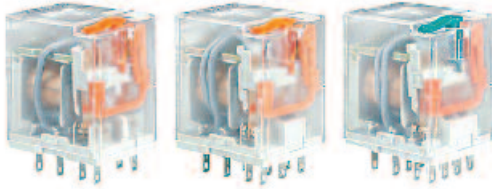


R2, R3, R4

Industrial Electromagnetic Relays



- Compact size
- Relays of general application
- Cadmium - free contacts
- AC and DC coils
- For plug-in sockets, 35 mm rail mount or on panel mounting *
- 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 (see page 115)
- AUCOTEAM GmbH Berlin - railway standards.

Contact Data

Contact Data		R2	R3	R4
Number and type of contacts		DPDT	3PDT	4PDT
Contact material		AgNi**	AgNi**	AgNi**
Rated / max. switching voltage AC		250 V / 440 V	250 V / 440 V	250 V / 250 V
Min. switching voltage		10 V	10 V	10 V
Rated load (capacity)	AC1	12 A / 250 V AC	10 A / 250 V AC	6 A / 250 V AC
	AC15	3 A / 120 V; 1.5 A / 240 V (B300)	3 A / 120 V; 1.5 A / 240 V (B300)	1.5 A / 120 V; 0.75 A / 240 V (C300)
	AC3	370 W (single-phase motor)	370 W (single-phase motor)	125 W (single-phase motor)
	DC1	12 A / 24 V DC (see Fig. 3.1)	10 A / 24 V DC (see Fig. 3.2)	6 A / 24 V DC (see Fig. 3.3)
	DC13	0.22 A / 120 V; 0.1 A / 250 V (R300)	0.22 A / 120 V; 0.1 A / 250 V (R300)	0.22 A / 120 V; 0.1 A / 250 V (R300)
Min. switching current		5 mA	5 mA	5 mA
Max. inrush current		24 A	20 A	12A
Rated current		12 A	10 A	6A
Max. breaking capacity AC1		3000 VA	2500 VA	1500 VA
Min. breaking capacity		0.3 W	0.3 W	0.3 W
Contact resistance		≤ 100 mΩ	≤ 100 mΩ	≤ 100 mΩ
Max. operating frequency	AC1			
		1200 cycles/hour	1200 cycles/hour	1200 cycles/hour
		18000 cycles/hour	18000 cycles/hour	18000 cycles/hour
• at rated load				
• no load				

Coil Data

Rated voltage	50/60 Hz AC	6 ... 240 V	6 ... 240 V	6 ... 240 V
	DC	5 ... 220 V	5 ... 220 V	5 ... 220 V
Must release voltage		AC: ≥ 0.2 U _n ; DC: ≥ 0.1 U _n	AC: ≥ 0.2 U _n ; DC: ≥ 0.1 U _n	AC: ≥ 0.2 U _n ; DC: ≥ 0.1 U _n
Operating range of supply voltage		see page 54	see page 54	see page 54
Rated power consumption	AC	1.6 VA	1.6 VA	1.6 VA
	DC	0.9 W	0.9 W	0.9 W

Insulation

Insulation rated voltage	250 V AC	250 V AC	250 V AC
Rated surge voltage	4000 V 1.2 / 50 μs	with AC coils: 2500 V 1.2 / 50 μs with DC coils: 4000 V 1.2 / 50 μs	2500 V 1.2 / 50 μs
Overvoltage category	III	III	II
Insulation pollution degree	3	3	2
Dielectric strength	• between coil and contacts	2500 V AC type of insulation: basic	2500 V AC type of insulation: basic
	• contact clearance	1500 V AC type of clearance: micro-disco.	1500 V AC type of clearance: micro-disco.
	• pole - pole	2500 V AC type of insulation: basic	2500 V AC type of insulation: basic
Contact - coil distance	• clearance	≥ 2.5 mm	≥ 1.6 mm
	• creepage	≥ 4 mm	≥ 3.2 mm

