RJ Series Relays

Features

- Compact size:
  Blade: 12.7 x 27 x 28.8 mm
  PCB: 12.7 x 25.5 x 28.8 mm
- Contact rating:
  Blade: 8A (DPDT), 12A (SPDT)
  PCB: 8A (DPDT & DPST-NO), 12A (SPDT & SPST-NO), 16A (SPDT & SPST-NO)
- Operational life:
  200K cycles at full resistive AC load;
  50 million cycles, no load
- Blade model has optional green, non-polarized LED
- RoHS compliant

Specifications

			Blade Models		PCB Models		
			RJ1S	RJ2S	RJ1V	RJ1V (High Capacity)	RJ2V
General Information	No. of poles		1	2	1	1	2
	Contact Configuration		SPDT	DPDT	SPDT, SPST-NO		DPDT, DPST-NO
	Contact Rating		12A	8A	12A	16A	8A
	Contact Material		AgNi		AgNi	AgSnIn	AgNi
	Enclosure Ratings		–		Flux protection		
	Contact Resistance		50 milliohms max		50 milliohms max[Note 1]		
	Operating Time		15ms max		15ms max[Note 2]		
	Release Time		10ms max		10ms max[Note 2]		
	Dielectric Strength	Between contact & coil	5,000V AC, 1 minute		5,000V AC, 1 minute		
		Between contacts of same poles	1,000V AC, 1 minute		1,000V AC, 1 minute		
		Between contacts of different poles	–	3,000V AC, 1 min.	–		3,000V AC, 1 min.
	Vibration Resistance	Damage limits	10-55Hz, amplitude 0.75mm		10-55Hz, amplitude 0.75mm		
		Operating extremes	10-55Hz, amplitude 0.75mm		10-55Hz, amplitude 0.75mm		
	Shock Resistance	Damage limits	100m/s² min (10G)		NO contact: 200m/s² (20G) NC contact: 100m/s² (10G)		
		Operating extremes	1,000m/s² min (100G)		1,000m/s² min (100G)		
	Mechanical Life	AC	30,000,000 operations		30,000,000 operations		
		DC	50,000,000 operations		50,000,000 operations		
	Electrical Life @ Full Rated Load	AC	200,000 operations		200,000 operations		
		DC	100,000 operations		100,000 operations		
	Operating Temperature		-40 to 70° C		-40 to 70° C[Note 3]		
	Operating Humidity		5 to 85% RH		5 to 85% RH		
	Dimensions (H x W x D mm)		12.7 x 27 x 28.8		12.7 x 25.5 x 28.8		
	Weight (Approx.)		19g		SPDT: 17g, SPST-NO: 16g		DPDT: 17g, DPST-NO: 16g

Notes:
1. Measured using 5V DC, 1A voltage drop method.
2. Measured at the rated voltage (at 20°C), excluding contact bounce time.
3. 100% rated voltage.

Ordering Information

Blade Models

R J ☐ S - C ☐ - ☐

Contact Configuration	Options	Coil Voltage
1 - SPDT 2 - DPDT	Blank - Standard L - LED	D12 - 12V DC D24 - 24V DC D48 - 48V DC D100 - 100-110V DC A24 - 24V AC A120 - 120V AC A240 - 240V AC

PCB Models

R J ☐ V - ☐ ☐ - ☐

Number of Poles	Contact Configuration	Contact Configuration	Coil Voltage
1 - SP (Single Pole) 2 - DP (Double Pole)	C - FORM C (DT Double Throw) A - FORM A (ST Single Throw)	Blank - Standard H - High Capacity Type (RJ1 only)	D5 - 5V DC D6 - 6V DC D12 - 12V DC D24 - 24V DC D48 - 48V DC D100 - 100-110V DC A24 - 24V AC A120 - 120V AC A240 - 240V AC

