relpol S.A.

# 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



www.relpol.com.pl

# 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 Przekaźników established




**1991** Zakład Przekaźników transformed into Relpol S.A. in Żary

relpol® S.A.



**1996** Relpol S.A. IPO at the Warsaw Stock Exchange

LISTED ON GPW WARSAW STOCK EXCHANGE





Relpol's presence in markets worldwide





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

# Modern production profile
## and high-quality products


- Guide – relays basic information .. 17
- Relays for electronics ..... 47
- Relays for industry ..... 62
- High power relays ..... 81
- Relays for railroad industry ..... 86
- Programmable relays ..... 93
- Installation relays ..... 96
- Bistable - impulse relays ..... 100
- Staircase timers ..... 104
- Time relays ..... 106
- Monitoring relays ..... 117
- Digital clocks ..... 125
- Electric energy consumption meters ..... 127
- Signal lamps ..... 129
- Solid state relays and power controllers ..... 132
- Installation contactors ..... 148
- Overvoltage arresters ..... 154
- Power supplies ..... 162
- Plug-in sockets ..... 167





**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 | AC | DC | AC/DC | bistable DC | | CO - changeover<br>NO - normally open<br>NC - normally closed | [A] 5 / 10 / 15 / 20 |
| **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 ❸ |
| | | | | | | | | | | 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 ❸ |
| | | | | | | | | | | RM50N | 1 CO, 1 NO | 6 A, 12 A ❸ |
| | | | | | | | | | | RM51 | 1 CO, 1 NO | 1 CO: 10 A / 7 A (NO/NC), 20 A ❸, 1 NO: 10 A, 20 A ❸ |
| | | | | | | | | | | RM53 | 1 CO, 1 NO, 2 NO | 1 CO: 5 A / 5 A (NO/NC), 10 A ❸; 1 NO, 2 NO: 5 A, 10 A ❸ |
| | | | | | | | | | | 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 ❶ | 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 ❷ | 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 |

❶ **RM85** for switching higher voltages ❷ **RA2** - automotive relays (2 NO: 2 x 12,5 A) ❸ 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 | AC | DC | AC/DC | bistable DC | | CO - changeover<br>NO - normally open<br>NC - normally closed | [A] 5 10 20 40 60 80 |
| **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 ❹ |
| | | | | | | | | | | PI85 with socket GZM80 | 1 CO | 12 A, 16 A ❹ |
| | | | | | | | | | | PI85 with socket GZP80 | 1 CO | 12 A, 16 A ❹ |
| | | | | | | | | | | PI85 inrush with socket GZT80 | 1 NO | 12 A, 16 A ❹ |
| | | | | | | | | | | PI84P with socket GZP80 | 2 CO | 8 A |
| | | | | | | | | | | PI85P with socket GZP80 | 1 CO | 12 A, 16 A ❹ |
| | | | | | | | | | | 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-... ❺ | 1 CO, 1 NO | R ($AgSnO_2$): 6 A; T, C: 1 A, O: 2 A |
| | | | | | | | | | | PIR6WB-1PS-... ❺ | 1 CO, 1 NO | R ($AgSnO_2$): 6 A; T, C: 1 A, O: 2 A |
| | | | | | | | | | | PIR6W.-1P-...-10 ❻ | 1 CO | R ($AgSnO_2$): 6 A |
| | | | | | | | | | | SIR6W-... ❺ | 1 CO, 1 NO | R ($AgSnO_2$): 6 A; T, C: 1 A, O: 2 A |
| | | | | | | | | | | SIR6WB-... ❺ | 1 CO, 1 NO | R ($AgSnO_2$): 6 A; T, C: 1 A, O: 2 A |
| | | | | | | | | | | SIR6W.-...-10 ❻ | 1 CO | $AgSnO_2$: 6 A |

❹ See www.relpol.com.pl ❺ Operational relay - electromagnetic **RM699BV** or solid state **RSR30**
❻ 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 | AC | DC | AC/DC | bistable DC | | CO - changeover<br>NO - normally open<br>NC - normally closed | [A] | 5 | 10 | 20 | 40 | 60 | 80 |
| **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,<br>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 ❹ | | | | | | |
| | | | | | | | | | | 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<br>with socket GUC11S-V0 | 3 CO, 3 NO | 16 A | | | | | | |
| | | | | | | | | | | PRUCT-M<br>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 | | | | | | | | |

❹ 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 | AC | DC | AC/DC | bistable DC | | CO - changeover<br>NO - normally open<br>NC - normally closed | [A] | 5 | 10 | 15 | 20 |
| **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<br>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<br>NO - normally open<br>NC - normally closed | [A] 5 | 10 | 15 | 20 |
| **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 ❼ | | | |
| | | | | | | | | | | MR-GU3M2P-TR2 | 2 CO | 3 A / 5 A ❼ | | | |
| | | | | | | | | | | MR-GU3M2P | 2 CO | 3 A / 5 A ❼ | | | |
| | | | | | | | | | | MR-GI1M2P-TR2 | 2 CO | 3 A / 5 A ❼ | | | |
| | | | | | | | | | | MR-GT2P-TR2 | 2 CO | 3 A / 5 A ❼ | | | |
| **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. | | | | | |

❼ 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.

| 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 | current | | CO - changeover<br>NO - normally open<br>NC - normally closed | [A] | 5 | 10 | 20 | 40 | 60 | 80 |
| **Solid state relays and power controllers** | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | RSR25 | | 5 A | | | | | | |
| | | | | | | | | | | RSR25-…-B | | 5 A | | | | | | |
| | | | | | | | | | | RSR30 | | 1 A, 2 A, 2,5 A, 4 A | | | | | | |
| | | | | | | | | | | RSR32 | | 2 A | | | | | | |
| | | | | | | | | | | RSR35 | | 0,1 A, 3 A, 4 A | | | | | | |
| | | | | | | | | | | RSR35-...-RZA | | 0,05 A | | | | | | |
| | | | | | | | | | | RSR35-..D8 | | 8 A | | | | | | |
| | | | | | | | | | | RSR85 | | 3 A | | | | | | |
| | | | | | | | | | | RSR86 | | 12 A | | | | | | |
| | | | | | | | | | | RSR88 | | 3 A, 5 A, 10 A, 16 A | | | | | | |
| | | | | | | | | | | RSR88...NC | | 3 A | | | | | | |
| | | | | | | | | | | RSR89 | | 5 A | | | | | | |
| | | | | | | | | | | RSR89...NC | | 5 A | | | | | | |
| | | | | | | | | | | RSR45 | | 10 A, 16 A, 25 A | | | | | | |
| | | | | | | | | | | RSR52 | | 10 A, 25 A, 40 A, 60 A, 80 A | | | | | | |
| | | | | | | | | | | RSR54 | | 25 A, 40 A, 60 A, 80 A, 100 A, 125 A | | | | | | |
| | | | | | | | | | | RSR58 | | 25 A, 50 A, 75 A | | | | | | |
| | | | | | | | | | | RSR62 | | 25 A, 40 A, 60 A, 80 A | | | | | | |
| | | | | | | | | | | RSR72 | | 10 A, 20 A, 30 A, 40 A, 75 A | | | | | | |
| | | | | | | | | | | RSR75 | | 15 A, 25 A | | | | | | |
| | | | | | | | | | | RSR95 | | 7 A, 20 A, 25 A, 40 A, 50 A, 80 A, 100 A | | | | | | |
| | | | | | | | | | | RSR92 | | 25 A, 40 A, 60 A, 80 A | | | | | | |
| | | | | | | | | | | RSR93 | | 25 A, 40 A, 60 A, 80 A | | | | | | |
| **Installation contactors** | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | RXC25-20\|11\|02 | 2 NO, 1 NO + 1 NC, 2 NC | 25 A | | | | | | |
| | | | | | | | | | | RXC25-40\|31\|22 | 4 NO, 3 NO + 1 NC, 2 NO + 2 NC | 25 A | | | | | | |
| | | | | | | | | | | RXC40 | 4 NO, 3 NO + 1 NC, 2 NO + 2 NC, 4 NC | 40 A | | | | | | |
| | | | | | | | | | | RXC63 | 4 NO, 3 NO + 1 NC, 2 NO + 2 NC | 63 A | | | | | | |
| | | | | | | | | | | RIK20 | 2 NO, 1 NO + 1 NC, 2 NC | 20 A | | | | | | |
| | | | | | | | | | | RIK25 | 4 NO, 3 NO + 1 NC, 2 NO + 2 NC | 25 A | | | | | | |
| | | | | | | | | | | RIK40 | 4 NO, 3 NO + 1 NC, 2 NO + 2 NC, 4 NC | 40 A | | | | | | |
| | | | | | | | | | | RIK63 | 4 NO, 3 NO + 1 NC, 2 NO + 2 NC | 63 A | | | | | | |
| | | | | | | | | | | RXC-AX | 2 NO, 1 NO + 1 NC | | | | | | | |
| | | | | | | | | | | RIKN | 2 NO, 1 NO + 1 NC | 6 A | | | | | | |
| | | | | | | | | | | RIK21 | 3 NO + 1 NO, 3 NO + 1 NC | 20 A | | | | | | |

# 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<br>NO - normally open<br>NC - normally closed | [A] | 5 | 10 | 20 | 40 | 60 | 80 |
| **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.



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

| 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 ❶ | 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 ❷ | 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 | – |

❷ **RM85** for switching higher voltages ❷ **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 ❸ | with socket | – | – |
| RUC faston 4,8x0,5 | direct | with socket ❹ direct | with socket ❹ direct ❺ | on request | 4,8 x 0,5 mm |
| RUC faston 6,3x0,8 | – | direct | direct ❺ | on request | 6,3 x 0,8 mm |
| RUC-M | direct | with socket ❹ direct | with socket ❹ direct ❺ | 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 | – | – |

❸ Available sockets for connection behind panel mounting - GZ14Z, GZ14P ❹ 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 ❺ 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 ❹ direct | with socket ❹ direct ❺ | on request | 4,8 x 0,5 mm |
| RUC faston 6,3x0,8 | – | direct | direct ❺ | on request | 6,3 x 0,8 mm |
| RUC-M | direct | with socket ❹ direct | with socket ❹ direct ❺ | 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<br>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 |


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

| 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 ❻ | – |
| RSR75 | – | – | direct ❻ | – |
| RSR95 | – | direct, with heatsink | with heatsink | – |
| RSR92 | – | direct, with heatsink | with heatsink | – |
| RSR93 | – | direct ❻ | direct ❻ | – |
| **Installation contactors** | | | | |
| RXC25 | – | – | direct | – |
| RXC40 | – | – | direct | – |
| RXC63 | – | – | direct | – |
| RIK20 | – | – | direct | – |
| RIK25 | – | – | direct | – |
| RIK40 | – | – | direct | – |
| RIK63 | – | – | direct | – |
| RXC-AX | – | – | direct | – |
| RIKN | – | – | direct | – |
| RIK21 | – | – | direct | – |

❻ Relay integrated with heatsink

# Mounting options

| 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


Function of the relay ..... 2
Main parts of the relay ..... 2
Types of relays ..... 3
Terminology ..... 7
Coil operating voltage range ..... 8
Coils - overvoltage protection ..... 8
Switching section: main diagrams and mechanical solutions ..... 10
Contacts and shapes of contacts ..... 11
Contact materials ..... 13
Electric life of relays ..... 16
Switching at alternating and direct current ..... 17
Arc breaking ..... 17
Suppressing circuits ..... 18
Special loads ..... 19
Switching time and contact bounce ..... 20
Sinusoidal vibrations ..... 21
Current surges ..... 21
Hermetic relays - soldering and cleaning ..... 22
Types of relay terminals ..... 24
International standards ..... 25






## 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.

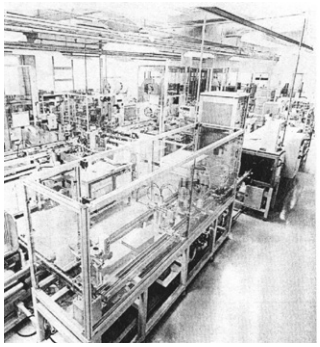
There are numerous applications of relays. Whenever satisfactory operation is needed in electronic and electromechanical conditions, a relay is necessary, e.g. for control equipment, time relays, temperature control, etc.

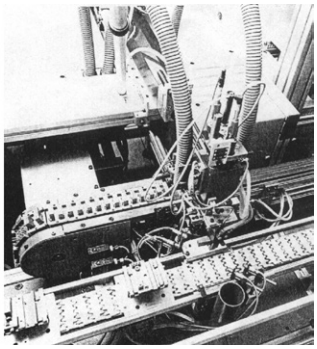
## Main parts of the relay

**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**

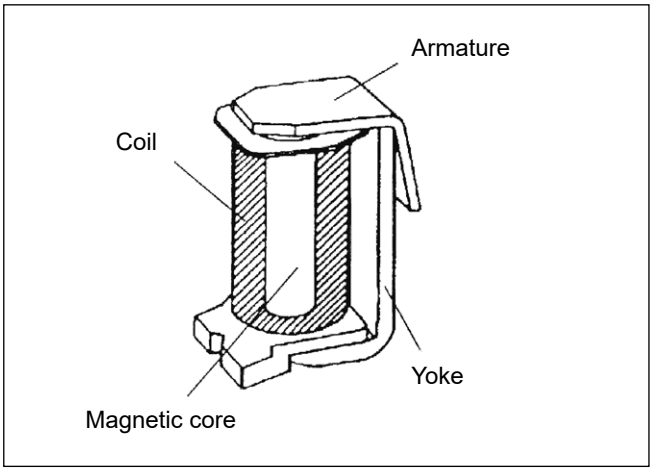
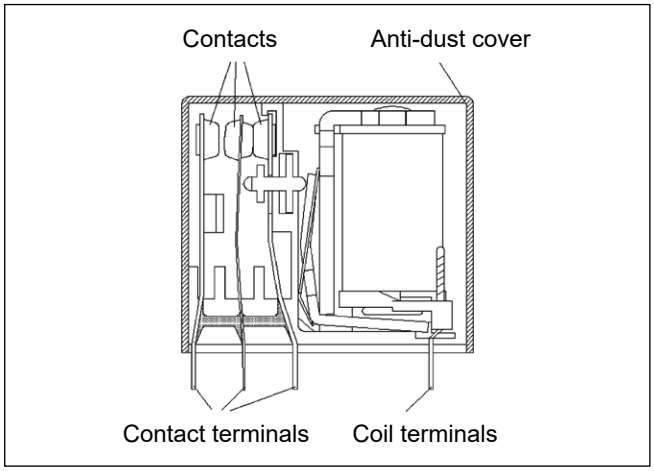



Fig. 1 shows a classic electromagnet unit which consists of four basic parts:
**The coil** which consists of one or more windings of a copper wire that is usually wound around a spool made of insulating material.
**Ferromagnetic core**.
**Ferromagnetic yoke**.
**Movable ferromagnetic armature**.

**Fig. 2. Classic design of a relay**



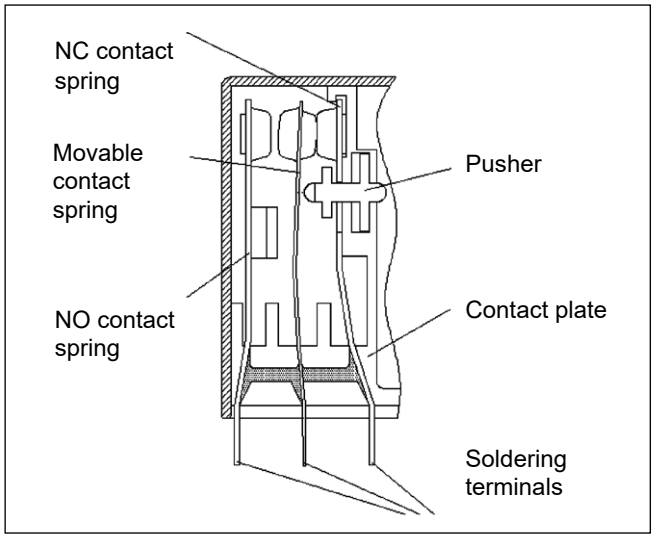

**Additional parts:**
- Fixed and movable contact springs.
- Contacts.
- Pusher.
- Mounting terminals and coil terminals.
- Contact plate.
- Anti-dust cover.

## 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**

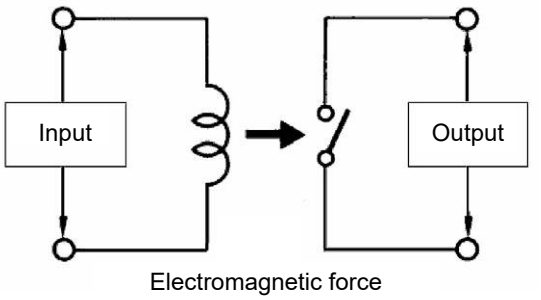


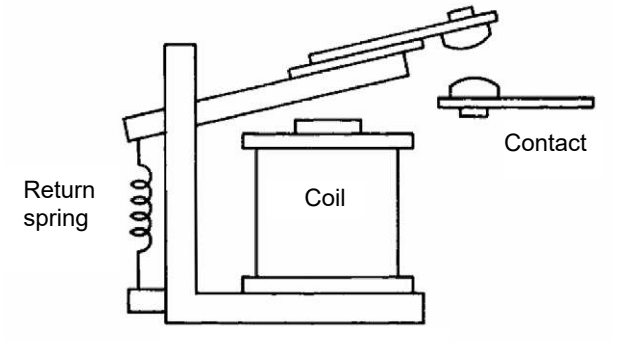

## Types of relays

**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 disconnetcts the power circuit.



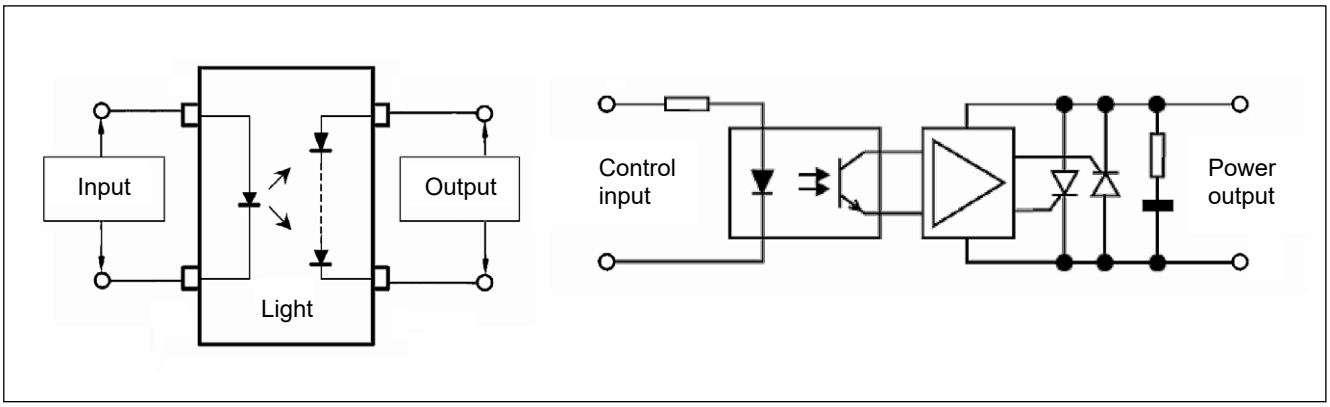




**Solid-state relays** use an opto-isolator to disconnect the input and output circuits. The opto-isolator changes electrical signal to optic ones and transfers them through the distance which is a galvanic insulation between the input and output sections. SSR's are electronic devices which do not have 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 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.**

## 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.

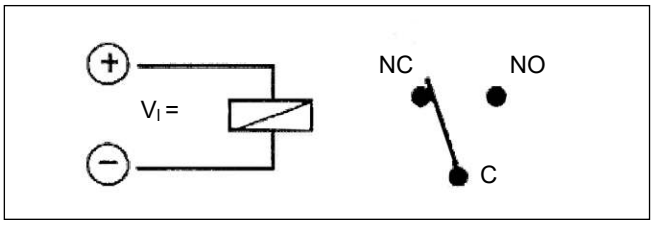
**Step relays**
The relays have two or more rotational positions, and they move from one step to another in consecutive operations with the use of energizing pulse. They usually move the contacts with the use of cams.

## 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 V1 (selected from the recommended supply voltage range) for the duration of ti, 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**

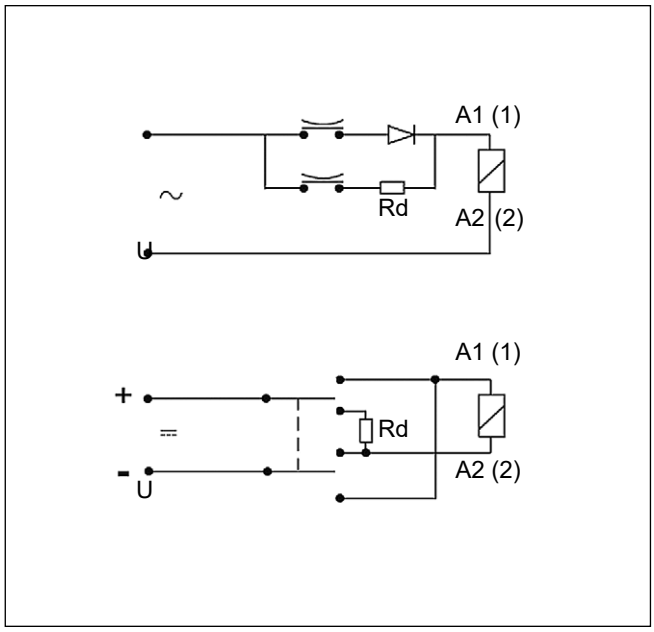



Thus, the magnetic polarization of the relay depends on the polarization of the supply voltage. The relay switches to the OFF state on supply of the voltage of the opposite polarization which changes the magnetic polarization of the core. The sole change of the supply polarization will not cause the 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).

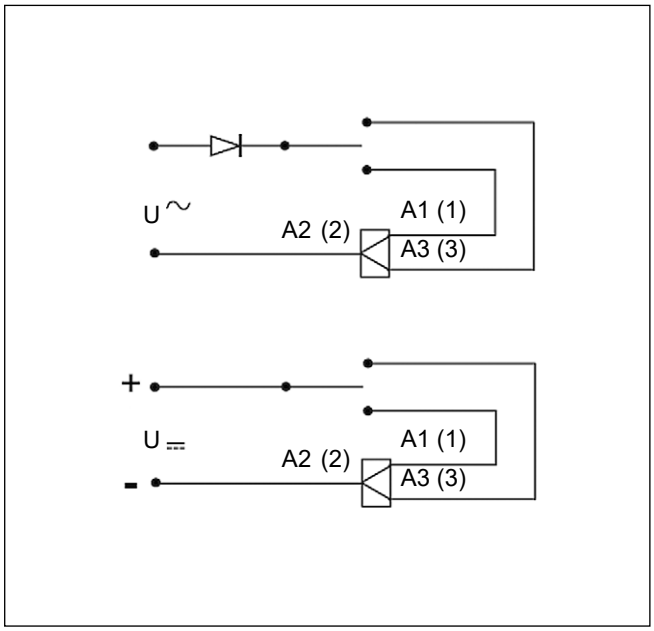
**Fig. 5. Circuits with single winding latching relays**



- 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

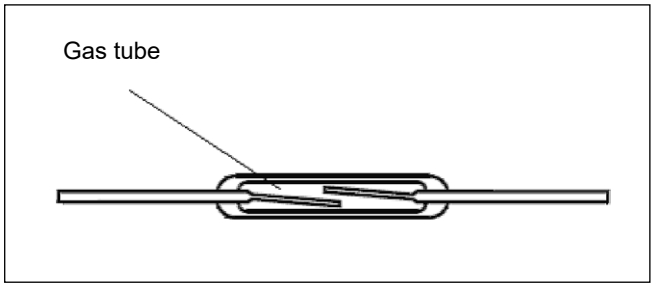
Polarized relay is a relay with permanent magnet which provides additional magnetic force that reduces the energy consumption. The magnetic field required for pulling the armature is partly generated by the coil and partly by the magnet.

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.

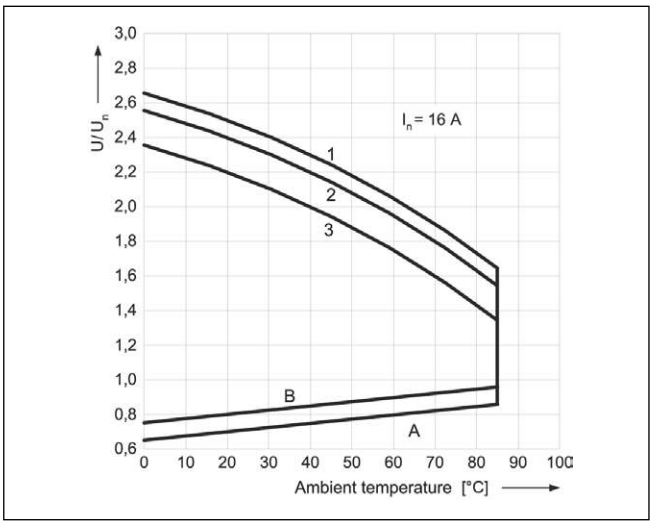
## Coil operating voltage range

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**



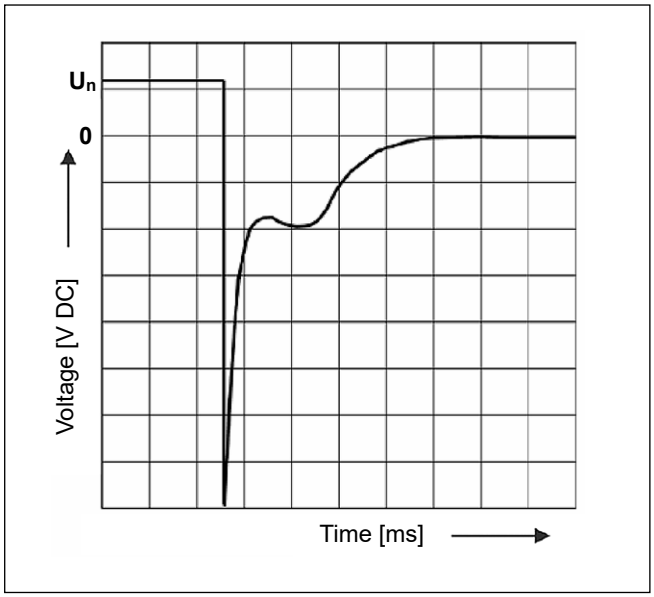

**A** - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).
**B** - relations between make voltage and ambient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

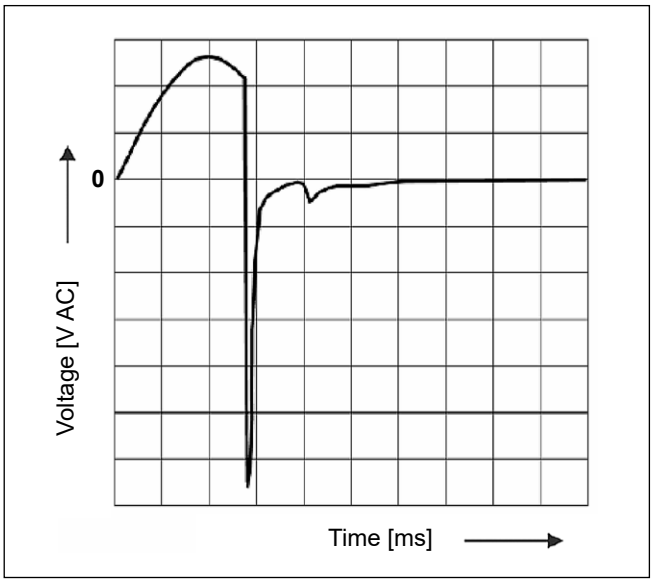
**Fig. 9. DC coil voltage during switching off**





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

**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**.

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.

| 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

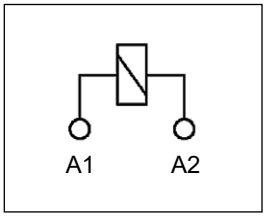
## Terminals marking

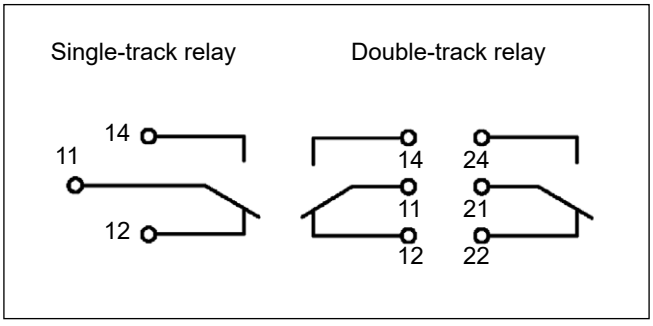
**Terminals marking under Polish Standard EN 50005.**

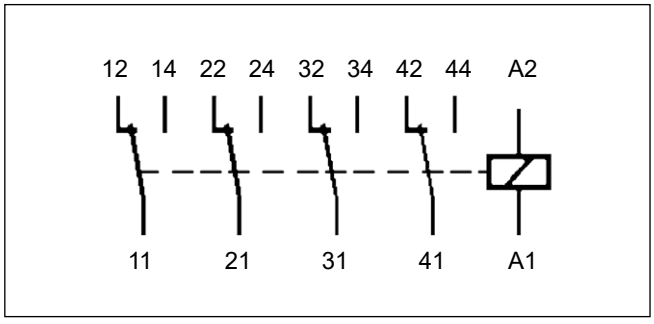
**Contacts terminals** are always marked numerically with two digits, where:
- the unit digit is the number of functions,
- the decimal digit is the number of sequences.

