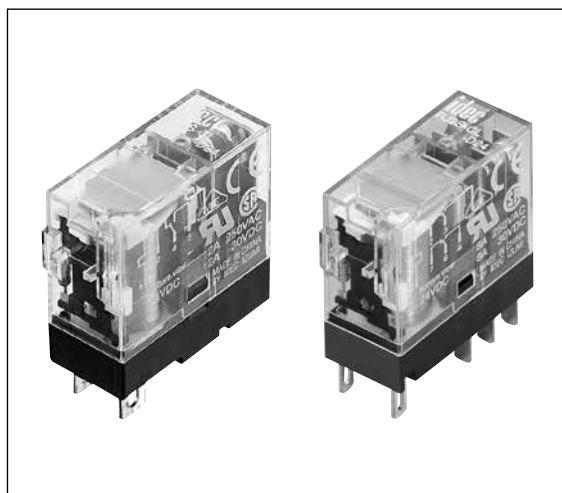


# RJ series Slim Power Relays

## Compact and rugged power relays. Large switching capacity.

- Compact housing only 12.7-mm wide.  
Large contact rating  
RJ1S (1-pole): 12A  
RJ2S (2-pole): 8A
- Non-polarized LED indicator available. IDEC's unique light guide structure enables high visibility of coil status from any direction.
- Excellent electrical and mechanical life.  
Electrical life: 200,000 operations (AC load)  
Mechanical life: 30 million operations (AC coil)
- Environmentally friendly, RoHS directive compliant (EU directive 2002/95/EC). Contains no lead, cadmium, mercury, hexavalent chromium, PBB or PBDE).
- Diode type  
Diode reverse withstand voltage: 1000V
- UL recognized, CSA certified, EN compliant.
- Lloyd Register type approved.



Applicable Standards	Mark	Certification Organization / File No.
UL508		UL recognized, File No. E55996
CSA C22.2 No. 14		CSA File No. LR35144
EN61810-1		VDE No. 40015055
		EU Low Voltage Directive

### Plug-in Terminal

Style	1-pole (SPDT)		2-pole (DPDT)	
	Part No.	Code	Part No.	Code
Standard (with LED Indicator)	<b>RJ1S-CL-*</b>	A12 D5 A24 D6 A110 D12 A120 D24	<b>RJ2S-CL-*</b>	A12 D5 A24 D6 A110 D12 A120 D24
Simple (without LED Indicator)	<b>RJ1S-C-*</b>	A220 D48 A230 D100 A240	<b>RJ2S-C-*</b>	A220 D48 A230 D100 A240
With diode (DC coil only) (with LED indicator) A1: -, A2: +	<b>RJ1S-CLD-*</b>	D12 D24 D48 D100	<b>RJ2S-CLD-*</b>	D12 D24 D48 D100
With diode (DC coil only) A1: -, A2: +	<b>RJ1S-CD-*</b>		<b>RJ2S-CD-*</b>	
With diode (DC coil only) (with LED indicator) A1: +, A2: -	<b>RJ1S-CLD1-*</b>		<b>RJ2S-CLD1-*</b>	
With diode (DC coil only) A1: +, A2: -	<b>RJ1S-CD1-*</b>		<b>RJ2S-CD1-*</b>	
With RC (with LED indicator)	<b>RJ1S-CLR-*</b>	A12 A24	<b>RJ2S-CLR-*</b>	A12 A24
With RC (without LED indicator)	<b>RJ1S-CR-*</b>	A110 A220	<b>RJ2S-CR-*</b>	A110 A220

### Coil Voltage Code \*

Code	Rated Coil Voltage
A12	12V AC
A24	24V AC
A110	110V AC
A120	120V AC
A220	220V AC
A230	230V AC
A240	240V AC
D5	5V DC
D6	6V DC
D12	12V DC
D24	24V DC
D48	48V DC
D100	100-110V DC

Note: Specify a coil voltage code in place of \* in the Part No.

Note: Coil voltages other than shown above are available (ex. A115, A230, A240)

### Contact Ratings

No. of Poles	Contact	Allowable Contact Power		Rated Load			Allowable Switching Current	Allowable Switching Voltage	Minimum Applicable Load (Note)
		Resistive Load	Inductive Load	Voltage	Resistive Load	Inductive Load cos $\phi$ = 0.3 L/R = 7 ms			
1	NO	3000VA AC 360W DC	1875VA AC 180W DC	250V AC	12A	7.5A	12A	250V AC 125V DC	5V DC, 100 mA (reference value)
				30V DC		6A			
	NC	3000VA AC 180W DC	1875VA AC 90W DC	250V AC	12A	7.5A			
				30V DC		3A			
2	NO	2000VA AC 240W DC	1000VA AC 120W DC	250V AC	8A	4A	8A	250V AC 125V DC	5V DC, 10 mA (reference value)
				30V DC		4A			
	NC	2000VA AC 120W DC	1000VA AC 60W DC	250V AC	8A	4A			
				30V DC		2A			

