




RUC-M

industrial relays for DC loads



with adaptor (V)

with adaptor (H)

• **Relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC loads** • AC and DC coils • Mounting: in sockets; 35 mm rail mount acc. to PN-EN 60715; on panel; PCB • Version: faston 187 (4,8 x 0,5 mm) • Contact gap: 3 mm (version 2 NO); 6 mm (version 1 NO) • Additional features: L - light indicator (LED) • Applications: control of electromagnets; systems of heating, cooling, ventilation, air conditioning; control with single-phase and three-phase motors; catering industry machines and equipment; automation systems; photoelectric systems; etc. • Recognitions, certifications, directives: RoHS,   

Contact data

| | | | |
|--|------------------------------|---|--|
| Number and type of contacts | | 1 NO (double-break) | 2 NO |
| Contact material | | AgCdO | |
| Rated / max. switching voltage | | 250 V DC; 250 V AC / 350 V DC; 440 V AC ❶ | |
| Min. switching voltage | | 10 V | |
| Rated load | DC1 | 16 A / 24 V DC; 14 A / 110 V DC | 16 A / 24 V DC; 10,5 A / 110 V DC |
| | | 12 A / 220 V DC | 4,5 A / 220 V DC |
| | DC L/R=40 ms | 16 A / 24 V DC; 5,4 A / 110 V DC | 16 A / 24 V DC; 1,35 A / 110 V DC |
| | | 3 A / 220 V DC | 0,45 A / 220 V DC |
| | AC1 | 16 A / 250 V AC | 16 A / 250 V AC |
| Min. switching current | | 10 mA | |
| Max. inrush current | | 40 A 20 ms | |
| Rated current | | 16 A | |
| Min. breaking capacity | | 1 W | |
| Contact resistance | | ≤ 100 mΩ | |
| Max. operating frequency | | 1 200 cycles/hour | |
| | • at rated load • no load | AC1 | 12 000 cycles/hour |
| Coil data | | | |
| Rated voltage | 50/60 Hz AC | 12 ... 240 V | |
| | DC | 12 ... 220 V | |
| Must release voltage | | AC: ≥ 0,15 U _n | DC: ≥ 0,1 U _n |
| Operating range of supply voltage | | AC: 0,85...1,1 U _n | DC: 0,8...1,1 U _n see Tables 1, 2 |
| Rated power consumption | AC | 2,8 VA | |
| | DC | 1,7 W | |
| Insulation according to PN-EN 60664-1 | | | |
| Insulation rated voltage | | 400 V AC | |
| Rated surge voltage | | 4 000 V 1,2 / 50 μs | |
| Overvoltage category | | III | |
| Insulation pollution degree | | 3 | |
| Dielectric strength | • between coil and contacts | 2 500 V AC | type of insulation: basic |
| | • contact clearance | 4 000 V AC | type of clearance: full-disconnection |
| | • pole - pole | 2 500 V AC | contacts 2 NO, type of insulation: basic |
| Contact - coil distance | • clearance | ≥ 6,3 mm | |
| | • creepage | ≥ 8 mm | |
| General data | | | |
| Operating / release time (typical values) | | 20 ms / 15 ms | |
| Electrical life | • resistive DC1 | > 2 x 10 ⁵ 12 A, 220 V DC | > 2 x 10 ⁵ 4,5 A, 220 V DC |
| | • DC L/R=40 ms | > 2 x 10 ⁵ 3 A, 220 V DC | > 2 x 10 ⁵ 0,45 A, 220 V DC |
| Mechanical life (cycles) | | > 2 x 10 ⁷ | |
| Dimensions (L x W x H) | | 36,1 x 38,6 x 45,5 mm ❷ | |
| Weight | | 80 g ❸ | 85 g ❹ |
| Ambient temperature | • storage | -40...+85 °C | |
| | • operating | -40...+70 °C | |
| Cover protection category | | IP 00 | PN-EN 60529 |
| Shock resistance | | 10 g | |
| Vibration resistance | | 5 g 10...150 Hz | |
| Solder bath temperature | | max. 270 °C | |
| Soldering time | | max. 5 s | |

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

❶ For RUC-M with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC / DC.

❷ For plug-in sockets version. For version: with (V) adaptor: 58,75 x 38,6 x 45,9 mm; with (H) adaptor: 46,8 x 38,6 x 62,45 mm.

For version with mounting flange: 66,3 x 38,6 x 36,1 mm. For PCB version: 36,1 x 38,6 x 52,5 mm.

