



10 A / 250 V AC

• Relays of general application • For plug-in sockets: 35 mm rail mount acc. to PN-EN 60715; on panel mounting • Miniature dimensions • Cadmium - free contacts • AC and DC coils • WT (mechanical indicator + lockable front test button) - standard features of relays for plug-in sockets. Relays may be provided with the test buttons (no latching) and plugs

• Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railroad standard,



## Contact data

Number and type of contacts		3 CO
Contact material		AgNi , AgNi/Au 0,2 µm
Rated / max. switching voltage	AC	250 V / 440 V
Min. switching voltage		10 V
Rated load (capacity)	AC 1	10 A / 250 V AC
	AC15	3 A / 120 V    1,5 A / 240 V (B300)
	AC3	370 W (single-phase motor)
	DC1	10 A / 24 V DC (see Fig. 3)
	DC13	0,22 A / 120 V    0,1 A / 250 V (R300)
Min. switching current		5 mA
Max. inrush current		20 A
Rated current		10 A
Max. breaking capacity	AC1	2 500 VA
Min. breaking capacity		0,3 W
Contact resistance		≤ 100 m Ω
Max. operating frequency	AC 1	• at rated load    1 200 cycles/hour
		• no load    18 000 cycles/hour

## Coil data

Rated voltage	50/60 Hz AC	6 ... 240 V
	DC	5 ... 220 V
Must release voltage		AC: ≥ 0,2 U <sub>n</sub> DC: ≥ 0,1 U <sub>n</sub>
Operating range of supply voltage		see Tables 1, 2
Rated power consumption	AC	1,6 VA
	DC	0,9 W

## Insulation according to PN-EN 60664-1

Insulation rated voltage	250 V AC	
Rated surge voltage	with AC coils: 2 500 V	1,2 / 50 µs
	with DC coils: 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	1 500 V AC    type of clearance: micro-disconnection
	• pole - pole	2 500 V AC    type of insulation: basic
Contact - coil distance	• clearance	≥ 2,5 mm
	• creepage	≥ 4 mm

## General data

Operating / release time (typical values)	AC: 10 ms / 8 ms	DC: 13 ms / 3 ms
Electrical life	• resistive AC1	> 10 <sup>5</sup> 10 A, 250 V AC
	• cos φ	see Fig. 2
Mechanical life (cycles)	> 2 x 10 <sup>7</sup>	
Dimensions (L x W x H)	27,5 x 21,2 x 35,6 mm	27,5 x 21,2 x 33 mm
Weight	35 g	
Ambient temperature	• storage	-40...+85 °C
	• operating	AC: -40...+55 °C    DC: -40...+70 °C
Cover protection category	IP 40	PN-EN 60529
Environmental protection	RTI	PN-EN 116000-3
Shock resistance	(NO/NC)	10 g / 5 g
Vibration resistance		5 g    10...150 Hz

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

For plug-in sockets version: standard (WT)

For version with threaded bolt

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)
1005	5	28	± 10%	4,0	5,5
1006	6	40	± 10%	4,8	6,6
1012	12	160	± 10%	9,6	13,2
1024	24	640	± 10%	19,2	26,4
1048	48	2 600	± 10%	38,4	52,8
1060	60	4 000	± 10%	48,0	66,0
1080	80	7 100	± 10%	64,0	88,0
1110	110	13 600	± 10%	88,0	121,0
1125	125	16 000	± 10%	100,0	137,5
1220	220	54 000	± 10%	176,0	242,0

