



Tyco Electronics - Schrack has a reputation for sound technical experience and provides engineering and sales support in local markets which in turn leads to total customer satisfaction.

World-wide we build lasting relationships with our customers through the innovative combination of:

- high quality products
- individual application support and
- complete service.

As a specialist and innovator for relays we offer technically superior and environmentally friendly solutions for reliable electrical switching.

Our extensive knowledge of markets and technology ensure that our products and systems provide optimal solutions for our customers and their applications.

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## PCB Power Relays

### Miniature PCB Relay PE

1 pole 5 A

- 1 C/O
- Cadmium-free contacts
- Sensitive coil 200 mW
- 4 kV coil-contact
- Low height 10.0 mm



#### Contacts

Configuration  
Rated current  
Rated voltage  
Breaking capacity

1 C/O  
5 A  
250 Vac  
1250 VA

#### Coil

Nominal voltage  
Nominal coil power  
Other coil versions

5...48 Vdc  
200 mW  
-

#### Insulation

Dielectric strength  
Clearance / creepage

4000 V<sub>rms</sub>  
3.2 / 4 mm

#### General data

Ambient temperature max.  
Standard versions  
Terminals  
Dimensions l x w x h

+85 °C  
flux proof, wash tight  
PCB  
20 x 10 x 10 mm

#### Databook

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#### Accessories

-

### Miniature PCB Relay PE bistable

1 pole 5 A  
polarized bistable version

- 1 C/O
- Bistable with 1 coil
- 4 kV coil-contact
- Low height 10.0 mm



1 C/O  
5 A  
250 Vac  
1250 VA

3...24 Vdc  
360 mW  
-

4000 V<sub>rms</sub>  
3.2 / 4 mm

+70 °C

flux proof, wash tight  
PCB  
20 x 10 x 10 mm

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-

## Miniature PCB Relay RE

1 pole 6 A

- 1 N/O
- Sensitive coil 200 mW
- 4 kV coil-contact
- Optimized height 10.6 mm
- PCB area 200 mm<sup>2</sup>
- Wash tight



|                       |  |
|-----------------------|--|
| 1 N/O                 |  |
| 6 A                   |  |
| 250 Vac               |  |
| 1500 VA               |  |
|                       |  |
| 5...48 Vdc            |  |
| 200 mW                |  |
| -                     |  |
|                       |  |
| 4000 V <sub>rms</sub> |  |
| 4 / 4 mm              |  |
|                       |  |
| +70 °C                |  |
| wash tight            |  |
| PCB                   |  |
| 20 x 10 x 10.6 mm     |  |
|                       |  |
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|                       |  |

## Slim PCB Relay SNR

1 pole 6 A

- 1 C/O or 1 N/O
- Only 5 mm wide
- Cadmium-free contacts
- Sensitive coil 170 mW
- 4 kV coil-contact
- 6/8 mm creepage/clearance
- Protection class II



|                       |  |
|-----------------------|--|
| 1 C/O or 1 N/O        |  |
| 6 A                   |  |
| 250 Vac               |  |
| 1500 VA               |  |
|                       |  |
| 5...48 Vdc            |  |
| 170 mW                |  |
| -                     |  |
|                       |  |
| 4000 V <sub>rms</sub> |  |
| 6 / 8 mm              |  |
|                       |  |
| +85 °C                |  |
| wash tight            |  |
| PCB                   |  |
| 28 x 5 x 15 mm        |  |
|                       |  |
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## Miniature Power PCB Relay RY II

1 pole 8 A

- 1 C/O or 1 N/O or 1 N/C
- 5 kV / 8 mm coil-contact
- Protection class II (VDE 0700)
- Low height 12.3 mm
- Pinnings: 3.2 and 5 mm
- Sockets with PCB-type or screw-type terminals



|                         |
|-------------------------|
| 1 C/O or 1 N/O or 1 N/C |
| 8 A                     |
| 250 Vac                 |
| 2000 VA                 |
|                         |
| 5...48 Vdc              |
| 220 mW                  |
| -                       |
|                         |
| 5000 V <sub>rms</sub>   |
| 8 / 8 mm                |
|                         |
| +85 °C                  |
| flux proof, wash tight  |
| PCB                     |
| 28.5 x 10.1 x 12.3 mm   |
|                         |
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## Miniature Power PCB Relay MSR

1 pole 8 A

- 1 C/O or 1 N/O
- High inrush currents (TV4 = 65 A) with AgSnO contacts
- 4 kV / 8 mm coil-contact
- Protection class II
- Ambient temperature up to 85°C at 8 A



|                       |
|-----------------------|
| 1 C/O or 1 N/O        |
| 8 A                   |
| 250 Vac               |
| 2000 VA               |
|                       |
| 3...60 Vdc            |
| 220 mW                |
| -                     |
|                       |
| 4000 V <sub>rms</sub> |
| 8 / 8 mm              |
|                       |
| +85 °C                |
| wash tight            |
| PCB                   |
| 28.6 x 10 x 15 mm     |
|                       |
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# PCB Power Relays

## Power PCB Relay RT1

1 pole 12 / 16 A,  
DC- or AC-coil

- 1 C/O or 1 N/O
- Sensitive coil 400 mW, 0.75 VA
- 5 kV / 10 mm coil-contact
- Protection class II
- Ambient temperature 85°C (DC-coil)
- Height 15.7 mm



## Power PCB Relay RT1 bistable

1 pole 16A,  
polarized bistable version

- 1 C/O
- Bistable with 1 or 2 coils
- 5 kV/10 mm coil-contact
- Height 15.7 mm
- Cadmium-free contacts
- Protection class II (VDE 0700)



## Power PCB Relay RT1 sensitive

1 pole 10 A,  
highly sensitive version

- 1 C/O or 1 N/O
- Sensitive coil 250 mW
- 5 kV/10 mm coil-contact
- Protection class II (VDE 0700)
- Ambient temperature 85°C at rated load
- Height 15.7 mm



### Contacts

|                   |                |         |
|-------------------|----------------|---------|
| Configuration     | 1 C/O or 1 N/O |         |
| Rated current     | 12 A           | 16 A    |
| Rated voltage     | 250 Vac        |         |
| Breaking capacity | 3000 VA        | 4000 VA |

### Coil

|                     |             |              |
|---------------------|-------------|--------------|
| Nominal voltage     | 5...110 Vdc | 24...230 Vac |
| Nominal coil power  | 400 mW      | 0.75 VA      |
| Other coil versions | -           |              |

### Insulation

|                      |                       |  |
|----------------------|-----------------------|--|
| Dielectric strength  | 5000 V <sub>rms</sub> |  |
| Clearance / creepage | 10 / 10 mm            |  |

### General data

|                          |                        |            |
|--------------------------|------------------------|------------|
| Ambient temperature max. | DC: +85 °C             | AC: +70 °C |
| Standard versions        | flux proof, wash tight |            |
| Terminals                | PCB                    |            |
| Dimensions l x w x h     | 29 x 12.7 x 15.7 mm    |            |

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|                   |         |
|-------------------|---------|
| Configuration     | 1 C/O   |
| Rated current     | 16 A    |
| Rated voltage     | 250 Vac |
| Breaking capacity | 4000 VA |

|                     |              |
|---------------------|--------------|
| Nominal voltage     | 5...24 Vdc   |
| Nominal coil power  | 400 / 600 mW |
| Other coil versions | -            |

|                      |                       |
|----------------------|-----------------------|
| Dielectric strength  | 5000 V <sub>rms</sub> |
| Clearance / creepage | 10 / 10 mm            |

|                          |                     |
|--------------------------|---------------------|
| Ambient temperature max. | +85 °C              |
| Standard versions        | flux proof          |
| Terminals                | PCB                 |
| Dimensions l x w x h     | 29 x 12.7 x 15.7 mm |

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|                   |                |
|-------------------|----------------|
| Configuration     | 1 C/O or 1 N/O |
| Rated current     | 10 A           |
| Rated voltage     | 250 Vac        |
| Breaking capacity | 2500 VA        |

|                     |            |
|---------------------|------------|
| Nominal voltage     | 5...60 Vdc |
| Nominal coil power  | 250 mW     |
| Other coil versions | -          |

|                      |                       |
|----------------------|-----------------------|
| Dielectric strength  | 5000 V <sub>rms</sub> |
| Clearance / creepage | 10 / 10 mm            |

|                          |                        |
|--------------------------|------------------------|
| Ambient temperature max. | +85 °C                 |
| Standard versions        | flux proof, wash tight |
| Terminals                | PCB                    |
| Dimensions l x w x h     | 29 x 12.7 x 15.7 mm    |

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## Power PCB Relay RT1 Inrush

1 pole 16 A, for inrush peak currents up to 80 A

- 1 N/O
- Sensitive coil 400 mW
- 5 kV / 10 mm coil-contact
- Protection class II (VDE 0700)
- Ambient temperature 85°C
- Height 15.7 mm



|                       |  |
|-----------------------|--|
| 1 N/O                 |  |
| 16 A                  |  |
| 250 Vac               |  |
| 4000 VA               |  |
|                       |  |
| 5...110 Vdc           |  |
| 400 mW                |  |
| -                     |  |
|                       |  |
| 5000 V <sub>rms</sub> |  |
| 10 / 10 mm            |  |
|                       |  |
| +85 °C                |  |
| flux proof            |  |
| PCB                   |  |
| 29 x 12.7 x 15.7 mm   |  |
|                       |  |
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|                       |  |
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## Power PCB Relay 429 03 Inrush

1 pole 10 A, for inrush peak currents up to 80 A

- 1 N/O
- Tungsten prerun contact
- Sensitive coil 480 mW
- 4 kV / 8 mm coil-contact
- Height 15.0 mm



|                       |  |
|-----------------------|--|
| 1 N/O                 |  |
| 10 A                  |  |
| 250 Vac               |  |
| 2500 VA               |  |
|                       |  |
| 6...60 Vdc            |  |
| 480 mW                |  |
| -                     |  |
|                       |  |
| 4000 V <sub>rms</sub> |  |
| 8 / 8 mm              |  |
|                       |  |
| +70 °C                |  |
| flux proof            |  |
| PCB                   |  |
| 28.5 x 12.5 x 15.0 mm |  |
|                       |  |
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## Power PCB Relay RTH 105°C sensitive

1 pole 10 A, high-temperature version

- 1 N/O
- Sensitive coil 250 mW
- 5 kV / 10 mm coil-contact
- Protection class II (VDE 0700)
- Ambient temperature 105°C at rated load
- Height 15.7 mm



|                       |  |
|-----------------------|--|
| 1 N/O                 |  |
| 10 A                  |  |
| 250 Vac               |  |
| 2500 VA               |  |
|                       |  |
| 5...60 Vdc            |  |
| 250 mW                |  |
| -                     |  |
|                       |  |
| 5000 V <sub>rms</sub> |  |
| 10 / 10 mm            |  |
|                       |  |
| +105 °C               |  |
| flux proof            |  |
| PCB                   |  |
| 29 x 12.7 x 15.7 mm   |  |
|                       |  |
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## Power PCB Relay RTH 105°C 16 A

1 pole 16 A, high-temperature version

- 1 C/O or 1 N/O
- 16 A rated current
- 5 kV / 10 mm coil-contact
- Protection class II (VDE 0700)
- Ambient temperature 105°C at rated load
- Height 15.7 mm



|                       |
|-----------------------|
| 1 C/O or 1 N/O        |
| 16 A                  |
| 250 Vac               |
| 4000 VA               |
|                       |
| 5...60 Vdc            |
| 400 mW                |
| -                     |
|                       |
| 5000 V <sub>rms</sub> |
| 10 / 10 mm            |
|                       |
| +105 °C               |
| flux proof            |
| PCB                   |
| 29 x 12.7 x 15.7 mm   |
|                       |
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# PCB Power Relays

## Power PCB Relay RP II/1

1 pole 8 / 12 / 16 A

- 1 C/O or 1 N/O
- 4 kV / 8 mm coil-contact
- Pinning 3.5 or 5 mm (8 / 12 A) and 5 mm (16 A)
- PCB-sockets



## Special Load PCB Relay RP 3 SL

1 pole 16 A, for high inrush currents, mono- or bistable

- 1 N/O
- 120 A / 20 ms inrush peak current
- 4 kV / 8 mm coil-contact



## Special Load PCB Relay 409

1 pole 10 A, for high inrush currents, mono- or bistable

- 1 N/O
- 500 A / 10  $\mu$ s inrush peak current
- Tungsten prerun contact
- 4 kV / 8 mm coil-contact



### Contacts

|                   |                |         |         |         |  |         |  |
|-------------------|----------------|---------|---------|---------|--|---------|--|
| Configuration     | 1 C/O or 1 N/O |         |         | 1 N/O   |  | 1 N/O   |  |
| Rated current     | 8 A            | 12 A    | 16 A    | 16 A    |  | 10 A    |  |
| Rated voltage     | 250 Vac        |         |         | 250 Vac |  | 250 Vac |  |
| Breaking capacity | 2000 VA        | 3000 VA | 4000 VA | 4000 VA |  | 2500 VA |  |

### Coil

|                     |             |  |  |             |  |             |  |
|---------------------|-------------|--|--|-------------|--|-------------|--|
| Nominal voltage     | 6...110 Vdc |  |  | 5...110 Vdc |  | 5...110 Vdc |  |
| Nominal coil power  | 500 mW      |  |  | 500 mW      |  | 820 mW      |  |
| Other coil versions | -           |  |  | bistable    |  | bistable    |  |

### Insulation

|                      |                       |  |  |                       |  |                       |  |
|----------------------|-----------------------|--|--|-----------------------|--|-----------------------|--|
| Dielectric strength  | 4000 V <sub>rms</sub> |  |  | 4000 V <sub>rms</sub> |  | 4000 V <sub>rms</sub> |  |
| Clearance / creepage | 8 / 8 mm              |  |  | 8 / 8 mm              |  | 8 / 8 mm              |  |

### General data

|                          |                        |  |  |                        |  |                       |  |
|--------------------------|------------------------|--|--|------------------------|--|-----------------------|--|
| Ambient temperature max. | +70 °C                 |  |  | +70 °C                 |  | +70 °C                |  |
| Standard versions        | flux proof, wash tight |  |  | flux proof, wash tight |  | flux proof            |  |
| Terminals                | PCB                    |  |  | PCB                    |  | PCB                   |  |
| Dimensions l x w x h     | 29 x 12.6 x 25.5 mm    |  |  | 29 x 12.6 x 25.5 mm    |  | 28.5 x 12.2 x 25.3 mm |  |

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### Accessories

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## Faston Power Relay IF 125°C

1 pole 16 A

- 1 N/O or 1 N/C
- Insulation to VDE 0631 and VDE 0700
- Ambient temperature up to 125°C
- Faston-terminals



|                       |
|-----------------------|
| 1 N/O or 1 N/C        |
| 16 A                  |
| 250 Vac               |
| 4000 VA               |
| 6...48 Vdc            |
| 360 mW                |
| -                     |
| 4000 V <sub>rms</sub> |
| 8 / 8 mm              |
| +125 °C               |
| flux proof            |
| PCB                   |
| 29 x 13.2 x 29 mm     |
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## Faston Power Relay 410 63 125°C

1 pole 16 A

- 1 N/O or 1 N/C
- Insulation to VDE 0631 and VDE 0700
- Ambient temperature up to 125°C
- Faston-terminals



|                       |
|-----------------------|
| 1 N/O or 1 N/C        |
| 16 A                  |
| 250 Vac               |
| 4000 VA               |
| 6...60 Vdc            |
| 360 mW                |
| -                     |
| 4000 V <sub>rms</sub> |
| 8 / 8 mm              |
| +125 °C               |
| flux proof            |
| PCB                   |
| 29 x 12.5 x 28.5 mm   |
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## Faston Power Relay 410 83 3 mm

1 pole 16 A

- 1 N/O
- Insulation to VDE 0631 and VDE 0700
- Faston-terminals
- Contact gap > 3 mm



|                       |
|-----------------------|
| 1 N/O                 |
| 16 A                  |
| 250 Vac               |
| 4000 VA               |
| 6...60 Vdc            |
| 360 mW                |
| -                     |
| 4000 V <sub>rms</sub> |
| 8 / 8 mm              |
| +85°C                 |
| flux proof            |
| PCB                   |
| 29 x 12,5 x 28,5 mm   |
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## Power PCB Relay Card E

1 pole 8 A

- 1 C/O or 1 N/O
- 4 kV coil-contact
- Vertical and horizontal version
- Version with twin contacts
- Wash tight



|                       |
|-----------------------|
| 1 C/O or 1 N/O        |
| 8 A                   |
| 250 Vac               |
| 2000 VA               |
| 6...60 Vdc            |
| 450...500 mW          |
| -                     |
| 4000 V <sub>rms</sub> |
| 4 / 4 mm              |
| +70 °C                |
| wash tight            |
| PCB                   |
| 28 x 10.4 x 25.1 mm   |
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# PCB Power Relays

## Power PCB Relay RT2

2 pole 8 A,  
DC and AC-coil

- 2 C/O or 2 N/O
- Sensitive coil 400 mW
- DC- or AC-coil
- 5 kV / 10 mm coil-contact
- Protection class II (VDE 0700)
- Height 15.7 mm



## Power PCB Relay RT2 bistable

2 pole 8 A,  
polarized bistable version

- 2 C/O
- Bistable with 1 or 2 coils
- 5 kV / 10 mm coil-contact
- Height 15.7 mm
- Cadmium-free contacts
- Protection class II (VDE 0700)



## Power PCB Relay RP II/2

2 pole 8 A

- 2 C/O or 2 N/O
- 4 kV / 8 mm coil-contact
- Twin contacts available
- PCB-sockets



### Contacts

|                   |                |         |                |
|-------------------|----------------|---------|----------------|
| Configuration     | 2 C/O or 2 N/O | 2 C/O   | 2 C/O or 2 N/O |
| Rated current     | 8 A            | 8 A     | 8 A            |
| Rated voltage     | 250 Vac        | 250 Vac | 250 Vac        |
| Breaking capacity | 2000 VA        | 2000 VA | 2000 VA        |

### Coil

|                     |             |              |             |
|---------------------|-------------|--------------|-------------|
| Nominal voltage     | 5...110 Vdc | 24...230 Vac | 5...110 Vdc |
| Nominal coil power  | 400 mW      | 0.75 VA      | 500 mW      |
| Other coil versions | -           | -            | -           |

### Insulation

|                      |                       |                       |                       |
|----------------------|-----------------------|-----------------------|-----------------------|
| Dielectric strength  | 5000 V <sub>rms</sub> | 5000 V <sub>rms</sub> | 4000 V <sub>rms</sub> |
| Clearance / creepage | 10 / 10 mm            | 10 / 10 mm            | 8 / 8 mm              |

### General data

|                          |                        |                     |                        |
|--------------------------|------------------------|---------------------|------------------------|
| Ambient temperature max. | +70 °C                 | +85 °C (UL: 70 °C)  | +70 °C                 |
| Standard versions        | flux proof, wash tight | flux proof          | flux proof, wash tight |
| Terminals                | PCB                    | PCB                 | PCB                    |
| Dimensions l x w x h     | 29 x 12.7 x 15.7 mm    | 29 x 12.7 x 15.7 mm | 29 x 12.6 x 25.5 mm    |

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### Accessories

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## Power PCB Relay U/UB

1 pole 7 A, mono or bistable

- 1 C/O or 1 N/O or 1 N/C
- Bistable and DC-version
- Versions with 230 mW or 180 mW pull-in power



|                         |
|-------------------------|
| 1 C/O or 1 N/O or 1 N/C |
| 7 A                     |
| 250 Vac                 |
| 1750 VA                 |

|                    |
|--------------------|
| 6...48 Vdc         |
| 450 mW      330 mW |
| sensitive          |

|                       |                       |
|-----------------------|-----------------------|
| 2000 V <sub>rms</sub> | 4000 V <sub>rms</sub> |
| 2.5 mm                | 3.5 mm                |

|                       |
|-----------------------|
| +70 °C                |
| wash tight            |
| PCB                   |
| 21.2 x 16.2 x 14.9 mm |

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-

## Low Profile PCB Relay PCD

1 pole 10 A

- 1 N/O
- Low coil power 200 mW
- Height 10.2 mm
- Wash tight



|         |
|---------|
| 1 N/O   |
| 10 A    |
| 250 Vac |
| 2500 VA |

|            |
|------------|
| 6...24 Vdc |
| 200 mW     |
| -          |

|                       |
|-----------------------|
| 2500 V <sub>rms</sub> |
| 4 mm                  |

|                        |
|------------------------|
| +70 °C                 |
| flux proof, wash tight |
| PCB                    |
| 23 x 15.9 x 10.2 mm    |

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-

## Miniature Power PCB Relay PB

1 pole 10 A

- 1 C/O or 1 N/O contact
- Environmentally-friendly cadmium-free contacts
- Creepage/clearance to VDE 0435 and VDE 0700
- Class F coil available



|                |
|----------------|
| 1 C/O or 1 N/O |
| 10 A           |
| 250 Vac        |
| 2500 VA        |

|                  |
|------------------|
| 5, 6, 12, 24 Vdc |
| 360 mW           |
| -                |

|                       |
|-----------------------|
| 2500 V <sub>rms</sub> |
| 3 / 4 mm              |

|                 |
|-----------------|
| +85 °C          |
| flux proof      |
| PCB             |
| 15 x 15 x 20 mm |

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-

## Miniature Power Relay T7N / T7N-WG

1 pole 10 A

- 1 C/O or 1 N/O
- Coil version 360 mW or 450 mW
- Ambient temperature up to 85°C
- Creepage- and clearance of base insulation according to VDE 0435 (T7N-WG: VDE 0700)



|                |
|----------------|
| 1 C/O or 1 N/O |
| 10 A           |
| 250 Vac        |
| 2500 VA        |

|            |            |
|------------|------------|
| 6...48 Vdc | 6...36 Vdc |
| 360 mW     | 450 mW     |
| -          | -          |

|                        |
|------------------------|
| 2000 V <sub>rms</sub>  |
| 2 / 3 mm      3 / 4 mm |

|                       |
|-----------------------|
| +85 °C                |
| wash tight            |
| PCB                   |
| 22.5 x 16.5 x 16.9 mm |

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-

# PCB & Power Relays

## Power Relay T9A

1 pole 25 A

- 1 N/O or 1 C/O
- High breaking capacity
- PCB- and Faston connections and chassis mount version
- UL-class F as standard
- Ambient temperature 85°C
- Open version available



## Power Relay T92

2 pole 30 A, DC- and AC-coil

- 2 C/O or 2 N/O
- Switching capacity 7500 VA
- DC- or AC coil
- 4 kV / 8 mm coil-contact
- Insulation to VDE 0631 and VDE 0700
- PCB- or Faston connections or chassis mount



### Contacts

|                   |                   |         |
|-------------------|-------------------|---------|
| Configuration     | 1 C/O             | 1 N/O   |
| Rated current     | 20(N/O)/10(N/C) A | 25 A    |
| Rated voltage     | 250 Vac           |         |
| Breaking capacity | 4800 VA           | 7200 VA |

### Coil

|                     |            |
|---------------------|------------|
| Nominal voltage     | 6...48 Vdc |
| Nominal coil power  | 1 W        |
| Other coil versions | -          |

### Insulation

|                      |                       |
|----------------------|-----------------------|
| Dielectric strength  | 2500 V <sub>rms</sub> |
| Clearance / creepage | 3.1 / 6.3 mm          |

### General data

|                          |                       |
|--------------------------|-----------------------|
| Ambient temperature max. | +85 °C                |
| Standard versions        | wash tight            |
| Terminals                | PCB, Faston           |
| Dimensions l x w x h     | 32.3 x 27.4 x 20.4 mm |

### Databook

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### Accessories

-

|                    |
|--------------------|
| 2 C/O or 2 N/O     |
| 30(N/O) / 3(N/C) A |
| 250 Vac            |
| 7500 VA            |

|            |              |
|------------|--------------|
| 6...48 Vdc | 24...240 Vac |
| 1.7 W      | 4.0 VA       |
| -          | -            |

|                       |
|-----------------------|
| 4000 V <sub>rms</sub> |
| 8 / 9.5 mm            |

|                        |            |
|------------------------|------------|
| DC: +85 °C             | AC: +65 °C |
| dust-proof, wash tight |            |
| PCB, Faston            |            |
| 52.3 x 34.6 x 30.8 mm  |            |

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-

# Power Relay 430 3 mm

1 pole 16 A, DC- and AC-coil

- 1 N/O
- Safety mains insulation
- Contact gap > 3 mm
- Switching capacity 4000 VA
- DC- or AC coil
- 4 kV / 8 mm coil-contact
- PCB mounting or Faston connectors
- Mounting brackets or snap mounting



|                       |             |
|-----------------------|-------------|
| 1 N/O                 |             |
| 16 A                  |             |
| 250 Vac               |             |
| 4000 VA               |             |
| 6...110 Vdc           | 6...240 Vac |
| 1 W                   | 1.8 VA      |
| -                     | -           |
| 4000 V <sub>rms</sub> |             |
| 8 / 8 mm              |             |
| +70°C                 |             |
| dust protected        |             |
| PCB, Faston           |             |
| 35.5 x 16.4 x 28.5 mm |             |
| page 93               |             |
| -                     |             |

# Power Relay 430

1 pole 16 A, DC- and AC-coil,  
2 pole 10 A, DC- and AC-coil

- 1 or 2 pole, N/O, C/O and N/C
- 4 kV / 8 mm coil-contact
- DC- or AC coil
- PCB mounting or Faston connectors
- Mounting brackets or snap mounting



|                       |                 |
|-----------------------|-----------------|
| 1 N/O, C/O, N/C       | 2 N/O, C/O, N/C |
| 16 A                  | 10 A            |
| 250 Vac               |                 |
| 4000 VA               | 2500 VA         |
| 6...110 Vdc           | 6...240 Vac     |
| 1 W                   | 1.8 VA          |
| -                     | -               |
| 4000 V <sub>rms</sub> |                 |
| 8 / 8 mm              |                 |
| +70°C                 |                 |
| dust protected        |                 |
| PCB, Faston           |                 |
| 35.5 x 16.4 x 30.5 mm |                 |
| page 96               |                 |
| -                     |                 |

# Rast 5 Power Relay 419 01

2 pole 16 A, DC- and AC-coil

- 2 N/O
- Contact gap > 3 mm
- Switching capacity 4000 VA
- DC- or AC coil
- Safety mains insulation
- 4 kV / 8 mm coil-contact
- Faston connectors
- Snap or screw mount



|                       |               |
|-----------------------|---------------|
| 2 N/O                 |               |
| 16 A                  |               |
| 250 Vac               |               |
| 4000 VA               |               |
| 6...24 Vdc            | 120...400 Vac |
| 1.3 W                 | 2.0...2.5 VA  |
| -                     | -             |
| 4000 V <sub>rms</sub> |               |
| 8 / 8 mm              |               |
| +90°C                 |               |
| dust protected        |               |
| Faston                |               |
| 47 x 24 x 47 mm       |               |
| page 99               |               |
| -                     |               |

# Safety Relays

## Safety Relay SR2M

2 pole 6 A

- Relay with forcibly guided contacts according to EN 50205
- 1 N/O + 1 N/C or 2 C/O
- 6 kV surge resistance between poles



## Safety Relay SR4 D/M

4 pole 8 A

- Relay with forcibly guided contacts according to EN 50205
- 2 N/O + 2 N/C or 3 N/O + 1 N/C
- Small size



## Safety Relay SR6 D/M

4 pole 8 A

- Relay with forcibly guided contacts according to EN 50205
- 2 N/O + 2 N/C or 3 N/O + 1 N/C
- High insulation distances for safe separation of electrical circuits



### Contacts

|                   |                        |                        |                        |
|-------------------|------------------------|------------------------|------------------------|
| Configuration     | 1 N/O + 1 N/C or 2 C/O | 2N/O+2N/C or 3N/O+1N/C | 2N/O+2N/C or 3N/O+1N/C |
| Rated current     | 6 A                    | 8 A                    | 8 A                    |
| Rated voltage     | 250 Vac                | 250 Vac                | 250 Vac                |
| Breaking capacity | 1500 VA                | 2000 VA                | 2000 VA                |

### Coil

|                     |             |             |             |
|---------------------|-------------|-------------|-------------|
| Nominal voltage     | 5...110 Vdc | 5...110 Vdc | 5...110 Vdc |
| Nominal coil power  | 700 mW      | 800 mW      | 1200 mW     |
| Other coil versions | -           | -           | -           |

### Insulation

|                                   |              |            |                            |
|-----------------------------------|--------------|------------|----------------------------|
| Clearance / creepage coil-contact | 8 / 8 mm     | 8 / 8 mm   | 5.5 / 5.5 mm               |
| Clearance / creepage cont.-cont.  | 5.5 / 5.5 mm | 3 / 3.5 mm | 5.5 / 5.5 mm or 12 / 12 mm |

### General data

|                          |                     |                 |                   |
|--------------------------|---------------------|-----------------|-------------------|
| Ambient temperature max. | +70 °C              | +70 °C          | +70 °C            |
| Standard versions        | wash tight          | wash tight      | wash tight        |
| Terminals                | PCB                 | PCB             | PCB               |
| Dimensions l x w x h     | 29 x 12.6 x 25.5 mm | 40 x 13 x 16 mm | 55 x 16.5 x 16 mm |

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### Accessories

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-

# Safety Relay SR6

6 pole 8 A

- Relay with forcibly guided contacts according to EN 50205
- Small size
- 4 N/O + 2 N/C,  
3 N/O + 3 N/C,  
5 N/O + 1 N/C



# Safety Relay SR6 sensitive

6 pole 8 A

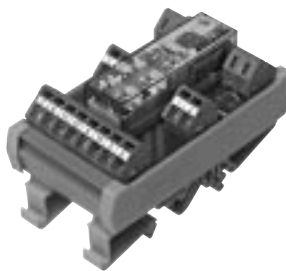
- Relay with forcibly guided contacts according to EN 50205
- polarized with 800 mW power consumption
- 4 N/O + 2 N/C,  
3 N/O + 3 N/C,  
5 N/O + 1 N/C



# Safety Relay SR6Z

6 pole 8 A

- SR6 on printed circuit board
- 4 N/O + 2 N/C,  
3 N/O + 3 N/C,  
5 N/O + 1 N/C
- AC/DC input
- Spring connectors
- Module width 46 mm



|                                 |
|---------------------------------|
| 4N/O+2N/C, 3N/O+3N/C, 5N/O+1N/C |
| 8 A                             |
| 250 Vac                         |
| 2000 VA                         |
| 5...110 Vdc                     |
| 1200 mW                         |
| -                               |
| 5.5 / 5.5 mm                    |
| 5.5 / 5.5 mm                    |
| +70 °C                          |
| wash tight                      |
| PCB                             |
| 55 x 16.5 x 16 mm               |
| page 110                        |
| -                               |

|                                 |
|---------------------------------|
| 4N/O+2N/C, 3N/O+3N/C, 5N/O+1N/C |
| 8 A                             |
| 250 Vac                         |
| 2000 VA                         |
| 5...48 Vdc                      |
| 800 mW                          |
| -                               |
| 5.5 / 5.5 mm                    |
| 5.5 / 5.5 mm                    |
| +70 °C                          |
| wash tight                      |
| PCB                             |
| 55 x 16.5 x 16 mm               |
| page 113                        |
| -                               |

|                                 |
|---------------------------------|
| 4N/O+2N/C, 3N/O+3N/C, 5N/O+1N/C |
| 8 A                             |
| 250 Vac                         |
| 2000 VA                         |
| 12..115 Vdc/Vac, 230 Vac        |
| 1200 mW                         |
| -                               |
| 5.5 / 5.5 mm                    |
| 3 / 3 mm                        |
| +50 °C                          |
| -                               |
| spring connector terminals      |
| 87 x 46 mm                      |
| page 116                        |
| -                               |

# Industrial Relays

## Slim Interface Relais SNR

1 pole 6 A

- 1 C/O 6 A
- Module width 5,08 mm
- Cadmium-free contacts
- Sensitive coil 170 mW
- 4 kV coil-contact
- 6/8 mm clearance/creepage
- Protection class II (VDE 0700)
- Safe separation to VDE0106



## Interface Power Relay RT

1 pole 12 / 16 A, 2 pole 8 A, DC- or AC coil

- 1 C/O 12 or 16 A or 2 C/O 8 A
- Sensitive coil 400 mW
- Cadmium-free contacts
- Protection class II (VDE 0700)
- Safe separation to VDE0106
- 5 kV / 10 mm coil-contact



## Miniature Relay PT

2 / 3 / 4 pole 12 / 10 / 6 A, DC- or AC-coil

- 2, 3 or 4 C/O
- Sensitive coil
- Low height 29 mm
- Cadmium-free contacts
- Mechanical indicator
- Manual test tab, optionally lockable
- C250 in 3 pole version



### Contacts

|                   |         |                |         |         |         |         |
|-------------------|---------|----------------|---------|---------|---------|---------|
| Configuration     | 1 C/O   | 1 C/O          | 2 C/O   | 2 C/O   | 3 C/O   | 4 C/O   |
| Rated current     | 6 A     | 12 / 16 A      | 8 A     | 12 A    | 10 A    | 6 A     |
| Rated voltage     | 250 Vac | 250 Vac        | 250 Vac | 250 Vac | 250 Vac | 250 Vac |
| Breaking capacity | 1500 VA | 3000 / 4000 VA | 2000 VA | 3000 VA | 2500 VA | 1500 VA |

### Coil

|                     |            |             |             |             |             |  |
|---------------------|------------|-------------|-------------|-------------|-------------|--|
| Nominal voltage     | 5...48 Vdc | 6...110 Vdc | 24...230Vac | 6...220 Vdc | 6...230 Vac |  |
| Nominal coil power  | 170 mW     | 400 mW      | 0.75 VA     | 0.75 W      | 1.0 VA      |  |
| Other coil versions | -          | see RT      |             | -           |             |  |

### Insulation

|                      |                       |                       |                       |                       |                       |                       |
|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Dielectric strength  | 4000 V <sub>rms</sub> | 5000 V <sub>rms</sub> | 5000 V <sub>rms</sub> | 2500 V <sub>rms</sub> | 2500 V <sub>rms</sub> | 2500 V <sub>rms</sub> |
| Clearance / creepage | 6 / 8 mm              | 10 / 10 mm            | 10 / 10 mm            | 3/4mm                 | 2.6/4mm               | 1.8/3mm               |

### General data

|                          |                |                     |                     |                        |                        |                        |
|--------------------------|----------------|---------------------|---------------------|------------------------|------------------------|------------------------|
| Ambient temperature max. | +85 °C         | +70°C               | +70°C               | +70°C                  | +70°C                  | +70°C                  |
| Standard versions        | flux proof     | flux proof          | flux proof          | dust-proof, flux proof | dust-proof, flux proof | dust-proof, flux proof |
| Terminals                | plug-in        | plug-in             | plug-in             | plug-in, PCB           | plug-in, PCB           | plug-in, PCB           |
| Dimensions l x w x h     | 28 x 5 x 15 mm | 29 x 12.7 x 15.7 mm | 29 x 12.7 x 15.7 mm | 28 x 22.5 x 29 mm      | 28 x 22.5 x 29 mm      | 28 x 22.5 x 29 mm      |

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### Accessories

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## Multimode Relay MT

2 / 3 pole 10 A,  
DC- or AC-coil

- 2 C/O or 3 C/O
- Cadmium-free contacts
- Mechanical indicator as standard and electrical indicator
- New front operated test system



|                |
|----------------|
| 2 C/O or 3 C/O |
| 10 A           |
| 250 Vac        |
| 2500 VA        |

|            |             |
|------------|-------------|
| 6...220Vdc | 6...230 Vac |
| 1.2 W      | 2.3 VA      |
| -          | -           |

|                       |
|-----------------------|
| 2500 V <sub>rms</sub> |
| 2.8 / 4 mm            |

|                     |                       |
|---------------------|-----------------------|
| DC: +60 °C          | AC: +50 °C            |
| dust-proof          | dust-proof            |
| plug-in             | plug-in               |
| 35.5 x 35.5 x 57 mm | 38.5 x 35.5 x 48.5 mm |

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## Power Relay RM 2/3/7

2 / 3 pole 10 / 16 A,  
DC- or AC-coil

- 2 C/O or 3 C/O
- Switching capacity up to 6000VA
- Mechanical indicator
- Push-to-test-button
- Plug-in version, PCB terminals, chassis- or DIN-rail mount



|         |         |         |
|---------|---------|---------|
| 2 C/O   | 3 C/O   | 3 C/O   |
| 16 A    | 10 A    | 16 A    |
|         | 380 Vac |         |
| 6000 VA | 3800 VA | 6000 VA |

|             |              |
|-------------|--------------|
| 6...220 Vdc | 6...400 Vac  |
| 1.2...1.6 W | 2.3...2.8 VA |
| -           | -            |

|                       |
|-----------------------|
| 2500 V <sub>rms</sub> |
| 3.5 / 6 mm            |

|                       |                       |
|-----------------------|-----------------------|
| DC: +60/70 °C         | AC: +50/55 °C         |
| dust-proof            | dust-proof            |
| plug-in, PCB          | plug-in, PCB          |
| 38.5 x 35.5 x 48.5 mm | 38.5 x 35.5 x 48.5 mm |

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## Power Relay RM 5/6

2 / 3 pole 10 / 16 A,  
DC- or AC-coil

- 2 N/O or 3 N/O
- 3 mm contact gap
- Push-to-test-button
- Plug-in version, PCB terminals, chassis- or DIN-rail mount



|         |         |
|---------|---------|
| 2 N/O   | 3 N/O   |
| 16 A    | 10 A    |
|         | 380 Vac |
| 6000 VA | 3800 VA |

|             |             |
|-------------|-------------|
| 6...220 Vdc | 6...400 Vac |
| 1.6 W       | 2.8 VA      |
| -           | -           |

|                       |
|-----------------------|
| 2500 V <sub>rms</sub> |
| 3.5 / 6 mm            |

|                       |                       |
|-----------------------|-----------------------|
| DC: +60 °C            | AC: +50 °C            |
| dust-proof            | dust-proof            |
| plug-in, PCB          | plug-in, PCB          |
| 38.5 x 35.5 x 48.5 mm | 38.5 x 35.5 x 48.5 mm |

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## Power Relay RM 8

2 pole 25 A, DC- or AC-coil

- 2 C/O
- Mechanical indicator
- Push-to-test-button
- Chassis- or DIN-rail mount



|         |
|---------|
| 2 C/O   |
| 25 A    |
| 250 Vac |
| 6000 VA |

|             |             |
|-------------|-------------|
| 6...220 Vdc | 6...400 Vac |
| 1.2 W       | 2.8 VA      |
| -           | -           |

|                       |
|-----------------------|
| 2500 V <sub>rms</sub> |
| 2.8 / 4 mm            |

|                       |                       |
|-----------------------|-----------------------|
| DC: +65 °C            | AC: +40 °C            |
| dust-proof            | dust-proof            |
| Faston                | Faston                |
| 38.5 x 35.5 x 48.5 mm | 38.5 x 35.5 x 48.5 mm |

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# Industrial Relays

## Power Relay RMC/RMD

1 pole 30 A, DC- or AC-coil

- 1 N/O or 1 N/O + 1 N/C
- Switching capacity up to 7200 VA
- Push-to-test-button
- Chassis mount



## Miniature Power Relay PCLH

2 pole 10 A, DC- or AC-coil

- 2 C/O
- Plug-in version, PCB or chassis mount version



### Contacts

|                   |               |       |         |
|-------------------|---------------|-------|---------|
| Configuration     | 1 N/O + 1 N/C | 1 N/O | 2 C/O   |
| Rated current     | 30 A          |       | 10 A    |
| Rated voltage     | 250 Vac       |       | 250 Vac |
| Breaking capacity | 7500 VA       |       | 2500 VA |

### Coil

|                     |             |             |             |             |
|---------------------|-------------|-------------|-------------|-------------|
| Nominal voltage     | 6...220 Vdc | 6...400 Vac | 12...48 Vdc | 12...230Vac |
| Nominal coil power  | 1.2 W       | 2.8 VA      | 900 mW      | 1.2 VA      |
| Other coil versions | -           |             | -           |             |

### Insulation

|                      |                       |                       |
|----------------------|-----------------------|-----------------------|
| Dielectric strength  | 2500 V <sub>rms</sub> | 1500 V <sub>rms</sub> |
| Clearance / creepage | 2.8 / 4 mm            | 1.2 / 1.2 mm          |

### General data

|                          |                       |            |                       |
|--------------------------|-----------------------|------------|-----------------------|
| Ambient temperature max. | DC: +60 °C            | AC: +40 °C | +55 °C                |
| Standard versions        | dust-proof            |            | dust-proof            |
| Terminals                | Faston                |            | plug-in, PCB          |
| Dimensions l x w x h     | 38.5 x 35.5 x 48.5 mm |            | 27.5 x 21.2 x 34.5 mm |

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### Accessories

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# Circuit Breakers

Circuit Breaker W28

Circuit Breaker W58

Circuit Breaker W6 / W9 series

1 pole 0.25...16 A

1 pole 0.5...25 A

1...4 pole 0.2...50 A

- Approved to international standards (push to reset type)
  - Labor-saving snap-in mounting
  - Button extends for visible trip indication
- 0.5...25 A ratings
  - Cannot be manually tripped
  - Push button to reset breaker
  - Button extends for visible trip indication
- UL, CSA and VDE approved
  - Ratings to 50 A
  - Heavy duty stud connections
  - Several delay curve options
  - Trip free operation



| Series                   | W28                         | W58                                      | W6 / W9                                              |
|--------------------------|-----------------------------|------------------------------------------|------------------------------------------------------|
| Type                     | thermal                     | thermal                                  | magnetic                                             |
| Electrical data          |                             |                                          |                                                      |
| Number of poles          | 1                           | 1                                        | 1...4                                                |
| Current rating           | 0.25...16 A                 | 0.5...25 A                               | 0.2...50 A                                           |
| Max. operating voltage   | 32 Vdc, 250 Vac             | 50 Vdc, 250 Vac                          | 65 Vdc, 415 Vac                                      |
| Interrupt capacity       | 1000 A at 32 Vdc or 250 Vac | 2000 A at 50 Vdc<br>1000 A at 250 Vac    | 2000 A at 65 Vdc<br>up to 5000 A at 250 Vac          |
| General data             |                             |                                          |                                                      |
| Ambient temperature max. | +60 °C                      | +60 °C                                   | +85 °C                                               |
| Terminals                | 6.35 mm Quick Connect       | 6.35 mm Quick Connect<br>screw terminals | 6.35 mm Quick Connect<br>stud terminal               |
| Dimensions l x w x h     | 13.7 x 15.9 x 40 mm         | 16.8 x 34.9 x 34.9 mm                    | W6: 19.1 x 50.8 x 41.1 mm<br>W9: 19.1 x 63.5 x 53 mm |
| Databook                 | page 167                    | page 169                                 | page 171                                             |

## Relay Range

The ordering code structure does allow a large number of possible variations, but not all possible variations are defined as standard types (ordering codes) and thus not included in the product range.

Special versions to customer specifications can be supplied. Please contact your local sales organisation.

Technical data in this catalog are guidelines for appropriate use under standard conditions. For additional information please contact our technical support.

Data subject to change without prior notice.

# Relay Range

| Terminals     | Coil     | Relay type    | Page | Contacts     | Switching current [A] |
|---------------|----------|---------------|------|--------------|-----------------------|
|               |          |               |      |              |                       |
| PCB           | DC       |               |      | C/O contacts |                       |
| Plug-in       | AC       |               |      | N/O contacts |                       |
| Solder/Faston | Bistable |               |      |              |                       |
|               |          | PE            | 22   |              | 0                     |
|               |          | PE bistable   | 24   |              | 5                     |
|               |          | SNR           | 28   |              | 5                     |
|               |          | U/UB          | 77   |              | 10                    |
|               |          | RY II         | 31   |              | 10                    |
|               |          | MSR           | 34   |              | 10                    |
|               |          | Card E        | 74   |              | 10                    |
|               |          | RP II/1       | 52   |              | 10                    |
|               |          | RT1 sensitive | 42   |              | 10                    |
|               |          | RTH sensitive | 48   |              | 10                    |
|               |          | PB            | 82   |              | 10                    |
|               |          | T7N / T7N-WG  | 84   |              | 10                    |
|               |          | RT1           | 37   |              | 10                    |
|               |          | RP II/1       | 52   |              | 10                    |
|               |          | RT1           | 37   |              | 10                    |
|               |          | RT1 Inrush    | 44   |              | 10                    |
|               |          | RTH           | 50   |              | 10                    |
|               |          | RP II/1       | 52   |              | 10                    |
|               |          | 430           | 96   |              | 10                    |
|               |          | T9A           | 87   |              | 10                    |
|               |          | RE            | 26   |              | 10                    |
|               |          | PCD           | 80   |              | 10                    |
|               |          | 409 47        | 58   |              | 10                    |
|               |          | 429 03        | 46   |              | 10                    |
|               |          | RP 3SL        | 55   |              | 10                    |
|               |          | IF            | 61   |              | 10                    |
|               |          | 410 63        | 63   |              | 10                    |
|               |          | 410 83        | 65   |              | 10                    |
|               |          | 430 3mm       | 93   |              | 10                    |
|               |          | T9A           | 87   |              | 10                    |
|               |          | RMC/RMD       | 143  |              | 10                    |
|               |          | RT 2          | 67   |              | 10                    |
|               |          | RP II/2       | 72   |              | 10                    |
|               |          | 430           | 96   |              | 10                    |
|               |          | MT            | 129  |              | 10                    |
|               |          | PCLH          | 127  |              | 10                    |
|               |          | PT            | 123  |              | 10                    |
|               |          | RM 2          | 132  |              | 10                    |
|               |          | RM 8          | 140  |              | 10                    |
|               |          | RM 5          | 136  |              | 10                    |
|               |          | 419 01        | 99   |              | 10                    |
|               |          | T92           | 90   |              | 10                    |
|               |          | PT            | 123  |              | 10                    |
|               |          | MT            | 129  |              | 10                    |
|               |          | RM 3          | 132  |              | 10                    |
|               |          | RM 7          | 132  |              | 10                    |
|               |          | RM 6          | 136  |              | 10                    |
|               |          | PT            | 123  |              | 10                    |
|               |          | Safety Relays |      |              | 10                    |
|               |          | SR2M          | 102  |              | 10                    |
|               |          | SR4M          | 105  |              | 10                    |
|               |          | SR6 DM        | 108  |              | 10                    |
|               |          | SR6           | 110  |              | 10                    |
|               |          | SR6 sensitive | 113  |              | 10                    |

S0345-G

# Miniature PCB Relay PE

1 pole 5 A



## Features

- 1 C/O contact
- Cadmium-free contacts
- Sensitive coil 200 mW
- 4 kV coil-contact
- Insulation according to IEC 255
- Ambient temperature 85°C
- Low height 10.0 mm

## Applications

Industrial electronics, white goods, measurement and control

F0169-B



Technical data of approved types on request

## Contact data

|                                         |                   |
|-----------------------------------------|-------------------|
| Configuration                           | 1 C/O contact     |
| Type of contact                         | single contact    |
| Rated current                           | 5 A               |
| Rated voltage / max.breaking voltage AC | 250 Vac / 440 Vac |
| Maximum breaking capacity AC            | 1250 VA           |
| Contact material                        | AgNi 90/10        |

## Contact ratings

| Type   | Load                                        | Operations          | Standard |
|--------|---------------------------------------------|---------------------|----------|
| PE 014 | 5A, 250 Vac, on the C/O contact             | 10 <sup>5</sup>     | VDE 0435 |
| PE 014 | 20/2A, 250Vac, cosφ=0.3, on the N/O contact | 1.2x10 <sup>5</sup> | AC 15    |
| PE 014 | 5 A, 250 Vac, on the C/O contact            | 1.5x10 <sup>5</sup> |          |

## Coil data

|                    |             |
|--------------------|-------------|
| Nominal voltage    | 5...48 Vdc  |
| Nominal coil power | typ. 200 mW |
| Operate category   | 2 / b       |

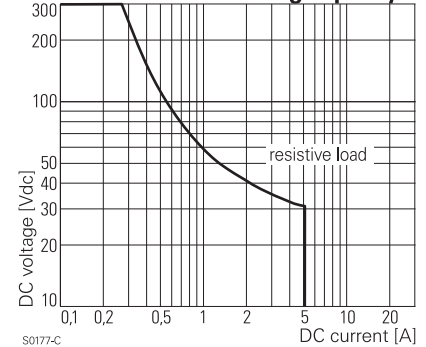
## Coil versions, DC-coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 005       | 5                   | 3.8                 | 0.5                 | 13.2                | 125±10%           | 40.0            |
| 006       | 6                   | 4.5                 | 0.6                 | 15.9                | 172±10%           | 34.9            |
| 012       | 12                  | 9.0                 | 1.2                 | 31.8                | 685±10%           | 17.5            |
| 024       | 24                  | 18.0                | 2.4                 | 63.6                | 2725±10%          | 8.8             |
| 048       | 48                  | 36.0                | 4.8                 | 127.2               | 10970±10%         | 4.4             |

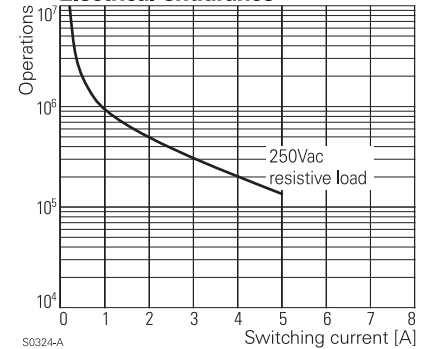
All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

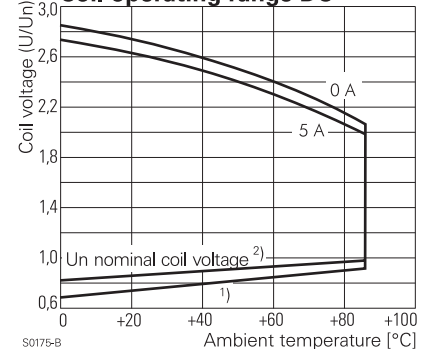
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Miniature PCB Relay PE

1 pole 5 A

## Insulation

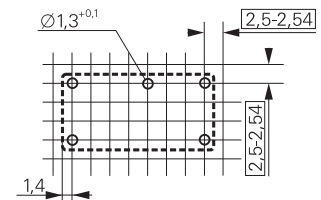
|                                   |                      |                       |
|-----------------------------------|----------------------|-----------------------|
| Dielectric strength               | coil-contacts        | 4000 V <sub>rms</sub> |
|                                   | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage              |                      | ≥3.2 / 4 mm           |
| Insulation to IEC 60664           |                      |                       |
| Voltage rating                    |                      | 250 V                 |
| Pollution degree                  |                      | 3                     |
| Overvoltage category              |                      | III                   |
| Tracking resistance of relay base |                      | CTI 250               |

## Other data

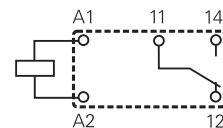
|                                              |                                                        |
|----------------------------------------------|--------------------------------------------------------|
| Flammability class according to UL 94        | V-0                                                    |
| Ambient temperature                          | -40...+85 °C                                           |
| Mechanical life                              | 15x10 <sup>6</sup> operations                          |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 1200 min <sup>-1</sup>           |
| Operate- / release time                      | typ. 5 / 2 ms                                          |
| Bounce time N/O contact/N/C contact          | typ. 1 / 5 ms                                          |
| Vibration resistance N/O contact/N/C contact | >15 / 5 g                                              |
| Shock resistance (destruction)               | >100 g                                                 |
| Category of protection (IEC 61810)           | RT II - flux proof<br>(RT III - wash tight on request) |
| Relay weight                                 | 5 g                                                    |
| Packaging unit                               | 25 / 500 pcs.                                          |

## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm



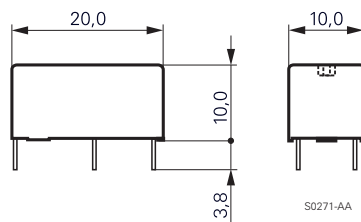
S0176-BA



S0176-BB

## Dimensions

Dimensions in mm



S0271-AA

## Product key

Type

Version

0 flux proof \*)

Contacts

1 1 C/O contact

Contact material

4 AgNi 90/10

Coil

Coil code: please refer to coil versions table

\*) washable version on request

| Product key | Version    | Contacts      | Contact material | Coil   | Part number |
|-------------|------------|---------------|------------------|--------|-------------|
| PE014005    | flux proof | 1 C/O contact | AgNi 90/10       | 5 Vdc  | 0-1393219-3 |
| PE014006    |            |               |                  | 6 Vdc  | 0-1393219-4 |
| PE014012    |            |               |                  | 12Vdc  | 0-1393219-6 |
| PE014024    |            |               |                  | 24 Vdc | 1-1393219-0 |
| PE014048    |            |               |                  | 48 Vdc | 1-1393219-3 |

# Miniature PCB Relay PE bistable

1pole 5 A, polarized bistable version



## Features

- 1 C/O contact
- Cadmium-free contacts
- 4 kV coil-contact
- Insulation according to IEC 255
- Ambient temperature 70 °C
- Low height 10.0 mm

## Applications

Room thermostats, electricity meters, domotic devices and white goods

F0221-A



Technical data of approved types on request

## Contact data

|                                         |                   |
|-----------------------------------------|-------------------|
| Configuration                           | 1 C/O contact     |
| Type of contact                         | single contact    |
| Rated current                           | 5 A               |
| Rated voltage / max.breaking voltage AC | 250 Vac / 440 Vac |
| Maximum breaking capacity AC            | 1250 VA           |
| Contact material                        | AgNi 90/10        |

## Contact ratings

| Type   | Load                            | Operations      | Standard |
|--------|---------------------------------|-----------------|----------|
| PE 014 | 5A, 250 Vac, on the C/O contact | 10 <sup>5</sup> | VDE 0435 |

## Coil data

|                                                                                   |                                  |
|-----------------------------------------------------------------------------------|----------------------------------|
| Nominal voltage                                                                   | 3...48 Vdc                       |
| Nominal coil power                                                                | typ. 360 mW                      |
| Minimum energization time                                                         | 20 ms                            |
| Information on reduced pulse duration with higher energization voltages on demand |                                  |
| Max. energization time                                                            | 1 min at <10% duty cycle         |
| Reset voltage max.                                                                | 120 % U <sub>nom</sub> at -40 °C |

## Coil versions, bistable, 1 coil

| Coil code* |     | Nominal voltage<br>Vdc | Pull-in voltage<br>Vdc | Reset voltage<br>Vdc | Coil resistance<br>Ω | Coil current<br>mA |
|------------|-----|------------------------|------------------------|----------------------|----------------------|--------------------|
| A02        | C02 | 2.2                    | 1.65                   | 1.65                 | 13±10%               | 163.0              |
| A03        | C03 | 3                      | 2.25                   | 2.25                 | 25±10%               | 120.0              |
| A05        | C05 | 5                      | 3.75                   | 3.75                 | 69±10%               | 72.0               |
| A06        | C06 | 6                      | 4.5                    | 4.5                  | 100±10%              | 60.0               |
| A12        | C12 | 12                     | 9.0                    | 9.0                  | 400±10%              | 30.0               |
| A24        | C24 | 24                     | 18.0                   | 18.0                 | 1600±10%             | 15.0               |

All figures are given for coil without preenergization, at ambient temperature +20°C

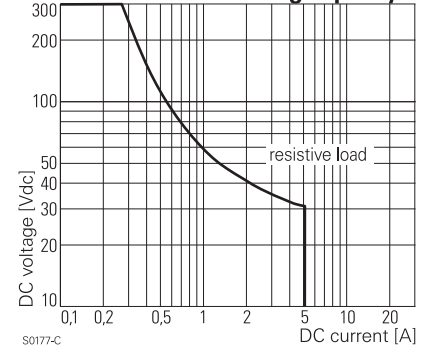
\* Coil codes A.. and C.. have opposite polarity; refer to coil operation table

Other coil voltages on request

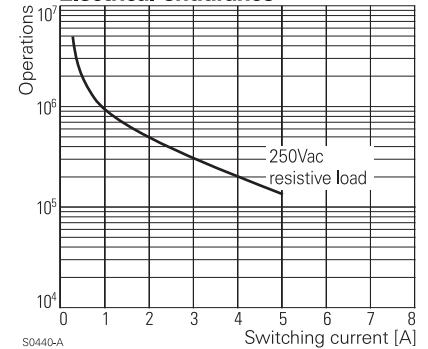
## Coils - operation

| version                                  | A.. |    | C.. |    |
|------------------------------------------|-----|----|-----|----|
| coil terminals                           | A1  | A2 | A1  | A2 |
| pull-in                                  | +   | -  | -   | +  |
| reset                                    | -   | +  | +   | -  |
| Contact position not defined at delivery |     |    |     |    |

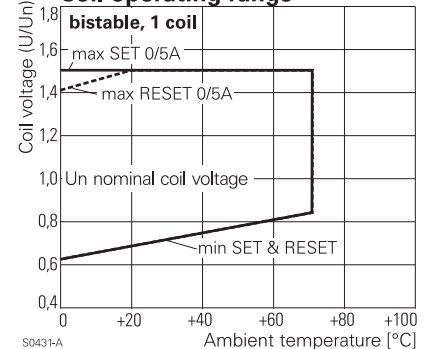
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range



# Miniature PCB Relay PE bistable

1pole 5 A, polarized bistable version

## Insulation

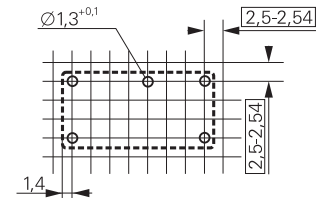
|                                   |                      |                       |
|-----------------------------------|----------------------|-----------------------|
| Dielectric strength               | coil-contacts        | 4000 V <sub>rms</sub> |
|                                   | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage              |                      | ≥3.2 / 4 mm           |
| Insulation to IEC 60664           |                      |                       |
| Voltage rating                    |                      | 250 V                 |
| Pollution degree                  |                      | 3                     |
| Overvoltage category              |                      | III                   |
| Tracking resistance of relay base |                      | CTI 250               |

## Other data

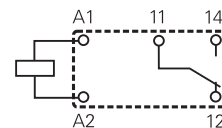
|                                              |                                                         |
|----------------------------------------------|---------------------------------------------------------|
| Flammability class according to UL 94        | V-0                                                     |
| Ambient temperature                          | -40...+70 °C                                            |
| Mechanical life                              | 5x10 <sup>6</sup> operations                            |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 1200 min <sup>-1</sup>            |
| Shock resistance (destruction)               | >100 g                                                  |
| Category of protection (IEC 61810)           | RT II - flux proof<br>(RT III - wash tight, on request) |
| Relay weight                                 | 5 g                                                     |
| Packaging unit                               | 25 / 500 pcs.                                           |

## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm



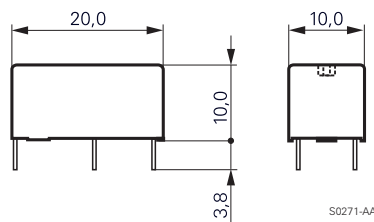
S0176-BA



S0176-BB

## Dimensions

Dimensions in mm



S0271-AA

## Product key

Type

Version

**0** flux proof \*)

Contacts

**1** 1 C/O contact

Contact material

**4** AgNi 90/10

Coil

Coil code: please refer to coil versions table

\*) washable version on request

| Product key | Version    | Contacts      | Cont. material | Coil       | Coil   | Part number |
|-------------|------------|---------------|----------------|------------|--------|-------------|
| PE014A03    | flux proof | 1 C/O contact | AgNi 90/10     | bistable   | 3 Vdc  | 4-1415064-1 |
| PE014A05    |            |               |                | 1-coil     | 5 Vdc  | 7-1415063-1 |
| PE014A06    |            |               |                | polarity A | 6 Vdc  | 3-1415053-1 |
| PE014A12    |            |               |                |            | 12 Vdc | 8-1415063-1 |
| PE014A24    |            |               |                |            | 24 Vdc | 9-1415063-1 |
| PE014C03    |            |               |                | bistable   | 3 Vdc  | 5-1415064-1 |
| PE014C05    |            |               |                | 1-coil     | 5 Vdc  | 3-1415064-1 |
| PE014C06    |            |               |                | polarity C | 6 Vdc  | 2-1415064-1 |
| PE014C12    |            |               |                |            | 12 Vdc | 1-1415064-1 |
| PE014C24    |            |               |                |            | 24 Vdc | 0-1415064-1 |

# Miniature PCB Relay RE

1 pole 6 A



## Features

- 1N/O contact
- Sensitive coil 200 mW
- 4 kV coil-contact
- Optimized height 10,6 mm
- PCB area 200 mm<sup>2</sup>
- Wash tight

## Applications

PLC's, timers, temperature control, I / O cards



Technical data of approved types on request

## Contact data

|                                           |                              |
|-------------------------------------------|------------------------------|
| Configuration                             | 1 N/O contact                |
| Type of contact                           | single contact               |
| Rated current                             | 6 A                          |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac            |
| Maximum breaking capacity AC              | 1500 VA                      |
| Make current (max. 4 s at duty cycle 10%) | 15 A                         |
| Contact material                          | AgCdO, AgNi 0.15 gold plated |

## Contact ratings

| Type   | Load                     | Operations        | Standard |
|--------|--------------------------|-------------------|----------|
| RE 030 | 2 A, 400 Vac, AC 11      | 2x10 <sup>5</sup> | VDE 0660 |
| RE 030 | 2 A, 250 Vac, AC 11      | 4x10 <sup>5</sup> | VDE 0660 |
| RE 030 | 0.33 A, 250 Vac, AC 11   | 5x10 <sup>6</sup> | VDE 0660 |
| RE 030 | 1/8hp, 120 Vac           | 3x10 <sup>4</sup> | UL 508   |
| RE 030 | 1/4hp, 240 Vac           | 3x10 <sup>4</sup> | UL 508   |
| RE 030 | B 300                    |                   | UL 508   |
| RE 030 | 6 A, 30 Vdc, resistive   | 5x10 <sup>5</sup> |          |
| RE 030 | 0.3 A, 50 Vdc, L/R=40 ms | 3x10 <sup>6</sup> |          |
| RE 030 | 6 (3) A, 250 Vac         | 1x10 <sup>5</sup> | VDE 0631 |

## Coil data

|                    |            |
|--------------------|------------|
| Nominal voltage    | 5...48 Vdc |
| Nominal coil power | 200 mW     |
| Operate category   | 2 / b      |

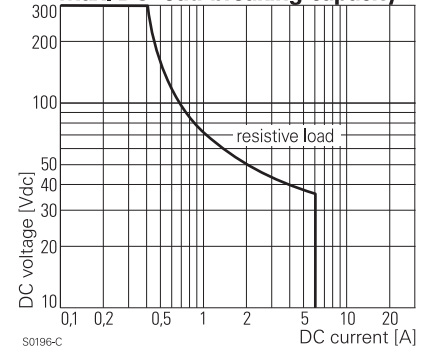
## Coil versions, DC-coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 005       | 5                   | 3.5                 | 0.5                 | 13.5                | 125±10%           | 40.0            |
| 006       | 6                   | 4.2                 | 0.6                 | 16.2                | 180±10%           | 33.3            |
| 012       | 12                  | 8.4                 | 1.2                 | 32.4                | 720±10%           | 16.7            |
| 024       | 24                  | 16.8                | 2.4                 | 64.8                | 2880±15%          | 8.3             |
| 048       | 48                  | 33.6                | 4.8                 | 129.6               | 11520±15%         | 4.2             |

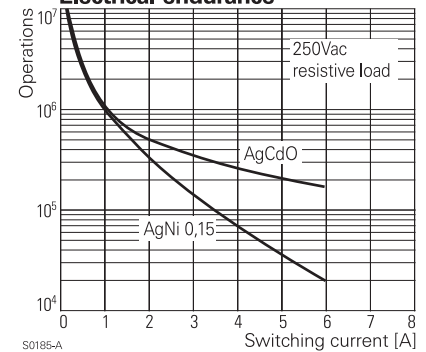
All figures are given for coil without preenergization, at ambient temperature +20°C, single mounting

Other coil voltages on request

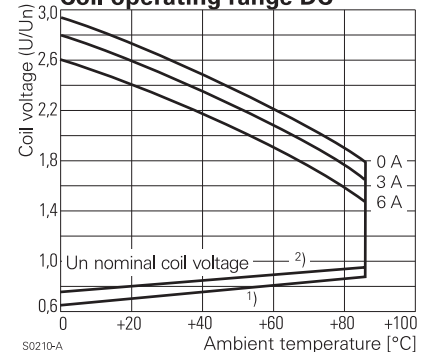
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Miniature PCB Relay RE

1 pole 6 A

## Insulation

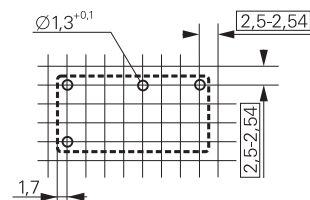
|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | ≥ 4 / 4 mm            |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250, B / 400      |

## Other data

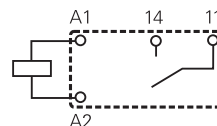
|                                              |                                              |      |
|----------------------------------------------|----------------------------------------------|------|
| Flammability class according to UL 94        | V-0                                          |      |
| Ambient temperature                          | -40...+70 °C, -40...+85 °C at 4 A            |      |
| Mechanical life                              | > 30x10 <sup>6</sup> operations              |      |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 1200 min <sup>-1</sup> |      |
| Operate- / release time                      | typ. 5 / 1 ms                                |      |
| Bounce time                                  | typ. 1 ms                                    |      |
| Vibration resistance                         | open contact:                                | 10 g |
|                                              | closed contact:                              | 20 g |
| Shock resistance (destruction)               | 100 g                                        |      |
| Category of protection (IEC 61810)           | RT III - wash tight                          |      |
| Relay weight                                 | 5 g                                          |      |
| Packaging unit                               | 25 / 500 pcs.                                |      |

## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm



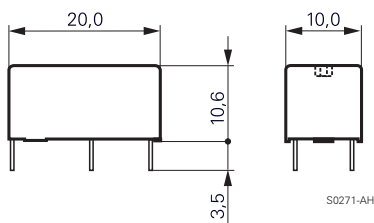
S0176-BH



S0176-BJ

## Dimensions

Dimensions in mm



S0271-AH

## Product key

Type

Version

0 wash tight

Contacts

3 1 N/O contact

Contact material

0 AgCdO

2 AgNi 0,15 gold plated

Coil

Coil code: please refer to coil versions table

|   |   |   |   |  |  |  |
|---|---|---|---|--|--|--|
| R | E | 0 | 3 |  |  |  |
|---|---|---|---|--|--|--|

| Product key | Version    | Contacts      | Contact material         | Coil   | Part number |
|-------------|------------|---------------|--------------------------|--------|-------------|
| RE030005    | wash tight | 1 N/O contact | AgCdO                    | 5 Vdc  | 0-1393217-1 |
| RE030006    |            |               |                          | 6 Vdc  | 0-1393217-2 |
| RE030012    |            |               |                          | 12 Vdc | 0-1393217-4 |
| RE030024    |            |               |                          | 24 Vdc | 0-1393217-8 |
| RE030048    |            |               |                          | 48 Vdc | 1-1393217-1 |
| RE032005    |            |               | AgNi 0,15<br>gold plated | 5 Vdc  | 1-1393217-9 |
| RE032006    |            |               |                          | 6 Vdc  | 2-1393217-0 |
| RE032012    |            |               |                          | 12 Vdc | 2-1393217-2 |
| RE032024    |            |               |                          | 24 Vdc | 2-1393217-4 |
| RE032048    |            |               |                          | 48 Vdc | 2-1393217-5 |

# Slim PCB Relay PCN

1 pole 3 A



PCN-02b-c

## Features

- 1 N/O contact
- Only 5 mm slim
- 3 A switching current
- Load range 1 mA up to 3 A
- Sensitive coil 120 mW
- Allows high function-/packing density
- Cadmium-free contacts
- Z type with reinforced insulation

## Applications

Centralized and decentralized heating control, extremely narrow interface elements, interface technology, timers, PLC's, I/O modules, I/O-ports



Technical data of approved types on request

## Contact data

|                                         |                    |
|-----------------------------------------|--------------------|
| Configuration                           | 1 N/O contact      |
| Type of contact                         | bifurcated contact |
| Rated current                           | 3 A                |
| Rated voltage / max.breaking voltage AC | 250 Vac / 277 Vac  |
| Maximum breaking capacity AC            | 1250 VA            |
| Contact material                        | AgNi               |
| Minimum contact load                    | 5 Vdc / 1 mA       |

## Contact ratings

| Type | Load                     | Operations        |
|------|--------------------------|-------------------|
|      | 3 A / 250 Vac, resistive | 1x10 <sup>5</sup> |
|      | 3 A / 30 Vdc, resistive  | 1x10 <sup>5</sup> |

## Coil data

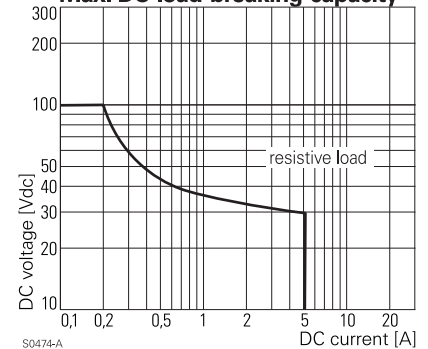
|                    |            |
|--------------------|------------|
| Nominal voltage    | 5...24 Vdc |
| Nominal coil power | 120 mW     |
| Operate power      | 58.8 mW    |
| Operate category   | 1          |

## Coil versions

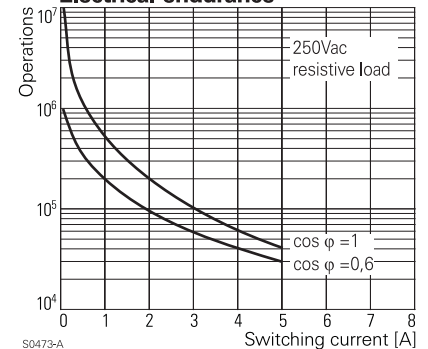
| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 05        | 5                   | 3.5                 | 0.5                 | 6.5                 | 208 $\pm 10\%$           | 24.0            |
| 06        | 6                   | 4.2                 | 0.6                 | 7.8                 | 300 $\pm 10\%$           | 20.0            |
| 09        | 9                   | 6.3                 | 0.9                 | 11.7                | 675 $\pm 10\%$           | 13.3            |
| 12        | 12                  | 8.4                 | 1.2                 | 15.6                | 1200 $\pm 10\%$          | 10.0            |
| 24        | 24                  | 16.8                | 2.4                 | 31.2                | 4800 $\pm 10\%$          | 5.0             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

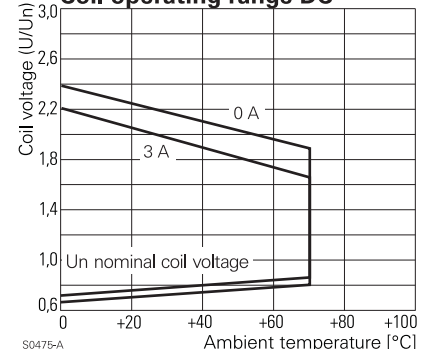
## Max. DC load breaking capacity



## Electrical endurance



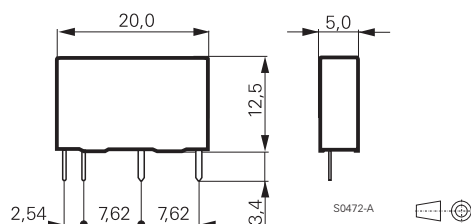
## Coil operating range DC



**1 pole 3 A**

| Other data                                   |                                               |
|----------------------------------------------|-----------------------------------------------|
| Flammability class according to UL 94        | V-0                                           |
| Ambient temperature                          | -30...+70 °C                                  |
| Mechanical life                              | 20x10 <sup>6</sup> operations                 |
| Max. switching rate at rated- / minimum load | 10 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time typ.                 | 5 / 2 ms                                      |
| Bounce time N/O contact typ.                 | < 1 ms                                        |
| Category of protection (IEC 61810)           | RT III - wash tight                           |
| Relay weight                                 | 3 g                                           |
| Packaging unit                               | 25 / 2000                                     |

**Dimensions**  
Dimensions in mm



|   |   |   |   |  |  |   |   |   |   |   |
|---|---|---|---|--|--|---|---|---|---|---|
| P | C | N | 1 |  |  | D | 3 | M | H | Z |
|---|---|---|---|--|--|---|---|---|---|---|

Number of contacts

**1** 1 pole

Coil

coil code: please refer to coil versions table

Coil version

**D** standard 120 mW

Contact material

**3** AgNi

## Contact configuration

**M** 1 N/O contact

Version

**H** wash tight

## Insulation

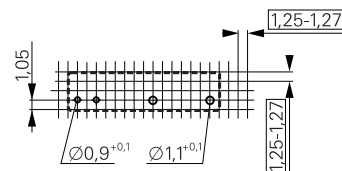
**Z** high insulation

Other types on request

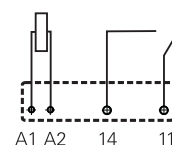
### PCB layout / terminal assignment

View on solder pins

Dimensions in mm



S0471-AA



S0471-AR

# Slim PCB Relay SNR

1 pole 6 A



F0140-C

## Features

- 1 C/O or 1 N/O contact
- Only 5 mm wide
- 6 A switching current
- Sensitive coil 170 mW
- 4 kV coil-contact, 6 / 8 mm clearance/creepage
- N/O version with 8 / 8 mm clearance/creepage on request
- Protection class II
- Allows high function-/packing density
- Cadmium-free contacts, AgNi 90/10 for AC-loads

## Applications

Centralized and decentralized heating control, extremely narrow interface elements, interface technology, timers, PLC's, I/O modules, I/O-ports



Technical data of approved types on request

## Contact data

|                                         |                                   |                    |                 |
|-----------------------------------------|-----------------------------------|--------------------|-----------------|
| Configuration                           | 1 C/O contact or 1 N/O contact    |                    |                 |
| Type of contact                         | single contact                    |                    |                 |
| Rated current                           | 6 A                               |                    |                 |
| Rated voltage / max.breaking voltage AC | 250 Vac / 440 Vac                 |                    |                 |
| Maximum breaking capacity AC            | 1500 VA                           |                    |                 |
| Contact material                        | AgSnO <sub>2</sub><br>gold plated | AgSnO <sub>2</sub> | AgNi90/10       |
| Minimum contact load                    | ≥10 mA<br>5 V                     | ≥100 mA<br>12 V    | ≥100 mA<br>12 V |

## Contact ratings

| Type  | Load                     | Operations        |
|-------|--------------------------|-------------------|
| -A302 | 5 A, 250 Vac, resistive  | 1x10 <sup>5</sup> |
| -A302 | 2 A, 250 Vac, cosφ0.4    | 2x10 <sup>5</sup> |
| -A302 | 1 A, 24 Vdc, L / R=48 ms | 2x10 <sup>5</sup> |

## Coil data

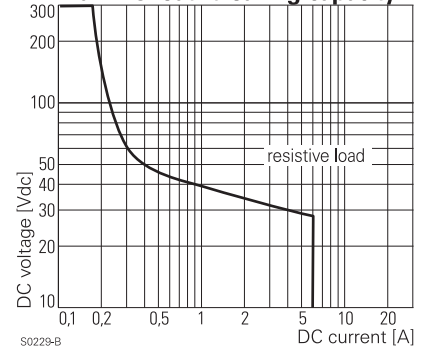
|                    |               |
|--------------------|---------------|
| Nominal voltage    | 5...48 Vdc    |
| Nominal coil power | 170 mW        |
| Operate power      | 75 mW...95 mW |
| Operate category   | 2 / b         |

## Coil versions

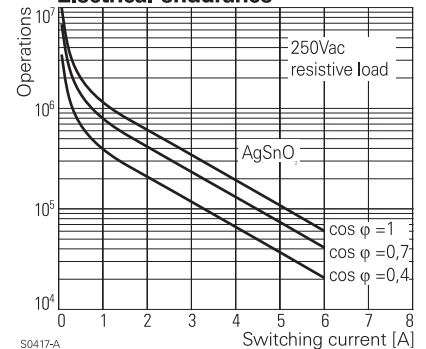
| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 005       | 5                   | 3.5                 | 0.25                | 11.2                | 147±10%           | 34.0            |
| 012       | 12                  | 8.4                 | 0.6                 | 26.8                | 848±10%           | 14.2            |
| 024       | 24                  | 16.8                | 1.2                 | 53.7                | 3390±10%          | 7.1             |
| 048       | 48                  | 33.6                | 2.4                 | 100.0               | 10600±15%         | 4.5             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

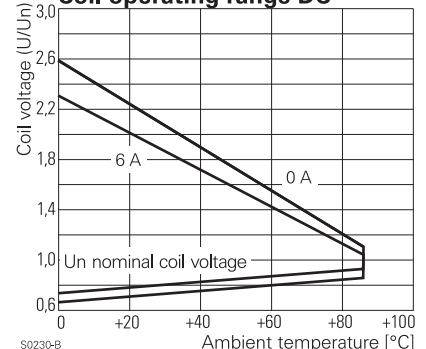
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Slim PCB Relay SNR

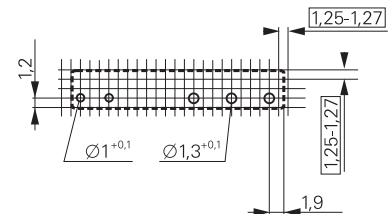
1 pole 6 A

## Insulation

|                                          |                      |                       |
|------------------------------------------|----------------------|-----------------------|
| Dielectric strength                      | coil-contacts        | 4000 V <sub>rms</sub> |
|                                          | open contact circuit | 1000 V <sub>rms</sub> |
| Surge voltage resistance coil-contacts   |                      | 6000 V (1.2 / 50 µs)  |
| Clearance / creepage (standard)          |                      | 6 / 8 mm              |
| Insulation to IEC 664/VDE 0110 (04 / 97) |                      |                       |
| Voltage rating                           |                      | 250 V                 |
| Pollution degree                         |                      | 3                     |
| Overvoltage category                     |                      | III                   |
| Insulation to VDE 0110b (2/79)           |                      |                       |
| Insulation category / reference voltage  |                      | C / 250               |
| Tracking resistance of relay base        |                      | CTI 250               |

## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm

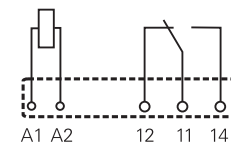


S0258-AA

## Other data

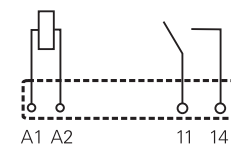
|                                              |                                          |
|----------------------------------------------|------------------------------------------|
| Flammability class according to UL 94        | V-0                                      |
| Ambient temperature                          | -40...+85 °C                             |
| Mechanical life                              | 10x10 <sup>6</sup> operations            |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 20 s <sup>-1</sup> |
| Operate- / release time                      | 5 / 2.5 ms                               |
| Bounce time N/O contact/N/C contact          | 1.5 / 5 ms                               |
| Category of protection (IEC 61810)           | RT III - wash tight                      |
| Relay weight                                 | 6 g                                      |
| Packaging unit                               | 20 / 1000 pcs.                           |
| Accessories                                  | see accessories SNR                      |

1 C/O contact



S0258-AB

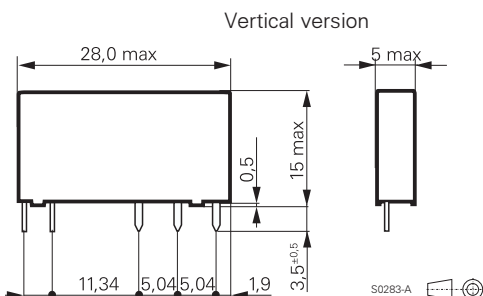
1 N/O contact



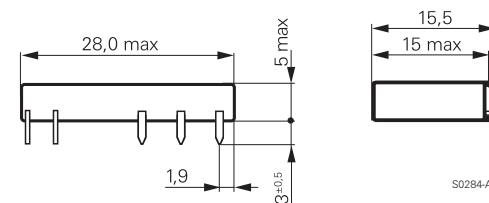
S0258-AC

## Dimensions

Dimensions in mm



Flat pack version



## Product key

**V 2 3 0 9 2** - **1** - **A**

Type

Version

**A** PCB vertical version **B** PCB flat pack version

Version

**1** wash tight

Coil

Coil code: please refer to coil versions table

Contact system

**A** standard

Contact material

**2** AgSnO<sub>2</sub>, gold plated **3** AgSnO<sub>2</sub>  
**8** AgNi 90/10

Contact configuration

**01** 1 C/O contact **02** 1 N/O contact

N/O version with 8/8mm clearance and creepage and other types on request

# Slim PCB Relay SNR

1 pole 6 A

| Product key       | Version                               | Contacts      | Contact material | Coil   | Part number |
|-------------------|---------------------------------------|---------------|------------------|--------|-------------|
| V23092-A1005-A201 | PCB<br>vertical version<br>wash tight | 1 C/O contact | AgSnO, gold pl.  | 5 Vdc  | 0-1393236-1 |
| V23092-A1005-A202 |                                       | 1 N/O contact | AgSnO            |        | 8-1415067-1 |
| V23092-A1005-A301 |                                       | 1 C/O contact |                  |        | 0-1393236-2 |
| V23092-A1005-A302 |                                       | 1 N/O contact |                  |        | 9-1415067-1 |
| V23092-A1005-A801 |                                       | 1 C/O contact | AgNi 90/10       |        |             |
| V23092-A1005-A802 |                                       | 1 N/O contact | AgSnO, gold pl.  | 12 Vdc | 0-1415068-1 |
| V23092-A1012-A201 | 1 C/O contact                         | AgSnO         |                  |        | 0-1393236-4 |
| V23092-A1012-A202 | 1 N/O contact                         |               |                  |        | 0-1393236-5 |
| V23092-A1012-A301 | 1 C/O contact                         |               |                  |        | 0-1393236-7 |
| V23092-A1012-A302 |                                       | 1 N/O contact | AgNi 90/10       |        | 0-1393236-8 |
| V23092-A1012-A801 | 1 C/O contact                         | 1-1393236-3   |                  |        |             |
| V23092-A1012-A802 | 1 N/O contact                         | 2-1415068-1   |                  |        |             |
| V23092-A1024-A201 |                                       | 1 C/O contact | AgSnO, gold pl.  |        | 24 Vdc      |
| V23092-A1024-A202 |                                       | 1 N/O contact | AgSnO            |        | 2-1393236-2 |
| V23092-A1024-A301 | 1 C/O contact                         | 2-1393236-4   |                  |        |             |
| V23092-A1024-A302 | 1 N/O contact                         | 2-1393236-5   |                  |        |             |
| V23092-A1024-A801 |                                       | 1 C/O contact | AgNi 90/10       |        | 3-1393236-0 |
| V23092-A1024-A802 |                                       | 1 N/O contact | AgSnO, gold pl.  | 48 Vdc | 5-1415063-1 |
| V23092-A1048-A201 | 1 C/O contact                         | AgSnO         |                  |        | 3-1393236-5 |
| V23092-A1048-A202 | 1 N/O contact                         |               |                  |        | 3-1393236-6 |
| V23092-A1048-A301 | 1 C/O contact                         |               |                  |        | 3-1393236-7 |
| V23092-A1048-A302 |                                       | 1 N/O contact | AgNi 90/10       |        | 3-1393236-8 |
| V23092-A1048-A801 | 1 C/O contact                         | 3-1393236-9   |                  |        |             |
| V23092-A1048-A802 | 1 N/O contact                         | 3-1415068-1   |                  |        |             |

# Miniature Power PCB Relay RY II

1 pole 8 A



F0142-C

## Features

- Low component height 12.3 mm
- 1 C/O or 1 N/O or 1 N/C contact
- 5 kV / 8 mm coil-contact
- Protection class II (VDE 0700)
- Pinnings: 3.2 and 5 mm
- Sockets with PCB-type or screw-type terminals
- Especially suitable for resistive and inductive loads on N/O and N/C contacts

## Applications

Heating control, interface technology, domestic appliances, timers, temperature control



Technical data of approved types on request

## Contact data

|                                           |                                             |
|-------------------------------------------|---------------------------------------------|
| Configuration                             | 1 C/O contact, 1 N/O contact, 1 N/C contact |
| Type of contact                           | single contact                              |
| Rated current                             | 8 A                                         |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac                           |
| Maximum breaking capacity AC              | 2000 VA                                     |
| Make current (max. 4 s at duty cycle 10%) | 30 A                                        |
| Contact material                          | AgCdO, AgNi 0.15, AgSnO <sub>2</sub>        |

## Contact ratings

| Type  | Load                     | Operations         | Standard |
|-------|--------------------------|--------------------|----------|
| RY610 | B 300, 120 Vac, 70 °C    |                    | UL 508   |
| RY610 | B 300, 240 Vac, 70 °C    |                    | UL 508   |
| RY610 | 1 / 4 hp, 120 Vac, 70 °C |                    | UL 508   |
| RY610 | 1 / 2 hp, 240 Vac, 70 °C |                    | UL 508   |
| RY610 | 8 A, 28 Vdc, 70 °C       | >3x10 <sup>4</sup> | UL 508   |
| RY610 | 0.28 A, 250 Vdc, 70 °C   | >3x10 <sup>4</sup> | UL 508   |
| RY531 | 6 (4) A, 250 Vac, 85 °C  | 1x10 <sup>5</sup>  | VDE 0631 |

## Coil data

|                    |                |
|--------------------|----------------|
| Nominal voltage    | 5...48 Vdc     |
| Nominal coil power | approx. 220 mW |
| Operate category   | 2 / b          |

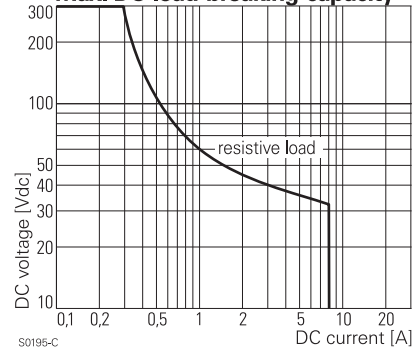
## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 005       | 5                   | 3.5                 | 0.5                 | 11.8                | 113±10%           | 44.0            |
| 006       | 6                   | 4.2                 | 0.6                 | 14.1                | 164±10%           | 36.7            |
| 012       | 12                  | 8.4                 | 1.2                 | 28.2                | 620±10%           | 19.3            |
| 024       | 24                  | 16.8                | 2.4                 | 56.4                | 2350±10%          | 10.2            |
| 048       | 48                  | 33.6                | 4.8                 | 112.8               | 9600±10%          | 5.0             |

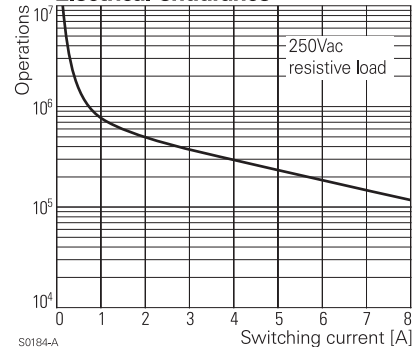
All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

