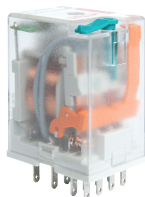


# R4N

## miniature industrial relays



7 A / 230 V AC

- Relays of general application • For plug-in sockets: 35 mm rail mount acc. to PN-EN 60715; on panel mounting; PCB mounting • For PCB and soldering connections - option • Miniature dimensions • Cadmium - free contacts
- AC and DC coils • WT (mechanical indicator + lockable front test button) - standard features of relays. Relays may be provided with the test buttons (no latching) and plugs - page 12

• **Have obtained LR Type Approval Certificate (Lloyd's Register)**

• Recognitions, certifications, directives: RoHS,       

### Contact data

|                                |                                   |                                                                                                                                                                               |
|--------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number and type of contacts    |                                   | 4 CO                                                                                                                                                                          |
| Contact material               |                                   | <b>AgNi</b> , AgNi/Au flash gold plating, AgNi/Au hard gold plating                                                                                                           |
| Rated / max. switching voltage | AC                                | 250 V / 250 V                                                                                                                                                                 |
| Min. switching voltage         |                                   | 10 V AgNi, 10 V AgNi/Au flash gold plating<br>5 V AgNi/Au hard gold plating                                                                                                   |
| Rated load (capacity)          | AC1<br>AC15<br>AC3<br>DC1<br>DC13 | 7 A / 230 V AC (VDE) 6 A / 250 V AC<br>1,5 A / 120 V 0,75 A / 240 V (C300)<br>125 W (single-phase motor)<br>6 A / 24 V DC (see Fig. 3)<br>0,22 A / 120 V 0,1 A / 250 V (R300) |
| Min. switching current         |                                   | 5 mA                                                                                                                                                                          |
| Max. inrush current            |                                   | 12 A                                                                                                                                                                          |
| Rated current                  |                                   | 7 A                                                                                                                                                                           |
| Max. breaking capacity         | AC1                               | 1 500 VA                                                                                                                                                                      |
| Min. breaking capacity         |                                   | 0,3 W AgNi, 0,3 W AgNi/Au flash gold plating<br>0,1 W AgNi/Au hard gold plating                                                                                               |
| Contact resistance             |                                   | ≤ 100 mΩ                                                                                                                                                                      |
| Max. operating frequency       |                                   |                                                                                                                                                                               |
| • at rated load                | AC1                               | 1 200 cycles/hour                                                                                                                                                             |
| • no load                      |                                   | 18 000 cycles/hour                                                                                                                                                            |

### Coil data

|                                   |                   |                                                   |
|-----------------------------------|-------------------|---------------------------------------------------|
| Rated voltage                     | 50/60 Hz AC<br>DC | 6 ... 240 V<br>5 ... 220 V                        |
| Must release voltage              |                   | AC: ≥ 0,2 U <sub>n</sub> DC: ≥ 0,1 U <sub>n</sub> |
| Operating range of supply voltage |                   | see Tables 1, 2                                   |
| Rated power consumption           | AC<br>DC          | 1,6 VA<br>0,9 W                                   |

### Insulation according to PN-EN 60664-1

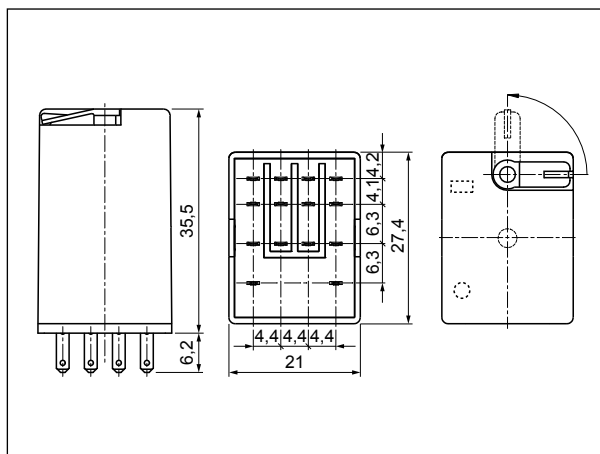
|                             |  |                                                   |
|-----------------------------|--|---------------------------------------------------|
| Insulation rated voltage    |  | 250 V AC                                          |
| Rated surge voltage         |  | 2 500 V 1,2 / 50 μs                               |
| Overvoltage category        |  | II                                                |
| Insulation pollution degree |  | 2                                                 |
| Dielectric strength         |  |                                                   |
| • between coil and contacts |  | 2 500 V AC type of insulation: basic              |
| • contact clearance         |  | 1 500 V AC type of clearance: micro-disconnection |
| • pole - pole               |  | 2 000 V AC type of insulation: basic              |
| Contact - coil distance     |  |                                                   |
| • clearance                 |  | ≥ 1,6 mm                                          |
| • creepage                  |  | ≥ 3,2 mm                                          |

