

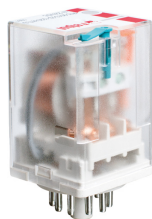
# R15 - 2 CO, 3 CO

## industrial relays of small dimensions

R15 - 2 CO (AC)



R15 - 3 CO (DC)



- 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 equipment of relays in cover, for plug-in sockets. Relays may be provided with the test buttons (no latching) and plugs - page 7
- **Have obtained LR Type Approval Certificate (Lloyd's Register)**
- Recognitions, certifications, directives: RoHS,

### Contact data

				CE	RoHS	D'E	EMC	UK	CA	SE	LR
Number and type of contacts		2 CO, 3 CO									
Contact material		<b>AgNi</b> , 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		3 A / 120 V							
		DC1		10 A / 24 V DC (see Fig. 3)							
		DC13		0,22 A / 120 V							
Motor load		acc. to UL 508		1/2 HP							
		AC3 acc. to IEC 60947-4-1		240 V AC, 4,9 FLA, single-phase motor ❶							
Min. switching current		5 mA									
Max. make current		20 A									
Rated current		10 A									
Max. breaking capacity		AC1		2 500 VA							
Min. breaking capacity		0,3 W AgNi, 0,3 W AgNi/Au flash gold plating 0,05 W AgNi/Au hard gold plating									
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		6, 12, <b>24</b> , 48, 60, 115, 120, 220, <b>230</b> , 240 V							
		DC		6, <b>12</b> , <b>24</b> , 40, 48, 60, 110, 120, <b>220</b> V							
Must release voltage		AC: ≥ 0,15 U <sub>n</sub>		DC: ≥ 0,1 U <sub>n</sub>							
Operating range of supply voltage		see Tables 1, 2									
Rated power consumption		AC		2,8 VA 50 Hz							
		DC		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							
		• contact clearance		1 500 V AC							
		• pole - pole		2 000 V AC							
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		≥ 2 x 10 <sup>5</sup>							
		• cosφ		10 A, 250 V AC see Fig. 2							
Mechanical life (cycles)		≥ 2 x 10 <sup>7</sup>									
Dimensions (L x W x H) / Weight		35 x 35 x 54,4 mm / 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									

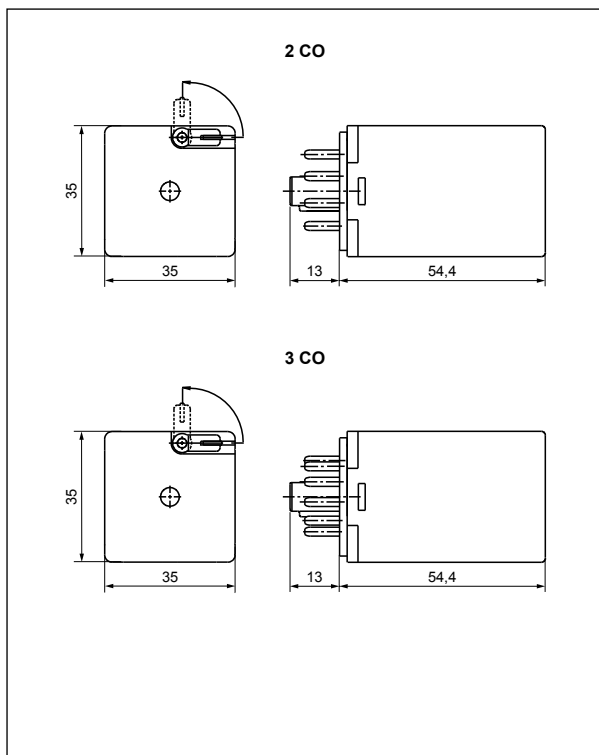
The data in bold type relate to the standard versions of the relays.

❶ For single phase motors for 110-120 V AC do not use motors with higher FLA than given for 240 V AC.

