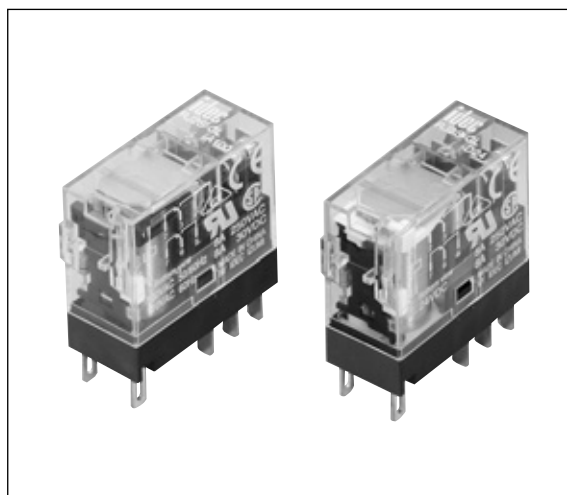


RJ series Slim Power Relays

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)	RJ1S-CL-*	A12 D5 A24 D6 A110 D12	RJ2S-CL-*	A12 D5 A24 D6 A110 D12
Simple (without LED Indicator)	RJ1S-C-*	A120 D24 A220 D48 A230 D100 A240	RJ2S-C-*	A120 D24 A220 D48 A230 D100 A240
With diode (DC coil only) (with LED indicator) A1: -, A2: +	RJ1S-CLD-*	D12 D24 D48 D100	RJ2S-CLD-*	D12 D24 D48 D100
With diode (DC coil only) A1: -, A2: +	RJ1S-CD-*		RJ2S-CD-*	
With diode (DC coil only) (with LED indicator) A1: +, A2: -	RJ1S-CLD1-*		RJ2S-CLD1-*	
With diode (DC coil only) A1: +, A2: -	RJ1S-CD1-*		RJ2S-CD1-*	
With RC (with LED indicator)	RJ1S-CLR-*	A12 A24	RJ2S-CLR-*	A12 A24
With RC (without LED indicator)	RJ1S-CR-*	A110 A220	RJ2S-CR-*	A110 A220

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

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.

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 ϕ = 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	12A	6A			
	NC	3000VA AC 180W DC	1875VA AC 90W DC	250V AC	12A	7.5A			
				30V DC	6A	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	8A	4A			
	NC	2000VA AC 120W DC	1000VA AC 60W DC	250V AC	8A	4A			
				30V DC	4A	2A			

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

Flush Silhouette
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Display Lights
LED Illumination Units
Display Units
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Power Supplies
PLCs & SmartRelay
Operator Interfaces
Sensors
Control Stations
Explosion Protection
References

RJ Series Slim Power Relays

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 Continuous Applied 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			160%	

Note: Maximum continuous applied voltage is the maximum voltage that can be applied on 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	5000V AC, 1 minute
	Between contacts of the same pole	1000V AC, 1 minute	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 ² , NC contact: 100 m/s ²	
	Damage limits	1000 m/s ²	
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.

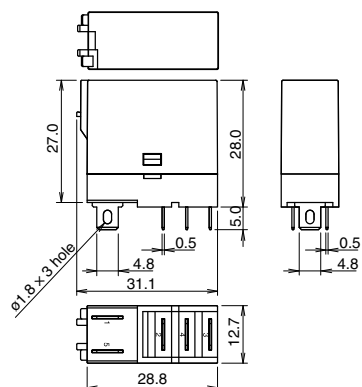
Applicable Socket

Terminal	Part No.		Page
	RJ1S (1-pole)	RJ2S (2-pole)	
Standard Screw Terminal	SJ1S-05B	SJ2S-05B	1292
Finger-safe Screw Terminal	SJ1S-07L	SJ2S-07L	

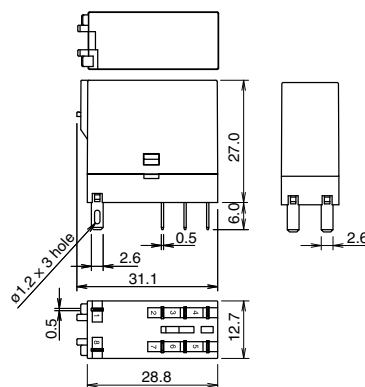
RJ Series Slim Power Relays

Dimensions

RJ1S



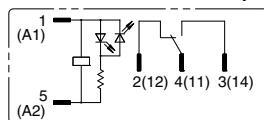
RJ2S-CL



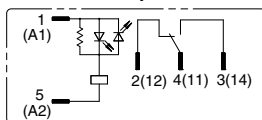
All dimensions in mm.

Internal Connection Diagrams

RJ1S-CL-* Standard (w/LED Indicator)

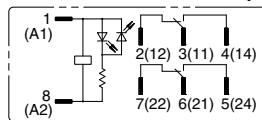


Coil voltage 24V AC/DC and below

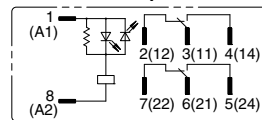


Coil voltage greater than 24V AC/DC

RJ2S-CL-* Standard (w/LED Indicator)

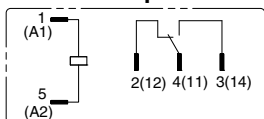


Coil voltage 24V AC/DC and below

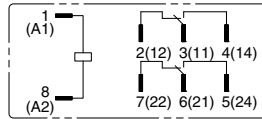


Coil voltage greater than 24V AC/DC

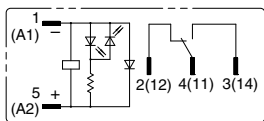
RJ1S-C-* Simple



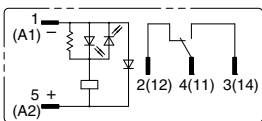
RJ2S-C-* Simple



RJ1S-CLD-* With Diode (w/LED Indicator)

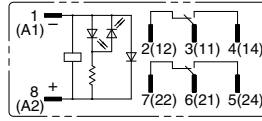


Coil voltage 24V DC and below

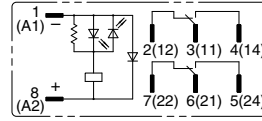


Coil voltage greater than 24V DC

RJ2S-CLD-* With Diode (w/LED Indicator)

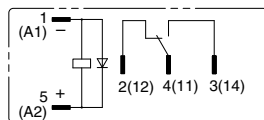


Coil voltage 24V DC and below

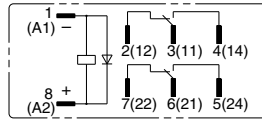


Coil voltage greater than 24V DC

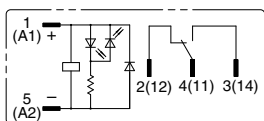
RJ1S-CD-* With Diode



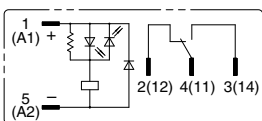
RJ2S-CD-* With Diode



RJ1S-CLD1-* With Diode (w/LED Indicator)

