MINIATURE RELAY PT01

GENERAL PURPOSE RELAY

INDUSTRIAL RELAYS

FEATURES

- 2 pole 5A, 4 pole 3A, 2 and 4 form C (CO) contacts
- DC or AC coil
- DC and AC coils can be identified by LED colors.
- Relay Height 36mm
- Optional LED and protection diode
- For use combined with socket

APPLICATIONS

Universal use in control and automation e.g.,

- Electrical control cabinet
- Power Conversion System (PCS)
- Machine tool
- Automatic production line

APPROVALS

- UL
- CQC
- CE

Technical data of approved types on request

CONTACT DATA

	2 Pole	4 Pole
Contact arrangement	2 form C 2CO	4 form C 4CO
Rated voltage	250V AC, 30VDC	
Rated current	5A	3A
Max. switching voltage	250V AC,30VDC	
Maximum switching power AC / DC	1250VA /150W	750VAC /90W
Minimum Load	17V at 10mA	
Contact material	Ag alloy	
Frequency of operation with/without load	1800/18000h^{-1}	
Contact resistance	100mΩ (6V@1A)	
Max. Operate time	≤20 ms	
Max. Release time	≤20 ms	
Mechanical life at room temperature	≥20 x 10^6 cycle	

CONTACT RATINGS

Type	Load	Cycles
UL508		
2 CO	5A 250VAC, 70°C, resistive	100×10^3
2 CO	5A 30VDC, 70°C, resistive	100×10^3
2 CO	3A 250VAC, cosØ=0.4, 70°C	100×10^3
2 CO	3A 30VDC, L/R=7ms, 70°C	6×10^3
4 CO	3A 250VAC, 70°C,resistive	100×10^3
4 CO	3A 30VDC, 70°C,resistive	100×10^3
4 CO	1.5A 250VAC, cosØ=0.4, 70°C	100×10^3
4 CO	1.5A 30VDC, L/R=7ms, 70°C	6×10^3
CQC		
2 CO	5A 250VAC, 70°C, resistive	10×10^3
2 CO	5A 30VDC, 70°C, resistive	10×10^3
4 CO	3A 250VAC, 70°C,resistive	10×10^3
4 CO	3A 30VDC, 70°C,resistive	10×10^3

COIL DATA

Nominal voltage	6 to 220VDC 6 to 380VAC
Operate and release voltage. (at 23°C)	Must operate voltage : 80% Un max Maximum voltage: 110% Un max. Must release voltage: DC: 10%Un min, AC: 30% Un min

COIL VERSIONS, DC COIL

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW
006	6	4.8	0.6	40	0.8 to 1.1
012	12	9.6	1.2	180	
024	24	19.2	2.4	640	
048	48	38.4	4.8	2600	
110	110	88.0	11	13000 [1]	
220	220	176.0	22	42000 [1]	

1) Coil resistance ±15%
All figures are given for coil without pre-energization, at ambient temperature +23°C.

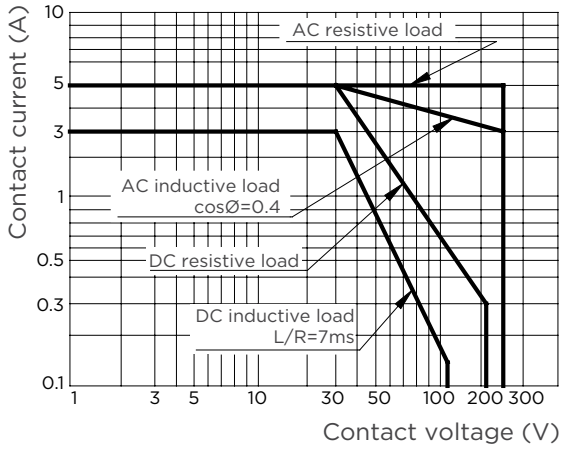
COIL VERSIONS, AC COIL

Coil code	Rated voltage VAC	Operate voltage 50/60Hz VAC	Release voltage 50/60Hz VAC	Coil resistance Ω±10% [1]	Rated coil power VA
006	6	4.8/5.4	1.8	11.5	0.9 to 1.5
024	24	19.2/21.6	7.2	180	
036	36	28.8/32.4	10.8	370	
048	48	38.4/43.2	14.4	640	
100	100	80.0/90.0	30.0	3750	
115	115	92.0/103.5	34.5	4430	
200	200	160.0/180.0	60.0	12950 [1]	
230	230	184.0/207.0	69.0	16500 [1]	
380	380	304.0/342.0	114	42000 [1]	