Specifications con't on following page

Contact Ratings

	Type			Contact	Allowable Contact Power		Rated Load			Allowable Switching Current	Allowable Switching Voltage	Minimum Applicable Load
					Resistive Load	Inductive Load	Voltage	Resistive Load	Inductive Load cos_=0.3 L/R=7ms			
Contact Ratings	Blade Models	1 pole		NO	AC3000V	AC1875VA	250V AC	12A	7.5A	6A	AC250V DC30V	DC5V 100mA
				NC	AC3000V	AC1875VA	250V AC	12A	7.5A	6A/3A		
		2 poles		NO	AC2000V	AC1000VA	250V AC	8A	4A	4A	AC250V DC30V	DC5V 100mA
				NC	AC2000V	AC1000VA	250V AC	8A	4A	4A/2A		
	PCB Models	1 pole	Standard Type	NO	AC3000V	AC1875VA	AC250V	12A	7.5A	12A	AC250V DC125V	DC5V 100mA
					DC360W	DC180W	DC30V	12A	6A			
				NC	AC3000V	AC1875VA	AC250V	12A	7.5A			
					DC180W	DC90W	DC30V	6A	3A			
			High Capacity Type	NO	AC4000V	AC2000VA	AC250V	16A	8A	16A	AC250V DC125V	DC5V 100mA
					DC480W	DC240W	DC30V	16A	8A			
				NC	AC4000V	AC2000VA	AC250V	16A	8A			
					DC240W	DC120W	DC30V	8A	4A			
		2 poles		NO	AC2000V	AC1000VA	AC250V	8A	4A	8A	AC250V DC125V	DC5V 10mA
					DC240W	DC120W	DC30V	8A	4A			
				NC	AC2000V	AC1000VA	AC250V	8A	4A			
					DC120W	DC60W	DC30V	4A	2A			

Coil Ratings

		Rated Voltage		Coil Voltage Code	Rated Current (mA) ±15% (at 20°C)				Coil Resistance (ohms)±10% (at 20°C)	Operating Characteristics[2]			Power Consumption
					Without LED[1]		With LED[1]			Minimum Pickup Voltage	Dropout Voltage	Maximum Allowable Voltage[3]	
					50Hz	60Hz	50Hz	60Hz					
Coil Ratings	AC	Blade & PCB Models	24V	A24	43.9	37.5	47.5	41.1	243	80% max	30% min	140%	0.9VA (60Hz)
			120V	A120	8.8	7.5	8.7	7.4	6,400				
			240V	A240	4.3	3.7	4.3	3.7	25,570				
	DC	Blade Models	12V	D12	44.2		48.0		271	70% max	10% min	170%	0.53W
			24V	D24	22.1		25.7		1,080				
			48V	D48	11.0		10.7		4,340				
			100-110V	D100	5.3 - 5.8		5.2 - 5.7		18,870			160%	
		PCB Models	5V	D5	106		–		47.2	70% max	10% min	170%	0.53-0.64W
			6V	D6	88.3		–		67.9				
			12V	D12	44.2		–		271				
			24V	D24	22.1		–		1,080				
			48V	D48	11.0		–		4,340				
			100-110V	D100	5.3 - 5.8		–		18,870			160%	

Notes:
1. LED Indicator is only available on Blade relays.
2. Operating characteristics are against rated values at 20°C.
3. The maximum allowable voltage is the maximum value which can be applied to the relay coils.

Accessories

Socket Part Numbers

	Relay Type	Socket Type	Socket Part Number
Blade Models	RJ1S (Std)	DIN Rail Standard	SJ1S-05B
		DIN Rail Fingersafe	SJ1S-07L
		PCB Mount	SJ1S-61
	RJ1S-☐H (HC), RJ2S	DIN Rail Standard	SJ2S-05B
		DIN Rail Fingersafe	SJ2S-07L
		PCB Mount	SJ2S-61
PCB Models	RJ1V (Std)	DIN Rail Fingersafe	SQ1V-07B*
		PCB Mount	SQ1V-63
	RJ1V-☐H (HC), RJ2V	DIN Rail Fingersafe	SQ2V-07B*
		PCB Mount	SQ2V-63

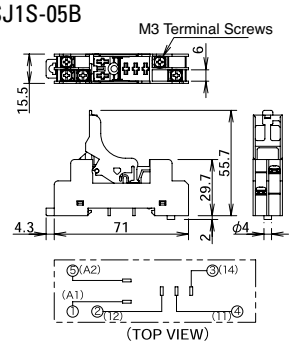
*Hold-down clip or spring must be removed to use with RJ relays.

Socket Specifications

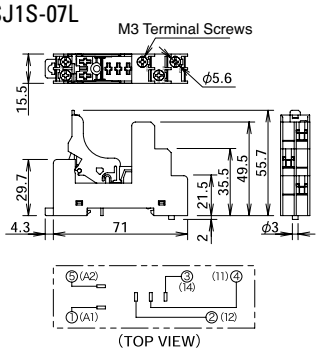
		SJ1S	SJ2S
Specifications	Rated Insulation Voltage	250V AC/DC	
	Applicable Wire	Max up to 2 - #14 AWG	
	Applicable Crimping Terminal	$2mm^2$ x 2	
	Screw Size	M3 Slotted-Phillips screw	
	Weight	30g	34g

Socket Dimensions - for Blade Relays (mm)

