

## Features

### 1 & 2 Pole relay range

40.31 - 1 Pole 10 A (3.5 mm pin pitch)

40.51 - 1 Pole 10 A (5 mm pin pitch)

40.52 - 2 Pole 8 A (5 mm pin pitch)

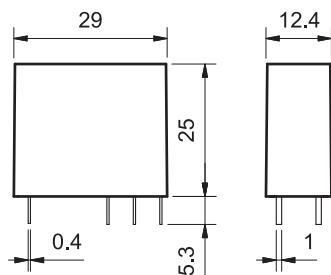
### PCB mount

- direct or via PCB socket

### 35 mm rail mount

- via screw and screwless sockets

- DC coils (standard or sensitive) & AC coils
- Cadmium Free contact material
- 8 mm, 6 kV (1.2/50  $\mu$ s) isolation, coil-contacts
- UL Listing (certain relay/socket combinations)
- Flux proof: RT II standard, (RT III option)
- 95 series sockets
- Coil EMC suppression
- Timer accessories 86 series

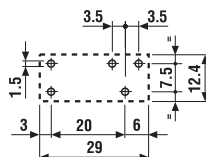
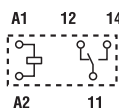


FOR UL HORSEPOWER AND PILOT DUTY RATINGS  
SEE "General technical information" page V

### 40.31



- 3.5 mm contact pin pitch
- 1 Pole 10 A
- PCB or 95 series sockets

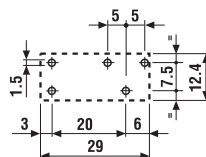
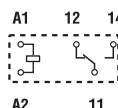


Copper side view

### 40.51



- 5 mm contact pin pitch
- 1 Pole 10 A
- PCB or 95 series sockets

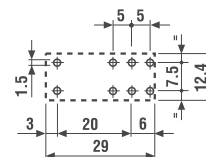
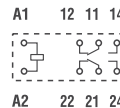


Copper side view

### 40.52



- 5 mm contact pin pitch
- 2 Pole 8 A
- PCB or 95 series sockets



Copper side view

### Contact specification

|                                              |             |             |             |
|----------------------------------------------|-------------|-------------|-------------|
| 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     | 250/400     |
| Rated load AC1 VA                            | 2,500       | 2,500       | 2,000       |
| Rated load AC15 (230 V AC) VA                | 500         | 500         | 400         |
| Single phase motor rating (230 V AC) kW      | 0.37        | 0.37        | 0.3         |
| Breaking capacity 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 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/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 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 general technical information "Guidelines for automatic flow solder processes" page II .

## Features

**40.61** - 1 Pole 16 A (5 mm pin pitch)  
**40.xx.6** - Bistable versions of the 40.31, 40.51, 40.52 & 40.61 relays

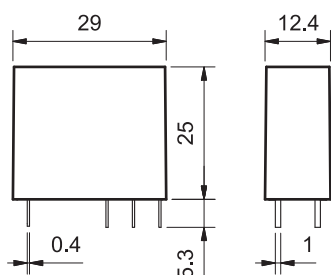
### PCB mount

- direct or via PCB socket

### 35 mm rail mount

- via screw and screwless sockets

- DC coils & AC coils
- Cadmium Free option available
- 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts
- UL Listing (certain 40.61 relay/socket combinations)
- Flux proof: RT II standard, (RT III option)
- 95 series sockets
- Coil EMC suppression
- Timer accessories 86 series



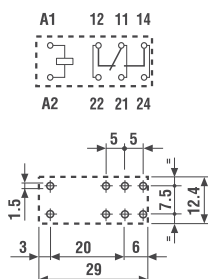
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 SEE "General technical information" page V



- 5 mm contact pin pitch
- 1 Pole 16 A
- PCB or 95 series sockets



- Bistable (single coil) versions of 40.31/51/52/61
- PCB or 95 series sockets



Copper side view

Bistable version (1 coil) types:

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

For wiring diagrams see  
 page 8

### Contact specification

|                                              |           |             |
|----------------------------------------------|-----------|-------------|
| Contact configuration                        |           | 1 CO (SPDT) |
| Rated current/Maximum peak current           | A         | 16/30*      |
| Rated voltage/Maximum switching voltage V AC |           | 250/400     |
| Rated load AC1                               | VA        | 4,000       |
| Rated load AC15 (230 V AC)                   | VA        | 750         |
| Single phase motor rating (230 V AC)         | kW        | 0.55        |
| Breaking capacity DC1: 30/110/220 V          | A         | 16/0.3/0.12 |
| Minimum switching load                       | mW (V/mA) | 500 (10/5)  |
| Standard contact material                    |           | AgCdO       |

