

# Miniature PCB Relays

## 8 - 10 - 12 - 16 A



Medical and  
dentistry



Control panels



Panels for electrical  
distribution



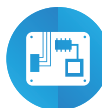
Toys



Automation  
for blinds,  
grilles and  
shutters



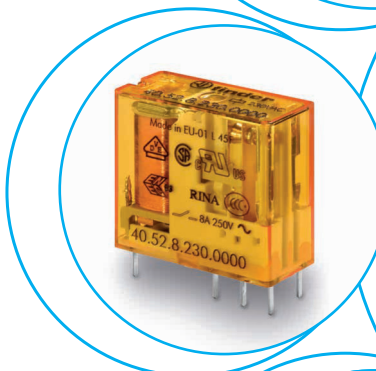
Door and  
gate openers



Electronic  
circuit boards



Vending  
machines





### Power relays 1 and 2 pole for direct PCB or socket mount

#### Type 40.31/51

- 1 CO 12 A (3.5 mm pin pitch)
- 1 CO 12 A (5.0 mm pin pitch)

#### Type 40.52

- 2 CO 8 A (5.0 mm pin pitch)

#### Type 40.61

- 1 CO 16 A (5.0 mm pin pitch)

- Pin length 3.5 mm for PCB mount
- Pin length 5.3 mm for Plug-in mount
- DC coils (650 mW or 500 mW) and AC coils
- 8 mm Creepage and Clearance, 6 kV (1.2/50µs) between coil and contact
- Meets EN 60335-1 glow wire requirements
- 95 series sockets for PCB or 35 mm rail mounting (EN 60715) with Screw, Screwless or Push-in terminals
- Coil Indication and EMC suppression modules 99 series and Timer module 86.30 options
- Environmental protection:  
RT II - flux proof (Standard)  
RT III - wash tight (Option)

\* Mounted on sockets ≤ 10 A

\*\* With the AgSnO<sub>2</sub> material the maximum peak current on normally open contact, is 120 A - 5 ms (for 40.61) and 60 A - 5 ms (for 40.52)

For UL RATINGS SEE:

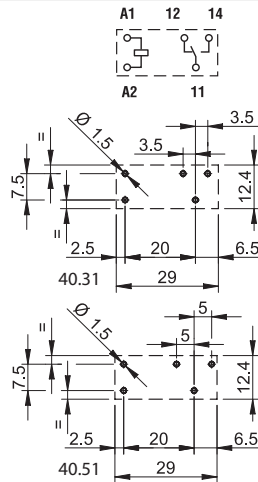
"General technical information" page V

For outline drawing see page 10

#### 40.31/51



- 1 CO 12 A on PCB, 10 A with socket
- 3.5 mm pin pitch (40.31), 5.0 mm pin pitch (40.51)
- PCB or 95 Series socket mount



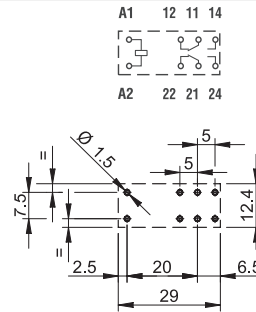
Copper side view  
Pin length 3.5 mm for PCB only  
Pin length 5.3 mm for PCB or sockets

See ordering information

#### 40.52



- 2 CO 8 A
- 5.0 mm pin pitch
- PCB or 95 Series socket mount



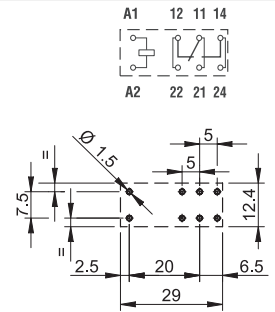
Copper side view  
Pin length 5.3 mm for PCB or sockets

See ordering information

#### 40.61



- 1 CO 16 A
- 5.0 mm pin pitch
- PCB or 95 Series socket mount



Copper side view  
Pin length 3.5 mm for PCB only  
Pin length 5.3 mm for PCB or sockets

See ordering information

| Contact specification                            |                 | 40.31/51                                                                    | 40.52                                                  | 40.61                                                 |
|--------------------------------------------------|-----------------|-----------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|
| Contact configuration                            |                 | 1 CO (SPDT)                                                                 | 2 CO (DPDT)                                            | 1 CO (SPDT)                                           |
| Rated current/Maximum peak current               | A               | 12*/20                                                                      | 8/15**                                                 | 16/30**                                               |
| Rated voltage/Maximum switching voltage          | V AC            | 250/400                                                                     | 250/400                                                | 250/400                                               |
| Rated load AC1                                   | VA              | 3000                                                                        | 2000                                                   | 4000                                                  |
| Rated load AC15 (230 V AC)                       | VA              | 1000                                                                        | 750                                                    | 1000                                                  |
| Single phase motor rating (230 V AC)             | kW              | 0.55                                                                        | 0.37                                                   | 0.55                                                  |
| Breaking capacity DC1: 24/110/220 V              | A               | 12/0.6/0.25                                                                 | 8/0.6/0.25                                             | 16/0.6/0.25                                           |
| Minimum switching load                           | mW (V/mA)       | 300 (5/5)                                                                   | 300 (5/5)                                              | 500 (10/5)                                            |
| Standard contact material                        |                 | AgNi                                                                        | AgNi                                                   | AgNi                                                  |
| Coil specification                               |                 |                                                                             |                                                        |                                                       |
| 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/sensitive 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/sensitive DC | (0.73...1.5)U <sub>N</sub> /(0.73...1.5)U <sub>N</sub>                      | (0.73...1.5)U <sub>N</sub> /(0.73...1.5)U <sub>N</sub> | (0.73...1.5)U <sub>N</sub> /(0.8...1.5)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                                  | cycles          | 10 · 10 <sup>6</sup>                                                        | 10 · 10 <sup>6</sup>                                   | 10 · 10 <sup>6</sup>                                  |
| Electrical life at rated load AC1                | cycles          | 200 · 10 <sup>3</sup>                                                       | 100 · 10 <sup>3</sup>                                  | 100 · 10 <sup>3</sup>                                 |
| Operate/release time                             | ms              | 7/3 (10/3 sensitive)                                                        | 7/3 (12/4 sensitive)                                   | 7/3 (10/3 sensitive)                                  |
| Insulation between coil and contacts (1.2/50 µs) | kV              | 6 (8 mm)                                                                    | 6 (8 mm)                                               | 6 (8 mm)                                              |
| Dielectric strength between open contacts        | V AC            | 1000                                                                        | 1000                                                   | 1000                                                  |
| Ambient temperature range                        | °C              | -40...+85                                                                   | -40...+85                                              | -40...+85                                             |
| Environmental protection                         |                 | RT II***                                                                    | RT II***                                               | RT II***                                              |
| Approvals (according to type)                    |                 |                                                                             |                                                        |                                                       |

\*\*\* See general technical information "Guidelines for automatic flow solder processes" page II.