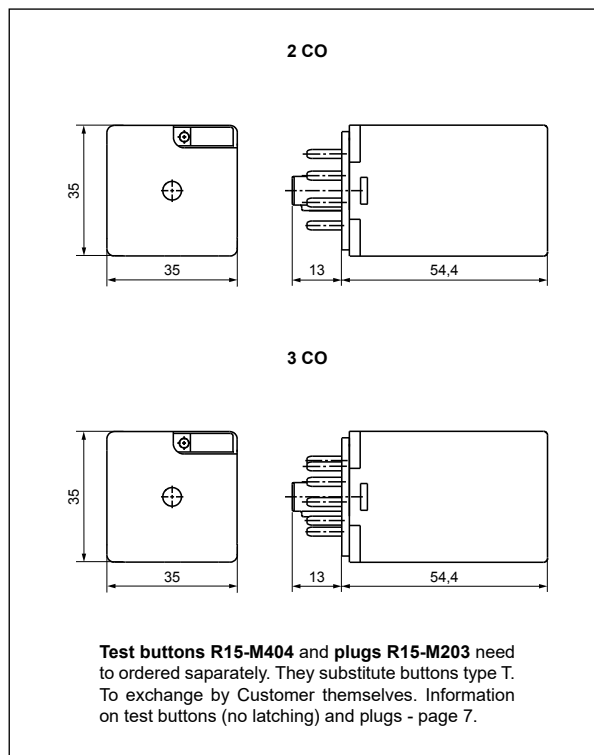
# R15 - 2 CO, 3 CO

industrial relays of small dimensions

**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)**



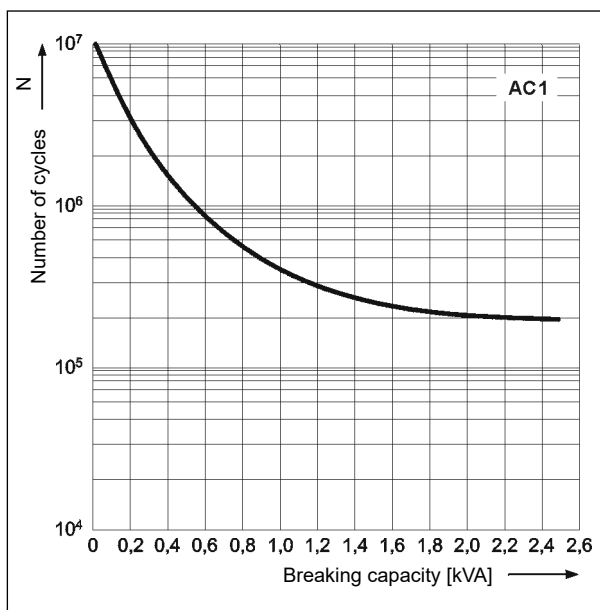
## Mounting, sockets and accessories for relays

Relays R15 - 2 CO, 3 CO are designed for mounting in plug-in sockets. **With WT equipment 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 be ordered separately.

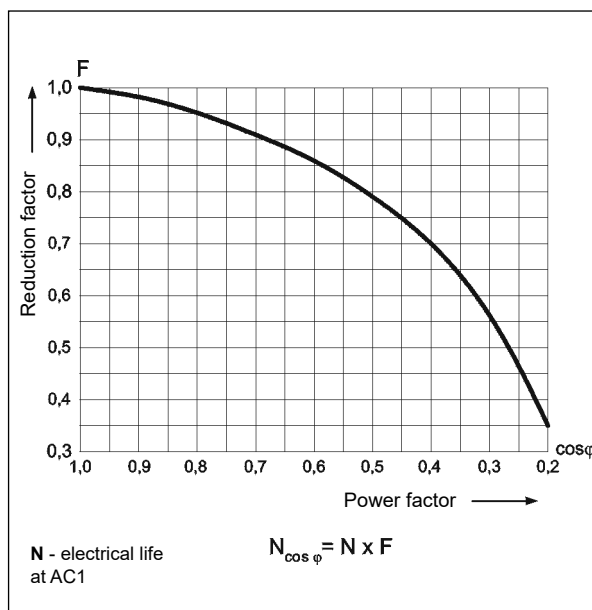
Sockets for R15 - 2 CO	Sockets for R15 - 3 CO	Accessories		Additional equipment
		Spring wire clips	Description plates	
<b>Screw terminals sockets, 35 mm rail mount (acc. to EN 60715) or on panel mounting (two M3 screws)</b>				
PZ8	PZ11	PZ11 0031	-	-
GZP8	GZP11	GZP-0054	GZP-0035	21, 41 ②, COM3 ③
<b>Screw terminals sockets, 35 mm rail mount (acc. to EN 60715)</b>				
GZU8	GZU11	GZU 1052	-	-
<b>Screw terminals sockets, on panel mounting (two M3 screws)</b>				
GZ8	GZ11	GZ 1050	-	-
<b>Solder terminals sockets</b>				
GOP8	GOP11	R159 1051 ④	-	-

② Signalling / protecting modules type 21, 41 - see page 10. ③ Time modules COM3 - see www.repol.com.pl  
 ④ Set R159 1051: spring wire clip and two spring clamps.

