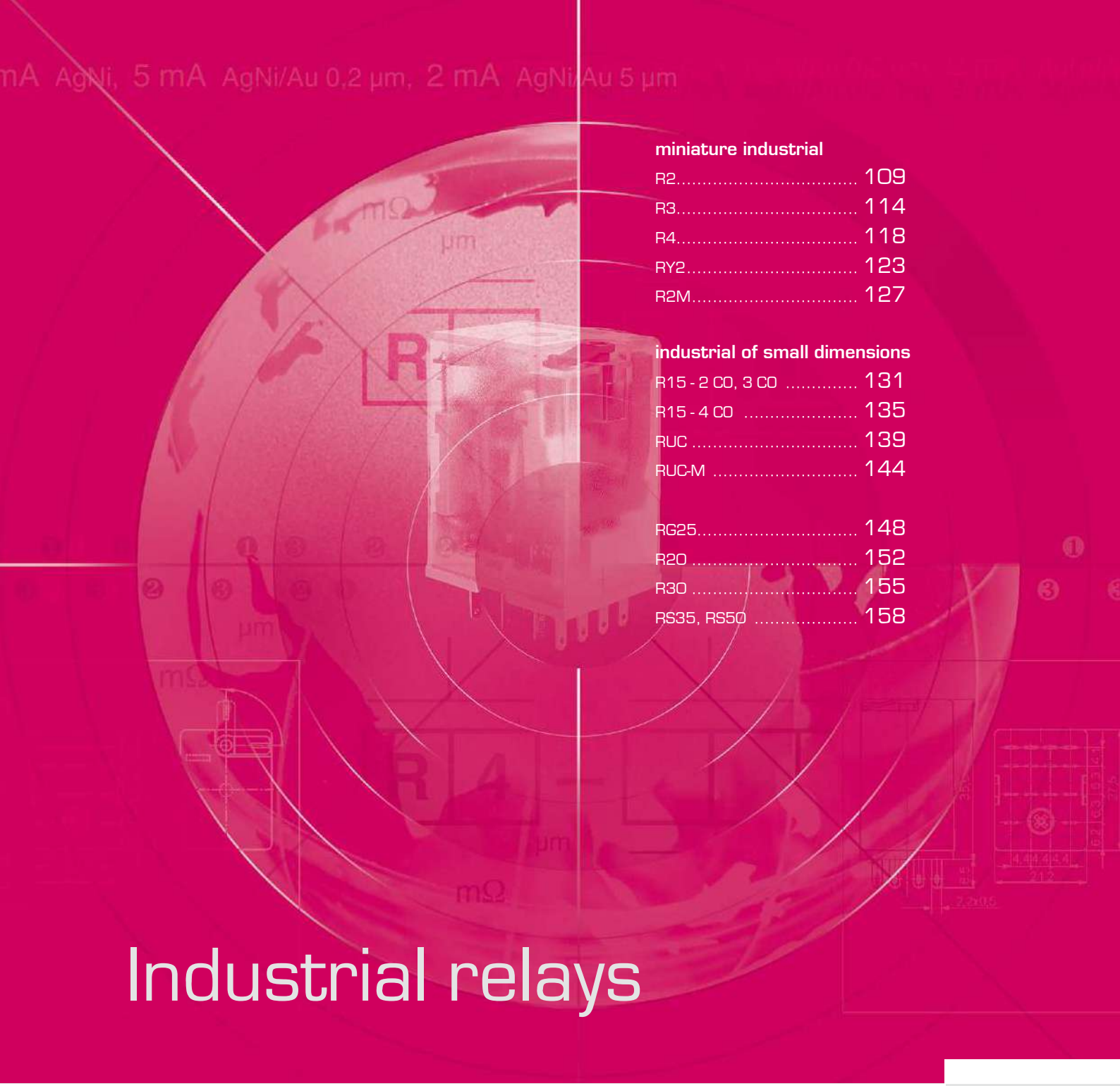


Industrial relays

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.

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	12 A / 250 V AC ❶ 10 A / 250 V AC ❷
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	370 W (single-phase motor)
	DC1	12 A / 24 V DC (see Fig. 3) ❶ 10 A / 24 V DC ❷
	DC13	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	6 ... 240 V
	DC	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	1,6 VA
	DC	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)		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	-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	(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	± 10%	4,0	5,5
1006	6	40	± 10%	4,8	6,6
1012	12	160	± 10%	9,6	13,2
1024	**24**	**640**	**± 10%**	**19,2**	**26,4**
1048	48	2 600	± 10%	38,4	52,8
1060	60	4 000	± 10%	48,0	66,0
1080	80	7 100	± 10%	64,0	88,0
1110	110	13 600	± 10%	88,0	121,0
1125	125	16 000	± 10%	100,0	137,5
1220	**220**	**54 000**	**± 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

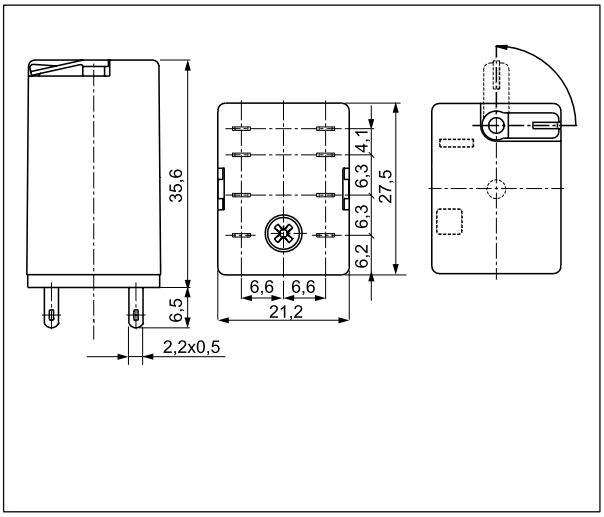
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	9,8	± 10%	4,8	6,6
5012	12	39,5	± 10%	9,6	13,2
5024	**24**	**158**	**± 10%**	**19,2**	**26,4**
5042	42	470	± 10%	33,6	46,2
5048	48	640	± 10%	38,4	52,8
5060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

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

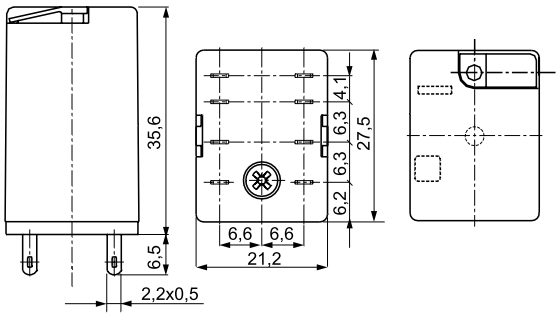
EUROPRODUCT 2002
for electromagnetic relays
R2...WT, **R3...WT**, **R4...WT**
with sockets **GZT2**, **GZT3**, **GZT4**

ELECTROPRODUCT 2003
for electromagnetic relays
R2, **R3**, **R4**

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

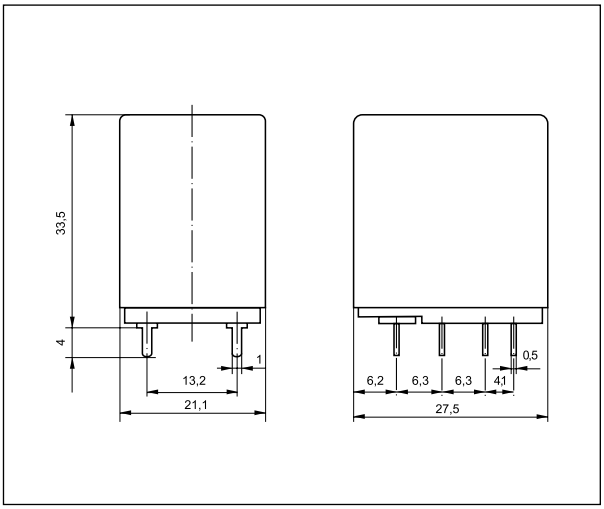


Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)

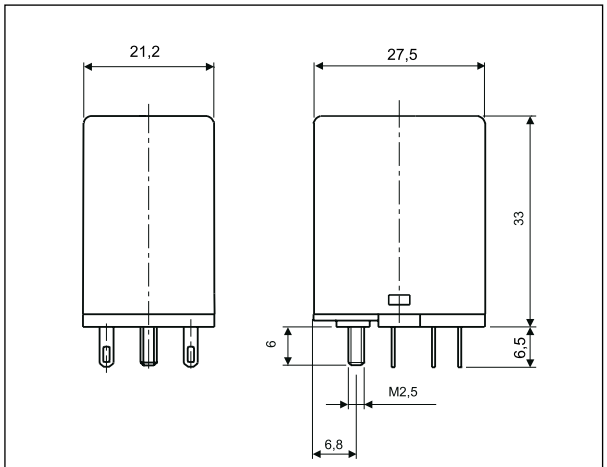


Test buttons R4P-0001 and **plugs R4W-0003** need to ordered saparately. They substitute buttons type T. To exchange by Customer themselves. Information on test buttons (no latching) and plugs - page 265.

Dimensions - PCB version (without WT)



Dimensions - version with threaded bolt



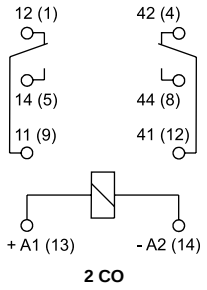
Mounting

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 ordered saparately** • for PCB (without WT) • with threaded bolt.

GZMB2

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

Connection diagram (pin side view)

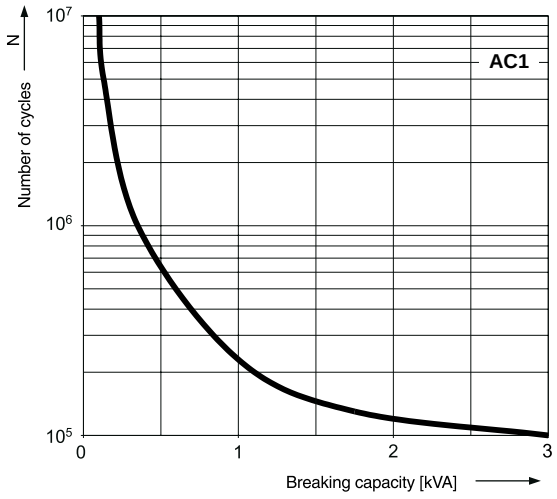


2 CO

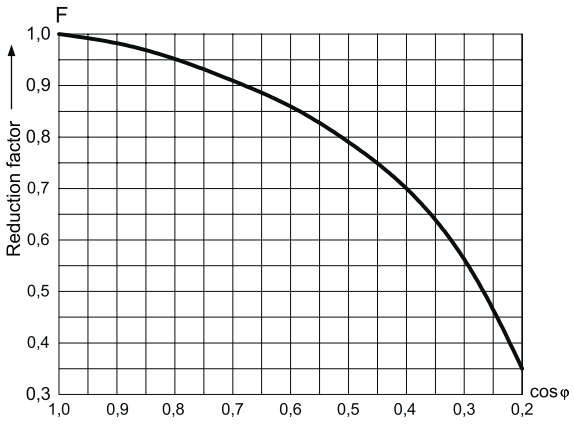
Note: the indicated polarity of the supply refers to the relays with extra equipment **D** - surge suppression element (diode) - for DC coils only.

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



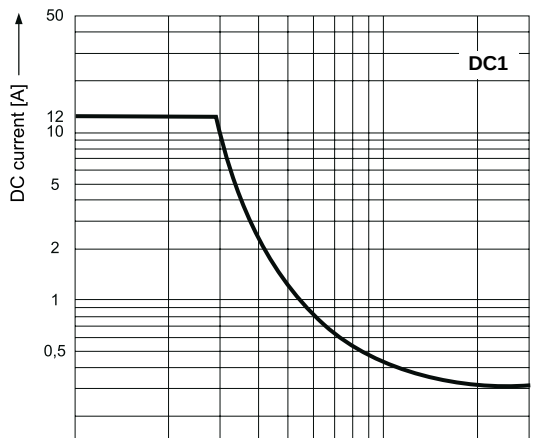
Electrical life reduction factor at AC inductive load — Fig. 2



$N_{\cos\varphi} = N \times F$

N - electrical life at AC1

Max. DC resistive load breaking capacity — Fig. 3



Mounting

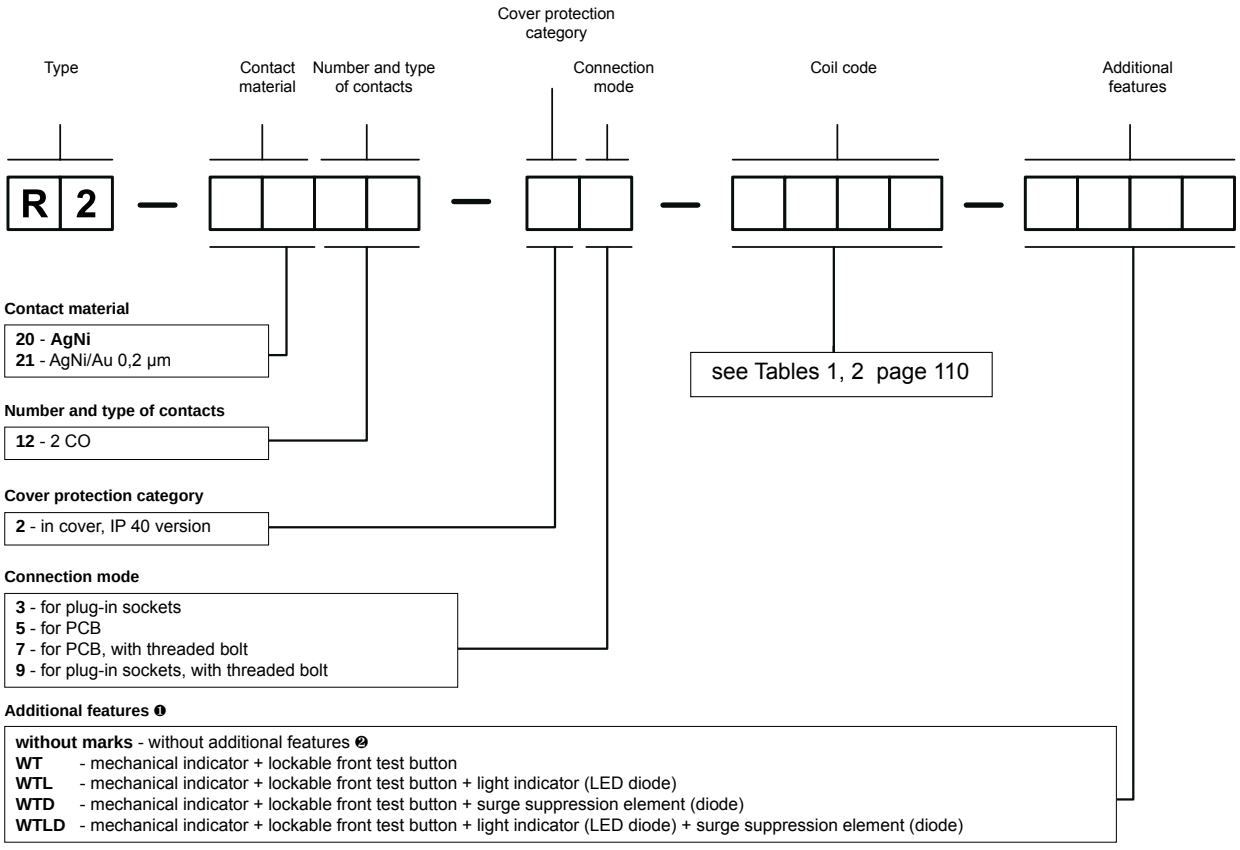
Relays **R2** are designed for: • screw terminals plug-in sockets **GZT2** ❶ and **GZM2** ❶ with clip **GZT4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • spring terminals plug-in sockets **GZMB2** ❷ with clip **GZMB4-0040** or **G4 1052**, 35 mm 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.

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

relpol S.A.
Export Sales Department phone +48 68 47 90 832, 951 • e-mail: export@relpol.com.pl www.relpol.com.pl

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	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	6 ... 240 V
	DC	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	1,6 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)		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	-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	(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	± 10%	4,0	5,5
1006	6	40	± 10%	4,8	6,6
1012	12	160	± 10%	9,6	13,2
1024	**24**	**640**	**± 10%**	**19,2**	**26,4**
1048	48	2 600	± 10%	38,4	52,8
1060	60	4 000	± 10%	48,0	66,0
1080	80	7 100	± 10%	64,0	88,0
1110	110	13 600	± 10%	88,0	121,0
1125	125	16 000	± 10%	100,0	137,5
1220	**220**	**54 000**	**± 10%**	**176,0**	**242,0**

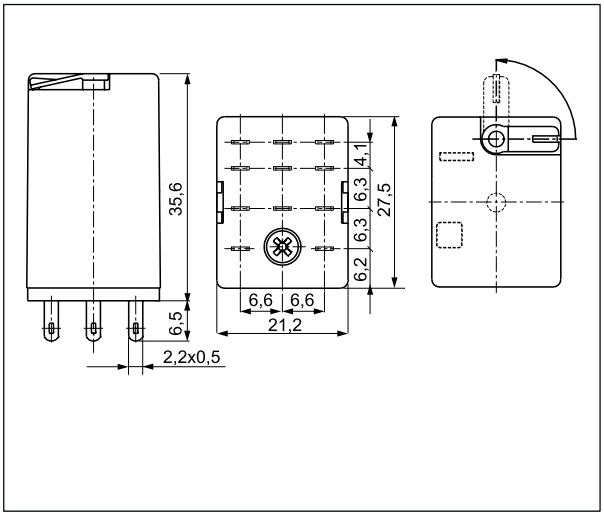
The data in bold type pertain to the standard versions of the relays.

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

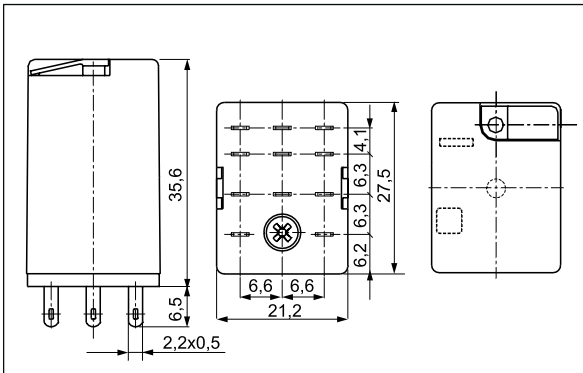
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	9,8	± 10%	4,8	6,6
5012	12	39,5	± 10%	9,6	13,2
5024	**24**	**158**	**± 10%**	**19,2**	**26,4**
5042	42	470	± 10%	33,6	46,2
5048	48	640	± 10%	38,4	52,8
5060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

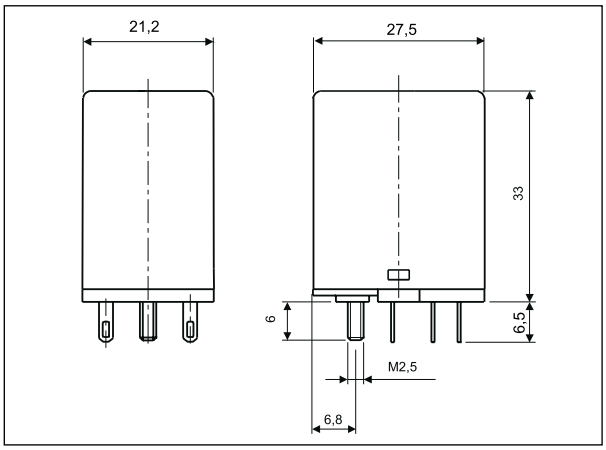


Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)

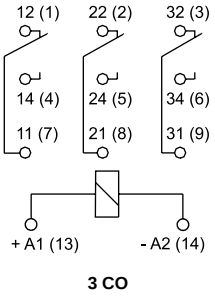


Test buttons R4P-0001 and **plugs R4W-0003** need to ordered saparately. They substitute buttons type T. To exchange by Customer themselves. Information on test buttons (no latching) and plugs - page 265.

Dimensions - version with threaded bolt



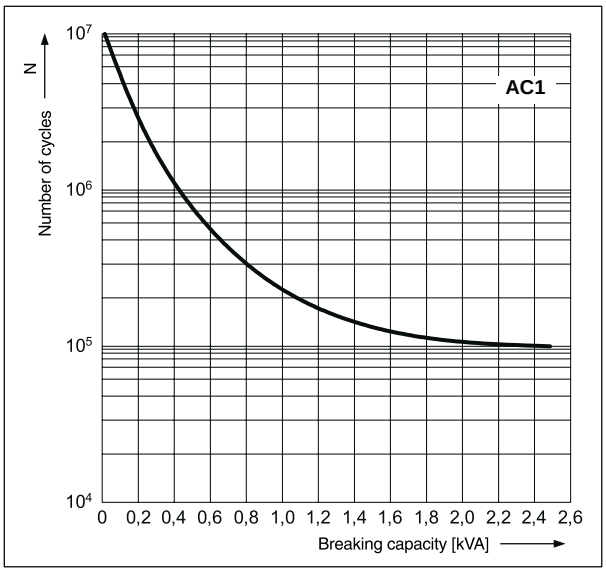
Connection diagram (pin side view)



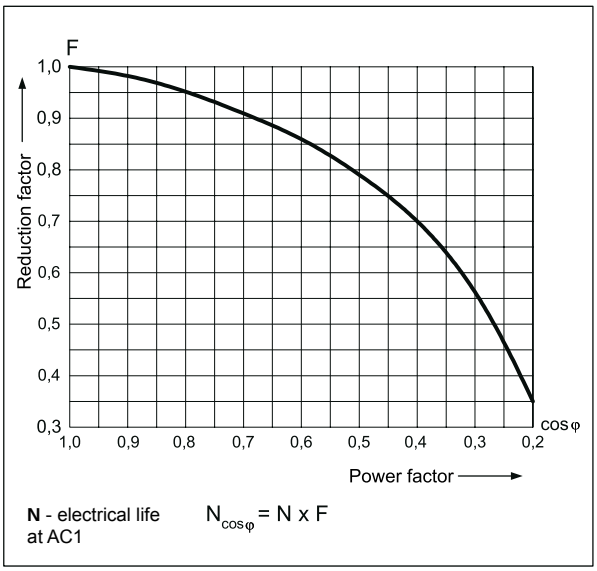
3 CO

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

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



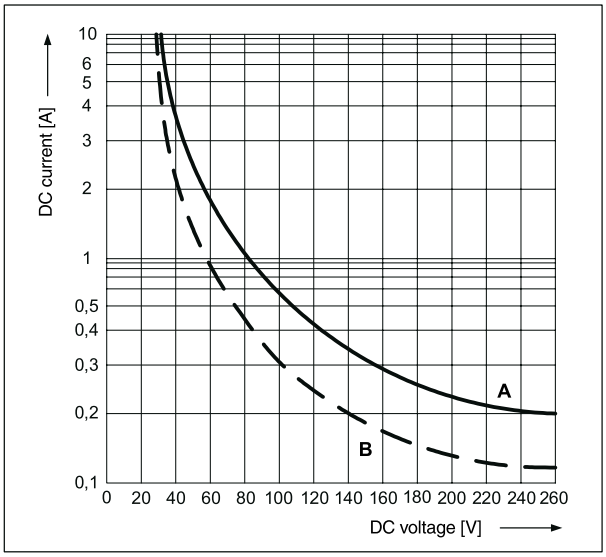
Electrical life reduction factor at AC inductive load Fig. 2



N - electrical life at AC1

$N_{cos\varphi} = N \times F$

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 saparately** • with threaded bolt.

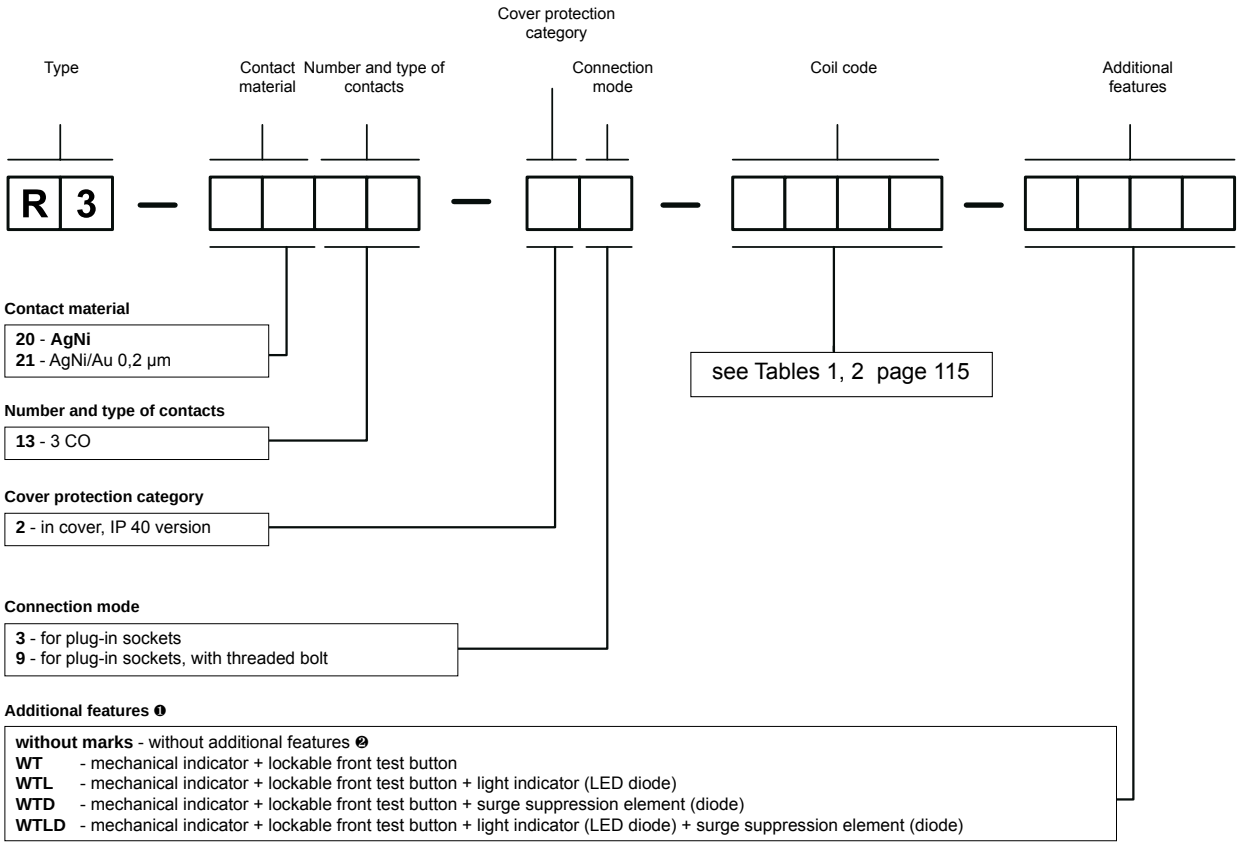
Relays **R3** are designed for: • screw terminals plug-in sockets **GZT3** ❶ and **GZM3** ❶ with clip **GZT4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. Signalling / protecting modules **type M...** are available with sockets.

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



❶ **WT** - standard features of relays for plug-in sockets. **WTD, WTLD** - only for DC coils
❷ Refer relays with threaded bolt

Test buttons (no latching) and plugs need to ordered saparately. 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

relpol S.A.
Export Sales Department phone +48 68 47 90 832, 951 • e-mail: export@relpol.com.pl www.relpol.com.pl

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	6 A / 250 V AC
	AC15	1,5 A / 120 V 0,75 A / 240 V (C300)
	AC3	125 W (single-phase motor)
	DC1	6 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		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	6 ... 240 V
	DC	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	1,6 VA
	DC	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	-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	(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	± 10%	4,0	5,5
1006	6	40	± 10%	4,8	6,6
1012	**12**	**160**	**± 10%**	**9,6**	**13,2**
1024	**24**	**640**	**± 10%**	**19,2**	**26,4**
1048	48	2 600	± 10%	38,4	52,8
1060	60	4 000	± 10%	48,0	66,0
1080	80	7 100	± 10%	64,0	88,0
1110	110	13 600	± 10%	88,0	121,0
1125	125	16 000	± 10%	100,0	137,5
1220	**220**	**54 000**	**± 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

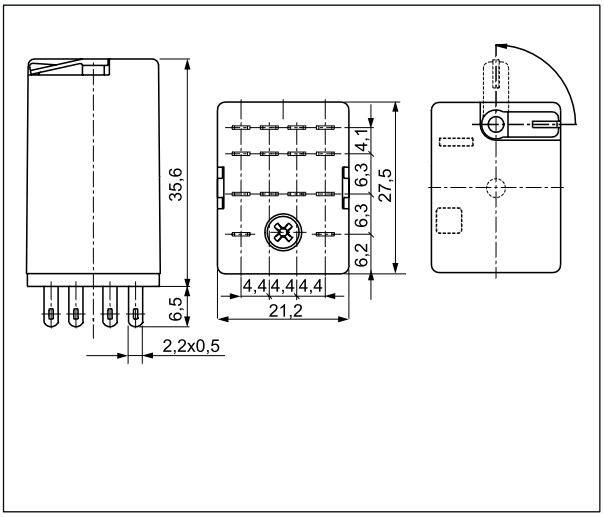
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	9,8	± 10%	4,8	6,6
5012	12	39,5	± 10%	9,6	13,2
5024	**24**	**158**	**± 10%**	**19,2**	**26,4**
5042	42	470	± 10%	33,6	46,2
5048	48	640	± 10%	38,4	52,8
5060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

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

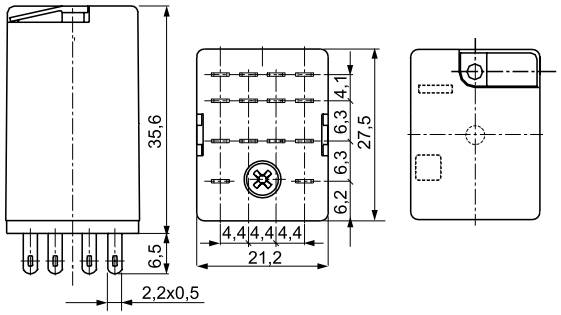
EUROPRODUCT 2002
for electromagnetic relays
R2...WT, **R3...WT**, **R4...WT**
with sockets **GZT2**, **GZT3**, **GZT4**

ELECTROPRODUCT 2003
for electromagnetic relays
R2, **R3**, **R4**

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

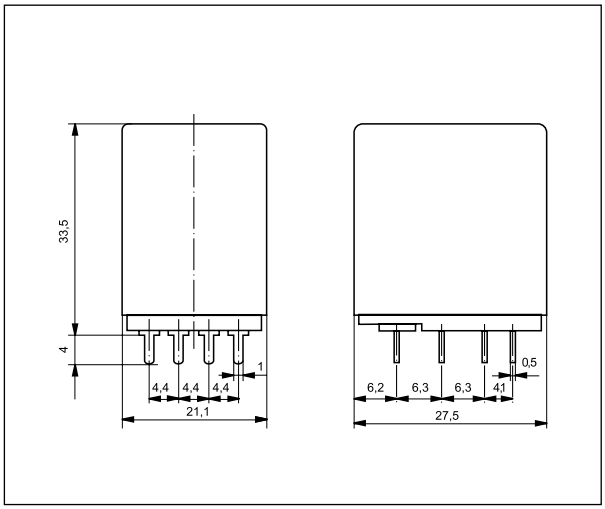


Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)

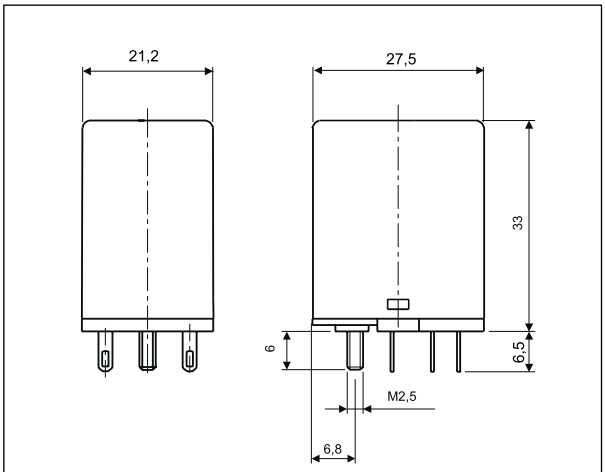


Test buttons R4P-0001 and **plugs R4W-0003** need to ordered saparately. They substitute buttons type T. To exchange by Customer themselves. Information on test buttons (no latching) and plugs - page 265.

Dimensions - PCB version (without WT)



Dimensions - version with threaded bolt



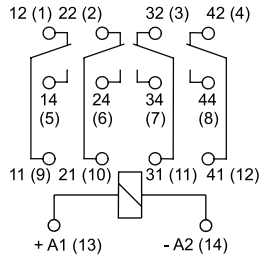
Mounting

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 ordered saparately** • for PCB (without WT) • with threaded bolt.

GZMB4

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

Connection diagram (pin side view)



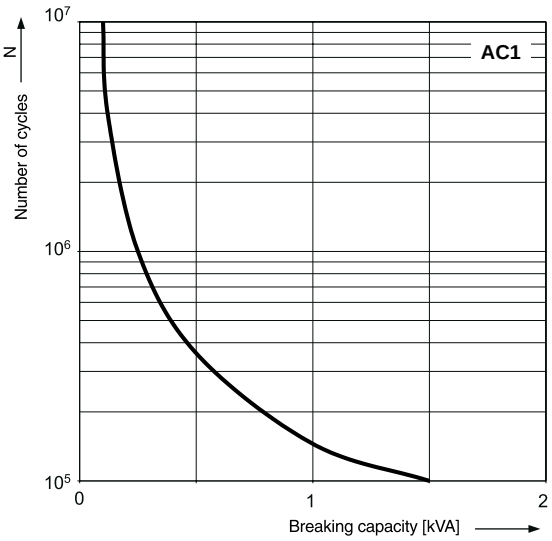
4 CO

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

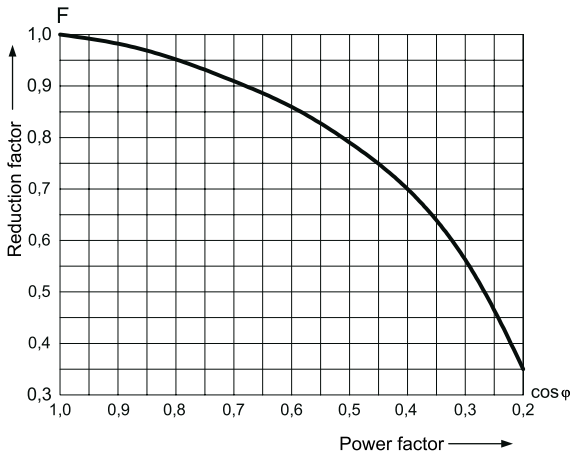
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

Fig. 1



Electrical life reduction factor at AC inductive load

Fig. 2

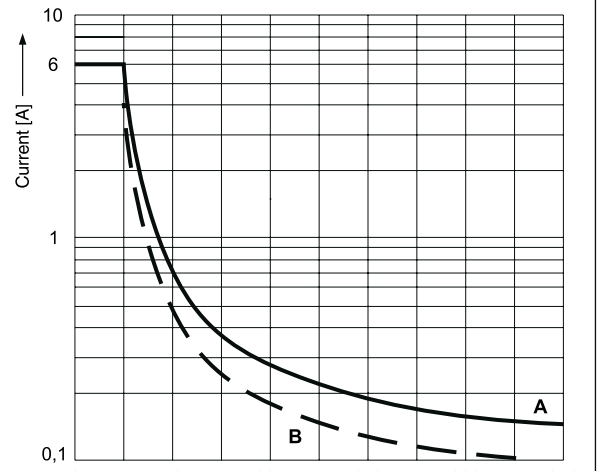


N - electrical life at AC1

$N_{\cos\varphi} = N \times F$

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

Fig. 3



Mounting

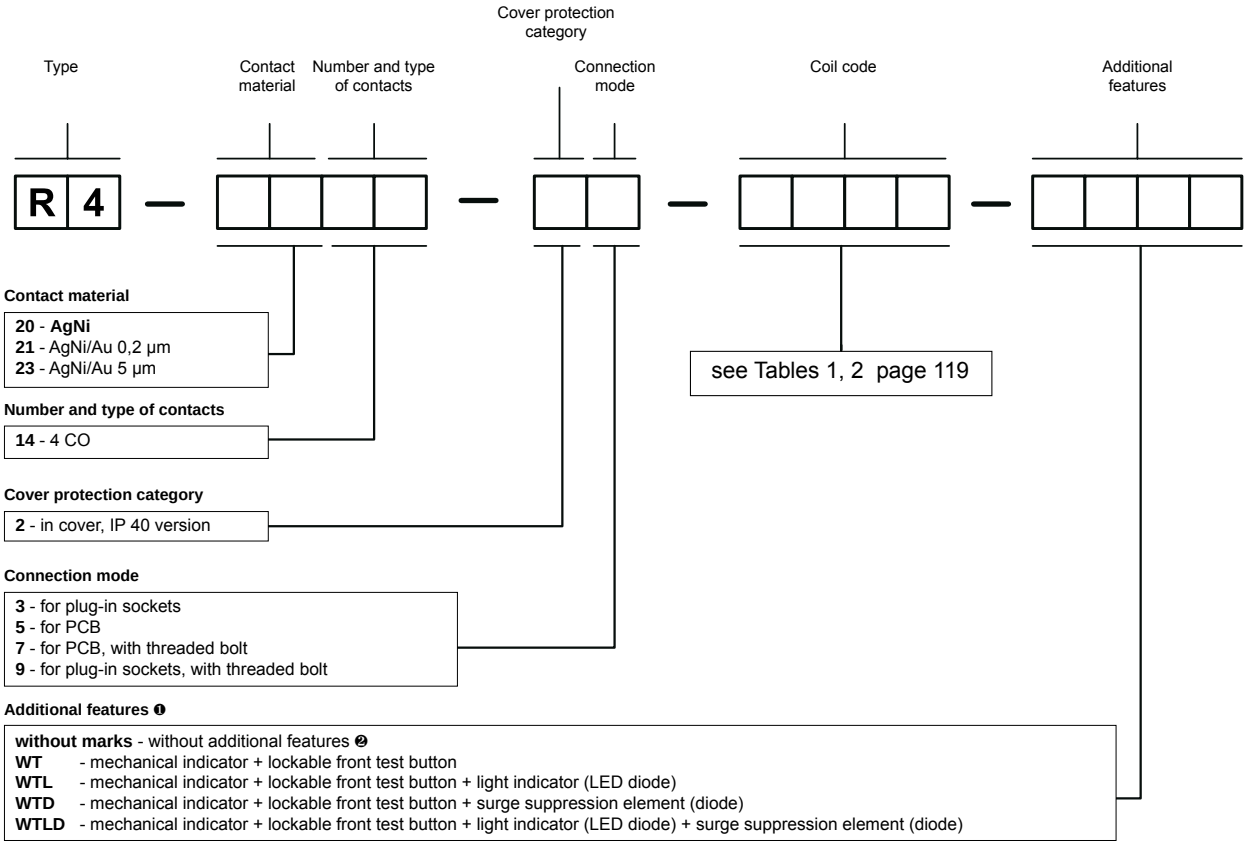
Relays **R4** are designed for: • screw terminals plug-in sockets **GZT4** ❶ and **GZM4** ❶ with clip **GZT4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • spring terminals plug-in sockets **GZMB4** ❷ with clip **GZMB4-0040** or **G4 1052**, 35 mm 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..

❶ Plug-in sockets **GZT4**, **GZM4** may be linked with interconnection strip type **ZGGZ4** (see page 263).
❷ 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, WTLD** - only for DC coils
❷ Refer relays for PCB and with threaded bolt

Test buttons (no latching) and plugs need to ordered saparately. 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:

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	12 A / 250 V AC
	DC1	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	6 ... 240 V
	DC	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	1,6 VA
	DC	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	-40...+70 °C
	• operating	-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

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

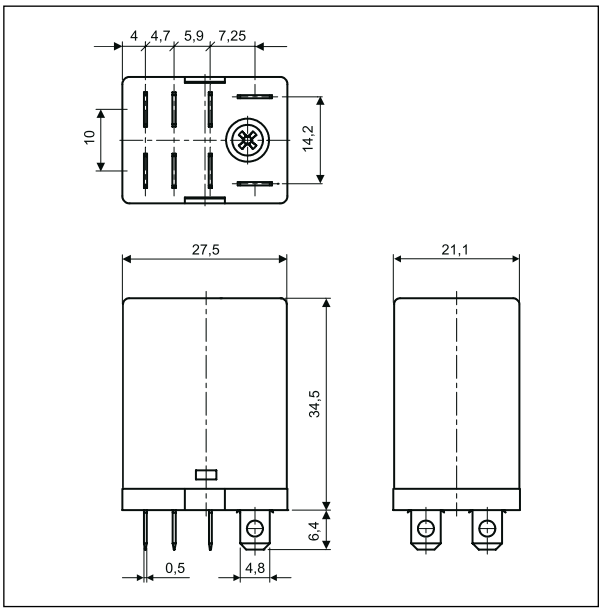
Coil data - AC 50/60 Hz voltage version Table 2

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	± 10%	4,8	6,6
5012	12	39,5	± 10%	9,6	13,2
5024	24	158	± 10%	19,2	26,4
5042	42	470	± 10%	33,6	46,2
5048	48	640	± 10%	38,4	52,8
5060	60	930	± 10%	48,0	66,0
5080	80	1 720	± 10%	64,0	88,0
5110	110	3 450	± 10%	88,0	121,0
5120	120	3 770	± 10%	96,0	132,0
5127	127	4 000	± 10%	101,6	139,7
5220	220	15 400	± 10%	176,0	242,0
5230	230	16 100	± 10%	184,0	253,0
5240	240	16 800	± 10%	192,0	264,0

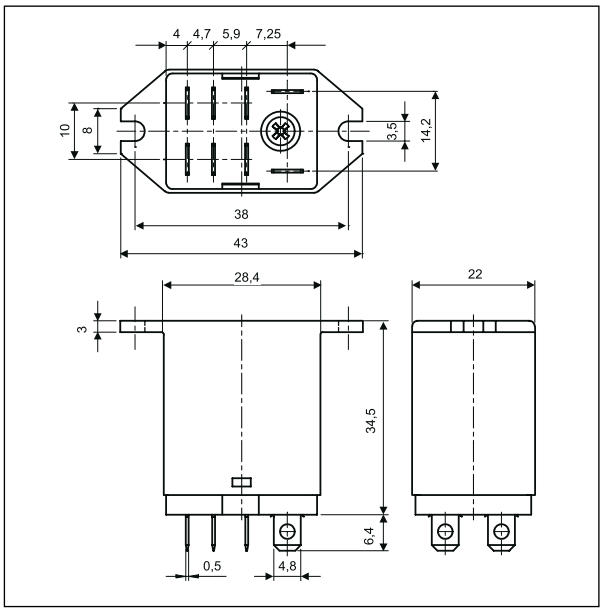
GZY2G

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

Dimensions - plug-in version (standard)

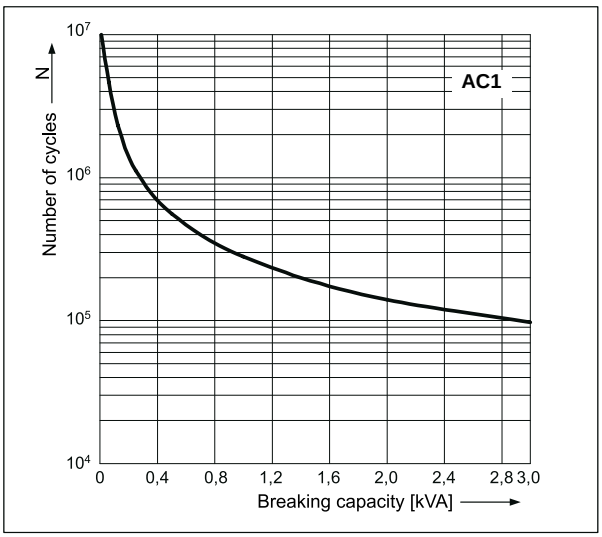


Dimensions - version with mounting flange in the upper wall of the cover



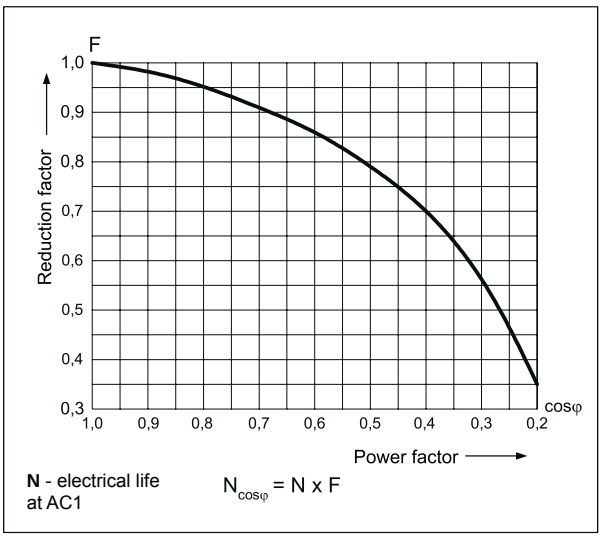
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

Fig. 1

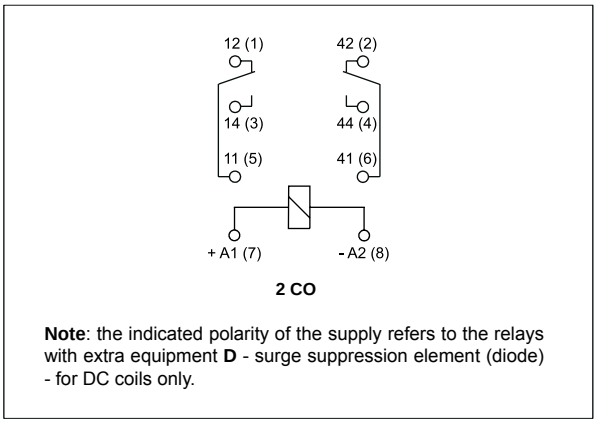


Electrical life reduction factor at AC inductive load

Fig. 2



Connection diagram (pin side view)

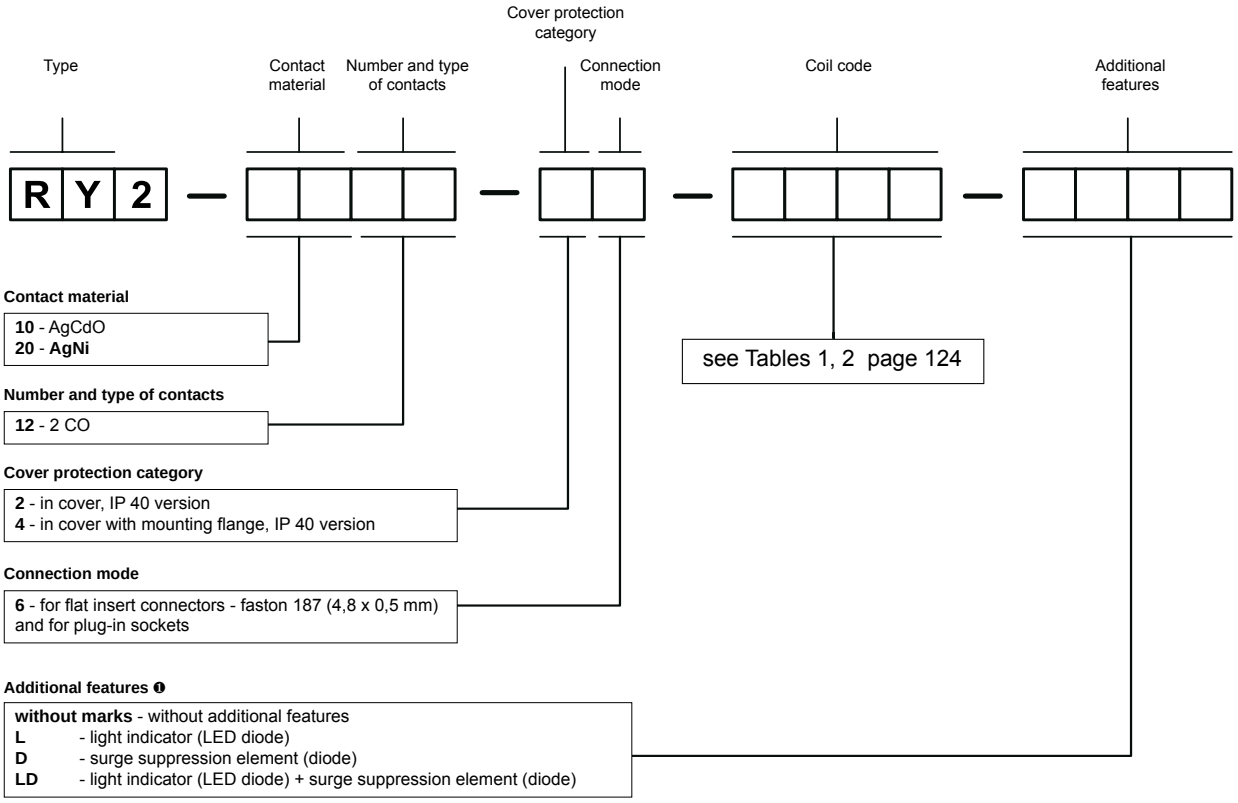


Note: the indicated polarity of the supply refers to the relays with extra equipment **D** - surge suppression element (diode) - for DC coils only.

Mounting

Relays RY2 are offered in versions: • standard, for plug-in sockets • with mounting flange in the upper wall of the cover. Relays **RY2** 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



❶ **D, LD** - only for DC coils

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 **RY2**, 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 **RY2**, 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	5 A / 250 V AC
	DC1	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	6 ... 240 V
	DC	6 ... 110 V
Must release voltage		≥ 0,05 U_n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC	1,2 VA
	DC	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	-40...+70 °C
	• operating	-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.