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

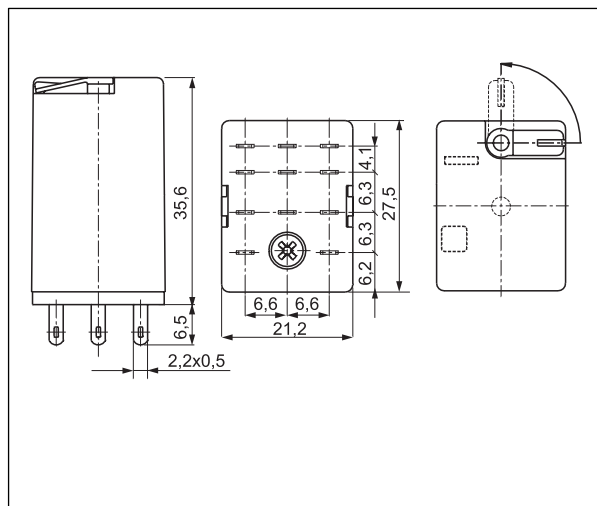
Coil data - AC 50/60 Hz voltage version

Table 2

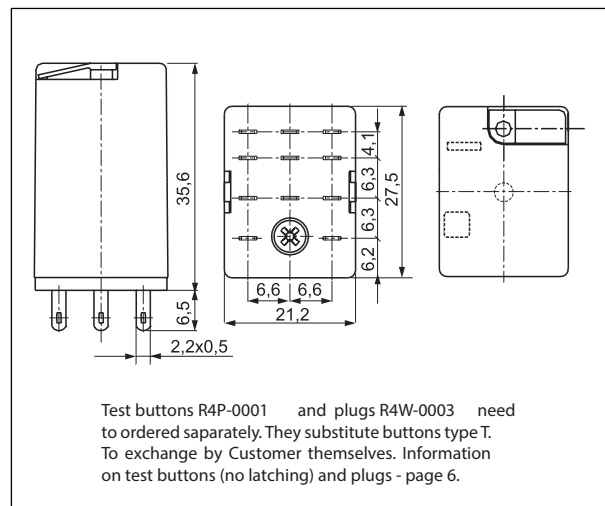
Coil code	Rated voltage V AC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5006	6	9,8	± 10%	4,8	6,6
5012	12	39,5	± 10%	9,6	13,2
5024	24	158,0	± 10%	19,2	26,4
5042	42	470,0	± 10%	33,6	46,2
5048	48	640,0	± 10%	38,4	52,8
5060	60	930,0	± 10%	48,0	66,0
5080	80	1 720,0	± 10%	64,0	88,0
5110	110	3 450,0	± 10%	88,0	121,0
5115	115	3 610,0	± 10%	92,0	127,0
5120	120	3 770,0	± 10%	96,0	132,0
5127	127	4 000,0	± 10%	101,6	139,0
5220	220	15 400,0	± 10%	176,0	242,0
5230	230	16 100,0	± 10%	184,0	253,0
5240	240	16 800,0	± 10%	192,0	264,0

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

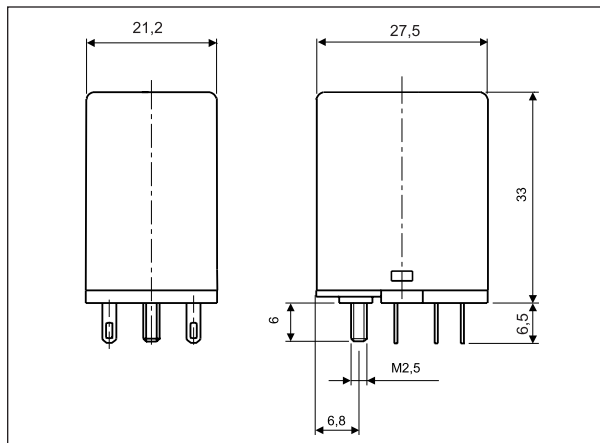
**Dimensions - plug-in version (WT),  
with lockable front test button type T**



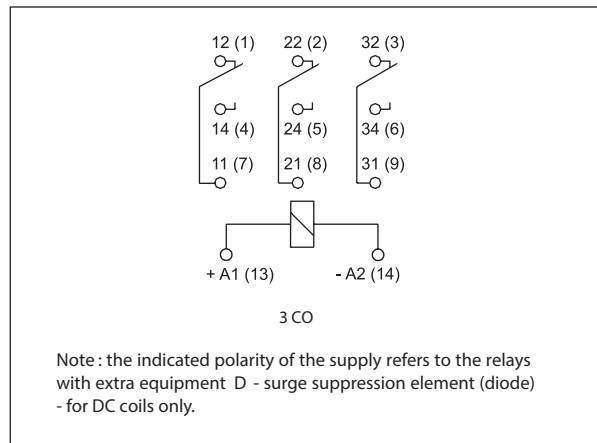
**Dimensions - plug-in version, with test button  
(no latching) or with plug (no manual operation)**



