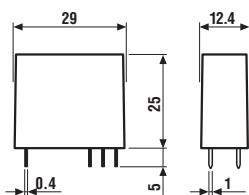


- P.C.B. or plug-in mount
- AC, DC, sensitive DC or single bistable coil versions available
- 8 mm, 6 kV (1.2/50  $\mu$ s) between coil and contacts
- Ambient temperature + 85 °C
- RT III (wash tight) version available
- Sockets and accessories: see 95, 99 and 86 series

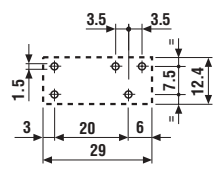
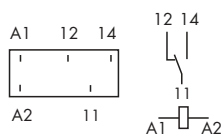


\* For 400 V applications, where requirements for pollution degree 2 are met.

## 40.31



- 1 pole, 10 A
- 3.5 mm pinning
- P.C.B./for use with 95 series sockets

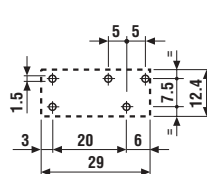
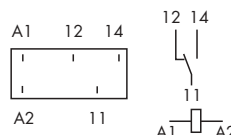


Copper side view

## 40.51



- 1 pole, 10 A
- 5 mm pinning
- P.C.B./for use with 95 series sockets

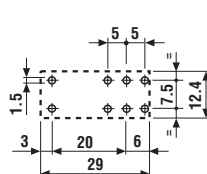
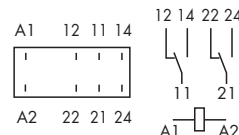


Copper side view

## 40.52



- 2 pole, 8 A
- 5 mm pinning
- P.C.B./for use with 95 series sockets



Copper side view

| Contact specifications                                |                 | 40.31                                                                       | 40.51                                                   | 40.52                                                   |
|-------------------------------------------------------|-----------------|-----------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| Contact configuration                                 |                 | 1 CO (SPDT)                                                                 | 1 CO (SPDT)                                             | 2 CO (DPDT)                                             |
| Rated current/Maximum peak current                    | A               | 10/20                                                                       | 10/20                                                   | 8/15                                                    |
| Rated voltage/Maximum switching voltage V AC          |                 | 250/400*                                                                    | 250/400*                                                | 250/250                                                 |
| Rated load in AC1                                     | VA              | 2,500                                                                       | 2,500                                                   | 2,000                                                   |
| Rated load in AC15 (230 V AC)                         | VA              | 500                                                                         | 500                                                     | 400                                                     |
| Single phase motor rating (230 V AC)                  | kW              | 0.37                                                                        | 0.37                                                    | 0.3                                                     |
| Breaking capacity in DC1: 30/110/220 V A              |                 | 10/0.3/0.12                                                                 | 10/0.3/0.12                                             | 8/0.3/0.12                                              |
| Minimum switching load                                | mW (V/mA)       | 300 (5/5)                                                                   | 300 (5/5)                                               | 300 (5/5)                                               |
| Standard contact material                             |                 | AgNi                                                                        | AgNi                                                    | AgNi                                                    |
| Coil specifications                                   |                 |                                                                             |                                                         |                                                         |
| Nominal voltage (U <sub>N</sub> )                     | V AC (50/60 Hz) | 6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240                               |                                                         |                                                         |
|                                                       | V DC            | 5 - 6 - 7 - 9 - 12 - 14 - 18 - 21 - 24 - 28 - 36 - 48 - 60 - 90 - 110 - 125 |                                                         |                                                         |
| Rated power AC/DC/sens. DC                            | VA [50 Hz]/W/W  | 1.2/0.65/0.5                                                                | 1.2/0.65/0.5                                            | 1.2/0.65/0.5                                            |
| Operating range                                       | AC              | (0.8...1.1)U <sub>N</sub>                                                   | (0.8...1.1)U <sub>N</sub>                               | (0.8...1.1)U <sub>N</sub>                               |
|                                                       | DC/sens. DC     | (0.73...1.5)U <sub>N</sub> /(0.73...1.75)U <sub>N</sub>                     | (0.73...1.5)U <sub>N</sub> /(0.73...1.75)U <sub>N</sub> | (0.73...1.5)U <sub>N</sub> /(0.73...1.75)U <sub>N</sub> |
| Holding voltage                                       | AC/DC           | 0.8 U <sub>N</sub> / 0.4 U <sub>N</sub>                                     | 0.8 U <sub>N</sub> / 0.4 U <sub>N</sub>                 | 0.8 U <sub>N</sub> / 0.4 U <sub>N</sub>                 |
| Must drop-out voltage                                 | AC/DC           | 0.2 U <sub>N</sub> / 0.1 U <sub>N</sub>                                     | 0.2 U <sub>N</sub> / 0.1 U <sub>N</sub>                 | 0.2 U <sub>N</sub> / 0.1 U <sub>N</sub>                 |
| Technical data                                        |                 |                                                                             |                                                         |                                                         |
| Mechanical life AC/DC                                 | cycles          | 10 · 10 <sup>6</sup> / 20 · 10 <sup>6</sup>                                 | 10 · 10 <sup>6</sup> / 20 · 10 <sup>6</sup>             | 10 · 10 <sup>6</sup> / 20 · 10 <sup>6</sup>             |
| Electrical life at rated load AC1                     | cycles          | 200 · 10 <sup>3</sup>                                                       | 200 · 10 <sup>3</sup>                                   | 100 · 10 <sup>3</sup>                                   |
| Operate/release time                                  | ms              | 7/3 - (12/4 sensitive)                                                      | 7/3 - (12/4 sensitive)                                  | 7/3 - (12/4 sensitive)                                  |
| Insulation according to EN 61810-1 ed. 2              |                 | 4 kV/3                                                                      | 4 kV/3                                                  | 4 kV/2                                                  |
| Insulation between coil and contacts (1.2/50 $\mu$ s) | kV              | 6 (8 mm)                                                                    | 6 (8 mm)                                                | 6 (8 mm)                                                |
| Dielectric strength between open contacts             | V AC            | 1,000                                                                       | 1,000                                                   | 1,000                                                   |
| Ambient temperature range                             | °C              | -40...+85                                                                   | -40...+85                                               | -40...+85                                               |
| Environmental protection                              |                 | RT II**                                                                     | RT II**                                                 | RT II**                                                 |

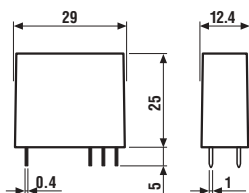
Approvals (according to type):



\*\* See page 202 "Guidelines for automatic flow solder processes".

