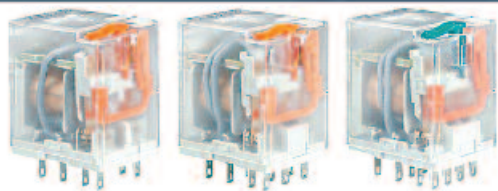


# R2, R3, R4

## 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 <sub>n</sub> ; DC: ≥ 0.1 U <sub>n</sub> | AC: ≥ 0.2 U <sub>n</sub> ; DC: ≥ 0.1 U <sub>n</sub> | AC: ≥ 0.2 U <sub>n</sub> ; DC: ≥ 0.1 U <sub>n</sub> |
| 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<br>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 <sup>5</sup> ; 12 A. 250 V AC<br>see Fig. 2.1 | > 10 <sup>5</sup> ; 10 A. 250 V AC<br>see Fig. 2.2 |
|                                    |                                    |                                                    |                                                    |
|                                    |                                    |                                                    |                                                    |
| Mechanical life (cycles)           | > 2 x 10 <sup>7</sup>              | > 2 x 10 <sup>7</sup>                              | > 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 35.6 mm                              | 27.5 x 21.2 x 35.6 mm                              |
| Weight                             | 35 g                               | 35 g                                               | 35 g                                               |
| Ambient temperature                | • storage<br>• operating           | -40...+85 °C<br>AC: -40...+55 °C; DC: -40...+70 °C | -40...+85 °C<br>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

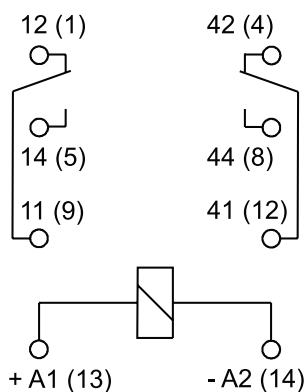
Altech®



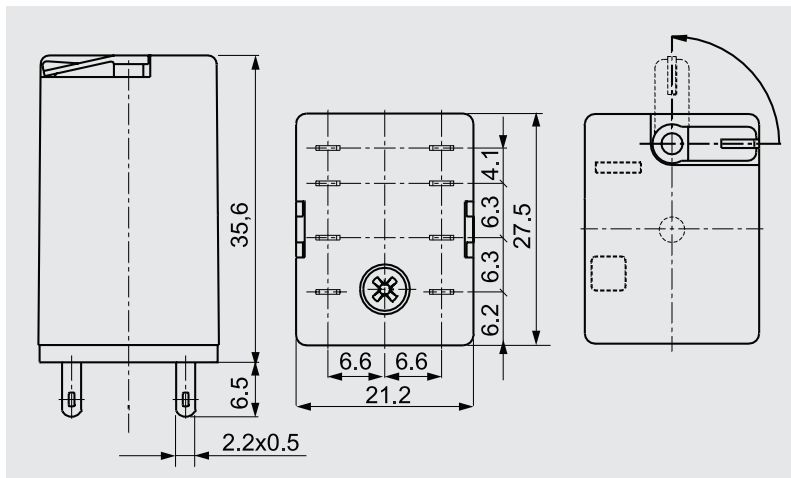
### R2 (DPDT)



