



finder[®]
SWITCH TO THE FUTURE

SERIE
7S

Modular relays with forcibly guided contacts 6 A



Chemical and
petrolchemical



Hoists and cranes



Wood-
processing
machines



Carousel
warehouses



Escalators



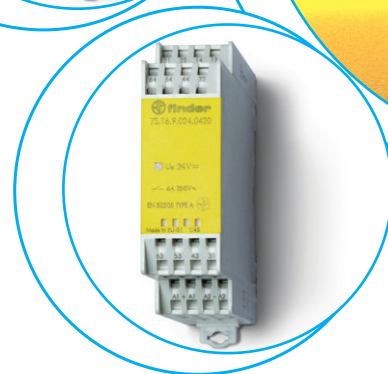
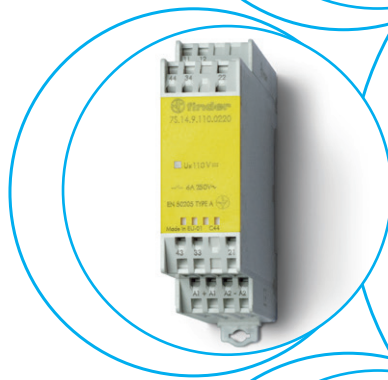
Elevators
and lifts



Process
Industry



Automatic
car-washes



Relay module with forcibly guided contacts

- 7S.12 with 2 pole (1NO + 1 NC)
- 7S.14 with 4 pole (2 NO + 2 NC and 3 NO + 1 NC)
- 7S.16 with 6 pole (4 NO + 2 NC)

- For safety applications, with class A forcibly guided contact relays (EN 50205)
- For applications up to SIL 2 according to IEC 61508
- For functional reliability in machinery and plant engineering according to EN 13849-1
- For railway applications; materials compliant with fire and smoke characteristics (UNI 11170-3); mechanical and climatic characteristics compliant with EN 61373 and EN 50155
- DC and AC supply versions
- 24 and 110 V DC versions with extended operating range (0.7...1.25)U_N
- Coil status visual indication with LED
- 35 mm rail (EN 60715) mount

Screwless terminal



* Single contact current ≤ 6 A,
total NO contacts current ≤ 12 A

For outline drawing see page 8

Contact specification

| | 1 NO + 1 NC | 2 NO + 2 NC, 3 NO + 1 NC | 4 NO + 2 NC |
|-------------------------------------|---------------------|--------------------------|-------------------------|
| Contact configuration | 1 NO + 1 NC | 2 NO + 2 NC, 3 NO + 1 NC | 4 NO + 2 NC |
| Rated current/Max. peak current | A 6/15 | 6*/12 | 6*/12 |
| Rated switching voltage | V AC (50/60 Hz) 250 | 250 | 250 |
| Rated load AC1 | VA 1500 | 1500 | 1500 |
| Rated load AC15 (230 V AC) | VA 700 | 500 | 500 |
| Breaking capacity DC1: 30/110/220 V | A 6/0.6/0.2 | 6/0.6/0.3 | 6/0.6/0.3 |
| Breaking capacity DC13: 24 V | A 1 | 1 | 1 |
| Minimum switching load | mW (V/mA) 60 (5/5) | 60 (5/5) | 60 (5/5) |
| Standard contact material | AgNi + Au | AgNi with notched crown | AgNi with notched crown |

Coil specification

| | 110...125 - 230...240 | 110...125 - 230...240 | 110...125 - 230...240 |
|-----------------------------------|--|---|---|
| Nominal voltage (U _N) | V AC (50/60 Hz) | V DC | V DC |
| Rated power | VA (50 Hz)/W 2.3/1 | 2.3/1 | 2.3/1 |
| Operating range | AC (0.85...1.1)U _N | (0.85...1.1)U _N | (0.85...1.1)U _N |
| | DC (0.8...1.2)U _N | (0.8...1.2)U _N | (0.8...1.2)U _N |
| | DC extended range (24 and 110 V only) (0.7...1.25)U _N | (0.7...1.25)U _N | (0.7...1.25)U _N |
| Holding voltage | AC/DC 0.45 U _N / 0.45 U _N | 0.55 U _N / 0.55 U _N | 0.55 U _N / 0.55 U _N |
| Must drop-out voltage | AC/DC 0.1 U _N / 0.1 U _N | 0.1 U _N / 0.1 U _N | 0.1 U _N / 0.1 U _N |

