

B

**1 CO relay interface modules,
15.8 mm wide**
Ideal interface for PLC and electronic systems

Type 48.P3
- 1 CO 10 A
- Push-in terminals

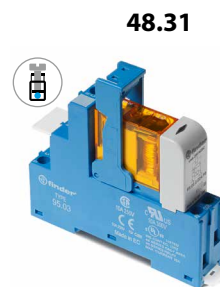
Type 48.31
- 1 CO 10 A
- Screw terminals

- AC coils or DC sensitive coils
- Supply status indication and EMC coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting
- Cadmium-free contact material

48.P3
Push-in terminal

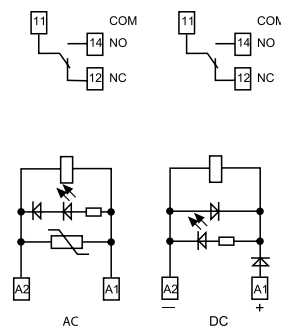
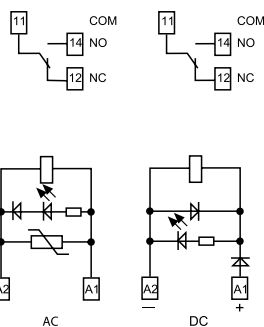


48.31
Screw terminal



- 1 CO 10 A
- Push-in terminals

- 1 CO 10 A
- Screw terminals



For outline drawing see page 9

Contact specification

| | | | |
|---|-----------|-------------|-------------|
| Contact configuration | | 1 CO (SPDT) | 1 CO (SPDT) |
| Rated current/Maximum peak current | A | 10/20 | 10/20 |
| Rated voltage/ Maximum switching voltage | V AC | 250/400 | 250/400 |
| Rated load AC1 | VA | 2500 | 2500 |
| Rated load AC15 (230 V AC) | VA | 500 | 500 |
| Single phase motor rating (230 V AC) | kW | 0.37 | 0.37 |
| Breaking capacity DC1: 30/110/220 V | A | 10/0.3/0.12 | 10/0.3/0.12 |
| Minimum switching load | mW (V/mA) | 300 (5/5) | 300 (5/5) |
| Standard contact material | | AgNi | AgNi |

Coil specification

| | | | |
|-----------------------------------|-----------------|---|---|
| Nominal voltage (U _N) | V AC (50/60 Hz) | 12 - 24 - 110 - 120 - 230 | 12 - 24 - 110 - 120 - 230 |
| | V DC | 12 - 24 - 125 | 12 - 24 - 125 |
| Rated power AC/sens. DC | VA (50 Hz)/W | 1.2/0.5 | 1.2/0.5 |
| Operating range | AC | (0.8...1.1)U _N | (0.8...1.1)U _N |
| | sens. DC | (0.73...1.5)U _N | (0.73...1.5)U _N |
| Holding voltage | AC/DC | 0.8 U _N / 0.4 U _N | 0.8 U _N / 0.4 U _N |
| Must drop-out voltage | AC/DC | 0.2 U _N / 0.1 U _N | 0.2 U _N / 0.1 U _N |

Technical data

| | | | |
|--|--------|-----------------------|-----------------------|
| Mechanical life | cycles | 10 · 10 ⁶ | 10 · 10 ⁶ |
| Electrical life at rated load AC1 | cycles | 200 · 10 ³ | 200 · 10 ³ |
| Operate/release time | ms | 7/4 (AC) - 12/12 (DC) | 7/4 (AC) - 12/12 (DC) |
| Insulation between coil and contacts (1.2/50 μs) | kV | 6 (8 mm) | 6 (8 mm) |
| Dielectric strength between open contacts | V AC | 1000 | 1000 |
| Ambient temperature range | °C | -40...+70 | -40...+70 |
| Protection category | | IP 20 | IP 20 |

Approvals relay (according to type)



**2 CO relay interface modules,
15.8 mm wide**
Ideal interface for PLC and electronic systems

Type 48.P5
- 2 CO 8 A
- Push-in terminals

Type 48.52
- 2 CO 8 A
- Screw terminals

- AC coils or DC sensitive coils
- Supply status indication and EMC coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting
- Cadmium-free contact material