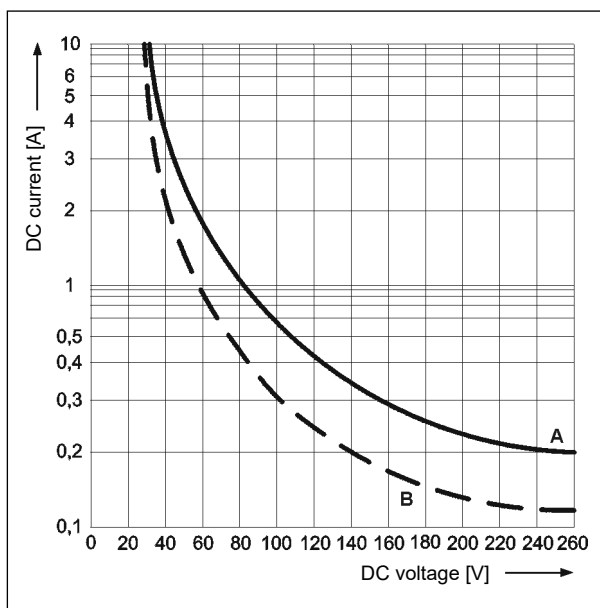
**Electrical life at AC resistive load.** Fig. 1  
Switching frequency: 1 200 cycles/hour



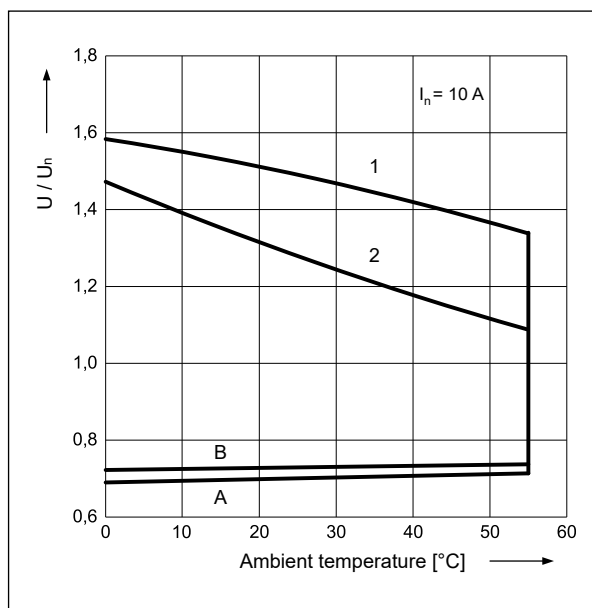
**Electrical life reduction factor at AC inductive load** Fig. 2



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



**Coil operating range - AC 50 Hz** Fig. 4  
- version R15 - 3 CO (AC)



**Description of Fig. 4**

**A** - relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).  
**B** - relations between make voltage and ambient temperature after initial coil heating up with 1,1 U<sub>n</sub>, at continues load of I<sub>n</sub> on contacts. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage).

**1, 2** - values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:  
**1** - no load  
**2** - rated load

# 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
<b>1012</b>	<b>12</b>	<b>110</b>	<b>± 10%</b>	<b>9,6</b>	<b>13,2</b>
<b>1024</b>	<b>24</b>	<b>430</b>	<b>± 10%</b>	<b>19,2</b>	<b>26,4</b>
1040	40	1 340	± 10%	32,0	44,0
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
<b>1220</b>	<b>220</b>	<b>37 000</b>	<b>± 10%</b>	<b>176,0</b>	<b>242,0</b>

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

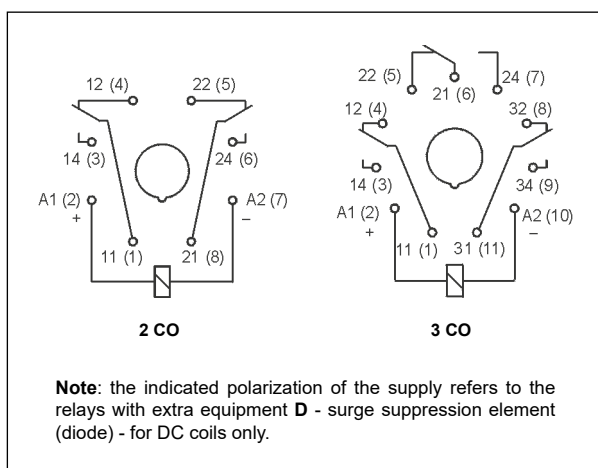
**Coil data - AC 50/60 Hz voltage version**