- P.C.B. or plug-in mount
- AC, DC, sensitive DC or single bistable coil versions available
- 8 mm, 6 kV (1.2/50  $\mu$ s) between coil and contacts
- Ambient temperature + 85 °C
- RT III (wash tight) version available
- Sockets and accessories: see 95, 99 and 86 series

40

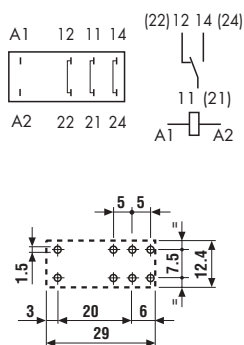


- \* For 400 V applications, where requirements for pollution degree 2 are met.
- \*\* With the AgSnO<sub>2</sub> material the maximum peak current is 100 A - 5 ms on NO (nPST-NO) contact.

## 40.61



- 1 pole, 16 A
- 5 mm pinning
- P.C.B./for use with 95 series sockets



Copper side view

## 40.xx.6



- Bistable version (1 coil)
- P.C.B./for use with 95 series sockets

Bistable version (1 coil) types:

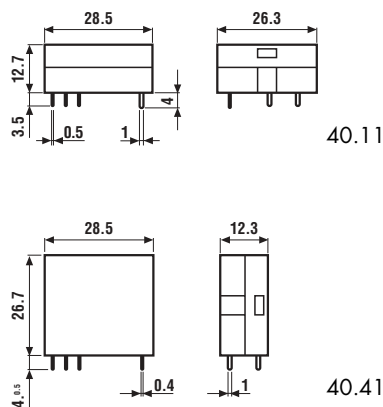
40.31.6...  
40.51.6...  
40.52.6...  
40.61.6...

For wiring diagrams see page 28

| Contact specifications                                |                 |                                                       |                              |
|-------------------------------------------------------|-----------------|-------------------------------------------------------|------------------------------|
| Contact configuration                                 |                 | 1 CO (SPDT)                                           |                              |
| Rated current/Maximum peak current                    | A               | 16/30**                                               |                              |
| Rated voltage/Maximum switching voltage V AC          |                 | 250/400*                                              | See relays                   |
| Rated load in AC1                                     | VA              | 4,000                                                 | 40.31                        |
| Rated load in AC15 (230 V AC)                         | VA              | 750                                                   | 40.51                        |
| Single phase motor rating (230 V AC)                  | kW              | 0.55                                                  | 40.52                        |
| Breaking capacity in DC1: 30/110/220 V A              |                 | 16/0.3/0.12                                           | 40.61                        |
| Minimum switching load                                | mW (V/mA)       | 500 (10/5)                                            |                              |
| Standard contact material                             |                 | AgCdO                                                 |                              |
| Coil specifications                                   |                 |                                                       |                              |
| Nominal voltage (U <sub>N</sub> )                     | V AC (50/60 Hz) | 6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240         | 5 - 6 - 12 - 24 - 48 - 110   |
|                                                       | V DC            | ***See below                                          | 5 - 6 - 12 - 24 - 48 - 110   |
| Rated power AC/DC/sens. DC                            | VA (50 Hz)/W/W  | 1.2/0.65/0.5                                          | 1.0/1.0/—                    |
| Operating range                                       | AC              | (0.8...1.1)U <sub>N</sub>                             | (0.8...1.1)U <sub>N</sub>    |
|                                                       | DC/sens. DC     | (0.73...1.5)U <sub>N</sub> /(0.8...1.5)U <sub>N</sub> | (0.8...1.1)U <sub>N</sub> /— |
| Holding voltage                                       | AC/DC           | 0.8 U <sub>N</sub> / 0.4 U <sub>N</sub>               | —                            |
| Must drop-out voltage                                 | AC/DC           | 0.2 U <sub>N</sub> / 0.1 U <sub>N</sub>               | —                            |
| Technical data                                        |                 |                                                       |                              |
| Mechanical life AC/DC                                 | cycles          | 10 · 10 <sup>6</sup> / 20 · 10 <sup>6</sup>           | See relays                   |
| Electrical life at rated load AC1                     | cycles          | 100 · 10 <sup>3</sup>                                 | 40.31                        |
| Operate/release time                                  | ms              | 7/3 - (12/4 sensitive)                                | 40.51                        |
| Insulation according to EN 61810-1 ed. 2              |                 | 4 kV/3                                                | 40.52                        |
| Insulation between coil and contacts (1.2/50 $\mu$ s) | kV              | 6 (8 mm)                                              | 40.61                        |
| Dielectric strength between open contacts             | V AC            | 1,000                                                 |                              |
| Ambient temperature range                             | °C              | -40...+85                                             | Min. impulse duration        |
| Environmental protection                              |                 | RT II**                                               | ≥ 20 ms                      |

\*\*\* Nominal voltage (U<sub>N</sub>):  
5 - 6 - 7 - 9 - 12 - 14 - 18 - 21 -  
24 - 28 - 36 - 48 - 60 - 90 -  
110 - 125 V DC

- Plug-in or P.C.B. versions
- Sensitive DC version available
- 8 mm, 6 kV (1.2/50  $\mu$ s) between coil and contacts
- Sockets and accessories: see 95 series



\* For 400 V applications, where requirements for pollution degree 2 are met.