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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	± 10%	4,8	6,6
1012	**12**	**188**	**± 10%**	**9,6**	**13,2**
1024	**24**	**750**	**± 10%**	**19,2**	**26,4**
1048	48	2 660	± 10%	38,4	52,8
1060	60	4 000	± 10%	48,0	66,0
1080	80	7 100	± 10%	64,0	88,0
1110	110	13 480	± 10%	88,0	121,0

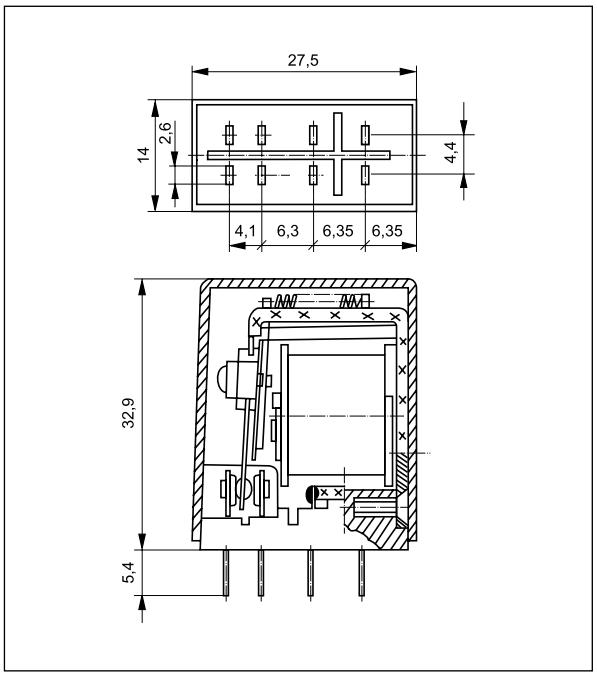
The data in bold type pertain to the standard versions of the relays.

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

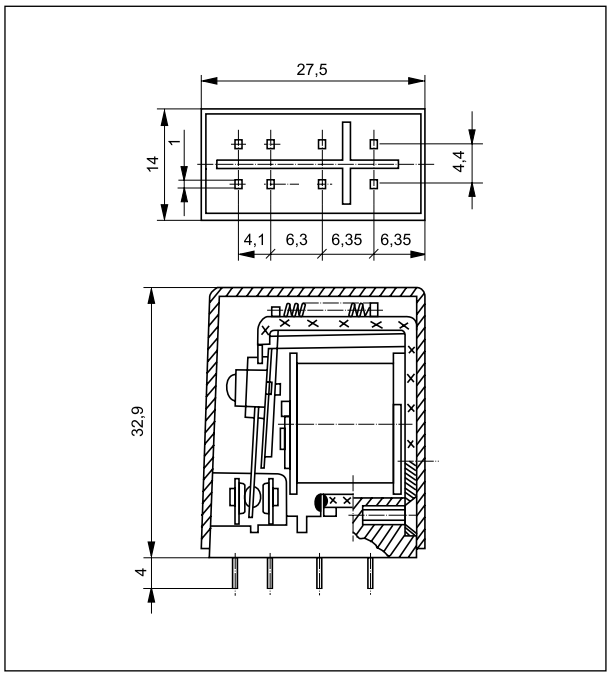
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	16	± 10%	4,8	6,6
5012	12	68	± 10%	9,6	13,2
5024	**24**	**270**	**± 10%**	**19,2**	**26,4**
5050	50	1 150	± 10%	40,0	55,0
5100	100	5 590	± 10%	80,0	110,0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

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

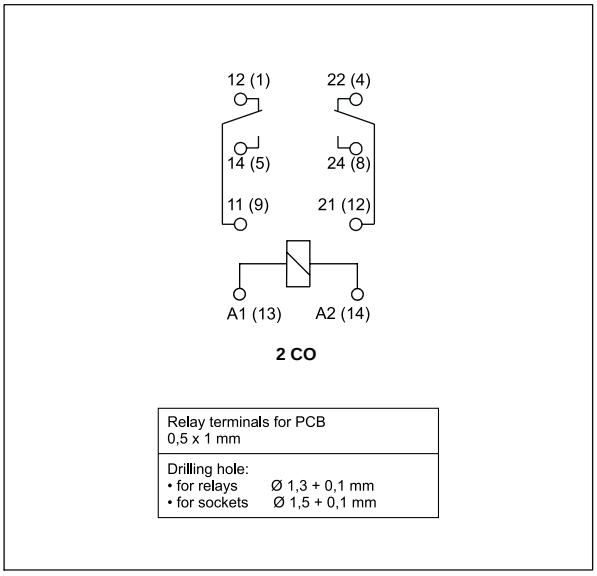
Dimensions - plug-in version



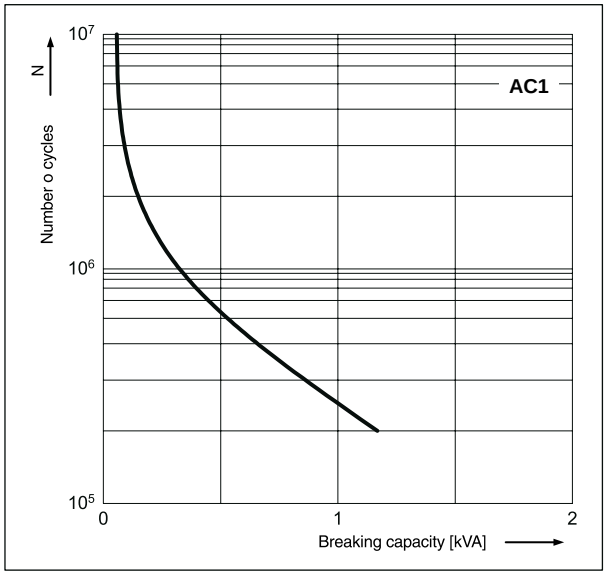
Dimensions - PCB version



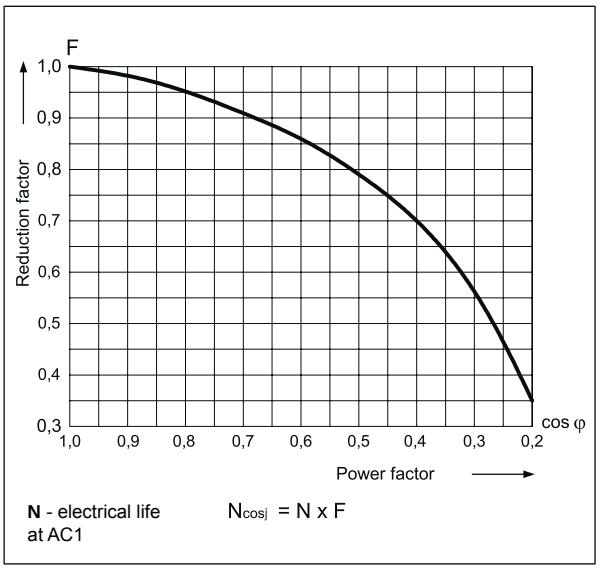
Connection diagram (pin side view)



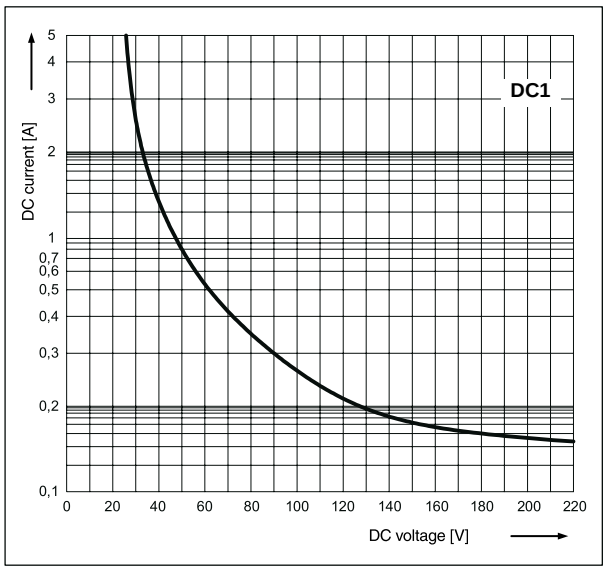
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour Fig. 1



Electrical life reduction factor at AC inductive load Fig. 2



Max. DC resistive load breaking capacity Fig. 3



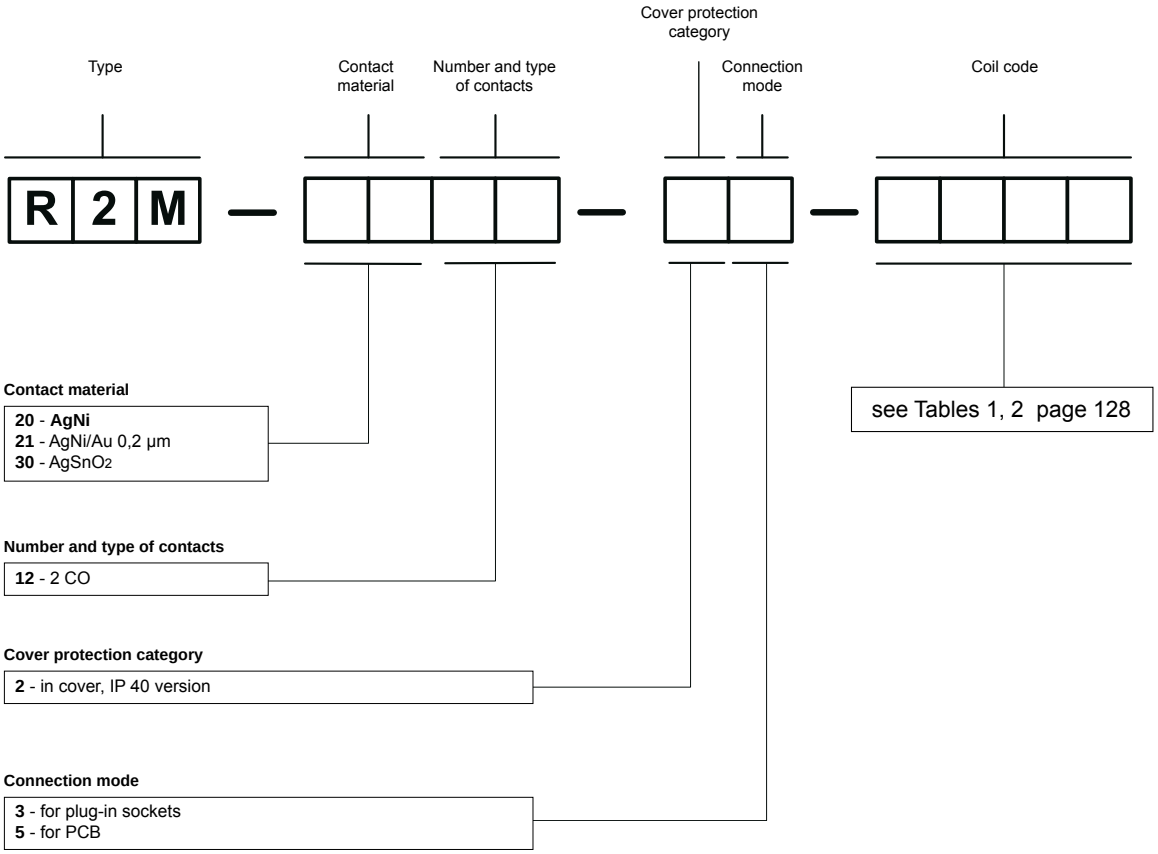
Mounting

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,
- **AgSnO$_2$** - 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


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.

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	± 10%	4,8	6,6
1012	**12**	**110**	**± 10%**	**9,6**	**13,2**
1024	**24**	**430**	**± 10%**	**19,2**	**26,4**
1048	48	1 750	± 10%	38,4	52,8
1060	60	2 700	± 10%	48,0	66,0
1110	110	9 200	± 10%	88,0	121,0
1120	120	11 000	± 10%	96,0	132,0
1220	**220**	**37 000**	**± 10%**	**176,0**	**242,0**

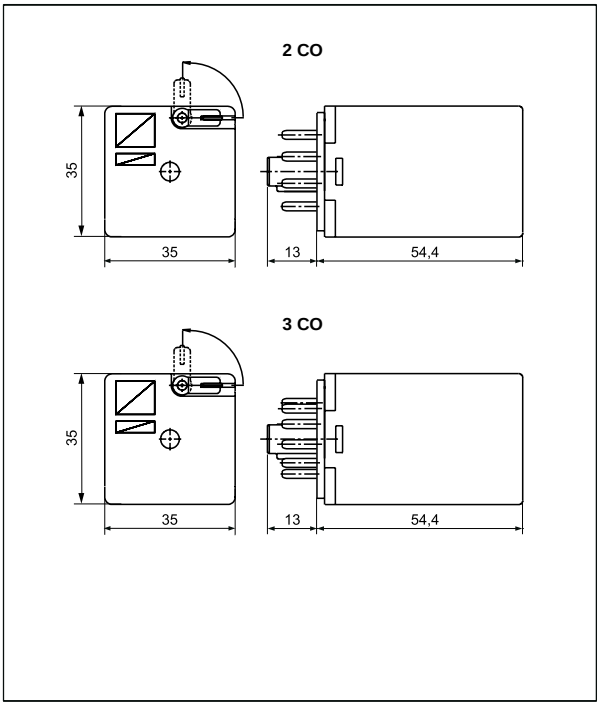
The data in bold type pertain to the standard versions of the relays.

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

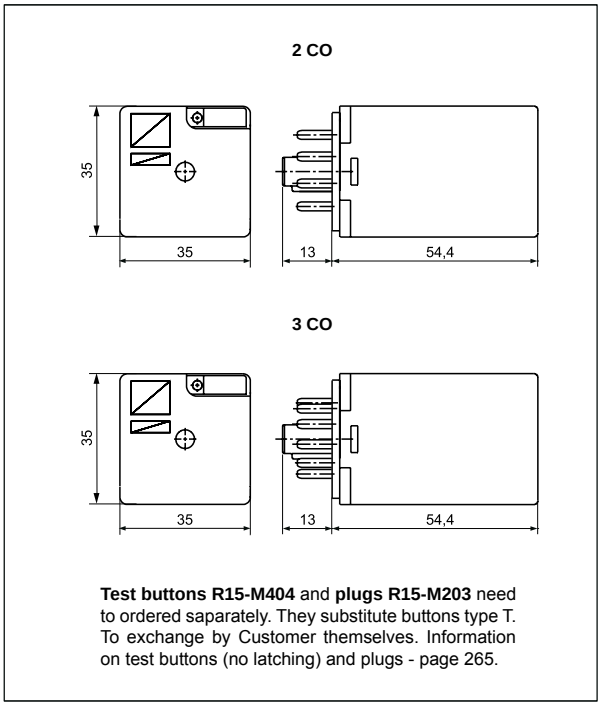
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	4,3	± 15%	4,8	6,6
5012	12	18,5	± 15%	9,6	13,2
5024	**24**	**75**	**± 15%**	**19,2**	**26,4**
5048	48	305	± 15%	38,4	52,8
5060	60	475	± 15%	48,0	66,0
5115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

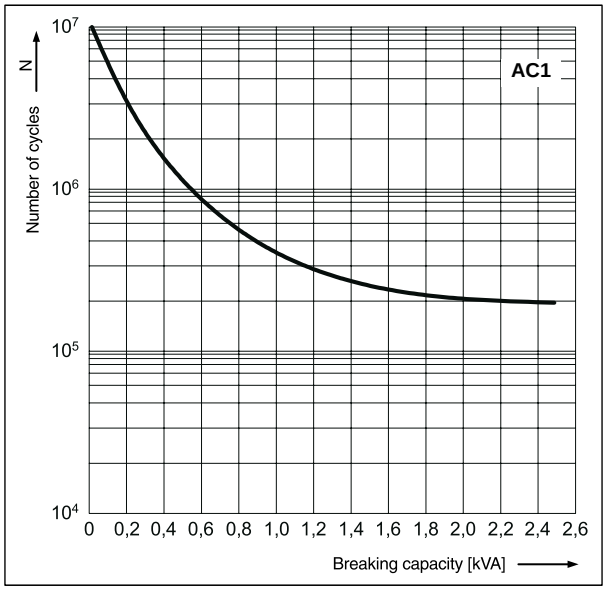


Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)

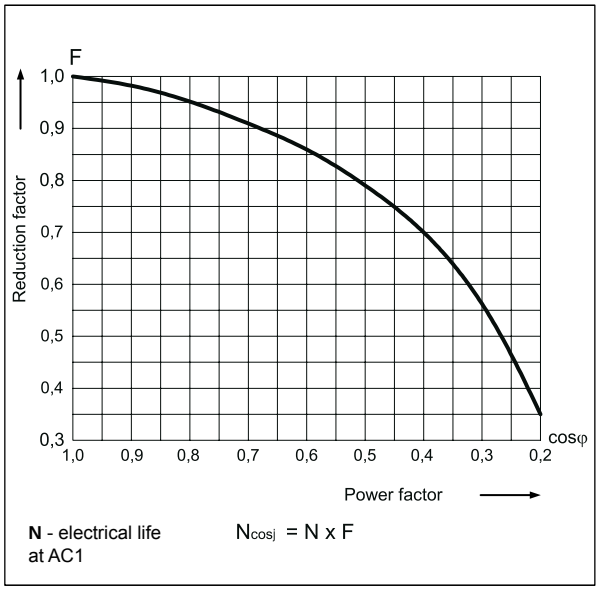


Test buttons R15-M404 and **plugs R15-M203** need to ordered saparately. They substitute buttons type T. To exchange by Customer themselves. Information on test buttons (no latching) and plugs - page 265.

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



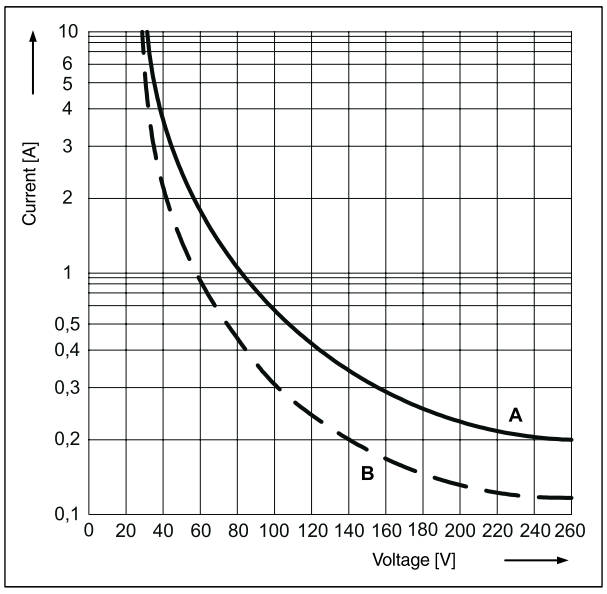
Electrical life reduction factor at AC inductive load Fig. 2



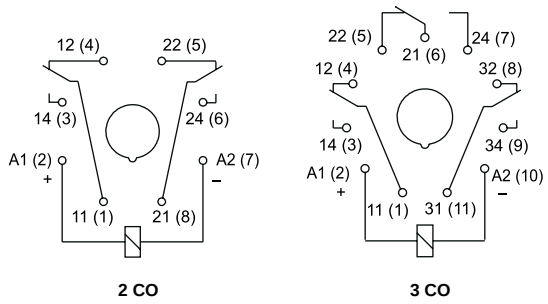
N - electrical life at AC1

$N_{cos\,j} = N \times F$

Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms Fig. 3



Connection diagrams (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.

Mounting

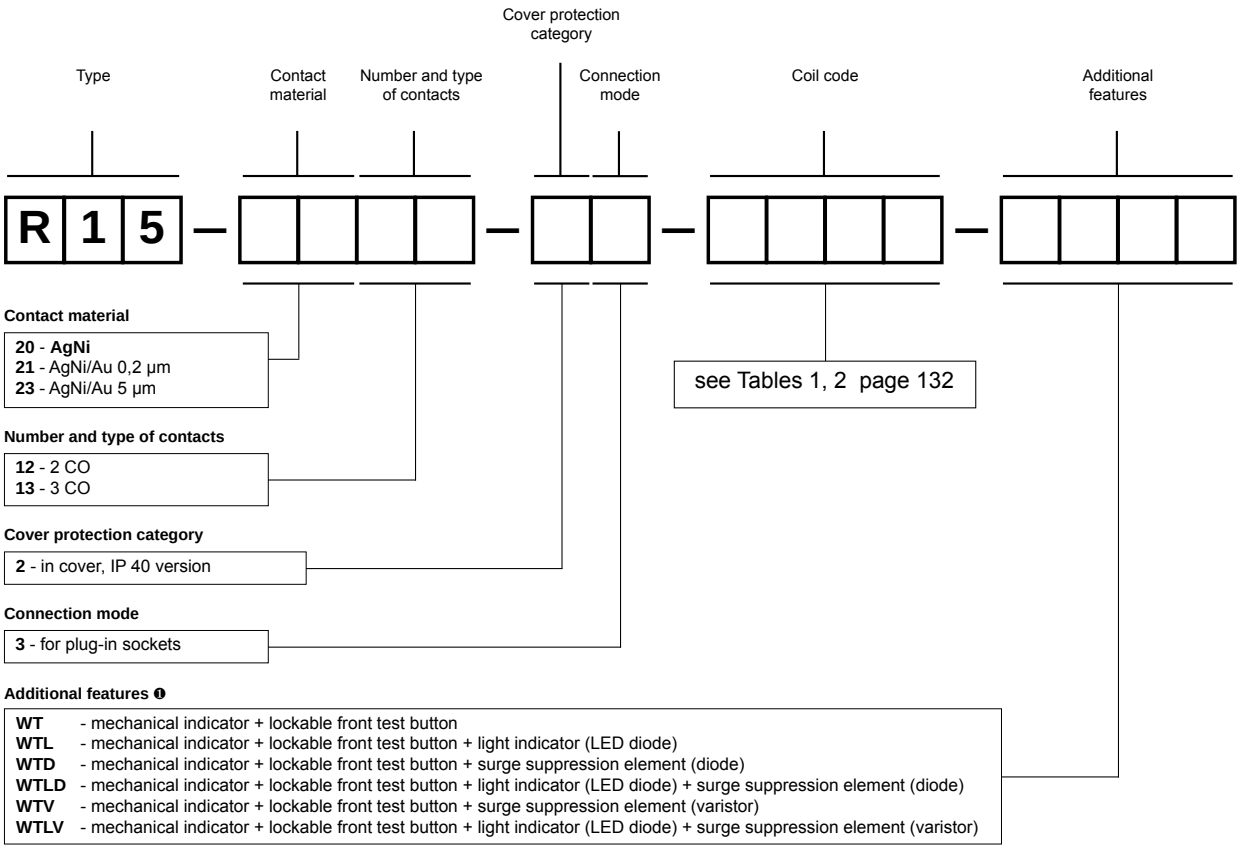
Relays **R15 - 2 CO** are designed for: • screw terminals plug-in sockets **PZ8** with clip **PZ11 0031**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • screw terminals plug-in sockets **GZU8** with clip **GZU 1052**, 35 mm rail mount acc. to PN-EN 60715 • screw terminals 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.

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 saparately**.

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 saparately. 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

- 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.

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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	± 10%	4,8	6,6
1012	**12**	**110**	**± 10%**	**9,6**	**13,2**
1024	**24**	**430**	**± 10%**	**19,2**	**26,4**
1048	48	1 750	± 10%	38,4	52,8
1060	60	2 700	± 10%	48,0	66,0
1110	110	9 200	± 10%	88,0	121,0
1120	120	11 000	± 10%	96,0	132,0
1220	**220**	**37 000**	**± 10%**	**176,0**	**242,0**

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

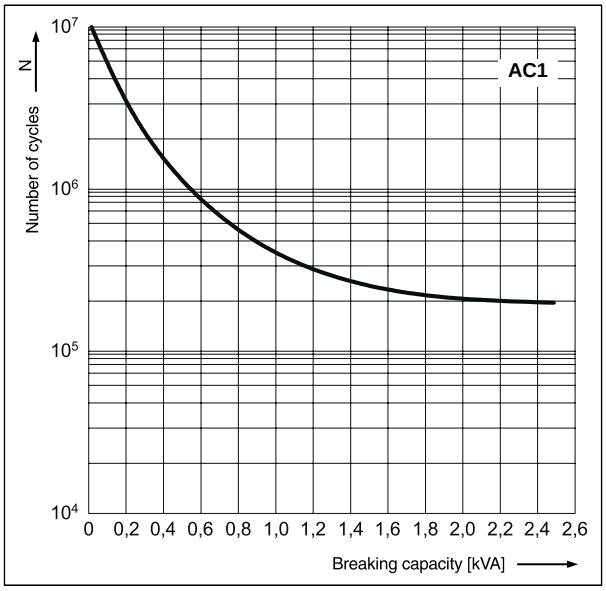
Coil data - AC 50 Hz voltage version, basic Table 3

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	± 15%	4,8	6,6
3012	12	20	± 15%	9,6	13,2
3024	24	72	± 15%	19,2	26,4
3048	48	360	± 15%	38,4	52,8
3060	60	520	± 15%	48,0	66,0
3115	115	2 100	± 15%	92,0	126,5
3120	120	2 300	± 15%	96,0	132,0
3220	220	7 000	± 15%	176,0	242,0
3230	230	7 900	± 15%	184,0	253,0
3240	240	8 300	± 15%	192,0	264,0

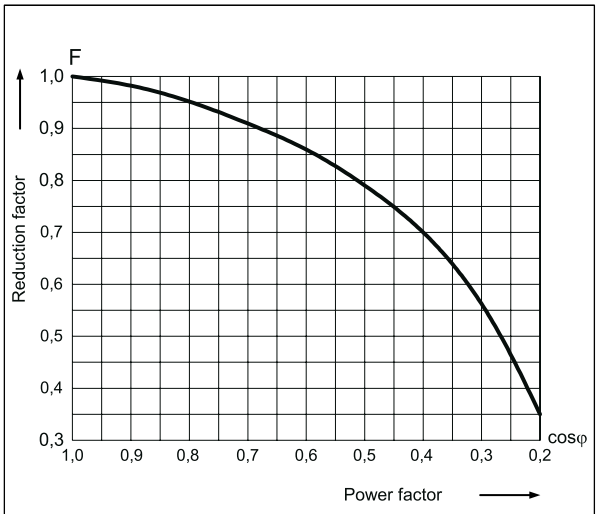
Coil data - AC 60 Hz voltage version, special Table 4

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	± 15%	4,8	6,6
6012	12	17	± 15%	9,6	13,2
6024	24	65	± 15%	19,2	26,4
6048	48	310	± 15%	38,4	52,8
6060	60	490	± 15%	48,0	66,0
6110	110	1 760	± 15%	88,0	121,0
6120	120	2 000	± 15%	96,0	132,0
6220	220	6 900	± 15%	176,0	242,0
6230	230	7 000	± 15%	184,0	253,0
6240	240	7 100	± 15%	192,0	264,0

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



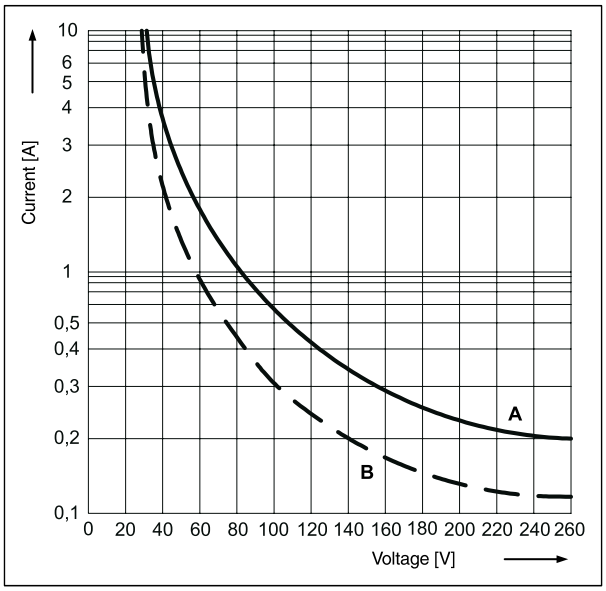
Electrical life reduction factor at AC inductive load Fig. 2



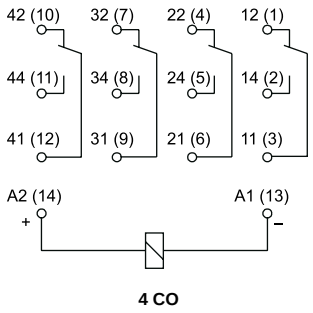
N - electrical life at AC1

$N_{cos\,j} = N \times F$

Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms Fig. 3



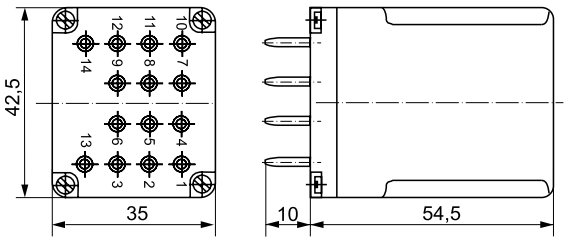
Connection diagram (pin side view)



4 CO

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

Dimensions



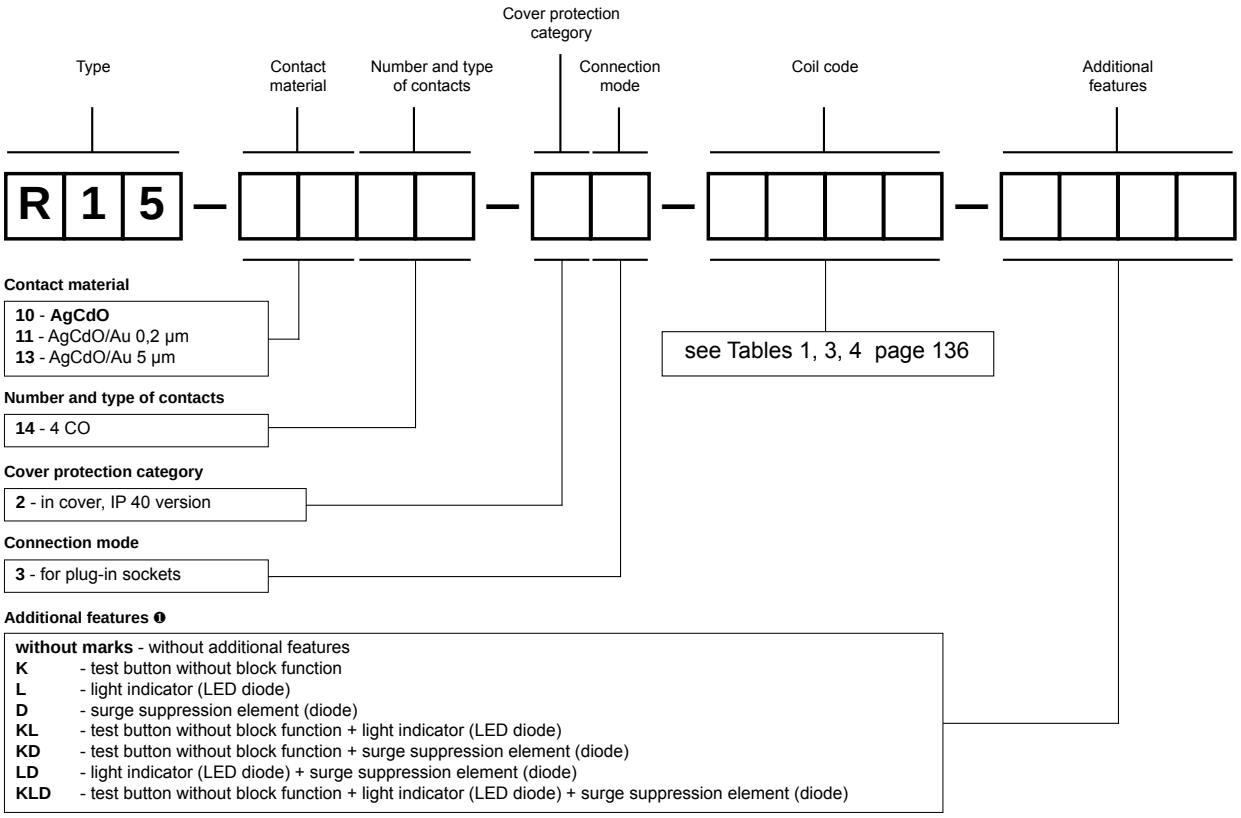
Mounting

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



❶ **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



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, ventillation, 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	16 A / 250 V AC or 10 A / 400 V AC 16 A / 250 V AC ❶
	DC1	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 mΩ
Max. operating frequency		
• at rated load	AC1	1 200 cykli/h
• no load		12 000 cykli/h

Coil data

Rated voltage	AC	6 ... 240 V 50/60 Hz 400 V 50 Hz ❶
	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, 3, 4
Rated power consumption	AC	2,8 VA 50 Hz 2,5 VA 60 Hz
	DC	1,5 W 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 µs
Overvoltage category		III
Insulation pollution degree		2
Dielectric strength	• between coil and contacts	2 500 V AC type of insulation: basic
		1 500 V AC 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	> 10^5 16 A, 250 V AC > 10^5 10 A, 400 V AC
	• cosϕ	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	-40...+85 °C
	• operating	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°C3CO,3NO/10A;2CO,2NO/16A)
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.

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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	± 10%	4,8	6,6
1012	**12**	**110**	**± 10%**	**9,6**	**13,2**
1024	24	430	± 10%	19,2	26,4
1042	42	1 340	± 10%	33,6	46,2
1048	48	1 750	± 10%	38,4	52,8
1060	60	2 700	± 10%	48,0	66,0
1110	110	9 200	± 10%	88,0	121,0
1120	120	11 000	± 10%	96,0	132,0
1220	220	37 000	± 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 ❻	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	± 10%	9,6	13,2
W024	24	345	± 10%	19,2	26,4
W048	48	1 370	± 10%	38,4	52,8
W110	110	7 300	± 10%	88,0	121,0
W220	220	30 000	± 10%	176,0	242,0

❻ For version with contact gap ≥ 3 mm.

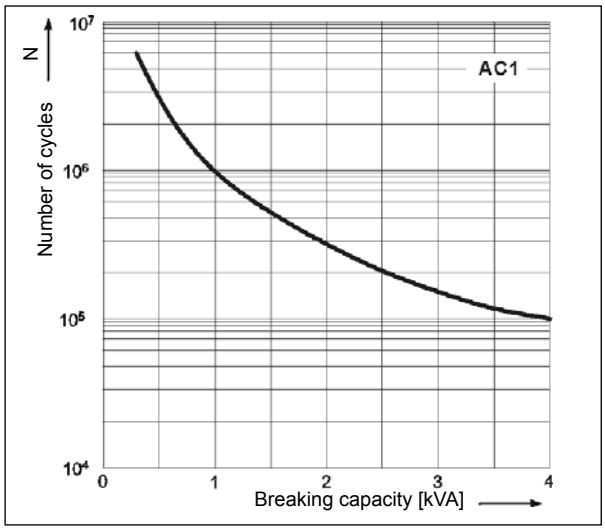
Coil data - AC 50/60 Hz voltage version Table 3

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	± 10%	4,8	6,6
5012	12	18,5	± 10%	9,6	13,2
5024	24	75	± 10%	19,2	26,4
5115	115	1 840	± 10%	92,0	126,5
5120	120	1 910	± 10%	96,0	132,0
5220	220	6 980	± 10%	176,0	242,0
5230	230	7 080	± 10%	184,0	253,0
5240	240	7 760	± 10%	192,0	264,0

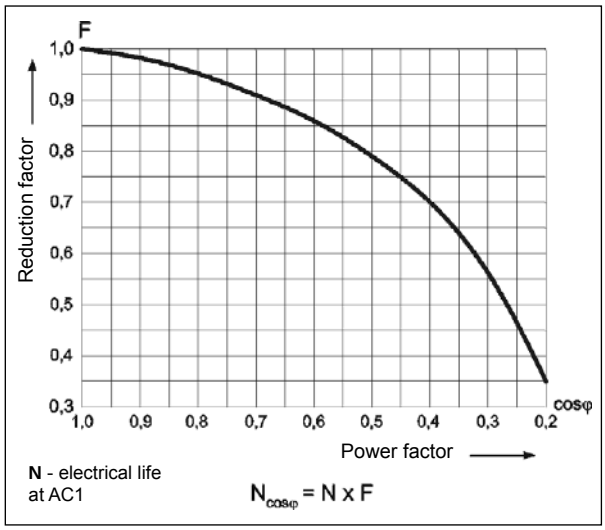
Coil data - AC 50 Hz voltage version Table 4

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	± 10%	320,0	440,0

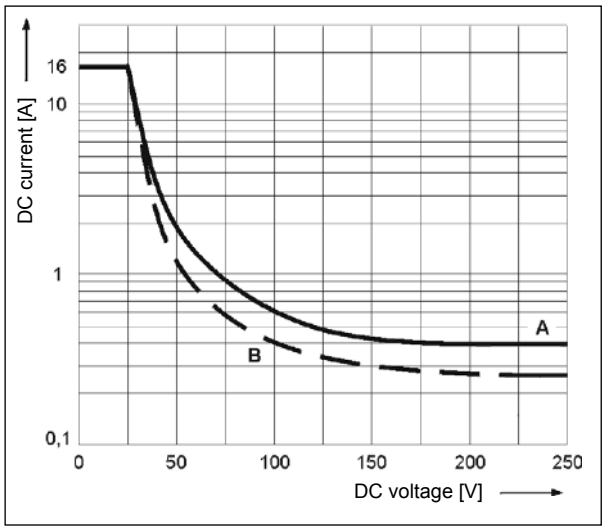
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour Fig. 1



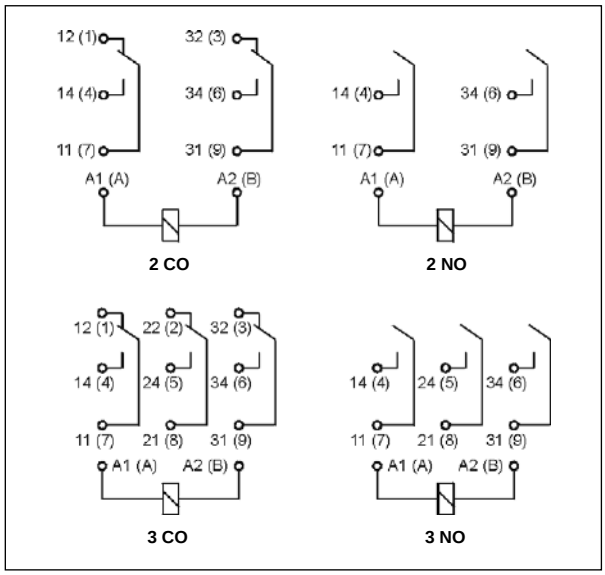
Electrical life reduction factor at AC inductive load Fig. 2



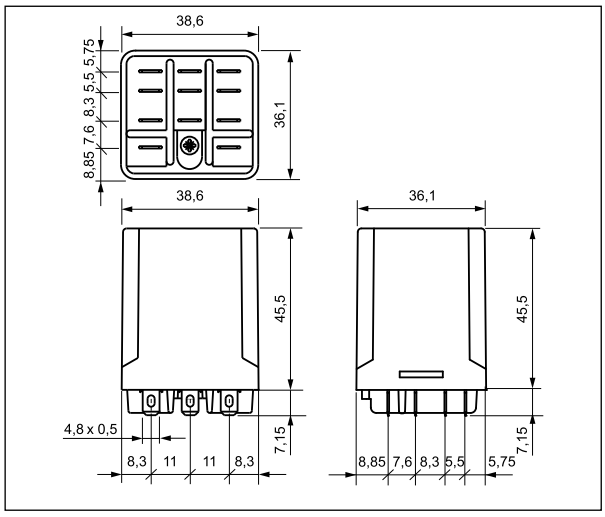
Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms Fig. 3



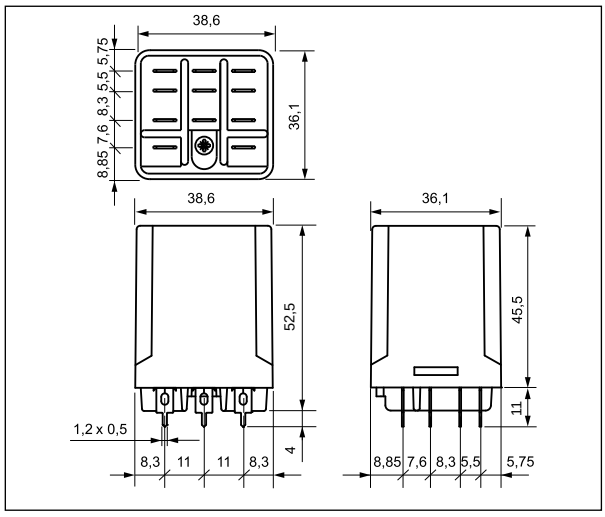
Connection diagrams (pin side view)



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



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



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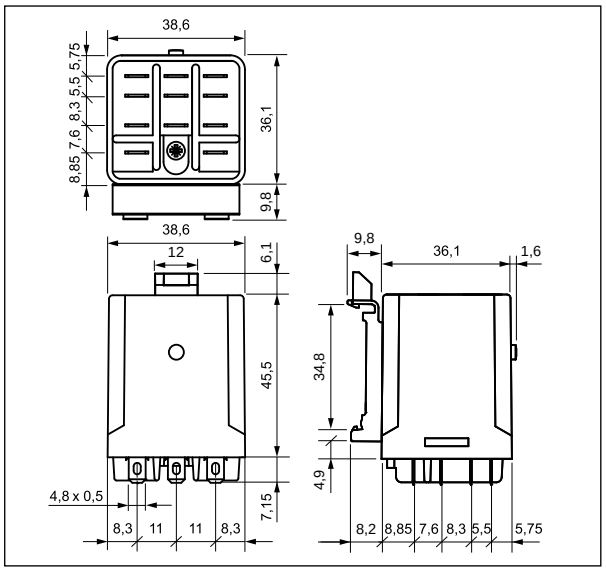
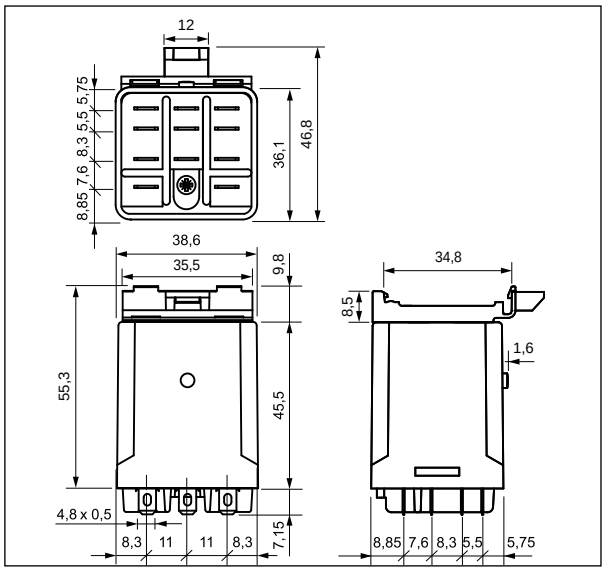
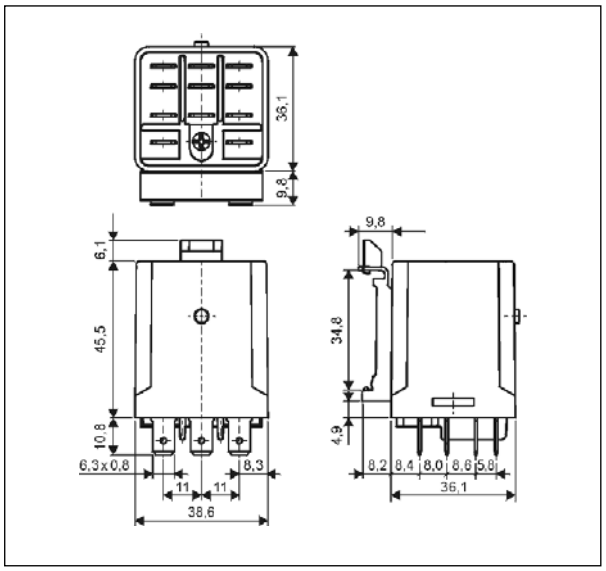
Dimensions - RUC faston 4,8 x 0,5
- version with vertical adaptor (V)



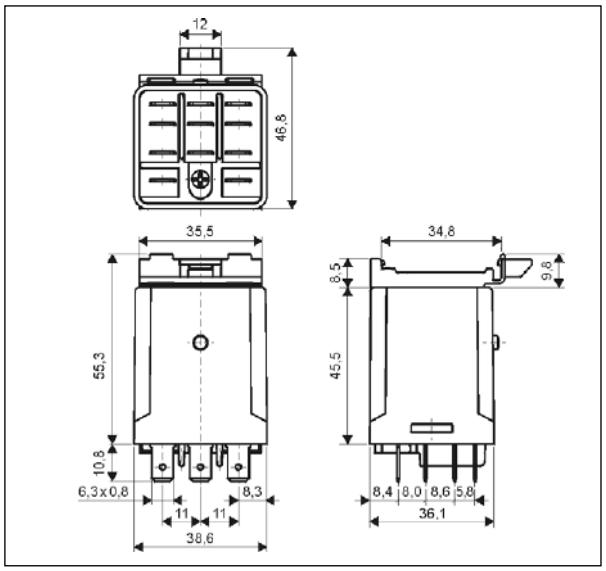
Dimensions - RUC faston 4,8 x 0,5
- version with horizontal adaptor (H)



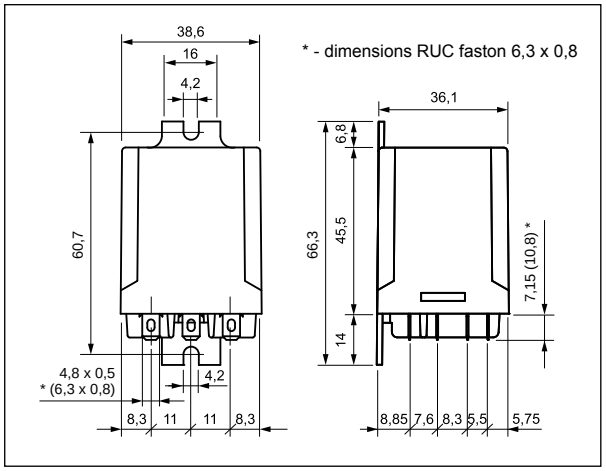
Dimensions - RUC faston 6,3 x 0,8
- version with vertical adaptor (V)



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



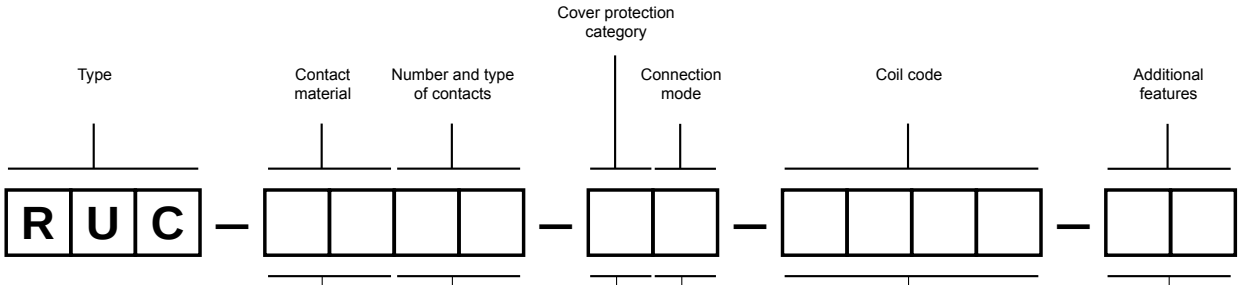
Mounting

Relays RUC are offered in versions: • standard, for screw terminals plug-in sockets **GUC11** ❶ 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 ❼.

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

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.

Ordering codes



Contact material

10 - AgCdO
20 - **AgNi**

see Tables 1, 2, 3, 4 page 140

Number and type of contacts

12 - 2 CO
13 - 3 CO
22 - 2 NO
23 - 3 NO
52 - 2 NO, contact gap ≥ 3 mm ❽
53 - 3 NO, contact gap ≥ 3 mm ❽

Cover protection category

2 - in cover, IP 00 version ❾
4 - in cover with mounting flange, IP 00 version
V - in cover with vertical adaptor, IP 00 version
H - in cover with horizontal adaptor, IP 00 version

Connection mode

5 - for PCB
6 - for flat insert connectors - faston 187 (4,8 x 0,5 mm) and for plug-in sockets
A - for flat insert connectors - faston 250 (6,3 x 0,8 mm)

Additional features

without marks - without additional features
K - test button without block function ❿
L - light indicator (LED diode)
KL - test button without block function + light indicator (LED diode) ❿

❽ For versions with reinforced DC coils: W012, W024, W048, W110, W220 and with AC coils.
❾ Only for version RUC faston 4,8 x 0,5.
❿ 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

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, ventillation, 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	16 A / 24 V DC; 10,5 A / 110 V DC 4,5 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	16 A / 24 V DC; 1,35 A / 110 V DC 0,45 A / 220 V DC
	AC1	16 A / 250 V AC	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 • at rated load • no load	AC1	 1 200 cycles/hour 12 000 cycles/hour	

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	2 500 V AC	type of insulation: basic
	• contact clearance	4 000 V AC	type of clearance: full-disconnection
	• pole - pole	2 500 V AC	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 • DC L/R=40 ms	 > 2 x 10^5 12 A, 220 V DC > 2 x 10^5 3 A, 220 V DC	 > 2 x 10^5 4,5 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	
Ambient temperature • 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.

