

## Features

### Ultra-slim 1 Pole - 6 A relay

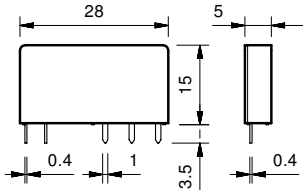
#### Printed circuit mount

- direct or via PCB socket

#### 35 mm rail mount

- via screw or screwless sockets

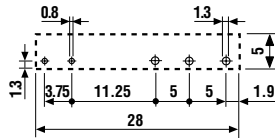
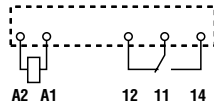
- 1 Pole changeover contacts or 1 Pole normally open contact
- Ultra slim, 5 mm, package
- Sensitive DC coil - 170 mW (Dual AC/DC coil drive possible using 93 series sockets)
- UL Listing (certain relay/socket combinations)
- Cadmium Free contact materials
- 8/8 mm clearance/creepage distance
- 6 kV (1.2/50  $\mu$ s) insulation, coil-contacts



## 34.51



- 5 mm wide
- Low coil power
- PCB or 93 series sockets



Copper side view

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

| Contact specification                                 |                 |                        |
|---|-----------------|------------------------|
| Contact configuration                                 |                 | 1 CO (SPDT)            |
| Rated current/Maximum peak current                    | A               | 6/10                   |
| Rated voltage/Maximum switching voltage V AC          |                 | 250/400                |
| Rated load AC1  | VA              | 1,500                  |
| Rated load AC15 (230 V AC)                            | VA              | 300                    |
| Single phase motor rating (230 V AC)                  | kW              | 0.185                  |
| Breaking capacity DC1: 30/110/220 V                   | A               | 6/0.2/0.12             |
| Minimum switching load                                | mW (V/mA)       | 500 (12/10)            |
| Standard contact material                             |                 | AgNi                   |
| Coil specification                                    |                 |                        |
| Nominal voltage ( $U_N$ )                             | V AC (50/60 Hz) | —                      |
|   | V DC            | 5 - 12 - 24 - 48 - 60  |
| Rated power AC/DC                                     | VA (50 Hz)/W    | —/0.17                 |
| Operating range                                       | AC              | —                      |
|   | DC              | (0.7...1.5) $U_N$      |
| Holding voltage                                       | AC/DC           | —/0.4 $U_N$            |
| Must drop-out voltage                                 | AC/DC           | —/0.05 $U_N$           |
| Technical data  |                 |                        |
| Mechanical life AC/DC                                 | cycles          | —/10 · 10 <sup>6</sup> |
| Electrical life at rated load AC1                     | cycles          | 60 · 10 <sup>3</sup>   |
| Operate/release time                                  | ms              | 5/3                    |
| Insulation between coil and contacts (1.2/50 $\mu$ s) | kV              | 6                      |
| Dielectric strength between open contacts V AC        |                 | 1,000                  |
| Ambient temperature range                             | °C              | -40...+85              |
| Environmental protection                              |                 | RT II                  |
| Approvals (according to type)                         |                 |                        |

## Features

### Ultra-slim - Solid State Relays

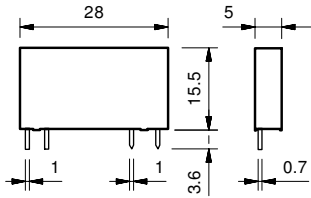
#### Printed circuit mount

- direct or via PCB socket

#### 35 mm rail mount

- via screw or screwless sockets

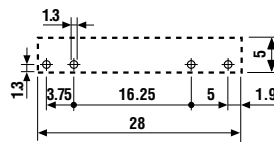
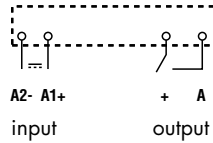
- Single circuit output switching options
  - 2 A 24 V DC
  - 0.1 A 48 V DC
  - 2 A 240 V AC
- Silent, high speed switching with long electrical life
- Ultra slim, 5 mm, package
- Sensitive DC Input circuits (Dual AC/DC input drive possible using 93 series sockets)
- UL Listing (certain relay/socket combinations)
- Wash tight: RT III
- 2,500 V insulation, input-output