Technical data

| | | | |
|--|------------------------------|-----------------------|-----------------------|
| Mechanical life | cycles 10 · 10 ⁶ | 10 · 10 ⁶ | 10 · 10 ⁶ |
| Electrical life at rated load AC1 | cycles 100 · 10 ³ | 100 · 10 ³ | 100 · 10 ³ |
| Operate/release time | ms 7/11 | 12/10 | 12/10 |
| Insulation between coil and contacts (1.2/50 μs) | kV 6 | 6 (4 against 13-14) | 6 (4 against 13-14) |
| Dielectric strength between open contacts | V AC 1500 | 1500 | 1500 |
| Ambient temperature | °C -40...+70 | -40...+70 | -40...+70 |
| Protection category | IP 20 | IP 20 | IP 20 |

Approvals (according to type)



Relay module with forcibly guided contacts
7S.23 with 3 pole (2NO + 1 NC)

- For safety applications, with class A forcibly guided contact relays (EN 50205)
- For functional reliability in machinery and plant engineering according to EN 13849-1
- DC coil
- Damium free contacts
- 17.5 mm wide
- Coil status visual indication with LED
- 35 mm rail (EN 60715) mount



- 3 pole (2 NO + 1 NC)

Screw terminal



For outline drawing see page 7

Contact specification

| | | |
|-------------------------------------|-----------------|-------------|
| Contact configuration | | 2 NO + 1 NC |
| Rated current/Max. peak current | A | 10/20 |
| Rated switching voltage | V AC (50/60 Hz) | 250 |
| Rated load AC1 | VA | 2500 |
| Rated load AC15 (230 V AC) | VA | 500 |
| Breaking capacity DC1: 30/110/220 V | A | 6/0.6/0.2 |
| Breaking capacity DC13: 24 V | A | 1 |
| Minimum switching load | mW (V/mA) | 60 (5/5) |
| Standard contact material | | AgNi + Au |

Coil specification

| | | |
|-----------------------------------|--------------|---------------------------|
| Nominal voltage (U _N) | V DC | 12 - 24 - 48 - 110 |
| Rated power | VA (50 Hz)/W | 2.3/1 |
| Operating range | DC | (0.8...1.2)U _N |
| Holding voltage | DC | 0.45 U _N |
| Must drop-out voltage | DC | 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 | 7/11 |
| Insulation between coil and contacts (1.2/50 μs) | kV | 6 |
| Dielectric strength between open contacts | V AC | 1500 |
| Ambient temperature | °C | -40...+70 |
| Protection category | | IP 20 |

Approvals (according to type)

Ordering information

Example: 7S series Relay module with forcibly guided contacts, 6 contact (4 NO + 2 NC) 6 A, supply voltage 24 V DC.

7 S . 1 6 . 9 . 0 2 4 . 0 4 2 0

Series

Type

1 = 22.5 mm wide, screwless terminals
2 = 17.5 mm wide, screw terminals

Output

2 = 2 contacts
3 = 3 contacts
4 = 4 contacts
6 = 6 contacts

Supply version

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

Supply voltage

See page 6

Special versions

0 = Standard

NO and NC contacts

11 = 1 NO + 1 NC
21 = 2 NO + 1 NC
22 = 2 NO + 2 NC
31 = 3 NO + 1 NC
42 = 4 NO + 2 NC

Contact material

0 = AgNi
0 = AgNi+Au (7S.23)
5 = AgNi + Au

Codes, Preferred selections for best availability are shown in bold.