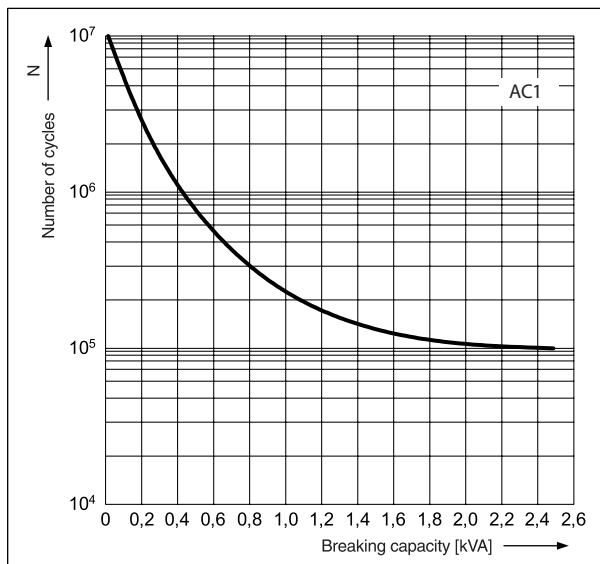
### Dimensions - version with threaded bolt



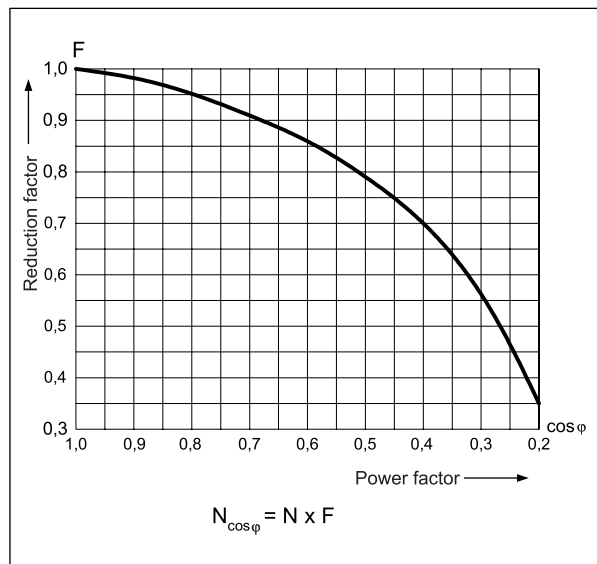
### Connection diagram (pin side view)



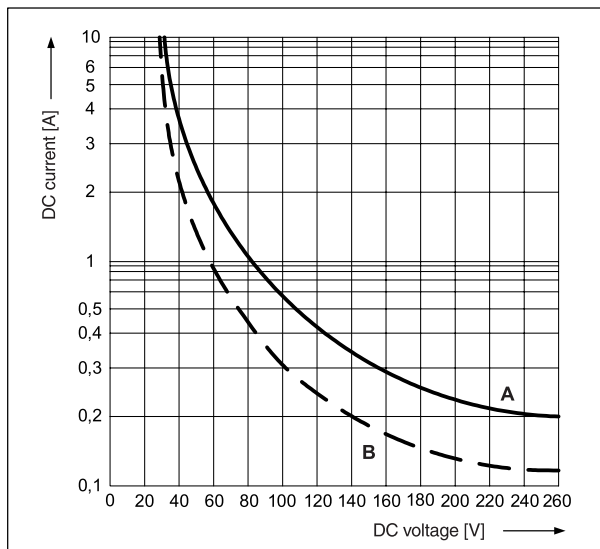
### Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour Fig. 1



### 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



### Mounting

Relays R3 are offered in versions : • standard WT (mechanical indicator + lockable front test button), for plug-in sockets. In standard version of relays (WT) is possibility self-exchange of button type T for test button R4P-0001 (no latching) or plug R4W-0003 (no manual operation). Test buttons (no latching) and plugs need to ordered separately • with threaded bolt.

