

R15 - 2 CO, 3 CO

industrial relays of small dimensions








162




R15 - 2 CO




R15 - 3 CO

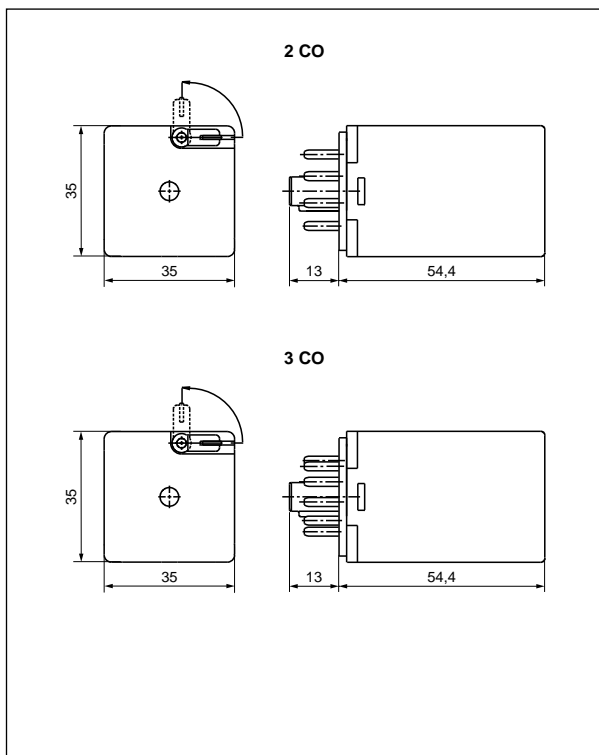
- Relays of general application • For plug-in sockets: on 35 mm rail mount acc. to EN 60715; on panel mounting; with terminals for soldering
- Coils AC and DC, insulation class F: 155 °C • WT (mechanical indicator + lockable front test button) - standard features of relays in cover, for plug-in sockets. Relays may be provided with the test buttons (no latching) and plugs - page 380 • **Have obtained LR Type Approval Certificate (Lloyd's Register)** • Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railroad standard,       

Contact data

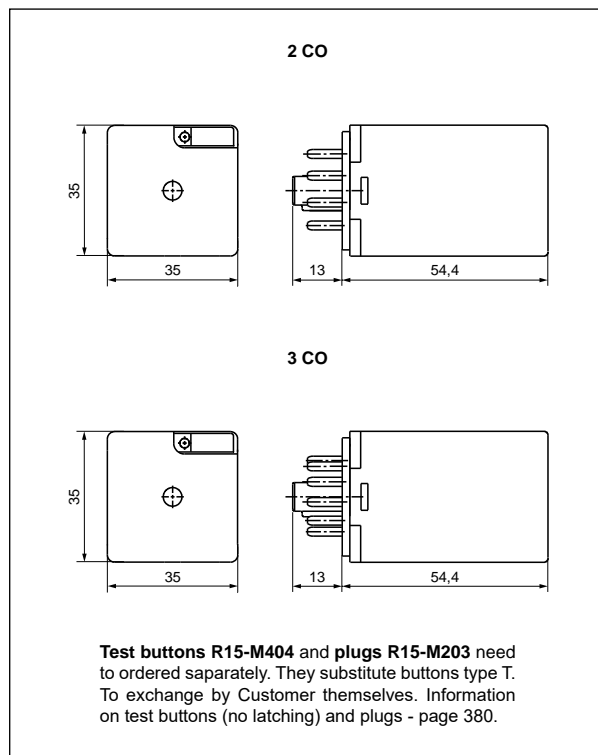
Number and type of contacts	2 CO, 3 CO	
Contact material	AgNi , AgNi/Au flash gold plating, AgNi/Au hard gold plating	
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage	10 V AgNi, 10 V AgNi/Au flash gold plating 5 V AgNi/Au hard gold plating	
Rated load (capacity)	AC1	10 A / 250 V AC
	AC15	10 A / 277 V AC UL 508
	DC1	3 A / 120 V
	DC13	1,5 A / 240 V (B300)
Motor load	acc. to UL 508	10 A / 24 V DC (see Fig. 3)
	AC3 acc. to IEC 60947-4-1	0,22 A / 120 V
		0,1 A / 250 V (R300)
Min. switching current	1/2 HP 240 V AC, 4,9 FLA, single-phase motor 	
Max. inrush current	0,37 kW 240 V AC, single-phase motor	
Rated current	5 mA	
Max. breaking capacity	AC1	20 A
Min. breaking capacity	10 A	
Contact resistance	2 500 VA	
Max. operating frequency	• at rated load AC1 • no load	0,3 W AgNi, 0,3 W AgNi/Au flash gold plating 0,05 W AgNi/Au hard gold plating
Coil data	≤ 100 mΩ	
Rated voltage	50/60 Hz AC	1 200 cycles/hour
Must release voltage	DC	12 000 cycles/hour
Operating range of supply voltage	AC: ≥ 0,15 U _n DC: ≥ 0,1 U _n	
Rated power consumption	AC	see Tables 1, 2
	DC	2,8 VA 50 Hz 2,5 VA 60 Hz
		1,5 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	III	
Insulation pollution degree	3	
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	≥ 3 mm
	• creepage	≥ 4,2 mm
General data		
Operating / release time (typical values)	AC: 12 ms / 10 ms	DC: 18 ms / 7 ms
Electrical life	• resistive AC1 • cosφ	≥ 2 x 10 ⁵ 10 A, 250 V AC see Fig. 2
Mechanical life (cycles)	≥ 2 x 10 ⁷	
Dimensions (L x W x H)	35 x 35 x 54,4 mm	
Weight	83 g	
Ambient temperature	• storage	-40...+85 °C
(non-condensation and/or icing)	• operating	AC: -40...+55 °C DC: -40...+70 °C
Cover protection category	IP 20 (with socket PZ8, PZ11)	EN 60529
Environmental protection	RTI	EN 61810-7
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 relate to the standard versions of the relays.  For single phase motors for 110-120 V AC do not use motors with higher FLA than given for 240 V AC.

