

Automation is our passion

Catalogue

Relays for electronics • Relays for industry • High power relays • Relays for railroad industry • Programmable relays • Installation relays
Bistable - impulse relays • Time relays • Monitoring relays • Digital clocks • Electric energy consumption meters • Signal lamps
Solid state relays and power controllers • Installation contactors • Overvoltage arresters • Power supplies • Plug-in sockets

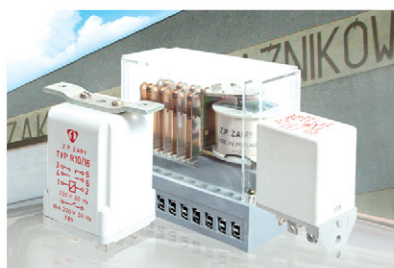


Since 1958 we have been specializing in the production of relays



1958

Relay Division of REFA Świebodzice founded in Żary



1982

Independent enterprise of Zakład Przepaźników established



1991

Zakład Przepaźników transformed into Relpol S.A. in Żary



1996

Relpol S.A. IPO at the Warsaw Stock Exchange



Relpol's presence in markets worldwide

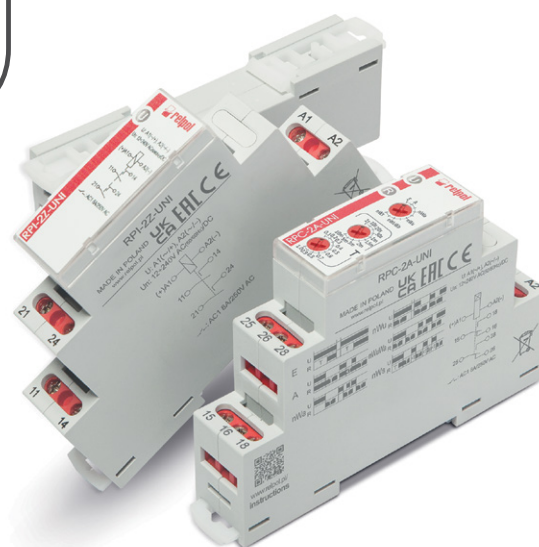


Modern production profile and high-quality products

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Innovative features of our technological solutions and reliability of our products are confirmed by numerous recognitions and certifications: VDE, UL, CSA, EAC, UKCA, LR, IK and by prizes and awards.



Selection table

Electrical terminals						Coil / input	Type	Number and type of contacts / outputs	Rated current				
for PCB	SMT	for sockets	connectors	screw terminals	spring terminals				[A]	5	10	15	20
						AC							
						DC							
						AC/DC							
						bistable DC							
								CO - changeover NO - normally open NC - normally closed					
Relays for electronics													
							RSM850	2 CO	2 A				
							RSM850B	2 CO	2 A				
							RSM822N	2 CO		3 A / 2 A (NO/NC)			
							RSM954N	1 CO	3 A				
							RSM957N	1 CO	1 A				
							RM12	1 CO, 1 NO		8 A			
							RM12N	1 CO, 1 NO		1 CO: 8 A, 1 NO: 10 A			
							RM32N	1 CO, 1 NO		1 CO: 5 A / 5 A (NO/NC)	1 NO: 5 A, 10 A ②		
							RM40	1 CO, 1 NO		1 CO: 5 A, 1 NO: 8 A			
							RM45N	1 CO, 1 NO		1 CO: 5 A / 5 A (NO/NC)	1 NO: 5 A, 10 A ②		
							RM50N	1 CO, 1 NO		6 A, 12 A ②			
							RM51	1 CO, 1 NO		1 CO: 10 A / 7 A (NO/NC), 20 A ②, 1 NO: 10 A, 20 A ②			
							RM53	1 CO, 1 NO, 2 NO		1 CO: 5 A / 5 A (NO/NC), 10 A ②	1 NO, 2 NO: 5 A, 10 A ②		
							RM84	2 CO, 2 NO		8 A			
							RM85	1 CO, 1 NO			16 A		
							RM85 inrush	1 NO			16 A		
							RM85 105 °C sensitive	1 NO			16 A		
							RM85 ①	1 NO			16 A		
							RM85 faston	1 NO				20 A	
							RM87	1 CO, 1 NO		12 A			
							RM87 sensitive	1 NO		10 A			
							RM96	1 CO, 1 NO, 1 NC		8 A			
							RM699B	1 CO, 1 NO		AgSnO ₂ , AgNi: 6 A			
							RM83	1 CO, 1 NO, 1 NC			16 A		
							RMP84	2 CO		8 A			
							RMP85	1 CO			16 A		
							RMP7	1 CO, 2 CO		1 CO: 12 A, 2 CO: 8 A			
							RA2 ②	1 CO, 1 NO, 2 NO		1 CO: 20 A / 12 A (NO/NC), 1 NO: 20 A			
Relays for industry													
							R2B-...-B latching	2 CO			12 A		
							R2B-...-D latching	2 CO			12 A		
							R3B-...-B latching	3 CO		8 A			
							R3B-...-D latching	3 CO		6 A			
							R4B-...-B latching	4 CO		6 A			
							R2N	2 CO			12 A		
							R3N	3 CO			10 A		
							R4N	4 CO		7 A			

① RM85 for switching higher voltages ② RA2 - automotive relays (2 NO: 2 x 12,5 A) ③ At lowered voltage

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.

Electrical terminals						Coil / input	Type	Number and type of contacts / outputs	Rated current						
for PCB	for sockets	connectors	screw terminals	Push-in terminals	spring terminals				[A]	5	10	20	40	60	80
						AC									
						DC									
						AC/DC									
						bistable DC									
Relays for industry															
							R2M	2 CO	5 A						
							RY2	2 CO		12 A					
							R15 - 2 CO	2 CO		10 A					
							R15 - 3 CO	3 CO		10 A					
							R15 - 4 CO	4 CO		10 A					
							RUC	2 CO, 3 CO, 2 NO, 3 NO		16 A					
							RUC-M	1 NO, 2 NO		16 A					
							R20	1 NO, 2 NO		2 NO: 25 A, 1 NO: 30 A					
							RG25	2 NO		25 A					
							PI84 with socket GZT80	2 CO		8 A					
							PI84 with socket GZM80	2 CO		8 A					
							PI84 with socket GZP80	2 CO		8 A					
							PI85 with socket GZT80	1 CO		12 A, 16 A ④					
							PI85 with socket GZM80	1 CO		12 A, 16 A ④					
							PI85 with socket GZP80	1 CO		12 A, 16 A ④					
							PI85 inrush with socket GZT80	1 NO		12 A, 16 A ④					
							PI84P with socket GZP80	2 CO		8 A					
							PI85P with socket GZP80	1 CO		12 A, 16 A ④					
							PI71P with socket GZ71	1 CO		12 A					
							PI71P with socket GZP71	1 CO		12 A					
							PI72P with socket GZ72	2 CO		8 A					
							PI72P with socket GZP72	2 CO		8 A					
							PIR2 with socket GZM2	2 CO		12 A					
							PIR2 with socket GZP4	2 CO		12 A					
							PIR3 with socket GZM3	3 CO		10 A					
							PIR4 with socket GZM4	4 CO		7 A					
							PIR4 with socket GZP4	4 CO		7 A					
							PI6-1P	1 CO	AgSnO ₂ : 6 A						
							PI6-1T	1 NO	1,2 A						
							PIR6W-1P-...	1 CO	AgSnO ₂ : 6 A						
							PIR6W-1PS-... ⑤	1 CO, 1 NO	R (AgSnO ₂): 6 A	T, C: 1 A, O: 2 A					
							PIR6WB-1PS-... ⑤	1 CO, 1 NO	R (AgSnO ₂): 6 A	T, C: 1 A, O: 2 A					
							PIR6W.-1P-...-10 ⑥	1 CO	R (AgSnO ₂): 6 A						
							SIR6W-... ⑤	1 CO, 1 NO	R (AgSnO ₂): 6 A	T, C: 1 A, O: 2 A					
							SIR6WB-... ⑤	1 CO, 1 NO	R (AgSnO ₂): 6 A	T, C: 1 A, O: 2 A					
							SIR6W.-...-10 ⑥	1 CO	AgSnO ₂ : 6 A						

④ See www.relpol.com.pl ⑤ Operational relay - electromagnetic **RM699BV** or solid state **RSR30**

⑥ Version for long control lines - with integrated anti-interference filter

How to use the table and the ordering code structure - see page 4.

Selection table

Electrical terminals						Coil / input	Type	Number and type of contacts / outputs	Rated current						
for PCB	for sockets	connectors	screw terminals	Push-in terminals	spring terminals				[A]	5	10	20	40	60	80
						AC									
						DC									
						AC/DC									
						bistable DC									
								CO - changeover NO - normally open NC - normally closed							
High power relays															
							RS35	2 NO					35 A		
							RS50	1 NO, 2 NO					50 A		
							RS80	1 NO					80 A / 250 V AC, 90 A / 230 V AC		
							R50A	1 NO					50 A		
							R90A	1 NO					90 A / 1 000 V AC		
							R30N	1 CO, 1 NO	1 CO: 30 A / 20 A (NO/NC), 1 NO: 30 A						
							R40N	1 CO, 1 NO	1 CO: 40 A / 30 A (NO/NC), 1 NO: 40 A						
							R20	1 NO, 2 NO	2 NO: 25 A, 1 NO: 30 A						
							RG25	2 NO					25 A		
							RUC	2 CO, 3 CO, 2 NO, 3 NO					16 A		
							RUC-M	1 NO, 2 NO					16 A		
Relays for railroad industry															
							RM84	2 CO, 2 NO					8 A		
							RM85	1 CO, 1 NO					16 A		
							R2T	2 CO					12 A		
							R3T	3 CO					10 A		
							R4T	4 CO					7 A		
							R15T - 2 CO	2 CO					10 A		
							R15T - 3 CO	3 CO					10 A		
							RUCT	3 CO, 3 NO					16 A		
							RUCT-M	1 NO, 2 NO					16 A		
							PI84T with socket GZT80-V0	2 CO					8 A		
							PI85T with socket GZT80-V0	1 CO					12 A, 16 A ④		
							PIR2T with socket GZT2-V0	2 CO					12 A		
							PIR3T with socket GZT3-V0	3 CO					10 A		
							PIR4T with socket GZT4-V0	4 CO					7 A		
							PIR152T with socket PZ8-V0	2 CO					10 A		
							PIR153T with socket PZ11-V0	3 CO					10 A		
							PRUCT with socket GUC11S-V0	3 CO, 3 NO					16 A		
							PRUCT-M with socket GUC11S-V0	1 NO, 2 NO					16 A		
							MT-W...M	1 CO					10 A		
Programmable relays															
							NEED-...-08-4R-	4 NO					10 A		
							NEED-...-08-4T-	4 NO	0,5 A						
							NEED-...-16-8R-	8 NO					10 A		
							NEED-...-16-8T-	8 NO	0,5 A						
							NEED-MODBUS								

④ See www.relpol.com.pl

How to use the table and the ordering code structure - see page 4.

Electrical terminals						Coil / input	Type	Number and type of contacts / outputs	Rated current				
for PCB	for sockets	connectors	screw terminals	Push-in terminals	spring terminals				[A]	5	10	15	20
						AC		CO - changeover NO - normally open NC - normally closed					
						DC							
						AC/DC							
						bistable DC							
Installation relays													
							RPI-P-...	1 CO, 2 CO			2 CO: 8 A, 1 CO: 16 A		
							RPI-Z-...	1 NO, 2 NO			2 NO: 8 A, 1 NO: 16 A		
							RPI-1ZI-D12	1 NO			16 A		
							RPI-1ZI-U24A	1 NO			16 A		
							RPI-P-UNI	1 CO, 2 CO, 3 CO			2 CO, 3 CO: 8 A, 1 CO: 16 A		
							RPI-Z-UNI	1 NO, 2 NO, 3 NO			2 NO, 3 NO: 8 A, 1 NO: 16 A		
Bistable - impulse relays													
							RPB-1P-...	1 CO			16 A		
							RPB-1PM-...	1 CO			16 A		
							RPB-2Z-...	2 NO		8 A			
							RPB-1ZI-...	1 NO			16 A		
							RPB-1PM-UNI	1 CO			16 A		
							RPB-1ZMI-UNI	1 NO			16 A		
							RPB-2PSM-UNI	2 x 1 CO			16 A		
							RPB-2ZSMI-UNI	2 x 1 NO			16 A		
Staircase timers													
							RPC-1AS-A230	1 NO			16 A		
Time relays													
							MT-W...M	1 CO		10 A			
							RPC-.MA-...	1 CO, 2 CO			2 CO: 8 A, 1 CO: 16 A		
							RPC-.MB-...	1 CO, 2 CO			2 CO: 8 A, 1 CO: 16 A		
							RPC-2A-UNI	2 CO		8 A			
							RPC-1MC-UNI	1 CO			16 A		
							RPC-.MD-UNI	1 CO, 3 CO			3 CO: 8 A, 1 CO: 16 A		
							RPC-4ME-UNI	2 x 2 CO		6 A			
							RPC-2ME-UNI-SSR	2 x 1 NO (triac)	2 A				
							RPC-1ER-...	1 CO			16 A		
							RPC-1EA-...	1 CO			16 A		
							RPC-1ES-...	1 CO			16 A		
							RPC-1EU-...	1 CO			16 A		
							RPC-1IP-...	1 CO			16 A		
							RPC-1SA-...	1 CO			16 A		
							RPC-1WT-...	1 CO			16 A		
							RPC-.E-...	1 CO, 2 CO			2 CO: 8 A, 1 CO: 16 A		
							RPC-.WU-...	1 CO, 2 CO			2 CO: 8 A, 1 CO: 16 A		
							RPC-.BP-...	1 CO, 2 CO			2 CO: 8 A, 1 CO: 16 A		
							RPC-2SD-UNI	2 x 1 CO			16 A		
							TR4N 1 CO	1 CO			16 A		
							TR4N 2 CO	2 CO		8 A			
							TR4N 4 CO	4 CO		6 A			
							T-R4	4 CO		6 A			
							PIR15...T with time module COM3	2 CO, 3 CO			10 A		
							COM3						

How to use the table and the ordering code structure - see page 4.

Selection table

Electrical terminals						Coil / input			Type	Number and type of contacts / outputs	Rated current					
for PCB	for sockets	connectors	screw terminals	Push-in terminals	spring terminals	AC	DC	AC/DC			bistable DC	CO - changeover NO - normally open NC - normally closed	[A]	5	10	15
Monitoring relays																
										RPN-.VF-A400	1 CO, 2 CO	2 CO: 6 A, 1 CO: 12 A				
										RPN-.VFS-A400	1 CO, 2 CO	2 CO: 6 A, 1 CO: 12 A				
										RPN-.VFR-A400	1 CO, 2 CO	2 CO: 6 A, 1 CO: 12 A				
										RPN-.VFT-A400	1 CO, 2 CO	2 CO: 6 A, 1 CO: 12 A				
										RPN-.VM-A230	1 CO, 2 CO	2 CO: 6 A, 1 CO: 12 A				
										RPN-.VC.-A400	1 CO, 2 CO	2 CO: 6 A, 1 CO: 12 A				
										RPN-.VM.-A400	1 CO, 2 CO	2 CO: 6 A, 1 CO: 12 A				
										RPN-1A..-A230	1 CO	12 A				
										RPN-1TMP-A230	1 CO	12 A				
										RPN-1AT-A230	1 CO	12 A				
										MR-EU1W1P	1 CO	5 A				
										MR-EU31UW1P	1 CO	5 A				
										MR-EU3M1P	1 CO	5 A				
										MR-EI1W1P	1 CO	5 A				
										MR-ET1P	1 CO	5 A				
										MR-GU32P-TR2	2 CO	3 A / 5 A ⑦				
										MR-GU3M2P-TR2	2 CO	3 A / 5 A ⑦				
										MR-GU3M2P	2 CO	3 A / 5 A ⑦				
										MR-GI1M2P-TR2	2 CO	3 A / 5 A ⑦				
										MR-GT2P-TR2	2 CO	3 A / 5 A ⑦				
Digital clocks																
										RWT-TPD1	1 CO	16 A				
										RAT-TPA1B	1 CO	16 A				
										RDT-TPA2	2 CO	16 A				
Electric energy consumption meters																
										RLE01-2M						
										RLE03-4M						
Signal lamps																
										RLK-1.						
										RLK-3.						

⑦ 3 A - if the distance between the relays mounted side by side is less than 5 mm; 5 A - if the distance between the relays mounted side by side is greater than 5 mm.

How to use the table and the ordering code structure - see page 4.

Selection table

Electrical terminals						Coil / input	Type	Number and type of contacts / outputs CO - changeover NO - normally open NC - normally closed	Rated current						
for PCB	for sockets	connectors	screw terminals	Push-in terminals	spring terminals				[A]	5	10	20	40	60	80
						AC									
						DC									
						AC/DC									
						bistable DC									
Overvoltage arresters															
							RSP-T1T2-AC 7					20 kA			
							RSP-T1T2-AC 12.5					30 kA			
							RSP-T2-AC					20 kA			
							RSP-T2T3-AC				10 kA				
							RSP-E7.5					20 kA			
							RSP-E25					25 kA, 50 kA			
							RSP-EH					25 kA, 50 kA, 100 kA			
							RSP-T...-DC					20 kA			
							RSP-PV 50 kA					20 kA			
							RSP-PV 80 kA					25 kA			
							RSP-2L				10 kA				
							RSP-4L					20 kA			
							RSP-CL-232				10 kA				
							RSP-CL-485				10 kA				
							RSP-CL-PT100				10 kA				
							RSP-CL-TTL				10 kA				
							RSP-SLH-2				10 kA				
							RSP-SPLH-2-7A				10 kA				
							RSP-RS485				5 kA				
Power supplies															
							RZI15-...-MN			24 V: 0,63 A, 12 V: 1,25 A					
							RZI30-...-MN			24 V: 1,5 A, 12 V: 2 A					
							RZI60-...-MN			24 V: 2,5 A, 12 V: 4,5 A					
							RZI100-24-MN			3,83 A					
							RZI20-24-MSN			0,42 A					
							RZI60-24-MSN			2,5 A					
							RZI100-24-MSN			4 kA					
							RZI75-24-PN			3,2 A					
							RZI120-24-PN			5 A					
							RZI240-24-PN			10 A					
							RZI480-24-PN			20 A					
Plug-in sockets															
							GSR-01			16 A					
							GSR-02			16 A					
							GSR-03			13 A					
							GSR-04			16 A					

How to use the table and the ordering code structure - see page 4.

Type	Method of mounting			
	For PCB mounting	On panel mounting	35 mm rail mount (EN 60715)	Flat insert - faston (connectors)
Relays for electronics				
RSM850	direct	—	—	—
RSM850B	direct	—	—	—
RSM822N	direct	—	—	—
RSM954N	direct	—	—	—
RSM957N	direct	—	—	—
RM12	direct	—	—	—
RM12N	direct	—	—	—
RM32N	direct	—	—	—
RM40	direct	—	—	—
RM45N	direct	—	—	—
RM50N	direct	—	—	—
RM51	direct	—	—	—
RM53	direct	—	—	—
RM84	direct, with socket	with socket	with socket	—
RM85	direct, with socket	with socket	with socket	—
RM85 inrush	direct, with socket	with socket	with socket	—
RM85 105 °C sensitive	direct, with socket	with socket	with socket	—
RM85 ①	direct	—	—	—
RM85 faston	direct	—	—	6,3 x 0,8 mm
RM87	direct, with socket	with socket	with socket	—
RM87 sensitive	direct, with socket	with socket	with socket	—
RM96 1 CO	direct	with socket	with socket	—
RM96 1 NO, 1 NC	direct	—	—	—
RM699BV	direct, with socket	—	with socket	—
RM699BH	direct	—	—	—
RM83	direct, with socket	—	—	—
RMP84	with socket	with socket	with socket	—
RMP85	with socket	with socket	with socket	—
RMP7	—	with socket	with socket	4,7 x 0,5 mm, 2,5 x 0,5 mm
RA2 ②	direct	—	—	—
Relays for industry				
R2B-...-B latching	with socket	with socket	with socket	—
R2B-...-D latching	—	with socket	with socket	—
R3B-...-B latching	—	with socket	with socket	—
R3B-...-D latching	with socket	with socket	with socket	—
R4B-...-B latching	with socket	with socket	with socket	—
R2N	with socket	with socket	with socket	—
R3N	—	with socket	with socket	—
R4N	direct, with socket	with socket	with socket	—

① RM85 for switching higher voltages ② RA2 - automotive relays

Mounting options

Type	Method of mounting				
	For PCB mounting	On panel mounting	35 mm rail mount (EN 60715)	Cover with mounting flange - on panel mounting	Flat insert - faston (connectors)
Relays for industry					
R2M	direct, with socket	with socket	with socket	—	—
RY2	—	with socket	with socket	—	4,8 x 0,5 mm
R15 - 2 CO	direct	with socket	with socket	—	—
R15 - 3 CO	direct	with socket	with socket	—	—
R15 - 4 CO	—	with socket ④	with socket	—	—
RUC faston 4,8x0,5	direct	with socket ④ direct	with socket ④ direct ⑤	on request	4,8 x 0,5 mm
RUC faston 6,3x0,8	—	direct	direct ⑤	on request	6,3 x 0,8 mm
RUC-M	direct	with socket ④ direct	with socket ④ direct ⑤	on request	4,8 x 0,5 mm
R20	—	direct	—	standard	6,3 x 0,8 mm
RG25	—	—	direct	—	—
PI84 with socket GZT80	—	direct	direct	—	—
PI84 with socket GZM80	—	direct	direct	—	—
PI84 with socket GZP80	—	direct	direct	—	—
PI85 with socket GZT80	—	direct	direct	—	—
PI85 with socket GZM80	—	direct	direct	—	—
PI85 with socket GZP80	—	direct	direct	—	—
PI85 inrush with socket GZT80	—	direct	direct	—	—
PI84P with socket GZP80	—	direct	direct	—	—
PI85P with socket GZP80	—	direct	direct	—	—
PI71P with socket GZ71	—	direct	direct	—	—
PI71P with socket GZP71	—	direct	direct	—	—
PI72P with socket GZ72	—	direct	direct	—	—
PI72P with socket GZP72	—	direct	direct	—	—
PIR2 with socket GZM2	—	direct	direct	—	—
PIR2 with socket GZP4	—	direct	direct	—	—
PIR3 with socket GZM3	—	direct	direct	—	—
PIR4 with socket GZM4	—	direct	direct	—	—
PIR4 with socket GZP4	—	direct	direct	—	—
PI6-1P	—	—	direct	—	—
PI6-1T	—	—	direct	—	—
PIR6W-1P-...	—	—	direct	—	—
PIR6W-1PS-...	—	—	direct	—	—
PIR6WB-1PS-...	—	—	direct	—	—
PIR6W.-1P-...-10	—	—	direct	—	—
SIR6W-...	—	—	direct	—	—
SIR6WB-...	—	—	direct	—	—
SIR6W.-...-10	—	—	direct	—	—

④ Available sockets for connection behind panel mounting - GZ14Z, GZ14P ⑤ For RUC faston 4,8 x 0,5 and RUC-M, with GUC11S-V0 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC / DC ⑥ Version with adaptor (V) or (H)

Type	Method of mounting				
	For PCB mounting	On panel mounting	35 mm rail mount (EN 60715)	Cover with mounting flange - on panel mounting	Flat insert - faston (connectors)
High power relays					
RS35	direct	—	—	—	—
RS50	direct	—	—	—	—
RS80	direct	—	—	—	—
R50A	direct	—	—	—	—
R90A	direct	—	—	—	—
R30N	direct	—	—	—	—
R40N	direct	—	—	—	—
R20	—	direct	—	standard	6,3 x 0,8 mm
RG25	—	—	direct	—	—
RUC faston 4,8x0,5	direct	with socket ④ direct	with socket ④ direct ⑤	on request	4,8 x 0,5 mm
RUC faston 6,3x0,8	—	direct	direct ⑤	on request	6,3 x 0,8 mm
RUC-M	direct	with socket ④ direct	with socket ④ direct ⑤	on request	4,8 x 0,5 mm
Relays for railroad industry					
RM84	—	with socket	with socket	—	—
RM85	—	with socket	with socket	—	—
R2T	—	with socket	with socket	—	—
R3T	—	with socket	with socket	—	—
R4T	—	with socket	with socket	—	—
R15T - 2 CO	—	with socket	with socket	—	—
R15T - 3 CO	—	with socket	with socket	—	—
RUCT	—	—	with socket	—	—
RUCT-M	—	—	with socket	—	—
PI84T with socket GZT80-V0	—	direct	direct	—	—
PI85T with socket GZT80-V0	—	direct	direct	—	—
PIR2T with socket GZT2-V0	—	direct	direct	—	—
PIR3T with socket GZT3-V0	—	direct	direct	—	—
PIR4T with socket GZT4-V0	—	direct	direct	—	—
PIR152T with socket PZ8-V0	—	direct	direct	—	—
PIR153T with socket PZ11-V0	—	direct	direct	—	—
PRUCT with socket GUC11S-V0	—	—	direct	—	—
PRUCT-M with socket GUC11S-V0	—	—	direct	—	—
MT-W...M	—	—	direct	—	—
Programmable relays					
NEED-...-08-4...	—	direct	direct	—	—
NEED-...-16-8...	—	direct	direct	—	—
NEED-MODBUS	—	—	direct	—	—

Mounting options

Type	Method of mounting
	35 mm rail mount (EN 60715)
Installation relays	
RPI-.P-...	direct
RPI-.Z-...	direct
RPI-1ZI-D12	direct
RPI-1ZI-U24A	direct
RPI-.P-UNI	direct
RPI-.Z-UNI	direct
Bistable - impulse relays	
RPB-1P-...	direct
RPB-1PM-...	direct
RPB-2Z-...	direct
RPB-1ZI-...	direct
RPB-1PM-UNI	direct
RPB-1ZMI-UNI	direct
RPB-2PSM-UNI	direct
RPB-2ZSMI-UNI	direct
Staircase timers	
RPC-1AS-A230	direct
Time relays	
MT-W...M	direct
RPC-.MA-...	direct
RPC-.MB-...	direct
RPC-2A-UNI	direct
RPC-1MC-UNI	direct
RPC-.MD-UNI	direct
RPC-4ME-UNI	direct
RPC-2ME-UNI-SSR	direct
RPC-1ER-...	direct
RPC-1EA-...	direct
RPC-1ES-...	direct
RPC-1EU-...	direct
RPC-1IP-...	direct
RPC-1SA-...	direct
RPC-1WT-...	direct
RPC-.E-...	direct
RPC-.WU-...	direct
RPC-.BP-...	direct
RPC-2SD-UNI	direct

Type	Method of mounting	
	On panel mounting	35 mm rail mount (EN 60715)
Time relays		
TR4N 1 CO	–	direct
TR4N 2 CO	–	direct
TR4N 4 CO	–	direct
T-R4	with socket	with socket
PIR15...T with time module COM3	direct	direct
COM3	with socket	with socket
Monitoring relays		
RPN-.VF-A400	–	direct
RPN-.VFS-A400	–	direct
RPN-.VFR-A400	–	direct
RPN-.VFT-A400	–	direct
RPN-.VM-A230	–	direct
RPN-.VC.-A400	–	direct
RPN-.VM.-A400	–	direct
RPN-1A.-A230	–	direct
RPN-1TMP-A230	–	direct
RPN-1AT-A230	–	direct
MR-EU1W1P	–	direct
MR-EU31UW1P	–	direct
MR-EU3M1P	–	direct
MR-EI1W1P	–	direct
MR-ET1P	–	direct
MR-GU3M2P-TR2	–	direct
MR-GU3M2P	–	direct
MR-GI1M2P-TR2	–	direct
MR-GT2P-TR2	–	direct
Digital clocks		
RWT-TPD1	–	direct
RAT-TPA1B	–	direct
RDT-TPA2	–	direct
Electric energy consumption meters		
RLE01-2M	–	direct
RLE03-4M	–	direct
Signal lamps		
RLK-1.	–	direct
RLK-3.	–	direct

Type	Method of mounting			
	For PCB mounting	On panel mounting	35 mm rail mount (EN 60715)	Flat insert - faston (connectors)
Solid state relays and power controllers				
RSR25	direct	—	—	—
RSR25-...-B	direct	—	—	—
RSR30	direct, with socket	—	with socket	—
RSR32	direct	—	—	—
RSR35	direct	—	—	—
RSR35-...-RZA	direct	—	—	—
RSR35-...D8	direct	—	—	—
RSR85	direct	—	—	—
RSR86	direct	—	—	—
RSR88	—	—	with socket	4,8 x 0,5 mm
RSR88...NC	—	—	with socket	4,8 x 0,5 mm
RSR89	—	—	with socket	4,8 x 0,5 mm
RSR89...NC	—	—	with socket	4,8 x 0,5 mm
RSR45	—	direct, with heatsink	with heatsink	—
RSR52	—	direct, with heatsink	with heatsink	—
RSR54	—	direct, with heatsink	with heatsink	—
RSR58	—	direct, with heatsink	with heatsink	—
RSR62	—	with heatsink	with heatsink	—
RSR72	—	—	direct ⑥	—
RSR75	—	—	direct ⑥	—
RSR95	—	direct, with heatsink	with heatsink	—
RSR92	—	direct, with heatsink	with heatsink	—
RSR93	—	direct ⑥	direct ⑥	—
Installation contactors				
RXC25	—	—	direct	—
RXC40	—	—	direct	—
RXC63	—	—	direct	—
RIK20	—	—	direct	—
RIK25	—	—	direct	—
RIK40	—	—	direct	—
RIK63	—	—	direct	—
RXC-AX	—	—	direct	—
RIKN	—	—	direct	—
RIK21	—	—	direct	—

⑥ Relay integrated with heatsink

Type	Method of mounting
	35 mm rail mount (EN 60715)
Overvoltage arresters	
RSP-T1T2-AC 7	direct
RSP-T1T2-AC 12.5	direct
RSP-T2-AC	direct
RSP-T2T3-AC	direct
RSP-E7.5	direct
RSP-E25	direct
RSP-EH	direct
RSP-T...-DC	direct
RSP-PV 50 kA	direct
RSP-PV 80 kA	direct
RSP-2L	direct
RSP-4L	direct
RSP-CL-232	direct
RSP-CL-485	direct
RSP-CL-PT100	direct
RSP-CL-TTL	direct
RSP-SLH-2	direct
RSP-SPLH-2-7A	direct
RSP-RS485	direct
Power supplies	
RZI15-...-MN	direct
RZI30-...-MN	direct
RZI60-...-MN	direct
RZI100-24-MN	direct
RZI20-24-MSN	direct
RZI60-24-MSN	direct
RZI100-24-MSN	direct
RZI75-24-PN	direct
RZI120-24-PN	direct
RZI240-24-PN	direct
RZI480-24-PN	direct
Plug-in sockets	
GSR-01	direct
GSR-02	direct
GSR-03	direct
GSR-04	direct

Guide – relays

basic information

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Function of the relay

The relay performs two crucial tasks:

1. Galvanic separation (isolation) of the control section and switching section.
2. Switching of high-power loads with high voltage and/or current of high intensity at low energy consumption (low voltage / low current intensity) even at low electrical signals.

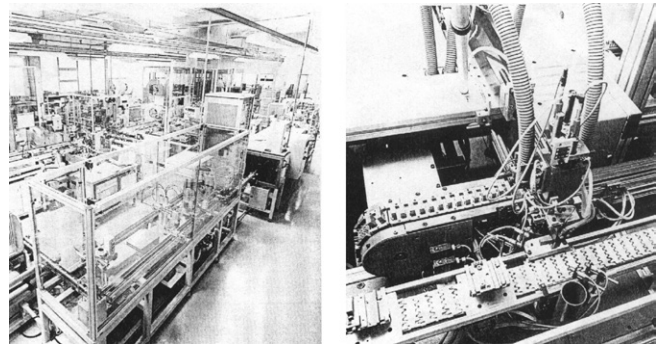
There are numerous applications of relays. Whenever satisfactory operation is needed in electronic and electromechanical conditions, a relay is necessary, e.g. for control equipment, time relays, temperature control, etc.

Main parts of the relay

The electromechanical relay consists of an electromagnetic switch and an electric one.

The former is the control section, and the latter is the switching section which is directly connected to the electrical load.

The electromagnet transforms the electrical current into a magnetic stream that generates the force which moves the switching part.



Electromagnet

Fig. 1. Classic electromagnet unit

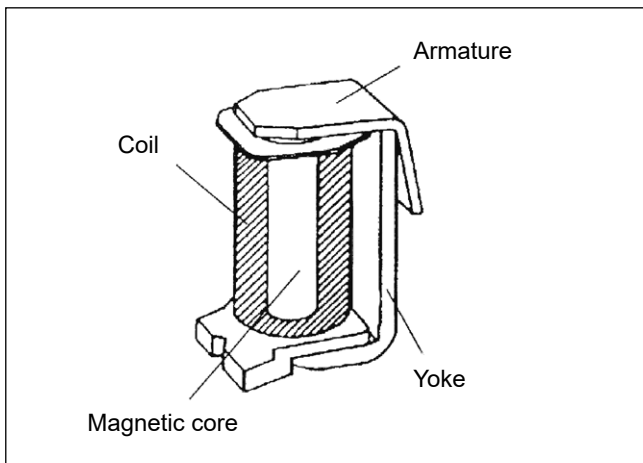


Fig. 1 shows a classic electromagnet unit which consists of four basic parts:

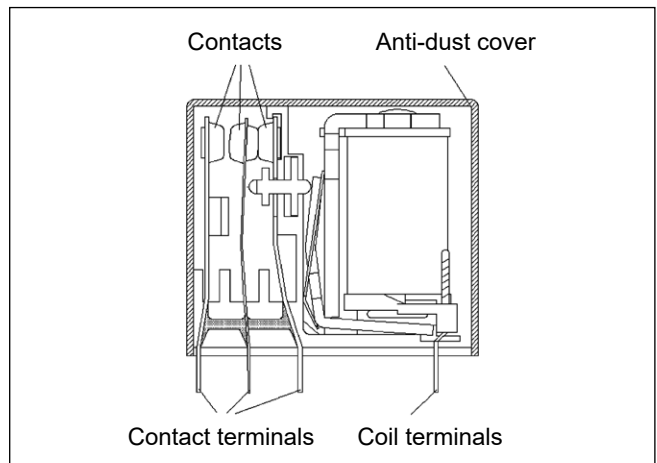
The coil which consists of one or more windings of a copper wire that is usually wound around a spool made of insulating material.

Ferromagnetic core.

Ferromagnetic yoke.

Movable ferromagnetic armature.

Fig. 2. Classic design of a relay



Additional parts:

- Fixed and movable contact springs.
- Contacts.
- Pusher.
- Mounting terminals and coil terminals.
- Contact plate.
- Anti-dust cover.

Switching section

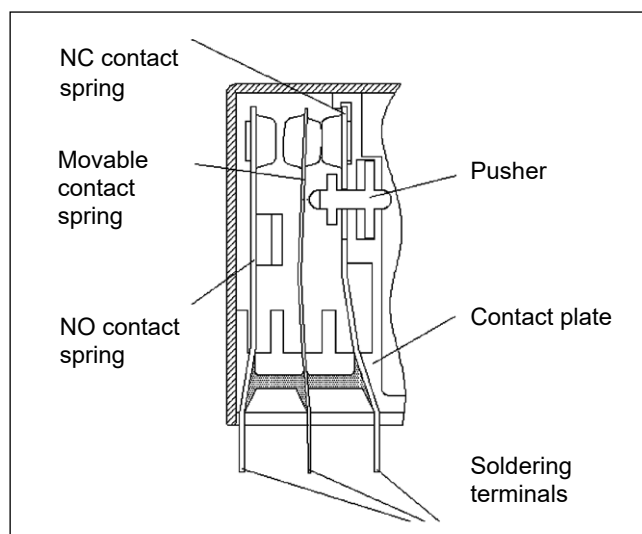
A classic arrangement of the switching section refers to a diagram of one changeover contact. It has been used in the explanation below as it is a basic diagram referred to by all other diagrams.

Fig. 3 shows the switching section of a relay with one changeover contact.

The figure presents the following parts:

- fixed normally closed (NC) contact unit,
- movable contact unit,
- fixed normally open (NO) contact unit,
- pusher,
- contact plate,
- soldering terminals.

Fig. 3. Switching section of a relay



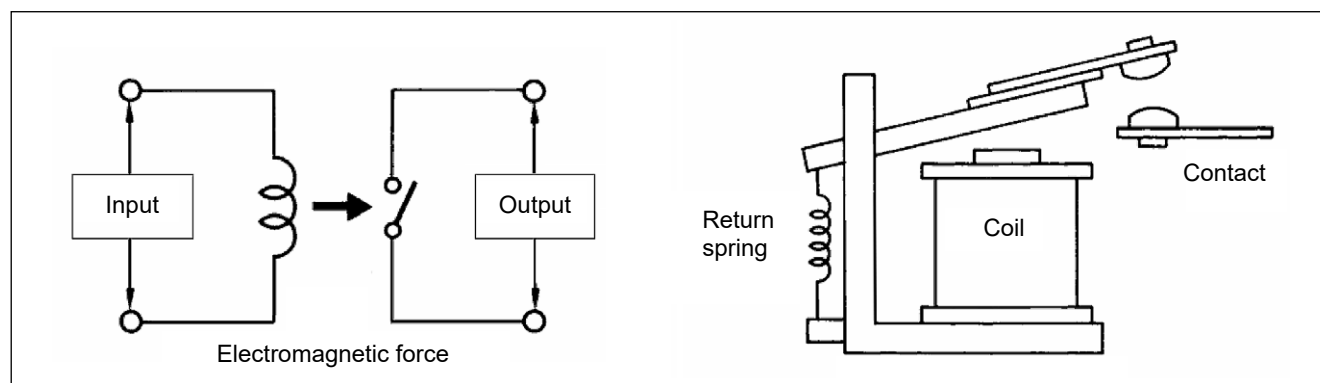
Types of relays

There are two kinds of the device, i.e. electromechanical relay and solid-state relay (SSR).

Electromagnetic and solid-state (SSR) relays

Operation of solid-state relays is very similar to that of electromagnetic relays - it consists in switching the load circuit, which is controlled with a low voltage signal of an insulated input circuit. In an **electromagnetic relay**, the electromagnetic force which moves the yoke and causes switching of the contacts

is generated when input voltage is applied to the coil. When the supply voltage is interrupted, the return spring pushes the contacts away from each other, i.e. opens the contacts and disconnects the power circuit.

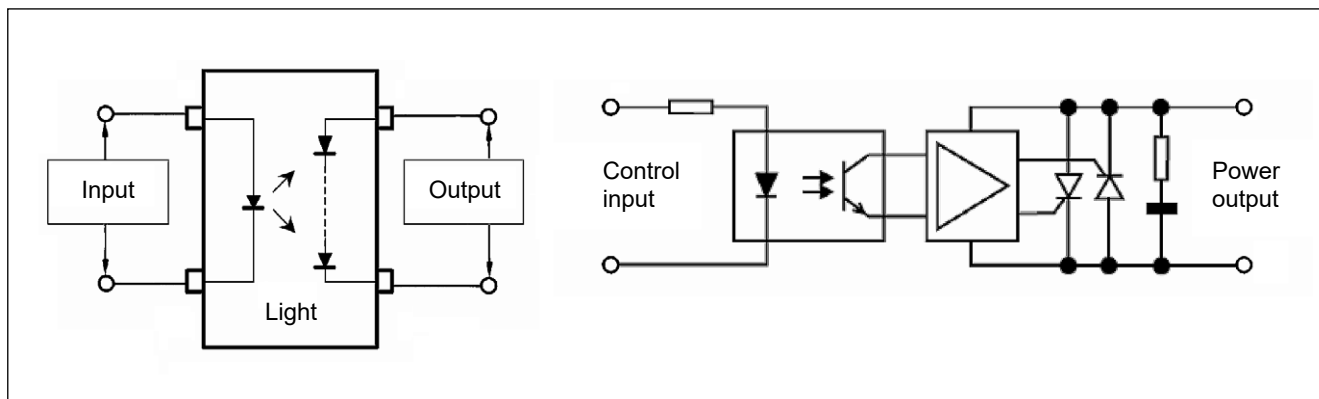


Solid-state relays use an opto-isolator to disconnect the input and output circuits. The opto-isolator changes electrical signal to optic ones and transfers them through the distance which is a galvanic insulation between the input and output sections. SSR's are electronic devices which do not have any movable parts, and the switching elements are thyristors, triacs or transistors.

The input current flows through a light-emitting diode which is usually made of gallium arsenide and it emits radiation in infrared. The diode illuminates the photovoltaic cell which generates voltage to control the output element.

In the opto-isolator, a photodiode, photo-transistor or a photo-thyristor may be the photodetector.

The opto-isolator carries both direct-current signals and alternating-current ones (analog and digital signals).



Advantages of solid-state relays:

1. Absence of movable parts due to which their operation is completely noiseless, which is of high importance in dwelling rooms, offices, etc.
2. There is no electric arc in the course of switching operation which takes place inside the semiconductor material, the function of making high starting currents, long life and reliable operation.
3. High resistance to shock, vibrations and environmental pollution.
4. No electromagnetic interference owing to completely electronic control.
5. High operation speed and high operation frequency.
6. Low power necessary to control the relay.

Disadvantages:

1. High resistance in switching on state, which causes generation of heat and necessity to use radiators.
2. Considerable voltage drop on the interface (1 - 1,6 V).
3. Sensitivity to overvoltage, necessity to use a varistor or RC circuit.

As compared to solid-state relays, **electromagnetic relays** bear the stamp of negligible small voltage drop (the contact resistance in switching state is on the average about 10 mΩ), and zero leakage current, they are also highly resistant to overvoltage. Due to the mechanical system of contacts and their wear and tear, their life is definitely shorter, and the response time is long and prevents the use of higher operation frequency. The capability of switching surge currents is also considerably smaller.

SSR's provide the possibility of switching at "zero" for resistive load and, then the voltage on the load increases gradually, which, in some cases, e.g. an electric bulb, affects significantly the period of life. This limits surge currents too.

For inductive loads, relays which switch at maximum voltage are useful - conduction occurs at supply voltage peak value, then the surge current is minimized.

Among the basic types of electromechanical relays, monostable and bistable relays should be considered separately.

I Mono- and bistable relays

Monostable relays

A monostable relay is an electrical relay which changes its status due to a supply value of the appropriate parameters and returns to the previous status when the parameter ceases or changes.

Bistable relays

A bistable relay changes its status as affected by the appropriate supply value of the appropriate parameters and remains in the changed state even after the value has ceased. Another application of the appropriate supply value is necessary for the relay to change its status again and return to the previous state.

Further classification of relays may be based upon the functions they perform, e.g. all-or-nothing relays, step relays, latching relays, polarized relays, reed relays.

All-or-nothing and step relays

All-or-nothing relays

The term identifies the relays designed for operation at the value that is:

- higher than the make value, or
- lower than the return value.

This type of relays must be supplied by a particular range of voltage (or current).

They may be energized by supply or disconnection of voltage (or current) within a given range.

Step relays

The relays have two or more rotational positions, and they move from one step to another in consecutive operations with the use of energizing pulse. They usually move the contacts with the use of cams.

Latching relays

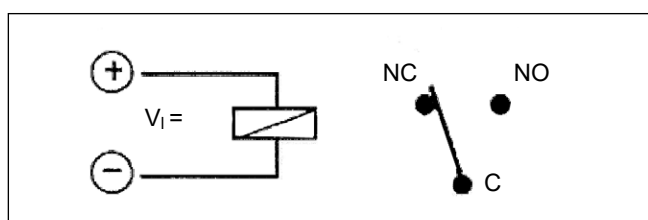
The latching relay is a non-polarized bistable relay. It changes its state at the supply value and remains in the position after the value has ceased. In order to change the state of the relay again, another actuation is necessary. The crucial part of the latching relay is the core made of special magnetic iron which remains magnetized ever after a voltage pulse has been applied. The core consists of a nickel base with aluminum, titanium or niobium added (55-85% Co, 10-12% Ni).

Function

Energizing condition: OFF state

As the wiring is supplied with a voltage pulse of direct current V_1 (selected from the recommended supply voltage range) for the duration of t_i , the electromagnetic field grows immediately, the core becomes magnetized and the relay is energized (the normally open contact closes). When the pulse declines, the relay remains in the ON state owing to the permanently magnetized core (Fig. 4).

Fig. 4. Latching relay, electrical circuit



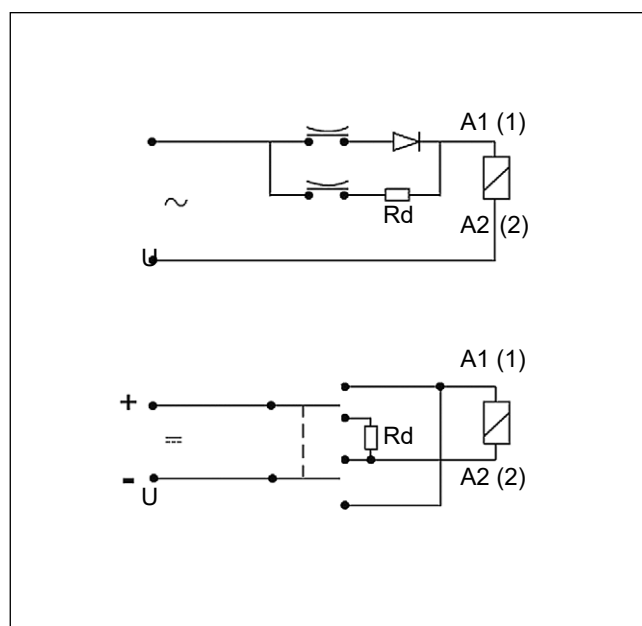
Thus, the magnetic polarization of the relay depends on the polarization of the supply voltage. The relay switches to the OFF state on supply of the voltage of the opposite polarization which changes the magnetic polarization of the core. The sole change of the supply polarization will not cause the release of the relay. This requires a change of the polarization, and the value of the energy supply must be within the range of the actuation (energizing) values.

The circuit applied

There are two different types of the latching relays:

- **single winding** latching relays with the external release resistance to limit the current intensity (Fig. 5).

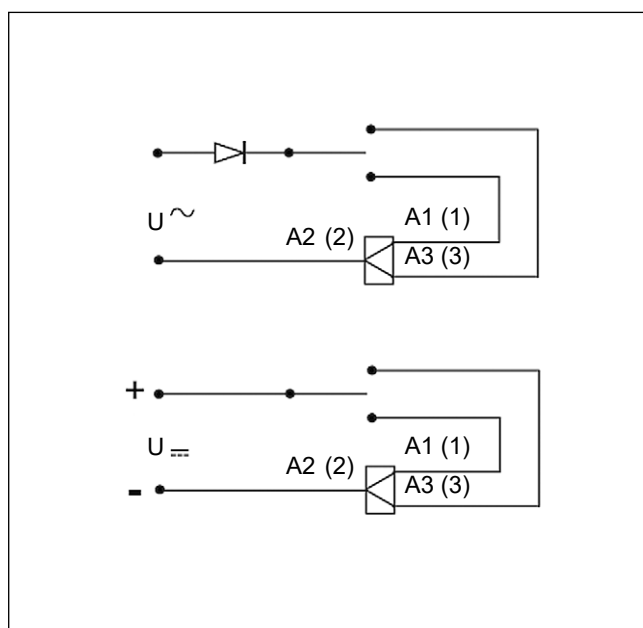
Fig. 5. Circuits with single winding latching relays



- latching relays with **two windings** and two different voltage ranges for ON / OFF operation (Fig. 6).

It is important to bear in mind that for the appropriate operation the relays require a **minimum pulse** of 10 ms. In order to avoid overheating, the maximum time of supply is usually limited, too. The aforementioned relays may also be supplied with alternating voltage owing to the external diode which rectifies the alternating current to the pulses of minimum duration of 10 ms (half of the period). The applications of latching relays are the same as the applications of the normal version relays.

Fig. 6. Circuits with two winding latching relay



Polarized relays

Polarized relay is a relay with permanent magnet which provides additional magnetic force that reduces the energy consumption. The magnetic field required for pulling the armature is partly generated by the coil and partly by the magnet.

The magnetic streams overlap. The supply value must be of the appropriate polarization, i.e. the same as the polarization of the magnet. There are mono- and bistable versions of these relays.

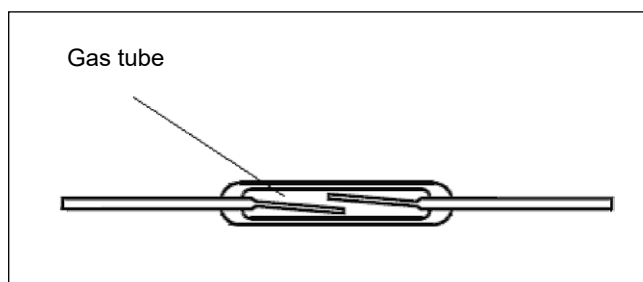
Reed relays

The remarkable advantage of the reed relays is that they are hermetically sealed and, thus, resistant to atmospheric corrosion. They are very fast (10 to 20 times faster than electromechanical relays) and at the range of the rated contact load they offer highly reliable switching operations, and extremely long life. The fundamental part of a reed relay is a hermetic glass tube, commonly called the magnetic (reed) contact.

The magnetic (reed) contact consists of two flat, ferromagnetic lap contacts of the reed relay separated by a small air-clearance, hermetically closed in a glass tube. The contacts of the reed relay are fixed to the ends of the glass tube and, thus, they serve as supports. If the free ends of the reed contacts are exposed to the magnetic field, the stream in the clearance between the reed contacts will make them cooperate.

When the magnetic field ceases, the reed contacts will part from each other as a result of the stress of the spring placed in the contacts. This way, the contacts provide an operating magnetic clearance, and they close and open the electrical circuit.

Fig. 7. Hermetic contact



Terminology

Actuation condition - in case of a monostable relay: specific status of a relay while it is supplied with a given supply value which has been energized; in case of a bistable relay: a status opposite to rest condition indicated by the manufacturer.

Actuation - change from rest condition to actuation condition.

Return - in case of a monostable relay: change from actuation condition to rest condition.

Reset - in case of a bistable relay: change from actuation condition to rest condition.

Constant operation - operation during which a relay remains actuated for the time long enough to reach heat balance.

Cycle operation - operation during which a relay performs several make cycles, where intervals of actuation and absence of actuation are defined; actuation time of the relay is such that heat balance of the relay is impossible to be achieved.

Coil thermal resistance - the ratio of increment of the coil temperature and the input power, measured after the time sufficient for achieving heat balance.

Make voltage - the coil voltage value at which the relay is actuated.

Return voltage - the coil voltage value at which a monostable relay returns to the previous condition.

Reset voltage - the coil voltage value at which a bistable relay is reset.

Normally open contact - a contact which is closed when the relay is actuated, and open when the relay does not operate.

Normally closed contact - a contact which open when the relay operates, and closed when the relay does not operate.

Changeover contact - a set of two contact circuit made of three members of which one is common for two contact circuits; when one of the circuits is open, the other is closed.

Contact gap - a gap between contacts at open contact circuit.

Making capacity - the highest value of electric current which may be connected by a contact when specific conditions are met, e.g. making voltage, number of operations, power factor, time constant.

Maximum continuous current - the maximum value of the current which may flow through a closed contact continuously in specific conditions.

Isolating air gap - the minimum distance in the air between two conductive parts or between a conductive part and exposed surface of the relay.

Isolating surface gap - the minimum distance on the surface of the isolating material between two conductive parts.

PTI - indicator of resistance to creeping current - numerical value of proof voltage expressed in Volts, which may be resisted to by the isolating material without formation of conductive tracks, defined in specific conditions of experiments.

CTI - a comparative indicator of resistance to creeping current - numerical value equal to maximum voltage expressed in Volts, which may be resisted to by the isolating material without formation of conductive tracks, defined in specific conditions of experiments.

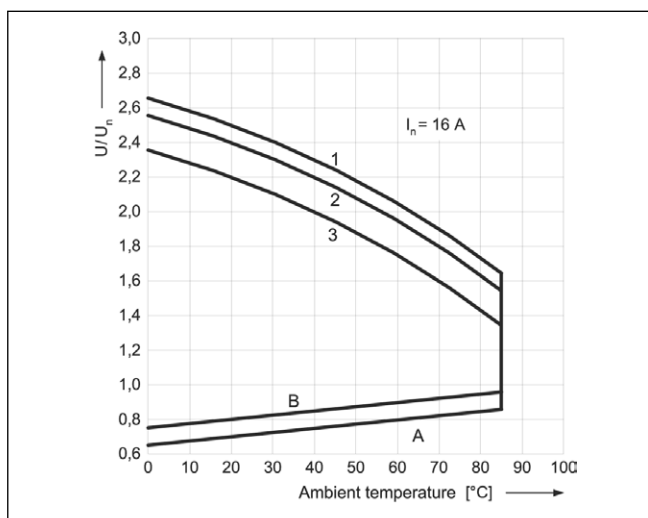
Coil operating voltage range

The admissible operating voltage range for the coil as the function of the ambient temperature is shown in the chart for RM85 relay.

The maximum operating voltage of the coil is limited by the increase of the coil temperature caused by the heating of the winding. The increase shall not exceed the admissible temperature defined for insulation materials.

The make voltage is the minimum operating voltage of the coil. The make voltage grows along with the increase of the winding temperature. Since the resistance of the copper wire changes by 0,4% per Centigrade, the growth of the coil temperature caused by a higher ambient temperature or by contact load results in the drop of the coil current and, thus, the increase of the voltage required for the relay electromagnet to operate.

Fig. 8. Coil operating range - DC



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

Coils - overvoltage protection

While using electromagnetic relays in electric circuits, it should be borne in mind that coils are the source of significant overvoltage which may disturb the operation of the equipment in which electromagnetic relays are applied. Furthermore, due to overvoltage the equipment in which electromagnetic relays are used may not meet the requirements of electromagnetic compatibility.

Relay coils have high inductance during operation, which causes a rapid increase of the coil voltage on switching off. Such a situation occurs in both DC and AC voltage coils. If, for example, the coil is switched off by a transistor, the latter may be damaged. Moreover, such pulse disturbances may affect negatively the nearby electronic systems.

Fig. 9. DC coil voltage during switching off

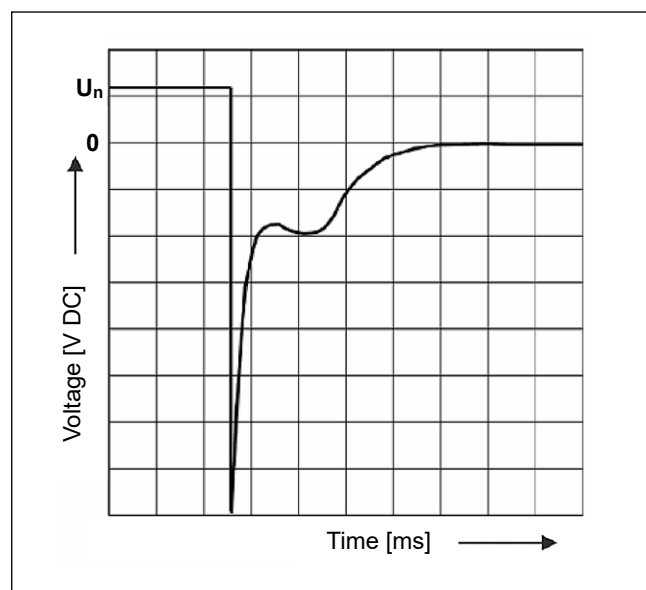
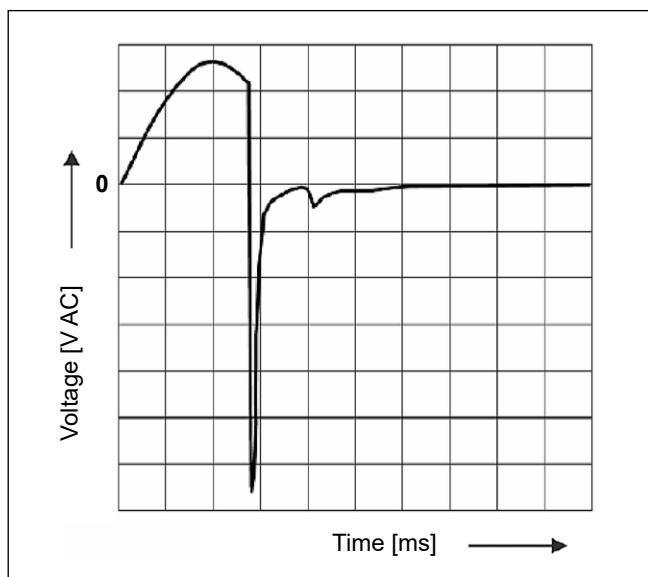


Fig. 10. AC coil voltage during switching off



For coils supplied with DC voltage, the best and simplest solution of the problem is a parallel connection of a standard rectifying diode to the coil terminals. During the current flow, the diode has a reversed bias due to the voltage drop on the coil. On switching off the coil voltage, the diode starts conducting which results in the coil voltage increase merely by the voltage drop on the conducting diode. Designers of electronic systems with electromagnetic relays practically always use suppressing diodes connected in parallel to the relay coil. The 1N4007 diode is a perfect solution in most of such cases. Diodes remove overvoltage extremely efficiently, they are a cost-effective and reliable way of suppressing coil self-induction voltage, which does not involve complicated calculations. The only weak point of the diode system is a remarkable (threefold) increase of the relay release time. The release time may be reduced by connecting an additional resistor in serial to the diode in which case, however, the overvoltage value grows while the coil is being switched off.