### 34.81-9024



- 2 A, 24 V DC output switching
- PCB or 93 series sockets

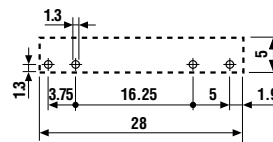
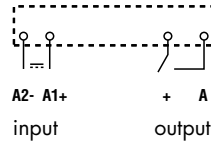


Copper side view

### 34.81-7048



- 0.1 A, 48 V DC output switching
- PCB or 93 series sockets

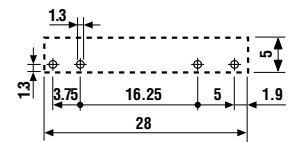
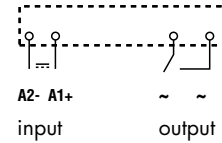


Copper side view

### 34.81-8240



- 2 A, 240 V AC output switching
- Zero crossing switching
- PCB or 93 series sockets



Copper side view

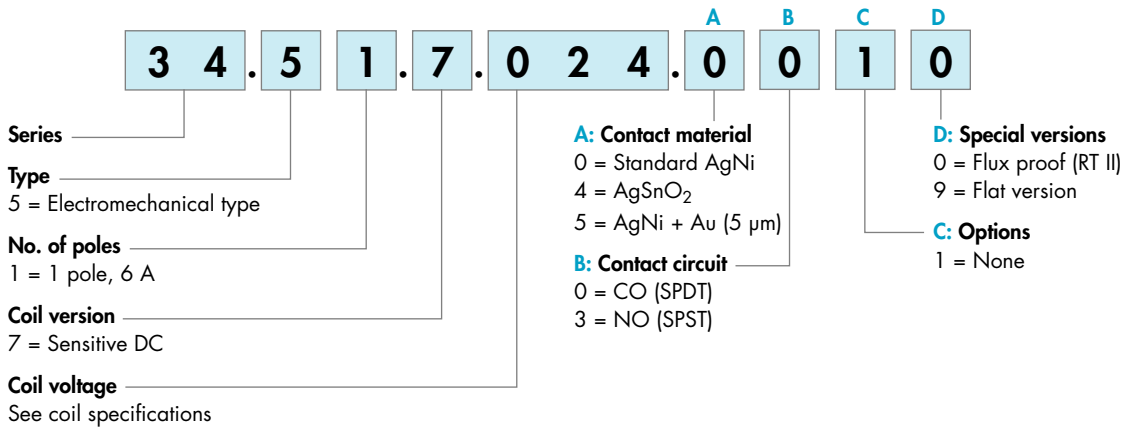
| Output circuit                               |  |                |         |         |                |         |                |         |         |
|--|--|----------------|---------|---------|----------------|---------|----------------|---------|---------|
| Contact configuration                        |  | 1 NO (SPST-NO) |         |         | 1 NO (SPST-NO) |         | 1 NO (SPST-NO) |         |         |
| Rated current/Maximum peak current (10 ms) A |  | 2/20           |         |         | 0.1/0.5        |         | 2/40           |         |         |
| Rated voltage/Maximum blocking voltage V     |  | (24/33)DC      |         |         | (48/60)DC      |         | (240/275)AC    |         |         |
| Switching voltage range V                    |  | (1.5...24)DC   |         |         | (1.5...48)DC   |         | (12...240)AC   |         |         |
| Minimum switching current mA                 |  | 1              |         |         | 0.05           |         | 22             |         |         |
| Max. "OFF-state" leakage current mA          |  | 0.001          |         |         | 0.001          |         | 1.5            |         |         |
| Max. "ON-state" voltage drop V               |  | 0.12           |         |         | 1              |         | 1.6            |         |         |
| Input circuit                                |  |                |         |         |                |         |                |         |         |
| Nominal voltage V DC                         |  | 5              | 24      | 60      | 24             | 60      | 5              | 24      | 60      |
| Operating range V DC                         |  | 3.5...12       | 16...30 | 35...72 | 16...30        | 35...72 | 3.5...10       | 16...30 | 35...72 |
| Control current mA                           |  | 7              | 7       | 3       | 7              | 3       | 12             | 7       | 3       |
| Release voltage V DC                         |  | 1              | 10      | 20      | 10             | 20      | 1              | 10      | 20      |
| Impedance Ω                                  |  | 715            | 3,200   | 21,300  | 3,200          | 21,300  | 416            | 3,200   | 21,300  |
| Technical data                               |  |                |         |         |                |         |                |         |         |
| Operate/release time ms                      |  | 0.1/0.3*       |         |         | 0.02/0.1*      |         | 12/12*         |         |         |
| Dielectric strength between input/output V   |  | 2,500          |         |         | 2,500          |         | 2,500          |         |         |
| Ambient temperature range °C                 |  | -20...+60      |         |         | -20...+60      |         | -20...+60      |         |         |
| Environmental protection                     |  | RT III         |         |         | RT III         |         | RT III         |         |         |
| Approvals (according to type)                |  |                |         |         |                |         | —              |         |         |

