



6 A / 250 V AC

• Relays of general application • Relays of general application • For plug-in sockets: 35 mm rail mount acc. to PN-EN 60715; on panel mounting; PCB mounting • For PCB and soldering connections - option • 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 • Have obtained LR Type Approval Certificate (Lloyd's Register) - R4...WT • Recognitions, certifications, directives: RoHS, AUCOTEAM GmbH Berlin - railroad standard,



Contact data

Number and type of contacts		4 CO
Contact material		AgNi , AgNi/Au 0,2 µm, AgNi/Au 5 µm
Rated / max. switching voltage	AC	250 V / 250 V
Min. switching voltage		10 V AgNi, 10 V AgNi/Au 0,2 µm, 5 V AgNi/Au 5 µm
Rated load (capacity)	AC 1 AC15 AC3 DC1 DC13	6 A / 250 V AC 1,5 A / 120 V 0,75 A / 240 V (C300) 125 W (single-phase motor) 6 A / 24 V DC (see Fig. 3) 0,22 A / 120 V 0,1 A / 250 V (R300)
Min. switching current		5 mA
Max. inrush 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 0,2 µm, 0,1 W AgNi/Au 5 µm
Contact resistance		≤ 100 m Ω
Max. operating frequency		
• at rated load	AC 1	1 200 cycles/hour
• no load		18 000 cycles/hour

Coil data

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

Insulation according to PN-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		1 500 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)		AC: 10 ms / 8 ms DC: 13 ms / 3 ms
Electrical life		
• resistive AC1		> 10 ⁵ 6 A, 250 V AC
• cos φ		see Fig. 2
Mechanical life (cycles)		> 2 x 10 ⁷
Dimensions (L x W x H)		27,5 x 21,2 x 35,6 mm 27,5 x 21,1 x 33,5 mm 27,5 x 21,2 x 33 mm
Weight		35 g
Ambient temperature	• storage • operating	-40...+85 °C 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
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

For plug-in sockets version: standard (WT)

For PCB version

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	$\pm 10\%$	4,0	5,5
1006	6	40	$\pm 10\%$	4,8	6,6
1012	12	160	$\pm 10\%$	9,6	13,2
1024	24	640	$\pm 10\%$	19,2	26,4
1048	48	2 600	$\pm 10\%$	38,4	52,8
1060	60	4 000	$\pm 10\%$	48,0	66,0
1080	80	7 100	$\pm 10\%$	64,0	88,0
1110	110	13 600	$\pm 10\%$	88,0	121,0
1125	125	16 000	$\pm 10\%$	100,0	137,5
1220	220	54 000	$\pm 10\%$	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	$\pm 10\%$	4,8	6,6
5012	12	39,5	$\pm 10\%$	9,6	13,2
5024	24	158,0	$\pm 10\%$	19,2	26,4
5042	42	470,0	$\pm 10\%$	33,6	46,2
5048	48	640,0	$\pm 10\%$	38,4	52,8
5060	60	930,0	$\pm 10\%$	48,0	66,0
5080	80	1 720,0	$\pm 10\%$	64,0	88,0
5110	110	3 450,0	$\pm 10\%$	88,0	121,0
5115	115	3 610,0	$\pm 10\%$	92,0	127,0
5120	120	3 770,0	$\pm 10\%$	96,0	132,0
5127	127	4 000,0	$\pm 10\%$	101,6	139,0
5220	220	15 400,0	$\pm 10\%$	176,0	242,0
5230	230	16 100,0	$\pm 10\%$	184,0	253,0
5240	240	16 800,0	$\pm 10\%$	192,0	264,0