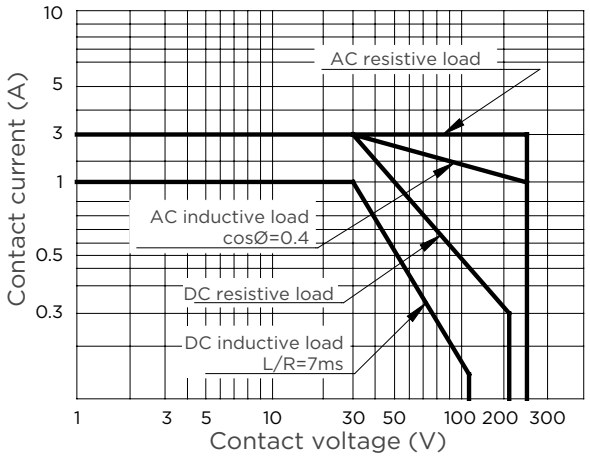
1) Coil resistance ±15%
All figures are given for coil without pre-energization, at ambient temperature +23°C.

MAX. LOAD BREAKING CAPACITY

2 Pole

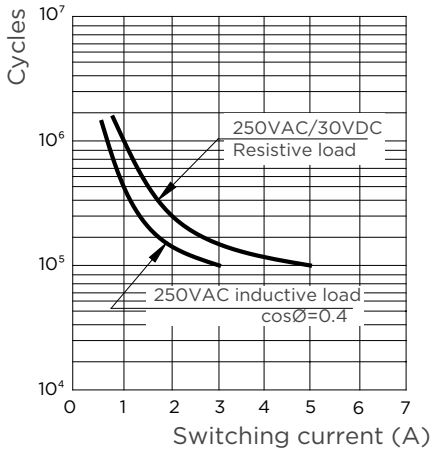


4 Pole

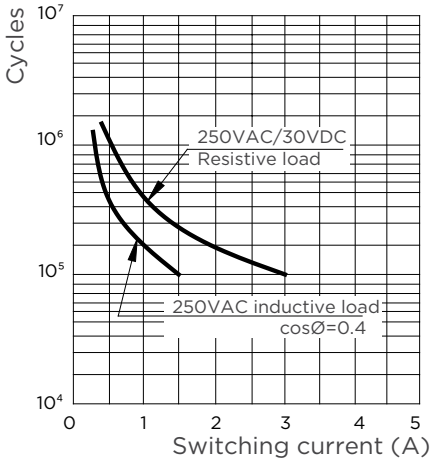


ELECTRICAL ENDURANCE

2 Pole



4 Pole



INSULATION DATA

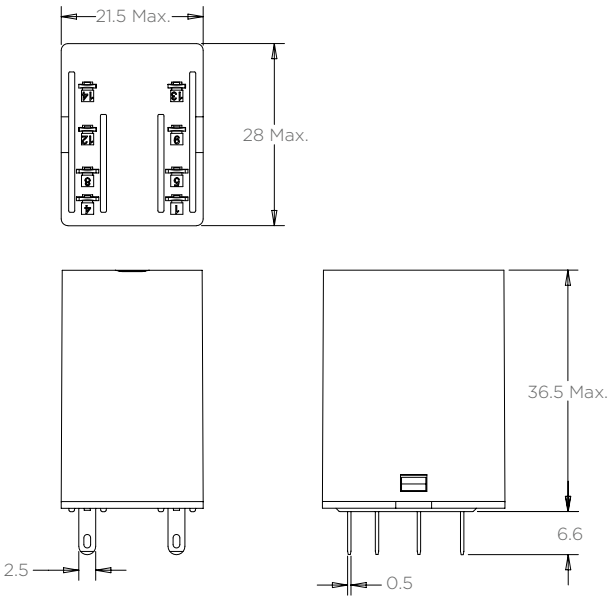
Initial dielectric strength		
between open contacts	1000Vrms	1000Vrms
between contact and coil	2000Vrms	2000Vrms
between adjacent contacts	2000Vrms	2000Vrms
Initial surge withstand voltage		
between contact and coil	4000 V (1.2/50 μs)	
Clearance / creepage		
between contact and coil	≥3/4 mm	
Insulation resistance		
Apply voltage 500 VDC	1000 MΩ	