48.P5
Push-in terminal



48.52
Screw terminal



For outline drawing see page 9

Contact specification

| | | | |
|---|-----------|-------------|-------------|
| Contact configuration | | 2 CO (DPDT) | 2 CO (DPDT) |
| Rated current/Maximum peak current | A | 8/15 | 8/15 |
| Rated voltage/ Maximum switching voltage | V AC | 250/250 | 250/250 |
| Rated load AC1 | VA | 2000 | 2000 |
| Rated load AC15 (230 V AC) | VA | 400 | 400 |
| Single phase motor rating (230 V AC) | kW | 0.3 | 0.3 |
| Breaking capacity DC1: 30/110/220 V | A | 8/0.3/0.12 | 8/0.3/0.12 |
| Minimum switching load | mW (V/mA) | 300 (5/5) | 300 (5/5) |
| Standard contact material | | AgNi | AgNi |

Coil specification

| | | | |
|---------------------------|-----------------|---------------------------|---------------------------|
| Nominal voltage (U_N) | V AC (50/60 Hz) | 12 - 24 - 110 - 120 - 230 | 12 - 24 - 110 - 120 - 230 |
| | V DC | 12 - 24 - 125 | 12 - 24 - 125 |
| Rated power AC/sens. DC | VA (50 Hz)/W | 1.2/0.5 | 1.2/0.5 |
| Operating range | AC | $(0.8 \dots 1.1) U_N$ | $(0.8 \dots 1.1) U_N$ |
| | sens. DC | $(0.73 \dots 1.5) U_N$ | $(0.73 \dots 1.5) U_N$ |
| Holding voltage | AC/DC | $0.8 U_N / 0.4 U_N$ | $0.8 U_N / 0.4 U_N$ |
| Must drop-out voltage | AC/DC | $0.2 U_N / 0.1 U_N$ | $0.2 U_N / 0.1 U_N$ |

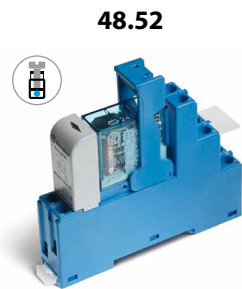
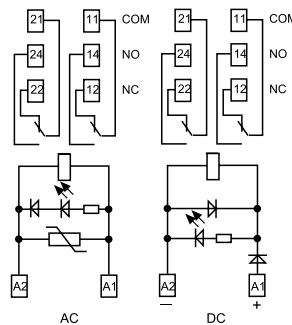
Technical data

| | | | |
|---|--------------|-----------------------|-----------------------|
| Mechanical life | cycles | $10 \cdot 10^6$ | $10 \cdot 10^6$ |
| Electrical life at rated load AC1 | cycles | $100 \cdot 10^3$ | $100 \cdot 10^3$ |
| Operate/release time | ms | 7/4 (AC) - 12/12 (DC) | 7/4 (AC) - 12/12 (DC) |
| Insulation between coil and contacts (1.2/50 μ s) | kV | 6 (8 mm) | 6 (8 mm) |
| Dielectric strength between open contacts | V AC | 1000 | 1000 |
| Ambient temperature range | $^{\circ}$ C | -40...+70 | -40...+70 |
| Protection category | | IP 20 | IP 20 |

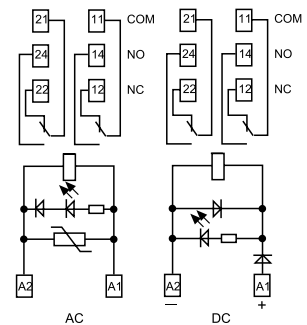
Approvals relay (according to type)



- 2 CO 8 A
- Push-in terminals



- 2 CO 8 A
- Screw terminals



B

1 CO relay interface modules,
15.8 mm wide

Ideal interface for PLC and electronic systems

Type 48.P6

- 1 CO 16 A
- Push-in terminals

Type 48.61

- 1 CO 16 A
- Screw terminals

- AC coils or DC sensitive coils
- Supply status indication and EMC coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting
- Cadmium-free contact material available

48.P6
Push-in terminal



48.61
Screw terminal



For outline drawing see page 9

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 | 4000 |
| 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 _N) | V AC (50/60 Hz) | 12 - 24 - 110 - 120 - 230 |
| | V DC | 12 - 24 - 125 |
| Rated power AC/sens. DC | VA (50 Hz)/W | 1.2/0.5 |
| Operating range | AC | (0.8...1.1)U _N |
| | sens. DC | (0.8...1.5)U _N |
| Holding voltage | AC/DC | 0.8 U _N / 0.4 U _N |
| Must drop-out voltage | AC/DC | 0.2 U _N / 0.1 U _N |

