

# Industrial Automation Catalog Section - U906

## Selection Guides

### General Purpose Relays






- RU Series
- RR Series

For up-to-date information, or to request a full copy of this catalog, contact us at **[www.idec.com](http://www.idec.com)** or **800-262-IDEC.**

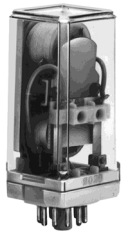


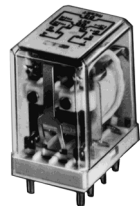
Due to continuous product improvements, specifications are subject to change without notice.

## Selection Guides


### General Purpose Relays

	RU Series		RR Series	RH Series	RM Series	RY Series	
Appearance							
Page	E-3		E-6	E-10	E-16	E-19	
Contact Configuration	2, 4 Form C		1, 2, 3 Form C	1, 2, 3, 4 Form C	2 Form C	2, 4 Form C	
Contact Rating (resistive)	DPDT: 10A, 30V DC 10A, 250V AC 4PDT: 6A, 30V DC 6A, 250V AC		10A, 30V DC 10A, 120V, 240V AC 1/3HP, 240V AC 1/4HP, 120V AC	10A, 30V DC 10A, 120V, 240V AC 1/3HP, 240V AC 1/6HP, 120V AC	5A, 30V DC 5A, 120V AC, 240V AC	DPDT: 3A, 30V DC; 3A, 120V AC, 240V AC 4PDT: 5A, 30V DC; 5A, 120V AC, 240V AC	
Contact Material	DPDT	AuSn0In (silver tin oxide indium)	Silver	Silver-cadmium oxide	Silver	Standard	Silver, gold-plated
	4PDT	AuAg/Ag (gold-silver alloy on silver)				Bifurcated	Silver-palladium alloy (Ag-PD Alloy)

### General Purpose Latching Relays

	RR2KP Series	RH2L Series	RY2KS Series	RY2L Series
Appearance				
Page	E-23	E-26	E-29	E-32
Contact Configuration	2 Form C	2 Form C	2 Form C	2 Form C
Contact Rating (resistive)	10A, 30V DC 10A, 120V AC	10A, 30V DC 7.5A, 240V AC 10A, 120V AC	3A, 30V DC 3A, 120V AC	3A, 30V DC 3A, 120V AC 3A, 240V AC
Contact Material	Silver	Silver-cadmium oxide	Silver, gold-plated	Silver, gold-flashed

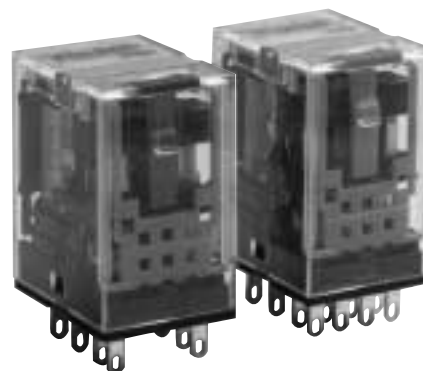
### Solid State Relays

	RSS Series
Appearance	
Page	E-35
Contact Configuration	1 Form A (SPST-NO)
Contact Rating	10, 25, 50, 75, 90A 48V AC to 660V AC Output Ratings
Output	Dual SCR (zero crossing)

## RU Series — General Purpose Relays

Key features of the RU series include:

- Non-polarized LED indicator
- Solder-free construction (lead-free)
- No internal wires
- Mechanical flag indicator
- Manual latching lever with color coding for AC or DC coil
- Snap-on marking plate
- Cadmium-free contacts
- Contact rating 6A: 4PDT  
10A: DPDT



