

R3B-...-D

industrial latching relays



Energy
saving

NEW

• Energy-saving double-coil latching relays

- they do not require continuous power supply, but only one pulse to change the state (two stable states: open or closed)

- Relays with permanent magnet, designed for continuous operation*
- For plug-in sockets: on 35 mm rail mount acc. to EN 60715; on panel mounting; for PCB; with terminals for soldering
- DC coils, insulation class F: 155 °C
- W (mechanical indicator) - standard equipment of relays
- Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts	3 CO
Contact material	AgNi , 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 5 V AgNi/Au hard gold plating
Rated load (capacity)	AC1 6 A / 250 V AC AC15 1,5 A / 120 V 0,75 A / 240 V (C300) DC1 6 A / 24 V DC (see Fig. 3) DC13 0,22 A / 120 V 0,15 A / 220 V (R300)
Motor load	acc. to UL 508 1/3 HP 240 V AC, 3,6 FLA, single-phase motor AC3 acc. to IEC 60947-4-1 0,125 kW 240 V AC, single-phase motor
Min. switching current	5 mA
Max. make current	12 A
Rated current	6 A
Max. breaking capacity	AC1 1 500 VA
Min. breaking capacity	0,3 W AgNi, 0,3 W AgNi/Au flash gold plating 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	DC 5, 6, 12, 24 , 48, 60 V
Operate voltage	≤ 0,8 U _n
Reset voltage (reverse polarity)	min.: 0,8 U _n max.: 1,1 U _n
Control pulse time	min.: 0,05 s max.: 100 s
Rated power consumption	DC ≤ 3 W

Insulation according to 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 1 000 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

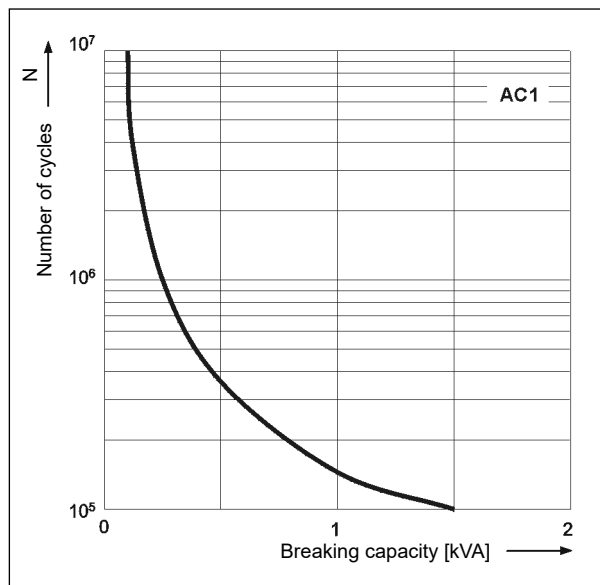
General data

Operating / release time (typical values)	13 ms / 5 ms
Electrical life	• resistive AC1 > 10 ⁵ 6 A, 250 V AC • cosφ see Fig. 2
Mechanical life (cycles)	> 2 x 10 ⁷
Dimensions (L x W x H)	28,6 x 21 x 35,5 mm
Weight	35 g
Ambient temperature	• storage -40...+85 °C (non-condensation and/or icing) • operating -20...+55 °C
Cover protection category	IP 40 EN 60529
Environmental protection	RTI EN 61810-1
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. *The relays are designed for continuous operation while maintaining the parameters declared in the data sheet. For single phase motors for 110-120 V AC do not use motors with higher FLA than given for 240 V AC.

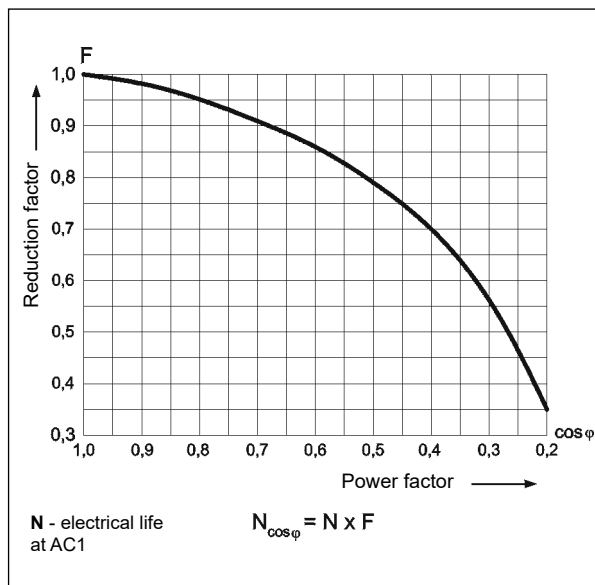
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1