Technical data

| | | |
|--|--------|-----------------------|
| Mechanical life | cycles | 10 · 10 ⁶ |
| Electrical life at rated load AC1 | cycles | 100 · 10 ³ |
| Operate/release time | ms | 7/4 (AC) - 12/12 (DC) |
| 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...+70 |
| Protection category | | IP 20 |

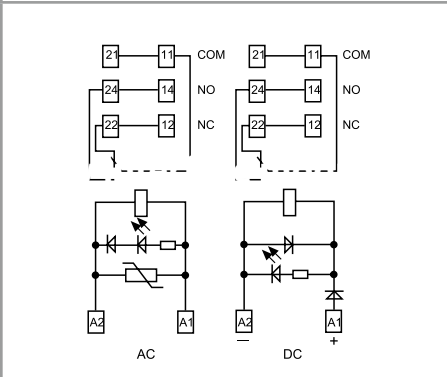
Approvals relay (according to type)

NEW 48.P6

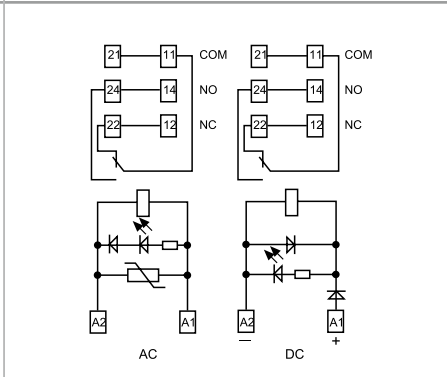
- 1 CO 16 A
- Push-in terminals

48.61

- 1 CO 16 A
- Screw terminals



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



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



**2 CO relay interface modules,
15.8 mm wide**
Ideal interface for PLC and electronic systems

Type 48.P8

- 2 CO 10 A
- Push-in terminals

Type 48.62

- 2 CO 10 A
- Screw terminals

- DC sensitive coils
- Supply status indication and EMC coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting
- Cadmium-free contact material

48.P8
Push-in terminal



48.62
Screw terminal



For outline drawing see page 9

Contact specification

| | | | |
|---|-----------|-------------|-------------|
| Contact configuration | | 2 CO (DPDT) | 2 CO (DPDT) |
| Rated current/Maximum peak current | A | 10/20 | 10/20 |
| Rated voltage/ Maximum switching voltage | V AC | 250/400 | 250/400 |
| Rated load AC1 | VA | 2500 | 2500 |
| Rated load AC15 (230 V AC) | VA | 500 | 500 |
| Single phase motor rating (230 V AC) | kW | 0.37 | 0.37 |
| Breaking capacity DC1: 30/110/220 V | A | 10/0.3/0.12 | 10/0.3/0.12 |
| Minimum switching load | mW (V/mA) | 300 (5/5) | 300 (5/5) |
| Standard contact material | | AgNi | AgNi |

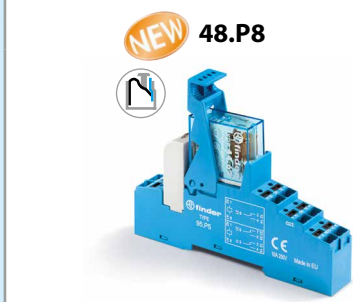
Coil specification

| | | | |
|---------------------------|-----------------|----------------------|----------------------|
| Nominal voltage (U_N) | V AC (50/60 Hz) | — | — |
| | V DC | 12 - 24 - 125 | 12 - 24 - 125 |
| Rated power AC/sens. DC | VA (50 Hz)/W | —/0.5 | —/0.5 |
| Operating range | AC | — | — |
| | sens. DC | $(0.8 \dots 1.5)U_N$ | $(0.8 \dots 1.5)U_N$ |
| Holding voltage | AC/DC | —/0.4 U_N | —/0.4 U_N |
| Must drop-out voltage | AC/DC | —/0.1 U_N | —/0.1 U_N |

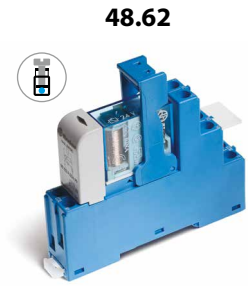
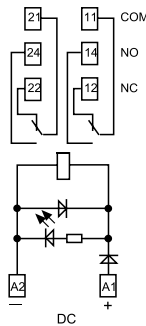
Technical data

| | | | |
|---|--------------|------------------|------------------|
| Mechanical life | cycles | $20 \cdot 10^6$ | $20 \cdot 10^6$ |
| Electrical life at rated load AC1 | cycles | $100 \cdot 10^3$ | $100 \cdot 10^3$ |
| Operate/release time | ms | 12/12 (DC) | 12/12 (DC) |
| Insulation between coil and contacts (1.2/50 μ s) | kV | 6 (8 mm) | 6 (8 mm) |
| Dielectric strength between open contacts | V AC | 1000 | 1000 |
| Ambient temperature range | $^{\circ}$ C | -40...+70 | -40...+70 |
| Protection category | | IP 20 | IP 20 |