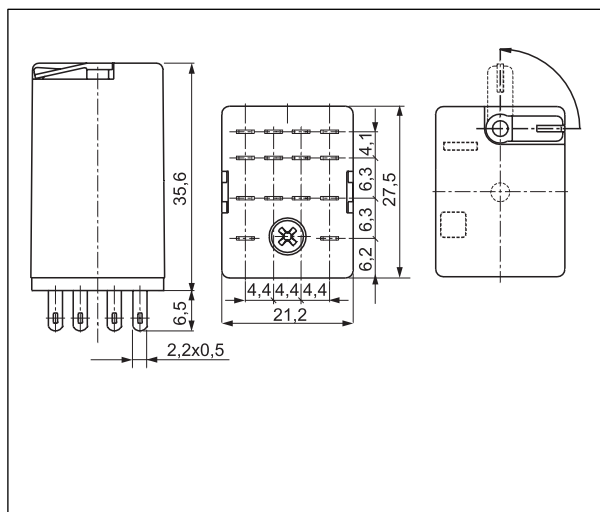
The data in bold type pertain to the standard versions of the relays.

EUROPRODUCT 2002
for electromagnetic relays
R2...WT , R3...WT , R4...WT
with sockets GZT2 , GZT3 , GZT4

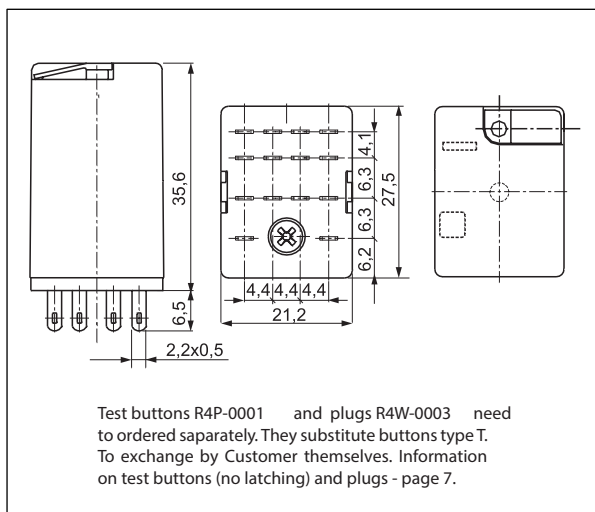
ELECTROPRODUCT 2003
for electromagnetic relays
R2 , R3 , R4



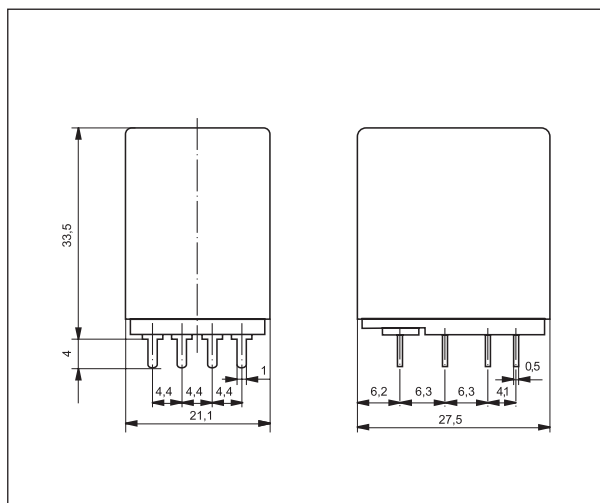
Dimensions - plug-in version (WT), with lockable front test button type T



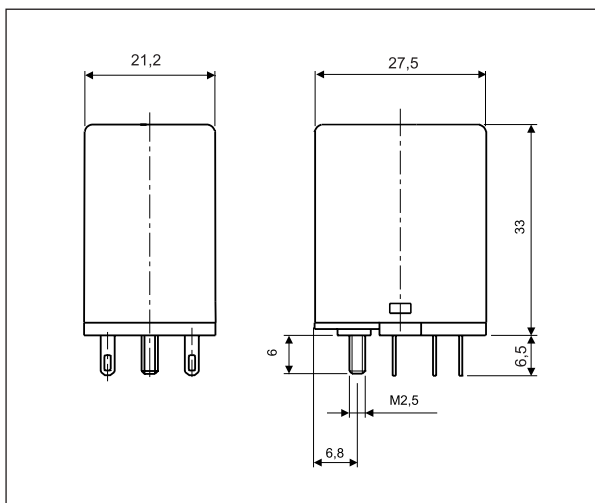
Dimensions - plug-in version, with test button (no latching) or with plug (no manual operation)