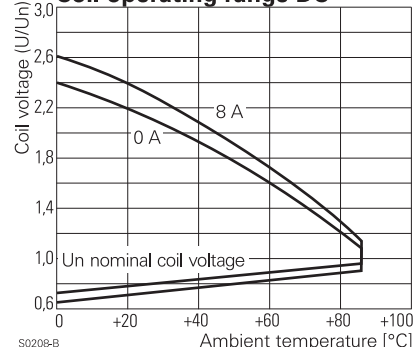
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Miniature Power PCB Relay RY II

1 pole 8 A

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 5000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 8 / 8 mm              |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | CTI 250               |

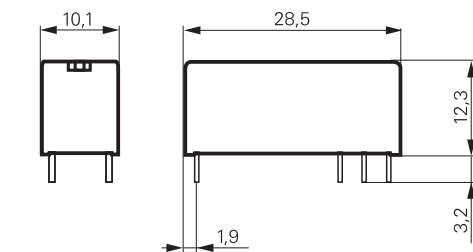
## Other data

|                                              |                                          |
|----------------------------------------------|------------------------------------------|
| Ambient temperature                          | -40...+85 °C                             |
| Mechanical life                              | 30x10 <sup>6</sup> operations            |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 20 s <sup>-1</sup> |
| Operate- / release time                      | 7 / 3 ms                                 |
| Bounce time N/O contact                      | 1 ms                                     |
| Vibration resistance N/O / N/C contact       | 20 / 5 g, 10...500 Hz                    |
| Shock resistance (destruction)               | 100 g                                    |
| Category of protection (IEC 61810)           | RT II - flux proof, RT III - wash tight  |
| Relay weight                                 | 8 g                                      |
| Packaging unit                               | 20 / 500 pcs.                            |
| Accessories                                  | see accessories RY                       |

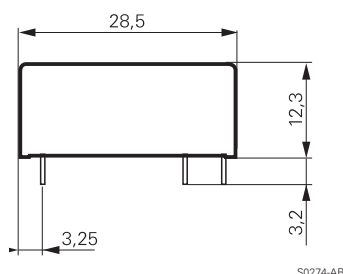
## Dimensions

Dimensions in mm

Pinning 3.2 mm

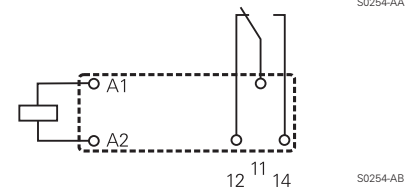
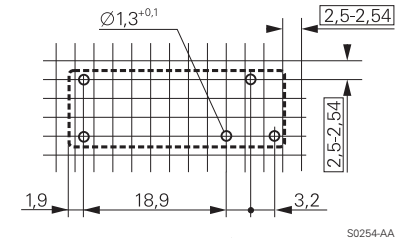


Pinning 5 mm

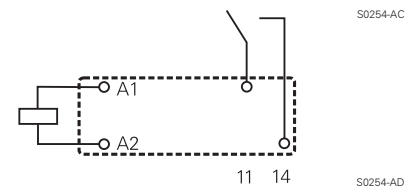
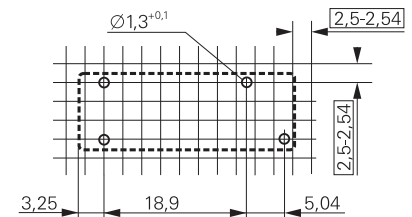


## PCB layout / terminal assignment

1 C/O contact, 3.2 mm



1 N/O contact, 5 mm



View on solder pins  
Dimensions in mm

## Product key

Type

Version

**2** pinning 3.2 mm, flux proof  
**5** pinning 5 mm, flux proof

**6** pinning 3.2 mm, wash tight  
**A** pinning 5 mm, wash tight

Contacts

**1** 1 C/O contact, pinning 3.2 mm

**3** 1 N/O contact, pinning 5 mm

Contact material

**0** AgCdO

**2** AgNi0.15 gold plated

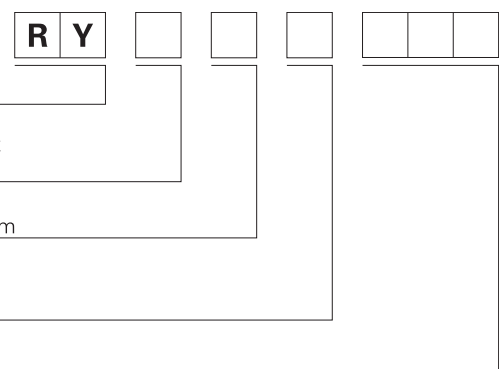
**1** AgNi0.15

**3** AgSnO<sub>2</sub>

Coil

Coil code: please refer to coil versions table

Other types on request



# Miniature Power PCB Relay RY II

1 pole 8 A

| Product key | Version                      | Contacts      | Contact material         | Coil   | Part number |
|-------------|------------------------------|---------------|--------------------------|--------|-------------|
| RY210005    | pinning 3.2 mm<br>flux proof | 1 C/O contact | AgCdO                    | 5 Vdc  | 3-1393224-1 |
| RY210012    |                              |               |                          | 12 Vdc | 3-1393224-5 |
| RY210024    |                              |               |                          | 24 Vdc | 3-1393224-8 |
| RY210048    |                              |               |                          | 48 Vdc | 4-1393224-1 |
| RY211005    |                              |               | AgNi 0.15                | 5 Vdc  | 4-1393224-2 |
| RY211012    |                              |               |                          | 12 Vdc | 4-1393224-6 |
| RY211024    |                              |               |                          | 24 Vdc | 4-1393224-9 |
| RY211048    |                              |               |                          | 48 Vdc | 5-1393224-1 |
| RY212005    |                              |               | AgNi 0.15<br>gold plated | 5 Vdc  | 5-1393224-2 |
| RY212012    |                              |               |                          | 12 Vdc | 5-1393224-5 |
| RY212024    |                              |               |                          | 24 Vdc | 5-1393224-8 |
| RY212048    |                              |               |                          | 48 Vdc | 5-1393224-9 |
| RY213005    |                              |               | AgSnO                    | 5 Vdc  | 6-1393224-0 |
| RY213012    |                              |               |                          | 12 Vdc | 6-1393224-1 |
| RY213024    |                              |               |                          | 24 Vdc | 6-1393224-2 |
| RY213048    |                              |               |                          | 48 Vdc | 6-1393224-3 |
| RY530005    | pinning 5 mm<br>flux proof   | 1 N/O contact | AgCdO                    | 5 Vdc  | 6-1393224-6 |
| RY530012    |                              |               |                          | 12 Vdc | 6-1393224-9 |
| RY530024    |                              |               |                          | 24 Vdc | 7-1393224-2 |
| RY530048    |                              |               |                          | 48 Vdc | 7-1393224-4 |
| RY531005    |                              |               | AgNi 0.15                | 5 Vdc  | 7-1393224-6 |
| RY531012    |                              |               |                          | 12 Vdc | 7-1393224-9 |
| RY531024    |                              |               |                          | 24 Vdc | 8-1393224-2 |
| RY531048    |                              |               |                          | 48 Vdc | 8-1393224-3 |
| RY532012    |                              |               | AgNi 0.15<br>gold plated | 12 Vdc | 8-1393224-4 |
| RY532024    |                              |               |                          | 24 Vdc | 8-1393224-5 |
| RY533012    |                              |               | AgSnO                    | 12 Vdc | 8-1393224-8 |
| RY533024    |                              |               |                          | 24 Vdc | 8-1393224-9 |
| RY533048    |                              |               |                          | 48 Vdc | 9-1393224-0 |
| RY610005    |                              |               | AgCdO                    | 5 Vdc  | 0-1393225-7 |
| RY610012    |                              |               |                          | 12 Vdc | 1-1393225-0 |
| RY610024    |                              |               |                          | 24 Vdc | 1-1393225-4 |
| RY610048    |                              |               |                          | 48 Vdc | 1-1393225-5 |
| RY611005    | pinning 3.2 mm<br>wash tight | 1 C/O contact | AgNi 0.15                | 5 Vdc  | 1-1393225-7 |
| RY611012    |                              |               |                          | 12 Vdc | 1-1393225-9 |
| RY611024    |                              |               |                          | 24 Vdc | 2-1393225-1 |
| RY611048    |                              |               |                          | 48 Vdc | 2-1393225-2 |
| RY612005    |                              |               | AgNi 0.15<br>gold plated | 5 Vdc  | 2-1393225-3 |
| RY612012    |                              |               |                          | 12 Vdc | 2-1393225-6 |
| RY612024    |                              |               |                          | 24 Vdc | 2-1393225-9 |
| RY612048    |                              |               |                          | 48 Vdc | 3-1393225-0 |
| RY613005    |                              |               | AgSnO                    | 5 Vdc  | 5-1419136-2 |
| RY613012    |                              |               |                          | 12 Vdc | 3-1393225-1 |
| RY613024    |                              |               |                          | 24 Vdc | 3-1393225-3 |
| RY613048    |                              |               |                          | 48 Vdc | 3-1393225-4 |
| RYA30005    | pinning 5 mm<br>wash tight   | 1 N/O contact | AgCdO                    | 5 Vdc  | 0-1393224-1 |
| RYA30012    |                              |               |                          | 12 Vdc | 0-1393224-4 |
| RYA30024    |                              |               |                          | 24 Vdc | 0-1393224-6 |
| RYA30048    |                              |               |                          | 48 Vdc | 7-1393225-7 |
| RYA31005    |                              |               | AgNi 0.15                | 5 Vdc  | 0-1393224-7 |
| RYA31012    |                              |               |                          | 12 Vdc | 0-1393224-9 |
| RYA31024    |                              |               |                          | 24 Vdc | 1-1393224-2 |
| RYA31048    |                              |               |                          | 48 Vdc | 1-1393224-3 |
| RYA32005    |                              |               | AgNi 0.15<br>gold plated | 5 Vdc  | 1-1393224-4 |
| RYA32012    |                              |               |                          | 12 Vdc | 1-1393224-6 |
| RYA32024    |                              |               |                          | 24 Vdc | 1-1393224-8 |
| RYA33005    |                              |               | AgSnO                    | 5 Vdc  | 1-1393224-9 |
| RYA33024    |                              |               |                          | 24 Vdc | 2-1393224-1 |

# Miniature Power PCB Relay MSR

1 pole 8 A



## Features

- 1C/O or 1N/O contact
- High inrush currents with AgSnO contacts (TV4 = 65 A)
- 4 kV/8 mm coil-contact
- Protection class II
- Ambient temperature up to 85°C at 8 A

## Applications

HVAC, interface technology, power supplies, TV-/Monitor control, computer-/communication technology, domestic appliances, Hi-Fi products, timers

F0143-C



Technical data of approved types on request

## Contact data

|                                           |                                       |
|-------------------------------------------|---------------------------------------|
| Configuration                             | 1 C/O contact or 1 N/O contact        |
| Type of contact                           | single contact                        |
| Rated current                             | 8 A                                   |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac                     |
| Maximum breaking capacity AC              | 2000 VA                               |
| Make current (max. 4 s at duty cycle 10%) | 15 A                                  |
| Contact material                          | AgSnO <sub>2</sub> , AgCdO, AgNi 0.15 |

## Contact ratings

| Type  | Load                    | Operations         | Standard |
|-------|-------------------------|--------------------|----------|
| -A402 | 8 A, 240 Vac, resistive | 1x10 <sup>5</sup>  | UL 508   |
| -A302 | 30 / 3 A, 230 Vac, AC15 | 3x10 <sup>5</sup>  | VDE 0660 |
| -A302 | 65 / 4 A, 120 Vac, TV4  | 25x10 <sup>3</sup> | UL 508   |

## Coil data

|                    |                |
|--------------------|----------------|
| Nominal voltage    | 3...60 Vdc     |
| Nominal coil power | approx. 220 mW |
| Operate category   | 2 / b          |

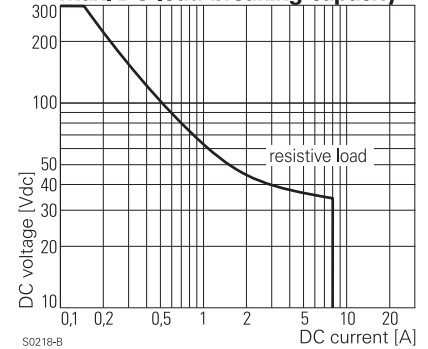
## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 002       | 5                   | 3.4                 | 0.5                 | 12.5                | 118±10%           | 42.4            |
| 003       | 6                   | 4.1                 | 0.6                 | 15.0                | 165±10%           | 36.4            |
| 005       | 12                  | 8.2                 | 1.2                 | 30.0                | 650±10%           | 18.5            |
| 007       | 24                  | 16.3                | 2.4                 | 56.0                | 2270±10%          | 10.6            |
| 009       | 48                  | 32.6                | 4.8                 | 110.0               | 8790±10%          | 5.5             |
| 010       | 60                  | 40.8                | 6.0                 | 142.0               | 15265±15%         | 4.0             |

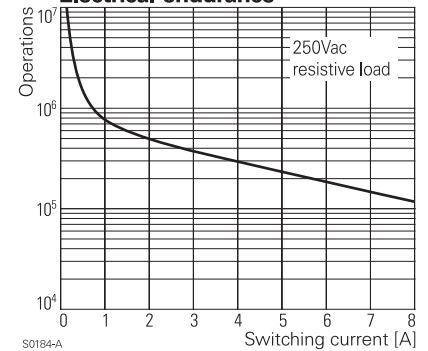
All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

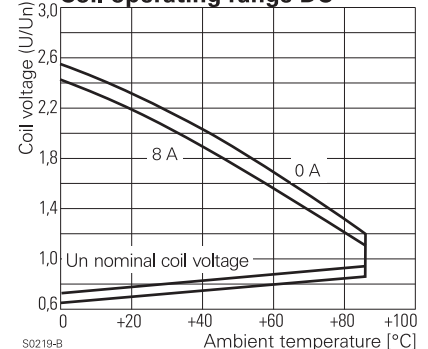
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Miniature Power PCB Relay MSR

1 pole 8 A

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage (standard)         |                      | 8 / 8 mm              |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | CTI 250               |

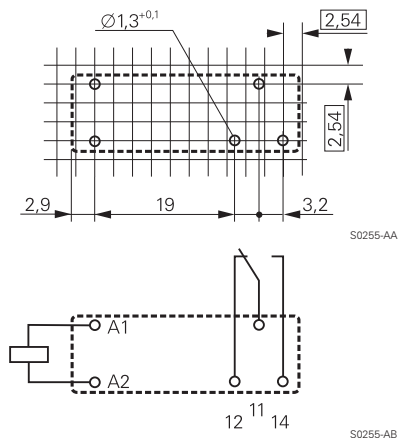
## Other data

|                                              |                                          |
|----------------------------------------------|------------------------------------------|
| Flammability class according to UL 94        | V-0                                      |
| Ambient temperature                          | -40...+85 °C                             |
| Mechanical life                              | 10x10 <sup>6</sup> operations            |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 20 s <sup>-1</sup> |
| Operate- / release time                      | 6 / 2.5 ms                               |
| Category of protection (IEC 61810)           | RT III - wash tight                      |
| Relay weight                                 | 11 g                                     |
| Packaging unit                               | 20 / 1000 pcs.                           |

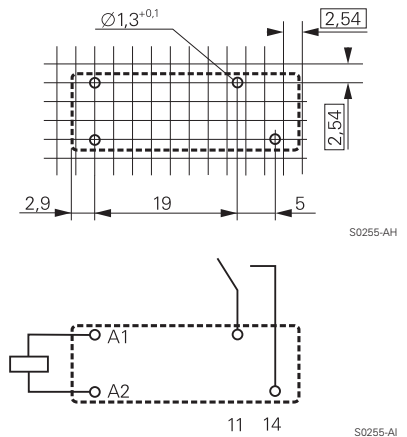
## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm

1 C/O contact, 3.2 mm



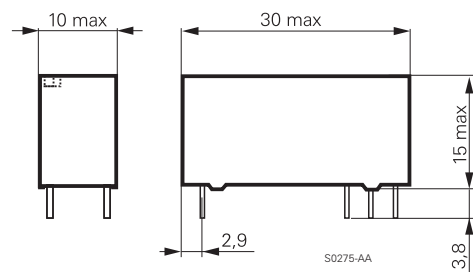
1 N/O contact, 5 mm



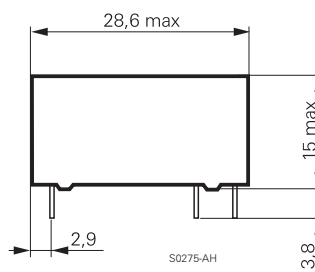
## Dimensions

Dimensions in mm

1 C/O contact, 3.2 mm



1 N/O contact, 5 mm



## Product key

**V 2 3 0 6 1** - **1** - **A**

Type

Version

**A** 1 N/O contact **B** 1 C/O contact

Version

**1** standard, wash tight

Coil

Coil code: please refer to coil versions table

Contact version

**A** standard

Contact material

**3** AgSnO<sub>2</sub> **5** AgNi 0,15, gold flashed  
**4** AgCdO **6** AgCdO, gold plated

Contact configuration

**01** 1 C/O contact **02** 1 N/O contact

Other types on request

# Miniature Power PCB Relay MSR

1 pole 8 A

| Product key       | Version    | Contacts      | Contact material   | Coil   | Part number |
|-------------------|------------|---------------|--------------------|--------|-------------|
| V23061-A1002-A302 | standard   | 1 N/O contact | AgSnO              | 5 Vdc  | 0-1393222-4 |
| V23061-A1002-A402 | wash tight |               | AgCdO              |        | 0-1393222-5 |
| V23061-A1002-A502 |            |               | AgNi 0.15 gold fl. | 6 Vdc  | 0-1393222-6 |
| V23061-A1003-A302 |            |               | AgSnO              |        | 0-1393222-9 |
| V23061-A1003-A402 |            |               | AgCdO              | 12 Vdc | 1-1393222-2 |
| V23061-A1003-A502 |            |               | AgNi 0.15 gold fl. |        | 1-1393222-3 |
| V23061-A1005-A302 |            |               | AgSnO              | 24Vdc  | 2-1393222-0 |
| V23061-A1005-A402 |            |               | AgCdO              |        | 2-1393222-3 |
| V23061-A1005-A502 |            |               | AgNi 0.15 gold fl. | 48 Vdc | 2-1393222-7 |
| V23061-A1005-A602 |            |               | AgCdO gold pl.     |        | 2-1393222-8 |
| V23061-A1007-A302 |            |               | AgSnO              | 60 Vdc | 3-1393222-9 |
| V23061-A1007-A402 |            |               | AgCdO              |        | 4-1393222-2 |
| V23061-A1007-A502 |            |               | AgNi 0.15 gold fl. | 12Vdc  | 4-1393222-6 |
| V23061-A1007-A602 |            |               | AgCdO gold pl.     |        | 4-1393222-7 |
| V23061-A1009-A402 |            |               | AgCdO              | 24Vdc  | 5-1393222-6 |
| V23061-A1009-A502 |            |               | AgNi 0.15 gold fl. |        | 5-1393222-7 |
| V23061-A1009-A602 |            |               | AgCdO gold pl.     | 48 Vdc | 5-1393222-8 |
| V23061-A1010-A402 |            |               | AgCdO              |        | 6-1393222-1 |
| V23061-A1010-A502 |            |               | AgNi 0.15 gold fl. | 60 Vdc | 6-1393222-2 |
| V23061-A1010-A602 |            |               | AgCdO gold pl.     |        | 6-1393222-3 |
| V23061-B1002-A301 |            | 1 C/O contact | AgSnO              | 5 Vdc  | 7-1393222-2 |
| V23061-B1002-A401 |            |               | AgCdO              |        | 7-1393222-3 |
| V23061-B1002-A501 |            |               | AgNi 0.15 gold fl. | 6 Vdc  | 7-1393222-4 |
| V23061-B1002-A601 |            |               | AgCdO gold pl.     |        | 7-1393222-5 |
| V23061-B1003-A401 |            |               | AgCdO              | 12Vdc  | 7-1393222-9 |
| V23061-B1003-A501 |            |               | AgNi 0.15 gold fl. |        | 8-1393222-1 |
| V23061-B1003-A601 |            |               | AgCdO gold pl.     | 24Vdc  | 8-1393222-2 |
| V23061-B1005-A301 |            |               | AgSnO              |        | 9-1393222-1 |
| V23061-B1005-A401 |            |               | AgCdO              | 48 Vdc | 9-1393222-4 |
| V23061-B1005-A501 |            |               | AgNi 0.15 gold fl. |        | 9-1393222-7 |
| V23061-B1005-A601 |            |               | AgCdO gold pl.     | 60 Vdc | 9-1393222-9 |
| V23061-B1007-A301 |            |               | AgSnO              |        | 1-1393223-7 |
| V23061-B1007-A401 |            |               | AgCdO              | 12Vdc  | 2-1393223-1 |
| V23061-B1007-A501 |            |               | AgNi 0.15 gold fl. |        | 2-1393223-5 |
| V23061-B1007-A601 |            |               | AgCdO gold pl.     | 48 Vdc | 2-1393223-6 |
| V23061-B1009-A301 |            |               | AgSnO              |        | 3-1393223-7 |
| V23061-B1009-A401 |            |               | AgCdO              | 60 Vdc | 3-1393223-8 |
| V23061-B1009-A501 |            |               | AgNi 0.15 gold fl. |        | 3-1393223-9 |
| V23061-B1009-A601 |            |               | AgCdO gold pl.     | 60 Vdc | 4-1393223-0 |
| V23061-B1010-A401 |            |               | AgCdO              |        | 4-1393223-2 |
| V23061-B1010-A501 |            |               | AgNi 0.15 gold fl. | 60 Vdc | 4-1393223-3 |
| V23061-B1010-A601 |            |               | AgCdO gold pl.     |        | 4-1393223-4 |

# Power PCB Relay RT1

1 pole 12 / 16 A, DC- or AC-coil



F0144-B

## Features

- 1 C/O or 1 N/O contact
- Sensitive coil 400 mW
- 5 kV / 10 mm coil-contact, Protection class II (VDE 0700)
- Ambient temperature 85°C (DC-coil)
- Height 15.7 mm
- Sockets with PCB-type or screw-type terminals
- Gold plated contacts available

## Applications

Boiler control, timers, garage door control, POS automation, interface modules



Technical data of approved types on request

## Contact data

|                                           |                                    |         |
|-------------------------------------------|------------------------------------|---------|
| Configuration                             | 1 C/O contact or 1 N/O contact     |         |
| Type of contact                           | single contact                     |         |
| Rated current                             | 12 A                               | 16 A    |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac                  |         |
| Maximum breaking capacity AC              | 3000 VA                            | 4000 VA |
| Make current (max. 4 s at duty cycle 10%) | 25 A                               | 30 A    |
| Contact material                          | AgNi 90/10, AgNi 90/10 gold plated |         |

## Contact ratings

| Type  | Load                                                                          | Operations        |
|-------|-------------------------------------------------------------------------------|-------------------|
| RT314 | 1000 W, 250 Vac, incandescent lamps                                           | $1.2 \times 10^3$ |
| RT314 | 16 A, 250 Vac, $\cos\phi=1$ , N/C contact                                     | $53 \times 10^3$  |
| RT314 | 10 A, 250 Vac, $\cos\phi=0.6$ , C/O contact                                   | $2 \times 10^5$   |
| RT314 | 5 A / 2 A, 250 Vac, $\cos\phi=1$ , tumble-drier motor, N/O contact            | $1.1 \times 10^6$ |
| RT314 | 0.26A <sub>peak</sub> / 0.01 A, 230 Vac, $\cos\phi=0.38$ , valve, N/O contact | $7.6 \times 10^6$ |

## Coil data

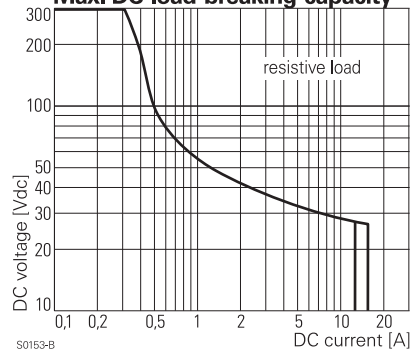
|                    |         |              |
|--------------------|---------|--------------|
| Nominal voltage    | DC coil | 5...110 Vdc  |
|                    | AC coil | 24...230 Vac |
| Nominal coil power | DC coil | 400 mW       |
|                    | AC coil | 0.75 VA      |
| Operate category   | 2 / b   |              |

## Coil versions, DC-coil

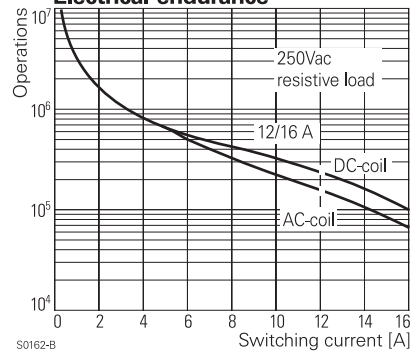
| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 005       | 5                   | 3.5                 | 0.5                 | 12.7                | $62 \pm 10\%$            | 80.0            |
| 006       | 6                   | 4.2                 | 0.6                 | 15.3                | $90 \pm 10\%$            | 66.7            |
| 012       | 12                  | 8.4                 | 1.2                 | 30.6                | $360 \pm 10\%$           | 33.3            |
| 024       | 24                  | 16.8                | 2.4                 | 61.2                | $1440 \pm 10\%$          | 16.7            |
| 048       | 48                  | 33.6                | 4.8                 | 122.4               | $5520 \pm 10\%$          | 8.7             |
| 060       | 60                  | 42.0                | 6.0                 | 153.0               | $7340 \pm 12\%$          | 8.1             |
| 110       | 110                 | 77.0                | 11.0                | 280.5               | $26600 \pm 12\%$         | 4.1             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

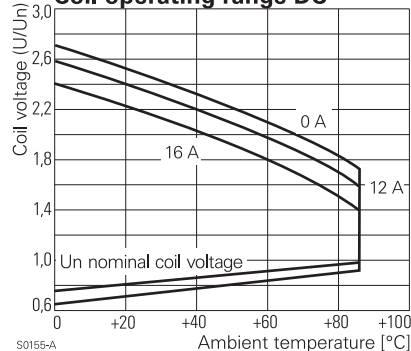
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Power PCB Relay RT1

1 pole 12 / 16 A, DC- or AC-coil

## Coil versions, AC-coil

| Coil code | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Maximum voltage Vac | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 524       | 24                  | 18.0                | 3.6                 | 36.0                | $350 \pm 10\%$           | 31.6            |
| 615       | 115                 | 86.3                | 17.3                | 172.5               | $8100 \pm 15\%$          | 6.6             |
| 730       | 230                 | 172.5               | 34.5                | 345.0               | $32500 \pm 15\%$         | 3.2             |

All figures are given for coil without preenergization, at ambient temperature +20°C

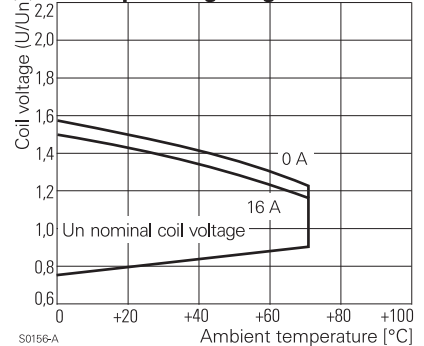
## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 5000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 10 / 10 mm            |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | CTI 250               |

## Other data

|                                              |                                                                                  |
|----------------------------------------------|----------------------------------------------------------------------------------|
| Flammability class according to UL 94        | V-0                                                                              |
| Coil insulation system according to UL 1446  | Class F                                                                          |
| Ambient temperature                          | DC-coil -40...+85 °C<br>AC-coil -40...+70 °C                                     |
| Mechanical life                              | DC-coil >30x10 <sup>6</sup> operations<br>AC-coil >10x10 <sup>6</sup> operations |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 1200 min <sup>-1</sup>                                     |
| Operate- / release time DC-coil              | typ. 7 / 3 ms                                                                    |
| Bounce time N/O contact/N/C contact          | typ. 1 / 3 ms                                                                    |
| Vibration resistance N/O / N/C contact       | 20 / 5 g, 30...500 Hz                                                            |
| Shock resistance (destruction)               | 100 g                                                                            |
| Category of protection (IEC 61810)           | RT II, RT III                                                                    |
| Relay weight                                 | 14 g                                                                             |
| Packaging unit                               | 20 / 500 pcs.                                                                    |
| Accessories                                  | see accessories RT                                                               |

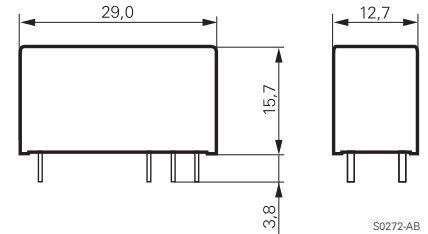
## Coil operating range AC



S0156-A

## Dimensions

Dimensions in mm

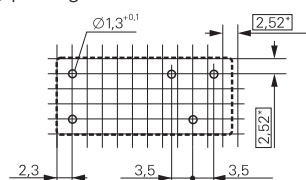


S0272-AB

## PCB layout / terminal assignment

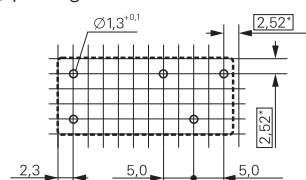
View on solder pins  
Dimensions in mm

12 A, pinning 3.5 mm



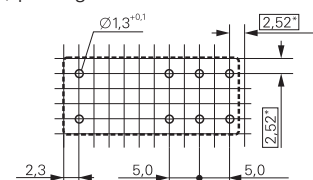
S0418-BB

12 A, pinning 5 mm



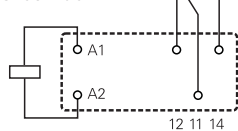
S0418-BN

16 A, pinning 5 mm



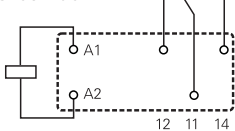
S0418-BA

1 C/O contact



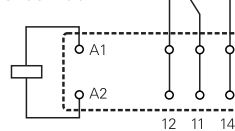
S0163-BG

1 C/O contact



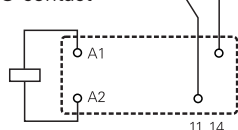
S0163-BC

1 C/O contact



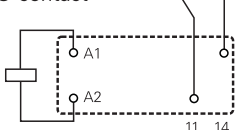
S0163-BE

1 N/O contact



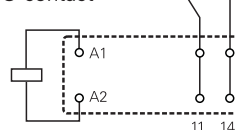
S0163-BH

1 N/O contact



S0163-BD

1 N/O contact



S0163-BF

\*) With the recommended PCB hole sizes a grid pattern from 2.5 mm to 2.54 mm can be used.

# Power PCB Relay RT1

1 pole 12 / 16 A, DC- or AC-coil

## Product key

|                  |                                                                                                                                                                                                                                                                                                                                                                                                         |          |                                         |  |  |  |  |  |          |                                         |          |                                         |          |                                   |  |  |          |                                       |          |                                |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------|--|--|--|--|--|----------|-----------------------------------------|----------|-----------------------------------------|----------|-----------------------------------|--|--|----------|---------------------------------------|----------|--------------------------------|
| Type             | <b>R</b>                                                                                                                                                                                                                                                                                                                                                                                                | <b>T</b> |                                         |  |  |  |  |  |          |                                         |          |                                         |          |                                   |  |  |          |                                       |          |                                |
| Version          | <table border="0"> <tr> <td><b>1</b></td> <td><b>12 A, pinning 3.5 mm, flux proof</b></td> <td><b>B</b></td> <td>12 A, pinning 3.5 mm, wash tight</td> </tr> <tr> <td><b>2</b></td> <td>12 A, pinning 5 mm, flux proof *)</td> <td></td> <td></td> </tr> <tr> <td><b>3</b></td> <td><b>16 A, pinning 5 mm, flux proof</b></td> <td><b>D</b></td> <td>16 A, pinning 5 mm, wash tight</td> </tr> </table> |          |                                         |  |  |  |  |  | <b>1</b> | <b>12 A, pinning 3.5 mm, flux proof</b> | <b>B</b> | 12 A, pinning 3.5 mm, wash tight        | <b>2</b> | 12 A, pinning 5 mm, flux proof *) |  |  | <b>3</b> | <b>16 A, pinning 5 mm, flux proof</b> | <b>D</b> | 16 A, pinning 5 mm, wash tight |
| <b>1</b>         | <b>12 A, pinning 3.5 mm, flux proof</b>                                                                                                                                                                                                                                                                                                                                                                 | <b>B</b> | 12 A, pinning 3.5 mm, wash tight        |  |  |  |  |  |          |                                         |          |                                         |          |                                   |  |  |          |                                       |          |                                |
| <b>2</b>         | 12 A, pinning 5 mm, flux proof *)                                                                                                                                                                                                                                                                                                                                                                       |          |                                         |  |  |  |  |  |          |                                         |          |                                         |          |                                   |  |  |          |                                       |          |                                |
| <b>3</b>         | <b>16 A, pinning 5 mm, flux proof</b>                                                                                                                                                                                                                                                                                                                                                                   | <b>D</b> | 16 A, pinning 5 mm, wash tight          |  |  |  |  |  |          |                                         |          |                                         |          |                                   |  |  |          |                                       |          |                                |
| Contacts         | <table border="0"> <tr> <td><b>1</b></td> <td>1 C/O contact</td> <td><b>3</b></td> <td>1 N/O contact</td> </tr> </table>                                                                                                                                                                                                                                                                                |          |                                         |  |  |  |  |  | <b>1</b> | 1 C/O contact                           | <b>3</b> | 1 N/O contact                           |          |                                   |  |  |          |                                       |          |                                |
| <b>1</b>         | 1 C/O contact                                                                                                                                                                                                                                                                                                                                                                                           | <b>3</b> | 1 N/O contact                           |  |  |  |  |  |          |                                         |          |                                         |          |                                   |  |  |          |                                       |          |                                |
| Contact material | <table border="0"> <tr> <td><b>4</b></td> <td>AgNi 90/10</td> <td><b>5</b></td> <td>AgNi 90/10 gold plated (for type RT31.)</td> </tr> </table>                                                                                                                                                                                                                                                         |          |                                         |  |  |  |  |  | <b>4</b> | AgNi 90/10                              | <b>5</b> | AgNi 90/10 gold plated (for type RT31.) |          |                                   |  |  |          |                                       |          |                                |
| <b>4</b>         | AgNi 90/10                                                                                                                                                                                                                                                                                                                                                                                              | <b>5</b> | AgNi 90/10 gold plated (for type RT31.) |  |  |  |  |  |          |                                         |          |                                         |          |                                   |  |  |          |                                       |          |                                |
| Coil             | Coil code: please refer to coil versions table                                                                                                                                                                                                                                                                                                                                                          |          |                                         |  |  |  |  |  |          |                                         |          |                                         |          |                                   |  |  |          |                                       |          |                                |

Preferred types in bold print

\*) Washable version on request

| Product key | Version           | Contacts      | Cont. material | Coil    | Coil    | Part number |
|-------------|-------------------|---------------|----------------|---------|---------|-------------|
| RT114005    | 12 A              | 1 C/O contact | AgNi 90/10     | DC-coil | 5 Vdc   | 0-1393239-7 |
| RT114006    | pinning 3.5 mm    |               |                |         | 6 Vdc   | 0-1393239-8 |
| RT114012    | flux proof        |               |                |         | 12 Vdc  | 0-1419108-1 |
| RT114024    |                   |               |                |         | 24 Vdc  | 1-1393239-3 |
| RT114048    |                   |               |                |         | 48 Vdc  | 1-1393239-4 |
| RT114110    |                   |               |                |         | 110 Vdc | 1-1393239-6 |
| RT114524    |                   |               |                | AC-coil | 24 Vac  | 1-1393239-7 |
| RT114615    |                   |               |                |         | 115 Vac | 1-1393239-8 |
| RT114730    |                   |               |                |         | 230 Vac | 1-1393239-9 |
| RT134012    |                   | 1 N/O contact |                | DC-coil | 12 Vdc  | 2-1393239-6 |
| RT134024    |                   |               |                |         | 24 Vdc  | 3-1393239-0 |
| RT214012    | 12 A, pinning 5mm | 1 C/O contact |                |         | 12 Vdc  | 5-1393239-4 |
| RT214024    | flux proof        |               |                |         | 24 Vdc  | 5-1393239-5 |
| RT314005    | 16 A              |               |                |         | 5 Vdc   | 9-1393239-1 |
| RT314006    | pinning 5 mm      |               |                |         | 6 Vdc   | 9-1393239-3 |
| RT314012    | flux proof        |               |                |         | 12 Vdc  | 9-1393239-5 |
| RT314024    |                   |               |                |         | 24 Vdc  | 9-1393239-8 |
| RT314048    |                   |               |                |         | 48 Vdc  | 0-1393240-1 |
| RT314060    |                   |               |                |         | 60 Vdc  | 0-1393240-2 |
| RT314110    |                   |               |                |         | 110 Vdc | 0-1393240-3 |
| RT314524    |                   |               |                | AC-coil | 24 Vac  | 0-1393240-4 |
| RT314615    |                   |               |                |         | 115 Vac | 0-1393240-6 |
| RT314730    |                   |               |                |         | 230 Vac | 0-1393240-7 |
| RT315012    |                   |               | AgNi 90/10     | DC-coil | 12 Vdc  | 1-1393240-1 |
| RT315024    |                   |               | gold plated    |         | 24 Vdc  | 1-1393240-4 |
| RT315730    |                   |               |                | AC-coil | 230 Vac | 1-1419108-1 |
| RT334012    |                   | 1 N/O contact | AgNi 90/10     | DC-coil | 12 Vdc  | 4-1393240-5 |
| RT334024    |                   |               |                |         | 24 Vdc  | 4-1393240-8 |
| RT334048    |                   |               |                |         | 48 Vdc  | 5-1393240-0 |
| RTB14005    | 12 A              | 1 C/O contact |                |         | 5 Vdc   | 1-1393238-2 |
| RTB14012    | pinning 3.5 mm    |               |                |         | 12 Vdc  | 1-1393238-5 |
| RTB14024    | wash tight        |               |                |         | 24 Vdc  | 1-1393238-9 |
| RTB14048    |                   |               |                |         | 48 Vdc  | 2-1393238-1 |
| RTD14005    | 16 A              |               |                |         | 5 Vdc   | 5-1393238-9 |
| RTD14006    | pinning 5 mm      |               |                |         | 6 Vdc   | 6-1393238-0 |
| RTD14012    | wash tight        |               |                |         | 12 Vdc  | 6-1393238-2 |
| RTD14015    |                   |               |                |         | 15 Vdc  | 6-1393238-4 |
| RTD14024    |                   |               |                |         | 24 Vdc  | 6-1393238-8 |
| RTD14048    |                   |               |                |         | 48 Vdc  | 6-1393238-9 |
| RTD34005    |                   | 1 N/O contact |                |         | 5 Vdc   | 8-1393238-3 |
| RTD34012    |                   |               |                |         | 12 Vdc  | 3-1419108-5 |
| RTD34024    |                   |               |                |         | 24 Vdc  | 3-1419108-8 |

# Power PCB Relay RT1 bistable

1 pole 16 A, polarized bistable version



## Features

- 1 C/O contact
- Bistable with 1 or 2 coils
- 5 kV / 10 mm coil-contact
- Height 15.7 mm
- Cadmium-free contacts
- Protection class II (VDE 0700)

## Applications

Battery powered equipment or applications with "memory function"

F0176-B



Technical data of approved types on request

## Contact data

|                                           |                   |
|-------------------------------------------|-------------------|
| Configuration                             | 1 C/O contact     |
| Type of contact                           | single contact    |
| Rated current                             | 16 A              |
| Rated voltage / max. breaking voltage     | 250 Vac / 440 Vac |
| Rated breaking capacity                   | 4000 VA           |
| Make current (max. 4 s at duty cycle 10%) | 30 A              |
| Contact material                          | AgNi 90/10        |

## Coil data

|                                                                                   | 1 coil                   | 2 coils                |
|-----------------------------------------------------------------------------------|--------------------------|------------------------|
| Nominal voltage                                                                   | 5...24 Vdc               |                        |
| Nominal coil power                                                                | typ. 400 mW              | typ. 600 mW            |
| Minimum energization time                                                         | 30 ms                    |                        |
| Information on reduced pulse duration with higher energization voltages on demand |                          |                        |
| Max. energization for version with 2 coils                                        | 1 min at <10% duty cycle |                        |
| Reset voltage max.                                                                | 120 % U <sub>nom</sub>   | 150 % U <sub>nom</sub> |

## Coil versions, bistable

| Coil code                | Nominal voltage Vdc | Pull-in voltage Vdc | Reset voltage Vdc | Coil resistance $\Omega$          | Coil current mA |
|--------------------------|---------------------|---------------------|-------------------|-----------------------------------|-----------------|
| <b>bistable, 1 coil</b>  |                     |                     |                   |                                   |                 |
| A05                      | 5                   | 3.5                 | 3.5               | $62 \pm 10\%$                     | 80.0            |
| A06                      | 6                   | 4.2                 | 4.2               | $90 \pm 10\%$                     | 66.7            |
| <b>A12</b>               | <b>12</b>           | <b>8.4</b>          | <b>8.4</b>        | <b><math>360 \pm 10\%</math></b>  | <b>33.3</b>     |
| <b>A24</b>               | <b>24</b>           | <b>16.8</b>         | <b>16.8</b>       | <b><math>1440 \pm 10\%</math></b> | <b>16.7</b>     |
| <b>bistable, 2 coils</b> |                     |                     |                   |                                   |                 |
| F05                      | 5                   | 3.5                 | 3.5               | $42 \pm 10\%$                     | 120.0           |
| F06                      | 6                   | 4.2                 | 4.2               | $55 \pm 10\%$                     | 110.0           |
| <b>F12</b>               | <b>12</b>           | <b>8.4</b>          | <b>8.4</b>        | <b><math>240 \pm 10\%</math></b>  | <b>50.0</b>     |
| <b>F24</b>               | <b>24</b>           | <b>16.8</b>         | <b>16.8</b>       | <b><math>886 \pm 10\%</math></b>  | <b>27.0</b>     |

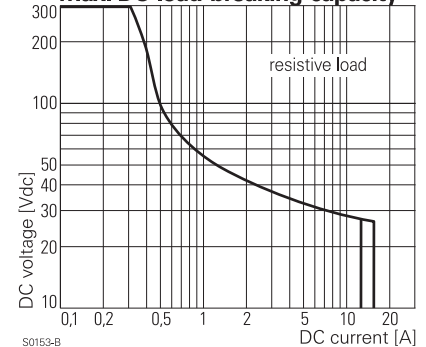
All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

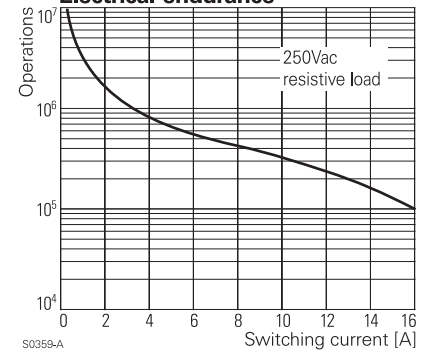
## Coils - operation

| Version                                  | 1 coil |    | 2 coils |    |    |
|------------------------------------------|--------|----|---------|----|----|
| Coil terminals                           | A1     | A2 | A1      | A3 | A2 |
| Pull-in                                  | +      | -  |         | +  | -  |
| Reset                                    | -      | +  | -       | +  |    |
| Contact position not defined at delivery |        |    |         |    |    |

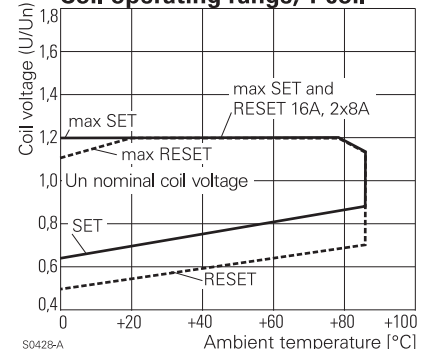
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range, 1 coil



# Power PCB Relay RT1 bistable

1 pole 16 A, polarized bistable version

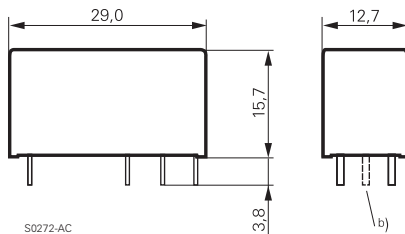
## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 5000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 10 / 10 mm            |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | CTI 250               |

## Other data

|                                              |                                               |
|----------------------------------------------|-----------------------------------------------|
| Flammability class according to UL 94        | V-0                                           |
| Coil insulation system according to UL 1446  | Class F                                       |
| Ambient temperature                          | -40...+85 °C                                  |
| Mechanical life                              | 5x10 <sup>6</sup> operations                  |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 600 min <sup>-1</sup>   |
| Operate- / release time                      | typ. 5 / 4 ms                                 |
| Bounce time N/O contact/N/C contact          | typ. 1 / 3 ms                                 |
| Vibration resistance / shock resistance      |                                               |
| opening N/C contact                          | 3 / 5 g                                       |
| closing the N/O contact                      | 6 / 15 g                                      |
| Shock resistance (destruction)               | 100 g                                         |
| Category of protection (IEC 61810)           | RT II - flux proof                            |
| Relay weight                                 | 13 g                                          |
| Packaging unit                               | 1 coil 20 / 500 pcs.<br>2 coils 25 / 100 pcs. |
| Accessories                                  | see accessories RT                            |

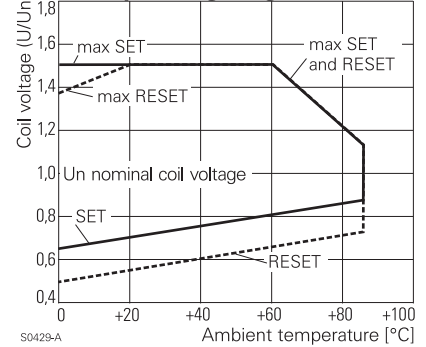
## Dimensions



a) Indicated contact position during or after coil energization with reset voltage.

b) for 2 coil version only

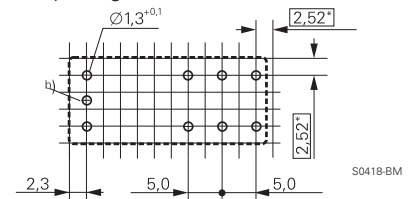
## Coil operating range, 2 coils



## PCB layout / terminal assignment

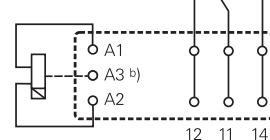
View on solder pins  
Dimensions in mm

16 A, pinning 5 mm



\*) With the recommended PCB hole sizes a grid pattern from 2.5 mm to 2.54 mm can be used.

1 C/O contact



S0163-BI

## Product key

Type

Version

**3** 16 A, pinning 5 mm, flux proof

Contacts

**1** 1 C/O contact

Contact material

**4** AgNi 90/10

Coil

Coil code: please refer to coil versions table, preferred types in bold print

|          |          |          |          |          |  |  |  |
|----------|----------|----------|----------|----------|--|--|--|
| <b>R</b> | <b>T</b> | <b>3</b> | <b>1</b> | <b>4</b> |  |  |  |
|----------|----------|----------|----------|----------|--|--|--|

| Product key | Version      | Contacts      | Cont. material | Coil     | Coil   | Part number |
|-------------|--------------|---------------|----------------|----------|--------|-------------|
| RT314A12    | 16 A         | 1 C/O contact | AgNi 90/10     | bistable | 12 Vdc | 8-1393239-0 |
| RT314A24    | pinning 5 mm |               |                | 1 coil   | 24 Vdc | 8-1393239-1 |
| RT314F12    | flux proof   |               |                | bistable | 12 Vdc | 8-1393239-7 |
| RT314F24    |              |               |                | 2 coils  | 24 Vdc | 8-1393239-8 |

# Power PCB Relay RT1 sensitive

1 pole 10 A, highly sensitive version



F0145-B

## Features

- 1 C/O or 1 N/O contact
- Sensitive coil 250 mW
- 5 kV / 10 mm coil-contact
- Protection class II (VDE 0700)
- Ambient temperature 85°C at rated load
- Height 15.7 mm
- Sockets with PCB-type or screw-type terminals

## Applications

Domestic appliances, heating control



Technical data of approved types on request

## Contact data

|                                           |                                |
|-------------------------------------------|--------------------------------|
| Configuration                             | 1 C/O contact or 1 N/O contact |
| Type of contact                           | single contact                 |
| Rated current                             | 10 A                           |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac              |
| Maximum breaking capacity AC              | 2500 VA                        |
| Make current (max. 4 s at duty cycle 10%) | 15 A                           |
| Contact material                          | AgNi 90/10                     |

## Contact ratings

| Type  | Load                                                                                   | Operations         |
|-------|----------------------------------------------------------------------------------------|--------------------|
| RT174 | 8 A, 250 Vac                                                                           | $4.3 \times 10^5$  |
| RT174 | 370 W, 230 Vac, compressor, N/O contact                                                | $>3.3 \times 10^5$ |
| RT174 | 550 W, 250 Vac, incandescent lamps, N/O contact                                        | $1.9 \times 10^5$  |
| RT174 | $0.8A_{peak} / 0.08 A$ , 230 Vac, $\cos\phi=0.23$ , contactor 190 / 90 VA, N/O contact | $>8.8 \times 10^6$ |

## Coil data

|                    |            |
|--------------------|------------|
| Nominal voltage    | 5...60 Vdc |
| Nominal coil power | 250 mW     |
| Operate category   | 2 / b      |

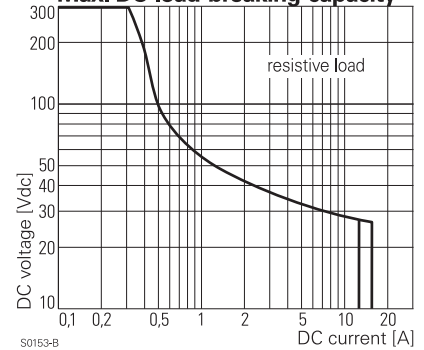
## Coil versions, sensitive DC-coil

| Coil code  | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance $\Omega$          | Coil current mA |
|------------|---------------------|---------------------|---------------------|---------------------|-----------------------------------|-----------------|
| 005        | 5                   | 3.7                 | 0.5                 | 15.0                | $100 \pm 10\%$                    | 50.0            |
| 006        | 6                   | 4.5                 | 0.6                 | 18.0                | $144 \pm 10\%$                    | 41.7            |
| <b>012</b> | <b>12</b>           | <b>9.0</b>          | <b>1.2</b>          | <b>36.0</b>         | <b><math>576 \pm 10\%</math></b>  | <b>20.8</b>     |
| <b>024</b> | <b>24</b>           | <b>18.0</b>         | <b>2.4</b>          | <b>72.0</b>         | <b><math>2304 \pm 10\%</math></b> | <b>10.4</b>     |
| 048        | 48                  | 36.0                | 4.8                 | 144.0               | $9216 \pm 10\%$                   | 5.4             |
| 060        | 60                  | 45.0                | 6.0                 | 180.0               | $12857 \pm 12\%$                  | 4.7             |

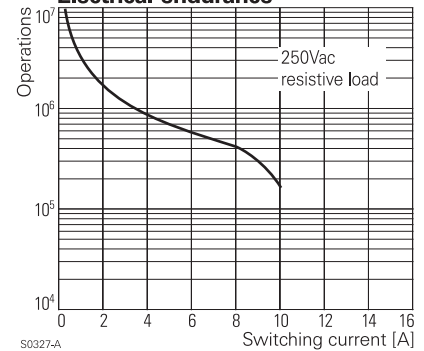
All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

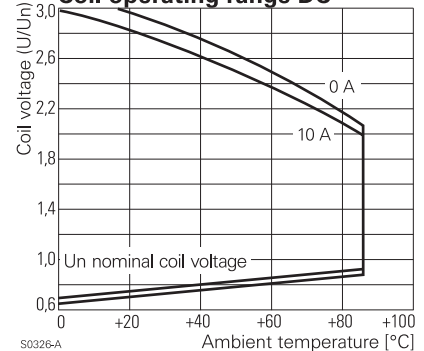
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Power PCB Relay RT1 sensitive

1 pole 10 A, highly sensitive version

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 5000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 10 / 10 mm            |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |

## Other data

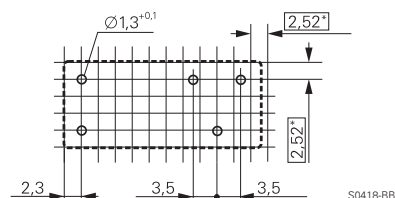
|                                              |                                               |
|----------------------------------------------|-----------------------------------------------|
| Flammability class according to UL 94        | V-0                                           |
| Coil insulation system according to UL 1446  | Class F                                       |
| Ambient temperature                          | -40...+85 °C                                  |
| Mechanical life                              | 30x10 <sup>6</sup> operations                 |
| Max. switching rate at rated- / minimum load | 50 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time                      | typ. 7 / 3 ms                                 |
| Bounce time N/O contact/N/C contact          | typ. 2 / 4 ms                                 |
| Vibration resistance                         | 5 g, 30...150 Hz                              |
| Shock resistance (destruction)               | 100 g                                         |
| Category of protection (IEC 61810)           | RT II - flux proof, RT III - wash tight       |
| Relay weight                                 | 14 g                                          |
| Packaging unit                               | 20 / 500 pcs.                                 |
| Accessories                                  | see accessories RT                            |

## PCB layout / terminal assignment

View on solder pins

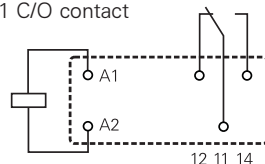
Dimensions in mm

10 A, pinning 3.5 mm

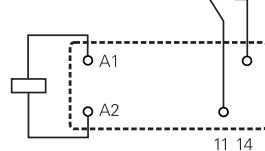


\*) With the recommended PCB hole sizes a grid pattern from 2.5 mm to 2.54 mm can be used.

1 C/O contact

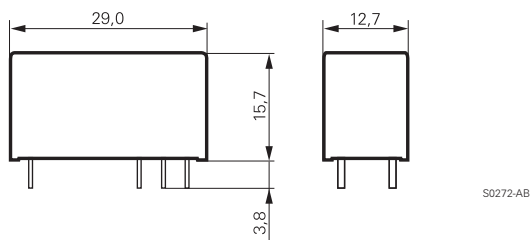


1 N/O contact



## Dimensions

Dimensions in mm



## Product key

Type

Version

**1 10 A, pinning 3.5 mm, flux proof**

**B** 10 A, pinning 3.5 mm, wash tight

Contacts

**7 1 C/O contact**

**8 1 N/O contact**

Contact material

**4 AgNi 90/10**

Coil

Coil code: please refer to coil versions table

Preferred types in bold print

| Product key | Version        | Contacts      | Contact material | Coil   | Part number |
|-------------|----------------|---------------|------------------|--------|-------------|
| RT174005    | 10 A           | 1 C/O contact | AgNi 90/10       | 5 Vdc  | 3-1393239-6 |
| RT174006    | pinning 3.5 mm |               |                  | 6 Vdc  | 3-1393239-7 |
| RT174012    | flux proof     |               |                  | 12 Vdc | 3-1393239-8 |
| RT174024    |                |               |                  | 24 Vdc | 3-1393239-9 |
| RTB74012    | 10 A, 3.5mm    |               |                  | 12 Vdc | 4-1393238-4 |
| RTB74024    | wash tight     |               |                  | 24 Vdc | 4-1393238-6 |

# Power PCB Relay RT1 Inrush

## 1 pole 16 A, for inrush peak currents up to 80 A



### Features

- 1 N/O contact
- Sensitive coil 400 mW
- 5 kV / 10 mm coil-contact
- Protection class II (VDE 0700)
- Ambient temperature 85°C
- Height 15.7 mm
- Sockets with PCB-type or screw-type terminals

### Applications

Domestic appliances, heating control, lighting control

F0177-B



Technical data of approved types on request

### Contact data

|                                           |                                |
|-------------------------------------------|--------------------------------|
| Configuration                             | 1 N/O contact                  |
| Type of contact                           | single contact                 |
| Rated current                             | 16 A                           |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac              |
| Maximum breaking capacity AC              | 4000 VA                        |
| Make current (max. 4 s at duty cycle 10%) | 30 A                           |
| peak inrush current (20 ms)               | 80 A                           |
| Contact material                          | AgNi 90/10, AgSnO <sub>2</sub> |

### Contact ratings

| Type  | Load                                                                                   | Operations               |
|-------|----------------------------------------------------------------------------------------|--------------------------|
| RT33K | 1000 W, 250 Vac, incandescent lamps                                                    | typ. 9x10 <sup>4</sup>   |
| RT33L | 1000 W, 250 Vac, incandescent lamps                                                    | typ. 8x10 <sup>4</sup>   |
| RT33L | compressor, 230 Vac, $I_{in} \leq 21 A_{peak}$ , $I_{off} = 3.5 A$ , $\cos \phi = 0.5$ | typ. 2.3x10 <sup>5</sup> |

### Coil data

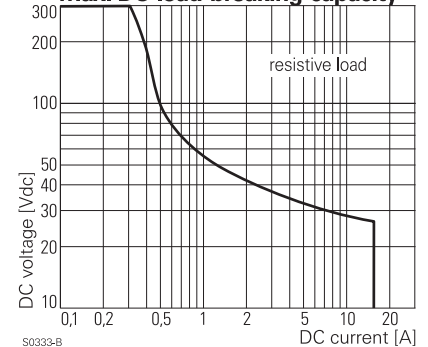
|                    |             |
|--------------------|-------------|
| Nominal voltage    | 5...110 Vdc |
| Nominal coil power | 400 mW      |
| Operate category   | 2 / b       |

### Coil versions, DC-coil

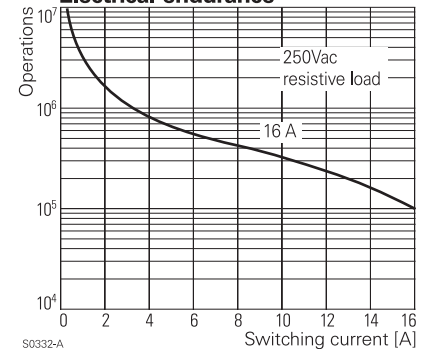
| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 012       | 12                  | 8.4                 | 1.2                 | 30.6                | 360±10%                  | 33.3            |
| 024       | 24                  | 16.8                | 2.4                 | 61.2                | 1440±10%                 | 16.7            |
| 048       | 48                  | 33.6                | 4.8                 | 122.4               | 5520±10%                 | 8.7             |
| 060       | 60                  | 42.0                | 6.0                 | 153.0               | 7340±12%                 | 8.1             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

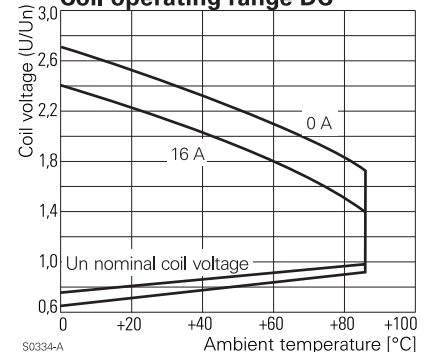
### Max. DC load breaking capacity



### Electrical endurance



### Coil operating range DC



# Power PCB Relay RT1 Inrush

## 1 pole 16 A, for inrush peak currents up to 80 A

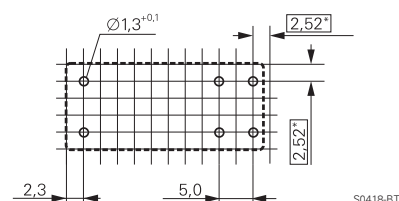
| Insulation                              |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 5000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 10 / 10 mm            |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |

| Other data                                   |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94        | V-0                                          |
| Coil insulation system according to UL 1446  | Class F                                      |
| Ambient temperature                          | -40...+85 °C                                 |
| Mechanical life                              | 30x10 <sup>6</sup> operations                |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time                      | typ. 8 / 3 ms                                |
| Bounce time                                  | typ. 2 ms                                    |
| Vibration resistance                         | 20 g, 30...500 Hz                            |
| Shock resistance (destruction)               | 100 g                                        |
| Category of protection (IEC 61810)           | RT II - flux proof                           |
| Relay weight                                 | 14 g                                         |
| Packaging unit                               | 20 / 500 pcs.                                |
| Accessories                                  | see accessories RT                           |

### PCB layout / terminal assignment

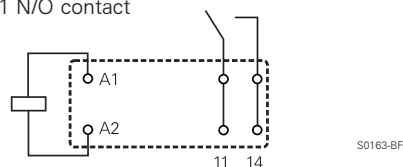
View on solder pins  
Dimensions in mm

16 A, pinning 5 mm



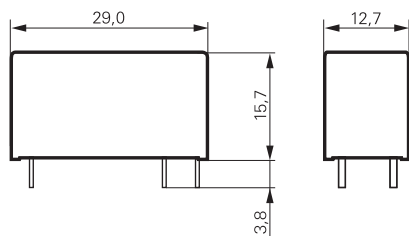
\*) With the recommended PCB hole sizes a grid pattern from 2.5 mm to 2.54 mm can be used.

1 N/O contact



### Dimensions

Dimensions in mm



S0272-AE

### Product key

|                                                                               |                     |                                |
|-------------------------------------------------------------------------------|---------------------|--------------------------------|
| Type                                                                          |                     |                                |
| Version                                                                       |                     |                                |
|                                                                               | <b>3</b>            | 16 A, pinning 5 mm, flux proof |
| Contacts                                                                      |                     |                                |
|                                                                               | <b>3</b>            | 1 N/O contact                  |
| Contact material                                                              |                     |                                |
|                                                                               | <b>K</b> AgNi 90/10 | <b>L</b> AgSnO <sub>2</sub>    |
| Coil                                                                          |                     |                                |
| Coil code: please refer to coil versions table, preferred types in bold print |                     |                                |

| Product key | Version      | Contacts      | Contact material | Coil   | Part number |
|-------------|--------------|---------------|------------------|--------|-------------|
| RT33K012    | 16 A         | 1 N/O contact | AgNi 90/10       | 12 Vdc | 2-1393240-3 |
| RT33K024    | pinning 5 mm |               |                  | 24 Vdc | 2-1393240-4 |
| RT33K048    | flux proof   |               |                  | 48 Vdc | 2-1393240-5 |
| RT33L012    |              |               | AgSnO            | 12 Vdc | 3-1393240-3 |
| RT33L024    |              |               |                  | 24 Vdc | 3-1393240-5 |
| RT33L048    |              |               |                  | 48 Vdc | 3-1393240-6 |

# Power PCB Relay 429 03 Inrush

1 pole 10 A, for inrush peak currents up to 80 A



F0247-A

## Features

- 1 N/O contact (W prerun contact + AgSnO<sub>2</sub>)
- 80 A / 20 ms inrush peak current
- 4 kV / 8 mm coil-contact, protection class II (VDE 0700)
- Sensitive coil 480mW
- Height 15,0 mm

## Applications

Lighting systems, movement sensors, filament lamp loads, halogen bulbs and motors



Technical data of approved types on request

## Contact data

|                                           |                                         |
|-------------------------------------------|-----------------------------------------|
| Configuration                             | 1 N/O contact                           |
| Type of contact                           | single contact                          |
| Rated current                             | 10 A                                    |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 400 Vac                       |
| Make current (max. 4 s at duty cycle 10%) | 16 A                                    |
| peak inrush current (20 ms)               | 80 A                                    |
| Contact material                          | W (prerun contact) + AgSnO <sub>2</sub> |

## Contact ratings

| Type   | Load                              | Operations        | Standard |
|--------|-----------------------------------|-------------------|----------|
| 429 03 | 10 A, 250 Vac, resistive          | 5x10 <sup>4</sup> |          |
| 429 03 | 2500 W, incandescent lamps        | 3x10 <sup>4</sup> |          |
| 429 03 | 1300 W, fluorescent lamps, 140 µF | 3x10 <sup>4</sup> |          |
| 429 03 | 1000 W, Dulux lamps, 140 µF       | 3x10 <sup>4</sup> |          |

## Coil data

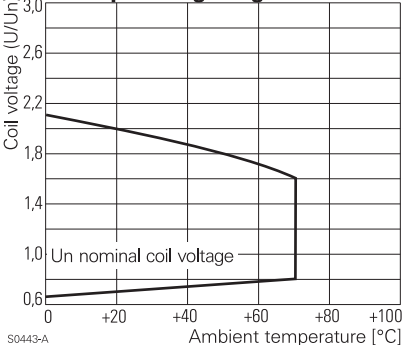
|                    |            |
|--------------------|------------|
| Nominal voltage    | 6...60 Vdc |
| Nominal coil power | 480 mW     |
| Operate category   | 1 / b      |

## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 16        | 6                   | 4.2                 | 0.4                 | 12.0                | 80±10%            | 75.0            |
| <b>13</b> | <b>12</b>           | <b>8.4</b>          | <b>0.9</b>          | <b>24.0</b>         | <b>300±10%</b>    | <b>40.0</b>     |
| <b>08</b> | <b>24</b>           | <b>16.8</b>         | <b>1.8</b>          | <b>48.0</b>         | <b>1200±10%</b>   | <b>20.0</b>     |
| 05        | 48                  | 33.6                | 3.6                 | 96.0                | 4825±10%          | 10.0            |
| 03        | 60                  | 42.0                | 4.5                 | 120.0               | 7500±10%          | 8.0             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

## Coil operating range DC



# Power PCB Relay 429 03 Inrush

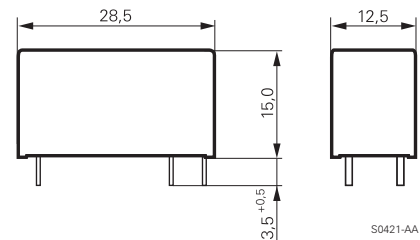
1 pole 10 A, for inrush peak currents up to 80 A

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 8 / 8 mm              |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | PTI 250               |

## Dimensions

Dimensions in mm

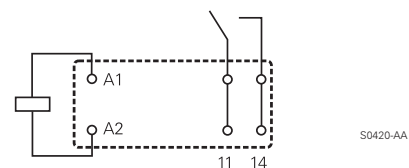
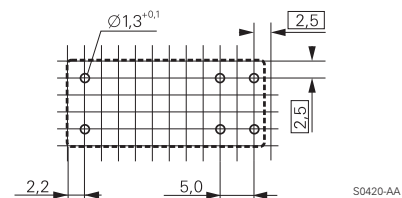


## Other data

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94        | V-0                                          |
| Ambient temperature                          | -40...+70 °C                                 |
| Mechanical life                              | >5x10 <sup>6</sup> operations                |
| Max. switching rate at rated- / minimum load | 10 min <sup>-1</sup> / 300 min <sup>-1</sup> |
| Operate- / release time                      | typ. 6 / 4 ms                                |
| Bounce time N/O contact                      | typ. 3 ms                                    |
| Shock resistance (destruction)               | 100 g                                        |
| Category of protection (IEC 61810)           | RT II - flux proof                           |
| Relay weight                                 | 10 g                                         |
| Packaging unit                               | 50 / 400 pcs.                                |

## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm



## Product key

**0 4 2 9**   **0 3**   **1 2**   **0 0**

Type

Coil

Coil code: Please refer to coil versions table, preferred types in bold print

Contacts

**12** W (prerun contact) + AgSnO<sub>2</sub>

Version

**00** Standard

Other types on request

| Product key     | Version    | Contacts      | Contact material | Coil  | Part number |
|-----------------|------------|---------------|------------------|-------|-------------|
| 0429 03 1312 00 | 10A        | 1 N/O contact | W prerun         | 12Vdc | 7-1415429-4 |
| 0429 03 0812 00 | flux proof |               | AgSnO            | 24Vdc | 7-1415429-0 |
| 0429 03 0512 00 |            |               |                  | 48Vdc | 6-1415429-7 |

# Power PCB Relay RTH 105°C sensitive

1 pole 10 A, high-temperature version



## Features

- 1 N/O contact
- Sensitive coil 250 mW
- 5 kV / 10 mm coil-contact
- Protection class II (VDE 0700)
- Ambient temperature 105°C at rated load
- Height 15.7 mm

## Applications

Domestic appliances, heating control

F0178-C



Technical data of approved types on request

## Contact data

|                                           |                   |
|-------------------------------------------|-------------------|
| Configuration                             | 1 N/O contact     |
| Type of contact                           | single contact    |
| Rated current                             | 10 A              |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac |
| Maximum breaking capacity AC              | 2500 VA           |
| Make current (max. 4 s at duty cycle 10%) | 15 A              |
| Contact material                          | AgNi 90/10        |

## Contact ratings

| Type  | Load                                   | Operations          |
|-------|----------------------------------------|---------------------|
| RTH84 | 12 A, 250 Vac, 105 °C, dry switching   | >5x10 <sup>5</sup>  |
| RTH84 | 10 A, 250 Vac, cyclical heat 105/40 °C | 2x10 <sup>5</sup>   |
| RTH84 | 10 A, 250 Vac, 105 °C                  | 1.5x10 <sup>5</sup> |

## Coil data

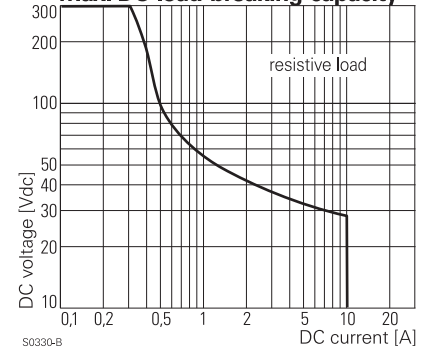
|                    |            |
|--------------------|------------|
| Nominal voltage    | 5...60 Vdc |
| Nominal coil power | 250 mW     |
| Operate category   | 2 / b      |

## Coil versions, sensitive DC-coil

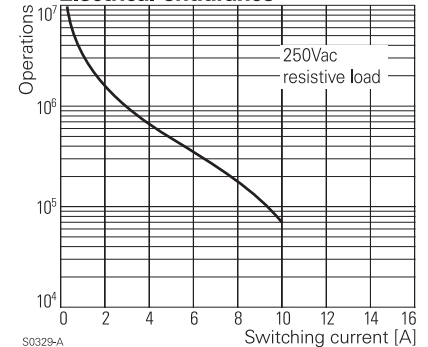
| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 012       | 12                  | 9.0                 | 1.2                 | 36.0                | 576±10%           | 20.8            |
| 024       | 24                  | 18.0                | 2.4                 | 72.0                | 2304±10%          | 10.4            |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

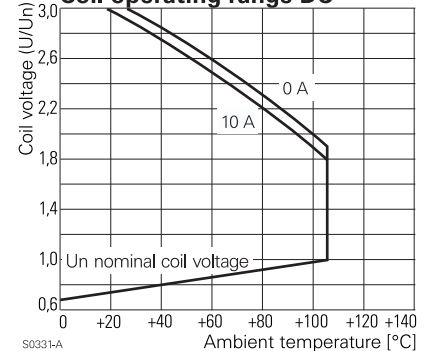
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Power PCB Relay RTH 105°C sensitive

1 pole 10 A, high-temperature version

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 5000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 10 / 10 mm            |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |

## Other data

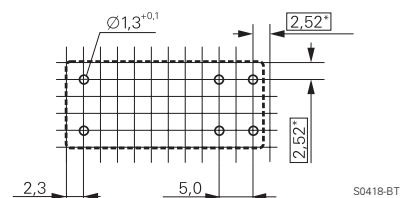
|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94        | V-0                                          |
| Coil insulation system according to UL 1446  | Class F                                      |
| Ambient temperature                          | -40...+105 °C                                |
| Mechanical life                              | 10x10 <sup>6</sup> operations                |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time                      | typ. 8 / 3 ms                                |
| Bounce time                                  | typ. 2 ms                                    |
| Vibration resistance                         | 5 g, 30...150 Hz                             |
| Shock resistance (destruction)               | 100 g                                        |
| Category of protection (IEC 61810)           | RT II - flux proof                           |
| Relay weight                                 | 14 g                                         |
| Packaging unit                               | 20 / 500 pcs.                                |

## PCB layout / terminal assignment

View on solder pins

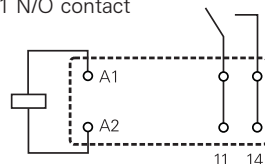
Dimensions in mm

10 A, pinning 5 mm



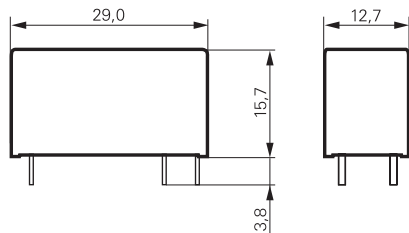
\*) With the recommended PCB hole sizes a grid pattern from 2.5 mm to 2.54 mm can be used.

1 N/O contact



## Dimensions

Dimensions in mm



## Product key

Type

Version

**H** 10 A, pinning 5 mm, 105°C

Contacts

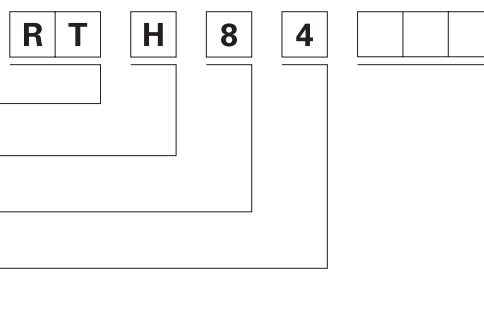
**8** 1 N/O contact

Contact material

**4** AgNi 90/10

Coil

Coil code: please refer to coil versions table



| Product key | Version           | Contacts      | Contact material | Coil   | Part number |
|-------------|-------------------|---------------|------------------|--------|-------------|
| RTH84012    | 10 A, 5 mm        | 1 N/O contact | AgNi 90/10       | 12 Vdc | 9-1393238-2 |
| RTH84024    | 105°C, flux proof |               |                  | 24 Vdc | 9-1393238-3 |

# Power PCB Relay RTH 105°C 16A

1 pole 16 A, high-temperature version



## Features

- 1 C/O or 1 N/O contact
- Sensitive coil 400 mW
- 5 kV / 10 mm coil-contact
- Protection class II (VDE 0700)
- Ambient temperature 105°C at rated load
- Height 15.7 mm

## Applications

Oven control, cooking plate control

F0220-C



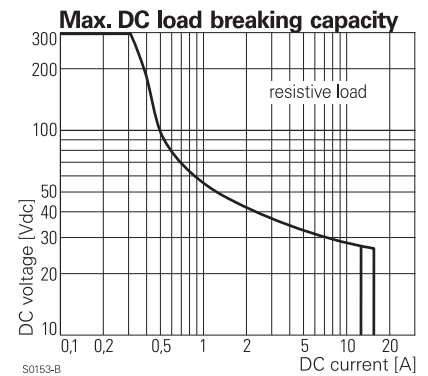
Technical data of approved types on request

## Contact data

|                                           |                                |
|-------------------------------------------|--------------------------------|
| Configuration                             | 1 C/O contact or 1 N/O contact |
| Type of contact                           | single contact                 |
| Rated current                             | 16 A <sup>1)</sup>             |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac              |
| Maximum breaking capacity AC              | 4000 VA                        |
| Make current (max. 4 s at duty cycle 10%) | 30 A                           |
| Contact material                          | AgNi 90/10                     |

## Contact ratings

| Type  | Load                               | Operations               | standard    |
|-------|------------------------------------|--------------------------|-------------|
| RTH34 | 10 A, 250 Vac, 105 °C              | 1.5x10 <sup>5</sup>      | EN 61810/T1 |
| RTH34 | 16 A, 250 Vac, 105 °C              | 2x10 <sup>4</sup>        |             |
| RTHH4 | 10 A, 250 Vac, 105 °C              | typ. 3x10 <sup>5</sup>   |             |
| RTHH4 | 16 A ON / 8 A OFF, 250 Vac, 105 °C | typ. 2.5x10 <sup>5</sup> |             |



## Coil data

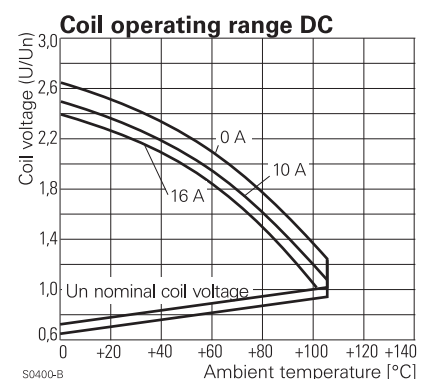
|                    |                             |
|--------------------|-----------------------------|
| Nominal voltage    | 5...60 Vdc                  |
| Nominal coil power | 400 mW <sup>1)</sup>        |
| Operate category   | 90 - 110 % U <sub>nom</sub> |

## Coil versions, DC-coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 009       | 9                   | 6.3                 | 0.9                 | 22.9                | 203±10%           | 44.3            |
| 012       | 12                  | 8.4                 | 1.2                 | 30.6                | 360±10%           | 33.3            |
| 024       | 24                  | 16.8                | 2.4                 | 61.2                | 1440±10%          | 16.7            |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

<sup>1)</sup> Continuous thermal load > 10 A at 105°C requires reduction of coil power to 64% of nominal power after 100 ms



# Power PCB Relay RTH 105°C 16A

1 pole 16 A, high-temperature version

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 5000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 10 / 10 mm            |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |

## Other data

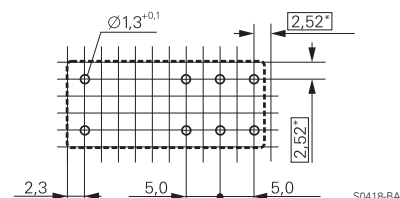
|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94        | V-0                                          |
| Coil insulation system according to UL 1446  | Class F                                      |
| Ambient temperature                          | -40...+105 °C                                |
| Mechanical life                              | 10x10 <sup>6</sup> operations                |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time                      | typ. 7 / 3 ms                                |
| Bounce time N/O contact / N/C contact        | typ. 1 / 3 ms                                |
| Vibration resistance N/O / N/C contact       | 20 / 5 g, 30...150 Hz                        |
| Shock resistance (destruction)               | 100 g                                        |
| Category of protection (IEC 61810)           | RT II - flux proof                           |
| Relay weight                                 | 14 g                                         |

## PCB layout / terminal assignment

View on solder pins

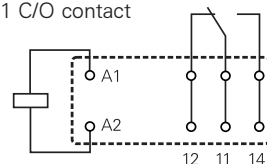
Dimensions in mm

16 A, pinning 5 mm

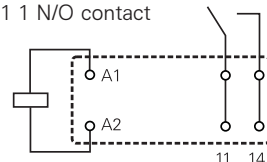


\*) With the recommended PCB hole sizes a grid pattern from 2.5 mm to 2.54 mm can be used.