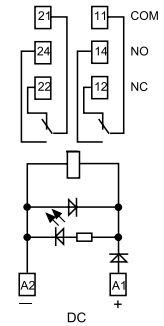
Approvals relay (according to type)



- 2 CO 10 A
- Push-in terminals



- 2 CO 10 A
- Screw terminals



Ordering information

Example: 48 series, 35 mm rail (EN 60715) mount, Push-in terminal relay interface module, 2 CO 8 A contacts, 24 V sensitive DC coil, green LED + diode, 99.02 coil indication.

B

4 8 . P
5 . 7 . 0 2 4 . 0 0
5 0

A **B** **C** **D**

Series ————

Type ————

Screw terminal
 1 = 35 mm rail (EN 60715) mount, forcibly guided contacts relay
 3 = 35 mm rail (EN 60715) mount
 5 = 35 mm rail (EN 60715) mount
 6 = 35 mm rail (EN 60715) mount
 Push-in terminal
 P = 35 mm rail (EN 60715) mount

Type ————

Screw terminal
 1 = for 48.31, 10 A
 48.61, 16 A
 2 = for 48.12 (DC only), 48.52, 8 A
 48.62 (DC only), 10 A
 Push-in terminal
 3 = for 48.P3, 10 A
 5 = for 48.P5, 8 A
 6 = for 48.P6, 16 A
 8 = for 48.P8 (DC only), 10 A

Coil version ————

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

Coil voltage ————

See coil specifications

A: Contact material
 0 = Standard AgNi for 48.P3/P5/P8/31/52/62
 AgCdO, Standard for 48.P6/61
 1 = AgNi, for 48.12
 4 = AgSnO₂, for 48.P6/P8/61/62 only
 5 = AgNi + Au, for 48.P3/P5/31/52 only

B: Contact circuit
 0 = CO (nPDT)


D: Special versions
 0 = Standard
 2 = Standard (for 48.12 only)

C: Options
 0 = Standard (for 48.12 only)
 5 = Standard for DC:
 green LED + diode (polarity +A1)
 6 = Standard for AC:
 green LED + Varistor

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

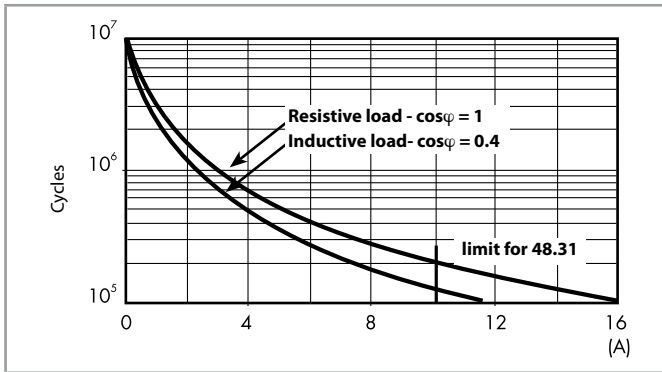
| Type | Coil version | A | B | C | D |
|----------------|--------------|--------------|----------|----------|----------|
| 48.12 | DC | 1 | 0 | 0 | 2 |
| 48.P3/P5/31/52 | AC | 0 - 5 | 0 | 6 | 0 |
| 48.P3/P5/31/52 | Sensitive DC | 0 - 5 | 0 | 5 | 0 |
| 48.P6/61 | AC | 0 - 4 | 0 | 6 | 0 |
| 48.P6/61 | Sensitive DC | 0 - 4 | 0 | 5 | 0 |
| 48.P8/62 | Sensitive DC | 0 - 4 | 0 | 5 | 0 |