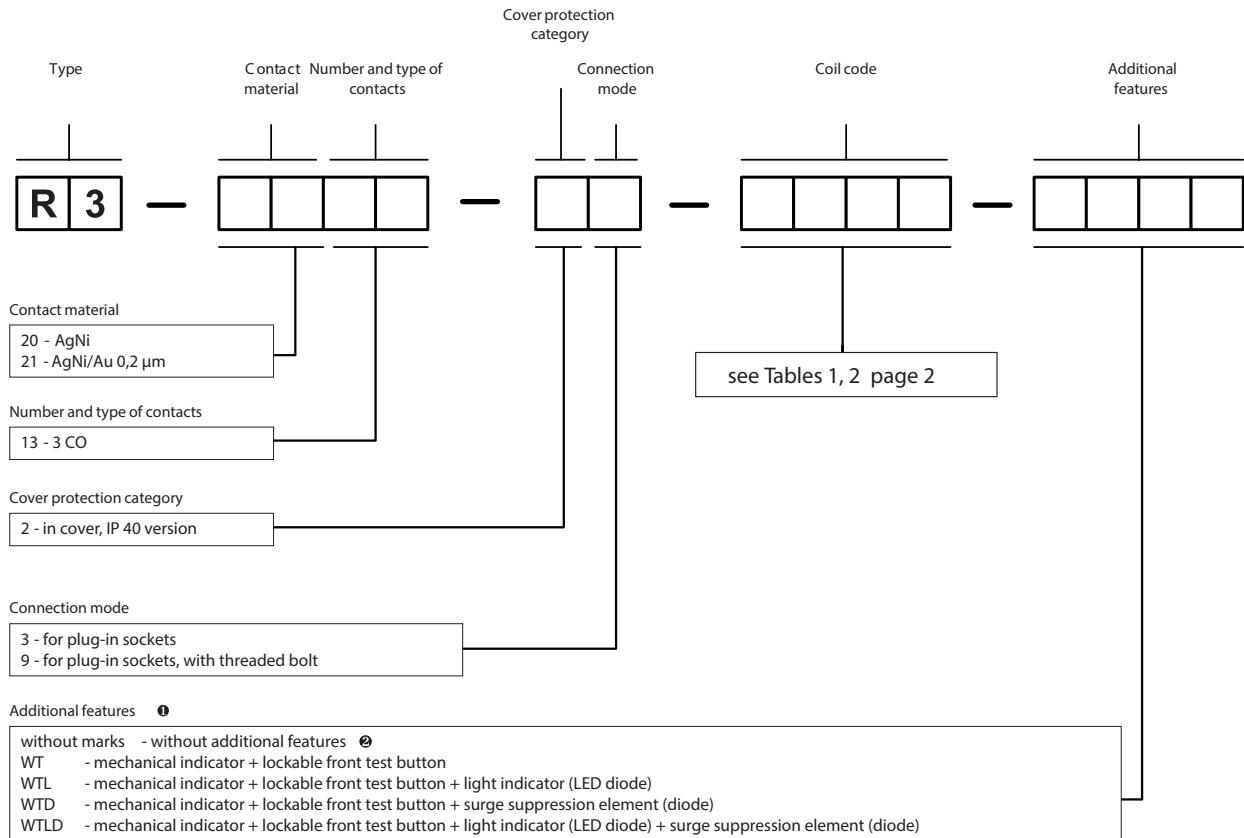
Relays R3 are designed for: • screw terminals plug-in sockets GZT3 ① and GZM3 ① with clip GZT4-0040 or G4 1052 , 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. Signalling / protecting modules type M... are available with sockets.

① Plug-in sockets GZT3 and GZM3 may be linked with interconnection strip type ZGGZ4 .

## Contact material selection for different load types

- AgNi - for resistive or inductive loads,
- AgNi/Au 0,2 µm - Au protects the contact surface during storage.

