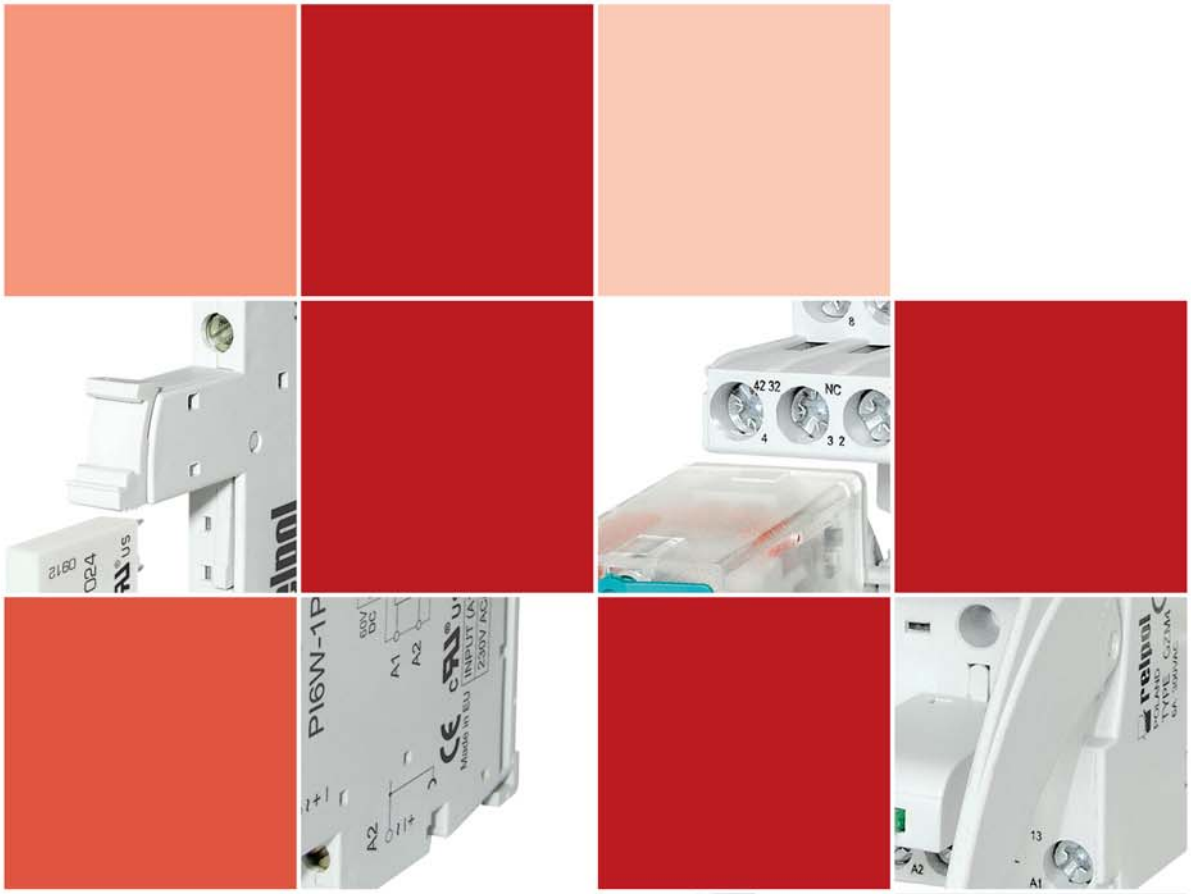


relays

electromagnetic relays

interface relays

installation relays

time relays

plug-in sockets and accessories

2010

industrial automation

technological lines

signaling and safety applications

electronic circuit

www.relpol.com.pl

relpol® S.A.

Automation is our passion

For dozens of years now, Relpol S.A.

has been a worldwide known supplier of components

used in industrial and power automation, power electronics, industrial and applied electronics, telecommunication, etc.

Apart from complete delivery of components, Relpol S.A. provides its partners with technical consultancy based upon **extensive knowledge of the application of the components.**

Taking into account **the significant role of the products of Relpol S.A.**, we have made their quality improvement our priority strategic goal.

You are welcome to review our catalogs which present a very wide line of products for industrial automation.

Due to the wide line of products, orders of non-standard products should be consulted with the manufacturer or distributor.

The leading position

of the manufacturer of electromagnetic relays in Europe

provides for Relpol's presence
in markets worldwide.

Commercial Partnerships of Relpol S.A.

RELPOL M Minsk / Belarus

RELPOL BG Varna / Bulgaria

RELPOL BALTIJA Vilnius / Lithuania

RELPOL ELTIM Sankt-Petersburg / Russia

OOO VALEX-ELECTRO Moscow / Russia

RELPOL ALTERA Kiev / Ukraine

The standards quality guaranteed

Taking into account the high requirements of the market and our customers' full satisfaction, Relpol S.A. constantly strives for improvement of the quality of the products and services we offer. Our own technological, designing and research facilities remarkably help us to achieve our goals.

ISO 9001 : 2001

ISO 14001 : 2005

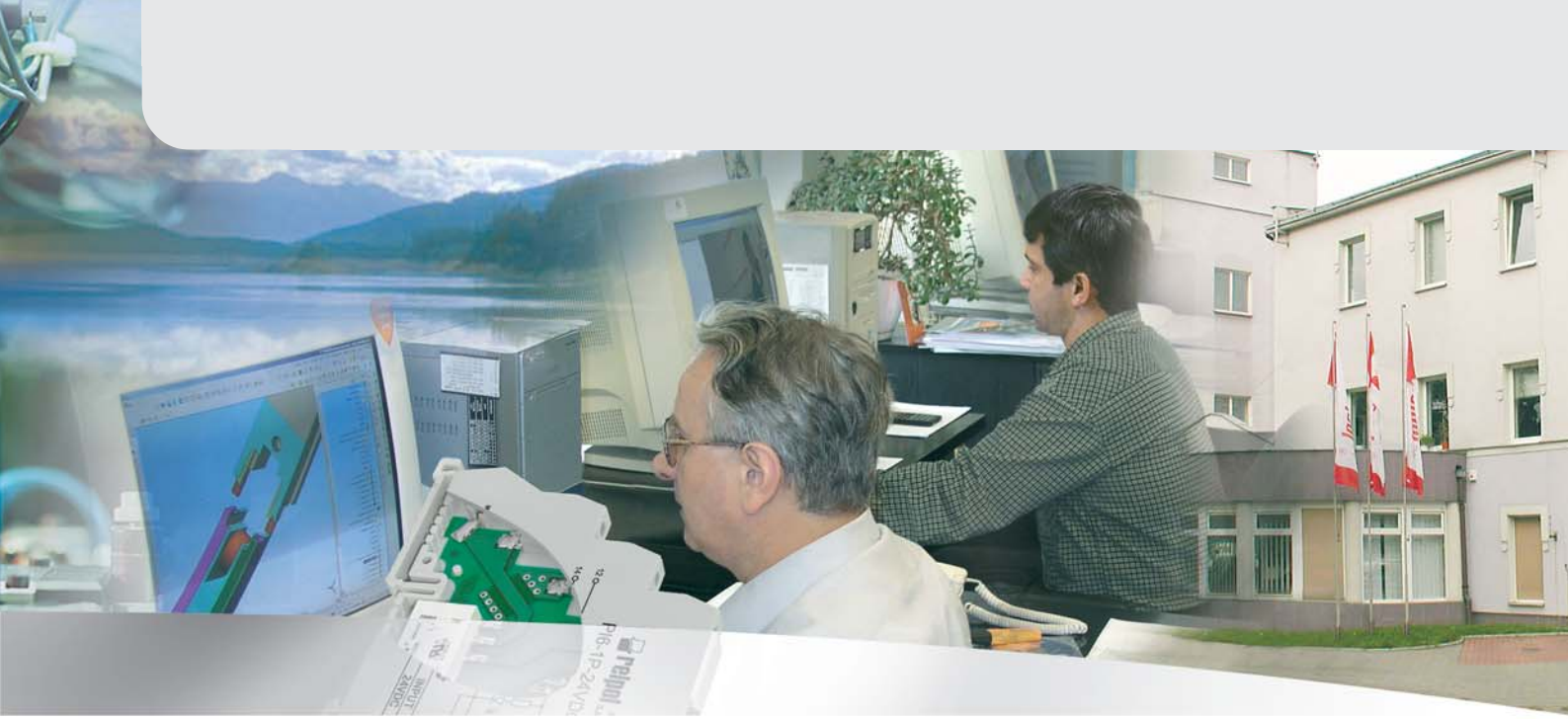
The modern production profile and high quality of the products that comply with the requirements of the European Union are confirmed by the ISO 9001 : 2001, ISO 14001 : 2005 CERTIFICATES.

The Gold Statuette of the Business Centre Club 1995 / EUROPRODUCT 2002, 2003 / the Statuette of the Minister of Economic Affairs, Labor and Social Policy 2003 / GOLD EUROPRODUCT 2003 / ELECTRO-PRODUCT 2003 / GOLD MEDAL Automaticon 2004, 2007, 2008 / the Statuette for the Pillar of the Polish Economy 2004 / the Cup of the Minister of Economic Affairs and Labor 2004 / Product of the Year 2004, 2005, 2006 / Award ENERGETAB 2006 / Award Time Vehicles 2007

Innovative features of our technological solutions

and reliability of our products

are confirmed by numerous recognitions and certifications BBJ, VDE, UL, CSA, GOST, LR, CCCs, AUCOTEAM GmbH, RoHS and by prizes and awards.



Relations and trust

Our co-operation with numerous renowned suppliers of materials and components necessary for the production process allows us to realize even complex deliveries quickly and smoothly. We build long-term partnership relations with our customers.

Owing to regular consultations and steady contribution of our Partners to our activities, we gain the knowledge necessary for reliable and professional services.

Relpol S.A. runs its own Research and Development Department which designs new products to follow the worldwide trends and solutions in the electrotechnical industry.

The permanent development of our staff along with human resources stabilization provide our customers with professional service.

Relpol S.A. Technical Support Department advises the Client and helps to solve the problems of electrical applications and, thus, enhances their satisfaction at cooperation with ourselves.

The long years of experience, the knowledge of the electrotechnical industry and the market activities of Relpol S.A. have been proved by co-operation with the largest corporations worldwide.

Environment protection

With the development of technology we shall not forget about the issues of the environment protection.

Reduction of the natural environment pollution with regard to the production process and the products of Relpol S.A. is a constant process aimed at minimizing of the environmental impact.

Our products meet the requirements of the RoHS Directive.

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relpol® S.A.

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Miniature relays

✪ **RM85** with increased contact gap

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Industrial relays

Installation relays

Interface relays

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Plug-in sockets and accessories

Relay selection table

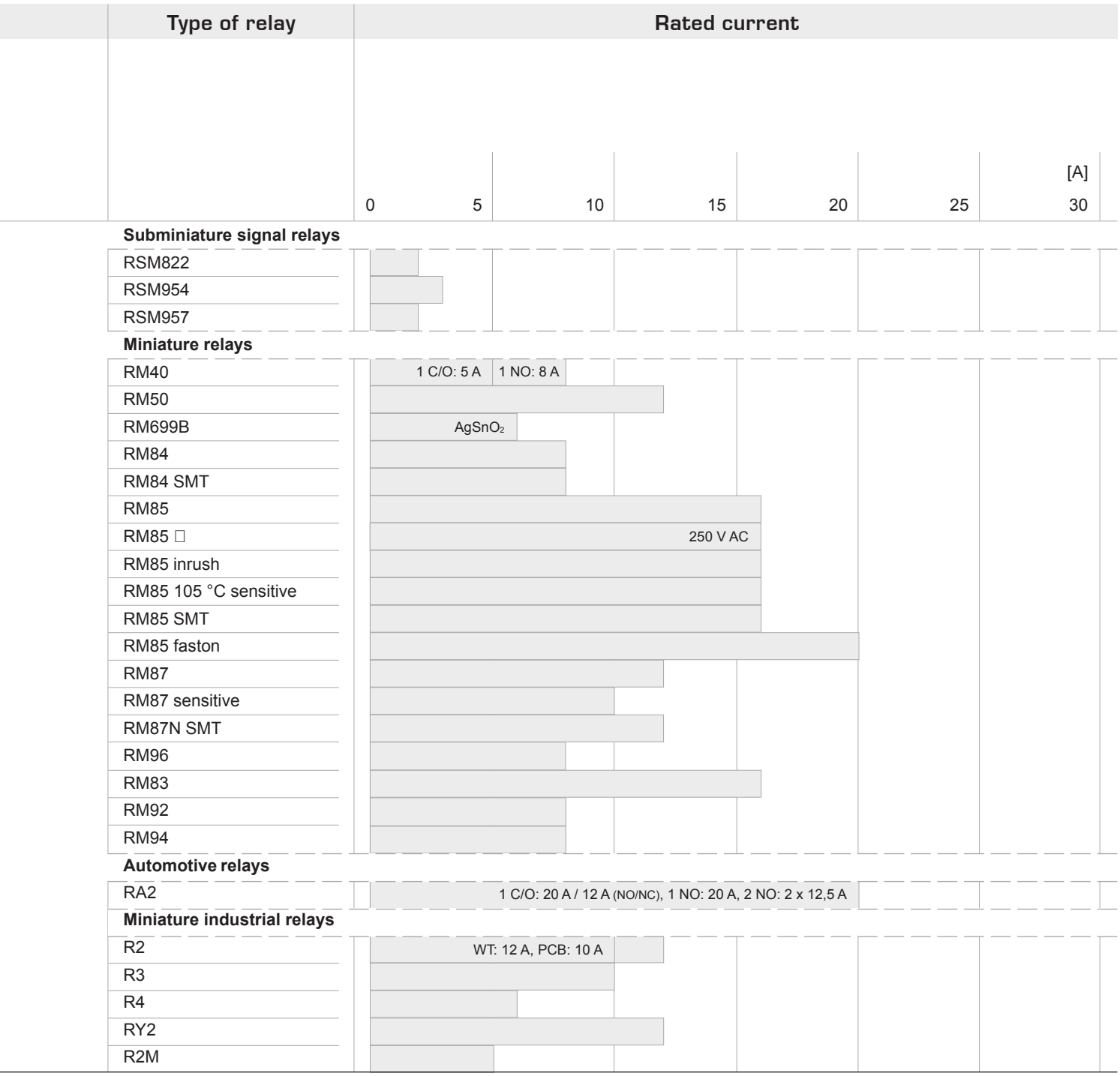
Mounting options					Coil			Type of relay	Number and type of contacts									
direct PCB mounting	with plug-in socket PCB mounting	panel mounting	35 mm rail mount acc. to PN-EN 60715	Others	AC	DC	AC/DC		C/O - changeover NO - normally open NC - normally closed									
									1 C/O	1 NO	1 NC	2 C/O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

✪ **RM85** with increased contact gap

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.

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

Relay selection table



Relay selection table

Mounting options					Coil			Type of relay	Number and type of contacts									
direct PCB mounting	with plug-in socket PCB mounting	panel mounting	35 mm rail mount acc. to PN-EN 60715	Others	AC	DC	AC/DC		C/O - changeover NO - normally open NC - normally closed									
									1 C/O	1 NO	1 NC	2 C/O	2 NO	2 NC	3 C/O	3 NO	4 C/O	Others
								Industrial relays of small dimensions										
■		■	■	■	■	■		R15 2 C/O				■			■			
■		■	■	■	■	■		R15 3 C/O							■			
		■	■	■	■	■		R15 4 C/O									■	
■		■	■	■	■	■		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		■								
			■			■	■	PI6-OC		■								
			■			■	■	PIR6W-1P-...	■									
			■			■	■	PIR6W-1PS-...-□	■	■								
			■			■	■	PIR6WB-1PS-...-□	■	■								
								Installation relays										
			■		■	■	■	MT-PI-...	■	■		■	■					
								Time relays										
			■				■	MT-TUA-...	■									
			■				■	MT-TUB-...	■									
			■				■	MT-T..-...	■									
			■				■	MT-TSD-...										■
			■		■		■	TR4N 4 C/O									■	
			■		■		■	TR4N 1 C/O, 2 C/O	■			■						
		■	■		■	■		T-R4									■	
		■	■		■	■		PIR15...T with module T(COM3)				■			■			

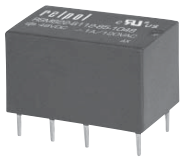
□ **R** - operational electromagnetic relay **RM699BV** type for PIR6W.-1PS-...-R.
T/C/O - operational solid state relay **RSR30** type for PIR6W.-1PS-...-T (or C or O) - see catalogue "Solid state relays" and www.relpol.com.pl

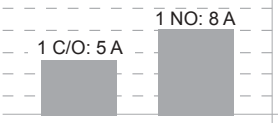
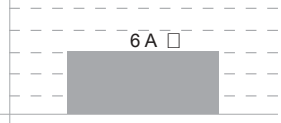
How to use the table:
Select the number and type of contacts, please. Then, select a relay depending on its rated current, type of terminals and coil voltage.

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

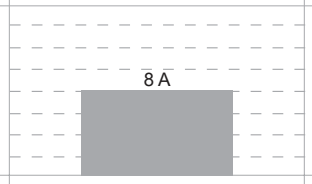
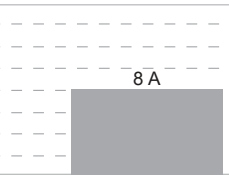
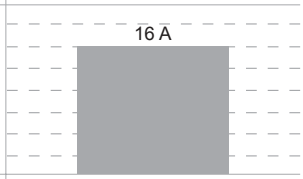
Relay selection table

Type of relay	Rated current [A] (0 – 5 – 10 – 15 – 20 – 25 – 30)
Industrial relays of small dimensions	
R15 2 C/O	
R15 3 C/O	
R15 4 C/O	
RUC	
RUC-M	
RG25	
R20	2 NO: 25 A; 1 NO: 30 A
R30	1 C/O: 20 A / 10 A (NO/NC); 1 NO: 30 A
RS35, RS50	RS35: 35 A; RS50: 50 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	
PI6-OC	
PIR6W-1P-...	$AgSnO_2$
PIR6W-1PS-...-□	T,C; O; R: $AgSnO_2$
PIR6WB-1PS-...-□	T,C; O; R: $AgSnO_2$
Installation relays	
MT-PI-...	2 C/O, 2 NO: 8 A; 1 C/O, 1 NO: 16 A
Time relays	
MT-TUA-...	
MT-TUB-...	
MT-T..-...	
MT-TSD-...	
TR4N 4 C/O	
TR4N 1 C/O, 2 C/O	2 C/O: 8 A; 1 C/O: 16 A
T-R4	
PIR15...T with module T(COM3)	

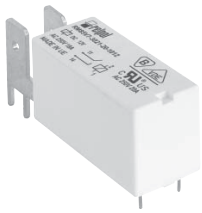
Type of relay		RSM822	RSM954	RSM957
				
□ The data in bold type pertain to the standard versions of the relays. □ For 1 NO; for 1 C/O: 250 V / 380 V □ Contacts $AgSnO_2$				
Dimensions (L x W x H)	mm	21 x 10,1 x 12,1	15,4 x 10,4 x 11,4	12,6 x 7,8 x 10
Contact data				
Number and type of contacts		2 C/O	1 C/O	1 C/O
Rated / max. switching voltage	V AC	120 / 120	120 / 120	120 / 125
Rated current		25 A 16 A 12 A 8 A 6 A 3 A 1 A 2 A	3 A	2 A
Contact material □		**AgPd/Au 0,2 µm**	**Ag/Au 0,2 µm**	**Ag/Au 0,2 µm**
Coil data				
Rated voltage	V DC	3 ... 48	3 ... 24	3 ... 24
Rated power consumption	W DC	0,2...0,36	0,36	0,15...0,2
General data				
Electrical life (cycles)		> 10^5	> 10^5	> 10^5
Mechanical life (cycles)		> 10^7	> 10^7	> 10^7
Ambient temperature				
• operating	°C DC	-30...+80	-30...+55	-30...+70
Weight	g	4,8	3,5	2,2
Cover protection category		IP 64	IP 64	IP 64
Recognitions, certifications, directives		RoHS	RoHS	RoHS
Insulation dielectric strength				
• between coil and contacts	V AC	1 000	500	1 000
Contact - coil distance				
• clearance	mm	≥ 1,3	≥ 1,2	≥ 0,6
• creepage	mm	≥ 1,5	≥ 2	≥ 0,6
Operating time	ms	versions: sensitive 8, standard 6	8	5
Release time	ms	4	4	5
Detailed informations		page 27	page 30	page 33

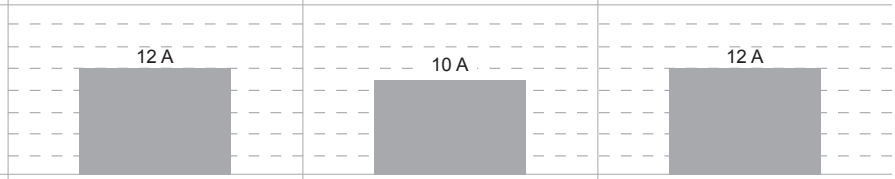
RM40	RM50	RM699B
		NEW product 
20 x 10 x 10,5	19 x 15,4 x 15,5	28 x 5 x 15
1 C/O, 1 NO	1 C/O, 1 NO	1 C/O
250 / 440 □	240 / 277	250 / 400 □
		
1 C/O: **AgNi** 1 C/O: AgNi/Au 3 µm 1 NO: **$AgSnO_2$**	**$AgSnO_2$**	**$AgSnO_2$** $AgSnO_2$/Au 3 µm
3 ... 48	3 ... 48	5 ... 60
0,2	0,36...0,45	0,17...0,217
> 10^5	> 10^5	> 3 x 10^4
> 10^7	> 10^7	> 10^7
-40...+85	-30...+55	-40...+85
6	11	6
IP 64	IP 64	IP 64
RoHS	RoHS	RoHS
4 000	1 000	4 000
≥ 5	≥ 1,9	≥ 6
≥ 5	≥ 1.9	≥ 8
8	10	8
4	5	4
page 36	page 39	page 42

Plug-in sockets and accessories availability index - see pages 252, 253.

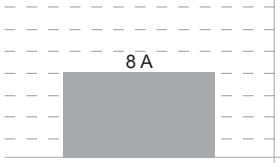
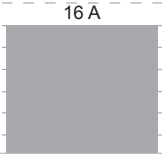
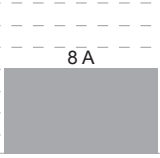
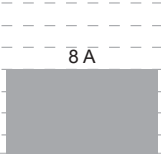
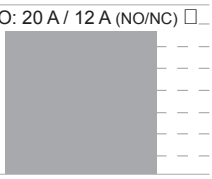
Type of relay		RM84	RM84 SMT	RM85
□ The data in bold type pertain to the standard versions of the relays. □ Available special version with NO contacts: relays with increased contact gap □ For vertical version (V). For horizontal version (H) L=44,5 mm				
Dimensions (L x W x H)	mm	29 x 12,7 x 15,7	29 x 12,7 x 15,7 (17,7)	29 x 12,7 x 15,7
Contact data				
Number and type of contacts		2 C/O, 2 NO □	2 C/O	1 C/O, 1 NO □
Rated / max. switching voltage	V AC	250 / 440	250 / 440	250 / 440
Rated current				
Contact material □		**AgNi** AgNi/Au 5 µm $AgSnO_2$	**AgNi** AgNi/Au 5 µm $AgSnO_2$	**AgNi** AgNi/Au 5 µm $AgSnO_2$
Coil data				
Rated voltage	V AC	12 ... 240 50/60 Hz	12 ... 240 50/60 Hz	12 ... 240 50/60 Hz
	V DC	3 ... 110	3 ... 110	3 ... 110
Rated power consumption	VA AC	0,75	0,75	0,75
	W DC	0,4...0,48	0,4...0,48	0,4...0,48
General data				
Electrical life (cycles)		> 10^5	> 10^5	> 0,7 x 10^5
Mechanical life (cycles)		> 3 x 10^7	> 3 x 10^7	> 3 x 10^7
Ambient temperature	°C AC	-40...+70	-40...+70	-40...+70
• operating	°C DC	-40...+85	-40...+85	-40...+85
Weight	g	14	14	14
Cover protection category □		IP 40 or **IP 67**	IP 40	IP 40 or **IP 67**
Recognitions, certifications, directives		RoHS	RoHS	RoHS
Insulation dielectric strength				
• between coil and contacts	V AC	5 000	5 000	5 000
Contact - coil distance				
• clearance	mm	≥ 10	≥ 10	≥ 10
• creepage	mm	≥ 10	≥ 10	≥ 10
Operating time	ms	7	7	7
Release time	ms	3	3	3
Detailed informations		page 46	page 50	page 54

Plug-in sockets and accessories availability index - see pages 252, 253.

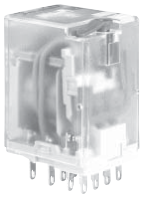
RM85 with increased contact gap	RM85 inrush	RM85 105 °C sensitive	RM85 SMT	RM85 faston
				
29 x 12,7 x 15,7	29 x 12,7 x 15,7	29 x 12,7 x 15,7	29 x 12,7 x 15,7 (17,7)	40,5 x 12,7 x 15,7 □
1 NO	1 NO	1 NO	1 C/O	1 NO
250 / 480	250 / 440	250 / 440	250 / 440	250 / 440
16 A / 250 V AC	16 A	16 A	16 A	20 A
$AgSnO_2$	**$AgSnO_2$**	AgNi AgNi/Au 5 µm **$AgSnO_2$**	**AgNi** AgNi/Au 5 µm $AgSnO_2$	**$AgSnO_2$**
3 ... 110	5 ... 110	5 ... 48	12 ... 240 50/60 Hz 3 ... 110	5 ... 48
0,4...0,48	0,4...0,48	0,25	0,75 0,4...0,48	0,25
> 4 x 10^4	> 10^5	> 2 x 10^4	> 0,7 x 10^5	> 2 x 10^4
> 3 x 10^7	> 3 x 10^7	> 3 x 10^7	> 3 x 10^7	> 3 x 10^7
-40...+85	-40...+85	-40...+105	-40...+70 -40...+85	-40...+105
14	14	14	14	16
IP 40 or **IP 67**	IP 40	IP 40	IP 40	IP 40
RoHS	RoHS	RoHS	RoHS	RoHS
5 000	5 000	5 000	5 000	5 000
≥ 10	≥ 10	≥ 10	≥ 10	≥ 10
≥ 10	≥ 10	≥ 10	≥ 10	≥ 10
7	8	8	7	8
3	3	3	3	3
page 58	page 61	page 65	page 69	page 73

Type of relay		RM87	RM87 sensitive	RM87N SMT
□ The data in bold type pertain to the standard versions of the relays. □ Available special version with NO contacts: relays with increased contact gap □ For 1 C/O; for 1 NO, 1 NC: 28 x 10 x 16,2 mm □ For IP 67 H=25,6 mm □ For IP 67 H=26,5 mm				
Dimensions (L x W x H)	mm	29 x 12,7 x 15,7	29 x 12,7 x 15,7	29 x 12,7 x 15,7 (17,7)
Contact data				
Number and type of contacts		1 C/O, 1 NO □	1 C/O, 1 NO	1 C/O
Rated / max. switching voltage	V AC	250 / 440	250 / 440	250 / 440
Rated current				
Contact material □		**AgNi** AgNi/Au 5 µm $AgSnO_2$	**AgNi** AgNi/Au 5 µm $AgSnO_2$	**AgNi** AgNi/Au 5 µm $AgSnO_2$
Coil data				
Rated voltage	V AC	12 ... 240 50/60 Hz		12 ... 240 50/60 Hz
	V DC	3 ... 110	5 ... 48	3 ... 110
Rated power consumption	VA AC	0,75		0,75
	W DC	0,4...0,48	0,25	0,4...0,48
General data				
Electrical life (cycles)		> 10^5	> 1,7 x 10^5	> 10^5
Mechanical life (cycles)		> 3 x 10^7	> 3 x 10^7	> 3 x 10^7
Ambient temperature	°C AC	-40...+70		-40...+70
• operating	°C DC	-40...+85	-40...+85	-40...+85
Weight	g	14	14	14
Cover protection category □		IP 40 or **IP 67**	IP 40 or **IP 67**	IP 40
Recognitions, certifications, directives		RoHS	RoHS	RoHS
Insulation dielectric strength				
• between coil and contacts	V AC	5 000	5 000	5 000
Contact - coil distance				
• clearance	mm	≥ 10	≥ 10	≥ 10
• creepage	mm	≥ 10	≥ 10	≥ 10
Operating time	ms	7	7	7
Release time	ms	3	3	3
Detailed informations		page 76	page 76	page 82

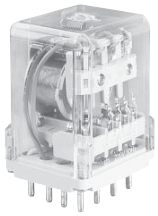
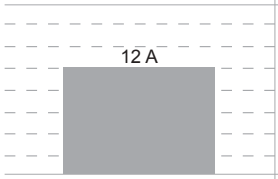
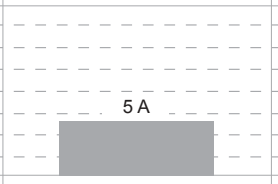
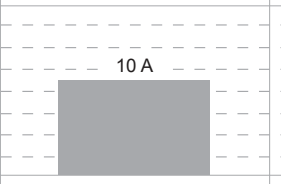
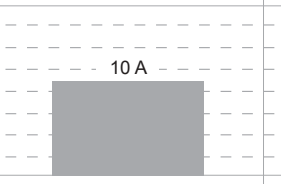
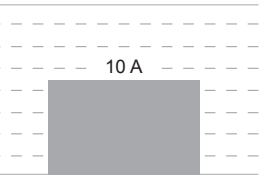
Plug-in sockets and accessories availability index - see pages 252, 253.

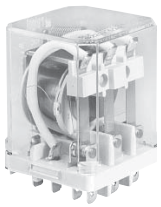
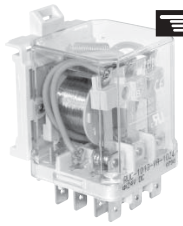
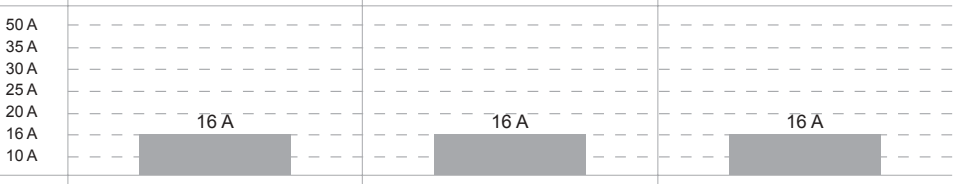
RM96	RM83	RM92	RM94	RA2 automotive relays
				
30 x 10 x 16,2 □	29,2 x 13,1 x 25,1 □	28 x 11,5 x 26 □	28 x 12,5 x 26 □	18,6 x 13,0 x 18,5 □
1 C/O, 1 NO, 1 NC	1 C/O, 1 NO, 1 NC	1 C/O, 1 NO, 1 NC	2 C/O, 2 NO, 2 NC	1 C/O, 1 NO, 2 NO
250 / 440	250 / 440	250 / 440	250 / 440	DC: 60 / 60
				
$AgSnO_2$	**$AgSnO_2$**	**AgCu/Au 0,2 µm**	**AgCu/Au 0,2 µm**	**$AgSnO_2$**
$AgSnO_2$/Au 3 µm	AgCdO	AgCdO	AgCdO	
AgCdO	AgCdO/Au 0,2 µm	AgCdO/Au 3 µm	AgCdO/Au 3 µm	
5 ... 48	5 ... 110	5 ... 80	5 ... 110	5 ... 48
0,22...0,3	0,6...0,9	0,5...0,8	0,5...0,8	1,44
> 10^5	> 10^5	> 2 x 10^5	> 2 x 10^5	> 10^5
> 2 x 10^7	> 3 x 10^7	> 3 x 10^7	> 3 x 10^7	> 10^7
-40...+80	-40...+70	-40...+70	-40...+70	-40...+85
11	18	17	20	12
IP 40 or **IP 67**	**IP 40** or IP 67	**IP 40** or IP 67	**IP 40** or IP 67	IP 40 or **IP 00** □
RoHS	RoHS	RoHS	RoHS	RoHS
4 000	4 000	4 000	4 000	500
≥ 8	≥ 8	≥ 8	≥ 8	≥ 1
≥ 8	≥ 8	≥ 8	≥ 8	≥ 1
10	7	6	7	10
5	3	2	2	3
page 86	page 90	page 94	page 98	page 102

□ Special version available: relays in transparent cover
□ For IP 00; for IP 40: 20,5 x 15,3 x 19,7 mm □ For 1 NO: 20 A, for 2 NO: 2 x 12,5 A □ IP 00 for relay without cover

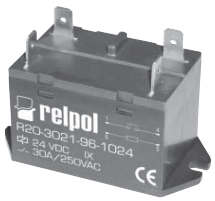
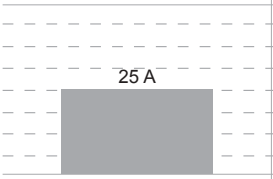
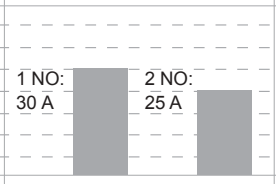
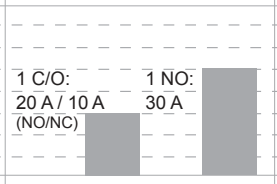
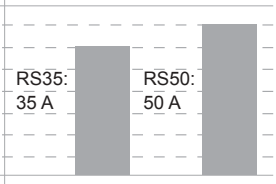
Type of relay		R2	R3	R4
				
□ The data in bold type pertain to the standard versions of the relays. □ For plug-in sockets version: standard (WT) □ For plug-in sockets version: standard □ AUCOTEAM GmbH Berlin - railway standards				
Dimensions (L x W x H)	mm	27,5 x 21,2 x 35,6 □	27,5 x 21,2 x 35,6 □	27,5 x 21,2 x 35,6 □
Contact data				
Number and type of contacts		2 C/O	3 C/O	4 C/O
Rated / max. switching voltage	V AC	250 / 440	250 / 440	250 / 250
Rated current		25 A 16 A 12 A 8 A 6 A 3 A 1 A 12 A □	10 A	6 A
Contact material □		**AgNi** AgNi/Au 0,2 µm AgNi/Au 5 µm	**AgNi** AgNi/Au 0,2 µm AgNi/Au 5 µm	**AgNi** AgNi/Au 0,2 µm AgNi/Au 5 µm
Coil data				
Rated voltage	V AC	6 ... 240 50/60 Hz	6 ... 240 50/60 Hz	6 ... 240 50/60 Hz
	V DC	5 ... 220	5 ... 220	5 ... 220
Rated power consumption	VA AC	1,6	1,6	1,6
	W DC	0,9	0,9	0,9
General data				
Electrical life (cycles)		≥ 10^5	≥ 10^5	≥ 10^5
Mechanical life (cycles)		≥ 2 x 10^7	≥ 2 x 10^7	≥ 2 x 10^7
Ambient temperature	°C AC	-40...+55	-40...+55	-40...+55
• operating	°C DC	-40...+70	-40...+70	-40...+70
Weight	g	35	35	35
Cover protection category □		IP 40	IP 40	IP 40
Recognitions, certifications, directives		RoHS, AUCOTEAM □	RoHS, AUCOTEAM □	RoHS, AUCOTEAM □
Insulation dielectric strength				
• between coil and contacts	V AC	2 500	2 500	2 500
Contact - coil distance				
• clearance	mm	≥ 2,5	≥ 2,5	≥ 1,6
• creepage	mm	≥ 4	≥ 4	≥ 3,2
Operating time	ms	AC: 10, DC: 13	AC: 10, DC: 13	AC: 10, DC: 13
Release time	ms	AC: 8, DC: 3	AC: 8, DC: 3	AC: 8, DC: 3
Detailed informations		page 106	page 111	page 115

Plug-in sockets and accessories availability index - see pages 252, 253.

RY2	R2M	R15 2 C/O	R15 3 C/O	R15 4 C/O
				
27,5 x 21,1 x 34,5 □	27,5 x 14 x 32,9	35 x 35 x 54,4	35 x 35 x 54,4	35 x 42,5 x 54,5
2 C/O	2 C/O	2 C/O	3 C/O	4 C/O
250 / 440	250 / 250	250 / 440	250 / 440	250 / 250
				
AgNi AgCdO	**AgNi** AgNi/Au 0,2 µm $AgSnO_2$	**AgNi** AgNi/Au 0,2 µm AgNi/Au 5 µm	**AgNi** AgNi/Au 0,2 µm AgNi/Au 5 µm	**AgCdO** AgCdO/Au 0,2 µm AgCdO/Au 5 µm
6 ... 240 50/60 Hz 5 ... 220	6 ... 240 50/60 Hz 6 ... 110	6 ... 240 50/60 Hz 6 ... 220	6 ... 240 50/60 Hz 6 ... 220	6 ... 240 50 Hz, 60 Hz 6 ... 220
1,6 0,9	1,2 0,9	2,8 50 Hz 2,5 60 Hz 1,5	2,8 50 Hz 2,5 60 Hz 1,5	2,8 50 Hz 2,5 60 Hz 1,5
≥ 10^5	≥ 2 x 10^5	≥ 2 x 10^5	≥ 2 x 10^5	≥ 2 x 10^5
≥ 10^7	≥ 10^7	≥ 2 x 10^7	≥ 2 x 10^7	≥ 2 x 10^7
-40...+55 -40...+55	-40...+55 -40...+55	-40...+55 -40...+70	-40...+55 -40...+70	-40...+55 -40...+70
35	22	83	83	95
IP 40	IP 40	IP 40	IP 40	IP 40
RoHS	RoHS	RoHS, AUCOTEAM □	RoHS, AUCOTEAM □	RoHS
2 500	2 000	2 500	2 500	2 500
≥ 2,6 ≥ 4	≥ 3 ≥ 4	≥ 3 ≥ 4,2	≥ 3 ≥ 4,2	≥ 3 ≥ 3,2
15	AC: 8, DC: 10	AC: 12, DC: 18	AC: 12, DC: 18	AC: 12, DC: 18
10	AC: 7, DC: 3	AC: 10, DC: 7	AC: 10, DC: 7	AC: 10, DC: 7
page 120	page 124	page 128	page 128	page 128

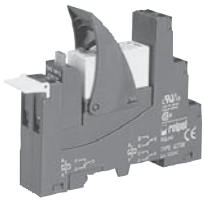
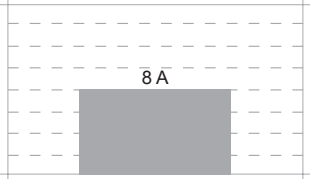
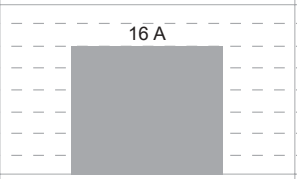
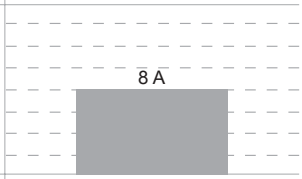
Type of relay		RUC faston 4,8x0,5	RUC faston 6,3x0,8	RUC-M □
□ The data in bold type pertain to the standard versions of the relays. □ For RUC faston 4,8 x 0,5 and RUC-M, with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC/DC. □ Version with contact gap ≥ 3 mm □ Magnetic blow-out relays for high DC load.				 for DC loads
Dimensions (L x W x H)	mm	36,1 x 38,6 x 45,5 □	62,4 x 38,6 x 45,9 □	36,1 x 38,6 x 45,5 □
Contact data				
Number and type of contacts		2 C/O, 3 C/O, 2 NO, 3 NO	2 C/O, 3 C/O, 2 NO, 3 NO	1 NO, 2 NO
Rated / max. switching voltage	V AC	400 / 440 □	400 / 440	250 / 440 □
Rated current				
Contact material □		**AgCdO** AgNi	**AgCdO** AgNi	**AgCdO**
Coil data				
Rated voltage	V AC	6 ... 240 50/60 Hz	6 ... 240 50/60 Hz	12 ... 240 50/60 Hz
	V AC	400 50 Hz □	400 50 Hz	
	V DC	6 ... 220	6 ... 220	12 ... 220
Rated power consumption	VA AC	2,8	2,8	2,8
	W DC	1,5 (1,7 □)	1,5 (1,7 □)	1,7
General data				
Electrical life (cycles)		≥ 10^5	≥ 10^5	≥ 2 x 10^5
Mechanical life (cycles)		≥ 10^7	≥ 10^7	≥ 2 x 10^7
Ambient temperature	°C AC	-40...+55 3 C/O (+70 2 C/O)	-40...+55 3 C/O (+70 2 C/O)	-40...+70
• operating	°C DC	-40...+55 3 C/O (+70 2 C/O)	-40...+55 3 C/O (+70 2 C/O)	-40...+70
Weight	g	80 □ 85 □	85 □	80 □ 85 □
Cover protection category		IP 00	IP 00	IP 00
Recognitions, certifications, directives		RoHS	RoHS	RoHS
Insulation dielectric strength				
• between coil and contacts	V AC	2 500	2 500	2 500
Contact - coil distance				
• clearance	mm	≥ 5	≥ 5	≥ 6,3
• creepage	mm	≥ 8	≥ 8	≥ 8
Operating time	ms	20	20	20
Release time	ms	15	15	15
Detailed informations		page 135	page 135	page 140

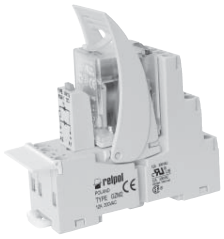
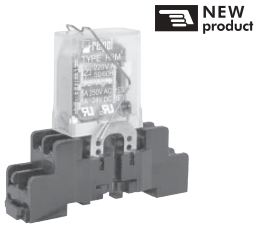
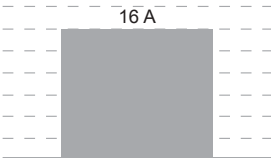
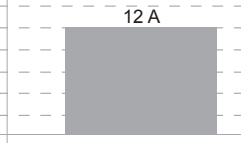
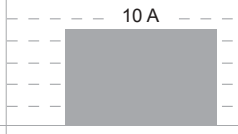
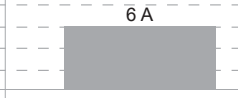
□ For plug-in sockets version. For version: with (V) adaptor: 58,75 x 38,6 x 45,9 mm; with (H) adaptor: 46,8 x 38,6 x 62,45 mm.
For version with mounting flange: 66,3 x 38,6 x 36,1 mm. For PCB version: 36,1 x 38,6 x 52,5 mm.
□ For version with (V) adaptor. For version with (H) adaptor: 46,8 x 38,6 x 66,1 mm. For version with mounting flange: 66,3 x 38,6 x 36,1 mm.
□ Weight of plug-in sockets version and PCB version.
□ Weight of version with (V) or (H) adaptor, and version with mounting flange.

RG25	R20	R30	RS35, RS50 □
			
26 x 49 x 72	67 x 33 x 35	32,2 x 27,5 x 20,5	40 x 25 x 49,2
2 NO	1 NO, 2 NO	1 C/O, 1 NO	2 NO
400 / 440	250 / 440	250 / 440	250 V / 440
			
AgCdO	**$AgSnO_2$**	**$AgSnO_2$**	**$AgSnO_2$**
12 ... 400 50 Hz	24 ... 230 50/60 Hz		
12 ... 220	12 ... 110	12 ... 24	5 ... 110
3,0	1,7...2,5		
1,7	1,9	1,0	0,48
≥ 10^5	10^5	10^5	5 x 10^4
≥ 10^6	> 10^7	> 10^7	10^6
-25...+85	-25...+75		
-25...+85	-25...+75	-30...+55	-40...+85
130	90	22	105
IP 20	IP 50	IP 64	IP 40
RoHS	RoHS	RoHS	RoHS
5 000	4 000	1 500	5 000
≥ 6	≥ 9		≥ 10
≥ 8	≥ 11		≥ 10
20	30	15	30
20	30	10	5
page 144	page 148	page 151	page 154

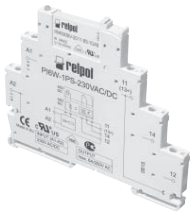
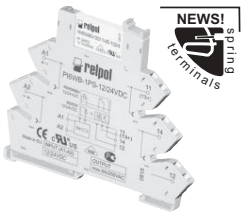
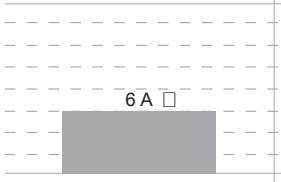
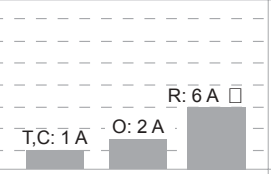
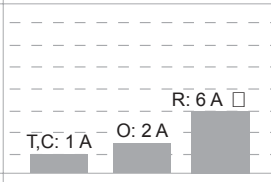
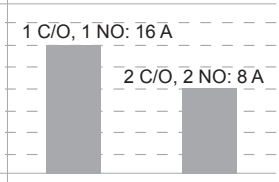
□ Relays for power control in solar systems generating energy.

Plug-in sockets and accessories availability index - see pages 252, 253.

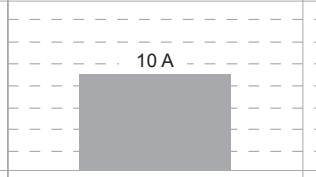
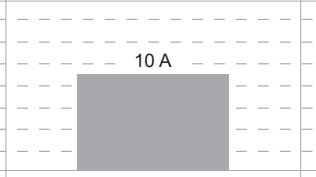
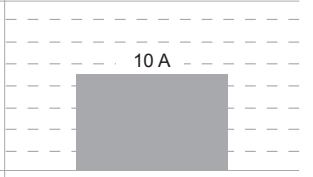
Type of relay		PI84	PI85	PI84
		with socket **GZT80**	with socket **GZT80**	with socket **GZM80**
				
□ The data in bold type pertain to the standard versions of the relays. □ Between coil (input) and contacts □ AUCOTEAM GmbH Berlin - railway standards				
Dimensions (L x W x H)	mm	75,3 x 15,5 x 67	75,3 x 15,5 x 67	78,1 x 15,9 x 66,5
Contact data				
Number and type of contacts		2 C/O	1 C/O	2 C/O
Rated / max. switching voltage	V AC	250 / 440	250 / 440	250 / 440
Rated current	25 A 16 A 12 A 8 A 6 A 3 A 1 A			
Contact material □		**AgNi**	**AgNi**	**AgNi**
Coil data / Input control circuit				
Rated voltage □	V AC	12 ... 230 50/60 Hz	12 ... 230 50/60 Hz	12 ... 230 50/60 Hz
	V DC	12 ... 110	12 ... 110	12 ... 110
Rated power consumption	VA AC	0,75	0,75	0,75
	W DC	0,4...0,48	0,4...0,48	0,4...0,48
General data				
Electrical life (cycles)		> 10^5	> 0,7 x 10^5	> 10^5
Mechanical life (cycles)		> 3 x 10^7	> 3 x 10^7	> 3 x 10^7
Ambient temperature	°C AC	-40...+70	-40...+70	-40...+70
• operating	°C DC	-40...+85	-40...+85	-40...+85
Weight	g	62	62	59
Cover protection category		IP 20	IP 20	IP 20
Recognitions, certifications, directives		CE recognitions RM84, RoHS	CE recognitions RM85, RoHS	CE recognitions RM84, RoHS
Insulation dielectric strength □	V AC	5 000	5 000	5 000
Contact - coil distance				
• clearance	mm	≥ 10	≥ 10	≥ 10
• creepage	mm	≥ 10	≥ 10	≥ 10
Operating time	ms	7	7	7
Release time	ms	3	3	3
Detailed informations		page 158	page 162	page 166

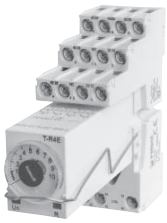
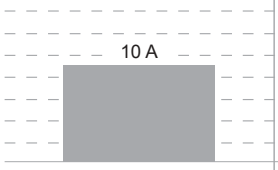
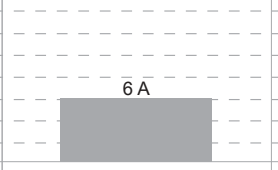
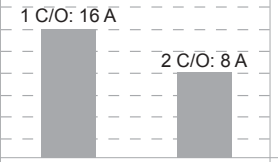
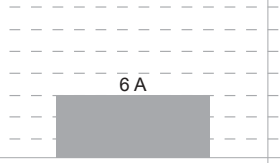
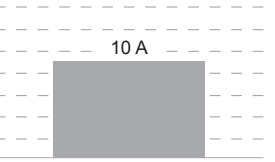
PI85	PIR2	PIR3	PIR4	PIR2M
with socket **GZM80**	with socket **GZM2**	with socket **GZM3**	with socket **GZM4**	with socket **GZ2**
				NEW product 
78,1 x 15,9 x 66,5	75 x 27 x 82	75 x 27 x 82	75 x 27 x 82	65,2 x 20 x 60,6
1 C/O	2 C/O	3 C/O	4 C/O	2 C/O
250 / 440	250 / 440	250 / 440	250 / 440	250 / 250
				
AgNi	**AgNi**	**AgNi**	**AgNi**	**AgNi**
12 ... 230 50/60 Hz	12 ... 230 50/60 Hz	12 ... 230 50/60 Hz	12 ... 230 50/60 Hz	6 ... 230 50/60 Hz
12 ... 110	12 ... 110	12 ... 110	12 ... 110	6 ... 110
0,75	1,6 50 Hz 1,3 60 Hz	1,6 50 Hz 1,3 60 Hz	1,6 50 Hz 1,3 60 Hz	1,2
0,4...0,48	0,9	0,9	0,9	0,9
> 0,7 x 10^5	> 10^5	> 10^5	> 10^5	≥ 2 x 10^5
> 3 x 10^7	> 2 x 10^7	> 2 x 10^7	> 2 x 10^7	≥ 10^7
-40...+70	-40...+55	-40...+55	-40...+55	-40...+55
-40...+85	-40...+70	-40...+70	-40...+70	-40...+55
59	97	107	108	44,5
IP 20	IP 20	IP 20	IP 20	IP 00
CE recognitions RM85, RoHS	CE AUCOTEAM recognitions R2, RoHS	CE AUCOTEAM recognitions R3, RoHS	CE AUCOTEAM recognitions R4, RoHS	CE recognitions R2M, RoHS
5 000	2 500	2 500	2 500	2 000
≥ 10	≥ 2,5	≥ 2,5	≥ 1,6	≥ 3
≥ 10	≥ 4	≥ 4	≥ 3,2	≥ 4
7	AC: 10, DC: 13	AC: 10, DC: 13	AC: 10, DC: 13	AC: 8, DC: 10
3	AC: 8, DC: 3	AC: 8, DC: 3	AC: 8, DC: 3	AC: 7, DC: 3
page 170	page 174	page 177	page 180	page 183

Type of relay		PI6-1P	PI6-1T	PI6-OC
□ The data in bold type pertain to the standard versions of the relays. □ Contacts $AgSnO_2$ □ 0,3 / 0,3 24 V AC/DC □ Refers version PIR6W.-...-230VAC/DC-10 with integrated anti-interference filter				
Dimensions (L x W x H)	mm	93,8 x 6,2 x 80	93,8 x 6,2 x 80	93,8 x 6,2 x 80
Output circuit - contact / output data			Triac	Transistor
Number and type of contacts / outputs		1 C/O	1 NO	1 NO
Rated / max. switching voltage	V AC	250 / 400 □	400 / 440	DC: 70 / 70
Rated current		25 A 16 A 12 A 8 A 6 A 3 A 1 A 6 A □	1,2 A	0,5 A
Contact material □		**$AgSnO_2$** $AgSnO_2$/Au 3 µm		
Input control circuit				
Rated voltage □	V AC			
	V DC	12 ... 36	5...32	5...32
	V AC/DC	24 ... 230 AC: 50/60 Hz	24 ... 230 AC: 50/60 Hz	24 ... 230 AC: 50/60 Hz
Rated power consumption	VA AC			
	W DC	0,3...0,7	0,3	0,3
	VA AC / W DC	0,3...1,6 / 0,3...1,6	1,6 / 1,6 230 V AC/DC □	1,0 / 1,0 230 V AC/DC □
General data				
Electrical life (cycles)		> 0,6 x 10^5		
Mechanical life (cycles)		> 2 x 10^7		
Ambient temperature	°C AC	-40...+55	-40...+55	-40...+55
• operating	°C DC	-40...+60 12, 24 V DC	-40...+55	-40...+55
Weight	g	40	40	40
Cover protection category		IP 20	IP 20	IP 20
Recognitions, certifications, directives		CE cULus VDE PG	CE PG	CE PG
Insulation dielectric strength				
• input - output	V AC	4 000	4 000	3 000
Input - output distance				
• clearance	mm	≥ 6		
• creepage	mm	≥ 8		
Operating time	ms	AC: 7, DC: 6	max. 10 (zero turn-on)	
Release time	ms	AC: 15, DC: 10	max. 10	
Detailed informations		page 186	page 188	page 190

PIR6W-1P-...	PIR6W-1PS-...-□	PIR6WB-1PS-...-□	MT-PI-...
			
98,5 x 6,2 x 85,5	98,5 x 6,2 x 85,5	98,3 x 6,2 x 84,6	90 (98,8) x 17,5 x 63,5
Contacts	Contacts □	Contacts □	Contacts
1 C/O	1 C/O □	1 C/O □	1 C/O, 2 C/O, 1 NO, 2 NO
250 / 400 □	250 / 400 □	250 / 400 □	... / max. 400 V AC, 300 V DC
			
$AgSnO_2$	**$AgSnO_2$**	**$AgSnO_2$**	**AgNi**
$AgSnO_2$/Au 3 µm	$AgSnO_2$/Au 3 µm	$AgSnO_2$/Au 3 µm	
			115 ... 230 AC: 50/60 Hz
12 ... 36	6 ... 60	6 ... 60	12 ... 48
24 ... 230 AC: 50/60 Hz	24 ... 230 AC: 50/60 Hz	24 ... 230 AC: 50/60 Hz	12 ... 115 AC: 50 Hz
			0,5...1,0
0,3	0,2...0,5	0,2...0,5	0,5...0,65
0,3...2,1 / 0,3...1,0	0,5...1,2 / 0,4...1,2	0,5...1,2 / 0,4...1,2	0,65...0,75 / 0,65...0,75
> 0,6 x 10^5	> 0,5 x 10^5	> 0,5 x 10^5	
> 2 x 10^7	> 10^7	> 10^7	≥ 10^7
-40...+55	-40...+55 □	-40 (-20 □)...+55	-20...+45
-40...+60 12, 24 V DC	-40...+55 □	-40 (-20 □)...+55	-20...+45
45	45	55	1 C/O, 1 NO: 60 □
IP 20	IP 20	IP 20	IP 20
CE cULus VDE	CE cULus VDE	CE cULus VDE	CE
4 000	4 000	4 000	1 C/O, 2 C/O: 3 000 □
≥ 6	≥ 6	≥ 6	
≥ 8	≥ 8	≥ 8	
AC: 11, DC: 8, (AC/DC: 20 □)	AC/DC: 20, DC: 8	AC/DC: 20, DC: 8	15
AC: 15, DC: 10, (AC/DC: 18 □)	AC/DC: 25, DC: 10	AC/DC: 25 (18 □), DC: 10	20
page 192	page 195	page 198	page 203

□ **R** - operational electromagnetic relay **RM699BV** type for PIR6W.-1PS-...-R.
T/C/O - operational solid state relay **RSR30** type for PIR6W.-1PS-...-T (or C or O) - see catalogue "Solid state relays" and www.relpol.com.pl
□ 2 C/O, 2 NO: 65 g
□ 1 NO, 2 NO: 4000 V AC

		multifunctions	multifunctions	single-functions
Type of relay		**MT-TUA-...**	**MT-TUB-...**	**MT-T..-...**
□ The data in bold type pertain to the standard versions of the relays. □ 0,7 / 0,7 24 V AC/DC □ T-R4 + GZT4: 76,3 x 27 x 90 mm / 113 g T-R4: 27,5 x 21,2 x 62,5 mm / 49 g □ With time module T(COM3) □ PIR15 3 C/O with socket GZP11 (standard), PIR15 2 C/O with socket GZP8		NEW product 	NEW product 	NEW product 
Dimensions (L x W x H)	mm	90 (98,8) x 17,5 x 63,5	90 (98,8) x 17,5 x 63,5	90 (98,8) x 17,5 x 63,5
Output circuits - contact data				
Number and type of contacts / outputs		1 C/O	1 C/O	1 C/O
Max. switching voltage	V AC / DC	400 / 300	400 / 300	400 / 300
Rated current				
Contact material □		**AgNi**	**AgNi**	**AgNi**
Input control circuit				
Rated voltage □	50/60 Hz V AC			
	V DC			
	AC: 50/60 Hz V AC/DC	12...240	12...240	12...240
Rated power consumption	VA AC	≤ 4,5 AC: 50 Hz	≤ 4,5 AC: 50 Hz	≤ 4,5 AC: 50 Hz
	W DC	≤ 1,5	≤ 1,5	≤ 1,5
	VA AC / W DC			
General data				
Electrical life (cycles)		≥ 0,5 x 10^5	≥ 0,5 x 10^5	≥ 0,5 x 10^5
Mechanical life (cycles)		≥ 3 x 10^7	≥ 3 x 10^7	≥ 3 x 10^7
Ambient temperature	°C AC	-20...+45	-20...+45	-20...+45
• operating	°C DC	-20...+45	-20...+45	-20...+45
Weight	g	64	64	64
Cover protection category		IP 20	IP 20	IP 20
Recognitions, certifications, directives		CE	CE	CE
Insulation dielectric strength				
• input - outputs	V AC	2 500	2 500	2 500
Input - outputs distance				
• clearance	mm			
• creepage	mm			
Operating time	ms			
Release time	ms			
Detailed informations		page 207	page 210	page 213

single-functions	multifunctions	multifunctions	single-functions	multifunctions
MT-TSD-...	**TR4N** 4 C/O	**TR4N** 1 C/O, 2 C/O	**T-R4**	**PIR15...T** □
NEW product 			with socket **GZM4** (**GZT4**) 	with socket **GZP11**, **GZP8** □ NEW product 
90 (98,8) x 17,5 x 63,5	90 x 36 x 55	90 x 17,6 x 55	T-R4 + GZM4: 75 x 27 x 91,5 □	73 x 38,2 x 85,4
2 x 1 C/O	4 C/O	1 C/O, 2 C/O	4 C/O	2 C/O, **3 C/O** □
400 / 300	250 / 250	440 / 300	250 / 250	440 / 250
				
AgNi	**AgNi**	**AgNi**	**AgNi**	**AgNi**
	115 ... 230	115 ... 230	24 ... 230	24 ... 240
			12 ... 24	24 ... 220
12...240	12 ... 24	12 ... 24		
≤ 4,5 AC: 50 Hz	2,2 115, 230 V AC	1,3 115 V AC 1,7 230 V AC	2,2	3,0
≤ 1,5			1,2	2,0
	1,0 / 1,0 12, 24 V AC/DC	0,5 / 0,5 12 V AC/DC □		
≥ 0,5 x 10^5	≥ 10^5	1 C/O: ≥ 0,7 x 10^5 2 C/O: ≥ 10^5	> 10^5	≥ 2 x 10^5
≥ 3 x 10^7	≥ 2 x 10^7	≥ 3 x 10^7	> 2 x 10^7	≥ 2 x 10^7
-20...+45	-20...+55	-20...+55	-20...+55	-40...+55
-20...+45	-20...+55	-20...+55	-20...+55	-40...+55
84	115	67	T-R4 + GZM4: 123 □	3 C/O: 175 2 C/O: 168
IP 20	IP 20	IP 20	IP 20	IP 20
CE	CE	CE	CE recognitions R4	CE recognitions R15, RoHS
2 500	2 500	2 500	2 500	2 500
	≥ 1,6	≥ 10	≥ 1,6	≥ 3
	≥ 3,2	≥ 10	≥ 3,2	≥ 4,2
			10	AC: 12, DC: 18
			8	AC: 10, DC: 7
page 216	page 219	page 222	page 225	page 229

Time functions TR4N, T-R4, PIR15...T - see pages 233, 234.

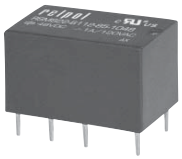
Subminiature signal relays

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: cULus
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, cULus

Contact data

Number and type of contacts		2 C/O
Contact material		**AgPd/Au 0,2 µm**
Rated / max. switching voltage	AC	120 V / 120 V
Min. switching voltage		1 V
Rated load	AC1	1 A / 120 V AC
	DC1	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 Table 1	
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

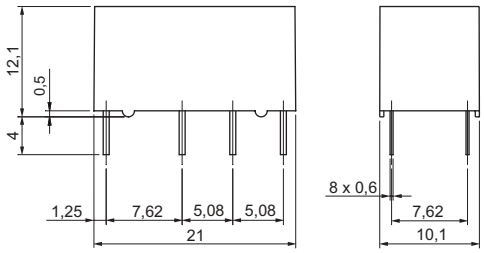
Operating / release time (typical values)		8 ms / 4 ms sensitive version	6 ms / 4 ms standard version
Electrical life			
• resistive AC1	1 800 cycles/hour	> 10^5	1 A, 120 V AC
Mechanical life	18 000 cycles/hour	> 10^7	
Dimensions (L x W x H)		21 x 10,1 x 12,1 mm	
Weight		4,8 g	
Ambient temperature	• operating	-30...+80 °C	
Cover protection category		IP 64	PN-EN 60529
Shock resistance		10 g	
Vibration resistance		1,5 mm DA (constant amplitude)	10...55 Hz
Solder bath temperature		max. 235 °C	
Soldering time		max. 3,5 s	

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

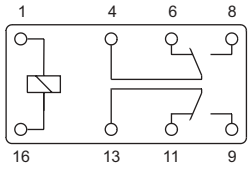
Coil data - DC voltage version Table 1

Coil code		Rated voltage V DC	Coil resistance ± 10% at 20°C Ω	Coil operating range at 20°C V DC		Power consumption mW
standard version	sensitive version			min.	max.	
–	S003	3	45	2,25	4,5	200
–	S005	5	125	3,75	7,5	200
–	S006	6	180	4,50	9,0	200
–	S009	9	405	6,75	13,5	200
–	S012	12	720	9,00	18,0	200
–	S024	24	2 880	18,00	36,0	200
1048	–	48	6 400	36,00	72,0	360

Dimensions

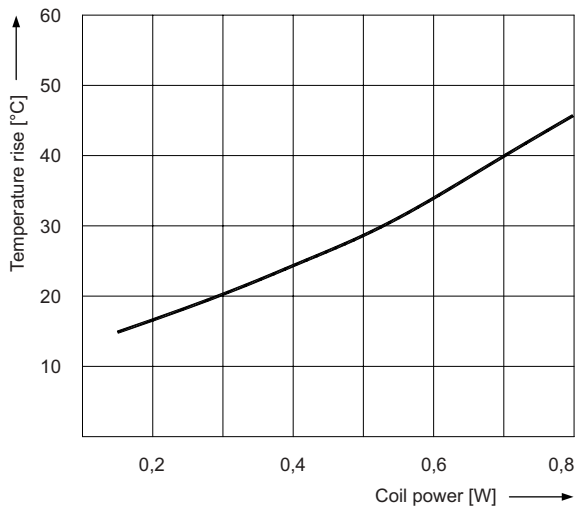


Connection diagram (pin side view)

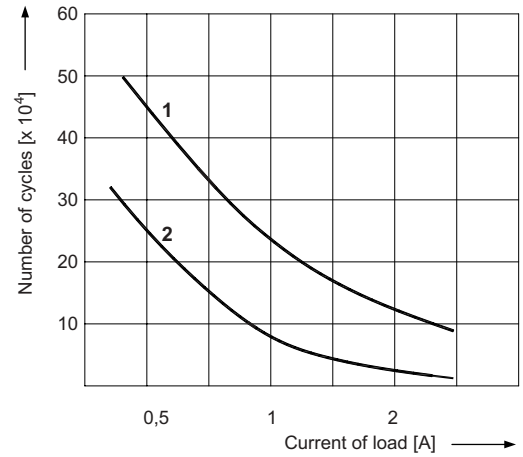


2 C/O

Coil temperature rise Fig. 1

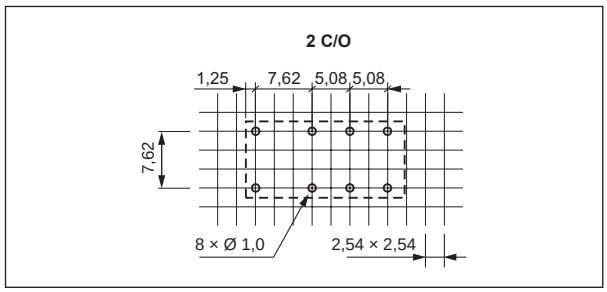


Electrical life Fig. 2



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

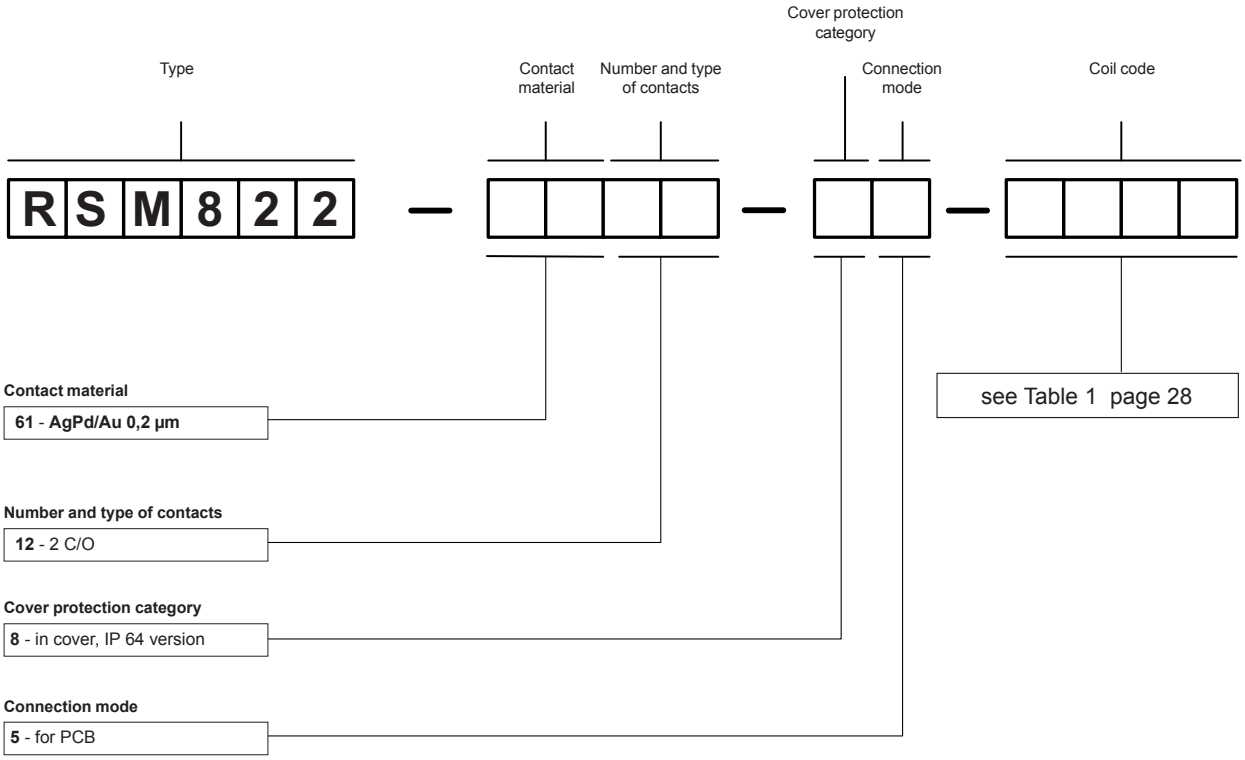
Pinout (solder side view)



Mounting

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

Ordering codes



Example of ordering code:

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

RSM954

subminiature signal relays

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

Contact data

Number and type of contacts		1 C/O
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

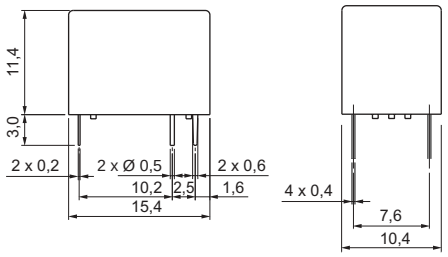
Operating / release time (typical values)		8 ms / 4 ms
Electrical life		
• resistive AC1	1 800 cycles/hour	> 10^5 3 A, 120 V AC
• resistive DC1	1 800 cycles/hour	> 10^5 3 A, 24 V DC
Mechanical life	18 000 cycles/hour	> 10^7
Dimensions (L x W x H)		15,4 x 10,4 x 11,4 mm
Weight		3,5 g
Ambient temperature	• operating	-25...+55 °C
Cover protection category		IP 64 PN-EN 60529
Shock resistance		10 g
Vibration resistance		1,5 mm DA (constant amplitude) 10...55 Hz
Solder bath temperature		max. 235 °C
Soldering time		max. 3,5 s

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

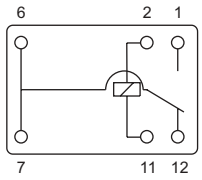
Coil data - DC voltage version Table 1

Coil code	Rated voltage V DC	Coil resistance ± 10% at 20°C Ω	Coil operating range at 20°C V DC		Power consumption mW
			min.	max.	
1003	3	25	2,25	3,9	360
1005	5	69	3,75	6,5	360
1006	6	100	4,50	7,8	360
1009	9	225	6,75	11,7	360
1012	12	400	9,00	15,6	360
1024	24	1 600	18,00	31,2	360

Dimensions

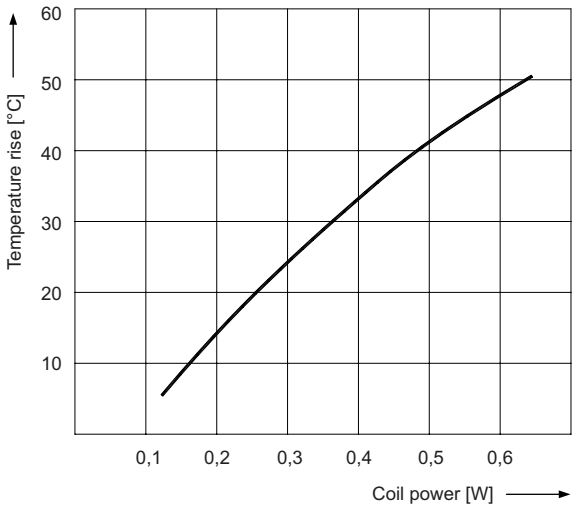


Connection diagram (pin side view)

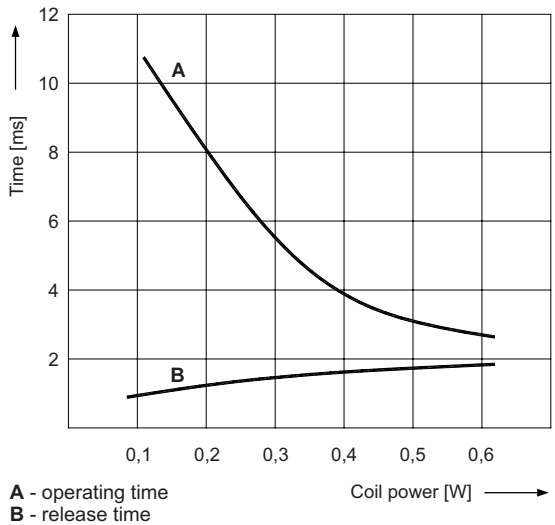


1 C/O

Coil temperature rise Fig. 1



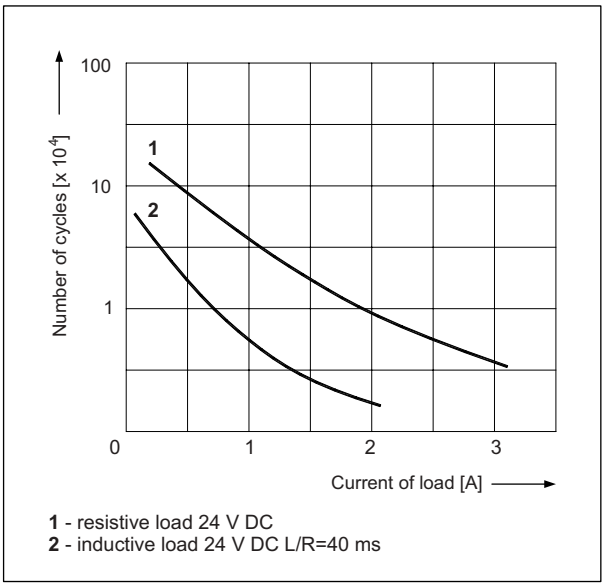
Operating / release time Fig. 2



A - operating time
B - release time

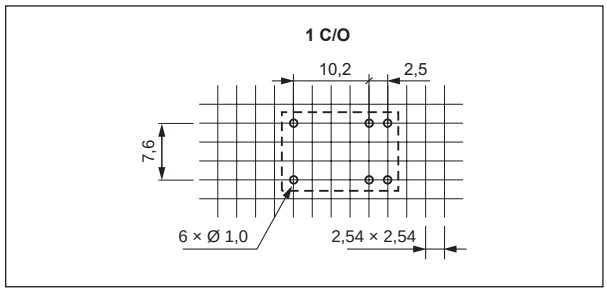
Electrical life

Fig. 3



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

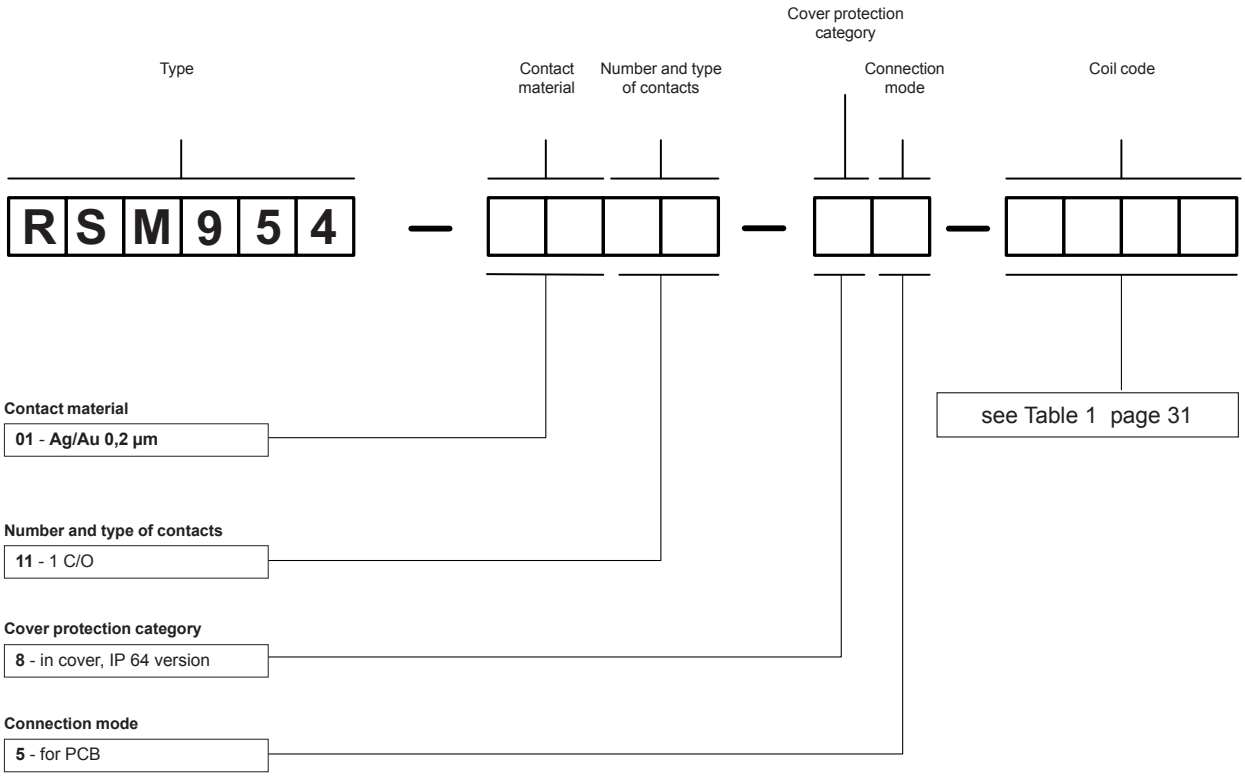
Pinout (solder side view)



Mounting

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

Ordering codes



Example of ordering code:

RSM954-0111-85-1005 relay **RSM954**, contact material Ag/Au 0,2 µm, with one changeover contact, in cover IP 64, for PCB, voltage version 5 V DC

- 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, cULus

Contact data

Number and type of contacts		1 C/O
Contact material		**Ag/Au 0,2 µm**
Rated / max. switching voltage	AC	120 V / 125 V
Min. switching voltage		5 V
Rated load	AC1	2 A / 120 V AC
	DC1	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...0,20 W

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

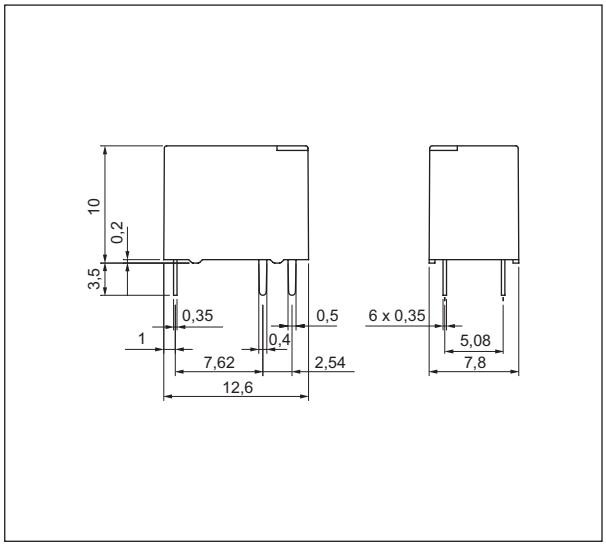
Operating / release time (typical values)		5 ms / 5 ms
Electrical life		
• resistive AC1	1 800 cycles/hour	> 10^5 2 A, 120 V AC
• resistive DC1	1 800 cycles/hour	> 10^5 2 A, 24 V DC
Mechanical life	18 000 cycles/hour	> 10^7
Dimensions (L x W x H)		12,6 x 7,8 x 10 mm
Weight		2,2 g
Ambient temperature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

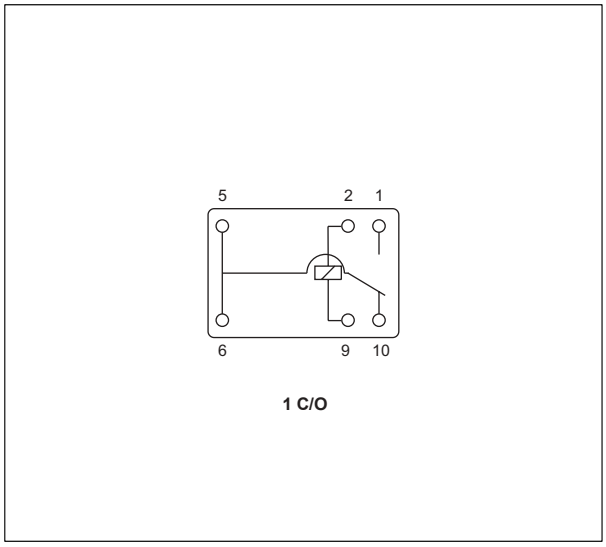
Coil data - DC voltage version Table 1

Coil code	Rated voltage V DC	Coil resistance ± 10% at 20°C Ω	Coil operating range at 20°C V DC		Power consumption mW
			min.	max.	
S003	3	60	2,4	3,9	150
S005	5	167	4,0	6,5	150
S006	6	240	4,8	7,8	150
S009	9	540	7,2	11,7	150
S012	12	960	9,6	15,6	150
S024	24	2 880	18,0	31,2	200

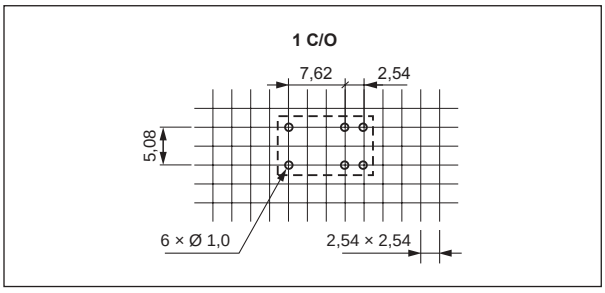
Dimensions



Connection diagram (pin side view)



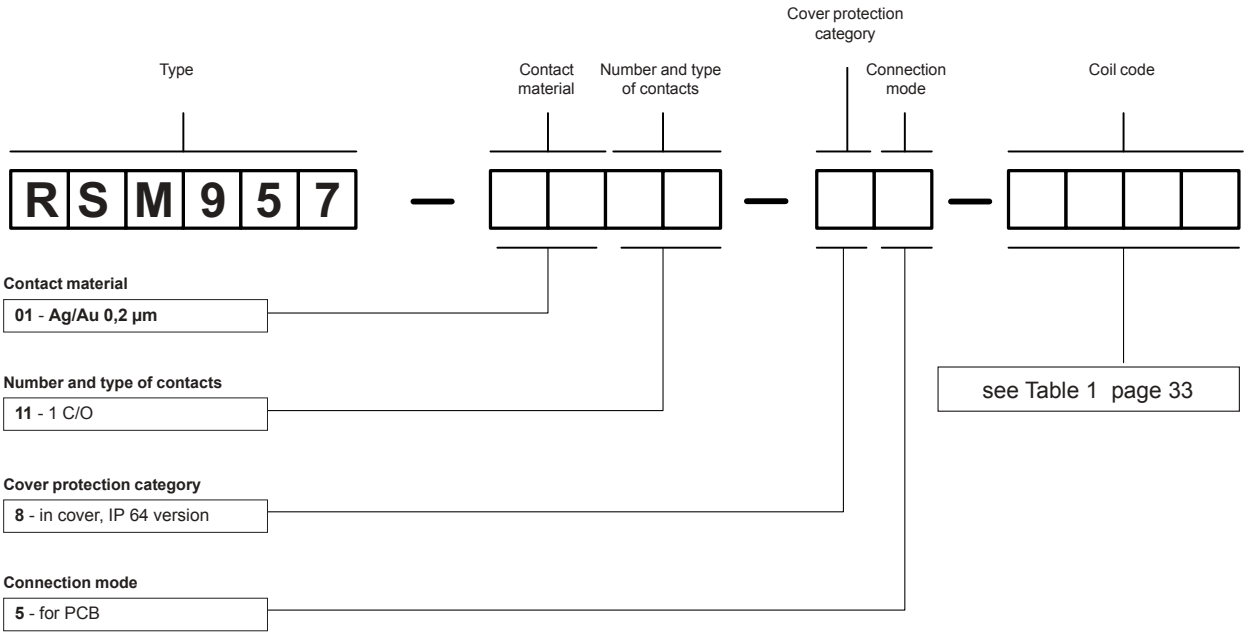
Pinout (solder side view)



Mounting

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

Ordering codes



Example of ordering code:

RSM957-0111-85-S005 relay **RSM957**, contact material Ag/Au 0,2 µm, with one changeover contact, in cover IP 64, for PCB, sensitive voltage version 5 V DC

Miniature relays

Automotive relays

□ **RM85** with increased contact gap

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

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

This type of relay is of high quality and reliability.