Technical data

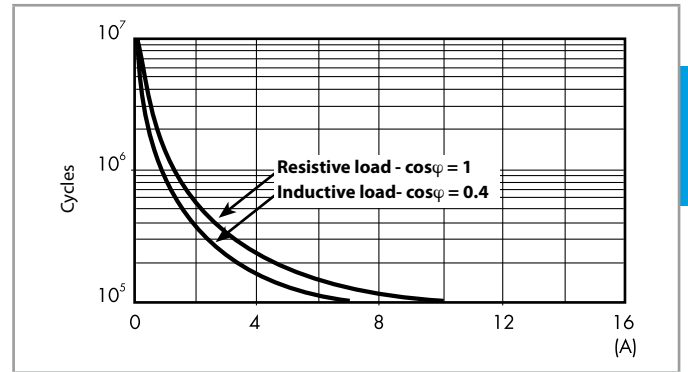
| Insulation | | 48.12/31/61/P3/P6 | 48.52/P5 | 48.12/31/61/81/P3/P6/P8 | |
|--|---------------------------------|---------------------------------------|-----------------|-------------------------------|-----------------|
| Insulation according to EN 61810-1 | insulation rated voltage | V 250 | 250 | 400 | |
| | rated impulse withstand voltage | kV 4 | 4 | 4 | |
| | pollution degree | 3 | 2 | 2 | |
| | overvoltage category | III | III | III | |
| Insulation between coil and contacts (1.2/50 µs) | | kV 6 (8 mm) | | | |
| Dielectric strength between open contacts | | V AC 1000; 1500 (48.12) | | | |
| Dielectric strength between adjacent contacts | | V AC 2000 (48.P5/52); 2500 (48.12/P6) | | | |
| 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; 2/10 (48.12) | | | |
| Vibration resistance (10...200)Hz: NO/NC | | g 20/5 (for 1 pole) | | 15/3; 20/6 (48.12) for 2 pole | |
| Power lost to the environment | without contact current | W 0.7 | | | |
| | with rated current | W 1.2 (48.12/31/P3) | 1.3 (48.52/P5) | 1.2 (48.61/81/P6/P8) | |
| Wire strip length | | mm 8 | | | |
|  Screw torque (only for 48.12/31/52/61/81) | | Nm 0.5 | | | |
| Max. wire size | | Screw terminal | | Push-in terminal | |
| | | solid cable | stranded cable | solid cable | stranded cable |
| | mm ² | 1 x 6 / 2 x 2.5 | 1 x 4 / 2 x 2.5 | 2 x (0.5...1.5) | 2 x (0.5...1.5) |
| | AWG | 1 x 10 / 2 x 14 | 1 x 12 / 2 x 14 | 2 x (21...18) | 2 x (21...18) |

Contact specification

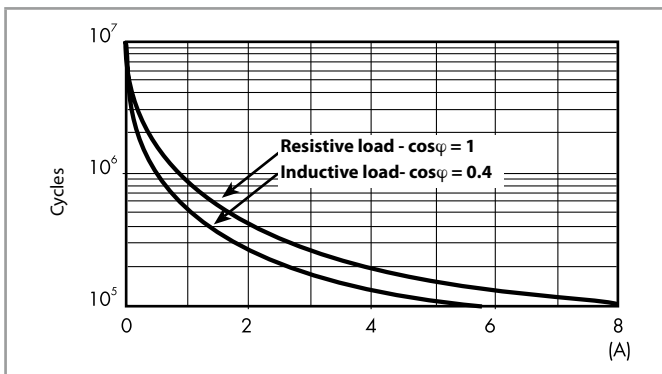
F 48 - Electrical life (AC) v contact current
Types 48.P3/P6/31/61



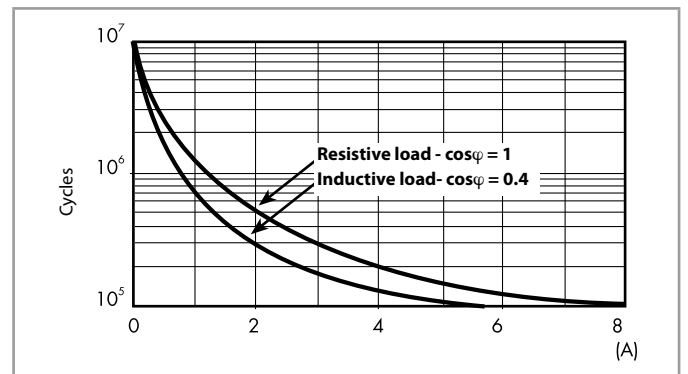
F 48 - Electrical life (AC) v contact current
Types 48.P8/62