Note: Measured at operating frequency of 120 operations per minute.  
Failure rate level P, 1/10,000,000 (reference value) (JIS C5003)

## Approved Ratings

Voltage	UL				CSA								VDE			
	Resistive				Resistive				Inductive				Resistive		AC-15, DC-13 (Note)	
	RJ1		RJ2		RJ1		RJ2		RJ1		RJ2		RJ1	RJ2	RJ1	RJ2
	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NO	NO	NO
250V AC	12A	12A	8A	8A	12A	12A	8A	8A	7.5A	7.5A	4A	4A	12A	8A	6A	3A
30V DC	12A	6A	8A	4A	12A	6A	8A	4A	6A	3A	4A	2A	12A	8A	2.5A	2A

Note: According to the utilization categories of IEC60947-5-1

## Coil Ratings

Rated Voltage	Coil Voltage Code	Without LED Indicator				With LED Indicator				Operating Characteristics (against rated values at 20°C)			Power Consumption
		Rated Current (mA) ±15% (at 20°C)		Coil Resistance (Ω) ±10% (at 20°C)	Rated Current (mA) ±15% (at 20°C)		Coil Resistance (Ω) ±10% (at 20°C)	Minimum Pickup Voltage	Dropout Voltage	Maximum allowable voltage (Note)			
		50 Hz	60 Hz		50 Hz	60 Hz							
AC 50/60 Hz	12V AC	A12	87.3	75.0	62.5	91.1	78.8	62.5	80% maximum	30% minimum	140%	Approx. 0.9 VA (60Hz)	
	24V AC	A24	43.9	37.5	243	47.5	41.1	243					
	110V AC	A110	9.6	8.2	5270	9.5	8.1	5270					
	120V AC	A120	8.8	7.5	6400	8.7	7.4	6400					
	220V AC	A220	4.8	4.1	21530	4.8	4.1	21530					
	230V AC	A230	4.6	3.9	24100	4.6	3.9	24100					
	240V AC	A240	4.3	3.7	25570	4.3	3.7	25570					
DC	5V	D5	106		47.2	110		47.2	70% maximum	10% minimum	170%	Approx. 0.53W	
	6V	D6	88.3		67.9	92.2		67.9					
	12V	D12	44.2		271	48.0		271					
	24V	D24	22.1		1080	25.7		1080					
	48V	D48	11.0		4340	10.7		4340					
	100-110V	D100	5.3-5.8		18870	5.2-5.7		18870					

Note: Maximum allowable voltage is the maximum voltage that can be applied to relay coils.

## Specifications

Model	RJ1S		RJ2S	
Number of Poles	1-pole		2-pole	
Contact Configuration	SPDT		DPDT	
Contact Material	Silver-nickel alloy			
Degree of Protection	IP40			
Contact Resistance (initial value) (*1)	50 mΩ maximum			
Operate Time (*2)	15 ms maximum			
Release Time (*2)	10 ms maximum (with diode: 20 ms maximum)			
Dielectric Strength	Between contact and coil		5000V AC, 1 minute	
	Between contacts of the same pole		1000V AC, 1 minute	
	Between contacts of different poles		3000V AC, 1 minute	
Vibration Resistance	Operating extremes		10 to 55 Hz, amplitude 0.75 mm	
	Damage limits		10 to 55 Hz, amplitude 0.75 mm	
Shock Resistance	Operating extremes		NO contact: 200 m/s <sup>2</sup> , NC contact: 100 m/s <sup>2</sup>	
	Damage limits		1000 m/s <sup>2</sup>	
Electrical Life (rated load)	AC load: 200,000 operations minimum (operation frequency 1800 operations per hour) DC load: 100,000 operations minimum (operation frequency 1800 operations per hour)			
Mechanical Life (no load)	AC coil: 30,000,000 operations minimum (operation frequency 18,000 operations per hour) DC coil: 50,000,000 operations minimum (operation frequency 18,000 operations per hour)			
Operating Temperature (*3)	-40 to +70°C (no freezing)			
Operating Humidity	5 to 85% RH (no condensation)			
Weight (approx.)	19g			

Note: Above values are initial values.

\*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.

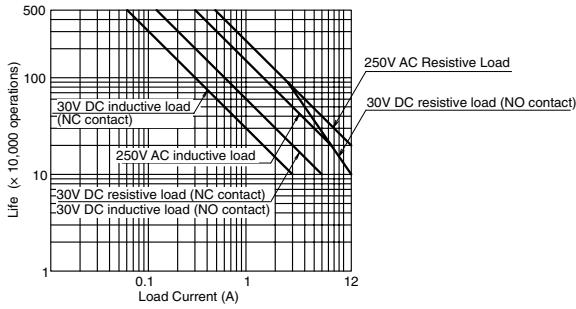
## Applicable Socket

Terminal	Part No.		Page
	RJ1S (1-pole)	RJ2S (2-pole)	
Standard Screw Terminal	<b>SJ1S-05B</b>	<b>SJ2S-05B</b>	66
Finger-safe Screw Terminal	<b>SJ1S-07L</b>	<b>SJ2S-07L</b>	