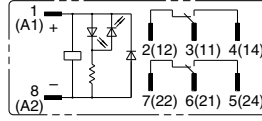


Coil voltage 24V DC and below

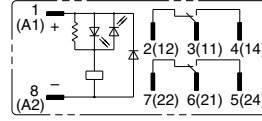


Coil Voltage greater than 24V DC

RJ2S-CLD1-* With Diode (w/LED Indicator)

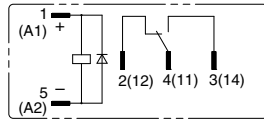


Coil voltage 24V DC and below

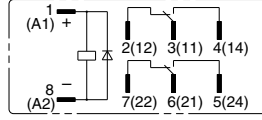


Coil voltage greater than 24V DC

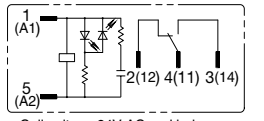
RJ1S-CD1-* With Diode



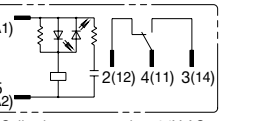
RJ2S-CD1-* With Diode



RJ1S-CLR-* With RC (w/LED Indicator)

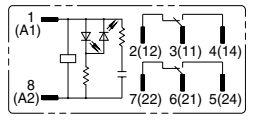


Coil voltage 24V AC and below

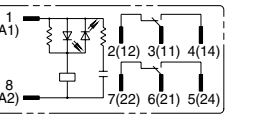


Coil voltage greater than 24V AC

RJ2S-CLR-* With RC (w/LED Indicator)

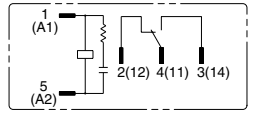


Coil voltage 24V AC and below

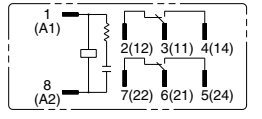


Coil voltage greater than 24V AC

RJ1S-CR-* With RC



RJ2S-CR-* With RC

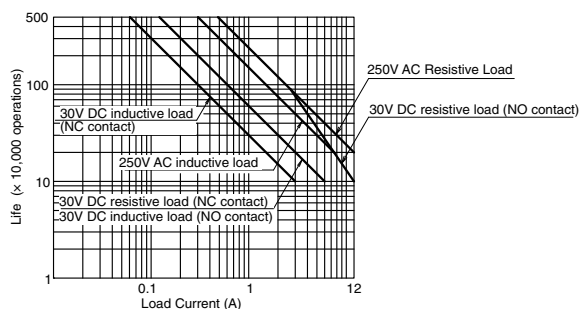


Flush Silhouette
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Sockets
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Power Supplies
PLCs & SmartRelay
Operator Interfaces
Sensors
Control Stations
Explosion Protection
References

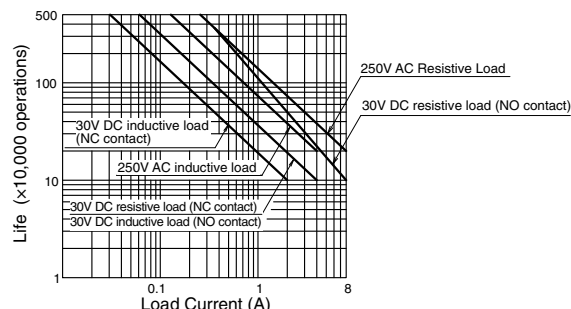
RJ Series Slim Power Relays

Electrical Life Curve

RJ1 (resistive load)

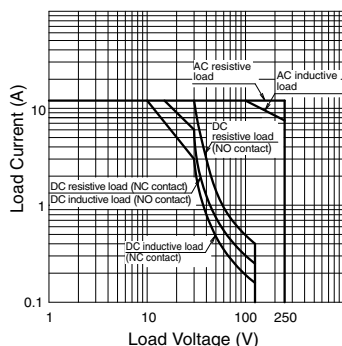


RJ2 (resistive load)

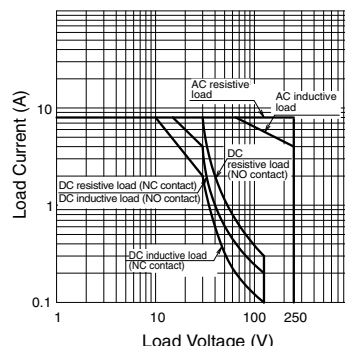


Maximum Switching Capacity

RJ1 (resistive load)

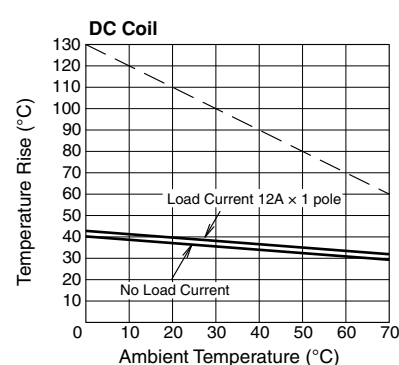
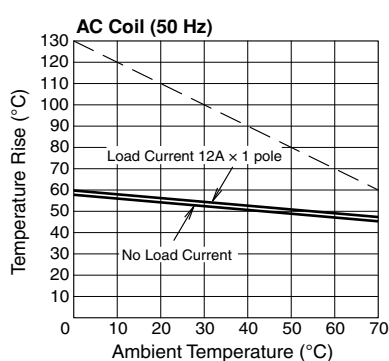
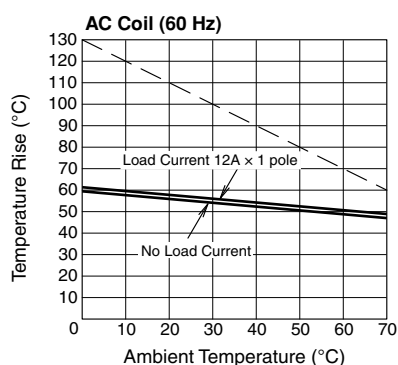


RJ2 (resistive load)

