

with adaptor (V) with adaptor (H)

- **Relays with permanent magnet whose magnetic field blows the electric arc between the contacts; for high DC loads**, designed for continuous operation*
- For plug-in sockets: on 35 mm rail mount acc. to EN 60715; on panel mounting; with terminals for soldering
- AC and DC coils, insulation class F: 155 °C
- Versions: PCB; faston 187 (4,8 x 0,5 mm)
- Contact gap: 3 mm (version 2 NO); 6 mm (version 1 NO)
- Additional equipment: L - light indicator (LED)
- Applications: control of electromagnets; systems of heating, cooling, ventillation, air conditioning; control with single-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		AgNi, **$AgSnO_2$**	
Rated / max. switching voltage		250 V DC; 250 V AC / 350 V DC; 440 V AC ❶	
Min. switching voltage		5 V AgNi, 10 V $AgSnO_2$	
Rated load	DC1	16 A / 24 V DC; 14 A / 110 V DC 12 A / 220 V DC	16 A / 24 V DC; 10,5 A / 110 V DC 4,5 A / 220 V DC
	DC L/R=40 ms	16 A / 24 V DC; 5,4 A / 110 V DC 3 A / 220 V DC	16 A / 24 V DC; 1,35 A / 110 V DC 0,45 A / 220 V DC
	AC1	16 A / 250 V AC	16 A / 250 V AC
Min. switching current		5 mA AgNi, 10 mA $AgSnO_2$	
Max. make current		40 A 20 ms	
Rated current		16 A	
Max. breaking capacity	AC1	4 000 VA	
Min. breaking capacity		0,3 W AgNi, 1 W $AgSnO_2$	
Contact resistance		≤ 100 mΩ	
Max. operating frequency			
• at rated load	AC1	1 200 cycles/hour	
• no load		12 000 cycles/hour	

Coil data

Rated voltage	50/60 Hz AC	12, 24, 48, 115, 120, 230, 240 V	
	DC	12, 24, 48, 110, 220 V reinforced coil	
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 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	contact 1 NO, type of clearance: full-disconnection, with contact gap ≥ 6 mm
	2 000 V AC	contacts 2 NO, type of clearance: full-disconnection, with contact gap ≥ 3 mm
• pole - pole	2 500 V AC	contacts 2 NO, type of insulation: basic
Contact - coil distance		
• clearance	≥ 6,3 mm	
• creepage	≥ 8 mm	

The data in bold type relate to the standard versions of the relays. *The relays are designed for continuous operation while maintaining the parameters declared in the data sheet. ❶ For RUC-M with GUC11S-V0 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC / DC.

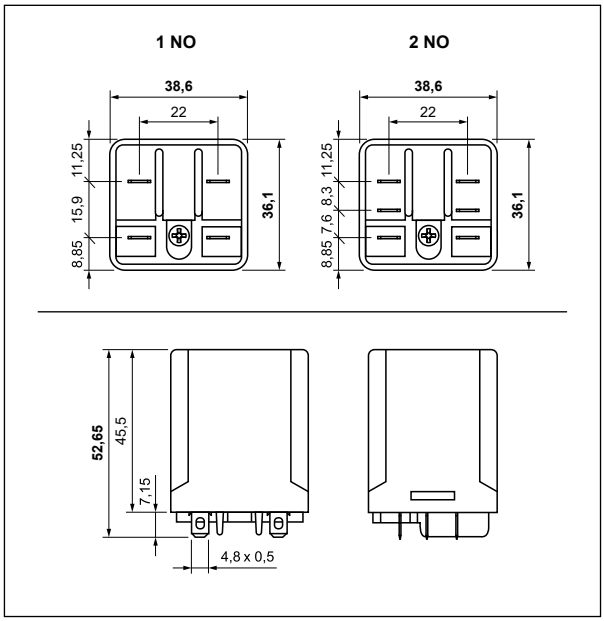
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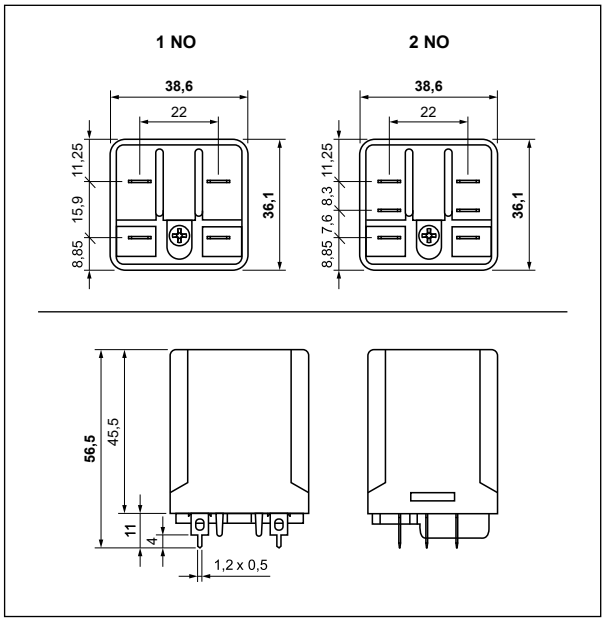
General data