**Coil terminals** are always literal--numerical.

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





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

# 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**

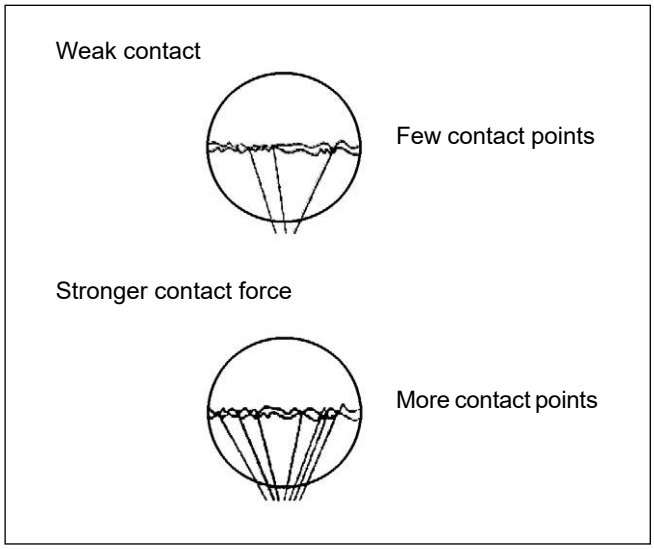
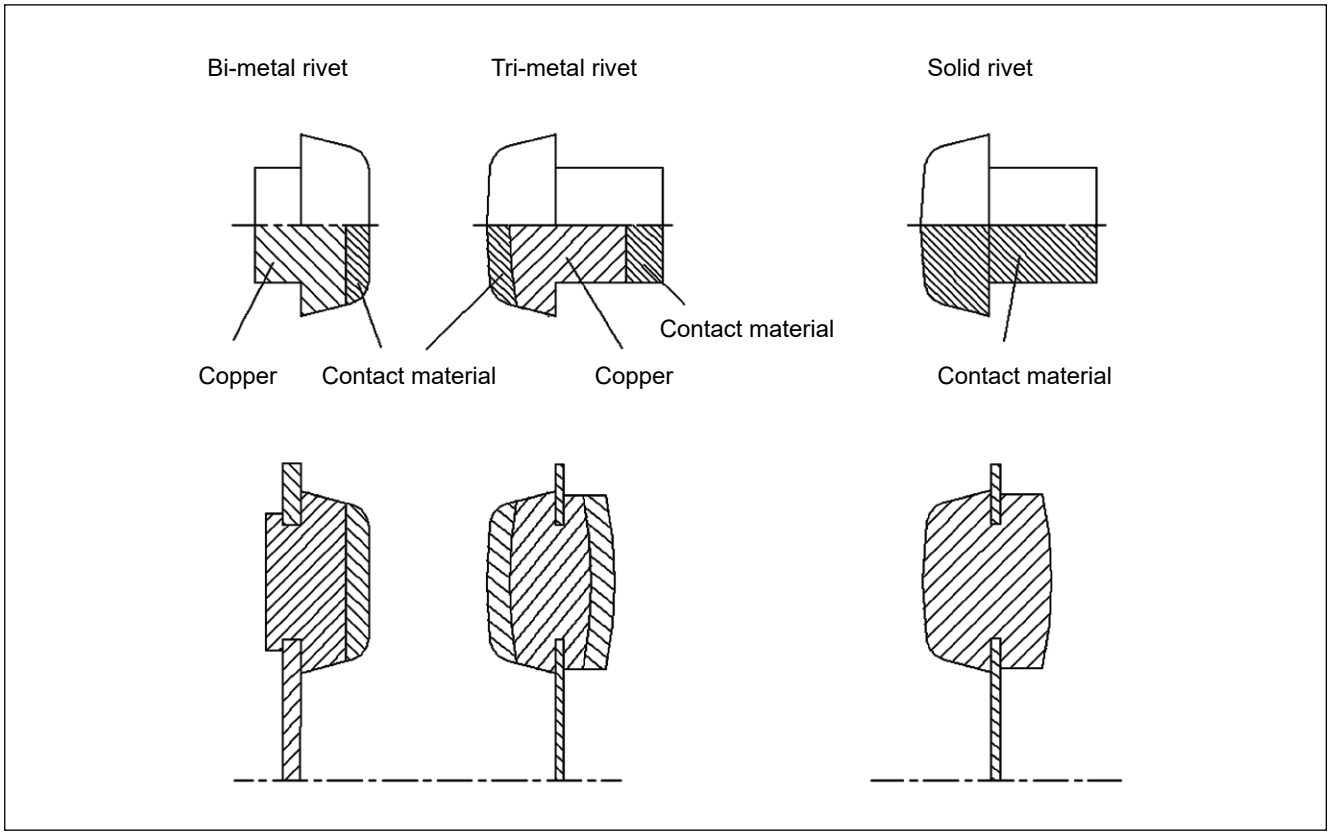


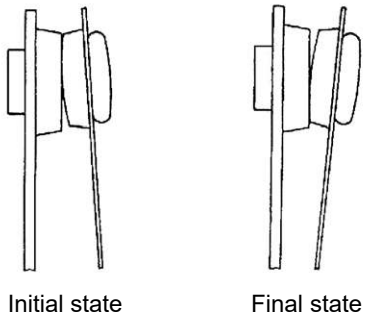

**Fig. 12. Shapes of contact rivets**



## 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).

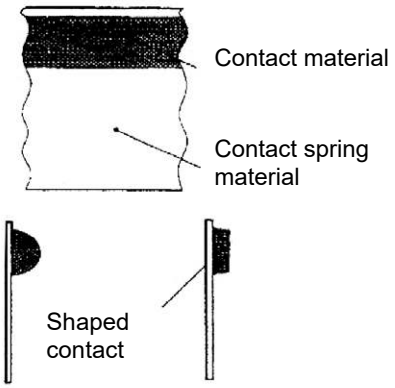
**Fig. 13. Contact movement**




## 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.

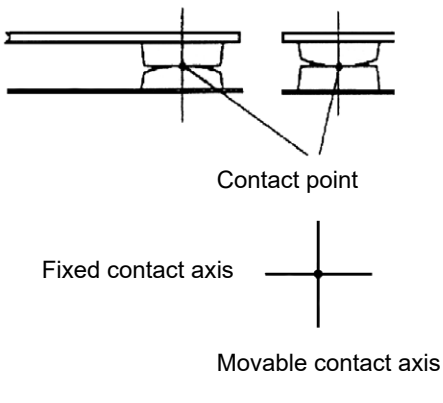
**Fig. 14. Small-profile contact**




## 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.

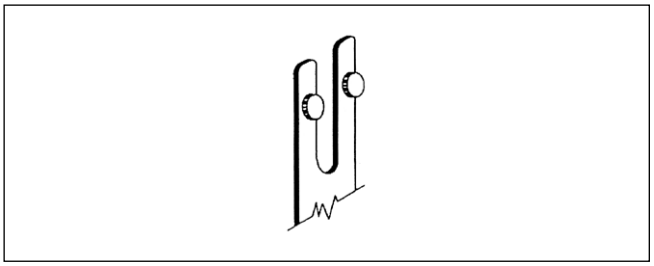
**Fig. 15. Cross contact**



## 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 x I**

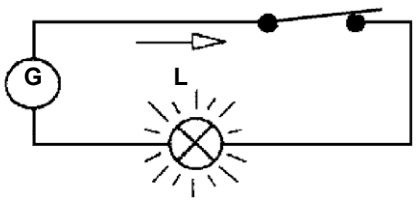
The value of R consists of two different resistances: **circuit resistance $R_c$ and contact resistance $R_r$**.
Thus:

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

The dissipated power **$P_w$ in the entire circuit** equals:

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

**Fig. 17. Basic circuit**




**G** = Generator **L** = Load

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 A, U = 250 V AC,
- relay contact resistance (mΩ):

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

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

**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 mA, U = 5 mV,
- relay contact resistance (mΩ):

d) 10 mΩ
e) 100 mΩ
f) 400 mΩ
**Solution:**
The voltage drop on the contact equals:
d) $R_c \times I = 0{,}01 \times 0{,}001 = 0{,}01\ mV$
e) $R_c \times I = 0{,}10 \times 0{,}001 = 0{,}10\ mV$
f) $R_c \times I = 0{,}40 \times 0{,}001 = 0{,}40\ mV$

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.

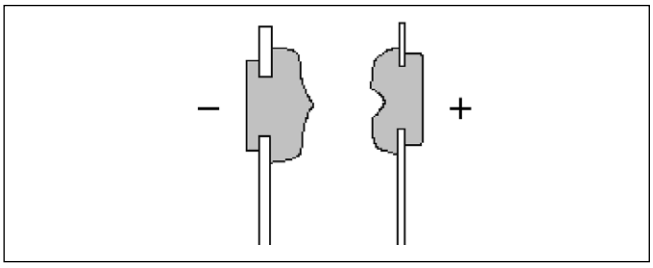
## Alloys and contact materials

**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.

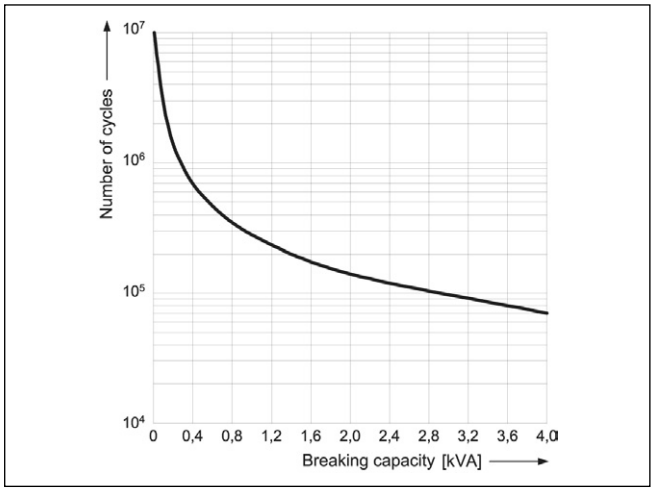
**Gilding - Au**
Contact gilding with 0,2-0,5 µm gold layer is usually applied in order to protect the basic material from oxidation during product storage. The protective gilding is not resistant to mechanical wear and it is quickly destroyed in course of the relay switching. Contact gilding with 3-5 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 x $10^4$ 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).

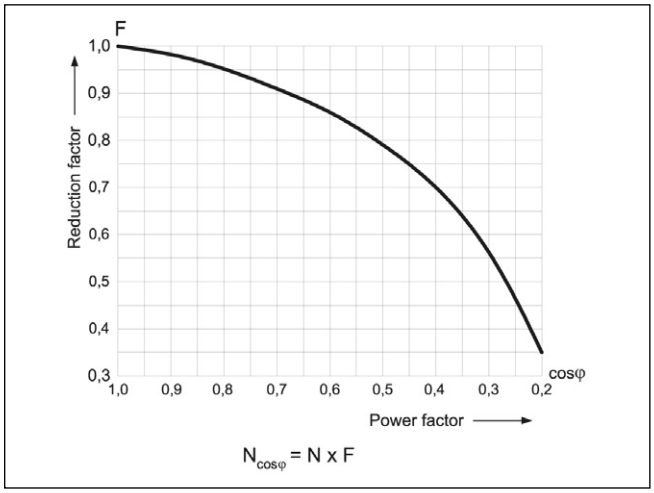
**Fig. 19. Chart of electric life of a relay**




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 / cosφ = 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 x 0,7 = 105 000 cycles.

**Fig. 20. Ratio of correction coefficient to power coefficient**




## Reliability

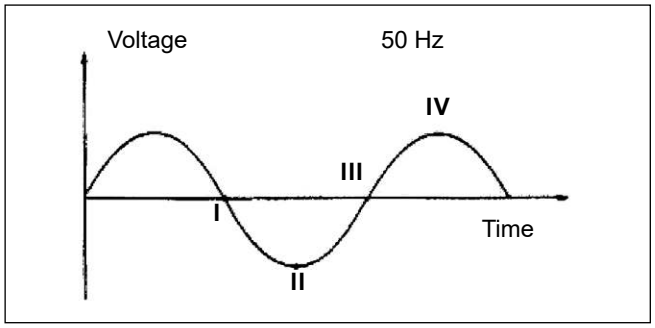
Charts of electric life of a relay in the function of load power are useful in estimating the reliability parameters. The value found in such charts may be used for defining the statistical parameter of B10 life, i.e. the number of cycles following which 10% of the relays population will fail. Electromagnetic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

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



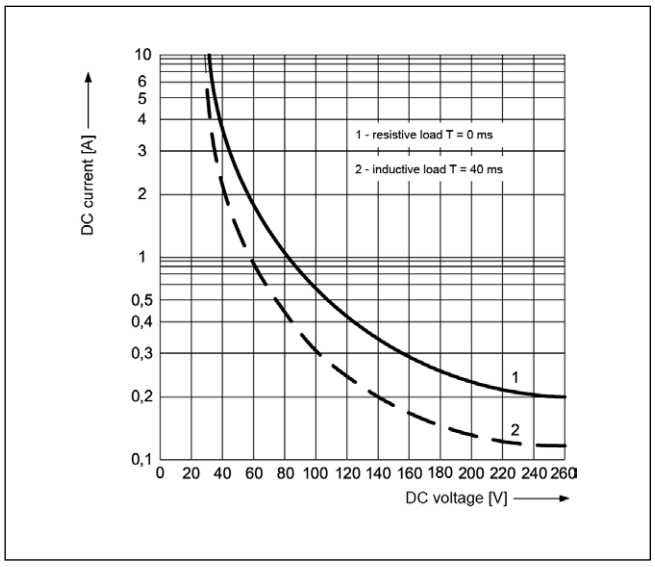

**Switching between points I and II:**
There may be two situations in which the voltage grows or drops. In both cases, arc discharge occurs but it is suppressed due to the transfer of the voltage via the zero value. The electric arc discharge depends on the voltage value, contact clearance, current intensity,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



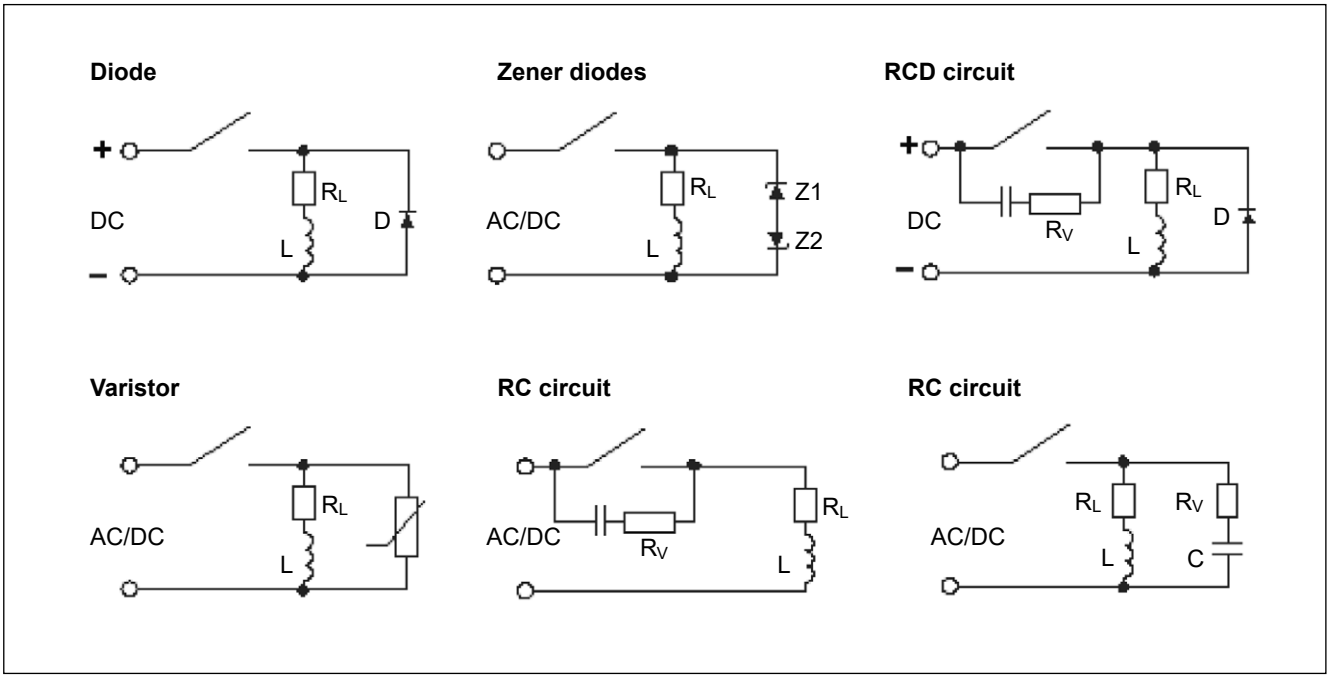
## Suppressing circuits

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**

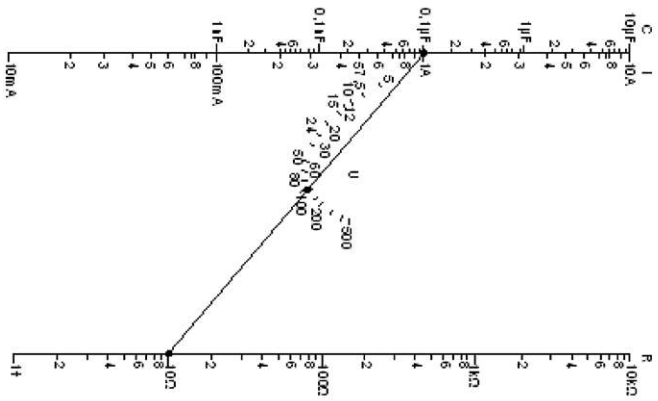



A **varistor** is another protection element of current-voltage ccharacteristics similar to Zener diode. For low voltages it shows high resistance and, then, it is practically disconnected from the circuit whereas when the voltage exceeds certain voltage, characteristic for the given varistor, its resistance 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. Ehen 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.

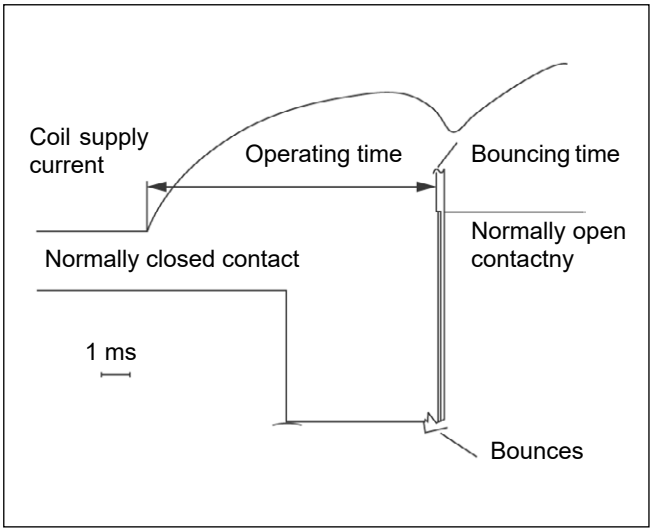
### Electromagnetic system

The current flows through the coil with the delay caused by the coil inductance which resists to the current stream. Furthermore, the movable parts such as the armature and the pusher react to the movement due to the action of the magnetic stream.

### Switching section

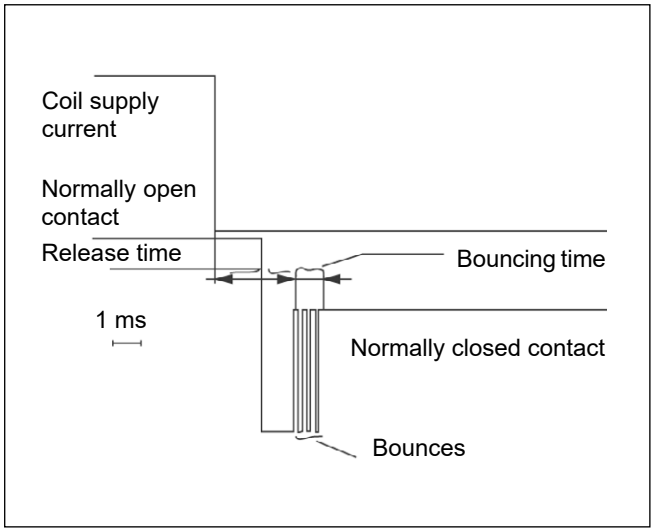
The elastic forces stored in the contacts and springs, and their elastic strain, react to the movement of the relay parts. The phenomenon is also affected by the inertia of the contacts mass. The delay times of the miniature relays usually reach the value of a few milliseconds (5-15 ms) during the switching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

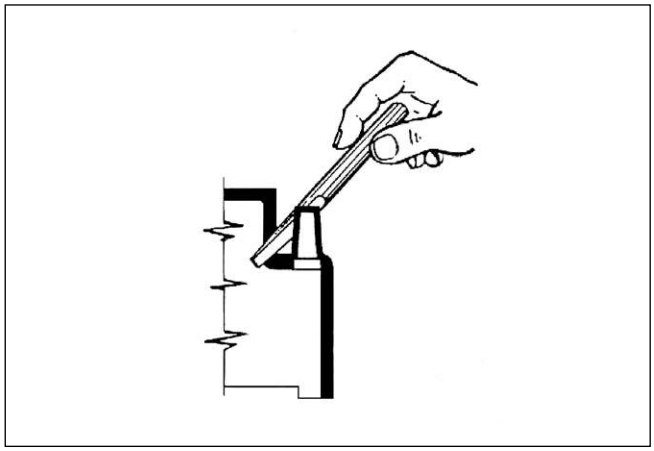
It is recommended to use alcohol-based or aqueous cleaning solvents for PCB cleaning. When using other cleaning solvents, the user should ensure that they do not have a negative impact on the materials from which the relay is built. Unsuitable cleaning solvents include: acetone, ethyl acetate, solutions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

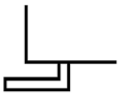
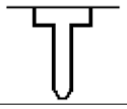
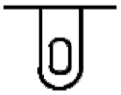


## Lead-free soldering

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

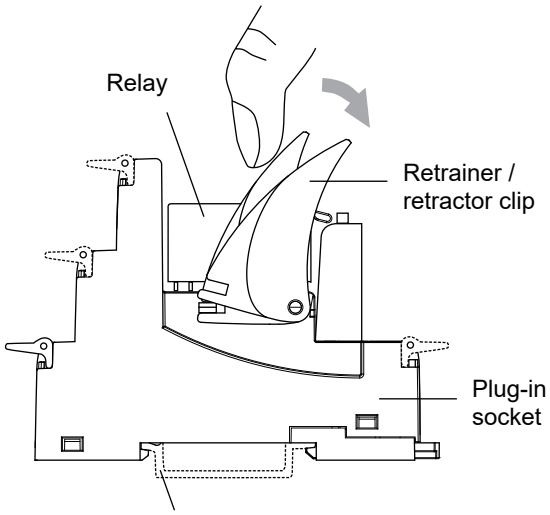
| | |
|---|---|
| Surface mounted terminals (SMT) |  |
| THT mounted terminals |  |
| Terminals to solder wires and for sockets |  |
| Terminals for flat slide-in (faston) connections |  |

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 retrainer / 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.

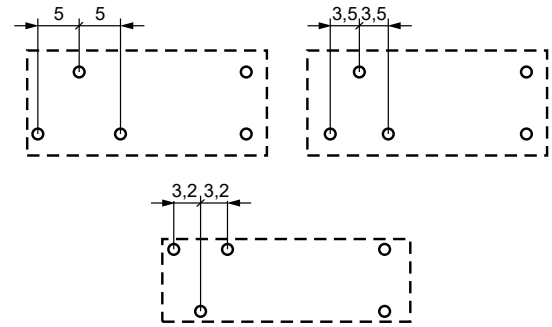
**Fig. 28. In course of mounting of the relay in the socket, the clip functions also as a relay protective latch.**




35 mm rail mount acc. to EN 60715

| 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**





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

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 | | | |
| Three-phase | Single-phase | | I | II | III | IV |
| | 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 ≤ CTI
**Group II** 400 ≤ CTI ≤ 600
**Group IIIa** 175 ≤ CTI ≤ 400
**Group IIIb** 100 ≤ CTI ≤ 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.

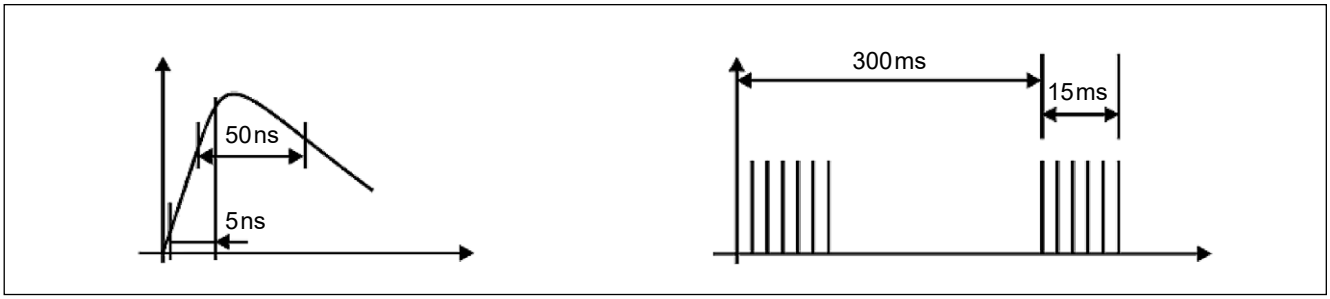
## Electromagnetic compatibility

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.

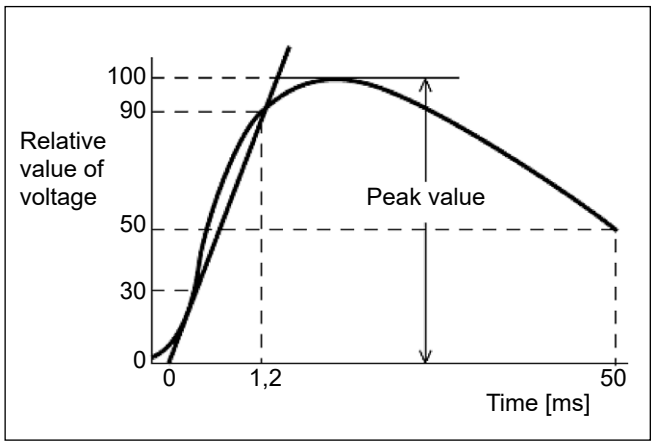
An electromagnetic relay may initiate disturbances, particularly when operating with inductive load of contacts. An electric arc occurring while switching, and overvoltage cause emission of disturbances which may affect the operation of a sensitive electronic appliance in the proximity of the relay. 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 μs.



## 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 x $10^4$ 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 | Transfomers |
| 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 (≤ 72 VA) |
| AC-15 | Control of AC electromagnetic loads (> 72 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


relpol® S.A.





## 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.


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




## Bistable relays

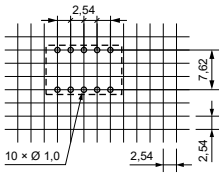
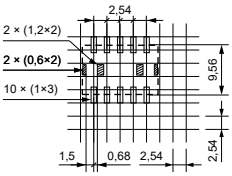
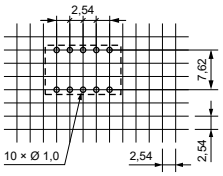
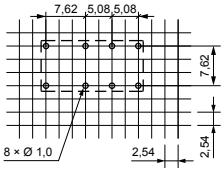
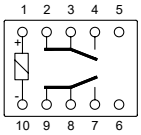
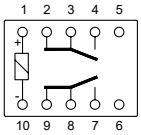
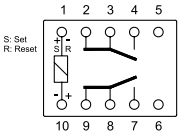
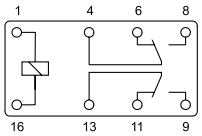
- $I_n$ currents of contacts: 0,5 A.
- Method of mounting: THT.

