RoHS Ready

PTH series

6 to 12 Amp Miniature Relay
2 or 4 Pole, PCB or Plug-in

File E58304
File R50072981
File 05001013007

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Sensitive coil (750mW / 0.85VA).
- 2 Form C and 4 Form C contacts rated 12A and 6A, respectively.
- Advanced design has no braided wire, no welds or solder joints in the contact area and fewer parts for enhanced reliability.
- AC and DC coils.
- Optional integral LED (green for DC coil, red for AC coil), protection diode, resistor-capacitor network available.
- Mounted height is approximately 1.42 in (36 mm).
- Environmentally friendly, cadmium-free contacts.

Contact Data

Arrangements: 2 Form C (DPDT) and 4 Form C (4PDT).
Type of Contact: Single contact.
Material: Silver-nickel.
Maximum Switching Rate: 600 ops./min. (no load).
6 ops./min. (minimum load).
Expected Mechanical Life: DC coil 30 million operations minimum.
AC coil 20 million operations minimum.
Expected Electrical Life: See "cycles" data in ratings table.
Minimum Load: 12V, 10mA.

Ratings:

	2 Form C	4 Form C
Rated Current	12A	6A
Rated Voltage	250VAC	250VAC
Maximum Switching Voltage	440VAC	250VAC
Maximum Make Current	24A	12A
Maximum Breaking Capacity AC	3,000VA	1,500VA

Type & Coil	Load	Cycles	Agency
2 Pole Models			
PT22A (DC/AC)	12A, 250VAC, Form A	100,000	UL
PT22A (DC/AC)	12A, 250VAC, Form B	100,000	UL
PT22A (DC)	12A, 250VAC, Form C	50,000	TUV
PT22A (AC, 50 Hz.)	12A, 250VAC, Form C	70,000	TUV
PT22A (AC, 60 Hz.)	12A, 250VAC, Form C	30,000	TUV
4 Pole Models			
PT52A (DC/AC)	6A, 250VAC, Form A	100,000	UL
PT52A (DC/AC)	6A, 250VAC, Form B	100,000	UL
PT52A (DC)	6A, 250VAC, Form C	100,000	TUV
PT52A (AC, 50 Hz.)	6A, 250VAC, Form C	100,000	TUV
PT52A (AC, 60 Hz.)	6A, 250VAC, Form C	50,000	TUV

Initial Dielectric Strength

Between Open Contacts: 1,200Vrms.
Between Coil and Contacts: 2,500Vrms.
Between Poles: 2 Pole Types: 2,500Vrms, 4 Pole Types: 2,000VAC.
Clearance/Creepage: 2 Pole Types: 3/4mm, 4 Pole Types: 1.8/3mm.

Insulation

Material Group of Insulation Parts: IIIa.
Insulation to IEC 60664-1
Type of insulation coil-contact circuit: Basic.
Type of insulation open contact circuit: Functional.
Type of insulation adjacent contact circuits: Basic.
Rated Insulation Voltage: 250V.
Pollution Degree: 2.
Overvoltage Category: III.

Coil Data @ 23°C

Voltage: 6 to 220VDC; 6 to 230VAC; others upon request.
Nominal Coil Power: 750mW; 1.0VA @ 50 Hz. / 0.86VA @ 60 Hz.
Operate Category: 2/b.
Operating Range for AC Coil:
50Hz at 70°C: 90-110%.
60Hz at 70°C: 100-120%.

DC Coil Data @ 23°C

Nominal Voltage VDC	DC Resistance in Ohms	Must Operate Voltage VDC	Drop-out Voltage VDC	Nominal Coil Current (mA)
6	48±10%	4.5	0.6	125.0
12	192±10%	9.0	1.2	62.5
24	777±10%	18.0	2.4	30.8
48	3,072±10%	36.0	4.8	15.6
60	4,845±12%	45.0	6.0	12.4
110	16,133±15%	82.5	11.0	6.8
220	64,533±15%	165.0	22.0	3.4

AC Coil Data @ 23°C

Nominal Voltage VAC	DC Resistance in Ohms	Must Operate Voltage (VAC) 50 Hz / 60 Hz	Drop-out Voltage VAC 50/60 Hz	Nominal Coil Current (mA) 50 Hz / 60 Hz
6	11±10%	4.8 / 5.4	1.8	166.5 / 141
12	48±10%	9.6 / 10.8	3.6	83.3 / 70.5
24	192±10%	19.2 / 21.6	7.2	41.6 / 33.0
48	777±10%	38.4 / 43.2	14.4	21.3 / 18.2
60	1,306±10%	48.0 / 54.0	18.0	16.7 / 14.5
100	3,550±12%	80.0 / 90.0	30.0	10.2 / 8.7
115	4,845±12%	92.0 / 103.5	34.5	8.8 / 7.5
200	13,800±15%	160.0 / 180.0	60.0	5.0 / 4.5
230	19,465±10%	184.0 / 207.0	69.0	4.3 / 3.9

Values in coil tables above are given for coil without pre-energization.