1 C/O contact

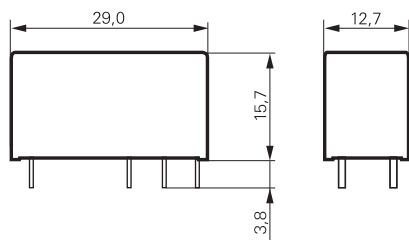


1 1 N/O contact



## Dimensions

Dimensions in mm



## Product key

Type

Version

**H** 16 A, pinning 5 mm, 105°C

Contacts

**1** 1 C/O contact

**3** 1 N/O contact

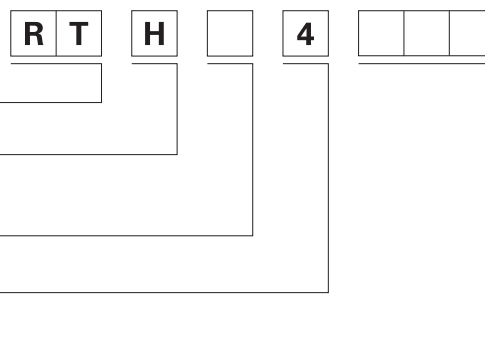
**H** 1 N/O contact "High Performance"

Contact material

**4** AgNi 90/10

Coil

Coil code: please refer to coil versions table



| Product key | Version     | Contacts               | Contact material | Coil   | Part number |
|-------------|-------------|------------------------|------------------|--------|-------------|
| RTH14012    | 16 A        | 1 C/O contact          | AgNi 90/10       | 12 Vdc | 8-1415006-1 |
| RTH34012    | pinning 5mm | 1 N/O contact          |                  | 12 Vdc | 9-1415006-1 |
| RTHH4009    | flux proof  | 1 N/O high performance |                  | 9 Vdc  | 7-1415077-1 |
| RTHH4012    | 105°C       |                        |                  | 12 Vdc | 8-1415047-1 |

# Power PCB Relay RP II/1

1 pole 8 / 12 / 16 A



F0146-B

## Features

- 1 C/O or 1 N/O contact
- 4 kV / 8 mm coil-contact
- Pinning 3.5 or 5 mm (8 / 12 A) and 5 mm (16 A)
- PCB-sockets

## Applications

Power supplies, domestic appliances, heating control, installation

8 A version:       
 12 A version:        
 16 A version:       
 Technical data of approved types on request

## Contact data

|                                          |                                |         |         |
|------------------------------------------|--------------------------------|---------|---------|
| Configuration                            | 1 C/O contact or 1 N/O contact |         |         |
| Type of contact                          | single contact                 |         |         |
| Rated current                            | 8 A                            | 12 A    | 16 A    |
| Rated voltage / max. breaking voltage AC | 250 Vac / 440 Vac              |         |         |
| Maximum breaking capacity AC             | 2000 VA                        | 3000 VA | 4000 VA |
| Make current                             | 16 A                           | 20 A    | 25 A    |
| Contact material                         | AgNi 0.15                      | AgCdO   | AgCdO   |

## Contact ratings

| Type  | Load                                                  | Operations          | Standard |
|-------|-------------------------------------------------------|---------------------|----------|
| RP410 | 12 A, 250 Vac, $\cos\phi=1$ , 1200/h, 40% duty cycle  | $1.1 \times 10^5$   | AC 1     |
| RP410 | 9.1 A, 220 Vac, $\cos\phi=1$ , 360/h, 15% duty cycle  | $2 \times 10^5$     | AC 1     |
| RP418 | 3.4 A ON, 0.42 A OFF, 220 Vac, $\cos\phi=0.6$         | $> 1.1 \times 10^6$ |          |
| RP411 | 8 A, 250 Vac, $\cos\phi=1$ , 50% duty cycle           | $10^5$              | AC 1     |
| RP412 | 8 A, 250 Vac, $\cos\phi=1$ , 50% duty cycle           | $10^5$              | AC 1     |
| RP330 | 18.2 A, 250 Vac, $\cos\phi=1$ , 600/h, 15% duty cycle | $1.1 \times 10^5$   | AC 1     |
| RP330 | 96 A ON, 16 A OFF, 250 Vac, $\cos\phi=0.6$ , 450/h    | $> 3 \times 10^4$   | VDE 0630 |

## Coil data

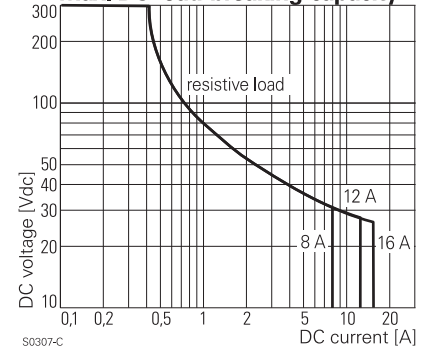
|                    |             |
|--------------------|-------------|
| Nominal voltage    | 5...110 Vdc |
| Nominal coil power | 500 mW      |
| Operate category   | 2 / b       |

## Coil versions, DC-coil

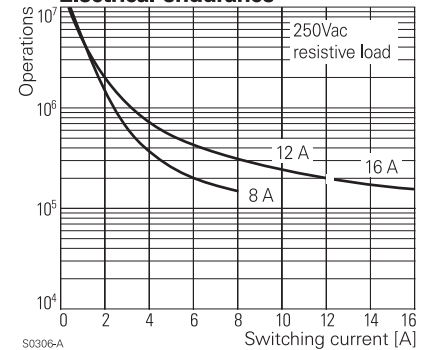
| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 005       | 5                   | 3.5                 | 0.5                 | 9.0                 | $54 \pm 10\%$            | 92.6            |
| 006       | 6                   | 4.2                 | 0.6                 | 10.8                | $68 \pm 10\%$            | 88.2            |
| 012       | 12                  | 8.4                 | 1.2                 | 21.6                | $270 \pm 10\%$           | 44.4            |
| 024       | 24                  | 16.8                | 2.4                 | 43.2                | $1100 \pm 15\%$          | 21.8            |
| 048       | 48                  | 33.6                | 4.8                 | 86.4                | $4400 \pm 15\%$          | 10.9            |
| 060       | 60                  | 42.0                | 6.0                 | 108.0               | $6540 \pm 15\%$          | 9.2             |
| 110       | 110                 | 77.0                | 11.0                | 198.0               | $23100 \pm 15\%$         | 4.8             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
 Other coil voltages on request

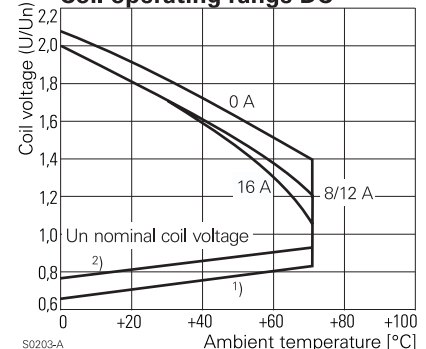
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Power PCB Relay RP II/1

1 pole 8 / 12 / 16 A

## Insulation

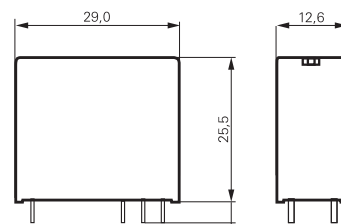
|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 8 / 8 mm              |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |

## Other data

|                                              |                                               |
|----------------------------------------------|-----------------------------------------------|
| Ambient temperature                          | -40...+70 °C                                  |
| Mechanical life                              | 30x10 <sup>6</sup> operations                 |
| Max. switching rate at rated- / minimum load | 10 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time                      | typ. 8 / 2 ms                                 |
| Bounce time N/O contact/N/C contact          | typ. 2 / 4 ms                                 |
| Vibration resistance N/O contact/N/C contact | >10 / 2 g, 30...300 Hz                        |
| Shock resistance (destruction)               | 100 g                                         |
| Category of protection (IEC 61810)           | RT II - flux proof, RT III - wash tight       |
| Relay weight                                 | 18 g                                          |
| Packaging unit                               | 20 / 500 pcs.                                 |
| Accessories                                  | see accessories RT and RT                     |

## Dimensions

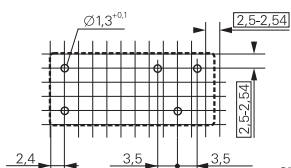
Dimensions in mm



S0273-AA

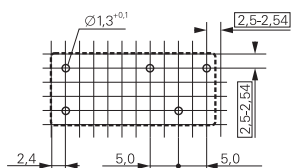
## PCB layout / terminal assignment

8 / 12 A, pinning 3.5 mm



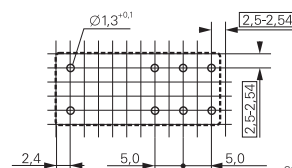
S0163-CQ

8 / 12 A, pinning 5 mm



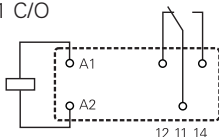
S0163-CP

16 A, pinning 5 mm



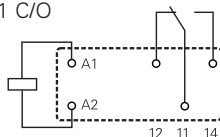
S0163-CO

1 C/O



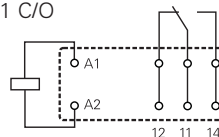
S0163-BG

1 C/O



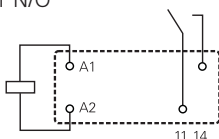
S0163-BC

1 C/O



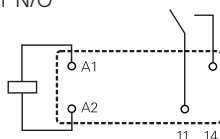
S0163-BE

1 N/O



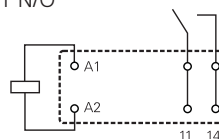
S0163-BH

1 N/O



S0163-BD

1 N/O



S0163-BF

## Product key

Type

Version

**3 16 A, flux proof**

**4 8/12 A, flux proof**

**7 16 A, wash tight**

**8 8/12 A, wash tight**

Contacts

**1 1 C/O contact**

**3 1 N/O contact**

Contact material

**0 AgCdO, 16 A or 12 A, pinning 5 mm**

**1 AgNi 0.15, 8 A, pinning 5 mm**

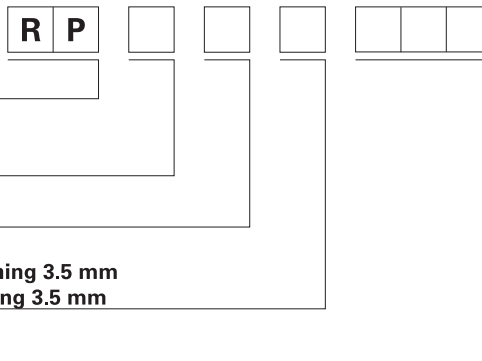
**2 AgNi 0.15, 8 A, pinning 3.5 mm**

**8 AgCdO, 12 A, pinning 3.5 mm**

Coil

Coil code: please refer to coil versions table

Preferred types in bold print



# Power PCB Relay RP II/1

1 pole 8 / 12 / 16 A

| Product key | Version    | Contacts      | Contact material | Coil   | Part number |
|-------------|------------|---------------|------------------|--------|-------------|
| RP310005    | 16 A       | 1 C/O contact | AgCdO            | 5 Vdc  | 2-1393230-5 |
| RP310012    | flux proof |               | pinning 5mm      | 12 Vdc | 2-1393230-9 |
| RP310024    |            |               |                  | 24 Vdc | 3-1393230-2 |
| RP310048    |            |               |                  | 48 Vdc | 3-1393230-3 |
| RP330005    |            | 1 N/O contact |                  | 5 Vdc  | 4-1393230-5 |
| RP330012    |            |               |                  | 12 Vdc | 4-1393230-7 |
| RP330024    |            |               |                  | 24 Vdc | 4-1393230-9 |
| RP330048    |            |               |                  | 48 Vdc | 5-1393230-1 |
| RP410012    | 12 A       | 1 C/O contact | AgCdO            | 12 Vdc | 8-1393230-1 |
| RP410024    | flux proof |               | pinning 5mm      | 24 Vdc | 8-1393230-2 |
| RP411012    | 8 A        |               | AgNi 0.15        | 12 Vdc | 9-1393230-4 |
| RP411024    | flux proof |               | pinning 5mm      | 24 Vdc | 9-1393230-5 |
| RP412012    |            |               | AgNi 0.15        | 12 Vdc | 1-1393231-1 |
| RP412024    |            |               | pinning 3.5mm    | 24 Vdc | 1-1393231-2 |
| RP418012    | 12 A       |               | AgCdO            | 12 Vdc | 2-1393231-5 |
| RP418024    | flux proof |               | pinning 3.5mm    | 24 Vdc | 2-1393231-8 |
| RP438012    |            | 1 N/O contact |                  | 12 Vdc | 5-1393231-0 |
| RP438024    |            |               |                  | 24 Vdc | 5-1393231-2 |
| RP710005    | 16 A       | 1 C/O contact | AgCdO            | 5 Vdc  | 7-1393231-0 |
| RP710012    | wash tight |               | pinning 5mm      | 12 Vdc | 7-1393231-2 |
| RP710024    |            |               |                  | 24 Vdc | 7-1393231-5 |
| RP710048    |            |               |                  | 48 Vdc | 7-1393231-6 |
| RP730012    |            | 1 N/O contact |                  | 12 Vdc | 8-1393231-2 |
| RP730024    |            |               |                  | 24 Vdc | 8-1393231-4 |
| RP812012    | 8 A        | 1 C/O contact | AgNi 0.15        | 12 Vdc | 0-1393232-8 |
| RP812024    | wash tight |               | pinning 3.5mm    | 24 Vdc | 0-1393232-9 |
| RP818012    | 12 A       |               | AgCdO            | 12 Vdc | 1-1393232-7 |
| RP818024    | wash tight |               | pinning 3.5mm    | 24 Vdc | 1-1393232-9 |
| RP838012    |            | 1 N/O contact |                  | 12 Vdc | 2-1393232-6 |
| RP838024    |            |               |                  | 24 Vdc | 2-1393232-8 |

# Special Load PCB Relay RP 3 SL

1 pole 16 A, for high inrush currents,  
mono- or bistable



## Features

- 1 N/O contact
- 120 A / 20 ms inrush peak current
- 4 kV / 8 mm coil-contact

## Applications

Lighting control, timers, motor control, building automation



Technical data of approved types on request

F0147-A

## Contact data

|                                           |                    |
|-------------------------------------------|--------------------|
| Configuration                             | 1 N/O contact      |
| Type of contact                           | single contact     |
| Rated current                             | 16 A               |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac  |
| Maximum breaking capacity AC              | 4000 VA            |
| Make current (max. 4 s at duty cycle 10%) | 25 A               |
| Peak inrush current                       | 120 A              |
| Contact material                          | AgSnO <sub>2</sub> |

## Contact ratings

| Type  | Load                                | Operations          | Standard |
|-------|-------------------------------------|---------------------|----------|
| RP3SL | 12 A, 250 Vac, cosφ=1               | 3x10 <sup>5</sup>   | Standard |
| RP3SL | TV 8                                | 25x10 <sup>3</sup>  | UL 508   |
| RP3SL | 2500 W, 230 Vac, halogen lamps      | >10 <sup>4</sup>    |          |
| RP3SL | 1000 W, 250 Vac, incandescent lamps | 2.3x10 <sup>5</sup> |          |
| RP3SL | 3000 W, 250 Vac, incandescent lamps | 3.6x10 <sup>4</sup> |          |
| RP3SL | 1500 VA, fluorescent lamps 163 µF   | 10 <sup>4</sup>     |          |

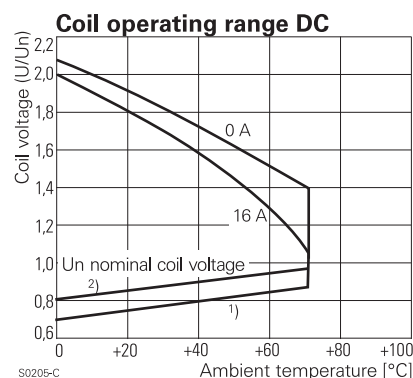
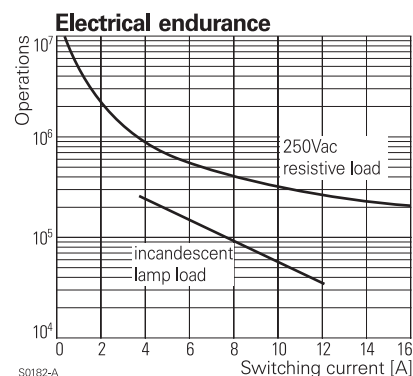
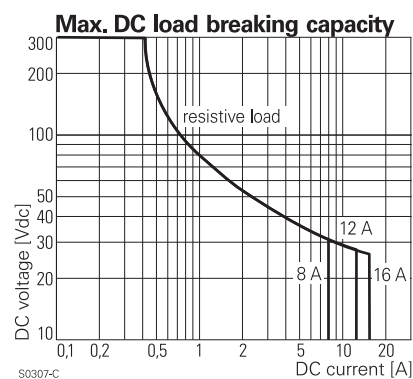
## Coil data monostable DC coil

|                    |             |
|--------------------|-------------|
| Nominal voltage    | 5...110 Vdc |
| Nominal coil power | 500 mW      |
| Operate category   | 2 / b       |

## Coil versions monostable DC coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 012       | 12                  | 9.0                 | 1.2                 | 21.6                | 270±10%           | 44.4            |
| 024       | 24                  | 18.0                | 2.4                 | 43.2                | 1100±15%          | 21.8            |
| 048       | 48                  | 36.0                | 4.8                 | 86.4                | 4400±15%          | 10.9            |
| 060       | 60                  | 45.0                | 6.0                 | 108.0               | 6540±15%          | 9.2             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request



# Special Load PCB Relay RP 3 SL

1 pole 16 A, for high inrush currents,  
mono- or bistable

| Coil data bistable        | 1 coil          | 2 coils         |
|---------------------------|-----------------|-----------------|
| Nominal voltage           | 5...110 Vdc     | 5...60 Vdc      |
| Nominal coil power        | 1.2...1.4 W     | 1.2...1.5 W     |
| Minimum energization time | 20 ms           |                 |
| Reset voltage min.        | 70 % $U_{nom}$  | 75 % $U_{nom}$  |
| Reset voltage max.        | 110 % $U_{nom}$ | 120 % $U_{nom}$ |

## Coil versions bistable

| Coil code                | Nominal voltage Vdc | Pull-in voltage Vdc | Reset voltage Vdc | Reset R1 $\Omega$ / W | Coil resistance $\Omega$ | Coil current mA |
|--------------------------|---------------------|---------------------|-------------------|-----------------------|--------------------------|-----------------|
| <b>bistable, 1 coil</b>  |                     |                     |                   |                       |                          |                 |
| A05                      | 5                   | 3.7                 | 3.6               | 39 / 0.5              | 21 $\pm$ 10%             | 238.1           |
| A12                      | 12                  | 9.0                 | 8.7               | 220 / 0.5             | 115 $\pm$ 10%            | 104.3           |
| A24                      | 24                  | 18.0                | 16.7              | 820 / 0.5             | 460 $\pm$ 10%            | 52.2            |
| <b>bistable, 2 coils</b> |                     |                     |                   |                       |                          |                 |
| F12                      | 12                  | 9.0                 | 9.0               |                       | 105 $\pm$ 15%            | 114.3           |
| F24                      | 24                  | 18.0                | 18.0              |                       | 460 $\pm$ 15%            | 52.2            |

All figures are given for coil without preenergization, at ambient temperature +20°C, duty cycle 20%

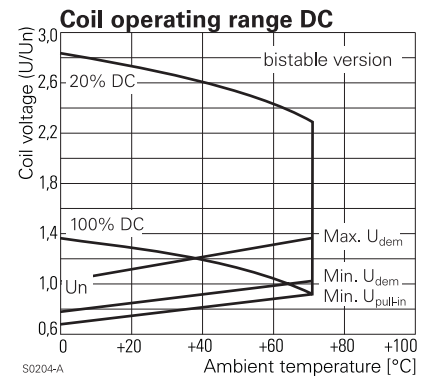
Other coil voltages on request

## Insulation

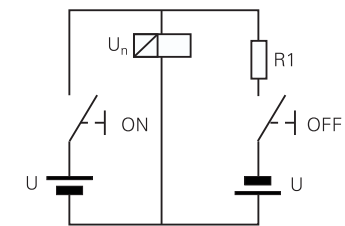
|                                         |                      |                |
|-----------------------------------------|----------------------|----------------|
| Dielectric strength                     | coil-contacts        | 4000 $V_{rms}$ |
|                                         | open contact circuit | 2000 $V_{rms}$ |
| Clearance / creepage                    |                      | 8 / 8 mm       |
| Insulation to IEC 60664                 |                      |                |
| Voltage rating                          |                      | 250 V          |
| Pollution degree                        |                      | 3              |
| Overvoltage category                    |                      | III            |
| Insulation to VDE 0110b (2/79)          |                      |                |
| Insulation category / reference voltage |                      | C / 250        |

## Other data

|                                              |                                               |
|----------------------------------------------|-----------------------------------------------|
| Ambient temperature                          | -40...+70 °C                                  |
| Mechanical life                              | 30x10 <sup>6</sup> operations                 |
| Max. switching rate at rated- / minimum load | 10 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time monostable           | typ. 8 / 2 ms                                 |
| Operate- / reset time bistable               | typ. 6 / 2 ms                                 |
| Bounce time                                  | typ. 2 ms                                     |
| Vibration resistance                         | 20 g, 30...300 Hz                             |
| Shock resistance (destruction)               | 100 g                                         |
| Protection category                          | RT II - flux proof, RT III - wash tight       |
| Relay weight                                 | 18 g                                          |
| Packaging unit                               | 1 coil 20 / 500 pcs.<br>2 coils 25 / 100 pcs. |
| Accessories                                  | see accessories RP                            |

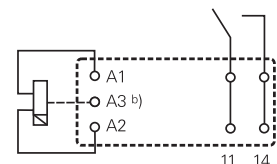
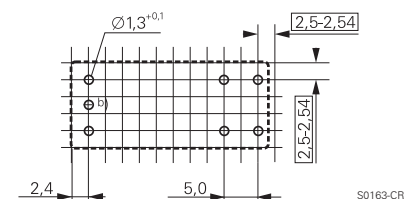


Circuit scheme for bistable 1 coil



## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm



Bistable versions:

Indicated contact position during or after coil energization with reset voltage.

2-coil versions:

Operate A2, A3  
Reset A1, A3

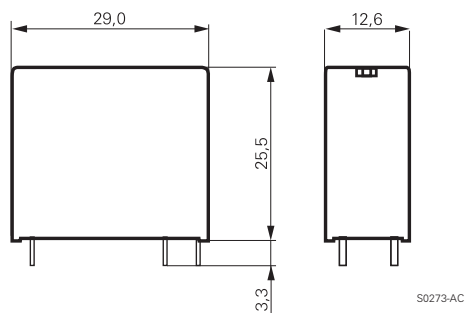
b) for 2 coil version only

# Special Load PCB Relay RP 3 SL

1 pole 16 A, for high inrush currents,  
mono- or bistable

## Dimensions

Dimensions in mm



## Product key

|                             |          |          |  |          |          |  |  |  |
|-----------------------------|----------|----------|--|----------|----------|--|--|--|
| Type                        | <b>R</b> | <b>P</b> |  | <b>S</b> | <b>L</b> |  |  |  |
| Version                     |          |          |  |          |          |  |  |  |
| Contacts / contact material |          |          |  |          |          |  |  |  |
| Coil                        |          |          |  |          |          |  |  |  |

**3** flux proof      **7** wash tight

**SL** 1 N/O contact, AgSnO<sub>2</sub>

Coil code: please refer to coil versions table

Preferred types in bold print

| Product key | Version    | Contacts      | Coil     | Coil   | Part number |
|-------------|------------|---------------|----------|--------|-------------|
| RP3SL005    | 16 A       | 1 N/O contact | DC-coil  | 5 Vdc  | 0-1393230-7 |
| RP3SL012    | flux proof | AgSnO         |          | 12 Vdc | 0-1393230-9 |
| RP3SL024    |            |               |          | 24 Vdc | 1-1393230-1 |
| RP3SLA12    |            |               | bistable | 12 Vdc | 0-1393230-3 |
| RP3SLA24    |            |               | 1-coil   | 24 Vdc | 0-1393230-4 |
| RP3SLF12    |            |               | bistable | 12 Vdc | 0-1393230-5 |
| RP3SLF24    |            |               | 2-coils  | 24 Vdc | 0-1393230-6 |
| RP7SL012    | 16 A       |               | DC-coil  | 12 Vdc | 6-1393231-5 |
| RP7SL024    | wash tight |               |          | 24 Vdc | 6-1393231-6 |

# Special Load PCB Relay 409 47, 409 67

1 pole 10 A, for high inrush currents,  
mono- or bistable



F0249-A

## Features

- Specifically designed to handle high inrush currents
- Tungsten prerun contact
- 500 A / 10  $\mu$ s inrush peak current
- 4 kV / 8 mm coil-contact
- meets protection class II requirements

## Applications

Dimmer switches, movement sensors, filament loads, halogen bulbs, motors and electrovalves



Technical data of approved types on request

## Contact data

|                                           |                            |
|-------------------------------------------|----------------------------|
| Configuration                             | 1 N/O contact              |
| Type of contact                           | single contact             |
| Rated current                             | 10 A                       |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 400 Vac          |
| Maximum breaking capacity AC              | 2500 VA                    |
| Make current (max. 4 s at duty cycle 10%) | 16 A                       |
| peak inrush current 10 $\mu$ s / 20 ms    | 500 / 120 A                |
| Contact material                          | W (prerun contact) + AgCdO |

## Contact ratings

| Type | Load                                   | Operations          | Standard |
|------|----------------------------------------|---------------------|----------|
| 409  | 10 A, 250 Vac, resistive               | 2.5x10 <sup>5</sup> |          |
| 409  | 1300 W, fluorescent lamps, 140 $\mu$ F | 3x10 <sup>4</sup>   |          |
| 409  | 2500 W, incandescent lamps             | 3x10 <sup>4</sup>   |          |
| 409  | 1000 W, Dulux lamps, 140 $\mu$ F       | 3x10 <sup>4</sup>   |          |

## Coil data

monostable DC coil

|                    |             |
|--------------------|-------------|
| Nominal voltage    | 5...110 Vdc |
| Nominal coil power | 820 mW      |
| Operate category   | 2 / b       |

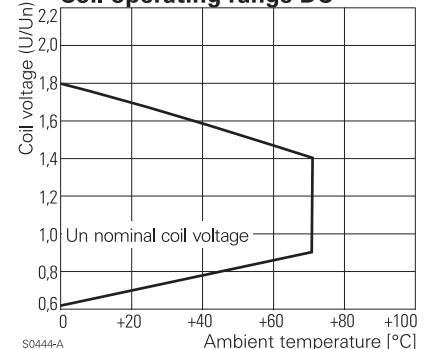
## Coil versions monostable

| Coil code  | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance $\Omega$      | Coil current mA |
|------------|---------------------|---------------------|---------------------|---------------------|-------------------------------|-----------------|
| <b>031</b> | <b>12</b>           | <b>7.5</b>          | <b>0.9</b>          | <b>14.2</b>         | <b>170<math>\pm</math>10%</b> | <b>71.0</b>     |
| <b>027</b> | <b>24</b>           | <b>18.0</b>         | <b>1.8</b>          | <b>34.6</b>         | <b>880<math>\pm</math>15%</b> | <b>27.0</b>     |
| 024        | 48                  | 34.5                | 3.6                 | 60.6                | 2700 $\pm$ 15%                | 18.0            |
| 023        | 60                  | 41.0                | 4.5                 | 77.8                | 4400 $\pm$ 15%                | 14.0            |

All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

## Coil operating range DC



# Special Load PCB Relay 409 47, 409 67

1 pole 10 A, for high inrush currents,  
mono- or bistable

|                           |             |
|---------------------------|-------------|
| <b>Coil data</b> bistable | 1 coil      |
| Nominal voltage           | 6...100 Vdc |
| Nominal coil power        | 0.8...1 W   |
| Minimum energization time | 20 ms       |

## Coil versions bistable, 1 coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Reset voltage min Vdc | Reset voltage max Vdc | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|-----------------------|-----------------------|--------------------------|-----------------|
| 032       | 12                  | 8.9                 | 0.7                   | 2.5                   | 118 $\pm$ 10%            | 102.0           |
| 029       | 24                  | 18.0                | 1.3                   | 5.0                   | 457 $\pm$ 10%            | 53.0            |

All figures are given for coil without preenergization, at ambient temperature +20°C, duty cycle 20%

Other coil voltages on request

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 8 / 8 mm              |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | PTI 250               |

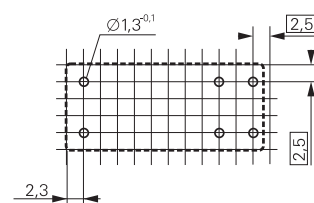
## Other data

|                                              |                                               |
|----------------------------------------------|-----------------------------------------------|
| Flammability class according to UL 94        | V-0                                           |
| Ambient temperature                          | -20...+70 °C                                  |
| Mechanical life                              | 30x10 <sup>6</sup> operations                 |
| Max. switching rate at rated- / minimum load | 15 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time                      | typ. 10 / 3 ms                                |
| Bounce time                                  | typ. 3 ms                                     |
| Vibration resistance                         | 20 g (30...300 Hz)                            |
| Shock resistance (destruction)               | 100 g                                         |
| Category of protection (IEC 61810)           | RT II - flux proof                            |
| Relay weight                                 | 16 g                                          |
| Packaging unit                               | 25 / 250 pcs.                                 |

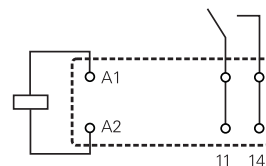
## PCB layout / terminal assignment

View on solder pins

Dimensions in mm



S0163-CX



S0163-BF

Bistable versions:

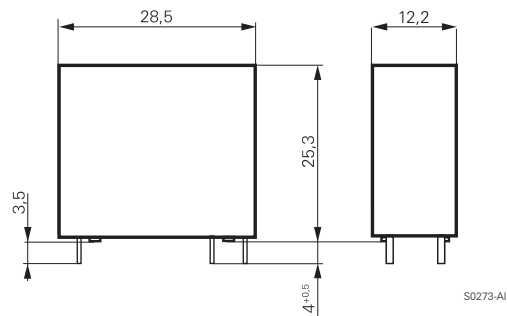
Indicated contact position during or after coil energization with reset voltage.

# Special Load PCB Relay 409 47, 409 67

1 pole 10 A, for high inrush currents,  
mono- or bistable

## Dimensions

Dimensions in mm



## Product key

Type

Coil version

- 47** Monostable version
- 67** Bistable version

Coil

Coil code: Please refer to coil versions table, preferred types in bold print

Contact configuration

- 001** 1 N/O contact

Other types on request

|   |   |   |   |
|---|---|---|---|
| 0 | 4 | 0 | 9 |
|   | 7 |   |   |
|   |   |   |   |
| 0 | 0 | 1 |   |

| Product key     | Version    | Contacts | Coil     | Coil  | Part number |
|-----------------|------------|----------|----------|-------|-------------|
| 0409 47 031 001 | 10A        | 1 N/O    | DC-coil  | 12Vdc | 1-1415403-6 |
| 0409 47 028 001 | flux proof | W prerun |          | 24Vdc | 1-1415403-4 |
| 0409 67 032 001 |            | AgCdO    | bistable | 12Vdc | 0-1415405-0 |
| 0409 67 029 001 |            |          | 1 coil   | 24Vdc | 0-1415405-1 |

# Faston Power Relay IF 125°C

1 pole 16 A



F0148-B

## Features

- 1 N/O or 1 N/C contact
- 16 A rated current
- Switching capacity 4000 VA
- Coil power 360 mW
- 4 kV / 8 mm coil-contact, insulation to VDE 0631 and 0700
- Ambient temperature up to 125°C
- Faston-terminals for load side

## Applications

Oven control, electric heating, power supplies, air conditioning



Technical data of approved types on request

## Contact data

|                                           |                                |
|-------------------------------------------|--------------------------------|
| Configuration                             | 1 N/O contact or 1 N/C contact |
| Type of contact                           | single contact                 |
| Rated current                             | 16 A                           |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac              |
| Maximum breaking capacity AC              | 4000 VA                        |
| Make current (max. 4 s at duty cycle 10%) | 25 A                           |
| Contact material                          | AgCdO                          |
| Minimum contact load                      | 500 mA, 12 Vac                 |

## Contact ratings

| Type  | Load                             | Operations        |
|-------|----------------------------------|-------------------|
| -A402 | 10 A, 400 Vac, resistive, 125 °C | 2x10 <sup>5</sup> |
| -A402 | 16 A, 250 Vac, resistive, 125 °C | 1x10 <sup>5</sup> |
| -A403 | 10 A, 400 Vac, resistive, 125 °C | 5x10 <sup>4</sup> |
| -A403 | 16 A, 250 Vac, resistive, 125 °C | 5x10 <sup>4</sup> |

## Coil data

|                    |            |
|--------------------|------------|
| Nominal voltage    | 6...48 Vdc |
| Nominal coil power | 360 mW     |
| Operate category   | 1 / c      |

## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 003       | 6                   | 3.8                 | 0.6                 | 16.9                | 100±10%           | 60.0            |
| 005       | 12                  | 7.5                 | 1.2                 | 33.8                | 400±10%           | 30.0            |
| 007       | 24                  | 14.9                | 2.4                 | 67.7                | 1600±10%          | 15.0            |
| 009       | 48                  | 30.0                | 4.8                 | 135.3               | 6400±10%          | 7.5             |

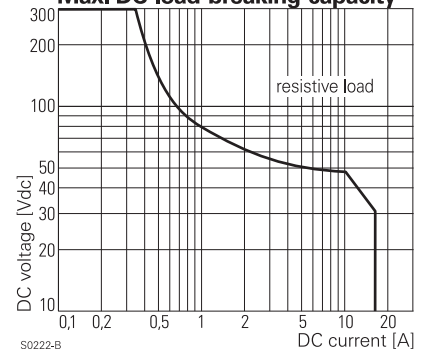
All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

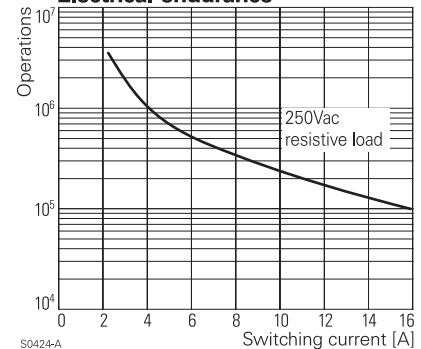
## Insulation

|                                   |                                         |                       |
|-----------------------------------|-----------------------------------------|-----------------------|
| Dielectric strength               | coil-contacts                           | 4000 V <sub>rms</sub> |
|                                   | open contact circuit                    | 1000 V <sub>rms</sub> |
| Clearance / creepage              |                                         | 8 / 8 mm              |
| Insulation to IEC 60664           |                                         |                       |
|                                   | Voltage rating                          | 250 V                 |
|                                   | Pollution degree                        | 3                     |
|                                   | Overvoltage category                    | III                   |
| Insulation to VDE 0110b (2/79)    |                                         |                       |
|                                   | Insulation category / reference voltage | C / 250, B / 380      |
| Tracking resistance of relay base |                                         | PTI 250               |

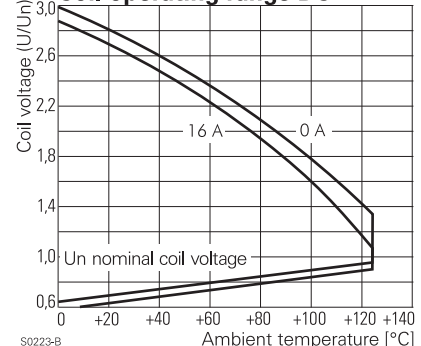
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



**1 pole 16 A**

|                                              |                                               |
|----------------------------------------------|-----------------------------------------------|
| Flammability class according to UL 94        | V-0                                           |
| Ambient temperature                          | -40...+125 °C                                 |
| Mechanical life                              | 30x10 <sup>6</sup> operations                 |
| Max. switching rate at rated- / minimum load | 10 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time                      | 10 / 2 ms                                     |
| Bounce time N/O contact/N/C contact          | 1 / 2 ms                                      |
| Category of protection (IEC 61810)           | RT II - flux proof                            |
| Relay weight                                 | 26 g                                          |
| Packaging unit                               | 15 / 300 pcs.                                 |

Technical drawing of the S0282-A door handle. The drawing includes a side view on the left showing a width of 13,2 and a front view on the right showing a width of 29 and a height of 29. The front view also shows a total width of 40,5 and a mounting hole diameter of 6,3. The handle is labeled S0282-A and DIN 46244.

|   |   |   |   |   |   |   |   |   |  |  |  |   |   |   |  |  |
|---|---|---|---|---|---|---|---|---|--|--|--|---|---|---|--|--|
| V | 2 | 3 | 0 | 7 | 7 | - | A | 1 |  |  |  | - | A | 4 |  |  |
|---|---|---|---|---|---|---|---|---|--|--|--|---|---|---|--|--|

**A** PCB terminals (coil) and Faston terminals (contacts); flux proof

| Product key       | Version          | Cont-material | Cont.configuration | Coil   | Part number |
|-------------------|------------------|---------------|--------------------|--------|-------------|
| V23077-A1003-A402 | standard         | AgCdO         | 1 N/O contact      | 6 Vdc  | 0-1393199-4 |
| V23077-A1005-A402 | PCB terminals    |               |                    | 12 Vdc | 0-1393199-7 |
| V23077-A1005-A403 | Faston terminals |               | 1 N/C contact      |        | 0-1393199-9 |
| V23077-A1007-A402 | flux proof       |               | 1 N/O contact      | 24 Vdc | 1-1393199-2 |
| V23077-A1007-A403 |                  |               | 1 N/C contact      |        | 1-1393199-3 |
| V23077-A1009-A402 |                  |               | 1 N/O contact      | 48 Vdc | 1-1393199-5 |
| V23077-A1009-A403 |                  |               | 1 N/C contact      |        | 1-1393199-6 |

# Faston Power Relay 410 63 125°C

1 pole 16 A



F0248-AA

## Features

- 1 N/O or 1 N/C contact
- 16 A rated current
- Switching capacity 4000 VA
- Coil power 360 mW
- 4 kV / 8 mm coil-contact, insulation to VDE 0631 and 0700
- Ambient temperature up to 125°C
- Faston-terminals for load side

## Applications

White goods appliances, oven control, electric heating, power supplies, air conditioning, motors, magnetic valves



Technical data of approved types on request

## Contact data

|                                           |                                |
|-------------------------------------------|--------------------------------|
| Configuration                             | 1 N/O contact or 1 N/C contact |
| Type of contact                           | single contact                 |
| Rated current                             | 16 A                           |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 400 Vac              |
| Maximum breaking capacity AC              | 4000 VA                        |
| Make current (max. 4 s at duty cycle 10%) | 25 A                           |
| Contact material                          | AgCdO                          |

## Contact ratings

| Type      | Load                             | Operations          |
|-----------|----------------------------------|---------------------|
| N/O cont. | 16 A, 250 Vac, resistive, 125 °C | 1x10 <sup>5</sup>   |
| N/O cont. | 12 A, 250 Vac, resistive, 70 °C  | 4.5x10 <sup>5</sup> |
| N/C cont. | 16 A, 250 Vac, resistive, 125 °C | 1.5x10 <sup>5</sup> |
| N/O cont. | 10 A, 400 Vac, resistive, 125 °C | 5x10 <sup>4</sup>   |
| N/O cont. | 12 A, 250 Vac, cosφ=0.6, 125 °C  | 5x10 <sup>4</sup>   |

## Coil data

|                    |            |
|--------------------|------------|
| Nominal voltage    | 6...60 Vdc |
| Nominal coil power | 360 mW     |
| Operate category   | 1 / b      |

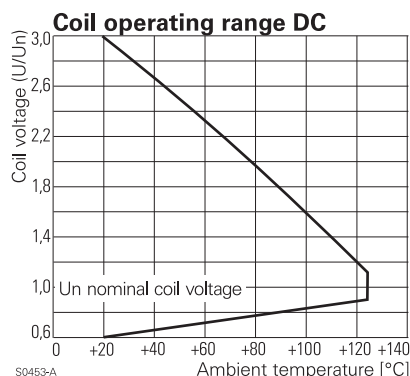
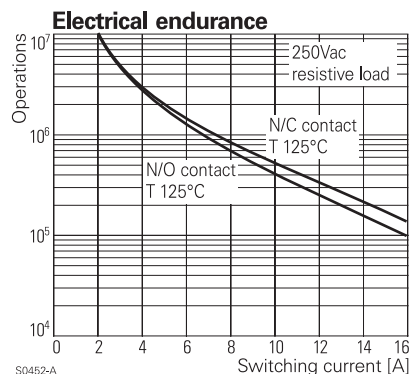
## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 054       | 6                   | 3.6                 | 0.45                | 17.0                | 100±10%           | 60.0            |
| 050       | 12                  | 7.3                 | 0.9                 | 35.0                | 400±10%           | 30.0            |
| 046       | 24                  | 14.6                | 1.8                 | 67.0                | 1600±10%          | 15.0            |
| 043       | 48                  | 29.2                | 3.6                 | 135.0               | 6400±10%          | 7.5             |
| 042       | 60                  | 36.5                | 4.5                 | 168.0               | 10000±10%         | 6.0             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 8 mm                  |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | PTI 250               |



# Faston Power Relay 410 63 125°C

1 pole 16 A

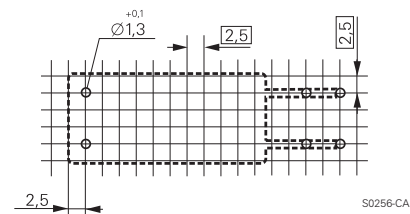
### Other data

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94        | V-0                                          |
| Ambient temperature                          | -20...+125 °C                                |
| Mechanical life                              | 10x10 <sup>6</sup> operations                |
| Max. switching rate at rated- / minimum load | 10 min <sup>-1</sup> / 600 min <sup>-1</sup> |
| Operate- / release time                      | typ.10 / 5 ms                                |
| Bounce time                                  | typ. 3 ms                                    |
| Category of protection (IEC 61810)           | RT II - flux proof                           |
| Relay weight                                 | 24 g                                         |
| Packaging unit                               | 20 / 75 / 1050 pcs.                          |

### PCB layout / terminal assignment

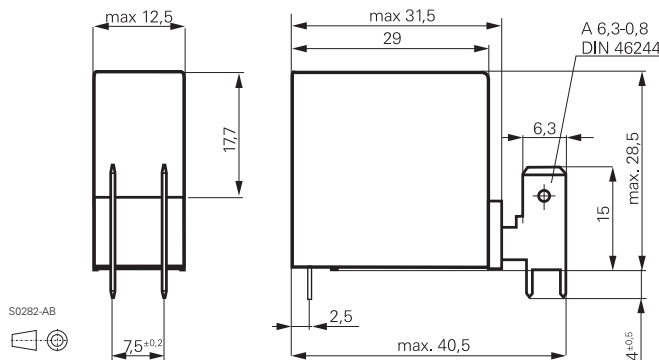
View on solder pins

Dimensions in mm

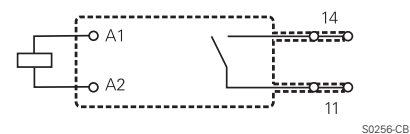


### Dimensions

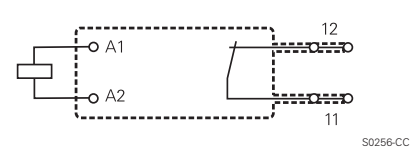
Dimensions in mm



### 1 N/O contact



### 1 N/C contact



### Product key

|   |   |   |   |
|---|---|---|---|
| 0 | 4 | 1 | 0 |
| 6 | 3 |   |   |

Type

Coil

Coil code: Please refer to coil versions table, preferred types in bold print

Version

**001** 1 N/O contact

**002** 1 N/C contact

Other types on request

| Product key     | Version          | Cont-material | Cont.configuration | Coil  | Part number |
|-----------------|------------------|---------------|--------------------|-------|-------------|
| 0410 63 050 001 | standard         | AgCdO         | 1 N/O contact      | 12Vdc | 3-1415410-4 |
| 0410 63 046 001 | PCB terminals    |               |                    | 24Vdc | 3-1415410-0 |
| 0410 63 050 002 | Faston terminals |               | 1 C/O contact      | 12Vdc | 3-1415410-5 |

# Faston Power Relay 410 83 3 mm

1 pole 16 A, 3 mm contact gap



F0248-AB

## Features

- 1 N/O bridging contact
- Contact gap > 3 mm
- 16 A rated current
- Switching capacity 4000 VA
- Coil power 360 mW
- 4 kV / 8 mm coil-contact, insulation to VDE 0631 and 0700
- Ambient temperature up to 85°C
- Faston-terminals for load side

## Applications

Washing machines, tumble dryers, absolute safe power supply disconnection in other domestic applications



Technical data of approved types on request

## Contact data

|                                           |                                  |
|-------------------------------------------|----------------------------------|
| Configuration                             | 1 N/O contact                    |
| Type of contact                           | single contact, bridging contact |
| Rated current                             | 16 A                             |
| Rated voltage / max. breaking voltage AC  | 250 Vac / 400 Vac                |
| Maximum breaking capacity AC              | 4000 VA                          |
| Make current (max. 4 s at duty cycle 10%) | 20 A                             |
| Contact material                          | AgNi                             |
| Contact gap                               | >3 mm                            |

## Contact ratings

| Type   | Load                            | Operations        |
|--------|---------------------------------|-------------------|
| 410 83 | 16 A, 250 Vac, resistive, 85 °C | 3x10 <sup>4</sup> |
| 410 83 | 10 A, 250 Vac, resistive, 85 °C | 1x10 <sup>5</sup> |
| 410 83 | 10 A, 400 Vac, resistive, 85 °C | 1x10 <sup>5</sup> |

## Coil data

|                    |            |
|--------------------|------------|
| Nominal voltage    | 6...60 Vdc |
| Nominal coil power | 360 mW     |
| Operate category   | 1 / c      |

## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 054       | 6                   | 3.9                 | 0.45                | 13.2                | 100±10%           | 60.0            |
| 050       | 12                  | 7.9                 | 0.9                 | 26.4                | 400±10%           | 30.0            |
| 046       | 24                  | 15.8                | 1.8                 | 53.0                | 1600±10%          | 15.0            |
| 043       | 48                  | 31.6                | 3.6                 | 106.0               | 6400±10%          | 7.5             |
| 042       | 60                  | 39.5                | 4.5                 | 132.0               | 10000±10%         | 3.7             |

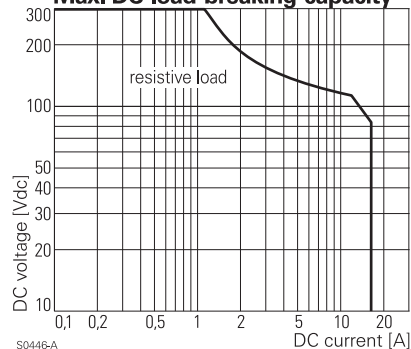
All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

## Insulation

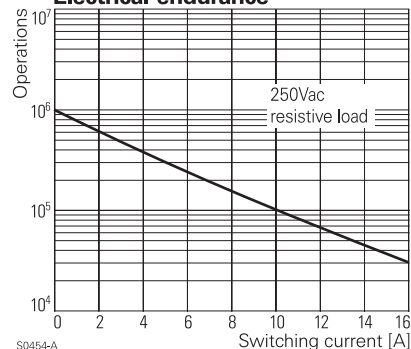
|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 2000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 8 / 8 mm              |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | PTI 250               |

## Max. DC load breaking capacity



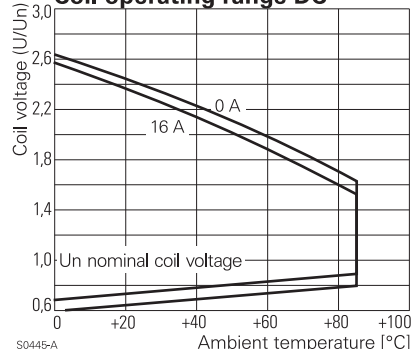
S0446-A

## Electrical endurance



S0445-A

## Coil operating range DC



S0445-A



# Power PCB Relay RT2

2 pole 8 A, DC and AC-coil



F0149-B

## Features

- 2 C/O or 2 N/O contacts
- Sensitive coil 400 mW
- DC- or AC-coil
- 5 kV / 10 mm coil-contact
- Protection class II (VDE 0700)
- Height 15.7 mm
- Sockets with PCB-type or screw-type terminals

## Applications

Domestic appliances, heating control, emergency lighting, modems



Technical data of approved types on request

## Contact data

|                                           |                                    |
|-------------------------------------------|------------------------------------|
| Configuration                             | 2 C/O contact or 2 N/O contact     |
| Type of contact                           | single contact                     |
| Rated current                             | 8 A                                |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac                  |
| Maximum breaking capacity AC              | 2000 VA                            |
| Make current (max. 4 s at duty cycle 10%) | 15 A                               |
| Contact material                          | AgNi 90/10, AgNi 90/10 gold plated |

## Contact ratings

| Type   | Load                                      | Operations        | Standard |
|--------|-------------------------------------------|-------------------|----------|
| RT 424 | 4 A, 230 Vac, $\cos\phi=0.6$              | $1.5 \times 10^5$ | Standard |
| RT 424 | 6 (2) A, 250 Vac, on the N/O- N/C contact |                   | VDE 0631 |
| RT 424 | 1/2 hp / 240 Vac, 1/4 hp / 120 Vac        | $6 \times 10^3$   | UL 508   |

## Coil data

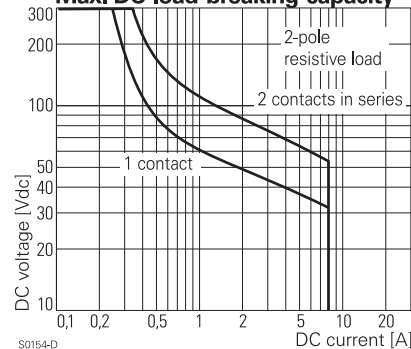
|                    |         |              |
|--------------------|---------|--------------|
| Nominal voltage    | DC coil | 5...110 Vdc  |
|                    | AC coil | 24...230 Vac |
| Nominal coil power | DC coil | 400 mW       |
|                    | AC coil | 0.75 VA      |
| Operate category   |         | 2 / b        |

## Coil versions, DC-coil

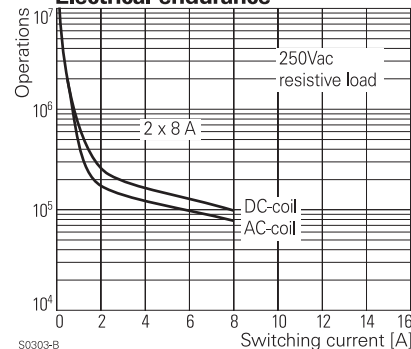
| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 005       | 5                   | 3.5                 | 0.5                 | 12.7                | $62 \pm 10\%$            | 80.0            |
| 006       | 6                   | 4.2                 | 0.6                 | 15.3                | $90 \pm 10\%$            | 66.7            |
| 012       | 12                  | 8.4                 | 1.2                 | 30.6                | $360 \pm 10\%$           | 33.3            |
| 024       | 24                  | 16.8                | 2.4                 | 61.2                | $1440 \pm 10\%$          | 16.7            |
| 048       | 48                  | 33.6                | 4.8                 | 122.4               | $5520 \pm 10\%$          | 8.7             |
| 060       | 60                  | 42.0                | 6.0                 | 153.0               | $7340 \pm 12\%$          | 8.1             |
| 110       | 110                 | 77.0                | 11.0                | 280.5               | $26600 \pm 12\%$         | 4.1             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

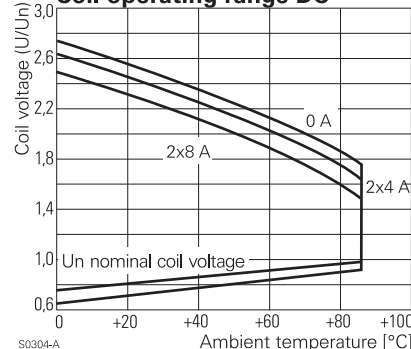
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Power PCB Relay RT2

2 pole 8 A, DC and AC-coil

## Coil versions, AC-coil

| Coil code | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Maximum voltage Vac | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 524       | 24                  | 18.0                | 3.6                 | 36.0                | $350 \pm 10\%$           | 31.6            |
| 615       | 115                 | 86.3                | 17.3                | 172.5               | $8100 \pm 15\%$          | 6.6             |
| 730       | 230                 | 172.5               | 34.5                | 345.0               | $32500 \pm 15\%$         | 3.2             |

All figures are given for coil without preenergization, at ambient temperature +20°C

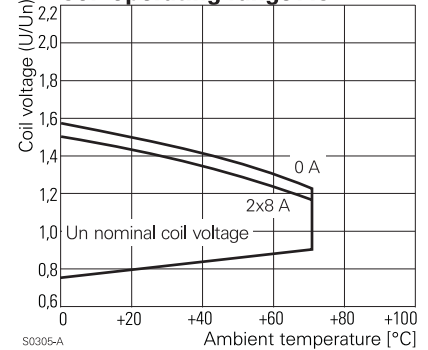
## Insulation

|                                         |                      |                |
|-----------------------------------------|----------------------|----------------|
| Dielectric strength                     | coil-contacts        | 5000 $V_{rms}$ |
|                                         | open contact circuit | 1000 $V_{rms}$ |
|                                         | adjacent contacts    | 2500 $V_{rms}$ |
| Clearance / creepage                    |                      | 10 / 10 mm     |
| Insulation to IEC 60664                 |                      |                |
| Voltage rating                          |                      | 250 V          |
| Pollution degree                        |                      | 3              |
| Overvoltage category                    |                      | III            |
| Insulation to VDE 0110b (2/79)          |                      |                |
| Insulation category / reference voltage |                      | C / 250        |

## Other data

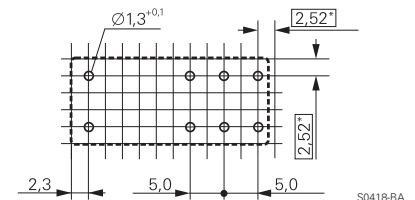
|                                              |                                                                                 |
|----------------------------------------------|---------------------------------------------------------------------------------|
| Flammability class according to UL 94        | V-0                                                                             |
| Coil insulation system according to UL 1446  | Class F                                                                         |
| Ambient temperature                          | -40...+70 °C                                                                    |
| Mechanical life                              | DC-coil >30x10 <sup>6</sup> operations<br>AC-coil >5x10 <sup>6</sup> operations |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 1200 min <sup>-1</sup>                                    |
| Operate- / release time DC-coil              | typ. 7 / 2 ms                                                                   |
| Bounce time N/O contact/N/C contact          | typ. 1 / 3 ms                                                                   |
| Vibration resistance N/O / N/C contact       | 20 / 5 g, 30...300 Hz                                                           |
| Shock resistance (destruction)               | 100 g                                                                           |
| Category of protection (IEC 61810)           | RT II - flux proof, RT III - wash tight                                         |
| Relay weight                                 | 13 g                                                                            |
| Packaging unit                               | 20 / 500 pcs.                                                                   |
| Accessories                                  | see accessories RT                                                              |

## Coil operating range AC



## PCB layout / terminal assignment

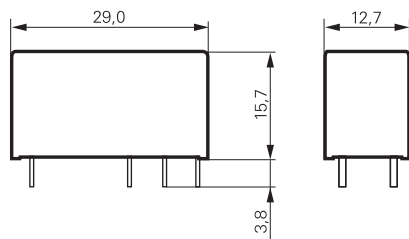
View on solder pins  
Dimensions in mm



\*) With the recommended PCB hole sizes a grid pattern from 2.5 mm to 2.54 mm can be used.

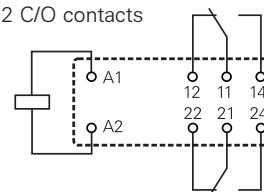
## Dimensions

Dimensions in mm



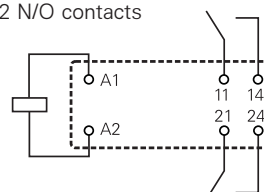
S0272-AA

## 2 C/O contacts



S0163-BJ

## 2 N/O contacts



S0163-BK

# Power PCB Relay RT2

2 pole 8 A, DC and AC-coil

## Product key

|                  |                                                                                  |          |          |  |  |  |  |
|------------------|----------------------------------------------------------------------------------|----------|----------|--|--|--|--|
| Type             | <b>R</b>                                                                         | <b>T</b> | <b>4</b> |  |  |  |  |
| Version          | <b>4 8 A, pinning 5 mm, flux proof</b><br><b>E 8 A, pinning 5 mm, wash tight</b> |          |          |  |  |  |  |
| Contacts         | <b>2 2 C/O contacts</b> <b>4 2 N/O contacts</b>                                  |          |          |  |  |  |  |
| Contact material | <b>4 AgNi 90/10</b> <b>5 AgNi 90/10 gold plated</b>                              |          |          |  |  |  |  |
| Coil             | Coil code: please refer to coil versions table                                   |          |          |  |  |  |  |

Preferred types in bold print

| Product key | Version      | Contacts       | Cont. material | Coil    | Coil    | Part number |
|-------------|--------------|----------------|----------------|---------|---------|-------------|
| RT424005    | 8 A          | 2 C/O contacts | AgNi 90/10     | DC-coil | 5 Vdc   | 5-1393243-9 |
| RT424006    | pinning 5 mm |                |                |         | 6 Vdc   | 6-1393243-1 |
| RT424012    | flux proof   |                |                |         | 12 Vdc  | 6-1393243-3 |
| RT424024    |              |                |                |         | 24 Vdc  | 6-1393243-8 |
| RT424048    |              |                |                |         | 48 Vdc  | 7-1393243-0 |
| RT424060    |              |                |                |         | 60 Vdc  | 7-1393243-3 |
| RT424110    |              |                |                |         | 110 Vdc | 7-1393243-5 |
| RT424524    |              |                |                | AC-coil | 24 Vac  | 7-1393243-6 |
| RT424615    |              |                |                |         | 115 Vac | 7-1393243-8 |
| RT424730    |              |                |                |         | 230 Vac | 7-1393243-9 |
| RT425005    |              |                | AgNi 90/10     | DC-coil | 5 Vdc   | 8-1393243-0 |
| RT425012    |              |                | gold plated    |         | 12 Vdc  | 8-1393243-2 |
| RT425024    |              |                |                |         | 24 Vdc  | 8-1393243-5 |
| RT425524    |              |                |                | AC-coil | 24 Vac  | 9-1393243-1 |
| RT425615    |              |                |                |         | 115 Vac | 9-1393243-2 |
| RT425730    |              |                |                |         | 230 Vac | 9-1393243-3 |
| RT444012    |              | 2 N/O contacts | AgNi 90/10     | DC-coil | 12 Vdc  | 9-1393243-7 |
| RT444024    |              |                |                |         | 24 Vdc  | 9-1393243-9 |
| RTE24005    | 8 A          | 2 C/O contacts |                |         | 5 Vdc   | 0-1393243-1 |
| RTE24006    | pinning 5 mm |                |                |         | 6 Vdc   | 0-1393243-2 |
| RTE24012    | wash tight   |                |                |         | 12 Vdc  | 0-1393243-4 |
| RTE24024    |              |                |                |         | 24 Vdc  | 1-1393243-0 |
| RTE24048    |              |                |                |         | 48 Vdc  | 1-1393243-1 |
| RTE24060    |              |                |                |         | 60 Vdc  | 1-1393243-3 |
| RTE24110    |              |                |                |         | 110 Vdc | 1-1393243-4 |
| RTE24524    |              |                |                | AC-coil | 24 Vac  | 1-1393243-5 |
| RTE24615    |              |                |                |         | 115 Vac | 1-1393243-7 |
| RTE24730    |              |                |                |         | 230 Vac | 1-1393243-8 |
| RTE25005    |              |                | AgNi 90/10     | DC-coil | 5 Vdc   | 1-1393243-9 |
| RTE25012    |              |                | gold plated    |         | 12 Vdc  | 2-1393243-0 |
| RTE25024    |              |                |                |         | 24 Vdc  | 2-1393243-1 |

# Power PCB Relay RT2 bistable

2 pole 8 A, polarized bistable version



## Features

- 2 C/O contacts
- Bistable with 1 or 2 coils
- 5 kV / 10 mm coil-contact
- Height 15.7 mm
- Cadmium-free contacts
- Protection class II (VDE 0700)

## Applications

Battery powered equipment or applications with "memory function" (e.g. mains failure)

F0219-B



Technical data of approved types on request

## Contact data

|                                           |                   |
|-------------------------------------------|-------------------|
| Configuration                             | 2 C/O contact     |
| Type of contact                           | single contact    |
| Rated current                             | 8 A               |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac |
| Maximum breaking capacity AC              | 2000 VA           |
| Make current (max. 4 s at duty cycle 10%) | 15 A              |
| Contact material                          | AgNi 90/10        |

## Coil data

|                                                                                   |                          |                        |
|-----------------------------------------------------------------------------------|--------------------------|------------------------|
| Nominal voltage                                                                   | 5...24 Vdc               |                        |
| Nominal coil power                                                                | typ. 400 mW              | typ. 600 mW            |
| Minimum energization time                                                         | 30 ms                    |                        |
| Information on reduced pulse duration with higher energization voltages on demand |                          |                        |
| Max. energization time for version with 2 coils                                   | 1 min at <10% duty cycle |                        |
| Reset voltage min.                                                                | 70 % U <sub>nom</sub>    | 70 % U <sub>nom</sub>  |
| Reset voltage max.                                                                | 120 % U <sub>nom</sub>   | 150 % U <sub>nom</sub> |

## Coil versions, bistable

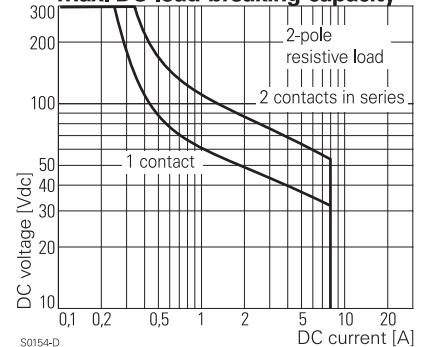
| Coil code                | Nominal voltage Vdc | Pull-in voltage Vdc | Reset voltage Vdc | Coil resistance Ω | Coil current mA |
|--------------------------|---------------------|---------------------|-------------------|-------------------|-----------------|
| <b>bistable, 1 coil</b>  |                     |                     |                   |                   |                 |
| A05                      | 5                   | 3.5                 | 3.5               | 62 ± 10%          | 80.0            |
| A06                      | 6                   | 4.2                 | 4.2               | 90 ± 10%          | 66.7            |
| <b>A12</b>               | <b>12</b>           | <b>8.4</b>          | <b>8.4</b>        | <b>360 ± 10%</b>  | <b>33.3</b>     |
| <b>A24</b>               | <b>24</b>           | <b>16.8</b>         | <b>16.8</b>       | <b>1440 ± 10%</b> | <b>16.7</b>     |
| <b>bistable, 2 coils</b> |                     |                     |                   |                   |                 |
| F05                      | 5                   | 3.5                 | 3.5               | 42 ± 10%          | 120.0           |
| F06                      | 6                   | 4.2                 | 4.2               | 55 ± 10%          | 110.0           |
| <b>F12</b>               | <b>12</b>           | <b>8.4</b>          | <b>8.4</b>        | <b>240 ± 10%</b>  | <b>50.0</b>     |
| <b>F24</b>               | <b>24</b>           | <b>16.8</b>         | <b>16.8</b>       | <b>886 ± 10%</b>  | <b>27.0</b>     |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

## Coils - operation

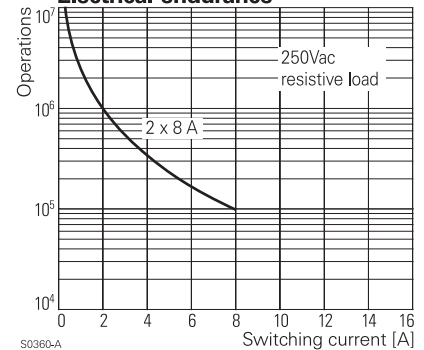
| Version                                  | 1 coil |    | 2 coils |    |    |
|------------------------------------------|--------|----|---------|----|----|
| Coil terminals                           | A1     | A2 | A1      | A3 | A2 |
| Pull-in                                  | +      | -  |         | +  | -  |
| Reset                                    | -      | +  | -       | +  |    |
| Contact position not defined at delivery |        |    |         |    |    |

## Max. DC load breaking capacity



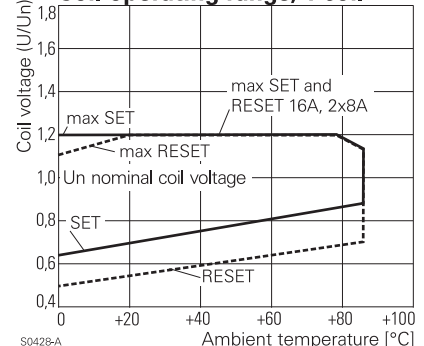
S0154-D

## Electrical endurance



S0360-A

## Coil operating range, 1 coil



S0428-A

# Power PCB Relay RT2 bistable

2 pole 8 A, polarized bistable version

## Insulation

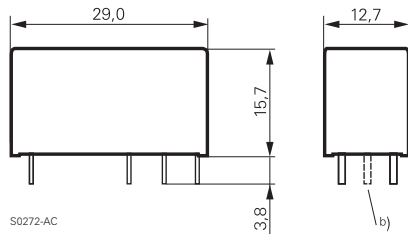
|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 5000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
|                                         | adjacent contacts    | 2500 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 10 / 10 mm            |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |

## Other data

|                                              |                                             |               |
|----------------------------------------------|---------------------------------------------|---------------|
| Flammability class according to UL 94        | V-0                                         |               |
| Coil insulation system according to UL 1446  | Class F                                     |               |
| Ambient temperature                          | -40...+85 °C (UL: +70 °C)                   |               |
| Mechanical life                              | 2x10 <sup>6</sup> operations                |               |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 600 min <sup>-1</sup> |               |
| Operate- / release time                      | typ. 5 / 3 ms                               |               |
| Bounce time N/O contact/N/C contact          | typ. 1 / 4 ms                               |               |
| Vibration resistance / shock resistance      |                                             |               |
| opening N/C contact                          | 3 / 5 g                                     |               |
| opening closed N/O contact                   | 6 / 15 g                                    |               |
| Shock resistance (destruction)               | 100 g                                       |               |
| Category of protection (IEC 61810)           | RT II - flux proof                          |               |
| Relay weight                                 | 13 g                                        |               |
| Packaging unit                               | 1 coil                                      | 20 / 500 pcs. |
|                                              | 2 coils                                     | 25 / 100 pcs. |
| Accessories                                  | see accessories RT                          |               |

## Dimensions

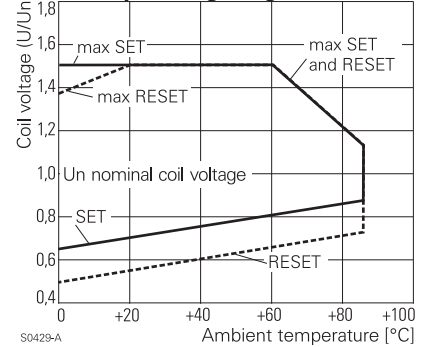
Dimensions in mm



a) Indicated contact position while or after coil energization with reset voltage.

b) for 2 coil version only

## Coil operating range, 2 coils

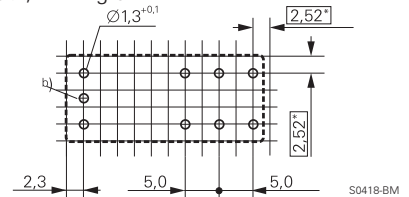


## PCB layout / terminal assignment

View on solder pins

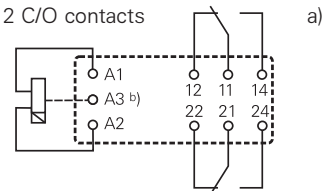
Dimensions in mm

8 A, Pinning 5 mm



\*) With the recommended PCB hole sizes a grid pattern from 2.5 mm to 2.54 mm can be used.

2 C/O contacts



## Product key

Type

Version

**4** 8 A, pinning 5 mm, flux proof

Contacts

**2** 2 C/O contacts

Contact material

**4** AgNi 90/10

Coil

Coil code: please refer to coil versions table, preferred types in bold print

| Product key | Version      | Contacts       | Cont. material | Coil     | Coil   | Part number |
|-------------|--------------|----------------|----------------|----------|--------|-------------|
| RT424A12    | 8 A          | 2 C/O contacts | AgNi 90/10     | bistable | 12 Vdc | 4-1393243-6 |
| RT424A24    | pinning 5 mm |                |                | 1 coil   | 24 Vdc | 4-1393243-7 |
| RT424F12    | flux proof   |                |                | bistable | 12 Vdc | 5-1393243-4 |
| RT424F24    |              |                |                | 2 coils  | 24 Vdc | 5-1393243-6 |

# Power PCB Relay RP II/2

2 pole 8 A



## Features

- 2 C/O or 2 N/O contacts
- 4 kV / 8 mm coil-contact
- Twin contacts available
- PCB-sockets

## Applications

Domestic appliances, UPS's



Technical data of approved types on request

F0150-B

## Contact data

|                                           |                                |
|-------------------------------------------|--------------------------------|
| Configuration                             | 2 C/O contact or 2 N/O contact |
| Type of contact                           | single contact                 |
| Rated current                             | 8 A (UL: 10 A)                 |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac              |
| Maximum breaking capacity AC              | 2000 VA                        |
| Make current (max. 4 s at duty cycle 10%) | 14 A                           |
| Contact material                          | AgNi 0.15, AgCdO               |

## Contact ratings

| Type  | Load                                         | Operations                  | Standard |
|-------|----------------------------------------------|-----------------------------|----------|
| RP440 | 64 A ON, 2 A OFF, 250 Vac                    | 1x10 <sup>4</sup>           | VDE 0860 |
| RP421 | 2 A, 50 Vdc, resistive                       | approx. 2x10 <sup>6</sup>   |          |
| RP421 | 1/10hp, 240 Vac, per contact                 |                             | UL 508   |
| RP421 | 3 A, 380 Vac, AC11                           | approx. 3x10 <sup>4</sup>   | VDE 0660 |
| RP421 | 0.18 A, 110 Vdc, DC11                        | approx. 1x10 <sup>5</sup>   | VDE 0660 |
| RP420 | 0.6 A, 220 Vac, cosφ=0.8, single phase motor | approx. 1.3x10 <sup>6</sup> |          |

## Coil data

|                    |             |
|--------------------|-------------|
| Nominal voltage    | 5...110 Vdc |
| Nominal coil power | 500 mW      |
| Operate category   | 2 / b       |

## Coil versions, DC-coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 005       | 5                   | 3.5                 | 0.5                 | 9.0                 | 54±10%            | 92.6            |
| 006       | 6                   | 4.2                 | 0.6                 | 10.8                | 68±10%            | 88.2            |
| 012       | 12                  | 8.4                 | 1.2                 | 21.6                | 270±10%           | 44.4            |
| 024       | 24                  | 16.8                | 2.4                 | 43.2                | 1100±15%          | 21.8            |
| 048       | 48                  | 33.6                | 4.8                 | 86.4                | 4400±15%          | 10.9            |
| 060       | 60                  | 42.0                | 6.0                 | 108.0               | 6540±15%          | 9.2             |
| 110       | 110                 | 77.0                | 11.0                | 198.0               | 23100±15%         | 4.8             |

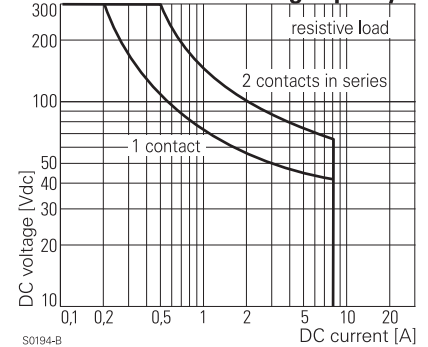
All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

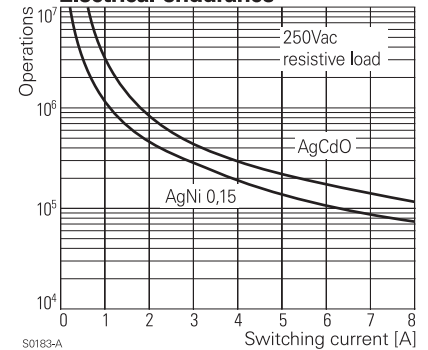
## Insulation

|                      |                      |                       |
|----------------------|----------------------|-----------------------|
| Dielectric strength  | coil-contacts        | 4000 V <sub>rms</sub> |
|                      | open contact circuit | 1000 V <sub>rms</sub> |
|                      | adjacent contacts    | 2500 V <sub>rms</sub> |
| Clearance / creepage |                      | 8 / 8 mm              |

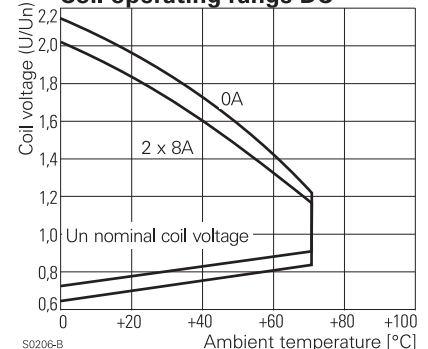
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Power PCB Relay RP II/2

2 pole 8 A

## Insulation

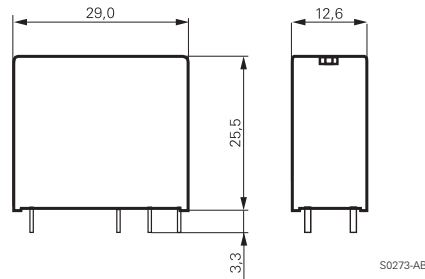
|                                         |         |
|-----------------------------------------|---------|
| Insulation to IEC 60664                 |         |
| Voltage rating                          | 250 V   |
| Pollution degree                        | 3       |
| Overvoltage category                    | III     |
| Insulation to VDE 0110b (2/79)          |         |
| Insulation category / reference voltage | C / 250 |

## Other data

|                                              |                                               |
|----------------------------------------------|-----------------------------------------------|
| Ambient temperature                          | -40...+70 °C                                  |
| Mechanical life                              | 20x10 <sup>6</sup> operations                 |
| Max. switching rate at rated- / minimum load | 10 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time                      | typ. 9 / 3 ms                                 |
| Bounce time N/O contact/N/C contact          | typ. 2 / 3 ms                                 |
| Vibration resistance N/O / N/C contact       | 11 / 1.5 g, 30...150 Hz                       |
| Shock resistance (destruction)               | 100 g                                         |
| Category of protection (IEC 61810)           | RT II - flux proof, RT III - wash tight       |
| Relay weight                                 | 18 g                                          |
| Packaging unit                               | 20 / 500 pcs.                                 |
| Accessories                                  | see accessories RT and RP                     |

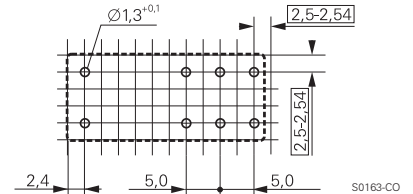
## Dimensions

Dimensions in mm

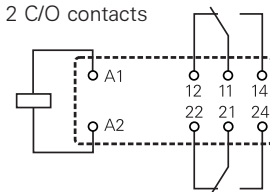


## PCB layout / terminal assignment

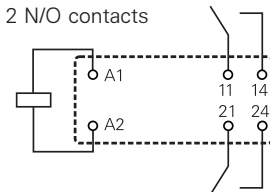
View on solder pins  
Dimensions in mm



2 C/O contacts



2 N/O contacts



## Product key

|                  |                                                |          |                 |  |
|------------------|------------------------------------------------|----------|-----------------|--|
| Type             | R P                                            |          |                 |  |
| Version          |                                                |          |                 |  |
|                  | <b>4 8 A, flux proof</b>                       | <b>8</b> | 8 A, wash tight |  |
| Contacts         |                                                |          |                 |  |
|                  | <b>2 2 C/O contacts</b>                        | <b>4</b> | 2 N/O contacts  |  |
| Contact material |                                                |          |                 |  |
|                  | <b>0</b> AgCdO                                 | <b>1</b> | AgNi 0.15       |  |
| Coil             |                                                |          |                 |  |
|                  | Coil code: please refer to coil versions table |          |                 |  |

Preferred types in bold print

| Product key | Version           | Contacts       | Contact material | Coil    | Part number |
|-------------|-------------------|----------------|------------------|---------|-------------|
| RP420005    | flux proof<br>8 A | 2 C/O contacts | AgCdO            | 5 Vdc   | 4-1393234-7 |
| RP420006    |                   |                |                  | 6 Vdc   | 4-1393234-8 |
| RP420012    |                   |                |                  | 12 Vdc  | 5-1393234-0 |
| RP420024    |                   |                |                  | 24 Vdc  | 5-1393234-1 |
| RP420048    |                   |                |                  | 48 Vdc  | 5-1393234-2 |
| RP420110    |                   |                | AgNi 0.15        | 110 Vdc | 5-1393234-4 |
| RP421012    |                   |                |                  | 12 Vdc  | 6-1393234-7 |
| RP421024    |                   |                |                  | 24 Vdc  | 6-1393234-8 |
| RP421048    |                   |                |                  | 48 Vdc  | 6-1393234-9 |
| RP421060    |                   |                |                  | 60 Vdc  | 7-1393234-0 |
| RP421110    | wash tight<br>8 A | 2 C/O contacts | AgCdO            | 110 Vdc | 7-1393234-1 |
| RP440012    |                   |                |                  | 12 Vdc  | 7-1393234-8 |
| RP440024    |                   |                |                  | 24 Vdc  | 7-1393234-9 |
| RP820006    |                   |                |                  | 6 Vdc   | 8-1393234-8 |
| RP820012    |                   |                |                  | 12 Vdc  | 9-1393234-0 |
| RP820024    |                   |                |                  | 24 Vdc  | 9-1393234-2 |
| RP820048    |                   |                |                  | 48 Vdc  | 9-1393234-3 |
| RP821012    |                   | 2 N/O contacts | AgNi 0.15        | 12 Vdc  | 0-1393845-4 |
| RP821024    |                   |                |                  | 24 Vdc  | 0-1393845-5 |
| RP840024    |                   |                |                  | 24 Vdc  | 1-1393845-8 |
| RP841024    |                   |                | AgNi 0.15        | 24 Vdc  | 5-1393235-3 |

# Power PCB Relay Card E

1 pole 8 A



## Features

- 1 C/O or 1 N/O contact
- 4 kV coil-contact
- Vertical and horizontal version
- Version with twin contacts
- Wash tight

## Applications

I/O modules, heating control, timers

F0151-B



Technical data of approved types on request

## Contact data

|                                           |                                |
|-------------------------------------------|--------------------------------|
| Configuration                             | 1 C/O contact or 1 N/O contact |
| Type of contact                           | standard: single contact       |
| Rated current                             | 8 A / 5 A with AgNi 0.15       |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac              |
| Maximum breaking capacity AC              | 2000 VA                        |
| Make current (max. 4 s at duty cycle 10%) | 15 A                           |
| Contact material                          | AgCdO, AgNi 20, AgNi 0.15      |

## Contact ratings

| Type  | Load                              | Operations        |
|-------|-----------------------------------|-------------------|
| -A102 | 4 A, 30 Vdc, resistive            | 2x10 <sup>6</sup> |
| -A102 | 1 A, 24 Vdc, inductive L / R=40ms | 2x10 <sup>5</sup> |
| -A402 | 1 A, 230 Vac, cosφ=0.4            | 5x10 <sup>5</sup> |

## Coil data

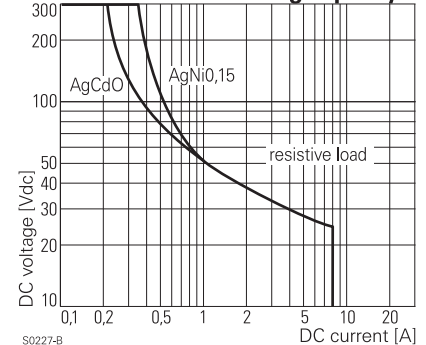
|                    |              |
|--------------------|--------------|
| Nominal voltage    | 6...60 Vdc   |
| Nominal coil power | 450...500 mW |
| Operate power      | 240 mW       |

## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 001       | 6                   | 4.0                 | 0.6                 | 10.6                | 80±10%            | 75.0            |
| 002       | 12                  | 8.0                 | 1.2                 | 21.5                | 330±10%           | 36.4            |
| 006       | 24                  | 16.0                | 2.4                 | 40.0                | 1200±15%          | 20.0            |
| 013       | 48                  | 32.0                | 4.8                 | 79.0                | 4700±15%          | 10.2            |
| 023       | 60                  | 40.0                | 6.0                 | 98.0                | 7200±15%          | 8.3             |

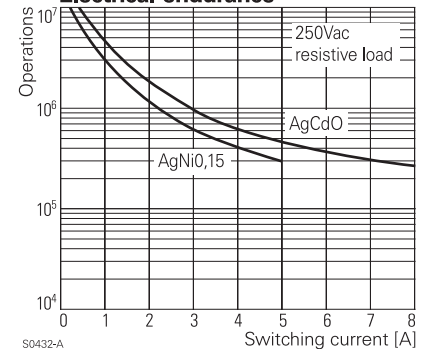
All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

## Max. DC load breaking capacity



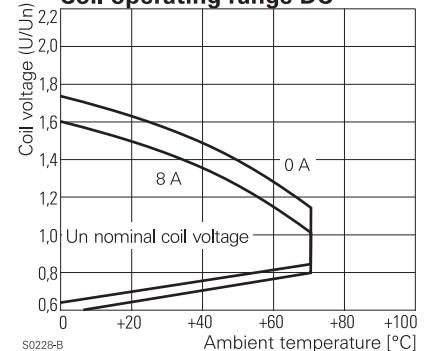
S0227-B

## Electrical endurance



S0432-A

## Coil operating range DC



S0228-B

# Power PCB Relay Card E

1 pole 8 A

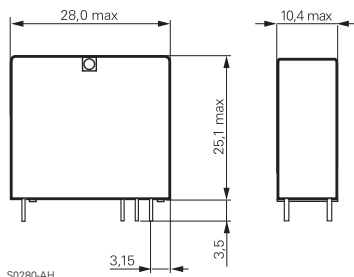
| Insulation                              |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 4 / 4 mm              |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | CTI 250               |

| Other data                                   |                                          |
|----------------------------------------------|------------------------------------------|
| Flammability class according to UL 94        | V-0                                      |
| Ambient temperature                          | -40...+70 °C                             |
| Mechanical life                              | approx. 20x10 <sup>6</sup> operations    |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 20 s <sup>-1</sup> |
| Operate- / release time                      | 7 / 3 ms                                 |
| Bounce time N/O contact/N/C contact          | 0.5 / 3 ms                               |
| Category of protection (IEC 61810)           | RT III - wash tight                      |
| Relay weight                                 | 14 g                                     |
| Packaging unit                               | 20 / 400 pcs.                            |
| Accessories                                  | see accessories E                        |

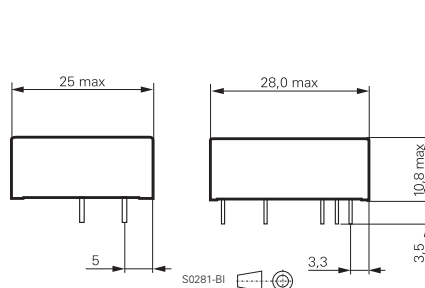
## Dimensions

Dimensions in mm

Vertical version

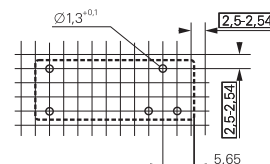


Horizontal version

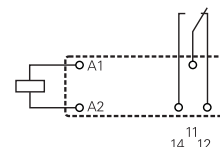


## PCB layout / terminal assignment

Vertical version

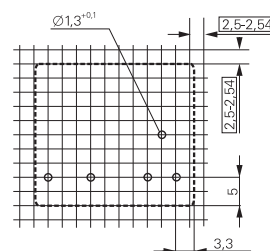


S0257-AH

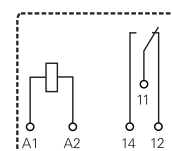


S0257-AB

Horizontal version



S0257-AI



S0257-AE

View on solder pins  
Dimensions in mm

## Product key

V 2 3 0 5 7 - 0 -

Type

Version

A horizontal

B vertical

Version

0 standard

Coil

001 6 V  
002 12 V  
006 24 V

013 48 V  
023 60 V

Contact type

A single contact

B bifurcated contact (C/O only)

Contact material

1 AgNi0,15  
2 AgNi20

4 AgCdO

Contact configuration

01 1 C/O contact

02 1 N/O contact

Other types on request

# Power PCB Relay Card E

1 pole 8 A

| Product key       | Version    | Cont.type      | Cont.material | Cont.config.     | Coil   | Part number |
|-------------------|------------|----------------|---------------|------------------|--------|-------------|
| V23057-A0002-A101 | horizontal | single contact | AgNi 0.15     | 1 C/O<br>contact | 12 Vdc | 0-1393215-4 |
| V23057-A0002-A401 |            |                | AgCdO         |                  |        | 0-1393215-9 |
| V23057-A0006-A101 |            |                | AgNi 0.15     |                  | 24 Vdc | 2-1393215-1 |
| V23057-A0006-A401 |            |                | AgCdO         |                  |        | 2-1393215-5 |
| V23057-A0006-A402 |            |                |               | 1 N/O cont.      |        | 2-1393215-7 |
| V23057-A0013-A101 |            |                | AgNi 0.15     | 1 C/O<br>contact | 48 Vdc | 3-1393215-8 |
| V23057-A0013-A401 |            |                | AgCdO         |                  |        | 4-1393215-0 |
| V23057-A0023-A101 |            |                | AgNi 0.15     |                  | 60 Vdc | 5-1393215-5 |
| V23057-A0023-A401 |            |                | AgCdO         |                  |        | 5-1393215-6 |
| V23057-B0002-A101 | vertical   |                | AgNi 0.15     |                  | 12 Vdc | 6-1393215-7 |
| V23057-B0002-A401 |            |                | AgCdO         |                  |        | 7-1393215-1 |
| V23057-B0002-A402 |            |                |               | 1 N/O cont.      |        | 7-1393215-2 |
| V23057-B0006-A101 |            |                | AgNi 0.15     | 1 C/O cont.      | 24 Vdc | 7-1393215-5 |
| V23057-B0006-A102 |            |                |               | 1 N/O cont.      |        | 7-1393215-9 |
| V23057-B0006-A401 |            |                | AgCdO         | 1 C/O cont.      |        | 8-1393215-5 |
| V23057-B0006-A402 |            |                |               | 1 N/O cont.      |        | 8-1393215-6 |
| V23057-B0013-A101 |            |                | AgNi 0.15     | 1 C/O            | 48 Vdc | 9-1393215-4 |
| V23057-B0013-A401 |            |                | AgCdO         | contact          |        | 9-1393215-6 |
| V23057-B0023-A101 |            |                | AgNi 0.15     |                  | 60 Vdc | 0-1393216-5 |
| V23057-B0023-A401 |            |                | AgCdO         |                  |        | 0-1393216-6 |

# Power PCB Relay U/UB

1 pole 7 A, mono or bistable



F0153-B

## Features

- 1 C/O or 1 N/O or 1 N/C contact
- Bistable and DC-version
- Standard version with 230 mW pull-in power
- Sensitive version with 180 mW pull-in power
- Wash tight version
- Version for 10 A on request

## Applications

Heating control, installation, battery powered equipment



Technical data of approved types on request

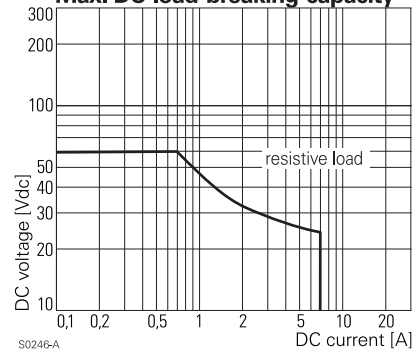
## Contact data

|                                           |                                                    |
|-------------------------------------------|----------------------------------------------------|
| Configuration                             | 1 C/O, 1 N/O or 1 N/C contact                      |
| Type of contact                           | single contact                                     |
| Rated current                             | 7 A standard and bistable<br>5 A sensitive         |
| Rated voltage / max. breaking voltage AC  | 250 Vac / 250 Vac                                  |
| Maximum breaking capacity AC              | 1750 VA standard and bistable<br>1250 VA sensitive |
| Make current (max. 4 s at duty cycle 10%) | 12 A                                               |
| Contact material                          | AgNi 10                                            |

## Contact ratings

| Type                  | Load                    | Operations          |
|-----------------------|-------------------------|---------------------|
| standard and bistable | 7 A, 24 Vdc, resistive  | 5x10 <sup>4</sup>   |
| sensitive             | 5 A, 24 Vdc, resistive  | 3x10 <sup>4</sup>   |
| standard and bistable | 7 A, 250 Vac, resistive | 5x10 <sup>4</sup>   |
| standard              | 5 A, 250 Vac, resistive | 1.5x10 <sup>5</sup> |
| sensitive             | 5 A, 250 Vac, resistive | 1x10 <sup>5</sup>   |
| bistable              | 5 A, 250 Vac, resistive | 1x10 <sup>5</sup>   |

## Max. DC load breaking capacity



## Coil data

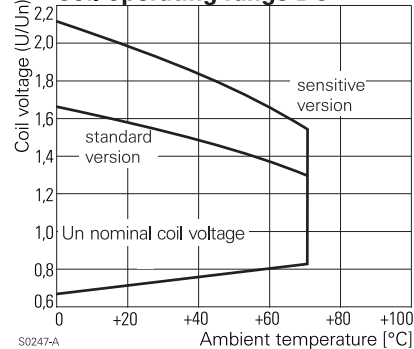
|                    | monostable                        | sensitive        |
|--------------------|-----------------------------------|------------------|
| Nominal voltage    | 6...48 Vdc                        |                  |
| Nominal coil power | 3..24 Vdc 450 mW<br>48 Vdc 610 mW | 330 mW<br>570 mW |
| Operate category   | 1 / a                             |                  |

## Coil versions, monostable

| Coil code        | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|------------------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| <b>standard</b>  |                     |                     |                     |                     |                   |                 |
| 003              | 6                   | 4.2                 | 0.6                 | 10.5                | 80±10%            | 75.0            |
| 005              | 12                  | 8.4                 | 1.2                 | 21.1                | 320±10%           | 37.5            |
| 007              | 24                  | 16.8                | 2.4                 | 42.2                | 1280±10%          | 18.8            |
| 008              | 48                  | 33.6                | 4.8                 | 72.4                | 3800±10%          | 12.6            |
| <b>sensitive</b> |                     |                     |                     |                     |                   |                 |
| 103              | 6                   | 4.4                 | 0.6                 | 12.6                | 110±10%           | 54.6            |
| 105              | 12                  | 8.8                 | 1.2                 | 25.3                | 440±10%           | 27.3            |
| 107              | 24                  | 17.5                | 2.4                 | 50.6                | 1780±10%          | 13.5            |
| 108              | 48                  | 35.0                | 4.8                 | 76.3                | 4000±10%          | 12.0            |

All figures are given for coil without preenergization, at ambient temperature +20°C Other coil voltages on request

## Coil operating range DC



# Power PCB Relay U/UB

1 pole 7 A, mono or bistable

| Coil data                          |  | bistable              |
|------------------------------------|--|-----------------------|
| Nominal voltage                    |  | 6...48 Vdc            |
| Operate power                      |  | 600...800 mW          |
| Nominal energization power / -time |  | 900...1300 mW / 20 ms |
| Reset voltage min.                 |  | 25 % $U_{nom}$        |
| Reset voltage max.                 |  | 45 % $U_{nom}$        |

## Bistable coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Reset voltage Vdc | Maximum voltage Vdc | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|-------------------|---------------------|--------------------------|-----------------|
| 003       | 6                   | 4.7                 | 1.5               | 6.2                 | $33 \pm 10\%$            | 181.8           |
| 005       | 12                  | 9.4                 | 3.0               | 12.4                | $119 \pm 10\%$           | 100.8           |
| 007       | 24                  | 18.7                | 6.0               | 24.7                | $475 \pm 10\%$           | 50.5            |
| 008       | 48                  | 37.4                | 12.0              | 49.4                | $1750 \pm 10\%$          | 27.4            |

All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

## Insulation

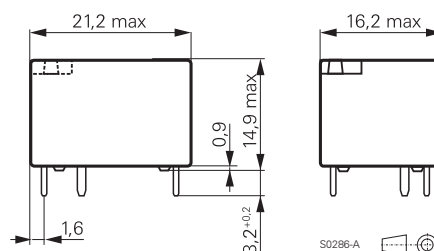
|                                         |                      |                                                                            |
|-----------------------------------------|----------------------|----------------------------------------------------------------------------|
| Dielectric strength                     | coil-contacts        | 2000 $V_{rms}$ version V23148-*0***<br>4000 $V_{rms}$ version V23148-*1*** |
|                                         | open contact circuit | 1000 $V_{rms}$                                                             |
| Surge voltage resistance coil-contacts  |                      | 5000 $V_{rms}$                                                             |
| Clearance / creepage                    |                      | 2.5 / 2.5 mm version V23148-*0***<br>3.5 / 3.5 mm version V23148-*1***     |
|                                         |                      |                                                                            |
| Insulation to VDE 0110b (2/79)          |                      |                                                                            |
| Insulation category / reference voltage |                      | B / 250 open contact circuit<br>B / 125 contact/coil                       |
| Tracking resistance of relay base       |                      | CTI 250                                                                    |

## Other data

|                                              |           |                                              |
|----------------------------------------------|-----------|----------------------------------------------|
| Flammability class according to UL 94        |           | V-0                                          |
| Ambient temperature                          |           | -25...+70 °C                                 |
| Mechanical life                              |           | $20 \times 10^6$ operations                  |
| Max. switching rate at rated- / minimum load |           | $300 \text{ min}^{-1} / 10 \text{ min}^{-1}$ |
| Operate- / release time                      | standard  | 6 / 3 ms                                     |
|                                              | sensitive | 7 / 3 ms                                     |
| Operate- / reset time                        |           | 5 / 3 ms                                     |
| Bounce time N/O contact/N/C contact          |           | 2 / 10 ms                                    |
| Vibration resistance                         |           | 10 g, 10...55 Hz                             |
| Shock resistance (function)                  |           | 10 g at 11 ms half sine                      |
| Category of protection (IEC 61810)           |           | RT III - wash tight                          |
| Relay weight                                 |           | 9.5 g                                        |
| Packaging unit                               |           | 25 / 500 pcs.                                |