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
<b>5024</b>	<b>24</b>	<b>75</b>	<b>± 15%</b>	<b>19,2</b>	<b>26,4</b>
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
<b>5230</b>	<b>230</b>	<b>7 080</b>	<b>± 15%</b>	<b>184,0</b>	<b>253,0</b>
5240	240	7 760	± 15%	192,0	264,0

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

**Connection diagrams (pin side view)**



**Relays for railroad industry**

**PIR15.T**  
- interface

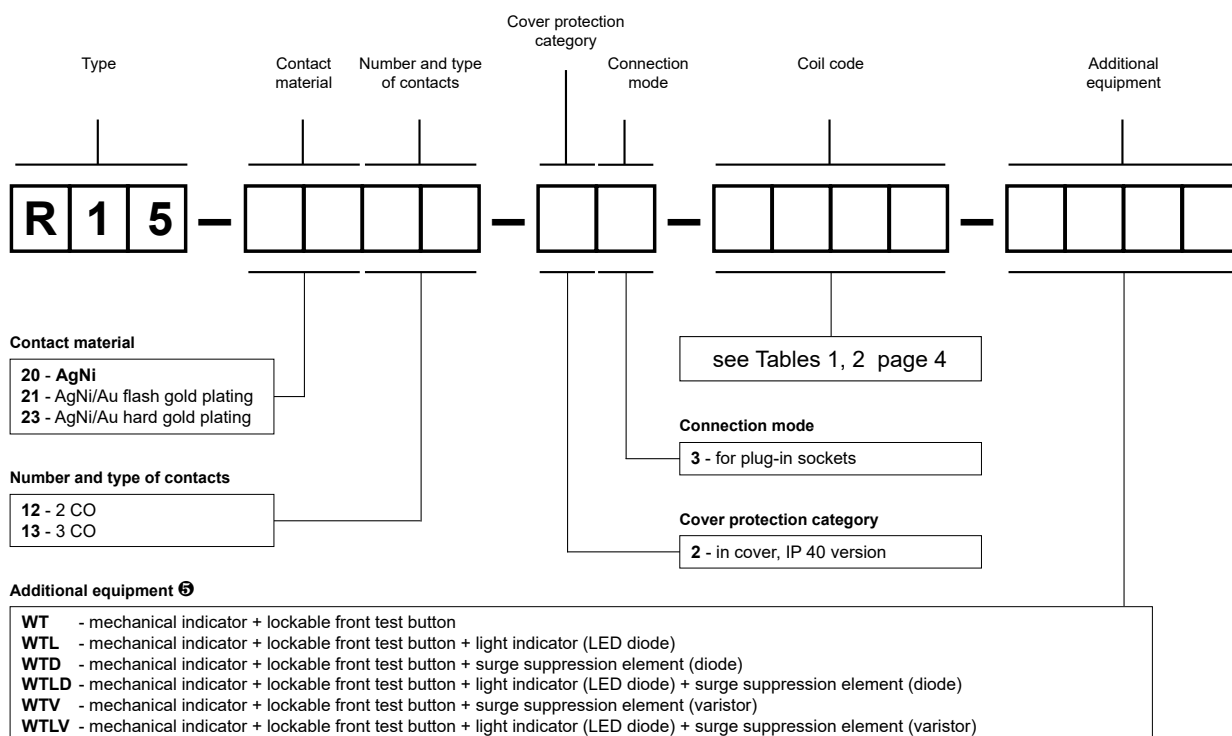
**R15T**  
- industrial



# R15 - 2 CO, 3 CO

## industrial relays of small dimensions

### Ordering codes



⑤ T - orange colour (AC coils), green (DC coils). WT - standard equipment of relays for plug-in sockets. WTD, WTLD - available only in relays with DC coils. WTV, WTLV - only with AC coils.

**Test buttons (no latching) and plugs** need to be ordered separately. They substitute buttons type T. To exchange by Customer themselves.

Information on test buttons (no latching) and plugs - page 7.

- 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 equipment D - surge suppression element (diode) (versions WTD and WTLD) - fixed supply polarization 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 polarization is indicated on the relay cover. For other versions of the relays with DC coils any polarization 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

## Additional equipment for industrial relays

Industrial relays for plug-in sockets: R2N, R3N, R4N, R15 - 2 CO , R15 - 3 CO  with **WT equipment as standard** (**W** - mechanical indicator + **T** - lockable front test button). **Detailed information** on additional equipment of individual relays can be found in the data sheets on the side of "Ordering codes".