**Power relays 1 and 2 pole for direct PCB or socket mount****Type 40.62**

- 2 CO 10A (5.0 mm pin pitch)
- DC coils (650 mW or 500 mW) and AC coils
- Meets EN 60335-1 glow wire requirements

**Type 40.xx.6**

- Bistable versions of the types 40.31, 40.51, 40.52 and 40.61
- Bistable (single coil)
- Cadmium-free contact material available
- 8 mm Creepage and Clearance, 6 kV (1.2/50µs) between coil and contact
- 95 series sockets for PCB or 35 mm rail mounting (EN 60715) with Screw, Screwless or Push-in terminals
- Environmental protection:  
RT II - flux proof (Standard)  
RT III - wash tight (Option)

\* With the AgSnO<sub>2</sub> material the maximum peak current on normally open contact is 60 A - 5 ms (for 40.62)

FOR UL RATINGS SEE:

"General technical information" page V

For outline drawing see page 10

**Contact specification**

|                                      |           |             |
|--------------------------------------|-----------|-------------|
| Contact configuration                |           | 2 CO (DPDT) |
| Rated current/Maximum peak current   | A         | 10/20*      |
| Rated voltage/                       |           |             |
| Maximum switching voltage            | V AC      | 250/400     |
| Rated load AC1                       | VA        | 2500        |
| Rated load AC15 (230 V AC)           | VA        | 750         |
| Single phase motor rating (230 V AC) | kW        | 0.37        |
| Breaking capacity DC1: 24/110/220 V  | A         | 10/0.6/0.25 |
| Minimum switching load               | mW (V/mA) | 300 (5/5)   |
| Standard contact material            |           | AgNi        |

**Coil specification**

|                                   |                 |                                                                   |
|-----------------------------------|-----------------|-------------------------------------------------------------------|
| Nominal voltage (U <sub>N</sub> ) | V AC (50/60 Hz) | 110 - 120 - 230 - 240                                             |
|                                   | V DC            | 5 - 6 - 7 - 9 - 12 - 14 - 18 - 21 - 24 - 28 - 48 - 60 - 110 - 125 |
| Rated power AC/DC/sens. DC        | VA (50 Hz)/W/W  | 1.2/0.65/0.5                                                      |
| Operating range                   | AC              | (0.8...1.1)U <sub>N</sub>                                         |
|                                   | DC/sens. DC     | (0.73...1.5)U <sub>N</sub> / (0.73...1.5) U <sub>N</sub>          |
| Holding voltage                   | AC/DC           | 0.8/0.4 U <sub>N</sub>                                            |
| Must drop-out voltage             | AC/DC           | 0.2/0.1 U <sub>N</sub>                                            |

**Technical data**

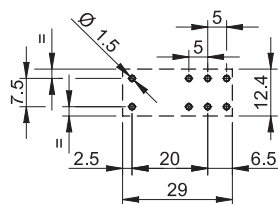
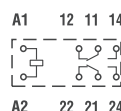
|                                                  |        |                       |
|--------------------------------------------------|--------|-----------------------|
| Mechanical life                                  | cycles | 10 · 10 <sup>6</sup>  |
| Electrical life at rated load AC1                | cycles | 100 · 10 <sup>3</sup> |
| Operate/release time                             | ms     | 7/3 (12/4 sensitive)  |
| Insulation between coil and contacts (1.2/50 µs) | kV     | 6 (8 mm)              |
| Dielectric strength between open contacts        | V AC   | 1000                  |
| Ambient temperature range                        | °C     | -40...+85             |
| Environmental protection                         |        | RT II                 |

**Approvals** (according to type)

\*\* See general technical information "Guidelines for automatic flow solder processes" page II.

**NEW 40.62**

- 2 CO 10 A
- 5.0 mm pin pitch
- PCB or 95 Series sockets mount



Copper side view

Pin length 5.3 mm for  
PCB or sockets

**40.xx.6**

- Bistable (single coil)
- 3.5 or 5.0 mm pin pitch
- PCB or 95 Series socket mount

Bistable version (1 coil) types:

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

For wiring diagrams see page 10

Pin length 5.3 mm for  
PCB or sockets

See relays

40.31  
40.51  
40.52  
40.61  
page 3

5 - 6 - 12 - 24 - 48 - 110

1.0/1.0/—

(0.8...1.1)U<sub>N</sub>

(0.8...1.1)U<sub>N</sub> / —

—

—

See relays

40.31

40.51

40.52

40.61

Min. impulse duration

≥ 20 ms

## Ordering information

Example: 40 series PCB relay, 2 CO, 230 V AC coil.

4

0

.

5

.

2

.

8

.

2

3

0

.

0

0

0

0

**Series** —————

**Type** —————

3 = PCB/Plug-in - 3.5 mm pinning  
5 = PCB/Plug-in - 5 mm pinning  
6 = PCB/Plug-in - 5 mm pinning

**No. of poles** —————

1 = 1 pole  
2 = 2 pole

**Coil version** —————

6 = AC/DC bistable  
7 = Sensitive DC, 0.5 W  
8 = AC (50/60 Hz)  
9 = Standard DC, 0.65 W

**Coil voltage** —————

See coil specifications

**A: Contact material**  
See table below

**B: Contact circuit**  
0 = CO (nPDT)  
3 = NO (nPST)

**C: Options**  
0 = Pin length 5.3 mm (Plug-in relays)  
2 = Pin length 3.5 mm (PCB relays)

**D: Special versions**  
0 = Standard  
1 = Wash tight (RT III)  
3 = High temperature (+125 °C) wash tight

**Selecting features and options: only combinations in the same row are possible.**

Preferred selections for best availability are shown in **bold**.

| Terminal pin                           | Type        | Coil version             | A                                                       | B            | C        | D                |
|----------------------------------------|-------------|--------------------------|---------------------------------------------------------|--------------|----------|------------------|
| PCB relay,<br>pin length 3.5 mm        | 40.31/51    | Standard DC/sensitive DC | <b>1</b> (AgNi)                                         | <b>0</b> - 3 | <b>2</b> | <b>0</b> - 1     |
|                                        | 40.61       | Standard DC/sensitive DC | 1 (AgNi) - <b>4</b> (AgSnO <sub>2</sub> )               | <b>0</b> - 3 | <b>2</b> | <b>0</b> - 1     |
| PCB/Plug-in relay<br>pin length 5.3 mm | 40.31/51    | AC/sensitive DC          | <b>0</b> (AgNi) - 4 (AgSnO <sub>2</sub> ) - 5 (AgNi+Au) | <b>0</b> - 3 | <b>0</b> | <b>0</b> - 1     |
|                                        | 40.31/51    | Standard DC              | <b>0</b> (AgNi) - 4 (AgSnO <sub>2</sub> ) - 5 (AgNi+Au) | <b>0</b> - 3 | <b>0</b> | <b>0</b> - 1 - 3 |
|                                        | 40.52       | AC/sensitive DC          | <b>0</b> (AgNi) - 4 (AgSnO <sub>2</sub> ) - 5 (AgNi+Au) | <b>0</b> - 3 | <b>0</b> | <b>0</b> - 1     |
|                                        | 40.52       | Standard DC              | <b>0</b> (AgNi) - 4 (AgSnO <sub>2</sub> ) - 5 (AgNi+Au) | <b>0</b> - 3 | <b>0</b> | <b>0</b> - 1 - 3 |
|                                        | 40.61       | AC/sensitive DC          | <b>1</b> (AgNi) - 4 (AgSnO <sub>2</sub> )               | <b>0</b> - 3 | <b>0</b> | <b>0</b> - 1     |
|                                        | 40.61       | Standard DC              | <b>1</b> (AgNi) - 4 (AgSnO <sub>2</sub> )               | <b>0</b> - 3 | <b>0</b> | <b>0</b> - 1 - 3 |
|                                        | 40.62       | AC/DC/sensitive DC       | <b>0</b> (AgNi) - 4 (AgSnO <sub>2</sub> )               | <b>0</b>     | <b>0</b> | <b>0</b> - 1     |
|                                        | 40.31/51/52 | Bistable                 | <b>0</b> (AgNi)                                         | <b>0</b>     | <b>0</b> | <b>0</b>         |
|                                        | 40.61       | Bistable                 | <b>1</b> (AgNi)                                         | <b>0</b>     | <b>0</b> | <b>0</b>         |

