

## Miniature Relay PT

- 2 pole 12 A, 3 pole 10 A or 4 pole 6 A, 2, 3 or 4 CO contacts
- DC- or AC-coil
- Switching performance up to 3000 VA
- Relay height 29 mm
- Mechanical and electrical indicator
- Manual test tab, optionally lockable.
- White marking tabs
- RoHS compliant (Directive 2002/95/EC)

### Applications

Universal use in control and automation



F0191-A

### Approvals

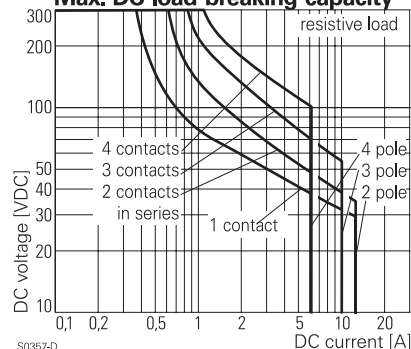
VDE REG.-Nr. 115719, **CE** us E214025, **UL** 00/20059(E2)  
Technical data of approved types on request

| Contact data                                     | PT2                              | PT3         | PT5         |
|--------------------------------------------------|----------------------------------|-------------|-------------|
| Contact configuration                            | 2 CO                             | 3 CO        | 4 CO        |
| Contact set                                      | single contact                   |             |             |
| Type of interruption                             | micro disconnection              |             |             |
| Rated current                                    | 12 A                             | 10 A        | 6 A         |
| Rated voltage / max.switching voltage AC         | 240/400 VAC                      | 240/400 VAC | 240/240 VAC |
| Maximum breaking capacity AC                     | 3000 VA                          | 2500 VA     | 1500 VA     |
| Limiting making capacity, max 20 ms              | 24 A                             | 20 A        | 12 A        |
| Contact material                                 | AgNi90/10, AgNi90/10 gold plated |             |             |
| Minimum contact load                             | 12V/10mA, 20mV/1mA gold plated   |             |             |
| Mechanical endurance DC coil                     | 30x10 <sup>6</sup> cycles        |             |             |
| AC coil                                          | 20x10 <sup>6</sup> cycles        |             |             |
| Rated frequency of operation with / without load | 6/600 min <sup>-1</sup>          |             |             |