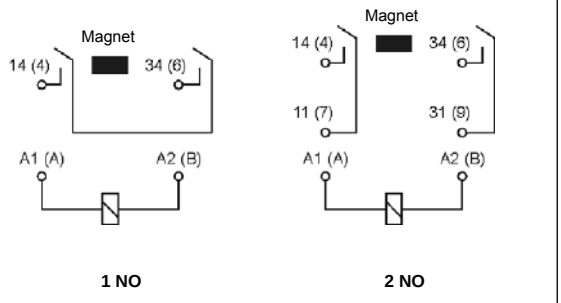
Coil data - DC voltage version — Table 1

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	± 10%	9,6	13,2
W024	24	345	± 10%	19,2	26,4
W048	48	1 370	± 10%	38,4	52,8
W110	110	7 300	± 10%	88,0	121,0
W220	220	30 000	± 10%	176,0	242,0

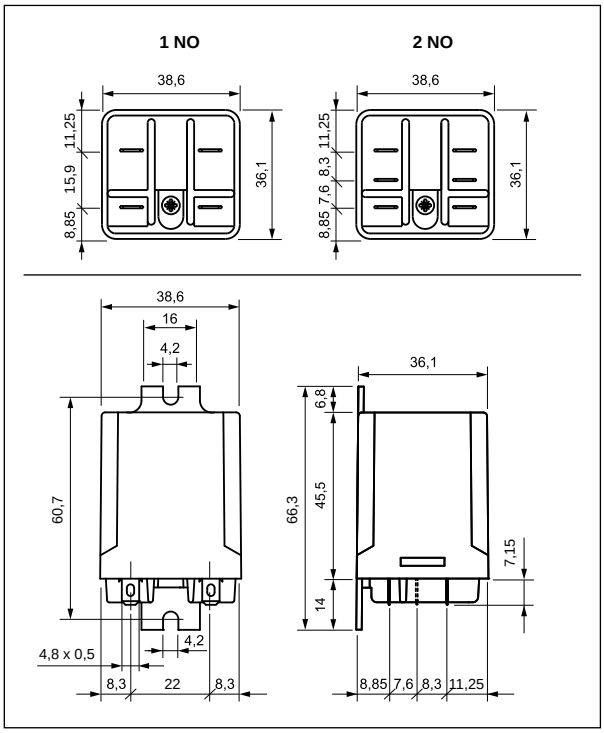
Coil data - AC 50/60 Hz voltage version — Table 2

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	± 10%	9,6	13,2
5024	24	75	± 10%	19,2	26,4
5115	115	1 840	± 10%	92,0	126,5
5120	120	1 910	± 10%	96,0	132,0
5230	230	7 080	± 10%	184,0	253,0
5240	240	7 760	± 10%	192,0	264,0

Connection diagrams (pin side view)



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



Design

The permanent magnet is fixed on the contact plate. Its magnetic field is directed to the contacts and it blows the electric arc which occurs when the DC load is switched off.

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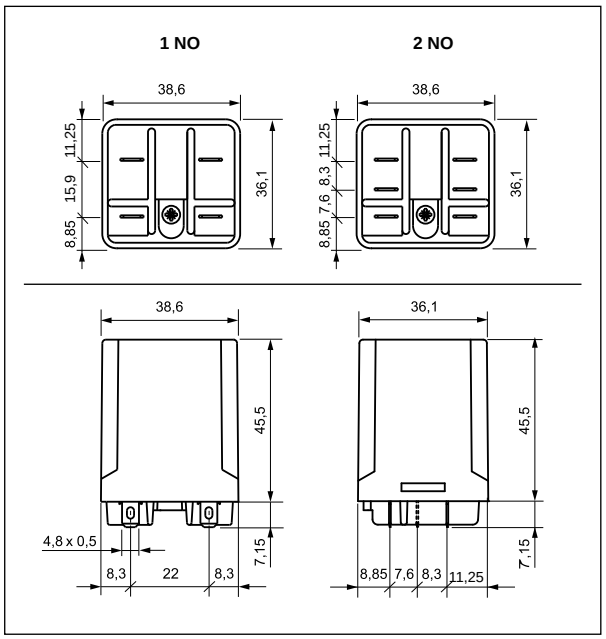
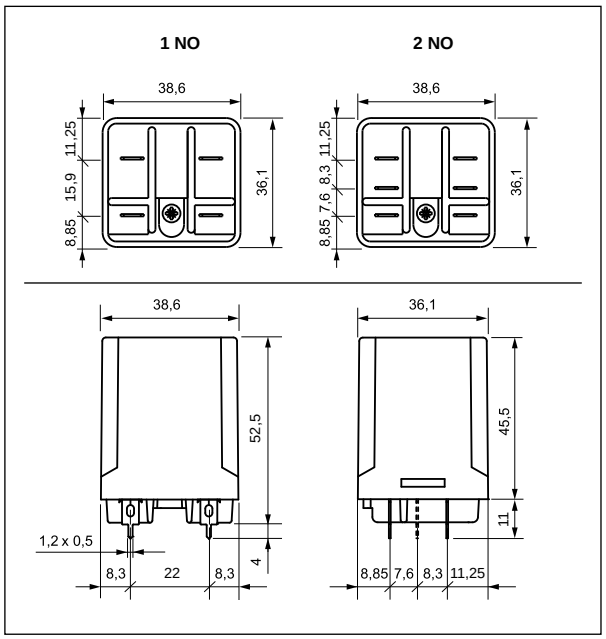
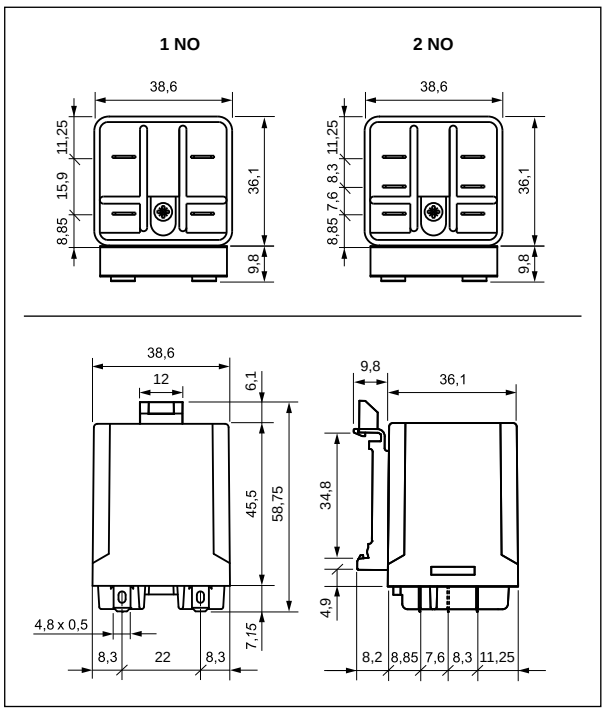
Dimensions - plug-in version (standard)



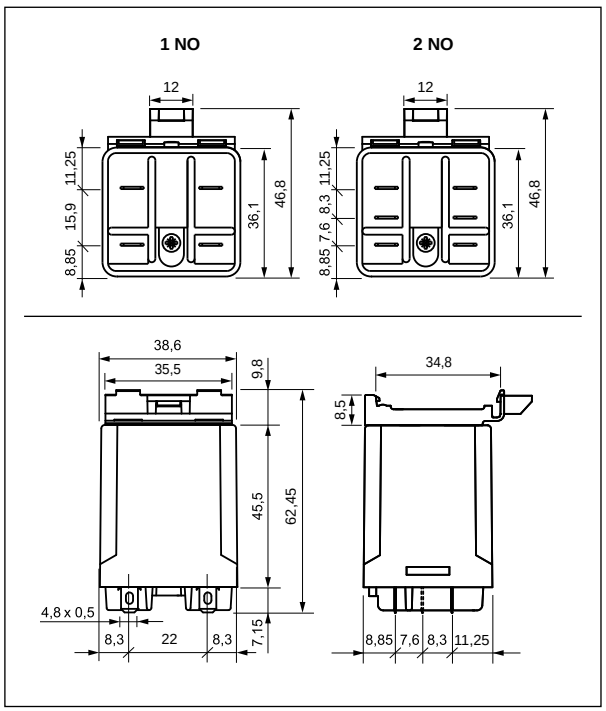
Dimensions - PCB version



Dimensions - version with vertical adaptor (V)



Dimensions - version with horizontal adaptor (H)



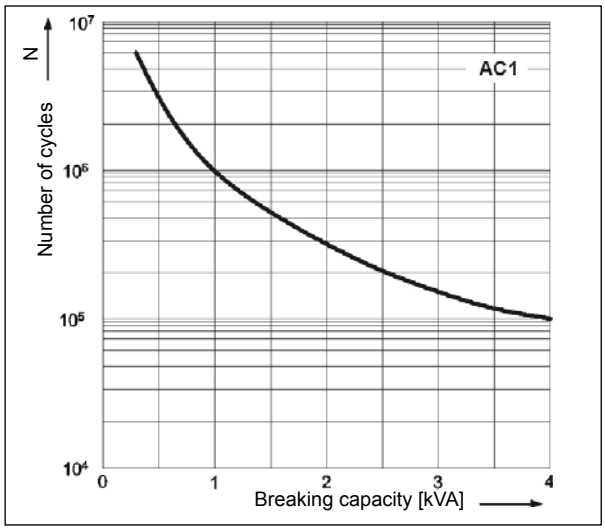
Mounting

Relays RUC-M are offered in versions: • standard, for screw terminals plug-in sockets **GUC11** ❶ 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 ❺.

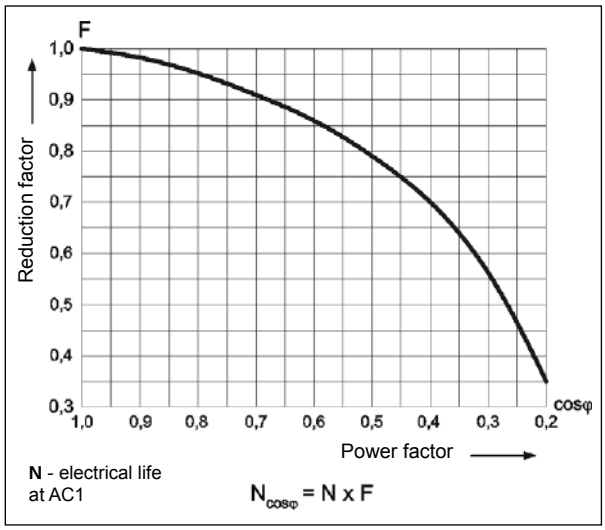
❺ Relays unavailable with (V) or (H) adaptor, and cover with mounting flange.

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

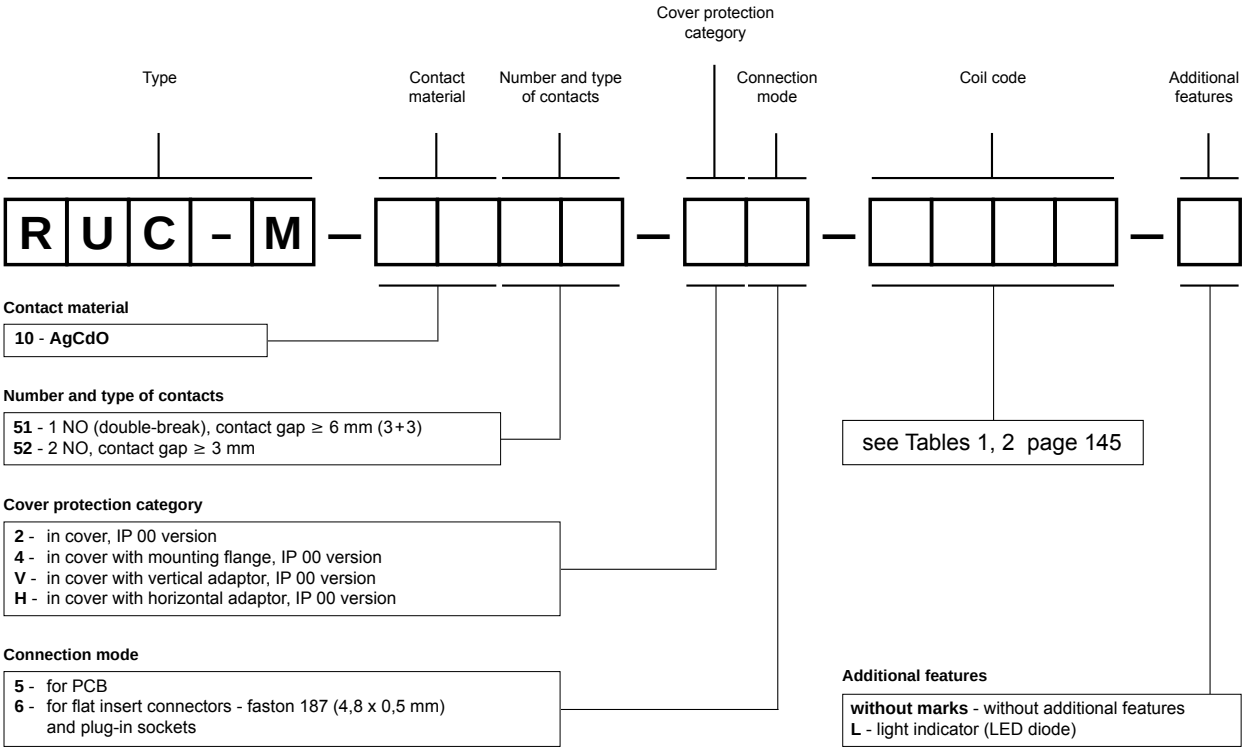
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour Fig. 1



Electrical life reduction factor at AC inductive load Fig. 2



Ordering codes



Contact material

10 - **AgCdO**

Number and type of contacts

51 - 1 NO (double-break), contact gap ≥ 6 mm (3+3)
52 - 2 NO, contact gap ≥ 3 mm

see Tables 1, 2 page 145

Cover protection category

2 - in cover, IP 00 version
4 - in cover with mounting flange, IP 00 version
V - in cover with vertical adaptor, IP 00 version
H - in cover with horizontal adaptor, IP 00 version

Connection mode

5 - for PCB
6 - for flat insert connectors - faston 187 (4,8 x 0,5 mm) and plug-in sockets

Additional features

without marks - without additional features
L - light indicator (LED diode)

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, ventillation, 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	25 A / 400 V AC
	AC3	15 A / 400 V AC
	DC1	25 A / 24 V DC (see Fig. 3)
	DC13	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	10 000 VA
	AC3	6 000 VA
Min. breaking capacity		1 W
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
	AC3	600 cycles/hour
• no load		3 600 cycles/hour

Coil data

Rated voltage	50 Hz AC	12 ... 400 V
	DC	12 ... 220 V
Must release voltage		≥ 0,1 U_n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC	3,0 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		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	-25...+85 °C
	• operating	-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	± 10%	9,6	13,2
1024	**24**	**340**	**± 10%**	**19,2**	**26,4**
1048	48	1 350	± 10%	38,4	52,8
1110	110	7 600	± 10%	88,0	121,0
1220	220	30 000	± 10%	176,0	242,0

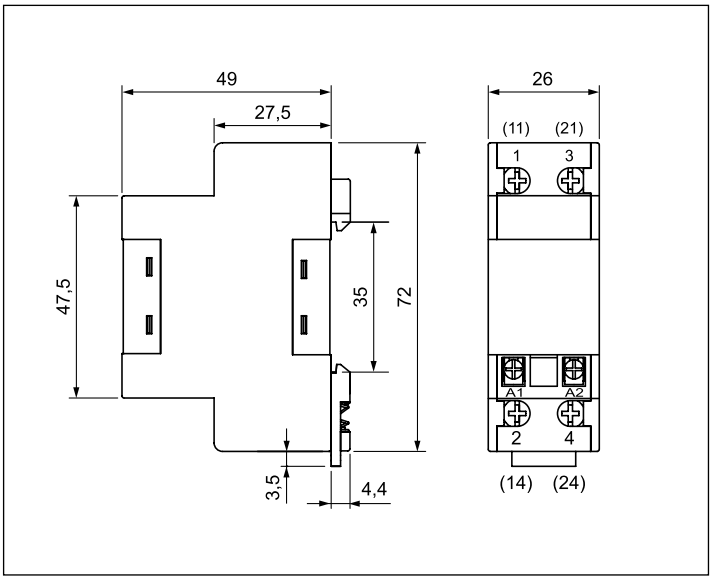
The data in bold type pertain to the standard versions of the relays.

Coil data - AC 50 Hz voltage version — Table 2

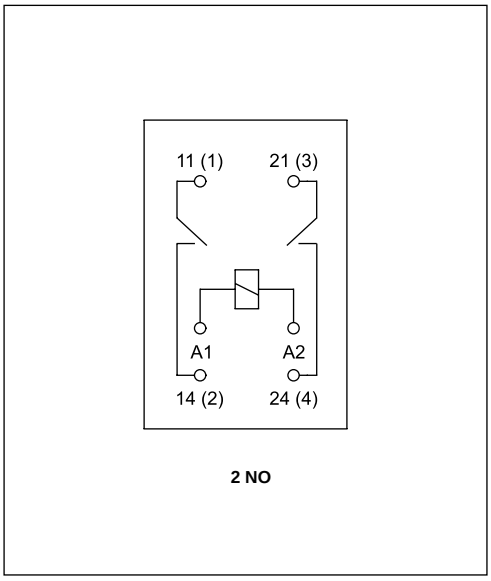
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
3012	12	17	± 10%	8,4	13,2
3024	**24**	**76**	**± 10%**	**16,8**	**26,4**
3110	110	1 600	± 10%	77,0	121,0
3230	**230**	**6 800**	**± 10%**	**161,0**	**253,0**
3400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

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

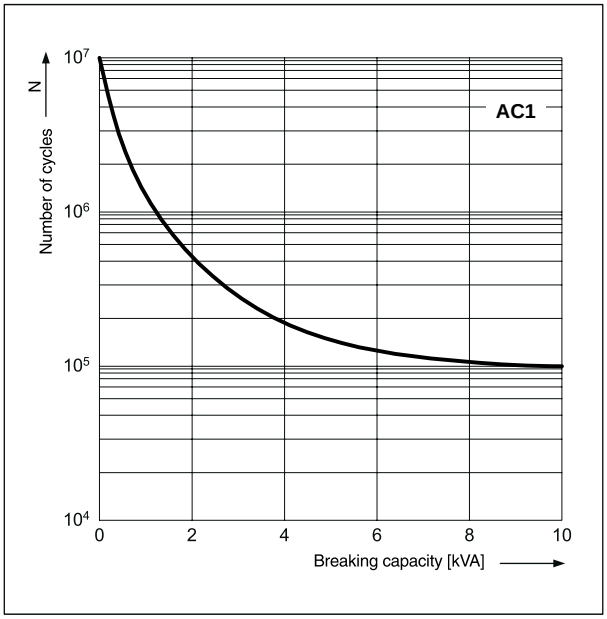
Dimensions



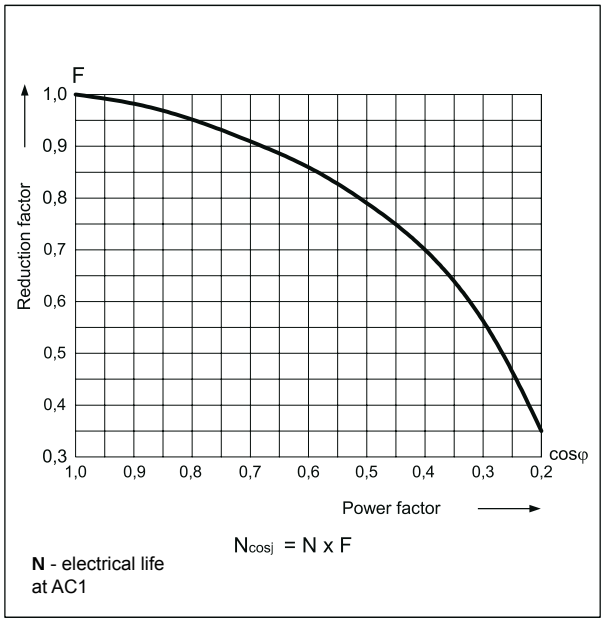
Connection diagram
(screw terminals side view)



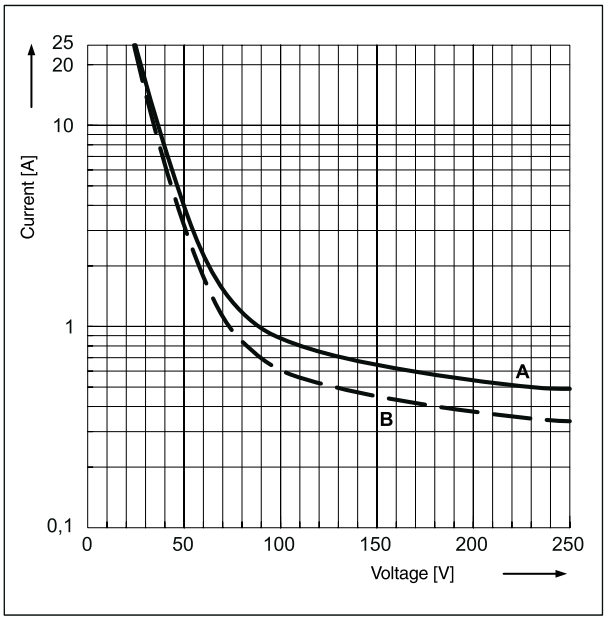
**Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour** Fig. 1



**Electrical life reduction factor
at AC inductive load** Fig. 2



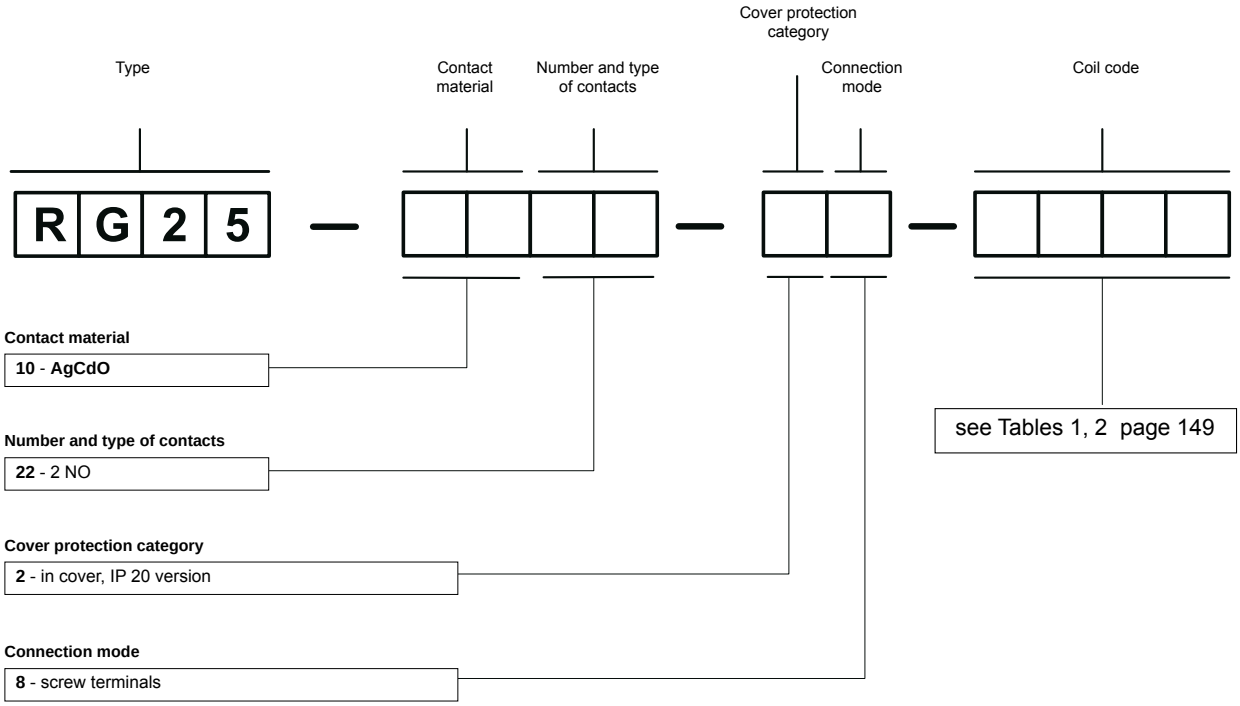
**Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms** Fig. 3



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 mm^2 (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

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- 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, CE

Contact data

Number and type of contacts		1 NO, 2 NO	
Contact material		**$AgSnO_2$**	
Rated / max. switching voltage	AC	250 V / 440 V	
Min. switching voltage		10 V	
Rated load	AC1	1 NO: 30 A / 250 V AC	2 NO: 25 A / 250 V AC
Min. switching current		10 mA	10 mA
Rated current		1 NO: 30 A	2 NO: 25 A
Max. breaking capacity	AC1	1 NO: 7 000 VA	2 NO: 6 250 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	2,5 VA 115, 230 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.

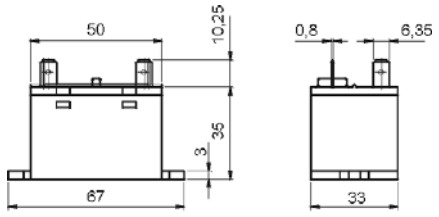
Coil data - DC voltage version Table 1

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	± 10%	9,0	13,2
1024	24	303	± 10%	18,0	26,4
1110	110	6 400	± 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	± 10%	18,0	26,4
5048	48		± 10%	36,0	52,8
5115	115	5 260	± 10%	86,3	126,5
5230	230	21 000	± 10%	172,5	253,0

Dimensions



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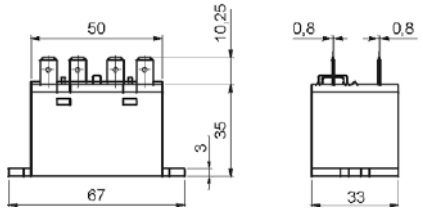
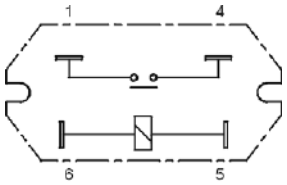
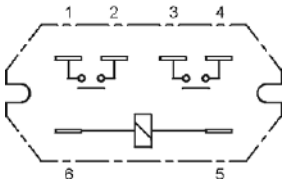


2 NO

Connection diagrams (pin side view)

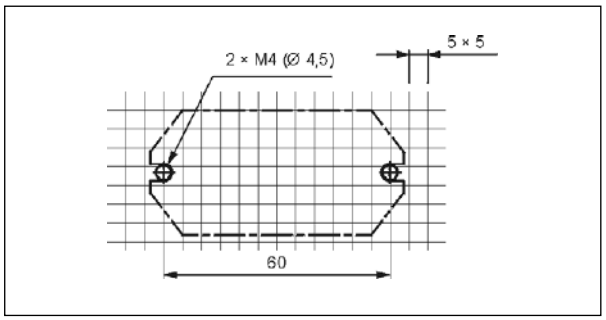


1 NO



2 NO

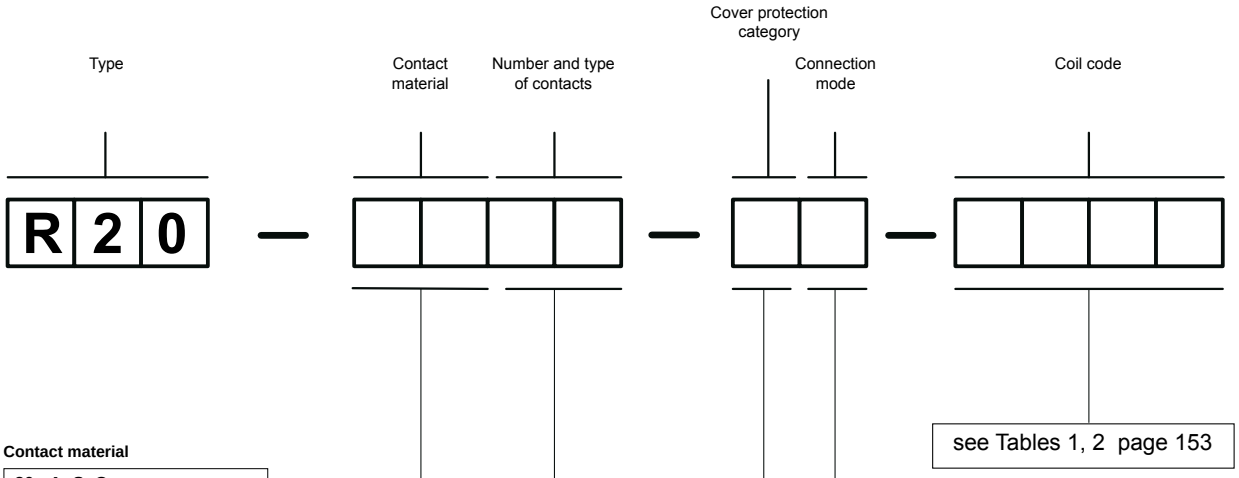
Pinout



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



Contact material

30 - $AgSnO_2$

Number and type of contacts

21 - 1 NO
22 - 2 NO

Cover protection category

9 - in cover with mounting flange, IP 50 version

Connection mode

6 - for flat insert connectors - faston 250 (6,3 x 0,8 mm)

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 $AgSnO_2$, coil voltage 12 V DC, in cover with mounting flange IP 50

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

Contact data

Number and type of contacts		1 CO, 1 NO	
Contact material		**$AgSnO_2$**	
Rated / max. switching voltage	AC	240 V / 250 V	
Min. switching voltage		10 V	
Rated load	AC1	1 CO: 20 A / 10 A (NO/NC) / 240 V AC	1 NO: 30 A / 240 V AC
	DC1	1 CO: 20 A / 10 A (NO/NC) / 30 V DC	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	1 CO: 4 800 VA	1 NO: 7 200 VA
	AC3	0,5 HP 240 V AC	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.

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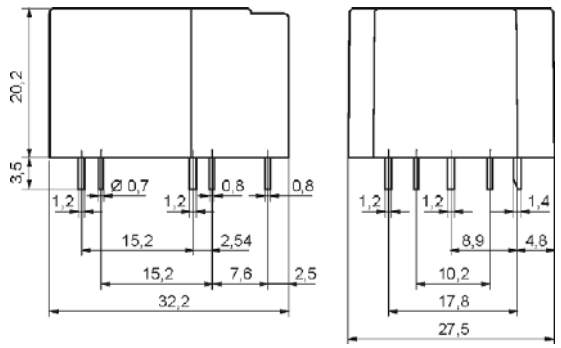
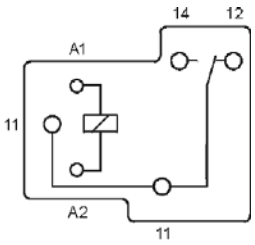
Coil data - DC voltage version Table 1

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	± 10%	9,6	18
1024	24	660	± 10%	19,2	36

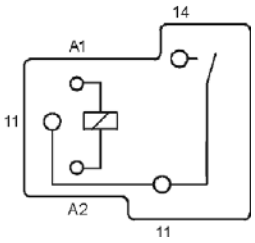
Dimensions



Connection diagrams (pin side view)



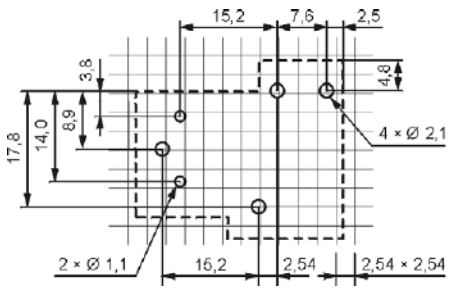
1 CO



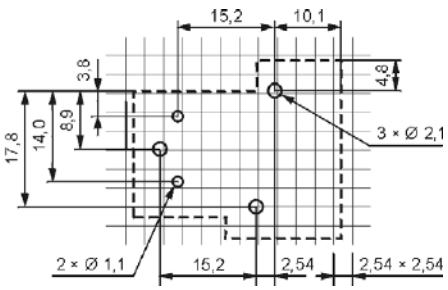
1 NO

Pinout (solder side view)

1 CO



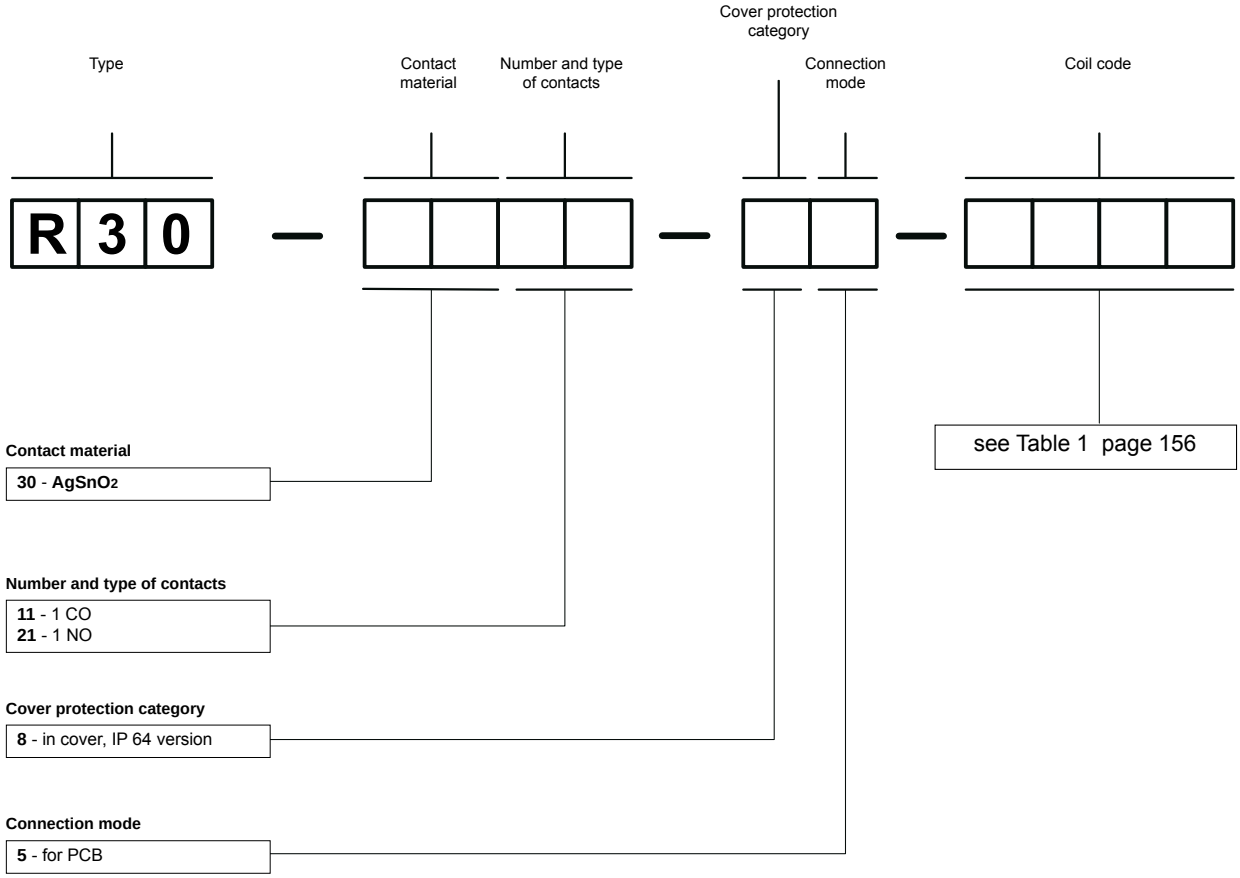
1 NO



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 $AgSnO_2$, coil voltage 12 V DC, in cover IP 64

R30-3021-85-1024 relay **R30**, for PCB, one normally open contact, contact material $AgSnO_2$, coil voltage 24 V DC, in cover IP 64

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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 ≥ 2,2 mm; RS50 ≥ 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		**$AgSnO_2$**	
Rated / max. switching voltage	AC	250 V / 440 V	
Min. switching voltage		10 V	
Rated load	AC1	RS35: 35 A / 250 V AC	RS50: 48 A / 250 V AC
	DC1	RS35: 35 A / 24 V DC	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	RS35: 8 750 VA	RS50: 12 500 VA
	DC1	RS35: 90 W 0,3 A / 300 V	RS50: 90 W 0,3 A / 300 V
Min. breaking capacity		1 W	
Contact resistance		≤ 50 mΩ	
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: ≥ 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 µs
Overvoltage category	III
Insulation pollution degree	3
Insulation resistance	1000 MΩ
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

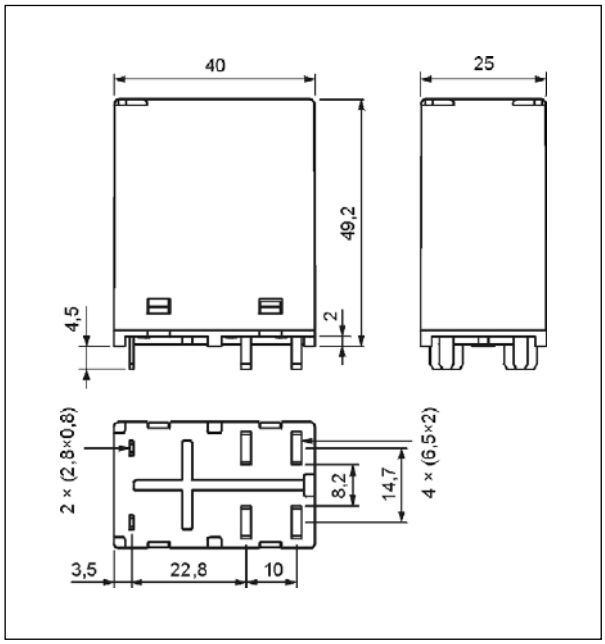
Operating / release time (typical values)		40 ms / 5 ms	
Electrical life			
• resistive AC1		3×10^4 35 A, 250 V AC, 20 °C	10^4 50 A, 250 V AC, 20 °C
• AC7a		3×10^4 35 A, 250 V AC, 20 °C	3×10^4 50 A, 250 V AC, 20 °C
Mechanical life (cycles)		10^6	
Dimensions (L x W x H)		40 x 25 x 49,2 mm	
Weight		105 g	
Ambient temperature	• storage	-40...+105 °C	
	• operating	-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.

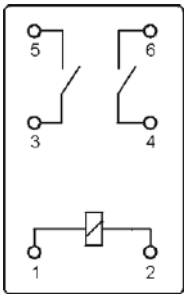
Coil data - DC voltage version Table 1

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	± 10%	3,75	10
1009	9	170	± 10%	6,75	18
1012	12	300	± 10%	9,00	24
1018	18	675	± 10%	13,50	36
1024	24	1 200	± 10%	18,00	48
1110	110	25 000	± 10%	82,50	220

Dimensions



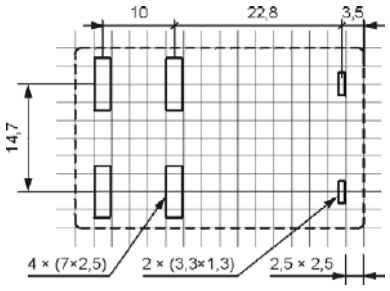
Connection diagrams (pin side view)



2 NO

Pinout (solder side view)

2 NO



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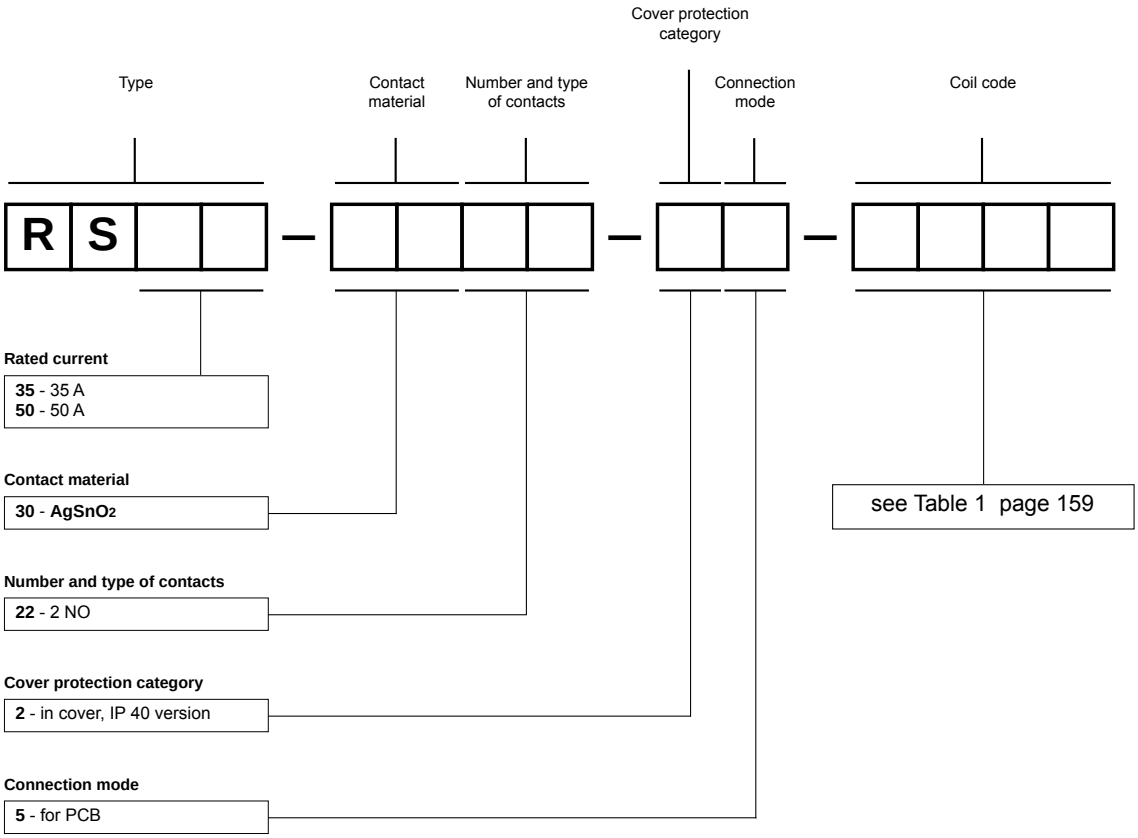
Mounting

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

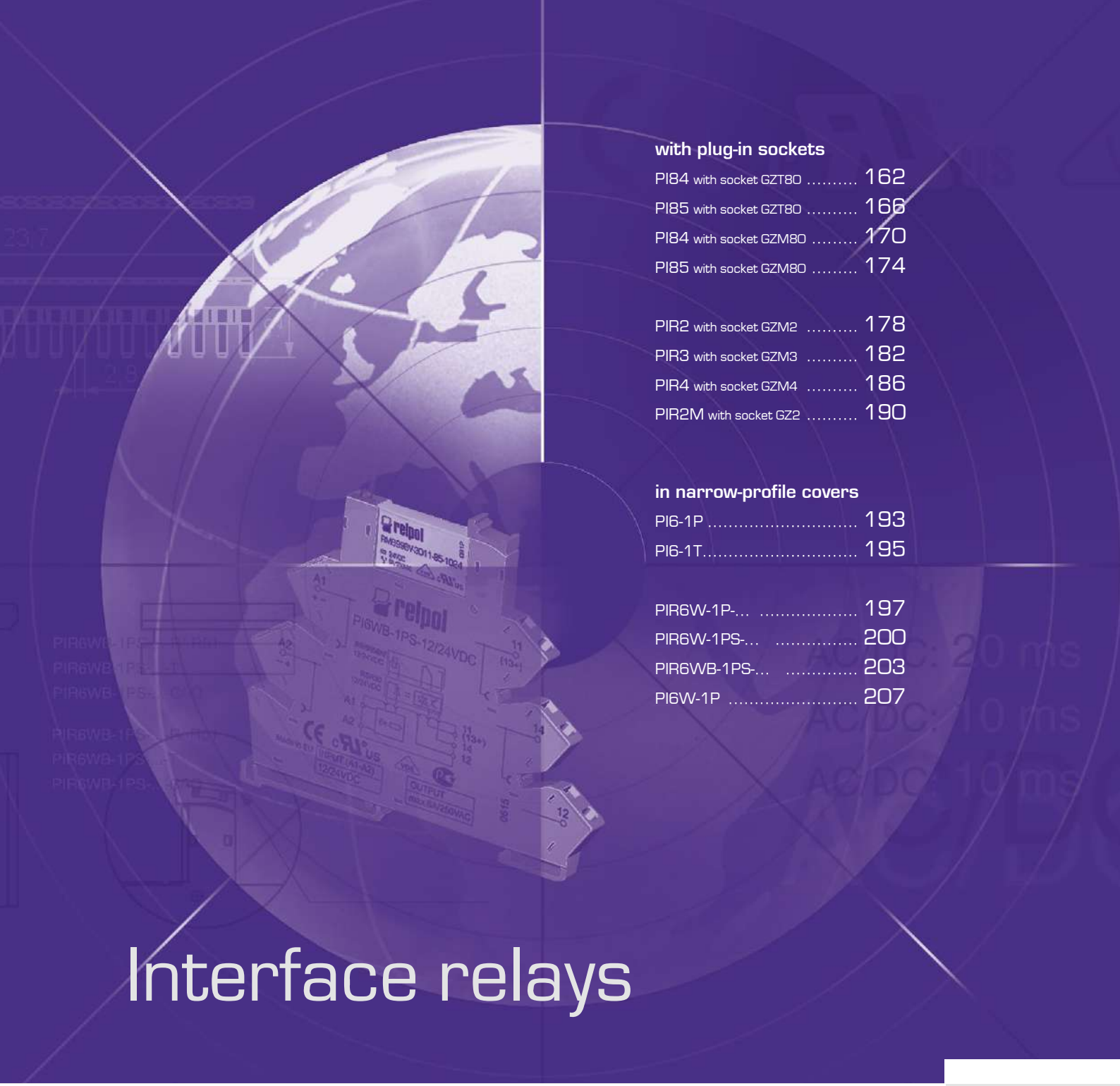
Ordering codes



Examples of ordering code:

RS35-3022-25-1005 relay **RS35**, rated current 35 A, for PCB, two normally open contacts, contact material $AgSnO_2$, coil voltage 5 V DC, in cover IP 40

RS50-3022-25-1110 relay **RS35**, rated current 50 A, for PCB, two normally open contacts, contact material $AgSnO_2$, coil voltage 110 V DC, in cover IP 40



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.

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, CE, EAC

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		
• at rated load	AC1	600 cycles/hour
• no load		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
• 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	-40...+85 °C
	• operating	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.

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

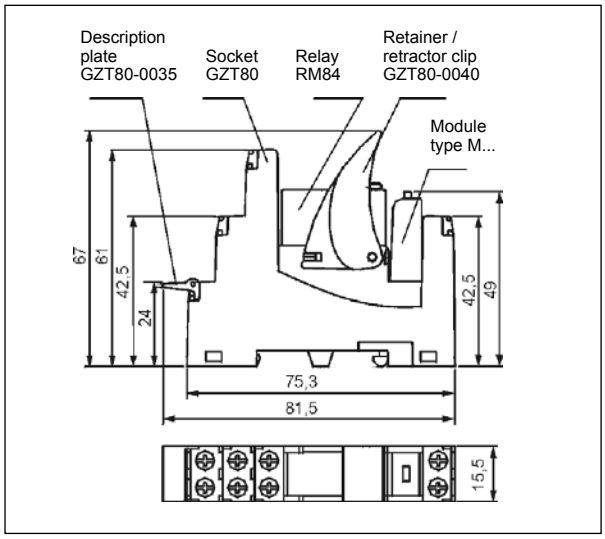
The data in bold type pertain to the standard versions of the relays.

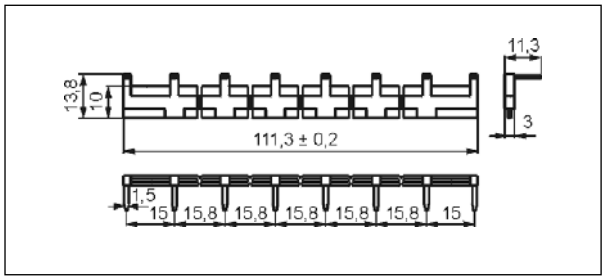
Coil data - AC 50/60 Hz voltage version Table 2

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	± 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.