#### CONNECTION DIAGRAM

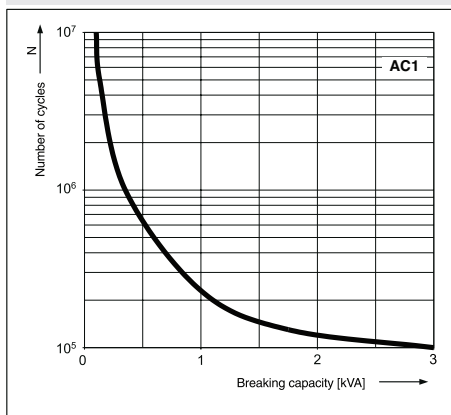


#### DIMENSIONS

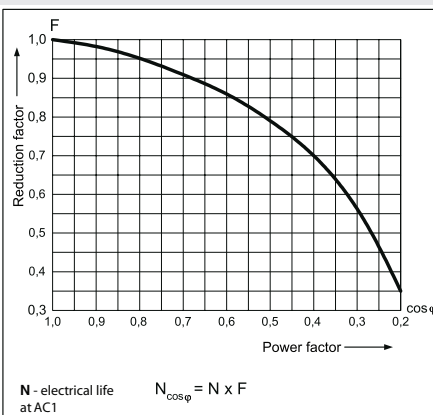


#### LOAD CHARTS

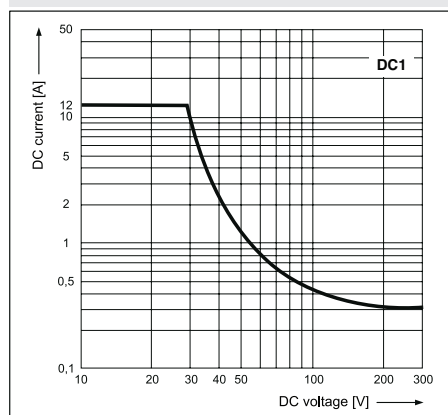
Electrical life at AC resistive load.  
Switching frequency: 1200 cycles/hour **Fig. 1.1**



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



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



# R2, R3, R4

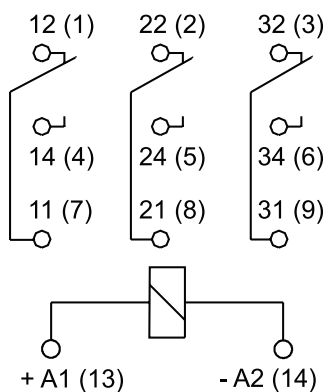
## Industrial Electromagnetic Relays



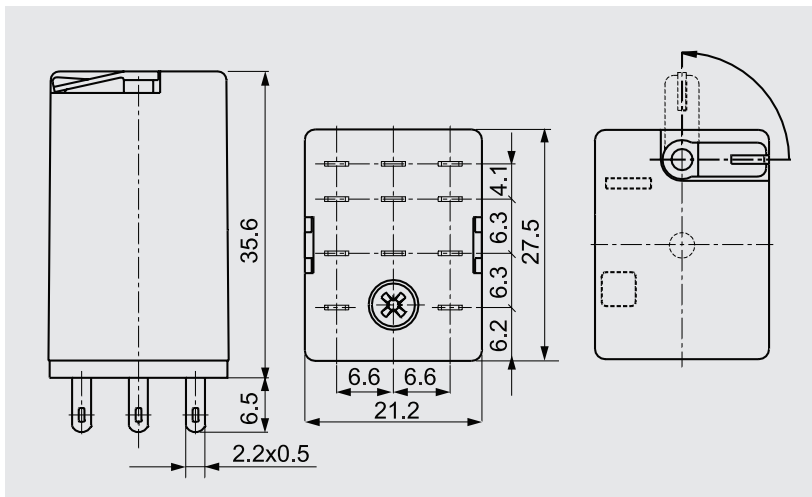
**R3 (3PDT)**



### CONNECTION DIAGRAM

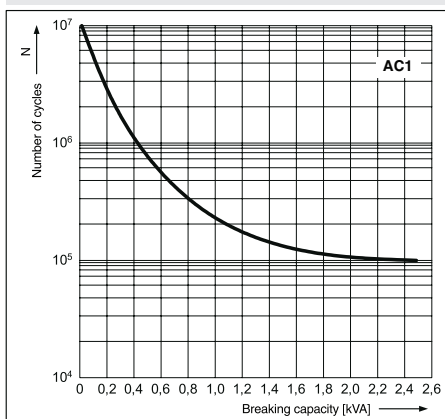


### DIMENSIONS

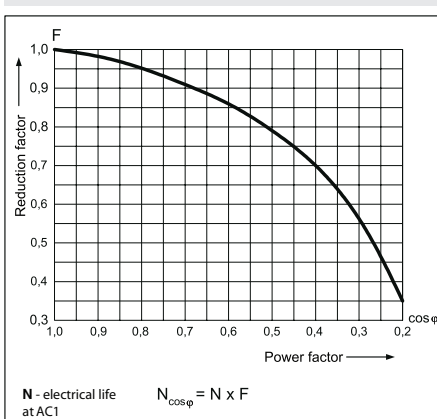


### LOAD CHARTS

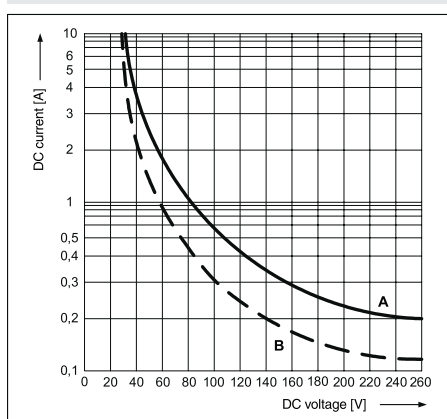
**Electrical life at AC resistive load.**  
Switching frequency: 1200 cycles/hour **Fig. 1.2**



