

# Relay Interface Modules 8 - 10 - 16 A



Control panels



Carousel  
warehouses



Medical and  
dentistry



Shipyards



Elevators  
and lifts



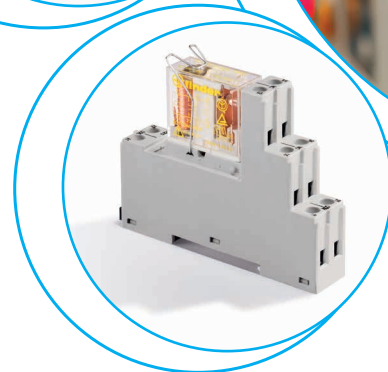
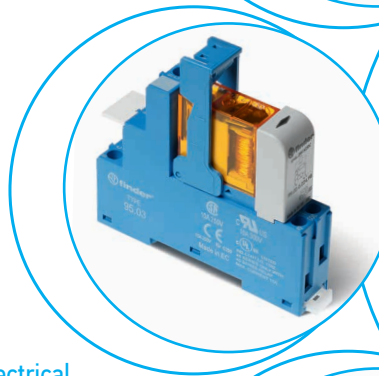
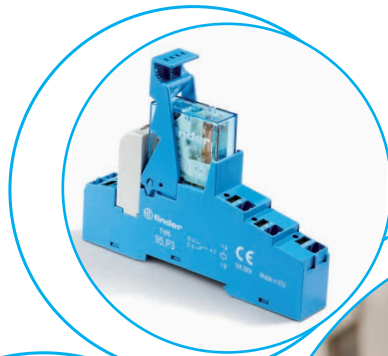
Panels for electrical  
distribution



Building  
automation



Hoists and cranes





2 CO relay interface modules,  
15.8 mm wide

**Type 48.12 and 48.P2**

**Ideal for safety applications**

- 2 CO 8 A
- Relay with forcibly guided contacts according to EN 61810-3 Type B (previously EN 50205)

**Type 48.32**

**Ideal for energy applications**

- 2 CO 8 A
- Breaking capacity DC inductive (L/R=40 ms)
  - 110 V = 0.5 A
  - 220 V = 0.2 A
- Screw terminals

- DC coils
- Identification label
- UL Listing (certain relay / socket combinations)
- 35 mm rail (EN 60715) mounting
- Cadmium-free contact material

48.12/32

Screw terminal



48.P2

Push-in terminal



According to EN 61810-3 only 1 NO and 1 NC (11-14 and 21-22 or 11-12 and 21-24) shall be used as forcibly guided contacts (Type 48.12/P2).

For outline drawing see page 11

**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	250/400	250/400
Rated load AC1	VA	2000	2000
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	8/0.65/0.4	8/0.65/0.4
Minimum switching load	mW (V/mA)	50 (5/5)	50 (5/5)
Standard contact material		AgNi+Au	AgNi+Au

**Coil specification**

Nominal voltage (U <sub>N</sub> )	V DC	12 - 24	24
Rated power DC	W	0.7	0.7
Operating range	DC	(0.75...1.2)U <sub>N</sub>	(0.75...1.2)U <sub>N</sub>
Holding voltage	DC	0.4 U <sub>N</sub>	0.4 U <sub>N</sub>
Must drop-out voltage	DC	0.1 U <sub>N</sub>	0.1 U <sub>N</sub>

**Technical data**

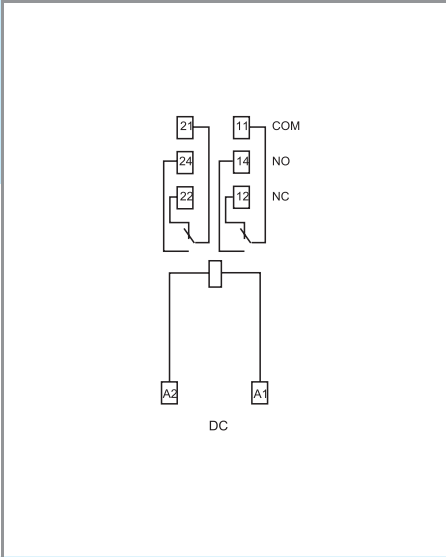
Mechanical life DC	cycles	10 · 10 <sup>6</sup>	10 · 10 <sup>6</sup>
Electrical life at rated load AC1	cycles	100 · 10 <sup>3</sup>	100 · 10 <sup>3</sup>
Operate/release time	ms	10/4	10/4
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1500	1500
Ambient temperature range	°C	-40...+70	-40...+70
Protection category		IP 20	IP 20