### 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.



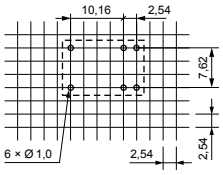
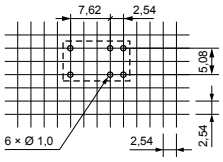
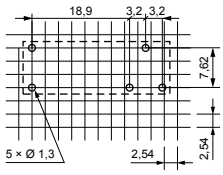
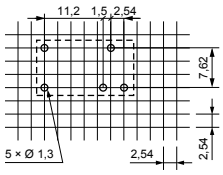
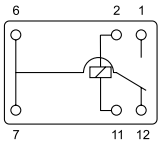
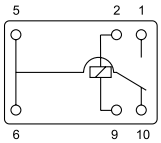
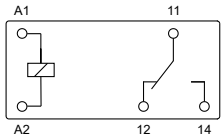
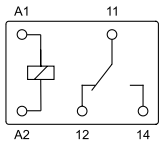
## signal relays

| 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<br>DC1<br>DC1 | 0,5 A / 125 V AC<br>2 A / 30 V DC | 0,5 A / 125 V AC<br>2 A / 30 V DC | 0,5 A / 125 V AC<br>2 A / 30 V DC | 0,6 A / 125 V AC<br>3 A / 30 V DC<br>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<br>(48 V standard) |
| **Insulation** | | | | |
| Dielectric strength<br>• coil - contacts<br>• contact clearance | <br>1 000 V AC ❸<br>1 000 V AC ❺ | <br>1 000 V AC ❸<br>1 000 V AC ❺ | <br>1 000 V AC ❸<br>1 000 V AC ❺ | <br>1 000 V AC ❸<br>1 000 V AC ❺ |
| **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<br>(solder side view) | <br>version 2 CO | <br>version 2 CO | <br>version 2 CO | <br>version 2 CO |
| Connection diagrams<br>(pin side view) | <br>version 2 CO | <br>version 2 CO | <br>version 2 CO | <br>version 2 CO |
| Recognitions, certifications, directives | RoHS | RoHS | RoHS | RoHS |
| Download data sheet | RSM850 | RSM850 | RSM850B | RSM822N |

❶ Flash gold plating ❸ Type of insulation: basic ❺ Type of clearance: micro-disconnection

## signal relays

## miniature relays

| Type | RSM954N | RSM957N | RM12N | RM32N |
|---|---|---|---|---|
| | | sensitive coil | | |
| |  |  |  |  |
| **Contact data** | | | | |
| 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 ❾, $AgSnO_2$, $AgSnO_2$/Au ❾ | $AgSnO_2$ |
| 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 |
| AC1 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<br>• coil - contacts<br>• contact clearance | 1 000 V AC ❸<br>500 V AC ❺ | 1 000 V AC ❸<br>400 V AC ❺ | 5 000 V AC ❹<br>1 000 V AC ❺ | 2 500 V AC ❸<br>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) | <br>version 1 CO | <br>version 1 CO | <br>wersja 1P | <br>version 1 CO |
| Connection diagrams (pin side view) | <br>version 1 CO | <br>version 1 CO | <br>version 1 CO | <br>version 1 CO |
| Recognitions, certifications, directives | RoHS | RoHS | RoHS | RoHS |
| Download data sheet | RSM954N | RSM957N | RM12N | RM32N |

❶ Flash gold plating
❷ Hard gold plating
❾ Gold plating

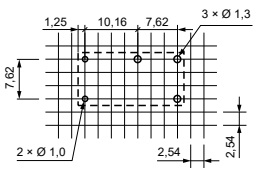
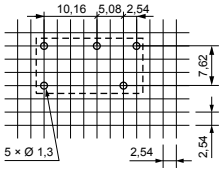
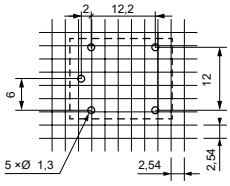
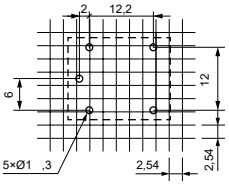
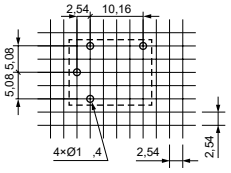
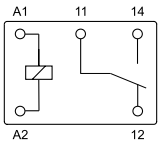
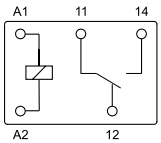
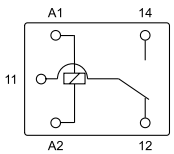
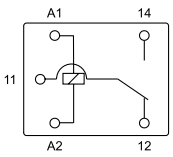
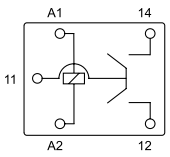
❸ Type of insulation: basic
❹ Type of insulation: reinforced

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



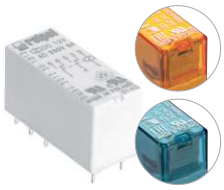
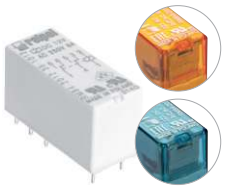
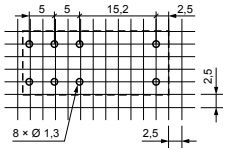
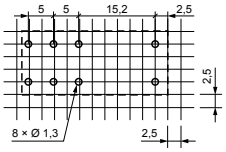
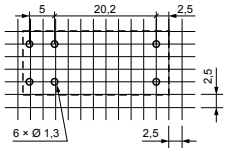
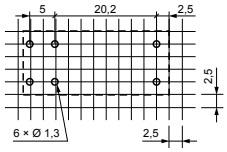
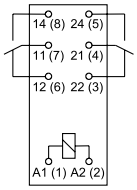
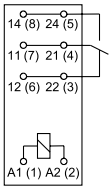
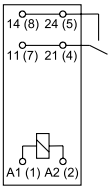
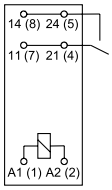
**Export Sales Department**: phone +48 68 47 90 832, 951, export@relpol.com.pl

## 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 ❶ |
| 1 CO: AgNi, AgNi/Au ❷<br>1 NO: $AgSnO_2$ | $AgSnO_2$ | $AgSnO_2$ | $AgSnO_2$ | $AgSnO_2$ |
| 1 CO: 250 V / 380 V<br>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<br>1 NO: 8 A / 30 V DC | 1 NO: 5 A / 250 V AC<br>1 NO: 5 A / 28 V DC | 6 A / 250 V AC<br>12 A / 28 V DC | 1 NO: 10 A / 250 V AC<br>1 NO: 10 A / 30 V DC | 1 NO, 2 NO: 5 A / 250 V AC<br>1 NO, 2 NO: 10 A / 120 V AC<br>1 NO, 2 NO: 20 A / 14 V DC |
| | | | 1 NO: 0,75 kW ❼ | |
| | | | | |
| 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 ❹<br>1 000 V AC ❺ | 4 000 V AC ❹<br>1 000 V AC ❺ | 1 500 V AC ❸<br>750 V AC ❺ | 2 500 V AC ❸<br>1 000 V AC ❺ | 500 V AC ❹<br>500 V AC ❺ |
| | | | | |
| 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 ❶ |
| RoHS | RoHS | RoHS | RoHS | RoHS |
| RM40 | RM45N | RM50N | RM51 | RM53 |

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

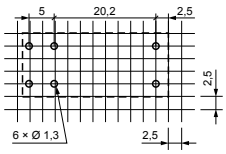
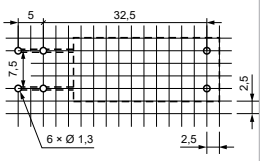
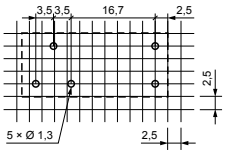
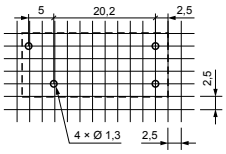
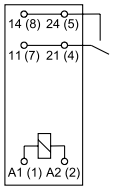
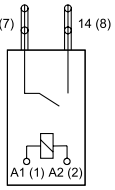
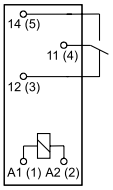
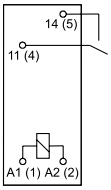
## miniature relays

| Type | | RM84 | RM85 | RM85 inrush | RM85 105 °C sensitive |
|---|---|---|---|---|---|
| | |  |  | 80 A / 20 ms  | sensitive coil  |
| **Contact data** | | | | | |
| Number and type of contacts | | 2 CO, 2 NO ❷ | 1 CO, 1 NO ❷ | 1 NO | 1 NO |
| Contact material | | AgNi, AgNi/Au ❷, $AgSnO_2$ | AgNi, AgNi/Au ❷, $AgSnO_2$ | $AgSnO_2$ | AgNi, AgNi/Au ❷, $AgSnO_2$ |
| Rated / max. switching voltage | AC | 250 V / 400 V | 250 V / 400 V | 250 V / 400 V | 250 V / 400 V |
| Rated load (capacity) | AC1<br>AC1<br>AC15<br>AC15<br>DC1<br>DC13<br>DC13 | 8 A / 250 V AC<br><br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>8 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 16 A / 250 V AC<br><br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>16 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 16 A / 250 V AC<br><br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>16 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 16 A / 250 V AC<br><br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>16 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) |
| Motor load | | 0,37 kW ❼ | 0,5 kW ❼ | 0,75 kW ❼ | 0,5 kW ❼ |
| **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 | | |
| | 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<br>• coil - contacts<br>• contact clearance | | 5 000 V AC ❹<br>1 000 ❺, 2 000 ❷ V AC | 5 000 V AC ❹<br>1 000 ❺, 2 000 ❷ V AC | 5 000 V AC ❹<br>1 000 V AC ❺ | 5 000 V AC ❹<br>1 000 V AC ❺ |
| **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<br>(solder side view) | | <br>version 2 CO | <br>version 1 CO | <br>version 1 NO | <br>version 1 NO |
| Connection diagrams<br>(pin side view) | | <br>version 2 CO | <br>version 1 CO | <br>version 1 NO | <br>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 |

❷ Hard gold plating ❸ Type of insulation: basic ❹ Type of insulation: reinforced ❺ Type of clearance: micro-disconnection
❻ Type of clearance: full-disconnection ❼ AC3 according to IEC 60947-4-1, 1-phase motor ❽ Diagram: www.relpol.com.pl

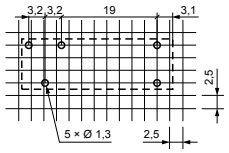
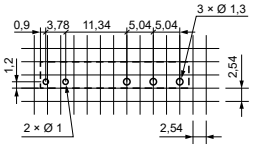
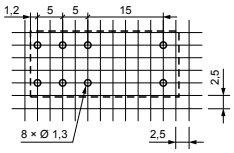
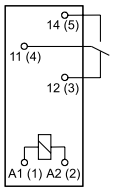
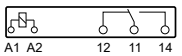
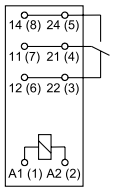
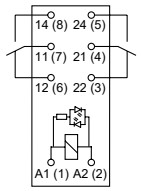

**Export Sales Department**: phone +48 68 47 90 832, 951, export@relpol.com.pl

## miniature relays

| RM85 - special | RM85 faston | RM87 | RM87 sensitive |
|---|---|---|---|
| for switching higher voltages  | vertical version (V)  ❸ |  ❹ ❺ | sensitive coil  ❹ ❺ |
| 1 NO | 1 NO | 1 CO, 1 NO ❷ | 1 NO |
| $AgSnO_2$ | $AgSnO_2$ | AgNi, AgNi/Au ❷, $AgSnO_2$ | AgNi, AgNi/Au ❷, $AgSnO_2$ |
| 250 V / 480 V | 250 V / 400 V | 250 V / 400 V | 250 V / 400 V |
| 5 A / 480 V AC<br>16 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>16 A / 24 V DC<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 20 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>20 A / 24 V DC<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 12 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>12 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 10 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>10 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) |
| 0,5 kW ❼ | 0,5 kW ❼ | 0,5 kW ❼ | 0,5 kW ❼ |
| | | 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 ❹<br>2 000 V AC ❻ | 5 000 V AC ❹<br>1 000 V AC ❺ | 5 000 V AC ❹<br>1 000 ❺, 2 000 ❷ V AC | 5 000 V AC ❹<br>1 000 V AC ❺ |
| 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) |
| | | ❹ GZT92, GZM92, GZS92, EW 35, EC 35, GD35<br>❺ GZT80, GZM80, GZS80, GZF80, GZP80, PW80, EW 50, EC 50, GD50 | |
| RoHS | RoHS | RoHS | RoHS |
| RM85 - special | RM85 faston | RM87 | RM87 sensitive |

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

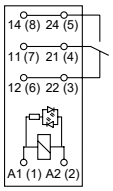
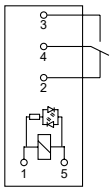
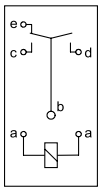
## miniature relays

| Type | RM96 | RM699B | RM83 | RMP84 |
|---|---|---|---|---|
| | | vertical version (V) | 120 A / 20 ms | |
| |  |  ❻ |  |  |
| **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 ❷ | $AgSnO_2$, $AgSnO_2$/Au ❷, AgNi, AgNi/Au ❷ | $AgSnO_2$ | AgNi |
| Rated / max. switching voltage AC | 250 V / 400 V | 250 V / 400 V ❼ | 250 V / 400 V | 250 V / 440 V |
| Rated load (capacity) AC1 | 8 A / 250 V AC | 6 A / 250 V AC ❼ | 16 A / 250 V AC | 8 A / 250 V AC |
| AC1 | 10 A / 250 V AC (UL, VDE) | | 20 A / 250 V AC (UL) | |
| AC15 | 3 A / 120 V (B300) | | 6 A / 120 V (B300) | |
| AC15 | 1,5 A / 240 V (B300) | | 3 A / 240 V (B300) | |
| DC1 | 8 A / 24 V DC ❽ | 6 A / 30 V DC ❼ | 16 A / 24 V DC ❽ | |
| DC1 | | | | |
| DC13 | 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) | |
| Motor load | 0,37 kW ❼ | 1 NO: 0,186 kW ❼ ❼ | 0,65 kW ❼ | |
| **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<br>• coil - contacts<br>• contact clearance | 4 000 V AC ❹<br>1 000 V AC ❺ | 4 000 V AC ❹<br>1 000 V AC ❺ | 4 000 V AC ❹<br>1 000 V AC ❺ | 5 000 V AC ❹<br>1 000 V AC ❺ |
| **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 |  version 1 CO |  version 1 CO | |
| Connection diagrams (pin side view) |  version 1 CO |  version 1 CO |  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 |

❷ Hard gold plating
❸ Type of insulation: basic
❹ Type of insulation: reinforced
❺ Type of clearance: micro-disconnection
❼ AC3 according to IEC 60947-4-1, 1-phase motor
❽ Diagram: www.relpol.com.pl


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

## miniature relays

| RMP85 | RMP7 | RA2 |
|---|---|---|
|  | NEW  | automotive relays  |
| 1 CO | 1 CO, 2 CO ❽ | 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<br>2 CO: 8 A / 250 V AC<br><br>1 CO: 12 A / 24 V DC<br>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 ❹<br>1 000 V AC ❺ | 2 000 V AC ❸<br>1 000 V AC ❺ | 500 V AC<br>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 |
| | | |
| <br>version 1 CO | <br>version 1 CO | <br>version 1 CO left + 1 NO |
| GZF80, GZP80,<br>EW 50, EC 50, GD50 | 1 CO: GZ71, GZP71<br>2 CO: GZ72, GZP72 | |
| CE<br>RoHS | CE cULus<br>RoHS | RoHS |
| RMP85 | RMP7 | RA2 |

❻ RM699B: horizontal version (H) - see www.relpol.com.pl ❼ Only for contacts $AgSnO_2$, AgNi
❽ 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) ❶
For RM84, RM85, RM87L/P, RMP84, RMP85




GZP80-0400


GZT80-0040


GZM80-0041


GZ80-1001


MP15


M...


ZGZP-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




GZM80-0041


GZ80-1001

### GZS80 (2613503)
For RM84, RM85, RM87L/P




GZS-0040


GZM80-0041

### GZS92 (2613502)
For RM87N




TR


M...

### ES 32 (2000543)
For RM96 1P




ZGGZ80

### PW80 (592066)
For RM84, RM85, RM87L/P, RM83




MH16-2


MH25-2

### EC 50 (2000532) | EW 50 (2616922)
For RM84, RM85, RM87L/P, RM83, RMP84, RMP85






MH16-2


MH25-2


MP16-2


MP25-2

### EC 35 (2000531) | EW 35 (2601570)
For RM87N





### GD50 (2613510)
For RM84, RM85, RM87L/P, RM83, RMP84, RMP85




GD-0016


MH16-2


MH25-2


MP16-2


MP25-2

### GD35 (2613509)
For RM87N



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

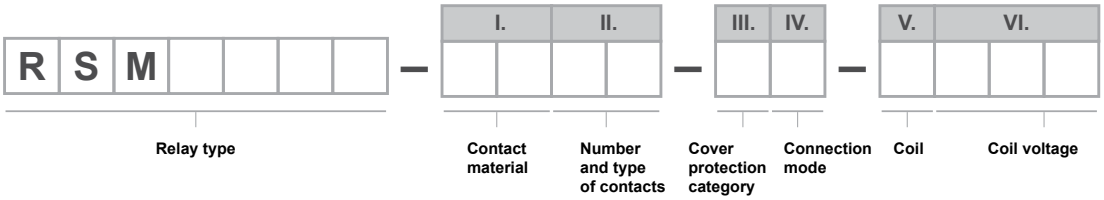
❶ Push-in terminals (flammability class V-0); max. cross section of the cables: 2 x 1,5 mm² (solid wire without ferrule or stranded wire with non-insulated ferrule), 2 x 1 mm² (solid or stranded wire with insulated ferrule); stripping length: 8...10 mm.



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

## Plug-in sockets for relays

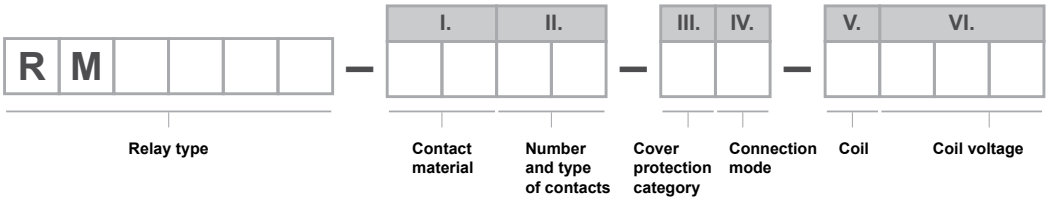
| PI6W | PI6WB | 6W | 6WB | GD699 (2615832) |
|---|---|---|---|---|
| For RM699BV, RSR30 | For RM699BV, RSR30 | For RM699BV, RSR30 | For RM699BV, RSR30 | For RM699BV, RSR30 |
|  |  |  |  |  |
|  ZG20 |  PI6W-1246 |  6W-SEP |  JB20 |  MP6-C |  MP6-C |




| | Relay type | | | | |
|---|---|---|---|---|---|
| | RSM850 | RSM850B | RSM822N | RSM954N | RSM957N |
| | versions THT, SMT | bistable | | | |
| **I. Contact material** | | | | | |
| **01** - Ag/Au flash gold plating | | | | • | • |
| **21** - AgNi/Au flash gold plating | | | • | | |
| **61** - AgPd/Au flash gold plating | • | • | | | |
| **II. Number and type of contacts** | | | | | |
| **11** - 1 CO | | | | • | • |
| **12** - 2 CO | • | • | • | | |
| **III. Cover protection category** | | | | | |
| **8** - IP 67 | • | • | • | • | • |
| **IV. Connection mode** | | | | | |
| **5** - for PCB | • | • | • | • | • |
| **M** - SMT | • | | | | |
| **V. Coil** | | | | | |
| **1** - DC | • | • | • | • | |
| **S** - DC sensitive (low power) | | | • | | • |
| **VI. Coil voltage** | DC | DC | DC | DC sensitive | DC | DC sensitive |
| **005** - 5 V | • | • | | • | • | • |
| **012** - 12 V | • | • | | • | • | • |
| **024** - 24 V | • | • | | • | • | • |
| **048** - 48 V | | | • | | | |
| **...** - other voltages: see data tables (pages 49, 50) or product catalog (full edition) **www.relpol.pl/en/Download/Product-Catalogs** | | | | | |

## EXAMPLE ORDERING CODES

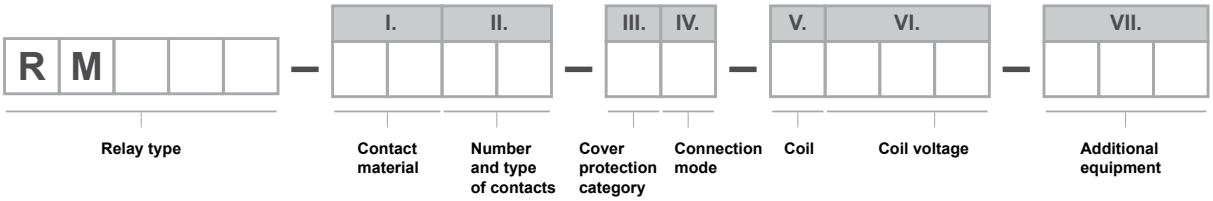
| Index | Code | Description |
|---|---|---|
| 2611708 | RSM850-6112-85-1012 | two changeover contacts 2 A (AgPd/Au), coil voltage 12 V DC |
| 2611709 | RSM850-6112-85-1024 | two changeover contacts 2 A (AgPd/Au), coil voltage 24 V DC |
| 2611711 | RSM850B-6112-85-1005 | two changeover contacts 2 A (AgPd/Au), coil voltage 5 V DC |
| 2611715 | RSM850B-6112-85-1024 | two changeover contacts 2 A (AgPd/Au), coil voltage 24 V DC |
| 2614638 | RSM822N-2112-85-S005 | two changeover contacts 3 A (AgNi/Au), coil voltage 5 V DC (sensitive) |
| 2614641 | RSM822N-2112-85-S012 | two changeover contacts 3 A (AgNi/Au), coil voltage 12 V DC (sensitive) |
| 2614627 | RSM954N-0111-85-1012 | one changeover contact 3 A (Ag/Au), coil voltage 12 V DC |
| 2614628 | RSM954N-0111-85-1024 | one changeover contact 3 A (Ag/Au), coil voltage 24 V DC |
| 2614631 | RSM957N-0111-85-S005 | one changeover contact 1 A (Ag/Au), coil voltage 5 V DC (sensitive) |
| 2614635 | RSM957N-0111-85-S024 | one changeover contact 1 A (Ag/Au), coil voltage 24 V DC (sensitive) |




| | 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 sensitive |
| **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 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **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



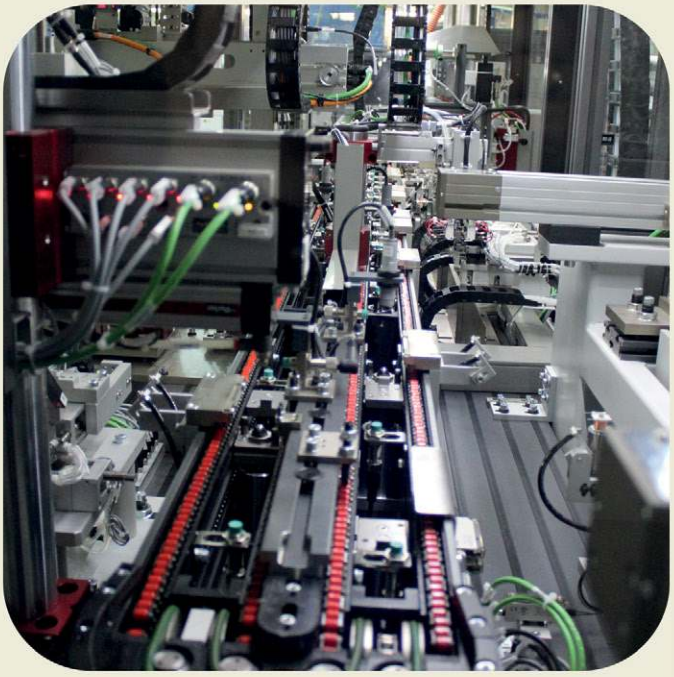

## Industrial relays of small dimensions

- $I_n$ 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
R2O ..... 67
RG25 ..... 67





## Interface relays (relay coupling modules)

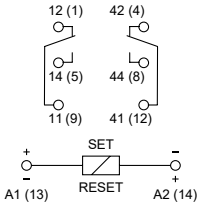
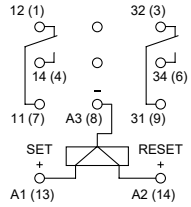
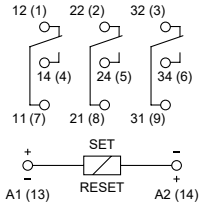
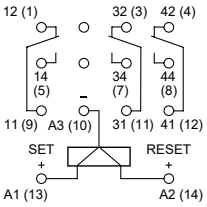
- $I_n$ currents of contacts: 1 ... 16 A.
- Connections of wiring: screw terminals, spring terminals - depending on the type of relay.
- Methods of mounting:
  - PI84, PI85, PI84P, PI85P, PI71, PI72, PIR2, PIR3, PIR4: on 35 mm rail mount or on panel mounting,
  - PI6, PIR6W, PIR6WB, SIR6W, SIR6WB: on 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-...-10 ..... 77
SIR6W-... ..... 77
SIR6WB-... ..... 78
SIR6W.-...-10 ..... 78

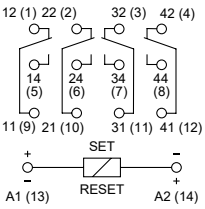
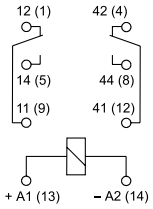
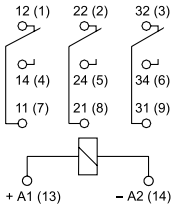
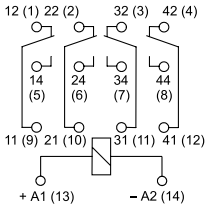
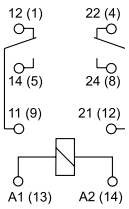
## miniature industrial relays

| Type | R2B-...-B | R2B-...-D | R3B-...-B | R3B-...-D |
|---|---|---|---|---|
| | latching, 1 coil | latching, 2 coils | latching, 1 coil | latching, 2 coils |
| |  Energy saving |  Energy saving |  Energy saving |  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. 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 | 12 A / 250 V AC | 8 A / 250 V AC | 6 A / 250 V AC |
| AC1 | 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) |
| AC15 | 12 A / 24 V DC ❽ | 12 A / 24 V DC ❽ | 8 A / 24 V DC ❽ | 6 A / 24 V DC ❽ |
| DC1 | 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 ❼ | 0,37 kW ❼ | 0,37 kW ❼ | 0,125 kW ❼ |
| **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<br>• coil - contacts<br>• contact clearance | 2 500 V AC ❸<br>1 000 V AC ❺ | 2 500 V AC ❸<br>1 000 V AC ❺ | 2 500 V AC ❸<br>1 000 V AC ❺ | 2 500 V AC ❸<br>1 000 V AC ❺ |
| **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)<br><br>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 UKCA RoHS | CE UKCA RoHS | CE UKCA RoHS | CE UKCA RoHS |
| Download data sheet | R2B-...-B | R2B-...-D | R3B-...-B | R3B-...-D |

❶ Flash gold plating
❷ Hard gold plating
❼ AC3 according to IEC 60947-4-1, 1-phase motor
❸ Type of insulation: basic
❺ Type of clearance: micro-disconnection
❽ Diagram: www.relpol.com.pl

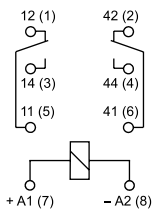
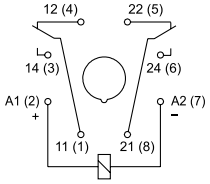
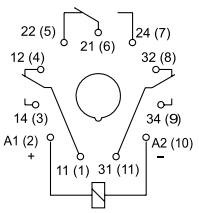
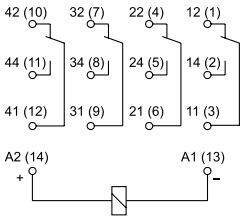

**Export Sales Department**: phone +48 68 47 90 832, 951, export@relpol.com.pl

## 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 ❶, AgNi/Au ❷ | AgNi, AgNi/Au ❶ | AgNi, AgNi/Au ❶ | AgNi, AgNi/Au ❶, AgNi/Au ❷ | AgNi, AgNi/Au ❶, $AgSnO_2$ |
| 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<br>1,5 A / 120 V (C300)<br>0,75 A / 240 V (C300)<br>6 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,15 A / 250 V (R300) | 12 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>12 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 10 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>10 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 7 A / 230 V AC (VDE)<br>6 A / 250 V AC<br>1,5 A / 120 V (C300)<br>0,75 A / 240 V (C300)<br>6 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 5 A / 250 V AC<br>5 A / 24 V DC |
| 0,125 kW ❼ | 0,37 kW ❼ | 0,37 kW ❼ | 0,125 kW ❼ | |
| | | | | |
| | 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 ❸<br>1 000 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 000 V AC ❸<br>1 000 V AC ❺ |
| | | | | |
| 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