## Technical data

A

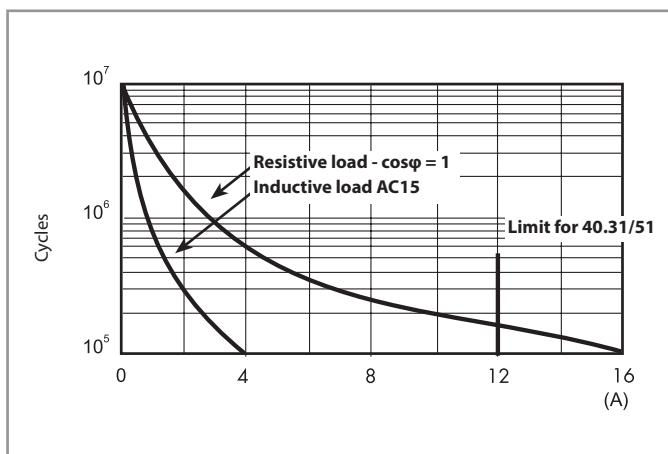
### Insulation according to EN 61810-1

|                                                                             |                         | 1 pole               |                | 2 pole               |                 |
|-----------------------------------------------------------------------------|-------------------------|----------------------|----------------|----------------------|-----------------|
| Nominal voltage of supply system                                            | V AC                    | 230/400              |                | 230/400              |                 |
| Rated insulation voltage                                                    | V AC                    | 250                  | 400            | 250                  | 400             |
| Pollution degree                                                            |                         | 3                    | 2              | 3                    | 2               |
| <b>Insulation between coil and contact set</b>                              |                         |                      |                |                      |                 |
| Type of insulation                                                          |                         | Reinforced (8 mm)    |                | Reinforced (8 mm)    |                 |
| Overvoltage category                                                        |                         | III                  |                | III                  |                 |
| Rated impulse voltage                                                       | kV (1.2/50 μs)          | 6                    |                | 6                    |                 |
| Dielectric strength                                                         | V AC                    | 4000                 |                | 4000                 |                 |
| <b>Insulation between adjacent contacts (40.52)</b>                         |                         |                      |                |                      |                 |
| Type of insulation                                                          |                         | —                    |                | Basic                |                 |
| Overvoltage category                                                        |                         | —                    |                | II                   |                 |
| Rated impulse voltage                                                       | kV (1.2/50 μs)          | —                    |                | 2.5                  |                 |
| Dielectric strength                                                         | V AC                    | —                    |                | 2000                 |                 |
| <b>Insulation between adjacent contacts (40.52 + 40.62)</b>                 |                         |                      |                |                      |                 |
| Type of insulation                                                          |                         | —                    |                | Basic                |                 |
| Overvoltage category                                                        |                         | —                    |                | III                  |                 |
| Rated impulse voltage                                                       | kV (1.2/50 μs)          | —                    |                | 4                    |                 |
| Dielectric strength                                                         | V AC                    | —                    |                | 2500                 |                 |
| <b>Insulation between open contacts</b>                                     |                         |                      |                |                      |                 |
| Type of disconnection                                                       |                         | Micro-disconnection  |                | Micro-disconnection  |                 |
| Dielectric strength                                                         | V AC/kV (1.2/50 μs)     | 1000/1.5             |                | 1000/1.5             |                 |
| <b>Insulation between coil terminals</b>                                    |                         |                      |                |                      |                 |
| Rated impulse voltage (surge) differential mode (according to EN 61000-4-5) | kV (1.2/50 μs)          | 2                    |                |                      |                 |
| <b>Other data</b>                                                           |                         |                      |                |                      |                 |
| Bounce time: NO/NC                                                          | ms                      | 2/5                  |                |                      |                 |
| Vibration resistance (10...150)Hz: NO/NC                                    | g                       | 20/5 (1 changeover)  |                | 15/4 (2 changeover)  |                 |
| Shock resistance NO/NC                                                      | g                       | 20/13 (1 changeover) |                | 20/12 (2 changeover) |                 |
| Power lost to the environment                                               | without contact current | W                    | 0.65           |                      |                 |
|                                                                             | with rated current      | W                    | 1.2 (40.31/51) |                      | 2 (40.61/52/62) |
| Recommended distance between relays mounted on PCB                          | mm                      | ≥ 5                  |                |                      |                 |

## Contact specification

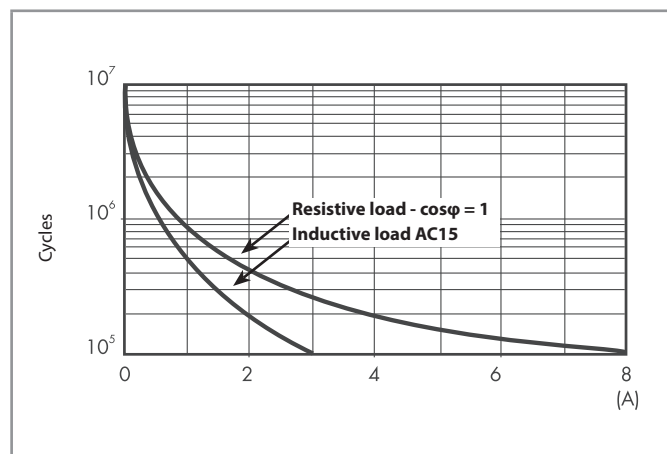
**F 40.1 - Electrical life (AC) v contact current**

Types 40.31/51/61



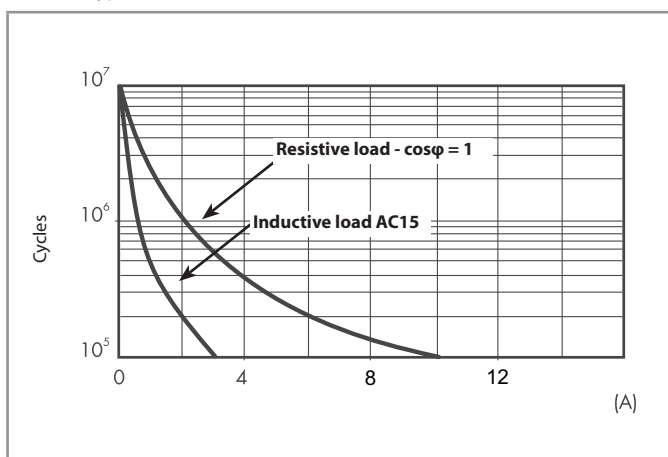
**F 40.2 - Electrical life (AC) v contact current**