General data

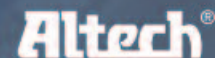
Operating / release time (typical)	AC: 10 ms / 8 ms; DC: 13 ms / 3 ms	AC: 10 ms / 8 ms; DC: 13 ms / 3 ms	AC: 10 ms / 8 ms; DC: 13 ms / 3 ms
Electrical life	AC1	> 10 ⁵ ; 12 A. 250 V AC see Fig. 2.1	> 10 ⁵ ; 10 A. 250 V AC see Fig. 2.2
Mechanical life (cycles)	> 2 x 10 ⁷	> 2 x 10 ⁷	> 2 x 10 ⁷
Dimensions (L x W x H)	27.5 x 21.2 x 35.6 mm	27.5 x 21.2 x 35.6 mm	27.5 x 21.2 x 35.6 mm
Weight	35 g	35 g	35 g
Ambient temperature	• storage • operating	-40...+85 °C AC: -40...+55 °C; DC: -40...+70 °C	-40...+85 °C AC: -40...+55 °C; DC: -40...+70 °C
Cover protection category	IP 40 PN-EN 60529	IP 40 PN-EN 60529	IP 40 PN-EN 60529
Environmental protection	RTI PN-EN 116000-3	RTI PN-EN 116000-3	RTI PN-EN 116000-3
Shock resistance (NO/NC)	10 g / 5 g	10 g / 5 g	10 g / 5 g
Vibration resistance	5 g 10...150 Hz	5 g 10...150 Hz	5 g 10...150 Hz
Solder bath temperature	max. 270 °C	—	max. 270 °C
Soldering time	max. 5 s	—	max. 5 s

* PCB or threaded bolt versions contact Altech Corp.

** Other contact materials (eg. gold plated) available, contact Altech Corp.

R2, R3, R4

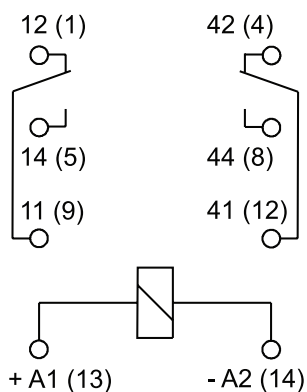
Industrial Electromagnetic Relays



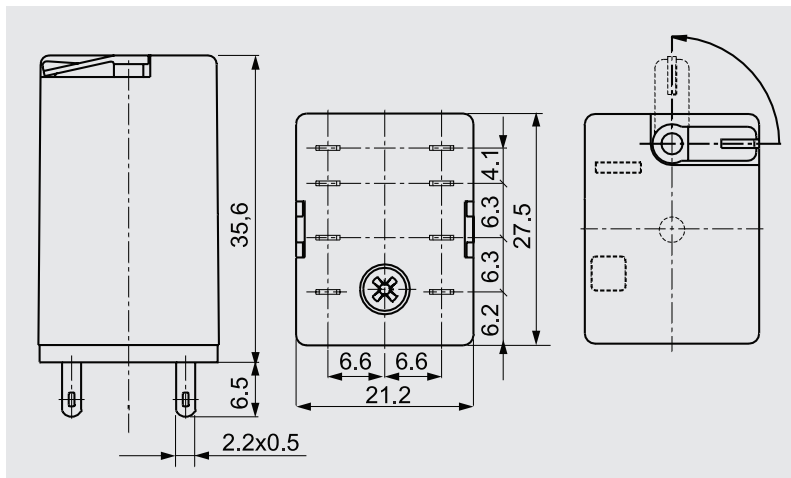
R2 (DPDT)