**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

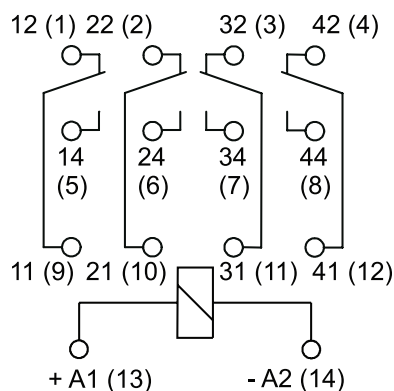
Altech®



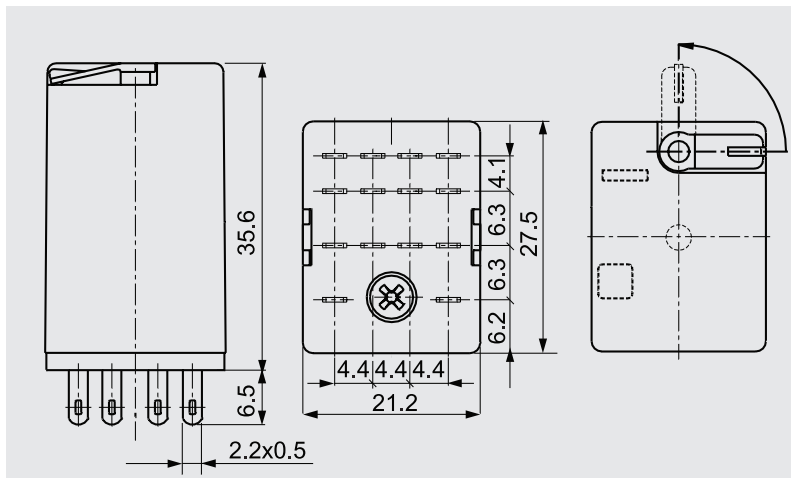
### R4 (4PDT)



#### CONNECTION DIAGRAM

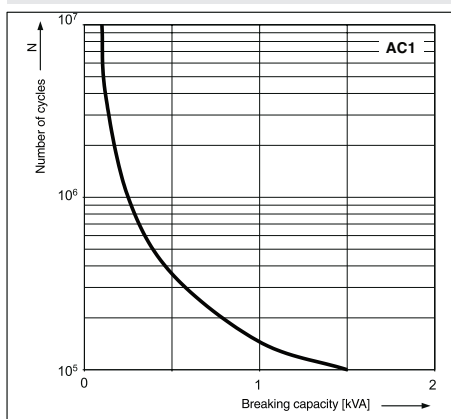


#### DIMENSIONS

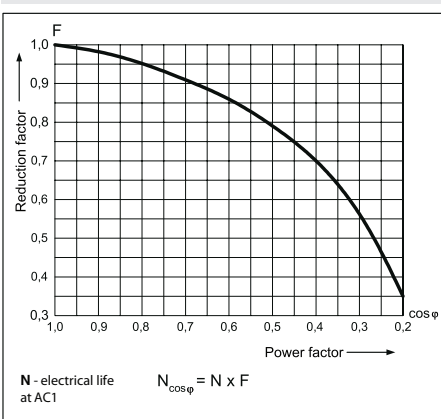


#### LOAD CHARTS

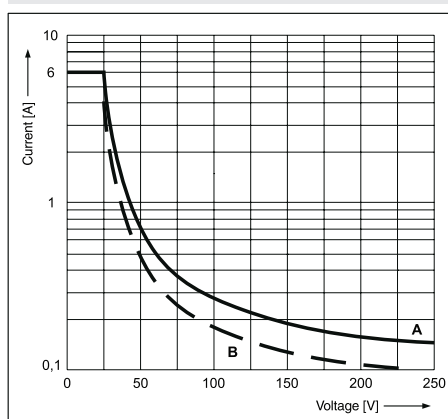
Electrical life at AC resistive load.  
Switching frequency: 1200 cycles/hour **Fig. 3.1**