### Contact ratings

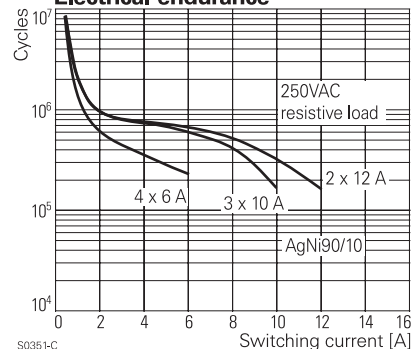
| Type  | Load                                                                          | Cycles              |
|-------|-------------------------------------------------------------------------------|---------------------|
| PT270 | 12 A, 250 VAC, 3000 VA, cosφ=1, DF 50%, 600 h <sup>-1</sup> , NO, 70°C        | 168x10 <sup>3</sup> |
| PT270 | 8 A, 250 VAC, 2000 VA, cosφ=1, DF 50%, 600 h <sup>-1</sup> , NO, 70°C         | 750x10 <sup>3</sup> |
| PT270 | 4 A, 250 VAC, 1000 VA, cosφ=1, DF 50%, 600 h <sup>-1</sup> , NO, 70°C         | 8.3x10 <sup>6</sup> |
| PT270 | 3.75 A, 400 VAC, opp. polarity, 70°C, AC3                                     |                     |
| PT270 | 5 A, 250 VAC, opp. polarity, normal/abnormal, 70°C, AC15                      |                     |
| PT270 | 8 A, 24 VDC, opp. polarity, normal/abnormal, 70°C, DC13                       |                     |
| PT270 | 1.7 A, 230 VAC, 400 W, opp. polarity, 70°C, AC5b                              |                     |
| PT370 | 10 A, 250 VAC, 2500 VA, cosφ=1, DF 50%, 600 h <sup>-1</sup> , NO, 70°C        | 159x10 <sup>3</sup> |
| PT370 | 8 A, 250 VAC, 2000 VA, cosφ=1, DF 50%, 600 h <sup>-1</sup> , NO, 70°C         | 466x10 <sup>3</sup> |
| PT370 | 4 A, 250 VAC, 1000 VA, cosφ=1, DF 50%, 600 h <sup>-1</sup> , NO, 70°C         | 1.1x10 <sup>6</sup> |
| PT370 | 2 A, 400 VAC, opp. polarity, 70°C, AC3                                        |                     |
| PT370 | 5 A, 250 VAC, opp. polarity, normal/abnormal, 70°C, AC15                      |                     |
| PT370 | 8 A, 24 VDC, opp. polarity, normal/abnormal, 70°C, DC13                       |                     |
| PT370 | 1.7 A, 230 VAC, 400 W, opp. polarity, 70°C, AC5b                              |                     |
| PT570 | 6 A, 250 VAC, 1500 VA, cosφ=1, DF 50%, 600 h <sup>-1</sup> , NO, 70°C         | 228x10 <sup>3</sup> |
| PT570 | 2 A, 250 VAC, 500 VA, cosφ=1, DF 50%, 600 h <sup>-1</sup> , NO, 70°C          | 782x10 <sup>3</sup> |
| PT570 | 3 A, 400 VAC, opp. polarity, 70°C, AC3                                        |                     |
| PT570 | 4 A, 250 VAC, opp. polarity, normal/abnormal, 70°C, AC15                      |                     |
| PT570 | 6 A, 24 VDC, opp. polarity, normal/abnormal, 70°C, DC13                       |                     |
| PT570 | 1.7 A, 230 VAC, 400 W, opp. polarity, 70°C, AC5b                              |                     |
| PT570 | 0.3 A, 110 VDC, 33 W, L/R=22 ms, 1440 h <sup>-1</sup> , DF 8%, NO, prot.D.    | 3.6x10 <sup>6</sup> |
| PT570 | 3 A on / 1 A off, 120 VAC, cosφ 0.8on/0.5off, 600h <sup>-1</sup> , DF 15%, NO | 423x10 <sup>3</sup> |

### Max. DC load breaking capacity



S0357-D

### Electrical endurance



S0351-C

**Miniature Relay PT** (Continued)

**Coil data**

|                                               |             |
|-----------------------------------------------|-------------|
| Rated coil voltage range DC coil              | 6...220 VDC |
| AC coil                                       | 6...230 VAC |
| Coil power DC coil                            | 0.75 mW     |
| AC coil                                       | 1.0 VA      |
| Operative range DC coil, AC-coil 50Hz         | 2           |
| AC coil 60 Hz at 70°C, % of U <sub>rtid</sub> | 90...110%   |

**Coil versions, DC-coil**

| Coil code  | Rated voltage | Operate voltage | Release voltage | Coil resistance | Rated coil power |
|------------|---------------|-----------------|-----------------|-----------------|------------------|
| STD        | VDC           | VDC             | VDC             | Ohm             | mW               |
| 006        | L06           | 6               | 4.5             | 0.6             | 48 ± 10%         |
| 012        | L12           | 12              | 9.0             | 1.2             | 192 ± 10%        |
| <b>024</b> | <b>L24</b>    | <b>24</b>       | <b>18.0</b>     | <b>2.4</b>      | <b>777 ± 10%</b> |
| 048        | L48           | 48              | 36.0            | 4.8             | 3072 ± 10%       |
| 060        | L60           | 60              | 45.0            | 6.0             | 4845 ± 12%       |
| 110        | M10           | 110             | 82.5            | 11.0            | 16133 ± 15%      |
| 220        | N20           | 220             | 165.0           | 22.0            | 64533 ± 15%      |

All figures are given for coil without preenergization, at ambient temperature +23°C