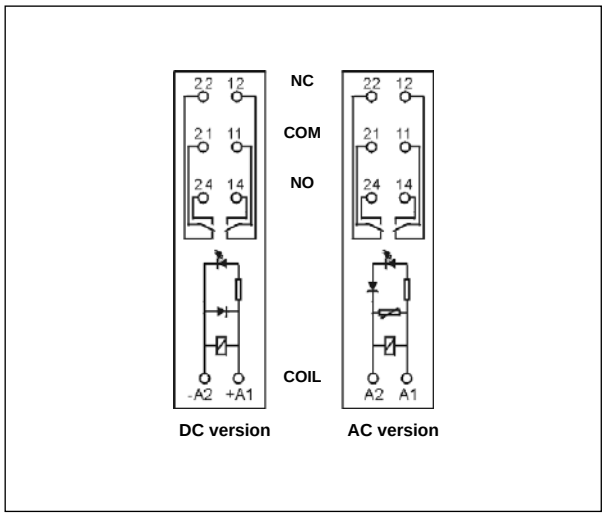
Dimensions



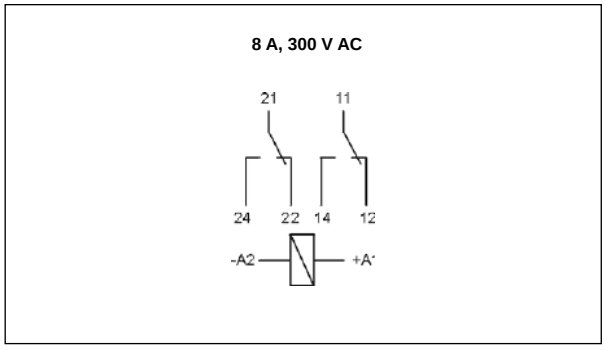


Interconnection strip type **ZGGZ80**

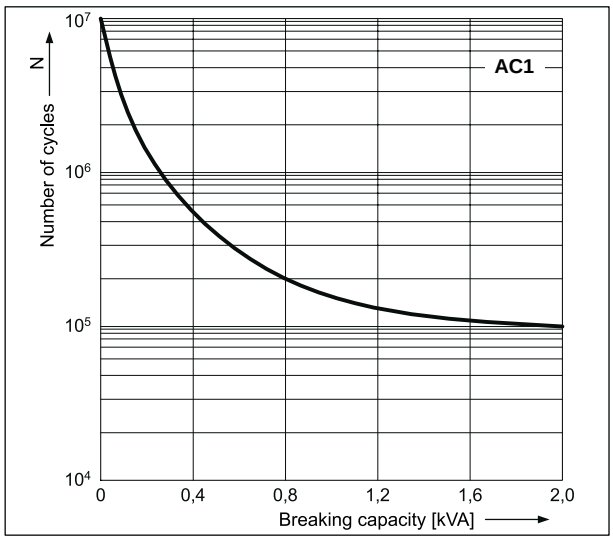
Connection diagrams
(screw terminals side view)



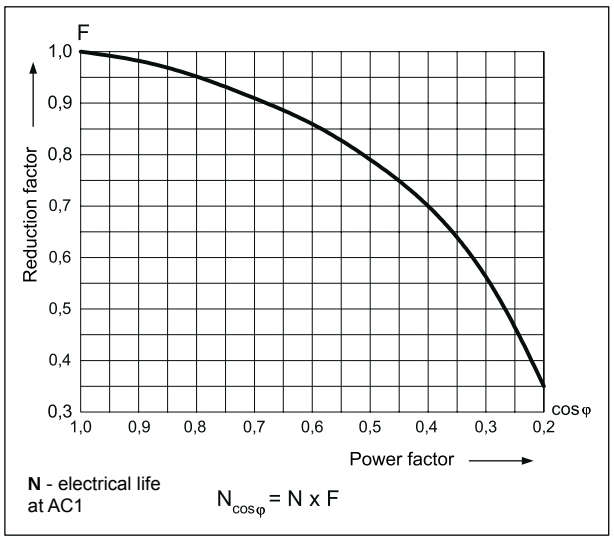
Connection of GZT80



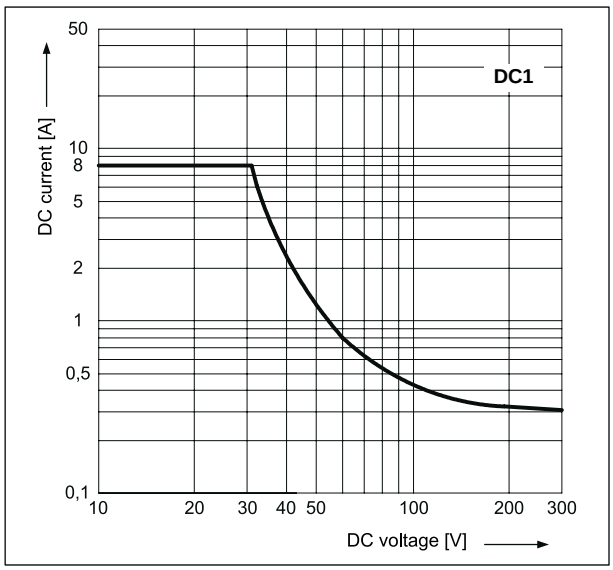
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



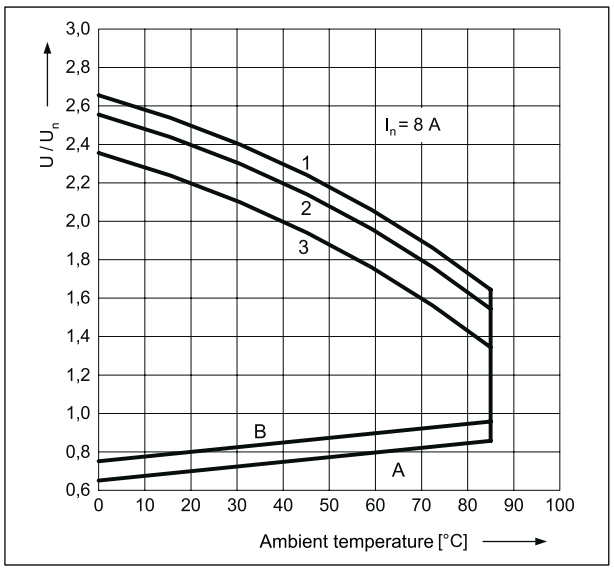
Electrical life reduction factor at AC inductive load Fig. 2



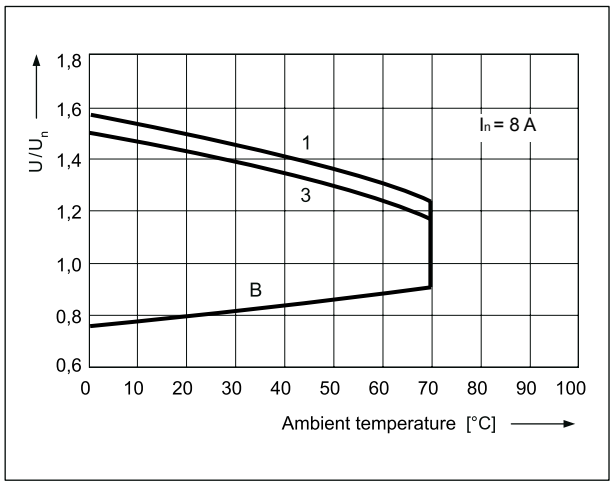
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

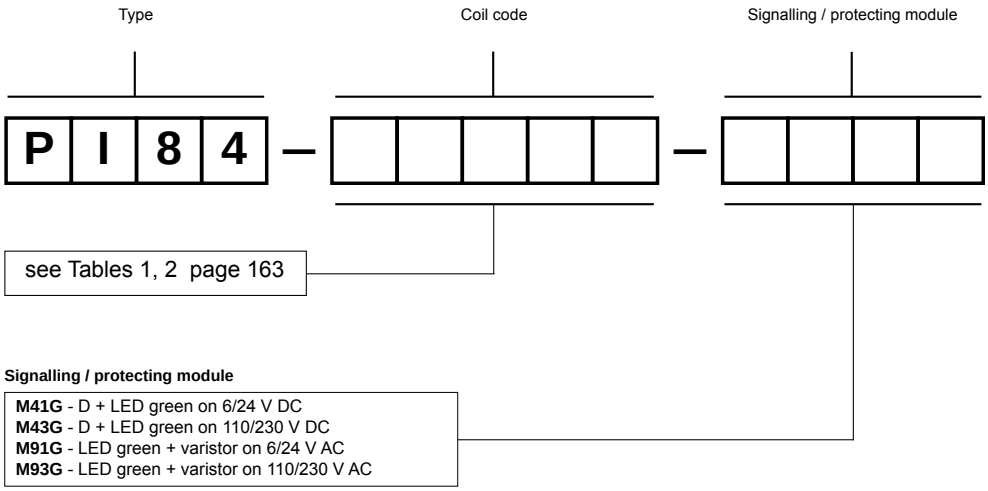
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature after initial coil heating up with 1,1 U_n, at 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 mm^2 (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**

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, CE

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	16 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	16 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA
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	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
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	-40...+85 °C
	• operating	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	± 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.

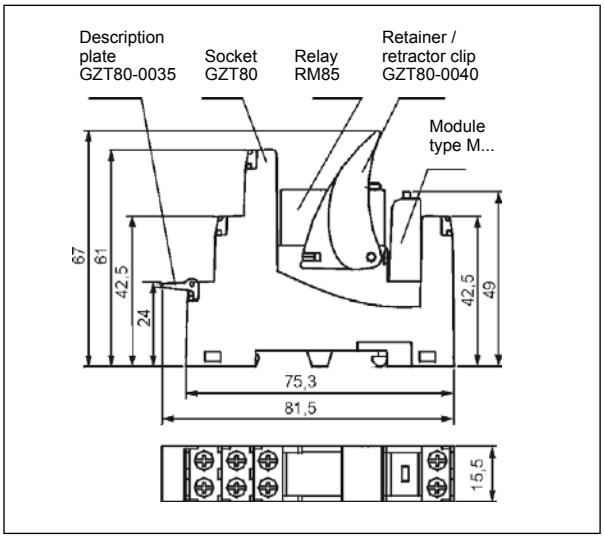
Coil data - AC 50/60 Hz voltage version

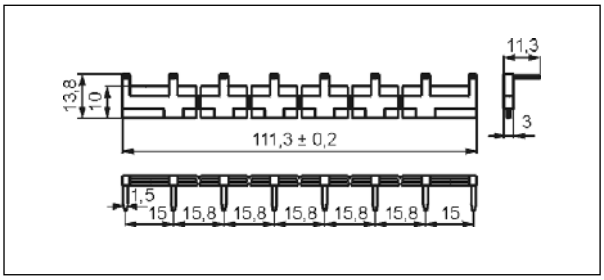
Table 2

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	± 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.

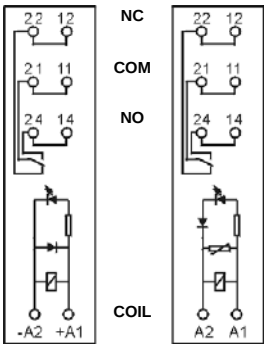
Dimensions



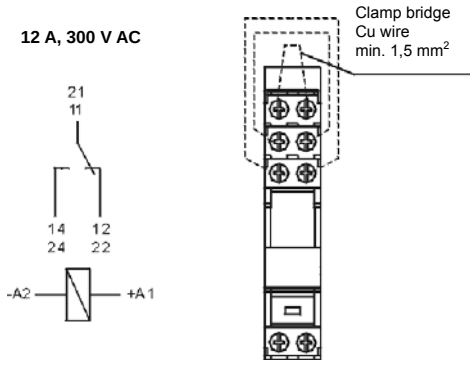


Interconnection strip type **ZGGZ80**

Connection diagrams
(screw terminals side view)

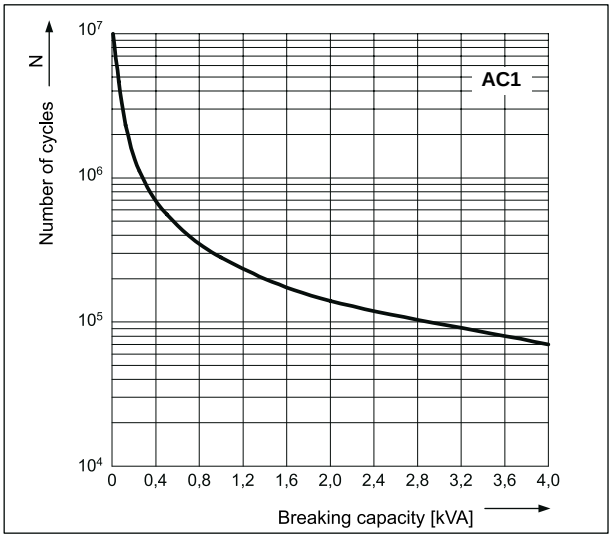


Connection of GZT80

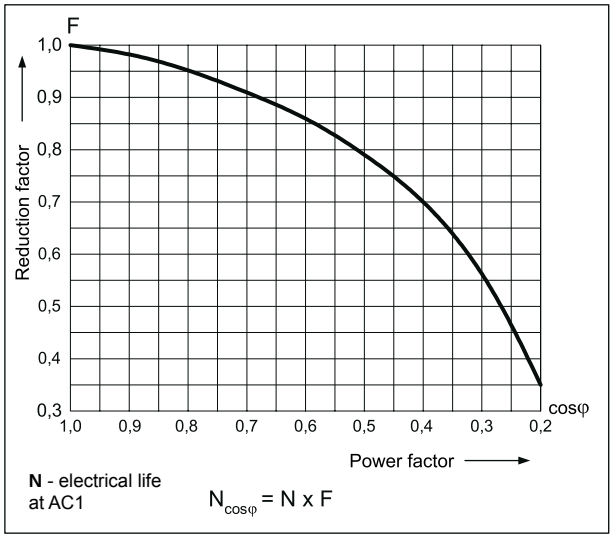


Note: Loads above 12 A require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24. Loads up to 12 A do not require bridging of common terminals (such bridges may be fixed, however).

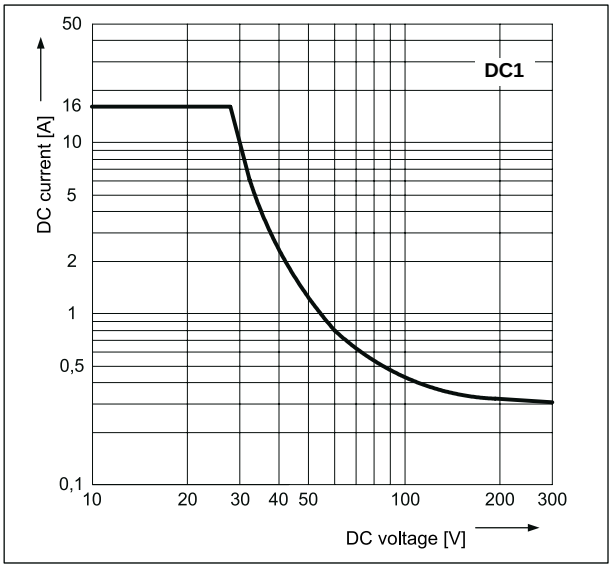
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



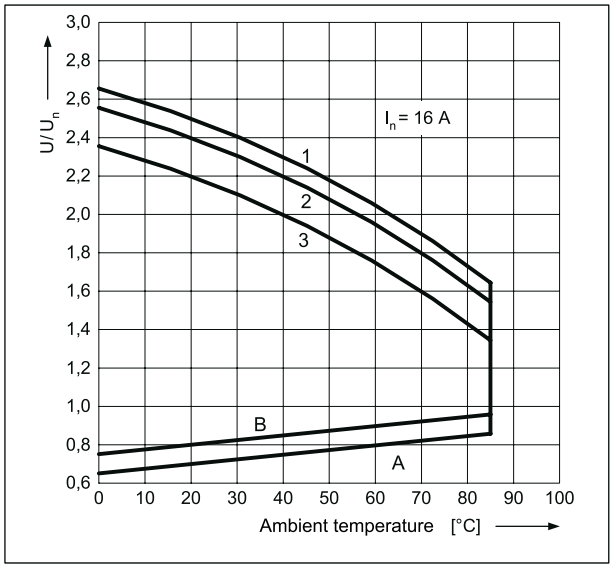
Electrical life reduction factor at AC inductive load Fig. 2



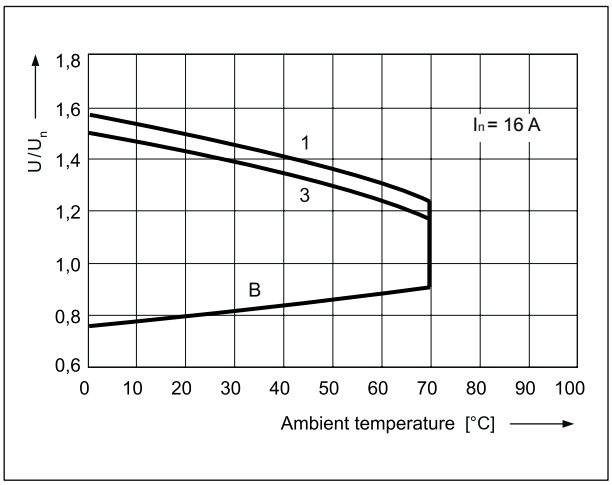
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

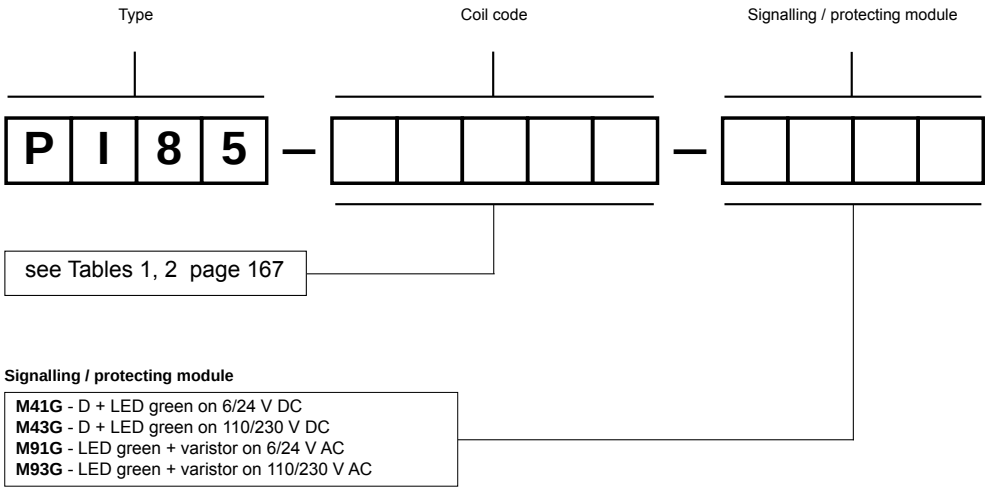
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature 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 **PI85 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 mm^2 (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:

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**

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, CE, EAC

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		
• at rated load	AC1	600 cycles/hour
• no load		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)		$> 3 \times 10^7$
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	(NO/NC)	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	± 10%	8,4	30,6
024DC	**24**	**1 440**	**± 10%**	**16,8**	**61,2**
110DC	110	25 200	± 10%	77,0	280,0

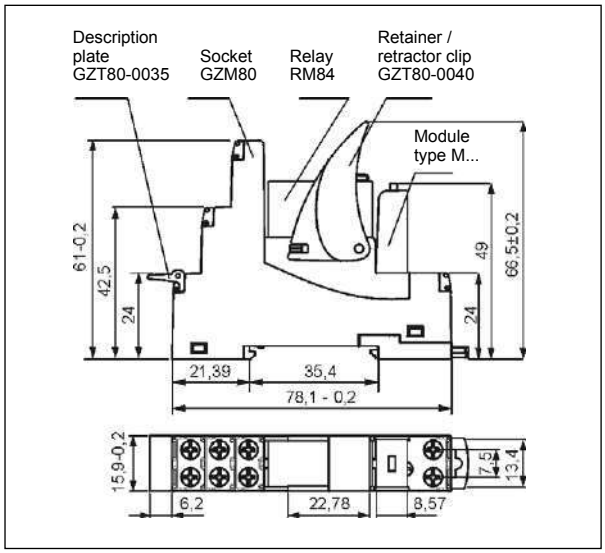
The data in bold type pertain to the standard versions of the relays.

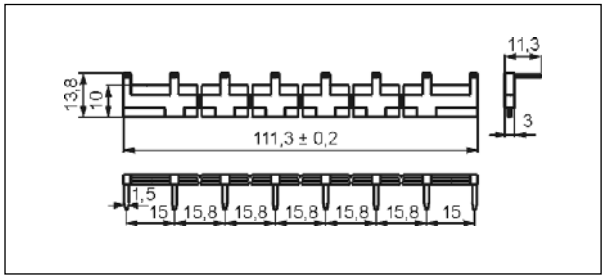
Coil data - AC 50/60 Hz voltage version Table 2

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	± 10%	9,6	13,2
024AC	**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.

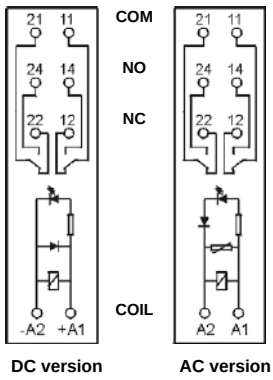
Dimensions



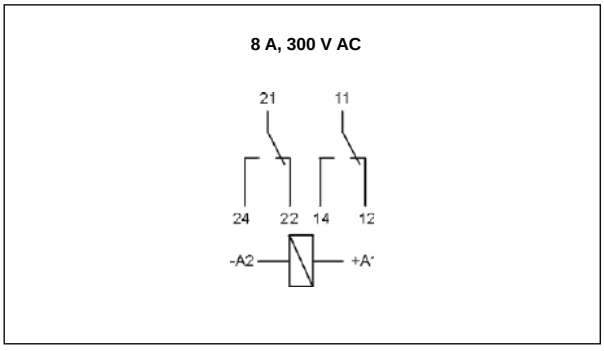


Interconnection strip type **ZGGZ80**

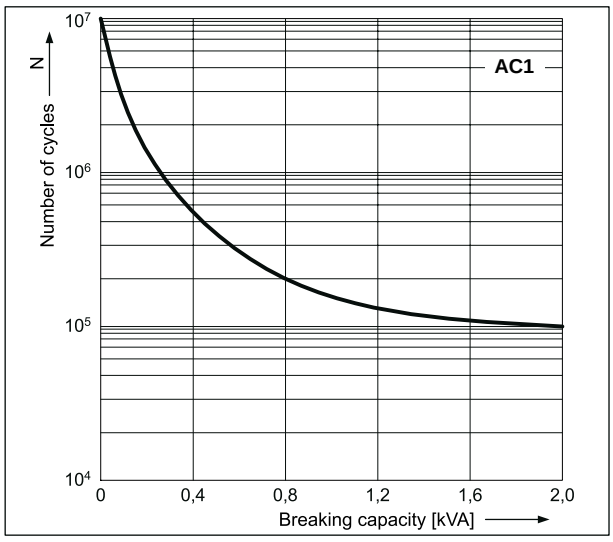
Connection diagrams
(screw terminals side view)



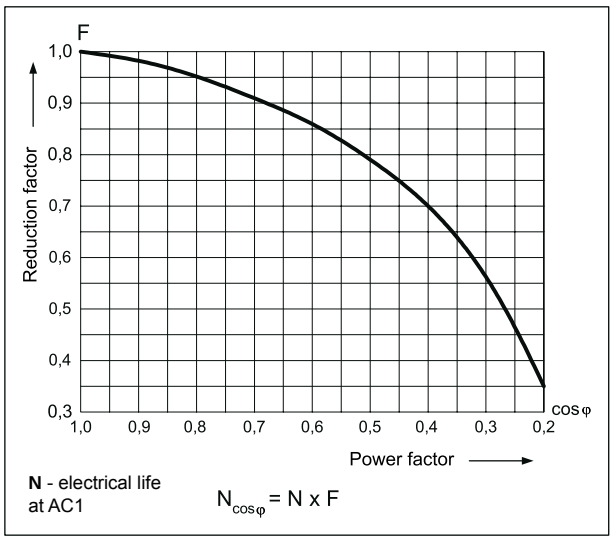
Connection of GZM80



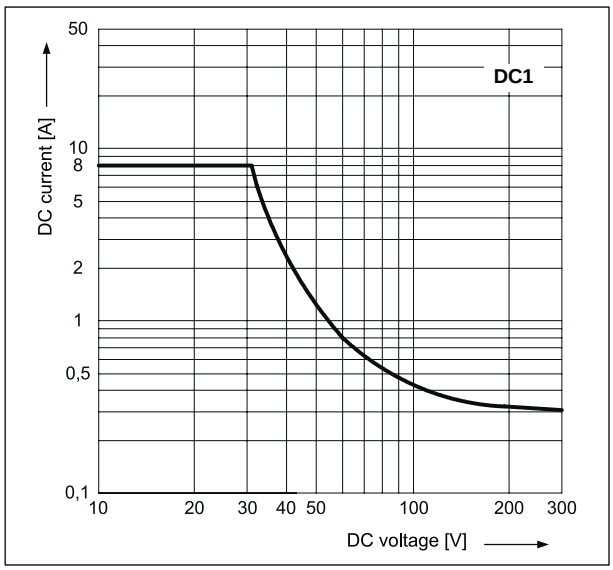
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



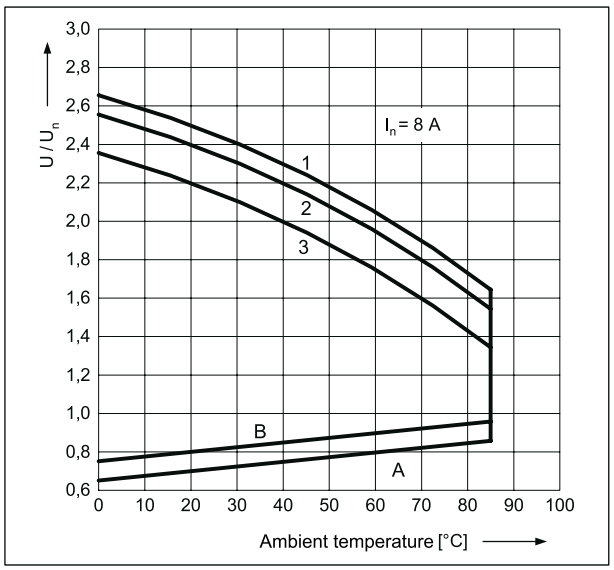
Electrical life reduction factor at AC inductive load Fig. 2



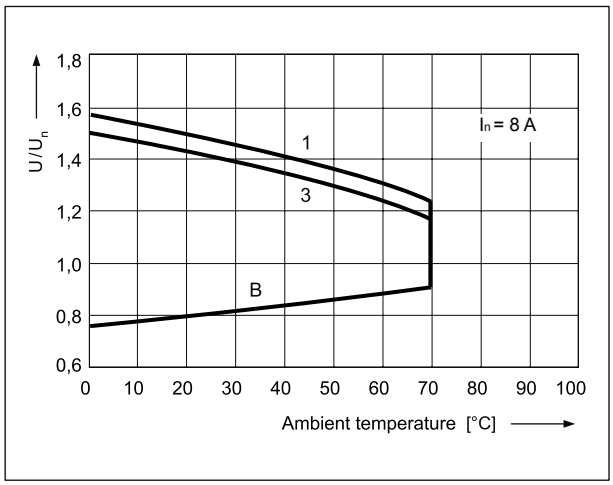
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

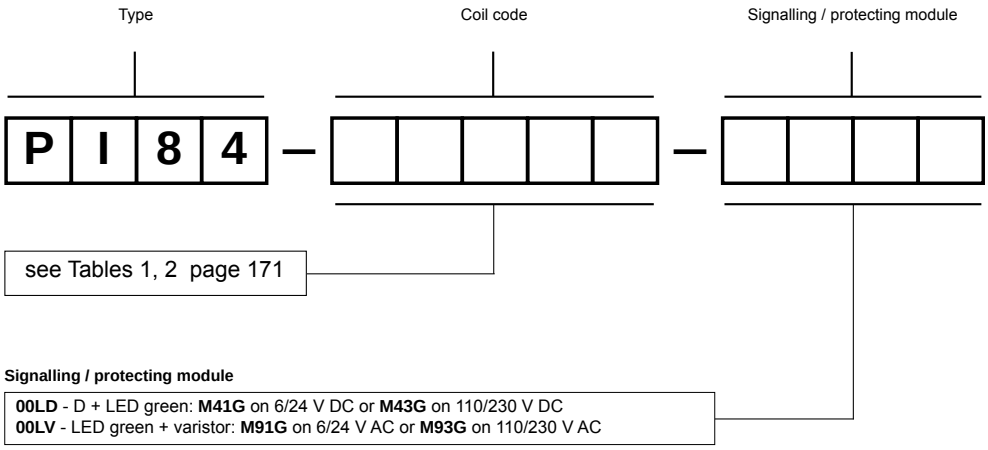
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature 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** 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 mm^2 (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 **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**

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, CE

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	16 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	16 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA
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	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
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	-40...+85 °C
	• operating	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	± 10%	8,4	30,6
024DC	**24**	**1 440**	**± 10%**	**16,8**	**61,2**
110DC	110	25 200	± 10%	77,0	280,0

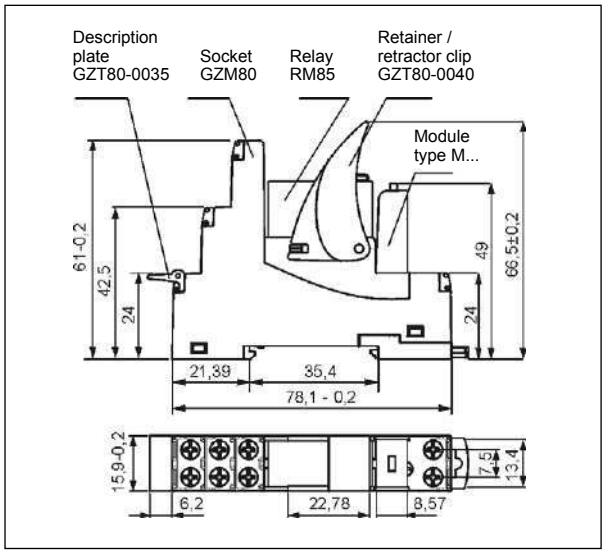
The data in bold type pertain to the standard versions of the relays.

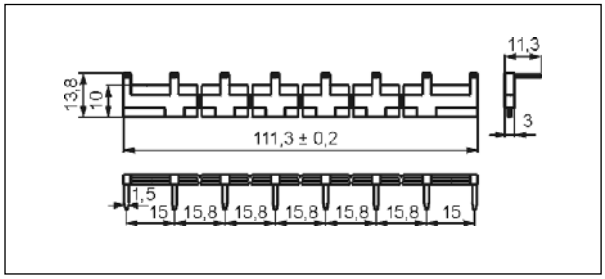
Coil data - AC 50/60 Hz voltage version — Table 2

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	± 10%	9,6	13,2
024AC	**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.

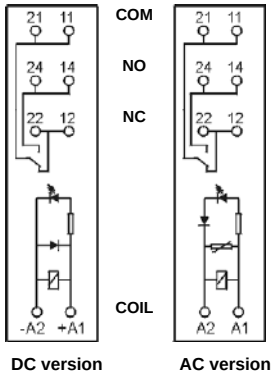
Dimensions



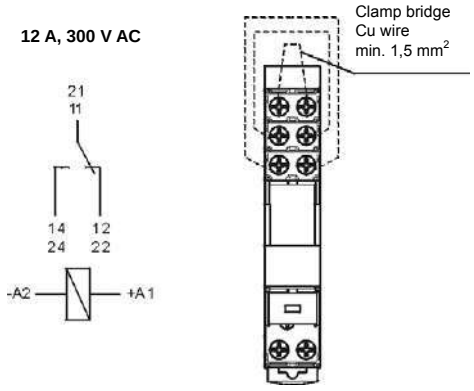


Interconnection strip type **ZGGZ80**

Connection diagrams
(screw terminals side view)



Connection of GZM80



Note: Loads above 12 A require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24. Loads up to 12 A do not require bridging of common terminals (such bridges may be fixed, however).

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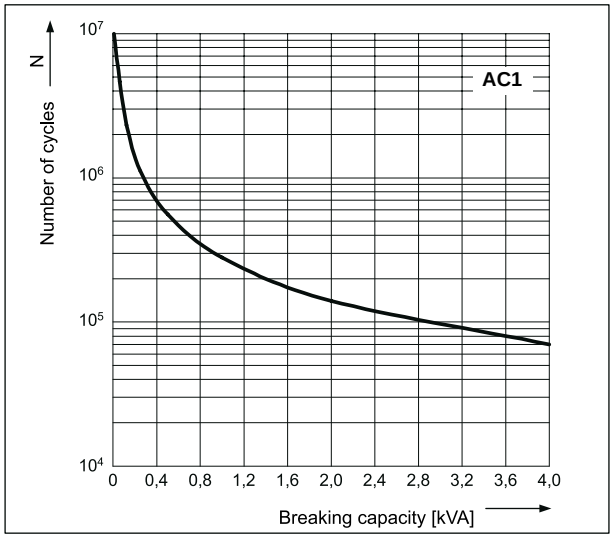
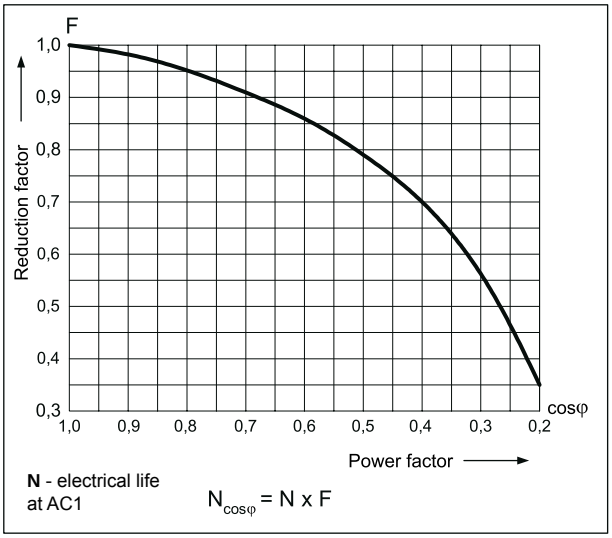
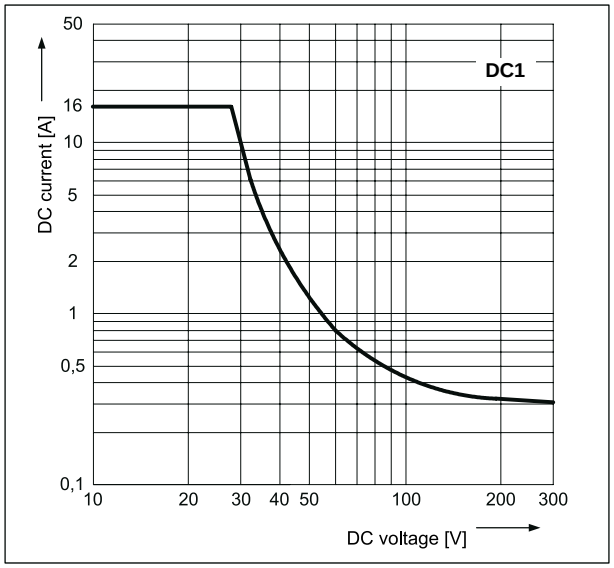
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



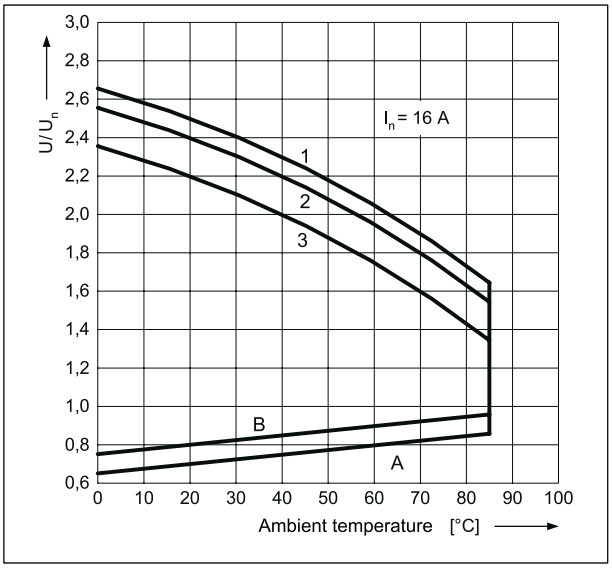
Electrical life reduction factor at AC inductive load Fig. 2



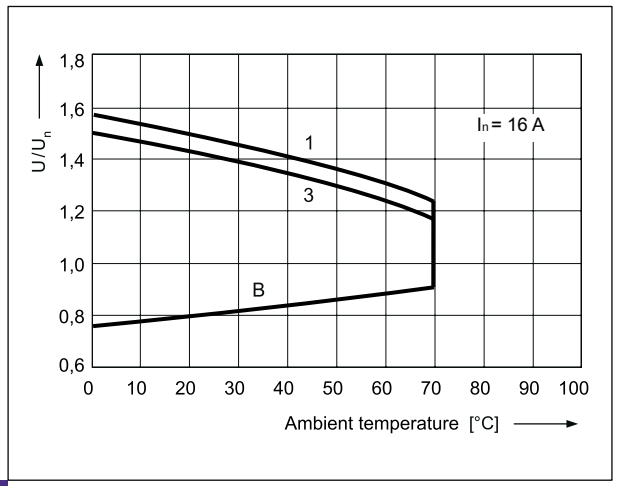
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

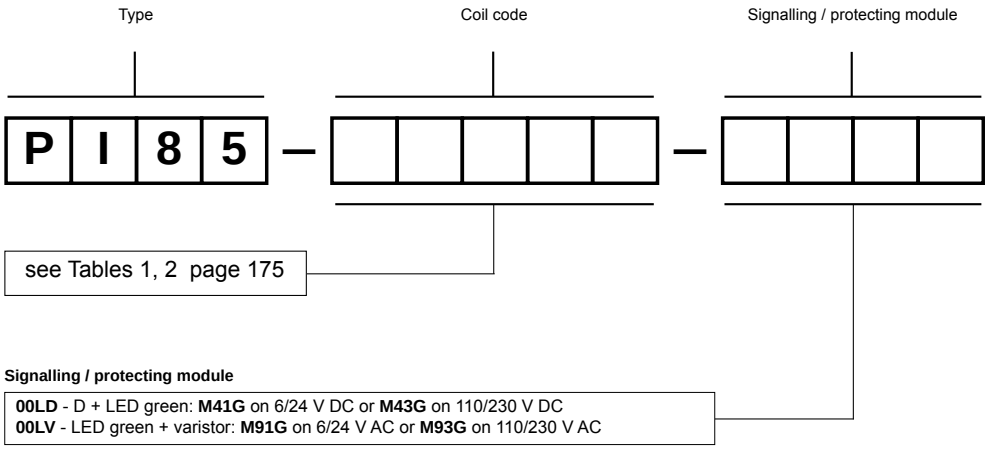
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature 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 **PI85 with socket GZM80** 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 mm^2 (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 **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**

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, CE

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	12 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	370 W (single-phase motor)
	DC1	12 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA
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	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		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	-40...+85 °C
	• operating	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	± 10%	9,6	13,2
024DC	**24**	**640**	**± 10%**	**19,2**	**26,4**
048DC	48	2 600	± 10%	38,4	52,8
110DC	110	13 600	± 10%	88,0	121,0

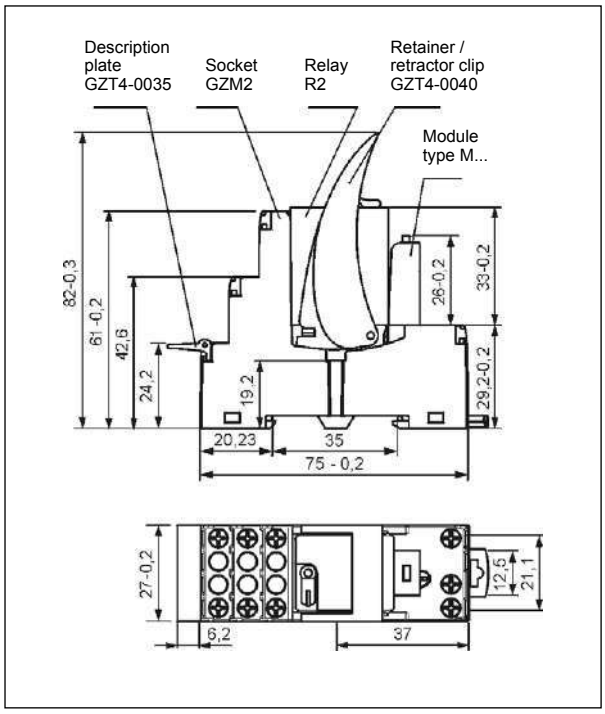
The data in bold type pertain to the standard versions of the relays.

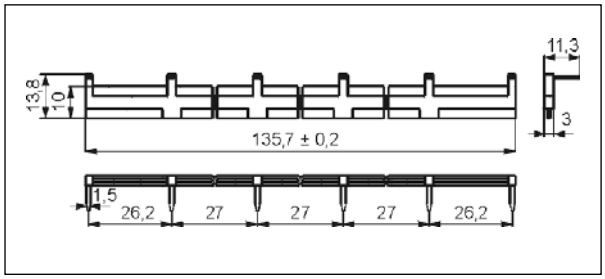
Coil data - AC 50/60 Hz voltage version — Table 2

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	± 10%	9,6	13,2
024AC	**24**	**158**	**± 10%**	**19,2**	**26,4**
048AC	48	640	± 10%	38,4	52,8
120AC	120	3 770	± 10%	96,0	132,0
230AC	**230**	**16 100**	**± 10%**	**184,0**	**253,0**

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

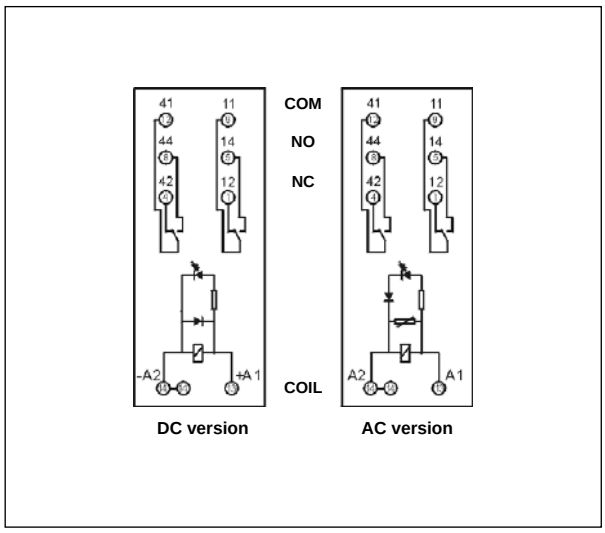
Dimensions



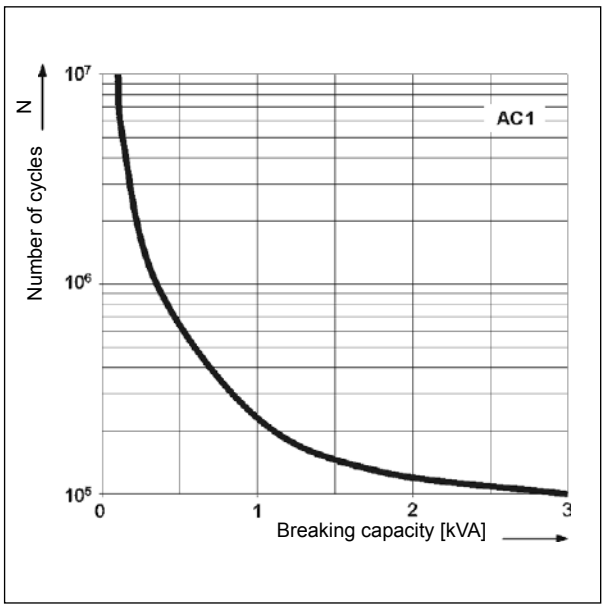


Interconnection strip type **ZGGZ4**

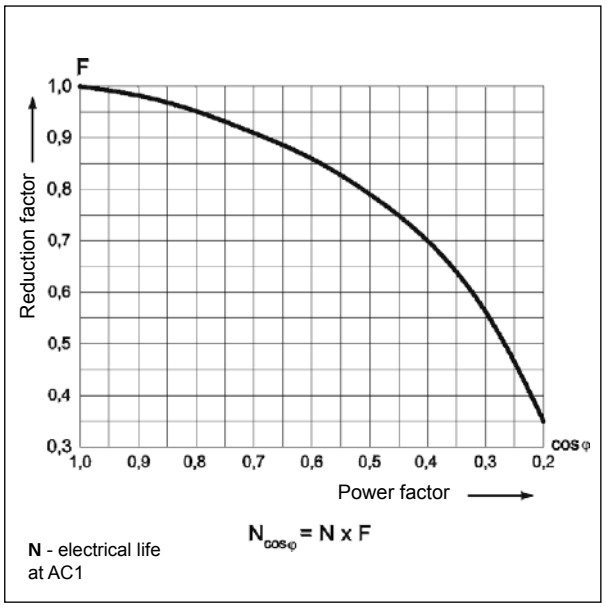
Connection diagrams
(screw terminals side view)



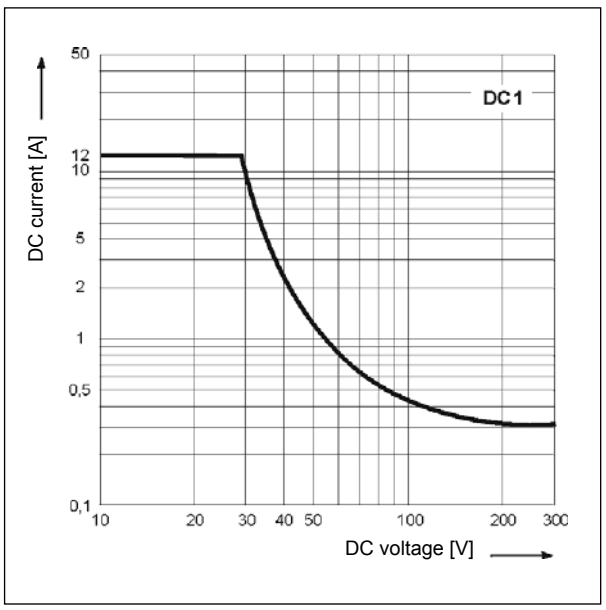
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour Fig. 1



Electrical life reduction factor at AC inductive load Fig. 2



Max. DC resistive load breaking capacity Fig. 3

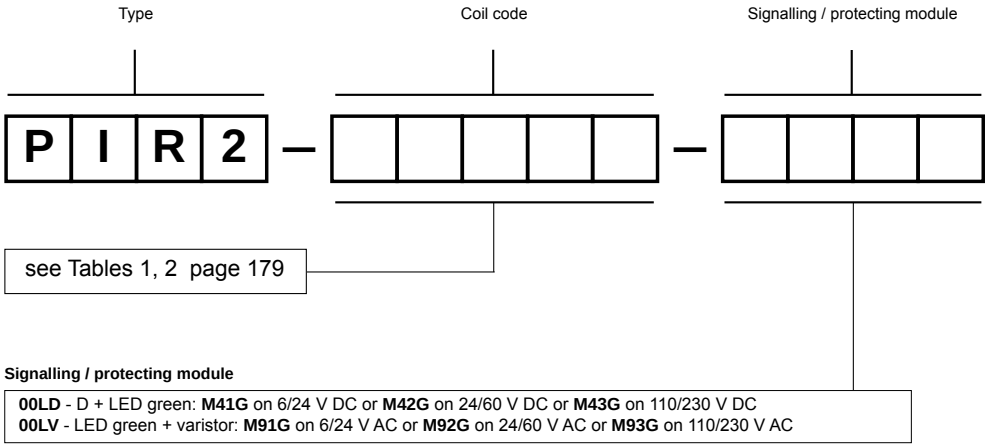


Mounting

Relays **PIR2 with socket GZM2** ❶ 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 mm^2 (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 **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**

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, CE

Contact data

Number and type of contacts		3 CO
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	± 10%	9,6	13,2
024DC	**24**	**640**	**± 10%**	**19,2**	**26,4**
048DC	48	2 600	± 10%	38,4	52,8
110DC	110	13 600	± 10%	88,0	121,0

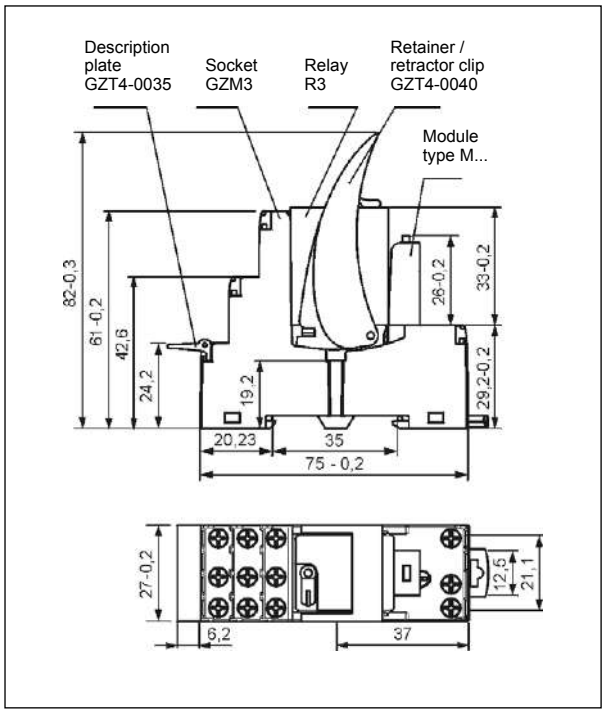
The data in bold type pertain to the standard versions of the relays.