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)



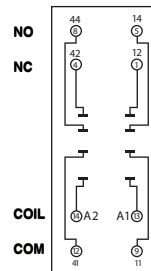
GZT4-0035

Module type M... (see page 113)

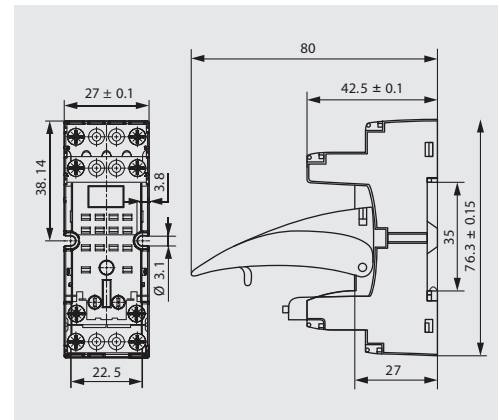


GZT2

### 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)



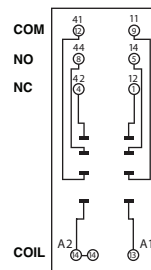
GZT4-0035

Module type M... (see page 113)

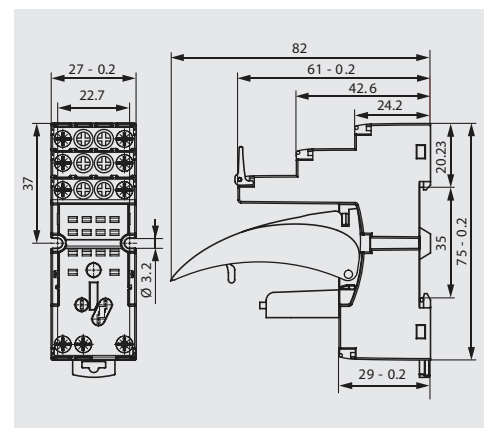


GZM2

### 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)



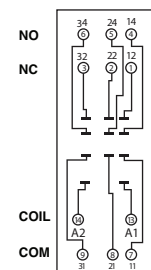
GZT4-0035

Module type M... (see page 113)

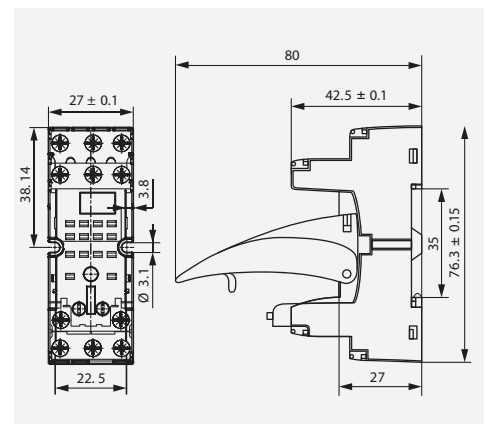


GZT3

### 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



GZT4-0040



G4 1052\*\*



ZGGZ4 (see page 111)

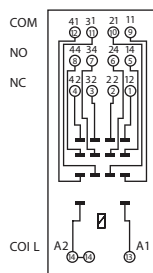


GZT4-0035

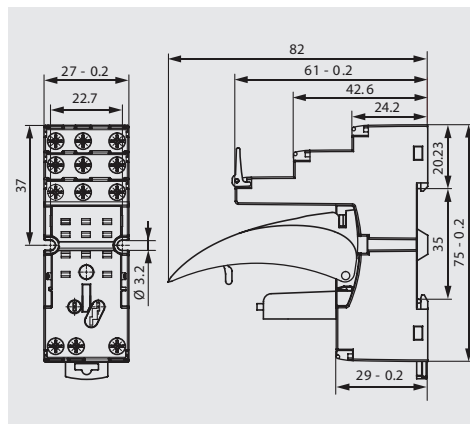


Module type M... (see page 113)

### CONNECTION DIAGRAM



### DIMENSIONS



### 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



E22891



GZM2



GZT4-0040



G4 1052\*\*



ZGGZ4 (see page 111)