❸ Weight of plug-in sockets version and PCB version. ❹ Weight of version with (V) or (H) adaptor, and version with mounting flange.

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Coil data - DC voltage version

Table 1

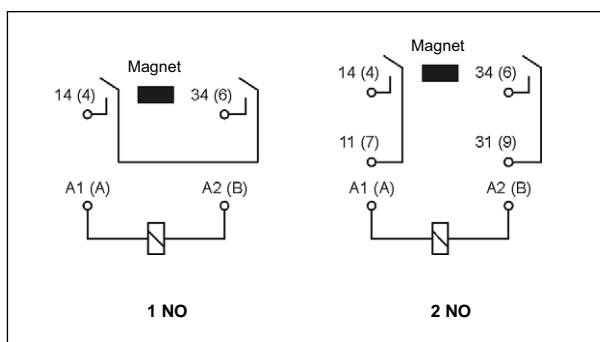
| Coil code | Rated voltage V DC | Coil resistance at 20 °C Ω | Acceptable resistance | Coil operating range V DC | |
|-----------|-----------------------|---|--------------------------|------------------------------|-----------------|
| | | | | min. (at 20 °C) | max. (at 55 °C) |
| W012 | 12 | 85 | $\pm 10\%$ | 9,6 | 13,2 |
| W024 | 24 | 345 | $\pm 10\%$ | 19,2 | 26,4 |
| W048 | 48 | 1 370 | $\pm 10\%$ | 38,4 | 52,8 |
| W110 | 110 | 7 300 | $\pm 10\%$ | 88,0 | 121,0 |
| W220 | 220 | 30 000 | $\pm 10\%$ | 176,0 | 242,0 |

Coil data - AC 50/60 Hz voltage version

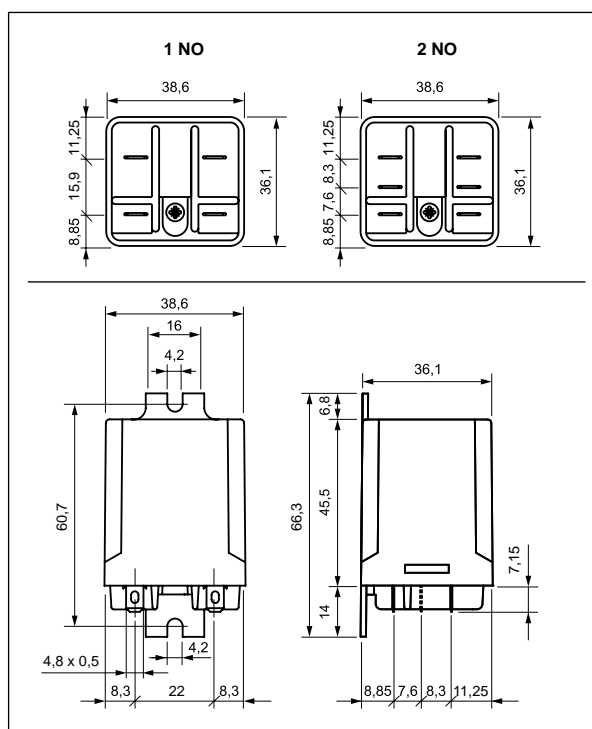
Table 2

| Coil code | Rated voltage V AC | Coil resistance at 20 °C Ω | Acceptable resistance | Coil operating range V AC | |
|-----------|-----------------------|---|--------------------------|------------------------------|-----------------|
| | | | | min. (at 20 °C) | max. (at 55 °C) |
| 5012 | 12 | 18,5 | $\pm 10\%$ | 9,6 | 13,2 |
| 5024 | 24 | 75 | $\pm 10\%$ | 19,2 | 26,4 |
| 5115 | 115 | 1 840 | $\pm 10\%$ | 92,0 | 126,5 |
| 5120 | 120 | 1 910 | $\pm 10\%$ | 96,0 | 132,0 |
| 5230 | 230 | 7 080 | $\pm 10\%$ | 184,0 | 253,0 |
| 5240 | 240 | 7 760 | $\pm 10\%$ | 192,0 | 264,0 |

Connection diagrams (pin side view)