|                                                          | 40.11                                                   | 40.11-2016                                              | 40.41                                                                         |
|----------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------|
|                                                          |                                                         |                                                         |                                                                               |
|                                                          | - 1 pole, 10 A<br>- 3.5 mm pinning<br>- P.C.B. mounting | - 1 pole, 16 A<br>- 3.5 mm pinning<br>- P.C.B. mounting | - 1 pole, 10 A<br>- 3.5 mm pinning<br>- P.C.B./for use with 95 series sockets |
|                                                          |                                                         |                                                         |                                                                               |
|                                                          | Copper side view                                        | Copper side view                                        | Copper side view                                                              |
| <b>Contact specifications</b>                            |                                                         |                                                         |                                                                               |
| Contact configuration                                    | 1 CO (SPDT)                                             | 1 CO (SPDT)                                             | 1 CO (SPDT)                                                                   |
| Rated current/Maximum peak current A                     | 10/20                                                   | 16/30                                                   | 10/20                                                                         |
| Rated voltage/Maximum switching voltage V AC             | 250/400*                                                | 250/400*                                                | 250/400*                                                                      |
| Rated load in AC1 VA                                     | 2,500                                                   | 4,000                                                   | 2,500                                                                         |
| Rated load in AC15 (230 V AC) VA                         | 500                                                     | 750                                                     | 500                                                                           |
| Single phase motor rating (230 V AC) kW                  | 0.37                                                    | 0.55                                                    | 0.37                                                                          |
| Breaking capacity in DC1: 30/110/220 V A                 | 10/0.3/0.12                                             | 16/0.3/0.12                                             | 10/0.3/0.12                                                                   |
| Minimum switching load mW (V/mA)                         | 300 (5/5)                                               | 500 (10/5)                                              | 300 (5/5)                                                                     |
| Standard contact material                                | AgCdO                                                   | AgCdO                                                   | AgCdO                                                                         |
| <b>Coil specifications</b>                               |                                                         |                                                         |                                                                               |
| Nominal voltage ( $U_N$ ) V AC (50/60 Hz)                | —                                                       | —                                                       | —                                                                             |
| V DC                                                     | 6 - 12 - 24 - 48 - 60                                   | 6 - 12 - 24 - 48                                        | 6 - 12 - 24 - 48 - 60                                                         |
| Rated power AC/DC/sens. DC VA [50 Hz]/W/W                | —/—/0.5                                                 | —/—/0.5                                                 | —/—/0.5                                                                       |
| Operating range AC                                       | —                                                       | —                                                       | —                                                                             |
| DC/sens. DC                                              | —/(0.73...1.75) $U_N$                                   | —/(0.73...1.75) $U_N$                                   | —/(0.73...1.75) $U_N$                                                         |
| Holding voltage AC/DC                                    | —/0.4 $U_N$                                             | —/0.4 $U_N$                                             | —/0.4 $U_N$                                                                   |
| Must drop-out voltage AC/DC                              | —/0.1 $U_N$                                             | —/0.1 $U_N$                                             | —/0.1 $U_N$                                                                   |
| <b>Technical data</b>                                    |                                                         |                                                         |                                                                               |
| Mechanical life AC/DC cycles                             | —/20 · 10 <sup>6</sup>                                  | —/20 · 10 <sup>6</sup>                                  | —/20 · 10 <sup>6</sup>                                                        |
| Electrical life at rated load AC1 cycles                 | 200 · 10 <sup>3</sup>                                   | 50 · 10 <sup>3</sup>                                    | 200 · 10 <sup>3</sup>                                                         |
| Operate/release time ms                                  | 12/4                                                    | 12/4                                                    | 12/4                                                                          |
| Insulation according to EN 61810-1 ed. 2                 | 4 kV/3                                                  | 4 kV/3                                                  | 4 kV/3                                                                        |
| Insulation between coil and contacts (1.2/50 $\mu$ s) kV | 6 (8 mm)                                                | 6 (8 mm)                                                | 6 (8 mm)                                                                      |
| Dielectric strength between open contacts V AC           | 1,000                                                   | 1,000                                                   | 1,000                                                                         |
| Ambient temperature range °C                             | −40...+70                                               | −40...+70                                               | −40...+70                                                                     |
| Environmental protection                                 | RT I                                                    | RT I                                                    | RT I                                                                          |
| <b>Approvals</b> (according to type):                    | GOST                                                    |                                                         |                                                                               |

## ORDERING INFORMATION

Example: a 40 series P.C.B. relay with 2 CO (SPDT) contacts, with coil rated at 230 V AC.

**40.52.230.0000**

**Series**

**Type**

- 1 = P.C.B. - 3.5 mm pinning, flat
- 3 = P.C.B. - 3.5 mm pinning
- 4 = P.C.B. - 3.5 mm pinning
- 5 = P.C.B. - 5 mm pinning
- 6 = P.C.B. - 5 mm pinning

**No. of poles**

- 1 = 1 pole
  - for: 40.11, 10 A
  - 40.31, 10 A
  - 40.41, 10 A
  - 40.51, 10 A
  - 40.61, 16 A
- 2 = 2 pole
  - for 40.52, 8 A

**Coil version**

- 6 = AC/DC bistable
- 7 = Sensitive DC
- 8 = AC (50/60 Hz)
- 9 = DC

**Coil voltage**

see coil specifications

**A: Contact material**

- 0 = Standard AgNi
  - for: 40.31/51/52
  - AgCdO for 40.61
- 2 = AgCdO (standard
  - for 40.11/41)
- 4 = AgSnO<sub>2</sub>
- 5 = AgNi + Au (5 µm)

**B: Contact circuit**

- 0 = CO (nPDT)
- 3 = NO (nPST)

**D: Special versions**

- 0 = Standard
- 1 = Wash tight (RT III)
- 3 = High temperature (+ 125 °C)
  - wash tight

**C: Options**

- 0 = None
- 16 = with rated current 16 A (for 40.11)

**Only combinations in the same row are possible**

Preferred versions

|          | coil version  | A | B | C | D |
|----------|---------------|---|---|---|---|
| 40.11/41 | sens.DC       | 2 | 0 | 0 | 0 |
| 40.31/51 | AC/DC/sens.DC | 0 | 0 | 0 | 0 |
| 40.52    | AC/DC/sens.DC | 0 | 0 | 0 | 0 |
| 40.61    | AC/DC/sens.DC | 0 | 0 | 0 | 0 |

All versions

|                | coil version | A         | B     | C  | D         |
|----------------|--------------|-----------|-------|----|-----------|
| 40.11          | sens. DC     | 2         | 0     | 0  | 0         |
| 40.11          | sens. DC     | 2         | 0     | 16 | /         |
| 40.41          | sens. DC     | 2         | 0 - 3 | 0  | 0         |
| 40.31/51       | AC/sens. DC  | 0 - 2 - 5 | 0 - 3 | 0  | 0 - 1     |
| 40.31/51       | DC           | 0 - 2 - 5 | 0 - 3 | 0  | 0 - 1 - 3 |
| 40.52          | AC/sens. DC  | 0 - 2 - 5 | 0 - 3 | 0  | 0 - 1     |
| 40.52          | DC           | 0 - 2 - 5 | 0 - 3 | 0  | 0 - 1 - 3 |
| 40.61          | AC/sens. DC  | 0 - 4     | 0 - 3 | 0  | 0 - 1     |
| 40.61          | DC           | 0 - 4     | 0 - 3 | 0  | 0 - 1 - 3 |
| 40.31/51/52/61 | bistable     | 0         | 0     | 0  | 0         |

