

Miniature Relay PT

- 2 pole 12A, 3 pole 10A or 4 pole 6A, 2, 3 or 4 form C (CO) contacts
- DC or AC coil
- Switching performance up to 3000VA
- Relay height 29mm
- Mechanical indicator, optional LED and protection diode
- Manual test tab, optionally lockable
- White marking tabs



F0191-B



Typical applications
Universal use in control and automation

Approvals

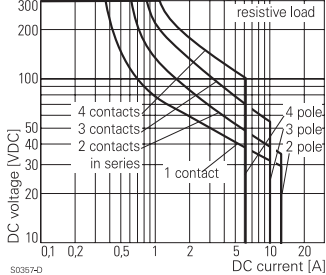
VDE REG.-Nr. 115719, UL E214025, Lloyds 00/20059(E2)
Technical data of approved types on request

| Contact Data | PT2 | PT3 | PT5 |
|---|---|------------------|------------------|
| Contact arrangement | 2 form C 2 CO | 3 form C 3 CO | 4 form C 4 CO |
| Rated voltage | 240VAC | | |
| Max. switching voltage | 400VAC | 400VAC | 240VAC |
| Rated current | 12A | 10A | 6A |
| Limiting making current, max. 20ms | 24A | 20A | 12A |
| Limiting breaking current | 12A | 10A | 6A |
| Limiting short-time current | 300A/30ms | | |
| Switching power | 3000VA | 2500VA | 1500VA |
| Contact material | AgNi90/10, AgNi90/10 gold plated | | |
| Min. recommended contact load | 12V at 10mA gold plated: 20mV at 1mA 30mV at 100mA/6VDC | | |
| Initial voltage drop | | | |
| Frequency of operation with/without load | 360/36000h ⁻¹ | | |
| Operate time typ., DC coil | 15ms | | |
| Release time typ., DC coil, without/with PD | 10/13ms | | |
| Bounce time typ., DC coil, form A/form B | 6/8ms | | |

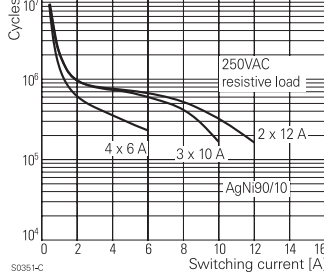
Contact ratings

| Type | Contact | Load | Cycles |
|------------------|------------------|---------------------------|---------------------|
| IEC 61810 | | | |
| PT 2 DC/AC coil | C (CO) | 12A, 250VAC, cosφ=1, 70°C | 70x10 ³ |
| PT 2 DC/AC coil | A (NO) of C (CO) | 9A, 250VAC, cosφ=1, 80°C | 150x10 ³ |
| PT 2 DC/AC coil | A (NO) of C (CO) | 4A, 250VAC, cosφ=1, 80°C | 300x10 ³ |
| PT 3 DC/AC coil | C (CO) | 10A, 250VAC, cosφ=1, 70°C | 100x10 ³ |
| PT 5 DC/AC coil | C (CO) | 6A, 250VAC, cosφ=1, 70°C | 100x10 ³ |

Max. DC load breaking capacity



Electrical endurance



Contact Data (continued)

Contact ratings

| Type | Contact | Load | Cycles |
|---------------|------------------|------------------------------------|---------------------|
| UL 508 | | | |
| PT 2 | C (CO) | 12A, 250VAC, general purpose, 70°C | 6.000 |
| PT 2 | C (CO) | 12A, 250VAC, resistive, 70°C | 100x10 ³ |
| PT 2 | A (NO) of C (CO) | 12A, 250VAC, resistive, 70°C | 100x10 ³ |
| PT 2 | A (NO) of C (CO) | 12A, 250VAC, resistive, 70°C | 100x10 ³ |
| PT 3 | C (CO) | 10A, 250VAC, general purpose, 70°C | 6.000 |
| PT 3 | C (CO) | 10A, 250VAC, resistive, 70°C | 100x10 ³ |
| PT 3 | A (NO) of C (CO) | 10A, 250VAC, resistive, 70°C | 100x10 ³ |
| PT 3 | B (NC) of C (CO) | 10A, 250VAC, resistive, 70°C | 100x10 ³ |
| PT 5 | C (CO) | 6A, 250VAC, general purpose, 70°C | 6.000 |
| PT 5 | C (CO) | 6A, 250VAC, resistive, 70°C | 100x10 ³ |
| PT 5 | A (NO) of C (CO) | 6A, 250VAC, resistive, 70°C | 100x10 ³ |
| PT 5 | B (NC) of C (CO) | 6A, 250VAC, resistive, 70°C | 100x10 ³ |