**Approvals relay** (according to type)



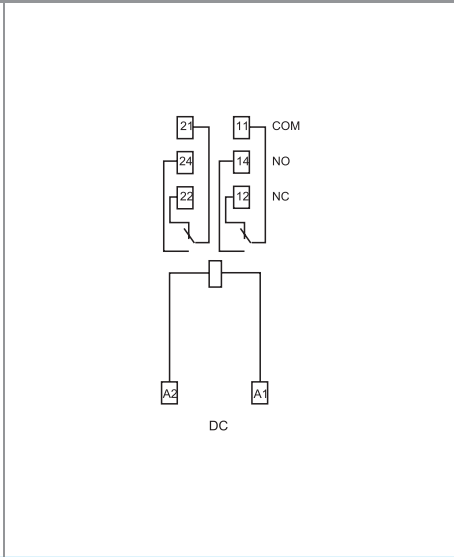
**NEW 48.12 / 48.P2**

- 2 CO 8 A
- Push-in or screw terminals



**NEW 48.32**

- 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.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



For outline drawing see page 11

**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 <sub>N</sub> )	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 <sub>N</sub>	(0.8...1.1)U <sub>N</sub>
	sens. DC	(0.73...1.5)U <sub>N</sub>	(0.73...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>
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>

**Technical data**

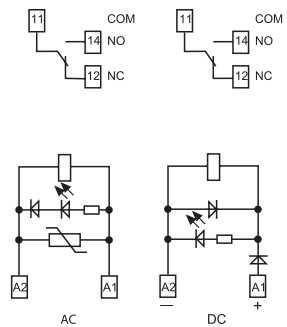
Mechanical life	cycles	10 · 10 <sup>6</sup>	10 · 10 <sup>6</sup>
Electrical life at rated load AC1	cycles	200 · 10 <sup>3</sup>	200 · 10 <sup>3</sup>
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength 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)



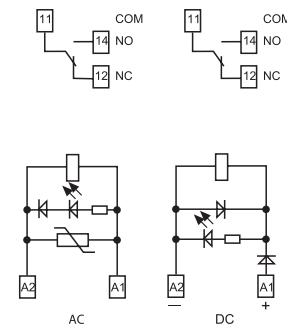
**48.P3**

- 1 CO 10 A
- Push-in terminals



**48.31**

- 1 CO 10 A
- Screw terminals



**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 11

**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	250/400	250/400
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 <sub>N</sub> )	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 <sub>N</sub>	(0.8...1.1)U <sub>N</sub>
	sens. DC	(0.73...1.5)U <sub>N</sub>	(0.73...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>
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>

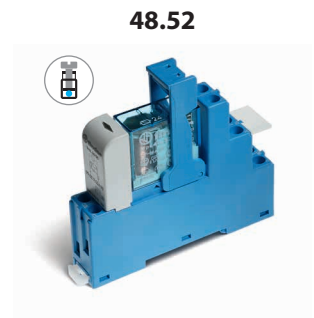
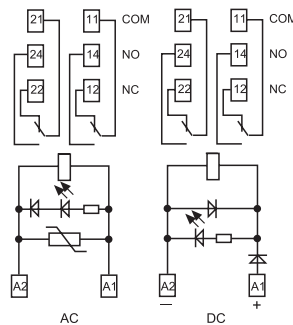
**Technical data**

Mechanical life	cycles	10 · 10 <sup>6</sup>	10 · 10 <sup>6</sup>
Electrical life at rated load AC1	cycles	100 · 10 <sup>3</sup>	100 · 10 <sup>3</sup>
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

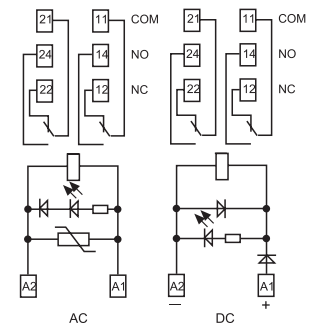
**Approvals relay** (according to type)