| | | |
|-------------------------|-------------------------|-------------------------|
| 7S.12.9.012.5110 | 7S.14.9.012.0220 | 7S.16.9.012.0420 |
| 7S.12.9.024.5110 | 7S.14.9.012.0310 | 7S.16.9.024.0420 |
| 7S.12.8.120.5110 | 7S.14.9.024.0220 | 7S.16.9.110.0420 |
| 7S.12.8.230.5110 | 7S.14.9.024.0310 | 7S.16.8.120.0420 |
| | 7S.14.9.110.0220 | 7S.16.8.230.0420 |
| | 7S.14.9.110.0310 | 7S.23.9.012.0210 |
| | 7S.14.8.120.0220 | 7S.23.9.024.0210 |
| | 7S.14.8.120.0310 | 7S.23.9.048.0210 |
| | 7S.14.8.230.0220 | 7S.23.9.110.0210 |
| | 7S.14.8.230.0310 | |



Technical data

Insulation according to EN 61810-1

| | | |
|----------------------------------|------|---------|
| Nominal voltage of supply system | V AC | 230/400 |
| Rated insulation voltage | V AC | 250 |
| Pollution degree | | 2 |

Insulation between coil and contact set

| Type of Insulation | | Reinforced* | Basic* | Reinforced* |
|-----------------------|----------------|-------------|--------|-------------|
| Overvoltage category | | III | III | II |
| Rated impulse voltage | kV (1.2/50 μs) | 6 | 4 | 4 |
| Dielectric strength | V AC | 4000 | 2500 | 2500 |

Insulation between adjacent contacts

| Type of Insulation | | Reinforced* | Basic* | Reinforced* |
|-----------------------|----------------|-------------|--------|-------------|
| Overvoltage category | | III | III | II |
| Rated impulse voltage | kV (1.2/50 μs) | 6 | 4 | 4 |
| Dielectric strength | V AC | 4000 | 2500 | 2500 |

Insulation between open contacts

| | | |
|-----------------------|---------------------|---------------------|
| Type of disconnection | | Micro-disconnection |
| Dielectric strength | V AC/kV (1.2/50 μs) | 1500/2.5 |

* Tables below indicate, for each 7S type, those contacts (R) meeting Reinforced Insulation Overvoltage category III, those contacts (R2) meeting Reinforced Insulation Overvoltage category II, and those contacts (B) meeting Basic Insulation Overvoltage category III.

| EMC specifications | | Reference standard | | |
|--|---------------------------------------|--------------------|----------------|-------|
| Burst (5/50 ns) | on supply terminals | EN 61000-4-4 | 4 kV | |
| Surge (1.2/50 μs) | on supply terminals differential mode | EN 61000-4-5 | 1.5 kV | |
| Terminals | | solid cable | stranded cable | |
| Max. wire size | mm ² | 1 x 1.5 | 1 x 1.5 | |
| | AWG | 1 x 14 | 1 x 16 | |
| Wire strip length | mm | 9 | | |
| Other data | | 7S.12 | 7S.14 | 7S.16 |
| Bounce time: NO/NC | ms | 2/8 | 1/20 | 1/20 |
| Vibration resistance (10...200)Hz: NO/NC | g | 10/5 | 15/4 | 15/4 |
| Shock resistance: NO/NC | g | 20/6 | 25/13 | 25/13 |
| Power lost to the environment | without contact current | W | 0.8 | 0.8 |
| | with rated current | W | 1.4 | 2.3 |

Type of insulation between coil and contacts and between adjacent contacts

| Code | | |
|--------------------|------------|----------------------|
| Type of Insulation | | Overvoltage category |
| R | Reinforced | III |
| B | Basic | III |
| R2 | Reinforced | II |

| 7S.12....5110 | | | |
|---------------|------|-------|-------|
| | Coil | 13-14 | 21-22 |
| Coil | — | R | R |
| 13-14 | | — | B/R2 |
| 21-22 | | | — |