Dimensions - version with mounting flange in the wall of the cover



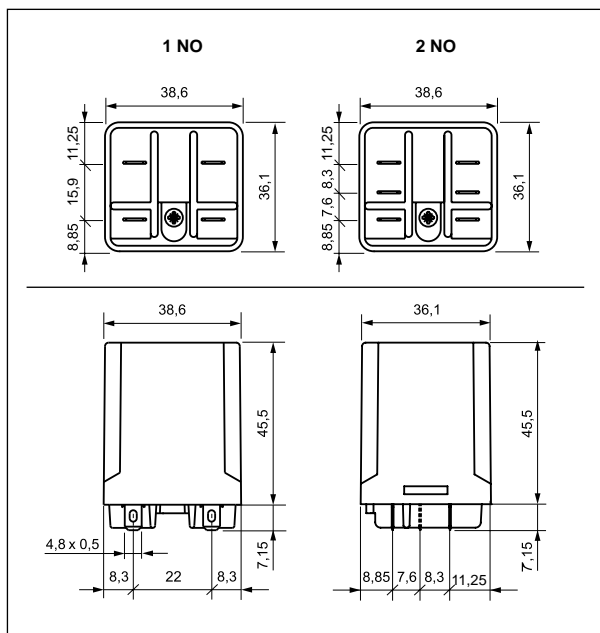
Design



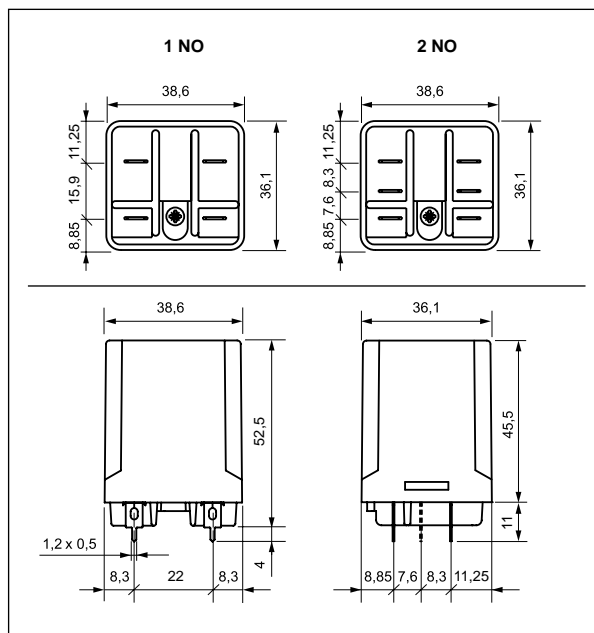
RUC-M

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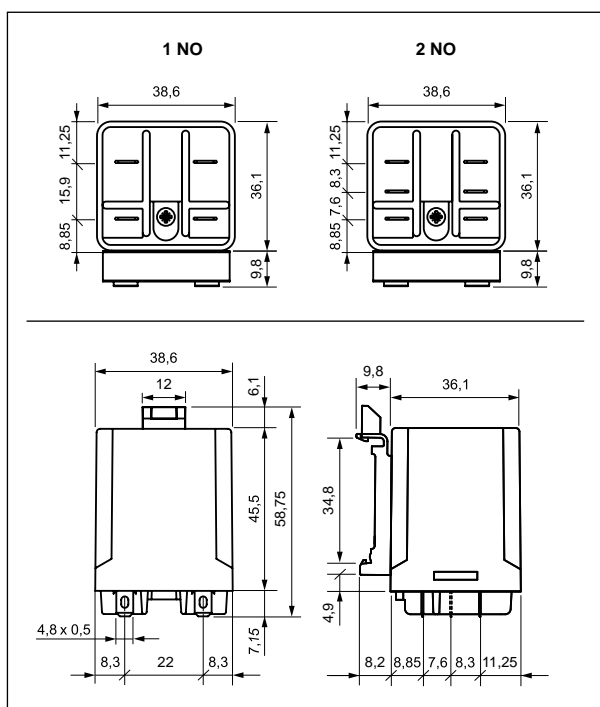
Dimensions - plug-in version (standard)