Type 40.52



**F 40.6 - Electrical life (AC) v contact current**

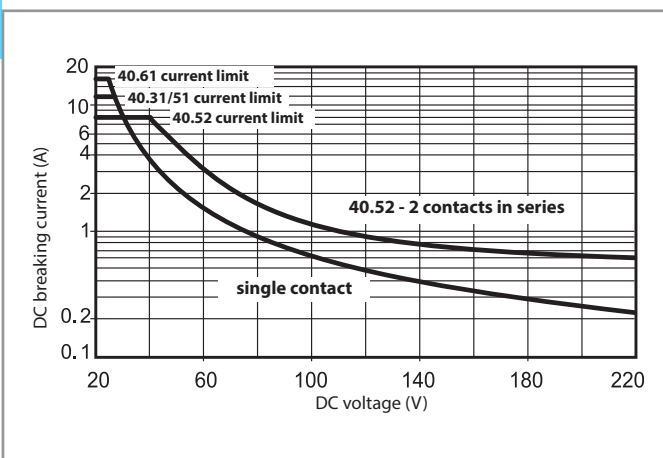
Type 40.62



## Contact specification

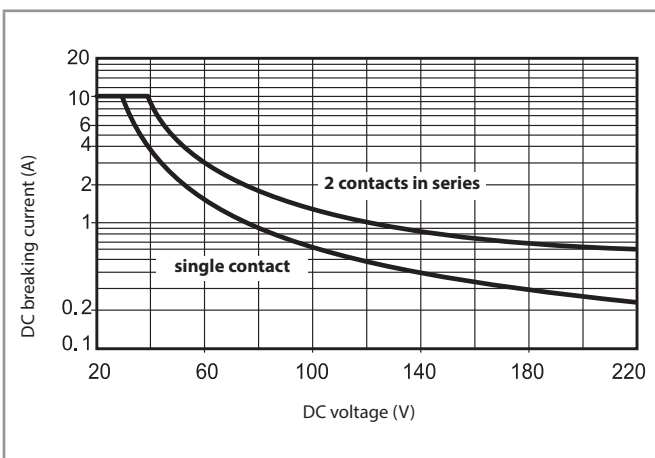
## H 40.1 - Maximum DC1 breaking capacity

Types 40.31/51/52/61



## H 40.6 - Maximum DC1 breaking capacity

Type 40.62



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of  $\geq 100 \cdot 10^3$  can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.

Note: the release time for the load will be increased.

## Coil specifications

**DC coil data - 0.65 W standard** (types 40.31/51/52/61/62)

| Nominal voltage<br>$U_N$ | Coil code | Operating range |           | Resistance | Rated coil consumption |
|--------------------------|-----------|-----------------|-----------|------------|------------------------|
| $V$                      |           | $U_{min}$       | $U_{max}$ | $R$        | $I$ at $U_N$           |
| $V$                      |           | $V$             | $V$       | $\Omega$   | $mA$                   |
| 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        | 1200       | 23                     |
| 36                       | 9.036     | 26.3            | 54        | 2000       | 18                     |
| 48                       | 9.048     | 35              | 72        | 3500       | 14                     |
| 60                       | 9.060     | 43.8            | 90        | 5500       | 11                     |
| 90                       | 9.090     | 65.7            | 135       | 12500      | 7.2                    |
| 110                      | 9.110     | 80.3            | 165       | 18000      | 6.2                    |
| 125                      | 9.125     | 91.2            | 188       | 23500      | 5.3                    |

**DC coil data - 0.5 W sensitive** (types 40.31/51/52/61/62)

| Nominal voltage<br>$U_N$ | Coil code | Operating range |           | Resistance | Rated coil consumption |
|--------------------------|-----------|-----------------|-----------|------------|------------------------|
| $U_N$                    |           | $U_{min}^*$     | $U_{max}$ | $R$        | $I$ at $U_N$           |
| $V$                      |           | $V$             | $V$       | $\Omega$   | $mA$                   |
| 5                        | 7.005     | 3.7             | 7.5       | 50         | 100                    |
| 6                        | 7.006     | 4.4             | 9         | 75         | 80                     |
| 7                        | 7.007     | 5.1             | 10.5      | 100        | 70                     |
| 9                        | 7.009     | 6.6             | 13.5      | 160        | 56                     |
| 12                       | 7.012     | 8.8             | 18        | 288        | 42                     |
| 14                       | 7.014     | 10.2            | 21        | 400        | 35                     |
| 18                       | 7.018     | 13.2            | 27        | 650        | 27.7                   |
| 21                       | 7.021     | 15.4            | 31.5      | 900        | 23.4                   |
| 24                       | 7.024     | 17.5            | 36        | 1150       | 21                     |
| 28                       | 7.028     | 20.5            | 42        | 1600       | 17.5                   |
| 36                       | 7.036     | 26.3            | 54        | 2600       | 13.8                   |
| 48                       | 7.048     | 35              | 72        | 4800       | 10                     |
| 60                       | 7.060     | 43.8            | 90        | 7200       | 8.4                    |
| 90                       | 7.090     | 65.7            | 135       | 16200      | 5.6                    |
| 110                      | 7.110     | 80.3            | 165       | 23500      | 4.7                    |
| 125                      | 7.125     | 91.2            | 188       | 32000      | 3.9                    |

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

**AC coil data** (types 40.31/51/52/61/62)

| Nominal voltage<br>$U_N$ | Coil code | Operating range |           | Resistance | Rated coil consumption |
|--------------------------|-----------|-----------------|-----------|------------|------------------------|
| $U_N$                    |           | $U_{min}$       | $U_{max}$ | $R$        | $I$ at $U_N$ (50 Hz)   |
| $V$                      |           | $V$             | $V$       | $\Omega$   | $mA$                   |
| 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      | 1350       | 21                     |
| 60                       | 8.060     | 48              | 66        | 2100       | 16.8                   |
| 110                      | 8.110     | 88              | 121       | 6900       | 9.4                    |
| 120                      | 8.120     | 96              | 132       | 9000       | 8.4                    |
| 230                      | 8.230     | 184             | 253       | 28000      | 5                      |
| 240                      | 8.240     | 192             | 264       | 31500      | 4.1                    |

**AC/DC coil data - bistable** (types 40.31/51/52/61)

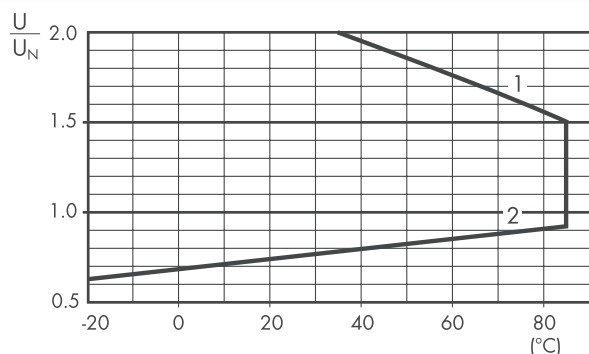
| Nominal voltage<br>$U_N$ | Coil code | Operating range |           | Resistance | Rated coil consumption | DC: Release resistance** |
|--------------------------|-----------|-----------------|-----------|------------|------------------------|--------------------------|
| $U_N$                    |           | $U_{min}$       | $U_{max}$ | $R$        | $I$ at $U_N$           | $R_{DC}$                 |
| $V$                      |           | $V$             | $V$       | $\Omega$   | $mA$                   | $\Omega$                 |
| 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      | 2100       | 21                     | 3600                     |
| 110                      | 6.110     | 88              | 121       | 11000      | 10                     | 16500                    |

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

## Coil specifications

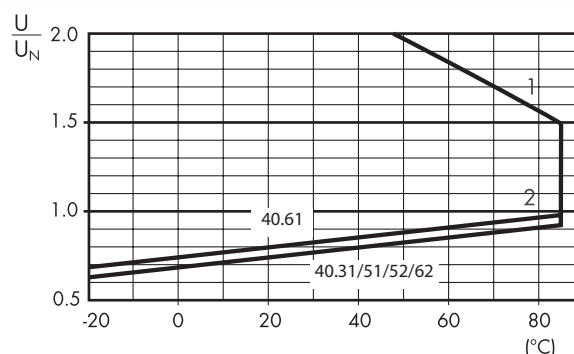
## R 40 - DC coil operating range v ambient temperature

Standard coil

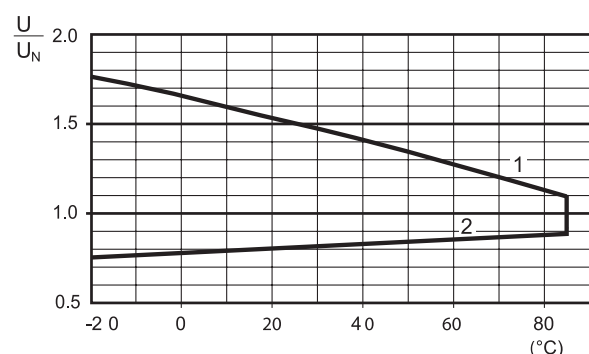


## R 40 - DC coil operating range v ambient temperature

Sensitive coil, types 40.31/51/52/61/62



## R 40 - AC coil operating range v ambient temperature



1 - Max. permitted coil voltage.