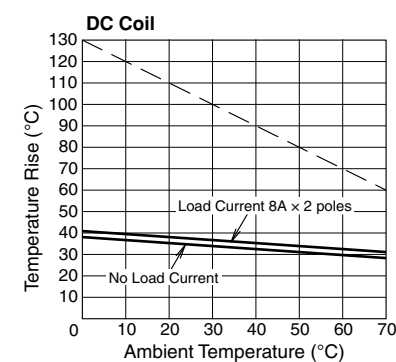
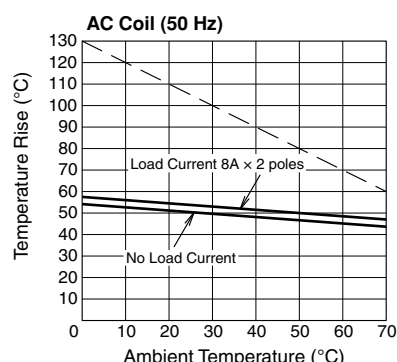
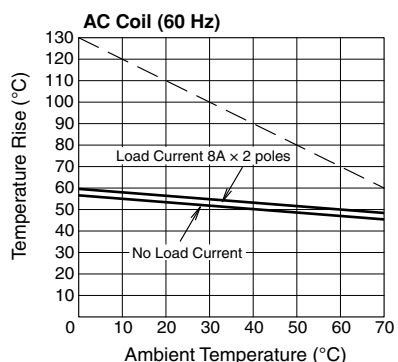


Operating Temperature and Coil Temperature Rise

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.

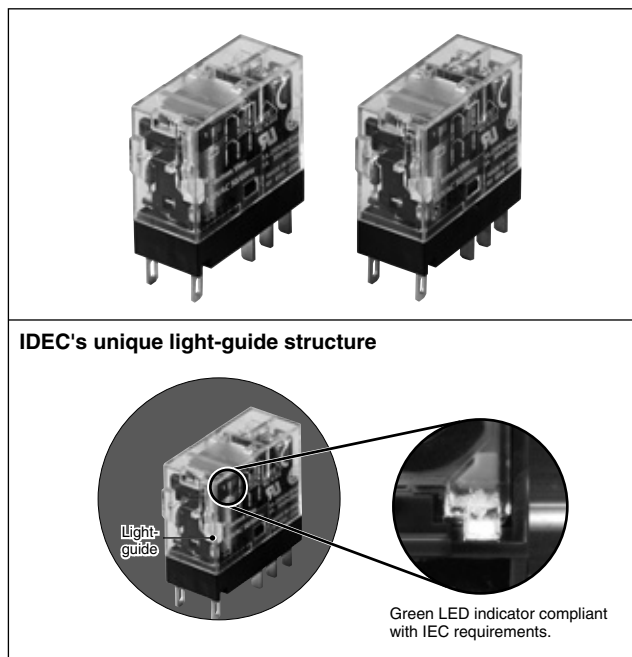
RJ Series Slim Power Relay Plug-in Terminal (bifurcated contacts)

High contact reliability with bifurcated contacts (minimum applicable load: 1V DC, 100 μ A)

- The smallest width for 2-pole/bifurcated contacts relay (based on IDEC research as of April 2011)
- Non-polarized green LED indicator available (except for simple type)
- IDEC's unique light-guide structure enables an RJ relay to be identified by the illuminating LED.
- Diode, reverse polarity diode, and RC circuits are available.
- Peak inverse voltage is 1000V.
- UL recognized, CSA certified, VDE approved, EN compliant.

Applicable Standards

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



Relays

Bifurcated Contacts

Style	2-pole (bifurcated contacts DPDT)	
	Part No.	Coil Voltage Code
Standard (with LED indicator)	RJ22S-CL-*	A12, A24, A110, A115, A120, A220, A230, A240, D5, D6, D12, D24, D48, D100
Simple (without LED indicator)	RJ22S-C-*	
With diode (with LED indicator)	RJ22S-CLD-*	
With diode (without LED indicator)	RJ22S-CD-*	
With diode Reverse polarity (with LED indicator)	RJ22S-CLD1-*	
With diode Reverse polarity (without LED indicator)	RJ22S-CD1-*	
With RC circuit (with LED indicator)	RJ22S-CLR-*	A12, A24, A110, A115, A120, A220, A230, A240
With RC circuit (without LED indicator)	RJ22S-CR-*	

Coil Voltage Code

Code	Voltage
A12	12V AC
A24	24V AC
A110	110V AC
A115	115V 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

Contact Ratings

Allowable Contact Power		Rated Load			Allowable Switching Current	Allowable Switching Voltage	Minimum Applicable Load (Note)
Resistive Load	Inductive Load	Voltage	Resistive Load	Inductive Load $\cos\phi=0.4$ L/R=7ms			
250VA AC 30W DC	100VA AC 15W DC	250V AC	1A	0.4A	1A	250V AC 125V DC	1V DC 100 μ A (reference value)
		30V DC	1A	0.5A			

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

Flush Silhouette
Switches & Pilot Lights
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References

RJ Series Slim Power Relay Plug-in Terminal (bifurcated contacts)

Ratings

Voltage	UL Ratings				CSA Ratings						VDE Ratings	
	Resistive		General Use		Resistive		Inductive		General Use		Resistive	
	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC
250V AC	—	—	1A	1A	—	—	—	—	1A	1A	1A	1A
30V DC	1A	1A	—	—	1A	1A	1A	1A	—	—	1A	1A

Coil Ratings

Rated Voltage (V)		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)	Pickup Voltage (initial value)	Dropout Voltage (initial value)	Maximum Continuous Applied Voltage (Note)	
			50Hz	60Hz		50Hz	60Hz					
AC 50/60 Hz	12V	A12	87.3	75.0	62.5	91.1	78.8	62.5	80% maximum	30% minimum	140%	Approx. 1.1VA (50Hz) 0.9 to 1.2VA (60Hz)
	24V	A24	43.9	37.5	243	47.5	41.1	243				
	110V	A110	9.6	8.2	5,270	9.5	8.1	5,270				
	115V	A115	9.1	7.8	6,030	9.0	7.7	6,030				
	120V	A120	8.8	7.5	6,400	8.7	7.4	6,400				
	220V	A220	4.8	4.1	21,530	4.8	4.1	21,530				
	230V	A230	4.6	3.9	24,100	4.6	3.9	24,100				
	240V	A240	4.3	3.7	25,570	4.3	3.7	25,570				
DC	5V	D5	106		47.2	110		47.2	70% maximum	10% minimum	170%	Approx. 0.53 to 0.64W
	6V	D6	88.3		67.9	92.2		67.9				
	12V	D12	44.2		271	48.0		271				
	24V	D24	22.1		1,080	25.7		1,080				
	48V	D48	11.0		4,340	10.7		4,340				
	100-110V	D100	5.3-5.8		18,870	5.2-5.7		18,870			160%	