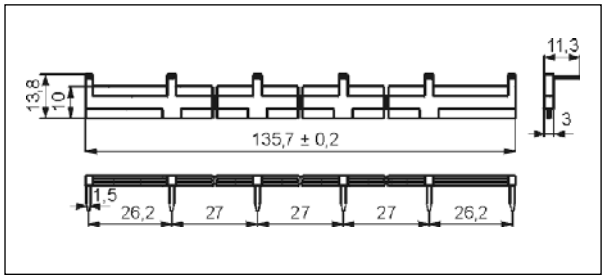
Coil data - AC 50/60 Hz voltage version — Table 2

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	± 10%	9,6	13,2
024AC	**24**	**158**	**± 10%**	**19,2**	**26,4**
048AC	48	640	± 10%	38,4	52,8
120AC	120	3 770	± 10%	96,0	132,0
230AC	**230**	**16 100**	**± 10%**	**184,0**	**253,0**

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

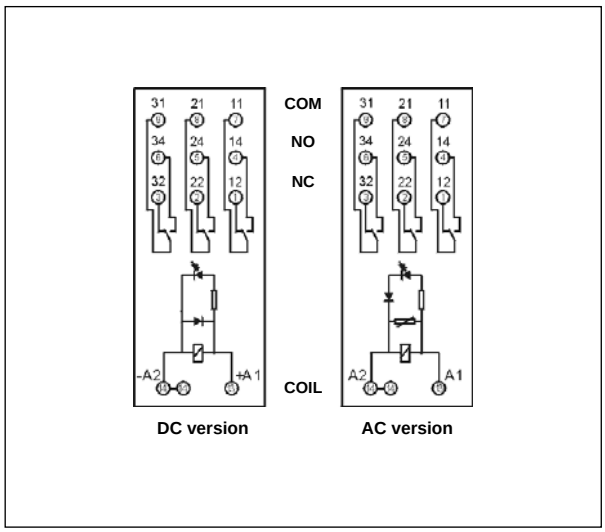
Dimensions





Interconnection strip type **ZGGZ4**

Connection diagrams
(screw terminals side view)



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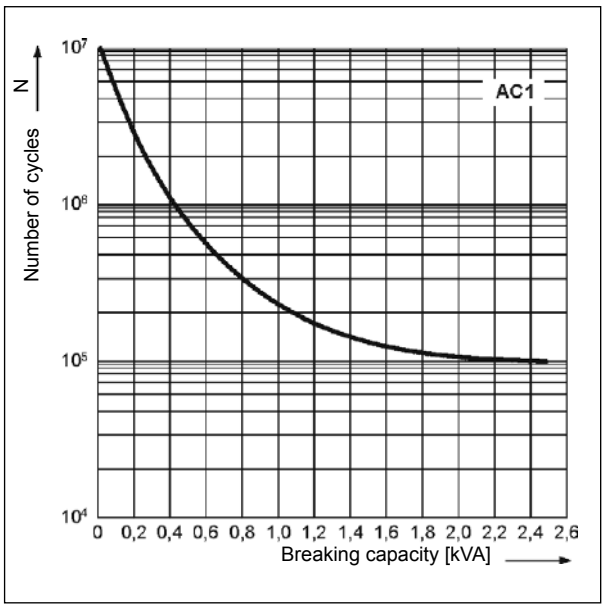
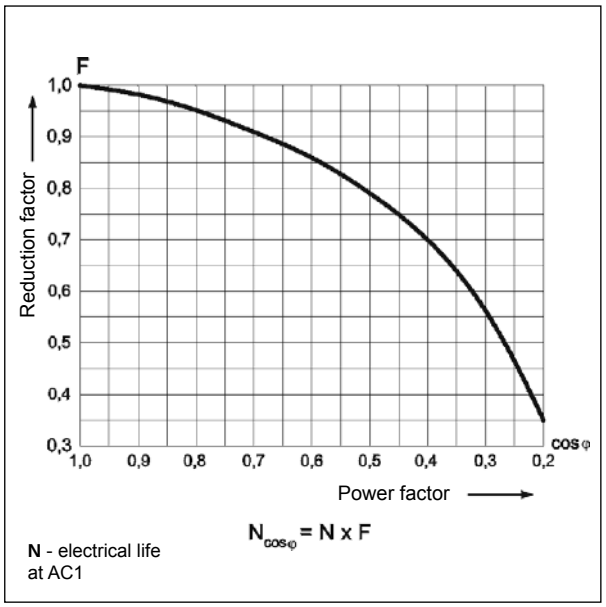
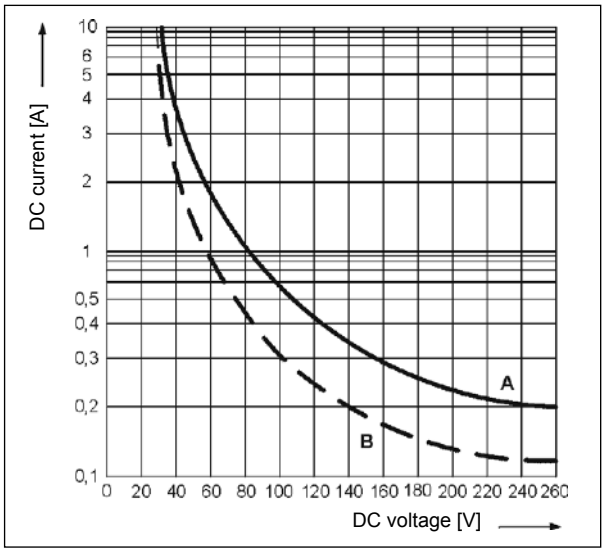
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour Fig. 1



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

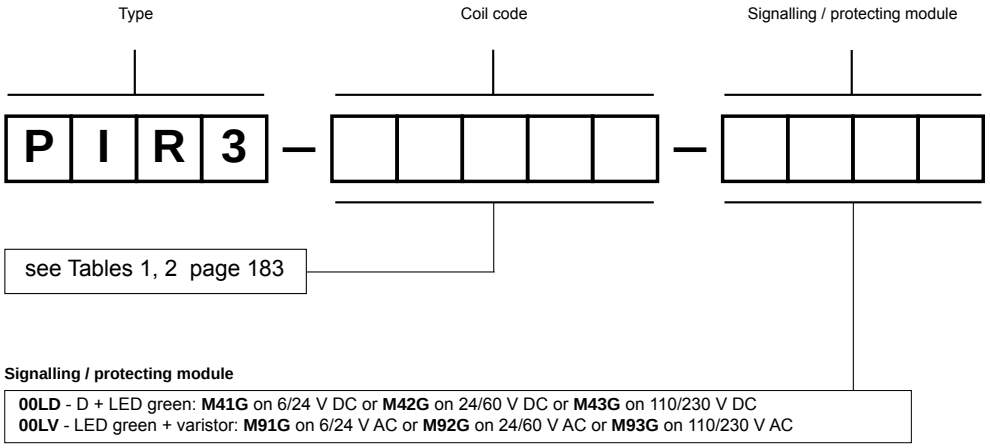


Mounting

Relays **PIR3 with socket GZM3** ❶ 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 mm^2 (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 **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**

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, CE

Contact data

Number and type of contacts		4 CO
Contact material		**AgNi**
Rated / max. switching voltage	AC	250 V / 250 V
Min. switching voltage		5 V
Rated load (capacity)	AC1	6 A / 250 V AC
	AC15	1,5 A / 120 V 0,75 A / 240 V (C300)
	AC3	125 W (single-phase motor)
	DC1	6 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		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	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		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	-40...+85 °C
	• operating	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	± 10%	9,6	13,2
024DC	**24**	**640**	**± 10%**	**19,2**	**26,4**
048DC	48	2 600	± 10%	38,4	52,8
110DC	110	13 600	± 10%	88,0	121,0

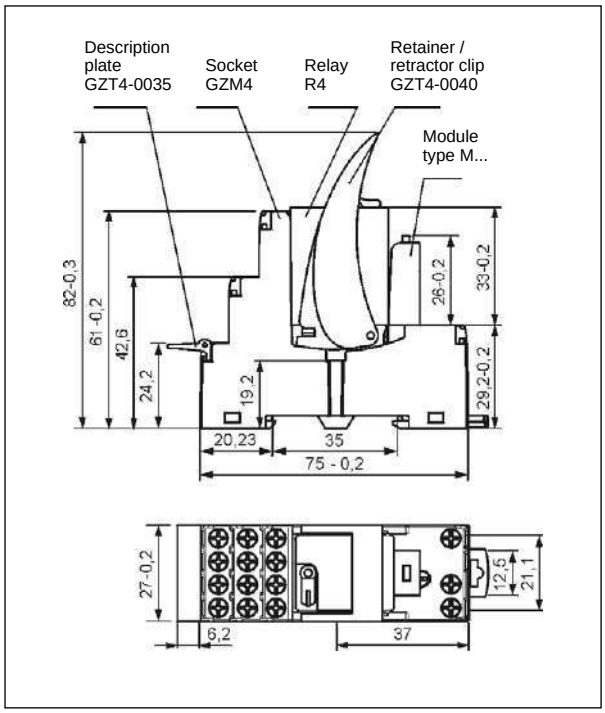
The data in bold type pertain to the standard versions of the relays.

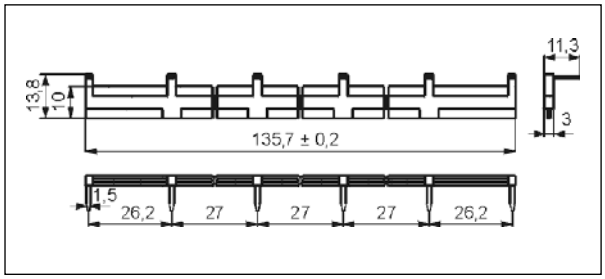
Coil data - AC 50/60 Hz voltage version Table 2

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	± 10%	9,6	13,2
024AC	**24**	**158**	**± 10%**	**19,2**	**26,4**
048AC	48	640	± 10%	38,4	52,8
120AC	120	3 770	± 10%	96,0	132,0
230AC	**230**	**16 100**	**± 10%**	**184,0**	**253,0**

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

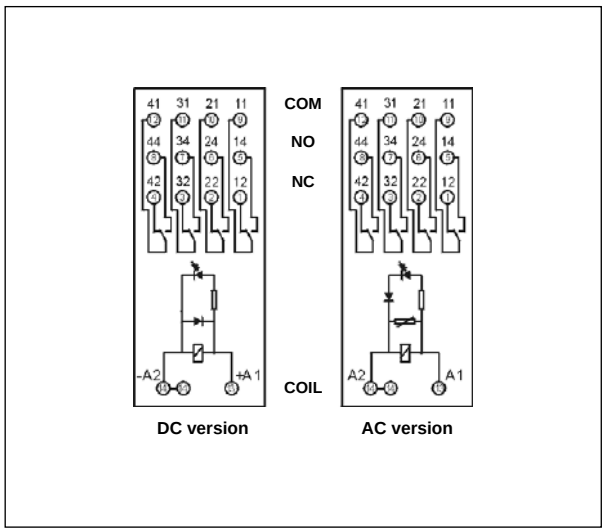
Dimensions



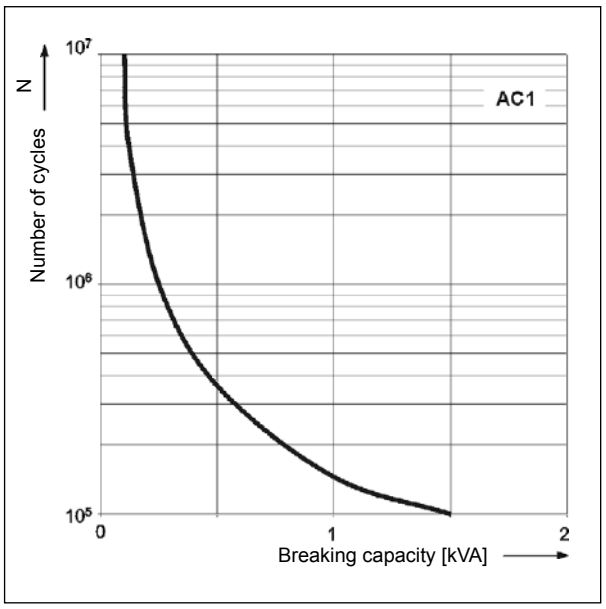


Interconnection strip type **ZGGZ4**

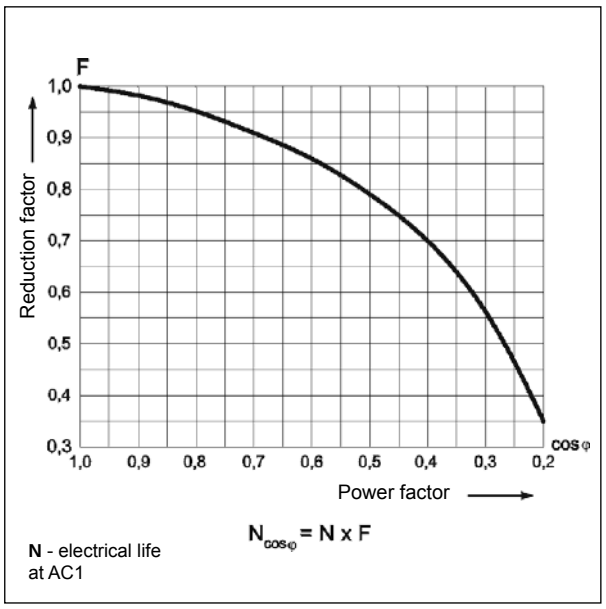
Connection diagrams
(screw terminals side view)



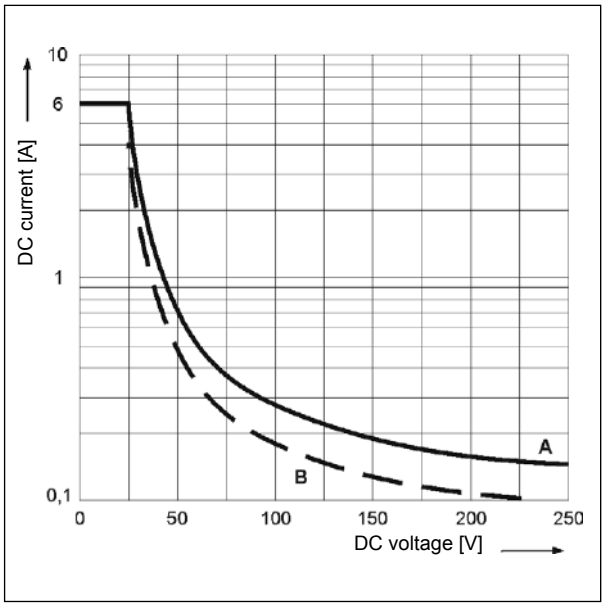
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour Fig. 1



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

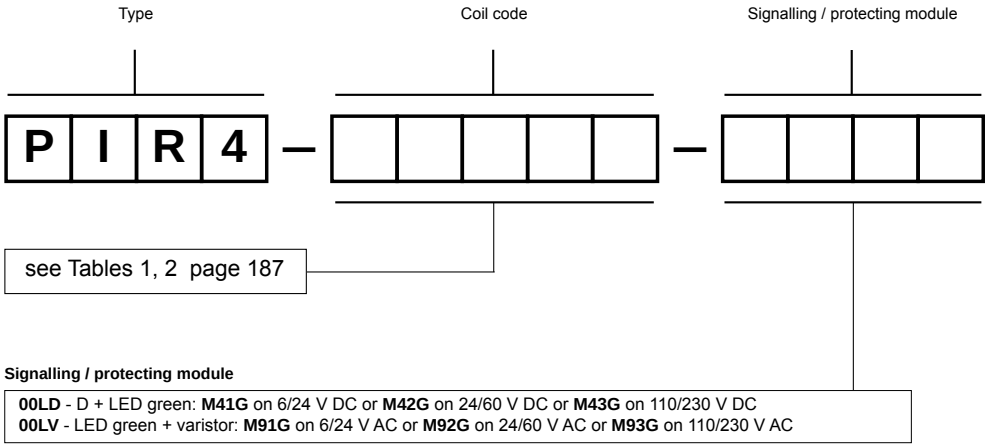


Mounting

Relays **PIR4 with socket GZM4** ❶ 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 mm^2 (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 **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**

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, CE

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	5 A / 250 V AC
	DC1	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	6 ... 230 V
	DC	6 ... 110 V
Must release voltage		≥ 0,05 U_n
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC	1,2 VA
	DC	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	-40...+70 °C
	• operating	-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	± 10%	4,8	6,6
012DC	**12**	**188**	**± 10%**	**9,6**	**13,2**
024DC	**24**	**750**	**± 10%**	**19,2**	**26,4**
048DC	48	2 660	± 10%	38,4	52,8
110DC	110	13 480	± 10%	88,0	121,0

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

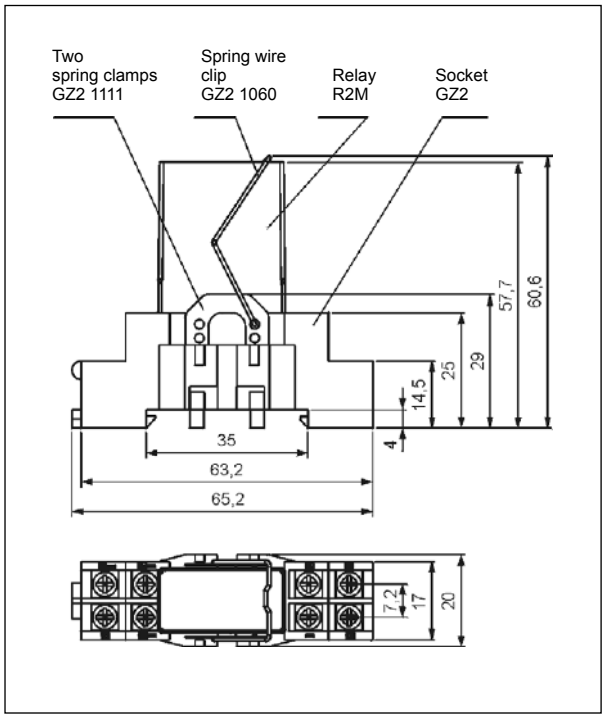
Coil data - AC 50/60 Hz voltage version

Table 2

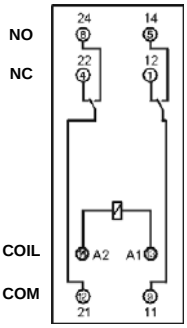
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
006AC	6	16	± 10%	4,8	6,6
012AC	12	68	± 10%	9,6	13,2
024AC	**24**	**270**	**± 10%**	**19,2**	**26,4**
115AC	115	5 990	± 10%	92,0	126,0
230AC	**230**	**21 470**	**±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

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

Dimensions

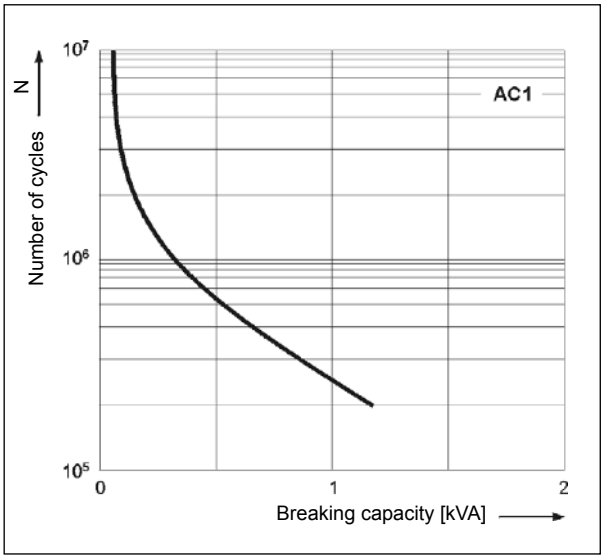


Connection diagrams
(screw terminals side view)



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

Fig. 1



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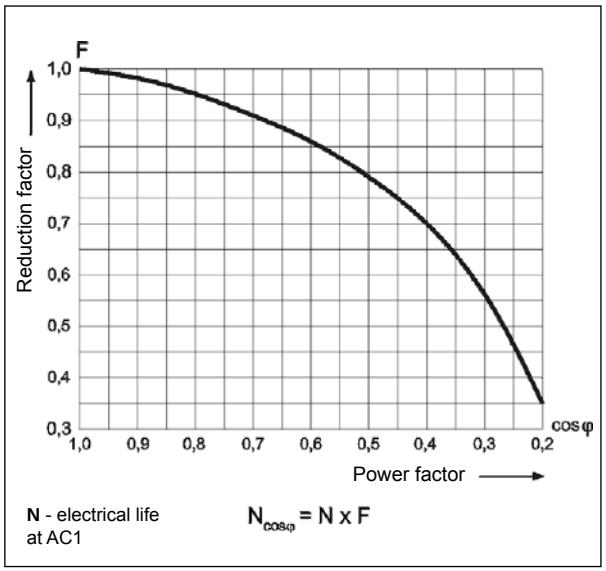
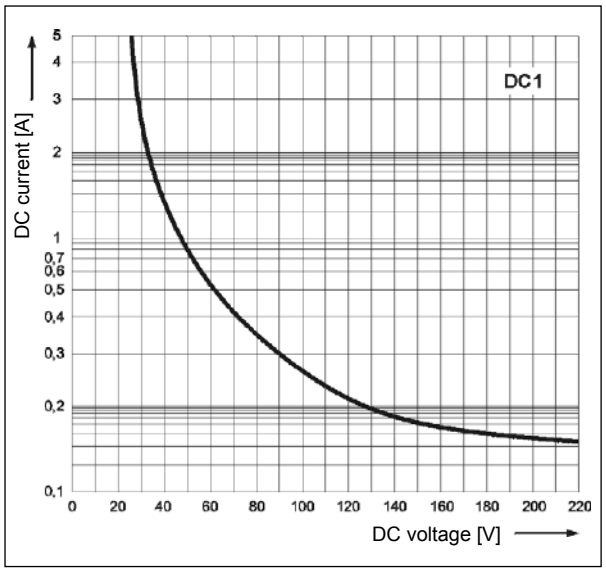
Electrical life reduction factor at AC inductive load Fig. 2



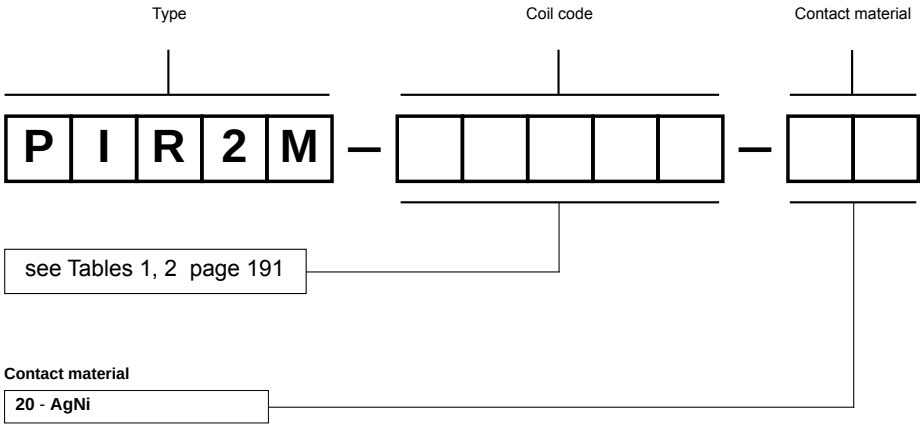
Max. DC resistive load breaking capacity Fig. 3



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**

- 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** ❷)
- 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			
• at rated load	AC1	360 cycles/hour	
• no load		72 000 cycles/hour	

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			
• clearance / creepage		≥ 6 mm / ≥ 8 mm	

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. 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 $AgSnO_2$ contacts (see beside), and electrical life of these contacts may be shorter than of normal contacts. ❷ 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.

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Input data

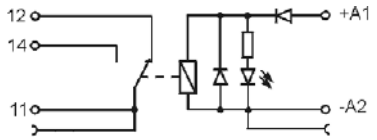
Table 1

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 ❷	230 V AC/DC	1,6 VA / 1,6 W	196,0	253,0
PI6-1P-12VDC-01 ❶	12 V DC	0,3 W	9,6	14,4
PI6-1P-24VDC-01 ❶	24 V DC	0,4 W	19,2	28,0
PI6-1P-36VDC-01 ❶	36 V DC	0,7 W	28,8	40,0
PI6-1P-24VAC/DC-01 ❶	24 V AC/DC	0,5 VA / 0,5 W	19,2	26,4
PI6-1P-230VAC/DC-01 ❶	230 V AC/DC	0,8 VA / 0,8 W	184,0	253,0

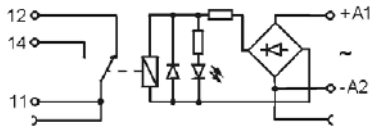
The data in bold type pertain to the standard versions of the relays.
❶ Version with gold-plated contacts. ❷ Version for long control lines (max. 300 m), with anti-interference filter.

Connection diagrams

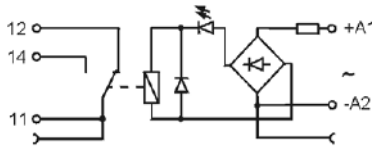
PI6-1P-12VDC, PI6-1P-12VDC-01
PI6-1P-24VDC, PI6-1P-24VDC-01
PI6-1P-36VDC, PI6-1P-36VDC-01



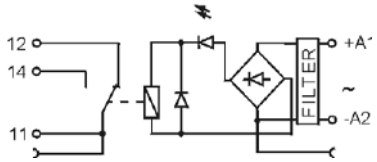
PI6-1P-24VAC/DC, PI6-1P-24VAC/DC-01
PI6-1P-42VAC/DC



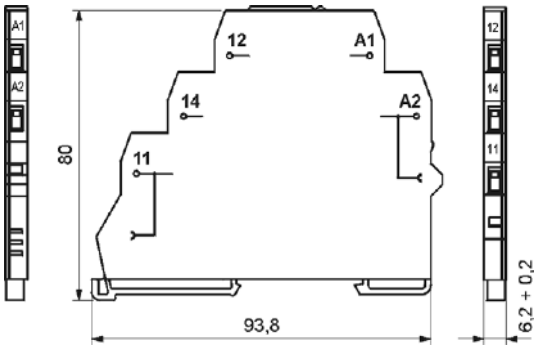
PI6-1P-115VAC/DC
PI6-1P-230VAC/DC, PI6-1P-230VAC/DC-01



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.

- 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, CE

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^2s t=1-10 ms
dI/dt		50 A/µs
dV/dt		40 V/µs

Input circuit

Rated voltage	DC	5...32 V
	AC: 50/60 Hz AC/DC	24 ... 230 V
Turn-off voltage		AC: ≥ 0,2 U_n DC: ≥ 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

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for interfece relays **PI6**

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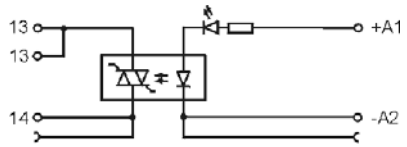
Input data

Table 1

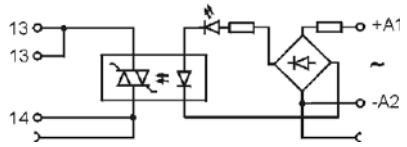
Interface relay code	Rated input voltage U_n	Power of input circuit
PI6-1T-5...32VDC	5...32 V DC	0,3 W at 24 V
PI6-1T-24VAC/DC	24 V AC/DC	0,3 VA / 0,3 W
PI6-1T-230VAC/DC	230 V AC/DC	1,6 VA / 1,6 W

Connection diagrams

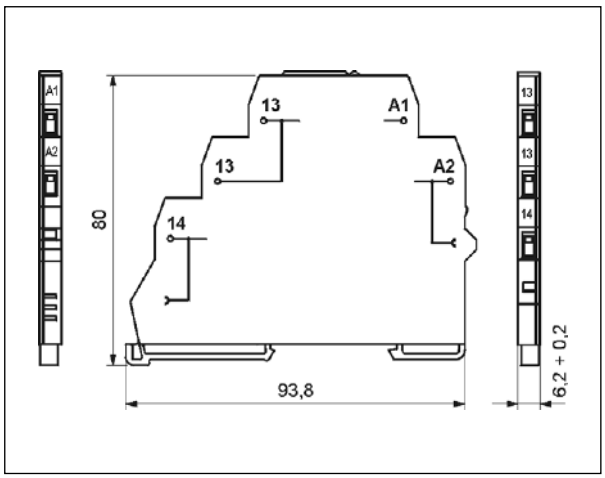
PI6-1T-5...32VDC

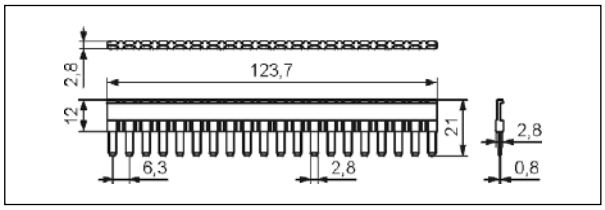


PI6-1T-24VAC/DC
PI6-1T-230VAC/DC



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

RM699BV + PI6W-1P-...

- Width 6,2 mm • Interface relay **PIR6W-1P-...** consists of: screw terminals socket, with electronic **PI6W-1P-...**, miniature operational relay - electromagnetic **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** ❸)
- Accessories: description plates **PI6W-1246**
- Recognitions, certifications, directives: RoHS,

Output circuit (RM699BV) - contact data ❶

Number and type of contacts		1 CO		
Contact material		**$AgSnO_2$**		$AgSnO_2$/Au 3 µm ❷
Max. switching voltage		400 V AC / 250 V DC		30 V AC / 36 V DC ❷
Min. switching voltage	AC / DC	10 V		5 V
Rated load	AC1	6 A / 250 V AC		0,05 A / 30 V AC ❷
	DC1	6 A / 24 V DC; 0,15 A / 250 V DC		0,05 A / 36 V DC ❷
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				
• at rated load	AC1	360 cycles/hour		
• no load		72 000 cycles/hour		

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 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	0,3 W		
	AC/DC	0,3 ... 2,1 VA / 0,3 ... 1,0 W		
Max. length of control line		≤ 300 m	AC control voltage ❸	

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
	• 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			
• 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	> 0,6 x 10^5	6 A, 250 V AC, 360 cycles/hour	
	• cos ϕ = 0,4	> 2 x 10^5	2 A, 250 V AC	
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	-40...+70 °C		
	• operating	-40...+60 °C	12, 24 V DC	-40...+50 °C 230 V AC/DC ❹
		-40...+55 °C	other voltages	
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 $AgSnO_2$ 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 (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, 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 ❹	**184,0**	**253,0**
PIR6W-1P-230VAC/DC-10 ❸ ❹	196,0 ❺	253,0
PIR6W-1P-12VDC-01 ❷	9,6	14,4
PIR6W-1P-24VDC-01 ❷	**19,2**	**28,0**
PIR6W-1P-36VDC-01 ❷	28,8	40,0
PIR6W-1P-24VAC/DC-01 ❷	19,2	26,4
PIR6W-1P-42VAC/DC-01 ❷	33,6	50,0
PIR6W-1P-115VAC/DC-01 ❷	92,0	130,0
PIR6W-1P-230VAC/DC-01 ❷ ❹	**184,0**	**253,0**

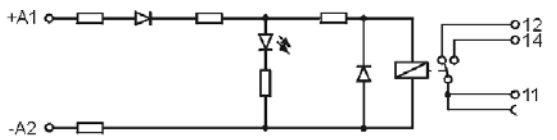
The data in bold type pertain to the standard versions of the relays.
❷ Version with gold-plated contacts.
❸ Version for long control lines (max. 300 m), with anti-interference filter.
❹ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays.
❺ 196,0 V at supply voltage AC; 184,0 V at supply voltage DC

Ordering codes

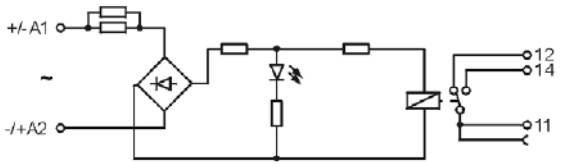
Ordering codes **PIR6W-1P-...** are specified in Tables 1, 2, „Interface relay code" column.

Connection diagrams

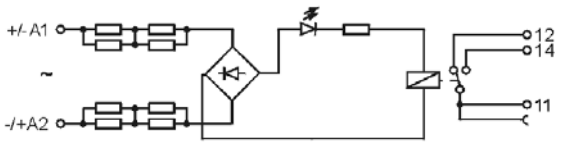
PIR6W-1P-12VDC, PIR6W-1P-12VDC-01
PIR6W-1P-24VDC, PIR6W-1P-24VDC-01
PIR6W-1P-36VDC, PIR6W-1P-36VDC-01



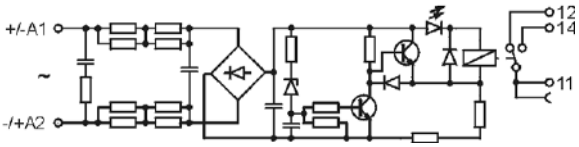
PIR6W-1P-24VAC/DC, PIR6W-1P-24VAC/DC-01
PIR6W-1P-42VAC/DC, PIR6W-1P-42VAC/DC-01



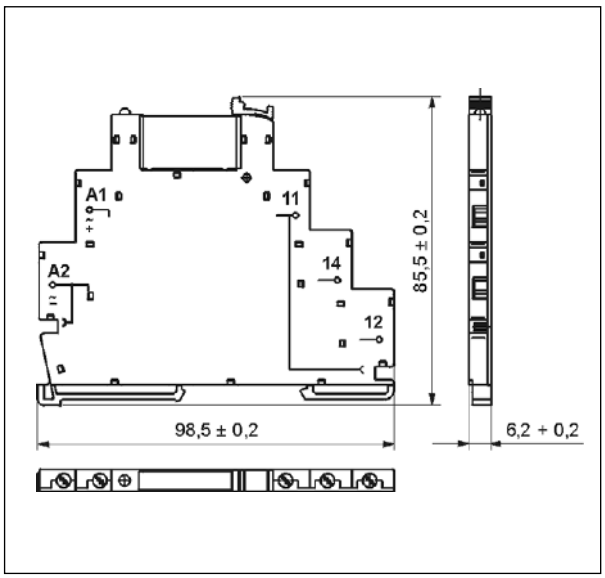
PIR6W-1P-115VAC/DC, PIR6W-1P-115VAC/DC-01
PIR6W-1P-230VAC/DC, PIR6W-1P-230VAC/DC-01

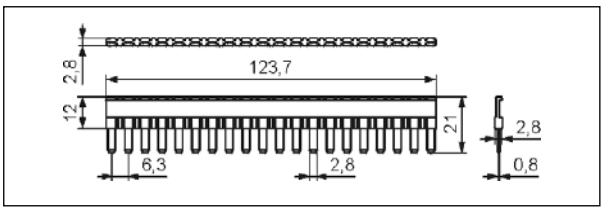


PIR6W-1P-230VAC/DC-10

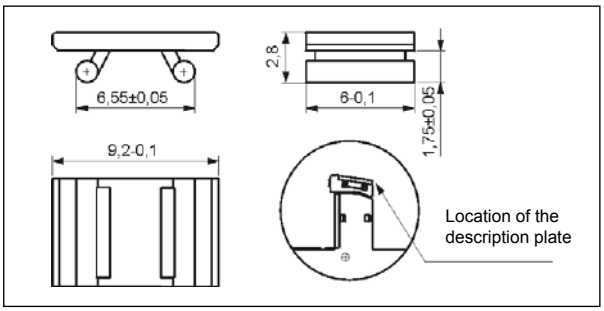


Dimensions





Interconnection strip type **ZG20**



Description plate **PI6W-1246**

Mounting

Relays **PIR6W-1P-...** ❹ 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 mm^2 / 2 x 1,5 mm^2 (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.

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

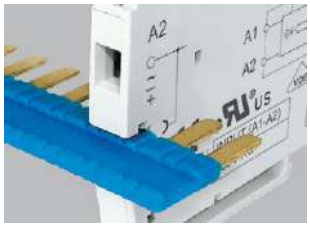

PI6W-1P-...

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 Un ❻	Power of input circuit	Socket code	Operational relay code	Rated voltage of operational relay Us ❻
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 ❹	**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 ❸ ❹	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 ❷	12 V DC	0,3 W	PI6W-1P-12VDC	RM699BV-3211-85-1012	12 V DC
PIR6W-1P-24VDC-01 ❷	**24 V DC**	**0,3 W**	**PI6W-1P-24VDC**	**RM699BV-3211-85-1024**	**24 V DC**
PIR6W-1P-36VDC-01 ❷	36 V DC	0,3 W	PI6W-1P-36VDC	RM699BV-3211-85-1024	24 V DC
PIR6W-1P-24VAC/DC-01 ❷	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 ❷	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 ❷	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 ❷ ❹	**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. ❷ Version with gold-plated contacts. ❸ Version for long control lines (max. 300 m), with anti-interference filter. ❹ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays. ❻ 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).

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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** ❶
- 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 ❶

Number and type of contacts (code of output)		1 CO (R) ❸	1 CO (R-01) ❸
Contact material		**$AgSnO_2$**	$AgSnO_2$/Au 3 µm ❷
Max. switching voltage		400 V AC / 250 V DC	30 V AC / 36 V DC ❷
Min. switching voltage	AC / DC	10 V	5 V
Rated load	AC1	6 A / 250 V AC	0,05 A / 30 V AC ❷
	DC1	6 A / 24 V DC; 0,15 A / 250 V DC	0,05 A / 36 V DC ❷
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			
• at rated load	AC1	360 cycles/hour	
• no load		72 000 cycles/hour	

Output circuit (RSR30) - output data ❶

Type of output (code of output)		Triac (T) ❸ max. 2 A	Transistor (C) ❸ max. 1 A	Transistor (O) ❸ 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	1 A		
	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	6 ... 60 V	
	AC: 50/60 Hz AC/DC	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	0,2 ... 0,5 W	
	AC/DC	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	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., output R and R-01, type of clearance: micro-disconnection
Input - output distance			
• clearance / creepage		≥ 6 mm / ≥ 8 mm	
Mass - input, output distance			
• clearance / creepage		≥ 3 mm /≥ 3,6 mm	

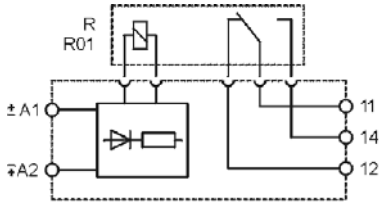
The data in bold type pertain to the standard versions of the relays. ❶ Characteristics of the contact capacity of relays **PIR6W-1PS-... with RM699BV** - see page 39; **PIR6W-1PS-... with RSR30** - see catalogue "Solid state relays" and www.relpol.com.pl ❷ For gold-plated contacts - when the maximum values given have been exceeded, the gold layer is destroyed. Then, the advantages of gold-plating disappear and the values are as for $AgSnO_2$ contacts (see beside), and electrical life of these contacts may be shorter than of normal contacts. ❸ Type of outputs: **R** - contacts $AgSnO_2$; **R01** - contacts $AgSnO_2$/Au 3 µm; **T** - triac; **C** - transistor; **O** - transistor.

General data

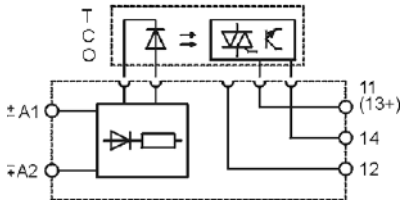
Operating time (typical value)	PIR6W-1PS-...-R/-R01:	DC: 8 ms	AC/DC: 20 ms
	PIR6W-1PS-...-T:	DC: 100 µs	AC/DC: 10 ms
	PIR6W-1PS-...-C/-O:	DC: 50 µs	AC/DC: 10 ms
Release time (typical value)	PIR6W-1PS-...-R/-R01:	DC: 10 ms	AC/DC: 25 ms
	PIR6W-1PS-...-T:	DC: 1/2 cycle + 1 ms	AC/DC: 30 ms
	PIR6W-1PS-...-C/-O:	DC: 600 µs	AC/DC: 20 ms
Electrical life • resistive AC1	PIR6W-1PS-...-R:	$> 0,5 \times 10^5$ 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	PIR6W-1PS-...-R/-R01/-T:	-40...+70 °C	...-C/-O: -25...+70 °C
• operating	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

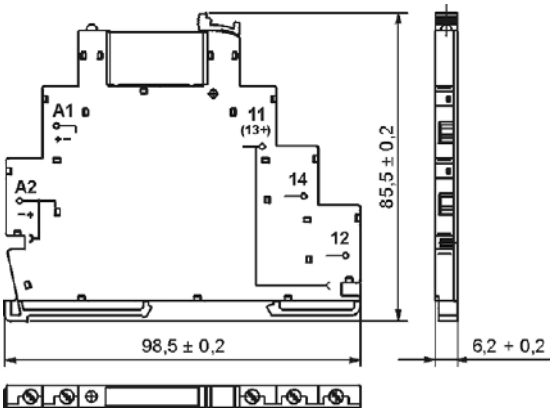
PIR6W-1PS-...-R, PIR6W-1PS-...-R01



PIR6W-1PS-...-T, PIR6W-1PS-...-C, PIR6W-1PS-...-O



Dimensions



Ordering codes

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

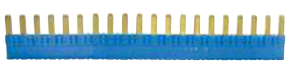
Mounting

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** ❸.
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

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Table of codes Table 1

Interface relay code	Rated input voltage U_n ❹	Power of input circuit	Socket code	Operational relay code	Rated voltage of operational relay U_s ❹
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 ❷	6 V DC	0,3 W	PI6W-1PS-6VDC	RM699BV-3211-85-1005	5 V DC
PIR6W-1PS-12VDC-R01 ❷	12 V DC	0,2 W	PI6W-1PS-12/24VDC	RM699BV-3211-85-1012	12 V DC
PIR6W-1PS-24VDC-R01 ❷	**24 V DC**	**0,3 W**	**PI6W-1PS-12/24VDC**	**RM699BV-3211-85-1024**	**24 V DC**
PIR6W-1PS-36VDC-R01 ❷	36 V DC	0,3 W	PI6W-1PS-36VDC	RM699BV-3211-85-1024	24 V DC
PIR6W-1PS-48VDC-R01 ❷	48 V DC	0,4 W	PI6W-1PS-48VDC	RM699BV-3211-85-1024	24 V DC
PIR6W-1PS-60VDC-R01 ❷	60 V DC	0,5 W	PI6W-1PS-60VDC	RM699BV-3211-85-1024	24 V DC
PIR6W-1PS-24VAC/DC-R01 ❷	**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 ❷	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 ❷	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 ❷	**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. ❷ Version with gold-plated contacts. ❹ 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).

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** ❹)
- 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) ❺	1 CO (R-01) ❺
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	AC / DC	10 V	5 V
Rated load	AC1	6 A / 250 V AC	0,05 A / 30 V AC ❸
	DC1	6 A / 24 V DC; 0,15 A / 250 V DC	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			
• at rated load	AC1	360 cycles/hour	
• no load		72 000 cycles/hour	

Output circuit (RSR30) - output data ❷

Type of output (code of output)		Triac (T) ❺ max. 2 A	Transistor (C) ❺ max. 1 A	Transistor (O) ❺ 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	1 A		
	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	6 ... 60 V	
	AC: 50/60 Hz AC/DC	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	0,2 ... 0,5 W	
	AC/DC	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	4 000 V AC	50/60 Hz, 1 min., type of insulation: reinforced
	• input - output	6 000 V	1,2 / 50 µs
	• contact clearance	1 000 V AC	50/60 Hz, 1 min., output R and R-01, type of clearance: micro-disconnection
Input - output distance			
• clearance / creepage		≥ 6 mm / ≥ 8 mm	

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 $AgSnO_2$ 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 (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, and operational miniature relay **RM699BV-3011-85-1060**. ❺ Type of outputs: **R** - contacts $AgSnO_2$; **R01** - contacts $AgSnO_2$/Au 3 µm; **T** - triac; **C** - transistor; **O** - transistor.

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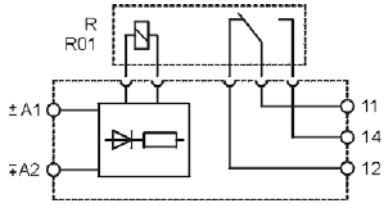
General data

Operating time (typical value)	PIR6WB-1PS-...-R/-R01:	DC: 8 ms	AC/DC: 20 ms
	PIR6WB-1PS-...-T:	DC: 100 µs	AC/DC: 10 ms
	PIR6WB-1PS-...-C/-O:	DC: 50 µs	AC/DC: 10 ms
Release time (typical value)	PIR6WB-1PS-...-R/-R01:	DC: 10 ms	AC/DC: 25 ms (18 ms ❹)
	PIR6WB-1PS-...-T:	DC: 1/2 cycle + 1 ms	AC/DC: 30 ms
	PIR6WB-1PS-...-C/-O:	DC: 600 µs	AC/DC: 20 ms
Electrical life • resistive AC1	PIR6WB-1PS-...-R:	$> 0,5 \times 10^5$ 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 ❹:	-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 ❻	
	PIR6WB-1P-230VAC/DC-10 ❹:	-25...+50 °C ❻	
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		

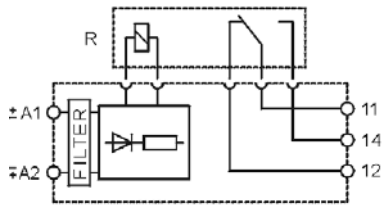
❹ Version for long control lines (max. 300 m), with anti-interference filter.
❻ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays.

Connection diagrams

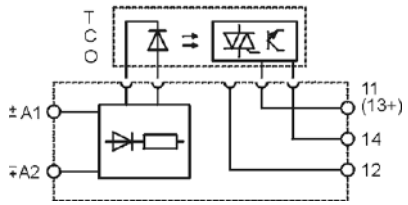
PIR6WB-1PS-...-R, PIR6WB-1PS-...-R01



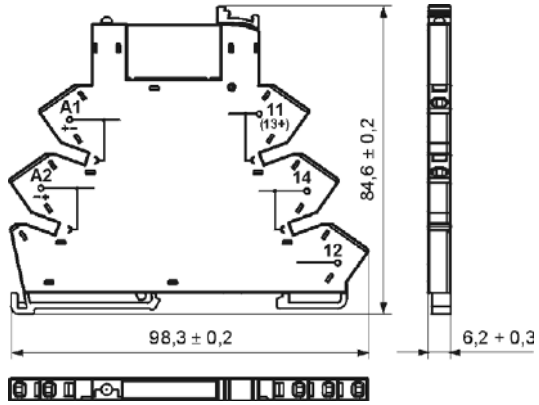
PIR6WB-1P-230VAC/DC-10

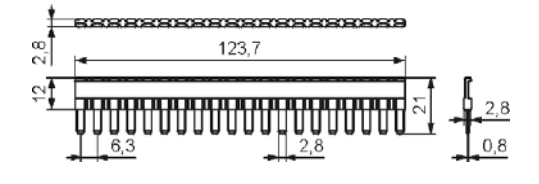


PIR6WB-1PS-...-T, PIR6WB-1PS-...-C, PIR6WB-1PS-...-O

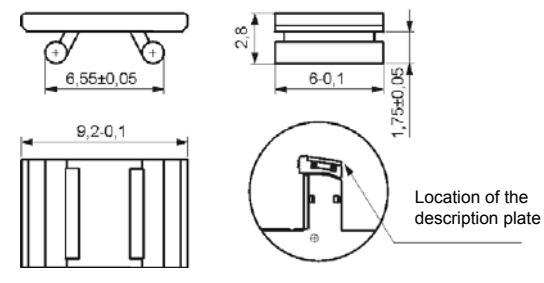


Dimensions





Interconnection strip type **ZG20**



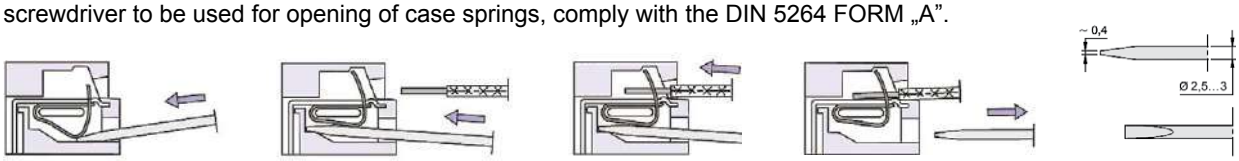
Description plate **PI6W-1246**

Ordering codes

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

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-...** ❻ 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** ❺.
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.

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

PI6WB-1PS-...

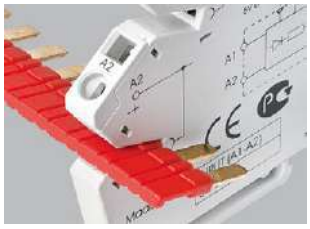
RM699BV

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

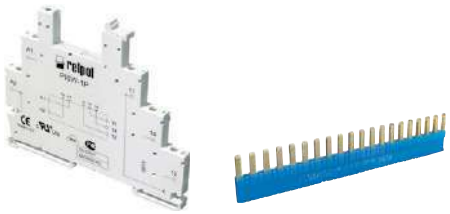
Interface relay:
socket PI6WB-1PS-...
and relay RM699BV

Table of codes Table 1

Interface relay code	Rated input voltage U_n ❼	Power of input circuit	Socket code	Operational relay code	Rated voltage of operational relay U_s ❼
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 ❻	**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 ❹ ❻	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 ❸	6 V DC	0,3 W	PI6WB-1PS-6VDC	RM699BV-3211-85-1005	5 V DC
PIR6WB-1PS-12VDC-R01 ❸	12 V DC	0,2 W	PI6WB-1PS-12/24VDC	RM699BV-3211-85-1012	12 V DC
PIR6WB-1PS-24VDC-R01 ❸	**24 V DC**	**0,3 W**	**PI6WB-1PS-12/24VDC**	**RM699BV-3211-85-1024**	**24 V DC**
PIR6WB-1PS-36VDC-R01 ❸	36 V DC	0,3 W	PI6WB-1PS-36VDC	RM699BV-3211-85-1024	24 V DC
PIR6WB-1PS-48VDC-R01 ❸	48 V DC	0,4 W	PI6WB-1PS-48VDC	RM699BV-3211-85-1024	24 V DC
PIR6WB-1PS-60VDC-R01 ❸	60 V DC	0,5 W	PI6WB-1PS-60VDC	RM699BV-3211-85-1024	24 V DC
PIR6WB-1PS-24VAC/DC-R01 ❸	**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 ❸	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 ❸	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 ❸ ❻	**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 ❻	**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 ❻	**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. ❸ Version with gold-plated contacts. ❹ Version for long control lines (max. 300 m), with anti-interference filter. ❻ For versions 230VAC/DC and 230VAC/DC-10: the distance of min. 5 mm between the mounting relays. ❼ 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).