### 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.

Type 	Description	For industrial relays
<b>W</b>	mechanical indicator	R2N, R3N, R4N, (R15 - 2 CO, 3 CO  )
<b>T</b>	lockable front test button, orange (AC coils), green (DC coils)	R2N, R3N, R4N, (R15 - 2 CO, 3 CO  )
<b>L</b>	light indicator (LED diode), located inside the relay	R2N, R3N, R4N, RY2, (R15 - 2 CO, 3 CO, 4 CO  ) RUC, RUC-M
<b>D</b>	surge suppression element (diode) - only for DC coils	R2N, R3N, R4N, RY2, (R15 - 2 CO, 3 CO, 4 CO  )
<b>V</b>	surge suppression element (varistor) - only for AC coils	(R15 - 2 CO, 3 CO  )
<b>K</b>	test button without block function, orange (AC coils), green (DC coils)	(R15 - 4 CO  ), RUC

### Available combinations:

**WT, WTL, WTD, WTL D** - in relays R2N, R3N, R4N for plug-in sockets


**L, D, LD** - in relays RY2 for plug-in sockets

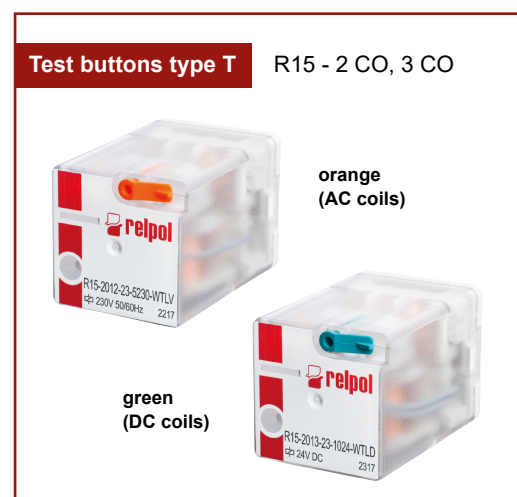
**WT, WTL, WTD, WTL D, WTV, WTL V** - in relays R15 - 2 CO, 3 CO for plug-in sockets

**K, L, D, KL, KD, LD, KLD** - in relays R15 - 4 CO for plug-in sockets

**K, L, KL** - in relays RUC

**L** - in relays RUC-M

 Voltage versions, in covers



## Test buttons (no latching) and plugs

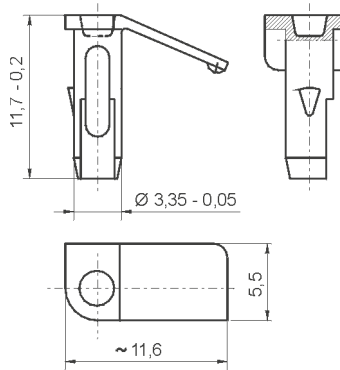
**Test buttons (no latching)** are recommended for R2N...WT, R3N...WT, R4N...WT, R15...WT 2 CO, R15...WT 3 CO relays - **for applications that do not allow permanent contact latching**. By manual operation (pressing the button) relay contacts can get switched for as long time as long the button is pressed. Contacts return to initial position as soon as pressure is released from the button. Those operations can be done while the coil is deenergized Ⓢ.

Button **R4P-0001** or **R15-M404** can be easily inserted by the Customer after removal of button type **T** (see Fig. 2). Button type **T** can be removed with screwdriver as shown on Fig. 1.

Ⓢ While the relay operates, the test button 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.

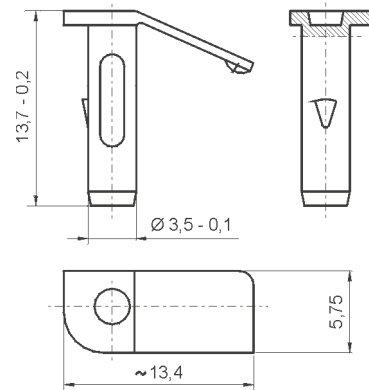


### Dimensions - test button R4P-0001 for R2N...WT, R3N...WT, R4N...WT



Types of buttons:  
**R4P-0001-A** - orange colour (AC coils)  
**R4P-0001-D** - green colour (DC coils)

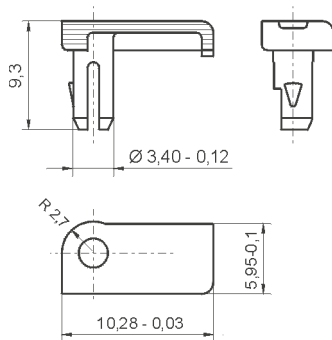
### Dimensions - test button R15-M404 for R15...WT 2 CO, R15...WT 3 CO