SJ1S-05B



SJ1S-07L



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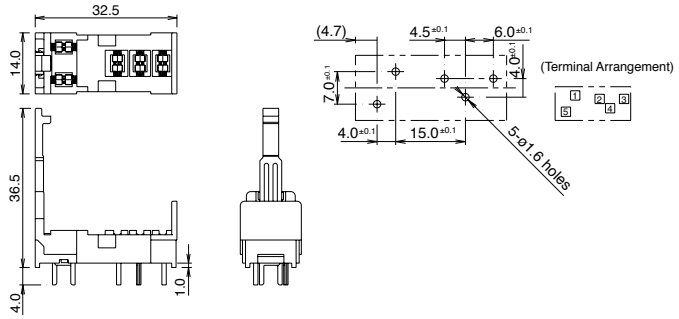

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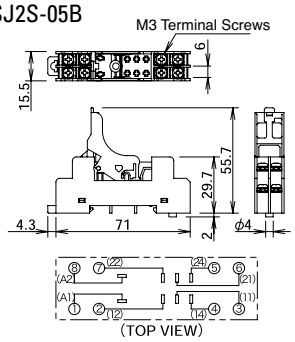

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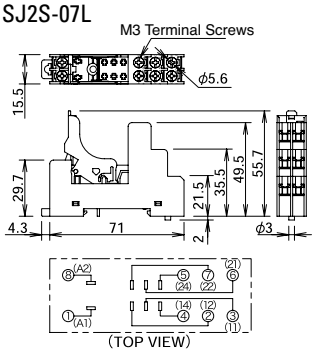

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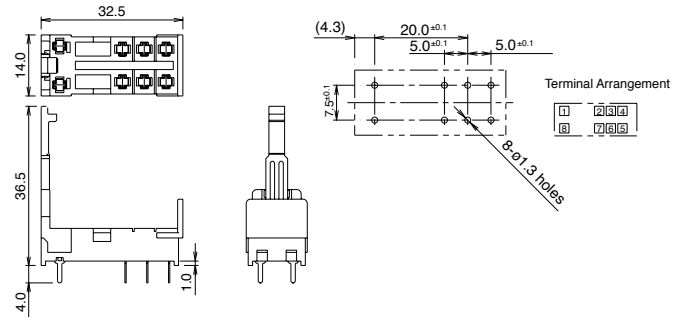
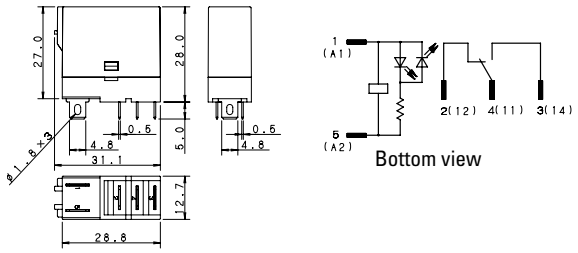
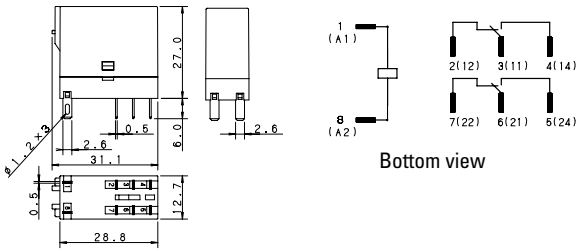


Blade Relay Dimensions (mm)

RJ1S

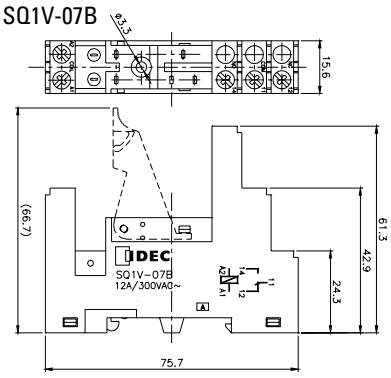


RJ2S



SQ Socket Dimensions - for PCB Relays (mm)

SQ1V-07B



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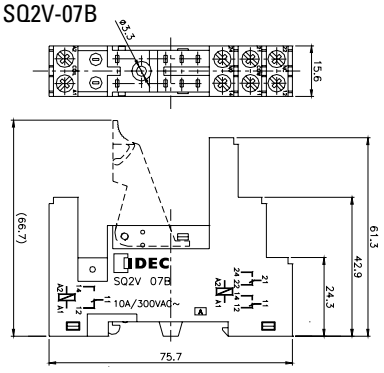

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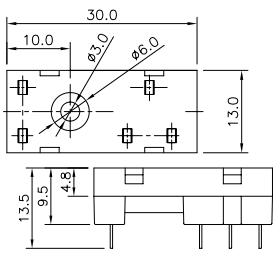
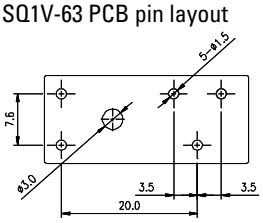