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)



Mounting, sockets and accessories for relays

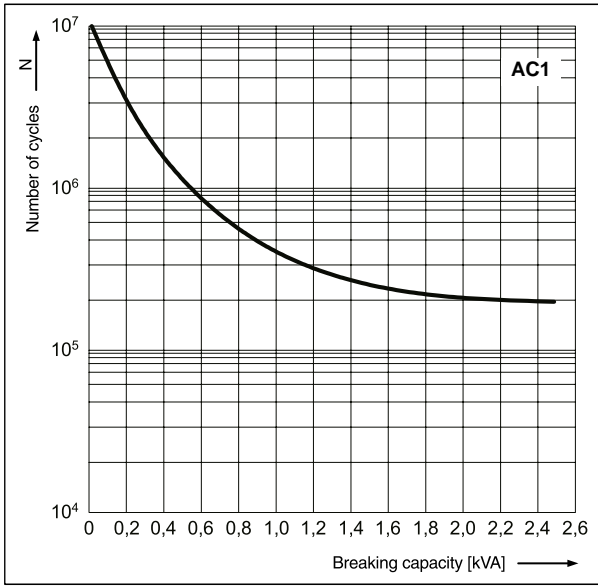
Relays **R15 - 2 CO, 3 CO** are designed for mounting in plug-in sockets. **With WT features as standard (W - mechanical indicator + T - lockable front test button)**. In these relays is **possibility self-exchange of button type T for test button R15-M404 (no latching) or on plug R15-M203 (no manual operation)**. The buttons **R15-M404** and the plugs **R15-M203** need to ordered separately.

Sockets for R15 - 2 CO	Sockets for R15 - 3 CO	Accessories		Additional features
		Spring wire clips	Description plates	
Screw terminals sockets, 35 mm rail mount (EN 60715) or on panel mounting (two M3 screws)				
PZ8	PZ11	PZ11 0031	-	-
GZP8	GZP11	GZP-0054	GZP-0035	time modules ②
Screw terminals sockets, 35 mm rail mount (EN 60715)				
GZU8	GZU11	GZU 1052	-	-
Screw terminals sockets, on panel mounting (two M3 screws)				
GZ8	GZ11	GZ 1050	-	-
Solder terminals sockets				
GOP8	GOP11	R159 1051 ③	-	-