## TECHNICAL DATA

### INSULATION

|                                               |                                 |       |                             |
|-----------------------------------------------|---------------------------------|-------|-----------------------------|
| Insulation according to EN 61810-1 ed. 2      | insulation rated voltage        | V     | 250                         |
|                                               | rated impulse withstand voltage | kV    | 4                           |
|                                               | pollution degree                |       | 3 (1 CO/SPDT) 2 (2 CO/DPDT) |
|                                               | overvoltage category            |       | III                         |
| Dielectric strength between adjacent contacts | V AC                            | 2,000 |                             |

### CONDUCTED DISTURBANCE IMMUNITY

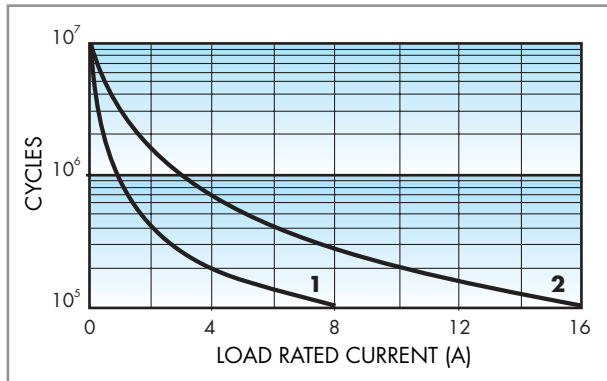
|                                                  |              |                |
|--------------------------------------------------|--------------|----------------|
| Burst (5...50)ns, 5 kHz, on A1 - A2              | EN 61000-4-4 | level 4 (4 kV) |
| Surge (1.2/50 µs) on A1 - A2 (differential mode) | EN 61000-4-5 | level 3 (2 kV) |

### OTHER DATA

|                                                        |                         |     |                         |                         |
|--------------------------------------------------------|-------------------------|-----|-------------------------|-------------------------|
| Bounce time: NO/NC                                     |                         | ms  | 2/5                     |                         |
| Vibration resistance (10...55)Hz, max. ± 1 mm: NO/NC   |                         | g/g | 10/4 (for 1 CO or SPDT) | 3/3 (for 2 CO or DPDT)  |
| Power lost to the environment                          | without contact current | W   | 0.6                     |                         |
|                                                        | with rated current      | W   | 1.2 (40.11/31/41/51)    | 2 (40.61/52/40.11-2016) |
| Recommended distance between relays mounted on P.C.B.s |                         | mm  | ≥ 5                     |                         |

## CONTACT SPECIFICATIONS

### F 40 (Types 40.31/51/52/61)

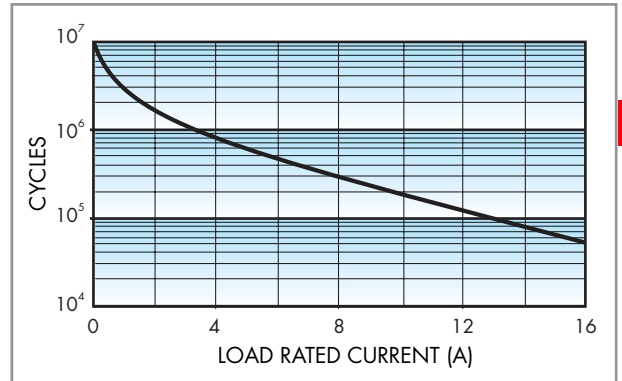


Electrical life vs AC1 load.

1 - Type 40.52 (8 A)

2 - Types 40.31, 40.51 (10 A)  
Type 40.61 (16 A)

### F 40 (Types 40.11/41)

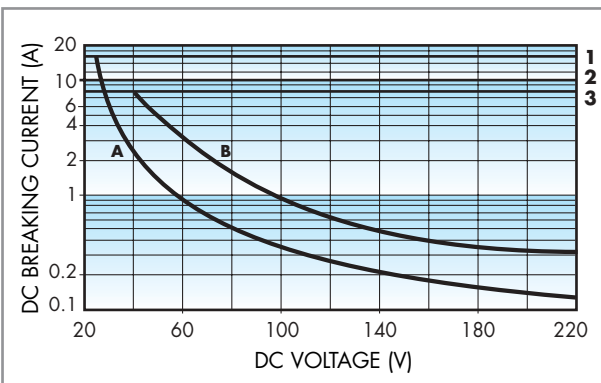


Electrical life vs AC1 load.

Types 40.11, 40.41 (10 A)

Types 40.11-2016 (16 A)

### H 40



Breaking capacity for DC1 load.

1 - Type 40.61

2 - Types 40.11, 40.31, 40.41, 40.51

3 - Type 40.52

A - Load applied to 1 contact

B - Load applied to 2 contacts in series

- When switching a resistive load (DC1) having voltage and current values under the curve the expected electrical life is  $\geq 100 \cdot 10^3$  cycles.

- In case of DC13 loads the connection of a diode in parallel with the load will permit the same electrical life as for a DC1 load.

**Note:** the release time of load will be increase.

## COIL SPECIFICATIONS

DC VERSION DATA (0.65 W standard - Types 40.31/51/52/61)

| Nominal voltage<br>$U_N$ | Coil code | Operating range |           | Resistance<br>R | Rated coil consumption<br>I at $U_N$ |
|--------------------------|-----------|-----------------|-----------|-----------------|--------------------------------------|
|                          |           | $U_{min}$       | $U_{max}$ |                 |                                      |
| V                        |           | V               | V         | $\Omega$        | mA                                   |
| 5                        | 9.005     | 3.65            | 7.5       | 38              | 130                                  |
| 6                        | 9.006     | 4.4             | 9         | 55              | 109                                  |
| 7                        | 9.007     | 5.1             | 10.5      | 75              | 94                                   |
| 9                        | 9.009     | 6.6             | 13.5      | 125             | 72                                   |
| 12                       | 9.012     | 8.8             | 18        | 220             | 55                                   |
| 14                       | 9.014     | 10.2            | 21        | 300             | 47                                   |
| 18                       | 9.018     | 13.1            | 27        | 500             | 36                                   |
| 21                       | 9.021     | 15.3            | 31.5      | 700             | 30                                   |
| 24                       | 9.024     | 17.5            | 36        | 900             | 27                                   |
| 28                       | 9.028     | 20.5            | 42        | 1,200           | 23                                   |
| 36                       | 9.036     | 26.3            | 54        | 2,000           | 18                                   |
| 48                       | 9.048     | 35              | 72        | 3,500           | 14                                   |
| 60                       | 9.060     | 43.8            | 90        | 5,500           | 11                                   |
| 90                       | 9.090     | 65.7            | 135       | 12,500          | 7.2                                  |
| 110                      | 9.110     | 80.3            | 165       | 18,000          | 6.2                                  |
| 125                      | 9.125     | 91.2            | 187.5     | 23,500          | 5.3                                  |