## Ordering codes



- ① WT - standard features of relays for plug-in sockets. WTD, WTL D - only for DC coils
- ② Refer relays with threaded bolt

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 6.

- Button R4P-0001-A - orange colour (AC coils)
- Button R4P-0001-D - green colour (DC coils)
- Plug R4W-0003-A - orange colour (AC coils)
- Plug R4W-0003-D - green colour (DC coils)

### Note:

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(13) / -A2(14). The polarity is indicated on the relay cover. For other versions of the relays with DC coils any polarity is possible.

### Example of ordering code:

R3-2013-23-1024-WT relay R3, for plug-in sockets, three changeover contacts, contact material AgNi, coil voltage 24 V DC, with mechanical indicator and lockable front test button, in cover IP 40

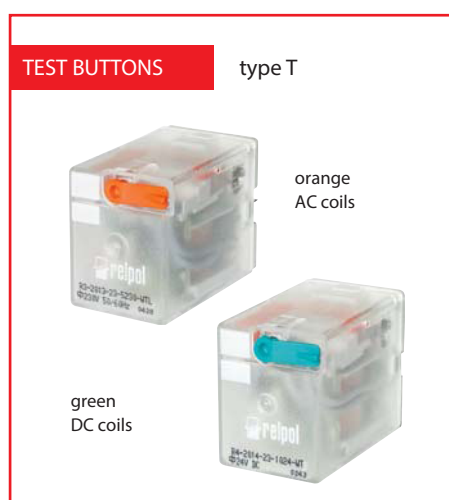
WT - mechanical indicator + lockable front test button  
 (basic features of standard industrial relays for plug-in sockets: R2, R3, R4, R15 - 2 CO, 3 CO).

Detailed information for individual relays: see "Ordering codes - Additional features".

Type ❶	Description	For industrial relays
W	mechanical indicator	R2, R3, R4 R15 - 2 CO, 3 CO
T	lockable front test button, orange colour - AC coils, green colour - DC coils	R2, R3, R4 R15 - 2 CO, 3 CO
L	light indicator (LED diode), located inside the relay	R2, R3, R4, RY2 R15 - 2 CO, 3 CO, 4 CO      RUC, RUC-M
D	surge suppression element (diode) - only for DC coils	R2, R3, R4, RY2 R15 - 2 CO, 3 CO, 4 CO
V	surge suppression element (varistor) - only for AC coils	R15 - 2 CO, 3 CO
K	test button without block function	R15 - 4 CO      RUC

❶ Available combinations:

- WT, WTL, WTD, WTLD - in relays R2, R3, R4 for plug-in sockets
- L, D, LD - in relays RY2 for plug-in sockets
- WT, WTL, WTD, WTLD, WTV, WTLV - 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



Test buttons are recommended for R2...WT, R3...WT, R4...WT, R15...WT - 2 CO, 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.