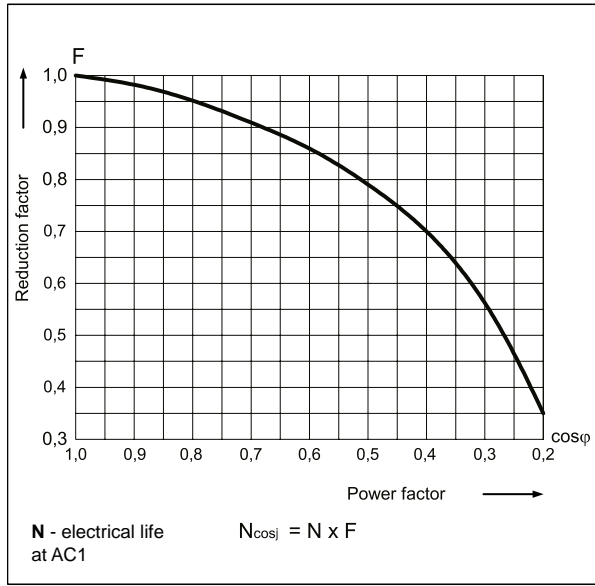
② Time modules COM3 - see page 324 ③ Set R159 1051: spring wire clip and two spring clamps.

INDUSTRIAL

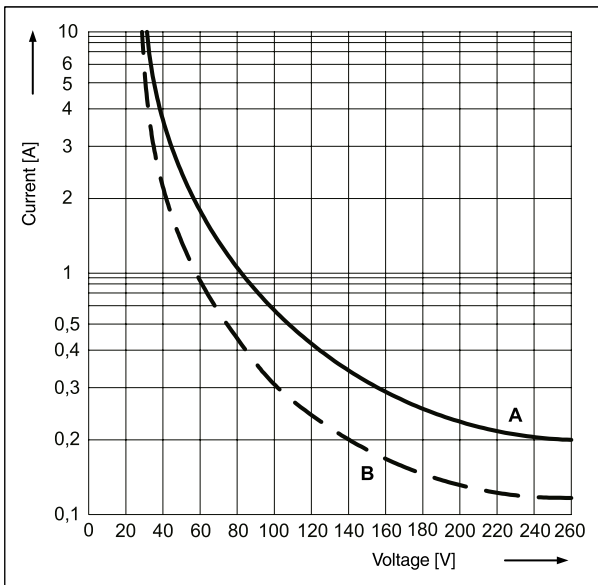
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour Fig. 1



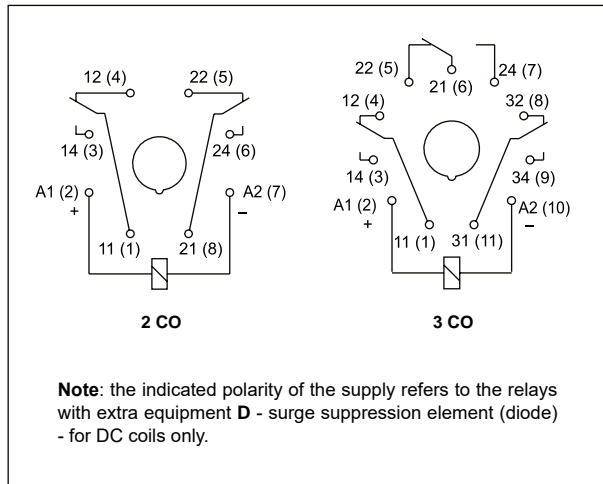
Electrical life reduction factor at AC inductive load Fig. 2



Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms Fig. 3



Connection diagrams (pin side view)



R15T, PIR15.T

Relays for railroad industry
- see
www.repol.com.pl



R15 - 2 CO, 3 CO

industrial relays of small dimensions

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 70 °C)
1006	6	28	± 10%	4,8	6,6
1012	12	110	± 10%	9,6	13,2
1024	24	430	± 10%	19,2	26,4
1048	48	1 750	± 10%	38,4	52,8
1060	60	2 700	± 10%	48,0	66,0
1110	110	9 200	± 10%	88,0	121,0
1120	120	11 000	± 10%	96,0	132,0
1220	220	37 000	± 10%	176,0	242,0