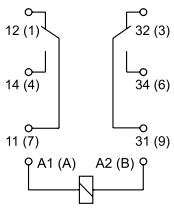
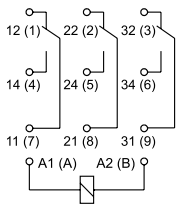
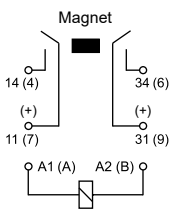
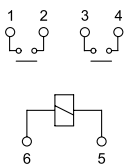
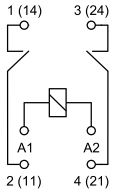
| Type | RY2 | R15 - 2 CO | R15 - 3 CO | R15 - 4 CO |
|---|---|---|---|---|
| |  |  |  |  |
| **Contact data** | | | | |
| Number and type of contacts | 2 CO | 2 CO | 3 CO | 4 CO |
| Contact material | AgNi | AgNi, AgNi/Au ❶, AgNi/Au ❷ | AgNi, AgNi/Au ❶, AgNi/Au ❷ | $AgSnO_2$, AgNi, AgNi/Au ❶, AgNi/Au ❷ |
| Rated / max. 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 ❽ | 10 A / 24 V DC ❽ | 10 A / 24 V DC ❽ |
| DC1 | 12 A / 30 V DC ❽ | | | |
| DC1 | | | | |
| DC13 | | 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) |
| Motor load | | 0,37 kW ❼ | 0,37 kW ❼ | 0,37 kW ❼ |
| **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<br>• coil - contacts<br>• contact clearance | 2 500 V AC ❸<br>1 000 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ |
| **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)<br><br>Note: polarity of the supply of the relays with DC coils - see www.relpol.com.pl | <br>version 2 CO, DC | <br>version 2 CO, DC | <br>version 3 CO, DC | <br>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 | RoHS | RoHS | RoHS | RoHS |
| Download data sheet | RY2 | R15 - 2 CO | R15 - 3 CO | R15 - 4 CO |

❸ Type of insulation: basic
❹ Type of insulation: reinforced
❺ Type of clearance: micro-disconnection
❻ Type of clearance: full-disconnection
❽ Diagram: www.relpol.com.pl



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

## 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 | | |
|  ❶ |  ❶ |  ❶ ❷ |  |  |
| 2 CO, 3 CO,<br>2 NO, 3 NO | 2 CO, 3 CO,<br>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<br><br>16 A / 24 V DC ❽ | 16 A / 250 V AC<br><br>16 A / 24 V DC ❽ | 16 A / 250 V AC<br><br>1 NO: 12 A / 220 V DC ❸<br>2 NO: 4,5 A / 220 V DC ❹ | 1 NO: 30 A / 250 V AC<br>2 NO: 25 A / 250 V AC | 25 A / 400 V AC<br><br>25 A / 24 V DC ❽<br><br>0,3 A / 120 V (R300)<br>0,15 A / 250 V (R300) |
| | | | | 0,989 kW ❼ |
| | | | | |
| 6, 12, 24, 115, 120,<br>220, 230, 240, 400 V | 6, 12, 24, 115, 120,<br>220, 230, 240, 400 V | 12, 24, 48, 115, 120,<br>230, 240 V | 24, 48, 115, 230 V | 12, **24**, 110, **230**, 400 V |
| 6, **12**, 24, 42, 48, 60,<br>110, 120, 220 V | 6, **12**, 24, 42, 48, 60,<br>110, 120, 220 V | 12, 24, 48,<br>110, 220 V | 12, 24, 110 V | 12, **24**, 48, 110, 220 V |
| 12, 24, 48, 110, 220 V<br>(reinforced) | 12, 24, 48, 110, 220 V<br>(reinforced) | 12, 24, 48, 110, 220 V<br>(reinforced) | | |
| | | | | |
| 400 V AC | 400 V AC | 400 V AC | 250 V AC | 400 V AC |
| 2 500 V AC ❸<br>1 500 ❺, 2 500 ❻ V AC | 2 500 V AC ❸<br>1 500 ❺, 2 500 ❻ V AC | 2 500 V AC ❸<br>1 NO: 4 000 V AC ❻ | 4 000 V AC ❹<br>2 000 V AC ❻ | 5 000 V AC ❹<br>1 500 V AC ❺ |
| | | | | |
| 36,1 x 38,6 x 52,65 ❺ | 46,8 x 38,6 x 66,1 ❻ | 36,1 x 38,6 x 52,65 ❺ | 67 x 33 x 35 | 26 x 53,7 x 75,5 |
|  |  |  |  |  |
| version 2 CO | version 3 CO | version 2 NO ❷ | version 2 NO | version 2 NO |
| GUC11S-V0 ❼ | | GUC11S-V0 ❼ | | |
| RoHS | RoHS | RoHS | RoHS | RoHS |
| RUC | RUC | RUC-M | R20 | RG25 |

❶ 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 ❷ RUC-M: relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC loads ❸ RUC-M contact 1 NO: DC1 - 16 A / 24 V DC, 14 A / 110 V DC ❹ RUC-M contacts 2 NO: DC1 - 16 A / 24 V DC, 10,5 A / 110 V DC ❺ RUC, RUC-M: for plug-in sockets ❻ RUC: with horizontal adaptor (H) ❼ 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) ❶
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





GZP4-0400 GZT4-0040 G4 1052 GZT4-0035 M... ZGGZ4



GZP4-0400 GZT4-0040 G4 1052



MP15 M... ZGZP4-2 ZGZP-2



ZGZP4-8

**GZ4** (2000538)
For R4N





G4 1052

**GS4** (2613504)
For R4N





GS4-0036 GS4-0035

**GZ2** (2000553)
For R2M





GZ2 1060

**GZY2G** (2613972)
For RY2





GZY2G-0041

**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





G4 1053



G4 1050

**SU4/2L** (592050)
For R2N, R2B-...-B



**SU4L** (592048)
For R3B-...-D, R4N, R4B-...-B



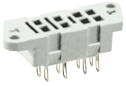
**G4/2** (592057)
For R2N, R2B-...-B



**G4** (592056)
For R3B-...-D, R4N, R4B-...-B



**G2M** (592064)
For R2M





G4 1053



G4 1040



G4 1053



G4 1050



G2M 1020

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

❶ 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** (592001)
For R15 - 3 CO





PZ11 0031

**GZU8** (592031)
For R15 - 2 CO



**GZU11** (592035)
For R15 - 3 CO





GZU 1052

**GZ8** (592012)
For R15 - 2 CO



**GZ11** (592017)
For R15 - 3 CO





GZ 1050

**GZP8** (2613505)
For R15 - 2 CO



**GZP11** (2613506)
For R15 - 3 CO





GZP-0054



GZP-0035



21, 41



COM3

**GZ14U** (592027)
For R15 - 4 CO



**GZ14** (592022)
For R15 - 4 CO



**GZ14Z** (858866)
For R15 - 4 CO



**GZ14P** (864515)
For R15 - 4 CO





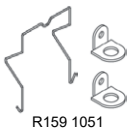
GZ14 0737

**GOP8** (592067)
For R15 - 2 CO



**GOP11** (592069)
For R15 - 3 CO

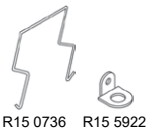




R159 1051

**GOP14** (592071)
For R15 - 4 CO





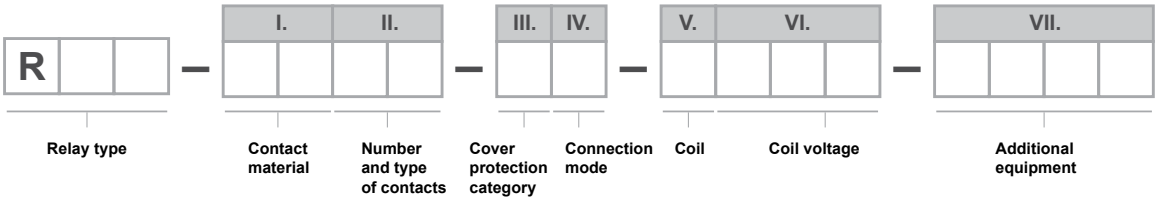
R15 0736 R15 5922

**GUC11S-VO** (862593)
For RUC, RUC-M





MBA

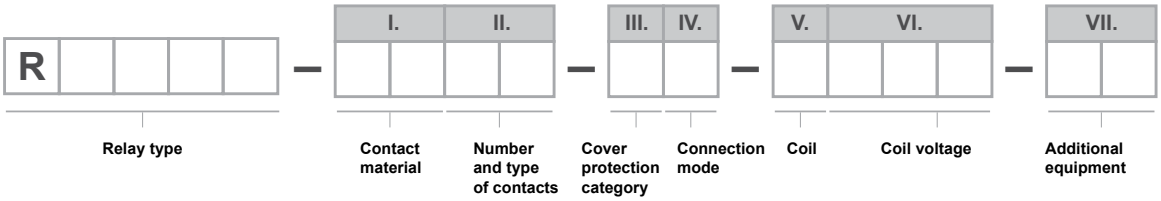



| | Relay type | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | R2B | R3B | R4B | R2N | R3N | R4N | R2M | RY2 |
| | latching | latching | latching | | | | | |
| **I. Contact material** | | | | | | | | |
| **20** - AgNi | ● | ● | ● | ● | ● | ● | ● | ● |
| **21** - AgNi/Au flash gold plating | | | ● | ● | ● | ● | ● | |
| **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 |


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




| | 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 | ● | | ● | | ● | | ● | | ● | | ● | | ● | |

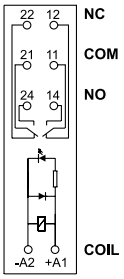
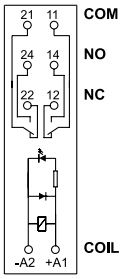
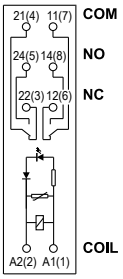
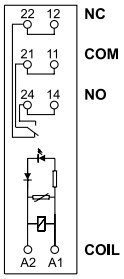
**...** - other voltages: see data tables (pages 66, 67) or product catalog (full edition) **www.relpol.pl/en/Download/Product-Catalogs**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII. Additional equipment** | | | | | | | | | | | | | | |
| **W** - mechanical indicator | | ● | | ● | | | | | | | | | | |
| **T** - test button | | ● | | ● | | | | | | | | | | |
| **K** - test button | | | | | | ● | | ● | | | | | | |
| **L** - LED indicator | | ● | | ● | | ● | | ● | | ● | | | | |
| **D** - diode | | | ● | | ● | | ● | | | | | | | |
| **V** - varistor | ● | | | ● | | | | | | | | | | |

## EXAMPLE ORDERING CODES

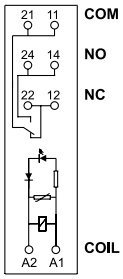
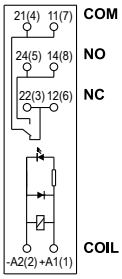
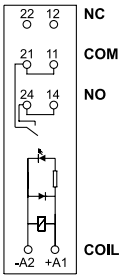
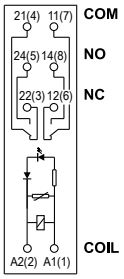
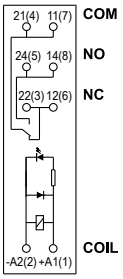
| Index | Code | Description |
|---|---|---|
| 802882 | R15-2012-23-1024-WT | two changeover contacts 10 A (AgNi), coil voltage 24 V DC |
| 802874 | R15-2013-23-5230-WT | three changeover contacts 10 A (AgNi), coil voltage 230 V AC |
| 863820 | R15-2014-23-3230-K | four changeover contacts 10 A (AgNi), 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 ❷, $AgSnO_2$ | AgNi, AgNi/Au ❷, $AgSnO_2$ | AgNi, AgNi/Au ❷, $AgSnO_2$ | AgNi, AgNi/Au ❷, $AgSnO_2$ |
| Rated / max. switching voltage AC | 250 V / 300 V | 250 V / 300 V | 250 V / 300 V | 250 V / 300 V |
| Rated load (capacity) AC1<br>AC15<br>AC15<br>DC1<br>DC13<br>DC13 | 8 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>8 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 8 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>8 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 8 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>8 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 16 A / 250 V AC ❶<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>16 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) |
| Motor load | 0,37 kW ❼ | 0,37 kW ❼ | 0,37 kW ❼ | 0,5 kW ❼ |
| **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 |
| 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<br>• coil - contacts<br>• contact clearance | <br>5 000 V AC ❹<br>1 000 V AC ❺ | <br>5 000 V AC ❹<br>1 000 V AC ❺ | <br>5 000 V AC ❹<br>1 000 V AC ❺ | <br>5 000 V AC ❹<br>1 000 V AC ❺ |
| **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) | <br>version 2 CO, DC | <br>version 2 CO, DC | <br>version 2 CO, AC | <br>version 1 CO, AC |
| Operational relays<br>Plug-in sockets<br>Indicator | RM84<br>GZT80<br>module type M... | RM84<br>GZM80<br>module type M... | RM84<br>GZP80<br>module type M... | RM85<br>GZT80 ❶<br>module type M... |
| Recognitions, certifications, directives | CE cULus<br>RoHS | CE cULus<br>RoHS | CE cULus<br>RoHS | CE cULus<br>RoHS |
| Download data sheet | PI84 - GZT80 | PI84 - GZM80 | PI84 - GZP80 | PI85 - GZT80 |

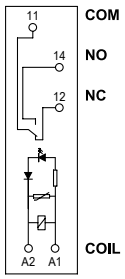
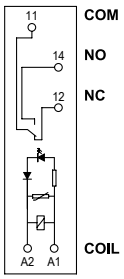
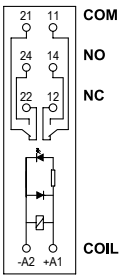
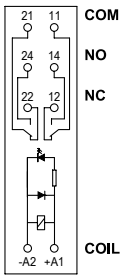
❷ Hard gold plating ❹ Type of insulation: reinforced ❺ Type of clearance: micro-disconnection
❼ AC3 according to IEC 60947-4-1, 1-phase motor ❽ Diagram: www.relpol.com.pl

## 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 ❷, $AgSnO_2$ | AgNi, AgNi/Au ❷, $AgSnO_2$ | $AgSnO_2$ | 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 ❶<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>16 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 16 A / 250 V AC ❶<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>16 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 16 A / 250 V AC ❶<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>16 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 8 A / 250 V AC | 16 A / 250 V AC ❶ |
| 0,5 kW ❼ | 0,5 kW ❼ | 0,75 kW ❼ | | |
| | | | | |
| 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 ❹<br>1 000 V AC ❺ | 5 000 V AC ❹<br>1 000 V AC ❺ | 5 000 V AC ❹<br>1 000 V AC ❺ | 5 000 V AC ❹<br>1 000 V AC ❺ | 5 000 V AC ❹<br>1 000 V AC ❺ |
| | | | | |
| 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<br>GZM80 ❶<br>module type M... | RM85<br>GZP80 ❶<br>module type M... | RM85 inrush<br>GZT80 ❶<br>module type M... | RMP84<br>GZP80<br>module type M... | RMP85<br>GZP80 ❶<br>module type M... |
| CE cULus<br>RoHS | CE cULus<br>RoHS | CE cULus<br>RoHS | CE<br>RoHS | CE<br>RoHS |
| PI85 - GZM80 | PI85 - GZP80 | PI85 inrush - GZT80 | PI84P - GZP80 | PI85P - GZP80 |

❶ 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

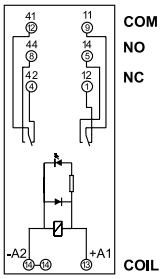
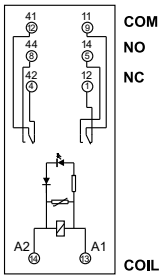
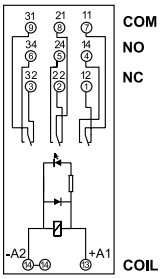
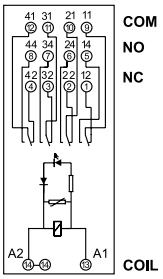
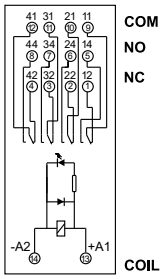
| Type | PI71P - GZ71 | PI71P - GZP71 | PI72P - GZ72 | PI72P - GZP72 |
|---|---|---|---|---|
| |  |  |  |  |
| **Contact data** | | | | |
| Number and type of contacts | 1 CO | 1 CO | 2 CO | 2 CO |
| Contact material | AgNi | AgNi | AgNi | AgNi |
| Rated / max. switching voltage AC | 250 V / 300 V | 250 V / 300 V | 250 V / 300 V | 250 V / 300 V |
| Rated load (capacity) AC1<br>AC1<br>AC15<br>AC15<br>DC1<br>DC13<br>DC13 | 12 A / 250 V AC<br><br><br><br>12 A / 30 V DC | 12 A / 250 V AC<br><br><br><br>12 A / 30 V DC | 8 A / 250 V AC<br><br><br><br>8 A / 30 V DC | 8 A / 250 V AC<br><br><br><br>8 A / 24 V DC |
| 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<br>• coil - contacts<br>• contact clearance | <br>2 000 V AC ❸<br>1 000 V AC ❺ | <br>2 000 V AC ❸<br>1 000 V AC ❺ | <br>2 000 V AC ❸<br>1 000 V AC ❺ | <br>2 000 V AC ❸<br>1 000 V AC ❺ |
| **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) | <br>version 1 CO, AC | <br>version 1 CO, AC | <br>version 2 CO, DC | <br>version 2 CO, DC |
| Operational relays<br>Plug-in sockets<br>Indicator | RMP7<br>GZ71<br>module type Y... | RMP7<br>GZP71<br>module type Y... | RMP7<br>GZ72<br>module type Y... | RMP7<br>GZP72<br>module type Y... |
| Recognitions, certifications, directives | CE cULus<br>RoHS | CE cULus<br>RoHS | CE cULus<br>RoHS | CE cULus<br>RoHS |
| Download data sheet | PI71P - GZ71 | PI71P - GZP71 | PI72P - GZ72 | PI72P - GZP72 |

❷ Hard gold plating
❸ Type of insulation: basic
❺ Type of clearance: micro-disconnection
❹ Type of insulation: reinforced
❼ AC3 according to IEC 60947-4-1, 1-phase motor
❽ Diagram: www.relpol.com.pl

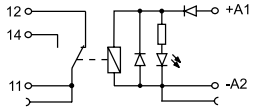
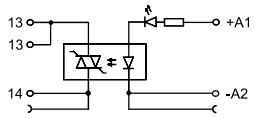
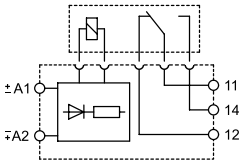
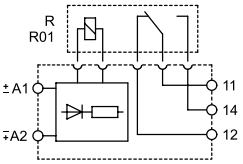


**Export Sales Department**: phone +48 68 47 90 832, 951, export@relpol.com.pl

## 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 ❷ |
| 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<br><br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>12 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 12 A / 250 V AC<br><br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>12 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 10 A / 250 V AC<br><br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>10 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 7 A / 230 V AC (VDE)<br>6 A / 250 V AC<br>1,5 A / 120 V (B300)<br>0,75 A / 240 V (B300)<br>6 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 7 A / 230 V AC (VDE)<br>6 A / 250 V AC<br>1,5 A / 120 V (B300)<br>0,75 A / 240 V (B300)<br>6 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) |
| 0,37 kW ❼ | 0,37 kW ❼ | 0,37 kW ❼ | 0,125 kW ❼ | 0,125 kW ❼ |
| | | | | |
| 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 ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ |
| | | | | |
| 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<br>GZM2<br>module type M... | R2N<br>GZP4<br>module type M... | R3N<br>GZM3<br>module type M... | R4N<br>GZM4<br>module type M... | R4N<br>GZP4<br>module type M... |
| RoHS | RoHS | RoHS | RoHS | RoHS |
| PIR2 - GZM2 | PIR2 - GZP4 | PIR3 - GZM3 | PIR4 - GZM4 | PIR4 - GZP4 |

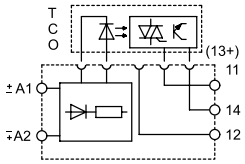
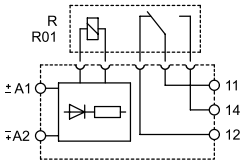
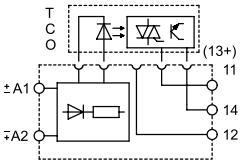
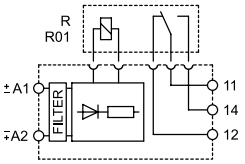
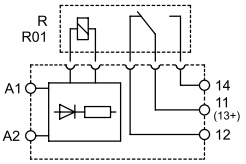
## interface relays - narrow profile

| Type | PI6-1P | PI6-1T | PIR6W-1P-... | PIR6W-1PS-... |
|---|---|---|---|---|
| |  |  |  | contacts  |
| **Output circuit** | | | | |
| Number and type of outputs | 1 CO | 1 NO (triac) | 1 CO | 1 CO (R/R01) ❷ |
| Contact material | $AgSnO_2$, $AgSnO_2$/Au ❷ | | $AgSnO_2$, $AgSnO_2$/Au ❷ | $AgSnO_2$ (R) ❷, $AgSnO_2$/Au (R01) ❷ ❷ |
| 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) ❷<br>30 V / 30 V (R01) ❷ ❷ |
| Rated load (capacity) AC1 | $AgSnO_2$: 6 A / 250 V AC | 1,2 A / 400 V AC | $AgSnO_2$: 6 A / 250 V AC | 6 A / 250 V AC (R) ❷ |
| AC15 | | | | |
| AC15 | | | | |
| DC1 | $AgSnO_2$: 6 A / 24 V DC | | $AgSnO_2$: 6 A / 24 V DC | 6 A / 24 V DC (R) |
| DC1 | $AgSnO_2$: 0,15 A / 250 V DC | | $AgSnO_2$: 0,15 A / 250 V DC | 0,15 A / 250 V DC (R) |
| DC13 | | | | |
| DC13 | | | | |
| 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<br>• input - output<br>• contact clearance | 4 000 V AC ❹<br>1 000 V AC ❺ | 4 000 V AC ❹ | 4 000 V AC ❹<br>1 000 V AC ❺ | 4 000 V AC ❹<br>1 000 V AC ❺ |
| **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) ❷ |
| Operational relays<br>Plug-in sockets<br>Indicator | LED green | LED green | RM699BV<br>PI6W-1P-...<br>LED green | RM699BV ❷<br>PI6W-1PS-...<br>LED green |
| Recognitions, certifications, directives | RoHS | RoHS | RoHS | RoHS |
| Download data sheet | PI6-1P | PI6-1T | PIR6W-1P-... | PIR6W-1PS-... |

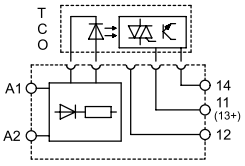
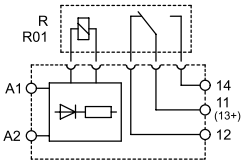
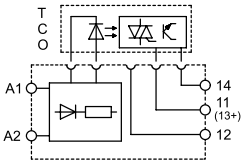
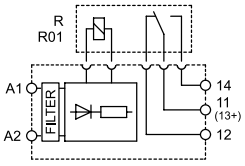
❷ Hard gold plating ❹ Type of insulation: reinforced ❺ Type of clearance: micro-disconnection
❼ AC3 according to IEC 60947-4-1, 1-phase motor

❷ Versions (R/R01) - operational electromagnetic relays ❸ Versions (T/C/O) - operational solid state relays
❹ Fixed polarization of input voltage (+A1, -A2) ❺ Version for long control lines - with integrated anti-interference filter

## interface relays - narrow profile

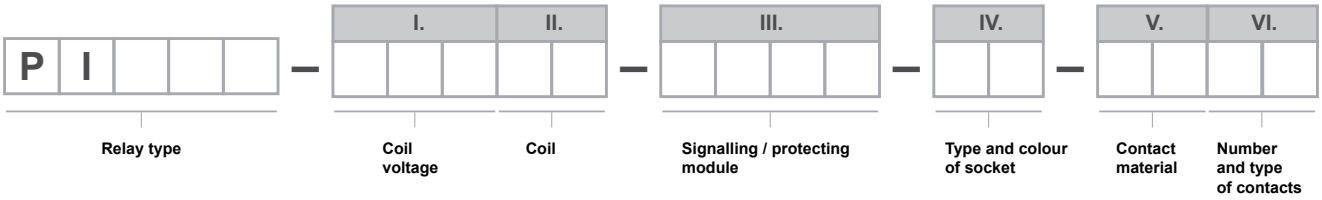
| PIR6W-1PS-... | PIR6WB-1PS-... | PIR6WB-1PS-... | PIR6W.-1P-...-10 | SIR6W-... |
|---|---|---|---|---|
| triac, transistor | contacts | triac, transistor | contacts | contacts |
|  |  |  |  |  |
| 1 NO (T/C/O) ❸ | 1 CO (R/R01) ❷ | 1 NO (T/C/O) ❸ | 1 CO (R/R01) ❷ | 1 CO (R/R01) ❷ |
| | $AgSnO_2$ (R) ❷, $AgSnO_2$/Au (R01) ❷ ❷ | | $AgSnO_2$ (R) ❷, $AgSnO_2$/Au (R01) ❷ ❷ | $AgSnO_2$ (R) ❷, $AgSnO_2$/Au (R01) ❷ ❷ |
| 240 V (T) / 48 V (C), 24 V (O) ❸ | 400 V / 250 V (R) ❷ 30 V / 30 V (R01) ❷ ❷ | 240 V (T) / 48 V (C), 24 V (O) ❸ | 400 V / 250 V (R) ❷ 30 V / 30 V (R01) ❷ ❷ | 400 V / 250 V (R) ❷ 30 V / 30 V (R01) ❷ ❷ |
| 1 A / 240 V AC (T)<br>1 A / 48 V DC (C)<br>2 A / 24 V DC (O) ❸ | 6 A / 250 V AC (R) ❷<br>6 A / 24 V DC (R)<br>0,15 A / 250 V DC (R) | 1 A / 240 V AC (T)<br>1 A / 48 V DC (C)<br>2 A / 24 V DC (O) ❸ | 6 A / 250 V AC (R) ❷<br>6 A / 24 V DC (R)<br>0,15 A / 250 V DC (R) | 6 A / 250 V AC (R) ❷<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>6 A / 30 V DC (R)<br>0,15 A / 250 V DC (R)<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) |
| | | | | 0,186 kW ❼ |
| | | | | |
| 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 ❹ |
| **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 ❹<br>1 000 V AC ❺ | 4 000 V AC | 4 000 V AC | 4 000 V AC ❹<br>1 000 V AC ❺ |
| | | | | |
| 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<br>PIR6WB: 98,3 x 6,2 x 84,6 | 88,6 x 6,2 x 76 |
|  |  |  |  |  |
| version 1 NO (T/C/O) ❸ | version 1 CO (R/R01) ❷ | version 1 NO (T/C/O) ❸ | version 1 NO (T/C/O) ❸ | version 1 CO (R/R01) ❷ |
| RSR30 ❸<br>PI6W-1PS-...<br>LED green | RM699BV ❷<br>PI6WB-1PS-...<br>LED green | RSR30 ❸<br>PI6WB-1PS-...<br>LED green | RM699BV ❷<br>PI6W-1P-...-10,<br>PI6WB-1P-...-10<br>LED green | RM699BV ❷<br>6W-...<br>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) ❸ | 1 CO (R/R01) ❷ | 1 NO (T/C/O) ❸ | 1 CO (R/R01) ❷ |
| Contact material | | $AgSnO_2$ (R) ❷, $AgSnO_2$/Au (R01) ❷ ❷ | | $AgSnO_2$ (R) ❷, $AgSnO_2$/Au (R01) ❷ ❷ |
| Max. voltage AC / DC | 240 V (T) / 48 V (C), 24 V (O) ❸ | 400 V / 250 V (R) ❷ 30 V / 30 V (R01) ❷ ❷ | 240 V (T) / 48 V (C), 24 V (O) ❸ | 400 V / 250 V (R) ❷ 30 V / 30 V (R01) ❷ ❷ |
| Rated load (capacity) AC1 | 1 A / 240 V AC (T) | 6 A / 250 V AC (R) ❷ | 1 A / 240 V AC (T) | 6 A / 250 V AC (R) ❷ |
| AC15 | | 3 A / 120 V (B300) | | 3 A / 120 V (B300) |
| AC15 | | 1,5 A / 240 V (B300) | | 1,5 A / 240 V (B300) |
| DC1 | 1 A / 48 V DC (C) | 6 A / 30 V DC (R) | 1 A / 48 V DC (C) | 6 A / 30 V DC (R) |
| DC1 | 2 A / 24 V DC (O) ❸ | 0,15 A / 250 V DC (R) | 2 A / 24 V DC (O) ❸ | 0,15 A / 250 V DC (R) |
| DC13 | | 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) |
| Motor load | | 0,186 kW ❼ | | 0,186 kW ❼ |
| Input circuit | | | | |
| Rated voltage AC | | | | **220...240** V ❺ |
| DC | 6, 12, **24** V ❹ | 6, 12, **24** V ❹ | 6, 12, **24** V ❹ | |
| 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 ❹ 1 000 V AC ❺ | 4 000 V AC | 4 000 V AC ❹ 1 000 V AC ❺ |
| 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) ❸ |  version 1 CO (R/R01) ❷ |  version 1 NO (T/C/O) ❸ |  version 1 CO (R/R01) ❷ ❺ |
| Operational relays Plug-in sockets Indicator | RSR30 ❸ 6W-... LED green | RM699BV ❷ 6WB-... LED green | RSR30 ❸ 6WB-... LED green | RM699BV ❷ 6W-...-10, 6WB-...-10 LED green |
| Recognitions, certifications, directives | CE cULus UKCA RoHS | CE cULus UKCA RoHS | CE cULus UKCA RoHS | CE UKCA RoHS |
| Download data sheet | SIR6W-... | SIR6WB-... | SIR6WB-... | SIR6W.-...-10 |