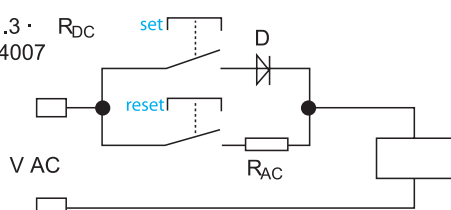
2 - Min. pick-up voltage with coil at ambient temperature.

## Wiring diagram for 40 series bistable coil version

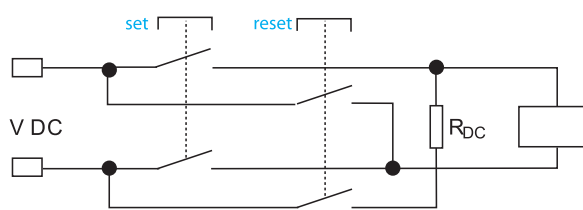
## AC Operation

$$R_{AC} \approx 1.3 \cdot R_{DC}$$

$$D = 1N4007$$



## DC Operation



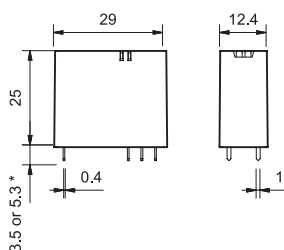
On momentary closure of the SET switch the relay is magnetised through the diode and the relay contacts transfer to the set position and remain in this position.

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.

## Outline drawings

Types 40.31/51/52/61/62



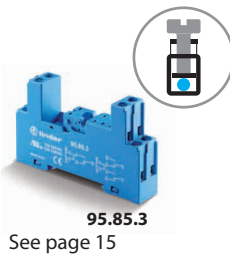
\* (3.5 or 5.3 mm) see ordering code



| Module | Socket       | Relay | Description                                                                                                               | Mounting                             | Accessories                                                                                                               |
|--------|--------------|-------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
|        | <b>95.P3</b> | 40.31 | <b>Push-in terminal sockets</b><br>- For fast cable connection<br>- Top terminals - Contacts<br>- Bottom terminals - Coil | Panel or 35 mm rail (EN 60715) mount | - Coil indication and EMC suppression modules<br>- Jumper link<br>- Timer modules<br>- Plastic retaining and release clip |
|        |              | 40.51 |                                                                                                                           |                                      |                                                                                                                           |
|        |              | 40.52 |                                                                                                                           |                                      |                                                                                                                           |
|        |              | 40.61 |                                                                                                                           |                                      |                                                                                                                           |
|        |              | 40.62 |                                                                                                                           |                                      |                                                                                                                           |



| Module | Socket       | Relay | Description                                                                                         | Mounting                             | Accessories                                                                                                               |
|--------|--------------|-------|-----------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
|        | <b>95.03</b> | 40.31 | <b>Screw terminal (Box clamp) socket</b><br>- Top terminals - Contacts<br>- Bottom terminals - Coil | Panel or 35 mm rail (EN 60715) mount | - Coil indication and EMC suppression modules<br>- Jumper link<br>- Timer modules<br>- Plastic retaining and release clip |
|        |              | 40.51 |                                                                                                     |                                      |                                                                                                                           |
|        |              | 40.52 |                                                                                                     |                                      |                                                                                                                           |
|        |              | 40.61 |                                                                                                     |                                      |                                                                                                                           |
|        |              | 40.62 |                                                                                                     |                                      |                                                                                                                           |



| Module | Socket         | Relay | Description                                                                                                                    | Mounting                             | Accessories                                                                                            |
|--------|----------------|-------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------|
|        | <b>95.83.3</b> | 40.31 | <b>Screw terminal (Box clamp) socket</b><br>- Top terminals - NO and COM Contacts<br>- Bottom terminals - Coil and NC Contacts | Panel or 35 mm rail (EN 60715) mount | - Coil indication and EMC suppression modules<br>- Jumper link<br>- Plastic retaining and release clip |
|        |                | 40.51 |                                                                                                                                |                                      |                                                                                                        |
|        |                | 40.52 |                                                                                                                                |                                      |                                                                                                        |
|        |                | 40.61 |                                                                                                                                |                                      |                                                                                                        |
|        |                | 40.62 |                                                                                                                                |                                      |                                                                                                        |



| Module | Socket         | Relay | Description                                                                                         | Mounting                             | Accessories                                                                                            |
|--------|----------------|-------|-----------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------|
|        | <b>95.93.3</b> | 40.31 | <b>Screw terminal (Box clamp) socket</b><br>- Top terminals - Contacts<br>- Bottom terminals - Coil | Panel or 35 mm rail (EN 60715) mount | - Coil indication and EMC suppression modules<br>- Jumper link<br>- Plastic retaining and release clip |
|        |                | 40.51 |                                                                                                     |                                      |                                                                                                        |
|        |                | 40.52 |                                                                                                     |                                      |                                                                                                        |
|        |                | 40.61 |                                                                                                     |                                      |                                                                                                        |
|        |                | 40.62 |                                                                                                     |                                      |                                                                                                        |

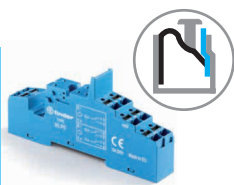


| Module | Socket       | Relay | Description                                                                                         | Mounting                             | Accessories            |
|--------|--------------|-------|-----------------------------------------------------------------------------------------------------|--------------------------------------|------------------------|
|        | <b>95.63</b> | 40.31 | <b>Screw terminal (Box clamp) socket</b><br>- Top terminals - Contacts<br>- Bottom terminals - Coil | Panel or 35 mm rail (EN 60715) mount | - Metal retaining clip |
|        |              | 40.51 |                                                                                                     |                                      |                        |
|        |              | 40.52 |                                                                                                     |                                      |                        |
|        |              | 40.61 |                                                                                                     |                                      |                        |
|        |              | 40.62 |                                                                                                     |                                      |                        |

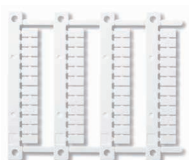


| Module | Socket         | Relay | Description       | Mounting     | Accessories                                        |
|--------|----------------|-------|-------------------|--------------|----------------------------------------------------|
| —      | <b>95.13.2</b> | 40.31 | <b>PCB socket</b> | PCB mounting | - Metal retaining clip<br>- Plastic retaining clip |
| —      | <b>95.15.2</b> | 40.51 |                   |              |                                                    |
|        |                | 40.52 |                   |              |                                                    |
|        |                | 40.61 |                   |              |                                                    |
|        |                | 40.62 |                   |              |                                                    |

A

**95.P5**

Approvals  
(according to type):