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

Coil data - AC 50/60 Hz voltage version

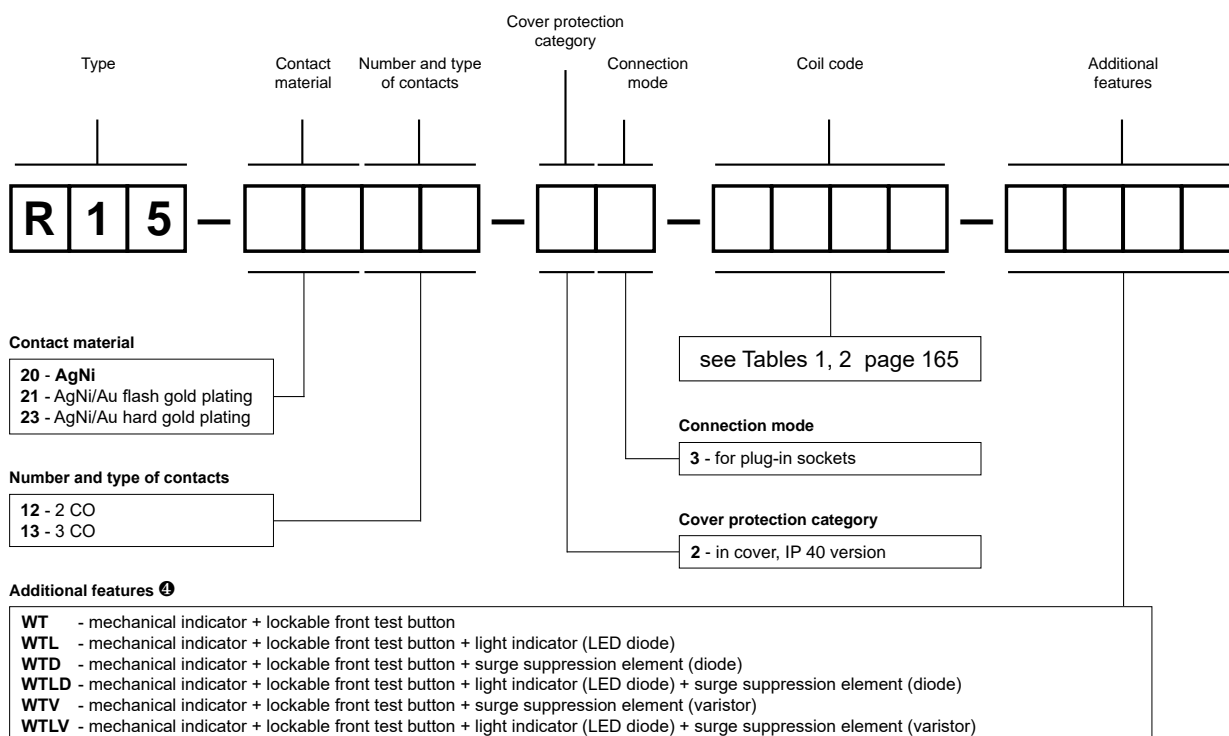
Table 2

Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	4,3	± 15%	4,8	6,6
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
5060	60	475	± 15%	48,0	66,0
5115	115	1 840	± 15%	92,0	126,5
5120	120	1 910	± 15%	96,0	132,0
5220	220	6 980	± 15%	176,0	242,0
5230	230	7 080	± 15%	184,0	253,0
5240	240	7 760	± 15%	192,0	264,0

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



Ordering codes



WT - standard features of relays for plug-in sockets. WTD, WTL D - only for DC coils, WTV, WTLV - only for AC coils

Test buttons (no latching) and plugs need to be ordered separately. They substitute buttons type T. To be exchanged by the customer themselves.

Information on test buttons (no latching) and plugs - page 380.

- Button R15-M404-A - orange colour (AC coils)
- Button R15-M404-D - green colour (DC coils)
- Plug R15-M203-A - orange colour (AC coils)
- Plug R15-M203-D - green colour (DC coils)

Note:

While the relay operates, the test button of the T type becomes heated. In order to push the test button manually, you should first turn the supply voltage off, and wait some time until the button becomes colder (or push the button immediately using a protective glove or an insulated tool). The button shall be pushed smoothly and quickly. The normally open contacts are closed with the button for the time during which the button is pushed. Releasing the button opens the normally open contacts. Normally open contacts may be closed with the blocking function of the button (it shall be turned by 90°). When the button is turned back, the normally open contacts are opened.