❷ Hard gold plating ❹ Type of insulation: reinforced ❺ Type of clearance: micro-disconnection
❼ AC3 according to IEC 60947-4-1, 1-phase motor

❷ Versions (R/R01) - operational electromagnetic relays ❸ Versions (T/C/O) - operational solid state relays
❹ Fixed polarization of input voltage (+A1, -A2) ❺ Version for long control lines - with integrated anti-interference filter




| | Relay type | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PI84 | | PI85 | | PI85 inrush | PI84P | | PI85P | | PI71P | | PI72P | | PIR2 | | PIR4 | |
| **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 |

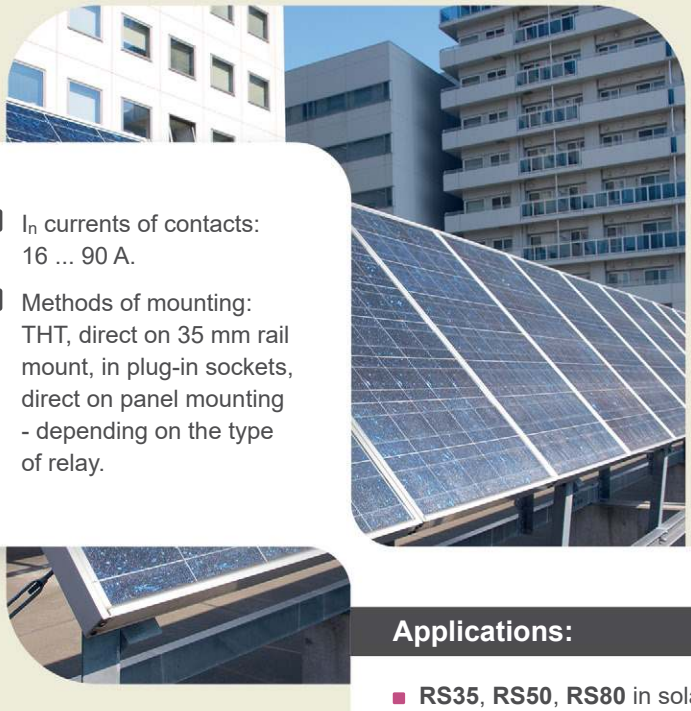
| | Relay type | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PI6-1P | | PI6-1T | | PIR6W-1P | | | PIR6W-1PS, PIR6WB-1PS | | | SIR6W, SIR6WB | | |
| **Input voltage** | DC | AC/DC | DC | AC/DC | AC | DC | AC/DC | AC | DC | AC/DC | AC | DC | AC/DC |
| **24 V** - 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) |


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

# 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.

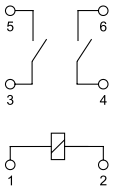
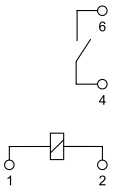
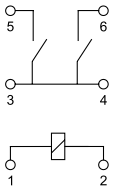
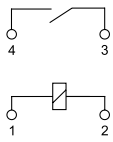

RS35 ..... 82
RS50 ..... 82
RS80 ..... 82
R50A ..... 82
R90A ..... 83
R30N ..... 83
R40N ..... 83
R20 ..... 83
RG25 ..... 83
RUC ..... 84
RUC-M ..... 84


## 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 of high-power DC coils in power executive equipment; are ideal for the control of actuators and DC valves.

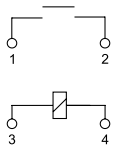
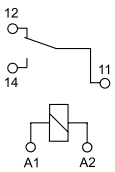
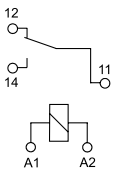
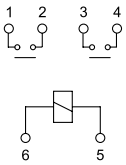
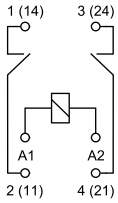
relpol® S.A.

## industrial relays of small dimensions

| Type | RS35 | RS50 | RS80 | R50A |
|---|---|---|---|---|
| | 35 A | 50 A | 80 A, gap ≥ 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. switching voltage AC | 250 V / 440 V | 250 V / 440 V | 250 V / 440 V | 250 V / 277 V |
| Rated load (capacity) AC1<br>AC1<br>DC1<br>DC13<br>DC13 | 35 A / 250 V AC<br><br>35 A / 24 V DC | 50 A / 250 V AC<br><br>50 A / 24 V DC | 80 A / 250 V AC<br>90 A / 230 V AC<br>80 A / 24 V DC | 50 A / 250 V AC |
| Motor load | | | | |
| **Coil data** | | | | |
| Rated voltage 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 | |
| Dielectric strength<br>• coil - contacts<br>• contact clearance | <br>5 000 V AC ❹<br>2 500 V AC ❻ | <br>5 000 V AC ❹<br>2 500 V AC ❻ | <br>5 000 V AC ❹<br>2 500 V AC ❻ | <br>4 500 V AC<br>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) | <br>version 2 NO | <br>version 1 NO | <br>version 1 NO | <br>version 1 NO |
| Recognitions, certifications, directives | RoHS | RoHS | RoHS | RoHS |
| Download data sheet | RS35 | RS50 | RS80 | R50A |

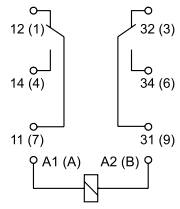
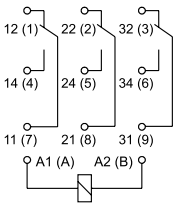
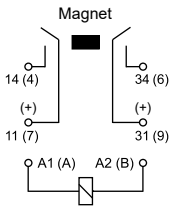
❸ Type of insulation: basic
❹ Type of insulation: reinforced
❺ Type of clearance: micro-disconnection
❻ Type of clearance: full-disconnection
❼ AC3 according to IEC 60947-4-1, 1-phase motor
❽ Diagram: www.relpol.com.pl


**Export Sales Department**: phone +48 68 47 90 832, 951, export@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<br>1 NO: 30 A / 14 V DC ❶ | 1 NO: 40 A / 240 V AC ❾<br>1 NO: 40 A / 30 V DC ❾ | 1 NO: 30 A / 250 V AC<br>2 NO: 25 A / 250 V AC | 25 A / 400 V AC<br>25 A / 24 V DC ❽<br>0,3 A / 120 V (R300)<br>0,15 A / 250 V (R300) |
| | | | | 0,989 kW ❼ |
| | | | | |
| | 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<br>2 500 V AC | 2 500 V AC ❸<br>1 500 V AC ❺ | 4 000 V AC ❹<br>1 500 V AC ❺ | 4 000 V AC ❹<br>2 000 V AC ❻ | 5 000 V AC ❹<br>1 500 V AC ❺ |
| | | | | |
| 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 |
| <br>version 1 NO | <br>version 1 CO | <br>version 1 CO | <br>version 2 NO | <br>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 |
| |  ❸ |  ❸ |  ❸ ❹ |
| **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<br>DC1<br>DC1 | 16 A / 250 V AC<br>16 A / 24 V DC ❽ | 16 A / 250 V AC<br>16 A / 24 V DC ❽ | 16 A / 250 V AC<br>1 NO: 12 A / 220 V DC ❺<br>2 NO: 4,5 A / 220 V DC ❻ |
| **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<br>• coil - contacts<br>• contact clearance | 2 500 V AC ❸<br>1 500 ❺, 2 500 ❻ V AC | 2 500 V AC ❸<br>1 500 ❺, 2 500 ❻ V AC | 2 500 V AC ❸<br>1 NO: 4 000 V AC ❻ |
| **General data** | | | |
| Dimensions mm | 36,1 x 38,6 x 52,65 ❼ | 46,8 x 38,6 x 66,1 ❽ | 36,1 x 38,6 x 52,65 ❼ |
| Connection diagrams (pin side view) |  version 2 CO |  version 3 CO |  version 2 NO ❷ |
| Plug-in sockets for relays | GUC11S-V0 ❾ | | GUC11S-V0 ❾ |
| Recognitions, certifications, directives | CE cULus SP RoHS | CE cULus SP RoHS | CE cULus SP RoHS |
| Download data sheet | RUC | RUC | RUC-M |

❸ Type of insulation: basic
❽ Diagram: www.relpol.com.pl
❺ Type of clearance: micro-disconnection
❻ Type of clearance: full-disconnection

❸ 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
❹ RUC-M: relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC loads
❺ RUC-M contact 1 NO: DC1 - 16 A / 24 V DC, 14 A / 110 V DC
❻ RUC-M contacts 2 NO: DC1 - 16 A / 24 V DC, 10,5 A / 110 V DC
❼ RUC, RUC-M: for plug-in sockets ❽ RUC: with horizontal adaptor (H) ❾ GUC11S-V0: insulation rated voltage 250 V AC

### Plug-in sockets for relays

**GUC11S-V0** (862593)

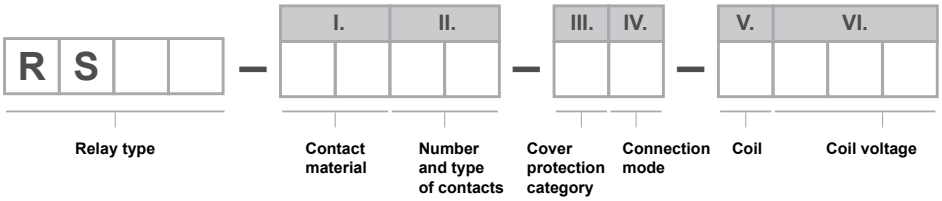
For RUC, RUC-M



MBA



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




| | 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 | DC |
| **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 ❶, requirement R26 ❶ - 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.

❶ 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 - GZT8O-VO ..... 89
PI85T - GZT8O-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:

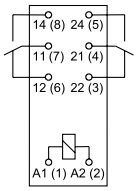
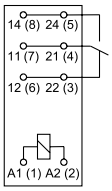
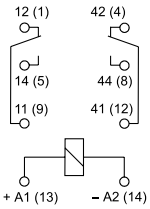
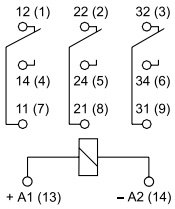
- control switchboard,
- operator's panel and cabin systems,
- supply, monitoring, wagon lighting circuits,
- air conditioning, ventilation, heating,
- doors control,
- passenger information devices,
- mobile device chargers.

relpol® S.A.



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

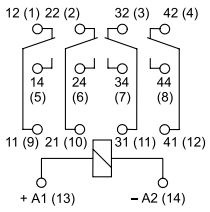
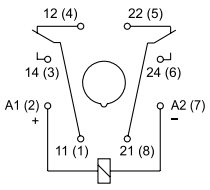
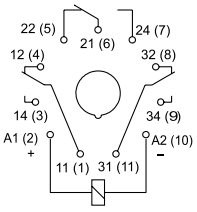
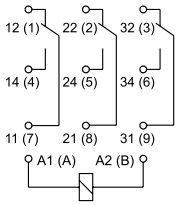
**miniature relays** | **industrial relays**

| 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<br>AC15<br>AC15<br>DC1<br>DC13<br>DC13 | 8 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>8 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 16 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>16 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 12 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>12 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 10 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>10 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) |
| Motor load | 0,37 kW ❼ | 0,5 kW ❼ | 0,37 kW ❼ | 0,37 kW ❼ |
| **Coil data** | | | | |
| Rated voltage DC | **24**, 110 V ❶ | **24**, 110 V ❶ | **24**, 110 V ❶ | **24**, 110 V ❶ |
| **Insulation** | | | | |
| Insulation rated voltage | 400 V AC | 400 V AC | 250 V AC | 250 V AC |
| Dielectric strength<br>• coil - contacts<br>• contact clearance | <br>5 000 V AC ❹<br>1 000 V AC ❺ | <br>5 000 V AC ❹<br>1 000 V AC ❺ | <br>2 500 V AC ❸<br>1 500 V AC ❺ | <br>2 500 V AC ❸<br>1 500 V AC ❺ |
| **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) | <br>version 2 CO | <br>version 1 CO | <br>version 2 CO | <br>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 |

❸ Type of insulation: basic ❹ Type of insulation: reinforced ❺ Type of clearance: micro-disconnection
❼ AC3 according to IEC 60947-4-1, 1-phase motor ❽ Diagram: www.relpol.com.pl

❶ For other voltages, please contact Relpol S.A.
❷ Certification IK for interface set (industrial relay with socket)

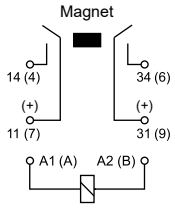
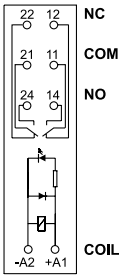
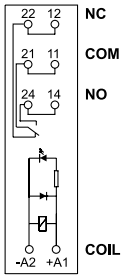
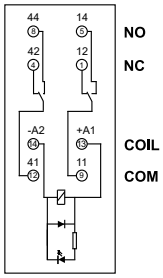
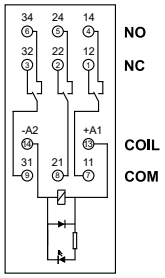
## industrial relays

| 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) | 10 A / 250 V AC | 10 A / 250 V AC | 16 A / 250 V AC |
| AC1 | 6 A / 250 V AC | | | |
| AC15 | 1,5 A / 120 V (B300) | 3 A / 120 V (B300) | 3 A / 120 V (B300) | |
| AC15 | 0,75 A / 240 V (B300) | 1,5 A / 240 V (B300) | 1,5 A / 240 V (B300) | |
| DC1 | 6 A / 24 V DC ❽ | 10 A / 24 V DC ❽ | 10 A / 24 V DC ❽ | 16 A / 24 V DC ❽ |
| DC1 | | | | |
| DC13 | 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) | |
| Motor load | 0,125 kW ❼ | 0,37 kW ❼ | 0,37 kW ❼ | |
| **Coil data** | | | | |
| Rated voltage DC | **24**, 110 V ❶ | **24**, 110 V ❶ | **24**, 110 V ❶ | **24**, 110 V ❶ |
| **Insulation** | | | | |
| Insulation rated voltage | 250 V AC | 250 V AC | 250 V AC | 250 V AC |
| Dielectric strength<br>• coil - contacts<br>• contact clearance | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ |
| **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) |  version 4 CO |  version 2 CO |  version 3 CO |  version 3 CO |
| Operational relays<br>Plug-in sockets<br>Indicator | GZT4-V0 | PZ8-V0 | PZ11-V0 | GUC11S-V0 |
| Recognitions, certifications, directives | CE CIK ❷ RoHS | CE CIK ❷ RoHS | CE CIK ❷ RoHS | CE CIK ❷ RoHS |
| Download data sheet | R4T | R15T - 2 CO | R15T - 3 CO | RUCT |

❸ Type of insulation: basic
❹ Type of insulation: reinforced
❼ AC3 according to IEC 60947-4-1, 1-phase motor
❺ Type of clearance: micro-disconnection
❻ Type of clearance: full-disconnection
❽ Diagram: www.relpol.com.pl

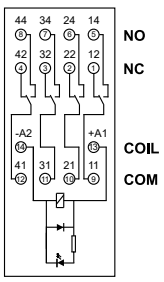
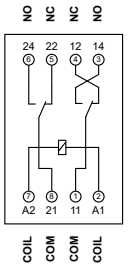
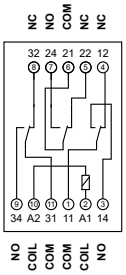
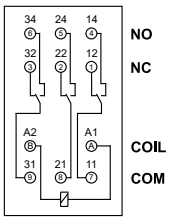

**Export Sales Department**: phone +48 68 47 90 832, 951, export@relpol.com.pl

## interface relays - sets

| RUCT-M | PI84T - GZT80-VO | PI85T - GZT80-VO | PIR2T - GZT2-VO | PIR3T - GZT3-VO |
|---|---|---|---|---|
| for DC loads  ❸ |  |  |  |  |
| 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<br>1 NO: 10 A / 220 V DC ❹<br>2 NO: 3,8 A / 220 V DC ❺ | 8 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>8 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 16 A ❻ / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>16 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 12 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>12 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) | 10 A / 250 V AC<br>3 A / 120 V (B300)<br>1,5 A / 240 V (B300)<br>10 A / 24 V DC ❽<br>0,22 A / 120 V (R300)<br>0,1 A / 250 V (R300) |
| | 0,37 kW ❼ | 0,5 kW ❼ | 0,37 kW ❼ | 0,37 kW ❼ |
| **24**, 110 V ❶ | **24**, 110 V ❶ | **24**, 110 V ❶ | **24**, 110 V ❶ | **24**, 110 V ❶ |
| 250 V AC | 250 V AC | 250 V AC | 300 V AC | 300 V AC |
| 2 500 V AC ❸<br>1 NO: 4 000 V AC ❻<br>2 NO: 2 000 V AC ❻ | 5 000 V AC ❹<br>1 000 V AC ❺ | 5 000 V AC ❹<br>1 000 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ |
| 36,1 x 38,6 x 52,65 ❺ | 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 ❸ |  version 2 CO |  version 1 CO |  version 2 CO |  version 3 CO |
| RUCT-M<br>GUC11S-V0 | RM84<br>GZT80-V0<br>module type M...-V0 | RM85<br>GZT80-V0 ❻<br>module type M...-V0 | R2T<br>GZT2-V0<br>module type M...-V0 | R3T<br>GZT3-V0<br>module type M...-V0 |
| CE CIK ❷<br>RoHS | CE CIK<br>RoHS | CE CIK<br>RoHS | CE CIK<br>RoHS | CE CIK<br>RoHS |
| RUCT-M | PI84T - GZT80-VO | PI85T - GZT80-VO | PIR2T - GZT2-VO | PIR3T - GZT3-VO |

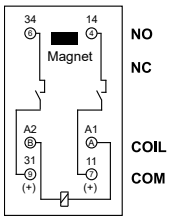
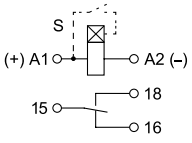
❶ For other voltages, please contact Relpol S.A. ❷ Certification IK for interface set (industrial relay with socket) ❸ RUCT-M, PRUCT-M: relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC load ❹ RUCT-M, PRUCT-M contact 1 NO: DC1 - 16 A / 24 V DC, 13 A / 110 V DC ❺ RUCT-M, PRUCT-M contacts 2 NO: DC1 - 16 A / 24 V DC, 9 A / 110 V DC ❻ 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 | 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. switching voltage AC | 250 V / 300 V | 250 V / – | 250 V / – | 230 V / 250 V |
| Rated load (capacity) AC1 | 7 A / 230 V AC (VDE) | 10 A / 250 V AC | 10 A / 250 V AC | 16 A / 250 V AC |
| AC1 | 6 A / 250 V AC | | | |
| AC15 | 1,5 A / 120 V (B300) | 3 A / 120 V (B300) | 3 A / 120 V (B300) | |
| AC15 | 0,75 A / 240 V (B300) | 1,5 A / 240 V (B300) | 1,5 A / 240 V (B300) | |
| DC1 | 6 A / 24 V DC ❽ | 10 A / 24 V DC ❽ | 10 A / 24 V DC ❽ | 16 A / 24 V DC ❽ |
| DC1 | | | | |
| DC13 | 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) | |
| Motor load | 0,125 kW ❼ | 0,37 kW ❼ | 0,37 kW ❼ | |
| **Coil data** | | | | |
| Rated voltage DC | **24**, 110 V ❶ | **24**, 110 V ❶ | **24**, 110 V ❶ | **24**, 110 V ❶ |
| AC/DC | | | | |
| **Insulation** | | | | |
| Insulation rated voltage | 300 V AC | 250 V AC | 250 V AC | 250 V AC |
| Dielectric strength<br>• coil - contacts<br>• contact clearance | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ |
| **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<br>Plug-in sockets<br>Indicator | R4T<br>GZT4-V0<br>module type M...-V0 | R15T - 2 CO<br>PZ8-V0 | R15T - 3 CO<br>PZ11-V0 | RUCT<br>GUC11S-V0 |
| Recognitions, certifications, directives | CE CIK<br>RoHS | CE CIK<br>RoHS | CE CIK<br>RoHS | CE CIK<br>RoHS |
| Download data sheet | PIR4T - GZT4-V0 | PIR152T - PZ8-V0 | PIR153T - PZ11-V0 | PRUCT - GUC11S-V0 |

❸ Type of insulation: basic ❺ Type of clearance: micro-disconnection ❻ Type of clearance: full-disconnection
❼ AC3 according to IEC 60947-4-1, 1-phase motor ❽ Diagram: www.relpol.com.pl

time

| PRUCT-M - GUC11S-VO | MT-W...M |
|---|---|
|  ❸ | adjustment T1, T2, T3 ❼  |
| 1 NO, 2 NO | 1 CO |
| AgNi | $AgSnO_2$ |
| 250 V / 250 V | 300 V |
| 16 A / 250 V AC<br>1 NO: 10 A / 220 V DC ❹<br>2 NO: 3,8 A / 220 V DC ❺ | 10 A / 250 V AC<br>10 A / 24 V DC |
| | |
| **24**, 110 V ❶ | |
| | 12...240 V AC: 50/60 Hz |
| 250 V AC | 250 V AC |
| 2 500 V AC ❸<br>1 NO: 4 000 V AC ❻<br>2 NO: 2 000 V AC ❻ | 2 500 V AC ❸<br>1 000 V AC ❺ |
| | |
| 84,5 x 41,5 x 77,3 | 90(98,8) x 17,5 x 65,5 |
|  |  |
| version 2 NO ❸ | version 1 CO ❸ |
| RUCT-M<br>GUC11S-V0 | |
| CE CIK<br>RoHS | CE CIK<br>RoHS |
| PRUCT-M - GUC11S-VO | MT-W...M |

## Plug-in sockets for relays

**GZT80-VO** (862573)

For RM84, RM85





GZM80-0041



GZT80-0035



M...-V0

| **GZT2-VO** (862557) | **GZT3-VO** (862551) | **GZT4-VO** (862554) |
|---|---|---|
| For R2T | For R3T | For R4T |
|  |  |  |



G4 1052



GZT4-0035



M...-V0

| **PZ8-VO** (862540) | **PZ11-VO** (862535) | **GUC11S-VO** (862593) |
|---|---|---|
| For R15T - 2 CO | For R15T - 3 CO | For RUCT, RUCT-M |
|  |  |  |



PZ11 0031



MBA

❶ For other voltages, please contact Relpol S.A. ❸ RUCT-M, PRUCT-M: relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC load ❹ RUCT-M, PRUCT-M contact 1 NO: DC1 - 16 A / 24 V DC, 13 A / 110 V DC ❺ RUCT-M, PRUCT-M contacts 2 NO: DC1 - 16 A / 24 V DC, 9 A / 110 V DC ❼ MT-W...M: time module, descriptions and diagrams of time functions - see pages 107, 113-114. ❽ 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.

relpol® S.A.

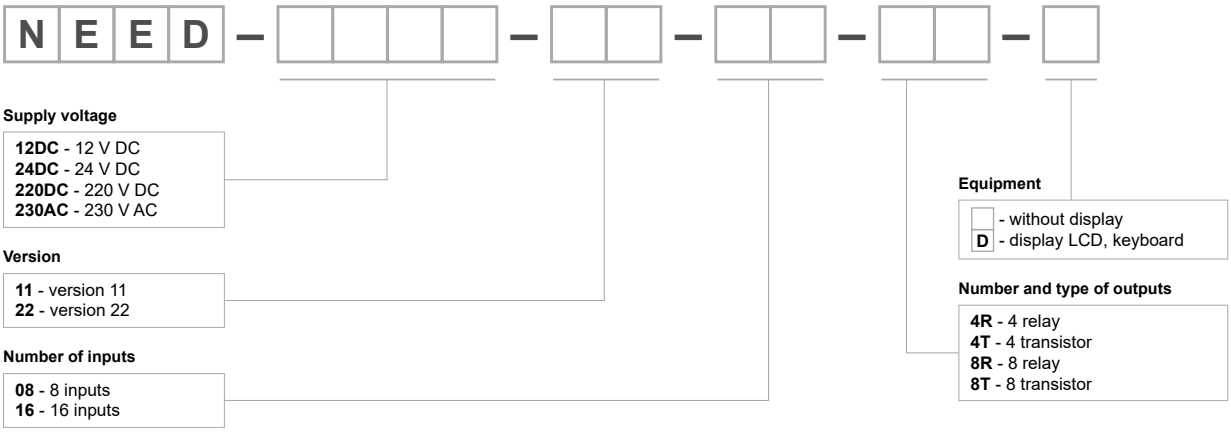


| Type | | NEED-...-08-4... | NEED-...-16-8... |
|---|---|---|---|
| | | 8 inputs / 4 outputs | 16 inputs / 8 outputs |
| | |  ❶ |  ❶ |
| **Outputs** | | | |
| Number and type of outputs | | 4 NO ❷ ❸ | 8 NO ❷ ❸ |
| Rated load | AC1<br>DC1 | 10 A / 250 V AC ❷<br>0,5 A / 24 V DC ❸ | 10 A / 250 V AC ❷<br>0,5 A / 24 V DC ❸ |
| **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 ❶ | | 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 ❹) | |
| Program resources ❶ | | 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 ❹) | |
| System structure | | programmable relay NEED-..., cable NEED-PC-15B or -15C (RS-232 or USB), (external memory card NEED-M-4KB ❶), software PC NEED, module NEED-MODBUS | |
| **Insulation** | | | |
| Insulation rated voltage | | 300 V AC | 300 V AC |
| Dielectric strength<br>• inputs - outputs<br>• contact clearance | | 2 000 V AC ❹<br>1 000 V AC ❺ ❷ | 2 000 V AC ❹<br>1 000 V AC ❺ ❷ |
| **General data** | | | |
| Dimensions | mm | 90 x 72 x 55 | 90 x 132 x 55 |
| Recognitions, certifications, directives | | CE UKCA<br>RoHS | CE UKCA<br>RoHS |
| Download data sheet | | NEED-...-08-4... | NEED-...-16-4... |

❹ Type of insulation: reinforced ❺ Type of clearance: micro-disconnection

❶ Only for version with LCD display (NEED-...-22-...-D). For version without display (NEED-...-11-...) - see www.relpol.com.pl ❷ Versions with unprotected relay outputs ❸ Version 24 V DC with protected transistor outputs ❹ 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

relpol® S.A.

