**RPC-1ER/EA/ES/EU/IP/SA/WT-...**

**time relays**

- Single-function time relays with independently controlled times T1 and T2 (7 versions of relays with 1 time function; 8 time ranges)
- Cadmium - free contacts 1 CO
- AC and AC/DC input voltages
- Cover - modular, width 17,5 mm
- Direct mounting on 35 mm rail mount acc. to EN 60715
- Applications: in low-voltage systems
- Compliance with standard EN 61812-1
- Recognitions, certifications, directives:

### Output circuit - contact data

<table>
<thead>
<tr>
<th>Number and type of contacts</th>
<th>1 CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact material</td>
<td>AgSnO2</td>
</tr>
<tr>
<td>Max. switching voltage AC</td>
<td>300 V</td>
</tr>
<tr>
<td>Rated load AC1</td>
<td>16 A / 250 V AC</td>
</tr>
<tr>
<td>Rated load DC1</td>
<td>16 A / 24 V DC; 0,3 A / 250 V DC</td>
</tr>
<tr>
<td>Rated current AC1</td>
<td>16 A / 250 V AC</td>
</tr>
<tr>
<td>Max. breaking capacity AC1</td>
<td>4 000 VA</td>
</tr>
<tr>
<td>Min. breaking capacity</td>
<td>1 W; 10 mA</td>
</tr>
<tr>
<td>Contact resistance</td>
<td>≤ 100 mΩ</td>
</tr>
<tr>
<td>Max. operating frequency</td>
<td>600 cycles/hour at rated load AC1</td>
</tr>
</tbody>
</table>

### Input circuit

<table>
<thead>
<tr>
<th>Rated voltage 50/60 Hz AC</th>
<th>230 V terminals A1, A2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC: 50/60 Hz AC/DC</td>
<td>12...240 V terminals (+)A1, (-)A2</td>
</tr>
</tbody>
</table>

- Must release voltage: ≥ 0,1 U<sub>n</sub>
- Operating range of supply voltage: 0,9...1,1 U<sub>n</sub>
- Rated power consumption AC ≤ 3,5 VA 230 V AC, 50 Hz ≤ 1,5 W 12...240 V AC/DC, AC: 50 Hz
- Rated power consumption DC ≤ 1,5 W 12...240 V AC/DC

### Range of supply frequency AC

- 48...63 Hz

#### Control contact S

- min. voltage
- min. time of pulse duration
- max. length of control line

#### Insulation according to EN 60664-1

- Insulation rated voltage: 250 V AC
- Rated surge voltage: 4 000 V 1,2 / 50 µs
- Overvoltage category: III
- Insulation pollution degree: 2
- Dielectric strength:
  - input - output: 4 000 V AC type of insulation: basic
  - contact clearance: 1 000 V AC type of clearance: micro-disconnection

### General data

- Electrical life: > 0,5 x 10<sup>5</sup> 16 A, 250 V AC
- Mechanical life (cycles): > 3 x 10<sup>7</sup>
- Dimensions (L x W x H) / Weight: 90 Ø x 17,5 x 64,5 mm / 65...66 g
- Ambient temperature:
  - (non-condensation and/or icing) -40...+70 °C
  - (operating) -20...+50 °C
- Cover protection category: IP 20 EN 60529
- Insulation pollution degree: up to 85%
- Shock / vibration resistance: 15 g / 0,35 mm DA 10...55 Hz

### Time module data

- Functions: ER, EWa, EWs, EWu + NWu, li + lp, WsWa, Wt
- Time ranges:
  - OFF - permanent switching off: ON - permanent switching on
  - 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
- Timing adjustment: smooth - (0,1,...,1) x time range (does not refer to range ON / OFF)
- Setting accuracy / Repeatability:
  - ± 5% ≤ ± 0,5% ≤ ± 0,05% / °C
  - ± 0,05% / °C ≤ ± 0,01% / V
- Recovery time AC ≤ 150 ms 230 V AC, 50 Hz ≤ 400 ms 12...240 V AC/DC, AC: 50 Hz
- Recovery time DC ≤ 150 ms 12...240 V AC/DC
- LED indicator:
  - green LED U ON - indication of supply voltage U
  - green LED U slow flashing - measurement of T1 time
  - green LED U fast flashing - measurement of T2 time
  - yellow LED R ON/OFF - output relay status

### Notes:

- Codes of versions - see "Ordering codes", page 4 and descriptions of time functions, pages 2, 3.
- The control terminal S is activated by connection to A1 terminal via the external control contact S.
- Where the control signal is recognizable.
- ° For first range setpoint (1 s) setting accuracy and repeatability are smaller than the given ones in technical parameters (significant influence of the operational relay operating time, processor start-time, and the moment of supply switching as referred to the AC supply course).
- °° Calculated from the final range values, for the setting direction from minimum to maximum.
### Time functions

**ER** - ON delay and OFF delay with control contact S. Independent settings of T1 and T2 intervals.

- **Codes of versions:** RPC-1ER-...

The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T1, and after it has lapsed, the output relay R switches on. Opening of the control contact S starts the interval T2, and after it has lapsed, the output relay R switches off. In case the control contact S is closed for time shorter than T1, the unit will not switch the output relay R on.

**EWs** - OFF delay and breaking time delay with opening of the control contact S. Independent settings of T1 and T2 intervals.

- **Codes of versions:** RPC-1EA-...

The input of the time relay is supplied with voltage U continuously. Closing of the control contact S switches on the output relay R. Opening of the control contact S switches off the output relay R for the interval T2. Following the interval T2, the output relay R switches on again when the control contact S is closed for the interval of the interval. In the course of the intervals T1 and T2 the position of the control contact S is of no importance.