Operating / release time (typical values)	20 ms / 15 ms	
Electrical life		
• resistive DC1	> 2 x 10^5	contact 1 NO, 12 A, 220 V DC
	> 2 x 10^5	contacts 2 NO, 4,5 A, 220 V DC
• DC L/R=40 ms	> 2 x 10^5	contact 1 NO, 3 A, 220 V DC
	> 2 x 10^5	contacts 2 NO, 0,45 A, 220 V DC
Mechanical life (cycles)	> 2 x 10^7	
Dimensions (L x W x H) / Weight	36,1 x 38,6 x 52,65 mm / 80 g	for plug-in sockets
	36,1 x 38,6 x 56,5 mm / 80 g	for PCB
	45,9 x 38,6 x 58,75 mm / 85 g	with adaptor (V)
	46,8 x 38,6 x 62,45 mm / 85 g	with adaptor (H)
	36,1 x 38,6 x 66,3 mm / 85 g	with mounting flange
Ambient temperature (non-condensation and/or icing) • storage	-40...+85 °C	
Ambient temperature (non-condensation and/or icing) • operating	-40...+70 °C	
Cover protection category	IP 00	EN 60529
Environmental protection	RTI	EN 61810-1
Shock resistance	10 g	
Vibration resistance	5 g	10...150 Hz
Solder bath temperature	max. 270 °C	
Soldering time	max. 5 s	

Dimensions - plug-in version (standard)