Types of buttons:  
**R15-M404-A** - orange colour (AC coils)  
**R15-M404-D** - green colour (DC coils)

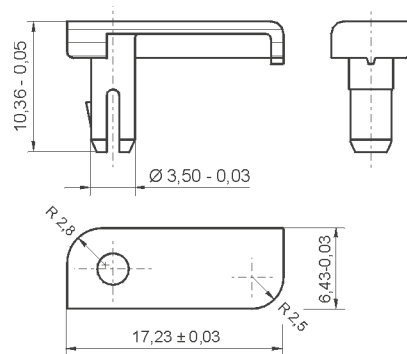
**Plugs R4W-0003** or **R15-M203** can substitute button type **T** if **manual operation (latching and testing) is not allowed**. Changing button type **T** for plug can be done by Customer themselves in the same way as changing button type **T** for button (no latching).

### Dimensions - plug R4W-0003 for R2N...WT, R3N...WT, R4N...WT



Types of plugs:  
**R4W-0003-A** - orange colour (AC coils)  
**R4W-0003-D** - green colour (DC coils)

### Dimensions - plug R15-M203 for R15...WT 2 CO, R15...WT 3 CO



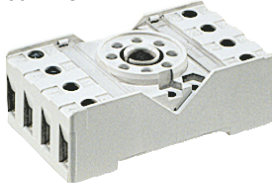
Types of plugs:  
**R15-M203-A** - orange colour (AC coils)  
**R15-M203-D** - green colour (DC coils)

# Sockets and accessories

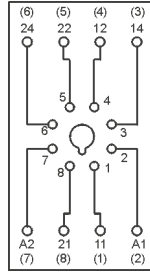
## PZ8

For R15 - 2 CO

Screw terminals  
Max. tightening moment  
for the terminal: 0,7 Nm  
35 mm rail mount  
acc. to EN 60715  
or on panel mounting  
68,2 x 38 x 24,2 mm  
Two poles  
10 A, 250 V AC



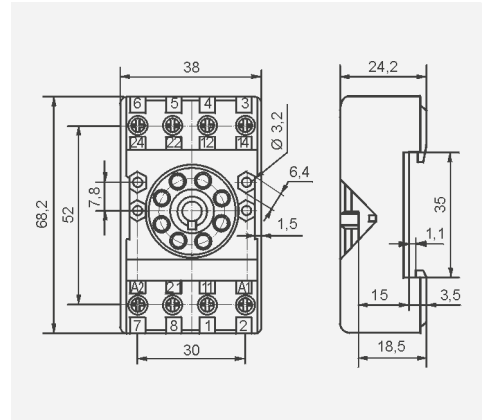
### Connection diagram



### Accessories

PZ11 0031

### Dimensions



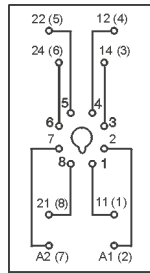
## GZU8

For R15 - 2 CO

Screw terminals  
Max. tightening moment  
for the terminal: 0,7 Nm  
35 mm rail mount  
acc. to EN 60715  
82 x 35,5 x 25,7 mm  
Two poles  
10 A, 250 V AC



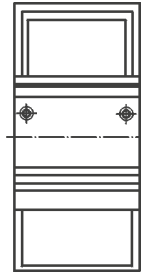
### Connection diagram



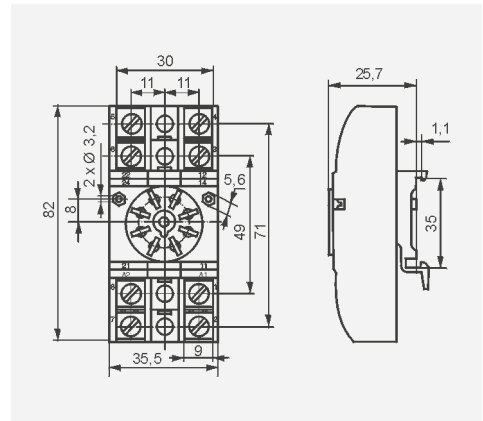
### Accessories

GZU 1052

### Adaptor



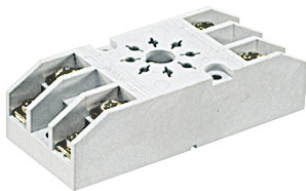
### Dimensions



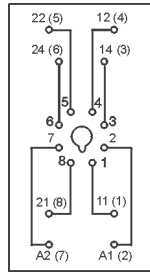
## GZ8

For R15 - 2 CO

Screw terminals  
Max. tightening moment  
for the terminal: 0,7 Nm  
On panel mounting  
82,8 x 35,5 x 22,5 mm  
Two poles  
10 A, 250 V AC