- 2 CO 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 11

**Contact specification**

Contact configuration		1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	16*/30	16*/30
Rated voltage/ Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	4000	4000
Rated load AC15 (230 V AC)	VA	750	750
Single phase motor rating (230 V AC)	kW	0.55	0.55
Breaking capacity DC1: 30/110/220 V	A	16/0.3/0.12	16/0.3/0.12
Minimum switching load	mW (V/mA)	500 (10/5)	500 (10/5)
Standard contact material		AgCdO	AgCdO

**Coil specification**

Nominal voltage (U <sub>N</sub> )	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 <sub>N</sub>	(0.8...1.1)U <sub>N</sub>
	sens. DC	(0.8...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>
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>

**Technical data**

Mechanical life	cycles	10 · 10 <sup>6</sup>	10 · 10 <sup>6</sup>
Electrical life at rated load AC1	cycles	100 · 10 <sup>3</sup>	100 · 10 <sup>3</sup>
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)



**48.P6**

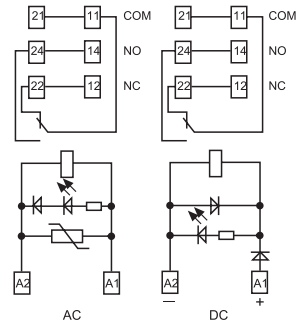


- 1 CO 16 A
- Push-in terminals

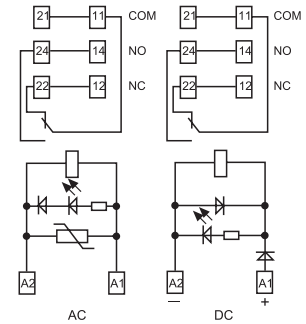
**48.61**



- 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



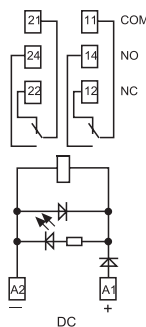
48.62  
Screw terminal



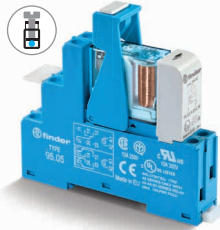
**48.P8**



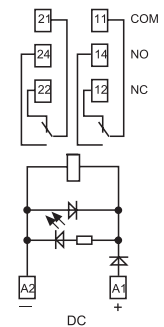
- 2 CO 10 A
- Push-in terminals



**48.62**



- 2 CO 10 A
- Screw terminals



For outline drawing see page 11

**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	750	750
Single phase motor rating (230 V AC)	kW	0.37	0.37
Breaking capacity DC1: 30/110/220 V	A	10/0.6/0.25	10/0.6/0.25
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	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	12/12 (DC)	12/12 (DC)
Insulation between coil and contacts (1.2/50 $\mu$ 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)



## 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**

### 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, 1 pole, 10 A  
48.61, 1 pole, 16 A
- 2 = for 48.12/48.32 (DC only), 48.52, 2 poles, 8 A  
48.62 (DC only), 2 poles, 10 A

Push-in terminal

- 2 = for 48.P2 (DC only), 2 pole, 8 A
- 3 = for 48.P3, 1 pole, 10 A
- 5 = for 48.P5, 2 pole, 8 A
- 6 = for 48.P6, 1 pole, 16 A
- 8 = for 48.P8 (DC only), 2 pole, 10 A

### Coil version

- 7 = Sensitive DC
- 8 = AC (50/60 Hz)
- 9 = DC (for 48.12/48.P2 only)

### 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
- 4 = AgSnO<sub>2</sub>, for 48.P6/P8/61/62 only
- 5 = AgNi + Au, for 48.12/P2 and 48.P3/P5/31/52 only Standard for 48.32

### B: Contact circuit

- 0 = CO (nPDT)

### D: Special versions

- 0 = Standard
- 7 = Standard (for 48.12/48.P2 only)

### C: Options

- 0 = Standard (for 48.12/48.P2 only)
- 5 = Standard for DC: green LED + diode (polarity +A1)
- 6 = Standard for AC and 48.32: 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
48.12/48.P2	DC	<b>5</b>	<b>0</b>	<b>0</b>	<b>7</b>
48.32	DC	<b>5</b>	<b>0</b>	<b>6</b>	<b>0</b>
48.P3/P5/31/52	AC	<b>0 - 5</b>	0	<b>6</b>	0
48.P3/P5/31/52	Sensitive DC	<b>0 - 5</b>	0	<b>5</b>	0
48.P6/61	AC	<b>0 - 4</b>	0	<b>6</b>	0
48.P6/61	Sensitive DC	<b>0 - 4</b>	0	<b>5</b>	0
48.P8/62	Sensitive DC	<b>0 - 4</b>	0	<b>5</b>	0