CONNECTION DIAGRAM

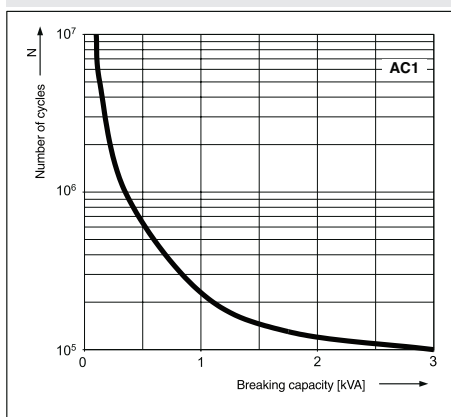


DIMENSIONS

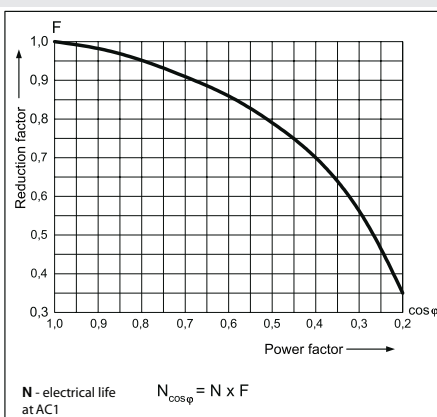


LOAD CHARTS

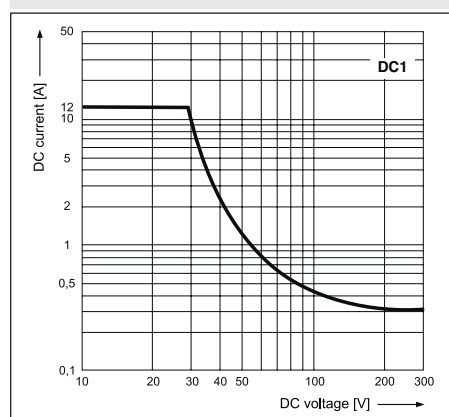
Electrical life at AC resistive load.
Switching frequency: 1200 cycles/hour **Fig. 1.1**



Electrical life reduction factor
at AC inductive load **Fig. 2.1**



Max. DC resistive load breaking capacity **Fig. 3.1**



R2, R3, R4

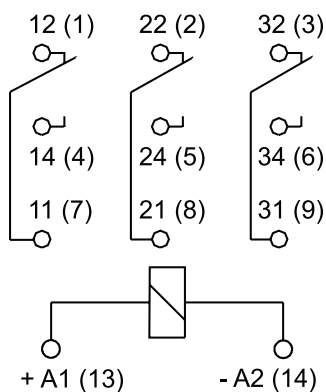
Industrial Electromagnetic Relays



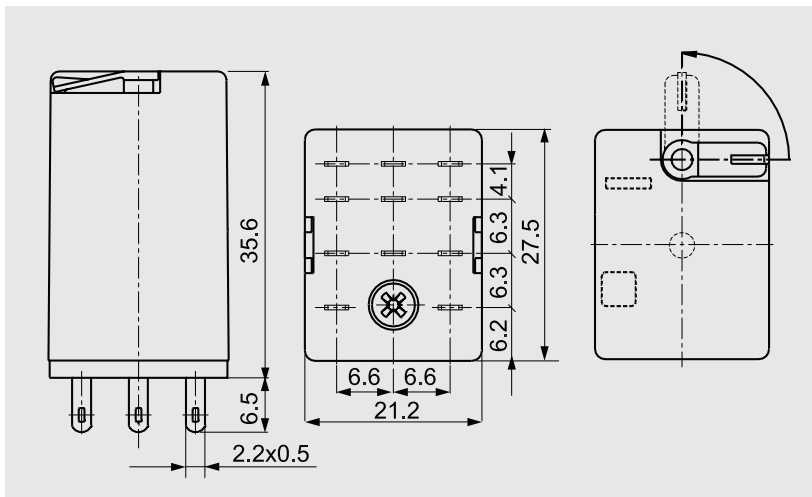
R3 (3PDT)