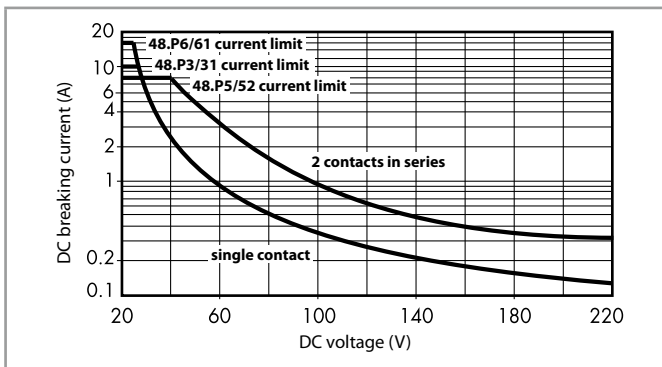
F 48 - Electrical life (AC) v contact current
Types 48.P5/52



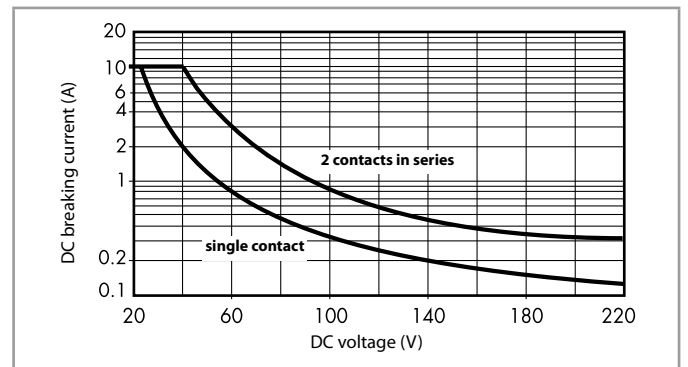
F 48 - Electrical life (AC) v contact current
Type 48.12



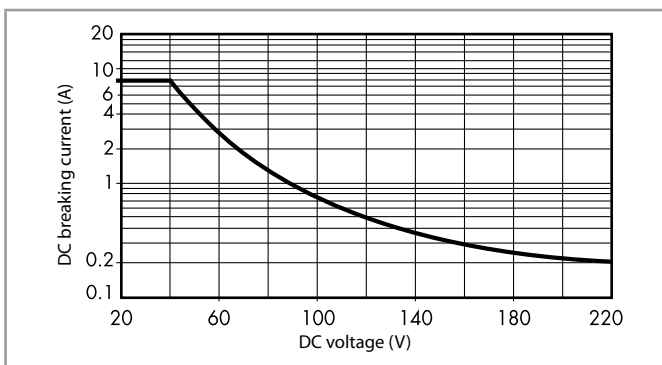
H 48 - Maximum DC1 breaking capacity
Types 48.P3/P5/P6/31/52/61



H 48 - Maximum DC1 breaking capacity
Types 48.P8/62



H 48 - Maximum DC1 breaking capacity
Type 48.12



- 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 (0.5 W sensitive)

| Nominal voltage U_N | Coil code | Operating range | | Rated coil consumption I at U_N |
|--------------------------|-----------|-----------------|-----------|--------------------------------------|
| | | U_{min}^* | U_{max} | |
| V | | V | V | mA |
| 12 | 7.012 | 8.8 | 18 | 41 |
| 24 | 7.024 | 17.5 | 36 | 22.2 |
| 125 | 7.125 | 91 | 188 | 4 |

* $U_{min} = 0.8 U_N$ for 48.61, 48.62, 48.P6, 48.P8

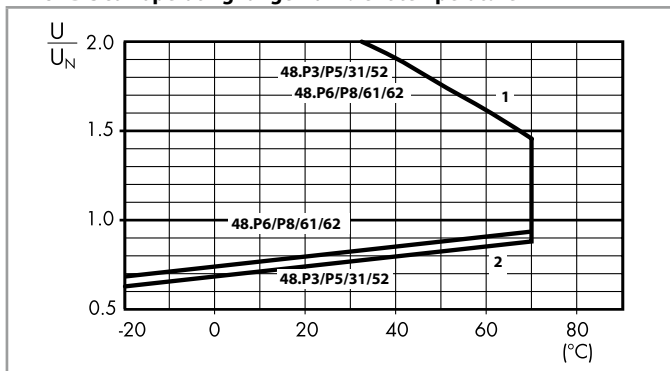
AC coil data

| Nominal voltage U_N | Coil code | Operating range | | Rated coil consumption I at U_N (50 Hz) |
|--------------------------|-----------|-----------------|-----------|--|
| | | U_{min} | U_{max} | |
| V | | V | V | mA |
| 12 | 8.012 | 9.6 | 13.2 | 90.5 |
| 24 | 8.024 | 19.2 | 26.4 | 46 |
| 125 | 8.110 | 88 | 121 | 10.1 |
| 120 | 8.120 | 96 | 132 | 11.8 |
| 230 | 8.230 | 184 | 253 | 7.0 |