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South America: 55-11-2103-6000
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Operate Data

Must Operate Voltage: See Coil Data table.
Must Release Voltage: See Coil Data table.
Operate Time: 20 ms maximum, at nom. voltage, excluding bounce.
Release Time: 20 ms maximum, at nom. voltage, excluding bounce.
Switching Rate: 6 ops./minute max. at rated load.

Environmental Data

Temperature Range:
Storage: -45°C to +80°C.
Operating: -45°C to +70°C.
Vibration: 55 to 150 Hz. at 7g N/O, 4g N/C.
Operational Shock: 20g N/O, 5g N/C.
Mechanical Shock: 50g.

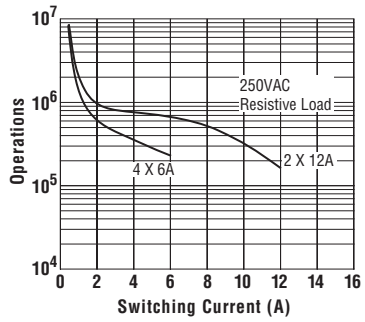
Mechanical Data

Termination: Plug-in and printed circuit/solder terminals.
LED (Optional) Color: Green for DC coil; red for AC coil.
Enclosure: Flux Proof (Protection Category: RTII).
Weight: 1.06 oz (30g) approximately.

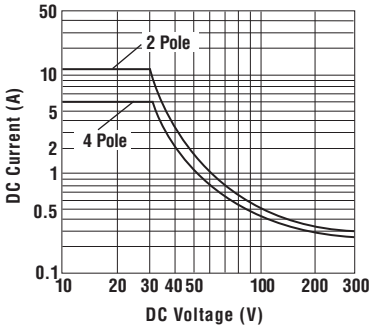
Sockets & Accessories

Numerous Tyco Electronics sockets and accessories are available for use with PTH series relays. Included among them are PC board, panel cutout, panel and DIN rail types. Panel and DIN rail models are offered with conventional or "finger-safe" screws, as well as screwless terminals. Both two and four pole models are available. The PTH will fit sockets designed for use with our PT, KHA and PCL series relays. Hold downs designed for use with the KHA and PCL will work with the PTH. Consult your Tyco Electronics authorized distributor or sales engineer for details.

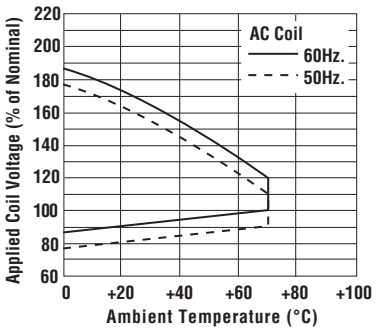
Electrical Life

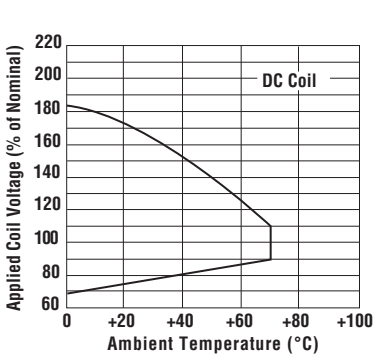


Max. DC Load Breaking Capacity (resistive load)



Coil Operating Range





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Key for Coil and Built-In Module Codes

DC Coil Voltage	Standard Model (no module)	LED	PD Coil Pin #14= (–) Coil Pin #13= (+)	LED+PD Coil Pin #14= (–) Coil Pin #13= (+)	PD Coil Pin #14= (+) Coil Pin #13= (–)	LED+PD Coil Pin #14= (+) Coil Pin #13= (–)
6	006	L06	0A6	LA6	0L6	LL6
12	012	L12	0B2	LB2	0M2	LM2
24	024	L24	0C4	LC4	0N4	LN4
48	048	L48	0E8	LE8	0Q8	LQ8
60	060	L60	0G0	LG0	0S0	LS0
110	110	M10	1B0	MB0	1M0	MM0
220	220	N20	2C0	NC0	2N0	NN0