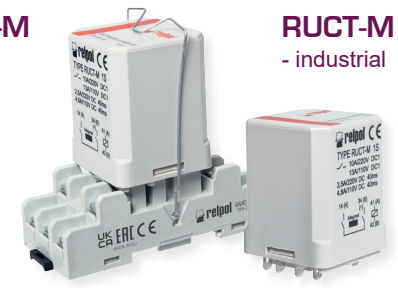
Dimensions - PCB version



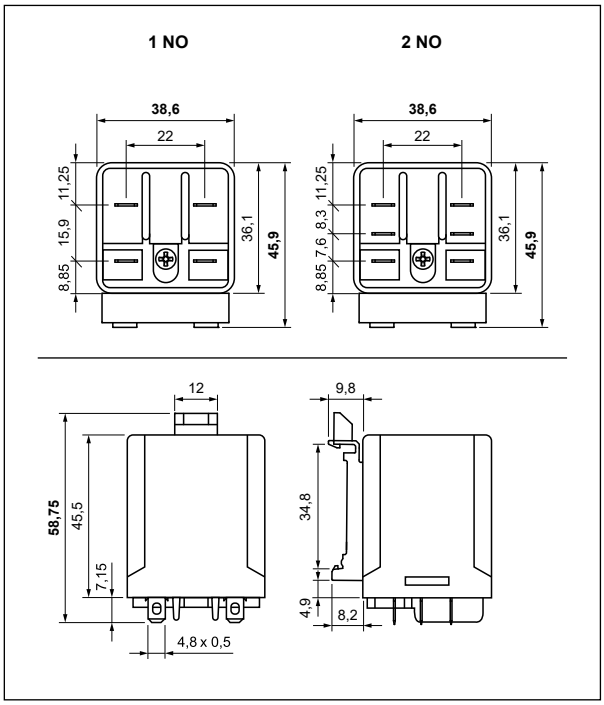
Relays for railroad industry

PRUCT-M
- interface

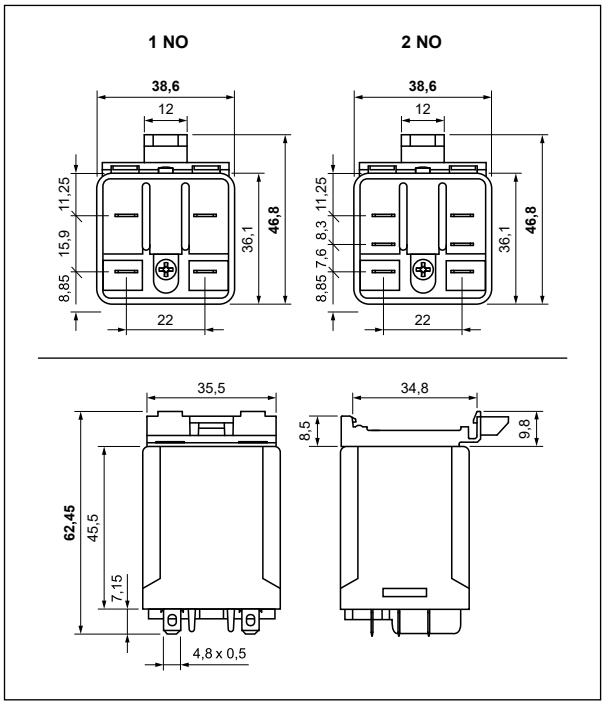
RUCT-M
- industrial



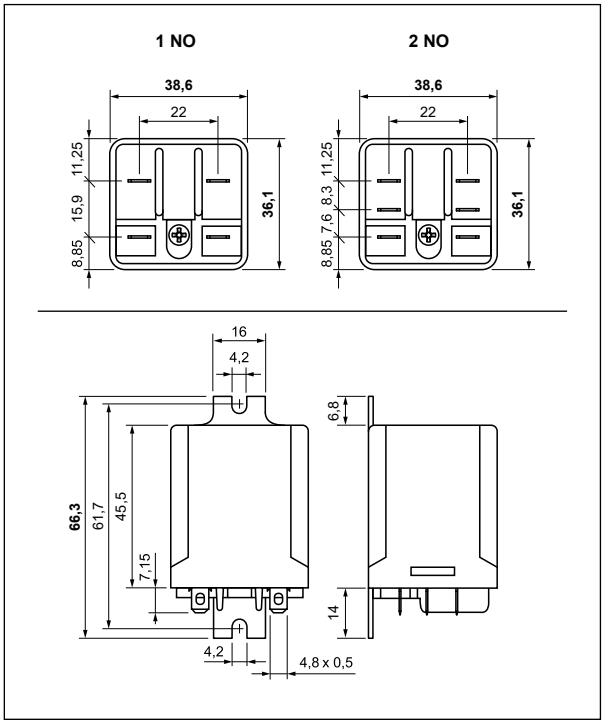
Dimensions - version with vertical adaptor (V)



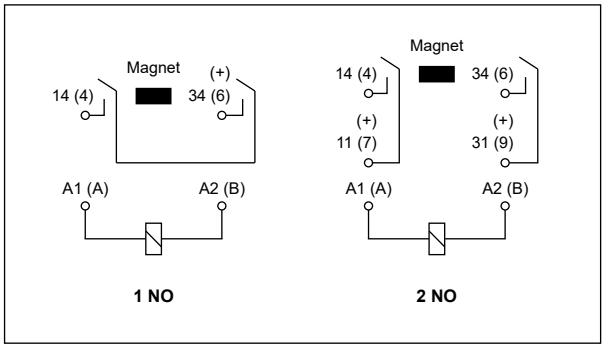
Dimensions - version with horizontal adaptor (H)



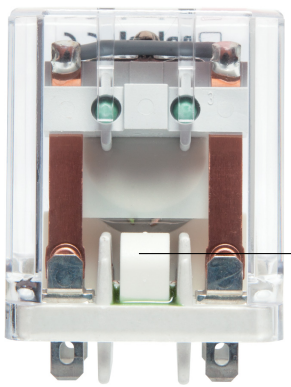
Dimensions - version with mounting flange in the wall of the cover



Connection diagrams (pin side view)