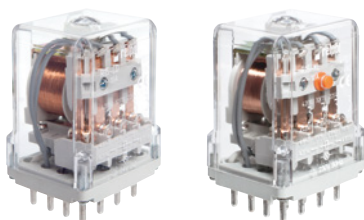
For relays with additional features D - surge suppression element (diode) (versions WTD and WTL D) - fixed supply polarity compulsory for the DC load of coils: +A1(2) / -A2(7) for R15 - 2 CO and +A1(2) / -A2(10) for R15 - 3 CO. The polarity is indicated on the relay cover. For other versions of the relays with DC coils any polarity is possible.






Examples of ordering codes:

- R15-2012-23-1024-WT** relay R15, for plug-in sockets, two changeover contacts, contact material AgNi, coil voltage 24 V DC, with mechanical indicator and lockable front test button, in cover IP 40
- R15-2013-23-5230-WTL** relay R15, for plug-in sockets, three changeover contacts, contact material AgNi, coil voltage 230 V AC 50/60 Hz, with mechanical indicator and lockable front test button and light indicator (LED diode), in cover IP 40

R15 - 4 CO

industrial relays of small dimensions



- Relays of general application
- For plug-in sockets: on 35 mm rail mount acc. to EN 60715; on panel mounting; with terminals for soldering
- Coils AC and DC, insulation class F: 155 °C
- Recognitions, certifications, directives: RoHS,     

Contact data

Number and type of contacts	4 CO	
Contact material	AgNi , AgNi/Au flash gold plating, AgNi/Au hard gold plating, AgCdO ^①	
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage	10 V AgNi, 10 V AgNi/Au flash gold plating 5 V AgNi/Au hard gold plating, 10 V AgCdO	
Rated load (capacity)	AC1	10 A / 250 V AC
	AC15	10 A / 277 V AC UL 508
	DC1	3 A / 120 V
	DC13	1,5 A / 240 V (B300)
Motor load	acc. to UL 508	10 A / 24 V DC (see Fig. 3)
	AC3 acc. to IEC 60947-4-1	0,22 A / 120 V
Min. switching current	1/2 HP 240 V AC, 4,9 FLA, single-phase motor ^②	
	0,37 kW 240 V AC, single-phase motor	
Max. inrush current	5 mA AgNi, 5 mA AgNi/Au flash gold plating	
Rated current	5 mA AgNi/Au hard gold plating, 10 mA AgCdO	
Max. breaking capacity	AC1	20 A
Min. breaking capacity	10 A	
Contact resistance	2 500 VA	
Max. operating frequency	• at rated load AC1 • no load	0,3 W AgNi, 0,3 W AgNi/Au flash gold plating
		0,05 W AgNi/Au hard gold plating, 0,5 W AgCdO
Coil data		
Rated voltage	50 Hz AC	6, 12, 24, 48, 60, 115, 120, 220, 230, 240, 400 V basic version
	60 Hz AC	6, 12, 24, 48, 60, 110, 120, 220, 230, 240 V special version
	DC	6, 12 , 24 , 48, 60, 110, 120, 220 V
Must release voltage	AC: $\geq 0,15 U_n$ DC: $\geq 0,1 U_n$	
Operating range of supply voltage	see Tables 1, 2, 3	
Rated power consumption	AC	2,8 VA
	DC	1,5 W

Insulation according to EN 60664-1

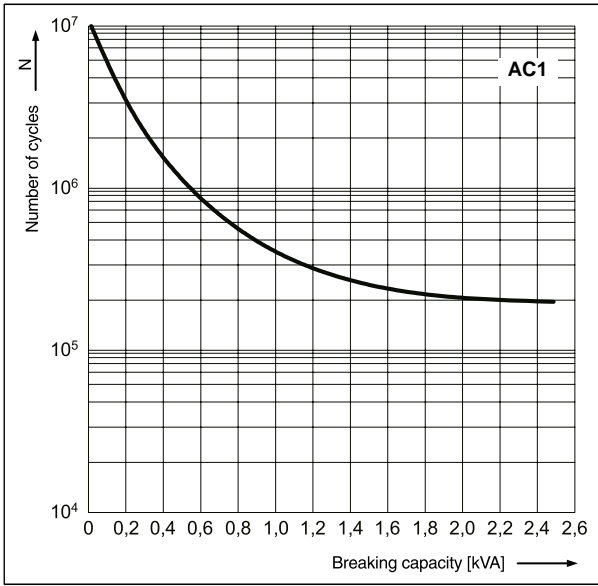
Insulation rated voltage	250 V AC	
Rated surge voltage	2 500 V 1,2 / 50 μ s	
Overvoltage category	III	
Insulation pollution degree	3	
Dielectric strength	• between coil and contacts	2 500 V AC type of insulation: basic
	• contact clearance	1 500 V AC type of clearance: micro-disconnection
	• pole - pole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