**095.91.3****060.48****Push-in terminals socket** panel or 35 mm rail mount

For relay type

**95.P3**

40.31

**95.P5**

40.51, 40.52, 40.61, 40.62

**Accessories**

Metal retaining clip

095.71

Plastic retaining and release clip  
(supplied with socket - packaging code SPA)

095.91.3

8-way jumper link

097.58

2-way jumper link (12.5 mm pitch)

097.52

2-way jumper link (4.6 mm pitch)

097.42

Marker tag holder (for tags 060.48 type)

097.00

Identification tag

095.00.4

Modules (see table below)

99.02

Timer modules (see table below)

86.30

Sheet of marker tags for plastic retaining and release clip  
095.91.3 and for marker tag holder 097.00, 48 tags,  
6 x 12 mm, for CEMBRE thermal transfer printer

060.48

**Technical data**

Rated values

10 A - 250 V\*

Dielectric strength between coil and contacts (1.2/50 µs)

6 kV

Protection category

IP 20

Ambient temperature

°C -40...+70 (see diagram L95)

Wire strip length

mm 10

Min. wire size for 95.P3 and 95.P5 sockets

solid wire

stranded wire

mm<sup>2</sup> 0.5

0.5

AWG 21

21

Max. wire size for 95.P3 and 95.P5 sockets

solid wire

stranded wire

mm<sup>2</sup> 2 x 1.5 / 1 x 2.5

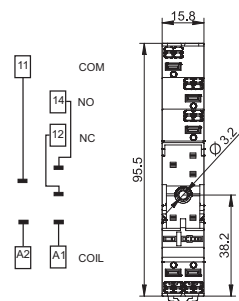
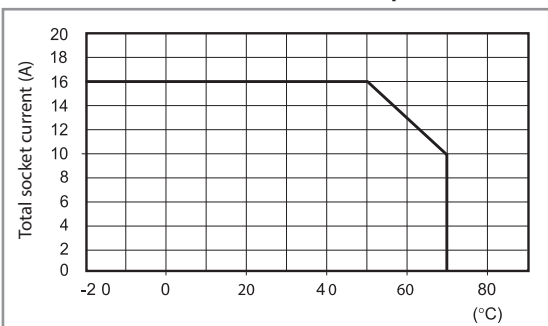
2 x 1.5 / 1 x 2.5

AWG 2 x 16 / 1 x 14

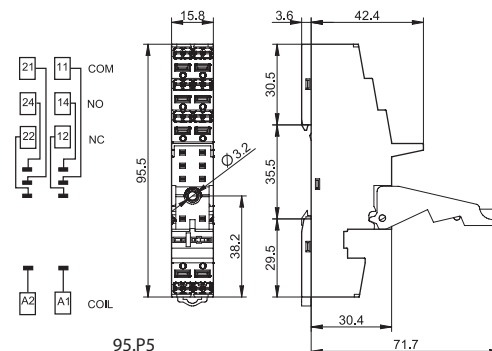
2 x 16 / 1 x 14

\* For currents &gt; 10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).

With the relay 40.51 the change-over contact will be 21-12-14.

**L 95 - Total socket current v ambient temperature**

95.P3



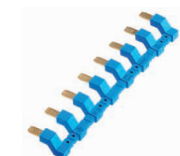
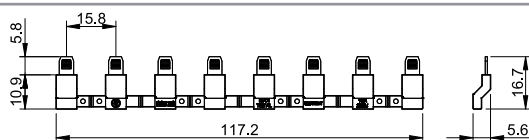
95.P5

**8-way jumper link** for 95.P3 and 95.P5 sockets

097.58

Rated values

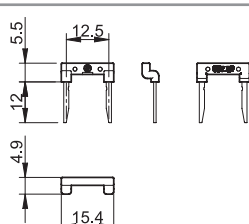
10 A - 250 V

**097.58****2-way jumper link** for 95.P3 and 95.P5 sockets

097.52

Rated values

10 A - 250 V

**097.52**



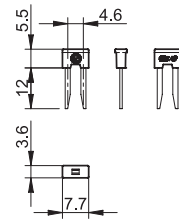
097.42

**2-way jumper link for 95.P3 and 95.P5 sockets**

Rated values

097.42

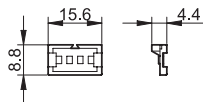
10 A - 250 V



097.00

**Marker tag holder for 95.P3 and 95.P5 sockets**

097.00



86.30

**86 series timer modules**

(12...24)V AC/DC; Bi-function: AI, DI; (0.05 s...100 h)

86.30.0.024.0000

(110...125)V AC; Bi-function: AI, DI; (0.05 s...100 h)

86.30.8.120.0000

(230...240)V AC; Bi-function: AI, DI; (0.05 s...100 h)

86.30.8.240.0000

Approvals (according to type):    



99.02

Approvals  
(according to type):

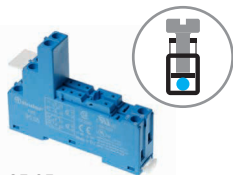
DC Modules with  
non-standard polarity  
(+A2) on request.

**99.02 coil indication and EMC suppression modules for 95.P3 and 95.P5 sockets**

|                                      |                    |                |
|--------------------------------------|--------------------|----------------|
| 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*            | (110...240)V AC    | 99.02.8.230.07 |

\* Additional 0.9 W power dissipation

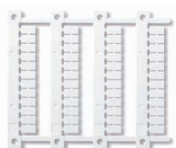
A



95.05

Approvals  
(according to type):UL US Certain relay/socket  
combinations

095.01

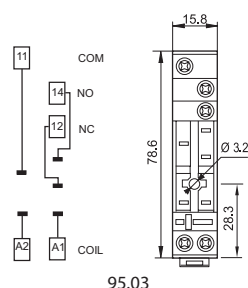
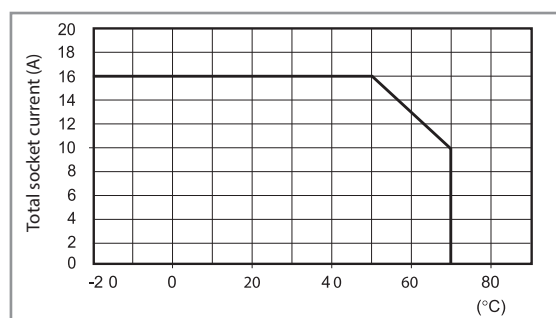


