



R10

R10-R

R10S

Features

- Broad range of coil options provide sensitivity ranging from 25 to 750mW.
- Various contacts switch from dry circuit to 7.5 amps.
- Many mounting and termination options.

Contact Data @ 25°C

Arrangements: 1 Form C (SPDT) through 8 Form C (8PDT) See Ordering Information tables for more details regarding availability.

Contact Materials, Styles & Ratings @ +25°C

Contact Code	Contact Material	Contact Style	Coil Codes Available	Contact Ratings		
				Min.	Typ.	Max.
W	Silver-Cadmium Oxide	Single Button	V, Q, S, J	500mA	-	7.5A†
X	Silver-Cadmium Oxide	Single Button	V, Q, S, J	500mA	-	5A‡
Y	Fine Silver	Single Button	All	100mA	2A	3A
Z	Fine Silver	Bifurcated	All	1mA	100mA	2A
P	Gold overlay on Silver	Bifurcated Crossbar	All	Dry Circuit	1mA	3A

Ratings are at 28VDC or 155VAC unless otherwise specified. Total load must not exceed 30A per relay.

† Use ungrounded frame for AC loads of 5A or greater. Max.ratings are 7.5A at 115VAC and 4A at 28VDC for coil codes S and J.

‡ Use ungrounded frame for AC loads of 5A or greater. Max.ratings are 5A at 115VAC and 3A at 28VDC for coil codes S and J.

UL Horsepower Contact Ratings (Coil Code V Only)

Contact Code	No. of Poles	At 110-120VAC	At 220-240VAC
W	1, 2, 4	1/8 HP (3.8A)	1/6 HP (2.2A)
X	1, 2, 4, 6	1/20 HP (1.5A)	1/10 HP (1.5A)

Expected Mechanical Life: 100 million operations, typical. (Except contact Code W: 1,000,000 operations, typical.)

Typical Expected Life For Resistive Loads @ 25°C

Type	Current	Voltage	Contact Style	Coil Code	Operations††
R10	7.5A	120VAC, 60 Hz.	W	V,S,J	$7.5 \cdot 10^4$
R10	7.5A	28VDC	W	V	$7.5 \cdot 10^4$
R10	5.0A	120VAC, 60 Hz.	X	V,S,J	$5 \cdot 10^4$
R10	5.0A	28VDC	X	V	$5 \cdot 10^4$
R10	4.0A	28VDC	W	S,J	$2 \cdot 10^4$
R10	3.0A	28VDC	X	S,J	$2 \cdot 10^4$
R10	3.0A	28VDC or 120VAC	P	V,S,J	$3 \cdot 10^4$
R10	2.0A	28VDC	P,Y,Z	V	$1.5 \cdot 10^6$
R10	2.0A	28VDC	P,Y,Z	S,J	$6 \cdot 10^5$
R10S	2.0A	28VDC	P,Y,Z	J	$5 \cdot 10^5$
R10	1.0A	28VDC	P,Y,Z	V,S,J	$12 \cdot 10^6$
R10	1.0A	28VDC	P,Y,Z	SS,JJ	$5 \cdot 10^5$
R10S	1.0A	28VDC	P,Y,Z	J	$1 \cdot 10^6$
R10	500mA	28VDC	P,Y,Z	SS,JJ	$5 \cdot 10^6$
R10	100mA	28VDC or 120VAC	P,Y,Z	V,S,J	$1 \cdot 10^8$
R10	100mA	48VDC	P,Z	SS,JJ	$5 \cdot 10^6$
R10	100mA	6VDC	P	SS,JJ	$5 \cdot 10^7$
R10S	100mA	28VDC or 120VAC	P,Y,Z	J	$1 \cdot 10^6$
R10	50mA	6VDC	P,Z	V,S,J	$5 \cdot 10^7$
R10S	30mA	6VDC	P,Z	J	$5 \cdot 10^6$
R10	1mA	6VDC	P	SS,JJ	$5 \cdot 10^7$

†† Relay operated at rated coil voltage or 133% of pick-up current or higher.

Initial Dielectric Strength

Between Open Contacts: 500V rms, for contact codes P and Z.
1,000V rms for contact codes W, X and Y with coil code V.

Between All Other Conductors: 1,000V rms.

Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

R10 series

General Purpose Dry Circuit to 7.5 Amp Multicontact AC or DC Relay

- R10-E – Clear Dust Cover Version
- R10-R – Sealed, Immersion Cleanable Type
- R10S – Super Sensitive, Logic Compatible

File E29244

File LR15734

Users should thoroughly review the technical data before selecting a product part number. It is recommended that user 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.