**Coil versions, AC-coil 50/60 Hz**

| Coil code  | Rated voltage | Operate voltage | Release voltage    | Coil resistance | Rated coil power   |
|------------|---------------|-----------------|--------------------|-----------------|--------------------|
| STD        | VAC           | 50/60Hz VAC     | 50/60Hz VAC        | Ohm             | 50/60Hz VA         |
| 506        | R06           | 6               | 4.8/5.4            | 1.8             | 11 ± 10%           |
| 512        | R12           | 12              | 9.6/10.8           | 3.6             | 48 ± 10%           |
| <b>524</b> | <b>R24</b>    | <b>24</b>       | <b>19.2/21.6</b>   | <b>7.2</b>      | <b>192 ± 10%</b>   |
| 548        | R48           | 48              | 38.4/43.2          | 14.4            | 777 ± 10%          |
| 560        | R60           | 60              | 48.0/54.0          | 18.0            | 4845 ± 12%         |
| 615        | S15           | 115             | 92.0/103.5         | 34.5            | 4845 ± 12%         |
| <b>730</b> | <b>T30</b>    | <b>230</b>      | <b>184.0/207.0</b> | <b>69.0</b>     | <b>19465 ± 15%</b> |

All figures are given for coil without preenergization, at ambient temperature +23°C

**Insulation**

|                                           | PT2                   | PT3                   | PT5                   |
|-------------------------------------------|-----------------------|-----------------------|-----------------------|
| Dielectric strength coil-contact circuit  | 2500 V <sub>rms</sub> | 2500 V <sub>rms</sub> | 2500 V <sub>rms</sub> |
| open contact circuit                      | 1200 V <sub>rms</sub> | 1200 V <sub>rms</sub> | 1200 V <sub>rms</sub> |
| adjacent contact circuits                 | 2500 V <sub>rms</sub> | 2500 V <sub>rms</sub> | 2000 V <sub>rms</sub> |
| Clearance / creepage coil-contact circuit | ≥ 4/4 mm              | ≥ 4/4 mm              | ≥ 4/4 mm              |
| adjacent contact circuits                 | ≥ 3.5/9.5 mm          | ≥ 2.6/3.5 mm          | ≥ 1.8/3.5 mm          |
| Material group of insulation parts        | ≥ IIIa                |                       |                       |
| Insulation to IEC 60664-1                 |                       |                       |                       |
| Type of insulation coil-contact circuit   | basic                 | basic                 | basic                 |
| open contact circuit                      | functional            | functional            | functional            |
| adjacent contact circuits                 | basic                 | basic                 | functional            |
| Rated insulation voltage                  | 250 V                 | 250 V                 | 250 V                 |
| Pollution degree                          | 2                     | 2                     | 2                     |
| Rated voltage system                      | 240/400 V             | 240 V                 | 240 V                 |
| Overvoltage category                      | III                   | III                   | III                   |

**Other data**

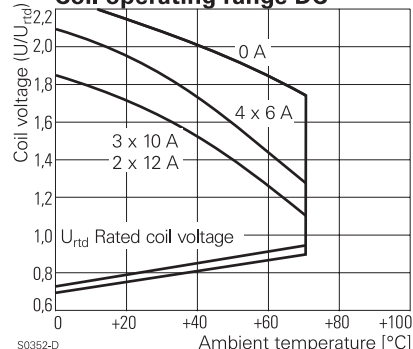
|                                                 |                     |
|-------------------------------------------------|---------------------|
| RoHS - Directive 2002/95/EC                     | compliant           |
| Ambient temperature range                       | -40...+70°C         |
| Operate- / release time                         | 15/10 ms            |
| Bounce time NO / NC contact                     | 5 ms                |
| Vibration resistance (function) NO / NC contact | 7/4 g               |
| Shock resistance (function) NO / NC contact     | 20/5 g              |
| Category of protection                          | RTII- flux proof    |
| Mounting distance                               | 0 mm, dense packing |
| Resistance to soldering heat                    | 270°C / 10s         |
| Relay weight                                    | 30 g                |
| Packaging unit                                  | 10/250 pcs          |