SQ1V-63 PCB pin layout



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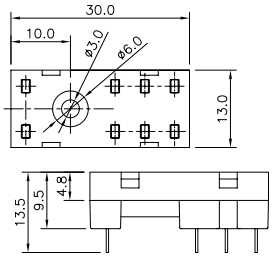
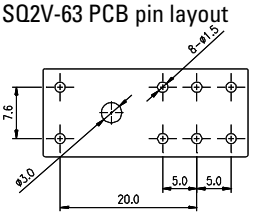


SQ2V-63 PCB pin layout

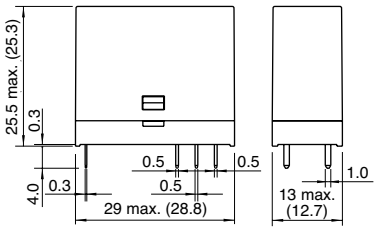


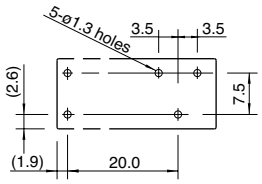
PCB Relay Dimensions (mm)

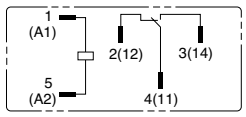
PCB Mounting Hole Layout
(Bottom View)

PCB Internal Circuit Diagrams
(Bottom View)

RJ1V-C-*
SPDT







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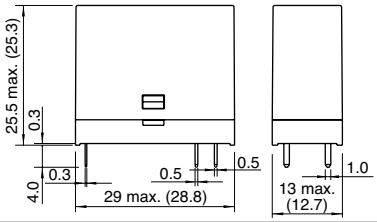
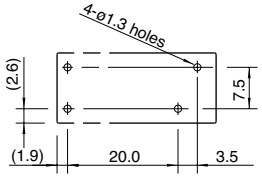
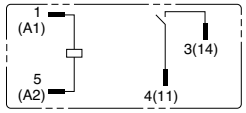
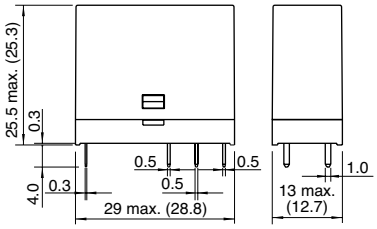
SPST-NO

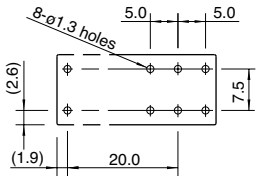


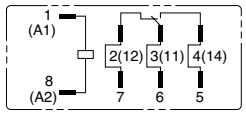




RJ1V-CH-*
SPDT
High Capacity







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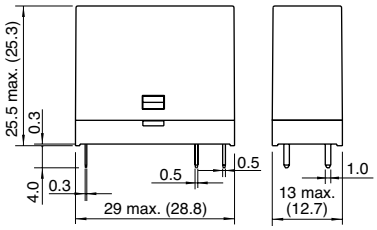
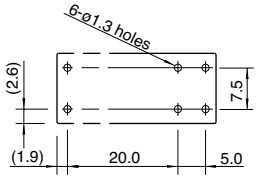
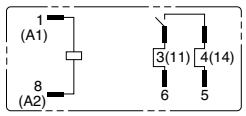
High Capacity







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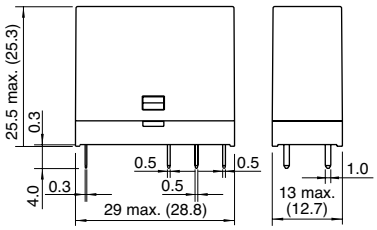
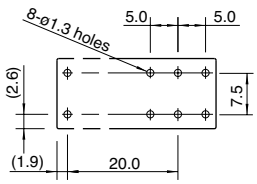
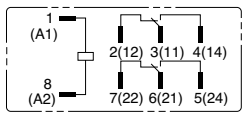
DPDT







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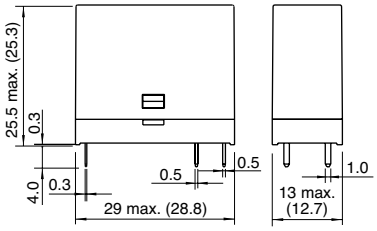
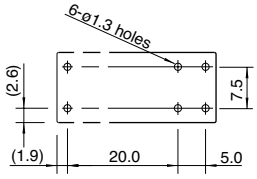
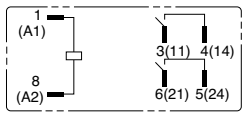
DPST-NO







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