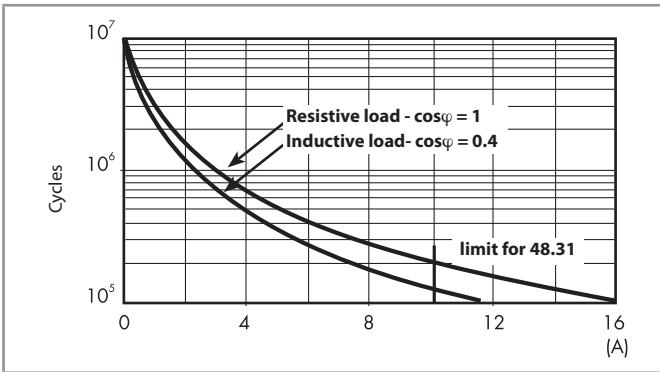
## Technical data

Insulation		48.12/P2/31/32/61/P3/P6	48.52/P5	48.12/31/61/62/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/P2/32)			
Dielectric strength between adjacent contacts		V AC 2000 (48.P5/52); 2500 (48.P8/62) 3000 (48.12/P2/32)			
<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; 2/10 (48.12/P2/32)			
Vibration resistance (10...200)Hz: NO/NC		g 20/5 (for 1 pole)	15/3; 20/6 (48.12/P2/32) for 2 pole		
Power lost to the environment	without contact current	W 0.7			
	with rated current	W 1.2 (48.12/P2/31/32/P3)	2 (48.52/P5/61/62/P6/P8)		
Wire strip length		mm 8			
⊕ Screw torque (only for 48.12/31/32/52/61/81)		Nm 0.5			
Min. wire size	<b>Screw terminal</b>		<b>Push-in terminal</b>		
		solid cable	stranded cable	solid cable	stranded cable
	mm <sup>2</sup>	0.5	0.5	0.5	0.5
	AWG	21	21	21	21
Max. wire size	<b>Screw terminal</b>		<b>Push-in terminal</b>		
		solid cable	stranded cable	solid cable	stranded cable
	mm <sup>2</sup>	1 x 6 / 2 x 2.5	1 x 4 / 2 x 2.5	2 x 1.5 / 1 x 2.5	2 x 1.5 / 1 x 2.5
	AWG	1 x 10 / 2 x 14	1 x 12 / 2 x 14	2 x 16 / 1 x 14	2 x 16 / 1 x 14

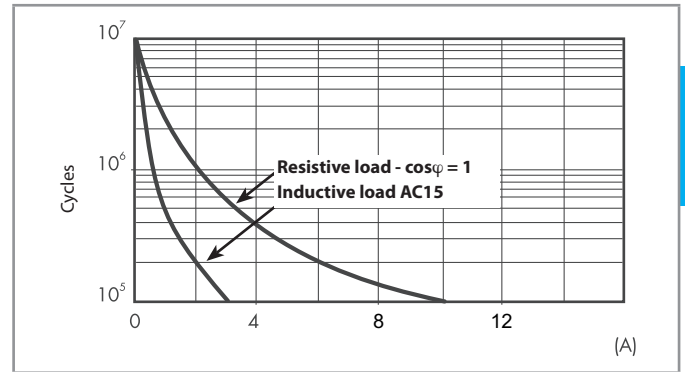


### Contact specification

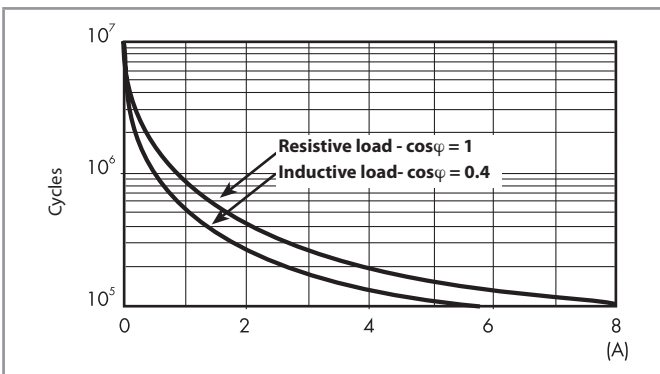
**F 48 - Electrical life (AC) v contact current**  
Types 48.P3/P6/31/61