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| | | |
|------|------------------|--|
| PT 2 | A (NO) of C (CO) | 400VAC, 3.75A, AC3, opposite polarity, 70°C |
| PT 2 | A (NO) of C (CO) | 230VAC, 1.7A, AC5b (400W lamp load), opposite polarity, 70°C |
| PT 3 | A (NO) of C (CO) | 250VAC, 2A, AC3, opposite polarity 70°C |
| PT 3 | A (NO) of C (CO) | 230VAC, 1.7A, AC5b (400W lamp load), opposite polarity, 70°C |
| PT 5 | A (NO) of C (CO) | 250VAC, 3A, AC3, same polarity 70°C |
| PT 5 | A (NO) of C (CO) | 230VAC, 1.7A, AC5b (400W lamp load), same polarity, 70°C |

Mechanical endurance

| | |
|---------|-------------------------------|
| DC coil | 30x10 ⁶ operations |
| AC coil | 20x10 ⁶ operations |

Coil Data

| | |
|--------------------|----------------------------|
| Coil voltage range | 6 to 220VDC 6 to 230VAC |
|--------------------|----------------------------|

Operative range, IEC 61810

| | |
|-------------------------------------|---------------------------|
| DC coil, AC-coil 50Hz | 2 |
| AC coil 60 Hz at 70°C | 90..110% of rated voltage |
| Coil insulation system according UL | class 155 (F) |

Miniature Relay PT (Continued)

Coil Data (continued)

Coil versions, DC coil, standard

| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance $\Omega \pm 10\%$ ¹⁾²⁾ | Rated coil power mW |
|-----------|-------------------|---------------------|---------------------|---|---------------------|
| 006 | 6 | 4.5 | 0.6 | 48 | 750 |
| 012 | 12 | 9.0 | 1.2 | 192 | 750 |
| 024 | 24 | 18.0 | 2.4 | 777 | 741 |
| 048 | 48 | 36.0 | 4.8 | 3072 | 750 |
| 060 | 60 | 45.0 | 6 | 4845 ¹⁾ | 743 |
| 110 | 110 | 82.5 | 11 | 16133 ²⁾ | 750 |
| 220 | 220 | 165.0 | 22 | 64533 ²⁾ | 750 |

Coil versions, DC coil with bipolar LED or LED and protection diode

| Coil code | Rated bipol. LED LED PD ³⁾ | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance $\Omega \pm 10\%$ ¹⁾²⁾ | Rated coil +LED pwr. mW |
|-----------|---------------------------------------|-------------------|---------------------|---------------------|---|-------------------------|
| L06 | LA6 | 6 | 4.5 | 0.6 | 48 | 750+3.5 |
| L12 | LB2 | 12 | 9.0 | 1.2 | 192 | 750+10 |
| L24 | LC4 | 24 | 18.0 | 2.4 | 777 | 741+18 |
| L48 | LE8 | 48 | 36.0 | 4.8 | 3072 | 750+38 |
| L60 | LG0 | 60 | 45.0 | 6.0 | 4845 ¹⁾ | 743+56 |
| M10 | MB0 | 110 | 82.5 | 11.0 | 16133 ²⁾ | 750+96.5 |
| N20 | NC0 | 220 | 165.0 | 22.0 | 64533 ²⁾ | 750+202.5 |