Specifications		RU2	RU4
	Contact Material	AuSn0In (silver tin oxide indium)	AuAg/Ag (gold-silver alloy on silver)
	Contact Resistance	50 mΩ maximum	
	Minimum Applicable Load	24VDC, 5mA (reference value)	
	Operating Time	20 msec maximum	
	Release Time	20 msec maximum	
	Maximum Continuous Applied Voltage (AC/DC) at 20°C	110%	
	Minimum Operating Voltage (AC/DC) at 20°C	80%	
	Drop-Out Voltage (AC) at 20°C	30%	
	Drop-Out Voltage (DC) at 20°C	10%	
	Power Consumption	1.1-1.4VA (AC); 0.9-1.0W (DC)	
	Dielectric Strength	Between contact and coil: 2,500VAC, 1 minute	Between contact and coil: 2,500VAC, 1 minute
		Between poles: 2,500VAC, 1 minute	Between poles: 2,000VAC, 1 minute
	Frequency Response	Between contacts of the same pole: 1,000VAC, 1 minute	Between contacts of the same pole: 1,000VAC, 1 minute
	Vibration Resistance	Operating extremes: 10 to 55Hz, Amplitude 1.0 mm p-p Damage limits: 10 to 55Hz, Amplitude 1.0 mm p-p	
	Shock Resistance	Operating extremes: 150 m/s <sup>2</sup> (15G) Damage limits: 1,000 m/s <sup>2</sup> (100G)	
	Life Expectancy	Mechanical: AC: 20,000,000 operations minimum DC: 30,000,000 operations minimum Electrical: see electrical life curve	
	Degree of Protection	IP40	
	Operating Temperature	-55 to +70°C (no freezing)	
	Weight	35g	



UL Recognized  
File No. E66043



### Ordering Information

Order standard voltages for fastest delivery. Allow extra delivery time for non-standard voltages.

Basic Part No.      Coil Voltage:  
RU4S      -      A110

## Part Numbers

### Part Numbers: RU Series with Options

Termination	Contact Configuration	Basic Part No.
S: Solder/plugin	DPDT	RU2S
	4PDT	RU4S

### Part Numbers: Sockets

Relays	Standard DIN Rail Mount	Finger-Safe DIN Rail Mount	Panel Mount	PC Mount
RU2	SM2S-05	SM2S-05C	SY4S-51	SY4S-61 SY4S-62
RU4	SY4S-05	SY4S-05C	SY4S-51	SY4S-61 SY4S-62

Springs & Clips (optional)	
Part Number	Use With
SY4S-02F1 SFA-101 SFA-202	use with SY4S-05, -05C & SM2S-05, -05C
SFA-301 SFA-302 SY4S-51F1	use with SY4S-51, -61



See Section F for details on sockets. All DIN rail mount sockets shown above can be mounted using DIN rail BNDN1000.

## E

## Ratings

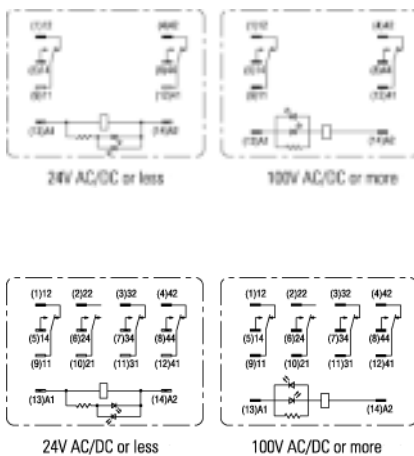
### Coil Ratings

Rated Voltage		Rated Current $\pm 15\%$ at 20°C		Coil Resistance $\pm 10\%$ at 20°C	Inrush Current	Inductance	
		60Hz	50Hz			Energizing	De-Energizing
AC	24V	37.5mA	—	164 $\Omega$	60mA	1.8H	0.96H
	110-120V	8.4mA	—	4,550 $\Omega$	14mA	36H	22H
	220-240V	4.2mA	—	18,230 $\Omega$	7mA	144H	87H
DC	12V	83.3mA		160 $\Omega$	N/A		
	24V	41.7mA		605 $\Omega$			
	110V	9.1mA		12, 100 $\Omega$			

### Contact Ratings

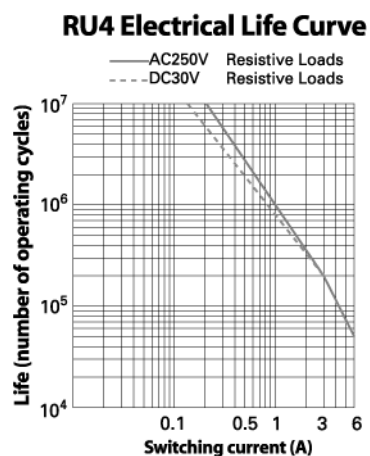
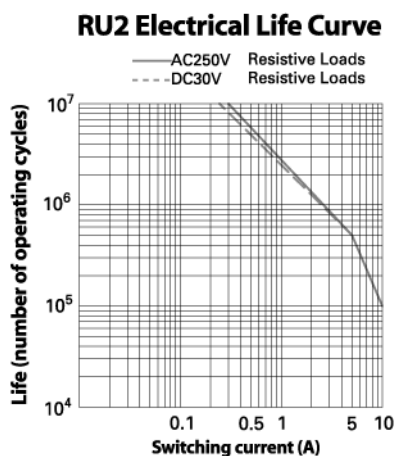
Voltage		Resistive	Inductive
30V DC	DPDT	10A	5A
	4PDT	6A	3A
110V DC	DPDT	0.6A	0.3A
	4PDT	0.4A	0.2A
120V AC	DPDT	10A	5A
	4PDT	6A	3A
240V AC	DPDT	10A	5A
	4PDT	6A	3A