Dimensions - PCB version (without WT)



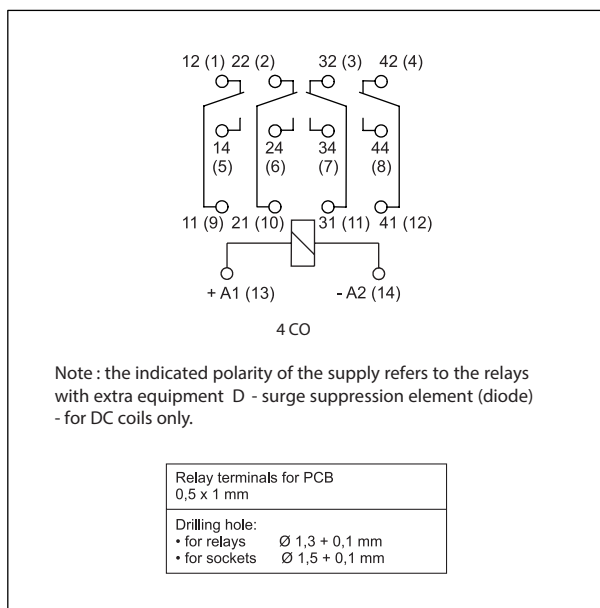
Dimensions - version with threaded bolt



Mounting

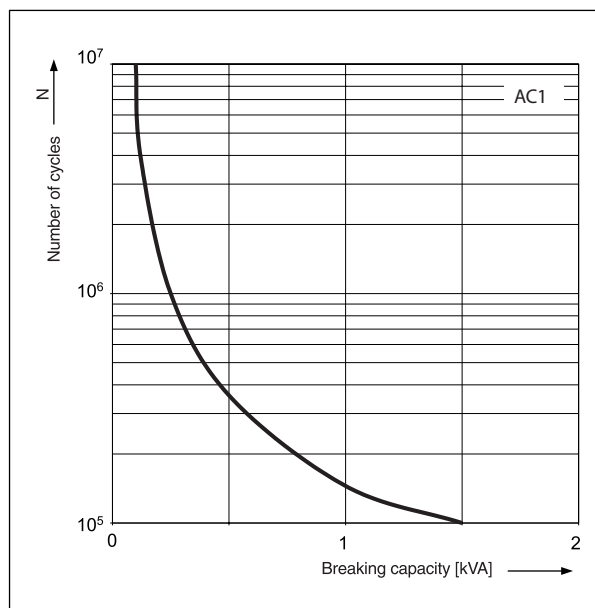
Relays R4 are offered in versions : • standard WT (mechanical indicator + lockable front test button), for plug-in sockets. In standard version of relays (WT) is possibility self-exchange of button type T for test button R4P-0001 (no latching) or plug R4W-0003 (no manual operation). Test buttons (no latching) and plugs need to be ordered separately • for PCB (without WT) • with threaded bolt.

Connection diagram (pin side view)