CONNECTION DIAGRAM

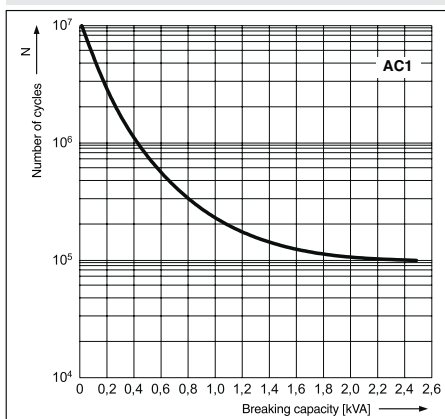


DIMENSIONS

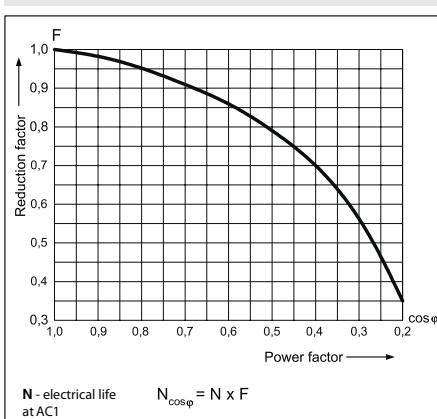


LOAD CHARTS

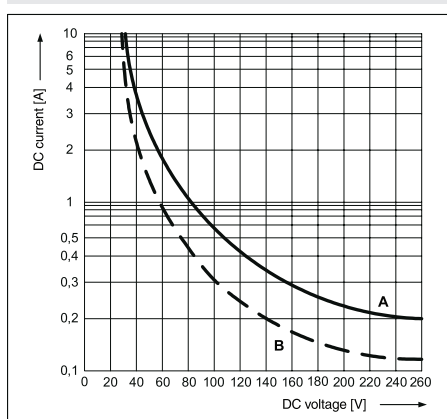
Electrical life at AC resistive load.
Switching frequency: 1200 cycles/hour **Fig. 1.2**



Electrical life reduction factor at AC inductive load **Fig. 2.2**



Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms **Fig. 3.2**



R2, R3, R4

Industrial Electromagnetic Relays

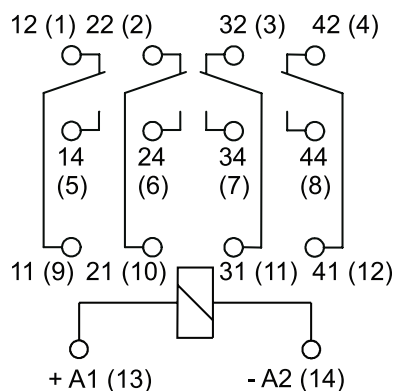
Altech®



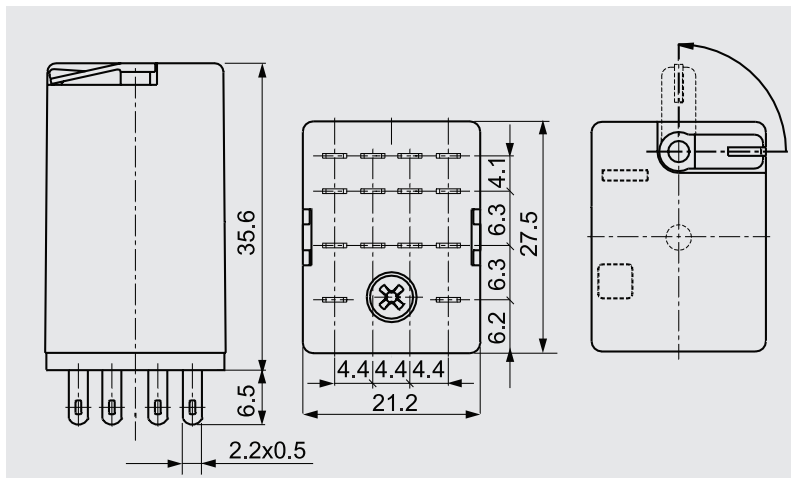
R4 (4PDT)