### Internal Circuit



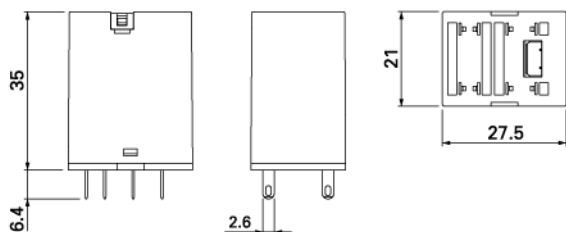
### Electrical Life Curves

**E**

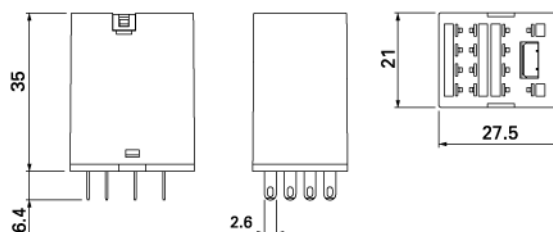


### Dimensions

**RU2 Dimensions**



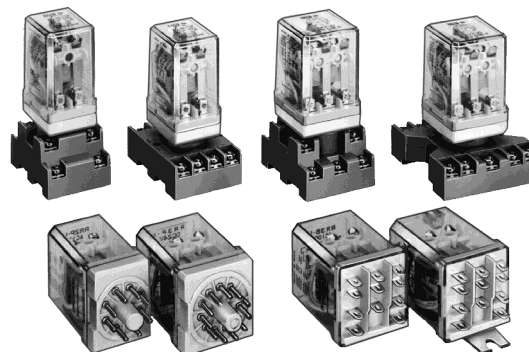
**RU4 Dimensions**



## RR Series — General Purpose Power Relays

Key features of the RR series include:

- High reliability and long service life
- Available in octal (8- and 11-pin) or square (11-blade) base
- Options include check button for test operation, indicator light, and side flange
- DIN rail, surface and panel type sockets available for a wide range of mounting applications



UL Recognized  
File Nos. E67770



CSA Certified  
File No. LR35144



File No. BL95111332319\*  
\* Pin Style Only  
(does not apply to blade style)



\* Pin Style Only

### Ordering Information

Order standard voltages for fastest delivery. Allow extra delivery time for non-standard voltages.

**Basic Part No.**      **Coil Voltage:**  
RR3PA-U      —      AC120V

### Specifications

<b>Contact Material</b>	Silver
<b>Contact Resistance</b>	30mΩ maximum (initial value)
<b>Minimum Applicable Load</b>	24V DC/10mA, 5V DC/20mA (reference value)
<b>Operating Time</b>	25ms maximum
<b>Release Time</b>	25ms maximum
<b>Maximum Continuous Applied Voltage (AC/DC) at 20°C</b>	110% of the rated voltage
<b>Minimum Operating Voltage (AC/DC) at 20°C</b>	80% of the rated voltage
<b>Drop-Out Voltage (AC) at 20°C</b>	30% of the rated voltage
<b>Drop-Out Voltage (DC) at 20°C</b>	15% of the rated voltage
<b>Power Consumption</b>	AC: approximately 3VA (50Hz), 2.5VA (60Hz) DC: approximately 1.5W
<b>Insulation Resistance</b>	100MΩ minimum (measured with 500V DC megger)
<b>Dielectric Strength</b>	<b>Pin</b> (RR2P, RR3PA) Between live and dead parts: 1,500V AC, 1 minute Between contact circuit and operating coil: 1,500V AC, 1 minute Between contact circuits: 1,500V AC, 1 minute (1,000V AC between NO-NC contacts)  <b>Blade</b> (RR1BA, RR2BA, RR3B) Between live and dead parts: 2,000V AC, 1 minute Between contact circuit and operating coil: 2,000V AC, 1 minute Between contact circuits: 2,000V AC, 1 minute Between contacts of same polarity: 1,000V AC, 1 minute
<b>Frequency Response</b>	1,800 operations/hour
<b>Temperature Rise</b>	Coil: 85°C maximum Contact: 65°C maximum
<b>Vibration Resistance</b>	0 to 6G (55Hz maximum)
<b>Shock Resistance</b>	100N (approximately 10G)
<b>Life Expectancy</b>	Electrical: over 500,000 operations (120V, 50/60Hz, 10A) Mechanical: over 10,000,000 operations
<b>Operating Temperature</b>	−30 to +70°C
<b>Weight</b>	RR2P: 90g, RR3P/RR3PA: 96g (approximately) RR1BA/RR2BA/RR3B: 82g (approximately)

