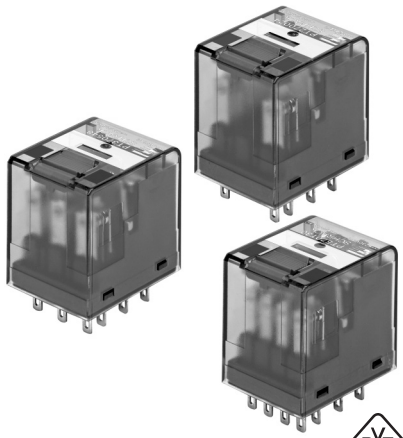
Miniature Relay PT

- **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

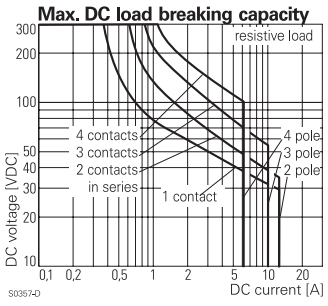
VDE Cert. No. 40009108, UL E214025, Lloyds 00/20059
Technical data of approved types on request

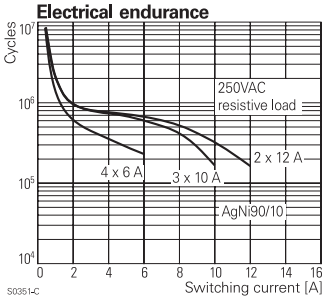
Contact Data

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		
Initial voltage drop	30mV at 100mA/6VDC		
Frequency of operation with/without load	360/36000h^{-1}		
Operate time typ., DC coil	15ms		
Release time typ., DC coil, without/with PD	10/18ms		
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





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
EN60947-4-1			
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	
PT 2	A (NO) of C (CO)	DC coil, AC-15, 250VAC/4A, opposite polarity 6.050	
PT 3	A (NO) of C (CO)	DC coil, AC-15, 250VAC/4A, same polarity 6.050	
PT 5	A (NO) of C (CO)	DC coil, AC-15, 250VAC/4A, same polarity 6.050	
PT 2	A (NO) of C (CO)	AC coil, AC-15, 250VAC/2A, opposite polarity 6.050	
PT 3	A (NO) of C (CO)	AC coil, AC-15, 250VAC/2A, same polarity 6.050	
PT 5	A (NO) of C (CO)	AC coil, AC-15, 250VAC/2A, same polarity 6.050	
PT2/3/5	A (NO) of C (CO)	DC-13, 24VDC/4A 6.050	

Mechanical endurance	
DC coil	30x10^6 operations
AC coil	20x10^6 operations

Coil Data

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)

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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 Ω±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 bipol. LED	LED+ PD[3)]	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±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

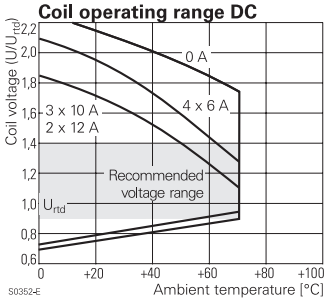
1) Coil resistance ±12%, 2) Coil resistance ±15%,
3) Protection diode PD; standard polarity: +A1/-A2
All figures are given for coil without pre-energization, at ambient temperature +23°C

Coil versions, AC coil, 50/60Hz

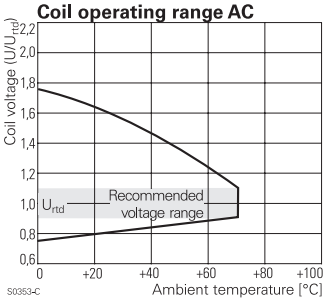
Coil code STD	LED	Rated voltage VAC	Operate voltage 50/60Hz VAC	Release voltage 50/60Hz VAC	Coil resistance Ω±10%[1)2)]	Rated coil power 50/60Hz VA
506	R06	6	4.8/5.4	1.8	11	1.0/0.85
512	R12	12	9.6/10.8	3.6	48	1.0/0.85
524	R24	24	19.2/21.6	7.2	192	1.0/0.79
548	R48	48	38.4/43.2	14.4	777	1.0/0.87
560	R60	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 ±12%, 2) Coil resistance ±15%
All figures are given for coil without pre-energization, at ambient temperature +23°C