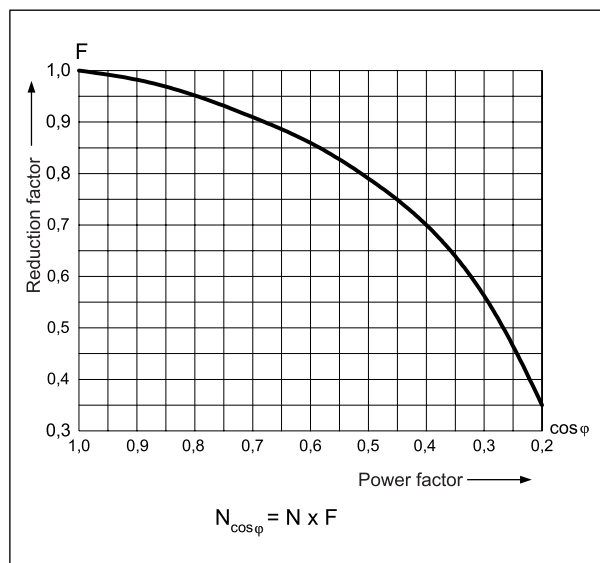
Electrical life at AC resistive load.
Switching frequency: 1 200 cycles/hour

Fig. 1



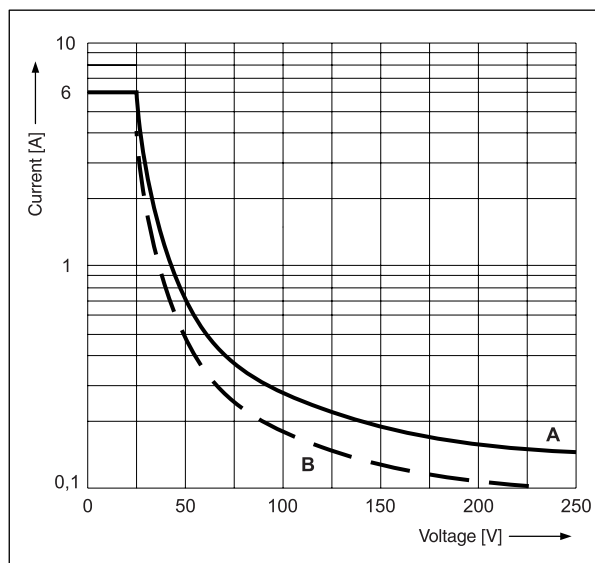
Electrical life reduction factor
at AC inductive load