Capacitance

Between Contacts: 2 pf, typ.

Between Contacts and Coil: 2 pf, typ.

Between Coil and Frame: 30 pf, typ.

Initial Insulation Resistance

Between Mutually Insulated Elements: 10^{10} ohms @ 25°C, 50% RH.
Consult factory for optional acetal resin material rated 10^{12} ohms.

Coil Data @ 25°C (also see Coil Data tables)

Voltage: 3 to 115VDC and 6 to 115VAC.

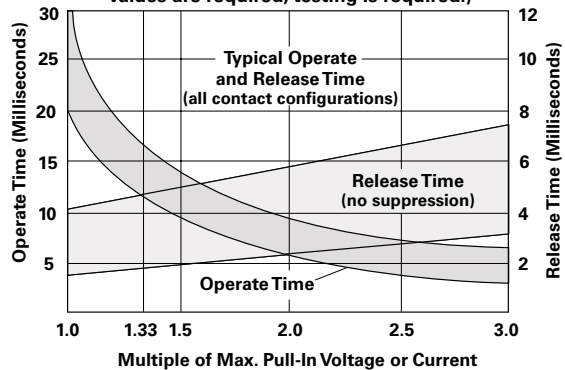
Maximum Coil Power: 2.2 Watts.

Coil Temperature Rise: 30°C per Watt.

Maximum Coil Temperature: 105°C.

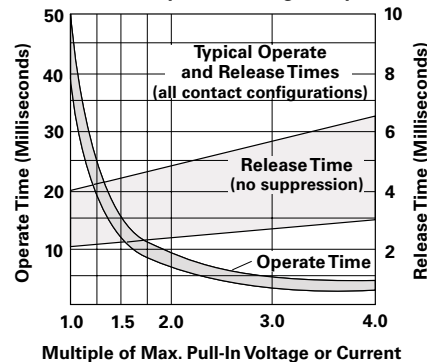
Operate Data @ 25°C

R10 Relays (DC Only) Typical Ranges of Operations
(Curves for reference only. If specific values are required, testing is required.)



R10 Ultra-Sensitive "SS" and "JJ" Typical Ranges of Operation

(Curves for reference only. If specific values are required, testing is required.)



Environmental Data

Storage Temperature Range: -55°C to +105°C.

Operating Temperature Range: -55°C to +75°C.

Mechanical Data

Terminal Finish: Tin plating standard.

Weight: 0.8 to 1.4 oz. (23 to 40g) approximately.

Specifications and availability subject to change.

www.tycoelectronics.com
Technical support:
Refer to inside back cover.

Coil Data Tables @ 25°C

One of the **boldface** resistance or voltage values from a table below is to be inserted in step 6 of the ordering chart on the next page.

V Standard DC Voltage Adjustment				
2.2 Watts Maximum Continuous Coil Dissipation @ 25°C				
VDC at 25°C		Coil Resistance at 25°C ± 10% (ohms)		
Nominal	Pick-up (Max.)	1, 2 & 4 Form A, B, C or D Pick-up 500mW	6 Form A, B or C Pick-up 850mW	8 Form A, B or C Pick-up 1000mW
3.0	2.25	10	6	5
5.0	3.75	28	16	14
6.0	4.5	52	25	20
12.0	9.0	185	90	72
24.0	18.0	700	430	350
48.0	36.0	2.5K	1.5K	1.25K
72.0	54.0	5.8K	3.5K	2.8K
115.0	86.0	15.0K	9.0K	8.0K

Q Special DC Voltage Adjustment						
1 & 2 Form A, B, C or D			3 & 4 Form A, B, C or D			Nominal Voltage @ 25°C (VDC)
Coil Res. @ 25°C ± 10% (ohms)	Pick-up (Max.) @ 25°C (VDC)	Pick-up @ 25°C (mW)	Coil Res. @ 25°C ± 10% (ohms)	Pick-Up (Max.) @ 25°C (VDC)	Pick-Up @ 25°C (mW)	
52	3.1	180	32	3.8	450	5
110	4.5	185	52	4.2	340	6
450	9.2	190	185	8.4	380	12
1.8K	17.4	170	1.0K	17.2	295	24
7.5K	36.2	175	3.2K	31.1	300	48
15.0K	49.5	165	7.5K	49.3	325	72
30.0K	67.5	160	15.0K	67.5	300	115