The **diode protection** cannot obviously be used with AC coil relays. In such cases, two types of protection are commonly used, i.e.:

- varistor protection, and
- R-C two-terminal network protection.

Metal-oxide **varistors** have similar current-voltage characteristics to that of a bidirectional Zener diode. When the voltage between the varistor terminals exceeds a given limit value, it starts conducting, and, thus, it shunts the inductive load (the relay coil) with its differential resistance. The maximum overvoltage value on switching off depends on the limit voltage of the varistor.

Furthermore, when the varistor is supplied from the mains, the varistor protects also the relay coil from being damaged by the voltage pulses that occur in the mains. The varistor protection may be also applied in DC coil relays. However, the overvoltage values on switching off are much higher than in the case of protection with the use of a suppressing diode.

Another way to limit the overvoltage values during coil switching off is a parallel connection of an **R-C two-terminal network** to the coil. The network limits the overvoltage well, it is inexpensive, and it only slightly increases the relay release time.

No ceramic **capacitors** should be used whereas it is recommended to use foil capacitors. On selection of a **resistor**, it should be taken into consideration that quite a large amount of power dissipates on it during the transition process and, thus, the resistor's power shall not be less than 0,5 W.

Relpol S.A. offers both relays with integrated **overvoltage protection elements** (diodes or varistors) and ready-to-use **overvoltage protection modules** to be mounted in plug-in sockets.

R2N, R3N and R4N relays with DC coils are also in the version with suppressing diode mounted inside the relay. However, varistors are not mounted inside these relays. Ready-to-use overvoltage protection modules of M series may be used with the relays and then the modules are mounted in GZT., GZM. and GZMB. series plug-in sockets. Modules with a diode (DC coils) or with a varistor (DC or AC/DC coils) are available.

R15 relays are manufactured solely with the overvoltage protection element integrated, i.e. with the suppressing diodes for DC coils (two-, three-, and four-pole versions) and with varistors for AC coils (two-, and three-pole versions). In the case of a suppressing diode as the overvoltage protection element, the coil supply polarization must be as follows: A1 terminal "+", A2 terminal "-". Note: the specified polarization does not refer to the relays R15 4 CO – four-pole for which the coil supply polarization must be as follows: A1 terminal "-", A2 terminal "+".

Ordering codes of the overvoltage protection elements integrated in the relays (as add-on equipment) are as follows:

- D** - suppressing diode;
- V** - varistor.

While using an overvoltage protection element, the user may be assured that the overvoltage that occurs on switching the coil off will not affect negatively the coil control circuits or any other electric and electronic circuits.

Switching section: main diagrams and mechanical solutions

There are various contact configuration diagrams related with different application requirements, i.e. normally open contacts (NO), normally closed contacts (NC) and changeover contacts. These are the basic configurations used for designing all the contact diagrams of relays. With the use of the basic contacts, many relay circuits may be built in order to apply relays successfully. The only theoretical limitations are the dimensions of relays, electromagnetic energy, switching energy and the complexity of drawings. The contact configurations available in a relay are determined by the number of poles, type of the contacts (changeover or normally open/closed), and normal position of the contacts (normally open or normally closed). In table next are listed **symbols depicting exact type of contacts**.

Contact type	Marking		
	Relpol S.A.	Zettler	USA
CO	1	C	SPDT
NO	2	A	SPST-NO
NC	3	B	SPST-NC

SP = single pole

ST = single contact (normally open or normally closed)

NO = normally open contact

NC = normally closed contact

DP = two contacts

DT = changeover contact

Other manufacturers of relays apply also different ways of defining the configuration of contacts. They may be found in catalogs and catalog cards published by the companies.

Terminals marking

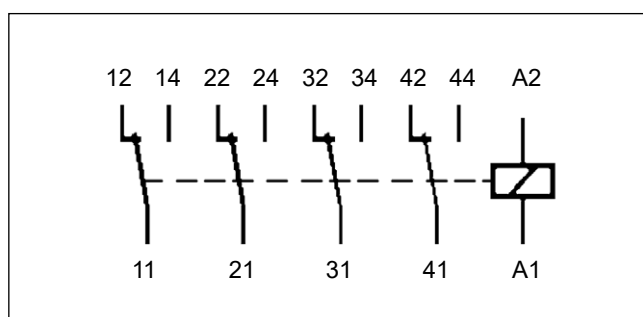
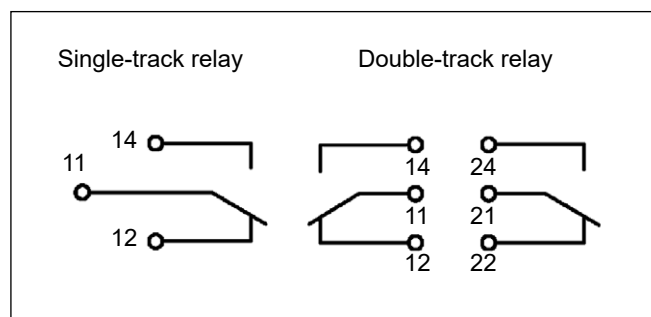
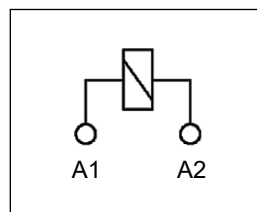
Terminals marking under Polish Standard EN 50005.

Contacts terminals are always marked numerically with two digits, where:

- the unit digit is the number of functions,
- the decimal digit is the number of sequences.

Coil terminals are always literal-numerical.

The scheme of marking of terminals of contacts and coil for a four-track relay (see below).



Contacts and shapes of contacts

Contact pressure

When two contacts come together to close the electrical circuit, they touch each other within the area that depends on the shape of the contacts. The force (N) with which the contacts push against each other as measured on the contact axis, divided by the area of the contact (mm^2) equals the contact pressure (N/mm^2). It is practically impossible to determine the real contact area as it depends also on the roughness of the contact surface. The contact pressure is determined by the contact force. In order to obtain a large contact area, the contact force must be increased so that the contact area roughness may be deformed. A low force means a few effective contact points and a small area of the contact (i.e. a high contact resistance). On the other hand, a stronger force increases the number of contact points and the total contact area (lower contact resistance). The contact force may be increased only to the limit defined by the mechanical strength of the parts and as much as it is allowed by the supply voltage sensitivity.

Manufacturers of relays use **different shapes** of contacts according to the relay designs and applications.

Fig. 11. Effect of the contact force

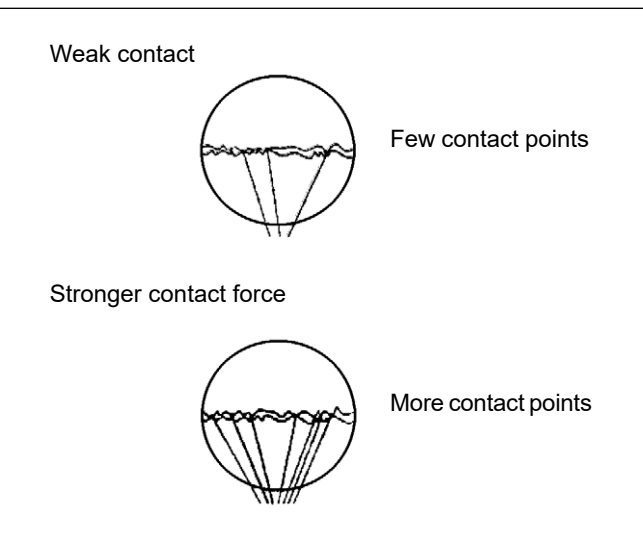
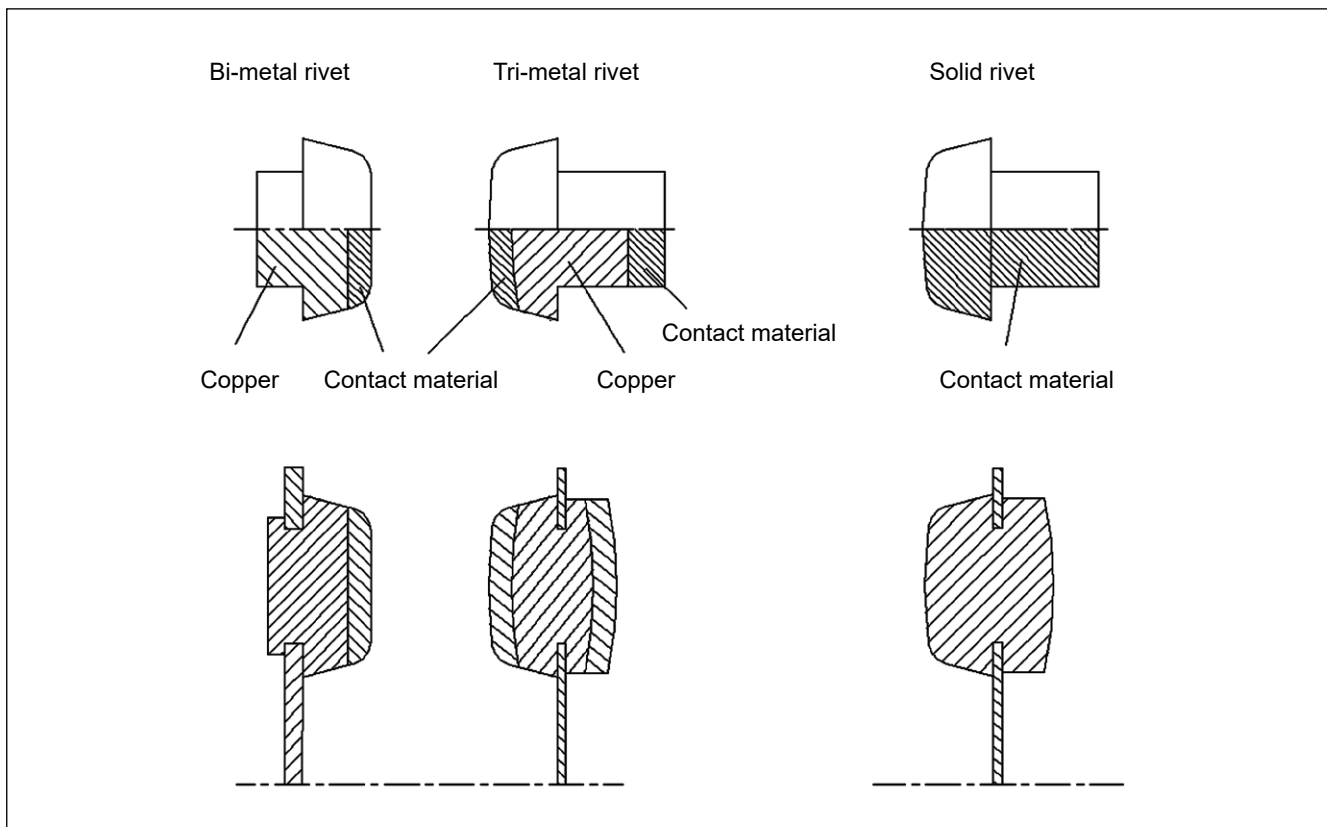


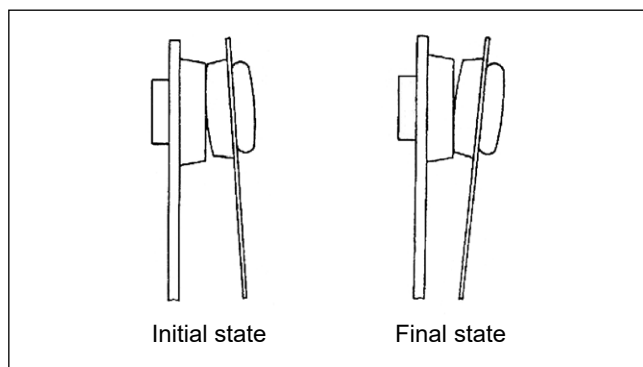
Fig. 12. Shapes of contact rivets



Cylindrical contact rivets

Cylindrical contact rivets are usually used in their bimetallic, solid or other versions, similarly to the contact parts of miniature relays owing to their optimal switching capabilities and easy assembly. Normally, the contacts are connected between the flat surface of the fixed contact and the spherical surface of the movable contact (the common contact). Principally, the common contact is a solid one whereas the fixed contacts (NC and NO, when in switching operation) are bimetallic ones (Fig. 12). The head of the central solid contact is ready to use on one side, and it is shaped during assembly on the other side. The flat-spherical connection between the contact surfaces is necessary for the reduction of the area of connection with the simultaneous increase of the contact pressure. Moreover, relative surface movement (roll) occurs then, which is useful in terms of enhanced contact performance (Fig. 13).

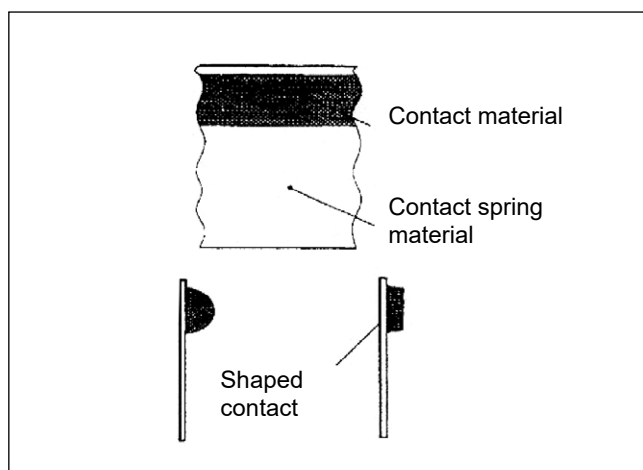
Fig. 13. Contact movement



Small-profile contact

A pressed strip of metal or contact alloy is automatically welded to the spring material prior to the cutting process. During the cutting process, the spring strip is cut together with the contacts, and the contact is formed to the required shape (Fig. 14). This solution is useful as it provides avoiding a dangerous voltage drop on the spring-contact connection. This allows the appropriate selection of the contact shape.

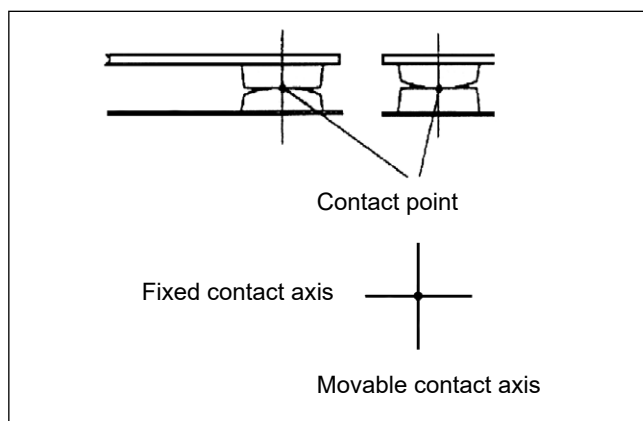
Fig. 14. Small-profile contact



Cross contacts

While using small-profile contacts it is possible to design a contact coupling with cylindrical surfaces and perpendicular axes. This way, a limited contact area and high contact pressure may be obtained. Moreover, during switching, two contacts operate like "two knives", thus maintaining a very clean contact surface.

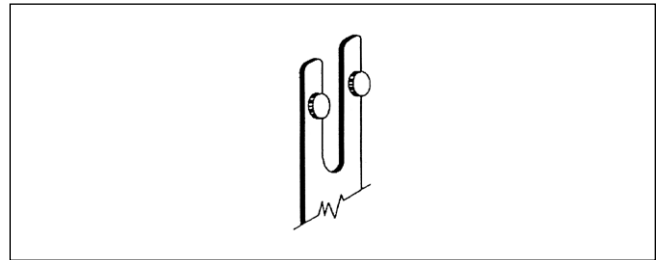
Fig. 15. Cross contact



Twin contacts

For some applications (e.g. low-level signals - safety systems), in order to enhance the contact reliability, twin contacts are used. Small-profile rivets or contacts are placed one next to another on the same forked spring (springs of fixed and movable contacts). Thus, duplication of the contact points may reduce the probability of error occurrence by half.

Fig. 16. Twin contact



Contact materials

In the issues related with switching, contact materials and special alloys play an important role, and each application requires the appropriate assessment of the electric load, ambient conditions and other information in order to make the proper choice.

Surface finishing

Precious contact materials are widely used due to their high conductivity. However, it is silver and its alloys that are exposed to the effects of the surface corrosion caused by sulfur contaminations in the atmosphere (SO_2 - sulfur dioxide). Layers of sulfur deposit on the contact surfaces, which is highly harmful

to the contact resistance. The aforementioned materials may be plated with gold or another noble metal (metals that are more resistant to corrosion and/or oxidation, i.e. platinum, palladium, etc.).

Cleaning

Cleanliness is very important for the process of relay assembly due to the necessity to keep the internal parts of relays free of dust and other particles which may affect the area between the contacts and disturb the proper course of switching operations.

That is why contacts, working parts and (in some applications) the whole relay without a dust cover are cleaned immediately prior to their enclosing.

Plastic contaminants

Due to temperature, internal parts of the relay made of plastic may produce gases and vapors. If they are not removed from the relay, they may deposit on the contact surface, which will increase the contact resistance. This is often the case in tight relays where it may appear extremely dangerous if the plastic has not been previously treated in a special manner.

The treatment consists in high-temperature degassing process in which, at low atmospheric pressure, plastics emit gases and vapors. The process ends with stabilization of the ambient pressure which allows avoiding reactions inside the relay that might occur in the presence of humidity and oxygen.

Contact resistance and influencing factors

The main function of electric contacts is to close an electric circuit to provide flow of current (I) at voltage (U). This "simple" operation requires certain special characteristics of contacts, which depend on materials, shapes, mechanical parameters, etc. When current (I) flows through an electric circuit, the circuit resistance (R) reacts against the current flow according to the following rule: $U = R \times I$

The value of R consists of two different resistances: **circuit resistance R_c and contact resistance R_r** .

Thus:

$$R = R_c + R_r \text{ and } U = I \times (R_c + R_r)$$

The dissipated power P_w in the entire circuit equals:

$$P_w = P_c + P_r = (R_c + R_r) \times I^2$$

The value of the circuit resistance R_c usually spreads evenly along the length of the circuit (cables, wires, printed circuits, etc.), and P_c dissipates in the same manner (low increase of temperature); on the other hand, however, R_r is entirely concentrated inside the relay (problems related with the temperature rise). This proves the extremely important role of maintaining the relay contact resistance on as low a level as possible. This is important in applications of both high and low power. In the first instance, there is the problem of temperature rise inside the relay whereas in the second case high contact resistance may disturb the proper operation of the device.

Question:

Find the values of power (W) dissipation in the relay contact circuit under the following circumstances:

- electric load: $I = 5 \text{ A}$, $U = 250 \text{ V AC}$,
- relay contact resistance ($m\Omega$):

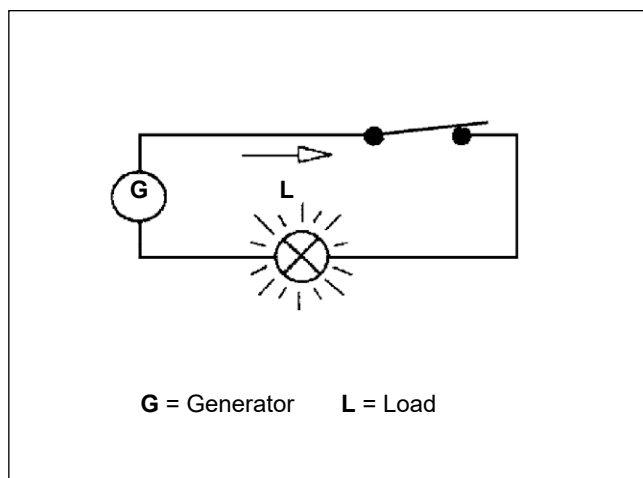
- a) $10 \text{ m}\Omega$
- b) $50 \text{ m}\Omega$
- c) $300 \text{ m}\Omega$

Solution:

- a) $R_c \times I^2 = 10 \text{ m}\Omega \times (5 \text{ A})^2 = 0,25 \text{ W}$
- b) $R_c \times I^2 = 50 \text{ m}\Omega \times (5 \text{ A})^2 = 1,25 \text{ W}$
- c) $R_c \times I^2 = 300 \text{ m}\Omega \times (5 \text{ A})^2 = 7,50 \text{ W}$

Based on the above, it may be stated that the power dissipation inside the relay reaches undesirable levels at high contact resistance.

Fig. 17. Basic circuit



Question:

Find the value of the voltage drop caused by the relay contact resistance in the next circuit under the following circumstances:

- electric load: $I = 1 \text{ mA}$, $U = 5 \text{ mV}$,
 - relay contact resistance ($m\Omega$):
- d) $10 \text{ m}\Omega$
 - e) $100 \text{ m}\Omega$
 - f) $400 \text{ m}\Omega$

Solution:

The voltage drop on the contact equals:

- d) $R_c \times I = 0,01 \times 0,001 = 0,01 \text{ mV}$
- e) $R_c \times I = 0,10 \times 0,001 = 0,10 \text{ mV}$
- f) $R_c \times I = 0,40 \times 0,001 = 0,40 \text{ mV}$

High values of resistance cause a significant percentage of voltage drop which may be dangerous in some devices. This is important because high contact resistance usually means instability of the contact resistance. In applications of low-level signals (measurements, etc.) the capability of reaction to the contact resistance is a fundamental requirement. The following factors affect the contact resistance:

- contact pressure,
- materials,
- surface finishing,
- cleaning,
- internal contaminations of the plastic relay parts.

Each individual influence must be taken into account.

Alloys and contact materials

The choice of the contact material depends on the application. The following are the most commonly used materials:

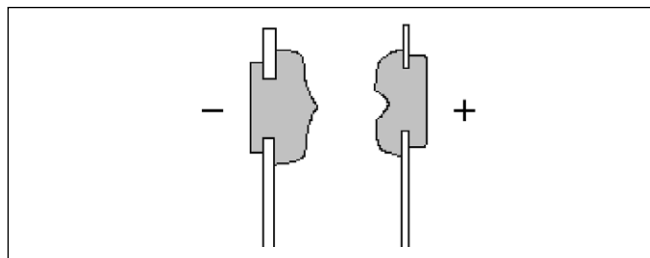
Silver Ag

Pure silver (99% Ag) is of the highest electrical and thermal conductivity as compared to any other known metal, and it proves good resistance to oxidation but it is affected by the presence of sulfur in the atmosphere. The sulfur forms silver sulfide which increases the contact resistance. In order to avoid the problem, the contact surface is plated with gold (5 μm) as the latter remains free of silver sulfide (no chemical reaction). This is a good version of the contact widely used for switching low-level loads from μV to 24 V DC and AC, and from μA to 0,2 A, and in any case with no electric arc as it might damage the layer of gold and expose silver to the harmful presence of sulfur.

Silver - nickel AgNi

The alloy (90% Ag - 10% Ni) is the most suitable one for switching DC loads and avoiding material transfer that appears at DC and at medium voltage and intensity of current (1-10 A; 6-60 V DC). This is a physical phenomenon of moving the material from one contact to the other (from cathode (-) to anode (+)). This results in quick wear of contacts and dangerous reduction of the contact clearance.

Fig. 18. Transfer of contact material



Tungsten

This is the hardest material, highly resistant to sticking. It has, however, a relatively high contact resistance. Because of these characteristics it is usually used in electric circuits where short current peaks appear, and where the material prevents the contacts from welding to each other: leading loads, motor loads, lamp loads (especially fluorescent lamps), etc. The range of applications starts from 60 V and 1 A.

Silver + tin oxide (tin dioxide) - AgSnO_2

The AgSnO_2 material is of similar properties to those of AgCdO . However, the former has a higher thermal stability and better resistance to transfer of material from one contact to the other, which provides longer life in DC applications. The AgSnO_2 contacts wear evenly and they are recommended for applications at the loads that create inrush current and at inductive loads.

The contact ratings depend to a great extent on the level of the oxide in the compound, the manufacture method and the presence of admixtures which are used by contact materials manufacturers mainly to reduce the contact resistance and to enhance the resistance to material transfer.

The AgSnO_2 material offered by Relpol S.A. in miniature relays contains a low admixture of indium oxide (In_2O_3) which is a universal material. Apart from good results achieved at lamp loads, the material performs perfectly at resistive loads and switching currents up to 16 A.

Gilding - Au

Contact gilding with 0,2-0,5 μm gold layer is usually applied in order to protect the basic material from oxidation during product storage. The protective gilding is not resistant to mechanical wear and it is quickly destroyed in course of the relay switching. Contact gilding with 3-5 μm layer of gold is used as protection from corrosion and to enhance signal circuits switching. Thick gilding provides the lack of microscopic pores, perfect resistance to corrosion and to formation of non-conductive layers.

However, gold is very soft, easily becomes mechanically worn, and its low melting point may limit the electric life of the contacts which switch high currents.

Electric life of relays

The electric life or switching capacity is expressed as the minimum number of cycles which the relay may perform at a given load and under certain circumstances. The "cycle" means a full switching operation from OFF state to ON state and to OFF state again. The electric life ends when the contacts are no longer capable of switching electric load within the range of

the contact resistance (or contact voltage drops) which stops the switching operations after it has reached a higher value (the limits depend on the application). The specifications of relays indicate the electric life as the number of cycles at rated current and voltage, and at constant frequency and ambient temperature.

For example, the electric life of the RM85 relay is:
Number of cycles: 7×10^4 at 16 A and 250 V AC - 50 Hz, resistive load, 600 cycles/hour - ambient temperature 85 °C.

In practice, customers require electric life also at lower values of current intensity. Thus, on the basis of tests, the curve of electric life is defined and the curve shows the dependence of electric life (number of cycles) on switching capacity (Fig. 19).

Inductive loads cause high contact wear which reduces the relay life. The reduction has been defined on the basis of tests, and it is expressed as the correction factor for resistive electric life (depending on the load power factor) which should be used to define the projected life.

Question:

What is electric life of the RM85 type relay for the following electric load: 8 A / $\cos\phi = 0,4$ / 250 V AC; 600 cycles/hour. The chart in Figure 19 shows that the projected life is approximately 150 000 cycles at resistive load (cosine = 1).

The chart presented in Fig. 20 proves that at the cosine power factor which equals 0,4 the correction factor is 0,7. Thus, the projected electric life under the aforementioned conditions is $150\,000 \times 0,7 = 105\,000$ cycles.

Fig. 19. Chart of electric life of a relay

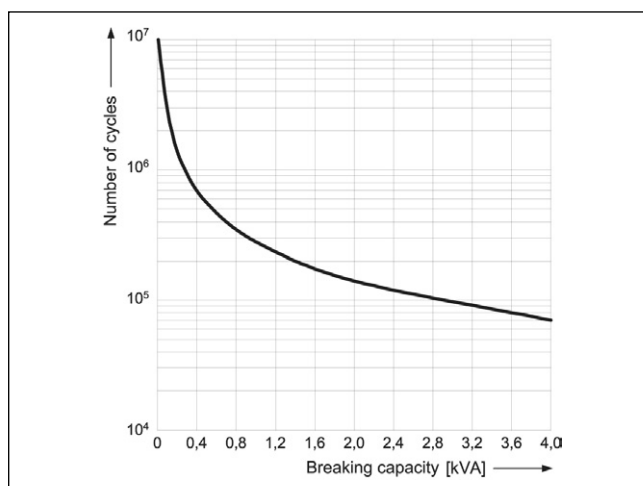
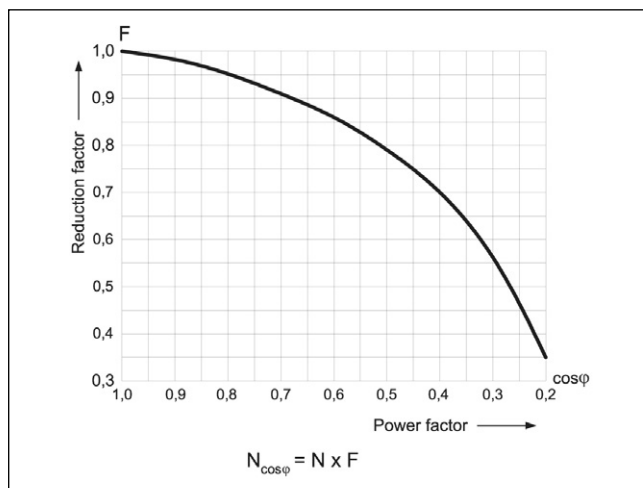


Fig. 20. Ratio of correction coefficient to power coefficient



Reliability

Charts of electric life of a relay in the function of load power are useful in estimating the reliability parameters. The value found in such charts may be used for defining the statistical parameter of B10 life, i.e. the number of cycles following which 10% of the relays population will fail. Electromagnetic relays are unreparable elements and, thus, any damage to them

in a device means the necessity of replacement. Given the frequency of operations of a relay in a device and the number of cycles defining its life, the mean time to failure (MTTF) may be estimated, which may then be used for calculation of MTBF for the device.

Switching at alternating and direct current

Various problems occur at switching AC and DC loads of high power, and various aspects shall be taken into account in order to understand the nature of the phenomenon. In AC current circuits (of the frequency approx. 50 - 60 Hz), the relay contacts may open in two possible states of the operating voltage due to the course of the voltage and the phenomenon of the electric arc (see Fig. 21).

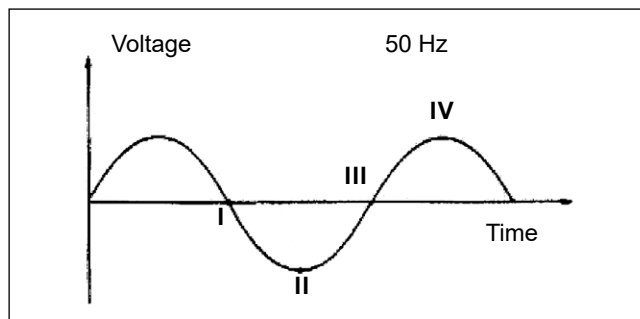
Switching at point I:

Voltage value is close to zero.
No electric arc occurs.

Switching between points I and II:

There may be two situations in which the voltage grows or drops. In both cases, arc discharge occurs but it is suppressed due to the transfer of the voltage via the zero value. The electric arc discharge depends on the voltage value, contact clearance, current intensity, shape of contacts and on materials. Due to

Fig. 21. Switching states (I, II) at the frequency of 50 Hz of alternating current



these reasons, in miniature relays there are physical limits related to the above parameters, which reduce the maximum AC switching voltage to approximately 380 V. The inductive loads of AC are worse as compared to the resistive loads due to contacts wear since the load inductance grows and, thus, a constant arc appears together with its harmful effects.

Arc breaking

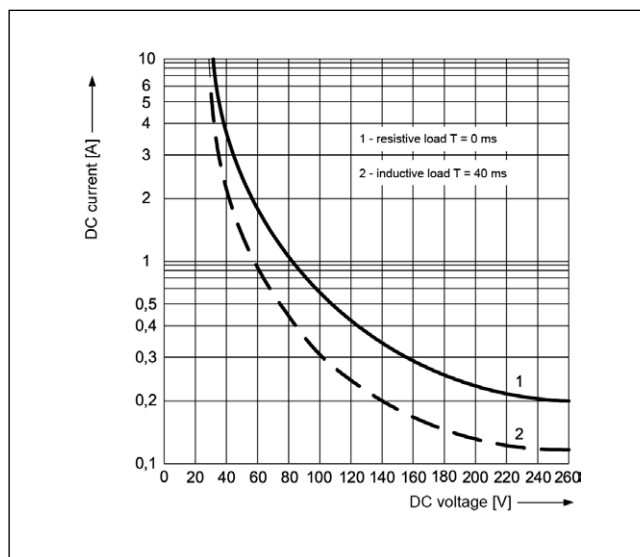
In DC devices, the arc breaking is a crucial problem because the voltage does not transfer via the zero value as it does at alternating current. Thus, when the electric arc appears, only the contact clearance and the properties of the contact materials contribute to the arc suppression. Relays usually have a physical limit that depends on the above parameters which make the relays incapable of switching the load at current intensity and voltage higher than the specified values. The values are expressed in the form of a curve which defines the maximum switching energy ($U \times I$) at the constant time value L/R of resistive and inductive loads while L (inductance) is expressed in henries and R (resistance) in ohms.

L/R is principally expressed as a value that equals 40 ms (milliseconds) for inductive loads, i.e. a mean value for devices.

Example (Fig. 22):

The maximum admissible switching intensity of direct current for the R3N relay at 230 V DC at resistive and impedance loads are 210 mA and 120 mA respectively. The values assure the arc suppression. Suppressing circuits are also useful for alternating current devices.

Fig. 22. Maximum switching capacity at direct current



Suppressing circuits

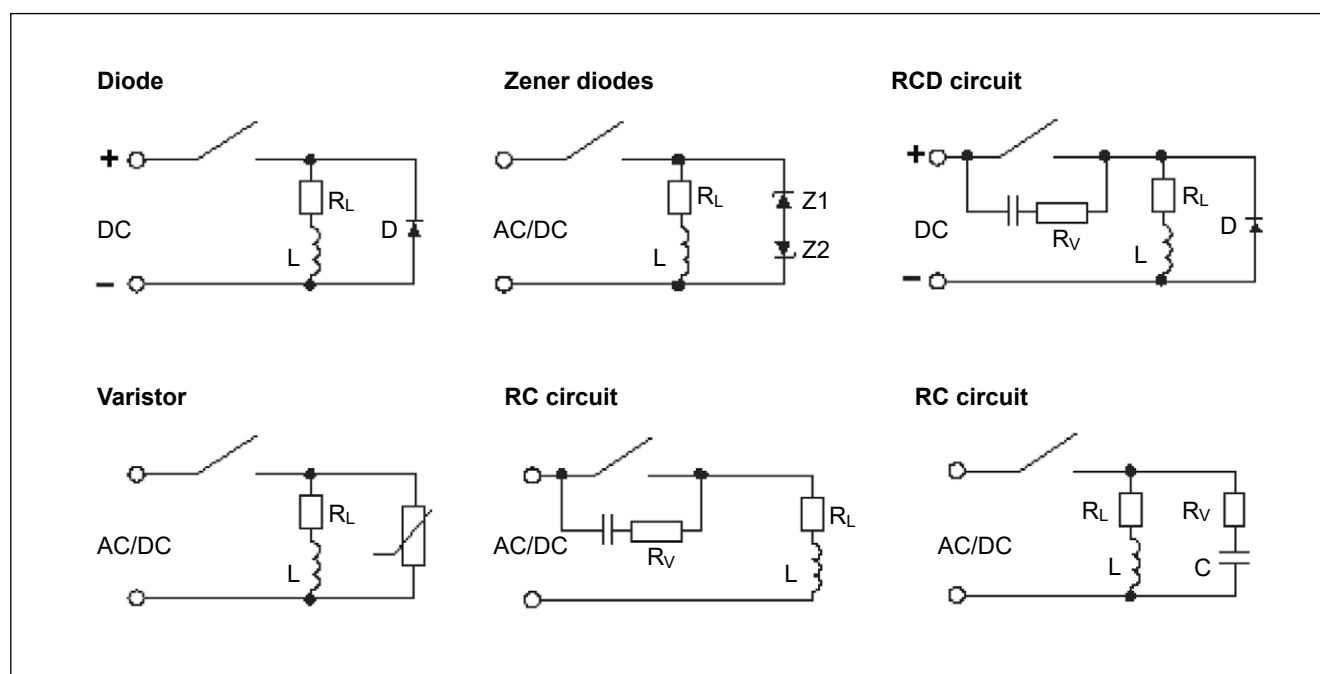
In order to protect contacts against their damage by electric arc, protection circuits are used which are fitted in parallel to contacts of the relay or to the load. Appropriate suppressing elements may also be connected both to the contacts and the load.

The most common method of arc suppression in DC circuits is using a **diode** in parallel to the load. This is an efficient and cost-saving solution applicable at various values of the load. The inverse voltage of the diode should be at least 10 times higher than the rated voltage of the circuit, and the conduction current should be equal to or higher than the load current. It

must be emphasized that diodes prolong the time of switching off the relay considerably, which delays opening of the contacts and this is conducive to their burnout.

In order to decrease the effect of the arc suppressing circuit, on switching off the load, **two Zener diodes** may be used instead of the diode parallel to the load. In such a circuit, the inverse voltage is limited by Zener diode do the regulated voltage. The breakdown voltage of the Zener diode must be higher than the supply voltage of the circuit. The disadvantage of this solution is its lower effectiveness and higher cost.

Fig. 23. Protection circuits



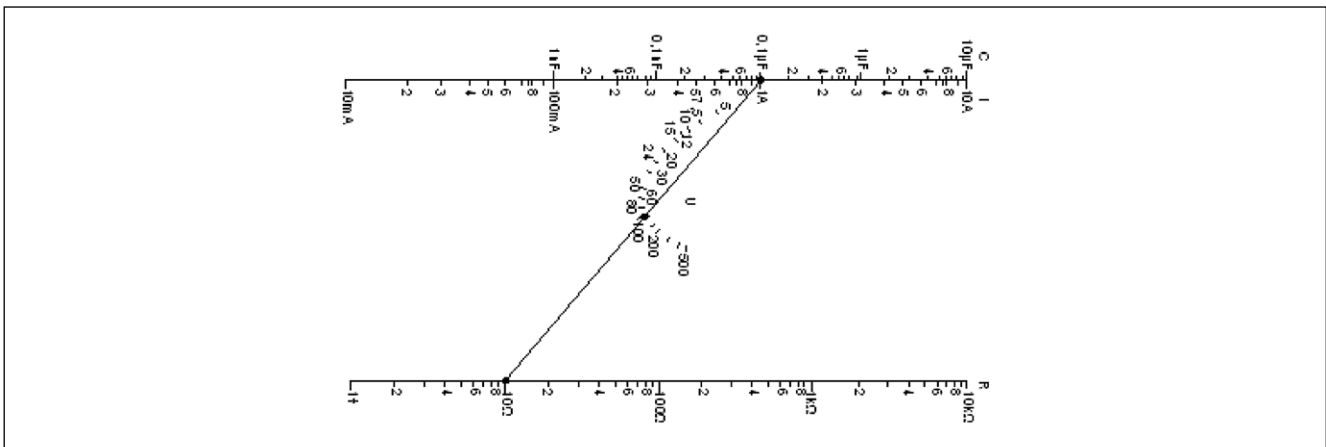
A **varistor** is another protection element of current-voltage characteristics similar to Zener diode. For low voltages it shows high resistance and, then, it is practically disconnected from the circuit whereas when the voltage exceeds certain voltage, characteristic for the given varistor, its resistance decreases quickly and, then, it shunts the inductive load with its internal resistance.

Unlike diode and varistor circuits, **RC circuits** may be connected in parallel both to the load and to the contacts of the relay. When the contact opens, the capacitor connected in parallel starts charging itself and its voltage grows at the time constant of R and C values.

This helps to maintain low voltage on the relay contacts and, thus, diminish the effect of the electric arc. When the contact closes, the capacitor connected in parallel to the capacitor consists limitation of current. Thus, the RC circuit optimizes all the intermittent processes in the course of opening and closing of the contacts. At AC voltages the load impedance must be lower than the RC circuit impedance.

In order to enhance the effectiveness of arc suppression in direct current circuits of high inductiveness of the load, **RCD circuits** may be used, where the RC element is connected in parallel to the relay contact and the diode - in parallel to the load.

Fig. 24. Nomogram for defining optimal values of R and C



Special loads

Bulb load

Closing of the contact with bulb loads (a lamp with tungsten fiber) causes problems due to high current peaks related with the low resistance of the fiber when it is cold. For example, a 60 W - 220 V AC bulb has the "cold" resistance of approximately 60 Ω which corresponds with a current intensity of 3,66 A (for a few milliseconds). On the other hand, the current intensity of a hot bulb is 0,273 A (the ratio is then 1:15). This

illustrates the high load that occurs on the contacts during the bulb switching (a hazard of contact welding or sticking).

The following must be taken into account for bulb load switching:

- maximum load of the bulb,
- contact material.

Motor loads

The motor loads are inductive loads which operate in a particular manner while switching on. A current peak occurs as a result of the motor inertia which is related to the mechanical load used in the motor, and which in the starting phase is 5-10 times higher than the current in the steady state. Furthermore, when the motor is being switched off, harmful action related with inductive loads occurs. Thus, the correct choice of contact material is related with the aforementioned load

characteristics, especially when the capacitor is connected to the motor. In such particular cases, the contacts are made of tungsten and AgSnO_2 . The power of electric motors is expressed in kW or in some countries that do not use the metric system in HP (horsepower); 1 kW = 1000 W and 1 HP = 745,69 W.

Example: R15 relay - the rated motor power of the contact is 1/2 HP.

Capacitance loads

This is the worst contact load as for switching on due to a sudden increase of the current intensity peak which occurs when the capacitor is discharged (a phenomenon similar to a short circuit). The current intensity at the peak to be switched on may reach the values of hundreds of Amperes in a very short time (microseconds).

The problem of contact welding may be avoided in two ways:

- via using the AgSnO_2 contacts,
- via reduction of the current intensity peak by introduction of a resistor to limit the current.

The same problem occurs at contacts closing with a charged capacitor, i.e. a rapid discharge occurs.

Switching time and contact bounce

On the relay coil supply during opening and/or closing, the operation lasts in time depending on the electric and mechanical inertia of the parts. The delay between the coil supply

impulse and the preset closing and/or opening of the contacts is the sum of the effect of the electromagnetic system and the switching section.

Electromagnetic system

The current flows through the coil with the delay caused by the coil inductance which resists to the current stream. Further-

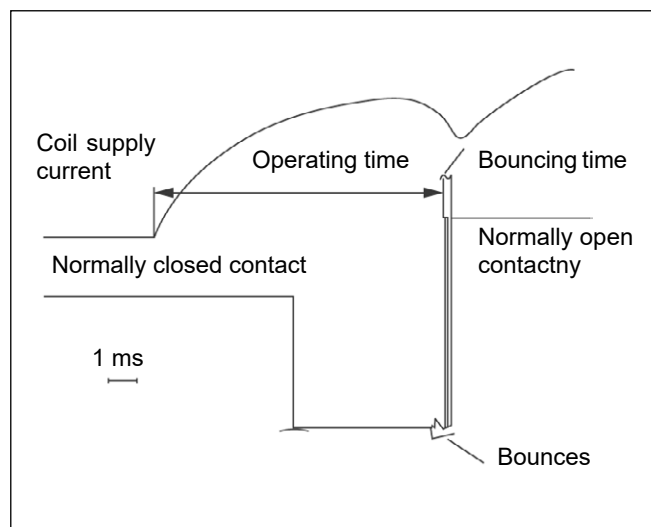
more, the movable parts such as the armature and the pusher react to the movement due to the action of the magnetic stream.

Switching section

The elastic forces stored in the contacts and springs, and their elastic strain, react to the movement of the relay parts. The phenomenon is also affected by the inertia of the contacts mass. The delay times of the miniature relays usually reach the value of a few milliseconds (5-15 ms) during the switching

phase. During the release phase the operating time is shorter due to the absence of the magnetic circuit delay. It is really so that on removing the supply voltage from the terminal, the current that flows through the coil wire stops suddenly and the relay is released with the elastic energy stored in the contacts.

Fig. 25. Switching time

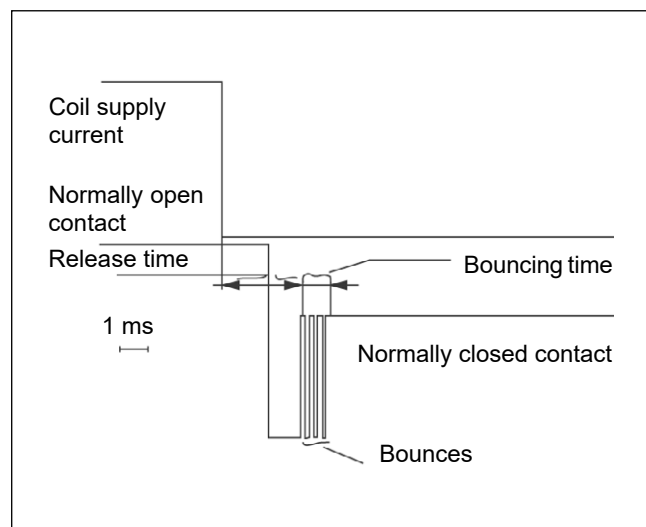


The **operating time** of an inactive relay is the time interval from the moment of the supply of the voltage to the relay coil to the time of the first closing (or opening) of the contact.

If the relay has more than one contact, the time of closing (or opening) of the last of the contacts is taken into account.

The operating time includes the time of opening the normally closed contact and the time of closing the normally open contact.

Fig. 26. Release time



The **release time** of the active relay is the time interval from the absence of the supply voltage to the first opening (or closing) of the contact.

If the relay has more than one contact, the time of opening (or closing) of the last of the contacts is taken into account.

The release time includes the time of opening of the normally open contact and the time of closing the normally closed contact.

Bouncing

In the phases of switching and release, when the contacts close, they never perform the operation at the same time but the clash between two contacts makes the contacts bounce.

The "contact bouncing" cause constant closing and opening of the contacts. This particularly affects the contact ratings such as electric life and signal switching.

Sinusoidal vibrations

The electromechanical relay is strongly affected by dynamic phenomena which may change its projected characteristics constantly or temporarily. The devices in which vibrations occur must be thoroughly tested so that we might find out the quality and essence of the stress. Machine tools, automotive devices, assembly machines, and principally every instrument in which the electronics of the drive is affected by the presence of movable parts (motors, vibrators, valves, etc.), may be exposed to the consequences of the problem. Relpol S.A. usually tests the relays via exposing them to sinusoidal vibrations at the constant acceleration (G) within a particular range of frequency. Moreover, the relays are tested along the main axes (x, y, z) and in two basic directions for each axis. As a rule, the relays are tested with the printed circuit board mounted (sockets, materials, etc.).

The tests are made in two stages, i.e. resonant test and fatigue test. The relays are tested at the states where the coil voltage

is on or off. The contact continuity is monitored with an oscilloscope at a low-level load on the contacts. The test allows defining of the frequency range [Hz] and maximum value of the acceleration, at which the relay may operate with no loss of contact continuity (interval of 10 μ s) or without any durable damage. The standard values (which meet the requirements of a wide line of devices) for miniature relays reach 10 G at the frequency range from 25 to 100 Hz. The values refer to the worst case which usually occurs in the most critical test conditions (the relay with no supply in a given axis of vibrations). For tests at a low frequency range (a few hertz), instead of the constant acceleration, a constant movement is simulated which corresponds with a given value of acceleration (e.g. from 10 to 25 Hz for the amplitude of 2,5 mm). The tested frequency at which the constant movement changes into the constant acceleration is called the "transition frequency", e.g. at 55 Hz 10 G it corresponds with 1,5 mm.

Current surges

The maximum value for miniature relays is 10 G for maximum peak acceleration and 11 ms of the impulse duration. As for the sinusoidal vibrations, the sample shall be subject to an ohm test for surge both at the ON and OFF states within the arrangement

of the three main axes (x, y, z), in two basic directions for each axis. Three surges shall be applied to each state. The tested relay shall not open the contacts (10 μ s interval), and it must operate perfectly at the end of the test.

Hermetic relays - soldering and cleaning

The necessity to use tightly closed and hermetic parts in devices arises from two different reasons, i.e. protection of the internal parts (contacts, mechanisms, wires) from penetration

of the stream in the process of soldering and cleaning, and protection of the internal parts from atmospheric contamination.

Relay handling during PCB assembly, soldering, cleaning and PCB coating

Handle the relays carefully. Any hitting the relay or dropping of the relay, even from a small height onto a hard surface generate very strong mechanical shock, can cause permanent damage, change of mechanical parameters and improper operation. If the relay has fallen, we recommend you reject it and apply a new one.

Mounting the relay: bending the relay pins is forbidden because it can damage the relay.

Manual soldering: soldering iron power max. 60 W, max. iron tip temperature 360 °C, soldering time max. 3 s. Exceeding the given process parameters may damage the relay.

Flux application: it is recommended to use modern fluxes (no-clean type) to eliminate the need to wash the PCB after assembly. Be careful careful when applying flux. Make sure that the flux is applied in the minimum necessary amount, only from the bottom of the PCB on the pin side and does not flow onto the top of PCB. Failure to follow this precaution may result in damage the relay.

Wave soldering: applies to relays with protection class RTII and RTIII. The level of solder wave should be set so that it does not overflow onto the surface of the PCB. The solder temperature must not exceed 270 °C and the soldering time must not exceed 5 seconds. During pre-heating, the temperature on the component side should not exceed 100 °C. After automatic soldering, the PCB with the relays should be cooled down before the washing operation. The cooling speed should not exceed 5 °C/s to not damage the relay sealing due to thermal shock.

The PCB cleaning process: is only allowed for relays with RTIII protection class with a closed vent hole. Avoid cleaning in a cold liquid immediately after the soldering process because thermal shock causes the relay to become unsealed as a result of the pressure difference and the cleaning liquid and/or flux can get into the relay inside. The penetration of the flux into the relay inside may result in sticking of the armature or contamination of the contacts, which leads to incorrect work of the product. Additional care should also be taken to avoid penetration of the liquid inside the relay - too high washing pressure can damage the sealing of the relay. Recommended cleaning solvent temperature max. +40 °C.

It is forbidden to wash in ultrasonic washers, it may cause damage to the coil or welding contacts as a result of ultrasound.

It is recommended to use alcohol-based or aqueous cleaning solvents for PCB cleaning. When using other cleaning solvents, the user should ensure that they do not have a negative impact on the materials from which the relay is built. Unsuitable cleaning solvents include: acetone, ethyl acetate, solutions based on solvents or chlorine.

Application of conformal coatings: applies only to relays with RTIII protection level. Conformal coatings for unsealed relays (including relays with RTII protection level) should not be used. The materials for conformal coatings should be carefully selected - some materials are chemically active and have a destructive impact on the relays, eg. they can penetrate inside the relay or damage the relay seal, cause the relay to malfunction. Avoid silicone-based coatings.

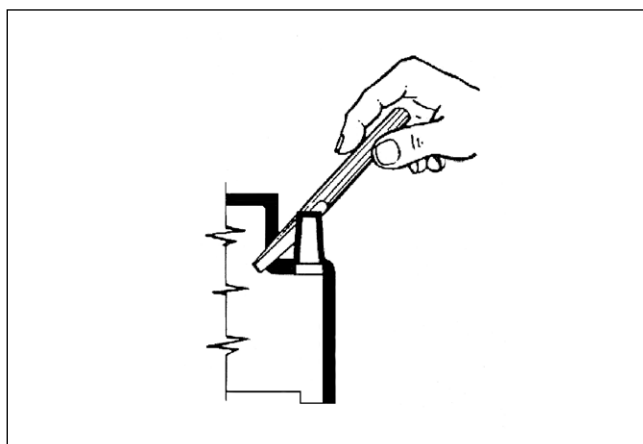
Environmental contamination

The environment of the relay may adversely affect its operation. Humidity, industrial air, dust and particles that penetrate the inside of the relay may affect the contacts, internal parts and isolation. The environmental conditions in which the relay and the device will be used shall be analyzed in order to avoid such problems as resistance growth and corrosion of the metallic parts.

If the ambient conditions are not arduous and/or the electric load of the contacts is not critical (cleaning presence of the arc), it is better to open the relay following the soldering and cleaning processes to allow the useful exchange of the air with the external atmosphere.

What is important for the thermal exchange (high switching power) is the gas emission caused by the electric arc and the residual contaminations with plastics. As explained before, the process of sealing the relay includes degassing of plastics, filling the relay with inert gas (nitrogen), and the process of label closing or other methods.

Fig. 27. Opening of the relay



Lead-free soldering

Eliminating of the lead used in the solders required both changing of the material and the production process which had to be adapted to different properties of the lead-free materials. The differences between the physical properties of lead alloys and their lead-free equivalents available on the market are significant and, thus, the applicable features of soldering alloys shall be thoroughly considered, and the flux must be precisely selected in order to provide optimal conditions for the process. Generally, lead-free alloys have slightly higher melting point, higher surface tension and lower moistening than SnPb. This may cause production problem, i.e. damages to components due to thermal impacts, deforming of the PCB's, flux splashes, extending of the operation time to good joining, deforming of plastics, etc.

Sn97Cu3 and Sn99Cu1 are good materials for soldering internal elements and for covering the terminals. They are modern alloys widely applied in electronics owing to their good physical properties. They are also a good and popular alternative for Sn60Pb40 and Sn63Pb37.

In order to provide good tin-plating and soldering of the terminals, it is important to select appropriate flux. Higher melting point of lead-free alloys results in higher oxidation and lower moistening and, thus, appropriate flux must be selected and its quantity shall be adapted to the temperature profile of the process. Too much heat delivered may cause evaporation of flux before it moistens the solder, and use of stronger, aggressive fluxes in higher quantities may require introduction of the operation of washing away the residues of the soldering process.

Types of relay terminals

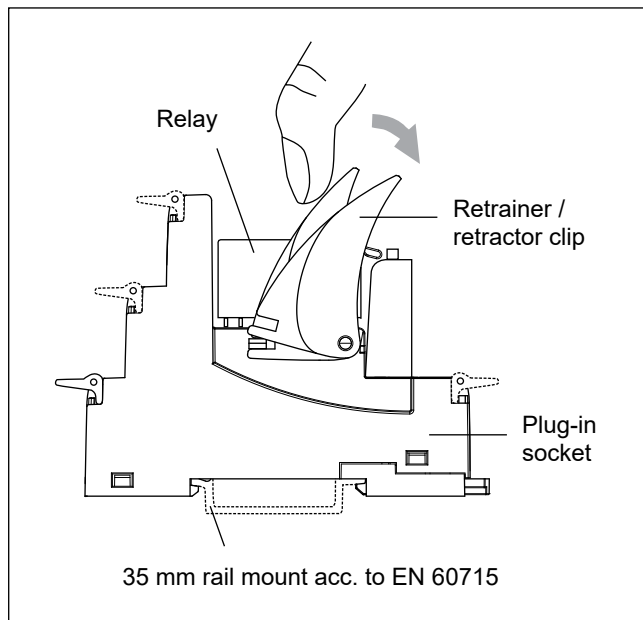
Surface mounted terminals (SMT)	
THT mounted terminals	
Terminals to solder wires and for sockets	
Terminals for flat slide-in (faston) connections	

In miniature relays of high power to be mounted on printed boards universal terminals are made so to provide fitting the relays also in sockets mounted **on 35 mm rail mount**. Then, relay terminals are connected to wires with screw terminals of the socket. This allows mounting miniature relays on a mounting board and enhances technical service of the device. Sockets are fitted with retractor / retractor clips which facilitate dismounting of the relay and, when it is mounted in the socket, the lever serves as a reliable latch which secures the relay on the mounting board.

Electrical connections to voltage and current sources are made with appropriate joints and wires of cross-sections specified in the table aside.

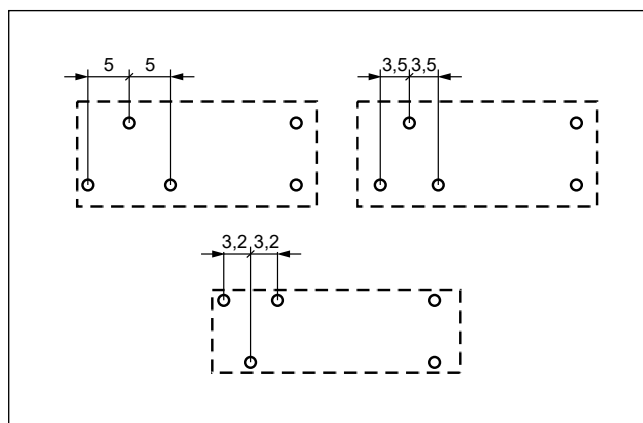
While mounting relays **on printed boards**, the openings on the board must match the raster of the relay terminals and have appropriate diameter, which shall enable its easy connection. Otherwise, terminals may be bent, contacts deformed or the cover tightness may be disturbed. Printed paths from the relay contacts should be as wide as possible, which results in lower losses in the course of current flow and good removal of heat from the contacts. For the purpose of providing good insulation strength, it is necessary to arrange the circuits appropriately on the board and to apply protection mask.

Fig. 28. In course of mounting of the relay in the socket, the clip functions also as a relay protective latch.



Current flowing via terminal [A]		Wire and stranded conductors
above	including up to	cross-section [mm ²]
–	3	0,5
3	6	0,75
6	10	1
10	16	1,5
16	25	2,5
25	32	4
32	40	6
40	63	10

Fig. 29. Typical rasters of terminals of miniature relays



The table shows various **limiting currents** of printed circuits of different thickness of the copper layer and with various conducting paths.

Load current [A]	Width of the copper printed path [mm]			
	Copper thickness 70 µm		Copper thickness 35 µm	
	Single-side path	Double-side path	Single-side path	Double-side path
16	8	5	inadmissible	inadmissible
14	6,5	4	inadmissible	inadmissible
12	5	3	7,5	5
10	3,5	2	6	4
8	2,5	1	4	2,5
6	1,5	is not applied	2,5	1,5
4	1	is not applied	1,5	1
2	0,7	is not applied	1	is not applied

International standards

Relays manufactured by Relpol S.A. are designed and tested in compliance with the requirements of the following international standards:

EN 61810-1 Electromechanical elementary relays. Part 1: General and safety requirements.

EN 61810-7 Electromechanical elementary relays. Part 7: Test and measurement procedures.

EN 60664-1 Insulation coordination for equipment within low-voltage systems. Part 1: Principles, requirements and tests.

EN 61812-1 Adjustable time relays for industrial purposes - Requirements and tests.

EN 61131-2 Programmable controllers. Part 2: Requirements and equipment tests.

Plug-in sockets manufactured by Relpol S.A. are designed and tested in compliance with the requirements of the following international standard:

EN 61984 Connectors - Safety requirements and tests.