Fig. 2



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

Fig. 3



Mounting

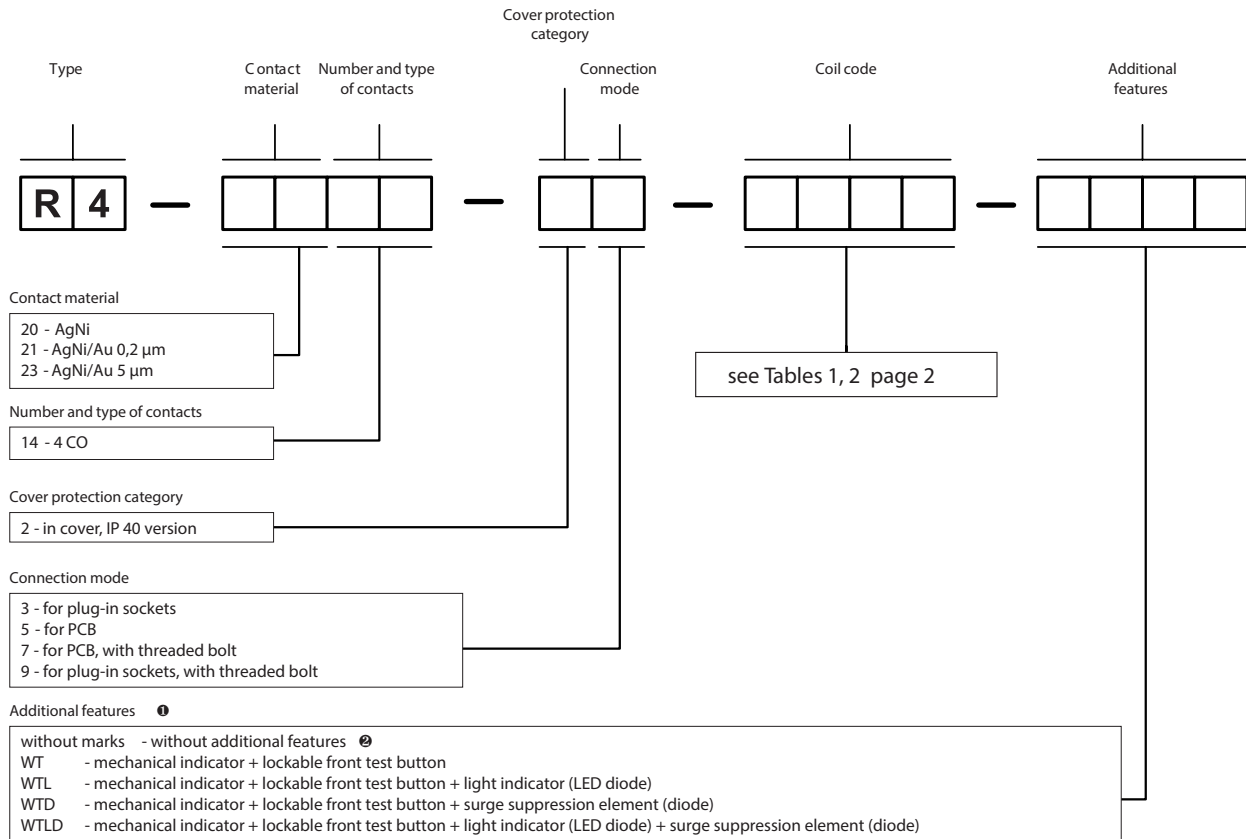
Relays R4 are designed for: • screw terminals plug-in sockets GZT4 ❶ and GZM4 ❶ with clip GZT4-0040 or G4 1052, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws. Signalling / protecting modules type M... are available with sockets • screw terminals plug-in sockets GZ4 with clip G4 1052 or plug-in sockets GS4 with clip GS4-0036, 35 mm rail mount acc. to PN-EN 60715 or on panel mounting with two M3 screws • plug-in sockets for PCB mounting SU4D with clip G4 1053 (WT) or G4 1050 (without WT) • solder terminals sockets SU4L with clip G4 1053 (WT) or G4 1050 (without WT) and spring clamp G4 1040 • solder terminals sockets G4 with clip G4 1053 (WT) or G4 1050 (without WT) • direct PCB mounting.

❶ Plug-in sockets GZT4 and GZM4 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,
- AgNi/Au 5 µm - for small resistive loads in control circuits.

Ordering codes



① WT - standard features of relays for plug-in sockets. WTD, WTLD - only for DC coils

② Refer relays for PCB and with threaded bolt

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

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

- 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 WTLD) - 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:

R4-2014-23-5230-WTL relay R4, for plug-in sockets, four 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

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

type T



orange
AC coils

green
DC coils



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.

