

# HR91

## Compact 1-pole 3-10A relay

### Features

- 2mm slimer in length than HR96 series
- 200mW Ultra sensitive type available
- Basic grid (one inch) terminal layout
- Sealed type, immersion cleanable



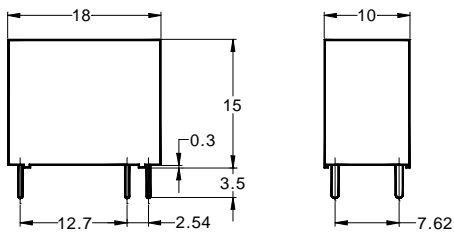
### Applications

- Home appliance, Industrial control

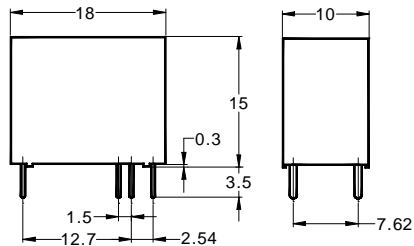
### Dimensions (mm)

To convert into inches, multiply by 0.03937

HR91A (1 Form A)

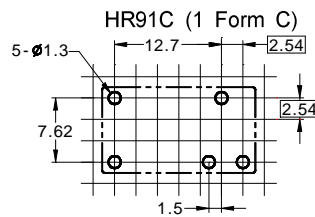
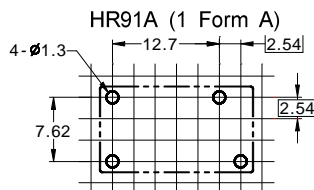


HR91C (1 Form C)



### PC Board Layout

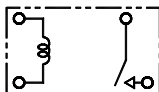
Copper-side view



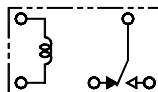
### Schematic

Copper-side view

HR91A (1 Form A)



HR91C (1 Form C)



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## Contact data

Arrangement	1 Form A (SPST)	1 Form C (SPDT)	
Contact material	Ag Alloy		
Initial contact resistance	100m $\Omega$ max.		
Rated load, resistive	5A 28VDC 10A 125VAC 5A 250VAC	NO	NC
		5A 28VDC 10A 125VAC 5A 250VAC	3A 28VDC 5A 125VAC 3A 250VAC
Maximum carry current	10A	10A	5A
Maximum switching capacity	with DC voltage:	140W	84W
	with AC voltage:	1,250VA	750VA
Maximum switching voltage	30VDC 265VAC		

## Coil data

Nominal voltage	3VDC to 24VDC
Nominal power consumption <sup>1)</sup>	200mW, 360mW, 450mW
Operate voltage <sup>2)</sup>	75% of nominal voltage
Release voltage <sup>3)</sup>	5% of nominal voltage

<sup>1), 2), 3)</sup>The values depend on coil voltage, see Part selection chart

## General data

Operate time	10ms max. at nominal voltage
Release time	4ms max. at nominal voltage
Initial insulation resistance	100M $\Omega$ min. (500VDC)
Dielectric strength	Between open contacts:
	Between contacts and coil:
Expected life	Mechanical:
	Electrical:
Vibration resistance	Functional:
	Destructive:
Shock resistance	Functional:
	Destructive:
Ambient temperature	-40°C to +70°C (with no icing)
Humidity	35% to 95% RH
Weight	6g approx.

Note: The above figures are initial values

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## Part number description



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### Contact arrangement

A: 1 Form A (SPST)  
C: 1 Form C (SPDT)

### Coil voltage

03: 3VDC      12: 12VDC  
05: 5VDC      18: 18VDC  
06: 6VDC      24: 24VDC  
09: 9VDC

### Coil sensitivity

None: Standard (0.45W)  
H: High sensitive (0.36W)  
U: Ultra sensitive (0.2W)

Part number description is provided for reference, part number can not be arbitrarily composed. Refer to the part numbers shown in the table below. Special designs to customer specifications are possible; please contact HR.