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

Specifications

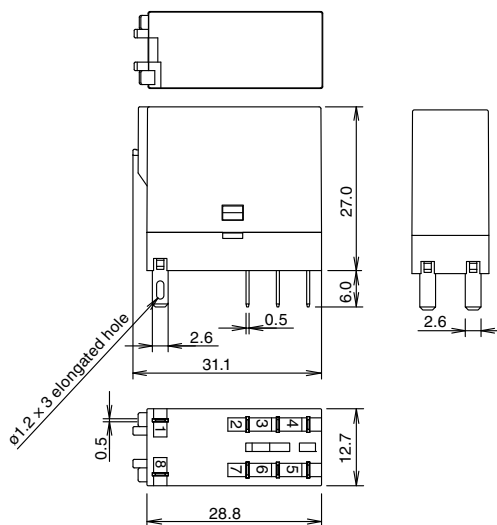
Model	RJ22S	
Number of Poles	2-pole	
Contact Configuration	DPDT (bifurcated contacts)	
Contact Material	AgNi (gold clad)	
Degree of Protection	IP40	
Contact Resistance (initial value)	50 mΩ maximum (measured using 5V DC, 1A voltage drop method)	
Operating Time (at 20°C)	15 ms maximum (at the rated coil voltage, excluding contact bounce time) With diode or RC: 20 ms maximum	
Release Time (at 20°C)	10 ms maximum (at the rated coil voltage, excluding contact bounce time) With diode or RC: 20 ms maximum	
Impulse Withstand Voltage	10,000V AC (between contact and coil)	
Insulation Resistance	100 MΩ minimum (500V DC megger)	
Dielectric Strength	Between contact and coil	5,000V AC, 1 minute
	Between contacts of the same pole	1,000V AC, 1 minute
	Between contacts of the different poles	3,000V 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 ² , NC contact: 100 m/s ²
	Damage Limits	1,000 m/s ²
Electrical Life	AC load: 100,000 operations minimum (operating frequency 1,800 per hour) DC load: 200,000 operations minimum (operating frequency 1,800 per hour)	
Mechanical Life	AC load: 10 million operations minimum (operating frequency 18,000 operations per hour) DC load: 20 million operations minimum (operating frequency 18,000 operations per hour)	
Operating Temperature (100% rated voltage)	-40 to +70°C (no freezing)	
Operating Humidity	5 to 85% RH (no condensation)	
Storage Temperature	-40 to +85°C (no freezing)	
Storage Humidity	5 to 85% RH (no condensation)	
Weight (approx.)	19g	

Applicable Sockets

Style	Part No.	Ordering No.	Package Quantity
Standard Screw Terminal	SJ2S-05B	SJ2S-05B	1
Finger-safe Screw Terminal	SJ2S-07L	SJ2S-07L	1
PC Board Terminal	SJ2S-61	SJ2S-61PN10	10
	SJ2S-61	SJ2S-61PN50	50

RJ Series Slim Power Relay Plug-in Terminal (bifurcated contacts)

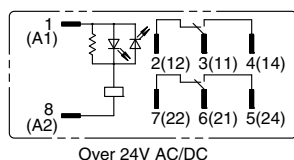
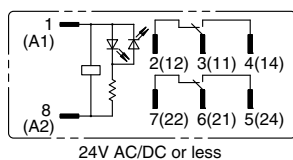
Dimensions



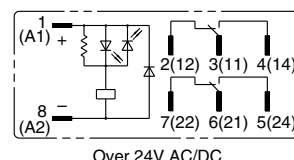
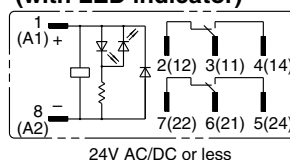
All dimensions in mm.

Internal Connection (bottom view)

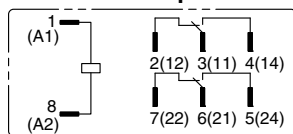
RJ22S-CL-* Standard (with LED indicator)



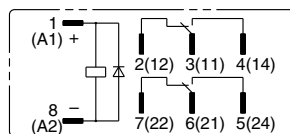
RJ22S-CLD1-* With diode/reverse polarity (with LED indicator)



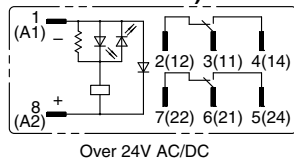
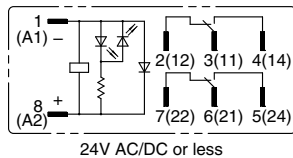
RJ22S-C-* Simple



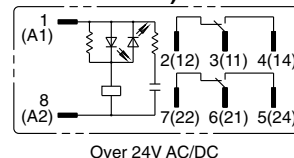
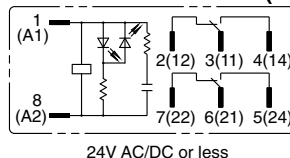
RJ22S-CD1-* With diode/reverse polarity



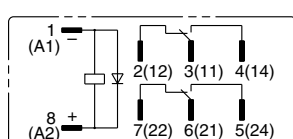
RJ22S-CLD-* With diode (with LED indicator)



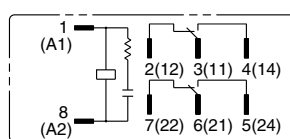
RJ22S-CLR-* With RC (with LED indicator)



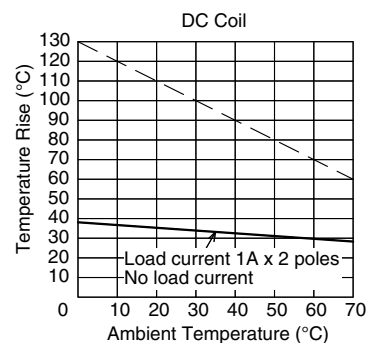
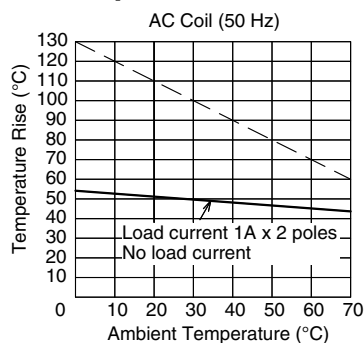
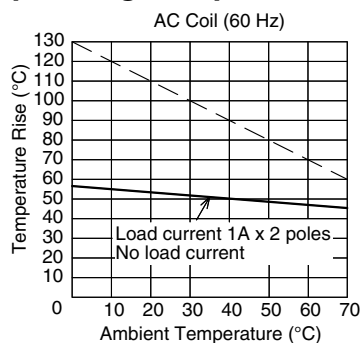
RJ22S-CD-* With diode



RJ22S-CR-* With RC



Operating Temperature and Coil Temperature Rise



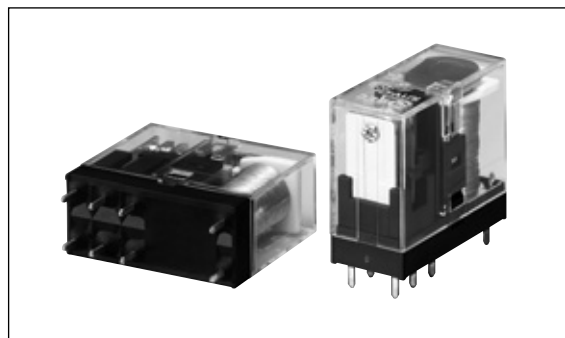
- The slanted dashed line indicates the allowable temperature rise for the coil at different ambient temperatures.
- The above temperature rise curves show the characteristics when 100% of the rated coil voltage is applied.