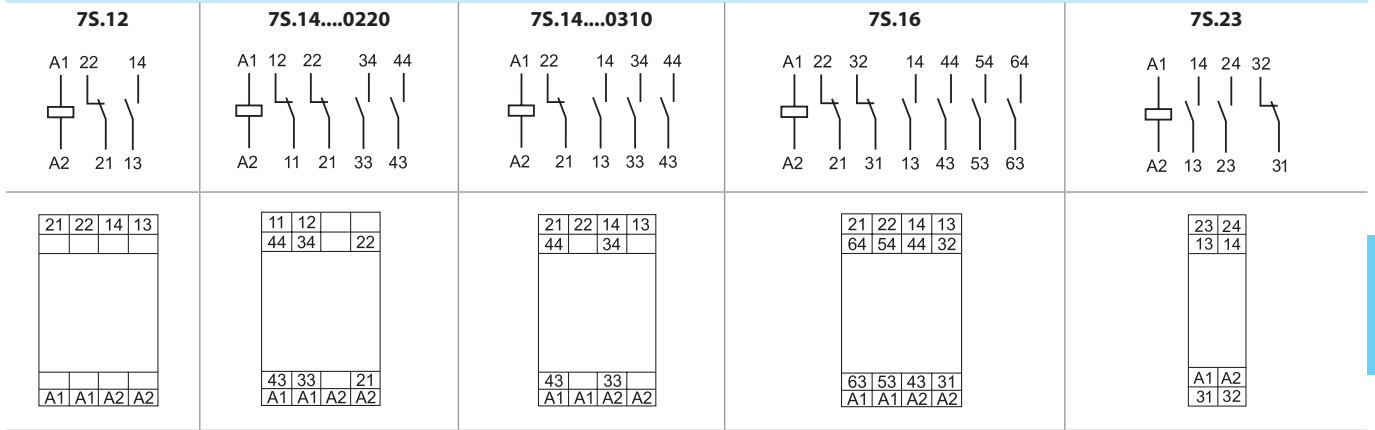
| 7S.14....0310 | | | | | |
|---------------|------|-------|-------|-------|-------|
| | Coil | 13-14 | 21-22 | 33-34 | 43-44 |
| Coil | — | B | R | R | R |
| 13-14 | | — | B | R | R |
| 21-22 | | | — | R | R |
| 33-34 | | | | — | B/R2 |
| 43-44 | | | | | — |

| 7S.16....0420 | | | | | | | |
|---------------|------|-------|-------|-------|-------|-------|-------|
| | Coil | 13-14 | 21-22 | 31-32 | 43-44 | 53-54 | 63-64 |
| Coil | — | B | R | R | R | R | R |
| 13-14 | | — | B | R | R | R | R |
| 21-22 | | | — | R | R | R | R |
| 31-32 | | | | — | B/R2 | R | R |
| 43-44 | | | | | — | B/R2 | R |
| 53-54 | | | | | | — | B/R2 |
| 63-64 | | | | | | | — |

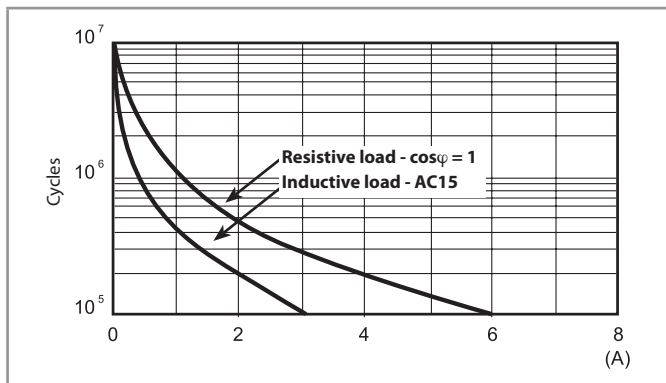
| 7S.14....0220 | | | | | |
|---------------|------|-------|-------|-------|-------|
| | Coil | 11-12 | 21-22 | 33-34 | 43-44 |
| Coil | — | R | R | R | R |
| 11-12 | | — | R | R | R |
| 21-22 | | | — | R | R |
| 33-34 | | | | — | B/R2 |
| 43-44 | | | | | — |