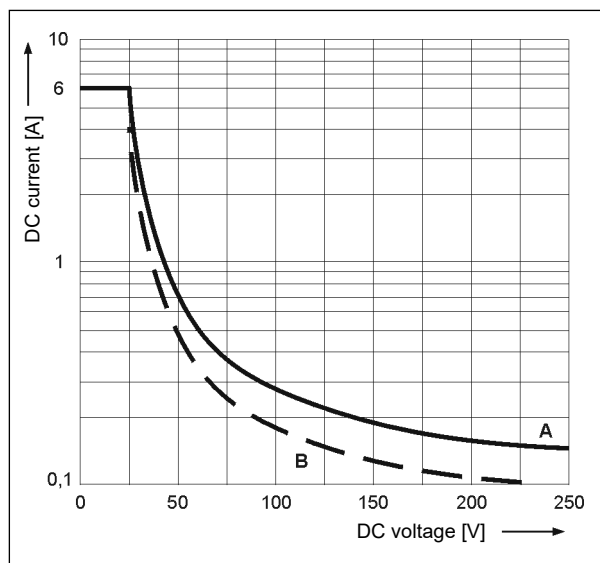
Electrical life reduction factor at AC inductive load

Fig. 2

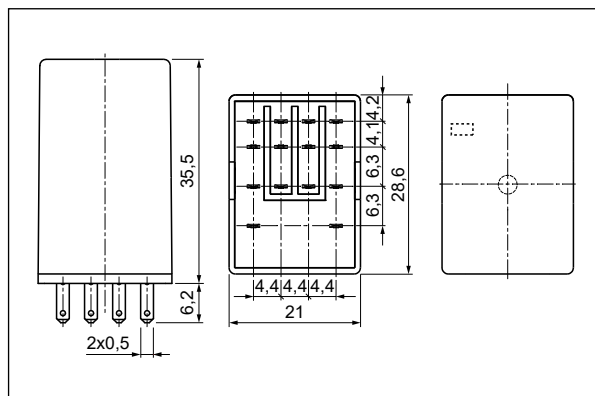


Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms

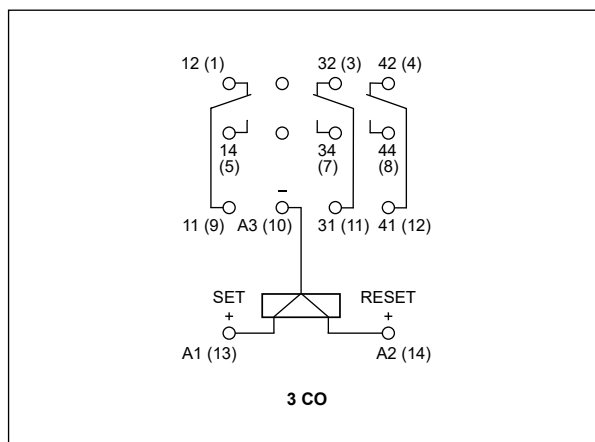
Fig. 3



Dimensions - plug-in version



Connection diagram (pin side view)



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Mounting, sockets and accessories for relays

Relays **R3B-...-D** are offered in versions for plug-in sockets. **With W equipment as standard** (W - mechanical indicator).

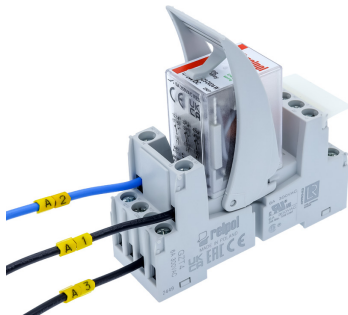
Sockets for R3B-...-D	Accessories			Additional equipment
	Retainer / retractor clips	Spring wire clips	Description plates	
Screw terminals sockets, 35 mm rail mount (acc. to EN 60715) or on panel mounting (two M3 screws)				
GZT4	GZT4-0040, GZP4-0400	G4 1052	GZT4-0035	ZGGZ4 ②
GZM4	GZT4-0040, GZP4-0400	G4 1052	GZT4-0035	ZGGZ4 ②
Push-in terminals sockets, 35 mm rail mount (acc. to EN 60715) or on panel mounting (two M3 screws)				
GZP4 ②	GZP4-0400, GZT4-0040	G4 1052	MP15	ZGZP4-8, ZGZP4-2, ZGZP-2 ③
Sockets for PCB				
SU4D	—	G4 1053	—	—
G4D	—	G4 1053	—	—
Solder terminals sockets				
SU4L	—	G4 1053	—	G4 1040 ④
G4	—	G4 1053	—	—

