

HR85

1-Pole 30A/40A switching power relay

Features

- 4 enclosure variations available
 - open-frame type, sealed cover type
 - tab PC Board type, flange type
- High switching capacity, 30A/40A
- Conforms to UL508 and UL873 spacing requirement
- Class F type available



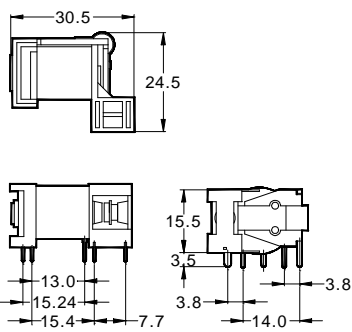
Applications

- Motor load, Heater, Lamp load

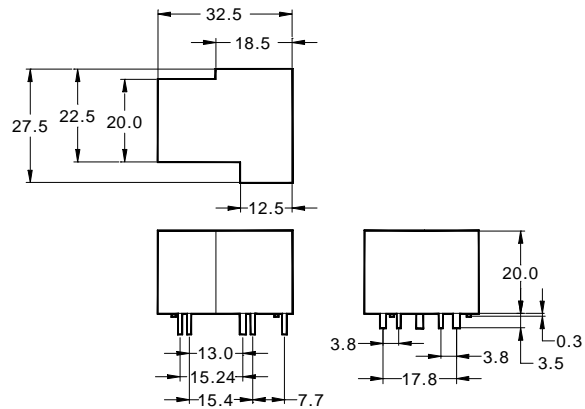
Dimensions (mm)

To convert into inches, multiply by 0.03937

Open-frame type



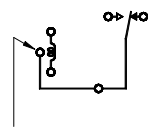
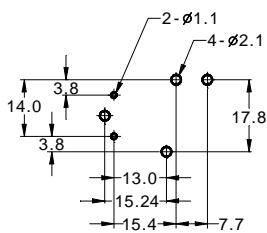
Sealed-cover type



PC Board Layout / Schematic

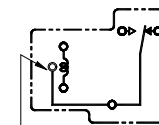
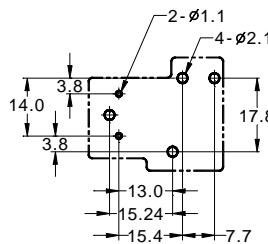
Copper-side view

Open-frame type



Note: This terminal present with terminal code W

Sealed-cover type



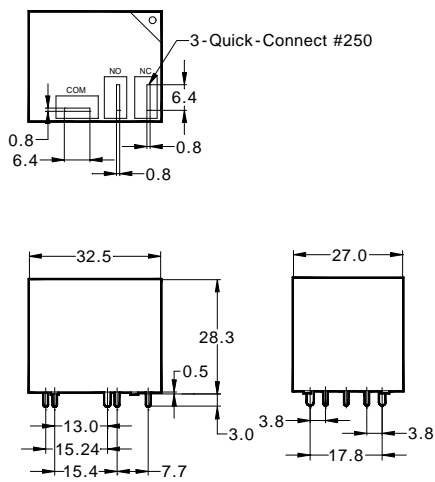
Note: This terminal present with terminal code W

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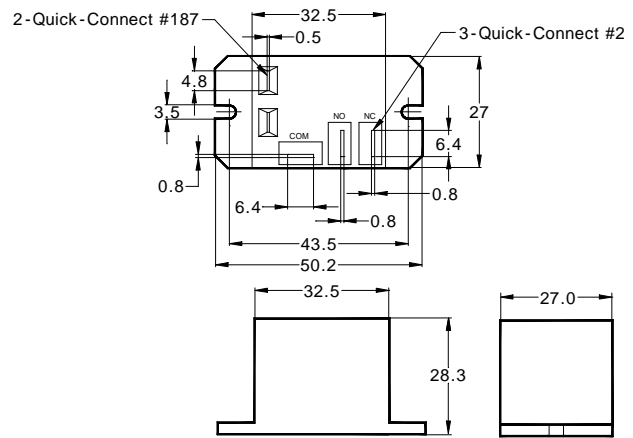
Dimensions (mm)

To convert into inches, multiply by 0.03937

Tab PC Board type



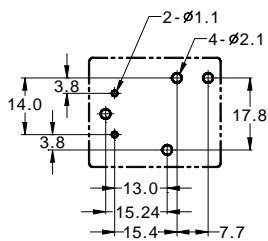
Flange type



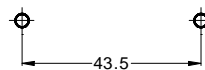
PC Board / Mounting Layout

Copper-side view

Tab PC Board type



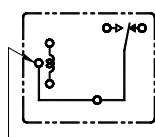
Flange type



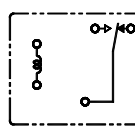
Schematic

Copper-side view

Tab PC Board type



Flange type



Note: This terminal present with terminal code W

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Contact data

Arrangement	1Form A (SPST) to 1Form C (SPDT)	
Contact material	Ag Alloy	
Initial contact resistance	50m Ω	
Rated load, resistive	Standard	K type
	NO: 30A 30VDC 30A 240VAC NC: 20A 30VDC 20A 240VAC	NO: 40A 30VDC 40A 240VAC NC: 30A 30VDC 30A 240VAC
Maximum carry current	30A	40A
Maximum switching capacity	with DC voltage: with AC voltage:	900W 7,200VA
Maximum switching voltage	110VDC 240VAC	