\* Note: all technical data relates to using the relay directly on PCB or PCB socket type 93.11.  
If the relay is use with 35 mm rail socket types 93.01 or 93.51, refer to the technical data of 38 Series.

## Ordering information

### Electromechanical relay (EMR)

Example: 34 series slim electromechanical relay, 1 CO (SPDT) 6 A contacts, 24 V sensitive DC coil.

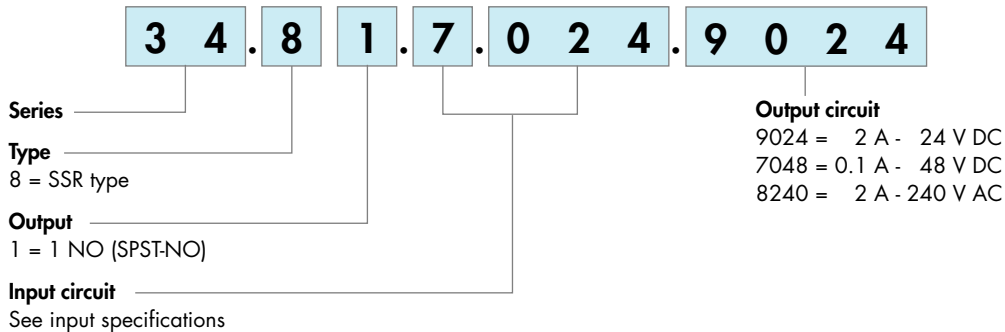


**Selecting features and options: only combinations in the same row are possible.**  
Preferred selections for best availability are shown in **bold**.

| Type  | Coil version | A                | B            | C        | D        |
|-------|--------------|------------------|--------------|----------|----------|
| 34.51 | sens. DC     | <b>0</b> - 4 - 5 | <b>0</b> - 3 | <b>1</b> | <b>0</b> |
| 34.51 | sens. DC     | 0 - 4 - 5        | 0            | 1        | 9        |

### Solid state relay (SSR)

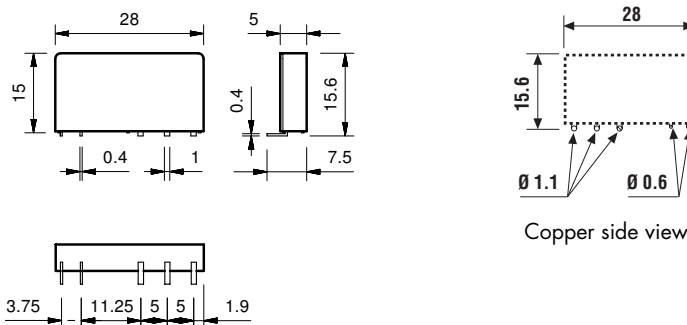
Example: 34 series SSR relay, 2 A output, 24 V DC supply.