Coil operating range DC



Coil operating range AC



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	≥3/4mm		
Material group of insulation parts	IIIa		
Pollution degree	2		

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at	www.te.com/customersupport/rohssupportcenter
Ambient temperature	-40 to +70°C
Cold storage, IEC 60068-2-1	-40°C/16h
Dry heat, IEC 60068-2-2	70°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

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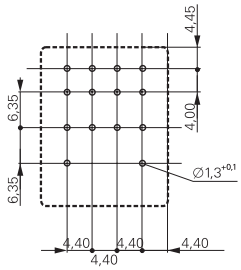
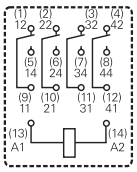
Miniature Relay PT (Continued)

PCB layout / terminal assignment
Bottom view on pins

4 pole



S0354-AA



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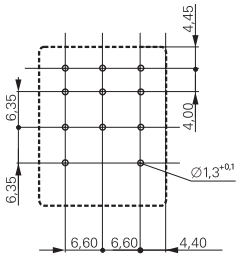
3 pole



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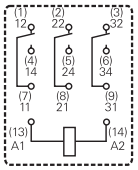
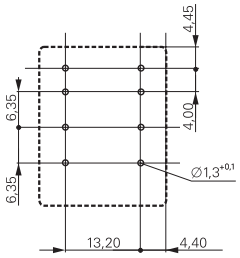
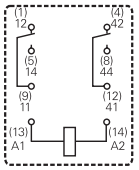


S0354-AE

2 pole



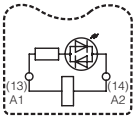
S0354-AC



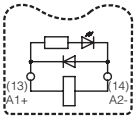
S0354-AF

Circuit

LED

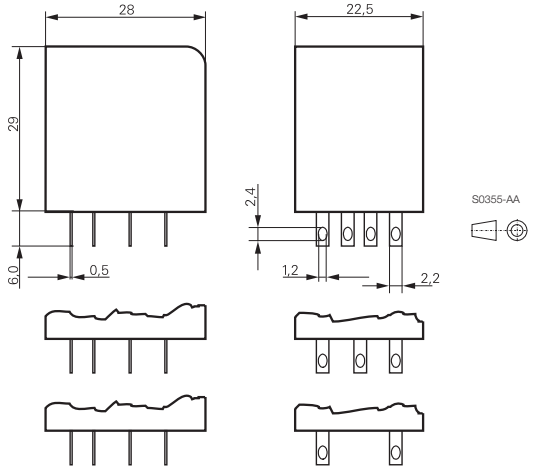


protection diode+LED

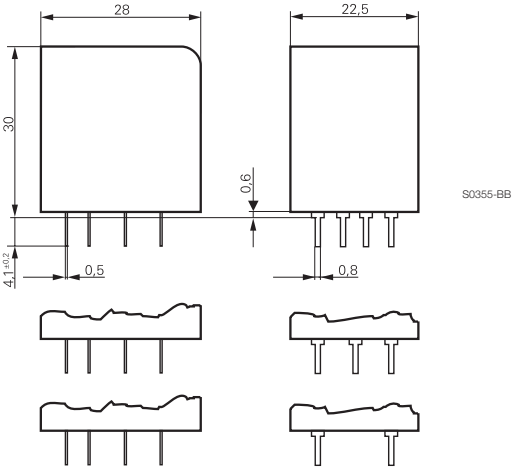


Dimensions

Solder- and plug-in terminals (standard version)



PCB version



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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
2 AgNi 90/10, without test button
8 AgNi 90/10 gold plated, with 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	AgNi 90/10	AMP 2.8	DC coil	24VDC	4-1419111-2
PT270524	2 CO contacts	test button	connectors	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	AgNi 90/10	AMP 2.8	DC coil	24VDC	6-1419111-1
PT370524	3 CO contacts	test button	connectors	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	AgNi 90/10	AMP 2.8	DC coil	24VDC	1-1393154-2
PT570524	4 CO contacts	test button	connectors	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	AMP 2.8	DC coil	24VDC	1-1393154-7
PT580524		gold plated	connectors	AC coil	24VAC	2-1393154-1
PT580730		test button			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

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