S Sensitive DC Voltage Adjustment					
2.2 Watts Maximum Continuous Coil Dissipation @ 25°C					
VDC at 25°C		Coil Resistance at 25°C ± 10% (ohms)			
Nominal	Pick-up (Max.)	1 & 2 Form A, B, C or D Pick-up 100mW	3 & 4 Form A, B, C or D Pick-up 175mW	6 Form A, B or C Pick-up 250mW	8 Form A, B or C Pick-up 400mW
3.0	2.25	50	30	20	12
5.0	3.75	140	80	56	35
6.0	4.5	200	110	80	52
12.0	9.0	800	450	320	200
24.0	18.0	3.2K	1.8K	1.2K	800
48.0	36.0	13.0K	7.5K	5.2K	3.2K
72.0	54.0	28.0K	16.0	13.0K	7.5K
115.0	86.0	50.0K	40.0K	30.0K	16.0K

SS Ultra-Sensitive Voltage Adjustment (1-4 Pole Only)				
2.2 Watts Maximum Continuous Coil Dissipation @ 25°C				
VDC at 25°C		Coil Resistance at 25°C ± 10% (ohms)		
Nominal	Pick-up (Max.)	1 Form C Pick-up Power 20mW	2 Form C Pick-up Power 40mW	3 & 4 Form C, Pick-up Power 80mW
3.0	2.25	220	110	52
5.0	3.75	700	350	175
6.0	4.5	1.0K	500	250
12.0	9.0	4.0K	2.0K	1.0K
18.0	13.5	9.0K	4.5K	2.2K
24.0	18.0	15.0K	7.5K	3.7K
36.0	27.0	30.0K	15.0K	7.5K
48.0	36.0	—	30.0K	15.0K

J Sensitive DC Current Adjustment					
Must Operate Current (mA)					
All Applicable Types Except R10S					
Coil Resistance ±10% (ohms)	2 Form A, B, C or D Pick-up 85mW	4 Form A, B, C or D Pick-up 175mW	6 Form A, B, C or D Pick-up 250mW	8 Form A, B or C Pick-up 400mW	Max. Coil Current (mA)
1.0K	8.5	13.0	16.0	20.0	45.0
2.5K	5.8	8.4	10.0	13.0	28.0
5.0K	4.1	6.2	7.2	9.0	20.0
10.0K	3.1	4.5	5.0	6.4	14.0
15.0K	2.6	3.5	4.2	5.3	11.5
30.0K	1.7	2.5	2.9	3.7	8.3
R10S Types Only					
Coil Resistance ±10% (ohms)	1 Form C Pick-up 10mW	2 Form C Pick-up 20mW	4 Form C Pick-up 40mW		
500	4.5 (A)	6.3 (A)	9.0		
1.0K	3.2 (A)	4.5	6.5		
2.5K	2.0	2.9 (B)	4.1 (B)		
5.0K	1.4 (B)	2.0	2.9 (C)		
10.0K	1.0	1.4 (C)	2.0		
16.0K	0.8	1.2	1.4		
30.0K	0.6 (C)	0.8	1.2		

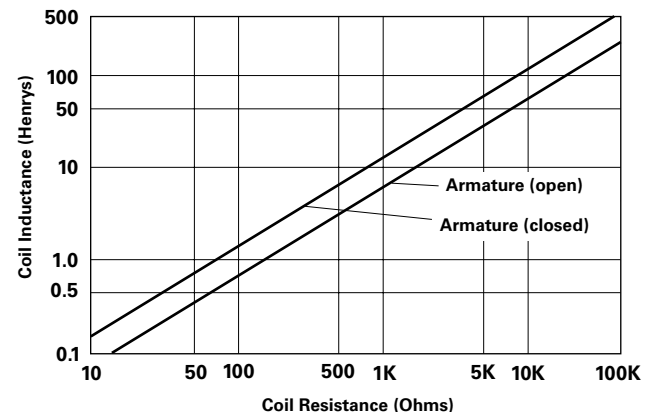
(A) Suggested for 5VDC operation.
(B) Suggested for 12VDC operation.
(C) Suggested for 24VDC operation.

JJ Ultra-Sensitive Current Adjustment (1-4 Pole Only)				
Maximum Pick-Up Current (mA)				
Coil Resistance at 25°C ±10%	1 Form C Pick-Up Power 20mW	2 Form C Pick-Up Power 40mW	3 & 4 Form C Pick-Up Power 80mW	Maximum Continuous Coil Current (mA)
1.0K	4.5	6.5	9.0	45.0
2.5K	2.9	4.1	5.8	28.0
5.0K	2.1	2.9	4.1	20.0
10.0K	1.5	2.0	3.0	14.0
15.0K	1.2	1.7	2.4	11.5
30.0K	0.85	1.2	1.7	8.3

Standard AC Operated Relays				
Coil Resistance @ 25°C ± 20% (ohms)		Volts AC @ 25°C		
2 & 4 Form C	6 & 8 Form C	Pick-Up (max.)	Nominal	Maximum Continuous
25	15	5.0	6	7.2
120	90	9.0	12	14.5
500	350	18.0	24	30.0
2.0K	1.4K	36.0	48	60.0
9.0K	7.5K	86.0	115	130.0

Note: Dual coil diode rectified construction.