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

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

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

Contact data

Number and type of contacts		1 C/O	1 NO
Contact material		1 C/O: **AgNi**, AgNi/Au 3 µm	1 NO: **$AgSnO_2$**
Rated / max. switching voltage	AC	1 C/O: 250 V / 380 V	1 NO: 250 V / 440 V
Min. switching voltage		5 V AgNi, 1 V AgNi/Au 3 µm	5 V $AgSnO_2$
Rated load	AC1	1 C/O: 5 A / 250 V AC	1 NO: 8 A / 250 V AC
	DC1	1 C/O: 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 C/O: 5 A	1 NO: 8 A
Max. breaking capacity	AC1	1 C/O: 1 250 VA	1 NO: 2 000 VA
Min. breaking capacity		50 mW AgNi, 1 mW AgNi/Au 3 µm	50 mW $AgSnO_2$
Contact resistance		≤ 100 mΩ	

Coil data

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

Insulation according to PN-EN 60664-1

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

General data

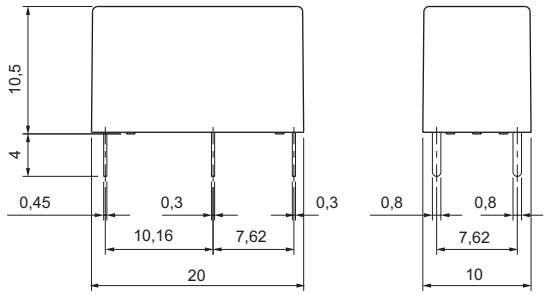
Operating / release time (typical values)		8 ms / 4 ms		
Electrical life				
• resistive AC1	360 cycles/hour	> 10^5	1 C/O: 5 A, 250 V AC	1 NO: 8 A, 250 V AC
• resistive DC1	1 800 cycles/hour	> 10^5	1 C/O: 5 A, 30 V DC	1 NO: 8 A, 30 V DC
Mechanical life	18 000 cycles/hour	> 10^7		
Dimensions (L x W x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

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

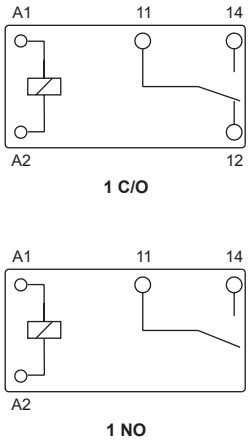
Coil data - DC voltage version Table 1

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

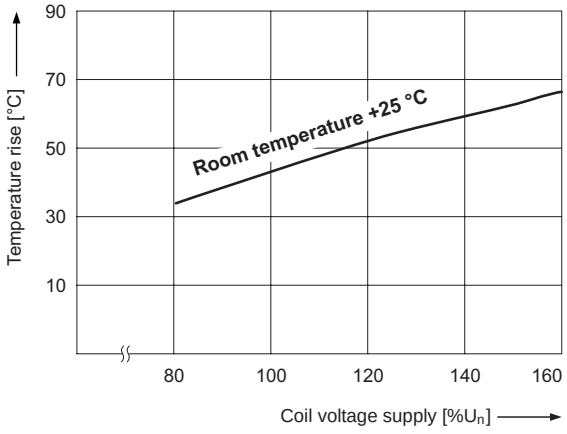
Dimensions



Connection diagrams (pin side view)

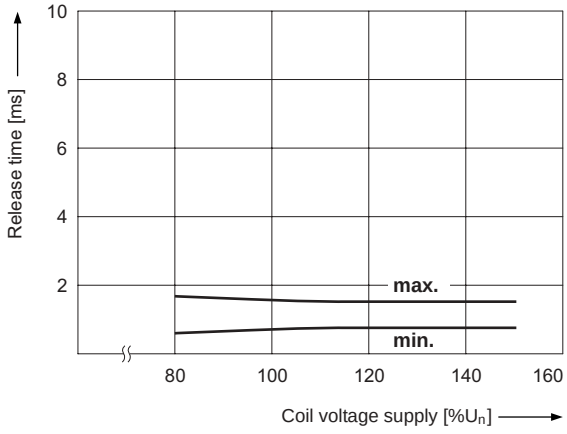


Coil temperature rise Fig. 1



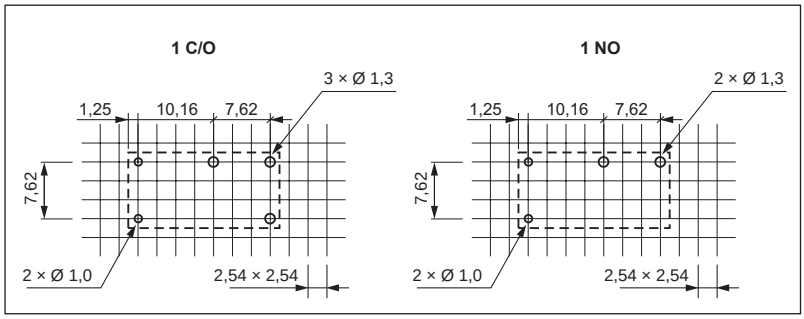
Coil temperature increment over the ambient temperature +25 °C, depended on coil voltage supply

Release time Fig. 2



Dependance of the release time on coil voltage supply

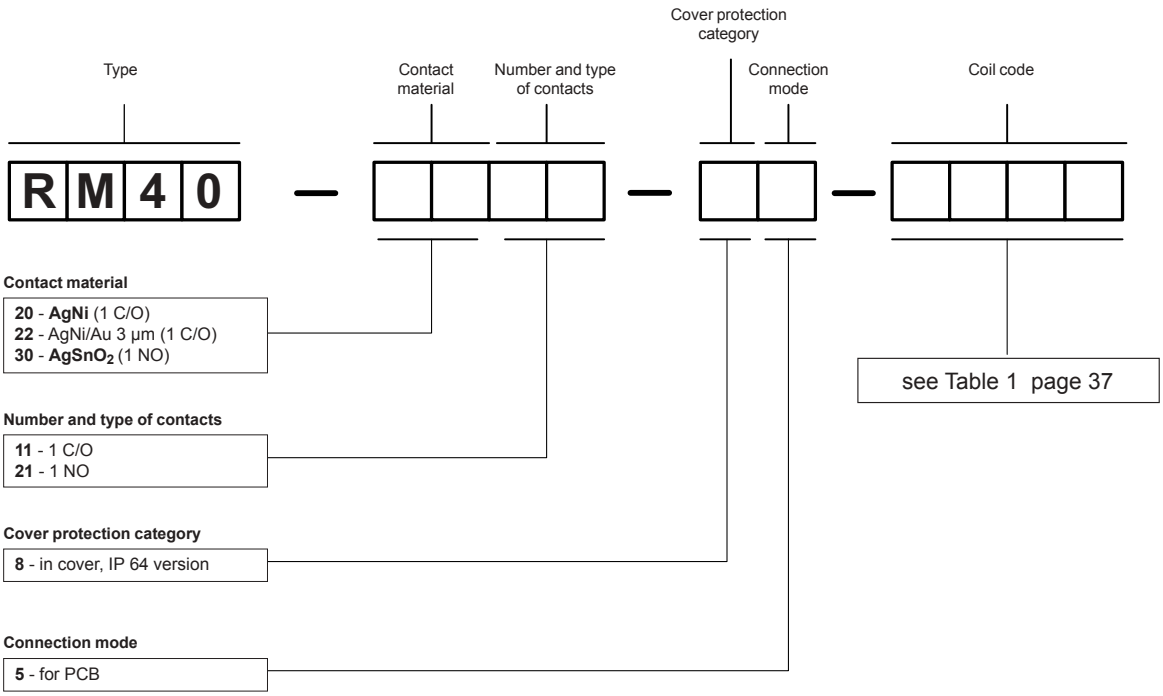
Pinout (solder side view)



Mounting

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

Ordering codes



Contact material

20 - **AgNi** (1 C/O)
22 - AgNi/Au 3 µm (1 C/O)
30 - **$AgSnO_2$** (1 NO)

Number and type of contacts

11 - 1 C/O
21 - 1 NO

Cover protection category

8 - in cover, IP 64 version

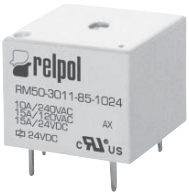
Connection mode

5 - for PCB

Examples of ordering code:

RM40-2011-85-1003 relay **RM40**, contact material AgNi, with one changeover contact, in cover IP 64, for PCB, voltage version 3 V DC

RM40-3021-85-1024 relay **RM40**, contact material $AgSnO_2$, with one normally open contact, in cover IP 64, for PCB, voltage version 24 V DC



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

Contact data

Number and type of contacts		1 C/O, 1 NO
Contact material		**$AgSnO_2$**
Rated / max. switching voltage	AC	240 V / 277 V
Min. switching voltage		5 V
Rated load	AC1	10 A / 240 V AC
	DC1	15 A / 24 V DC
Min. switching current		15 mA
Rated current		12 A
Max. breaking capacity	AC1	3 000 VA
Min. breaking capacity		0,75 W
Contact resistance		≤ 100 mΩ

Coil data

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

Insulation according to PN-EN 60664-1

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

General data

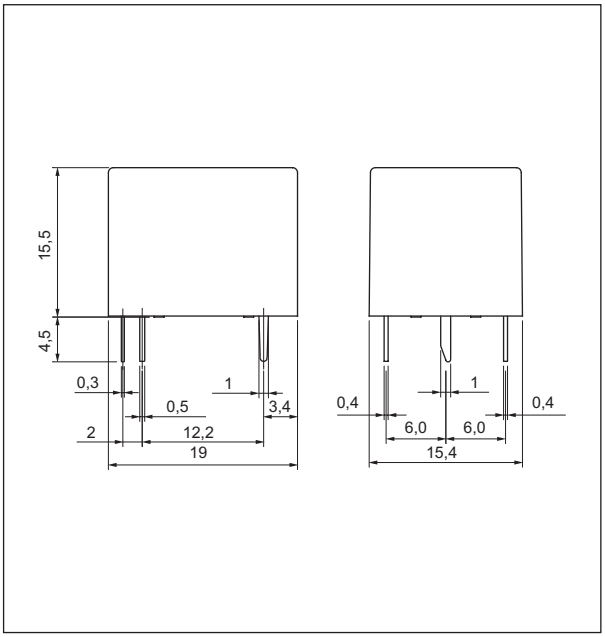
Operating / release time (typical values)		10 ms / 5 ms
Electrical life		
• resistive AC1	1 200 cycles/hour	> 10^5 7 A, 250 V AC
• resistive AC1	1 200 cycles/hour	> 3 x 10^4 12 A, 250 V AC
• resistive DC1	1 200 cycles/hour	> 5 x 10^4 15 A, 24 V DC
Mechanical life	18 000 cycles/hour	> 10^7
Dimensions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

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

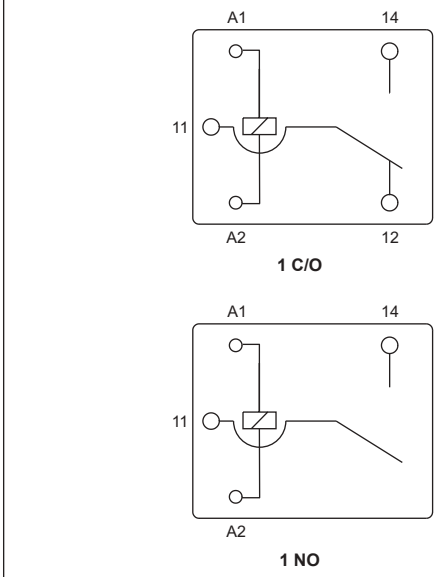
Coil data - DC voltage version Table 1

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

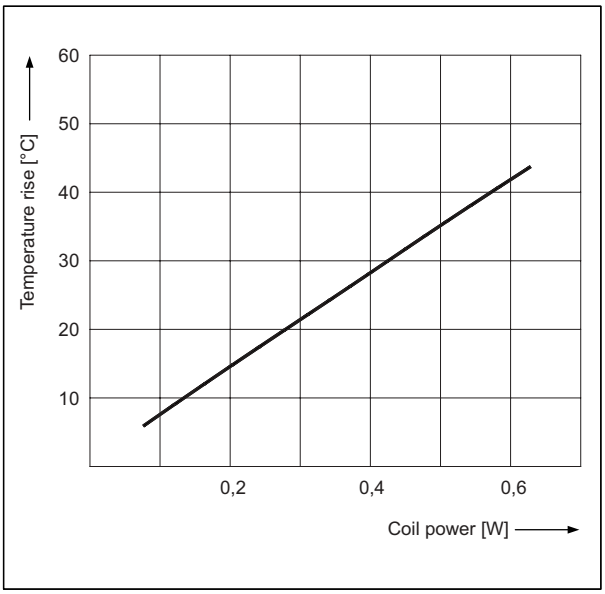
Dimensions



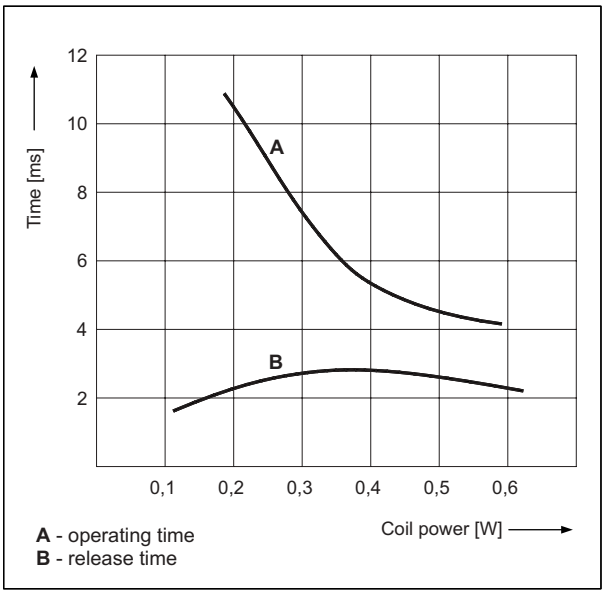
Connection diagrams (pin side view)



Coil temperature rise Fig. 1



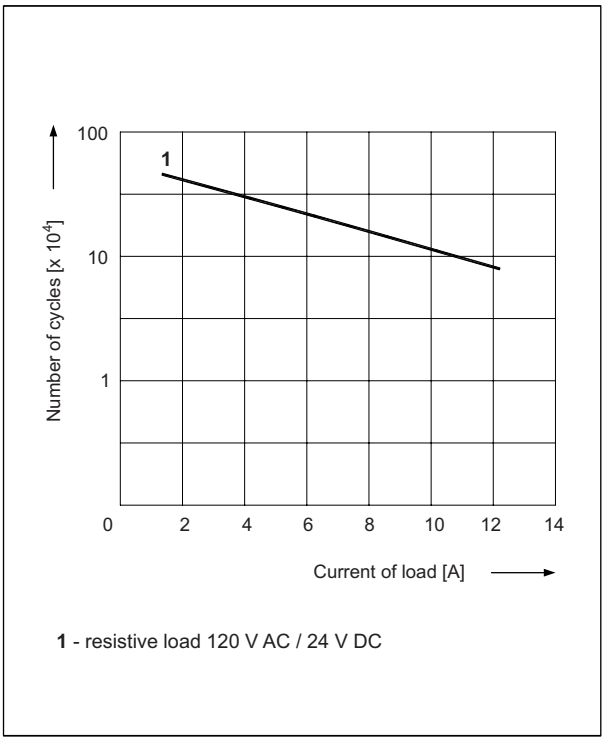
Operating / release time Fig. 2



A - operating time
B - release time

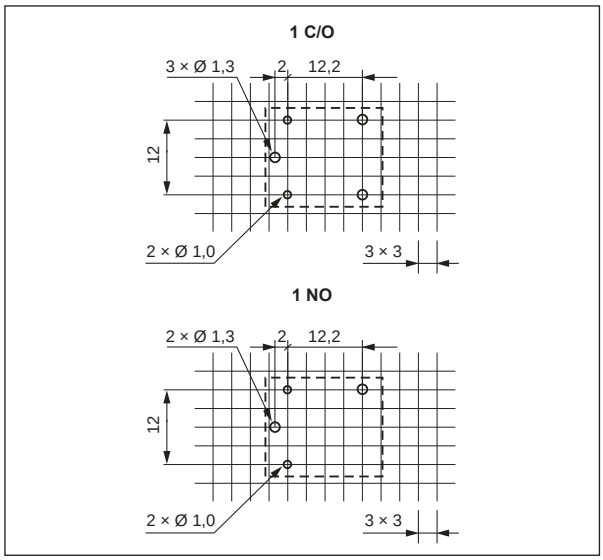
Electrical life

Fig. 3



1 - resistive load 120 V AC / 24 V DC

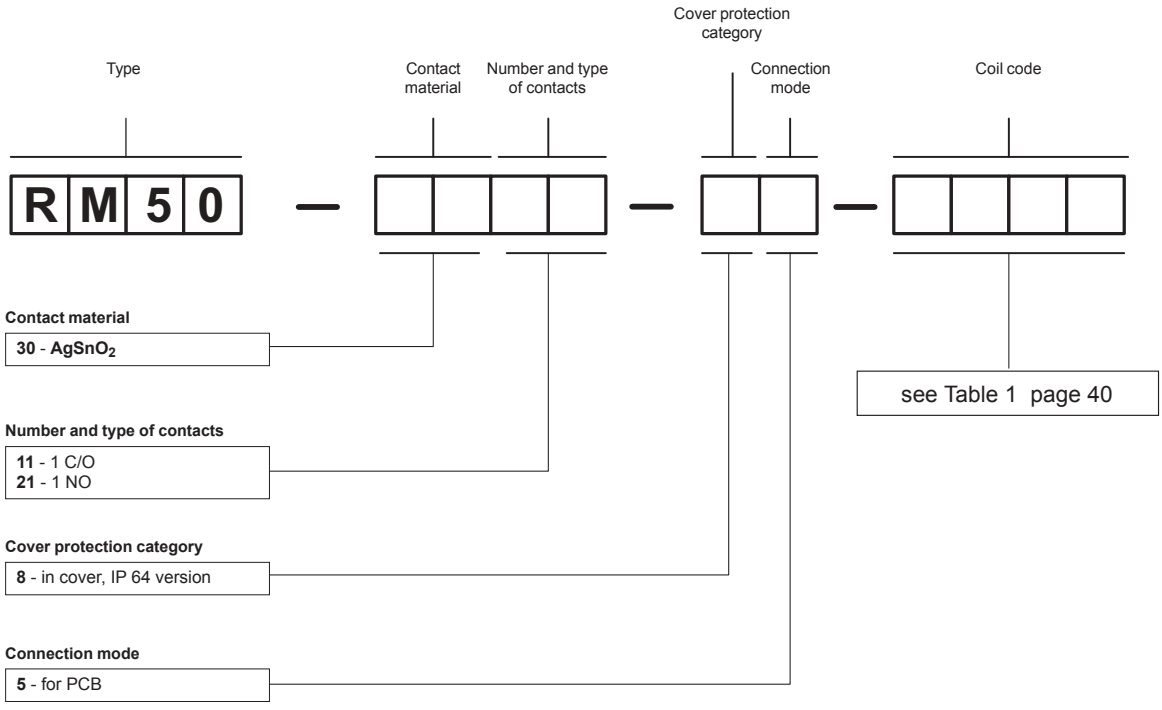
Pinout (solder side view)



Mounting

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

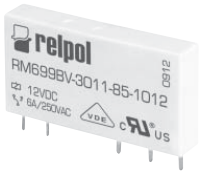
Ordering codes



Example of ordering code:

RM50-3011-85-1012 relay **RM50**, contact material $AgSnO_2$, with one changeover contact, in cover IP 64, for PCB, voltage version 12 V DC

version (V) version (H)



NEW product

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

Contact data

Number and type of contacts		1 C/O	
Contact material		**$AgSnO_2$**	$AgSnO_2$/Au 3 µm ❶
Rated / max. switching voltage	AC	250 V / 400 V	– / 30 V ❶
Max. switching voltage	DC	250 V	36 V ❶
Min. switching voltage		10 V	5 V
Rated load	AC1	6 A / 250 V AC	0,05 A / 30 V AC ❶
	DC1	6 A / 24 V DC	0,05 A / 36 V DC ❶
Min. switching current		100 mA	10 mA
Max. inrush current		10 A 20 ms	0,1 A 20 ms ❶
Rated current		6 A	0,05 A ❶
Max. breaking capacity	AC1	1 500 VA	1,2 VA ❶
Min. breaking capacity		1 W	0,05 W
Contact resistance		≤ 100 mΩ 100 mA, 24 V	≤ 30 mΩ 10 mA, 5 V
Max. operating frequency			
• at rated load	AC1	360 cycles/hour	
• no load		72 000 cycles/hour	

Coil data

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

Insulation according to PN-EN 60664-1

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

General data

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

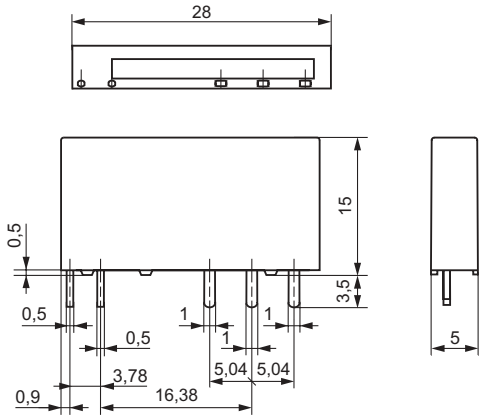
The data in bold type pertain to the standard versions of the relays.
❶ For gold-plated contacts - when the maximum values given have been exceeded, the gold layer is destroyed. Then, the advantages of gold-plating disappear and the values are as for $AgSnO_2$ contacts (see beside). In consequence however, the life of the contact may be shorter than that of the normal power contact.

Coil data - DC voltage version Table 1

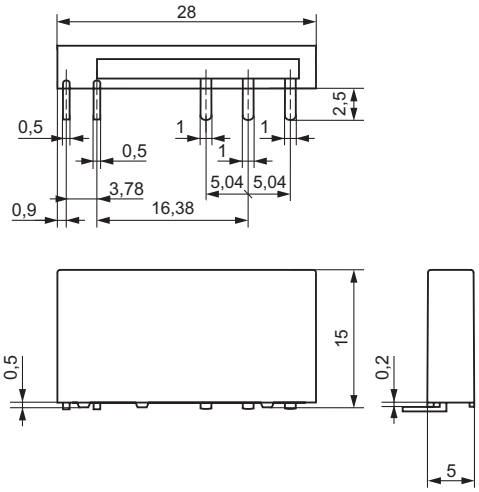
Coil code	Rated voltage V DC	Coil resistance at 20°C Ω	Acceptable resistance	Coil operating range at 20°C V DC		Power consumption mW
				min.	max.	
1005	5	147	± 10%	3,75	7,5	170
1012	12	848	± 10%	9,0	18,0	170
1024	24	3 390	± 15%	18,0	36,0	170
1048	48	10 600	± 15%	36,0	72,0	217
1060	60	20 500	± 15%	45,0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

Dimensions

vertical version (V)

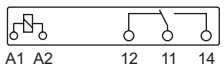


horizontal version (H)



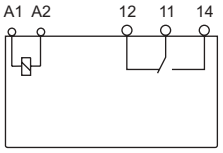
Connection diagrams (pin side view)

vertical version (V)



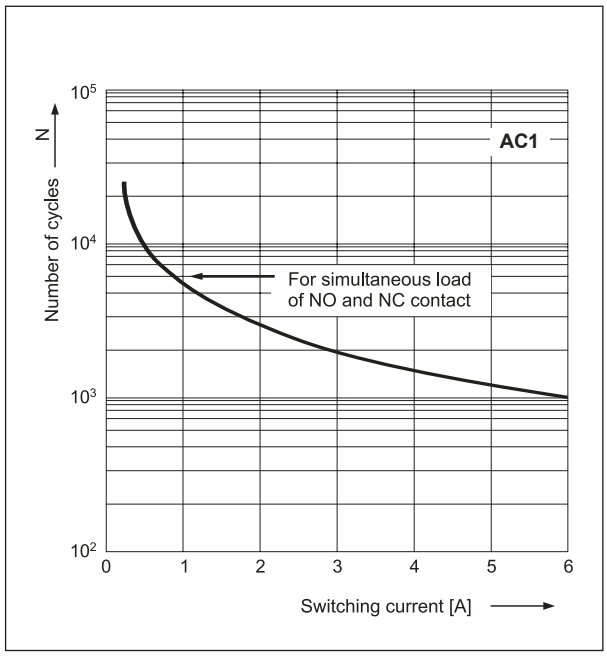
1 C/O

horizontal version (H)

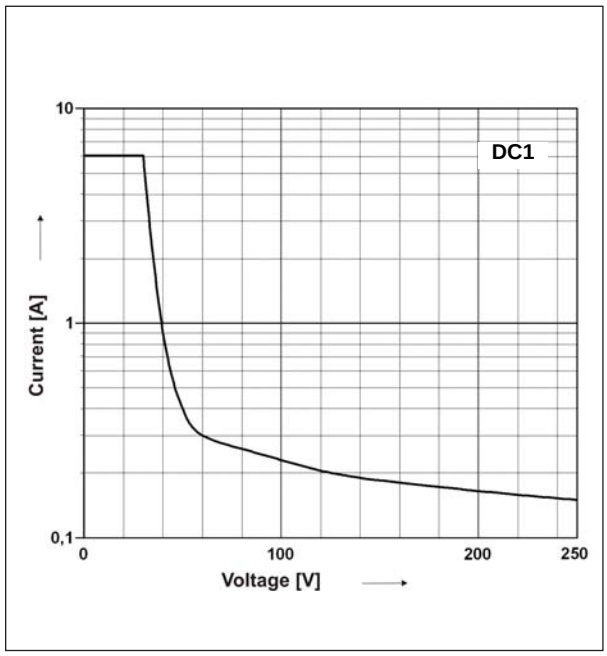


1 C/O

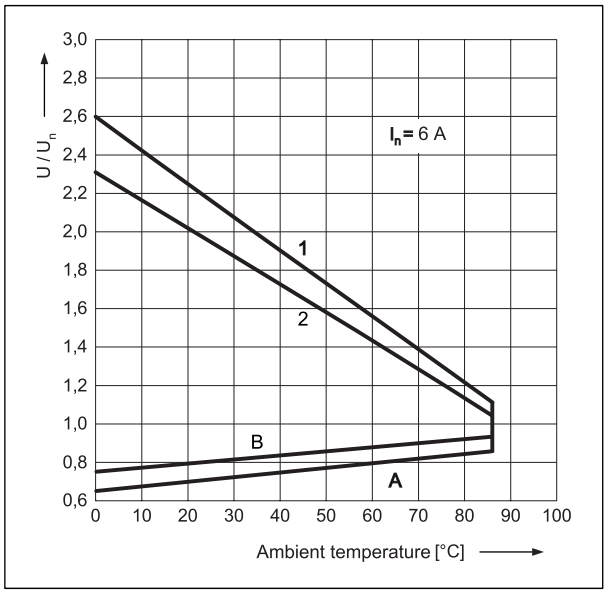
Electrical life at AC resistive current. Switching frequency: 360 cycles/hour Fig. 1



Max. DC resistive load breaking capacity Fig. 2



Coil operating range - DC Fig. 3

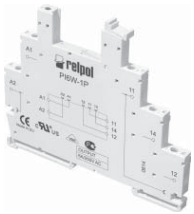


Description of Fig. 3

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

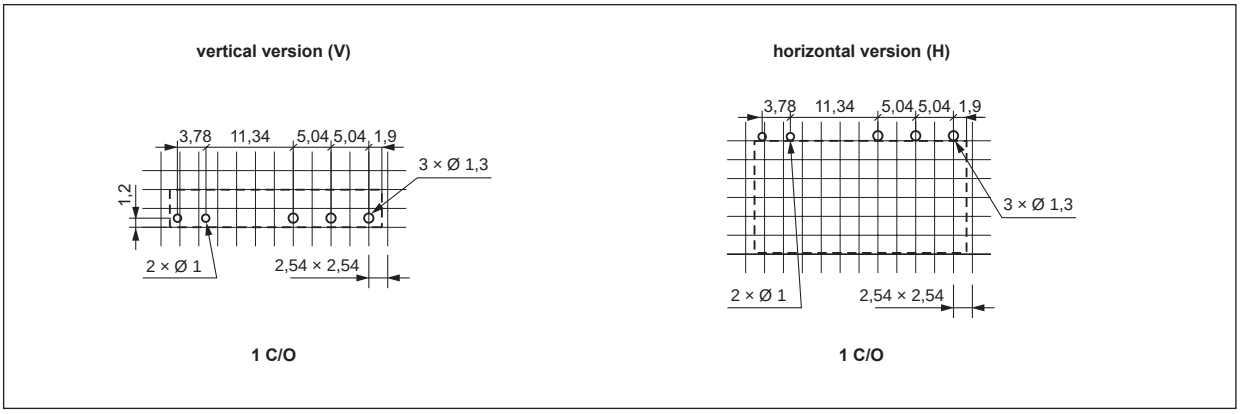
Mounting

Relays **RM699B vertical version (V)** are designed for: • direct PCB mounting • sockets **PI6W-1P**, 35 mm rail mount acc. to PN-EN 60715 (see page 201). Relays **RM699B horizontal version (H)** are designed for direct PCB mounting.

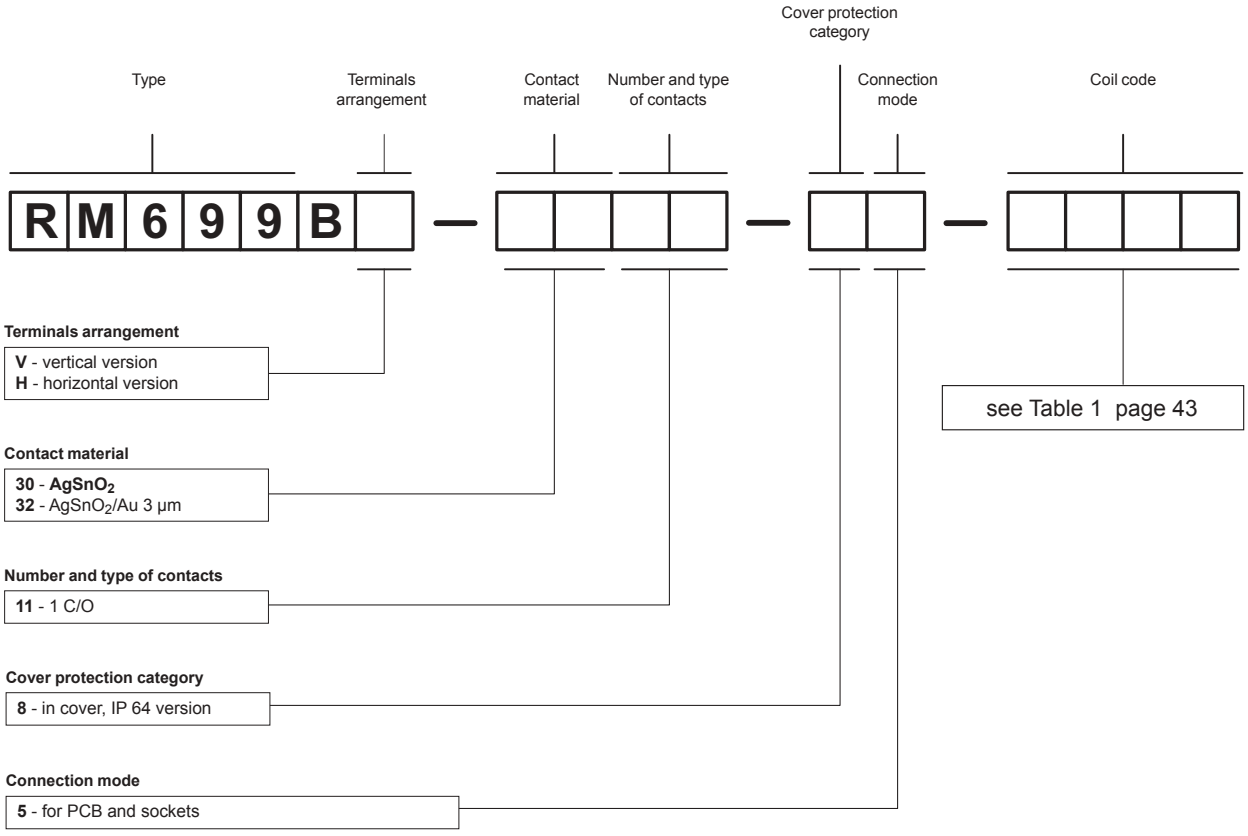


PI6W-1P

Pinout (solder side view)



Ordering codes

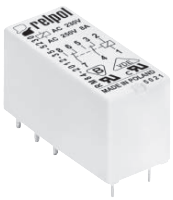


Examples of ordering code:

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

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

RM84



RM84-...-01 ❶

NEW product

- 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 C/O, 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
	• contact clearance	1 000 V AC type of clearance: micro-disconnection
		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 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		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"

Export Sales Department • Phone: +48 68 47 90 832 • E-mail: export@relpol.com.pl

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

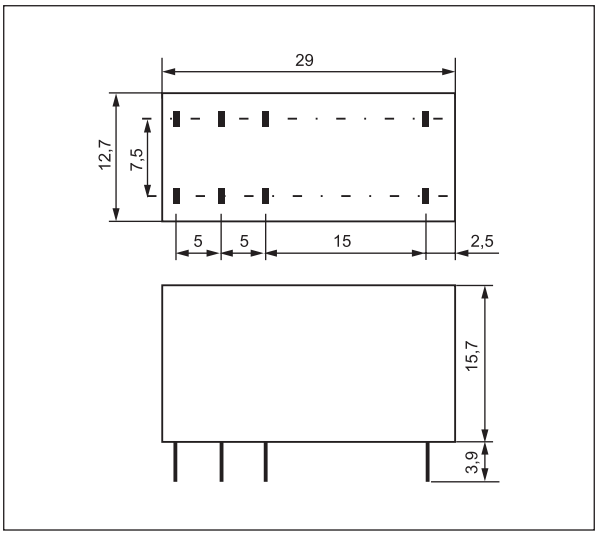
The data in bold type pertain to the standard versions of the relays.

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

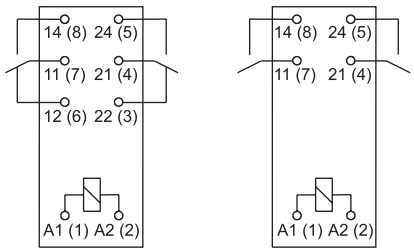
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	± 10%	9,6	13,2
5024	**24**	**400**	**± 10%**	**19,2**	**28,8**
5048	48	1 550	± 10%	38,4	57,6
5060	60	2 600	± 10%	48,0	72,0
5110	110	8 900	± 10%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

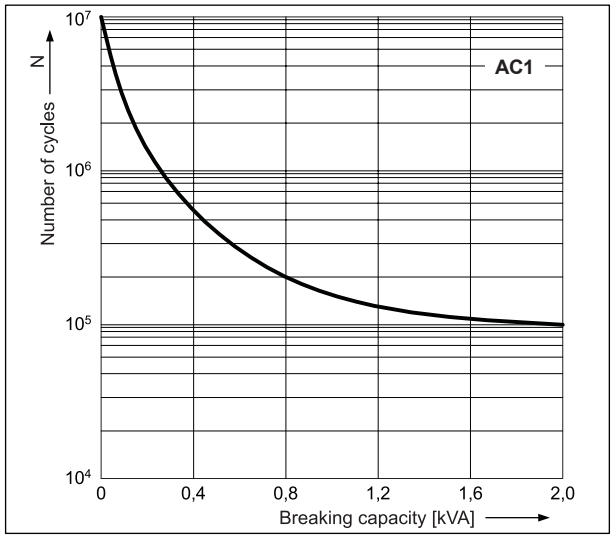


Connection diagrams (pin side view)

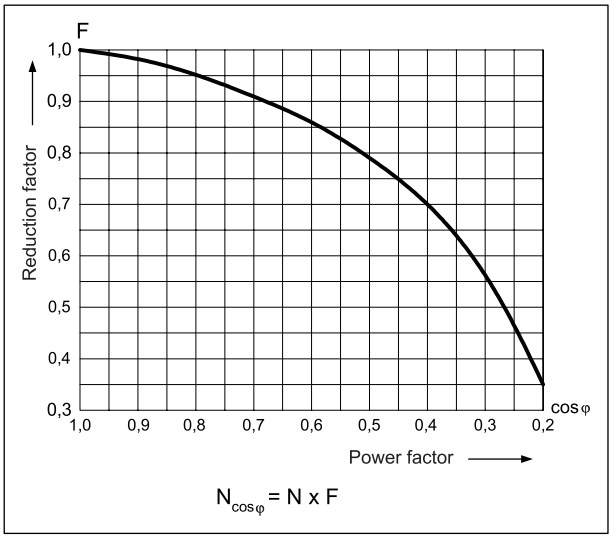


Terminal (pin)	A1(1); A2(2)	22(3); 21(4); 24(5); 12(6); 11(7); 14(8)
[mm]	Ø 0,6	0,5 x 0,9
Drilling hole: • for relays • for sockets	Ø 1,3 + 0,1 mm Ø 1,5 + 0,1 mm	

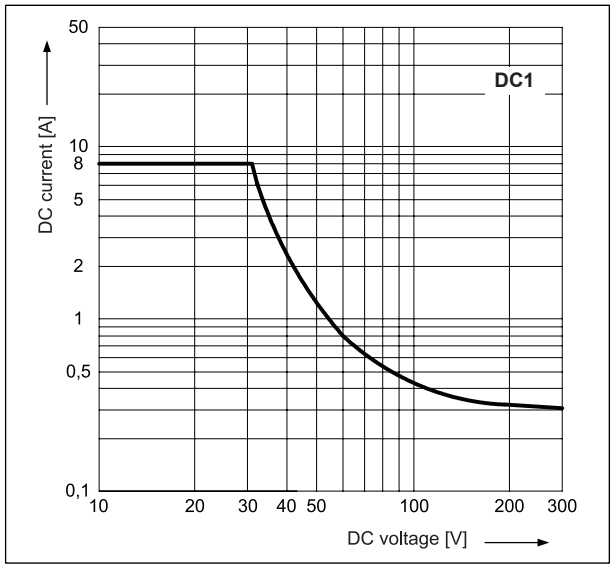
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



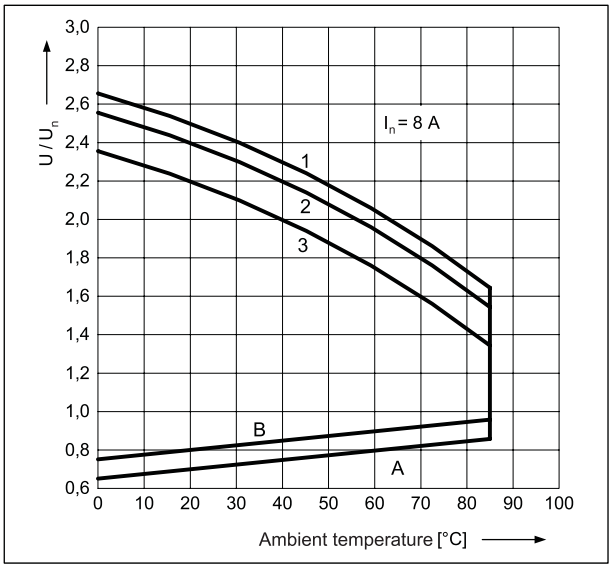
Electrical life reduction factor at AC inductive load Fig. 2



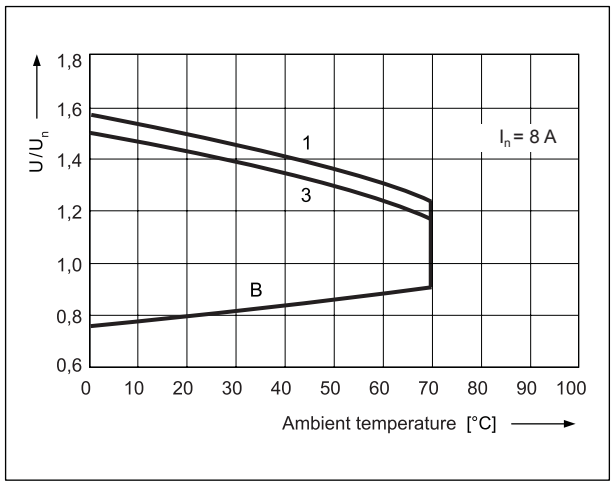
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



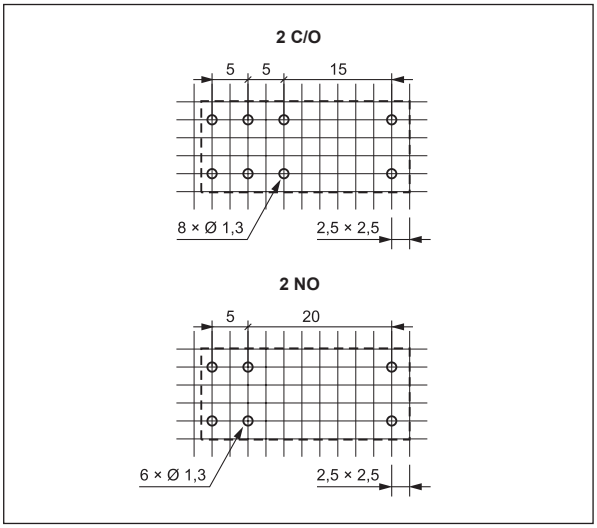
Coil operating range - AC 50 Hz Fig. 5



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)



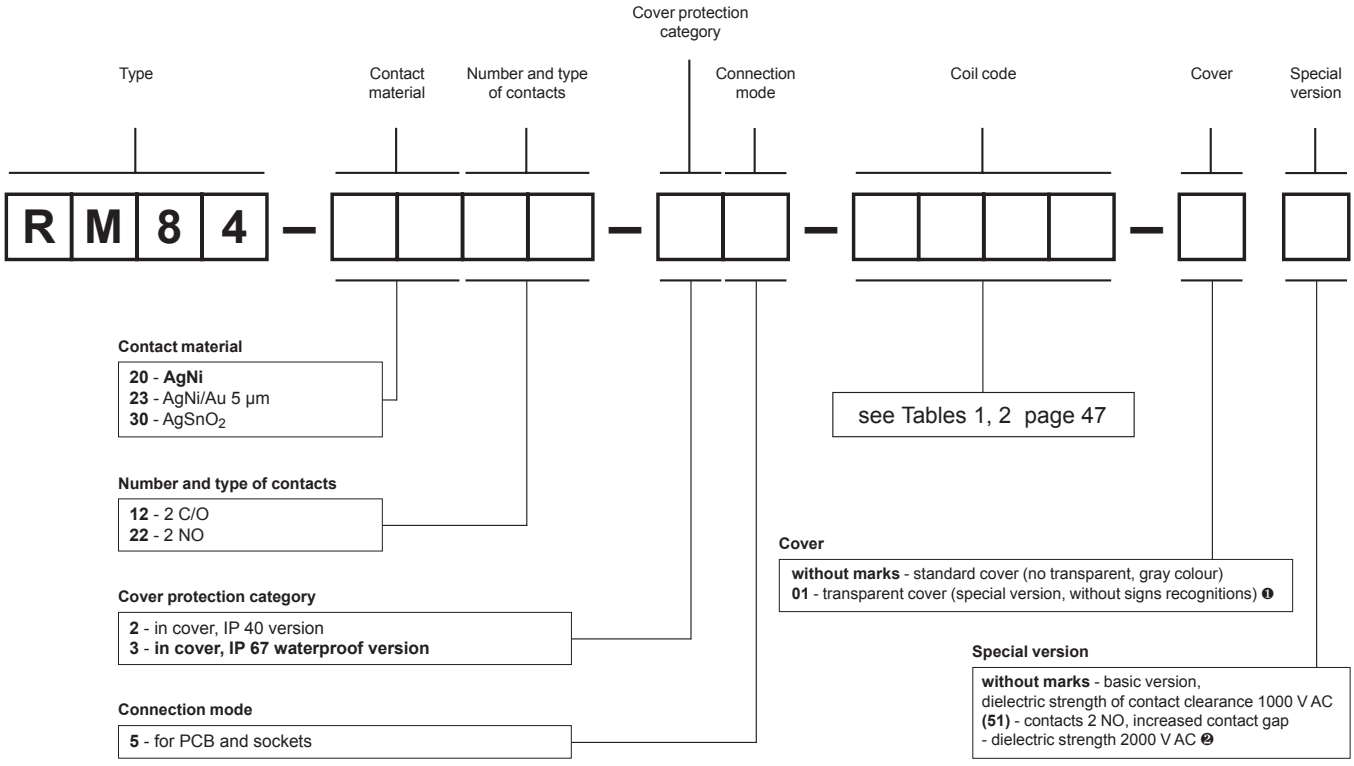
Mounting

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. Signalling / protecting modules **type M...** are available with sockets (see page 250) • plug-in sockets for PCB mounting **EC50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

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

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

Ordering codes



Examples of ordering code:

RM84-3012-25-5024 relay **RM84**, contact material $AgSnO_2$, with two changeover contacts, in standard cover (no transparent, gray colour) IP 40, for PCB and sockets, voltage version 24 V AC 50/60 Hz

RM84-2012-25-1012-01 relay **RM84**, contact material AgNi, with two changeover contacts, in transparent cover (special version, without signs recognitions) ❶ IP 40, for PCB and sockets, voltage version 12 V DC

RM84-2322-35-1024 (51) relay **RM84**, contact material AgNi/Au 5 µm, with two normally open contacts, special version ❷ with increased contact gap, in standard cover (no transparent, gray colour) IP 67, for PCB and sockets, voltage version 24 V DC

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

Contact data

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

Coil data

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

Insulation according to PN-EN 60664-1

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

General data

Operating / release time (typical values)		7 ms / 3 ms
Electrical life (number of cycles)		
• resistive AC1		> 10^5 8 A, 250 V AC
• 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 12,7 x 15,7 (17,7) mm
Weight		14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		20 g
Vibration resistance	(NO/NC)	10 g / 5 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

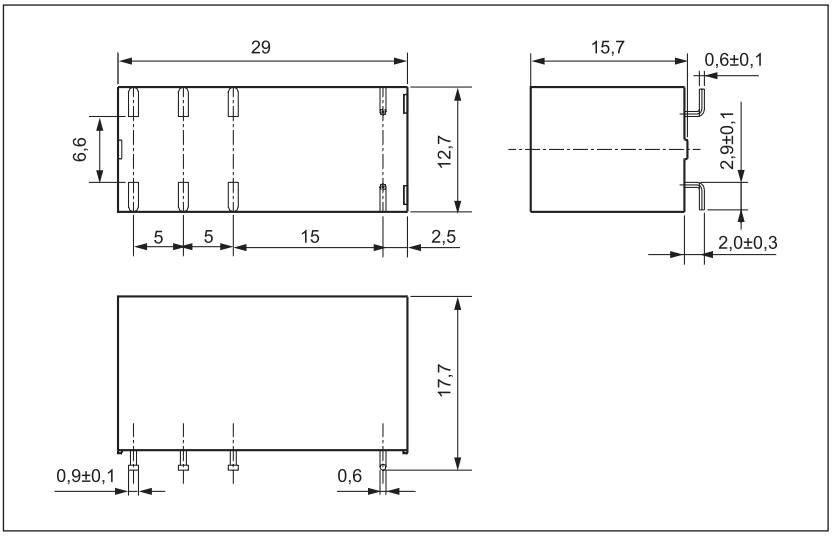
Coil data - DC voltage version Table 1

Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	± 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

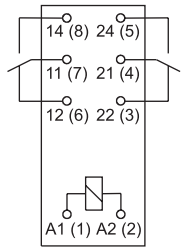
Coil data - AC 50/60 Hz voltage version Table 2

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



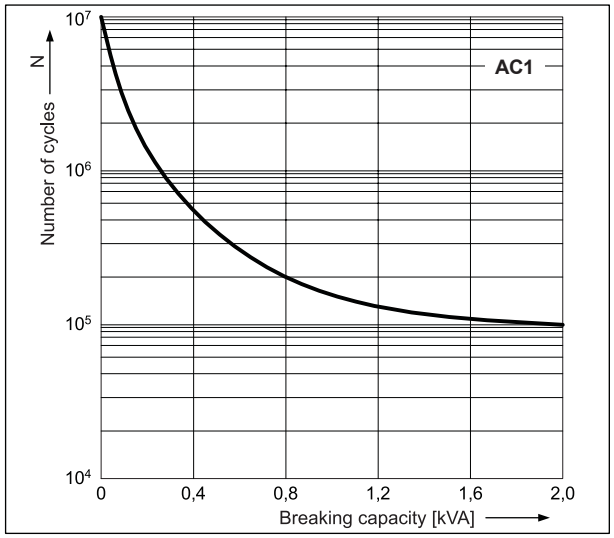
Connection diagram
(pin side view)



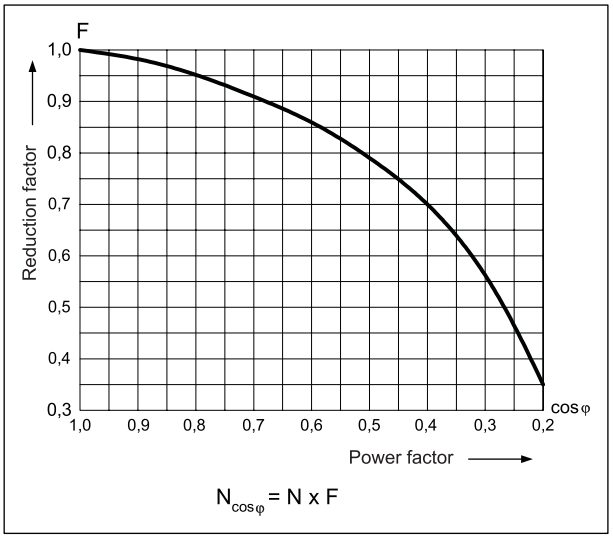
2 C/O

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

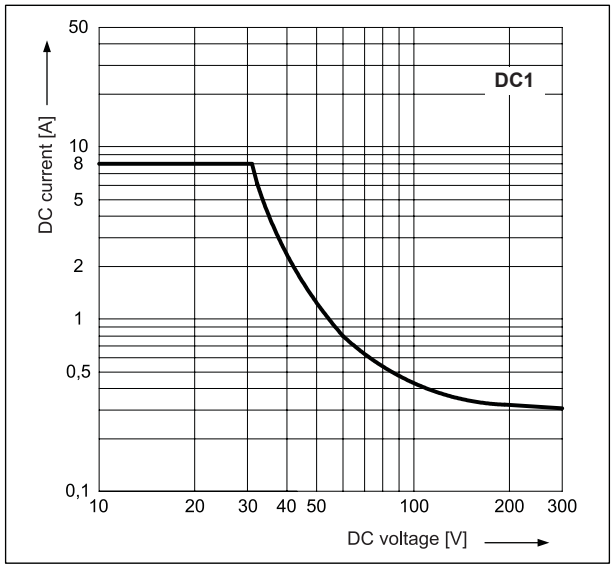
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



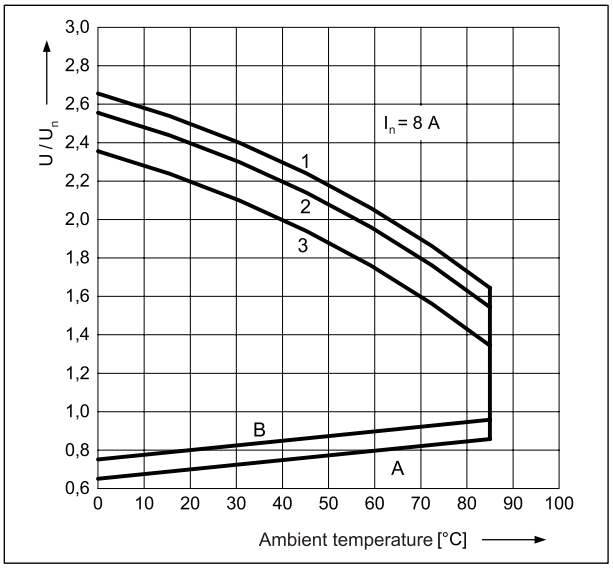
Electrical life reduction factor at AC inductive load Fig. 2



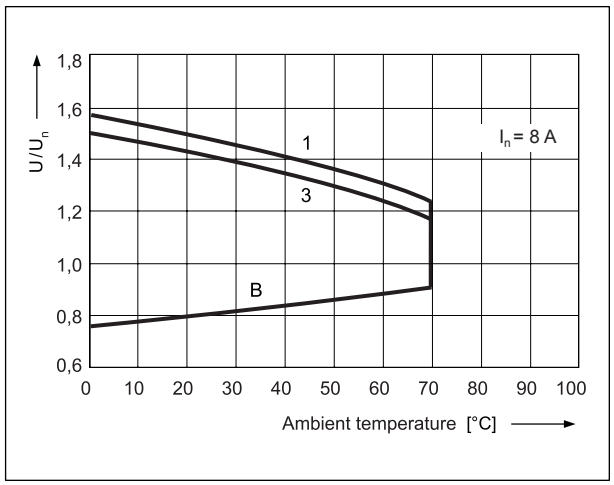
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



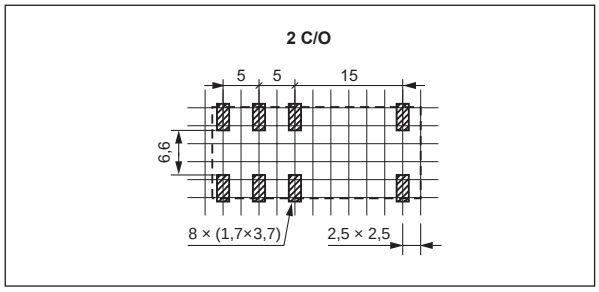
Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

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

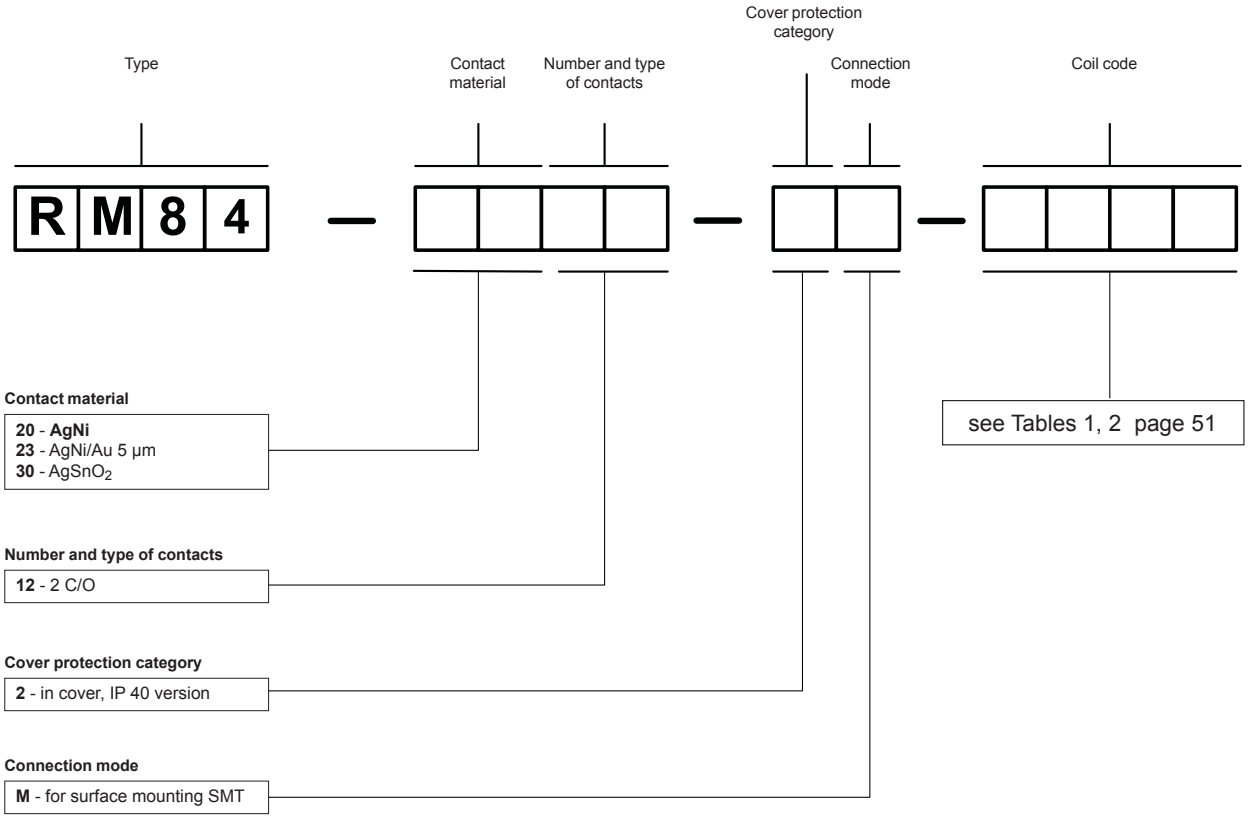
Soldering areas (solder side view)



Mounting

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

Ordering codes



Example of ordering code:

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

RM85

RM85-...-01 ❶

NEW product

- 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 C/O, 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
	• contact clearance	1 000 V AC type of clearance: micro-disconnection
		2 000 V AC contact 1 NO, type of clearance: full-disconnection ❷
Contact - coil distance	• clearance	≥ 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 / vibration resistance		30 g / 10 g 10...150 Hz
Solder bath temperature / Soldering time		max. 270 °C / max. 5 s

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

Export Sales Department • Phone: +48 68 47 90 832 • E-mail: export@relpol.com.pl

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

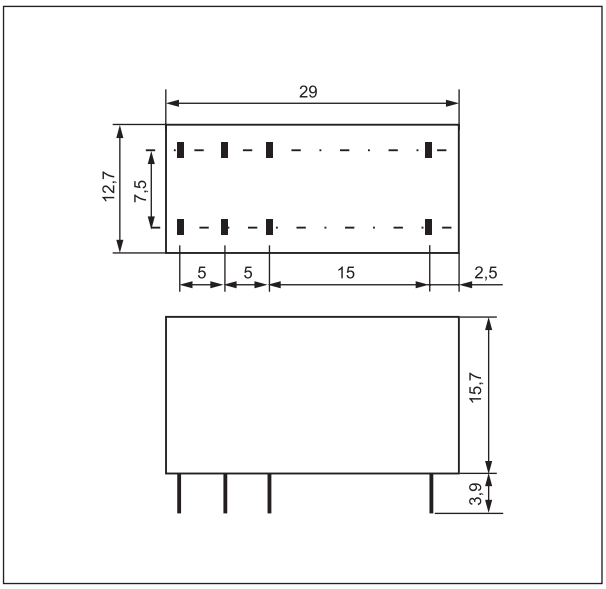
The data in bold type pertain to the standard versions of the relays.

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

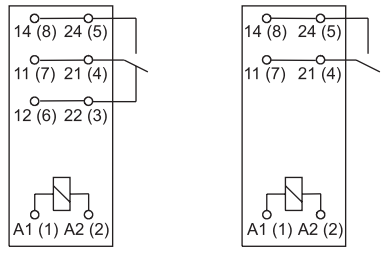
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	± 10%	9,6	13,2
5024	**24**	**400**	**± 10%**	**19,2**	**28,8**
5048	48	1 550	± 10%	38,4	57,6
5060	60	2 600	± 10%	48,0	72,0
5110	110	8 900	± 10%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



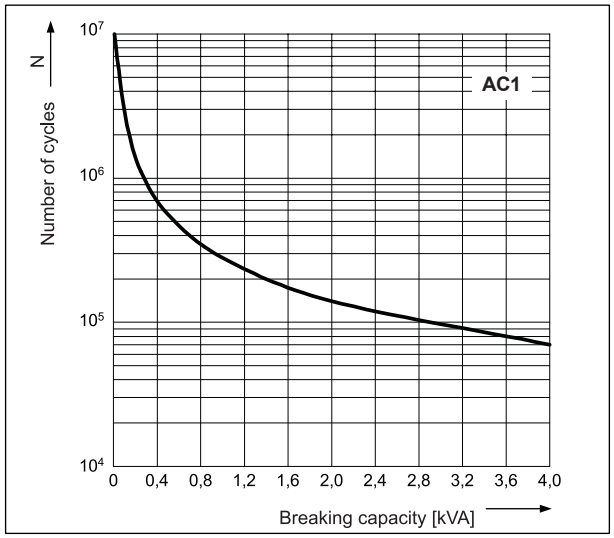
Connection diagrams (pin side view)



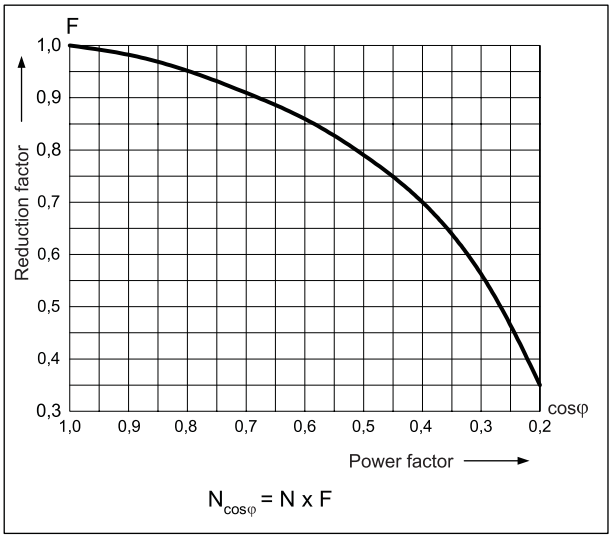
Terminal (pin)	A1(1); A2(2)	22(3); 21(4); 24(5); 12(6); 11(7); 14(8)
[mm]	Ø 0,6	0,5 x 0,9
Drilling hole: • for relays • for sockets	 Ø 1,3 + 0,1 mm Ø 1,5 + 0,1 mm	

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

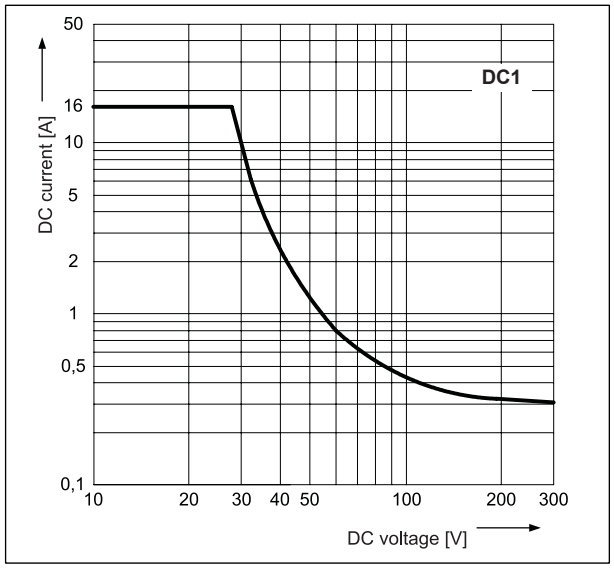
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



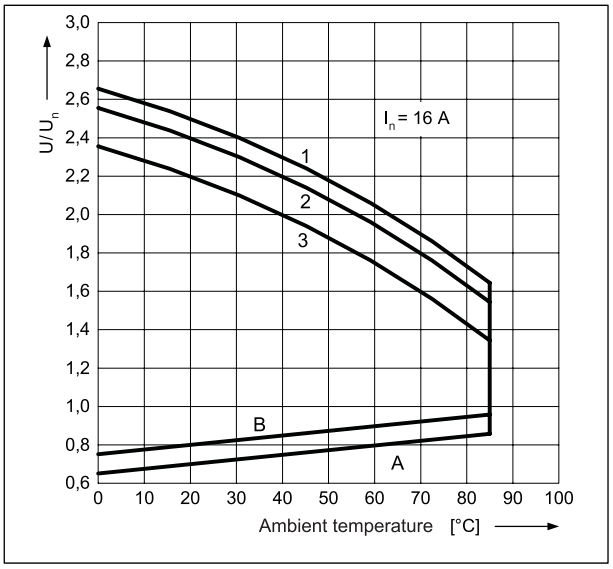
Electrical life reduction factor at AC inductive load Fig. 2



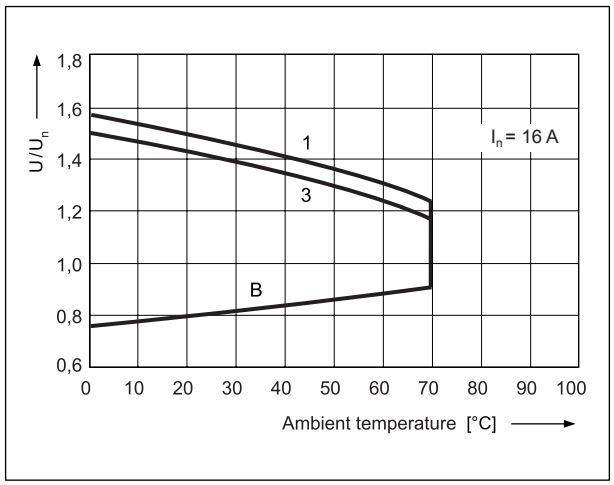
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



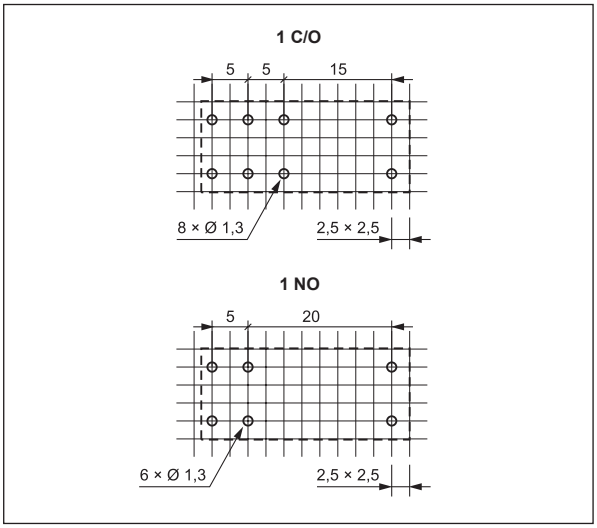
Coil operating range - AC 50 Hz Fig. 5



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)



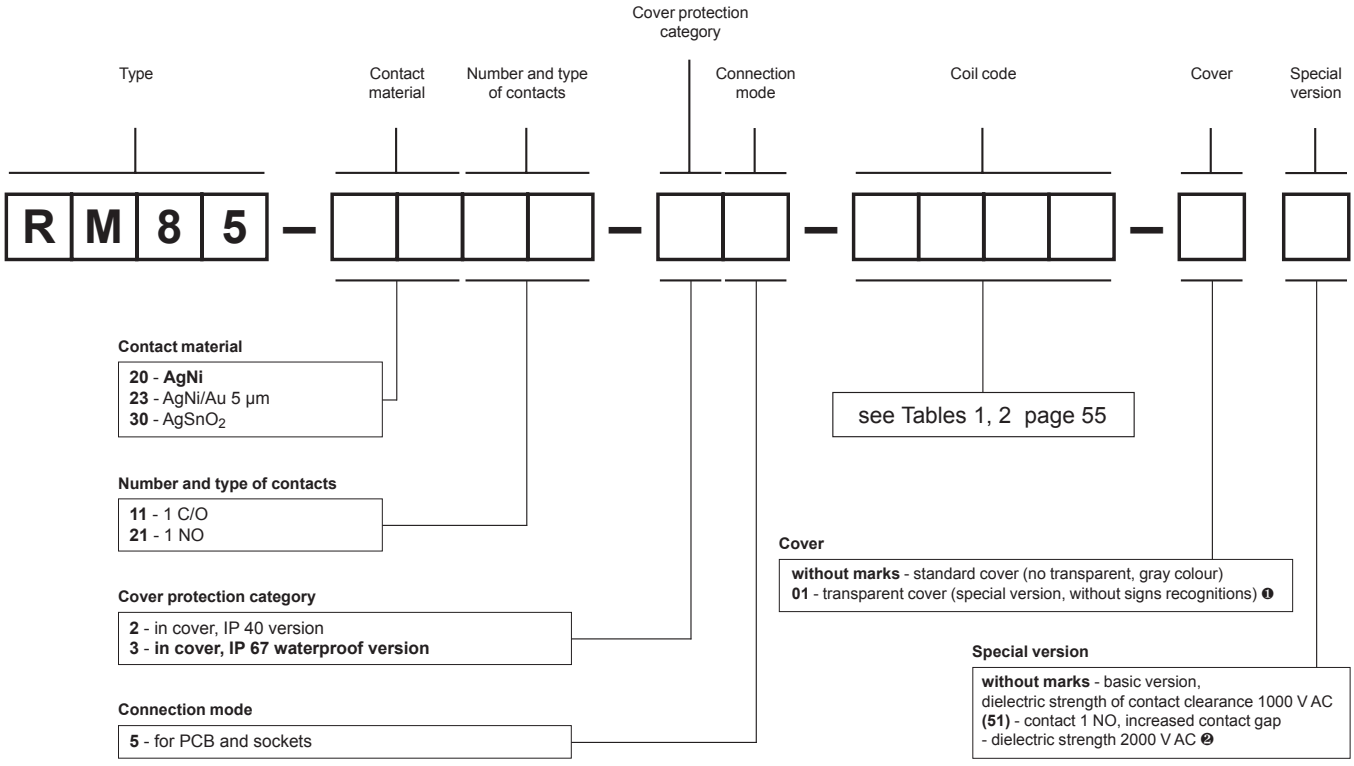
Mounting

Relays **RM85** ❸ are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ❹ 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. Signalling / protecting modules **type M...** are available with sockets (see page 250) • plug-in sockets for PCB mounting **EC50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

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

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

Ordering codes



Examples of ordering code:

RM85-3011-25-5024 relay **RM85**, contact material $AgSnO_2$, with one changeover contact, in standard cover (no transparent, gray colour) IP 40, for PCB and sockets, voltage version 24 V AC 50/60 Hz

RM85-2011-25-1012-01 relay **RM85**, contact material AgNi, with one changeover contact, in transparent cover (special version, without signs recognitions) ❶ IP 40, for PCB and sockets, voltage version 12 V DC

RM85-2321-35-1024 (51) relay **RM85**, contact material AgNi/Au 5 µm, with one normally open contact, special version ❷ with increased contact gap, in standard cover (no transparent, gray colour) IP 67, for PCB and sockets, voltage version 24 V DC

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

Contact data

Number and type of contacts		1 NO
Contact material		**$AgSnO_2$**
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	D C	3 ... 110 V
Must release voltage		≥ 0,1 U_n
Operating range of supply voltage		see Table 1
Rated power consumption	D C	0,4 ... 0,48 W

Insulation according to PN-EN 60664-1

Insulation rated voltage	480 V AC
Rated surge voltage	4 000 V 1,2 / 50 µs
Overvoltage category	III
Insulation pollution degree	2
Dielectric strength	
• between coil and contacts	5 000 V AC type of insulation: reinforced
• contact clearance	1 500 V AC type of clearance: micro-disconnection
Contact - coil distance	
• clearance	≥ 10 mm
• creepage	≥ 10 mm

General data

Operating / release time (typical values)		7 ms / 3 ms
Electrical life (number of cycles)		
• at resistive load	AC1	> 4 x 10^4 5 A, 480 V AC
Mechanical life	3 600 cycles/hour	> 3 x 10^7
Load according to UL 508		Heavy Pilot Duty 480 V AC, 15 A make / 1,5 A break
Dimensions (L x W x H)		29 x 12,7 x 15,7 mm
Weight		14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	-40...+85 °C
Cover protection category		IP 40 or **IP 67** PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

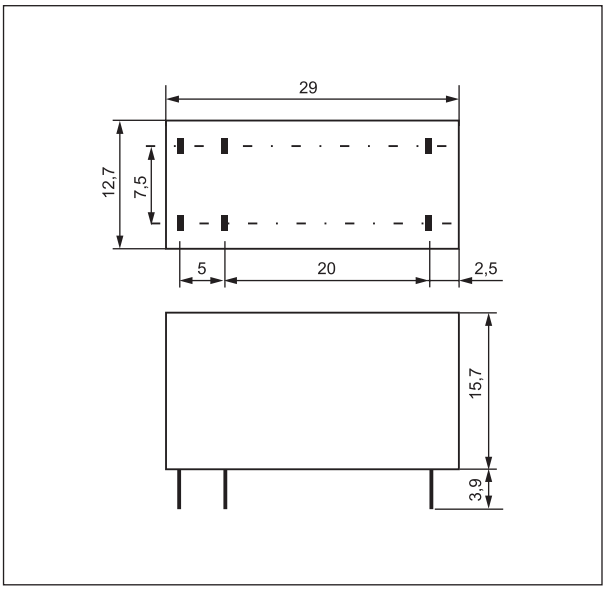
Coil data - DC voltage version

Table 1

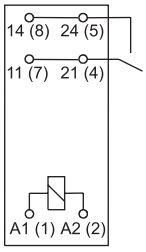
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
1012	**12**	**360**	**± 10%**	**8,4**	30,6
1018	18	710	± 10%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

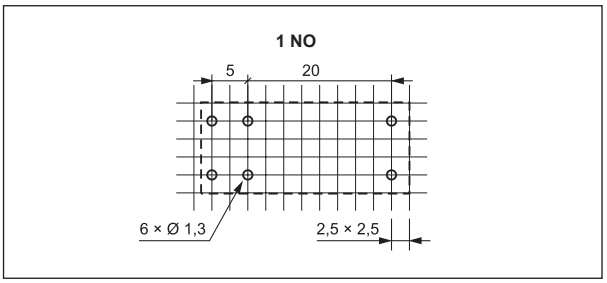


1 NO

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

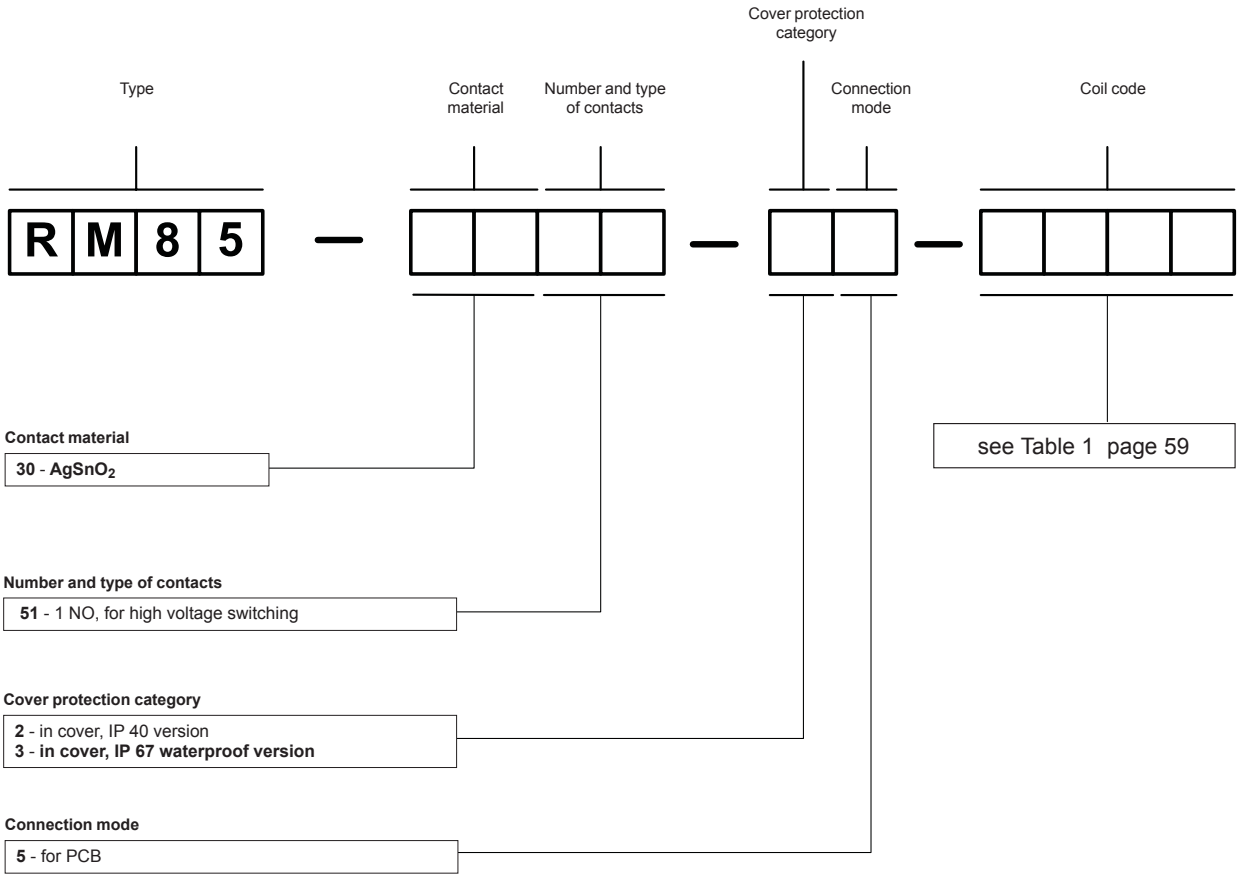
Pinout (solder side view)



Mounting

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

Ordering codes



Example of ordering code:

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

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

Contact data

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

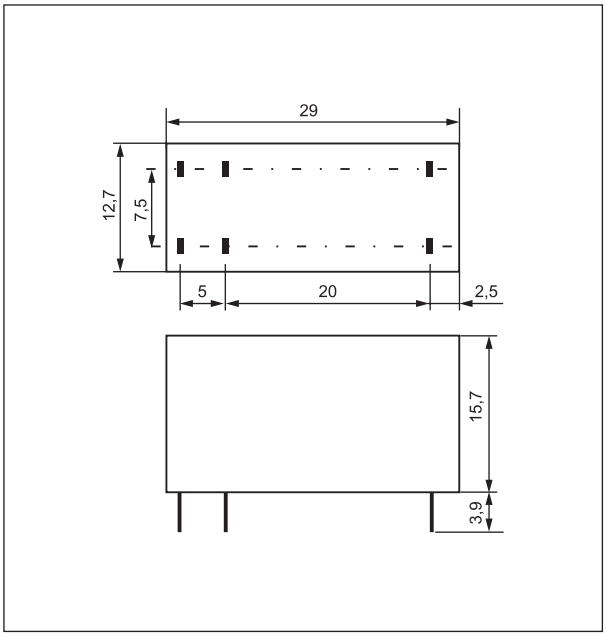
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version Table 1

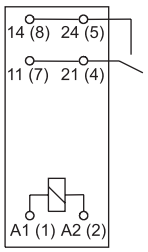
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	± 10%	2,1	7,6
1005	5	60	± 10%	3,5	12,7
1006	6	90	± 10%	4,2	15,3
1009	9	200	± 10%	6,3	22,9
1012	**12**	**360**	**± 10%**	**8,4**	**30,6**
1018	18	710	±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

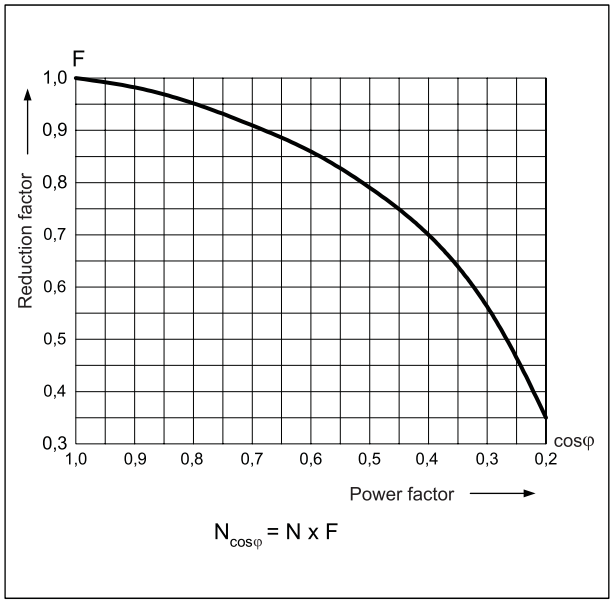


1 NO

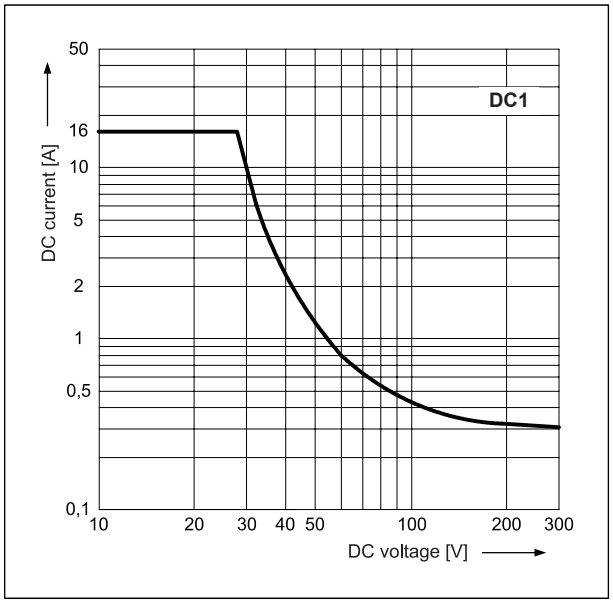
Terminal (pin)	A1(1); A2(2)	21(4); 24(5); 11(7); 14(8)
[mm]	Ø 0,6	0,5 x 0,9
Drilling hole: • for relays • for sockets	Ø 1,3 + 0,1 mm Ø 1,5 + 0,1 mm	

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

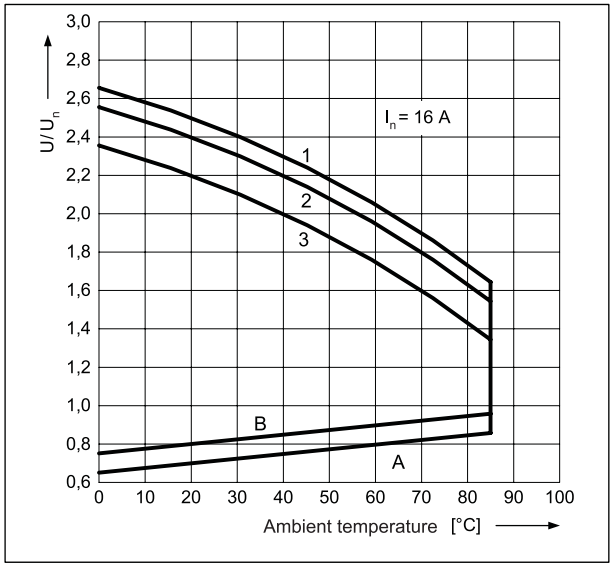
Electrical life reduction factor at AC inductive load Fig. 1



Max. DC resistive load breaking capacity Fig. 2



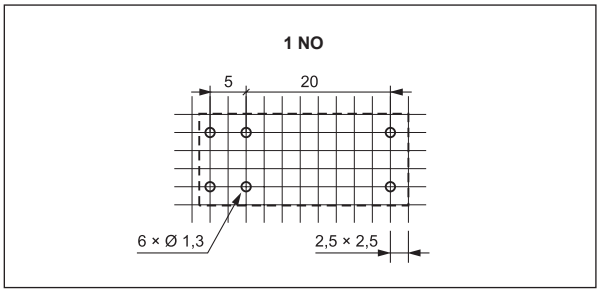
Coil operating range - DC Fig. 3



Description of Fig. 3

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

Pinout (solder side view)

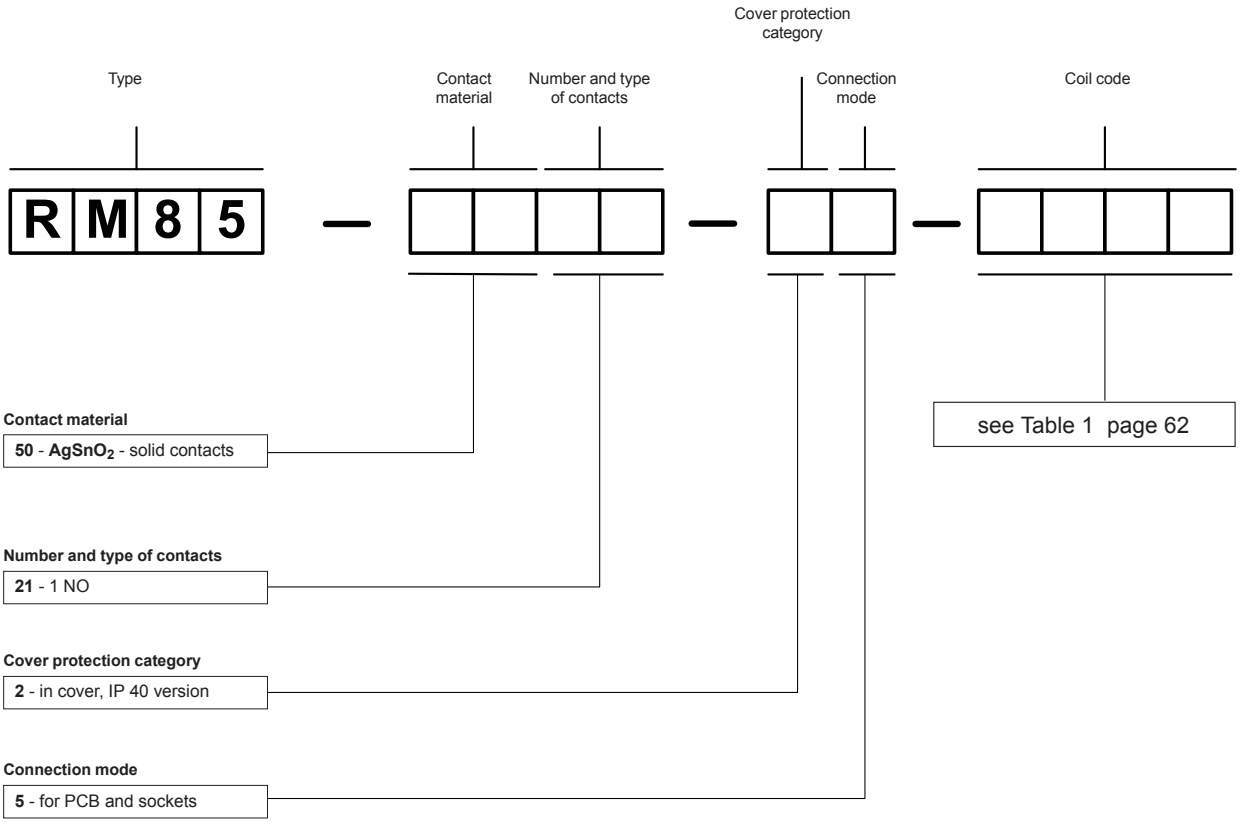


Mounting

Relays **RM85 inrush** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ❶ and **GZM80** ❶ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❶ with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw. Signalling / protecting modules **type M...** are available with sockets (see page 250) • plug-in sockets for PCB mounting **EC50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

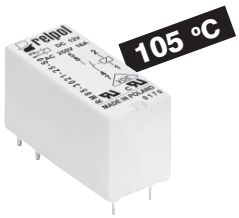
❶ Plug-in sockets **GZT80**, **GZM80** and **GZS80** may be linked with interconnection strip type **ZGGZ80** (see page 261).

Ordering codes



Example of ordering code:

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



- For PCB and plug-in sockets
- Accessories: sockets and modules
- DC coils - sensitive
- Ambient temperature up to 105 °C
- Applications: in household equipment, in temperature 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

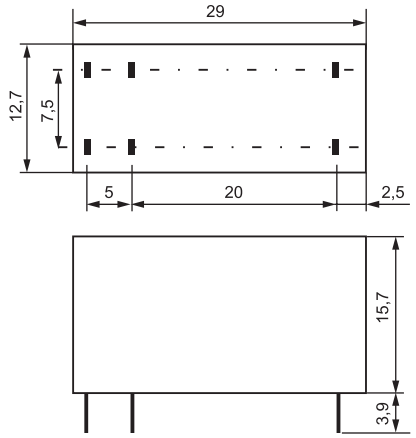
Operating / release time (typical values)		8 ms / 3 ms
Electrical life (number of cycles)	• resistive AC1	> 10^5 16 A, 230 V AC, 70 °C
		> 2 x 10^4 16 A, 230 V AC, 105 °C
		> 1,7 x 10^5 10 A, 230 V AC, 105 °C
		> 2,8 x 10^5 8 A, 230 V AC, 105 °C
		> 3,2 x 10^5 6 A, 230 V AC, 105 °C
	• cosϕ	see Fig. 1
	• DC L/R=40 ms	> 10^5 0,15 A, 220 V DC
Mechanical life (cycles)		> 3 x 10^7
Dimensions (L x W x H)		29 x 12,7 x 15,7 mm
Weight		14 g
Ambient temperature	• storage	-40...+105 ºC
	• operating	-40...+105 ºC
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 ºC
Soldering time		max. 5 s

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

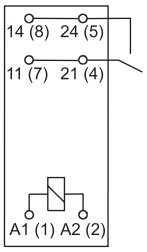
Coil data - DC voltage version, sensitive version Table 1

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

Dimensions



Connection diagram (pin side view)

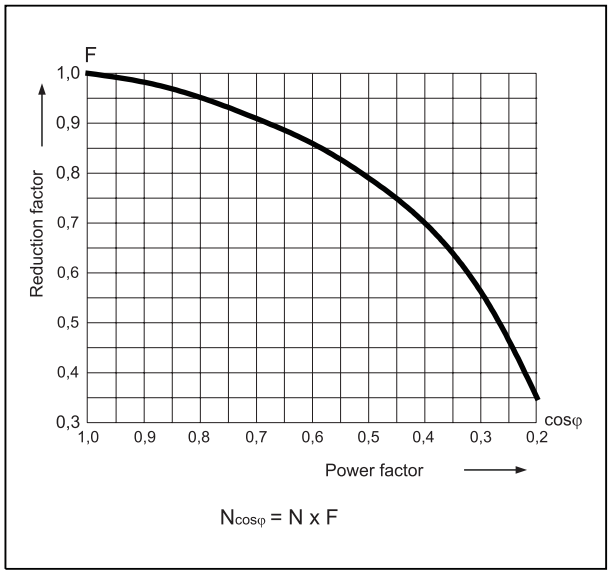


1 NO

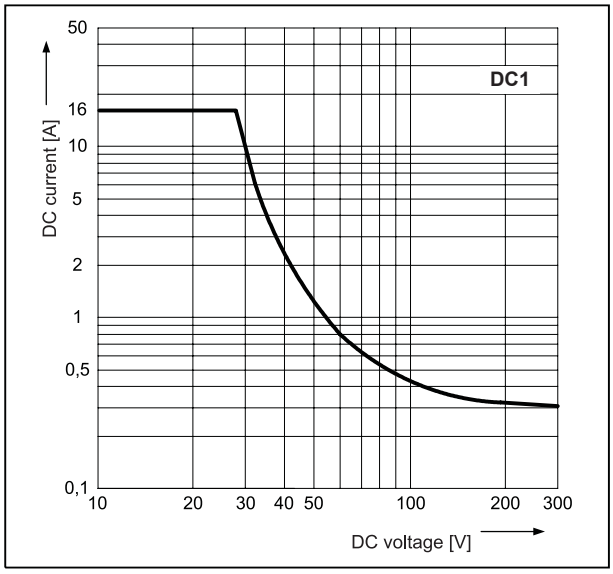
Terminal (pin)	A1(1); A2(2)	21(4); 24(5); 11(7); 14(8)
[mm]	Ø 0,6	0,5 x 0,9
Drilling hole: • for relays • for sockets	 Ø 1,3 + 0,1 mm Ø 1,5 + 0,1 mm	

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

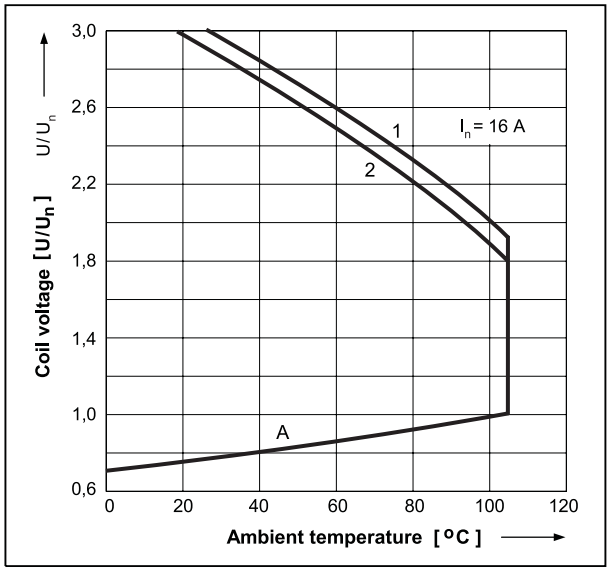
Electrical life reduction factor at AC inductive load Fig. 1



Max. DC resistive load breaking capacity Fig. 2



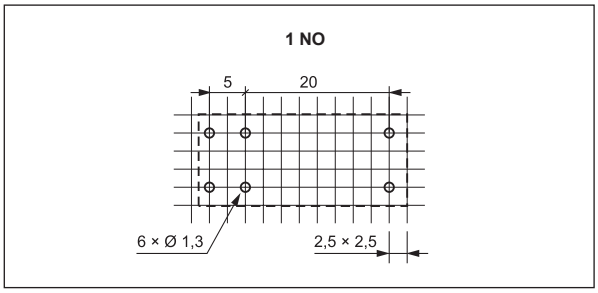
Coil operating range - DC Fig. 3



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)

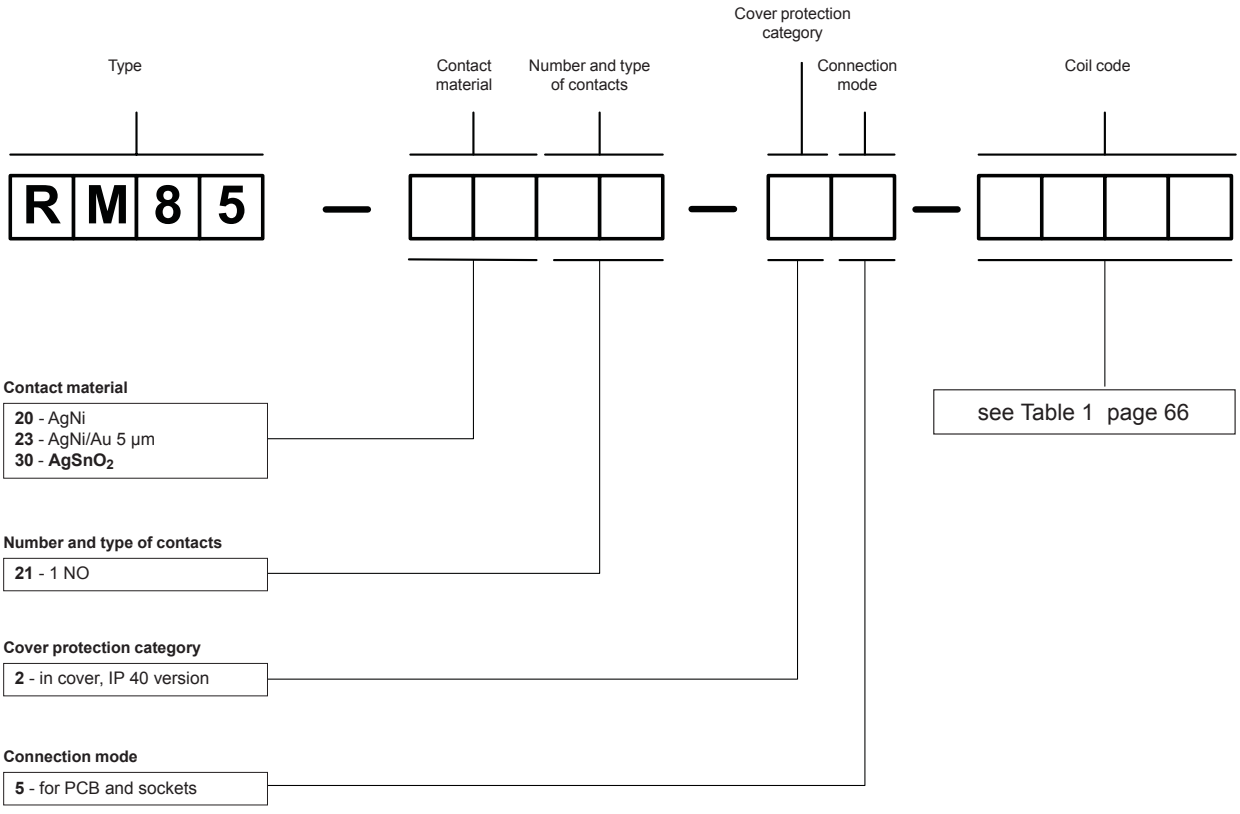


Mounting

Relays **RM85 105 ºC sensitive** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT80** ❶ and **GZM80** ❶ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS80** ❶ with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw. Signalling / protecting modules **type M...** are available with sockets (see page 250) • plug-in sockets for PCB mounting **EC50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

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

Ordering codes



Examples of ordering code:

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

RM85-2321-25-S005 relay **RM85 105 ºC sensitive**, contact material AgNi/Au 5 µm, with one normally open contact, in cover IP 40, for PCB and sockets, sensitive voltage version 5 V DC

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

Contact data

Number and type of contacts		1 C/O
Contact material		**AgNi**, AgNi/Au 5 µm, $AgSnO_2$
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V $AgSnO_2$
Rated load (capacity)	AC1	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 12,7 x 15,7 (17,7) mm
Weight		14 g
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 40 PN-EN 60529
Environmental protection		RTII PN-EN 116000-3
Shock resistance		30 g
Vibration resistance		10 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

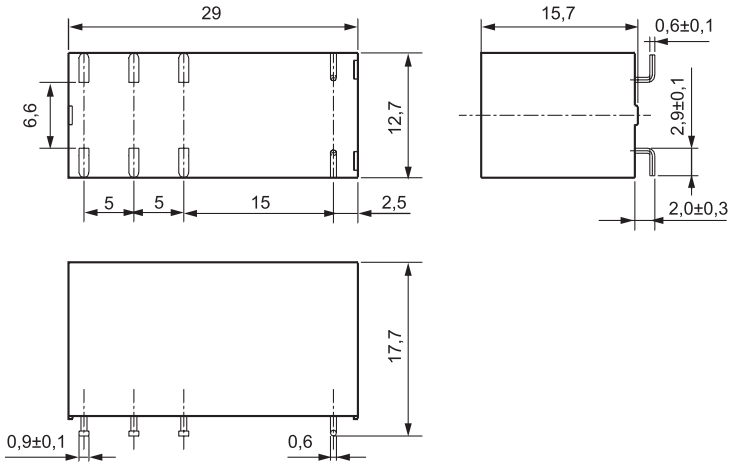
Coil data - DC voltage version Table 1

Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	± 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

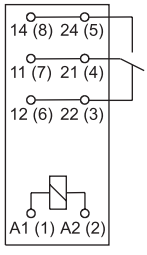
Coil data - AC 50/60 Hz voltage version Table 2

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



Connection diagram
(pin side view)

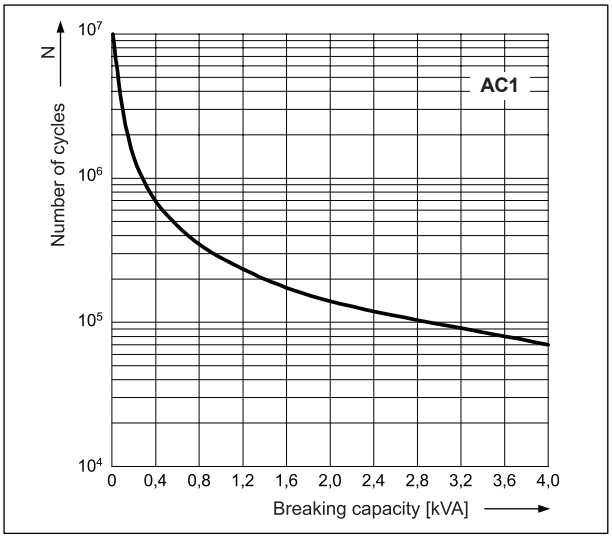


1 C/O

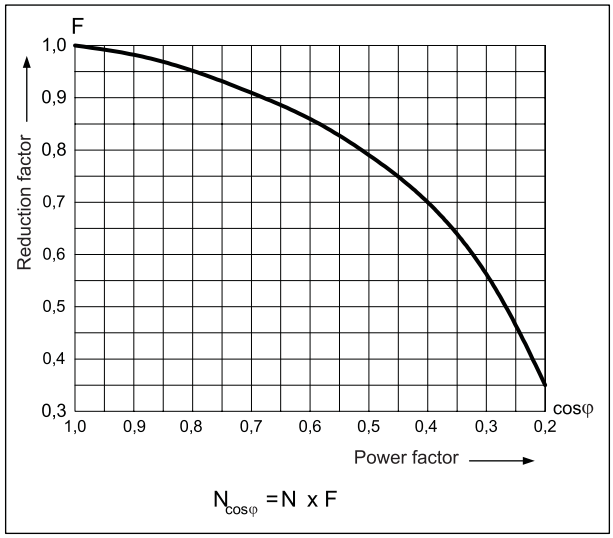
Terminal (pin)	A1(1); A2(2)	22(3); 21(4); 24(5); 12(6); 11(7); 14(8)
[mm]	Ø 0,6	0,5 x 0,9

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

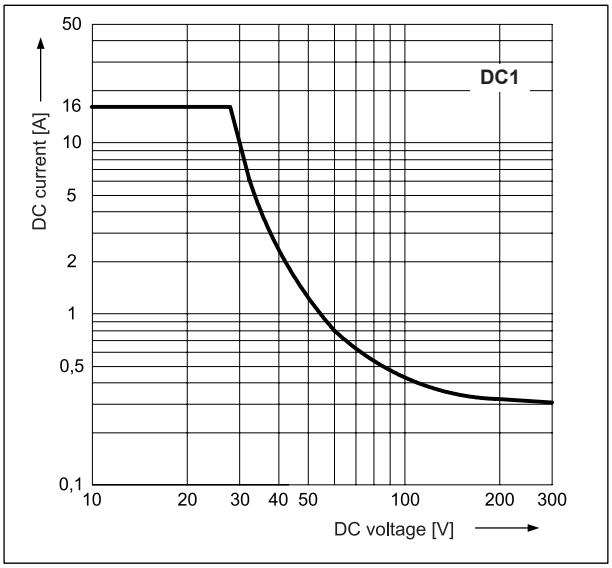
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



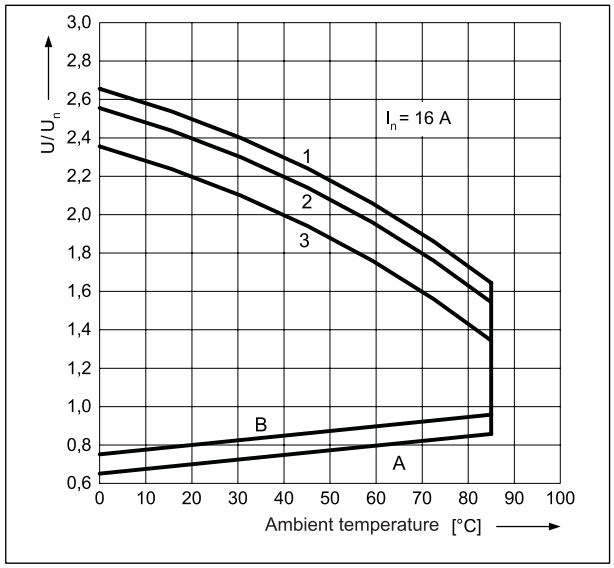
Electrical life reduction factor at AC inductive load Fig. 2



