



# R40N

## high power relays



- High load 40 A • AC coils - of up to 220 V AC, DC coils - of up to 110 V DC, insulation class F: 155 °C
- For PCB • Small dimensions, light weight
- High shock and vibration resistance
- High quality, long life
- Applications: for automobile, machine, electronic equipment, air conditioner, household appliance
- Recognitions, certifications, directives: RoHS,  

### Contact data

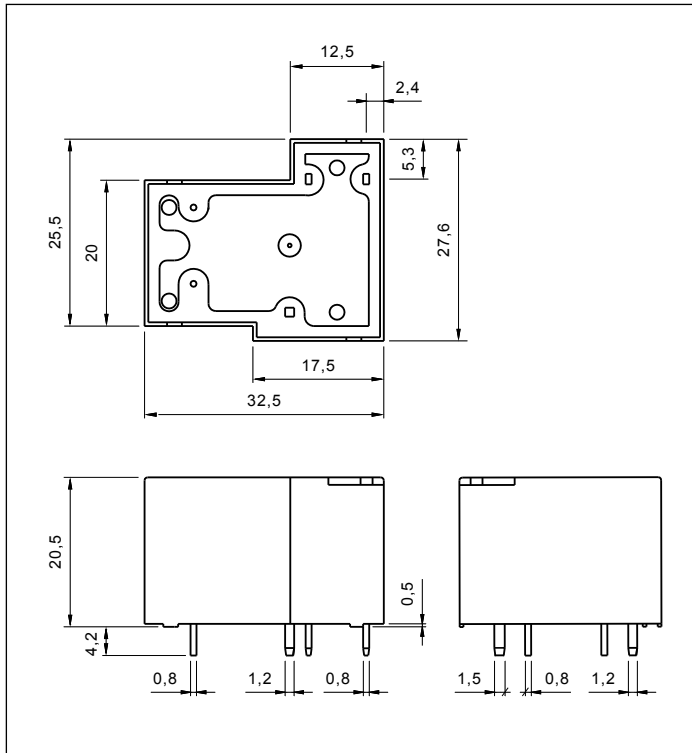
|   |                             |   |   |
|---|-----------------------------|---|---|
| Number and type of contacts               |                             | 1 CO, 1 NO                                |   |
| Contact material                          |                             | <b>AgSnO<sub>2</sub></b>                  |   |
| Rated / max. switching voltage            | AC                          | 240 V / 300 V                             |   |
|   | DC                          | 110 V / 110 V                             |   |
| Min. switching voltage                    |                             | 10 V                                      |   |
| Rated load                                | AC1                         | 1 CO: 40 A / 30 A (NO/NC) / 240 V AC      | 1 NO: 40 A / 240 V AC   |
|   | DC1                         | 1 CO: 40 A / 30 A (NO/NC) / 30 V DC       | 1 NO: 40 A / 30 V DC  |
| Motor load                                | acc. to UL 508              | 1 CO: 2 HP / 1,5 HP                       | 250 V AC, (NO/NC), single-phase motor                             |
|   |                             | 1 NO: 2 HP                                | 250 V AC, single-phase motor                                      |
|   | AC3 acc. to IEC 60947-4-1   | 1 CO: 1,5 kW / 1,1 kW                     | 250 V AC, (NO/NC), single-phase motor                             |
|   |                             | 1 NO: 1,5 kW                              | 250 V AC, single-phase motor                                      |
| Rated current                             |                             | 40 A                                      |   |
| Max. breaking capacity                    | AC1                         | 1 CO: 9 600 VA / 7 200 VA (NO/NC)         | 1 NO: 9 600 VA  |
|   | DC1                         | 1 CO: 1 200 W / 900 W (NO/NC)             | 1 NO: 1 200 W   |
| Contact resistance                        |                             | ≤ 30 mΩ                                   |   |
| <b>Coil data</b>                          |                             |   |   |
| Rated voltage                             | 50/60 Hz AC                 | 12, <b>24</b> , 110, 120, <b>220</b> V    |   |
|   | DC                          | <b>5, 12, 24</b> , 48, 110 V              |   |
| Must release voltage                      |                             | DC: ≥ 0,1 U <sub>n</sub>                  |   |
| Operating range of supply voltage         |                             | see Tables 1, 2                           |   |
| Must operate voltage                      |                             | ≤ 0,75 U <sub>n</sub>                     |   |
| Rated power consumption                   | AC                          | 2,0 VA                                    |   |
|   | DC                          | 0,9 W                                     |   |
| <b>Insulation according to EN 60664-1</b> |                             |   |   |
| Insulation rated voltage                  |                             | 500 V AC                                  |   |
| Overvoltage category                      |                             | II  |   |
| Flammability class                        |                             | V-0                                       | UL 94   |
| Insulation resistance                     |                             | > 1 000 MΩ                                | 500 V DC, 60 s  |
| Dielectric strength                       | • between coil and contacts | 4 000 V AC                                | type of insulation: reinforced                                    |
|   | • contact clearance         | 1 500 V AC                                | type of clearance: micro-disconnection, with contact gap ≥ 0,9 mm |
| <b>General data</b>                       |                             |   |   |
| Operating / release time (typical values) |                             | 15 ms / 10 ms                             |   |
| Electrical life                           | • resistive AC1             | 1 200 cycles/hour                         | 10 <sup>5</sup> 1 CO: 40 A / 30 A (NO/NC), 240 V AC               |
|   | • resistive DC1             | 1 200 cycles/hour                         | 10 <sup>5</sup> 1 CO: 40 A / 30 A (NO/NC), 30 V DC                |
| Mechanical life (cykle)                   |                             | 10 <sup>7</sup>                           |   |
| Dimensions (L x W x H)                    |                             | 32,5 x 27,6 x 20,5 mm                     |   |
| Weight                                    |                             | 30 g                                      |   |
| Ambient temperature                       |                             | -55...+100 °C                             |   |
| (non-condensation and/or icing)           | • operating                 |   |   |
| Cover protection category                 |                             | IP 64 or <b>IP 67</b>                     | EN 60529  |
| Environmental protection                  |                             | RTII or <b>RTIII</b>                      | EN 61810-1  |
| Shock resistance                          |                             | 20 g                                      |   |
| Vibration resistance                      |                             | 1,5 mm DA (constant amplitude) 10...55 Hz |   |
| Solder bath temperature                   |                             | max. 260 °C                               |   |
| Soldering time                            |                             | max. 5 s                                  |   |