### Coil specification

|                                   |                 |                                                       |
|-----------------------------------|-----------------|-------------------------------------------------------|
| Nominal voltage (U <sub>N</sub> ) | V AC (50/60 Hz) | 6-12-24-48-60-110-120-230-240                         |
|                                   | V DC            | ***See table                                          |
| 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> /(0.8...1.5)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> |
| 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   |        | 1,000                                       |
| Ambient temperature range                        | °C     | -40...+85                                   |
| Environmental protection                         |        | RT II**                                     |

See relays  
 40.31  
 40.51  
 40.52  
 40.61

\* With the AgSnO<sub>2</sub> material  
 the maximum peak current is  
 120 A - 5 ms on normally  
 open contact.

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

Min. impulse duration  
 ≥ 20 ms

### Approvals (according to type)



## Features

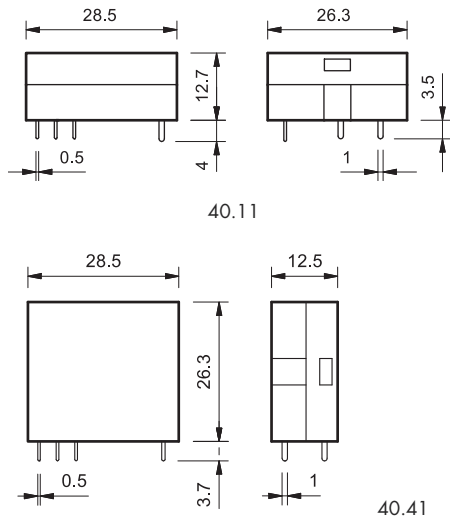
### 1 Pole relay range

- 40.11 - 1 Pole 10 A (Flat pack)
- 40.11-2016 - 1 Pole 16 A (Flat pack)
- 40.41 - 1 Pole 10 A (Vertical)

### PCB mount

- direct or via PCB socket (40.41 version)

- DC coils
- Cadmium Free option available
- 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts
- 40.41 - NO version available

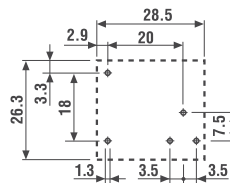
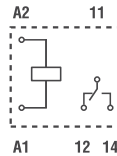


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SEE "General technical information" page V

40.11



- 1 Pole 10 A
- Flat pack
- PCB mount

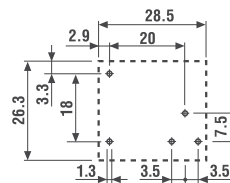
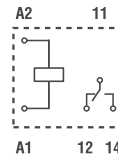


Copper side view

40.11-2016



- 1 Pole 16 A
- Flat pack
- PCB mount

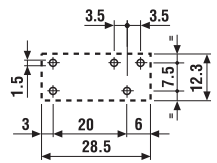
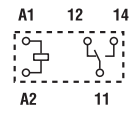


Copper side view

40.41



- 1 Pole 10 A
- Vertical
- PCB or 95 series socket



Copper side view

### Contact specification

|                                              |             |             |             |
|----------------------------------------------|-------------|-------------|-------------|
| Contact configuration                        | 1 CO (SPDT) | 1 CO (SPDT) | 1 CO (SPDT) |
| Rated current/Maximum peak current           | A           | 10/20       | 16/30       |
| Rated voltage/Maximum switching voltage V AC | 250/400     | 250/400     | 250/400     |
| Rated load AC1                               | VA          | 2,500       | 4,000       |
| Rated load AC15 (230 V AC)                   | VA          | 500         | 750         |
| Single phase motor rating (230 V AC)         | kW          | 0.37        | 0.55        |
| Breaking capacity DC1: 30/110/220 V          | A           | 10/0.3/0.12 | 16/0.3/0.12 |
| Minimum switching load                       | mW (V/mA)   | 300 (5/5)   | 500 (10/5)  |
| Standard contact material                    | AgCdO       | AgCdO       | AgCdO       |

### Coil specification

|                                   |                 |                               |                              |                               |
|-----------------------------------|-----------------|-------------------------------|------------------------------|-------------------------------|
| Nominal voltage (U <sub>N</sub> ) | 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 <sub>N</sub> | —/(0.73...1.5)U <sub>N</sub> | —/(0.73...1.75)U <sub>N</sub> |
| Holding voltage                   | AC/DC           | —/0.4 U <sub>N</sub>          | —/0.4 U <sub>N</sub>         | —/0.4 U <sub>N</sub>          |
| Must drop-out voltage             | AC/DC           | —/0.1 U <sub>N</sub>          | —/0.1 U <sub>N</sub>         | —/0.1 U <sub>N</sub>          |