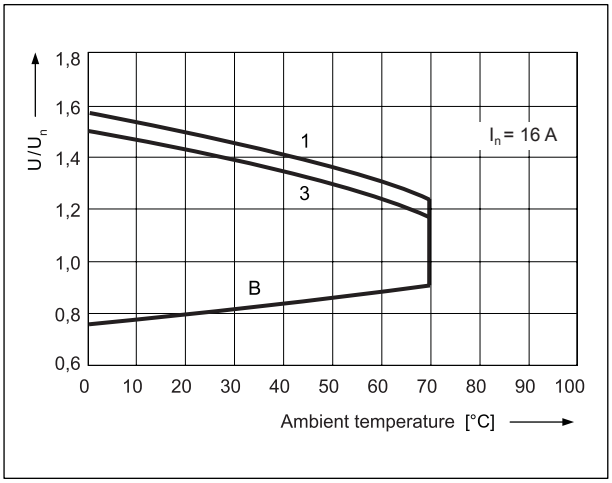
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



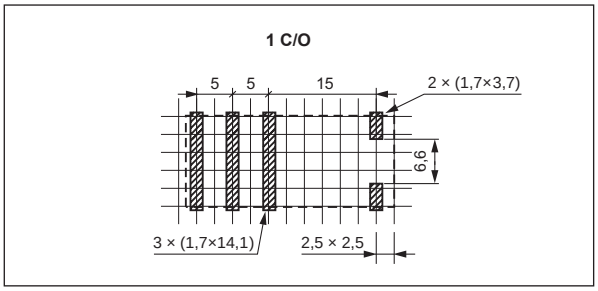
Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

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

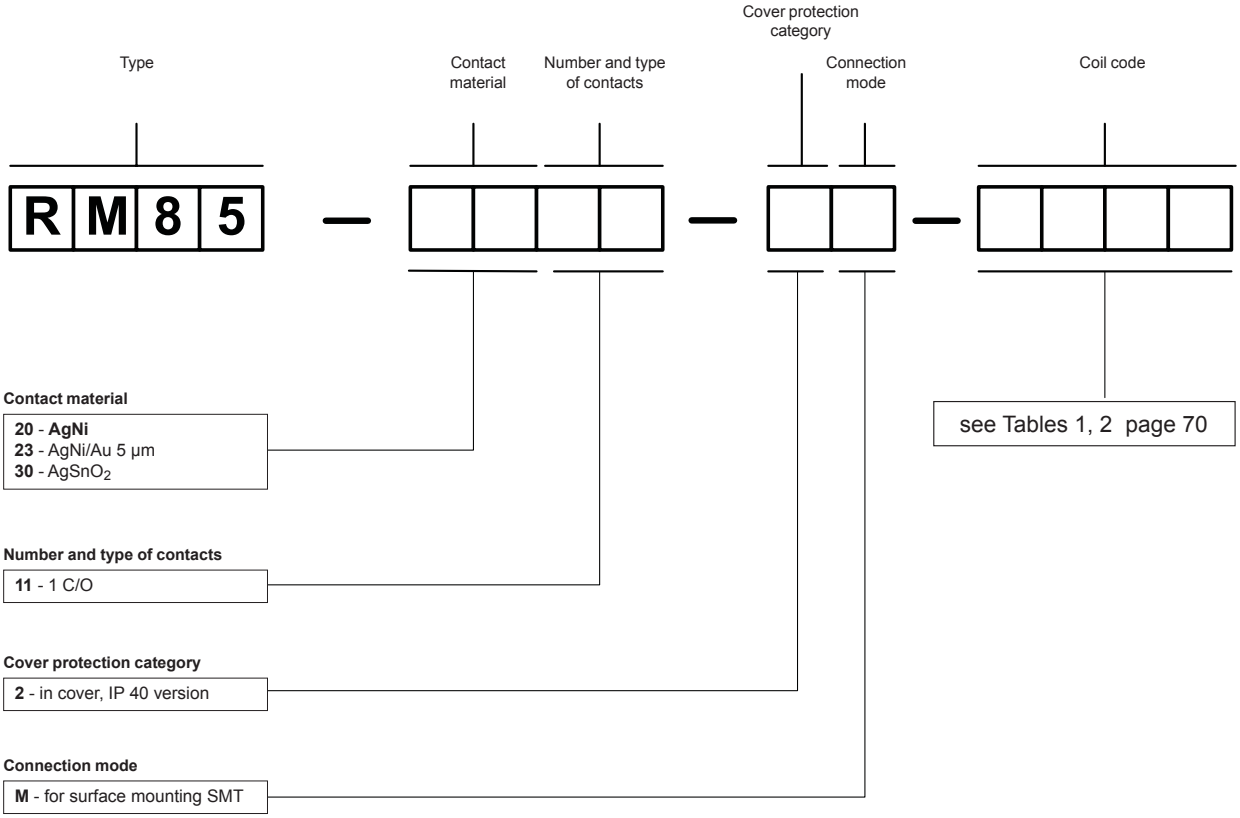
Soldering areas (solder side view)



Mounting

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

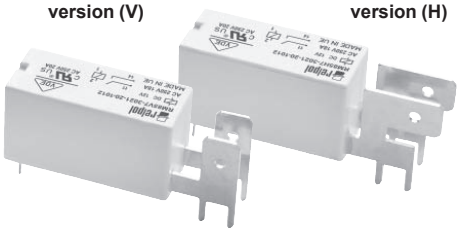
Ordering codes



Example of ordering code:

RM85-2011-2M-1012 relay **RM85 SMT**, contact material AgNi, with one changeover contact, in cover IP 40, for surface mounting SMT, voltage version 12 V DC

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

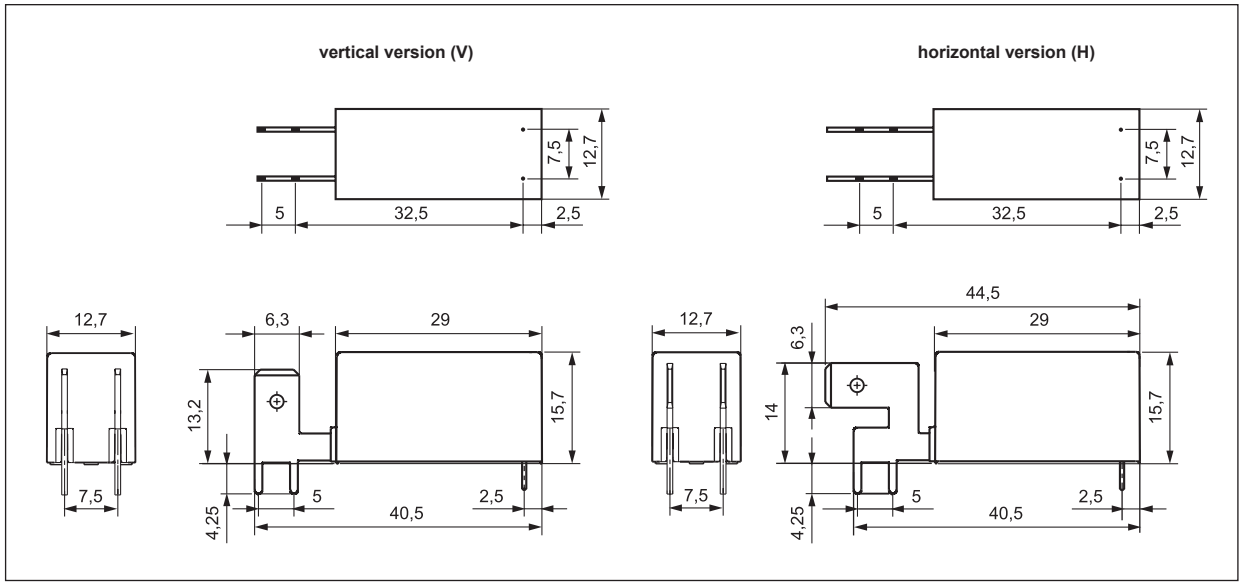
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version, sensitive version Table 1

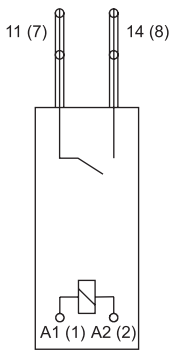
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S005	5	102	± 10%	3,75	15,0
S006	6	144	± 10%	4,50	18,0
S009	9	330	± 10%	6,75	27,0
S010	10	380	± 10%	7,50	30,0
S012	**12**	**580**	**± 10%**	**9,00**	**36,0**
S018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



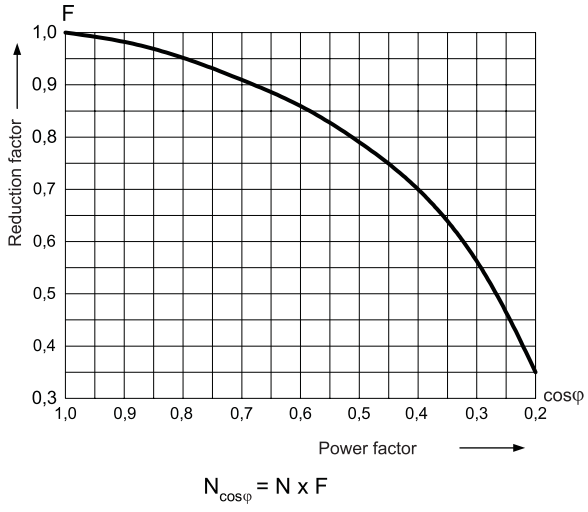
Connection diagram (pin side view)



1 NO

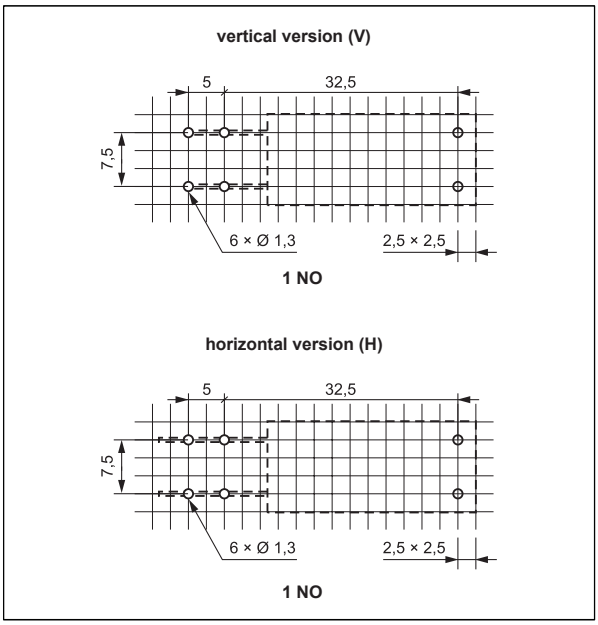
Terminal (pin)	A1(1); A2(2)	11(7); 14(8)
[mm]	Ø 0,6	1,2 x 0,8 faston 6,3 x 0,8
Drilling hole: • for relays	Ø 1,3 + 0,1 mm	

Electrical life reduction factor at AC inductive load Fig.1



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

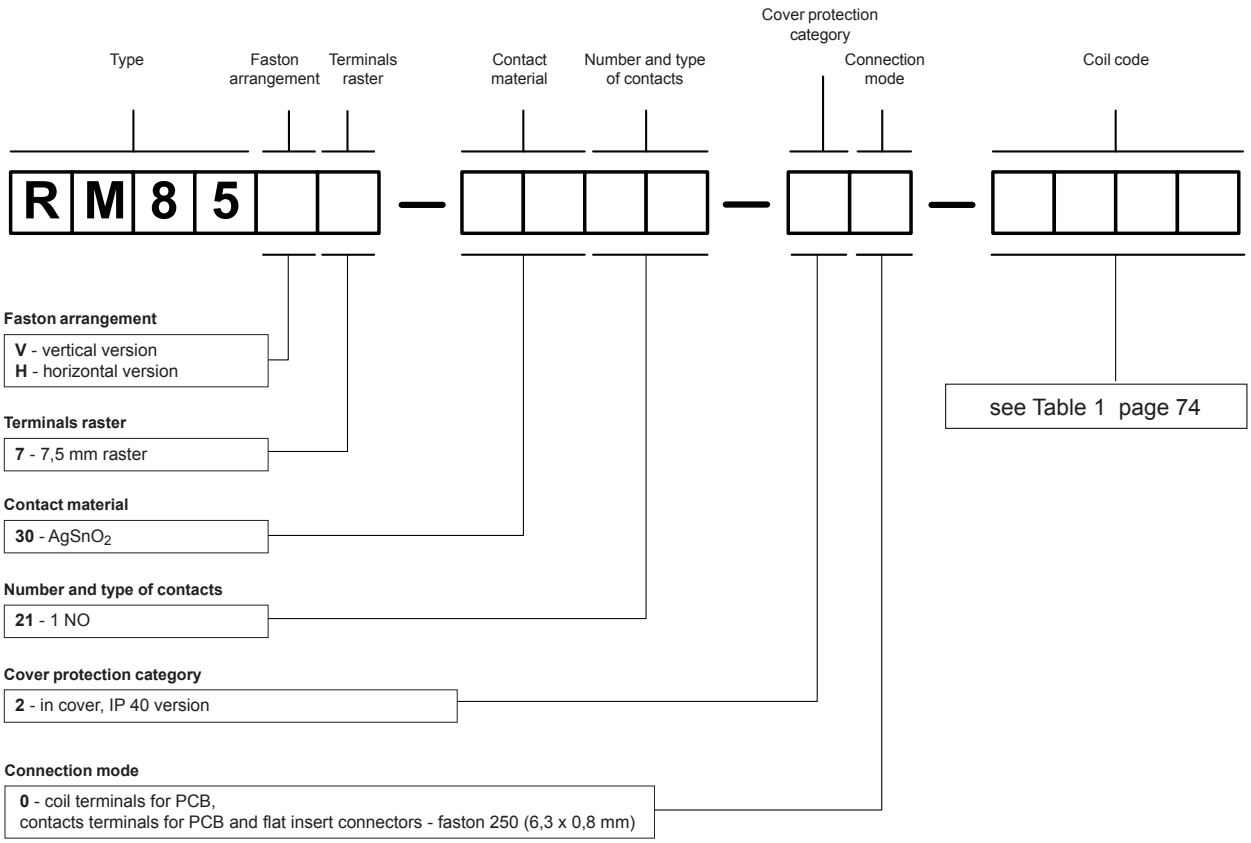
Pinout (solder side view)



Mounting

Relays **RM85 faston** are designed for: • direct PCB mounting • connection of load with flat insert connectors - faston 250 (6,3 x 0,8 mm).

Ordering codes



Example of ordering code:

RM85V7-3021-20-S012 relay **RM85 faston**, vertical version, 7,5 mm terminals raster, contact material $AgSnO_2$, with one normally open contact, in cover IP 40, coil terminals for PCB, contacts terminals for PCB and flat insert connectors - faston 250 (6,3 x 0,8 mm), sensitive voltage version 12 V DC

RM87N-...-01 ❶

RM87N sensitive

NEW product

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

Contact data

Number and type of contacts		1 C/O, 1 NO ❷ standard version 1 NO sensitive version
Contact material		**AgNi**, AgNi/Au 5 µm, $AgSnO_2$
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V $AgSnO_2$
Rated load (capacity)	AC1	12 A / 250 V AC standard version 10 A / 250 V AC sensitive version
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	12 A / 24 V DC standard version (see Fig. 3)
		10 A / 24 V DC sensitive version (see Fig. 4)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA $AgSnO_2$
Max. inrush current		25 A $AgSnO_2$ standard version 20 A $AgSnO_2$ sensitive version
Rated current		12 A standard version 10 A sensitive version
Max. breaking capacity	AC1	3 000 VA standard version 2 500 VA sensitive version
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 1 W $AgSnO_2$
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	50/60 Hz AC	12 ... 240 V standard version
	DC	3 ... 110 V standard version 5 ... 48 V sensitive version
Must release voltage		AC: ≥ 0,15 U_n DC: ≥ 0,1 U_n
Operating range of supply voltage		see Tables 1, 3 and Fig. 5, 7 standard version
		see Table 2 and Fig. 6 sensitive version
Rated power consumption	AC	0,75 VA standard version
	DC	0,4 ... 0,48 W standard version 0,25 W sensitive version

Insulation according to PN-EN 60664-1

Insulation rated voltage		400 V AC
Rated surge voltage		4 000 V 1,2 / 50 µs
Overvoltage category		III
Insulation pollution degree		3
Dielectric strength	• between coil and contacts	5 000 V AC type of insulation: reinforced
	• contact clearance	1 000 V AC type of clearance: micro-disconnection
		2 000 V AC contact 1 NO, type of clearance: full-disconnection ❷
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 12 A, 250 V AC standard version
(number of cycles)		> 1,7 x 10^5 10 A, 250 V AC sensitive version
	• 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 / vibration resistance		30 g / 10 g 10...150 Hz
Solder bath temperature / Soldering time		max. 270 °C / max. 5 s

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

❶ 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

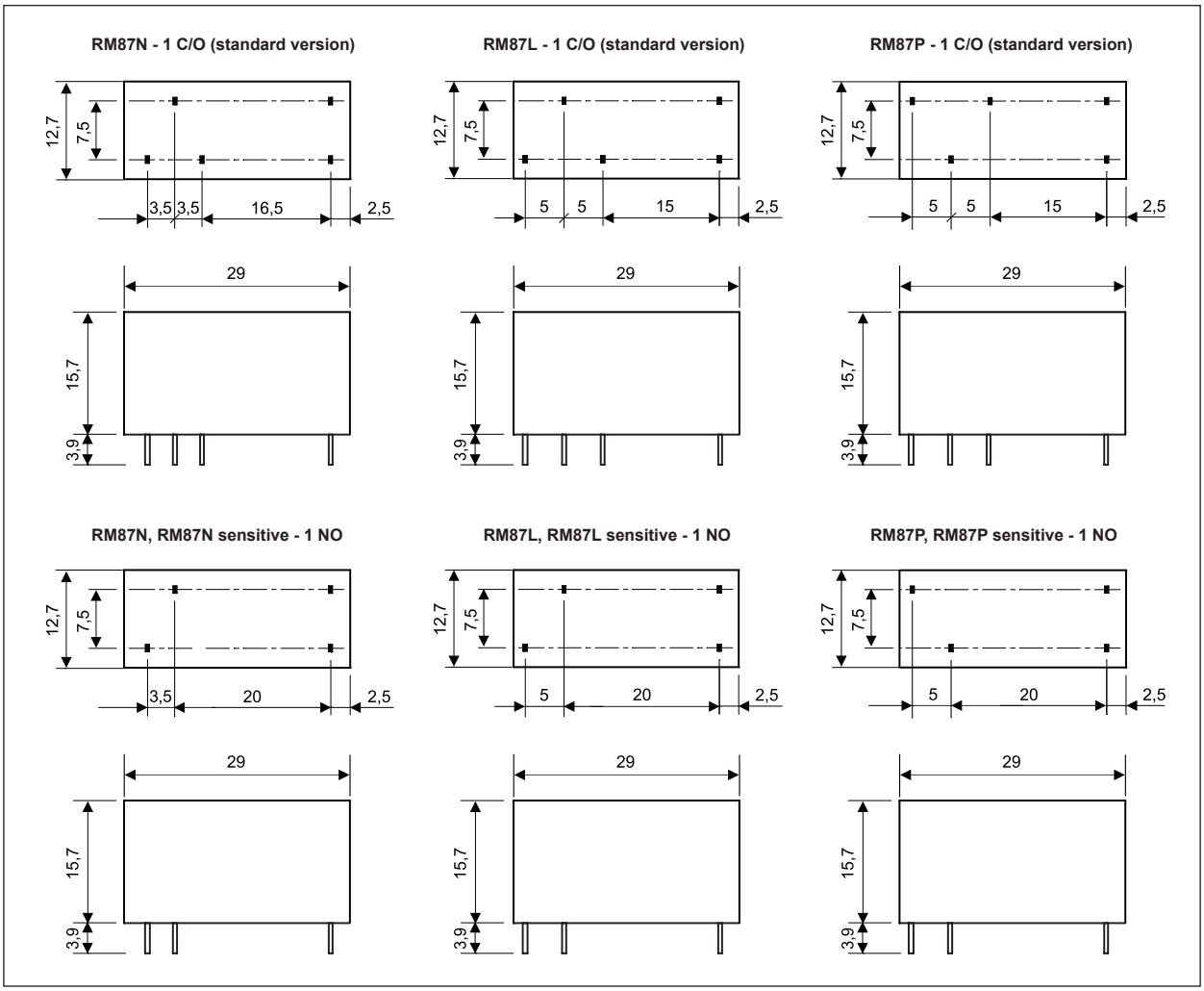
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
S005	5	102	± 10%	3,75	15,0
S006	6	144	± 10%	4,50	18,0
S009	9	330	± 10%	6,75	27,0
S010	10	400	± 10%	7,50	30,0
S012	12	580	± 10%	9,00	36,0
S018	18	1 300	± 10%	13,50	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

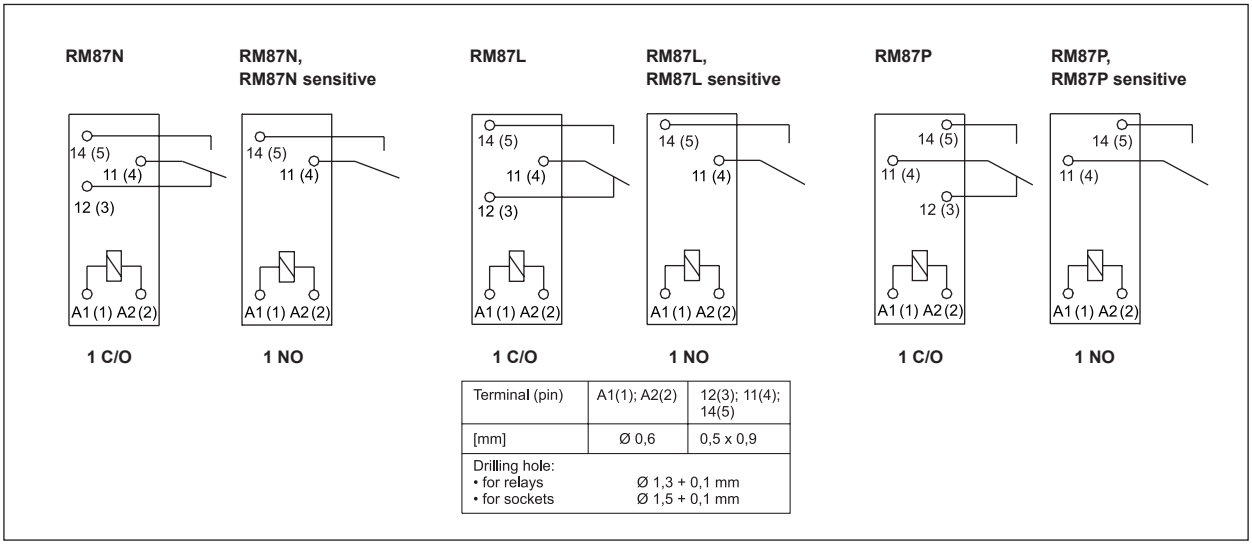
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC 50 Hz	
				min. (at 20 °C)	max. (at 20 °C)
5012	12	100	± 10%	9,6	13,2
5024	**24**	**400**	**± 10%**	**19,2**	**28,8**
5048	48	1 550	± 10%	38,4	57,6
5060	60	2 600	± 10%	48,0	72,0
5110	110	8 900	± 10%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

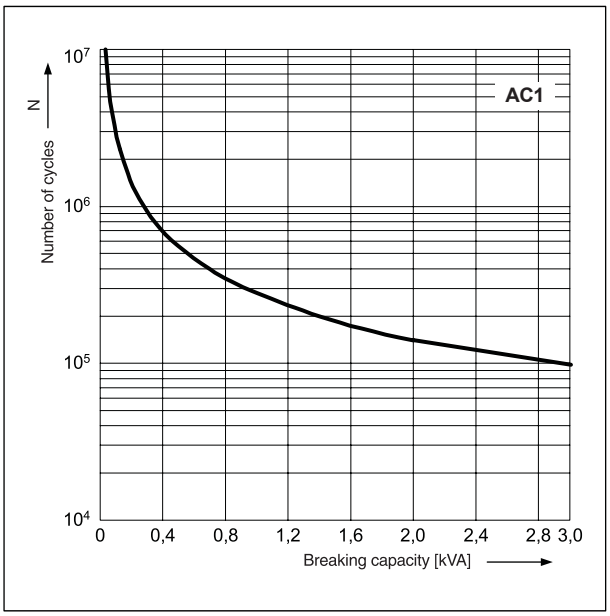


Connection diagrams (pin side view)

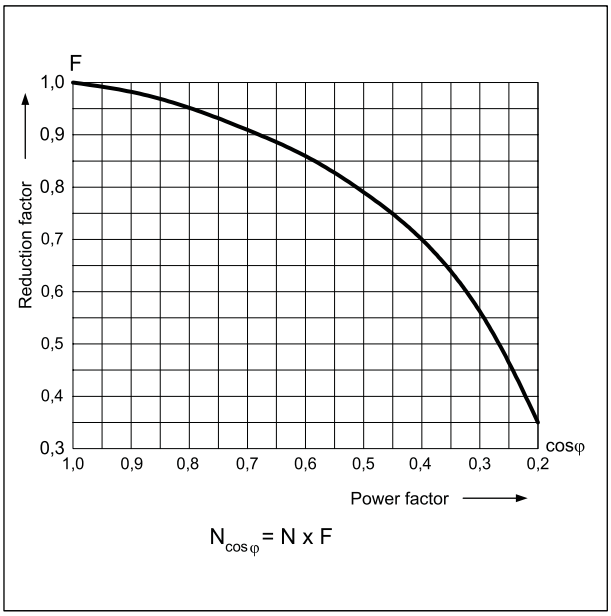


Terminal (pin)	A1(1); A2(2)	12(3); 11(4); 14(5)
[mm]	Ø 0,6	0,5 x 0,9
Drilling hole: • for relays • for sockets	Ø 1,3 + 0,1 mm Ø 1,5 + 0,1 mm	

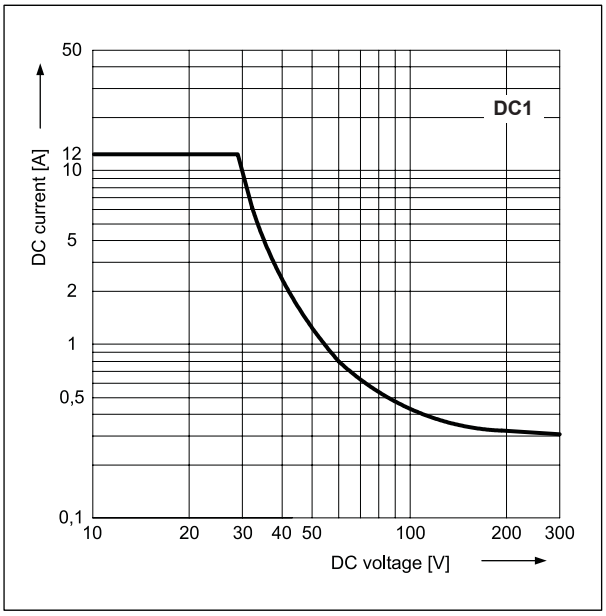
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



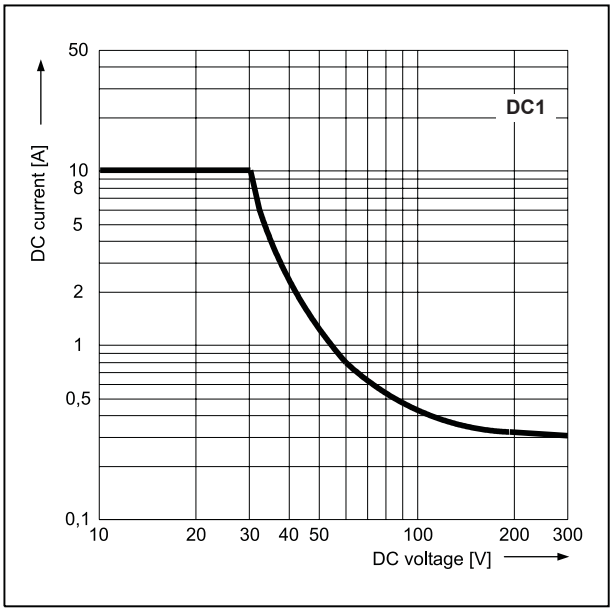
Electrical life reduction factor at AC inductive load Fig. 2



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

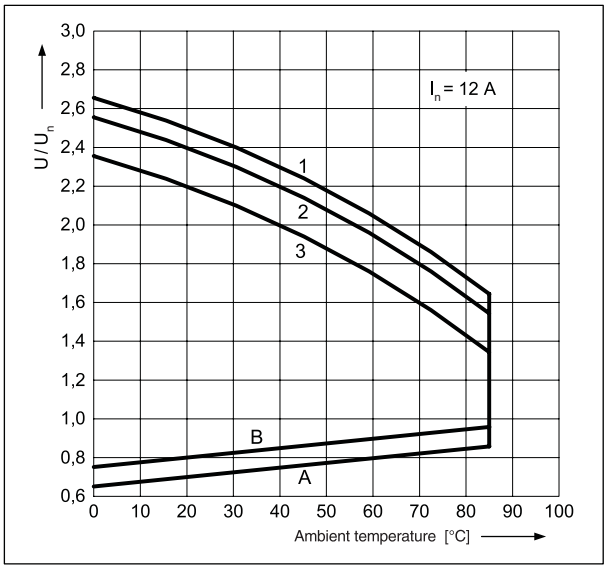


Max. DC resistive load breaking capacity - sensitive version Fig. 4



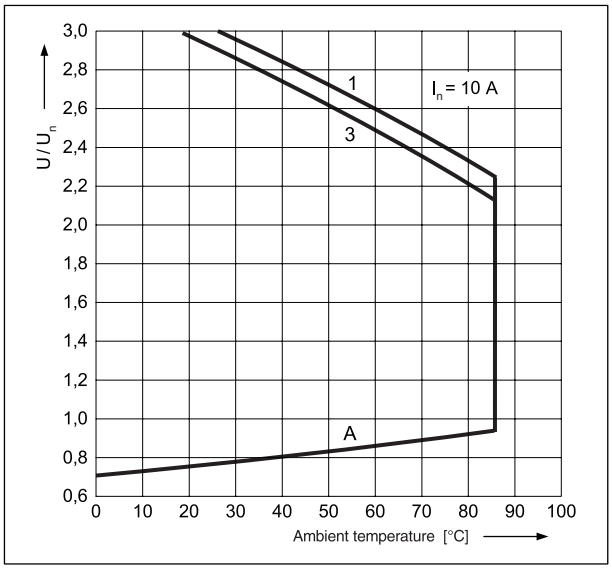
Coil operating range - DC - standard version

Fig. 5



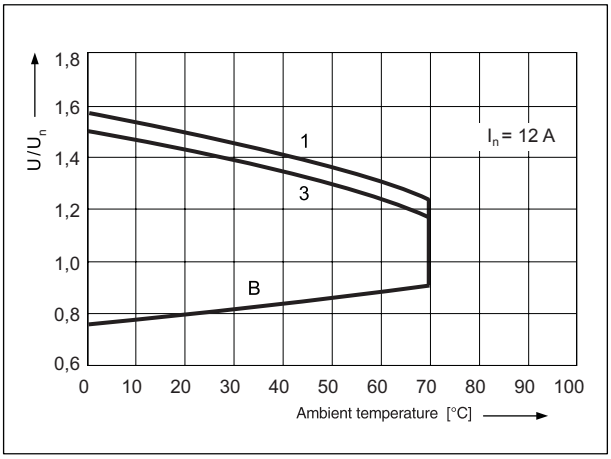
Coil operating range - DC - sensitive version

Fig. 6



Coil operating range - AC 50 Hz

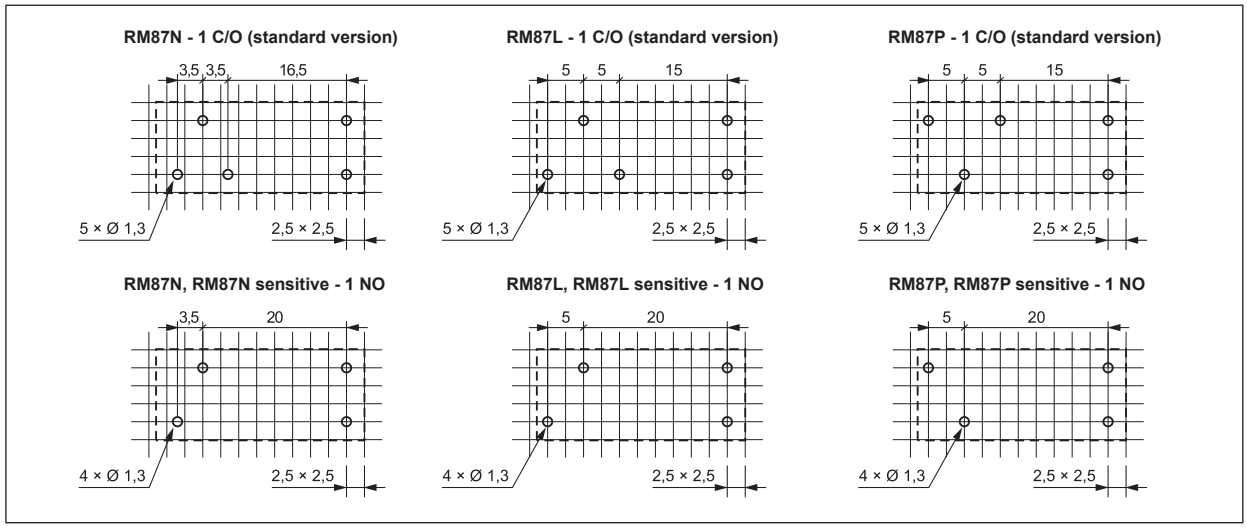
Fig. 7



Description of Fig. 5, 6 and 7

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

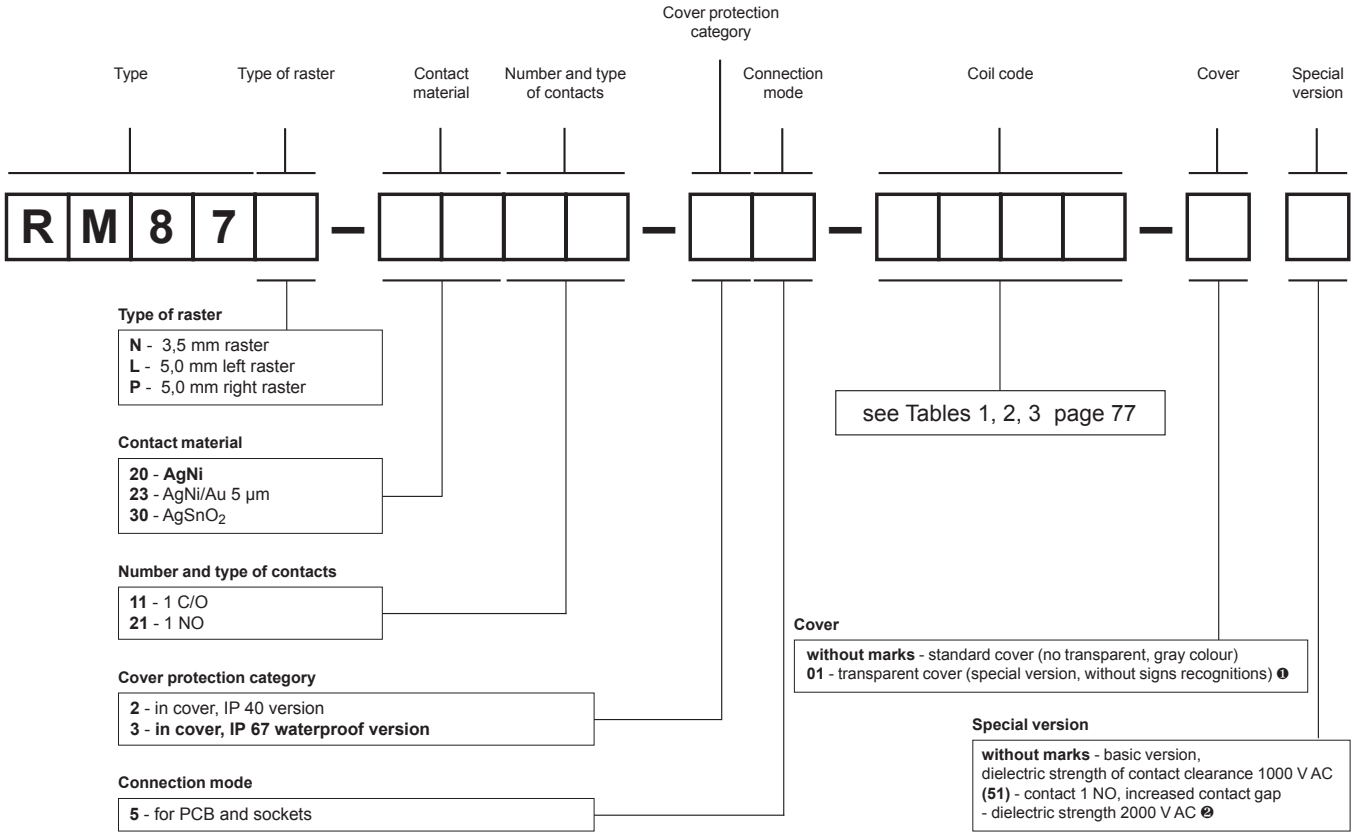
Relays **RM87N** ❸, **RM87N sensitive** are designed for: • direct PCB mounting • screw terminals plug-in sockets **GZT92** ❹ and **GZM92** ❹ with clip **GZT80-0040** or **GZM80-0041**; plug-in sockets **GZS92** ❹ with clip **GZS-0040** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw. Signalling / protecting modules **type M...** are available with sockets (see page 250) • plug-in sockets for PCB mounting **EC35** with clip **MP16-2**, MH16-2; plug-in sockets **GD35** with clip **MP16-2**, GD-0016, MH16-2.

Relays **RM87L** 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. Signalling / protecting modules **type M...** are available with sockets (see page 250) • plug-in sockets for PCB mounting **EC50** with clip **MP16-2**, MH16-2; plug-in sockets **PW80** with clip **MH16-2**; plug-in sockets **GD50** with clip **MP16-2**, GD-0016, MH16-2.

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

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

Ordering codes



Examples of ordering code:

RM87N-2011-25-1012-01 relay **RM87N**, 3,5 mm raster, contact material AgNi, with one changeover contact, in transparent cover (special version, without signs recognitions) ❶ IP 40, for PCB and sockets, voltage version 12 V DC

RM87N-2021-35-1024 (51) relay **RM87N**, 3,5 mm raster, contact material AgNi, with one normally open contact, special version ❷ with increased contact gap, in standard cover (no transparent, gray colour) IP 67, for PCB and sockets, voltage version 24 V DC

RM87P-3021-25-S012 relay **RM87P sensitive**, 5 mm right raster, contact material $AgSnO_2$, with one normally open contact, in standard cover (no transparent, gray colour) IP 40, for PCB and sockets, sensitive voltage version 12 V DC

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

Contact data

Number and type of contacts		1 C/O
Contact material		**AgNi**, AgNi/Au 5 µm, $AgSnO_2$
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V AgNi, 5 V AgNi/Au 5 µm, 10 V $AgSnO_2$
Rated load (capacity)	AC1	12 A / 250 V AC
	AC15	3 A / 120 V 1,5 A / 240 V (B300)
	AC3	750 W (single-phase motor)
	DC1	12 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 2 mA AgNi/Au 5 µm, 10 mA $AgSnO_2$
Max. inrush current		25 A $AgSnO_2$
Rated current		12 A
Max. breaking capacity	AC1	3 000 VA
Min. breaking capacity		0,3 W AgNi, 0,05 W AgNi/Au 5 µm, 1 W $AgSnO_2$
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

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

Insulation according to PN-EN 60664-1

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

General data

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

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

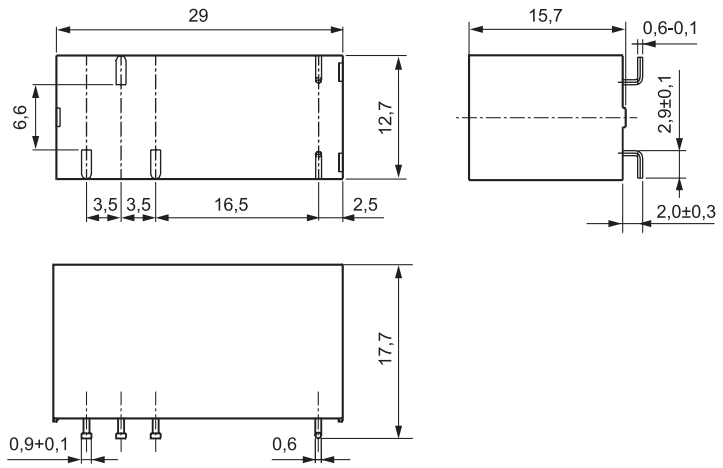
Coil data - DC voltage version Table 1

Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1003	3	22	± 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

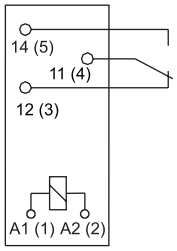
Coil data - AC 50/60 Hz voltage version Table 2

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



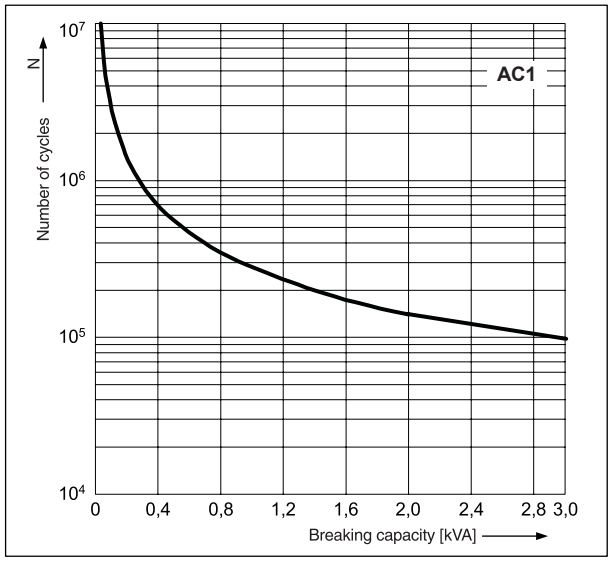
Connection diagram
(pin side view)



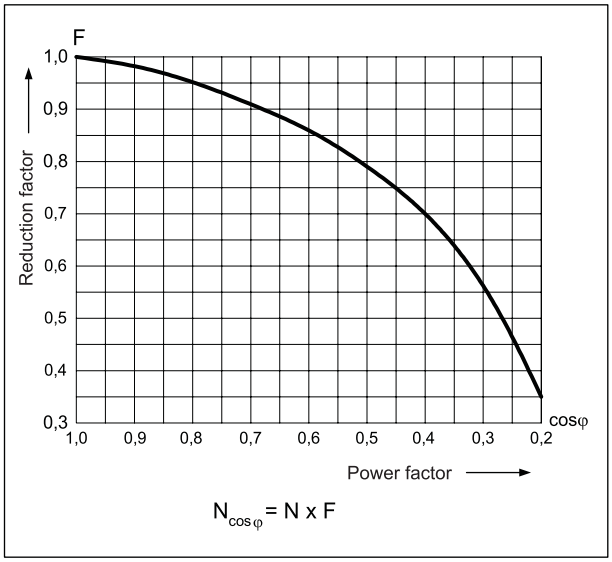
RM87N
1 C/O

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

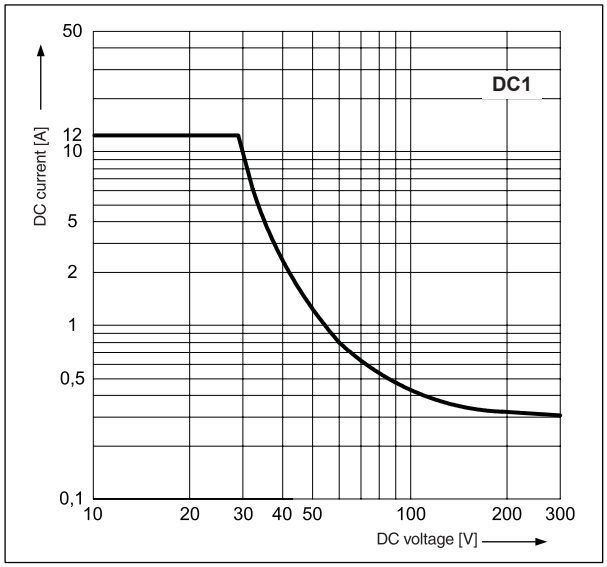
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



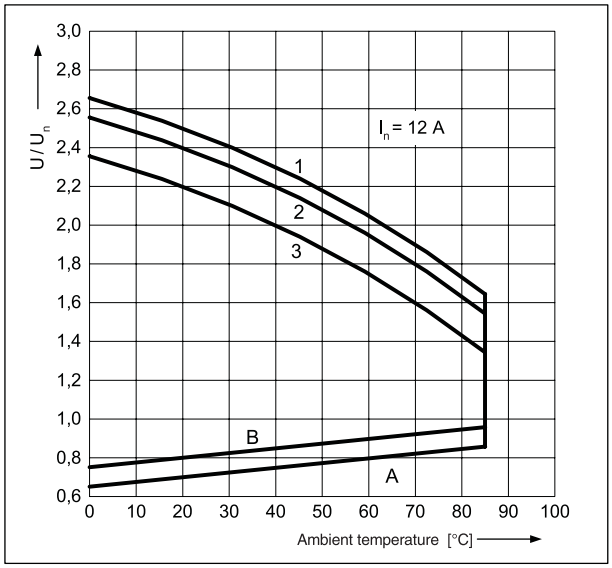
Electrical life reduction factor at AC inductive load Fig. 2



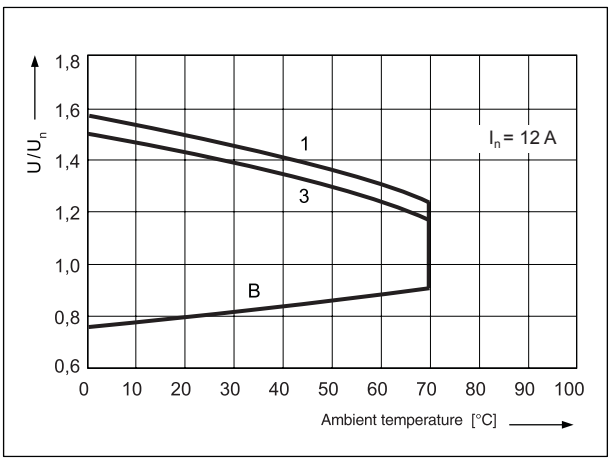
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



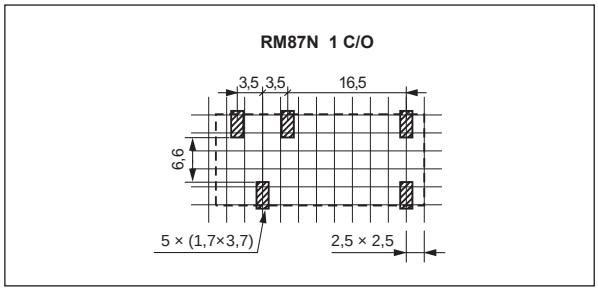
Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

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

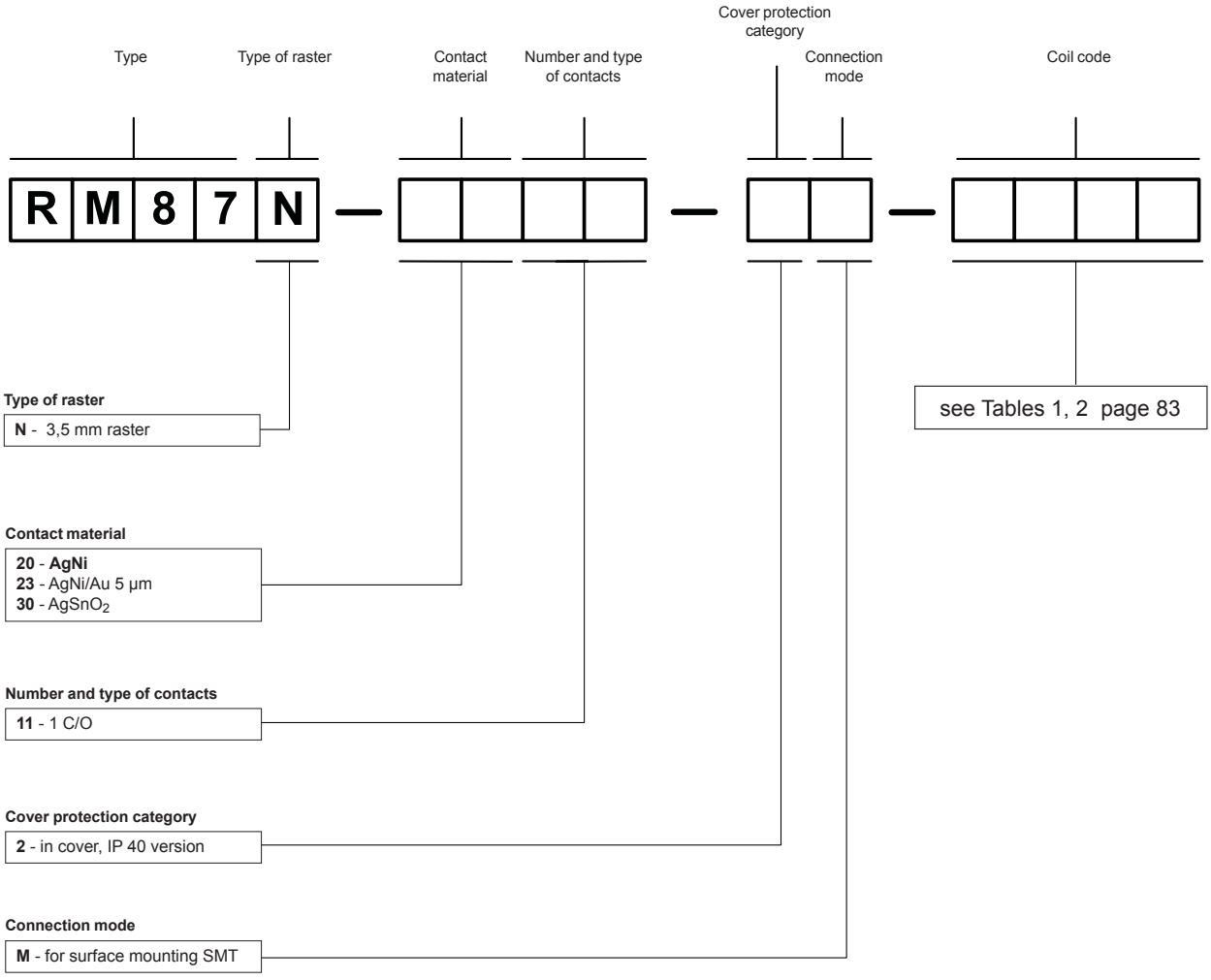
Soldering areas (solder side view)



Mounting

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

Ordering codes



Example of ordering code:

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

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

Contact data

Number and type of contacts		1 C/O, 1 NO, 1 NC
Contact material		**$AgSnO_2$**, $AgSnO_2$/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, 1/2 HP / 250 V AC UL 508)
	DC1	8 A / 24 V DC (see Fig. 1)
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		10 mA $AgSnO_2$, 2 mA $AgSnO_2$/Au 3 µm, 5 mA AgCdO
Max. inrush current		15 A
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		1 W $AgSnO_2$, 0,05 W $AgSnO_2$/Au 3 µm, 0,5 W AgCdO
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

Rated voltage	DC	5 ... 48 V
Must release voltage		DC: ≥ 0,1 U_n
Operating range of supply voltage		see Table 1
Rated power consumption	DC	0,22...0,3 W

Insulation according to PN-EN 60664-1

Insulation rated voltage	400 V AC
Rated surge voltage	4 000 V 1,2 / 50 µs
Overvoltage category	III
Insulation pollution degree	3
Dielectric strength	
• between coil and contacts	4 000 V AC type of insulation: reinforced
• contact clearance	1 000 V AC type of clearance: micro-disconnection
Contact - coil distance	
• clearance	≥ 8 mm
• creepage	≥ 8 mm

General data

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

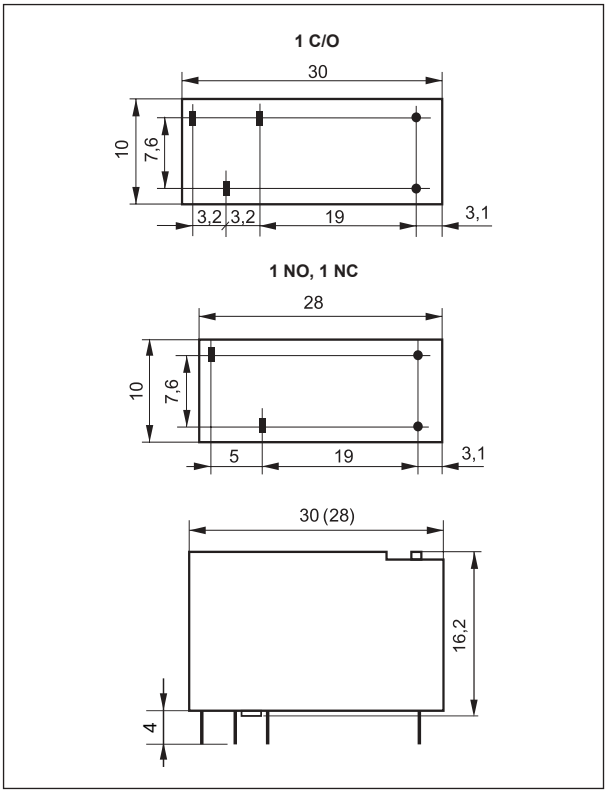
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version Table 1

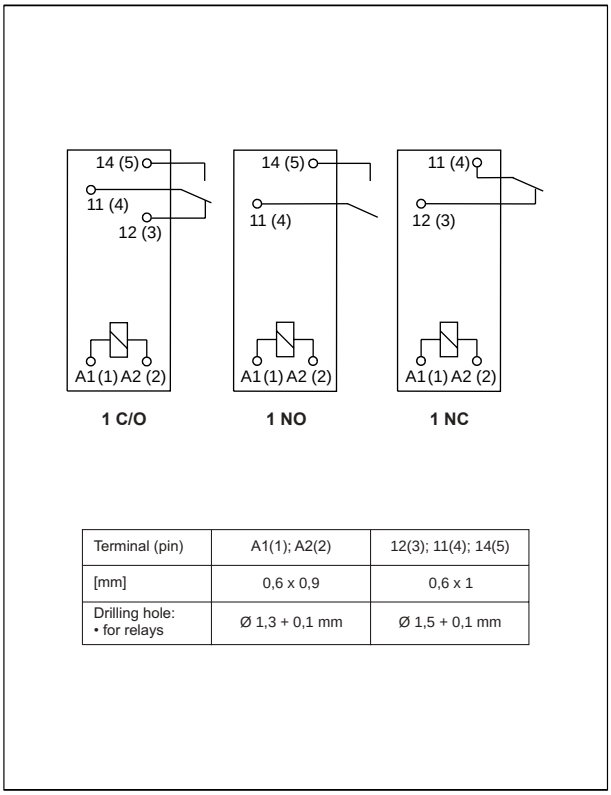
Coil code	Rated voltage V DC	Coil resistance ±10% at 20 °C Ω	Coil operating range at 20 °C V DC	
			min.	max.
1005	5	110	3,5	12,0
1006	6	160	4,2	14,5
1009	9	360	6,3	22,0
1012	**12**	**660**	**8,4**	**29,5**
1018	18	1 500	12,6	44,0
1024	**24**	**2 200**	**16,8**	**54,0**
1048	48	8 000	33,6	102,0

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

Dimensions

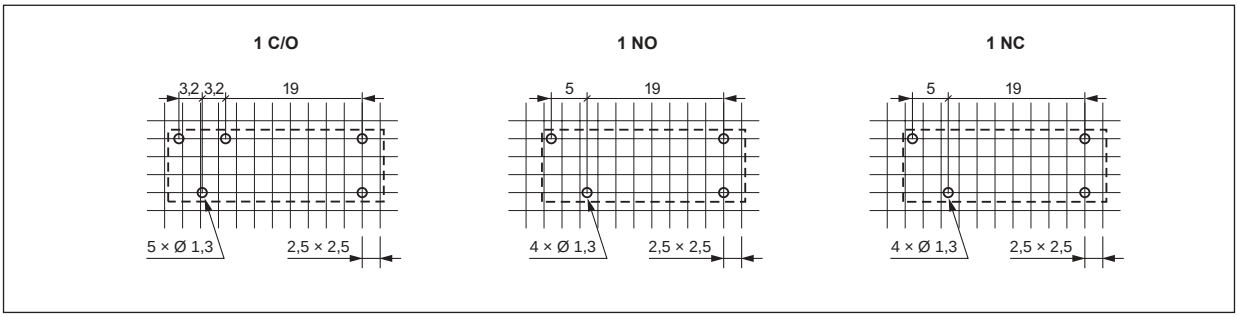


Connection diagrams (pin side view)



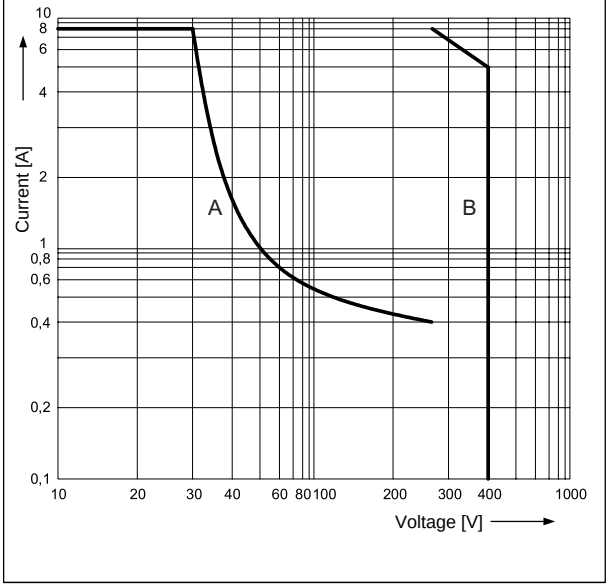
Terminal (pin)	A1(1); A2(2)	12(3); 11(4); 14(5)
[mm]	0,6 x 0,9	0,6 x 1
Drilling hole: • for relays	Ø 1,3 + 0,1 mm	Ø 1,5 + 0,1 mm

Pinout (solder side view)



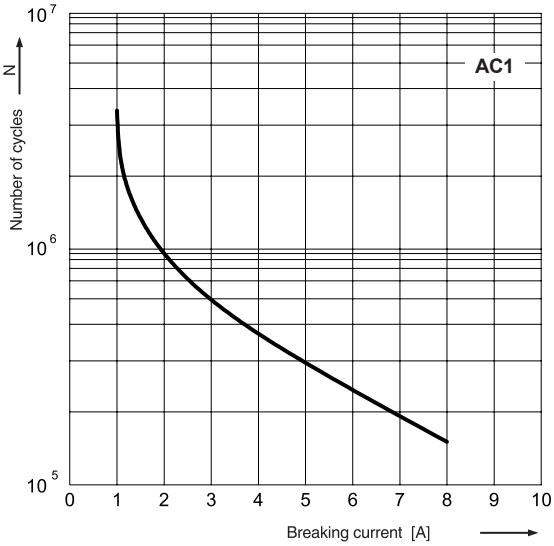
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1

Fig. 1



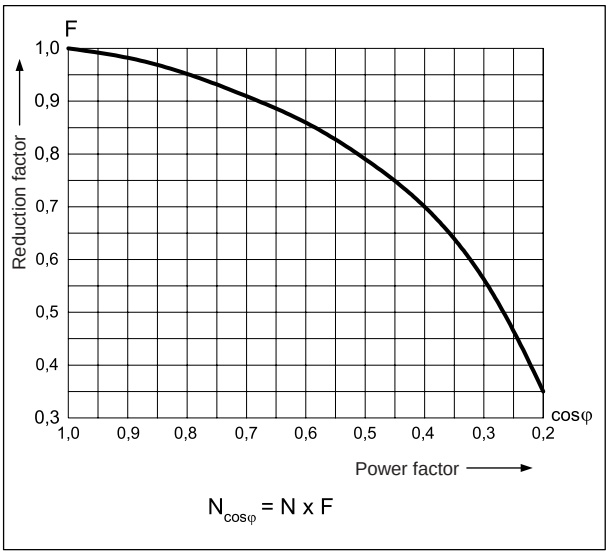
Electrical life at AC1 resistive load for version 1 NO

Fig. 2



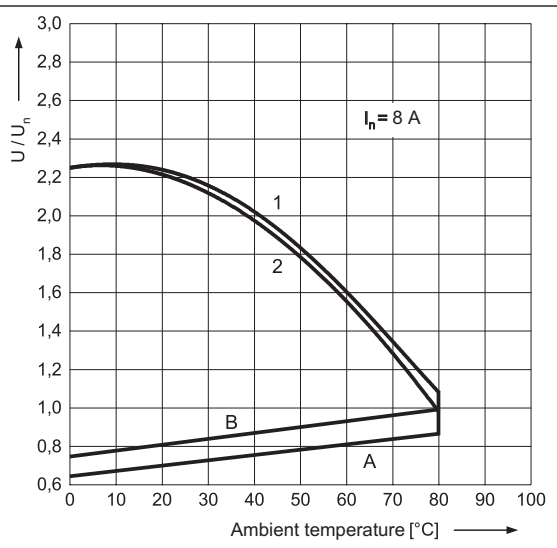
Electrical life reduction factor at AC inductive load

Fig. 3



Coil operating range - DC

Fig. 4



Description of Fig. 4

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

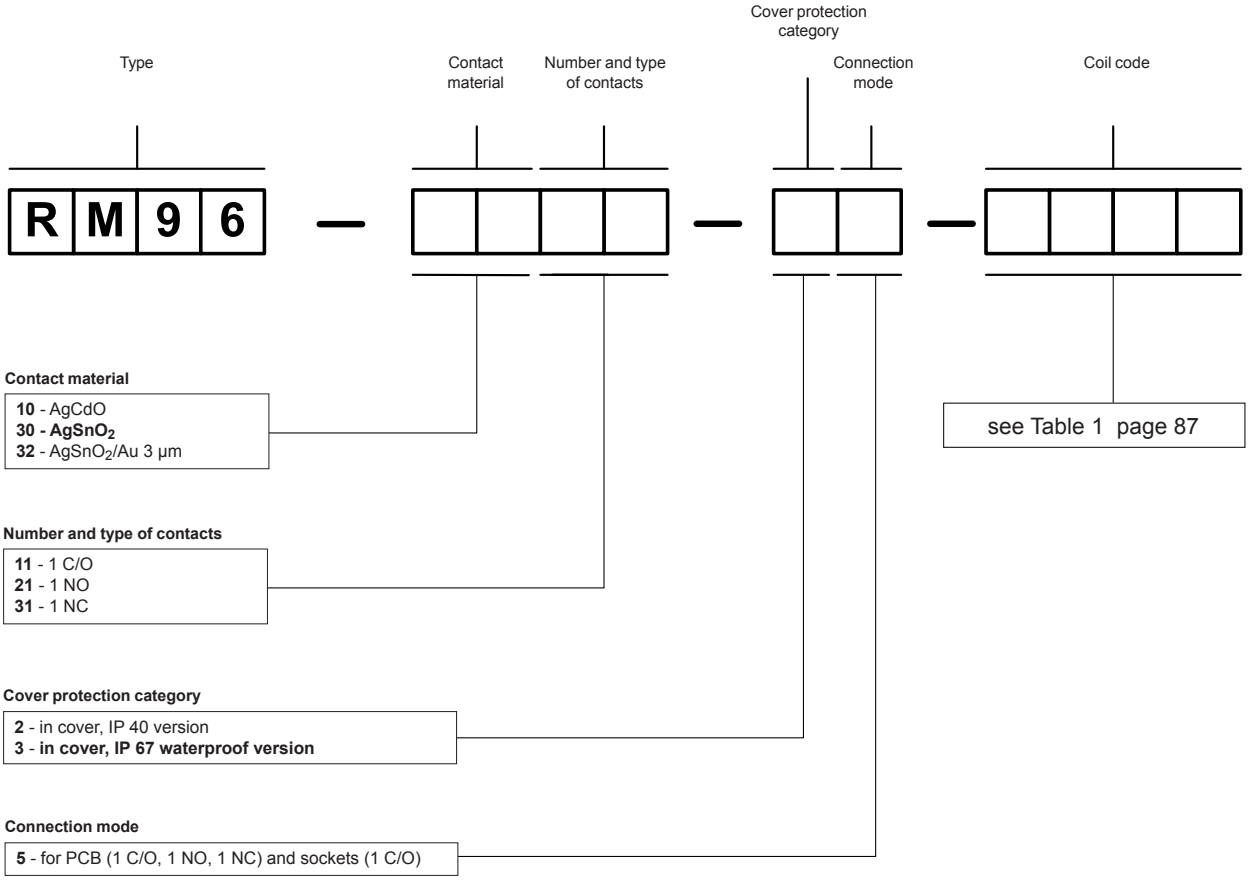
Mounting

Relays **RM96 1 C/O** (one changeover contact) are designed for: • direct PCB mounting • screw terminals plug-in sockets **ES 32** □ with clip **MS16** or **GZM80-0041**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with one M3 screw. Signalling / protecting modules **type M...** are available with sockets (see page 250).

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

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

Ordering codes



Examples of ordering codes:

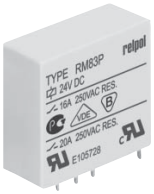
RM96-3011-35-1012 relay **RM96**, contact material $AgSnO_2$, with one changeover contact, in cover IP 67, for PCB and sockets, voltage version 12 V DC

RM96-3031-25-1024 relay **RM96**, contact material $AgSnO_2$, with one normally closed contact, in cover IP 40, for PCB, voltage version 24 V DC

Print on relay cover

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

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



□

- Miniature dimensions • General purpose relays
- **Version 1 NO $AgSnO_2$ 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 C/O, 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		
• 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.
□ Special version available: relays in transparent cover - see "Ordering codes".

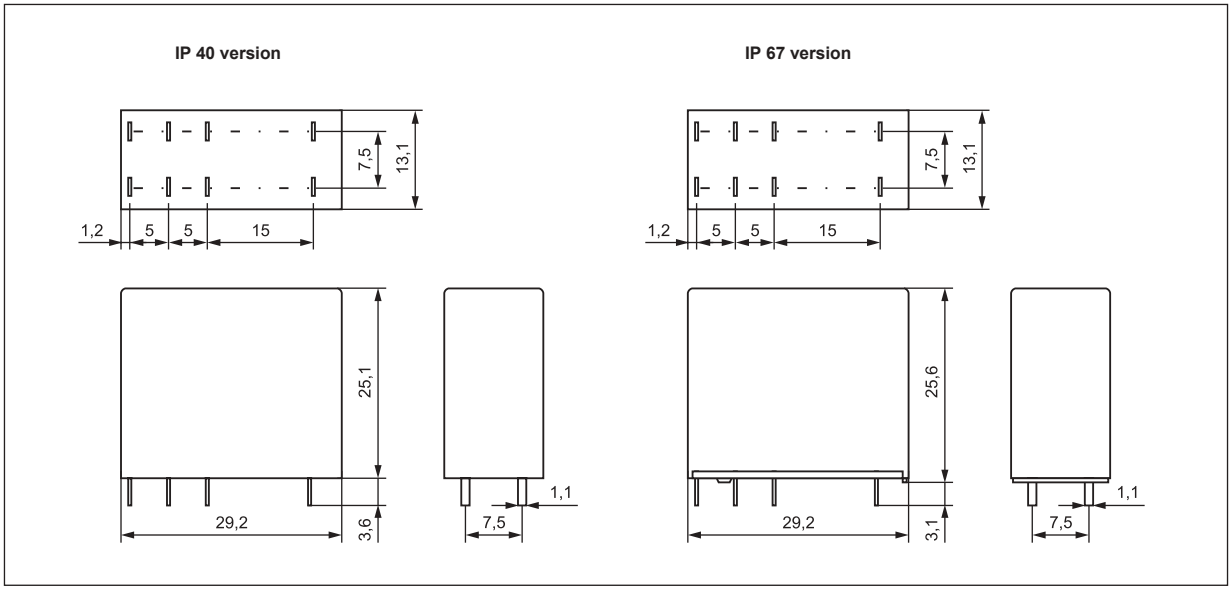
Coil data - DC voltage version

Table 1

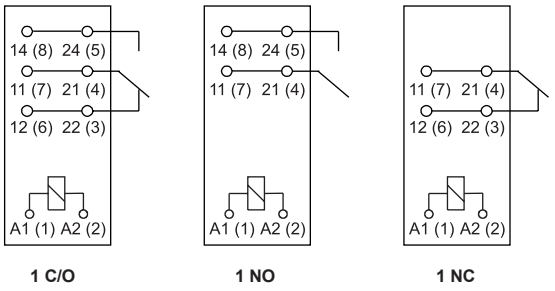
Coil code		Rated voltage V DC	Coil resistance ± 10% at 20 °C Ω	Coil operating range at 20 °C V DC	
standard version	sensitive version			min.	max.
1005	–	5	49	3,5	8,9
1006	–	6	68	4,2	10,6
1009	–	9	110	6,3	15,9
1012	–	**12**	**260**	**8,4**	**21,2**
1018	–	18	550	12,6	31,8
1024	–	**24**	**1 100**	**16,8**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

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

Dimensions



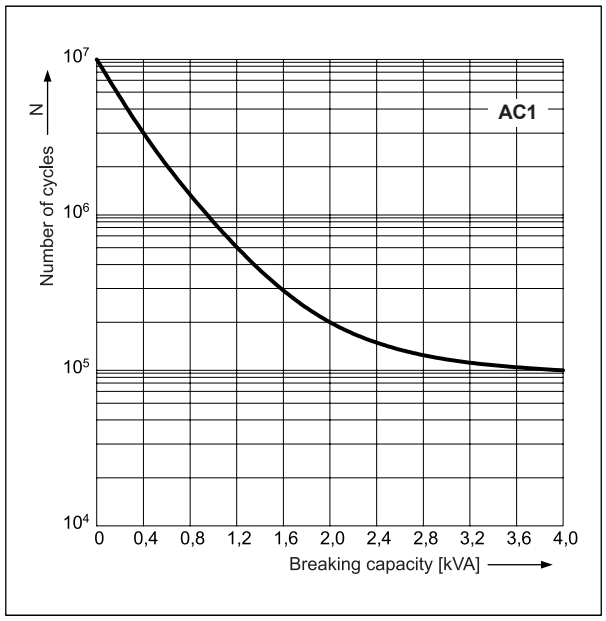
Connection diagrams (pin side view)



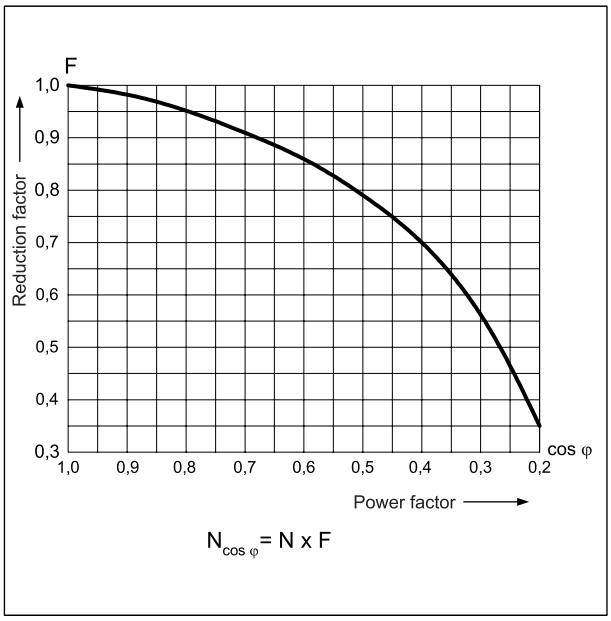
Terminal (pin)	A1(1); A2(2)	21(4); 11(7)	22 (3); 24 (5); 12 (6); 14 (8)
[mm]	0,4 x 1,1	0,2 x 1,1	0,4 x 1,1
Drilling hole: • for relays	Ø 1,3 + 0,1 mm		

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

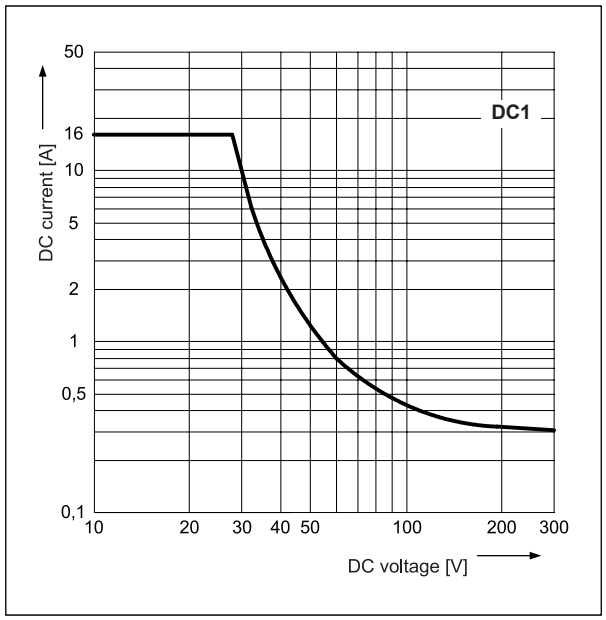
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



Electrical life reduction factor at AC inductive load Fig. 2



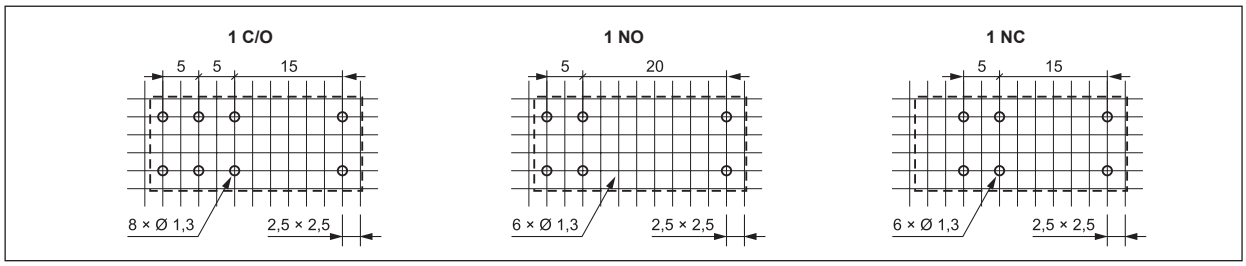
Max. DC resistive load breaking capacity Fig. 3



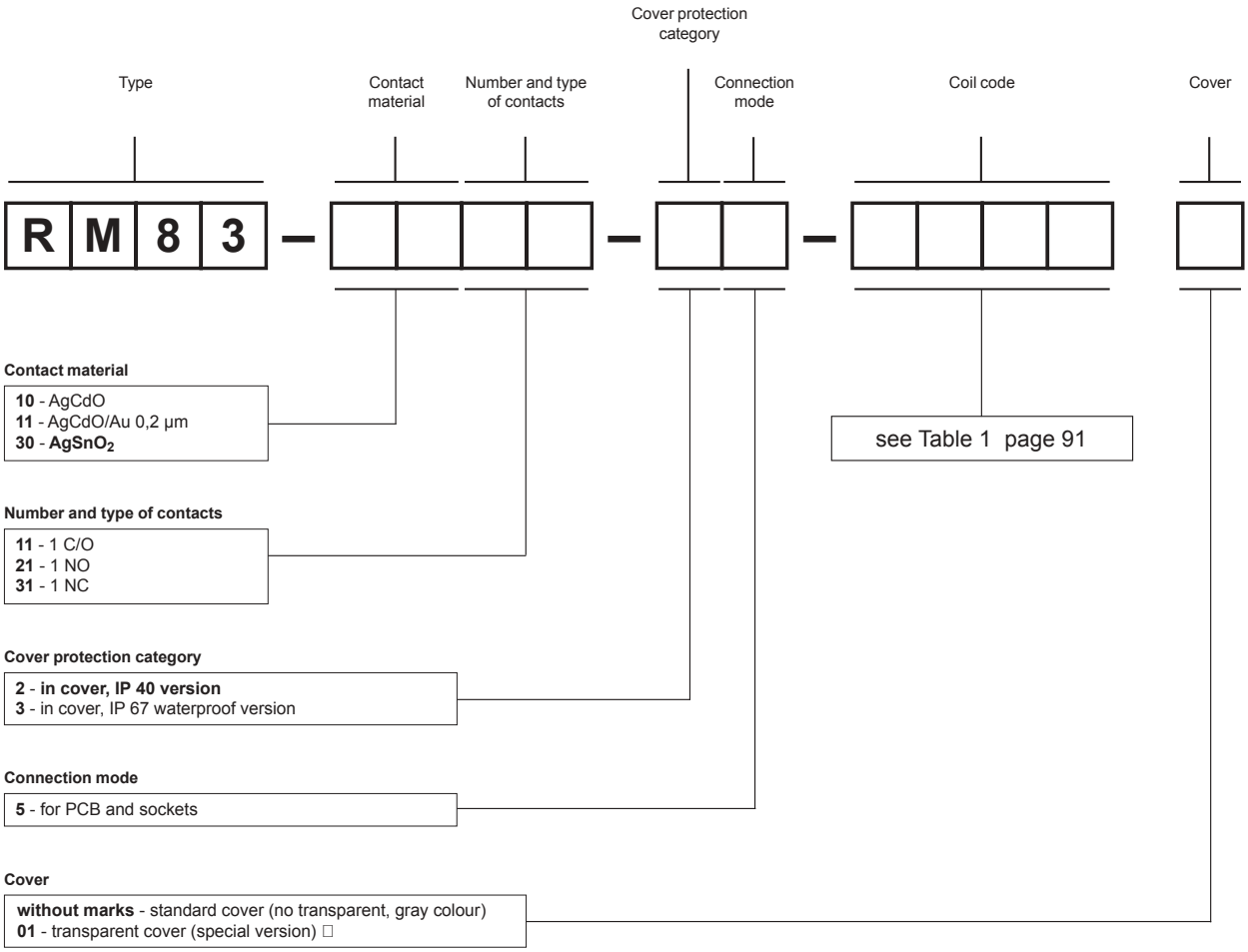
Mounting

Relays **RM83** are designed for: • direct PCB mounting • plug-in sockets for PCB mounting **EC50** with clip **MP25-2**, MH25-2, GD-0025, RM81-0001; plug-in sockets **PW80** with clip **MH25-2**, GD-0025, RM81-0001; plug-in sockets **GD50** with clip **MP25-2**, GD-0025, MH25-2, RM81-0001.

Pinout (solder side view)



Ordering codes



Examples of ordering code:

RM83-3011-25-1024 relay **RM83**, contact material AgSnO2, with one changeover contact, in standard cover (no transparent, gray colour) IP 40, for PCB and sockets, voltage version 24 V DC

RM83-3011-25-S110 relay **RM83**, contact material AgSnO2, with one changeover contact, in standard cover (no transparent, gray colour) IP 40, for PCB and sockets, sensitive voltage version 110 V DC

RM83-3021-35-1012-01 relay **RM83**, contact material AgSnO2, with one normally open contact, in transparent cover (special version) □ IP 67, for PCB and sockets, voltage version 12 V DC

□

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

Contact data

Number and type of contacts		1 C/O, 1 NO, 1 NC
Contact material		**AgCu/Au 0,2 µm**, AgCdO, AgCdO/Au 3 µm
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V AgCu/Au 0,2 µm, 10 V AgCdO, 5 V AgCdO/Au 3 µm
Rated load	AC1	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		
• resistive AC1		> 2 x 10^5 8 A, 250 V AC
• cosϕ		see Fig. 2
Mechanical life (cycles)		> 3 x 10^7
Motor load according to UL 508		1/4 HP 120 V AC, single-phase motor
Dimensions (L x W x H)		IP 40: 28 x 11,5 x 26 mm
		IP 67: 28 x 11,5 x 26,5 mm
Weight		17 g
Ambient temperature	• storage	-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.
□ Special version available: relays in transparent cover - see "Ordering codes".

Coil data - standard DC voltage version

Table 1

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

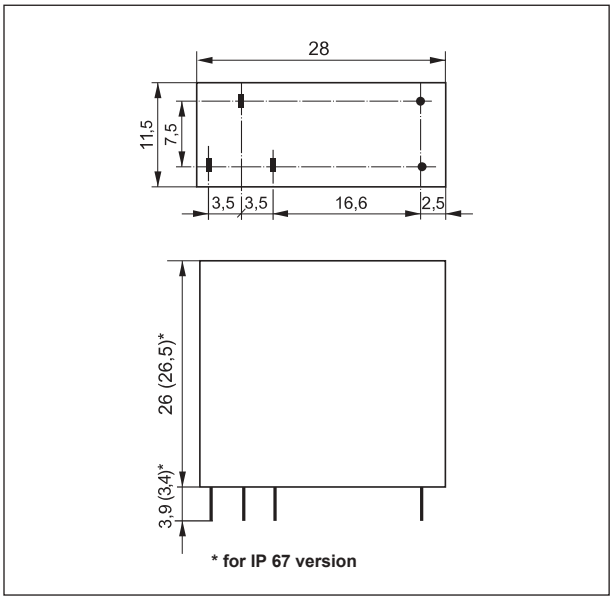
The data in bold type pertain to the standard versions of the relays.

Coil data - sensitive DC voltage version

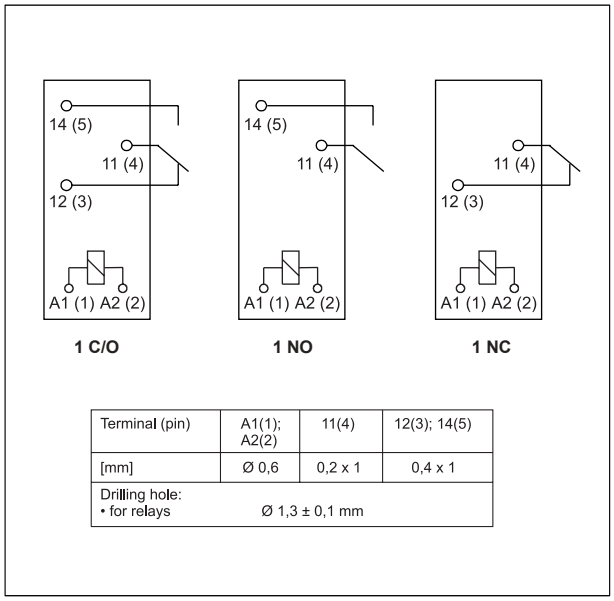
Table 2

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

Dimensions



Connection diagrams (pin side view)



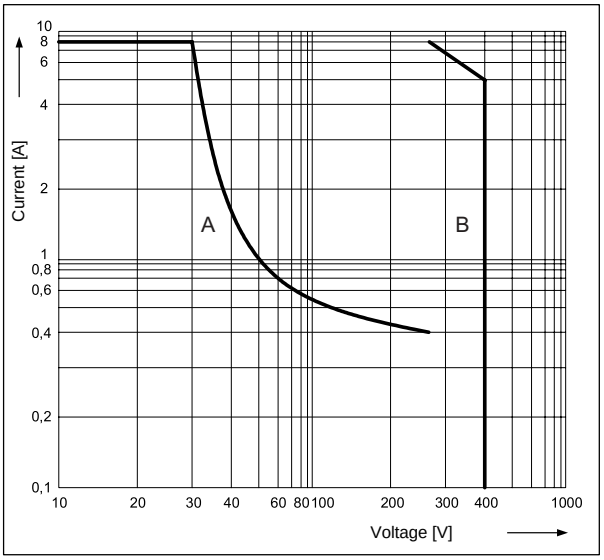
Terminal (pin)	A1(1); A2(2)	11(4)	12(3); 14(5)
[mm]	Ø 0,6	0,2 x 1	0,4 x 1
Drilling hole: • for relays	Ø 1,3 ± 0,1 mm		

Mounting

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

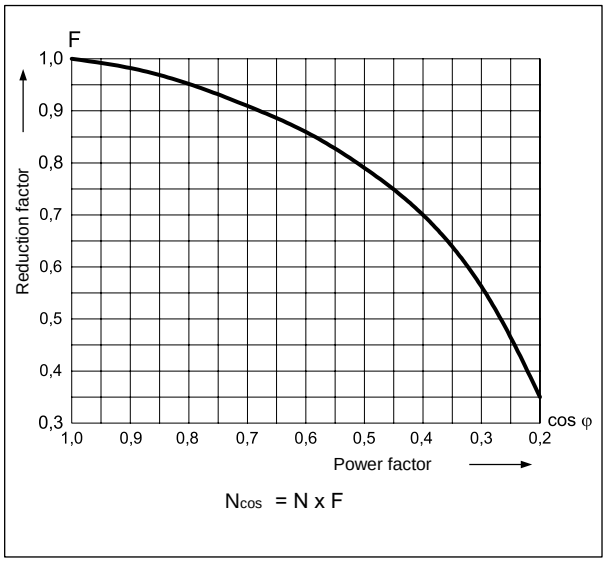
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1

Fig. 1



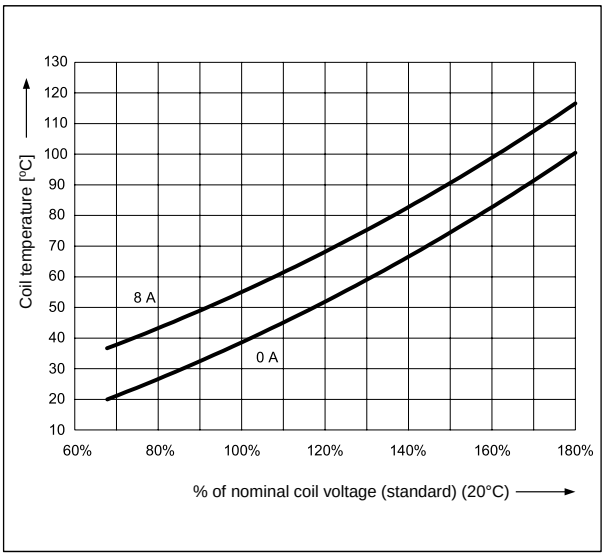
Electrical life reduction factor at AC inductive load

Fig. 2



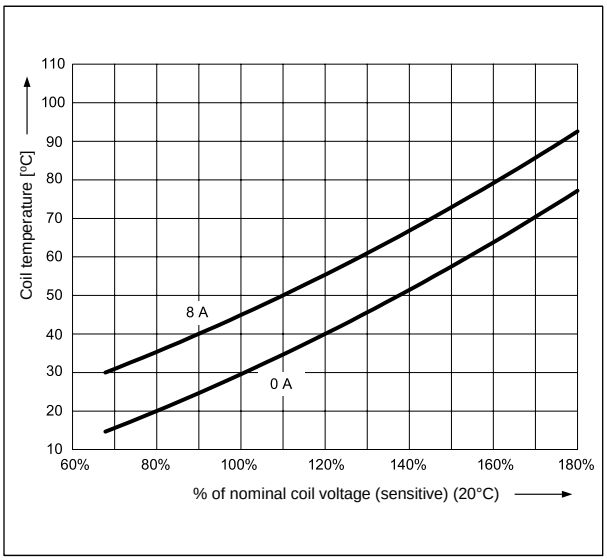
Coil temperature rise - standard version

Fig. 3

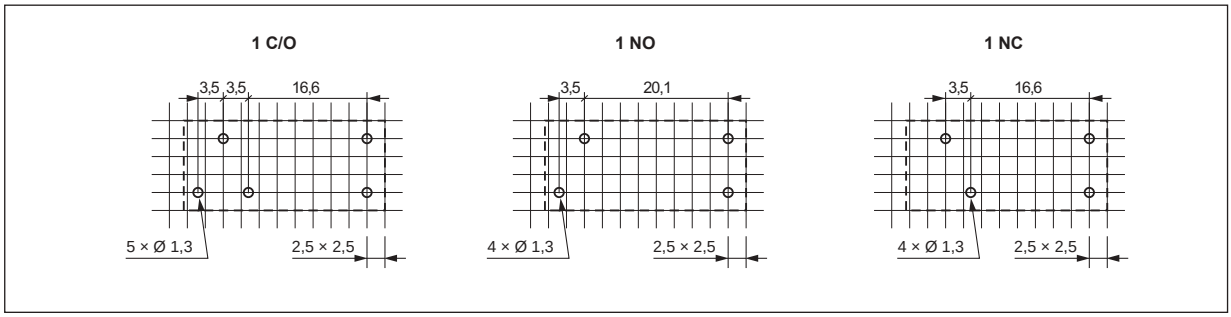


Coil temperature rise - sensitive version

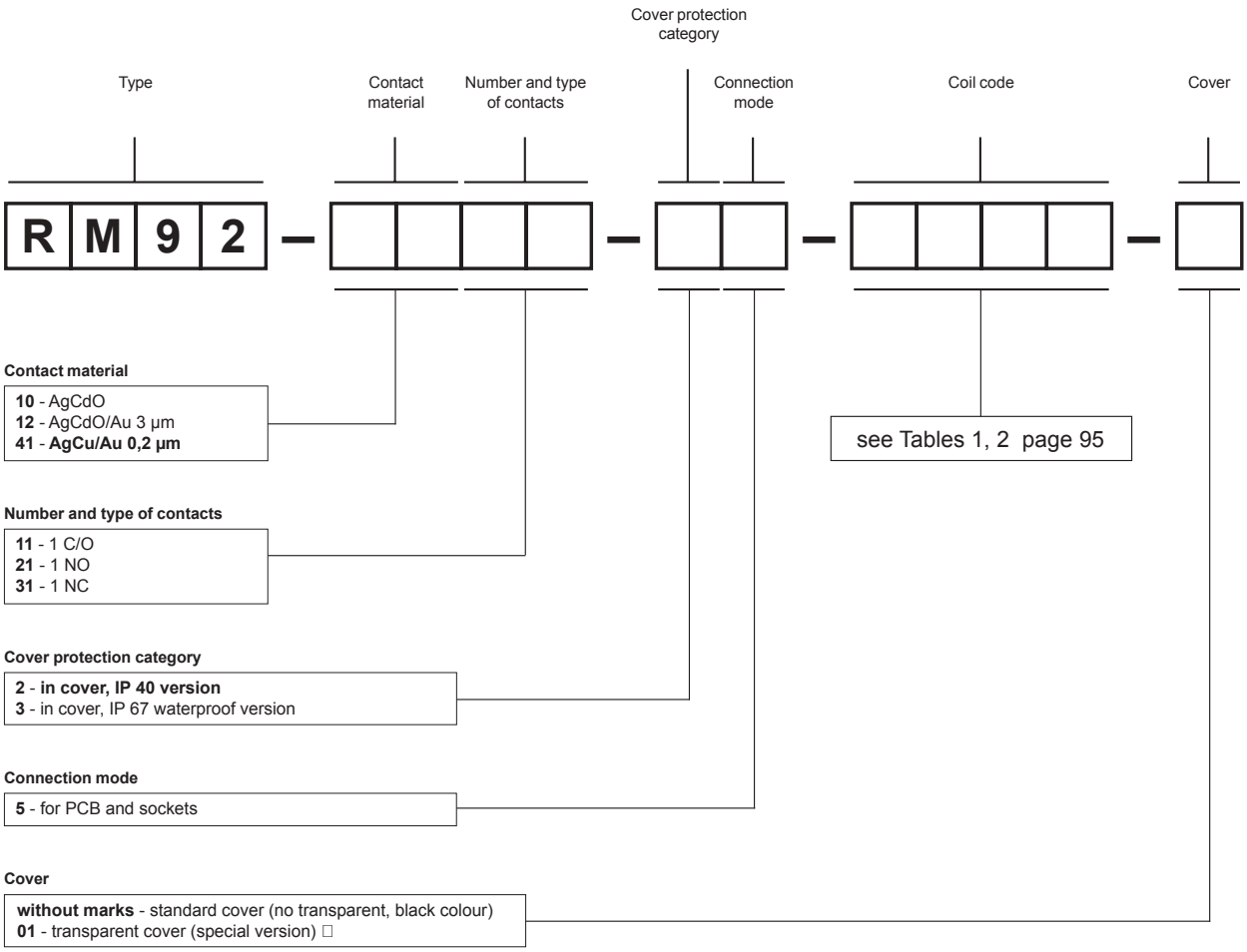
Fig. 4



Pinout (solder side view)



Ordering codes



Examples of ordering codes:

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

RM92-4121-35-S024 relay **RM92**, contact material AgCu/Au 0,2 µm, with one normally open contact, in standard cover (no transparent, black colour) IP 67, for PCB and sockets, sensitive voltage version 24 V DC

RM92-4131-35-1012-01 relay **RM92**, contact material AgCu/Au 0,2 µm, with one normally closed contact, in transparent cover (special version) □ IP 67, for PCB and sockets, voltage version 12 V DC

Print on relay cover

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

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

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

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

Contact data

Number and type of contacts		2 C/O, 2 NO, 2 NC
Contact material		**AgCu/Au 0,2 µm**, AgCdO, AgCdO/Au 3 µm
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V AgCu/Au 0,2 µm, 10 V AgCdO, 5 V AgCdO/Au 3 µm
Rated load	AC1	8 A / 250 V AC
	DC1	8 A / 24 V DC
Min. switching current		5 mA AgCu/Au 0,2 µm, 5 mA AgCdO, 2 mA AgCdO/Au 3 µm
Rated current		8 A
Max. breaking capacity	AC1	2 000 VA
Min. breaking capacity		0,5 W AgCu/Au 0,2 µm, 0,5 W AgCdO, 0,05 W AgCdO/Au 3 µm
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	600 cycles/hour
• no load		72 000 cycles/hour

Coil data

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

Insulation according to PN-EN 60664-1

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

General data

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

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

Coil data - standard DC voltage version — Table 1

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

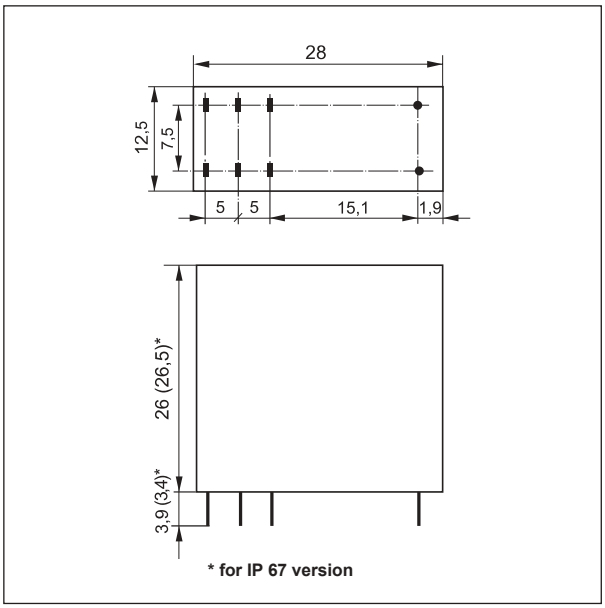
The data in bold type pertain to the standard versions of the relays.