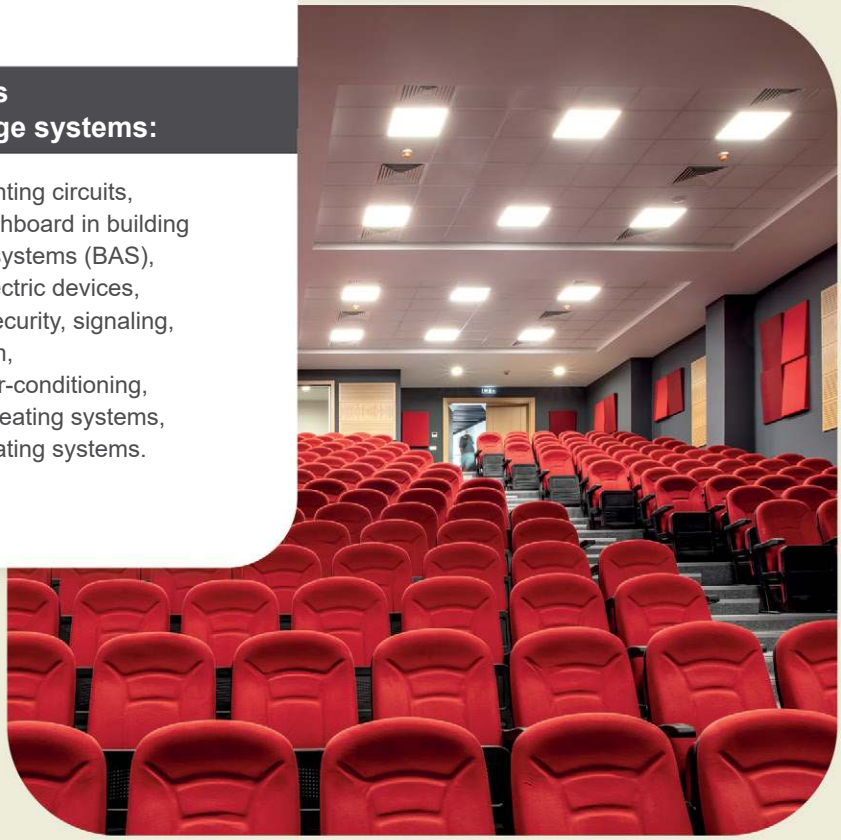

RPI-.P-... ..... 97
RPI-.Z-... ..... 97
RPI-1ZI-D12 ..... 97
RPI-1ZI-U24A ..... 97
RPI-.P-UNI ..... 98
RPI-.Z-UNI ..... 98




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

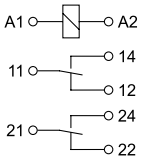
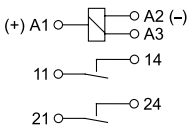
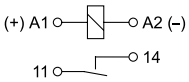
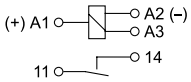
## Applications in low voltage systems:

- 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.



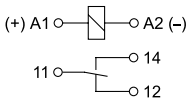
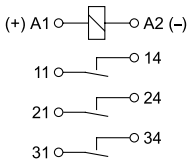


**Export Sales Department**: phone +48 68 47 90 832, 951, export@relpol.com.pl

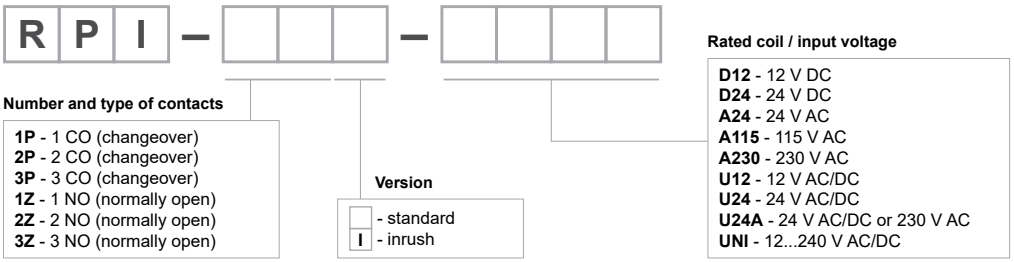
| Type | | RPI-.P-... | RPI-.Z-... | RPI-1ZI-D12 | RPI-1ZI-U24A |
|---|---|---|---|---|---|
| | | | | 120 A / 20 ms | 120 A / 20 ms |
| Output circuit | |  |  |  |  |
| Number and type of contacts | | 1 CO, 2 CO | 1 NO, 2 NO | 1 NO | 1 NO |
| Contact material | | $AgSnO_2$ | $AgSnO_2$ | $AgSnO_2$ | $AgSnO_2$ |
| Max. voltage | AC | 300 V | 300 V | 300 V | 300 V |
| Rated load | AC1<br>AC1<br>DC1<br>DC1 | 1 CO: 16 A / 250 V AC<br>2 CO: 8 A / 250 V AC<br>1 CO: 16 A / 24 V DC<br>2 CO: 8 A / 24 V DC | 1 NO: 16 A / 250 V AC<br>2 NO: 8 A / 250 V AC<br>1 NO: 16 A / 24 V DC<br>2 NO: 8 A / 24 V DC | 16 A / 250 V AC<br><br>16 A / 24 V DC | 16 A / 250 V AC<br><br>16 A / 24 V DC |
| Input circuit | | | | | |
| Rated voltage | AC | 24, 115, 230 V 50/60 Hz | 230 V ❶ 50 Hz | | 230 V ❶ 50 Hz |
| | DC | 12, 24, 48 V | | 12 V | |
| | AC/DC | | 12, 24 ❶, 48, 115 V<br>AC: 50 Hz | | 24 V ❶ AC: 50 Hz |
| Insulation | | | | | |
| Insulation rated voltage | | 250 V AC | 250 V AC | 250 V AC | 250 V AC |
| Dielectric strength<br>• input - output<br>• contact clearance | | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ |
| 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 ❶ |  version 1 NO, DC |  version 1 NO, AC/DC ❶ |
| Indicator | | LED green | LED green | LED green | LED green |
| Recognitions, certifications, directives | | CE UK CA<br>RoHS | CE UK CA<br>RoHS | CE UK CA<br>RoHS | CE UK CA<br>RoHS |
| Download data sheet | | RPI-.P-... | RPI-.Z-... | RPI-1ZI-D12 | RPI-1ZI-U24A |

❸ Type of insulation: basic ❺ Type of clearance: micro-disconnection

❶ 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<br>AC1<br>DC1<br>DC1 | 1 CO: 16 A / 250 V AC<br>2 CO: 8 A / 250 V AC<br>1 CO: 16 A / 24 V DC<br>2 CO, 3 CO: 8 A / 24 V DC | 1 NO: 16 A / 250 V AC<br>2 NO: 8 A / 250 V AC<br>1 NO: 16 A / 24 V DC<br>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<br>• input - output<br>• contact clearance | <br>4 000 V AC ❸<br>1 000 V AC ❺ | <br>4 000 V AC ❸<br>1 000 V AC ❺ |
| 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 | CE UKCA<br>RoHS | CE UKCA<br>RoHS |
| Download data sheet | RPI-.P-UNI | RPI-.Z-UNI |

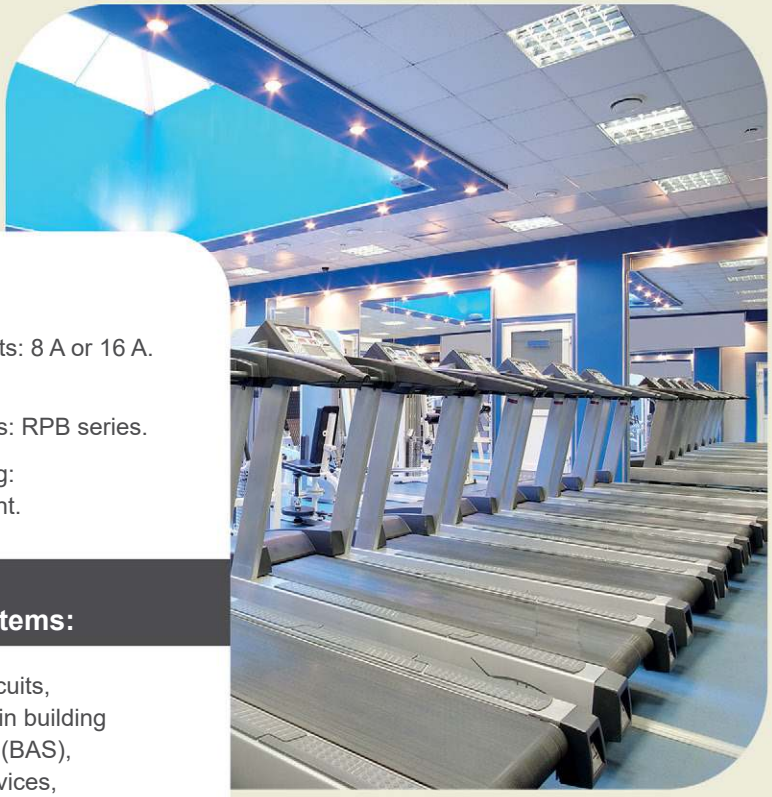
❸ Type of insulation: basic
❺ Type of clearance: micro-disconnection




## 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.

relpol® S.A.


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






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

| Type | RPB-1P-... | RPB-1PM-... | RPB-2Z-... | RPB-1ZI-... |
|---|---|---|---|---|
| | | | | 120 A / 20 ms |
| Output circuit |  |  |  |  |
| 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<br>DC1 | 16 A / 250 V AC<br>16 A / 24 V DC | 16 A / 250 V AC<br>16 A / 24 V DC | 8 A / 250 V AC<br>8 A / 24 V DC | 16 A / 250 V AC<br>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 ❷ | yes ❷ | yes ❷ | yes ❷ |
| **Function data** | | | | |
| Functions number | single-functions | single-functions with memory | single-functions | single-functions |
| Functions ❶ | 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<br>• input - output<br>• contact clearance | <br>4 000 V AC ❸<br>1 000 V AC ❺ | <br>4 000 V AC ❸<br>1 000 V AC ❺ | <br>4 000 V AC ❸<br>1 000 V AC ❺ | <br>4 000 V AC ❸<br>1 000 V AC ❺ |
| 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 UKCA<br>RoHS | CE UKCA<br>RoHS | CE UKCA<br>RoHS | CE UKCA<br>RoHS |
| Download data sheet | RPB-1P-... | RPB-1PM-... | RPB-2Z-... | RPB-1ZI-... |

❸ Type of insulation: basic ❺ Type of clearance: micro-disconnection

❶ Connection diagrams, descriptions and diagrams of functions - see www.relpol.com.pl ❷ 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.

| 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<br>DC1 | 16 A / 250 V AC<br>16 A / 24 V DC | 16 A / 250 V AC<br>16 A / 24 V DC | 16 A / 250 V AC<br>16 A / 24 V DC | 16 A / 250 V AC<br>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 ❸ | yes ❸ | yes ❸ | yes ❸ |
| **Function data** | | | | |
| Functions number | multifunctions with memory | multifunctions with memory | multifunctions sequential with memory | multifunctions sequential with memory |
| Functions ❶ | 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<br>• input - output<br>• contact clearance | <br>4 000 V AC ❸<br>1 000 V AC ❺ | <br>4 000 V AC ❸<br>1 000 V AC ❺ | <br>4 000 V AC ❸<br>1 000 V AC ❺ | <br>4 000 V AC ❸<br>1 000 V AC ❺ |
| 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 CA<br>RoHS | CE UK CA<br>RoHS | CE UK CA<br>RoHS | CE UK CA<br>RoHS |
| Download data sheet | RPB-1PM-UNI | RPB-1ZMI-UNI | RPB-2PSM-UNI | RPB-2ZSMI-UNI |

❸ Type of insulation: basic ❺ Type of clearance: micro-disconnection

❶ Connection diagrams, descriptions and diagrams of functions - see www.relpol.com.pl ❸ 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.




**Number and type of contacts**

**1P** - 1 CO (changeover)
**2P** - 2 CO (changeover)
**1Z** - 1 NO (normally open)
**2Z** - 2 NO (normally open)

**Version**

- standard
**M** - with memory
**S** - sequential
**I** - inrush

**Rated coil / input voltage**

**A230** - 230 V AC
**U24** - 24 V AC/DC
**UNI** - 12...240 V AC/DC

## ORDERING CODES

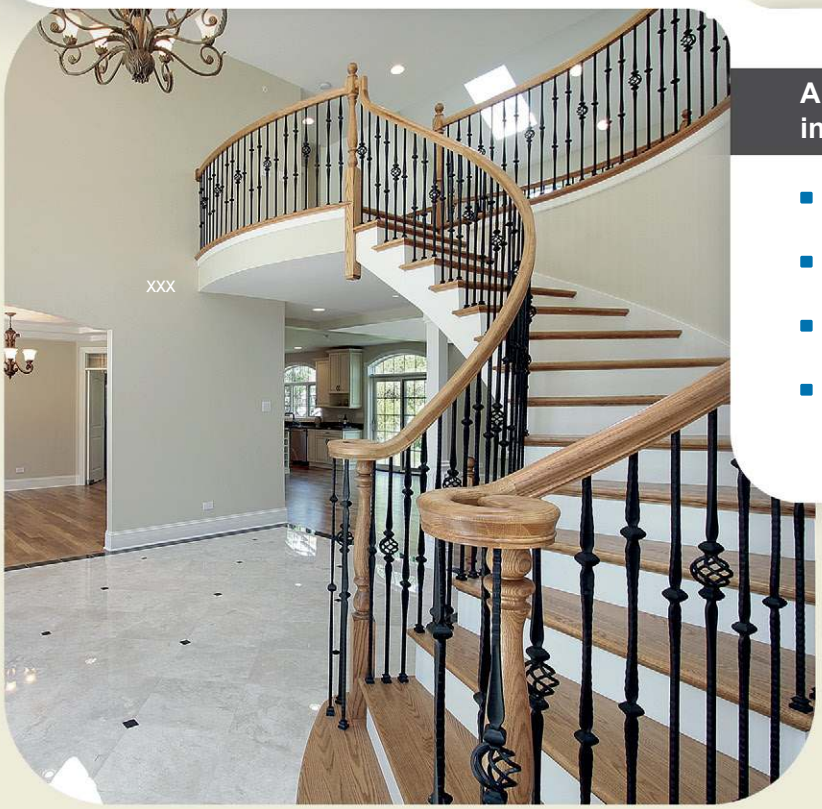
| Index | Code | Description |
|---|---|---|
| 864384 | RPB-1P-A230 | single-function, cooperating with illuminated momentary bell switches or control buttons, one changeover contact 16 A, input voltage 230 V AC |
| 864383 | RPB-1P-U24 | single-function, cooperating with illuminated momentary bell switches 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



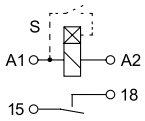

## Applications in low voltage systems:

- 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.



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

| 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 ❷ |
| **Time module** | |
| Functions number | multifunctions |
| Functions ❶ | 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<br>• input - output<br>• contact clearance | <br>4 000 V AC ❸<br>1 000 V AC ❺ |
| 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 | <br>version 1 NO ❸ |
| Recognitions, certifications, directives | CE UKCA<br>RoHS |
| Download data sheet | RPC-1AS-A230 |

❸ Type of insulation: basic
❺ Type of clearance: micro-disconnection

❶ Descriptions and diagrams of time functions - see pages 113-114.
❷ 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:

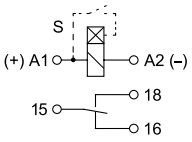
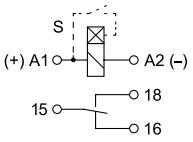
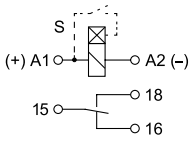
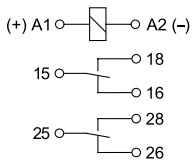
- in industrial automation,
- in BMS automation,
- in air-conditioning, ventilation, heating systems,
- in protection, signalling, alarm systems,
- in lighting systems,
- various other applications.



relpol® S.A.

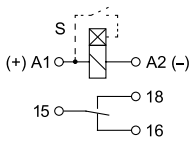
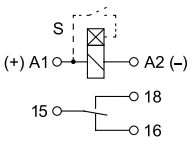
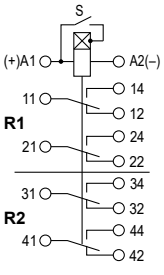
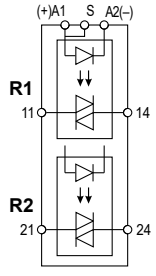


**Export Sales Department**: phone +48 68 47 90 832, 951, export@relpol.com.pl

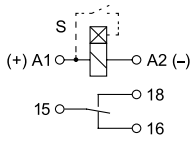
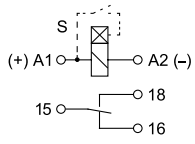
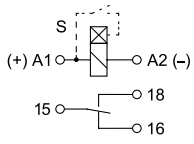
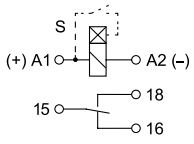
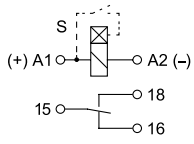
| Type | | MT-W…M | RPC-.MA-… | RPC-.MB-… | RPC-2A-UNI |
|---|---|---|---|---|---|
| | | adjustment T1, T2, T3 ❷ | | | |
| Output circuit | |  |  |  |  |
| Number and type of contacts | | 1 CO | 1 CO, 2 CO | 1 CO, 2 CO | 2 CO |
| Contact material | | $AgSnO_2$ | $AgSnO_2$, AgNi | $AgSnO_2$ | $AgSnO_2$ |
| Max. voltage | AC | 300 V | 300 V | 300 V | 300 V |
| Rated load | AC1<br>DC1 | 10 A / 250 V AC<br>10 A / 24 V DC | 1 CO: 16 A / 250 V AC, 2 CO: 8 A / 250 V AC<br>1 CO: 16 A / 24 V DC, 2 CO: 8 A / 24 V DC | | 8 A / 250 V AC<br>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 ❸ | yes ❸ | yes ❸ | no |
| **Time module** | | | | | |
| Functions | number | multifunctions ❷ | multifunctions | multifunctions | multifunctions |
| Functions ❶ | | 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.<br>59,9 s ❷ | 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<br>• input - output<br>• contact clearance | | 2 500 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ |
| 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 | | <br>version 1 CO ❸ | <br>version 1 CO, AC/DC ❸ | <br>version 1 CO, AC/DC ❸ | <br>version 2 CO |
| Recognitions, certifications, directives | | RoHS | RoHS | RoHS | RoHS |
| Download data sheet | | MT-W...M | RPC-.MA-... | RPC-.MB-... | RPC-2A-UNI |

❸ Type of insulation: basic ❺ Type of clearance: micro-disconnection

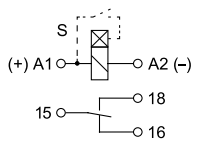
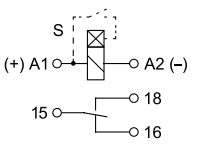
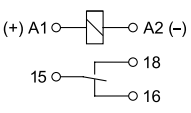
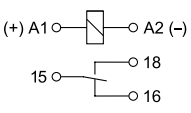
❶ Descriptions and diagrams of time functions - see pages 113-114. ❷ Two digit LED display, programming with two buttons only.
❸ The control terminal S (B1) is activated by connection to A1 terminal via the external control contact S.

| 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<br>AC1<br>DC1<br>DC1 | 16 A / 250 V AC<br><br>16 A / 24 V DC | 1 CO: 16 A / 250 V AC<br>3 CO: 8 A / 250 V AC<br>1 CO: 16 A / 24 V DC<br>3 CO: 8 A / 24 V DC | 6 A / 230 V AC | 2 A / 230 V AC |
| 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 ❸ | yes ❸ | yes ❸ | yes ❸ |
| Time module | | | | | |
| Functions | number | multifunctions | multifunctions | multifunctions | multifunctions |
| Functions ❶ | | 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<br>• input - output<br>• contact clearance | | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 2 500 V AC ❸<br>1 000 V AC ❺ | 2 500 V AC ❸ |
| 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 ❸ |  version 1 CO ❸ |  version 2 x 2 CO ❸ |  version 2 x 1 NO ❸ |
| Recognitions, certifications, directives | | CE cULus UKCA RoHS | CE cULus UKCA RoHS | CE cULus UKCA RoHS | CE cULus UKCA RoHS |
| Download data sheet | | RPC-1MC-UNI | RPC-.MD-UNI | RPC-4ME-UNI | RPC-2ME-UNI-SSR |

❸ Type of insulation: basic ❺ 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<br>16 A / 24 V DC | 16 A / 250 V AC<br>16 A / 24 V DC | 16 A / 250 V AC<br>16 A / 24 V DC | 16 A / 250 V AC<br>16 A / 24 V DC | 16 A / 250 V AC<br>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 ❸ | yes ❸ | yes ❸ | yes ❸ | yes ❸ |
| | | | | |
| single-functions | single-functions | single-functions | single-functions | single-functions |
| ER | EWa | EWs | EWu + NWu ❹ | Ii + Ip ❹ |
| OFF; ON; 1 s;<br>10 s; 1 min.; 10 min.;<br>1 h; 10 h; 1 d; 10 d | OFF; ON; 1 s;<br>10 s; 1 min.; 10 min.;<br>1 h; 10 h; 1 d; 10 d | OFF; ON; 1 s;<br>10 s; 1 min.; 10 min.;<br>1 h; 10 h; 1 d; 10 d | OFF; ON; 1 s;<br>10 s; 1 min.; 10 min.;<br>1 h; 10 h; 1 d; 10 d | OFF; ON; 1 s;<br>10 s; 1 min.; 10 min.;<br>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 ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ |
| 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) |
| <br>version 1 CO, AC/DC ❸ | <br>version 1 CO, AC/DC ❸ | <br>version 1 CO, AC/DC ❸ | <br>version 1 CO, AC/DC ❸ | <br>version 1 CO, AC/DC ❸ |
| RoHS | RoHS | RoHS | RoHS | RoHS |
| RPC-1ER-... | RPC-1EA-... | RPC-1ES-... | RPC-1EU-... | RPC-1IP-... |

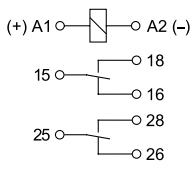
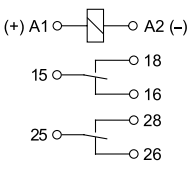
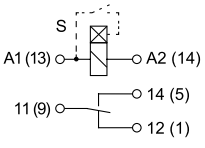
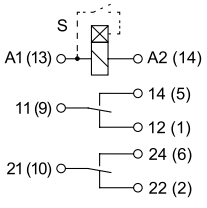
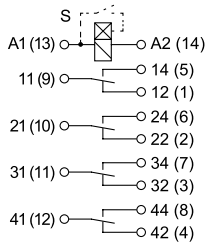
❶ Descriptions and diagrams of time functions - see pages 113-114. ❸ The control terminal S (B1) is activated by connection to A1 terminal via the external control contact S. ❹ Start by function: EWu, Ip - terminals A1-S are not connected / bridged; start by function: NWu, Ii - terminals A1-S are connected / 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<br>AC1<br>DC1<br>DC1 | 16 A / 250 V AC<br><br>16 A / 24 V DC | 16 A / 250 V AC<br><br>16 A / 24 V DC | 1 CO: 16 A / 250 V AC<br>2 CO: 8 A / 250 V AC<br>1 CO: 16 A / 24 V DC<br>2 CO: 8 A / 24 V DC | 1 CO: 16 A / 250 V AC<br>2 CO: 8 A / 250 V AC<br>1 CO: 16 A / 24 V DC<br>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 ❸ | yes ❸ | no | no |
| **Time module** | | | | | |
| Functions | number | single-functions | single-functions | single-functions | single-functions |
| Functions ❶ | | WsWa | Wt | E | Wu |
| Time ranges | | OFF; ON; 1 s;<br>10 s; 1 min.; 10 min.;<br>1 h; 10 h; 1 d; 10 d | OFF; ON; 1 s;<br>10 s; 1 min.; 10 min.;<br>1 h; 10 h; 1 d; 10 d | OFF; ON; 1 s;<br>10 s; 1 min.; 10 min.;<br>1 h; 10 h; 1 d; 10 d | OFF; ON; 1 s;<br>10 s; 1 min.; 10 min.;<br>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<br>• input - output<br>• contact clearance | | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ |
| 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 | | <br>version 1 CO, AC/DC ❸ | <br>version 1 CO, AC/DC ❸ | <br>version 1 CO, AC/DC | <br>version 1 CO, AC/DC |
| Recognitions, certifications, directives | | CE cULus UKCA<br>RoHS | CE cULus UKCA<br>RoHS | CE cULus UKCA<br>RoHS | CE cULus UKCA<br>RoHS |
| Download data sheet | | RPC-1SA-... | RPC-1WT-... | RPC-.E-... | RPC-.WU-... |

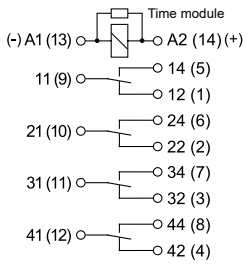
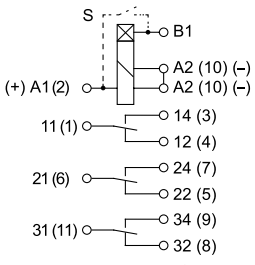
❸ Type of insulation: basic ❺ Type of clearance: micro-disconnection



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

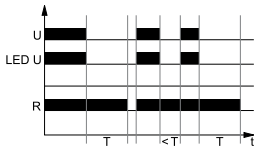
| RPC-.BP-... | RPC-2SD-UNI | TR4N 1 CO | TR4N 2 CO | TR4N 4 CO |
|---|---|---|---|---|
| | adjustment T1, T2 | | | |
|  |  |  |  |  |
| 1 CO, 2 CO | 2 x 1 CO | 1 CO | 2 CO | 4 CO |
| $AgSnO_2$ | $AgSnO_2$ | AgNi | AgNi | AgNi |
| 300 V | 300 V | 300 V | 300 V | 250 V |
| 1 CO: 16 A / 250 V AC<br>2 CO: 8 A / 250 V AC<br>1 CO: 16 A / 24 V DC<br>2 CO: 8 A / 24 V DC | 16 A / 250 V AC<br>16 A / 24 V DC | 16 A / 250 V AC<br>16 A / 24 V DC | 8 A / 250 V AC<br>8 A / 24 V DC | 6 A / 250 V AC<br>6 A / 24 V DC |
| | | | | |
| 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 | 24 V AC: 50/60 Hz | 24 V AC: 50/60 Hz | 24 V AC: 50/60 Hz |
| no | no | yes ❸ | yes ❸ | yes ❸ |
| | | | | |
| 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 ❺ | 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 ❸<br>1 000 V AC ❺ | 4 000 V AC ❸<br>1 000 V AC ❺ | 2 000 V AC ❸<br>1 000 V AC ❺ | 2 000 V AC ❸<br>1 000 V AC ❺ | 2 500 V AC ❸<br>1 500 V AC ❺ |
| 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) |
|  |  |  |  |  |
| version 2 CO, AC/DC | version 2 x 1 CO | version 1 CO, AC ❸ | version 2 CO, AC ❸ | version 4 CO, AC ❸ |
| CE cULus UK CA<br>RoHS | CE cULus UK CA<br>RoHS | CE cULus<br>RoHS | CE cULus<br>RoHS | CE cULus<br>RoHS |
| RPC-.BP-... | RPC-2SD-UNI | TR4N 1 CO, 2 CO | TR4N 1 CO, 2 CO | TI4N 4 CO |

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

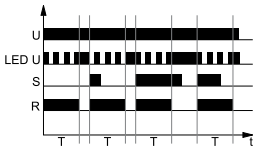
| Type | | T-R4 - GZM4 | PIR15...T | COM3 |
|---|---|---|---|---|
| | |  ❻ | with time module COM3 ❼  | universal time modules  |
| **Output circuit** | | | | |
| Number and type of contacts | | 4 CO | 2 CO, 3 CO ❼ | ❽ |
| Contact material | | AgNi | AgNi | |
| Max. voltage | AC | 250 V | 440 V | |
| Rated load | AC1<br>DC1 | 6 A / 230 V AC | 10 A / 250 V AC<br>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 ❸ | yes ❸ |
| **Time module** | | | | |
| Functions | number | single-functions | multifunctions | multifunctions |
| Functions ❶ | | 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;<br>1 min.; 10 min.;<br>1 h; 10 h; 100 h | 1 s; 10 s;<br>1 min.; 10 min.;<br>1 h; 10 h; 1 d; 10 d | 1 s; 10 s;<br>1 min.; 10 min.;<br>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<br>• input - output<br>• contact clearance | | <br>2 500 V AC ❸<br>1 500 V AC ❺ | <br>2 500 V AC ❸<br>1 500 V AC ❺ | |
| Overvoltage category | | III | III | |
| **General data** | | | | |
| Dimensions | mm | 75 x 27 x 91,5 ❻ | 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 | |  version 4 CO |  version 3 CO ❸ | |
| Recognitions, certifications, directives | | CE RoHS | CE RoHS | CE RoHS |
| Download data sheet | | T-R4 - GZM4 | PIR15...T | COM3 |

❸ Type of insulation: basic ❺ Type of clearance: micro-disconnection

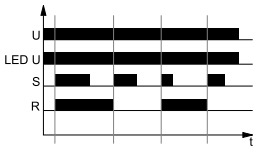
❶ Descriptions and diagrams of time functions - see pages 113-114. ❸ The control terminal S (B1) is activated by connection to A1 terminal via the external control contact S. ❻ T-R4: mounted in plug-in socket GZM4. ❼ PIR15 - 3 CO (standard) - set: R15 - 3 CO + GZP11; PIR15 - 2 CO - set: R15 - 2 CO +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