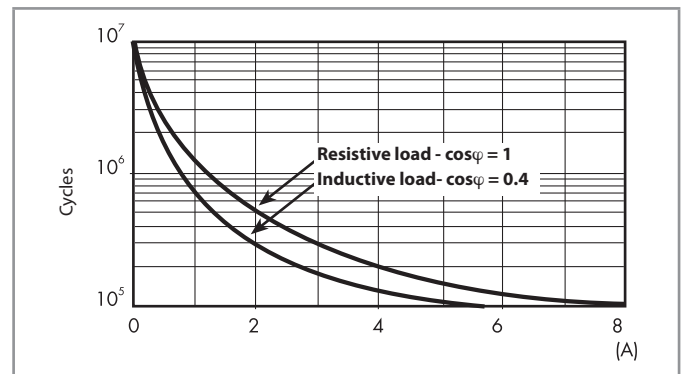
**F 48 - Electrical life (AC) v contact current**  
Types 48.P8/62



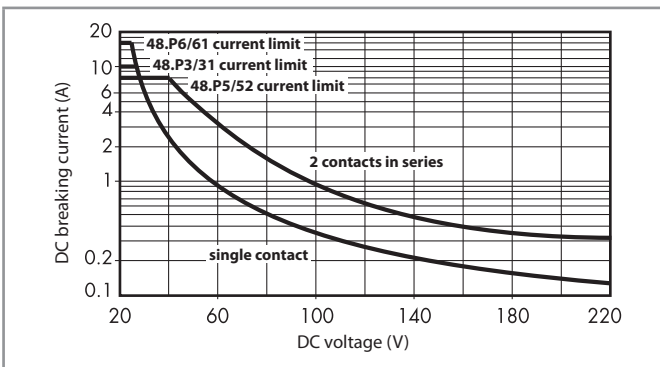
**F 48 - Electrical life (AC) v contact current**  
Types 48.P5/52



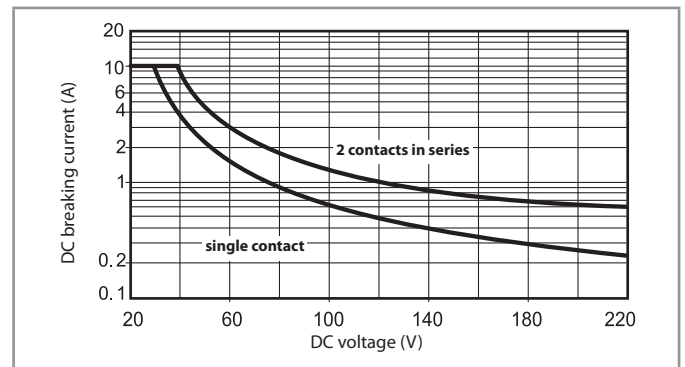
**F 48 - Electrical life (AC) v contact current**  
Type 48.12/P2/32



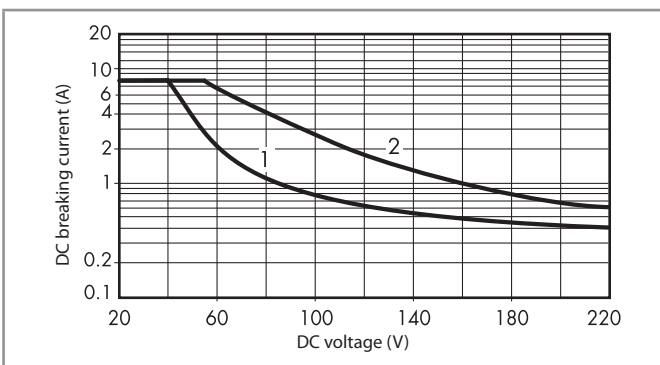
**H 48 - Maximum DC1 breaking capacity**  
Types 48.P3/P5/P6/31/52/61