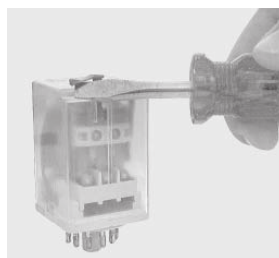


Fig. 1

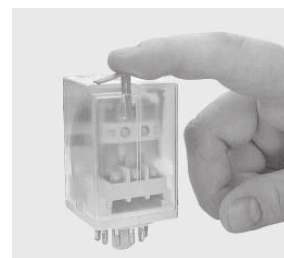
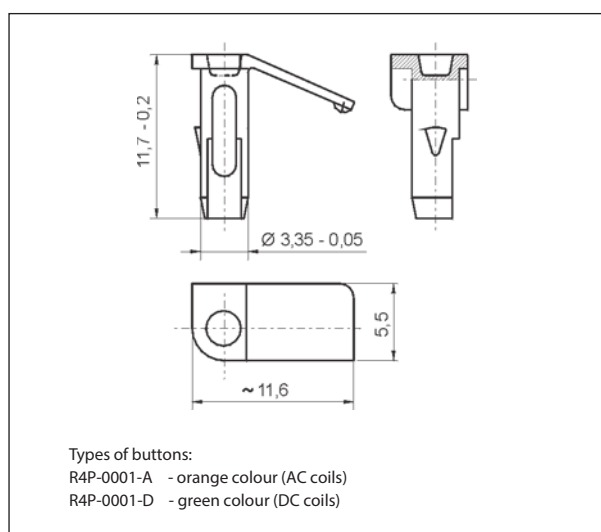
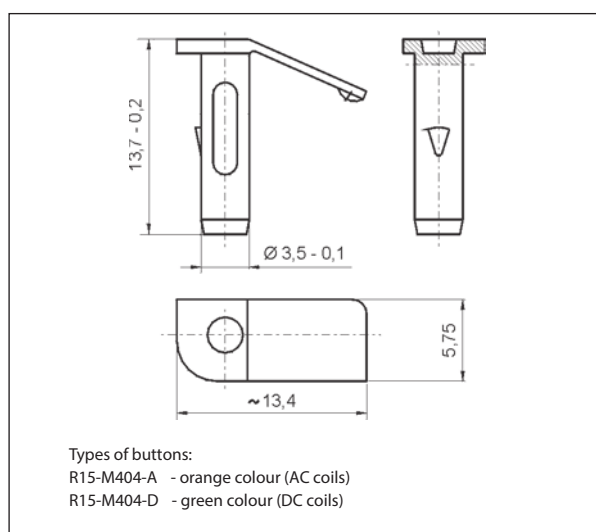


Fig. 2

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

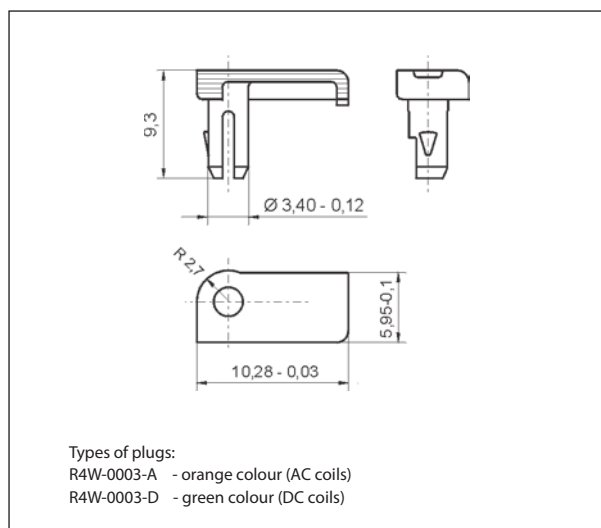


Dimensions - test button R15-M404
for relays R15...WT - 2 CO, 3 CO

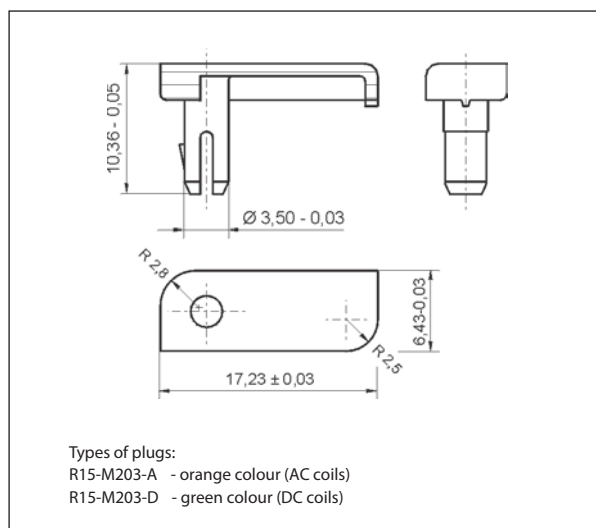


Plugs R4W-0003 or R15-M203 can substitute button type T if manual operation (latching and testing) is not allowed. Changing button type T for plug can be done by Customer themselves in the same way as changing button type T for button (no latching).