PI6W-1P
socket 6,2 mm

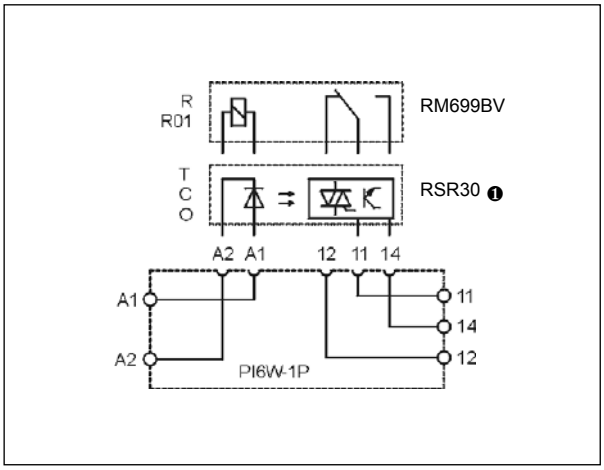


- Width 6,2 mm • Socket **PI6W-1P** without electronic
- Co-operate with relays: electromagnetic **RM699BV** or solid state **RSR30** ❶
- The input voltage complies with the voltage of the operational relay applied
- 35 mm rail mount acc. to PN-EN 60715
- May be linked with interconnection strip type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

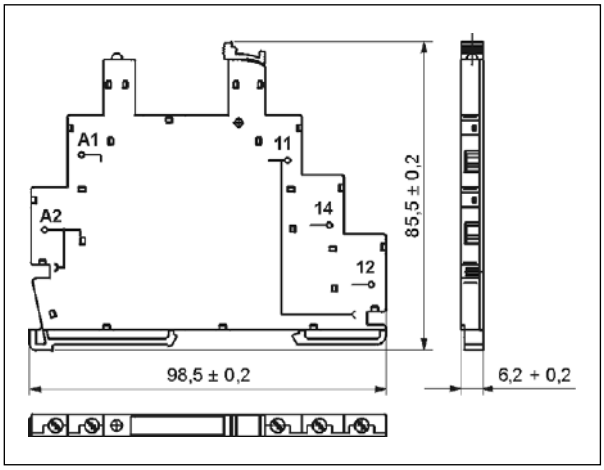
Output circuit

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 • clearance / creepage		≥ 6 mm / ≥ 8 mm	
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).

❶ 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.


PI-...-11-...


PI-....-22-...

- 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 CE

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 ❶	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	AC1	600 cycles/hour	
• no load		72 000 cycles/hour	

Coil data

Rated voltage	• versions 1 CO, 2 CO	50/60 Hz AC	115 ... 230 V	
		DC	12 ... 48 V	
	• versions 1 NO, 2 NO	50 Hz AC	230 V	
		AC: 50 Hz AC/DC	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	AC	≤ 1,0 VA	115 V AC, 230 V AC, AC: 50 Hz
		DC	≤ 0,5 W	12 V DC
		DC	≤ 0,65 W	24 V DC, 48 V DC
	• versions 1 NO, 2 NO	AC	≤ 0,5 VA	230 V AC, AC: 50 Hz
		AC/DC	≤ 0,75 VA / 0,75 W	12 V AC/DC, AC: 50 Hz
		AC/DC	≤ 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 ❷ 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.
❶ UL only for 15 A.
❷ 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

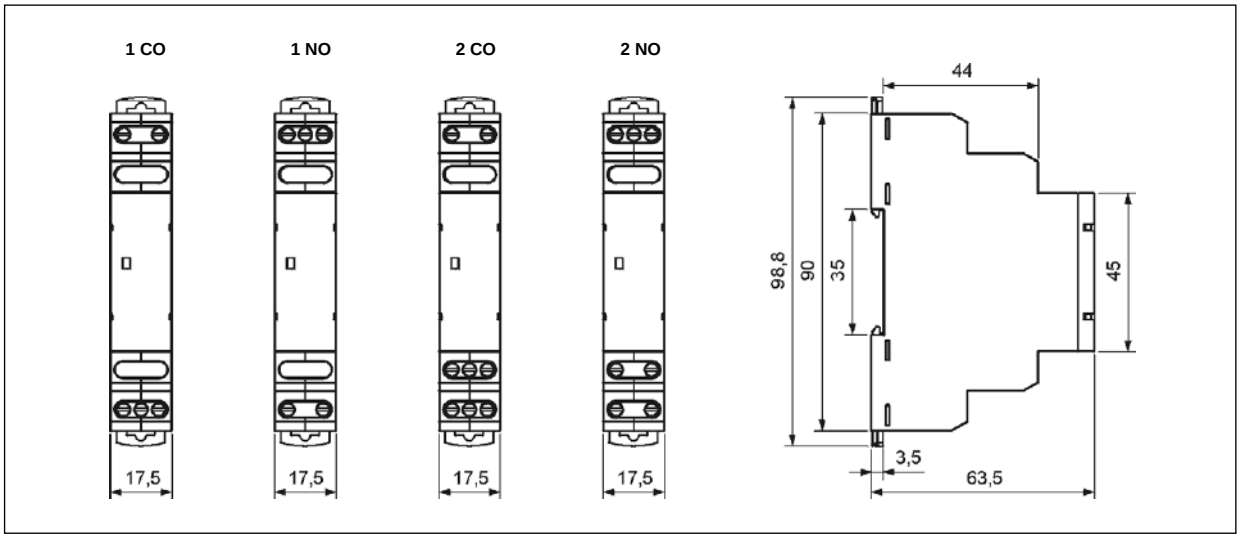
Coil code	Coil operating range V AC	Coil operating range V AC	
		min. (at 20 °C)	max. (at 55 °C)
5115	115	97,8	126,5
5230	230	195,5	253,0

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 ❸	24 V AC/DC ❸	20,4	26,4
	230 V AC ❸	195,5	253,0
8048	48	40,8	52,8
8115	115	97,8	126,5

❸ 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

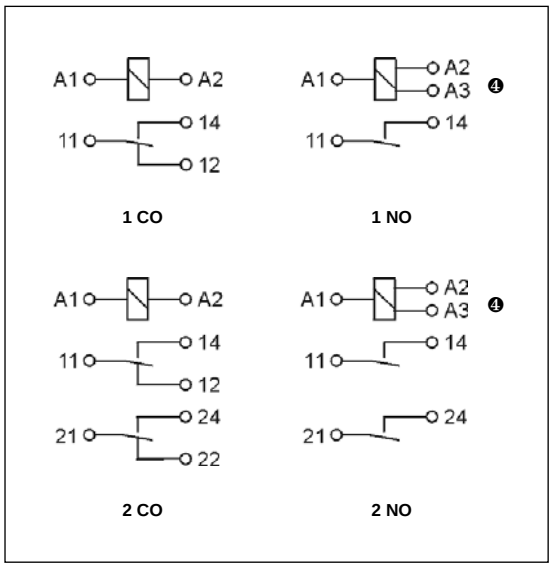


Table of codes

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 ❸	MT-PI-17S-22-9024 ❸	24 V AC/DC 230 V AC 50 Hz

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

❹ 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.

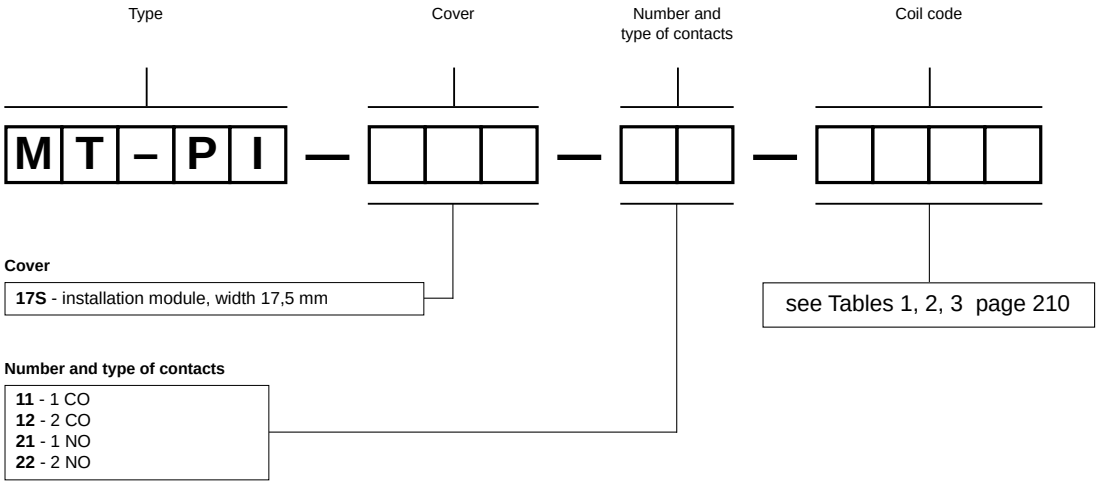
Mounting

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 x 2,5 mm^2 / 2 x 1,5 mm^2 (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).

Green LED:
signalling the operation status of the relay.

Ordering codes ❺



Example of ordering code ❺:

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 ❸

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

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 ; certification pending:
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: CE

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		
• 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
Control contact S ❶		
• min. voltage ❷		0,7 U_n
• min. time of pulse duration ❷		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 ❸ 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		E, Wu, Bp, Bi, T, R, Ws, Wa, Esa, B permanent switching ON and OFF
Time ranges		1 s ❹; 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% ❺ ❹
Repeatability		± 0,5% ❹
Values affecting	• temperature	± 0,05% / °C
the timing adjustment	• 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 T time yellow LED R ON/OFF - output relay status

❶ The control terminal S is activated by connection to A1 terminal via the external control contact S. ❷ Where the control signal is recognizable. ❸ Length with 35 mm rail taps: 98,8 mm. ❹ 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). ❺ Calculated from the final range values, for the setting direction from minimum to maximum.

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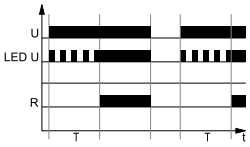
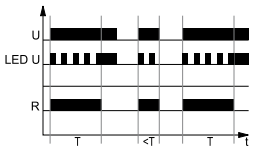
Time functions

E - ON delay.



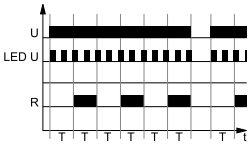
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



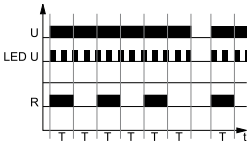
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



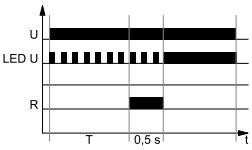
Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Bi - Symmetrical cyclical operation pulse first.



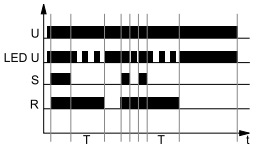
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

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



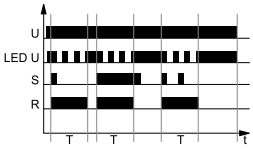
Applying the supply voltage U starts the interval T. After the interval T has lapsed, the output relay switches on for 0,5 s (the time of the NO contact of the output relay).

R - OFF delay with the control contact S.



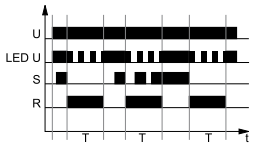
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches on the output relay R. Opening of the control contact S starts the set time of the delayed switching off of the output relay R. After the interval T has lapsed, the output relay 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.

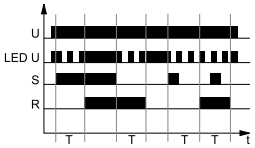


The input of the time relay is supplied with voltage U continuously. Closing of the control contact S does not start the interval T, and it does not change the position of the output relay R. Opening of the control contact S immediately switches on the output relay R for the set time. After the interval 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

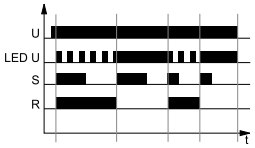
Time functions

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

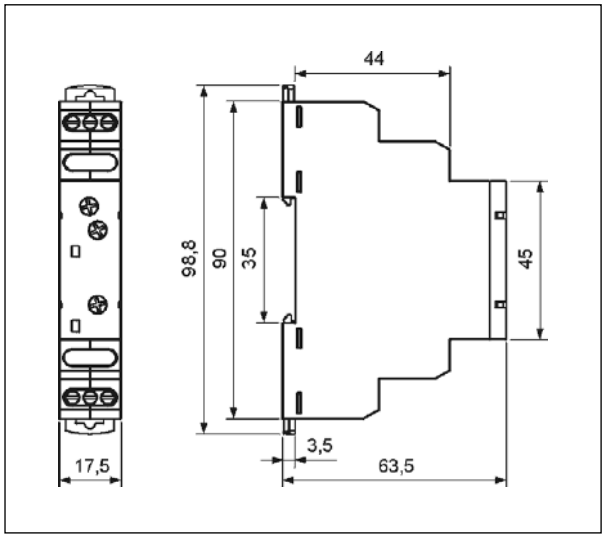
Supply diode: it is lit permanently when the time is not being measured. In course of the T time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time.

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.

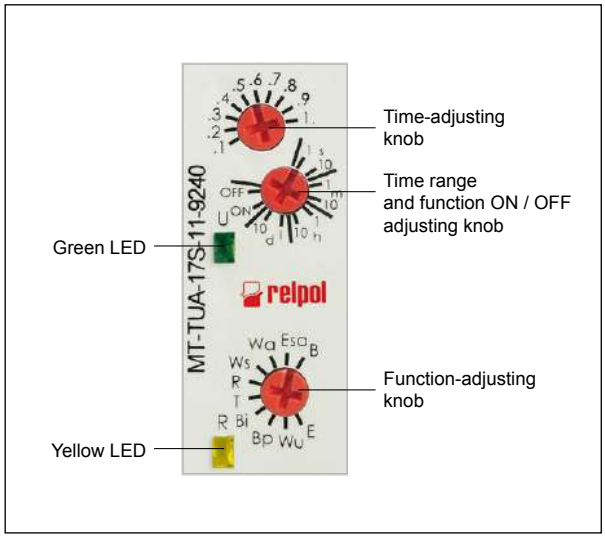
Release: depending on the function to be performed, the relay is released with the supply voltage or by connection of the S contact to the A1 line. For DC supply, the positive pole must be connected to the A1 line. The level of the S contact activation is adjusted automatically depending on the supply 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.

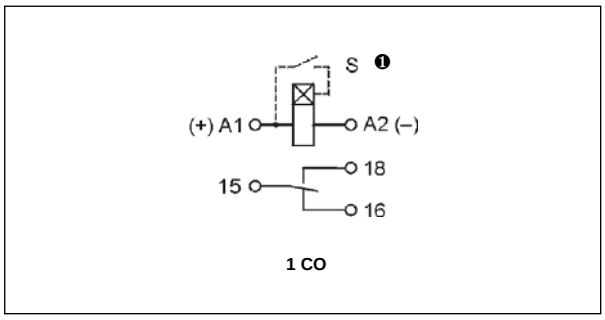
Dimensions



Front panel description



Connection diagram



❶ 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

Type	Time functions performed		Cover		Number and type of contacts		Rated input voltage			
M	T	–	T	U	A	—	1	7	S	—	1	1	—	9	2	4	0

Time functions performed

UA - multifunction

Cover

17S - installation module, width 17,5 mm

Number and type of contacts

11 - 1 CO

Rated input voltage

9240 - 12...240 V AC/DC AC: 50/60 Hz

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: CE

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			
• 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	
Control contact S ❶			
• min. voltage ❷		0,7 U_n	
• min. time of pulse duration ❷		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 ❸ 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		E, Wu, Bp, Bi, Ra, Esf, Wi, Wst, Est, Esp permanent switching ON and OFF
Time ranges		1 s ❹; 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% ❺ ❹
Repeatability		± 0,5% ❹
Values affecting	• temperature	± 0,05% / °C
the timing adjustment	• 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 T time yellow LED R ON/OFF - output relay status

❶ The control terminal S is activated by connection to A1 terminal via the external control contact S. ❷ Where the control signal is recognizable. ❸ Length with 35 mm rail taps: 98,8 mm. ❹ 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). ❺ Calculated from the final range values, for the setting direction from minimum to maximum.

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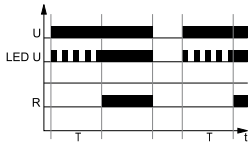
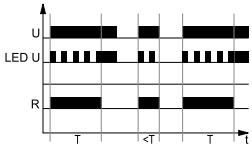
Time functions

E - ON delay.



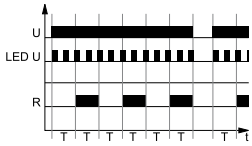
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



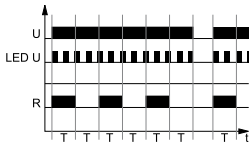
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



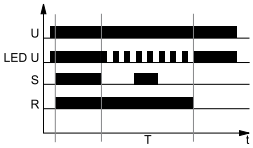
Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Bi - Symmetrical cyclical operation pulse first.



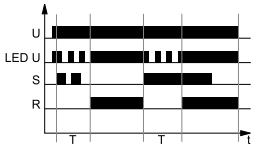
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Ra - OFF delay with the control contact S, without extension of the interval T.



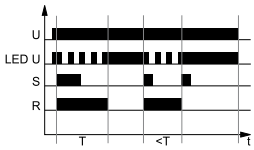
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches on the output relay R. Opening of the control contact S starts the set time of the delayed switching off of the output relay R. After the interval T has lapsed, the output relay 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.



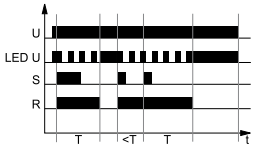
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T - on-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains in this position until the control contact S is closed again, which 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.

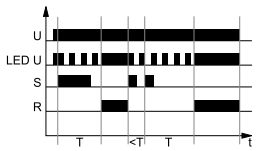


The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R is switched off. The next closing of the control contact S immediately switches 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

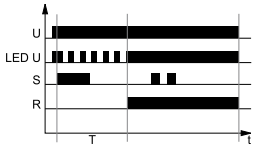
Est - ON delay with closing of the control contact, with the interval T extended.



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 control contact S is closed again or 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

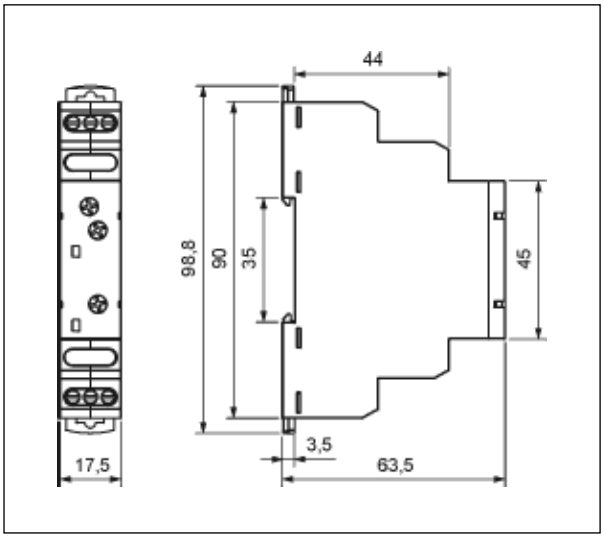
Supply diode: it is lit permanently when the time is not being measured. In course of the T time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time.

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.

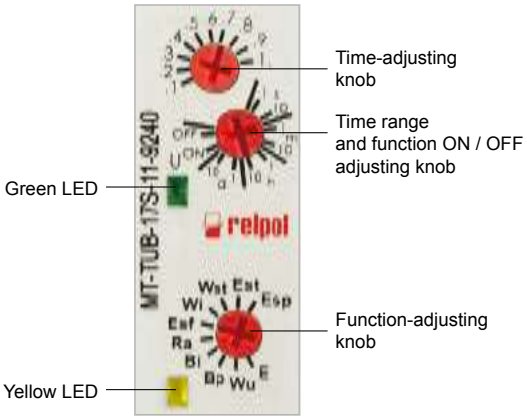
Release: depending on the function to be performed, the relay is released with the supply voltage or by connection of the S contact to the A1 line. For DC supply, the positive pole must be connected to the A1 line. The level of the S contact activation is adjusted automatically depending on the supply 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.

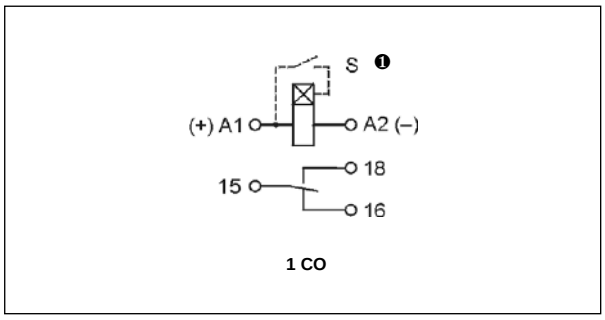
Dimensions



Front panel description



Connection diagram



❶ 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

Type	Time functions performed	Cover	Number and type of contacts	Rated input voltage
MT-TUB	—	17S	— 11	— 9240

Time functions performed
UB - multifunction

Cover
17S - installation module, width 17,5 mm

Number and type of contacts
11 - 1 CO

Rated input voltage
9240 - 12...240 V AC/DC AC: 50/60 Hz

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 controled times T1 and T2 (7 versions of relays with 1 time function ❶; 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: CE

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		
• 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	
Control contact S ❷			
• min. voltage ❸		0,7 U_n	
• min. time of pulse duration ❸		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 ❹ 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

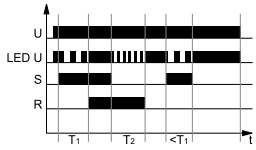
Time module data

Functions ❶	ER, EWa, EWs, EWu + NWu, Ii + Ip, WsWa, Wt
Time ranges	1 s ❺; 10 s; 1 min.; 10 min.; 1 h; 10 h; 100 h
Timing adjustment	smooth - (0,1...1) x time range
Setting accuracy	± 5% ❻ ❺
Repeatability	± 0,5% ❺
Values affecting • temperature	± 0,05% / °C
the timing adjustment • 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

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. ❸ Where the control signal is recognizable. ❹ Length with 35 mm rail taps: 98,8 mm. ❺ 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). ❻ Calculated from the final range values, for the setting direction from minimum to maximum.

Time functions ❶

ER - ON delay and OFF delay with control contact S. Independent T1 and T2 settings.
Relay code: **MT-TER-17S-11-9240**

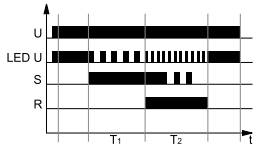


The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T1, and after it has lapsed, the output relay R switches on. Opening of the control contact S starts the interval T2, and after it has lapsed, the output relay R switches off. In 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**



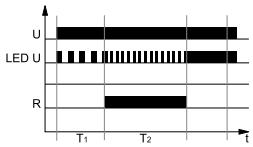
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T1, and after the interval has lapsed, the output relay R switches on for the interval T2. Following the interval T2, the output relay switches off, and the circuits awaits for the 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

❶ 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.

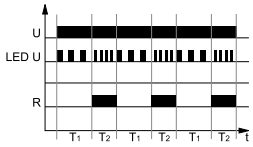
function NWu

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.

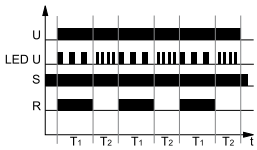
Ii + Ip - Cyclical operation in two independent intervals T1 and T2; operation in the function Ii or Ip depending on the position of the control contact S.
Relay code: **MT-TIP-17S-11-9240**

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 Ii



When the control contact S is closed, application of the supply voltage U starts operation in the Ii 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 Ii 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.

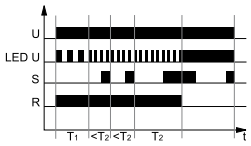
Time functions ❶

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 an 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.

❶ Codes of versions - see "**Ordering codes**", page 224
and descriptions of time functions, pages 222, 223.

Additional functions

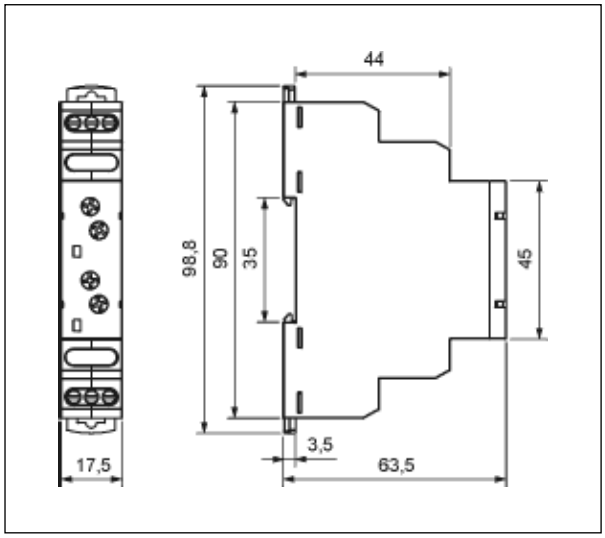
Supply diode: it is lit permanently when the time is not being measured. In course of the T1 time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time. For the T2 time, the period is 250 ms.

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.

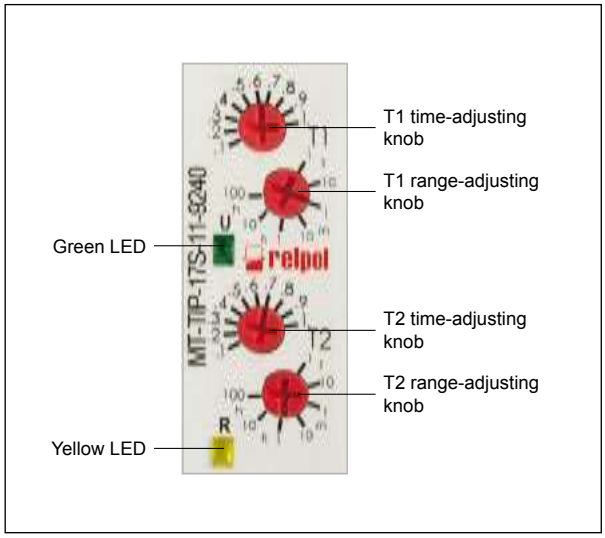
Release:
- for the versions MT-TEU-..., MT-TIP-...: the relay is released with the supply voltage,
- for other versions: the relay is released by connection of the S contact to the A1 line. For DC supply, the positive pole must be connected to the A1 line. The level of the S contact activation is adjusted 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.

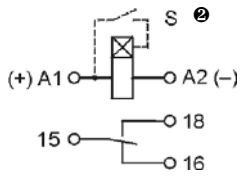
Dimensions



Front panel description



Connection diagram



1 CO

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

Type	Time functions performed		Cover		Number and type of contacts		Rated input voltage			
M	T	– T			1	7 S	1	1	9	2 4 0

Time functions performed (7 versions of relays) ❶

ER - relay performing a function ER
EA - relay performing a function EWa
ES - relay performing a function EWs
EU - relay performing a function EWu + NWu
IP - relay performing a function Ii + Ip
SA - relay performing a function WsWa
WT - relay performing a function Wt

Cover

17S - installation module, width 17,5 mm

Number and type of contacts

11 - 1 CO

Rated input voltage

9240 - 12...240 V AC/DC AC: 50/60 Hz

Example of ordering code:

MT-TIP-17S-11-9240 time relay **MT-TIP-...**, single-function (relay perform function Ii + Ip), 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 controled 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: CE

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 ❶ 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) ❷ T2		smoothly within the range 0,05...1 s (linear adjustment of time)
Setting accuracy		± 5% ❸
Repeatability		± 3%
Values affecting	• temperature	± 0,05% / °C
the timing adjustment	• 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

❶ Length with 35 mm rail taps: 98,8 mm.
❷ Pause time between switching off the star contactor and switching on the delta contactor.
❸ Calculated from the final range values, for the setting direction from minimum to maximum.

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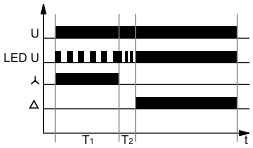
Time functions

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 greed 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

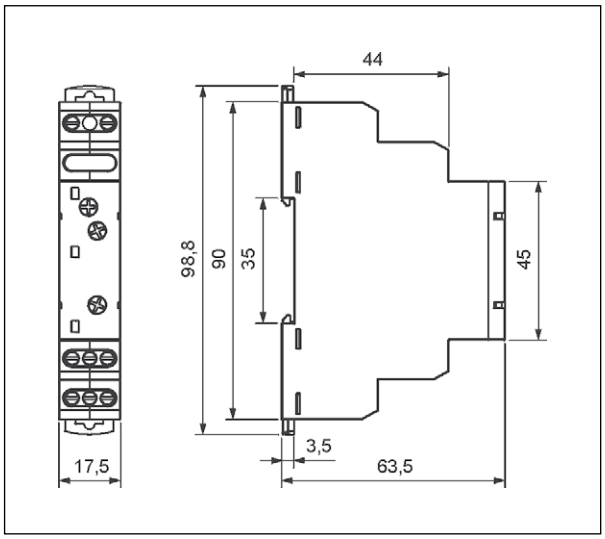
Supply diode: it is lit permanently when the time is not being measured. In course of the T1 time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time. For the T2 time, the period is 250 ms.

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.

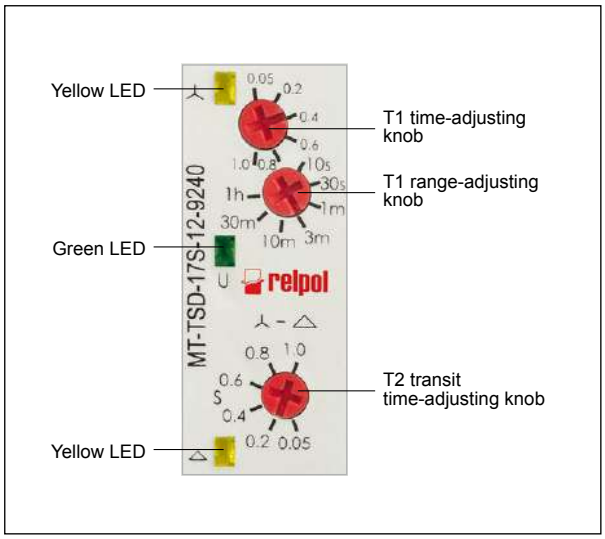
Release: the relay is released with the supply voltage.

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.

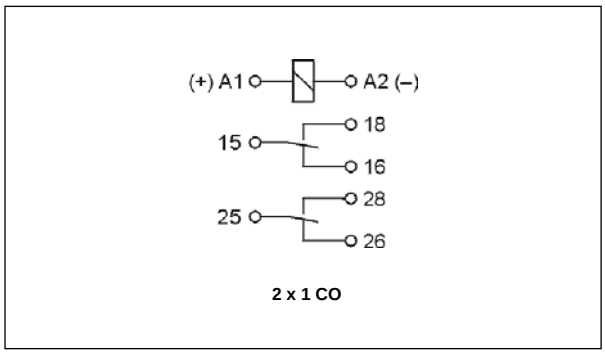
Dimensions



Front panel description



Connection diagram



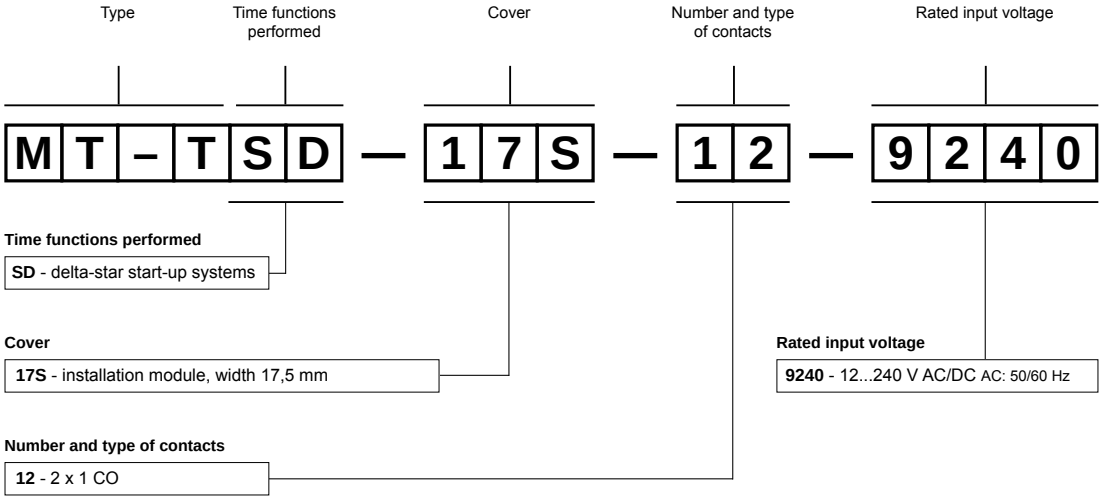
2 x 1 CO

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

• 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: 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 / 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		
• at rated load	AC1	1 200 cycles/hour
• no load		18 000 cycles/hour

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 ❶		
• min. voltage ❷		0,6 U_n
• min. time of pulse duration ❷		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

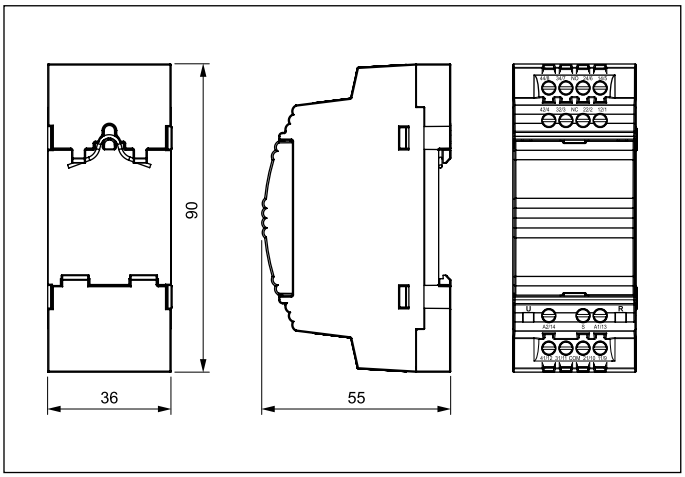
The data in bold type pertain to the standard versions of the relays.
❶ The control terminal S is activated by connection to A1 terminal via the external control contact S.
❷ Where the control signal is recognizable.

Time module data

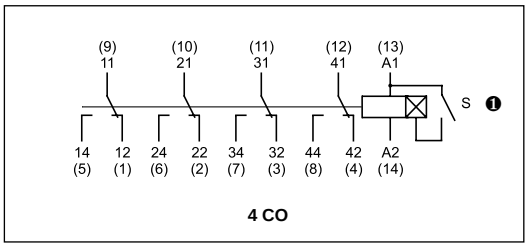
Functions	E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B permanent switching ON and OFF
Time ranges	1 s ❸; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment	smooth - (0,1...1) x time range
Setting accuracy	± 5% (calculated from the final range values) ❸
Repeatability	± 0,5% ❸
Temperature influence	± 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 ❹

❸ 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. ❹ 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



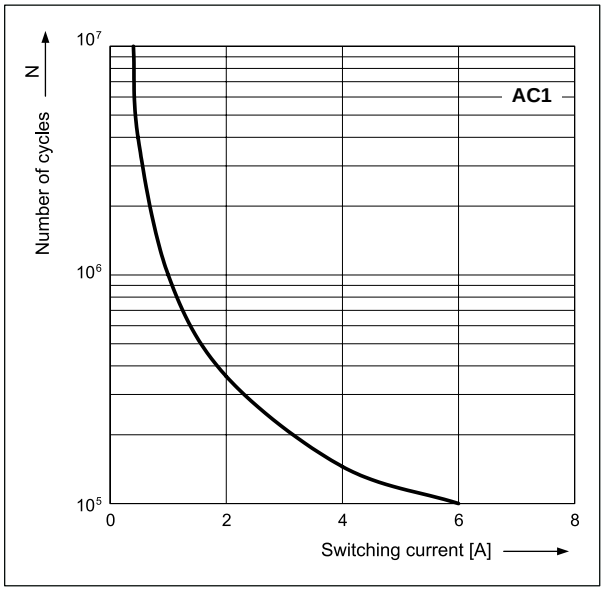
Connections diagram



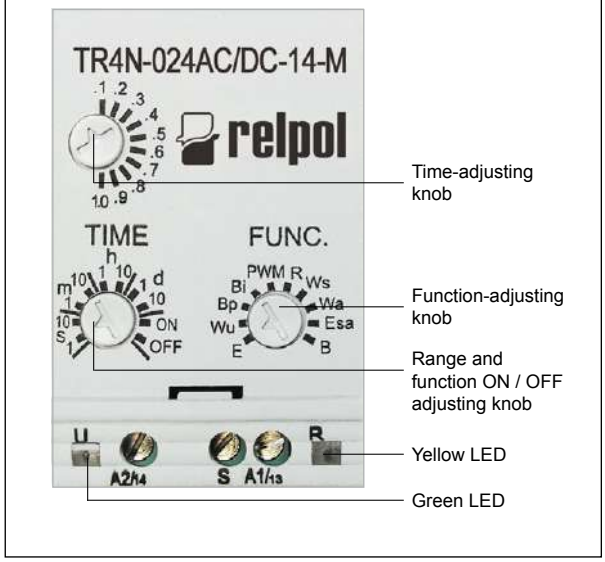
❶ The control terminal S is activated by connection to A1 terminal via the external control contact S.

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

Fig. 1



Front panel description



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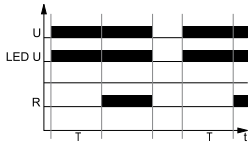
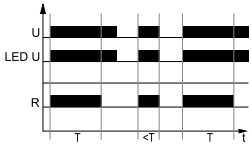
Time functions

E - ON delay.



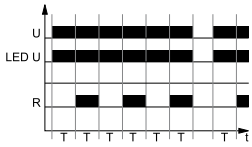
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



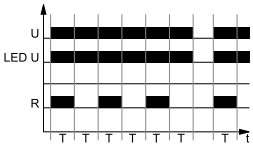
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



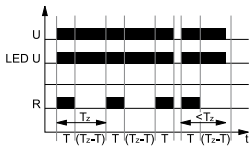
Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Bi - Symmetrical cyclical operation pulse first.



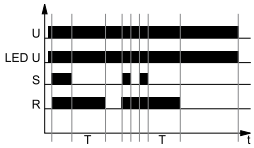
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

PWM - Pulse width modulation.



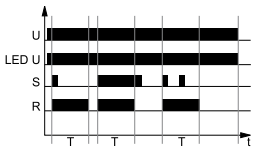
Set the relay to a single Tz cycle which is one of the time ranges available for a time relay. The cycle shall be set with the time selection knob. Then, set the interval T, i.e. the ON time of the output relay R with the time fine setting knob. The interval T may be set from 0.1 to 1.0 of the time range (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.



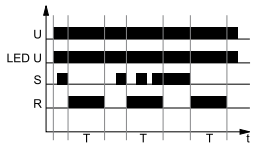
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches on the output relay R. Opening of the control contact S starts the set time of the delayed switching off of the output relay R. After the interval T has lapsed, the output relay 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.

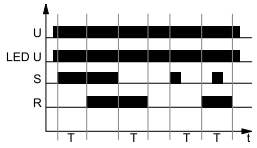


The input of the time relay is supplied with voltage U continuously. Closing of the control contact S does not start the interval T, and it does not change the position of the output relay R. Opening of the control contact S immediately switches on the output relay R for the set time. After the interval 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.

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

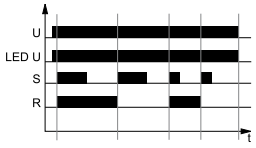
Time functions

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).

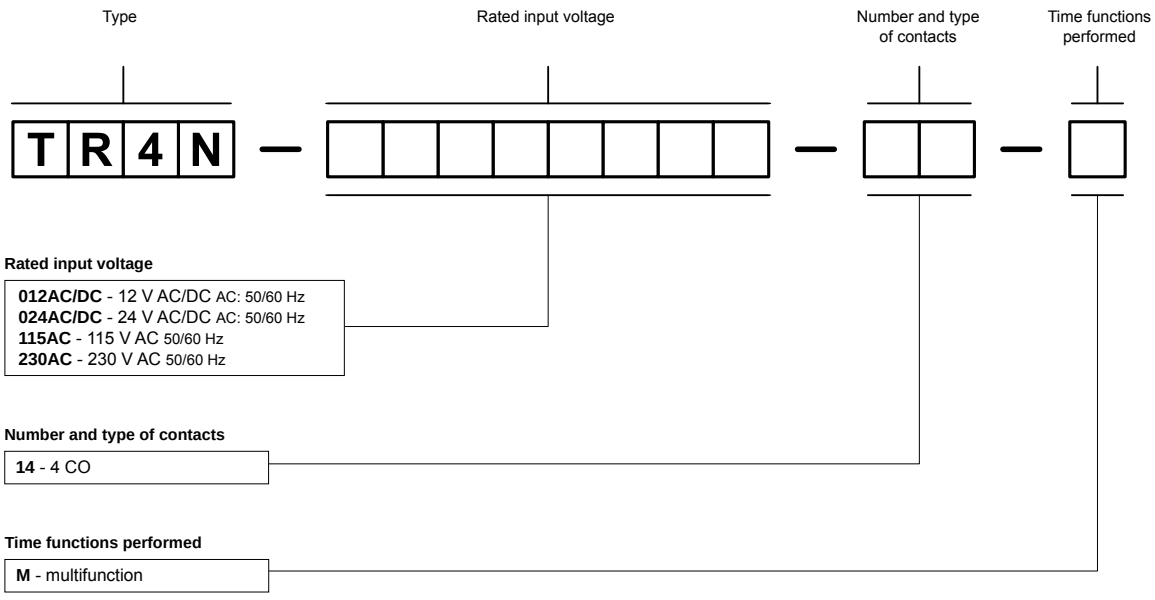
Permanent switching ON and OFF.
The functions ON and OFF are selected with TIME potentiometer. In the ON function, the normally open contacts are closed all the time whereas in the OFF function they are open. The position of the FUNC potentiometer is of no significance in these functions as is the preset 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 mm^2 / 2 x 1,5 mm^2 (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

• 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: CE

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	16 A / 250 V AC		8 A / 250 V AC	
	DC1	16 A / 24 V DC; 0,3 A / 250 V DC		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	115 ... 230 V			
	AC: 50/60 Hz AC/DC	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	1,3 VA	115 V AC	1,7 VA	230 V AC
	AC/DC	0,5 VA / 0,5 W	12 V AC/DC	0,7 VA / 0,7 W	24 V AC/DC
Range of supply frequency	AC	48...63 Hz			
	AC/DC	48...100 Hz			
Control contact S ❶					
• min. voltage ❷		$0,6\ U_n$			
• min. time of pulse duration ❷		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		$> 0,7 \times 10^5$	16 A, 250 V AC	$> 10^5$	8 A, 250 V AC
Mechanical life (cycles)		$> 3 \times 10^7$			
Dimensions (L x W x H)		90 x 17,6 x 55 mm			
Weight		67 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		15 g			
Vibration resistance		0,35 mm DA	10...55 Hz		

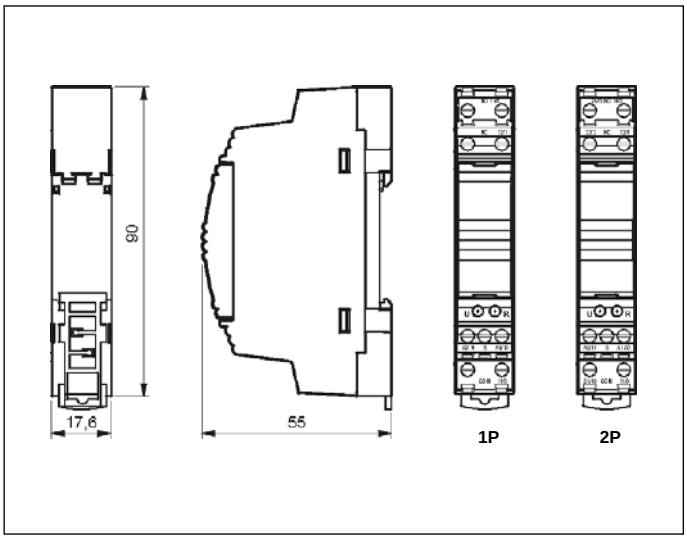
The data in bold type pertain to the standard versions of the relays.
❶ The control terminal S is activated by connection to A1 terminal via the external control contact S.
❷ Where the control signal is recognizable.

Time module data

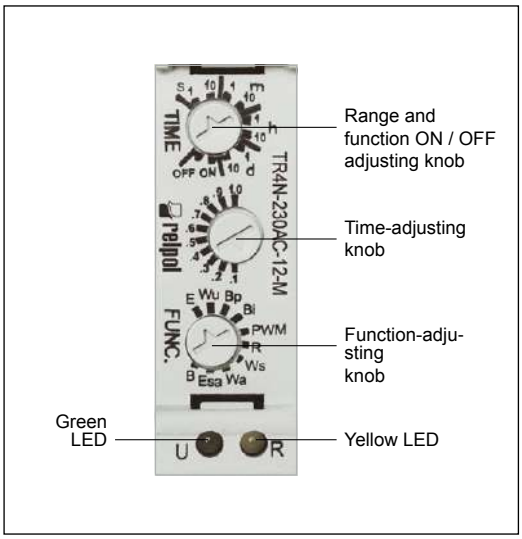
Functions	E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B permanent switching ON and OFF
Time ranges	1 s ❸; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment	smooth - (0,1...1) x time range
Setting accuracy	± 5% (calculated from the final range values) ❸
Repeatability	± 0,5% ❸
Temperature influence	± 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 ❹

❸ 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. ❹ The yellow LED - T time measurement (pulsating); excited operational relay; time not measured (steady light); de-excited operational relay, time not measured (no light).

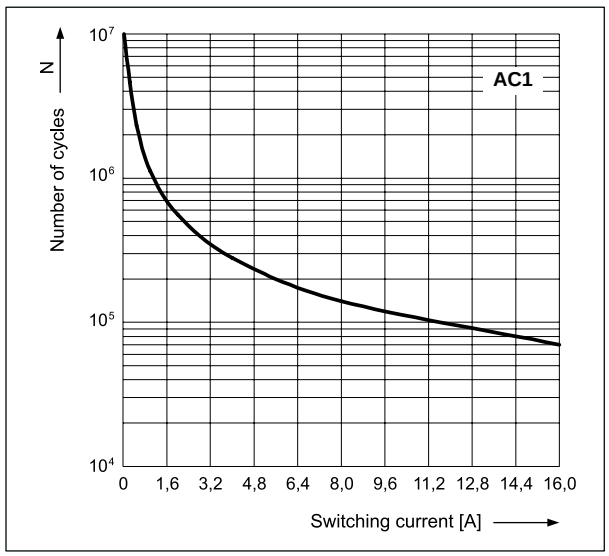
Dimensions



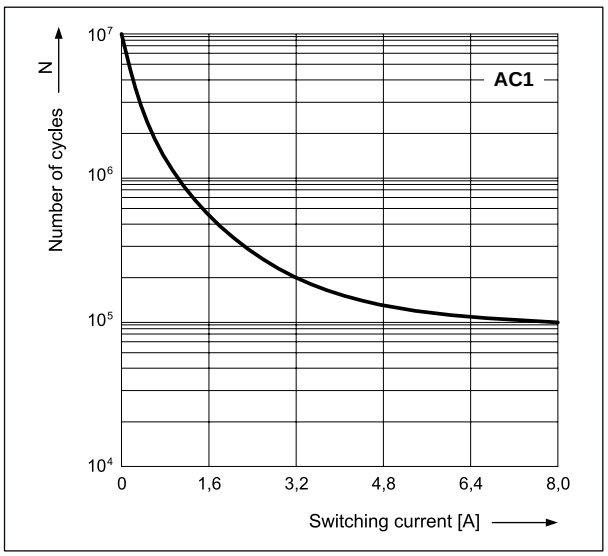
Front panel description



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



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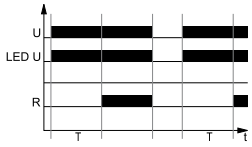
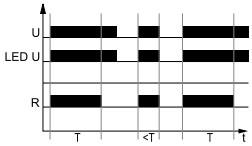
Time functions

E - ON delay.



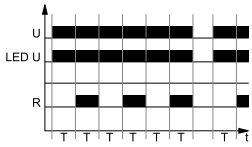
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



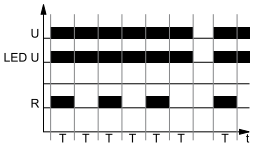
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



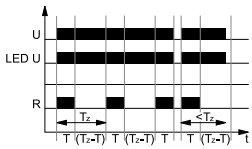
Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Bi - Symmetrical cyclical operation pulse first.



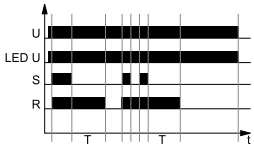
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

PWM - Pulse width modulation.



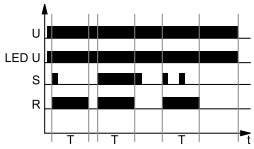
Set the relay to a single Tz cycle which is one of the time ranges available for a time relay. The cycle shall be set with the time selection knob. Then, set the interval T, i.e. the ON time of the output relay R with the time fine setting knob. The interval T may be set from 0.1 to 1.0 of the time range (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.



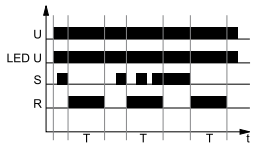
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches on the output relay R. Opening of the control contact S starts the set time of the delayed switching off of the output relay R. After the interval T has lapsed, the output relay 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.