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

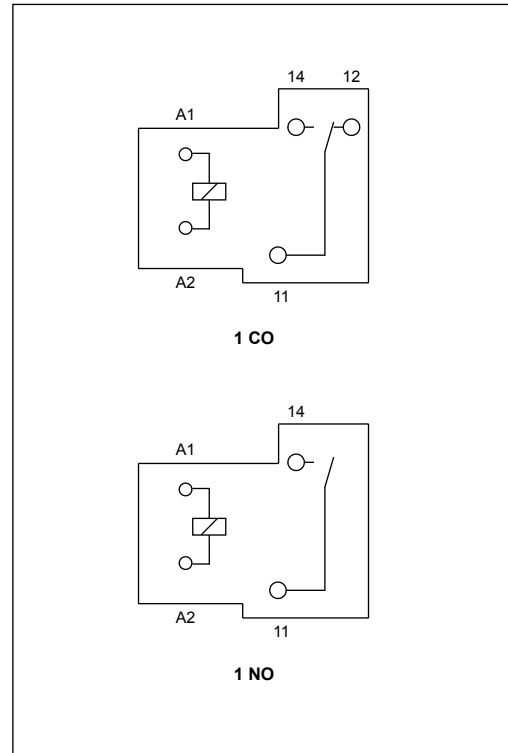
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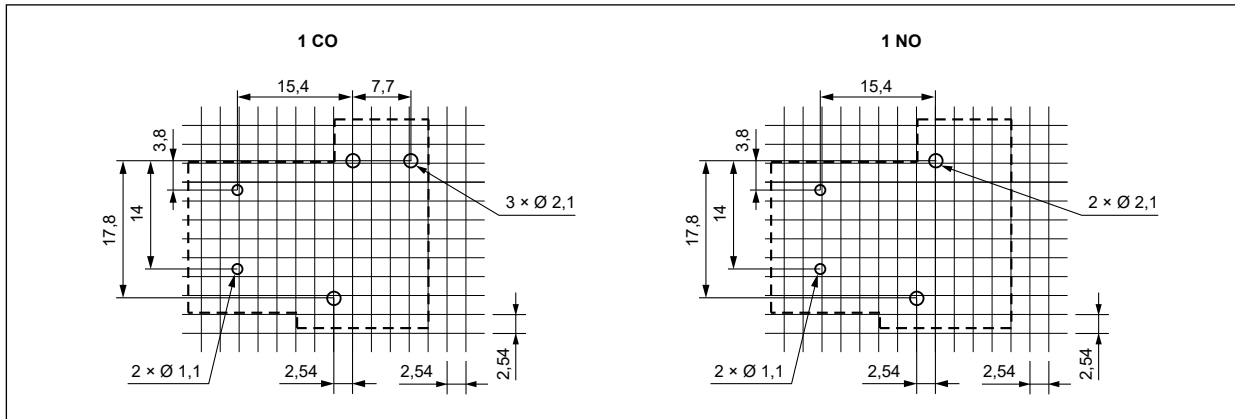
### Dimensions



### Connection diagrams (pin side view)



### Pinout (solder side view)



### Mounting

Relays **R40N** are designed for direct PCB mounting.