CONNECTION DIAGRAM

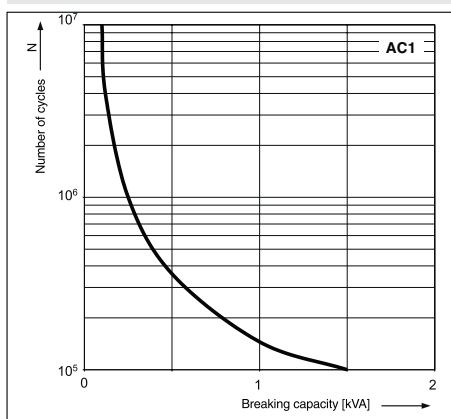


DIMENSIONS

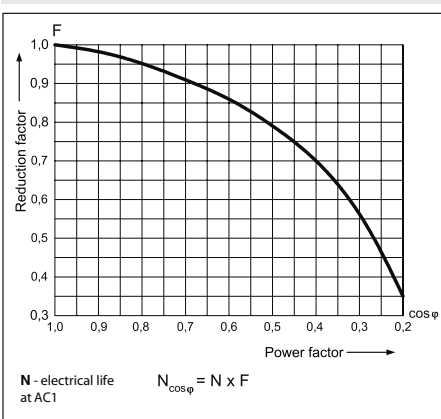


LOAD CHARTS

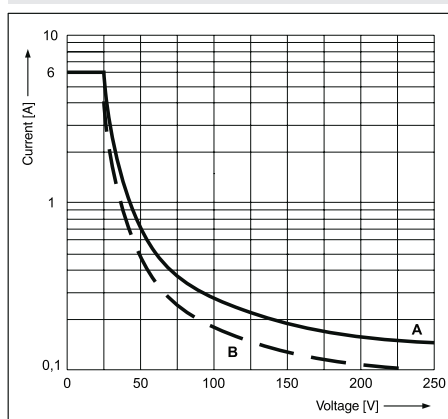
Electrical life at AC resistive load.
Switching frequency: 1200 cycles/hour **Fig. 3.1**



Electrical life reduction factor at AC inductive load **Fig. 2.3**



Max. DC breaking capacity
A - resistive load DC1
B - inductive load L/R = 40 ms **Fig. 3.3**



R2, R3, R4

Industrial Electromagnetic Relays

R2 DPDT AC 50/60Hz & DC coil

Part Number	Coil Voltage (V)	Coil Type	Coil resistance at 20 °C in Ω	Coil operating range		Options*	
				min. (at 20°C)	max. (at 55°C)	WT	WTL
R2N-2012-23-1012-WT	12	DC	160	9.6	13.2	x	
► R2N-2012-23-1012-WTL	12	DC	160	9.6	13.2		x
► R2N-2012-23-1024-WT	24	DC	640	19.2	26.4	x	
► R2N-2012-23-1024-WTL	24	DC	640	19.2	26.4		x
R2N-2012-23-1110-WT	110	DC	13600	88.0	121.0	x	
R2N-2012-23-1110-WTL	110	DC	13600	88.0	121.0		x
R2N-2012-23-5024-WT	24	AC 50/60Hz	158.0	19.2	26.4	x	
► R2N-2012-23-5024-WTL	24	AC 50/60Hz	158.0	19.2	26.4		x
► R2N-2012-23-5120-WT	120	AC 50/60Hz	3770	96.0	132.0	x	
► R2N-2012-23-5120-WTL	120	AC 50/60Hz	3770	96.0	132.0		x
R2N-2012-23-5230-WT	230	AC 50/60Hz	16100	184.0	253.0	x	
► R2N-2012-23-5230-WTL	230	AC 50/60Hz	16100	184.0	253.0		x

R3 DPDT AC 50/60Hz & DC coil

Part Number	Coil Voltage (V)	Coil Type	Coil resistance at 20 °C in Ω	Coil operating range		Options*	
				min. (at 20°C)	max. (at 55°C)	WT	WTL
R3N-2013-23-1012-WT	12	DC	160	9.6	13.2	x	
► R3N-2013-23-1012-WTL	12	DC	160	9.6	13.2		x
R3N-2013-23-1024-WT	24	DC	640	19.2	26.4	x	
► R3N-2013-23-1024-WTL	24	DC	640	19.2	26.4		x
R3N-2013-23-1110-WT	110	DC	13600	88.0	121.0	x	
R3N-2013-23-1110-WTL	110	DC	13600	88.0	121.0		x
R3N-2013-23-5024-WT	24	AC 50/60Hz	158.0	19.2	26.4	x	
R3N-2013-23-5024-WTL	24	AC 50/60Hz	158.0	19.2	26.4		x
► R3N-2013-23-5120-WT	120	AC 50/60Hz	3770	96.0	132.0	x	
► R3N-2013-23-5120-WTL	120	AC 50/60Hz	3770	96.0	132.0		x
R3N-2013-23-5230-WT	230	AC 50/60Hz	16100	184.0	253.0	x	
R3N-2013-23-5230-WTL	230	AC 50/60Hz	16100	184.0	253.0		x