Coil data

Nominal voltage	3VDC to 110VDC / 110VAC to 220VAC	
Nominal power consumption ¹⁾	900mW, 600mW, 1.4VA approx.	
Operate voltage ²⁾	DC Coil:	75% of nominal voltage
	AC Coil:	80% of nominal voltage
Release voltage ³⁾	DC Coil:	10% of nominal voltage
	AC Coil:	30% of nominal voltage
Maximum coil temperate	130 $^{\circ}$ C class B 155 $^{\circ}$ C class F	


^{1).}, ^{2).}, ^{3.)}The values depend on coil voltage, see Part selection chart

General data

Operate time	10ms max. at nominal voltage	
Release time	8ms max. at nominal voltage	
Initial insulation resistance	1,000 M Ω min. (at 500VDC)	
Dielectric strength	Between open contacts:	1,500VAC _{rms} for 1 minute
	Between contacts and coil:	2,500VAC _{rms} for 1 minute
Expected life	Mechanical:	More than 10,000,000 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	-55 $^{\circ}$ C to +100 $^{\circ}$ C (with no icing)	
Humidity	45% to 85% RH	
Weight	27g (Open-frame type) approx. 30g (Sealed-cover type) approx. 33g (Tab PC Board type, Flange type) approx.	

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Part number description



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Contact arrangement
 A: SPST (NO)
 B: SPST (NC)
 C: SPDT

Contact ratings
 None: 30A(NO), 20A(NC)
 K: 40A(NO), 30A(NC)

Mounting & Terminal
 None: PC Board - Open frame type
 S: PC Board - Sealed cover type
 T: PC Board - Quick connect type
 B: Flange - Quick connect type

Terminal (see schematic)
 None: 1 common terminal-No common terminal between coil terminals
 W: 2 common terminals-Common terminal between coil terminal
 Note: no common terminal between coil terminals for UL 873 applications

Coil temperature
 None: class B 130 °C
 F: class F 155 °C

Coil voltage
 DC003: 3VDC DC015: 15VDC
 DC005: 5VDC DC018: 18VDC AC110: 110VAC
 DC006: 6VDC DC024: 24VDC AC220: 220VAC
 DC009: 9VDC DC048: 48VDC
 DC012: 12VDC DC110: 110VDC

Coil sensitivity
 None: Standard (0.9W, 1.4VA)
 H: High sensitive (0.6W) - 30A contact type only

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

Fill in the code to the part number by selecting them from the part number description

Part number	Nominal voltage (V)	Coil resistance (Ω ±10%)	Nominal current (mA)	Must operate voltage (V)	Must release voltage (V)	Max voltage (V)	Nominal power (mW, mVA)
Standard DC coil							
HR85□□□□DC003	3	10	300	2.25	0.3	3.9	900
HR85□□□□DC005	5	28	180	3.75	0.5	6.5	
HR85□□□□DC006	6	40	150	4.5	0.6	7.8	
HR85□□□□DC009	9	90	100	6.75	0.9	11.7	
HR85□□□□DC012	12	160	75	9.0	1.2	15.6	
HR85□□□□DC015	15	250	60	11.25	1.5	19.5	
HR85□□□□DC018	18	360	50	13.5	1.8	23.4	
HR85□□□□DC024	24	640	37.5	18.0	2.4	31.2	
HR85□□□□DC048	48	2,560	18.75	36.0	4.8	62.4	
HR85□□□□DC110	110	13,445	8.18	82.5	11.0	143	

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Part number	Nominal voltage (V)	Coil resistance ($\Omega \pm 10\%$)	Nominal current (mA)	Must operate voltage (V)	Must release voltage (V)	Max voltage (V)	Nominal power (mW, mVA)
Sensitive DC coil							
HR85□□□□□DC003H	3	15	200	2.25	0.3	3.9	600
HR85□□□□□DC005H	5	42	120	3.75	0.5	6.5	
HR85□□□□□DC006H	6	60	100	4.5	0.6	7.8	
HR85□□□□□DC009H	9	135	66.6	6.75	0.9	11.7	
HR85□□□□□DC012H	12	240	50	9.0	1.2	15.6	
HR85□□□□□DC015H	15	375	40	11.25	1.5	19.5	
HR85□□□□□DC018H	18	540	33.3	13.5	1.8	23.4	
HR85□□□□□DC024H	24	960	25	18.0	2.4	31.2	
HR85□□□□□DC048H	48	3,840	12.5	36.0	4.8	62.4	
HR85□□□□□DC110H	110	20,167	5.45	82.5	11.0	143	
Standard AC coil							
HR85□□□□□AC110	110	—	12.0	88.0	33	121	1,400
HR85□□□□□AC220	220	—	6.0	176.0	66	242	

Note: All values in the chart are measured at 23℃