1) Coil resistance $\pm 12\%$, 2) Coil resistance $\pm 15\%$,

3) Protection diode PD; standard polarity: +A1/-A2

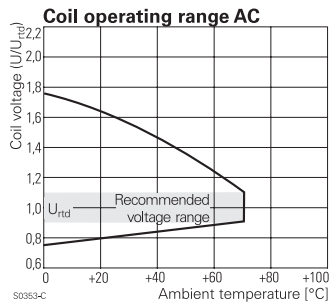
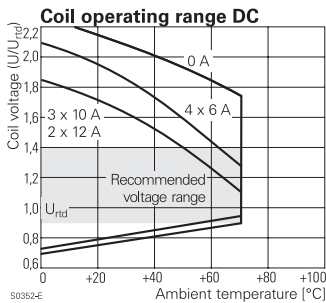
All figures are given for coil without pre-energization, at ambient temperature +23°C

Coil versions, AC coil, 50/60Hz

| Coil code | Rated STD LED | Rated voltage VAC | Operate voltage 50/60Hz VAC | Release voltage 50/60Hz VAC | Coil resistance $\Omega \pm 10\%$ ¹⁾²⁾ | Rated coil power 50/60Hz VA |
|-----------|---------------|-------------------|-----------------------------|-----------------------------|---|-----------------------------|
| 506 | R06 | 6 | 4.8/5.4 | 1.8 | 11 | 1.0/0.85 |
| 512 | R12 | 12 | 9.6/10.8 | 3.6 | 48 | 1.0/0.85 |
| 524 | R24 | 24 | 19.2/21.6 | 7.2 | 192 | 1.0/0.79 |
| 548 | R48 | 48 | 38.4/43.2 | 14.4 | 777 | 1.0/0.87 |
| 560 | R60 | 60 | 48.0/54.0 | 18.0 | 1306 | 1.0/0.87 |
| 615 | S15 | 115 | 92.0/103.5 | 34.5 | 4845 ¹⁾ | 1.0/0.86 |
| 730 | T30 | 230 | 184/207 | 69.0 | 19465 ²⁾ | 1.0/0.90 |

1) Coil resistance $\pm 12\%$, 2) Coil resistance $\pm 15\%$

All figures are given for coil without pre-energization, at ambient temperature +23°C



Insulation Data

| | PT2 | PT3 | PT5 |
|------------------------------------|----------------------|----------------------|----------------------|
| Initial dielectric strength | | | |
| between open contacts | 1200V _{rms} | 1200V _{rms} | 1200V _{rms} |
| between contact and coil | 2500V _{rms} | 2500V _{rms} | 2500V _{rms} |
| between adjacent contacts | 2500V _{rms} | 2500V _{rms} | 2000V _{rms} |
| Initial surge withstand voltage | | | |
| between contact and coil | 5000V (1.2/50µs) | | |
| Clearance/creepage | | | |
| between contact and coil | ≥4/4mm | ≥4/4mm | ≥4/4mm |
| between adjacent contacts | ≥3.5/9.5mm | ≥2.6/3.5mm | ≥1.8/3.5mm |
| Material group of insulation parts | IIIa | | |

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customer-support/rohssupportcenter

| | |
|--|--------------------------------|
| Ambient temperature | -40 to +70°C |
| Cold storage, IEC 60068-2-1 | -40°C/16h |
| Dry heat, IEC 60068-2-2 | 85°C/16h |
| Category of environmental protection IEC 61810 | RTII - flux proof |
| Vibration resistance (functional), form A (NO)/form B (NC) | 7/4g |
| Shock resistance (functional), form A (NO)/form B (NC) | 20/5g |
| Terminal type | PCB-THT, plug-in quick-connect |
| Cover retention, pull/push force | 100/100N |
| Weight | 30g |
| Mounting distance, for mounting on PCB | 5mm |
| Resistance to soldering heat THT IEC 60068-2-20 | 270°C/10s |
| Packaging unit | 10/250pcs. |

Accessories

For details see datasheet [Accessories Miniature Relay PT](#)

Note: indicated contact ratings and electrical endurance data for direct wiring of relays (according IEC 61810-1); for relays mounted on sockets deratings may apply.

