

**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 indicator, optional LED and protection diode
- Manual test tab, optionally lockable.
- White marking tabs



FO191-B

**Applications**

Universal use in control and automation

**Approvals**

VDE REG.-Nr. 115719, **UL** us E214025, **CCC** 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 voltage / max. switching voltage AC	240 / 400 VAC	240 / 400 VAC	240/240 VAC
Rated current	12 A	10 A	6 A
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		
Rated frequency of operation with / without load	6/600 min <sup>-1</sup>		
Operate time	typ 15 ms		
Release time DC coil without / with protection diode	typ 10 / 18 ms		
Bounce time DC coil NO / NC contact	typ 6 / 8 ms		

**Contact ratings**

Type	Contact	Load	Ambient temp. [°C]	Cycles
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**IEC 61810**

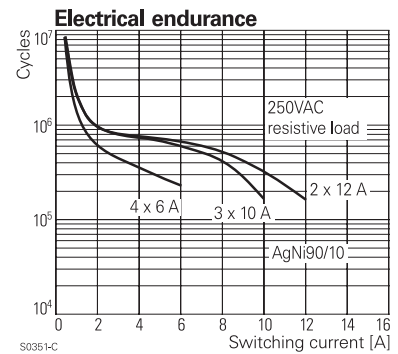
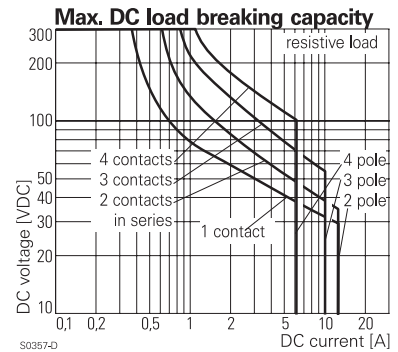
PT 2 DC/AC-coil	CO	12 A, 250 VAC, cosφ=1	70°C	70x10 <sup>3</sup>
PT 2 DC/AC-coil	NO of CO	9 A, 250 VAC, cosφ=1	80°C	150x10 <sup>3</sup>
PT 2 DC/AC-coil	NO of CO	4 A, 250 VAC, cosφ=1	80°C	300x10 <sup>3</sup>
PT 3 DC/AC-coil	CO	10 A, 250 VAC, cosφ=1	70°C	100x10 <sup>3</sup>
PT 5 DC/AC-coil	CO	6 A, 250 VAC, cosφ=1	70°C	100x10 <sup>3</sup>

**UL 508**

PT 2	CO	12 A, 250 VAC, general purpose	70°C	6.000
PT 2	CO	12 A, 250 VAC, resistive	70°C	100x10 <sup>3</sup>
PT 2	NO of CO	12 A, 250 VAC, resistive	70°C	100x10 <sup>3</sup>
PT 2	NC of CO	12 A, 250 VAC, resistive	70°C	100x10 <sup>3</sup>
PT 3	CO	10 A, 250 VAC, general purpose	70°C	6.000
PT 3	CO	10 A, 250 VAC, resistive	70°C	100x10 <sup>3</sup>
PT 3	NO of CO	10 A, 250 VAC, resistive	70°C	100x10 <sup>3</sup>
PT 3	NC of CO	10 A, 250 VAC, resistive	70°C	100x10 <sup>3</sup>
PT 5	CO	6 A, 250 VAC, general purpose	70°C	6.000
PT 5	CO	6 A, 250 VAC, resistive	70°C	100x10 <sup>3</sup>
PT 5	NO of CO	6 A, 250 VAC, resistive	70°C	100x10 <sup>3</sup>
PT 5	NC of CO	6 A, 250 VAC, resistive	70°C	100x10 <sup>3</sup>