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



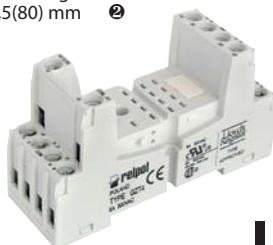
Dimensions - plug R15-M203
for relays R15...WT - 2 CO, 3 CO



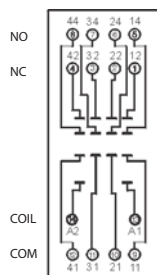
GZT4 ⑤

For R4, T-R4

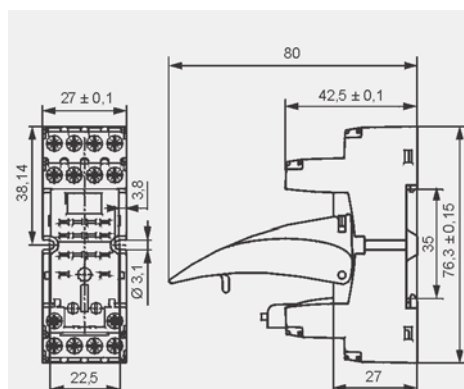
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
76,3 x 27 x 42,5(80) mm
Four poles
6 A, 300 V AC



Connection diagram



Dimensions



Accessories ① ⑥

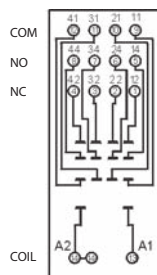
GZM4

For R4, T-R4

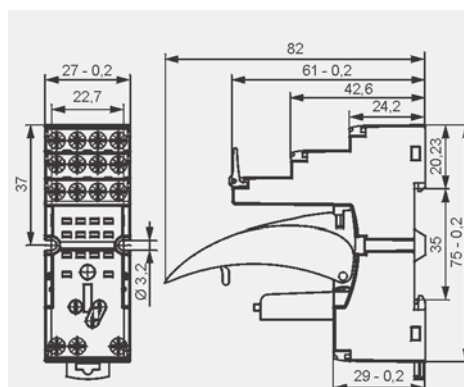
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
75 x 27 x 61(82) mm
Four poles
6 A, 300 V AC



Connection diagram



Dimensions



Accessories ① ⑥

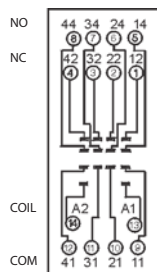
GZ4

For R4

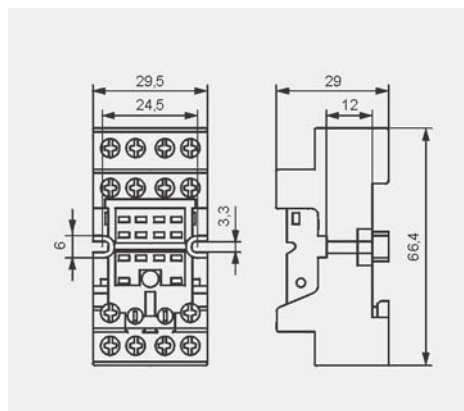
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
66,4 x 29,5 x 29 mm
Four poles
10 A, 300 V AC



Connection diagram



Dimensions



Accessories

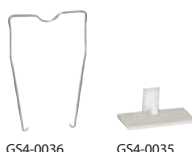
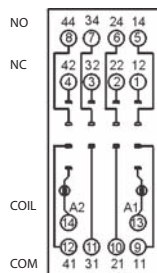
GS4