Insulation

The classification of insulation groups to define the properties of insulation of the device in compliance with the insulation coordination was previously done according to the VDE 0110 Standard.

Electric devices were classified in insulation categories A, B, C or D due to their application and possible reduction of the insulation properties caused by the impact of the environment, i.e. dust, humidity, aggressive gases, insulation clearance and creepance.

The insulation category was indicated together with the reference voltage which was the basis for defining of the requirements related to the insulation distances for rated voltage up to the reference voltage value.

At present, while dimensioning the insulation distances in accordance with the EN 60664-1 Standard, the overvoltage category and the ambient pollution degree must be defined. The latter indicates the expected pollution of the microenvironment. The transient overvoltage values are the basis for defining the rated surge voltage which determines the minimum contact clearance related with the insulation coordination.

The following **overvoltage categories** are defined:

- IV** - devices at the front of the installation,
- III** - devices in fixed installation in cases where reliability and availability of the device is subject to special requirements,
- II** - receiving devices supplied from the fixed installation,
- I** - devices connected to circuits where measures have been taken (either in fixed installation or in the equipment) to limit transient overvoltage to the appropriately low level.

Four **pollution degrees** have been defined to estimate the contact creepance and clearance:

- 1 - no pollution or only dry and non-conducting pollution; the pollution has no effect,
- 2 - only non-conducting pollution occurs; the vapor condensation, however, may be expected to cause temporary conductivity of the pollution from time to time,

- 3 - conductive pollution or dry and non-conductive pollution occurs which may become conductive due to condensation,
- 4 - the pollution proves constant conductivity caused by the conductive dust, rain or snow.

The **rated surge voltage** is defined on the basis of the overvoltage category and the rated voltage of the device.

The rated voltage of the supply system according to PN-IEC 60038		Phase voltage defined on the basis of AC or DC nominal voltages up to the value of	Rated surge voltage			
			Overvoltage category			
			I	II	III	IV
Three-phase	Single-phase					
	120-240	150	800	1500	2500	4000
230/400		300	1500	2500	4000	6000

The **insulation creepance** are dimensioned on the basis of the following factors:

- root-mean-square value of rated voltage,
- pollution degree,
- group of insulation materials.

Insulation materials are divided into four groups with reference to the value of the indicator of resistance to creeping current:

- Group I** $600 \leq CTI$
Group II $400 \leq CTI \leq 600$
Group IIIa $175 \leq CTI \leq 400$
Group IIIb $100 \leq CTI \leq 175$

Insulation materials testing

1. Glow wire test

The test simulates exposure to heat originating from such heat sources as glowing parts or overloaded subassemblies in order to assess fire hazard.

The consistency with the requirements for resistance to heat and fire is checked in glow wire test at the temperature of 650 °C.

Some applications of the relay extort more strict requirements. The EN 60335-1 Standard: "Household and similar electrical appliances", provides that the insulation parts supporting elements which conduct current higher than 0,2 A must meet the following requirements as for resistance to fire:

- a) GWFI (Glow Wire Flammability Index) with a value 850 °C according to the EN 60695-2-12 Standard.
- b) GWIT (Glow Wire Ignition Temperature) with a value 775 °C according to the EN 60695-2-13 Standard.

2. Ball pressure test

The purpose of the test is to assess the resistance of the material to mechanical pressure at higher temperature with no significant deformations.

The test is performed in a heating chamber at higher temperature, where a steel ball of 5 mm diameter is pressed to the surface of the sample with the force of 20 N. The diameter of the indentation shall not exceed 2 mm. The test is made under EN 60695-10-2 Standard.

3. Resistance to proof tracking

The test shows relative resistance of solid insulation materials to proof tracking for voltages up to 600 V when the surface of the insulation, at electrical tension, is exposed to contaminated water.

Proof tracking is probable between parts of different potential and between live parts and earthed metal parts.

Compliance with the requirements is checked under the EN 60112 Standard for PTI index.

In case the type of the relay application requires more strict requirements, PTI 250V, PTI 400V or PTI 600V proof tracking resistance indices shall be assumed.

Electromagnetic compatibility

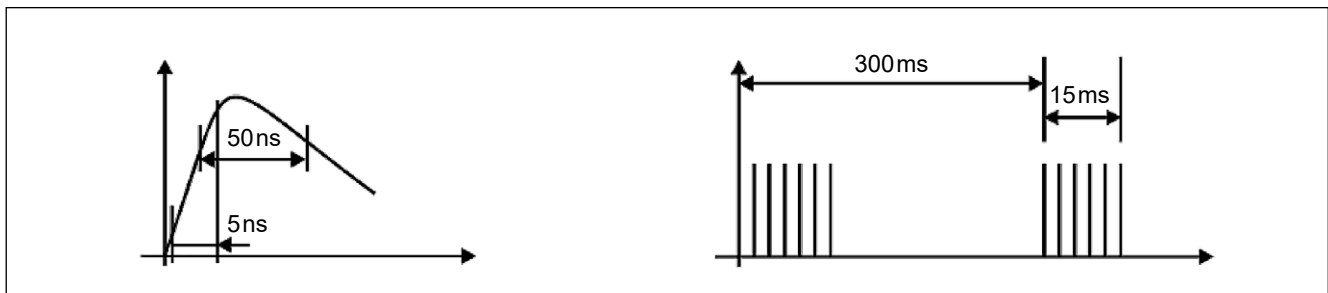
Electromagnetic compatibility is the ability of an electric or electronic appliance to operate correctly in a given electromagnetic environment and not to emit disturbances not tolerated by other appliances which operate in the same environment. The relay is insensitive to high frequency disturbances but presence of high power electromagnetic fields in the proximity of the relay coil may affect making and releasing voltages of the relay. On installation of a relay in the proximity of transformers, electromagnets and electric motors, it is recommended to check making and releasing of the relay.

An electromagnetic relay may initiate disturbances, particularly when operating with inductive load of contacts. An electric arc occurring while switching, and overvoltage cause emission of disturbances which may affect the operation of a sensitive electronic appliance in the proximity of the relay. In such cases, circuits of protection of contacts shall be applied, which will allow decreasing the level of disturbances to a safe level. Relays, as components, are not covered with the **EMC** Directive. However, each electric appliance which includes relays is covered with the Directive and subject to its requirements.

EMC test	Standard
Resistance to electrostatic discharges	EN 61000-4-2
Resistance to electromagnetic field of radio frequency	EN 61000-4-3
Resistance to quick pulse beams	EN 61000-4-4
Resistance to surges	EN 61000-4-5
Resistance to conductive disturbances induced by fields of radio frequency	EN 61000-4-6
Resistance to voltage dips, short breaks and changes	EN 61000-4-11
Measurements of radiated and conducted emissions	EN 55011

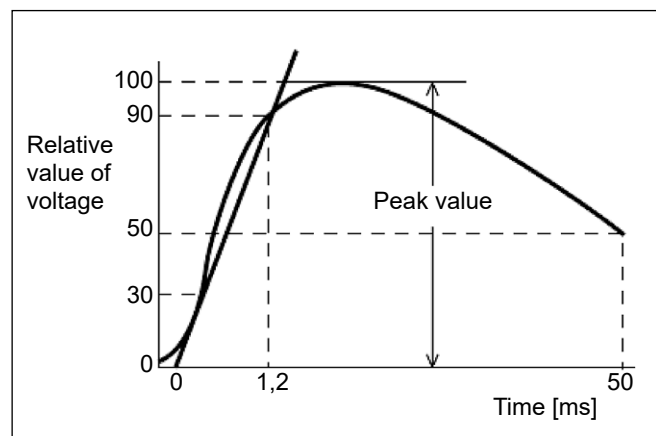
The most frequent disturbances in installations are quick, repeatable transient states - beams of electric disturbances called **BURST**. These are transient disturbances occurring in supply, signal and control connections. They origin from transient switching states and occur on switching by the contact of

inductive loads - electromagnets, motors, etc. They have the form of a beam of high voltage and low power pulses, as the pulse increment time is merely 5 ns and its duration is 50 ns. In tests the duration of a pulse beam is defined as 15 ms, and the period - 300 ms.



Another type of disturbances occurring frequently, due to atmospheric discharges, in low voltage installations are surges (**SURGE**) in supply lines. Similar disturbances may be also caused by connection processes of high power, e.g. switching of leading loads, etc.

Surge pulses are of definitely higher power than burst pulses due to much longer duration - 50 μ s.



Protection against ambient effect

As for the protection from **ambient effect**, the EN 61810-7 Standard distinguishes the following types of relays:

RT0 - open relay - a relay without protective cover.

RTI - dust protected relay - a relay with cover to protect its mechanism from dust.

RTII - flux proof relay - a relay adapted to automatic soldering process without allowing the migration of solder fluxes beyond the intended areas.

RTIII - washable relay - a relay adapted to automatic soldering process and then subject to washing process for the purpose to remove flux residues without allowing the ingress of flux or washing solvents. Note: the relays shall not be washed in ultrasonic cleaners. RTIII relay are tested to evaluate sealing acc. to EN 60068-2-17, Qc test.

RTIV - sealed relay - relay provided with a case which has no venting to the outside atmosphere and having a time constant better than 2×10^4 s in acc. with EN 60068-2-17.

RTV - hermetic relay - a tight relay of enhanced tightness level, in a metal cover, terminals sealed with glass, gas-filled.

Cover protection degrees according to EN 60529 Standard. The first digit refers to the protection from foreign solids penetration. The second digit refers to the protection from water penetration.

Examples of indications:

IP 20 - protection against solids of the diameter of 12,5 mm and larger, with no protection against water penetration.

IP 40 - protection against penetration of solids of 1 mm diameter and larger, with no protection from water penetration.

IP 50 - protection against dust; dust penetration is not excluded entirely but dust shall not penetrate in quantities which might disturb correct operation of the appliance or reduce safety.

IP 64 - dustproof protection, protection against water splashes - water splashed onto the cover from any direction does not cause harmful effects.

IP 67 - dustproof protection, protection against the effects of momentary submersion in water.

Ambient conditions

Storage and use of the relays is not allowed in the conditions which may cause steam condensation and/or icing.

The relays shall be stored and used at temperatures specified in catalog cards of individual products.

Admissible relative humidity for storage and operation within the range of 5...85% (with no condensation and/or icing).

Atmospheric pressure: 86...106 kPa

Climatic resistance:

Cold: 16 h at minimum temperature defined for the product according to the Standard EN 60068-2-1.

Dry heat: 16 h at maximum temperature defined for the product according to the Standard EN 60068-2-2.

Humid heat: 2 cycles 12 h each at temperature of +25...+55 °C and at humidity 90...95%, according to the Standard EN 60068-2-30.

Electric load

Electromagnetic auxiliary relays manufactured by Relpol S.A. are designed for a wide range of applications and for switching several loads of diversified characteristics.

Electric loads are classified according to their nature (resistive, capacitive or inductive loads), type of supply (DC or AC), load value and the current curve course shape (lamp, motor, electromagnetic, etc. loads).

Contact application categories according to EN 61810-7 Standard

Application category	Voltage [V]	Current [A]
0 (CA 0)	< 0,03	< 0,01
1 (CA 1)	$0,03 < U < 60$	$0,01 < I < 0,1$
2 (CA 2)	$5 < U < 250$	$0,1 < I < 1$
3 (CA 3)	$5 < U < 600$	$0,1 < I < 100$

Application categories according to EN 60947-4-1 and EN 60947-5-1 Standards

Application category	Typical application
AC-1	Resistive or slightly inductive loads, resistance furnaces
AC-2	Slip-ring motors: start-up, switching off
AC-3	Squirrel-cage motors: start-up, switching off motors during running time
AC-4	Squirrel-cage motors: start-up, reversing (countercurrent braking), pulsing
AC-5a	Discharge lamps
AC-5b	Electric bulbs
AC-6a	Transformers
AC-6b	Capacitor banks

Application categories according to EN 60947-4-1 and EN 60947-5-1 Standards

Application category	Typical application
AC-7a	Slightly inductive loads in household appliances and similar applications
AC-7b	Motors in household appliances
AC-8a	Hermetic refrigerant compressor motors with manual overload resetting
AC-8b	Hermetic refrigerant compressor motor control with automatic overload resetting
AC-12	Control of resistive loads and solid state loads with opto-isolators
AC-13	Control of solid state loads with transformer isolation
AC-14	Control of small electromagnetic loads ($\leq 72 \text{ VA}$)
AC-15	Control of AC electromagnetic loads ($> 72 \text{ VA}$)
DC-1	Resistive or slightly inductive loads
DC-3	Shunt-motors: start-up, breaking
DC-5	Series-motors: start-up, countercurrent braking, pulsing. Dynamic switching-off of DC motors
DC-6	Bulbs
DC-12	Control of resistive loads and solid state loads with opto-isolators
DC-13	Control of DC electromagnets
DC-14	Control of DC resistive loads having economy resistors in the circuit

Certifications

Compliance with national and international standards provides for safe use of the product, and proves high quality and durability of the product. In some countries (e.g. USA, Canada, Russia), the product certification to prove its compliance with the requirements of appropriate national standards is obligatory, and the product must undergo the procedure of compliance assessment at certifying agencies in order to be approved for sale. In other countries it is the manufacturer's responsibility to provide the compliance of the design and production with the requirements of appropriate standards (e.g. the countries of the European Union).

Certification agencies carry out the testing procedure in accordance to applicable standards, and then they regularly audit the production process in order to confirm that the requirements are observed in current production of the certified product. The European Union applies European Standards (EN) as set forth by the European Committee for Electrotechnical Standardization (CENELEC), and international standards set forth by the International Electrotechnical Commission (IEC).

The products manufactured and offered by Relpol S.A. have numerous certifications issued by renowned research institutions such as VDE, UL or CSA International

The electromagnetic relays have been certified to comply with the following standards: EN 61810-1 - VDE, UL 508 - Underwriters Laboratories, C22.2 - CSA International, GB14048.5 - China Quality Certification Centre.

Apart from the certifications which prove the safety and high durability of the products, some of Relpol's products have certifications required for applications of relays in special conditions, e.g. Lloyd's Register certification which acknowledges compliance with the requirements for electrotechnical products to be used on vessels and in devices which operate in adverse climatic conditions, or certificate of Railway Institute to confirm meeting of railway requirements.



PRECAUTIONS:

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product.
2. Never touch any live parts of the device.
3. Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire.
4. In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.

WARNINGS AND SAFETY INFORMATION ON THE USE OF RELAYS AND SOCKETS AND ACCESSORIES:

1. Each product should be used in accordance with its specifications, and the products should be selected to ensure that their parameters described in the technical specifications provide a safety margin for the proper operation of the device or system, and use that exceeds the permissible values of the product parameters should be strictly avoided.
2. Installation should be carried out by a qualified installer with appropriate authorization and in accordance with the installation diagram and using dedicated sockets and accessories. Disconnect the power supply before assembly or disassembly. Never touch live parts of the device. Make sure that the product is connected correctly. Incorrect connection may cause malfunction, excessive heat and risk of fire.
3. Do not make any modifications to the product. A fall or impact due to high mechanical forces may damage the internal components of the relay and cause malfunction.
4. Relays do not have fuses, so it is recommended to use external protection devices.
5. Do not install relays and sockets in a dusty environment in the presence of metallic dust, oil vapors, corrosive gases and in places where condensation may occur.

[Instruction for safe use of Relpol S.A. products](#)

Relays for electronics

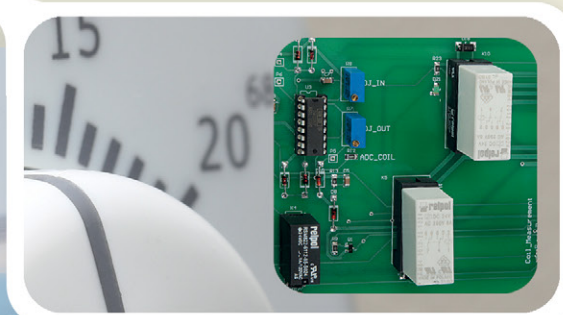
Signal relays

- I_n currents of contacts: 0,5 ... 3 A.
- Methods of mounting: THT, SMT
- depending on the type of relay.

Applications:

- telecommunication equipment,
- office equipment,
- measurement equipment and devices,
- medical apparatus and medical monitoring equipment,
- audiovisual equipment,
- driving simulators, flight simulators,
- slot machines,
- protection, monitoring and alarm equipment,
- industrial and consumer electronic goods.

RSM850	49
RSM850B	49
RSM822N	49
RSM954N	50
RSM957N	50



Miniature relays

- I_n currents of contacts: 5 ... 20 A.
- Methods of mounting: THT, in plug-in sockets
- depending on the type of relay.

Applications:

- general control of electrical equipment,
- equipment for air-conditioning, refrigeration products, heating, ventilation, lighting,
- protection, monitoring and alarm equipment,
- control systems and devices for household equipment,
- time relays and time switches,
- monitoring relays,
- temperature controllers,
- PLCs,
- electrical automation systems - industrial and power-engineering automation,
- equipment for smart buildings and equipment for automation of buildings,
- other.



Bistable relays

- I_n currents of contacts: 0,5 A.
- Method of mounting: THT.

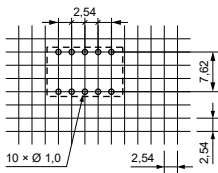
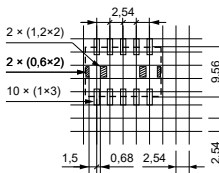
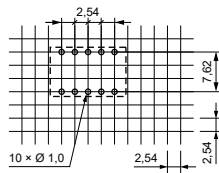
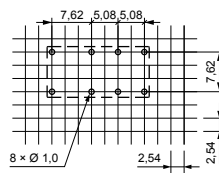
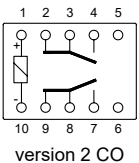
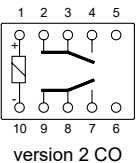
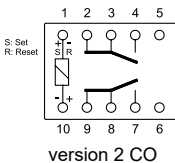
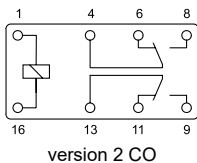
Applications:

- for energy-saving control of electrical devices which are switched on and off with a change of the state of bistable relays via short supply of their coils,
- in electrical systems of battery-powered equipment,
- applications specified in description of signal relays.

RM12N	50
RM32N	50
RM40	51
RM45N	51
RM50N	51
RM51	51
RM53	51
RM84	52
RM85	52
RM85 inrush	52
RM85 105 °C sensitive ..	52
RM85 - special	53
RM85 faston	53
RM87	53
RM87 sensitive	53
RM96	54
RM699B	54
RM83	54
RMP84	54
RMP85	55
RMP7	55
RA2	55



signal relays

Type	RSM850	RSM850	RSM850B	RSM822N
	version THT	version SMT	bistable, 1 coil	sensitive coil
				
Contact data				
Number and type of contacts	2 CO	2 CO	2 CO	2 CO
Contact material	AgPd/Au ❶	AgPd/Au ❶	AgPd/Au ❶	AgNi/Au ❶
Rated / max. switching voltage AC	125 V / 250 V	125 V / 250 V	125 V / 250 V	125 V / 250 V
Rated load AC1 DC1 DC1	0,5 A / 125 V AC 2 A / 30 V DC	0,5 A / 125 V AC 2 A / 30 V DC	0,5 A / 125 V AC 2 A / 30 V DC	0,6 A / 125 V AC 3 A / 30 V DC 2 A (NO/NC) / 30 V DC
Coil data				
Rated voltage DC	3, 5, 6, 9, 12, 24 V	3, 5, 6, 9, 12, 24 V	3, 5, 6, 9, 12, 24 V	3, 5, 6, 9, 12, 24 V (48 V standard)
Insulation				
Dielectric strength • coil - contacts • contact clearance	1 000 V AC ❸ 1 000 V AC ❸	1 000 V AC ❸ 1 000 V AC ❸	1 000 V AC ❸ 1 000 V AC ❸	1 000 V AC ❸ 1 000 V AC ❸
General data				
Dimensions mm	14,3 x 9,3 x 5,4	14,3 x 9,3 x 6,6	14,3 x 9,3 x 5,4	20,5 x 10,2 x 12,5
Pinout (solder side view)	 version 2 CO	 version 2 CO	 version 2 CO	 version 2 CO
Connection diagrams (pin side view)	 version 2 CO	 version 2 CO	 version 2 CO	 version 2 CO
Recognitions, certifications, directives	 RoHS	 RoHS	 RoHS	 RoHS
Download data sheet	RSM850	RSM850	RSM850B	RSM822N

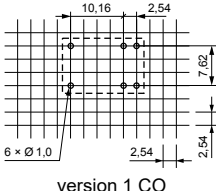
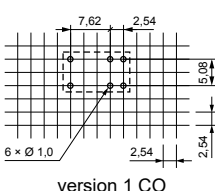
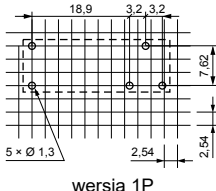
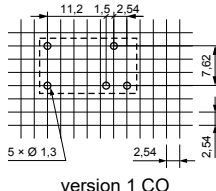
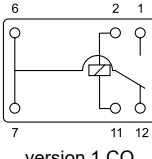
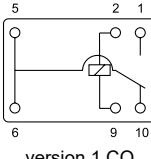
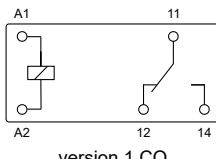
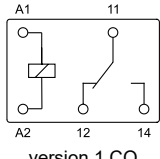
❶ Flash gold plating

❷ Type of insulation: basic

❸ Type of clearance: micro-disconnection

signal relays

miniature relays

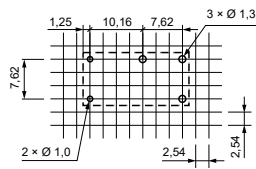
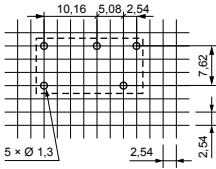
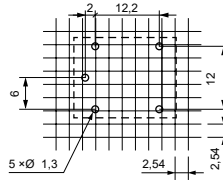
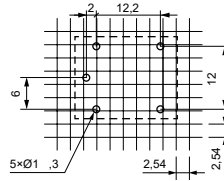
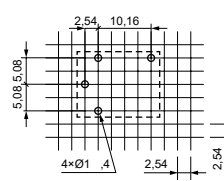
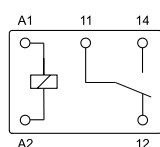
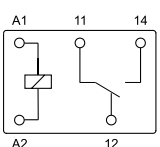
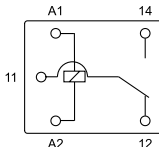
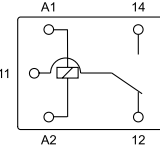
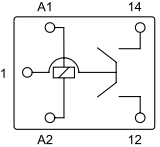
Type	RSM954N	RSM957N	RM12N	RM32N
				
Contact data		sensitive coil		
Number and type of contacts	1 CO	1 CO	1 CO, 1 NO	1 CO, 1 NO
Contact material	Ag/Au ❶	Ag/Au ❶	AgNi, AgNi/Au ❷, AgSnO ₂ , AgSnO ₂ /Au ❸	AgSnO ₂
Rated / max. switching voltage AC	125 V / 220 V	125 V / 220 V	250 V / 440 V	250 V / 277 V
Rated load AC1	3 A / 125 V AC	0,5 A / 125 V AC	1 NO: 10 A / 250 V AC	1 NO: 5 A / 250 V AC
Rated load AC1				
Rated load DC1	3 A / 30 V DC	1 A / 30 V DC	1 NO: 10 A / 30 V DC	1 NO: 5 A / 28 V DC
Motor load				
Coil data				
Rated voltage DC	3, 5, 6, 9, 12, 24 V	3, 5, 6, 9, 12, 24 V	5, 6, 9, 12, 18, 24, 48 V	5, 9, 12, 18, 24 V
Insulation				
Dielectric strength				
• coil - contacts	1 000 V AC ❹	1 000 V AC ❹	5 000 V AC ❺	2 500 V AC ❻
• contact clearance	500 V AC ❺	400 V AC ❺	1 000 V AC ❺	1 000 V AC ❺
General data				
Dimensions mm	15,5 x 11 x 11,5	12,5 x 7,5 x 10	28,5 x 10,1 x 12,5	18,8 x 10,6 x 15,3
Pinout (solder side view)				
Connection diagrams (pin side view)				
Recognitions, certifications, directives	 RoHS	 RoHS	 RoHS	 RoHS
Download data sheet	RSM954N	RSM957N	RM12N	RM32N

- ❶ Flash gold plating
❷ Hard gold plating
❸ Gold plating

- ❹ Type of insulation: basic
❺ Type of insulation: reinforced

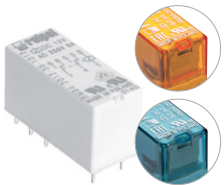
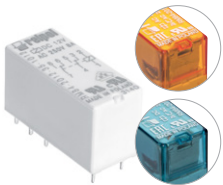
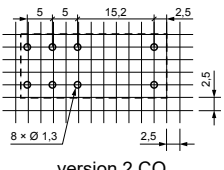
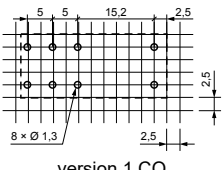
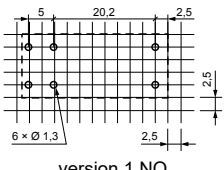
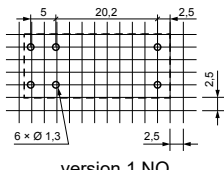
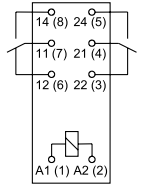
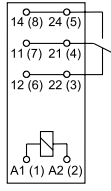
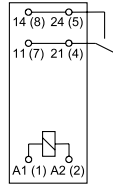
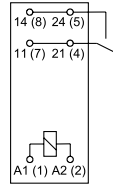
- ❻ Type of clearance: micro-disconnection
❼ AC3 according to IEC 60947-4-1, 1-phase motor

miniature relays

RM40	RM45N	RM50N	RM51	RM53
				
1 CO, 1 NO	1 CO, 1 NO	1 CO, 1 NO	1 CO, 1 NO	1 CO, 1 NO, 2 NO 
1 CO: AgNi, AgNi/Au  1 NO: AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
1 CO: 250 V / 380 V 1 NO: 250 V / 440 V	250 V / 277 V	250 V / 277 V	250 V / 277 V	250 V / 277 V
1 NO: 8 A / 250 V AC 1 NO: 8 A / 30 V DC	1 NO: 5 A / 250 V AC 1 NO: 5 A / 28 V DC	6 A / 250 V AC 12 A / 28 V DC	1 NO: 10 A / 250 V AC 1 NO: 10 A / 30 V DC	1 NO, 2 NO: 5 A / 250 V AC 1 NO, 2 NO: 10 A / 120 V AC 1 NO, 2 NO: 20 A / 14 V DC
			1 NO: 0,75 kW 	
3, 5, 6, 9, 12, 24, 48 V	5, 9, 12, 24 V	5, 9, 12, 24, 48 V	3, 5, 6, 9, 12, 24, 48 V	6, 9, 12, 24 V
4 000 V AC  1 000 V AC 	4 000 V AC  1 000 V AC 	1 500 V AC  750 V AC 	2 500 V AC  1 000 V AC 	500 V AC  500 V AC 
20 x 10 x 10,5	20,5 x 10,6 x 15,6	19,5 x 15,6 x 15,3	19,5 x 16 x 17,1	15,7 x 12,3 x 14
 version 1 CO	 version 1 CO	 version 1 CO	 version 1 CO	 version 1 NO
 version 1 CO	 version 1 CO	 version 1 CO	 version 1 CO	 version 2 CO 
 RoHS	 RoHS	 RoHS	 RoHS	 RoHS
RM40	RM45N	RM50N	RM51	RM53

 Set of two normally open contacts with a common connection for the moving contact.

miniature relays

Type	RM84	RM85	RM85 inrush	RM85 105 °C sensitive
				
Contact data			80 A / 20 ms	sensitive coil
Number and type of contacts	2 CO, 2 NO ②	1 CO, 1 NO ②	1 NO	1 NO
Contact material	AgNi, AgNi/Au ②, AgSnO ₂	AgNi, AgNi/Au ②, AgSnO ₂	AgSnO ₂	AgNi, AgNi/Au ②, AgSnO ₂
Rated / max. AC switching voltage	250 V / 400 V	250 V / 400 V	250 V / 400 V	250 V / 400 V
Rated load (capacity)	AC1 8 A / 250 V AC AC15 3 A / 120 V (B300) 1,5 A / 240 V (B300) DC1 8 A / 24 V DC ③ DC13 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	16 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 16 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	16 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 16 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	16 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 16 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)
Motor load	0,37 kW ⑦	0,5 kW ⑦	0,75 kW ⑦	0,5 kW ⑦
Coil data				
Rated voltage AC	12, 24, 48, 60, 110, 115, 120, 220, 230, 240 V	12, 24, 48, 60, 110, 115, 120, 220, 230, 240 V		
Rated voltage DC	3, 5, 6, 9, 12, 18, 24, 36, 48, 60, 110 V	3, 5, 6, 9, 12, 18, 24, 36, 48, 60, 110 V	3, 5, 6, 9, 12, 18, 24, 36, 48, 60, 110 V	5, 6, 9, 10, 12, 18, 24, 48 V
Insulation				
Insulation rated voltage	400 V AC	400 V AC	400 V AC	400 V AC
Dielectric strength				
• coil - contacts	5 000 V AC ④	5 000 V AC ④	5 000 V AC ④	5 000 V AC ④
• contact clearance	1 000 ②, 2 000 ② V AC	1 000 ②, 2 000 ② V AC	1 000 V AC ⑤	1 000 V AC ⑤
General data				
Dimensions mm	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
Pinout (solder side view)	 version 2 CO	 version 1 CO	 version 1 NO	 version 1 NO
Connection diagrams (pin side view)	 version 2 CO	 version 1 CO	 version 1 NO	 version 1 NO
Plug-in sockets for relays	GZT80, GZM80, GZS80, GZF80, GZP80, PW80, EW 50, EC 50, GD50			
Recognitions, certifications, directives	 RoHS	 RoHS	 RoHS	 RoHS
Download data sheet	RM84	RM85	RM85 inrush	RM85 sensitive

② Hard gold plating

② Type of insulation: basic

④ Type of insulation: reinforced

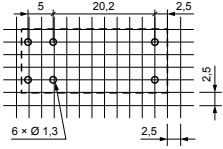
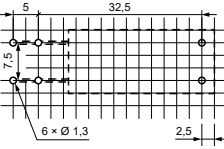
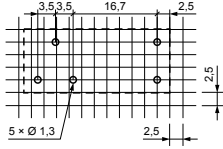
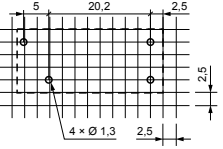
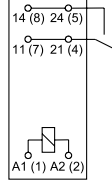
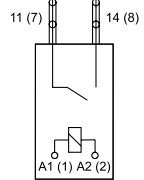
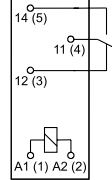
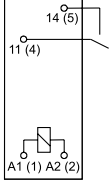
⑤ Type of clearance: micro-disconnection

③ Type of clearance: full-disconnection

⑦ AC3 according to IEC 60947-4-1, 1-phase motor

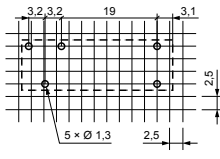
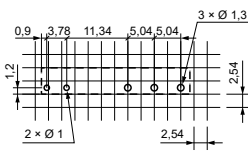
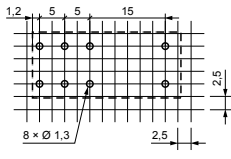
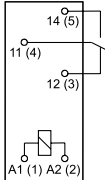
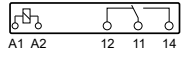
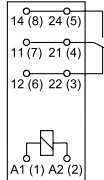
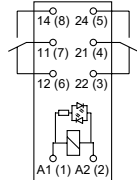
⑥ Diagram: www.relpol.com.pl

miniature relays

RM85 - special	RM85 faston	RM87	RM87 sensitive
for switching higher voltages	vertical version (V)		sensitive coil
			
1 NO	1 NO	1 CO, 1 NO ②	1 NO
AgSnO ₂	AgSnO ₂	AgNi, AgNi/Au ②, AgSnO ₂	AgNi, AgNi/Au ②, AgSnO ₂
250 V / 480 V	250 V / 400 V	250 V / 400 V	250 V / 400 V
5 A / 480 V AC 16 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 16 A / 24 V DC 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	20 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 20 A / 24 V DC 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	12 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 12 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	10 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 10 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)
0,5 kW ⑦	0,5 kW ⑦	0,5 kW ⑦	0,5 kW ⑦
		12, 24, 48, 60, 110, 115, 120, 220, 230, 240 V	
3, 5, 6, 9, 12, 18, 24, 36, 48, 60, 110 V	5, 6, 9, 10, 12, 18, 24, 48 V	3, 5, 6, 9, 12, 18, 24, 36, 48, 60, 110 V	5, 6, 9, 10, 12, 18, 24, 48 V
480 V AC	400 V AC	400 V AC	400 V AC
5 000 V AC ④ 2 000 V AC ⑤	5 000 V AC ④ 1 000 V AC ⑤	5 000 V AC ④ 1 000 ⑤, 2 000 ② V AC	5 000 V AC ④ 1 000 V AC ⑤
29 x 12,7 x 15,7	40,5 x 12,7 x 15,7	29 x 12,7 x 15,7	29 x 12,7 x 15,7
			
version 1 NO	version 1 NO	version 1 CO (RM87N)	version 1 NO (RM87P)
			
version 1 NO	version 1 NO	version 1 CO (RM87L)	version 1 NO (RM87P)
		④ GZT92, GZM92, GZS92, EW 35, EC 35, GD35 ⑤ GZT80, GZM80, GZS80, GZF80, GZP80, PW80, EW 50, EC 50, GD50	
 RoHS	 RoHS	 RoHS	 RoHS
RM85 - special	RM85 faston	RM87	RM87 sensitive

② Available special versions
- relays with the increased dielectric strength of the contact clearance (only with NO contacts and DC coils) ③
④ Available in version: RM87N (3,5 mm pinout)
⑤ Available in versions: RM87L, RM87P (5 mm pinout)

miniature relays

Type	RM96	RM699B	RM83	RMP84
				
vertical version (V)			120 A / 20 ms	
Contact data				
Number and type of contacts	1 CO, 1 NO, 1 NC	1 CO, 1 NO	1 CO, 1 NO, 1 NC	2 CO
Contact material	AgSnO ₂ , AgSnO ₂ /Au ②	AgSnO ₂ , AgSnO ₂ /Au ②, AgNi, AgNi/Au ②	AgSnO ₂	AgNi
Rated / max. AC switching voltage	250 V / 400 V	250 V / 400 V ⑦	250 V / 400 V	250 V / 440 V
Rated load (capacity)	AC1 8 A / 250 V AC AC1 10 A / 250 V AC (UL, VDE) AC15 3 A / 120 V (B300) AC15 1,5 A / 240 V (B300) DC1 8 A / 24 V DC ③ DC1 DC13 0,22 A / 120 V (R300) DC13 0,1 A / 250 V (R300)	6 A / 250 V AC ⑦ 6 A / 30 V DC ⑦	16 A / 250 V AC 20 A / 250 V AC (UL) 6 A / 120 V (B300) 3 A / 240 V (B300) 16 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	8 A / 250 V AC
Motor load	0,37 kW ⑦	1 NO: 0,186 kW ⑦ ⑦	0,65 kW ⑦	
Coil data				
Rated voltage AC				24, 115, 230 V
DC	5, 6, 9, 12, 18, 24, 48 V	5, 6, 9, 12, 24, 48, 60 V	5, 6, 9, 12, 18, 24, 36, 48, 60, 110 V	12, 24, 48, 110 V
Insulation				
Insulation rated voltage	400 V AC	250 V AC	400 V AC	440 V AC
Dielectric strength				
• coil - contacts	4 000 V AC ④	4 000 V AC ④	4 000 V AC ④	5 000 V AC ④
• contact clearance	1 000 V AC ⑤	1 000 V AC ⑤	1 000 V AC ⑤	1 000 V AC ⑤
General data				
Dimensions mm	1 CO: 30 x 10 x 16,2	28 x 5 x 15	IP 40: 29,2 x 13,1 x 25,1	29 x 13 x 25,5
Pinout (solder side view)				
version 1 CO				
Connection diagrams (pin side view)				
version 1 CO				version 2 CO
Plug-in sockets for relays	ES 32	PI6W, PI6WB, 6W, 6WB, GD699	PW80, EW 50, EC 50, GD50	GZF80, GZP80, EW 50, EC 50, GD50
Recognitions, certifications, directives	 RoHS	 RoHS	 RoHS	 RoHS
Download data sheet	RM96	RM699B	RM83	RMP84

② Hard gold plating

③ Type of clearance: micro-disconnection

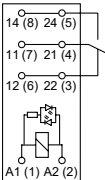
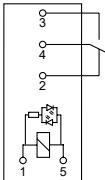
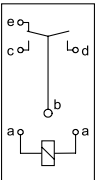
⑦ AC3 according to IEC 60947-4-1, 1-phase motor

④ Type of insulation: basic

⑤ Type of insulation: reinforced

⑧ Diagram: www.relpol.com.pl

miniature relays

RMP85	RMP7	RA2
		
1 CO	1 CO, 2 CO ⑥	1 CO, 1 NO, 2 NO
AgNi	AgNi	AgSnO ₂
250 V / 440 V	250 V / 300 V	DC: 50 V / 50 V
16 A / 250 V AC	1 CO: 12 A / 250 V AC 2 CO: 8 A / 250 V AC 1 CO: 12 A / 24 V DC 2 CO: 8 A / 24 V DC	1 CO: 20 A / 12 A (NO/NC)
24, 115, 230 V	24, 110, 230 V	
12, 24, 48, 110 V	12, 24, 110 V	5, 6, 9, 12, 15, 18, 24, 48 V
440 V AC	250 V AC	50 V AC
5 000 V AC ④ 1 000 V AC ⑤	2 000 V AC ③ 1 000 V AC ⑤	500 V AC 500 V AC
29 x 13 x 25,5	30,6 x 12,6 x 32,3	IP 00: 18,6 x 13 x 18,5
		
version 1 CO	version 1 CO	version 1 CO left + 1 NO
GZF80, GZP80, EW 50, EC 50, GD50	1 CO: GZ71, GZP71 2 CO: GZ72, GZP72	
CE RoHS	CE c RoHS RoHS	RoHS
RMP85	RMP7	RA2

④ RM699B: horizontal version (H) - see www.relpol.com.pl ⑦ Only for contacts AgSnO₂, AgNi
⑥ RMP7 contact 1 CO: faston 4,7 x 0,5 mm; contacts 2 CO: faston 2,5 x 0,5 mm.

Plug-in sockets for relays

GZT80 (852612) For RM84, RM85, RM87L/P	GZT92 (852580) For RM87N	GZM80 (857408) For RM84, RM85, RM87L/P	GZM92 (857410) For RM87N
			
			
GZP80-0400	GZT80-0040	GZM80-0041	GZT80-0035
			
		M...	ZGGZ80

GZP80 (864325) ⓘ For RM84, RM85, RM87L/P, RMP84, RMP85									
									
GZP80-0400	GZT80-0040	GZM80-0041	GZ80-1001	MP15	M...	ZGZP80-2	ZGZP-2	ZGZP80-8	

GZ71 For RMP7	GZ72 For RMP7	GZP71 For RMP7	GZP72 For RMP7
			
			
	Y...		

GZF80 (2615352) For RM84, RM85, RM87L/P, RMP84, RMP85	GZS80 (2613503) For RM84, RM85, RM87L/P	GZS92 (2613502) For RM87N	ES 32 (2000543) For RM96 1P	PW80 (592066) For RM84, RM85, RM87L/P, RM83
				
				
GZM80-0041	GZS-0040	GZM80-0041	TR	M...
			ZGGZ80	
GZ80-1001		ZGGZ80		
				
				MH25-2
				MH16-2
				MH25-2

EC 50 (2000532) For RM84, RM85, RM87L/P, RM83, RMP84, RMP85	EW 50 (2616922) For RM84, RM85, RM87L/P, RM83, RMP84, RMP85	EC 35 (2000531) For RM87N	EW 35 (2601570) For RM87N	GD50 (2613510) For RM84, RM85, RM87L/P, RM83, RMP84, RMP85	GD35 (2613509) For RM87N
					
					
MH16-2	MH25-2	MP16-2	MP25-2	GD-0016	MH16-2
					
				MH25-2	MP16-2
					MP25-2
				MP25-2	

ORDERING CODES:

Signalling / protecting module - see page 60.

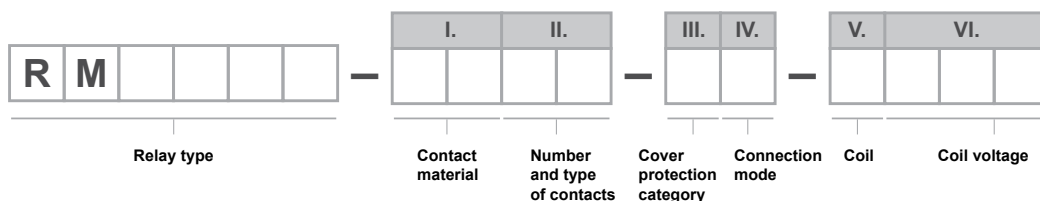
Interconnection strips - see page 61.

www.relpol.com.pl

ⓘ Push-in terminals (flammability class V-0); max. cross section of the cables: 2 x 1,5 mm² (solid wire without ferrule or stranded wire with non-insulated ferrule), 2 x 1 mm² (solid or stranded wire with insulated ferrule); stripping length: 8...10 mm.

Export Sales Department: phone +48 68 47 90 832, 951, export@relpol.com.pl

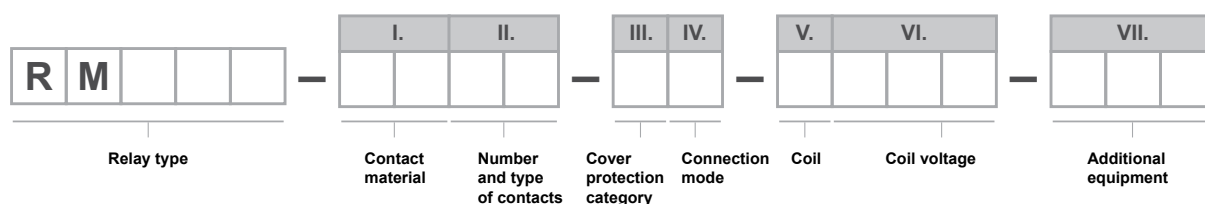
Relays for electronics



Relay type												
RM12N	RM32N	RM40	RM45N	RM50	RM50N	RM51	RM53	RM96	RM699B	RM83		
										versions V, H		
I.	Contact material											
10 - AgCdO						•						
20 - AgNi	•		• 1 CO						•			
22 - AgNi/Au hard gold plating	•		• 1 CO						•			
30 - AgSnO ₂	•	•	• 1 NO	•	•	•	•	•	•		•	
32 - AgSnO ₂ /Au hard gold plating	•							•	•			
II.	Number and type of contacts											
11 - 1 CO	•	•	•	•	•	•	•	•	•	•	•	•
21 - 1 NO	•	•	•	•	•	•	•	•	•	•	•	•
22 - 2 NO								•				
31 - 1 NC								•				•
III.	Cover protection category											
2 - IP 40	•								•			•
3 - IP 67	•							•	•			•
8 - IP 67		•	•	•	•	•	•			•		
IV.	Connection mode											
5 - for PCB	•	•	•	•	•	•	•	•				
5 - for PCB and sockets								•	•			•
V.	Coil											
1 - DC	•	•	•	•	•	•	•	•	•	•		•
S - DC sensitive		•		•				•				•
VI.	Coil voltage											
DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC
005 - 5 V	•	•	•	•	•	•	•		•	•	•	•
012 - 12 V	•	•	•	•	•	•	•	•	•	•	•	•
024 - 24 V	•	•	•	•	•	•	•	•	•	•	•	•
110 - 110 V											•	•
... - other voltages: see data tables (pages 50, 51, 54) or product catalog (full edition) www.relpol.pl/en/Download/Product-Catalogs												

EXAMPLE ORDERING CODES

Index	Code	Description
2614997	RM12N-2011-25-1012	one changeover contact 8 A (AgNi), coil voltage 12 V DC
2614939	RM12N-3021-35-1024	one normally open contact 10 A (AgSnO ₂), coil voltage 24 V DC
2615029	RM32N-3011-85-1012	one changeover contact 5 A (AgSnO ₂), coil voltage 12 V DC
2615024	RM32N-3021-85-1024	one normally open contact 5 A (AgSnO ₂), coil voltage 24 V DC
2611695	RM40-2011-85-1024	one changeover contact 5 A (AgNi), coil voltage 24 V DC
2614936	RM45N-3011-85-1012	one changeover contact 5 A (AgSnO ₂), coil voltage 12 V DC
2614955	RM45N-3021-85-1024	one normally open contact 5 A (AgSnO ₂), coil voltage 24 V DC
2611657	RM50-3011-85-1024	one changeover contact 12 A (AgSnO ₂), coil voltage 24 V DC
2614648	RM50N-3011-85-1012	one changeover contact 12 A (AgSnO ₂), coil voltage 12 V DC
2614660	RM50N-3021-85-1024	one normally open contact 12 A (AgSnO ₂), coil voltage 24 V DC
2614699	RM51-3011-85-1012	one changeover contact 10 A (AgSnO ₂), coil voltage 12 V DC
2614710	RM51-3021-85-1024	one normally open contact 10 A (AgSnO ₂), coil voltage 24 V DC
	RM53-3021-35-1012	one normally open contact 5 A (AgSnO ₂), coil voltage 12 V DC
	RM53-3022-35-S006	two normally open contacts 5 A (AgSnO ₂), coil voltage 6 V DC (sensitive)
852845	RM96-3011-35-1024	one changeover contact 8 A (AgSnO ₂), coil voltage 24 V DC
852859	RM96-3021-35-1024	one normally open contact 8 A (AgSnO ₂), coil voltage 24 V DC
2613696	RM699BV-3011-85-1012	one changeover contact 6 A (AgSnO ₂), coil voltage 12 V DC, vertical version
2613700	RM699BH-3011-85-1024	one changeover contact 6 A (AgSnO ₂), coil voltage 24 V DC, horizontal version
855151	RM83-3011-25-1024	one changeover contact 16 A (AgSnO ₂), coil voltage 24 V DC
440665	RM83-3021-25-S110	one normally open contact 16 A (AgSnO ₂), coil voltage 110 V DC (sensitive)



		Relay type																			
		RM84		RM85		RM85		RM85		RM85		RM87		RM87		RMP84		RMP85		RMP7	
						inrush	105 °C	special	faston V, H			sensitive							faston		
I.	Contact material																				
20 - AgNi		•		•			•				•		•		•		•		•		
23 - AgNi/Au hard gold plating		•		•			•				•		•								
30 - AgSnO ₂		•		•			•	•	•		•		•								
50 - AgSnO ₂ solid contacts						•															
II.	Number and type of contacts																				
11 - 1 CO				•							•		•				•		•		
12 - 2 CO		•													•				•		
21 - 1 NO				•		•	•		•		•		•								
22 - 2 NO		•																			
51 - 1 NO gap 0,6 mm								•													
III.	Cover protection category																				
2 - IP 40		•		•		•	•	•	•		•		•		•		•		•		
3 - IP 67		•		•				•			•		•								
IV.	Connection mode																				
0 - for PCB and faston 250									•												
3 - for sockets and faston																			•		
5 - for PCB								•													
5 - for PCB and sockets		•		•		•	•				•		•								
5 - for sockets															•		•				
V.	Coil																				
1 - DC		•		•				•			•				•		•		•		
S - DC sensitive						•			•				•								
5 - AC		•		•							•				•		•		•		
VI.	Coil voltage		AC	DC	AC	DC	DC	DC sensitive	DC	DC sensitive	AC	DC	DC sensitive	AC	DC	AC	DC	AC	DC	AC	DC
005 - 5 V				•		•	•	•	•	•		•	•								
012 - 12 V			•	•	•	•	•	•	•	•	•	•	•		•			•		•	
024 - 24 V			•	•	•	•	•	•	•	•	•	•	•			•		•		•	
110 - 110 V			•	•	•	•	•		•		•	•			•			•		•	
115 - 115 V			•		•						•				•			•			
230 - 230 V			•		•						•				•			•		•	
... - other voltages: see data tables (pages 52, 53, 54, 55) or product catalog (full edition) www.relpol.pl/en/Download/Product-Catalogs																					
VII.	Additional equipment																				
W - mechanical indicator																•		•			
T - test button																•		•			
L - LED																•		•			

EXAMPLE ORDERING CODES

Index	Code	Description
604622	RM84-2012-35-5230	two changeover contacts 8 A (AgNi), coil voltage 230 V AC
600468	RM84-2022-35-1024	two normally open contacts 8 A (AgNi), coil voltage 24 V DC
604658	RM85-2011-35-5230	one changeover contact 16 A (AgNi), coil voltage 230 V AC
600104	RM85-2021-35-1024	one normally open contact 16 A (AgNi), coil voltage 24 V DC
855381	RM85V7-3021-20-S048	one normally open contact 20 A (AgSnO ₂), coil voltage 48 V DC (sensitive), horizontal faston
600801	RM87L-2011-35-1012	one changeover contact 12 A (AgNi, 5 mm pinout), coil voltage 12 V DC
600673	RM87N-2021-35-1024	one normally open contact 12 A (AgNi, 3,5 mm pinout), coil voltage 24 V DC
2615182	RMP84-2012-25-1024-WTL	two changeover contacts 8 A (AgNi), coil voltage 24 V DC
2615191	RMP84-2012-25-5230-WTL	two changeover contacts 8 A (AgNi), coil voltage 230 V AC
2615178	RMP85-2011-25-1024-WTL	one changeover contact 16 A (AgNi), coil voltage 24 V DC
2615188	RMP85-2011-25-5230-WTL	one changeover contact 16 A (AgNi), coil voltage 230 V AC
2617512	RMP7-2011-23-1012	one changeover contact 12 A (AgNi), coil voltage 12 V DC
2617523	RMP7-2012-23-5230	two changeover contacts 8 A (AgNi), coil voltage 230 V AC

ORDERING CODES

Index	Code	Description
854834	M21P	module D (diode D) - surge suppression, grey colour, operating voltage 6...230 V DC, polarization P: -A1 / +A2
854776	M21P	module D (diode D) - surge suppression, black colour, operating voltage 6...230 V DC, polarization P: -A1 / +A2
854833	M21N	module D (diode D) - surge suppression, grey colour, operating voltage 6...230 V DC, polarization N: +A1 / -A2
854777	M21N	module D (diode D) - surge suppression, black colour, operating voltage 6...230 V DC, polarization N: +A1 / -A2
854836	M31R	module LD (diode LED red + diode D) - signalling and surge suppression, grey colour, operating voltage 6...24 V DC, polarization P: -A1 / +A2
854835	M31G	module LD (diode LED green + diode D) - signalling and surge suppression, grey colour, operating voltage 6...24 V DC, polarization P: -A1 / +A2
854838	M32R	module LD (diode LED red + diode D) - signalling and surge suppression, grey colour, operating voltage 24...60 V DC, polarization P: -A1 / +A2
854837	M32G	module LD (diode LED green + diode D) - signalling and surge suppression, grey colour, operating voltage 24...60 V DC, polarization P: -A1 / +A2
854842	M41R	module LD (diode LED red + diode D) - signalling and surge suppression, grey colour, operating voltage 6...24 V DC, polarization N: +A1 / -A2
854841	M41G	module LD (diode LED green + diode D) - signalling and surge suppression, grey colour, operating voltage 6...24 V DC, polarization N: +A1 / -A2
854844	M42R	module LD (diode LED red + diode D) - signalling and surge suppression, grey colour, operating voltage 24...60 V DC, polarization N: +A1 / -A2
854843	M42G	module LD (diode LED green + diode D) - signalling and surge suppression, grey colour, operating voltage 24...60 V DC, polarization N: +A1 / -A2
854846	M43R	module LD (diode LED red + diode D) - signalling and surge suppression, grey colour, operating voltage 110...230 V DC, polarization N: +A1 / -A2
854845	M43G	module LD (diode LED green + diode D) - signalling and surge suppression, grey colour, operating voltage 110...230 V DC, polarization N: +A1 / -A2
854847	M51	module RC (resistor R + capacitor C) - limits inductive disturbance, grey colour, operating voltage 6...24 V AC, connection: A1 / A2
854848	M52	module RC (resistor R + capacitor C) - limits inductive disturbance, grey colour, operating voltage 24...60 V AC, connection: A1 / A2
854849	M53	module RC (resistor R + capacitor C) - limits inductive disturbance, grey colour, operating voltage 110...240 V AC, connection: A1 / A2
854851	M61R	module L (diode LED red) - signalling, grey colour, operating voltage 6...24 V AC/DC, polarization: (+)A1 / (-)A2
854850	M61G	module L (diode LED green) - signalling, grey colour, operating voltage 6...24 V AC/DC, polarization: (+)A1 / (-)A2
854853	M62R	module L (diode LED red) - signalling, grey colour, operating voltage 24...60 V AC/DC, polarization: (+)A1 / (-)A2
854852	M62G	module L (diode LED green) - signalling, grey colour, operating voltage 24...60 V AC/DC, polarization: (+)A1 / (-)A2
854855	M63R	module L (diode LED red) - signalling, grey colour, operating voltage 110...230 V AC/DC, polarization: (+)A1 / (-)A2
854854	M63G	module L (diode LED green) - signalling, grey colour, operating voltage 110...230 V AC/DC, polarization: (+)A1 / (-)A2
854857	M91R	module LV (diode LED red + varistor V) - signalling and surge suppression, grey colour, operating voltage 6...24 V AC/DC, polarization: (+)A1 / (-)A2
854856	M91G	module LV (diode LED green + varistor V) - signalling and surge suppression, grey colour, operating voltage 6...24 V AC/DC, polarization: (+)A1 / (-)A2
854859	M92R	module LV (diode LED red + varistor V) - signalling and surge suppression, grey colour, operating voltage 24...60 V AC/DC, polarization: (+)A1 / (-)A2
854858	M92G	module LV (diode LED green + varistor V) - signalling and surge suppression, grey colour, operating voltage 24...60 V AC/DC, polarization: (+)A1 / (-)A2
854861	M93R	module LV (diode LED red + varistor V) - signalling and surge suppression, grey colour, operating voltage 110...230 V AC/DC, polarization: (+)A1 / (-)A2
854860	M93G	module LV (diode LED green + varistor V) - signalling and surge suppression, grey colour, operating voltage 110...230 V AC/DC, polarization: (+)A1 / (-)A2
854862	M71	module V (varistor V) - surge suppression, grey colour, operating voltage 24 V AC, connection: A1 / A2
854863	M72	module V (varistor V) - surge suppression, grey colour, operating voltage 130 V AC, connection: A1 / A2
854864	M73	module V (varistor V) - surge suppression, grey colour, operating voltage 230 V AC, connection: A1 / A2
2002616	Module 21	module D (diode D) - surge suppression, black colour, operating voltage 6...230 V DC, polarization N: +A1 / -A2
2611805	Module 41	module LD (diode LED red + diode D) - signalling and surge suppression, black colour, operating voltage 6...24 V DC, polarization N: +A1 / -A2

ORDERING CODES

Index	Code	Description
858826	ZGGZ80-1	strip 8-poles, bridges common input or output signals, for GZT80, GZM80, GZS80, GZT92, GZM92, GZS92, ES 32, PI84, PI85
858827	ZGGZ80-2	
858829	ZGGZ4-1	strip 6-poles, bridges common input or output signals, for GZT2, GZM2, GZT3, GZM3, GZT4, GZM4, PIR2, PIR3, PIR4
858830	ZGGZ4-2	
2616314	ZGZP-2 GY	jumper 2-poles, bridges the neighboring poles of single socket, for GZP80, GZP4, PI84, PI85, PI84P, PI85P, PIR2, PIR4
2616315	ZGZP-2 BK	
2616316	ZGZP-2 RD	
2616317	ZGZP-2 BE	
2616318	ZGZP80-8 GY	strip 8-poles, bridges common input signals (A1, A2 or A1 and A2 together), for GZP80, PI84, PI85, PI84P, PI85P
2616319	ZGZP80-8 BK	
2616320	ZGZP80-8 RD	
2616321	ZGZP80-8 BE	
2616326	ZGZP80-2 GY	strip 2-poles, bridges common input signals (A1, A2 or A1 and A2 together) or output signals, for GZP80, PI84, PI85, PI84P, PI85P
2616327	ZGZP80-2 BK	
2616328	ZGZP80-2 RD	
2616329	ZGZP80-2 BE	
2616322	ZGZP4-8 GY	strip 8-poles, bridges common input signals (A1, A2 or A1 and A2 together), for GZP4, PIR2, PIR4
2616323	ZGZP4-8 BK	
2616324	ZGZP4-8 RD	
2616325	ZGZP4-8 BE	
2616330	ZGZP4-2 GY	strip 2-poles, bridges common input signals (A1, A2 or A1 and A2 together) or output signals for GZP4, PIR2, PIR4
2616331	ZGZP4-2 BK	
2616332	ZGZP4-2 RD	
2616333	ZGZP4-2 BE	
2608954	ZG20-1	strip 20-poles, bridges common input or output signals, for PI6, PI6W, PI6WB, PIR6W, PIR6WB, PIR6WT, PIR6WBT
2608955	ZG20-2	
2608956	ZG20-3	
2615831	JB20-1	strip 20-poles, bridges common input or output signals, for 6W, 6WB, SIR6W, SIR6WB
2615830	JB20-2	
2615829	JB20-3	

Relays for industry

Miniature industrial relays

- I_n currents of contacts: 5 ... 12 A.
- Methods of mounting:
in plug-in sockets,
direct on panel mounting, THT
- depending on the type of relay.