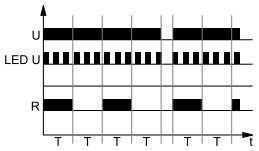

**A**
OFF delay
without supply voltage.



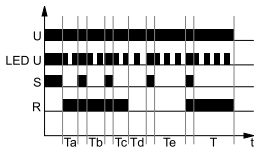

**AUTO**
ON for the set interval,
triggered by applying voltage
or contact S. ❶



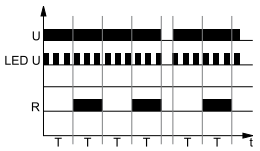

**B**
Cyclical operation,
with the control contact S.



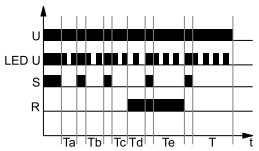

**Bi**
Symmetrical cyclical operation,
pulse first.



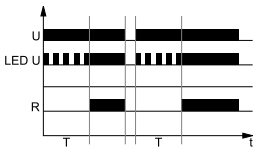

**Bi(S)**
Symmetrical cyclical operation,
pulse first. ❷



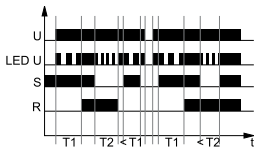

**Bp**
Symmetrical cyclical operation,
pause first.



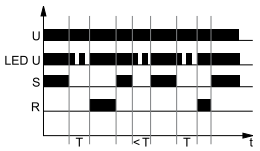

**Bp(S)**
Symmetrical cyclical operation,
pause first. ❷



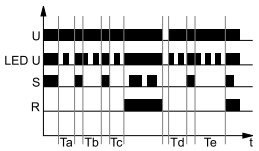

**E**
ON delay.



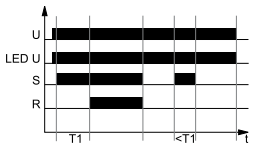

**ER**
ON and OFF delay,
with the control contact S. ❸



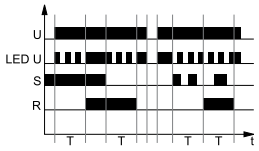

**E(R)**
ON delay,
with the Reset function.



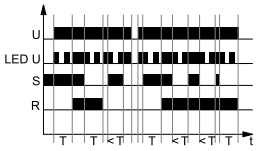

**E(S)**
ON delay. ❷



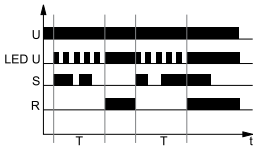

**Es**
ON delay,
with the control contact S.




**Esa**
ON and OFF delay,
with the control contact S.



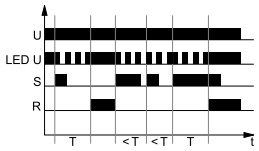

**Esa(R)**
ON and OFF delay,
with the control contact S,
with the Reset function.



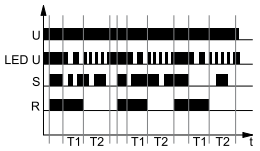

**Esf**
ON delay,
with the control contact S,
without the interval T extension.



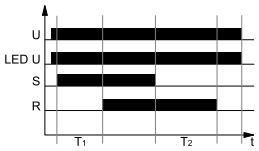

**Esp**
ON delay - one cycle,
with the control contact S.



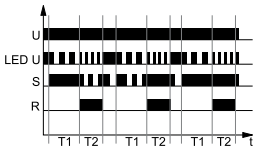

**Est**
ON delay,
with the control contact S,
with the interval T extension.



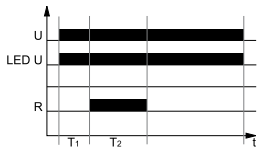

**EWa**
OFF delay
and breaking time delay,
with the control contact S. ❸



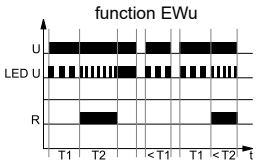

**EWf**
ON and OFF delay,
with the control contact S. ❸

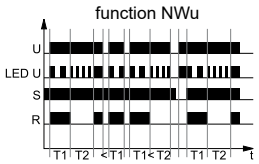



**EWs**
ON delay
and ON for the set interval,
with the control contact S. ❸




**EWu**
ON delay
for the set interval. ❸



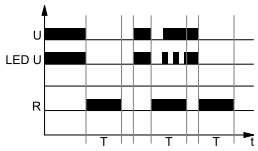




**EWu + NWu**
ON delay for the set interval (EWu) or switching ON for the set
interval-switching OFF for the set interval-continuous ON (NWu),
with the control contact S. ❸

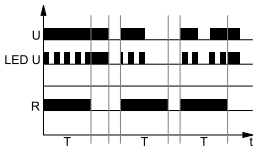
❶ Staircase timers - mode "Extra Time" ❷ Time T measuring stop by contact S ❸ Independently adjustment times T1 and T2

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

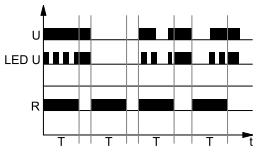
**NOTE:** the diagrams are of general information, and detailed performance descriptions are specified in catalog cards of time relays - see www.relpol.com.pl



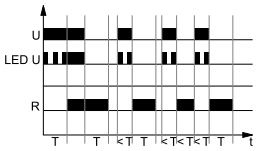

**nWa**
Maintained single shot trailing edge.



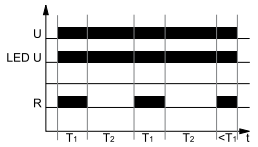

**nWu**
Maintained single shot leading edge.



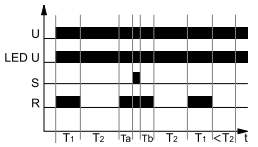

**nWuWa**
Maintained single shot leading and trailing edge.



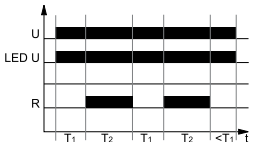

**nWs**
Latching ON delay.



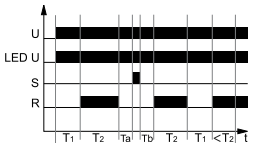

**Pi**
Cyclical operation, pulse first. ❸ ❹



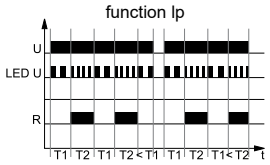

**Pi(S)**
Cyclical operation, pulse first, with the control contact S. ❸ ❹

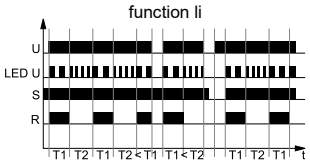



**Pp**
Cyclical operation, pause first. ❸ ❹

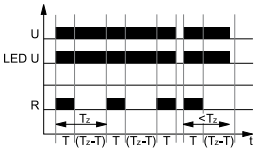



**Pp(S)**
Cyclical operation, pause first, with the control contact S. ❸ ❹



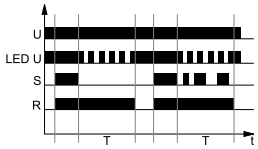

**Ii + Ip**
Cyclical operation, pulse first (Ii) or pause first (Ip), with the control contact S. ❸



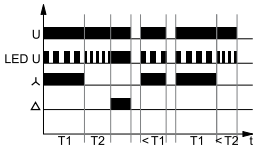

**PWM**
Pulse width modulation. ❺



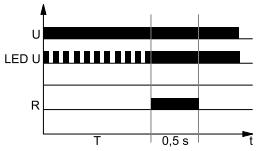

**R**
OFF delay, with the control contact S. ❶




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



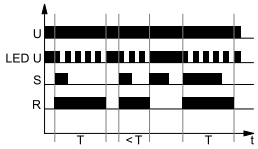

**SD**
Star-Delta start-up. ❸



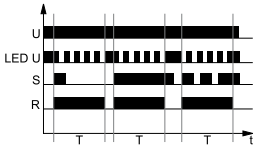

**T**
Generation of the 0,5 s pulse after the interval T.



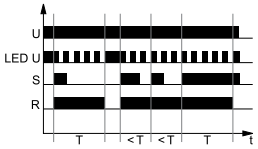

**Wa**
ON for the set interval, with the control contact S.



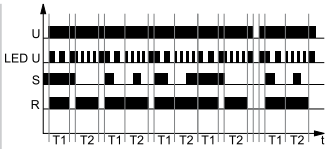

**Wi**
ON for the set interval, with the control contact S. ❻ ❶




**Ws**
Single shot for the set interval, with the control contact S.



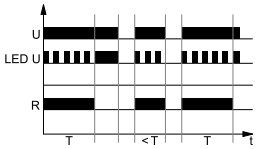

**Wst**
ON for the set interval, with the control contact S, with the interval T extension.




**WsWa**
ON for the set intervals, with the control contact S. ❸



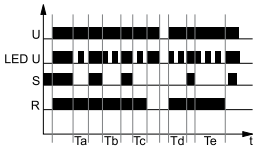

**Wt**
Monitoring of the sequence of pulses, switching on extended with contact S. ❸




**Wu**
ON for the set interval.




**Wu(R)**
ON for the set interval, with the Reset function.




**Wu(S)**
ON for the set interval. ❷

**OFF**
Stable OFF.

**ON**
Stable ON.

**ON / OFF**
Stable ON / OFF.

❶ Staircase switches - mode "Extra Time" ❷ Time T measuring stop by contact S ❸ Independently adjustment times T1 and T2
❹ Turninig on or omitting T3 time ❺ Tz - value of the set interval ❻ 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


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

R P C – [ ][ ][ ] – [ ][ ][ ][ ] – [ ][ ][ ]

**Number and type of contacts**

**1** - 1 CO (changeover),
1 NO (normally open)
**2** - 2 CO (changeover),
2 x 1 NO (triac)
**3** - 3 CO (changeover)
**4** - 2 x 2 CO (changeover)

**Relay type**

see tables pages 107-111

**Rated coil / input voltage**

**A230** - 230 V AC
**UNI** - 12...240 V AC/DC

**Output type**

**SSR** - solid state (triac)

## ORDERING CODES

| Index | Code | Description |
|---|---|---|
| 863199<br>863181 | RPC-1MA-A230<br>RPC-1MA-UNI | multifunction (10 functions, 8 ranges), one changeover contact 16 A |
| 863201<br>863183 | RPC-2MA-A230<br>RPC-2MA-UNI<br>RPC-2MA-UNI-01 | multifunction (10 functions, 8 ranges), two changeover contacts 8 A |
| 863200<br>863182 | RPC-1MB-A230<br>RPC-1MB-UNI | multifunction (10 functions, 8 ranges), one changeover contact 16 A |
| 863202<br>863184 | RPC-2MB-A230<br>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<br>863185 | RPC-1ER-A230<br>RPC-1ER-UNI | single-function (function ER, 8 ranges - times T1, T2), one changeover contact 16 A |
| 863204<br>863204 | RPC-1EA-A230<br>RPC-1EA-A230 | single-function (function EWa, 8 ranges - times T1, T2), one changeover contact 16 A |
| 863205<br>863187 | RPC-1ES-A230<br>RPC-1ES-UNI | single-function (function EWs, 8 ranges - times T1, T2), one changeover contact 16 A |
| 863206<br>863188 | RPC-1EU-A230<br>RPC-1EU-UNI | single-function (function EWu + NWu, 8 ranges - times T1, T2), one changeover contact 16 A |
| 863207<br>863189 | RPC-1IP-A230<br>RPC-1IP-UNI | single-function (function Ii + Ip, 8 ranges - times T1, T2), one changeover contact 16 A |
| 863208<br>863190 | RPC-1SA-A230<br>RPC-1SA-UNI | single-function (function WsWa, 8 ranges - times T1, T2), one changeover contact 16 A |
| 863209<br>863191 | RPC-1WT-A230<br>RPC-1WT-UNI | single-function (function Wt, 8 ranges - times T1, T2), one changeover contact 16 A |
| 863210<br>863193 | RPC-1E-A230<br>RPC-1E-UNI | single-function (function E, 8 ranges), one changeover contact 16 A |
| 863213<br>863196 | RPC-2E-A230<br>RPC-2E-UNI | single-function (function E, 8 ranges), two changeover contacts 8 A |
| 863211<br>863194 | RPC-1WU-A230<br>RPC-1WU-UNI | single-function (function Wu, 8 ranges), one changeover contact 16 A |
| 863214<br>863197 | RPC-2WU-A230<br>RPC-2WU-UNI | single-function (function Wu, 8 ranges), two changeover contacts 8 A |
| 863212<br>863195 | RPC-1BP-A230<br>RPC-1BP-UNI | single-function (function Bp, 8 ranges), one changeover contact 16 A |
| 863215<br>863198 | RPC-2BP-A230<br>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-EI1W1P ..... 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.



relpol® S.A.

| 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<br>AC1<br>DC1<br>DC1 | 1 CO: 12 A / 250 V AC<br>2 CO: 6 A / 250 V AC<br>1 CO: 12 A / 24 V DC<br>2 CO: 6 A / 24 V DC | 1 CO: 12 A / 250 V AC<br>2 CO: 6 A / 250 V AC<br>1 CO: 12 A / 24 V DC<br>2 CO: 6 A / 24 V DC | 1 CO: 12 A / 250 V AC<br>2 CO: 6 A / 250 V AC<br>1 CO: 12 A / 24 V DC<br>2 CO: 6 A / 24 V DC | 1 CO: 12 A / 250 V AC<br>2 CO: 6 A / 250 V AC<br>1 CO: 12 A / 24 V DC<br>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 $U_n$ /<br>AC: 48...63 Hz | 0,7...1,15 $U_n$ /<br>AC: 48...63 Hz | 0,7...1,15 $U_n$ /<br>AC: 48...63 Hz | 0,7...1,15 $U_n$ /<br>AC: 48...63 Hz |
| **Measuring circuit** | | | | |
| Functions number | multifunctions | multifunctions | multifunctions | multifunctions |
| Functions ❶ | 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<br>AC: 3(N)~ 400/230 V | = supply voltage<br>AC: 3(N)~ 400/230 V | = supply voltage<br>AC: 3(N)~ 400/230 V | = supply voltage<br>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<br>ASYMMETRY: 55 V AC | PHASE: 175 V AC<br>ASYMMETRY: 55 V AC | PHASE: 175 V AC<br>ASYMMETRY (adjustment): 5...80 V AC | PHASE: 175 V AC<br>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 UKCA<br>RoHS | CE UKCA<br>RoHS | CE UKCA<br>RoHS | CE UKCA<br>RoHS |
| Download data sheet | RPN-.VF-A400 | RPN-.VFS-A400 | RPN-.VFR-A400 | RPN-.VFT-A400 |

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



**Export Sales Department**: phone +48 68 47 90 832, 951, export@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<br>2 CO: 6 A / 250 V AC<br>1 CO: 12 A / 24 V DC<br>2 CO: 6 A / 24 V DC | 1 CO: 12 A / 250 V AC<br>2 CO: 6 A / 250 V AC<br>1 CO: 12 A / 24 V DC<br>2 CO: 6 A / 24 V DC | 1 CO: 12 A / 250 V AC<br>2 CO: 6 A / 250 V AC<br>1 CO: 12 A / 24 V DC<br>2 CO: 6 A / 24 V DC | 1 CO: 12 A / 250 V AC<br>2 CO: 6 A / 250 V AC<br>1 CO: 12 A / 24 V DC<br>2 CO: 6 A / 24 V DC | 1 CO: 12 A / 250 V AC<br>2 CO: 6 A / 250 V AC<br>1 CO: 12 A / 24 V DC<br>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 /<br>AC: 48...63 Hz | 220...460 V /<br>AC: 48...63 Hz | 126...265 V /<br>AC: 48...63 Hz | 220...460 V /<br>AC: 48...63 Hz | 126...265 V /<br>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<br>AC: 1(N)~ 230 V | = supply voltage<br>AC: 3~ 400 V | = supply voltage<br>AC: 3(N)~ 400/230 V | = supply voltage<br>AC: 3~ 400 V | = supply voltage<br>AC: 3(N)~ 400/230 V |
| 276 V | 500 V | 288 V | 500 V | 288 V |
| MIN: 0,3...0,95 $U_{max}$<br>MAX: 160...276 V | MIN: 0,75 $U_n$<br>MAX: 1,25 $U_n$ | MIN: 0,75 $U_n$<br>MAX: 1,25 $U_n$ | MIN: 0,75...0,95 $U_n$<br>MAX: 1,05...1,25 $U_n$ | MIN: 0,75...0,95 $U_n$<br>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) |
| CE UK CA<br>RoHS | CE UK CA<br>RoHS | CE UK CA<br>RoHS | CE UK CA<br>RoHS | CE UK CA<br>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<br>DC1 | 12 A / 250 V AC<br>12 A / 24 V DC | 12 A / 250 V AC<br>12 A / 24 V DC | 12 A / 250 V AC<br>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<br>DC: 24 V |
| Range of supply voltage / frequency | 0,85...1,15 $U_n$ /<br>AC: 48...63 Hz | 0,85...1,15 $U_n$ /<br>AC: 48...63 Hz | 0,85...1,15 $U_n$ /<br>AC: 48...63 Hz | 0,75...1,2 $U_n$ /<br>AC: 48...63 Hz |
| Working cycle | | | | 100% |
| **Measuring circuit** | | | | |
| Functions number | multifunctions | single-functions | single-functions | multifunctions |
| Functions ❶ | 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, histeresis mode |
| Measured value | AC sinus, 48...63 Hz | | | DC or AC sinus, 48...63 Hz |
| Measuring inputs | AC: 0,5 ... 16 A ❷<br>/ 230 V AC | | | = supply voltage<br>AC: 24, 230 V<br>DC: 24 V |
| Overload capacity | 2 ... 20 A ❷ | SHORT-CIRCUIT: ≤ 10 Ω | SHORT-CIRCUIT: ≤ 10 Ω | ≥ 1,2 $U_n$ |
| Switching thresholds | MIN: 0,05...0,95 $I_n$<br>MAX: 0,1...1,0 $I_n$ | MIN: 1,65 kΩ<br>WARNING: 3,3 kΩ<br>MAX: 3,6 kΩ | MIN: 1,65 kΩ<br>WARNING: 3,3 kΩ<br>MAX: 3,6 kΩ | MIN: 0,75...1,15 $U_n$<br>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 CA<br>RoHS | CE UK CA<br>RoHS | CE UK CA<br>RoHS | CE<br>RoHS |
| Download data sheet | RPN-1A..-A230 | RPN-1TMP-A230 | RPN-1AT-A230 | MR-EU1W1P |

❶ Connection diagrams, descriptions and diagrams of monitoring functions - see www.relpol.com.pl ❷ Depending on relay version (RPN-1A05/1/2/5/8/16) - see www.relpol.com.pl ❸ 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 | = monitoring voltage | AC: 230 V | AC: 230 V |
| AC: 230 V<br>AC: 3(N)~ 400/230 V | AC: 3(N)~ 400/230 V | AC: 230 V | AC: 230 V |
| 0,7...1,3 $U_n$ /<br>AC: 48...63 Hz | 0,7...1,3 $U_n$ /<br>AC: 48...63 Hz | 0,85...1,15 $U_n$ /<br>AC: 48...63 Hz | 0,85...1,1 $U_n$ /<br>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, histeresis mode | motor temperature monitoring, button TEST/RESET |
| 3(N)~, sinus,<br>48...63 Hz | 3(N)~, sinus,<br>48...63 Hz | AC sinus,<br>48...63 Hz | |
| = supply voltage<br>AC: 230 V<br>AC: 3(N)~ 400/230 V | = supply voltage<br>AC: 3(N)~ 400/230 V | AC: 10 A / 230 V AC | |
| ❸ | ❸ | 13 A | |
| MIN: 0,7...1,2 $U_n$<br>MAX: 0,8...1,3 $U_n$ | | MIN: 0,05...0,95 $I_n$<br>MAX: 0,1...1,0 $I_n$ | relay OFF: ≥ 3,6 kΩ<br>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) |
| CE<br>RoHS | CE<br>RoHS | CE<br>RoHS | CE<br>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<br>AC1 | 3 A / 250 V AC ❹<br>5 A / 250 V AC ❹ | 3 A / 250 V AC ❹<br>5 A / 250 V AC ❹ | 3 A / 250 V AC ❹<br>5 A / 250 V AC ❹ | 3 A / 250 V AC ❹<br>5 A / 250 V AC ❹ |
| **Input circuit** | | | | |
| Supply voltage | AC: 12, 24, 42, 48, 110, 127, 230, 400 V ❺ | = monitoring voltage | AC: 12, 24, 42, 48, 110, 127, 230, 400 V ❺ | AC: 12, 24, 42, 48, 110, 127, 230, 400 V ❺ |
| Rated voltage | | | | |
| Range of supply voltage / frequency | ❺ | 3(N)~ 342...457 V / AC: 48...63 Hz | ❺ | ❺ |
| Working cycle | 100% | 100% | 100% | 100% |
| **Measuring circuit** | | | | |
| Functions number | multifunctions | multifunctions | multifunctions | single-functions |
| Functions ❶ | 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<br>AC/DC: 1 A<br>AC/DC: 10 A | |
| Overload capacity | 3(N)~ 600/346 V | 3(N)~ 457/264 V | 0,1 A AC/DC: 0,8 A<br>1 A AC/DC: 3 A<br>10 A AC/DC: 12 A | |
| Switching thresholds | MIN: 0,7...1,2 $U_n$<br>MAX: 0,8...1,3 $U_n$ | | MIN: 0,05...0,95 $I_n$<br>MAX: 0,1...1,0 $I_n$ | relay OFF: ≥ 3,6 kΩ<br>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<br>RoHS | CE<br>RoHS | CE<br>RoHS | CE<br>RoHS |
| Download data sheet | MR-GU3M2P-TR2 | MR-GU3M2P | MR-GI1M2P-TR2 | MR-GT2P-TR2 |

❶ Connection diagrams, descriptions and diagrams of monitoring functions - see www.relpol.com.pl ❹ 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. ❺ Depending on the supply TR2 transformer which shall be ordered as a separate product - see www.relpol.com.pl


**Export Sales Department**: phone +48 68 47 90 832, 951, export@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

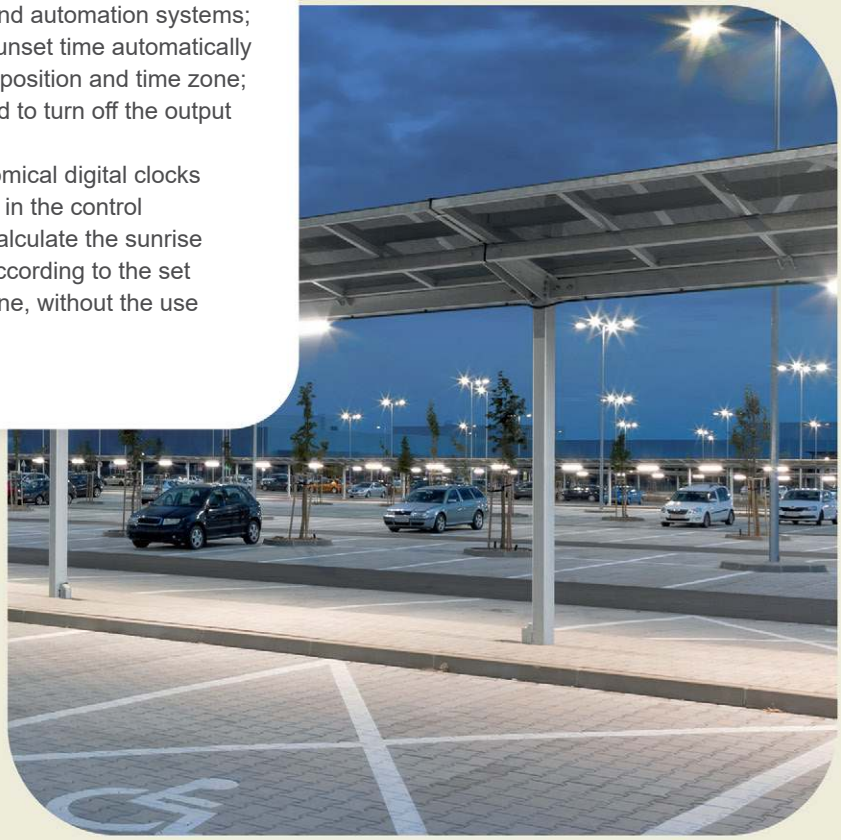


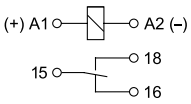
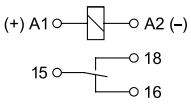
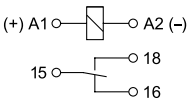
- $I_n$ currents of outputs: 16 A.
- Available versions:
  - in modular covers: R.T series.
- Method of mounting:
  on 35 mm rail mount.

## 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



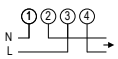
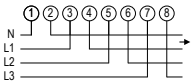
- Available versions:
  - in modular covers: RLE series.
- Design features:
  - direct measuring AC electrical energy (63 A),
  - MID certificate,
  - ModBus RTU.
- Method of mounting:
  on 35 mm rail mount.

## 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<br>• min. / max.<br>• reference/starting<br>• rated | 0,25 A / 63 A<br>0,5 A / 0,02 A<br>5 A | 0,25 A / 63 A<br>0,5 A / 0,02 A<br>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<br>• interface<br>• protocol | RS-485 port<br>Modbus RTU<br>or DL/T645 | RS-485 port<br>Modbus RTU<br>or DL/T645 |
| RTC measurement error | ≤ 0,5 s/day | ≤ 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<br>cover: IP 20 (EN 60529) | panel: IP 51<br>cover: IP 20 (EN 60529) |
| Connection diagrams | <br>1-phase,<br>2-wire direct connection | <br>3-phase,<br>4-wire direct connection |
| Recognitions, certifications, directives | CE<br>RoHS, MID | CE<br>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 |


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

# 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<br>AC: 50/60 Hz | 130...260 V<br>AC: 50/60 Hz | 130...260 V<br>AC: 50/60 Hz |
| Range of supply voltage / frequency | 0,85...1,1 $U_n$ /<br>AC: 48...63 Hz | 0,85...1,1 $U_n$ /<br>AC: 48...63 Hz | 0,85...1,1 $U_n$ /<br>AC: 48...63 Hz |
| Rated power consumption | DC: ≤ 0,7 W | 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 | CE UKCA<br>RoHS | CE UKCA<br>RoHS | CE UKCA<br>RoHS |
| Download data sheet | RLK-1G | RLK-1R | RLK-1Y |


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

| 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 |
| 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 | CE UKCA RoHS | CE UKCA RoHS | CE UKCA 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

relpol® S.A.

- $I_n$ 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.




RSR25 ..... 133
RSR25-...-B ..... 133
RSR30 ..... 133
RSR32 ..... 133
RSR35 ..... 134
RSR35-...-RZA ..... 134
RSR35-..D8 ..... 134
RSR85-24... ..... 134
RSR85-38... ..... 135
RSR86 ..... 135
RSR88 ..... 135
RSR88...NC ..... 135
RSR89 ..... 135
RSR89...NC ..... 136
RSR45 ..... 136
RSR52 ..... 136
RSR54 ..... 136
RSR58 ..... 137
RSR62 ..... 137
RSR72...10I20I30 ..... 137
RSR72...40 ..... 137
RSR72...75 ..... 137
RSR75 ..... 138
RSR95 ..... 138
RSR92-..V.. ..... 138
RSR92-..I.. ..... 138
RSR93...25 ..... 139
RSR93...40I60I80 ..... 139


## Applications:

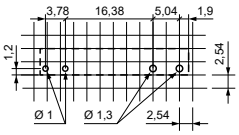
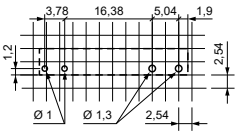
- suitable for PCB mounted,
- temperature chamber,
  food processing machinery,
  injection molding machine,
  packaging machine,
  incubator, oiling machines,
  HVAC, lighting, fountain controller,
- three phase motor control,
  temperature control, large oven.