DC coil data, 2 pole relay - Type 48.12

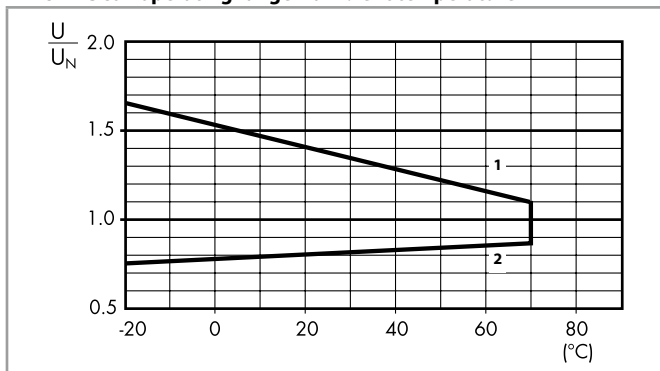
| Nominal voltage U_N | Coil code | Operating range | | Resistance R | Rated coil consumption I at U_N |
|--------------------------|-----------|-----------------|-----------|-----------------|--------------------------------------|
| | | U_{min} | U_{max} | | |
| V | | V | V | Ω | mA |
| 12 | 9.012 | 9 | 14.4 | 205 | 58.5 |
| 24 | 9.024 | 18 | 28.8 | 820 | 29.3 |

R 48 - DC coil operating range v ambient temperature



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

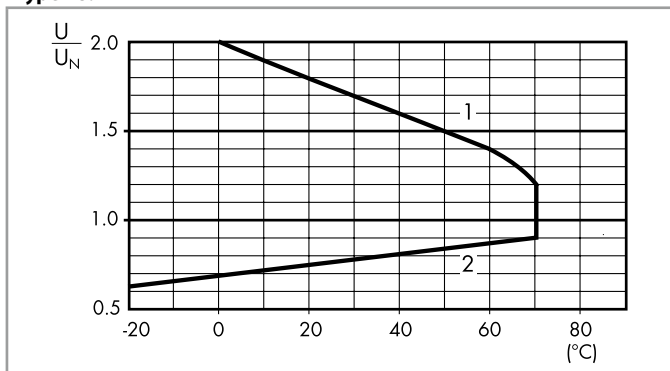
R 48 - AC coil operating range v ambient temperature



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

R 48 - DC coil operating range v ambient temperature

Type 48.12



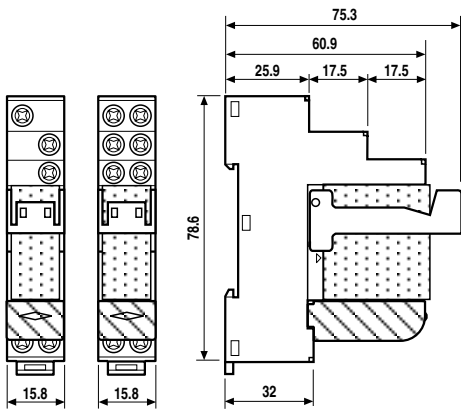
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Combinations

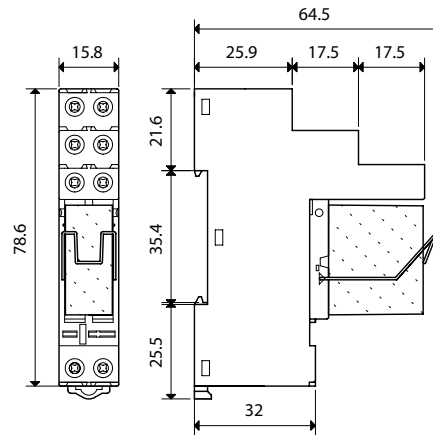
| Code | Type of socket | Type of relay | Module | Retaining clip |
|----------|----------------|---------------|--------|-----------------|
| 48.12 | 95.05.0 | 50.12 | — | 095.71 |
| 48.31/P3 | 95.03/P3 | 40.31 | 99.02 | 095.01/095.91.3 |
| 48.52 | 95.05 | 40.52 | 99.02 | 095.01 |
| 48.61 | 95.05 | 40.61 | 99.02 | 095.01 |
| 48.62 | 95.05 | 44.62 | 99.02 | 095.01 |
| 48.P5 | 95.P5 | 40.52 | 99.02 | 095.91.3 |
| 48.P6 | 95.P5 | 40.61 | 99.02 | 095.91.3 |
| 48.P8 | 95.P5 | 44.62 | 99.02 | 095.91.3 |