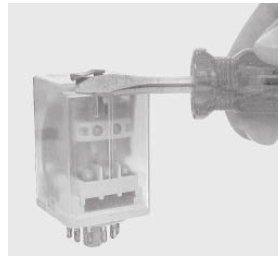


Fig. 1

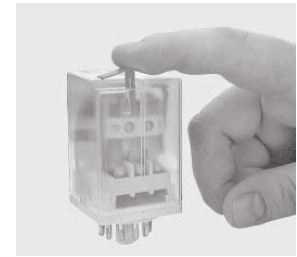
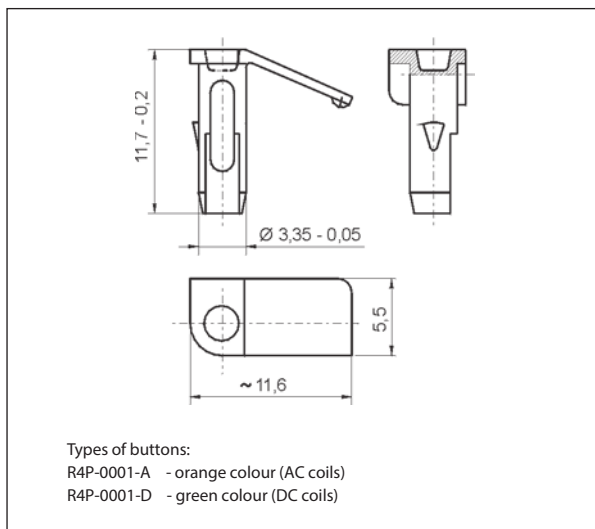
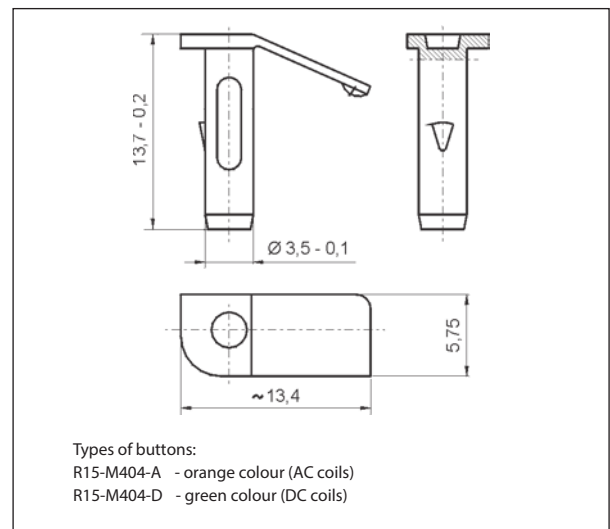


Fig. 2

**Dimensions - test button R4P-0001**  
for relays R2...WT, R3...WT, R4...WT

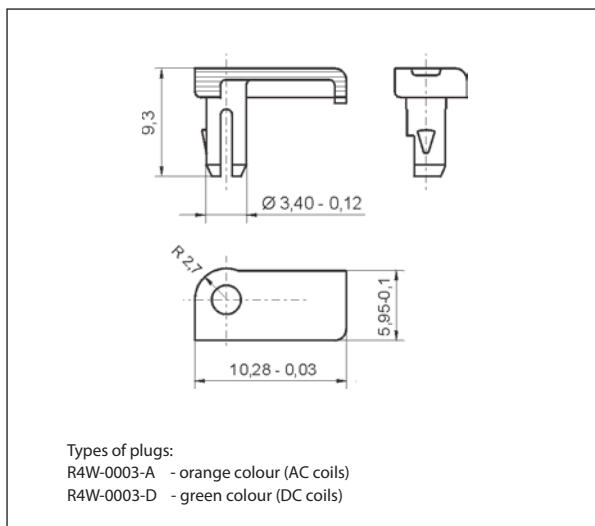


**Dimensions - test button R15-M404**  
for relays R15...WT - 2 CO, 3 CO

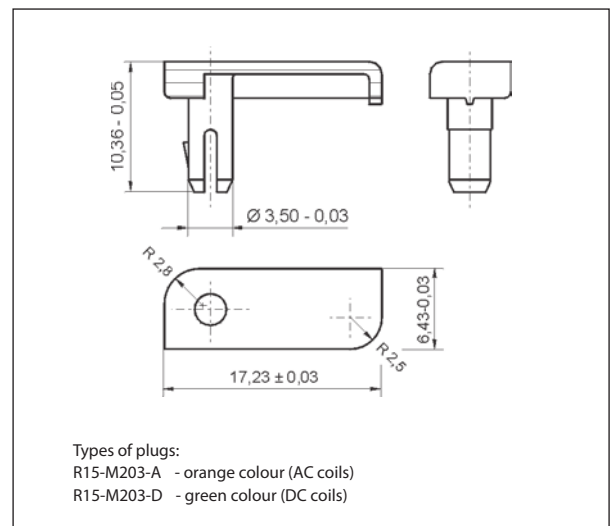


Plugs R4W-0003 or R15-M203 can substitute button type T if manual operation (latching and testing) is not allowed. Changing button type T for plug can be done by Customer themselves in the same way as changing button type T for button (no latching).