Contact specifications

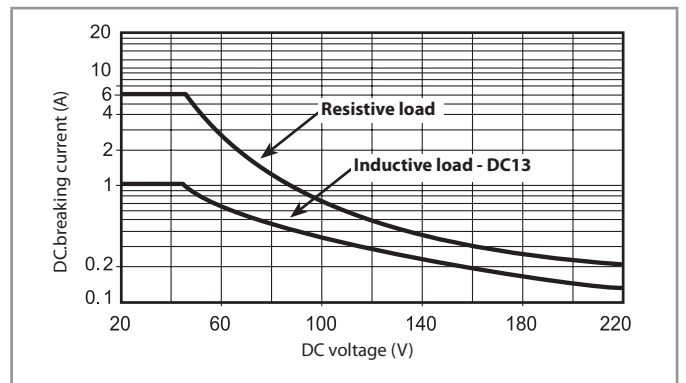
Contact diagrams



F 7S12 - Electrical life (AC) v contact current - 7S.12

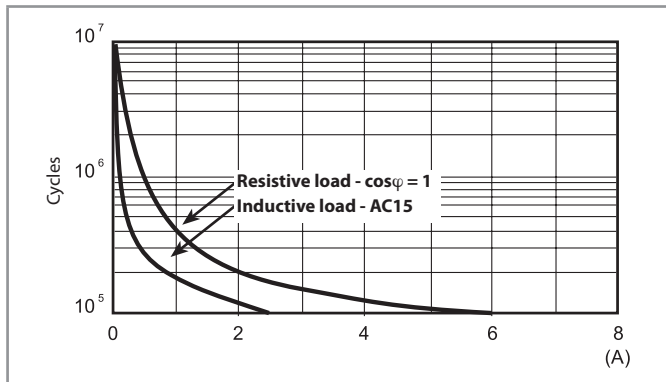


H 7S12 - Maximum DC breaking capacity - 7S.12

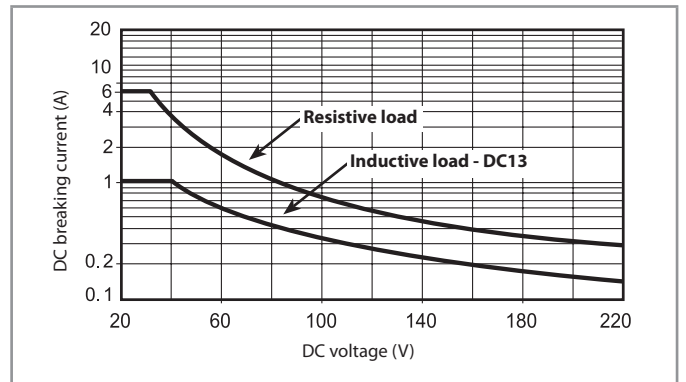


• When switching a load having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.

F 7S16 - Electrical life (AC) v contact current - 7S.14 / 7S.16

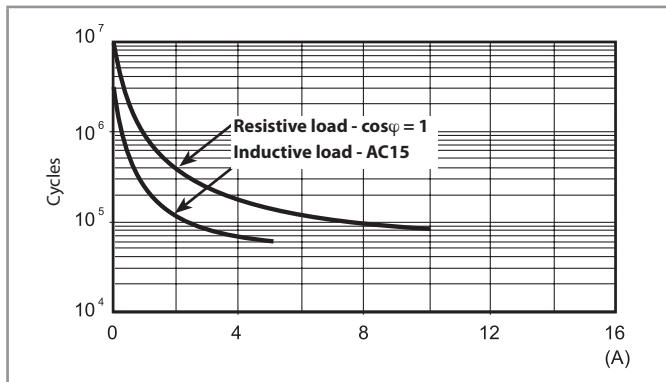


H 7S16 - Maximum DC breaking capacity - 7S.14 / 7S.16

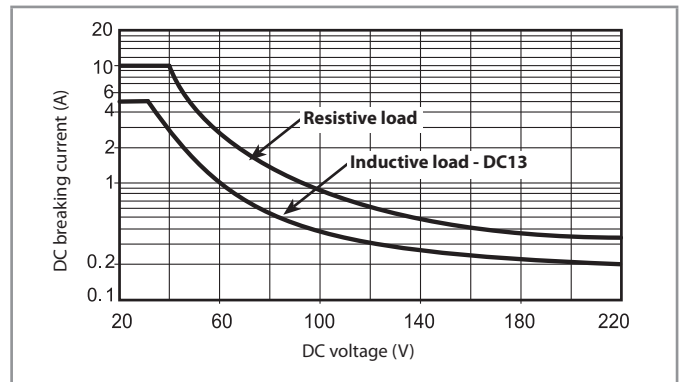


• When switching a load having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.