DC VERSION DATA (0.5 W sensitive - Types 40.31/51/52/61)

| Nominal voltage<br>$U_N$ | Coil code | Operating range |                | Resistance<br>R | Rated coil consumption<br>I at $U_N$ |
|--------------------------|-----------|-----------------|----------------|-----------------|--------------------------------------|
|                          |           | $U_{min}^*$     | $U_{max}^{**}$ |                 |                                      |
| V                        |           | V               | V              | $\Omega$        | mA                                   |
| 5                        | 7.005     | 3.7             | 8.8            | 50              | 100                                  |
| 6                        | 7.006     | 4.4             | 10.5           | 75              | 80                                   |
| 7                        | 7.007     | 5.1             | 12.2           | 100             | 70                                   |
| 9                        | 7.009     | 6.6             | 15.8           | 160             | 56                                   |
| 12                       | 7.012     | 8.8             | 21             | 300             | 40                                   |
| 14                       | 7.014     | 10.2            | 24.5           | 400             | 35                                   |
| 18                       | 7.018     | 13.2            | 31.5           | 650             | 27.7                                 |
| 21                       | 7.021     | 15.4            | 36.9           | 900             | 23.4                                 |
| 24                       | 7.024     | 17.5            | 42             | 1,200           | 20                                   |
| 28                       | 7.028     | 20.5            | 49             | 1,600           | 17.5                                 |
| 36                       | 7.036     | 26.3            | 63             | 2,600           | 13.8                                 |
| 48                       | 7.048     | 35              | 84             | 4,800           | 10                                   |
| 60                       | 7.060     | 43.8            | 105            | 7,200           | 8.4                                  |
| 90                       | 7.090     | 65.7            | 157            | 16,200          | 5.6                                  |
| 110                      | 7.110     | 80.3            | 192            | 23,500          | 4.7                                  |
| 125                      | 7.125     | 91.2            | 218.7          | 32,000          | 3.9                                  |

\* $U_{min} = 0.8 U_N$  for 40.61

\*\* $U_{max} = 1.5 U_N$  for 40.61

DC VERSION DATA (0.5 W sensitive - Types 40.11/41)

| Nominal voltage<br>$U_N$ | Coil code | Operating range |             | Resistance<br>R | Rated coil consumption<br>I at $U_N$ |
|--------------------------|-----------|-----------------|-------------|-----------------|--------------------------------------|
|                          |           | $U_{min}$       | $U_{max}^*$ |                 |                                      |
| V                        |           | V               | V           | $\Omega$        | mA                                   |
| 6                        | 7.006     | 4.4             | 10.5        | 75              | 80                                   |
| 12                       | 7.012     | 8.8             | 21          | 300             | 40                                   |
| 24                       | 7.024     | 17.5            | 42          | 1,200           | 20                                   |
| 48                       | 7.048     | 35              | 84          | 4,600           | 10.4                                 |
| 60                       | 7.060     | 43.8            | 105         | 7,200           | 8.3                                  |

\* $U_{max} = 1.5 U_N$  for 40.11-2016

AC VERSION DATA (Types 40.31/51/52/61)

| Nominal voltage<br>$U_N$ | Coil code | Operating range |           | Resistance<br>R | Rated coil consumption<br>I at $U_N$ (50Hz) |
|--------------------------|-----------|-----------------|-----------|-----------------|---------------------------------------------|
|                          |           | $U_{min}$       | $U_{max}$ |                 |                                             |
| V                        |           | V               | V         | $\Omega$        | mA                                          |
| 6                        | 8.006     | 4.8             | 6.6       | 21              | 168                                         |
| 12                       | 8.012     | 9.6             | 13.2      | 80              | 90                                          |
| 24                       | 8.024     | 19.2            | 26.4      | 320             | 45                                          |
| 48                       | 8.048     | 38.4            | 52.8      | 1,350           | 21                                          |
| 60                       | 8.060     | 48              | 66        | 2,100           | 16.8                                        |
| 110                      | 8.110     | 88              | 121       | 6,900           | 9.4                                         |
| 120                      | 8.120     | 96              | 132       | 9,000           | 8.4                                         |
| 230                      | 8.230     | 184             | 253       | 28,000          | 5                                           |
| 240                      | 8.240     | 192             | 264       | 31,500          | 4.1                                         |

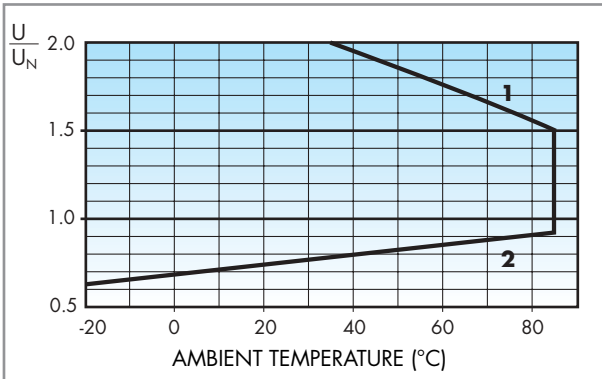
AC/DC VERSION DATA (bistable - Types 40.31/51/52/61)

| Nominal voltage<br>$U_N$ | Coil code | Operating range |           | Resistance<br>R | Rated coil consumption<br>I at $U_N$ | DC: Release resistance**<br>$R_{DC}$ |
|--------------------------|-----------|-----------------|-----------|-----------------|--------------------------------------|--------------------------------------|
|                          |           | $U_{min}$       | $U_{max}$ |                 |                                      |                                      |
| V                        |           | V               | V         | $\Omega$        | mA                                   | $\Omega$                             |
| 5                        | 6.005     | 4               | 5.5       | 23              | 215                                  | 37                                   |
| 6                        | 6.006     | 4.8             | 6.6       | 33              | 165                                  | 62                                   |
| 12                       | 6.012     | 9.6             | 13.2      | 130             | 83                                   | 220                                  |
| 24                       | 6.024     | 19.2            | 26.4      | 520             | 40                                   | 910                                  |
| 48                       | 6.048     | 38.4            | 52.8      | 2,100           | 21                                   | 3,600                                |
| 110                      | 6.110     | 88              | 121       | 11,000          | 10                                   | 16,500                               |