OTHER DATA

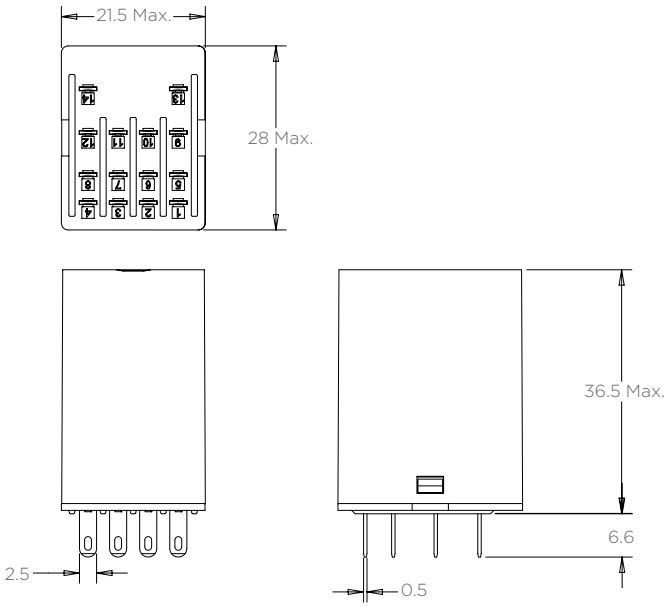
Material compliance	EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at **www.te.com/customersupport/rohssupportcenter**
Ambient temperature	-40 to +70˚C
Category of environmental protection	RTI
Vibration resistance	10 to 55Hz, double amplitude: 1.0mm
Shock resistance	
functional	10G
destructive	100G
Terminal type	Plug-in
Weight	Approx. 35 g

DIMENSIONS (Unit: mm)

12A, pinning 3.5mm

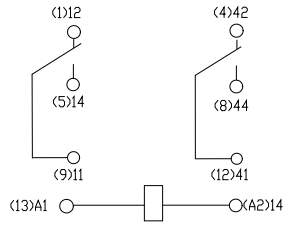
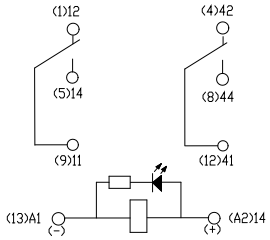
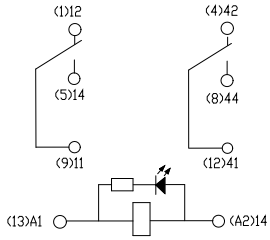
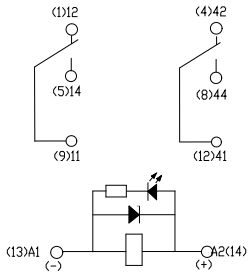


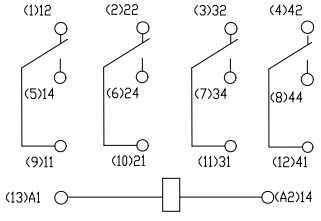
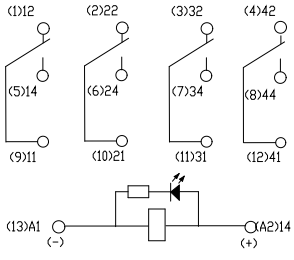
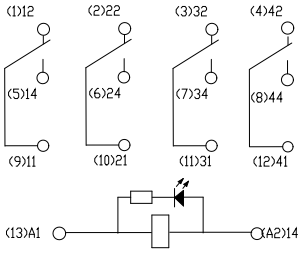
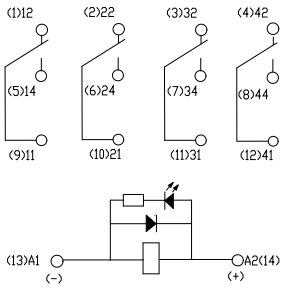
16A, pinning 5mm