#### 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.

# R40N

## high power relays

**Coil data - DC voltage version**

Table 1

| Coil code   | Rated voltage<br>V DC | Coil resistance<br>at 20 °C<br>Ω | Acceptable<br>resistance | Coil operating range<br>V DC |                 |
|-------------|-----------------------|----------------------------------|--------------------------|------------------------------|-----------------|
|             |                       |                                  |                          | min. (at 20 °C)              | max. (at 20 °C) |
| <b>1005</b> | <b>5</b>              | <b>28</b>                        | <b>± 10%</b>             | <b>3,8</b>                   | <b>6,5</b>      |
| <b>1012</b> | <b>12</b>             | <b>160</b>                       | <b>± 10%</b>             | <b>9,0</b>                   | <b>15,6</b>     |
| <b>1024</b> | <b>24</b>             | <b>640</b>                       | <b>± 10%</b>             | <b>18,0</b>                  | <b>31,2</b>     |
| 1048        | 48                    | 2 560                            | ± 10%                    | 36,0                         | 62,4            |
| 1110        | 110                   | 13 445                           | ± 10%                    | 82,5                         | 143,0           |

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

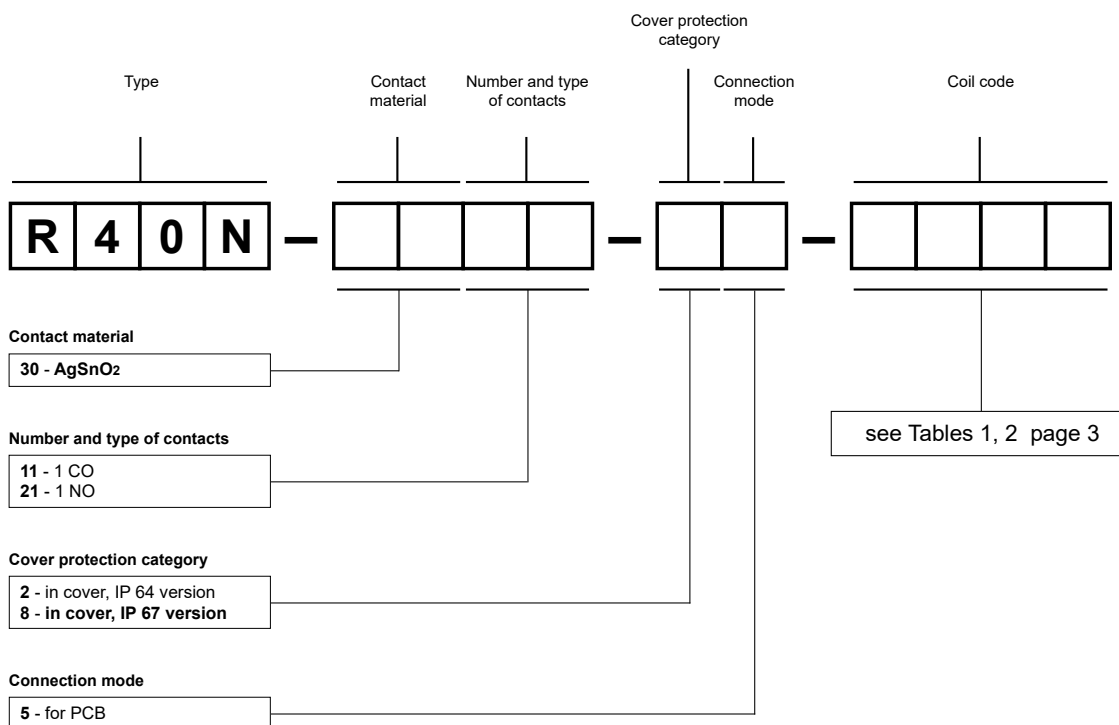
**Coil data - AC 50/60 Hz voltage version**

Table 2

| Coil code   | Rated voltage<br>V AC | Coil resistance<br>at 20 °C<br>Ω | Acceptable<br>resistance | Coil operating range<br>V AC 50 Hz |                 |
|-------------|-----------------------|----------------------------------|--------------------------|------------------------------------|-----------------|
|             |                       |                                  |                          | min. (at 20 °C)                    | max. (at 20 °C) |
| 5012        | 12                    | 27                               | ± 10%                    | 9,0                                | 15,6            |
| <b>5024</b> | <b>24</b>             | <b>120</b>                       | <b>± 10%</b>             | <b>18,0</b>                        | <b>31,2</b>     |
| 5110        | 110                   | 2 360                            | ± 10%                    | 82,5                               | 143,0           |
| 5120        | 120                   | 3 040                            | ± 10%                    | 90,0                               | 156,0           |
| <b>5220</b> | <b>220</b>            | <b>13 490</b>                    | <b>± 10%</b>             | <b>165,0</b>                       | <b>286,0</b>    |

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

### Ordering codes



Examples of ordering codes:

**R40N-3011-85-1012**

relay **R40N**, for PCB, one changeover contact, contact material AgSnO<sub>2</sub>, coil voltage 12 V DC, in cover IP 67

**R40N-3021-25-5024**

relay **R40N**, for PCB, one normally open contact, contact material AgSnO<sub>2</sub>, coil voltage 24 V AC 50/60 Hz, in cover IP 64