R2B-...-B	64
R2B-...-D	64
R3B-...-B	64
R3B-...-D	64
R4B-...-B	65
R2N	65
R3N	65
R4N	65
R2M	65
RY2	66

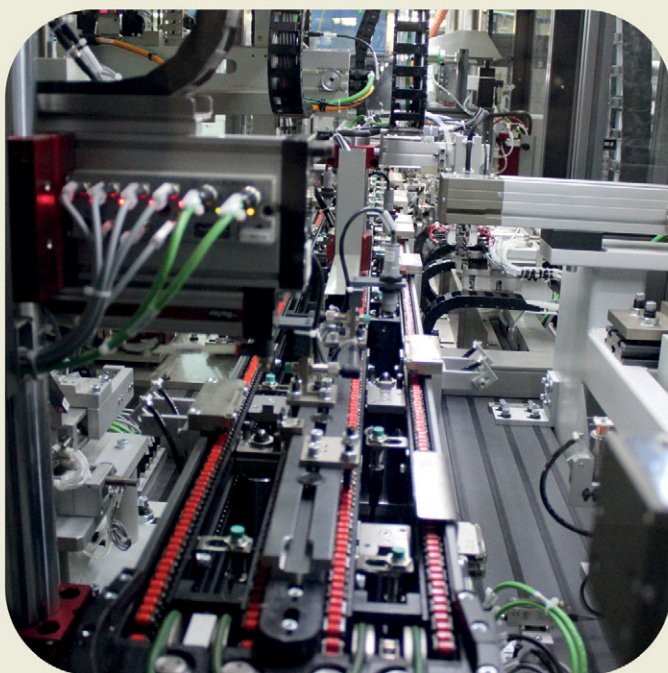
Industrial relays of small dimensions

- I_n currents of contacts: 10 ... 30 A.
- Methods of mounting:
in plug-in sockets,
direct on 35 mm rail mount,
direct on panel mounting, THT
- depending on the type of relay.

Applications:

- general control of electrical equipment,
- industrial control systems,
- equipment for air-conditioning, refrigeration products, heating, ventilation, lighting,
- protection, monitoring and alarm equipment,
- control systems and devices for household equipment,
- electrical automation systems - industrial and power-engineering automation,
- building automation equipment (BMS),
- other.

R15 - 2 CO	66
R15 - 3 CO	66
R15 - 4 CO	66
RUC	67
RUC-M	67
R20	67
RG25	67



Interface relays (relay coupling modules)

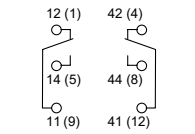
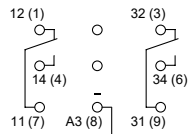
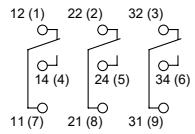
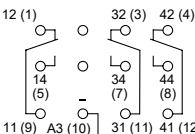
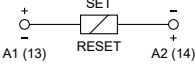
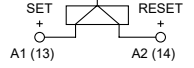
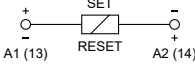
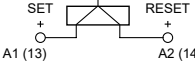
- I_n currents of contacts: 1 ... 16 A.
- Connections of wiring: screw terminals, spring terminals - depending on the type of relay.
- Methods of mounting:
 - PI84, PI85, PI84P, PI85P, PI71, PI72, PIR2, PIR3, PIR4: on 35 mm rail mount or on panel mounting,
 - PI6, PIR6W, PIR6WB, SIR6W, SIR6WB: on 35 mm rail mount.

Applications:

- in applications with PLCs as input / output [I/O] separators,
- in industrial automation applications for isolation of input signals from output circuits,
- in electrical applications as universal interfaces between control and load, for medium load switching,
- applications specified in descriptions of relays - miniature industrial and industrial of small dimensions.

PI84 - GZT80	72
PI84 - GZM80	72
PI84 - GZP80	72
PI85 - GZT80	72
PI85 - GZM80	73
PI85 - GZP80	73
PI85 inrush - GZT80	73
PI84P - GZP80	73
PI85P - GZP80	73
PI71P - GZ71	74
PI71P - GZP71	74
PI72P - GZ72	74
PI72P - GZP72	74
PIR2 - GZM2	75
PIR2 - GZP4	75
PIR3 - GZM3	75
PIR4 - GZM4	75
PIR4 - GZP4	75
PI6-1P	76
PI6-1T	76
PIR6W-1P-...	76
PIR6W-1PS-...	76
PIR6WB-1PS-...	77
PIR6W-1P-...-1O	77
SIR6W-...	77
SIR6WB-...	78
SIR6W-...-1O	78

miniature industrial relays

Type	R2B-...-B	R2B-...-D	R3B-...-B	R3B-...-D
	latching, 1 coil	latching, 2 coils	latching, 1 coil	latching, 2 coils
				
				
Energy saving				
Contact data				
Number and type of contacts	2 CO	2 CO	3 CO	3 CO
Contact material	AgNi	AgNi	AgNi	AgNi, AgNi/Au ❶, AgNi/Au ❷
Rated / max. AC switching voltage	250 V / 440 V	250 V / 440 V	250 V / 440 V	250 V / 440 V
Rated load AC1 (capacity)	12 A / 250 V AC	12 A / 250 V AC	8 A / 250 V AC	6 A / 250 V AC
AC15	3 A / 120 V (B300)	3 A / 120 V (B300)	3 A / 120 V (B300)	1,5 A / 120 V (C300)
AC15	1,5 A / 240 V (B300)	1,5 A / 240 V (B300)	1,5 A / 240 V (B300)	0,75 A / 240 V (C300)
DC1	12 A / 24 V DC ❸	12 A / 24 V DC ❸	8 A / 24 V DC ❸	6 A / 24 V DC ❸
DC13	0,22 A / 120 V (R300)	0,22 A / 120 V (R300)	0,22 A / 120 V (R300)	0,22 A / 120 V (R300)
DC13	0,1 A / 250 V (R300)	0,1 A / 250 V (R300)	0,1 A / 250 V (R300)	0,15 A / 250 V (R300)
Motor load	0,37 kW ❹	0,37 kW ❹	0,37 kW ❹	0,125 kW ❹
Coil data				
Rated voltage AC				
DC	5, 6, 12, 24, 48, 60 V	5, 6, 12, 24, 48, 60 V	5, 6, 12, 24, 48, 60 V	5, 6, 12, 24, 48, 60 V
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength				
• coil - contacts	2 500 V AC ❺	2 500 V AC ❺	2 500 V AC ❺	2 500 V AC ❺
• contact clearance	1 000 V AC ❻	1 000 V AC ❻	1 000 V AC ❻	1 000 V AC ❻
General data				
Dimensions mm	28,6 x 21 x 35,5	28,6 x 21 x 35,5	28,6 x 21 x 35,5	28,6 x 21 x 35,5
Connection diagrams (pin side view)				
Note: polarity of the supply of the relays with DC coils - see www.relpol.com.pl				
				
	version 2 CO, DC	version 2 CO, DC	version 3 CO, DC	version 3 CO, DC
Plug-in sockets for relays	GZT2, GZM2, GZP4, SU4/2D, SU4/2L, G4D/2, G4/2	GZT3, GZM3	GZT3, GZM3	GZT4, GZM4, SU4D, SU4L, G4D, G4
Recognitions, certifications, directives	CE UK RoHS	CE UK RoHS	CE UK RoHS	CE UK RoHS
Download data sheet	R2B-...-B	R2B-...-D	R3B-...-B	R3B-...-D

❶ Flash gold plating

❷ Hard gold plating

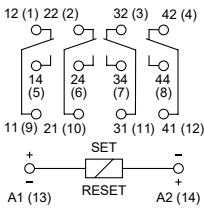
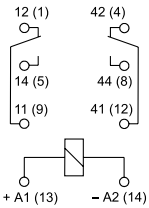
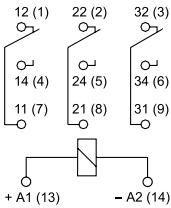
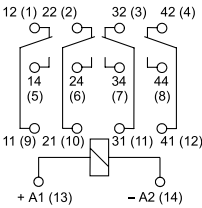
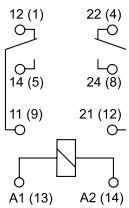
❸ AC3 according to IEC 60947-4-1, 1-phase motor

❹ Type of insulation: basic

❺ Type of clearance: micro-disconnection

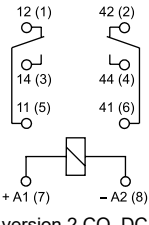
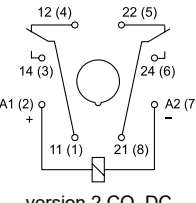
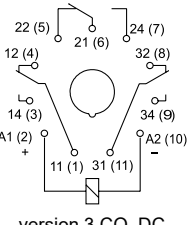
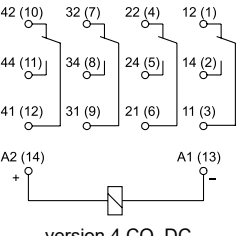
❻ Diagram: www.relpol.com.pl

miniature industrial relays

R4B-...-B	R2N	R3N	R4N	R2M
latching, 1 coil				
 				
4 CO	2 CO	3 CO	4 CO	2 CO
AgNi, AgNi/Au ①, AgNi/Au ②	AgNi, AgNi/Au ①	AgNi, AgNi/Au ①	AgNi, AgNi/Au ①, AgNi/Au ②	AgNi, AgNi/Au ①, AgSnO ₂
250 V / 250 V	250 V / 440 V	250 V / 440 V	250 V / 250 V	250 V / 250 V
6 A / 250 V AC 1,5 A / 120 V (C300) 0,75 A / 240 V (C300) 6 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,15 A / 250 V (R300)	12 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 12 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	10 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 10 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	7 A / 230 V AC (VDE) 6 A / 250 V AC 1,5 A / 120 V (C300) 0,75 A / 240 V (C300) 6 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	5 A / 250 V AC 5 A / 24 V DC
0,125 kW ④	0,37 kW ④	0,37 kW ④	0,125 kW ④	
	6, 12, 24 , 42, 48, 60, 80, 110, 115, 120, 127, 220, 230 , 240 V	6, 12, 24 , 42, 48, 60, 80, 110, 115, 120, 127, 220, 230 , 240 V	6, 12, 24 , 42, 48, 60, 80, 110, 115, 120, 127, 220, 230 , 240 V	6, 12, 24 , 50, 100, 110, 115, 120, 220, 230 , 240 V
5, 6, 12 , 24 , 48, 60 V	5, 6, 12 , 24 , 48, 60, 80, 110, 125, 220 V	5, 6, 12 , 24 , 48, 60, 80, 110, 125, 220 V	5, 6, 12 , 24 , 48, 60, 80, 110, 125, 220 V	6, 12 , 24 , 48, 60, 80, 110 V
250 V AC	250 V AC	250 V AC	250 V AC	250 V AC
2 500 V AC ⑤ 1 000 V AC ⑤	2 500 V AC ⑤ 1 500 V AC ⑤	2 500 V AC ⑤ 1 500 V AC ⑤	2 500 V AC ⑤ 1 500 V AC ⑤	2 000 V AC ⑤ 1 000 V AC ⑤
28,6 x 21 x 35,5	27,4 x 21 x 35,5	27,4 x 21 x 35,5	27,4 x 21 x 35,5	27,5 x 14 x 32,9
				
version 4 CO, DC	version 2 CO, DC	version 3 CO, DC	version 4 CO, DC	version 2 CO
GZT4, GZM4, SU4D, SU4L, G4D, G4	GZT2, GZM2, GZP4, SU4/2D, SU4/2L, G4D/2, G4/2	GZT3, GZM3	GZT4, GZM4, GZ4, GS4, GZP4, SU4D, SU4L, G4D, G4	GZ2, S2M, G2M
  RoHS	     RoHS	     RoHS	     RoHS	   RoHS
R4B-...-B	R2N	R3N	R4N	R2M

miniature industrial relays

industrial relays of small dimensions

Type		RY2	R15 - 2 CO	R15 - 3 CO	R15 - 4 CO
					
Contact data					
Number and type of contacts		2 CO	2 CO	3 CO	4 CO
Contact material		AgNi	AgNi, AgNi/Au ❶, AgNi/Au ❷	AgNi, AgNi/Au ❶, AgNi/Au ❷	AgSnO ₂ , AgNi, AgNi/Au ❶, AgNi/Au ❷
Rated / max. AC switching voltage	AC	250 V / 440 V	250 V / 440 V	250 V / 440 V	250 V / 440 V
Rated load (capacity)	AC1	12 A / 250 V AC	10 A / 250 V AC	10 A / 250 V AC	10 A / 250 V AC
	AC1		3 A / 120 V (B300)	3 A / 120 V (B300)	3 A / 120 V (B300)
	AC15		1,5 A / 240 V (B300)	1,5 A / 240 V (B300)	1,5 A / 240 V (B300)
	AC15		10 A / 24 V DC ❸	10 A / 24 V DC ❸	10 A / 24 V DC ❸
	DC1		0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	0,22 A / 120 V (R300) 0,1 A / 250 V (R300)
	DC13				
Motor load			0,37 kW ❹	0,37 kW ❹	0,37 kW ❹
Coil data					
Rated voltage	AC	6, 12, 24, 42, 48, 60, 80, 110, 120, 127, 220, 230, 240 V	6, 12, 24 , 48, 60, 115, 120, 220, 230 , 240 V	6, 12, 24 , 48, 60, 115, 120, 220, 230 , 240 V	6, 12, 24, 48, 60, 110, 115, 120, 127, 220, 230, 240, 400 V
	DC	5, 6, 12, 24, 48, 60, 80, 110, 125, 220 V	6, 12 , 24 , 40, 48, 60, 110, 120, 220 V	6, 12 , 24 , 40, 48, 60, 110, 120, 220 V	6, 12 , 24 , 48, 60, 110, 120, 220 V
Insulation					
Insulation rated voltage		250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength	• coil - contacts	2 500 V AC ❸	2 500 V AC ❸	2 500 V AC ❸	2 500 V AC ❸
	• contact clearance	1 000 V AC ❸	1 500 V AC ❸	1 500 V AC ❸	1 500 V AC ❸
General data					
Dimensions	mm	27,5 x 21,1 x 34,5	35 x 35 x 54,4	35 x 35 x 54,4	35 x 42,5 x 54,5
Connection diagrams (pin side view)					
	Note: polarity of the supply of the relays with DC coils - see www.relpol.com.pl	version 2 CO, DC	version 2 CO, DC	version 3 CO, DC	version 4 CO, DC
Plug-in sockets for relays		GZY2G	PZ8, GZU8, GZ8, GZP8, GOP8	PZ11, GZU11, GZ11, GZP11, GOP11	GZ14U, GZ14, GZ14Z, GZ14P, GOP14
Recognitions, certifications, directives		CE  RoHS	CE   RoHS	CE   RoHS	CE   RoHS
Download data sheet		RY2	R15 - 2 CO	R15 - 3 CO	R15 - 4 CO

❶ Type of insulation: basic

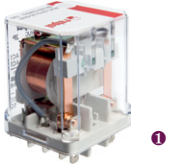
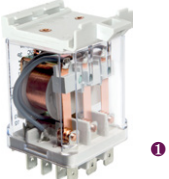
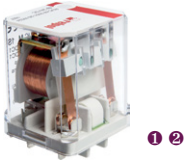
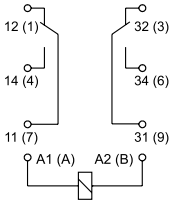
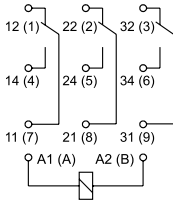
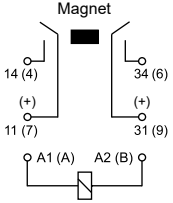
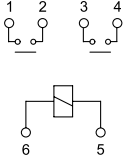
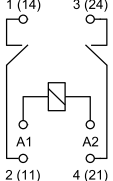
❷ Type of clearance: micro-disconnection

❸ Diagram: www.relpol.com.pl

❹ Type of insulation: reinforced

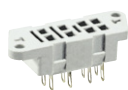
❺ Type of clearance: full-disconnection

industrial relays of small dimensions

RUC	RUC	RUC-M	R20	RG25
faston 4,8 x 0,5	faston 6,3 x 0,8	for DC loads		
				
2 CO, 3 CO, 2 NO, 3 NO	2 CO, 3 CO, 2 NO, 3 NO	1 NO, 2 NO	1 NO, 2 NO	2 NO
AgNi, AgSnO ₂	AgNi, AgSnO ₂	AgNi, AgSnO ₂	AgSnO ₂	AgSnO ₂
250 V / 440 V	250 V / 440 V	250 V / 440 V	250 V / 440 V	400 V / 440 V
16 A / 250 V AC	16 A / 250 V AC	16 A / 250 V AC	1 NO: 30 A / 250 V AC 2 NO: 25 A / 250 V AC	25 A / 400 V AC
16 A / 24 V DC ⑤	16 A / 24 V DC ⑤	1 NO: 12 A / 220 V DC ⑥ 2 NO: 4,5 A / 220 V DC ④		25 A / 24 V DC ⑤ 0,3 A / 120 V (R300) 0,15 A / 250 V (R300)
				0,989 kW ⑦
6, 12, 24, 115, 120, 220, 230, 240, 400 V	6, 12, 24, 115, 120, 220, 230, 240, 400 V	12, 24, 48, 115, 120, 230, 240 V	24, 48, 115, 230 V	12, 24, 110, 230, 400 V
6, 12, 24, 42, 48, 60, 110, 120, 220 V	6, 12, 24, 42, 48, 60, 110, 120, 220 V	12, 24, 48, 110, 220 V	12, 24, 110 V	12, 24, 48, 110, 220 V
12, 24, 48, 110, 220 V (reinforced)	12, 24, 48, 110, 220 V (reinforced)	12, 24, 48, 110, 220 V (reinforced)		
400 V AC	400 V AC	400 V AC	250 V AC	400 V AC
2 500 V AC ⑧ 1 500 ⑥, 2 500 ⑥ V AC	2 500 V AC ⑧ 1 500 ⑥, 2 500 ⑥ V AC	2 500 V AC ⑧ 1 NO: 4 000 V AC ⑥	4 000 V AC ④ 2 000 V AC ⑥	5 000 V AC ④ 1 500 V AC ⑥
36,1 x 38,6 x 52,65 ⑤	46,8 x 38,6 x 66,1 ⑥	36,1 x 38,6 x 52,65 ⑤	67 x 33 x 35	26 x 53,7 x 75,5
				
version 2 CO	version 3 CO	version 2 NO ②	version 2 NO	version 2 NO
GUC11S-V0 ⑦		GUC11S-V0 ⑦		
 RoHS	 RoHS	 RoHS	 RoHS	 RoHS
RUC	RUC	RUC-M	R20	RG25

① RUC, RUC-M: relays available in versions: for plug-in sockets; with adaptors for direct mounting on 35 mm rail mount; with cover with flange for mounting on panel; for PCB mounting ② RUC-M: relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC loads ③ RUC-M contact 1 NO: DC1 - 16 A / 24 V DC, 14 A / 110 V DC ④ RUC-M contacts 2 NO: DC1 - 16 A / 24 V DC, 10,5 A / 110 V DC ⑤ RUC, RUC-M: for plug-in sockets ⑥ RUC: with horizontal adaptor (H) ⑦ GUC11S-V0: insulation rated voltage 250 V AC

Plug-in sockets for relays

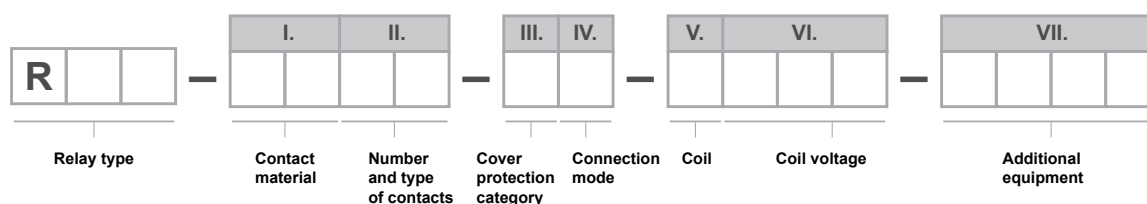
GZT2 (856048) For R2N, R2B-...-B 	GZT3 (856049) For R2B-...-D, R3N, R3B-...-B 	GZT4 (856050) For R3B-...-D, R4N, R4B-...-B 	GZP4 (864324) ① For R2N, R2B-...-B, R4N, R4B-...-B 	
GZM2 (857440) For R2N, R2B-...-B 	GZM3 (857412) For R2B-...-D, R3N, R3B-...-B 	GZM4 (857436) For R3B-...-D, R4N, R4B-...-B 		
GZ4 (2000538) For R4N 	GS4 (2613504) For R4N 	GZ2 (2000553) For R2M 	GZY2G (2613972) For RY2 	
				
SU4/2D (592051) For R2N, R2B-...-B 	SU4D (592049) For R3B-...-D, R4N, R4B-...-B 	G4D/2 (592059) For R2N, R2B-...-B 	G4D (592057) For R3B-...-D, R4N, R4B-...-B 	S2M (592065) For R2M 
				
SU4/2L (592050) For R2N, R2B-...-B 	SU4L (592048) For R3B-...-D, R4N, R4B-...-B 	G4/2 (592057) For R2N, R2B-...-B 	G4 (592056) For R3B-...-D, R4N, R4B-...-B 	G2M (592064) For R2M 
				

ORDERING CODES:
Signalling / protecting module - see page 60.
Interconnection strips - see page 61.

① Push-in terminals (flammability class V-0); max. cross section of the cables: 2 x 1,5 mm² (solid wire without ferrule or stranded wire with non-insulated ferrule), 2 x 1 mm² (solid or stranded wire with insulated ferrule); stripping length: 8...10 mm.

Plug-in sockets for relays

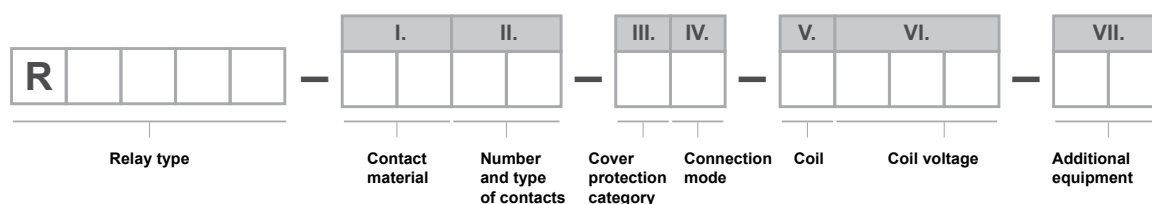
PZ8 (592005) For R15 - 2 CO   PZ11 0031	PZ11 (592001) For R15 - 3 CO 	GZU8 (592031) For R15 - 2 CO   GZU 1052	GZU11 (592035) For R15 - 3 CO 
GZ8 (592012) For R15 - 2 CO   GZ 1050	GZ11 (592017) For R15 - 3 CO 	GZP8 (2613505) For R15 - 2 CO    GZP-0054 GZP-0035	GZP11 (2613506) For R15 - 3 CO    21, 41 COM3
GZ14U (592027) For R15 - 4 CO 	GZ14 (592022) For R15 - 4 CO 	GZ14Z (858866) For R15 - 4 CO   GZ14 0737	GZ14P (864515) For R15 - 4 CO 
GOP8 (592067) For R15 - 2 CO   R159 1051	GOP11 (592069) For R15 - 3 CO 	GOP14 (592071) For R15 - 4 CO    R15 0736 R15 5922	GUC11S-VO (862593) For RUC, RUC-M   MBA



		Relay type															
		R2B		R3B		R4B		R2N		R3N		R4N		R2M		RY2	
		latching		latching		latching											
I.	Contact material																
20	- AgNi	•		•		•		•		•		•		•		•	
21	- AgNi/Au flash gold plating					•		•		•		•		•			
23	- AgNi/Au hard gold plating					•						•					
30	- AgSnO ₂													•			
II.	Number and type of contacts																
12	- 2 CO	•						•						•		•	
13	- 3 CO			•						•							
14	- 4 CO					•						•					
III.	Cover protection category																
2	- IP 40	•		•		•		•		•		•		•		•	
4	- IP 40 mounting flange															•	
IV.	Connection mode																
3	- for sockets	•		•		•		•		•		•		•			
5	- for PCB											•		•			
6	- faston 187 and for sockets															•	
V.	Coil																
1	- DC	•		•		•		•		•		•		•		•	
5	- AC							•		•		•		•		•	
VI.	Coil voltage	DC		DC		DC		AC	DC	AC	DC	AC	DC	AC	DC	AC	DC
012	- 12 V	•		•		•		•	•	•	•	•	•	•	•	•	•
024	- 24 V	•		•		•		•	•	•	•	•	•	•	•	•	•
110	- 110 V							•	•	•	•	•	•	•	•	•	•
220	- 220 V							•	•	•	•	•	•	•		•	•
230	- 230 V							•		•		•		•		•	
... - other voltages: see data tables (pages 64, 65, 66) or product catalog (full edition) www.relpol.pl/en/Download/Product-Catalogs																	
VII.	Additional equipment	DC		DC		DC		AC	DC	AC	DC	AC	DC	AC	DC	AC	DC
W	- mechanical indicator	•		•		•		•		•		•					
T	- test button							•		•		•					
L	- LED indicator							•		•		•				•	
D	- diode								•	•		•					•

EXAMPLE ORDERING CODES

Index	Code	Description
A00073	R2B-2012-23-B012-W	two changeover contacts 12 A (AgNi), coil voltage 12 V DC (1 coil)
A00076	R2B-2012-23-D024-W	two changeover contacts 12 A (AgNi), coil voltage 24 V DC (2 coils)
A00078	R3B-2013-23-B024-W	three changeover contacts 8 A (AgNi), coil voltage 24 V DC (1 coil)
A00079	R3B-2013-23-D012-W	three changeover contacts 6 A (AgNi), coil voltage 12 V DC (2 coils)
A00072	R4B-2014-23-B024-W	four changeover contacts 6 A (AgNi), coil voltage 24 V DC (1 coil)
860398	R2N-2012-23-1024-WTL	two changeover contacts 12 A (AgNi), coil voltage 24 V DC
860401	R2N-2012-23-5230-WTL	two changeover contacts 12 A (AgNi), coil voltage 230 V AC
860404	R3N-2013-23-1024-WTL	three changeover contacts 10 A (AgNi), coil voltage 24 V DC
860408	R3N-2013-23-5230-WTL	three changeover contacts 10 A (AgNi), coil voltage 230 V AC
860411	R4N-2014-23-1024-WTL	four changeover contacts 6 A (AgNi), coil voltage 24 V DC
860414	R4N-2014-23-5230-WTL	four changeover contacts 6 A (AgNi), coil voltage 230 V AC
617171	R2M-2012-23-1024	two changeover contacts 5 A (AgNi), coil voltage 24 V DC
802541	R2M-2012-23-5230	two changeover contacts 5 A (AgNi), coil voltage 230 V AC
855715	RY2-2012-26-1024	two changeover contacts 12 A (AgNi), coil voltage 24 V DC
855739	RY2-2012-26-5230	two changeover contacts 12 A (AgNi), coil voltage 230 V AC

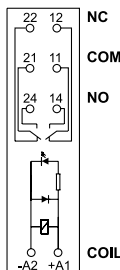
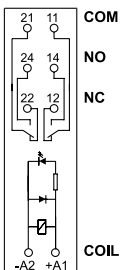
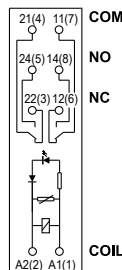
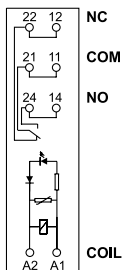


		Relay type													
		R15		R15		R15		RUC		RUC-M		R20		RG25	
		version 2 CO		version 3 CO		version 4 CO									
I.	Contact material														
20	- AgNi	•		•		•		•		•					
21	- AgNi/Au flash gold plating	•		•		•									
23	- AgNi/Au hard gold plating	•		•		•									
30	- AgSnO ₂					•		•		•		•		•	
II.	Number and type of contacts														
12	- 2 CO	•						•							
13	- 3 CO			•				•							
14	- 4 CO					•									
21	- 1 NO											•			
22	- 2 NO							•				•		•	
23	- 3 NO							•							
51	- 1 NO gap 6 mm									•					
52	- 2 NO gap 3 mm							•		•					
53	- 3 NO gap 3 mm							•							
III.	Cover protection category														
2	- IP 00							•		•					
2	- IP 20														•
2	- IP 40	•		•		•									
4	- IP 00 mounting flange							•		•					
V	- IP 00 adaptor							•		•					
H	- IP 00 adaptor							•		•					
9	- IP 50 mounting flange											•			
IV.	Connection mode														
5	- for PCB	•		•		•		•		•					
6	- faston 187 and for sockets							•		•					
6	- faston 250											•			
A	- faston 250							•							
8	- screw terminals														•
V.	Coil														
1	- DC	•		•		•		•				•		•	
W	- DC reinforced							•		•					
3	- AC					•		•							•
5	- AC	•		•		•		•		•		•			
VI.	Coil voltage	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC
012	- 12 V	•	•	•	•	•	•	•	•	•	•	•	•	•	•
024	- 24 V	•	•	•	•	•	•	•	•	•	•	•	•	•	•
110	- 110 V		•		•	•	•		•		•		•	•	•
220	- 220 V	•	•	•	•	•	•	•	•		•				•
230	- 230 V	•		•		•		•		•		•		•	
... - other voltages: see data tables (pages 66, 67) or product catalog (full edition) www.relpol.pl/en/Download/Product-Catalogs															
VII.	Additional equipment														
W	- mechanical indicator	•		•											
T	- test button	•		•											
K	- test button					•		•							
L	- LED indicator	•		•		•		•		•					
D	- diode		•		•		•								
V	- varistor	•		•											

EXAMPLE ORDERING CODES

Index	Code	Description
802882	R15-2012-23-1024-WT	two changeover contacts 10 A (AgNi), coil voltage 24 V DC
802874	R15-2013-23-5230-WT	three changeover contacts 10 A (AgNi), coil voltage 230 V AC
863820	R15-2014-23-3230-K	four changeover contacts 10 A (AgNi), coil voltage 230 V AC
862682	RUC-3013-26-1024	three changeover contacts 16 A (AgSnO ₂), coil voltage 24 V DC
864152	RUC-M-3051-26-5230	one normally open contact 16 A (AgSnO ₂), coil voltage 230 V AC

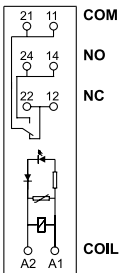
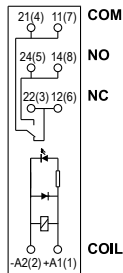
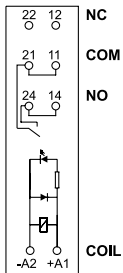
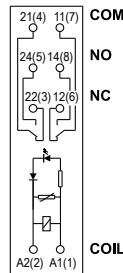
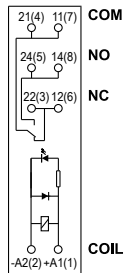
interface relays - sets

Type	PI84 - GZT80	PI84 - GZM80	PI84 - GZP80	PI85 - GZT80
				
Contact data				
Number and type of contacts	2 CO	2 CO	2 CO	1 CO
Contact material	AgNi, AgNi/Au ②, AgSnO ₂	AgNi, AgNi/Au ②, AgSnO ₂	AgNi, AgNi/Au ②, AgSnO ₂	AgNi, AgNi/Au ②, AgSnO ₂
Rated / max. AC switching voltage	250 V / 300 V	250 V / 300 V	250 V / 300 V	250 V / 300 V
Rated load (capacity)	AC1 8 A / 250 V AC AC15 3 A / 120 V (B300) AC15 1,5 A / 240 V (B300) DC1 8 A / 24 V DC ⑤ DC13 0,22 A / 120 V (R300) DC13 0,1 A / 250 V (R300)	AC1 8 A / 250 V AC AC15 3 A / 120 V (B300) AC15 1,5 A / 240 V (B300) DC1 8 A / 24 V DC ⑤ DC13 0,22 A / 120 V (R300) DC13 0,1 A / 250 V (R300)	AC1 8 A / 250 V AC AC15 3 A / 120 V (B300) AC15 1,5 A / 240 V (B300) DC1 8 A / 24 V DC ⑤ DC13 0,22 A / 120 V (R300) DC13 0,1 A / 250 V (R300)	16 A / 250 V AC ① 3 A / 120 V (B300) 1,5 A / 240 V (B300) 16 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)
Motor load	0,37 kW ⑦	0,37 kW ⑦	0,37 kW ⑦	0,5 kW ⑦
Coil data				
Rated voltage AC	12, 24, 48, 115, 120, 230, 240 V	12, 24, 115, 120, 230, 240 V	12, 24, 48, 115, 120, 230 V	12, 24, 48, 115, 120, 230, 240 V
Rated voltage DC	12, 24, 48, 110 V	12, 24, 48, 60, 110 V	12, 24, 48, 110 V	12, 24, 48, 110 V
Insulation				
Insulation rated voltage	250 V AC	300 V AC	250 V AC	250 V AC
Dielectric strength				
• coil - contacts	5 000 V AC ④	5 000 V AC ④	5 000 V AC ④	5 000 V AC ④
• contact clearance	1 000 V AC ⑤	1 000 V AC ⑤	1 000 V AC ⑤	1 000 V AC ⑤
General data				
Dimensions mm	80 x 15,6 x 67	81,6 x 15,9 x 67	97 x 15,9 x 75,8	80 x 15,6 x 67
Connection diagrams (terminals side view)	 version 2 CO, DC	 version 2 CO, DC	 version 2 CO, AC	 version 1 CO, AC
Operational relays	RM84	RM84	RM84	RM85
Plug-in sockets	GZT80	GZM80	GZP80	GZT80 ①
Indicator	module type M...	module type M...	module type M...	module type M...
Recognitions, certifications, directives	  RoHS	  RoHS	  RoHS	  RoHS
Download data sheet	PI84 - GZT80	PI84 - GZM80	PI84 - GZP80	PI85 - GZT80

② Hard gold plating ④ Type of insulation: reinforced
 ⑦ AC3 according to IEC 60947-4-1, 1-phase motor

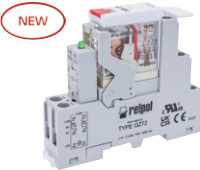
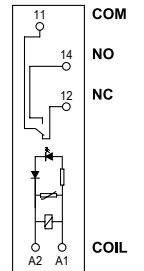
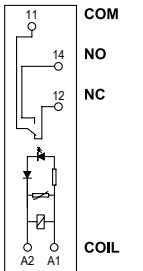
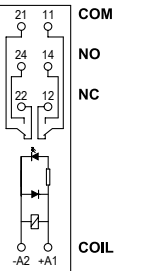
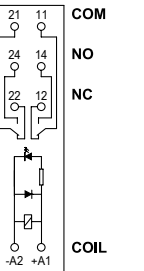
⑤ Type of clearance: micro-disconnection
 ⑥ Diagram: www.repol.com.pl

interface relays - sets

PI85 - GZM80	PI85 - GZP80	PI85 inrush - GZT80	PI84P - GZP80	PI85P - GZP80
				
1 CO	1 CO	1 NO	2 CO	1 CO
AgNi, AgNi/Au ②, AgSnO ₂	AgNi, AgNi/Au ②, AgSnO ₂	AgSnO ₂	AgNi	AgNi
250 V / 300 V	250 V / 300 V	250 V / 300 V	250 V / 300 V	250 V / 300 V
16 A / 250 V AC ① 3 A / 120 V (B300) 1,5 A / 240 V (B300) 16 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	16 A / 250 V AC ① 3 A / 120 V (B300) 1,5 A / 240 V (B300) 16 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	16 A / 250 V AC ① 3 A / 120 V (B300) 1,5 A / 240 V (B300) 16 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	8 A / 250 V AC	16 A / 250 V AC ①
0,5 kW ⑦	0,5 kW ⑦	0,75 kW ⑦		
12, 24, 115, 120, 230, 240 V	12, 24, 48, 115, 120, 230 V		24, 115, 230 V	24, 115, 230 V
12, 24, 48, 60, 110 V	12, 24, 48, 110 V	12, 24, 110 V	12, 24, 48, 110 V	12, 24, 48, 110 V
300 V AC	250 V AC	250 V AC	300 V AC	300 V AC
5 000 V AC ④ 1 000 V AC ⑤	5 000 V AC ④ 1 000 V AC ⑤	5 000 V AC ④ 1 000 V AC ⑤	5 000 V AC ④ 1 000 V AC ⑤	5 000 V AC ④ 1 000 V AC ⑤
81,6 x 15,9 x 67	97 x 15,9 x 75,8	80 x 15,6 x 67	97 x 15,9 x 75,8	97 x 15,9 x 75,8
 version 1 CO, AC	 version 1 CO, DC	 version 1 NO, DC	 version 2 CO, AC	 version 1 CO, DC
RM85 GZM80 ① module type M...	RM85 GZP80 ① module type M...	RM85 inrush GZT80 ① module type M...	RMP84 GZP80 module type M...	RMP85 GZP80 ① module type M...
 RoHS	 RoHS	 RoHS	 RoHS	 RoHS
PI85 - GZM80	PI85 - GZP80	PI85 inrush - GZT80	PI84P - GZP80	PI85P - GZP80

① Loads above 12 A require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see www.relpol.com.pl

interface relays - sets

Type	PI71P - GZ71	PI71P - GZP71	PI72P - GZ72	PI72P - GZP72
				
Contact data				
Number and type of contacts	1 CO	1 CO	2 CO	2 CO
Contact material	AgNi	AgNi	AgNi	AgNi
Rated / max. switching voltage AC	250 V / 300 V	250 V / 300 V	250 V / 300 V	250 V / 300 V
Rated load (capacity)	12 A / 250 V AC AC1 AC15 DC1 DC13 DC13	12 A / 250 V AC AC1 AC15 DC1 DC13 DC13	8 A / 250 V AC AC1 AC15 DC1 DC13 DC13	8 A / 250 V AC AC1 AC15 DC1 DC13 DC13
Motor load				
Input circuit				
Rated voltage AC	24, 110, 230 V	24, 110, 230 V	24, 110, 230 V	24, 110, 230 V
DC	12, 24, 110 V	12, 24, 110 V	12, 24, 110 V	12, 24, 110 V
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength				
• coil - contacts	2 000 V AC ③	2 000 V AC ③	2 000 V AC ③	2 000 V AC ③
• contact clearance	1 000 V AC ⑤	1 000 V AC ⑤	1 000 V AC ⑤	1 000 V AC ⑤
General data				
Dimensions mm	80,4 x 15,7 x 66,1	99,8 x 16,1 x 61,4	80,4 x 15,7 x 66,1	99,8 x 16,1 x 61,4
Connection diagrams (terminals side view)	 version 1 CO, AC	 version 1 CO, AC	 version 2 CO, DC	 version 2 CO, DC
Operational relays	RMP7	RMP7	RMP7	RMP7
Plug-in sockets	GZ71	GZP71	GZ72	GZP72
Indicator	module type Y...	module type Y...	module type Y...	module type Y...
Recognitions, certifications, directives	CE RoHS	CE RoHS	CE RoHS	CE RoHS
Download data sheet	PI71P - GZ71	PI71P - GZP71	PI72P - GZ72	PI72P - GZP72

② Hard gold plating

⑤ Type of clearance: micro-disconnection

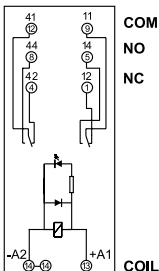
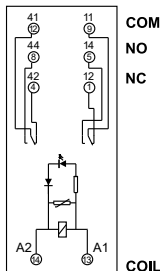
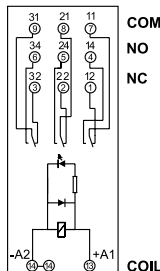
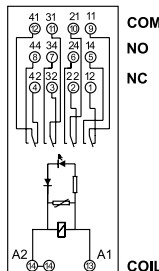
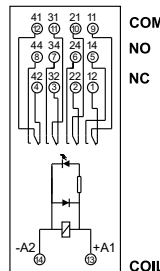
⑦ AC3 according to IEC 60947-4-1, 1-phase motor

③ Type of insulation: basic

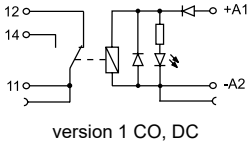
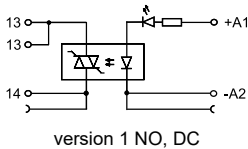
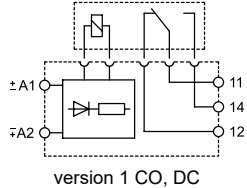
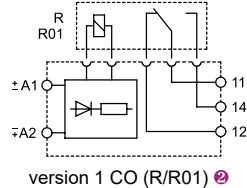
④ Type of insulation: reinforced

⑧ Diagram: www.relpol.com.pl

interface relays - sets

PIR2 - GZM2	PIR2 - GZP4	PIR3 - GZM3	PIR4 - GZM4	PIR4 - GZP4
				
2 CO	2 CO	3 CO	4 CO	4 CO
AgNi	AgNi	AgNi	AgNi	AgNi, AgNi/Au ②
250 V / 300 V	250 V / 300 V	250 V / 300 V	250 V / 300 V	250 V / 300 V
12 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 12 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	12 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 12 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	10 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 10 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	7 A / 230 V AC (VDE) 6 A / 250 V AC 1,5 A / 120 V (B300) 0,75 A / 240 V (B300) 6 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	7 A / 230 V AC (VDE) 6 A / 250 V AC 1,5 A / 120 V (B300) 0,75 A / 240 V (B300) 6 A / 24 V DC ③ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)
0,37 kW ⑦	0,37 kW ⑦	0,37 kW ⑦	0,125 kW ⑦	0,125 kW ⑦
12, 24, 48, 115, 120, 230 V	12, 24, 48, 115, 120, 230 V	12, 24, 48, 115, 120, 230 V	12, 24, 48, 115, 120, 230 V	12, 24, 48, 115, 120, 230 V
12, 24, 48, 110 V	12, 24, 48, 110 V	12, 24, 48, 110 V	12, 24, 48, 110 V	12, 24, 48, 110 V
300 V AC	300 V AC	300 V AC	300 V AC	300 V AC
2 500 V AC ⑧ 1 500 V AC ⑨	2 500 V AC ⑧ 1 500 V AC ⑨	2 500 V AC ⑧ 1 500 V AC ⑨	2 500 V AC ⑧ 1 500 V AC ⑨	2 500 V AC ⑧ 1 500 V AC ⑨
80,5 x 27 x 82	97 x 31 x 75,8	80,5 x 27 x 82	80,5 x 27 x 82	97 x 31 x 75,8
 version 2 CO, DC	 version 2 CO, AC	 version 3 CO, DC	 version 4 CO, AC	 version 4 CO, DC
R2N GZM2 module type M...	R2N GZP4 module type M...	R3N GZM3 module type M...	R4N GZM4 module type M...	R4N GZP4 module type M...
CE c RUUS RoHS	CE c RUUS RoHS	CE c RUUS RoHS	CE c RUUS RoHS	CE c RUUS RoHS
PIR2 - GZM2	PIR2 - GZP4	PIR3 - GZM3	PIR4 - GZM4	PIR4 - GZP4

interface relays - narrow profile

Type	PI6-1P	PI6-1T	PIR6W-1P-...	PIR6W-1PS-...
				
Output circuit				contacts
Number and type of outputs	1 CO	1 NO (triac)	1 CO	1 CO (R/R01) ②
Contact material	AgSnO ₂ , AgSnO ₂ /Au ②		AgSnO ₂ , AgSnO ₂ /Au ②	AgSnO ₂ (R) ②, AgSnO ₂ /Au (R01) ② ②
Max. voltage AC / DC	AgSnO ₂ : 250 V / 400 V	400 V / 440 V	AgSnO ₂ : 250 V / 400 V	400 V / 250 V (R) ② 30 V / 30 V (R01) ② ②
Rated load (capacity)	AC1 AC15 AC15 DC1 DC1 DC13 DC13 AgSnO ₂ : 6 A / 250 V AC AgSnO ₂ : 6 A / 24 V DC AgSnO ₂ : 0,15 A / 250 V DC	1,2 A / 400 V AC	AgSnO ₂ : 6 A / 250 V AC AgSnO ₂ : 6 A / 24 V DC AgSnO ₂ : 0,15 A / 250 V DC	6 A / 250 V AC (R) ② 6 A / 24 V DC (R) 0,15 A / 250 V DC (R)
Motor load				
Input circuit				
Rated voltage AC			230 V	230 V
DC	12, 24, 36 V	5...32 V	12, 24, 36 V	6, 12, 24, 36, 48, 60 V
AC/DC	24, 42, 115, 230 V	24, 230 V	24, 42, 115, 230 V	24, 42, 115, 230 V
Insulation				
Insulation rated voltage	400 V AC	600 V AC	250 V AC	250 V AC
Dielectric strength				
• input - output	4 000 V AC ④	4 000 V AC ④	4 000 V AC ④	4 000 V AC ④
• contact clearance	1 000 V AC ⑤		1 000 V AC ⑤	1 000 V AC ⑤
General data				
Dimensions mm	93,8 x 6,2 x 80	93,8 x 6,2 x 80	98,5 x 6,2 x 85,5	98,5 x 6,2 x 85,5
Connection diagrams	 version 1 CO, DC	 version 1 NO, DC	 version 1 CO, DC	 version 1 CO (R/R01) ②
Operational relays			RM699BV	RM699BV ②
Plug-in sockets			PI6W-1P-...	PI6W-1PS-...
Indicator	LED green	LED green	LED green	LED green
Recognitions, certifications, directives	 RoHS	 RoHS	 RoHS	 RoHS
Download data sheet	PI6-1P	PI6-1T	PIR6W-1P-...	PIR6W-1PS-...

② Hard gold plating

④ Type of insulation: reinforced

⑤ Type of clearance: micro-disconnection

⑦ AC3 according to IEC 60947-4-1, 1-phase motor

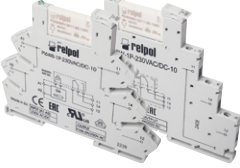
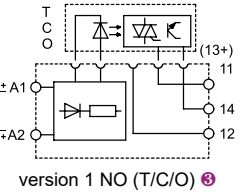
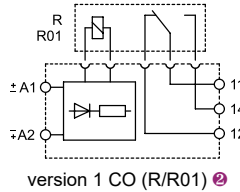
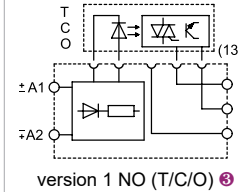
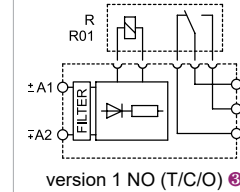
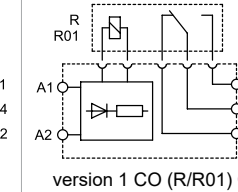
② Versions (R/R01) - operational electromagnetic relays

③ Versions (T/C/O) - operational solid state relays

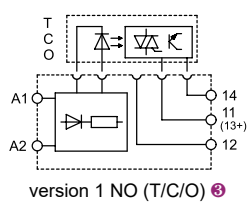
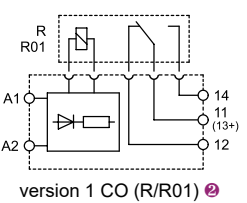
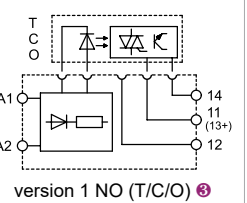
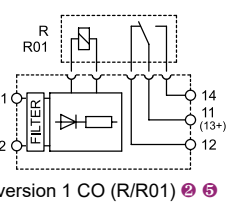
④ Fixed polarization of input voltage (+A1, -A2)

⑤ Version for long control lines - with integrated anti-interference filter

interface relays - narrow profile

PIR6W-1PS-...	PIR6WB-1PS-...	PIR6WB-1PS-...	PIR6W-1P-...-10	SIR6W-...
triac, transistor 	contacts 	triac, transistor 	contacts 	contacts 
1 NO (T/C/O) ③	1 CO (R/R01) ②	1 NO (T/C/O) ③	1 CO (R/R01) ②	1 CO (R/R01) ②
	AgSnO ₂ (R) ②, AgSnO ₂ /Au (R01) ② ②		AgSnO ₂ (R) ②, AgSnO ₂ /Au (R01) ② ②	AgSnO ₂ (R) ②, AgSnO ₂ /Au (R01) ② ②
240 V (T) / 48 V (C), 24 V (O) ③	400 V / 250 V (R) ② 30 V / 30 V (R01) ② ②	240 V (T) / 48 V (C), 24 V (O) ③	400 V / 250 V (R) ② 30 V / 30 V (R01) ② ②	400 V / 250 V (R) ② 30 V / 30 V (R01) ② ②
1 A / 240 V AC (T)	6 A / 250 V AC (R) ②	1 A / 240 V AC (T)	6 A / 250 V AC (R) ②	6 A / 250 V AC (R) ② 3 A / 120 V (B300) 1,5 A / 240 V (B300) 6 A / 30 V DC (R) 0,15 A / 250 V DC (R) 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)
1 A / 48 V DC (C) 2 A / 24 V DC (O) ③	6 A / 24 V DC (R) 0,15 A / 250 V DC (R)	1 A / 48 V DC (C) 2 A / 24 V DC (O) ③	6 A / 24 V DC (R) 0,15 A / 250 V DC (R)	0,186 kW ⑦
230 V	230 V	230 V	230 V	
6, 12, 24, 36, 48, 60 V	6, 12, 24, 36, 48, 60 V	6, 12, 24, 36, 48, 60 V		6, 12, 24 V ④
24, 42, 115, 230 V	24, 42, 115, 230 V	24, 42, 115, 230 V	230 V	12, 24, 48, 60, 110...125, 220...240 V
250 V AC	250 V AC	250 V AC	250 V AC	250 V AC
4 000 V AC	4 000 V AC ① 1 000 V AC ⑤	4 000 V AC	4 000 V AC	4 000 V AC ① 1 000 V AC ⑤
98,5 x 6,2 x 85,5	98,3 x 6,2 x 84,6	98,3 x 6,2 x 84,6	PIR6W: 98,5 x 6,2 x 85,5 PIR6WB: 98,3 x 6,2 x 84,6	88,6 x 6,2 x 76
 version 1 NO (T/C/O) ③	 version 1 CO (R/R01) ②	 version 1 NO (T/C/O) ③	 version 1 NO (T/C/O) ③	 version 1 CO (R/R01) ②
RSR30 ③ PI6W-1PS-...	RM699BV ② PI6WB-1PS-...	RSR30 ③ PI6WB-1PS-...	RM699BV ② PI6W-1P-...-10, PI6WB-1P-...-10 LED green	RM699BV ② 6W-...
LED green	LED green	LED green	LED green	LED green
 RoHS	 RoHS	 RoHS	 RoHS	 RoHS
PIR6W-1PS-...	PIR6WB-1PS-...	PIR6WB-1PS-...	PIR6W-1P-...-10	SIR6W-...

interface relays - narrow profile

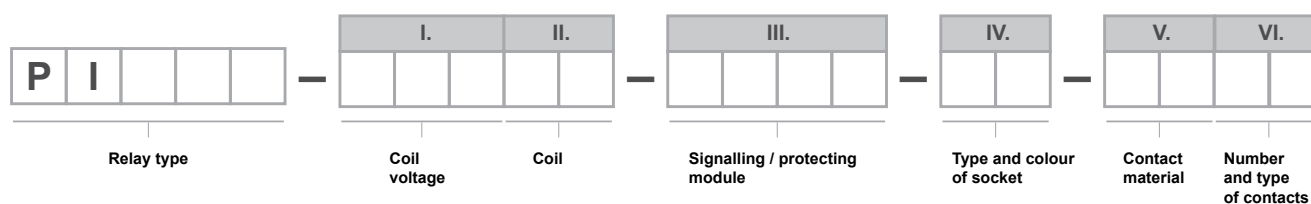
Type	SIR6W-...	SIR6WB-...	SIR6WB-...	SIR6W-...-10
	triac, transistor 	contacts 	triac, transistor 	contacts 
Output circuit				
Number and type of outputs	1 NO (T/C/O) ③	1 CO (R/R01) ②	1 NO (T/C/O) ③	1 CO (R/R01) ②
Contact material		AgSnO ₂ (R) ②, AgSnO ₂ /Au (R01) ② ②		AgSnO ₂ (R) ②, AgSnO ₂ /Au (R01) ② ②
Max. voltage AC / DC	240 V (T) / 48 V (C), 24 V (O) ③	400 V / 250 V (R) ② 30 V / 30 V (R01) ② ②	240 V (T) / 48 V (C), 24 V (O) ③	400 V / 250 V (R) ② 30 V / 30 V (R01) ② ②
Rated load (capacity)	AC1 AC15 AC15 DC1 DC1 DC13 DC13 1 A / 240 V AC (T) 1 A / 48 V DC (C) 2 A / 24 V DC (O) ③	6 A / 250 V AC (R) ② 3 A / 120 V (B300) 1,5 A / 240 V (B300) 6 A / 30 V DC (R) 0,15 A / 250 V DC (R) 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	1 A / 240 V AC (T) 1 A / 48 V DC (C) 2 A / 24 V DC (O) ③	6 A / 250 V AC (R) ② 3 A / 120 V (B300) 1,5 A / 240 V (B300) 6 A / 30 V DC (R) 0,15 A / 250 V DC (R) 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)
Motor load		0,186 kW ⑦		0,186 kW ⑦
Input circuit				
Rated voltage AC				220...240 V ⑤
DC	6, 12, 24 V ④	6, 12, 24 V ④	6, 12, 24 V ④	
AC/DC	12, 24, 48, 60, 110...125, 220...240 V	12, 24, 48, 60, 110...125, 220...240 V	12, 24, 48, 60, 110...125, 220...240 V	
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength • input - output • contact clearance	4 000 V AC	4 000 V AC ④ 1 000 V AC ⑤	4 000 V AC	4 000 V AC ④ 1 000 V AC ⑤
General data				
Dimensions mm	88,6 x 6,2 x 76	95 x 6,2 x 76,6	95 x 6,2 x 76,6	SIR6W: 88,6 x 6,2 x 76 SIR6WB: 95 x 6,2 x 76,6
Connection diagrams	 version 1 NO (T/C/O) ③	 version 1 CO (R/R01) ②	 version 1 NO (T/C/O) ③	 version 1 CO (R/R01) ② ⑤
Operational relays	RSR30 ③	RM699BV ②	RSR30 ③	RM699BV ②
Plug-in sockets	6W-...	6WB-...	6WB-...	6W-...-10, 6WB-...-10
Indicator	LED green	LED green	LED green	LED green
Recognitions, certifications, directives	CE  RoHS	CE  RoHS	CE  RoHS	CE  RoHS
Download data sheet	SIR6W-...	SIR6WB-...	SIR6WB-...	SIR6W-...-10

② Hard gold plating ④ Type of insulation: reinforced
⑦ AC3 according to IEC 60947-4-1, 1-phase motor

⑤ Type of clearance: micro-disconnection

② Versions (R/R01) - operational electromagnetic relays
④ Fixed polarization of input voltage (+A1, -A2)

③ Versions (T/C/O) - operational solid state relays
⑤ Version for long control lines - with integrated anti-interference filter



		Relay type																	
		PI84		PI85		PI85	PI84P		PI85P		PI71P		PI72P		PIR2		PIR4		
						inrush													
I.	Coil voltage	AC	DC	AC	DC	DC	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	AC	AC	
	012 - 12 V	•	•	•	•	•		•		•		•		•	•	•	•	•	
	024 - 24 V	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	110 - 110 V		•		•	•		•		•		•		•		•		•	
	230 - 230 V	•		•			•		•		•		•		•		•		
... - other voltages: see data tables (pages 72, 73, 74, 75) or product catalog (full edition) www.relpol.pl/en/Download/Product-Catalogs																			
II.	Coil																		
	DC - DC	•		•		•		•		•		•		•		•		•	
	AC - AC	•		•				•		•		•		•		•		•	
III.	Signalling / protecting module																		
	M41G - 6/24 V DC	•		•		•		•		•					•		•		
	Y41G - 6/24 V DC											•		•					
	M43G - 110/230 V DC	•		•		•		•		•					•		•		
	Y43G - 110/230 V DC											•		•					
	M91G - 6/24 V AC/DC	•		•				•		•					•		•		
	Y92G - 24/60 V AC/DC											•		•					
	M93G - 110/240 V AC/DC	•		•				•		•					•		•		
	Y93G - 110/240 V AC/DC											•		•					
IV.	Type and colour of socket																		
	TS - GZT80 grey	•		•		•													
	MS - GZM80 grey	•		•															
	PS - GZP80 grey	•		•				•		•									
	US - GZ71, GZ72 grey											•		•					
	RS - GZP71, GZP72 grey											•		•					
	PS - GZP4 grey														•		•		
V.	Contact material																		
	20 - AgNi	•		•				•		•		•		•		•		•	
	23 - AgNi/Au hard gold plating	•		•														•	
	30 - AgSnO ₂	•		•		•													
VI.	Number and type of contacts																		
	11 - 1 CO			•						•		•							
	21 - 1 NO					•													
	12 - 2 CO	•						•						•		•			
	14 - 4 CO																	•	

EXAMPLE ORDERING CODES

Index	Code	Description
862104	PI84-024DC-M41G-TS-2012	two changeover contacts 8 A (AgNi), coil voltage 24 V DC
862197	PI84-230AC-M93G-MS-3012	two changeover contacts 8 A (AgSnO ₂), coil voltage 230 V AC
864835	PI84-230AC-M93G-PS-2012	two changeover contacts 8 A (AgNi), coil voltage 230 V AC
862148	PI85-230AC-M93G-TS-3011	one changeover contact 16 A (AgSnO ₂), coil voltage 230 V AC
862205	PI85-024DC-M41G-MS-2011	one changeover contact 16 A (AgNi), coil voltage 24 V DC
864838	PI85-230AC-M93G-PS-2011	one changeover contact 16 A (AgNi), coil voltage 230 V AC
864845	PI84P-024DC-M41G-PS-2012	two changeover contacts 8 A (AgNi), coil voltage 24 V DC
864850	PI85P-230AC-M93G-PS-2011	one changeover contact 16 A (AgNi), coil voltage 230 V AC
	PI71P-230AC-Y93G-US-2011	one changeover contact 12 A (AgNi), coil voltage 230 V AC
	PI72P-024DC-Y42G-US-2012	two changeover contacts 8 A (AgNi), coil voltage 24 V DC
2617312	PI71P-024DC-Y42G-RS-2011	one changeover contact 12 A (AgNi), coil voltage 24 V DC
2617322	PI72P-230AC-Y93G-RS-2012	two changeover contacts 8 A (AgNi), coil voltage 230 V AC
864839	PIR2-024DC-M41G-PS-2012	two changeover contacts 12 A (AgNi), coil voltage 24 V DC
864844	PIR4-230AC-M93G-PS-2014	four changeover contacts 6 A (AgNi), coil voltage 230 V AC

		Relay type					
		PIR2		PIR3		PIR4	
		socket for GZM2 grey		socket for GZM3 grey		socket for GZM4 grey	
Coil voltage		AC	DC	AC	DC	AC	AC
024 - 24 V		•	•	•	•	•	•
230 - 230 V		•		•		•	
... - other voltages: see data tables (page 75) or product catalog (full edition) www.relpol.pl/en/Download/Product-Catalogs							
Coil							
DC - DC			•		•		•
AC - AC			•		•		•
Signalling / protecting module							
00LD - LED + diode			•		•		•
00LV - LED + varistor			•		•		•

EXAMPLE ORDERING CODES

Index	Code	Description
854795	PIR2-024DC-00LD	two changeover contacts 12 A (AgNi), coil voltage 24 V DC
854800	PIR2-230AC-00LV	two changeover contacts 12 A (AgNi), coil voltage 230 V AC
854788	PIR3-024DC-00LD	three changeover contacts 10 A (AgNi), coil voltage 24 V DC
854793	PIR3-230AC-00LV	three changeover contacts 10 A (AgNi), coil voltage 230 V AC
854770	PIR4-024DC-00LD	four changeover contacts 6 A (AgNi), coil voltage 24 V DC
854786	PIR4-230AC-00LV	four changeover contacts 6 A (AgNi), coil voltage 24 V AC

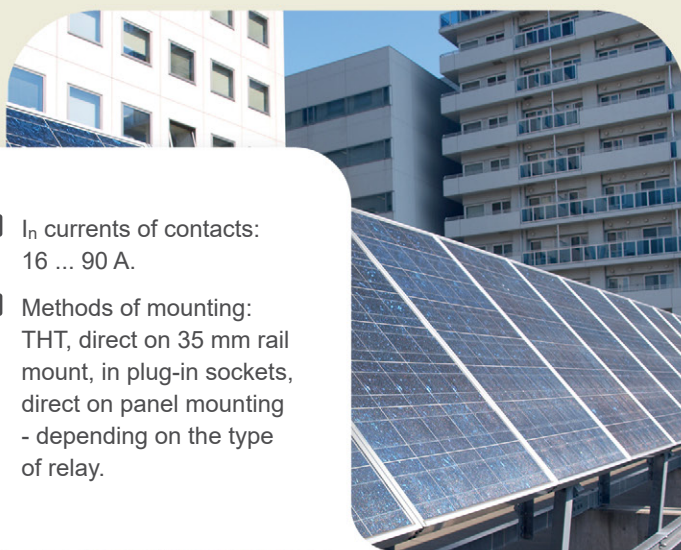
		Relay type												
		PI6-1P		PI6-1T		PIR6W-1P			PIR6W-1PS, PIR6WB-1PS			SIR6W, SIR6WB		
	Input voltage	DC	AC/DC	DC	AC/DC	AC	DC	AC/DC	AC	DC	AC/DC	AC	DC	AC/DC
	24 V - 24 V	●	●		●		●	●		●	●		●	●
	5...32V - 5...32 V			●										
	230V - 230 V		●		●	●		●	●		●			
	220-240V - 220...240 V													●
... - other voltages: see data tables (pages 76, 77, 78) or product catalog (full edition) www.relpol.pl/en/Download/Product-Catalogs														
	Input													
	DC - DC	●		●			●			●			●	
	AC - AC						●			●			●	
	AC/DC - AC/DC	●		●			●			●			●	
	Output													
	R - contacts AgSnO ₂	●					●			●			●	
	R01 - contacts AgSnO ₂ /Au hard gold plating	●					●			●			●	
	T - triac			●						●			●	
	C - transistor 1 A									●			●	
	O - transistor 2 A									●			●	
	For long control lines	DC	AC/DC	DC	AC/DC	AC	DC	AC/DC	AC	DC	AC/DC	AC	DC	AC/DC
	230V...-10 - 230 V with filter		●			●		●	● PIR6WB		● PIR6WB			
	220-240V...-10 - 220...240 V with filter											●		

EXAMPLE ORDERING CODES

Index	Code	Description
858550	PI6-1P-24VDC	one changeover contact 6 A (AgSnO ₂), input voltage 24 V DC
858559	PI6-1P-230VAC/DC	one changeover contact 6 A (AgSnO ₂), input voltage 230 V AC/DC
854603	PI6-1T-5...32VDC	one solid state output 1,2 A (triac), input voltage 5...32 V DC
858604	PIR6W-1P-24VDC	one changeover contact 6 A (AgSnO ₂), input voltage 24 V DC
856070	PIR6W-1P-230VAC/DC-10	one changeover contact 6 A (AgSnO ₂), input voltage 230 V AC/DC (with filter)
858620	PIR6W-1PS-24VDC-R	one changeover contact 6 A (AgSnO ₂), input voltage 24 V DC
857186	PIR6W-1PS-24VDC-T	one solid state output 1 A (triac), input voltage 24 V DC
857485	PIR6WB-1PS-24VDC-R	one changeover contact 6 A (AgSnO ₂), input voltage 24 V DC
857493	PIR6WB-1P-230VAC/DC-10	one changeover contact 6 A (AgSnO ₂), input voltage 230 V AC/DC (with filter)
863758	SIR6W-24VDC-R	one changeover contact 6 A (AgSnO ₂), input voltage 24 V DC
863764	SIR6W-24VAC/DC-O	one solid state output 2 A (transistor), input voltage 24 V AC/DC
863772	SIR6WB-220-240VAC/DC-R	one changeover contact 6 A (AgSnO ₂), input voltage 220...240 V AC/DC
865443	SIR6WB-220-240VAC-10	one changeover contact 6 A (AgSnO ₂), input voltage 220...240 V AC (with filter)

High power relays

- I_n currents of contacts:
16 ... 90 A.
- Methods of mounting:
THT, direct on 35 mm rail
mount, in plug-in sockets,
direct on panel mounting
- depending on the type
of relay.