② Sockets GZP4: wire connection - see www.repol.com.pl

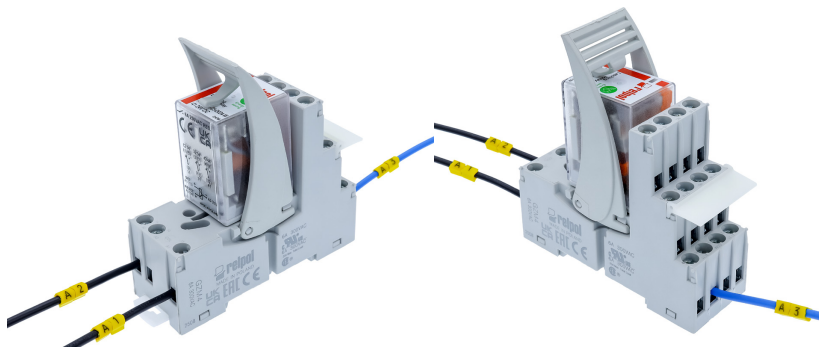
③ Interconnection strips ZGGZ4, ZGZP... - see www.repol.com.pl

④ Spring clamps G4 1040.

Wire connection to relay coils terminals



R3B-...-D in socket GZT4

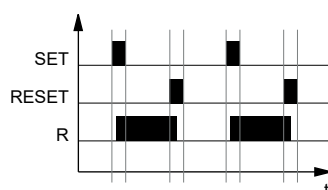


R3B-...-D in socket GZM4

Time courses

Functional description:

- the relay has two coils: SET and RESET. Each is responsible for switching the relay into the appropriate state. The relay maintains the state after the pulse stops.



Control (coils):

- SET (A1+/A3-): a pulse switches the relay to the ON state (R contact closed).
- RESET (A2+/A3-): a pulse switches the relay into the OFF state (R contact open).

Rules of use:

- do not energise both coils simultaneously,
- use short control pulses according to the product data sheet,
- relay retains state after power failure - control of both coils required.

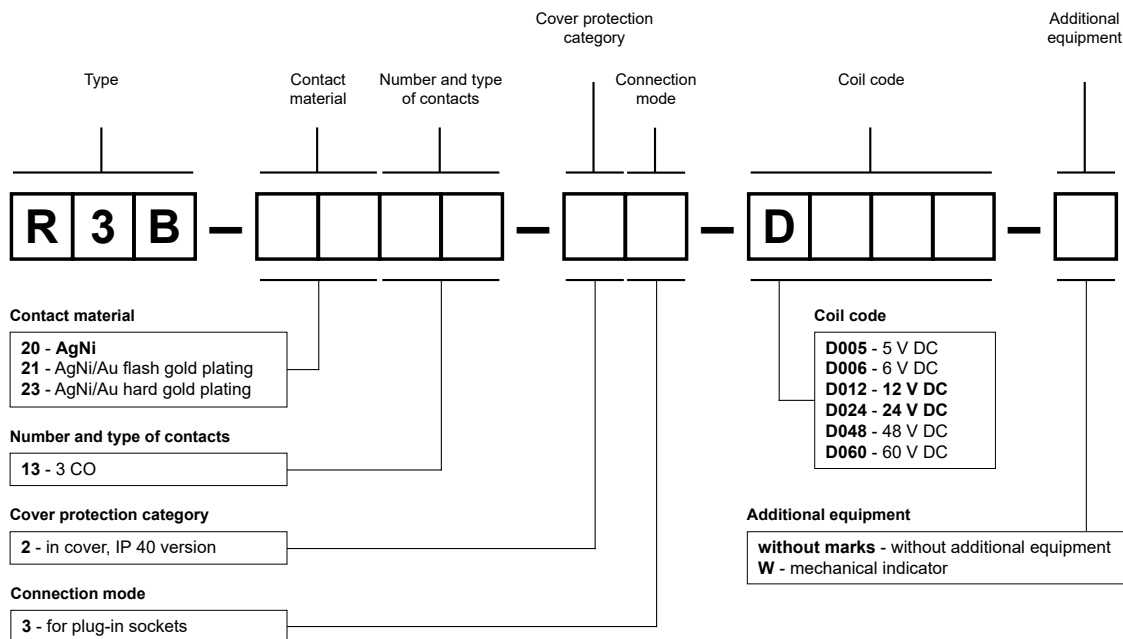
Note

Depending on transport conditions, the relay may change its state – it is recommended to reset it before first use.

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Ordering codes



Example of ordering code:

R3B-2013-23-D012-W

latching relay **R3B-...-D** with two coils, for plug-in sockets, three changeover contacts, contact material AgNi, coil voltage 12 V DC, with mechanical indicator, in cover IP 40

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.