POTTER & BRUMFIELD R10 SERIES RELAY

SIGNAL RELAYS

INTRODUCTION

TE Connectivity (TE)'s Potter & Brumfield R10 relay series is a versatile solution designed to meet a wide range of application needs. With multiple contact arrangements (1, 2, 4, and 6 Form C), the R10 series offers broad coil sensitivity options ranging from 25 to 750mW, making it suitable for both low-power and high-performance demands. The series supports various contacts capable of switching from dry circuits to loads up to 7.5 amps, ensuring reliable operation across diverse environments. Additionally, its numerous mounting and termination options provide flexibility for integration into complex systems.









FEATURES

- 1, 2, 4 and 6 form C (CO) contact arrangement
- Broad range of coil options provides sensitivity ranging from 25 to 750mW
- Various contacts switch from dry circuit to 7.5 amps
- Many mounting and termination options

APPLICATIONS

- Coin changers
- Audio equipment
- Elevators
- Traffic controls
- Ultrasonic test equipment
- Parking toll readers.

APPROVALS

- UL E29244
- CSA LR15734

Technical data of approved types on request

Note:

- Version 100 A: Samples will be available in August 2025; and production starts in January 2026.

CONTACT DATA

Contact arrangement	1, 2, 4 and 6 form C (CO)
Rated voltage	120VAC
Rated current	7.5A
Contact material	Ag, AgCdO, Au overlay Ag
Contact style	Single or bifurcated crossbar
Min. recommended contact load	
W type, AgCdO, single contact	300mA, 12VDC
X type, AgCdO, single contact	300mA, 12VDC
M type, AgCdO, bifurcated contact	300mA, 12VDC
Y type, Ag, single contact	100mA, 12VDC
Z type, Ag, bifurcated crossbar	1mA, 12VDC
P type, Au overlay Ag, bifurcated crossbar	dry circuit
Initial contact resistance	
All AgCdO contact types	100mΩ
All other contact materials and types	50mΩ
Frequency of operation	360 ops./hr

CONTACT RATINGS

Type	Load	Cycles
UL 508		
W type, AgCdO, single contact		
	7.5A, 120VAC, resistive	
	7.5A, 28VDC, resistive	
	1/8HP, 120VAC, same polarity	
	1/6HP, 240VAC, same polarity	
X type, AgCdO, single contact		
	2A, 30VDC, resistive	$100x10^3$
	5A, 120VAC, resistive	$6x10^3$
	5A, 30VDC, resistive	$100x10^3$
	1/20HP, 120VAC, same polarity	
	1/10HP, 240VAC, same polarity	
M type, AgCdO, bifurcated contact		
	5A, 120VAC, resistive	$6x10^3$
	5A, 28VDC, resistive	$6x10^3$
Y type, Ag, single contact		
	2A, 120VAC	$6x10^3$
	2A, 28VDC	$6x10^3$
	250VA, 250VAC	$30x10^3$
	125VA, 125VAC	$100x10^3$
Z type, Ag, bifurcated crossbar contact		
	3A, 120VAC	$6x10^3$
	3A, 28VDC	$6x10^3$ `
	2A, 30VDC	$100x10^3$
P type, Au overlay Ag, bifurcated crossbar contact		
	2A, 120VAC, resistive	$100x10^3$
	3 A, 120 VAC, resistive	$6x10^3$
	3 A, 30 VDC, resistive	$100x10^3$
Mechanical endurance	$10x10^6$ ops., except W type is $1x10^6$ ops.	

COIL DATA

Coil voltage range	3 to 115VDC, 4.5mA to 20mA, 115VAC

COIL VERSIONS, DC COIL

Coil code	Rated voltage VDC	Operate voltage VDC	Coil resistance Ω±10%	Rated coil power mW
V - standard DC voltage adjustment 1, 2 and 4 pole				
V28	5	3.75	28	900
V52	6	4.5	52	900
V185	12	9	185	900
V700	24	18	700	900
V2.5K	48	36	2500	900
V15.0K	115	86	15000	900
6 pole				
V90	12	9	90	1,600
V430	24	18	430	1,400
V1.5K	48	36	1500	1,600
V9.0K	115	86	9000	1,500
S - sensitive DC voltage adjustment 1 and 2 pole				
S50	3	2.25	50	180
S200	6	4.5	200	180
S800	12	9	800	180
S3.2K	24	18	3200	180
4 pole				
S1.8K	24	18	1800	350
SS - ultra sensitive DC voltage adjustment				
1 pole				
SS1.0K	6	4.5	1000	40