### Technical data

|                                                  |        |                        |                        |                        |
|--------------------------------------------------|--------|------------------------|------------------------|------------------------|
| 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 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   | 1,000  | 1,000                  | 1,000                  | 1,000                  |
| Ambient temperature range                        | °C     | —40...+70              | —40...+70              | —40...+70              |
| Environmental protection                         | RT I   | RT I                   | RT I                   | RT I                   |

### Approvals (according to type)



## Ordering information

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

4

0

.

5

.

2

.

8

.

2

3

0

.

0

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0

.

0

.

0

**Series** —

**Type** —

1 = PCB - 3.5 mm pinning, flat  
3 = PCB - 3.5 mm pinning  
4 = PCB - 3.5 mm pinning  
5 = PCB - 5 mm pinning  
6 = PCB - 5 mm pinning

**No. of poles** —

1 = 1 pole  
for: 40.11, 10 A/16 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)

**Selecting features and options: only combinations in the same row are possible.**  
Preferred selections for best availability are shown in **bold**.

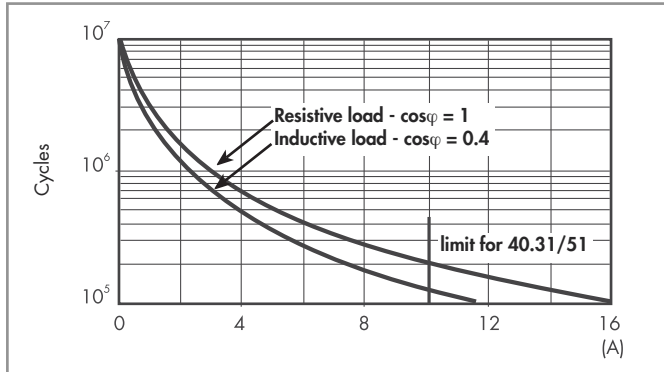
| Type               | Coil version | A                | B            | C        | D                |
|--------------------|--------------|------------------|--------------|----------|------------------|
| 40.11              | sensitive DC | <b>2 - 4</b>     | <b>0</b>     | <b>0</b> | <b>0</b>         |
| 40.11              | sensitive DC | <b>2 - 4</b>     | 0            | 16       | /                |
| 40.41              | sensitive DC | 0 - <b>2</b>     | <b>0 - 3</b> | <b>0</b> | <b>0</b>         |
| 40.31/51           | AC-sens. DC  | <b>0 - 2 - 5</b> | <b>0 - 3</b> | <b>0</b> | <b>0 - 1</b>     |
| 40.31/51           | DC           | <b>0 - 2 - 5</b> | <b>0 - 3</b> | <b>0</b> | <b>0 - 1 - 3</b> |
| 40.52              | AC-sens. DC  | <b>0 - 2 - 5</b> | <b>0 - 3</b> | <b>0</b> | <b>0 - 1</b>     |
| 40.52              | DC           | <b>0 - 2 - 5</b> | <b>0 - 3</b> | <b>0</b> | <b>0 - 1 - 3</b> |
| 40.61              | AC-sens. DC  | <b>0 - 4</b>     | <b>0 - 3</b> | <b>0</b> | <b>0 - 1</b>     |
| 40.61              | DC           | <b>0 - 4</b>     | <b>0 - 3</b> | <b>0</b> | <b>0 - 1 - 3</b> |
| 40.31/51/<br>52/61 | bistable     | <b>0</b>         | <b>0</b>     | <b>0</b> | <b>0</b>         |