**EWs** - ON delay and ON for the set time with closing of the control contact S. Independent settings of T1 and T2 intervals.

- **Codes of versions:** RPC-1ES-...

The input of the time relay is supplied with voltage U continuously. Closing of the control contact S starts the interval T1, and after the interval has lapsed, the output relay R switches off for the interval T2. Following the interval T2, the output relay R switches on when the control contact S is closed for the interval of the interval. In the course of the intervals T1 and T2 the position of the control contact S is of no importance.

**EWu + NWu** - ON delay for the set interval (EWu) or switching ON for the set interval-switching OFF for the set interval-continuous ON with the control contact S (NWu). Independent settings of T1 and T2 intervals.

- **Codes of versions:** RPC-1EU-...

When the control contact S is open, application of the supply voltage U starts operation in the EWu function - the interval T1, and after the interval T1 has lapsed, the output relay switches on for the interval T2.

**function EWu**

- Application of the supply voltage U when the control contact S is open start the cyclical operation in the function EWu - from the interval T1 (time of switching on the output relay R), following which the output relay R switches off for the interval T2. The cyclical operation continues until the supply voltage U is interrupted.

**function NWu**

- When the control contact S is closed, application of the supply voltage U starts operation in the EWu function - from switching on the output relay R for the interval T1, and after the interval T1 has lapsed, the output relay R switches off for the interval T2, and following the interval T2, the output relay R switches on for continuous time.

In the course of the relay operation, closing of the control contact S at any time will cause reset and the operation in the EWu function will start whereas opening of the control contact S at any time will cause reset and the operation in the NWu function will start.

**li + Ip** - Cyclical operation in two independent intervals T1 and T2. Operation in the function li or lp depending on the position of the control contact S.

- **Codes of versions:** RPC-1IP-...

Application of the supply voltage U when the control contact S is open start the cyclical operation in the function li - from the interval T1 (time of switching on the output relay R), following which the output relay R switches off for the interval T2. The cyclical operation continues until the supply voltage U is interrupted.

**function li**

- When the control contact S is closed, application of the supply voltage U starts operation in the function li - from switching on the output relay R for the interval T1, and after the interval T1 has lapsed, the output relay R switches off for the interval T2. The cyclical operation continues until the supply voltage U is interrupted.

In the course of the relay operation, opening of the control contact S at any time will cause reset and the operation in the li function will start whereas opening of the control contact S at any time will cause reset and the operation in the function Ip will start.

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

| WsWa | ON for the set intervals T1 and T2 with the control contact S.
| Independent settings of T1 and T2 intervals.
| Codes of versions: RPC-1SA-... |

| WT | Monitoring of the sequence of pulses. Switching on extended with consecutive pulses / closings of the contact S. Independent settings of T1 and T2 intervals.
| Codes of versions: RPC-1WT-... |

The input of the time relay is supplied with voltage U continuously. Closing of the control contact S switches the output relay R for the interval T1, and after the interval has lapsed, the relay R is switched off. Opening of the control contact S switches on the output relay R for the interval T2. If the control contact S is open when the interval T1 lapses, the output relay R will remain on for the interval T2. If the control contact S is closed when the interval T2 lapses, the output relay R will remain off for the interval T1.

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

**Additional functions**

**Supply diode:** It is lit permanently when the time is not being measured. In course of the T1 time measurement, it flashes at 500 ms period, in course of the T2 time measurement at 250 ms period, where it is lit for 50% of the time, and off for 50% of the time.

**Adjustment of the set values:** The values of time and range are read in the course of the relay’s operation. The set values may be modified at any moment.

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

**Supply:**
- RPC-...-A230: the relay may be supplied with AC voltage 48...63 Hz of 207...253 V.
- RPC-...-UNI: the relay may be supplied with DC voltage or AC voltage 48...63 Hz of 10,8...264 V.

**Dimensions**

**Connection diagram**

*Note:* The indicated polarity of the supply refers only to the relays RPC-...-UNI. The control terminal S is activated by connection to A1 terminal via the external control contact S.
Front panel description

Relays RPC-1... are designed for direct mounting on 35 mm rail mount acc. to EN 60715. Operational position - any. Connections: max. cross section of the cables: 1 x 2,5 mm² (1 x 14 AWG), stripping length: 6,5 mm, max. tightening moment for the terminal: 0,5 Nm.

Two catches: easy mounting on 35 mm rail, firm hold (top and bottom).

Mounting wires in clamps: universal screw (cross-recessed or slotted head).

Ordering codes

<table>
<thead>
<tr>
<th>Type</th>
<th>Number and type of contacts</th>
<th>Time functions performed</th>
<th>Rated input voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPC</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Time functions performed
- ER - relay performing a function ER
- EA - relay performing a function EWa
- ES - relay performing a function EWs
- EU - relay performing a function EWu + NWu
- IP - relay performing a function li + lp
- SA - relay performing a function WsWa
- WT - relay performing a function Wt

Rated input voltage
- A230 - 230 V AC 50/60 Hz
- UNI - 12...240 V AC/DC AC: 50/60 Hz

Examples of ordering codes:

RPC-1ER-A230 time relay RPC-1ER..., single-function (relay perform function ER), cover - modular, width 17,5 mm, one changeover contact, contact material AgSnO₂, rated input voltage 230 V AC 50/60 Hz

RPC-1WT-UNI time relay RPC-1WT..., single-function (relay perform function Wt), cover - modular, width 17,5 mm, one changeover contact, contact material AgSnO₂, rated input voltage 12...240 V AC/DC AC: 50/60 Hz

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.