AC Coil Voltage	Standard Model (no module)	LED	RC	LED+RC
6	506	R06	5L6	RL6
12	512	R12	5M2	RM2
24	524	R24	5N4	RN4
48	548	R48	5Q8	RQ8
60	560	R60	5S0	RS0
100	600	S00	6L0	SL0
115	615	S15	6M5	SM5
200	700	T00	7L0	TL0
230	730	T30	7P0	TP0

Key for these tables

LED = LED Coil Power Indicator
PD = Protection Diode
RC = Resistor + Capacitor
LED+PD = Combination of LED & PD
LED+RC = Combination of LED & RC
LED+RC = Combination of LED & R
Note: DC models have polarity.

Ordering Information

Typical Part Number >	PT	5	2	A	024	B

1. Basic Series:
PT = General purpose relay.

2. Contact Arrangement:
2 = 2 Form C (DPDT) 5 = 4 Form C (4PDT)

3. Contact Material:
2 = Silver-Nickel 90/10

4. Relay Cover and Termination:
A = 1.42 in. (36 mm) high cover, Plug-in terminals. B = 1.42 in. (36 mm) high cover, PC board/solder terminals.

5. Coil and Built-in Module Code:
Refer to table.

6. Factory Assigned Product Code:
B = Standard Production

Note: All part numbers are RoHS compliant.

Our authorized distributors are more likely to stock the following items for immediate delivery.

Part Number	Contact Arrangement	Termination	Coil Voltage	Module	Internal Part Number
PT22A512B	DPDT	Plug-in	12VAC	None	0-1721215-2
PT22A524B	DPDT	Plug-in	24VAC	None	0-1721215-3
PT22A615B	DPDT	Plug-in	115VAC	None	0-1721215-7
PT22AR12B	DPDT	Plug-in	12VAC	LED	0-1721216-2
PT22AR24B	DPDT	Plug-in	24VAC	LED	0-1721216-3
PT22AS15B	DPDT	Plug-in	115VAC	LED	0-1721216-7
PT52A512B	4PDT	Plug-in	12VAC	None	0-1721219-2
PT52A524B	4PDT	Plug-in	24VAC	None	0-1721219-3
PT52A615B	4PDT	Plug-in	115VAC	None	1-1721219-7
PT52AR12B	4PDT	Plug-in	12VAC	LED	0-1721220-2
PT52AR24B	4PDT	Plug-in	24VAC	LED	0-1721220-3
PT52AS15B	4PDT	Plug-in	115VAC	LED	0-1721220-7
PT22A012B	DPDT	Plug-in	12VDC	None	0-1721223-2
PT22A024B	DPDT	Plug-in	24VDC	None	0-1721223-3
PT52A012B	4PDT	Plug-in	12VDC	None	0-1721227-2
PT52A024B	4PDT	Plug-in	24VDC	None	0-1721227-3
PT22B012B	DPDT	PC Board/Solder	12VDC	None	0-1721239-2
PT22B024B	DPDT	PC Board/Solder	24VDC	None	0-1721239-3
PT52B012B	4PDT	PC Board/Solder	12VDC	None	0-1721243-2
PT52B024B	4PDT	PC Board/Solder	24VDC	None	0-1721243-3