060.48

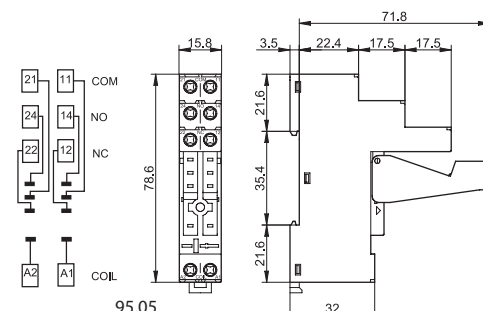
| Screw terminal (Box clamp) socket panel or 35 mm rail mount                                                                                                         |  | 95.03 (blue)                    | 95.03.0 (black) | 95.05 (blue)               | 95.05.0 (black) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------|-----------------|----------------------------|-----------------|
| For relay type                                                                                                                                                      |  | 40.31                           |                 | 40.51, 40.52, 40.61, 40.62 |                 |
| Accessories                                                                                                                                                         |  |                                 |                 |                            |                 |
| Metal retaining clip                                                                                                                                                |  |                                 |                 | 095.71                     |                 |
| Plastic retaining and release clip<br>(supplied with socket - packaging code SPA)                                                                                   |  | 095.01                          | 095.01.0        | 095.01                     | 095.01.0        |
| 8-way jumper link                                                                                                                                                   |  | 095.18                          | 095.18.0        | 095.18                     | 095.18.0        |
| Marker tag holder (for tags 060.48 type)                                                                                                                            |  |                                 |                 | 097.00                     |                 |
| Identification tag                                                                                                                                                  |  |                                 |                 | 095.00.4                   |                 |
| Modules (see table below)                                                                                                                                           |  |                                 |                 | 99.02                      |                 |
| Timer modules (see table below)                                                                                                                                     |  |                                 |                 | 86.30                      |                 |
| Sheet of marker tags for plastic retaining and release clip<br>095.01 and for marker tag holder 097.00, 48 tags, 6 x 12 mm,<br>for CEMBRE thermal transfer printers |  |                                 |                 | 060.48                     |                 |
| Technical data                                                                                                                                                      |  |                                 |                 |                            |                 |
| Rated values                                                                                                                                                        |  | 10 A - 250 V*                   |                 |                            |                 |
| Dielectric strength between coil and contacts (1.2/50 µs)                                                                                                           |  | 6 kV                            |                 |                            |                 |
| Protection category                                                                                                                                                 |  | IP 20                           |                 |                            |                 |
| Ambient temperature                                                                                                                                                 |  | °C -40...+70 (see diagram L95)  |                 |                            |                 |
| Screw torque                                                                                                                                                        |  | Nm 0.5                          |                 |                            |                 |
| Wire strip length                                                                                                                                                   |  | mm 8                            |                 |                            |                 |
| Max. wire size for 95.03 and 95.05 sockets                                                                                                                          |  | solid wire                      |                 | stranded wire              |                 |
|                                                                                                                                                                     |  | mm <sup>2</sup> 1 x 6 / 2 x 2.5 |                 | 1 x 4 / 2 x 2.5            |                 |
|                                                                                                                                                                     |  | AWG 1 x 10 / 2 x 14             |                 | 1 x 12 / 2 x 14            |                 |

\* For currents > 10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).  
With the relay 40.51 the change-over contact will be 21-12-14.

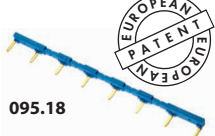
## L 95 - Total socket current v ambient temperature



95.03



95.05



095.18

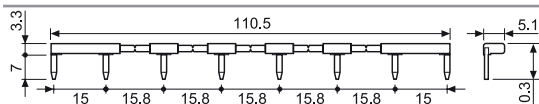
## 8-way jumper link for 95.03 and 95.05 sockets

Rated values

095.18 (blue)

095.18.0 (black)

10 A - 250 V



## 86 series timer modules

|                                                         |                  |
|---------------------------------------------------------|------------------|
| (12...24)V AC/DC; Bi-function: AI, DI; (0.05 s...100 h) | 86.30.0.024.0000 |
| (110...125)V AC; Bi-function: AI, DI; (0.05 s...100 h)  | 86.30.8.120.0000 |
| (230...240)V AC; Bi-function: AI, DI; (0.05 s...100 h)  | 86.30.8.240.0000 |

Approvals (according to type): CE UKCA ENEC UL US

## 99.02 coil indication and EMC suppression modules for 95.03 and 95.05 sockets

|                                      |                    |                |
|--------------------------------------|--------------------|----------------|
| 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*            | (110...240)V AC    | 99.02.8.230.07 |

\* Additional 0.9 W power dissipation



86.30



99.02

Approvals  
(according to type):DC Modules with  
non-standard polarity  
(+A2) on request.



CE UK EAC CUL<sup>®</sup> US



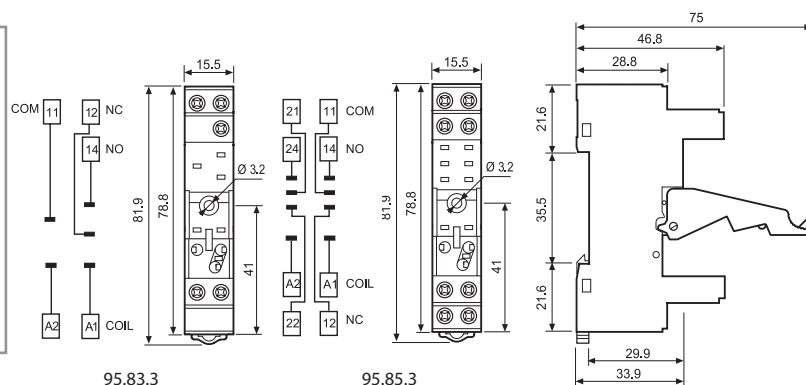
060.48

A

With the relay 40.51 the change-over contact will be 21-12-14.

The graph shows the total socket current as a function of temperature. The y-axis represents 'Total socket current (A)' from 0 to 20 in increments of 2. The x-axis represents 'Temperature (°C)' from -20 to 80 in increments of 20. The current is constant at 16 A from -20°C to 50°C. Between 50°C and 70°C, the current decreases linearly from 16 A to 10 A. From 70°C to 80°C, the current remains constant at 10 A.

| Temperature (°C) | Total socket current (A) |
|------------------|--------------------------|
| -20              | 16                       |
| 0                | 16                       |
| 20               | 16                       |
| 40               | 16                       |
| 50               | 16                       |
| 60               | 13.33                    |
| 70               | 10                       |
| 80               | 10                       |



Technical drawing of a 10-hole punch card. The main view shows a horizontal strip with 10 holes. Dimensions include a total length of 113.1, a hole diameter of 6, a hole spacing of 15.8, and a hole offset of 0.75. A side view shows a thickness of 10 and a hole depth of 13.9.

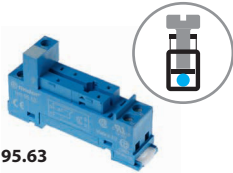


EAC

-2024, [www.findernet.com](http://www.findernet.com)

\* Additional 0.9 W power dissipation





95.63

Approvals  
(according to type):



95.65

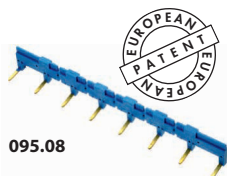
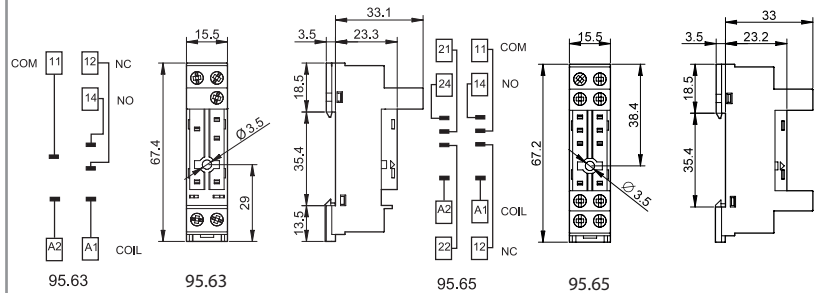
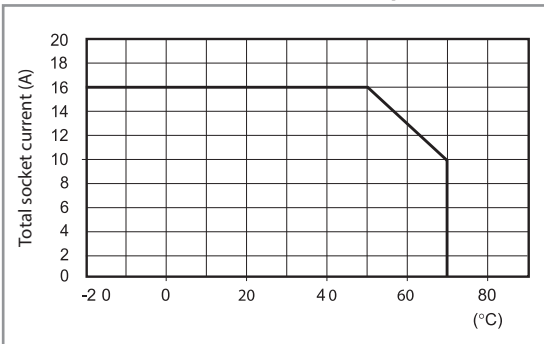
Approvals  
(according to type):