## Dimensions

Dimensions in mm

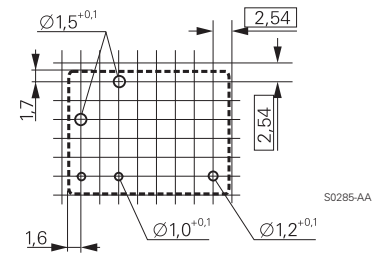


## PCB layout / terminal assignment

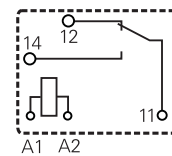
View on solder pins

Dimensions in mm

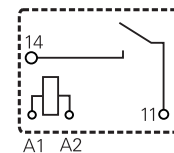
Monostable and bistable 1 coil



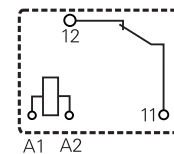
C/O contact



N/O contact



N/C contact



# Power PCB Relay U/UB

1 pole 7 A, mono or bistable

## Product key

**V 2 3 1 4 8** - **1 0 1**

Type

Version

**A** monostable (Miniature power relay U)  
**B** bistable (Miniature power relay UB, remanence version)

Dielectric strength contact-coil

**0** 2 kV<sub>rms</sub> **1** 4 kV<sub>rms</sub>

Version

**0** monostable standard  
**1** sensitive **0** bistable standard

Coil

**03** 6 V **07** 24 V  
**05** 12 V **08** 48 V

Contact configuration

**A** 1 C/O contact **C** 1 N/C contact  
**B** 1 N/O contact

Contact material

**101** AgNi10

Other types on request

| Product key       | Version                           | Dielectric                | Version     | Configuration | Coil   | Part number |             |
|-------------------|-----------------------------------|---------------------------|-------------|---------------|--------|-------------|-------------|
| V23148-A0003-A101 | monostable<br>relay 'U'<br>AgNi10 | 2000 Veff<br>contact-coil | standard    | 1 C/O contact | 6 Vdc  | 0-1393203-4 |             |
| V23148-A0003-B101 |                                   |                           |             | 1 N/O contact |        | 0-1393203-5 |             |
| V23148-A0005-A101 |                                   |                           |             | 1 C/O contact | 12 Vdc | 0-1393203-8 |             |
| V23148-A0005-B101 |                                   |                           |             | 1 N/O contact |        | 0-1393203-9 |             |
| V23148-A0007-A101 |                                   |                           | standard    | 1 C/O contact | 24 Vdc | 1-1393203-1 |             |
| V23148-A0007-B101 |                                   |                           |             | 1 N/O contact |        | 1-1393203-2 |             |
| V23148-A0008-A101 |                                   |                           |             | 1 C/O contact | 48 Vdc | 1-1393203-4 |             |
| V23148-A0105-A101 |                                   |                           |             |               | 12 Vdc | 2-1393203-1 |             |
| V23148-A0107-A101 |                                   |                           | sensitive   |               | 24 Vdc | 2-1393203-4 |             |
| V23148-A1005-A101 |                                   | 4000 Veff<br>contact-coil |             |               | 12 Vdc | 2-1393203-7 |             |
| V23148-A1007-A101 |                                   |                           |             |               | 24 Vdc | 2-1393203-8 |             |
| V23148-A1105-A101 |                                   |                           |             | sensitive     |        | 12 Vdc      | 2-1393203-9 |
| V23148-A1107-A101 |                                   | 24 Vdc                    | 3-1393203-1 |               |        |             |             |
| V23148-B0003-A101 | bistable<br>relay 'UB'<br>AgNi10  | 2000 Veff<br>contact-coil | standard    |               | 6 Vdc  | 0-1393204-4 |             |
| V23148-B0005-A101 |                                   |                           |             |               | 12 Vdc | 0-1393204-7 |             |
| V23148-B0007-A101 |                                   |                           |             |               | 24 Vdc | 1-1393204-0 |             |
| V23148-B0008-A101 |                                   |                           |             |               | 48 Vdc | 1-1393204-3 |             |

# Low Profile PCB Relay PCD

1 pole 10 A



F0154-B

## Features

- 1 N/O contact
- Low coil power 200 mW
- Height 10.2 mm
- Wash tight

## Applications

Domestic appliances, coffee machines, irons, office equipment



Technical data of approved types on request

## Contact data

|                                         |                   |
|-----------------------------------------|-------------------|
| Configuration                           | 1 N/O contact     |
| Type of contact                         | single contact    |
| Rated current                           | 10 A              |
| Continuous thermal load                 | 15 A              |
| Rated voltage / max.breaking voltage AC | 250 Vac / 250 Vac |
| Maximum breaking capacity AC            | 2500 VA           |
| Contact material                        | AgCdO             |

## Contact ratings

|            |                   |
|------------|-------------------|
| Load       | Operations        |
| Rated load | 1x10 <sup>5</sup> |

## Coil data

|                    |                |
|--------------------|----------------|
| Nominal voltage    | 6...24 Vdc     |
| Nominal coil power | approx. 200 mW |

## Coil versions

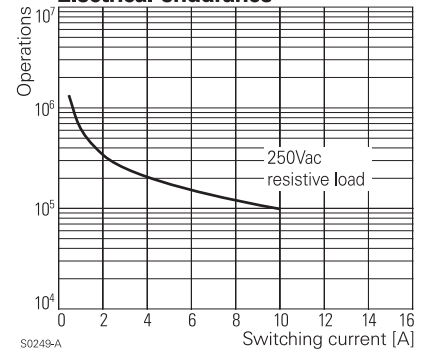
| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 006       | 6                   | 4.5                 | 0.3                 | 7.8                 | 180 $\pm$ 10%            | 33.3            |
| 012       | 12                  | 9.0                 | 0.6                 | 15.6                | 720 $\pm$ 10%            | 16.7            |
| 024       | 24                  | 18.0                | 1.2                 | 31.2                | 2880 $\pm$ 10%           | 8.3             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

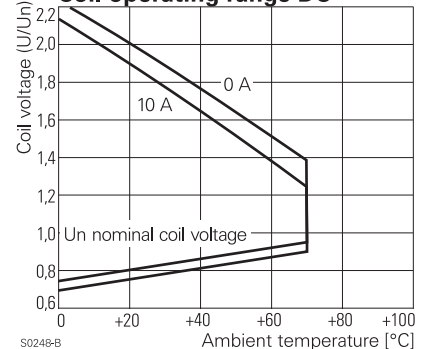
## Insulation

|                                |                                         |                       |
|--------------------------------|-----------------------------------------|-----------------------|
| Dielectric strength            | coil-contacts                           | 2500 V <sub>rms</sub> |
|                                | open contact circuit                    | 750 V <sub>rms</sub>  |
| Clearance / creepage           |                                         | 4 mm                  |
| Insulation to IEC 60664        |                                         |                       |
|                                | Voltage rating                          | 250 V                 |
|                                | Pollution degree                        | 3                     |
|                                | Overvoltage category                    | III                   |
| Insulation to VDE 0110b (2/79) |                                         |                       |
|                                | Insulation category / reference voltage | C / 250               |

## Electrical endurance



## Coil operating range DC



# Low Profile PCB Relay PCD

1 pole 10 A

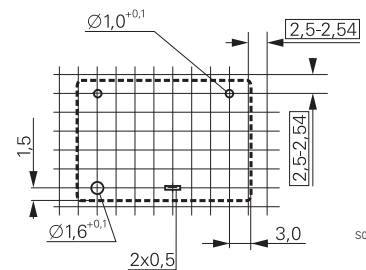
## Other data

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Ambient temperature                          | -30...+70 °C                                 |
| Mechanical life                              | >10x10 <sup>6</sup> operations               |
| Max. switching rate at rated- / minimum load | 10 min <sup>-1</sup> / 300 min <sup>-1</sup> |
| Operate- / release time                      | 8 / 2 ms                                     |
| Vibration resistance                         | 1.5 mm sine, 10...55 Hz                      |
| Shock resistance (function)                  | 10 g                                         |
| Shock resistance (destruction)               | 100 g                                        |
| Category of protection (IEC 61810)           | RT II - flux proof, RT III - wash tight      |
| Relay weight                                 | 9 g                                          |
| Packaging unit                               | 1000 pcs.                                    |

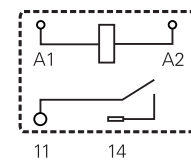
## PCB layout / terminal assignment

View on solder pins

Dimensions in mm



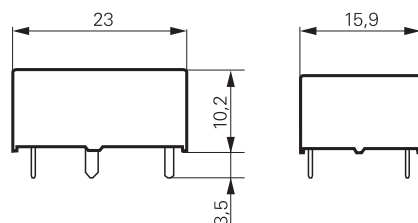
S0259-AA



S0259-AB

## Dimensions

Dimensions in mm



S0287-A

## Product key

|   |   |   |   |  |   |   |   |  |
|---|---|---|---|--|---|---|---|--|
| P | C | D | 1 |  | D | 1 | M |  |
|---|---|---|---|--|---|---|---|--|

Type

Number of contacts

**1** 1 N/O contact

Coil

**6** 6 V

**24** 24 V

**12** 12 V

Coil version

**D** standard 200 mW

Contact material

**1** AgCdO

Contact configuration

**M** N/O contact

Version

**-** flux proof

**H** wash tight

Other types on request

| Product key  | Version        | Cont-material | Cont.configuration | Coil   | Part number |
|--------------|----------------|---------------|--------------------|--------|-------------|
| PCD-105-D1MH | standard 200mW | AgCdO         | 1 N/O contact      | 5 Vdc  | 3-1419126-6 |
| PCD-112-D1MH | washable       |               |                    | 12 Vdc | 4-1419126-2 |
| PCD-124-D1MH |                |               |                    | 24 Vdc | 4-1419126-8 |
| PCD-148-D1MH |                |               |                    | 48 Vdc | 0-1419146-7 |

# Miniature Power PCB Relay PB

1pole 10 A



F0224-A

## Features

- 1 C/O or 1 N/O contact
- Environmentally-friendly cadmium-free contacts
- Creepage/clearance to VDE 0435 and VDE 0700
- Class F coil available
- Compact and simple design gives high process security

## Applications

White goods, small home appliances, heating temperature controllers



Technical data of approvals on request

## Contact data

|                                           |                                                     |
|-------------------------------------------|-----------------------------------------------------|
| Configuration                             | 1 C/O contact or 1 N/O contact                      |
| Type of contact                           | single contact                                      |
| Rated current                             | C/O version: N/O 10 A; N/C 3 A<br>N/O version: 10 A |
| Continuous thermal load                   | 10 A                                                |
| Maximum switching voltage                 | 250 Vac / 100 Vdc                                   |
| Maximum breaking capacity AC              | 2500 VA                                             |
| Make current (max. 4 s at duty cycle 10%) | 15 A                                                |
| Contact material                          | AgNi 90/10                                          |

## Contact ratings

| Type        | Load               | Operations          |
|-------------|--------------------|---------------------|
| N/O contact | 10 A, 85 °C        | 25x10 <sup>3</sup>  |
| N/O contact | 6 A, 85 °C         | 100x10 <sup>3</sup> |
| C/O contact | 10 A / 3 A, 85 °C  | 25x10 <sup>3</sup>  |
| C/O contact | 10 A / 10 A, 85 °C | 1x10 <sup>3</sup>   |

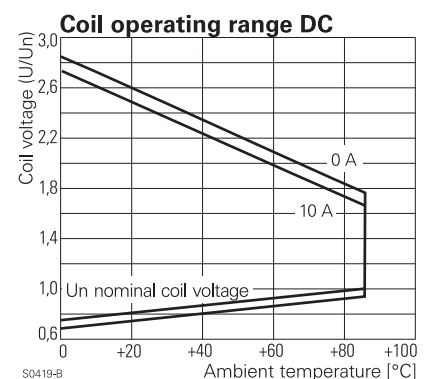
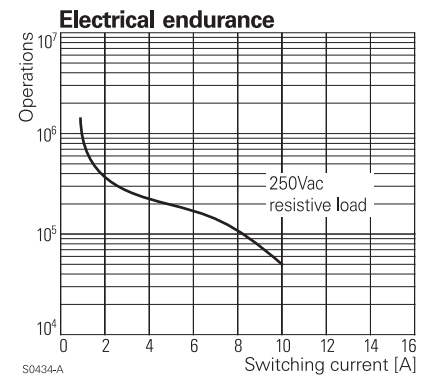
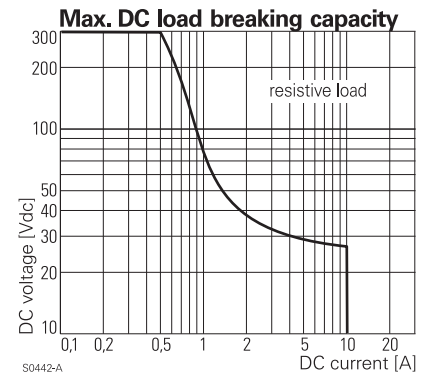
## Coil data

|                      |                       |
|----------------------|-----------------------|
| Nominal voltage      | 5, 6, 12, 24 Vdc      |
| Nominal coil power   | 360 mW                |
| Operate power        | 200 mW                |
| Operate category     | 2 / c                 |
| Operate voltage max. | 75 % U <sub>nom</sub> |
| Non-release voltage  | 50 % U <sub>nom</sub> |
| Release voltage min. | 10 % U <sub>nom</sub> |

## Coil versions, DC-coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 006       | 6                   | 4.5                 | 0.6                 | 100±10%           | 60.0            |
| 012       | 12                  | 9                   | 1.2                 | 400±10%           | 30.0            |
| 024       | 24                  | 18                  | 2.4                 | 1600±10%          | 15.0            |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request



# Miniature Power PCB Relay PB

1pole 10 A

## Insulation

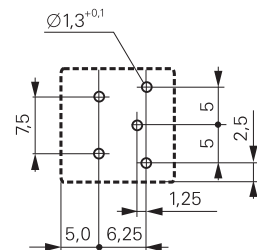
|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 2500 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Surge voltage resistance coil-contacts  |                      | 4000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 3 / 4 mm              |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Insulation resistance                   |                      | 100x10 <sup>6</sup>   |
| Tracking resistance of relay base       | PB1...CTI 250        |                       |
|                                         | PB3...CTI 300        |                       |

## Other data

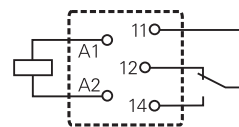
|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94        | V-0                                          |
| Coil insulation system according to UL 1446  | Class F                                      |
| Ambient temperature                          | -40...+85 °C (105 °C)                        |
| Mechanical life                              | > 5x10 <sup>6</sup> operations               |
| Max. switching rate at rated- / minimum load | 60 min <sup>-1</sup> / 600 min <sup>-1</sup> |
| Operate- / release time                      | < 20 ms                                      |
| Bounce time                                  | < 15 ms                                      |
| Vibration resistance 30...400 Hz             | >4 g                                         |
| Shock resistance (destruction)               | >30 g                                        |
| Category of protection (IEC 61810)           | RT II - flux proof                           |
| Relay weight                                 | 5.4 g                                        |
| Soldering temperature / time, IEC 68-2-20    | max. 260 °C / 5s                             |
| Packaging unit                               | 35 / 1050 pcs.                               |

## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm



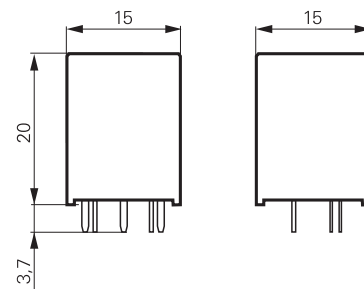
S0407-AA



S0407-AB

## Dimensions

Dimensions in mm



S0408-A

## Product key

Type

Version

- 1 standard version, CTI 250
- 3 high CTI version, CTI 300

Contacts

- 1 1 C/O contact
- 3 1 N/O contact

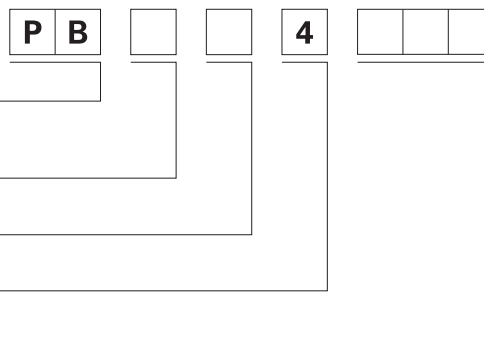
Contact material

- 4 AgNi 90/10

Coil

Coil code: please refer to coil versions table

Other types on request



| Product key | Version                     | Contacts      | Contact material | Coil   | Part number |
|-------------|-----------------------------|---------------|------------------|--------|-------------|
| PB114005    | standard<br>CTI 250         | 1 C/O contact | AgNi 90/10       | 5 Vdc  | 6-1415029-1 |
| PB114006    |                             |               |                  | 6 Vdc  | 7-1415029-1 |
| PB114012    |                             |               |                  | 12 Vdc | 8-1415029-1 |
| PB114024    |                             |               |                  | 24 Vdc | 9-1415029-1 |
| PB134005    |                             | 1 N/O contact |                  | 5 Vdc  | 0-1415030-1 |
| PB134006    |                             |               |                  | 6 Vdc  | 1-1415030-1 |
| PB134012    |                             |               |                  | 12 Vdc | 2-1415030-1 |
| PB134024    |                             |               |                  | 24 Vdc | 3-1415030-1 |
| PB314005    | high CTI version<br>CTI 300 | 1 C/O contact |                  | 5 Vdc  | 4-1415030-1 |
| PB314006    |                             |               |                  | 6 Vdc  | 5-1415030-1 |
| PB314012    |                             |               |                  | 12 Vdc | 6-1415030-1 |
| PB314024    |                             |               |                  | 24 Vdc | 7-1415030-1 |
| PB334005    |                             | 1 N/O contact |                  | 5 Vdc  | 8-1415030-1 |
| PB334006    |                             |               |                  | 6 Vdc  | 9-1415030-1 |
| PB334012    |                             |               |                  | 12 Vdc | 0-1415031-1 |
| PB334024    |                             |               |                  | 24 Vdc | 1-1415031-1 |

# Miniature Power PCB Relay PBH 105°C

1pole 6 A



F0224-BBC

## Features

- 1 C/O or 1 N/O contact
- Environmentally-friendly cadmium-free contacts
- Creepage/clearance to VDE 0435 and VDE 0700
- Class F coil standard
- For ambient temperatures up to 105°C

## Applications

White goods, domestic appliances



Technical data of approvals on request

## Contact data

|                                  |                                                      |
|----------------------------------|------------------------------------------------------|
| Configuration                    | 1 C/O contact or 1 N/O contact                       |
| Type of contact                  | single contact                                       |
| Rated current                    | 6 A (mounting distance 3 mm)<br>4 A (closely packed) |
| Continuous thermal load to 105°C | 6 A                                                  |
| Maximum switching voltage        | 250 Vac                                              |
| Maximum breaking capacity AC     | 1500 VA                                              |
| Contact material                 | AgNi 90/10                                           |

## Contact ratings

| Type        | Load                | Operations          |
|-------------|---------------------|---------------------|
| N/O contact | 2 A, 240 Vac, 105°C | 250x10 <sup>3</sup> |
| N/O contact | 5 A, 250 Vac, 105°C | 150x10 <sup>3</sup> |
| N/O contact | 6 A, 250 Vac, 105°C | 100x10 <sup>3</sup> |

## Coil data

|                      |                             |
|----------------------|-----------------------------|
| Nominal voltage      | 5...36 Vdc                  |
| Nominal coil power   | 360 mW                      |
| Operate power        | 200 mW                      |
| Operate category     | 90...100 % U <sub>nom</sub> |
| Non-release voltage. | 50 % U <sub>nom</sub>       |
| Release voltage min. | 10 % U <sub>nom</sub>       |

## Coil versions, DC-coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 005       | 5                   | 3.75                | 0.5                 | 70±10%            | 72.0            |
| 006       | 6                   | 4.5                 | 0.6                 | 100±10%           | 60.0            |
| 009       | 9                   | 6.75                | 0.9                 | 225±10%           | 40.0            |
| 012       | 12                  | 9.0                 | 1.2                 | 400±10%           | 30.0            |
| 024       | 24                  | 18.0                | 2.4                 | 1600±10%          | 15.0            |
| 036       | 36                  | 27.0                | 3.6                 | 3600±10%          | 10.0            |

All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

# Miniature Power PCB Relay PBH 105°C

1pole 6 A

## Insulation

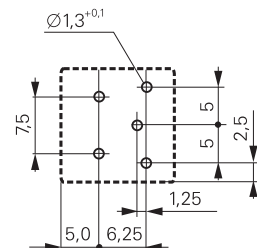
|                                         |                      |                                    |
|-----------------------------------------|----------------------|------------------------------------|
| Dielectric strength                     | coil-contacts        | 2500 V <sub>rms</sub>              |
|                                         | open contact circuit | 1000 V <sub>rms</sub>              |
| Surge voltage resistance coil-contacts  |                      | 4000 V <sub>rms</sub> (1.2 / 50µs) |
| Clearance / creepage                    |                      | 3 / 4 mm                           |
| Insulation to IEC 60664                 |                      |                                    |
| Voltage rating                          |                      | 250 V                              |
| Pollution degree                        |                      | 3                                  |
| Overvoltage category                    |                      | III                                |
| Insulation to VDE 0110b (2/79)          |                      |                                    |
| Insulation category / reference voltage |                      | C / 250                            |
| Insulation resistance                   |                      | 100x10 <sup>6</sup> Ω              |
| Tracking resistance of relay base       |                      | > CTI 250                          |

## Other data

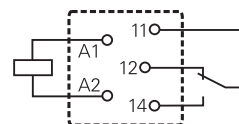
|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94        | V-0                                          |
| Coil insulation system according to UL 1446  | Class F                                      |
| Ambient temperature                          | -20...+105 °C                                |
| Mechanical life                              | > 2x10 <sup>6</sup> operations               |
| Max. switching rate at rated- / minimum load | 60 min <sup>-1</sup> / 600 min <sup>-1</sup> |
| Operate- / release time max.                 | < 20 ms                                      |
| Bounce time N/O contact / N/C contact typ.   | < 15 ms                                      |
| Vibration resistance 30...400 Hz             | > 4 g                                        |
| Shock resistance (destruction)               | > 30 g                                       |
| Category of protection (IEC 61810)           | RT II - flux proof                           |
| Relay weight                                 | 5.4 g                                        |
| Soldering temperature / time, IEC 68-2-20    | max. 260 °C / 5s                             |
| Packaging unit                               | 35 / 1050 pcs.                               |

## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm



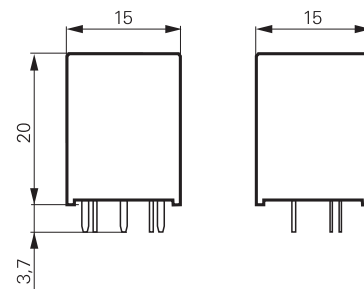
S0407-AA



S0407-AB

## Dimensions

Dimensions in mm



S0408-A

## Product key

Type

Version

**H** High temperature version

Contacts

**1** 1 C/O contact **3** 1 N/O contact

Contact material

**4** AgNi 90/10

Coil

Coil code: please refer to coil versions table

Other types on request

|          |          |          |  |          |  |  |  |
|----------|----------|----------|--|----------|--|--|--|
| <b>P</b> | <b>B</b> | <b>H</b> |  | <b>4</b> |  |  |  |
|----------|----------|----------|--|----------|--|--|--|

| Product key | Version     | Contacts      | Contact material | Coil   | Part number |
|-------------|-------------|---------------|------------------|--------|-------------|
| PBH14005    | high        | 1 C/O contact | AgNi 90/10       | 5 Vdc  | 9-1415356-1 |
| PBH14006    | temperature |               |                  | 6 Vdc  | 8-1415356-1 |
| PBH14009    | version     |               |                  | 9 Vdc  | 7-1415356-1 |
| PBH14012    |             |               |                  | 12 Vdc | 6-1415356-1 |
| PBH14024    |             |               |                  | 24 Vdc | 6-1415355-1 |
| PBH34005    |             | 1 N/O contact |                  | 5 Vdc  | 5-1415356-1 |
| PBH34006    |             |               |                  | 6 Vdc  | 4-1415356-1 |
| PBH34009    |             |               |                  | 9 Vdc  | 3-1415356-1 |
| PBH34012    |             |               |                  | 12 Vdc | 2-1415356-1 |
| PBH34024    |             |               |                  | 24 Vdc | 1-1415356-1 |

# Miniature Power PCB Relay T7N / T7N-WG

1pole 10A



F0189-B

## Features

- 1C/O or 1N/O contact
- Creepage/clearance to VDE 0435 and VDE 0700
- Sensitive 360mW coil available
- Creepage/clearance to VDE 0435
- Version T7N-WG with tracking resistance CTI 325

## Applications

Domestic appliances, heating control, building control, measurement&control

T7N: 

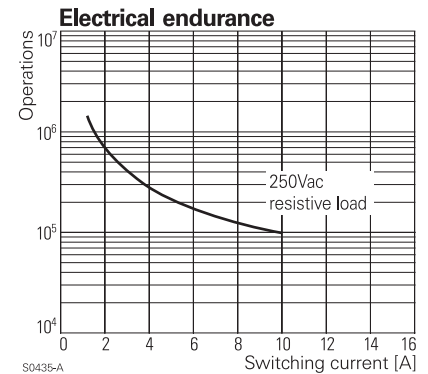
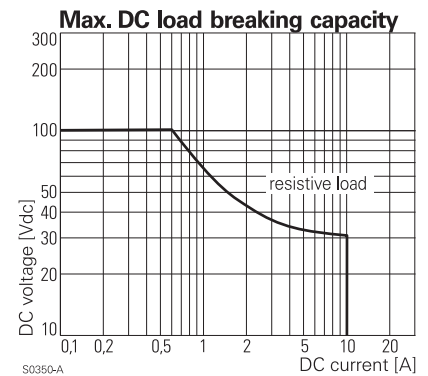
T7N-WG: 

Technical data of approved types on request

| Contact data                              | T7N                            | T7N-WG |
|-------------------------------------------|--------------------------------|--------|
| Configuration                             | 1 C/O contact or 1 N/O contact |        |
| Type of contact                           | single contact                 |        |
| Rated current N/O contact / N/C contact   | 10 / 5 A                       |        |
| Continuous thermal load                   | 10 A                           |        |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 250 Vac              |        |
| Maximum breaking capacity AC              | 2500 VA                        |        |
| Make current (max. 4 s at duty cycle 10%) | 35 A                           |        |
| Contact material                          | AgCdO, AgSnO <sub>2</sub>      | AgCdO  |

## Contact ratings

| Type  | Load                          | Operations          |
|-------|-------------------------------|---------------------|
| AgCdO | 10 A, 240 Vac                 | 100x10 <sup>3</sup> |
| AgCdO | 5 A, 240 Vac, resistive       | 2x10 <sup>5</sup>   |
| AgCdO | 2 A, 120 Vac, cosφ=0.5, 60 °C | 1.4x10 <sup>6</sup> |

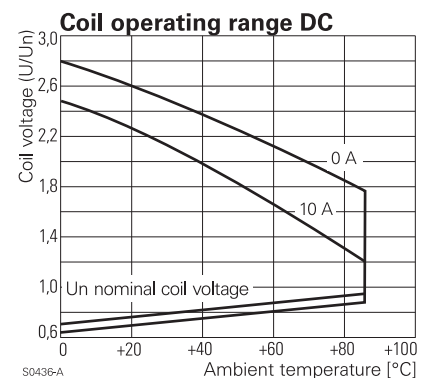


| Coil data            | T7N standard          | T7N-WG                | T7N-WG sensitive      |
|----------------------|-----------------------|-----------------------|-----------------------|
| Nominal voltage      | 6...48 Vdc            | 6...36 Vdc            | 6...36 Vdc            |
| Nominal coil power   | 360 mW                | 450 mW                | 360 mW                |
| Operate power        | 176 mW                | 253 mW                | 176 mW                |
| Operate category     | 1 / c                 | 2 / b                 | 2 / b                 |
| Operate voltage max. | 70 % U <sub>nom</sub> | 70 % U <sub>nom</sub> | 70 % U <sub>nom</sub> |
| Non-release voltage  | 50 % U <sub>nom</sub> | 50 % U <sub>nom</sub> | 50 % U <sub>nom</sub> |
| Release voltage min. | 10 % U <sub>nom</sub> | 10 % U <sub>nom</sub> | 10 % U <sub>nom</sub> |

## Coil versions

| Coil code                                        | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|--------------------------------------------------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| <b>version T7N-WG</b>                            |                     |                     |                     |                     |                   |                 |
| 12                                               | 12                  | 8.4                 | 1.2                 | 25.0                | 320±10%           | 37.5            |
| 24                                               | 24                  | 16.8                | 2.4                 | 50.0                | 1280±10%          | 18.8            |
| 36                                               | 36                  | 25.2                | 3.6                 | 73.0                | 2880±10%          | 12.5            |
| <b>version T7N standard and T7N-WG sensitive</b> |                     |                     |                     |                     |                   |                 |
| 06                                               | 6                   | 4.2                 | 0.6                 | 12.5                | 100±10%           | 60.0            |
| 12                                               | 12                  | 8.4                 | 1.2                 | 25.0                | 400±10%           | 30.0            |
| 24                                               | 24                  | 16.8                | 2.4                 | 50.0                | 1600±10%          | 15.0            |
| 36                                               | 36                  | 25.2                | 3.6                 | 73.0                | 3600±10%          | 10.0            |
| 48                                               | 48                  | 33.6                | 4.8                 | 100.0               | 6400±10%          | 7.0             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request



# Miniature Power PCB Relay T7N / T7N-WG

1pole 10A

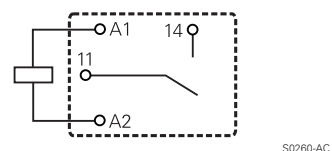
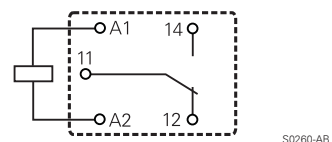
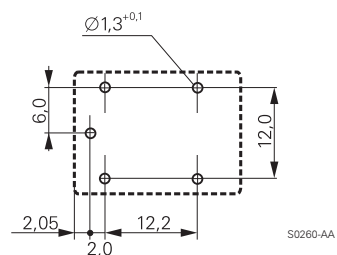
| Insulation                        |                                         | T7N                                | T7N-WG   |
|-----------------------------------|-----------------------------------------|------------------------------------|----------|
| Dielectric strength               | coil-contacts                           | 2000 V <sub>rms</sub>              |          |
|                                   | open contact circuit                    | 1000 V <sub>rms</sub>              |          |
| Surge voltage resistance          | coil-contacts                           | 4000 V <sub>rms</sub> (1.2 / 50µs) |          |
| Clearance / creepage              |                                         | 2 / 3 mm                           | 3 / 4 mm |
| Insulation to IEC 60664           |                                         |                                    |          |
|                                   | Voltage rating                          | 250 V                              |          |
|                                   | Pollution degree                        | 3                                  |          |
|                                   | Overvoltage category                    | III                                |          |
| Insulation to VDE 0110b (2/79)    |                                         |                                    |          |
|                                   | Insulation category / reference voltage | C / 250                            |          |
| Insulation resistance             |                                         | 100x10 <sup>6</sup> Ω              |          |
| Tracking resistance of relay base |                                         | CTI 225                            | CTI 325  |

| Other data                                   |                                              |  |
|----------------------------------------------|----------------------------------------------|--|
| Flammability class according to UL 94        | V-0                                          |  |
| Ambient temperature                          | -40...+85 °C (105 °C)                        |  |
| Mechanical life                              | 10x10 <sup>6</sup> operations                |  |
| Max. switching rate at rated- / minimum load | 30 min <sup>-1</sup> / 300 min <sup>-1</sup> |  |
| Operate- / release time                      | 10 / 5 ms                                    |  |
| Bounce time N/O contact / N/C contact        | 0.6 / 17 ms                                  |  |
| Vibration resistance                         | >10 g                                        |  |
| Shock resistance (function)                  | >10 g                                        |  |
| Shock resistance (destruction)               | >100 g                                       |  |
| Category of protection (IEC 61810)           | RT III - wash tight                          |  |
| Relay weight                                 | 11 g                                         |  |
| Packaging unit                               | 500 pcs.                                     |  |

## PCB layout / terminal assignment

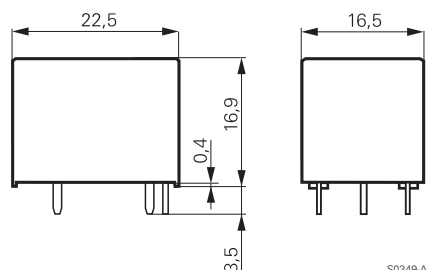
View on solder pins

Dimensions in mm



## Dimensions

Dimensions in mm



## Product key

|                        |   |   |   |   |  |  |  |  |  |
|------------------------|---|---|---|---|--|--|--|--|--|
| Type                   | T | 7 | N | S |  |  |  |  |  |
| Version                |   |   |   |   |  |  |  |  |  |
| Contacts               |   |   |   |   |  |  |  |  |  |
| Coil version           |   |   |   |   |  |  |  |  |  |
| Contact material       |   |   |   |   |  |  |  |  |  |
| Coil                   |   |   |   |   |  |  |  |  |  |
| Version                |   |   |   |   |  |  |  |  |  |
| Other types on request |   |   |   |   |  |  |  |  |  |

# Miniature Power PCB Relay T7N / T7N-WG

1pole 10A

| Product key     | Version               | Cont-material | Cont.configuration | Coil   | Part number |
|-----------------|-----------------------|---------------|--------------------|--------|-------------|
| T7N S1D1-06     | wash tight<br>CTI 225 | AgCdO         | 1 N/O contact      | 6 Vdc  | 0-1393186-3 |
| T7N S1D1-12     |                       |               |                    | 12 Vdc | 5-1440006-4 |
| T7N S1D1-24     |                       |               |                    | 24 Vdc | 5-1440006-6 |
| T7N S1D1-48     |                       |               |                    | 48 Vdc | 5-1440006-8 |
| T7N S1D4-06     |                       | AgSnO         |                    | 6 Vdc  | 6-1440005-2 |
| T7N S1D4-12     |                       |               |                    | 12 Vdc | 7-1440006-2 |
| T7N S1D4-24     |                       |               |                    | 24 Vdc | 7-1440006-4 |
| T7N S1D4-48     |                       |               |                    | 48 Vdc | 7-1440006-6 |
| T7N S5D1-06     |                       | AgCdO         | 1 C/O contact      | 6 Vdc  | 4-1440006-2 |
| T7N S5D1-12     |                       |               |                    | 12 Vdc | 4-1440006-4 |
| T7N S5D1-24     |                       |               |                    | 24 Vdc | 4-1440006-7 |
| T7N S5D1-48     |                       |               |                    | 48 Vdc | 4-1440006-9 |
| T7N S5D4-06     |                       | AgSnO         |                    | 6 Vdc  | 6-1440006-1 |
| T7N S5D4-12     |                       |               |                    | 12 Vdc | 6-1440006-3 |
| T7N S5D4-24     |                       |               |                    | 24 Vdc | 6-1440006-5 |
| T7N S5D4-48     |                       |               |                    | 48 Vdc | 6-1440006-7 |
| T7NS5H1-06-WG-A | wash tight<br>CTI 325 | AgCdO         |                    | 6 Vdc  | 7-1440006-9 |
| T7NS5H1-12-WG-A |                       |               |                    | 12 Vdc | 8-1440006-0 |
| T7NS5H1-24-WG-A |                       |               |                    | 24 Vdc | 8-1440006-2 |
| T7NS5H1-36-WG-A |                       |               |                    | 36 Vdc | 8-1440006-3 |
| T7NS5H1-48-WG-A |                       |               |                    | 48 Vdc | 8-1440006-4 |

# Power Relay T9A

1 pole 30 A



F0156-A



F0179-A

## Features

- 1 N/O or 1 C/O contact
- High breaking capacity 7500 VA
- PCB- and PCB/Faston connections
- Chassis mount version with faston terminals
- UL-class F as standard
- Ambient temperature 85°C
- Open version available

## Applications

HVAC, power supplies, domestic appliances, measurement&control



Technical data of approved types on request

## Contact data

|                                         |                     |               |
|-----------------------------------------|---------------------|---------------|
| Configuration                           | 1 C/O contact       | 1 N/O contact |
| Type of contact                         | single contact      |               |
| Rated current on the N/O- N/C contact   | 20 A / 10 A         | 25 A          |
| Rated voltage / max.breaking voltage AC | 240 Vac / 250 Vac   |               |
| Maximum breaking capacity AC            | 4800 VA             | 7200 VA       |
| Contact material                        | AgCdO               |               |
| Minimum contact load                    | 1 A, 5 Vdc / 12 Vac |               |

## Contact ratings

| Type        | Load                          | Operations        | Standard |
|-------------|-------------------------------|-------------------|----------|
| N/O contact | 2 hp, 240 Vac, motor          | 6x10 <sup>3</sup> | UL 508   |
| N/O contact | 5.4 A, 240 Vac, halogen       | 6x10 <sup>3</sup> | UL 508   |
| N/O contact | 25 A, 240 Vac, resistive      | 1x10 <sup>5</sup> |          |
| C/O contact | 10 / 10 A, 240 Vac, resistive | 1x10 <sup>5</sup> |          |
| C/O contact | 20 / 10 A, 28 Vdc, resistive  | 1x10 <sup>5</sup> |          |

## Coil data

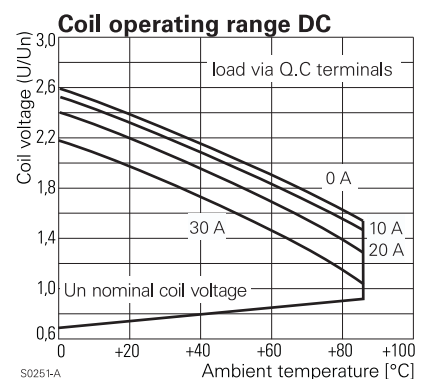
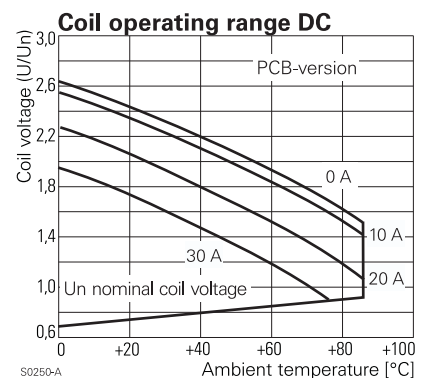
|                    |            |
|--------------------|------------|
| Nominal voltage    | 6...48 Vdc |
| Nominal coil power | 1 W        |

## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 6         | 6                   | 4.5                 | 0.6                 | 10.0                | 36±10%            | 166.7           |
| 12        | 12                  | 9.0                 | 1.2                 | 20.1                | 144±10%           | 83.3            |
| 24        | 24                  | 18.0                | 2.4                 | 40.2                | 576±10%           | 41.7            |
| 48        | 48                  | 36.0                | 4.8                 | 80.3                | 2304±10%          | 20.8            |

All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request



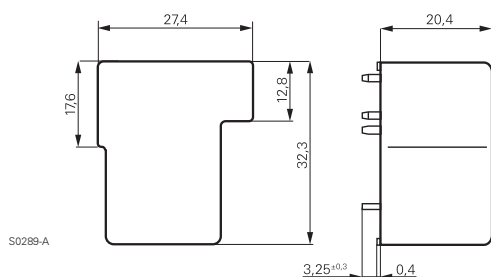
**1 pole 30 A**

|                          |                      |                                   |
|--------------------------|----------------------|-----------------------------------|
| Dielectric strength      | coil-contacts        | 2500 V <sub>rms</sub>             |
|                          | open contact circuit | 1500 V <sub>rms</sub>             |
| Surge voltage resistance | coil-contacts        | 6000 V <sub>rms</sub> , 1.2/50 μs |
| Clearance / creepage     |                      | 3.1 / 6.3 mm (UL508)              |

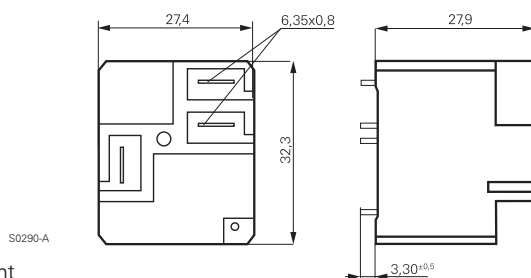
|                                       |                               |
|---------------------------------------|-------------------------------|
| Flammability class according to UL 94 | V-0                           |
| Ambient temperature                   | -40...+85 °C                  |
| Mechanical life                       | 10x10 <sup>6</sup> operations |
| Vibration resistance                  | 1.65 mm, 10...55 Hz           |
| Shock resistance (function)           | 10 g at 11 ms half sine       |
| Shock resistance (destruction)        | 100 g                         |
| Category of protection (IEC 61810)    | RT III - wash tight           |
| Relay weight                          | 26 / 33 g                     |
| Packaging unit                        | 250 pcs.                      |

Dimensions in mm

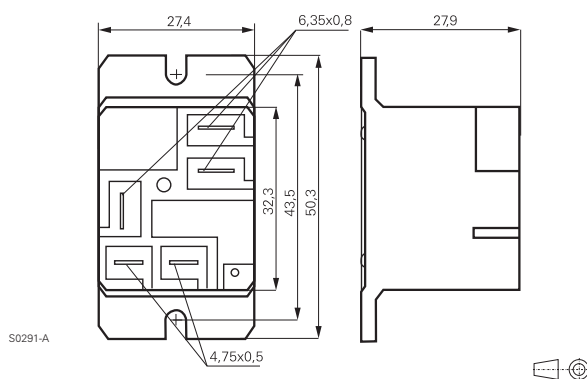
PCB version



PCB-/Faston version



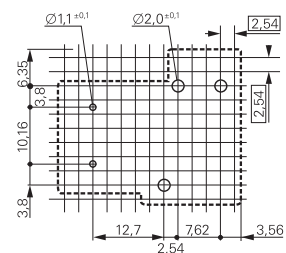
Flange mount



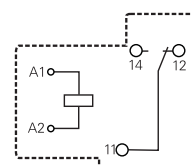
View on solder pins

Dimensions in mm

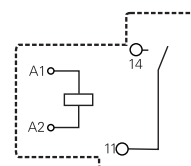
PCB version



S0261-AA

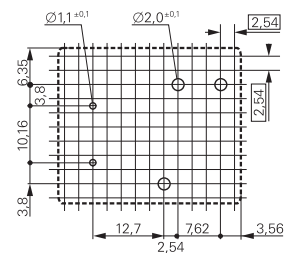


S0261-AB

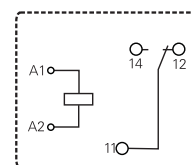


S0261-AC

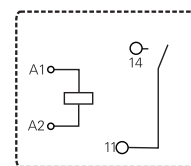
PCB-/Faston version



S0261-AH



S0261-AI



S0261-AJ

# Power Relay T9A

1 pole 30 A

## Product key

|                        |                                                                                   |   |   |  |  |   |  |   |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|---|---|--|--|---|--|---|--|--|--|
| Type                   | T                                                                                 | 9 | A |  |  | D |  | 2 |  |  |  |
| Enclosure              |                                                                                   |   |   |  |  |   |  |   |  |  |  |
|                        | P dust protected (flange mount)                                                   |   |   |  |  |   |  |   |  |  |  |
|                        | S wash tight (PCB- or PCB-/Faston-version)                                        |   |   |  |  |   |  |   |  |  |  |
| Contact configuration  |                                                                                   |   |   |  |  |   |  |   |  |  |  |
|                        | 1 N/O contact 5 C/O contact                                                       |   |   |  |  |   |  |   |  |  |  |
| Coil version           |                                                                                   |   |   |  |  |   |  |   |  |  |  |
|                        | D DC coil 1 Watt                                                                  |   |   |  |  |   |  |   |  |  |  |
| Mounting               |                                                                                   |   |   |  |  |   |  |   |  |  |  |
|                        | 1 PCB-version                                                                     |   |   |  |  |   |  |   |  |  |  |
|                        | 2 PCB-terminals for coil and contacts, Faston terminals for contacts              |   |   |  |  |   |  |   |  |  |  |
|                        | 5 Flange mount, 4.75 Faston terminals for coil, 6.35 Faston terminal for contacts |   |   |  |  |   |  |   |  |  |  |
| Contact material       |                                                                                   |   |   |  |  |   |  |   |  |  |  |
|                        | 2 AgCdO                                                                           |   |   |  |  |   |  |   |  |  |  |
| Coil                   |                                                                                   |   |   |  |  |   |  |   |  |  |  |
|                        | Coil code: please refer to coil versions table                                    |   |   |  |  |   |  |   |  |  |  |
| Other types on request |                                                                                   |   |   |  |  |   |  |   |  |  |  |

| Product key | Version          | Cont-material | Cont.configuration | Coil   | Part number |
|-------------|------------------|---------------|--------------------|--------|-------------|
| T9AS1D12-12 | pcb-version      | AgCdO         | 1 N/O contact      | 12 Vdc | 1-1393210-3 |
| T9AS1D12-18 | wash tight       |               |                    | 18 Vdc | 1-1393210-5 |
| T9AS1D22-12 | pcb terminals    |               |                    | 12 Vdc | 1-1419104-7 |
| T9AS1D22-24 | Faston terminals |               | 1 C/O contact      | 24 Vdc | 2-1419104-1 |
| T9AS5D22-12 | for contacts     |               |                    | 12 Vdc | 3-1419104-3 |
| T9AS5D22-24 | wash tight       |               |                    | 24 Vdc | 3-1419104-6 |

# Power Relay T92

## 2 pole 30 A, DC- and AC-coil



F0167-A

### Features

- 2 C/O or 2 N/O contacts
- Switching capacity 7500 VA (2 N/O)
- DC- or AC coil
- 4 kV / 8 mm coil-contact
- Insulation to VDE 0631 and VDE 0700
- PCB- or Faston connections or chassis mount
- Adapter for DIN-rail mounting

### Applications

Power supplies, heating & ventilation, control equipment



Technical data of approved types on request

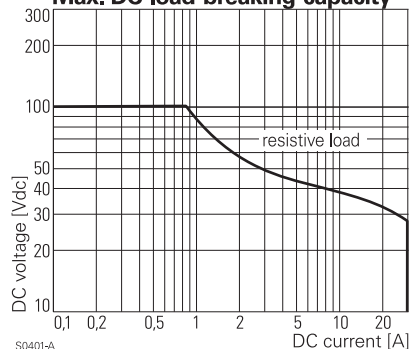
### Contact data

|                                         |                                |
|-----------------------------------------|--------------------------------|
| Configuration                           | 2 C/O contact or 2 N/O contact |
| Type of contact                         | single contact                 |
| Rated current N/O contact/N/C contact   | 30 / 3 A                       |
| Rated voltage / max.breaking voltage AC | 250 Vac / 440 Vac              |
| Maximum breaking capacity AC            | 7500 VA                        |
| Contact material                        | AgCdO                          |
| Minimum contact load                    | 500 mA, 12 Vac                 |

### Contact ratings

| Type    | Load       | Operations        |
|---------|------------|-------------------|
| AC-coil | rated load | 1x10 <sup>5</sup> |
| DC-coil | rated load | 3x10 <sup>5</sup> |

### Max. DC load breaking capacity



### Coil data

|                    |         |              |
|--------------------|---------|--------------|
| Nominal voltage    | DC coil | 6...48 Vdc   |
|                    | AC coil | 24...240 Vac |
| Nominal coil power | DC coil | 1.7 W        |
|                    | AC coil | 4.0 VA       |
| Operate category   |         | 1 / a        |

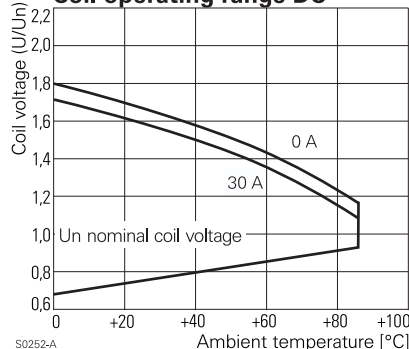
### DC Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 12        | 12                  | 9.0                 | 1.2                 | 22.2                | 86 ± 10%          | 139.5           |
| 24        | 24                  | 18.0                | 2.4                 | 44.4                | 350 ± 10%         | 68.6            |

All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

### Coil operating range DC



# Power Relay T92

## 2 pole 30 A, DC- and AC-coil

### AC Coil versions

| Coil code | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Maximum voltage Vac | DC-Coil resistance $\Omega$ |
|-----------|---------------------|---------------------|---------------------|---------------------|-----------------------------|
| 24        | 24                  | 19.2                | 2.4                 | 11.1                | $44 \pm 10\%$               |
| 240       | 220 / 240           | 192.0               | 24.0                | 22.2                | $3800 \pm 10\%$             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

### Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 1500 V <sub>rms</sub> |
|                                         | adjacent contacts    | 2000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 8 / 9.5 mm            |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 380               |
| Tracking resistance of relay base       |                      | PTI 100               |

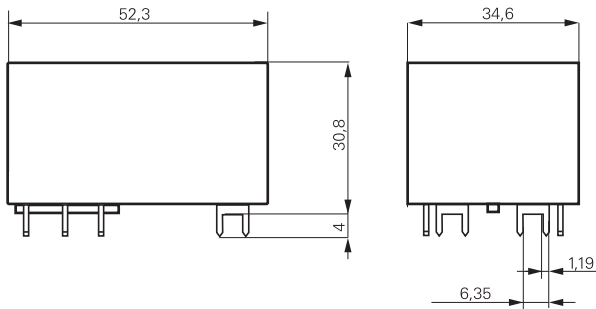
### Other data

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94        | V-0                                          |
| Ambient temperature                          | DC-coil -40...+85 °C<br>AC-coil -40...+65 °C |
| Mechanical life                              | 5x10 <sup>6</sup> operations                 |
| Max. switching rate at rated- / minimum load | 14 min <sup>-1</sup>                         |
| Operate- / release time                      | 15 / 10 ms                                   |
| Vibration resistance                         | 1.65 mm, 10...55 Hz                          |
| Shock resistance (function)                  | 10g, 11 ms half sine                         |
| Shock resistance (destruction)               | 100g, 11 ms half sine                        |
| Category of protection (IEC 61810)           | RT I - dust protected, RT III - wash tight   |
| Relay weight                                 | 86 g                                         |
| Packaging unit                               | 30 pcs.                                      |

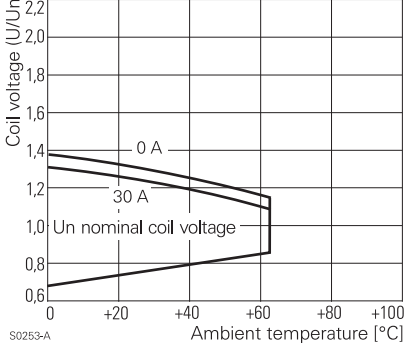
### Dimensions

Dimensions in mm

PCB version



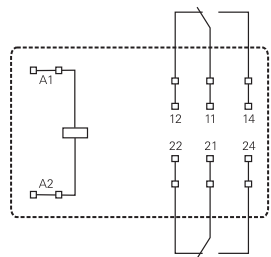
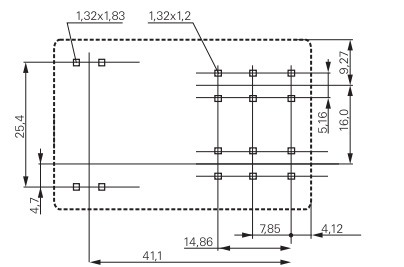
### Coil operating range AC



### PCB layout / terminal assignment

View on solder pins  
Dimensions in mm

PCB version



S0262-AB

S0292-A

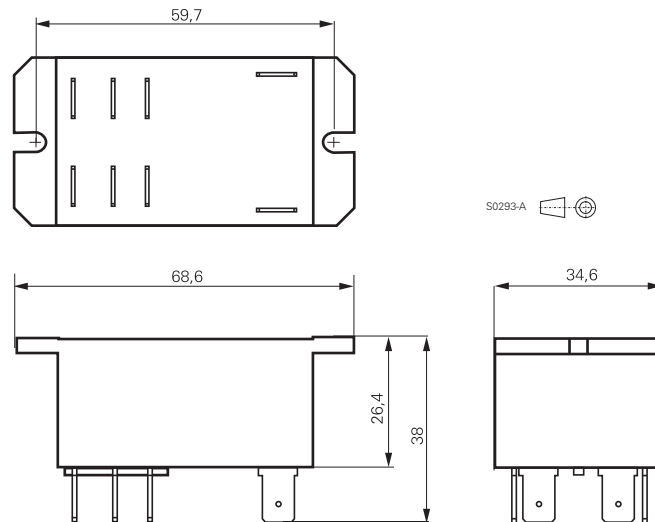
# Power Relay T92

## 2 pole 30 A, DC- and AC-coil

### Dimensions

Dimensions in mm

Flange mount



### Product key

|          |          |          |  |  |  |  |          |  |  |  |
|----------|----------|----------|--|--|--|--|----------|--|--|--|
| <b>T</b> | <b>9</b> | <b>2</b> |  |  |  |  | <b>2</b> |  |  |  |
|----------|----------|----------|--|--|--|--|----------|--|--|--|

Type

Enclosure

**P** dust protected

**S** wash tight (PCB version only)

Contact configuration

**7** 2 N/O contacts

**11** 2 C/O contacts

Coil version

**A** AC-coil 50/60 Hz

**D** DC-coil

Mounting

**1** PCB version

**2** flange mount, 6.35 Faston terminals for contacts and coil

Contact material

**2** AgCdO

Coil

Coil code: please refer to coil versions table

Other types on request

| Product key   | Version        | Mounting     | Cont.configuration | Coil    | Coil    | Part number |
|---------------|----------------|--------------|--------------------|---------|---------|-------------|
| T92P7A22-240  | dust protected | flange mount | 2 N/O contacts     | AC-coil | 240 Vac | 6-1393211-2 |
| T92P7D22-12   |                |              |                    | DC-coil | 12 Vdc  | 6-1393211-9 |
| T92P7D22-24   |                |              |                    |         | 24 Vdc  | 7-1393211-1 |
| T92S11A22-240 | wash tight     |              | 2 C/O contacts     | AC-coil | 240 Vac | 8-1393211-7 |
| T92S11D12-24  |                | pcb-version  |                    | DC-coil | 24 Vdc  | 9-1393211-0 |
| T92S7A12-240  |                |              | 2 N/O contacts     | AC-coil | 240 Vac | 9-1393211-9 |
| T92S7A22-240  |                | flange mount |                    |         | 240 Vac | 0-1393212-5 |
| T92S7D12-24   |                | pcb-version  |                    | DC-coil | 24 Vdc  | 1-1393212-0 |

# Power Relay 430 3 mm

1 pole 16 A, DC- and AC-coil



F0256-A

## Features

- 1 N/O contact
- Safety mains isolation
- Contact gap > 3 mm
- 4 kV / 8 mm coil-contact, protection class II (VDE 0700)
- PCB mounting or Faston connectors
- Mounting brackets or snap mounting
- Version with arc blow magnet for high DC-loads

## Applications

Domestic appliances, industrial appliances, industrial controls



Technical data of approved types on request

## Contact data

|                                           |                   |
|-------------------------------------------|-------------------|
| Configuration                             | 1 N/O contact     |
| Type of contact                           | single contact    |
| Rated current                             | 16 A              |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 400 Vac |
| Maximum breaking capacity AC              | 4000 VA           |
| Make current (max. 4 s at duty cycle 10%) | 25 A              |
| Contact material                          | AgCdO, AgCu3      |
| Contact gap                               | >3 mm             |

## Contact ratings

| Type  | Load                             | Operations          |
|-------|----------------------------------|---------------------|
| 430x5 | 16 A, 250 Vac, resistive, 70 °C  | 1.5x10 <sup>5</sup> |
| 430x5 | 10 A, 250 Vac, resistive, 105 °C | 1.5x10 <sup>5</sup> |

## Coil data

|                    |         |             |
|--------------------|---------|-------------|
| Nominal voltage    | DC coil | 6...110 Vdc |
|                    | AC coil | 6...240 Vac |
| Nominal coil power | DC coil | 1 W         |
|                    | AC coil | 1.8 VA      |
| Operate category   |         | 2 / b       |

## Coil versions, DC coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 09        | 12                  | 7.8                 | 0.6                 | 15.6                | 145±10%           | 83.0            |
| 10        | 24                  | 15.6                | 1.2                 | 31.2                | 580±10%           | 41.0            |
| 11        | 48                  | 31.2                | 2.4                 | 62.4                | 2200±10%          | 22.0            |
| 13        | 110                 | 71.5                | 5.5                 | 143.0               | 13000±10%         | 9.0             |

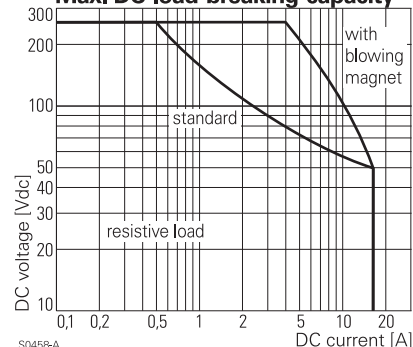
## Coil versions, AC coil

| Coil code | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Maximum voltage Vac | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 23        | 24                  | 18                  | 3.6                 | 27.0                | 145±10%           | 75.0            |
| 25        | 60                  | 45                  | 9.0                 | 69.0                | 950±10%           | 30.0            |
| 26        | 110                 | 83                  | 16.0                | 127.0               | 3100±10%          | 16.0            |
| 27        | 230                 | 175                 | 35.0                | 253.0               | 11400±10%         | 9.0             |

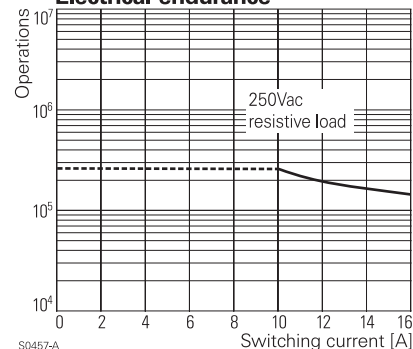
All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

## Max. DC load breaking capacity



## Electrical endurance



# Power Relay 430 3 mm

1 pole 16 A, DC- and AC-coil

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 2000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 8 / 8 mm              |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | PTI 380H              |

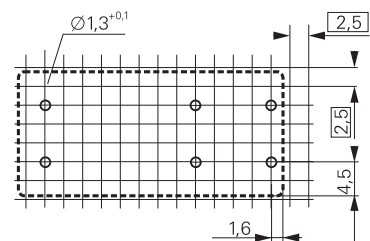
## Other data

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Ambient temperature                          | -20...+70 °C                                 |
| Mechanical life                              | >2.5x10 <sup>5</sup> operations              |
| Max. switching rate at rated- / minimum load | 15 min <sup>-1</sup> / 300 min <sup>-1</sup> |
| Operate- / release time                      | typ. 15 / 8 ms                               |
| Bounce time                                  | typ. 4 ms                                    |
| Shock resistance (destruction)               | 100 g                                        |
| Category of protection (IEC 61810)           | RT I - dust protected                        |
| Relay weight                                 | 32 g                                         |
| Packaging unit                               | 50 pcs.                                      |

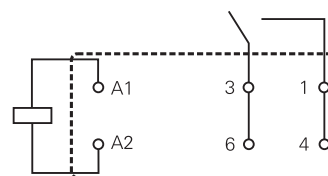
## PCB layout / terminal assignment

View on solder pins

Dimensions in mm



S0448-AE

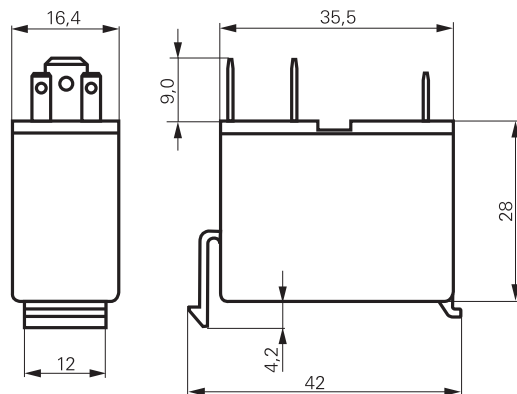


S0448-AF

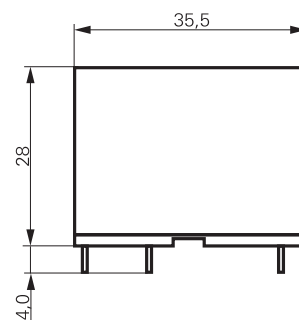
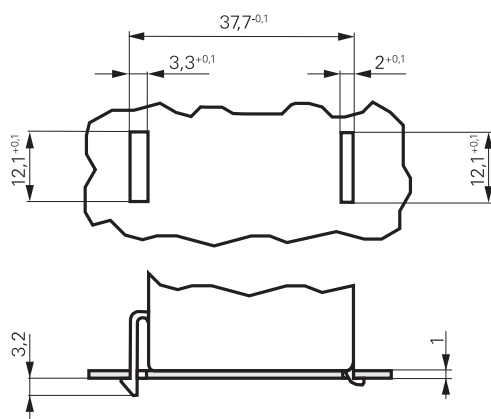
## Dimensions

Snap mounting

Dimensions in mm



S0449-AH



S0449-AB

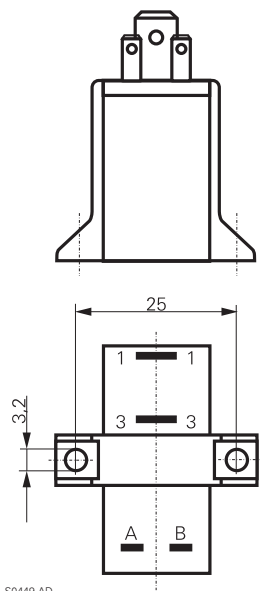
# Power Relay 430 3 mm

1 pole 16 A, DC- and AC-coil

Dimensions

Mounting brackets

Dimensions in mm



Product key

0

4

3

0

1

0

0

Type

Mounting

0

1

PCB version

mounting brackets

2

5

snap mounting

DIN rail mounting

Contact design

4

5

arc blowing magnet

standard

Coil

Coil code: Please refer to coil versions table

Contact material

0

1

AgCu3

AgCdO

Other types on request

| Product key     | Version       | Cont-material | Cont-config.  | Coil    | Coil   | Part number |
|-----------------|---------------|---------------|---------------|---------|--------|-------------|
| 0430 25 0911 00 | snap mounting | AgCdO         | 1 N/O contact | DC-coil | 12Vdc  | 1-1415404-1 |
| 0430 25 1011 00 | 1.0mm plate   |               |               |         | 24Vdc  | 1-1415404-3 |
| 0430 25 2811 00 |               |               |               | AC-coil | 240Vac | 1-1415404-6 |

# Power Relay 430

1 pole 16 A or 2 pole 10 A, DC- and AC-coil



F0257-A

## Features

- 1 or 2 pole in N/O, C/O and N/C versions
- 4 kV / 8 mm coil-contact
- PCB mounting or Faston connectors
- Mounting brackets or snap mounting

## Applications

Motors, electro valves



Technical data of approved types on request

| Contact data                              | 430 x6            | 430 x7          |
|-------------------------------------------|-------------------|-----------------|
| Configuration                             | 1 N/O, C/O, N/C   | 2 N/O, C/O, N/C |
| Type of contact                           | single contact    |                 |
| Rated current                             | 16 A              | 10 A            |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 400 Vac |                 |
| Maximum breaking capacity AC              | 4000 VA           | 2500 VA         |
| Make current (max. 4 s at duty cycle 10%) | 25 A              | 15 A            |
| Contact material                          | AgCdO, AgCu3      |                 |

## Contact ratings

| Type   | Load                     | Operations        |
|--------|--------------------------|-------------------|
| 1 pole | 16 A, 250 Vac, resistive | $2.5 \times 10^5$ |
| 2 pole | 10 A, 250 Vac, resistive | $2.5 \times 10^5$ |

## Coil data

|                    |         |             |
|--------------------|---------|-------------|
| Nominal voltage    | DC coil | 6...110 Vdc |
|                    | AC coil | 6...240 Vac |
| Nominal coil power | DC coil | 1 W         |
|                    | AC coil | 1.8 VA      |
| Operate category   | 2 / b   |             |

## Coil versions, DC coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 09        | 12                  | 7.8                 | 0.6                 | 15.6                | $145 \pm 10\%$           | 83.0            |
| 10        | 24                  | 15.6                | 1.2                 | 31.2                | $580 \pm 10\%$           | 41.0            |
| 11        | 48                  | 31.2                | 2.4                 | 62.4                | $2200 \pm 10\%$          | 22.0            |
| 13        | 110                 | 71.5                | 5.5                 | 143.0               | $13000 \pm 10\%$         | 9.0             |

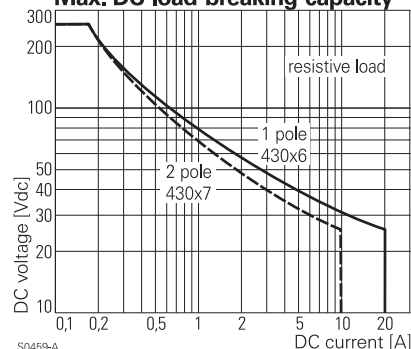
## Coil versions, AC coil

| Coil code | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Maximum voltage Vac | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 03        | 24                  | 18.0                | 3.6                 | 27.0                | $200 \pm 10\%$           | 75.0            |
| 05        | 60                  | 45.0                | 9.0                 | 69.0                | $1250 \pm 10\%$          | 30.0            |
| 06        | 110                 | 83.0                | 16.0                | 127.0               | $4500 \pm 10\%$          | 16.0            |
| 07        | 230                 | 170.0               | 35.0                | 253.0               | $17500 \pm 10\%$         | 10.0            |

All figures are given for coil without preenergization, at ambient temperature +20°C

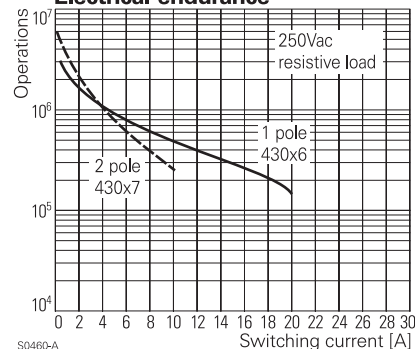
Other coil voltages on request

## Max. DC load breaking capacity



S0459-A

## Electrical endurance



S0460-A

# Power Relay 430

1 pole 16 A or 2 pole 10 A, DC- and AC-coil

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 8 / 8 mm              |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | PTI 380M              |

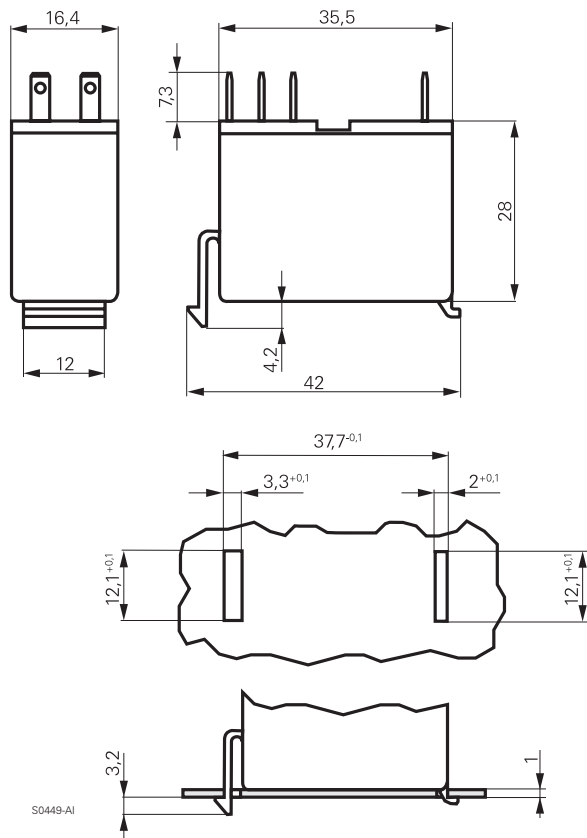
## Other data

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Ambient temperature                          | -20...+70 °C                                 |
| Mechanical life                              | >2.5x10 <sup>5</sup> operations              |
| Max. switching rate at rated- / minimum load | 15 min <sup>-1</sup> / 600 min <sup>-1</sup> |
| Operate- / release time                      | typ. 18 / 3 ms                               |
| Bounce time                                  | typ. 3 ms                                    |
| Shock resistance (destruction)               | 100 g                                        |
| Category of protection (IEC 61810)           | RT I - dust protected                        |
| Relay weight                                 | 32 g                                         |
| Packaging unit                               | 50 pcs.                                      |

## Dimensions

Dimensions in mm

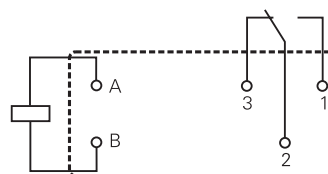
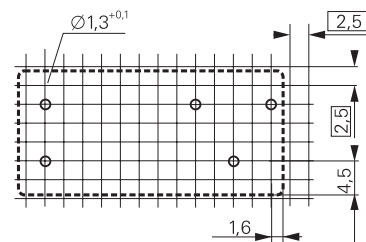
Snap mounting



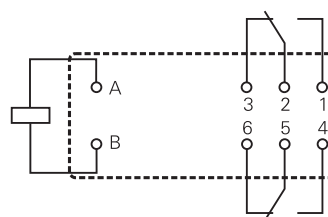
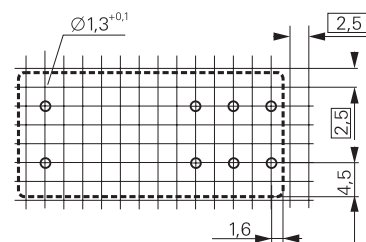
## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm

PCB version, 1 C/O contact

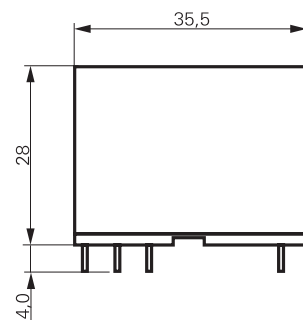


PCB version, 2 C/O contacts



## Dimensions

Dimensions in mm



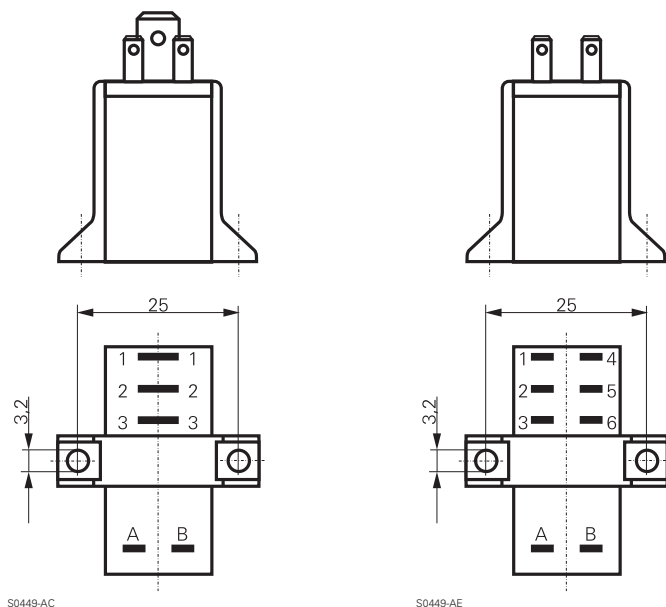
# Power Relay 430

1 pole 16 A or 2 pole 10 A, DC- and AC-coil

## Dimensions

Dimensions in mm

Mounting brackets



## Product key

0 4 3 0

0 0

Type

Mounting

0 PCB version

1 mounting brackets

2 snap mounting

5 DIN rail mounting

Version

6 1 pole

7 2 pole

Coil

Coil code: Please refer to coil versions table

Contact material

0 AgCu3

1 AgCdO

Contact configuration

1 1 N/O contact

2 1 N/C contact

3 1 C/O contact

4 2 N/O contacts

5 2 N/C contacts

6 2 C/O contacts

Other types on request

| Product key     | Version                      | Cont-material | Cont.configuration | Coil    | Coil   | Part number |
|-----------------|------------------------------|---------------|--------------------|---------|--------|-------------|
| 0430 16 0911 00 | snap mounting<br>1.0mm plate | AgCdO         | 1 N/O contact      | DC-coil | 12Vdc  | 8-1415430-1 |
| 0430 16 1011 00 |                              |               | 1 C/O contact      |         | 24Vdc  | 8-1415430-3 |
| 0430 16 1013 00 |                              |               | 2 C/O contacts     |         | 12Vdc  | 8-1415430-5 |
| 0430 17 0916 00 |                              |               |                    |         | 24Vdc  | 0-1415404-1 |
| 0430 17 1016 00 |                              |               |                    |         | 220Vac | 0-1415404-4 |
| 0430 26 0713 00 |                              |               | 1 C/O contact      | AC-coil | 220Vac | 2-1415404-3 |
| 0430 27 0716 00 |                              |               | 2 C/O contacts     |         | 220Vac | 2-1415404-8 |

# Rast 5 Power Relay 419 01

2 pole 16 A, DC- and AC-coil



F0255-A

## Features

- Safety mains insulation
- Contact gap > 3 mm
- 4 kV / 8 mm coil-contact
- Ambient temperature up to 90°C
- Faston connectors (DIN 46244)
- Snap or screw mounting

## Applications

Industrial and domestic appliances, absolute safe power supply disconnection



Technical data of approved types on request

## Contact data

|                                           |                   |
|-------------------------------------------|-------------------|
| Configuration                             | 2 N/O contact     |
| Type of contact                           | single contact    |
| Rated current                             | 16 A              |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 400 Vac |
| Maximum breaking capacity AC              | 4000 VA           |
| Make current (max. 4 s at duty cycle 10%) | 25 A              |
| Contact material                          | AgCdO, AgNi       |
| Contact gap                               | >3 mm             |

## Contact ratings

| Type       | Load                     | Operations          |
|------------|--------------------------|---------------------|
| DC-version | 16 A, 250 Vac, resistive | 2.5x10 <sup>5</sup> |
| DC-version | 12 A, 250 Vac, resistive | 2.5x10 <sup>5</sup> |
| AC-version | 16 A, 250 Vac, resistive | 1x10 <sup>5</sup>   |
| AC-version | 12 A, 250 Vac, resistive | 1x10 <sup>5</sup>   |

## Coil data

|                    |         |               |
|--------------------|---------|---------------|
| Nominal voltage    | DC coil | 6...24 Vdc    |
|                    | AC coil | 120...400 Vac |
| Nominal coil power | DC coil | 1.3 W         |
|                    | AC coil | 2.0...2.5 VA  |
| Operate category   |         | 2 / c         |

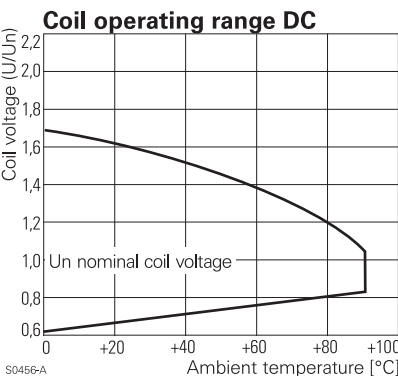
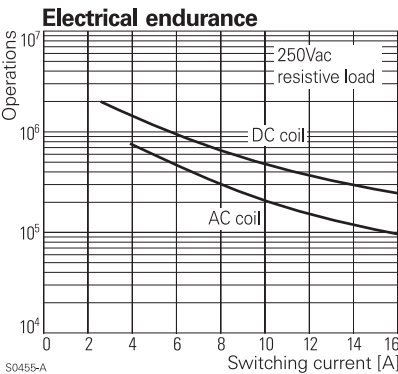
## Coil versions, DC coil

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 31        | 12                  | 7.7                 | 0.9                 | 19.5                | 118±10%           | 102.0           |
| 29        | 24                  | 15.5                | 1.8                 | 39.0                | 470±10%           | 51.0            |

## Coil versions, AC coil

| Coil code | Nominal voltage Vac, 50 Hz | Pull-in voltage Vac | Release voltage Vac | Maximum voltage Vac | Coil resistance Ω | Coil current mA |
|-----------|----------------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 14        | 110...120                  | 93.0                | 18.0                | 132.0               | 1650±10%          | 20.0            |
| 10        | 220...240                  | 187.0               | 36.0                | 264.0               | 6600±10%          | 10.0            |
| 09        | 380...400                  | 323.0               | 60.0                | 440.0               | 20000±10%         | 6.0             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request



# Rast 5 Power Relay 419 01

2 pole 16 A, DC- and AC-coil

## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 4000 V <sub>rms</sub> |
|                                         | open contact circuit | 2000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | 8 / 8 mm              |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 380               |
| Tracking resistance of relay base       |                      | CTI 600M              |

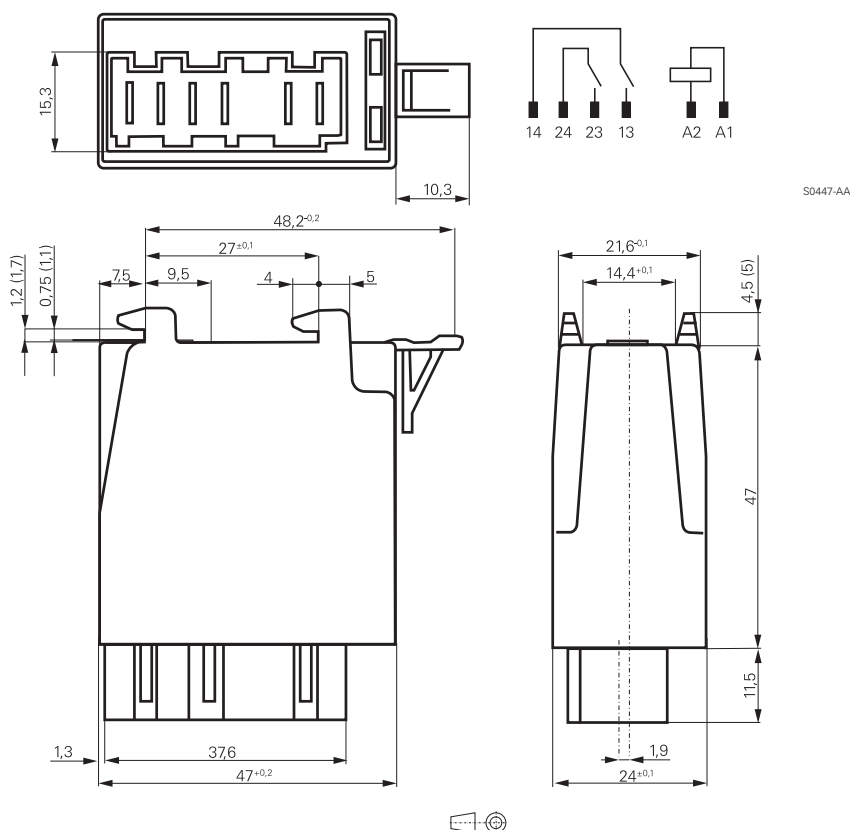
## Other data

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Ambient temperature                          | -20...+90 °C                                 |
| Mechanical life                              | >2x10 <sup>6</sup> operations                |
| Max. switching rate at rated- / minimum load | 15 min <sup>-1</sup> / 600 min <sup>-1</sup> |
| Operate- / release time                      | typ. 15 / 15 ms                              |
| Bounce time                                  | typ. 4 ms                                    |
| Vibration resistance                         | 2 g, 5...500 Hz                              |
| Shock resistance (destruction)               | 80 g                                         |
| Category of protection (IEC 61810)           | RT I - dust protected                        |
| Relay weight                                 | 90 g                                         |
| Packaging unit                               | 42 pcs.                                      |

## Snap mounting / dimensions

Dimensions in mm

## Terminal assignment

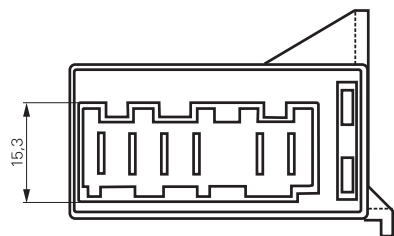


# Rast 5 Power Relay 419 01

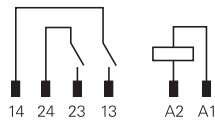
2 pole 16 A, DC- and AC-coil

## Screw mounting / dimensions

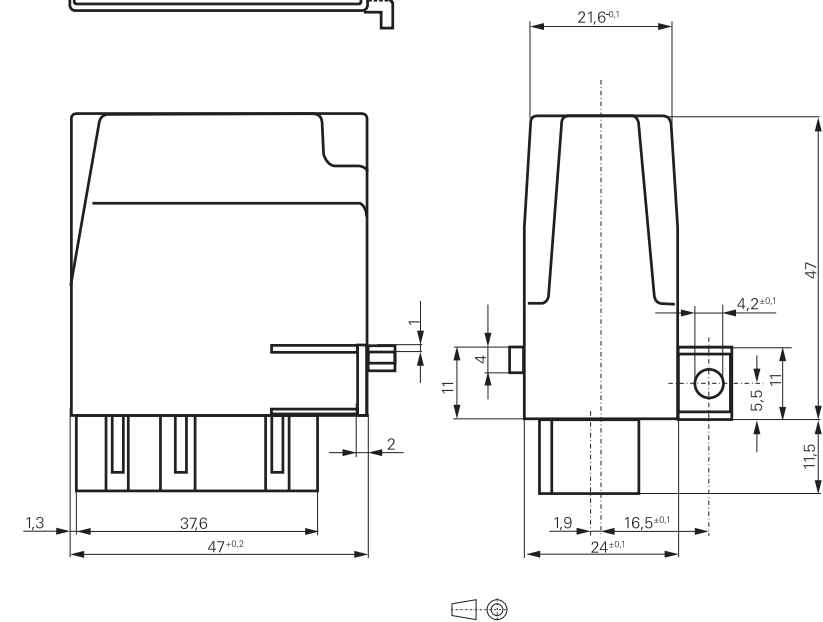
Dimensions in mm



## Terminal assignment



S0447-AB



## Product key

**0 4 1 9 0 1**

Type

Coil

Coil code: Please refer to coil versions table

Contact material

**01** AgCdO

**03** AgNi 90/10

Mounting

**00** Snap mounting, 1.0 mm panel

**01** Snap mounting, 1.5 mm panel

**02** Screw mounting

Other types on request

| Product key     | Version             | Cont-material | Cont.configuration | Coil       | Part number |
|-----------------|---------------------|---------------|--------------------|------------|-------------|
| 0419 01 2901 00 | snap mounting 1.0mm | AgCdO         | 2 N/O contacts     | 24Vdc      | 2-1415419-6 |
| 0419 01 2901 01 | snap mounting 1.5mm |               |                    |            | 2-1415419-7 |
| 0419 01 2901 02 | screw mounting      |               |                    |            | 2-1415419-8 |
| 0419 01 1001 00 | snap mounting 1.0mm |               |                    | 220-240Vac | 0-1415419-7 |
| 0419 01 1001 01 | snap mounting 1.5mm |               |                    |            | 0-1415419-8 |
| 0419 01 1001 02 | screw mounting      |               |                    |            | 0-1415419-9 |

# Safety Relay SR2M

2 pole 6 A



## Features

- Forcibly guided contacts according to EN 50205
- 2 pole safety relay with either 1N/O+1N/C or 2C/O contacts
- 6 kV surge resistance between poles

## Applications

Emergency shut-off, machine control, elevator and escalator control, light barrier control

F0188-C



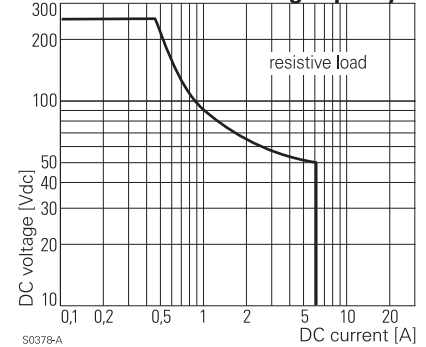
Technical data of approved types on request

## Contact data

|                                          |                                                                                                              |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Configuration                            | 1 N/C contact and 1 N/O contact<br>or<br>2 C/O contact *)                                                    |
| Type of contact                          | single contact, forcibly guided                                                                              |
| Rated current                            | 6 A                                                                                                          |
| Rated voltage / max. breaking voltage AC | 250 Vac / 440 Vac                                                                                            |
| Maximum breaking capacity AC             | 1500 VA                                                                                                      |
| Contact material                         | AgNi                                                                                                         |
| Minimum contact load                     | > 50 mW                                                                                                      |
| Contact resistance                       | $\leq 100 \text{ m}\Omega / 1 \text{ A} / 24 \text{ Vdc}$<br>$\leq 2 \Omega / 10 \text{ mA} / 5 \text{ Vdc}$ |

\*) According EN50205 only 1N/O / 1N/C (11-14 and 22-21 or 12-11 and 21-24) shall be used as forcibly guided contacts.