## Flat pack version



Option = 34.51.7xxx.x019



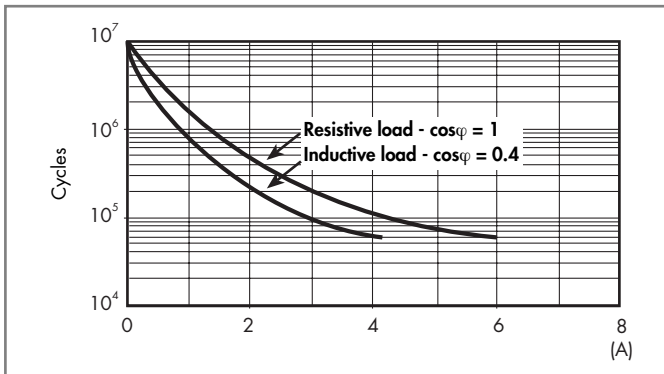
## Electromechanical relay

### Technical data

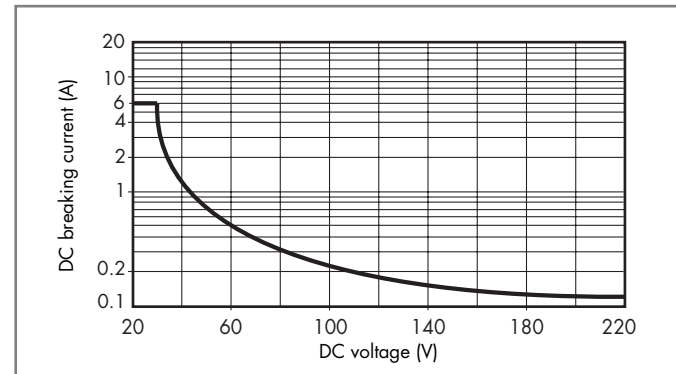
| Insulation according to EN 61810-1:2004               |                          |                     |                |
|---|--------------------------|---------------------|----------------|
| Nominal voltage of supply system                      | V AC                     | 230/400             |                |
| Rated insulation voltage                              | V AC                     | 250                 | 400            |
| Pollution degree                                      |                          | 3                   | 2              |
| Insulation between coil and contact set               |                          |                     |                |
| Type of insulation                                    |                          | Reinforced          |                |
| Overvoltage category                                  |                          | III                 |                |
| Rated impulse voltage                                 | kV (1.2/50 $\mu$ s)      | 6                   |                |
| Dielectric strength                                   | V AC                     | 4,000               |                |
| Insulation between open contacts                      |                          |                     |                |
| Type of disconnection                                 |                          | Micro-disconnection |                |
| Dielectric strength                                   | V AC/kV (1.2/50 $\mu$ s) | 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 $\mu$ s) on A1 - A2 (differential mode) |                          | EN 61000-4-5        | level 3 (2 kV) |
| Other data  |                          |                     |                |
| Bounce time: NO/NC                                    | ms                       | 1/6                 |                |
| Vibration resistance (5...55)Hz: NO/NC                | g                        | 10/5                |                |
| Shock resistance                                      | g                        | 20/14               |                |
| Power lost to the environment                         | without contact current  | W                   | 0.2            |
|   | with rated current       | W                   | 0.5            |
| Recommended distance between relays mounted on PCB    | mm                       | $\geq 5$            |                |

### Contact specification

F 34 - Electrical life (AC) v contact current



H 34 - Maximum DC1 breaking capacity



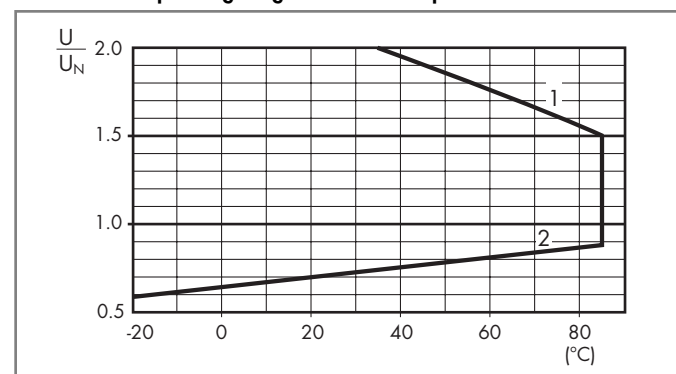
- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of  $\geq 60 \cdot 10^3$  can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.  
Note: the release time for the load will be increased.