Flush Silhouette
Switches & Pilot Lights
Display Lights
LED Illumination Units
Display Units
Safety Products
Terminal Blocks
Comm. Terminals
AS-Interface
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Circuit Protectors
Power Supplies
PLCs & SmartRelay
Operator Interfaces
Sensors
Control Stations
Explosion Protection
References

RJ Series Slim Power Relays PC Board Terminal

Compact power relays. High switching capacity up to 16A.

- Contact configurations:
SPDT, SPST-NO, DPDT, DPST-NO.
SPDT, SPST-NO are available in high capacity type.
- Compact housing—only 12.7-mm wide.
- High contact rating
RJ1V (1-pole): 12A, 16A
RJ2V (2-pole): 8A
- IDEC's unique spring return mechanism ensures long electrical and mechanical life.
Electrical life: 200,000 operations (AC load)
Mechanical life: 30 million operations (AC coil, SPDT, DPDT)
- Flux-tight structure
- Environmentally friendly, RoHS directive compliant (EU directive 2002/95/EC). Contains no lead, cadmium, mercury, hexavalent chromium, PBB, or PBDE).



Standard	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

PC Board Terminal

No. of Poles	Style	Contact	Part No.	Coil Voltage Code	Package Quantity
1	Plain	SPDT	RJ1V-C-*	Specify a coil voltage code in place of * in the Part No. A12 D5 A24 D6 A110 D12 A115 D24 A120 D48 A220 D100 A230 A240	1
		SPST-NO	RJ1V-A-*		
	High Capacity	SPDT	RJ1V-CH-*		
		SPST-NO	RJ1V-AH-*		
2	Plain	DPDT	RJ2V-C-*		1
		DPST-NO	RJ2V-A-*		

Coil Voltage Code *

Code	Rated Coil Voltage
A12	12V AC
A24	24V AC
A110	110V AC
A115	115V 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.

Contact Ratings

No. of Poles	Style	Contact	Allowable Contact Power		Rated Load			Allowable Switching Current	Allowable Switching Voltage	Minimum Applicable Load (reference value)
			Resistive Load	Inductive Load	Voltage	Resistive Load	Inductive Load $\cos \phi = 0.3$ L/R = 7 ms			
1	Plain	NO	3000VA AC 360W DC	1875VA AC 180W DC	250V AC	12A	7.5A	12A	250V AC 125V DC	5V DC, 100 mA
		NC	3000VA AC 180W DC	1875VA AC 90W DC	250V AC	12A	7.5A			
	High Capacity	NO	4000VA AC 480W DC	2000VA AC 240W DC	250V AC	16A	8A	16A	250V AC 125V DC	5V DC, 100 mA
					30V DC	16A	8A			
		NC	4000VA AC 240W DC	2000VA AC 120W DC	250V AC	16A	8A			
					30V DC	8A	4A			
2	Plain	NO	2000VA AC 240W DC	1000VA AC 120W DC	250V AC	8A	4A	8A	250V AC 125V DC	5V DC, 10 mA
					30V DC	8A	4A			
		NC	2000VA AC 120W DC	1000VA AC 60W DC	250V AC	8A	4A			
					30V DC	4A	2A			

RJ Series Slim Power Relays PC Board Terminal

Standard Ratings

UL ratings

Voltage	Resistive					
	RJ1 (plain)		RJ2 (plain)		RJ1 (high capacity)	
	NO	NC	NO	NC	NO	NC
AC250V	12A	6A	8A	4A	16A	8A
30V DC	12A	6A	8A	4A	16A	8A

VDE ratings

Voltage	Resistive			AC-15, DC-13 (Note)	
	RJ1 (plain)	RJ2 (plain)	RJ1 (high capacity)	RJ1 (plain)	RJ2 (plain)
	NO	NO	NO	NO	NO
AC250V	12A	8A	16A	6A	3A
30V DC	12A	8A	16A	2.5A	2A

Note: The operational current represents the classification by making and breaking currents (IEC 60947-5-1.)

CSA ratings

Voltage	Resistive						Inductive					
	RJ1 (plain)		RJ2 (plain)		RJ1 (high capacity)		RJ1 (plain)		RJ2 (plain)		RJ1 (high capacity)	
	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC
AC250V	12A	12A	8A	8A	16A	16A	7.5A	7.5A	4A	4A	8A	8A
30V DC	12A	6A	8A	4A	16A	8A	6A	3A	4A	2A	8A	4A

Coil Ratings

Rated Voltage		Coil Voltage Code	Rated Current (mA) ±15% (at 20°C)		Coil Resistance (Ω) ±10% (at 20°C)	Operating Characteristics (against rated values at 20°C)			Power Consumption
			50 Hz	60 Hz		Minimum Pickup Voltage (initial value)	Dropout Voltage (initial value)	Maximum Continuous Applied Voltage (Note)	
AC 50/60 Hz	12V	A12	87.3	75.0	62.5	80% maximum	30% minimum	140%	Approx. 1.1 VA (50Hz) Approx. 0.9 to 1.2VA (60Hz)
	24V	A24	43.9	37.5	243				
	110V	A110	9.6	8.2	5270				
	115V	A115	9.1	7.8	6030				
	120V	A120	8.8	7.5	6400				
	220V	A220	4.8	4.1	21530				
	230V	A230	4.6	3.9	24100				
	240V	A240	4.3	3.7	25570				
DC	5V	D5	106		47.2	70% maximum	10% minimum	170%	Approx. 0.53W to 0.64W
	6V	D6	88.3		67.9				
	12V	D12	44.2		271				
	24V	D24	22.1		1080				
	48V	D48	11.0		4340				
	100-110V	D100	5.3-5.8		18870			160%	