## Max. DC load breaking capacity



## Coil data

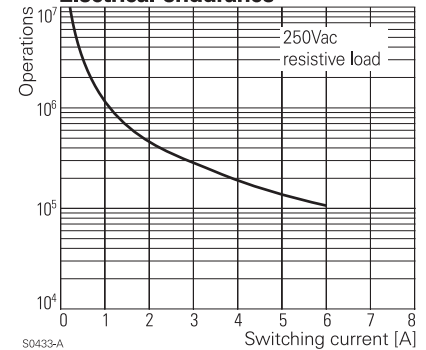
|                    |                |
|--------------------|----------------|
| Nominal voltage    | 5...110 Vdc    |
| Nominal coil power | approx. 700 mW |
| Operative range    | 2              |

## Coil versions

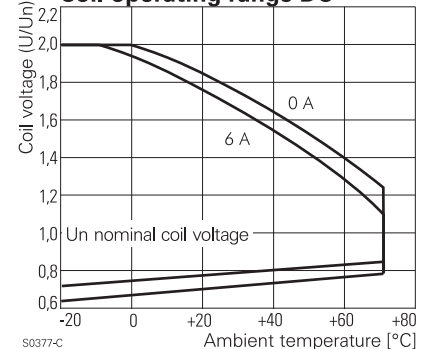
| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Coil resistance $\Omega$ | Coil current mA |
|-----------|---------------------|---------------------|---------------------|--------------------------|-----------------|
| 005       | 5                   | 3.8                 | 0.5                 | $35.7 \pm 10\%$          | 140.0           |
| 006       | 6                   | 4.5                 | 0.6                 | $51 \pm 10\%$            | 117.6           |
| 009       | 9                   | 6.75                | 0.9                 | $116 \pm 10\%$           | 77.6            |
| 012       | 12                  | 9.0                 | 1.2                 | $206 \pm 10\%$           | 58.3            |
| 018       | 18                  | 13.5                | 1.8                 | $483 \pm 10\%$           | 37.3            |
| 021       | 21                  | 15.8                | 2.1                 | $630 \pm 10\%$           | 33.3            |
| 024       | 24                  | 18.0                | 2.4                 | $823 \pm 10\%$           | 29.2            |
| 036       | 36                  | 27.0                | 3.6                 | $1851 \pm 10\%$          | 19.4            |
| 040       | 40                  | 30.0                | 4.0                 | $2286 \pm 10\%$          | 17.5            |
| 048       | 48                  | 36.0                | 4.8                 | $3291 \pm 12\%$          | 14.6            |
| 060       | 60                  | 45.0                | 6.0                 | $5142 \pm 12\%$          | 11.7            |
| 080       | 80                  | 60.0                | 8.0                 | $9143 \pm 12\%$          | 8.7             |
| 110       | 110                 | 82.5                | 11.0                | $17285 \pm 12\%$         | 6.4             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
 $U_{op \text{ max}}$ : at 70 °C after preenergization with  $1.1 \times U_{nom}$  the max. operate voltage is 85% of  $U_{nom}$ .  
 $U_{max}$ : at 70 °C the max. coil voltage is  $1.1 \times U_{nom}$   
 Other coil voltages on request

## Electrical endurance



## Coil operating range DC



# Safety Relay SR2M

2 pole 6 A

## Insulation

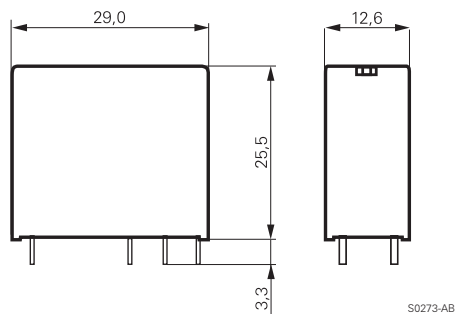
|                                   |                      |                       |
|-----------------------------------|----------------------|-----------------------|
| Dielectric strength               | coil-contacts        | 4000 V <sub>rms</sub> |
|                                   | open contact circuit | 1000 V <sub>rms</sub> |
|                                   | adjacent contacts    | 3000 V <sub>rms</sub> |
| Clearance / creepage              | coil-contacts        | 8 / 8 mm              |
|                                   | adjacent contacts    | 5.5 / 5.5 mm          |
| Insulation to IEC 60664           |                      |                       |
|                                   | Voltage rating       | 250 V                 |
|                                   | Pollution degree     | 2                     |
|                                   | Overvoltage category | III                   |
| Insulation resistance (500 Vdc)   |                      | > 1x10 <sup>6</sup> Ω |
| Tracking resistance of relay base |                      | CTI 250               |

## Other data

|                                                      |                                             |
|------------------------------------------------------|---------------------------------------------|
| Ambient temperature                                  | -25...+70 °C                                |
| Mechanical life                                      | 10x10 <sup>6</sup> operations               |
| Max. switching rate at rated- / minimum load         | 6 min <sup>-1</sup> / 300 min <sup>-1</sup> |
| Operate- / release time                              | typ. 10 / 4 ms                              |
| Vibration resistance N/O / N/C contact               | > 10 / 2.5 g, 15...200 Hz                   |
| Shock resistance (function)N/O contact / N/C contact | > 10 / 5 g, 11 ms half sine                 |
| Category of protection (IEC 61810)                   | RT III - wash tight                         |
| Relay weight                                         | 20 g                                        |
| Packaging unit                                       | 20 pcs.                                     |
| Accessories                                          | see accessories SR2M                        |

## Dimensions

Dimensions in mm

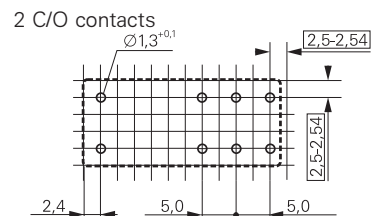


S0273-AB

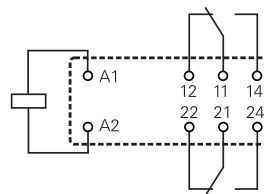
## PCB layout / terminal assignment

View on solder pins

Dimensions in mm

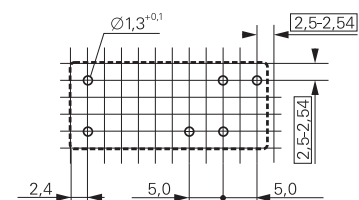


S0163-CO

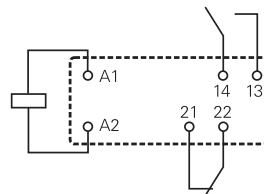


S0163-CJ

## 1 N/O and 1 N/C contacts



S0163-CU



S0163-CV

## Product key

**V 2 3 0 4 7 - A 1 - A 5**

Type

Version

**A1** standard

Coil

Coil code = nominal voltage (e.g. 024=24Vdc)

Contact type

**A** single contact

Contact material

**5** AgNi

Contact configuration

**01** 2 C/O contacts

**11** 1 N/O and 1 N/C contact

Other types on request

# Safety Relay SR2M

2 pole 6 A

| Product key       | Version    | Contact material | Configuration  | Coil   | Part number |
|-------------------|------------|------------------|----------------|--------|-------------|
| V23047-A1005-A501 | standard   | AgNi             | 2 C/O contacts | 5 Vdc  | 0-1393258-2 |
| V23047-A1005-A511 | wash tight |                  | 1 N/O + 1 N/C  | 5 Vdc  | 7-1415006-1 |
| V23047-A1006-A501 |            |                  | 2 C/O contacts | 6 Vdc  | 3-1415011-1 |
| V23047-A1006-A511 |            |                  | 1 N/O + 1 N/C  | 6 Vdc  | 6-1415011-1 |
| V23047-A1009-A501 |            |                  | 2 C/O contacts | 9 Vdc  | 0-1393258-3 |
| V23047-A1009-A511 |            |                  | 1 N/O + 1 N/C  | 9 Vdc  | 7-1415011-1 |
| V23047-A1012-A501 |            |                  | 2 C/O contacts | 12 Vdc | 0-1393258-4 |
| V23047-A1012-A511 |            |                  | 1 N/O + 1 N/C  | 12 Vdc | 0-1393258-5 |
| V23047-A1018-A501 |            |                  | 2 C/O contacts | 18 Vdc | 0-1393258-8 |
| V23047-A1018-A511 |            |                  | 1 N/O + 1 N/C  | 18 Vdc | 0-1393258-9 |
| V23047-A1021-A501 |            |                  | 2 C/O contacts | 21 Vdc | 1-1393258-1 |
| V23047-A1021-A511 |            |                  | 1 N/O + 1 N/C  | 21 Vdc | 1-1393258-2 |
| V23047-A1024-A501 |            |                  | 2 C/O contacts | 24 Vdc | 1-1393258-5 |
| V23047-A1024-A511 |            |                  | 1 N/O + 1 N/C  | 24 Vdc | 1-1393258-7 |
| V23047-A1036-A501 |            |                  | 2 C/O contacts | 36 Vdc | 2-1393258-0 |
| V23047-A1036-A511 |            |                  | 1 N/O + 1 N/C  | 36 Vdc | 8-1415011-1 |
| V23047-A1040-A501 |            |                  | 2 C/O contacts | 40 Vdc | 2-1393258-1 |
| V23047-A1040-A511 |            |                  | 1 N/O + 1 N/C  | 40 Vdc | 2-1393258-2 |
| V23047-A1048-A501 |            |                  | 2 C/O contacts | 48 Vdc | 3-1415006-1 |
| V23047-A1048-A511 |            |                  | 1 N/O + 1 N/C  | 48 Vdc | 9-1415011-1 |
| V23047-A1060-A511 |            |                  |                | 60 Vdc | 2-1393258-3 |

# Safety Relay SR4 D/M

4 pole 8 A



## Features

- Forcibly guided contacts according to EN 50205
- 4 pole safety relay with either  
2 N/O+2 N/C or 3 N/O+1 N/C contacts
- Very small outlines

Available August 2002

## Applications

Emergency shut-off, machine control, elevator and escalator control, light barrier control

F0244-A



Technical data of approved types on request

in preparation  

## Contact data

|                                          |                                                                          |
|------------------------------------------|--------------------------------------------------------------------------|
| Configuration                            | 3 N/O contact and 1 N/C contact<br>or<br>2 N/O contact and 2 N/C contact |
| Type of contact                          | single contact, forcibly guided                                          |
| Continuous thermal load                  | 8 A                                                                      |
| Rated voltage / max. breaking voltage AC | 250 Vac / 440 Vac                                                        |
| Maximum breaking capacity AC             | 2000 VA                                                                  |
| Contact material                         | AgSnO <sub>2</sub>                                                       |
| Minimum contact load                     | > 50 mW                                                                  |
| Contact resistance                       | ≤100 mΩ / 1 A / 24 Vdc<br>≤20 Ω / 10 mA / 5 Vdc                          |

## Coil data

|                    |                        |
|--------------------|------------------------|
| Nominal voltage    | 5...110 Vdc            |
| Nominal coil power | 800 mW                 |
| Operative range    | 2                      |
| Max. coil voltage  | 150 % U <sub>nom</sub> |

## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 005       | 5                   | 3.8                 | 0.5                 | 7.5                 | 31±10%            | 161.3           |
| 006       | 6                   | 4.5                 | 0.6                 | 9.0                 | 45±10%            | 133.3           |
| 009       | 9                   | 6.8                 | 0.9                 | 13.5                | 101±10%           | 89.1            |
| 012       | 12                  | 9.0                 | 1.2                 | 18.0                | 180±10%           | 66.7            |
| 015       | 15                  | 11.3                | 1.5                 | 22.5                | 281±10%           | 53.4            |
| 018       | 18                  | 13.5                | 1.8                 | 27.0                | 405±10%           | 44.4            |
| 021       | 21                  | 15.8                | 2.1                 | 31.5                | 551±10%           | 38.1            |
| 024       | 24                  | 18.0                | 2.4                 | 36.0                | 720±10%           | 33.3            |
| 036       | 36                  | 27.0                | 3.6                 | 54.0                | 1620±10%          | 22.2            |
| 040       | 40                  | 30.0                | 4.0                 | 60.0                | 2000±10%          | 20.0            |
| 048       | 48                  | 36.0                | 4.8                 | 72.0                | 2880±10%          | 16.7            |
| 060       | 60                  | 45.0                | 6.0                 | 90.0                | 4500±10%          | 13.3            |
| 085       | 85                  | 63.8                | 8.5                 | 127.5               | 9031±10%          | 9.4             |
| 110       | 110                 | 82.5                | 11.0                | 165.0               | 15125±10%         | 7.3             |

All figures are given for coil without preenergization, at ambient temperature +20°C

U<sub>op max</sub>: at 70 °C after preenergization with 1.1 x U<sub>nom</sub> the max. operate voltage is 85% of U<sub>nom</sub>. U<sub>max</sub>: at 70 °C the max. coil voltage is 1.1 x U<sub>nom</sub>

Other coil voltages on request

# Safety Relay SR4 D/M

4 pole 8 A

## Insulation

|                                   |                      |                       |
|-----------------------------------|----------------------|-----------------------|
| Dielectric strength               | coil-contacts        | 4000 V <sub>rms</sub> |
|                                   | open contact circuit | 1000 V <sub>rms</sub> |
|                                   | adjacent contacts    | 2500 V <sub>rms</sub> |
| Clearance / creepage coil-contact |                      | 10 / 10 mm            |
|                                   | adjacent contacts    | 3 / 3.5 mm            |
| Insulation to IEC 60664           |                      |                       |
|                                   | Voltage rating       | 250 V                 |
|                                   | Pollution degree     | 2                     |
|                                   | Overvoltage category | III                   |
| Insulation resistance (500 Vdc)   |                      | > 1x10 <sup>6</sup> Ω |
| Tracking resistance of relay base |                      | CTI 250               |

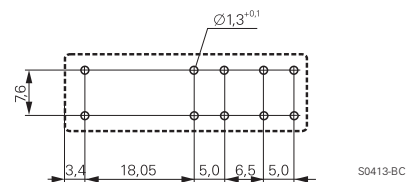
## Other data

|                                              |                                             |
|----------------------------------------------|---------------------------------------------|
| Ambient temperature                          | -25...+70 °C                                |
| Mechanical life                              | ≥ 10x10 <sup>6</sup> operations             |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 300 min <sup>-1</sup> |
| Operate- / release time                      | typ. 12 / 20 ms                             |
| Vibration resistance N/O / N/C contact       | > 8 / 2.5 g, 10...200 Hz                    |
| Category of protection (IEC 61810)           | RT III - wash tight                         |
| Relay weight                                 | 16 g                                        |
| Packaging unit                               | 10 pcs.                                     |

## PCB layout / terminal assignment

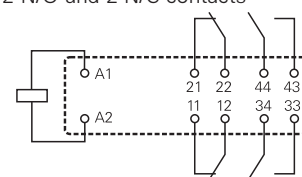
View on solder pins

Dimensions in mm



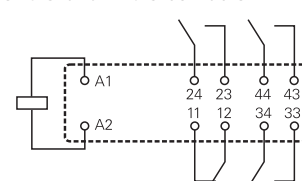
S0413-BC

2 N/O and 2 N/C contacts



S0413-BB

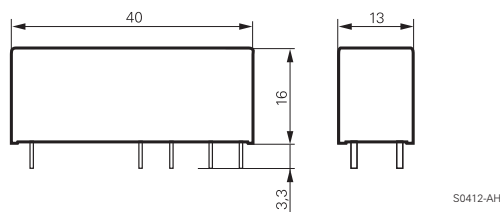
3 N/O and 1 N/C contacts



S0413-BA

## Dimensions

Dimensions in mm



S0412-AH

## Product key



Type

Contact configuration

**D** 2 N/O + 2 N/C contacts

**M** 3 N/O + 1 N/C contacts

Contact material

**4** AgSnO<sub>2</sub>

Coil

Coil code = nominal voltage (e.g. 024=24Vdc)

Other types on request

# Safety Relay SR4 D/M

4 pole 8 A

| Product key | Type                   | Contact configuration     | Contact material | Coil    | Part number |
|-------------|------------------------|---------------------------|------------------|---------|-------------|
| SR4D4005    | 4 pole<br>safety relay | 2 N/O + 2 N/C<br>contacts | AgSnO            | 5 Vdc   | 7-1415054-1 |
| SR4D4006    |                        |                           |                  | 6 Vdc   | 8-1415054-1 |
| SR4D4009    |                        |                           |                  | 9 Vdc   | 9-1415054-1 |
| SR4D4012    |                        |                           |                  | 12 Vdc  | 0-1415055-1 |
| SR4D4018    |                        |                           |                  | 18 Vdc  | 1-1415055-1 |
| SR4D4021    |                        |                           |                  | 21 Vdc  | 2-1415055-1 |
| SR4D4024    |                        |                           |                  | 24 Vdc  | 3-1415055-1 |
| SR4D4036    |                        |                           |                  | 36 Vdc  | 4-1415055-1 |
| SR4D4040    |                        |                           |                  | 40 Vdc  | 5-1415055-1 |
| SR4D4048    |                        |                           |                  | 48 Vdc  | 6-1415055-1 |
| SR4D4060    |                        |                           |                  | 60 Vdc  | 7-1415055-1 |
| SR4D4085    |                        |                           |                  | 85 Vdc  | 8-1415055-1 |
| SR4D4110    |                        |                           |                  | 110 Vdc | 9-1415055-1 |
| SR4M4005    |                        | 3 N/O + 1 N/C<br>contacts |                  | 5 Vdc   | 5-1415053-1 |
| SR4M4006    |                        |                           |                  | 6 Vdc   | 6-1415053-1 |
| SR4M4009    |                        |                           |                  | 9 Vdc   | 7-1415053-1 |
| SR4M4012    |                        |                           |                  | 12 Vdc  | 8-1415053-1 |
| SR4M4018    |                        |                           |                  | 18 Vdc  | 9-1415053-1 |
| SR4M4021    |                        |                           |                  | 21 Vdc  | 0-1415054-1 |
| SR4M4024    |                        |                           |                  | 24 Vdc  | 4-1415053-1 |
| SR4M4036    |                        |                           |                  | 36 Vdc  | 1-1415054-1 |
| SR4M4040    |                        |                           |                  | 40 Vdc  | 2-1415054-1 |
| SR4M4048    |                        |                           |                  | 48 Vdc  | 3-1415054-1 |
| SR4M4060    |                        |                           |                  | 60 Vdc  | 4-1415054-1 |
| SR4M4085    |                        |                           |                  | 85 Vdc  | 5-1415054-1 |
| SR4M4110    |                        |                           |                  | 110 Vdc | 6-1415054-1 |

# Safety Relay SR6 D/M

4 pole 8 A



## Features

- Forcibly guided contacts according to EN 50205
- 4 pole safety relay with either  
2 N/O+2 N/C or 3 N/O+1 N/C
- High insulation distances for safe separation of electrical circuits

## Applications

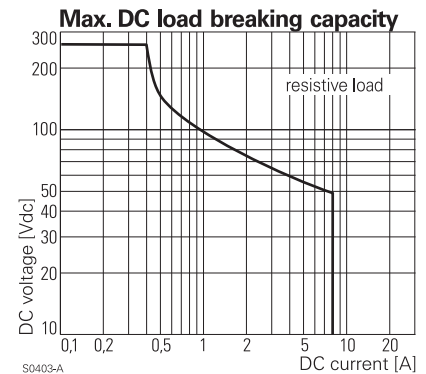
Emergency shut-off, press control, machine control, elevator and escalator control, safety modules



Technical data of approved types on request

## Contact data

|                                          |                                                                          |
|------------------------------------------|--------------------------------------------------------------------------|
| Configuration                            | 3 N/O contact and 1 N/C contact<br>or<br>2 N/O contact and 2 N/C contact |
| Type of contact                          | single contact, forcibly guided                                          |
| Continuous thermal load                  | 8 A                                                                      |
| Rated voltage / max. breaking voltage AC | 250 Vac / 440 Vac                                                        |
| Maximum breaking capacity AC             | 2000 VA                                                                  |
| Contact material                         | AgSnO <sub>2</sub>                                                       |
| Minimum contact load                     | > 50 mW                                                                  |
| Contact resistance                       | ≤100 mΩ / 1 A / 24 Vdc<br>≤20 Ω / 10 mA / 5 Vdc                          |



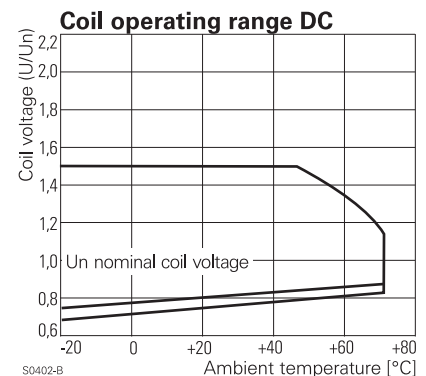
## Coil data

|                    |                        |
|--------------------|------------------------|
| Nominal voltage    | 5...110 Vdc            |
| Nominal coil power | 1200 mW                |
| Operative range    | 2                      |
| Max. coil voltage  | 150 % U <sub>nom</sub> |

## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 005       | 5                   | 3.8                 | 0.5                 | 7.5                 | 21±10%            | 238.1           |
| 006       | 6                   | 4.5                 | 0.6                 | 9.0                 | 30±10%            | 200.0           |
| 009       | 9                   | 6.8                 | 0.9                 | 13.5                | 68±10%            | 132.4           |
| 012       | 12                  | 9.0                 | 1.2                 | 18.0                | 120±10%           | 100.0           |
| 018       | 18                  | 13.5                | 1.8                 | 22.5                | 270±10%           | 66.7            |
| 021       | 21                  | 15.8                | 2.1                 | 27.0                | 368±10%           | 57.1            |
| 024       | 24                  | 18.0                | 2.4                 | 36.0                | 480±10%           | 50.0            |
| 036       | 36                  | 27.0                | 3.6                 | 54.0                | 1080±10%          | 33.3            |
| 040       | 40                  | 30.0                | 4.0                 | 60.0                | 1333±10%          | 30.0            |
| 048       | 48                  | 36.0                | 4.8                 | 72.0                | 1920±10%          | 25.0            |
| 060       | 60                  | 45.0                | 6.0                 | 90.0                | 3000±12%          | 20.0            |
| 085       | 85                  | 64.0                | 8.5                 | 127.5               | 6021±12%          | 14.1            |
| 110       | 110                 | 82.5                | 11.0                | 165.0               | 10080±12%         | 10.9            |

All figures are given for coil without preenergization, at ambient temperature +20°C  
 U<sub>op max</sub>: at 70 °C after preenergization with 1.1 x U<sub>nom</sub> the max. operate voltage is 85% of U<sub>nom</sub>. U<sub>max</sub>: at 70 °C the max. coil voltage is 1.1 x U<sub>nom</sub>  
 Other coil voltages on request



# Safety Relay SR6 D/M

4 pole 8 A

## Insulation

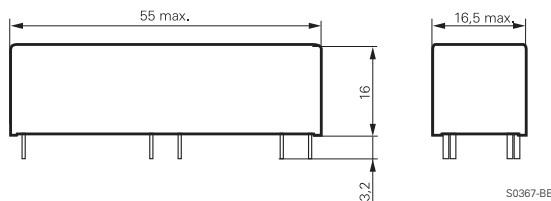
|                                   |                      |                                                  |
|-----------------------------------|----------------------|--------------------------------------------------|
| Dielectric strength               | coil-contacts        | 3000 V <sub>rms</sub>                            |
|                                   | open contact circuit | 1000 V <sub>rms</sub>                            |
|                                   | adjacent contacts    | 3000 V <sub>rms</sub> / 4000 V <sub>rms</sub> *) |
| Clearance / creepage coil-contact |                      | 5.5 / 5.5 mm                                     |
|                                   | adjacent contacts    | 5.5 / 5.5 mm or 12 / 12 mm *)                    |
| Insulation to IEC 60664           |                      |                                                  |
|                                   | Voltage rating       | 250 V                                            |
|                                   | Pollution degree     | 2                                                |
|                                   | Overvoltage category | III                                              |
| Insulation resistance (500 Vdc)   |                      | > 1x10 <sup>6</sup> Ω                            |
| Tracking resistance of relay base |                      | CTI 250                                          |
| *) in longitudinal direction      |                      |                                                  |

## Other data

|                                                       |                                             |
|-------------------------------------------------------|---------------------------------------------|
| Ambient temperature                                   | -25...+70 °C                                |
| Mechanical life                                       | ≥ 10x10 <sup>6</sup> operations             |
| Max. switching rate at rated- / minimum load          | 6 min <sup>-1</sup> / 300 min <sup>-1</sup> |
| Operate- / release time                               | typ. 11 / 3 ms                              |
| Vibration resistance N/O / N/C contact                | > 8 / 5 g, 10...200 Hz                      |
| Shock resistance (function) N/O contact / N/C contact | > 8 / 6 g, 16ms half sine                   |
| Category of protection (IEC 61810)                    | RT III - wash tight                         |
| Relay weight                                          | 30 g                                        |
| Packaging unit                                        | 10 pcs.                                     |

## Dimensions

Dimensions in mm



## Product key

Type

Contact configuration

**D** 2 N/O + 2 N/C contacts

**M** 3 N/O + 1 N/C contacts

Contact material

**4** AgSnO<sub>2</sub>

Coil

Coil code = nominal voltage (e.g. 024=24Vdc)

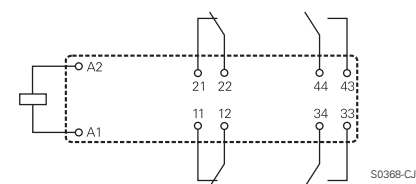
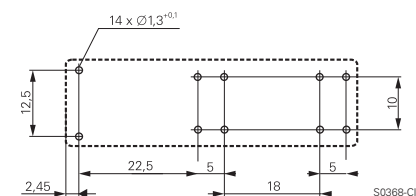
Other types on request

## PCB layout / terminal assignment

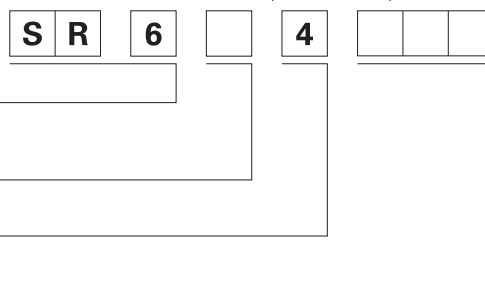
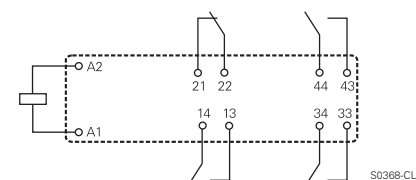
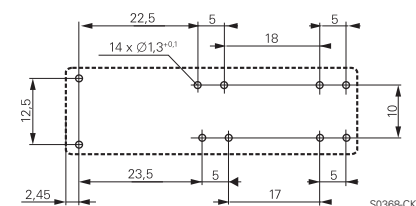
View on solder pins

Dimensions in mm

2 N/O+2 N/C versions



3 N/O + 1 N/C version



| Product key | Type         | Contact configuration | Contact material | Coil    | Part number |
|-------------|--------------|-----------------------|------------------|---------|-------------|
| SR6D4024    | 4-pole       | 2 N/O + 2 N/C         | AgSnO            | 24 Vdc  | 6-1415027-1 |
| SR6D4110    | safety relay | contacts              |                  | 110 Vdc | 0-1415062-1 |

# Safety Relay SR6

6 pole 8 A



F0206-B

## Features

- Forcibly guided contacts according to EN50205
- Small 6 pole safety relay with either  
4 N/O+2 N/C or 3 N/O+3 N/C or 5 N/O+1 N/C contacts
- 6 kV surge resistance between poles

## Applications

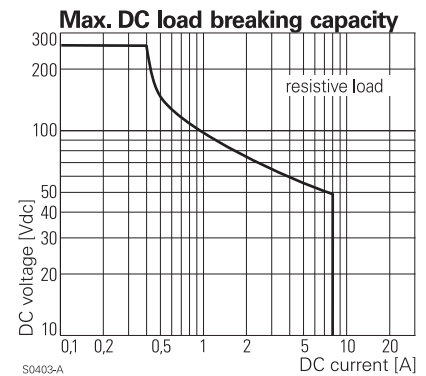
Emergency shut-off, press control, machine control, elevator and escalator control, safety modules



Technical data of approved types on request

## Contact data

|                                         |                                                                                                                   |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Configuration                           | 3 N/O contact and 3 N/C contact<br>or<br>4 N/O contact and 2 N/C contact<br>or<br>5 N/O contact and 1 N/C contact |
| Type of contact                         | single contact, forcibly guided                                                                                   |
| Continuous thermal load                 | 8 A                                                                                                               |
| Rated voltage / max.breaking voltage AC | 250 Vac / 440 Vac                                                                                                 |
| Maximum breaking capacity AC            | 2000 VA                                                                                                           |
| Minimum contact load                    | > 50 mW                                                                                                           |
| Contact resistance                      | ≤100 mΩ / 1 A / 24 Vdc<br>≤20 Ω / 10 mA / 5 Vdc                                                                   |



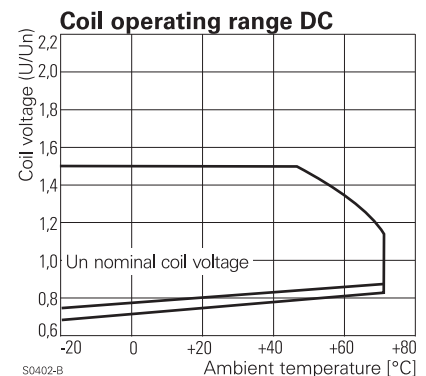
## Coil data

|                    |                 |
|--------------------|-----------------|
| Nominal voltage    | 5...110 Vdc     |
| Nominal coil power | 1200 mW         |
| Operative range    | 2               |
| Max. coil voltage  | 150 % $U_{nom}$ |

## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 005       | 5                   | 3.8                 | 0.5                 | 7.5                 | 21±10%            | 238.1           |
| 006       | 6                   | 4.5                 | 0.6                 | 9.0                 | 30±10%            | 200.0           |
| 009       | 9                   | 6.8                 | 0.9                 | 13.5                | 68±10%            | 132.4           |
| 012       | 12                  | 9.0                 | 1.2                 | 18.0                | 120±10%           | 100.0           |
| 018       | 18                  | 13.5                | 1.8                 | 22.5                | 270±10%           | 66.7            |
| 021       | 21                  | 15.8                | 2.1                 | 27.0                | 368±10%           | 57.1            |
| 024       | 24                  | 18.0                | 2.4                 | 36.0                | 480±10%           | 50.0            |
| 036       | 36                  | 27.0                | 3.6                 | 54.0                | 1080±10%          | 33.3            |
| 040       | 40                  | 30.0                | 4.0                 | 60.0                | 1333±10%          | 30.0            |
| 048       | 48                  | 36.0                | 4.8                 | 72.0                | 1920±10%          | 25.0            |
| 060       | 60                  | 45.0                | 6.0                 | 90.0                | 3000±12%          | 20.0            |
| 085       | 85                  | 64.0                | 8.5                 | 127.5               | 6021±12%          | 14.1            |
| 110       | 110                 | 82.5                | 11.0                | 165.0               | 10080±12%         | 10.9            |

All figures are given for coil without preenergization, at ambient temperature +20°C  
 $U_{op max}$ : at 70 °C after preenergization with  $1.1 \times U_{nom}$  the max. operate voltage is 85% of  $U_{nom}$ .  $U_{max}$ : at 70 °C the max. coil voltage is  $1.1 \times U_{nom}$   
 Other coil voltages on request



# Safety Relay SR6

6 pole 8 A

## Insulation

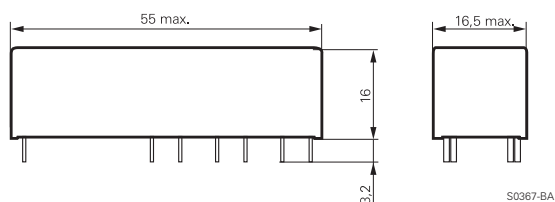
|                                   |                      |                       |
|-----------------------------------|----------------------|-----------------------|
| Dielectric strength               | coil-contacts        | 3000 V <sub>rms</sub> |
|                                   | open contact circuit | 1000 V <sub>rms</sub> |
|                                   | adjacent contacts    | 3000 V <sub>rms</sub> |
| Clearance / creepage coil-contact |                      | 5.5 / 5.5 mm          |
|                                   | adjacent contacts    | 5.5 / 5.5 mm          |
| Insulation to IEC 60664           |                      |                       |
|                                   | Voltage rating       | 250 V                 |
|                                   | Pollution degree     | 2                     |
|                                   | Overvoltage category | III                   |
| Insulation resistance (500 Vdc)   |                      | > 1x10 <sup>6</sup> Ω |
| Tracking resistance of relay base |                      | CTI 250               |

## Other data

|                                                       |                                             |
|-------------------------------------------------------|---------------------------------------------|
| Ambient temperature                                   | -25...+70 °C                                |
| Mechanical life                                       | ≥ 10x10 <sup>6</sup> operations             |
| Max. switching rate at rated- / minimum load          | 6 min <sup>-1</sup> / 300 min <sup>-1</sup> |
| Operate- / release time                               | typ. 11 / 3 ms                              |
| Vibration resistance N/O / N/C contact                | > 8 / 5 g, 10...200 Hz                      |
| Shock resistance (function) N/O contact / N/C contact | > 8 / 6 g, 16ms half sine                   |
| Category of protection (IEC 61810)                    | RT III - wash tight                         |
| Relay weight                                          | 30 g                                        |
| Packaging unit                                        | 10 pcs.                                     |

## Dimensions

Dimensions in mm

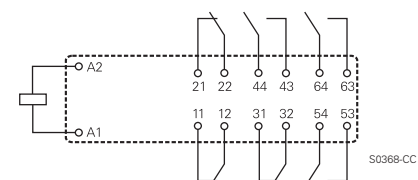
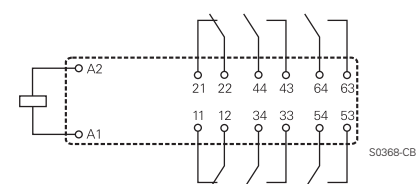
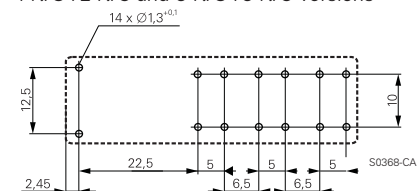


## PCB layout / terminal assignment

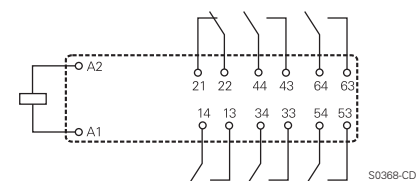
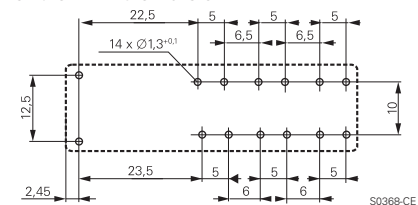
View on solder pins

Dimensions in mm

4 N/O+2 N/C and 3 N/O+3 N/C versions



5 N/O + 1 N/C version



## Product key

V 2 3 0 5 0 - A 1 - A 5

Type

Version

A1 standard

Coil

Coil code = nominal voltage (e.g. 024=24Vdc)

Contact type

A single contact

Contact material

5 AgSnO<sub>2</sub>

Contact configuration

33 3 N/O and 3 N/C contacts

42 4 N/O and 2 N/C contacts

51 5 N/O and 1 N/C contacts

Other types on request

# Safety Relay SR6

6 pole 8 A

| Product key       | Version  | Contact material | Configuration | Coil    | Part number |
|-------------------|----------|------------------|---------------|---------|-------------|
| V23050-A1005-A533 | standard | AgSnO            | 3 N/O + 3 N/C | 5 Vdc   | 8-1415017-1 |
| V23050-A1005-A542 |          |                  | 4 N/O + 2 N/C | 5 Vdc   | 0-1393260-1 |
| V23050-A1005-A551 |          |                  | 5 N/O + 1 N/C | 5 Vdc   | 2-1415017-1 |
| V23050-A1006-A533 |          |                  | 3 N/O + 3 N/C | 6 Vdc   | 9-1415017-1 |
| V23050-A1006-A542 |          |                  | 4 N/O + 2 N/C | 6 Vdc   | 0-1393260-2 |
| V23050-A1006-A551 |          |                  | 5 N/O + 1 N/C | 6 Vdc   | 3-1415017-1 |
| V23050-A1009-A533 |          |                  | 3 N/O + 3 N/C | 9 Vdc   | 0-1415018-1 |
| V23050-A1009-A542 |          |                  | 4 N/O + 2 N/C | 9 Vdc   | 0-1393260-3 |
| V23050-A1009-A551 |          |                  | 5 N/O + 1 N/C | 9 Vdc   | 4-1415017-1 |
| V23050-A1012-A533 |          |                  | 3 N/O + 3 N/C | 12 Vdc  | 1-1415015-1 |
| V23050-A1012-A542 |          |                  | 4 N/O + 2 N/C | 12 Vdc  | 0-1393260-4 |
| V23050-A1012-A551 |          |                  | 5 N/O + 1 N/C | 12 Vdc  | 1-1415017-1 |
| V23050-A1015-A533 |          |                  | 3 N/O + 3 N/C | 15 Vdc  | 1-1415018-1 |
| V23050-A1015-A542 |          |                  | 4 N/O + 2 N/C | 15 Vdc  | 6-1415014-1 |
| V23050-A1015-A551 |          |                  | 5 N/O + 1 N/C | 15 Vdc  | 5-1415017-1 |
| V23050-A1018-A533 |          |                  | 3 N/O + 3 N/C | 18 Vdc  | 2-1415018-1 |
| V23050-A1018-A542 |          |                  | 4 N/O + 2 N/C | 18 Vdc  | 0-1393260-5 |
| V23050-A1018-A551 |          |                  | 5 N/O + 1 N/C | 18 Vdc  | 6-1415017-1 |
| V23050-A1021-A533 |          |                  | 3 N/O + 3 N/C | 21 Vdc  | 3-1415018-1 |
| V23050-A1021-A542 |          |                  | 4 N/O + 2 N/C | 21 Vdc  | 0-1393260-6 |
| V23050-A1021-A551 |          |                  | 5 N/O + 1 N/C | 21 Vdc  | 7-1415017-1 |
| V23050-A1024-A533 |          |                  | 3 N/O + 3 N/C | 24 Vdc  | 0-1415015-1 |
| V23050-A1024-A542 |          |                  | 4 N/O + 2 N/C | 24 Vdc  | 0-1393260-7 |
| V23050-A1024-A551 |          |                  | 5 N/O + 1 N/C | 24 Vdc  | 0-1415017-1 |
| V23050-A1036-A533 |          |                  | 3 N/O + 3 N/C | 36 Vdc  | 4-1415018-1 |
| V23050-A1036-A542 |          |                  | 4 N/O + 2 N/C | 36 Vdc  | 0-1393260-8 |
| V23050-A1036-A551 |          |                  | 5 N/O + 1 N/C | 36 Vdc  | 0-1415019-1 |
| V23050-A1040-A533 |          |                  | 3 N/O + 3 N/C | 40 Vdc  | 5-1415018-1 |
| V23050-A1040-A542 |          |                  | 4 N/O + 2 N/C | 40 Vdc  | 0-1393260-9 |
| V23050-A1040-A551 |          |                  | 5 N/O + 1 N/C | 40 Vdc  | 1-1415019-1 |
| V23050-A1048-A533 |          |                  | 3 N/O + 3 N/C | 48 Vdc  | 6-1415018-1 |
| V23050-A1048-A542 |          |                  | 4 N/O + 2 N/C | 48 Vdc  | 1-1393260-0 |
| V23050-A1048-A551 |          |                  | 5 N/O + 1 N/C | 48 Vdc  | 2-1415019-1 |
| V23050-A1060-A533 |          |                  | 3 N/O + 3 N/C | 60 Vdc  | 7-1415018-1 |
| V23050-A1060-A542 |          |                  | 4 N/O + 2 N/C | 60 Vdc  | 1-1393260-1 |
| V23050-A1060-A551 |          |                  | 5 N/O + 1 N/C | 60 Vdc  | 3-1415019-1 |
| V23050-A1085-A533 |          |                  | 3 N/O + 3 N/C | 85 Vdc  | 8-1415018-1 |
| V23050-A1085-A542 |          |                  | 4 N/O + 2 N/C | 85 Vdc  | 1-1393260-2 |
| V23050-A1085-A551 |          |                  | 5 N/O + 1 N/C | 85 Vdc  | 4-1415019-1 |
| V23050-A1110-A533 |          |                  | 3 N/O + 3 N/C | 110 Vdc | 9-1415018-1 |
| V23050-A1110-A542 |          |                  | 4 N/O + 2 N/C | 110 Vdc | 1-1393260-3 |
| V23050-A1110-A551 |          |                  | 5 N/O + 1 N/C | 110 Vdc | 5-1415019-1 |

# Safety Relay SR6 sensitive

6 pole 8 A



F0206-B

## Features

- Forcibly guided contacts according to EN50205
- polarized, monostable with 800 mW coil power consumption
- Smallest 6 pole safety relay with either 4 N/O+2 N/C or 3 N/O+3 N/C or 5 N/O+1 N/C contacts
- 6 kV surge resistance between poles

## Applications

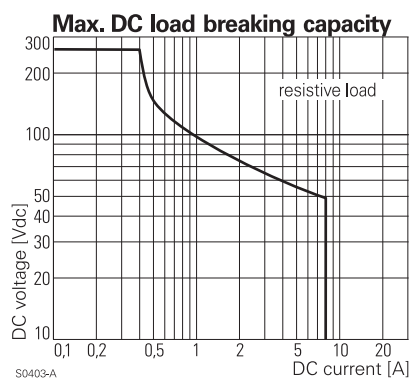
Emergency shut-off, press control, machine control, elevator and escalator control, safety modules

planned    

Technical data of approved types on request

## Contact data

|                                         |                                                                                                                   |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Configuration                           | 3 N/O contact and 3 N/C contact<br>or<br>4 N/O contact and 2 N/C contact<br>or<br>5 N/O contact and 1 N/C contact |
| Type of contact                         | single contact, forcibly guided                                                                                   |
| Continuous thermal load                 | 8 A                                                                                                               |
| Rated voltage / max.breaking voltage AC | 250 Vac / 440 Vac                                                                                                 |
| Maximum breaking capacity AC            | 2000 VA                                                                                                           |
| Minimum contact load                    | > 50 mW                                                                                                           |
| Contact resistance                      | ≤100 mΩ / 1 A / 24 Vdc<br>≤20 Ω / 10 mA / 5 Vdc                                                                   |



## Coil data

|                    |                 |
|--------------------|-----------------|
| Nominal voltage    | 5...48 Vdc      |
| Nominal coil power | 800 mW          |
| Operative range    | 2               |
| Max. coil voltage  | 150 % $U_{nom}$ |

## Coil versions

| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 05        | 5                   | 3.8                 | 0.5                 | 7.5                 | 31 ± 10%          | 161.3           |
| 06        | 6                   | 4.5                 | 0.6                 | 9.0                 | 45 ± 10%          | 133.3           |
| 09        | 9                   | 6.8                 | 0.9                 | 13.5                | 101 ± 10%         | 89.1            |
| 12        | 12                  | 9.0                 | 1.2                 | 18.0                | 180 ± 10%         | 66.7            |
| 15        | 15                  | 11.3                | 1.5                 | 22.5                | 281 ± 10%         | 53.4            |
| 18        | 18                  | 13.5                | 1.8                 | 27.0                | 405 ± 10%         | 44.4            |
| 21        | 21                  | 15.8                | 2.1                 | 31.5                | 551 ± 10%         | 38.1            |
| 24        | 24                  | 18.0                | 2.4                 | 36.0                | 720 ± 10%         | 33.3            |
| 36        | 36                  | 27.0                | 3.6                 | 54.0                | 1620 ± 10%        | 22.2            |
| 40        | 40                  | 30.0                | 4.0                 | 60.0                | 2000 ± 10%        | 20.0            |
| 48        | 48                  | 36.0                | 4.8                 | 72.0                | 2880 ± 10%        | 16.7            |

All figures are given for coil without preenergization, at ambient temperature +20°C

$U_{op max}$ : at 70 °C after preenergization with  $1.1 \times U_{nom}$  the max. operate voltage is 85% of  $U_{nom}$ .  $U_{max}$ : at 70 °C the max. coil voltage is  $1.1 \times U_{nom}$

Other coil voltages on request

# Safety Relay SR6 sensitive

6 pole 8 A

## Insulation

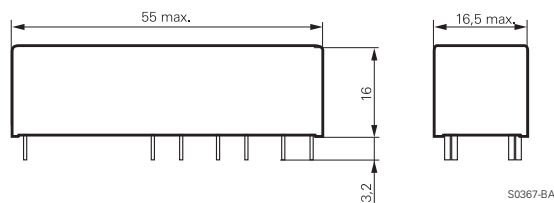
|                                   |                      |                       |
|-----------------------------------|----------------------|-----------------------|
| Dielectric strength               | coil-contacts        | 3000 V <sub>rms</sub> |
|                                   | open contact circuit | 1000 V <sub>rms</sub> |
|                                   | adjacent contacts    | 3000 V <sub>rms</sub> |
| Clearance / creepage              | coil-contact         | 5.5 / 5.5 mm          |
|                                   | adjacent contacts    | 5.5 / 5.5 mm          |
| Insulation to IEC 60664           |                      |                       |
|                                   | Voltage rating       | 250 V                 |
|                                   | Pollution degree     | 2                     |
|                                   | Overvoltage category | III                   |
| Insulation resistance (500 Vdc)   |                      | > 1x10 <sup>6</sup> Ω |
| Tracking resistance of relay base |                      | CTI 250               |

## Other data

|                                                       |                                             |
|-------------------------------------------------------|---------------------------------------------|
| Ambient temperature                                   | -25...+70 °C                                |
| Mechanical life                                       | ≥ 10x10 <sup>6</sup> operations             |
| Max. switching rate at rated- / minimum load          | 6 min <sup>-1</sup> / 300 min <sup>-1</sup> |
| Operate- / release time                               | typ. 11 / 3 ms                              |
| Vibration resistance N/O / N/C contact                | > 8 / 5 g, 10...200 Hz                      |
| Shock resistance (function) N/O contact / N/C contact | > 8 / 6 g, 16ms half sine                   |
| Category of protection (IEC 61810)                    | RT III - wash tight                         |
| Relay weight                                          | 30 g                                        |
| Packaging unit                                        | 10 pcs.                                     |

## Dimensions

Dimensions in mm



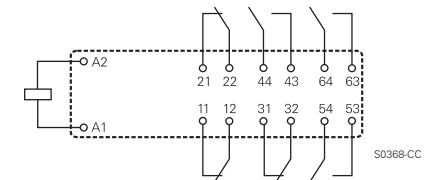
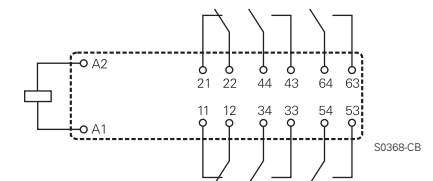
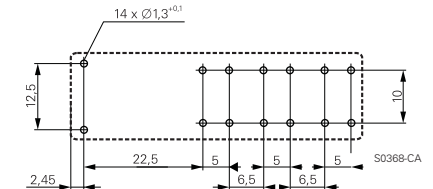
Release condition corresponds to the position shown. With positive potential on terminal **A1** the relay changes to its operate position

## PCB layout / terminal assignment

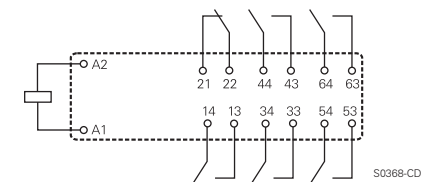
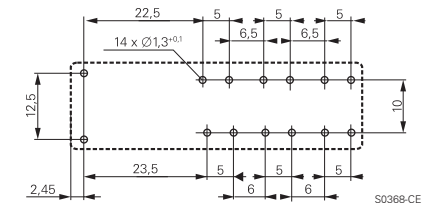
View on solder pins

Dimensions in mm

4 N/O+2 N/C and 3 N/O+3 N/C versions



5 N/O + 1 N/C version



## Product key

Type

Contact configuration

**A** 3 N/O + 3 N/C contacts

**B** 4 N/O + 2 N/C contacts

**C** 5 N/O + 1 N/C contacts

Contact material

**4** AgSnO<sub>2</sub>

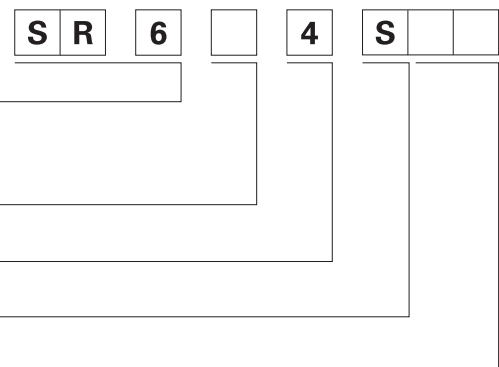
Coil

**S** sensitive coil

Coil

DC coil code = nominal voltage (e.g. 24=24Vdc)

Other types on request



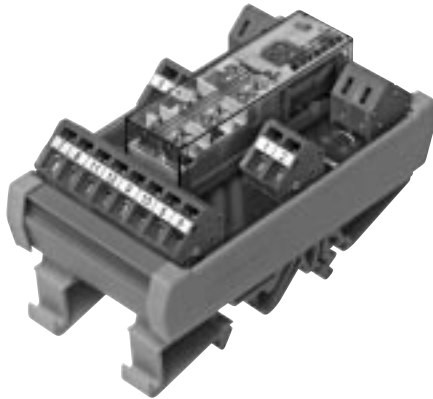
## Safety Relay SR6 sensitive

6 pole 8 A

| Product key | Type                                | Contact configuration     | Contact material | Coil   | Part number |
|-------------|-------------------------------------|---------------------------|------------------|--------|-------------|
| SR6A4S05    | sensitive<br>6 pole<br>safety relay | 3 N/O + 3 N/C<br>contacts | AgSnO            | 5 Vdc  | 0-1415057-1 |
| SR6A4S06    |                                     |                           |                  | 6 Vdc  | 1-1415057-1 |
| SR6A4S09    |                                     |                           |                  | 9 Vdc  | 2-1415057-1 |
| SR6A4S12    |                                     |                           |                  | 12 Vdc | 3-1415057-1 |
| SR6A4S18    |                                     |                           |                  | 18 Vdc | 4-1415057-1 |
| SR6A4S21    |                                     |                           |                  | 21 Vdc | 5-1415057-1 |
| SR6A4S24    |                                     |                           |                  | 24 Vdc | 6-1415057-1 |
| SR6A4S36    |                                     |                           |                  | 36 Vdc | 7-1415057-1 |
| SR6A4S40    |                                     |                           |                  | 40 Vdc | 8-1415057-1 |
| SR6A4S48    |                                     |                           |                  | 48 Vdc | 9-1415057-1 |
| SR6B4S05    |                                     | 4 N/O + 2 N/C<br>contacts |                  | 5 Vdc  | 0-1415056-1 |
| SR6B4S06    |                                     |                           |                  | 6 Vdc  | 1-1415056-1 |
| SR6B4S09    |                                     |                           |                  | 9 Vdc  | 2-1415056-1 |
| SR6B4S12    |                                     |                           |                  | 12 Vdc | 3-1415056-1 |
| SR6B4S18    |                                     |                           |                  | 18 Vdc | 4-1415056-1 |
| SR6B4S21    |                                     |                           |                  | 21 Vdc | 5-1415056-1 |
| SR6B4S24    |                                     |                           |                  | 24 Vdc | 6-1415056-1 |
| SR6B4S36    |                                     |                           |                  | 36 Vdc | 7-1415056-1 |
| SR6B4S40    |                                     |                           |                  | 40 Vdc | 8-1415056-1 |
| SR6B4S48    |                                     |                           |                  | 48 Vdc | 9-1415056-1 |
| SR6C4S05    |                                     | 5 N/O + 1 N/C<br>contacts |                  | 5 Vdc  | 0-1415058-1 |
| SR6C4S06    |                                     |                           |                  | 6 Vdc  | 1-1415058-1 |
| SR6C4S09    |                                     |                           |                  | 9 Vdc  | 2-1415058-1 |
| SR6C4S12    |                                     |                           |                  | 12 Vdc | 3-1415058-1 |
| SR6C4S18    |                                     |                           |                  | 18 Vdc | 4-1415058-1 |
| SR6C4S21    |                                     |                           |                  | 21 Vdc | 5-1415058-1 |
| SR6C4S24    |                                     |                           |                  | 24 Vdc | 6-1415058-1 |
| SR6C4S36    |                                     |                           |                  | 36 Vdc | 7-1415058-1 |
| SR6C4S40    |                                     |                           |                  | 40 Vdc | 8-1415058-1 |
| SR6C4S48    |                                     |                           |                  | 48 Vdc | 9-1415058-1 |

# Safety Relay on DIN-rail SR6 Z

6 pole 8 A



F0238-A

## Features

- SR6 on printed circuit board
- AC/DC input
- Spring connectors
- Module width 46 mm

## Applications

Elevator control, machine control



Technical data of approved types on request

## Contact data

|                                                     |                                                 |
|-----------------------------------------------------|-------------------------------------------------|
| Type of contact                                     | single contact, forcibly guided                 |
| Maximum switching current / continuous thermal load | 8 A                                             |
| Maximum switching voltage                           | 250 Vac / Vdc                                   |
| Maximum breaking capacity AC                        | 2000 VA                                         |
| Contact material                                    | AgSnO <sub>2</sub>                              |
| Minimum contact load                                | > 50 mW                                         |
| Contact resistance                                  | ≤100 mΩ / 1 A / 24 Vdc<br>≤20 Ω / 10 mA / 5 Vdc |

## Coil data

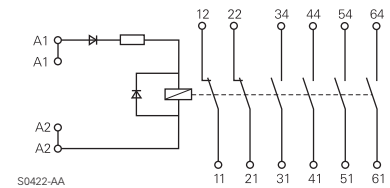
|                                       |                                            |
|---------------------------------------|--------------------------------------------|
| DC energizing voltage Unom            | 6, 12, 18, 21, 24, 36, 40, 48, 60, 115 Vdc |
| AC/DC energizing voltage Unom         | 12, 21, 24, 40, 48, 60, 115 Vac/Vdc        |
| AC energizing voltage Unom            | 230 Vac                                    |
| Input circuit                         | bridge rectifier, series resistor          |
| Minimum operate voltage               | 90% of Unom                                |
| Minimum release voltage (+23°C)       | ≤10% of Unom                               |
| Maximum permissible operating voltage | 110% of Unom                               |

## Insulation

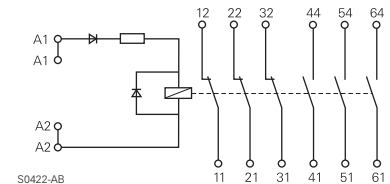
|                                        |                       |
|----------------------------------------|-----------------------|
| Surge voltage resistance coil-contacts | 3000 V <sub>rms</sub> |
| open contact circuit                   | 1000 V <sub>rms</sub> |
| adjacent contacts                      | 2000 V <sub>rms</sub> |
| Clearance / creepage coil-contact      | 5.5 / 5.5 mm          |
| adjacent contacts                      | 3 / 3 mm              |
| Insulation to IEC 60664                |                       |
| Voltage rating                         | 250 V                 |
| Pollution degree                       | 2                     |
| Overvoltage category                   | III                   |

## Terminal assignment

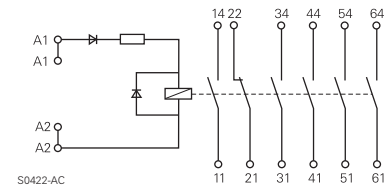
DC module, 4 N/O+2 N/C version



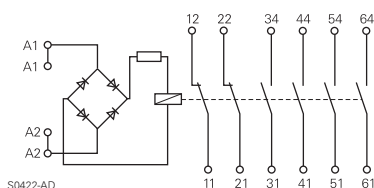
DC module, 3 N/O+3 N/C version



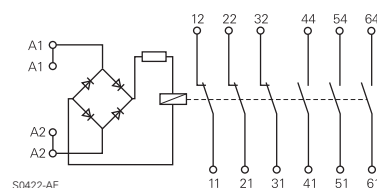
DC module, 5 N/O+1 N/C version



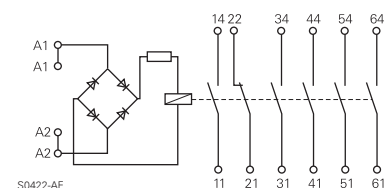
AC/DC module, 4 N/O+2 N/C version



AC/DC module, 3 N/O+3 N/C version



AC/DC module, 5 N/O+1 N/C version



# Safety Relay on DIN-rail SR6 Z

6 pole 8 A

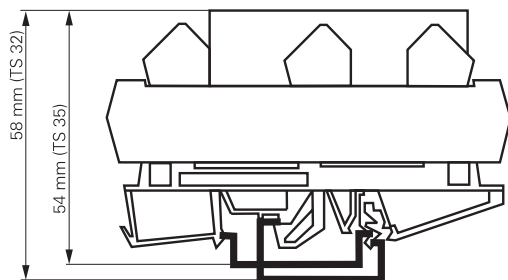
## Other data

|                                              |                                             |
|----------------------------------------------|---------------------------------------------|
| Flammability class according to UL 94        |                                             |
| housing                                      | V2                                          |
| housing cage clamp terminals                 | V0                                          |
| PCB                                          | V0                                          |
| relay base                                   | V0                                          |
| relay cover                                  | V2                                          |
| Ambient temperature                          | -25...+50 °C                                |
| Mechanical life                              | ≥ 10x10 <sup>6</sup> operations             |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 300 min <sup>-1</sup> |
| Connections (according IEC)                  |                                             |
| solid wire                                   | 0.2...2.5 mm <sup>2</sup>                   |
| stranded wire                                | 0.2...2.5 mm <sup>2</sup>                   |
| AWG                                          | 28...14                                     |
| Installation position                        | any                                         |
| Mounting                                     | in rows with zero spacing                   |
| Type of connection                           | spring clamp connection                     |
| Relay weight                                 | 90 g                                        |
| Packaging unit                               | 2 pcs.                                      |

## Dimensions

Dimensions in mm

Module width 46 mm  
Module length 87 mm



Fit onto mounting rails according to  
DIN EN 50022 or DIN EN 50035

S0423-AA

## Product key

|          |          |          |          |  |  |  |
|----------|----------|----------|----------|--|--|--|
| <b>S</b> | <b>R</b> | <b>6</b> | <b>Z</b> |  |  |  |
|----------|----------|----------|----------|--|--|--|

Type

Contact configuration

- A** 3 N/O + 3 N/C contacts
- B** 4 N/O + 2 N/C contacts
- C** 5 N/O + 1 N/C contacts

Coil

DC coil code = nominal voltage (e.g. 024=24Vdc)  
AC/DC coil code: 524=24Vac/dc, 615=115Vac/dc  
AC coil code: 730=230Vac

Other types on request

| Product key | Type                             | Contact configuration     | Contact material | Coil       | Part number |
|-------------|----------------------------------|---------------------------|------------------|------------|-------------|
| SR6ZA024    | 6-pole<br>safety<br>relay module | 3 N/O + 3 N/C<br>contacts | AgSnO            | 24 Vdc     | 7-1415033-1 |
| SR6ZA524    |                                  |                           |                  | 24 Vac/dc  | 9-1415059-1 |
| SR6ZA615    |                                  |                           |                  | 115 Vac/dc | 0-1415060-1 |
| SR6ZA730    |                                  |                           |                  | 230 Vac    | 1-1415060-1 |
| SR6ZB024    |                                  | 4 N/O + 2 N/C<br>contacts |                  | 24 Vdc     | 5-1415033-1 |
| SR6ZB524    |                                  |                           |                  | 24 Vac/dc  | 2-1415060-1 |
| SR6ZB615    |                                  |                           |                  | 115 Vac/dc | 6-1415046-1 |
| SR6ZB730    |                                  |                           |                  | 230 Vac    | 3-1415060-1 |
| SR6ZC024    |                                  | 5 N/O + 1 N/C<br>contacts |                  | 24 Vdc     | 3-1415042-1 |
| SR6ZC524    |                                  |                           |                  | 24 Vac/dc  | 4-1415060-1 |
| SR6ZC615    |                                  |                           |                  | 115 Vac/dc | 5-1415060-1 |
| SR6ZC730    |                                  |                           |                  | 230 Vac    | 6-1415060-1 |

# Slim Interface Relay SNR

1pole 6 A



F0222-B

## Features

- Module width 5.08 mm
- Cadmium-free contacts
- Sensitive coil 170 mW
- 4 kV coil-contact, 6 / 8 mm clearance/creepage
- Protection class II (VDE 0601)
- Reduced system width for increased packing density on the DIN rail
- Jumper bar

## Applications

Interface technology, panel boards, mechanical engineering, process control



Technical data of approved types on request

## Contact data

|                                         |                                                   |
|-----------------------------------------|---------------------------------------------------|
| Configuration                           | 1 C/O contact                                     |
| Type of contact                         | single contact                                    |
| Rated current                           | 6 A                                               |
| Rated voltage / max.breaking voltage AC | 250 Vac / 440 Vac                                 |
| Maximum breaking capacity AC            | 1500 VA                                           |
| Contact material                        | AgSnO <sub>2</sub> AgSnO <sub>2</sub> gold plated |
| Minimum contact load                    | ≥100 mA, 12V ≥10 mA, 5 V                          |

## Coil data

|                    |            |
|--------------------|------------|
| Nominal voltage    | 5...48 Vdc |
| Nominal coil power | 170 mW     |
| Operate power      | 75 mW      |
| Operate category   | 2 / b      |

## Coil versions

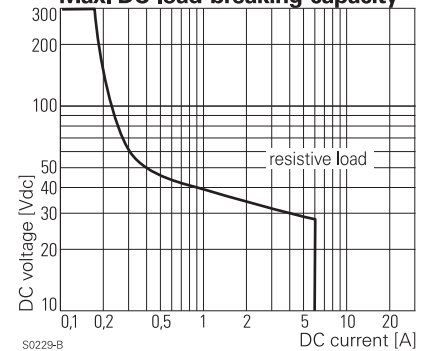
| Coil code | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|-----------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 005       | 5                   | 3.5                 | 0.25                | 11.2                | 147±10%           | 34.0            |
| 012       | 12                  | 8.4                 | 0.6                 | 26.8                | 848±10%           | 14.2            |
| 024       | 24                  | 16.8                | 1.2                 | 53.7                | 3390±10%          | 7.1             |
| 048       | 48                  | 33.6                | 2.4                 | 100.0               | 10600±15%         | 4.5             |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

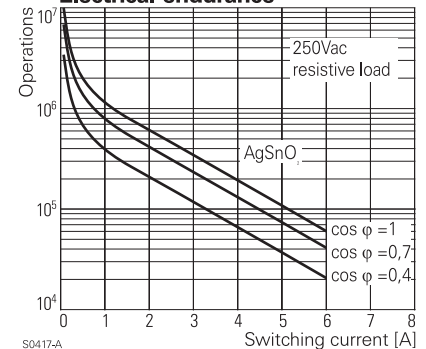
## Insulation

|                                        |                                         |                       |
|----------------------------------------|-----------------------------------------|-----------------------|
| Dielectric strength                    | coil-contacts                           | 4000 V <sub>rms</sub> |
|                                        | open contact circuit                    | 1000 V <sub>rms</sub> |
| Surge voltage resistance coil-contacts |                                         | 6000 V (1.2 / 50 μs)  |
| Clearance / creepage                   |                                         | 6 / 8 mm              |
| Insulation to IEC 60664                |                                         |                       |
|                                        | Voltage rating                          | 250 V                 |
|                                        | Pollution degree                        | 2                     |
|                                        | Overvoltage category                    | III                   |
| Insulation to VDE 0110b (2/79)         |                                         |                       |
|                                        | Insulation category / reference voltage | C / 250               |
| Tracking resistance of relay base      |                                         | CTI 250               |

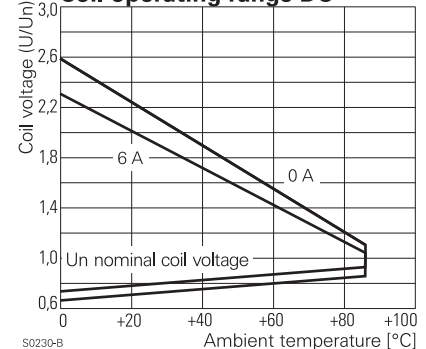
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC

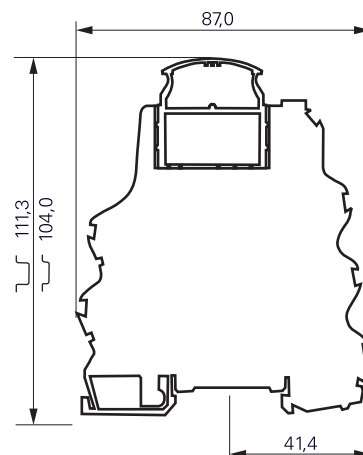


# Slim Interface Relay SNR

1pole 6 A

## Other data

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94        | V-0                                          |
| Ambient temperature relay                    | -40...+85 °C                                 |
| package                                      | -20...+55 °C                                 |
| Mechanical life                              | 10x10 <sup>6</sup> operations                |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 1200 min <sup>-1</sup> |
| Operate- / release time                      | 5 / 2.5 ms                                   |
| Bounce time N/O contact/N/C contact          | 1.5 / 5 ms                                   |
| Category of protection (IEC 61810)           | RT III                                       |
| Relay weight                                 | 6 g                                          |
| Packaging unit relay                         | 20 pcs.                                      |
| package                                      | 10 pcs.                                      |
| Accessories                                  | see accessories SNR                          |



S0404-A

## Product key

**V 2 3 0 9 2 - A 1 - A 0 1**

Type

Coil

Coil code: please refer to coil versions table

Contact material

**2** AgSnO<sub>2</sub>, gold plated

**3** AgSnO<sub>2</sub>

Contact configuration

**01** 1 C/O contact

Other types on request

| Product key       | Version          | Contacts      | Cont. material     | Coil   | Part number |
|-------------------|------------------|---------------|--------------------|--------|-------------|
| V23092-A1005-A201 | plug-in          | 1 C/O contact | AgSnO, gold plated | 5 Vdc  | 0-1393236-1 |
| V23092-A1005-A301 | vertical version |               | AgSnO              |        | 0-1393236-2 |
| V23092-A1012-A201 | wash tight       |               | AgSnO, gold plated | 12 Vdc | 0-1393236-4 |
| V23092-A1012-A301 |                  |               | AgSnO              |        | 0-1393236-7 |
| V23092-A1024-A201 |                  |               | AgSnO, gold plated | 24 Vdc | 2-1393236-1 |
| V23092-A1024-A301 |                  |               | AgSnO              |        | 2-1393236-4 |
| V23092-A1048-A201 |                  |               | AgSnO, gold plated | 48 Vdc | 3-1393236-5 |
| V23092-A1048-A301 |                  |               | AgSnO              |        | 3-1393236-7 |

## Available sets

Set consisting of: relay in mounting frame, mounted on socket

| Product code                                                                | Part Number |
|-----------------------------------------------------------------------------|-------------|
| <b>ST 1P3 024</b> 24 Vdc, AgSnO <sub>2</sub> contacts                       | 3-1415024-1 |
| <b>ST 1P3 L12</b> 12 Vdc, with LED, AgSnO <sub>2</sub> contacts             | 2-1415025-1 |
| <b>ST 1P3 L24</b> 24 Vdc, with LED, AgSnO <sub>2</sub> contacts             | 3-1415025-1 |
| <b>ST 1P3 L48</b> 48 Vdc, with LED, AgSnO <sub>2</sub> contacts             | 4-1415025-1 |
| <b>ST 1P2 L24</b> 24 Vdc, with LED, AgSnO <sub>2</sub> gold plated contacts | 6-1415025-1 |

# Interface Power Relay RT

1 pole 12 / 16 A, 2 pole 8 A, DC- or AC coil



F0250-A

## Features

- 1 C/O 12 or 16 A or 2 C/O 8 A
- Sensitive coil 400 mW
- Cadmium-free contacts
- Protection class II (VDE 0700)
- 5 kV / 10 mm coil-contact
- 1pole 12 A with 3.5 or 5 mm pinning
- Plug-in relay with robust pins
- Recycleable packaging

## Applications

Panel boards, mechanical engineering



Technical data of approved types on request

## Contact data

| Configuration                             | 1 C/O contact     | 2 C/O contact |
|-------------------------------------------|-------------------|---------------|
| Type of contact                           | single contact    |               |
| Rated current                             | 12 / 16 A         | 8 A           |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac |               |
| Maximum breaking capacity AC              | 3000 / 4000 VA    | 2000 VA       |
| Make current (max. 4 s at duty cycle 10%) | 25 / 30 A         | 15 A          |
| Contact material                          | AgNi 90/10        |               |
| Minimum contact load                      | 24 V, 10 mA       |               |

## Contact ratings

| Type  | Load                       | Operations        | Standard |
|-------|----------------------------|-------------------|----------|
| RT314 | 16 A, 250 Vac, C/O contact | 3x10 <sup>4</sup> | VDE 0435 |

## Coil data

|                    |         |              |
|--------------------|---------|--------------|
| Nominal voltage    | DC coil | 6...110 Vdc  |
|                    | AC coil | 24...230 Vac |
| Nominal coil power | DC coil | 400 mW       |
|                    | AC coil | 0.75 VA      |
| Operate category   | 2 / b   |              |

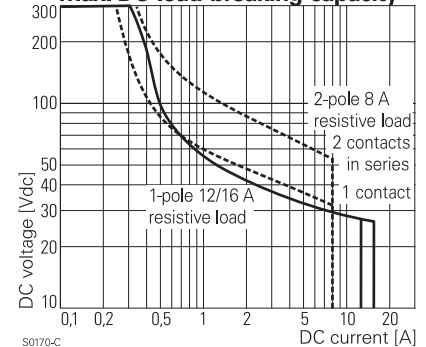
## Coil versions, DC-coil

| Coil code  | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Maximum voltage Vdc | Coil resistance Ω | Coil current mA |
|------------|---------------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 006        | 6                   | 4.2                 | 0.6                 | 15.3                | 90 ± 10%          | 66.7            |
| 012        | 12                  | 8.4                 | 1.2                 | 30.6                | 360 ± 10%         | 33.3            |
| <b>024</b> | <b>24</b>           | <b>16.8</b>         | <b>2.4</b>          | <b>61.2</b>         | <b>1440 ± 10%</b> | <b>16.7</b>     |
| 048        | 48                  | 33.6                | 4.8                 | 122.4               | 5520 ± 10%        | 8.7             |
| 060        | 60                  | 42.0                | 6.0                 | 153.0               | 7340 ± 12%        | 8.1             |
| 110        | 110                 | 77.0                | 11.0                | 280.5               | 26600 ± 12%       | 4.1             |

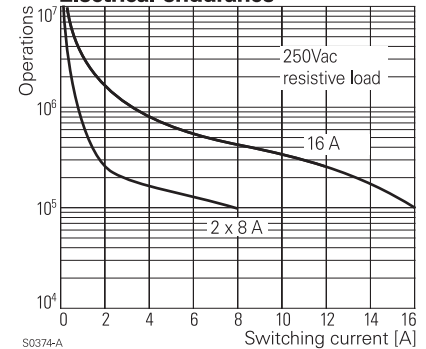
All figures are given for coil without preenergization, at ambient temperature +20°C

Other coil voltages on request

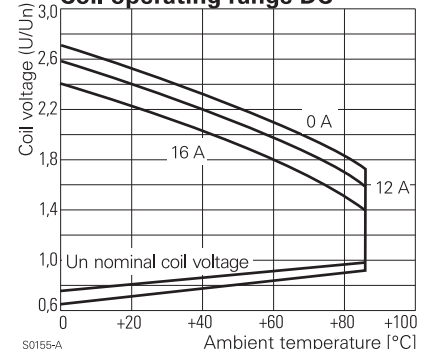
## Max. DC load breaking capacity



## Electrical endurance



## Coil operating range DC



# Interface Power Relay RT

1 pole 12 / 16 A, 2 pole 8 A, DC- or AC coil

## Coil versions, AC-coil

| Coil code  | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Maximum voltage Vac | Coil resistance $\Omega$        | Coil current mA |
|------------|---------------------|---------------------|---------------------|---------------------|---------------------------------|-----------------|
| <b>524</b> | <b>24</b>           | <b>18.0</b>         | <b>7.2</b>          | <b>36.0</b>         | <b>350<math>\pm</math>10%</b>   | <b>31.6</b>     |
| 615        | 115                 | 86.3                | 34.5                | 172.5               | 8100 $\pm$ 15%                  | 6.6             |
| <b>730</b> | <b>230</b>          | <b>172.5</b>        | <b>69.0</b>         | <b>345.0</b>        | <b>32500<math>\pm</math>15%</b> | <b>3.2</b>      |

All figures are given for coil without preenergization, at ambient temperature +20°C  
Other coil voltages on request

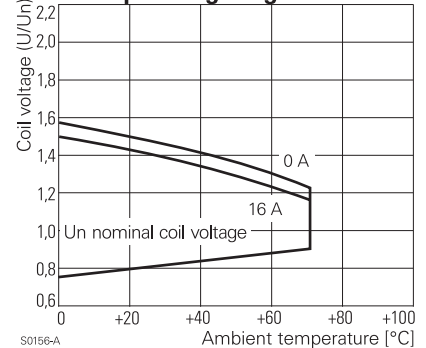
## Insulation

|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 5000 V <sub>rms</sub> |
|                                         | open contact circuit | 1000 V <sub>rms</sub> |
|                                         | adjacent contacts    | 2500 V <sub>rms</sub> |
| Clearance / creepage                    |                      | $\geq 10 / 10$ mm     |
| Insulation to IEC 60664                 |                      |                       |
| Voltage rating                          |                      | 250 V                 |
| Pollution degree                        |                      | 3                     |
| Overvoltage category                    |                      | III                   |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |
| Tracking resistance of relay base       |                      | CTI 250               |

## Other data

|                                              | 1 C/O contact                                | 2 C/O contact            |
|----------------------------------------------|----------------------------------------------|--------------------------|
| Flammability class according to UL 94        | V-0                                          |                          |
| Ambient temperature                          | -40...+70°C                                  |                          |
| Mechanical life DC-coil                      | >30x10 <sup>6</sup> ops.                     | >30x10 <sup>6</sup> ops. |
| AC-coil                                      | >10x10 <sup>6</sup> ops.                     | >5x10 <sup>6</sup> ops.  |
| Max. switching rate at rated- / minimum load | 6 min <sup>-1</sup> / 1200 min <sup>-1</sup> |                          |
| Operate- / release time DC-coil              | typ. 7 / 3 ms                                | typ. 7 / 2 ms            |
| Bounce time N/O contact/N/C contact          | typ. 1 / 3 ms                                | typ. 1 / 3 ms            |
| Vibration resistance N/O / N/C contact       | >10 / 5 g; 30...150 Hz                       |                          |
| Shock resistance (destruction)               | >100 g                                       |                          |
| Category of protection (IEC 61810)           | RT II                                        |                          |
| Relay weight                                 | 14 g                                         |                          |
| Packaging unit                               | 20 / 500 pcs.                                |                          |
| Accessories                                  | see accessories RT                           |                          |

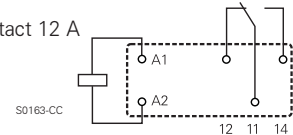
## Coil operating range AC



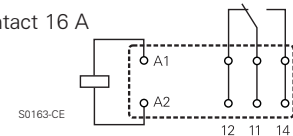
## Terminal assignment

View on pins

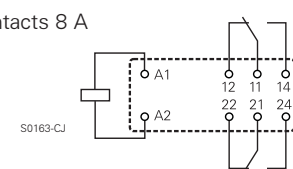
1 C/O contact 12 A



1 C/O contact 16 A

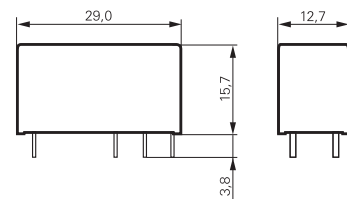


2 C/O contacts 8 A



## Dimensions

Dimensions in mm



## Product key

Type

Version

- |          |                              |          |                            |
|----------|------------------------------|----------|----------------------------|
| <b>1</b> | 1-pole, 12 A, pinning 3.5 mm | <b>3</b> | 1-pole, 16 A, pinning 5 mm |
| <b>2</b> | 1-pole, 12 A, pinning 5 mm   | <b>4</b> | 2-pole, 8 A, pinning 5 mm  |

Contact configuration

- |          |               |          |                |
|----------|---------------|----------|----------------|
| <b>1</b> | 1 C/O contact | <b>2</b> | 2 C/O contacts |
|----------|---------------|----------|----------------|

Contact material

- 4** AgNi 90/10

Coil

Coil code: please refer to coil versions table, preferred types in bold print

Washable version on request

# Interface Power Relay RT

1 pole 12 / 16 A, 2 pole 8 A, DC- or AC coil

| Product key | Version                        | Contacts       | Cont. material | Coil    | Coil    | Part number |
|-------------|--------------------------------|----------------|----------------|---------|---------|-------------|
| RT114024    | 1-pole, 12 A<br>pinning 3.5 mm | 1 C/O contact  | AgNi 90/10     | DC-coil | 24 Vdc  | 1-1393239-3 |
| RT114524    |                                |                |                | AC-coil | 24 Vac  | 1-1393239-7 |
| RT114615    |                                |                |                |         | 115 Vac | 1-1393239-8 |
| RT114730    |                                |                |                |         | 230 Vac | 1-1393239-9 |
| RT214024    | 1-pole, 12 A<br>pinning 5 mm   |                |                | DC-coil | 24 Vdc  | 5-1393239-5 |
| RT214524    |                                |                |                | AC-coil | 24 Vac  | 5-1393239-9 |
| RT214615    |                                |                |                |         | 115 Vac | 6-1393239-0 |
| RT214730    |                                |                |                |         | 230 Vac | 0-1419108-6 |
| RT314024    | 1-pole, 16 A<br>pinning 5 mm   |                |                | DC-coil | 24 Vdc  | 9-1393239-8 |
| RT314524    |                                |                |                | AC-coil | 24 Vac  | 0-1393240-4 |
| RT314615    |                                |                |                |         | 115 Vac | 0-1393240-6 |
| RT314730    |                                |                |                |         | 230 Vac | 0-1393240-7 |
| RT424024    | 2-pole, 8 A<br>pinning 5 mm    | 2 C/O contacts |                | DC-coil | 24 Vdc  | 6-1393243-8 |
| RT424524    |                                |                |                | AC-coil | 24 Vac  | 7-1393243-6 |
| RT424615    |                                |                |                |         | 115 Vac | 7-1393243-8 |
| RT424730    |                                |                |                |         | 230 Vac | 7-1393243-9 |

# Miniature Relay PT

2 pole 12 A, 3 pole 10 A or 4 pole 6 A  
DC- or AC-coil



F0191-A

## Features

- 2, 3 or 4 C/O contacts
- Switching performance up to 3000 VA
- Relay height 29 mm
- Cadmium-free contact material
- Mechanical and electrical indicator
- Manual test tab, optionally lockable.
- White marking tabs

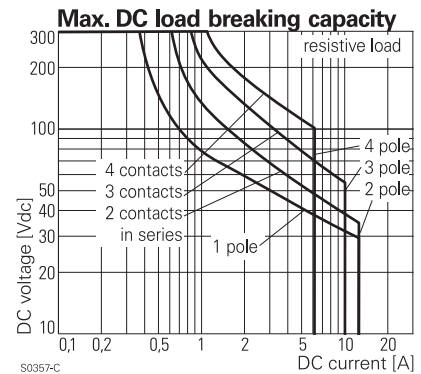
## Applications

Universal use in control and automation



Technical data of approved types on request

| Contact data                             | PT2                                   | PT3     | PT5     |
|------------------------------------------|---------------------------------------|---------|---------|
| Configuration                            | 2 C/O                                 | 3 C/O   | 4 C/O   |
| Type of contact                          | single contacts                       |         |         |
| Rated current                            | 12 A                                  | 10 A    | 6 A     |
| Rated voltage / max. breaking voltage AC | 250 Vac                               | 250 Vac | 250 Vac |
| Maximum switching voltage                | 440 Vac                               | 440 Vac | 250 Vac |
| Maximum breaking capacity AC             | 3000 VA                               | 2500 VA | 1500 VA |
| Make current                             | 24 A                                  | 20 A    | 12 A    |
| Contact material                         | AgNi 90/10, AgNi 90/10 gold plated    |         |         |
| Minimum contact load                     | 24 V, 10 mA / 20 mV, 1 mA gold plated |         |         |

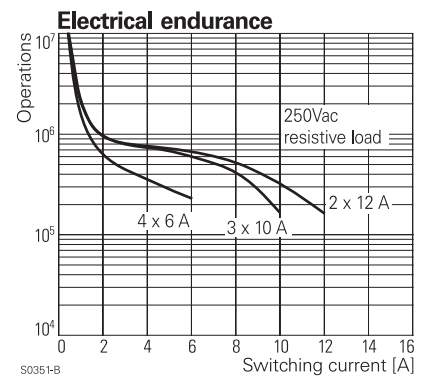


## Contact ratings

| Type  | Load                             | Operations        | Standard |
|-------|----------------------------------|-------------------|----------|
| PT570 | 6 A, 250 Vac, on the C/O contact | 1x10 <sup>5</sup> | VDE 0435 |

## Coil data

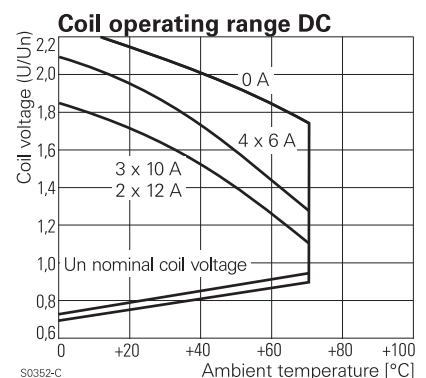
|                                          |                            |             |
|------------------------------------------|----------------------------|-------------|
| Nominal voltage                          | DC coil                    | 6...220 Vdc |
|                                          | AC coil                    | 6...230 Vac |
| Nominal coil power                       | DC coil                    | typ. 0.75 W |
|                                          | AC coil                    | typ. 1.0 VA |
| Operate category                         | 2 / b                      |             |
| Operating range for AC coil 60Hz at 70°C | 90...110% U <sub>nom</sub> |             |



## Coil versions, DC-coil

| Coil code  |            | Nominal   | Pull-in     | Release    | Coil           | Coil        |
|------------|------------|-----------|-------------|------------|----------------|-------------|
| Standard   | LED        | voltage   | voltage     | voltage    | resistance     | current     |
|            | bipolar    | Vdc       | Vdc         | Vdc        | Ω              | mA          |
| 006        | L06        | 6         | 4.5         | 0.6        | 48±10%         | 125.0       |
| 012        | L12        | 12        | 9.0         | 1.2        | 192±10%        | 62.5        |
| <b>024</b> | <b>L24</b> | <b>24</b> | <b>18.0</b> | <b>2.4</b> | <b>777±10%</b> | <b>31.3</b> |
| 048        | L48        | 48        | 36.0        | 4.8        | 3072±10%       | 15.6        |
| 060        | L60        | 60        | 45.0        | 6.0        | 4845±12%       | 12.5        |
| 110        | M10        | 110       | 82.5        | 11.0       | 16133±15%      | 6.8         |
| 220        | N20        | 220       | 165.0       | 22.0       | 64533±15%      | 3.4         |

All figures are given for coil without preenergization, at ambient temperature +20°C



# Miniature Relay PT

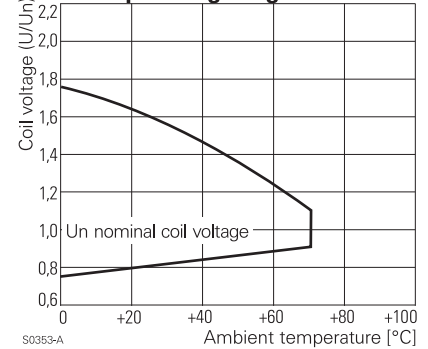
2 pole 12 A, 3 pole 10 A or 4 pole 6 A  
DC- or AC-coil

## Coil versions, AC-coil

| Coil code  |            | Nominal voltage | Pull-in voltage | Release voltage | Coil resistance                    | Coil current |
|------------|------------|-----------------|-----------------|-----------------|------------------------------------|--------------|
| Standard   | LED        | Vac             | Vac             | Vac             | $\Omega$                           | mA           |
| 506        | R06        | 6               | 4.8             | 1.8             | $11 \pm 10\%$                      | 166.5        |
| 512        | R12        | 12              | 9.6             | 3.6             | $48 \pm 10\%$                      | 83.3         |
| <b>524</b> | <b>R24</b> | <b>24</b>       | <b>19.2</b>     | <b>7.2</b>      | <b><math>192 \pm 10\%</math></b>   | <b>41.6</b>  |
| 548        | R48        | 48              | 38.4            | 14.4            | $777 \pm 10\%$                     | 21.3         |
| 560        | R60        | 60              | 48.0            | 18.0            | $1306 \pm 10\%$                    | 16.7         |
| 615        | S15        | 115             | 92.0            | 34.5            | $4845 \pm 12\%$                    | 8.8          |
| <b>730</b> | <b>T30</b> | <b>230</b>      | <b>184.0</b>    | <b>69.0</b>     | <b><math>19465 \pm 15\%</math></b> | <b>4.3</b>   |

All figures are given for coil without preenergization, at ambient temperature +20°C

## Coil operating range AC



| Insulation                                                          | PT2                   | PT3                   | PT5                   |
|---------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|
| Dielectric strength coil-contacts                                   | 2500 V <sub>rms</sub> | 2500 V <sub>rms</sub> | 2500 V <sub>rms</sub> |
| open contact circuit in unenergized position typ. adjacent contacts | 1500 V <sub>rms</sub> | 1500 V <sub>rms</sub> | 1500 V <sub>rms</sub> |
|                                                                     | 2500 V <sub>rms</sub> | 2500 V <sub>rms</sub> | 2000 V <sub>rms</sub> |
| Clearance / creepage                                                | 3 / 4 mm              | 2.6 / 4 mm            | 1.8 / 3 mm            |
| Insulation to IEC 60664                                             |                       |                       |                       |
| Voltage rating                                                      | 240 V                 | 240 V                 | 240 V                 |
| Pollution degree                                                    | 3                     | 3                     | 2                     |
| Overvoltage category                                                | III                   | III                   | III                   |
| Insulation to VDE 0110b (2/79)                                      |                       |                       |                       |
| Insulation category / ref. voltage                                  | C / 250               | C / 250               | B / 250               |
| Tracking resistance of relay base                                   |                       | CTI 175               |                       |

## Other data

|                                                     |                                                                      |
|-----------------------------------------------------|----------------------------------------------------------------------|
| Flammability class according to UL 94               | V-0                                                                  |
| Ambient temperature                                 | DC-coil -40...+70 °C<br>AC-coil -40...+70 °C                         |
| Mechanical life                                     | DC-coil >30x10 <sup>6</sup> ops.<br>AC-coil >20x10 <sup>6</sup> ops. |
| Max. switching rate at rated- / minimum load        | 6 min <sup>-1</sup> / 600 min <sup>-1</sup>                          |
| Operate- / release time                             | 15 / 10 ms                                                           |
| Bounce time                                         | 5 ms                                                                 |
| Vibration resistance N/O contact/N/C contact        | >7 / 4 g                                                             |
| Shock resistance (function) N/O contact/N/C contact | >20 / 5 g                                                            |
| Category of protection (IEC 61810)                  | RT II                                                                |
| Relay weight                                        | 30 g                                                                 |
| Packaging unit                                      | 10 pcs.                                                              |
| Accessories                                         | see accessories PT                                                   |

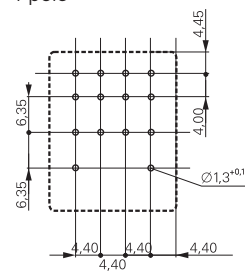
# Miniature Relay PT

2 pole 12 A, 3 pole 10 A or 4 pole 6 A  
DC- or AC-coil

## PCB layout / terminal assignment

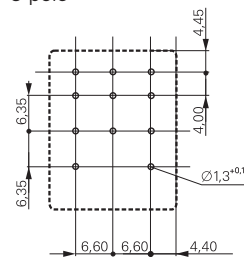
View on solder pins  
Dimensions in mm

4-pole



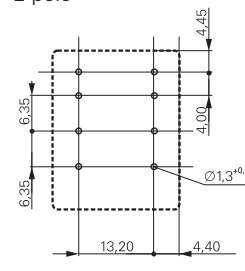
S0354-AA

3-pole

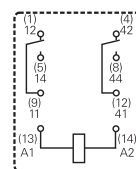


S0354-AB

2-pole



S0354-AC

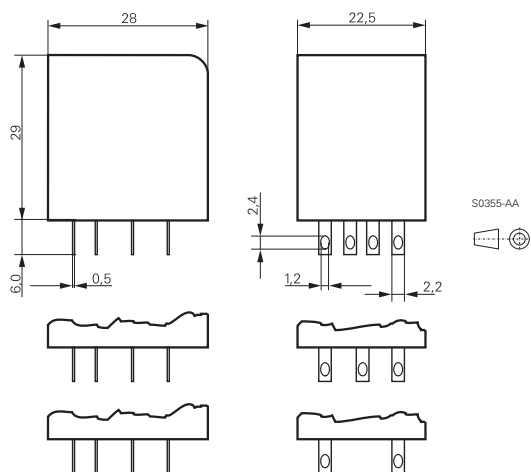


S0354-AF

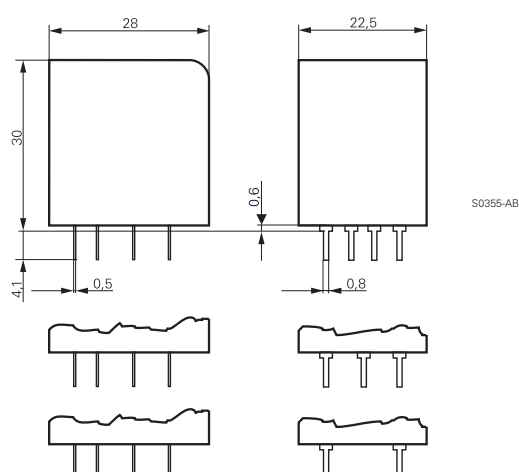
## Dimensions

Dimensions in mm

Solder- and plug-in terminals (standard version)



PCB version



## Product key

Type

Contact configuration

**2** 2 C/O contacts

**3** 3 C/O contacts

**5** 4 C/O contacts

Contact material

**7** AgNi 90/10, with test button\*)

**8** AgNi 90/10, gold plated, with test button\*)

Version

**0** standard, AMP 2.8

**1** PCB terminals

Coil

Coil code: please refer to coil versions table, preferred types in bold print

\*) Version with closed cap without test button available on request.