Coil code	Maximum coil current mADC	Operate current mADC	Coil resistance Ω±10%	Pick-up coil power mW
J - sensitive DC current adjustment				
2 pole				
J1.0K	45	8.5	1000	75
J5.0K	20	4.1	5000	85
6 pole				
J2.5K	28	10	2500	250
J - sensitive DC current adjustment - R10S types only				
1 pole				
J1.0K[1)]	-	3.2	1000	10
J - sensitive DC current adjustment – R10S types only				
2 pole				
J500[1)]	-	6.3	500	20
J1.0K	-	4.5	1000	20
J5.0K	-	2	5000	20
4 pole				
J1.0K	-	6.5	1000	45
JJ - ultrasensitive DC current adjustment				
4 pole				
JJ1.0K	45	9	1000	85
JJ2.5K	28	5.8	2500	85

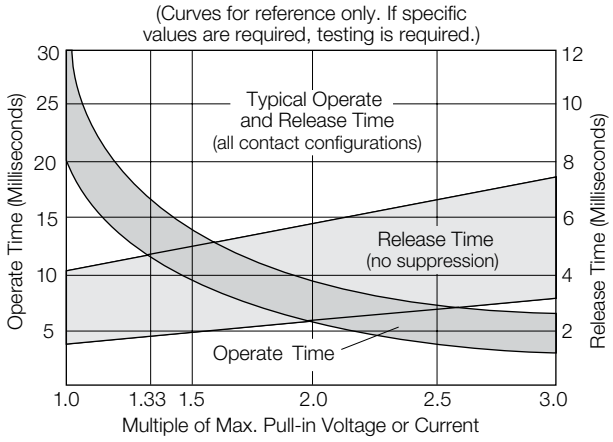
1) Suggested for 12VDC operation

COIL VERSIONS, AC COIL (DUAL COIL DIODE RECTIFIED CONSTRUCTION)

Coil code	Rated voltage VAC	Operate voltage VAC	Coil resistance Ω±20%
Standard AC			
2 and 4 pole			
115V	115	86	9000
6 pole			
115V	115	86	7500

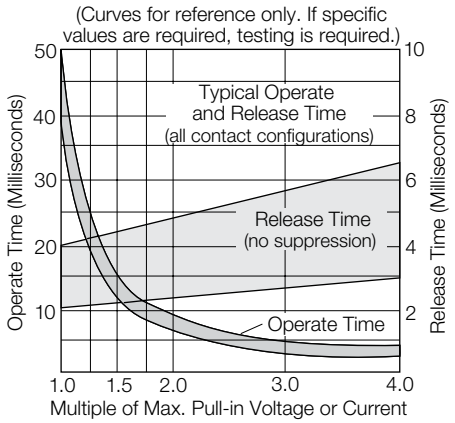
OPERATIVE RANGE

R10 Relays (DC Only) Typical Ranges of Operations @ 25°C

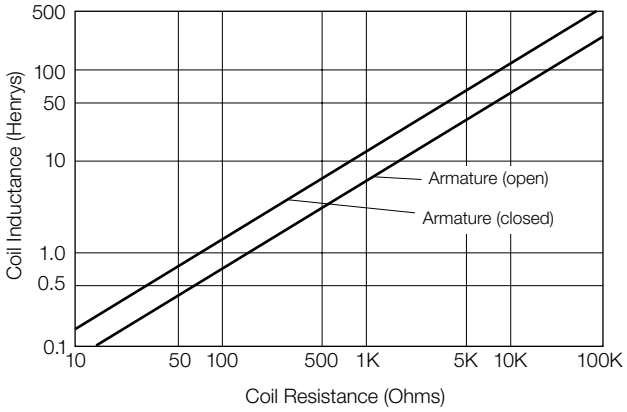


R10 ULTRA-SENSITIVE "SS" AND "JJ"