**EN60947-4-1**

PT 2	NO of CO	400 VAC, 3,75 A, AC3, opposite polarity	70°C	
PT 2	NO of CO	230 VAC, 1,7A, AC5b (400W lamp load), opposite polarity	70°C	
PT 3	NO of CO	250 VAC, 2 A, AC3, opposite polarity	70°C	
PT 3	NO of CO	230 VAC, 1,7A, AC5b (400W lamp load), opposite polarity	70°C	
PT 5	NO of CO	250 VAC, 3 A, AC3, same polarity	70°C	
PT 5	NO of CO	230 VAC, 1,7A, AC5b (400W lamp load), same polarity	70°C	



**Miniature Relay PT (Continued)**

**Coil data**

Rated coil voltage range DC coil	6...220 VDC
AC coil	6...230 VAC
Operative range to IEC 61810 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	STD	LED bipolar	LED+ PD*	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ohm	Rated coil power mW	opt. LED power mW
006	L06	LA6		6	4.5	0.6	48+10%	750	3.5
012	L12	LB2		12	9.0	1.2	192+10%	750	10
024	L24	LC4		24	18.0	2.4	777+10%	741	18
048	L48	LE8		48	36.0	4.8	3072+10%	750	38
060	L60	LG0		60	45.0	6.0	4845+12%	743	56
110	M10	MB0		110	82.5	11.0	16133+15%	750	96.5
220	N20	NC0		220	165.0	22.0	64533+15%	750	202.5

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

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

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

Coil code	STD	LED	Rated voltage VAC	Operate voltage 50 / 60 Hz VAC	Release voltage 50 / 60 Hz VAC	Coil resistance Ohm	Rated coil power 50 / 60 Hz VA
506	R06		6	4.8 / 5.4	1.8	11±10%	1.0 / 0.85
512	R12		12	9.6 / 10.8	3.6	48±10%	1.0 / 0.85
<b>524</b>	<b>R24</b>		<b>24</b>	<b>19.2 / 21.6</b>	<b>7.2</b>	<b>192±10%</b>	<b>1.0 / 0.79</b>
548	R48		48	38.4 / 43.2	14.4	777±10%	1.0 / 0.87
560	R60		60	48.0 / 54.0	18.0	1306±10%	1.0 / 0.87
615	S15		115	92.0 / 103.5	34.5	4845±12%	1.0 / 0.86
<b>730</b>	<b>T30</b>		<b>230</b>	<b>184.0 / 207.0</b>	<b>69.0</b>	<b>19465±15%</b>	<b>1.0 / 0.90</b>

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

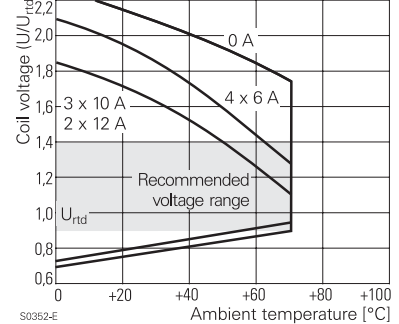
**Insulation**

	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 cont. 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 61810-1			
Type of insulation coil-contact circuit	basic	basic	basic
open contact circuit	micro disc.	micro disc.	micro disc.
adjacent contact circuits	basic	basic	functional
Rated insulation voltage	250 V	250 V	250 V
Pollution degree	2	2	2
Rated voltage system	230 / 400 V	240 V	240 V
Overvoltage category	III	III	III

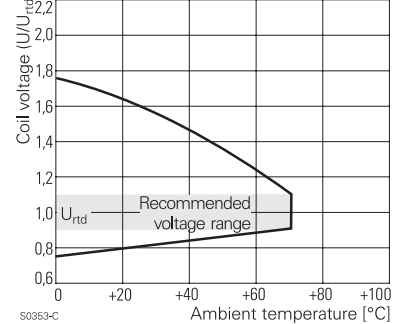
**Other data**

Mechanical endurance DC coil	30x10 <sup>6</sup> cycles
AC coil	20x10 <sup>6</sup> cycles
Material	
RoHS - Directive 2002/95/EC	compliant
Environment	
Ambient temperature range	-40...+70°C
Vibration resistance (function) NO / NC contact	7/4 g
Shock resistance (function) NO / NC contact	20/5 g
Category of protection	RTII - flux proof
Processing	
Mounting distance	≥ 0 mm, dense packing
Resistance to soldering heat	270°C / 10s
Relay weight	30 g
Packaging unit	10/250 pcs