### General data

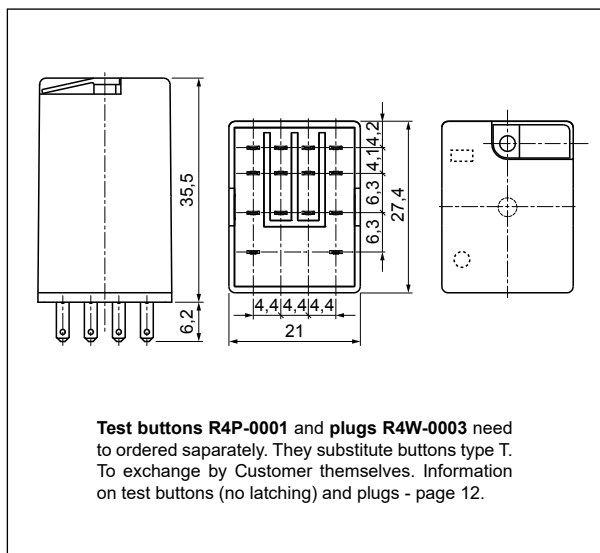
|                                           |                          |                                                                              |
|-------------------------------------------|--------------------------|------------------------------------------------------------------------------|
| Operating / release time (typical values) |                          | AC: 10 ms / 8 ms DC: 13 ms / 3 ms                                            |
| Electrical life                           |                          |                                                                              |
| • resistive AC1                           |                          | > 5 x 10 <sup>4</sup> 7 A, 230 V AC (VDE)<br>> 10 <sup>5</sup> 6 A, 250 V AC |
| • cosφ                                    |                          | see Fig. 2                                                                   |
| Mechanical life (cycles)                  |                          | > 2 x 10 <sup>7</sup>                                                        |
| Dimensions (L x W x H)                    |                          | 27,4 x 21 x 35,5 mm                                                          |
| Weight                                    |                          | 35 g                                                                         |
| Ambient temperature                       | • storage<br>• operating | -40...+85 °C<br>AC: -40...+55 °C DC: -40...+70 °C                            |
| Cover protection category                 |                          | IP 40 PN-EN 60529                                                            |
| Environmental protection                  |                          | RTI PN-EN 116000-3                                                           |
| Shock resistance                          | (NO/NC)                  | 10 g / 5 g                                                                   |
| Vibration resistance                      |                          | 5 g 10...150 Hz                                                              |

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

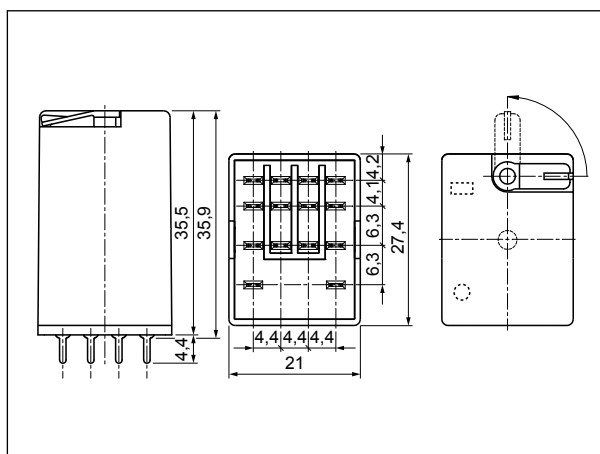
## Dimensions - plug-in version (WT), with lockable front test button type T



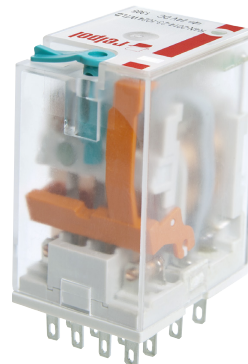
## Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)



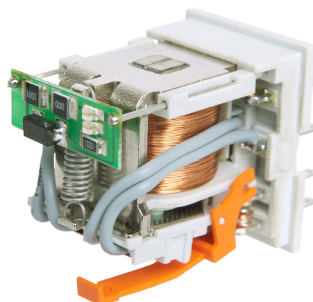
## Dimensions - PCB version (WT), with lockable front test button type T



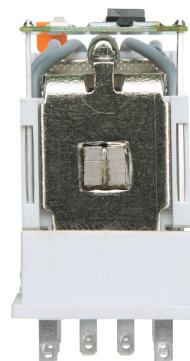
## Design



**Improvement of the functionality of the mechanical indicator (W):** it is mounted on an insulation base of the unit of the movable contacts; the changes provide the appropriate position in the window in the upper side of the housing irrespectively of the number of operations performed by the relay.



**Application of electronics made in the SMD technology:** additional features L (LED diode) and D (diode) are located on the printed circuit board; the change of the position of the LED diode and optimization of the quality and intensity of its light provide certainty that the relay is in operation status when the LED is on.



**Improvement of the efficiency of the electromagnet:** an innovational technology of connecting elements has been introduced, which guarantees more reliable operation of the relay.

**Strengthening of the insulation in the area of the contact plate:** polyamide PA66 has been applied; it has very good mechanical and electrical parameters and best thermal properties.