Typical Ranges of Operation @ 25°C



TYPICAL COIL INDUCTANCE



INSULATION DATA

Initial dielectric strength	
between open contacts	500Vrms
between contact and coil	1000Vrms
between adjacent contacts	1000Vrms
Initial insulation resistance	
between insulated elements	10GΩ, 500VDC

ACCESSORIES

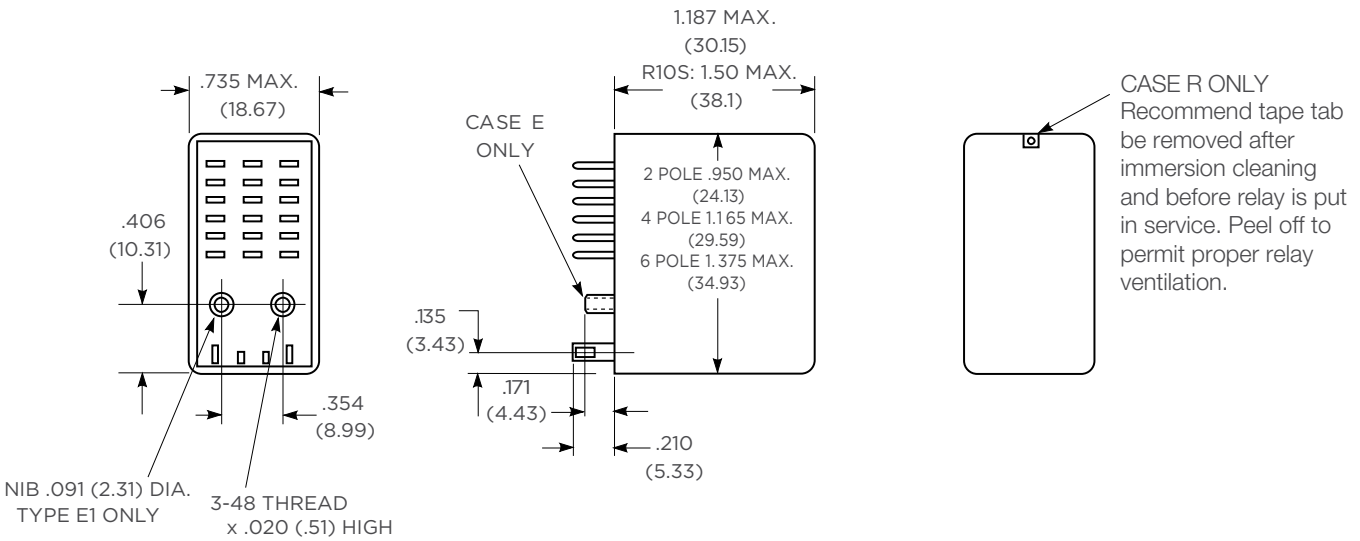
For details see datasheet Sockets	Sockets and Accessories, R10 Relays
Product Code Description: Many versions of sockets and clips available.	

Note: Relays with contact current <50mA are not recommended for use in sockets.

OTHER DATA

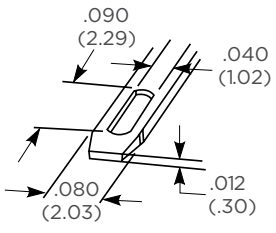
Material compliance	EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter
Ambient temperature	-55 °C to +75 °C
Category of environmental protection	
IEC 61810	RTI - dust protected and RTIII - wash tight
Terminal type	Wire solder/plug-in terminals or PCB-THT.
Weight	23 to 40g
Packaging unit	tray/50 pcs., box/350pcs.

DIMENSIONS

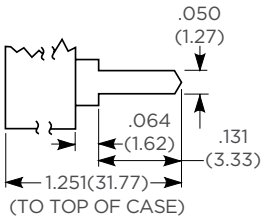


TERMINAL DIMENSIONS

SOLDER TERMINAL DIMENSIONS

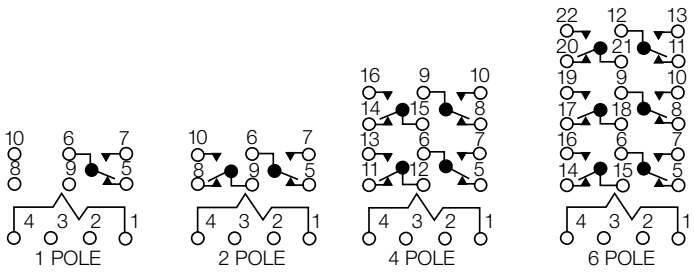


PRINTED CIRCUIT TERMINAL DIMENSIONS

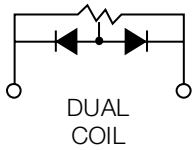


TERMINAL THICKNESS .012 (.30)