**Accessories**

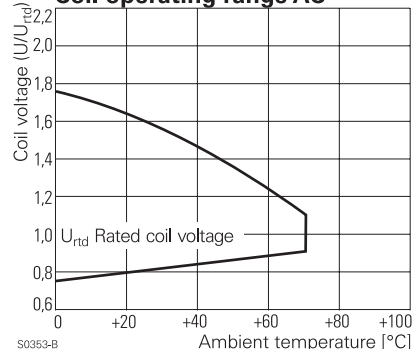
For details see datasheet

Accessories Miniature Relay PT

**Coil operating range DC**



**Coil operating range AC**



**Miniature Relay PT** (Continued)

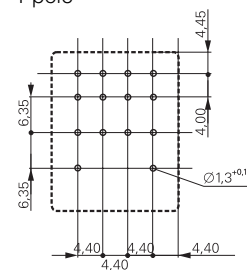
**Relay Packages**

Complete packages consisting of a relay mounted on a socket see Package PT

**PCB layout / terminal assignment**

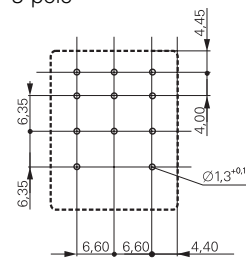
Bottom view on pins

4-pole



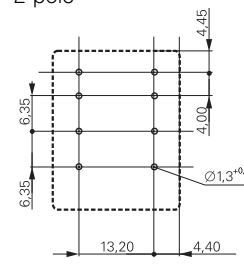
S0354-AA

3-pole

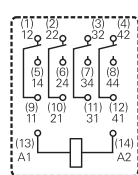


S0354-AB

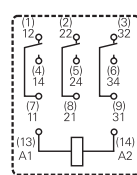
2-pole



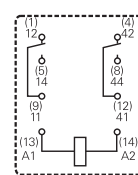
S0354-AC



S0354-AD



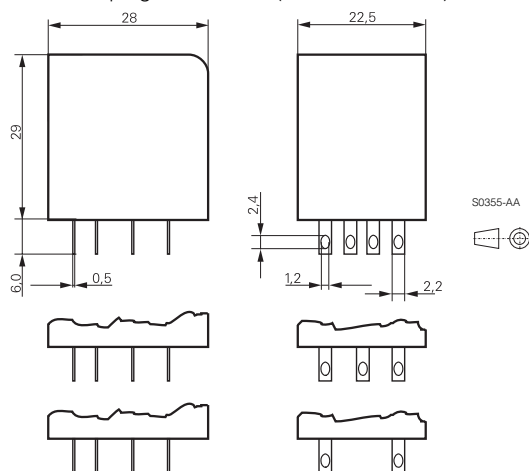
S0354-AE



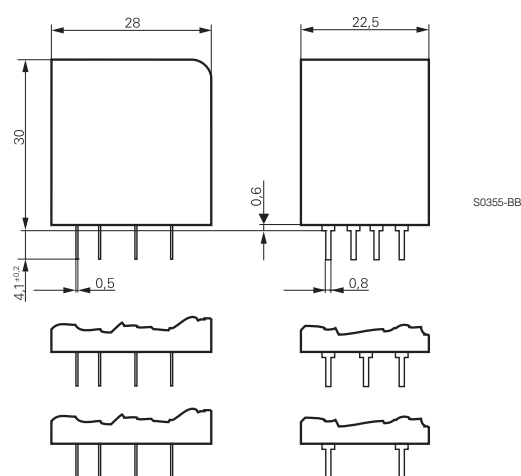
S0354-AF

**Dimensions**

Solder- and plug-in terminals (standard version)



PCB version



**Product key**

Type

Contact configuration

- 2** 2 CO contacts
- 3** 3 CO contacts
- 5** 4 CO contacts

Contact material

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

Version

- 0** standard, 2.8 mm quick connect term.
- 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** (Continued)

| Product key | Cont. Config. | Cont. material                           | Version               | Coil        | Coil    | Part number |
|-------------|---------------|------------------------------------------|-----------------------|-------------|---------|-------------|
| PT270024    | 2 CO 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 CO 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 CO 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 |

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