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

Specifications

Model		RJ1V Plain	RJ1V High Capacity	RJ2V Plain
Number of Poles		1-pole	1-pole	2-pole
Contact Configuration		SPDT, SPST-NO	SPDT, SPST-NO	DPDT, DPST-NO
Contact Material		Ag-Ni	Ag-Sn-In	Ag-Ni
Enclosure Ratings		Flux-tight		
Contact Resistance (initial value) (*1)		50 mΩ maximum		
Operate Time (*2)		15 ms maximum		
Release Time (*2)		10 ms maximum		
Impulse Withstand Voltage		10,000V (between contact and coil)		
Dielectric Strength	Between contact and coil	5000V AC, 1 minute		5000V AC, 1 minute
	Between contacts of the same pole	1000V AC, 1 minute		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 ² (20G), NC contact: 100 m/s ² (10G)		
	Damage limits	1000 m/s ² (100G)		
Mechanical Life (no load)		AC coil: 30 million operations minimum (SPDT/DPDT, operation frequency 18,000 operations per hour) 10 million operations minimum (SPST-NO/DPST-NO, operation frequency 18,000 operations/h) DC coil: 50 million operations minimum (SPDT/DPDT, operation frequency 18,000 operations per hour) 20 million operations minimum (SPST-NO/DPST-NO, operation frequency 18,000 operations/h)		
Electrical Life (rated load)		AC load: 200,000 operations minimum (operation frequency 1,800 operations per hour) DC load: 100,000 operations minimum (operation frequency 1,800 operations per hour)		
Operating Temperature (*3)		-40 to +70°C (no freezing)		
Operating Humidity		5 to 85% RH (no condensation)		
Weight (approx.)		SPDT: 17g SPST-NO: 16g	SPDT: 17g SPST-NO: 16g	DPDT: 17g DPST-NO: 16g

*1: Measured using 5V DC, 1A voltage drop method.

*2: Measured at the rated voltage (at 20°C), excluding contact bounce time.

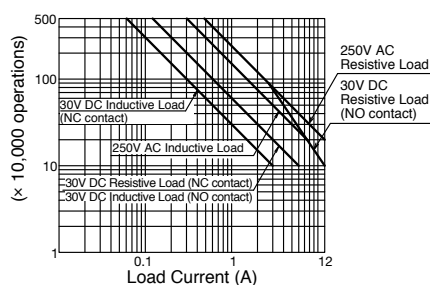
*3: 100% rated voltage.

Flush Silhouette
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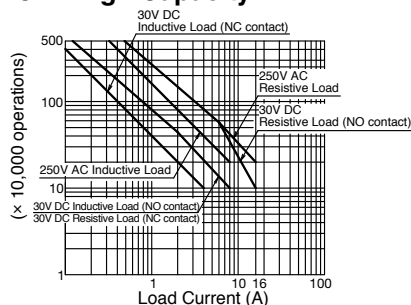
RJ Series Slim Power Relays PC Board Terminal

Electrical Life Curve

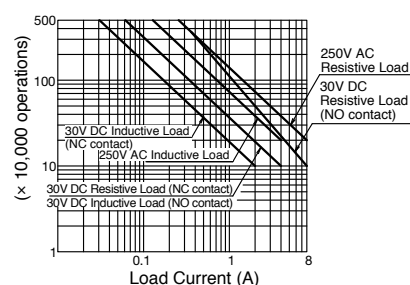
RJ1V Plain



RJ1V High Capacity

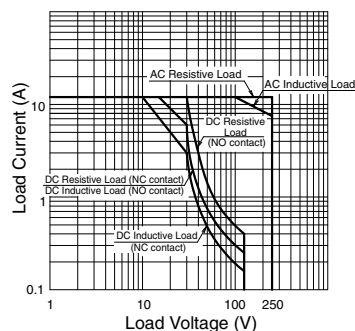


RJ2V Plain

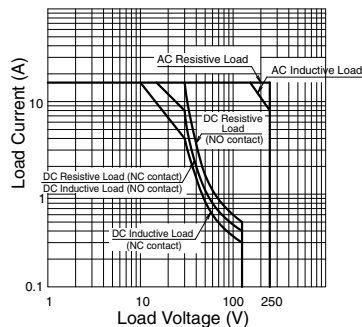


Maximum Switching Current

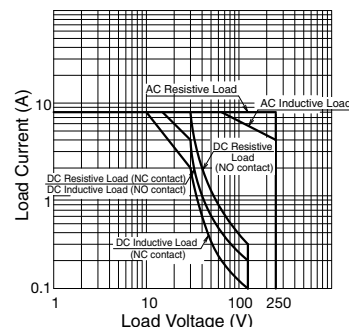
RJ1V Plain



RJ1V High Capacity

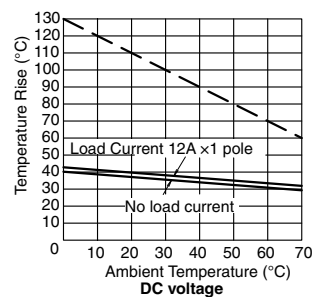
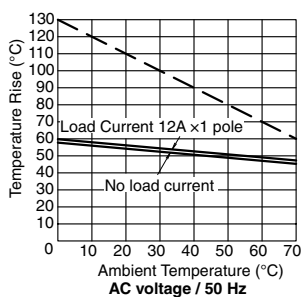
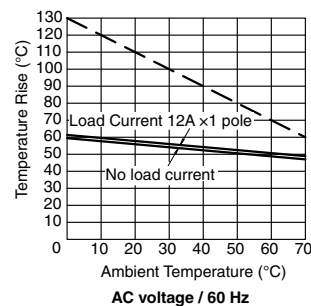


RJ2V Plain

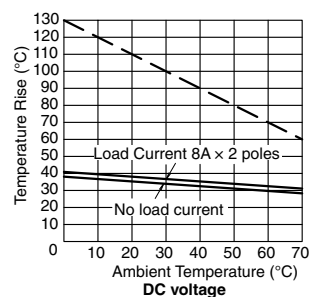
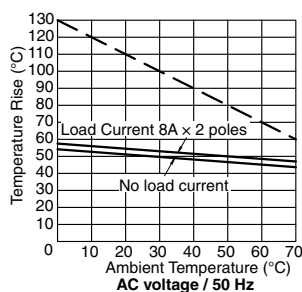
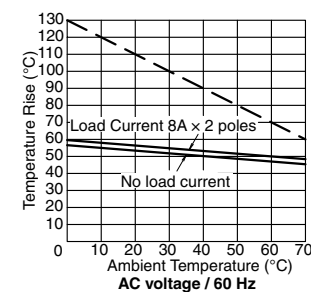