General data

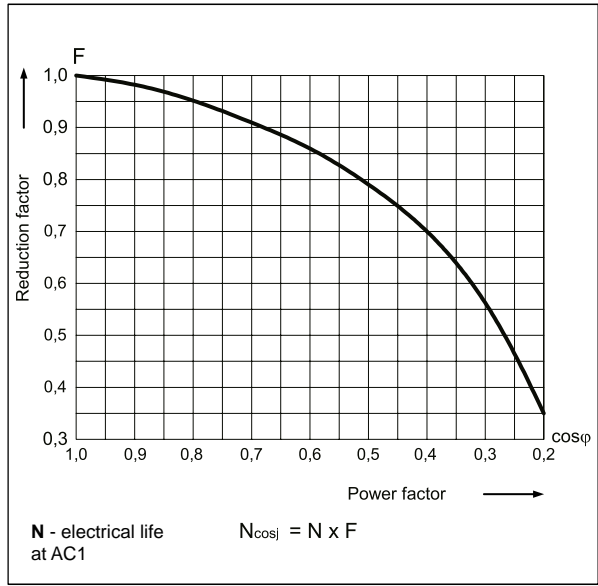
Operating / release time (typical values)	AC: 12 ms / 10 ms	DC: 18 ms / 7 ms
Electrical life	• resistive AC1	$\geq 10^5$ 10 A, 250 V AC
	• $\cos\phi$	see Fig. 2
Mechanical life (cycles)	$\geq 2 \times 10^7$	
Dimensions (L x W x H) / Weight	35 x 42,5 x 54,5 mm / 95 g	
Ambient temperature	• storage	-40...+85 °C
(non-condensation and/or icing)	• operating	AC: -40...+55 °C DC: -40...+70 °C
Cover protection category	IP 20 (with socket GZ14U, GZ14)	EN 60529
Environmental protection	RTI	EN 61810-7
Shock / vibration resistance	10 g / 5 g 10...150 Hz	
Solder bath temperature / Soldering time	max. 270 °C / max. 5 s	

The data in bold type relate to the standard versions of the relays. ^① AgCdO contact material in electrical contacts is only for use in electrical and electronic equipment (EEE) in compliance with directive RoHS2 2011/65/EU in restricted categories of EEE covered by this directive. Relpol S.A. is not responsible for usage relays with AgCdO contact material in categories of EEE where it is prohibited by the directive RoHS2 2011/65/EU. ^② For single phase motors for 110-120 V AC do not use motors with higher FLA than given for 240 V AC.

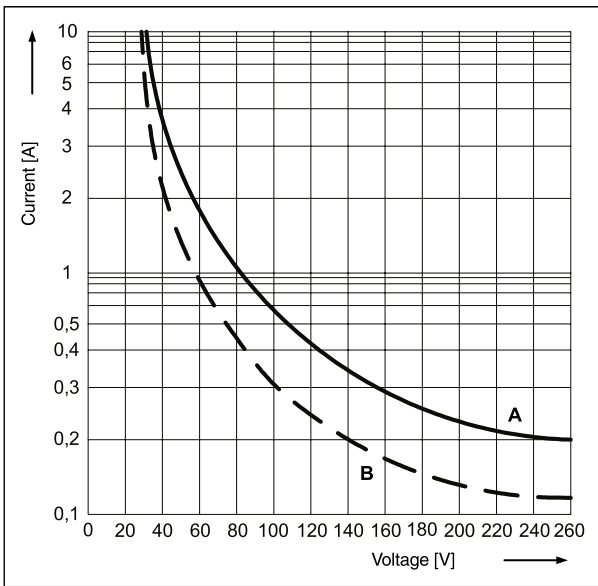
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour Fig. 1