\*\*  $R_{DC}$  = Resistance in DC,  $R_{AC} = 1.3 \times R_{DC}$  1W

## COIL SPECIFICATIONS

### R 40 DC

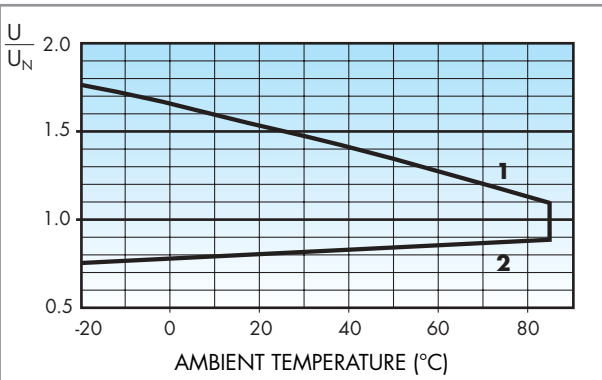


Operating range vs ambient temperature.

1 - Max coil voltage permitted.

2 - Min pick-up voltage with coil at ambient temperature.

### R 40 AC

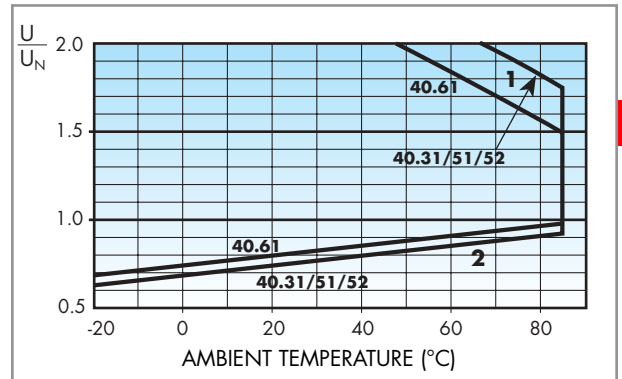


Operating range vs ambient temperature.

1 - Max coil voltage permitted.

2 - Min pick-up voltage with coil at ambient temperature.

### R 40 sens. DC (Types 40.31/51/52/61)

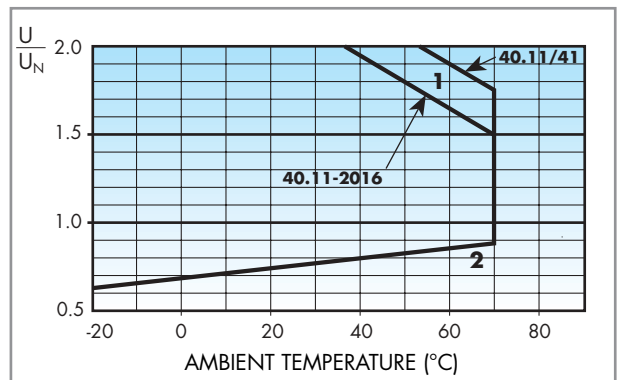


Operating range vs ambient temperature.

1 - Max coil voltage permitted.

2 - Min pick-up voltage with coil at ambient temperature.

### R 40 sens. DC (Types 40.11/41)



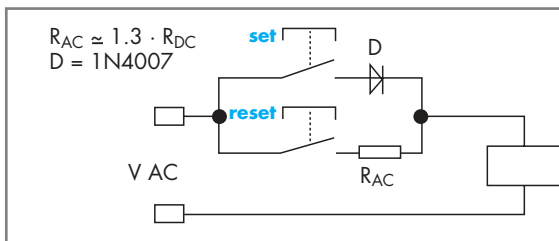
Operating range vs ambient temperature.

1 - Max coil voltage permitted.

2 - Min pick-up voltage with coil at ambient temperature.

## Wiring diagram for 40 series bistable coil version

### AC Operation

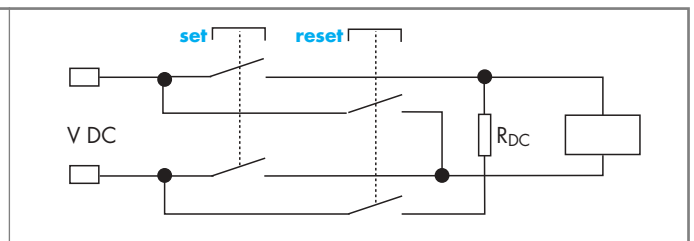


On momentary closure of the SET switch the relay is magnetised through the diode and the relay contacts transfer to the set position and remain in this position.

On momentary closure of the RESET switch the relay is demagnetised through limiting resistor ( $R_{AC}$ ) and the contacts return to the reset position.

**Notes:** The minimum SET or RESET impulse time is 20 ms. The maximum time can be continuous. In practice, always ensure that the SET and RESET contacts cannot be operated simultaneously.

### DC Operation



On momentary closure of the SET switch the relay is magnetised and the relay contacts transfer to the set position and remain in this position. On momentary closure of the RESET switch the relay is demagnetised through limiting resistor ( $R_{DC}$ ) and the contacts return to the reset position.