R4 DPDT AC 50/60Hz & DC coil

Part Number	Coil Voltage (V)	Coil Type	Coil resistance at 20 °C in Ω	Coil operating range		Options*	
				min. (at 20°C)	max. (at 55°C)	WT	WTL
R4N-2014-23-1012-WT	12	DC	160	9.6	13.2	x	
► R4N-2014-23-1012-WTL	12	DC	160	9.6	13.2		x
► R4N-2014-23-1024-WT	24	DC	640	19.2	26.4	x	
► R4N-2014-23-1024-WTL	24	DC	640	19.2	26.4		x
R4N-2014-23-1110-WT	110	DC	13600	88.0	121.0	x	
► R4N-2014-23-1110-WTL	110	DC	13600	88.0	121.0		x
R4N-2014-23-5024-WT	24	AC 50/60Hz	158.0	19.2	26.4	x	
► R4N-2014-23-5024-WTL	24	AC 50/60Hz	158.0	19.2	26.4		x
► R4N-2014-23-5120-WT	120	AC 50/60Hz	3770	96.0	132.0	x	
► R4N-2014-23-5120-WTL	120	AC 50/60Hz	3770	96.0	132.0		x
R4N-2014-23-5230-WT	230	AC 50/60Hz	16100	184.0	253.0	x	
► R4N-2014-23-5230-WTL	230	AC 50/60Hz	16100	184.0	253.0		x

WT = with mechanical indicator + lockable front test button

WTL = with mechanical indicator + lockable front test button + light indicator (LED)

* other options available upon request

► BOLD - Regular stocked items.

R2, R3, R4

Industrial Electromagnetic Relays - Plug-in Sockets and Accessories



GZT2 (for R2)

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*
Two poles
12 A, 300 V AC



GZT4-0040



G4 1052**

ZGGZ4 (see page 111)



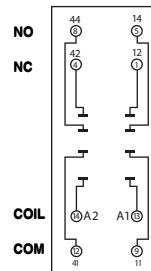
GZT4-0035

Module type M... (see page 113)

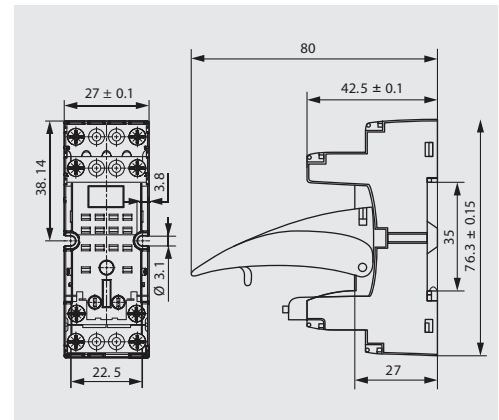


GZT2

CONNECTION DIAGRAM



DIMENSIONS



GZM2 (for R2)

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*
Two poles
12 A, 300 V AC



GZT4-0040



G4 1052**

ZGGZ4 (see page 111)



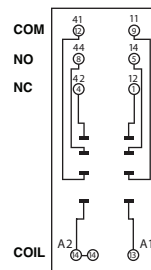
GZT4-0035

Module type M... (see page 113)

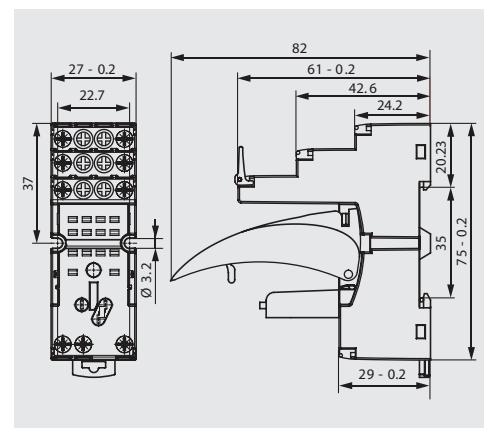


GZM2

CONNECTION DIAGRAM



DIMENSIONS



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



GZT4-0040



G4 1052**

ZGGZ4 (see page 111)