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



**H 48 - Maximum DC1 breaking capacity**  
Type 48.12/P2/32



- 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

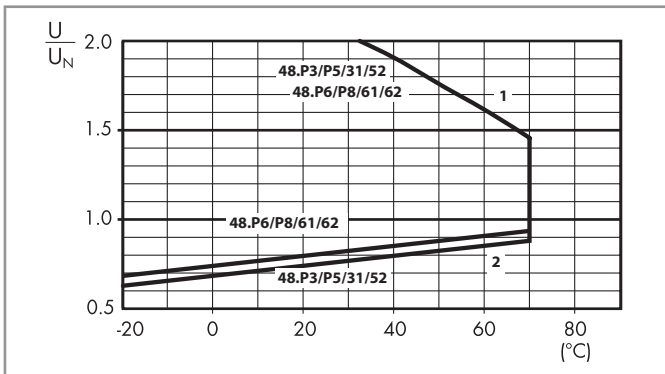
### AC coil data

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
110	8.110	88	121	10.1
120	8.120	96	132	11.8
230	8.230	184	253	7.0

### DC coil data, (0.7 W standard) - Type 48.12/48.P2/48.32, (48.32 available only 24 V DC)

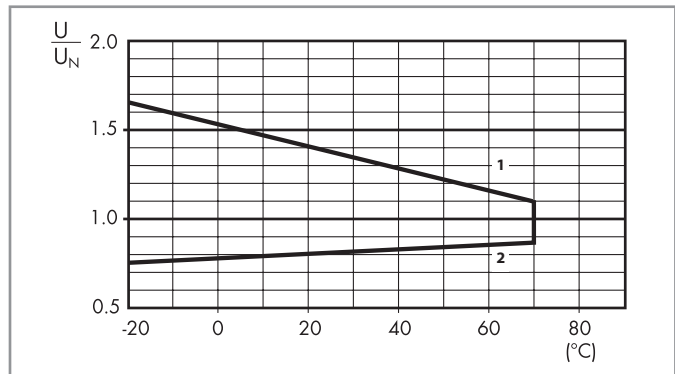
Nominal voltage $U_N$	Coil code	Operating range		Resistance R	Rated coil consumption I at $U_N$
		$U_{min}$	$U_{max}$		
V		V	V	$\Omega$	mA
12	9.012	9	14.4	205	58.5
24	9.024	18	28.8	820	29.3

### R 48 - DC coil operating range v ambient temperature



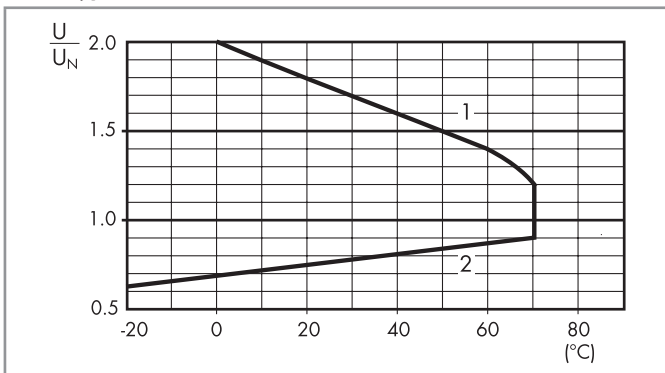
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

### 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/P2/32



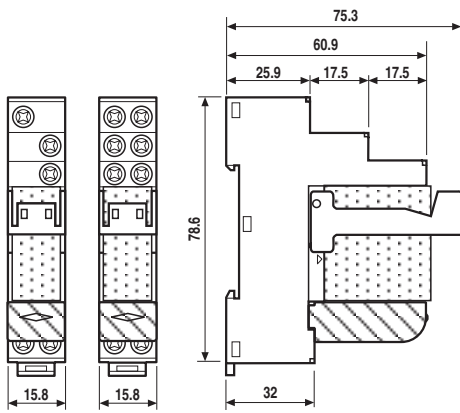
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Combinations

