

HR90

Universal 2 changeover signal switching relay

Features

- High reliability due to bifurcated contacts
- Surge voltage 1,500V according to FCC part68
- Dielectric strength 1,000V between same pole contacts
- DIL pitch terminal
- Perfectly sealed package construction

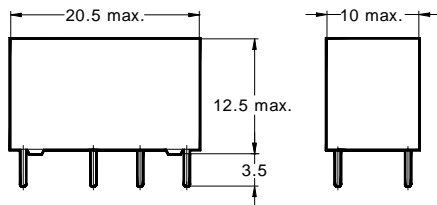


Applications

- Telecommunication network equipment
- Microcomputer system
- Measurement and control
- Entertainment and medical equipment

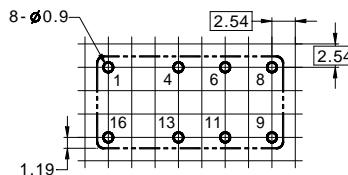
Dimensions (mm)

To convert into inches, multiply by 0.03937



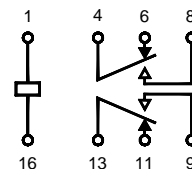
PC Board Layout

Copper-side view



Schematic

Copper-side view



Contact data

Arrangement	2 Form C (DPDT)
Contact material	Gold clad alloy
Initial contact resistance	50mΩ max.
Rated load, resistive	1A 24VDC 1A 120VAC
Maximum switching current	2A
Maximum switching capacity	with DC voltage: 60W with AC voltage: 120VA
Maximum switching voltage	220VDC 250VAC
Minimum switching rating ¹⁾	1mA 5VDC

¹⁾ Min. Switching Load mentioned above are reference values. Therefore it is recommended to perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

Coil data

Nominal voltage	3VDC to 48VDC
Nominal power consumption ²⁾	200mW, 360mW
Operate voltage ³⁾	75% of nominal voltage
Release voltage ⁴⁾	10% of nominal voltage

^{2), 3), 4)}The values depend on coil voltage, see Part selection chart

General data

Operate time	6ms max. at nominal voltage	
Release time	4ms max. at nominal voltage	
Initial insulation resistance	100 M Ω min. (500VDC)	
Dielectric strength	Between open contacts:	1,000VAC _{rms} for 1 minute
	Between contacts and coil:	1,000VAC _{rms} for 1 minute
Surge strength	Between contacts and coil:	1,500V (according to FCC part68)
Expected life	Mechanical:	More than 100,000,000 operations
	Electrical:	More than 100,000 operations at rated load
Vibration resistance	Functional:	10~55Hz dual amplitude: 1.5mm
	Destructive:	10~55Hz dual amplitude: 1.5mm
Shock resistance	Functional:	10G min.
	Destructive:	100G min.
Ambient temperature	-40°C to 70°C (with no icing)	
Humidity	45% to 85% RH	
Weight	5g approx.	

Note: The above figures are initial values

Part number description



HR90 -

Coil voltage

DC03: 3VDC DC09: 9VDC DC48: 48VDC (400mW)
 DC05: 5VDC DC12: 12VDC
 DC06: 6VDC DC24: 24VDC

Coil sensitivity

None: Standard (360mW)
 H: Sensitive (200mW)

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)
Standard coil							
HR90 DC03	3	25	120	2.25	0.3	3.3	360
HR90 DC05	5	70	71.4	3.75	0.5	5.5	
HR90 DC06	6	100	60.0	4.50	0.6	6.6	
HR90 DC09	9	225	40.0	6.75	0.9	9.9	
HR90 DC12	12	400	30.0	9.00	1.2	13.2	
HR90 DC24	24	1,600	15.0	18.0	2.4	26.4	
HR90 DC48*	48	5,760	8.3	36.0	4.8	52.8	400
Sensitive coil							
HR90 DC03-H	3	45	66.7	2.25	0.3	3.3	200
HR90 DC05-H	5	125	40.0	3.75	0.5	5.5	
HR90 DC06-H	6	180	33.3	4.50	0.6	6.6	
HR90 DC09-H	9	400	22.5	6.75	0.9	9.9	
HR90 DC12-H	12	700	17.1	9.00	1.2	13.2	
HR90 DC24-H	24	2,800	8.57	18.0	2.4	26.4	

*48VDC in standard coil type only

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