## Technical data

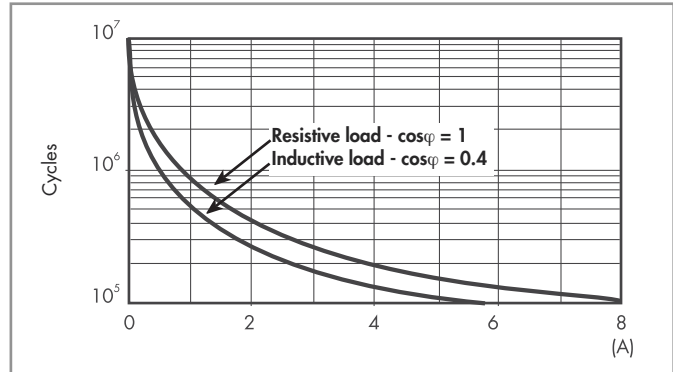
| Insulation according to EN 61810-1                 |  |                         |                     |                      |                         |     |
|----------------------------------------------------|--|-------------------------|---------------------|----------------------|-------------------------|-----|
|                                                    |  |                         | 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   |
| Insulation between coil and contact set            |  |                         |                     |                      |                         |     |
| 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                    | 4,000               |                      | 4,000                   |     |
| Insulation between adjacent contacts               |  |                         |                     |                      |                         |     |
| Type of insulation                                 |  |                         | —                   |                      | Basic                   |     |
| Overvoltage category                               |  |                         | —                   |                      | II                      |     |
| Rated impulse voltage                              |  | kV (1.2/50 µs)          | —                   |                      | 2.5                     |     |
| Dielectric strength                                |  | V AC                    | —                   |                      | 2,000                   |     |
| Insulation between open contacts                   |  |                         |                     |                      |                         |     |
| Type of disconnection                              |  |                         | Micro-disconnection |                      | Micro-disconnection     |     |
| Dielectric strength                                |  | V AC/kV (1.2/50 µs)     | 1,000/1.5           |                      | 1,000/1.5               |     |
| 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 (5...55)Hz: NO/NC             |  | g                       | 10/4 (1 changeover) |                      | 15/3 (2 changeover)     |     |
| Shock resistance                                   |  | g                       | 13                  |                      |                         |     |
| 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 PCB |  | mm                      | ≥ 5                 |                      |                         |     |

## Contact specification

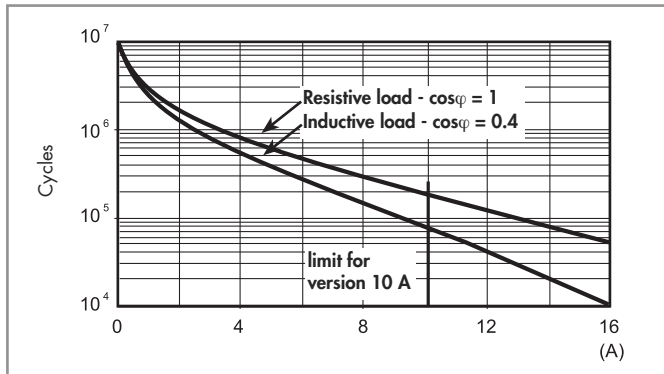
**F 40 - Electrical life (AC) v contact current**  
Types 40.31/51/61



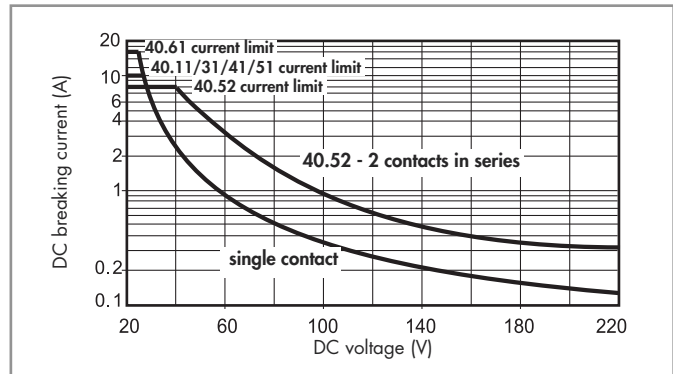
**F 40 - Electrical life (AC) v contact current**  
Type 40.52



**F 40 - Electrical life (AC) v contact current**  
Types 40.11/41



**H 40 - Maximum DC1 breaking capacity**



- 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)

| 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            | 188       | 23,500            | 5.3                                    |

**DC coil 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            | 219            | 32,000            | 3.9                                    |

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

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

**DC coil 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 coil 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                                           |

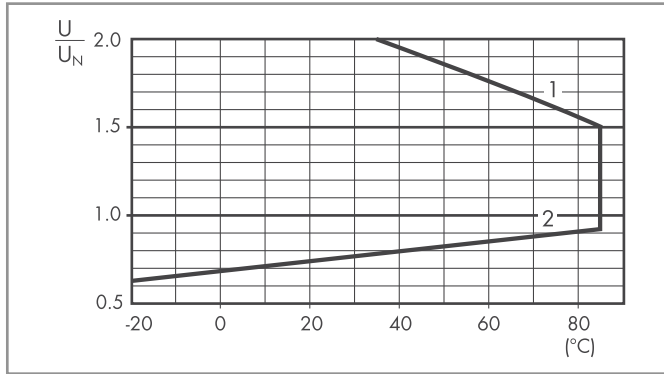
**AC/DC coil data - bistable** (types 40.31/51/52/61)

| 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                               |