**Coil operating range DC**



**Coil operating range AC**



**Miniature Relay PT (Continued)**

**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, table 12); for relays mounted on sockets deratings may apply.

**Relay Packages**

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

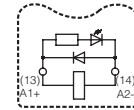
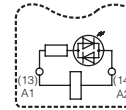
**PCB layout / terminal assignment**

Bottom view on pins

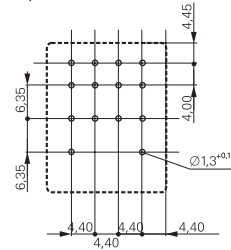
Circuit

LED

protection diode+LED

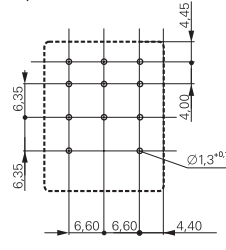


4-pole



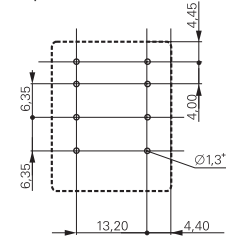
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3-pole

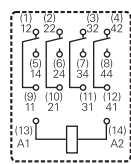


S0354-AB

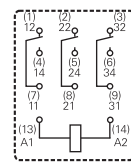
2-pole



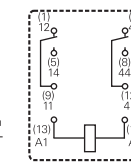
S0354-AC



S0354-AD



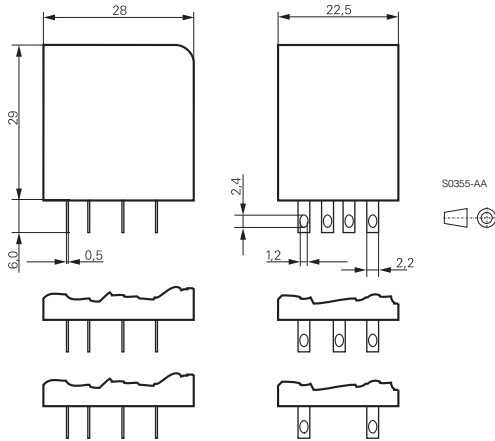
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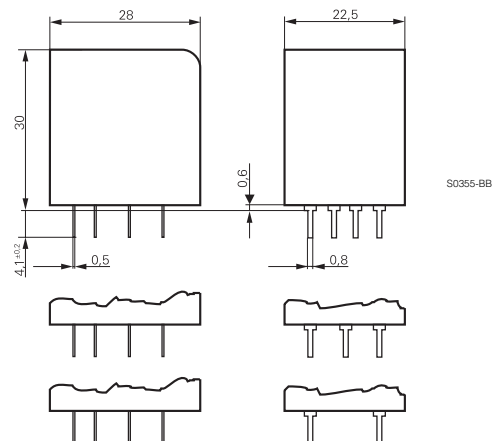
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**Dimensions**

Solder- and plug-in terminals (standard version)



PCB version



**Product key**

Typical product key

**PT 5 7 0 730**

**Type**

**PT** Miniature Relay PT

**Contact configuration**

- 2** 2 CO contacts (2 form C)
- 3** 3 CO contacts (3 form C)
- 5** 4 CO contacts (4 form C)

**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

**Miniature Relay PT** (Continued)

Product key	Cont. Config.	Cont. material	Version	Coil	Coil	Part number				
PT270024	2 CO contacts	AgNi 90/10 test button	AMP 2.8 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	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 test button	AMP 2.8 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		1393154-8					
PT371730			230 VAC		7-1419111-5					
PT570024	4 CO contacts		AgNi 90/10 test button		AMP 2.8 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			
PT570LC4				DC-coil+LED+PD			7-1415541-0			
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 gold plated test button	AMP 2.8 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					