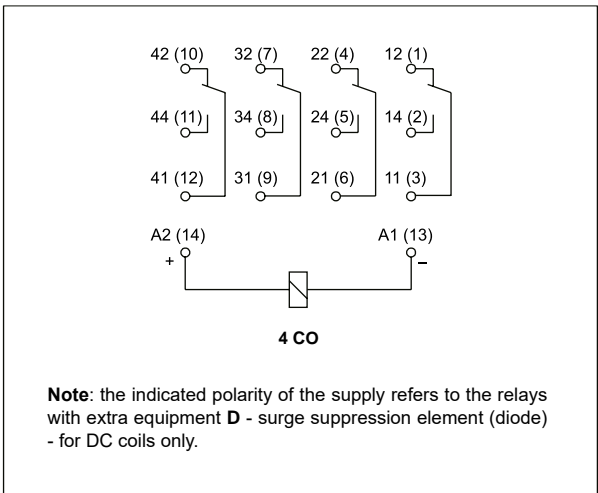
Electrical life reduction factor at AC inductive load Fig. 2



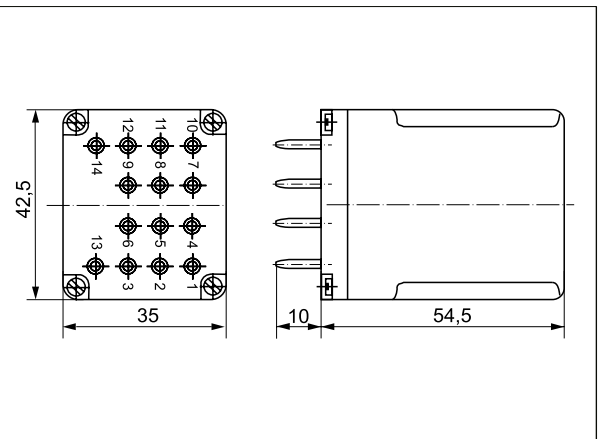
Max. DC breaking capacity
A - resistive load DC1 Fig. 3
B - inductive load L/R = 40 ms



Connection diagram (pin side view)



Dimensions



GZ14Z

Screw terminals
plug-in sockets
for R15 - 4 CO
**to be mounted behind
the assembly panel**
- see page 373



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 70 °C)
1006	6	28	± 10%	5,1	6,6
1012	12	110	± 10%	10,2	13,2
1024	24	430	± 10%	20,4	26,4
1048	48	1 750	± 10%	40,8	52,8
1060	60	2 700	± 10%	51,0	66,0
1110	110	9 200	± 10%	93,5	121,0
1120	120	11 000	± 10%	102,0	132,0
1220	220	37 000	± 10%	187,0	242,0

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

Coil data - AC 50 Hz voltage version, basic

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)
3006	6	4,8	± 15%	5,1	6,6
3012	12	20	± 15%	10,2	13,2
3024	24	72	± 15%	20,4	26,4
3048	48	360	± 15%	40,8	52,8
3060	60	520	± 15%	51,0	66,0
3115	115	2 100	± 15%	97,7	126,5
3120	120	2 300	± 15%	102,0	132,0
3220	220	7 000	± 15%	187,0	242,0
3230	230	7 900	± 15%	195,5	253,0
3240	240	8 300	± 15%	204,0	264,0
3400	400	21 500	± 15%	340,0	440,0

Coil data - AC 60 Hz voltage version, special

Table 3

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)
6006	6	4,8	± 15%	5,1	6,6
6012	12	17	± 15%	10,2	13,2
6024	24	65	± 15%	20,4	26,4
6048	48	310	± 15%	40,8	52,8
6060	60	490	± 15%	51,0	66,0
6110	110	1 760	± 15%	93,5	121,0
6120	120	2 000	± 15%	102,0	132,0
6220	220	6 900	± 15%	187,0	242,0
6230	230	7 000	± 15%	195,5	253,0
6240	240	7 100	± 15%	204,0	264,0