### Coil specifications

DC coil data

| Nominal voltage<br>$U_N$<br>V | Coil code | Operating range |                | Resistance<br>R<br>$\Omega$ | Rated coil consumption<br>I at $U_N$<br>mA |
|-------------------------------|-----------|-----------------|----------------|-----------------------------|--|
|                               |           | $U_{min}$<br>V  | $U_{max}$<br>V |                             |  |
| 5                             | 7.005     | 3.5             | 7.5            | 130                         | 38.4                                       |
| 12                            | 7.012     | 8.4             | 18             | 840                         | 14.2                                       |
| 24                            | 7.024     | 16.8            | 36             | 3,350                       | 7.1  |
| 48                            | 7.048     | 33.6            | 72             | 12,300                      | 3.9  |
| 60                            | 7.060     | 42              | 90             | 19,700                      | 3  |

R 34 - DC coil operating range v ambient temperature



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

## Solid state relay

### Technical data

| Other data                    |                        |   |      |
|-------------------------------|------------------------|---|------|
| Power lost to the environment | without output current | W | 0.17 |
|                               | with rated current     | W | 0.4  |

### Input specification

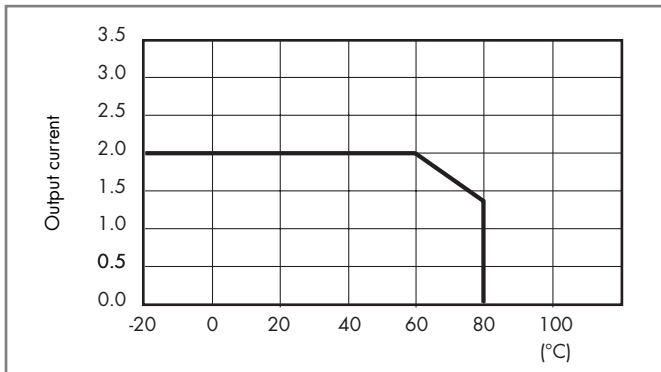
#### Input data - DC types

| Nominal voltage<br>$U_N$ | Input code | Operating range |           | Release voltage | Impedance  | Control current<br>I at $U_N$ |
|--------------------------|------------|-----------------|-----------|-----------------|------------|-------------------------------|
|                          |            | $U_{min}$       | $U_{max}$ |                 |            |                               |
| V                        |            | V               | V         | V               | $\Omega$   | mA                            |
| 5                        | 7.005      | 3.5             | 12 (10*)  | 1               | 715 (416*) | 7 (12*)                       |
| 24                       | 7.024      | 16              | 30        | 10              | 3,200      | 7                             |
| 60                       | 7.060      | 35              | 72        | 20              | 21,300     | 3                             |

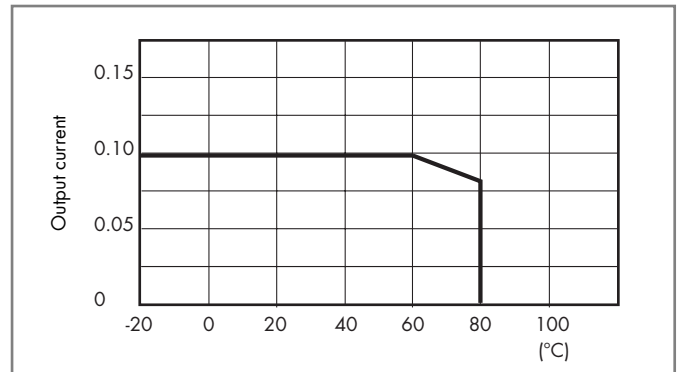
\* AC Output version.

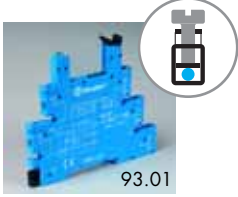
### Output specification

**L 34 - Output current v ambient temperature**  
SSR - 2 A DC & AC output types



**L 34 - Output current v ambient temperature**  
SSR - 0.1 A DC output types





93.01

Approvals  
(according to type):