95.05

**40** Approvals  
(according to type):



- Rated values: 10 A - 250 V  
with a current >10 A, the contact terminal must be connected in parallel (21 with 11, 24 with 14, 22 with 12)
- Insulation:  $\geq 6$  kV (1.2/50  $\mu$ s) between coil and contacts
- Protection category: IP 20
- Ambient temperature: (-40...+70)°C
- Screw torque: 0.5 Nm
- Wire strip length: 8 mm
- Max wire size:

|                 | solid wire  | stranded wire |
|-----------------|-------------|---------------|
| mm <sup>2</sup> | 1x6 / 2x2.5 | 1x4 / 2x2.5   |
| AWG             | 1x10 / 2x14 | 1x12 / 2x14   |

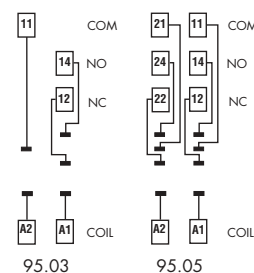
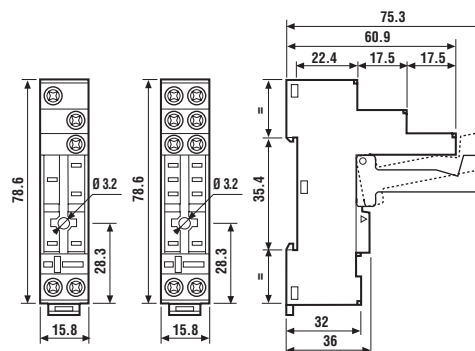


095.01



060.72

| Relay type                                                                                                                        | 40.31        |          | 40.51/ 52/ 61 |          |
|-----------------------------------------------------------------------------------------------------------------------------------|--------------|----------|---------------|----------|
| Colour                                                                                                                            | BLUE         | BLACK    | BLUE          | BLACK    |
| <b>Clamp terminal socket:</b> panel or 35 mm rail (EN 50022) mount, retaining clip 095.01 supplied with socket packaging code SPA | 95.03        | 95.03.0  | 95.05         | 95.05.0  |
| Plastic retaining and release clip                                                                                                | 095.01       | 095.01.0 | 095.01        | 095.01.0 |
| Metal retaining clip                                                                                                              | 095.71       |          |               |          |
| 8-way jumper link for 95.03 and 95.05 sockets                                                                                     | 095.18       | 095.18.0 | 095.18        | 095.18.0 |
| Identification tag                                                                                                                | 095.00.4     |          |               |          |
| Modules (see table below)                                                                                                         | 99.02        |          |               |          |
| Timer modules (see table below)                                                                                                   | 86.10, 86.20 |          |               |          |
| Sheet of marker tags for retaining and release clip 095.01                                                                        | 060.72       |          |               |          |



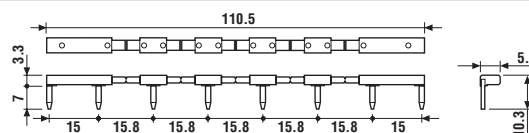
## FOR 95.03 AND 95.05 SOCKETS:



095.18

|                          |        |
|--------------------------|--------|
| <b>8-way jumper link</b> | 095.18 |
|--------------------------|--------|

- Rated values: 10 A - 250 V



86.10

|                                                                   |                  |
|-------------------------------------------------------------------|------------------|
| <b>86 series module timers</b> (see technical data pages 151/156) | BLUE             |
| Mono-function: (12...24)V AC/DC; function AI; (1.5s...60min)      | 86.10.0.024.0000 |
| Mono-function: (12...24)V AC/DC; function DI; (1.5s...60min)      | 86.20.0.024.0000 |

Approvals  
(according to type): GOST



99.02

Approvals  
(according to type):



\* Modules in Black housing are available on request.

\*\*For DC supply, apply the positive to terminal A1.

|                                                                                           |                    |                |
|-------------------------------------------------------------------------------------------|--------------------|----------------|
| <b>99.02 coil indication and EMC suppression modules</b><br>(see technical data page 209) |                    | BLUE*          |
| Diode** (+A1, standard polarity)                                                          | (6...220)V DC      | 99.02.3.000.00 |
| LED                                                                                       | (6...24)V DC/AC    | 99.02.0.024.59 |
| LED                                                                                       | (28...60)V DC/AC   | 99.02.0.060.59 |
| LED                                                                                       | (110...240)V DC/AC | 99.02.0.230.59 |
| LED + Diode** (+A1, standard polarity)                                                    | (6...24)V DC       | 99.02.9.024.99 |
| LED + Diode** (+A1, standard polarity)                                                    | (28...60)V DC      | 99.02.9.060.99 |
| LED + Diode** (+A1, standard polarity)                                                    | (110...220)V DC    | 99.02.9.220.99 |
| LED + Varistor                                                                            | (6...24)V DC/AC    | 99.02.0.024.98 |
| LED + Varistor                                                                            | (28...60)V DC/AC   | 99.02.0.060.98 |
| LED + Varistor                                                                            | (110...240)V DC/AC | 99.02.0.230.98 |
| RC circuit                                                                                | (6...24)V DC/AC    | 99.02.0.024.09 |
| RC circuit                                                                                | (28...60)V DC/AC   | 99.02.0.060.09 |
| RC circuit                                                                                | (110...240)V DC/AC | 99.02.0.230.09 |
| Residual current by-pass (62 k $\Omega$ /1W)                                              | (110...240)V AC    | 99.02.8.230.07 |





95.85.3

Approvals  
(according to type):



GOST

- Rated values: 10 A - 250 V  
with a current >10 A, the contact terminal must be connected in parallel (21 with 11, 24 with 14, 22 with 12)
- Insulation:  $\geq 6$  kV (1.2/50  $\mu$ s)  
between coil and contacts (only for 95.83.3)
- Protection category: IP 20
- Ambient temperature: (-40...+70)°C
- Srew torque: 0.5 Nm
- Wire strip length: 7 mm
- Max wire size:

|                 | solid wire  | stranded wire |
|-----------------|-------------|---------------|
| mm <sup>2</sup> | 1x6 / 2x2.5 | 1x4 / 2x2.5   |
| AWG             | 1x10 / 2x14 | 1x12 / 2x14   |