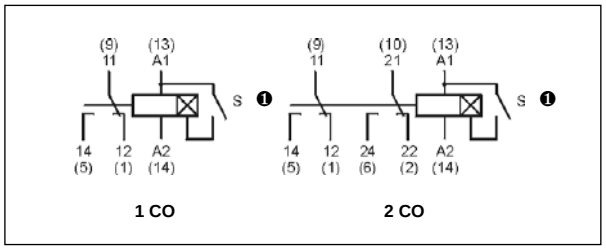
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R is switched off. In the course of the interval T, any opening of the control contact 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

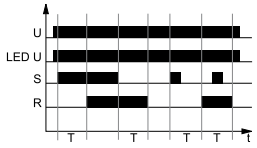


❶ The control terminal S is activated by connection to A1 terminal via the external control contact S.

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

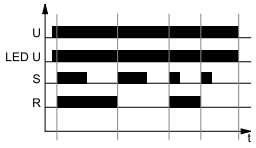
Time functions

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).

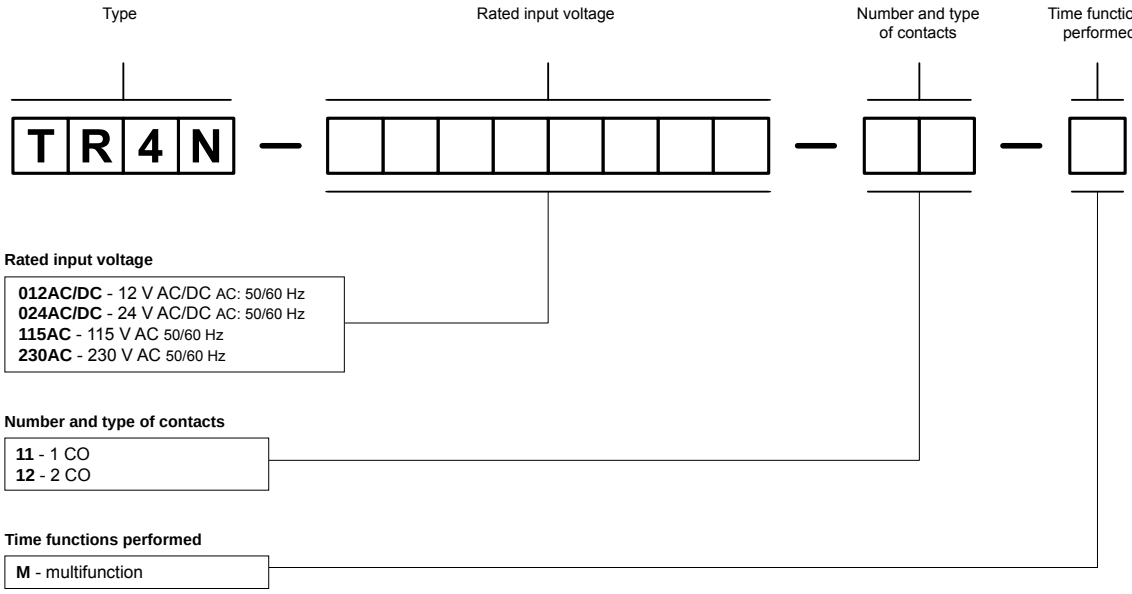
Permanent switching ON and OFF.
The functions ON and OFF are selected with TIME potentiometer. In the ON function, the normally open contacts are closed all the time whereas in the OFF function they are open. The position of the FUNC potentiometer is of no significance in these functions as is the preset 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 mm^2 / 2 x 1,5 mm^2 (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

• 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 ❶ 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.
❶ 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**

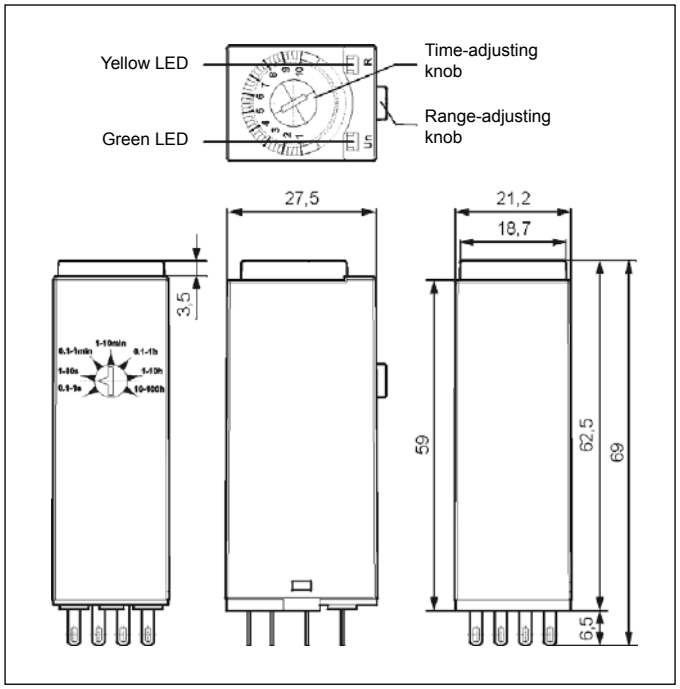
The data in bold type pertain to the standard versions of the relays.

Input data - AC 50/60 Hz voltage version — Table 2

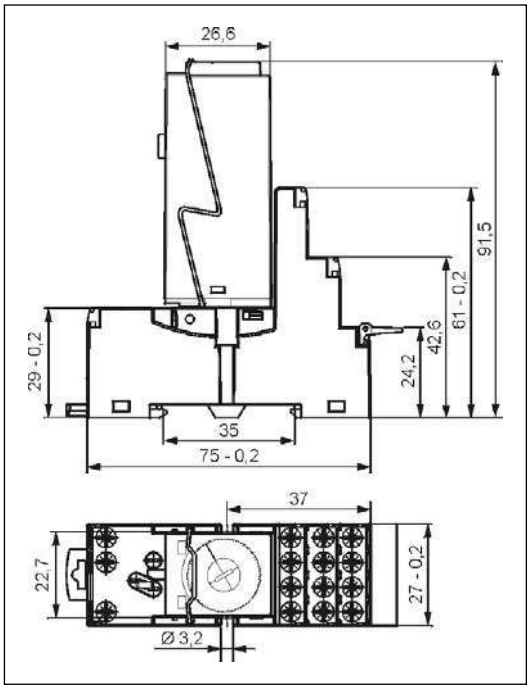
Input voltage code	Rated input voltage U_n V AC	Input resistance at 20 °C Ω	Acceptable resistance	Input - voltage range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5024	**24**	**158**	**± 10%**	**19,2**	**26,4**
5115	115	3 610	± 10%	92,0	127,0
5230	**230**	**16 100**	**± 10%**	**184,0**	**253,0**

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

Dimensions - T-R4

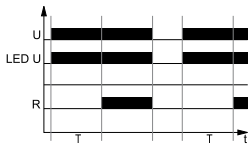


Dimensions - T-R4 with socket GZM4



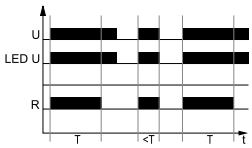
Time functions

E - ON delay.



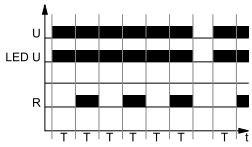
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

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.

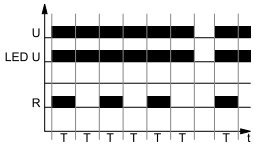
Bp - Symmetrical cyclical operation pause first.



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.

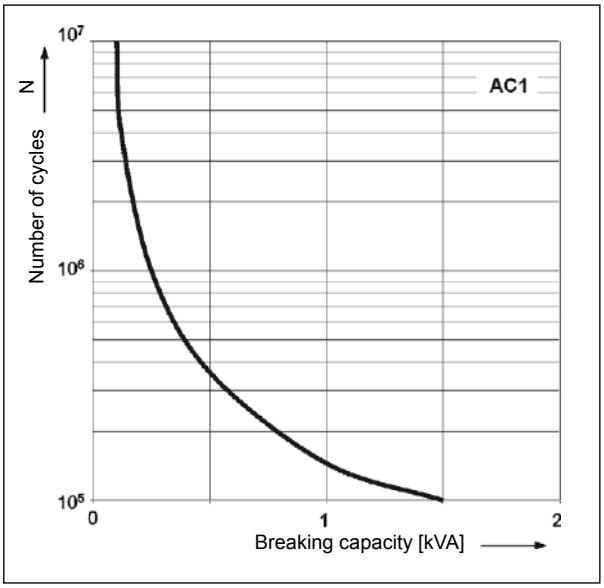
U - supply voltage; **R** - output state of the relay;
T - measured time; **t** - time axis

Bi - Symmetrical cyclical operation pulse first.

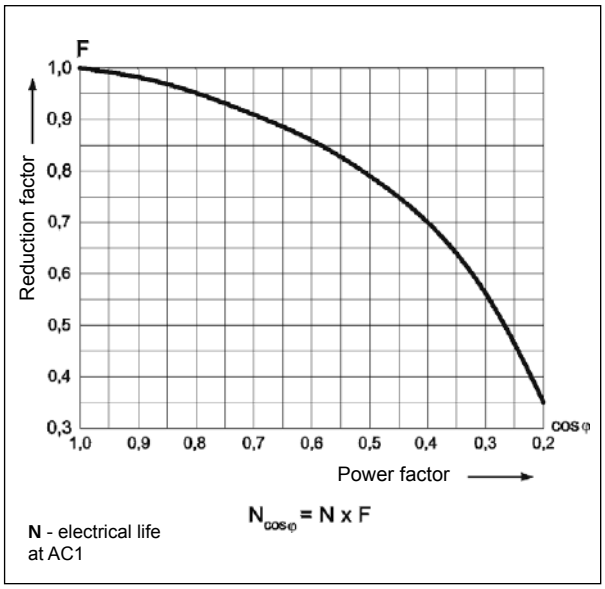


Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

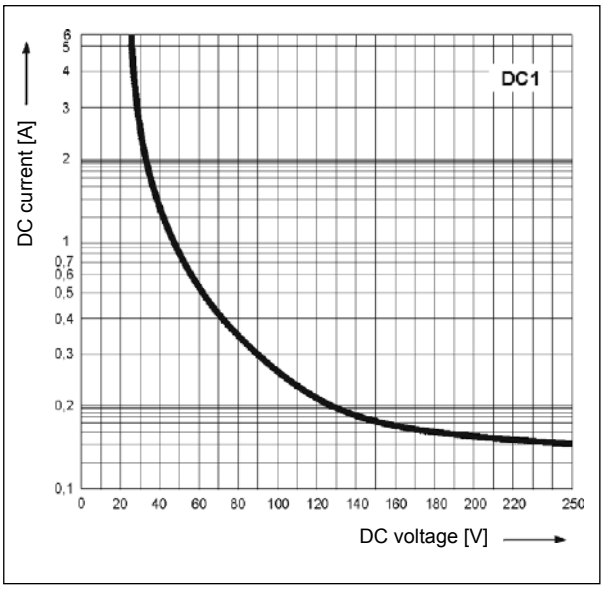
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour — Fig. 1



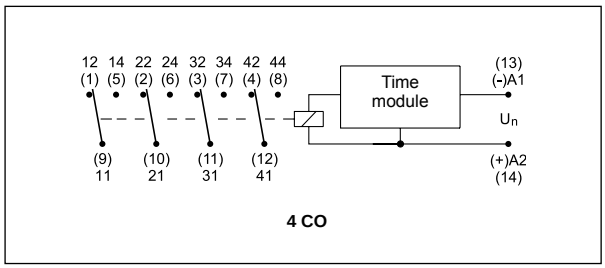
Electrical life reduction factor at AC inductive load — Fig. 2



Max. DC resistive load breaking capacity — Fig. 3

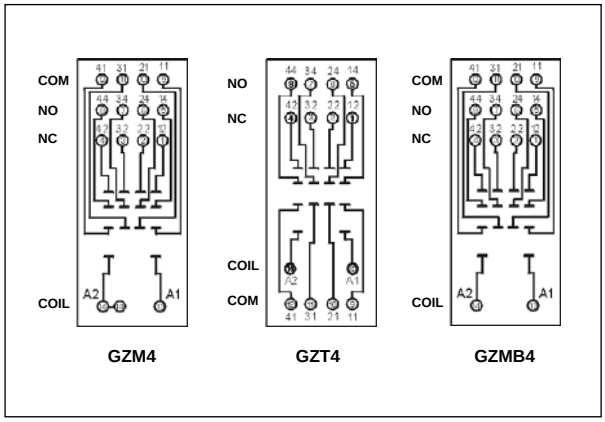


Connection diagram



4 CO

Connection diagrams - sockets for T-R4



GZM4 GZT4 GZMB4

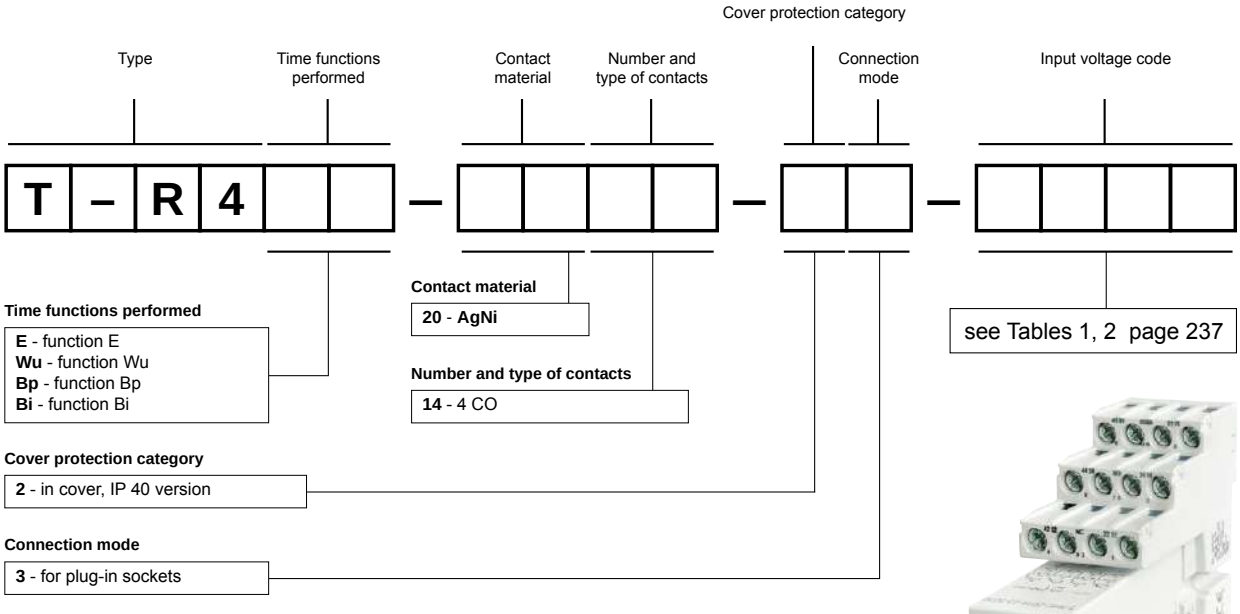
Mounting

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 mm^2 (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 mm^2 (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 contacs 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

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, CE

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		
• at rated load	AC1	1 200 cycles/hour
• no load		12 000 cycles/hour
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.
❶ The control terminal B1 is activated by connection to A1 terminal via the external control contact S.
❷ Where the control signal is recognizable.

Time module data

Functions	E, Wu, Bp, Bi, R, Ws, Wa, Es
Function adjustment ❸	selection with microswitches
Time ranges	1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment ❸	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 ❹

❸ Settings of switches - see below. ❹ 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 ❹

Function adjustment switches 1, 2, 3	E	Wu	Bi	Bp	R	Ws	Wa	Es
								
Timing adjustment (max.) switches 4, 5, 6	1 s	10 s	1 min.	10 min.	1 h	10 h	1 d	10 d
								

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.

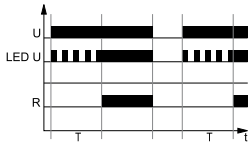
Input data - AC 50/60 Hz voltage version — Table 2

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.

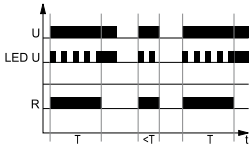
Time functions

E - ON delay.



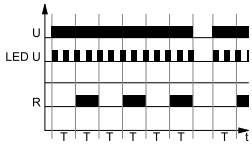
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



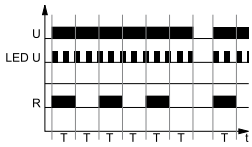
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



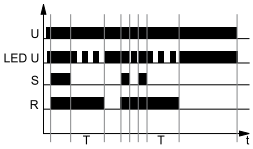
Applying the supply voltage U starts the cyclical operation from the T interval - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

Bi - Symmetrical cyclical operation pulse first.



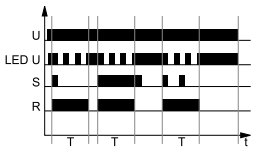
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

R - OFF delay with the control contact S.



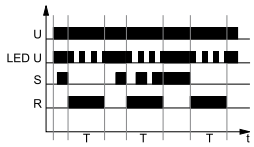
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches on the output relay R. Opening of the control contact S starts the set time of the delayed switching off of the output relay R. After the interval T has lapsed, the output relay 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.



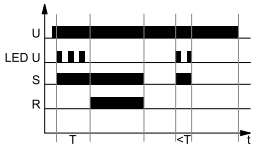
The input of the time relay is supplied with voltage U continuously. Closing of the control contact S immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R is switched off. In the course of the interval T, any opening of the control contact 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.

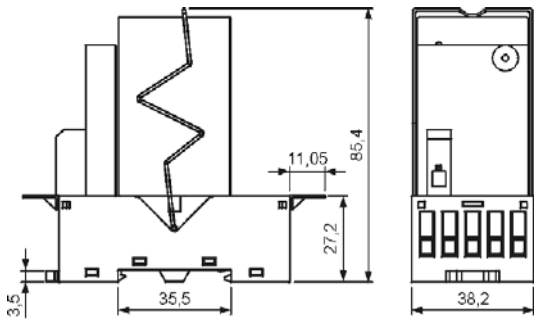
Es - ON delay with the control contact S.

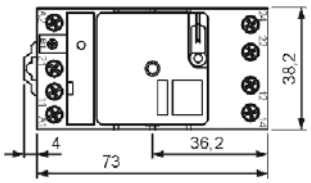


The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T - on-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains in this position until the control contact S is opened. In case the control contact S is closed for time shorter than the set interval T, the output relay R will not activate.

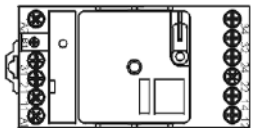
U - supply voltage; **R** - output state of the relay; **S** - control contact state; **T**, **T1**, **T2** - measured times; **t** - time axis

Dimensions





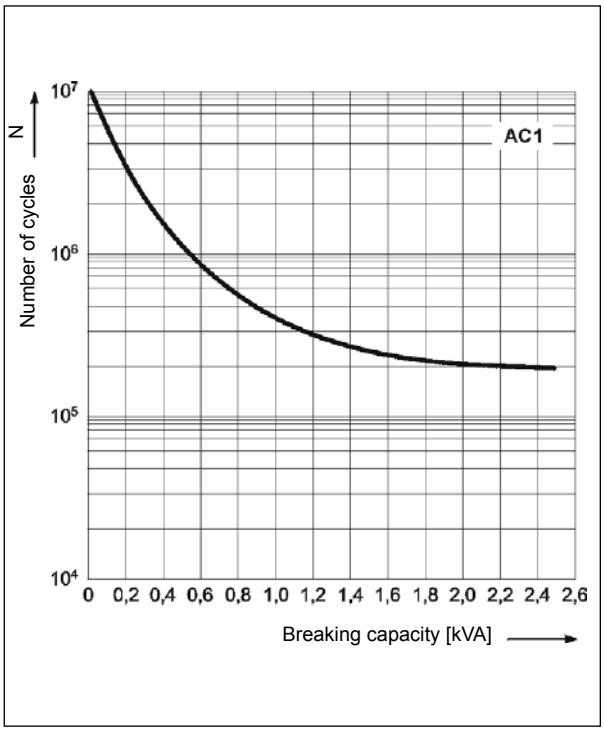
PIR15 - 2 CO



PIR15 - 3 CO

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

Fig. 1



Electrical life reduction factor at AC inductive load

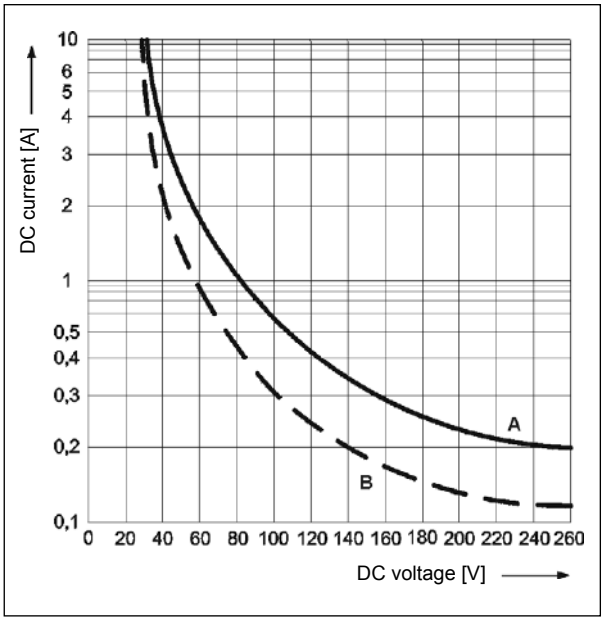
Fig. 2

N - electrical life at AC1

$N_{\cos\varphi} = N \times F$

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

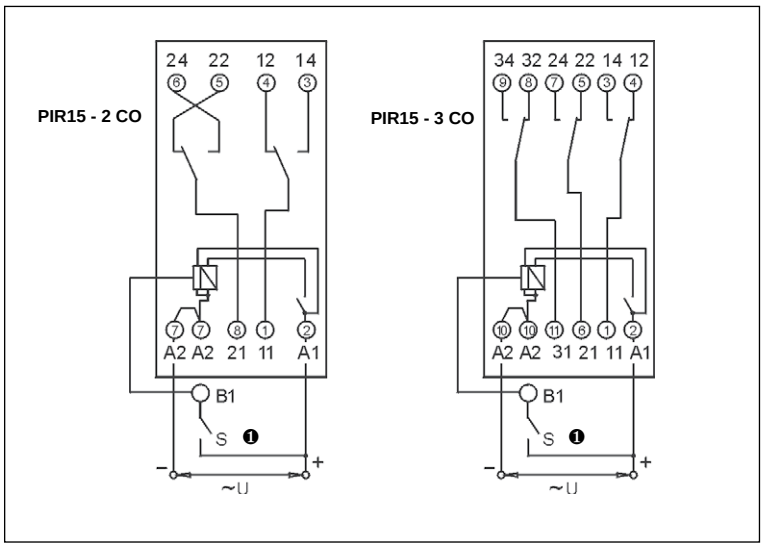
Fig. 3



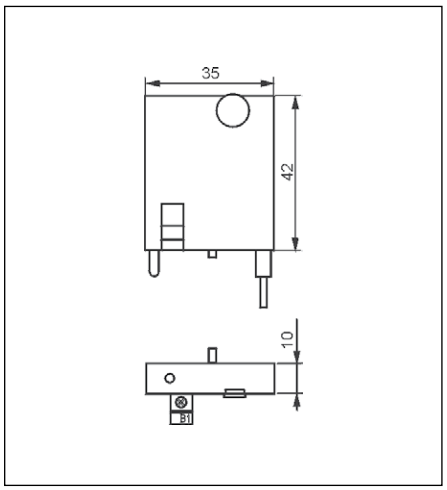
Mounting

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.

Connection diagrams (screw terminals side view)

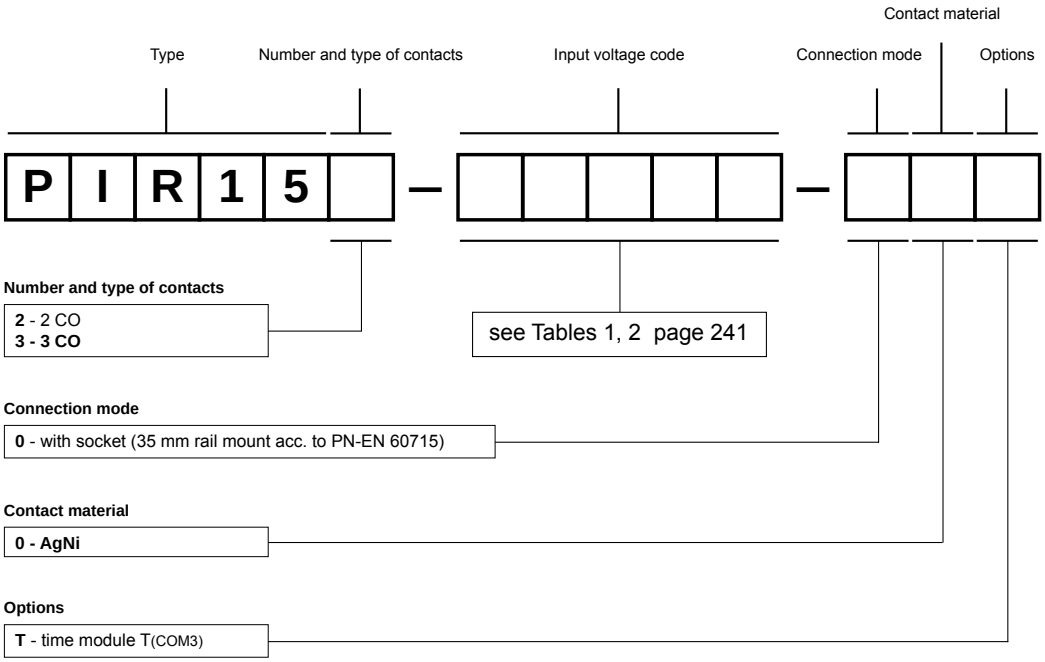


Dimensions - time module T(COM3)



❶ The control terminal B1 is activated by connection to A1 terminal via the external control contact S.

Ordering codes



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

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.

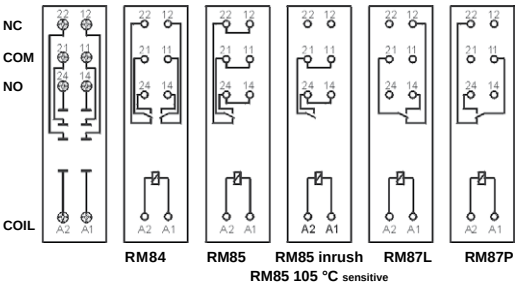
The screw terminals plug-in sockets are recognized and certified by: CE

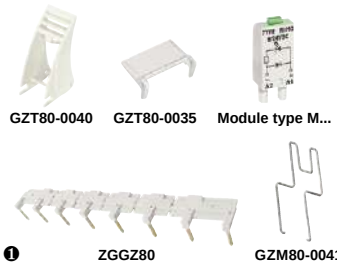
GZT80

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 ❷
Two poles, 5 mm pinout
12 A, 300 V AC

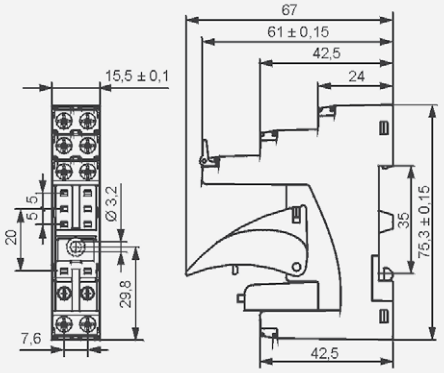
Connection diagrams ❸





Accessories ❶

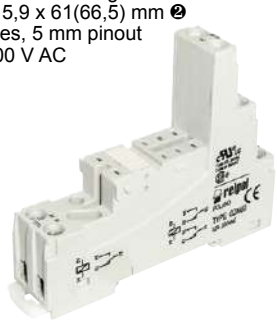
Dimensions



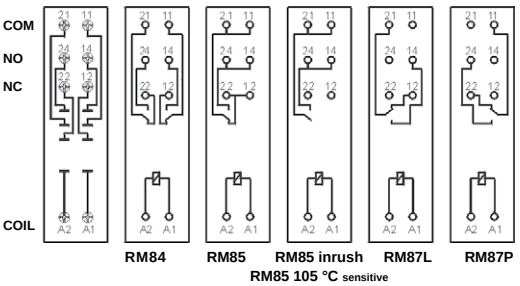
GZM80

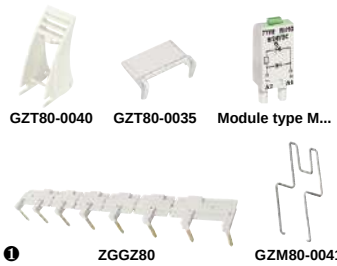
For RM84, RM85, RM85 inrush,
RM85 105 °C sensitive,
RMB841, RMB851,
RM87L, RM87L sensitive,
RM87P, RM87P sensitive

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 ❷
Two poles, 5 mm pinout
12 A, 300 V AC



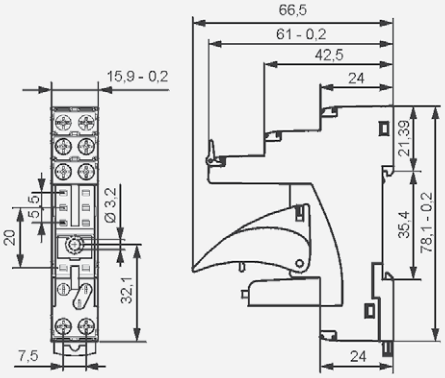
Connection diagrams ❸





Accessories ❶

Dimensions

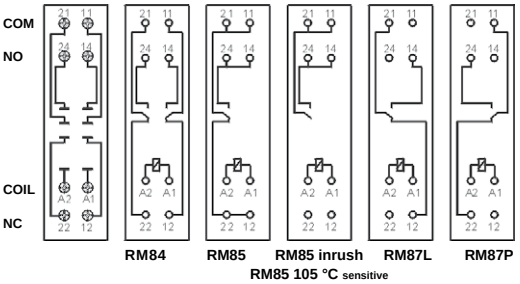


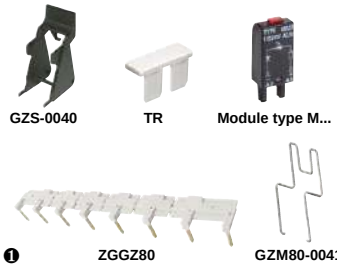
GZS80

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 ❷
Two poles, 5 mm pinout
10 A, 300 V AC

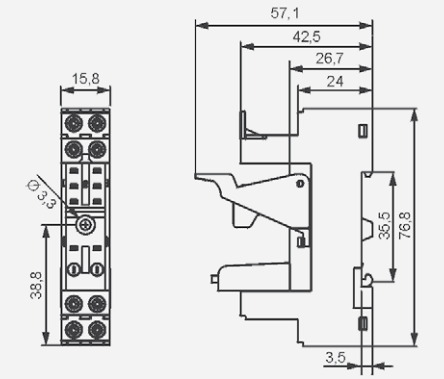
Connection diagrams ❸





Accessories ❶

Dimensions



❶ Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261. ❷ In the bracket the height of socket with retainer / retractor clip is shown. ❸ 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)

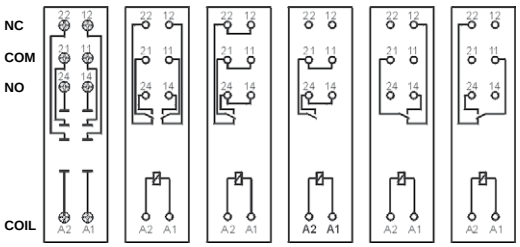
GZMB80

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

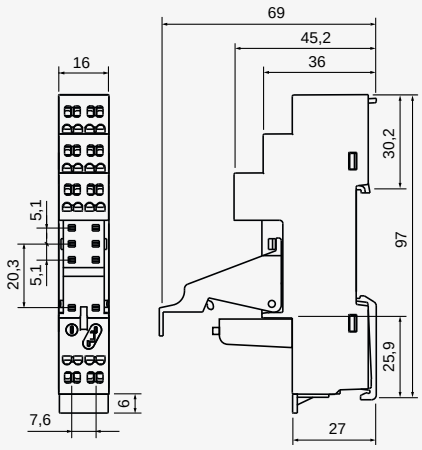
Spring terminals
Max. cross section of the cables:
1 x 0,2...1,5 mm²
(1 x 24...16 AWG)
Length of the cable deinsulation:
9...11 mm

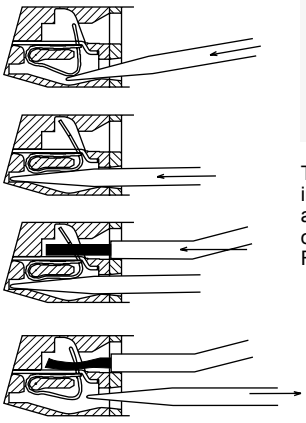
35 mm rail mount
acc. to PN-EN 60715
97 x 16 x 45,2(69) mm ❷
Two poles, 5 mm pinout
10 A, 300 V AC

Connection diagrams ❸

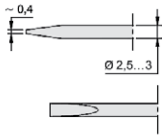


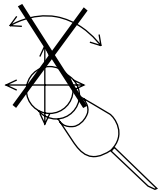
Dimensions





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".





GZMB80-0040

TR

Module type M...

GZM80-0041

Accessories ❶

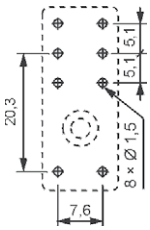
Wire connection

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

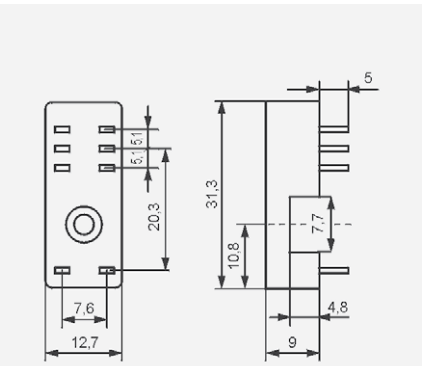


MP25-2 MH25-2 RM81-0001

MP16-2 MH16-2 GD-0025

Accessories

Dimensions

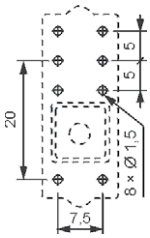


PW80

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

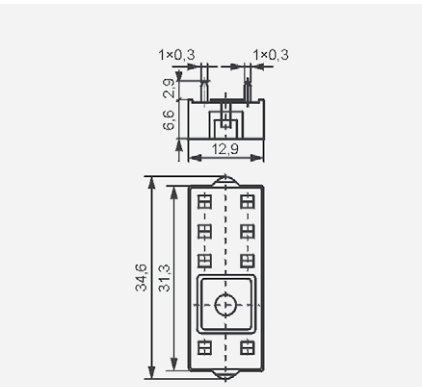


MH25-2 RM81-0001

MH16-2 GD-0025

Accessories

Dimensions



❶ Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261. ❷ In the bracket the height of socket with retainer / retractor clip is shown. ❸ 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)

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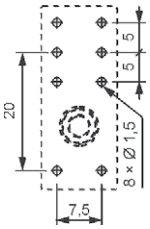
GD50

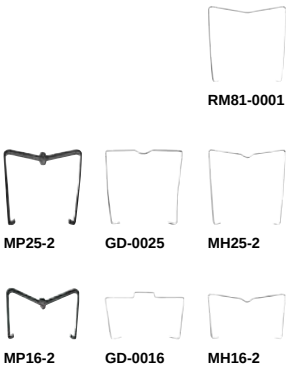
For RM84, RM85, RM85 inrush,
RM85 105 °C sensitive,
RMB841, RMB851,
RM87L, RM87L sensitive,
RM87P, RM87P sensitive,
RM83, RM94

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

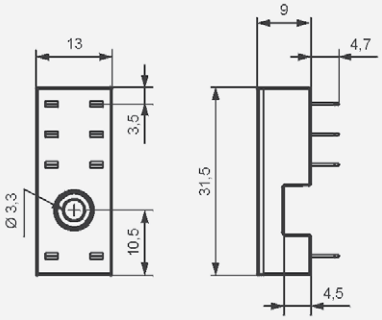
Pinout



Accessories



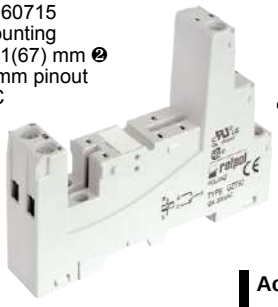
Dimensions



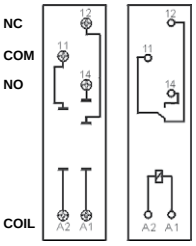
GZT92

For RM87N, RM87N sensitive

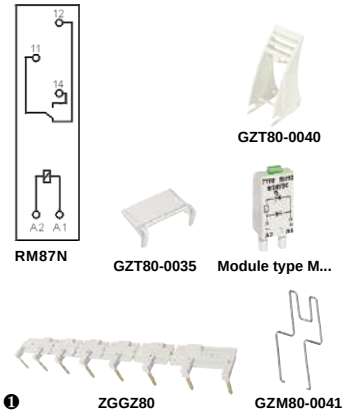
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
75,3 x 15,5 x 61(67) mm ❷
One pole, 3,5 mm pinout
12 A, 300 V AC



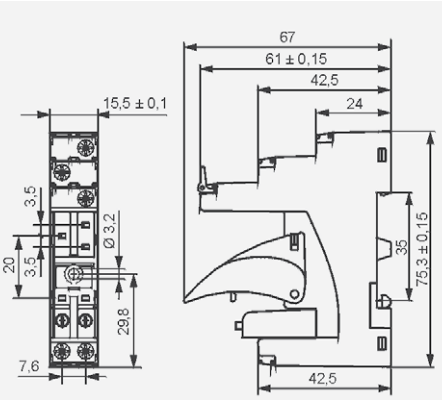
Connection diagrams



Accessories ❶



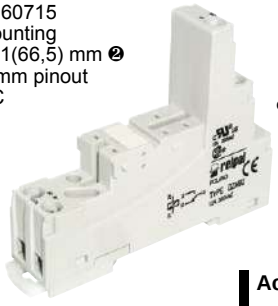
Dimensions



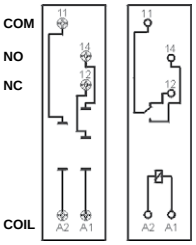
GZM92

For RM87N, RM87N sensitive

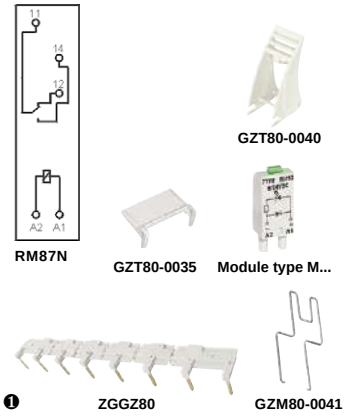
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
78,1 x 15,9 x 61(66,5) mm ❷
One pole, 3,5 mm pinout
12 A, 300 V AC



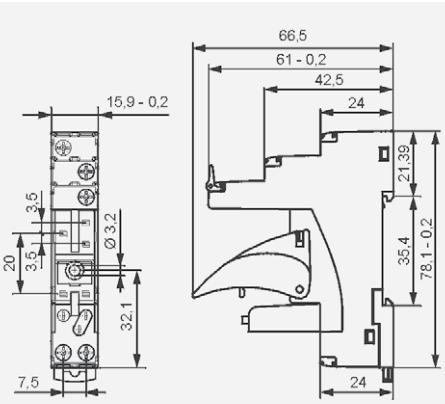
Connection diagrams



Accessories ❶



Dimensions

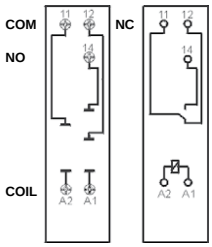


GZS92

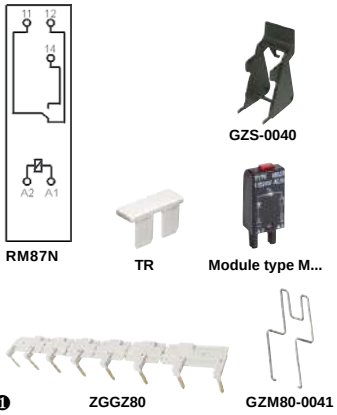
For RM87N, RM87N sensitive

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 ❷
One pole, 3,5 mm pinout
12 A, 300 V AC

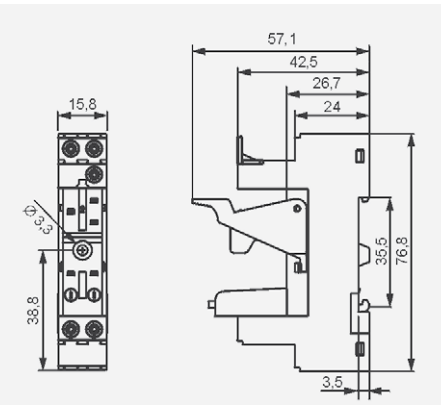
Connection diagrams



Accessories ❶



Dimensions



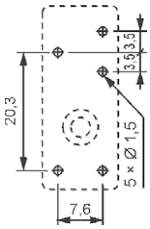
❶ Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261.
❷ In the bracket the height of socket with retainer / retractor clip is shown.

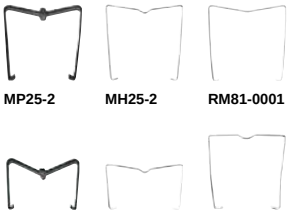
EC 35

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

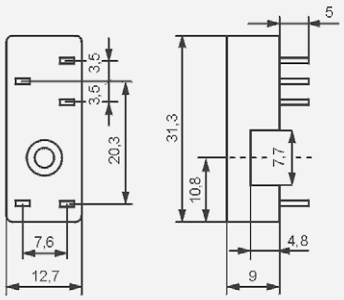
Pinout





Accessories

Dimensions

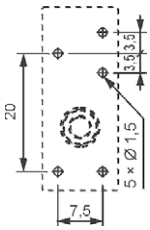


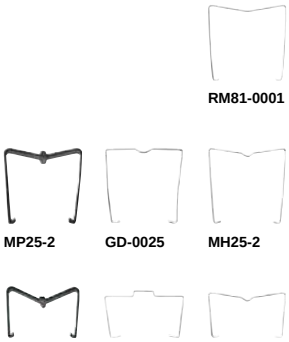
GD35

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

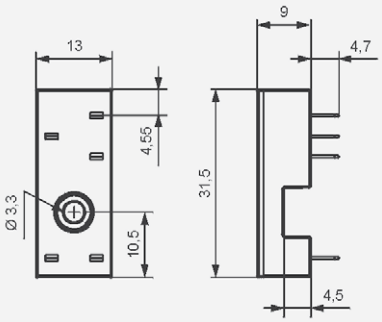
Pinout





Accessories

Dimensions

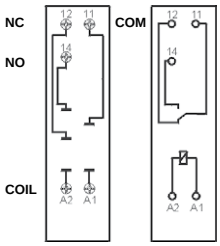


ES 32

For RM96 1 CO

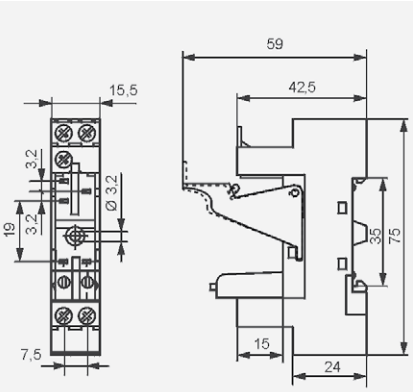
Screw terminals
Max. tightening moment for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715 or on panel mounting
75 x 15,5 x 42,5(59) mm ❷
One pole, 3,2 mm pinout
12 A, 300 V AC

Connection diagrams



Accessories ❶

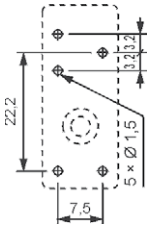
Dimensions



EC 32

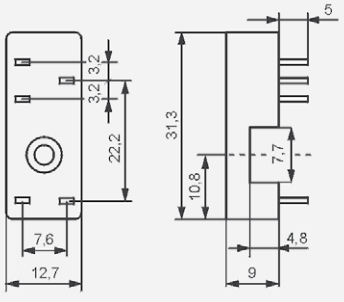
For PCB
31 x 12,7 x 9 mm
One pole, 3,2 mm pinout
12 A, 300 V AC

Pinout



Accessories

Dimensions



❶ Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261.
❷ In the bracket the height of socket with retainer / retractor clip is shown.

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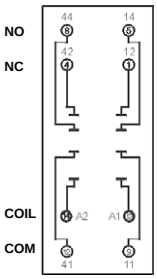
GZT2

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 ❷
Two poles
12 A, 300 V AC

Connection diagram



Accessories ❶

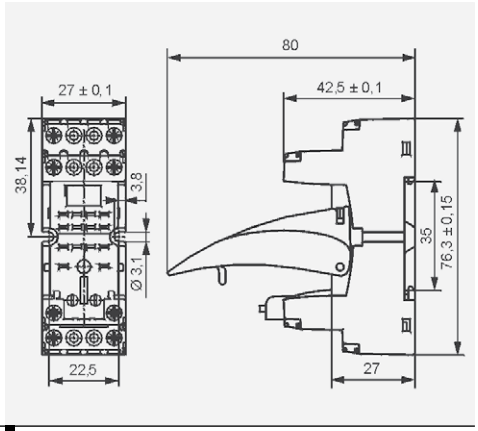

ZGGZ4


GZT4-0040 G4 1052


GZT4-0035


Module type M...

Dimensions

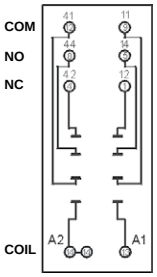


GZM2

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 ❷
Two poles
12 A, 300 V AC

Connection diagram



Accessories ❶

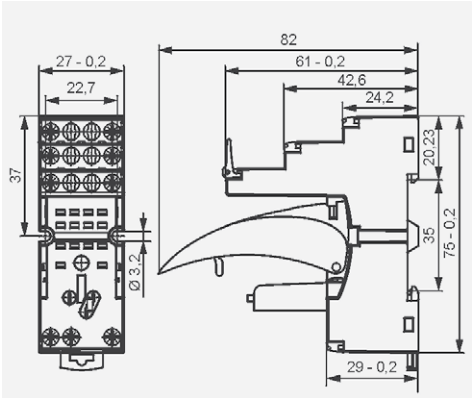

ZGGZ4


GZT4-0040 G4 1052


GZT4-0035


Module type M...

Dimensions



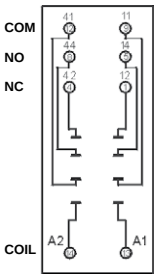
GZMB2

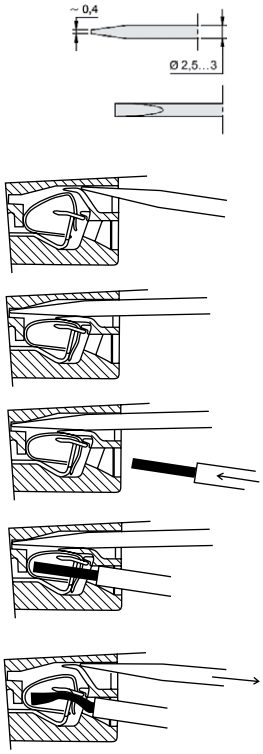
For R2

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

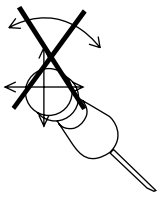
35 mm rail mount
acc. to PN-EN 60715
95 x 31 x 42,5(80) mm ❷
Two poles
10 A, 300 V AC

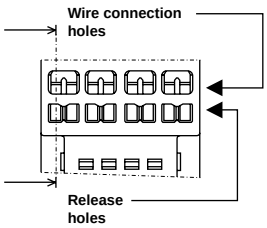
Connection diagram





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 ❶

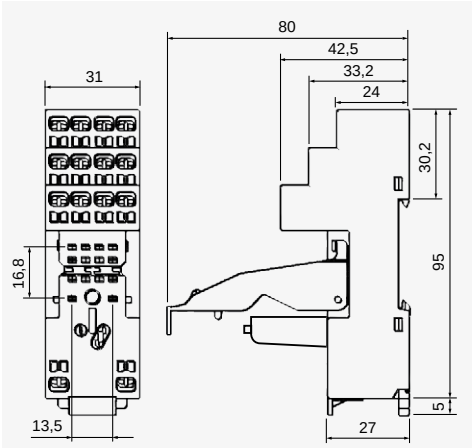

GZMB4-0040


TR


Module type M...


G4 1052

Dimensions



Wire connection

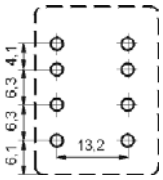
❶ Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261.
❷ In the bracket the height of socket with retainer / retractor clip is shown.