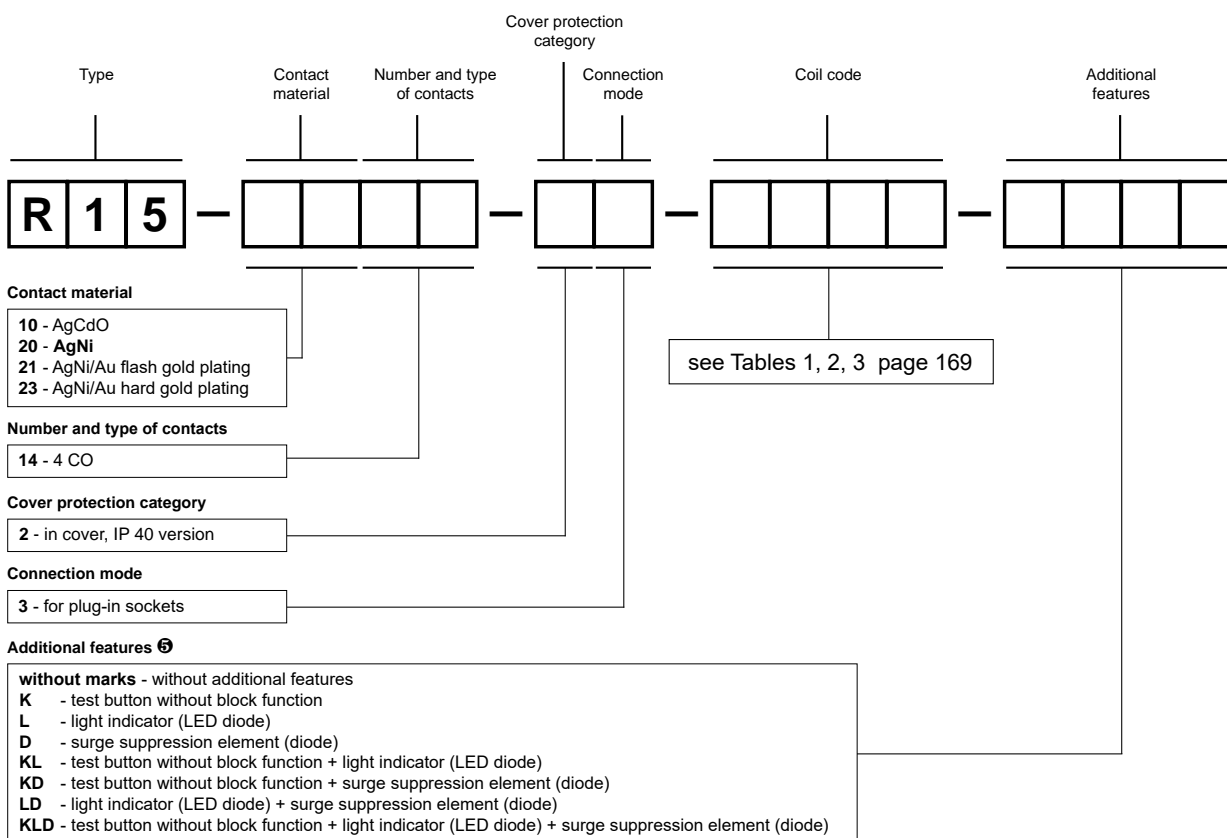
Mounting, sockets and accessories for relays

Relays **R15 4 - CO** are designed for mounting in plug-in sockets.

Sockets for R15 - 4 CO	Accessories	Additional features
	Spring wire clips	
Screw terminals sockets, 35 mm rail mount (EN 60715)		
GZ14U	GZ14 0737	–
Screw terminals sockets, on panel mounting (two M3 screws)		
GZ14	GZ14 0737	–
GZ14Z ⑥	GZ14 0737	–
Solder terminals sockets		
GOP14	R15 0736	spring clamps ⑦

⑥ Sockets GZ14Z: to be mounted behind the assembly panel - see page 373. ⑦ Spring clamps R15 5922 for spring wire clips.

Ordering codes



⑥ D, KD, LD, KLD - only for DC coils

Note:

For relays with additional features **D** - surge suppression element (diode) (versions D, KD, LD, KLD) - fixed supply polarity compulsory for the DC load of coils: -A1(13) / +A2(14). The polarity is indicated on the relay cover. For other versions of the relays with DC coils any polarity is possible.

Examples of ordering codes:

R15-2014-23-1024-KD

relay **R15**, for plug-in sockets, four changeover contacts, contact material AgNi, coil voltage 24 V DC, with test button without block function and surge suppression element (diode), in cover IP 40

R15-2114-23-3230-KL

relay **R15**, for plug-in sockets, four changeover contacts, contact material AgNi/Au flash gold plating, coil voltage 230 V AC 50 Hz, with test button without block function and light indicator (LED diode), in cover IP 40