Other types on request.

|          |          |  |  |  |  |  |
|----------|----------|--|--|--|--|--|
| <b>P</b> | <b>T</b> |  |  |  |  |  |
|          |          |  |  |  |  |  |
|          |          |  |  |  |  |  |
|          |          |  |  |  |  |  |
|          |          |  |  |  |  |  |

## Miniature Relay PT

2 pole 12 A, 3 pole 10 A or 4 pole 6 A  
DC- or AC-coil

| Product key | Cont. config.  | Cont. material                           | Version               | Coil        | Coil    | Part number |
|-------------|----------------|------------------------------------------|-----------------------|-------------|---------|-------------|
| PT270024    | 2 C/O contacts | AgNi 90/10<br>test button                | AMP 2.8<br>connectors | DC coil     | 24 Vdc  | 4-1419111-2 |
| PT270524    |                |                                          |                       | AC-coil     | 24 Vac  | 4-1419111-8 |
| PT270615    |                |                                          |                       |             | 115 Vac | 5-1419111-0 |
| PT270730    |                |                                          |                       |             | 230 Vac | 5-1419111-1 |
| PT270L24    |                |                                          |                       | DC coil+LED | 24 Vdc  | 9-1415001-1 |
| PT270R24    |                |                                          |                       | AC-coil+LED | 24 Vac  | 0-1415002-1 |
| PT270S15    |                |                                          |                       |             | 115 Vac | 2-1415039-1 |
| PT270T30    |                |                                          |                       |             | 230 Vac | 3-1415002-1 |
| PT271024    |                |                                          | PCB terminals         | DC coil     | 24 Vdc  | 5-1419111-3 |
| PT271524    |                |                                          |                       | AC-coil     | 24 Vac  | 5-1419111-6 |
| PT271615    |                |                                          |                       |             | 115 Vac | 4-1419135-0 |
| PT271730    |                |                                          |                       |             | 230 Vac | 5-1419111-8 |
| PT370024    | 3 C/O contacts | AgNi 90/10<br>test button                | AMP 2.8<br>connectors | DC coil     | 24 Vdc  | 6-1419111-1 |
| PT370524    |                |                                          |                       | AC-coil     | 24 Vac  | 6-1419111-6 |
| PT370615    |                |                                          |                       |             | 115 Vac | 6-1419111-8 |
| PT370730    |                |                                          |                       |             | 230 Vac | 6-1419111-9 |
| PT370L24    |                |                                          |                       | DC coil+LED | 24 Vdc  | 5-1415002-1 |
| PT370R24    |                |                                          |                       | AC-coil+LED | 24 Vac  | 7-1415002-1 |
| PT370S15    |                |                                          |                       |             | 115 Vac | 9-1415039-1 |
| PT370T30    |                |                                          |                       |             | 230 Vac | 9-1415002-1 |
| PT371024    |                |                                          | PCB terminals         | DC coil     | 24 Vdc  | 7-1419111-1 |
| PT371524    |                |                                          |                       | AC-coil     | 24 Vac  | 7-1419111-3 |
| PT371615    |                |                                          |                       |             | 115 Vac | 0-1393154-8 |
| PT371730    |                |                                          |                       |             | 230 Vac | 7-1419111-5 |
| PT570024    | 4 C/O contacts | AgNi 90/10<br>test button                | AMP 2.8<br>connectors | DC coil     | 24 Vdc  | 1-1393154-2 |
| PT570524    |                |                                          |                       | AC-coil     | 24 Vac  | 8-1419111-7 |
| PT570615    |                |                                          |                       |             | 115 Vac | 9-1419111-0 |
| PT570730    |                |                                          |                       |             | 230 Vac | 9-1419111-1 |
| PT570L24    |                |                                          |                       | DC coil+LED | 24 Vdc  | 6-1415001-1 |
| PT570R24    |                |                                          |                       | AC-coil+LED | 24 Vac  | 7-1415001-1 |
| PT570S15    |                |                                          |                       |             | 115 Vac | 7-1415003-1 |
| PT570T30    |                |                                          |                       |             | 230 Vac | 8-1415001-1 |
| PT571024    |                |                                          | PCB terminals         | DC coil     | 24 Vdc  | 9-1419111-3 |
| PT571524    |                |                                          |                       | AC-coil     | 24 Vac  | 9-1419111-6 |
| PT571615    |                |                                          |                       |             | 115 Vac | 1-1393154-5 |
| PT571730    |                |                                          |                       |             | 230 Vac | 9-1419111-8 |
| PT580024    |                | AgNi 90/10<br>gold plated<br>test button | AMP 2.8<br>connectors | DC coil     | 24 Vdc  | 1-1393154-7 |
| PT580524    |                |                                          |                       | AC-coil     | 24 Vac  | 2-1393154-1 |
| PT580730    |                |                                          |                       |             | 230 Vac | 2-1393154-2 |
| PT580L24    |                |                                          |                       | DC coil+LED | 24 Vdc  | 5-1415026-1 |
| PT580R24    |                |                                          |                       | AC-coil+LED | 24 Vac  | 6-1415026-1 |
| PT580T30    |                |                                          |                       |             | 230 Vac | 7-1415026-1 |
| PT581024    |                |                                          | PCB terminals         | DC coil     | 24 Vdc  | 7-1419135-2 |
| PT581730    |                |                                          |                       | AC-coil     | 230 Vac | 2-1393154-3 |

# Miniature Power Relay PCLH

2 pole 10 A, DC- or AC-coil



## Features

- 2 C/O contacts
- 10 A rated current
- DC- or AC-coil
- Plug-in version, PCB or chassis mount version

## Applications

Panel boards, domestic appliances



Technical data of approved types on request

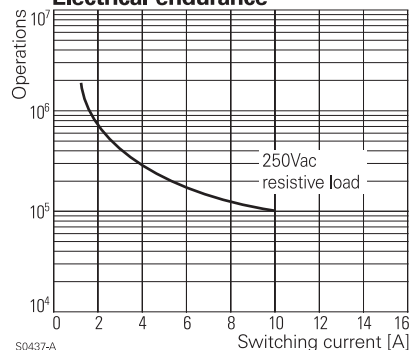
## Contact data

|                                           |                   |
|-------------------------------------------|-------------------|
| Configuration                             | 2 C/O contact     |
| Type of contact                           | single contact    |
| Rated current                             | 10 A              |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 250 Vac |
| Maximum breaking capacity AC              | 2500 VA           |
| Make current (max. 4 s at duty cycle 10%) | 15 A              |
| Contact material                          | AgCdO             |

## Coil data

|                    |         |              |
|--------------------|---------|--------------|
| Nominal voltage    | DC coil | 12...48 Vdc  |
|                    | AC coil | 12...230 Vac |
| Nominal coil power | DC coil | 900 mW       |
|                    | AC coil | 1.2 VA       |

## Electrical endurance



## Coil versions, DC-coil

| Coil code  | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Coil resistance $\Omega$      | Coil current mA |
|------------|---------------------|---------------------|---------------------|-------------------------------|-----------------|
| 02D        | 12                  | 9.6                 | 1.2                 | 160 $\pm$ 10%                 | 75.0            |
| <b>03D</b> | <b>24</b>           | <b>19.2</b>         | <b>2.4</b>          | <b>650<math>\pm</math>10%</b> | <b>37.2</b>     |
| 04D        | 48                  | 38.4                | 4.8                 | 2600 $\pm$ 10%                | 18.5            |

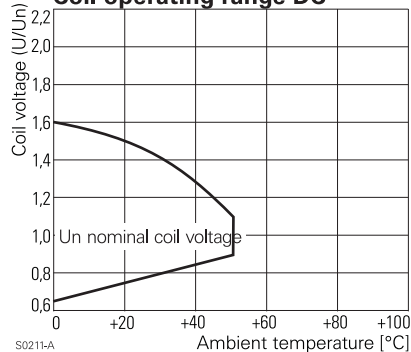
All figures are given for coil without preenergization, at ambient temperature +20°C

## Coil versions, AC-coil

| Coil code  | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Coil resistance $\Omega$        | Coil current mA |
|------------|---------------------|---------------------|---------------------|---------------------------------|-----------------|
| 02A        | 12                  | 9.6                 | 3.6                 | 40 $\pm$ 10%                    | 101.7           |
| <b>03A</b> | <b>24</b>           | <b>19.2</b>         | <b>7.2</b>          | <b>160<math>\pm</math>10%</b>   | <b>50.0</b>     |
| 04A        | 48                  | 38.4                | 14.4                | 600 $\pm$ 10%                   | 25.4            |
| 06A        | 115                 | 92.0                | 34.5                | 3400 $\pm$ 10%                  | 10.5            |
| <b>08A</b> | <b>230</b>          | <b>184.0</b>        | <b>69.0</b>         | <b>13600<math>\pm</math>10%</b> | <b>5.3</b>      |

All figures are given for coil without preenergization, at ambient temperature +20°C

## Coil operating range DC



## Insulation

|                      |                      |                       |
|----------------------|----------------------|-----------------------|
| Dielectric strength  | coil-contacts        | 1500 V <sub>rms</sub> |
|                      | open contact circuit | 1000 V <sub>rms</sub> |
|                      | adjacent contacts    | 1500 V <sub>rms</sub> |
| Clearance / creepage |                      | >1.2 / 1.2 mm         |

# Miniature Power Relay PCLH

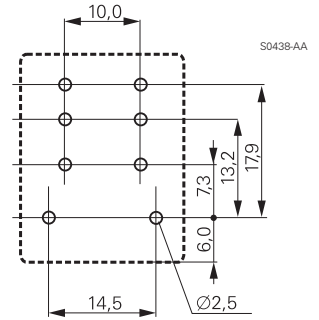
2 pole 10 A, DC- or AC-coil

## Other data

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94        | V-0                                          |
| Ambient temperature                          | -10...+55 °C                                 |
| Mechanical life                              | >10x10 <sup>6</sup> operations               |
| Max. switching rate at rated- / minimum load | 30 min <sup>-1</sup> / 300 min <sup>-1</sup> |
| Operate- / release time                      | 15 / 5 ms                                    |
| Vibration resistance                         | 10...55 Hz, 1 mm double amplitude            |
| Shock resistance (function)                  | >10 g                                        |
| Shock resistance (destruction)               | >100 g                                       |
| Category of protection (IEC 61810)           | RT I                                         |
| Relay weight                                 | 32 g                                         |
| Packaging unit                               | 50 / 500 pcs.                                |
| Accessories                                  | see accessories PCLH                         |

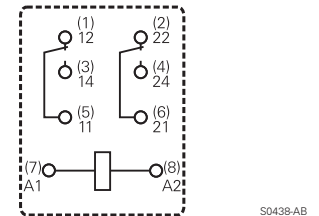
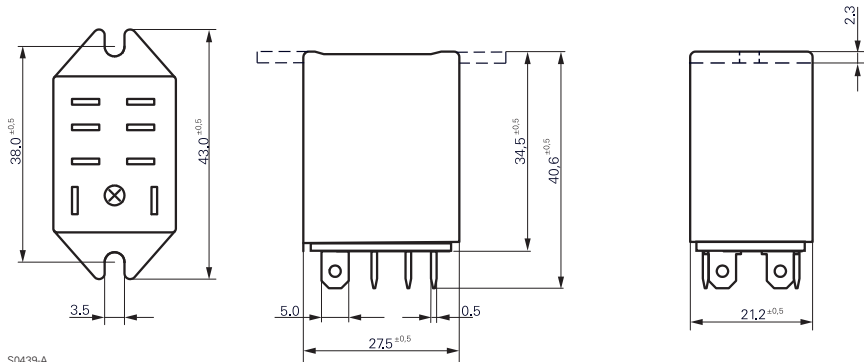
## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm



## Dimensions

Dimensions in mm



## Product key

Type

Number of contacts

**2** 2 C/O contact, dust protected

Coil

Coil code: please refer to coil versions table

Contact material

**1** AgCdO

Enclosure

**S** case with AMP-Faston 187 terminals

**F** case for flange mount, AMP-Faston 187

**SP** case with PCB terminals

Other types on request

| Product key  | Cont. Config.  | Cont. material   | Enclosure        | Coil    | Coil    | Part number |
|--------------|----------------|------------------|------------------|---------|---------|-------------|
| PCLH-203D1S  | 2 C/O contacts | AgCdO            | AMP 187          | DC-coil | 24 Vdc  | 7-1440007-1 |
| PCLH-203A1S  | dust-protected | Faston terminals |                  | AC-coil | 24 Vac  | 6-1461068-3 |
| PCLH-206A1S  |                |                  |                  |         | 115 Vac | 5-1461068-8 |
| PCLH-208A1S  |                |                  |                  |         | 230 Vac | 7-1440007-5 |
| PCLH-203D1F  |                |                  | flange mount     | DC-coil | 24 Vdc  | 5-1461068-0 |
| PCLH-203A1F  |                |                  | AMP 187          | AC-coil | 24 Vac  | 4-1461068-2 |
| PCLH-206A1F  |                |                  | Faston terminals |         | 115 Vac | 4-1461068-5 |
| PCLH-208A1F  |                |                  |                  |         | 230 Vac | 1-1440009-6 |
| PCLH-203D1SP |                |                  | PCB terminals    | DC-coil | 24 Vdc  | 5-1461059-5 |
| PCLH-203A1SP |                |                  |                  | AC-coil | 24 Vac  | 6-1461059-3 |
| PCLH-206A1SP |                |                  |                  |         | 115 Vac | 5-1461059-8 |
| PCLH-208A1SP |                |                  |                  |         | 230 Vac | 6-1461059-0 |

# Multimode Relay MT

2 / 3 pole 10 A, DC- or AC-coil



F0161-A

## Features

- 2 C/O or 3 C/O contacts
- Cadmium-free contacts
- DC and AC coils
- Mechanical indicator as standard
- Electrical indicator
- New test system with front operated finger protected push-to-test button and integral locking test tab
- White write on panel

## Applications

Mechanical engineering, plant control



Technical data of approved types on request

## Contact data

|                                           |                                       |                     |
|-------------------------------------------|---------------------------------------|---------------------|
| Configuration                             | 2 C/O contact or 3 C/O contact        |                     |
| Type of contact                           | single contacts                       | bifurcated contacts |
| Rated current                             | 10 A                                  | 4 A                 |
| Rated voltage / max. breaking voltage AC  | 250 Vac / 440 Vac                     |                     |
| Maximum breaking capacity AC              | 2500 VA                               | 500 VA              |
| Make current (max. 4 s at duty cycle 10%) | 20 A                                  | 8 A                 |
| Contact material                          | AgNi 90/10                            |                     |
| Minimum contact load                      | 24 V, 10 mA / 20 mV, 1 mA gold plated |                     |

## Contact ratings

| Type  | Load                       | Operations        | Standard |
|-------|----------------------------|-------------------|----------|
| MT321 | 10 A, 250 Vac, C/O contact | 1x10 <sup>5</sup> | VDE 0435 |

## Coil data

|                    |         |             |
|--------------------|---------|-------------|
| Nominal voltage    | DC coil | 6...220 Vdc |
|                    | AC coil | 6...230 Vac |
| Nominal coil power | DC coil | typ. 1.2 W  |
|                    | AC coil | typ. 2.3 VA |
| Operate category   | 1 / a   |             |

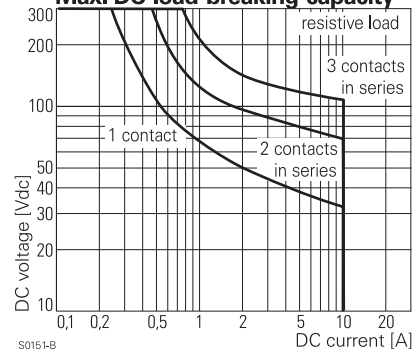
## Coil versions, DC-coil

| Coil code standard | PD*        | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Coil resistance $\Omega$      | Coil current mA |
|--------------------|------------|---------------------|---------------------|---------------------|-------------------------------|-----------------|
| 006                | 0A6        | 6                   | 4.5                 | 0.6                 | 32 $\pm$ 10%                  | 187.5           |
| 012                | 0B2        | 12                  | 9.0                 | 1.2                 | 110 $\pm$ 10%                 | 109.1           |
| <b>024</b>         | <b>0C4</b> | <b>24</b>           | <b>18.0</b>         | <b>2.4</b>          | <b>475<math>\pm</math>10%</b> | <b>50.5</b>     |
| 048                | 0E8        | 48                  | 36.0                | 4.8                 | 2000 $\pm$ 10%                | 24.0            |
| 060                | 0G0        | 60                  | 45.0                | 6.0                 | 2850 $\pm$ 10%                | 21.1            |
| 110                | 1B0        | 110                 | 82.5                | 11.5                | 10000 $\pm$ 12%               | 11.0            |
| 220                | 2C0        | 220                 | 165.0               | 22.0                | 40000 $\pm$ 15%               | 5.5             |

All figures are given for coil without preenergization, at ambient temperature +20°C

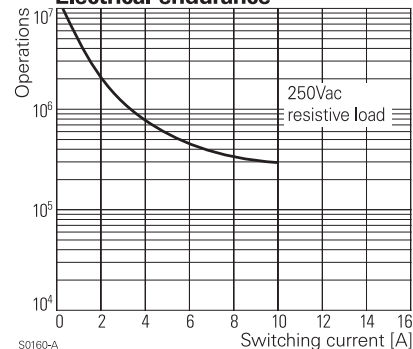
\* Protection diode PD; standard polarity: 2-pole relays: +2 / -7,  
3-pole relays: +2 / -10

## Max. DC load breaking capacity



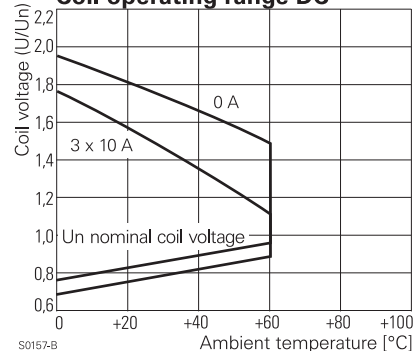
S0151-B

## Electrical endurance



S0160-A

## Coil operating range DC



S0157-B

# Multimode Relay MT

2 / 3 pole 10 A, DC- or AC-coil

## Coil versions, AC-coil

| Coil code  | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Maximum voltage Vac | Coil resistance $\Omega$          | Coil current mA |
|------------|---------------------|---------------------|---------------------|---------------------|-----------------------------------|-----------------|
| 006        | 6                   | 4.8                 | 2.4                 | 7.8                 | $5.3 \pm 10\%$                    | 381.7           |
| 012        | 12                  | 9.6                 | 4.8                 | 15.6                | $24 \pm 10\%$                     | 182.5           |
| <b>024</b> | <b>24</b>           | <b>19.2</b>         | <b>9.6</b>          | <b>31.2</b>         | <b><math>86 \pm 10\%</math></b>   | <b>94.2</b>     |
| 048        | 48                  | 38.4                | 19.2                | 62.4                | $345 \pm 10\%$                    | 47.5            |
| 060        | 60                  | 48.0                | 24.0                | 78.0                | $544 \pm 10\%$                    | 37.8            |
| 115        | 115                 | 92.0                | 46.0                | 149.5               | $2000 \pm 10\%$                   | 20.6            |
| <b>230</b> | <b>230</b>          | <b>184.0</b>        | <b>92.0</b>         | <b>299.0</b>        | <b><math>8300 \pm 12\%</math></b> | <b>10.1</b>     |

All figures are given for coil without preenergization, at ambient temperature +20°C

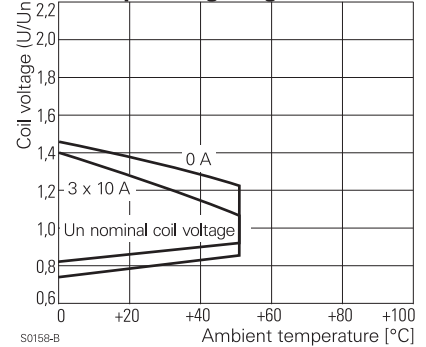
## Insulation

|                                   |                      |                       |
|-----------------------------------|----------------------|-----------------------|
| Dielectric strength               | coil-contacts        | 2500 V <sub>rms</sub> |
|                                   | open contact circuit | 1500 V <sub>rms</sub> |
|                                   | adjacent contacts    | 2500 V <sub>rms</sub> |
| Clearance / creepage              |                      | 2.8 / 4 mm            |
| Insulation to IEC 60664           |                      |                       |
|                                   | Voltage rating       | 250 V                 |
|                                   | Pollution degree     | 3                     |
|                                   | Overvoltage category | III                   |
| Insulation to VDE 0110b (2/79)    |                      | C / 250               |
| Tracking resistance of relay base |                      | CTI 175               |

## Other data

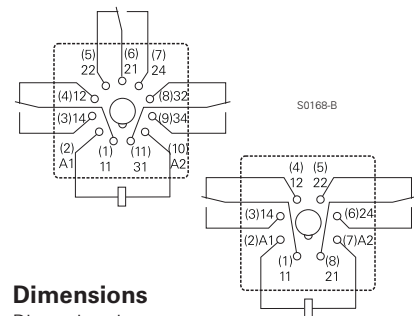
|                                                       |                                              |
|-------------------------------------------------------|----------------------------------------------|
| Flammability class according to UL 94                 | V-0                                          |
| Ambient temperature                                   | DC-coil -45...+60 °C<br>AC-coil -45...+50 °C |
| Mechanical life                                       | >20x10 <sup>6</sup> operations               |
| Max. switching rate at rated- / minimum load          | 20 min <sup>-1</sup> / 100 min <sup>-1</sup> |
| Operate- / release time                               | 12 / 5 ms                                    |
| Bounce time                                           | 4 ms                                         |
| Vibration resistance N/O / N/C contact                | >5 / 2 g                                     |
| Shock resistance (function) N/O contact / N/C contact | >50 / 10 g                                   |
| Category of protection (IEC 61810)                    | RT I - dust protected                        |
| Relay weight                                          | 80 g                                         |
| Packaging unit                                        | 25 pcs.                                      |
| Accessories                                           | see accessories MT                           |

## Coil operating range AC



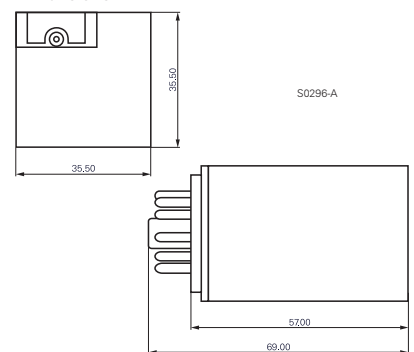
## Terminal assignment

View on solder pins



## Dimensions

Dimensions in mm



## Product key

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Type                   | <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">M</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">T</div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> </div> |  |  |  |
| Contact configuration  | <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">2</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">2 C/O contacts, 8-pole</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">3</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">3 C/O contacts, 11-pole</div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| Contact material       | <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">2</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">AgNi 90/10</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">B</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">AgNi 90/10, bifurcated contacts, gold plated</div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |
| Version                | <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">1</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">DC with test button</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">6</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">AC with test button</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">3</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">DC with test button and bipolar LED</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">8</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">AC with test button and LED</div> </div>                                                                              |  |  |  |
| Coil                   | <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">Coil code: please refer to coil versions table, preferred types in bold print</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| Other types on request |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  |

# Multimode Relay MT

2 / 3 pole 10 A, DC- or AC-coil

| Product key | Contact configuration     | Contact material          | Version                | Coil    | Part number |
|-------------|---------------------------|---------------------------|------------------------|---------|-------------|
| MT221012    | 2 C/O contacts<br>8 pole  | AgNi 90/10                | DC<br>with test button | 12 Vdc  | 4-1393090-9 |
| MT221024    |                           |                           |                        | 24 Vdc  | 5-1393090-0 |
| MT221048    |                           |                           |                        | 48 Vdc  | 5-1393090-1 |
| MT221060    |                           |                           |                        | 60 Vdc  | 5-1393090-2 |
| MT221110    |                           |                           |                        | 110 Vdc | 5-1393090-3 |
| MT221220    |                           |                           |                        | 220 Vdc | 5-1393090-4 |
| MT223024    |                           |                           | DC+LED+test button     | 24 Vdc  | 5-1393090-7 |
| MT226012    |                           |                           | AC<br>test button      | 12 Vac  | 6-1393090-3 |
| MT226024    |                           |                           |                        | 24 Vac  | 6-1393090-4 |
| MT226048    |                           |                           |                        | 48 Vac  | 6-1393090-5 |
| MT226115    |                           |                           |                        | 115 Vac | 6-1393090-7 |
| MT226230    |                           |                           |                        | 230 Vac | 6-1393090-8 |
| MT228024    |                           |                           |                        | 24 Vac  | 6-1393090-9 |
| MT228115    |                           |                           |                        | 115 Vac | 7-1393090-0 |
| MT228230    |                           |                           |                        | 230 Vac | 7-1393090-1 |
| MT321012    | 3 C/O contacts<br>11 pole | AgNi 90/10                | DC<br>with test button | 12 Vdc  | 6-1393091-8 |
| MT321024    |                           |                           |                        | 24 Vdc  | 7-1393091-0 |
| MT321048    |                           |                           |                        | 48 Vdc  | 7-1393091-1 |
| MT321060    |                           |                           |                        | 60 Vdc  | 7-1393091-2 |
| MT321110    |                           |                           |                        | 110 Vdc | 7-1393091-4 |
| MT321220    |                           |                           |                        | 220 Vdc | 7-1393091-7 |
| MT323024    |                           |                           | DC+LED+test button     | 24 Vdc  | 8-1393091-4 |
| MT3230C4    |                           |                           | DC+LED+PD+TB           | 24 Vdc  | 7-1393091-9 |
| MT326012    |                           |                           | AC<br>test button      | 12 Vac  | 9-1393091-6 |
| MT326024    |                           |                           |                        | 24 Vac  | 9-1393091-7 |
| MT326048    |                           |                           |                        | 48 Vac  | 9-1393091-8 |
| MT326115    |                           |                           |                        | 115 Vac | 0-1393092-1 |
| MT326230    |                           |                           |                        | 230 Vac | 0-1393092-2 |
| MT328024    |                           |                           | AC+LED<br>test button  | 24 Vac  | 0-1393092-4 |
| MT328115    |                           |                           |                        | 115 Vac | 0-1393092-7 |
| MT328230    |                           |                           |                        | 230 Vac | 0-1393092-8 |
| MT331024    |                           | AgNi 90/10<br>gold plated | DC<br>with test button | 24 Vdc  | 1-1393092-1 |
| MT331110    |                           |                           |                        | 110 Vdc | 1-1393092-3 |
| MT331220    |                           |                           |                        | 220 Vdc | 1-1393092-5 |
| MT333024    |                           |                           | DC+LED+test button     | 24 Vdc  | 1-1393092-8 |
| MT3330C4    |                           |                           | DC+LED+PD+TB           | 24 Vdc  | 1-1393092-6 |
| MT333110    |                           |                           | DC+LED<br>test button  | 110 Vdc | 2-1393092-0 |
| MT333220    |                           |                           |                        | 220 Vdc | 2-1393092-2 |
| MT336115    |                           |                           | AC<br>test button      | 115 Vac | 2-1393092-5 |
| MT336230    |                           |                           |                        | 230 Vac | 2-1393092-6 |
| MT338024    |                           |                           | AC+LED<br>test button  | 24 Vac  | 2-1393092-7 |
| MT338115    |                           |                           |                        | 115 Vac | 8-1415025-1 |
| MT338230    |                           |                           |                        | 230 Vac | 2-1393092-8 |

# Power Relay RM 2/3/7

2 / 3 pole 10 / 16 A, DC- or AC-coil



## Features

- 2 C/O or 3 C/O contacts
- Switching capacity up to 6000 VA
- DC- or AC-coil
- Mechanical indicator
- Push-to-test-button
- Plug-in version, PCB terminals, chassis- or DIN-rail mount

## Applications

Elevator control, power supplies



Technical data of approved types on request

| Contact data                             | RM 2              | RM 3    | RM 7    |
|------------------------------------------|-------------------|---------|---------|
| Configuration                            | 2 C/O             | 3 C/O   | 3 C/O   |
| Type of contact                          | single contact    |         |         |
| Rated current                            | 16 A              | 10 A    | 16 A    |
| Rated voltage / max. breaking voltage AC | 380 Vac / 440 Vac |         |         |
| Maximum breaking capacity AC             | 6000 VA           | 3800 VA | 6000 VA |
| Make current                             | 40 A              | 40 A    | 40 A    |
| Contact material                         | AgCdO             |         |         |

## Contact ratings

| Type | Load                          | Standard |
|------|-------------------------------|----------|
| RM2  | 1hp, 240 Vac, per contact     | UL 508   |
| RM7  | 1.5hp, 240 Vac, 3-phase       | UL 508   |
| RM7  | 15 A, 250 Vac, per contact    | UL 508   |
| RM3  | 1 / 2hp, 240 Vac, per contact | UL 508   |
| RM3  | 10 A, 240 Vac, per contact    | UL 508   |

| Coil data          |         | RM 2   | RM 3        | RM 7   |
|--------------------|---------|--------|-------------|--------|
| Nominal voltage    | DC coil |        | 6...220 Vdc |        |
|                    | AC coil |        | 6...400 Vac |        |
| Nominal coil power | DC coil | 1.2 W  | 1.2 W       | 1.6 W  |
|                    | AC coil | 2.3 VA | 2.3 VA      | 2.8 VA |

## Coil versions, DC-coil, RM2, RM3

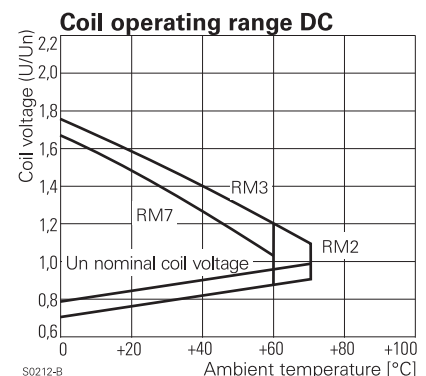
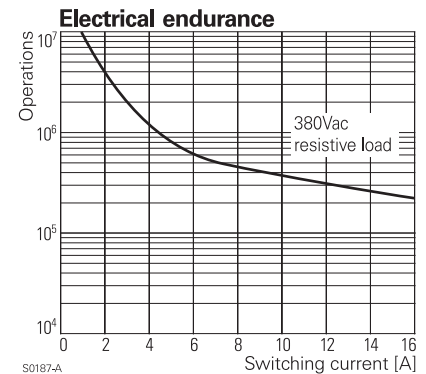
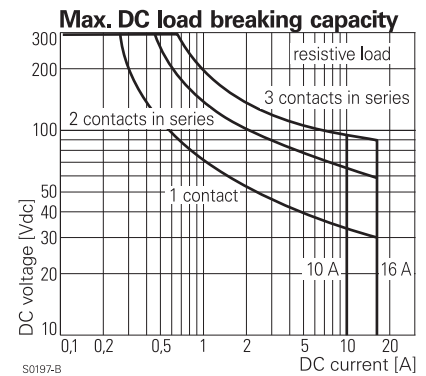
| Coil code  | STD        | LED bipolar | PD* LED PD* | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Coil resistance $\Omega$      | Coil current mA |
|------------|------------|-------------|-------------|---------------------|---------------------|---------------------|-------------------------------|-----------------|
| 006        | L06        | 0A6         | LA6         | 6                   | 4.5                 | 0.6                 | 32 $\pm$ 10%                  | 187.5           |
| 012        | L12        | 0B2         | LB2         | 12                  | 9.0                 | 1.2                 | 110 $\pm$ 10%                 | 109.1           |
| <b>024</b> | <b>L24</b> | <b>0C4</b>  | <b>LC4</b>  | <b>24</b>           | <b>18.0</b>         | <b>2.4</b>          | <b>475<math>\pm</math>10%</b> | <b>50.5</b>     |
| 048        | L48        | 0E8         | LE8         | 48                  | 36.0                | 4.8                 | 2000 $\pm$ 10%                | 24.0            |
| 060        | L60        | 0G0         | LG0         | 60                  | 45.0                | 6.0                 | 2850 $\pm$ 10%                | 21.1            |
| 110        | M10        | 1B0         | MB0         | 110                 | 82.5                | 11.0                | 10000 $\pm$ 12%               | 11.0            |
| 221        | N21        | 2C1         | NC1         | 220                 | 165.0               | 22.0                | 40000 $\pm$ 15%               | 5.5             |

## Coil versions, DC-coil, RM7

|            |            |            |            |           |             |            |                               |             |
|------------|------------|------------|------------|-----------|-------------|------------|-------------------------------|-------------|
| 006        | L06        | 0A6        | LA6        | 6         | 4.5         | 0.6        | 24 $\pm$ 10%                  | 250.0       |
| 012        | L12        | 0B2        | LB2        | 12        | 9.0         | 1.2        | 86 $\pm$ 10%                  | 139.5       |
| <b>024</b> | <b>L24</b> | <b>0C4</b> | <b>LC4</b> | <b>24</b> | <b>18.0</b> | <b>2.4</b> | <b>345<math>\pm</math>10%</b> | <b>69.6</b> |
| 048        | L48        | 0E8        | LE8        | 48        | 36.0        | 4.8        | 1340 $\pm$ 10%                | 35.8        |
| 060        | L60        | 0G0        | LG0        | 60        | 45.0        | 6.0        | 2200 $\pm$ 10%                | 27.3        |
| 110        | M10        | 1B0        | MB0        | 110       | 82.5        | 11.0       | 7300 $\pm$ 10%                | 15.1        |
| 221        | N21        | 2C1        | NC1        | 220       | 165.0       | 22.0       | 30000 $\pm$ 15%               | 7.3         |

All figures are given for coil without preenergization, at ambient temperature +20°C

\* Protection diode PD; standard polarity: +A1 / -A2



# Power Relay RM 2/3/7

2 / 3 pole 10 / 16 A, DC- or AC-coil

## Coil versions, AC-coil, RM2, RM3

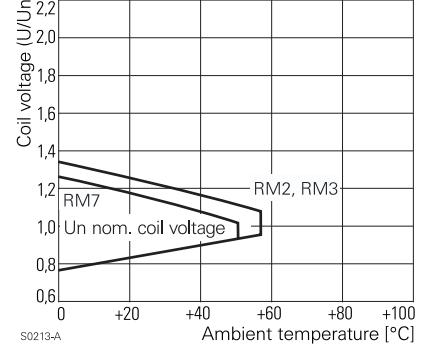
| Coil code  | LED        | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Coil resistance $\Omega$          | Coil current mA |
|------------|------------|---------------------|---------------------|---------------------|-----------------------------------|-----------------|
| 506        | R06        | 6                   | 4.8                 | 2.4                 | $5.3 \pm 10\%$                    | 381.7           |
| 512        | R12        | 12                  | 9.6                 | 4.8                 | $24 \pm 10\%$                     | 182.5           |
| <b>524</b> | <b>R24</b> | <b>24</b>           | <b>19.2</b>         | <b>9.6</b>          | <b><math>86 \pm 10\%</math></b>   | <b>94.2</b>     |
| 548        | R48        | 48                  | 38.4                | 19.2                | $345 \pm 10\%$                    | 47.5            |
| 560        | R60        | 60                  | 48.0                | 24.0                | $544 \pm 10\%$                    | 37.8            |
| 615        | S15        | 115                 | 92.0                | 46.0                | $2000 \pm 10\%$                   | 20.6            |
| <b>730</b> | <b>T30</b> | <b>230</b>          | <b>184.0</b>        | <b>92.0</b>         | <b><math>8300 \pm 12\%</math></b> | <b>10.1</b>     |
| 900        | V00        | 400                 | 320.0               | 160.0               | $27500 \pm 15\%$                  | 5.8             |

## Coil versions, AC-coil, RM7

|            |            |            |              |             |                                   |              |
|------------|------------|------------|--------------|-------------|-----------------------------------|--------------|
| 506        | R06        | 6          | 4.8          | 2.4         | $4.7 \pm 10\%$                    | 476.7        |
| 512        | R12        | 12         | 9.6          | 4.8         | $19.5 \pm 10\%$                   | 225.8        |
| <b>524</b> | <b>R24</b> | <b>24</b>  | <b>19.2</b>  | <b>9.6</b>  | <b><math>80 \pm 10\%</math></b>   | <b>109.2</b> |
| 548        | R48        | 48         | 38.4         | 19.2        | $320 \pm 10\%$                    | 54.2         |
| 560        | R60        | 60         | 48.0         | 24.0        | $500 \pm 10\%$                    | 43.7         |
| 615        | S15        | 115        | 92.0         | 46.0        | $1850 \pm 10\%$                   | 23.0         |
| <b>730</b> | <b>T30</b> | <b>230</b> | <b>184.0</b> | <b>92.0</b> | <b><math>7500 \pm 10\%</math></b> | <b>11.7</b>  |
| 900        | V00        | 400        | 320.0        | 160.0       | $23500 \pm 15\%$                  | 6.5          |

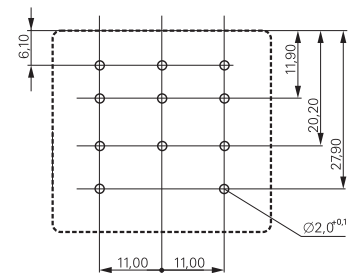
All figures are given for coil without preenergization, at ambient temperature +20°C

## Coil operating range AC



## PCB layout / terminal assignment

View on solder pins  
Dimensions in mm

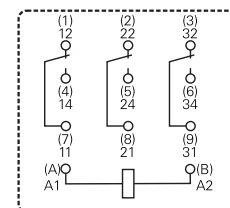


S0269-AA

## Insulation

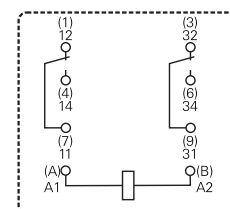
|                                         |                      |                                               |
|-----------------------------------------|----------------------|-----------------------------------------------|
| Dielectric strength                     | coil-contacts        | 2500 V <sub>rms</sub>                         |
|                                         | open contact circuit | 1500 V <sub>rms</sub>                         |
|                                         | adjacent contacts    | 2500 V <sub>rms</sub>                         |
| Clearance / creepage                    |                      | ≥ 3.5 / 6 mm                                  |
| Insulation to VDE 0110b (2/79)          |                      |                                               |
| Insulation category / reference voltage |                      | C / 400 with fully isolated Faston connectors |

## 3 C/O contacts



S0269-AB

## 2 C/O contacts



S0269-AD

## Other data

|                                              | RM 2                                         | RM 3         | RM 7         |
|----------------------------------------------|----------------------------------------------|--------------|--------------|
| Ambient temperature DC-coil                  | -45...+70 °C                                 | -45...+60 °C | -45...+60 °C |
| AC-coil                                      | -45...+55 °C                                 | -45...+55 °C | -45...+50 °C |
| Mechanical life                              | >20x10 <sup>6</sup> operations               |              |              |
| Max. switching rate at rated- / minimum load | 16 min <sup>-1</sup> / 100 min <sup>-1</sup> |              |              |
| Operate- / release time                      | approx. 15 / 10 ms                           |              |              |
| Bounce time                                  | approx. 3 ms                                 |              |              |
| Vibration resistance N/O / N/C contact       | >5 / 2 g                                     | >5 / 2 g     | >12 / 4 g    |
| Category of protection (IEC 61810)           | RT I - dust protected                        |              |              |
| Relay weight                                 | 81 g                                         |              |              |
| Packaging unit                               | 10 / 25 pcs.                                 |              |              |
| Accessories                                  | see accessories RM                           |              |              |

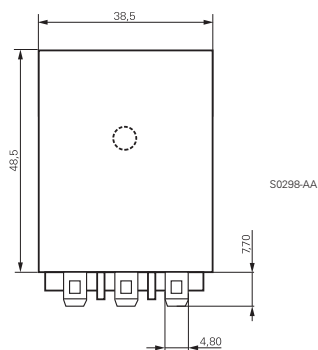
# Power Relay RM 2/3/7

2 / 3 pole 10 / 16 A, DC- or AC-coil

## Dimensions

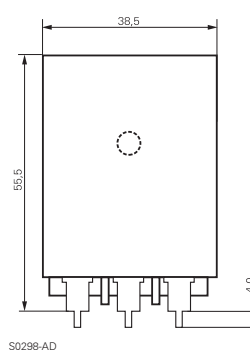
Dimensions in mm

Plain cover, plug-in version

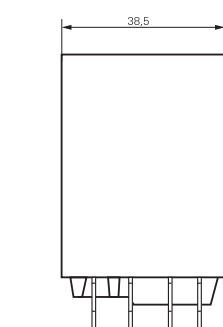


S0298-AA

PCB version

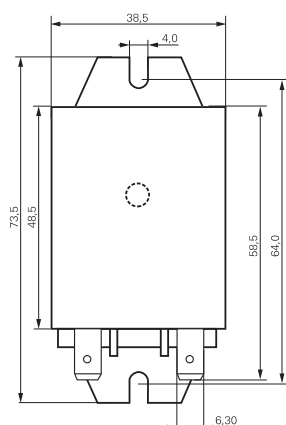


S0298-AD



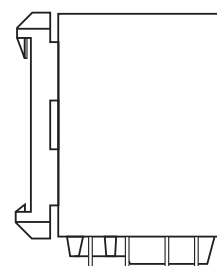
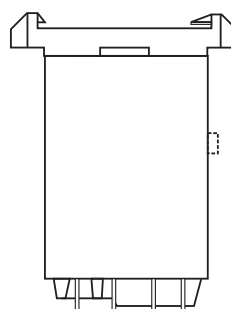
S0298-AB

Cover with mounting brackets, FASTON 250 (187 available)



S0298-AC

Cover with DIN-snap-on attachment (FASTON 250 only)  
horizontal vertical



S0298-AE

## Product key

Type

Contacts

**2** 2 C/O contacts, 16 A

**3** 3 C/O contacts, 10 A

**7** 3 C/O contacts, 16 A

Version

**0** without test button

**3** with test button

Enclosure

**2** plain cover, AMP-Faston 187

**3** cover with mounting brackets, AMP-Faston 187

**5** cover with mounting brackets, AMP-Faston 250

**7** PCB version

**8** cover with DIN-snap-on attachment, horizontal, AMP-Faston 250

**9** cover with DIN-snap-on attachment, vertical, AMP-Faston 250

Coil

Coil code: please refer to coil versions table, preferred types in bold print

AMP-Faston 187 = 4.8 x 0.5 mm

AMP-Faston 250 = 6.3 x 0.8 mm

|          |          |  |  |  |  |  |  |
|----------|----------|--|--|--|--|--|--|
| <b>R</b> | <b>M</b> |  |  |  |  |  |  |
|          |          |  |  |  |  |  |  |

# Power Relay RM 2/3/7

2 / 3 pole 10 / 16 A, DC- or AC-coil

| Product key | Contacts               | Version                | Enclosure                    | Coil    | Coil    | Part number |
|-------------|------------------------|------------------------|------------------------------|---------|---------|-------------|
| RM202024    | 2 C/O contacts<br>16 A | without<br>test button | plain cover                  | DC-coil | 24 Vdc  | 8-1393149-2 |
| RM202524    |                        |                        |                              | AC-coil | 24 Vac  | 1-1393146-9 |
| RM202615    |                        |                        | mounting brackets<br>AMP 187 |         | 115 Vac | 2-1393146-0 |
| RM202730    |                        |                        |                              |         | 230 Vac | 1-1393148-4 |
| RM203024    |                        |                        |                              | DC-coil | 24 Vdc  | 1-1393148-6 |
| RM203524    |                        |                        |                              | AC-coil | 24 Vac  | 2-1393146-5 |
| RM203615    |                        |                        | mounting brackets<br>AMP 250 |         | 115 Vac | 2-1393146-6 |
| RM203730    |                        |                        |                              |         | 230 Vac | 2-1393146-8 |
| RM205024    |                        |                        |                              | DC-coil | 24 Vdc  | 2-1393146-9 |
| RM205524    |                        |                        |                              | AC-coil | 24 Vac  | 3-1393146-0 |
| RM205615    |                        |                        | PCB version                  |         | 115 Vac | 3-1393146-1 |
| RM205730    |                        |                        |                              |         | 230 Vac | 3-1393146-2 |
| RM207024    |                        |                        |                              | DC-coil | 24 Vdc  | 3-1393146-3 |
| RM207615    |                        |                        |                              | AC-coil | 115 Vac | 8-1393149-5 |
| RM207730    |                        |                        | DIN-snap-on<br>horizontal    |         | 230 Vac | 3-1393146-4 |
| RM208024    |                        |                        |                              | DC-coil | 24 Vdc  | 3-1393146-5 |
| RM208730    |                        |                        |                              | AC-coil | 230 Vac | 8-1393149-6 |
| RM209730    |                        |                        | DIN vertical                 |         | 230 Vac | 3-1393146-6 |
| RM232024    |                        | with<br>test button    | plain cover                  | DC-coil | 24 Vdc  | 3-1393146-8 |
| RM232524    |                        |                        |                              | AC-coil | 24 Vac  | 3-1393146-9 |
| RM232615    |                        |                        | mounting brackets<br>AMP 187 |         | 115 Vac | 4-1393146-0 |
| RM232730    |                        |                        |                              |         | 230 Vac | 3-1393107-4 |
| RM233024    |                        |                        |                              | DC-coil | 24 Vdc  | 3-1393107-5 |
| RM233615    |                        |                        |                              | AC-coil | 115 Vac | 4-1393146-2 |
| RM235024    |                        |                        | mounting brackets<br>AMP 250 | DC-coil | 24 Vdc  | 8-1393149-8 |
| RM235730    |                        |                        |                              | AC-coil | 230 Vac | 4-1393146-5 |
| RM239730    |                        |                        |                              |         | 230 Vac | 4-1393148-7 |
| RM302024    |                        |                        | plain cover                  | DC-coil | 24 Vdc  | 8-1393149-9 |
| RM302524    |                        |                        |                              | AC-coil | 24 Vac  | 5-1393146-3 |
| RM302615    |                        |                        | PCB version                  |         | 115 Vac | 5-1393146-4 |
| RM302730    |                        |                        |                              |         | 230 Vac | 5-1419150-3 |
| RM303024    |                        |                        |                              | DC-coil | 24 Vdc  | 6-1393148-4 |
| RM303615    |                        |                        |                              | AC-coil | 115 Vac | 5-1393146-5 |
| RM303730    |                        |                        | PCB version                  |         | 230 Vac | 5-1393146-7 |
| RM307024    |                        |                        |                              | DC-coil | 24 Vdc  | 7-1393148-2 |
| RM307730    |                        |                        |                              | AC-coil | 230 Vac | 5-1393146-9 |
| RM332024    |                        | with<br>test button    | mounting brackets<br>AMP 187 | DC-coil | 24 Vdc  | 9-1393149-2 |
| RM332524    |                        |                        |                              | AC-coil | 24 Vac  | 9-1393149-3 |
| RM332730    |                        |                        | mount. Br AMP250             |         | 230 Vac | 9-1393149-4 |
| RM333024    |                        |                        |                              | DC-coil | 24 Vdc  | 9-1393149-6 |
| RM335730    |                        |                        |                              | AC-coil | 230 Vac | 6-1393107-1 |
| RM338730    |                        |                        |                              |         | 230 Vac | 7-1393148-7 |
| RM339730    |                        |                        | DIN vertical                 |         | 230 Vac | 6-1393107-2 |
| RM702024    | 3 C/O contacts<br>16 A | without<br>test button | plain cover                  | DC-coil | 24 Vdc  | 8-1393146-5 |
| RM702524    |                        |                        |                              | AC-coil | 24 Vac  | 0-1393844-9 |
| RM702615    |                        |                        | mounting brackets<br>AMP 250 |         | 115 Vac | 1-1393844-0 |
| RM702730    |                        |                        |                              |         | 230 Vac | 1-1393844-1 |
| RM703024    |                        |                        |                              | DC-coil | 24 Vdc  | 1-1393844-2 |
| RM703524    |                        |                        | PCB version                  | AC-coil | 24 Vac  | 9-1393146-1 |
| RM703615    |                        |                        |                              |         | 115 Vac | 9-1393146-2 |
| RM703730    |                        |                        |                              |         | 230 Vac | 9-1393146-4 |
| RM705024    |                        |                        |                              | DC-coil | 24 Vdc  | 9-1393146-6 |
| RM705524    |                        |                        | PCB version                  | AC-coil | 24 Vac  | 9-1393146-7 |
| RM705615    |                        |                        |                              |         | 115 Vac | 1-1393844-4 |
| RM705730    |                        |                        |                              |         | 230 Vac | 1-1393844-5 |
| RM707024    |                        |                        |                              | DC-coil | 24 Vdc  | 9-1393146-8 |
| RM707524    |                        |                        | DIN-snap-on<br>AMP 250       | AC-coil | 24 Vac  | 0-1393147-1 |
| RM707730    |                        |                        |                              |         | 230 Vac | 0-1393147-2 |
| RM708024    |                        |                        |                              | DC-coil | 24 Vdc  | 0-1393147-4 |
| RM708730    |                        |                        |                              |         | 230 Vac | 1-1419136-0 |
| RM709024    |                        |                        | DIN-snap-on<br>AMP 250       | DC-coil | 24 Vdc  | 2-1393149-2 |
| RM709730    |                        |                        |                              | AC-coil | 230 Vac | 0-1393147-5 |
| RM732024    |                        | with<br>test button    | mounting brackets<br>AMP 187 | DC-coil | 24 Vdc  | 1-1393844-7 |
| RM732524    |                        |                        |                              | AC-coil | 24 Vac  | 1-1393147-0 |
| RM732615    |                        |                        | mounting brackets<br>AMP 250 |         | 115 Vac | 1-1393147-1 |
| RM732730    |                        |                        |                              |         | 230 Vac | 1-1393844-8 |
| RM733730    |                        |                        |                              |         | 230 Vac | 1-1393147-5 |
| RM735024    |                        |                        |                              | DC-coil | 24 Vdc  | 3-1393149-6 |
| RM735524    |                        |                        | PCB version                  | AC-coil | 24 Vac  | 3-1393149-7 |
| RM735730    |                        |                        |                              |         | 230 Vac | 4-1393149-1 |
| RM737730    |                        |                        |                              |         | 230 Vac | 2-1393147-0 |
| RM738024    |                        |                        | DIN-snap-on<br>horizontal    | DC-coil | 24 Vdc  | 2-1393844-0 |
| RM738730    |                        |                        |                              | AC-coil | 230 Vac | 2-1393147-2 |
| RM739024    |                        |                        | DIN-snap-on<br>vertical      | DC-coil | 24 Vdc  | 4-1393149-5 |
| RM739730    |                        |                        |                              | AC-coil | 230 Vac | 2-1393844-2 |

# Power Relay RM 5/6

2 / 3 pole 10 / 16 A, DC- or AC-coil



F0164-A

## Features

- 2 N/O or 3 N/O contacts
- 3 mm contact gap
- Push-to-test-button
- Plug-in version, PCB terminals, chassis- or DIN-rail mount

## Applications

Power supplies, pump control



Technical data of approved types on request

| Contact data                              | RM 5              | RM 6          |
|-------------------------------------------|-------------------|---------------|
| Configuration                             | 2 N/O contact     | 3 N/O contact |
| Type of contact                           | single contact    |               |
| Rated current                             | 16 A              | 10 A          |
| Rated voltage / max.breaking voltage AC   | 380 Vac / 440 Vac |               |
| Maximum breaking capacity AC              | 6000 VA           | 3800 VA       |
| Make current (max. 4 s at duty cycle 10%) | 25 A              | 25 A          |
| Contact material                          | AgCdO             |               |

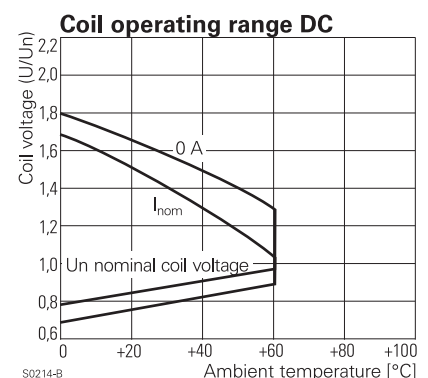
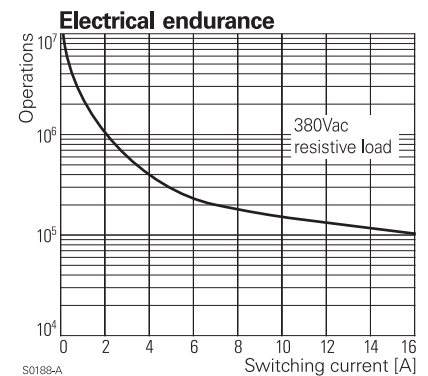
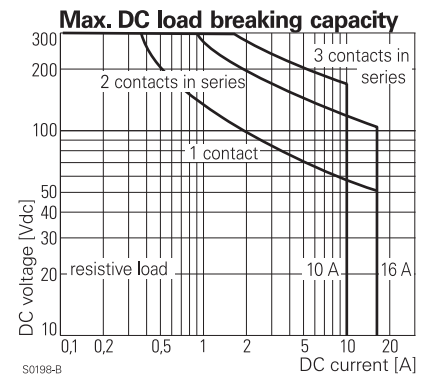
| Coil data          |         |             |
|--------------------|---------|-------------|
| Nominal voltage    | DC coil | 6...220 Vdc |
|                    | AC coil | 6...400 Vac |
| Nominal coil power | DC coil | 1.6 W       |
|                    | AC coil | 2.8 VA      |

## Coil versions, DC-coil, RM5, RM6

| Coil code  | STD        | LED        | PD*        | LED | Nominal voltage | Pull-in voltage | Release voltage | Coil resistance | Coil current |
|------------|------------|------------|------------|-----|-----------------|-----------------|-----------------|-----------------|--------------|
|            |            | bipolar    |            | PD* | Vdc             | Vdc             | Vdc             | Ω               | mA           |
| 006        | L06        | 0A6        | LA6        |     | 6               | 4.5             | 0.6             | 24±10%          | 250.0        |
| 012        | L12        | 0B2        | LB2        |     | 12              | 9.0             | 1.2             | 86±10%          | 139.5        |
| <b>024</b> | <b>L24</b> | <b>0C4</b> | <b>LC4</b> |     | <b>24</b>       | <b>18.0</b>     | <b>2.4</b>      | <b>345±10%</b>  | <b>69.6</b>  |
| 048        | L48        | 0E8        | LE8        |     | 48              | 36.0            | 4.8             | 1340±10%        | 35.8         |
| 060        | L60        | 0G0        | LG0        |     | 60              | 45.0            | 6.0             | 2200±10%        | 27.3         |
| 110        | M10        | 1B0        | MB0        |     | 110             | 82.5            | 11.0            | 7300±10%        | 15.1         |
| 221        | N21        | 2C1        | NC1        |     | 220             | 165.0           | 22.0            | 30000±15%       | 7.3          |

All figures are given for coil without preenergization, at ambient temperature +20°C

\* Protection diode PD; standard polarity: +A1 / -A2



# Power Relay RM 5/6

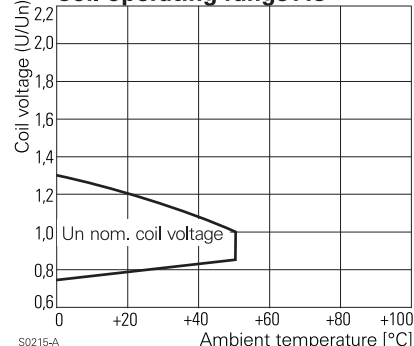
## 2 / 3 pole 10 / 16 A, DC- or AC-coil

### Coil versions, AC-coil, RM5, RM6

| Coil code  | LED        | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Coil resistance $\Omega$          | Coil current mA |
|------------|------------|---------------------|---------------------|---------------------|-----------------------------------|-----------------|
| 506        | R06        | 6                   | 4.8                 | 2.4                 | $4.7 \pm 10\%$                    | 476.7           |
| 512        | R12        | 12                  | 9.6                 | 4.8                 | $19.5 \pm 10\%$                   | 225.8           |
| <b>524</b> | <b>R24</b> | <b>24</b>           | <b>19.2</b>         | <b>9.6</b>          | <b><math>80 \pm 10\%</math></b>   | <b>109.2</b>    |
| 548        | R48        | 48                  | 38.4                | 19.2                | $320 \pm 10\%$                    | 54.2            |
| 560        | R60        | 60                  | 48.0                | 24.0                | $500 \pm 10\%$                    | 43.7            |
| 615        | S15        | 115                 | 92.0                | 46.0                | $1850 \pm 10\%$                   | 23.0            |
| <b>730</b> | <b>T30</b> | <b>230</b>          | <b>184.0</b>        | <b>92.0</b>         | <b><math>7500 \pm 10\%</math></b> | <b>11.7</b>     |
| 900        | V00        | 400                 | 320.0               | 160.0               | $23500 \pm 15\%$                  | 6.5             |

All figures are given for coil without preenergization, at ambient temperature +20°C

### Coil operating range AC



### Insulation

|                                         |                      |                                               |
|-----------------------------------------|----------------------|-----------------------------------------------|
| Dielectric strength                     | coil-contacts        | 2500 V <sub>rms</sub>                         |
|                                         | open contact circuit | 2500 V <sub>rms</sub>                         |
|                                         | adjacent contacts    | 2500 V <sub>rms</sub>                         |
| Clearance / creepage                    |                      | ≥ 3.5 / 6 mm                                  |
| Insulation to VDE 0110b (2/79)          |                      |                                               |
| Insulation category / reference voltage |                      | C / 400 with fully isolated Faston connectors |

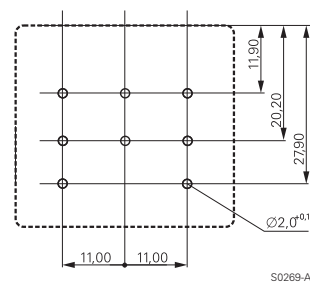
### Other data

|                                              |                                              |              |
|----------------------------------------------|----------------------------------------------|--------------|
| Ambient temperature                          | DC-coil                                      | -45...+60 °C |
|                                              | AC-coil                                      | -45...+50 °C |
| Mechanical life                              | >20x10 <sup>6</sup> operations               |              |
| Max. switching rate at rated- / minimum load | 16 min <sup>-1</sup> / 100 min <sup>-1</sup> |              |
| Operate- / release time                      | approx. 15 / 10 ms                           |              |
| Bounce time                                  | approx. 4 ms                                 |              |
| Vibration resistance                         | >12 g, 30...150 Hz                           |              |
| Category of protection (IEC 61810)           | RT I - dust protected                        |              |
| Relay weight                                 | 81 g                                         |              |
| Packaging unit                               | 10 / 25 pcs.                                 |              |
| Accessories                                  | see accessories RM                           |              |

### PCB layout / terminal assignment

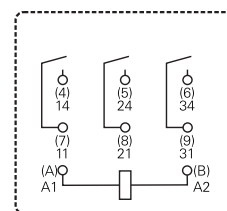
View on solder pins

Dimensions in mm



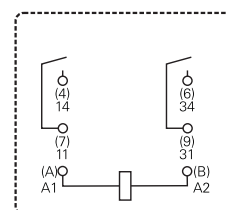
S0269-AF

### 3 N/O contacts



S0269-AC

### 2 N/O contacts



S0269-AE

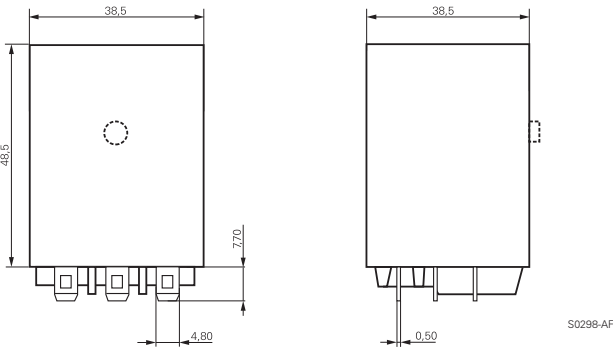
# Power Relay RM 5/6

2 / 3 pole 10 / 16 A, DC- or AC-coil

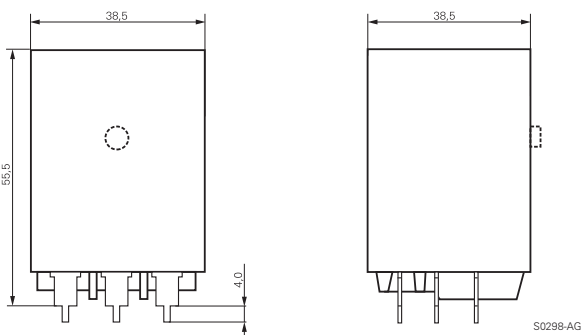
## Dimensions

Dimensions in mm

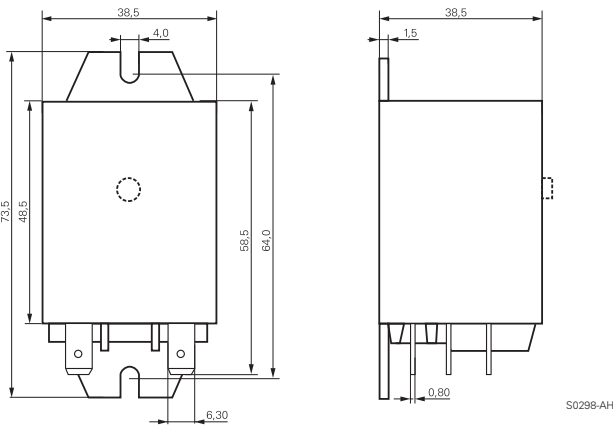
Plain cover, plug-in version



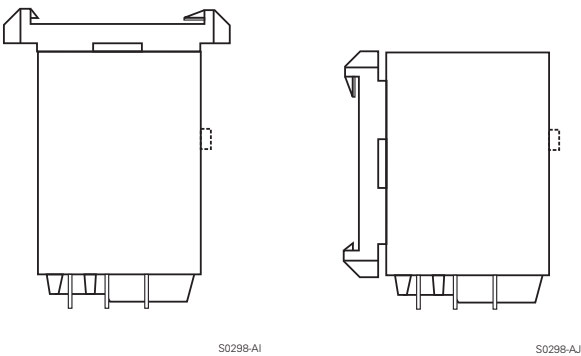
PCB version



Cover with mounting brackets, FASTON 250 (187 available)



Cover with DIN-snap-on attachment (FASTON 250 only)  
horizontal vertical



## Product key

| Product key                   |                                                                               | R                                                             | M |  |          |                      |  |  |  |
|-------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------|---|--|----------|----------------------|--|--|--|
| Type                          |                                                                               |                                                               |   |  |          |                      |  |  |  |
| Contacts                      |                                                                               |                                                               |   |  |          |                      |  |  |  |
|                               | <b>5</b>                                                                      | 2 N/O contacts, 16 A                                          |   |  | <b>6</b> | 3 N/O contacts, 10 A |  |  |  |
| Version                       |                                                                               |                                                               |   |  |          |                      |  |  |  |
|                               | <b>0</b>                                                                      | without test button, without mechanical indicator             |   |  |          |                      |  |  |  |
|                               | <b>3</b>                                                                      | with test button, without mechanical indicator                |   |  |          |                      |  |  |  |
| Mounting                      |                                                                               |                                                               |   |  |          |                      |  |  |  |
|                               | <b>2</b>                                                                      | plain cover, AMP-Faston 187                                   |   |  |          |                      |  |  |  |
|                               | <b>3</b>                                                                      | cover with mounting brackets, AMP-Faston 187                  |   |  |          |                      |  |  |  |
|                               | <b>5</b>                                                                      | cover with mounting brackets, AMP-Faston 250                  |   |  |          |                      |  |  |  |
|                               | <b>7</b>                                                                      | PCB version                                                   |   |  |          |                      |  |  |  |
|                               | <b>8</b>                                                                      | cover with DIN-snap-on attachment, horizontal, AMP-Faston 250 |   |  |          |                      |  |  |  |
|                               | <b>9</b>                                                                      | cover with DIN-snap-on attachment, vertical, AMP-Faston 250   |   |  |          |                      |  |  |  |
| Coil                          |                                                                               |                                                               |   |  |          |                      |  |  |  |
|                               | Coil code: please refer to coil versions table, preferred types in bold print |                                                               |   |  |          |                      |  |  |  |
| AMP-Faston 187 = 4.8 x 0.5 mm |                                                                               | AMP-Faston 250 = 6.3 x 0.8 mm                                 |   |  |          |                      |  |  |  |

## Power Relay RM 5/6

2 / 3 pole 10 / 16 A, DC- or AC-coil

| Product key | Contacts               | Version         | Enclosure         | Coil    | Coil    | Part number |
|-------------|------------------------|-----------------|-------------------|---------|---------|-------------|
| RM502024    | 2 N/O contacts<br>16 A | without         | plain cover       | DC-coil | 24 Vdc  | 6-1393146-1 |
| RM502524    |                        | test button     | AMP 187           | AC-coil | 24 Vac  | 6-1393146-2 |
| RM502615    |                        | without         |                   |         | 115 Vac | 6-1393146-3 |
| RM502730    |                        | mech.indicator  |                   |         | 230 Vac | 6-1393146-4 |
| RM503024    |                        |                 | mounting brackets | DC-coil | 24 Vdc  | 8-1393148-0 |
| RM503615    |                        |                 | AMP 187           | AC-coil | 115 Vac | 6-1393146-5 |
| RM505024    |                        |                 | mounting brackets | DC-coil | 24 Vdc  | 8-1393148-3 |
| RM505615    |                        |                 | AMP 250           | AC-coil | 115 Vac | 6-1393146-6 |
| RM505730    |                        |                 |                   |         | 230 Vac | 9-1393149-9 |
| RM507024    |                        |                 | PCB version       | DC-coil | 24 Vdc  | 0-1393844-1 |
| RM507524    |                        |                 |                   | AC-coil | 24 Vac  | 5-1415008-1 |
| RM507615    |                        |                 |                   |         | 115 Vac | 6-1415015-1 |
| RM507730    |                        |                 |                   |         | 230 Vac | 0-1415008-1 |
| RM535024    |                        | test button     | mounting brackets | DC-coil | 24 Vdc  | 7-1393146-2 |
| RM535524    |                        | mech.indicator  | AMP 250           | AC-coil | 24 Vac  | 9-1393148-0 |
| RM602024    | 3 N/O contacts<br>10 A | without         | plain cover       | DC-coil | 24 Vdc  | 0-1393844-4 |
| RM602615    |                        | test button     | AMP 187           | AC-coil | 115 Vac | 9-1393148-7 |
| RM605730    |                        | without         | mount.br.AMP250   |         | 230 Vac | 7-1393146-6 |
| RM607024    |                        | mechanical ind. | PCB version       | DC-coil | 24 Vdc  | 0-1393844-6 |
| RM607524    |                        |                 |                   | AC-coil | 24 Vac  | 7-1393146-8 |
| RM607615    |                        |                 |                   |         | 115 Vac | 8-1415015-1 |
| RM607730    |                        |                 |                   |         | 230 Vac | 7-1393146-9 |
| RM632024    |                        | with            | plain cover       | DC-coil | 24 Vdc  | 8-1393146-0 |
| RM632730    |                        | test button     | AMP 187           | AC-coil | 230 Vac | 0-1393149-7 |
| RM635024    |                        | with            | mount.br.AMP250   | DC-coil | 24 Vdc  | 7-1393107-7 |
| RM637024    |                        | mech.indicator  | PCB version       |         | 24 Vdc  | 0-1393149-9 |

# Power Relay RM 8

2 pole 25 A, DC- or AC-coil



F0165-A

## Features

- 2 C/O contacts
- DC- or AC-coil
- Mechanical indicator
- Push-to-test-button
- Chassis- or DIN-rail mount

## Applications

Cleaning equipment, heating and cooling equipment



Technical data of approved types on request

## Contact data

|                                           |                   |
|-------------------------------------------|-------------------|
| Configuration                             | 2 C/O contact     |
| Type of contact                           | single contact    |
| Rated current                             | 25 A              |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 440 Vac |
| Maximum breaking capacity AC              | 6000 VA           |
| Make current (max. 4 s at duty cycle 10%) | 60 A              |
| Contact material                          | AgCdO             |

## Contact ratings

| Type | Load                        | Standard |
|------|-----------------------------|----------|
| RM8  | 2hp, 240 Vac, per contact   | UL 508   |
| RM8  | 1.5hp, 120 Vac, per contact | UL 508   |
| RM8  | 25 A, 240 Vac, per contact  | UL 508   |

## Coil data

|                    |         |             |
|--------------------|---------|-------------|
| Nominal voltage    | DC coil | 6...220 Vdc |
|                    | AC coil | 6...400 Vac |
| Nominal coil power | DC coil | 1.2 W       |
|                    | AC coil | 2.8 VA      |

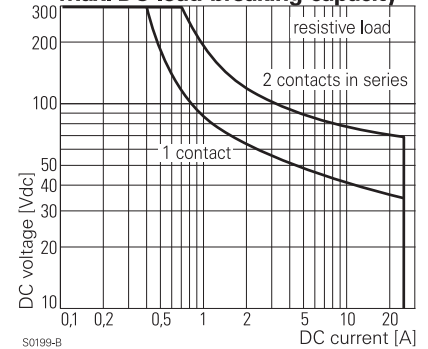
## Coil versions, DC-coil, RM8

| Coil code  | LED        | PD*        | LED        | Nominal voltage | Pull-in voltage | Release voltage | Coil resistance                  | Coil current |
|------------|------------|------------|------------|-----------------|-----------------|-----------------|----------------------------------|--------------|
| STD        | bipolar    |            | PD*        | Vdc             | Vdc             | Vdc             | $\Omega$                         | mA           |
| 006        | L06        | 0A6        | LA6        | 6               | 4.5             | 0.6             | $32 \pm 10\%$                    | 187.5        |
| 012        | L12        | 0B2        | LB2        | 12              | 9.0             | 1.2             | $110 \pm 10\%$                   | 109.1        |
| <b>024</b> | <b>L24</b> | <b>0C4</b> | <b>LC4</b> | <b>24</b>       | <b>18.0</b>     | <b>2.4</b>      | <b><math>475 \pm 10\%</math></b> | <b>50.5</b>  |
| 048        | L48        | 0E8        | LE8        | 48              | 36.0            | 4.8             | $2000 \pm 10\%$                  | 24.0         |
| 060        | L60        | 0G0        | LG0        | 60              | 45.0            | 6.0             | $2850 \pm 10\%$                  | 21.1         |
| 110        | M10        | 1B0        | MB0        | 110             | 82.5            | 11.0            | $10000 \pm 12\%$                 | 11.0         |
| 221        | N21        | 2C1        | NC1        | 220             | 165.0           | 22.0            | $40000 \pm 15\%$                 | 5.5          |

All figures are given for coil without preenergization, at ambient temperature +20°C

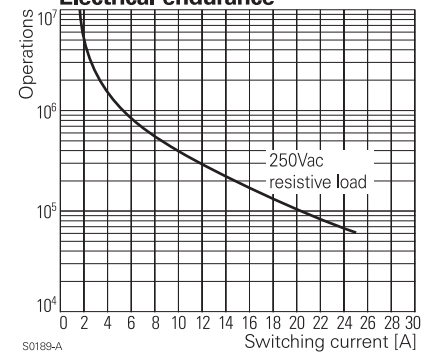
\* Protection diode PD; standard polarity: +A1 / -A2

## Max. DC load breaking capacity



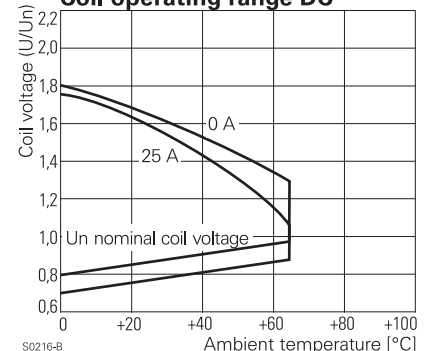
S0199-B

## Electrical endurance



S0189-A

## Coil operating range DC



S0216-B

# Power Relay RM 8

2 pole 25 A, DC- or AC-coil

## Coil versions, AC-coil, RM8

| Coil code<br>Standard | LED        | Nominal<br>voltage<br>Vac | Pull-in<br>voltage<br>Vac | Release<br>voltage<br>Vac | Coil<br>resistance<br>$\Omega$    | Coil<br>current<br>mA |
|-----------------------|------------|---------------------------|---------------------------|---------------------------|-----------------------------------|-----------------------|
| 506                   | R06        | 6                         | 4.8                       | 2.4                       | $4.7 \pm 10\%$                    | 476.7                 |
| 512                   | R12        | 12                        | 9.6                       | 4.8                       | $19.5 \pm 10\%$                   | 225.8                 |
| <b>524</b>            | <b>R24</b> | <b>24</b>                 | <b>19.2</b>               | <b>9.6</b>                | <b><math>80 \pm 10\%</math></b>   | <b>109.2</b>          |
| 548                   | R48        | 48                        | 38.4                      | 19.2                      | $320 \pm 10\%$                    | 54.2                  |
| 560                   | R60        | 60                        | 48.0                      | 24.0                      | $500 \pm 10\%$                    | 43.7                  |
| 615                   | S15        | 115                       | 92.0                      | 46.0                      | $1850 \pm 10\%$                   | 23.0                  |
| <b>730</b>            | <b>T30</b> | <b>230</b>                | <b>184.0</b>              | <b>92.0</b>               | <b><math>7500 \pm 10\%</math></b> | <b>11.7</b>           |
| 900                   | V00        | 400                       | 320.0                     | 160.0                     | $23500 \pm 15\%$                  | 6.5                   |

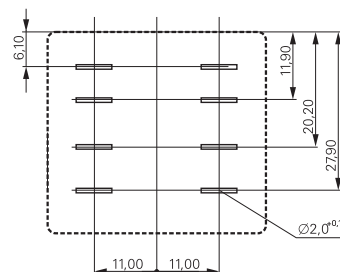
All figures are given for coil without preenergization, at ambient temperature +20°C

## Insulation

|                                |                                         |                           |
|--------------------------------|-----------------------------------------|---------------------------|
| Dielectric strength            | coil-contacts                           | 2500 V <sub>rms</sub>     |
|                                | open contact circuit                    | 1500 V <sub>rms</sub>     |
|                                | adjacent contacts                       | 4000 V <sub>rms</sub>     |
| Clearance / creepage           |                                         | $\geq 2.8 / 4 \text{ mm}$ |
| Insulation to VDE 0110b (2/79) |                                         |                           |
|                                | Insulation category / reference voltage | C / 250                   |

## Terminal assignment

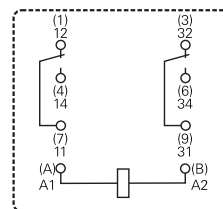
View on solder pins  
Dimensions in mm



S0269-AG

## Other data

|                                              |         |                                              |
|----------------------------------------------|---------|----------------------------------------------|
| Ambient temperature                          | DC-coil | -45...+65 °C                                 |
|                                              | AC-coil | -45...+40 °C                                 |
| Mechanical life                              |         | >10x10 <sup>6</sup> operations               |
| Max. switching rate at rated- / minimum load |         | 16 min <sup>-1</sup> / 100 min <sup>-1</sup> |
| Operate- / release time                      |         | approx. 15 / 15 ms                           |
| Bounce time                                  |         | approx. 3 ms                                 |
| Vibration resistance N/O / N/C contact       |         | >10 / 5 g, 30...150 Hz                       |
| Category of protection (IEC 61810)           |         | RT I - dust protected                        |
| Relay weight                                 |         | 81 g                                         |
| Packaging unit                               |         | 10 / 25 pcs.                                 |



S0269-AD

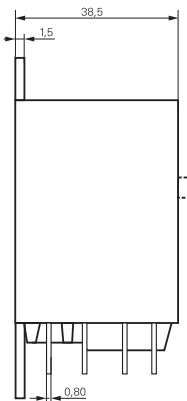
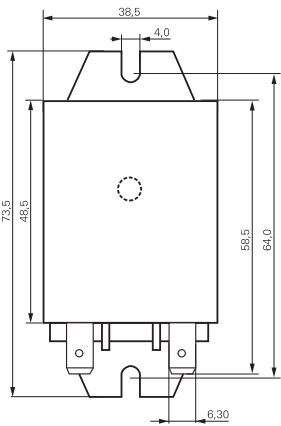
# Power Relay RM 8

2 pole 25 A, DC- or AC-coil

## Dimensions

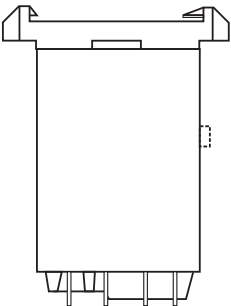
Dimensions in mm

Cover with mounting brackets, FASTON 250



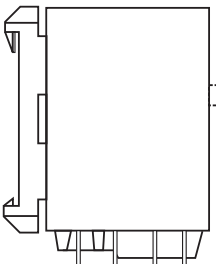
S0298-AC

Cover with DIN-snap-on attachment  
horizontal



S0298-AD

vertical



S0298-AE

## Product key

Type

Contacts

**8** 2 C/O contacts, 25 A

Version

**0** without test button **3** with test button

Mounting

**5** cover with mounting brackets, AMP-Faston 250  
**8** cover with DIN-snap-on attachment, horizontal, AMP-Faston 250  
**9** cover with DIN-snap-on attachment, vertical, AMP-Faston 250

Coil

Coil code: please refer to coil versions table, preferred types in bold print

AMP-Faston 250 = 6.3 x 0.8 mm

| Product key | Contacts               | Version                | Enclosure                    | Coil    | Coil    | Part number |
|-------------|------------------------|------------------------|------------------------------|---------|---------|-------------|
| RM805024    | 2 C/O contacts<br>25 A | without<br>test button | mounting brackets<br>AMP 250 | DC-coil | 24 Vdc  | 2-1393844-7 |
| RM805524    |                        |                        |                              | AC-coil | 24 Vac  | 2-1393147-9 |
| RM805615    |                        |                        |                              |         | 115 Vac | 3-1393147-1 |
| RM805730    |                        |                        |                              |         | 230 Vac | 3-1393147-3 |
| RM808024    |                        |                        | DIN-snap-on<br>horizontal    | DC-coil | 24 Vdc  | 2-1393844-9 |
| RM808524    |                        |                        |                              | AC-coil | 24 Vac  | 3-1393147-7 |
| RM808730    |                        |                        |                              |         | 230 Vac | 5-1393149-7 |
| RM809024    |                        |                        | DIN-snap-on<br>vertical      | DC-coil | 24 Vdc  | 5-1393149-8 |
| RM809615    |                        |                        |                              | AC-coil | 115 Vac | 3-1393147-8 |
| RM809730    |                        |                        |                              |         | 230 Vac | 3-1393147-9 |
| RM835024    |                        | with<br>test button    | mounting brackets<br>AMP 250 | DC-coil | 24 Vdc  | 4-1393147-1 |
| RM835524    |                        |                        |                              | AC-coil | 24 Vac  | 4-1393147-3 |
| RM835615    |                        |                        |                              |         | 115 Vac | 4-1393147-4 |
| RM835730    |                        |                        |                              |         | 230 Vac | 4-1393147-6 |
| RM838024    |                        |                        | DIN-snap-on<br>horizontal    | DC-coil | 24 Vdc  | 4-1393147-8 |
| RM838524    |                        |                        |                              | AC-coil | 24 Vac  | 5-1393147-0 |
| RM838730    |                        |                        |                              |         | 230 Vac | 5-1393147-1 |
| RM839024    |                        |                        | DIN-snap-on<br>vertical      | DC-coil | 24 Vdc  | 5-1393147-4 |
| RM839524    |                        |                        |                              | AC-coil | 24 Vac  | 5-1393147-5 |
| RM839730    |                        |                        |                              |         | 230 Vac | 5-1393147-6 |

# Power Relay RM C/D

1 pole 30 A, DC- or AC-coil



F0166-A

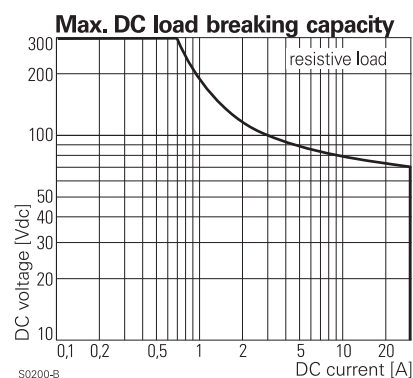
## Features

- 1 N/O or 1 N/O + 1 N/C contact
- Switching capacity up to 7200 VA
- DC- or AC-coil
- Push-to-test-button
- Chassis mount

## Applications

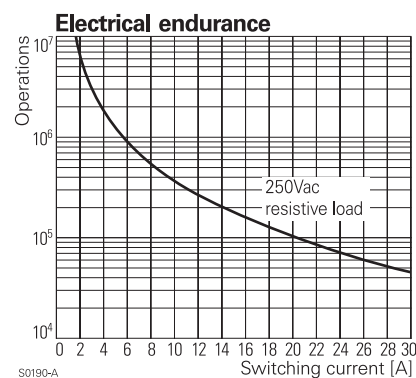
Battery chargers, heating control

| Contact data                              | RMC                              | RMD   |
|-------------------------------------------|----------------------------------|-------|
| Configuration                             | 1 N/O and 1N/C                   | 1 N/O |
| Type of contact                           | single contact, bridging contact |       |
| Rated current                             | 30 A                             |       |
| Rated voltage / max.breaking voltage AC   | 250 Vac / 380 Vac / 440 Vac      |       |
| Maximum breaking capacity AC              | 7500 VA                          |       |
| Make current (max. 4 s at duty cycle 10%) | 60 A                             |       |
| Contact material                          | AgCdO                            |       |



## Coil data

|                    |         |             |
|--------------------|---------|-------------|
| Nominal voltage    | DC coil | 6...220 Vdc |
|                    | AC coil | 6...400 Vac |
| Nominal coil power | DC coil | 1.2 W       |
|                    | AC coil | 2.8 VA      |

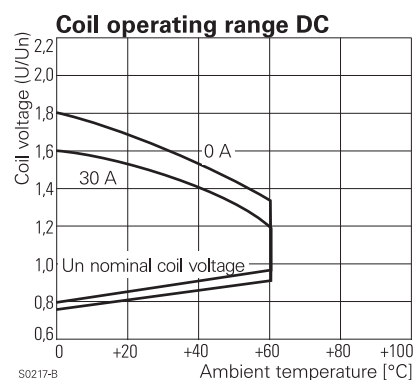


## Coil versions, DC-coil, RMC, RMD

| Coil code  | STD        | LED        | PD*        | LED | Nominal voltage | Pull-in voltage | Release voltage | Coil resistance | Coil current |
|------------|------------|------------|------------|-----|-----------------|-----------------|-----------------|-----------------|--------------|
|            |            | bipolar    |            | PD* | Vdc             | Vdc             | Vdc             | Ω               | mA           |
| 006        | L06        | 0A6        | LA6        |     | 6               | 4.5             | 0.6             | 32±10%          | 187.5        |
| 012        | L12        | 0B2        | LB2        |     | 12              | 9.0             | 1.2             | 110±10%         | 109.1        |
| <b>024</b> | <b>L24</b> | <b>0C4</b> | <b>LC4</b> |     | <b>24</b>       | <b>18.0</b>     | <b>2.4</b>      | <b>475±10%</b>  | <b>50.5</b>  |
| 048        | L48        | 0E8        | LE8        |     | 48              | 36.0            | 4.8             | 2000±10%        | 24.0         |
| 060        | L60        | 0G0        | LG0        |     | 60              | 45.0            | 6.0             | 2850±10%        | 21.1         |
| 110        | M10        | 1B0        | MB0        |     | 110             | 82.5            | 11.0            | 10000±12%       | 11.0         |
| 221        | N21        | 2C1        | NC1        |     | 220             | 165.0           | 22.0            | 40000±15%       | 5.5          |

All figures are given for coil without preenergization, at ambient temperature +20°C

\* Protection diode PD; standard polarity: +A1 / -A2



# Power Relay RM C/D

1 pole 30 A, DC- or AC-coil

## Coil versions, AC-coil, RMC, RMD

| Coil code<br>Standard | LED        | Nominal<br>voltage<br>Vac | Pull-in<br>voltage<br>Vac | Release<br>voltage<br>Vac | Coil<br>resistance<br>$\Omega$ | Coil<br>current<br>mA |
|-----------------------|------------|---------------------------|---------------------------|---------------------------|--------------------------------|-----------------------|
| <b>524</b>            | <b>R24</b> | <b>24</b>                 | <b>19.2</b>               | <b>9.6</b>                | <b>80<math>\pm</math>10%</b>   | <b>109.2</b>          |
| 548                   | R48        | 48                        | 38.4                      | 19.2                      | 320 $\pm$ 10%                  | 54.2                  |
| 560                   | R60        | 60                        | 48.0                      | 24.0                      | 500 $\pm$ 10%                  | 43.7                  |
| 615                   | S15        | 115                       | 92.0                      | 46.0                      | 1850 $\pm$ 10%                 | 23.0                  |
| <b>730</b>            | <b>T30</b> | <b>230</b>                | <b>184.0</b>              | <b>92.0</b>               | <b>7500<math>\pm</math>10%</b> | <b>11.7</b>           |
| 900                   | V00        | 400                       | 320.0                     | 160.0                     | 23500 $\pm$ 15%                | 6.5                   |

All figures are given for coil without preenergization, at ambient temperature +20°C

## Insulation

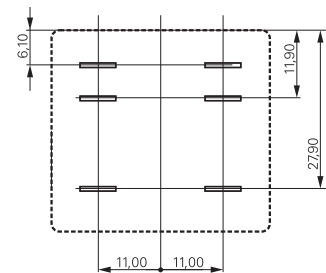
|                                         |                      |                       |
|-----------------------------------------|----------------------|-----------------------|
| Dielectric strength                     | coil-contacts        | 2500 V <sub>rms</sub> |
|                                         | open contact circuit | 1500 V <sub>rms</sub> |
|                                         | adjacent contacts    | 4000 V <sub>rms</sub> |
| Clearance / creepage                    |                      | $\geq 2.8 / 4$ mm     |
| Insulation to VDE 0110b (2/79)          |                      |                       |
| Insulation category / reference voltage |                      | C / 250               |

## Other data

|                                              |         |                                              |
|----------------------------------------------|---------|----------------------------------------------|
| Ambient temperature                          | DC-coil | -45...+60 °C                                 |
|                                              | AC-coil | -45...+40 °C                                 |
| Mechanical life                              |         | >10x10 <sup>6</sup> operations               |
| Max. switching rate at rated- / minimum load |         | 16 min <sup>-1</sup> / 100 min <sup>-1</sup> |
| Operate- / release time                      |         | approx. 17 / 18 ms                           |
| Bounce time                                  |         | approx. 4 ms                                 |
| Vibration resistance N/O / N/C contact       |         | >10 / 5 g, 30...150 Hz                       |
| Category of protection (IEC 61810)           |         | RT I - dust protected                        |
| Relay weight                                 |         | 81 g                                         |
| Packaging unit                               |         | 10 pcs.                                      |

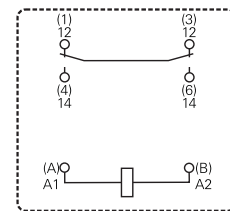
## Terminal assignment

View on solder pins  
Dimensions in mm



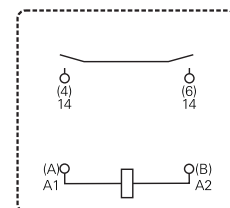
S0269-AK

1 N/O and 1 N/C contact, RMC



S0269-AH

1 N/O contact, RMD



S0269-AI

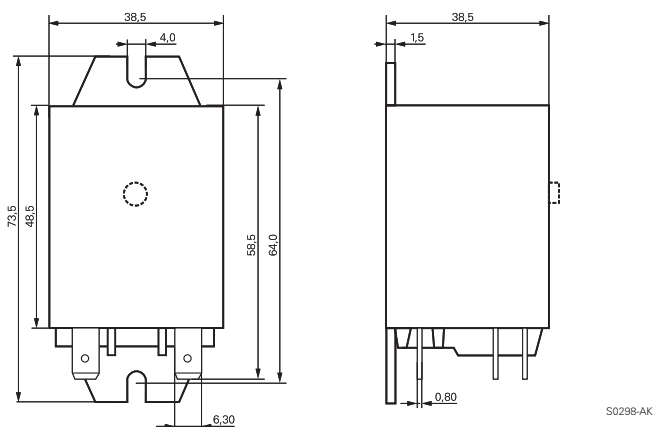
# Power Relay RM C/D

1 pole 30 A, DC- or AC-coil

## Dimensions

Dimensions in mm

Cover with mounting brackets, FASTON 250



## Product key

|                                                                               |                                              |          |  |  |                           |  |  |  |
|-------------------------------------------------------------------------------|----------------------------------------------|----------|--|--|---------------------------|--|--|--|
| Type                                                                          | <b>R</b>                                     | <b>M</b> |  |  | <b>5</b>                  |  |  |  |
| Contacts                                                                      |                                              |          |  |  |                           |  |  |  |
| <b>C</b>                                                                      | 1 N/O contact and 1 N/C contact, 30 A        |          |  |  |                           |  |  |  |
| <b>D</b>                                                                      | 1 N/O contact, 30 A                          |          |  |  |                           |  |  |  |
| Version                                                                       |                                              |          |  |  |                           |  |  |  |
| <b>0</b>                                                                      | without test button                          |          |  |  | <b>3</b> with test button |  |  |  |
| Mounting                                                                      |                                              |          |  |  |                           |  |  |  |
| <b>5</b>                                                                      | cover with mounting brackets, AMP-Faston 250 |          |  |  |                           |  |  |  |
| Coil                                                                          |                                              |          |  |  |                           |  |  |  |
| Coil code: please refer to coil versions table, preferred types in bold print |                                              |          |  |  |                           |  |  |  |
| AMP-Faston 250 = 6.3 x 0.8 mm                                                 |                                              |          |  |  |                           |  |  |  |

| Product key | Contacts                          | Version          | Enclosure                    | Coil    | Coil    | Part number |
|-------------|-----------------------------------|------------------|------------------------------|---------|---------|-------------|
| RMC05024    | 1 N/O + 11 N/C<br>contact<br>30 A | without          | mounting brackets<br>AMP 250 | DC-coil | 24 Vdc  | 4-1393844-5 |
| RMC05524    |                                   | test button      |                              | AC-coil | 24 Vac  | 0-1393146-5 |
| RMC05615    |                                   |                  |                              |         | 115 Vac | 8-1393147-7 |
| RMC05730    |                                   |                  |                              |         | 230 Vac | 0-1393146-6 |
| RMC35024    |                                   | with test button |                              | DC-coil | 24 Vdc  | 0-1393146-7 |
| RMD05024    | 1 N/O contact<br>30 A             | without          |                              |         | 24 Vdc  | 0-1393146-9 |
| RMD05524    |                                   | test button      |                              | AC-coil | 24 Vac  | 1-1393146-1 |
| RMD05615    |                                   |                  |                              |         | 115 Vac | 0-1415009-1 |
| RMD05730    |                                   |                  |                              |         | 230 Vac | 4-1393844-7 |
| RMD35024    |                                   | with             |                              | DC-coil | 24 Vdc  | 2-1419136-2 |
| RMD35730    |                                   | test button      |                              | AC-coil | 230 Vac | 0-1393097-5 |

## Sockets and Accessories

### Sockets and accessories for DIN rail

| relay                 | socket     | plastic retaining clip |         |         |         |         | metal retaining clip |         | module   | marking tag |
|-----------------------|------------|------------------------|---------|---------|---------|---------|----------------------|---------|----------|-------------|
| <b>SNR</b>            | ST1F000    | ST16016                |         |         |         |         |                      |         |          | ST16040     |
|                       | rel.height | 12.3mm                 | 15.7mm  | 25.5mm  |         |         |                      |         |          |             |
| <b>RY pinning 3.2</b> | RY78626    | RY16046                |         |         |         |         |                      |         | RPMxxxxx | RY16040     |
| <b>RY pinning 5.0</b> |            |                        |         |         |         |         |                      |         |          |             |
| <b>E pinning 2.5</b>  | RP78623    |                        |         | RP16104 |         |         |                      |         | RPMxxxxx | RY16040     |
| <b>RT pinning 3.5</b> | RT78724    |                        | RT17016 |         |         |         |                      |         | PTMxxxxx | RT17040     |
|                       | RT78624    |                        | RT16016 |         |         |         |                      |         | RPMxxxxx | RY16040     |
| <b>RT pinning 5.0</b> | RT78726    |                        | RT17016 |         |         |         |                      |         | PTMxxxxx | RT17040     |
|                       | RT78625    |                        | RT16016 |         |         |         |                      |         | RPMxxxxx | RY16040     |
|                       | RT78626    |                        | RT16016 |         |         |         |                      |         | RPMxxxxx | RY16040     |
| <b>RP pinning 3.5</b> | RT78724    |                        |         | RT17016 |         |         |                      |         | PTMxxxxx | RT17040     |
|                       | RT78624    |                        |         | RP16104 |         |         |                      |         | RPMxxxxx | RY16040     |
| <b>RP pinning 5.0</b> | RT78726    |                        |         | RT17016 |         |         |                      |         | PTMxxxxx | RT17040     |
|                       | RT78625    |                        |         | RP16104 |         |         |                      |         | RPMxxxxx | RY16040     |
|                       | RT78626    |                        |         | RP16104 |         |         |                      |         | RPMxxxxx | RY16040     |
|                       | rel.height | 29mm                   | 34.6mm  | 35.2mm  | 36.6mm  | 37.6mm  | 29mm                 | 36mm    |          |             |
| <b>PT2</b>            | PT78720    | PT17016                | PT17017 | PT17018 | PT17019 | PT17020 | PT28800              | ZG28801 | PTMxxxxx | PT17040     |
|                       | PT78702    | PT16016                |         |         |         |         | PT28800              | ZG28801 | RPMxxxxx | PT16040     |
|                       | PT78741    | PT17016                | PT17017 | PT17018 | PT17019 | PT17020 | PT28800              | ZG28801 | PTMT00A0 | PT17040     |
| <b>PT3</b>            | PT78730    | PT17016                | PT17017 | PT17018 | PT17019 | PT17020 | PT28800              | ZG28801 | PTMxxxxx | PT17040     |
|                       | PT78703    | PT16016                |         |         |         |         | PT28800              | ZG28801 | RPMxxxxx | PT16040     |
| <b>PT5</b>            | PT78740    | PT17016                | PT17017 | PT17018 | PT17019 | PT17020 | PT28800              | ZG28801 | PTMxxxxx | PT17040     |
|                       | PT78741    | PT17016                | PT17017 | PT17018 | PT17019 | PT17020 | PT28800              | ZG28801 | PTMT00A0 | PT17040     |
|                       | PT78704    | PT16016                |         |         |         |         | PT28800              | ZG28801 | RPMxxxxx | PT16040     |
| <b>MT2</b>            | MT78755    |                        |         |         |         |         | MT28800              |         |          |             |
|                       | MT78745    |                        |         |         |         |         | MT28800              |         | MTMxxxxx |             |
| <b>MT3</b>            | MT78750    |                        |         |         |         |         | MT28800              |         |          |             |
|                       | MT78760    |                        |         |         |         |         | MT28800              |         |          |             |
|                       | MT78740    |                        |         |         |         |         | MT28800              |         | MTMxxxxx |             |
| <b>PCLH</b>           | TM78700    |                        |         |         |         |         | TM28800              |         |          |             |
| <b>RMxx2</b>          | RM78704    |                        |         |         |         |         |                      |         |          |             |
|                       | RM78705    |                        |         |         |         |         |                      |         |          |             |

### Sockets and Accessories for printed circuit board

| relay                 | socket     | plastic retaining clip |         |         | metal retaining clip |         | in mounting plate |         | metal retaining clip |  |
|-----------------------|------------|------------------------|---------|---------|----------------------|---------|-------------------|---------|----------------------|--|
|                       | rel.height | 12.3mm                 | 15.7mm  | 25.5mm  | 15.7mm               | 25.5mm  |                   |         |                      |  |
| <b>RY pinning 3.2</b> | RY78600    | RY16037                |         |         |                      |         |                   |         |                      |  |
| <b>RY pinning 5.0</b> | RY78602    | RY16037                |         |         |                      |         |                   |         |                      |  |
| <b>E pinning 2.5</b>  | RP78600    |                        |         | RP16100 |                      | RP28500 |                   |         |                      |  |
| <b>RT pinning 3.5</b> | RP78601    |                        | RT16041 |         | RT28516              |         |                   |         |                      |  |
| <b>RT pinning 5.0</b> | RP78602    |                        | RT16041 |         | RT28516              |         |                   |         |                      |  |
| <b>RP pinning 3.5</b> | RP78601    |                        |         | RP16100 |                      | RP28500 |                   |         |                      |  |
| <b>RP pinning 5.0</b> | RP78602    |                        |         | RP16100 |                      | RP28500 |                   |         |                      |  |
|                       | rel.height |                        |         |         | 29mm                 | 36mm    |                   | 29mm    | 36mm                 |  |
| <b>PT2</b>            | PT78604    |                        |         |         | PT28802              | ZG28800 | PT78600           | PT28802 | ZG28800              |  |
|                       | PT78602    |                        |         |         | PT28802              | ZG28800 | PT78601           | PT28802 | ZG28800              |  |
| <b>PT3</b>            | PT78603    |                        |         |         | PT28802              | ZG28800 |                   |         |                      |  |
| <b>PT5</b>            | PT78604    |                        |         |         | PT28802              | ZG28800 | PT78600           | PT28802 | ZG28800              |  |
|                       |            |                        |         |         |                      |         | PT78601           | PT28802 | ZG28800              |  |
| <b>MT2</b>            | MT78602    |                        |         |         |                      |         | MT78612           |         |                      |  |
| <b>MT3</b>            | MT78603    |                        |         |         |                      |         | MT78613           |         |                      |  |
| <b>PCLH</b>           |            |                        |         |         |                      |         |                   |         |                      |  |
| <b>RMxx2</b>          | RM78702    |                        |         |         | RM28802              |         | RM78700           | RM28802 |                      |  |
|                       |            |                        |         |         |                      |         | RM78701           | RM28802 |                      |  |

All sockets in this catalog have been tested and approved with the Tyco Electronics Schrack product range. For combination of sockets with other relays with similar design and pinning we cannot take responsibility for any malfunction.