TERMINAL ASSIGNMENT



R10 - AC COIL DIAGRAM

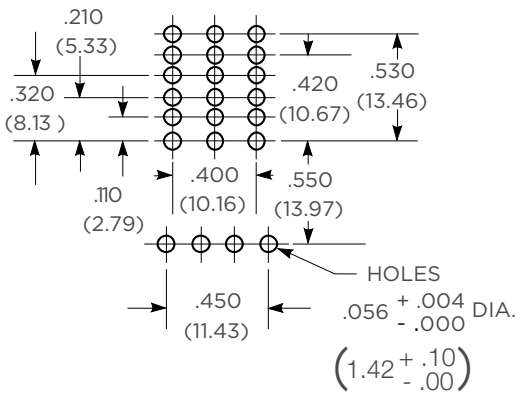


PCB LAYOUT

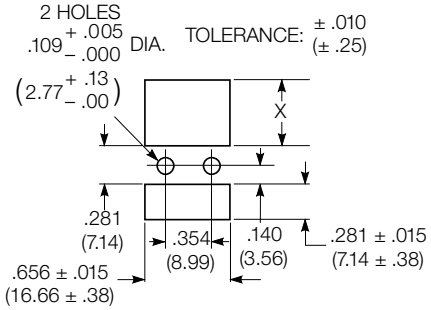
BOTTOM VIEW ON SOLDER PINS

Terminal Types E2 & R2

(Omit unnecessary holes)



SUGGESTED PANEL CUTOUT FOR RELAY



X = 2 POLE – .343 ± .020
(8.71 ± .51)
4 POLE – .562 ± .020
(14.27 ± .51)
6 POLE – .781 ± .020
(19.84 ± .51)

PRODUCT CODE STRUCTURE

Part Number

R10 -E 1 Y 4 -V700

Product series

R10	Cradle-style relay with form C contacts
R10S	Super sensitive cradle-style relay with form C contacts

Case style

E	Non-sealed polycarbonate dust cover (RTI)
R	Wash-tight (RTIII), tape sealed plastic case [1]

Terminal and mounting

1	Solder/Plug-in terminals with #3-48 mounting stud on R10-E
2	PCB terminals (std.) 1.62mm (.064in) clearance, 31.75mm (1.25in) seated ht.

Coil voltage

Coil code:	please refer to coil versions table
AC voltage	Specify coil code consisting of nominal coil voltage followed by V (example: 115 V)
DC voltage	Specify coil code consisting of coil adjustment code letter followed by coil resistance (example: V700)

Coil voltage

1	1 pole
2	2 pole
4	4 pole
6	6 pole [6]

Contact style and rating [2]

W	Single contact rated 7.5A max, 300mA min. [3] [4]
X	Single contact rated 5A max, 300mA min. [4] [5]
M	Bifurcated contact rated 5A max, 300 mA min. [4] [5]
Y	Single contact rated 2A typ, 3A max, 100mA min.
Z	Bifurcated low level contacts rated 100mA typ, 2A max, 1mA min.
P	Bifurcated crossbar dry circuit contacts rated 1mA typ, 3A max, dry circuit min.

1) R10 type only, terminal code 2, no ground or stud.
2) Ratings are at 28VDCV or 115VAC. Total load must not exceed 30A per relay.
3) Use ungrounded frame for AC load of ≥5A. Max ratings are 7.5A at 115VAC and 4A at 28VDC for coil codes S & J
4) Only available on R10 type, only available with coil adjustment code V, Q, S and J.
5) Use ungrounded frame for AC load of ≥5A. Max ratings are 5A at 115VAC and 3A at 28VDC for coil codes S & J
6) Not available with contact code W

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