TERMINAL ASSIGNMENT

Bottom view on pins

PT01-2C4D/A type	PT01-2C4D type	PT01-2C4A type	PT01-2C4D type
			
Without LED	With LED	With LED	With LED+ Protection Diode

PT01-4C4D/A type	PT01-4C4D type	PT01-4C4A type	PT01-4C4D type
			
Without LED	With LED	With LED	With LED+ Protection Diode

PRODUCT CODE STRUCTURE

Part Number

PT 0 1 - 2C 4 D 012 L 0

Type

PT	Miniature Relay PT

Sub Product Family

0	standard version

Product Version

1	3-5A version, plug-in terminal with socket

Contact configuration

2C	2 form C contacts (2 CO contacts)
4C	4 form C contacts (4 CO contacts)

Contact material

4	AgNi 90/10

Mechanical Features

0	Without test buttom

Electrical Features

0	Without LED
L	LED
T	LED+Protection diode (only for DC coil)

Coil Voltage

Coil code	please refer to coil versions table

Coil version [1)]

D	DC Coil
A	AC Coil

1) Refer to the coil code

PRODUCT INFORMATION

Product code	Contact Configuration	Coil	Protection diode	TE Part Number
PT01-2C4A024L0	2 form C	24VAC	No	2071745-8
PT01-2C4A100L0	2 form C	100VAC	No	1-2071745-1
PT01-2C4A115L0	2 form C	115VAC	No	2071745-9
PT01-2C4A200L0	2 form C	200VAC	No	1-2071745-2
PT01-2C4A230L0	2 form C	230VAC	No	1-2071745-0
PT01-2C4A380L0	2 form C	380VAC	No	1-2071745-3
PT01-2C4D006L0	2 form C	6VDC	No	2071745-1
PT01-2C4D012L0	2 form C	12VDC	No	2071745-2
PT01-2C4D024L0	2 form C	24VDC	No	2071745-3
PT01-2C4D024T0	2 form C	24VDC	Yes	2071745-4
PT01-2C4D048L0	2 form C	48VDC	No	2071745-5
PT01-2C4D110L0	2 form C	110VDC	No	2071745-6
PT01-2C4D220L0	2 form C	220VDC	No	2071745-7
PT01-4C4A024L0	4 form C	24VAC	No	2-2071745-1
PT01-4C4A100L0	4 form C	100VAC	No	2-2071745-4
PT01-4C4A115L0	4 form C	115VAC	No	2-2071745-2

Product code	Contact Configuration	Coil	Protection diode	TE Part Number
PT01-4C4A200L0	4 form C	200VAC	No	2-2071745-5
PT01-4C4A230L0	4 form C	230VAC	No	2-2071745-3
PT01-4C4A380L0	4 form C	380VAC	No	2-2071745-6
PT01-4C4D006L0	4 form C	6VDC	No	1-2071745-4
PT01-4C4D012L0	4 form C	12VDC	No	1-2071745-5
PT01-4C4D024L0	4 form C	24VDC	No	1-2071745-6
PT01-4C4D024T0	4 form C	24VDC	Yes	1-2071745-7
PT01-4C4D048L0	4 form C	48VDC	No	1-2071745-8
PT01-4C4D110L0	4 form C	110VDC	No	1-2071745-9
PT01-4C4D220L0	4 form C	220VDC	No	2-2071745-0

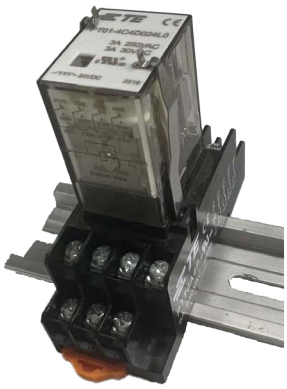
PT01 RELAY SOCKETS

GENERAL PURPOSE RELAY

INDUSTRIAL RELAYS

INTRODUCTION

This socket can be used with TE PT01 relays. This series mainly includes a basic range of DIN. Optional clips provide a more secure connection of the relay to the socket.