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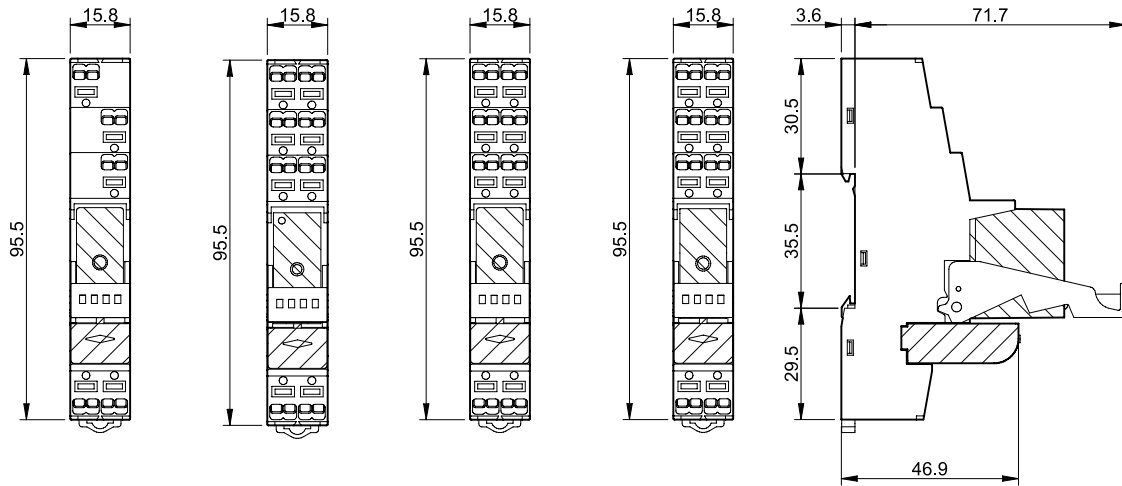
Outline drawing



48.31 48.52 / 48.61 / 48.62
Screw terminal



48.12
Screw terminal



48.P3 48.P5 48.P6 48.P8
Push-in terminal

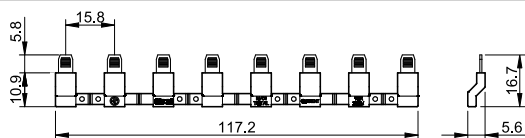


Accessories



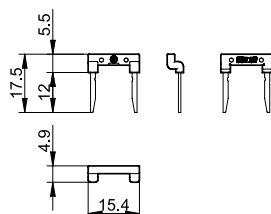
097.58

| | |
|--|--------------|
| 8-way jumper link for type 48.P3/P5/P6/P8 | 097.58 |
| Rated values | 10 A - 250 V |



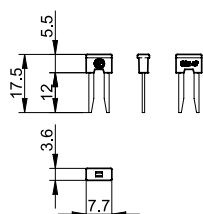
097.52

| | |
|--|--------------|
| 2-way jumper link for type 48.P3/P5/P6/P8 | 097.52 |
| Rated values | 10 A - 250 V |



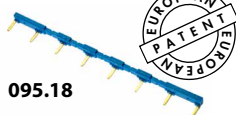
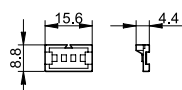
097.42

| | |
|--|--------------|
| 2-way jumper link for type 48.P3/P5/P6/P8 | 097.42 |
| Rated values | 10 A - 250 V |



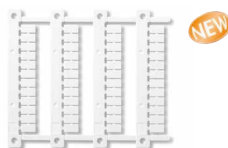
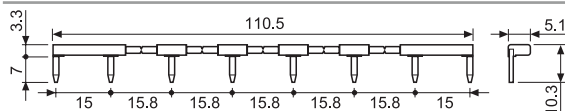
097.00

| | |
|--|--------|
| Marker tag holder for type 48.P3/P5/P6/P8 and 48.12/31/52/61/62 | 097.00 |
|--|--------|



095.18

| | | |
|---|---------------|------------------|
| 8-way jumper link for screw terminal version | 095.18 (blue) | 095.18.0 (black) |
| Rated values | 10 A - 250 V | |



060.48

| | |
|--|--------|
| Sheet of marker tags, plastic, 48 tags, 6 x 12 mm | 060.48 |
|--|--------|



060.72

| | |
|--|--------|
| Sheet of marker tags, plastic, 72 tags, 6 x 12 mm | 060.72 |
|--|--------|