Product Sets

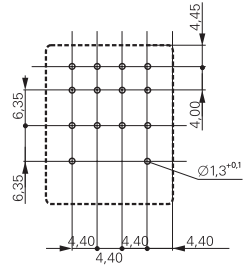
Complete sets consisting of a relay mounted on a socket see [Package PT](#)

Miniature Relay PT (Continued)

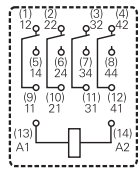
PCB layout / terminal assignment

Bottom view on pins

4 pole

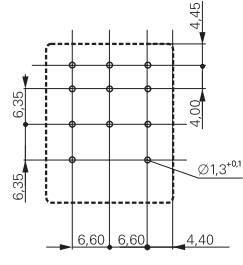


S0354-AA

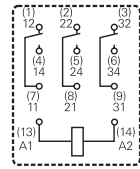


S0354-AD

3 pole

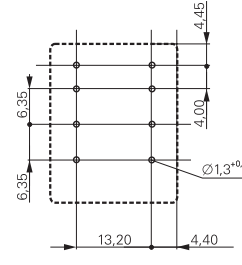


S0354-AB

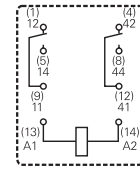


S0354-AE

2 pole



S0354-AC

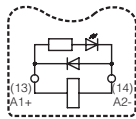
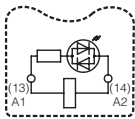


S0354-AF

Circuit

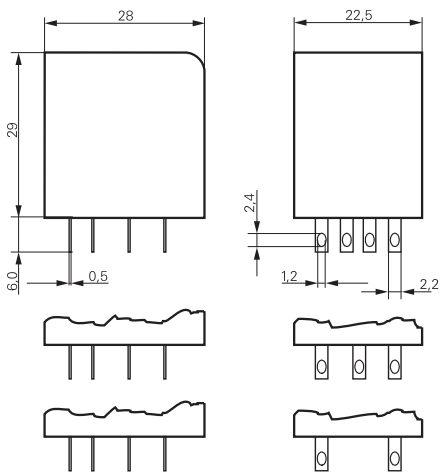
LED

protection diode+LED



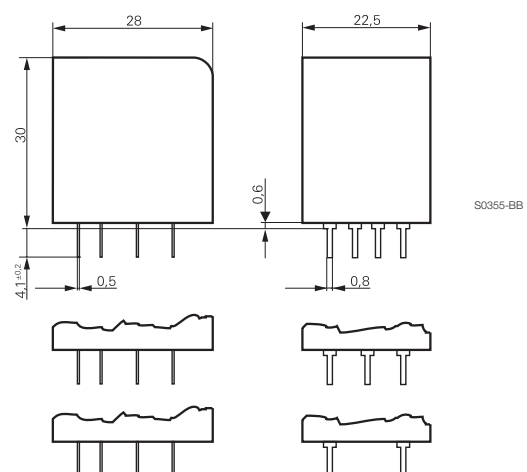
Dimensions

Solder- and plug-in terminals (standard version)



S0355-AA

PCB version



S0355-BB

Miniature Relay PT (Continued)

Product code structure

Typical product code **PT 5 7 0 730**

| | | | | | |
|----------------------------|--|--|--|--|--|
| Type | PT Miniature Relay PT | | | | |
| Contact arrangement | 2 2 form C contacts (2 CO contacts) 3 3 form C contacts (3 CO contacts) 5 4 form C contacts (4 CO contacts) | | | | |
| Contact material | 7 AgNi 90/10, with test button 8 AgNi 90/10 gold plated, with test button 2 AgNi 90/10, without test button 3 AgNi 90/10 gold plated, without test button | | | | |
| Version | 0 Standard, 2.8mm quick connect term. 1 PCB terminals | | | | |
| Coil | Coil code: please refer to coil versions table | | | | |