Typical Coil Inductance



Ordering Information

Typical Part Number ►

R10**-E****1****Y****4****-V700****1. Basic Series:**

R10 = Relay with Form C contacts.

R10S = Super sensitive R10 (case and terminals E1 & E2 only, J coil adj. only).

2. Case Style:

E = Non-sealed polycarbonate cover.

R = Immersion cleanable, tape sealed plastic case (R10 only [Form C], terminal code 2 & 9 only [std. PCB]).

No ground or stud included. Not available on R10S.

3. Terminals & Mounting:

1 = Solder/plug-in terminals with #3-48 mounting stud.

2 = Printed circuit terminals (std.) .064" (1.62mm) clearance, 1.25" (31.75mm) seated ht.

6 = Side mounting plate with #6-32 stud, solder/plug-in terminals (#3-48 stud not included).

7 = Narrow (.04" [1.02mm] wide) printed circuit terminals .013" (.33mm) clearance, 1.2" (30.48mm) seated ht.

9 = Non-shouldered, narrow (.04" [1.02mm] wide) printed circuit terminals in a staggered arrangement (1 to 6 poles only).

4. Contact Style & Rating:

	W	X	Y	Z	P
	Single Contact	Single Contact	Single Contact	Bifurcated, Low Level Contacts	Bifurcated Crossbar, Dry Circuit Contacts
	V, Q, S & J Coil Adjustment Only				
	Max. 7.5A† Min. 500mA	Max. 5A‡ Min. 500mA	Typ. 2A Max. 3A Min. 100mA	Typ. 100mA Max. 2A Min. 1mA	Typ. 1mA Max. 3A Min. Dry Circuit
R10	X	X	X	X	X
R10S			X	X	X

Ratings are at 28VDC or 115VAC. Total load must not exceed 30A per relay.

† Use ungrounded frame for AC loads of 5A or greater. Max. ratings are 7.5A at 115VAC and 4A at 28VDC for coil codes S & J.

‡ Use ungrounded frame for AC loads of 5A or greater. Max. ratings are 5A at 115VAC and 3A at 28VDC for coil codes S & J.

5. Number of Poles:

1 = 1 pole.

4 = 4 pole

2 = 2 pole.

6 = 6 pole (not available with W contacts).

3 = 3 pole.

8 = 8 pole (available on case style E only; not available with W contacts).

6. Coil (Refer to Coil Data Tables):**AC Voltage (available on R10 only)**

Specify nominal coil voltage followed by V (example: 24V).

DC Voltage

Specify coil adjustment code letter followed by coil resistance (example: V700).

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

R10-E1P2-115V	R10-E1X2-24V	R10-E1Y2-J1.0K	R10-E1Y4-V700	R10-E2P4-V185	R10-E2Y4-V185
R10-E1P2-V700	R10-E1X2-S800	R10-E1Y2-J2.5K	R10-E1Y6-V1.5K	R10-E2P4-V700	R10-E2Y4-V700
R10-E1P4-115V	R10-E1X2-V185	R10-E1Y2-V15.0K	R10-E1Z2-V185	R10-E2W2-V185	R10S-E1Y2-J5.0K
R10-E1P4-V700	R10-E1X2-V700	R10-E1Y2-V185	R10-E1Z2-V700	R10-E2X2-V185	R10S-E2Y1-J1.0K
R10-E1W2-V185	R10-E1X4-115V	R10-E1Y2-V2.5K	R10-E1Z4-V185	R10-E2X2-V700	
R10-E1W2-V700	R10-E1X4-V185	R10-E1Y2-V700	R10-E1Z4-V2.5K	R10-E2X4-V185	
R10-E1W4-V185	R10-E1X4-V2.5K	R10-E1Y4-J10.0K	R10-E1Z4-V700	R10-E2X4-V700	
R10-E1W4-V700	R10-E1X4-V700	R10-E1Y4-V2.5K	R10-E1Z6-V1.5K	R10-E2Y2-V185	
R10-E1X2-115V	R10-E1X6-V430	R10-E1Y4-V52	R10-E1Z6-V430	R10-E2Y2-V700	