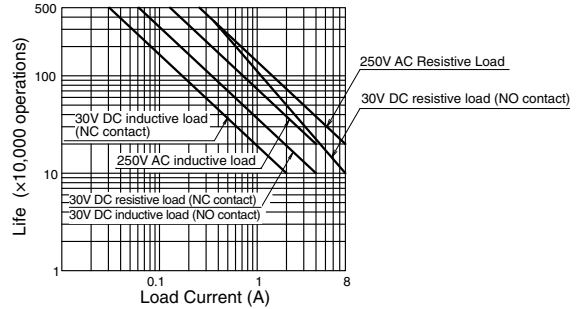


## Electrical Life Curve

### RJ1 (resistive load)

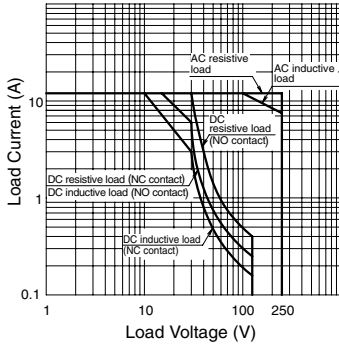


### RJ2 (resistive load)

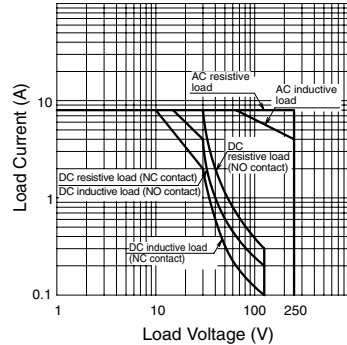


## Maximum Switching Capacity

### RJ1 (resistive load)

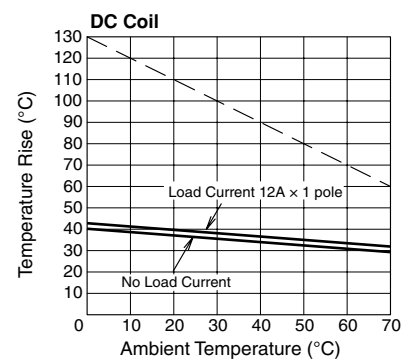
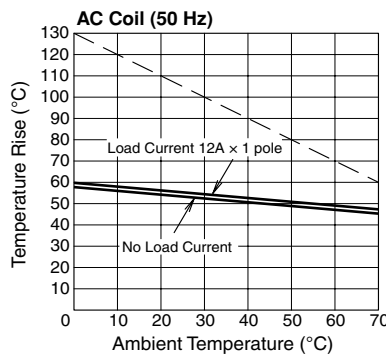
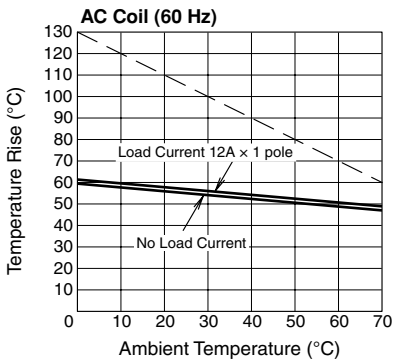


### RJ2 (resistive load)

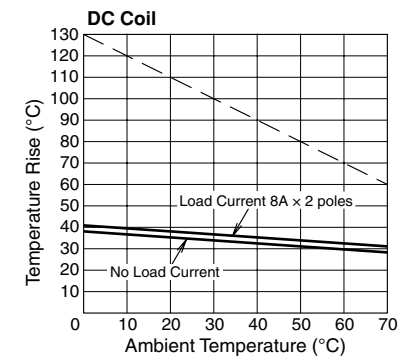
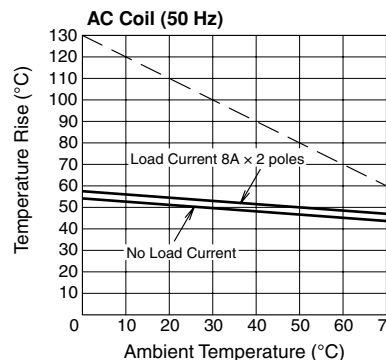
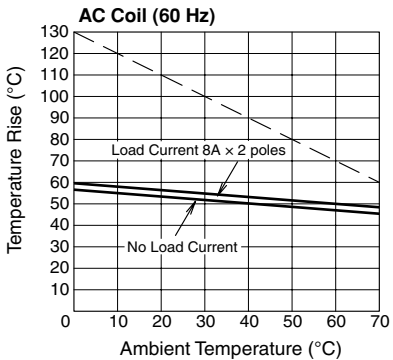


## Operating Temperature and Coil Temperature Rise

### RJ1



### RJ2



The above temperature rise curves show characteristics when 100% the rated coil voltage is applied. The slanted dashed line indicates allowable temperature rise for the coil at different ambient temperatures.

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