Ambient Temperature vs. Temperature Rise Curves

RJ1V Plain



RJ2V Plain



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

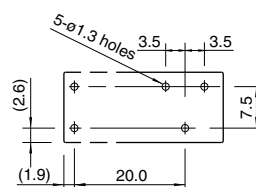
RJ Series Slim Power Relays PC Board Terminal

Dimensions

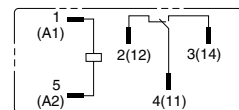
RJ1V-C-* Plain SPDT



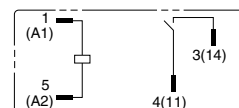
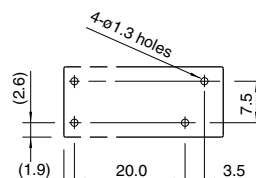
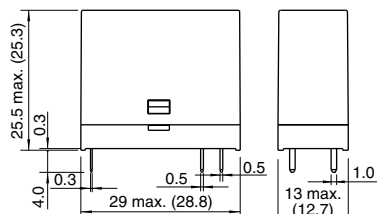
Mounting Hole Layout (Bottom View)



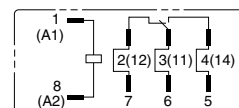
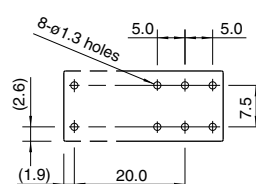
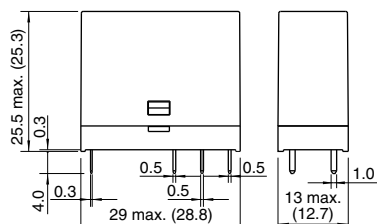
Internal Circuit Diagram (Bottom View)



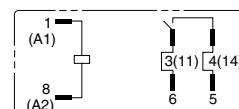
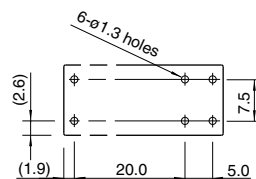
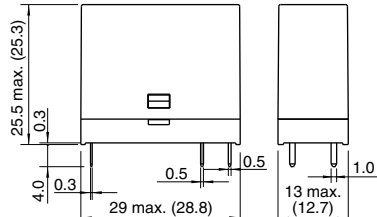
RJ1V-A-* Plain SPST-NO



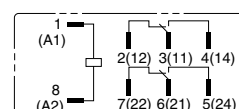
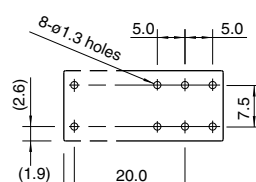
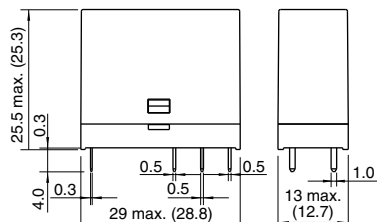
RJ1V-CH-* High Capacity SPDT



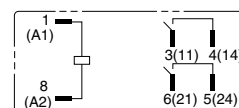
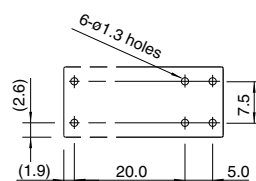
RJ1V-AH-* High Capacity SPST-NO



RJ2V-C-* Plain DPDT



RJ2V-A-* Plain DPST-NO



All dimensions in mm.

Flush Silhouette
Switches & Pilot Lights
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Sensors
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Explosion Protection
References

Instructions

Notes on PC Board Mounting

- When using two or more RJ relays on a PC board, maintain at least 5mm distance between the relays.
- Manual soldering: Use a soldering iron of 60W (350°C), and quickly complete soldering with approximately 3 seconds. Sn-Ag-Cu is recommended when using lead-free solder.
- Auto-soldering: Solder at 250°C within 4 to 5 seconds.
- Because the terminal part is filled with epoxy resin, do not excessively solder or bend the terminal. Otherwise, air tightness will degrade.
- Avoid the soldering iron from touching the relay cover or the epoxy filled terminal part.
- Use a non-corrosive resin flux.

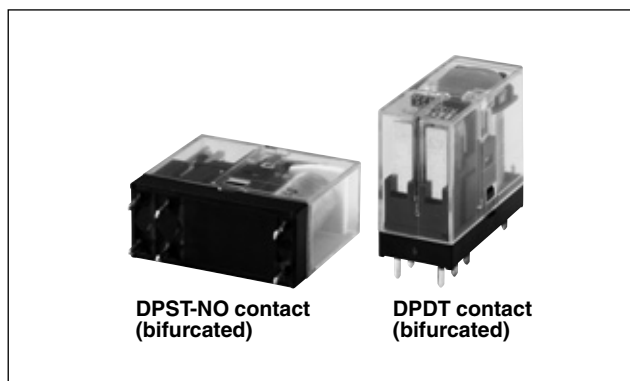
RJ Series Slim Power Relays PC Board Terminal (bifurcated contacts)

High contact reliability with bifurcated contacts (minimum applicable load: 1V DC, 100 μ A)

- DPDT, DPST-NO contacts are available.
- The smallest width for 2-pole/bifurcated contacts relay (based on IDEC research as of April 2011)
- IDEC's unique spring return mechanism ensures long life.
- Flux-tight structure

Applicable Standards

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



Relays

Bifurcated Contacts

Style	Contact	2-pole (bifurcated contacts DPDT)	
		Part No.	Coil Voltage Code
Plain	DPDT	RJ22V-C-*	A12, A24, A110, A115, A120, A220, A230, A240, D5, D6, D12, D24, D48, D100
	DPST-NO	RJ22V-A-*	

Coil Voltage Code

Code	Voltage
A12	12V AC
A24	24V AC
A110	110V AC
A115	115VAC
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

Contact Ratings

Allowable Contact Power		Rated Load			Allowable Switching Current	Allowable Switching Voltage	Minimum Applicable Load (Note)
Resistive Load	Inductive Load	Voltage	Resistive Load	Inductive Load $\cos\phi=0.4$ L/R=7ms			
250VA AC 30W DC	100VA AC 15W DC	250V AC	1A	0.4A	1A	250V AC 125V DC	1V DC 100 μ A (reference value)
		30V DC	1A	0.5A			

Note: Measured at operating frequency of 120 operations per minute (failure rate level P, reference value)

Ratings

Voltage	UL ratings				CSA Ratings						VDE Ratings	
	Resistive		General Use		Resistive		Inductive		General Use		Resistive	
	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC
250V AC	—	—	1A	1A	—	—	—	—	1A	1A	1A	1A
30V DC	1A	1A	—	—	1A	1A	1A	1A	—	—	1A	1A