**Dimensions - plug R4W-0003**  
for relays R2...WT, R3...WT, R4...WT



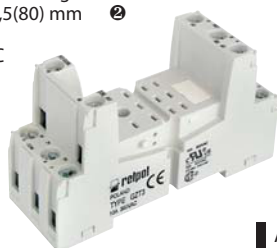
**Dimensions - plug R15-M203**  
for relays R15...WT - 2 CO, 3 CO



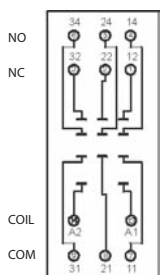
## GZT3

For R3

Screw terminals  
Max. tightening moment  
for the terminal: 0,7 Nm  
35 mm rail mount  
acc. to PN-EN 60715  
or on panel mounting  
76,3 x 27 x 42,5(80) mm  
Three poles  
10 A, 300 V AC



### Connection diagram



ZGGZ4



GZT4-0040



G4 1052



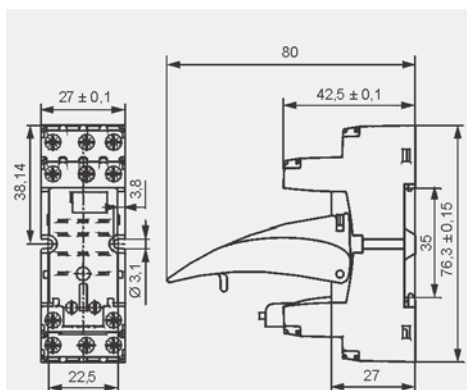
GZT4-0035



Module type M...

### Accessories ①

### Dimensions



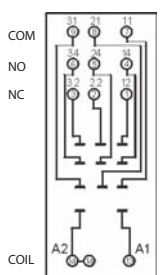
## GZM3

For R3

Screw terminals  
Max. tightening moment  
for the terminal: 0,7 Nm  
35 mm rail mount  
acc. to PN-EN 60715  
or on panel mounting  
75 x 27 x 61(82) mm  
Three poles  
10 A, 300 V AC



### Connection diagram



ZGGZ4



GZT4-0040



G4 1052



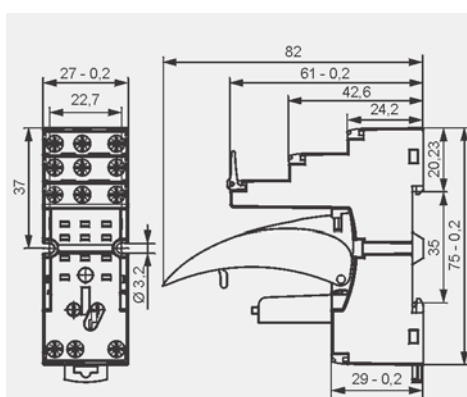
GZT4-0035



Module type M...

### Accessories ①

### Dimensions



① Mounting and sub-assemblies of accessories in the socket - see page 8.

② In the bracket the height of socket with retainer / retractor clip is shown.

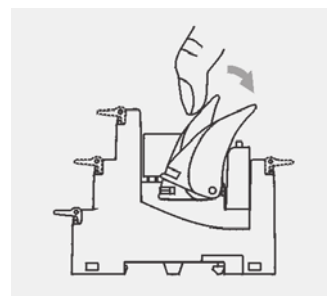
## PIR3

Interface relay:  
relay R3  
and socket GZM3



Signalling / protecting module  
type M...

Electromagnetic  
relay



Removing the relay from the socket  
with a retractor / retractor clip

Retainer / retractor clip

Screw terminals  
plug-in socket

Description plate

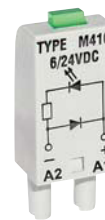


## Accessories

Type of plug-in socket	GZT80, GZT92, GZM80, GZM92	GZS80, GZS92	ES 32	GZT2, GZT3, GZT4, GZM2, GZM3, GZM4
Retainer / retractor clips				
Type	GZT80-0040	GZS-0040	MS16	GZT4-0040
Colour	gray	black	black	gray
Description plates				
Type	GZT80-0035	TR	TR	GZT4-0035
Colour	white	white	white	white
For relays	RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RM87, RM87 sensitive	RM84, RM85, RM85 inrush, RM85 105 °C sensitive, RM87, RM87 sensitive	RM96 1 CO	R2, R3, R4
Height of relay	15...16,5 mm	15...16,5 mm	15...16,5 mm	35,6 mm