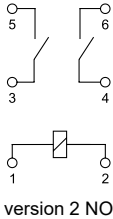
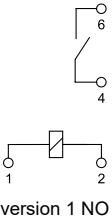
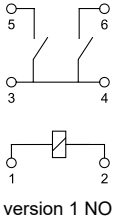
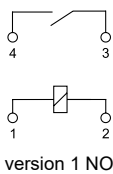


RS35	82
RS50	82
RS80	82
R50A	82
R90A	83
R30N	83
R40N	83
R20	83
RG25	83
RUC	84
RUC-M	84

Applications:

- **RS35, RS50, RS80** in solar systems have two main applications: on the DC side, they switch on/off the DC voltage generated by the photovoltaic cells; on the AC side, they connect/disconnect the entire system from the power grid,
- **R50A, R90A** are designed for applications in photovoltaic systems, solar inverters, AC chargers, power supplies and UPS systems; these relays provide reliable operation, high durability; they are suitable for PCB mounting; they are relays with high switching current, large contact gap and insulation class F: 155 °C; the coil holding voltage of these relays can be reduced to 50-75% of the rated coil voltage, providing exceptional energy savings,
- **R30N, R40N** are ideally suited to control systems based on PCB-based electronics; they are a convenient solution for controlling large loads from the PCB of controllers and temperature controllers; an interesting application is the area of low-power photovoltaic inverters and simple EV chargers,
- **R20** are often found in catering and food processing equipment, as well as in simple heating control systems,
- **RG25** are used in lighting systems as an alternative to mini-conductors, in simple switching systems for low-power 1-phase drives, in the control of resistive loads in various heating systems (cooker heaters, radiators, etc.),
- **RUC** are widely used in industrial automation for the control of actuators (heaters, compressors, pumps, small industrial valve drives); side-mounted and top-mounted versions are available, often used in equipment used in the catering industry,
- **RUC-M** is a typical solution for controlling large loads inductive DC loads; they are mainly used in the utility power industry, in EAZ automation systems, for switching coils of high-power DC coils in power executive equipment; are ideal for the control of actuators and DC valves.

industrial relays of small dimensions

Type	RS35	RS50	RS80	R50A
	35 A	50 A	80 A, gap $\geq 4,1$ mm	50 A
				
Contact data				
Number and type of contacts	2 NO	1 NO, 2 NO	1 NO	1 NO
Contact material	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
Rated / max. AC switching voltage	250 V / 440 V	250 V / 440 V	250 V / 440 V	250 V / 277 V
Rated load (capacity)	AC1 DC1 DC13 DC13	AC1 DC1 DC13 DC13	AC1 DC1 DC13 DC13	AC1 DC1 DC13 DC13
	35 A / 250 V AC 35 A / 24 V DC	50 A / 250 V AC 50 A / 24 V DC	80 A / 250 V AC 90 A / 230 V AC 80 A / 24 V DC	50 A / 250 V AC
Motor load				
Coil data				
Rated voltage	AC DC	AC DC	AC DC	AC DC
	5, 9, 12, 18, 24, 110 V	5, 9, 12, 18, 24, 110 V	12, 24 V	5, 6, 9, 12, 18, 24 V
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength				
• coil - contacts	5 000 V AC ④	5 000 V AC ④	5 000 V AC ④	4 500 V AC
• contact clearance	2 500 V AC ⑤	2 500 V AC ⑤	2 500 V AC ⑤	2 500 V AC
General data				
Dimensions mm	40 x 25 x 49,2	40 x 25 x 49,2	40 x 25 x 49,2	30,1 x 15,7 x 23,3
Connection diagrams (pin side view)	 version 2 NO	 version 1 NO	 version 1 NO	 version 1 NO
Recognitions, certifications, directives	CE c RU US RoHS	CE c RU US RoHS	CE c RU US RoHS	CE c RU US RoHS
Download data sheet	RS35	RS50	RS80	R50A

④ Type of insulation: basic

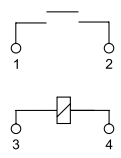
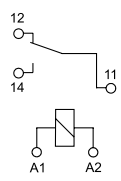
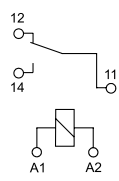
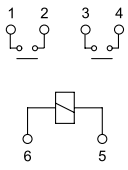
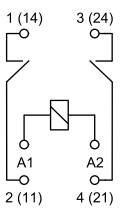
⑤ Type of clearance: micro-disconnection

⑦ AC3 according to IEC 60947-4-1, 1-phase motor

④ Type of insulation: reinforced

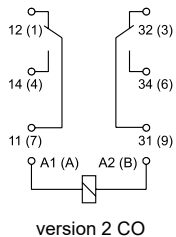
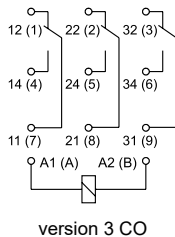
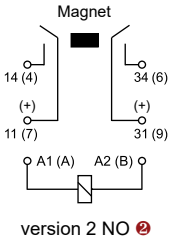
⑤ Type of clearance: full-disconnection

⑧ Diagram: www.relpol.com.pl

R90A	R30N	R40N	R20	RG25
90 A				AC1 - 10 KVA
				
1 NO	1 CO, 1 NO	1 CO, 1 NO	1 NO, 2 NO	2 NO
AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
1 000 V / 1 000 V	240 V / 300 V	240 V / 300 V	250 V / 440 V	400 V / 440 V
90 A / 1 000 V AC	1 NO: 30 A / 240 V AC ❶ 1 NO: 30 A / 14 V DC ❶	1 NO: 40 A / 240 V AC ❷ 1 NO: 40 A / 30 V DC ❷	1 NO: 30 A / 250 V AC 2 NO: 25 A / 250 V AC	25 A / 400 V AC 25 A / 24 V DC ❸ 0,3 A / 120 V (R300) 0,15 A / 250 V (R300)
				0,989 kW ❹
	12, 24, 110, 230, 400 V	12, 24, 110, 120, 220 V	24, 115, 230 V	12, 24, 110, 230, 400 V
12, 24 V	12, 24, 48, 110, 220 V	5, 12, 24, 48, 110 V	12, 24, 110 V	12, 24, 48, 110, 220 V
	500 V AC	500 V AC	250 V AC	400 V AC
5 000 V AC 2 500 V AC	2 500 V AC ❺ 1 500 V AC ❻	4 000 V AC ❹ 1 500 V AC ❻	4 000 V AC ❹ 2 000 V AC ❻	5 000 V AC ❹ 1 500 V AC ❻
38 x 33 x 36,3	32,5 x 27,6 x 20,5	32,5 x 27,6 x 20,5	67 x 33 x 35	26 x 53,7 x 75,5
 version 1 NO	 version 1 CO	 version 1 CO	 version 2 NO	 wersja 2 NO
 RoHS	 RoHS	 RoHS	 RoHS	 RoHS
R90A	R30N	R40N	R20	RG25

❶ R30N 1 CO: 30 A / 20 A (NO/NC) / 240 V AC, 14 V DC
❷ R40N 1 CO: 40 A / 30 A (NO/NC) / 240 V AC, 30 V DC

industrial relays of small dimensions

Type	RUC	RUC	RUC-M
	faston 4,8 x 0,5	faston 6,3 x 0,8	for DC loads
			
Contact data			
Number and type of contacts	2 CO, 3 CO, 2 NO, 3 NO	2 CO, 3 CO, 2 NO, 3 NO	1 NO, 2 NO
Contact material	AgNi, AgSnO ₂	AgNi, AgSnO ₂	AgNi, AgSnO ₂
Rated / max. switching voltage AC	250 V / 440 V	250 V / 440 V	250 V / 440 V
Rated load AC1 DC1 DC1	16 A / 250 V AC 16 A / 24 V DC ⑤	16 A / 250 V AC 16 A / 24 V DC ⑤	16 A / 250 V AC 1 NO: 12 A / 220 V DC ⑤ 2 NO: 4,5 A / 220 V DC ⑥
Coil data			
Rated voltage AC	6, 12, 24, 115, 120, 220, 230, 240, 400 V	6, 12, 24, 115, 120, 220, 230, 240, 400 V	12, 24, 48, 115, 120, 230, 240 V
DC	6, 12, 24, 42, 48, 60, 110, 120, 220 V	6, 12, 24, 42, 48, 60, 110, 120, 220 V	12, 24, 48, 110, 220 V
	12, 24, 48, 110, 220 V (reinforced)	12, 24, 48, 110, 220 V (reinforced)	12, 24, 48, 110, 220 V (reinforced)
Insulation			
Insulation rated voltage	400 V AC	400 V AC	400 V AC
Dielectric strength • coil - contacts • contact clearance	2 500 V AC ⑤ 1 500 ⑤, 2 500 ⑥ V AC	2 500 V AC ⑤ 1 500 ⑤, 2 500 ⑥ V AC	2 500 V AC ⑤ 1 NO: 4 000 V AC ⑤
General data			
Dimensions mm	36,1 x 38,6 x 52,65 ⑦	46,8 x 38,6 x 66,1 ⑧	36,1 x 38,6 x 52,65 ⑦
Connection diagrams (pin side view)	 version 2 CO	 version 3 CO	 version 2 NO ②
Plug-in sockets for relays	GUC11S-V0 ⑨		GUC11S-V0 ⑨
Recognitions, certifications, directives	CE cULus RoHS	CE cULus RoHS	CE cULus RoHS
Download data sheet	RUC	RUC	RUC-M

⑤ Type of insulation: basic
⑥ Diagram: www.relpol.com.pl

⑤ Type of clearance: micro-disconnection
⑥ Type of clearance: full-disconnection

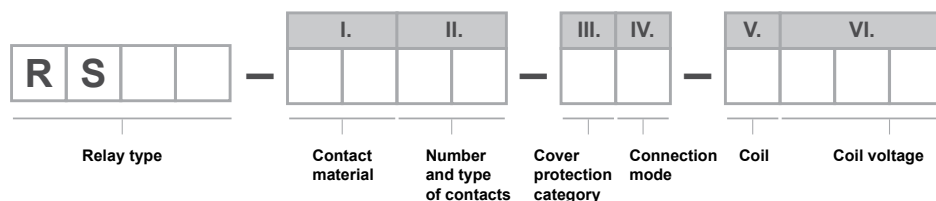
⑤ RUC, RUC-M: relays available in versions: for plug-in sockets; with adaptors for direct mounting on 35 mm rail mount; with cover with flange for mounting on panel; for PCB mounting
④ RUC-M: relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC loads
⑤ RUC-M contact 1 NO: DC1 - 16 A / 24 V DC, 14 A / 110 V DC
⑥ RUC-M contacts 2 NO: DC1 - 16 A / 24 V DC, 10,5 A / 110 V DC
⑦ RUC, RUC-M: for plug-in sockets ⑧ RUC: with horizontal adaptor (H) ⑨ GUC11S-V0: insulation rated voltage 250 V AC

Plug-in sockets for relays

GUC11S-V0 (862593)

For RUC, RUC-M





		Relay type						
		RS35	RS50	RS80	R50A	R90A	R30N	R40N
I.	Contact material							
30	- AgSnO ₂	•	•	•	•	•	•	•
II.	Number and type of contacts							
11	- 1P						•	•
21	- 1 NO	•	•				•	•
21	- 1 NO gap 1,8 mm		•					
21	- 1 NO gap 2 mm				•			
21	- 1 NO gap 4 mm					•		
21	- 1 NO gap 4,1 mm			•				
22	- 2 NO gap 2,2 mm	•						
22	- 2 NO gap 1,8 mm		•					
III.	Cover protection category							
2	- IP 40	•	•	•				
2	- IP 64						•	•
2	- flux proof cover				•	•		
8	- IP 67						•	•
IV.	Connection mode							
5	- for PCB	•	•	•	•	•	•	•
V.	Coil							
1	- DC	•	•	•	•	•	•	
5	- AC							•
VI.	Coil voltage	DC	DC	DC	DC	DC	DC	AC
012	- 12 V	•	•	•	•	•	•	•
024	- 24 V	•	•	•	•	•	•	•
110	- 110 V	•	•				•	•
220	- 220 V							•
... - other voltages: see data tables (pages 82, 83) or product catalog (full edition) www.relpol.pl/en/Download/Product-Catalogs								

CODING TABLE: R20, RG25, RUC, RUC-M - see page 71.

EXAMPLE ORDERING CODES

Index	Code	Description
859166	RS35-3022-25-1005	two normally open contacts 35 A (AgSnO ₂), coil voltage 5 V DC
859169	RS35-3022-25-1018	two normally open contacts 35 A (AgSnO ₂), coil voltage 18 V DC
859170	RS35-3022-25-1024	two normally open contacts 35 A (AgSnO ₂), coil voltage 24 V DC
859438	RS35-3022-25-1110	two normally open contacts 35 A (AgSnO ₂), coil voltage 110 V DC
859172	RS50-3022-25-1009	two normally open contacts 50 A (AgSnO ₂), coil voltage 9 V DC
859173	RS50-3022-25-1012	two normally open contacts 50 A (AgSnO ₂), coil voltage 12 V DC
859175	RS50-3022-25-1024	two normally open contacts 50 A (AgSnO ₂), coil voltage 24 V DC
859439	RS50-3022-25-1110	two normally open contacts 50 A (AgSnO ₂), coil voltage 110 V DC
864637	RS80-3021-25-1012	one normally open contact 80 A (AgSnO ₂), coil voltage 12 V DC
864632	RS80-3021-25-1024	one normally open contact 80 A (AgSnO ₂), coil voltage 24 V DC
2617304	R50A-3021-25-1005	one normally open contact 50 A (AgSnO ₂), coil voltage 5 V DC
2617273	R50A-3021-25-1024	one normally open contact 50 A (AgSnO ₂), coil voltage 24 V DC
2617431	R90A-3021-25-1012	one normally open contact 90 A (AgSnO ₂), coil voltage 12 V DC
2617302	R90A-3021-25-1024	one normally open contact 90 A (AgSnO ₂), coil voltage 24 V DC
2614729	R30N-3011-85-1024	one changeover contact 30 A (AgSnO ₂), coil voltage 24 V DC
2614787	R30N-3021-25-1110	one normally open contact 30 A (AgSnO ₂), coil voltage 110 V DC
2614823	R40N-3021-85-1024	one normally open contact 40 A (AgSnO ₂), coil voltage 24 V DC
2614870	R40N-3011-25-5024	one changeover contact 40 A (AgSnO ₂), coil voltage 24 V AC

Relays for railroad industry

- I_n currents of contacts: 6 ... 16 A.
- Available relays:
 - miniature: RM84, RM85,
 - industrial: R2T/3T/4T, R15T, RUCT/RUCT-M,
 - interface: PI84T/85T, PIR2T/3T/4T, PIR152T/153T, PRUCT/PRUCT-M,
 - time: MT-W...M.
- Compliance with standards: EN 45545-2 (category EL10 ①, requirement R26 ① - flammability class V-0 acc. to EN 60695-11-10); EN 61373 category 1, class B (mechanical shock and vibration resistance); EN 50155; EN 60077-1; EN 61810-1.
- Methods of mounting: in plug-in sockets, on 35 mm rail mount, on panel mounting - depending on the type of relay.

① MT-W...M: category EL5, requirement set R23

RM84	87
RM85	87
R2T	87
R3T	87
R4T	88
R15T - 2 CO	88
R15T - 3 CO	88
RUCT	88
RUCT-M	89
PI84T - GZT80-VO	89
PI85T - GZT80-VO	89
PIR2T - GZT2-VO	89
PIR3T - GZT3-VO	89
PIR4T - GZT4-VO	90
PIR152T - PZ8-VO	90
PIR153T - PZ11-VO	90
PRUCT - GUC11S-VO	90
PRUCT-M - GUC11S-VO	91
MT-W...M	91



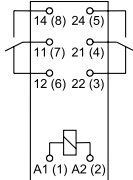
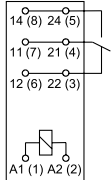
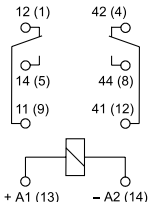
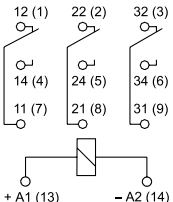
Applications:

- control switchboard,
- operator's panel and cabin systems,
- supply, monitoring, wagon lighting circuits,
- air conditioning, ventilation, heating,
- doors control,
- passenger information devices,
- mobile device chargers.

 **relpol**® S.A.

miniature relays

industrial relays

Type	RM84	RM85	R2T	R3T
				
Contact data				
Number and type of contacts	2 CO, 2 NO	1 CO, 1 NO	2 CO	3 CO
Contact material	AgSnO ₂	AgSnO ₂	AgNi	AgNi
Rated / max. AC switching voltage	250 V / 400 V	250 V / 400 V	250 V / 440 V	250 V / 440 V
Rated load (capacity)	AC1 8 A / 250 V AC AC15 3 A / 120 V (B300) AC15 1,5 A / 240 V (B300) DC1 8 A / 24 V DC ⑤ DC13 0,22 A / 120 V (R300) DC13 0,1 A / 250 V (R300)	16 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 16 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	12 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 12 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	10 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 10 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)
Motor load	0,37 kW ⑦	0,5 kW ⑦	0,37 kW ⑦	0,37 kW ⑦
Coil data				
Rated voltage DC	24, 110 V ①	24, 110 V ①	24, 110 V ①	24, 110 V ①
Insulation				
Insulation rated voltage	400 V AC	400 V AC	250 V AC	250 V AC
Dielectric strength				
• coil - contacts	5 000 V AC ④	5 000 V AC ④	2 500 V AC ⑤	2 500 V AC ⑤
• contact clearance	1 000 V AC ⑤	1 000 V AC ⑤	1 500 V AC ⑤	1 500 V AC ⑤
General data				
Dimensions mm	29 x 12,7 x 15,7	29 x 12,7 x 15,7	27,4 x 21 x 35,5	27,4 x 21 x 35,5
Connection diagrams (pin side view)	 version 2 CO	 version 1 CO	 version 2 CO	 version 3 CO
Plug-in sockets for relays	GZT80-V0	GZT80-V0	GZT2-V0	GZT3-V0
Recognitions, certifications, directives	 RoHS	 RoHS	 RoHS	 RoHS
Download data sheet	RM84	RM85	R2T	R3T

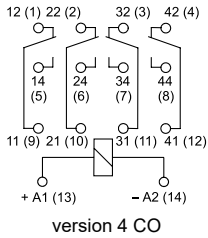
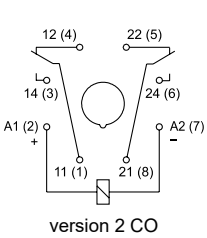
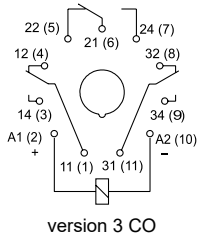
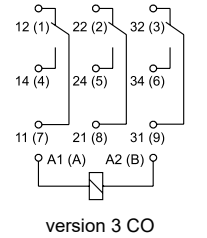
③ Type of insulation: basic ④ Type of insulation: reinforced
⑦ AC3 according to IEC 60947-4-1, 1-phase motor

⑤ Type of clearance: micro-disconnection
⑧ Diagram: www.relpol.com.pl

① For other voltages, please contact Relpol S.A.

② Certification IK for interface set (industrial relay with socket)

industrial relays

Type	R4T	R15T - 2 CO	R15T - 3 CO	RUCT
				faston 4,8 x 0,5 
Contact data				
Number and type of contacts	4 CO	2 CO	3 CO	3 CO, 3 NO
Contact material	AgNi	AgNi	AgNi	AgNi
Rated / max. AC switching voltage	250 V / 250 V	250 V / 440 V	250 V / 440 V	230 V / 250 V
Rated load (capacity)	AC1 7 A / 230 V AC (VDE) AC1 6 A / 250 V AC AC15 1,5 A / 120 V (B300) AC15 0,75 A / 240 V (B300) DC1 6 A / 24 V DC ⑤ DC1 0,22 A / 120 V (R300) DC13 0,1 A / 250 V (R300)	10 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 10 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	10 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 10 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	16 A / 250 V AC 16 A / 24 V DC ⑤
Motor load	0,125 kW ⑦	0,37 kW ⑦	0,37 kW ⑦	
Coil data				
Rated voltage DC	24, 110 V ①	24, 110 V ①	24, 110 V ①	24, 110 V ①
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength				
• coil - contacts	2 500 V AC ③	2 500 V AC ③	2 500 V AC ③	2 500 V AC ③
• contact clearance	1 500 V AC ③	1 500 V AC ③	1 500 V AC ③	1 500 V AC ③
General data				
Dimensions mm	27,4 x 21 x 35,5	35 x 35 x 54,4	35 x 35 x 54,4	36,1 x 38,6 x 52,65
Connection diagrams (industrial: pin side view) (interface: terminals side view)				
Operational relays	GZT4-V0	PZ8-V0	PZ11-V0	GUC11S-V0
Plug-in sockets				
Indicator				
Recognitions, certifications, directives	CE  ② RoHS	CE  ② RoHS	CE  ② RoHS	CE  ② RoHS
Download data sheet	R4T	R15T - 2 CO	R15T - 3 CO	RUCT

① Type of insulation: basic

② Type of insulation: reinforced

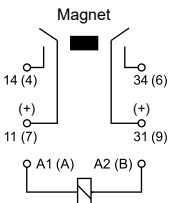
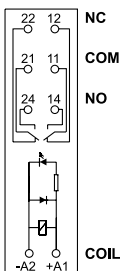
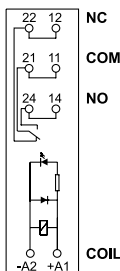
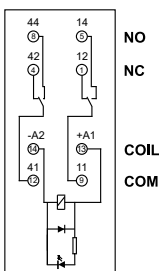
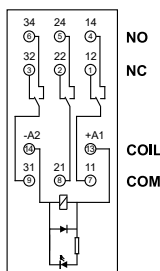
⑦ AC3 according to IEC 60947-4-1, 1-phase motor

⑤ Type of clearance: micro-disconnection

⑥ Type of clearance: full-disconnection

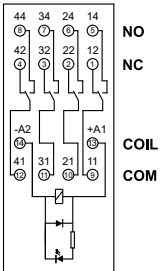
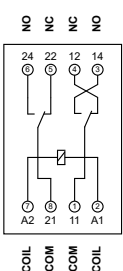
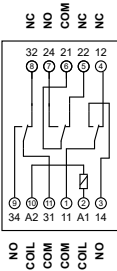
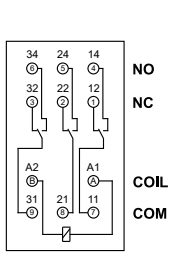
③ Diagram: www.repol.com.pl

interface relays - sets

RUCT-M	PI84T - GZT80-V0	PI85T - GZT80-V0	PIR2T - GZT2-V0	PIR3T - GZT3-V0
for DC loads				
				
1 NO, 2 NO	2 CO	1 CO	2 CO	3 CO
AgNi	AgSnO ₂	AgSnO ₂	AgNi	AgNi
250 V / 250 V	250 V / 300 V	250 V / 300 V	250 V / 300 V	250 V / 300 V
16 A / 250 V AC	8 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 8 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	16 A ⑤ / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 16 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	12 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 12 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	10 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 10 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)
1 NO: 10 A / 220 V DC ④ 2 NO: 3,8 A / 220 V DC ⑤				
	0,37 kW ⑦	0,5 kW ⑦	0,37 kW ⑦	0,37 kW ⑦
24, 110 V ①	24, 110 V ①	24, 110 V ①	24, 110 V ①	24, 110 V ①
250 V AC	250 V AC	250 V AC	300 V AC	300 V AC
2 500 V AC ⑧ 1 NO: 4 000 V AC ⑧ 2 NO: 2 000 V AC ⑧	5 000 V AC ④ 1 000 V AC ⑤	5 000 V AC ④ 1 000 V AC ⑤	2 500 V AC ⑧ 1 500 V AC ⑧	2 500 V AC ⑧ 1 500 V AC ⑧
36,1 x 38,6 x 52,65 ⑥	80 x 15,6 x 61	80 x 15,6 x 61	76,3 x 27 x 65	76,3 x 27 x 65
 version 2 NO ③	 version 2 CO	 version 1 CO	 version 2 CO	 version 3 CO
RUCT-M GUC11S-V0	RM84 GZT80-V0 module type M...-V0	RM85 GZT80-V0 ⑤ module type M...-V0	R2T GZT2-V0 module type M...-V0	R3T GZT3-V0 module type M...-V0
CE  RoHS	CE  RoHS	CE  RoHS	CE  RoHS	CE  RoHS
RUCT-M	PI84T - GZT80-V0	PI85T - GZT80-V0	PIR2T - GZT2-V0	PIR3T - GZT3-V0

① For other voltages, please contact Relpol S.A. ② Certification IK for interface set (industrial relay with socket) ③ RUCT-M, PRUCT-M: relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC load ④ RUCT-M, PRUCT-M contact 1 NO: DC1 - 16 A / 24 V DC, 13 A / 110 V DC ⑤ RUCT-M, PRUCT-M contacts 2 NO: DC1 - 16 A / 24 V DC, 9 A / 110 V DC ⑥ Loads above 12 A require bridging pairs of terminals: 11 with 21, 12 with 22, 14 with 24 - see www.repol.com.pl

interface relays - sets

Type	PIR4T - GZT4-V0	PIR152T - PZ8-V0	PIR153T - PZ11-V0	PRUCT - GUC11S-V0
Contact data				
Number and type of contacts	4 CO	2 CO	3 CO	3 CO, 3 NO
Contact material	AgNi	AgNi	AgNi	AgNi
Rated / max. AC switching voltage	250 V / 300 V	250 V / –	250 V / –	230 V / 250 V
Rated load (capacity)	AC1 7 A / 230 V AC (VDE) AC1 6 A / 250 V AC AC15 1,5 A / 120 V (B300) AC15 0,75 A / 240 V (B300) DC1 6 A / 24 V DC ⑤ DC1 DC13 0,22 A / 120 V (R300) DC13 0,1 A / 250 V (R300)	10 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 10 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	10 A / 250 V AC 3 A / 120 V (B300) 1,5 A / 240 V (B300) 10 A / 24 V DC ⑤ 0,22 A / 120 V (R300) 0,1 A / 250 V (R300)	16 A / 250 V AC 16 A / 24 V DC ⑤
Motor load	0,125 kW ⑦	0,37 kW ⑦	0,37 kW ⑦	
Coil data				
Rated voltage DC	24, 110 V ①	24, 110 V ①	24, 110 V ①	24, 110 V ①
AC/DC				
Insulation				
Insulation rated voltage	300 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength				
• coil - contacts	2 500 V AC ③	2 500 V AC ③	2 500 V AC ③	2 500 V AC ③
• contact clearance	1 500 V AC ③	1 500 V AC ③	1 500 V AC ③	1 500 V AC ③
General data				
Dimensions mm	76,3 x 27 x 65	68,2 x 38 x 82	68,2 x 38 x 82	84,5 x 41,5 x 77,3
Connection diagrams (interface: terminals side view)	 version 4 CO	 version 2 CO	 version 3 CO	 version 3 CO
Operational relays	R4T	R15T - 2 CO	R15T - 3 CO	RUCT
Plug-in sockets	GZT4-V0	PZ8-V0	PZ11-V0	GUC11S-V0
Indicator	module type M...-V0			
Recognitions, certifications, directives	  RoHS	  RoHS	  RoHS	  RoHS
Download data sheet	PIR4T - GZT4-V0	PIR152T - PZ8-V0	PIR153T - PZ11-V0	PRUCT - GUC11S-V0

① Type of insulation: basic

③ Type of clearance: micro-disconnection

⑦ Type of clearance: full-disconnection

⑦ AC3 according to IEC 60947-4-1, 1-phase motor

③ Diagram: www.relpol.com.pl

time

PRUCT-M - GUC11S-V0
MT-W...M

adjustment T1, T2, T3 ⑦



1 NO, 2 NO

1 CO

AgNi

AgSnO₂

250 V / 250 V

300 V

16 A / 250 V AC

10 A / 250 V AC

1 NO: 10 A / 220 V DC ④
2 NO: 3,8 A / 220 V DC ⑤

10 A / 24 V DC

24, 110 V ①

12...240 V AC: 50/60 Hz

250 V AC

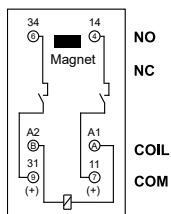
250 V AC

2 500 V AC ③
1 NO: 4 000 V AC ③
2 NO: 2 000 V AC ③

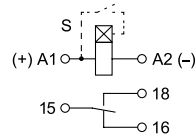
2 500 V AC ③
1 000 V AC ③

84,5 x 41,5 x 77,3

90(98,8) x 17,5 x 65,5



version 2 NO ③



version 1 CO ③

RUCT-M
GUC11S-V0
CE **IK**
RoHS

CE **IK**
RoHS

[PRUCT-M - GUC11S-V0](#)
[MT-W...M](#)

Plug-in sockets for relays

GZT80-V0 (862573)

For RM84, RM85



GZM80-0041

GZT80-0035

M...-V0

GZT2-V0 (862557)

For R2T


GZT3-V0 (862551)

For R3T


GZT4-V0 (862554)

For R4T



G4 1052

GZT4-0035

M...-V0

PZ8-V0 (862540)

For R15T - 2 CO


PZ11-V0 (862535)

For R15T - 3 CO


GUC11S-V0 (862593)

For RUCT, RUCT-M



PZ11 0031



MBA

① For other voltages, please contact Relpol S.A. ④ RUCT-M, PRUCT-M: relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC load ④ RUCT-M, PRUCT-M contact 1 NO: DC1 - 16 A / 24 V DC, 13 A / 110 V DC ⑤ RUCT-M, PRUCT-M contacts 2 NO: DC1 - 16 A / 24 V DC, 9 A / 110 V DC ⑦ MT-W...M: time module, descriptions and diagrams of time functions - see pages 107, 113-114. ⑧ The control terminal S (B1) is activated by connection to A1 terminal via the external control contact S.

ORDERING CODES

Index	Code	Description
862345	R2T-2012-23-1024-V0	two changeover contacts 12 A, coil voltage 24 V DC
862348	R3T-2013-23-1024-V0	three changeover contacts 10 A, coil voltage 24 V DC
862351	R4T-2014-23-1024-V0	four changeover contacts 6 A, coil voltage 24 V DC
862324	R15T-2012-23-W024-V0	two changeover contacts 10 A, coil voltage 24 V DC (reinforced)
862327	R15T-2013-23-W024-V0	three changeover contacts 10 A, coil voltage 24 V DC (reinforced)
862263	RUCT-2013-26-W024-V0	three changeover contacts 16 A, coil voltage 24 V DC (reinforced)
862262	RUCT-2023-26-W110-V0	three normally open contacts 16 A, coil voltage 110 V DC (reinforced)
862266	RUCT-M-2051-26-W024-V0	one normally open contact 16 A, coil voltage 24 V DC (reinforced)
862271	RUCT-M-2052-26-W110-V0	two normally open contacts 16 A, coil voltage 110 V DC (reinforced)

OTHER VOLTAGES: please contact Relpol S.A. (export@relpol.com.pl)

ORDERING CODES

Index	Code	Description
862574	PI84T-024DC-M41G-TS-3012-V0	two changeover contacts 8 A, coil voltage 24 V DC
862576	PI85T-024DC-M41G-TS-3011-V0	one changeover contact 16 A, coil voltage 24 V DC
862558	PIR2T-024DC-M41G-V0	two changeover contacts 12 A, coil voltage 24 V DC
862560	PIR3T-024DC-M41G-V0	three changeover contacts 10 A, coil voltage 24 V DC
862562	PIR4T-024DC-M41G-V0	four changeover contacts 6 A, coil voltage 24 V DC
862541	PIR152T-024DC-V0	two changeover contacts 10 A, coil voltage 24 V DC (reinforced)
862543	PIR153T-024DC-V0	three changeover contacts 10 A, coil voltage 24 V DC (reinforced)
862278	PRUCT-2013-26-W024-V0	three changeover contacts 16 A, coil voltage 24 V DC (reinforced)
862275	PRUCT-2023-26-W024-V0	three normally open contacts 16 A, coil voltage 24 V DC (reinforced)
862281	PRUCT-M-2051-26-W024-V0	one normally open contact 16 A, coil voltage 24 V DC (reinforced)
862284	PRUCT-M-2052-26-W024-V0	two normally open contacts 16 A, coil voltage 24 V DC (reinforced)

OTHER VOLTAGES: please contact Relpol S.A. (export@relpol.com.pl)

ORDERING CODES

Index	Code	Description
860470	MT-W-17S-11-9240-M	electronic with display, multifunction (25 functions, times T1, T2, T3), one changeover contact 10 A, input voltage 12...240 V AC/DC

Programmable relays

- I_n currents of outputs: 0,5 ... 10 A.
- Available versions of NEED relays:
 - with LCD display:
8 inputs / 4 outputs, 16 inputs / 8 outputs,
 - without display:
8 inputs / 4 outputs, 16 inputs / 8 outputs,
 - with relay outputs,
 - with transistor outputs:
 $I_n = 0,5$ A (version 24 V DC),
 - with supply voltage:
230 V AC, 12 V DC, 24 V DC, 220 V DC.
- NEED-MODBUS: communication modules
NEED Master / ModBus RTU Slave.
- Methods of mounting:
 - NEED: on 35 mm rail mount or on panel mounting,
 - NEED-MODBUS: on 35 mm rail mount.



NEED-...-08-4...	94
NEED-...-16-8...	94
NEED-MODBUS	94



Applications:

- in industrial automation
(device and process control),
- in ARC automation
- in BMS automation,
- in production management systems,
- in water systems,
- in air-conditioning, ventilation,
heating systems,
- in lighting systems,
- various other applications.

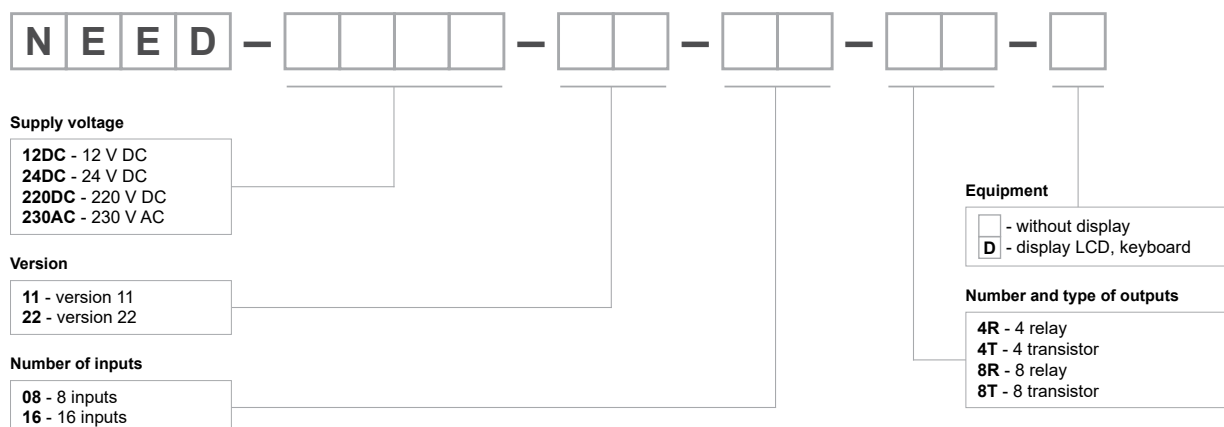


Type		NEED-...-08-4...	NEED-...-16-8...
		8 inputs / 4 outputs	16 inputs / 8 outputs
Outputs			
Number and type of outputs		4 NO ② ③	8 NO ② ③
Rated load	AC1	10 A / 250 V AC ②	10 A / 250 V AC ②
	DC1	0,5 A / 24 V DC ③	0,5 A / 24 V DC ③
Supply			
Rated voltage	AC	230 V 50/60 Hz	230 V 50/60 Hz
	DC	12, 24, 220 V	12, 24, 220 V
Resources			
Switch		STOP/RUN mode	
Programming ①		LCD display, keyboard, 4 function buttons	
Indicator		LED three-colour (relay status), LEDs green (input status), LEDs yellow (output status)	
Physical resources		internal potentiometer, RTC clock, connection for programming (secured by stopper), (three-phase network equipment control system ④)	
Program resources ①		32 timers, 8 bidirectional counters, fast bidirectional counter / meter of frequency, 8 clocks, 16 comparators of analog values, 64 markers, 8 text markers, (marker of phase sequence ④)	
System structure		programmable relay NEED-..., cable NEED-PC-15B or -15C (RS-232 or USB), (external memory card NEED-M-4KB ①), software PC NEED, module NEED-MODBUS	
Insulation			
Insulation rated voltage		300 V AC	300 V AC
Dielectric strength		2 000 V AC ④	2 000 V AC ④
• inputs - outputs		1 000 V AC ⑤ ②	1 000 V AC ⑤ ②
• contact clearance			
General data			
Dimensions mm		90 x 72 x 55	90 x 132 x 55
Recognitions, certifications, directives		CE UK RoHS	CE UK RoHS
Download data sheet		NEED-...-08-4...	NEED-...-16-4...

④ Type of insulation: reinforced ⑤ Type of clearance: micro-disconnection

① Only for version with LCD display (NEED-...-22-...-D). For version without display (NEED-...-11-...) - see www.relpol.com.pl ② Versions with unprotected relay outputs ③ Version 24 V DC with protected transistor outputs ④ Only for version NEED-230AC-...-16-8R-.

NEED-MODBUS	Communication modules
	Appropriation: data reading from NEED relays and availability of the data values with the ModBus RTU protocol; transmission of control commands to NEED; modification of the real time RTC clock setting; operation from COM1 side as NEED Master and from COM2 side as a device of ModBus RTU Slave type
Supply: 7...26 V AC 50/60 Hz, 7...35 V DC / Dimensions: 108 x 53 x 58 mm	
Data transmission: ModBus RTU Slave (9600 bits/s, 1 bit start, 8 bits of data, 1 bit stop, without parity control), RS-232 (EIA/TIA-574, max. 15 m), RS-485 (EIA/TIA-485, max. 1200 m)	



ORDERING CODES

Index	Code	Description
857735	NEED-12DC-11-08-4R	4 relay outputs 10 A, 8 inputs - supply voltage 12 V DC
857365	NEED-12DC-11-16-8R	8 relay outputs 10 A, 16 inputs - supply voltage 12 V DC
859358	NEED-12DC-22-08-4R-D	4 relay outputs 10 A, 8 inputs - supply voltage 12 V DC, display LCD, keyboard
859361	NEED-12DC-22-16-8R-D	8 relay outputs 10 A, 16 inputs - supply voltage 12 V DC, display LCD, keyboard
857736	NEED-24DC-11-08-4R	4 relay outputs 10 A, 8 inputs - supply voltage 24 V DC
857366	NEED-24DC-11-16-8R	8 relay outputs 10 A, 16 inputs - supply voltage 24 V DC
859359	NEED-24DC-22-08-4R-D	4 relay outputs 10 A, 8 inputs - supply voltage 24 V DC, display LCD, keyboard
859362	NEED-24DC-22-16-8R-D	8 relay outputs 10 A, 16 inputs - supply voltage 24 V DC, display LCD, keyboard
858158	NEED-220DC-11-08-4R	4 relay outputs, 8 inputs - supply voltage 220 V DC
858159	NEED-220DC-11-16-8R	8 relay outputs 10 A, 16 inputs - supply voltage 220 V DC
857737	NEED-230AC-11-08-4R	4 relay outputs 10 A, 8 inputs - supply voltage 230 V AC
857367	NEED-230AC-11-16-8R	8 relay outputs 10 A, 16 inputs - supply voltage 230 V AC
859360	NEED-230AC-22-08-4R-D	4 relay outputs 10 A, 8 inputs - supply voltage 230 V AC, display LCD, keyboard
859363	NEED-230AC-22-16-8R-D	8 relay outputs 10 A, 16 inputs - supply voltage 230 V AC, display LCD, keyboard

ORDERING CODES: accessories

Index	Code	Description
2614884	NEED-Modbus	communication module NEED Master / ModBus RTU Slave
857734	NEED-PC-15B	cable for programming and diagnostics (computer PC, port RS-232), for version 11
858743	NEED-PC-15C	cable for programming and diagnostics (computer PC, port USB), for version 11, 22
857733	NEED-M-1KB	external memory card (1 kB), for version 11
859472	NEED-M-4KB	external memory card (4 kB), for version 22

Installation relays

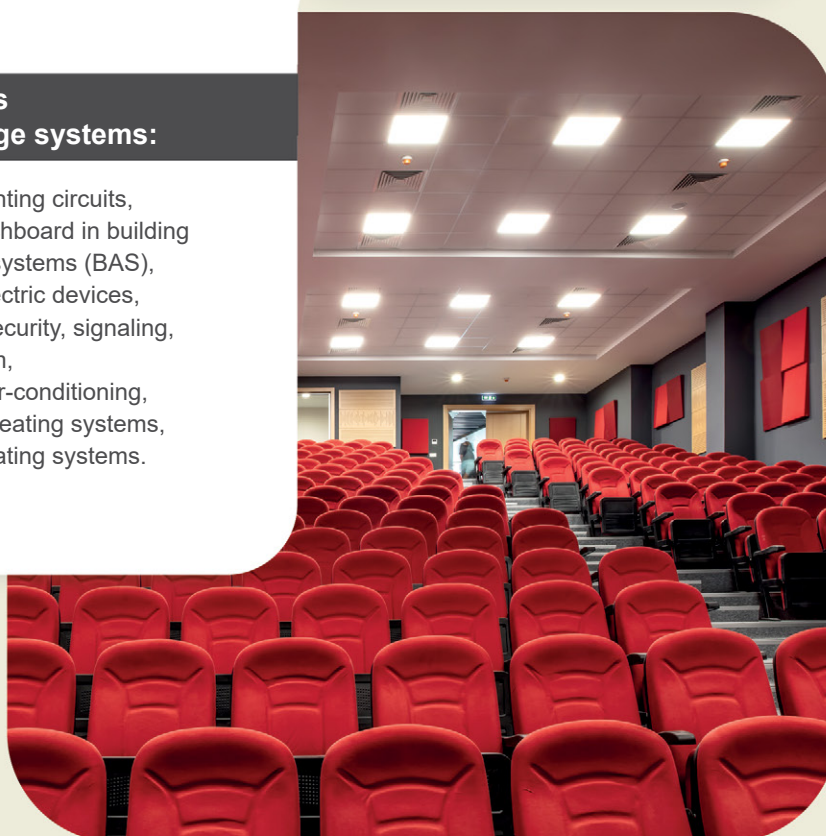


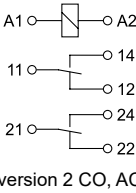
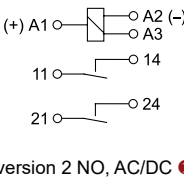
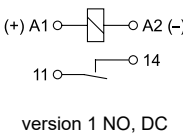
RPI..P-...	97
RPI..Z-...	97
RPI-1ZI-D12	97
RPI-1ZI-U24A	97
RPI..P-UNI	98
RPI..Z-UNI	98

- I_n currents of outputs: 8 A or 16 A.
- Available versions:
 - in modular covers: RPI series.
- Method of mounting:
 - on 35 mm rail mount.

Applications in low voltage systems:

- control of lighting circuits,
- electric switchboard in building automation systems (BAS),
- control of electric devices,
- devices of security, signaling, alarm system,
- devices of air-conditioning, ventilation, heating systems,
- industrial heating systems.

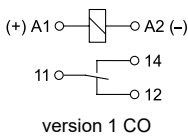
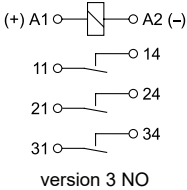


Type	RPI-P...	RPI-Z...	RPI-1ZI-D12	RPI-1ZI-U24A
				
Output circuit			120 A / 20 ms	120 A / 20 ms
Number and type of contacts	1 CO, 2 CO	1 NO, 2 NO	1 NO	1 NO
Contact material	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
Max. voltage AC	300 V	300 V	300 V	300 V
Rated load	AC1 AC1 DC1 DC1	1 CO: 16 A / 250 V AC 2 CO: 8 A / 250 V AC 1 CO: 16 A / 24 V DC 2 CO: 8 A / 24 V DC	1 NO: 16 A / 250 V AC 2 NO: 8 A / 250 V AC 1 NO: 16 A / 24 V DC 2 NO: 8 A / 24 V DC	16 A / 250 V AC 16 A / 250 V AC 16 A / 24 V DC 16 A / 24 V DC
Input circuit				
Rated voltage AC	24, 115, 230 V 50/60 Hz	230 V ① 50 Hz		230 V ① 50 Hz
DC	12, 24, 48 V		12 V	
AC/DC		12, 24 ①, 48, 115 V AC: 50 Hz		24 V ① AC: 50 Hz
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength				
• input - output	4 000 V AC ②	4 000 V AC ②	4 000 V AC ②	4 000 V AC ②
• contact clearance	1 000 V AC ②	1 000 V AC ②	1 000 V AC ②	1 000 V AC ②
Overvoltage category	III	III	III	III
General data				
Dimensions mm	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
Mechanical life	10 ⁷ (cycles)	10 ⁷ (cycles)	10 ⁷ (cycles)	10 ⁷ (cycles)
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Connection diagrams	 version 2 CO, AC	 version 2 NO, AC/DC ①	 version 1 NO, DC	 version 1 NO, AC/DC ①
Indicator	LED green	LED green	LED green	LED green
Recognitions, certifications, directives	CE UK RoHS	CE UK RoHS	CE UK RoHS	CE UK RoHS
Download data sheet	RPI-P...	RPI-Z...	RPI-1ZI-D12	RPI-1ZI-U24A

② Type of insulation: basic

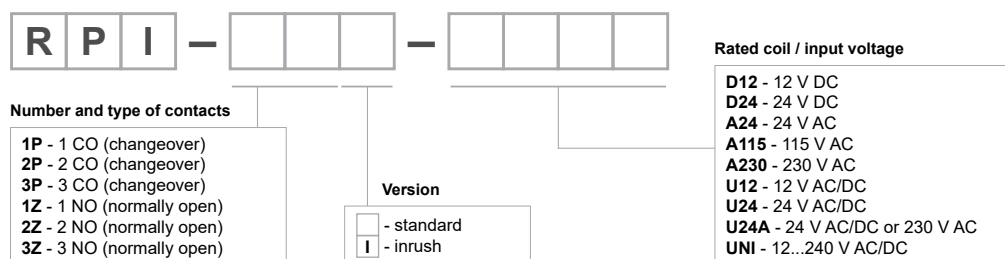
② Type of clearance: micro-disconnection

① Terminal A3 occurs only in versions RPI-Z...-U24A. Selection of relays supply voltage:
24 V AC/DC - wires connection to the terminals A1-A2; 230 V AC - to the terminals A1-A3.

Type		RPI-P-UNI	RPI-Z-UNI
			
Output circuit			
Number and type of contacts		1 CO, 2 CO, 3 CO	1 NO, 2 NO, 3 NO
Contact material		AgSnO ₂	AgSnO ₂
Max. voltage AC		300 V	300 V
Rated load	AC1	1 CO: 16 A / 250 V AC	1 NO: 16 A / 250 V AC
	AC1	2 CO: 8 A / 250 V AC	2 NO: 8 A / 250 V AC
	DC1	1 CO: 16 A / 24 V DC	1 NO: 16 A / 24 V DC
	DC1	2 CO, 3 CO: 8 A / 24 V DC	2 NO, 3 NO: 8 A / 24 V DC
Input circuit			
Rated voltage AC/DC		12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz
Insulation			
Insulation rated voltage		250 V AC	250 V AC
Dielectric strength			
• input - output		4 000 V AC ③	4 000 V AC ③
• contact clearance		1 000 V AC ⑤	1 000 V AC ⑤
Overvoltage category		III	III
General data			
Dimensions mm		90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
Mechanical life		> 10 ⁷ (cycles)	> 10 ⁷ (cycles)
Protection category		IP 20 (EN 60529)	IP 20 (EN 60529)
Connection diagrams		 version 1 CO	 version 3 NO
Indicator		LED green	LED green
Recognitions, certifications, directives		  RoHS	  RoHS
Download data sheet		RPI-P-UNI	RPI-Z-UNI

③ Type of insulation: basic

⑤ Type of clearance: micro-disconnection



ORDERING CODES

Index	Code	Description
863355	RPI-1P-D12	one changeover contact 16 A, coil voltage 12 V DC
863356	RPI-1P-D24	one changeover contact 16 A, coil voltage 24 V DC
863358	RPI-1P-A24	one changeover contact 16 A, coil voltage 24 V AC
863360	RPI-1P-A230	one changeover contact 16 A, coil voltage 230 V AC
863361	RPI-2P-D12	two changeover contacts 8 A, coil voltage 12 V DC
863362	RPI-2P-D24	two changeover contacts 8 A, coil voltage 24 V DC
863364	RPI-2P-A24	two changeover contacts 8 A, coil voltage 24 V AC
863365	RPI-2P-A115	two changeover contacts 8 A, coil voltage 115 V AC
863366	RPI-2P-A230	two changeover contacts 8 A, coil voltage 24 V AC
863367	RPI-1Z-U12	one normally open contact 16 A, coil voltage 12 V AC/DC
863368	RPI-1Z-U24	one normally open contact 16 A, coil voltage 24 V AC/DC
863371	RPI-1Z-U24A	one normally open contact 16 A, coil voltage 24 V AC/DC (terminals A1-A2) or 230 V AC (terminals A1-A3)
863372	RPI-2Z-U12	two normally open contacts 8 A, coil voltage 12 V AC/DC
863373	RPI-2Z-U24	two normally open contacts 8 A, coil voltage 24 V AC/DC
863376	RPI-2Z-U24A	two normally open contacts 8 A, coil voltage 24 V AC/DC (terminals A1-A2) or 230 V AC (terminals A1-A3)
864920	RPI-1ZI-D12	inrush version (resistance to inrush current 120 A), one normally open contact 16 A, coil voltage 12 V DC
863377	RPI-1ZI-U24A	inrush version (resistance to inrush current 120 A), one normally open contact 16 A, coil voltage 24 V AC/DC (terminals A1-A2) or 230 V AC (terminals A1-A3)
863378	RPI-1P-UNI	one changeover contact 16 A, input voltage 12...240 V AC/DC
863379	RPI-2P-UNI	two changeover contacts 8 A, input voltage 12...240 V AC/DC
863514	RPI-3P-UNI	three changeover contacts 8 A, input voltage 12...240 V AC/DC
863380	RPI-1Z-UNI	one changeover contact 16 A, input voltage 12...240 V AC/DC
863381	RPI-2Z-UNI	two changeover contacts 8 A, input voltage 12...240 V AC/DC
863515	RPI-3Z-UNI	three changeover contacts 8 A, input voltage 12...240 V AC/DC

Bistable - impulse relays

- I_n currents of outputs: 8 A or 16 A.
- Available versions:
 - in modular covers: RPB series.
- Method of mounting:
 - on 35 mm rail mount.