Certain relay/socket combinations

**Screw terminal socket 35 mm (EN 50022) mounting**

| Supply voltage      | Relay type                           | Socket type  |
|---------------------|--------------------------------------|--------------|
| 12 V AC/DC          | 34.51.7.012.xx10                     | 93.01.0.024  |
| 24 V AC/DC          | 34.51.7.024.xx10                     | 93.01.0.024  |
| 48 V AC/DC          | 34.51.7.048.xx10                     | 93.01.0.060  |
| 60 V AC/DC          | 34.51.7.060.xx10                     | 93.01.0.060  |
| (110...125)V AC/DC  | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.01.0.125  |
| (220...240)V AC/DC  | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.01.0.240  |
| (110...125)V AC/DC* | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.01.3.125* |
| (220...240)V AC*    | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.01.3.240* |
| (220...240)V AC     | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.01.8.240  |
| 6 V DC              | 34.51.7.005.xx10 or 34.81.7.005.xxxx | 93.01.7.024  |
| 12 V DC             | 34.51.7.012.xx10                     | 93.01.7.024  |
| 24 V DC             | 34.51.7.024.xx10 or 34.81.7.024.xxxx | 93.01.7.024  |
| 48 V DC             | 34.51.7.048.xx10                     | 93.01.7.060  |
| 60 V DC             | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.01.7.060  |

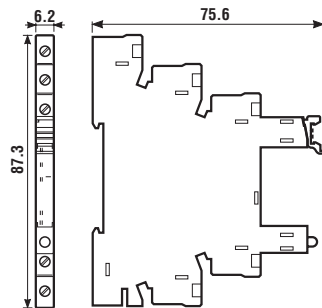
**Accessories**

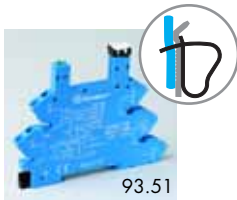
|                      |                                      |
|----------------------|--------------------------------------|
| 20-way jumper link   | 093.20 (see specification next page) |
| Plastic separator    | 093.01 (see specification next page) |
| Sheet of marker tags | 093.64 (see specification next page) |

**Technical data**

|                                 |  |               |               |
|---------------------------------|--|---------------|---------------|
| Rated values                    | 6A - 250 V   |               |               |
| Insulation                      | 6 kV (1.2/50 μs) between coil and contacts                                   |               |               |
| Protection category             | IP 20  |               |               |
| Ambient temperature             | (-40...+70)°C (U <sub>N</sub> ≤ 60 V), (-40...+55)°C (U <sub>N</sub> ≥ 60 V) |               |               |
| Screw torque                    | Nm   | 0.5           |               |
| Wire strip length               | mm   | 10            |               |
| Max. wire size for 93.01 socket | solid wire   | stranded wire |               |
|                                 | mm <sup>2</sup>  | 1x2.5 / 2x1.5 | 1x2.5 / 2x1.5 |
|                                 | AWG  | 1x14 / 2x16   | 1x14 / 2x16   |

\* Leakage current suppression.

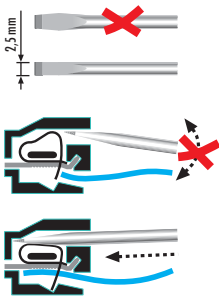




Approvals  
(according to type):



cUL US Certain relay/socket combinations



### Screwless terminal socket 35 mm (EN 50022) mounting

| Supply voltage      | Relay type                           | Socket type  |
|---------------------|--------------------------------------|--------------|
| 12 V AC/DC          | 34.51.7.012.xx10                     | 93.51.0.024  |
| 24 V AC/DC          | 34.51.7.024.xx10                     | 93.51.0.024  |
| (110...125)V AC/DC  | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.51.0.125  |
| (220...240)V AC/DC  | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.51.0.240  |
| (110...125)V AC/DC* | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.51.3.125* |
| (220...240)V AC*    | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.51.3.240* |
| (220...240)V AC     | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.51.8.240  |
| 12 V DC             | 34.51.7.012.xx10                     | 93.51.7.024  |
| 24 V DC             | 34.51.7.024.xx10 or 34.81.7.024.xxxx | 93.51.7.024  |
| 60 V DC             | 34.51.7.060.xx10 or 34.81.7.060.xxxx | 93.51.7.060  |