For R4

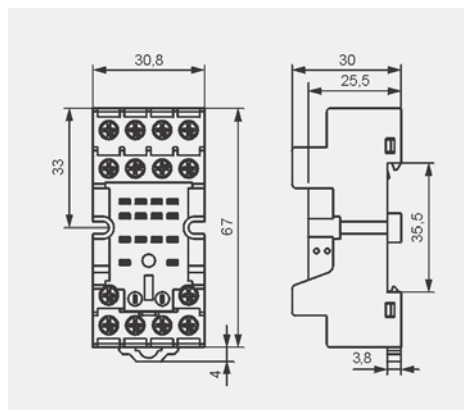
Screw terminals
Max. tightening moment
for the terminal: 0,7 Nm
35 mm rail mount
acc. to PN-EN 60715
or on panel mounting
67 x 30,8 x 30(~63,7) mm
Four poles
6 A, 300 V AC



Connection diagram



Dimensions



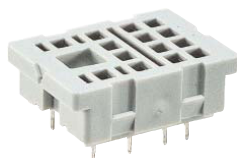
Accessories

① Mounting and sub-assemblies of accessories in the socket - see 10. ② In the bracket the height of socket with retainer / retractor clip is shown. ⑤ Have obtained LR Type Approval Certificate (Lloyd's Register). ⑥ For R4 relays: G4 1052, GZT4-0040, GZT4-0035, module type M...; for T-R4 relays: TR4-2000, GZT4-0035 ⑦ In the bracket the height of socket with spring wire clip is shown.

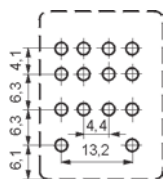
SU4D

For R4

For PCB
29,6 x 21,5 x 11 mm
Four poles
6 A, 250 V AC



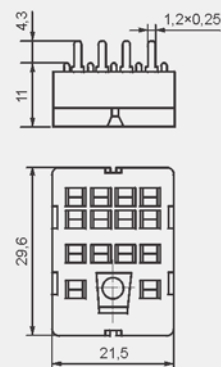
Pinout



Accessories ④

G4 1053 G4 1050

Dimensions



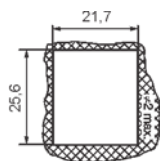
SU4L

For R4

Solder terminals
29,6 x 21,5 x 18,1 mm
Four poles
6 A, 250 V AC



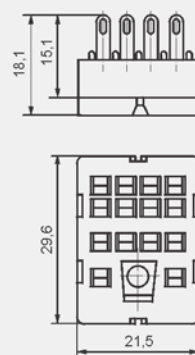
Dimensions of opening on panel mounting



Accessories ④

G4 1053 G4 1050 G4 1040

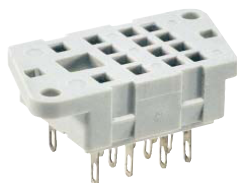
Dimensions



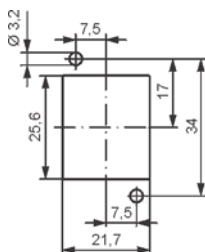
G4

For R4

Solder terminals
40,5 x 21,5 x 18,1 mm
Four poles
6 A, 250 V AC



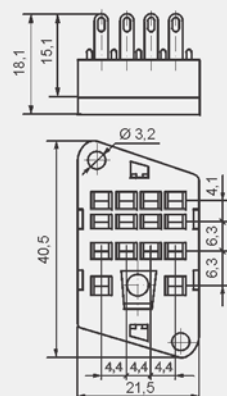
Pinout of openings on panel mounting



Accessories ④

G4 1053 G4 1050

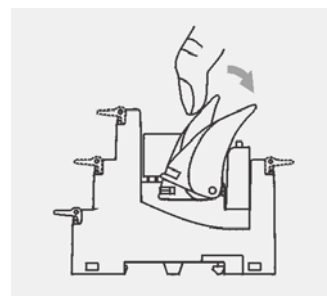
Dimensions



④ G4 1053 - for R2...WT, R4...WT relays; G4 1050 - for R2, R4 without WT

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

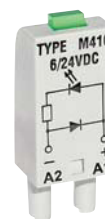
Accessories

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	GZT 4-0035
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

MODULE

type M...



LED red
M...R



LED green
M...G



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		

④ 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.