Applications in low voltage systems:

- control of lighting circuits,
- electric switchboard in building automation systems (BAS),
- control of electric devices,
- control of devices of air-conditioning, ventilation, heating systems,
- control of devices of security, signaling, alarm system.



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RPB-1P-...	101
RPB-1PM-...	101
RPB-2Z-...	101
RPB-1ZI-...	101
RPB-1PM-UNI	102
RPB-1ZMI-UNI	102
RPB-2PSM-UNI	102
RPB-2ZSMI-UNI	102



Type	RPB-1P-...	RPB-1PM-...	RPB-2Z-...	RPB-1ZI-...
				
Output circuit				120 A / 20 ms
Number and type of contacts	1 CO	1 CO	2 NO	1 NO
Contact material	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
Max. voltage AC	300 V	300 V	300 V	300 V
Rated load AC1 DC1	16 A / 250 V AC 16 A / 24 V DC	16 A / 250 V AC 16 A / 24 V DC	8 A / 250 V AC 8 A / 24 V DC	16 A / 250 V AC 16 A / 24 V DC
Input circuit				
Rated voltage AC	230 V 50/60 Hz	230 V 50/60 Hz	230 V 50/60 Hz	230 V 50/60 Hz
AC/DC	24 V AC: 50/60 Hz	24 V AC: 50/60 Hz	24 V AC: 50/60 Hz	24 V AC: 50/60 Hz
Control contact S	yes ②	yes ②	yes ②	yes ②
Function data				
Functions number	single-functions	single-functions with memory	single-functions	single-functions
Functions ①	RESET	NORMAL	RESET	RESET
Indicator	LED green and yellow	LED green and yellow	LED green and yellow	LED green and yellow
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength • input - output • contact clearance	4 000 V AC ③ 1 000 V AC ③	4 000 V AC ③ 1 000 V AC ③	4 000 V AC ③ 1 000 V AC ③	4 000 V AC ③ 1 000 V AC ③
Overvoltage category	III	III	III	III
General data				
Dimensions mm	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
Mechanical life	10 ⁷ (cycles)	10 ⁷ (cycles)	10 ⁷ (cycles)	10 ⁷ (cycles)
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Recognitions, certifications, directives	CE UK RoHS	CE UK RoHS	CE UK RoHS	CE UK RoHS
Download data sheet	RPB-1P-...	RPB-1PM-...	RPB-2Z-...	RPB-1ZI-...

③ Type of insulation: basic

③ Type of clearance: micro-disconnection

① Connection diagrams, descriptions and diagrams of functions - see www.relpol.com.pl ② Control contact S provides control of switching ON/OFF of receivers (lighting or other devices) from a few different points, with the use of connected in parallel: illuminated momentary bell switches or control buttons.

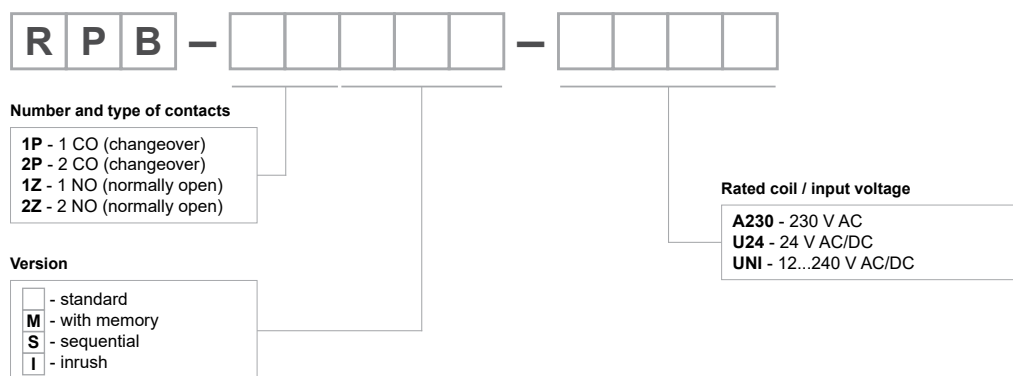
Bistable - impulse relays

Type	RPB-1PM-UNI	RPB-1ZMI-UNI	RPB-2PSM-UNI	RPB-2ZSMI-UNI
		80 A / 20 ms 		80 A / 20 ms 
Output circuit				
Number and type of contacts	1 CO	1 NO	2 x 1 CO	2 x 1 NO
Contact material	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
Max. voltage AC	300 V	300 V	300 V	300 V
Rated load AC1 DC1	16 A / 250 V AC 16 A / 24 V DC	16 A / 250 V AC 16 A / 24 V DC	16 A / 250 V AC 16 A / 24 V DC	16 A / 250 V AC 16 A / 24 V DC
Input circuit				
Rated voltage AC/DC	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz
Control contact S	yes ⑤	yes ⑤	yes ⑤	yes ⑤
Function data				
Functions number	multifunctions with memory	multifunctions with memory	multifunctions sequential with memory	multifunctions sequential with memory
Functions ①	NORMAL, RESET	NORMAL, RESET	BOTH, RESET BOTH, RESET SEQ, SEQ	BOTH, RESET BOTH, RESET SEQ, SEQ
Indicator	LED green and yellow	LED green and yellow	LED green and yellow	LED green and yellow
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength				
• input - output	4 000 V AC ⑥	4 000 V AC ⑥	4 000 V AC ⑥	4 000 V AC ⑥
• contact clearance	1 000 V AC ⑥	1 000 V AC ⑥	1 000 V AC ⑥	1 000 V AC ⑥
Overvoltage category	III	III	III	III
General data				
Dimensions mm	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
Mechanical life	10 ⁷ (cycles)	10 ⁷ (cycles)	10 ⁷ (cycles)	10 ⁷ (cycles)
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Recognitions, certifications, directives	CE UK RoHS	CE UK RoHS	CE UK RoHS	CE UK RoHS
Download data sheet	RPB-1PM-UNI	RPB-1ZMI-UNI	RPB-2PSM-UNI	RPB-2ZSMI-UNI

⑥ Type of insulation: basic

⑥ Type of clearance: micro-disconnection

① Connection diagrams, descriptions and diagrams of functions - see www.repol.com.pl ⑤ Control contact S provides control of switching ON/OFF of receivers (lighting or other devices) from a few different points, with the use of connected in parallel: momentary bell switches or control buttons; the relays cannot operate with illuminated switches.



ORDERING CODES

Index	Code	Description
864384	RPB-1P-A230	single-function, cooperating with illuminated momentary bell switches or control buttons, one changeover contact 16 A, input voltage 230 V AC
864383	RPB-1P-U24	single-function, cooperating with illuminated momentary bell switches or control buttons, one changeover contact 16 A, input voltage 24 V AC/DC
864390	RPB-1PM-A230	single-function (with memory), cooperating with illuminated momentary bell switches or control buttons, one changeover contact 16 A, input voltage 230 V AC
864389	RPB-1PM-U24	single-function (with memory), cooperating with illuminated momentary bell switches or control buttons, one changeover contact 16 A, input voltage 24 V AC/DC
864386	RPB-2Z-A230	single-function, cooperating with illuminated momentary bell switches or control buttons, two normally open contacts 8 A, input voltage 230 V AC
864385	RPB-2Z-U24	single-function, cooperating with illuminated momentary bell switches or control buttons, two normally open contacts 8 A, input voltage 24 V AC/DC
864388	RPB-1ZI-A230	single-function, inrush version (resistance to inrush current 120 A), cooperating with illuminated momentary bell switches or control buttons, one normally open contact 16 A, input voltage 230 V AC
864387	RPB-1ZI-U24	single-function, inrush version (resistance to inrush current 120 A), cooperating with illuminated momentary bell switches or control buttons, one normally open contact 16 A, input voltage 24 V AC/DC
864391	RPB-1PM-UNI	multifunction (with memory), cooperating with momentary bell switches or control buttons, one changeover contact 16 A, input voltage 12...240 V AC/DC
864393	RPB-1ZMI-UNI	multifunction (with memory), inrush version (resistance to inrush current 80 A), cooperating with momentary bell switches or control buttons, one normally open contact 16 A, input voltage 12...240 V AC/DC
864392	RPB-2PSM-UNI	multifunction (sequential with memory), cooperating with momentary bell switches or control buttons, two changeover contacts 16 A, input voltage 12...240 V AC/DC
864394	RPB-2ZSMI-UNI	multifunction (sequential with memory), inrush version (resistance to inrush current 80 A), cooperating with momentary bell switches or control buttons, two normally open contacts 16 A, input voltage 12...240 V AC/DC

Staircase timers

- I_n currents of outputs: 16 A.
- Available versions:
 - in modular covers: RPC series.
- Design features:
 - rich choice of time functions - automations offer multiple modes of operation, allowing flexible adjustment of parameters to meet specific user expectations and facility characteristics,
 - adjustable operation time interval - the setting range for the lighting back-up time ranges from a few seconds to 10 minutes, ensuring optimum adaptation to different usage scenarios,
 - high load capacity of the relay contacts
 - the devices are suitable for loads up to 16 A, allowing safe and reliable control of both traditional and energy-efficient light sources; adapted for use in installations with high inrush current (surge current resistance up to 120 A), which is crucial when powering LED lighting.
- Method of mounting: on 35 mm rail mount - allows fast and convenient installation in electrical switchboards, without the need for additional mounting accessories.



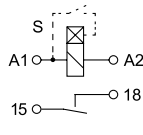
RPC-1AS-A230 105



Applications in low voltage systems:

- residential buildings: staircases, corridors, passageways,
- public facilities: schools, offices, medical facilities,
- industrial infrastructure: production halls, warehouses, technical rooms,
- parking areas: underground garages, multi-storey car parks.

 **relpol**® S.A.

Type		RPC-1AS-A230	
		120 A, 20 ms	
			
Output circuit			
Number and type of contacts		1 NO	
Contact material		AgSnO ₂	
Max. voltage	AC	300 V	
Rated load	AC1	16 A / 250 V AC	
Input circuit			
Rated voltage	AC	230 V 50/60 Hz	
Control contact S		yes ②	
Time module			
Functions	number	multifunctions	
Functions ①	ON, OFF, AUTO, R, Wi, Extra Time		
Time ranges	1 s; 10 s; 20 s; 30 s; 1 min.; 1,5 min.; 2 min.; 3 min.; 5 min.; 10 min.		
Indicator	LED green and yellow		
Insulation			
Insulation rated voltage		250 V AC	
Dielectric strength			
• input - output		4 000 V AC ③	
• contact clearance		1 000 V AC ④	
Overvoltage category		III	
General data			
Dimensions	mm	90(98,8) x 17,5 x 64,6	
Mechanical life		> 3 x 10 ⁷ (cycles)	
Protection category		IP 20 (EN 60529)	
Connection diagrams		 version 1 NO ⑤	
Recognitions, certifications, directives		  RoHS	
Download data sheet		RPC-1AS-A230	

③ Type of insulation: basic

④ Type of clearance: micro-disconnection

① Descriptions and diagrams of time functions - see pages 113-114.

② The control terminal S (B1) is activated by connection to A1 terminal via the external control contact S.

ORDERING CODES

Index	Code	Description
863220	RPC-1AS-A230	staircase timer (5 functions, 10 ranges), one normally open contact 16 A

Time relays

MT-W...M	107
RPC-MA-...	107
RPC-MB-...	107
RPC-2A-UNI	107
RPC-1MC-UNI	108
RPC-MD-UNI	108
RPC-4ME-UNI	108
RPC-2ME-UNI-SSR	108
RPC-1ER-...	109
RPC-1EA-...	109
RPC-1ES-...	109
RPC-1EU-...	109
RPC-1IP-...	109
RPC-1SA-...	110
RPC-1WT-...	110
RPC-E-...	110
RPC-WU-...	110
RPC-BP-...	111
RPC-2SD-UNI	111



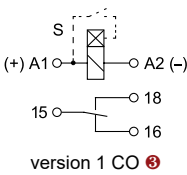
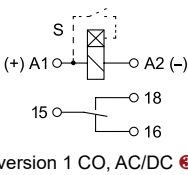
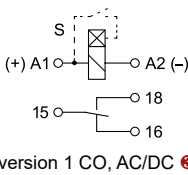
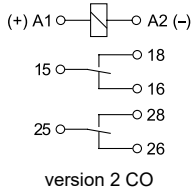
TR4N 1 CO	111
TR4N 2 CO	111
TR4N 4 CO	111
T-R4 - GZM4	112
PIR15...T	112
COM3	112

- I_n currents of outputs: 2 ... 16 A.
- Available versions:
 - in modular covers: MT-W...M (with LED display), RPC series,
 - in industrial covers: TR4N series, T-R4, PIR15...T.
- Design features:
 - multifunctions,
 - single-functions,
 - with settings of T interval,
 - with independent settings of T1 and T2 intervals,
 - with independent settings of T1, T2 and T3 intervals (MT-W...M),
 - contacts / outputs: 1 CO, 1 NO, 2 x 1 NO, 2 CO, 3 CO, 4 CO, 2 x 2P - depending on the type of relay,
 - supply: universal AC/DC; specified voltage - depending on the type of relay.
- Methods of mounting: on 35 mm rail mount, on panel mounting, in plug-in sockets - depending on the type of relay.

Applications in low voltage systems:

- in industrial automation,
- in BMS automation,
- in air-conditioning, ventilation, heating systems,
- in protection, signalling, alarm systems,
- in lighting systems,
- various other applications.



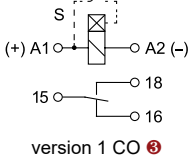
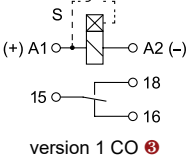
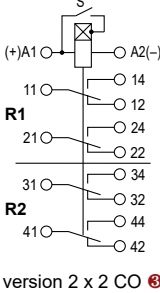
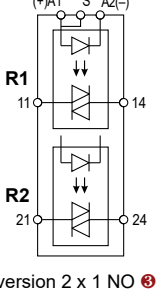
Type	MT-W...M	RPC-.MA...	RPC-.MB...	RPC-2A-UNI
Output circuit	adjustment T1, T2, T3 ②			
				
	1 CO	1 CO, 2 CO	1 CO, 2 CO	2 CO
	AgSnO ₂	AgSnO ₂ , AgNi	AgSnO ₂	AgSnO ₂
	Max. voltage AC 300 V	300 V	300 V	300 V
Rated load	AC1 10 A / 250 V AC DC1 10 A / 24 V DC	1 CO: 16 A / 250 V AC, 2 CO: 8 A / 250 V AC 1 CO: 16 A / 24 V DC, 2 CO: 8 A / 24 V DC	1 CO: 16 A / 250 V AC, 2 CO: 8 A / 250 V AC 1 CO: 16 A / 24 V DC, 2 CO: 8 A / 24 V DC	8 A / 250 V AC 8 A / 24 V DC
Input circuit				
Rated voltage AC		230 V 50/60 Hz	230 V 50/60 Hz	
AC/DC	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz
Control contact S	yes ③	yes ③	yes ③	no
Time module				
Functions number	multifunctions ②			
Functions ①	Es, E, E(S), E(r), R, Wu, Wu(S), Wu(r), Ws, Wa, B, Wi, ER, EWs, EWa, EWu, WsWa, EWf, Wt, Pi, Pi(S), Pp, Pp(S), Est, Esp, ON, OFF	E, Wu, Bp, Bi, R, Ws, Wa, Esa, B, T	E, Wu, Bp, Bi, Ra, Wst, Wi, Esf, Esp, Est	E, A, nWa, nWu, nWuWa, nWs
Time ranges	0,1 s ... 99 h 59 min. 59,9 s ②	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	1 s; 10 s; 20 s; 30 s; 1 min.; 1,5 min.; 2 min.; 3 min.; 5 min.; 10 min.
Indicator	LED green and yellow	LED green and yellow	LED green and yellow	LED green and yellow
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength				
• input - output	2 500 V AC ⑤	4 000 V AC ⑤	4 000 V AC ⑤	4 000 V AC ⑤
• contact clearance	1 000 V AC ⑤	1 000 V AC ⑤	1 000 V AC ⑤	1 000 V AC ⑤
Overvoltage category	II	III	III	III
General data				
Dimensions mm	90(98,8) x 17,5 x 65,5	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
Mechanical life	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Connection diagrams				
				
Recognitions, certifications, directives	CE IKT RoHS	CE cULUS UK RoHS	CE cULUS UK RoHS	CE cULUS UK RoHS
Download data sheet	MT-W...M	RPC-.MA...	RPC-.MB...	RPC-2A-UNI

④ Type of insulation: basic

⑤ Type of clearance: micro-disconnection

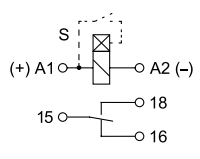
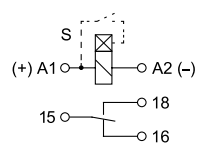
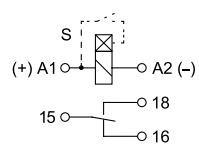
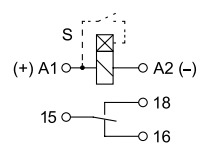
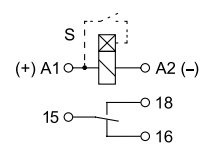
① Descriptions and diagrams of time functions - see pages 113-114. ② Two digit LED display, programming with two buttons only.

③ The control terminal S (B1) is activated by connection to A1 terminal via the external control contact S.

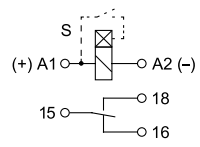
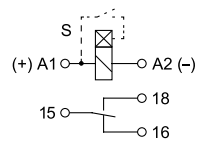
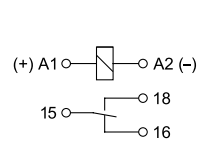
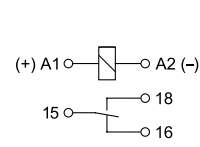
Type	RPC-1MC-UNI	RPC-.MD-UNI	RPC-4ME-UNI	RPC-2ME-UNI-SSR
Output circuit				
Number and type of contacts	1 CO	1 CO, 3 CO	2 x 2 CO	2 x 1 NO (triac)
Contact material	AgSnO ₂	AgSnO ₂	AgSnO ₂	
Max. voltage AC	300 V	300 V	300 V	240 V
Rated load AC1	16 A / 250 V AC	1 CO: 16 A / 250 V AC 3 CO: 8 A / 250 V AC	6 A / 230 V AC	2 A / 230 V AC
DC1	16 A / 24 V DC	1 CO: 16 A / 24 V DC 3 CO: 8 A / 24 V DC		
Input circuit				
Rated voltage AC				
AC/DC	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz
Control contact S	yes ③	yes ③	yes ③	yes ③
Time module				
Functions number	multifunctions	multifunctions	multifunctions	multifunctions
Functions ①	E, E(S), Wu, Wu(S), Bp, Bp(S), Bi, Bi(S), R, Ws, Wa, Esa(R), E(R), Wu(R)	E, Wu, Bp, Bi, R, Ws, Wa, Esa, B, T	ONE, BOTH, E, Wu, Bp, Bi, R, Ws, Wa, Esa, B, T	ONE, BOTH, E, Wu, Bp, Bi, R, Ws, Wa, Esa, B, T
Time ranges	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Indicator	LED green and yellow	LED green and yellow	LED green and yellow	LED green and yellow
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength • input - output • contact clearance	4 000 V AC ④ 1 000 V AC ④	4 000 V AC ④ 1 000 V AC ④	2 500 V AC ④ 1 000 V AC ④	2 500 V AC ④
Overvoltage category	III	III	II	II
General data				
Dimensions mm	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(94,3) x 35 x 64	90(94,3) x 35 x 64
Mechanical life	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Connection diagrams	 version 1 CO ③	 version 1 CO ③	 version 2 x 2 CO ③	 version 2 x 1 NO ③
Recognitions, certifications, directives	CE  RoHS	CE  RoHS	CE  RoHS	CE  RoHS
Download data sheet	RPC-1MC-UNI	RPC-.MD-UNI	RPC-4ME-UNI	RPC-2ME-UNI-SSR

③ Type of insulation: basic

④ Type of clearance: micro-disconnection

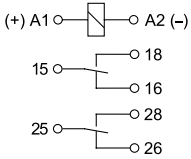
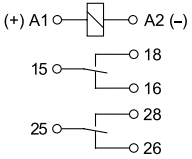
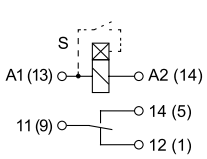
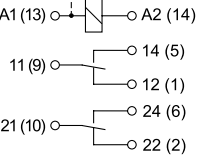
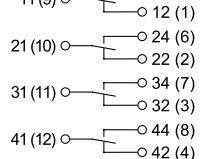
RPC-1ER-...	RPC-1EA-...	RPC-1ES-...	RPC-1EU-...	RPC-1IP-...
adjustment T1, T2	adjustment T1, T2	adjustment T1, T2	adjustment T1, T2	adjustment T1, T2
				
1 CO	1 CO	1 CO	1 CO	1 CO
AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
300 V	300 V	300 V	300 V	300 V
16 A / 250 V AC	16 A / 250 V AC	16 A / 250 V AC	16 A / 250 V AC	16 A / 250 V AC
16 A / 24 V DC	16 A / 24 V DC	16 A / 24 V DC	16 A / 24 V DC	16 A / 24 V DC
230 V 50/60 Hz	230 V 50/60 Hz	230 V 50/60 Hz	230 V 50/60 Hz	230 V 50/60 Hz
12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz
yes ③	yes ③	yes ③	yes ③	yes ③
single-functions	single-functions	single-functions	single-functions	single-functions
ER	EWa	EWs	EWu + NWu ④	li + lp ④
OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
LED green and yellow	LED green and yellow	LED green and yellow	LED green and yellow	LED green and yellow
250 V AC	250 V AC	250 V AC	250 V AC	250 V AC
4 000 V AC ③ 1 000 V AC ③	4 000 V AC ③ 1 000 V AC ③	4 000 V AC ③ 1 000 V AC ③	4 000 V AC ③ 1 000 V AC ③	4 000 V AC ③ 1 000 V AC ③
III	III	III	III	III
90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)
IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
				
version 1 CO, AC/DC ③	version 1 CO, AC/DC ③	version 1 CO, AC/DC ③	version 1 CO, AC/DC ③	version 1 CO, AC/DC ③
				
RoHS	RoHS	RoHS	RoHS	RoHS
RPC-1ER-...	RPC-1EA-...	RPC-1ES-...	RPC-1EU-...	RPC-1IP-...

① Descriptions and diagrams of time functions - see pages 113-114. ③ The control terminal S (B1) is activated by connection to A1 terminal via the external control contact S. ④ Start by function: EWu, lp - terminals A1-S are not connected / bridged; start by function: NWu, li - terminals A1-S are connected / bridged.

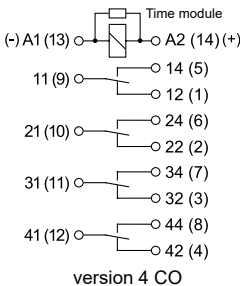
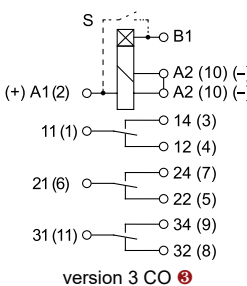
Type	RPC-1SA-...	RPC-1WT-...	RPC-E-...	RPC-WU-...
	adjustment T1, T2 	adjustment T1, T2 		
Output circuit				
Number and type of contacts	1 CO	1 CO	1 CO, 2 CO	1 CO, 2 CO
Contact material	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
Max. voltage AC	300 V	300 V	300 V	300 V
Rated load	AC1 AC1 DC1 DC1	16 A / 250 V AC 16 A / 24 V DC	1 CO: 16 A / 250 V AC 2 CO: 8 A / 250 V AC 1 CO: 16 A / 24 V DC 2 CO: 8 A / 24 V DC	1 CO: 16 A / 250 V AC 2 CO: 8 A / 250 V AC 1 CO: 16 A / 24 V DC 2 CO: 8 A / 24 V DC
Input circuit				
Rated voltage AC	230 V 50/60 Hz	230 V 50/60 Hz	230 V 50/60 Hz	230 V 50/60 Hz
AC/DC	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz
Control contact S	yes ⑥	yes ⑥	no	no
Time module				
Functions number	single-functions	single-functions	single-functions	single-functions
Functions ①	WsWa	Wt	E	Wu
Time ranges	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Indicator	LED green and yellow	LED green and yellow	LED green and yellow	LED green and yellow
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	250 V AC
Dielectric strength				
• input - output	4 000 V AC ⑥	4 000 V AC ⑥	4 000 V AC ⑥	4 000 V AC ⑥
• contact clearance	1 000 V AC ⑥	1 000 V AC ⑥	1 000 V AC ⑥	1 000 V AC ⑥
Overvoltage category	III	III	III	III
General data				
Dimensions mm	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
Mechanical life	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Connection diagrams	 version 1 CO, AC/DC ⑥	 version 1 CO, AC/DC ⑥	 version 1 CO, AC/DC	 version 1 CO, AC/DC
Recognitions, certifications, directives	CE  RoHS	CE  RoHS	CE  RoHS	CE  RoHS
Download data sheet	RPC-1SA-...	RPC-1WT-...	RPC-E-...	RPC-WU-...

⑥ Type of insulation: basic

⑥ Type of clearance: micro-disconnection

RPC-BP-...	RPC-2SD-UNI adjustment T1, T2	TR4N 1 CO	TR4N 2 CO	TR4N 4 CO
				
1 CO, 2 CO	2 x 1 CO	1 CO	2 CO	4 CO
AgSnO ₂	AgSnO ₂	AgNi	AgNi	AgNi
300 V	300 V	300 V	300 V	250 V
1 CO: 16 A / 250 V AC 2 CO: 8 A / 250 V AC 1 CO: 16 A / 24 V DC 2 CO: 8 A / 24 V DC	16 A / 250 V AC 16 A / 24 V DC	16 A / 250 V AC 16 A / 24 V DC	8 A / 250 V AC 8 A / 24 V DC	6 A / 250 V AC 6 A / 24 V DC
230 V 50/60 Hz	12...240 V AC: 50/60 Hz	230 V 50/60 Hz	230 V 50/60 Hz	230 V 50/60 Hz
12...240 V AC: 50/60 Hz	12...240 V AC: 50/60 Hz	24 V AC: 50/60 Hz	24 V AC: 50/60 Hz	24 V AC: 50/60 Hz
no	no	yes ③	yes ③	yes ③
single-functions	Star-Delta	multifunctions	multifunctions	multifunctions
Bp	SD	E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B, ON / OFF	E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B, ON / OFF	E, Wu, Bp, Bi, PWM, R, Ws, Wa, Esa, B, ON / OFF
OFF; ON; 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	1 s; 10 s; 30 s; 1 min.; 1,5 min.; 3 min.; 5 min.; 10 min.; 30 min.; 1 h ③	1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
LED green and yellow	LED green and yellow	LED green and yellow	LED green and yellow	LED green and yellow
250 V AC	250 V AC	250 V AC	250 V AC	250 V AC
4 000 V AC ③ 1 000 V AC ③	4 000 V AC ③ 1 000 V AC ③	2 000 V AC ③ 1 000 V AC ③	2 000 V AC ③ 1 000 V AC ③	2 500 V AC ③ 1 500 V AC ③
III	III	III	III	II
90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90 x 17,6 x 55	90 x 17,6 x 55	90 x 36 x 55
> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 2 x 10 ⁷ (cycles)
IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
 (+) A1 ○ — □ — ○ A2 (–) 15 ○ — □ — 18 □ — 16 25 ○ — □ — 28 □ — 26 version 2 CO, AC/DC	 (+) A1 ○ — □ — ○ A2 (–) 15 ○ — □ — 18 □ — 16 25 ○ — □ — 28 □ — 26 version 2 x 1 CO	 S — □ — A1 (13) — □ — A2 (14) 11 (9) — □ — 14 (5) □ — 12 (1) version 1 CO, AC ③	 S — □ — A1 (13) — □ — A2 (14) 11 (9) — □ — 14 (5) □ — 12 (1) 21 (10) — □ — 24 (6) □ — 22 (2) version 2 CO, AC ③	 S — □ — A1 (13) — □ — A2 (14) 11 (9) — □ — 14 (5) □ — 12 (1) 21 (10) — □ — 24 (6) □ — 22 (2) 31 (11) — □ — 34 (7) □ — 32 (3) 41 (12) — □ — 44 (8) □ — 42 (4) version 4 CO, AC ③
    RoHS	    RoHS	    RoHS	    RoHS	    RoHS
RPC-BP-...	RPC-2SD-UNI	TR4N 1 CO, 2 CO	TR4N 1 CO, 2 CO	TR4N 4 CO

① Descriptions and diagrams of time functions - see pages 113-114. ③ The control terminal S (B1) is activated by connection to A1 terminal via the external control contact S. ④ Time ranges T1 (start-up for the star); transit time T2: 0,05...0,9 s.

Type	T-R4 - GZM4	PIR15...T	COM3
Output circuit		with time module COM3 ^⑦ 	universal time modules 
Number and type of contacts	4 CO	2 CO, 3 CO ^⑦	^⑧
Contact material	AgNi	AgNi	
Max. voltage AC	250 V	440 V	
Rated load AC1 DC1	6 A / 230 V AC	10 A / 250 V AC 10 A / 24 V DC	
Input circuit			
Rated voltage AC	24, 115, 230 V 50/60 Hz	24, 48, 60, 110, 120, 230, 240 V 50/60 Hz	
DC	12, 24 V	24, 48, 60, 110, 120, 220 V	
AC/DC			24...240 V AC: 50/60 Hz
Control contact S	no	yes ^⑧	yes ^⑧
Time module			
Functions number	single-functions	multifunctions	multifunctions
Functions ^①	E (T-R4E) / Wu (T-R4Wu) Bp (T-R4Bp) / Bi (T-R4Bi)	E, Wu, Bp, Bi, R, Ws, Wa, Es	E, Wu, Bp, Bi, R, Ws, Wa, Es
Time ranges	1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 100 h	1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d	1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Indicator	LED green and yellow	LED green	LED green
Insulation			
Insulation rated voltage	250 V AC	250 V AC	
Dielectric strength • input - output • contact clearance	2 500 V AC ^⑨ 1 500 V AC ^⑨	2 500 V AC ^⑨ 1 500 V AC ^⑨	
Overvoltage category	III	III	
General data			
Dimensions mm	75 x 27 x 91,5 ^⑨	73 x 38,2 x 85,4	26,5 x 35 x 47
Mechanical life	> 2 x 10 ⁷ (cycles)	> 2 x 10 ⁷ (cycles)	
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 40 (EN 60529)
Connection diagrams			
Recognitions, certifications, directives	 RoHS	 RoHS	 RoHS
Download data sheet	T-R4 - GZM4	PIR15...T	COM3

^① Descriptions and diagrams of time functions - see pages 113-114. ^② The control terminal S (B1) is activated by connection to A1 terminal via the external control contact S. ^③ T-R4: mounted in plug-in socket GZM4. ^④ PIR15 - 3 CO (standard) - set: R15 - 3 CO + GZP11; PIR15 - 2 CO - set: R15 - 2 CO + GZP8. ^⑤ According to relays R15 - 3 CO (2 CO).

^⑥ Type of insulation: basic

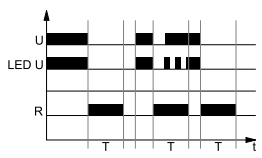
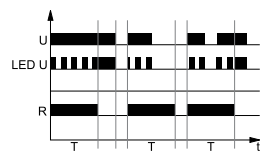
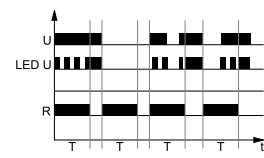
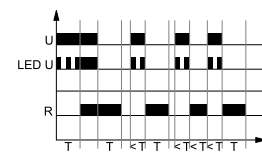
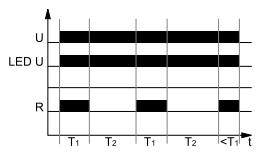
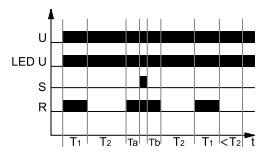
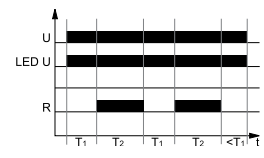
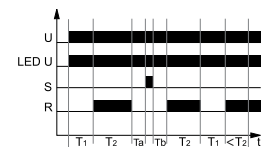
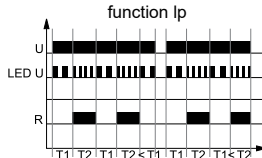
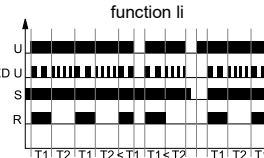
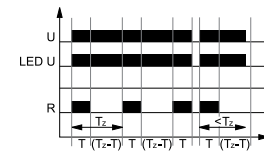
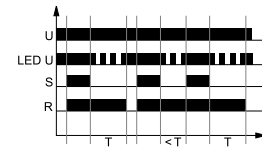
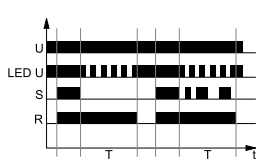
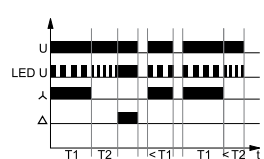
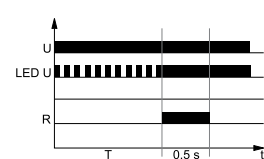
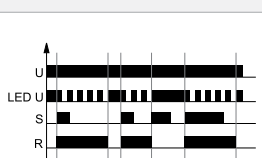
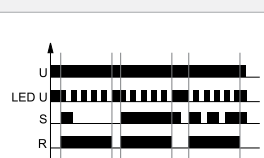
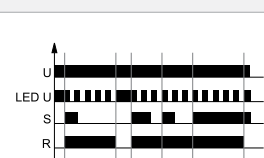
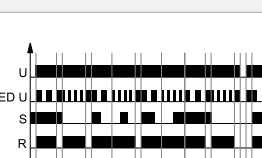
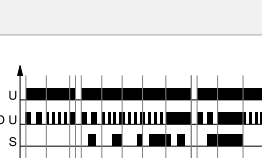
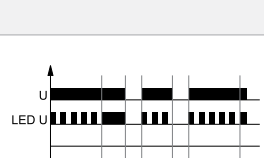
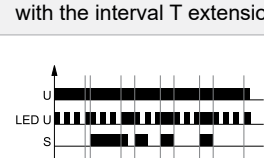
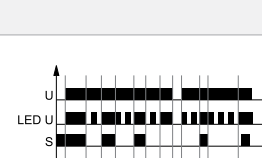
^⑦ Type of clearance: micro-disconnection



❶ Staircase timers - mode "Extra Time" ❷ Time T measuring stop by contact S ❸ Independently adjustment times T1 and T2

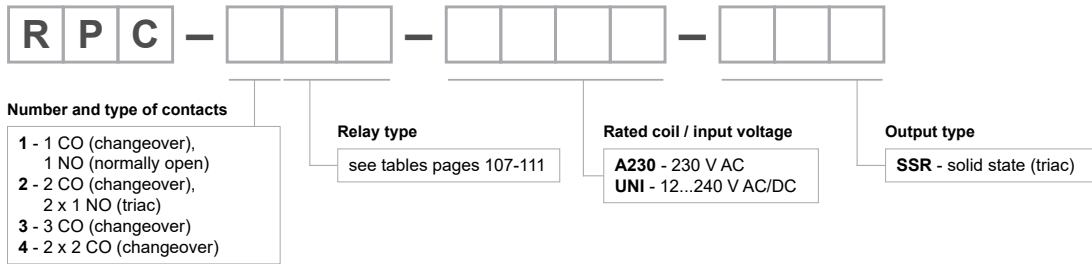
U - supply voltage; R - output state of the relay; S - control contact state; T, T1, T2, T3 - measured times; t - time axis

NOTE: the diagrams are of general information, and detailed performance descriptions are specified in catalog cards of time relays
- see www.relpol.com.pl

 nWa Maintained single shot trailing edge.	 nWu Maintained single shot leading edge.	 nWuWa Maintained single shot leading and trailing edge.	 nWs Latching ON delay.
 Pi Cyclical operation, pulse first. ③ ④	 Pi(S) Cyclical operation, pulse first, with the control contact S. ③ ④	 Pp Cyclical operation, pause first. ③ ④	 Pp(S) Cyclical operation, pause first, with the control contact S. ③ ④
 li + lp Cyclical operation, pulse first (li) or pause first (lp), with the control contact S. ③		 PWM Pulse width modulation. ⑤	 R OFF delay, with the control contact S. ①
 Ra OFF delay, with the control contact S, without the interval T extension.	 SD Star-Delta start-up. ③	 T Generation of the 0,5 s pulse after the interval T.	 Wa ON for the set interval, with the control contact S.
 Wi ON for the set interval, with the control contact S. ③ ①	 Ws Single shot for the set interval, with the control contact S.	 Wst ON for the set interval, with the control contact S, with the interval T extension.	 WsWa ON for the set intervals, with the control contact S. ③
 Wt Monitoring of the sequence of pulses, switching on extended with contact S. ③	 Wu ON for the set interval.	 Wu(R) ON for the set interval, with the Reset function.	 Wu(S) ON for the set interval. ②
OFF Stable OFF.	ON Stable ON.	ON / OFF Stable ON / OFF.	

① Staircase switches - mode "Extra Time" ② Time T measuring stop by contact S ③ Independently adjustment times T1 and T2
④ Turning on or omitting T3 time ⑤ Tz - value of the set interval ⑥ Function of switching off the relay R prior the interval T

U - supply voltage; R - output state of the relay; S - control contact state; T, T1, T2, T3 - measured times; t - time axis



ORDERING CODES

Index	Code	Description
863199 863181	RPC-1MA-A230 RPC-1MA-UNI	multifunction (10 functions, 8 ranges), one changeover contact 16 A
863201 863183	RPC-2MA-A230 RPC-2MA-UNI RPC-2MA-UNI-01	multifunction (10 functions, 8 ranges), two changeover contacts 8 A
863200 863182	RPC-1MB-A230 RPC-1MB-UNI	multifunction (10 functions, 8 ranges), one changeover contact 16 A
863202 863184	RPC-2MB-A230 RPC-2MB-UNI	multifunction (10 functions, 8 ranges), two changeover contacts 8 A
863217	RPC-2A-UNI	multifunction (6 functions, 10 ranges), operation after the power supply is switched off, two changeover contacts 8 A
863216	RPC-1MC-UNI	multifunction (14 functions, 8 ranges), immediate activation of the function, one changeover contact 16 A
863218	RPC-1MD-UNI	multifunction (10 functions, 8 ranges), immediate activation of the function, one changeover contact 16 A
863219	RPC-3MD-UNI	multifunction (10 functions, 8 ranges), immediate activation of the function, three changeover contacts 8 A
865446	RPC-4ME-UNI	multifunction (10 functions, 8 ranges), operation modes ONE, BOTH, four changeover contacts 6 A
865444	RPC-2ME-UNI-SSR	multifunction (10 functions, 8 ranges), operation modes ONE, BOTH, two normally open contacts (triac) 2 A
863203 863185	RPC-1ER-A230 RPC-1ER-UNI	single-function (function ER, 8 ranges - times T1, T2), one changeover contact 16 A
863204 863204	RPC-1EA-A230 RPC-1EA-A230	single-function (function EWa, 8 ranges - times T1, T2), one changeover contact 16 A
863205 863187	RPC-1ES-A230 RPC-1ES-UNI	single-function (function EWs, 8 ranges - times T1, T2), one changeover contact 16 A
863206 863188	RPC-1EU-A230 RPC-1EU-UNI	single-function (function EWu + NWu, 8 ranges - times T1, T2), one changeover contact 16 A
863207 863189	RPC-1IP-A230 RPC-1IP-UNI	single-function (function Ii + Ip, 8 ranges - times T1, T2), one changeover contact 16 A
863208 863190	RPC-1SA-A230 RPC-1SA-UNI	single-function (function WsWa, 8 ranges - times T1, T2), one changeover contact 16 A
863209 863191	RPC-1WT-A230 RPC-1WT-UNI	single-function (function Wt, 8 ranges - times T1, T2), one changeover contact 16 A
863210 863193	RPC-1E-A230 RPC-1E-UNI	single-function (function E, 8 ranges), one changeover contact 16 A
863213 863196	RPC-2E-A230 RPC-2E-UNI	single-function (function E, 8 ranges), two changeover contacts 8 A
863211 863194	RPC-1WU-A230 RPC-1WU-UNI	single-function (function Wu, 8 ranges), one changeover contact 16 A
863214 863197	RPC-2WU-A230 RPC-2WU-UNI	single-function (function Wu, 8 ranges), two changeover contacts 8 A
863212 863195	RPC-1BP-A230 RPC-1BP-UNI	single-function (function Bp, 8 ranges), one changeover contact 16 A
863215 863198	RPC-2BP-A230 RPC-2BP-UNI	single-function (function Bp, 8 ranges), two changeover contacts 8 A
863192	RPC-2SD-UNI	Star-Delta start-up (10 ranges - times T1, T2), two changeover contacts 8 A

ORDERING CODES

Index	Code	Description	
860470	MT-W-17S-11-9240-M	electronic with display, multifunction (25 functions, times T1, T2, T3), one changeover contact 10 A	input voltage 12...240 V AC/DC
856580	TR4N-230AC-11-M	multifunction (10 functions, 8 ranges), one changeover contact 16 A	input voltage 230 V AC
856578	TR4N-24AC/DC-11-M		input voltage 24 V AC/DC
856584	TR4N-230AC-12-M	multifunction (10 functions, 8 ranges), two changeover contacts 8 A	input voltage 230 V AC
856582	TR4N-24AC/DC-12-M		input voltage 24 V AC/DC
856104	TR4N-230AC-14-M	multifunction (10 functions, 8 ranges), four changeover contacts 6 A	input voltage 230 V AC
856101	TR4N-24AC/DC-14-M		input voltage 24 V AC/DC
854941	T-R4E-2014-23-1024	single-function (function E, 7 ranges), four changeover contacts 6 A	input voltage 24 V DC
854942	T-R4E-2014-23-5024		input voltage 24 V AC
854016	T-R4E-2014-23-5230		input voltage 230 V AC
854945	T-R4Wu-2014-23-1024	single-function (function Wu, 7 ranges), four changeover contacts 6 A	input voltage 24 V DC
854946	T-R4Wu-2014-23-5024		input voltage 24 V AC
854017	T-R4Wu-2014-23-5230		input voltage 230 V AC
854936	T-R4Bp-2014-23-1024	single-function (function Bp, 7 ranges), four changeover contacts 6 A	input voltage 24 V DC
854937	T-R4Bp-2014-23-5024		input voltage 24 V AC
854939	T-R4Bp-2014-23-5230		input voltage 230 V AC
854936	T-R4Bp-2014-23-1024	single-function (function Bi, 7 ranges), four changeover contacts 6 A	input voltage 24 V DC
854937	T-R4Bp-2014-23-5024		input voltage 24 V AC
854939	T-R4Bp-2014-23-5230		input voltage 230 V AC
854931	T-R4Bi-2014-23-1024	single-function (function Bi, 7 ranges), four changeover contacts 6 A	input voltage 24 V DC
854932	T-R4Bi-2014-23-5024		input voltage 24 V AC
854934	T-R4Bi-2014-23-5230		input voltage 230 V AC
855538	PIR152-024DC-00T	multifunction (8 functions, 8 ranges), two changeover contacts 10 A	input voltage 24 V DC
855618	PIR152-220DC-00T		input voltage 220 V DC
855539	PIR152-024AC-00T		input voltage 24 V AC
855540	PIR152-230AC-00T		input voltage 230 V AC
855535	PIR153-024DC-00T	multifunction (8 functions, 8 ranges), three changeover contacts 10 A	input voltage 24 V DC
855608	PIR153-220DC-00T		input voltage 220 V DC
855536	PIR153-024AC-00T		input voltage 24 V AC
855537	PIR153-230AC-00T		input voltage 230 V AC
2600912	COM3	universal time modules for relays R15 - 3 CO (2 CO)	input voltage 24...240 V AC

Monitoring relays

- I_n currents of outputs: 5 A or 12 A.
- Available versions:
 - in modular covers: RPN series, MR-E series,
 - in industrial covers: MR-G series.
- Method of mounting: on 35 mm rail mount.



RPN-.VF-A400	118
RPN-.VFS-A400	118
RPN-.VFR-A400	118
RPN-.VFT-A400	118
RPN-.VM-A230	119
RPN-.VC-A400	119
RPN-.VCN-A400	119
RPN-.VM-A400	119
RPN-.VMN-A400	119
RPN-1A..-A230	120
RPN-1TMP-A230	120
RPN-1AT-A230	120
MR-EU1W1P	120
MR-EU31UW1P	121
MR-EU3M1P	121
MR-E1W1P	121
MR-ET1P	121
MR-GU3M2P-TR2	122
MR-GU3M2P	122
MR-GI1M2P-TR2	122
MR-GT2P-TR2	122

Applications in low voltage systems:

- DC voltage monitoring,
- AC voltage monitoring in 1- and 3-phase network,
- DC current monitoring,
- AC current monitoring in 1-phase network,
- motor temperature monitoring.



Type	RPN-.VF-A400	RPN-.VFS-A400	RPN-.VFR-A400	RPN-.VFT-A400
				
Output circuit				
Number and type of contacts	1 CO, 2 CO	1 CO, 2 CO	1 CO, 2 CO	1 CO, 2 CO
Contact material	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
Max. voltage AC	300 V	300 V	300 V	300 V
Rated load	AC1 1 CO: 12 A / 250 V AC AC1 2 CO: 6 A / 250 V AC DC1 1 CO: 12 A / 24 V DC DC1 2 CO: 6 A / 24 V DC	1 CO: 12 A / 250 V AC 2 CO: 6 A / 250 V AC 1 CO: 12 A / 24 V DC 2 CO: 6 A / 24 V DC	1 CO: 12 A / 250 V AC 2 CO: 6 A / 250 V AC 1 CO: 12 A / 24 V DC 2 CO: 6 A / 24 V DC	1 CO: 12 A / 250 V AC 2 CO: 6 A / 250 V AC 1 CO: 12 A / 24 V DC 2 CO: 6 A / 24 V DC
Input circuit				
Supply voltage	= monitoring voltage	= monitoring voltage	= monitoring voltage	= monitoring voltage
Rated voltage	AC: 3(N)~ 400/230 V	AC: 3(N)~ 400/230 V	AC: 3(N)~ 400/230 V	AC: 3(N)~ 400/230 V
Range of supply voltage / frequency	0,7...1,15 U _n / AC: 48...63 Hz	0,7...1,15 U _n / AC: 48...63 Hz	0,7...1,15 U _n / AC: 48...63 Hz	0,7...1,15 U _n / AC: 48...63 Hz
Measuring circuit				
Functions number	multifunctions	multifunctions	multifunctions	multifunctions
Functions ①	AC voltage monitoring in 3-phase network 3(N)~ 400/230 V, monitoring of phase failure, asymmetry	AC voltage monitoring in 3-phase network 3(N)~ 400/230 V, monitoring of phase failure, asymmetry, phase sequence	AC voltage monitoring in 3-phase network 3(N)~ 400/230 V, monitoring of phase failure, asymmetry, phase sequence	AC voltage monitoring in 3-phase network 3(N)~ 400/230 V, monitoring of phase failure, asymmetry, phase sequence, tripping delay
Measured value	3(N)~, sinus, 48...63 Hz	3(N)~, sinus, 48...63 Hz	3(N)~, sinus, 48...63 Hz	3(N)~, sinus, 48...63 Hz
Measuring inputs	= supply voltage AC: 3(N)~ 400/230 V	= supply voltage AC: 3(N)~ 400/230 V	= supply voltage AC: 3(N)~ 400/230 V	= supply voltage AC: 3(N)~ 400/230 V
Overload capacity	≥ 1,2 U _n	≥ 1,2 U _n	≥ 1,2 U _n	≥ 1,2 U _n
Switching thresholds	PHASE: 175 V AC ASYMMETRY: 55 V AC	PHASE: 175 V AC ASYMMETRY: 55 V AC	PHASE: 175 V AC ASYMMETRY (adjustment): 5...80 V AC	PHASE: 175 V AC ASYMMETRY (adjustment): 5...80 V AC
Indicator	LED green/red	LED green/red and yellow	LED green/red and yellow	LED green/red and yellow
Insulation				
Insulation rated voltage	400 V AC	400 V AC	400 V AC	400 V AC
Rated surge voltage	4 000 V	4 000 V	4 000 V	4 000 V
Overvoltage category	III	III	III	III
General data				
Dimensions mm	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
Mechanical life	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Recognitions, certifications, directives	CE UK RoHS	CE UK RoHS	CE UK RoHS	CE UK RoHS
Download data sheet	RPN-.VF-A400	RPN-.VFS-A400	RPN-.VFR-A400	RPN-.VFT-A400

① Connection diagrams, descriptions and diagrams of functions nadzorczych - see www.relpol.com.pl

RPN-.VM-A230	RPN-.VC-A400	RPN-.VCN-A400	RPN-.VM-A400	RPN-.VMN-A400
				
1 CO, 2 CO	1 CO, 2 CO	1 CO, 2 CO	1 CO, 2 CO	1 CO, 2 CO
AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
300 V	300 V	300 V	300 V	300 V
1 CO: 12 A / 250 V AC 2 CO: 6 A / 250 V AC 1 CO: 12 A / 24 V DC 2 CO: 6 A / 24 V DC	1 CO: 12 A / 250 V AC 2 CO: 6 A / 250 V AC 1 CO: 12 A / 24 V DC 2 CO: 6 A / 24 V DC	1 CO: 12 A / 250 V AC 2 CO: 6 A / 250 V AC 1 CO: 12 A / 24 V DC 2 CO: 6 A / 24 V DC	1 CO: 12 A / 250 V AC 2 CO: 6 A / 250 V AC 1 CO: 12 A / 24 V DC 2 CO: 6 A / 24 V DC	1 CO: 12 A / 250 V AC 2 CO: 6 A / 250 V AC 1 CO: 12 A / 24 V DC 2 CO: 6 A / 24 V DC
= monitoring voltage	= monitoring voltage	= monitoring voltage	= monitoring voltage	= monitoring voltage
AC: 1(N)~ 230 V	AC: 3~ 400 V	AC: 3(N)~ 400/230 V	AC: 3~ 400 V	AC: 3(N)~ 400/230 V
45...276 V / AC: 48...63 Hz	220...460 V / AC: 48...63 Hz	126...265 V / AC: 48...63 Hz	220...460 V / AC: 48...63 Hz	126...265 V / AC: 48...63 Hz
single-functions	multifunctions	multifunctions	multifunctions	multifunctions
AC voltage monitoring in 1-phase network 1(N)~ 230 V, monitoring of exceeding the U _{min} /U _{max} threshold, phase failure	AC voltage monitoring in 3-phase network 3~ 400 V, monitoring of exceeding the U _{min} /U _{max} threshold, phase failure, phase sequence	AC voltage monitoring in 3-phase network 3(N)~ 400/230 V, monitoring of exceeding the U _{min} /U _{max} threshold, phase failure, phase sequence	AC voltage monitoring in 3-phase network 3~ 400 V, monitoring of exceeding the U _{min} /U _{max} threshold, phase failure, phase sequence	AC voltage monitoring in 3-phase network 3(N)~ 400/230 V, monitoring of exceeding the U _{min} /U _{max} threshold, phase failure, phase sequence
1(N)~, sinus, 48...63 Hz	3~, sinus, 48...63 Hz	3(N)~, sinus, 48...63 Hz	3~, sinus, 48...63 Hz	3(N)~, sinus, 48...63 Hz
= supply voltage AC: 1(N)~ 230 V	= supply voltage AC: 3~ 400 V	= supply voltage AC: 3(N)~ 400/230 V	= supply voltage AC: 3~ 400 V	= supply voltage AC: 3(N)~ 400/230 V
276 V	500 V	288 V	500 V	288 V
MIN: 0,3...0,95 U _{max} MAX: 160...276 V	MIN: 0,75 U _n MAX: 1,25 U _n	MIN: 0,75 U _n MAX: 1,25 U _n	MIN: 0,75...0,95 U _n MAX: 1,05...1,25 U _n	MIN: 0,75...0,95 U _n MAX: 1,05...1,25 U _n
LED green, yellow and red	LED green, yellow and red	LED green, yellow and red	LED green, yellow and red	LED green, yellow and red
500 V AC	500 V AC	500 V AC	500 V AC	500 V AC
4 000 V	4 000 V	4 000 V	4 000 V	4 000 V
III	III	III	III	III
90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)
IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
  RoHS	  RoHS	  RoHS	  RoHS	  RoHS
RPN-.VM-A230	RPN-.VC-A400	RPN-.VCN-A400	RPN-.VM-A400	RPN-.VMN-A400

Type	RPN-1A...A230	RPN-1TMP-A230	RPN-1AT-A230	MR-EU1W1P
				
Output circuit				
Number and type of contacts	1 CO	1 CO	1 CO	1 CO
Contact material	AgSnO ₂	AgSnO ₂	AgSnO ₂	
Max. voltage AC	300 V	300 V	300 V	
Rated load AC1 DC1	12 A / 250 V AC 12 A / 24 V DC	12 A / 250 V AC 12 A / 24 V DC	12 A / 250 V AC 12 A / 24 V DC	5 A / 250 V AC
Input circuit				
Supply voltage	AC: 230 V	AC: 230 V	AC: 230 V	= monitoring voltage
Rated voltage	AC: 230 V	AC: 230 V	AC: 230 V	AC: 24, 230 V DC: 24 V
Range of supply voltage / frequency	0,85...1,15 U _n / AC: 48...63 Hz	0,85...1,15 U _n / AC: 48...63 Hz	0,85...1,15 U _n / AC: 48...63 Hz	0,75...1,2 U _n / AC: 48...63 Hz
Working cycle				100%
Measuring circuit				
Functions number	multifunctions	single-functions	single-functions	multifunctions
Functions ①	AC current monitoring in 1-phase network, MIN and MAX value monitoring, fault latch mode, tripping delay	motor temperature monitoring, button TEST/RESET	motor temperature monitoring, self-RESET	DC and AC voltage monitoring in 1-phase network, MIN value monitoring, hysteresis mode
Measured value	AC sinus, 48...63 Hz			DC or AC sinus, 48...63 Hz
Measuring inputs	AC: 0,5 ... 16 A ② / 230 V AC			= supply voltage AC: 24, 230 V DC: 24 V
Overload capacity	2 ... 20 A ②	SHORT-CIRCUIT: ≤ 10 Ω	SHORT-CIRCUIT: ≤ 10 Ω	≥ 1,2 U _n
Switching thresholds	MIN: 0,05...0,95 I _n MAX: 0,1...1,0 I _n	MIN: 1,65 kΩ WARNING: 3,3 kΩ MAX: 3,6 kΩ	MIN: 1,65 kΩ WARNING: 3,3 kΩ MAX: 3,6 kΩ	MIN: 0,75...1,15 U _n MAX: 0,8...1,2 U _n
Indicator	LED green, yellow and red	LED green, yellow and red	LED green, yellow and red	LED green, yellow and red
Insulation				
Insulation rated voltage	250 V AC	250 V AC	250 V AC	
Rated surge voltage	4 000 V	4 000 V	4 000 V	4 000 V
Overvoltage category	III	III	III	III
General data				
Dimensions mm	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	87 x 17,5 x 65
Mechanical life	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 3 x 10 ⁷ (cycles)	> 2 x 10 ⁷ (cycles)
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Recognitions, certifications, directives	CE UK RoHS	CE UK RoHS	CE UK RoHS	CE RoHS
Download data sheet	RPN-1A...A230	RPN-1TMP-A230	RPN-1AT-A230	MR-EU1W1P

① Connection diagrams, descriptions and diagrams of monitoring functions - see www.relpol.com.pl ② Depending on relay version (RPN-1A05/1/2/5/8/16) - see www.relpol.com.pl ③ Determined by the tolerance specified for supply voltage