F 7S23 - Electrical life (AC) v contact current - 7S.23



H 7S23 - Maximum DC breaking capacity - 7S.23



• When switching a load having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.



Coil specifications

DC coil data - type 7S.12

| Nominal voltage | Coil code | Operating range | | Rated input current at U_N | Rated power at U_N |
|-----------------|-----------|-----------------|-----------|------------------------------|----------------------|
| | | U_{min} | U_{max} | | |
| U_N | | V | V | I_N | W |
| V | | V | V | mA | W |
| 12 | 9.012 | 9.6 | 14.4 | 55 | 0.7 |
| 24 | 9.024 | 16.8 | 30 | 38.2 | 0.9 |

AC coil data - type 7S.12

| Nominal voltage | Coil code | Operating range | | Rated input current at U_N | Rated power at U_N |
|-----------------|-----------|-----------------|-----------|------------------------------|----------------------|
| | | U_{min} | U_{max} | | |
| U_N | | V | V | I_N | VA/W |
| V | | V | V | mA | VA/W |
| 110...125 | 8.120 | 93 | 138 | 9.5 | 1.1/1 |
| 230...240 | 8.230 | 195 | 264 | 9 | 2/0.8 |

DC coil data - type 7S.14 / 7S.16

| Nominal voltage | Coil code | Operating range | | Rated input current at U_N | Rated power at U_N |
|-----------------|-----------|-----------------|-----------|------------------------------|----------------------|
| | | U_{min} | U_{max} | | |
| U_N | | V | V | I_N | W |
| V | | V | V | mA | W |
| 12 | 9.012 | 9.6 | 14.4 | 56 | 0.7 |
| 24 | 9.024 | 16.8 | 30 | 28 | 0.7 |
| 110 | 9.110 | 77 | 138 | 9.2 | 0.7 |

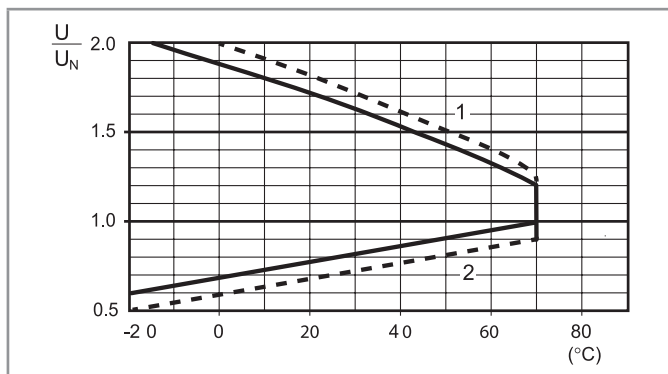
AC coil data - type 7S.14 / 7S.16

| Nominal voltage | Coil code | Operating range | | Rated input current at U_N | Rated power at U_N |
|-----------------|-----------|-----------------|-----------|------------------------------|----------------------|
| | | U_{min} | U_{max} | | |
| U_N | | V | V | I_N | VA/W |
| V | | V | V | mA | VA/W |
| 110...125 | 8.120 | 93 | 138 | 8.9 | 1.1/0.9 |
| 230...240 | 8.230 | 195 | 264 | 8.5 | 2/0.8 |