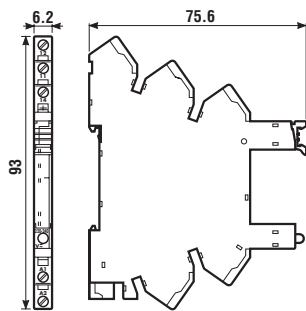
### Accessories

|                      |                          |
|----------------------|--------------------------|
| 20-way jumper link   | 093.20 (see table below) |
| Plastic separator    | 093.01 (see table below) |
| Sheet of marker tags | 093.64 (see table below) |

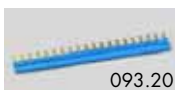
### Technical data

|                                 |  |       |
|---------------------------------|--|-------|
| Rated values                    | 6A - 250 V   |       |
| Insulation                      | 6 kV (1.2/50 μs) between coil and contacts                                   |       |
| Protection category             | IP 20  |       |
| Ambient temperature             | (-40...+70)°C (U <sub>N</sub> ≤ 60 V), (-40...+55)°C (U <sub>N</sub> ≥ 60 V) |       |
| Wire strip length               | mm   | 10    |
| Max. wire size for 93.51 socket | solid wire   |       |
|                                 | mm <sup>2</sup>  | 1x2.5 |
|                                 | AWG  | 1x14  |
|                                 | stranded wire  | 1x2.5 |
|                                 |  | 1x14  |

\* Leakage current suppression.



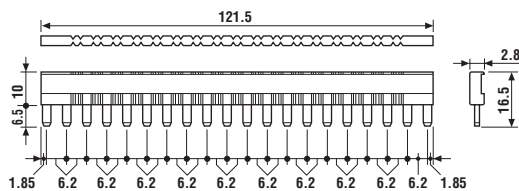
## Accessories



Approvals  
(according to type):



|   |               |                  |
|---|---------------|------------------|
| <b>20-way jumper link</b> for 93.01 and 93.51 sockets | 093.20 (blue) | 093.20.0 (black) |
| Rated values  | 36 A - 250 V  |                  |



|  |        |
|--|--------|
| <b>Plastic separator</b> for 93.01 and 93.51 sockets | 093.01 |
|--|--------|

Thickness 2 mm, required at the start and the end of a group of interfaces.

Can be used for visual separation of groups. Must be used for:

- protective separation of different voltages of neighbouring PLC interfaces according to VDE 0106-101
- protection of cut jumper links



|   |        |
|---|--------|
| <b>Sheet of marker tags</b> , plastic, 64 tags, 6x10 mm for 93.01 and 93.51 sockets | 093.64 |
|---|--------|



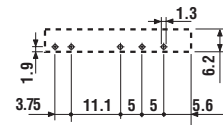
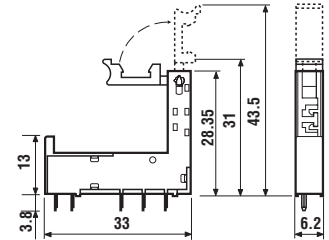
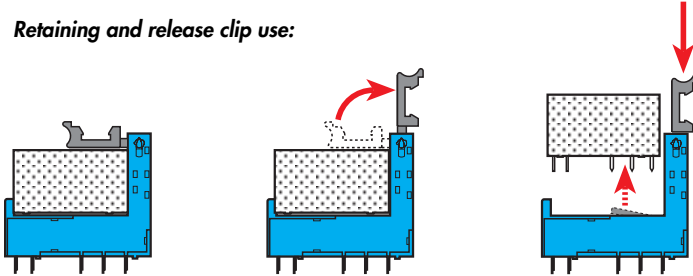
93.11

Approvals  
(according to type):



|   |  |
|---|--|
| <b>PCB socket with retaining and release clip</b> | <b>93.11 (blue)</b>                                    |
| For relay type                                    | 34.51, 34.81   |
| <b>Technical data</b>                             |  |
| Rated values                                      | 6 A - 250 V  |
| Insulation  | $\geq 6$ kV (1.2/50 $\mu$ s) between coil and contacts |
| Protection category                               | IP 20  |
| Ambient temperature                               | $^{\circ}\text{C}$ -40...+70                           |

**Retaining and release clip use:**



Copper side view