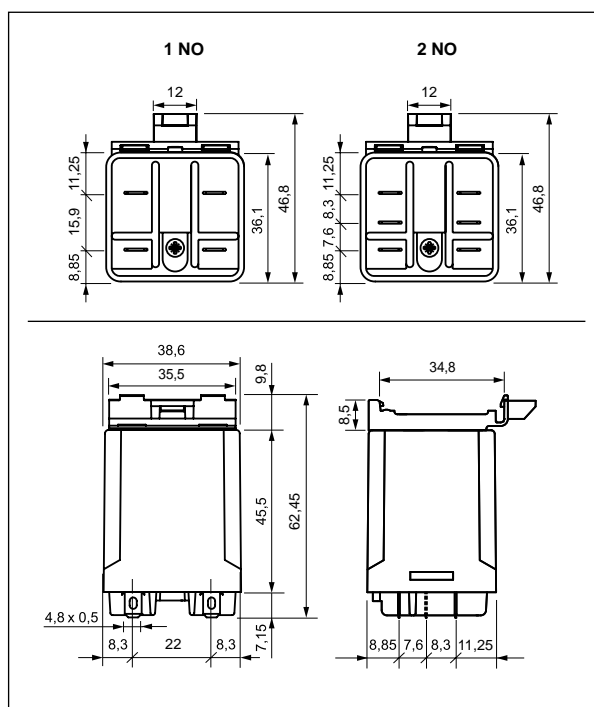
Dimensions - PCB version



Dimensions - version with vertical adaptor (V)



Dimensions - version with horizontal adaptor (H)



Mounting

Relays RUC-M are offered in versions:

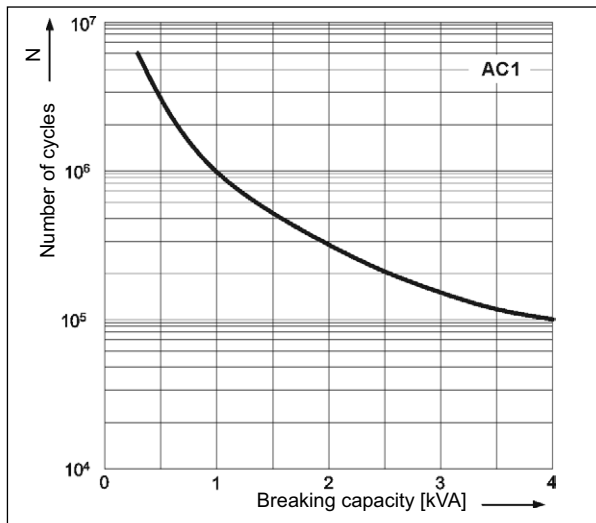
- standard, for screw terminals plug-in sockets **GUC11** with clip **MBA**, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws
- with mounting flange in the wall of the cover, on panel mounting with two M4 screws, flat insert connectors - faston 187 (4,8 x 0,5 mm)
- with vertical (V) or horizontal (H) adaptors for direct mounting on 35 mm rail mount acc. to PN-EN 60715, flat insert connectors - faston 187 (4,8 x 0,5 mm)
- for direct PCB mounting

⊖ Relays unavailable with (V) or (H) adaptor, and cover with mounting flange.

⊕ For RUC-M with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC/DC.

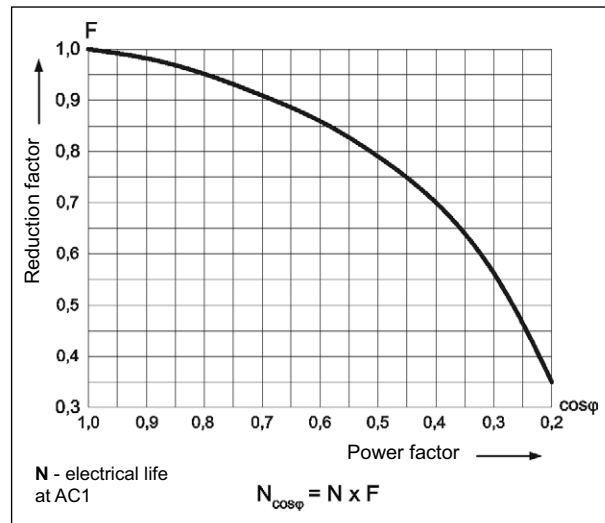
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1