DC coil data - type 7S.23

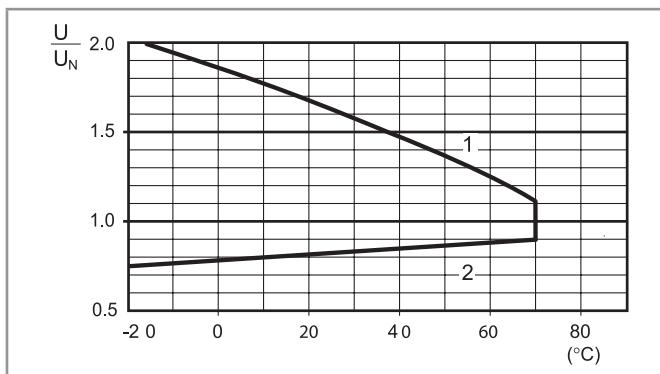
| Nominal voltage | Coil code | Operating range | | Rated input current at U_N | Rated power at U_N |
|-----------------|-----------|-----------------|-----------|------------------------------|----------------------|
| | | U_{min} | U_{max} | | |
| U_N | | V | V | I_N | W |
| V | | V | V | mA | W |
| 12 | 9.012 | 9.6 | 14.4 | 50 | 0.6 |
| 24 | 9.024 | 16.8 | 30 | 25 | 0.6 |
| 48 | 9.048 | 33.6 | 60 | 12.5 | 0.6 |
| 110 | 9.110 | 77 | 138 | 5.4 | 0.6 |

R 7S - DC coil operating range v ambient temperature - 7S.12 / 7S.23 / 7S.14 / 7S.16



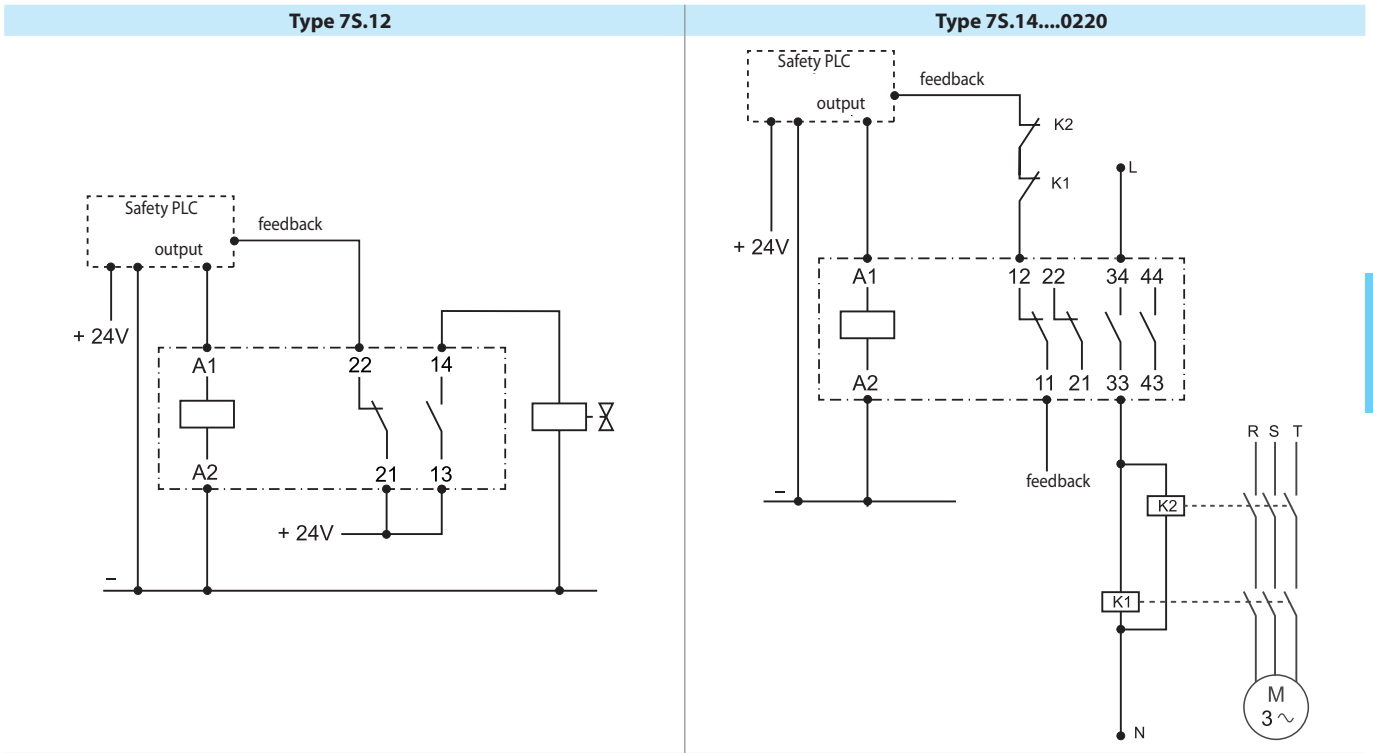
- 1 - Max. permitted coil voltage.
 2 - Min. pick-up voltage with coil at ambient temperature.
 ----- 24 and 110V DC coils only (extended range)