Coil data - sensitive DC voltage version — Table 2

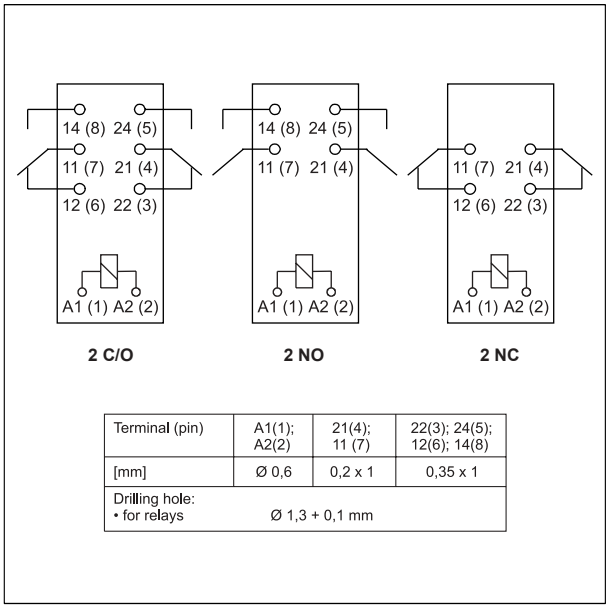
Coil code	Rated voltage V DC	Coil resistance ±10% at 20 °C Ω	Coil operating range at 20 °C V DC	
			min.	max.
S005	5	47	3,5	8,5
S006	6	70	4,4	10,3
S012	**12**	**270**	**8,8**	**20,3**
S024	**24**	**1 100**	**17,5**	**41,0**
S036	36	2 000	24,0	55,0
S048	48	4 400	35,0	82,0
S060	60	6 500	44,0	100,0
S110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

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

Dimensions



Connection diagrams (pin side view)



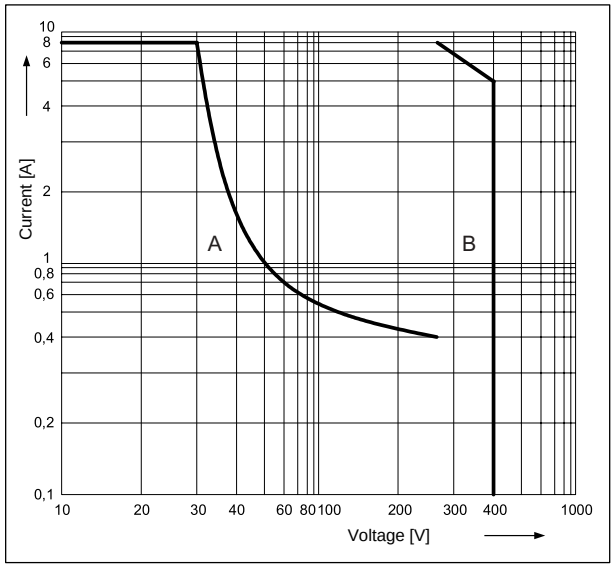
Terminal (pin)	A1(1); A2(2)	21(4); 11 (7)	22(3); 24(5); 12(6); 14(8)
[mm]	Ø 0,6	0,2 x 1	0,35 x 1
Drilling hole: • for relays	Ø 1,3 + 0,1 mm		

Mounting

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

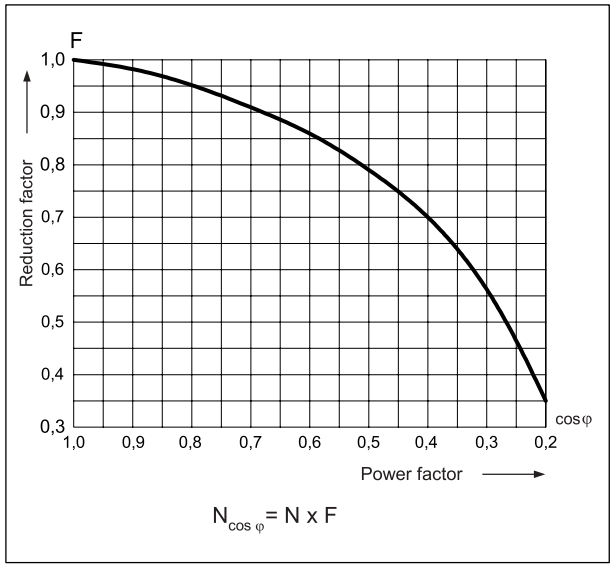
Max. breaking capacity
A - resistive load DC1
B - resistive load AC1

Fig. 1



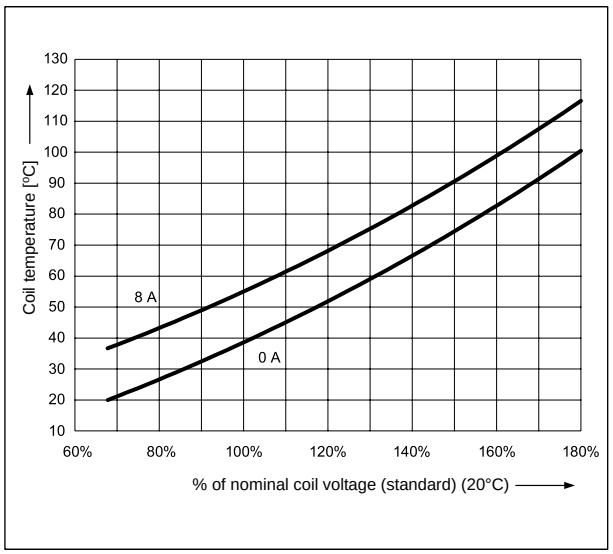
Electrical life reduction factor at AC inductive load

Fig. 2



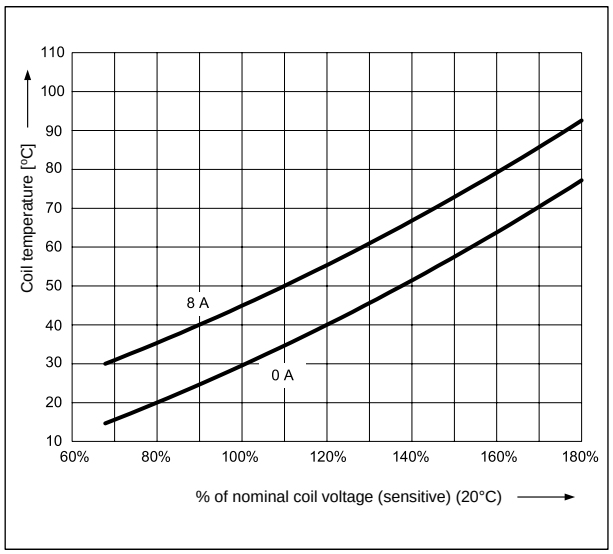
Coil temperature rise - standard version

Fig. 3

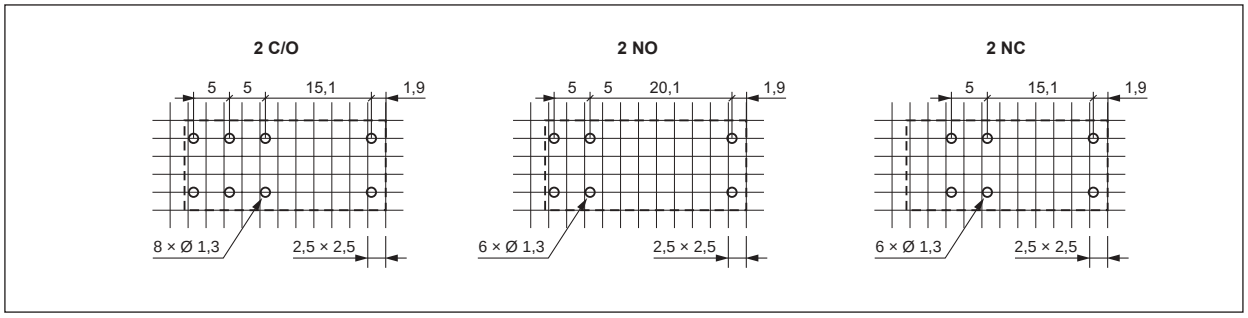


Coil temperature rise - sensitive version

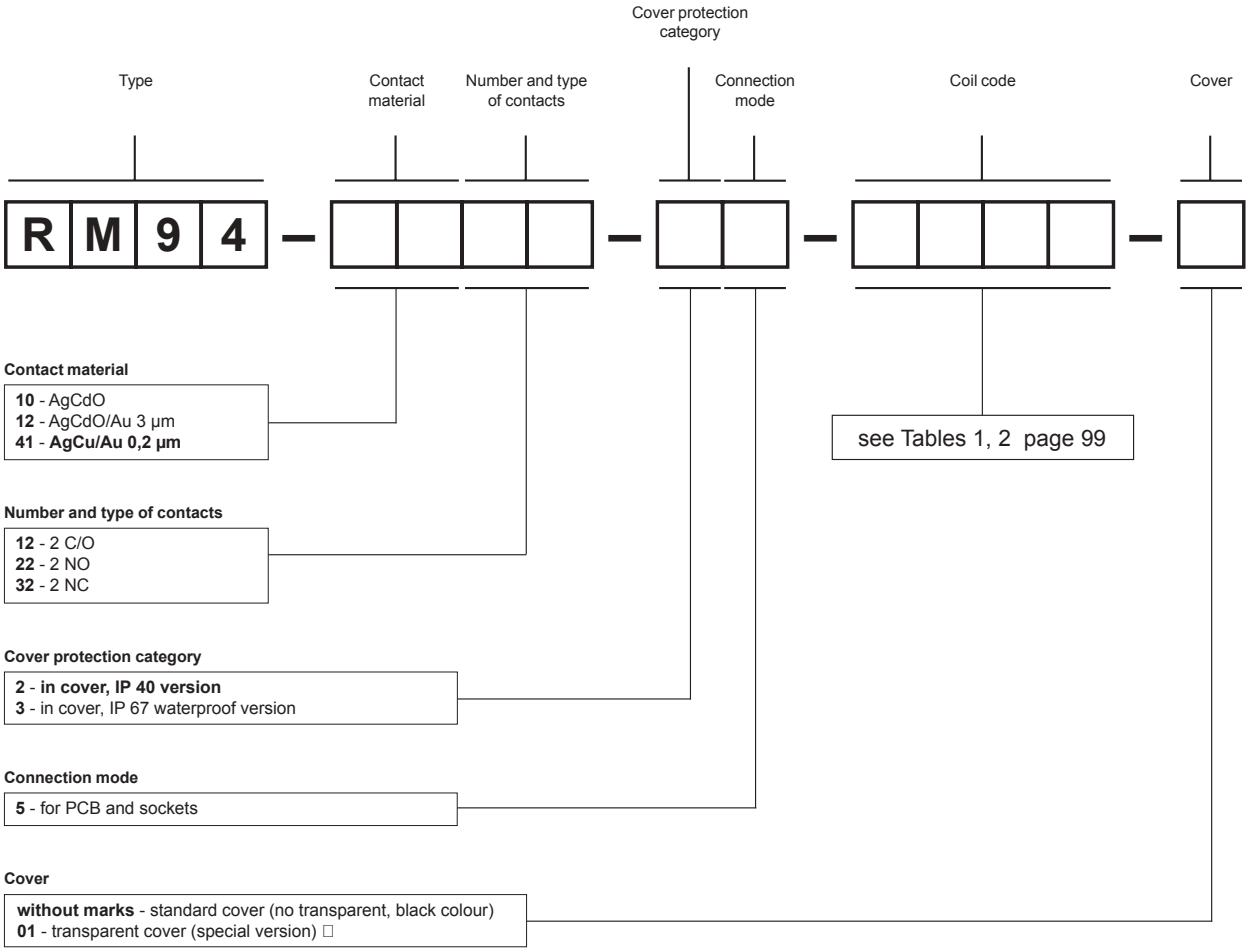
Fig. 4



Pinout (solder side view)



Ordering codes



Examples of ordering codes:

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

RM94-4122-35-S024 relay **RM94**, contact material AgCu/Au 0,2 µm, with two normally open contacts, in standard cover (no transparent, black colour) IP 67, for PCB and sockets, sensitive voltage version 24 V DC

RM94-4132-35-1012-01 relay **RM94**, contact material AgCu/Au 0,2 µm, with two normally closed contacts, in transparent cover (special version) □ IP 67, for PCB and sockets, voltage version 12 V DC

Print on relay cover

Type marking on relays cover **RM94** do not match the ordering codes.
Examples of marking:

RM94P-24-W
RM94P - relay **RM94**, with two changeover contacts
24 - voltage version 24 V DC
W - in cover, IP 67 waterproof version

RM94P-24-S-W
RM94P - relay **RM94**, with two changeover contacts
24 - voltage version 24 V DC
S - sensitive version
W - in cover, IP 67 waterproof version

- 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 C/O, 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 C/O: 110 A / 50 A (NO/NC) 1 NO: 110 A 2 NO: 2 x 110 A
Rated current		1 C/O: 20 A / 12 A (NO/NC) 1 NO: 20 A 2 NO: 2 x 12,5 A
Max. breaking capacity		1 C/O: 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 C/O: > 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.

Coil data - DC voltage version

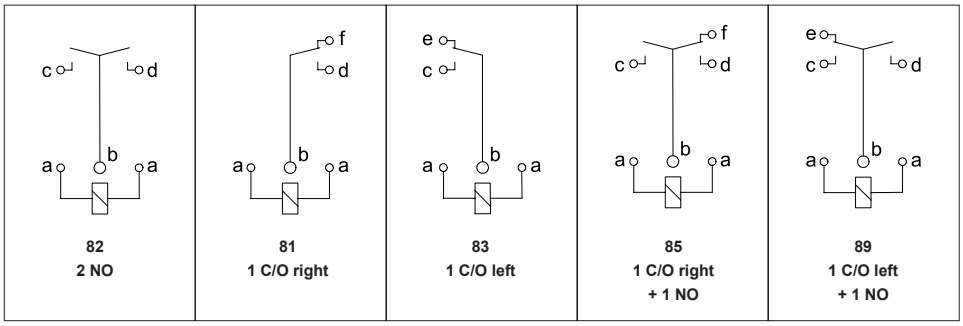
Table 1

Coil code	Rated voltage V DC	Coil resistance ±10% at 20 °C Ω	Coil operating range at 85 °C V DC	
			min.	maks.
1005	5	18	4,0	6,6
1006	6	24	4,8	8,0
1009	9	55	7,2	12,0
1012	**12**	**100**	**9,6**	**16,0**
1015	15	152	12,0	20,0
1018	18	230	14,4	23,9
1024	24	390	19,2	31,9
1048	48	1 590	38,4	63,8

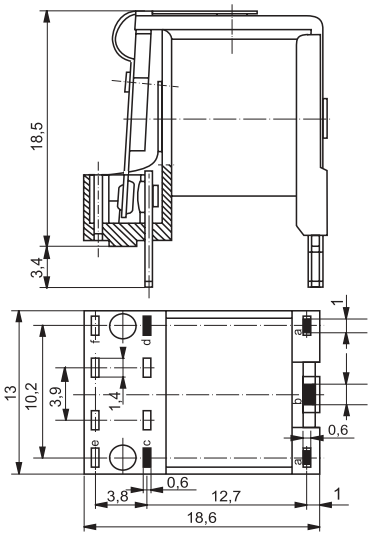
The data in bold type pertain to the standard versions of the relays.

Connection diagrams (pin side view)

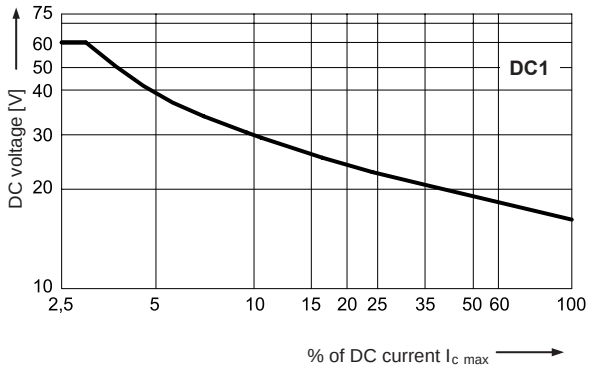
Relay terminals:
c, d, e, f - 0,6 x 1,4 mm **a** - 0,6 x 1,0 mm **b** - 1,0 x 1,5 mm



Dimensions



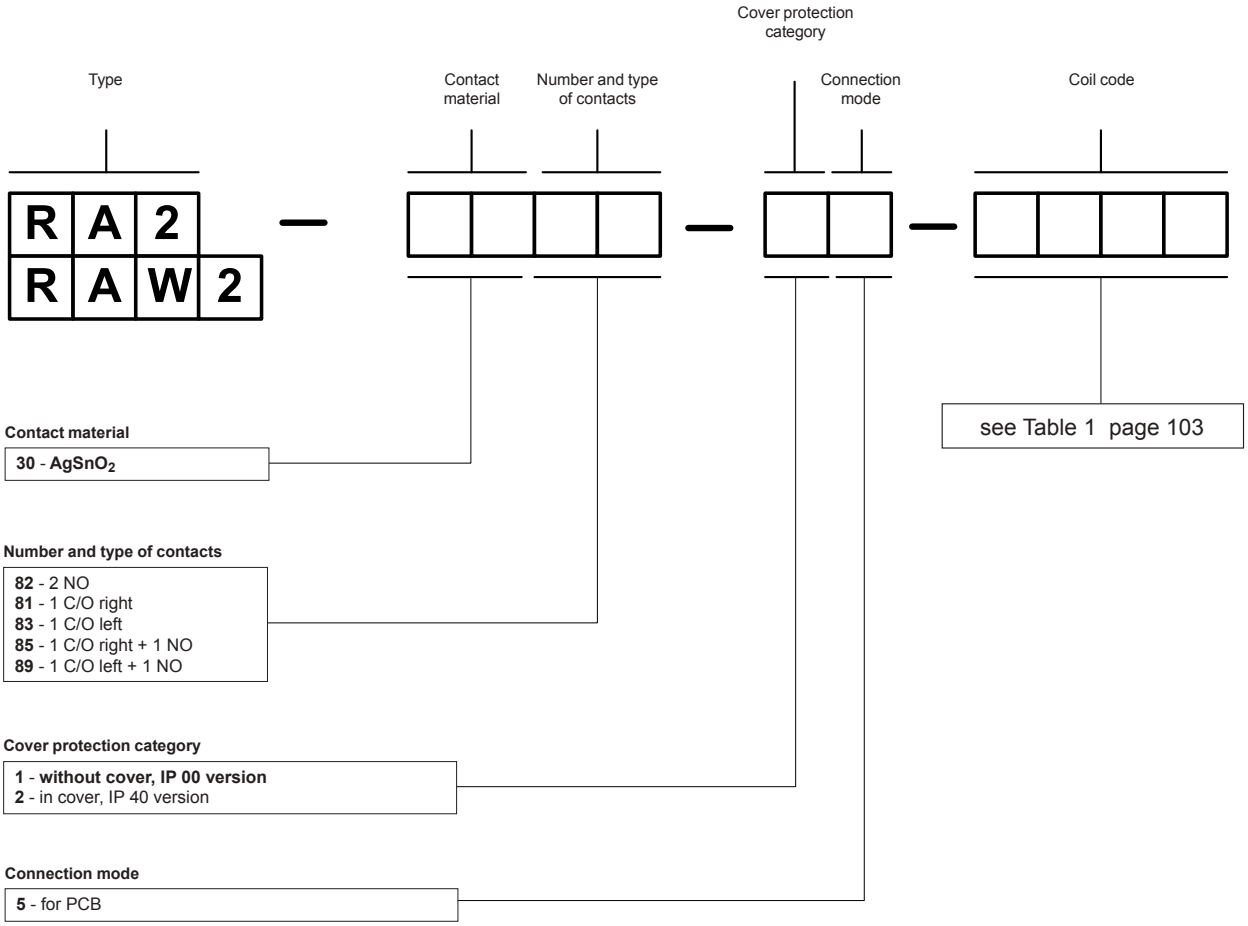
Max. DC resistive load breaking capacity Fig. 1



Mounting

Relays **RA2** are designed for direct PCB mounting.

Ordering codes



Examples of ordering codes:

RA2-3081-15-1012 relay **RA2**, contact material $AgSnO_2$, with one right changeover contact, without cover IP 00, for PCB, voltage version 12 V DC

RAW2-3082-25-1024 relay **RAW2** with narrow pin layout design, contact material $AgSnO_2$, with two normally open contacts, in cover IP 40, for PCB, voltage version 24 V DC

Industrial relays

Miniature industrial relays

Industrial relays of small dimensions

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 30 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-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:
They meet the requirements of RoHS Directive.

12 A / 250 V AC

• Miniature dimensions • Cadmium - free contacts • AC and DC coils • For plug-in sockets, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting • For PCB and soldering connections - option • Relays of general application • 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 251 • Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railway standards,

Contact data

Number and type of contacts		2 C/O
Contact material		**AgNi**, AgNi/Au 0,2 µm, AgNi/Au 5 µm
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		5 V
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	370 W (single-phase motor)
	DC1	12 A / 24 V DC (see Fig. 3) □ 10 A / 24 V DC □
	DC13	0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA AgNi, 5 mA AgNi/Au 0,2 µm, 2 mA AgNi/Au 5 µm
Max. inrush current		24 A
Rated current		12 A □ 10 A □
Max. breaking capacity	AC1	3 000 VA □ 2 500 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	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 □ 27,5 x 21,1 x 33,5 mm □ 27,5 x 21,2 x 33 mm □
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.
□ For plug-in sockets version: standard (WT) □ For PCB version □ For version with threaded bolt

Coil data - DC voltage version

Table 1

Coil code	Rated voltage V DC	Coil resistance (±10%) at 20 °C Ω	Coil operating range V DC	
			min. (at 20 °C)	max. (at 55 °C)
1005	5	28	4,0	5,5
1006	6	40	4,8	6,6
1012	12	160	9,6	13,2
1024	**24**	**640**	**19,2**	**26,4**
1048	48	2 600	38,4	52,8
1060	60	4 000	48,0	66,0
1080	80	7 100	64,0	88,0
1110	110	13 600	88,0	121,0
1125	125	16 000	100,0	137,5
1220	**220**	**54 000**	**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

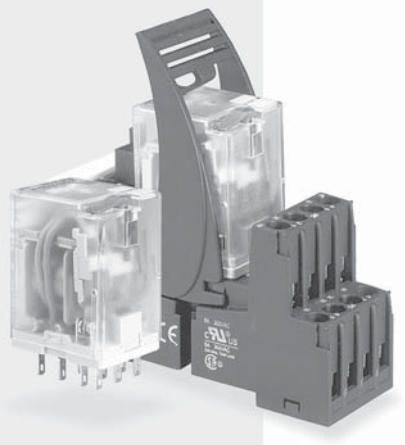
Table 2

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

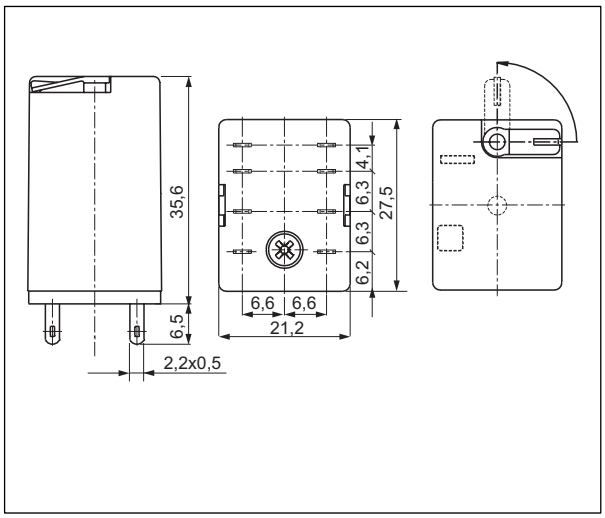
The data in bold type pertain to the standard versions of the relays.

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

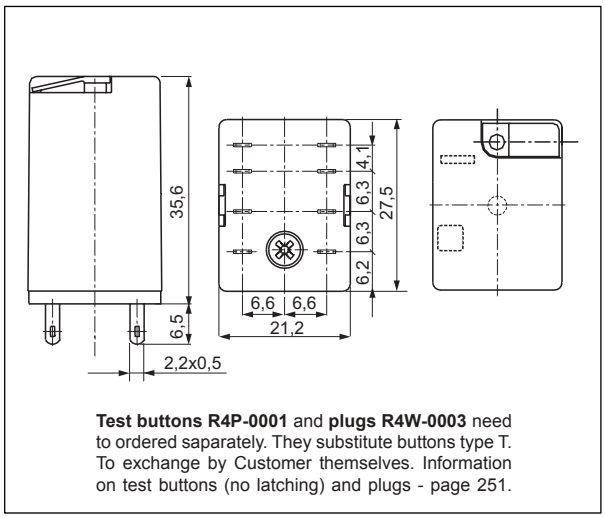
ELECTROPRODUCT 2003
for electromagnetic relays
R2, **R3**, **R4**



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

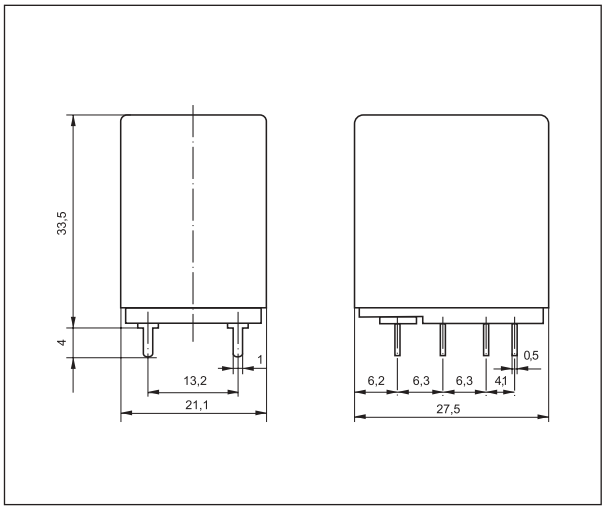


Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)

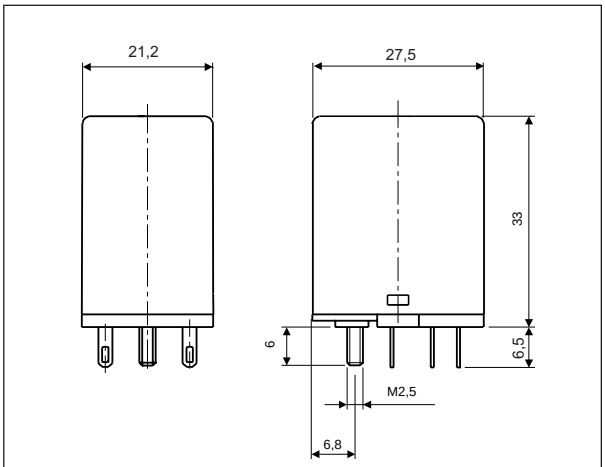


Test buttons R4P-0001 and **plugs R4W-0003** need to ordered saparately. They substitute buttons type T. To exchange by Customer themselves. Information on test buttons (no latching) and plugs - page 251.

Dimensions - PCB version (without WT)



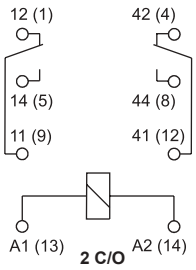
Dimensions - version with threaded bolt



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.

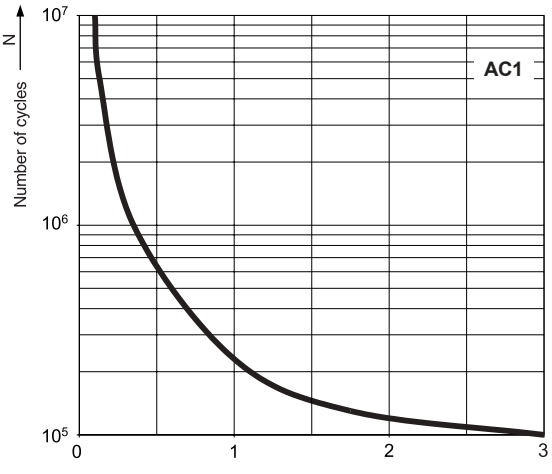
Connection diagram (pin side view)



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

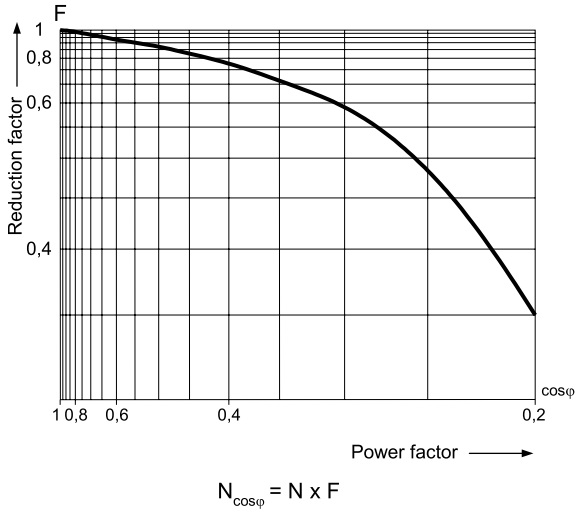
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

Fig. 1



Electrical life reduction factor at AC inductive load

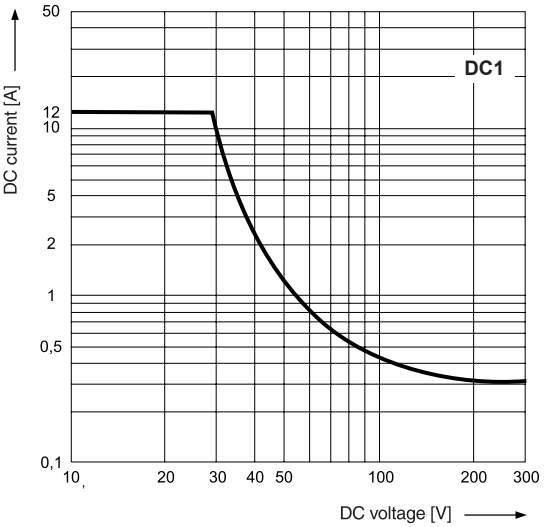
Fig. 2



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

Max. DC resistive load breaking capacity

Fig. 3



Mounting

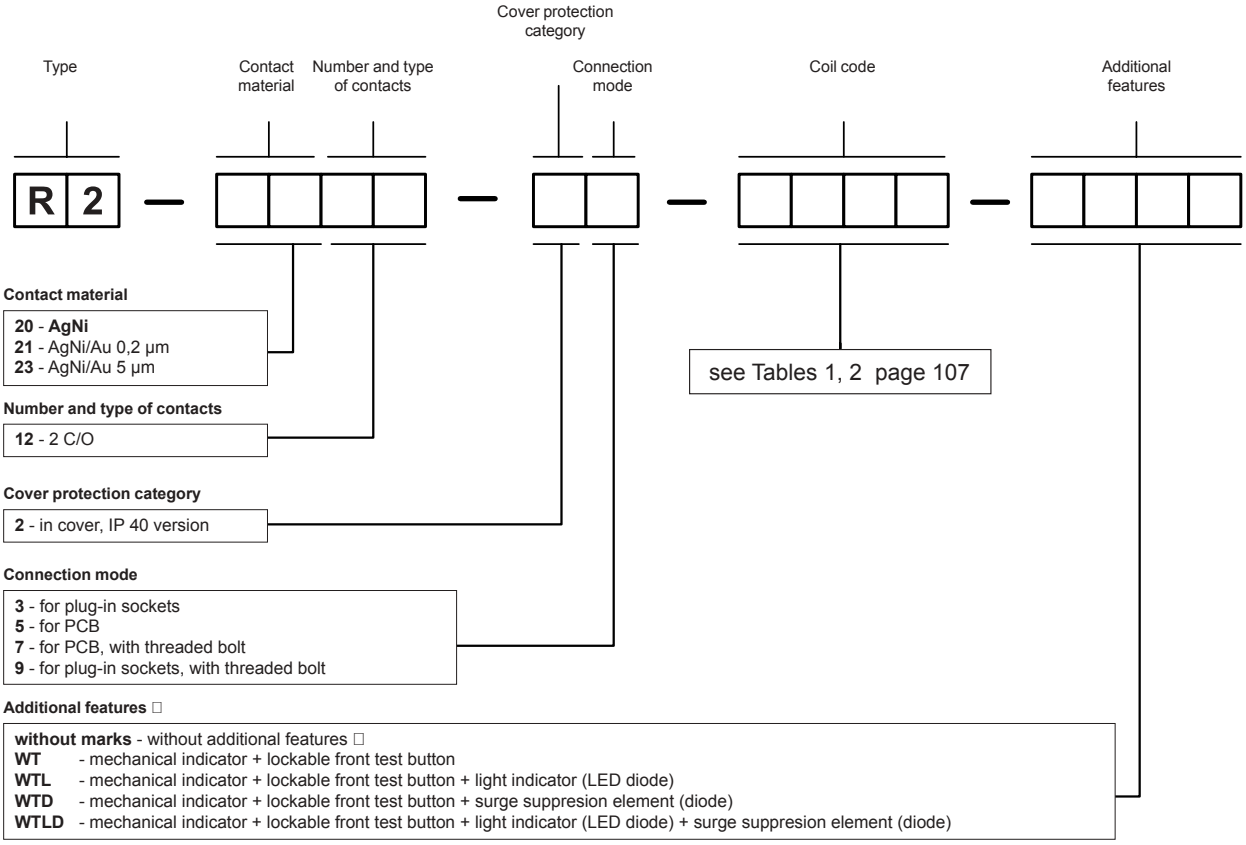
Relays **R2** are designed for: • screw terminals plug-in sockets **GZT2** □ and **GZM2** □ with clip **GZT4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. Signalling / protecting modules **type M...** are available with sockets (see page 250) • plug-in 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.

□ Plug-in sockets **GZT2** and **GZM2** may be linked with interconnection strip type **ZGGZ4** (see page 262).

Contact material selection for different load types

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

Ordering codes



□ **WT** - standard features of relays for plug-in sockets. **WTD, WTLD** - only for DC coils
□ 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 251.

- 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 DC coils and additional features inclusive: **D** - surge suppresion element (diode) and **L** - light indicator (LED diode) coil supply polarization is fixed. Terminal A1 (13) "+"; terminal A2 (14) "-". Supply polarization is marked on relay cover. Colour of lockable front test button type T represents type of coil supply current: orange - AC coil, green - DC coil.

Examples of ordering codes:

R2-2012-23-1024-WT relay **R2**, contact material AgNi, with two changeover contacts, in cover IP 40, for plug-in sockets, voltage version 24 V DC, with mechanical indicator and lockable front test button

R2-2012-25-1024 relay **R2**, contact material AgNi, with two changeover contacts, in cover IP 40, for PCB, voltage version 24 V DC

10 A / 250 V AC

• Miniature dimensions • Cadmium - free contacts • AC and DC coils • For plug-in sockets, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting • Relays of general application • 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 251 • Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railway standards,

Contact data

Number and type of contacts		3 C/O
Contact material		**AgNi**, AgNi/Au 0,2 µm, AgNi/Au 5 µm
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 AgNi, 5 mA AgNi/Au 0,2 µm, 2 mA AgNi/Au 5 µm
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, 0,1 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	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 □ 27,5 x 21,2 x 33 mm □
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. □ For plug-in sockets version: standard (WT) □ For version with threaded bolt

Coil data - DC voltage version

Table 1

Coil code	Rated voltage V DC	Coil resistance (±10%) at 20 °C Ω	Coil operating range V DC	
			min. (at 20 °C)	max. (at 55 °C)
1005	5	28	4,0	5,5
1006	6	40	4,8	6,6
1012	12	160	9,6	13,2
1024	**24**	**640**	**19,2**	**26,4**
1048	48	2 600	38,4	52,8
1060	60	4 000	48,0	66,0
1080	80	7 100	64,0	88,0
1110	110	13 600	88,0	121,0
1125	125	16 000	100,0	137,5
1220	**220**	**54 000**	**176,0**	**242,0**

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

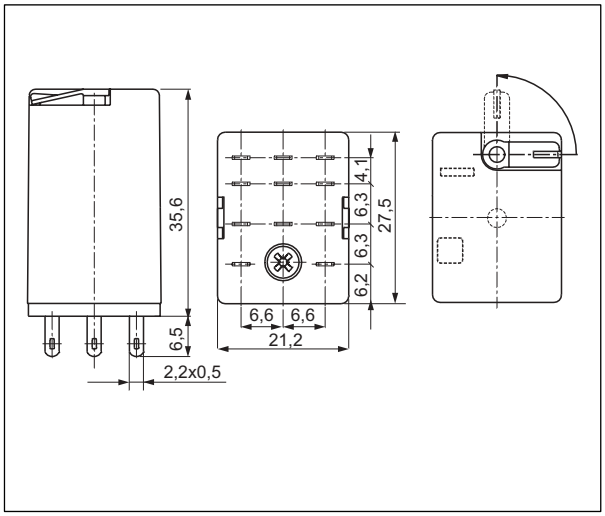
Coil data - AC 50/60 Hz voltage version

Table 2

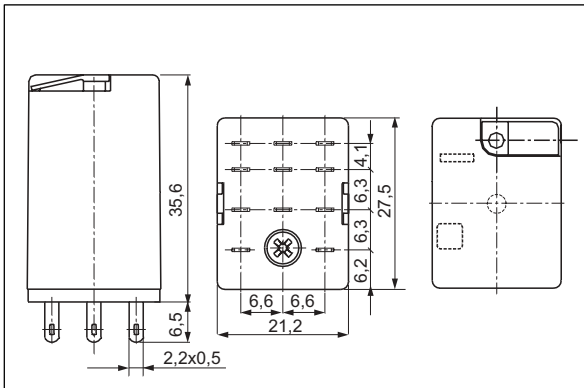
Coil code	Rated voltage V AC	Coil resistance (±10%) at 20 °C Ω	Coil operating range V AC	
			min. (at 20 °C)	max. (at 55 °C)
5006	6	9,8	4,8	6,6
5012	12	39,5	9,6	13,2
5024	**24**	**158,0**	**19,2**	**26,4**
5042	42	470,0	33,6	46,2
5048	48	640,0	38,4	52,8
5060	60	930,0	48,0	66,0
5080	80	1 720,0	64,0	88,0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

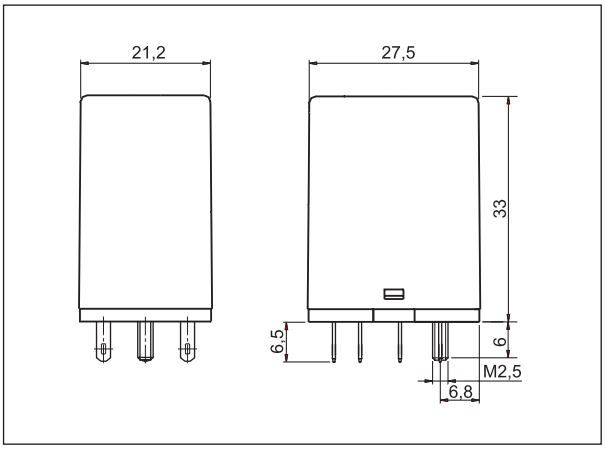


Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)

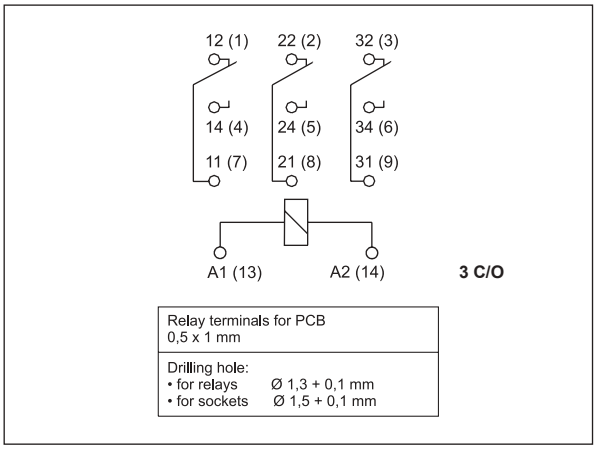


Test buttons R4P-0001 and **plugs R4W-0003** need to ordered saparately. They substitute buttons type T. To exchange by Customer themselves. Information on test buttons (no latching) and plugs - page 251.

Dimensions - version with threaded bolt

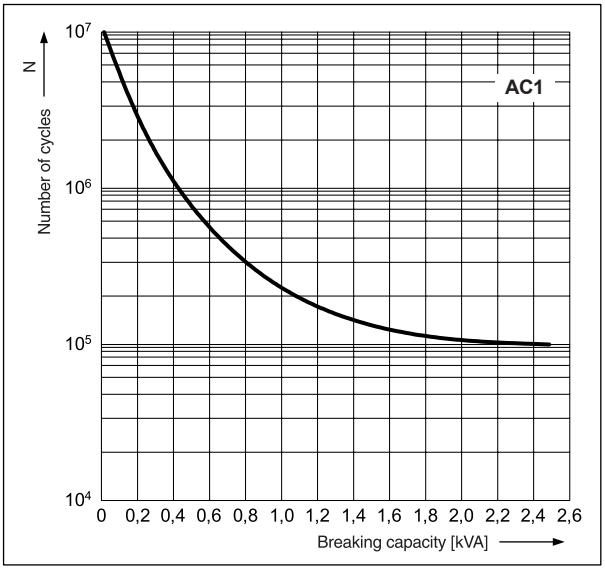


Connection diagram (pin side view)



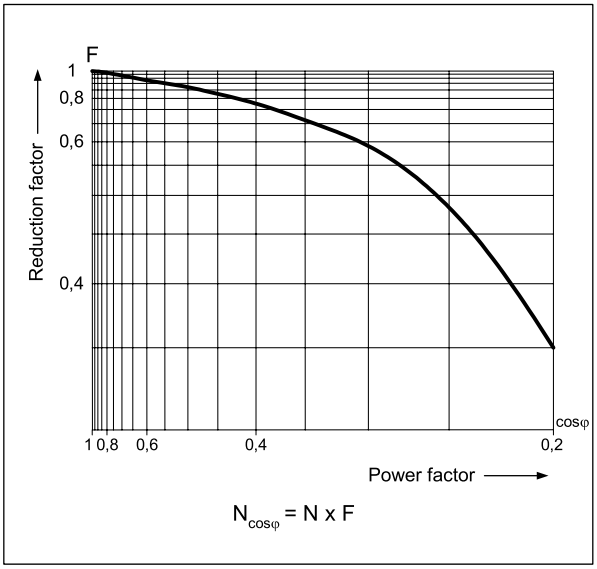
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

Fig. 1



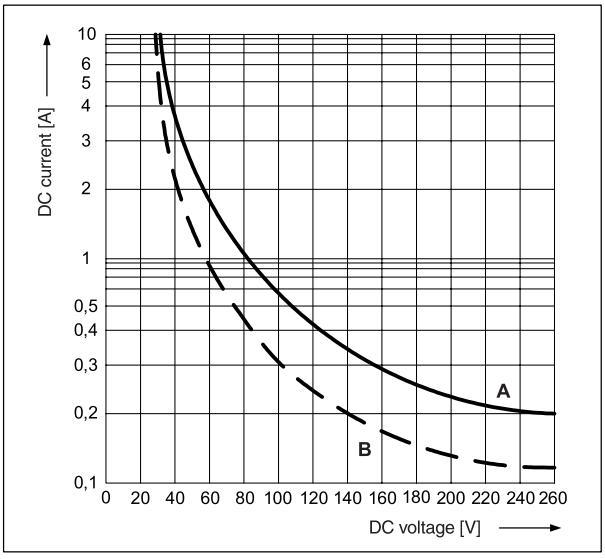
Electrical life reduction factor at AC inductive load

Fig. 2



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

Fig. 3



Mounting

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

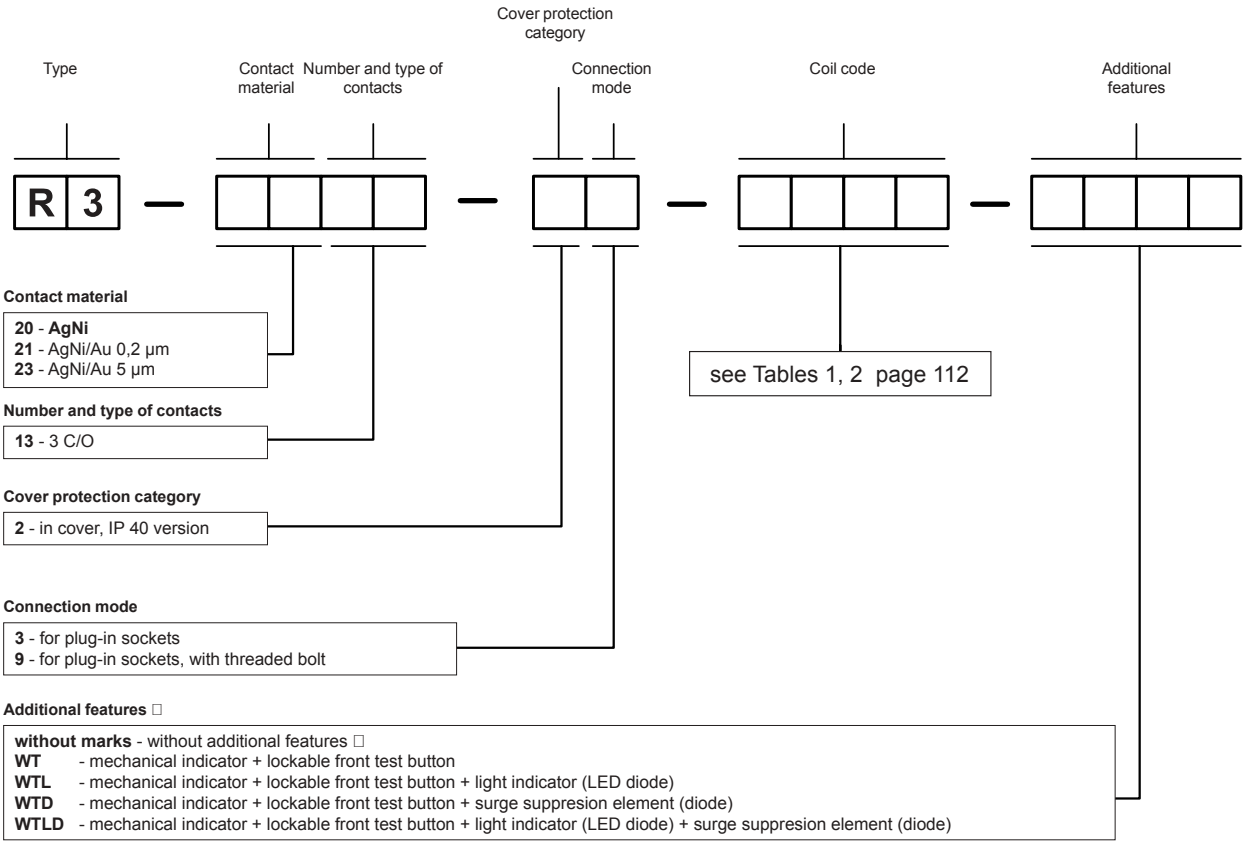
Relays **R3** are designed for: • screw terminals plug-in sockets **GZT3** □ and **GZM3** □ with clip **GZT4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. Signalling / protecting modules **type M...** are available with sockets (see page 250).

□ Plug-in sockets **GZT3** and **GZM3** may be linked with interconnection strip type **ZGGZ4** (see page 262).

Contact material selection for different load types

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

Ordering codes



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

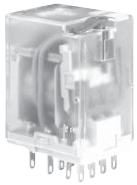
Test buttons (no latching) and plugs need to ordered saparately. They substitute buttons type T. To exchange by Customer themselves.
Information on test buttons (no latching) and plugs - page 251.

- 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 DC coils and additional features inclusive: **D** - surge suppresion element (diode) and **L** - light indicator (LED diode) coil supply polarization is fixed. Terminal A1 (13) ”+”; terminal A2 (14) ”-”. Supply polarization is marked on relay cover. Colour of lockable front test button type T represents type of coil supply current: orange - AC coil, green - DC coil.

Example of ordering code:

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



6 A / 250 V AC

• Miniature dimensions • Cadmium - free contacts • AC and DC coils • For plug-in sockets, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting • For PCB and for soldering connections - option • Relays of general application • 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 251 • **Have obtained LR Type Approval Certificate (Lloyd's Register) - R4...WT** • Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railway standards,

Contact data

Number and type of contacts		4 C/O
Contact material		**AgNi**, AgNi/Au 0,2 µm, AgNi/Au 5 µm
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 AgNi, 5 mA AgNi/Au 0,2 µm, 2 mA AgNi/Au 5 µm
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 □ 27,5 x 21,1 x 33,5 mm □
		27,5 x 21,2 x 33 mm □
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.
□ For plug-in sockets version: standard (WT) □ For PCB version □ For version with threaded bolt

Coil data - DC voltage version Table 1

Coil code	Rated voltage V DC	Coil resistance (±10%) at 20 °C Ω	Coil operating range V DC	
			min. (at 20 °C)	max. (at 55 °C)
1005	5	28	4,0	5,5
1006	6	40	4,8	6,6
1012	**12**	**160**	**9,6**	**13,2**
1024	**24**	**640**	**19,2**	**26,4**
1048	48	2 600	38,4	52,8
1060	60	4 000	48,0	66,0
1080	80	7 100	64,0	88,0
1110	110	13 600	88,0	121,0
1125	125	16 000	100,0	137,5
1220	**220**	**54 000**	**176,0**	**242,0**

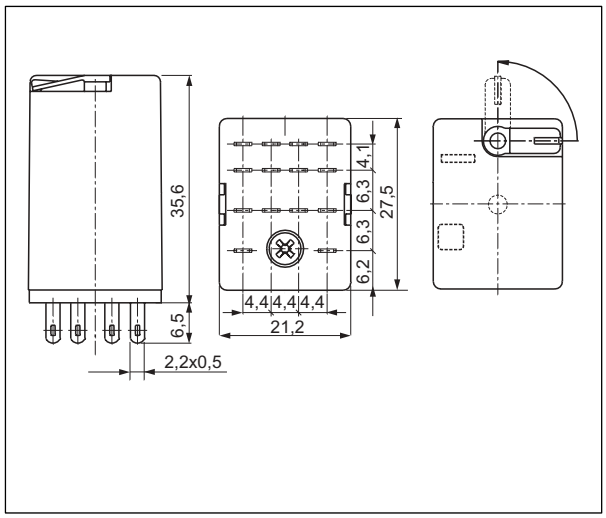
The data in bold type pertain to the standard versions of the relays.

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

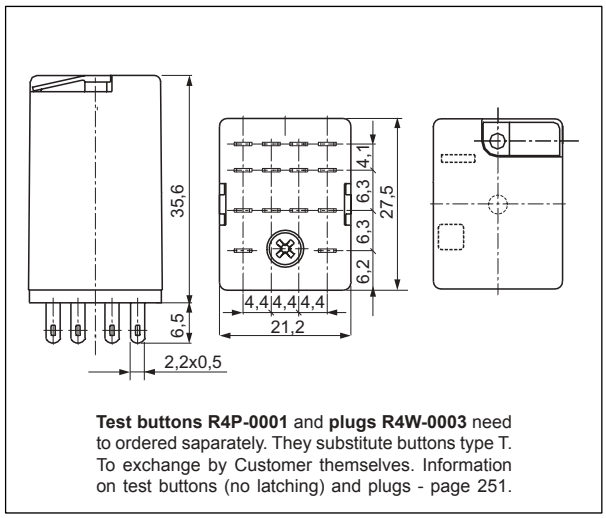
Coil code	Rated voltage V AC	Coil resistance (±10%) at 20 °C Ω	Coil operating range V AC	
			min. (at 20 °C)	max. (at 55 °C)
5006	6	9,8	4,8	6,6
5012	12	39,5	9,6	13,2
5024	**24**	**158,0**	**19,2**	**26,4**
5042	42	470,0	33,6	46,2
5048	48	640,0	38,4	52,8
5060	60	930,0	48,0	66,0
5080	80	1 720,0	64,0	88,0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

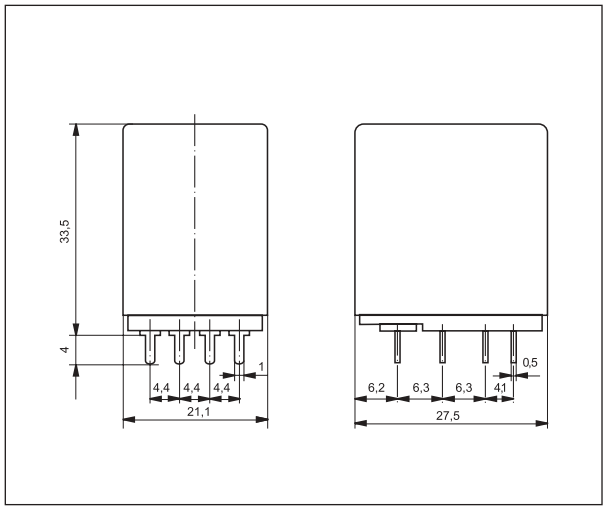


Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)

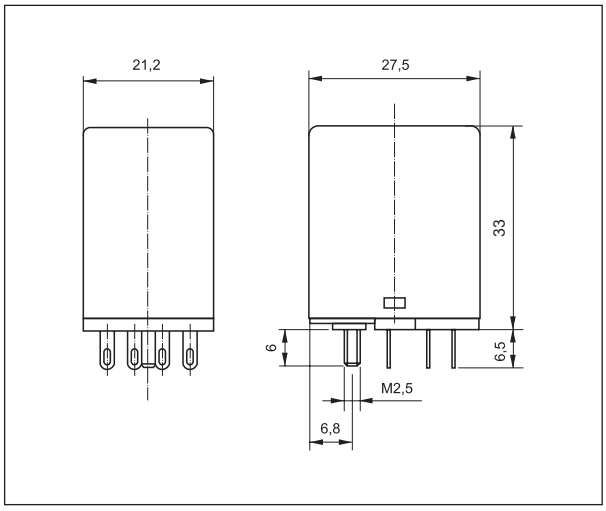


Test buttons R4P-0001 and **plugs R4W-0003** need to ordered saparately. They substitute buttons type T. To exchange by Customer themselves. Information on test buttons (no latching) and plugs - page 251.

Dimensions - PCB version (without WT)



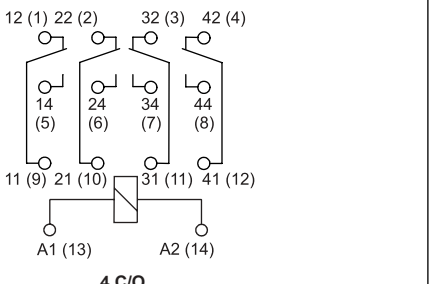
Dimensions - version with threaded bolt



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.

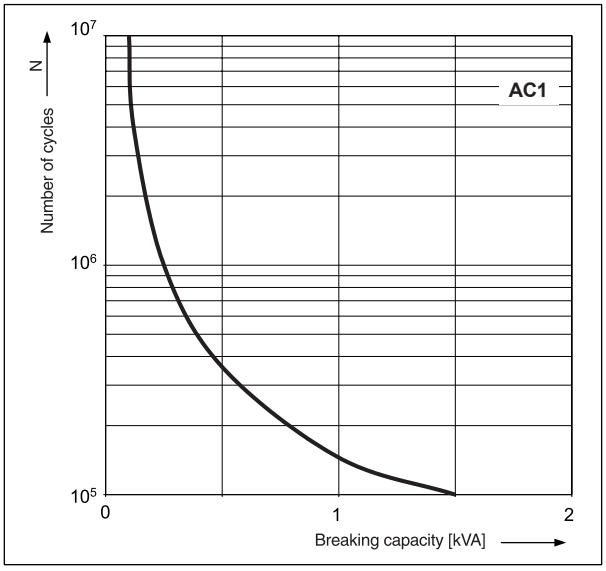
Connection diagram (pin side view)



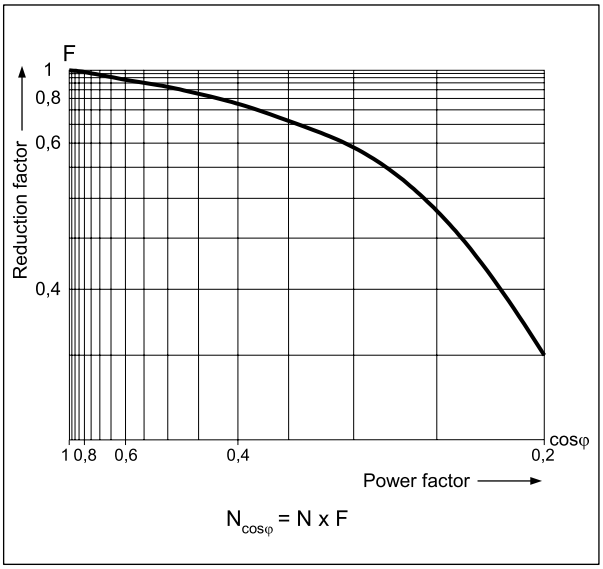
4 C/O

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

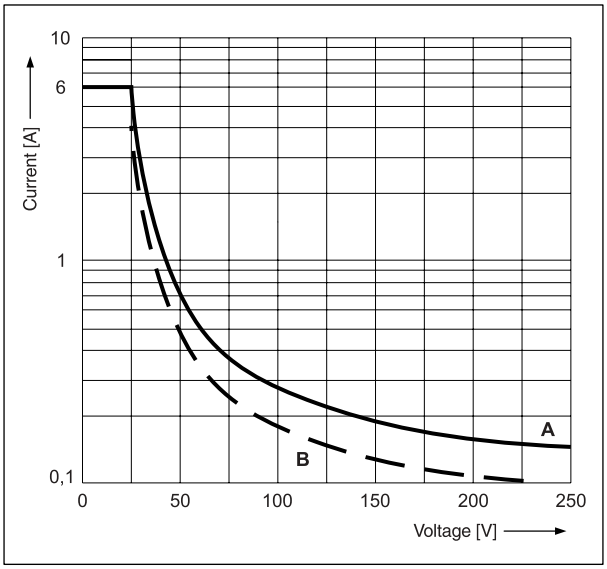
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour Fig. 1



Electrical life reduction factor at AC inductive load Fig. 2



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



Mounting

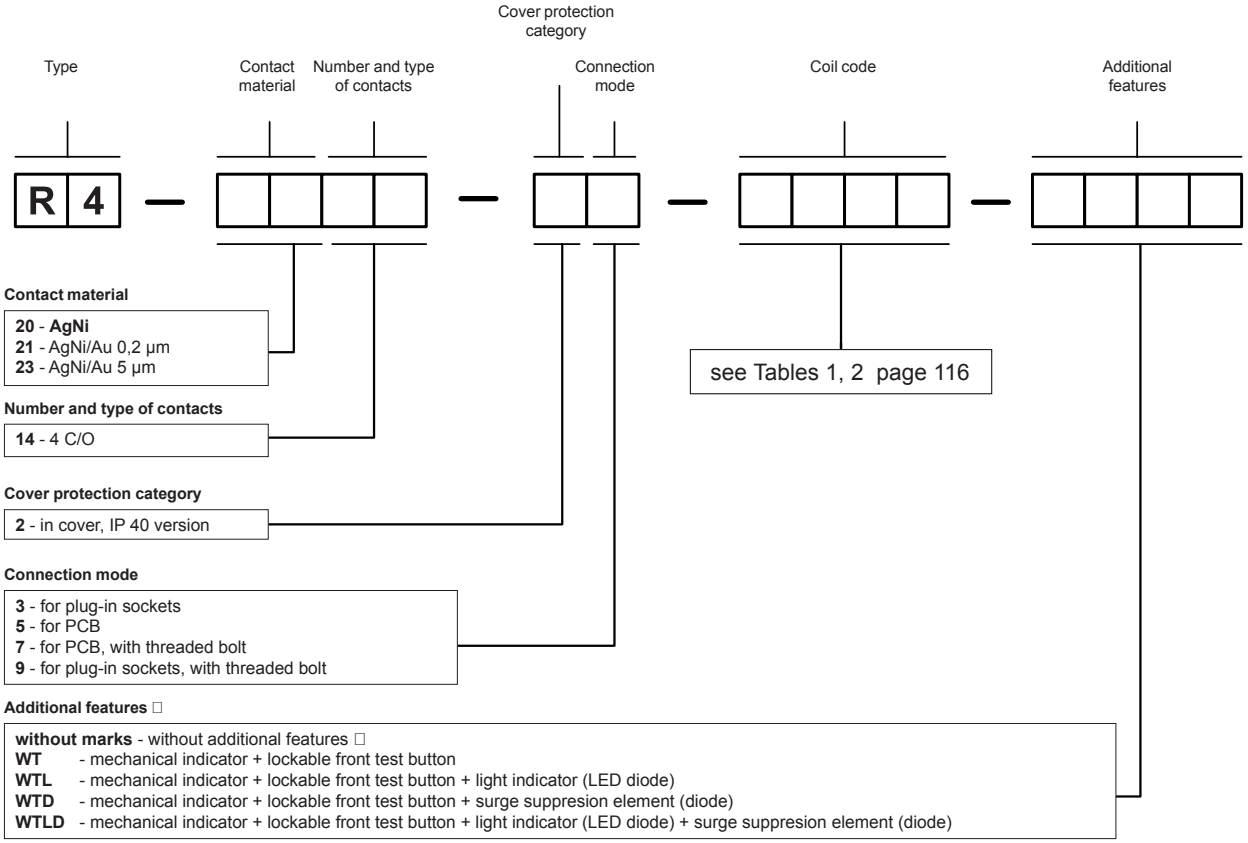
Relays **R4** are designed for: • screw terminals plug-in sockets **GZT4** □ and **GZM4** □ with clip **GZT4-0040** or **G4 1052**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. Signalling / protecting modules **type M...** are available with sockets (see page 250) • screw 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.

□ Plug-in sockets **GZT4** and **GZM4** may be linked with interconnection strip type **ZGGZ4** (see page 262).

Contact material selection for different load types

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

Ordering codes



□ **WT** - standard features of relays for plug-in sockets. **WTD, WTLD** - only for DC coils
□ 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 251.

- 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 DC coils and additional features inclusive: **D** - surge suppresion element (diode) and **L** - light indicator (LED diode) coil supply polarization is fixed. Terminal A1 (13) "+"; terminal A2 (14) "-". Supply polarization is marked on relay cover. Colour of lockable front test button type T represents type of coil supply current: orange - AC coil, green - DC coil.

Example of ordering code:

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

RY2
miniature industrial relays

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

Contact data

Number and type of contacts		2 C/O
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 □
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.
□ For plug-in sockets version: standard

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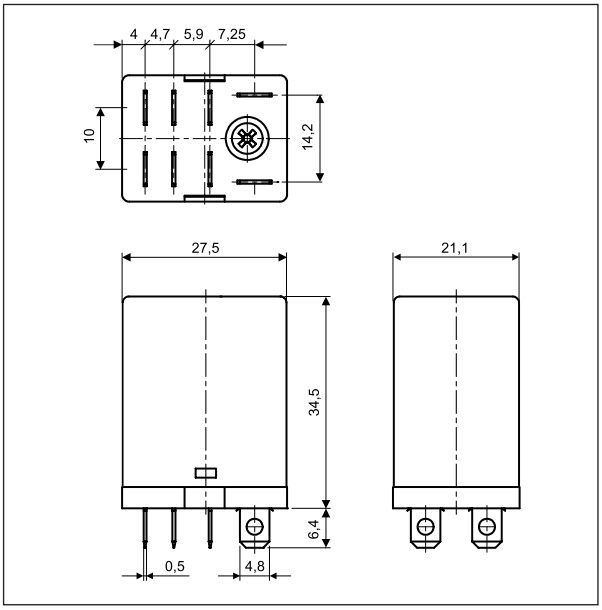
Coil data - DC voltage version Table 1

Coil code	Rated voltage V DC	Coil resistance ±10% at 20 °C Ω	Coil operating range V DC	
			min. (at 20°C)	max. (at 55°C)
1005	5	28	4,0	5,5
1006	6	40	4,8	6,6
1012	12	160	9,6	13,2
1024	24	640	19,2	26,4
1048	48	2 600	38,4	52,8
1060	60	4 000	48,0	66,0
1080	80	7 100	64,0	88,0
1110	110	13 600	88,0	121,0
1125	125	16 000	100,0	137,5
1220	220	54 000	176,0	242,0

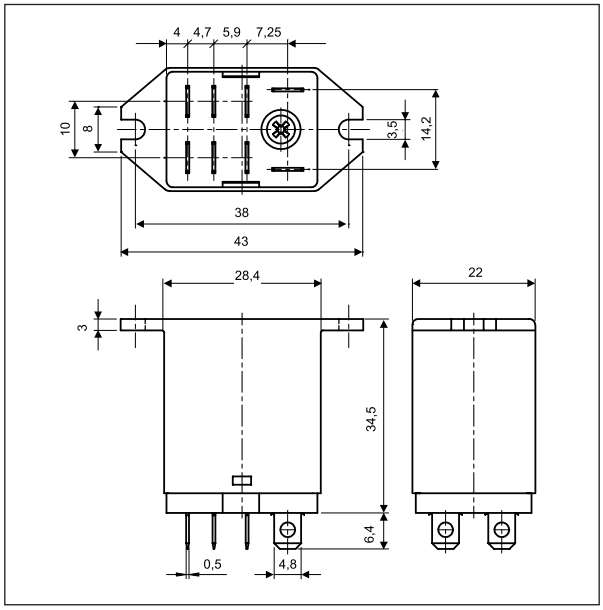
Coil data - AC 50/60 Hz voltage version Table 2

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

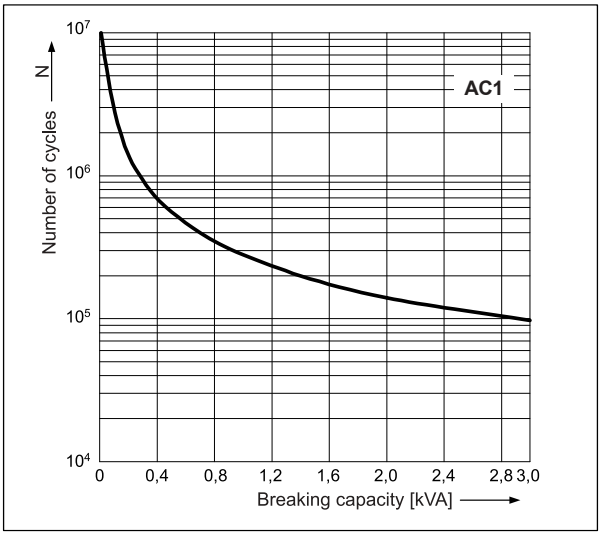
Dimensions - plug-in version (standard)



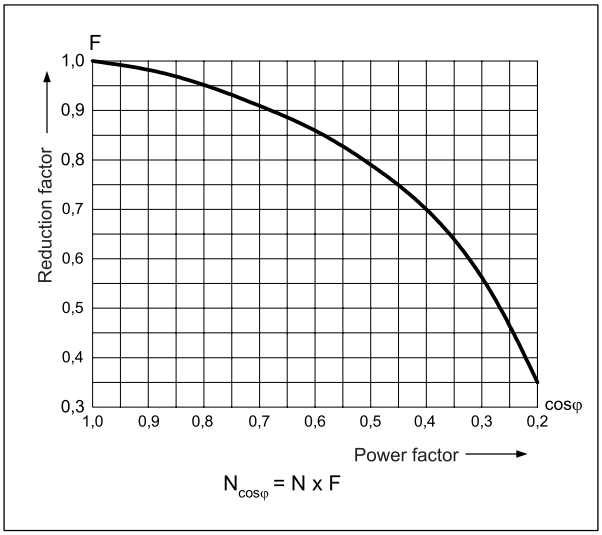
Dimensions - version with mounting flange in the upper wall of the cover



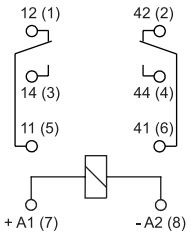
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour Fig. 1



Electrical life reduction factor at AC inductive load Fig. 2



Connection diagram (pin side view)



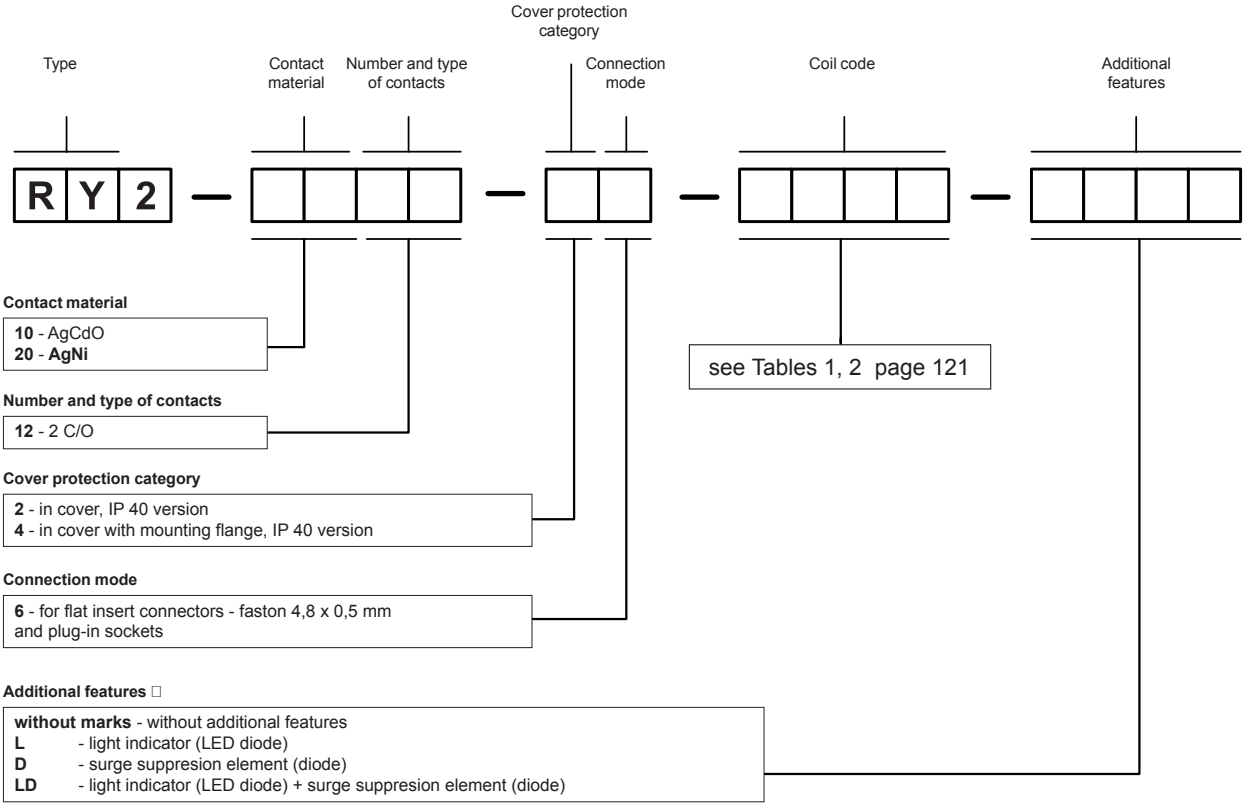
2 C/O

Note: marks "+" and "-" refer to versions with DC coils, with surge suppresion element (diode) and light indicator (LED diode).

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 **GZY2** with clip **GZY 2000** and spring clamp **GZ2 1111**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • flat insert connectors - faston 4,8 x 0,5 mm.

Ordering codes



□ **D, LD** - only for DC coils

Examples of ordering codes:

RY2-2012-26-1024 relay **RY2**, contact material AgNi, with two changeover contacts, in cover IP 40, for flat insert connectors - faston 4,8 x 0,5 mm and plug-in sockets, voltage version 24 V DC

RY2-2012-26-5230-L relay **RY2**, contact material AgNi, with two changeover contacts, in cover IP 40, for flat insert connectors - faston 4,8 x 0,5 mm and plug-in sockets, voltage version 230 V AC 50/60 Hz, with light indicator (LED diode)

- Relays of general application
- For plug-in sockets, 35 mm rail mount acc. to PN-EN 60715 or 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 C/O
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.

Coil data - DC voltage version Table 1

Coil code	Rated voltage V DC	Coil resistance ±10% at 20 °C Ω	Coil operating range V DC	
			min. (at 20°C)	max. (at 55°C)
1006	6	47	4,8	6,6
1012	**12**	**188**	**9,6**	**13,2**
1024	**24**	**750**	**19,2**	**26,4**
1048	48	2 660	38,4	52,8
1060	60	4 000	48,0	66,0
1080	80	7 100	64,0	88,0
1110	110	13 480	88,0	121,0

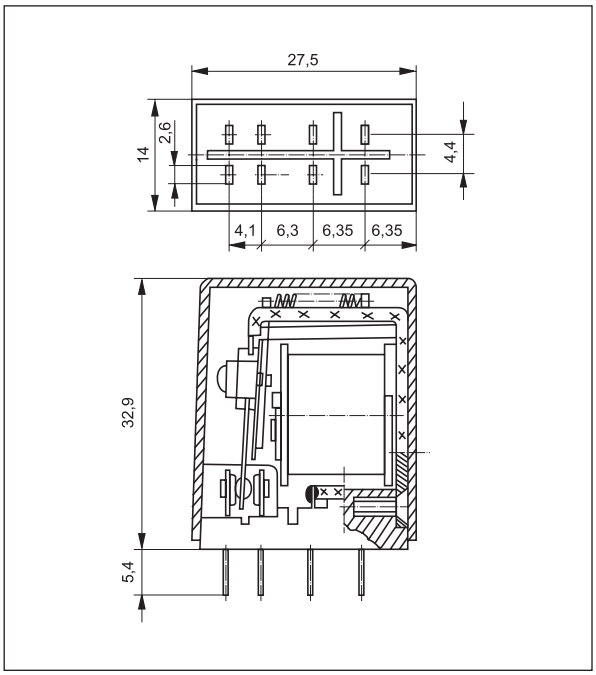
The data in bold type pertain to the standard versions of the relays.

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

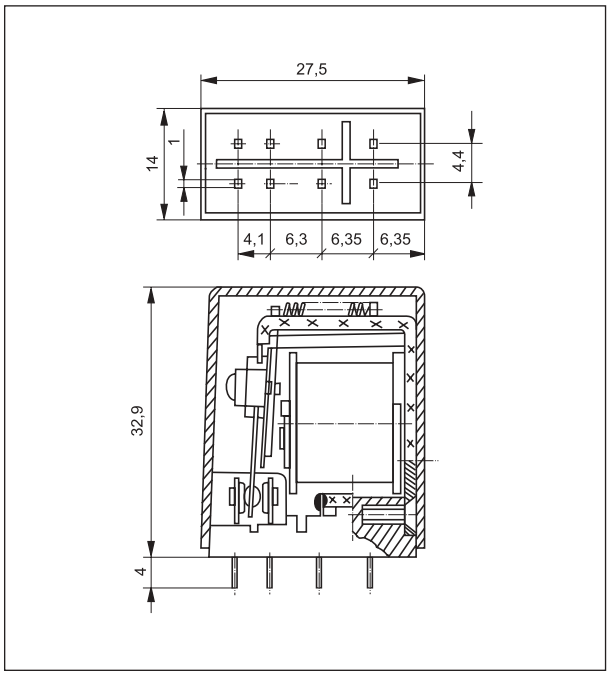
Coil code	Rated voltage V AC	Coil resistance ±10% at 20 °C Ω	Coil operating range V AC	
			min. (at 20°C)	max. (at 55°C)
5006	6	16	4,8	6,6
5012	12	68	9,6	13,2
5024	**24**	**270**	**19,2**	**26,4**
5050	50	1 150	40,0	55,0
5100	100	5 590	80,0	110,0
5110	110	5 670	88,0	121,0
5115	115	5 990	92,0	126,0
5120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

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

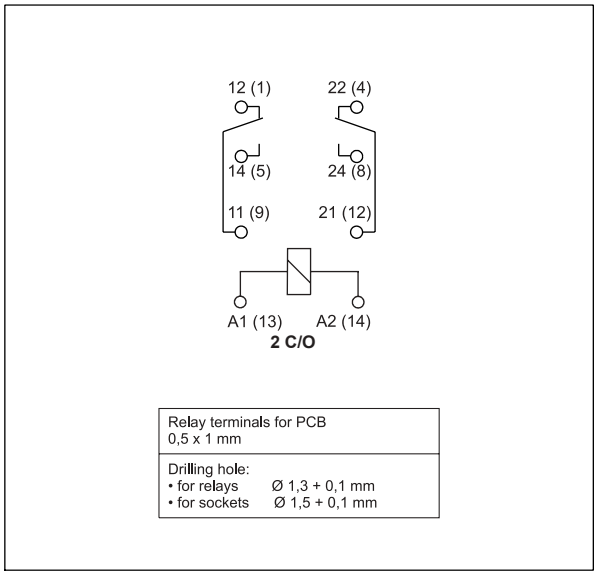
Dimensions - plug-in version



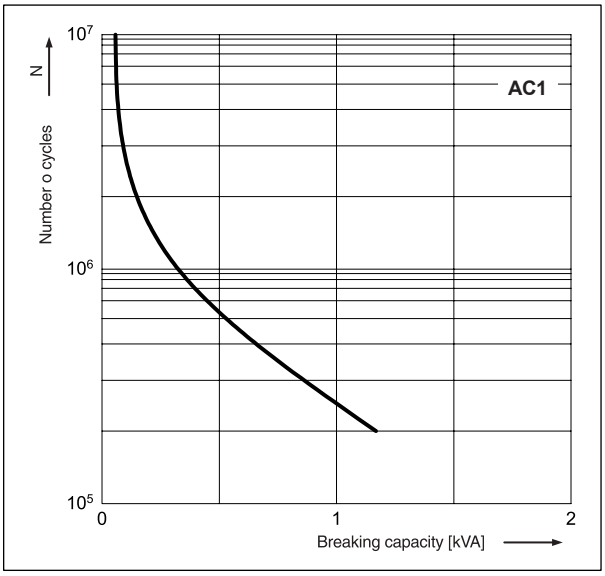
Dimensions - PCB version



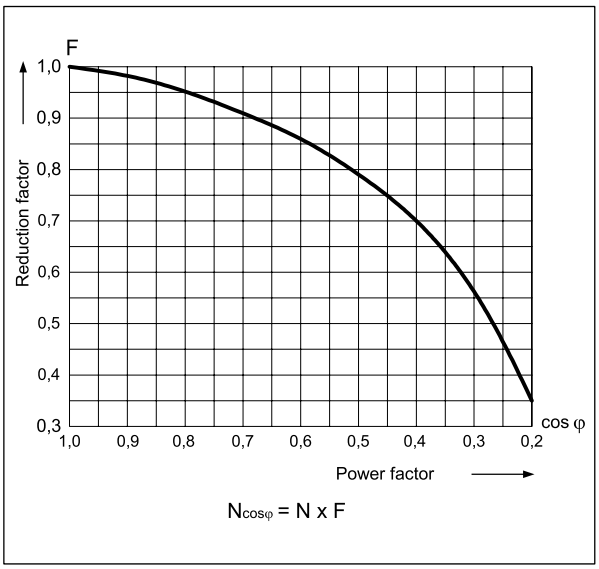
Connection diagram (pin side view)



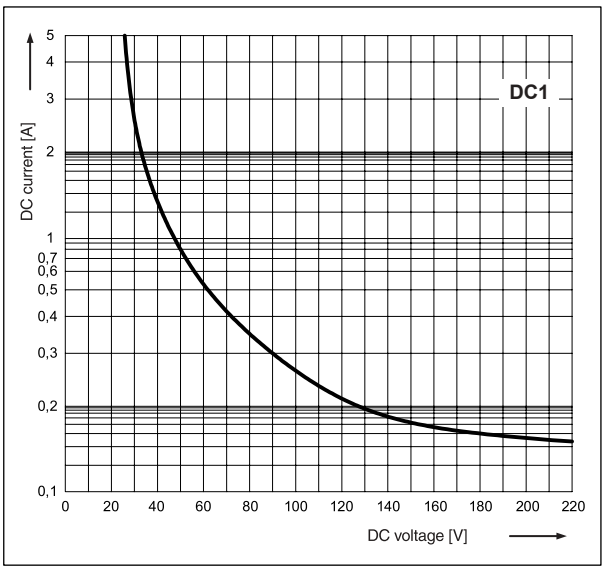
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour Fig. 1



Electrical life reduction factor at AC inductive load Fig. 2



Max. DC resistive load breaking capacity Fig. 3



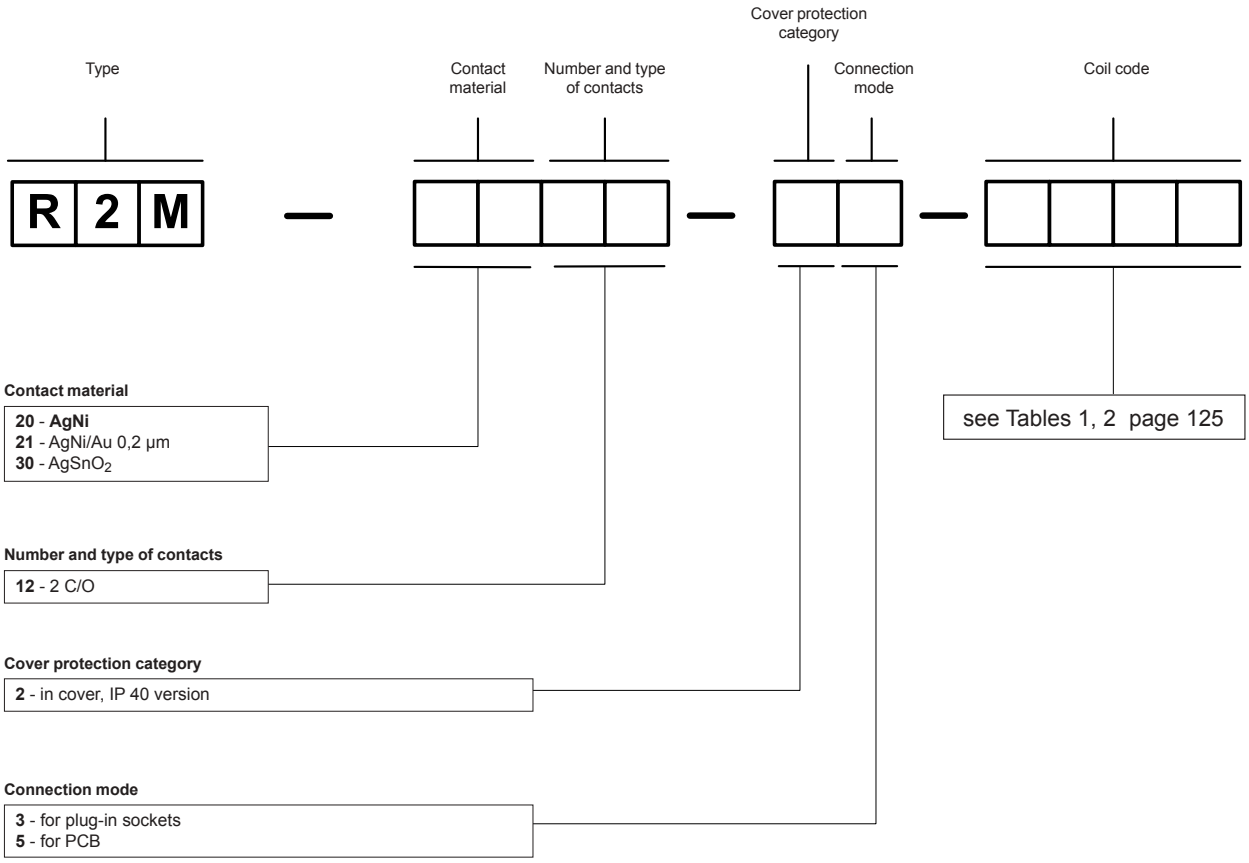
Mounting

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** - contact surface protection against oxidation during storage,
- **$AgSnO_2$** - for capacitive loads or incandescent lamp loads.

Ordering codes



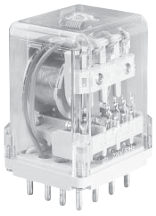
Examples of ordering codes:

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

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


R15 2 C/O


R15 3 C/O


R15 4 C/O

• Relays of general application • For plug-in sockets, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting • Cadmium - free contacts - R15 2 C/O, R15 3 C/O relays • WT (mechanical indicator + lockable front test button) - standard features of R15 2 C/O, R15 3 C/O relays in cover, for plug-in sockets. Relays may be provided with the test buttons (no latching) and plugs - page 251 • **Have obtained LR Type Approval Certificate (Lloyd's Register) - R15...WT 2 C/O, R15...WT 3 C/O** • Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railway standards,

Contact data

Number and type of contacts		2 C/O, 3 C/O, 4 C/O	
Contact material		2 C/O, 3 C/O: **AgNi**, AgNi/Au 0,2 µm, AgNi/Au 5 µm 4 C/O: **AgCdO**, AgCdO/Au 0,2 µm, AgCdO/Au 5 µm	
Rated / max. switching voltage	AC	2 C/O, 3 C/O: 250 V / 440 V	4 C/O: 250 V / 250 V
Min. switching voltage		2 C/O, 3 C/O: 5 V AgNi, 5 V AgNi/Au 0,2 µm, 5 V AgNi/Au 5 µm 4 C/O: 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, 1/2 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		2 C/O, 3 C/O: 5 mA AgNi, 5 mA AgNi/Au 0,2 µm, 2 mA AgNi/Au 5 µm 4 C/O: 10 mA AgCdO, 10 mA AgCdO/Au 0,2 µm, 2 mA AgCdO/Au 5 µm	
Max. inrush current		20 A	
Rated current		10 A	
Max. breaking capacity	AC1	2 500 VA	
Min. breaking capacity		2 C/O, 3 C/O: 0,3 W AgNi, 0,3 W AgNi/Au 0,2 µm, 0,05 W AgNi/Au 5 µm 4 C/O: 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	AC	2 C/O, 3 C/O: 6 ... 240 V 50/60 Hz	4 C/O: 6 ... 240 V 50 Hz, 60 Hz
	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

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		2 C/O, 3 C/O, 4 C/O: ≥ 3 mm
• creepage		2 C/O, 3 C/O: ≥ 4,2 mm 4 C/O: ≥ 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)		2 C/O, 3 C/O: 35 x 35 x 54,4 mm	4 C/O: 35 x 42,5 x 54,5 mm
Weight		2 C/O, 3 C/O: 83 g	4 C/O: 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.

Coil data - DC voltage version

Table 1

Coil code	Rated voltage U_n V DC	Coil resistance ±10% at 20 °C Ω	Coil operating range V DC	
			min. (at 20 °C)	max. (at 55 °C)
1006	6	28	4,8	6,6
1012	**12**	**110**	**9,6**	**13,2**
1024	**24**	**430**	**19,2**	**26,4**
1048	48	1 750	38,4	52,8
1060	60	2 700	48,0	66,0
1110	110	9 200	88,0	121,0
1120	120	11 000	96,0	132,0
1220	**220**	**37 000**	**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 (standard for R15 2 C/O, R15 3 C/O)

Table 2

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

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

Coil data - AC 50 Hz voltage version (standard for R15 4 C/O)

Table 3

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

Coil data - AC 60 Hz voltage version (special for R15 4 C/O) Table 4

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

Mounting

Relays R15 2 C/O and R15 3 C/O 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**.

Relays **R15 2 C/O** 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 C/O** 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.

Relays R15 4 C/O are offered in version • in cover, for plug-in sockets.

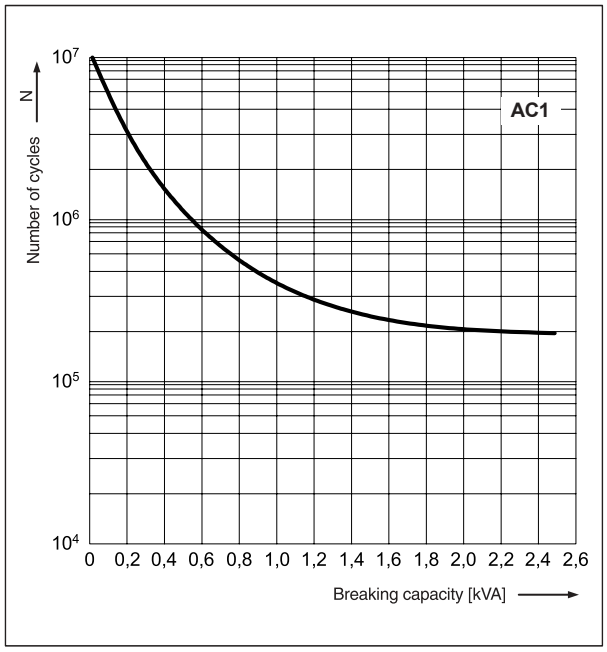
Relays **R15 4 C/O** are designed for: • screw terminals plug-in sockets **GZ14U** with clip **GZ14 0737**, 35 mm rail mount acc. to PN-EN 60715 • screw terminals plug-in sockets **GZ14** with clip **GZ14 0737**, on panel mounting with two M3 screws • screw terminals plug-in sockets **GZ14Z** with clip **GZ14 0737**, on panel mounting with two M3 screws • solder terminals sockets **GOP14** with clip **R15 0736** and spring clamp **R15 5922**.

NEW product

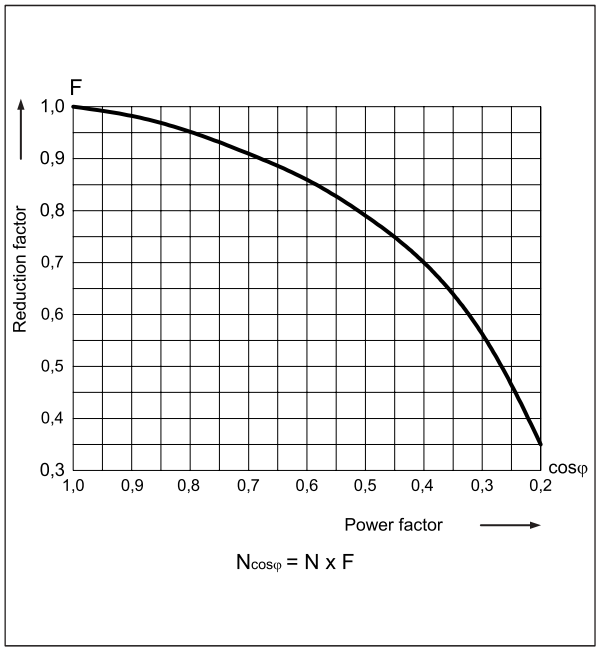
GZ14Z

Screw terminals
plug-in socket for R15 4 C/O
to be mounted behind the assembly panel
- see page 248.