FEATURES

- Easy replacement of relays on a densely packed DIN rail
- Safety protection against physical contact
- Metal clips can be installed to make the installation more stable
- High quality rising clamp terminals
- Captive combination terminal screws

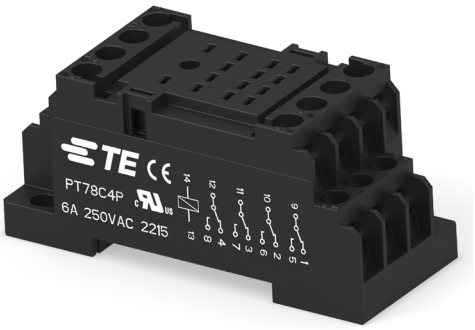
APPROVALS

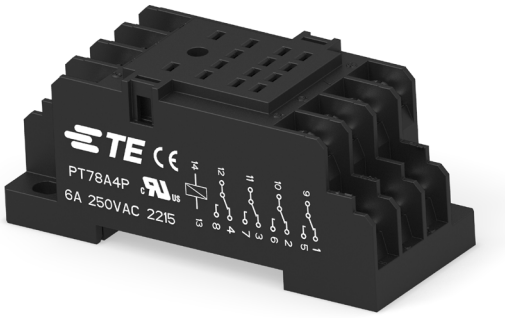
- CE and cULus E233439 for DIN Rail sockets

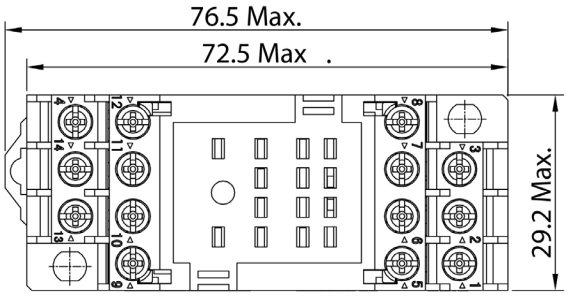
Technical data of approved types on request

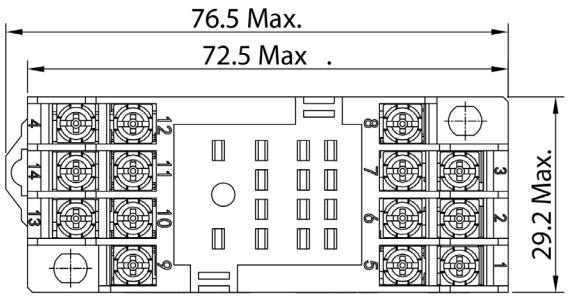
PT DIN-RAIL SOCKET WITH SCREW TYPE TERMINALS

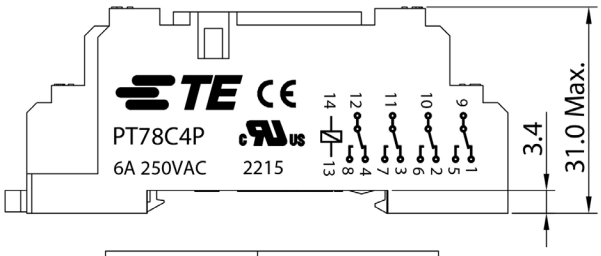
PT78C4P, PT78A4P



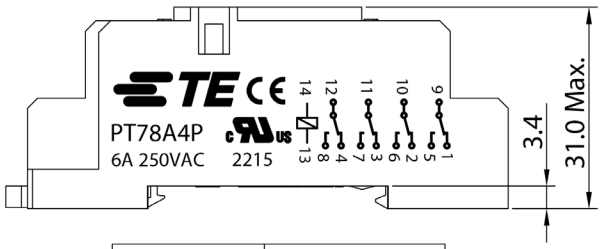








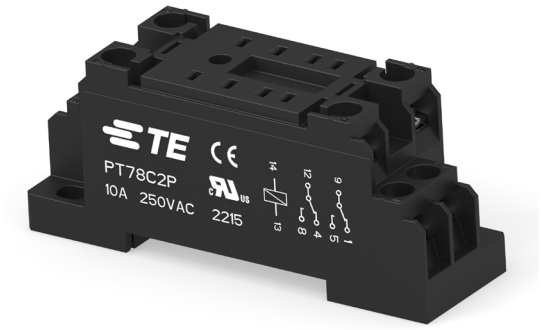
2071566-1	PT78C4P
Part number	Part description