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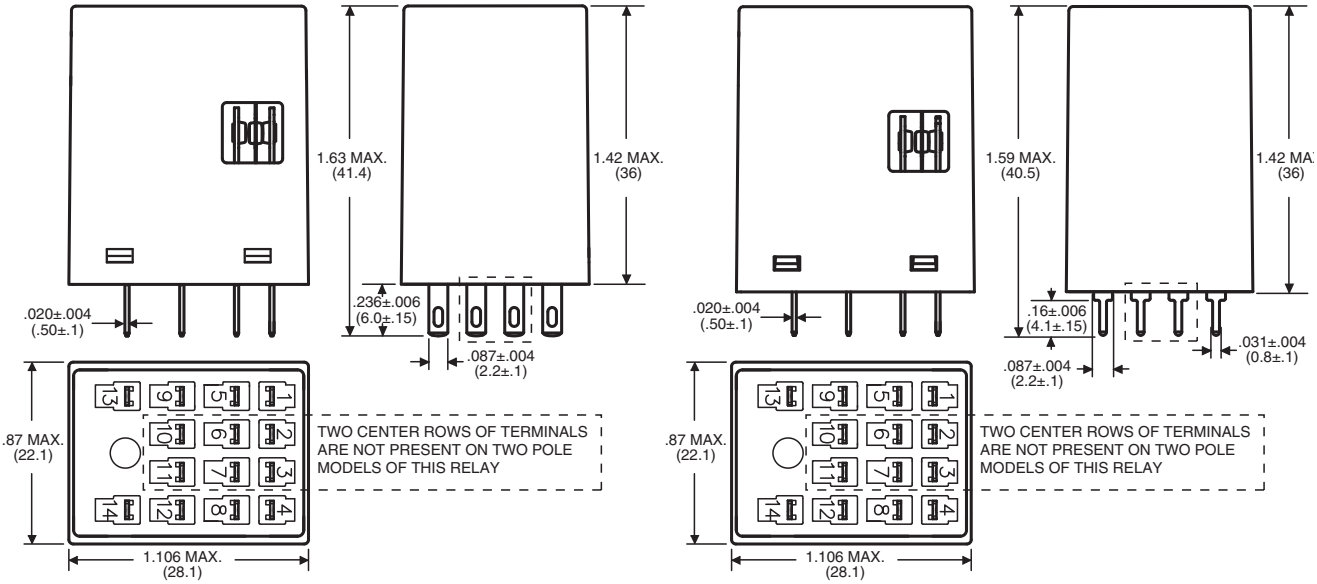
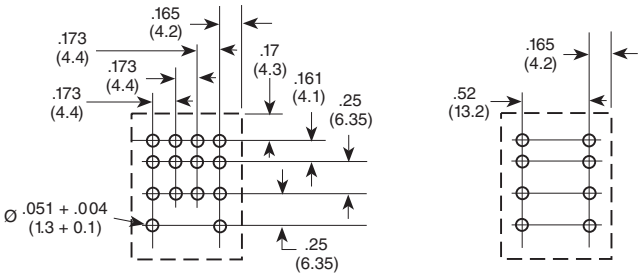
Outline Dimensions



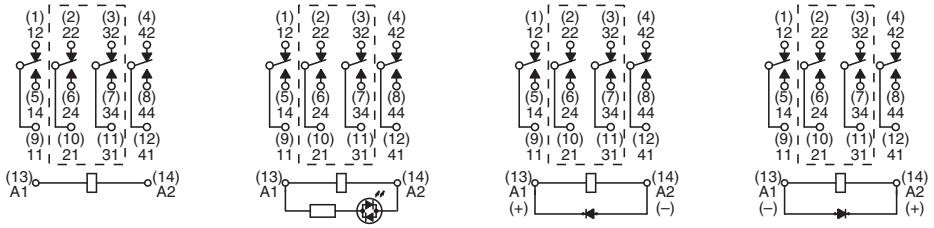
Plug-In Terminals **PC Board/Solder Terminals**

Suggested PC Board Layout (Bottom Views)

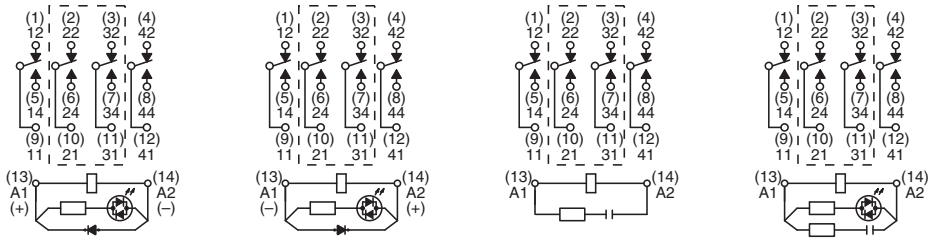


4 Pole Models **2 Pole Models**

Wiring Diagrams (Bottom Views)



Standard **LED** **Protection Diode (13+, 14–)** **Protection Diode (13–, 14+)**



LED & Pro. Diode (13+, 14–) **LED & Pro. Diode (13–, 14+)** **Resistor + Capacitor** **LED & RC**

NOTE:
Wiring diagrams for four pole models are shown. Two pole models do not have the two center rows of terminals.

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