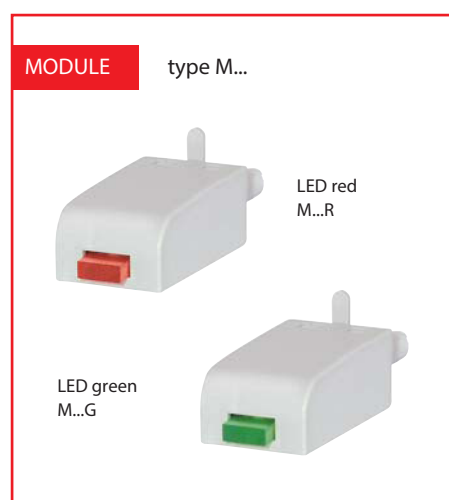
For sockets type: GZT80, GZT92, GZM80, GZM92, GZS80, GZS92, ES 32,  
 GZT2, GZT3, GZT4, GZM2, GZM3, GZM4

Modules type M... are parallelly connected with relay coil.  
 Polarity P: -A1/+A2. Polarity N: +A1/-A2.



Modules type M...	Layout	Layout	Type of module ⓘ
Module D (polarization P) It limits overvoltage on DC coils.		6/230 V DC	M21P
Module D (polarization N) It limits overvoltage on DC coils.		6/230 V DC	M21N
Module LD (polarization P) It limits overvoltage on DC coils. Coil energizing indication.		6/24 V DC 24/60 V DC 110/230 V DC	M31R, M31G M32R, M32G M33R, M33G
Module LD (polarization N) It limits overvoltage on DC coils. Coil energizing indication.		6/24 V DC 24/60 V DC 110/230 V DC	M41R, M41G M42R, M42G M43R, M43G
Module RC It protects against EMC disturbance. It limits overvoltage.		6/24 V AC 24/60 V AC 110/240 V AC	M51 M52 M53
Module L Coil energizing indication.		6/24 V AC/DC 24/60 V AC/DC 110/230 V AC/DC	M61R, M61G M62R, M62G M63R, M63G
Module LV It limits overvoltage on AC and DC coils. Coil energizing indication.		6/24 V AC/DC 24/60 V AC/DC 110/230 V AC/DC	M91R, M91G M92R, M92G M93R, M93G
Module V It limits overvoltage on AC and DC coils. No indication.		24 V AC 130 V AC 230 V AC	M71 M72 M73
Module R It limits overvoltage on AC coils.		110/230 V AC	M103

ⓘ M...R - LED red, M...G - LED green





## ZGGZ4 for:

Plug-in sockets	Relays for plug-in sockets	Interface relays
GZT2	R2...WT	PIR2-...-00L. (GZM2 + R2...WT)
GZM2		PIR3-...-00L. (GZM3 + R3...WT)
GZT3	R3...WT	PIR4-...-00L. (GZM4 + R4...WT)
GZM3		
GZT4	R4...WT	
GZM4		

⊕ Interface relay PIR2 (PIR3, PIR4) is offered as a set: plug-in socket GZM2 (GZM3, GZM4) + miniature industrial relay R2 (R3, R4) + signalling / protecting module type M... + retainer / retractor clip GZT4-0040 + description plate GZT4-0035.

## Interconnection strip ZGGZ4

- designed for the co-operation with plug-in sockets of miniature industrial relays and with interface relays PIR2, PIR3 and PIR4, which are equipped with screw terminals; sockets and relays are mounted on 35 mm rail mount acc. to PN-EN 60715,
- bridges common input signals (coil terminals A1 or A2) or output signals - see photo at the top,
- maximum permissible current is 10 A / 250 V AC,
- possibility of connection of 6 sockets or relays,
- colours of strips: ZGGZ4-1 grey, ZGGZ4-2 black.