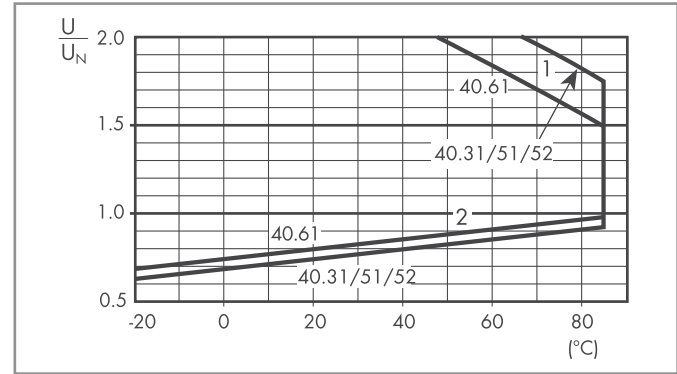
\*\*  $R_{DC}$  = Resistance in DC,  $R_{AC} = 1.3 \times R_{DC}$  1W

## Coil specifications

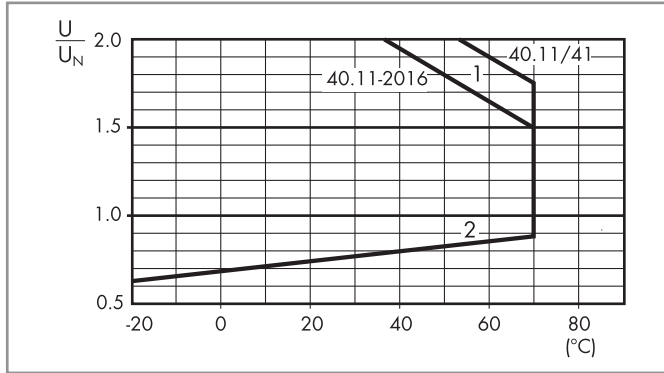
**R 40 - DC coil operating range v ambient temperature**  
Standard coil



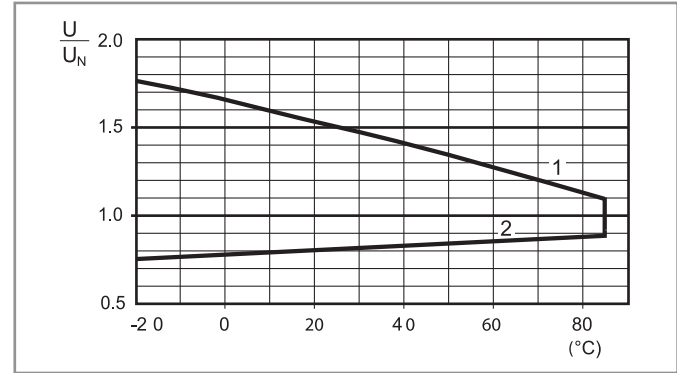
**R 40 - DC coil operating range v ambient temperature**  
Sensitive coil, types 40.31/51/52/61



**R 40 - DC coil operating range v ambient temperature**  
Sensitive coil, types 40.11/41



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

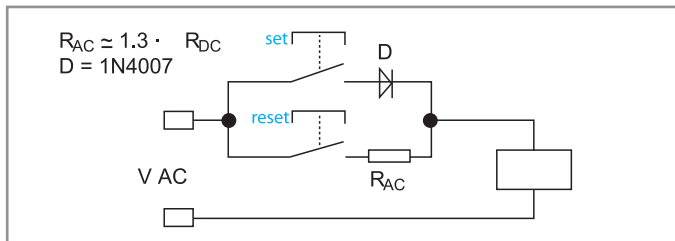


1 - Max. permitted coil voltage.  
2 - Min. pick-up voltage with coil at ambient temperature.

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

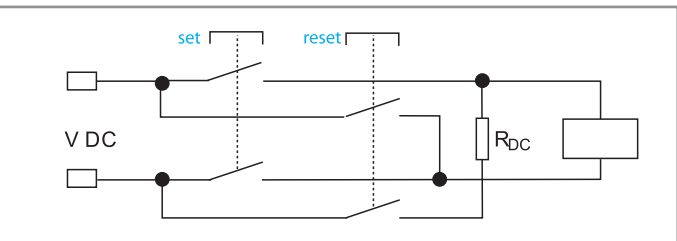


On momentary closure of the SET switch the relay is magnetised through the diode and the relay contacts transfer to the set position and remain in this position.

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.