MR-EU31UW1P	MR-EU3M1P	MR-EI1W1P	MR-ET1P
			
1 CO	1 CO	1 CO	1 CO
5 A / 250 V AC	5 A / 250 V AC	5 A / 250 V AC	5 A / 250 V AC
= monitoring voltage AC: 230 V AC: 3(N)~ 400/230 V	= monitoring voltage AC: 3(N)~ 400/230 V	AC: 230 V AC: 230 V	AC: 230 V AC: 230 V
0,7...1,3 U _n / AC: 48...63 Hz	0,7...1,3 U _n / AC: 48...63 Hz	0,85...1,15 U _n / AC: 48...63 Hz	0,85...1,1 U _n / AC: 48...63 Hz
100%	100%	100%	100%
multifunctions	multifunctions	multifunctions	single-functions
AC voltage monitoring in 1-phase network and 3-phase 3(N)~ 400/230 V, monitoring of phase failure, phase sequence	AC voltage monitoring in 3-phase network 3(N)~ 400/230 V, monitoring of phase failure, asymmetry, phase sequence	AC current monitoring in 1-phase network, MIN and MAX value monitoring, hysteresis mode	motor temperature monitoring, button TEST/RESET
3(N)~, sinus, 48...63 Hz	3(N)~, sinus, 48...63 Hz	AC sinus, 48...63 Hz	
= supply voltage AC: 230 V AC: 3(N)~ 400/230 V	= supply voltage AC: 3(N)~ 400/230 V	AC: 10 A / 230 V AC	
		13 A	
MIN: 0,7...1,2 U _n MAX: 0,8...1,3 U _n		MIN: 0,05...0,95 I _n MAX: 0,1...1,0 I _n	relay OFF: ≥ 3,6 kΩ relay ON: ≤ 1,65 kΩ
LED yellow and red	LED green and yellow	LED green, yellow and red	LED green and red
4 000 V	4 000 V	4 000 V	6 000 V
III	III	III	III
87 x 17,5 x 65	87 x 17,5 x 65	87 x 17,5 x 65	87 x 35 x 65
> 2 x 10 ⁷ (cycles)	> 2 x 10 ⁷ (cycles)	> 2 x 10 ⁷ (cycles)	> 2 x 10 ⁷ (cycles)
IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
 RoHS	 RoHS	 RoHS	 RoHS
MR-EU31UW1P	MR-EU3M1P	MR-EI1W1P	MR-ET1P

Type	MR-GU3M2P-TR2	MR-GU3M2P	MR-GI1M2P-TR2	MR-GT2P-TR2	
					
Output circuit					
Number and type of contacts	2 CO	2 CO	2 CO	2 CO	
Rated load	AC1 AC1	3 A / 250 V AC ④ 5 A / 250 V AC ④	3 A / 250 V AC ④ 5 A / 250 V AC ④	3 A / 250 V AC ④ 5 A / 250 V AC ④	
Input circuit					
Supply voltage	AC: 12, 24, 42, 48, 110, 127, 230, 400 V ⑤	= monitoring voltage	AC: 12, 24, 42, 48, 110, 127, 230, 400 V ⑤	AC: 12, 24, 42, 48, 110, 127, 230, 400 V ⑤	
Rated voltage					
Range of supply voltage / frequency	⑤	3(N)~ 342...457 V / AC: 48...63 Hz	⑤	⑤	
Working cycle	100%	100%	100%	100%	
Measuring circuit					
Functions	number	multifunctions	multifunctions	multifunctions	single-functions
Functions ①		AC voltage monitoring in 3-phase network, MIN and MAX value monitoring, monitoring of phase failure, asymmetry, phase sequence	AC voltage monitoring in 3-phase network, monitoring of phase failure, asymmetry, phase sequence	DC and AC current monitoring in 1-phase network, MIN and MAX value monitoring, fault latch mode	motor temperature monitoring, button TEST/RESET
Measured value		AC sinus, 48...63 Hz	AC sinus, 48...63 Hz	DC or AC sinus, 16,6...400 Hz	
Measuring inputs		AC: 3(N)~ 400/230 V	AC: 3(N)~ 400/230 V	AC/DC: 0,1 A AC/DC: 1 A AC/DC: 10 A	
Overload capacity		3(N)~ 600/346 V	3(N)~ 457/264 V	0,1 A AC/DC: 0,8 A 1 A AC/DC: 3 A 10 A AC/DC: 12 A	
Switching thresholds		MIN: 0,7...1,2 U _n MAX: 0,8...1,3 U _n		MIN: 0,05...0,95 I _n MAX: 0,1...1,0 I _n	relay OFF: ≥ 3,6 kΩ relay ON: ≤ 1,8 kΩ
Indicator		LED yellow and red	LED green and yellow	LED green, yellow and red	LED green and red
Insulation					
Rated surge voltage	4 000 V	4 000 V	4 000 V	4 000 V	
Overvoltage category	III	III	III	III	
General data					
Dimensions	mm	90 x 22,5 x 108	90 x 22,5 x 108	90 x 22,5 x 108	90 x 22,5 x 108
Mechanical life		> 2 x 10 ⁷ (cycles)	> 2 x 10 ⁷ (cycles)	> 2 x 10 ⁷ (cycles)	> 2 x 10 ⁷ (cycles)
Protection category		IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Recognitions, certifications, directives		CE RoHS	CE RoHS	CE RoHS	CE RoHS
Download data sheet		MR-GU3M2P-TR2	MR-GU3M2P	MR-GI1M2P-TR2	MR-GT2P-TR2

① Connection diagrams, descriptions and diagrams of monitoring functions - see www.relpol.com.pl ④ 3 A - if the distance between the relays mounted side by side is less than 5 mm; 5 A - if the distance between the relays mounted side by side is greater than 5 mm. ⑤ Depending on the supply TR2 transformer which shall be ordered as a separate product - see www.relpol.com.pl

ORDERING CODES

Index	Code	Description
864371	RPN-1VF-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (2 functions, fixed asymmetry), one changeover contact 12 A, input voltage 3(N)~ 400/230 V AC
865172	RPN-2VF-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (2 functions, fixed asymmetry), two changeover contacts 6 A, input voltage 3(N)~ 400/230 V AC
864372	RPN-1VFS-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (3 functions, fixed asymmetry, fixed tripping delay), one changeover contact 12 A, input voltage 3(N)~ 400/230 V AC
865174	RPN-2VFS-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (3 functions, fixed asymmetry, fixed tripping delay), two changeover contacts 6 A, input voltage 3(N)~ 400/230 V AC
864373	RPN-1VFR-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (3 functions, adjustment asymmetry, fixed tripping delay), one changeover contact 12 A, input voltage 3(N)~ 400/230 V AC
865176	RPN-2VFR-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (3 functions, adjustment asymmetry, fixed tripping delay), two changeover contacts 6 A, input voltage 3(N)~ 400/230 V AC
864374	RPN-1VFT-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (3 functions, adjustment asymmetry, adjustment tripping delay), one changeover contact 12 A, input voltage 3(N)~ 400/230 V AC
865178	RPN-2VFT-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (3 functions, adjustment asymmetry, adjustment tripping delay), two changeover contacts 6 A, input voltage 3(N)~ 400/230 V AC
865753	RPN-1VM-A230	AC voltage monitoring in 1-phase network (supply voltage = monitoring), single-function (function MINMAX, adjustment Umin/Umax thresholds, adjustment tripping delay), one changeover contact 12 A, input voltage 1(N)~ 230 V AC
865766	RPN-2VM-A230	AC voltage monitoring in 1-phase network (supply voltage = monitoring), single-function (function MINMAX, adjustment Umin/Umax thresholds, adjustment tripping delay), two changeover contacts 6 A, input voltage 1(N)~ 230 V AC
865764	RPN-1VC-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (2 functions, fixed Umin/Umax thresholds, adjustment tripping delay), one changeover contact 12 A, input voltage 3~ 400 V AC
865769	RPN-2VC-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (2 functions, fixed Umin/Umax thresholds, adjustment tripping delay), two changeover contacts 6 A, input voltage 3~ 400 V AC
865765	RPN-1VCN-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (2 functions, fixed Umin/Umax thresholds, adjustment tripping delay), one changeover contact 12 A, input voltage 3(N)~ 400/230 V AC
865770	RPN-2VCN-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (2 functions, fixed Umin/Umax thresholds, adjustment tripping delay), two changeover contacts 6 A, input voltage 3(N)~ 400/230 V AC
865754	RPN-1VM-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (2 functions, adjustment Umin/Umax thresholds, adjustment tripping delay), one changeover contact 12 A, input voltage 3~ 400 V AC
865767	RPN-2VM-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (2 functions, adjustment Umin/Umax thresholds, adjustment tripping delay), two changeover contacts 6 A, input voltage 3~ 400 V AC
865762	RPN-1VMN-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (2 functions, adjustment Umin/Umax thresholds, adjustment tripping delay), one changeover contact 12 A, input voltage 3(N)~ 400/230 V AC
865768	RPN-2VMN-A400	AC voltage monitoring in 3-phase network (supply voltage = monitoring), multifunction (2 functions, adjustment Umin/Umax thresholds, adjustment tripping delay), two changeover contacts 6 A, input voltage 3(N)~ 400/230 V AC

ORDERING CODES

Index	Code	Description
864364	RPN-1A05-A230	AC current monitoring in 1-phase network, multifunction (6 functions, measuring input 0,5 A, adjustment tripping delay), one changeover contact 12 A, input voltage 230 AC
864365	RPN-1A1-A230	AC current monitoring in 1-phase network, multifunction (6 functions, measuring input 1 A, adjustment tripping delay), one changeover contact 12 A, input voltage 230 AC
864366	RPN-1A2-A230	AC current monitoring in 1-phase network, multifunction (6 functions, measuring input 2 A, adjustment tripping delay), one changeover contact 12 A, input voltage 230 AC
864367	RPN-1A5-A230	AC current monitoring in 1-phase network, multifunction (6 functions, measuring input 5 A, adjustment tripping delay), one changeover contact 12 A, input voltage 230 AC
864368	RPN-1A8-A230	AC current monitoring in 1-phase network, multifunction (6 functions, measuring input 8 A, adjustment tripping delay), one changeover contact 12 A, input voltage 230 AC
864369	RPN-1A16-A230	AC current monitoring in 1-phase network, multifunction (6 functions, measuring input 16 A, adjustment tripping delay), one changeover contact 12 A, input voltage 230 AC
864370	RPN-1TMP-A230	motor temperature monitoring (short circuit of the thermistor line, button TEST/RESET), one changeover contact 12 A, input voltage 230 AC
865143	RPN-1AT-A230	motor temperature monitoring (short circuit of the thermistor line, self- RESET), one changeover contact 12 A, input voltage 230 AC
2613071	MR-EU1W1P	DC and AC voltage monitoring in 1-phase network (supply voltage = monitoring), one changeover contact 5 A, input voltage 24, 230 AC, 24 V DC
2613069	MR-EU31UW1P	AC voltage monitoring in 1-phase network and 3-phase (supply voltage = monitoring), one changeover contact 5 A, input voltage 230 AC, 3(N)~ 400/230 V AC
2612868	MR-EU3M1P	AC voltage monitoring in 3-phase network (supply voltage = monitoring), one changeover contact 5 A, input voltage 3(N)~ 400/230 V AC
2613070	MR-EI1W1P	AC current monitoring in 1-phase network, one changeover contact 5 A, input voltage 230 AC
2613068	MR-ET1P	motor temperature monitoring (short circuit of the thermistor line or thermal contact, button TEST/RESET), one changeover contact 5 A, input voltage 230 AC

ORDERING CODES

Index	Code	Description
2613064	MR-GU3M2P-TR2	AC voltage monitoring in 3-phase network (monitoring voltage 3(N)~ 400/230 V), one changeover contact 5 A, input voltage 12 ... 400 V (transformer TR2)
2613065	MR-GU3M2P	AC voltage monitoring in 3-phase network (supply voltage = monitoring), one changeover contact 5 A, input voltage 3(N)~ 400/230 V AC
2613061	MR-GI1M2P-TR2	DC and AC current monitoring in 1-phase network, one changeover contact 5 A, input voltage 12 ... 400 V (transformer TR2)
2613067	MR-GT2P-TR2	motor temperature monitoring (short circuit of the thermistor line, button TEST/RESET), one changeover contact 5 A, input voltage 12 ... 400 V (transformer TR2)

Digital clocks



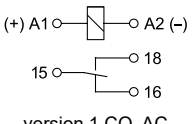
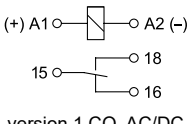
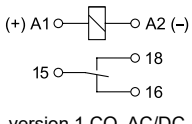
- I_n currents of outputs: 16 A.
- Available versions:
 - in modular covers: R.T series.
- Method of mounting:
 - on 35 mm rail mount.

Applications in low voltage systems:

- **RWT-TPD1** weekly digital clocks - for realization of time functions in the control and automation systems; they operate according to the set time schedule planned by the user; pulse program can be used for school or factory bell ringing,
- **RAT-TPA1B** astronomical digital clocks - for realization of time functions in the control and automation systems; they calculate the sunrise and sunset time automatically according to the set geographic position and time zone; night break program can be used to turn off the output at night,
- **RDT-TPA2** multifunction astronomical digital clocks - for realization of time functions in the control and automation systems; they calculate the sunrise and sunset time automatically according to the set geographic position and time zone, without the use of a photocell sensor.

RWT-TPD1	126
RAT-TPA1B	126
RDT-TPA2	126



Type	RWT-TPD1	RAT-TPA1B	RDT-TPA2
Output circuit			
Number and type of contacts	1 CO	1 CO	2 CO
Rated load AC1	16 A / 250 V AC	16 A / 250 V AC	16 A / 250 V AC
Input circuit			
Rated voltage AC/DC	24...264 V AC: 50/60 Hz	24...264 V AC: 50/60 Hz	24...264 V AC: 50/60 Hz
Programming data			
Programs number	52 weekly, daily, pulse	52 astronomical	80 astronomical, weekly, annual
Operating modes	manual, automatic, holiday	manual, automatic, holiday	manual, automatic, holiday, random
Summer/winter time	off, automatic switchover	off, automatic switchover	off, automatic switchover
Setting accuracy	≤ 1 s/day (25 °C)	≤ 1 s/day (25 °C)	≤ 1 s/day (25 °C)
Data readout	LCD display without backlight	LCD display with backlight	LCD display with backlight
General data			
Dimensions mm	90 x 36 x 65	90 x 36 x 65	90 x 36 x 65
Mechanical life	10 ⁶ (cycles)	10 ⁶ (cycles)	10 ⁶ (cycles)
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Connection diagrams	 version 1 CO, AC	 version 1 CO, AC/DC	 version 1 CO, AC/DC
Recognitions, certifications, directives	RoHS	RoHS	RoHS
Download data sheet	RWT-TPD1	RAT-TPA1B	RDT-TPA2

ORDERING CODES

Index	Code	Description
2617228	RWT-TPD1	weekly (52 programs + holiday mode), one changeover contact (one channel) 16 A, rated input voltage 24...264 V AC/DC, LCD display without backlight, 3 years power reserve
2617231	RAT-TPA1B	astronomical (52 programs + holiday mode), one changeover contact (one channel) 16 A, rated input voltage 24...264 V AC/DC, LCD display with backlight, 10 years power reserve
2617234	RDT-TPA2	multifunction astronomical (80 programs + holiday mode), two changeover contacts (two channels) 16 A, rated input voltage 24...264 V AC/DC, LCD display with backlight, 10 years power reserve

Electric energy consumption meters



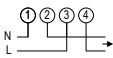
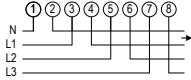
- Available versions:
 - in modular covers: RLE series.
- Design features:
 - direct measuring AC electrical energy (63 A),
 - MID certificate,
 - ModBus RTU.
- Method of mounting:
 - on 35 mm rail mount.

Applications in low voltage systems:

- photovoltaic installations (e.g. for monitoring inverter operation),
- building and industrial automation systems.

RLE01-2M 128
RLE03-4M 128



Type	RLE01-2M	RLE03-4M
		
Input circuit		
Rated voltage AC	230 V 50/60 Hz	3(N)~ 400/230 V 50/60 Hz
Input current		
• min. / max.	0,25 A / 63 A	0,25 A / 63 A
• reference/starting	0,5 A / 0,02 A	0,5 A / 0,02 A
• rated	5 A	5 A
Output/measuring circuit		
Real-time measurement	voltage, current, active/reactive current, active/reactive/positive power, power factor, frequency, demand, max./min. values	voltage, current, active/reactive current, active/reactive/positive power, power factor, frequency, demand, max./min. values
Energy measurement	active/reactive energy, four-quadrant reactive energy, apparent energy	active/reactive energy, four-quadrant reactive energy, apparent energy
Communication		
• interface	RS-485 port	RS-485 port
• protocol	Modbus RTU or DL/T645	Modbus RTU or DL/T645
RTC measurement error	$\leq 0,5$ s/day	$\leq 0,5$ s/day
Data readout	large and readable LCD display	large and readable LCD display
General data		
Dimensions mm	90 x 36 x 63	90 x 72 x 63
Protection category	panel: IP 51 cover: IP 20 (EN 60529)	panel: IP 51 cover: IP 20 (EN 60529)
Connection diagrams	 1-phase, 2-wire direct connection	 3-phase, 4-wire direct connection
Recognitions, certifications, directives	 RoHS, MID	 RoHS, MID
Download data sheet	RLE01-2M	RLE03-4M

Design features

- MID certificate,
- high accuracy of active and reactive energy measurement,
- possibility of monitoring power quality parameters,
- intuitive operation and clear LCD display,
- RS485 port is isolated from the inside of the meter, and there is anti overvoltage protection circuit in the meter; RS-485 communication is realized through PC to programming, setting and reading meters,
- robust construction and high resistance to environmental conditions,
- communication via popular protocols (defaulted as Modbus RTU), facilitating integration with building management systems (BMS) and SCADA.

ORDERING CODES

Index	Code	Description
2617212	RLE01-2M	2-wire wiring, electric energy measurement in 1-phase network AC - 230 V
2617213	RLE03-4M	4-wire wiring, electric energy measurement in 3-phase network AC - 3(N)~ 400/230 V

Signal lamps



- Available versions:
 - in modular covers: RLK series.
- Method of mounting:
 - on 35 mm rail mount.

Applications in low voltage systems:

- optic signaling of AC/DC voltage presence in 1-phase network,
- optic signaling of AC voltage presence in 3-phase network.

RLK-1G	130
RLK-1R	130
RLK-1Y	130
RLK-3G	131
RLK-3R	131
RLK-3K	131



Type	RLK-1G	RLK-1R	RLK-1Y
Input circuit			
	Supply voltage AC/DC	130...260 V AC: 50/60 Hz	130...260 V AC: 50/60 Hz
	Range of supply voltage / frequency	0,85...1,1 U _n / AC: 48...63 Hz	0,85...1,1 U _n / AC: 48...63 Hz
	Rated power consumption	DC: ≤ 0,7 W	DC: ≤ 0,7 W
Control circuit			
Functions	self-operating	self-operating	self-operating
Functions	optic signaling of AC/DC voltage presence in 1-phase network	optic signaling of AC/DC voltage presence in 1-phase network	optic signaling of AC/DC voltage presence in 1-phase network
Indicator	LED green	LED red	LED yellow
Insulation			
Insulation rated voltage	250 V AC	250 V AC	250 V AC
Rated surge voltage	4 000 V	4 000 V	4 000 V
Overvoltage category	II	II	II
General data			
Dimensions mm	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Recognitions, certifications, directives	  RoHS	  RoHS	  RoHS
Download data sheet	RLK-1G	RLK-1R	RLK-1Y

Type		RLK-3G	RLK-3R	RLK-3K
Input circuit				
Supply voltage	AC	3(N)~ 400/230 V 50/60 Hz	3(N)~ 400/230 V 50/60 Hz	3(N)~ 400/230 V 50/60 Hz
Range of supply voltage / frequency		0,85...1,1 U _n / AC: 48...63 Hz	0,85...1,1 U _n / AC: 48...63 Hz	0,85...1,1 U _n / AC: 48...63 Hz
Rated power consumption		DC: ≤ 1,1 W	DC: ≤ 1,1 W	DC: ≤ 1,1 W
Control circuit				
Functions		self-operating	self-operating	self-operating
Functions		optic signaling of AC voltage presence in 3-phase network 3(N)~ 400/230 V	optic signaling of AC voltage presence in 3-phase network 3(N)~ 400/230 V	optic signaling of AC voltage presence in 3-phase network 3(N)~ 400/230 V
Indicator		LED green	LED red	LED red, yellow and green
Insulation				
Insulation rated voltage		250 V AC	250 V AC	250 V AC
Rated surge voltage		4 000 V	4 000 V	4 000 V
Overtoltage category		II	II	II
General data				
Dimensions	mm	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6	90(98,8) x 17,5 x 64,6
Protection category		IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Recognitions, certifications, directives		  RoHS	  RoHS	  RoHS
Download data sheet		RLK-3G	RLK-3R	RLK-3K

ORDERING CODES

Index	Code	Description
863027	RLK-1G	signaling of AC/DC voltage in 1-phase network (1x LED green), supply voltage 130...260 V AC/DC
863026	RLK-1R	signaling of AC/DC voltage in 1-phase network (1x LED red), supply voltage 130...260 V AC/DC
863025	RLK-1Y	signaling of AC/DC voltage in 1-phase network (1x LED yellow), supply voltage 130...260 V AC/DC
863030	RLK-3G	signaling of AC voltage in 3-phase network (3x LED green), supply voltage 3(N)~ 400/230 V AC
863029	RLK-3R	signaling of AC voltage in 3-phase network (3x LED red), supply voltage 3(N)~ 400/230 V AC
863028	RLK-3K	signaling of AC voltage in 3-phase network (3x LED red, yellow, green), supply voltage 3(N)~ 400/230 V AC

Solid state relays and power controllers



- I_n currents of outputs: 0,05 ... 125 A.
- Available versions:
 - miniature relays,
 - industrial relays,
 - power controllers.
- Methods of mounting:
 - THT, on panel mounting,
 - on heatsinks, on 35 mm rail mount
 - depending on the type of relay.



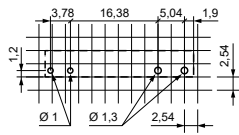
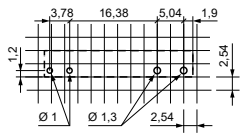
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Applications:

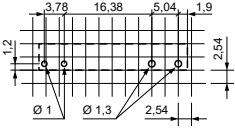
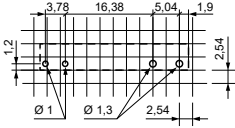
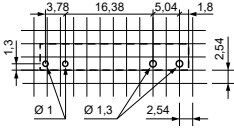
- suitable for PCB mounted,
- temperature chamber,
- food processing machinery,
- injection molding machine,
- packaging machine,
- incubator, oiling machines,
- HVAC, lighting, fountain controller,
- three phase motor control,
- temperature control, large oven.



miniature relays

Type	RSR25	RSR25-...-B	RSR30	RSR32
Output circuit				
Type of outputs	triac	SCR (thyristors)	triac (AC) or MOSFET (DC)	zgodność z napędem TTL
Max. load voltage AC DC	280, 530 V	280, 530 V	240 V 24, 48, 100 V	280 V
Load current AC1 DC1	5 A	5 A	2 A 1, 2,5, 4 A	2 A
Input circuit				
Switching mode	DC control (zero-crossing or random-on)	DC control (zero-crossing or random-on)	DC control (DC switching or random-on)	DC control (zero-crossing or random-on)
Control voltage DC DC	4...15 V, 15...32 V, 4...32 V	4...15 V, 15...32 V, 4...32 V	5, 12, 24, 48 V	5, 12, 24 V
Insulation				
Dielectric strength • input - output	4 000 V	4 000 V	2 500 ... 4 000 V	2 500 V
General data				
Dimensions mm	43,8 x 9,5 x 26,5	44,5 x 10,5 x 26	28 x 5 x 15	28 x 5,2 x 15
Pinout (solder side view)				
Protections	RC (resistor, capacitor)	RC (resistor, capacitor)	RC (AC: resistor, capacitor)	
Recognitions, certifications, directives	   RoHS, REACH	   RoHS, REACH	  RoHS	  RoHS, REACH
Download data sheet	RSR25	RSR25-...-B	RSR30	RSR32

miniature relays

Type	RSR35	RSR35-...RZA	RSR35-...D8	RSR85-24...
Output circuit				
Type of outputs	transistor or MOSFET	transistor	MOSFET	triac
Max. load voltage AC DC	28, 58 V	28,8 V	30 V	280 V
Load current AC1 DC1	0,1, 3, 4 A	0,05 A	8 A	3 A
Input circuit				
Switching mode	DC control (DC switching)	AC or DC control (DC switching)	DC control (DC switching)	DC control (zero-crossing or random-on)
Control voltage AC DC DC	5, 12, 24, 48, 60 V	110, 240 V 110, 220 V	3...15 V, 15...30 V, 35...72 V	5, 12, 24 V
Insulation				
Dielectric strength • input - output	2 500 V	2 500 V	3 750 V	4 000 V
General data				
Dimensions mm	28 x 5,2 x 15	28 x 5,2 x 15	28 x 5 x 15	29 x 12,5 x 15,7
Stopień ochrony				
Pinout (solder side view)				
Protections				RC (resistor, capacitor)
Indicator Plug-in sockets				
Recognitions, certifications, directives	 RoHS, REACH	RoHS, REACH	 RoHS, REACH	 RoHS, REACH
Download data sheet	RSR35	RSR35-...-RZA	RSR35-...-D8	RSR85-24...

miniature relays

RSR85-38...	RSR86	RSR88	RSR88...NC	RSR89
				
triac	MOSFET	MOSFET or transistor	transistor (normally closed type)	triac
440 V	35 V	100, 200, 400 V	100 V	280, 660 V
3 A	12 A	3, 5, 10, 16 A	3 A	5 A
DC control (zero-crossing or random-on)	DC control (DC switching)	DC control (DC switching)	DC control (DC switching)	DC control (zero-crossing or random-on)
5, 12, 24 V	10...32 V	4...32 V	4...32 V	4...32 V
4 000 V	2 500 V	2 500 V	2 500 V	4 000 V
29,2 x 13,2 x 27,5	29 x 12,7 x 15,7	32 x 13 x 43	32 x 13 x 43	32 x 13 x 43
		IP 00 (EN 60529) 	IP 00 (EN 60529) 	IP 00 (EN 60529) 
RC (resistor, capacitor)	LED green	TVS LED red GZMA	LED red GZMA	TVS LED red GZMA
  RoHS, REACH	 RoHS, REACH	  RoHS, REACH	 RoHS, REACH	  RoHS, REACH
RSR85-38...	RSR86	RSR88	RSR88...NC	RSR89

 Available in versions: RSR86...N (3,5 mm pinout), RSR86...P (5 mm pinout in line).

 For RSR88..., RSR89... with socket GZMA: IP 20.

miniature relays

industrial relays

Type	RSR89...NC	RSR45	RSR52	RSR54
Output circuit				
Type of outputs	triac (normally closed type)	triac	SCR (thyristors)	SCR (thyristors)
Max. load voltage AC DC	280 V	440 V	280, 530, 660 V	280, 530, 660 V
Load current AC1 AC1 AC3	5 A	10, 16, 25 A	10, 25, 40, 60, 80 A	25, 40, 60, 80, 100, 125 A
Input circuit				
Switching mode			AC control	AC control
	DC control (zero-crossing)	DC control (zero-crossing or random-on)	DC control (zero-crossing or random-on)	DC control (zero-crossing)
Control voltage AC DC	4...32 V	4...32 V	90...280 V 50/60 Hz 4...32 V	90...280 V 50/60 Hz 3...32 V
Insulation				
Dielectric strength • input - output	2 500 V	4 000 V	4 000 V	4 000 V
General data				
Dimensions mm	32 x 13 x 43	38,5 x 30 x 20,5 ⑤	58,6 x 45,7 x 33,5	58,6 x 45,7 x 29,4
Stopień ochrony	IP 00 (EN 60529) ②	IP 00 (EN 60529) ④	IP 20 (EN 60529)	IP 20 (EN 60529)
Protections		RC (resistor, capacitor)	MOV (varistor)	TVS
Indicator	LED red	LED red	LED red	LED red
Plug-in sockets	GZMA			
Heatsinks		RH	RH	RH
Thermal pads		RTP-11	RTP-10	RTP-10
Recognitions, certifications, directives	   RoHS, REACH	   RoHS, REACH	   RoHS, REACH	   RoHS, REACH
Download data sheet	RSR89...NC	RSR45	RSR52	RSR54

② For RSR88..., RSR89... with socket GZMA: IP 20.

③ For RSR45-38... (screw terminals); for RSR45-38...-A (faston 250): 38,5 x 30 x 25,2 mm.

④ For RSR45-38... with protection cover PCR-20: IP 20.

⑤ Two channel AC output.

industrial relays

RSR58	RSR62	RSR72...10 20 30	RSR72...40	RSR72...75
				
SCR (thyristors) ⑥	SCR (thyristors)	SCR (thyristors)	SCR (thyristors)	SCR (thyristors)
280, 530, 660 V	530, 660 V	280, 530, 660 V	280, 530, 660 V	280, 530, 660 V
25, 50, 75 A	25, 40, 60, 80 A	10, 20, 30 A	40 A	75 A
	AC control	AC control	AC control	AC control
DC control (zero-crossing)	DC control (zero-crossing or random-on)	DC control (zero-crossing or random-on)	DC control (zero-crossing or random-on)	DC control (zero-crossing or random-on)
4...32 V	90...280 V 50 Hz 4...32 V	90...280 V 50 Hz 4...32 V	90...280 V 50 Hz 4...32 V	90...280 V 50 Hz 4...32 V
4 000 V	4 000 V	4 000 V	4 000 V	4 000 V
58,4 x 45,7 x 46	105 x 78 x 38	100 x 30,5 x 112,5	122 x 50,5 x 110	153 x 105 x 122
IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
LED red	RC/MOV (resistor, capacitor, varistor) LED red	RC/MOV (resistor, capacitor, varistor) LED red	RC/MOV (resistor, capacitor, varistor) LED red	RC/MOV (resistor, capacitor, varistor) LED red
RH RTP-10	RH RTP-30A	integrated	integrated	integrated
 RoHS, REACH	 RoHS, REACH	 RoHS, REACH	 RoHS, REACH	 RoHS, REACH
RSR58	RSR62	RSR72...10 20 30	RSR72...40	RSR72...75

industrial relays

power controllers

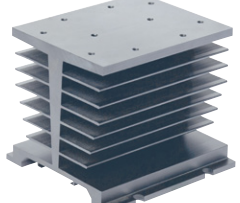
Type	RSR75	RSR95	RSR92-..V..	RSR92-..I..
				
Output circuit				
Type of outputs	SCR (thyristors)	MOSFET or IGBT	SCR (thyristors)	SCR (thyristors)
Max. load voltage	AC DC DC	280, 660 V	24, 36, 48, 75, 120, 300, 500, 700 V	280, 530 V
Load current	AC1 AC3 DC1 DC1	15, 25 A	25, 40, 60, 80 A	25, 40, 60, 80 A
Input circuit				
Switching mode	DC control (zero-crossing)	DC control (DC switching)	DC control (phase angle load control)	DC control (phase angle load control)
Control voltage	DC DC DC	3...32 V, 4...32 V	4...32 V	0...10 V (DC voltage) 4...20 mA (current)
Insulation				
Dielectric strength • input - output	4 000 V	2 500 V	4 000 V	4 000 V
General data				
Dimensions	mm	114,5 x 17,8 x 105 ^⑥	58,6 x 45,7 x 33,5	58,6 x 45,7 x 39,5
Stopień ochrony	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Protections	TVS	przeciwprzepięciowe	MOV (varistor)	MOV (varistor)
Indicator	LED red	LED red	LED green	LED green
Heatsinks	integrated	RH	RH	RH
Thermal pads		RTP-10	RTP-30A	RTP-30A
Recognitions, certifications, directives	  RoHS, REACH	 RoHS, REACH	 RoHS, REACH	 RoHS, REACH
Download data sheet	RSR75	RSR95	RSR92-..V..	RSR92-..I..

^⑥ For RSR75-...15...; for RSR75-...25...: 114,5 x 17,8 x 145 mm.

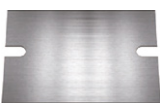
power controllers

RSR93...25	RSR93...40 60 80
	
SCR (thyristors)	SCR (thyristors)
440 V	440 V
25 A	40, 60, 80 A
DC control (phase angle load control)	DC control (phase angle load control)
0...5 V, 0...10 V (DC voltage) or 4...20 mA (current)	0...5 V, 0...10 V (DC voltage) or 4...20 mA (current)
4 000 V	4 000 V
124 x 55 x 118,3	153,5 x 81 x 158
IP 20 (EN 60529)	IP 20 (EN 60529)
RC (resistor, capacitor) LED red, green integrated	RC (resistor, capacitor) LED red, green integrated
CE RoHS, REACH	CE RoHS, REACH
RSR93...25	RSR93...40 60 80

Heatsinks

RH28 (2616039) For RSR45 	RH21 (2616040) For RSR52, RSR54, RSR95, RSR92 	RH19A (2616041) For RSR52, RSR95, RSR92 
RH19B (2616042) For RSR45, RSR52, RSR95, RSR92 	RH17A (2616043) For RSR52, RSR95, RSR92 	RH16 (2616049) For RSR52, RSR54, RSR95, RSR92 
RH16-F (2616050) For RSR52, RSR58, RSR95, RSR92 	RH08 (2616047) For RSR52, RSR54, RSR58, RSR95, RSR92, RSR62, RSR92-...-T 	RH08-F (2616048) For RSR52, RSR54, RSR58, RSR95, RSR92, RSR62, RSR92-...-T 

Accessories

GZMA (2617430) For RSR88, RSR89 	PCR-20 (2616056) For RSR45 	RTP-11 (2616061) For RSR45 	RTP-10 (2616058) For RSR52, RSR54, RSR58, RSR95, RSR92 	RTP-30A (2616060) For RSR62, RSR92-...-T 
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ORDERING CODES

Index	Code	Description
2616427	RSR25-24D5-12S	input 4...15 V DC, output 5 A / 24...280 V AC (single-phase)
2616428	RSR25-24D5-24	input 15...32 V DC, output 5 A / 24...280 V AC (single-phase)
2616429	RSR25-24D5-24S	input 4...32 V DC, output 5 A / 24...280 V AC (single-phase)
2616430	RSR25-24D5R-24S	input 4...32 V DC, output 5 A / 24...280 V AC (single-phase)
2616431	RSR25-48D5-12S	input 4...15 V DC, output 5 A / 24...530 V AC (single-phase)
2616432	RSR25-48D5-24	input 15...32 V DC, output 5 A / 24...530 V AC (single-phase)
2616433	RSR25-48D5-24S	input 4...32 V DC, output 5 A / 24...530 V AC (single-phase)
2616434	RSR25-48D5R-24S	input 4...32 V DC, output 5 A / 24...530 V AC (single-phase)
2617404	RSR25-24D5-12S-B	input 4...15 V DC, output 5 A / 24...280 V AC (single-phase)
2617405	RSR25-24D5-24-B	input 15...32 V DC, output 5 A / 24...280 V AC (single-phase)
2617406	RSR25-24D5-24S-B	input 4...32 V DC, output 5 A / 24...280 V AC (single-phase)
2617407	RSR25-24D5R-24S-B	input 4...32 V DC, output 5 A / 24...280 V AC (single-phase)
2617408	RSR25-48D5-12S-B	input 4...15 V DC, output 5 A / 24...530 V AC (single-phase)
2617409	RSR25-48D5-24-B	input 15...32 V DC, output 5 A / 24...530 V AC (single-phase)
2617410	RSR25-48D5-24S-B	input 4...32 V DC, output 5 A / 24...530 V AC (single-phase)
2617411	RSR25-48D5R-24S-B	input 4...32 V DC, output 5 A / 24...530 V AC (single-phase)
2611995	RSR30-D05-D1-02-040-1	input 5 V DC, output 4 A / 24 V DC
2611996	RSR30-D12-D1-02-040-1	input 12 V DC, output 4 A / 24 V DC
2611997	RSR30-D24-D1-02-040-1	input 24 V DC, output 4 A / 24 V DC
2611998	RSR30-D48-D1-02-040-1	input 48 V DC, output 4 A / 24 V DC
2611991	RSR30-D05-D1-04-025-1	input 5 V DC, output 2,5 A / 48 V DC
2611992	RSR30-D12-D1-04-025-1	input 12 V DC, output 2,5 A / 48 V DC
2611993	RSR30-D24-D1-04-025-1	input 24 V DC, output 2,5 A / 48 V DC
2611994	RSR30-D48-D1-04-025-1	input 48 V DC, output 2,5 A / 48 V DC
2611999	RSR30-D05-D1-24-010-1	input 5 V DC, output 1 A / 100 V DC
2612000	RSR30-D12-D1-24-010-1	input 12 V DC, output 1 A / 100 V DC
2612001	RSR30-D24-D1-24-010-1	input 24 V DC, output 1 A / 100 V DC
2612002	RSR30-D48-D1-24-010-1	input 48 V DC, output 1 A / 100 V DC
2611988	RSR30-D05-A1-24-020-1	input 5 V DC, output 2 A / 240 V AC (single-phase)
2611989	RSR30-D12-A1-24-020-1	input 12 V DC, output 2 A / 240 V AC (single-phase)
2611990	RSR30-D24-A1-24-020-1	input 24 V DC, output 2 A / 240 V AC (single-phase)
2616016	RSR32-24D2-5M	input 5 V DC, output 2 A / 48...280 V AC (single-phase)
2616017	RSR32-24D2-12M	input 12 V DC, output 2 A / 48...280 V AC (single-phase)
2616018	RSR32-24D2-24M	input 24 V DC, output 2 A / 48...280 V AC (single-phase)
2616019	RSR32-24D2R-5M	input 5 V DC, output 2 A / 48...280 V AC (single-phase)
2616020	RSR32-24D2R-12M	input 12 V DC, output 2 A / 48...280 V AC (single-phase)
2616021	RSR32-24D2R-24M	input 24 V DC, output 2 A / 48...280 V AC (single-phase)
2616022	RSR35-48D3-5M	input 5 V DC, output 3 A / 3...58 V DC
2616023	RSR35-48D3-12M	input 12 V DC, output 3 A / 3...58 V DC
2616024	RSR35-48D3-24M	input 24 V DC, output 3 A / 3...58 V DC
2616025	RSR35-48D3-48M	input 48 V DC, output 3 A / 3...58 V DC
2616026	RSR35-48D3-60M	input 60 V DC, output 3 A / 3...58 V DC

ORDERING CODES

Index	Code	Description
2616027	RSR35-24D4-5M	input 5 V DC, output 4 A / 3...28 V DC
2616028	RSR35-24D4-12M	input 12 V DC, output 4 A / 3...28 V DC
2616029	RSR35-24D4-24M	input 24 V DC, output 4 A / 3...28 V DC
2616030	RSR35-24D4-48M	input 48 V DC, output 4 A / 3...28 V DC
2616031	RSR35-24D4-60M	input 60 V DC, output 4 A / 3...28 V DC
2616032	RSR35-48D01-5M	input 5 V DC, output 0,1 A / 3...58 V DC
2616033	RSR35-48D01-12M	input 12 V DC, output 0,1 A / 3...58 V DC
2616034	RSR35-48D01-24M	input 24 V DC, output 0,1 A / 3...58 V DC
2616035	RSR35-48D01-48M	input 48 V DC, output 0,1 A / 3...58 V DC
2616036	RSR35-48D01-60M	input 60 V DC, output 0,1 A / 3...58 V DC
2616463	RSR35-110U220-RZA	input 110, 240 V AC, 110, 220 V DC, output 0,05 A / 3...28,8 V DC
2617340	RSR35-24D8-12M	input 3...15 V DC, output 8 A / 1...30 V DC
2617341	RSR35-24D8-24M	input 15...30 V DC, output 8 A / 1...30 V DC
2617342	RSR35-24D8-48M	input 35...72 V DC, output 8 A / 1...30 V DC
2616417	RSR85-24D3-5	input 5 V DC, output 3 A / 24...280 V AC (single-phase)
2616419	RSR85-24D3-12	input 12 V DC, output 3 A / 24...280 V AC (single-phase)
2616420	RSR85-24D3-24	input 24 V DC, output 3 A / 24...280 V AC (single-phase)
2616421	RSR85-24D3R-5	input 5 V DC, output 3 A / 24...280 V AC (single-phase)
2616422	RSR85-24D3R-12	input 12 V DC, output 3 A / 24...280 V AC (single-phase)
2616423	RSR85-24D3R-24	input 24 V DC, output 3 A / 24...280 V AC (single-phase)
2616424	RSR85-38D3-5	input 5 V DC, output 3 A / 24...440 V AC (single-phase)
2616425	RSR85-38D3-12	input 12 V DC, output 3 A / 24...440 V AC (single-phase)
2616426	RSR85-38D3-24	input 24 V DC, output 3 A / 24...440 V AC (single-phase)
2617346	RSR86-35D12-32N	input 10...32 V DC, output 12 A / 0...35 V DC
2617348	RSR86-35D12-32P	input 10...32 V DC, output 12 A / 0...35 V DC
2617422	RSR88-10D5-T	input 4...32 V DC, output 5 A / 100 V DC
2617423	RSR88-10D10-T	input 4...32 V DC, output 10 A / 100 V DC
2617424	RSR88-10D16-T	input 4...32 V DC, output 16 A / 100 V DC
2617425	RSR88-20D5-T	input 4...32 V DC, output 5 A / 200 V DC
2617426	RSR88-40D3-T	input 4...32 V DC, output 3 A / 400 V DC
2617427	RSR88-10D3-NC	input 4...32 V DC, output 3 A / 100 V DC
2617412	RSR89-24D5	input 4...32 V DC, output 5 A / 24...280 V AC
2617413	RSR89-24D5-R	input 4...32 V DC, output 5 A / 24...280 V AC
2617414	RSR89-24D5-T	input 4...32 V DC, output 5 A / 24...280 V AC
2617415	RSR89-24D5-RT	input 4...32 V DC, output 5 A / 24...280 V AC
2617416	RSR89-60D5	input 4...32 V DC, output 5 A / 24...660 V AC
2617417	RSR89-60D5-R	input 4...32 V DC, output 5 A / 24...660 V AC
2617419	RSR89-60D5-T	input 4...32 V DC, output 5 A / 24...660 V AC
2617420	RSR89-60D5-RT	input 4...32 V DC, output 5 A / 24...660 V AC
2617421	RSR89-24D5-NC	input 4...32 V DC, output 5 A / 24...280 V AC

ORDERING CODES

Index	Code	Description
2616405	RSR45-38D10	input 4...32 V DC, output 10 A / 24...440 V AC (single-phase)
2616406	RSR45-38D16	input 4...32 V DC, output 16 A / 24...440 V AC (single-phase)
2616407	RSR45-38D25	input 4...32 V DC, output 25 A / 24...440 V AC (single-phase)
2616408	RSR45-38D10-R	input 4...32 V DC, output 10 A / 24...440 V AC (single-phase)
2616409	RSR45-38D16-R	input 4...32 V DC, output 16 A / 24...440 V AC (single-phase)
2616410	RSR45-38D25-R	input 4...32 V DC, output 25 A / 24...440 V AC (single-phase)
2616411	RSR45-38D10-A	input 4...32 V DC, output 10 A / 24...440 V AC (single-phase)
2616412	RSR45-38D16-A	input 4...32 V DC, output 16 A / 24...440 V AC (single-phase)
2616413	RSR45-38D25-A	input 4...32 V DC, output 25 A / 24...440 V AC (single-phase)
2616414	RSR45-38D10-RA	input 4...32 V DC, output 10 A / 24...440 V AC (single-phase)
2616415	RSR45-38D16-RA	input 4...32 V DC, output 16 A / 24...440 V AC (single-phase)
2616416	RSR45-38D25-RA	input 4...32 V DC, output 25 A / 24...440 V AC (single-phase)
2615922	RSR52-24A10	input 90...280 V AC, output 10 A / 48...280 V AC (single-phase)
2615924	RSR52-24A25	input 90...280 V AC, output 25 A / 48...280 V AC (single-phase)
2615925	RSR52-24A40	input 90...280 V AC, output 40 A / 48...280 V AC (single-phase)
2615926	RSR52-24A60	input 90...280 V AC, output 60 A / 48...280 V AC (single-phase)
2615927	RSR52-24A80	input 90...280 V AC, output 80 A / 48...280 V AC (single-phase)
2615928	RSR52-24D10	input 4...32 V DC, output 10 A / 48...280 V AC (single-phase)
2615929	RSR52-24D25	input 4...32 V DC, output 25 A / 48...280 V AC (single-phase)
2615930	RSR52-24D40	input 4...32 V DC, output 40 A / 48...280 V AC (single-phase)
2615931	RSR52-24D60	input 4...32 V DC, output 60 A / 48...280 V AC (single-phase)
2615932	RSR52-24D80	input 4...32 V DC, output 80 A / 48...280 V AC (single-phase)
2615933	RSR52-48A10	input 90...280 V AC, output 10 A / 48...530 V AC (single-phase)
2615934	RSR52-48A25	input 90...280 V AC, output 25 A / 48...530 V AC (single-phase)
2615935	RSR52-48A40	input 90...280 V AC, output 40 A / 48...530 V AC (single-phase)
2615936	RSR52-48A60	input 90...280 V AC, output 60 A / 48...530 V AC (single-phase)
2615937	RSR52-48A80	input 90...280 V AC, output 80 A / 48...530 V AC (single-phase)
2615938	RSR52-48D10	input 4...32 V DC, output 10 A / 48...530 V AC (single-phase)
2615939	RSR52-48D25	input 4...32 V DC, output 25 A / 48...530 V AC (single-phase)
2615940	RSR52-48D40	input 4...32 V DC, output 40 A / 48...530 V AC (single-phase)
2615941	RSR52-48D60	input 4...32 V DC, output 60 A / 48...530 V AC (single-phase)
2615942	RSR52-48D80	input 4...32 V DC, output 80 A / 48...530 V AC (single-phase)
2615943	RSR52-60A25	input 90...280 V AC, output 25 A / 48...660 V AC (single-phase)
2615944	RSR52-60A40	input 90...280 V AC, output 40 A / 48...660 V AC (single-phase)
2615945	RSR52-60A60	input 90...280 V AC, output 60 A / 48...660 V AC (single-phase)
2615946	RSR52-60D25	input 4...32 V DC, output 25 A / 48...660 V AC (single-phase)
2615947	RSR52-60D40	input 4...32 V DC, output 40 A / 48...660 V AC (single-phase)
2615948	RSR52-60D60	input 4...32 V DC, output 60 A / 48...660 V AC (single-phase)
2615949	RSR52-24D25-R	input 4...32 V DC, output 25 A / 48...280 V AC (single-phase)
2615950	RSR52-24D60-R	input 4...32 V DC, output 60 A / 48...280 V AC (single-phase)
2615951	RSR52-24D80-R	input 4...32 V DC, output 80 A / 48...280 V AC (single-phase)
2615952	RSR52-48D25-R	input 4...32 V DC, output 25 A / 48...530 V AC (single-phase)
2615953	RSR52-48D60-R	input 4...32 V DC, output 60 A / 48...530 V AC (single-phase)
2615954	RSR52-48D80-R	input 4...32 V DC, output 80 A / 48...530 V AC (single-phase)
2615955	RSR52-60D25-R	input 4...32 V DC, output 25 A / 48...660 V AC (single-phase)
2615956	RSR52-60D60-R	input 4...32 V DC, output 60 A / 48...660 V AC (single-phase)

ORDERING CODES

Index	Code	Description
2617464	RSR54-24A25	input 90...280 V AC, output 25 A / 24...280 V AC (single-phase)
2617465	RSR54-24A40	input 90...280 V AC, output 40 A / 24...280 V AC (single-phase)
2617466	RSR54-24A60	input 90...280 V AC, output 60 A / 24...280 V AC (single-phase)
2617467	RSR54-24A80	input 90...280 V AC, output 80 A / 24...280 V AC (single-phase)
2617468	RSR54-24A100	input 90...280 V AC, output 100 A / 24...280 V AC (single-phase)
2617469	RSR54-24A125	input 90...280 V AC, output 125 A / 24...280 V AC (single-phase)
2617470	RSR54-24D25	input 3...32 V DC, output 25 A / 24...280 V AC (single-phase)
2617471	RSR54-24D40	input 3...32 V DC, output 40 A / 24...280 V AC (single-phase)
2617472	RSR54-24D60	input 3...32 V DC, output 60 A / 24...280 V AC (single-phase)
2617473	RSR54-24D80	input 3...32 V DC, output 80 A / 24...280 V AC (single-phase)
2617474	RSR54-24D100	input 3...32 V DC, output 100 A / 24...280 V AC (single-phase)
2617475	RSR54-24D125	input 3...32 V DC, output 125 A / 24...280 V AC (single-phase)
2617476	RSR54-48A25	input 90...280 V AC, output 25 A / 24...530 V AC (single-phase)
2617477	RSR54-48A40	input 90...280 V AC, output 40 A / 24...530 V AC (single-phase)
2617478	RSR54-48A60	input 90...280 V AC, output 60 A / 24...530 V AC (single-phase)
2617479	RSR54-48A80	input 90...280 V AC, output 80 A / 24...530 V AC (single-phase)
2617480	RSR54-48A100	input 90...280 V AC, output 100 A / 24...530 V AC (single-phase)
2617481	RSR54-48A125	input 90...280 V AC, output 125 A / 24...530 V AC (single-phase)
2617482	RSR54-48D25	input 3...32 V DC, output 25 A / 24...530 V AC (single-phase)
2617483	RSR54-48D40	input 3...32 V DC, output 40 A / 24...530 V AC (single-phase)
2617484	RSR54-48D60	input 3...32 V DC, output 60 A / 24...530 V AC (single-phase)
2617485	RSR54-48D80	input 3...32 V DC, output 80 A / 24...530 V AC (single-phase)
2617486	RSR54-48D100	input 3...32 V DC, output 100 A / 24...530 V AC (single-phase)
2617487	RSR54-48D125	input 3...32 V DC, output 125 A / 24...530 V AC (single-phase)
2617488	RSR54-60A25	input 90...280 V AC, output 25 A / 24...660 V AC (single-phase)
2617489	RSR54-60A40	input 90...280 V AC, output 40 A / 24...660 V AC (single-phase)
2617490	RSR54-60A60	input 90...280 V AC, output 60 A / 24...660 V AC (single-phase)
2617491	RSR54-60A80	input 90...280 V AC, output 80 A / 24...660 V AC (single-phase)
2617492	RSR54-60A100	input 90...280 V AC, output 100 A / 24...660 V AC (single-phase)
2617493	RSR54-60A125	input 90...280 V AC, output 125 A / 24...660 V AC (single-phase)
2617495	RSR54-60D25	input 3...32 V DC, output 25 A / 24...660 V AC (single-phase)
2617496	RSR54-60D40	input 3...32 V DC, output 40 A / 24...660 V AC (single-phase)
2617497	RSR54-60D60	input 3...32 V DC, output 60 A / 24...660 V AC (single-phase)
2617498	RSR54-60D80	input 3...32 V DC, output 80 A / 24...660 V AC (single-phase)
2617499	RSR54-60D100	input 3...32 V DC, output 100 A / 24...660 V AC (single-phase)
2617500	RSR54-60D125	input 3...32 V DC, output 125 A / 24...660 V AC (single-phase)
2617395	RSR58-24D25	input 4...32 V DC, output 25 A / 24...280 V AC (two channel AC output)
2617396	RSR58-24D50	input 4...32 V DC, output 50 A / 24...280 V AC (two channel AC output)
2617397	RSR58-24D75	input 4...32 V DC, output 75 A / 24...280 V AC (two channel AC output)
2617398	RSR58-48D25	input 4...32 V DC, output 25 A / 24...530 V AC (two channel AC output)
2617399	RSR58-48D50	input 4...32 V DC, output 50 A / 24...530 V AC (two channel AC output)
2617400	RSR58-48D75	input 4...32 V DC, output 75 A / 24...530 V AC (two channel AC output)
2617401	RSR58-60D25	input 4...32 V DC, output 25 A / 24...660 V AC (two channel AC output)
2617402	RSR58-60D50	input 4...32 V DC, output 50 A / 24...660 V AC (two channel AC output)
2617403	RSR58-60D75	input 4...32 V DC, output 75 A / 24...660 V AC (two channel AC output)

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Index	Code	Description
2615959	RSR62-48A25	input 90...280 V AC, output 25 A / 24...530 V AC (three-phase)
2615963	RSR62-48A40	input 90...280 V AC, output 40 A / 24...530 V AC (three-phase)
2615968	RSR62-48A60	input 90...280 V AC, output 60 A / 24...530 V AC (three-phase)
2615972	RSR62-48A80	input 90...280 V AC, output 80 A / 24...530 V AC (three-phase)
2615957	RSR62-48D25	input 4...32 V DC, output 25 A / 24...530 V AC (three-phase)
2615962	RSR62-48D40	input 4...32 V DC, output 40 A / 24...530 V AC (three-phase)
2615967	RSR62-48D60	input 4...32 V DC, output 60 A / 24...530 V AC (three-phase)
2615971	RSR62-48D80	input 4...32 V DC, output 80 A / 24...530 V AC (three-phase)
2615961	RSR62-60A25	input 90...280 V AC, output 25 A / 24...660 V AC (three-phase)
2615966	RSR62-60A40	input 90...280 V AC, output 40 A / 24...660 V AC (three-phase)
2615970	RSR62-60A60	input 90...280 V AC, output 60 A / 24...660 V AC (three-phase)
2615974	RSR62-60A80	input 90...280 V AC, output 80 A / 24...660 V AC (three-phase)
2615960	RSR62-60D25	input 4...32 V DC, output 25 A / 24...660 V AC (three-phase)
2615964	RSR62-60D40	input 4...32 V DC, output 40 A / 24...660 V AC (three-phase)
2615969	RSR62-60D60	input 4...32 V DC, output 60 A / 24...660 V AC (three-phase)
2615973	RSR62-60D80	input 4...32 V DC, output 80 A / 24...660 V AC (three-phase)
2615975	RSR62-60D25-R	input 4...32 V DC, output 25 A / 24...660 V AC (three-phase)
2615976	RSR62-60D40-R	input 4...32 V DC, output 40 A / 24...660 V AC (three-phase)
2615977	RSR62-60D60-R	input 4...32 V DC, output 60 A / 24...660 V AC (three-phase)
2615978	RSR62-60D80-R	input 4...32 V DC, output 80 A / 24...660 V AC (three-phase)
2615979	RSR72-24D10-H	input 4...32 V DC, output 10 A / 24...280 V AC (single-phase)
2615985	RSR72-24D20-H	input 4...32 V DC, output 20 A / 24...280 V AC (single-phase)
2615986	RSR72-24D30-H	input 4...32 V DC, output 30 A / 24...280 V AC (single-phase)
2615987	RSR72-24D40-H	input 4...32 V DC, output 40 A / 24...280 V AC (single-phase)
2615988	RSR72-24D75-H	input 4...32 V DC, output 75 A / 24...280 V AC (single-phase)
2615989	RSR72-48D10-H	input 4...32 V DC, output 10 A / 24...530 V AC (single-phase)
2615990	RSR72-48D20-H	input 4...32 V DC, output 20 A / 24...530 V AC (single-phase)
2615991	RSR72-48D30-H	input 4...32 V DC, output 30 A / 24...530 V AC (single-phase)
2615992	RSR72-48D40-H	input 4...32 V DC, output 40 A / 24...530 V AC (single-phase)
2615993	RSR72-48D75-H	input 4...32 V DC, output 75 A / 24...530 V AC (single-phase)
2615994	RSR72-28A10-H	input 90...280 V AC, output 10 A / 24...280 V AC (single-phase)
2615995	RSR72-28A20-H	input 90...280 V AC, output 20 A / 24...280 V AC (single-phase)
2615996	RSR72-28A30-H	input 90...280 V AC, output 30 A / 24...280 V AC (single-phase)
2615997	RSR72-28A40-H	input 90...280 V AC, output 40 A / 24...280 V AC (single-phase)
2615998	RSR72-28A75-H	input 90...280 V AC, output 75 A / 24...280 V AC (single-phase)
2615999	RSR72-48A10-H	input 90...280 V AC, output 10 A / 24...530 V AC (single-phase)
2616000	RSR72-48A20-H	input 90...280 V AC, output 20 A / 24...530 V AC (single-phase)
2616001	RSR72-48A30-H	input 90...280 V AC, output 30 A / 24...530 V AC (single-phase)
2616002	RSR72-48A40-H	input 90...280 V AC, output 40 A / 24...530 V AC (single-phase)
2616003	RSR72-48A75-H	input 90...280 V AC, output 75 A / 24...530 V AC (single-phase)
2616004	RSR72-48D10-RH	input 4...32 V DC, output 10 A / 24...530 V AC (single-phase)
2616005	RSR72-48D20-RH	input 4...32 V DC, output 20 A / 24...530 V AC (single-phase)
2616006	RSR72-48D30-RH	input 4...32 V DC, output 30 A / 24...530 V AC (single-phase)
2616007	RSR72-48D40-RH	input 4...32 V DC, output 40 A / 24...530 V AC (single-phase)

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Index	Code	Description
2616008	RSR72-60D20-H	input 4...32 V DC, output 20 A / 24...660 V AC (single-phase)
2616009	RSR72-60D30-H	input 4...32 V DC, output 30 A / 24...660 V AC (single-phase)
2616010	RSR72-60D40-H	input 4...32 V DC, output 40 A / 24...660 V AC (single-phase)
2616011	RSR72-60D75-H	input 4...32 V DC, output 75 A / 24...660 V AC (single-phase)
2616012	RSR72-60D20-RH	input 4...32 V DC, output 20 A / 24...660 V AC (single-phase)
2616013	RSR72-60D30-RH	input 4...32 V DC, output 30 A / 24...660 V AC (single-phase)
2616014	RSR72-60D40-RH	input 4...32 V DC, output 40 A / 24...660 V AC (single-phase)
2616015	RSR72-60D75-RH	input 4...32 V DC, output 75 A / 24...660 V AC (single-phase)
2616397	RSR75-24D15-H	input 3...32 V DC, output 15 A / 24...280 V AC (single-phase)
2616398	RSR75-24D25-H	input 3...32 V DC, output 25 A / 24...280 V AC (single-phase)
2616401	RSR75-60D15-H	input 4...32 V DC, output 15 A / 24...660 V AC (single-phase)
2616402	RSR75-60D25-H	input 4...32 V DC, output 25 A / 24...660 V AC (single-phase)
2616375	RSR95-24D50-DC	input 4...32 V DC, output 50 A / 24 V DC
2616376	RSR95-24D100-DC	input 4...32 V DC, output 100 A / 24 V DC
2616377	RSR95-36D40-DC	input 4...32 V DC, output 40 A / 36 V DC
2616378	RSR95-36D80-DC	input 4...32 V DC, output 80 A / 36 V DC
2616379	RSR95-48D7-DC	input 4...32 V DC, output 7 A / 48 V DC
2616380	RSR95-48D50-DC	input 4...32 V DC, output 50 A / 48 V DC
2616381	RSR95-75D20-DC	input 4...32 V DC, output 20 A / 75 V DC
2616382	RSR95-75D40-DC	input 4...32 V DC, output 40 A / 75 V DC
2616383	RSR95-75D80-DC	input 4...32 V DC, output 80 A / 75 V DC
2616384	RSR95-120D20-DC	input 4...32 V DC, output 20 A / 120 V DC
2616385	RSR95-120D40-DC	input 4...32 V DC, output 40 A / 120 V DC
2616386	RSR95-300D25-DC	input 4...32 V DC, output 25 A / 300 V DC
2616388	RSR95-500D25-DC	input 4...32 V DC, output 25 A / 500 V DC
2616393	RSR95-500D50-DC	input 4...32 V DC, output 50 A / 500 V DC
2616395	RSR95-700D25-DC	input 4...32 V DC, output 25 A / 700 V DC
2616396	RSR95-700D50-DC	input 4...32 V DC, output 50 A / 700 V DC

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Index	Code	Description
2616355	RSR92-24V25	input 0...10 V DC, output 25 A / 176...280 V AC (single-phase)
2616356	RSR92-24V40	input 0...10 V DC, output 40 A / 176...280 V AC (single-phase)
2616357	RSR92-24V60	input 0...10 V DC, output 60 A / 176...280 V AC (single-phase)
2616358	RSR92-24V80	input 0...10 V DC, output 80 A / 176...280 V AC (single-phase)
2616359	RSR92-48V25	input 0...10 V DC, output 25 A / 300...530 V AC (single-phase)
2616360	RSR92-48V40	input 0...10 V DC, output 40 A / 300...530 V AC (single-phase)
2616361	RSR92-48V60	input 0...10 V DC, output 60 A / 300...530 V AC (single-phase)
2616362	RSR92-48V80	input 0...10 V DC, output 80 A / 300...530 V AC (single-phase)
2616363	RSR92-24I25	input 4...20 mA, output 25 A / 176...280 V AC (single-phase)
2616364	RSR92-24I40	input 4...20 mA, output 40 A / 176...280 V AC (single-phase)
2616365	RSR92-24I60	input 4...20 mA, output 60 A / 176...280 V AC (single-phase)
2616366	RSR92-24I80	input 4...20 mA, output 80 A / 176...280 V AC (single-phase)
2616367	RSR92-48I25	input 4...20 mA, output 25 A / 300...530 V AC (single-phase)
2616368	RSR92-48I40	input 4...20 mA, output 40 A / 300...530 V AC (single-phase)
2616369	RSR92-48I60	input 4...20 mA, output 60 A / 300...530 V AC (single-phase)
2616370	RSR92-48I80	input 4...20 mA, output 80 A / 300...530 V AC (single-phase)
2617446	RSR93-40W25-3	input 0...5 V DC, 0...10 V DC or 4...20 mA, output 25 A / 200...440 V AC (three-phase)
2617448	RSR93-40W40-F-3	input 0...5 V DC, 0...10 V DC or 4...20 mA, output 40 A / 200...440 V AC (three-phase)
2617450	RSR93-40W60-F-3	input 0...5 V DC, 0...10 V DC or 4...20 mA, output 60 A / 200...440 V AC (three-phase)
2617453	RSR93-40W80-F-3	input 0...5 V DC, 0...10 V DC or 4...20 mA, output 80 A / 200...440 V AC (three-phase)

Installation contactors



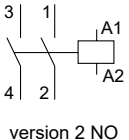
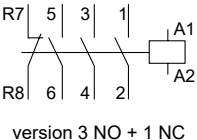
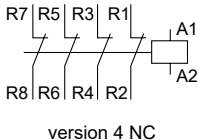
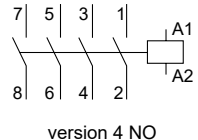
- I_n currents of outputs: 20 ... 63 A.
- Available versions:
 - in modular covers: RXC25/40/63, RIK20/25/40/63,
 - in industrial covers: RIK21.
- Method of mounting: on 35 mm rail mount.