Other types on request

| Product code | Cont. Config. | Cont. material | Version | Coil | Coil | Part number | | | |
|--------------|---------------------------|---------------------------|-----------------------|---------------------------|--|-----------------------|-------------|-------------|-------------|
| PT270024 | 2 form C 2 CO contacts | AgNi 90/10 test button | AMP 2.8 connectors | DC coil | 24VDC | 4-1419111-2 | | | |
| PT270524 | | | | AC coil | 24VAC | 4-1419111-8 | | | |
| PT270615 | | | | | 115VAC | 5-1419111-0 | | | |
| PT270730 | | | | | 230VAC | 5-1419111-1 | | | |
| PT270L24 | | | | | DC coil+LED | 24VDC | 9-1415001-1 | | |
| PT270R24 | | | | | AC coil+LED | 24VAC | 1415002-1 | | |
| PT270S15 | | | | | | 115VAC | 2-1415039-1 | | |
| PT270T30 | | | | | | 230VAC | 3-1415002-1 | | |
| PT271024 | | | | | | PCB terminals | DC coil | 24VDC | 5-1419111-3 |
| PT271524 | | | | | | | AC coil | 24VAC | 5-1419111-6 |
| PT271615 | | | | | | | | 115VAC | 4-1419135-0 |
| PT271730 | | | | | | | | 230VAC | 5-1419111-8 |
| PT370024 | | | | 3 form C 3 CO contacts | AgNi 90/10 test button | AMP 2.8 connectors | DC coil | 24VDC | 6-1419111-1 |
| PT370524 | | | | | | | AC coil | 24VAC | 6-1419111-6 |
| PT370615 | | 115VAC | 6-1419111-8 | | | | | | |
| PT370730 | | 230VAC | 6-1419111-9 | | | | | | |
| PT370L24 | | DC coil+LED | 24VDC | | | | 5-1415002-1 | | |
| PT370R24 | | AC coil+LED | 24VAC | | | | 7-1415002-1 | | |
| PT370S15 | | | 115VAC | | | | 9-1415039-1 | | |
| PT370T30 | | | 230VAC | | | | 9-1415002-1 | | |
| PT371024 | | | PCB terminals | | | | DC coil | 24VDC | 7-1419111-1 |
| PT371524 | | | | | | | AC coil | 24VAC | 7-1419111-3 |
| PT371615 | | | | | | | | 115VAC | 1393154-8 |
| PT371730 | | | | | | | | 230VAC | 7-1419111-5 |
| PT570024 | 4 form C 4 CO contacts | AgNi 90/10 test button | AMP 2.8 connectors | | | | DC coil | 24VDC | 1-1393154-2 |
| PT570524 | | | | | | | AC coil | 24VAC | 8-1419111-7 |
| PT570615 | | | | | 115VAC | 9-1419111-0 | | | |
| PT570730 | | | | | 230VAC | 9-1419111-1 | | | |
| PT570L24 | | | | | DC coil+LED | 24VDC | 6-1415001-1 | | |
| PT570LC4 | | | | | DC coil+LED+PD | | 7-1415541-0 | | |
| PT570R24 | | | | | AC coil+LED | 24VAC | 7-1415001-1 | | |
| PT570S15 | | | | | | 115VAC | 7-1415003-1 | | |
| PT570T30 | | | | | | 230VAC | 8-1415001-1 | | |
| PT571024 | | | | | | PCB terminals | DC coil | 24VDC | 9-1419111-3 |
| PT571524 | | | | | | | AC coil | 24VAC | 9-1419111-6 |
| PT571615 | | | | | | | | 115VAC | 1-1393154-5 |
| PT571730 | | | | | | | | 230VAC | 9-1419111-8 |
| PT580024 | | | | | AgNi 90/10 gold plated test button | AMP 2.8 connectors | DC coil | 24VDC | 1-1393154-7 |
| PT580524 | | AC coil | 24VAC | 2-1393154-1 | | | | | |
| PT580730 | | | 230VAC | 2-1393154-2 | | | | | |
| PT580L24 | | DC coil+LED | 24VDC | 5-1415026-1 | | | | | |
| PT580R24 | | AC coil+LED | 24VAC | 6-1415026-1 | | | | | |
| PT580T30 | | | 230VAC | 7-1415026-1 | | | | | |
| PT581024 | | | PCB terminals | DC coil | | | 24VDC | 7-1419135-2 | |
| PT581730 | | | | AC coil | | | 230VAC | 2-1393154-3 | |