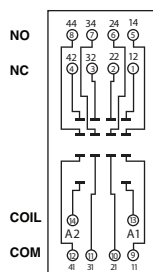


GZT4-0035

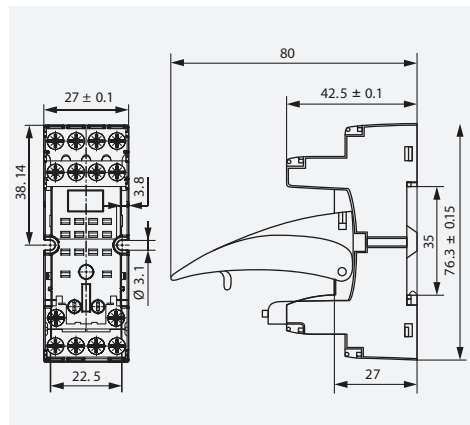


Module type M... (see page 113)

### CONNECTION DIAGRAM



### DIMENSIONS



### 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



E22891



GZT3



GZT4-0040



G4 1052\*\*



ZGGZ4 (see page 111)

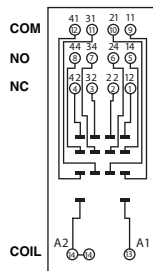


GZT4-0035

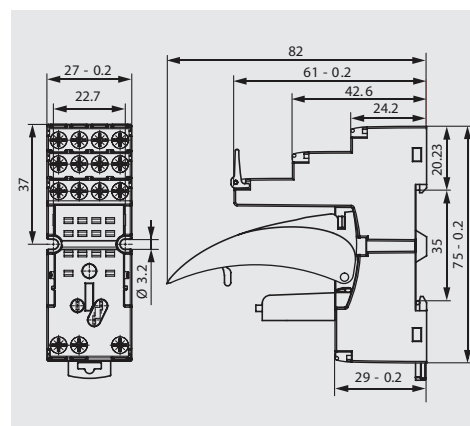


Module type M... (see page 113)

### 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 **Altech**

### GZMB2 (for R2)

Spring terminals

Max. cross section of the cables:

1 x 0,2...1,5 mm<sup>2</sup>

(1 x 24...16 AWG)

Stripping length deinsulation: 9...11 mm

35 mm rail mount

acc. to PN-EN 60715

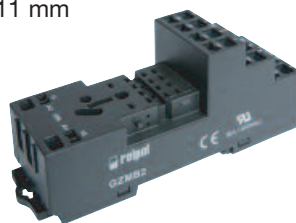
95 x 31 x 42.5(80) mm\*

Two poles

10 A, 300 V AC

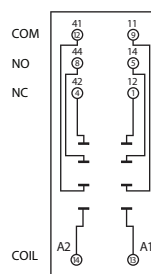


E22891

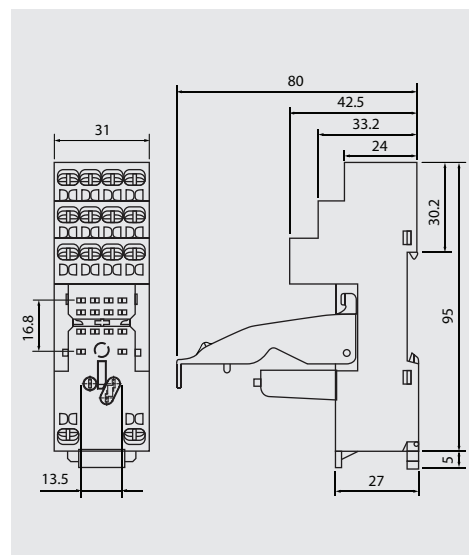


GZMB2

### 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 mm<sup>2</sup>

(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

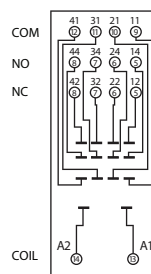


E22891

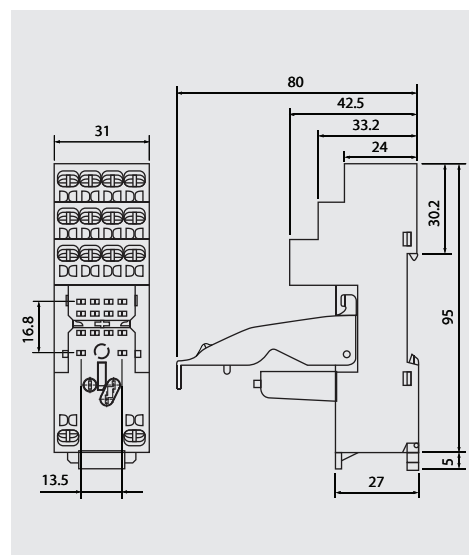


GZMB4

### 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.