| Screw terminal (Box clamp) socket panel or 35 mm rail mount |                 | 95.63                       | 95.65                      |
|-------------------------------------------------------------|-----------------|-----------------------------|----------------------------|
| For relay type                                              |                 | 40.31                       | 40.51, 40.52, 40.61, 40.62 |
| <b>Accessories</b>                                          |                 |                             |                            |
| Metal retaining clip                                        |                 |                             | 095.71                     |
| 8-way jumper link                                           |                 | 095.08                      | 095.08                     |
| Modules (see table below)                                   |                 | 99.01                       | —                          |
| <b>Technical data</b>                                       |                 |                             |                            |
| Rated values                                                |                 | 10 A - 250 V*               |                            |
| Dielectric strength between coil and contacts (1.2/50 µs)   |                 | 6 kV                        | 2 kV                       |
| Protection category                                         |                 | IP 20                       |                            |
| Ambient temperature                                         | °C              | -40...+70 (see diagram L95) |                            |
| Screw torque                                                | Nm              | 0.5                         |                            |
| Wire strip length                                           | mm              | 7                           |                            |
| Max. wire size for 95.63 and 95.65 sockets                  | solid wire      |                             |                            |
|                                                             | mm <sup>2</sup> | 1 x 6 / 2 x 2.5             | 1 x 4 / 2 x 2.5            |
|                                                             | AWG             | 1 x 10 / 2 x 14             | 1 x 12 / 2 x 14            |

\* For currents > 10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).  
With the relay 40.51 the change-over contact will be 21-12-14.

#### L 95 - Total socket current v ambient temperature



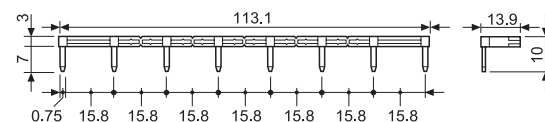
095.08

#### 8-way jumper link for 95.63 and 95.65 sockets

Rated values

095.08 (blue)

10 A - 250 V



99.01

Approvals  
(according to type):



\* Modules in Black housing are available on request.

Green LED is standard.  
Red LED available on request.

#### 99.01 coil indication and EMC suppression modules for type 95.63 socket

|                                          |                    | Blue*          |
|------------------------------------------|--------------------|----------------|
| Diode (+A1, standard polarity)           | (6...220)V DC      | 99.01.3.000.00 |
| Diode (+A2, non-standard polarity)       | (6...220)V DC      | 99.01.2.000.00 |
| LED                                      | (6...24)V DC/AC    | 99.01.0.024.59 |
| LED                                      | (28...60)V DC/AC   | 99.01.0.060.59 |
| LED                                      | (110...240)V DC/AC | 99.01.0.230.59 |
| LED + Diode (+A1, standard polarity)     | (6...24)V DC       | 99.01.9.024.99 |
| LED + Diode (+A1, standard polarity)     | (28...60)V DC      | 99.01.9.060.99 |
| LED + Diode (+A1, standard polarity)     | (110...220)V DC    | 99.01.9.220.99 |
| LED + Diode (+A2, non-standard polarity) | (6...24)V DC       | 99.01.9.024.79 |
| LED + Diode (+A2, non-standard polarity) | (28...60)V DC      | 99.01.9.060.79 |
| LED + Diode (+A2, non-standard polarity) | (110...220)V DC    | 99.01.9.220.79 |
| LED + Varistor                           | (6...24)V DC/AC    | 99.01.0.024.98 |
| LED + Varistor                           | (28...60)V DC/AC   | 99.01.0.060.98 |
| LED + Varistor                           | (110...240)V DC/AC | 99.01.0.230.98 |
| RC circuit                               | (6...24)V DC/AC    | 99.01.0.024.09 |
| RC circuit                               | (28...60)V DC/AC   | 99.01.0.060.09 |
| RC circuit                               | (110...240)V DC/AC | 99.01.0.230.09 |
| Residual current by-pass*                | (110...240)V AC    | 99.01.8.230.07 |

\* Additional 0.9 W power dissipation

A



95.13.2



95.15.2

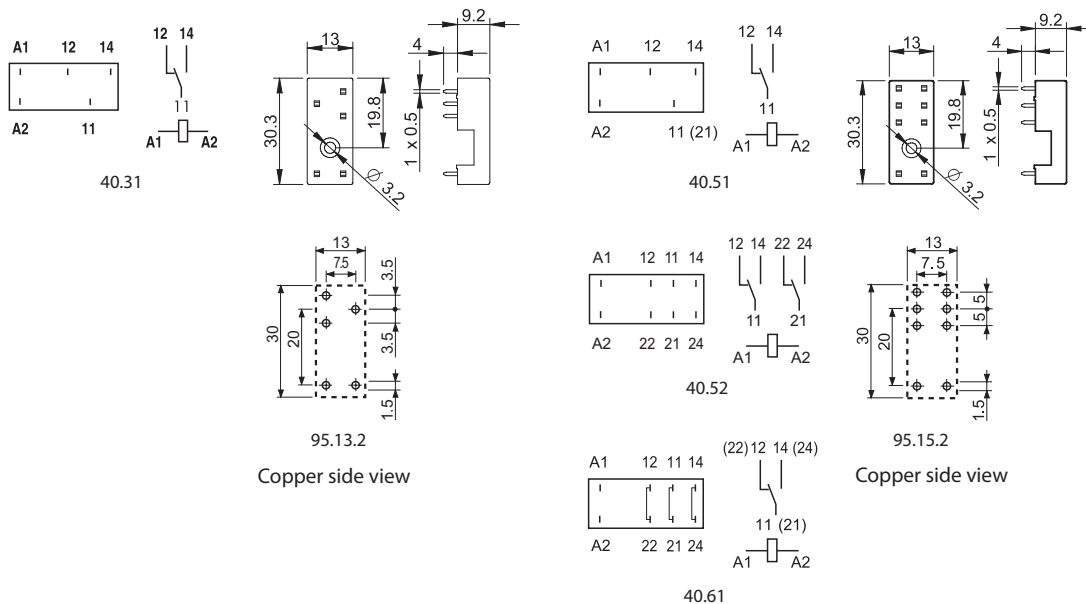
Approvals  
(according to type):



| PCB socket                                                       | 95.13.2 (blue) | 95.13.20 (black) | 95.15.2 (blue)             | 95.15.20 (black) |
|------------------------------------------------------------------|----------------|------------------|----------------------------|------------------|
| For relay type                                                   | 40.31          |                  | 40.51, 40.52, 40.61, 40.62 |                  |
| Accessories                                                      |                |                  |                            |                  |
| Metal retaining clip (supplied with socket - packaging code SMA) |                |                  | 095.51                     |                  |
| Plastic retaining clip                                           |                |                  | 095.52                     |                  |
| Technical data                                                   |                |                  |                            |                  |
| Rated values                                                     | 12 A - 250 V   |                  | 10 A - 250 V*              |                  |
| Dielectric strength between coil and contacts (1.2/50 μs)        | 6 kV           |                  |                            |                  |
| Protection category                                              | IP 20          |                  |                            |                  |
| Ambient temperature                                              | °C             | −40...+70        |                            |                  |

\* For currents > 10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).

With the relay 40.51 the change-over contact will be 21-12-14.



## Packaging codes

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

Example:



**A** Standard packaging

**SM** Metal retaining clip

**SP** Plastic retaining clip