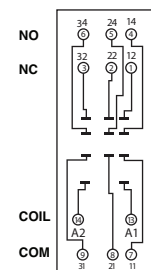
GZT4-0035

Module type M... (see page 113)

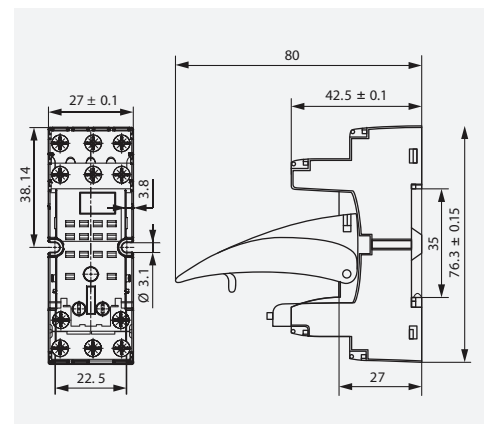


GZT3

CONNECTION DIAGRAM



DIMENSIONS



* In parenthesis is the height of the socket with plastic retainer clip. ** For lower profile application.

All accessories are sold separately.

R2, R3, R4

Industrial Electromagnetic Relays - Plug-in Sockets and Accessories

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

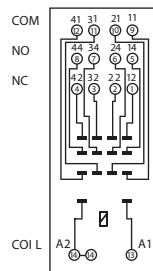


E22891

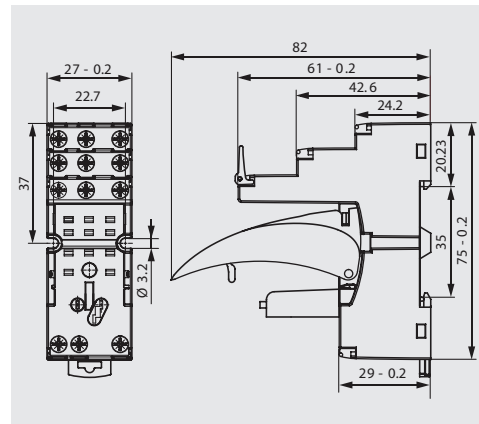


GZT2

CONNECTION DIAGRAM



DIMENSIONS



GZT4-0040



G4 1052**



ZGGZ4 (see page 111)



Module type M... (see page 113)

GZT4 (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
76,3 x 27 x 42.5(80) mm *
Four poles
6 A, 300 V AC

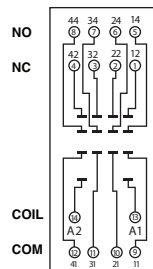


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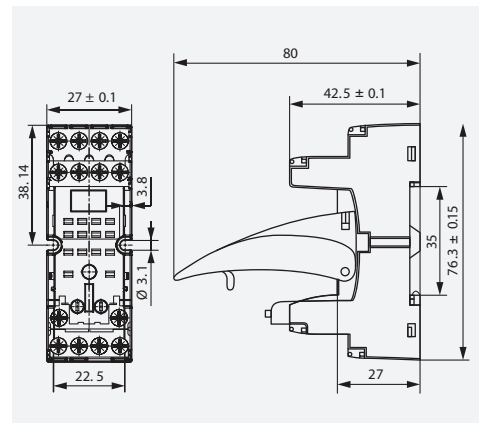


GZM2

CONNECTION DIAGRAM



DIMENSIONS



GZT4-0040



G4 1052**



ZGGZ4 (see page 111)



Module type M... (see page 113)

GZM4 (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
75 x 27 x 61(82) mm*
Four poles
6 A, 300 V AC

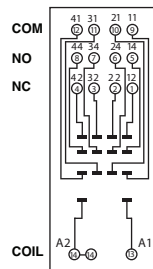


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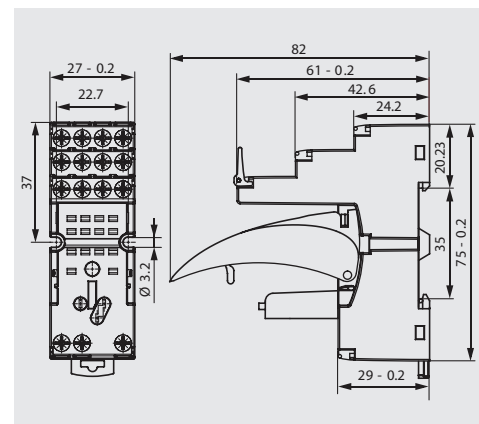


GZT3

CONNECTION DIAGRAM



DIMENSIONS



GZT4-0040



G4 1052**



ZGGZ4 (see page 111)



Module type M... (see page 113)

* In parenthesis is the height of the socket with plastic retainer clip. ** For lower profile application.