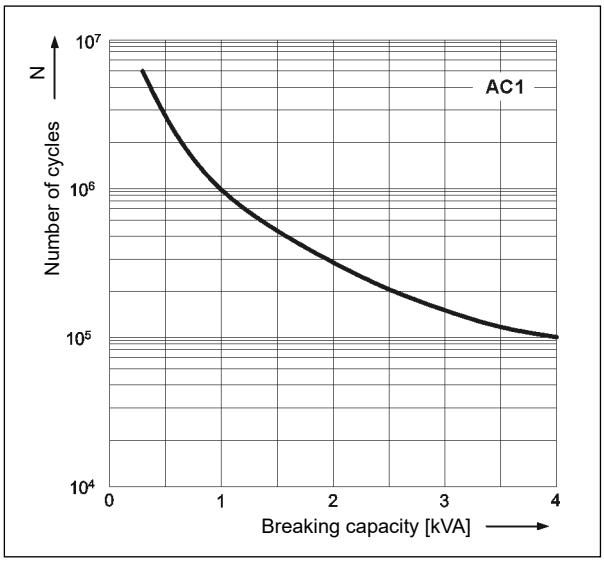


Design

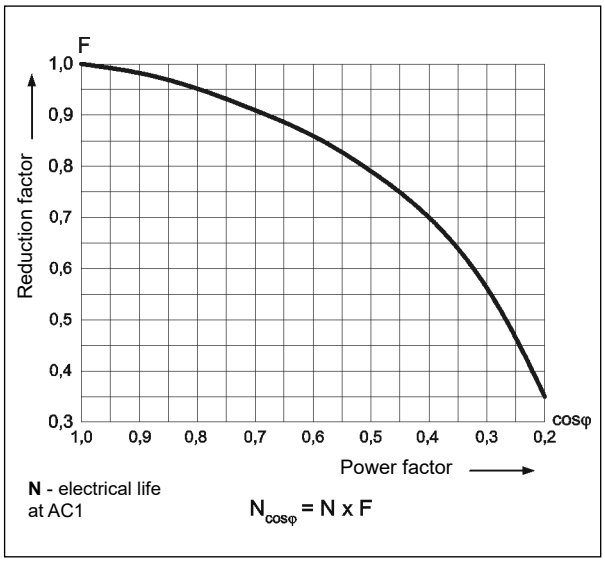


The permanent magnet is fixed on the contact plate. Its magnetic field is directed to the contacts and it blows the electric arc which occurs when the DC load is switched off.

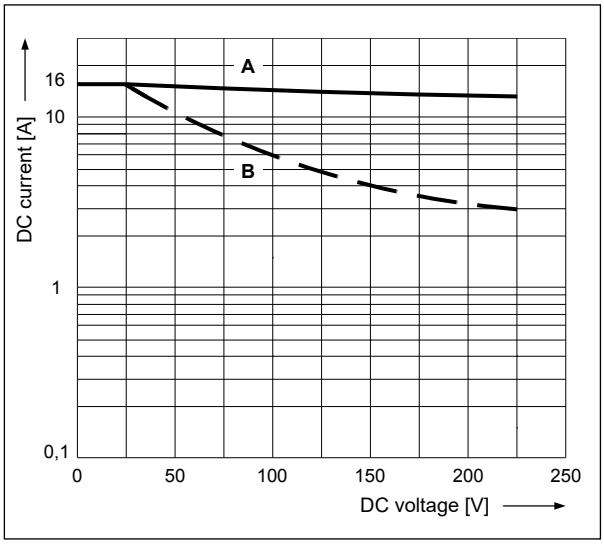
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour Fig. 1



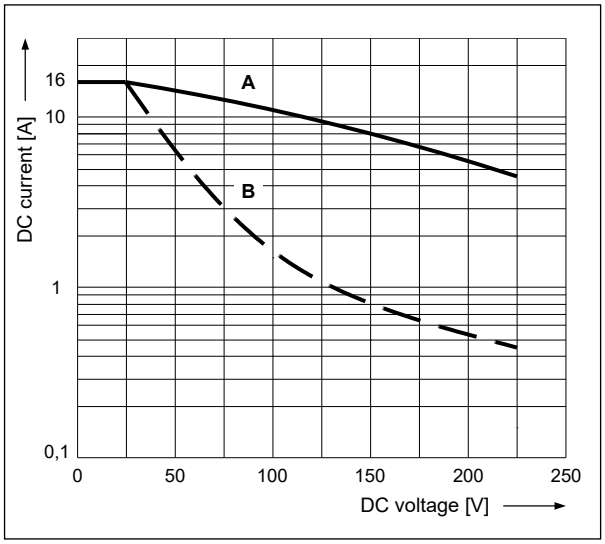
Electrical life reduction factor at AC inductive load Fig. 2



Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms
U_n = 24 V DC - version 1 NO (6 mm) Fig. 3



Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms
U_n = 24 V DC - version 2 NO (3 mm) Fig. 4



Mounting, sockets and accessories for relays

Relays **RUC-M** are offered in versions: • standard, for plug-in sockets • 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 EN 60715, flat insert connectors - faston 187 (4,8 x 0,5 mm) • for direct PCB mounting or through socket ❶.

Sockets for RUC faston 4,8 x 0,5	**Accessories**
	Spring wire clips
Screw terminals sockets, 35 mm rail mount (acc. to EN 60715)	
GUC11S-V0 ❷	MBA
GUC11A-V0 ❷	MBC (socket is sold complete with clip)

❶ Relays unavailable with (V) or (H) adaptor, and cover with mounting flange.
❷ For RUC faston 4,8 x 0,5 and RUC-M, with GUC11S-V0 or GUC11A-V0 socket, max. switching voltages and coil voltages of relays are limited to 250 V AC / DC.

29.09.2026

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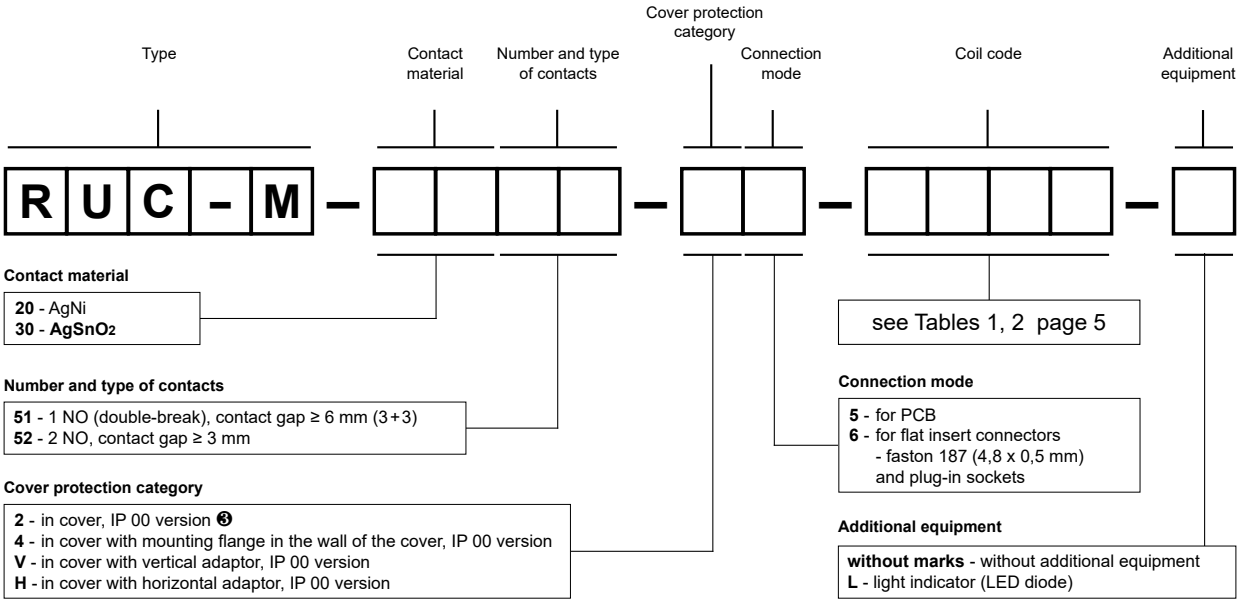
Coil data - DC voltage version, reinforced — Table 1

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 70 °C)
W012	12	85	± 10%	9,6	13,2
W024	24	345	± 10%	19,2	26,4
W048	48	1 370	± 10%	38,4	52,8
W110	110	7 300	± 10%	88,0	121,0
W220	220	30 000	± 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	± 15%	9,6	13,2
5024	24	75	± 15%	19,2	26,4
5048	48	305	± 15%	38,4	52,8
5115	115	1 840	± 15%	92,0	126,5
5120	120	1 910	± 15%	96,0	132,0
5230	230	7 080	± 15%	184,0	253,0
5240	240	7 760	± 15%	192,0	264,0

Ordering codes



❸ For relays RUC-M: for plug-in sockets; for PCB.