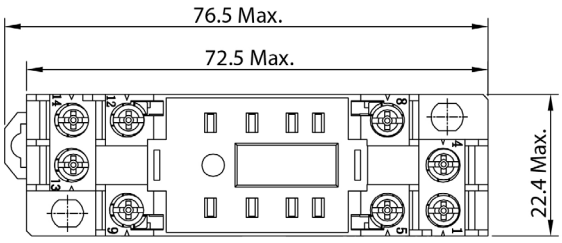


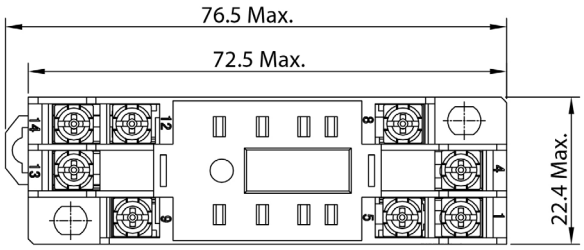
2071566-2	PT78A4P
Part number	Part description

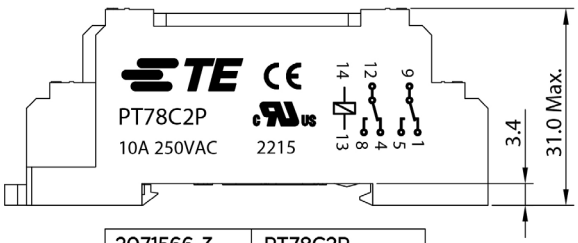
PT DIN-RAIL SOCKET WITH SCREW TYPE TERMINALS

PT78C2P, PT78A2P

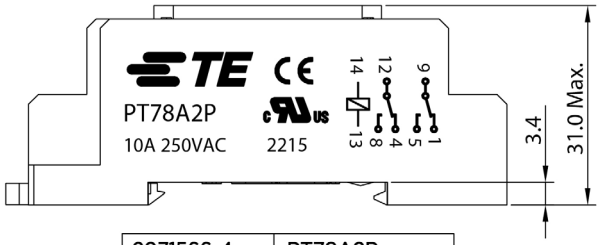








2071566-3	PT78C2P
Part number	Part description



2071566-4	PT78A2P
Part number	Part description

PT DIN-RAIL SOCKET WITH SCREW TYPE TERMINALS

PT78C4P, PT78A4P, PT78C2P, PT78A2P

	2-pole	4-pole
Rated voltage/ Max. switching voltage	2 form C (CO)	4 form C (CO)
Rated current	10A	6A
Limiting continuous current	see derating curve	
Dielectric strength (initial value)		
Open contact circuit 1 min	1,200Vac	1,200Vac
Coil-contacts 1 min	2,500Vac	2,500Vac
Adjacent contacts 1 min	2,500Vac	2,000Vac
Clearance / creepage		
Coil-contact circuit	≥3/4mm	≥3/4mm
Adjacent contact circuits	≥3/4mm	≥1.5/2.2mm
Material group of insulation parts	IIIa	
Flammability class UL 94	V2	
Insulation to IEC 60664-1		
Type of insulation		
Coil contact circuit	Basic	
Open contact circuit	Functional	
Adjacent contact circuits	Basic	

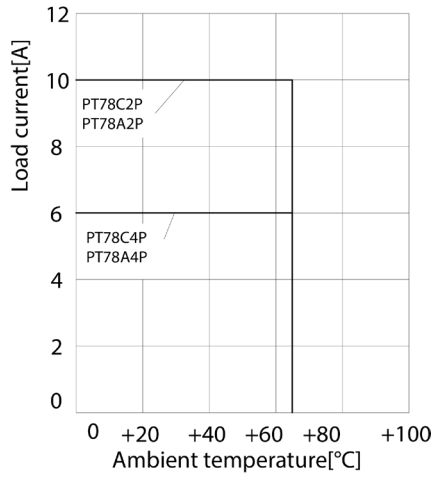
1) with inserted relay pollution degree 1 in region of contact pin/socket inlets