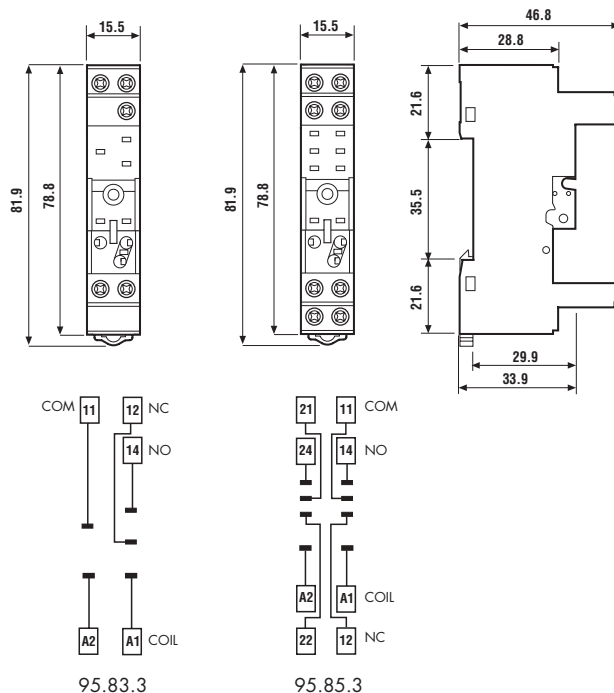


95.91.3



060.72

| Relay type                                                                                                                         | 40.31    |          | 40.51, 40.52, 40.61 |          |
|------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---------------------|----------|
| Colour                                                                                                                             | BLUE     | BLACK    | BLUE                | BLACK    |
| <b>Clamp terminal socket:</b> panel or 35 mm rail (EN 50022) mount retaining clip 095.91.3 supplied with socket packaging code SPA | 95.83.3  | 95.83.30 | 95.85.3             | 95.85.30 |
| Metal retaining clip                                                                                                               | 095.71   |          |                     |          |
| Plastic retaining and release clip                                                                                                 | 095.91.3 |          |                     |          |
| 8-way jumper link for 95.83.3 and 95.85.3 sockets                                                                                  | 095.08   | 095.08.0 | 095.08              | 095.08.0 |
| Modules (see table below)                                                                                                          | 99.80    |          |                     |          |
| Sheet of marker tags for retaining and release clip 095.91.3                                                                       | 060.72   |          |                     |          |



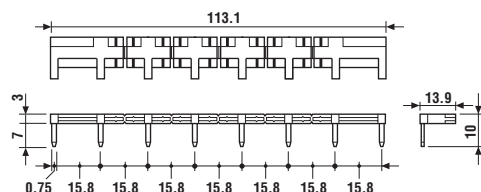
## FOR 95.83.3 AND 95.85.3 SOCKETS:



95.08

|                          |        |
|--------------------------|--------|
| <b>8-way jumper link</b> | 095.08 |
|--------------------------|--------|

- Rated values: 10 A - 250 V



99.80

Approvals  
(according to type):  
GOST

\* Modules in Black housing are available on request.

\*\*For DC supply, apply the positive to terminal A1.

Green LED is standard.  
Red LED available on request.

| 99.80 coil indication and EMC suppression modules<br>(see technical data page 209) |                    | BLUE*          |
|------------------------------------------------------------------------------------|--------------------|----------------|
| Diode** (+A1, standard polarity)                                                   | (6...220)V DC      | 99.80.3.000.00 |
| LED                                                                                | (6...24)V DC/AC    | 99.80.0.024.59 |
| LED                                                                                | (28...60)V DC/AC   | 99.80.0.060.59 |
| LED                                                                                | (110...240)V DC/AC | 99.80.0.230.59 |
| LED + Diode** (+A1, standard polarity)                                             | (6...24)V DC       | 99.80.9.024.99 |
| LED + Diode** (+A1, standard polarity)                                             | (28...60)V DC      | 99.80.9.060.99 |
| LED + Diode** (+A1, standard polarity)                                             | (110...220)V DC    | 99.80.9.220.99 |
| LED + Varistor                                                                     | (6...24)V DC/AC    | 99.80.0.024.98 |
| LED + Varistor                                                                     | (28...60)V DC/AC   | 99.80.0.060.98 |
| LED + Varistor                                                                     | (110...240)V DC/AC | 99.80.0.230.98 |
| RC circuit                                                                         | (6...24)V DC/AC    | 99.80.0.024.09 |
| RC circuit                                                                         | (28...60)V DC/AC   | 99.80.0.060.09 |
| RC circuit                                                                         | (110...240)V DC/AC | 99.80.0.230.09 |
| Residual current by-pass (62 k $\Omega$ /1W)                                       | (110...240)V AC    | 99.80.8.230.07 |



95.13.2



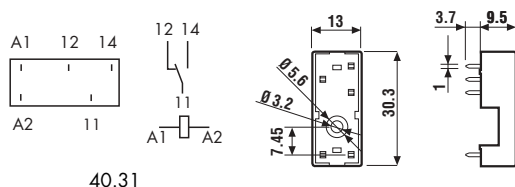
95.15.2

| Relay type                                                    | 40.31, 40.41 |          | 40.51, 40.52, 40.61 |          |
|---------------------------------------------------------------|--------------|----------|---------------------|----------|
| Colour                                                        | BLUE         | BLACK    | BLUE                | BLACK    |
| <b>P.C.B. socket</b>                                          | 95.13.2      | 95.13.20 | 95.15.2             | 95.15.20 |
| retaining clip 095.51 supplied with socket packaging code SMA |              |          |                     |          |
| Metal retaining clip                                          | 095.51       |          |                     |          |
| Plastic retaining clip                                        | 095.52       |          |                     |          |

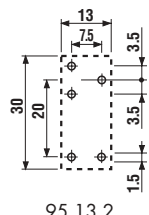
Approvals  
(according to type):



- Rated values: 10 A - 250 V
- Insulation:  $\geq 6$  kV (1.2/50  $\mu$ s)  
between coil and contacts
- Protection category: IP 20
- Ambient temperature:  $(-40...+70)^{\circ}\text{C}$

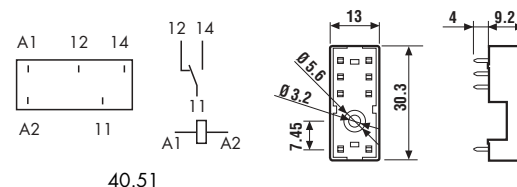


40.31

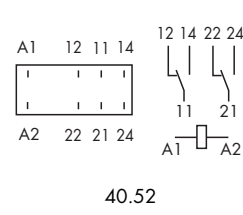


95.13.2

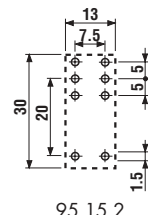
Copper side view



40.51

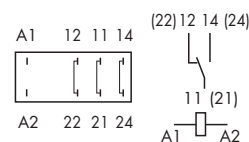


40.52



95.15.2

Copper side view



40.61

## PACKAGING CODES

How to code and identify retaining clip and packaging options for sockets.

Code options according to the last three letters:



**A** Standard packaging

**SM** Metal retaining clip

**SP** Plastic retaining clip



Without retaining clip