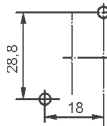
### Connection diagram



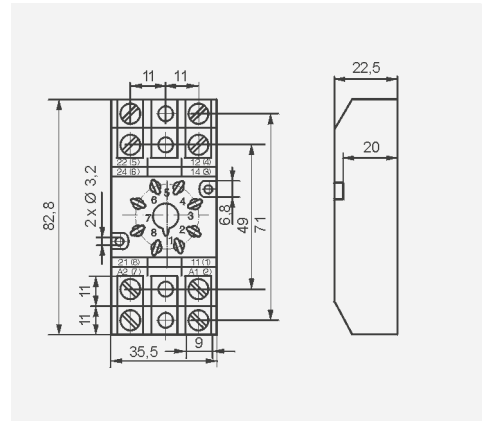
### Accessories

GZ 1050

### Mounting dimensions



### Dimensions



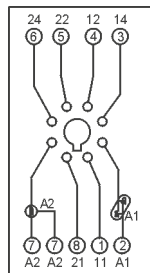
## GZP8

For R15 - 2 CO

Screw terminals  
Max. tightening moment  
for the terminal: 0,5 Nm  
35 mm rail mount  
acc. to EN 60715  
or on panel mounting  
73 x 38,2 x 27,2 mm  
Two poles  
12 A, 300 V AC



### Connection diagram



### Accessories

GZP-0054



Module type 21, 41

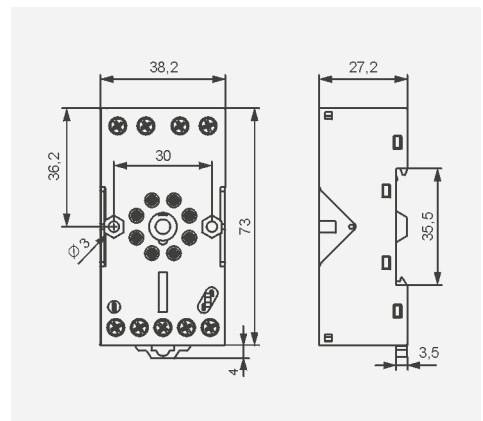


Time module COM3



GZP-0035

### Dimensions



Have obtained LR Type Approval Certificate (Lloyd's Register).

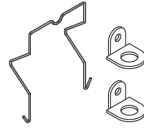


# Sockets and accessories

## GOP8

For R15 - 2 CO

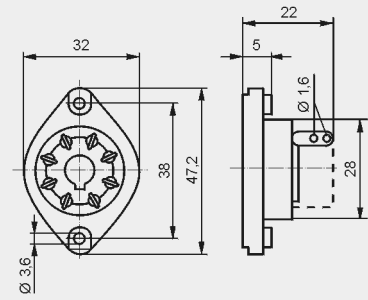
Solder terminals  
47,2 x 32 x 22 mm  
Two poles  
10 A, 250 V AC



Accessories

R159 1051

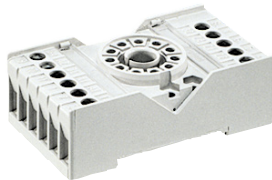
Dimensions



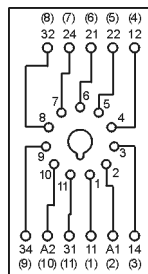
## PZ11

For R15 - 3 CO

Screw terminals  
Max. tightening moment  
for the terminal: 0,7 Nm  
35 mm rail mount  
acc. to EN 60715  
or on panel mounting  
68,2 x 38 x 24,2 mm  
Three poles  
10 A, 250 V AC



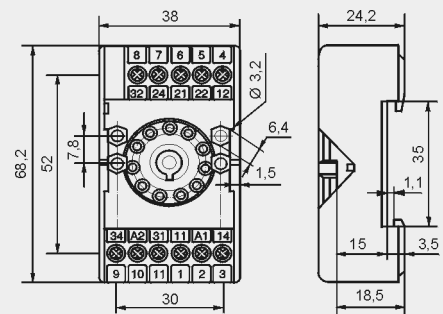
Connection diagram



Accessories

PZ11 0031

Dimensions



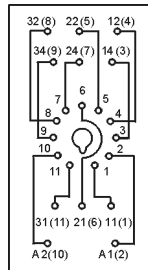
## GZU11

For R15 - 3 CO

Screw terminals  
Max. tightening moment  
for the terminal: 0,7 Nm  
35 mm rail mount  
acc. to EN 60715  
82 x 35,5 x 25,7 mm  
Three poles  
10 A, 250 V AC