Examples of ordering codes:

RUC-M-3051-26-W024 relay **RUC-M**, faston 187 (4,8 x 0,5 mm), for plug-in sockets, one normally open contact (double-break), with contact gap ≥ 6 mm (3+3), contact material $AgSnO_2$, reinforced coil voltage 24 V DC, in cover IP 00

RUC-M-2052-V6-5230-L relay **RUC-M**, faston 187 (4,8 x 0,5 mm), for flat insert connectors, with vertical adaptor (V), two normally open contacts, with contact gap ≥ 3 mm, contact material AgNi, coil voltage 230 V AC 50/60 Hz, with light indicator (LED diode), in cover IP 00

RUC-M-2051-25-5024 relay **RUC-M**, for PCB, one normally open contact (double-break), with contact gap ≥ 6 mm (3+3), contact material AgNi, coil voltage 24 V AC 50/60 Hz, in cover IP 00

GUC11S-V0 ❶

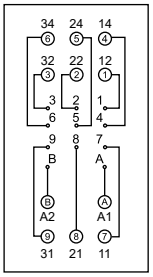
For RUC faston 4,8x0,5, RUC-M

Screw terminals
Cross section of the cables: max. 1 x 4 mm² / 2 x 2,5 mm² (1 x 12 / 2 x 14 AWG), min. 1 x 0,25 mm² (1 x 23 AWG)
Max. tightening moment for the terminal: 0,7 Nm

35 mm rail mount
acc. to EN 60715
84,5 x 35,5 x 26,5 mm
Three poles
16 A, 250 V AC



Connection diagram

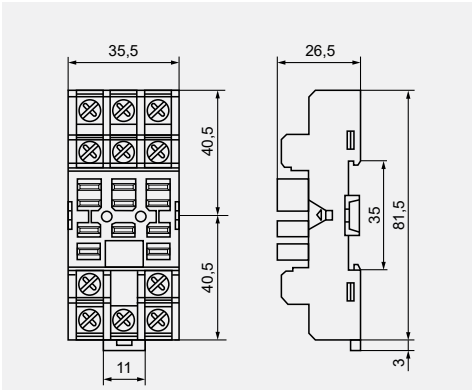


Accessories



MBA

Dimensions

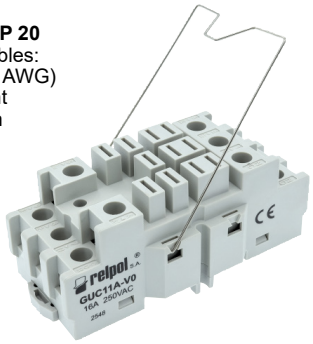


GUC11A-V0 ❶

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

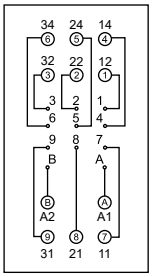
Screw terminals
Protection category: IP 20
Cross section of the cables: max. 1 x 4 mm² (1 x 12 AWG)
Max. tightening moment for the terminal: 0,7 Nm

35 mm rail mount
acc. to EN 60715
85,6 x 42,6 x 35,4 mm
Three poles
16 A, 250 V AC / 10 A, 400 V AC
Operating temperature: -40...+70 °C



(socket is sold complete with clip)

Connection diagram





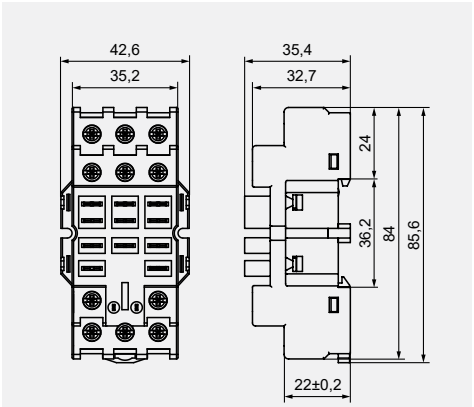
Module type M...

Accessories



MBC

Dimensions



❶ For RUC faston 4,8 x 0,5 and RUC-M, with GUC11S-V0 or GUC11A-V0 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.