RJ series Slim Power Relays PC Board Terminal (bifurcated contacts)

Coil Ratings

Rated Voltage (V)		Coil Voltage Code	Rated Current (mA) $\pm 15\%$ (at 20°C)		Coil Resistance (Ω) $\pm 10\%$ (at 20°C)	Operating Characteristics (against rated values at 20°C)			Power Consumption
			50Hz	60Hz		Pickup Voltage (initial value)	Dropout Voltage (initial value)	Maximum Continuous Applied Voltage (Note)	
AC 50/60 Hz	12V	A12	87.3	75.0	62.5	80% maximum	30% minimum	140%	Approx. 1.1VA (50Hz) 0.9 to 1.2VA (60Hz)
	24V	A24	43.9	37.5	243				
	110V	A110	9.6	8.2	5,270				
	115V	A115	9.1	7.8	6,030				
	120V	A120	8.8	7.5	6,400				
	220V	A220	4.8	4.1	21,530				
	230V	A230	4.6	3.9	24,100				
	240V	A240	4.3	3.7	25,570				
DC	5V	D5	106		47.2	70% maximum	10% minimum	170%	Approx. 0.53 to 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%	

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

Specifications

Model		RJ22V
Number of Poles		2-pole
Contact Configuration		DPDT (bifurcated), DPST-NO (bifurcated)
Contact Material		AgNi (gold clad)
Degree of Protection		Flux-tight structure
Contact Resistance (initial value)		50 m Ω maximum (measured using 5V DC, 1A voltage drop method)
Operating Time (at 20°C)		15 ms maximum (at the rated coil voltage, excluding contact bounce time)
Release Time (at 20°C)		10 ms maximum (at the rated coil voltage, excluding contact bounce time)
Insulation Resistance		100 M Ω minimum (500V DC megger)
Impulse Withstand Voltage		10,000V AC (between contact and coil)
Dielectric Strength	Between contact and coil	5,000V AC, 1 minute
	Between contacts of the same pole	1,000V AC, 1 minute
	Between contacts of the different poles	3,000V 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 ² , NC contact: 100 m/s ²
	Damage Limits	1,000 m/s ²
Electrical Life		AC load: 100,000 operations minimum (operating frequency 1,800 per hour) DC load: 200,000 operations minimum (operating frequency 1,800 per hour)
Mechanical Life		AC load: 10 million operations minimum (operating frequency 18,000 operations per hour) DC load: 20 million operations minimum (operating frequency 18,000 operations per hour)
Operating Temperature (100% rated voltage)		-40 to +70°C (no freezing)
Operating Humidity		5 to 85% RH (no condensation)
Storage Temperature		-40 to +85°C (no freezing)
Storage Humidity		5 to 85% RH (no condensation)
Weight (approx.)		DPDT: 17g, DPST-NO: 16g

Flush Silhouette

Switches & Pilot Lights

Display Lights

LED Illumination Units

Display Units

Safety Products

Terminal Blocks

Comm. Terminals

AS-Interface

Relays & Timers

Sockets

Circuit Protectors

Power Supplies

PLCs & SmartRelay

Operator Interfaces

Sensors

Control Stations

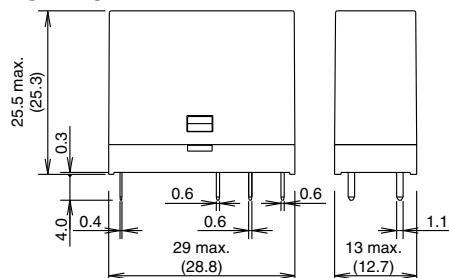
Explosion Protection

References

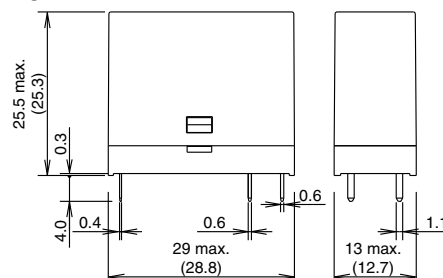
RJ Series Slim Power Relays PC Board Terminal (bifurcated contacts)

Dimensions

RJ22V-C-*

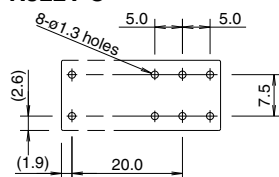


RJ22V-A-*

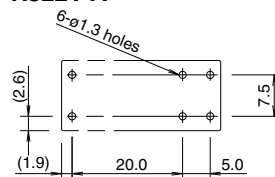


Mounting Hole Layout

RJ22V-C-*



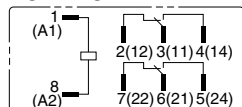
RJ22V-A-*



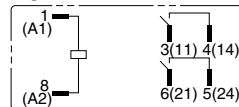
All dimensions in mm.

Internal Circuit Diagram (Bottom View)

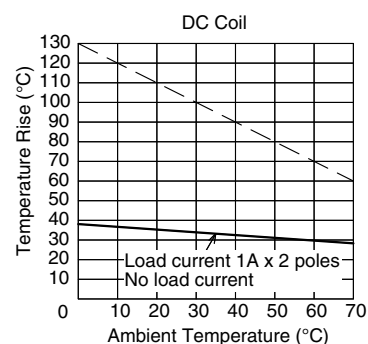
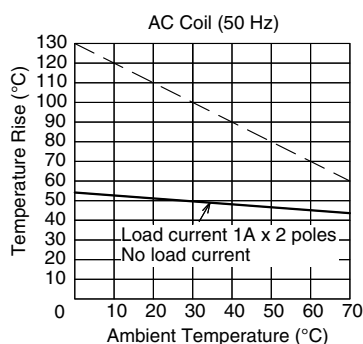
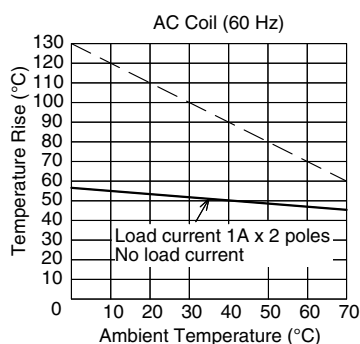
RJ22V-C-*



RJ22V-A-*



Operating Temperature and Coil Temperature Rise



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



Safety Precautions

- Turn off the power to the RJ relay before starting installation, removal, wiring, maintenance, and inspection. Failure to turn power off may cause electrical shock or fire hazard.
- Observe the specifications and rated values, otherwise electrical shock or fire hazard may be caused.
- Use wires of the proper size to meet the voltage and current requirements.
- Tighten terminal screws to a proper tightening torque.