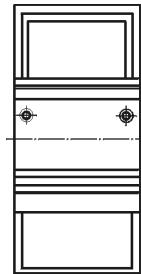
Connection diagram



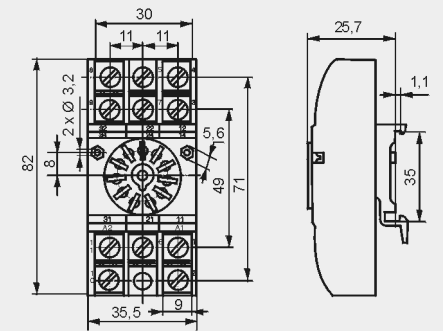
Accessories

GZU 1052

Adaptor



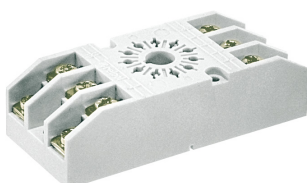
Dimensions



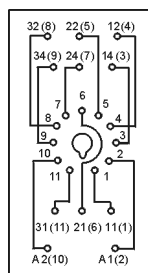
## GZ11

For R15 - 3 CO

Screw terminals  
Max. tightening moment  
for the terminal: 0,7 Nm  
On panel mounting  
82,8 x 35,5 x 22,5 mm  
Three poles  
10 A, 250 V AC



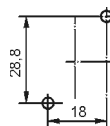
Connection diagram



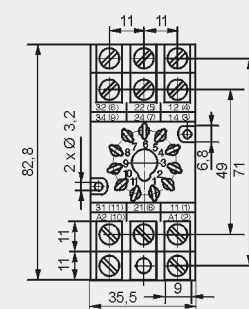
Accessories

GZ 1050

Mounting  
dimensions



Dimensions



① Have obtained LR Type Approval Certificate (Lloyd's Register).

# Sockets and accessories

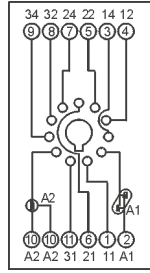
## GZP11

For R15 - 3 CO

Screw terminals  
Max. tightening moment for the terminal: 0,5 Nm  
35 mm rail mount acc. to EN 60715 or on panel mounting  
73 x 38,2 x 27,2 mm  
Three poles  
12 A, 300 V AC



### Connection diagram



Module type 21, 41



Time module COM3



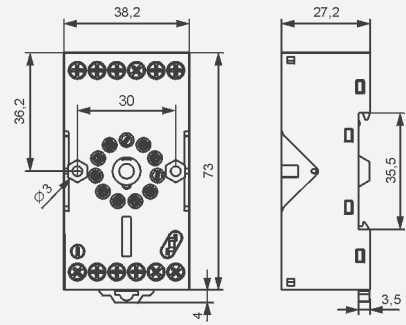
GZP-0054



GZP-0035

### Accessories

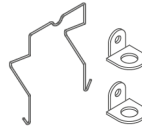
### Dimensions



## GOP11

For R15 - 3 CO

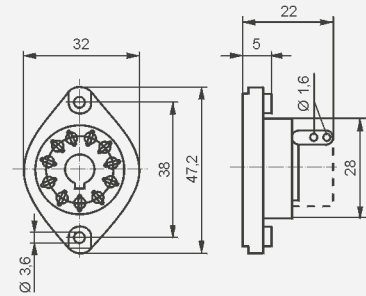
Solder terminals  
47,2 x 32 x 22 mm  
Three poles  
10 A, 250 V AC



R159 1051

### Accessories

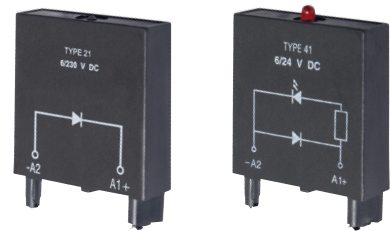
### Dimensions



# Signalling / protecting modules

For sockets type: GZP8, GZP11

Modules type 21, 41 are parallelly connected with relay coil.  
Polarization N: +A1/-A2.



Modules	Layout	Voltage	Type of module
<b>Module D (polarization N)</b> It limits overvoltage on DC coils.		6/230 V DC	Module 21
<b>Module LD (polarization N)</b> It limits overvoltage on DC coils. Coil energizing indication (LED red).		6/24 V DC	Module 41

### 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.