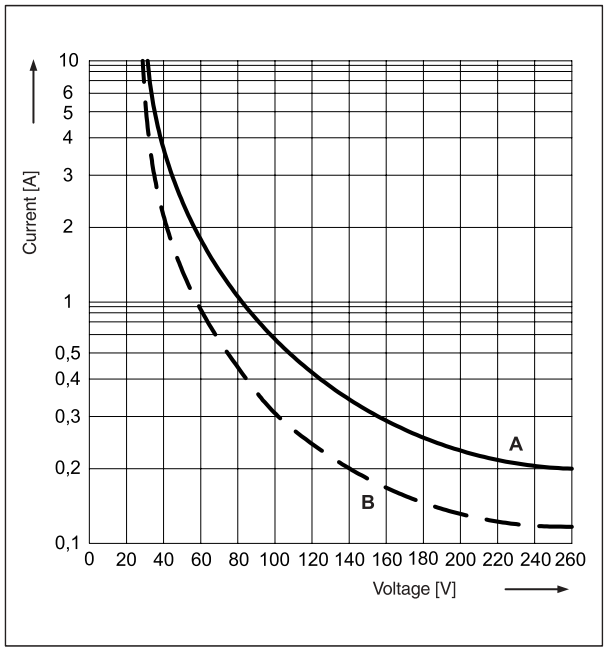
**Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour** Fig. 1



**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



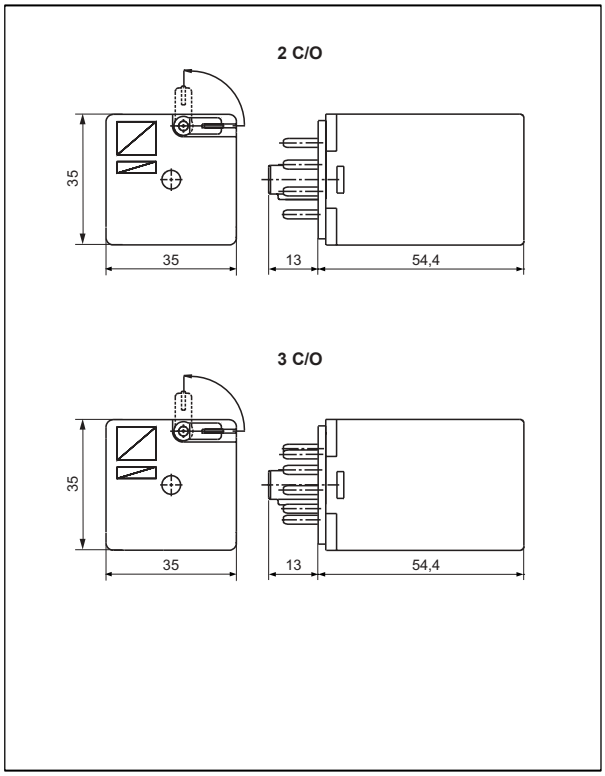
R15 2 C/O, R15 3 C/O in cover, for plug-in sockets

R15 2 C/O

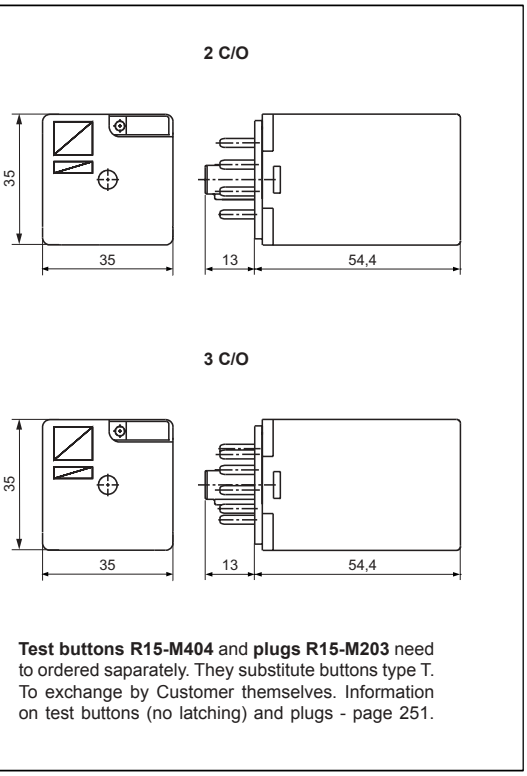
R15 3 C/O

- WT (mechanical indicator + lockable front test button) - standard features of R15 2 C/O, R15 3 C/O relays in cover, for plug-in sockets. Relays may be provided with the test buttons (no latching) and plugs - page 251
- **Have obtained LR Type Approval Certificate (Lloyd's Register) - R15...WT 2 C/O, R15...WT 3 C/O**
- Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railway standards,

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

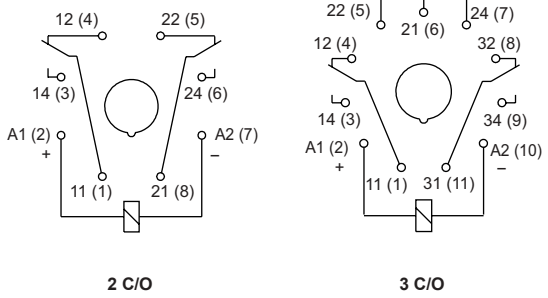


Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)



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 251.

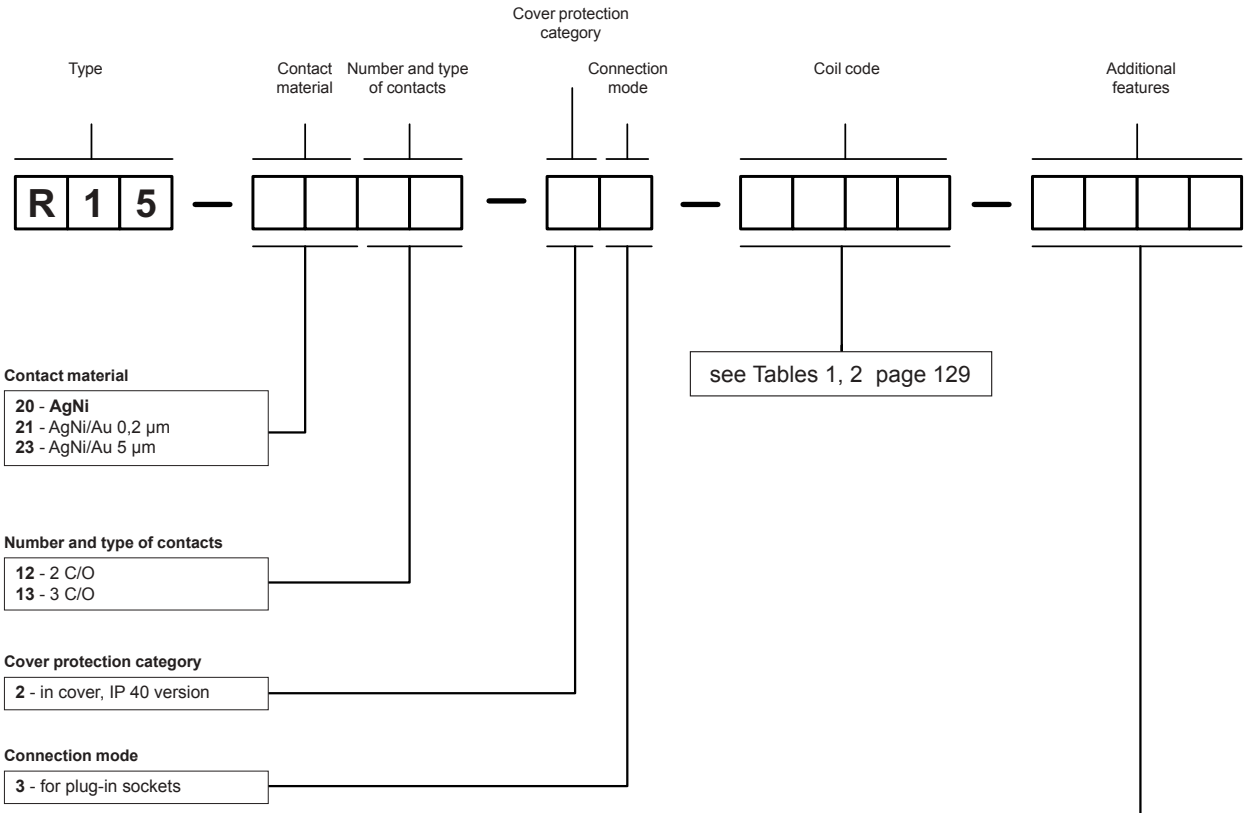
Connection diagrams (pin side view)



Note: marks "+" and "-" refer to versions with DC coils, with surge suppresion element (diode).

R15 2 C/O, R15 3 C/O in cover, for plug-in sockets

Ordering codes



Contact material

20 - **AgNi**
21 - AgNi/Au 0,2 µm
23 - AgNi/Au 5 µm

Number and type of contacts

12 - 2 C/O
13 - 3 C/O

Cover protection category

2 - in cover, IP 40 version

Connection mode

3 - for plug-in sockets

Additional features □

WT	- mechanical indicator + lockable front test button
WTL	- mechanical indicator + lockable front test button + light indicator (LED diode)
WTD	- mechanical indicator + lockable front test button + surge suppresion element (diode)
WTLD	- mechanical indicator + lockable front test button + light indicator (LED diode) + surge suppresion element (diode)
WTV	- mechanical indicator + lockable front test button + surge suppresion element (varistor)
WTLV	- mechanical indicator + lockable front test button + light indicator (LED diode) + surge suppresion element (varistor)

□ **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 251.

- 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)

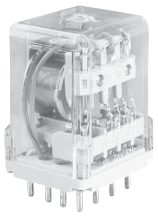
Note:
Colour of lockable front test button type T represents type of coil supply current: orange - AC coil, green - DC coil.

Examples of ordering codes:

R15-2012-23-1024-WT relay **R15**, contact material AgNi, with two changeover contacts, in cover IP 40, for plug-in sockets, voltage version 24 V DC, with mechanical indicator and lockable front test button

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

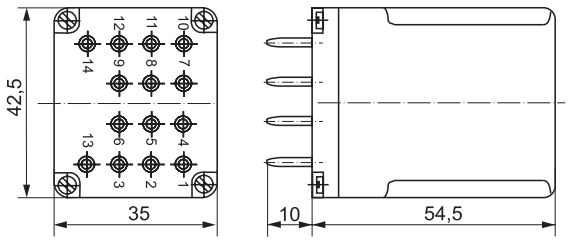
R15 4 C/O in cover, for plug-in sockets



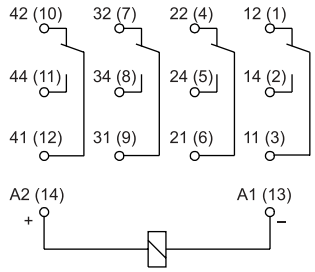
R15 4 C/O

• Recognitions, certifications, directives: RoHS,

Dimensions



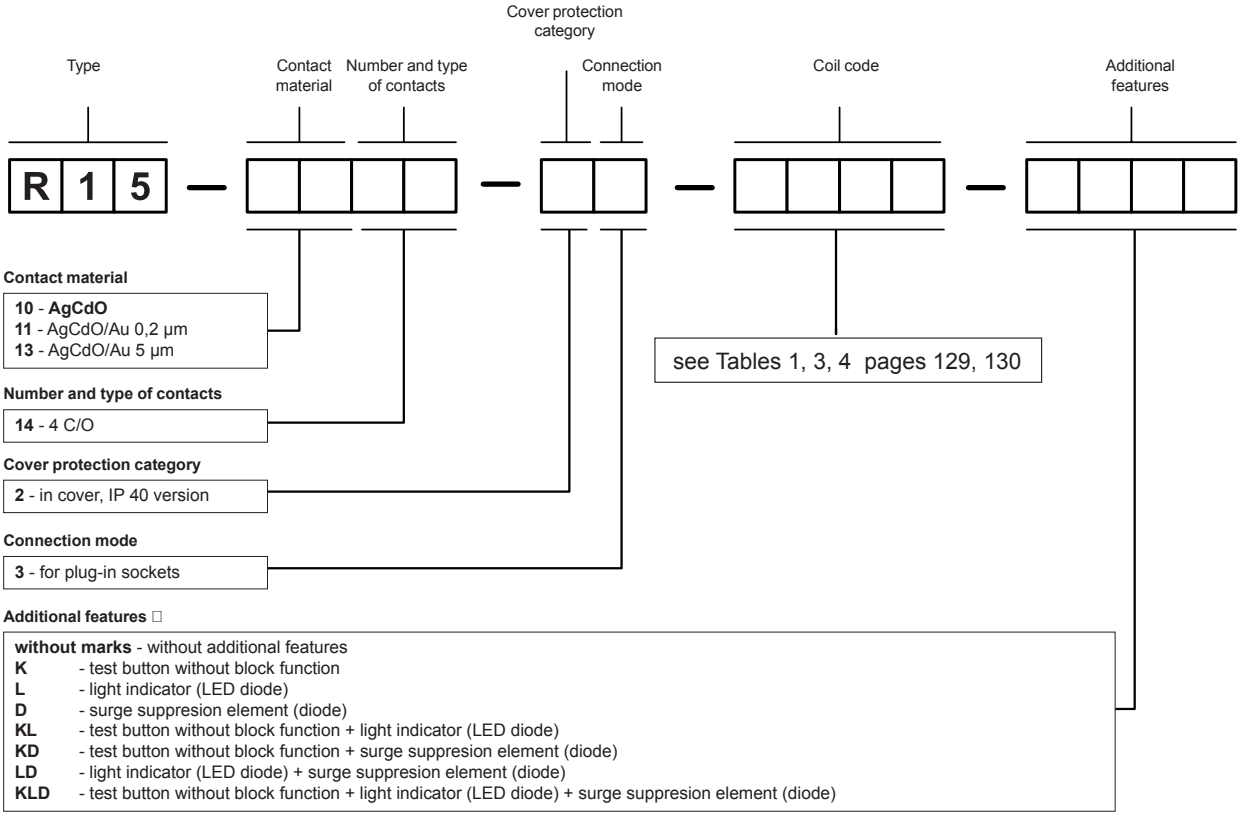
Connection diagram (pin side view)



4 C/O

Note: marks "+" and "-" refer to versions with DC coils, with surge suppresion element (diode) and light indicator (LED diode).

Ordering codes



Contact material

10 - **AgCdO**
11 - AgCdO/Au 0,2 µm
13 - AgCdO/Au 5 µm

see Tables 1, 3, 4 pages 129, 130

Number and type of contacts

14 - 4 C/O

Cover protection category

2 - in cover, IP 40 version

Connection mode

3 - for plug-in sockets

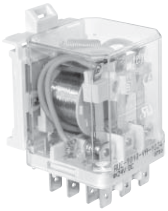
Additional features □

without marks - without additional features
K - test button without block function
L - light indicator (LED diode)
D - surge suppresion element (diode)
KL - test button without block function + light indicator (LED diode)
KD - test button without block function + surge suppresion element (diode)
LD - light indicator (LED diode) + surge suppresion element (diode)
KLD - test button without block function + light indicator (LED diode) + surge suppresion element (diode)

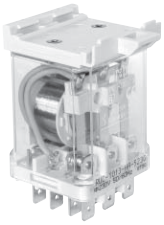
□ **D, KD, LD, KLD** - only for DC coils
Note: for R15 4 C/O relays 50/60 Hz coils are not offered, show coil according with Table 3 or 4, pages 129, 130.

Example of ordering code:

R15-1014-23-3230-K relay **R15**, contact material AgCdO, with four changeover contacts, in cover IP 40, for plug-in sockets, voltage version 230 V AC 50 Hz, with test button without block function



with adaptor (V)



with adaptor (H)

NEW product

• 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; etc.

• Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts		2 C/O, 3 C/O, 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 □
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 □
	DC1	16 A / 24 V DC
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 cycles/hour
• no load		12 000 cycles/hour

Coil data

Rated voltage	AC	6 ... 240 V 50/60 Hz 400 V 50 Hz □
	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		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
		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
	• creepage	≥ 8 mm

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 C/O: 1/3 HP 120 V AC, single-phase motor 1/2 HP 240 V AC, single-phase motor
		3 C/O: 1/3 HP 120 V AC, single-phase motor 1/2 HP 240 V AC, single-phase motor
		3 C/O: 1/2 HP 240 V AC, three-phase motor
Dimensions (L x W x H)		RUC faston 4,8 x 0,5 □ RUC faston 6,3 x 0,8 □
Weight		80 g □ 85 g □
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+55 °C 3 C/O, 3 NO / 16 A (+70 °C 2 C/O, 2 NO / 16 A)
		DC: -40...+55 °C 3 C/O, 3 NO / 16 A (+70 °C 3 C/O, 3 NO / 10 A; 2 C/O, 2 NO / 16 A)
Cover protection category		IP 00 PN-EN 60529
Shock / vibration resistance		10 g / 5 g 10...150 Hz
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

The data in bold type pertain to the standard versions of the relays. □ 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. □ 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. □ 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. □ Weight of plug-in sockets version and PCB version (RUC faston 4,8 x 0,5). □ 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 ±10% at 20°C Ω	Coil operating range V DC	
			min. (at 20°C)	max. (at 55°C)
1006	6	28	4,8	6,6
1012	**12**	**110**	**9,6**	**13,2**
1024	24	430	19,2	26,4
1042	42	1 340	33,6	46,2
1048	48	1 750	38,4	52,8
1060	60	2 700	48,0	66,0
1110	110	9 200	88,0	121,0
1120	120	11 000	96,0	132,0
1220	220	37 000	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 □	Rated voltage V DC	Coil resistance ±10% at 20°C Ω	Coil operating range V DC	
			min. (at 20°C)	max. (at 55°C)
W012	12	85	9,6	13,2
W024	24	345	19,2	26,4
W048	48	1 370	38,4	52,8
W110	110	7 300	88,0	121,0
W220	220	30 000	176,0	242,0

□ For version with contact gap ≥ 3 mm.

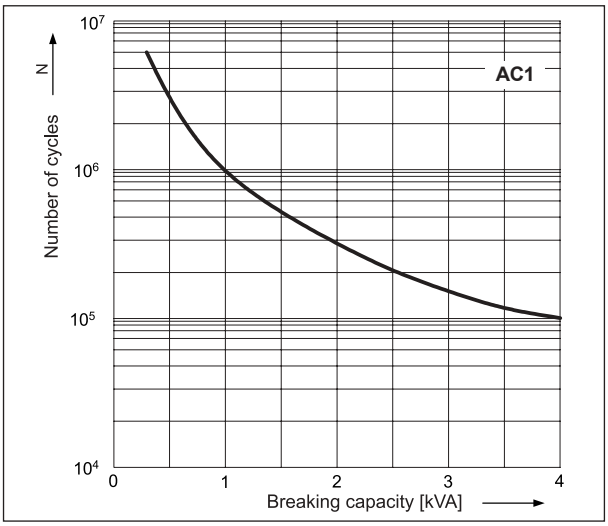
Coil data - AC 50/60 Hz voltage version Table 3

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

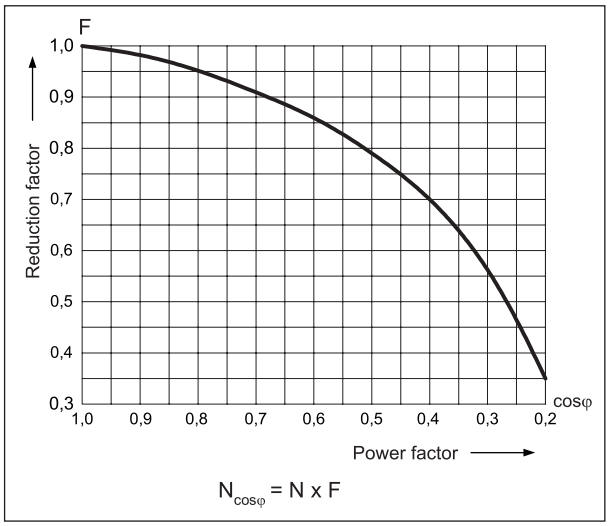
Coil data - AC 50 Hz voltage version Table 4

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

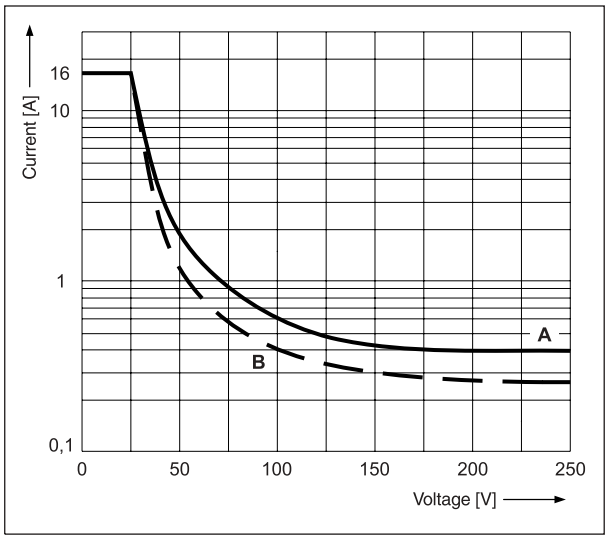
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour Fig. 1



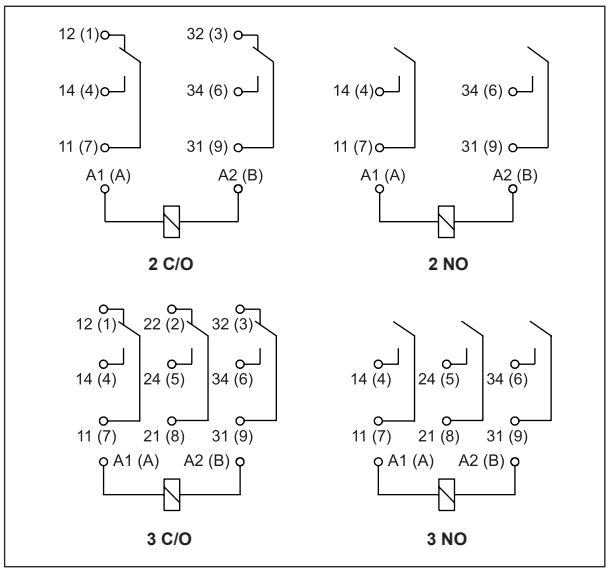
Electrical life reduction factor
at AC inductive load Fig. 2



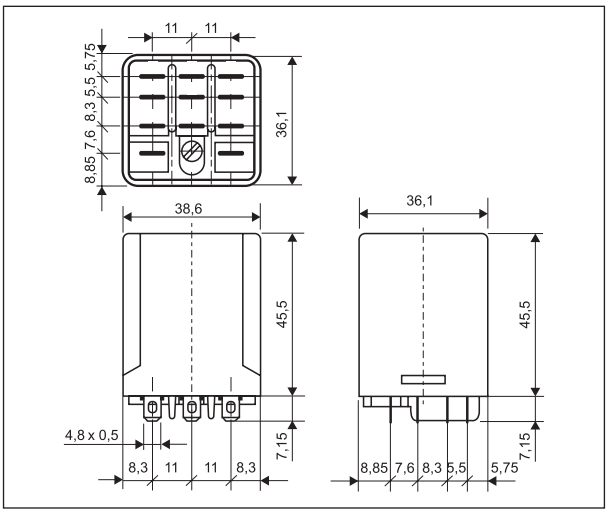
Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms Fig. 3



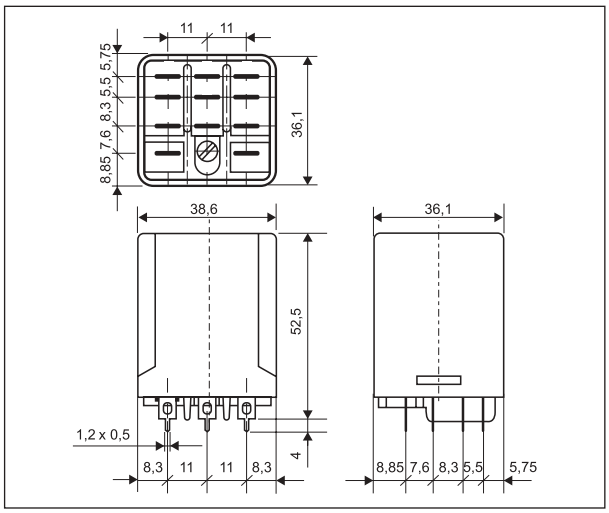
Connection diagrams (pin side view)



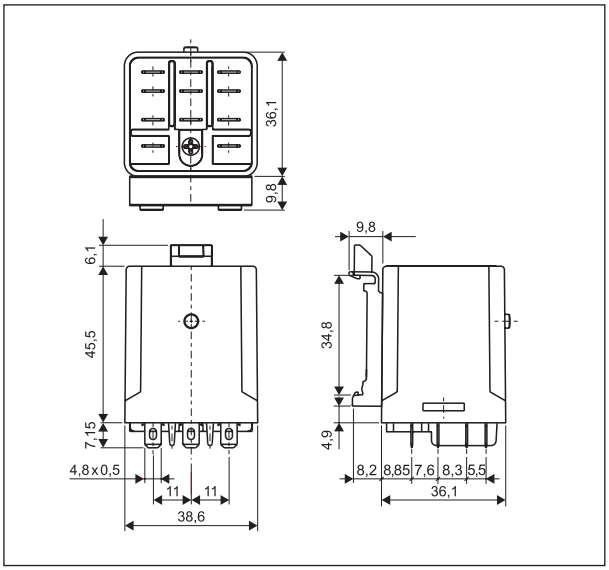
Dimensions - RUC faston 4,8 x 0,5
- plug-in version (standard)



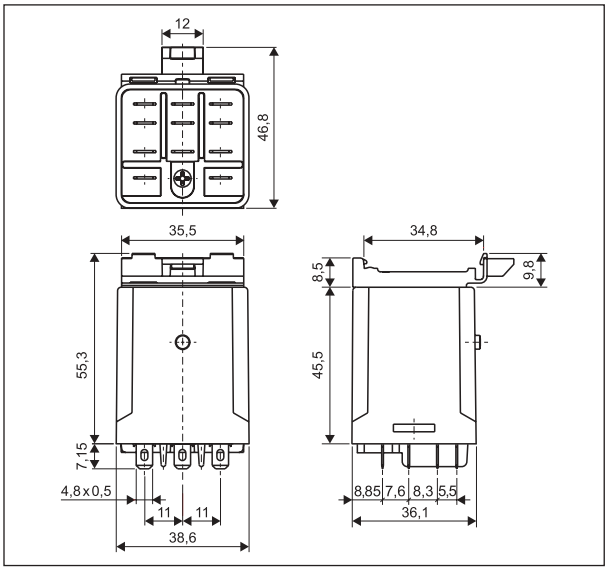
Dimensions - RUC faston 4,8 x 0,5
- PCB version



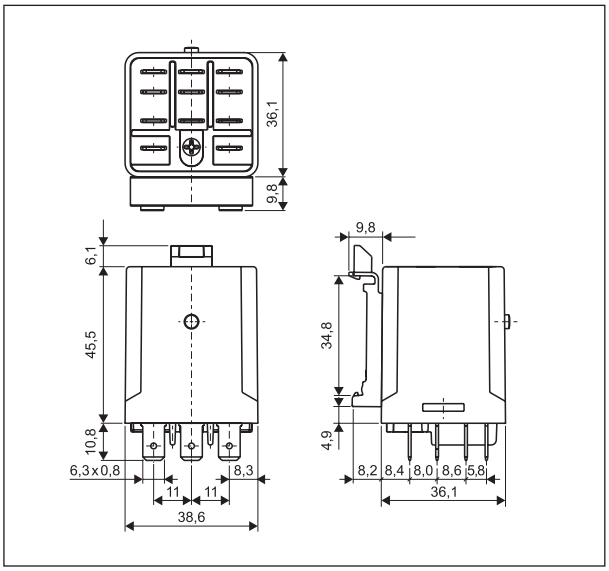
Dimensions - RUC faston 4,8 x 0,5
- version with vertical adaptor (V)



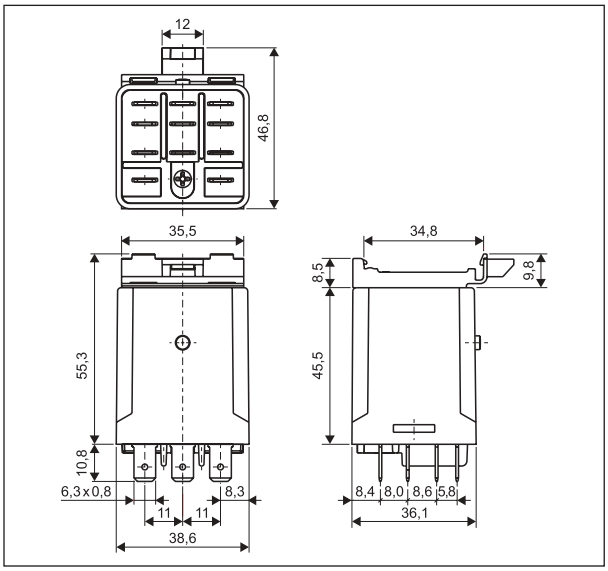
Dimensions - RUC faston 4,8 x 0,5
- version with horizontal adaptor (H)



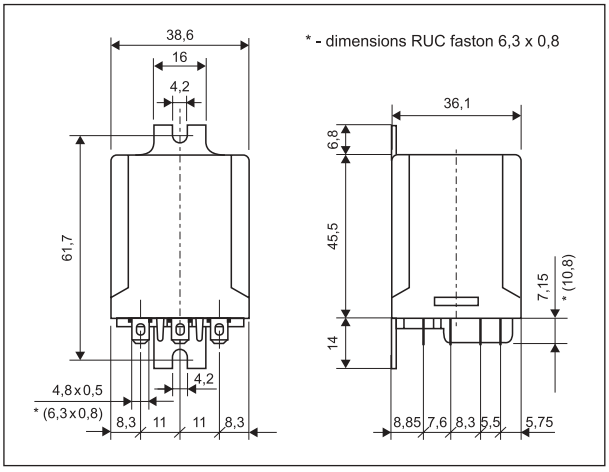
Dimensions - RUC faston 6,3 x 0,8
- version with vertical adaptor (V)



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



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



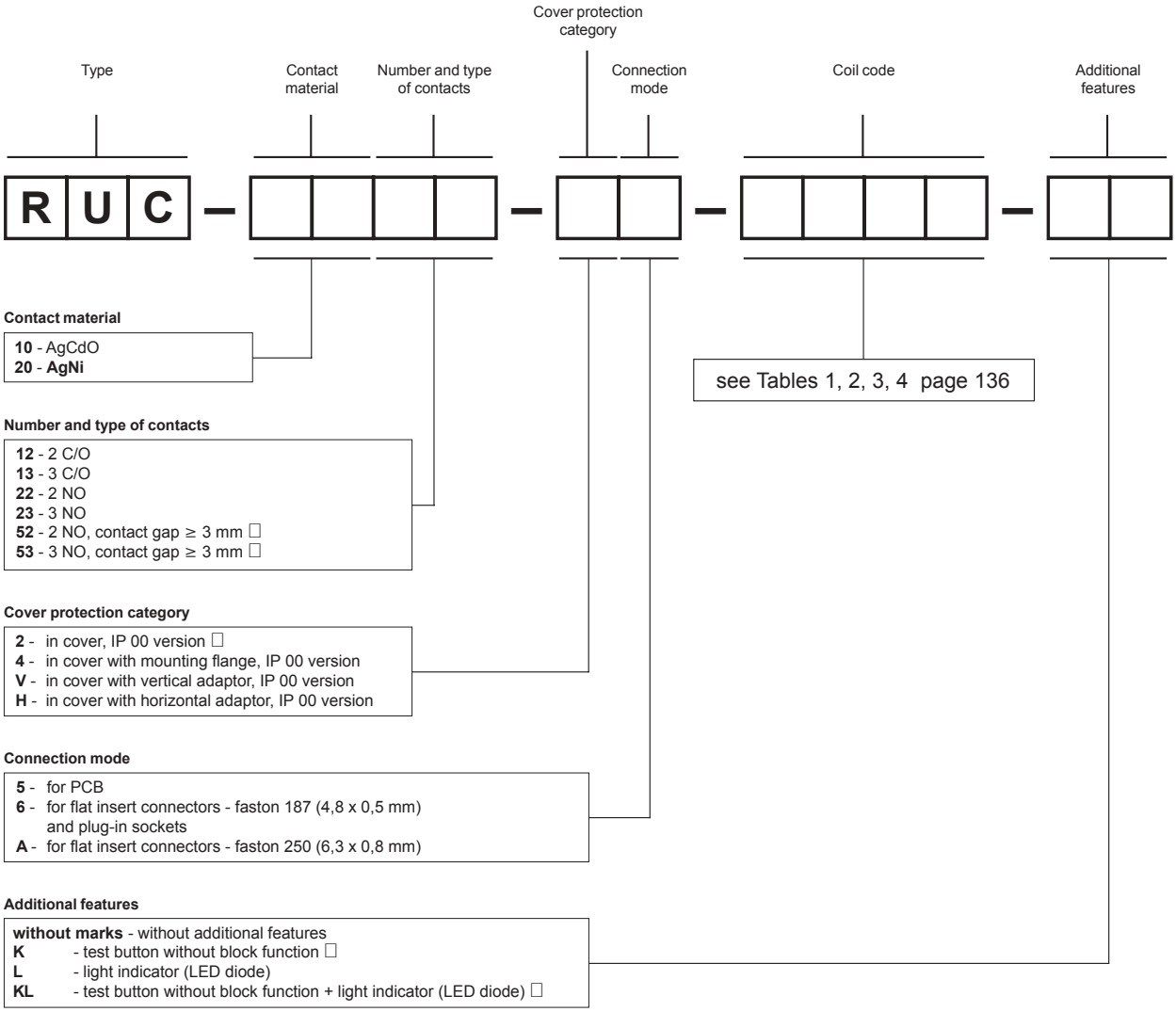
Mounting

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

□ Relays are not available with (V) or (H) adaptor, and cover with mounting flange.

□ 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



□ For versions with reinforced DC coils: W012, W024, W048, W110, W220 and with AC coils.
□ Only for version RUC faston 4,8 x 0,5.
□ 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), contact material AgNi, with three normally open contacts, with contact gap ≥ 3 mm, in cover IP 00, for plug-in sockets GUC11, voltage version 24 V DC - reinforced coil

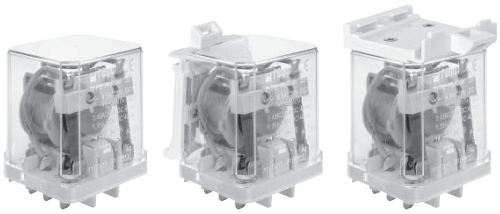
RUC-2013-V6-3400-KL relay **RUC**, faston 187 (4,8 x 0,5 mm), contact material AgNi, with three changeover contacts, in cover IP 00, with vertical adaptor (V), for flat insert connectors, voltage version 400 V AC 50 Hz, with test button without block function and light indicator (LED diode)

RUC-2052-HA-W220-L relay **RUC**, faston 250 (6,3 x 0,8 mm), contact material AgNi, with two normally open contacts, with contact gap ≥ 3 mm, in cover IP 00, with horizontal adaptor (H), for flat insert connectors, voltage version 220 V DC - reinforced coil, with light indicator (LED diode)

RUC-1022-25-5024 relay **RUC**, contact material AgCdO, with two normally open contacts, in cover IP 00, for PCB, voltage version 24 V AC 50/60 Hz

RUC-M

industrial relays for DC loads



NEW product

with adaptor (V) with adaptor (H)

• Magnetic blow-out relays for high DC load with the contact plate with permanent magnet whose magnetic field blows out the electric arc between the contacts • 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; 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, AC / 350 V DC; 440 V AC □	
Min. switching voltage		10 V	
Rated load (capacity)	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	AC1	1 200 cycles/hour	
• no load		12 000 cycles/hour	

Coil data

Rated voltage	AC	12 ... 240 V 50/60 Hz	
	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: reinforced
	• 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		≥ 2 x 10^5 12 A, 220 V DC	≥ 2 x 10^5 4,5 A, 220 V DC
• DC L/R=40 ms		≥ 2 x 10^5 3 A, 220 V DC	≥ 2 x 10^5 0,45 A, 220 V DC
Mechanical life (cycles)		≥ 2 x 10^7	
Dimensions (L x W x H)		36,1 x 38,6 x 45,5 mm □	
Weight		80 g □ 85 g □	
Ambient temperature	• storage	-40...+85 °C	
	• operating	-40...+70 °C	
Cover protection category		IP 00 PN-EN 60529	
Shock resistance		10 g	
Vibration resistance		5 g 10...150 Hz	
Solder bath temperature		max. 270 °C	
Soldering time		max. 5 s	

The data in bold type pertain to the standard versions of the relays.
□ For RUC-M with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC/DC.
□ 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.
□ Weight of plug-in sockets version and PCB version. □ Weight of version with (V) or (H) adaptor, and version with mounting flange.

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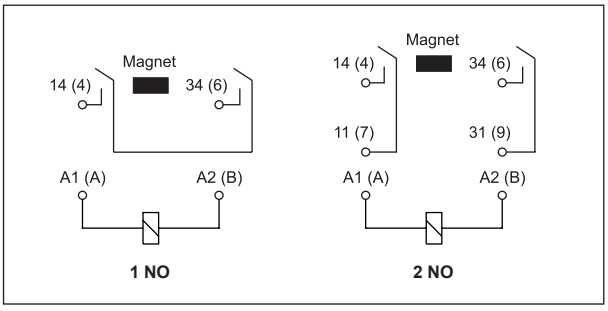
Coil data - DC voltage version, reinforced Table 1

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

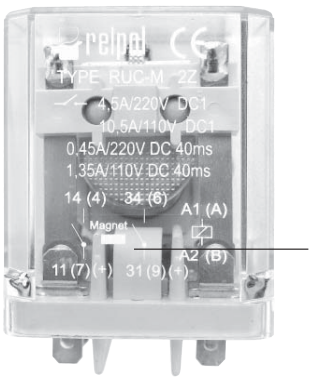
Coil data - AC 50/60 Hz voltage version Table 2

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

Connection diagrams (pin side view)

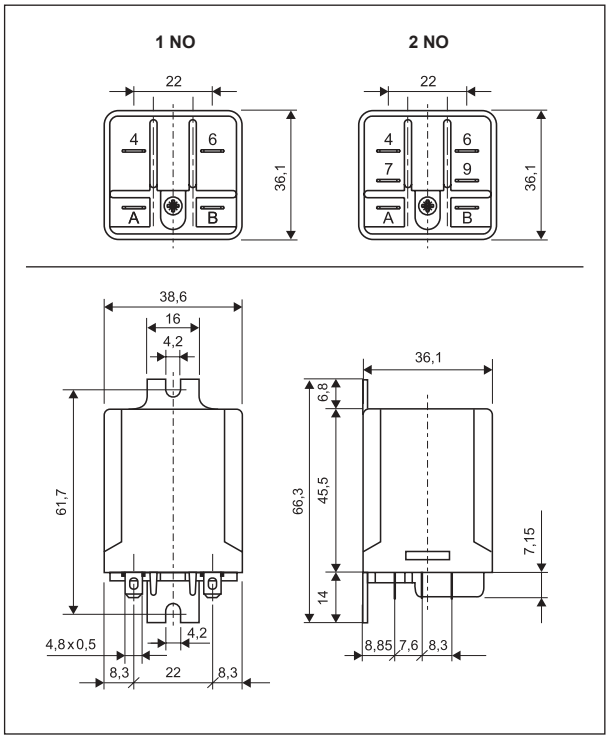


Design

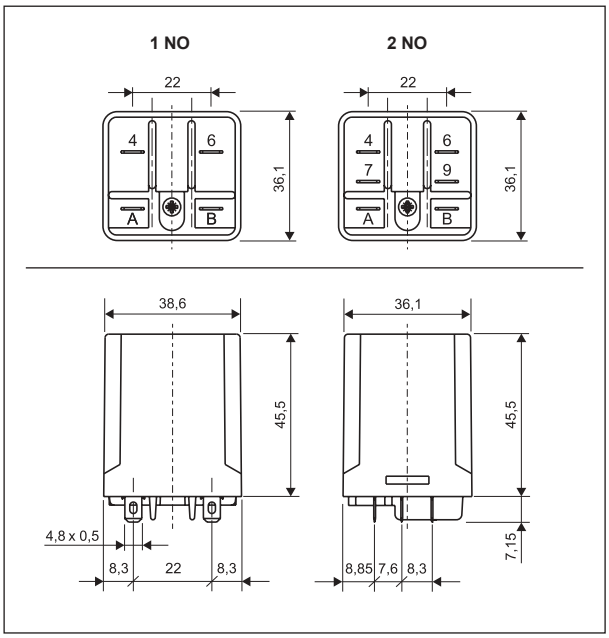


Permanent magnet fixed in the contact plate to perform the function of the so-called "magnetic blow-out". Its magnetic field is directed to the contact set and blows out the electric arc which appears at switching off the DC load.

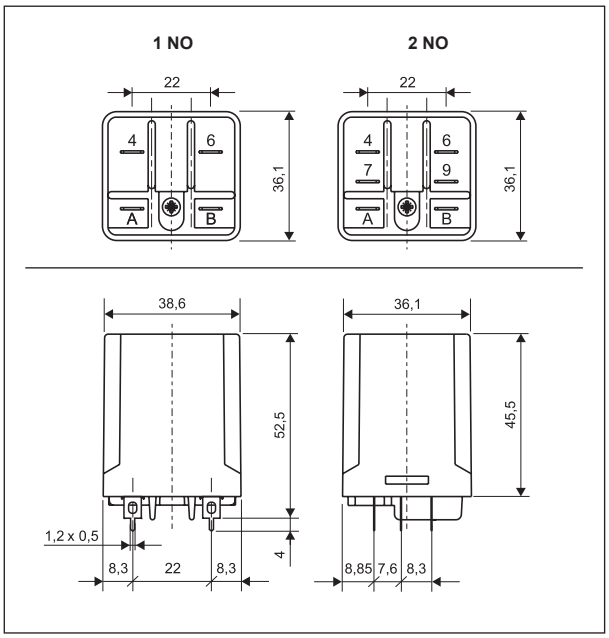
Dimensions - version with mounting flange in the wall of the cover



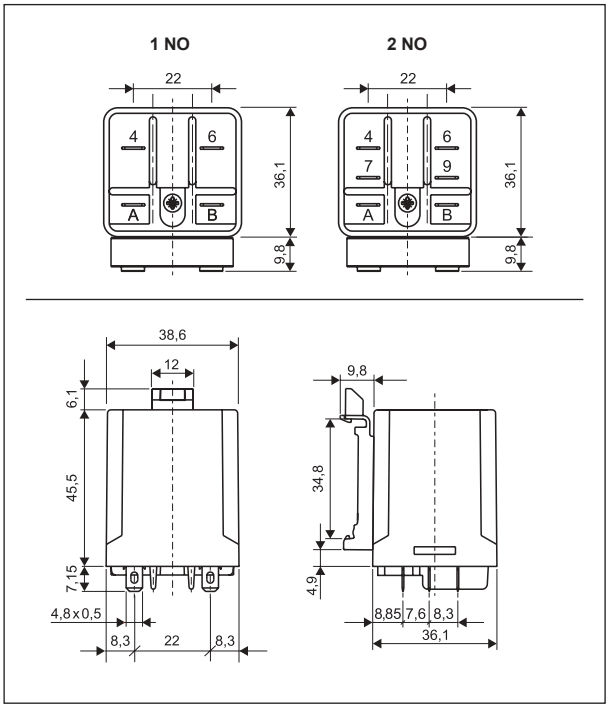
Dimensions - plug-in version (standard)



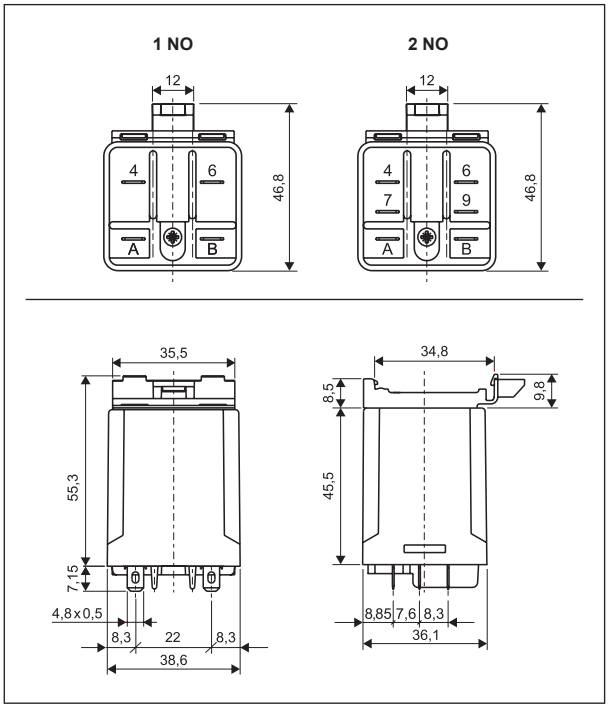
Dimensions - PCB version



Dimensions - version with vertical adaptor (V)



Dimensions - version with horizontal adaptor (H)

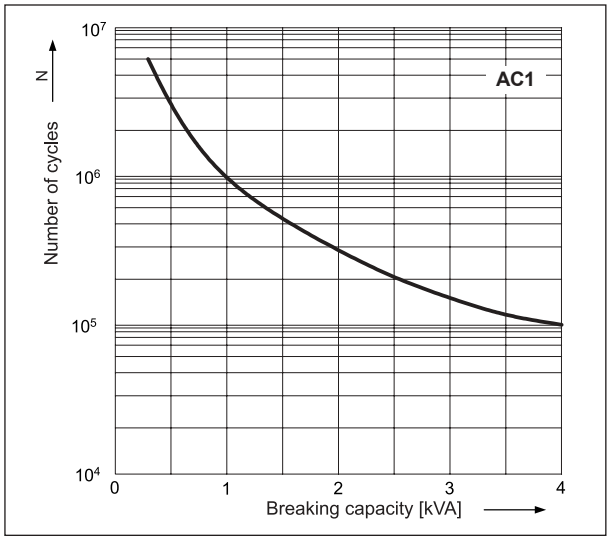


Mounting

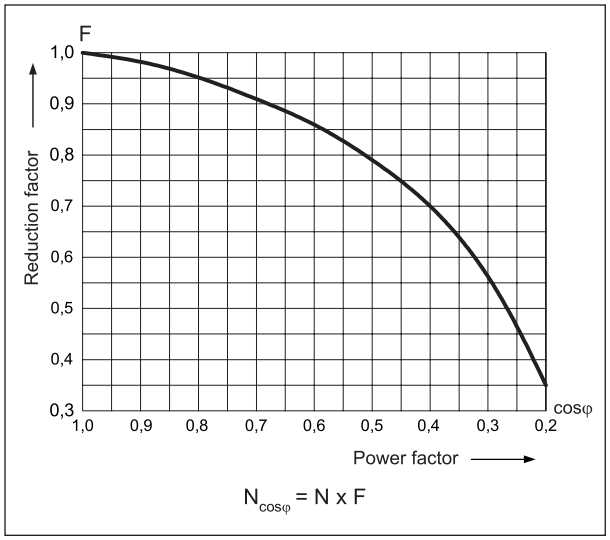
Relays RUC-M are offered in versions: • standard, for screw terminals plug-in sockets **GUC11** □ with clip **MBA**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • with mounting flange in the wall of the cover, on panel mounting, flat insert connectors - faston 187 (4,8 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 □.

□ Relays are not available with (V) or (H) adaptor, and cover with mounting flange.
□ For RUC-M with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC/DC.

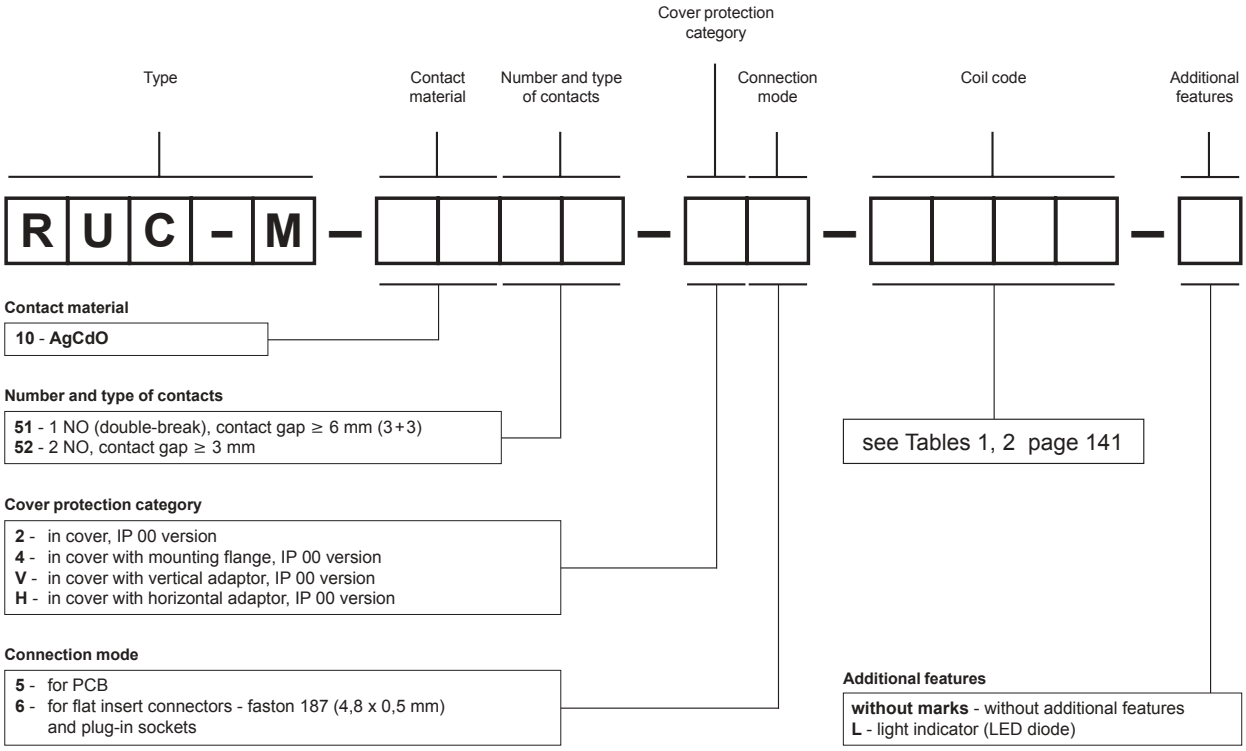
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour Fig. 1



Electrical life reduction factor at AC inductive load Fig. 2



Ordering codes



Examples of ordering codes:

RUC-M-1051-26-W024 relay **RUC-M**, faston 187 (4,8 x 0,5 mm), contact material AgCdO, with one normally open contact (double-break), with contact gap ≥ 6 mm (3+3), in cover IP 00, for plug-in sockets GUC11, voltage version 24 V DC - reinforced coil

RUC-M-1052-V6-5230-L relay **RUC-M**, faston 187 (4,8 x 0,5 mm), contact material AgCdO, with two normally open contacts, with contact gap ≥ 3 mm, in cover IP 00, with vertical adaptor (V), for flat insert connectors, voltage version 230 V AC 50/60 Hz, with light indicator (LED diode)

RUC-M-1051-25-5024 relay **RUC-M**, contact material AgCdO, with one normally open contact (double-break), with contact gap ≥ 6 mm (3+3), in cover IP 00, for PCB, voltage version 24 V AC 50/60 Hz

- 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; 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: full-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 ±10% at 20 °C Ω	Coil operating range V DC	
			min. (at 20°C)	max. (at 55°C)
1012	12	85	9,6	13,2
1024	**24**	**340**	**19,2**	**26,4**
1048	48	1 350	38,4	52,8
1110	110	7 600	88,0	121,0
1220	220	30 000	176,0	242,0

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

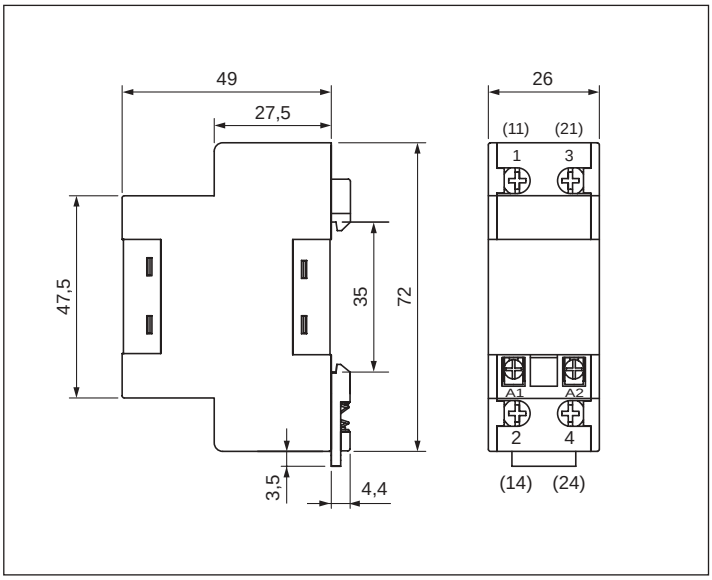
Coil data - AC 50 Hz voltage version

Table 2

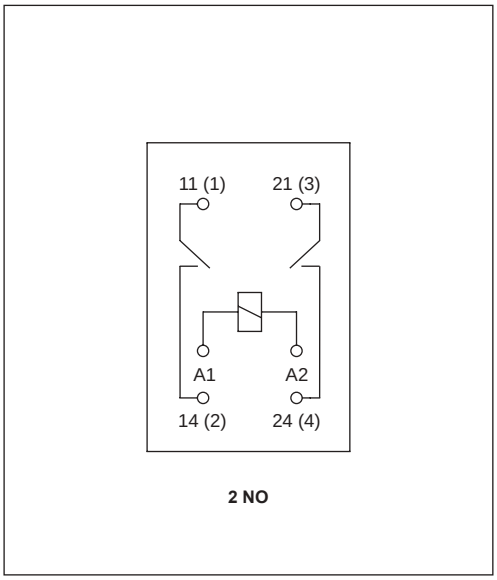
Coil code	Rated voltage V AC	Coil resistance ±10% at 20 °C Ω	Coil operating range V AC	
			min. (at 20°C)	max. (at 55°C)
3012	12	17	8,4	13,2
3024	**24**	**76**	**16,8**	**26,4**
3110	110	1 600	77,0	121,0
3230	**230**	**6 800**	**161,0**	**253,0**
3400	400	18 600	280,0	440,0

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

Dimensions

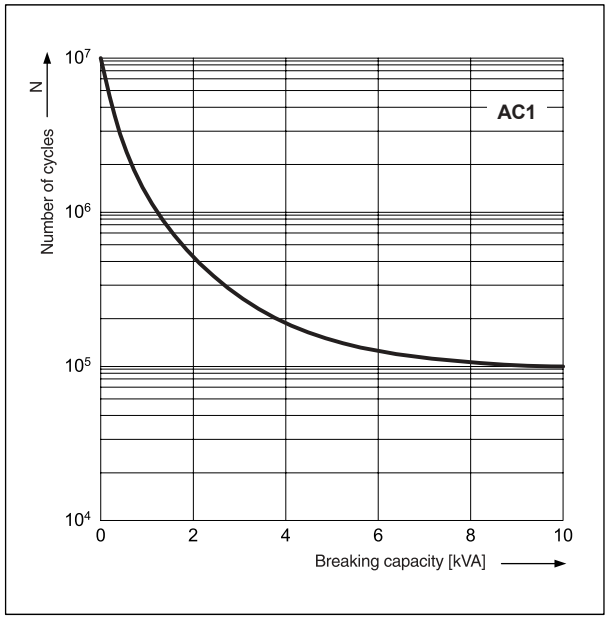


Connection diagram
(screw terminals side view)



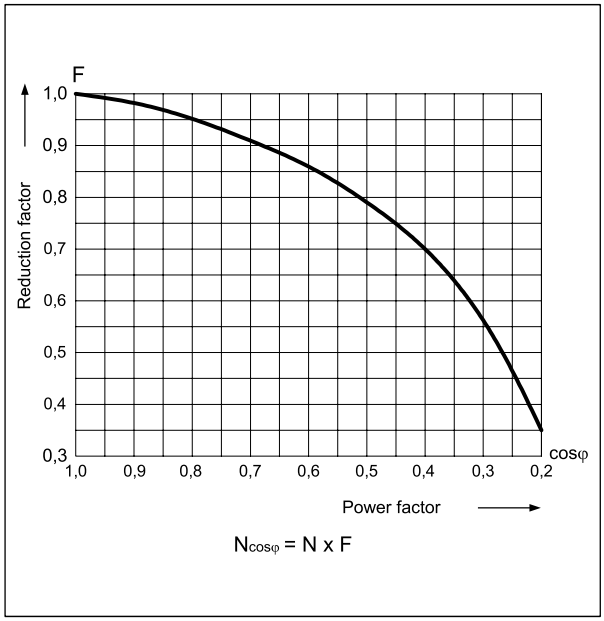
Electrical life at AC resistive load.
Switching frequency: 600 cycles/hour

Fig. 1



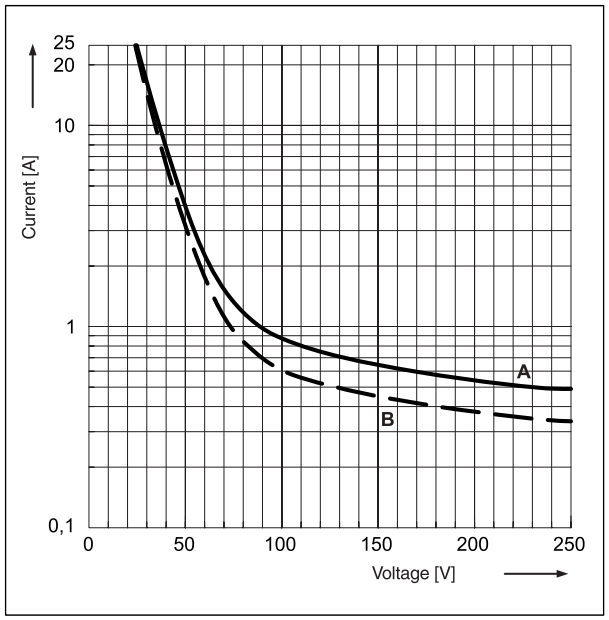
Electrical life reduction factor at AC inductive load

Fig. 2



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

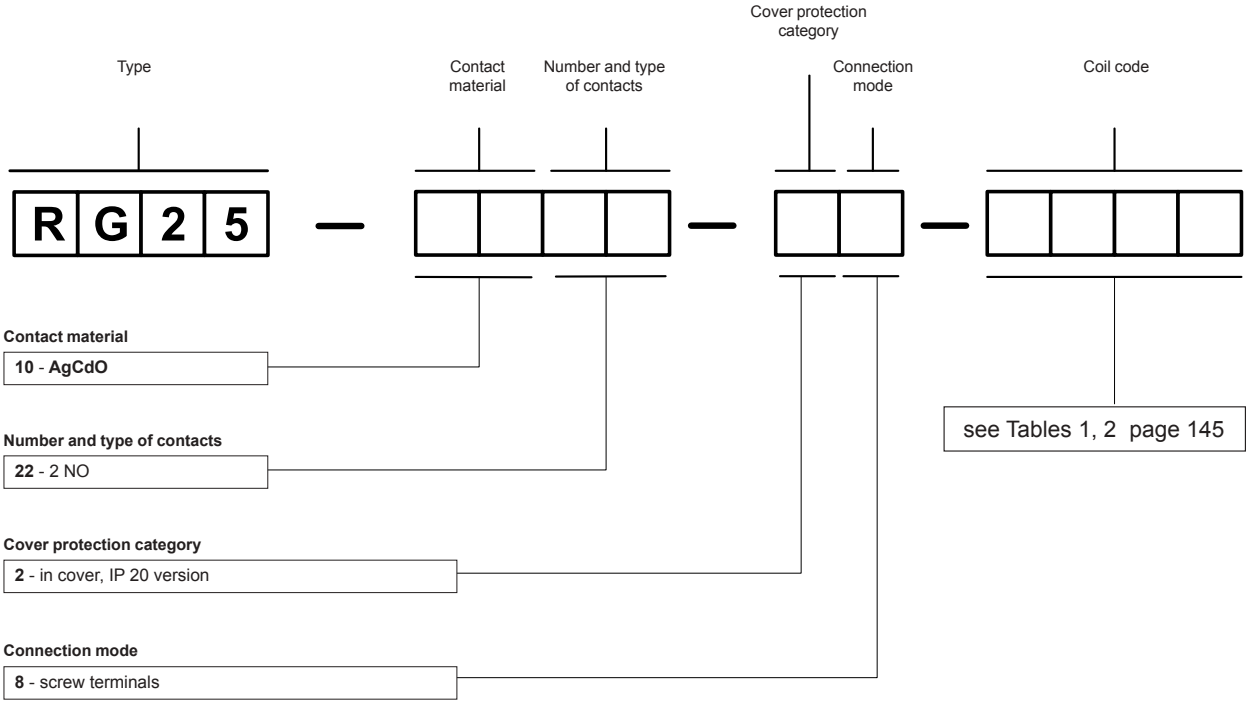
Fig. 3



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. Maximum size of wires 2 x 2,5 mm^2 (2 x 14 AWG). Rated cross-sectional area of conductors 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torque: 0,7 Nm.

Ordering codes



Example of ordering code:

RG25-1022-28-3230 relay **RG25**, contact material AgCdO, with two normally open contacts, in cover IP 20, screw terminals, voltage version 230 V AC 50 Hz

R20
industrial relays of small dimensions

- High switching capacity up to 30 A
- "Bridge" type contacts which open the circuit with double break
- Flat insert connectors - faston 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, 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	
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...2,5 VA	
	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	1 NO: 30 A, 250 V AC 2 NO: 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.
□ In cover with mounting flange.

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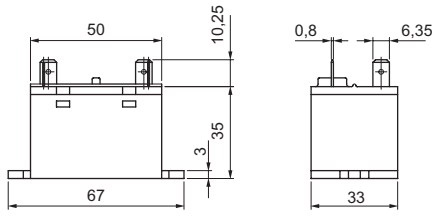
Coil data - DC voltage version Table 1

Coil code	Rated voltage V DC	Coil resistance ± 10% at 20°C Ω	Coil operating range at 20°C V DC		Power consumption W
			min.	max.	
1012	12	75,8	9,0	13,2	1,9
1024	24	303,0	18,0	26,4	1,9
1110	110	6 400,0	82,5	121,0	1,9

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

Coil code	Rated voltage V AC	Coil resistance ± 10% at 20°C Ω	Coil operating range at 20°C V AC		Power consumption VA
			min.	max.	
5024	24	338	18,0	26,4	1,7
5048	48		36,0	52,8	1,7
5115	115	5 260	86,3	126,5	2,5
5230	230	21 000	172,5	253,0	2,5

Dimensions



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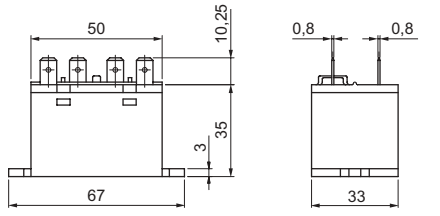
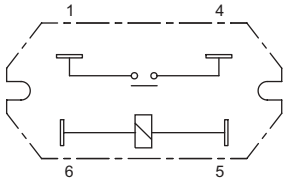
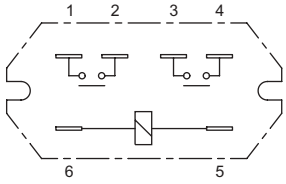


2 NO

Connection diagrams (pin side view)

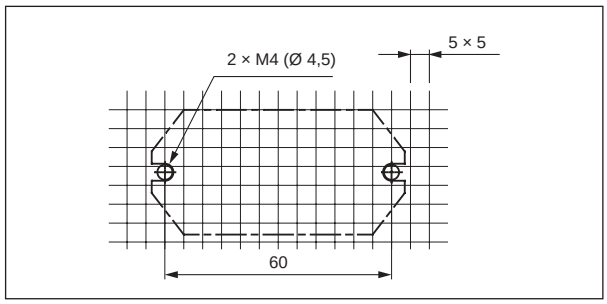


1 NO



2 NO

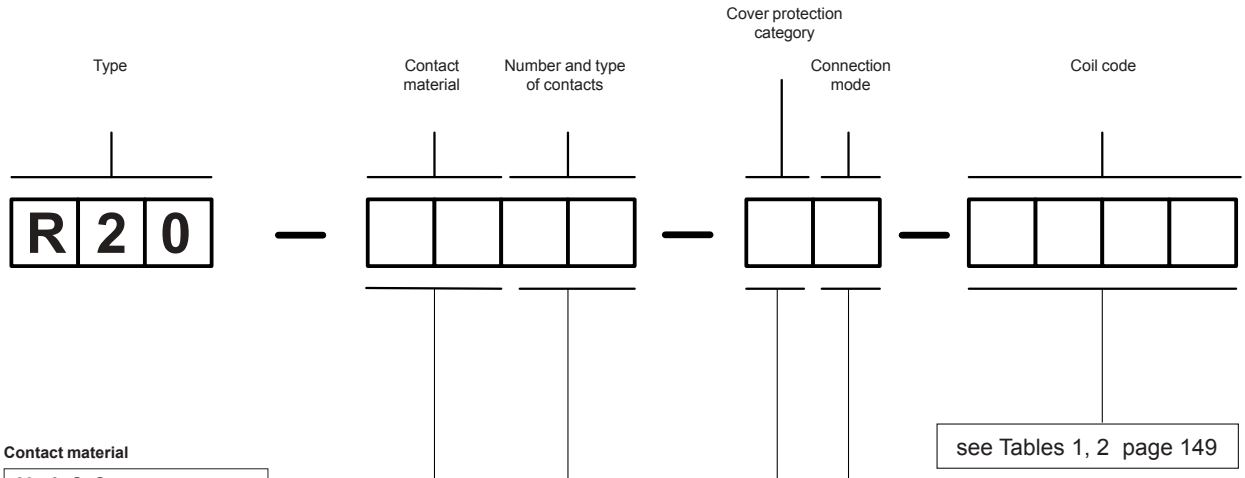
Pinout



Mounting

Relays **R20** are designed for flat insert connectors - faston 6,3 x 0,8 mm. Relays are 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 6,3 x 0,8 mm

Example of ordering code:

R20-3021-96-1012 relay **R20**, contact material $AgSnO_2$, with one normally open contact, in cover with mounting flange IP 50, for flat insert connectors - faston 6,3 x 0,8 mm, voltage version 12 V DC

NEW product

- High switching capacity up to 30 A
- For PCB
- Available also with sealed cover (standard with no sealing)
- Applications: internal applications, heating systems, ventilation, automotive electric systems, other electric applications
- Recognitions, certifications, directives: RoHS, cULus

Contact data

Number and type of contacts		1 C/O, 1 NO	
Contact material		**$AgSnO_2$**	
Rated / max. switching voltage	AC	240 V / 250 V	
Min. switching voltage		10 V	
Rated load	AC1	1 C/O: 20 A / 10 A (NO/NC) / 240 V AC	1 NO: 30 A / 240 V AC
	DC1	1 C/O: 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 C/O: 20 A / 10 A (NO/NC)	1 NO: 30 A
Max. breaking capacity	AC1	1 C/O: 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 C/O: 20 A / 10 A (NO/NC), 240 V AC	1 NO: 30 A, 240 V AC
Mechanical life (cycles)		> 10^7	
Dimensions (L x W x H)		32,2 x 27,5 x 20,5 mm	
Weight		22 g	
Ambient temperature	• operating	-30...+55 °C	
Cover protection category		IP 64 PN-EN 60529	
Shock resistance		5 g	
Vibration resistance		1,5 mm DA (constant amplitude) 10...55 Hz	

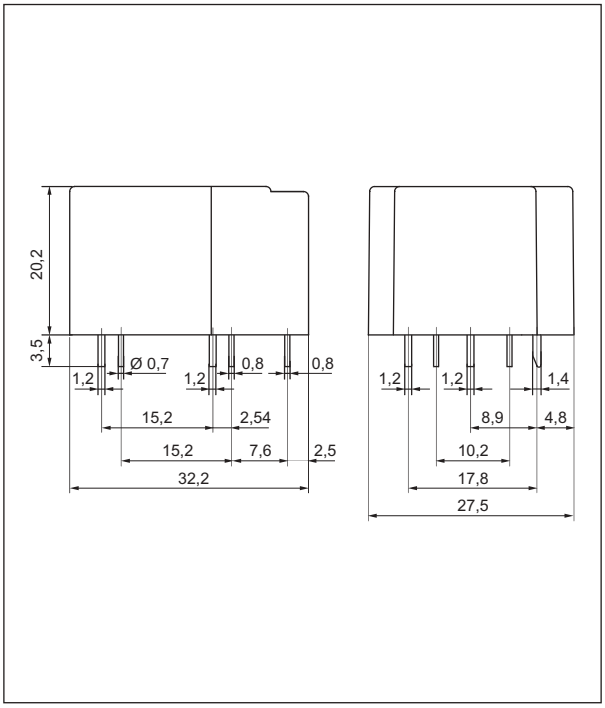
The data in bold type pertain to the standard versions of the relays.

Coil data - DC voltage version

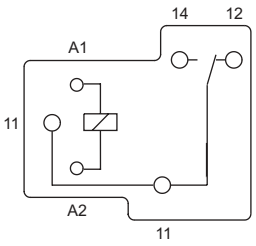
Table 1

Coil code	Rated voltage V DC	Coil resistance ± 10% at 20°C Ω	Coil operating range at 20°C V DC		Power consumption W
			min.	max.	
1012	12	155	9,6	18	1,0
1024	24	660	19,2	36	1,0

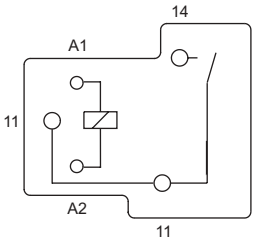
Dimensions



Connection diagrams (pin side view)



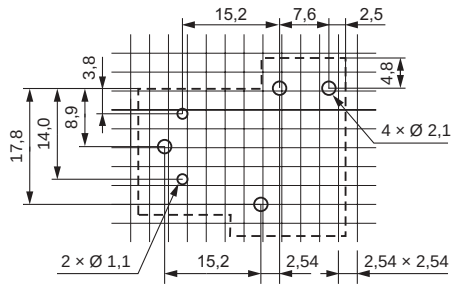
1 C/O



1 NO

Pinout (solder side view)

1 C/O



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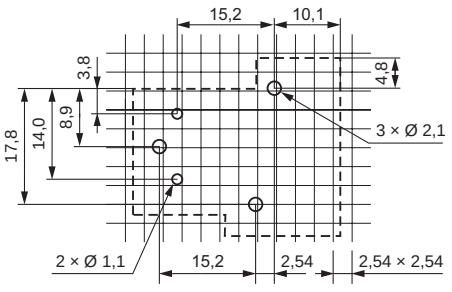
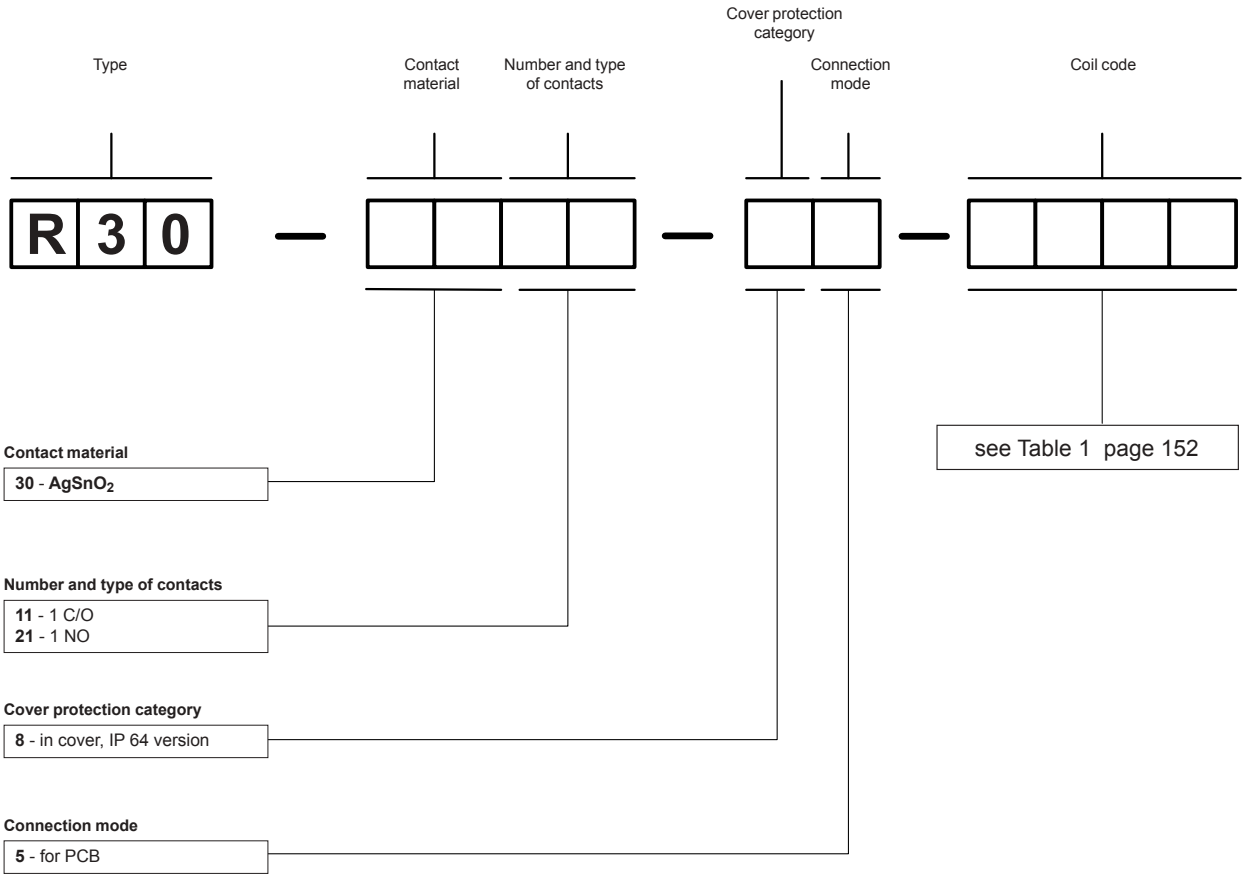


Mounting

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

Ordering codes



Examples of ordering codes:

R30-3011-85-1012 relay **R30**, contact material $AgSnO_2$, with one changeover contact, in cover IP 64, for PCB, voltage version 12 V DC

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

RS35

RS50

NEW product

- **Relays for power control in solar systems generating energy**
- Max. switching current: 35 A (version RS35); 50 A (version RS50)
- 5000 V / 10 mm reinforced insulation
- Contact gap > 1,75 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	
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		see Table 1
Rated power consumption	DC	0,48 W
Power consumption at pickup voltage		0,3 W
Max. continuous dissipation		1,9 W at 20 °C

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
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

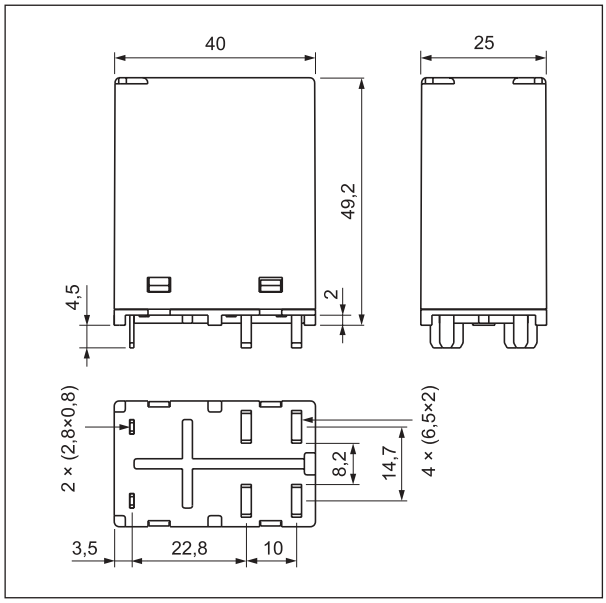
Operating / release time (typical values)		30 ms / 5 ms	
Electrical life			
• resistive AC1		5×10^4 35 A, 250 V AC, 20 °C	5×10^4 50 A, 250 V AC, 20 °C
• AC7a		3×10^4 35 A, 250 V AC, 20 °C	3×10^4 50 A, 250 V AC, 20 °C
Mechanical life (cycles)		10^6	
Dimensions (L x W x H)		40 x 25 x 49,2 mm	
Weight		105 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.

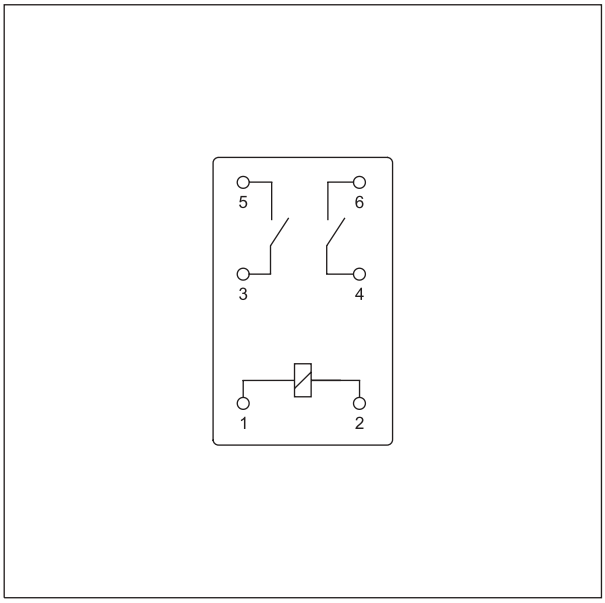
Coil data - DC voltage version Table 1

Coil code	Rated voltage V DC	Coil resistance ±10% at 20°C Ω	Coil operating range V DC	
			min. (at 20°C)	max. (at 55°C)
1005	5	50	3,75	10
1009	9	170	6,75	18
1012	12	300	9,00	24
1018	18	675	13,50	36
1024	24	1 200	18,00	48
1100	110	25 000	82,50	220

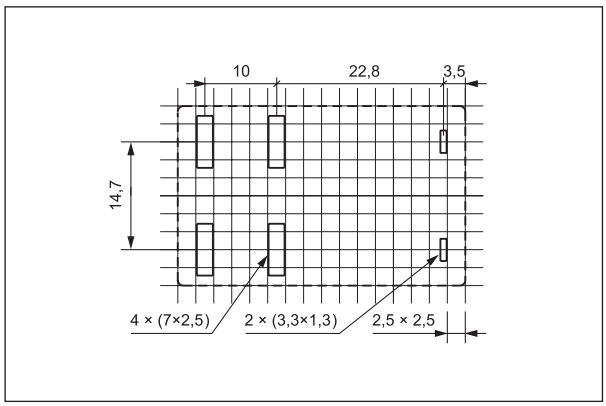
Dimensions



Connection diagram (pin side view)



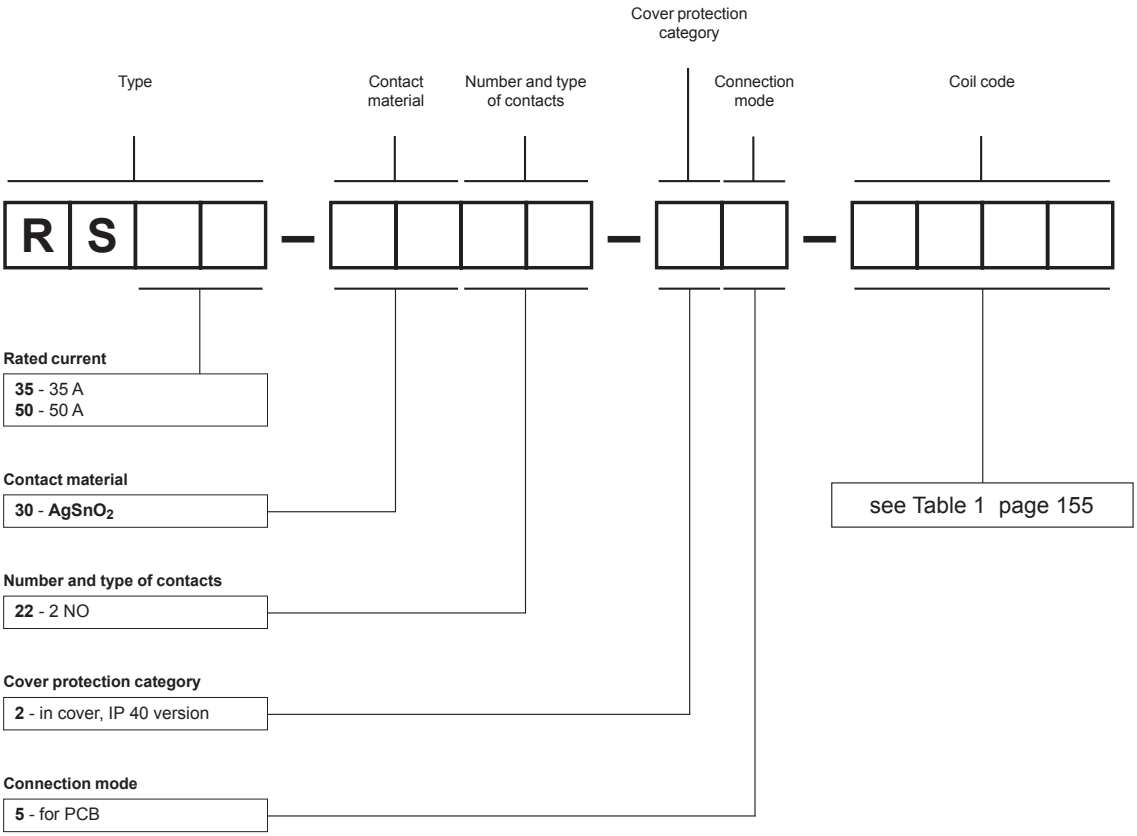
Pinout (solder side view)



Mounting

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

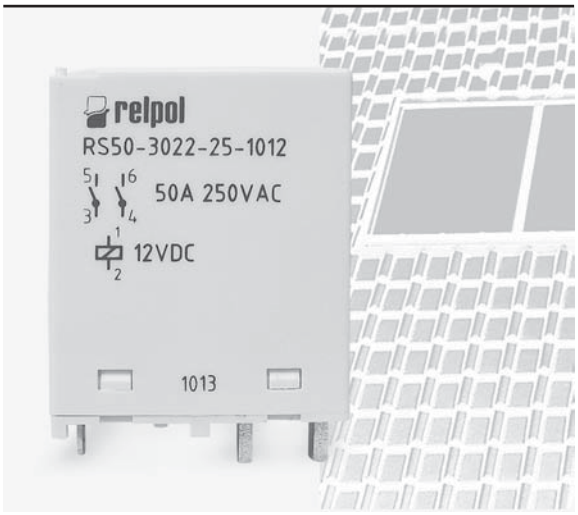
Ordering codes



Examples of ordering code:

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

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



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**, plug-in socket **GZT80** grey,
  - signalling / protecting module **type M...** LED green:
  version **LD** (polarization N: +A1/-A2) - M41G or M43G; version **LV** - M91G or M93G,
  - retainer / retractor clip **GZT80-0040**, 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 PG

Contact data

Number and type of contacts		2 C/O
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

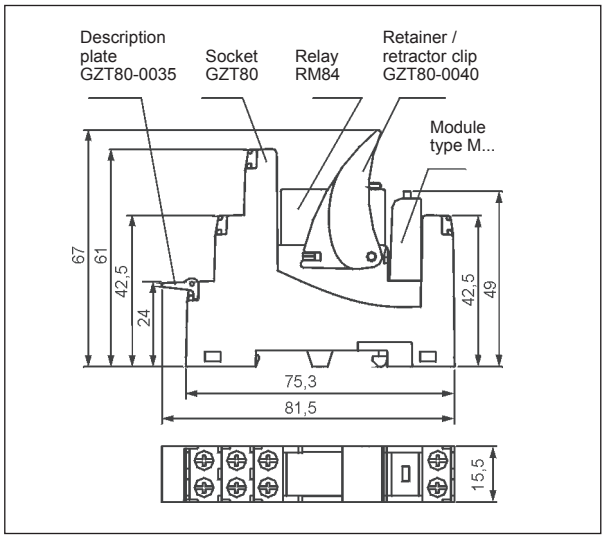
The data in bold type pertain to the standard versions of the relays.

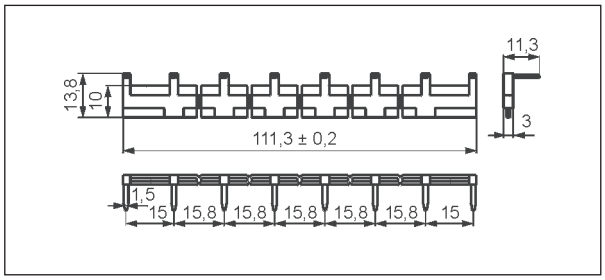
Coil data - AC 50/60 Hz voltage version Table 2

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.

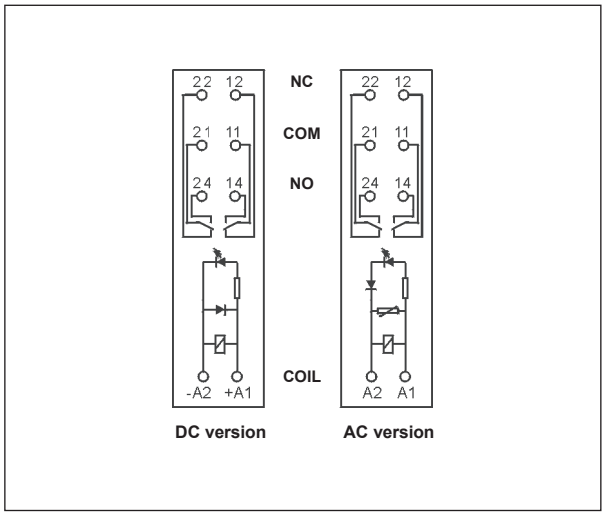
Dimensions



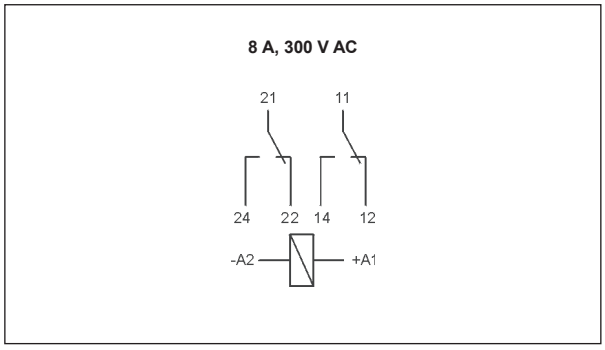


Interconnection strip type **ZGGZ80**

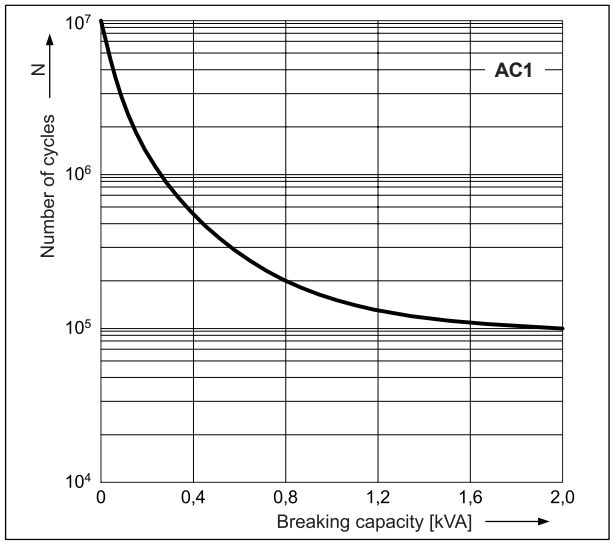
Connection diagrams
(screw terminals side view)



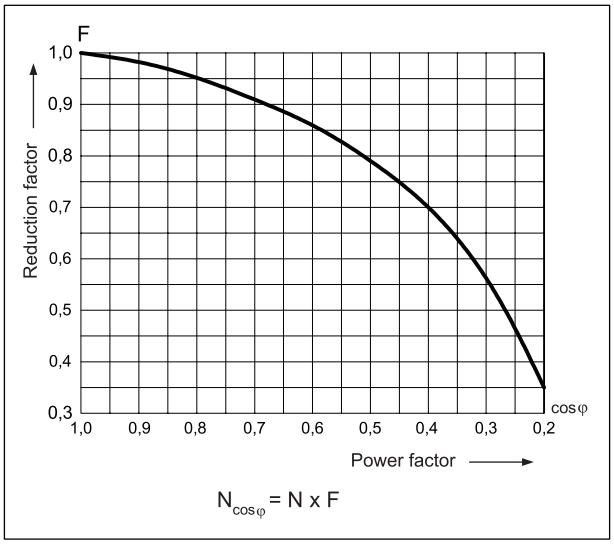
Connection of GZT80



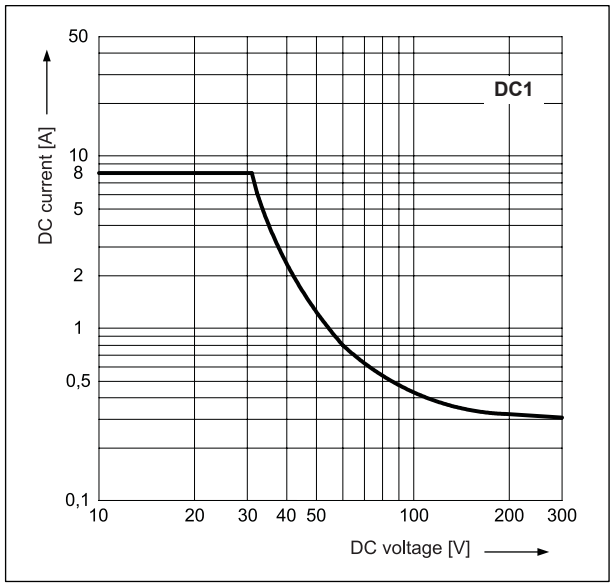
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



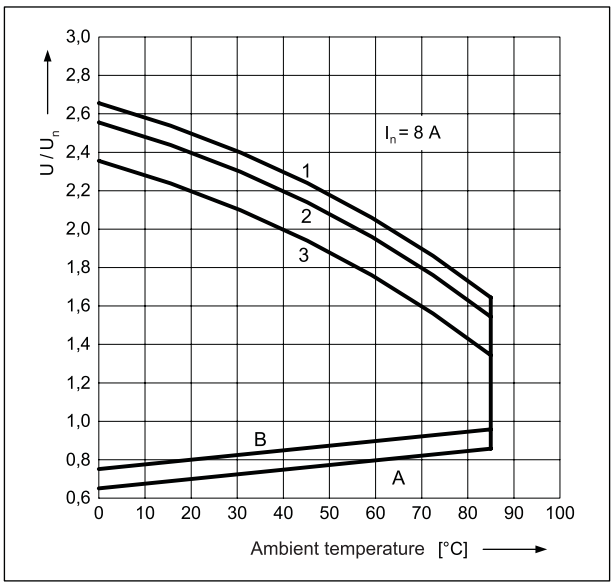
Electrical life reduction factor at AC inductive load Fig. 2



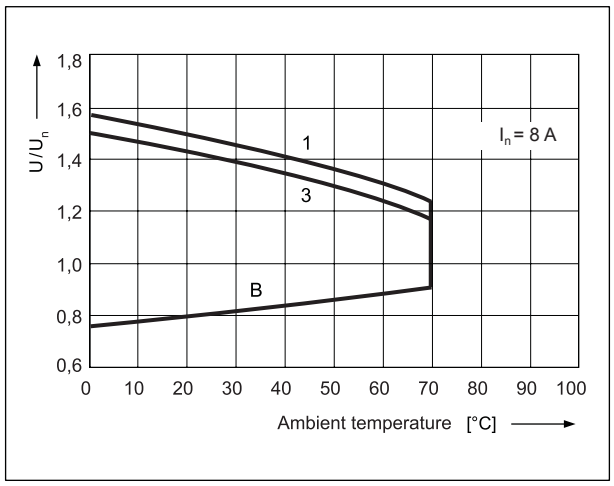
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

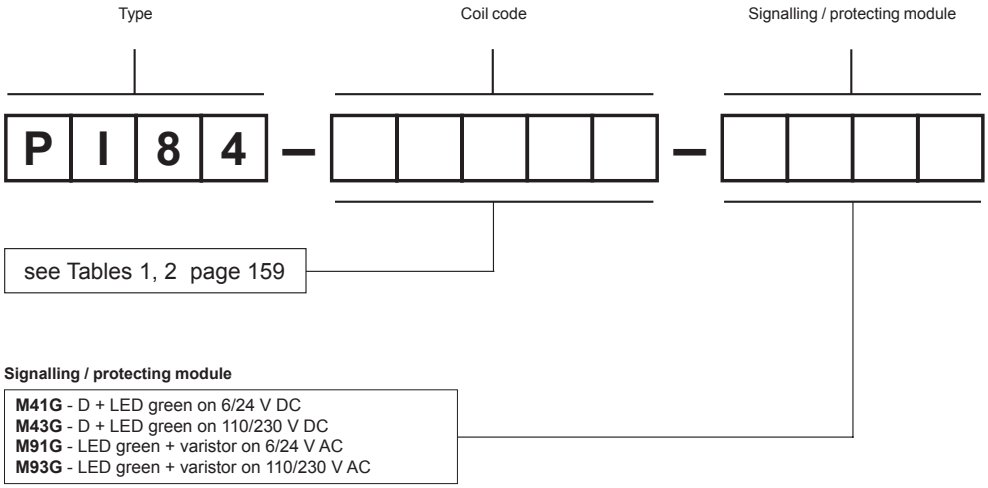
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature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

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 (see page 261).

Ordering codes



Examples of ordering codes:

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

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

RM85 + GZT80

- Interface relay **PI85 with socket GZT80** consists of:
  - electromagnetic relay **RM85**, plug-in socket **GZT80** grey,
  - signalling / protecting module **type M...** LED green:
  version **LD** (polarization N: +A1/-A2) - M41G or M43G; version **LV** - M91G or M93G,
  - retainer / retractor clip **GZT80-0040**, 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 C/O
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.

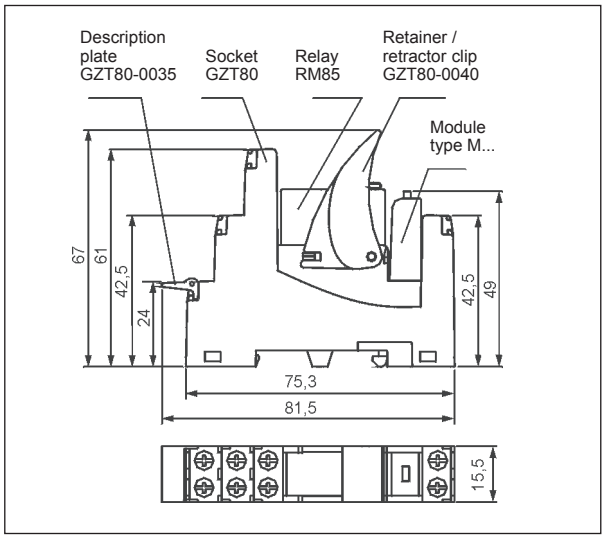
Coil data - AC 50/60 Hz voltage version

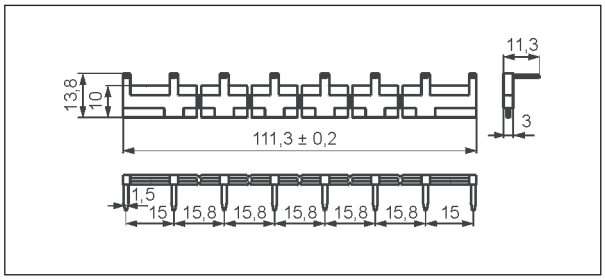
Table 2

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.