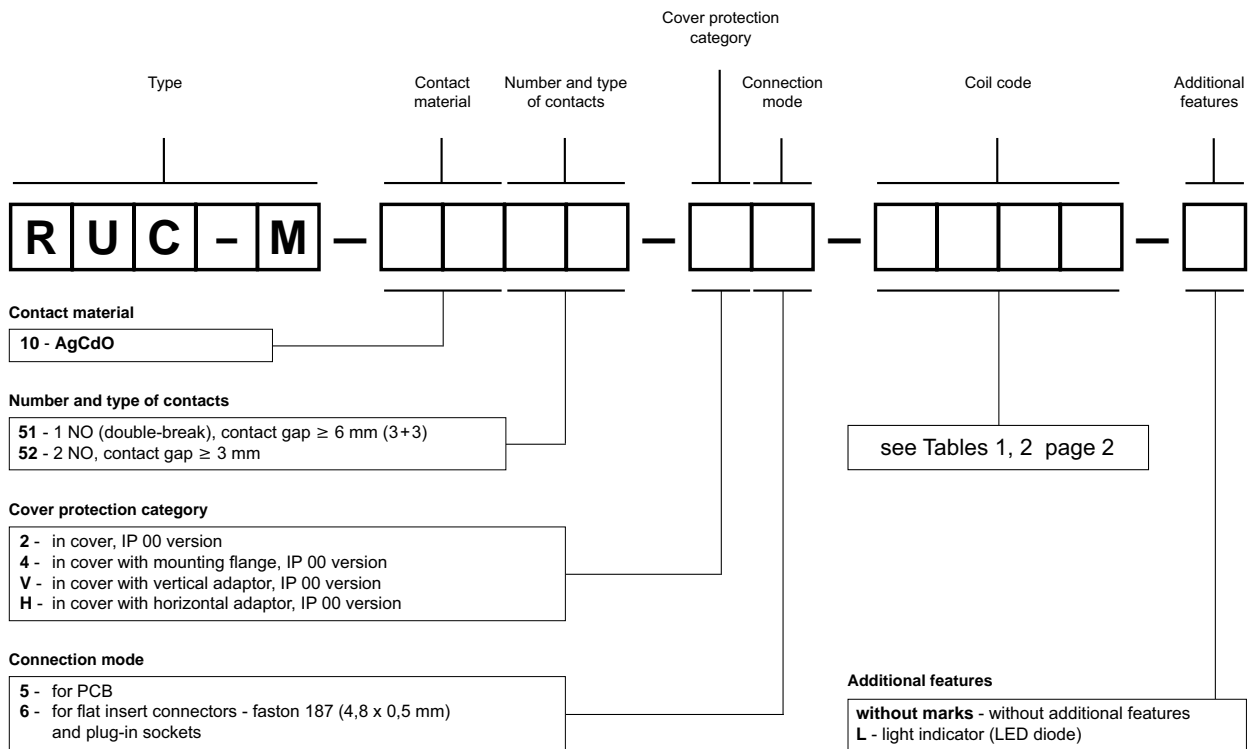


Electrical life reduction factor at AC inductive load

Fig. 2



Ordering codes



Examples of ordering codes:

- RUC-M-1051-26-W024** relay **RUC-M**, faston 187 (4,8 x 0,5 mm), with contact gap ≥ 6 mm (3+3), for plug-in sockets GUC11, one normally open contact (double-break), contact material AgCdO, reinforced coil voltage 24 V DC, in cover IP 00
- RUC-M-1052-V6-5230-L** relay **RUC-M**, faston 187 (4,8 x 0,5 mm), for flat insert connectors, with contact gap ≥ 3 mm, with vertical adaptor (V), two normally open contacts, contact material AgCdO, coil voltage 230 V AC 50/60 Hz, with light indicator (LED diode), in cover IP 00
- RUC-M-1051-25-5024** relay **RUC-M**, with contact gap ≥ 6 mm (3+3), for PCB, one normally open contact (double-break), contact material AgCdO, coil voltage 24 V AC 50/60 Hz, in cover IP 00

Plug-in sockets and accessories

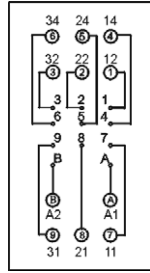
GUC11

For RUC faston 4,8x0,5, RUC-M

Screw terminals
 Max. tightening moment
 for the terminal: 0,7 Nm
 35 mm rail mount
 acc. to PN-EN 60715
 or on panel mounting
 82 x 42,2 x 26,5 mm
 Three poles
 16 A, 250 V AC



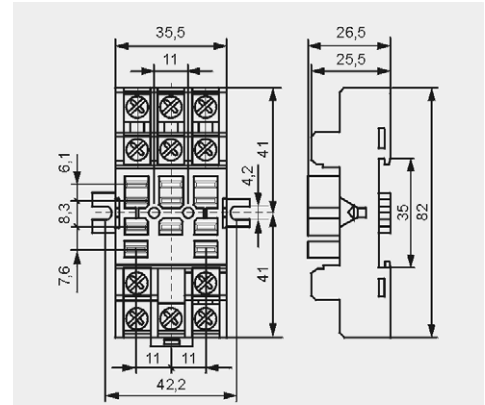
Connection diagram



MBA

Accessories

Dimensions



 For RUC faston 4,8 x 0,5 and RUC-M, with GUC11 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC / DC.

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.