	2-pole	4-pole
Rated insulation voltage	250V	
Pollution degree	2 [1)]	
Rated voltage system	230/400V	
Ambient temperature range	-40...+65˚C	
Terminals	screw	
Terminal screw torque acc. IEC61984	0.5Nm (typical) 0.7Nm(max)	
Terminal Screw size	M3	
Wire strip length	8mm	
Wire cross section		
single wire	1.5 mm^2	
fine wire	1.5 mm^2	
Insertion cycles	A (10)	
Max. Insertion Force	130N	
Max pull out force	130N	
Mounting direction	Any direction with clip	

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at

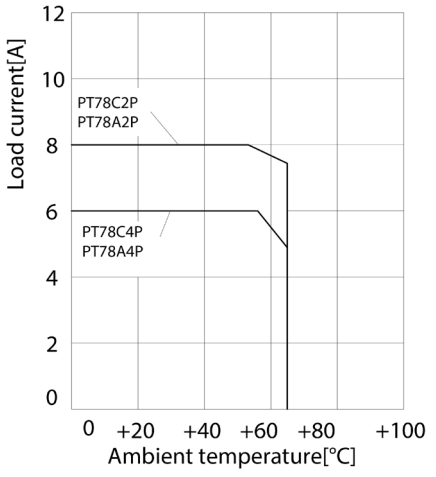
www.te.com/customersupport/rohssupportcenter

DERATING CURVE ACCORDING TO UL508



The derating curve was defined and measured by PT socket and PT relay together.

DERATING CURVE ACCORDING TO IEC61984



The derating curve was defined and measured by PT socket and PT relay together.

PT28D01

PT SOCKETS

Type	Description	Part Number
PT78C4P	DIN-rail socket with screw type terminals 4 pole, with safety protection	2071566-1
PT78A4P	DIN-rail socket with screw type terminals 4 pole	2071566-2
PT78C2P	DIN-rail socket with screw type terminals 2 pole, with saftey protection	2071566-3
PT78A2P	DIN-rail socket with screw type terminals 2 pole	2071566-4

ACCESSORIES FOR

Type	Description	Part Number
PT28D01	Metal retaining clip for DIN rail socket, 36 mm height relay	2071566-9

COMBINATION OF RELAY AND SOCKET, INSULATION REQUIREMENTS AND THERMAL CHARACTERISTICS

The relay standard IEC 61810-1 has an important impact on the combination of a relay and the respective socket. The relay sockets have to comply with the requirements of IEC 61984 and the insulation requirements of the IEC 61810-1. Even if the socket alone fullfills or exceeds the insulation requirements as clearance/creepage for the relay, the combination of a relay with a socket may reduce the creepage and lead to a lower rated insulation voltage. Hence restrictions for the combination relay-socket may be the consequence, e.g. a reduction of the voltage range or of the pollution degree. Especially for miniature multi-pole relay and respective sockets with small distance between the contact circuits, these restrictions have a big impact.

Apart from the insulation properties, the thermal characteristics of the combination relay and socket are of utmost importance (see > ‘Derating curves’). Especially the operations conditions like multiple heat up and cool down cycles could have significant impact on the long-term stability of the contact resistance of the combination contact tulip and terminal, and may thereby cause risk of overheating and fire hazard. It is strongly recommended that such conditions are considered in the design and usage of the device and that the devices are thoroughly tested under real conditions.

As sockets from different sources are not directly comparable, the compliance with the technical specification can only be informed for an approved combination relay-socket. As design details and characteristics for non TE products are beyond our control, confirmations for technical parameters and characteristics regarding such combinations is not possible. Risks as reduced dielectric strenght, fire hazard, etc. due to use based on unclear or omitted data, limitations or restrictions must not be underestimated.

Note: We only confirm the characteristics and parameters for the approved combinations of relays and sockets as indicated in the catalog and datasheets.

Notes:

1. Datasheets and product specification according to IEC 61810-1 and to be used only together with the ‘Definitions’ section.
2. Datasheets and product data is subject to the terms of the disclaimer and all chapters of the ‘Definitions’ section, available at http://relays.te.com/definitions.
3. Datasheets, product data, ‘Definitions’ section, application notes and all specifications are subject to change

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