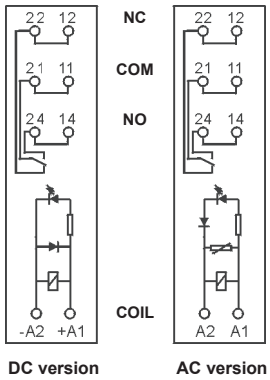
Dimensions



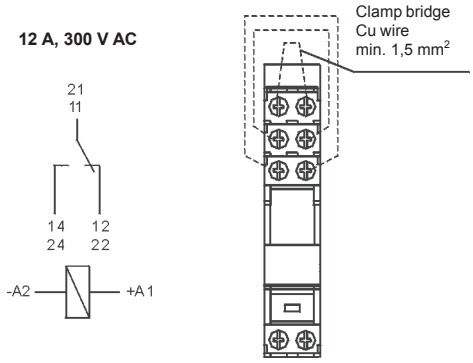


Interconnection strip type **ZGGZ80**

Connection diagrams
(screw terminals side view)

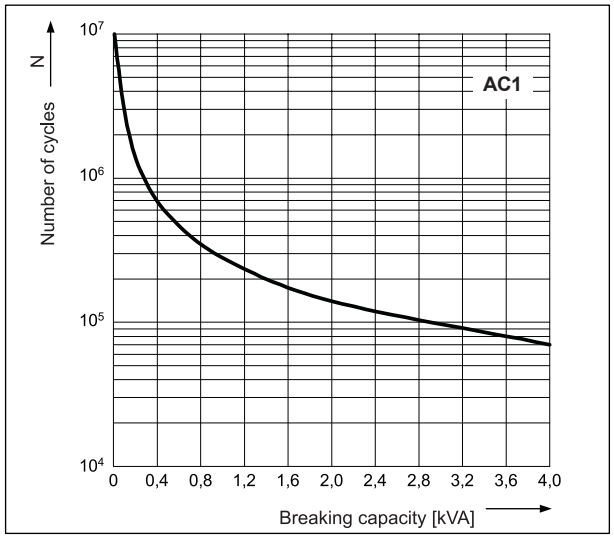


Connection of GZT80

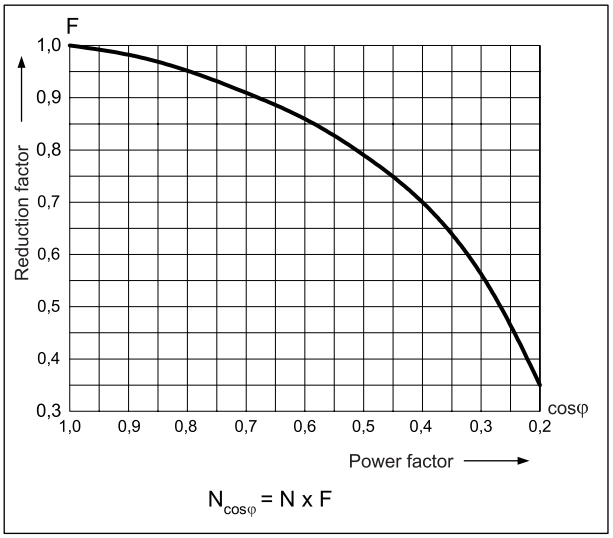


Note: loads up to 12 A do not require bridging of common terminals. Loads above 12 A require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24.

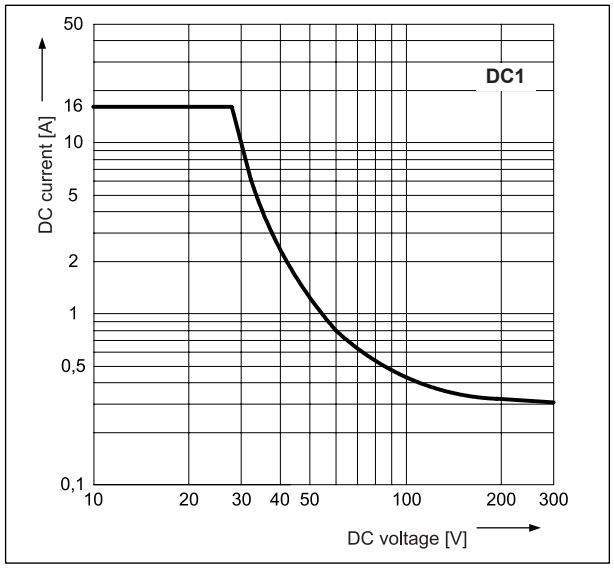
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



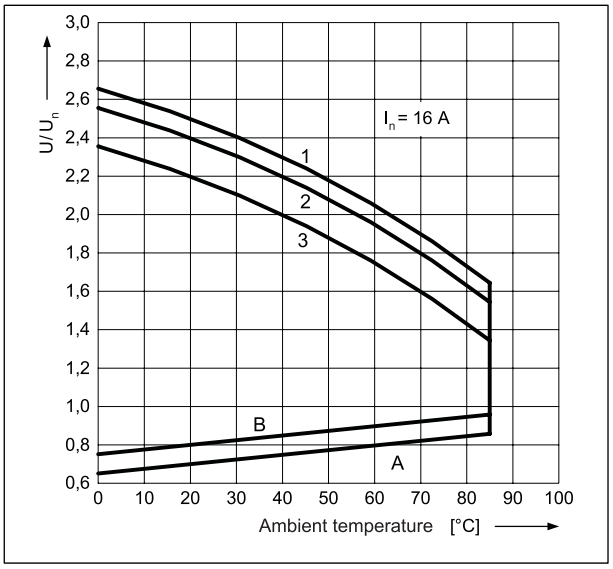
Electrical life reduction factor at AC inductive load Fig. 2



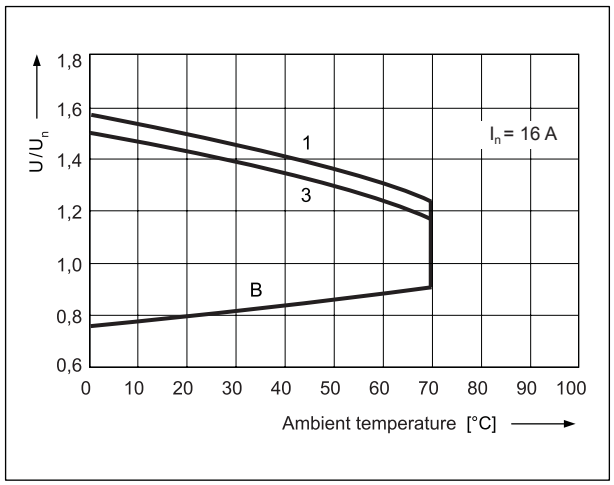
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

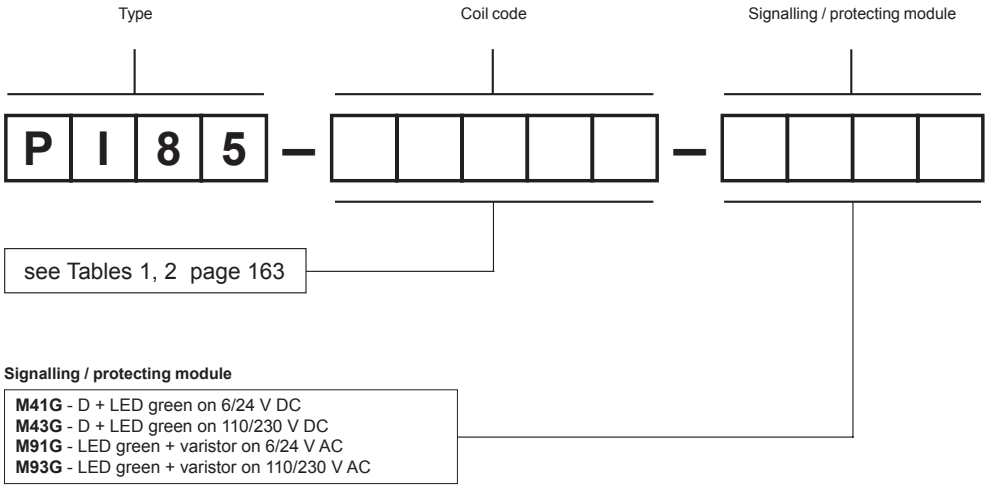
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature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

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 (see page 261).

Ordering codes



Examples of ordering codes:

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

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

RM84 + GZM80

- Interface relay **PI84 with socket GZM80** consists of:
  - electromagnetic relay **RM84**, plug-in socket **GZM80** grey,
  - signalling / protecting module **type M...** LED green:
  version **LD** (polarization N: +A1/-A2) - M41G or M43G; version **LV** - M91G or M93G,
  - retainer / retractor clip **GZT80-0040**, 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 PG

Contact data

Number and type of contacts		2 C/O
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 x 10^7
Dimensions (L x W x H)		78,1 x 15,9 x 66,5 mm
Weight		59 g
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+70 °C DC: -40...+85 °C
Cover protection category		IP 20 PN-EN 60529
Environmental protection		RM84: RTII GZM80: RT0 PN-EN 116000-3
Shock resistance		20 g
Vibration resistance	(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.

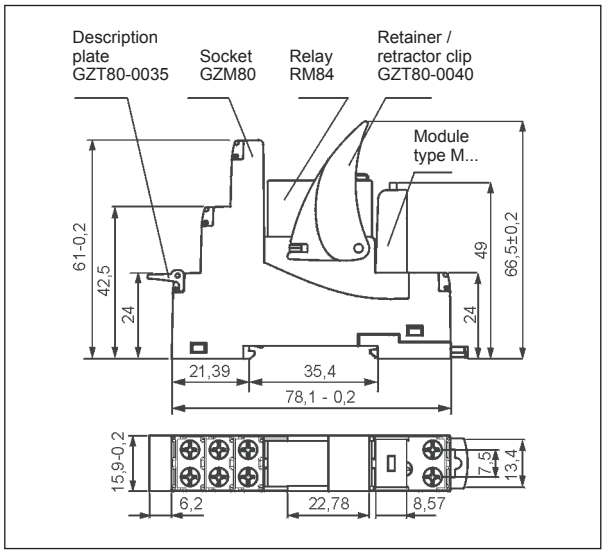
Coil data - AC 50/60 Hz voltage version

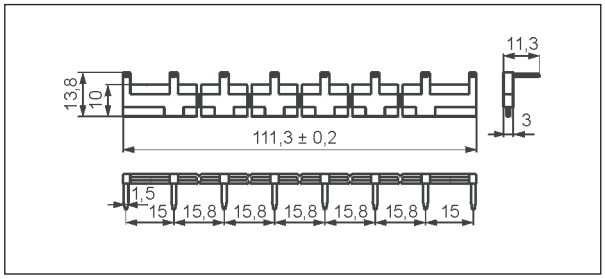
Table 2

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.

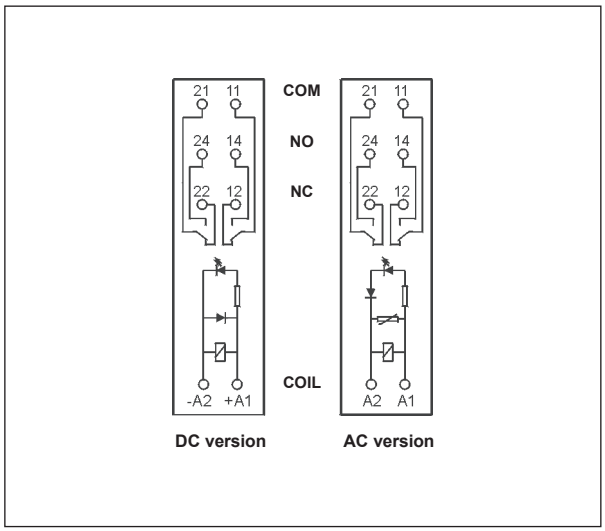
Dimensions



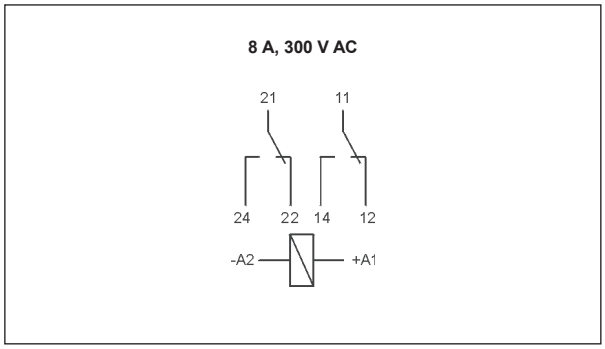


Interconnection strip type **ZGGZ80**

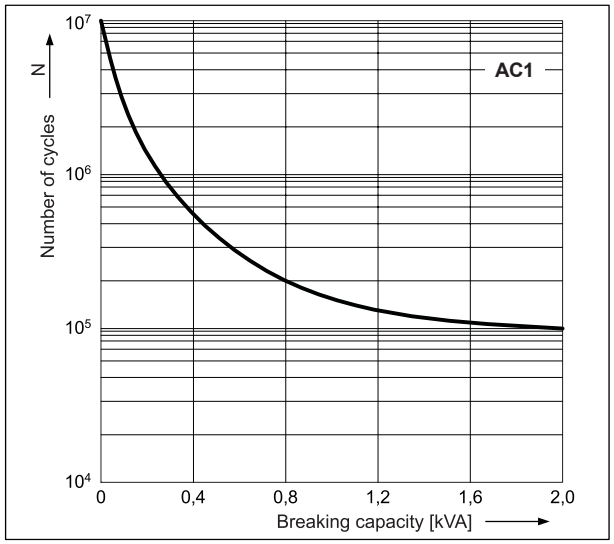
Connection diagrams
(screw terminals side view)



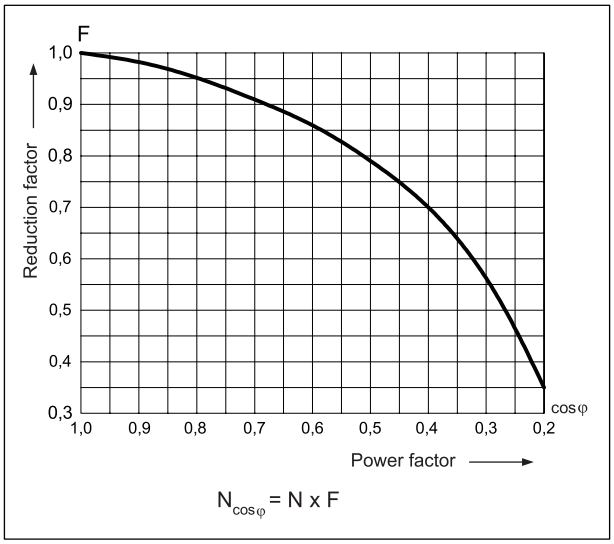
Connection of GZM80



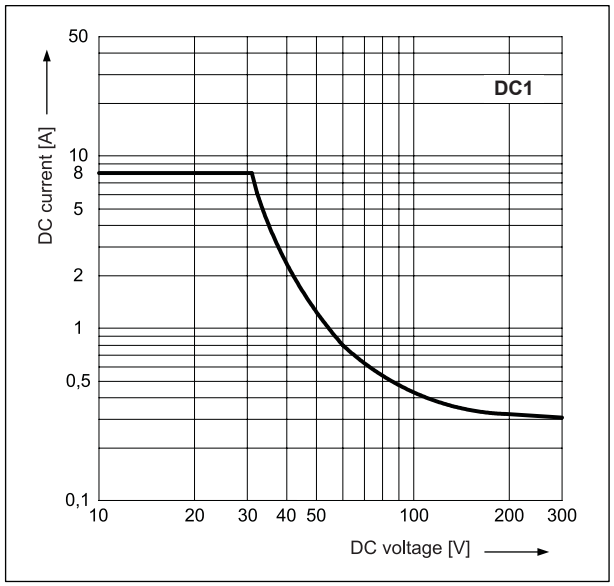
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



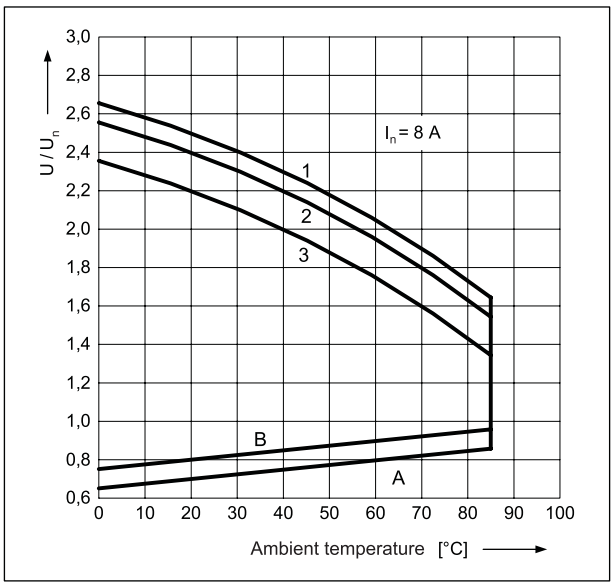
Electrical life reduction factor at AC inductive load Fig. 2



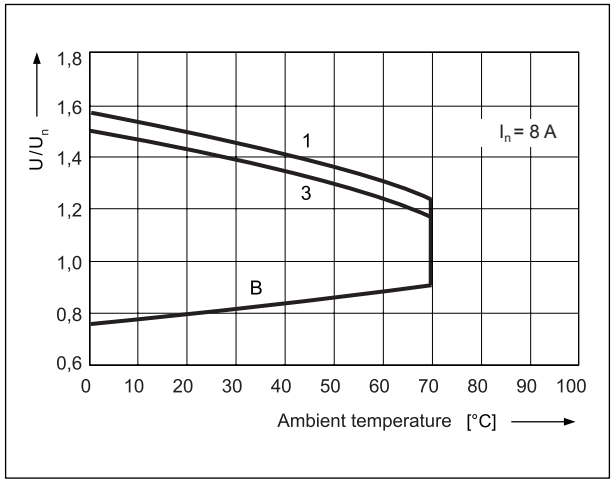
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

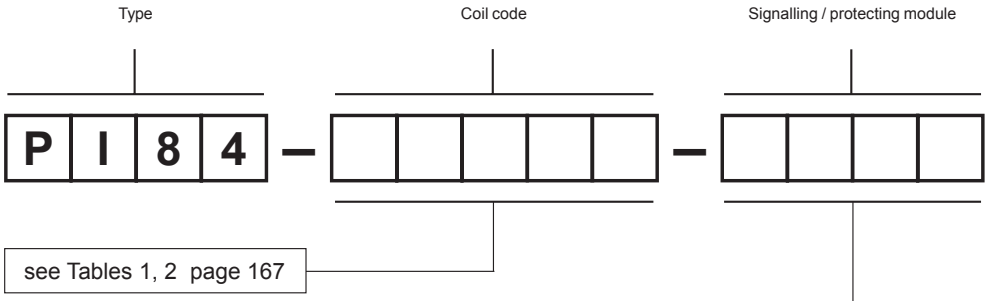
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature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

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 (see page 261).

Ordering codes



Examples of ordering codes:

PI84-012DC-00LD interface relay **PI84**, which consists of: relay **RM84**, voltage version 12 V DC, plug-in socket **GZM80** grey (screw terminals), signalling / protecting module **M41G** (version **LD**, polarization N: +A1/-A2, LED green), retainer / retractor clip **GZT80-0040**, white description plate **GZT80-0035**

PI84-230AC-00LV interface relay **PI84**, which consists of: relay **RM84**, voltage version 230 V AC 50/60 Hz, plug-in socket **GZM80** grey (screw terminals), signalling / protecting module **M93G** (version **LV**, LED green), retainer / retractor clip **GZT80-0040**, white description plate **GZT80-0035**

RM85 + GZM80

- Interface relay **PI85 with socket GZM80** consists of:
  - electromagnetic relay **RM85**, plug-in socket **GZM80** grey,
  - signalling / protecting module **type M...** LED green:
  version **LD** (polarization N: +A1/-A2) - M41G or M43G; version **LV** - M91G or M93G,
  - retainer / retractor clip **GZT80-0040**, 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 C/O
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.

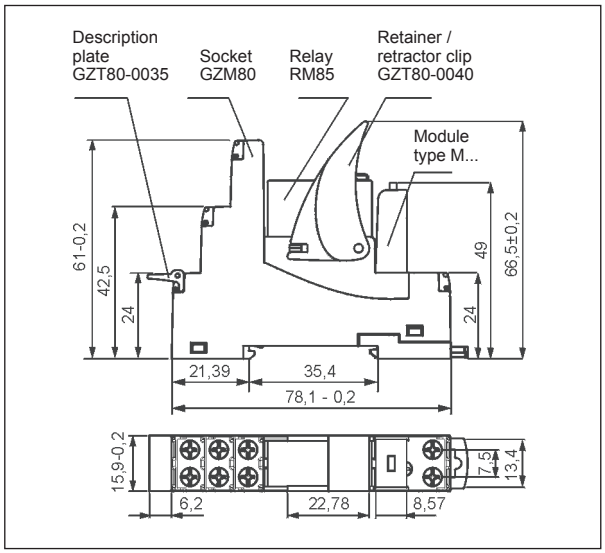
Coil data - AC 50/60 Hz voltage version

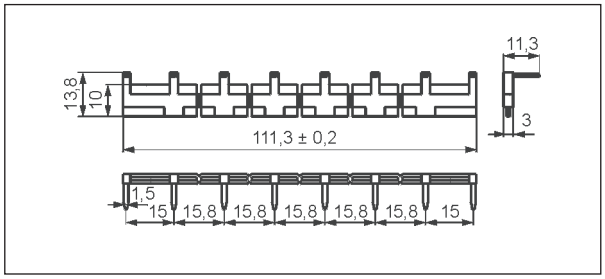
Table 2

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.

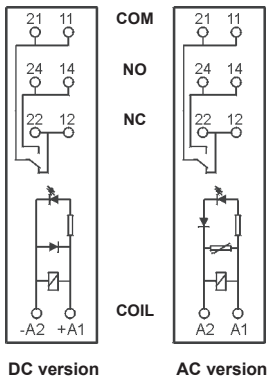
Dimensions



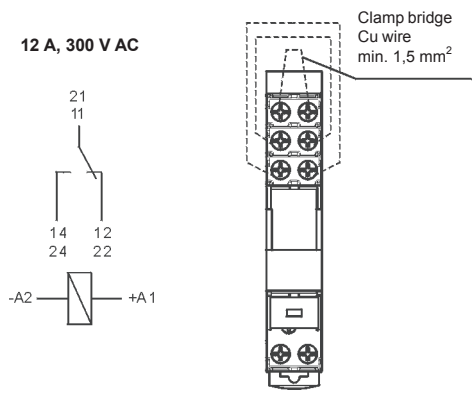


Interconnection strip type **ZGGZ80**

Connection diagrams
(screw terminals side view)

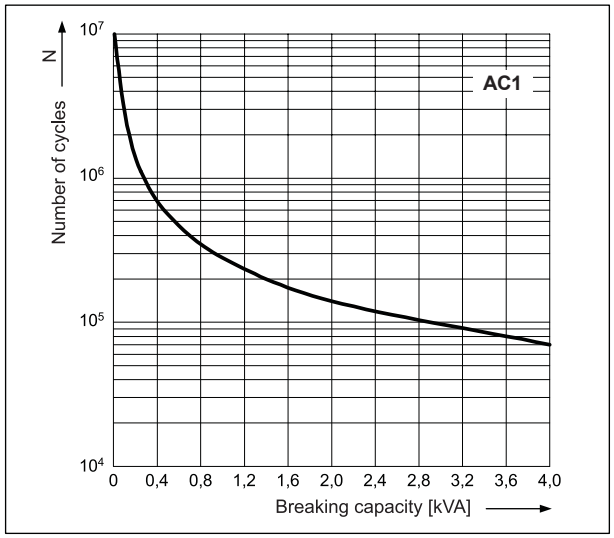


Connection of GZM80

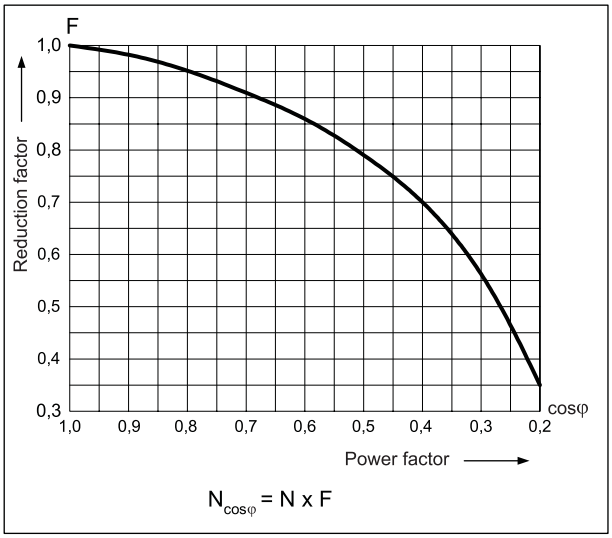


Note: loads up to 12 A do not require bridging of common terminals. Loads above 12 A require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24.

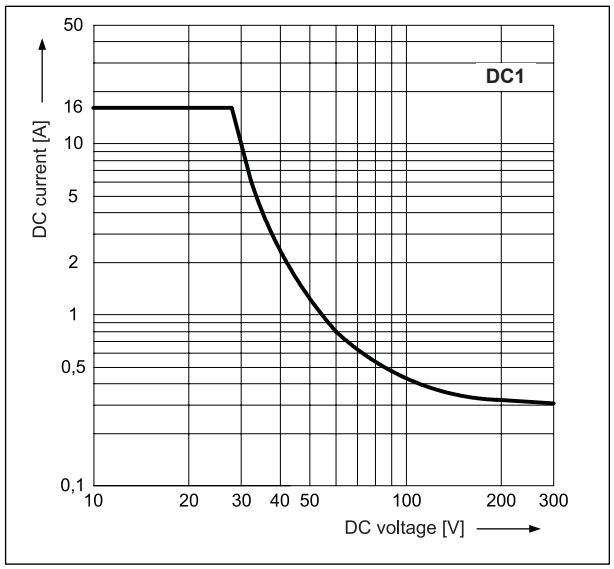
Electrical life at AC resistive load. Switching frequency: 600 cycles/hour Fig. 1



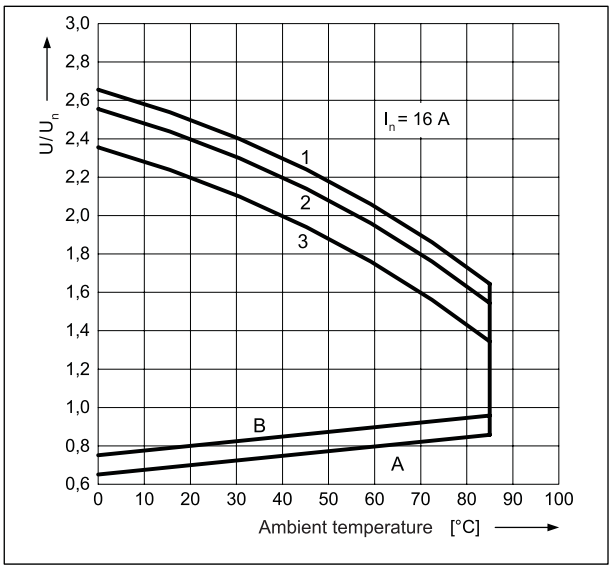
Electrical life reduction factor at AC inductive load Fig. 2



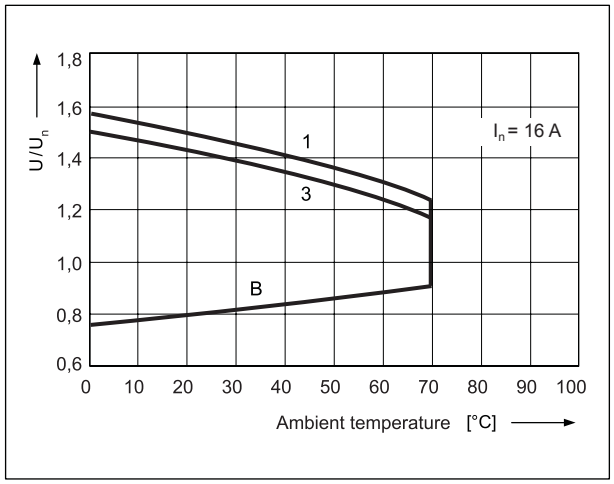
Max. DC resistive load breaking capacity Fig. 3



Coil operating range - DC Fig. 4



Coil operating range - AC 50 Hz Fig. 5



Description of Fig. 4 and 5

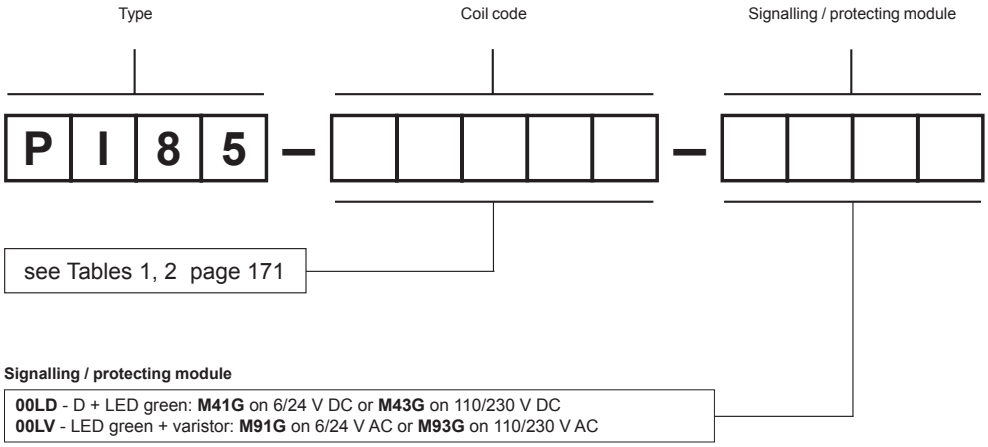
A - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
B - relations between make voltage and ambient temperature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

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 (see page 261).

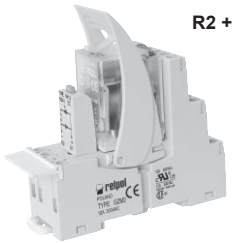
Ordering codes



Examples of ordering codes:

PI85-012DC-00LD interface relay **PI85**, which consists of: relay **RM85**, voltage version 12 V DC, plug-in socket **GZM80** grey (screw terminals), signalling / protecting module **M41G** (version **LD**, polarization N: +A1/-A2, LED green), retainer / retractor clip **GZT80-0040**, white description plate **GZT80-0035**

PI85-230AC-00LV interface relay **PI85**, which consists of: relay **RM85**, voltage version 230 V AC 50/60 Hz, plug-in socket **GZM80** grey (screw terminals), signalling / protecting module **M93G** (version **LV**, LED green), retainer / retractor clip **GZT80-0040**, white description plate **GZT80-0035**



R2 + GZM2

- Interface relay **PIR2** consists of: electromagnetic relay **R2**, plug-in socket **GZM2** grey, signalling / protecting module **type M...** LED green: version **LD** (polarization N: +A1/-A2) - M41G or M42G or M43G; version **LV** - M91G or M92G or M93G, retainer / retractor clip **GZT4-0040**, 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 C/O
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.

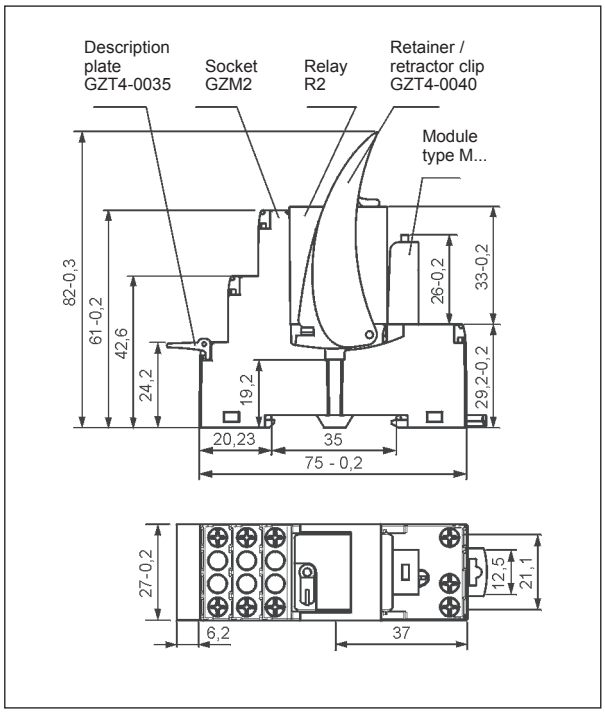
Coil data - AC 50/60 Hz voltage version

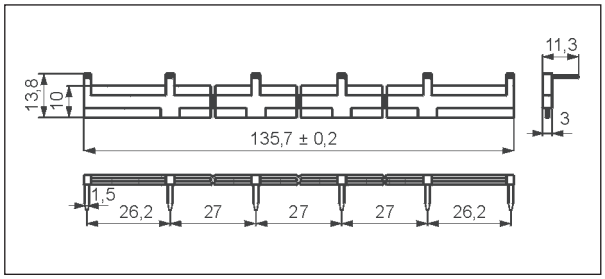
Table 2

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

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

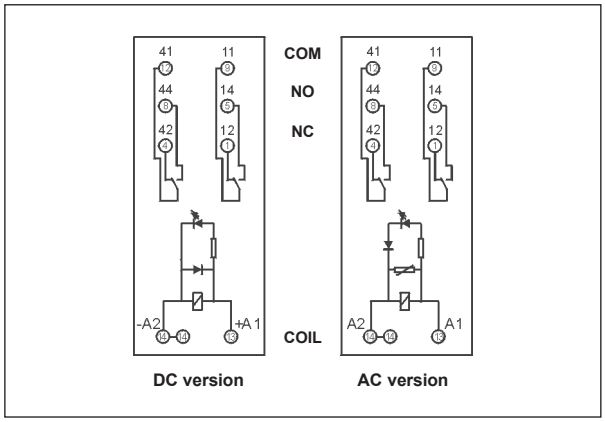
Dimensions





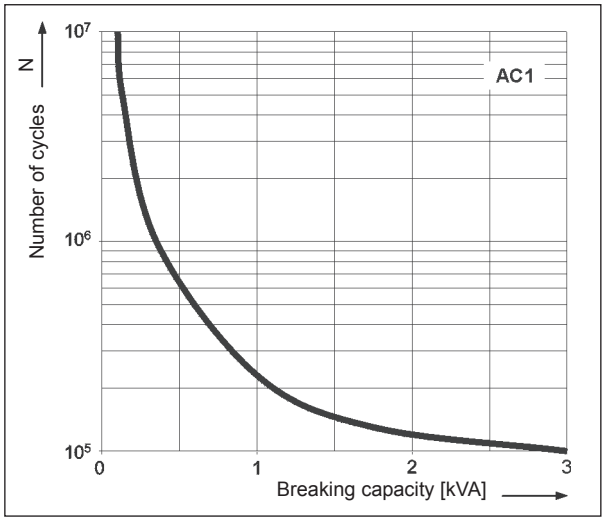
Interconnection strip type **ZGGZ4**

Connection diagrams
(screw terminals side view)

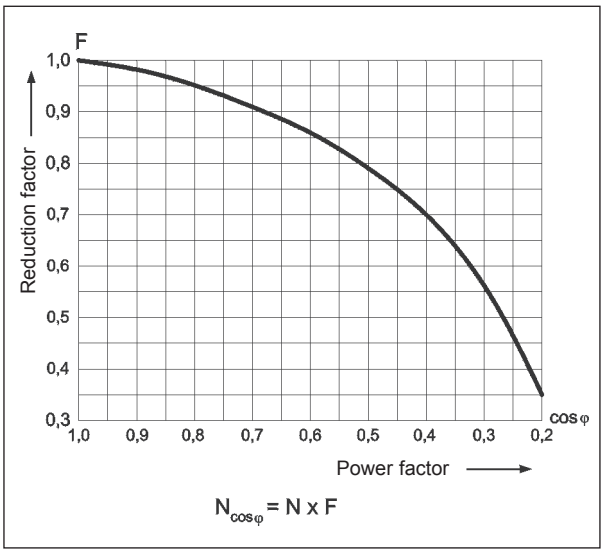


Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

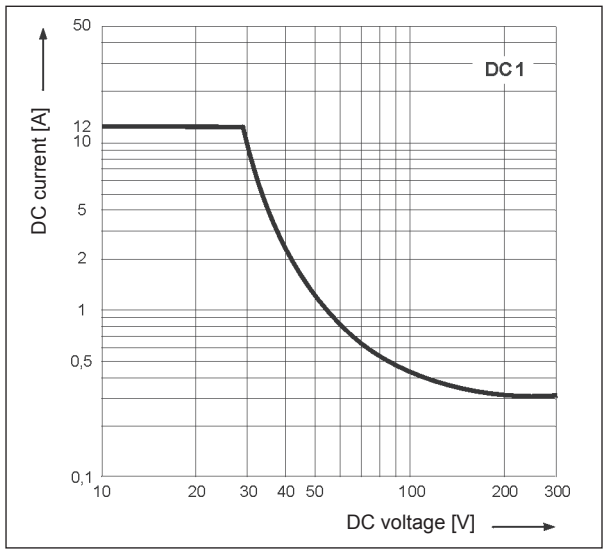
Fig. 1



Electrical life reduction factor at AC inductive load Fig. 2



Max. DC resistive load breaking capacity Fig. 3

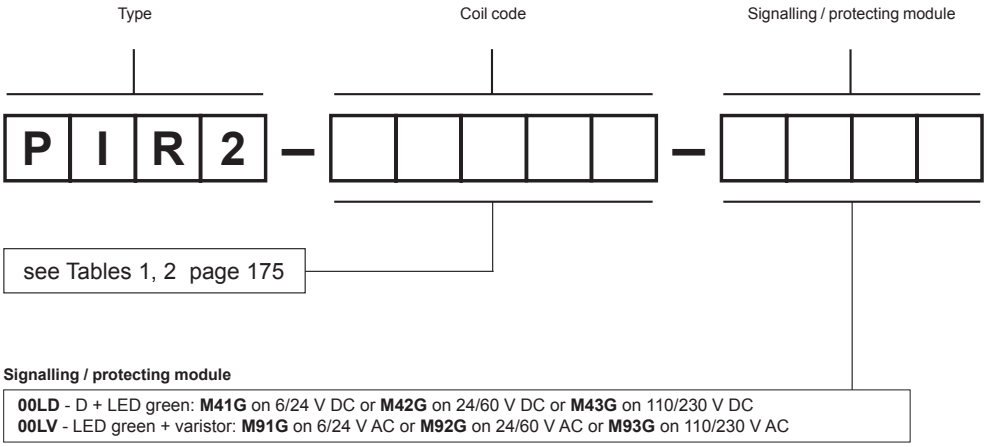


Mounting

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.

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 (see page 262).

Ordering codes



Examples of ordering codes:

PIR2-012DC-00LD interface relay **PIR2**, which consists of: relay **R2**, voltage version 12 V DC, plug-in socket **GZM2** grey (screw terminals), signalling / protecting module **M41G** (version **LD**, polarization N: +A1/-A2, LED green), retainer / retractor clip **GZT4-0040**, white description plate **GZT4-0035**

PIR2-230AC-00LV interface relay **PIR2**, which consists of: relay **R2**, voltage version 230 V AC 50/60 Hz, plug-in socket **GZM2** grey (screw terminals), signalling / protecting module **M93G** (version **LV**, LED green), retainer / retractor clip **GZT4-0040**, white description plate **GZT4-0035**


R3 + GZM3

- Interface relay **PIR3** consists of: electromagnetic relay **R3**, plug-in socket **GZM3** grey, signalling / protecting module **type M...** LED green: version **LD** (polarization N: +A1/-A2) - M41G or M42G or M43G; version **LV** - M91G or M92G or M93G, retainer / retractor clip **GZT4-0040**, 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 C/O
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

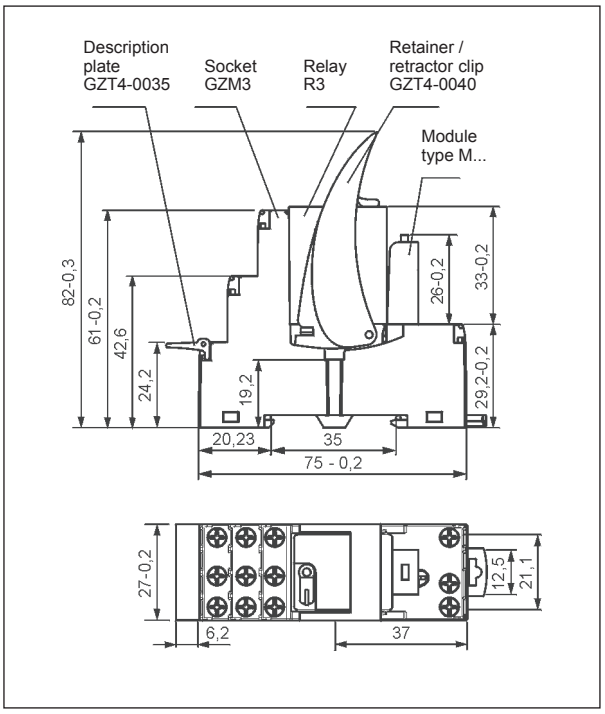
The data in bold type pertain to the standard versions of the relays.

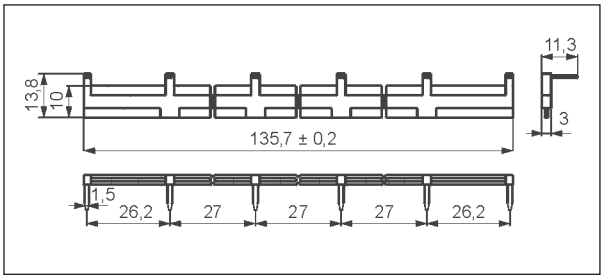
Coil data - AC 50/60 Hz voltage version Table 2

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

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

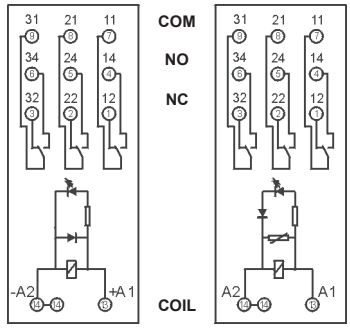
Dimensions



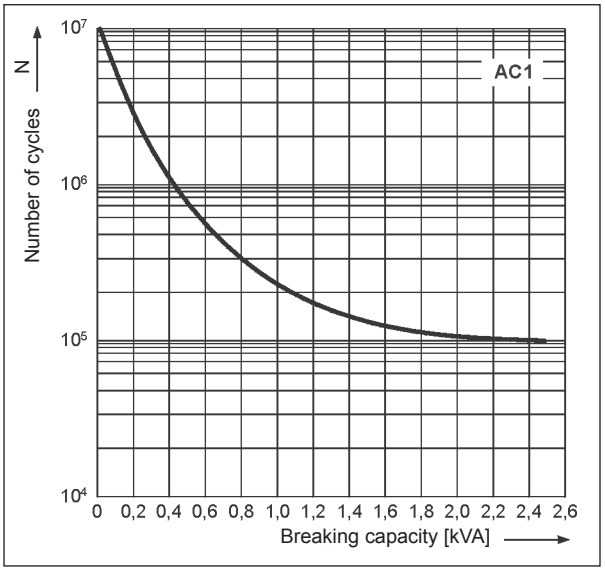


Interconnection strip type **ZGGZ4**

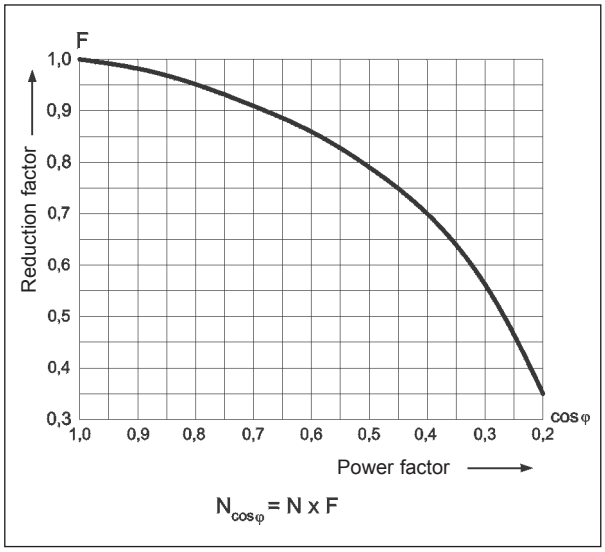
Connection diagrams
(screw terminals side view)



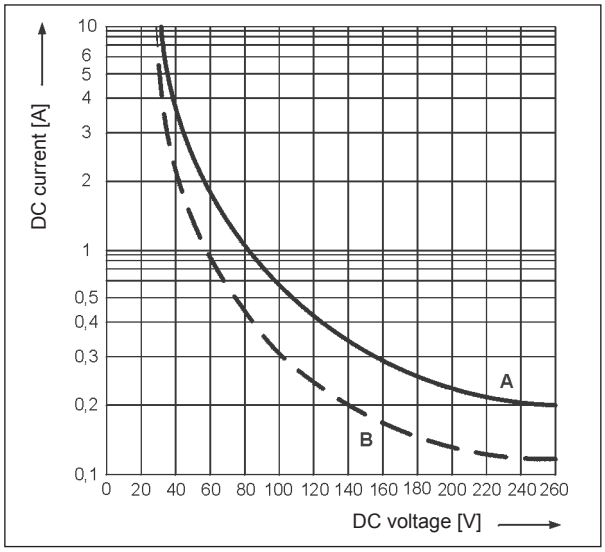
Electrical life at AC resistive load. Fig. 1
Switching frequency: 1 200 cycles/hour



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

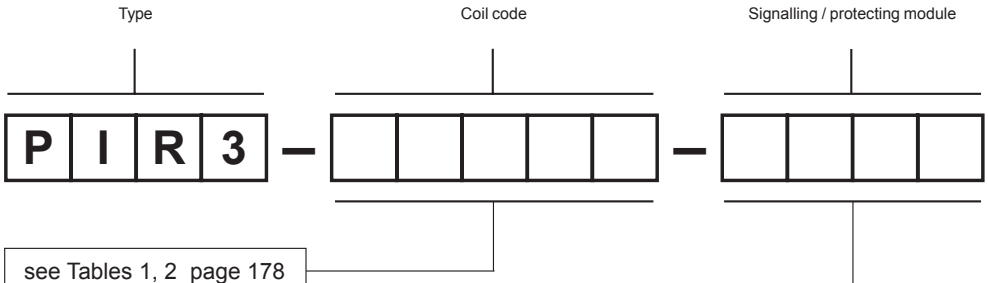


Mounting

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.

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 (see page 262).

Ordering codes



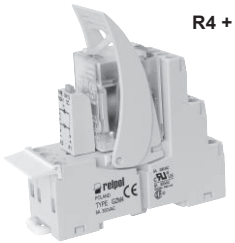
Signalling / protecting module

00LD - D + LED green: **M41G** on 6/24 V DC or **M42G** on 24/60 V DC or **M43G** on 110/230 V DC
00LV - LED green + varistor: **M91G** on 6/24 V AC or **M92G** on 24/60 V AC or **M93G** on 110/230 V AC

Examples of ordering codes:

PIR3-012DC-00LD interface relay **PIR3**, which consists of: relay **R3**, voltage version 12 V DC, plug-in socket **GZM3** grey (screw terminals), signalling / protecting module **M41G** (version **LD**, polarization N: +A1/-A2, LED green), retainer / retractor clip **GZT4-0040**, white description plate **GZT4-0035**

PIR3-230AC-00LV interface relay **PIR3**, which consists of: relay **R3**, voltage version 230 V AC 50/60 Hz, plug-in socket **GZM3** grey (screw terminals), signalling / protecting module **M93G** (version **LV**, LED green), retainer / retractor clip **GZT4-0040**, white description plate **GZT4-0035**



R4 + GZM4

- Interface relay **PIR4** consists of: electromagnetic relay **R4**, plug-in socket **GZM4** grey, signalling / protecting module **type M...** LED green: version **LD** (polarization N: +A1/-A2) - M41G or M42G or M43G; version **LV** - M91G or M92G or M93G, retainer / retractor clip **GZT4-0040**, 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 C/O
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

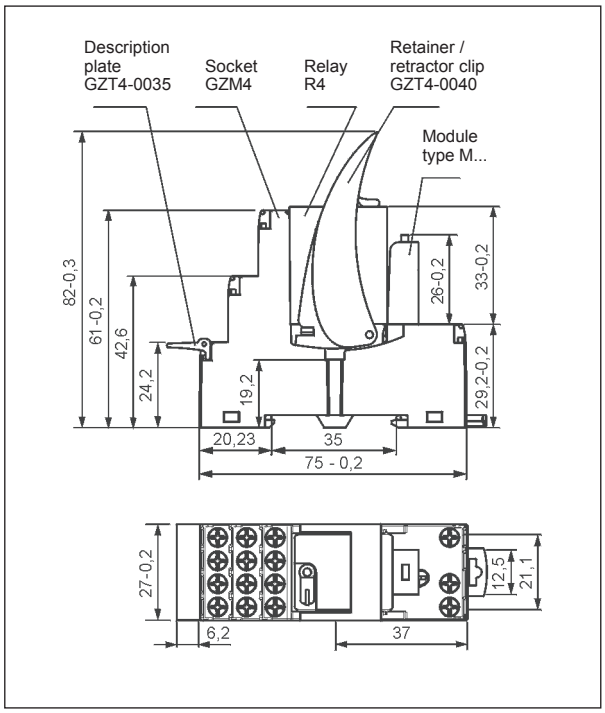
The data in bold type pertain to the standard versions of the relays.

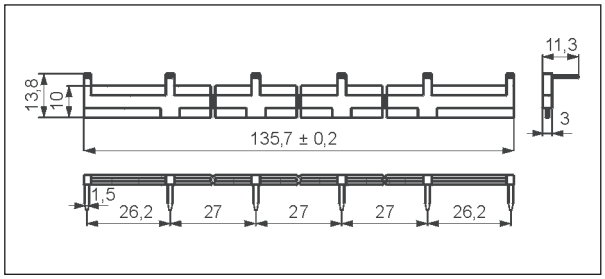
Coil data - AC 50/60 Hz voltage version Table 2

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

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

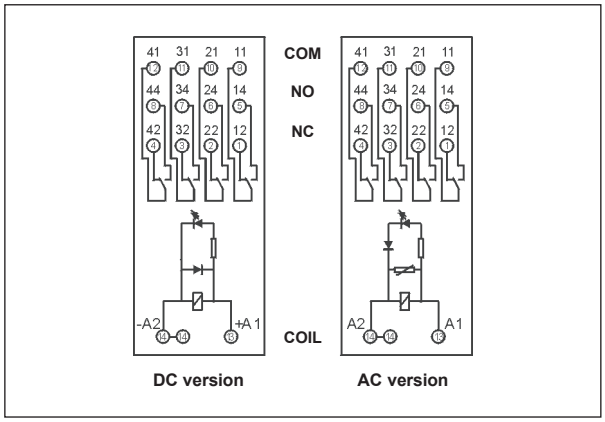
Dimensions



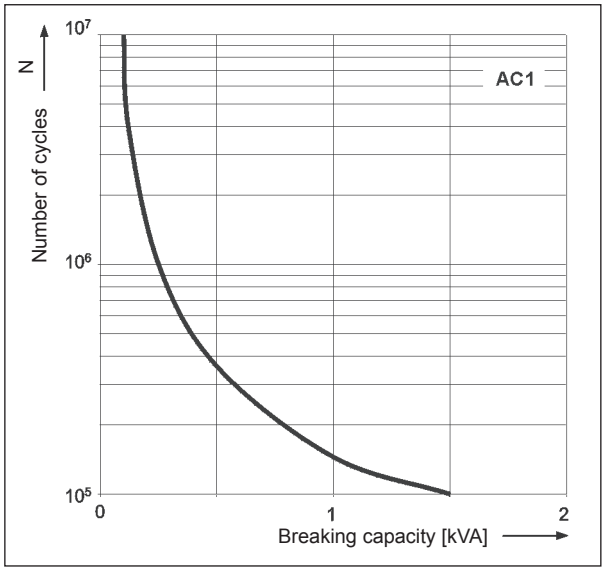


Interconnection strip type **ZGGZ4**

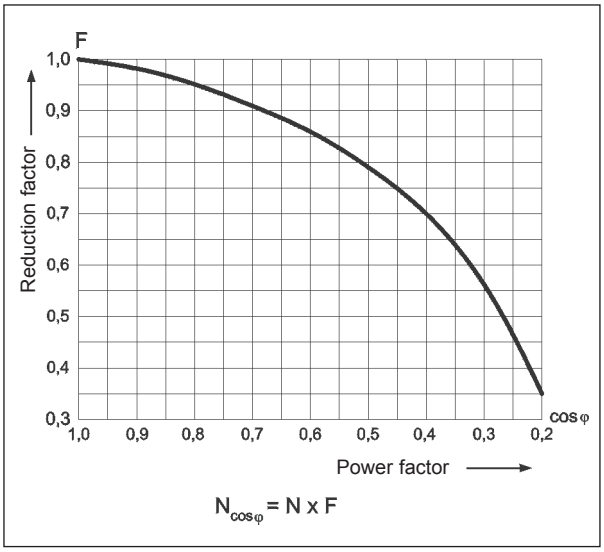
Connection diagrams
(screw terminals side view)



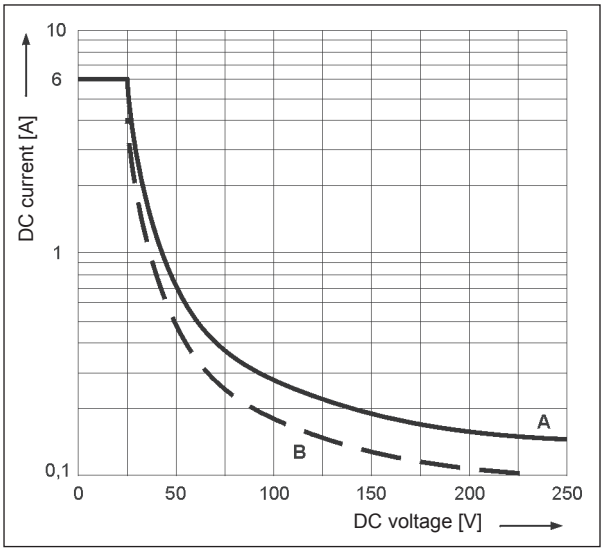
Electrical life at AC resistive load. Fig. 1
Switching frequency: 1 200 cycles/hour



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

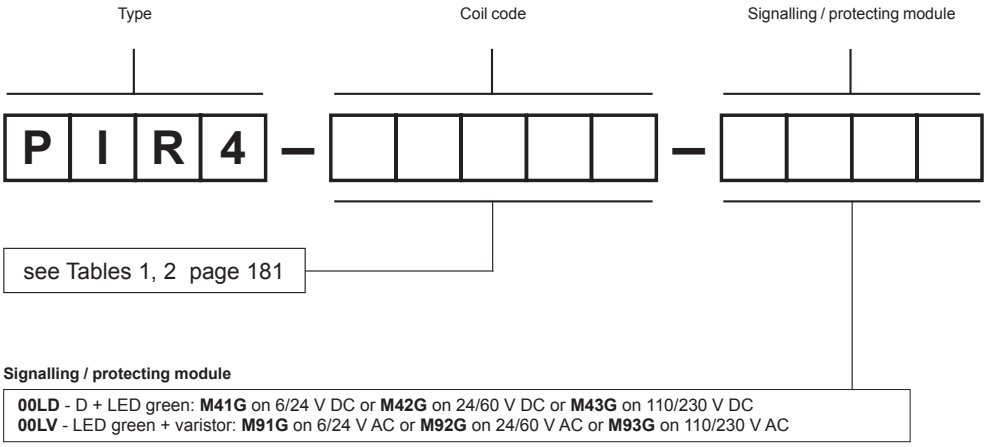


Mounting

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.

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 (see page 262).

Ordering codes



Examples of ordering codes:

PIR4-012DC-00LD interface relay **PIR4**, which consists of: relay **R4**, voltage version 12 V DC, plug-in socket **GZM4** grey (screw terminals), signalling / protecting module **M41G** (version **LD**, polarization N: +A1/-A2, LED green), retainer / retractor clip **GZT4-0040**, white description plate **GZT4-0035**

PIR4-230AC-00LV interface relay **PIR4**, which consists of: relay **R4**, voltage version 230 V AC 50/60 Hz, plug-in socket **GZM4** grey (screw terminals), signalling / protecting module **M93G** (version **LV**, LED green), retainer / retractor clip **GZT4-0040**, white description plate **GZT4-0035**

R2M + GZ2

- Interface relay **PIR2M** consists of:
  - electromagnetic relay **R2M**, plug-in socket **GZ2** black,
  - 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 C/O
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

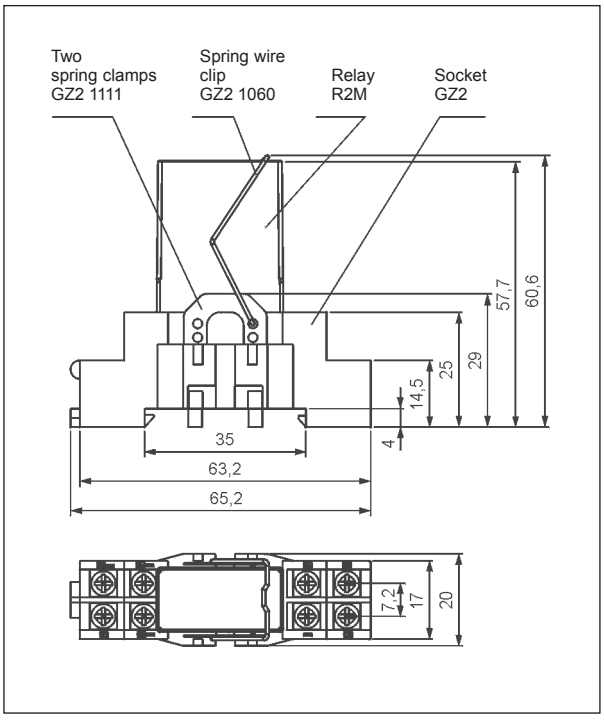
The data in bold type pertain to the standard versions of the relays.

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

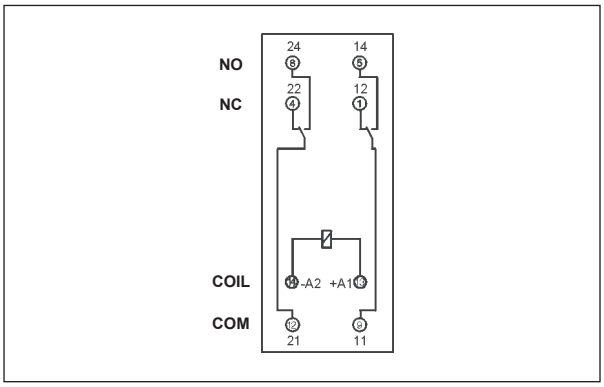
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
006AC	6	16	± 10%	4,8	6,6
012AC	12	68	± 10%	9,6	13,2
024AC	**24**	**270**	**± 10%**	**19,2**	**26,4**
115AC	115	5 990	± 10%	92,0	126,0
230AC	**230**	**21 470**	**±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

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

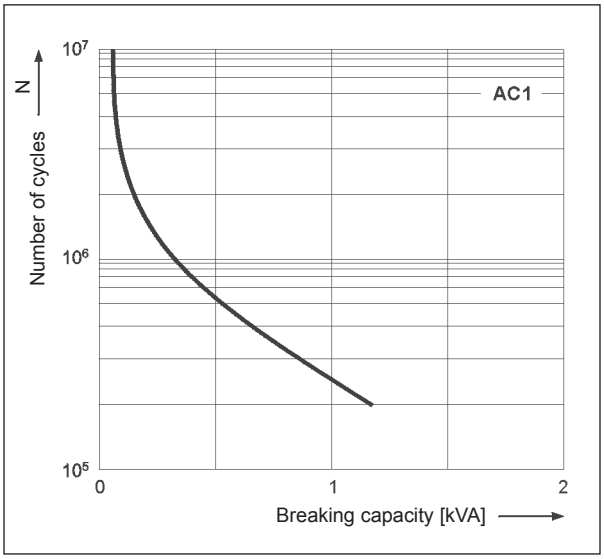
Dimensions



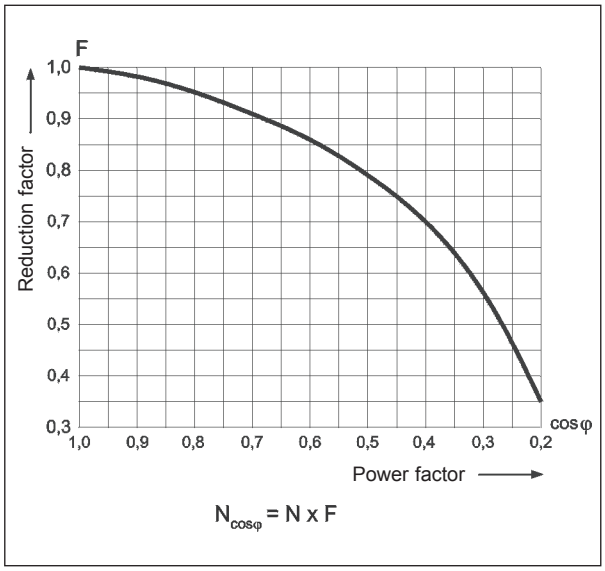
Connection diagrams
(screw terminals side view)



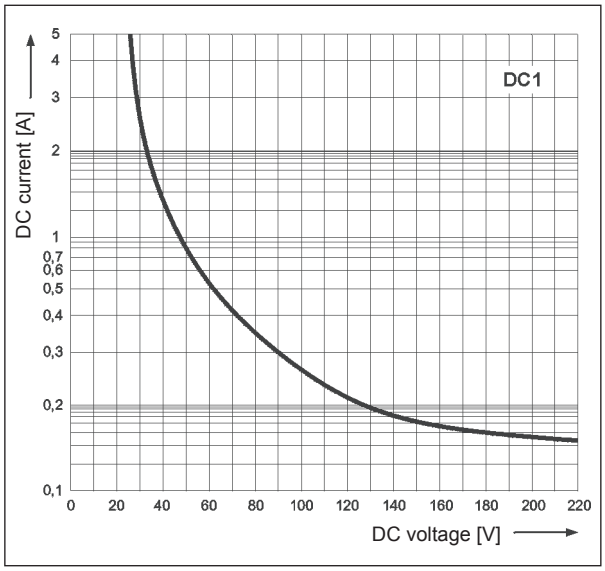
Electrical life at AC resistive load. Fig. 1
Switching frequency: 1 200 cycles/hour



Electrical life reduction factor at AC inductive load Fig. 2



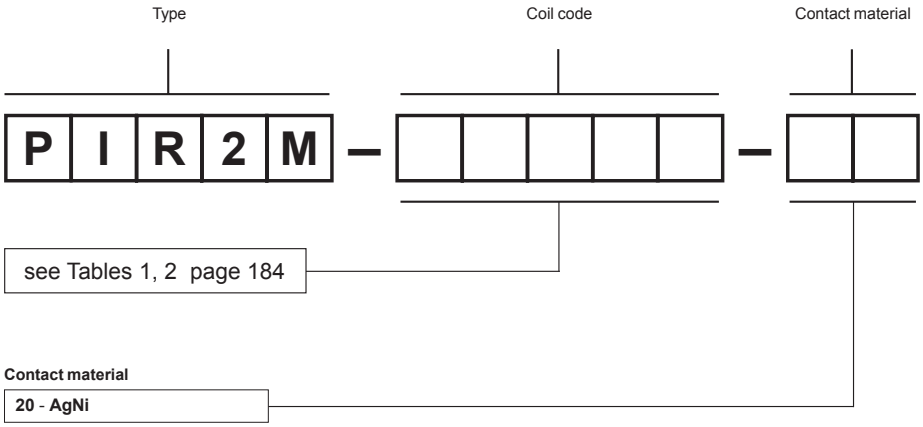
Max. DC resistive load breaking capacity Fig. 3



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.

Ordering codes



Examples of ordering codes:

PIR2M-012DC-20 interface relay **PIR2M**, which consists of: relay **R2M**, voltage version 12 V DC, contact material AgNi, socket **GZ2** black (screw terminals), spring wire clip **GZ2 1060**, two spring clamps **GZ2 1111**

PIR2M-230AC-20 interface relay **PIR2M**, which consists of: relay **R2M**, voltage version 230 V AC 50/60 Hz, contact material AgNi, socket **GZ2** black (screw terminals), spring wire clip **GZ2 1060**, two spring clamps **GZ2 1111**

- Interface relay **PI6-1P** - with 1 C/O contact output, rated load 6 A / 250 V (AC1)
- 35 mm rail mount acc. to PN-EN 60715
- May be linked with interconnection strip type **ZG20**
- Equipped in LED green
- Version for long lines, with anti-interference filter (**PI6-1P-230VAC/DC-10** ❷)
- Recognitions, certifications, directives:

Contact data

Number and type of contacts		1 C/O	
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 control 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 supply line		≤ 300 m AC supply 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, surge voltage
	• 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	

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 lines (max. 300 m) **PI6-1P-230VAC/DC-10** - relay with integrated anti-interference filter (desigend on the basis of appropriately selected elements R and C, and Zener diode), resistant to occurrence of induced voltages in long distances of control wires.

Input data

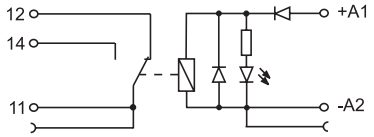
Table 1

Interface relay code	Rated input voltage U_n	Power of input control 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

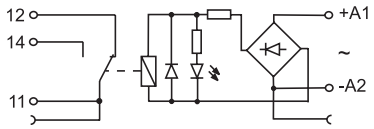
The data in bold type pertain to the standard versions of the relays.
❶ Version with gold-plated contacts. ❷ Version for long lines (max. 300 m), with anti-interference filter.

Connection diagrams

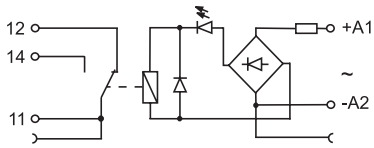
PI6-1P-12VDC, PI6-1P-12VDC-01
PI6-1P-24VDC, PI6-1P-24VDC-01
PI6-1P-36VDC, PI6-1P-36VDC-01



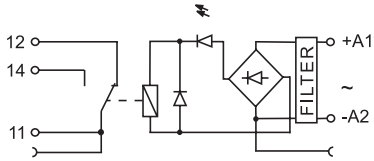
PI6-1P-24VAC/DC, PI6-1P-24VAC/DC-01
PI6-1P-42VAC/DC



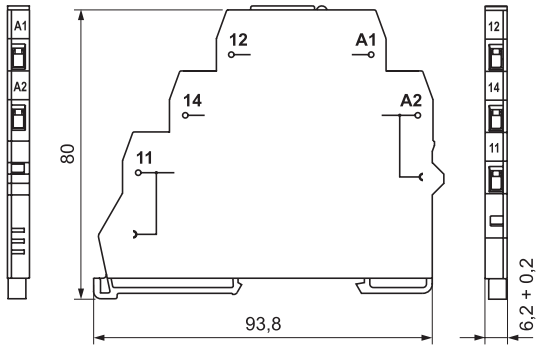
PI6-1P-115VAC/DC
PI6-1P-230VAC/DC, PI6-1P-230VAC/DC-01



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. Maximum size of wires 1 x 2,5 mm² (1 x 14 AWG). Rated contactability 2 x 1,5 mm² (2 x 16 AWG). Maximum screw torgue: 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 189).

Ordering codes

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

PI6-1T
interface relays

- Interface relay **PI6-1T** - with triac output, rated load 1,2 A / 400 V AC
- 35 mm rail mount acc. to PN-EN 60715
- May be linked with interconnection strip type **ZG20**
- Equipped in LED green
- Recognitions, certifications, directives: 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	
R_{th} junction to ambient		70 °C/W	

Input control 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

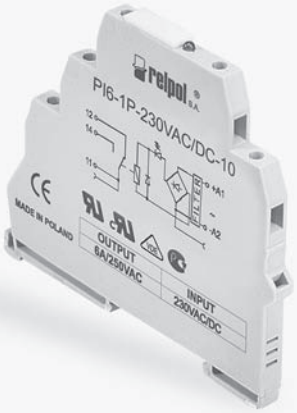
Insulation rated voltage		600 V AC	
Insulation pollution degree		2	
Dielectric strength	• input - output	4 000 V AC	50/60 Hz, 1 min., type of insulation: reinforced

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

EUROPRODUCT 2003
for interfece relays **PI6**

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



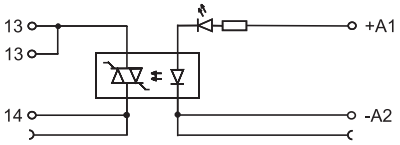
Input data

Table 1

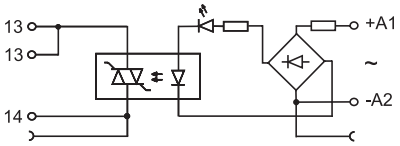
Interface relay code	Rated input voltage U_n	Power of input control circuit
PI6-1T-5...32VDC	5...32 V DC	0,3 W at 24 V
PI6-1T-24VAC/DC	24 V AC/DC	0,3 VA / 0,3 W
PI6-1T-230VAC/DC	230 V AC/DC	1,6 VA / 1,6 W

Connection diagrams

PI6-1T-5...32VDC



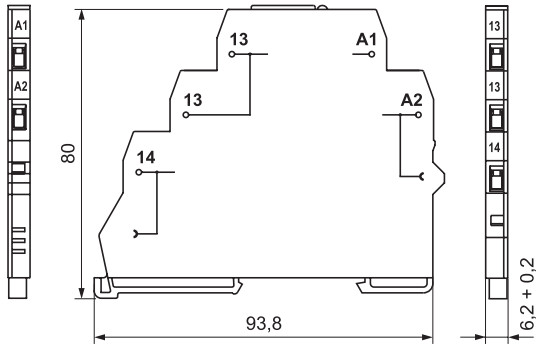
PI6-1T-24VAC/DC
PI6-1T-230VAC/DC



Ordering codes

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

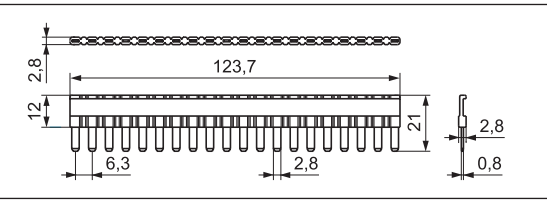
Dimensions



Mounting

Relays **PI6-1T** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Maximum size of wires 1 x 2,5 mm² (1 x 14 AWG). Rated contactability 2 x 1,5 mm² (2 x 16 AWG). Maximum screw torgue: 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 type **ZG20**

PI6-OC
interface relays

- Interface relay **PI6-OC** - with transistor output, rated load 0,5 A / 70 V DC
- 35 mm rail mount acc. to PN-EN 60715
- May be linked with interconnection strip type **ZG20**
- Equipped in LED green
- Recognitions, certifications, directives:

Output circuit - Transistor

Number and type of outputs		1 NO	
Rated / max. switching voltage	DC	70 V / 70 V	
Min. switching voltage	DC	5 V	
Rated load	DC1	0,5 A / 70 V DC	
Min. switching current		1 mA	
Rated current		0,5 A	

Input control 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	1,0 VA / 1,0 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	3 000 V AC	50/60 Hz, 1 min., type of insulation: reinforced

General data

Max. switching frequency		10 kHz	5...32 V DC (for load up to 24 V DC: 15 kHz)
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

PI6W-1P

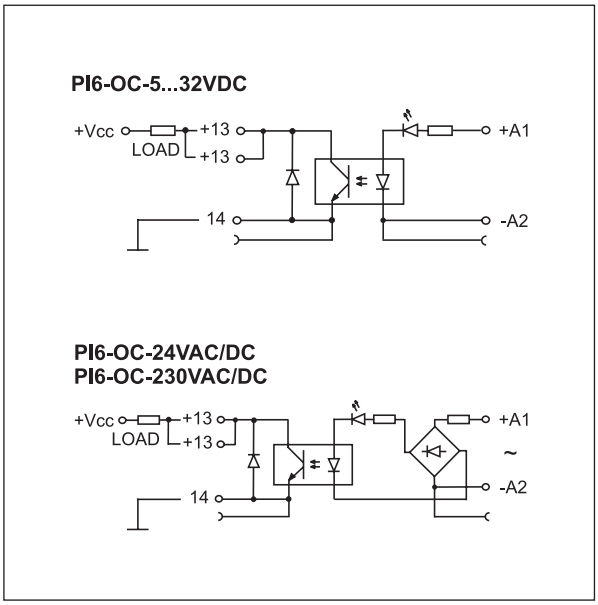
Plug-in socket
for RM699BV
or RSR30 relay

Input data

Table 1

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

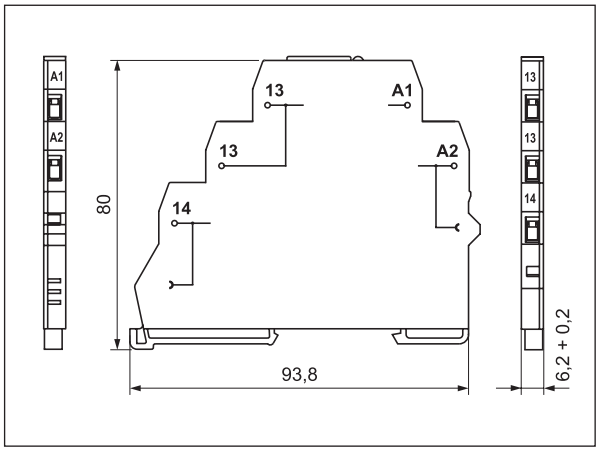
Connection diagrams



Ordering codes

Ordering codes **PI6-OC** are specified in Table 1, "Interface relay code" column.

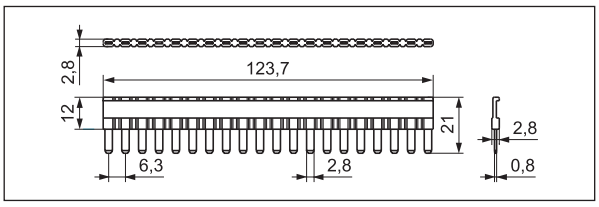
Dimensions



Mounting

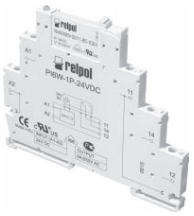
Relays **PI6-OC** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Maximum size of wires 1 x 2,5 mm^2 (1 x 14 AWG). Rated contactability 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torgue: 0,3 Nm.

PI6-OC 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 type **ZG20**

RM699BV + PI6W-1P-...



- Interface relay **PIR6W-1P-...** consists of:
  - socket with electronic **PI6W-1P-...** with screw terminals,
  - electromagnetic relay **RM699BV**, rated load 6 A / 250 V (AC1) 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 lines, with anti-interference filter (**PIR6W-1P-230VAC/DC-10** ❸) • Accessories: description plates **PI6W-1246** • Recognitions, certifications, directives:

Output circuit (RM699BV) - contact data ❶

Number and type of contacts		1 C/O		
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 control 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 supply line		≤ 300 m AC supply 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, surge voltage
	• 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
		-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 42. 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 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**.

Input data

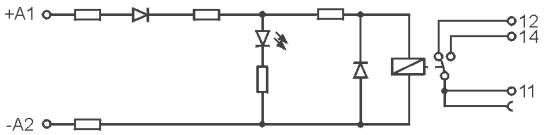
Table 1

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	**184,0**	**253,0**
PIR6W-1P-230VAC/DC-10 ❸	196,0 ❹	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	**184,0**	**253,0**

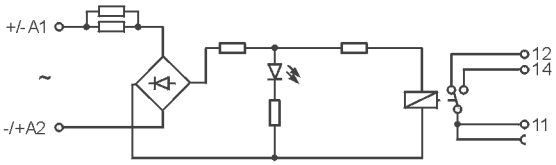
The data in bold type pertain to the standard versions of the relays.
❷ Version with gold-plated contacts.
❸ Version for long lines (max. 300 m), with anti-interference filter.
❹ 196,0 V at supply voltage AC; 184,0 V at supply voltage DC

Connection diagrams

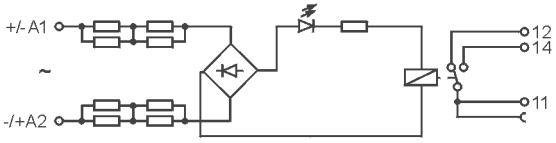
PIR6W-1P-12VDC, PIR6W-1P-12VDC-01
PIR6W-1P-24VDC, PIR6W-1P-24VDC-01
PIR6W-1P-36VDC, PIR6W-1P-36VDC-01



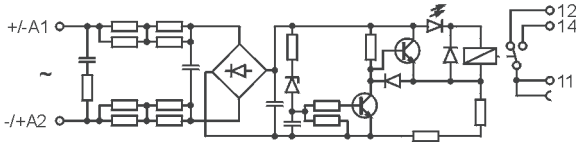
PIR6W-1P-24VAC/DC, PIR6W-1P-24VAC/DC-01
PIR6W-1P-42VAC/DC, PIR6W-1P-42VAC/DC-01



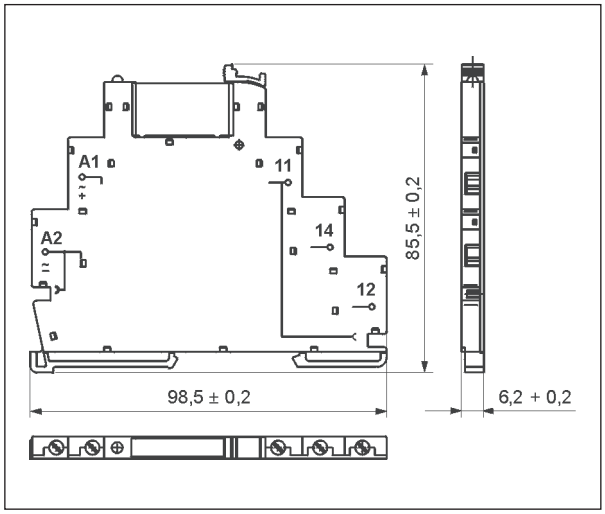
PIR6W-1P-115VAC/DC, PIR6W-1P-115VAC/DC-01
PIR6W-1P-230VAC/DC, PIR6W-1P-230VAC/DC-01

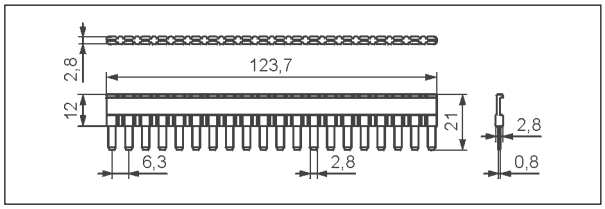


PIR6W-1P-230VAC/DC-10

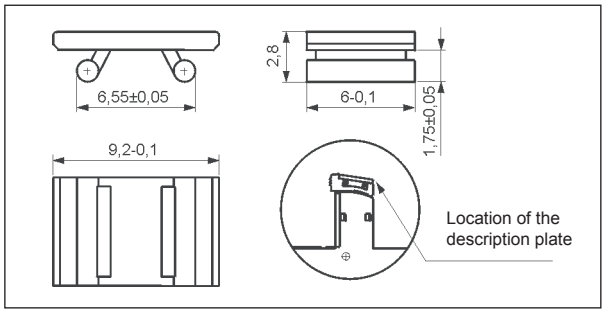


Dimensions





Interconnection strip type **ZG20**



Description plate **PI6W-1246**

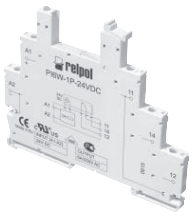
Ordering codes

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

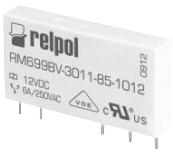
Mounting

Relays **PIR6W-1P-...** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Maximum size of wires 1 x 2,5 mm^2 (1 x 14 AWG). Rated contactability 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torgue: 0,3 Nm. Interface relay **PIR6W-1P-...** consists of: socket with electronic **PI6W-1P-...** and operational miniature electromagnetic relay **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.



PI6W-1P-...

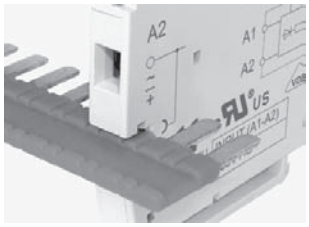


RM699BV

ZG20

PI6W-1246

Green LED:
signalling the operation status of the relay.



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

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

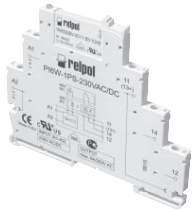
Table of codes

Table 2

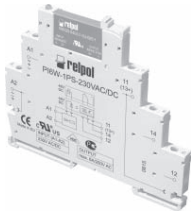
Interface relay code	Rated input voltage U_n ❺	Power of input control circuit	Socket code	Operational relay code	Rated voltage of operational relay U_s ❺
PIR6W-1P-12VDC	12 V DC	0,3 W	PI6W-1P-12VDC	RM699BV-3011-85-1012	12 V DC
PIR6W-1P-24VDC	**24 V DC**	**0,3 W**	**PI6W-1P-24VDC**	**RM699BV-3011-85-1024**	**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	**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	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	**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 lines (max. 300 m), with anti-interference filter. ❺ 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 + PI6W-1PS-...



RSR30 + PI6W-1PS-...



- Interface relay **PIR6W-1PS-...** consists of:
  - universal socket with electronic **PI6W-1PS-...** with screw terminals,
  - electromagnetic relay **RM699BV**, rated load 6 A / 250 V (AC1) ❶ or solid state relay **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:

Output circuit (RM699BV) - contact data ❶

Number and type of contacts (code of output)		1 C/O (R) ❸	1 C/O (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 control 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, surge voltage
	• 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	

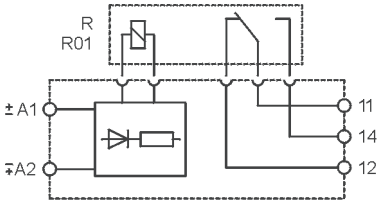
The data in bold type pertain to the standard versions of the relays. ❶ Characteristics of the contact capacity of relays **PIR6W-1PS-... with RM699BV** - see page 42; **PIR6W-1PS-... with RSR30** - see catalogue "Solid state relays" and www.relpol.com.pl ❷ For gold-plated contacts - when the maximum 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

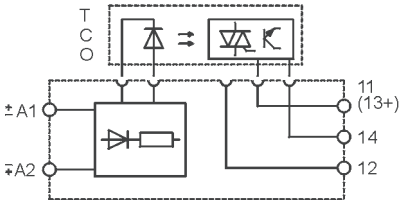
Operating time (typical value)		PIR6W-1PS-...-R/-R01:	DC: 8 ms	AC/DC: 20 ms	
		PIR6W-1PS-...-T:	DC: 100 µs	AC/DC: 10 ms	
		PIR6W-1PS-...-C/-O:	DC: 50 µs	AC/DC: 10 ms	
Release time (typical value)		PIR6W-1PS-...-R/-R01:	DC: 10 ms	AC/DC: 25 ms	
		PIR6W-1PS-...-T:	DC: 1/2 cycle + 1 ms	AC/DC: 30 ms	
		PIR6W-1PS-...-C/-O:	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

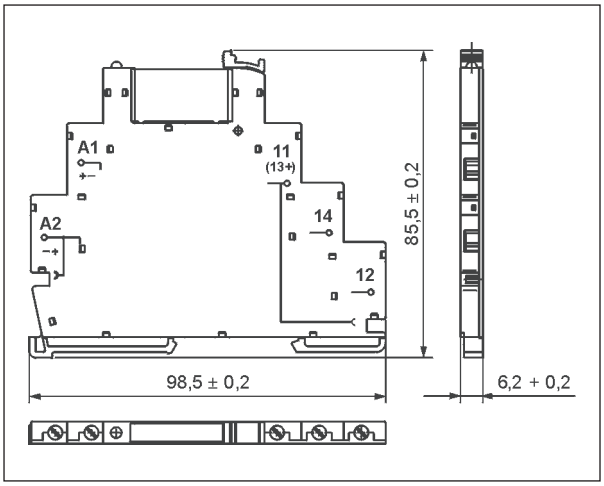
PIR6W-1PS-...-R, PIR6W-1PS-...-R01



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. Maximum size of wires 1 x 2,5 mm² (1 x 14 AWG). Rated contactability 2 x 1,5 mm² (2 x 16 AWG). Maximum screw torgue: 0,3 Nm. Interface relay **PIR6W-1PS-...** consists of: universal socket with electronic **PI6W-1PS-...** and operational miniature electromagnetic relay **RM699BV** or solid state **RSR30** ❸.

PIR6W-1PS-... may be linked with interconnection strip type **ZG20** (see pages 193, 194). Description plates of **PI6W-1246** type are offered for **PIR6W-1PS-...** relays (see pages 193, 194).

PI6W-1PS-...

RM699BV

RSR30

ZG20

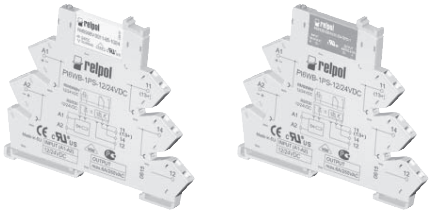
PI6W-1246

Table of codes Table 1

Interface relay code	Rated input voltage U_n ❹	Power of input control 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-...**



- Interface relay **PIR6WB-1PS-...** consists of: - universal socket with electronic **PI6WB-1PS-...** with spring terminals ❶, - electromagnetic relay **RM699BV**, rated load 6 A / 250 V (AC1) ❷ or solid state relay **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 lines, with anti-interference filter (**PIR6WB-1P-230VAC/DC-10** ❹) • Accessories: description plates **PI6W-1246** • Recognitions, certifications, directives:

Output circuit (RM699BV) - contact data ❷

Number and type of contacts (code of output)		1 C/O (R) ❺	1 C/O (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 control 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 supply line		≤ 300 m AC supply 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, surge voltage
	• 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 42; **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 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.

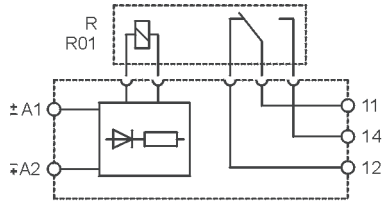
General data

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 x 10^5 6 A, 250 V AC	
Mechanical life (cycles)	PIR6WB-1PS-...-R/-R01:	> 10^7	
Dimensions (L x W x H)	98,3 x 6,2 x 84,6 mm		
Weight	55 g		
Ambient temperature • storage	PIR6WB-1PS-...-R/-R01/-T:	-40...+70 °C	...-C/-O: -25...+70 °C
	PIR6WB-1P-230VAC/DC-10 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	

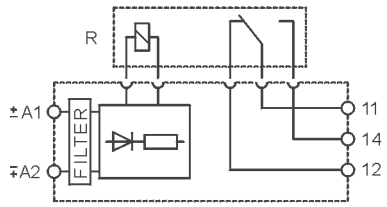
❹ Version for long lines (max. 300 m), with anti-interference filter. ❻ For versions of the input voltage U_n = 230 V AC/DC keep the distance between the mounting relays min. 5 mm under maximum load and at continuous operation.

Connection diagrams

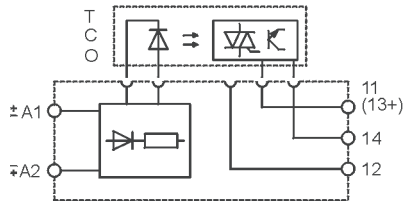
PIR6WB-1PS-...-R, PIR6WB-1PS-...-R01



PIR6WB-1P-230VAC/DC-10



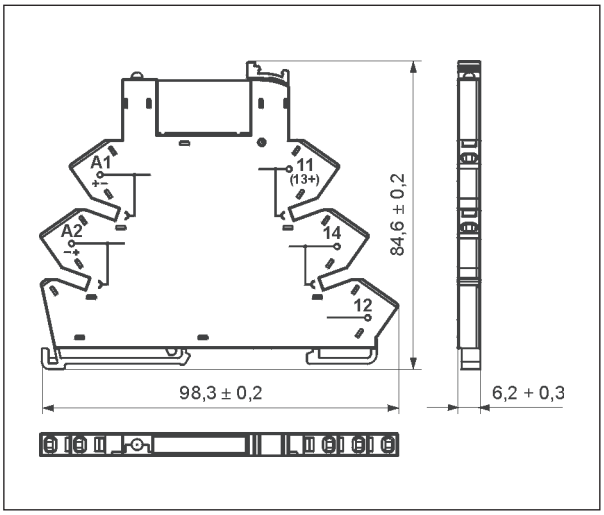
PIR6WB-1PS-...-T, PIR6WB-1PS-...-C, PIR6WB-1PS-...-O

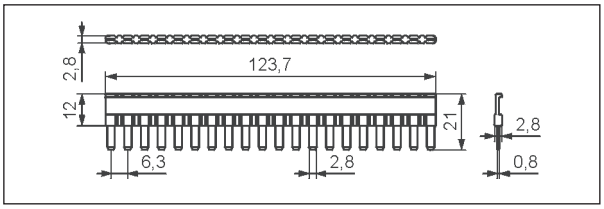


Ordering codes

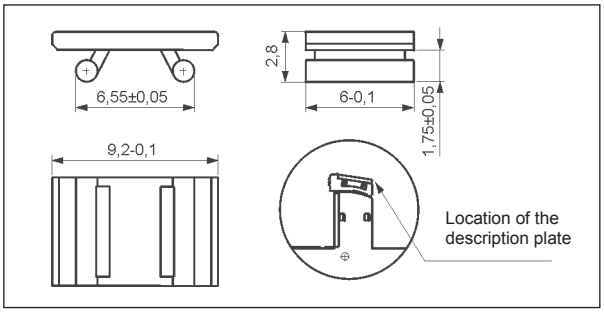
Ordering codes **PIR6WB-1PS-...** are specified in Table 1, "Interface relay code" column.

Dimensions





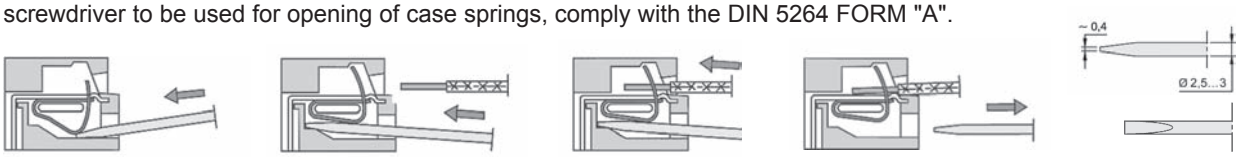
Interconnection strip type **ZG20**



Description plate **PI6W-1246**

Wire connection

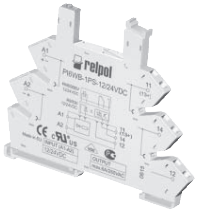
The drawings present the sequence of operations in course of inserting wires to the spring terminal, and the recommended screwdriver to be used for opening of case springs, comply with the DIN 5264 FORM "A".



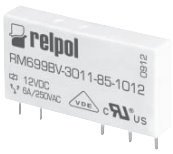
Mounting

Relays **PIR6WB-1PS-...** ❻ are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Range of wires 1 x 0,22...2,5 mm^2 (1 x 24...14 AWG). Rated contactability 1 x 1,5 mm^2 (1 x 16 AWG). Recommended length of the insulated cable 8...9 mm.
Interface relay **PIR6WB-1PS-...** consists of: universal socket with electronic **PI6WB-1PS-...** and operational miniature electromagnetic relay **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 of the input voltage U_n = 230 V AC/DC keep the distance between the mounting relays min. 5 mm under maximum load and at continuous operation.



PI6WB-1PS-...



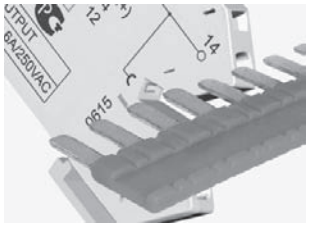
RM699BV

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

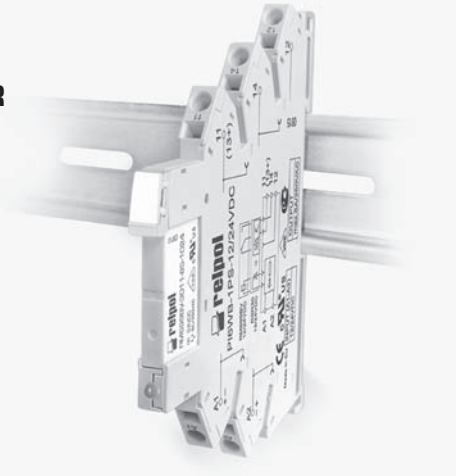


Table of codes Table 1

Interface relay code	Rated input voltage U_n ❼	Power of input control 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 lines (max. 300 m), with anti-interference filter. ❻ For versions of the input voltage U_n = 230 V AC/DC keep the distance between the mounting relays min. 5 mm under maximum load and at continuous operation. 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).