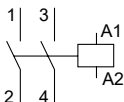
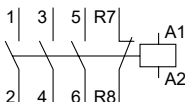
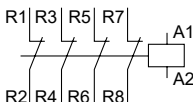
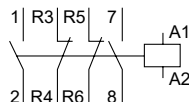
Applications in low voltage systems:

- are built in consumer devices operating in dwellings, business premises, hotels, hospitals, shopping centres, sport centres, production halls, warehouses, public places,
- for remote switching and automatic control of electric devices and equipment: 1-phase and 3-phase motors, different pumps, air-conditioning, electric heating, lighting.

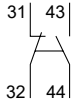
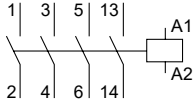
RXC25-20I11I02	149
RXC25-40I31I22	149
RXC40	149
RXC63	149
RIK20	150
RIK25	150
RIK40	150
RIK63	150
RIKN	151
RIK21	151



Type	RXC25-20 11 02	RXC25-40 31 22	RXC40	RXC63
Output circuit				
Number and type of contacts	2 NO, 1 NO + 1 NC, 2 NC	4 NO, 3 NO + 1 NC, 2 NO + 2 NC	4 NO, 3 NO + 1 NC, 2 NO + 2 NC, 4 NC	4 NO, 3 NO + 1 NC, 2 NO + 2 NC
Rated voltage AC	250 V	400 V	400 V	400 V
Rated thermal current	25 A	25 A	40 A	63 A
Rated load AC1 / AC7a	25 A	25 A	40 A	63 A
Rated load AC3 / AC7b	8,5 A	8,5 A	15 A	20 A
Motor load AC1 / AC7a	230 V: 5,5 kW 400 V: 10 kW	230 V: 5,5 kW 400 V: 10 kW	230 V: 9 kW 400 V: 16 kW	230 V: 14 kW 400 V: 25 kW
Motor load AC3 / AC7b	230 V: 2 kW 400 V: 3,4 kW	230 V: 2 kW 400 V: 3,4 kW	230 V: 3,5 kW 400 V: 6 kW	230 V: 4,5 kW 400 V: 8 kW
Input circuit				
Control voltage AC	24, 230 V	24, 230 V	24, 230 V	24, 230 V
Control voltage DC	24 V	24 V	24 V	24 V
Range of voltage / rated frequency	0,85...1,1 U _c / AC: 50/60 Hz	0,85...1,1 U _c / AC: 50/60 Hz	0,85...1,1 U _c / AC: 50/60 Hz	0,85...1,1 U _c / AC: 50/60 Hz
Insulation				
Insulation rated voltage	500 V AC	500 V AC	500 V AC	500 V AC
General data				
Dimensions mm	81(85,2) x 18 x 67	81(85,2) x 36 x 67	85(90) x 54 x 67	85(90) x 54 x 67
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Connection diagrams	 version 2 NO	 version 3 NO + 1 NC	 version 4 NC	 version 4 NO
Indicator	LED	LED	LED	LED
Recognitions, certifications, directives	  RoHS	  RoHS	  RoHS	  RoHS
Download data sheet	RXC25-20 11 02	RXC25-40 31 22	RXC40	RXC63

Type	RIK20	RIK25	RIK40	RIK63	
					
Output circuit					
Number and type of contacts	2 NO, 1 NO + 1 NC, 2 NC	4 NO, 3 NO + 1 NC, 2 NO + 2 NC	4 NO, 3 NO + 1 NC, 2 NO + 2 NC, 4 NC	4 NO, 3 NO + 1 NC, 2 NO + 2 NC	
Rated voltage AC	230 V	400 V	400 V	400 V	
Rated thermal current	20 A	25 A	40 A	63 A	
Rated load	AC1 / AC7a AC3 / AC7b ❶ DC1 DC1 ❶ DC3 DC3 ❶ DC5 DC5	20 A 9 A / 6 A (NO/NC) 20 A / 24 V DC 0,6 A / 220 V DC 10 A / 24 V DC 0,1 A / 220 V DC 10 A / 24 V DC 0,06 A / 220 V DC	25 A 8,5 A 25 A / 24 V DC 0,6 A / 220 V DC 15 A / 24 V DC 0,2 A / 220 V DC 15 A / 24 V DC 0,1 A / 220 V DC	40 A 22 A 40 A / 24 V DC 1,2 A / 220 V DC 22 A / 24 V DC 0,3 A / 220 V DC 20 A / 24 V DC 0,2 A / 220 V DC	63 A 30 A 63 A / 24 V DC 1,2 A / 220 V DC 25 A / 24 V DC 0,3 A / 220 V DC 25 A / 24 V DC 0,2 A / 220 V DC
Motor load AC1 / AC7a	20 A	25 A	40 A	63 A	
Motor load AC3 / AC7b	1-phase, 230 V: 1,3 kW 1-phase, 230 V: 0,75 kW (NO/NC)	1-phase, 230 V: 1,3 kW ❷ 3-phase, 230 V: 2,2 kW 3-phase, 400 V: 4 kW	1-phase, 230 V: 3,7 kW ❷ 3-phase, 230 V: 5,5 kW 3-phase, 400 V: 11 kW	1-phase, 230 V: 5 kW ❷ 3-phase, 230 V: 8,5 kW 3-phase, 400 V: 15 kW	
Switching of capacitors AC6b	30 µF	36 µF	220 µF	330 µF	
Input circuit					
Control voltage AC AC/DC	24, 230 V ❸	24, 230 V ❸	24, 230 V ❸	24, 230 V ❸	
Range of voltage / rated frequency	0,85...1,1 U _c / AC: 50/60 Hz ❹	0,85...1,1 U _c / AC: 50/60 Hz ❹	0,85...1,1 U _c / AC: 50/60 Hz	0,85...1,1 U _c / AC: 50/60 Hz	
Insulation					
Insulation rated voltage	230 V AC	440 V AC	440 V AC	440 V AC	
Rated surge voltage	4 000 V	4 000 V	4 000 V	4 000 V	
General data					
Dimensions mm	85 x 17,5 x 65	85 x 35 x 65	84 x 53,5 x 65,5	84 x 53,5 x 65,5	
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	
Connection diagrams	 version 2 NO	 version 3 NO + 1 NC	 version 4 NC	 version 2 NO + 2 NC	
Indicator	LED	LED	LED	LED	
Recognitions, certifications, directives	 RoHS	 RoHS	 RoHS	 RoHS	
Download data sheet	RIK20	RIK25	RIK40	RIK63	

① The data for 1 pole; data for 2,3,4 poles connected in series - see www.relpol.com.pl ② The data for 1-phase power are valid for contactors RIK...22 (2 NO + 2 NC) ③ RIK20, RIK25, RIK40, RIK63: contactors with a varistor for overvoltage protection and a rectifier enable DC and AC voltage control ④ RIK20, RIK25: contactors can be controlled by AC voltage with frequency 40...400 Hz ⑤ RIKN: additional auxiliary contacts for RIK25, RIK40, RIK63 (increase by 9 mm the width of contactors)

RIKN	RIK21
auxiliary contacts 5	
	
2 NO, 1 NO + 1 NC	3 NO + 1 NO (auxiliary), 3 NO + 1 NC (auxiliary)
230, 400 V	400 V
6 A	20 A
	20 A 5 A 20 A / 24 V DC 0,5 A / 220 V DC 10 A / 24 V DC 0,1 A / 220 V DC 10 A / 24 V DC 0,06 A / 220 V DC
	20 A
	1-phase, 230 V: 0,37 kW 3-phase, 230 V: 1,1 kW 3-phase, 400 V: 2,2 kW
	36 µF
	24, 230 V
	0,85...1,1 U _c / AC: 50/60 Hz
500 V AC	415 V AC
4 000 V	4 000 V
84 x 9 x 60	59,5 x 35 x 57
IP 20 (EN 60529)	IP 20 (EN 60529)
	
version 1 NO + 1 NC	version 3 NO + 1 NO
CE RoHS	CE RoHS
RIKN	RIK21

Auxiliary contacts

RXC-AX

For RXC25, RXC40, RXC63



ORDERING CODES

Index	Code	Description
2617017	RXC25-20-A024	2-pole (contacts 2 NO, 25 A), coil voltage 24 V AC
2617016	RXC25-20-A230	2-pole (contacts 2 NO, 25 A), coil voltage 230 V AC
2617080	RXC25-20-D024	2-pole (contacts 2 NO, 25 A), coil voltage 24 V DC
2617015	RXC25-11-A024	2-pole (contacts 1 NO + 1 NC, 25 A), coil voltage 24 V AC
2617014	RXC25-11-A230	2-pole (contacts 1 NO + 1 NC, 25 A), coil voltage 230 V AC
2617079	RXC25-11-D024	2-pole (contacts 1 NO + 1 NC, 25 A), coil voltage 24 V DC
2617013	RXC25-02-A024	2-pole (contacts 2 NC, 25 A), coil voltage 24 V AC
2617012	RXC25-02-A230	2-pole (contacts 2 NC, 25 A), coil voltage 230 V AC
2617078	RXC25-02-D024	2-pole (contacts 2 NC, 25 A), coil voltage 24 V DC
2617023	RXC25-40-A024	4-pole (contacts 4 NO, 25 A), coil voltage 24 V AC
2617022	RXC25-40-A230	4-pole (contacts 4 NO, 25 A), coil voltage 230 V AC
2617083	RXC25-40-D024	4-pole (contacts 4 NO, 25 A), coil voltage 24 V DC
2617021	RXC25-31-A024	4-pole (contacts 3 NO + 1 NC, 25 A), coil voltage 24 V AC
2617020	RXC25-31-A230	4-pole (contacts 3 NO + 1 NC, 25 A), coil voltage 230 V AC
2617082	RXC25-31-D024	4-pole (contacts 3 NO + 1 NC, 25 A), coil voltage 24 V DC
2617019	RXC25-22-A024	4-pole (contacts 2 NO + 2 NC, 25 A), coil voltage 24 V AC
2617018	RXC25-22-A230	4-pole (contacts 2 NO + 2 NC, 25 A), coil voltage 230 V AC
2617081	RXC25-22-D024	4-pole (contacts 2 NO + 2 NC, 25 A), coil voltage 24 V DC
2617031	RXC40-40-A024	4-pole (contacts 4 NO, 40 A), coil voltage 24 V AC
2617030	RXC40-40-A230	4-pole (contacts 4 NO, 40 A), coil voltage 230 V AC
2617087	RXC40-40-D024	4-pole (contacts 4 NO, 40 A), coil voltage 24 V DC
2617029	RXC40-31-A024	4-pole (contacts 3 NO + 1 NC, 40 A), coil voltage 24 V AC
2617028	RXC40-31-A230	4-pole (contacts 3 NO + 1 NC, 40 A), coil voltage 230 V AC
2617086	RXC40-31-D024	4-pole (contacts 3 NO + 1 NC, 40 A), coil voltage 24 V DC
2617027	RXC40-22-A024	4-pole (contacts 2 NO + 2 NC, 40 A), coil voltage 24 V AC
2617026	RXC40-22-A230	4-pole (contacts 2 NO + 2 NC, 40 A), coil voltage 230 V AC
2617085	RXC40-22-D024	4-pole (contacts 2 NO + 2 NC, 40 A), coil voltage 24 V DC
2617025	RXC40-04-A024	4-pole (contacts 4 NC, 40 A), coil voltage 24 V AC
2617024	RXC40-04-A230	4-pole (contacts 4 NC, 40 A), coil voltage 230 V AC
2617084	RXC40-04-D024	4-pole (contacts 4 NC, 40 A), coil voltage 24 V DC
2617037	RXC63-40-A024	4-pole (contacts 4 NO, 63 A), coil voltage 24 V AC
2617036	RXC63-40-A230	4-pole (contacts 4 NO, 63 A), coil voltage 230 V AC
2617090	RXC63-40-D024	4-pole (contacts 4 NO, 63 A), coil voltage 24 V DC
2617035	RXC63-31-A024	4-pole (contacts 3 NO + 1 NC, 63 A), coil voltage 24 V AC
2617034	RXC63-31-A230	4-pole (contacts 3 NO + 1 NC, 63 A), coil voltage 230 V AC
2617089	RXC63-31-D024	4-pole (contacts 3 NO + 1 NC, 63 A), coil voltage 24 V DC
2617033	RXC63-22-A024	4-pole (contacts 2 NO + 2 NC, 63 A), coil voltage 24 V AC
2617032	RXC63-22-A230	4-pole (contacts 2 NO + 2 NC, 63 A), coil voltage 230 V AC
2617088	RXC63-22-D024	4-pole (contacts 2 NO + 2 NC, 63 A), coil voltage 24 V DC
2617039	RXC-AX-20	auxiliary contact (contacts 2 NO)
2617038	RXC-AX-11	auxiliary contact (contacts 1 NO + 1 NC)

ORDERING CODES

Index	Code	Description
2608178	RIK20-20-24	2-pole (contacts 2 NO, 20 A), coil voltage 24 V AC/DC
2611893	RIK20-20-230	2-pole (contacts 2 NO, 20 A), coil voltage 230 V AC/DC
2608196	RIK20-11-24	2-pole (contacts 1 NO + 1 NC, 20 A), coil voltage 24 V AC/DC
2608212	RIK20-11-230	2-pole (contacts 1 NO + 1 NC, 20 A), coil voltage 230 V AC/DC
2608179	RIK20-02-24	2-pole (contacts 2 NC, 20 A), coil voltage 24 V AC/DC
2614062	RIK20-02-230	2-pole (contacts 2 NC, 20 A), coil voltage 230 V AC/DC
2608197	RIK25-40-24	4-pole (contacts 4 NO, 25 A), coil voltage 24 V AC/DC
2608213	RIK25-40-230	4-pole (contacts 4 NO, 25 A), coil voltage 230 V AC/DC
2608198	RIK25-31-24	4-pole (contacts 3 NO + 1 NC, 25 A), coil voltage 24 V AC/DC
2613932	RIK25-31-230	4-pole (contacts 3 NO + 1 NC, 25 A), coil voltage 230 V AC/DC
2608199	RIK25-22-24	4-pole (contacts 2 NO + 2 NC, 25 A), coil voltage 24 V AC/DC
2611892	RIK25-22-230	4-pole (contacts 2 NO + 2 NC, 25 A), coil voltage 230 V AC/DC
2608202	RIK40-40-24	4-pole (contacts 4 NO, 40 A), coil voltage 24 V AC/DC
2608217	RIK40-40-230	4-pole (contacts 4 NO, 40 A), coil voltage 230 V AC/DC
2608203	RIK40-31-24	4-pole (contacts 3 NO + 1 NC, 40 A), coil voltage 24 V AC/DC
2608218	RIK40-31-230	4-pole (contacts 3 NO + 1 NC, 40 A), coil voltage 230 V AC/DC
2608863	RIK40-22-24	4-pole (contacts 2 NO + 2 NC, 40 A), coil voltage 24 V AC/DC
2608866	RIK40-22-230	4-pole (contacts 2 NO + 2 NC, 40 A), coil voltage 230 V AC/DC
2608864	RIK40-04-24	4-pole (contacts 4 NC, 40 A), coil voltage 24 V AC/DC
2608867	RIK40-04-230	4-pole (contacts 4 NC, 40 A), coil voltage 230 V AC/DC
2608204	RIK63-40-24	4-pole (contacts 4 NO, 63 A), coil voltage 24 V AC/DC
2608219	RIK63-40-230	4-pole (contacts 4 NO, 63 A), coil voltage 230 V AC/DC
2608205	RIK63-31-24	4-pole (contacts 3 NO + 1 NC, 63 A), coil voltage 24 V AC/DC
2608220	RIK63-31-230	4-pole (contacts 3 NO + 1 NC, 63 A), coil voltage 230 V AC/DC
2608865	RIK63-22-24	4-pole (contacts 2 NO + 2 NC, 63 A), coil voltage 24 V AC/DC
2608868	RIK63-22-230	4-pole (contacts 2 NO + 2 NC, 63 A), coil voltage 230 V AC/DC
2614895	RIKN20	auxiliary contact (contacts 2 NO, 6 A)
2614896	RIKN11	auxiliary contact (contacts 1 NO + 1 NC, 6 A)

ORDERING CODES

Index	Code	Description
2608186	RIK21-10-24	3-pole (contacts 3 NO + 1 NO, 20 A), coil voltage 24 V AC
2608208	RIK21-10-230	3-pole (contacts 3 NO + 1 NO, 20 A), coil voltage 230 V AC
2608177	RIK21-01-24	3-pole (contacts 3 NO + 1 NC, 20 A), coil voltage 24 V AC
2608209	RIK21-01-230	3-pole (contacts 3 NO + 1 NC, 20 A), coil voltage 230 V AC

Overvoltage arresters

- I_n discharge currents: 5 ... 100 kA.
- Available versions:
 - in modular covers: RSP series,
 - in industrial covers: RSP series.
- Method of mounting:
on 35 mm rail mount.



RSP-T1T2-AC 7	155
RSP-T1T2-AC 12.5	155
RSP-T2-AC	155
RSP-T2T3-AC	155
RSP-E7.5	156
RSP-E25	156
RSP-EH	156
RSP-T...-DC	156
RSP-PV 50 kA	157
RSP-PV 80 kA	157
RSP-2L	157
RSP-4L	157
RSP-CL-232	157
RSP-CL-485	158
RSP-CL-PT100	158
RSP-CL-TTL	158
RSP-SLH-2	158
RSP-SPLH-2-7A	159
RSP-RS485	159

Applications in low voltage systems:

- surge arresters for protect equipment in AC installations against lightning and surge damages in conformity with the lightning protection zones concept at LPZ 0-1 or LPZ 0-2,
- DC arresters for protect against lightning surge voltages in solar system (photovoltaic power supply system),
- overvoltage arresters for data/communication networks: interface, bus, video, current loop, PT100, PT1000 (thermocouples), TTY, TTL, V24, V11 (fieldbus), RS485, RS422, alarms (fire, security), DC power (telecom), signal lines, sensor, digital I/O, actuator.



AC installations

Type	RSP-T1T2-AC 7	RSP-T1T2-AC 12.5	RSP-T2-AC	RSP-T2T3-AC
				
Electrical data				
Number and type of poles	1, 1+NPE, 2, 3, 3+NPE, 4	1, 1+NPE, 2, 3, 3+NPE, 4	1, 1+NPE, 2, 3, 3+NPE, 4	1, 1+NPE, 2, 3, 3+NPE, 4
Max. continuous operating voltage AC	255, 275 V	255, 275 V	255, 275 V	255, 275 V
Rated discharge current (8/20 µs)	20 kA	30 kA	20 kA	10 kA
Max. discharge current (8/20 µs)	50 kA	60 kA	40 kA	20 kA
Impulse discharge current (10/350 µs)	7 kA	12,5 kA		
Voltage protection level	1,5 kV	1,5, 2 kV	1,5 kV	1,2 kV
Response time	≤ 100 ns	≤ 100 ns	≤ 25 ns	≤ 25 ns
Max. backup fuse (gL/gG)	125, 200 A	125, 200 A	125 A	125 A
TOV withstand (5 s)	355 V	355 V	355 V	
Features				
Category	class I+II / type 1+2 / B+C	class I+II / type 1+2 / B+C	class II / type 2 / C	class II+III / type 2+3 / C+D
Location of use	main-distribution boards (MB)	main-distribution boards (MB)	main-distribution boards (MB)	main-distribution boards (MB)
Network systems	TT, TN-S, TN-C	TT, TN-S, TN-C	TN	TN
Modes of protection	L-N, N-PE	L-N, N-PE	L-N, N-PE	L-N, N-PE
Protection elements	MOV, MOV+GDT	MOV, MOV+GDT	MOV, MOV+GDT	MOV, MOV+GDT
Remote contact	no	no	no	no
General data				
Dimensions mm	1-pole: 90 x 18 x 67 2-pole: 90 x 36 x 67 3-pole: 90 x 54 x 67 4-pole: 90 x 72 x 67	1-pole: 90 x 18 x 80 2-pole: 90 x 36 x 80 3-pole: 90 x 54 x 80 4-pole: 90 x 72 x 80	1-pole: 90 x 18 x 67 2-pole: 90 x 36 x 67 3-pole: 90 x 54 x 67 4-pole: 90 x 72 x 67	1-pole: 90 x 18 x 67 2-pole: 90 x 36 x 67 3-pole: 90 x 54 x 67 4-pole: 90 x 72 x 67
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Indicator	LED green/red	LED green/red	LED green/red	LED green/red
Recognitions, certifications, directives	 RoHS	 RoHS	 RoHS	 RoHS
Download data sheet	RSP-T1T2-AC 7	RSP-T1T2-AC 12.5	RSP-T2-AC	RSP-T2T3-AC

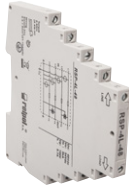
AC installations

DC installations

Type	RSP-E7.5	RSP-E25	RSP-EH	RSP-T...-DC
				
Electrical data				
Number and type of poles	3+NPE, 4	1, 1+NPE, 3	1, 1+NPE, 3, 3+NPE	2, 3
Rated voltage AC DC DC	230 V	230 V	230, 400, 690 V	
Max. continuous operating voltage AC DC DC	255, 275 V	255, 275 V	255, 275, 440, 750 V	1 000 V
Rated discharge current (8/20 µs)	20 kA	25, 50 kA	25, 50, 100 kA	20 kA
Max. discharge current (8/20 µs)	50 kA	100 kA	100, 150 kA	40, 50 kA
Impulse discharge current (10/350 µs)	7,5, 12,5 kA	25, 50 kA	4, 22, 25, 50, 100 kA	6,25, 9 kA
Voltage protection level	1,2, 1,5 kV	1,2, 1,5 kV	1, 1,5, 1,8, 2,5, 4 kV	4, 4,5 kV
Response time	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Max. backup fuse (gL/gG)	125 A	315 A	315 A	125, 200 A
TOV withstand (5 s)	335 V	335 V	442, 763, 1 145, 1 500 V	
Features				
Category	class I+II / type 1+2 / B+C	class I+II / type 1+2 / B+C	class I+II / type 1+2 / B+C	class I+II, II / type 1+2, 2 / B+C, C
Location of use	sub-distribution boards (SB)	main-distribution boards (MB)	main-distribution boards (MB)	connection boxes, inverters
Network systems	TT, TN-S, TN-C	TT, TN-S, TN-C	TT, TN-S, TN-C	photovoltaic
Modes of protection	L-N, N-PE	L-N, N-PE	L-N, N-PE	(+)-PE, (-)-PE, (+)-(-)
Protection elements	MOV, MOV+GDT	MOV, MOV+GDT	MOV+GDT+TOV	MOV
Remote contact	yes	yes	yes	no
General data				
Dimensions mm	4-pole: 90 x 72 x 64	1-pole: 90 x 36 x 86 2-pole: 94 x 72 x 86 3-pole: 94 x 108 x 86	1-pole: 90 x 36 x 86 2-pole: 94 x 72 x 86 3-pole: 94 x 108 x 86 4-pole: 94 x 144 x 86	2-pole: 90 x 36 x 67 3-pole: 90 x 54 x 67 3-pole: 90 x 54 x 80
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Indicator	LED green/red	LED green/red	LED green/red	LED green/red
Recognitions, certifications, directives	CE RoHS	CE RoHS	CE RoHS	CE RoHS
Download data sheet	RSP-E7.5	RSP-E25	RSP-EH	RSP-T...-DC

DC installations

data/communication

RSP-PV 50 kA	RSP-PV 80 kA	RSP-2L	RSP-4L	RSP-CL-232
				
2, 3	2, 3	1	1	1
600, 1 000, 1 200, 1 500 V	600, 1 000, 1 200, 1 500 V	12, 24, 48 V	5, 12, 24, 48 V	24 V
670, 1 120, 1 340, 1 500 V	670, 1 120, 1 340, 1 500 V	9,5, 23, 38,5 V 14, 33, 55 V	4,2, 10,6, 23,3, 38 V 6, 15, 33, 54 V	23,3 V 38 V
20 kA	25 kA	10 kA	20 kA	10 kA
50 kA	80 kA			20 kA
4,5, 6 kA	8, 12,5 kA	0,5 kA	2 kA	2,5 kA
2,2, 3,5, 4,0, 4,5 kV	2,2, 3,5, 4,0, 4,5 kV	25, 50, 100 V	26, 40, 55, 100 V	55 V
≤ 25 ns	≤ 25 ns	≤ 1 ns	≤ 1 ns	
class I+II / type 1+2 / B+C	class I+II / type 1+2 / B+C	B, C	B, C	B, C
connection boxes, inverters	connection boxes, inverters	interface	bus, video	current loop, TTY, TTL, V24
photovoltaic	photovoltaic	data/communication	data/communication	data/communication
(+/-)-PE, (+)-(-)	(+/-)-PE, (+)-(-)	1 (1 pair)	4 (2 pairs)	4 (2 pairs)
MOV	MOV	GDT+TVS	GDT+TVS	GDT+TVS
yes	yes	no	no	no
2-pole: 90 x 36 x 69 3-pole: 89,7 x 54 x 64	2-pole: 87 x 36,2 x 88,6 3-pole: 87 x 54,3 x 88,6	90 x 6 x 63	95 x 7 x 98	90 x 12 x 74
IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
LED green/red	LED green/red			
CE RoHS	CE RoHS	RoHS	RoHS	RoHS
RSP-PV 50 kA	RSP-PV 80 kA	RSP-2L	RSP-4L	RSP-CL-232

data/communication

Type	RSP-CL-485	RSP-CL-PT100	RSP-CL-TTL	RSP-SLH-2
				
Electrical data				
Number and type of poles	1	1	1	1
Rated voltage DC	24 V	24 V	24 V	5, 12, 24 V
Max. continuous operating voltage AC	23,3 V	23,3 V	23,3 V	
DC	33 V	33 V	33 V	6, 15, 28 V
Rated discharge current (8/20 µs)	10 kA	10 kA	10 kA	10 kA
Max. discharge current (8/20 µs)	20 kA	20 kA	20 kA	20 kA
Impulse discharge current (10/350 µs)	2,5 kA	2,5 kA	2,5 kA	2,5 kA
Voltage protection level	55 V	55 V	55 V	22, 42, 70 V
Response time				≤ 1 ns
Features				
Category	B, C	B, C	B, C	D1/C1/C2/C3
Location of use	current loop, RS485, RS422, interface, bus, video	PT100, PT1000 (thermocouples), alarms (fire, security), DC power	signal lines, sensor, digital I/O, actuator, TTL, bus	signal lines
Network systems	data/communication	data/communication	data/communication	data/communication
Modes of protection	4 (2 pairs)	4 (2 pairs)	4 (2 pairs)	1 (2 conductors)
Protection elements	GDT+TVS	GDT+TVS	GDT+TVS	BD+GDT
Remote contact	no	no	no	no
General data				
Dimensions mm	90 x 12 x 74	90 x 12 x 74	90 x 12 x 74	100 x 12 x 71,5
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Indicator				
Recognitions, certifications, directives	RoHS	RoHS	RoHS	RoHS
Download data sheet	RSP-CL-485	RSP-CL-PT100	RSP-CL-TTL	RSP-SLH-2

data/communication

RSP-SPLH-2-7A	RSP-RS485
	
1	1
36 V	5 V
45 V	6 V
10 kA	5 kA
20 kA	
2,5 kA	2,5 kA
180 V	
≤ 1 ns	≤ 1 ns
D1/C1/C2/C3	D1/C1/C2/C3
DC power (telecom)	RS485, RS422, V11 (fieldbus)
data/communication	data/communication
	2 (4 conductors)
BD+GDT	BD+GDT
no	no
90 x 35 x 49	90 x 36 x 58
IP 20 (EN 60529)	IP 20 (EN 60529)
CE RoHS	RoHS
RSP-SPLH-2-7A	RSP-RS485

ORDERING CODES

Index	Code	Description
2617125	RSP-T1T2-AC 7/1P	class I+II / type 1+2 / B+C, 1-pole, impulse discharge current 7 kA
2617126	RSP-T1T2-AC 7/2P	class I+II / type 1+2 / B+C, 2-pole, impulse discharge current 7 kA
2617127	RSP-T1T2-AC 7/3P	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 7 kA
2617128	RSP-T1T2-AC 7/4P	class I+II / type 1+2 / B+C, 4-pole, impulse discharge current 7 kA
2617129	RSP-T1T2-AC 7/1+NPE	class I+II / type 1+2 / B+C, (1+NPE)-pole, impulse discharge current 7 kA
2617130	RSP-T1T2-AC 7/3+NPE	class I+II / type 1+2 / B+C, (3+NPE)-pole, impulse discharge current 7 kA
2617119	RSP-T1T2-AC 12.5/1P	class I+II / type 1+2 / B+C, 1-pole, impulse discharge current 12,5 kA
2617120	RSP-T1T2-AC 12.5/2P	class I+II / type 1+2 / B+C, 2-pole, impulse discharge current 12,5 kA
2617121	RSP-T1T2-AC 12.5/3P	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 12,5 kA
2617122	RSP-T1T2-AC 12.5/4P	class I+II / type 1+2 / B+C, 4-pole, impulse discharge current 12,5 kA
2617123	RSP-T1T2-AC 12.5/1+NPE	class I+II / type 1+2 / B+C, (1+NPE)-pole, impulse discharge current 12,5 kA
2617124	RSP-T1T2-AC 12.5/3+NPE	class I+II / type 1+2 / B+C, (3+NPE)-pole, impulse discharge current 12,5 kA
2617131	RSP-T2-AC/1P	class II / type 2 / C, 1-pole, max. discharge current 40 kA
2617132	RSP-T2-AC/2P	class II / type 2 / C, 2-pole, max. discharge current 40 kA
2617133	RSP-T2-AC/3P	class II / type 2 / C, 3-pole, max. discharge current 40 kA
2617134	RSP-T2-AC/4P	class II / type 2 / C, 4-pole, max. discharge current 40 kA
2617135	RSP-T2-AC/1+NPE	class II / type 2 / C, (1+NPE)-pole, max. discharge current 40 kA
2617136	RSP-T2-AC/3+NPE	class II / type 2 / C, (3+NPE)-pole, max. discharge current 40 kA
2617137	RSP-T2T3-AC/1P	class II+III / type 2+3 / C+D, 1-pole, max. discharge current 20 kA
2617138	RSP-T2T3-AC/2P	class II+III / type 2+3 / C+D, 2-pole, max. discharge current 20 kA
2617139	RSP-T2T3-AC/3P	class II+III / type 2+3 / C+D, 3-pole, max. discharge current 20 kA
2617140	RSP-T2T3-AC/4P	class II+III / type 2+3 / C+D, 4-pole, max. discharge current 20 kA
2617141	RSP-T2T3-AC/1+NPE	class II+III / type 2+3 / C+D, (1+NPE)-pole, max. discharge current 20 kA
2617142	RSP-T2T3-AC/3+NPE	class II+III / type 2+3 / C+D, (3+NPE)-pole, max. discharge current 20 kA
2617379	RSP-E7.5-40	class I+II / type 1+2 / B+C, 4-pole, impulse discharge current 7,5 kA
2617380	RSP-E7.5-31	class I+II / type 1+2 / B+C, (3+NPE)-pole, impulse discharge current 7,5 kA
2617363	RSP-E25-10	class I+II / type 1+2 / B+C, 1-pole, impulse discharge current 25 kA
2617364	RSP-E25-11	class I+II / type 1+2 / B+C, (1+NPE)-pole, impulse discharge current 25 kA
2617365	RSP-E25-30	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 25 kA
2617366	RSP-EH25/100-275/10	class I+II / type 1+2 / B+C, 1-pole, impulse discharge current 25 kA
2617367	RSP-EH25/100-275/11	class I+II / type 1+2 / B+C, (1+NPE)-pole, impulse discharge current 25 kA
2617372	RSP-EH25/100-275/31	class I+II / type 1+2 / B+C, (3+NPE)-pole, impulse discharge current 25 kA
2617373	RSP-EH25/100-440/10	class I+II / type 1+2 / B+C, 1-pole, impulse discharge current 22 kA
2617374	RSP-EH25/100-440/11	class I+II / type 1+2 / B+C, (1+NPE)-pole, impulse discharge current 22 kA
2617375	RSP-EH25/100-440-30	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 22 kA
2617376	RSP-EH25/100-440-31	class I+II / type 1+2 / B+C, (3+NPE)-pole, impulse discharge current 22 kA
2617377	RSP-EH12.5/100-750-10	class I+II / type 1+2 / B+C, 1-pole, impulse discharge current 4 kA
2617378	RSP-EH22/100-960-31	class I+II / type 1+2 / B+C, (3+NPE)-pole, impulse discharge current 22 kA

ORDERING CODES

Index	Code	Description
2617144	RSP-T1T2-DC 9/3P	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 9 kA
2617145	RSP-T1T2-DC 6.25/3P	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 6,25 kA
2617146	RSP-T2-DC/2P	class II / type 2 / C, 2-pole, max. discharge current 40 kA
2617147	RSP-T2-DC/3P	class II / type 2 / C, 3-pole, max. discharge current 40 kA
2617381	RSP-PV4.5-600-2P	class I+II / type 1+2 / B+C, 2-pole, impulse discharge current 4,5 kA
2617382	RSP-PV6.0-1000-3P	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 6 kA
2617383	RSP-PV4.5-1200-3P	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 4,5 kA
2617384	RSP-PV4.5-1500-3P	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 4,5 kA
2617385	RSP-PV12.5-600-2P	class I+II / type 1+2 / B+C, 2-pole, impulse discharge current 12,5 kA
2617386	RSP-PV12.5-1000-3P	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 12,5 kA
2617387	RSP-PV12.5-1200-3P	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 12,5 kA
2617388	RSP-PV8.0-1500-3P	class I+II / type 1+2 / B+C, 3-pole, impulse discharge current 8 kA

ORDERING CODES

Index	Code	Description
2617111	RSP-2L-12	category B, C, 1-pole, impulse discharge current 0,5 kA
2617113	RSP-2L-24	category B, C, 1-pole, impulse discharge current 0,5 kA
2617114	RSP-2L-48	category B, C, 1-pole, impulse discharge current 0,5 kA
2617115	RSP-4L-5	category B, C, 1-pole, impulse discharge current 2 kA
2617116	RSP-4L-12	category B, C, 1-pole, impulse discharge current 2 kA
2617117	RSP-4L-24	category B, C, 1-pole, impulse discharge current 2 kA
2617118	RSP-4L-48	category B, C, 1-pole, impulse discharge current 2 kA
2617107	RSP-CL-232	category B, C, 1-pole, impulse discharge current 2,5 kA
2617108	RSP-CL-485	category B, C, 1-pole, impulse discharge current 2,5 kA
2617109	RSP-CL-PT100	category B, C, 1-pole, impulse discharge current 2,5 kA
2617110	RSP-CL-TTL	category B, C, 1-pole, impulse discharge current 2,5 kA
2616593	RSP-SLH-2-5	category D1/C1/C2/C3, 1-pole, impulse discharge current 2,5 kA
2616595	RSP-SLH-2-12	category D1/C1/C2/C3, 1-pole, impulse discharge current 2,5 kA
2616596	RSP-SLH-2-24	category D1/C1/C2/C3, 1-pole, impulse discharge current 2,5 kA
2616597	RSP-SPLH-2-7A	category D1/C1/C2/C3, 1-pole, impulse discharge current 2,5 kA
2616592	RSP-RS485	category D1/C1/C2/C3, 1-pole, impulse discharge current 2,5 kA

Power supplies

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- I_n currents of outputs: 0,42 ... 40 A.
- Available versions:
 - in modular covers:
RZI...MN series,
 - in industrial covers:
RZI...MSN series, RZI...PN series.
- Methods of mounting:
 - on 35 mm rail mount,
 - on panel mounting - depending on the type of power supply.



Applications:

- **RZI...MN** power supplies in modular covers for supplying household appliances and building automation,
- **RZI...MSN** power supplies in industrial covers for supplying household appliances and building automation,
- **RZI...PN** professional power supplies using in industry for supplying packing machines, construction machinery, weaving machines etc.



Type	RZI15-.-MN	RZI30-.-MN	RZI60-.-MN	RZI100-24-MN
Output circuit				
Rated output power	15 W	24, 36 W	54, 60 W	92 W
Rated voltage DC	12, 24 V	12, 24 V	12, 24 V	24 V
Output current	0,63, 1,25 A	1,5, 2 A	2,5, 4,5 A	3,83 A
Input circuit				
Rated voltage AC	100...240 V	100...240 V	100...240 V	100...240 V
DC	125...375 V	125...375 V	125...375 V	125...375 V
Protections				
Overvoltage	110...145% ❶	110...145% ❶	110...145% ❶	100...145% ❶
Overload / overcurrent	> 130...200% rated output power ❷	> 130...200% rated output power ❷	> 130...200% rated output power ❷	> 130...200% rated output power ❷
Short circuit	❷	❷	❷	❷
Against shock	Class II (double insulation)	Class II (double insulation)	Class II (double insulation)	Class II (double insulation)
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
EMC immunity				
EMC (emissions)	CISPR 32, EN 55032	CISPR 32, EN 55032	CISPR 32, EN 55032	CISPR 32, EN 55032
Electrostatic discharge (EN 61000-4-2)	criteria B air: 8 kV contact: 4 kV	criteria B air: 8 kV contact: 4 kV	criteria A air: 8 kV contact: 4 kV	criteria B air: 8 kV contact: 4 kV
Radiated field (EN 61000-4-3)	criteria A 80 MHz...1 GHz 3 V/M	criteria A 80 MHz...1 GHz 3 V/M	criteria A 80 MHz...1 GHz 3 V/M	criteria A 80 MHz...1 GHz 3 V/M
Fast transient / burst (EN 61000-4-4)	criteria B 1 kV	criteria B 1 kV	criteria B 1 kV	criteria B 1 kV
Surge (EN 61000-4-5)	criteria B line-line: 1 kV	criteria B line-line: 1 kV	criteria B line-line: 1 kV	criteria A line-line: 1 kV
Conducted (EN 61000-4-6)	criteria A 150 kHz...80 MHz 3 Vrms	criteria A 150 kHz...80 MHz 3 Vrms	criteria A 150 kHz...80 MHz 3 Vrms	criteria A 150 kHz...80 MHz 3 Vrms
Magnetic fields (EN 61000-4-8)	criteria A 1 A/m	criteria A 1 A/m	criteria A 1 A/m	criteria A 1 A/m
Voltage dips (EN 61000-4-11)	criteria B&C	criteria B&C	criteria B&C	criteria B&C
Low energy pulse test (IEC 61000-4-12)	N/A	N/A	N/A	N/A
General data				
Dimensions mm	90,1 x 17,9 x 58,45	90 x 35,2 x 58,4	90 x 52,5 x 58,4	90 x 70,2 x 58,4
Indicator	LED green	LED green	LED green	LED green
Recognitions, certifications, directives	  RoHS, Low Voltage	  RoHS, Low Voltage	  RoHS, Low Voltage	  RoHS, Low Voltage
Download data sheet	RZI15-.-MN	RZI30-.-MN	RZI60-.-MN	RZI100-24-MN

❶ Clamp by Zener diode. ❷ Hiccup mode: recovers automatically after fault condition removed.

Type	RZI20-24-MSN	RZI60-24-MSN	RZI100-24-MSN	RZI75-24-PN
Output circuit				
Rated output power	10 W	60 W	96 W	76,8 W
Rated voltage DC	24 V	24 V	24 V	24 V
Output current	0,42 A	2,5 A	4 A	3,2 A
Input circuit				
Rated voltage AC	100...240 V	100...240 V	100...240 V	100...240 V
DC	125...250 V	125...250 V	125...250 V	125...250 V
Protections				
Overvoltage	27,6...32,4 V ②	31,2...36 V ③	31,2...36 V ③	29...33 V ③
Overload / overcurrent	> 105% rated output power ③	> 105...150% rated output power ④	> 105...150% rated output power ④	105...130% rated output power ②
Overtemperature				③
Short circuit	②	④	④	②
Against shock	Class I	Class I	Class I	Class I
Protection category	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
EMC immunity				
EMC (emissions)	CISPR 32, EN 55032	CISPR 32, EN 55032	CISPR 32, EN 55032	CISPR 32, EN 55032
Electrostatic discharge (EN 61000-4-2)	criteria B air: 8 kV contact: 4 kV	criteria B air: 8 kV contact: 4 kV	criteria B air: 8 kV contact: 4 kV	level 3, criteria B air: 8 kV contact: 4 kV
Radiated field (EN 61000-4-3)	criteria A 80 MHz...1 GHz 3 V/M	criteria A 80 MHz...1 GHz 3 V/M	criteria A 80 MHz...1 GHz 3 V/M	level 2, criteria A 80 MHz...1 GHz 3 V/M
Fast transient / burst (EN 61000-4-4)	criteria B 1 kV	criteria B 1 kV	criteria B 1 kV	level 2, criteria B 1 kV
Surge (EN 61000-4-5)	criteria B line-line: 1 kV	criteria C line-line: 1 kV	criteria B line-line: 1 kV	level 2, criteria A line-line: 1 kV line-earth: 2 kV
Conducted (EN 61000-4-6)	criteria A 150 kHz...80 MHz 3 Vrms	criteria A 150 kHz...80 MHz 3 Vrms	criteria A 150 kHz...80 MHz 3 Vrms	level 3, criteria B 150 kHz...80 MHz 3 Vrms
Magnetic fields (EN 61000-4-8)	criteria A 1 A/m	criteria A 1 A/m	criteria A 1 A/m	level 1, criteria A 1 A/m
Voltage dips (EN 61000-4-11)	criteria B&C	criteria B&C	criteria B&C	level 3, criteria B&C
Low energy pulse test (IEC 61000-4-12)	N/A	N/A	N/A	
General data				
Dimensions mm	91,8 x 22,5 x 100	91,9 x 40 x 100	92,1 x 55 x 100	125 x 32 x 100,5
Indicator	LED green	LED green	LED green	LED green
Recognitions, certifications, directives	  RoHS, Low Voltage	  RoHS, Low Voltage	  RoHS, Low Voltage	  RoHS, Low Voltage
Download data sheet	RZI20-24-MSN	RZI60-24-MSN	RZI100-24-MSN	RZI75-24-PN

② Hiccup mode: recovers automatically after fault condition removed. ③ Shut down O/P voltage, re-power on to recover. ④ Constant current limiting, recovers automatically after fault condition removed. ⑤ Shut down O/P voltage, recovers automatically after temperature goes down. ⑥ Constant current limiting, unit will shut down after 3 s., re-power on to recover. ⑦ RZI...-MSN: with relay (contact 1 NO).

RZI120-24-PN	RZI240-24-PN	RZI480-24-PN
		
120 W	240 W	480 W
24 V	24 V	24 V
5 A	10 A	20 A
100...240 V	100...240 V	100...240 V
125...250 V	125...250 V	125...250 V
29...33 V Ⓢ	29...33 V Ⓢ	29...33 V Ⓢ
105...130% rated output power Ⓢ	105...130% rated output power Ⓢ	105...130% rated output power Ⓢ
Ⓢ	Ⓢ	Ⓢ
Ⓢ	Ⓢ	Ⓢ
Class I	Class I	Class I
IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
CISPR 32, EN 55032	CISPR 32, EN 55032	CISPR 32, EN 55032
level 3, criteria B air: 8 kV contact: 4 kV	level 3, criteria B air: 8 kV contact: 4 kV	criteria B air: 8 kV contact: 4 kV
level 2, criteria A 80 MHz...1 GHz 3 V/M	level 2, criteria A 80 MHz...1 GHz 3 V/M	criteria A 80 MHz...1 GHz 3 V/M
level 2, criteria B 1 kV	level 2, criteria B 1 kV	criteria B 1 kV
level 2, criteria A line-line: 1 kV line-earth: 2 kV	level 2, criteria B line-line: 1 kV line-earth: 2 kV	criteria B line-line: 1 kV line-earth: 2 kV
level 2, criteria A 150 kHz...80 MHz 3 Vrms	level 2, criteria A 150 kHz...80 MHz 3 Vrms	criteria A 150 kHz...80 MHz 3 Vrms
level 1, criteria A 1 A/m	level 1, criteria A 1 A/m	criteria A 1 A/m
level 3, criteria B&C	level 3, criteria B&C	criteria B&C
		N/A
125 x 40 x 113	125 x 63 x 113,5	125 x 85,5 x 129
LED green	LED green	LED green
CE UK RoHS, Low Voltage	CE UK RoHS, Low Voltage	CE UK RoHS, Low Voltage
RZI120-24-PN	RZI240-24-PN	RZI480-24-PN

ORDERING CODES

Index	Code	Description
2617004	RZI15-12-MN	power 15 W, output 1,25 A / 12 V DC, universal supply voltage 100...240 V AC or 125...375 V DC
2617005	RZI15-24-MN	power 15 W, output 0,63 A / 24 V DC, universal supply voltage 100...240 V AC or 125...375 V DC
2617006	RZI30-12-MN	power 24 W, output 2 A / 12 V DC, universal supply voltage 100...240 V AC or 125...375 V DC
2617007	RZI30-24-MN	power 36 W, output 1,5 A / 12 V DC, universal supply voltage 100...240 V AC or 125...375 V DC
2617008	RZI60-12-MN	power 54 W, output 4,5 A / 12 V DC, universal supply voltage 100...240 V AC or 125...375 V DC
2617009	RZI60-24-MN	power 60 W, output 2,5 A / 24 V DC, universal supply voltage 100...240 V AC or 125...375 V DC
2617010	RZI100-24-MN	power 92 W, output 3,83 A / 24 V DC, universal supply voltage 100...240 V AC or 125...375 V DC
2617075	RZI20-24-MSN	power 10 W, output 0,42 A / 24 V DC, universal supply voltage 100...240 V AC or 125...250 V DC
2617076	RZI60-24-MSN	power 60 W, output 2,5 A / 24 V DC, universal supply voltage 100...240 V AC or 125...250 V DC
2617077	RZI100-24-MSN	power 96 W, output 4 A / 24 V DC, universal supply voltage 100...240 V AC or 125...250 V DC

ORDERING CODES

Index	Code	Description
2616912	RZI75-24-PN	power 76,8 W, output 3,2 A / 24 V DC, universal supply voltage 100...240 V AC or 125...250 V DC
2616913	RZI120-24-PN	power 120 W, output 5 A / 24 V DC, universal supply voltage 100...240 V AC or 125...250 V DC
2616914	RZI240-24-PN	power 240 W, output 10 A / 24 V DC, universal supply voltage 100...240 V AC or 125...250 V DC
2616915	RZI480-24-PN	power 480 W, output 20 A / 24 V DC, universal supply voltage 100...240 V AC or 125...250 V DC

Plug-in sockets

- I_n currents of outputs: 16 A.
- Available versions:
 - in modular covers: GSR series.
- Method of mounting:
 - on 35 mm rail mount.

GSR-01	168
GSR-02	168
GSR-03	168
GSR-04	168



Applications in low voltage systems:

- AC power supply in 1-phase network:
 - GSR-01:** socket type E,
 - GSR-02:** socket German Schuko type F,
 - GSR-03:** UK standard socket type G,
 - GSR-04:** universal Italian socket 2P+T+Schuko.



Type		GSR-01	GSR-02	GSR-03	GSR-04
Input circuit					
Rated voltage	AC	250 V AC: 50/60 Hz	250 V AC: 50/60 Hz	250 V AC: 50/60 Hz	250 V AC: 50/60 Hz
Rated current		16 A	16 A	13 A	16 A
General data					
Dimensions	mm	75,3 x 44,39 x 62,6	75,3 x 44,39 x 63,27	75,3 x 44,39 x 62,26	75,3 x 44,39 x 64,93
Protection category		IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)	IP 20 (EN 60529)
Recognitions, certifications, directives		 RoHS	 RoHS	  RoHS	 RoHS
Download data sheet		GSR-01	GSR-02	GSR-03	GSR-04

ORDERING CODES

Index	Code	Description
2617103	GSR-01	type E, input current 16 A, rated input voltage 250 V AC
2617104	GSR-02	German Schuko type F, input current 16 A, rated input voltage 250 V AC
2617105	GSR-03	UK standard socket type G, input current 13 A, rated input voltage 250 V AC
2617106	GSR-03	universal Italian socket 2P+T+Schuko, input current 16 A, rated input voltage 250 V AC

PRECAUTIONS:

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. 2. Never touch any live parts of the device. 3. Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. 4. In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.

You have not found the relay you wanted? The catalog 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 catalog and at www.relpol.com.pl

DECLARATION OF CONFORMITY

Relpol S.A. declares that the supplied products comply with the requirements set out in the following legal regulations:

ITEM	REGULATION
REACH	REGULATION (EC) NO 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH) , as amended. The products comply with the requirements of the REACH regulation and national regulations. They do not contain substances of very high concern (SVHC) in concentrations exceeding the permissible limits set by the European Chemicals Agency (ECHA). In the event of the presence of SVHC substances in the products, we commit to reporting them in accordance with legal requirements.
RoHS	DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment , and COMMISSION DELEGATED DIRECTIVE (EU) 2015/863 of 31 March 2015 amending Annex II to Directive 2011/65/EU regarding the list of restricted substances. The products comply with the requirements of the RoHS 3 directive, which restricts the use of certain hazardous substances in electrical and electronic equipment. The products do not exceed the maximum allowable levels of restricted substances and do not contain chromated metallic surfaces with hexavalent chromium. The products meets the requirements for lead-free assembly processes.
WEEE	DIRECTIVE 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on waste electrical and electronic equipment (WEEE) , as amended, including the amendment introduced by Directive 2018/849/EU . We commit to meeting the requirements of the directive regarding waste management for electrical and electronic equipment (products are marked with the crossed-out wheelie bin symbol). We support collection and disposal systems for waste equipment in accordance with national laws.
PACKAGING	DIRECTIVE 94/62/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 December 1994 on packaging and packaging waste , including the amendment introduced by Directive 2018/852/EU . All packaging materials used comply with EU and national regulations on packaging and packaging waste. We strive to minimize the environmental impact of our packaging by using recyclable materials.

For any additional questions or further information, please contact our Customer Service Department at order_handling@relpol.com.pl.

We confirm that the information contained in this document has been verified to the best of our knowledge, with the utmost diligence, in terms of completeness, accuracy, and timeliness.

This declaration has been prepared based on available information regarding our products and collaboration with our suppliers.

In the event of any changes in regulations or product composition, this declaration will be updated.
This declaration applies to all products introduced to the market by Relpol S.A. and remains valid until revoked.

We grant permission for our customers to use the above information within the supply chain.

President of the Management Board
Relpol S.A.

Krzysztof Pałgan



The offer of Relpol S.A. includes the following products:

subminiature - signal relays

rated switching capacity: from 0,5 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 EN 60715 or on panel mounting, for PCB

interface relays

rated switching capacity: from 0,05 A to 16 A, number of contacts: 1, 2, 3, 4

high power relays

rated switching capacity: from 16 A to 90 A, mounting: to plug-in sockets on 35 mm rail mount acc. to EN 60715 or on panel mounting, for PCB

relays for railroad industry

for rail-vehicles and railroad tractions,
rated switching capacity: from 6 A to 16 A, number of contacts: 1, 2, 3, 4

plug-in sockets for relays

for PCB, for 35 mm rail mount acc. to EN 60715 or on panel mounting

programmable relays

versions: 8 inputs / 4 outputs, 16 inputs / 8 outputs, with LCD display, without display, supply voltages: 12, 24, 220 V DC, 230 V AC, programming: LAD, STL, LED indicators of the relay and input/output status

installation relays

rated switching capacity: 8 A, 16 A, number of contacts: 1, 2, 3

bistable - impulse relays

type "ON-OFF", rated switching capacity: 8 A, 16 A, number of contacts: 1, 2

time relays

single- and multifunction time relays, wide range of time adjustments

monitoring relays

voltage, current, motor temperature monitoring

digital clocks

versions: weekly, astronomical, rated switching capacity: 16 A

electric energy consumption meters

measuring AC electrical energy, max. input current: 63 A

signal lamps

optic signaling of AC/DC or AC voltage

solid state relays and power controllers

rated load currents: from 0,05 A to 125 A, switching: DC, zero-crossing or random-on

installation contactors

rated switching power: from 2,2 kW to 15 kW (at 400 V AC3)

overvoltage arresters

classes I, II and III, networks: AC, DC, high voltage, data/communication, available with changeover signal contact

power supplies

for automation systems, output circuit: 12, 24 V DC, rated currents: from 0,42 A to 40 A

plug-in sockets

AC power supply, rated input current: 13 A, 16 A, mounting on 35 mm rail mount acc. to EN 60715

Due to the permanent development policy, Relpol S.A. reserves the right to introduce changes of data and characteristics of the products. The devices shall be operated by skilled personnel in accordance with the regulations in force pertaining to electrical systems. The technical data are of informational nature. Thus, Relpol S.A. does not accept any liability for inappropriate use of the presented products.

PRECAUTIONS

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product.
2. Never touch any live parts of the device.
3. Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire.
4. In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation

Instruction for safe use of Relpol S.A. products



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