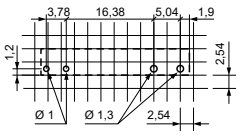
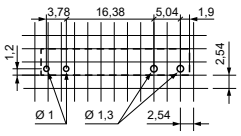
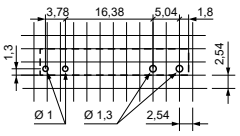


**Export Sales Department**: phone +48 68 47 90 832, 951, export@relpol.com.pl

## miniature relays

| Type | RSR25 | RSR25-...-B | RSR30 | RSR32 |
|---|---|---|---|---|
| Output circuit |  |  |  |  |
| Type of outputs | triac | SCR (thyristors) | triac (AC)<br>or MOSFET (DC) | zgodność z napędem TTL |
| Max. load voltage AC<br>DC | 280, 530 V | 280, 530 V | 240 V<br>24, 48, 100 V | 280 V |
| Load current AC1<br>DC1 | 5 A | 5 A | 2 A<br>1, 2,5, 4 A | 2 A |
| **Input circuit** | | | | |
| Switching mode | DC control<br>(zero-crossing or random-on) | DC control<br>(zero-crossing or random-on) | DC control<br>(DC switching or random-on) | DC control<br>(zero-crossing or random-on) |
| Control voltage DC<br>DC | 4...15 V, 15...32 V,<br>4...32 V | 4...15 V, 15...32 V,<br>4...32 V | 5, 12, 24, 48 V | 5, 12, 24 V |
| **Insulation** | | | | |
| Dielectric strength<br>• 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<br>(solder side view) | | |  |  |
| Protections | RC (resistor, capacitor) | RC (resistor, capacitor) | RC (AC: resistor, capacitor) | |
| Recognitions, certifications, directives | CE cULus<br>RoHS, REACH | CE cULus<br>RoHS, REACH | cULus<br>RoHS | cULus<br>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<br>DC | 28, 58 V | 28,8 V | 30 V | 280 V |
| Load current AC1<br>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<br>DC<br>DC | 5, 12, 24, 48, 60 V | 110, 240 V<br>110, 220 V | 3...15 V, 15...30 V, 35...72 V | 5, 12, 24 V |
| **Insulation** | | | | |
| Dielectric strength<br>• 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<br>(solder side view) |  |  |  | |
| Protections<br><br>Indicator<br>Plug-in sockets | | | | RC (resistor, capacitor) |
| Recognitions, certifications, directives | RoHS, REACH | RoHS, REACH | RoHS, REACH | RoHS, REACH |
| Download data sheet | RSR35 | RSR35-...-RZA | RSR35-...-D8 | RSR85-24... |



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

## miniature relays

| RSR85-38... | RSR86 | RSR88 | RSR88...NC | RSR89 |
|---|---|---|---|---|
|  |  ❶ |  |  |  |
| 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) ❷ | IP 00 (EN 60529) ❷ | IP 00 (EN 60529) ❷ |
| | | | | |
| RC (resistor, capacitor) | LED green | TVS<br>LED red<br>GZMA | LED red<br>GZMA | TVS<br>LED red<br>GZMA |
| RoHS, REACH | RoHS, REACH | RoHS, REACH | RoHS, REACH | RoHS, REACH |
| RSR85-38... | RSR86 | RSR88 | RSR88...NC | RSR89 |

❶ Available in versions: RSR86...N (3,5 mm pinout), RSR86...P (5 mm pinout in line).
❷ 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<br>DC | 280 V | 440 V | 280, 530, 660 V | 280, 530, 660 V |
| Load current AC1<br>AC1<br>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<br>DC | 4...32 V | 4...32 V | 90...280 V 50/60 Hz<br>4...32 V | 90...280 V 50/60 Hz<br>3...32 V |
| **Insulation** | | | | |
| Dielectric strength<br>• 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 ❸ | 58,6 x 45,7 x 33,5 | 58,6 x 45,7 x 29,4 |
| Stopień ochrony | IP 00 (EN 60529) ❷ | IP 00 (EN 60529) ❹ | IP 20 (EN 60529) | IP 20 (EN 60529) |
| Protections<br><br>Indicator<br>Plug-in sockets<br>Heatsinks<br>Thermal pads | <br><br>LED red<br>GZMA | RC (resistor, capacitor)<br>LED red<br><br>RH<br>RTP-11 | MOV (varistor)<br><br>LED red<br><br>RH<br>RTP-10 | TVS<br><br>LED red<br><br>RH<br>RTP-10 |
| Recognitions, certifications, directives | CE cULus RoHS, REACH | CE cULus RoHS, REACH | CE cULus RoHS, REACH | CE cULus RoHS, REACH |
| Download data sheet | RSR89...NC | RSR45 | RSR52 | RSR54 |

❷ For RSR88..., RSR89... with socket GZMA: IP 20.
❸ For RSR45-38... (screw terminals); for RSR45-38...-A (faston 250): 38,5 x 30 x 25,2 mm.
❹ For RSR45-38... with protection cover PCR-20: IP 20.
❺ Two chanel AC output.

## industrial relays

| RSR58 | RSR62 | RSR72...10\|20\|30 | RSR72...40 | RSR72...75 |
|---|---|---|---|---|
|  |  |  |  |  |
| SCR (thyristors) [5] | 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<br>4...32 V | 90...280 V 50 Hz<br>4...32 V | 90...280 V 50 Hz<br>4...32 V | 90...280 V 50 Hz<br>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<br>RH<br>RTP-10 | RC/MOV (resistor, capacitor, varistor)<br>LED red<br>RH<br>RTP-30A | RC/MOV (resistor, capacitor, varistor)<br>LED red<br>integrated | RC/MOV (resistor, capacitor, varistor)<br>LED red<br>integrated | RC/MOV (resistor, capacitor, varistor)<br>LED red<br>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<br>DC<br>DC | 280, 660 V | 24, 36, 48, 75, 120, 300, 500, 700 V | 280, 530 V | 280, 530 V |
| Load current AC1<br>AC3<br>DC1<br>DC1 | 15, 25 A | 7, 20, 25, 40, 50, 80, 100 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<br>DC<br>DC | 3...32 V, 4...32 V | 4...32 V | 0...10 V (DC voltage) | 4...20 mA (current) |
| **Insulation** | | | | |
| Dielectric strength<br>• 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 | 58,6 x 45,7 x 33,5 |
| Stopień ochrony | IP 20 (EN 60529) | IP 20 (EN 60529) | IP 20 (EN 60529) | IP 20 (EN 60529) |
| Protections<br><br>Indicator<br>Heatsinks<br>Thermal pads | TVS<br><br>LED red<br>integrated | przeciwprzepięciowe<br><br>LED red<br>RH<br>RTP-10 | MOV (varistor)<br><br>LED green<br>RH<br>RTP-30A | MOV (varistor)<br><br>LED green<br>RH<br>RTP-30A |
| Recognitions, certifications, directives | CE cULus<br>RoHS, REACH | CE<br>RoHS, REACH | CE<br>RoHS, REACH | CE<br>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.



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

## power controllers

| RSR93...25 | RSR93...40\|60\|80 |
|---|---|
|  |  |
| SCR (thyristors) | SCR (thyristors) |
| 440 V | 440 V |
| 25 A | 40, 60, 80 A |
| | |
| DC control<br>(phase angle load control) | DC control<br>(phase angle load control) |
| 0...5 V, 0...10 V<br>(DC voltage)<br>or 4...20 mA (current) | 0...5 V, 0...10 V<br>(DC voltage)<br>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)<br>LED red, green integrated | RC (resistor, capacitor)<br>LED red, green integrated |
| CE<br>RoHS, REACH | CE<br>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



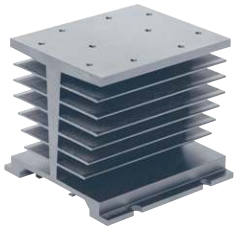
**RH16** (2616049)
For RSR52, RSR54, RSR95, RSR92



**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





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

## 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 chanel AC output) |
| 2617396 | RSR58-24D50 | input 4...32 V DC, output 50 A / 24...280 V AC (two chanel AC output) |
| 2617397 | RSR58-24D75 | input 4...32 V DC, output 75 A / 24...280 V AC (two chanel AC output) |
| 2617398 | RSR58-48D25 | input 4...32 V DC, output 25 A / 24...530 V AC (two chanel AC output) |
| 2617399 | RSR58-48D50 | input 4...32 V DC, output 50 A / 24...530 V AC (two chanel AC output) |
| 2617400 | RSR58-48D75 | input 4...32 V DC, output 75 A / 24...530 V AC (two chanel AC output) |
| 2617401 | RSR58-60D25 | input 4...32 V DC, output 25 A / 24...660 V AC (two chanel AC output) |
| 2617402 | RSR58-60D50 | input 4...32 V DC, output 50 A / 24...660 V AC (two chanel AC output) |
| 2617403 | RSR58-60D75 | input 4...32 V DC, output 75 A / 24...660 V AC (two chanel AC output) |


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

## ORDERING CODES

| 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) |

## ORDERING CODES

| 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 |


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

## ORDERING CODES

| 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

relpol® S.A.

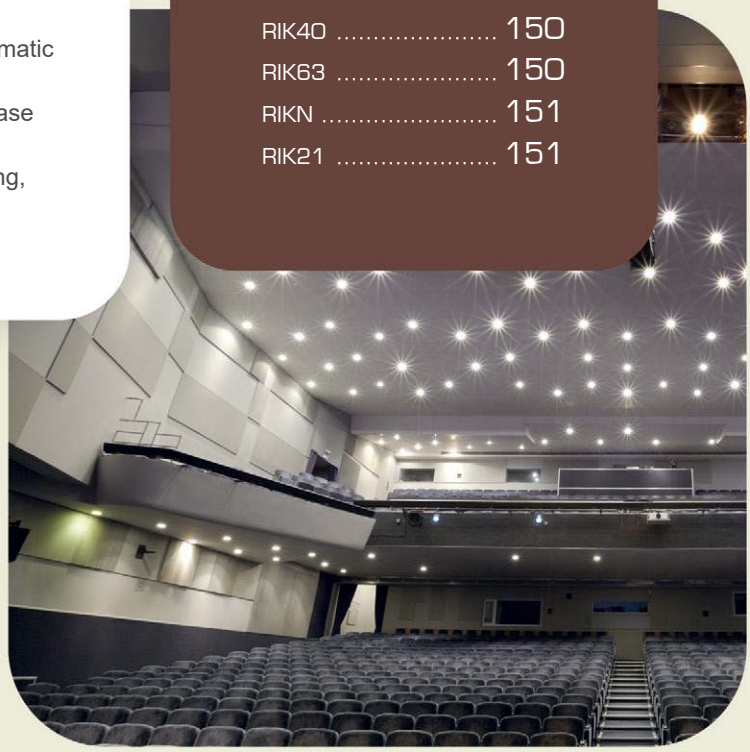


- $I_n$ currents of outputs: 20 ... 63 A.
- Available versions:
  - in modular covers: RXC25/40/63, RIK20/25/40/63,
  - in industrial covers: RIK21.
- Method of mounting: on 35 mm rail mount.

## Applications in low voltage systems:

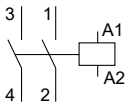
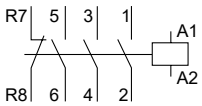
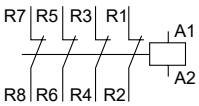
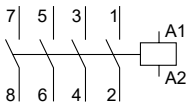
- are built in consumer devices operating in dwellings, business premises, hotels, hospitals, shopping centres, sport centres, production halls, warehouses, public places,
- for remote switching and automatic control of electric devices and equipment: 1-phase and 3-phase motors, different pumps, air-conditioning,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

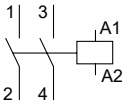
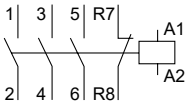
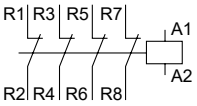
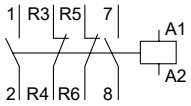

RXC25-20I11I02 ..... 149
RXC25-40I31I22 ..... 149
RXC40 ..... 149
RXC63 ..... 149
RIK20 ..... 150
RIK25 ..... 150
RIK40 ..... 150
RIK63 ..... 150
RIKN ..... 151
RIK21 ..... 151

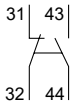
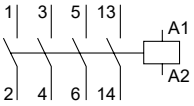


**Export Sales Department**: phone +48 68 47 90 832, 951, export@relpol.com.pl

| 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<br>AC3 / AC7b | 25 A<br>8,5 A | 25 A<br>8,5 A | 40 A<br>15 A | 63 A<br>20 A |
| Motor load AC1 / AC7a | 230 V: 5,5 kW<br>400 V: 10 kW | 230 V: 5,5 kW<br>400 V: 10 kW | 230 V: 9 kW<br>400 V: 16 kW | 230 V: 14 kW<br>400 V: 25 kW |
| Motor load AC3 / AC7b | 230 V: 2 kW<br>400 V: 3,4 kW | 230 V: 2 kW<br>400 V: 3,4 kW | 230 V: 3,5 kW<br>400 V: 6 kW | 230 V: 4,5 kW<br>400 V: 8 kW |
| **Input circuit** | | | | |
| Control voltage AC<br>DC | 24, 230 V<br>24 V | 24, 230 V<br>24 V | 24, 230 V<br>24 V | 24, 230 V<br>24 V |
| Range of voltage / rated frequency | 0,85...1,1 $U_c$ /<br>AC: 50/60 Hz | 0,85...1,1 $U_c$ /<br>AC: 50/60 Hz | 0,85...1,1 $U_c$ /<br>AC: 50/60 Hz | 0,85...1,1 $U_c$ /<br>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 | CE UKCA<br>RoHS | CE UKCA<br>RoHS | CE UKCA<br>RoHS | CE UKCA<br>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<br>AC3 / AC7b<br>❶ DC1<br>DC1<br>❶ DC3<br>DC3<br>❶ DC5<br>DC5 | 20 A<br>9 A / 6 A (NO/NC)<br>20 A / 24 V DC<br>0,6 A / 220 V DC<br>10 A / 24 V DC<br>0,1 A / 220 V DC<br>10 A / 24 V DC<br>0,06 A / 220 V DC | 25 A<br>8,5 A<br>25 A / 24 V DC<br>0,6 A / 220 V DC<br>15 A / 24 V DC<br>0,2 A / 220 V DC<br>15 A / 24 V DC<br>0,1 A / 220 V DC | 40 A<br>22 A<br>40 A / 24 V DC<br>1,2 A / 220 V DC<br>22 A / 24 V DC<br>0,3 A / 220 V DC<br>20 A / 24 V DC<br>0,2 A / 220 V DC | 63 A<br>30 A<br>63 A / 24 V DC<br>1,2 A / 220 V DC<br>25 A / 24 V DC<br>0,3 A / 220 V DC<br>25 A / 24 V DC<br>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<br>1-phase, 230 V:<br>0,75 kW (NO/NC) | 1-phase, 230 V: 1,3 kW ❷<br>3-phase, 230 V: 2,2 kW<br>3-phase, 400 V: 4 kW | 1-phase, 230 V: 3,7 kW ❷<br>3-phase, 230 V: 5,5 kW<br>3-phase, 400 V: 11 kW | 1-phase, 230 V: 5 kW ❷<br>3-phase, 230 V: 8,5 kW<br>3-phase, 400 V: 15 kW |
| Switching of capacitors AC6b | 30 µF | 36 µF | 220 µF | 330 µF |
| **Input circuit** | | | | |
| Control voltage AC<br>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 $U_c$ /<br>AC: 50/60 Hz ❹ | 0,85...1,1 $U_c$ /<br>AC: 50/60 Hz ❹ | 0,85...1,1 $U_c$ /<br>AC: 50/60 Hz | 0,85...1,1 $U_c$ /<br>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 | <br>version 2 NO | <br>version 3 NO + 1 NC | <br>version 4 NC | <br>version 2 NO + 2 NC |
| Indicator | LED | LED | LED | LED |
| Recognitions, certifications, directives | CE<br>RoHS | CE<br>RoHS | CE<br>RoHS | CE<br>RoHS |
| Download data sheet | RIK20 | RIK25 | RIK40 | RIK63 |

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

| RIKN | RIK21 |
|---|---|
| auxiliary contacts ❺ | |
|  |  |
| 2 NO, 1 NO + 1 NC | 3 NO + 1 NO (auxiliary),<br>3 NO + 1 NC (auxiliary) |
| 230, 400 V | 400 V |
| 6 A | 20 A |
| | 20 A<br>5 A<br>20 A / 24 V DC<br>0,5 A / 220 V DC<br>10 A / 24 V DC<br>0,1 A / 220 V DC<br>10 A / 24 V DC<br>0,06 A / 220 V DC |
| | 20 A |
| | 1-phase, 230 V: 0,37 kW<br>3-phase, 230 V: 1,1 kW<br>3-phase, 400 V: 2,2 kW |
| | 36 µF |
| | |
| | 24, 230 V |
| | 0,85...1,1 $U_c$ /<br>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<br>RoHS | CE<br>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

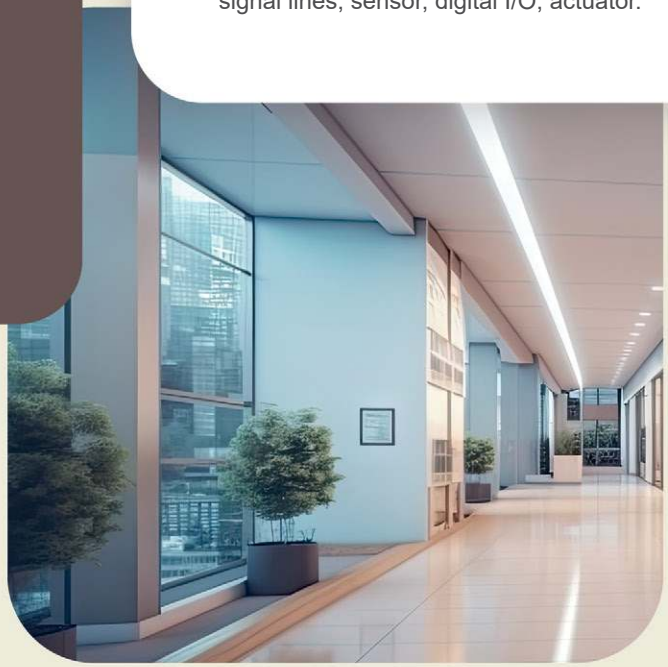
- $I_n$ discharge currents: 5 ... 100 kA.
- Available versions:
  - in modular covers: RSP series,
  - in industrial covers: RSP series.
- Method of mounting:
  on 35 mm rail mount.




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 AC operating voltage | 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<br>2-pole: 90 x 36 x 67<br>3-pole: 90 x 54 x 67<br>4-pole: 90 x 72 x 67 | 1-pole: 90 x 18 x 80<br>2-pole: 90 x 36 x 80<br>3-pole: 90 x 54 x 80<br>4-pole: 90 x 72 x 80 | 1-pole: 90 x 18 x 67<br>2-pole: 90 x 36 x 67<br>3-pole: 90 x 54 x 67<br>4-pole: 90 x 72 x 67 | 1-pole: 90 x 18 x 67<br>2-pole: 90 x 36 x 67<br>3-pole: 90 x 54 x 67<br>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 | CE<br>RoHS | CE<br>RoHS | CE<br>RoHS | CE<br>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<br>DC<br>DC | 230 V | 230 V | 230, 400, 690 V | |
| Max. continuous operating voltage AC<br>DC<br>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,<br>1 145, 1 500 V | |
| **Features** | | | | |
| Category | class I+II /<br>type 1+2 / B+C | class I+II /<br>type 1+2 / B+C | class I+II /<br>type 1+2 / B+C | class I+II, II /<br>type 1+2, 2 / B+C, C |
| Location of use | sub-distribution boards (SB) | main-distribution boards (MB) | main-distribution boards (MB) | connection boxs, 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<br>2-pole: 94 x 72 x 86<br>3-pole: 94 x 108 x 86 | 1-pole: 90 x 36 x 86<br>2-pole: 94 x 72 x 86<br>3-pole: 94 x 108 x 86<br>4-pole: 94 x 144 x 86 | 2-pole: 90 x 36 x 67<br>3-pole: 90 x 54 x 67<br>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<br>RoHS | CE<br>RoHS | CE<br>RoHS | CE<br>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 boxs, inverters | connection boxs, 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<br>DC | 23,3 V<br>33 V | 23,3 V<br>33 V | 23,3 V<br>33 V | <br>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


RZI15-..-MN ..... 163
RZI30-..-MN ..... 163
RZI60-..-MN ..... 163
RZI100-24-MN ..... 163
RZI20-24-MSN ..... 164
RZI60-24-MSN ..... 164
RZI100-24-MSN ..... 164
RZI75-24-PN ..... 164
RZI120-24-PN ..... 165
RZI240-24-PN ..... 165
RZI480-24-PN ..... 165

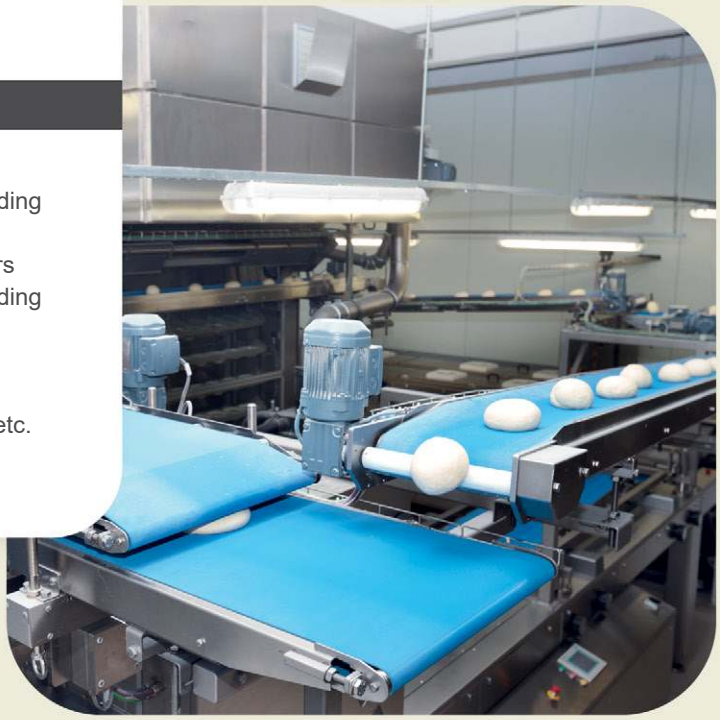



relpol® S.A.

- $I_n$ 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.





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

| 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<br>air: 8 kV<br>contact: 4 kV | criteria B<br>air: 8 kV<br>contact: 4 kV | criteria A<br>air: 8 kV<br>contact: 4 kV | criteria B<br>air: 8 kV<br>contact: 4 kV |
| Radiated field (EN 61000-4-3) | criteria A<br>80 MHz...1 GHz<br>3 V/M | criteria A<br>80 MHz...1 GHz<br>3 V/M | criteria A<br>80 MHz...1 GHz<br>3 V/M | criteria A<br>80 MHz...1 GHz<br>3 V/M |
| Fast transient / burst (EN 61000-4-4) | criteria B<br>1 kV | criteria B<br>1 kV | criteria B<br>1 kV | criteria B<br>1 kV |
| Surge (EN 61000-4-5) | criteria B<br>line-line: 1 kV | criteria B<br>line-line: 1 kV | criteria B<br>line-line: 1 kV | criteria A<br>line-line: 1 kV |
| Conducted (EN 61000-4-6) | criteria A<br>150 kHz...80 MHz<br>3 Vrms | criteria A<br>150 kHz...80 MHz<br>3 Vrms | criteria A<br>150 kHz...80 MHz<br>3 Vrms | criteria A<br>150 kHz...80 MHz<br>3 Vrms |
| Magnetic fields (EN 61000-4-8) | criteria A<br>1 A/m | criteria A<br>1 A/m | criteria A<br>1 A/m | criteria A<br>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 | CE UKCA<br>RoHS, Low Voltage | CE UKCA<br>RoHS, Low Voltage | CE UKCA<br>RoHS, Low Voltage | CE UKCA<br>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 |
|---|---|---|---|---|
| |  |  ❼ |  ❼ |  |
| **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 ❷ | 31,2...36 V ❸ | 31,2...36 V ❸ | 29...33 V ❸ |
| Overload / overcurrent | > 105% rated output power ❸ | > 105...150% rated output power ❹ | > 105...150% rated output power ❹ | 105...130% rated output power ❷ |
| Overtemperature | | | | ❸ |
| Short circuit | ❷ | ❹ | ❹ | ❷ |
| 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<br>air: 8 kV<br>contact: 4 kV | criteria B<br>air: 8 kV<br>contact: 4 kV | criteria B<br>air: 8 kV<br>contact: 4 kV | level 3, criteria B<br>air: 8 kV<br>contact: 4 kV |
| Radiated field (EN 61000-4-3) | criteria A<br>80 MHz...1 GHz<br>3 V/M | criteria A<br>80 MHz...1 GHz<br>3 V/M | criteria A<br>80 MHz...1 GHz<br>3 V/M | level 2, criteria A<br>80 MHz...1 GHz<br>3 V/M |
| Fast transient / burst (EN 61000-4-4) | criteria B<br>1 kV | criteria B<br>1 kV | criteria B<br>1 kV | level 2, criteria B<br>1 kV |
| Surge (EN 61000-4-5) | criteria B<br>line-line: 1 kV | criteria C<br>line-line: 1 kV | criteria B<br>line-line: 1 kV | level 2, criteria A<br>line-line: 1 kV<br>line-earth: 2 kV |
| Conducted (EN 61000-4-6) | criteria A<br>150 kHz...80 MHz<br>3 Vrms | criteria A<br>150 kHz...80 MHz<br>3 Vrms | criteria A<br>150 kHz...80 MHz<br>3 Vrms | level 3, criteria B<br>150 kHz...80 MHz<br>3 Vrms |
| Magnetic fields (EN 61000-4-8) | criteria A<br>1 A/m | criteria A<br>1 A/m | criteria A<br>1 A/m | level 1, criteria A<br>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 | CE UKCA<br>RoHS, Low Voltage | CE UKCA<br>RoHS, Low Voltage | CE UKCA<br>RoHS, Low Voltage | CE UKCA<br>RoHS, Low Voltage |
| Download data sheet | RZI20-24-MSN | RZI60-24-MSN | RZI100-24-MSN | RZI75-24-PN |

❷ Hiccup mode: recovers automatically after fault condition removed. ❸ Shut down O/P voltage, re-power on to recover. ❹ Constant current limiting, recovers automatically after fault condition removed. ❺ Shut down O/P voltage, recovers automatically after temperature goes down. ❻ Constant current limiting, unit will shut down after 3 s., re-power on to recover. ❼ 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 ❸ | 29...33 V ❸ | 29...33 V ❸ |
| 105...130%<br>rated output power ❷ | 105...130%<br>rated output power ❷ | 105...130%<br>rated output power ❻ |
| ❸ | ❺ | ❺ |
| ❷ | ❹ | ❻ |
| 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<br>air: 8 kV<br>contact: 4 kV | level 3, criteria B<br>air: 8 kV<br>contact: 4 kV | criteria B<br>air: 8 kV<br>contact: 4 kV |
| level 2, criteria A<br>80 MHz...1 GHz<br>3 V/M | level 2, criteria A<br>80 MHz...1 GHz<br>3 V/M | criteria A<br>80 MHz...1 GHz<br>3 V/M |
| level 2, criteria B<br>1 kV | level 2, criteria B<br>1 kV | criteria B<br>1 kV |
| level 2, criteria A<br>line-line: 1 kV<br>line-earth: 2 kV | level 2, criteria B<br>line-line: 1 kV<br>line-earth: 2 kV | criteria B<br>line-line: 1 kV<br>line-earth: 2 kV |
| level 2, criteria A<br>150 kHz...80 MHz<br>3 Vrms | level 2, criteria A<br>150 kHz...80 MHz<br>3 Vrms | criteria A<br>150 kHz...80 MHz<br>3 Vrms |
| level 1, criteria A<br>1 A/m | level 1, criteria A<br>1 A/m | criteria A<br>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 CA<br>RoHS, Low Voltage | CE UK CA<br>RoHS, Low Voltage | CE UK CA<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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

relpol S.A.

## 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<br>AC: 50/60 Hz | 250 V<br>AC: 50/60 Hz | 250 V<br>AC: 50/60 Hz | 250 V<br>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 | CE<br>RoHS | CE<br>RoHS | CE UK CA<br>RoHS | CE<br>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**

relpol® S.A.

Revision date: 18.07.2025

# 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**<br>of 18 December 2006 **concerning the Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH)**, as amended.<br>The products comply with the requirements of the REACH regulation and national regulations.<br>They do not contain substances of very high concern (SVHC) in concentrations exceeding the permissible limits set by the European Chemicals Agency (ECHA).<br>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**<br>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.<br>The products comply with the requirements of the RoHS 3 directive, which restricts the use of certain hazardous substances in electrical and electronic equipment.<br>The products do not exceed the maximum allowable levels of restricted substances and do not contain chromated metallic surfaces with hexavalent chromium.<br>The products meets the requirements for lead-free assembly processes. |
| **WEEE** | **DIRECTIVE 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**<br>of 4 July 2012 **on waste electrical and electronic equipment (WEEE)**, as amended, **including the amendment introduced by Directive 2018/849/EU.**<br>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).<br>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**<br>of 20 December 1994 **on packaging and packaging waste, including the amendment introduced by Directive 2018/852/EU.**<br>All packaging materials used comply with EU and national regulations on packaging and packaging waste.<br>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

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

## 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**

LISTED ON GPW WARSAW STOCK EXCHANGE

RELPOL S.A.
ul. 11 Listopada 37, Poland
68-200 Żary
relpol@relpol.com.pl

07/2025

**www.relpol.com.pl**