All accessories are sold separately.

R2, R3, R4

Industrial Electromagnetic Relays - Plug-in Sockets and Accessories **Altech**

GZMB2 (for R2)

Spring terminals

Max. cross section of the cables:

1 x 0,2...1,5 mm²

(1 x 24...16 AWG)

Stripping length deinsulation: 9...11 mm

35 mm rail mount

acc. to PN-EN 60715

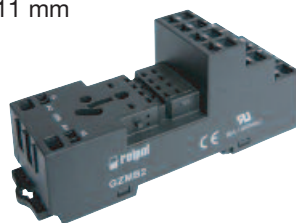
95 x 31 x 42.5(80) mm*

Two poles

10 A, 300 V AC

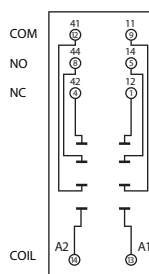


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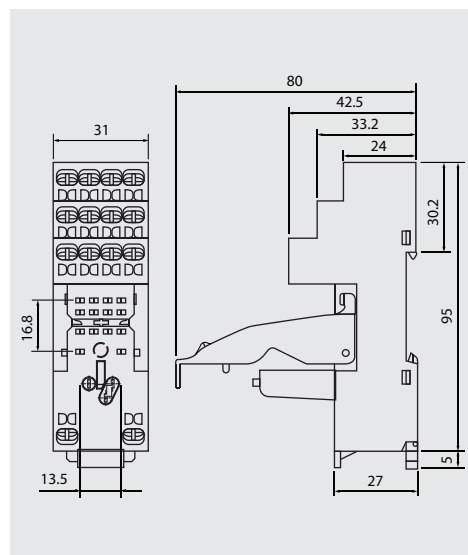


GZMB2

CONNECTION DIAGRAM



DIMENSIONS



GZMB4-0040



G4 1052**



TR



Module type M... (see page 113)

GZMB4 (for R4)

Spring terminals

Max. cross section of the cables:

1 x 0,2...1,5 mm²

(1 x 24...16 AWG)

Stripping length deinsulation:

9...11 mm

35 mm rail mount

acc. to PN-EN 60715

95 x 31 x 42.5(80) mm*

Four poles

10 A, 300 V AC

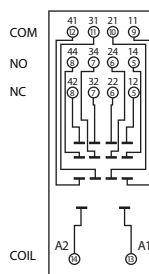


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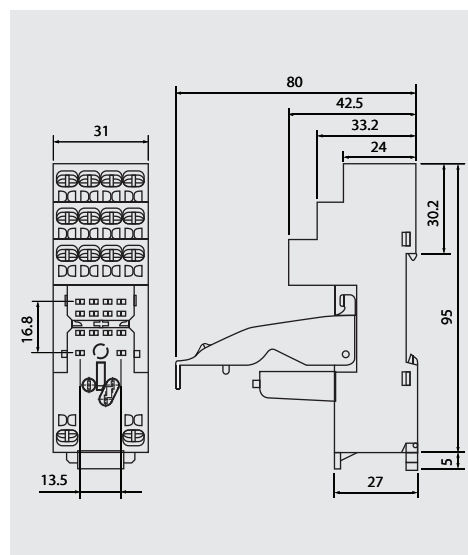


GZMB4

CONNECTION DIAGRAM



DIMENSIONS



GZMB4-0040



G4 1052**



TR



Module type M... (see page 113)

* In parenthesis is the height of the socket with plastic retainer clip. ** For lower profile application.

All accessories are sold separately.