R 7S - AC coil operating range v ambient temperature - 7S.12 / 7S.14 / 7S.16



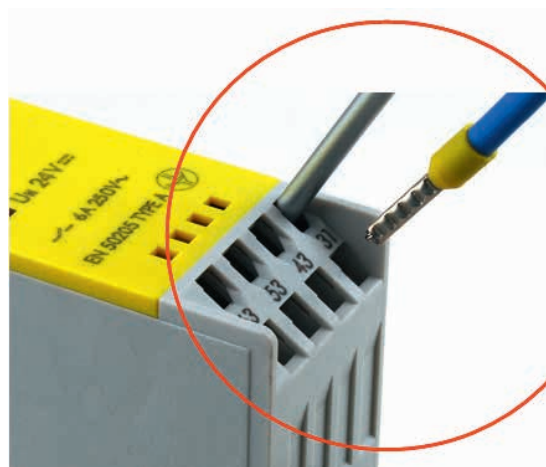
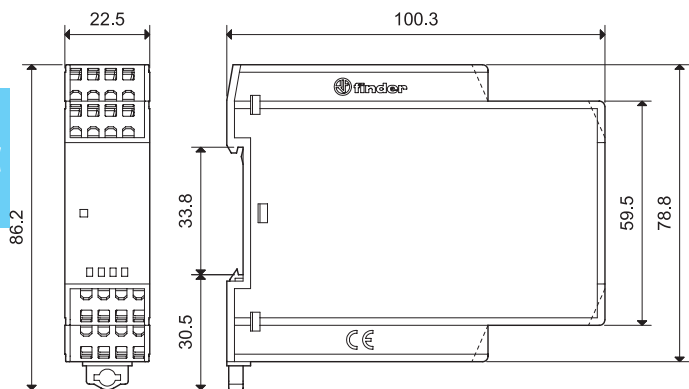
- 1 - Max. permitted coil voltage.
 2 - Min. pick-up voltage with coil at ambient temperature.

Wiring diagrams

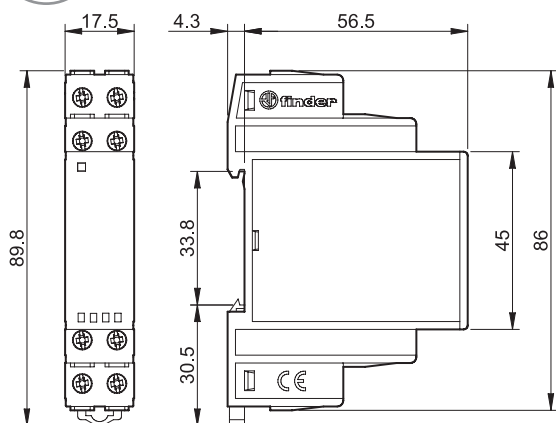


Outline drawings

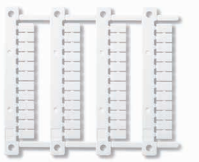
75
Screwless terminal



75.23
Screw terminal



Accessories



060.48

Sheet of marker tags, plastic, 48 tags, 6 x 12 mm, for CEMBRE thermal transfer printers

060.48