## Accessories Slim Interface Relay SNR



F0222-B

### Features

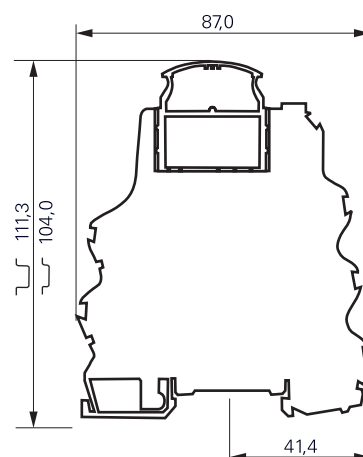
- Module width 5.08 mm
- Reduced system width for increased packing density on the DIN rail
- Jumper bars

Dimensions in mm



### Technical data

|                                                |                           |
|------------------------------------------------|---------------------------|
| Rated current / rated voltage                  | 6 A / 250 Vac             |
| Dielectric strength coil-contact               | >4000 V <sub>rms</sub>    |
| Insulation category (VDE 0110b)                | C / 250                   |
| Ambient temperature                            | -20...55 °C               |
| Protection category                            | IP 20                     |
| Protection against accidental contact meets    | VBG 4                     |
| Wire cross section with/without bootlace crimp | 0.22...2.5mm <sup>2</sup> |
| Terminal torque nom./max.                      | 0.4 / 0.6 Nm              |
| Packaging unit                                 | 10 pcs.                   |



### Accessories

| Product code     |                                               | Part Number |
|------------------|-----------------------------------------------|-------------|
| <b>ST 1F 000</b> | Socket without LED                            | 4-1415024-1 |
| <b>ST 1F L24</b> | Socket with LED, 12...24 Vdc                  | 5-1415024-1 |
| <b>ST 16 016</b> | Mounting frame for relay, without marking     | 6-1415024-1 |
| <b>ST 17 002</b> | Jumper bar 2 pole                             | 7-1415024-1 |
| <b>ST 17 005</b> | Jumper bar 5 pole                             | 8-1415024-1 |
| <b>ST 17 010</b> | Jumper bar 10 pole                            | 9-1415024-1 |
| <b>ST 16 040</b> | Marking plate, consisting of 100 marking tags | 0-1415025-1 |



### Available sets

Set consisting of: relay in mounting frame, mounted on socket

| Product code      |                                                           | Part Number |
|-------------------|-----------------------------------------------------------|-------------|
| <b>ST 1P3 024</b> | 24 Vdc, AgSnO <sub>2</sub> contacts                       | 3-1415024-1 |
| <b>ST 1P3 L12</b> | 12 Vdc, with LED, AgSnO <sub>2</sub> contacts             | 2-1415025-1 |
| <b>ST 1P3 L24</b> | 24 Vdc, with LED, AgSnO <sub>2</sub> contacts             | 3-1415025-1 |
| <b>ST 1P3 L48</b> | 48 Vdc, with LED, AgSnO <sub>2</sub> contacts             | 4-1415025-1 |
| <b>ST 1P2 L24</b> | 24 Vdc, with LED, AgSnO <sub>2</sub> gold plated contacts | 6-1415025-1 |

## Accessories Miniature PCB Relay RYII

and similar design: pinning 3.2 / 5 mm



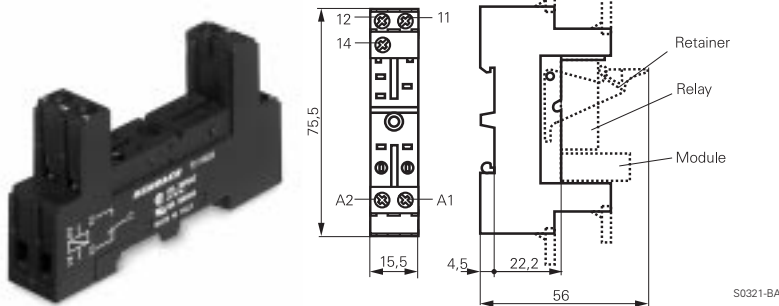
### Features

- Socket with PCB- or screw terminals
- No reduction of protection class or creepage/clearance with plastic retainer
- Easy replacement of relays
- Socket can be used as connector for diagnosis function
- Not suitable for MSR-type

Dimensions in mm  
View on solder pins

## RYII Socket with screw-type terminals for DIN-rail mounting

F0127-A



**RY 78 626** Socket with screw-type terminals for DIN-rail mounting, pinning 3.2 mm



### Technical data

|                                             |                                                    |
|---------------------------------------------|----------------------------------------------------|
| Rated current                               | 12 A                                               |
| Rated voltage                               | 300 Vac                                            |
| Dielectric strength coil/cont.              | >4000 V <sub>rms</sub>                             |
| Insulation cat. (VDE 0110b)                 | C / 250 Vac                                        |
| Ambient temperature                         | -25...+85 °C                                       |
| Protection category                         | IP 20                                              |
| Protection against accidental contact meets | VBG 4                                              |
| Wire cross section with bootlace crimp      | 2 x 2.5 mm <sup>2</sup><br>2 x 1.5 mm <sup>2</sup> |
| Packaging unit                              | 10 pcs.                                            |

### Socket with screw-type terminals for DIN-rail mounting

| Type                                                                                    | Part Number |
|-----------------------------------------------------------------------------------------|-------------|
| <b>RY 78 626</b> Socket with screw-type terminals for DIN-rail mounting, pinning 3.2 mm | 7-1393161-8 |

### Accessories for RY 78 626

|                                            |             |
|--------------------------------------------|-------------|
| <b>RY 16 046</b> Plastic retaining clip    | 7-1393161-1 |
| <b>RY 16 040</b> Marking tag               | 6-1393161-8 |
| <b>RPM</b> Modules see accessories RT / RP |             |

## RYII Socket with PCB terminals

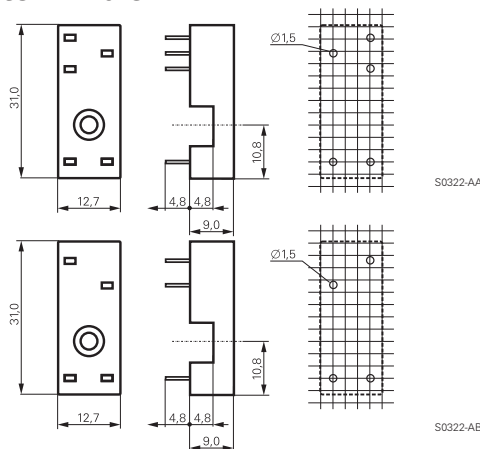
RY 78 600 pinning 3.2 mm



RY 78 602 pinning 5 mm



F0126-A



**RY 78 600** Socket with PCB terminals, pinning 3.2 mm

**RY 78 602** Socket with PCB terminals, pinning 5 mm



### Technical data

|                                |                        |
|--------------------------------|------------------------|
| Rated current                  | 12 A                   |
| Rated voltage                  | 300 Vac                |
| Dielectric strength coil/cont. | >5000 V <sub>rms</sub> |
| Insulation cat. (VDE 0110b)    | C / 250 Vac            |
| Ambient temperature            | -40...+80 °C           |
| Packaging unit                 | 100 pcs.               |

### Socket with PCB terminals

| Type                                                       | Part Number |
|------------------------------------------------------------|-------------|
| <b>RY 78 600</b> Socket with PCB terminals, pinning 3.2 mm | 7-1393161-3 |
| <b>RY 78 602</b> Socket with PCB terminals, pinning 5 mm   | 7-1393161-4 |

### Accessories for RY 78 600, RY 78 602

|                                         |             |
|-----------------------------------------|-------------|
| <b>RY 16 037</b> Plastic retaining clip | 6-1393161-5 |
|-----------------------------------------|-------------|

## Accessories PCB Relay Card Relay E

and similar design: pinning 2.5 mm



F0227-A

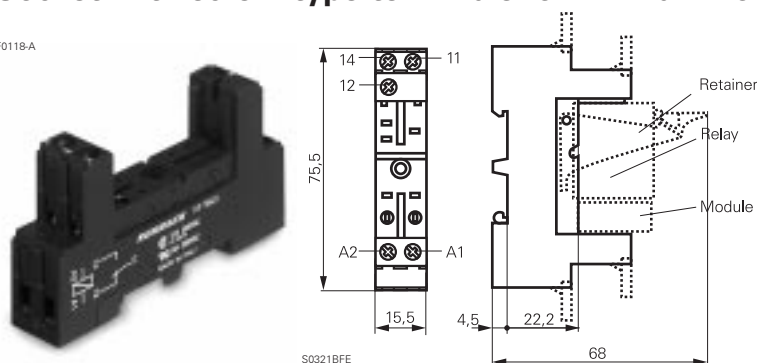
### Features

- Socket with PCB- or screw terminals
- No reduction of protection class or creepage / clearance with plastic retainer
- Easy replacement of relays
- Socket can be used as connector for diagnosis function

Dimensions in mm  
View on solder pins

## Socket with screw-type terminals for DIN-rail mounting

F0118-A



**RP 78 623** Socket with screw-type terminals, pinning 2.5 mm, for DIN-rail mounting



### Technical data

|                                             |                         |
|---------------------------------------------|-------------------------|
| Rated current                               | 12 A                    |
| Rated voltage                               | 300 Vac                 |
| Dielectric strength coil/cont.              | >4000 V <sub>rms</sub>  |
| Insulation cat. (VDE 0110b)                 | C / 250 Vac             |
| Ambient temperature                         | -25...+85 °C            |
| Protection category                         | IP 20                   |
| Protection against accidental contact meets | VBG 4                   |
| Wire cross section                          | 2 x 2.5 mm <sup>2</sup> |
| with bootlace crimp                         | 2 x 1.5 mm <sup>2</sup> |
| Packaging unit                              | 10 pcs.                 |

### Socket with screw-type terminals for DIN-rail mounting

| Product code                                                                            | Part Number |
|-----------------------------------------------------------------------------------------|-------------|
| <b>RP 78 623</b> Socket with screw-type terminals, pinning 2.5 mm for DIN-rail mounting | 8-1393234-6 |

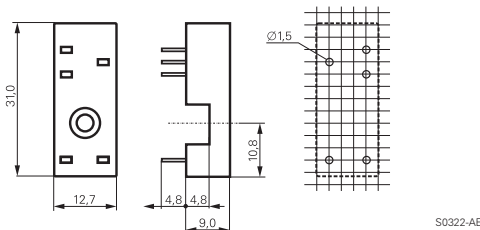
### Accessories for RP 78 623

| Ordering code    | Type                            |
|------------------|---------------------------------|
| <b>RP 16 104</b> | Plastic retaining clip          |
| <b>RY 16 040</b> | Marking tag                     |
| <b>RP M</b>      | Modules see accessories RT / RP |

## Socket with PCB terminals



F0137-A



**RP 78 600** Socket with PCB terminals, pinning 2.5 mm



### Technical data

|                                |                        |
|--------------------------------|------------------------|
| Rated current                  | 12 A                   |
| Rated voltage                  | 300 Vac                |
| Dielectric strength coil/cont. | >5000 V <sub>rms</sub> |
| Insulation cat. (VDE 0110b)    | C / 250 Vac            |
| Ambient temperature            | -40...+80 °C           |
| Packaging unit                 | 100 pcs.               |

### Socket with PCB terminals

| Product code                                               | Part Number |
|------------------------------------------------------------|-------------|
| <b>RP 78 600</b> Socket with PCB terminals, pinning 2.5 mm | 8-1393234-3 |

### Accessories for RP 78 600

|                  |                        |
|------------------|------------------------|
| <b>RP 16 100</b> | Plastic retaining clip |
| <b>RP 28 500</b> | Metal retaining clip   |

# Accessories Industrial Power Relay RT / RP / SR2M

and similar design: pinnings 3.5mm / 5mm; relay heights 15.7 / 25.5mm



F0228-A

### Features

- New retainer clip with ejection function
- Easy replacement of relays on a densely packed DIN rail
- High quality rising clamp terminals
- Captive combination terminal screws
- No reduction of protection class or creepage/clearance with plastic retainer
- Simple plug-in indicator- and protection modules
- White snap-on tags
- Not suitable for bistable relays with 2 coils

Accessories for sockets:

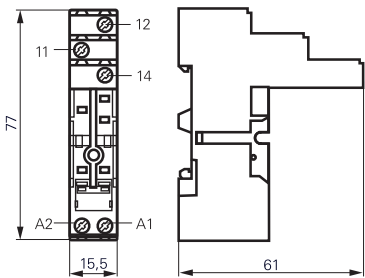
- Rejector
- LED- and protection modules
- Marking tags

Dimensions in mm

## Socket with screw-type terminals for DIN rail mounting



F0229-A



S0416-AA

**RT 78 724** Socket with screw-type terminals, pinning 3.5 mm for DIN rail mounting



### Technical data

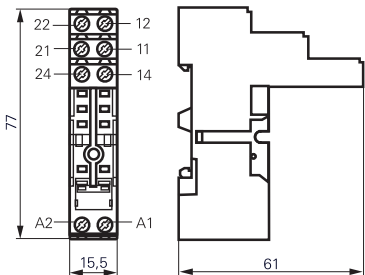
|                             |                         |
|-----------------------------|-------------------------|
| Rated current               | 12 A                    |
| Rated voltage               | 250 Vac                 |
| Insulation cat. (VDE 0110b) | C / 250 Vac             |
| Ambient temperature         | -25...85 °C             |
| Protection category         | IP 20                   |
| Wire cross section          | 2 x 2.5 mm <sup>2</sup> |
| with bootlace crimp         | 2 x 1.5 mm <sup>2</sup> |
| Terminal torque             | 0.5 Nm                  |
| max.                        | 0.7 Nm                  |
| Packaging unit              | 10 pcs.                 |

### RT 78 724 and RT 78 726

- Logical setup of connections (input / output)
- Safe separation to VDE 0106



F0230-A



S0416-AB

**RT 78 726** Socket with screw-type terminals, pinning 5 mm for DIN rail mounting



### Technical data

|                             |                         |          |
|-----------------------------|-------------------------|----------|
| Rated current               | 1 pole                  | 12 A *)  |
|                             | 2 pole                  | 2 x 12 A |
| Rated voltage               | 250 Vac                 |          |
| Insulation cat. (VDE 0110b) | C / 250 Vac             |          |
| Ambient temperature         | -25...85 °C             |          |
| Protection category         | IP 20                   |          |
| Wire cross section          | 2 x 2.5 mm <sup>2</sup> |          |
| with bootlace crimp         | 2 x 1.5 mm <sup>2</sup> |          |
| Terminal torque             | 0.5 Nm                  |          |
| max.                        | 0.7 Nm                  |          |
| Packaging unit              | 10 pcs.                 |          |

\*) For 1 pole relays (16 A) the relay terminals 11-21, 12-22 and 14-24 have to be bridged

For 1 pole relays (12 A) the relay terminals 11-12-14 have to be connected to the socket terminals 21-12-24

### Socket with screw-type terminals for DIN rail mounting

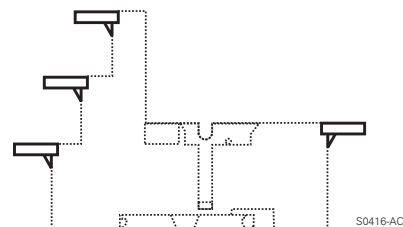
| Type                                                                                    | Part Number |
|-----------------------------------------------------------------------------------------|-------------|
| <b>RT 78 724</b> Socket with screw-type terminals, pinning 3.5 mm for DIN rail mounting | 8-1415035-1 |
| <b>RT 78 726</b> Socket with screw-type terminals, pinning 5 mm for DIN rail mounting   | 6-1415035-1 |

## Accessories Industrial Power Relay RT / RP / SR2M

and similar design: pinnings 3.5mm / 5mm; relay heights 15.7 / 25.5mm

### Accessories for RT 78 724, RT 78 726

| Type             |                                                       | Part Number |
|------------------|-------------------------------------------------------|-------------|
| <b>RT 17 016</b> | Plastic retaining clip, relay height 15.7 and 25.5 mm | 1-1415038-1 |
| <b>RT 17 040</b> | Marking tag                                           | 2-1415038-1 |



#### Marking tags

- White marking area 15.5 x 6 mm
- Snaps on socket in up to 4 positions

### LED- and Protection Modules for RT 78 724, RT 78 726

Easy insertion of module into the socket

Wiring in parallel to the coil

| Type              |                             | Part Number |
|-------------------|-----------------------------|-------------|
| <b>PTM T0 0A0</b> | Protection diode (A1+, A2-) | 9-1415036-1 |
| <b>PTM T0 0L0</b> | Protection diode (A1-, A2+) | 0-1415037-1 |
| <b>PTM U0 524</b> | RC-network 6...60 Vac       | 1-1415037-1 |
| <b>PTM U0 730</b> | RC-network 110...230 Vac    | 2-1415037-1 |
| <b>PTM V0 524</b> | Varistor 24 Vac             | 3-1415037-1 |
| <b>PTM V0 730</b> | Varistor 230 Vac            | 4-1415037-1 |

#### LED

|                   |                                               |             |
|-------------------|-----------------------------------------------|-------------|
| <b>PTM L0 524</b> | red LED 6...24 Vdc/Vac                        | 6-1415036-1 |
| <b>PTM G0 524</b> | green LED 6...24 Vdc/Vac                      | 3-1415036-1 |
| <b>PTM L0 024</b> | red LED 6...24 Vdc w. prot.diode (A1+, A2-)   | 5-1415036-1 |
| <b>PTM G0 024</b> | green LED 6...24 Vdc w. prot.diode (A1+, A2-) | 2-1415036-1 |
| <b>PTM L1 024</b> | red LED 6...24 Vdc w. prot. diode (A1-, A2+)  | 8-1415036-1 |
| <b>PTM L0 730</b> | red LED 110...230 Vac                         | 7-1415036-1 |
| <b>PTM G0 730</b> | green LED 110...230 Vac                       | 4-1415036-1 |



F0231-A

F0232-A

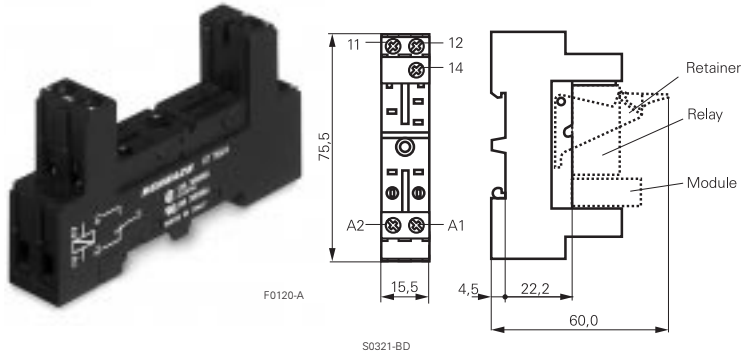
# Accessories Industrial Power Relay RT / RP / SR2M

and similar design: pinnings 3.5mm / 5mm; relay heights 15.7 / 25.5mm

Dimensions in mm

## RT 78 624

Socket with screw-type terminals, pinning 3.5 mm for DIN rail mounting

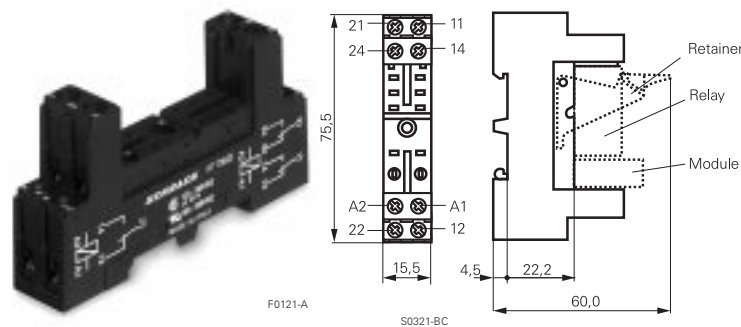


### Technical data

|                                             |                         |
|---------------------------------------------|-------------------------|
| Rated current                               | 12 A                    |
| Rated voltage                               | 300 Vac                 |
| Dielectric strength coil/cont.              | >4000 V <sub>rms</sub>  |
| Insulation cat. (VDE 0110b)                 | C / 250 Vac             |
| Ambient temperature                         | -25...+85 °C            |
| Protection category                         | IP 20                   |
| Protection against accidental contact meets | VBG 4                   |
| Wire cross section                          | 2 x 2.5 mm <sup>2</sup> |
| with bootlace crimp                         | 2 x 1.5 mm <sup>2</sup> |
| Packaging unit                              | 10 pcs.                 |

## RT 78 625

Socket with screw-type terminals, pinning 5 mm for DIN rail mounting



### Technical data

|                                             |                         |
|---------------------------------------------|-------------------------|
| Rated current                               | 1 pole 12 A *)          |
|                                             | 2 pole 2 x 12 A         |
| Rated voltage                               | 300 Vac                 |
| Dielectric strength coil/cont.              | >4000 V <sub>rms</sub>  |
| Insulation cat. (VDE 0110b)                 | C / 250 Vac             |
| Ambient temperature                         | -25...+80 °C            |
| Protection category                         | IP 20                   |
| Protection against accidental contact meets | VBG 4                   |
| Wire cross section                          | 2 x 2.5 mm <sup>2</sup> |
| with bootlace crimp                         | 2 x 1.5 mm <sup>2</sup> |
| Packaging unit                              | 10 pcs.                 |

\*) For 1 pole relays (16 A) the terminals 11-21, 12-22 and 14-24 have to be bridged

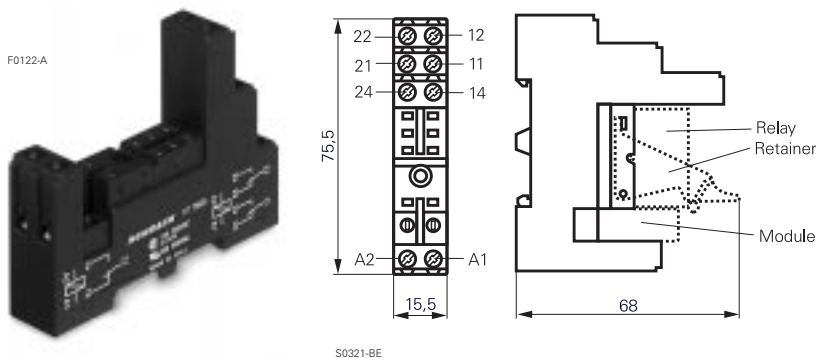
For 1 pole relays (12 A) the terminals 11-12-14 have to be connected to the socket terminals 21-12-24

## RT 78 624 and RT 78 626

- Logical setup of connections (input / output)
- Safe separation to VDE 0106

## RT 78 626

Socket with screw-type terminals, pinning 5 mm for DIN rail mounting



### Technical data

|                                             |                         |
|---------------------------------------------|-------------------------|
| Rated current                               | 1 pole 12 A *)          |
|                                             | 2 pole 2 x 12 A         |
| Rated voltage                               | 300 Vac                 |
| Dielectric strength coil/cont.              | >4000 V <sub>rms</sub>  |
| Insulation cat. (VDE 0110b)                 | C / 250 Vac             |
| Ambient temperature                         | -25...+80 °C            |
| Protection category                         | IP 20                   |
| Protection against accidental contact meets | VBG 4                   |
| Wire cross section                          | 2 x 2.5 mm <sup>2</sup> |
| with bootlace crimp                         | 2 x 1.5 mm <sup>2</sup> |
| Packaging unit                              | 10 pcs.                 |

\*) For 1 pole relays (16 A) the terminals 11-21, 12-22 and 14-24 have to be bridged

For 1 pole relays (12 A) the terminals 11-12-14 have to be connected to the socket terminals 21-12-24

### Socket with screw-type terminals, for DIN rail mounting

| Type      | Part Number                                                                        |
|-----------|------------------------------------------------------------------------------------|
| RT 78 624 | Socket with screw-type terminals, pinning 3.5 mm for DIN rail mounting 2-1419108-1 |
| RT 78 625 | Socket with screw-type terminals, pinning 5 mm for DIN rail mounting 2-1419108-2   |
| RT 78 626 | Socket with screw-type terminals, pinning 5 mm for DIN rail mounting 2-1419108-3   |

# Accessories Industrial Power Relay RT / RP / SR2M

and similar design: pinnings 3.5mm / 5mm; relay heights 15.7 / 25.5mm

Dimensions in mm  
View on solder pins

## Accessories for RT 78 624, RT 78 625, RT 78 626

| Type             |                                                 | Part Number |
|------------------|-------------------------------------------------|-------------|
| <b>RT 16 016</b> | Plastic retaining clip RT, relay height 15.7 mm | 3-1393161-3 |
| <b>RP 16 104</b> | Plastic retaining clip RP, relay height 25.5 mm | 1-1393161-8 |
| <b>RY 16 040</b> | Marking tag                                     | 6-1393161-8 |

## LED- and Protection Modules for RT 78 624, RT 78 625, RT 78 626 and RP 78 623, RY 78 626

Easy insertion of module into the socket

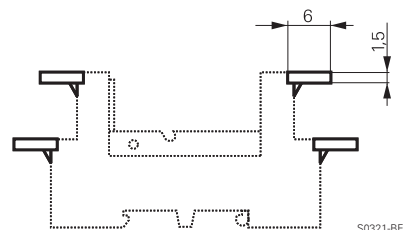
Wiring in parallel to the coil

| Type              |                                       | Part Number |
|-------------------|---------------------------------------|-------------|
| <b>RPM T0 0A0</b> | Protection diode 1N4007 <sup>1)</sup> | 1-1393161-1 |
| <b>RPM U0 548</b> | RC-network 24...48 Vac                | 1-1393161-3 |
| <b>RPM U0 730</b> | RC-network 110...230 Vac              | 1-1393161-4 |

### LED

|                   |                                                   |             |
|-------------------|---------------------------------------------------|-------------|
| <b>RPM L0 024</b> | red LED 12...24 Vdc w.prot.diode <sup>1)</sup>    | 0-1393161-4 |
| <b>RPM G0 024</b> | green LED 12...24 Vdc w.prot.diode <sup>1)</sup>  | 0-1393161-3 |
| <b>RPM L0 524</b> | red LED 12...48 Vdc / Vac                         | 0-1393161-7 |
| <b>RPM G0 524</b> | green LED 12...48 Vdc / Vac                       | 2-1419152-4 |
| <b>RPM L0 110</b> | red LED 60...110 Vdc w.prot.diode <sup>1)</sup>   | 0-1393161-6 |
| <b>RPM G0 110</b> | green LED 60...110 Vdc w.prot.diode <sup>1)</sup> | 2-1419152-3 |
| <b>RPM L0 730</b> | red LED 110...230 Vac                             | 0-1393161-8 |
| <b>RPM G0 730</b> | green LED 110...230 Vac                           | 2-1419152-5 |

<sup>1)</sup> Standard polarity: A1:+, A2:-



Marking tags

- White marking area 15.5 x 6 mm
- Snaps on socket in up to 4 positions

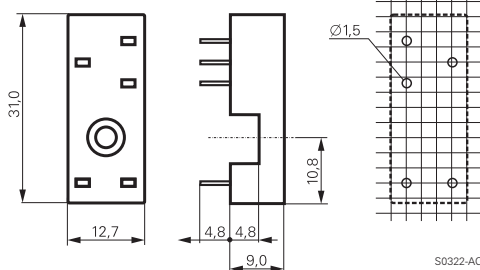
F0123-A



## Socket with PCB terminals



F0116-A



S0322-AC

**RP 78 601** Socket with PCB terminals, pinning 3.5 mm

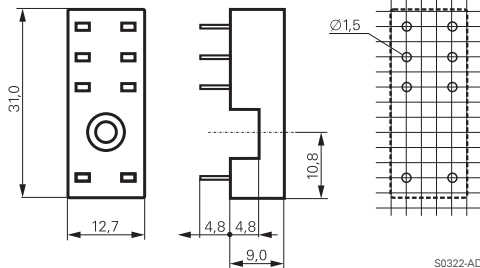


### Technical data

|                                |                        |
|--------------------------------|------------------------|
| Rated current                  | 12 A                   |
| Rated voltage                  | 300 Vac                |
| Dielectric strength coil/cont. | >5000 V <sub>rms</sub> |
| Insulation cat. (VDE 0110b)    | C / 250 Vac            |
| Ambient temperature            | -40...+80 °C           |
| Packaging unit                 | 100 pcs.               |



F0117-A



S0322-AD

**RP 78 602** Socket with PCB terminals, pinning 5 mm



### Technical data

|                                |        |                        |
|--------------------------------|--------|------------------------|
| Rated current                  | 1 pole | 12 A                   |
|                                | 2 pole | 2 x 12 A               |
| Rated voltage                  |        | 300 Vac                |
| Dielectric strength coil/cont. |        | >5000 V <sub>rms</sub> |
| Insulation cat. (VDE 0110b)    |        | C / 250 Vac            |
| Ambient temperature            |        | -40...+80 °C           |
| Packaging unit                 |        | 100 pcs.               |

## Socket with PCB terminals

| Type             |                                           | Part Number |
|------------------|-------------------------------------------|-------------|
| <b>RP 78 601</b> | Socket with PCB terminals, pinning 3.5 mm | 8-1393234-4 |
| <b>RP 78 602</b> | Socket with PCB terminals, pinning 5 mm   | 8-1393234-5 |

## Accessories for RP 78 601, RP 78 602

| Type             |                                                 | Part Number |
|------------------|-------------------------------------------------|-------------|
| <b>RT 16 041</b> | Plastic retaining clip RT, relay height 15.7 mm | 3-1393161-4 |
| <b>RP 16 100</b> | Plastic retaining clip RP, relay height 25.5 mm | 1-1393161-7 |
| <b>RT 28 516</b> | Metal retaining clip RT, relay height 15.7 mm   | 0-1419108-7 |
| <b>RP 28 500</b> | Metal retaining clip RP, relay height 25.5 mm   | 1-1393161-9 |

## Accessories Miniature Relay PT

and similar design: relay heights 29 / 34.6 / 35.2 / 36.6 / 37.6mm



F0233-A

### Features

- Easy replacement of relays on a densely packed DIN rail
- High quality rising clamp terminals
- Captive combination terminal screws
- No reduction of protection class or creepage/clearance with plastic retainer
- Simple plug-in indicator- and protection modules
- White snap-on tags

Accessories for sockets:

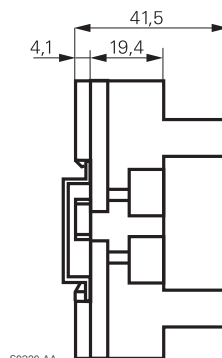
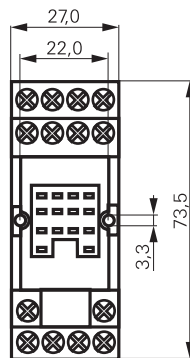
- Retaining clip
- LED- and protection modules
- Marking tags

Dimensions in mm

## PT DIN-rail socket with screw type terminals



F0234-A



S0320-AA



### Technical data

|                                             |                         |      |
|---------------------------------------------|-------------------------|------|
| Rated current                               | 4-pole                  | 6 A  |
|                                             | 3-pole                  | 10 A |
|                                             | 2-pole                  | 12 A |
| Rated voltage                               | 250 Vac                 |      |
| Insulation cat. (VDE 0110b)                 | C / 250 Vac             |      |
| Ambient temperature                         | -45...+70 °C            |      |
| Protection category                         | IP 20                   |      |
| Protection against accidental contact meets | VBG 4                   |      |
| Wire cross section                          | 2 x 2.5 mm <sup>2</sup> |      |
| with bootlace crimp                         | 2 x 1.5 mm <sup>2</sup> |      |
| Terminal torque                             | 0.5 Nm                  |      |
| max.                                        | 0.7 Nm                  |      |
| Packaging unit                              | 10 pcs.                 |      |

### DIN-rail socket with screw type terminals

| Type             |                                                                                        | Part Number |
|------------------|----------------------------------------------------------------------------------------|-------------|
| <b>PT 78 720</b> | DIN-rail socket with screw type terminals, 2 pole                                      | 6-1415034-1 |
| <b>PT 78 730</b> | DIN-rail socket with screw type terminals, 3 pole                                      | 9-1415071-1 |
| <b>PT 78 740</b> | DIN-rail socket with screw type terminals, 4 pole                                      | 4-1415033-1 |
| <b>PT 78 741</b> | DIN-rail socket with screw type terminals, 4 pole package with protection diode module | 5-1415034-1 |

### Accessories for PT 78 720, PT 78 730, PT 78 740, PT 78 741

| Type             |                                               | Part Number |
|------------------|-----------------------------------------------|-------------|
| <b>PT 17 016</b> | Plastic retaining clip PT, relay height 29 mm | 5-1415037-1 |
| <b>PT 17 017</b> | Plastic retaining clip, relay height 34.6 mm  | 7-1415037-1 |
| <b>PT 17 018</b> | Plastic retaining clip, relay height 35.2 mm  | 8-1415037-1 |
| <b>PT 17 019</b> | Plastic retaining clip, relay height 36.6 mm  | 9-1415037-1 |
| <b>PT 17 020</b> | Plastic retaining clip, relay height 37.6 mm  | 0-1415038-1 |
| <b>PT 28 800</b> | Metal retaining clip PT, relay height 29 mm   | 5-1419111-9 |
| <b>ZG 28 801</b> | Metal retaining clip, relay height 36 mm      | 1-1393162-5 |
| <b>PT 17 040</b> | Marking tag                                   | 6-1415037-1 |

## Accessories Miniature Relay PT

and similar design: relay heights 29 / 34.6 / 35.2 / 36.6 / 37.6mm

### LED- and Protection Modules for PT 78 720, PT 78 730 and PT 78 740

Easy insertion of module into the socket

Wiring in parallel to the coil

| Type              |                             | Part Number |
|-------------------|-----------------------------|-------------|
| <b>PTM T0 0A0</b> | Protection diode (A1+, A2-) | 9-1415036-1 |
| <b>PTM T0 0L0</b> | Protection diode (A1-, A2+) | 0-1415037-1 |
| <b>PTM U0 524</b> | RC-network 6...60 Vac       | 1-1415037-1 |
| <b>PTM U0 730</b> | RC-network 110...230 Vac    | 2-1415037-1 |
| <b>PTM V0 524</b> | Varistor 24 Vac             | 3-1415037-1 |
| <b>PTM V0 730</b> | Varistor 230 Vac            | 4-1415037-1 |

### LED

|                   |                                               |             |
|-------------------|-----------------------------------------------|-------------|
| <b>PTM L0 524</b> | red LED 6...24 Vdc/Vac                        | 6-1415036-1 |
| <b>PTM G0 524</b> | green LED 6...24 Vdc/Vac                      | 3-1415036-1 |
| <b>PTM L0 024</b> | red LED 6...24 Vdc w. prot.diode (A1+, A2-)   | 5-1415036-1 |
| <b>PTM G0 024</b> | green LED 6...24 Vdc w. prot.diode (A1+, A2-) | 2-1415036-1 |
| <b>PTM L1 024</b> | red LED 6...24 Vdc w. prot. diode (A1-, A2+)  | 8-1415036-1 |
| <b>PTM L0 730</b> | red LED 110...230 Vac                         | 7-1415036-1 |
| <b>PTM G0 730</b> | green LED 110...230 Vac                       | 4-1415036-1 |



F0231-A



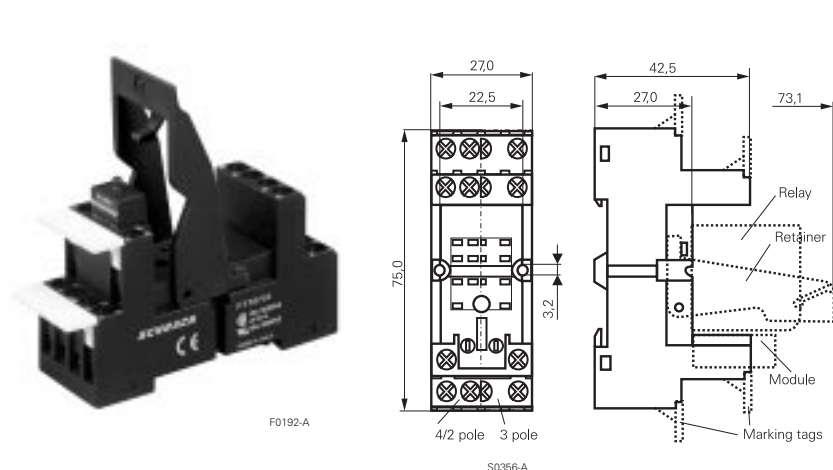
F0232-A

# Accessories Miniature Relay PT

and similar design: relay heights 29 / 34.6 / 35.2 / 36.6 / 37.6mm

Dimensions in mm

## PT DIN-rail socket with screw type terminals



### Technical data

|                                                                                |                             |
|--------------------------------------------------------------------------------|-----------------------------|
| Rated current                                                                  | 4 x 6 A, 3 x 10 A, 2 x 12 A |
| Rated voltage                                                                  | 300 Vac                     |
| Dielectric strength coil/cont.                                                 | >4000 V <sub>eff</sub>      |
| Insulation category (VDE 0110b)                                                | C / 250 Vac                 |
| Ambient temperature                                                            | -45...+70 °C <sup>1)</sup>  |
| Protection category                                                            | IP 20                       |
| Protection against accidental contact meets                                    | VBG 4                       |
| Wire cross section                                                             | 2 x 2.5 mm <sup>2</sup>     |
| with bootlace crimp                                                            | 2 x 1.5 mm <sup>2</sup>     |
| Terminal torque                                                                | 0.5 Nm                      |
| max.                                                                           | 0.8 Nm                      |
| Packaging unit                                                                 | 10 pcs.                     |
| <sup>1)</sup> at rated current to +40 °C, up to +70 °C at 70% of rated current |                             |

### DIN-rail socket with screw type terminals

| Type             |                                                   | Part Number |
|------------------|---------------------------------------------------|-------------|
| <b>PT 78 702</b> | DIN-rail socket with screw type terminals, 2 pole | 9-1419111-9 |
| <b>PT 78 703</b> | DIN-rail socket with screw type terminals, 3 pole | 0-1419112-1 |
| <b>PT 78 704</b> | DIN-rail socket with screw type terminals, 4 pole | 0-1419112-2 |

### Accessories for PT 78 702, PT 78 703, PT 78 704

| Type             |                                               | Part Number |
|------------------|-----------------------------------------------|-------------|
| <b>PT 16 016</b> | Plastic retaining clip PT, relay height 29 mm | 3-1419111-8 |
| <b>PT 28 800</b> | Metal retaining clip PT, relay height 29 mm   | 5-1419111-9 |
| <b>ZG 28 801</b> | Metal retaining clip, relay height 36 mm      | 1-1393162-5 |
| <b>PT 16 040</b> | Marking tag                                   | 3-1419111-9 |

### LED- and Protection Modules for PT 78 702, PT 78 703, PT 78 704

Easy insertion of module into the socket

Wiring in parallel to the coil

| Type              |                                       | Part Number |
|-------------------|---------------------------------------|-------------|
| <b>RPM T0 0A0</b> | Protection diode 1N4007 <sup>1)</sup> | 1-1393161-1 |
| <b>RPM U0 548</b> | RC-network 24...48 Vac                | 1-1393161-3 |
| <b>RPM U0 730</b> | RC-network 110...230 Vac              | 1-1393161-4 |

### LED

|                   |                                                   |             |
|-------------------|---------------------------------------------------|-------------|
| <b>RPM L0 024</b> | red LED 12...24 Vdc w.prot.diode <sup>1)</sup>    | 0-1393161-4 |
| <b>RPM G0 024</b> | green LED 12...24 Vdc w.prot.diode <sup>1)</sup>  | 0-1393161-3 |
| <b>RPM L0 524</b> | red LED 12...48 Vdc / Vac                         | 0-1393161-7 |
| <b>RPM G0 524</b> | green LED 12...48 Vdc / Vac                       | 2-1419152-4 |
| <b>RPM L0 110</b> | red LED 60...110 Vdc w.prot.diode <sup>1)</sup>   | 0-1393161-6 |
| <b>RPM G0 110</b> | green LED 60...110 Vdc w.prot.diode <sup>1)</sup> | 2-1419152-3 |
| <b>RPM L0 730</b> | red LED 110...230 Vac                             | 0-1393161-8 |
| <b>RPM G0 730</b> | green LED 110...230 Vac                           | 2-1419152-5 |

<sup>1)</sup> Standard polarity: A1+, A2-



# Accessories Miniature Relay PT

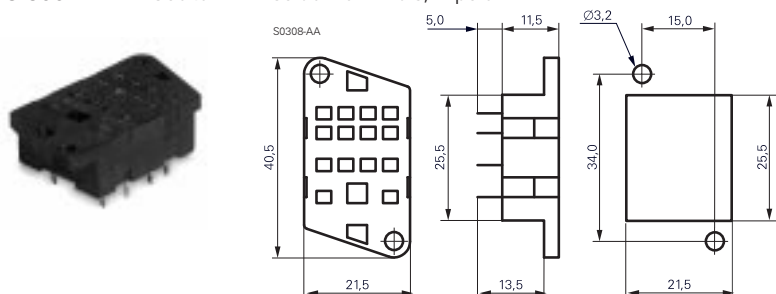
and similar design: relay heights 29 / 34.6 / 35.2 / 36.6 / 37.6mm

Dimensions in mm  
View on solder pins

## PT 78 600

Socket with solder terminals, 4 pole

F0132-A



### Technical data

|                                |                         |
|--------------------------------|-------------------------|
| Rated current                  | 10 A                    |
| Rated voltage                  | 250 Vac                 |
| Dielectric strength coil/cont. | > 1500 V <sub>rms</sub> |
| Ambient temperature            | -40...+70 °C            |
| Packaging unit                 | 25 pcs.                 |

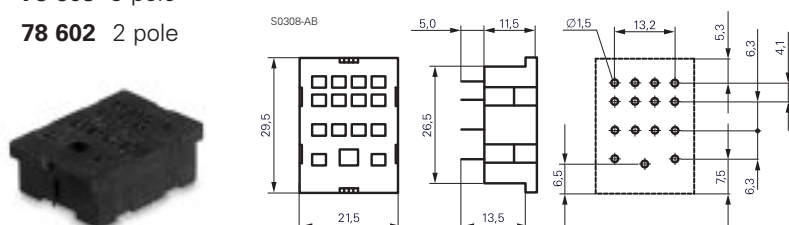
## PT 78 604 4 pole

Socket with PCB terminals

## PT 78 603 3 pole

## PT 78 602 2 pole

F0133-A



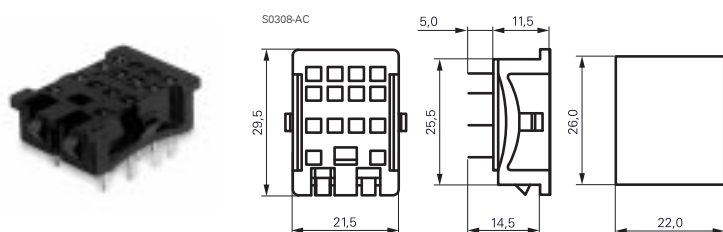
### Technical data

|                                |                         |
|--------------------------------|-------------------------|
| Rated current                  | 10 A                    |
| Rated voltage                  | 250 Vac                 |
| Dielectric strength coil/cont. | > 1500 V <sub>rms</sub> |
| Ambient temperature            | -40...+70 °C            |
| Packaging unit                 | 25 pcs.                 |

## PT 78 601

Socket with solder terminals, 4 pole

F0134-A



### Technical data

|                                |                         |
|--------------------------------|-------------------------|
| Rated current                  | 10 A                    |
| Rated voltage                  | 250 Vac                 |
| Dielectric strength coil/cont. | > 1500 V <sub>rms</sub> |
| Ambient temperature            | -40...+70 °C            |
| Packaging unit                 | 25 pcs.                 |

### PT sockets

| Type                                           | Part Number |
|------------------------------------------------|-------------|
| PT 78 600 Socket with solder terminals, 4 pole | 4-1415043-1 |
| PT 78 602 Socket with PCB terminals, 2 pole    | 5-1415043-1 |
| PT 78 603 Socket with PCB terminals, 3 pole    | 0-1393162-5 |
| PT 78 604 Socket with PCB terminals, 4 pole    | 3-1415043-1 |
| PT 78 601 Socket with solder terminals, 4 pole | 6-1415043-1 |

### Accessories for PT 78 600, PT 78 601, PT 78 602, PT 78 603, PT 78 604

| Type                                                  | Part Number |
|-------------------------------------------------------|-------------|
| PT 28 802 Metal retaining clip PT, relay height 29 mm | 0-1393162-1 |
| ZG 28 800 Metal retaining clip, relay height 36 mm    | 1-1393162-4 |

# Accessories Multimode Relay MT

and similar design: octal / undecal



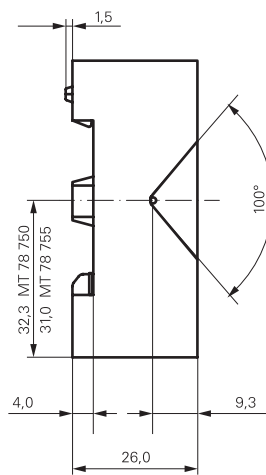
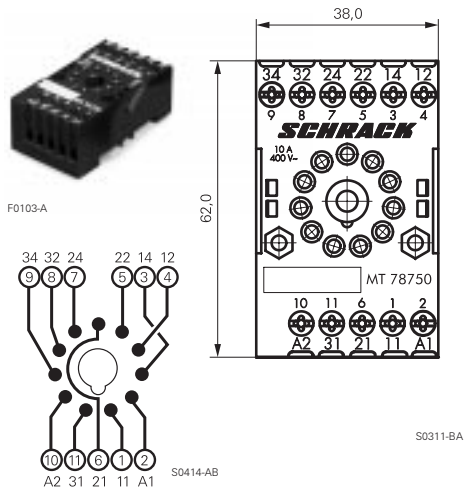
F0235-A

## Features

- Snap-on mounting on DIN-rail
- Screw mounting
- Pozidrive screws with rising clamp terminals
- Logical layout of input-/output connections
- White marking area

Dimensions in mm

## MT DIN-rail sockets with screw-type terminals



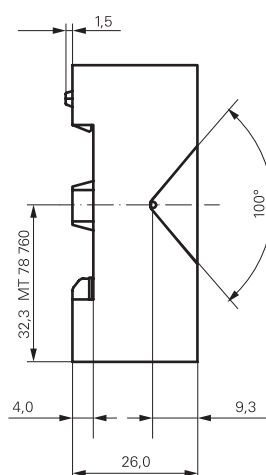
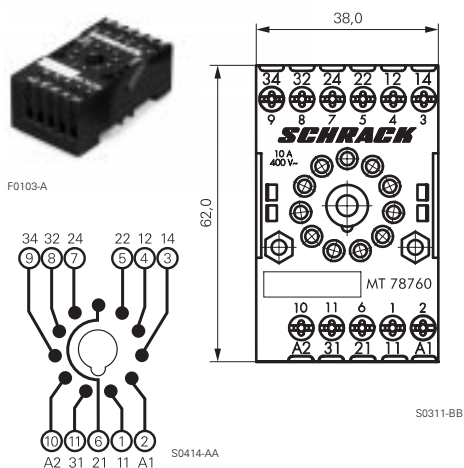
**MT 78 750** MT3 DIN-rail socket with screw-type terminals 11pole

**MT 78 755** MT2 DIN-rail socket with screw-type terminals 8pole



### Technical data

|                                             |                         |
|---------------------------------------------|-------------------------|
| Rated current                               | 10 A                    |
| Rated voltage                               | 400 Vac                 |
| Dielectric strength coil/cont.              | >3500 V <sub>rms</sub>  |
| Insulation cat. (VDE 0110b)                 | C / 400 Vac             |
| Tracking resistance                         | CTI 300                 |
| Ambient temperature                         | +80 °C                  |
| Protection category                         | IP 20                   |
| Protection against accidental contact meets | VBG 4                   |
| Mounting                                    | DIN 50024 / 22          |
| Wire cross section                          | 2 x 2.5 mm <sup>2</sup> |
| Terminal torque                             | 0.8 Nm                  |
| max.                                        | 1.0 Nm                  |
| Packaging unit                              | 25 pcs.                 |



**MT 78 760** MT3 DIN-rail socket with screw-type terminals 11pole



### Technical data

|                                             |                         |
|---------------------------------------------|-------------------------|
| Rated current                               | 10 A                    |
| Rated voltage                               | 400 Vac                 |
| Dielectric strength coil/cont.              | >3500 V <sub>rms</sub>  |
| Insulation cat. (VDE 0110b)                 | C / 400 Vac             |
| Tracking resistance                         | CTI 300                 |
| Ambient temperature                         | +80 °C                  |
| Protection category                         | IP 20                   |
| Protection against accidental contact meets | VBG 4                   |
| Mounting                                    | DIN 50024 / 22          |
| Wire cross section                          | 2 x 2.5 mm <sup>2</sup> |
| Terminal torque                             | 0.8 Nm                  |
| max.                                        | 1.0 Nm                  |
| Packaging unit                              | 25 pcs.                 |

## DIN-rail sockets with screw-type terminals

| Type                                                                  | Part Number |
|-----------------------------------------------------------------------|-------------|
| <b>MT 78 750</b> MT3 DIN-rail socket with screw-type terminals 11pole | 0-1415035-1 |
| <b>MT 78 755</b> MT2 DIN-rail socket with screw-type terminals 8pole  | 3-1415035-1 |
| <b>MT 78 760</b> MT3 DIN-rail socket with screw-type terminals 11pole | 8-1415034-1 |

## Accessories for MT 78 750, MT 78 755, MT 78 760

|                                          |             |
|------------------------------------------|-------------|
| <b>MT 28 800</b> Metal retaining clip MT | 8-1393163-0 |
|------------------------------------------|-------------|

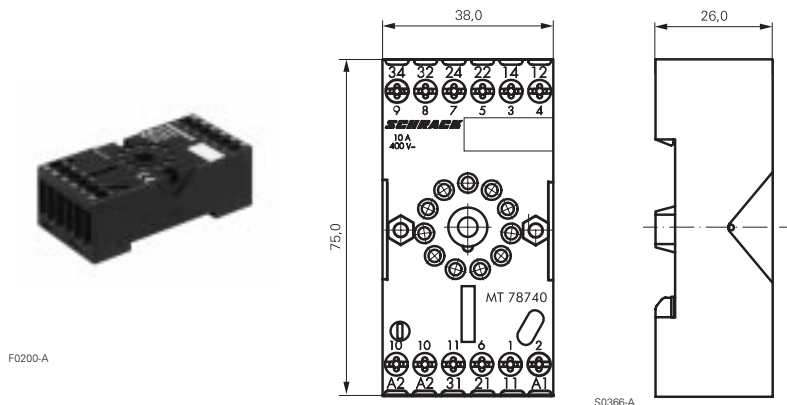
# Accessories Multimode Relay MT

and similar design: octal / undecal

Dimensions in mm

**MT 78 740** MT3 DIN-rail socket with screw-type terminals 11 pole

**MT 78 745** MT2 DIN-rail socket with screw-type terminals 8 pole



## Technical Data

|                                             |                        |
|---------------------------------------------|------------------------|
| Rated current                               | 10 A                   |
| Rated voltage                               | 400 Vac                |
| Dielectric strength coil/cont.              | >3000 V <sub>eff</sub> |
| Ambient temperature                         | +80 °C                 |
| Protection category                         | IP 20                  |
| Protection against accidental contact meets | VBG 4                  |
| Mounting/DIN rail                           | DIN50022               |
| Wire cross section                          | 2 x 2,5mm <sup>2</sup> |
| Terminal torque                             | 0.8 Nm                 |
| Packaging unit                              | 10 Stk.                |

## DIN-rail socket with screw-type terminals

| Type            |                                                    | Part Number |
|-----------------|----------------------------------------------------|-------------|
| <b>MT78 740</b> | DIN-rail socket with screw-type terminals, 11 pole | 8-1393163-3 |
| <b>MT78 745</b> | DIN-rail socket with screw-type terminals, 8 pole  | 8-1393163-4 |

## Socket system MT 78 740 and MT 78 745

- 8/11 pin socket for MT2 / MT3
- Double A2 screw for simple further connection of coil supply

## Accessories for MT 78 740, MT 78 745

| Type             |                         | Part Number |
|------------------|-------------------------|-------------|
| <b>MT 28 800</b> | Metal retaining clip MT | 8-1393163-0 |

## LED and Protection modules for MT 78 740, MT 78 745

| Type              |                          | Part Number |
|-------------------|--------------------------|-------------|
| <b>MTM T0 0A0</b> | Protection diode 1N4007  | 7-1393163-6 |
| <b>MTM U0 524</b> | RC-network 6...24 Vac    | 7-1393163-7 |
| <b>MTM U0 730</b> | RC-network 110...230 Vac | 7-1393163-8 |

## LED

|                   |                               |             |
|-------------------|-------------------------------|-------------|
| <b>MTM L0 024</b> | red LED 24 Vac / Vdc          | 7-1393163-4 |
| <b>MTM G0 024</b> | green LED 24 Vac / Vdc        | 6-1419149-6 |
| <b>MTM L0 730</b> | red LED 110...230 Vac / Vdc   | 7-1393163-5 |
| <b>MTM G0 730</b> | green LED 110...230 Vac / Vdc | 6-1419149-7 |

## Function modules for MT 78 740, MT 78 745

| Type              |               | Part Number |
|-------------------|---------------|-------------|
| <b>MTM Z0 W00</b> | Delay ON      | 7-1393163-9 |
| <b>MTM F0 W00</b> | Multifunction | 7-1393163-3 |

## Technical data - Function modules

|                           |                          |
|---------------------------|--------------------------|
| Nominal voltage           | 24...240 Vdc / Vac       |
| Mains frequency           | 48...63 Hz               |
| Precision of time setting | ± 0,5 %                  |
| Readiness for repetition  | ≤ 0,5 % or 5 ms          |
| Influence of temperature  | ≤ 0,1 %/°C               |
| Time range switchable     | 0,05s...240h in 8 ranges |
| Ambient temperature       | -25...+55 °C             |



# Accessories Multimode Relay MT

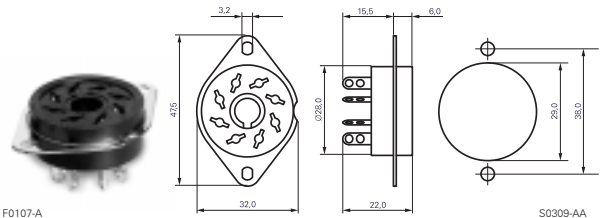
and similar design: octal / undecal

Dimensions in mm  
View on solder pins

| Function modules for MT 78 740, MT 78 745 |     |  |
|-------------------------------------------|-----|--|
| Function                                  |     |  |
| Delay ON                                  | U/t |  |
|                                           | R   |  |
| Delay OFF                                 | U/t |  |
|                                           | S   |  |
|                                           | R   |  |
| single shot leading edge                  | U/t |  |
|                                           | S   |  |
|                                           | R   |  |
| single shot trailing edge                 | U/t |  |
|                                           | S   |  |
|                                           | R   |  |
| Delay ON<br>triggerd by signal contact    | U/t |  |
|                                           | S   |  |
|                                           | R   |  |
| single shot                               | U/t |  |
|                                           | R   |  |
| flasher starting with pause               | U/t |  |
|                                           | R   |  |
| flasher starting with pulse               | U/t |  |
|                                           | R   |  |

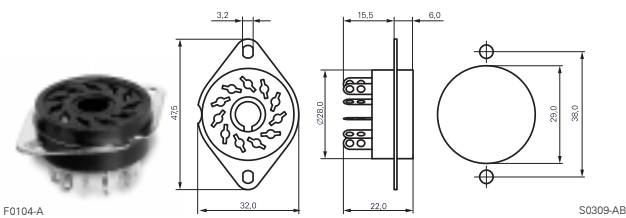
## MT 78 612

Socket 8 pole  
with solder terminals



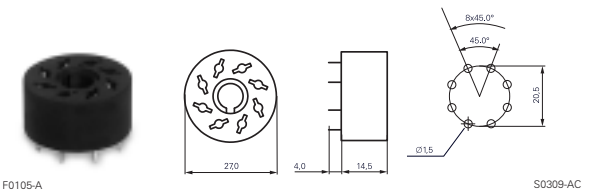
## MT 78 613

Socket 11 pole  
with solder terminals



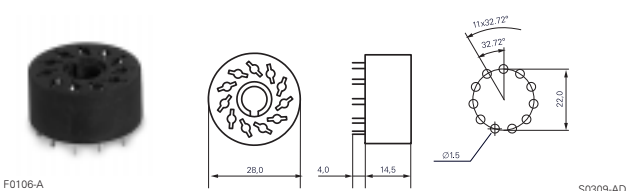
## MT 78 602

Socket 8 pole  
with PCB terminals



## MT 78 603

Socket 11 pole  
with PCB terminals



## Sockets with solder and PCB terminals

| Type             |                                      | Part Number |
|------------------|--------------------------------------|-------------|
| <b>MT 78 612</b> | Socket 8 pole with solder terminals  | 7-1415043-1 |
| <b>MT 78 613</b> | Socket 11 pole with solder terminals | 8-1415043-1 |
| <b>MT 78 602</b> | Socket 8 pole with PCB terminals     | 9-1415043-1 |
| <b>MT 78 603</b> | Socket 11 pole with PCB terminals    | 0-1415044-1 |

## Technical data MT78602...MT78613

|                                |                        |
|--------------------------------|------------------------|
| Rated current 10 A             |                        |
| Rated voltage                  | 250 Vac                |
| Dielectric strength coil/cont. | >2500 V <sub>rms</sub> |
| Ambient temperature            | -40...+70 °C           |
| Packaging unit                 | 25 pcs                 |

# Accessories Miniature Power Relay PCLH

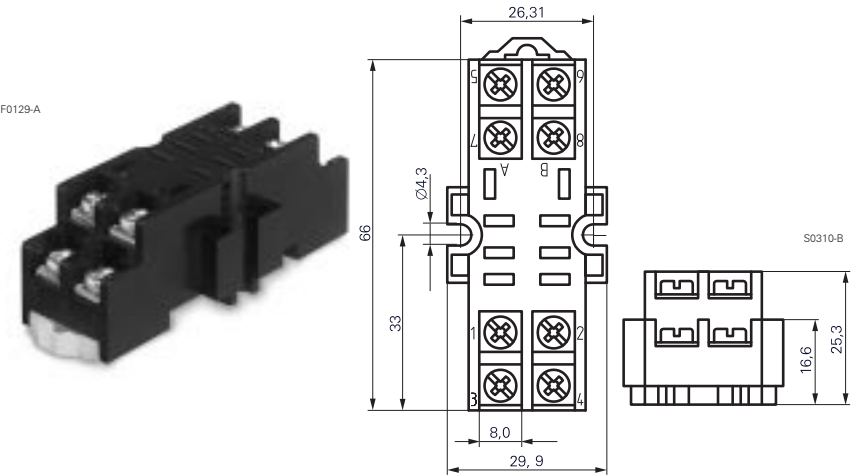
## and similar design



Dimensions in mm

### PCLH socket with screw-type terminals

**TM 78 700**      Socket with screw-type terminals



| Socket with screw-type terminals |                                  |             |
|----------------------------------|----------------------------------|-------------|
| Type                             |                                  | Part Number |
| TM 78 700                        | Socket with screw-type terminals | 0-1393164-2 |

| Accessories for TM 78 700 |                               |             |
|---------------------------|-------------------------------|-------------|
| Type                      |                               | Part Number |
| TM 28 800                 | Metal retaining clip for PCLH | 0-1393164-1 |

# Accessories Power Relay RM

2 / 3 pole, 10 / 16 A

Dimensions in mm



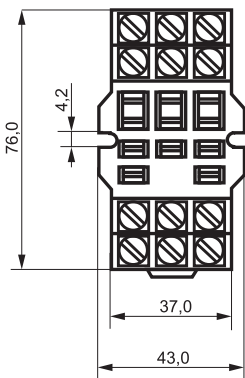
F0237-A

## RM Sockets with screw-type terminals

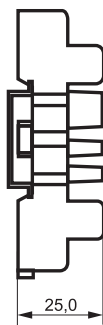
**RM 78704**      Socket with screw-type terminals



F0113-A



S0317-A

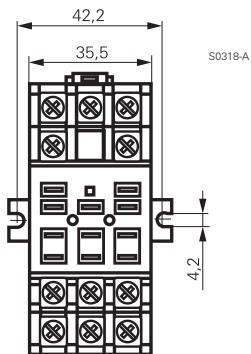


| Technical data                 |                        |
|--------------------------------|------------------------|
| Rated current                  | 16 A                   |
| Rated voltage                  | 380 Vac                |
| Dielectric strength coil/cont. | >2500 V <sub>rms</sub> |
| Ambient temperature            | -40...+50 °C           |
| Terminal torque                | 0.8 Nm                 |
| max.                           | 1.2 Nm                 |
| Packaging unit                 | 100 pcs.               |

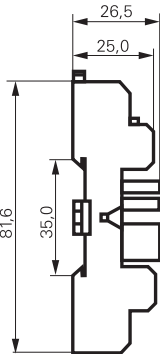
**RM 78 705**      Socket with screw-type terminals



F0114-A



S0318-A



| Technical data                 |                        |
|--------------------------------|------------------------|
| Rated current                  | 16 A                   |
| Rated voltage                  | 250 Vac                |
| Dielectric strength coil/cont. | >2500 V <sub>rms</sub> |
| Ambient temperature            | -40...+40 °C           |
| Terminal torque                | 0.8 Nm                 |
| max.                           | 1.2 Nm                 |
| Packaging unit                 | 100 pcs.               |

| Socket with screw-type terminals |                                  |             |
|----------------------------------|----------------------------------|-------------|
| Type                             |                                  | Part Number |
| <b>RM 78 704</b>                 | Socket with screw-type terminals | 2-1393844-4 |
| <b>RM 78 705</b>                 | Socket with screw-type terminals | 2-1393844-5 |

## Accessories Power Relay RM

2 / 3 pole, 10 / 16 A

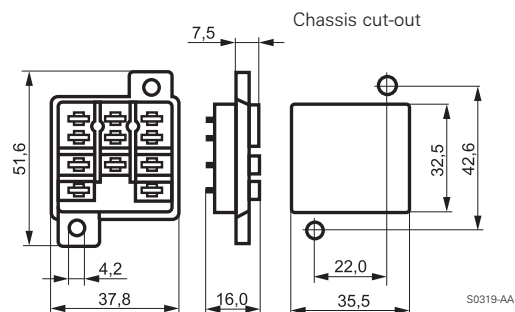
Dimensions in mm  
View on solder pins

### RM 78 700

Socket with Faston terminals



F0110-A

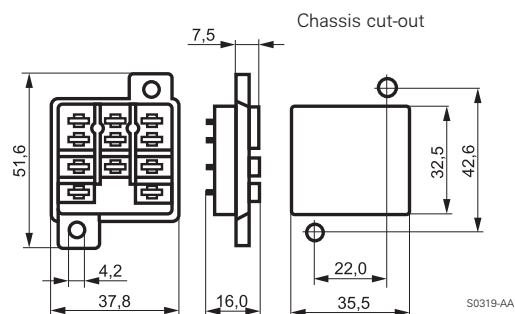


### RM 78 701

Socket with solder terminals



F0111-A



### RM 78 702

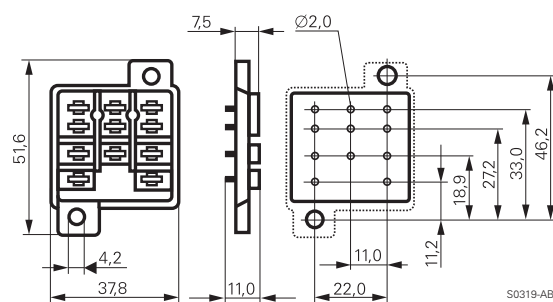
Socket with PCB terminals



300 Vac / 10 A



F0112-A



### Sockets

| Type                                          | Part Number |
|-----------------------------------------------|-------------|
| <b>RM 78 700</b> Socket with Faston terminals | 0-1419118-6 |
| <b>RM 78 701</b> Socket with solder terminals | 4-1393149-9 |
| <b>RM 78 702</b> Socket with PCB terminals    | 2-1393844-3 |

### Accessories for RM 78 700, RM 78 701, RM 78 702

| Type                                     | Part Number |
|------------------------------------------|-------------|
| <b>RM 28 802</b> Metal retaining clip RM | 0-1419118-5 |

# Relay Package SNR

1 pole 6 A, DC coil



F0252-A

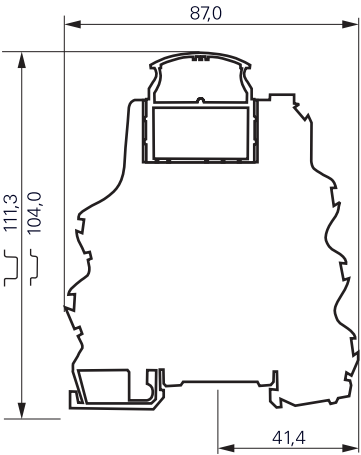
## Features

- Relay package consisting of DIN-rail socket, mounting frame and relay and optional LED
- Module width only 5.08 mm
- Reduced system width for increased packing density on the DIN rail



Technical data of approved types on request

| Package data                      |                          |
|-----------------------------------|--------------------------|
| Configuration                     | 1 C/O contact            |
| Rated current                     | 6 A                      |
| Nominal voltage                   | 24...48 Vdc              |
| Dielectric strength coil-contacts | 4 kV / 8 mm              |
| Module width                      | 5.08 mm                  |
| Packaging unit                    | 10 pcs.                  |
| Complete relay data see           | Slim Interface Relay SNR |
| Data on sockets                   | see accessories SNR      |



F0404-A

## Product key

|                        |                                                |          |          |          |  |  |  |  |
|------------------------|------------------------------------------------|----------|----------|----------|--|--|--|--|
| Type                   | <b>S</b>                                       | <b>T</b> | <b>1</b> | <b>P</b> |  |  |  |  |
| Version                | <b>1P</b> 1 C/O contact, 6 A                   |          |          |          |  |  |  |  |
| Contact material       | <b>2</b> AgSnO <sub>2</sub> gold plated        |          |          |          |  |  |  |  |
|                        | <b>3</b> AgSnO <sub>2</sub>                    |          |          |          |  |  |  |  |
| Electrical indicator   | <b>0</b> without indicator                     |          |          |          |  |  |  |  |
|                        | <b>L</b> LED                                   |          |          |          |  |  |  |  |
| Coil                   | DC coil code = nominal voltage (e.g. 24=24Vdc) |          |          |          |  |  |  |  |
| Other types on request |                                                |          |          |          |  |  |  |  |

| Product key | Socket  | Mtg. frame | Relay             | Coil   | Part number |
|-------------|---------|------------|-------------------|--------|-------------|
| ST1P2L24    | ST1FL24 | ST16016    | V23092-A1024-A201 | 24 Vdc | 6-1415025-1 |
| ST1P3024    | ST1F000 |            | V23092-A1024-A301 |        | 3-1415024-1 |
| ST1P3L12    | ST1FL24 |            | V23092-A1012-A301 | 12 Vdc | 2-1415025-1 |
| ST1P3L24    |         |            | V23092-A1024-A301 | 24 Vdc | 3-1415025-1 |
| ST1P3L48    |         |            | V23092-A1048-A301 | 48 Vdc | 4-1415025-1 |

# Relay Package RT

1 pole 16 A, 2 pole 8 A, DC- or AC coil



F0251-A

## Features

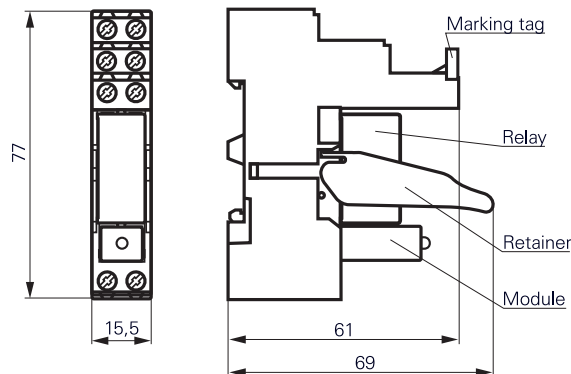
- Relay package consisting of RT relay, DIN-rail socket, plastic retaining clip, module and marking tag
- 1 C/O or 1 N/O with 16 A or 2 C/O with 8 A rated load
- Sensitive DC- or AC coil
- Protection class II / VDE 0700, safe separation to VDE 0106



Technical data of approved types on request

## Package data

|                                   |                          |       |
|-----------------------------------|--------------------------|-------|
| Configuration                     | 1 C/O, 1 N/O             | 2 C/O |
| Rated current                     | 16 A                     | 8 A   |
| Nominal voltage                   | 24 Vdc<br>24, 230 Vac    |       |
| Dielectric strength coil-contacts | 4 kV / 8 mm              |       |
| Module width                      | 15.5 mm                  |       |
| Packaging unit                    | 10 pcs.                  |       |
| Complete relay data see           | Interface Power Relay RT |       |
| Data on sockets                   | see accessories RT       |       |



F0430-A

## Product key

Type

Version

**3S** Relay set: RT 1-pole C/O or N/O, 16 A, red LED

**4S** Relay set: RT 2-pole C/O, 8 A, red LED

Contact material

**4** AgNi 90/10, C/O contact

**5** AgNi 90/10 gold plated, C/O contact

**K** AgNi 90/10 inrush, N/O contact

**L** AgSnO<sub>2</sub> inrush, N/O contact

Coil

**LC4** 24 Vdc

**R24** 24 Vac

**T30** 730 Vac

Other types on request

| Product key | Socket  | Retainer | Marking tag | Module   | Relay    | Coil    | Part number |
|-------------|---------|----------|-------------|----------|----------|---------|-------------|
| RT3S4LC4    | RT78726 | RT17016  | RT17040     | PTML0024 | RT314024 | 24 Vdc  | 4-1415073-1 |
| RT3S4R24    |         |          |             | PTML0524 | RT314524 | 24 Vac  | 5-1415073-1 |
| RT3S4T30    |         |          |             | PTML0730 | RT314730 | 230 Vac | 6-1415073-1 |
| RT3S5LC4    |         |          |             | PTML0024 | RT315024 | 24 Vdc  | 7-1415073-1 |
| RT3S5R24    |         |          |             | PTML0524 | RT315524 | 24 Vac  | 8-1415073-1 |
| RT3S5T30    |         |          |             | PTML0730 | RT315730 | 230 Vac | 9-1415073-1 |
| RT3SKLC4    |         |          |             | PTML0024 | RT33K024 | 24 Vdc  | 3-1415074-1 |
| RT3SLLC4    |         |          |             |          | RT33L024 |         | 4-1415074-1 |
| RT4S4LC4    |         |          |             |          | RT424024 |         | 1-1415073-1 |
| RT4S4R24    |         |          |             | PTML0524 | RT424524 | 24 Vdc  | 2-1415073-1 |
| RT4S4T30    |         |          |             | PTML0730 | RT424730 | 230 Vac | 3-1415073-1 |
| RT4S5LC4    |         |          |             | PTML0024 | RT425024 | 24 Vdc  | 0-1415074-1 |
| RT4S5R24    |         |          |             | PTML0524 | RT425524 | 24 Vac  | 1-1415074-1 |
| RT4S5T30    |         |          |             | PTML0730 | RT425730 | 230 Vac | 2-1415074-1 |

# Relay Package PT

2 pole 12 A, 3 pole 10 A or 4 pole 6 A  
DC- or AC coil



F0253-A

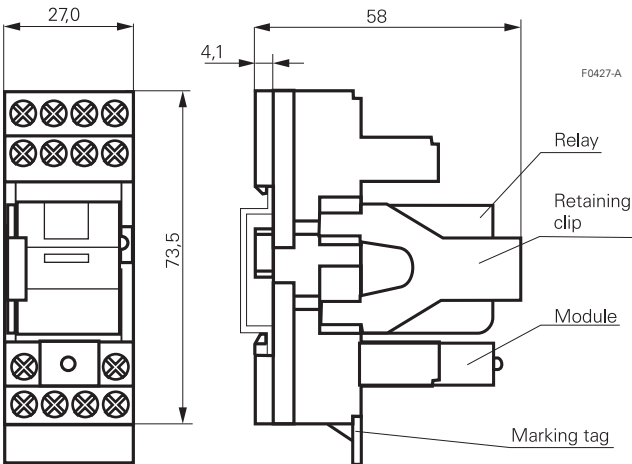
| Package data            |                           |       |       |
|-------------------------|---------------------------|-------|-------|
| Configuration           | 2 C/O                     | 3 C/O | 2 C/O |
| Rated current           | 12 A                      | 10 A  | 6 A   |
| Nominal voltage         | 12, 24 Vdc<br>24, 230 Vac |       |       |
| Module width            | 27.0 mm                   |       |       |
| Packaging unit          | 5 pcs.                    |       |       |
| Complete relay data see | Miniature Relay PT        |       |       |
| Data on sockets         | see accessories PT        |       |       |

## Features

- Relay package consisting of PT relay, DIN-rail socket, plastic retaining clip, module and marking tag
- 2, 3 or 4 C/O
- Mechanical and electrical indicator
- Manual test tab, optionally lockable



Technical data of approved types on request



F0427-A

## Product key

|                       |                                                                                                                              |                                       |            |                                           |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|------------|-------------------------------------------|
| Type                  |                                                                                                                              |                                       |            |                                           |
| Contact configuration | <div><div><div><div></div><div>P</div><div>T</div><div></div><div>S</div><div></div><div></div><div></div></div></div></div> |                                       |            |                                           |
|                       | <b>2S</b>                                                                                                                    | Relay set: PT 2 C/O contacts, red LED |            |                                           |
|                       | <b>3S</b>                                                                                                                    | Relay set: PT 3 C/O contacts, red LED |            |                                           |
|                       | <b>5S</b>                                                                                                                    | Relay set: PT 4 C/O contacts, red LED |            |                                           |
| Contact material      |                                                                                                                              |                                       |            |                                           |
|                       | <b>7</b>                                                                                                                     | AgNi 90/10, with test button          | <b>8</b>   | AgNi 90/10, gold plated, with test button |
| Coil                  |                                                                                                                              |                                       |            |                                           |
|                       | <b>LB2</b>                                                                                                                   | 12 Vdc                                | <b>LC4</b> | 24 Vdc                                    |
|                       | <b>RC4</b>                                                                                                                   | 24 Vac                                | <b>TD0</b> | 230 Vac                                   |

Other types on request.

| Product key | Socket  | Retainer | Marking tag | Module   | Relay    | Coil    | Part number |
|-------------|---------|----------|-------------|----------|----------|---------|-------------|
| PT2S7LB2    | PT78720 | PT17016  | PT17040     | PTML0024 | PT270012 | 12 Vdc  | 7-1415074-1 |
| PT2S7LC4    |         |          |             |          | PT270024 | 24 Vdc  | 8-1415074-1 |
| PT2S7RC4    |         |          |             | PTMV0524 | PT270R24 | 24 Vac  | 5-1415074-1 |
| PT2S7TD0    |         |          |             | PTMV0730 | PT270T30 | 230 Vac | 6-1415074-1 |
| PT3S7LB2    | PT78730 |          |             | PTML0024 | PT370012 | 12 Vdc  | 1-1415075-1 |
| PT3S7LC4    |         |          |             |          | PT370024 | 24 Vdc  | 2-1415075-1 |
| PT3S7RC4    |         |          |             | PTMV0524 | PT370R24 | 24 Vac  | 9-1415074-1 |
| PT3S7TD0    |         |          |             | PTMV0730 | PT370T30 | 230 Vac | 0-1415075-1 |
| PT5S7LB2    | PT78740 |          |             | PTML0024 | PT570012 | 12 Vdc  | 9-1415075-1 |
| PT5S7LC4    |         |          |             |          | PT570024 | 24 Vdc  | 0-1415076-1 |
| PT5S7RC4    |         |          |             | PTMV0524 | PT570R24 | 24 Vac  | 7-1415075-1 |
| PT5S7TD0    |         |          |             | PTMV0730 | PT570T30 | 230 Vac | 8-1415075-1 |
| PT5S8LB2    |         |          |             | PTML0024 | PT580012 | 12 Vdc  | 5-1415075-1 |
| PT5S8LC4    |         |          |             |          | PT580024 | 24 Vdc  | 6-1415075-1 |
| PT5S8RC4    |         |          |             | PTMV0524 | PT580R24 | 24 Vac  | 3-1415075-1 |
| PT5S8TD0    |         |          |             | PTMV0730 | PT580T30 | 230 Vac | 4-1415075-1 |

# Thermal Circuit Breaker W28



F0214-A

## Features

- Approved to international standards (push to reset type)
- Labor-saving snap-in mounting
- tested to EN 60934



Technical data of approved types on request

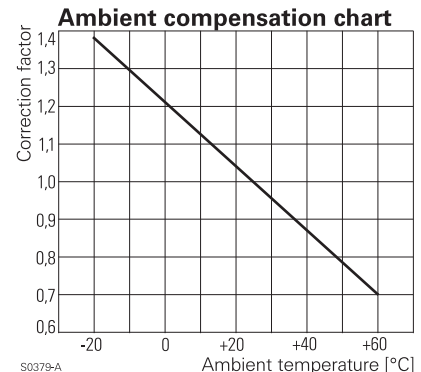
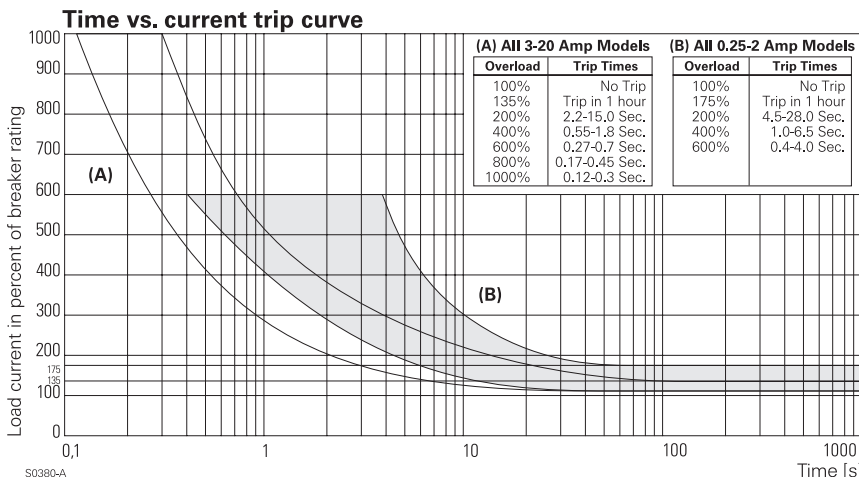
## Electrical data

|                              |                                                                                                                            |  |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------|--|
| Calibration                  | will continuously carry 100% of rating<br>may trip at 101...174%, but must trip at 175% of rating within one hour at +25°C |  |
| 0.25...2 A models:           |                                                                                                                            |  |
| 3...16 A models:             | may trip at 101...134%, but must trip at 135% of rating within one hour at +25°C                                           |  |
| Maximum operating voltage    | 32 Vdc; 250 Vac 50/60 Hz                                                                                                   |  |
| Interrupt capacity           | 1000 A at 250 Vac, 50/60 Hz; 32 Vdc in accordance with UL 1077                                                             |  |
| Resettable overload capacity |                                                                                                                            |  |
| 0.25...2 A models:           | 6x rated current                                                                                                           |  |
| 3...16 A models:             | 10x rated current                                                                                                          |  |
| Reset time                   |                                                                                                                            |  |
| 0.25...2 A models:           | max 180 s                                                                                                                  |  |
| 3...16 A models:             | 110...60 s                                                                                                                 |  |
| Dielectric strength          | 1500 Vrms                                                                                                                  |  |

## Typical resistance vs. current rating

| Current rating | Typical resistance | Current rating | Typical resistance | Current rating | Typical resistance |
|----------------|--------------------|----------------|--------------------|----------------|--------------------|
| A              | Ω                  | A              | Ω                  | A              | Ω                  |
| 0.25           | 14.0               | 5.0            | 0.030              | 12.0           | 0.009              |
| 0.50           | 3.55               | 6.0            | 0.026              | 13.0           | 0.009              |
| 0.75           | 2.0                | 7.0            | 0.017              | 14.0           | 0.007              |
| 1.0            | 0.89               | 8.0            | 0.016              | 15.0           | 0.007              |
| 2.0            | 0.17               | 9.0            | 0.014              | 16.0           | 0.007              |
| 3.0            | 0.069              | 10.0           | 0.011              |                |                    |
| 4.0            | 0.043              | 11.0           | 0.010              |                |                    |

Data for ambient temperature +25°C



How to use the correction: Multiply the breaker rating by correction factor to determine the compensated rating. Calculate the overloads in terms of the compensated rating to use the published trip curve.