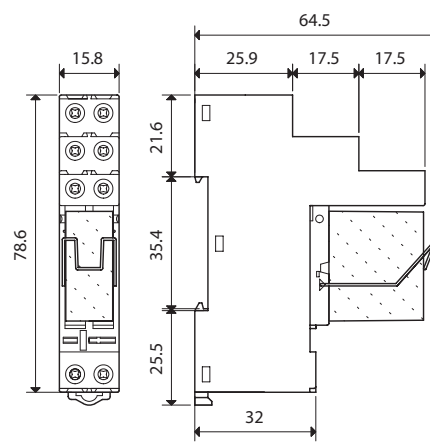
Code	Type of socket	Type of relay	Module	Retaining clip
48.12	95.05.7	50.12	—	095.71
48.P2	95.P5.7	50.12	—	095.71
48.32	95.05	50.12	99.02	095.01
48.31	95.03	40.31	99.02	095.01
48.52	95.05	40.52	99.02	095.01
48.61	95.05	40.61	99.02	095.01
48.62	95.05	40.62	99.02	095.01
48.P3	95.P3	40.31	99.02	095.91.3
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	40.62	99.02	095.91.3

B

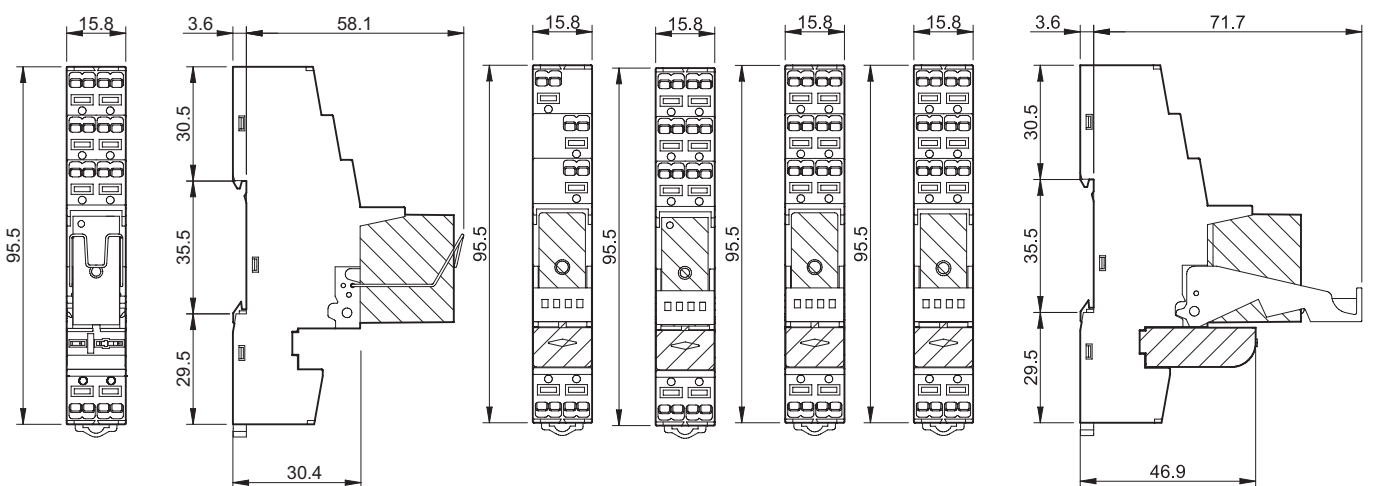
Outline drawings



Types 48.31 48.32 / 48.52 / 48.61 / 48.62  
Screw terminal



Type 48.12  
Screw terminal



Types 48.P2  
Push-in terminal



48.P3 48.P5 48.P6 48.P8

Push-in terminal



Accessories

<b>8-way jumper link</b> for type 48.P3/P5/P6/P8 Rated values	097.58 10 A - 250 V
<b>2-way jumper link</b> for type 48.P3/P5/P6/P8 Rated values	097.52 10 A - 250 V
<b>2-way jumper link</b> for type 48.P3/P5/P6/P8 Rated values	097.42 10 A - 250 V
<b>Marker tag holder</b> for type 48.P3/P5/P6/P8 and 48.12/31/32/52/61/62	097.00
<b>8-way jumper link</b> for screw terminal version Rated values	095.18 (blue)      095.18.0 (black) 10 A - 250 V
<b>Sheet of marker tags (CEMBRE Thermal transfer printers)</b> , plastic, 48 tags, 6 x 12 mm	060.48



097.58



097.52



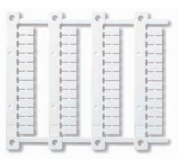
097.42



097.00



095.18



060.48

Packaging codes

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

Example:

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

- A Standard packaging
- B Blister packaging
- SP Plastic retaining clip