SU4/2D

For R2

For PCB
29,6 x 21,5 x 11 mm
Two poles
12 A, 250 V AC

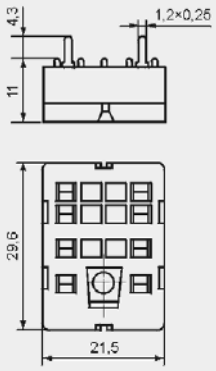
Pinout



Accessories ❹

G4 1053 G4 1050

Dimensions

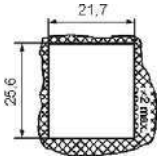


SU4/2L

For R2

Solder terminals
29,6 x 21,5 x 18,1 mm
Two poles
12 A, 250 V AC

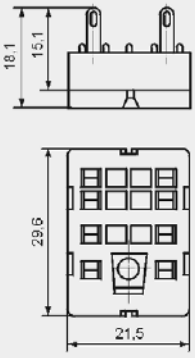
Dimensions of opening on panel mounting



Accessories ❹

G4 1053 G4 1050 G4 1040

Dimensions

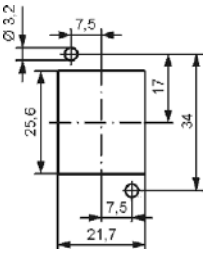


G4/2

For R2

Solder terminals
40,5 x 21,5 x 18,1 mm
Two poles
12 A, 250 V AC

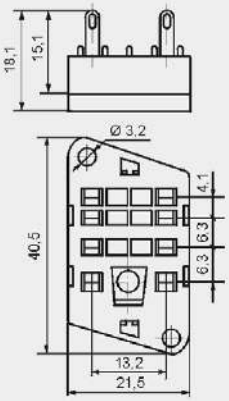
Pinout of openings on panel mounting



Accessories ❹

G4 1053 G4 1050

Dimensions

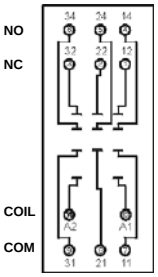


GZT3

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 ❷
Three poles
10 A, 300 V AC

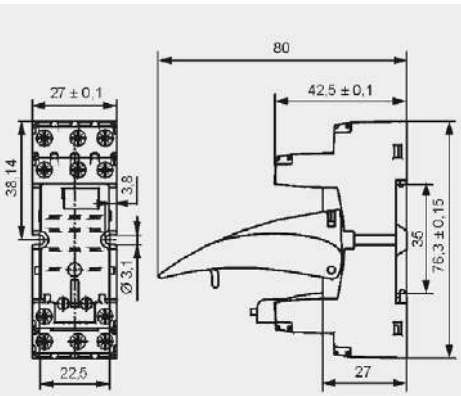
Connection diagram



Accessories ❶

ZGGZ4 GZT4-0040 G4 1052 GZT4-0035 Module type M...

Dimensions



❶ Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261.
❷ In the bracket the height of socket with retainer / retractor clip is shown. ❹ G4 1053 - for R2...WT, R4...WT relays; G4 1050 - for R2, R4 without WT

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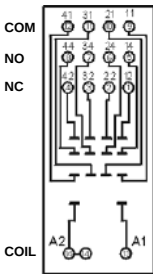
GZM3

For R3

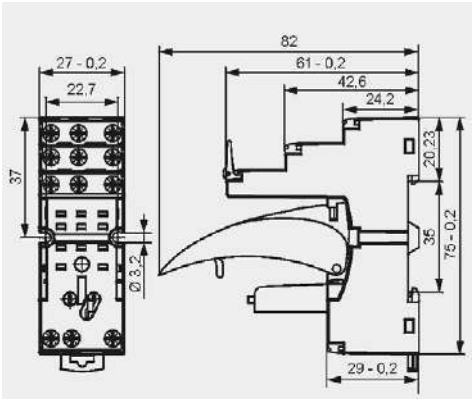
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
75 x 27 x 61(82) mm ❷
Three poles
10 A, 300 V AC

Connection diagram



Accessories ❶

Dimensions

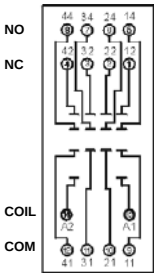


GZT4 ❺

For R4, T-R4

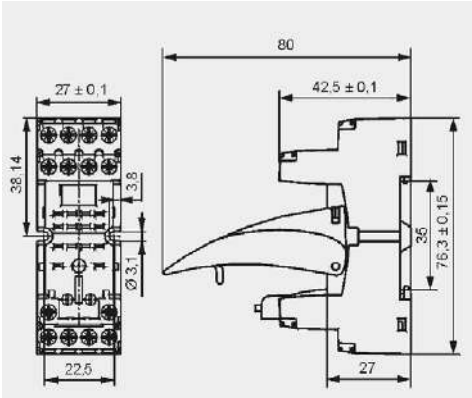
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
76,3 x 27 x 42,5(80) mm ❷
Four poles
6 A, 300 V AC

Connection diagram



Accessories ❶ ❻

Dimensions

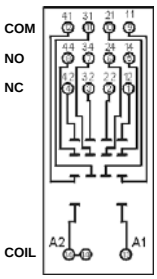


GZM4

For R4, T-R4

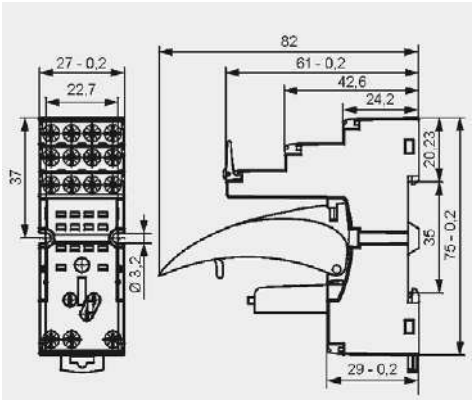
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
75 x 27 x 61(82) mm ❷
Four poles
6 A, 300 V AC

Connection diagram



Accessories ❶ ❻

Dimensions

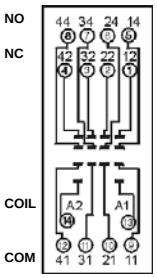


GZ4

For R4

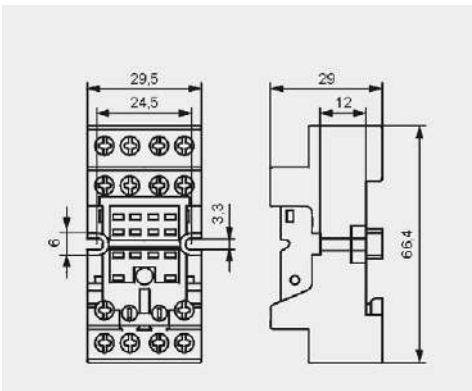
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
66,4 x 29,5 x 29 mm
Four poles
10 A, 300 V AC

Connection diagram



Accessories

Dimensions



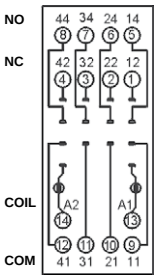
❶ Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261. ❷ In the bracket the height of socket with retainer / retractor clip is shown. ❻ For R4 relays: G4 1052, GZT4-0040, GZMB-0040, GZT4-0035, TR, module type M...; for T-R4 relays: TR4-2000, GZT4-0035, TR

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 ❼
Four poles
6 A, 300 V AC

Connection diagram

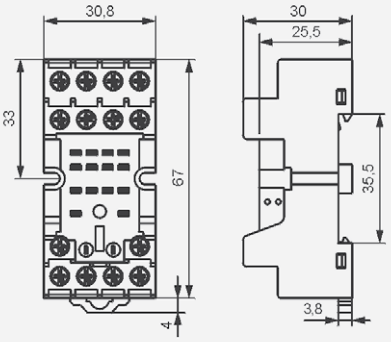


Accessories

GS4-0036

GS4-0035

Dimensions



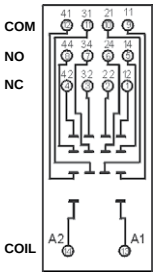
GZMB4

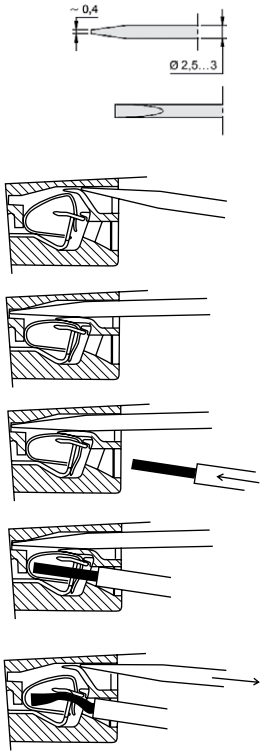
For R4, T-R4

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

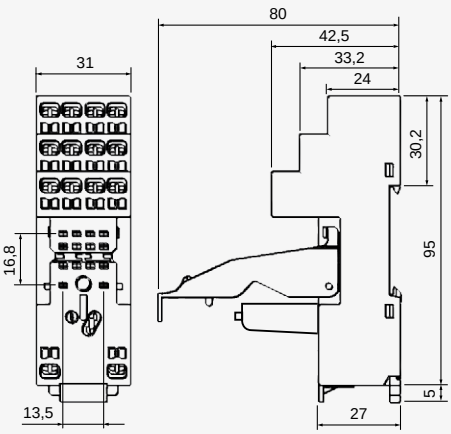
35 mm rail mount
acc. to PN-EN 60715
95 x 31 x 42,5(80) mm ❷
Four poles
10 A, 300 V AC

Connection diagram

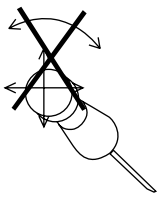


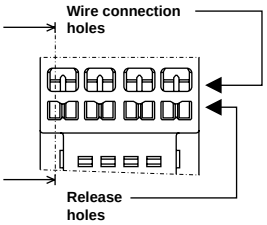


Dimensions



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 ❶ ❻

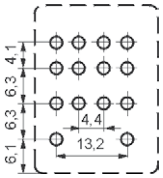
Wire connection

SU4D

For R4

For PCB
29,6 x 21,5 x 11 mm
Four poles
6 A, 250 V AC

Pinout

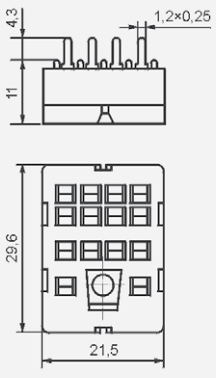


Accessories ❹

G4 1053

G4 1050

Dimensions



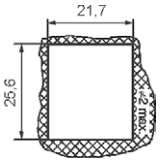
❶ Mounting and sub-assemblies of accessories in the socket - see page 254. Signalling / protecting modules type M... - see page 261. ❷ In the bracket the height of socket with retainer / retractor clip is shown. ❹ G4 1053 - for R2...WT, R4...WT relays; G4 1050 - for R2, R4 without WT ❻ For R4 relays: G4 1052, GZT4-0040, GZMB-0040, GZT4-0035, TR, module type M...; for T-R4 relays: TR4-2000, GZT4-0035, TR ❼ In the bracket the height of socket with spring wire clip is shown.

SU4L

For R4

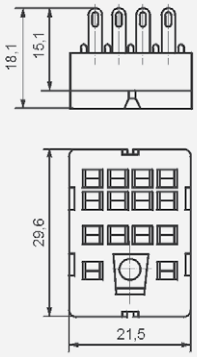
Solder terminals
29,6 x 21,5 x 18,1 mm
Four poles
6 A, 250 V AC

Dimensions of opening on panel mounting



Accessories ❹

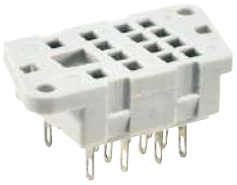
Dimensions



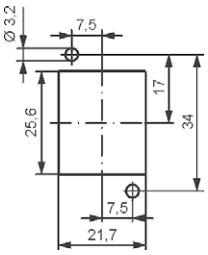
G4

For R4

Solder terminals
40,5 x 21,5 x 18,1 mm
Four poles
6 A, 250 V AC

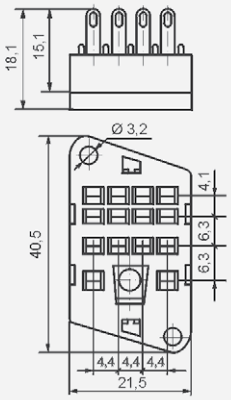


Pinout of openings on panel mounting



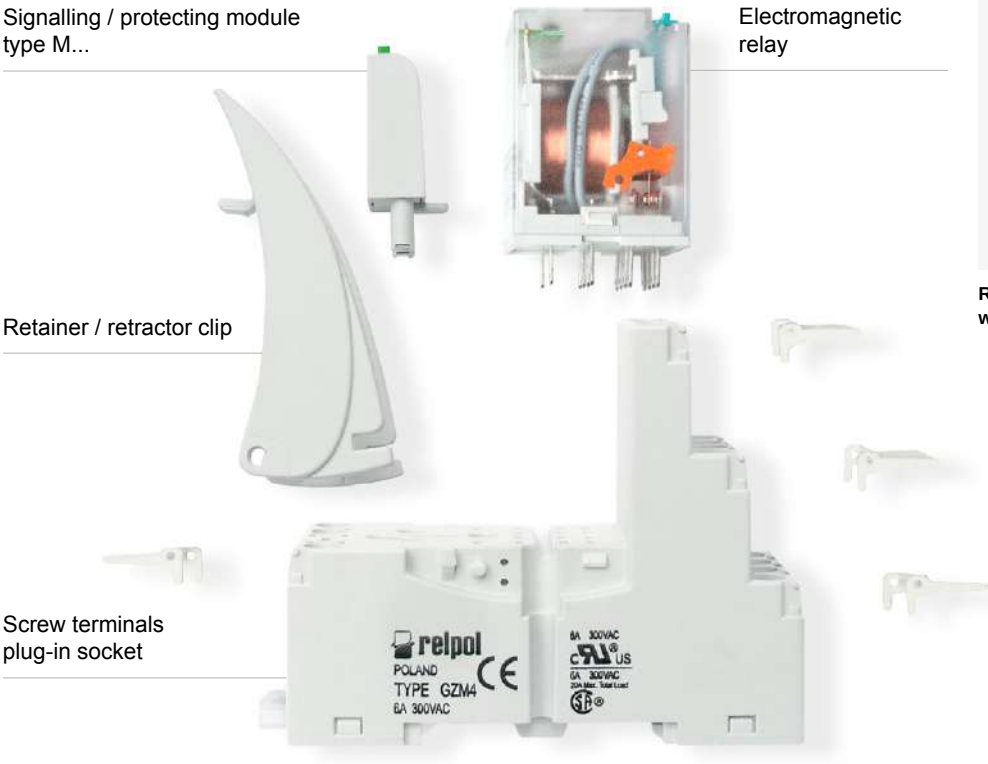
Accessories ❹

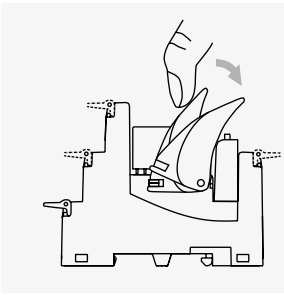
Dimensions



❹ 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





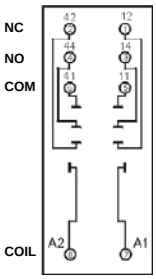
Removing the relay from the socket with a retrainer / retractor clip

GZY2G

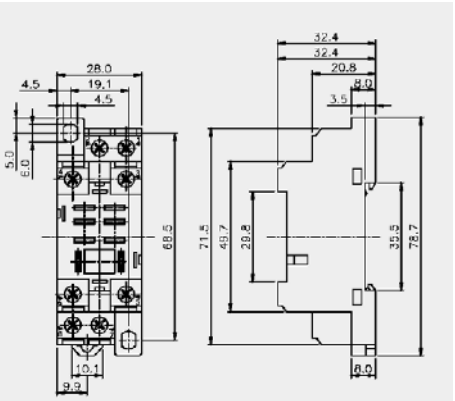
For RY2

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



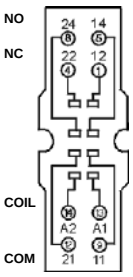
Accessories

GZ2

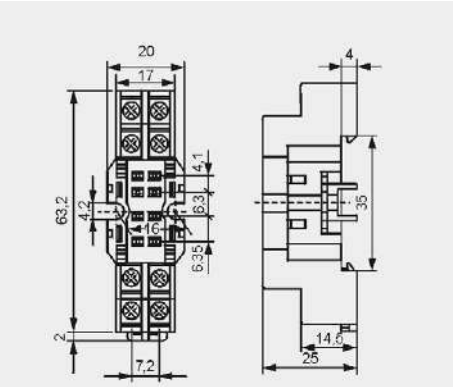
For R2M

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

GZ2 1060

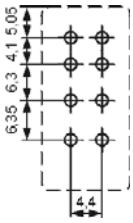
GZ2 1111

S2M

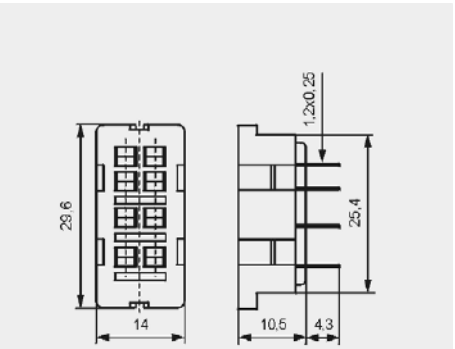
For R2M

For PCB
29,6 x 14 x 10,5 mm
Two poles
5 A, 250 V AC

Pinout



Dimensions



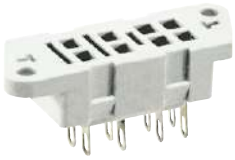
Accessories

G4 1050

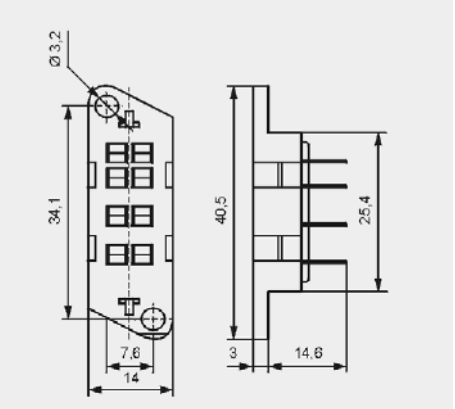
G2M

For R2M

Solder terminals
40,5 x 14 x 10,5 mm
Two poles
5 A, 250 V AC



Dimensions



Accessories

G4 1050

G2M 1020

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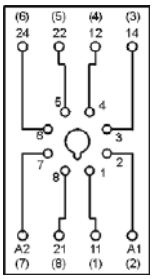
PZ8 ❺

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

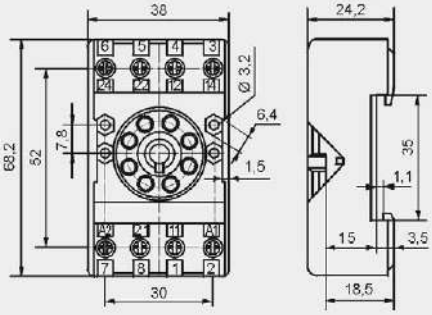
Connection diagram



Accessories

PZ11 0031

Dimensions

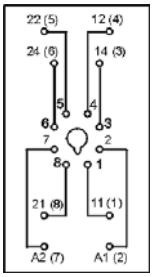


GZU8

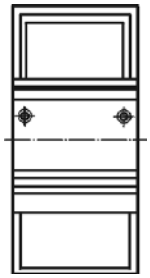
For R15 - 2 CO

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



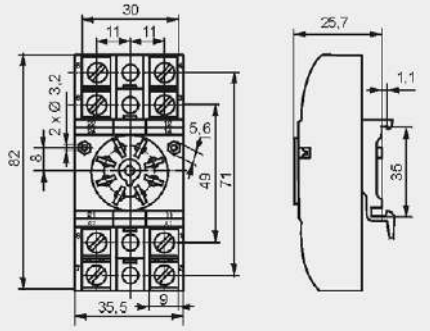
Adaptor



Accessories

GZU 1052

Dimensions

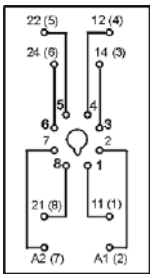


GZ8

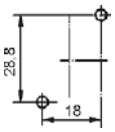
For R15 - 2 CO

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



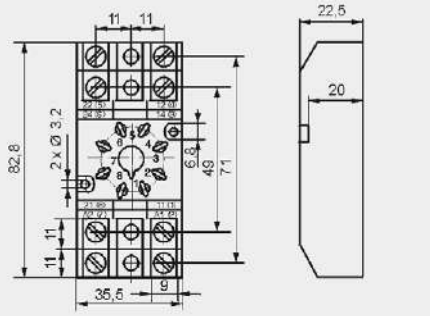
Mounting dimensions



Accessories

GZ 1050

Dimensions

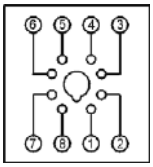


GZS8

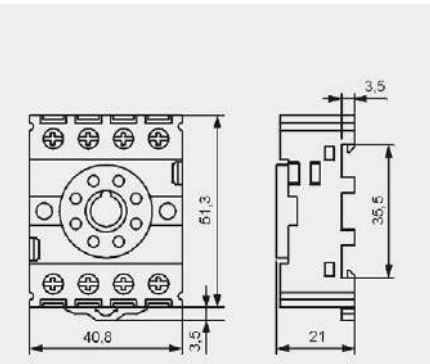
For R15 - 2 CO

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



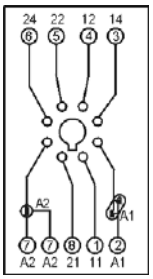
❺ Have obtained LR Type Approval Certificate (Lloyd's Register).

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



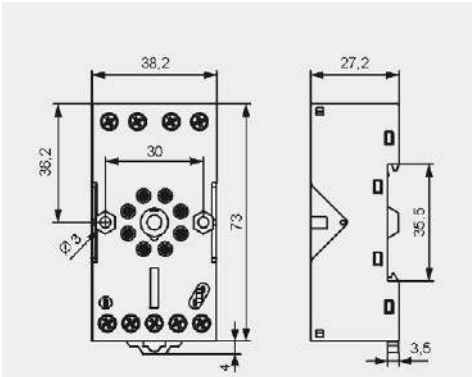
Time module T(COM3)

Accessories

GZP-0054

GZP-0035

Dimensions



GOP8

For R15 - 2 CO

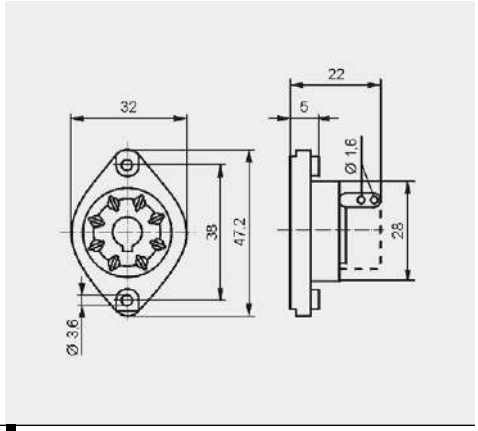
Solder terminals
47,2 x 32 x 22 mm
Two poles
10 A, 250 V AC

Accessories

R159 1051

R15 5922

Dimensions

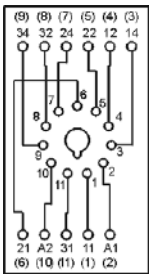


PS11 ❺

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

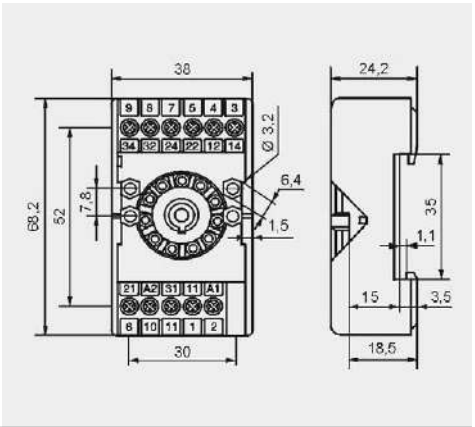
Connection diagram



Accessories

PZ11 0031

Dimensions

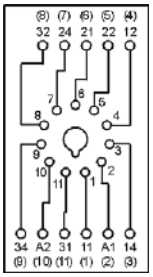


PZ11 ❺

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

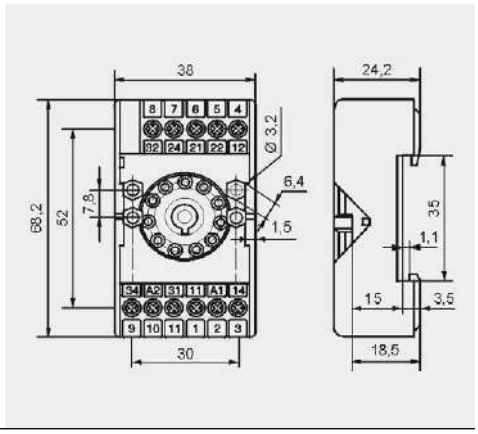
Connection diagram



Accessories

PZ11 0031

Dimensions



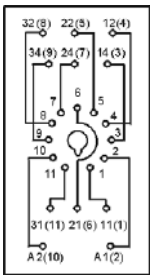
❺ Have obtained LR Type Approval Certificate (Lloyd's Register).

GZU11

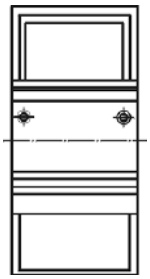
For R15 - 3 CO

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



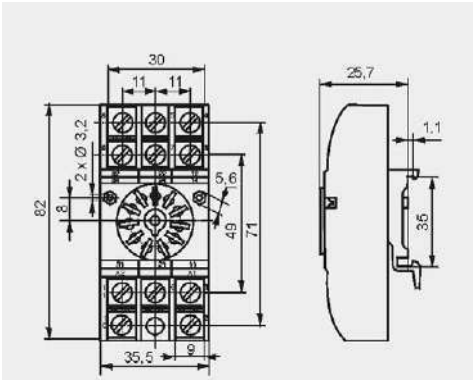
Adaptor



Accessories

GZU 1052

Dimensions

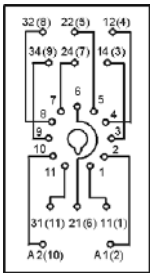


GZ11

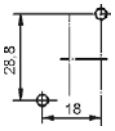
For R15 - 3 CO

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



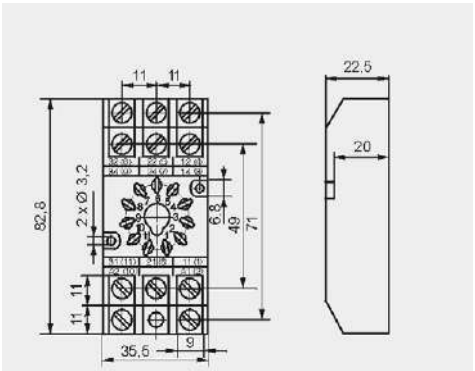
Mounting dimensions



Accessories

GZ 1050

Dimensions

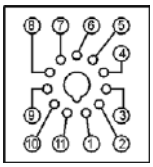


GZS11

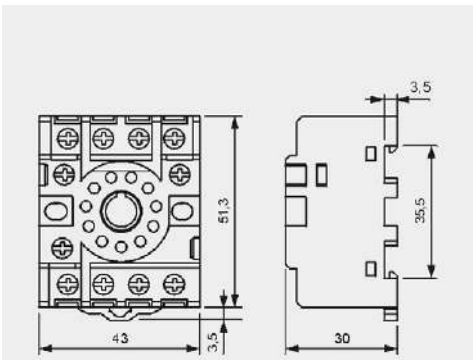
For R15 - 3 CO

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

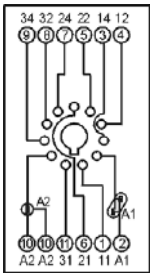


GZP11

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



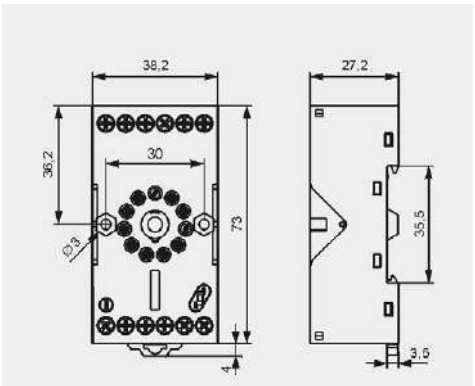
Accessories

GZP-0054

Time module T(COM3)

GZP-0035

Dimensions



GOP11

For R15 - 3 CO

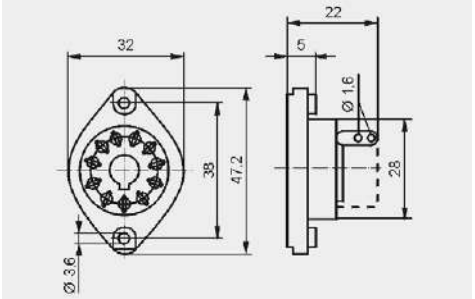
Solder terminals
47,2 x 32 x 22 mm
Three poles
10 A, 250 V AC

Accessories


R159 1051


R15 5922

Dimensions

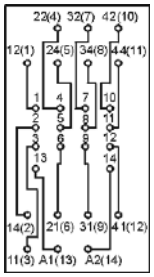


GZ14U

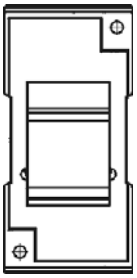
For R15 - 4 CO

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



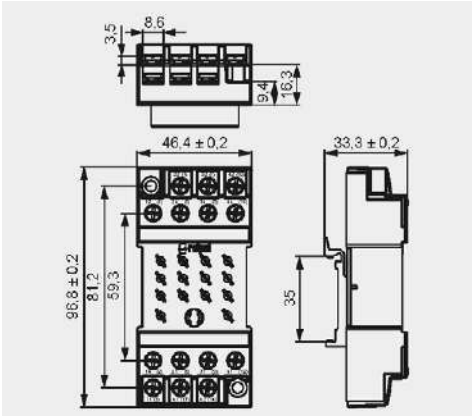
Adaptor



Accessories


GZ14 0737

Dimensions

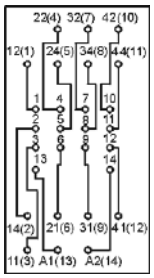


GZ14

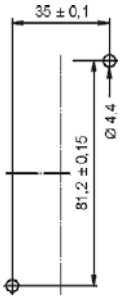
For R15 - 4 CO

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



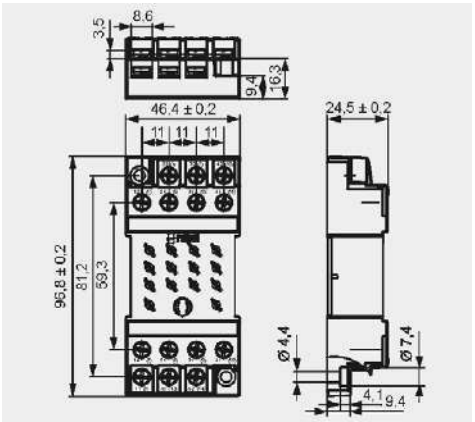
Mounting dimensions



Accessories


GZ14 0737

Dimensions



GOP14

For R15 - 4 CO

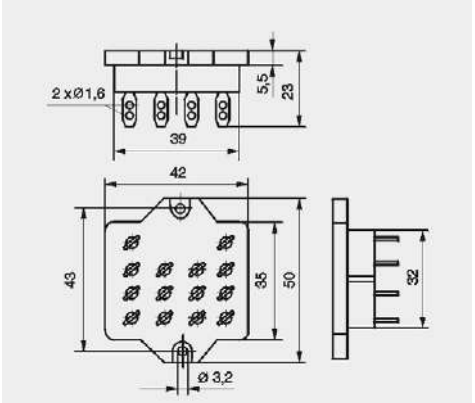
Solder terminals
50 x 42 x 23 mm
Four poles
10 A, 250 V AC

Accessories


R15 0736


R15 5922

Dimensions

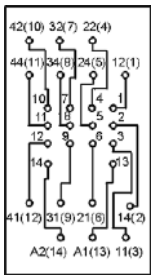


GZ14Z

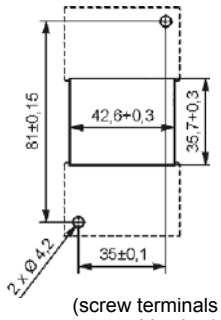
For R15 - 4 CO

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

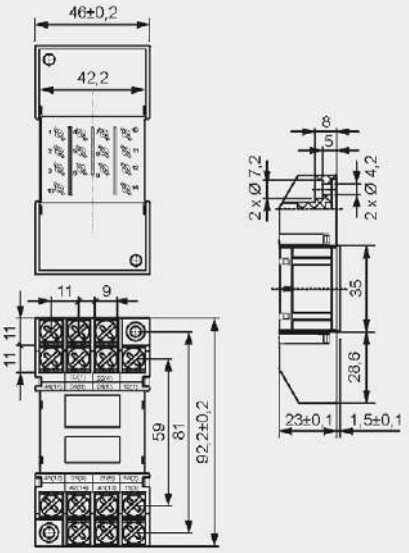


Mounting dimensions



(screw terminals side view)

Dimensions



Accessories

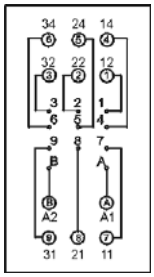
GZ14 0737

GUC11 ❽

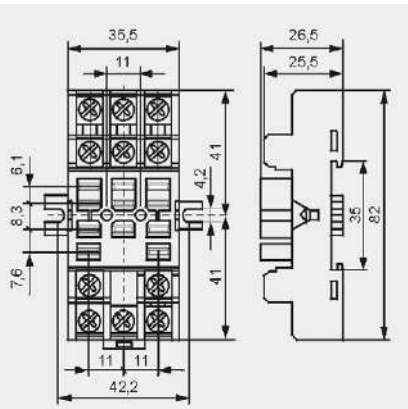
For RUC faston 4,8x0,5, RUC-M

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



Dimensions



Accessories

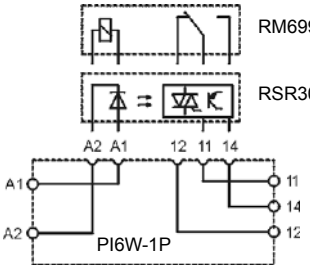
MBA

PI6W-1P

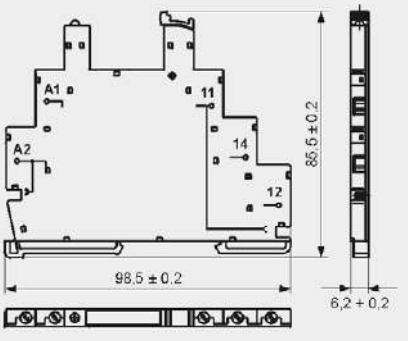
For RM699BV, RSR30 ❾

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



Dimensions



Accessories

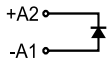
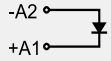
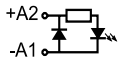
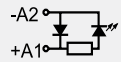
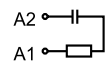
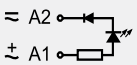
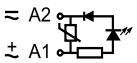
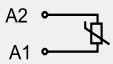
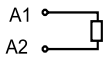
ZG20

PI6W-1246

❽ 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.
❾ Solid state relays **RSR30** type - see catalogue "Solid state relays" and www.relpol.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 parallely connected with relay coil.
Polarity P: -A1/+A2. Polarity N: +A1/-A2.

Modules type M...	Layout	Voltage	Type of module ❶ ❷
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

❶ **M...R** - LED red, **M...G** - LED green
❷ When ordering modules indicate their color: gray or black.

MODULE type M...

LED red
M...R

LED green
M...G

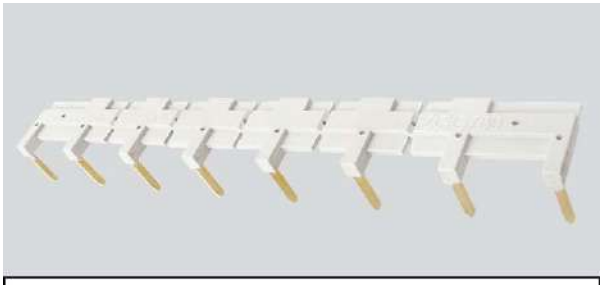
ZGGZ80 for:

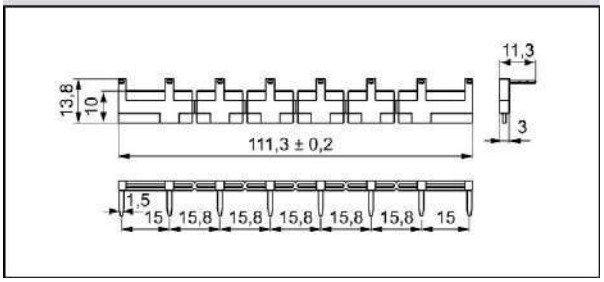
Plug-in sockets	Relays for plug-in sockets	Interface relays ❶
GZT80	RM84, RM85, RM85 inrush,	PI84-...-M..G (GZT80 + RM84)
GZM80	RM85 105 °C sensitive,	PI84-...-00L. (GZM80 + RM84)
GZS80	RM87L ❷, RM87P ❷	PI85-...-M..G (GZT80 + RM85)
GZT92	RM87N ❷	PI85-...-00L. (GZM80 + RM85)
GZM92		
GZS92		
ES 32	RM96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





PIR2-...-00L.

ZGGZ4

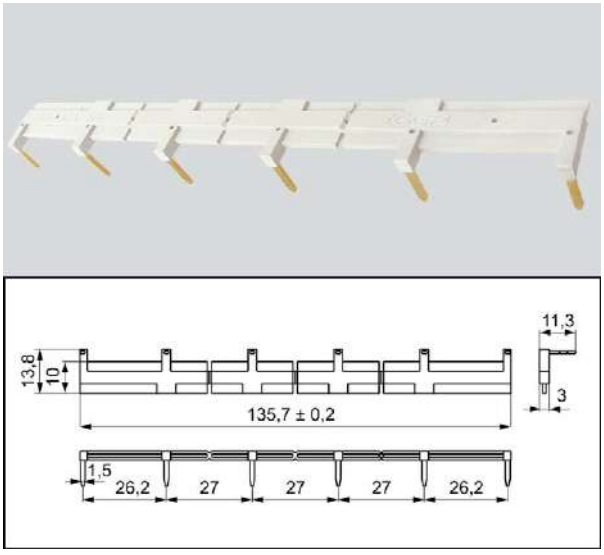
ZGGZ4 for:

Plug-in sockets	Relays for plug-in sockets	Interface relays ❶
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		

❸ 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.



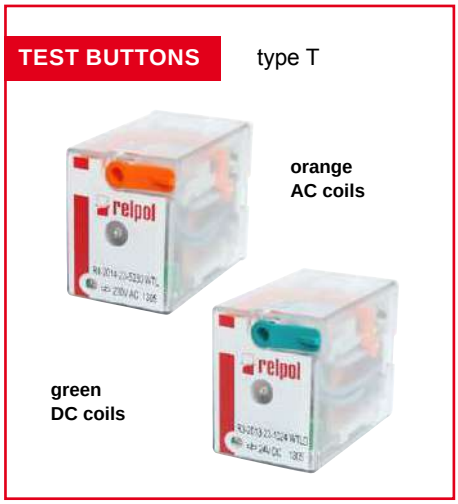
relpol S.A.
Export Sales Department phone +48 68 47 90 832, 951 • e-mail: export@relpol.com.pl www.relpol.com.pl

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, WTLD - in relays R2, R3, R4 for plug-in sockets
L, D, LD - in relays RY2 for plug-in sockets
WT, WTL, WTD, WTLD, WTV, WTLV - 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 type T



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.

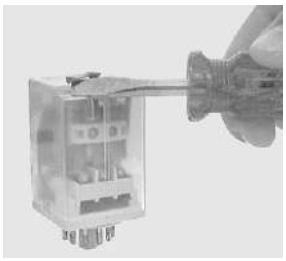


Fig. 1

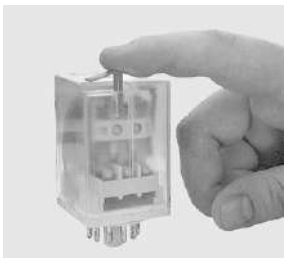
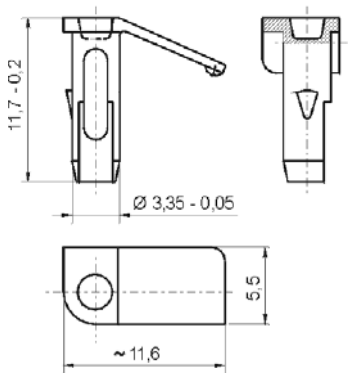


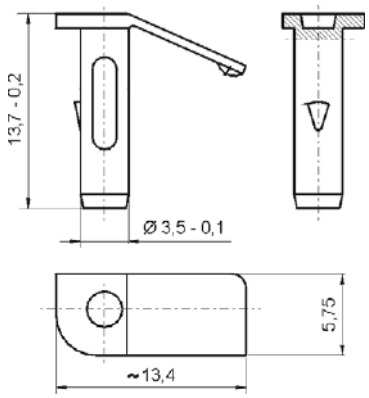
Fig. 2

Dimensions - test button **R4P-0001**
for relays **R2...WT**, **R3...WT**, **R4...WT**



Types of buttons:
R4P-0001-A - orange colour (AC coils)
R4P-0001-D - green colour (DC coils)

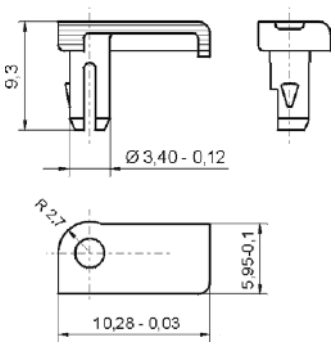
Dimensions - test button **R15-M404**
for relays **R15...WT - 2 CO, 3 CO**



Types of buttons:
R15-M404-A - orange colour (AC coils)
R15-M404-D - green colour (DC coils)

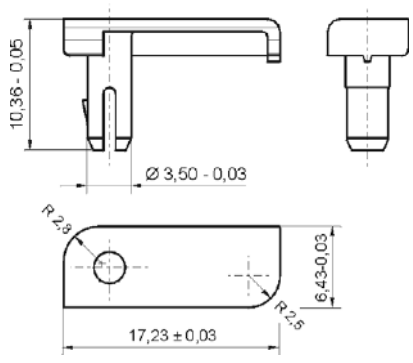
Plugs R4W-0003 or **R15-M203** can substitute button type **T if manual operation (latching and testing) is not allowed**. Changing button type **T** for plug can be done by Customer themselves in the same way as changing button type **T** for button (no latching).

Dimensions - plug **R4W-0003**
for relays **R2...WT**, **R3...WT**, **R4...WT**



Types of plugs:
R4W-0003-A - orange colour (AC coils)
R4W-0003-D - green colour (DC coils)

Dimensions - plug **R15-M203**
for relays **R15...WT - 2 CO, 3 CO**



Types of plugs:
R15-M203-A - orange colour (AC coils)
R15-M203-D - green colour (DC coils)

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 ❻)	(GZT2, GZM2 ❻)	GZMB2 ❾	SU4/2D ❿
R3	GZT3, GZM3	GZT3, GZM3	–	–
R4	(GZT4, GZM4 ❻) GZ4 ❼, GS4 ❽	(GZT4, GZM4 ❻) GZ4 ❼, GS4 ❽	GZMB4 ❾	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 ❼	GZT4, GZM4 ❼	GZMB4 ❼	–

❶ Solid state relays **RSR30** type - see catalogue "Solid state relays" and www.relpol.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

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 ❷, GZS-0040 ❸, GZMB80-0040 ❹	GZM80-0041 ❷ ❸ ❹, (MP16-2, MH16-2, GD-0016 ❺)	GZT80-0035 ❷, TR ❸ ❹	M..., ZGGZ80 ❹
–	GZT80-0040 ❷, GZS-0040 ❸, GZMB80-0040 ❹	GZM80-0041 ❷ ❸ ❹, (MP16-2, MH16-2, GD-0016 ❺)	GZT80-0035 ❷, TR ❸ ❹	M..., ZGGZ80 ❹
–	GZT80-0040 ❷, GZS-0040 ❸, GZMB80-0040 ❹	GZM80-0041 ❷ ❸ ❹, (MP16-2, MH16-2, GD-0016 ❺)	GZT80-0035 ❷, TR ❸ ❹	ZGGZ80 ❹
–	GZT80-0040 ❷, GZS-0040 ❸	GZM80-0041 ❷ ❸ ❹, (MP16-2, MH16-2, GD-0016 ❺)	GZT80-0035 ❷, TR ❸	M..., ZGGZ80
–	GZT80-0040 ❷, GZS-0040 ❸, GZMB80-0040 ❹	GZM80-0041 ❷ ❸ ❹, (MP16-2, MH16-2, GD-0016 ❺)	GZT80-0035 ❷, TR ❸ ❹	M..., ZGGZ80 ❹
–	GZT80-0040 ❷, GZS-0040 ❸, GZMB80-0040 ❹	GZM80-0041 ❷ ❸ ❹, (MP16-2, MH16-2, GD-0016 ❺)	GZT80-0035 ❷, TR ❸ ❹	M..., ZGGZ80 ❹
–	MS 16, GZMB80-0040	GZM80-0041	TR	M..., ZGGZ80
–	–	(MP25-2, MH25-2, GD-0025, RM81-0001 ❺)	–	–
–	–	(MP25-2, MH25-2, GD-0025, RM81-0001 ❺)	–	–
–	–	(MP25-2, MH25-2, GD-0025, RM81-0001 ❺)	–	–
SU4/2L, G4/2 ❿	GZT4-0040 ❻, GZMB4-0040 ❾	G4 1052 ❻ ❼ ❾, (G4 1053, G4 1050 ❿)	GZT4-0035 ❻, TR ❾	M..., ZGGZ4 ❾, R4P-0001, R4W-0003
–	GZT4-0040	G4 1052	GZT4-0035	M..., ZGGZ4, R4P-0001, R4W-0003
SU4L, G4 ❿	GZT4-0040 ❻, GZMB4-0040 ❾	G4 1052 ❻ ❼ ❾, GS4-0036 ❽, (G4 1053, G4 1050 ❿)	GZT4-0035 ❻, GS4-0035 ❽, TR ❾	M... ❼, ZGGZ4 ❾, R4P-0001, R4W-0003
–	–	–	–	–
G2M ❷	–	GZ2 1060 ❶, G4 1050 ❷	–	–
GOP8 ❻	–	PZ11 0031 ❸, (GZ 1050, GZU 1052 ❹), GZP-0054 ❺, R159 1051 ❻	GZP-0035 ❺	R15-M404, R15-M203, T(COM3) ❺
GOP11 ❻	–	PZ11 0031 ❸, (GZ 1050, GZU 1052 ❹), GZP-0054 ❺, R159 1051 ❻	GZP-0035 ❺	R15-M404, R15-M203, T(COM3) ❺
GOP14 ❻	–	GZ14 0737 , R15 0736 ❻	–	–
–	–	MBA	–	–
–	–	TR4-2000	GZT4-0035, TR ❼	ZGGZ4 ❼

❶ For sockets GZ2 apply spring wire clips GZ2 1060 and spring clamps GZ2 1111 ❷ For sockets S2M, G2M apply spring wire clips G4 1050. For sockets G2M apply also spring clamps G2M 1020 ❸ For sockets PZ8, PS11, PZ11 apply spring wire clips PZ11 0031 ❹ For sockets GZ8, GZ11 apply spring wire clips GZ 1050. For sockets GZU8, GZU11 apply spring wire clips GZU 1052 ❺ For sockets GZP8, GZP11 apply spring wire clips GZP-0054, description plates GZP-0035 and time modules T(COM3) ❻ 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 ❼ For sockets GZT4, GZM4 apply description plates GZT4-0035. For sockets GZMB4 apply description plates TR. For sockets GZMB4 not applicable interconnection strips ZGGZ4

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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

❶ Solid state relays **RSR30** type - see catalogue "Solid state relays" and www.relpol.com.pl
❷ Also RM87L sensitive, RM87P sensitive
❸ Also RM87N sensitive

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

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

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 mm²	6,5 mm	0,7 Nm
4	74 g	-40...+70 °C	IP 20	2 x 2,5 mm²	6,5 mm	0,7 Nm
4	75 g	-25...+85 °C	IP 20	1 x 0,2...1,5 mm²	9...11 mm	–
4	40 g	-40...+70 °C	IP 20	2 x 1,5 mm²	7 mm	0,7 Nm
4	40 g	-40...+70 °C	IP 20	2 x 1,5 mm²	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 mm²	–	–
2	54 g	-25...+55 °C	IP 20	2 x 2,5 mm²	7 mm	0,7 Nm
2	35 g	-40...+70 °C	IP 00	2 x 2,5 mm²	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 mm²	7 mm	0,7 Nm
2	70 g	-40...+70 °C	IP 00	2 x 2,5 mm²	9,5 mm	0,7 Nm
2	80 g	-40...+70 °C	IP 00	2 x 2,5 mm²	9,5 mm	0,7 Nm
2	32 g	-40...+70 °C	IP 00	2 x 2,5 mm²	7 mm	1,0 Nm
2	50 g	-40...+70 °C	IP 20	2 x 2,5 mm²	6,5 mm	0,5 Nm
2	25 g	-40...+70 °C	–	–	–	–
3	55 g	-40...+70 °C	IP 20	2 x 2,5 mm²	7 mm	0,7 Nm
3	55 g	-40...+70 °C	IP 20	2 x 2,5 mm²	7 mm	0,7 Nm
3	70 g	-40...+70 °C	IP 00	2 x 2,5 mm²	9,5 mm	0,7 Nm
3	80 g	-40...+70 °C	IP 00	2 x 2,5 mm²	9,5 mm	0,7 Nm
3	46 g	-40...+70 °C	IP 00	2 x 2,5 mm²	7 mm	1,0 Nm
3	55 g	-40...+70 °C	IP 20	2 x 2,5 mm²	6,5 mm	0,5 Nm
3	27 g	-40...+70 °C	–	–	–	–
4	120 g	-40...+70 °C	IP 20	2 x 2,5 mm²	9,5 mm	0,7 Nm
4	120 g	-40...+70 °C	IP 20	2 x 2,5 mm²	9,5 mm	0,7 Nm
4	35 g	-40...+70 °C	–	–	–	–
4	120 g	-40...+55 °C	IP 00	2 x 2,5 mm²	9,5 mm	0,7 Nm
3	75 g	-40...+70 °C	IP 00	2 x 2,5 mm²	9 mm	0,7 Nm

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