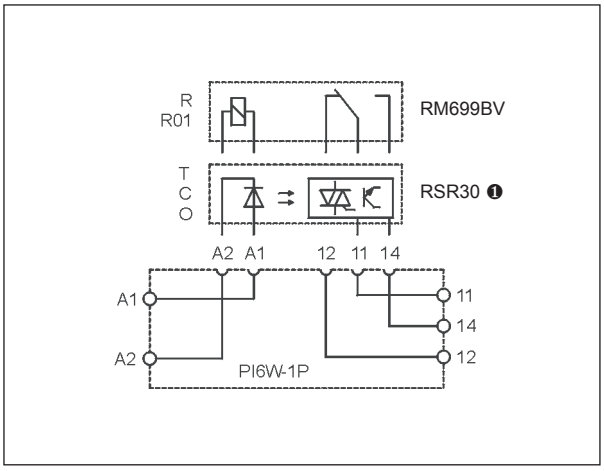
PI6W-1P
socket 6,2 mm

- 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:

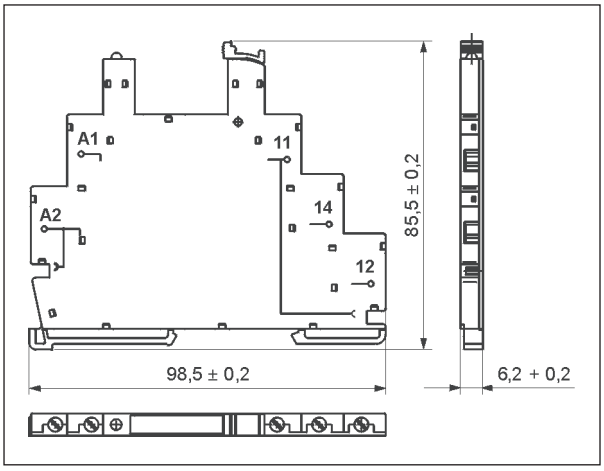
Output circuit

Number and type of contacts / outputs		RM699BV: 1 C/O	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, surge voltage	
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. Maximum size of wires 1 x 2,5 mm^2 (1 x 14 AWG). Rated contactability 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torgue: 0,3 Nm. **PI6W-1P** may be linked with interconnection strip type **ZG20** (see pages 193, 194). Description plates of **PI6W-1246** type are offered for **PI6W-1P** sockets (see pages 193, 194).

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

Export Sales Department Phone +48 68 47 90 832 • **Marketing Department** Phone +48 68 47 90 900

Installation relays

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

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

NEW product

• Installation relays - electromagnetic • Cadmium - free contacts • AC, DC and AC/DC coils • Cover - installation module, width 17,5 mm • Application areas: automatic systems in buildings - in cooperation with control timers, switches, control switches; electric systems; industrial automation and power engineering automation; switchgears of modular equipment • Possibility to control circuits and receivers of the load of AC1 up to 16 A / 250 V (1 C/O, 1 NO versions) • Possibility of doubling of the transmitted signals (2 C/O, 2 NO versions) • Green LED to inform about the status of the relays (U_n operation) • Recognitions, certifications, directives: CE

Contact data

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

Coil data

Rated voltage	• versions 1 C/O, 2 C/O	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 C/O, 2 C/O	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 C/O and 2 C/O, 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 C/O, type of insulation: basic
		2 500 V AC	contacts 2 NO, type of insulation: basic

General data

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

The data in bold type pertain to the standard versions of the relays.
□ UL only for 15 A.
□ Length with 35 mm rail taps: 98,8 mm.

Coil data - DC voltage version (contacts 1 C/O, 2 C/O) Table 1

Coil code	Rated voltage V DC	Coil operating range V DC		Power consumption m W
		min. (at 20°C)	max. (at 55°C)	
1012	12	10,2	13,2	500
1024	24	20,4	26,4	650
1048	48	40,8	52,8	650

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

Coil code	Rated voltage V AC	Coil operating range V AC		Power consumption mVA (AC: 50 Hz)
		min. (at 20°C)	max. (at 55°C)	
3115	115	97,8	126,5	1 000
3230	230	195,5	253,0	1 000

Coil data - AC 50 Hz voltage version (contacts 1 NO, 2 NO) Table 3

Coil code	Rated voltage V AC	Coil operating range V AC		Power consumption mVA (AC: 50 Hz)
		min. (at 20°C)	max. (at 55°C)	
9024 □	230 □	195,5	253,0	500

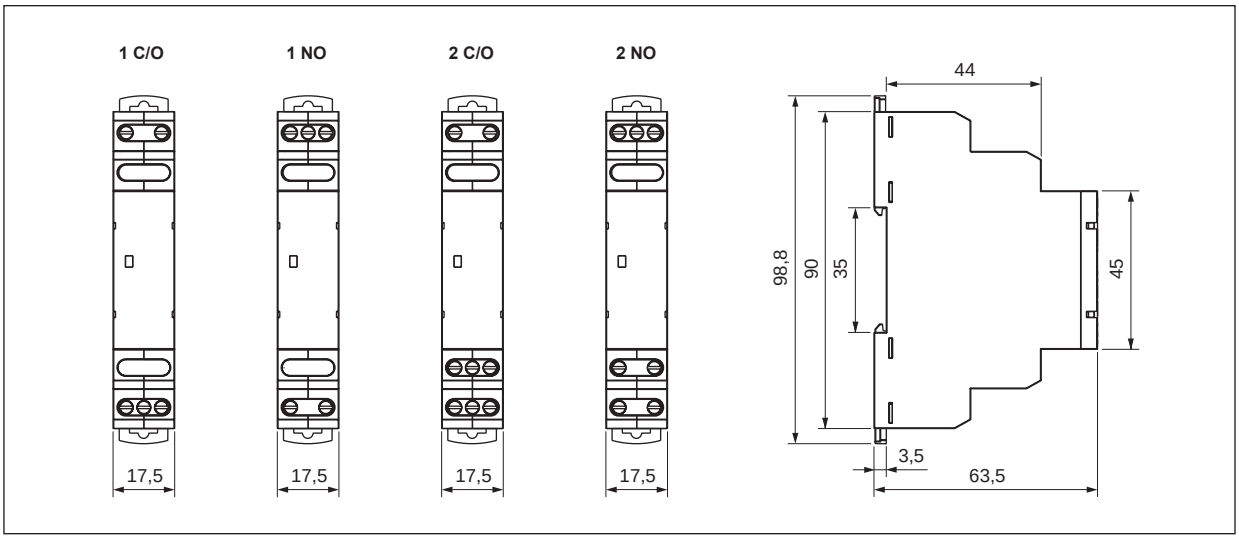
□ Selection of supply voltage via wires connection: 24 V AC/DC - to the terminals A1-A2; 230 V AC - to the terminals A1-A3.

Coil data - AC/DC 50 Hz voltage version (contacts 1 NO, 2 NO) Table 4

Coil code	Rated voltage V AC/DC	Coil operating range V AC/DC		Power consumption mVA / mW (AC: 50 Hz)
		min. (at 20°C)	max. (at 55°C)	
8012	12	10,2	13,2	750 / 750
9024 □	24 □	20,4	26,4	650 / 650
8048	48	40,8	52,8	650 / 650
8115	115	97,8	126,5	650 / 650

□ 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

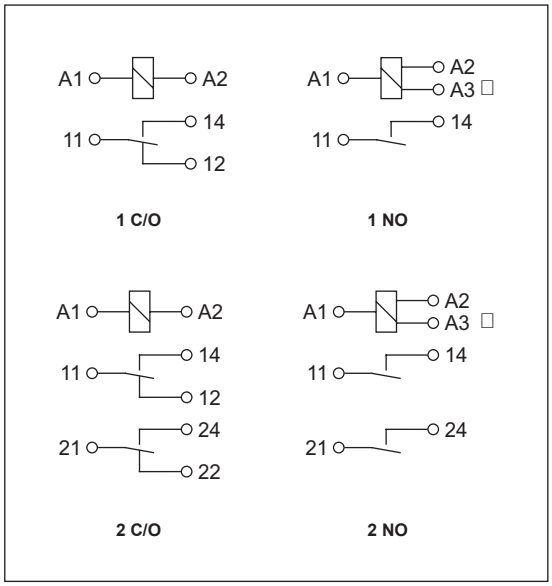


Table of codes

Table 5

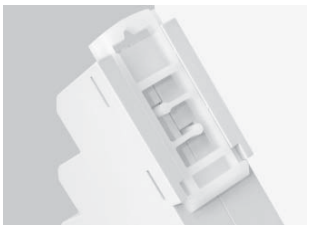
Installation relay code		Rated coil voltage
MT-PI-17S-11-1012	MT-PI-17S-12-1012	12 V DC
MT-PI-17S-11-1024	MT-PI-17S-12-1024	24 V DC
MT-PI-17S-11-1048	MT-PI-17S-12-1048	48 V DC
MT-PI-17S-11-3115	MT-PI-17S-12-3115	115 V AC 50 Hz
MT-PI-17S-11-3230	MT-PI-17S-12-3230	230 V AC 50 Hz
MT-PI-17S-21-8012	MT-PI-17S-22-8012	12 V AC/DC
MT-PI-17S-21-8048	MT-PI-17S-22-8048	48 V AC/DC
MT-PI-17S-21-8115	MT-PI-17S-22-8115	115 V AC/DC
MT-PI-17S-21-9024 □	MT-PI-17S-22-9024 □	24 V AC/DC 230 V AC 50 Hz

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

□ Only version MT-PI-17S-21-9024.
□ Only version MT-PI-17S-22-9024.

Mounting

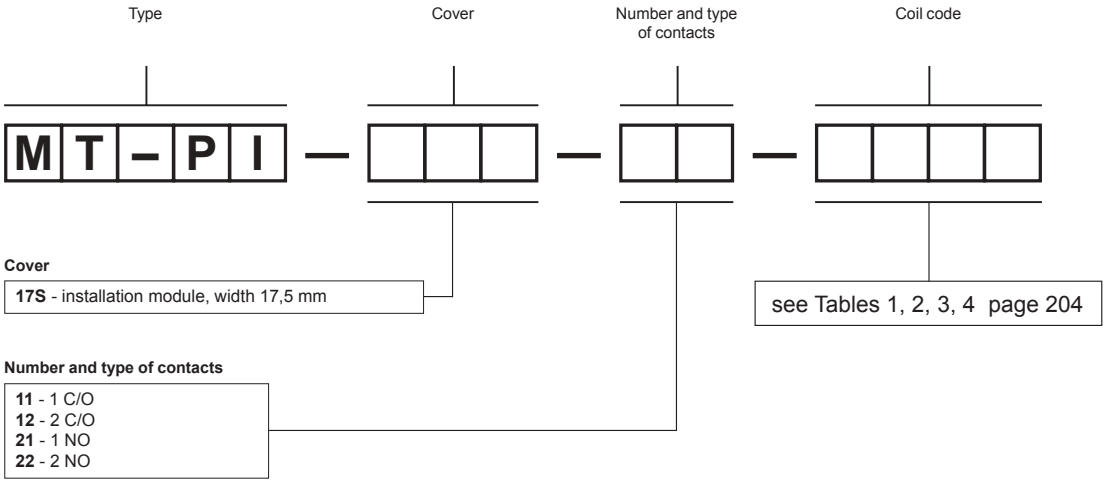
Relays **MT-PI-...** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. Maximum size of wires 1 x 2,5 mm^2 (1 x 14 AWG). Rated cross-sectional area of conductors 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torque: 0,6 Nm.



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

Green LED:
signalling the operation status of the relay.

Ordering codes □



Example of ordering code □:

MT-PI-17S-22-9024 relay **MT-PI-...**, cover - installation module, width 17,5 mm, with two normally open contacts, voltage version 230 V AC 50 Hz or 24 V AC/DC 50 Hz □, contact material AgNi

□ Ordering codes **MT-PI-...** are specified in Table 5, "Installation relay code" column.

Time relays

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

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.

TR4N relays are available with 1, 2 or 4 changeover contacts. They have compact cover. They are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715.

T-R4 relays have 4 changeover contacts. They shall be mounted in plug-in sockets of GZM4 or GZT4 types which should be designed for 35 mm rail mount or on panel mounting.

PIR15...T relays are available with 2 or 3 changeover contacts. They are composed of R15 relay with GZP.. plug-in socket, time module T(COM3), GZP-0054 clip to fix the R15 relay and GZP-0035 description plate.

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

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 C/O
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 control 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			
• control voltage		rated supply voltage U_n (between terminals S and A2)	
• 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	

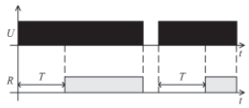
Time module data

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 Control contact S is activated by connecting it to A1 terminal. 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.

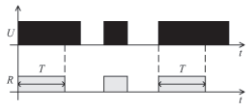
Time functions

E - ON delay



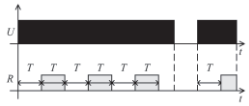
After the supply voltage U has been switched on, the set time T is being measured. After the T time has lapsed, the R operating relay shall start operating and remains in operating position until the supply voltage U is switched off.

Wu - Single shot leading edge voltage controlled



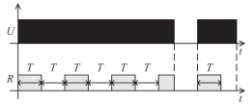
After the supply voltage U has been switched on, the operating relay R starts immediately and the set time T is being measured. After the set time T has lapsed, the operating relay R returns to the initial position.

Bp - Flasher pause first



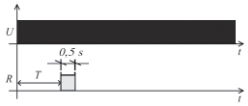
After the supply voltage U has been switched on, the set time T is being measured. After the time has lapsed, the operating relay R starts operating and the T time is being measured again. After the time has lapsed, the operating relay R returns to the initial state, and another cycle of the relay operation commences. The relay operates until the supply voltage is switched off.

Bi - Flasher pulse first

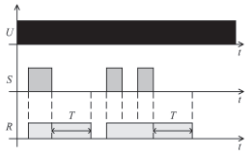


After the supply voltage U has been switched on, the set time T is being measured and the operation relay R is switched on. After the time has lapsed, the operating relay R starts operating and the T time is being measured again. After the time has lapsed, the operating relay R returns to the initial state, and another cycle of the relay operation commences. The relay operates until the supply voltage is switched off.

T - generating the 0,5 s pulse after the T time

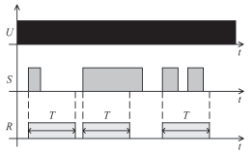


R - OFF delay with control contact S



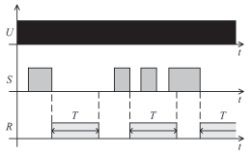
The supply voltage U must be constantly applied to the time relay. After the control contact S has been closed, the operating relay R starts operation immediately. After the control contact S has been opened, the set time T is being measured. After the T time has lapsed, the operating relay R returns to the initial position. When the control contact S is closed again, even before the T time has lapsed, the time measured thus far is reset, and when S is opened, the set time T is being measured again.

Ws - Single shot leading edge with control contact S



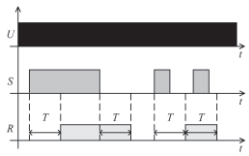
The supply voltage U must be constantly applied to the time relay. After the control contact S has been closed, the operating relay R starts immediately and the set time T is being measured. After the set time T has lapsed, the operating relay R returns to the initial position. In course of measuring the T time, the control contact S may be closed and opened repeatedly with no impact upon the operating relay R. Only after the T time has lapsed, closing S will make the operating relay R operate and the T time will be measured.

Wa - Single shot trailing edge with control contact S



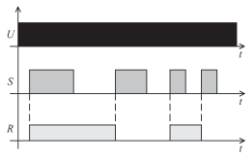
The supply voltage U must be constantly applied to the time relay. Closing of the control contact S does not trigger the measurement of the time delay or operation of the operating relay R. Only opening of the control contact S causes the immediate operation of the operating relay R, and the set time T is being measured. After the T time has lapsed, the operating relay R returns to the initial position. In course of measuring the T time, the control contact S may be closed and opened repeatedly with no impact upon the output relay. Only after the T time has lapsed, closing and opening of S will make the operating relay R operate and the T time will be measured.

Esa - Delayed switching ON and OFF with control contact S



The supply voltage U must be constantly applied to the time relay. After the control contact S has been closed, the set time T is being measured and when it lapses, the operating relay R is switched on. On opening of the control contact S the set time T is measured again, and after the time has lapsed, the operating relay R is switched off. In case the time of closing of the control contact S is shorter than the set time delay T, the operating relay R shall start operation after the set delay has lapsed, and it will continue to operate for the T time. In course of the operation of the R relay, closing of the control contact S does not affect the function.

B - Flasher (bistable mode) with control contact S



Each closing of the control contact S changes the operating relay status to the opposite one (a feature of a bi-stable 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

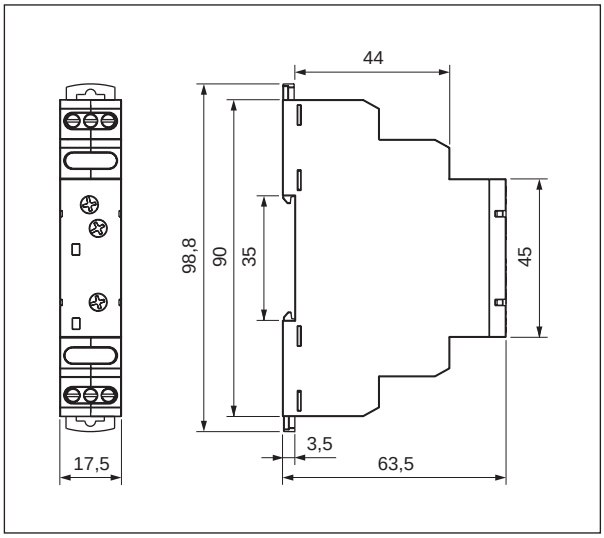
Supply diode: it is lit permanently when the time is not being measured. In course of the T time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time.

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.

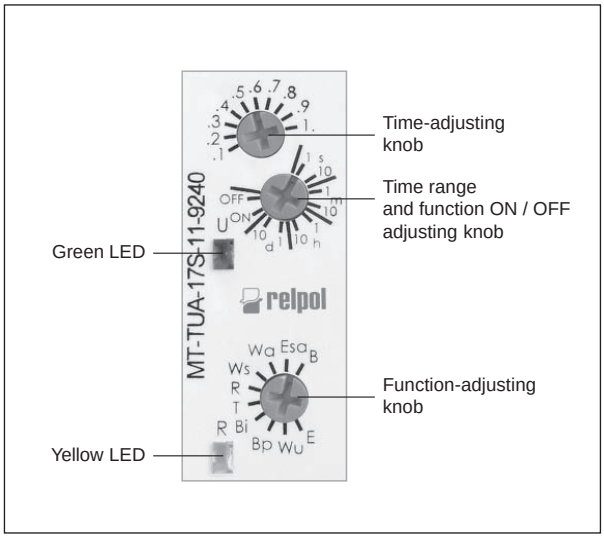
Release: depending on the function to be performed, the relay is released with the supply voltage or by connection of the S contact to the A1 line. For DC supply, the positive pole must be connected to the A1 line. The level of the S contact activation is adjusted automatically depending on the supply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

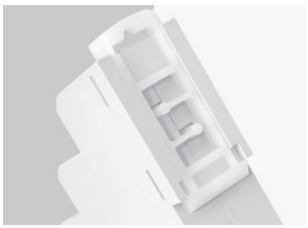


Front panel description



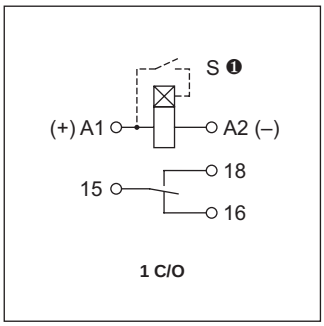
Mounting

Relays **MT-TUA-...** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. Maximum size of wires 1 x 2,5 mm^2 (1 x 14 AWG). Rated cross-sectional area of conductors 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torque: 0,6 Nm.



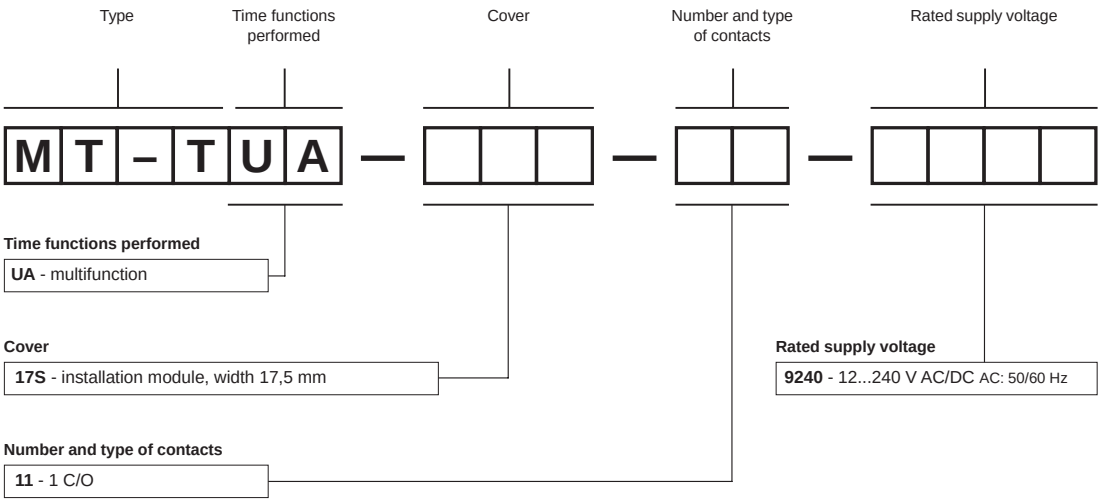
Two taps:
easy assembly on 35 mm rail, firm tapping (top and bottom).

Connection diagram



❶ Control contact S is activated by connecting it to A1 terminal.

Ordering codes



Example of ordering code:

MT-TUA-17S-11-9240 time relay **MT-TUA-...**, multifunction (relay perform 10 functions), cover - installation module, width 17,5 mm, with one changeover contact, rated input voltage 12...240 V AC/DC 50/60 Hz, contact material AgNi

- **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 C/O	
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 control 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			
• control voltage		rated supply voltage U_n (between terminals S and A2)	
• 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 Control contact S is activated by connecting it to A1 terminal. 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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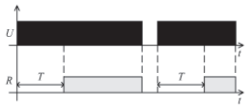
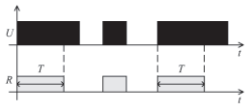
Time functions

E - ON delay



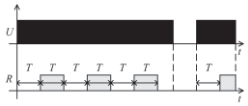
After the supply voltage U has been switched on, the set time T is being measured. After the T time has lapsed, the R operating relay shall start operating and remains in operating position until the supply voltage U is switched off.

Wu - Single shot leading edge voltage controlled



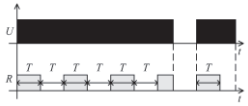
After the supply voltage U has been switched on, the operating relay R starts immediately and the set time T is being measured. After the set time T has lapsed, the operating relay R returns to the initial position.

Bp - Flasher pause first



After the supply voltage U has been switched on, the set time T is being measured. After the time has lapsed, the operating relay R starts operating and the T time is being measured again. After the time has lapsed, the operating relay R returns to the initial state, and another cycle of the relay operation commences. The relay operates until the supply voltage is switched off.

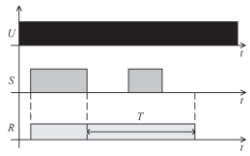
Bi - Flasher pulse first



After the supply voltage U has been switched on, the set time T is being measured and the operation relay R is switched on. After the time has lapsed, the operating relay R starts operating and the T time is being measured again. After the time has lapsed, the operating relay R returns to the initial state, and another cycle of the relay operation commences. The relay operates until the supply voltage is switched off.

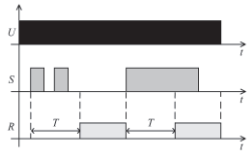
U - supply voltage;
R - output state of the relay;
S - control contact state;
T - measured time; **t** - time axis

Ra - OFF delay with control contact S without restart



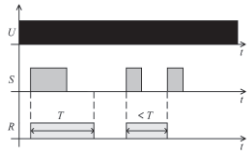
The supply voltage U must be constantly applied to the device. When the control contact S is closed, the output relay R switches into on-position. If the contact S is opened, the set interval T begins. After the interval T has expired the output relay switches into off-position. During the interval, the control contact S can be operated any number of times. A further cycle can only be started when a cycle run has been completed.

Esf - ON delay with control contact S without restart



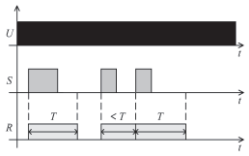
The supply voltage U must be constantly applied to the device. When the control contact S is closed, the set interval T begins and the output relay R switches into off-position. After the interval T has expired the output relay R switches into on-position. During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.

Wi - Impulse switch mode with OFF delay with control contact S



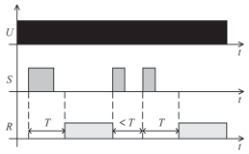
In this mode, every keypress toggles the output relay R. After the pushbutton at S has been pressed, the output relay R closes and the interval T begins. After the interval T has expired the output relay R switches into off position. If the pushbutton is pressed again before the interval T has expired, the interval T will be canceled and the output relay R switches into off-position.

Wst - Single shot leading edge with control contact S with restart



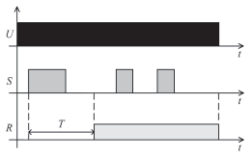
The supply voltage U must be constantly applied to the device. When the control contact S is closed, the output relay R switches into on-position and the set interval T begins. After the interval T has expired the output relay switches into off-position. If the control contact S is closed again before the interval T has expired, the interval is erased and restarted with the next cycle.

Est - ON delay with control contact S with restart



After the voltage has been applied, prior to the start of the first operation cycle, the relay R remains in the off-position. When the control contact S is closed, the set interval T begins and the output relay R switches into off-position. After the interval T has expired the output relay R switches into on-position and remains in this state till the next instance of closing of the S contact or till the supply fades away. During the interval, each leading edge restarts the cycle.

Esp - ON delay single cycle with control contact S



The supply voltage U must be constantly applied to the device. When the control contact S is closed, the set interval T begins. After the interval T has expired the output relay R switches into on-position and following instances of closing the control contact S are ignored. To restart the function, the supply voltage must be interrupted and reapplied.

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

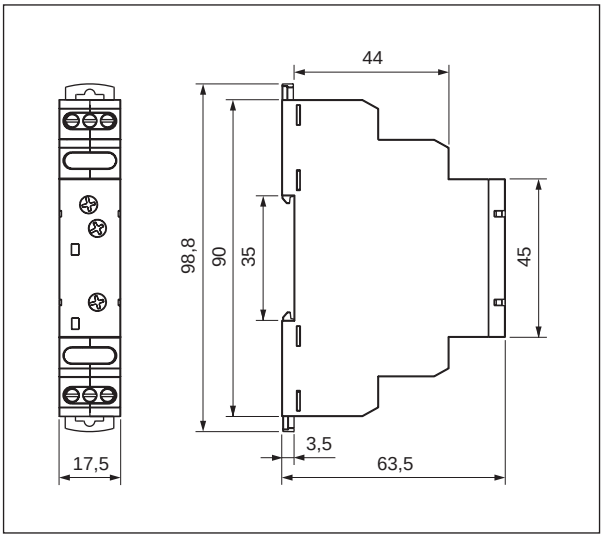
Supply diode: it is lit permanently when the time is not being measured. In course of the T time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time.

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.

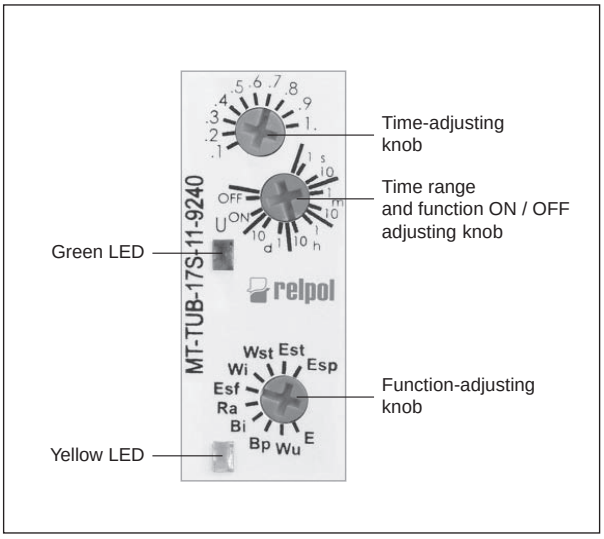
Release: depending on the function to be performed, the relay is released with the supply voltage or by connection of the S contact to the A1 line. For DC supply, the positive pole must be connected to the A1 line. The level of the S contact activation is adjusted automatically depending on the supply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

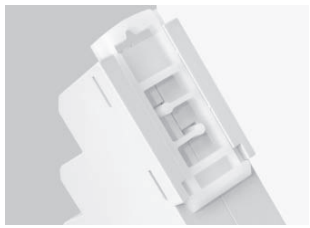


Front panel description



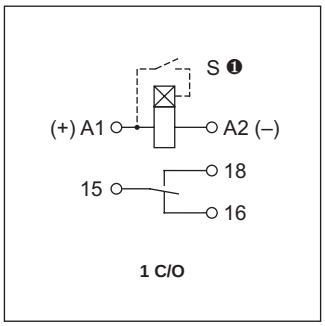
Mounting

Relays **MT-TUB-...** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. Maximum size of wires 1 x 2,5 mm^2 (1 x 14 AWG). Rated cross-sectional area of conductors 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torque: 0,6 Nm.



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

Connection diagram



❶ Control contact S is activated by connecting it to A1 terminal.

Ordering codes

Type	Time functions performed	Cover	Number and type of contacts	Rated supply voltage
MT	TUB	—	—	—

Time functions performed

UB - multifunction

Cover

17S - installation module, width 17,5 mm

Number and type of contacts

11 - 1 C/O

Rated supply 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, with one changeover contact, rated input voltage 12...240 V AC/DC 50/60 Hz, contact material AgNi

- **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 C/O
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 control 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			
• control voltage		rated supply voltage U_n (between terminals S and A2)	
• 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	

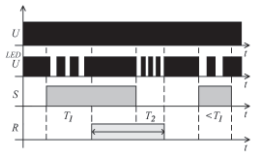
Time module data

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 215 and descriptions of time functions, page 214. ❷ Control contact S is activated by connecting it to A1 terminal. 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.

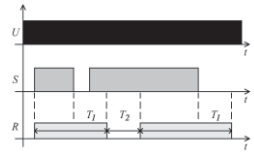
Time functions ❶

ER - ON and OFF delay with control contact S
Relay code: **MT-TER-17S-11-9240**



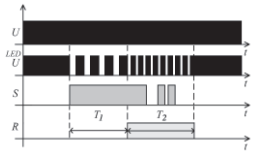
The T1 time lapses from the moment of S activation, and the relay is switched on. After the S signal has been removed, the relay switches off after the T2 time. Should the S contact be activated within the T2 time, the T2 time is reset, and the relay contacts remain on. If S is activated for a time shorter than T1, the unit shall not switch on the relay.

EWa - OFF delay and pause trailing edge with control contact S
Relay code: **MT-TEA-17S-11-9240**



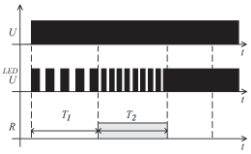
Once the S signal has been activated, the relay is switched on. When the trailing edge occurs, the T1 time starts to be measured. After the T1 time has lapsed, the relay is switched off for the T2 time. The relay may be switched on again after the T2 has lapsed when high state appears on the control input S. In course of measuring the T1 and T2 times, the S contact status is irrelevant.

EWs - ON delay and single shot leading edge with control contact S
Relay code: **MT-TES-17S-11-9240**

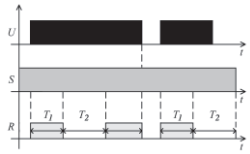


When the S contact has been activated (rising edge), the T1 time is being measured. In course of measuring the T1 and T2 times, the S contact status is irrelevant. After the T1 time, the operating relay switches to the T2 time. After the T2 has lapsed, the operating relay switches off and the unit returns to the initial position awaiting another rising edge on S.

EWu + NWu - ON delay and single shot leading edge voltage controlled or single shot and pause leading edge voltage controlled
Relay code: **MT-TEU-17S-11-9240**



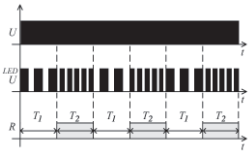
The time relay providing independent regulation of the T1 and T2 times. With supply switched on, the status of the S contact is checked. If the contact is not active, the EWu function is commenced where the operating relay is switched on for the time T2 after the set T1 time has lapsed.



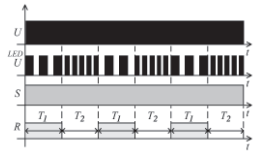
If the S contact is active with the supply on, the operation starts in the NWu function. The operating relay is switched on for the T1 time and then the relay is switched off for the T2 time. After the T2 time, the operating relay is switched on permanently.

A change of the S contact status from 0 to 1 at any time resets the relay and starts the NWu function. A change from 1 to 0 starts a new EWu cycle.

Ii + Ip - Asymmetric flasher pulse first or pause first
Relay code: **MT-TIP-17S-11-9240**



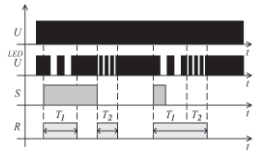
The Ii + Ip time relay operates cyclically (on-off) with independent regulation of the T1 and T2 times. If the S contact is not active with the supply on, the operation shall start from a pause T1 and then the contact shall make T2 - Ip function.



In case the S contact is active with the supply on, the operation shall start with closed R contact on time T1, then R contact opens on time T2 - Ii function.

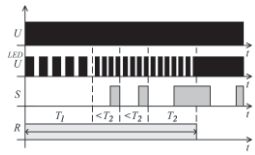
A change of the S contact status from 0 to 1 at any time resets the unit and starts the Ii function. A change from 1 to 0 starts a new Ip cycle.

WsWa - Single shot leading edge and single shot trailing edge with control contact S
Relay code: **MT-TSA-17S-11-9240**



A rising edge on the S contact triggers measurement of the T1 time, and the operating relay is switched on. After T1 the relay switches off. The relay shall be switched on again fro the T2 period after trailing edge on S. If after the T1 time the S status is on a low level, the relay shall be switched on for the T2 time. If after the T2 time the S status is on a high level, the relay shall be switched on for the T1 time.

Wt - Pulse detection with control contact S
Relay code: **MT-TWT-17S-11-9240**



With the supply on, the operating relay is switched on, and the T1 time is being measured. When the T1 time has been measured, the T2 time measurement starts. For the operating relay to remain on, a rising and trailing edge must occur on the S contact within the T2 time, i.e. a single pulse which starts the T2 time measurement again. At the absence of the pulse, the relay will switch off after the T2 time has lapsed, and the relay may be switched on after the supply has been switched off and on again.

U - supply voltage; **R** - output state of the relay; **S** - control contact state; **T1**, **T2** - measured times
❶ Codes of versions - see "**Ordering codes**", page 215 and descriptions of time functions, page 214.

Additional functions

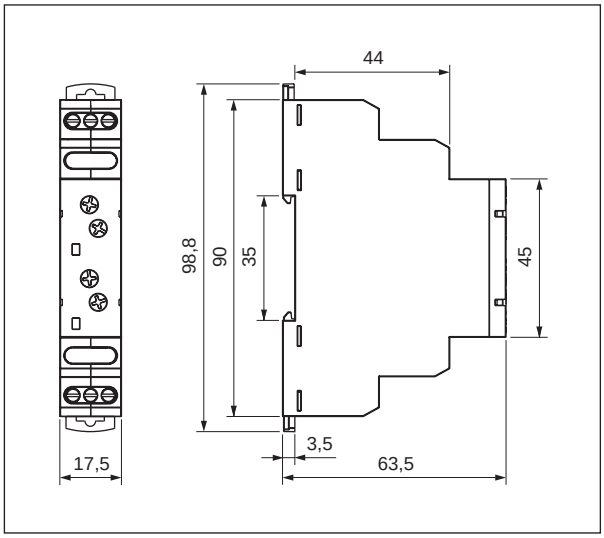
Supply diode: it is lit permanently when the time is not being measured. In course of the T1 time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time. For the T2 time, the period is 250 ms.

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.

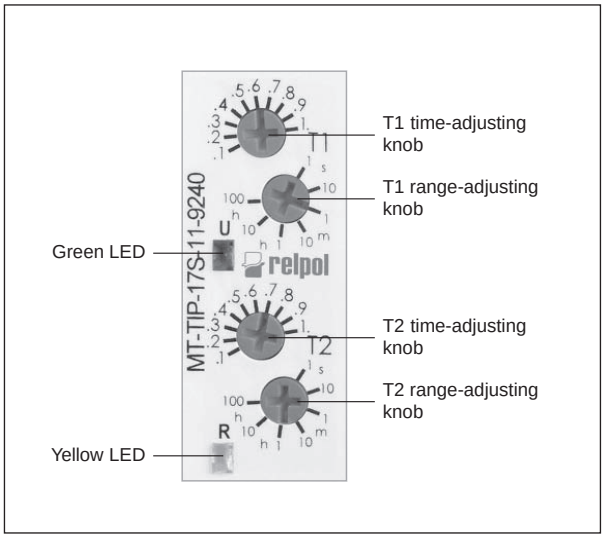
Release:
- for the versions MT-TEU-..., MT-TIP-...: the relay is released with the supply voltage,
- for other versions: the relay is released by connection of the S contact to the A1 line. For DC supply, the positive pole must be connected to the A1 line. The level of the S contact activation is adjusted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

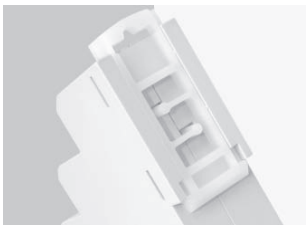


Front panel description



Mounting

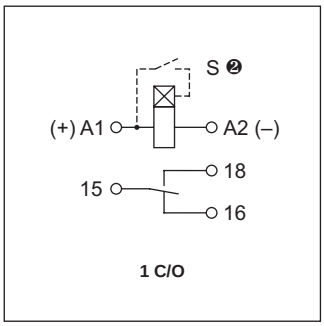
Relays **MT-T..-...** ❶ are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. Maximum size of wires 1 x 2,5 mm^2 (1 x 14 AWG). Rated cross-sectional area of conductors 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torque: 0,6 Nm.



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

❶ Codes of versions - see "**Ordering codes**", page 215 and descriptions of time functions, page 214.

Connection diagram



❷ Control contact S is activated by connecting it to A1 terminal.

Ordering codes

Type	Time functions performed	Cover	Number and type of contacts	Rated supply voltage
M T – T				

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

Rated supply voltage

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

Number and type of contacts

11 - 1 C/O

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, with one changeover contact, rated input voltage 12...240 V AC/DC 50/60 Hz, contact material AgNi

- **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 C/O	
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 control 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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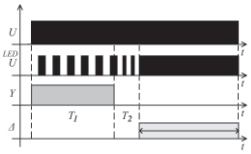
Time functions

SD - Star-Delta start-up



When the supply voltage U is applied, the operating star-contact 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 is switched on together with the yellow LED, and the green LED remains illuminated.

U - supply voltage; **T1**, **T2** - measured times

Additional functions

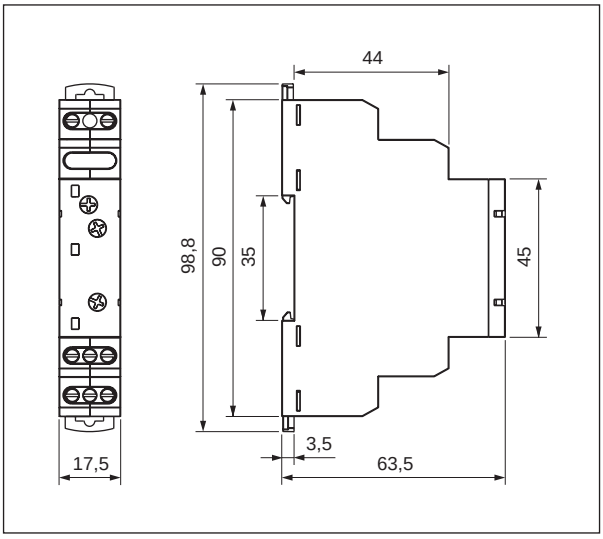
Supply diode: it is lit permanently when the time is not being measured. In course of the T1 time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time. For the T2 time, the period is 250 ms.

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.

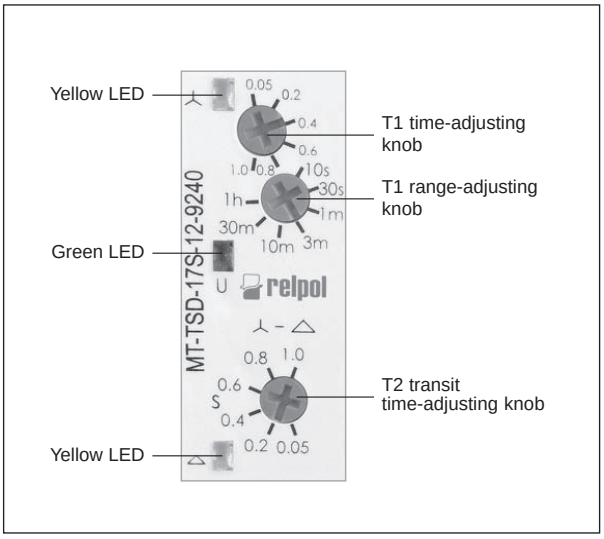
Release: the relay is released with the supply voltage.

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

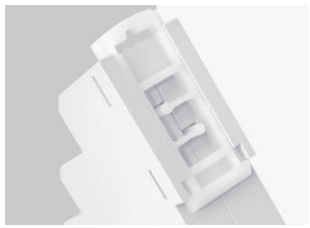


Front panel description



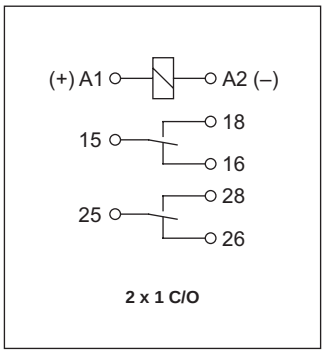
Mounting

Relays **MT-TSD-...** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. Maximum size of wires 1 x 2,5 mm^2 (1 x 14 AWG). Rated cross-sectional area of conductors 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torque: 0,6 Nm.



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

Connection diagram



2 x 1 C/O

Ordering codes

Type	Time functions performed		Cover			Number and type of contacts		Rated supply voltage			
M	T	–	T	S	D	—			—						

Time functions performed

SD - delta-star start-up systems

Cover

17S - installation module, width 17,5 mm

Number and type of contacts

12 - 2 x 1 C/O

Rated supply voltage

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

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, with two changeover contacts, rated input voltage 12...240 V AC/DC 50/60 Hz, contact material AgNi

Export Sales Department • Phone: +48 68 47 90 832 • E-mail: export@relpol.com.pl

• 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 (wiring: 1 x 2,5 mm^2, 2 x 1,5 mm^2) • The main advantages of application: simple selection of the performed function, possibility to control a few circuits (4 changeover contacts), esthetic design in the control cabinet • The switching capacity of contacts as in R4 electromagnetic relay • Compliance with standard PN-EN 61812-1 • Recognitions, certifications, directives:

Output circuits - contact data

Number and type of contacts		4 C/O
Contact material		**AgNi**
Max. switching voltage		250 V AC / 250 V DC
Min. switching voltage		5 V
Rated load	AC1	6 A / 250 V AC
	DC1	6 A / 24 V DC
Min. switching current		5 mA
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

Input control 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
Min. pulse of the control contact S		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
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

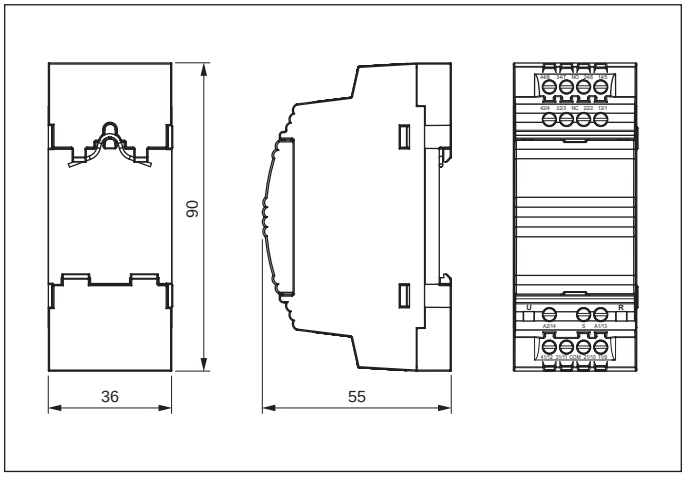
The data in bold type pertain to the standard versions of the relays.

Time module data

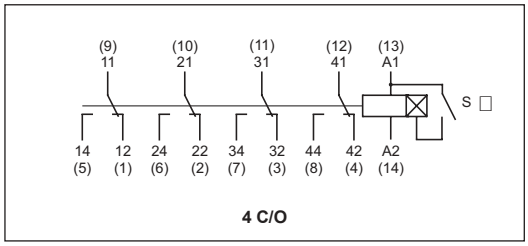
Functions □	E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B permanent switching ON and OFF
Time ranges	1 s □; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment	smooth - (0,1...1) x time range
Setting accuracy	± 5% (calculated from the final range values) □
Repeatability	± 0,5% □
Temperature influence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

□ Descriptions of time functions - see pages 233, 234. □ 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. □ 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



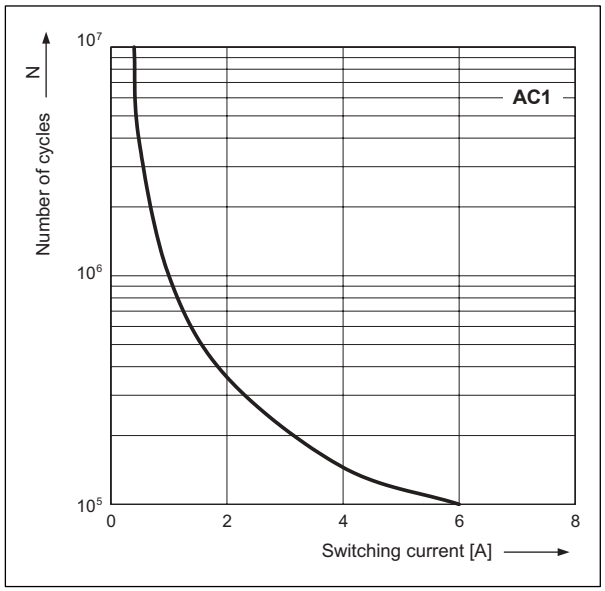
Connections diagram



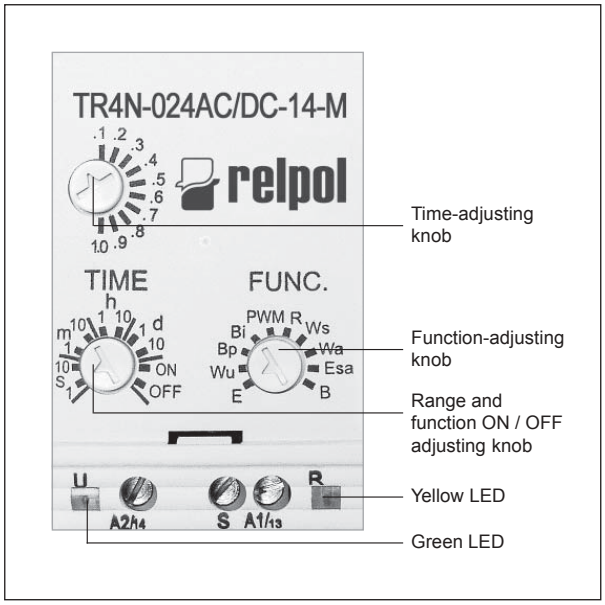
□ Control contact S is activated by connecting it to A1 terminal.

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

Fig. 1



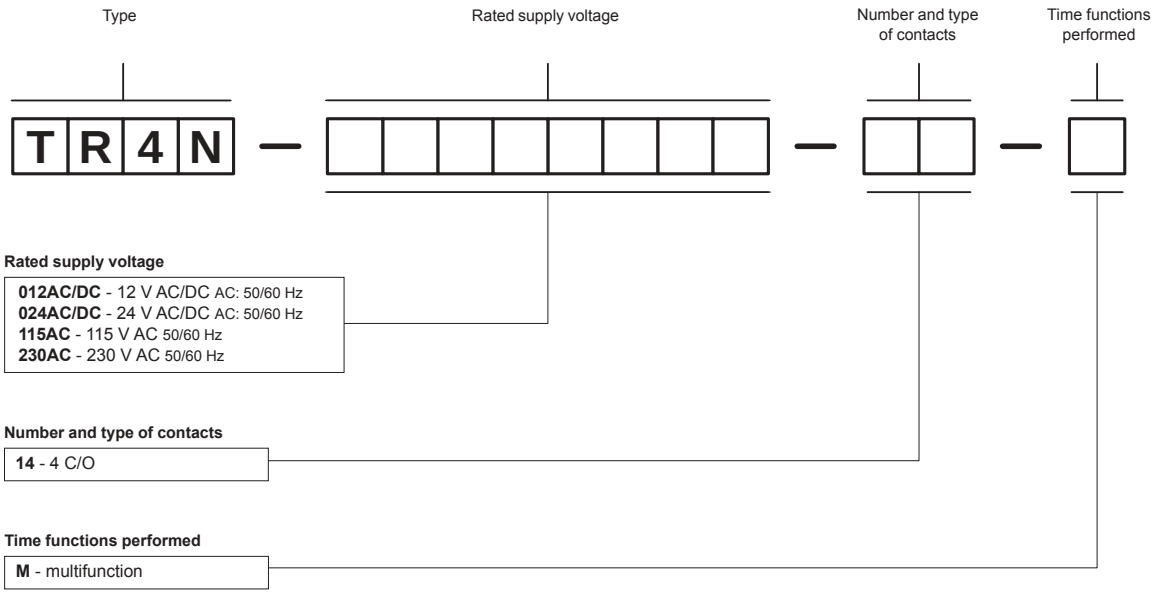
Front panel description



Mounting

Relays **TR4N 4 C/O** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. Maximum size of wires 1 x 2,5 mm^2 (1 x 14 AWG). Rated cross-sectional area of conductors 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torque: 0,6 Nm.

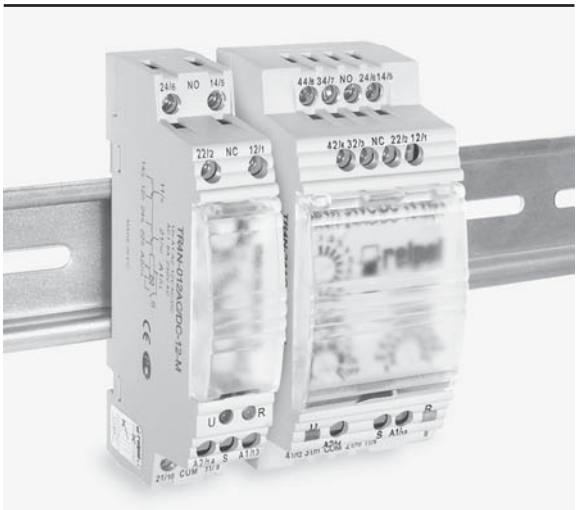
Ordering codes



Examples of ordering codes:

TR4N-230AC-14-M time relay **TR4N 4 C/O**, rated input voltage 230 V AC 50/60 Hz, with four changeover contacts, multifunction (relay perform 10 functions), contact material AgNi

TR4N-024AC/DC-14-M time relay **TR4N 4 C/O**, rated input voltage 24 V AC/DC AC: 50/60 Hz, with four changeover contacts, multifunction (relay perform 10 functions), contact material AgNi



TR4N 1 C/O, 2 C/O

time relays

• 10-function electronic time relays in compact cover • Cadmium - free contacts • AC and AC/DC input voltages • Direct mounting on 35 mm rail mount acc. to PN-EN 60715 (wiring: 1 x 2,5 mm², 2 x 1,5 mm²) • 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 C/O) or RM84 (2 C/O) electromagnetic relay • Compliance with standard PN-EN 61812-1 • Recognitions, certifications, directives:

Output circuits - contact data

Number and type of contacts		1 C/O	2 C/O
Contact material		**AgNi**	**AgNi**
Max. switching voltage		440 V AC / 300 V DC	440 V AC / 300 V DC
Min. switching voltage		5 V	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	5 mA
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		18 000 cycles/hour	

Input control 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			
Min. pulse of the control contact S		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		2 500 V AC type of insulation: basic
Input - outputs distance		
• clearance		≥ 10 mm
• creepage		≥ 10 mm

General data

Electrical life			
• resistive AC1		≥ 0,7 x 10^5 16 A, 250 V AC	≥ 10^5 8 A, 250 V AC
Mechanical life (cycles)		≥ 3 x 10^7	
Dimensions (L x W x H)		90 x 17,6 x 55 mm	
Weight		67 g	
Ambient temperature	• storage	-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	

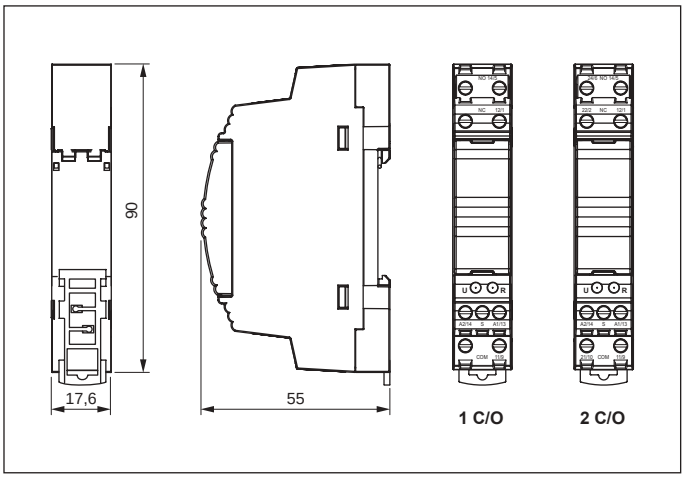
The data in bold type pertain to the standard versions of the relays.

Time module data

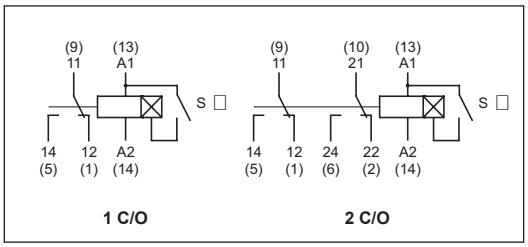
Functions □	E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B permanent switching ON and OFF
Time ranges	1 s □; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment	smooth - (0,1...1) x time range
Setting accuracy	± 5% (calculated from the final range values) □
Repeatability	± 0,5% □
Temperature influence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

□ Descriptions of time functions - see pages 233, 234. □ 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. □ 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

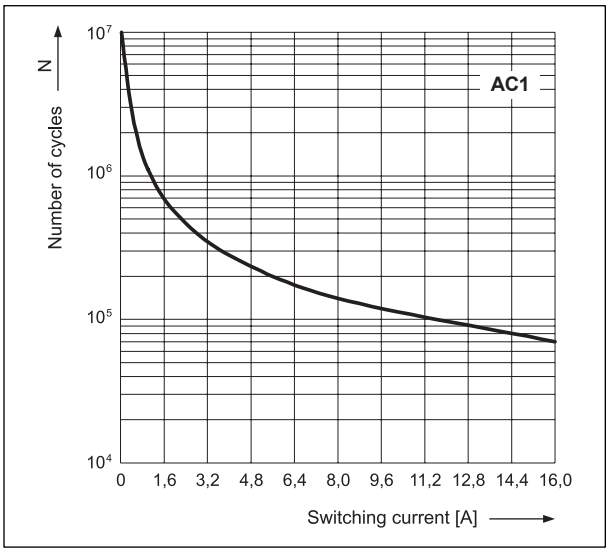


Connections diagrams

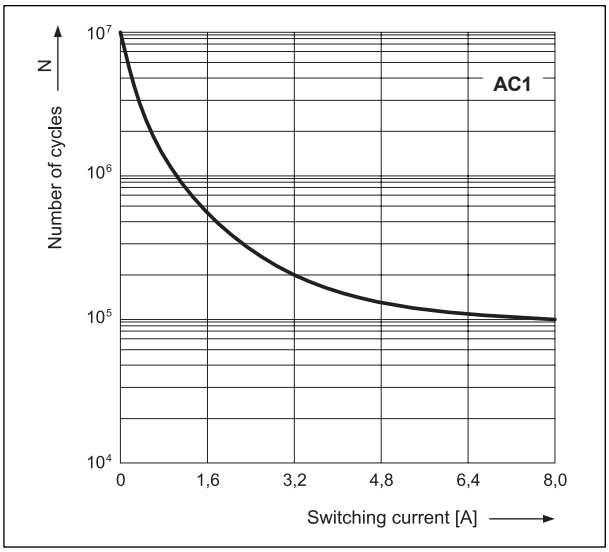


□ Control contact S is activated by connecting it to A1 terminal.

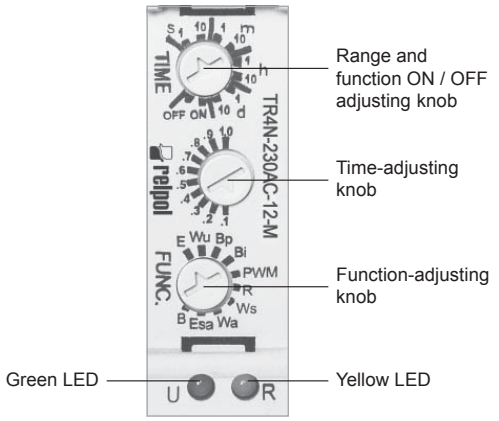
Electrical life at AC resistive current. Switching frequency: 600 cycles/hour - TR4N 1 C/O Fig. 1



Electrical life at AC resistive current. Switching frequency: 600 cycles/hour - TR4N 2 C/O Fig. 2



Front panel description

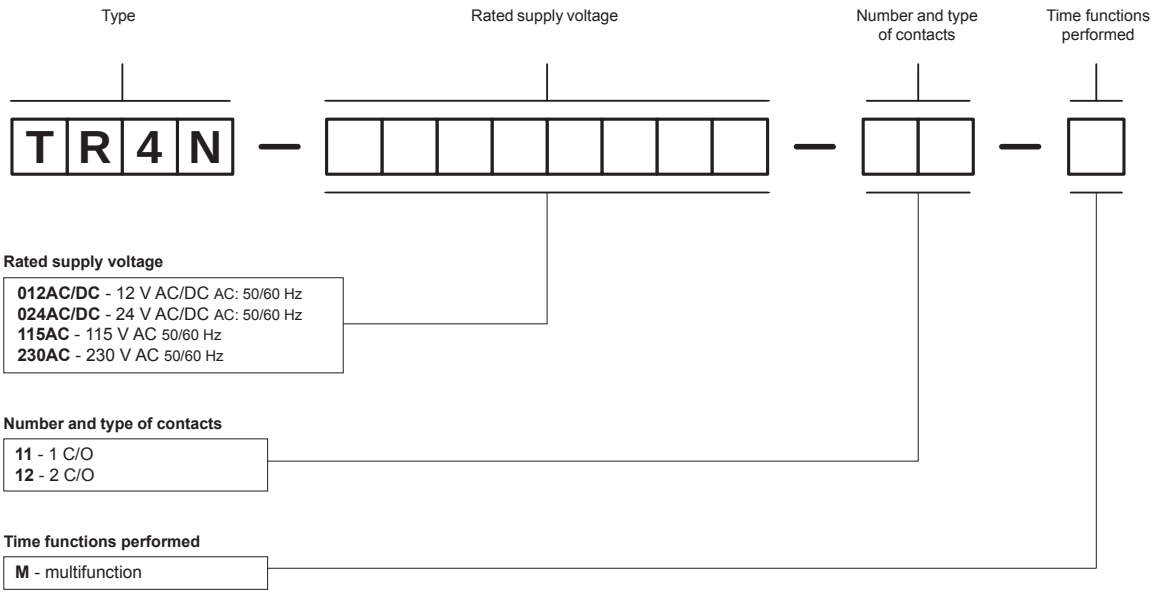


Mounting

Relays **TR4N 1 C/O**, **2 C/O** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. Maximum size of wires 1 x 2,5 mm^2 (1 x 14 AWG). Rated cross-sectional area of conductors 2 x 1,5 mm^2 (2 x 16 AWG). Maximum screw torque: 0,6 Nm.

One tap:
easy assembly on 35 mm rail, firm tapping (bottom).

Ordering codes



Examples of ordering codes:

TR4N-230AC-11-M time relay **TR4N 1 C/O**, rated input voltage 230 V AC 50/60 Hz, with one changeover contact, multifunction (relay perform 10 functions), contact material AgNi

TR4N-024AC/DC-12-M time relay **TR4N 2 C/O**, rated input voltage 24 V AC/DC AC: 50/60 Hz, with two changeover contacts, multifunction (relay perform 10 functions), contact material AgNi

• 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 C/O
Contact material		**AgNi**
Max. switching voltage		250 V AC / 250 V DC
Min. switching voltage		5 V
Rated load	AC1	6 A / 230 V AC
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

Input control 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: 27,5 x 21,2 x 62,5 mm	
Weight		T-R4 + GZM4: 123 g	T-R4 + GZT4: 113 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.

Time module data

Functions □	E, Wu, Bp, Bi
Time ranges	0,1 s □; 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) □
Repeatability	± 1% □
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 □

□ Descriptions of time functions - see pages 233, 234. □ 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. □ 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 ± 10% at 20°C Ω	Input - voltage range V DC	
			min. (at 20°C)	max. (at 55°C)
1012	**12**	**160**	**9,6**	**13,2**
1024	**24**	**640**	**19,2**	**26,4**

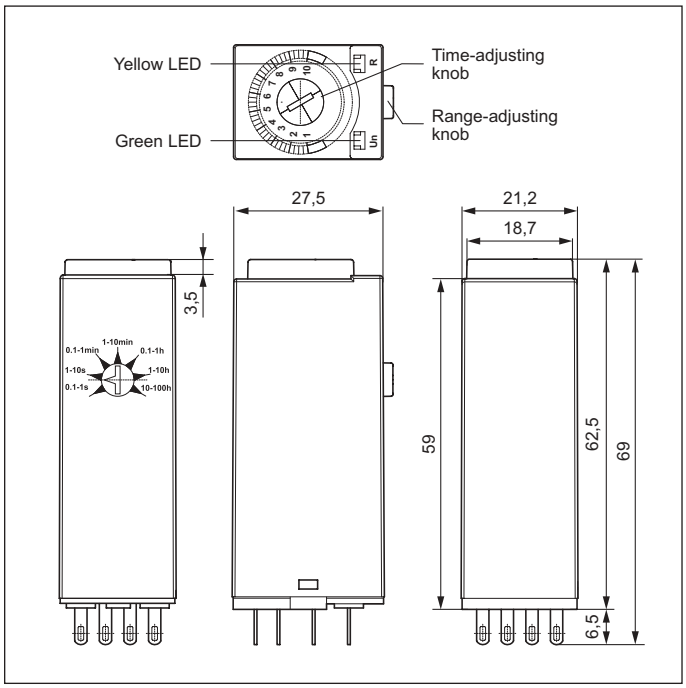
The data in bold type pertain to the standard versions of the relays.

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

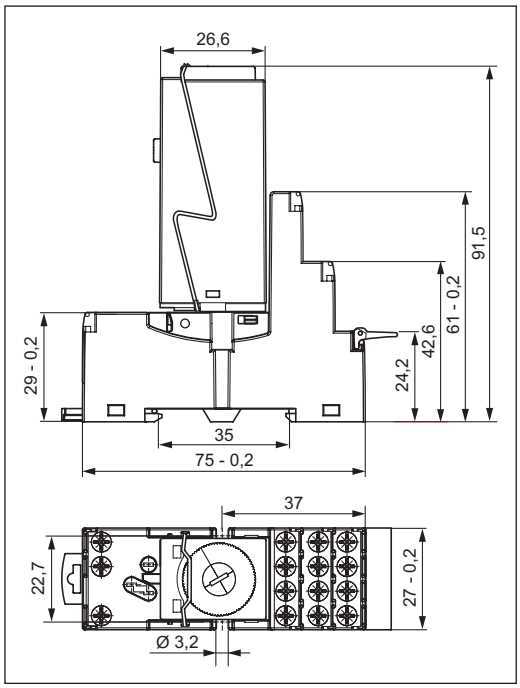
Input voltage code	Rated input voltage U_n V AC	Input resistance ± 10% at 20°C Ω	Input - voltage range V AC	
			min. (at 20°C)	max. (at 55°C)
5024	**24**	**158**	**19,2**	**26,4**
5115	115	3 610	92,0	127,0
5230	**230**	**16 100**	**184,0**	**253,0**

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

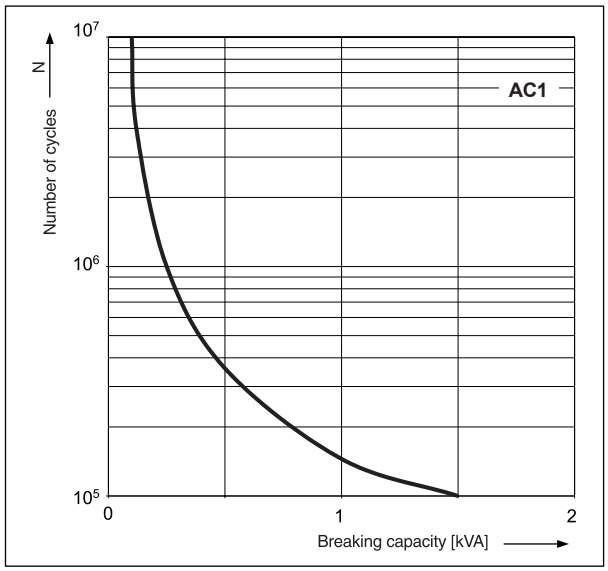
Dimensions



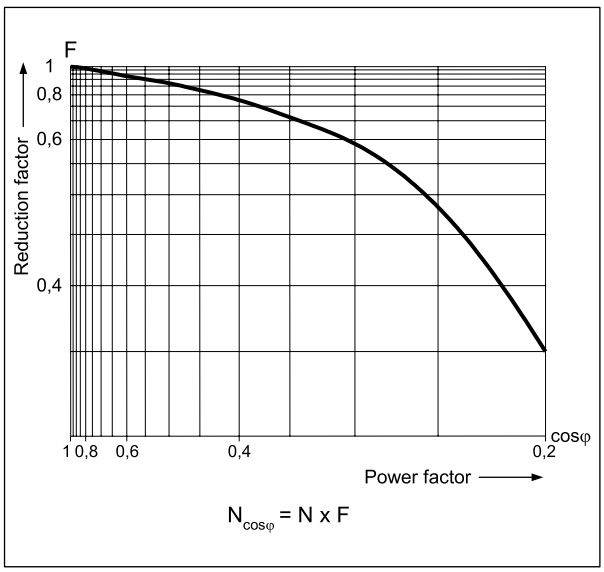
Dimensions - T-R4 with socket GZM4



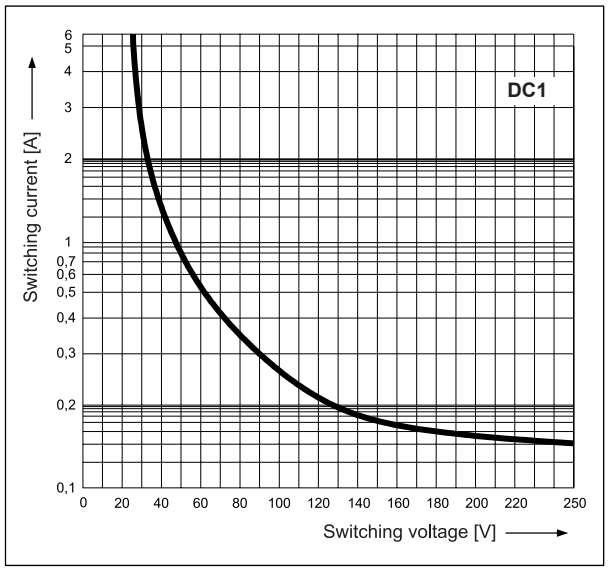
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour Fig. 1



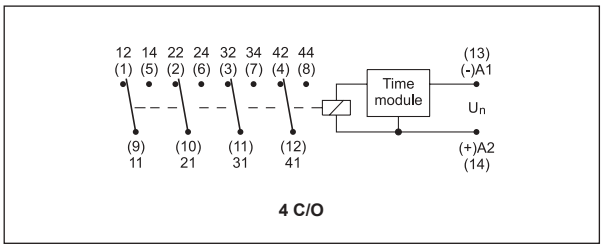
Electrical life reduction factor at AC inductive load Fig. 2



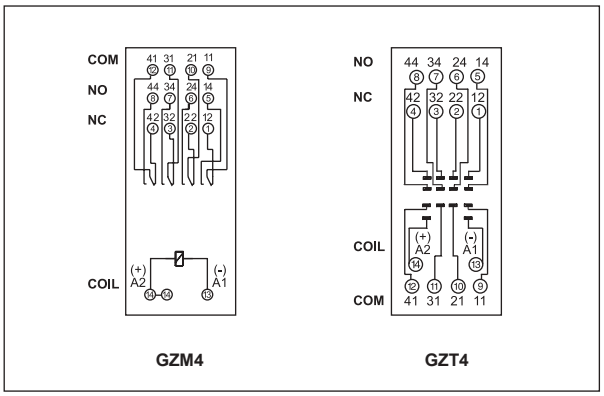
Max. DC resistive load breaking capacity Fig. 3



Connection diagram



Connection diagrams - sockets for T-R4



Mounting

Relays **T-R4E**, **T-R4Wu**, **T-R4Bp**, **T-R4Bi** are designed for screw terminals plug-in sockets **GZM4** and **GZT4** □, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. For sockets are offered description plates **GZT4-0035** and clips **TR4-2000**.

□ Plug-in sockets **GZT4** and **GZM4** may be linked with interconnection strip type **ZGGZ4** (see page 262).

Separate T-R4 control circuits from load circuits (T-R4 contacts)	GZM4: yes GZT4: no
Increased dielectric strength spacing between coil and contacs clamps	GZM4: min. 5 kV GZT4: min. 4 kV
Double A2(14) terminal is introduced for easy wiring in electrical devices	GZM4: yes GZT4: no

GZM4

GZM4

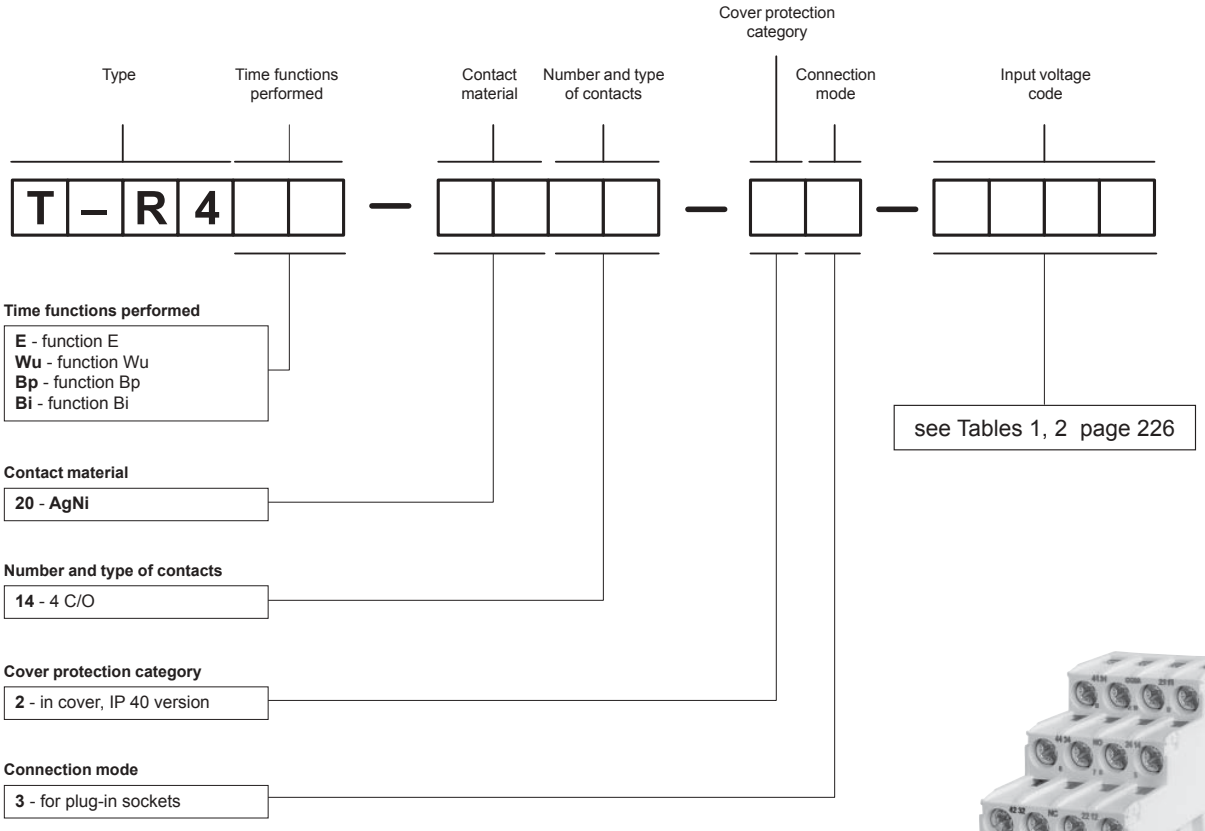
GZT4

TR4-2000

GZT4-0035

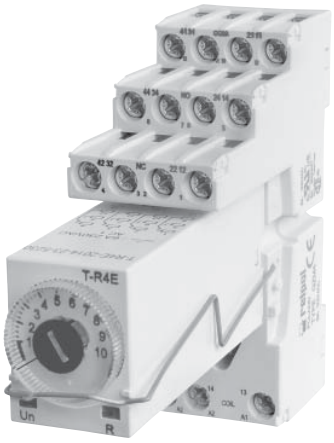
Note: sockets **GZM4** are available in black and gray colours.

Ordering codes



Example of ordering code:

T-R4E-2014-23-1012 time relay **T-R4**, single-function (relay perform function **E** - ON Delay Voltage Controlled), contact material AgNi, with four changeover contacts, in cover IP 40, for plug-in sockets, rated input voltage 12 V DC



R15 3 C/O + GZP11

NEW product

- Time relay **PIR15 3 C/O (standard)** consists of: electromagnetic relay **R15 3 C/O**, plug-in socket **GZP11** black, time module **T(COM3)**, spring wire clip **GZP-0054**, description plate **GZP-0035**
- Time relay **PIR15 2 C/O** consists of: electromagnetic relay **R15 2 C/O**, plug-in socket **GZP8** black, time module **T(COM3)**, spring wire clip **GZP-0054**, 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 C/O, **3 C/O**
Contact material		**AgNi**
Max. switching voltage		440 V AC / 250 V DC
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, 1/2 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
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	1 200 cycles/hour
• no load		12 000 cycles/hour

Input control 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
Min. pulse of the control contact S		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		see Fig. 2
Mechanical life (cycles)		> 2 x 10^7
Dimensions (L x W x H)		73 x 38,2 x 85,4 mm
Weight		3 C/O: 175 g 2 C/O: 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.

Time module data

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

□ Descriptions of time functions - see pages 233, 234. □ Settings of switches - see page 232. □ The green 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 ± 10% at 20°C Ω	Input - voltage range V DC	
			min. (at 20 °C)	max. (at 55 °C)
024DC	**24**	**430**	**19,2**	**26,4**
048DC	48	1 750	38,4	52,8
060DC	60	2 700	48,0	66,0
110DC	110	9 200	88,0	121,0
120DC	120	11 000	96,0	132,0
220DC	**220**	**37 000**	**176,0**	**242,0**

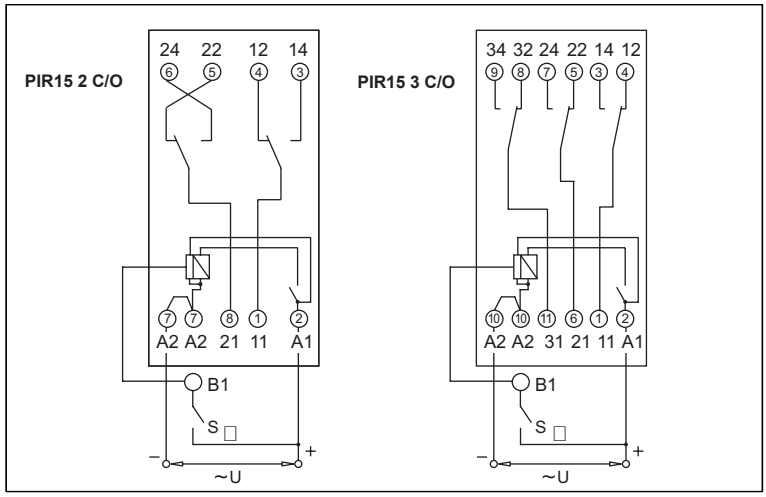
The data in bold type pertain to the standard versions of the relays.

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

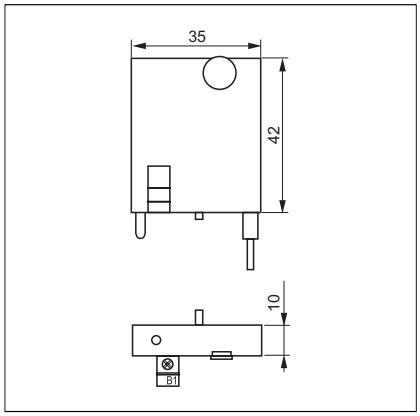
Input voltage code	Rated input voltage U_n V AC	Input resistance ± 15% at 20°C Ω	Input - voltage range V AC	
			min. (at 20 °C)	max. (at 55 °C)
024AC	**24**	**75**	**19,2**	**26,4**
048AC	48	305	38,4	52,8
060AC	60	475	48,0	66,0
110AC	110	1 700	88,0	121,0
120AC	120	1 910	96,0	132,0
230AC	**230**	**7 080**	**184,0**	**253,0**
240AC	240	7 760	192,0	264,0

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

Connection diagrams (screw terminals side view)

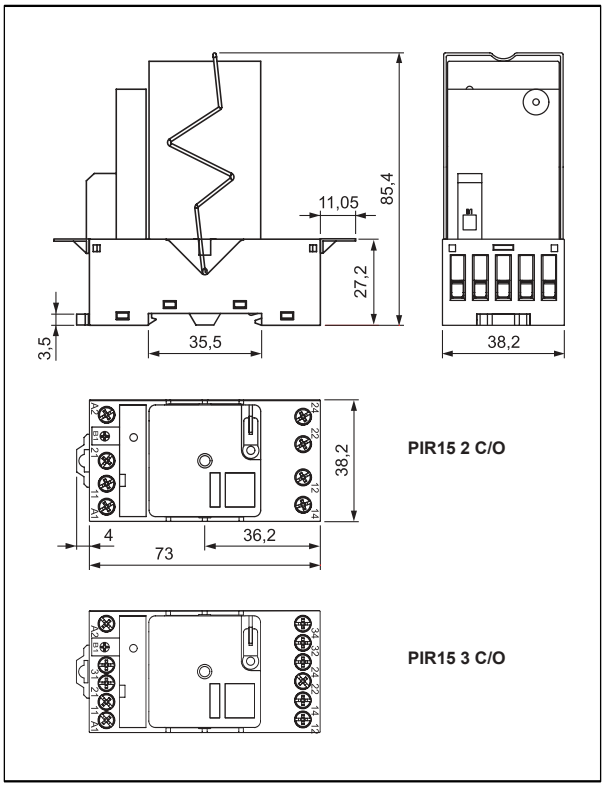


Dimensions - time module T(COM3)



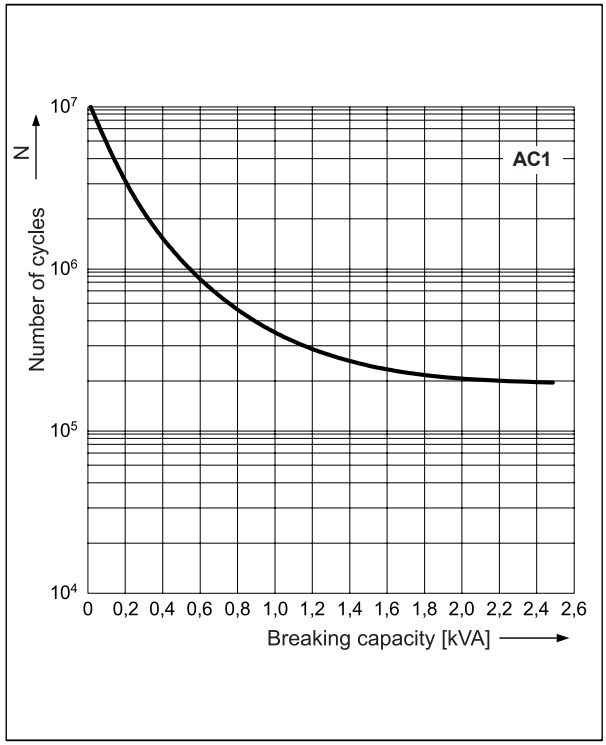
□ Control contact (B1) S is activated by connecting it to A1 terminal.

Dimensions



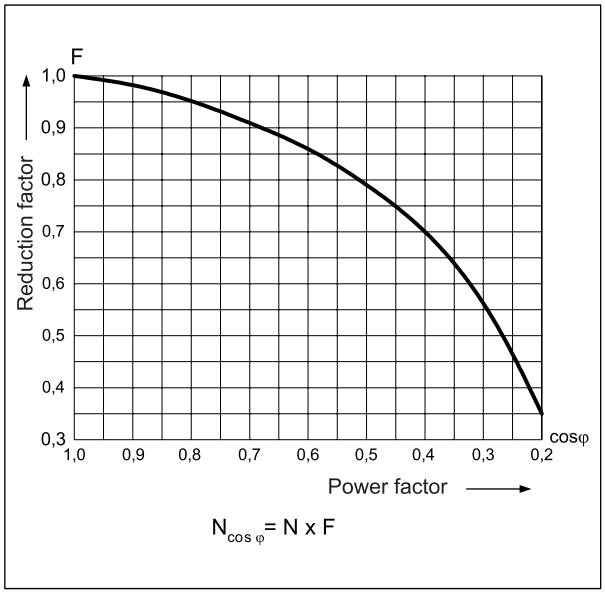
Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour

Fig. 1



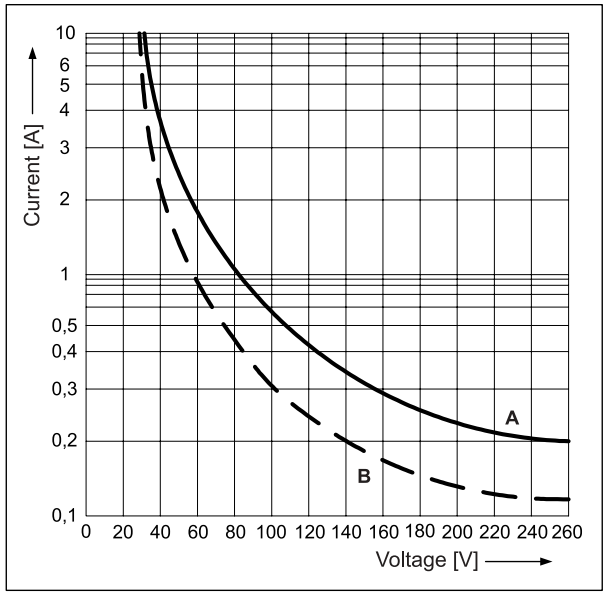
Electrical life reduction factor at AC inductive load

Fig. 2



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

Fig. 3



Settings of switches

Function adjustment switches 1, 2, 3	E / E(S)	Wu / Wu(S)	Bi / Bi(S)	Bp / Bp(S)	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
								

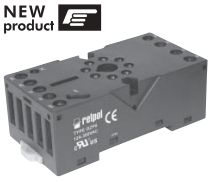
Mounting

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. Time relay **PIR15 3 C/O (standard)** consists of: electromagnetic relay **R15 3 C/O**, plug-in socket **GZP11** black, time module **T(COM3)**, spring wire clip **GZP-0054** and description plate **GZP-0035**. Time relay **PIR15 2 C/O** consists of: electromagnetic relay **R15 2 C/O**, plug-in socket **GZP8** black, time module **T(COM3)**, spring wire clip **GZP-0054** and description plate **GZP-0035**.


R15 3 C/O

GZP11


R15 2 C/O



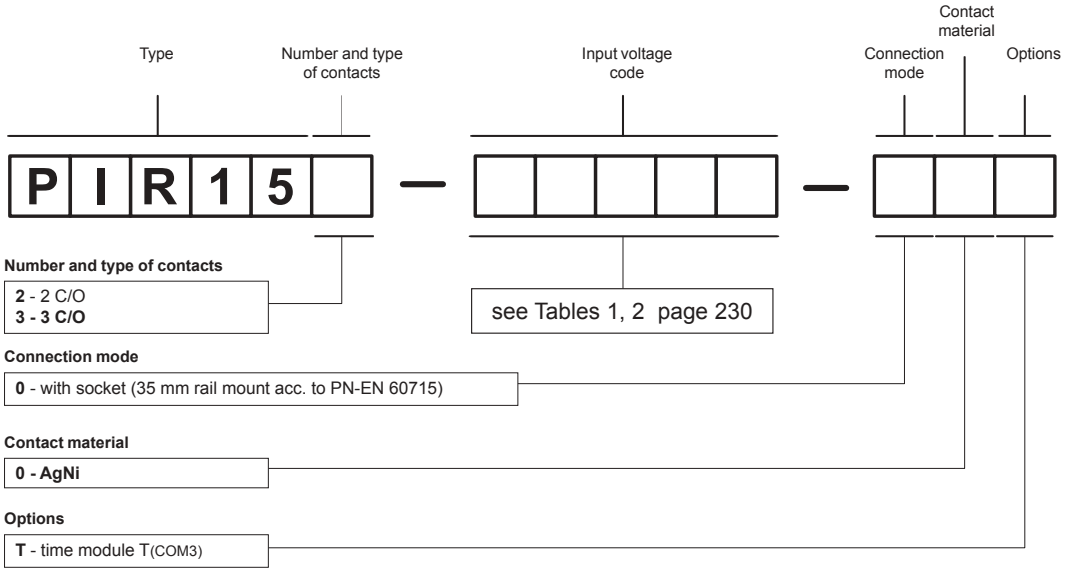
GZP8


T(COM3)


GZP-0054


GZP-0035

Ordering codes

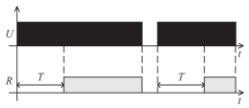


Examples of ordering codes:

PIR153-230AC-00T time relay **PIR15 3 C/O**, which consists of: relay **R15 3 C/O**, contact material AgNi, rated input voltage 230 V AC 50/60 Hz, plug-in socket **GZP11** black (screw terminals), time module **T(COM3)**, spring wire clip **GZP-0054**, description plate **GZP-0035**

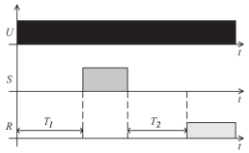
PIR152-024DC-00T time relay **PIR15 2 C/O**, which consists of: relay **R15 2 C/O**, contact material AgNi, rated input voltage 24 V DC, plug-in socket **GZP8** black (screw terminals), time module **T(COM3)**, spring wire clip **GZP-0054**, description plate **GZP-0035**

E - ON Delay Voltage Controlled



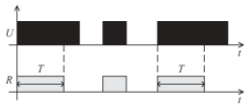
After the supply voltage [U] has been applied, the preset time [T] measurement starts. After the time [T] has been measured, the output relay [R] switches to ON position and remains in such until the supply voltage [U] is removed.

E(S) - ON Delay Voltage Controlled with control contact S



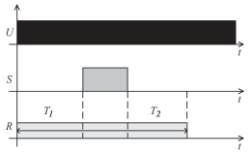
After the supply voltage [U] has been applied, the time [T] measurement starts. If the control contact [S] is switched on, the measurement of time [T] is interrputed for the time of switching the control contact [S]. After the control contact [S] has been switched of, the time [T] (T=T1+T2) is continued to be measured. After the time [T] has been measured, the output relay [R] will switch, and it will be in operating postion until the supply voltage [U] is removed.

Wu - Single Shot Leading Edge Voltage Controlled



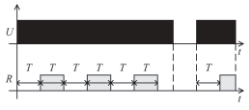
After the supply voltage [U] has been applied, the output relay [R] switches immediately, and the preset time [T] is measured. After the preset time [T] has been measured, the output relay [R] returns to the initial state.

Wu(S) - Single Shot Leading Edge Voltage Controlled with control contact S



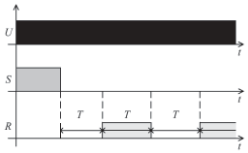
After the supply voltage [U] has been applied, the output relay [R] switches immediately and the preset time [T] measurement starts. If the control contact [S] is switched on, the time [T] measurement will be interrupted for the time for which the control contact [S] is switched. After the control contact [S] has been released, the time [T] (T=T1+T2) is continued to be measured. After the preset time [T] has been measured, the output relay [R] returns to the initial position.

Bp - Flasher Pause First



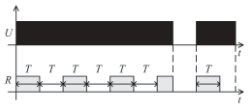
After the supply voltage [U] has been applied, the preset time [T] measurement starts. After the time [T] has been measured, the output relay [R] switches to ON position and the preset time [T] is being measured once more. After the preset time [T] has been measured, the output relay [R] returns to the initial state, and the next operating cycle of the relay starts. The relay operates until the supply voltage is removed.

Bp(S) - Flasher Pause First with control contact S



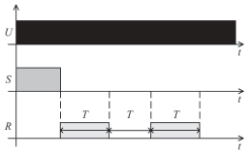
After the control contact [S] has been switched on and then off at the supply voltage [U] being applied, the measurement of the preset time [T] starts. After the time has been measured, the output relay [R] switches, and the time [T] is measured again. After the time has been measured, the output relay returns to the initial position, and the next cycle of the relay operation starts. The relay operates until the supply voltage is removed.

Bi - Flasher Impulse First



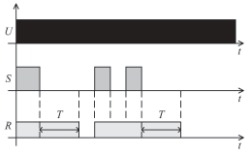
After the supply voltage [U] has been applied, the preset time [T] measurement starts simultaneously with switching of the output relay [R]. After the preset time [T] has been measured, the output relay [R] returns to the initial state, and the next operating cycle of the relay starts. The relay operates until the supply voltage is removed.

Bi(S) - Flasher Impulse First with control contact S



After the control contact [S] has been switched on and then off at the supply voltage [U] being applied, the measurement of the preset time [T] starts with the simultaneous switching of the output relay [R]. After the time[T] has been measured, the output relay [R] returns to the initial position and the time [T] measurement starts again. After the time [T] has been measured, the next cycle of the relay operation starts. The relay operates until the supply voltage is removed.

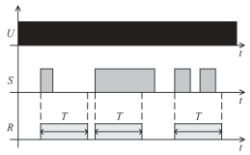
R - OFF Delay with control contact S



The supply voltage [U] must be applied to the time relay continuously. After the control contact [S] has been closed, the output relay [R] switches immediately. After opening of the control contact [S] measurement of the preset time [T] starts. After the preset time [T] has lapsed, the output relay [R] returns to the initial position. If the control contact [S] is closed again, even before the preset time [T] has lapsed, the previously measured time is cancelled, and after the control contact [S] has been opened, the preset time [T] is measured again.

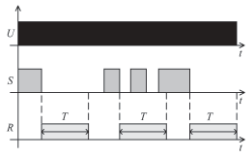
U - supply voltage; **R** - output state of the relay; **S** - control contact state; **T**, **T1**, **T2** - measured times; **Tz** - value of the set interval; **t** - time axis

Ws - Single Shot Leading Edge with control contact S



The supply voltage [U] must be applied to the time relay continuously. After the control contact [S] has been closed, the output relay [R] switches immediately. After opening of the control contact [S] measurement of the preset time [T] starts. After the preset time [T] has lapsed, the output relay [R] returns to the initial position. In course of the time [T] measurement the control contact [S] may be repeatedly closed and opened with no influence upon the output relay [R]. It is only after the time [T] has lapsed that closing of the control contact [S] causes switching the output relay [R] on again and measurement of the time [T].

Wa - Single Shot Trailing Edge with control contact S

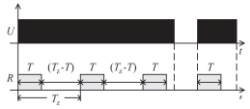


The supply voltage [U] must be applied to the time relay continuously. Closing of the control contact [S] does not result in measurement of the time delay or switching of the output relay [R]. It is only when the control contact [S] is opened that the output relay [R] switches immediately and the preset time [T] measurement starts. After the preset time [T] has lapsed, the output relay [R] returns to the initial position. In course of the time [T] measurement the control contact [S] may be repeatedly closed and opened with no influence upon the output relay [R]. It is only after the time [T] has lapsed that closing and opening of the control contact [S] causes switching the output relay [R] on again and measurement of the time [T].

Es - ON Delay with control contact S

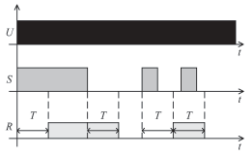
The supply voltage [U] shall be applied to the time relay continuously. After the control contact [S] has been closed, the preset time [T] is measured after which the output relay [R] is switched on and remains in this position until the control contact [S] is opened. If the closing time of [S] is shorter than the preset time [T], the relay [R] will not operate.