## Part selection

Part number	Nominal voltage (VDC)	Coil resistance ( $\Omega \pm 10\%$ )	Nominal current (mA)	Must operate voltage (VDC)	Must release voltage (VDC)	Max voltage (VDC)	Nominal power (mW)
<b>Standard coil, 1 Form A</b>							
HR91A 03	3	20	150	2.25	0.15	3.3	450
HR91A 05	5	56	90	3.75	0.25	5.5	
HR91A 06	6	80	75	4.50	0.30	6.6	
HR91A 09	9	180	50	6.75	0.45	9.9	
HR91A 12	12	320	37.5	9.00	0.60	13.2	
HR91A 18	18	720	25	13.5	0.90	19.8	
HR91A 24	24	1,280	18.75	18.0	1.20	26.4	
<b>High Sensitive coil, 1 Form A</b>							
HR91A 03H	3	25	120	2.25	0.15	3.3	360
HR91A 05H	5	70	72	3.75	0.25	5.5	
HR91A 06H	6	100	60	4.50	0.30	6.6	
HR91A 09H	9	225	40	6.75	0.45	9.9	
HR91A 12H	12	400	30	9.00	0.60	13.2	
HR91A 18H	18	900	20	13.5	0.90	19.8	
HR91A 24H	24	1,600	15	18.0	1.20	26.4	

Note: All values in the chart are measured at 23 °C

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Part number	Nominal voltage (VDC)	Coil resistance ( $\Omega \pm 10\%$ )	Nominal current (mA)	Must operate voltage (VDC)	Must release voltage (VDC)	Max voltage (VDC)	Nominal power (mW)
<b>Ultra Sensitive coil, 1 Form A</b>							
HR91A 03U	3	45	66.7	2.25	0.15	3.3	200
HR91A 05U	5	125	40.0	3.75	0.25	5.5	
HR91A 06U	6	180	33.3	4.50	0.30	6.6	
HR91A 09U	9	400	22.5	6.75	0.45	9.9	
HR91A 12U	12	720	16.7	9.00	0.60	13.2	
HR91A 18U	18	1,600	11.2	13.5	0.90	19.8	
HR91A 24U	24	2,880	8.3	18.0	1.20	26.4	
<b>Standard coil, 1 Form C</b>							
HR91C 03	3	20	150	2.25	0.15	3.3	450
HR91C 05	5	56	90	3.75	0.25	5.5	
HR91C 06	6	80	75	4.50	0.30	6.6	
HR91C 09	9	180	50	6.75	0.45	9.9	
HR91C 12	12	320	37.5	9.00	0.60	13.2	
HR91C 18	18	720	25	13.5	0.90	19.8	
HR91C 24	24	1,280	18.75	18.0	1.20	26.4	
<b>High Sensitive coil, 1 Form C</b>							
HR91C 03H	3	25	120	2.25	0.15	3.3	360
HR91C 05H	5	70	72	3.75	0.25	5.5	
HR91C 06H	6	100	60	4.50	0.30	6.6	
HR91C 09H	9	225	40	6.75	0.45	9.9	
HR91C 12H	12	400	30	9.00	0.60	13.2	
HR91C 18H	18	900	20	13.5	0.90	19.8	
HR91C 24H	24	1,600	15	18.0	1.20	26.4	
<b>Ultra Sensitive coil, 1 Form C</b>							
HR91C 03U	3	45	66.7	2.25	0.15	3.3	200
HR91C 05U	5	125	40.0	3.75	0.25	5.5	
HR91C 06U	6	180	33.3	4.50	0.30	6.6	
HR91C 09U	9	400	22.5	6.75	0.45	9.9	
HR91C 12U	12	720	16.7	9.00	0.60	13.2	
HR91C 18U	18	1,600	11.2	13.5	0.90	19.8	
HR91C 24U	24	2,880	8.3	18.0	1.20	26.4	

Note: All values in the chart are measured at 23 °C