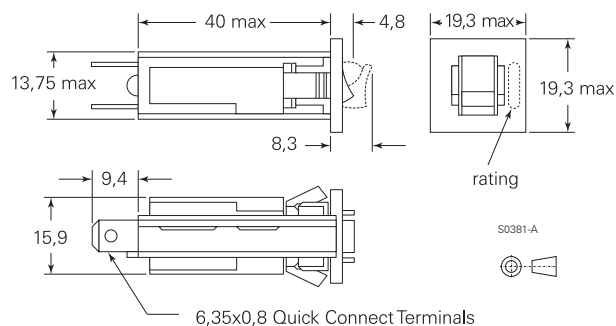
# Thermal Circuit Breaker W28

## Other data

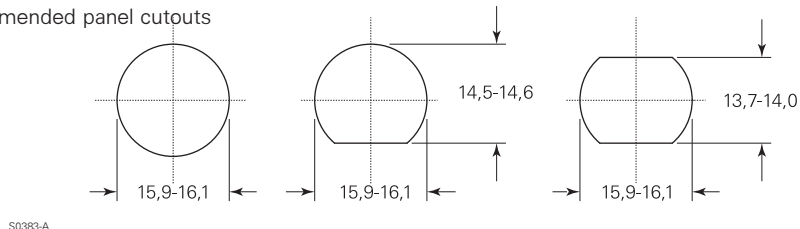
|                     |                                                                         |
|---------------------|-------------------------------------------------------------------------|
| Ambient temperature | -20...+60°C                                                             |
| Terminals           | 6.35mm (.250") quick connects<br>soldering to terminals not recommended |
| Mounting            | snaps into panel from front                                             |
| Weight              | 10 g                                                                    |
| Packaging unit      | 100 pcs.                                                                |

## Dimensions

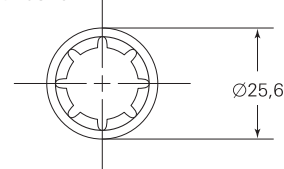
Dimensions in mm



Recommended panel cutouts



Lockwasher



55-025B  
Internal tooth push-on lockwasher  
for panel thickness >2,7mm

## Product key

**W 2 8** - **X** **1** **A** -

Type

Circuit function

**X** series trip, push-to-reset button

Terminal type and mounting

**Q** 6,35mm Quick Connect for panel thickness 0.8...1.6mm

**T** 6,35mm Quick Connect for panel thickness 1.9...2.7mm  
for panels other than above, order "Q" type and 55-025B internal  
tooth push-on lockwasher

Front color

**1** black with white rating marking

Button color

**A** black

Current rating

**0.25, 0.50, 0.75, 1, 2, 3, 4, 5, 6, 7, 8, 9,**  
**10, 11, 12, 13, 14, 15, 16**

Preferred types in bold print. Other types on request.

# Thermal Circuit Breaker W58



F0215-A

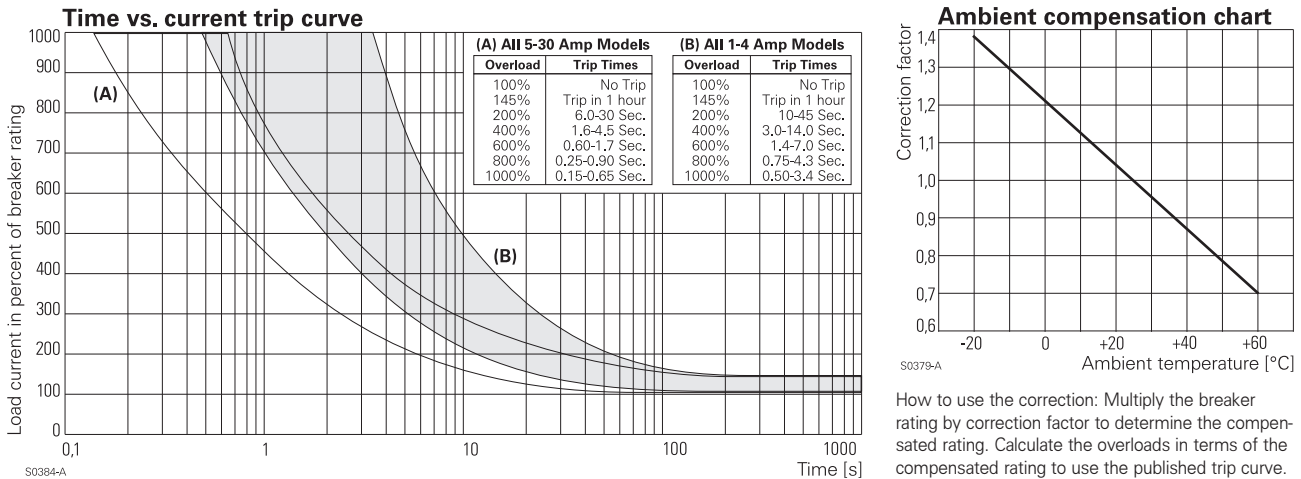
## Features

- 0.5...25 A ratings
- Cannot be manually tripped
- Push button to reset breaker

 Recognized as supplementary protectors  
Technical data of approved types on request

| Electrical data              |                                                                                                            |
|------------------------------|------------------------------------------------------------------------------------------------------------|
| Calibration                  | will continuously carry 100% of rating<br>may trip at 101...144%, but must trip at 145% of rating at +25°C |
| Maximum operating voltage    | 50 Vdc; 250 Vac 50/60Hz                                                                                    |
| Interrupt capacity           | 2000 A at 50 Vdc<br>1000 A at 250 Vac 50/60Hz                                                              |
| Resettable overload capacity | 10x rated current                                                                                          |
| Dielectric strength          | > 1500 Vrms                                                                                                |

| Typical resistance vs. current rating |                 |                |                 |                |                 |
|---------------------------------------|-----------------|----------------|-----------------|----------------|-----------------|
| Current rating                        | Max. resistance | Current rating | Max. resistance | Current rating | Max. resistance |
| A                                     | Ω               | A              | Ω               | A              | Ω               |
| 0.5                                   | 5.0             | 5.0            | 0.026           | 10.0           | 0.014           |
| 1.0                                   | 1.35            | 6.0            | 0.026           | 12.0           | 0.010           |
| 2.0                                   | 0.32            | 7.0            | 0.020           | 15.0           | 0.010           |
| 3.0                                   | 0.18            | 8.0            | 0.020           | 20.0           | 0.006           |
| 4.0                                   | 0.10            | 9.0            | 0.020           | 25.0           | 0.005           |
| Data for ambient temperature +25°C    |                 |                |                 |                |                 |

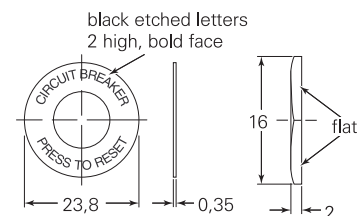


# Thermal Circuit Breaker W58

## Other data

|                      |                                        |
|----------------------|----------------------------------------|
| Ambient temperature  | -20...+60°C                            |
| Endurance cycling    | > 1000 operations<br>at 200% of rating |
| Vibration resistance | 10g at 10...55 Hz                      |
| Weight               | 42 g                                   |
| Packaging unit       | 100 pcs.                               |

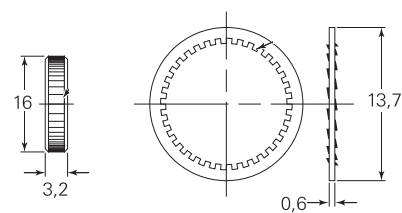
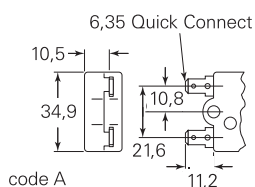
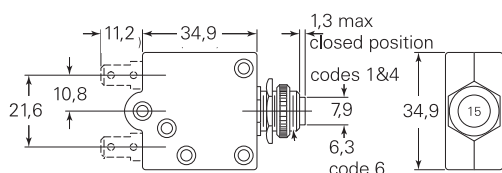
## Mounting Hardware



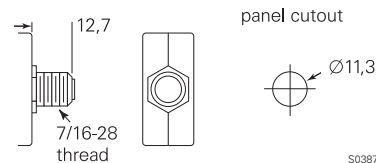
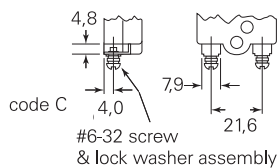
S0386-A

## Dimensions

Dimensions in mm



Mounting bushing



S0387-A

S0385-A



## Ordering key

**W 5 8 - X B 1 A -**

Type

Circuit function

**X** series trip

Button

**B** white with red rating marking, red trip band

Mounting bushing

**1** 7/16"x0.5" (12,7mm) long

Terminals

**A** Quick Connect 6.35mm straight

**C** 6/32 screw 90° (screws installed)

Mounting hardware

**4** knurled nut/hex nut

**12** knurled nut/lock washer

Mounting hardware packaging

**A** assembled to bushing

Current rating in Amps

**0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 20, 25**

Preferred types in bold print. Other types on request

# Magnetic Hydraulic Circuit Breaker W6 / W9



F0216-A

## Features

- UL, CSA and VDE approved
- Ratings to 50 A
- Heavy duty stud connections
- Several delay curve options
- Trip free operation
- tested to EN 60934



Technical data of approved types on request

| Electrical data       |                                                                                                                                                                     |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Calibration           | will hold 100% of rated current<br>may trip at 101...124% of rated load (134% for AC/DC units).<br>must trip at 125% of rated load and above (135% for AC/DC units) |
| Endurance             | 10x10 <sup>3</sup> on/off cycles - 6000 at rated load, 4000 without load<br>tested at 6 cycles/min, 1 s on and 9 s off at 25°C                                      |
| Dielectric strength   | 50/60 Hz: 1500 Vrms<br>DC: 1100 Vdc                                                                                                                                 |
| Insulation resistance | 100x10 <sup>6</sup> Ohm                                                                                                                                             |

## Typical resistance and impedance

| Current rating                     | DC resistance | 50/60 Hz Impedance |
|------------------------------------|---------------|--------------------|
| A                                  | Ω             | Ω                  |
| 0.2                                | 90            | 90                 |
| 1.0                                | 1.2           | 1.2                |
| 2.0                                | 0.28          | 0.28               |
| 5.0                                | 0.04          | 0.04               |
| 10.0                               | 0.013         | 0.013              |
| 20.0                               | 0.004         | 0.005              |
| 30.0                               | 0.0027        | 0.004              |
| 40.0                               | 0.002         | 0.002              |
| 50.0                               | 0.0015        | 0.0015             |
| Data for ambient temperature +25°C |               |                    |

## Approval and ratings W6 series

| Max Voltage | Frequency | Phase | Current Rating | Interruption Capacity |
|-------------|-----------|-------|----------------|-----------------------|
| V           | Hz        |       | A              | A                     |
| 65          | DC        | -     | 0.2...50       | 2000                  |
| 250         | 50/60     | 1     | 0.2...30       | 5000                  |
| 250         | 50/60     | 1     | 31...50        | 2000                  |
| 415/240     | 50/60     | 3     | 0.2...30       | 5000                  |

## Approval and ratings W9 series

| Max Voltage | Frequency | Phase | Current Rating | Interruption Capacity |
|-------------|-----------|-------|----------------|-----------------------|
| V           | Hz        |       | A              | A                     |
| 65          | DC        | -     | 0.2...50       | 2000                  |
| 250         | 50/60     | 1     | 0.2...30       | 5000                  |
| 250         | 50/60     | 1     | 31...50        | 2000                  |
| 415/240     | 50/60     | 3     | 0.2...30       | 5000                  |

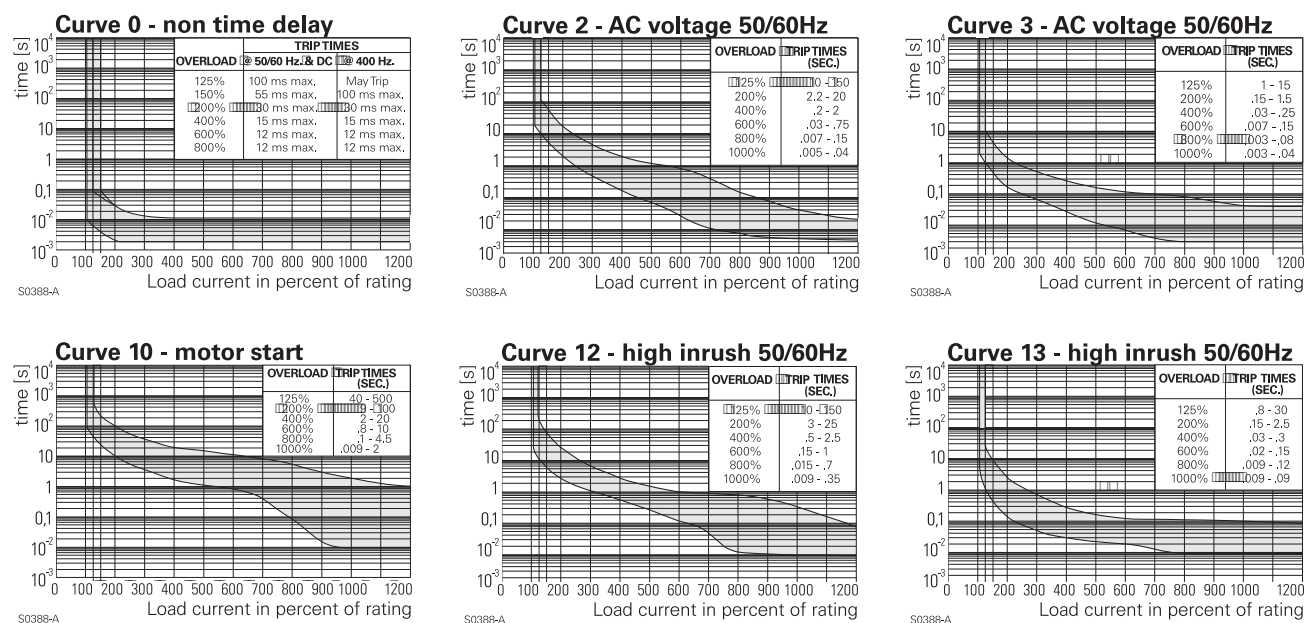
# Magnetic Hydraulic Circuit Breaker W6 / W9

## Other data

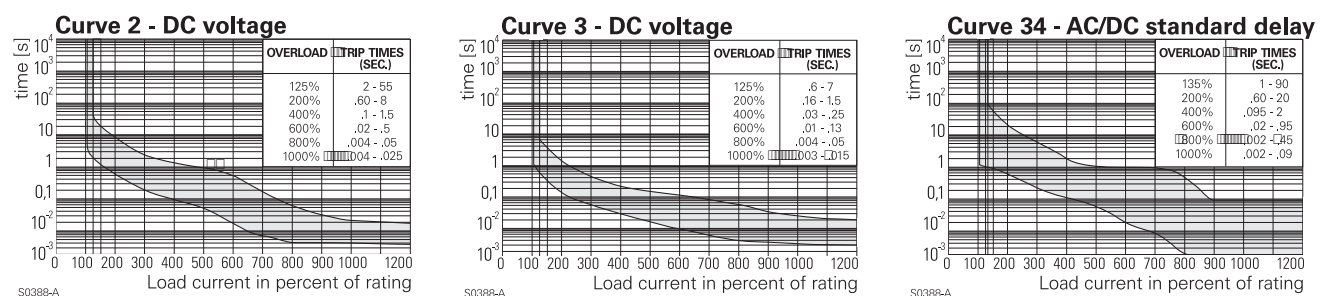
|                                                                |                                                                                                                                                        |                                                             |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Ambient temperature                                            | -40...+85 °C                                                                                                                                           |                                                             |
| Humidity                                                       | meets requirements of Mil-STD-202 method 103                                                                                                           |                                                             |
| Fungus and moisture resistance                                 | special moisture resistant finish applied to all ferrous parts,                                                                                        |                                                             |
| plastic parts are made of inherently fungus resistant material |                                                                                                                                                        |                                                             |
| Vibration resistance                                           | 1.52 mm, 10...55 Hz, tested to Mil-STD-202, method 201                                                                                                 |                                                             |
| Shock resistance                                               | 100 g, 6 ms, tested to Mil-STD-202, method 213, C                                                                                                      |                                                             |
| Marking                                                        | W6 units have ON and OFF molded on the rocker ('0','1' for VDE)                                                                                        |                                                             |
| Mounting                                                       | screw mount in panels (#6-32 or M3x0.5)<br>to maintain published performance, units should not be mounted more<br>than 45° from their upright position |                                                             |
| Weight                                                         | W6: appr. 60 g per pole                                                                                                                                | W9: appr. 90 g per pole                                     |
| Packaging unit                                                 | W67: 72 pcs.<br>W68: 36 pcs.<br>W69: 24 pcs.<br>W70: 9 pcs.                                                                                            | W91: 55 pcs.<br>W92: 30 pcs.<br>W93: 20 pcs.<br>W94: 9 pcs. |

## Time vs. current trip curves for W6 and W9 series

### AC



### DC; AC/DC



# Magnetic Hydraulic Circuit Breaker W6 / W9

### Pulse tolerance specifications

| Voltage    | Time delay curve | Pulse tolerance value |               |
|------------|------------------|-----------------------|---------------|
|            |                  | Standard              | Inertia delay |
| AC 50/60Hz | 2                | 7.5                   | 18            |
| AC 50/60Hz | 3                | 6                     | 18            |
| AC 50/60Hz | 10               | 18                    | 30            |
| AC 50/60Hz | 12               | 18                    | 30            |
| AC 50/60Hz | 13               | 18                    | 30            |

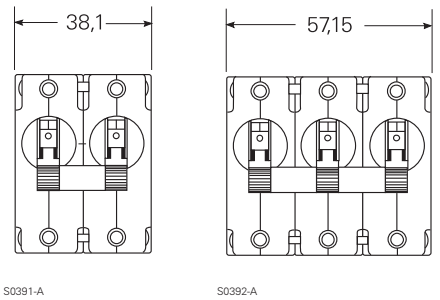
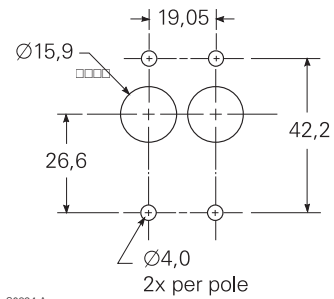
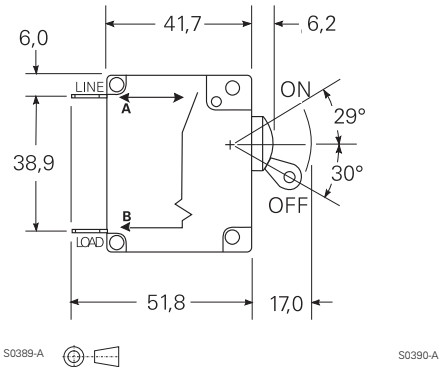
Pulse tolerance is defined as a single pulse of a half sine wave (1/2 cycle or 8ms) that will not trip the breaker. An inertia wheel for increased pulse tolerance is available by specifying 'P' after the time delay curve number in the ordering key. The table at left lists pulse tolerance values of standard and inertia delay models.

To determine pulse tolerance multiply breaker rating by value in table. For example, a 2 A breaker with time delay curve 3 has a standard pulse tolerance of 12 A (2x6 A). The same breaker with an inertia delay has a pulse tolerance of 36 A (2 Ax18).

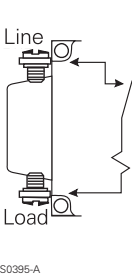
### Dimensions

Dimensions in mm

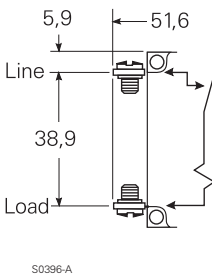
#### W6 series



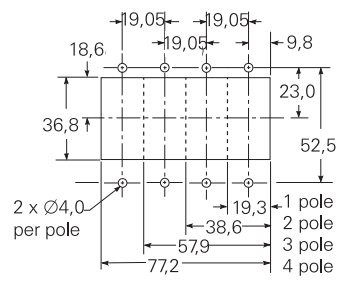
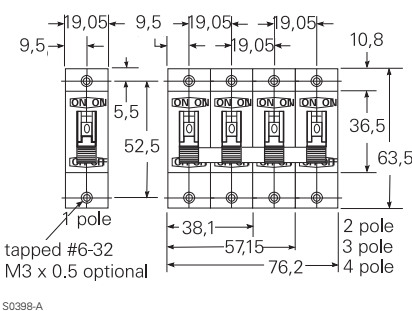
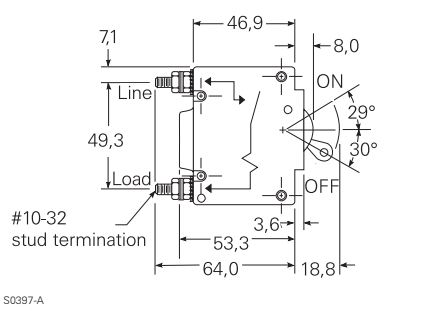
VDE models with screw terminals



UL/CSA models with screw terminals



#### W9 series



# Magnetic Hydraulic Circuit Breaker W6 / W9

## Ordering key W6 series

|                                                                                                            |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
|------------------------------------------------------------------------------------------------------------|----------------------|----------------------|---|----------------------|---------------------------------|----------------------|----------------------|---|----------------------|----------------------|
| Type                                                                                                       | <input type="text"/> | <input type="text"/> | - | <input type="text"/> | <input type="text"/>            | <input type="text"/> | <input type="text"/> | - | <input type="text"/> | <input type="text"/> |
| W #6-32 mounting threads                                                                                   |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| M M3 x 0.5 mounting thread                                                                                 |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Number of poles                                                                                            |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| 67 1 pole                                                                                                  |                      |                      |   |                      | 68 2 pole                       |                      |                      |   |                      |                      |
| 69 3 pole                                                                                                  |                      |                      |   |                      | 70 4 pole                       |                      |                      |   |                      |                      |
| Circuit function                                                                                           |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| X Series trip                                                                                              |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Actuator (per pole)                                                                                        |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| 2 white toggle                                                                                             |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Terminals                                                                                                  |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Q 6.35mm Quick Connect (DIN 46244) max. 25A for VDE                                                        |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| S #8-32 screw                                                                                              |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Max voltage                                                                                                |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| 1 250Vac, 415/240Vac                                                                                       |                      |                      |   |                      | 5 65 Vdc                        |                      |                      |   |                      |                      |
| 7 250Vac or 65Vdc (only with delay curve 34)                                                               |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Time delay curve                                                                                           |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| 0 instantaneous                                                                                            |                      |                      |   |                      | 10 AC high inrush (motor start) |                      |                      |   |                      |                      |
| 2 standard delay                                                                                           |                      |                      |   |                      | 12 AC high inrush version #2    |                      |                      |   |                      |                      |
| 3 short delay                                                                                              |                      |                      |   |                      | 13 AC high inrush version #3    |                      |                      |   |                      |                      |
| 34 combination AC/DC standard delay                                                                        |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Amp Rating                                                                                                 |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| 0.2, 0.25, 0.5, 0.75, 1, 1.5, 2, 2.5, 3, 3.5, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 20, 25, 30, 35, 40, 45, 50 |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Approvals                                                                                                  |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| V VDE                                                                                                      |                      |                      |   |                      | blank UL and CSA without VDE    |                      |                      |   |                      |                      |
| Other types on request                                                                                     |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |

## Ordering key W9 series

|                                                                                                            |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
|------------------------------------------------------------------------------------------------------------|----------------------|----------------------|---|----------------------|---------------------------------|----------------------|----------------------|---|----------------------|----------------------|
| Type                                                                                                       | <input type="text"/> | <input type="text"/> | - | <input type="text"/> | <input type="text"/>            | <input type="text"/> | <input type="text"/> | - | <input type="text"/> | <input type="text"/> |
| W #6-32 mounting threads                                                                                   |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| M M3 x 0.5 mounting thread                                                                                 |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Number of poles                                                                                            |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| 91 1 pole                                                                                                  |                      |                      |   |                      | 92 2 pole                       |                      |                      |   |                      |                      |
| 93 3 pole                                                                                                  |                      |                      |   |                      | 94 4 pole                       |                      |                      |   |                      |                      |
| Circuit function                                                                                           |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| X Series trip                                                                                              |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Actuator (per pole)                                                                                        |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| 1 black toggle                                                                                             |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Max voltage                                                                                                |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| 1 250Vac, 415/240Vac                                                                                       |                      |                      |   |                      | 5 65 Vdc                        |                      |                      |   |                      |                      |
| 7 250Vac or 65Vdc (only with delay curve 34)                                                               |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Time delay curve                                                                                           |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| 0 instantaneous                                                                                            |                      |                      |   |                      | 10 AC high inrush (motor start) |                      |                      |   |                      |                      |
| 2 standard delay                                                                                           |                      |                      |   |                      | 12 AC high inrush version #2    |                      |                      |   |                      |                      |
| 3 short delay                                                                                              |                      |                      |   |                      | 13 AC high inrush version #3    |                      |                      |   |                      |                      |
| 34 combination AC/DC standard delay                                                                        |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Amp Rating                                                                                                 |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| 0.2, 0.25, 0.5, 0.75, 1, 1.5, 2, 2.5, 3, 3.5, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 20, 25, 30, 35, 40, 45, 50 |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| Approvals                                                                                                  |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |
| V VDE                                                                                                      |                      |                      |   |                      | blank UL and CSA without VDE    |                      |                      |   |                      |                      |
| Other types on request                                                                                     |                      |                      |   |                      |                                 |                      |                      |   |                      |                      |



## Relays with forcibly guided contacts

### General information

Relays with forced guidance contacts play a decisive role in avoiding accidents on machines and in systems. Safety control circuits enable to switch into the fail safe state. Forcibly guided contacts monitor the function of the safety control circuits. For this safety function, all the assumed faults that can occur must already have been taken into consideration and their effects examined. Standard EN 50205 "Relays with forcibly guided contacts" contains current internationally-defined design requirements. Relays with forcibly guided contacts that comply with EN 50205 are also referred as "safety" relays.

### Function

Power relays with forcibly guided (linked) contacts:  
Power relays with at least one break contact and at least one make contact designed that by mechanical means make and break contacts can never be simultaneously in the closed position.  
Contact gaps shall never be less than 0.5 mm over the operating life, not only under normal operating conditions, but also when a fault occurs.  
This requirement allows the respective exclusive-or contact to detect the fault of a contact to open. For example, the welding of a make contact is indicated by the non-closing of the break contact when the energization is switched off.

To fulfill the specifications of the standard, the assumed faults must be considered:

| Assumed fault                                              | Effect                                                                                                                                                                                                                                                          |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Failure of the contact to open due to welding              | The failure of any make contact to open has the effect that none of the break contacts close even when the relay is not energized.<br>The failure of any break contact to open has the effect that none of the make contacts close when the relay is energized. |
| Failure of the contact to open due to failure of the drive | The drive has no effect on the forcibly guided contact operation.                                                                                                                                                                                               |
| Breakage of the contact spring                             | Simultaneous closing of the break and make contacts is not possible even as a result of breakage. Completely insulated contact chambers (SR2, SR4, SR6) or barriers (SR2M) guarantee a contact gap of 0.5 mm.                                                   |

## Safety Relays / Definitions

### Application example

The configuration of safety control circuits is basically only possible with specified fault conditions. Safety relays have the characteristic that make and break contacts can never both be closed at the same time.

The following circuit diagram shows an emergency stop control circuit consisting of three 4-pole safety relays.

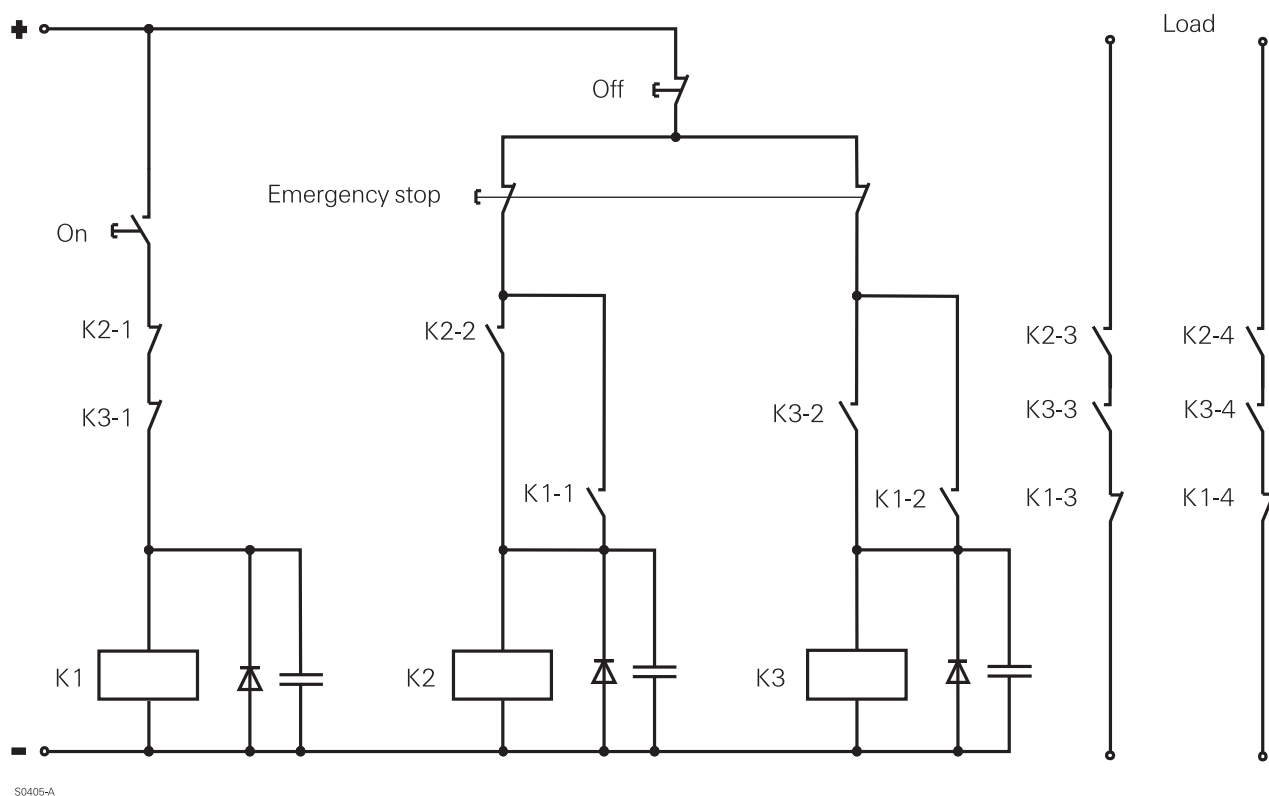
The first fault to occur

- does not cause the safety function to fail because more components are used than required for the circuit to function (redundancy).
- prevents a restart and can be detected as a result (self monitoring)

- The K2 and K3 relays are energized via the make con-tacts K1-1 and K1-2 and hold themselves via K2-2 or K3-2
- The break contacts K2-1 and K3-1 cause the drop-out of K1 where the load circuit is released via the break con-tacts of K1-3 or K1-4.

## Operation

- Closing the "ON" switch causes the K1 relay to be pulled in



Fault analysis (examples):

| Type of fault                   | Is there any danger arising from the fault?                       | Is a restart possible?                                                                                                        |
|---------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Failure of contact K2-3 to open | No, K3-3 opens when the emergency stop switch is actuated         | No, K2-1 and K2-3 cannot be closed at the same time (fault excluded by forcibly guid). "ON" button does not cause K1 to close |
| Failure of contact K1-3 to open | No, K2-3 and K3-3 open when the emergency stop switch is actuated | No, K1-1 and K1-2 cannot close due to closed K1-3. K2 and K3 are not energized                                                |

# Definitions

## AC-coil

Relays for direct energization with AC supply. The data is given for a 50 Hz supply.

Unless otherwise stated, the AC-coils may be used with 50 and 60 Hz supply. For 60 Hz data please contact our application support.

## Ambient temperature

The temperature in the vicinity of the relay. The minimum ambient temperature is the minimum operating temperature, the maximum ambient temperature is the maximum operating temperature for the use of the relay. This temperature should not be exceeded. Ambient temperature range according to IEC 61810-1.

## Approvals

The approvals confirm that the relay corresponds to the respective regulation for electrical components and equipment. The approvals are quoted for the respective relay types. However, they do not always refer to the entire spectrum of types of a relay.

|                                                                                     |         |                                                                                           |
|-------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------------|
|    | BEAB    | British Electrotechnical Approvals Board, England                                         |
|  | CECCE   | VDE-Prüfstelle Offenbach als nationale Überwachungsstelle, Deutschland                    |
|  | CSA     | Canadian Standards Association, Canada                                                    |
|  | DEMKO   | Danmarks Elektriske Materielkontrol, Danmark                                              |
|  | KEMA    | Naamloze Vennootschap tot Keuring van Electrotechnische Materialen, Nederlande            |
|  | LLOYD's | Lloyd's Register of Shipping                                                              |
|  | NEMKO   | Norges Elektriske Materielkontroll, Norge                                                 |
|  | ÖVE     | Österreichischer Verband für Elektrotechnik, Österreich                                   |
|  | SEMKO   | Svenska Elektriska Materielkontrollanstalten AB, Schweden                                 |
|  | SETI    | Sähkötarkastuskeskus                                                                      |
|  | SEV     | Elinspektionscentralen, Finnland                                                          |
|  | TÜV     | Eidgenössisches Starkstrominspektorat, Schweiz                                            |
|  | TÜV     | Technischer Überwachungs-Verein, Deutschland                                              |
|  | UL      | Underwriters Laboratories, Inc., USA; UL Component Recognition Mark for the United States |
|  | UL      | UL Component Recognition Mark for Canada                                                  |
|  | UL      | UL Component Recognition Mark for the United States and Canada                            |
|  | VDE     | VDE-Prüfstelle, Deutschland (Gutachten mit Fertigungsüberwachung)                         |

## Bistable relay, switching characteristics

In a bistable relay, the contacts remain in the last switching position after the input voltage is disconnected.

## Bistable, polarized relay

A polarized bistable relay adopts one switching position on energizing in a particular direction and the other switching

position when the energizing is in the opposite direction. In a bistable relay with one winding, the opposite energizing is created by a voltage with opposite polarity being applied to the same winding.

In a bistable relay with two windings, the opposing energizing is created by a voltage being applied to the second winding with opposite winding sense.

## Bistable, remanent relay (remanence relay)

A remanent, bistable relay adopts a particular switching position at an energizing direct current in any direction and is held in this position by the remanence in the magnetic circuit, i.e. through the magnetization of parts of the magnetic circuit. The contacts shift to the other switching position on a small energizing current of limited amplitude in the opposite direction. This demagnetizes the magnetic circuit.

## Bounce

An unintentional phenomenon that can occur during the making or breaking of a contact circuit when the contact elements touch successively and separate again before they have reached their final position.

## Bounce time

The time (typ.) from the first to the last closing or opening of a relay contact. The indicated times are for energization with nominal voltage (without any components in series or parallel to the coil) and at reference temperature.

## Break contact

A contact that is closed in the rest state of the relay and open in the operating state.

## Bridging contact

Compound contact with two simultaneously operating make contacts connected in series.

## Category of protection (IEC61810)

The 'Relay Technology Categories' describe the degree of sealing of the relay case or its contact unit:

|          |                                                                                                                                                                                                                        |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RT 0:    | unenclosed relay                                                                                                                                                                                                       |
| RT I:    | Relay not provided with a protective case                                                                                                                                                                              |
| RT II:   | dust protected relay                                                                                                                                                                                                   |
| RT III:  | Relay provided with a case which protects its mechanism from dust                                                                                                                                                      |
| RT IV:   | flux proof relay                                                                                                                                                                                                       |
| RT V:    | Relay capable of being automatically soldered without allowing the migration of solder fluxes beyond the intended areas. These are the contacts, movable parts of the magnetic system and their immediate environment. |
| RT VI:   | wash tight (washable) relay                                                                                                                                                                                            |
| RT VII:  | Relay capable of being automatically soldered and subsequently undergoing a washing process to remove flux residues without allowing the ingress of flux or washing solvents.                                          |
| RT VIII: | The test to evaluate the sealing of the case for wash tight relays and is performed according to the IEC 68-2-17, Qc test.                                                                                             |

NOTE - In service this type of relay is sometimes vented to the atmosphere after soldering or washing process; in this case the requirements with respect to clearances and creepage distances can change.

RT IV: sealed relay

RT V: hermetically sealed relay

# Definitions

## Changeover contact

Compound contact consisting of a make contact and a break contact with a common terminal. On changing the switch position, the contact previously closed opens first followed by the closing of the contact that was previously open.

## Clearance distance

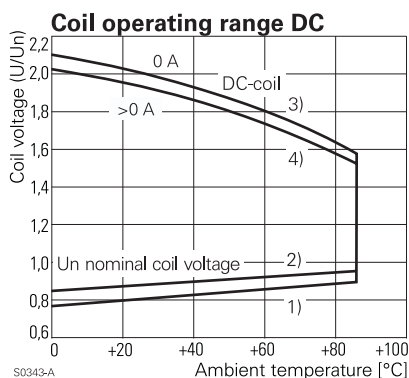
Shortest distance in air between two conductive elements.

## Coil operating range

Permissible range for the energizing voltage as function of the ambient temperature. The operating range is defined by the maximum voltage and the operate-/minimal voltage  $U_{min}$  (coil without preenergization) and/or the operate-/minimal voltage  $U_1$  (preenergized coil).

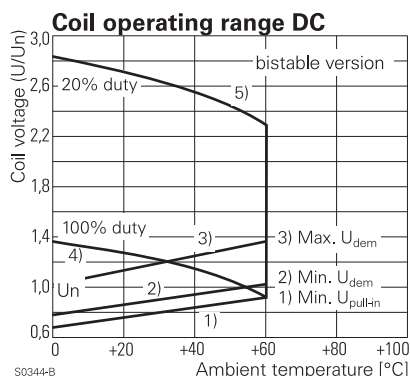
Coil operating range for monostable relays with DC- or AC-coil:

- curve 1: operate-/minimal voltage  $U_0$  (without preenergization)
- curve 2: operate-/minimal voltage  $U_1$  (preenergized coil)
- curve 3: maximum voltage  $U_2$  at contact current = 0A
- curve 4: maximum voltage  $U_2$  at rated contact load  $I_{nom}$



Coil operation range for bistable relays (remanence version)

- curve 1: operate voltage at coil temperature equal to ambient temperature (no preenergization or pulsed operation)
- curve 2: minimum reset/demagnetization voltage
- curve 3: maximum reset/demagnetization voltage at full contact load
- curve 4: maximum voltage at full contact load
- curve 5: maximum voltage at full contact load and pulsed operation (duty cycles)



## Coil resistance

Electrical resistance of the relay coil at reference temperature.

## Contact configuration

According to the different switching functions of the relay contacts the various contact configurations, design and description are specified in DIN 41020. See:

- make contact (N/O)
- break contact (N/C)
- changeover contact (C/O)

| Contact                       | Reference<br>D | GB | USA     | Circuit diag. |
|-------------------------------|----------------|----|---------|---------------|
| N/O contact<br>make cont.     | 1              | A  | SPST-NO |               |
| N/C contact<br>break cont.    | 2              | B  | SPST-NC |               |
| C/O contact<br>changeover c.  | 21             | C  | SPDT    |               |
| Bridging N/O                  | 1              | X  | SPST-NO |               |
| Bridging N/O/<br>Bridging N/C |                | X  | DM-DB   |               |

## Contact material

The list gives an overview of the most important plating- and contact materials. The switching capacity of the contacts and the respective electrical endurance depends not only on the contact material but also to a high degree on the relay design. Decisive for the application therefore is the optimal combination of the mechanical system and the contact material. The characteristics for certain relay types cannot be transferred to other designs.

### 1) Plating materials:

#### Fine gold

- best corrosion resistance, not used as solid material because too soft, high tendency towards cold-welding
- gold platings  $\leq 1 \mu m$  (hv), only as storage protection, no protection against aggressive atmosphere.

#### Hard gold / gold plated (htv)

- very good corrosion resistance, low and stable contact resistance at lowest loads, low tendency to cold welding
- dry-circuit switching (switching without current/voltage), recommended range of application 1 V...60 V, 1 mA...100 mA

## Definitions

### 2) Contact materials:

Fine-grain silver AgNi0,15 / AgNi0.15 gold flashed

- relatively low contact resistance, low resistance against aggressive atmosphere
- universally applicable in medium and low load range, especially in DC-circuits,  $\geq 12\text{ V}$ ,  $10\text{ mA}$

Silver-Nickel AgNi90/10

- high resistance against electrical wear, low welding tendency, higher contact resistance than AgNi0,15
- circuits with medium to high loads, DC- and AC-circuits, range of application  $\geq 12\text{ V}$ ,  $10\text{ mA}$

Silver-Cadmium-Oxide AgCdO

- low welding tendency, high wear resistivity
- particularly suited for switching of inductive loads, AC-circuits,  $\geq 12\text{ V}$ ,  $100\text{ mA}$

Silver-Tin-Oxide AgSnO<sub>2</sub>

- low welding tendency, very high wear resistivity with heavy loads, low material transfer
- circuits with high requirements to make- and break currents, DC- and AC loads,  $\geq 12\text{ V}$ ,  $100\text{ mA}$

Tungsten W

- highest melting point, high wear resistivity, for high switching rates and low ON-time
- as pre-contact in circuits with highest make- and break loads,  $\geq 60\text{ V}$ ,  $1\text{ A}$

### Contact resistance

Electrical resistance between the relay terminals of a closed contact, measured with indicated measuring current and voltage. The specified contact resistance is reached reliably only above a particular load. Considerably increased contact resistances can occur with smaller loads.

According to IEC 61810-7 the following measurement parameters based on the actual switching load are applied:

### Contact type

See

- single contact

| Category | Load      |            | Measurement |      |
|----------|-----------|------------|-------------|------|
|          | V         | A          | V           | A    |
| cat. 0   | 0.03      | 0.01       | 0.03        | 0.01 |
| cat. 1   | 0.03...60 | 0.01...0.1 | 0.1         | 0.01 |
| cat. 2   | 5...250   | 0.1...1    | 24          | 0.1  |
| cat. 3   | 5...600   | 0.1...100  | 24          | 1.0  |

- twin contact
- bridging contact
- forcibly guided contacts

### Creepage distance

Shortest distance on the surface of an insulating material between two conductive elements.

### C/O contact

See > changeover contact

### Dielectric strength / dielectric test voltage

Voltage (rms value in AC voltage, 50Hz 1min) the insulation can withstand between relay elements that are insulated from one another.

### Dust-proof relay

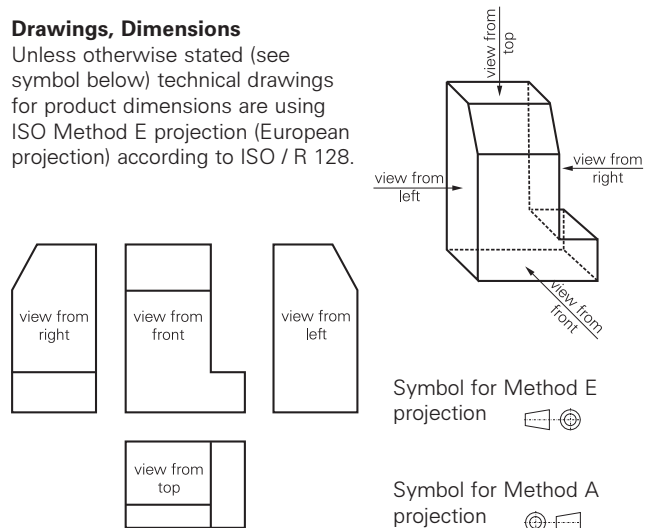
Relay with a case to protect against dust penetration.

### Duty cycle

Ratio of the duration of energization to the total period of intermittent duty.

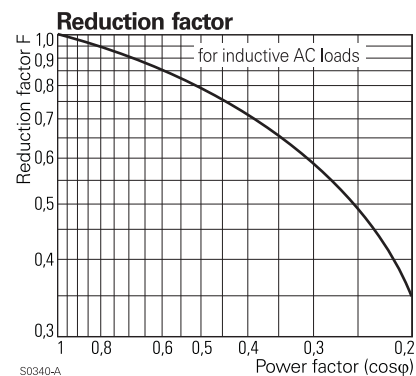
### Drawings, Dimensions

Unless otherwise stated (see symbol below) technical drawings for product dimensions are using ISO Method E projection (European projection) according to ISO / R 128.



### Electrical endurance/contact endurance/electrical life

Number of switching operations of a relay with electrical contact load defined under specified conditions without contact fault. The reference values specified for the endurance apply, unless otherwise specified, to a resistive load. The electrical endurance is reduced with an inductive ac load as a function of the power factor  $\cos\phi$  ( $\phi$  is the phase angle between the voltage and current. See reduction factor diagram).



### Electrical life

See > Electrical endurance

# Definitions

## Flammability according to UL

Data of the flammability class according to the UL 94 (Underwriters Laboratories, Inc., USA) specification. This test for technical plastic is widespread. According to the burning characteristics 4 incendiary classes are classified: UL 94 HB, V-2, V-1, V-0.

## flux proof/suitable for processing on soldering lines

See 'Category of protection (IEC 61810) - RT II

Relays for processing on soldering lines; a suitable sealing of the relay on the printed circuit board side prevents any flux entering the case.

## Forcibly guided contacts

Contact configuration in which break and make contacts within the complete spring set are never closed at the same time even in case of malfunction as a result of contact welding. These relays are implemented in the control of safety technology for the protection against damage to persons or objects.

## Immersion cleanable / wash tight

See 'Category of protection (IEC 61810) - RT III

Relays that can be cleaned, lacquered or cast-in together with the printed circuit board after soldering. The washing requires a suitable solvent.

The term "immersion cleanable / wash tight" is not identical with "hermetically sealed"!

## Insulation according to IEC 60 664

Data for insulation co-ordination on:

- rated voltage (the voltage value above which the creepage distance is measured)
- pollution degree (classification of the pollution from external materials that affect the insulation)
- overvoltage category (classification of electrical equipment (here: relays) to the overvoltage to be expected)

## Insulation according to VDE0110b (2/79)

Data for insulation co-ordination on:

- insulation category (classification of equipment according to environment and utilization conditions)
- reference voltage

## Insulation resistance

Electrical resistance (initial condition) measured by applying a DC voltage of 500 V between two elements of a relay that are insulated from one another.

## Limiting continuous current / continuous thermal load

The highest value of the current (effective value for alternating current) that the previously closed output circuit can permanently carry under specified conditions.

## Make contact

A contact that is open in the rest state and closed in the operating state.

## Make current / max. make current

The current a relay can switch on closing contacts under specified conditions. Unless otherwise stated the data refers to the current for a duration of max. 4s with a duty cycle of 10%.

## Max. DC load breaking capacity / Load limit curve

Switching of loads at switching voltage and switching current below the load limit curve can be switched off reliably, i.e. the arc is extinguished (max. arc duration 10 ms at resistive load). The load limit curve is affected in both position and shape by the contact materials and relay construction (contact distance, break speed of the contacts, etc.). No statement on the electrical endurance is connected with these curves.

## Maximum breaking voltage DC / AC

Maximum voltage that may occur between the switching contacts before closing or after opening the contact. (DC refers to direct current; AC refers to alternating current)

Data given for AC refer to a grounded 3-phase supply with 230 / 400 Vac.

## Maximum voltage $U_2$ (coil).

The highest permissible input voltage at the reference temperature at which the relay, with continuous energization, heats up to its max. permissible coil temperature.

## Mechanical endurance

Number of switching operations without contact load during which the relay remains within the specified characteristics.

## Minimum switching power

Product of the switching current and switching voltage for reliable switching. Low contact resistance is reached reliably only above a particular load. Considerably increased contact resistances can occur with smaller loads.

## Monostable relays, switching characteristics

A relay is called monostable when its contacts return automatically to the rest position after the input voltage is disconnected.

## Monostable, neutral relay, non-polarized relay

A neutral, monostable relay operates independently of the direction of the energizing direct current.

## Monostable, polarized relay

A polarized, monostable relay only operates in a specific direction of energization. It then adopts the operating state.

## Mounting position

Normally the relay can be mounted in any position if no restricting specifications are given.

## Nominal power

Power consumption of the coil at nominal voltage and nominal coil resistance.

## Nominal voltage (coil), Rated coil voltage

Nominal voltage at which the relay displays the operating characteristics.

## Non-release voltage

The value of the input voltage at which a monostable relay does not release.

## N/C contact

See > break contact

## N/O contact

See > make contact

# Definitions

## Operate

Process in which a relay shifts from the rest state to the operating state.

## Operate category

According to IEC 61810.

## Operate power

Coil power at which the relay operates.

## Operate time

The time interval that elapses from energizing a relay in the rest state with the nominal voltage (pulse or square signal) to the moment when the last output circuit is closed or opened (bounce time not included).

## Operate voltage/Minimum voltage $U_1$ , preenergized

The lowest permissible input voltage at which the relay operates reliably at the reference temperature even after continuous energization (preenergizing) and brief de-energizing.

## Operate voltage / Minimum voltage $U_0$ , without preenergizing

Minimum permissible voltage at the winding at which the relay operates, for a coil temperature of the reference temperature (20°C coil temperature without preenergizing).

## Operation

Single activation and release of a relay.

## Packaging unit

Minimum delivery quantity (e.g. plastic bar) and quantity per box.

## Plug-in relays

Relays that are held in the socket by flat plug-in terminals (round pins for MT) where electrical contact is established simultaneously.

## Print relays

Relays designed for soldering into printed circuits.

## Protection category / sealing

For definition of relay protection see 'Category of protection (IEC 61810) - Relay Technology Categories

## Rated coil voltage

Nominal voltage at which the relay displays the operating characteristics.

## Rated current (contacts)

Current a relay can switch on and off under specified conditions.

## Rated voltage (contacts)

Voltage between the switching contacts before closing or after opening of the contact. (DC refers to direct current; AC refers to alternating current)

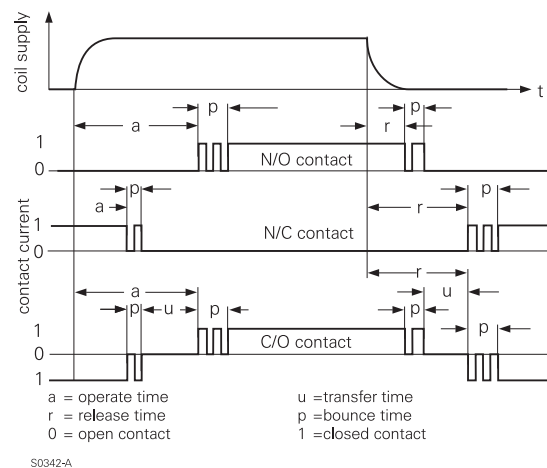
## Rated voltage (insulation)

The reference voltage for the measurement of the creepage distance according to IEC 60 664-1 and VDE0110b.

## Relay cycles (dynamic response)

Due to the self induction of the coil and the inertia of the parts to be moved, on activating a relay the operations do not take place suddenly. The function diagram below shows the different cycles for the most important relay configurations of undelayed power relays. The cycles specified apply to energizing with nominal voltage (without any components in series or parallel to the coil) and at the reference temperature.

- operate time
- release time/reset time
- bounce time
- transit time
- minimum energization time



## Relay Technology Categories

The 'Relay Technology Categories' describe the degree of sealing of the relay case or its contact unit. See 'Categories of protection'

## Release

Process in which a monostable relay shifts from the operating state back to the rest state.

## Release time

The time interval (typ.) that elapses from the point of time at which a monostable relay in the operating state has the nominal voltage disconnected to the point of time at which the last output circuit has closed or opened (not including the bounce time). The indicated times are valid for energization with nominal voltage (without any components in series or parallel to the coil) and at reference temperature.

## Release voltage

The input voltage at which a monostable relay returns to the rest state at the reference temperature.

## Reset

Process in which a bistable relay returns from the operating state back to the rest state.

# Definitions

## Reset time

The time interval (typ.) that elapses from the point of time at which a bistable relay in the operating state has the nominal voltage applied in the opposite direction to the point of time at which the last output circuit has closed or opened (not including the bounce time).

## Reset voltage

The lowest input voltage at which a bistable relay shifts from the operating state into the rest state at the reference temperature.

## Rest state

Switch position of a monostable relay in the unenergized state. In bistable relays this is the switch position specified by the manufacturer. The contact position is not defined at delivery.

## Safety relays

The compliance with regulations for the safety of persons and material is imperative in our technical world. National and international regulations take various risks into account. These safety standards also make demands on components which share with their function the safety level of a plant, machine or the equipment. For safety relays the demand for forcibly guided contact system according ZH1/457, issued by the professional association applies; the contacts have to be linked mechanically in a way, that N/O and N/C contacts may not be closed at the same time. It has to be ensured that over the entire life and even in case of malfunction (e.g. contact welding) the contact gap will be at least 0.5mm. If specified they also comply with the wider requirements according to prEN 50205 "relays with forcibly guided contacts"

## Shock resistance (destruction)

This test is used to evaluate the resistance of the relay to mechanical shocks such as those that could occur in transport or during operation (no permanent damage to the relay). This test is performed according to the IEC 68-2-27, Ea test.

## Shock resistance (function)

This test is used to evaluate the resistance of the relay to mechanical shocks such as those that could occur in transport or during operation (no opening of closed relay contacts or closing of open relay contacts with a duration  $>10\text{ }\mu\text{s}$  is allowed to occur during the test). This test is performed according to the IEC 68-2-27, Ea test.

## Single contact

Contact system with one contact piece per contact spring.

## Surge voltage / test surge voltage

Amplitude of a voltage impulse of short duration with a specified impulse form and polarity that is applied to test insulation paths in the relay.

## Switching current

Current a relay can switch on and off under specified conditions.

## Switching power

Product of the switching current and switching voltage (in W for direct current, in VA for alternating current).

## Switching rate

Number of operations per unit of time.

## Switching voltage

Voltage between the switching contacts before closing or after opening of the contact. (DC refers to direct current; AC refers to alternating current)

## Tracking resistance

Evaluation of insulating materials by determining their creepage distance formation, specified by the so-called comparative number of creepage formation (CTI) according to IEC 112.

## Twin contact

A compound contact consisting of two simultaneously operating make contacts with a common contact spring. Twin contacts increase the contact reliability considerably, especially when switching low currents and voltages (dry circuits).

## Vibration resistance (function)

This test is used to evaluate the resistance of the relay to harmonic mechanical oscillations such as those that could occur in transport or during operation (no opening of closed relay contacts or closing of open relay contacts with a duration  $>10\text{ }\mu\text{s}$  is allowed to occur during the test). This test is performed according to the IEC 68-2-6, Fc test.

# Processing

## Mounting

Unless otherwise stated the relay can be mounted in any position. The relays can be further processed in all of the usual commercial soldering and cleaning plants.

## Insertion

No pressure should be exerted on the terminal pins after the relay has been inserted in the printed circuit board. After insertion in the printed circuit board, the terminal pins should not be bent in order to fix them. Bending the terminal pins in relays sealed against washing can damage the sealing and could alter the relay parameters. However, if fixing must be carried out before soldering, use a pressure plate or similar.

## Fluxing

The fluxing process should be set up so that the flux wets only the underside of the printed circuit board. The flux should only be visible as foam flux through any open perforations in the printed circuit board. If the printed circuit board is flooded by foam flux, bursting flux bubbles can lead to contamination in open relays and, consequently, to failures. To protect against corrosion, no acidiferous flux should be used. The recommended flux types are 1.1.3, 1.2.3 or 2.2.3 according to DIN EN 29454 T.1.

## Preheating

In the normal preheating of flux, the temperature of the upper surface of the printed circuit board should not exceed 100°C. Ensure that any not completely dry flux exploding on being submerged in the solder wave does not penetrate the insides of open relays.

## Soldering

### PIN version

The relays in the PIN version are soldered according to the S-Sn60Pb40 or S-Sn63Pb37 solder types in accordance with DIN EN 29453. The solder bath temperature should be max. 260°C with a solder duration of approx. 3 s.

### SMD version

The soldering processes approved for relays of the SMD version are condensation soldering (vapour phase), infrared soldering (radiation and/or convection) and full wave soldering.

| Approved Soldering Techniques         | Max. sold. duration | Max. sold. temp. |
|---------------------------------------|---------------------|------------------|
| Condensation soldering (vapour phase) | 40 s                | 215°C            |
| Infrared soldering                    | 40 s                | 215°C            |
| Full wave soldering                   | 10 s                | 260°C            |

Refer to the recommendations of CECC 00802 for the complete soldering profile.

### Manual soldering

For manual soldering, we recommend a soldering temperature of 300 to 350 °C for a maximum soldering time of 2 s. The recommended solder type is pipe solder 1 DIN 8516-LSnPb zh/F-SW 32 to 34 (1 mm , 2.5 percentage by weight flux portion).

## Cooling

The thermal loading resulting from the soldering process can be reduced at the end of the process by cooling.

## Cleaning

We recommend avoiding washing processes in order to protect the environment. The fluxes we specify render a wash process unnecessary. If cleaning is required for other reasons, the following points must be observed independently of the washing process:

- the printed circuit boards must be washed immediately after the soldering process!
- the washing process must be set up so that any accumulation of washing fluid inside the relay is avoided!
- the individual wash stations must be separate from one another to prevent cross-contamination!
- after the final washing process, the printed circuit boards must be cleaned again using a clean washing medium!
- After washing, compressed air should be used to blow off the printed circuit board to speed up the drying process.

## Protective lacquering

For the protective lacquering of the mounted printed circuit boards, we recommend single-component lacquer that is applied by immersion.

The maximum drying temperature should be 70 °C.



# Part number reference list

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| 0-1393092-1 | MT          | MT326115          | 129  | 0-1393216-6 | Card E  | V23057-B0023-A401 | 74   | 0-1393240-7 | RT1 dc/ac    | RT314730          | 37   |
| 0-1393092-2 | MT          | MT326230          | 129  | 0-1393216-7 | Card E  | V23057-B0023-B101 | 74   | 0-1393240-8 | RT1 bistable | RT315F03          | 40   |
| 0-1393092-3 | MT          | MT328012          | 129  | 0-1393216-8 | Card E  | V23057-B0023-B601 | 74   | 0-1393240-9 | RT1 dc/ac    | RT315005          | 37   |
| 0-1393092-4 | MT          | MT328024          | 129  | 0-1393216-9 | Card E  | V23057-B0028-A401 | 74   | 0-1393243-1 | RT2 dc/ac    | RTE24005          | 67   |
| 0-1393092-5 | MT          | MT328048          | 129  | 0-1393217-1 | RE      | RE030005          | 26   | 0-1393243-2 | RT2 dc/ac    | RTE24006          | 67   |
| 0-1393092-7 | MT          | MT328115          | 129  | 0-1393217-2 | RE      | RE030006          | 26   | 0-1393243-3 | RT2 dc/ac    | RTE24009          | 67   |
| 0-1393092-8 | MT          | MT328230          | 129  | 0-1393217-3 | RE      | RE030009          | 26   | 0-1393243-4 | RT2 dc/ac    | RTE24012          | 67   |
| 0-1393092-9 | MT          | MT329115          | 129  | 0-1393217-4 | RE      | RE030012          | 26   | 0-1393243-6 | RT2 dc/ac    | RTE24018          | 67   |
| 0-1393097-5 | RMC/RMD     | RMD35730          | 143  | 0-1393217-7 | RE      | RE030018          | 26   | 0-1393243-7 | RT2 dc/ac    | RTE24020          | 67   |
| 0-1393146-1 | RMC/RMD     | RMC05012          | 143  | 0-1393217-8 | RE      | RE030024          | 26   | 0-1393243-8 | RT2 dc/ac    | RTE24022          | 67   |
| 0-1393146-2 | RMC/RMD     | RMC05048          | 143  | 0-1393219-3 | PE      | PE014005          | 22   | 0-1393244-2 | RT2 dc/ac    | RT444048          | 67   |
| 0-1393146-3 | RMC/RMD     | RMC05060          | 143  | 0-1393219-4 | PE      | PE014006          | 22   | 0-1393244-3 | RT2 dc/ac    | RT444110          | 67   |
| 0-1393146-4 | RMC/RMD     | RMC05221          | 143  | 0-1393219-5 | PE      | PE014009          | 22   | 0-1393244-4 | RT2 dc/ac    | RT444524          | 67   |
| 0-1393146-5 | RMC/RMD     | RMC05524          | 143  | 0-1393219-6 | PE      | PE014012          | 22   | 0-1393244-5 | RT2 dc/ac    | RT444615          | 67   |
| 0-1393146-6 | RMC/RMD     | RMC05730          | 143  | 0-1393219-8 | PE      | PE014018          | 22   | 0-1393244-7 | RT2 dc/ac    | RT444730          | 67   |
| 0-1393146-7 | RMC/RMD     | RMC35024          | 143  | 0-1393219-9 | PE      | PE014021          | 22   | 0-1393244-8 | RT2 dc/ac    | RT445009          | 67   |
| 0-1393146-8 | RMC/RMD     | RMD05012          | 143  | 0-1393222-1 | MSR     | V23061-A1001-A202 | 34   | 0-1393244-9 | RT2 dc/ac    | RT445024          | 67   |
| 0-1393146-9 | RMC/RMD     | RMD05024          | 143  | 0-1393222-2 | MSR     | V23061-A1001-A302 | 34   | 0-1393249-7 | W58          | W58-XB1A4A-10     | 169  |
| 0-1393147-1 | RM 2/3/7    | RM707524          | 132  | 0-1393222-3 | MSR     | V23061-A1002-A202 | 34   | 0-1393249-8 | W58          | W58-XB1A4A-12     | 169  |
| 0-1393147-2 | RM 2/3/7    | RM707730          | 132  | 0-1393222-4 | MSR     | V23061-A1002-A302 | 34   | 0-1393249-9 | W58          | W58-XB1A4A-15     | 169  |
| 0-1393147-3 | RM 2/3/7    | RM7080C4          | 132  | 0-1393222-5 | MSR     | V23061-A1002-A402 | 34   | 0-1393250-3 | W28          | W28-SQ1A-15       | 167  |
| 0-1393147-4 | RM 2/3/7    | RM708024          | 132  | 0-1393222-6 | MSR     | V23061-A1002-A502 | 34   | 0-1393250-8 | W28          | W28-SQ11A-15      | 167  |
| 0-1393147-5 | RM 2/3/7    | RM709730          | 132  | 0-1393222-9 | MSR     | V23061-A1003-A302 | 34   | 0-1393258-2 | SR2 M        | V23047-A1005-A501 | 102  |
| 0-1393147-6 | RM 2/3/7    | RM732LC4          | 132  | 0-1393224-1 | RY II   | RYA30005          | 31   | 0-1393258-3 | SR2 M        | V23047-A1009-A501 | 102  |
| 0-1393147-7 | RM 2/3/7    | RM732L48          | 132  | 0-1393224-2 | RY II   | RYA30006          | 31   | 0-1393258-4 | SR2 M        | V23047-A1012-A501 | 102  |
| 0-1393147-8 | RM 2/3/7    | RM7320C4          | 132  | 0-1393224-3 | RY II   | RYA30009          | 31   | 0-1393258-5 | SR2 M        | V23047-A1012-A511 | 102  |
| 0-1393147-9 | RM 2/3/7    | RM732060          | 132  | 0-1393224-4 | RY II   | RYA30012          | 31   | 0-1393258-8 | SR2 M        | V23047-A1018-A501 | 102  |
| 0-1393149-2 | RM 5/6      | RM632LC4          | 136  | 0-1393224-5 | RY II   | RYA30019          | 31   | 0-1393258-9 | SR2 M        | V23047-A1018-A542 | 102  |
| 0-1393149-4 | RM 5/6      | RM632221          | 136  | 0-1393224-6 | RY II   | RYA30024          | 31   | 0-1393260-1 | SR6          | V23050-A1005-A542 | 110  |
| 0-1393149-7 | RM 5/6      | RM632730          | 136  | 0-1393224-7 | RY II   | RYA31005          | 31   | 0-1393260-2 | SR6          | V23050-A1006-A542 | 110  |
| 0-1393149-9 | RM 5/6      | RM637024          | 136  | 0-1393224-8 | RY II   | RYA31006          | 31   | 0-1393260-3 | SR6          | V23050-A1009-A542 | 110  |
| 0-1393154-1 | PT          | PT230024          | 123  | 0-1393224-9 | RY II   | RYA31012          | 31   | 0-1393260-4 | SR6          | V23050-A1012-A542 | 110  |
| 0-1393154-2 | PT          | PT270512          | 123  | 0-1393225-1 | RY II   | RY551018          | 31   | 0-1393260-5 | SR6          | V23050-A1018-A542 | 110  |
| 0-1393154-3 | PT          | PT280024          | 123  | 0-1393225-2 | RY II   | RY551024          | 31   | 0-1393260-6 | SR6          | V23050-A1021-A542 | 110  |
| 0-1393154-4 | PT          | PT280524          | 123  | 0-1393225-3 | RY II   | RY552012          | 31   | 0-1393260-7 | SR6          | V23050-A1024-A542 | 110  |
| 0-1393154-5 | PT          | PT280730          | 123  | 0-1393225-4 | RY II   | RY553009          | 31   | 0-1393260-8 | SR6          | V23050-A1036-A542 | 110  |
| 0-1393154-6 | PT          | PT281730          | 123  | 0-1393225-5 | RY II   | RY553012          | 31   | 0-1393260-9 | SR6          | V23050-A1040-A542 | 110  |
| 0-1393154-7 | PT          | PT370006          | 123  | 0-1393225-6 | RY II   | RY553024          | 31   | 0-1393844-1 | RM 5/6       | RM507024          | 136  |
| 0-1393154-8 | PT          | PT371615          | 123  | 0-1393225-7 | RY II   | RY610005          | 31   | 0-1393844-2 | RM 5/6       | RM509LC4          | 136  |
| 0-1393154-9 | PT          | PT380024          | 123  | 0-1393225-8 | RY II   | RY610006          | 31   | 0-1393844-3 | RM 5/6       | RM602012          | 136  |
| 0-1393161-2 | Acc. RP,RT  | RPME10L0          | 150  | 0-1393225-9 | RY II   | RY610009          | 31   | 0-1393844-4 | RM 5/6       | RM602024          | 136  |
| 0-1393161-3 | Acc. RP,RT  | RPMG0024          | 150  | 0-1393230-1 | RP3SL   | RP3SLA05          | 55   | 0-1393844-6 | RM 5/6       | RM607024          | 136  |
| 0-1393161-4 | Acc. RP,RT  | RPLM0024          | 150  | 0-1393230-2 | RP3SL   | RP3SLA06          | 55   | 0-1393844-7 | RM 2/3/7     | RM702012          | 132  |
| 0-1393161-5 | Acc. RP,RT  | RPLM0048          | 150  | 0-1393230-3 | RP3SL   | RP3SLA12          | 55   | 0-1393844-8 | RM 2/3/7     | RM702048          | 132  |
| 0-1393161-6 | Acc. RP,RT  | RPML0110          | 150  | 0-1393230-4 | RP3SL   | RP3SLA24          | 55   | 0-1393844-9 | RM 2/3/7     | RM702524          | 132  |
| 0-1393161-7 | Acc. RP,RT  | RPML0524          | 150  | 0-1393230-5 | RP3SL   | RP3SLF12          | 55   | 0-1393845-1 | RP II/2      | RP820F12          | 72   |
| 0-1393161-8 | Acc. RP,RT  | RPML0730          | 150  | 0-1393230-6 | RP3SL   | RP3SLF24          | 55   | 0-1393845-2 | RP II/2      | RP820F48          | 72   |
| 0-1393162-1 | Acc. PT     | PT28802           | 154  | 0-1393230-7 | RP3SL   | RP3SL005          | 55   | 0-1393845-3 | RP II/2      | RP821006          | 72   |
| 0-1393162-5 | Acc. PT     | PT78603           | 154  | 0-1393230-8 | RP3SL   | RP3SL006          | 55   | 0-1393845-4 | RP II/2      | RP821012          | 72   |
| 0-1393162-7 | Acc. PT     | RA78728           | 154  | 0-1393230-9 | RP3SL   | RP3SL012          | 55   | 0-1393845-5 | RP II/2      | RP821024          | 72   |
| 0-1393164-1 | Acc. PCLH   | TM28800           | 161  | 0-1393231-1 | RP II/I | RP411615          | 52   | 0-1393845-6 | RP II/2      | RP821048          | 72   |
| 0-1393164-2 | Acc. PCLH   | TM78700           | 161  | 0-1393231-2 | RP II/I | RP411730          | 52   | 0-1393845-7 | RP II/2      | RP821060          | 72   |
| 0-1393186-3 | T7N/T7N-VVG | T7NS1D1-06        | 84   | 0-1393231-3 | RP II/I | RP412A48          | 52   | 0-1393845-8 | RP II/2      | RP821524          | 72   |
| 0-1393199-1 | IF          | V23077-A1001-A402 | 61   | 0-1393231-4 | RP II/I | RP412A60          | 52   | 0-1393845-9 | RP II/2      | RP821615          | 72   |
| 0-1393199-2 | IF          | V23077-A1002-A402 | 61   | 0-1393231-5 | RP II/I | RP412F05          | 52   | 0-1415002-1 | PT           | PT270R24          | 123  |
| 0-1393199-3 | IF          | V23077-A1002-A403 | 61   | 0-1393231-6 | RP II/I | RP412F12          | 52   | 0-1415006-1 | PT           | PT520L24          | 123  |
| 0-1393199-4 | IF          | V23077-A1003-A402 | 61   | 0-1393231-7 | RP II/I | RP412F24          | 52   | 0-1415008-1 | RM 5/6       | RM507730          | 136  |
| 0-1393199-6 | IF          | V23077-A1004-A402 | 61   | 0-1393231-8 | RP II/I | RP412005          | 52   | 0-1415009-1 | RMC/RMD      | RMD05615          | 143  |
| 0-1393199-7 | IF          | V23077-A1005-A402 | 61   | 0-1393231-9 | RP II/I | RP412006          | 52   | 0-1415012-1 | SR2 M        | V23047-A1060-A501 | 102  |
| 0-1393199-9 | IF          | V23077-A1005-A403 | 61   | 0-1393232-1 | RP II/I | RP811524          | 52   | 0-1415013-1 | MT           | MT228012          | 129  |
| 0-1393203-1 | U/UB        | V23148-A0002-A101 | 77   | 0-1393232-2 | RP II/I | RP811615          | 52   | 0-1415015-1 | SR6          | V23050-A1024-A533 | 110  |
| 0-1393203-2 | U/UB        | V23148-A0002-B101 | 77   | 0-1393232-3 | RP II/I | RP811730          | 52   | 0-1415017-1 | SR6          | V23050-A1024-A551 | 110  |
| 0-1393203-3 | U/UB        | V23148-A0002-C101 | 77   | 0-1393232-4 | RP II/I | RP812F05          | 52   | 0-1415018-1 | SR6          | V23050-A1009-A533 | 110  |
| 0-1393203-4 | U/UB        | V23148-A0003-A101 | 77   | 0-1393232-5 | RP II/I | RP812F24          | 52   | 0-1415019-1 | SR6          | V23050-A1036-A551 | 110  |
| 0-1393203-5 | U/UB        | V23148-A0003-B101 | 77   | 0-1393232-6 | RP II/I | RP812005          | 52   | 0-1415025-1 | Acc. SNR     | ST16040           | 147  |
| 0-1393203-6 | U/UB        | V23148-A0003-C101 | 77   | 0-1393232-7 | RP II/I | RP812009          | 52   | 0-1415026-1 | PT           | PT280R24          | 123  |
| 0-1393203-7 | U/UB        | V23148-A0004-A101 | 77   | 0-1393232-8 | RP II/I | RP812012          | 52   | 0-1415029-1 | RT1 inrush   | RT31KA12          | 44   |
| 0-1393203-8 | U/UB        | V23148-A0005-A101 | 77   | 0-1393232-9 | RP II/I | RP812024          | 52   | 0-1415030-1 | PB           | PB134005          | 82   |
| 0-1393203-9 | U/UB        | V23148-A0005-B101 | 77   | 0-1393234-2 | RP II/I | RP81A615          | 52   | 0-1415031-1 | PB           | PB334012          | 82   |
| 0-1393204-1 | U/UB        | V23148-B0001-A101 | 77   | 0-1393234-5 | RP II/I | RP810006          | 52   | 0-1415034-1 | MT           | MT325110          | 129  |
| 0-1393204-2 | U/UB        | V23148-B0002-A101 | 77   | 0-1393235-2 | RP II/2 | RP42A024          | 72   | 0-1415035-1 | Acc. MT      | MT78750           | 158  |
| 0-1393204-3 | U/UB        | V23148-B0002-B101 | 77   | 0-1393235-3 | RP II/2 | RP42A048          | 72   | 0-1415037-1 | A. PT,RP,RT  | PTMT00L0          | 150  |
| 0-1393204-4 | U/UB        | V23148-B0003-A101 | 77   | 0-1393235-4 | RP II/2 | RP42A060          | 72   | 0-1415038-1 | Acc. PT      | PT17020           | 154  |
| 0-1393204-5 | U/UB        | V23148-B0003-B101 | 77   | 0-1393235-5 | RP II/2 | RP42A080          | 72   | 0-1415039-1 | RTH          | RTH34024          | 50   |
| 0-1393204-6 | U/UB        | V23148-B0003-C101 | 77   | 0-1393235-6 | RP II/2 | RP42A110          | 72   | 0-1415040-1 | A. PT,RP,RT  | PTMT00T0          | 150  |
| 0-1393204-7 | U/UB        | V23148-B0005-A101 | 77   | 0-1393235-7 | RP II/2 | RP42A730          | 72   | 0-1415041-1 | SR6          | SR6F4110          | 110  |
| 0-1393204-8 | U/UB        | V23148-B0005-B101 | 77   | 0-1393235-8 | RP II/2 | RP42C020          | 72   | 0-1415044-1 | Acc. MT      | MT78603           | 158  |
| 0-1393204-9 | U/UB        | V23148-B0005-C101 | 77   | 0-1393235-9 | RP II/2 | RP42C024          | 72   | 0-1415048-1 | PT           | PT270R48          | 123  |
| 0-1393210-2 | T9A         | T9AN1D12-24       | 87   | 0-1393236-1 | SNR     | V23092-A1005-A201 | 28   | 0-1415054-1 | SR4 D/M      | SR4M4021          | 105  |
| 0-1393212-2 | T92         | T92S7A22-120      | 90   | 0-1393236-2 | SNR     | V23092-A1005-A301 | 28   | 0-1415055-1 | SR4 D/M      | SR4D4012          | 105  |
| 0-1393212-4 | T92         | T92S7A22-24       | 90   | 0-1393236-3 | SNR     | V23092-A1006-A301 | 28   | 0-1415056-1 | SR6sensitive | SR6B4S05          | 113  |
| 0-1393212-5 | T92         | T92S7A22-240      | 90   | 0-1393236-4 | SNR     | V23092-A1012-A201 | 28   | 0-1415057-1 | SR6sensitive | SR6A4S05          | 113  |
| 0-1393212-7 | T92         | T92S7D12-110      | 90   | 0-1393236-5 | SNR     | V23092-A1012-A202 | 28   | 0-1415058-1 | SR6sensitive | SR6C4S05          | 113  |
| 0-1393212-8 | T92         | T92S7D12-12       | 90   | 0-1393236-6 | SNR     | V23092-A1012-A203 | 28   | 0-1415060-1 | SR6 Z        | SR6ZA615          | 116  |
| 0-1393215-1 | Card E      | V23057-A0001-A101 | 74   | 0-1393236-7 | SNR     | V23092-A1012-A301 | 28   | 0-1415062-1 | SR6 D/M      | SR6D4110          | 108  |
| 0-1393215-2 | Card E      | V23057-A0001-A201 | 74   | 0-1393236-8 | SNR     | V23092-A1012-A302 | 28   | 0-1415064-1 | PE           | PE014C24          | 22   |
| 0-1393215-3 | Card E      | V23057-A0001-A401 | 74   | 0-1393236-9 | SNR     | V23092-A1012-A303 | 28   | 0-1415065-1 | PT           | PT520012          | 123  |
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| 0-1415403-9 | 409 dc       | 0409 47 008 000 | 58   | 1-1393154-2 | PT         | PT570024          | 123  | 1-1393225-0 | RY II     | RY610012          | 31   |
| 0-1415404-1 | 430 1/2pole  | 0430 17 0916 00 | 96   | 1-1393154-3 | PT         | PT570125          | 123  | 1-1393225-1 | RY II     | RY610015          | 31   |
| 0-1415404-2 | 430 1/2pole  | 0430 17 0916 03 | 96   | 1-1393154-4 | PT         | PT571512          | 123  | 1-1393225-2 | RY II     | RY610018          | 31   |
| 0-1415404-3 | 430 1/2pole  | 0430 17 1006 00 | 96   | 1-1393154-5 | PT         | PT571615          | 123  | 1-1393225-3 | RY II     | RY610021          | 31   |
| 0-1415404-4 | 430 1/2pole  | 0430 17 1016 00 | 96   | 1-1393154-6 | PT         | PT580012          | 123  | 1-1393225-4 | RY II     | RY610024          | 31   |
| 0-1415404-5 | 430 1/2pole  | 0430 17 6506 04 | 96   | 1-1393154-7 | PT         | PT580024          | 123  | 1-1393225-5 | RY II     | RY610048          | 31   |
| 0-1415404-6 | 430 1/2pole  | 0430 17 6606 04 | 96   | 1-1393154-8 | PT         | PT580048          | 123  | 1-1393225-6 | RY II     | RY610060          | 31   |
| 0-1415404-7 | 430 1/2pole  | 0430 17 6706 05 | 96   | 1-1393154-9 | PT         | PT580060          | 123  | 1-1393225-7 | RY II     | RY611005          | 31   |
| 0-1415404-8 | 430 1/2pole  | 0430 17 7306 10 | 96   | 1-1393161-1 | Acc. RP,RT | RPMT00A0          | 150  | 1-1393225-8 | RY II     | RY611006          | 31   |
| 0-1415404-9 | 430 1/2pole  | 0430 17 9216 01 | 96   | 1-1393161-3 | Acc. RP,RT | RPMU0548          | 150  | 1-1393225-9 | RY II     | RY611012          | 31   |
| 0-1415405-0 | 409 bistable | 0409 67 032 001 | 58   | 1-1393161-4 | Acc. RP,RT | RPMU0730          | 150  | 1-1393230-0 | RP3SL     | RP3SL018          | 55   |
| 0-1415405-1 | 409 bistable | 0409 67 029 001 | 58   | 1-1393161-7 | Acc. RP    | RP16100           | 150  | 1-1393230-1 | RP3SL     | RP3SL024          | 55   |
| 0-1415410-1 | 410 125°C    | 0410 63 001 000 | 63   | 1-1393161-8 | Acc. RP    | RP16104           | 150  | 1-1393230-2 | RP3SL     | RP3SL048          | 55   |
| 0-1415410-2 | 410 125°C    | 0410 63 003 000 | 63   | 1-1393161-9 | Acc. RP    | RP28500           | 150  | 1-1393230-3 | RP3SL     | RP3SL060          | 55   |
| 0-1415410-3 | 410 125°C    | 0410 63 004 000 | 63   | 1-1393199-2 | IF         | V23077-A1007-A402 | 61   | 1-1393230-4 | RP3SL     | RP3SL110          | 55   |
| 0-1415410-4 | 410 125°C    | 0410 63 008 000 | 63   | 1-1393199-3 | IF         | V23077-A1007-A403 | 61   | 1-1393230-5 | RP II/1   | RP31D024          | 52   |
| 0-1415410-5 | 410 125°C    | 0410 63 009 000 | 63   | 1-1393199-5 | IF         | V23077-A1009-A402 | 61   | 1-1393230-6 | RP II/1   | RP310A06          | 52   |
| 0-1415410-6 | 410 125°C    | 0410 63 010 000 | 63   | 1-1393199-6 | IF         | V23077-A1009-A403 | 61   | 1-1393230-7 | RP II/1   | RP310A12          | 52   |
| 0-1415410-7 | 410 125°C    | 0410 63 011 000 | 63   | 1-1393199-7 | IF         | V23077-A1012-A402 | 61   | 1-1393230-8 | RP II/1   | RP310A60          | 52   |
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| 0-1415419-3 | 419          | 0419 01 0701 06 | 99   | 1-1393203-4 | U/UB       | V23148-A0008-A101 | 77   | 1-1393231-3 | RP II/1   | RP412048          | 52   |
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| 0-1415419-5 | 419          | 0419 01 0901 00 | 99   | 1-1393203-6 | U/UB       | V23148-A0102-B101 | 77   | 1-1393231-5 | RP II/1   | RP412110          | 52   |
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