PWM - Pulse with Modulation



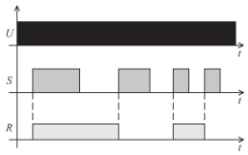
After the supply voltage has been applied, the output relay switches on for the preset time [T], and then switches off for the remaining time interval to complete the full value of the preset time range [Tz]. After the time [Tz] next cykle is started. [Tz] - time range (range-adjusting knob). [T] - (0,1...1) x time range (time-adjusting knob).

Esa - Delayed Switching ON and OFF Controlled with control contact S



The supply voltage [U] must be applied to the time relay continuously. After the control contact [S] has been closed, the preset time [T] measurement starts, and after it has lapsed, the output relay [R] is switched on. If closing time of control contact [S] is shorter than seting time delay [T] output relay [R] will switch on after time delay [T] and will be on during time [T]. Closing of control contact [S] during time of switch on output relay [R] will not influence for realize function.

B - Flasher with control contact S



Each closing of the control contact [S] results in the change of the output relay position to the opposite one (a feature of bistable relay).

Permanent switching ON and OFF

The functions available in TR4N relays. 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**, **T1**, **T2** - measured times; **Tz** - value of the set interval; **t** - time axis

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.

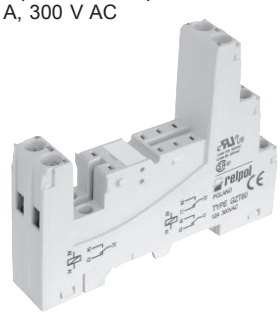
The sockets have the following features:
- current circuits load: up to 12 A,
- available plug-in sockets with separation of input (coil) from output (contacts), i.e. coil terminals on one side of the socket, and contact terminals on another side,
- adapted for mounting signalling / protecting modules type M... - sockets of GZT..., GZM..., GZS..., ES 32 series.

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

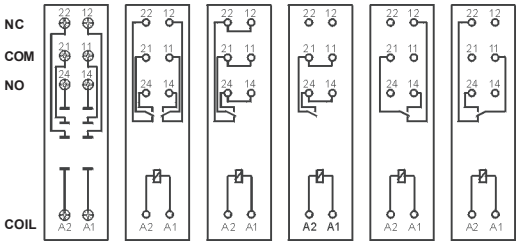
GZT80

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

Screw terminals
Maximum screw torgue: 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

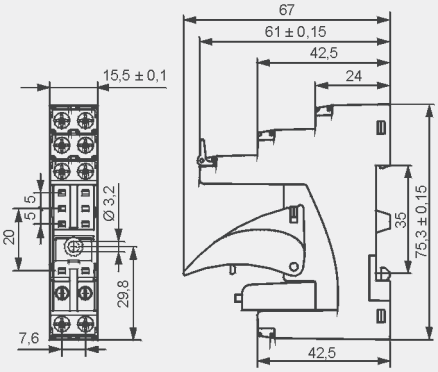


Connection diagrams



Accessories ❶

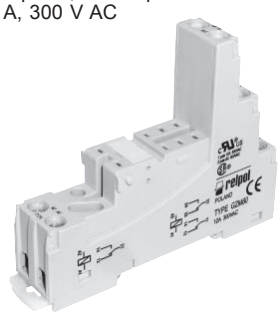
Dimensions



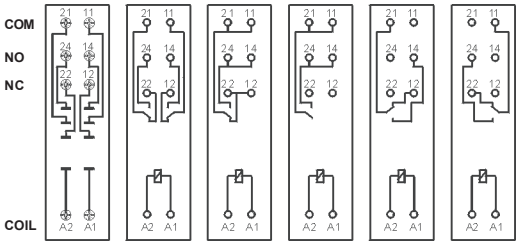
GZM80

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

Screw terminals
Maximum screw torgue: 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

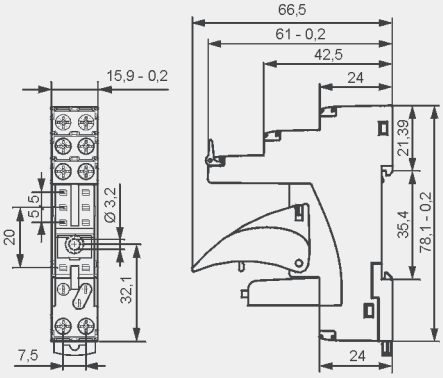


Connection diagrams



Accessories ❶

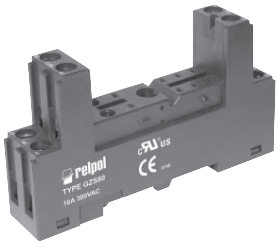
Dimensions



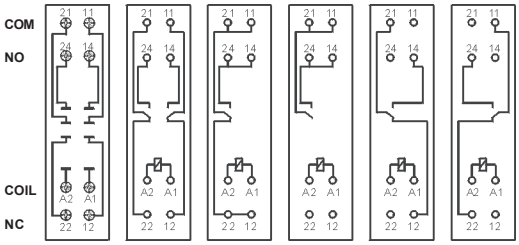
GZS80

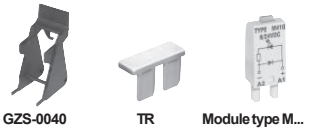
For RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RM87L, RM87L sensitive, RM87P, RM87P sensitive

Screw terminals
Maximum screw torgue: 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



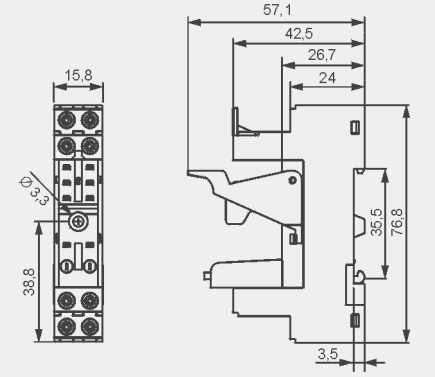
Connection diagrams





Accessories ❶

Dimensions

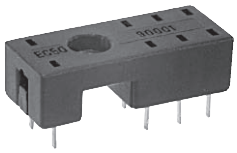


❶ Mounting and sub-assemblies of accessories in the socket - see page 249. Signalling / protecting modules type M... - see page 250.
❷ In the bracket the height of socket with retainer / retractor clip is shown.
❸ For RM85, RM85 inrush, RM85 105 °C sensitive: loads above 12 A require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24.

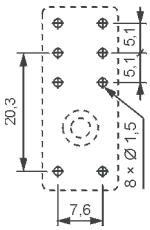
EC50

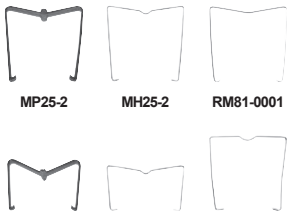
For RM84, RM85, RM85 inrush,
RM85 105 °C sensitive,
RM87L, RM87L sensitive,
RM87P, RM87P sensitive,
RM83, RM94

For PCB
31,3 x 12,7 x 9 mm
Two poles, 5 mm pinout
8 A, 300 V AC



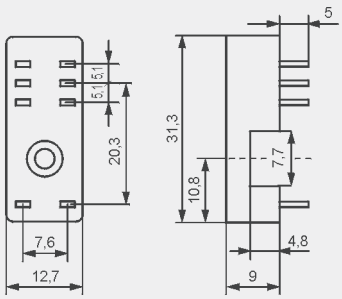
Pinout





Accessories

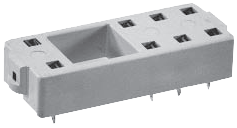
Dimensions



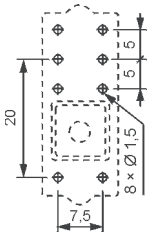
PW80

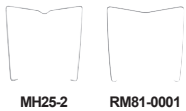
For RM84, RM85, RM85 inrush,
RM85 105 °C sensitive,
RM87L, RM87L sensitive,
RM87P, RM87P sensitive,
RM83, RM94

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



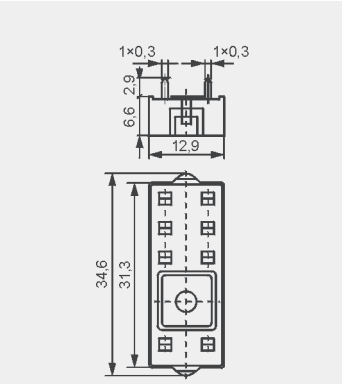
Pinout





Accessories

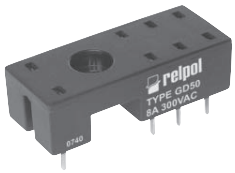
Dimensions



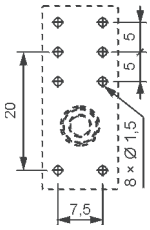
GD50

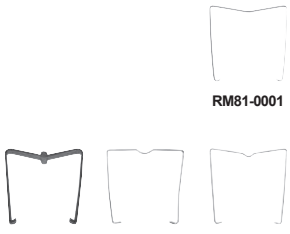
For RM84, RM85, RM85 inrush,
RM85 105 °C sensitive,
RM87L, RM87L sensitive,
RM87P, RM87P sensitive,
RM83, RM94

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



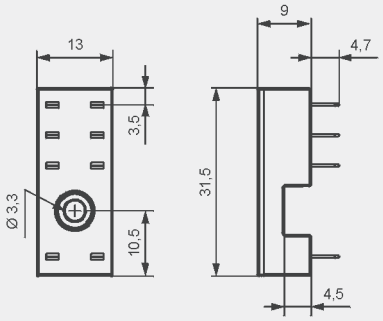
Pinout





Accessories

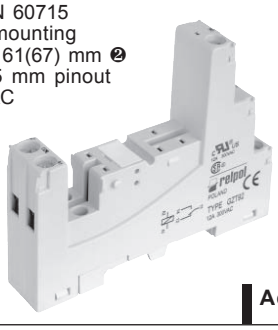
Dimensions



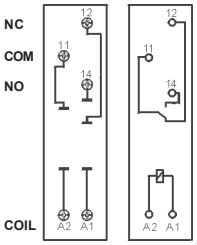
GZT92

For RM87N, RM87N sensitive

Screw terminals
Maximum screw torgue: 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

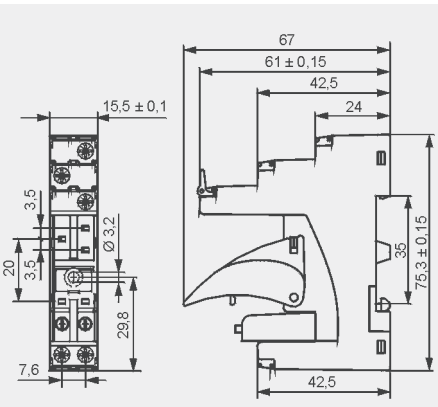


Connection diagrams



Accessories ❶

Dimensions

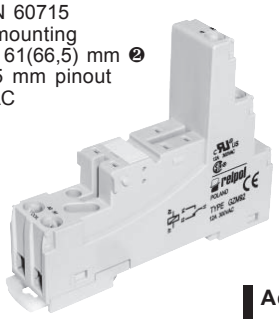


❶ Mounting and sub-assemblies of accessories in the socket - see page 249. Signalling / protecting modules type M... - see page 250.
❷ In the bracket the height of socket with retainer / retractor clip is shown.

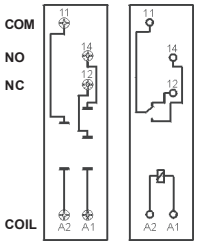
GZM92

For RM87N, RM87N sensitive

Screw terminals
Maximum screw torgue: 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




GZT80-0040


GZT80-0035

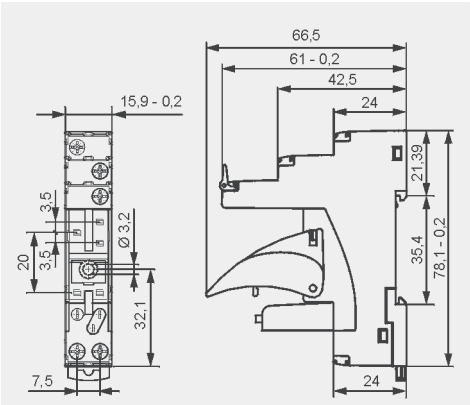

Module type M...

Accessories ❶


ZGGZ80


GZM80-0041

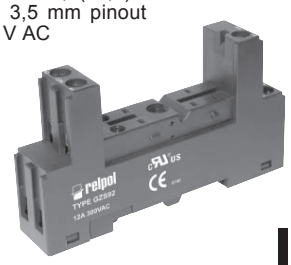
Dimensions



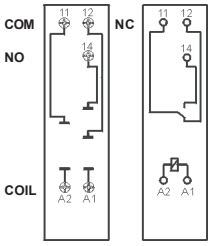
GZS92

For RM87N, RM87N sensitive

Screw terminals
Maximum screw torgue: 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




GZS-0040


TR

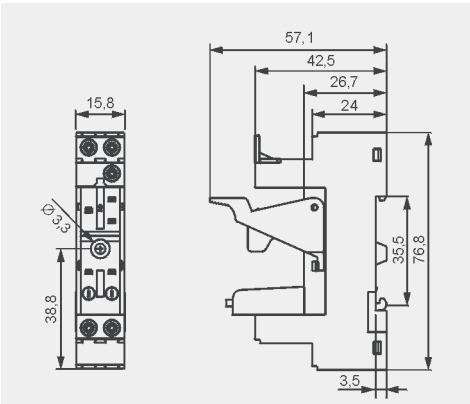

Module type M...

Accessories ❶


ZGGZ80


GZM80-0041

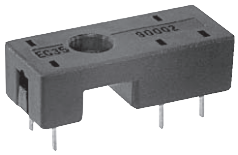
Dimensions



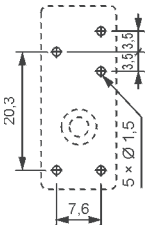
EC35

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

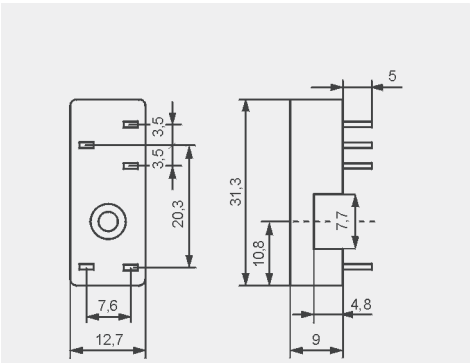


Pinout



Accessories

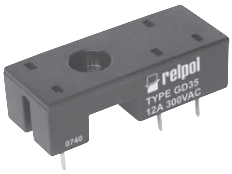
Dimensions



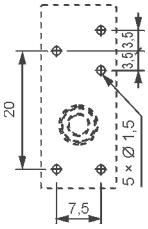
GD35

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

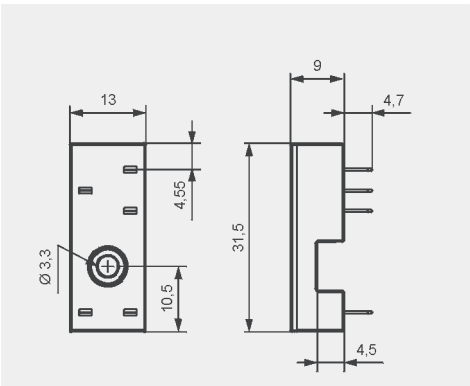


Pinout



Accessories

Dimensions



❶ Mounting and sub-assemblies of accessories in the socket - see page 249. Signalling / protecting modules type M... - see page 250.
❷ In the bracket the height of socket with retainer / retractor clip is shown.

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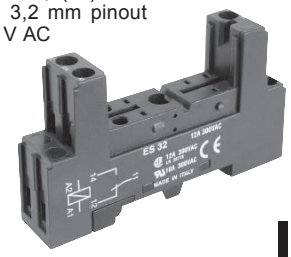
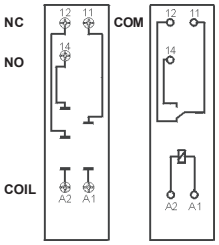
ES 32

For RM96 1 C/O

Screw terminals
Maximum screw torgue: 0,5 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



MS16

TR

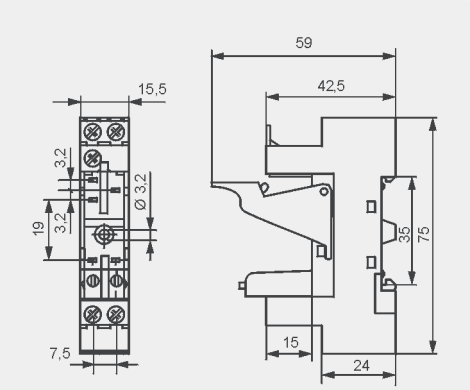
Module type M...

Accessories ❶

ZGGZ80

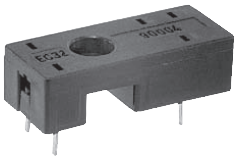
GZM80-0041

Dimensions

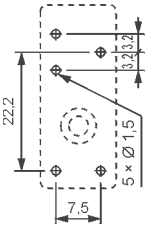


EC32

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



Pinout

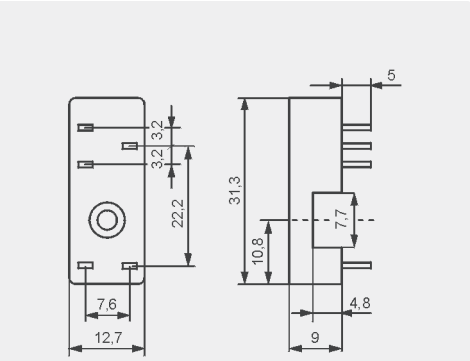


Accessories

MP16-2

MH16-2

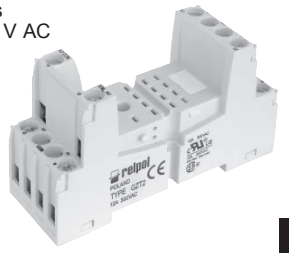
Dimensions



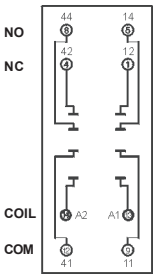
GZT2

For R2

Screw terminals
Maximum screw torgue: 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



ZGGZ4

GZT4-0040

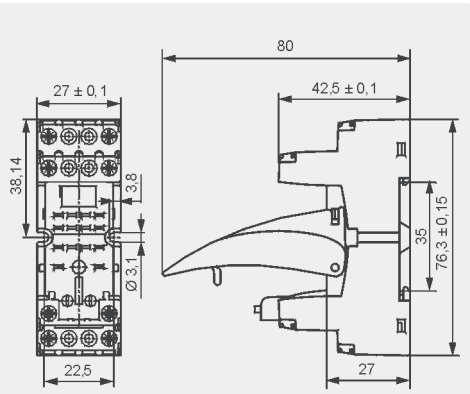
G4 1052

GZT4-0035

Module type M...

Accessories ❶

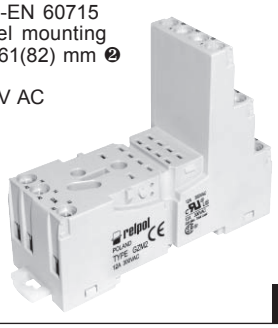
Dimensions



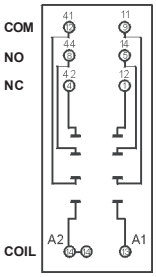
GZM2

For R2

Screw terminals
Maximum screw torgue: 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



ZGGZ4

GZT4-0040

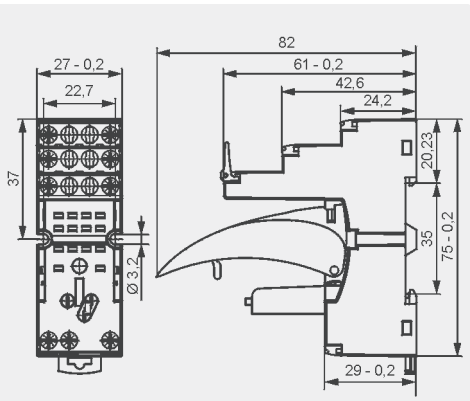
G4 1052

GZT4-0035

Module type M...

Accessories ❶

Dimensions



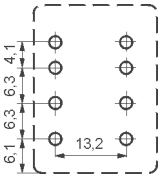
❶ Mounting and sub-assemblies of accessories in the socket - see page 249. Signalling / protecting modules type M... - see page 250.
❷ In the bracket the height of socket with retainer / retractor clip is shown.

SU4/2D

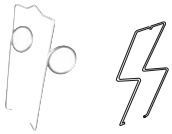
For R2

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

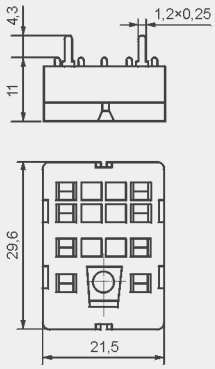
Pinout



Accessories ❹ G4 1053 G4 1050



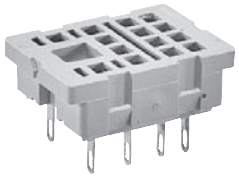
Dimensions



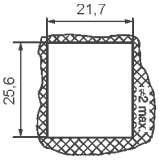
SU4/2L

For R2

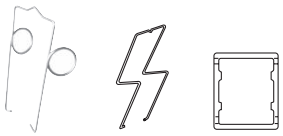
Solder terminals
29,6 x 21,5 x 18,1 mm
Two poles
12 A, 250 V AC



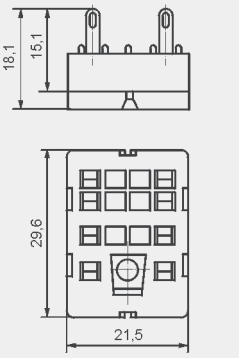
Dimensions of opening on panel mounting



Accessories ❹ G4 1053 G4 1050 G4 1040



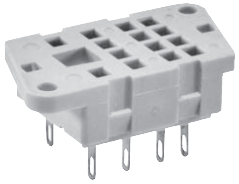
Dimensions



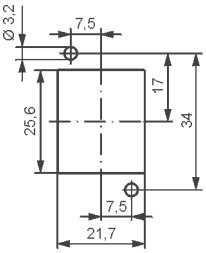
G4/2

For R2

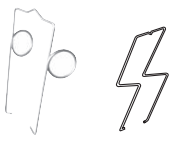
Solder terminals
40,5 x 21,5 x 18,1 mm
Two poles
12 A, 250 V AC



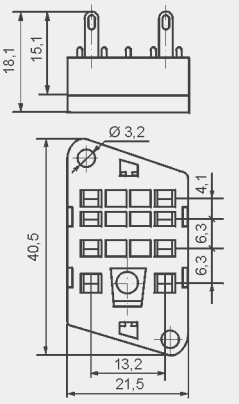
Pinout of openings on panel mounting



Accessories ❹ G4 1053 G4 1050



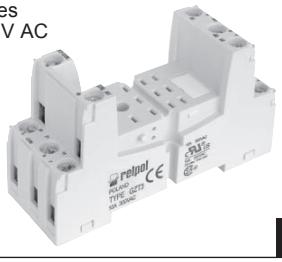
Dimensions



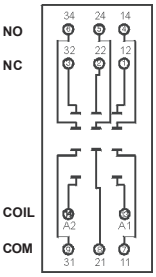
GZT3

For R3

Screw terminals
Maximum screw torgue: 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

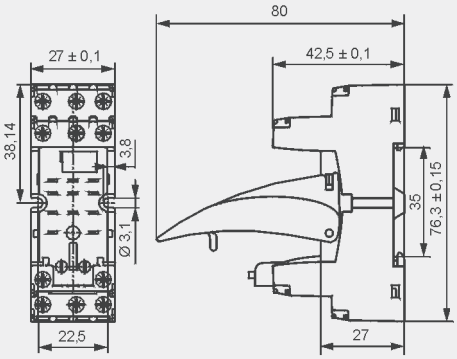


Connection diagram



Accessories ❶

Dimensions



❶ Mounting and sub-assemblies of accessories in the socket - see page 249. Signalling / protecting modules type M... - see page 250.
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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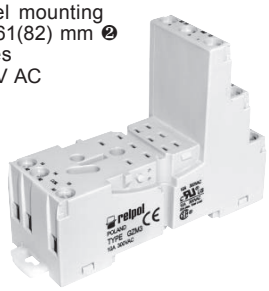
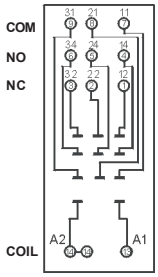
GZM3

For R3

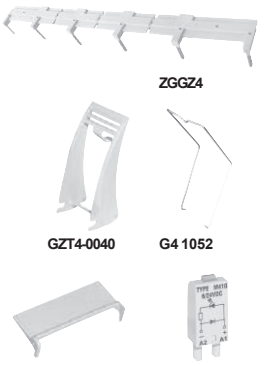
Screw terminals
Maximum screw torgue: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
75 x 27 x 61(82) mm ❷
Three poles
10 A, 300 V AC



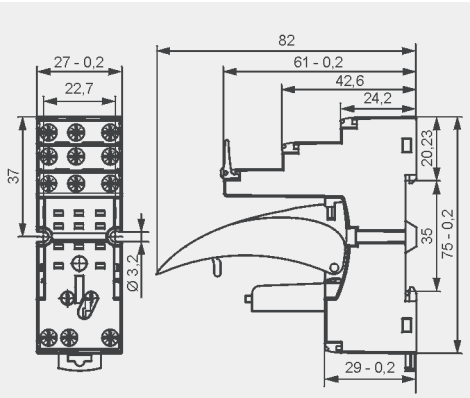
Connection diagram



Accessories ❶



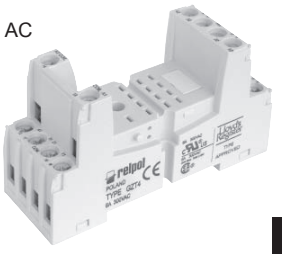
Dimensions



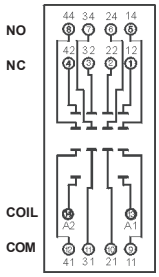
GZT4 ❺

For R4, T-R4

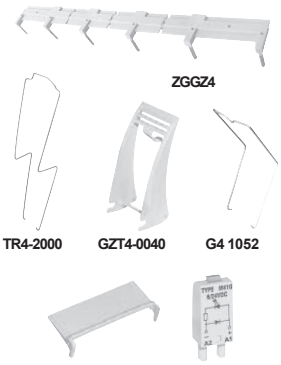
Screw terminals
Maximum screw torgue: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
76,3 x 27 x 42,5(80) mm ❷
Four poles
6 A, 300 V AC



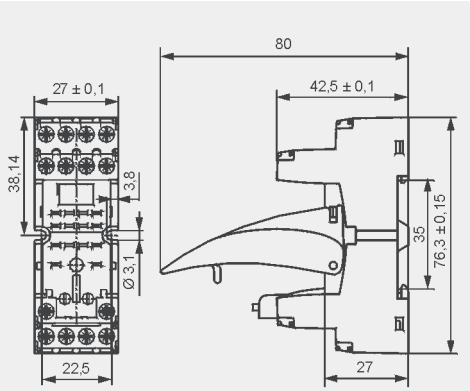
Connection diagram



Accessories ❶ ❻



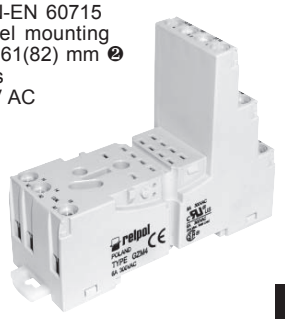
Dimensions



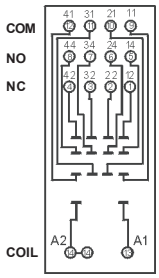
GZM4

For R4, T-R4

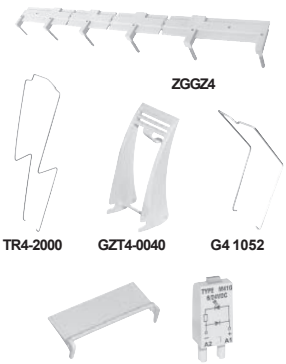
Screw terminals
Maximum screw torgue: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
75 x 27 x 61(82) mm ❷
Four poles
6 A, 300 V AC



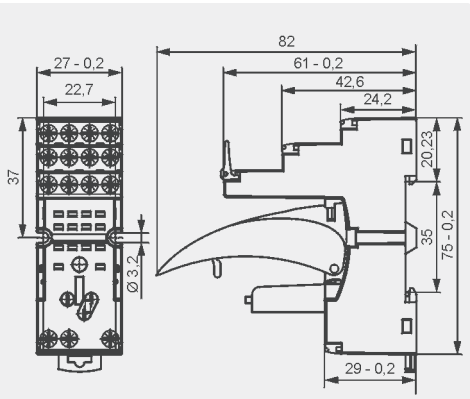
Connection diagram



Accessories ❶ ❻



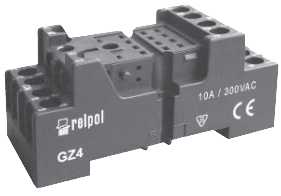
Dimensions



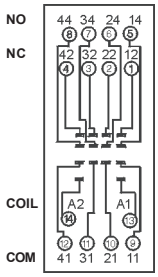
GZ4

For R4

Screw terminals
Maximum screw torgue: 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

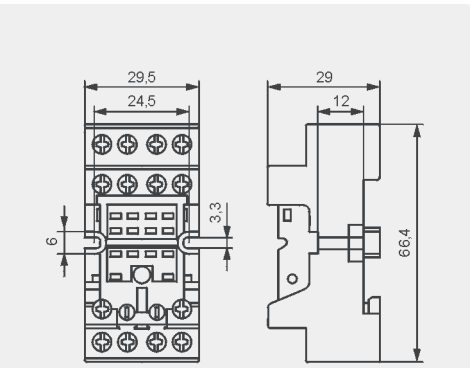


Connection diagram



Accessories

Dimensions

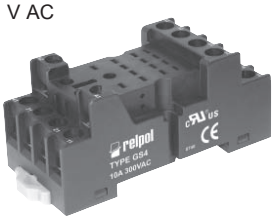


❶ Mounting and sub-assemblies of accessories in the socket - see page 249. Signalling / protecting modules type M... - see page 250.
❷ In the bracket the height of socket with retainer / retractor clip is shown. ❺ Have obtained LR Type Approval Certificate (Lloyd's Register).
❻ For R4 relays: G4 1052, GZT4-0040, GZT4-0035, module type M...; for T-R4 relays: TR4-2000, GZT4-0035

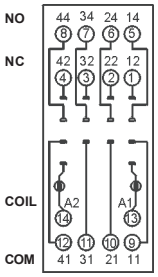
GS4

For R4

Screw terminals
Maximum screw torgue: 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



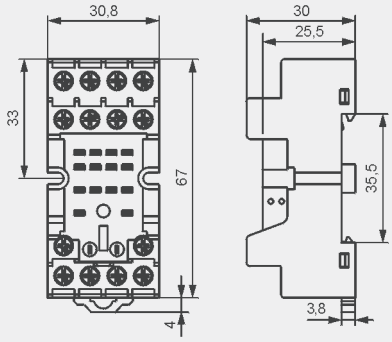
Connection diagram



Accessories

GS4-0036 GS4-0035

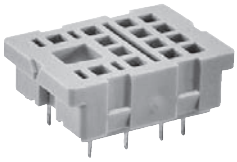
Dimensions



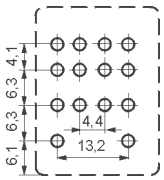
SU4D

For R4

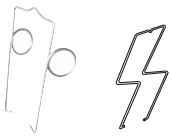
For PCB
29,6 x 21,5 x 11 mm
Four poles
6 A, 250 V AC



Pinout

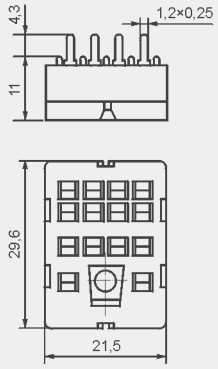


Accessories ❹



G4 1053 G4 1050

Dimensions

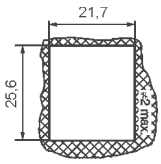


SU4L

For R4

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

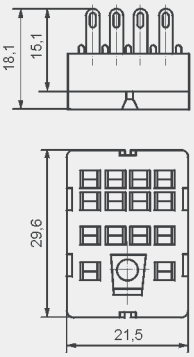
Dimensions of opening on panel mounting



Accessories ❹

G4 1053 G4 1050 G4 1040

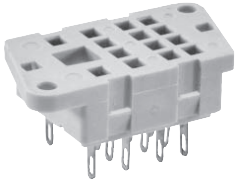
Dimensions



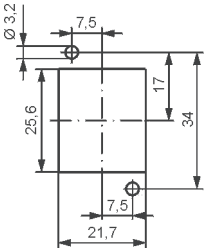
G4

For R4

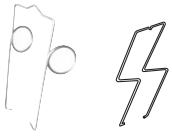
Solder terminals
40,5 x 21,5 x 18,1 mm
Four poles
6 A, 250 V AC



Pinout of openings on panel mounting

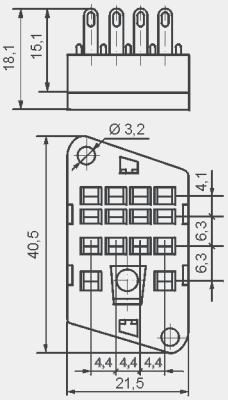


Accessories ❹



G4 1053 G4 1050

Dimensions



❹ G4 1053 - for R2...WT, R4...WT relays; G4 1050 - for R2, R4 without WT
❼ In the bracket the height of socket with spring wire clip is shown.

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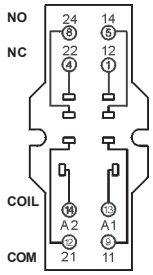
GZY2

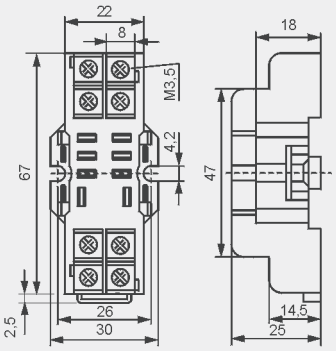
For RY2

Screw terminals
Maximum screw torgue: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
67 x 22 x 25 mm
Two poles
12 A, 250 V AC

Connection diagram



Dimensions



Accessories

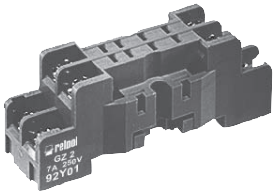
GZY 2000

GZ2 1111

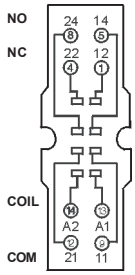
GZ2

For R2M

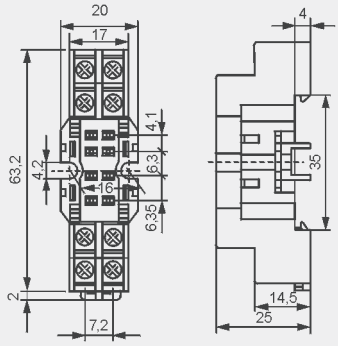
Screw terminals
Maximum screw torgue: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
63,2 x 17 x 25 mm
Two poles
7 A, 250 V AC



Connection diagram



Dimensions



Accessories

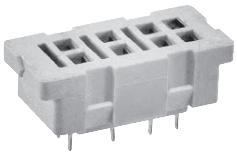
GZ2 1060

GZ2 1111

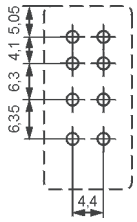
S2M

For R2M

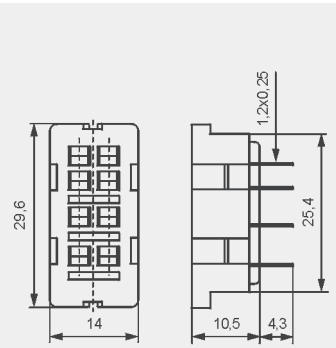
For PCB
29,6 x 14 x 10,5 mm
Two poles
5 A, 250 V AC



Pinout



Dimensions



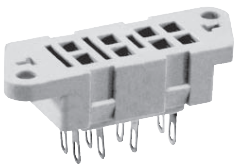
Accessories

G4 1050

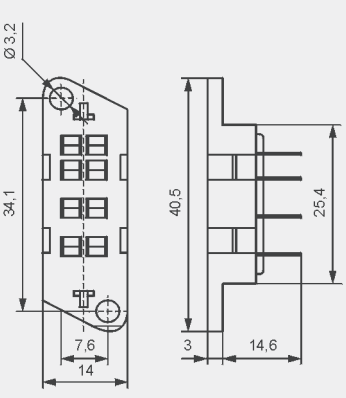
G2M

For R2M

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



Dimensions



Accessories

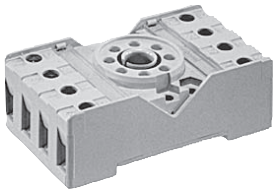
G4 1050

G2M 1020

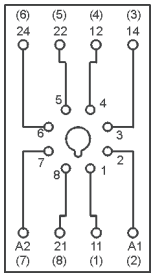
PZ8 ⓫

For R15 2 C/O

Screw terminals
Maximum screw torgue: 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



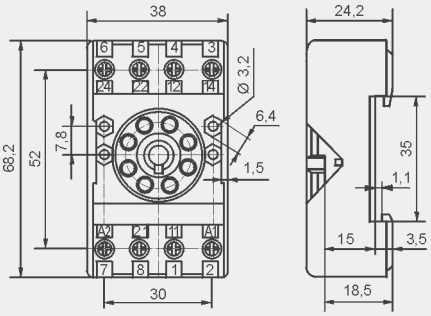
Connection diagram



Accessories

PZ11 0031

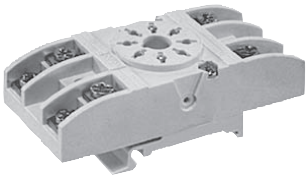
Dimensions



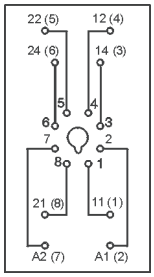
GZU8

For R15 2 C/O

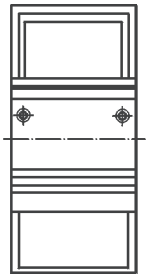
Screw terminals
Maximum screw torgue: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
82 x 35,5 x 25,7 mm
Two poles
10 A, 300 V AC



Connection diagram



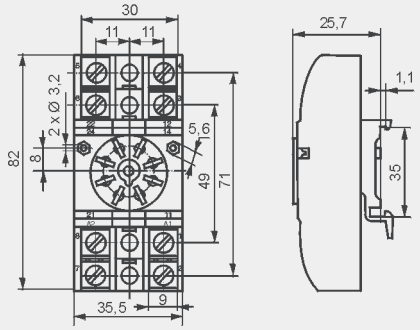
Adaptor



Accessories

GZU 1052

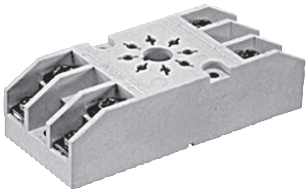
Dimensions



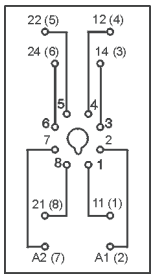
GZ8

For R15 2 C/O

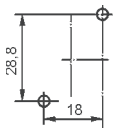
Screw terminals
Maximum screw torgue: 0,7 Nm
On panel mounting
82,8 x 35,5 x 22,5 mm
Two poles
10 A, 300 V AC



Connection diagram



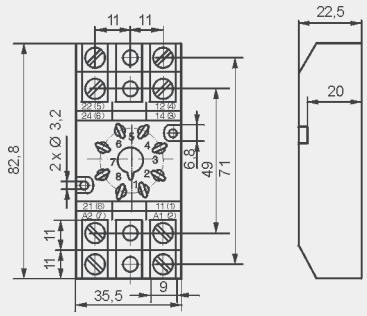
Mounting dimensions



Accessories

GZ 1050

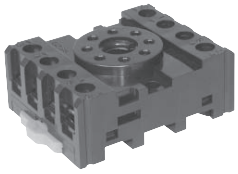
Dimensions



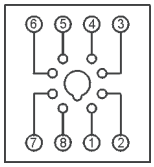
GZS8

For R15 2 C/O

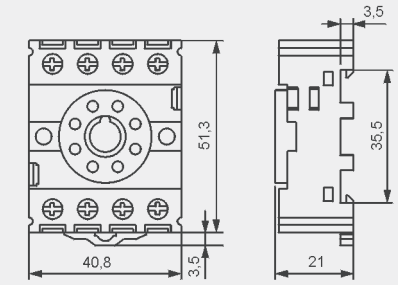
Screw terminals
Maximum screw torgue: 1,0 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
51,3 x 40,8 x 21 mm
Two poles
10 A, 300 V AC



Connection diagram



Dimensions

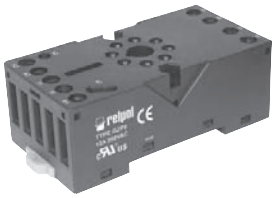


⓫ Have obtained LR Type Approval Certificate (Lloyd's Register).

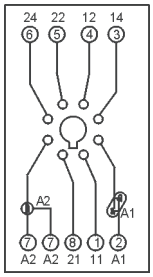
GZP8

For R15 2 C/O

Screw terminals
Maximum screw torgue: 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



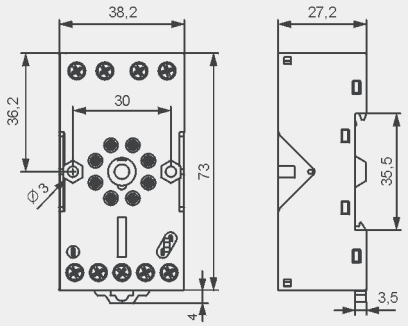
Time module T(COM3)

Accessories

GZP-0054

GZP-0035

Dimensions



GOP8

For R15 2 C/O

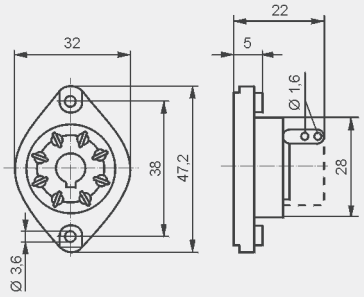
Solder terminals
47,2 x 32 x 22 mm
Two poles
10 A, 250 V AC

Accessories

R159 1051

R15 5922

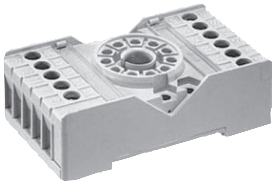
Dimensions



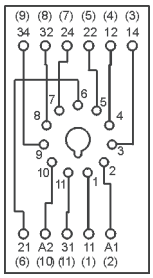
PS11 ❺

For R15 3 C/O

Screw terminals
Maximum screw torgue: 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



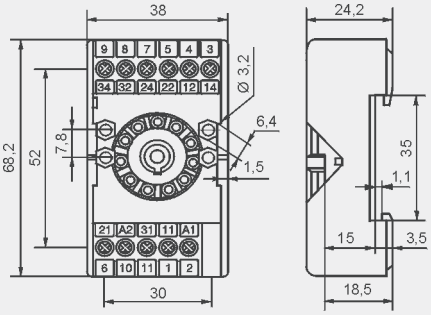
Connection diagram



Accessories

PZ11 0031

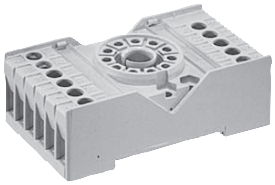
Dimensions



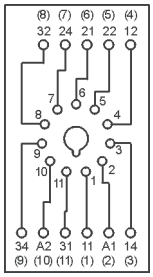
PZ11 ❺

For R15 3 C/O

Screw terminals
Maximum screw torgue: 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



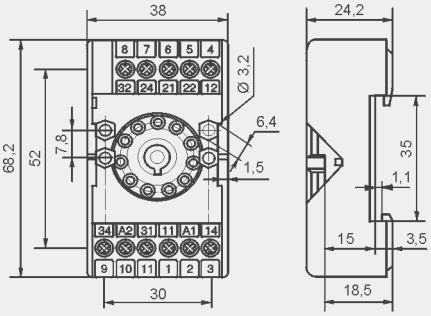
Connection diagram



Accessories

PZ11 0031

Dimensions



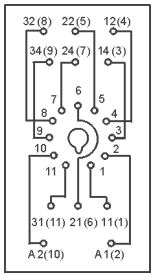
❺ Have obtained LR Type Approval Certificate (Lloyd's Register).

GZU11

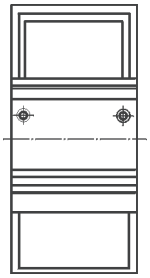
For R15 3 C/O

Screw terminals
Maximum screw torgue: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
82 x 35,5 x 25,7 mm
Three poles
10 A, 250 V AC

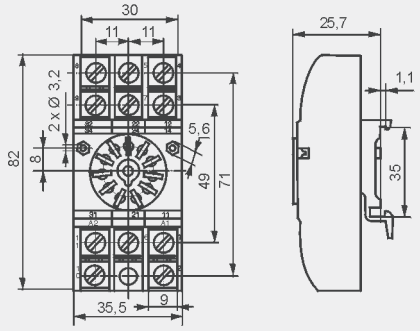
Connection diagram



Adaptor



Dimensions



Accessories

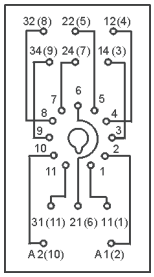
GZU 1052

GZ11

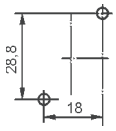
For R15 3 C/O

Screw terminals
Maximum screw torgue: 0,7 Nm
On panel mounting
82,8 x 35,5 x 22,5 mm
Three poles
10 A, 250 V AC

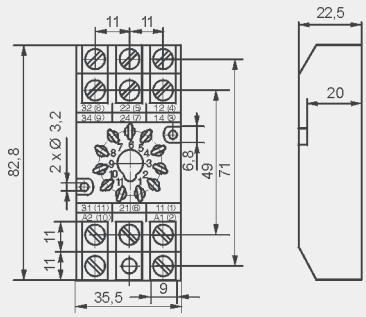
Connection diagram



Mounting dimensions



Dimensions



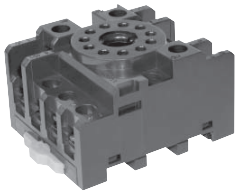
Accessories

GZ 1050

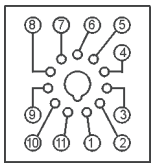
GZS11

For R15 3 C/O

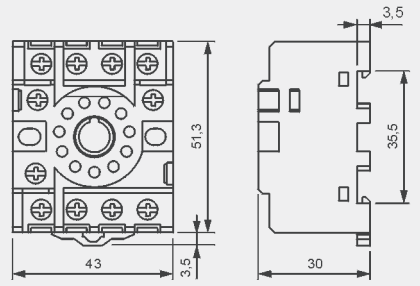
Screw terminals
Maximum screw torgue: 1,0 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
51,3 x 43 x 30 mm
Three poles
10 A, 300 V AC



Connection diagram



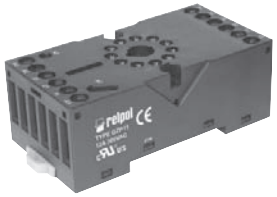
Dimensions



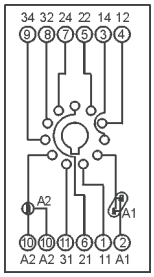
GZP11

For R15 3 C/O

Screw terminals
Maximum screw torgue: 0,5 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
73 x 38,2 x 27,2 mm
Three poles
12 A, 300 V AC



Connection diagram

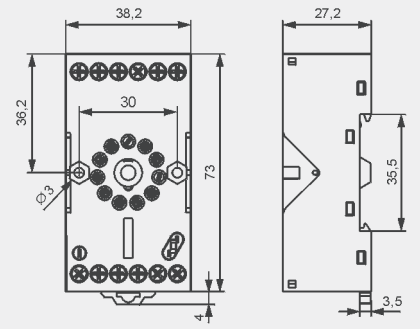


Time module T(COM3)

GZP-0054

GZP-0035

Dimensions



Accessories

GOP11

For R15 3 C/O

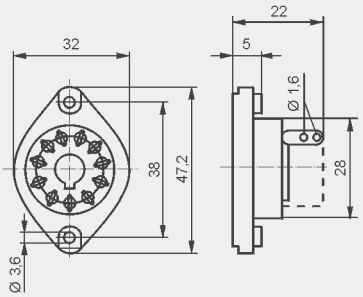
Solder terminals
47,2 x 32 x 22 mm
Three poles
10 A, 250 V AC

Accessories


R159 1051


R15 5922

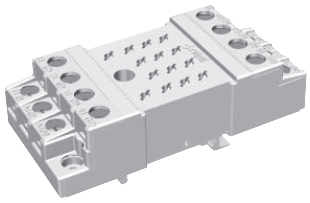
Dimensions



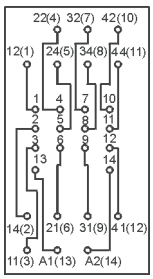
GZ14U

For R15 4 C/O

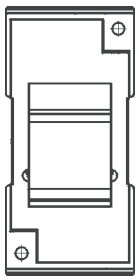
Screw terminals
Maximum screw torgue: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
96,8 x 46,4 x 33,3 mm
Four poles
10 A, 250 V AC



Connection diagram



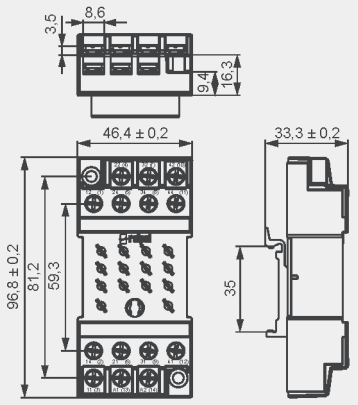
Adaptor



Accessories


GZ14 0737

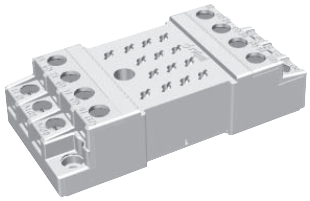
Dimensions



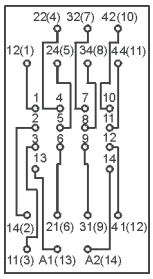
GZ14

For R15 4 C/O

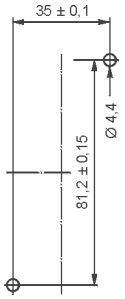
Screw terminals
Maximum screw torgue: 0,7 Nm
On panel mounting
96,8 x 46,4 x 24,5 mm
Four poles
10 A, 250 V AC



Connection diagram



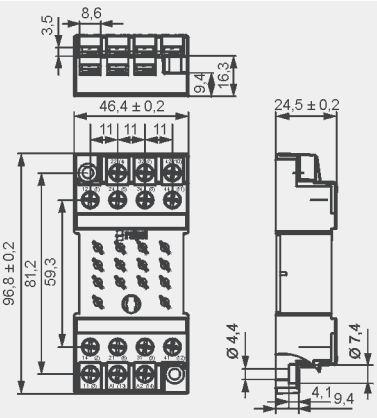
Mounting dimensions



Accessories


GZ14 0737

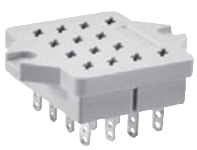
Dimensions



GOP14

For R15 4 C/O

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

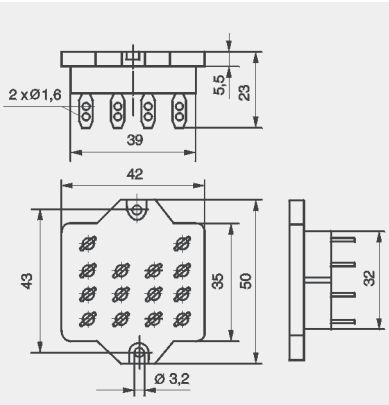


Accessories


R15 0736


R15 5922

Dimensions

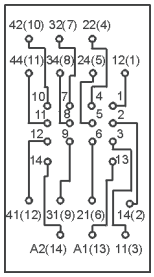


GZ14Z

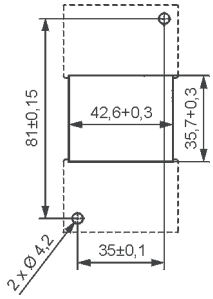
For R15 4 C/O

Screw terminals
Maximum screw torgue: 0,7 Nm
On panel mounting, behind
92,2 x 46 x 23 mm
Four poles
10 A, 250 V AC

Connection diagram

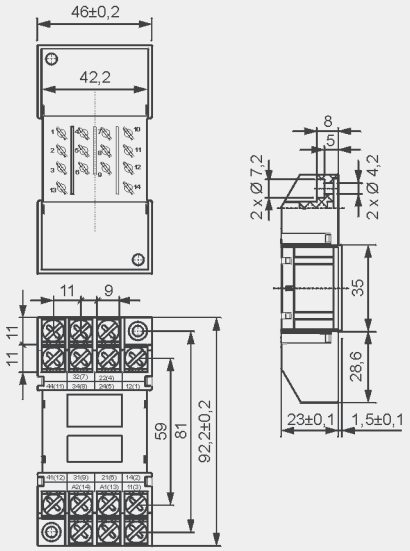


Mounting dimensions



(screw terminals side view)

Dimensions



Accessories

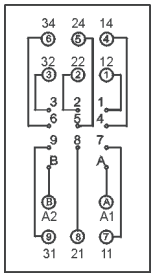
GZ14 0737

GUC11 ⑧

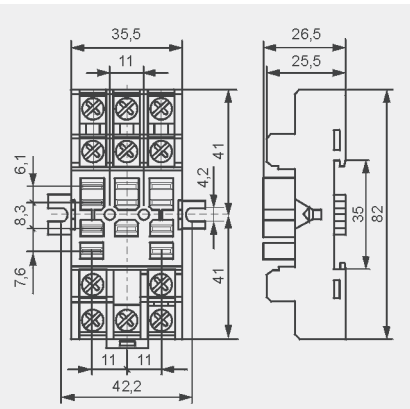
For RUC faston 4,8x0,5, RUC-M

Screw terminals
Maximum screw torgue: 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



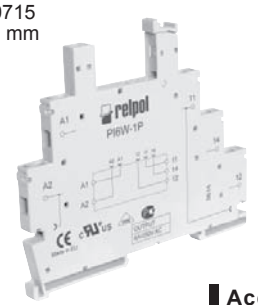
Accessories

MBA

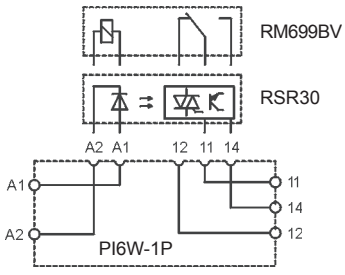
PI6W-1P

For RM699BV, RSR30 ⑨

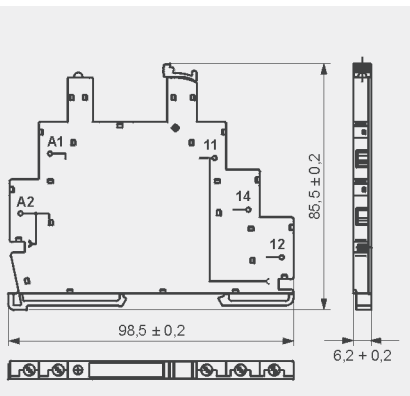
Screw terminals
Maximum screw torgue: 0,3 Nm
35 mm rail mount
acc. to PN-EN 60715
98,5 x 6,2 x 85,5 mm
One pole
6 A, 250 V AC



Connection diagram



Dimensions

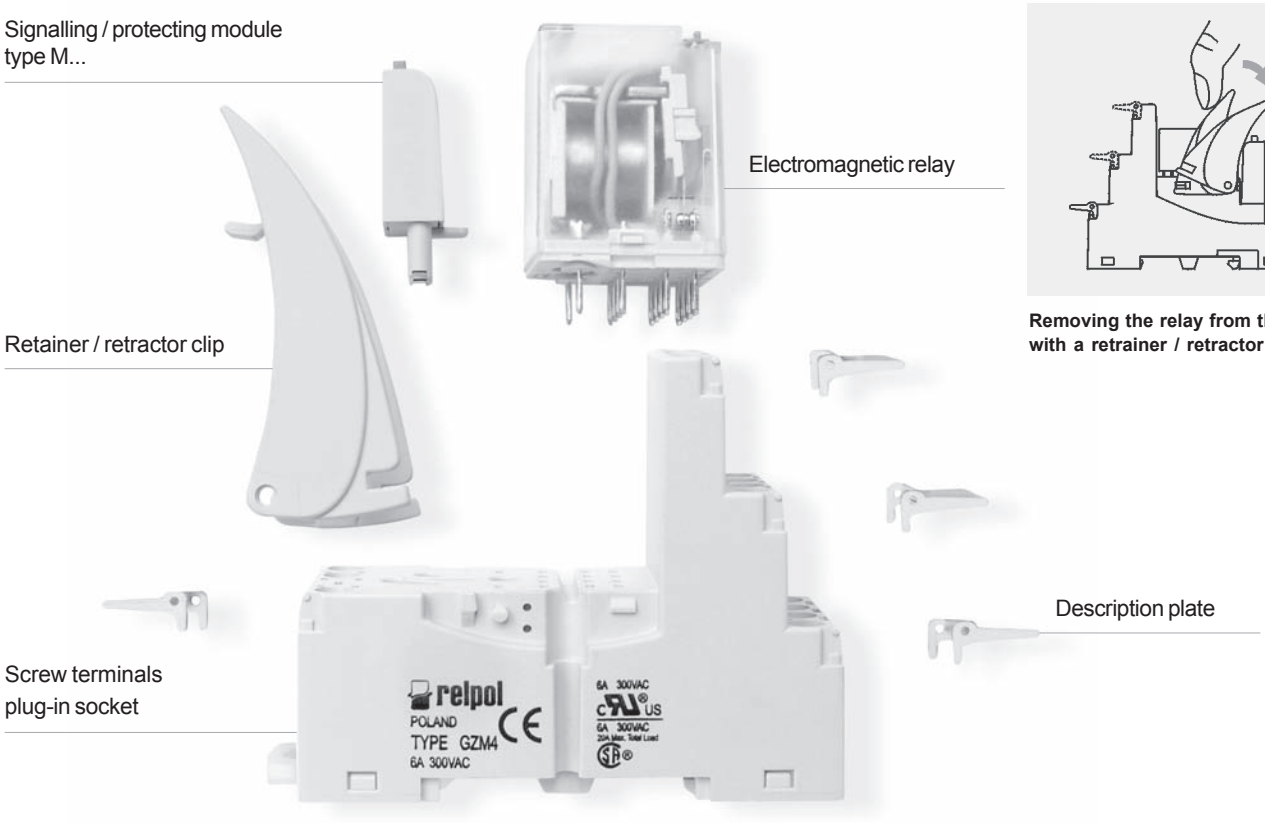


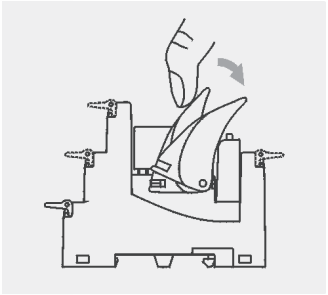
Accessories

ZG20

PI6W-1246

⑧ 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.
⑨ Solid state relays **RSR30** type - see catalogue "Solid state relays" and www.relpol.com.pl





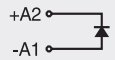
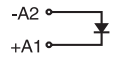
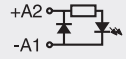
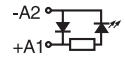
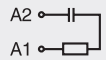
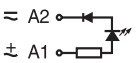
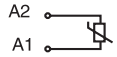
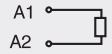
Removing the relay from the socket with a retrainer / retractor clip

Accessories
retainer / retractor clips and description plates

Type of plug-in socket	**GZT80, GZT92, GZM80, GZM92**	**GZS80, GZS92**	**ES 32**	**GZT2, GZT3, GZT4, GZM2, GZM3, GZM4**
Retainer / retractor clips				
Type	**GZT80-0040**	**GZS-0040**	**MS16**	**GZT4-0040**
Colour	gray	black	black	gray
Description plates				
Type	**GZT80-0035**	**TR**	**TR**	**GZT4-0035**
Colour	white	white	white	white
Designed for relays	RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RM87, RM87 sensitive	RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RM87, RM87 sensitive	RM96 1 C/O	R2, R3, R4
Height of relay	15...16,5 mm	15...16,5 mm	15...16,5 mm	35,6 mm

Signalling / protecting modules
type M...

For sockets type:
GZT80, GZT92,
GZM80, GZM92,
GZS80, GZS92,
ES 32,
GZT2, GZT3, GZT4,
GZM2, GZM3, GZM4

Modules type M...	Layout	Voltage	Type of module ❶
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 colour **M...G** - LED green colour
Modules **type M...** are parallely connected with relay coil. Polarity P: -A1/+A2. Polarity N: +A1/-A2.

Additional features
for industrial relays

Type ❷	Description	For industrial relays
W	mechanical indicator	R2, R3, R4, R15 2 C/O, R15 3 C/O
T	lockable front test button, orange colour - AC coils, green colour - DC coils	R2, R3, R4, R15 2 C/O, R15 3 C/O
L	light indicator (LED diode), located inside the relay	R2, R3, R4, RY2, R15 2 C/O, R15 3 C/O, R15 4 C/O, RUC, RUC-M
D	surge suppresion element (diode) - only for DC coils	R2, R3, R4, RY2, R15 2 C/O, R15 3 C/O, R15 4 C/O
V	surge suppresion element (varistor) - only for AC coils	R15 2 C/O, R15 3 C/O
K	test button without block function	R15 4 C/O, RUC

WT - mechanical indicator + lockable front test button
(basic features of standard industrial relays: R2, R3, R4, R15 2 C/O, R15 3 C/O - for plug-in sockets).

❷ 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 C/O, R15 3 C/O for plug-in sockets; **K, L, D, KL, KD, LD, KLD** - in relays R15 4 C/O for plug-in sockets; **K, L, KL** - in relays RUC; **L** - in relays RUC-M.

Detailed information for individual relays: see "Ordering codes - Additional features".

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Test buttons are recommended for R2...WT, R3...WT, R4...WT, R15...WT 2 C/O, R15...WT 3 C/O 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.

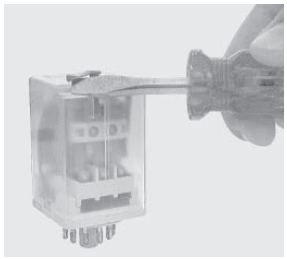


Fig. 1

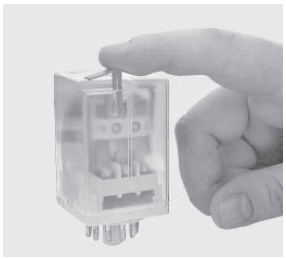
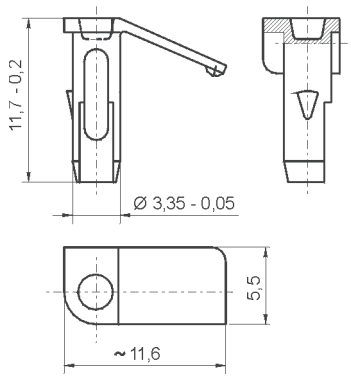


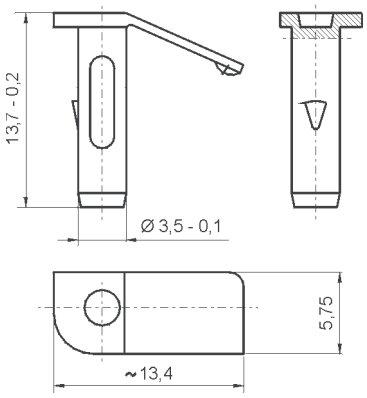
Fig. 2

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)

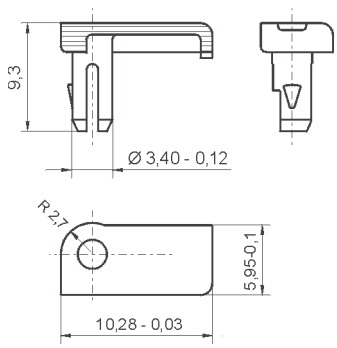
Dimensions - test button **R15-M404**
for relays **R15...WT 2 C/O**, **R15...WT 3 C/O**



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

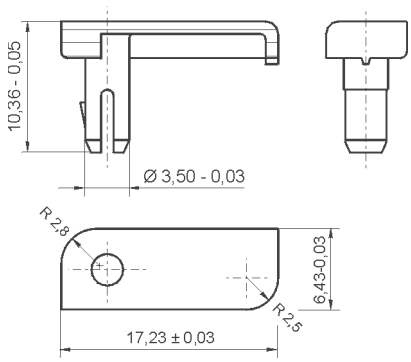
Plugs R4W-0003 or **R15-M203** can substitute button type **T if manual operation (latching and testing) is not allowed**. Changing button type **T** for plug can be done by Customer themselves in the same way as changing button type **T** for button (no latching).

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 C/O**, **R15...WT 3 C/O**



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

Plug-in sockets and accessories

availability index

The relays not specified in the table are designed for other manners of mounting.
Relays mounting options are specified in the table, pages 254, 255.

Type of relay	Plug-in sockets			
			Screw terminals	
	Solder terminals	For PCB mounting	On panel mounting	35 mm rail mount acc. to PN-EN 60715
Miniature relays				
RM699BV, RSR30 ❶	–	–	–	PI6W-1P
RM84	–	(EC50, PW80, GD50 ❷)	(GZT80, GZM80 ❸), GZS80 ❹	(GZT80, GZM80 ❸), GZS80 ❹
RM85	–	(EC50, PW80, GD50 ❷)	(GZT80, GZM80 ❸), GZS80 ❹	(GZT80, GZM80 ❸), GZS80 ❹
RM85 inrush	–	(EC50, PW80, GD50 ❷)	(GZT80, GZM80 ❸), GZS80 ❹	(GZT80, GZM80 ❸), GZS80 ❹
RM85 105 °C sensitive	–	(EC50, PW80, GD50 ❷)	(GZT80, GZM80 ❸), GZS80 ❹	(GZT80, GZM80 ❸), GZS80 ❹
RM87N, RM87N sensitive	–	(EC35, GD35 ❷)	(GZT92, GZM92 ❸), GZS92 ❹	(GZT92, GZM92 ❸), GZS92 ❹
RM87L, RM87L sensitive	–	(EC50, PW80, GD50 ❷)	(GZT80, GZM80 ❸), GZS80 ❹	(GZT80, GZM80 ❸), GZS80 ❹
RM87P, RM87P sensitive	–	(EC50, PW80, GD50 ❷)	(GZT80, GZM80 ❸), GZS80 ❹	(GZT80, GZM80 ❸), GZS80 ❹
RM96 1 C/O	–	–	ES 32	ES 32
RM83	–	(EC50, PW80, GD50 ❷)	–	–
RM92	–	(EC35, GD35 ❷)	–	–
RM94	–	(EC50, PW80, GD50 ❷)	–	–
Miniature industrial relays				
R2	SU4/2L ❺, G4/2 ❻	SU4/2D ❻	GZT2, GZM2	GZT2, GZM2
R3	–	–	GZT3, GZM3	GZT3, GZM3
R4	SU4L ❺, G4 ❻	SU4D ❻	GZT4, GZM4 GZ4 ❼, GS4 ❼ ❽	GZT4, GZM4 GZ4 ❼, GS4 ❼ ❽
RY2	–	–	GZY2 ①	GZY2 ①
R2M	G2M ②	S2M ②	GZ2 ③	GZ2 ③
Industrial relays of small dimensions				
R15 2 C/O	GOP8 ④	–	PZ8 ⑤, GZ8 ⑥, GZS8, GZP8 ⑦	PZ8 ⑤, GZU8 ⑥, GZS8, GZP8 ⑦
R15 3 C/O	GOP11 ④	–	(PS11, PZ11 ⑤), GZ11 ⑥, GZS11, GZP11 ⑦	(PS11, PZ11 ⑤), GZU11 ⑥, GZS11, GZP11 ⑦
R15 4 C/O	GOP14 ④	–	GZ14, GZ14Z	GZ14U
RUC faston 4,8 x 0,5, RUC-M	–	–	GUC11	GUC11
Time relays				
T-R4	–	–	GZT4, GZM4	GZT4, GZM4

❶ Solid state relays **RSR30** type - see catalogue "Solid state relays" and www.relpol.com.pl ❷ For EC35, EC50, GD35, GD50 sockets apply: plastic clips MP16-2 or MP25-2; spring wire clips MH16-2, MH25-2, GD-0025, RM81-0001. For GD35 and GD50 sockets apply also spring wire clips GD-0016. For PW80 sockets apply spring wire clips MH16-2, MH25-2, GD-0025, RM81-0001 ❸ For GZT80, GZT92, GZM80, GZM92 sockets apply retainer / retractor clips GZT80-0040 or spring wire clips GZM80-0041 and description plates GZT80-0035 ❹ For GZS80, GZS92 sockets apply retainer / retractor clips GZS-0040 or spring wire clips GZM80-0041 and description plates TR ❺ For SU4/2L, SU4L sockets apply spring wire clips G4 1053 or G4 1050 and spring clamps G4 1040 ❻ For SU4/2D, SU4D, G4/2, G4 sockets apply spring wire clips G4 1053 or G4 1050 ❼ For GZ4, GS4 sockets not applicable retainer / retractor clips GZT4-0040, description plates GZT4-0035, modules type M... and interconnection strip type ZGGZ4 ❽ For GS4 sockets apply spring wire clips GS4-0036 and description plates GS4-0035
❾ Information on buttons (no latching) R4P-0001, R15-M404 and plugs R4W-0003, R15-M203 - see page 251.

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Accessories				Additional features
Spring wire clips	Retainer / retractor clips	Description plates	Signalling / protecting modules	
–	–	PI6W-1246	–	interconnection strip type ZG20
(MP16-2, MH16-2, GD-0016 ❷), GZM80-0041 ❸ ❹	GZT80-0040 ❸, GZS-0040 ❹	GZT80-0035 ❸, TR ❹	type M...	interconnection strip type ZGGZ80
(MP16-2, MH16-2, GD-0016 ❷), (GZM80-0041 ❸)	GZT80-0040 ❸, GZS-0040 ❹	GZT80-0035 ❸, TR ❹	type M...	interconnection strip type ZGGZ80
(MP16-2, MH16-2, GD-0016 ❷), GZM80-0041 ❸ ❹	GZT80-0040 ❸, GZS-0040 ❹	GZT80-0035 ❸, TR ❹	type M...	interconnection strip type ZGGZ80
(MP16-2, MH16-2, GD-0016 ❷), GZM80-0041 ❸ ❹	GZT80-0040 ❸, GZS-0040 ❹	GZT80-0035 ❸, TR ❹	type M...	interconnection strip type ZGGZ80
(MP16-2, MH16-2, GD-0016 ❷), GZM80-0041 ❸ ❹	GZT80-0040 ❸, GZS-0040 ❹	GZT80-0035 ❸, TR ❹	type M...	interconnection strip type ZGGZ80
(MP16-2, MH16-2, GD-0016 ❷), GZM80-0041 ❸ ❹	GZT80-0040 ❸, GZS-0040 ❹	GZT80-0035 ❸, TR ❹	type M...	interconnection strip type ZGGZ80
(MP16-2, MH16-2, GD-0016 ❷), GZM80-0041 ❸ ❹	GZT80-0040 ❸, GZS-0040 ❹	GZT80-0035 ❸, TR ❹	type M...	interconnection strip type ZGGZ80
GZM80-0041	MS16	TR	type M...	interconnection strip type ZGGZ80
(MP25-2, MH25-2, GD-0025, RM81-0001 ❷)	–	–	–	–
(MP25-2, MH25-2, GD-0025, RM81-0001 ❷)	–	–	–	–
(MP25-2, MH25-2, GD-0025, RM81-0001 ❷)	–	–	–	–
(G4 1053, G4 1050 ❺ ❻), G4 1052	GZT4-0040	GZT4-0035	type M...	interconnection strip type ZGGZ4, (test buttons, plugs ❾)
G4 1052	GZT4-0040	GZT4-0035	type M...	interconnection strip type ZGGZ4, (test buttons, plugs ❾)
(G4 1053, G4 1050 ❺ ❻), G4 1052, GS4-0036 ❽	GZT4-0040 ❼	GZT4-0035 ❼, GS4-0035 ❽	type M... ❼	interconnection strip type ZGGZ4 ❼, (test buttons, plugs ❾)
GZY 2000 ①	–	–	–	–
G4 1050 ②, GZ2 1060 ③	–	–	–	–
R159 1051 ④, PZ11 0031 ⑤, (GZ 1050, GZU 1052 ⑥), GZP-0054 ⑦	–	GZP-0035 ⑦	–	(test buttons, plugs ❾), time module T(COM3) ⑦
R159 1051 ④, PZ11 0031 ⑤, (GZ 1050, GZU 1052 ⑥), GZP-0054 ⑦	–	GZP-0035 ⑦	–	(test buttons, plugs ❾), time module T(COM3) ⑦
R15 0736 ④, GZ14 0737	–	–	–	–
MBA	–	–	–	–
TR4-2000	–	GZT4-0035	–	interconnection strip type ZGGZ4

① For GZY2 sockets apply spring wire clips GZY 2000 and spring clamps GZ2 1111 ② For G2M sockets apply spring wire clips G4 1050 and spring clamps G2M 1020. For S2M sockets apply spring wire clips G4 1050 ③ For GZ2 sockets apply spring wire clips GZ2 1060 and spring clamps GZ2 1111 ④ For GOP8, GOP11 sockets apply spring wire clips R159 1051 and spring clamps R15 5922. For GOP14 sockets apply spring wire clips R15 0736 and spring clamps R15 5922 ⑤ For PZ8, PS11, PZ11 sockets apply spring wire clips PZ11 0031 ⑥ For GZ8, GZ11 sockets apply spring wire clips GZ 1050. For GZU8, GZU11 sockets apply spring wire clips GZU 1052 ⑦ For GZP8, GZP11 sockets apply spring wire clips GZP-0054, description plates GZP-0035 and time modules T(COM3)

Relays mounting options

Type of relay	Method of mounting					
	For PCB mounting		On panel mounting	35 mm rail mount acc. to PN-EN 60715	Cover with mounting flange - on panel mounting	Flat insert connectors - faston
Subminiature signal relays						
RSM822	direct	–	–	–	–	–
RSM954	direct	–	–	–	–	–
RSM957	direct	–	–	–	–	–
Miniature relays						
RM40	direct	–	–	–	–	–
RM50	direct	–	–	–	–	–
RM699BV, RSR30 □	direct	–	–	with socket	–	–
RM699BH	direct	–	–	–	–	–
RM84	direct	with socket	with socket	with socket	–	–
RM84 SMT	direct	–	–	–	–	–
RM85	direct	with socket	with socket	with socket	–	–
RM85 □	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
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 C/O	direct	–	with socket	with socket	–	–
RM96 1 NO, 1 NC	direct	–	–	–	–	–
RM83	direct	with socket	–	–	–	–
RM92	direct	with socket	–	–	–	–
RM94	direct	with socket	–	–	–	–
Automotive relays						
RA2	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	–	–

□ **RM85** with increased contact gap
□ Solid state relays **RSR30** type - see catalogue ”Solid state relays” and www.relpol.com.pl

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 C/O	direct	–	with socket	with socket	–	–
R15 3 C/O	direct	–	with socket	with socket	–	–
R15 4 C/O	–	–	with socket □	with socket	–	–
RUC faston 4,8 x 0,5	direct	–	with socket □	with socket □ direct □	on request	4,8 x 0,5 mm
RUC faston 6,3 x 0,8	–	–	–	direct □	on request	6,3 x 0,8 mm
RUC-M	direct	–	with socket □	with socket □ direct □	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	–	–
PI6-OC	–	–	–	direct	–	–
PIR6W-1P-...	–	–	–	direct	–	–
PIR6W-1PS-...- □	–	–	–	direct	–	–
PIR6WB-1PS-...- □	–	–	–	direct	–	–
Installation relays						
MT-PI-...	–	–	–	direct	–	–
Time relays						
MT-TUA-...	–	–	–	direct	–	–
MT-TUB-...	–	–	–	direct	–	–
MT-T..-..	–	–	–	direct	–	–
MT-TSD-...	–	–	–	direct	–	–
TR4N 4 C/O	–	–	–	direct	–	–
TR4N 1 C/O, 2 C/O	–	–	–	direct	–	–
T-R4	–	–	with socket	with socket	–	–
PIR15...T □	–	–	direct	direct	–	–

□ Available socket to be mounted behind the assembly panel - **GZ14Z**.
□ 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.
□ Version with adaptor: (V) or (H).
□ **R** - operational electromagnetic relay **RM699BV** type for PIR6W.-1PS-...-R.
T/C/O - operational solid state relay **RSR30** type for PIR6W.-1PS-...-T (or C or O) - see catalogue "Solid state relays" and www.relpol.com.pl
□ With time module T(COM3).

Plug-in sockets technical data

Plug-in socket	Terminals type	Signs credits	Insulation (PN-EN 60664-1)		
				Dielectric strength 50/60 Hz, 1 min.	
			Rated load	between coil and contacts	pole - pole
GZT80	for screw terminals	cRUus, CSA, CE	12 A / 300 V AC	5 000 V AC	3 000 V AC
GZM80	for screw terminals	cRUus, CSA CE	12 A / 300 V AC	5 000 V AC	3 000 V AC
GZS80	for screw terminals	cRUus, CE	10 A / 300 V AC	4 000 V AC	2 500 V AC
EC50	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
GZT92	for screw terminals	cRUus, CSA, CE	12 A / 300 V AC	5 000 V AC	–
GZM92	for screw terminals	cRUus, CSA, CE	12 A / 300 V AC	5 000 V AC	–
GZS92	for screw terminals	cRUus, CE	12 A / 300 V AC	4 000 V AC	–
EC35	for PCB		12 A / 300 V AC	2 500 V AC	–
GD35	for PCB	RU	12 A / 300 V AC	2 000 V AC	–
ES 32	for screw terminals	CE	12 A / 300 V AC	2 500 V AC	–
EC32	for PCB		12 A / 300 V AC	2 500 V AC	–
GZT2	for screw terminals	cRUus, CSA, CE	12 A / 300 V AC	3 000 V AC	3 000 V AC
GZM2	for screw terminals	cRUus, CSA, CE	12 A / 300 V AC	4 000 V AC	3 000 V AC
SU4/2D	for PCB	cRUus, CSA	12 A / 250 V AC	2 500 V AC	2 500 V AC
SU4/2L	for solder terminals	cRUus, CSA, CE	12 A / 250 V AC	2 500 V AC	2 500 V AC
G4/2	for solder terminals	cRUus, CSA, CE	12 A / 250 V AC	2 500 V AC	2 500 V AC
GZT3	for screw terminals	cRUus, CSA, CE	10 A / 300 V AC	3 000 V AC	3 000 V AC
GZM3	for screw terminals	cRUus, CSA, CE	10 A / 300 V AC	4 000 V AC	3 000 V AC
GZT4	for screw terminals	cRUus, CSA, CE	6 A / 300 V AC	3 000 V AC	3 000 V AC
GZM4	for screw terminals	cRUus, CSA, CE	6 A / 300 V AC	4 000 V AC	3 000 V AC
GZ4	for screw terminals	CE	10 A / 300 V AC	2 500 V AC	2 000 V AC
GS4	for screw terminals	cRUus, CE	6 A / 300 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	for solder terminals	cRUus, CSA, CE	6 A / 250 V AC	2 500 V AC	2 000 V AC
G4	for solder terminals	cRUus, CSA, CE	6 A / 250 V AC	2 500 V AC	2 000 V AC
GZY2	for screw terminals	CE	12 A / 250 V AC	2 000 V AC	2 000 V AC
GZ2	for 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	for solder terminals	cRUus, CE	5 A / 250 V AC	2 000 V AC	2 000 V AC
PZ8	for screw terminals	RU, CSA, CE	10 A / 250 V AC	2 500 V AC	2 500 V AC
GZU8	for screw terminals	RU, CSA, CE	10 A / 300 V AC	2 500 V AC	2 500 V AC
GZ8	for screw terminals	CSA, CE	10 A / 300 V AC	2 500V AC	2 500 V AC
GZS8	for screw terminals	CE	10 A / 300 V AC	2 000 V AC	2 000 V AC
GZP8	for screw terminals	cRUus, CE	12 A / 300 V AC	4 000 V AC	2 500 V AC
GOP8	for solder terminals	CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
PS11	for screw terminals	RU, CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
PZ11	for screw terminals	RU, CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZU11	for screw terminals	RU, CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZ11	for screw terminals	CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZS11	for screw terminals	CE	10 A / 300 V AC	2 000 V AC	2 000 V AC
GZP11	for screw terminals	cRUus, CE	12 A / 300 V AC	2 500 V AC	2 000 V AC
GOP11	for solder terminals	CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZ14U	for screw terminals	CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZ14	for screw terminals	CSA, CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GOP14	for solder terminals	CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GZ14Z	for screw terminals	CE	10 A / 250 V AC	2 000 V AC	2 000 V AC
GUC11	for screw terminals	CE	16 A / 250 V AC	2 000 V AC	2 000 V AC
PI6W-1P	for screw terminals	cRUus, VDE, CE	6 A / 250 V AC	4 000 V AC	–

❶ Also relays RM85 inrush, RM85 105 °C sensitive ❷ Also versions RM87L sensitive, RM87P sensitive ❸ Also versions RM87N sensitive

Export Sales Department • Phone: +48 68 47 90 832 • E-mail: export@relpol.com.pl

General data				Terminal capacity		For relays
Number of poles	Weight	Ambient temperature (operating)	Protection category (PN-EN 60529)	Maximum screw torgue	Maximum size of wires (multi-cable)	
2	41 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	RM84, RM85 ❶, (RM87L, RM87P ❷)
2	46 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	RM84, RM85 ❶, (RM87L, RM87P ❷)
2	37 g	-40...+85 °C	IP 20	0,5 Nm	2 x 2,5 mm²	RM84, RM85 ❶, (RM87L, RM87P ❷)
2		-40...+85 °C	–	–	–	RM84, RM85 ❶, (RM87L, RM87P ❷), RM83, RM94
2		-40...+85 °C	–	–	–	RM84, RM85 ❶, (RM87L, RM87P ❷), RM83, RM94
2	4 g	-40...+85 °C	–	–	–	RM84, RM85 ❶, (RM87L, RM87P ❷), RM83, RM94
1	35 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	RM87N ❸
1	40 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	RM87N ❸
1	33 g	-40...+85 °C	IP 20	0,5 Nm	2 x 2,5 mm²	RM87N ❸
1		-40...+85 °C	–	–	–	RM87N ❸, RM92
1	4 g	-40...+85 °C	–	–	–	RM87N ❸, RM92
1		-40...+85 °C	IP 20	0,5 Nm	–	RM96 1 C/O
1		-40...+85 °C	–	–	–	
2	52 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R2
2	68 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R2
2	6 g	-40...+70 °C	–	–	–	R2
2	6 g	-40...+70 °C	–	–	2 x 0,75 mm²	R2
2	6 g	-40...+70 °C	–	–	2 x 0,75 mm²	R2
3	60 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R3
3	68 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R3
4	64 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R4, T-R4
4	74 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R4, T-R4
4		-40...+70 °C	IP 20	0,7 Nm	2 x 1,5 mm²	R4
4	40 g	-40...+70 °C	IP 20	0,7 Nm	2 x 1,5 mm²	R4
4	7 g	-40...+70 °C	–	–	–	R4
4	7 g	-40...+70 °C	–	–	–	R4
4	8 g	-40...+70 °C	–	–	2 x 0,75 mm²	R4
2		-40...+70 °C	IP 00	0,7 Nm	2 x 2,5 mm²	RY2
2		-40...+70 °C	IP 00	0,7 Nm	2 x 2,5 mm²	R2M
2	8 g	-40...+70 °C	–	–	–	R2M
2	8 g	-40...+70 °C	–	–	–	R2M
2	55 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R15 2 C/O
2	70 g	-40...+70 °C	IP 00	0,7 Nm	2 x 2,5 mm²	R15 2 C/O
2	80 g	-40...+70 °C	IP 00	0,7 Nm	2 x 2,5 mm²	R15 2 C/O
2	32 g	-40...+70 °C	IP 00	1,0 Nm	2 x 2,5 mm²	R15 2 C/O
2	50 g	-40...+70 °C	IP 20	0,5 Nm	2 x 2,5 mm²	R15 2 C/O
2		-40...+70 °C	–	–	–	R15 2 C/O
3	55 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R15 3 C/O
3	55 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R15 3 C/O
3	70 g	-40...+70 °C	IP 00	0,7 Nm	2 x 2,5 mm²	R15 3 C/O
3	80 g	-40...+70 °C	IP 00	0,7 Nm	2 x 2,5 mm²	R15 3 C/O
3	46 g	-40...+70 °C	IP 00	1,0 Nm	2 x 2,5 mm²	R15 3 C/O
3	55 g	-40...+70 °C	IP 20	0,5 Nm	2 x 2,5 mm²	R15 3 C/O
3		-40...+70 °C	–	–	–	R15 3 C/O
4	120 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R15 4 C/O
4	120 g	-40...+70 °C	IP 20	0,7 Nm	2 x 2,5 mm²	R15 4 C/O
4		-40...+70 °C	–	–	–	R15 4 C/O
4		-40...+55 °C	IP 00	0,7 Nm	2 x 2,5 mm²	R15 4 C/O
3	75 g	-40...+70 °C	IP 00	0,7 Nm	2 x 2,5 mm²	RUC faston 4,8 x 0,5, RUC-M
1	40 g	-40...+55 °C	IP 20	0,3 Nm	1 x 2,5 / 2 x 1,5 mm²	RM699BV, RSR30 ❹

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

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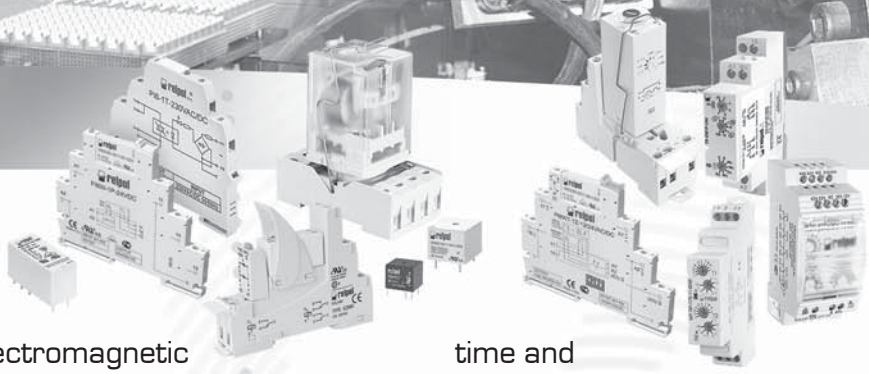
You have not found the relay you wanted?
The catalogue does not show the information about
the switching capacity for the type of load you are looking for?
Detailed contact data is presented on the last page of the catalogue
and at www.relpol.com.pl



electromagnetic
and interface relays

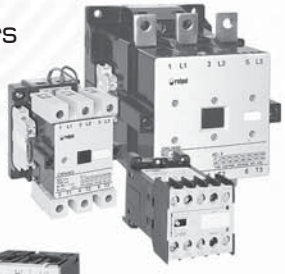
time and
monitoring relays

NEED
programmable relays

RPS - DIN rail
power supply

solid state relays

softstarts



contactors

motor protection
circuit breakers

overvoltage
arresters

switches and
rotary switches

digital protection
sets CZIP

ZGGZ80 are designed for:

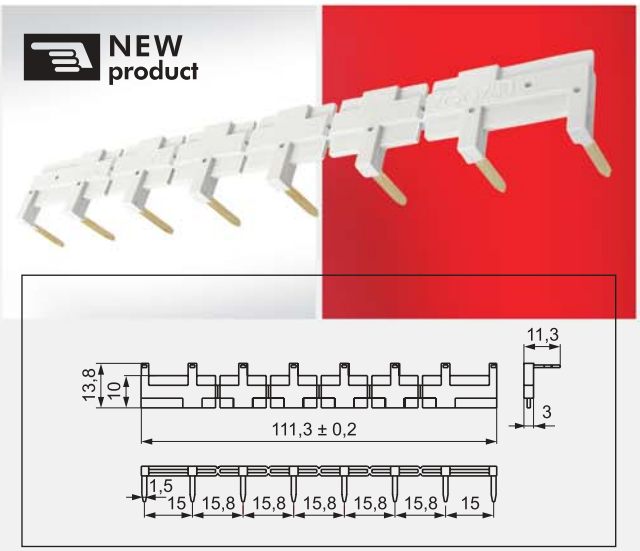
Plug-in sockets	Relays for plug-in sockets	Interface relays ❶
GZT80	RM84, RM85,	PI84-...-M..G (GZT80 + RM84)
GZM80	RM85 inrush, RM85 105 °C sensitive,	PI84-...-00L. (GZM80 + RM84)
GZS80	RM87L ❷, RM87P ❷	PI85-...-M..G (GZT80 + RM85)
GZT92		PI85-...-00L. (GZM80 + RM85)
GZM92	RM87N ❷	
GZS92		
ES 32	RM96 1 C/O	

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

NEW PRODUCT

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.



ZGGZ4 are designed for:

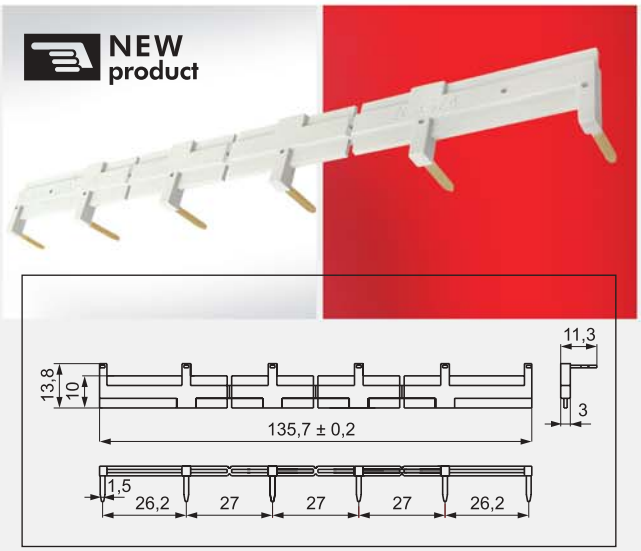
Plug-in sockets	Relays for plug-in sockets	Interface relays ❶
GZT2	R2...WT	PIR2-...-00L. (GZM2 + R2...WT)
GZM2		PIR3-...-00L. (GZM3 + R3...WT)
GZT3	R3...WT	PIR4-...-00L. (GZM4 + R4...WT)
GZM3		
GZT4	R4...WT	
GZM4		

❶ 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**.

NEW PRODUCT

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.

Declaration of conformity RoHS

RELPOL S.A.
ul. 11 Listopada 37
68-200 Żary, Poland

RELPOL S.A. hereby confirms that timers, relays and sockets supplied by our company meet the requirements of the **Directive 2002/95/EC "RoHS".**

1.11.2005
Date

R&D Department Director
Andrzej Hyska

RoHS conform

www.relpol.com.pl

company quoted at the WSE

Due to the permanent development policy, Relpol S.A. reserves the right to introduce changes of data and characteristics of the products. The devices shall be operated by skilled personnel in accordance with the regulations in force pertaining to electrical systems. The technical data are of informational nature. Thus, Relpol S.A. does not accept any liability for inappropriate use of the presented products.

The offer of Relpol S.A. includes the following products:

- **subminiature signal relays**
  rated switching capacity: from 2 A to 3 A,
  coil voltage range: from 3 V to 48 V DC
- **miniature relays**
  rated switching capacity: from 5 A to 20 A
- **industrial relays**
  rated switching capacity: from 5 A to 30 A,
  mounting: to plug-in sockets on 35 mm rail mount acc. to PN-EN 60715 or on panel mounting, for PCB
- **interface relays**
  rated switching capacity: from 0,5 A to 16 A,
  number of contacts: from 1 to 4
- **plug-in sockets for relays**
  PCB plug-in sockets, plug-in sockets
  for 35 mm rail mount acc. to PN-EN 60715
- **contactors**
  rated switching power: from 2,2 kW to 200 kW
  /at 400 V/
- **motor protection circuit breakers**
  setting range: from 0,1 A to 63 A
- **time relays**
  single- and multifunction time relays,
  wide range of time adjustments
- **monitoring relays**
  monitoring of current, voltage, temperature, level
- **NEED programmable relays**
  versions: 8 inputs / 4 relay outputs,
  16 inputs / 8 relay outputs, programming: LAD, STL,
  supply voltages: 230 V AC, 12-24-220 V DC,
  LED indicators of the relay and input / output status
- **RPS - DIN rail power supply**
  for automation systems, output circuit: 12-24 V DC,
  rated currents: from 1,5 A to 20 A
- **solid state relays**
  rated load currents: from 1 A to 100 A,
  switching at zero or at any time
- **overvoltage arresters**
  classes I, II and III, available with changeover signal contact
- **switches and rotary switches**
  lever switches of 1-, 2-, 3- and 4-pole versions,
  rotary switches from 1 to 6 sections
  and from 2 to 12 positions
- **digital protection sets for automation, measurements and control for mid-voltage fields**
- **production and installation of stationary devices for monitoring of radioactive radiation**

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