## Part Numbers

### Part Numbers: RR Series with Options

Termination	Contact Configuration	Basic Part No.	Indicator Light	Check Button	Light and Check Button	Side Flange
P, PA (pin)	DPDT	RR2P-U	RR2P-UL	RR2P-UC	RR2P-ULC	—
	3PDT	RR3PA-U	RR3PA-UL	RR3PA-UC	RR3PA-ULC	—
B, BA (blade)	SPDT	RR1BA-U	RR1BA-UL	RR1BA-UC	RR1BA-ULC	RR1BA-US
	DPDT	RR2BA-U	RR2BA-UL	RR2BA-UC	RR2BA-ULC	RR2BA-US
	3PDT	RR3B-U	RR3B-UL	RR3B-UC	RR3B-ULC	RR3B-US



1. RR1BA, RR2BA, and RR3PA are U.S. standard terminal arrangements.
2. For diode option on DC coils please consult factory.

## Ratings

### Coil Ratings

Rated Voltage		Rated Current ±15% at 20°C		Coil Resistance ±10% at 20°C	Inrush Current	Inductance	
		60Hz	50Hz			Energizing	De-Energizing
AC	6V	420mA	490mA	4.9Ω	720mA	0.04H	0.02H
	12V	210mA	245mA	18Ω	365mA	0.15H	0.08H
	24V	105mA	121mA	79Ω	182mA	0.57H	0.32H
	120V	20.5mA	24mA	2100Ω	35mA	15H	8.2H
	240V	10.5mA	12.1mA	8330Ω	18mA	57H	32H
DC	6V	240mA		25Ω	N/A		
	12V	120mA		100Ω			
	24V	60mA		400Ω			
	48V	30mA		1600Ω			
	110V	13mA		8460Ω			

E

### Contact Ratings

Voltage	Resistive			Inductive			Motor Load
	Nominal	UL	CSA	Nominal	UL	CSA	UL
30V DC	10A	10A	10A	7.5A	7A	7.5A	—
110V DC	0.5A	—	—	0.3A	—	0.5A	—
120V AC	10A	10A	10A	7.5A	7.5A	7.5A	1/4 hp
240V AC	7.5A	10A	10A	5A	7A	7A	1/3 hp



Inductive load:  
 $\cos \phi = 0.3$ ,  $L/R = 7ms$ .

## Applicable Sockets

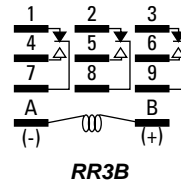
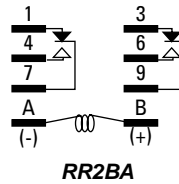
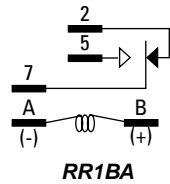
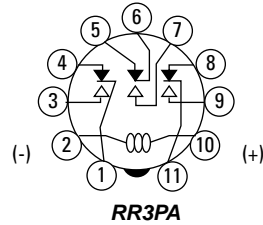
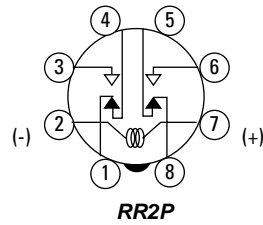
### Part Numbers: Sockets

Relays	Standard DIN Rail Mount	Finger-Safe DIN Rail Mount	Panel Mount	Springs & Clips (optional)	
				Part Numbers	Use With
RR2P	SR2P-05 SR2P-06	SR2P-05C	SR2P-51	SR2B-02F1	SR2P-05, -05C, -06
				SR3P-01F1	SR2P-51
RR3PA	SR3P-05 SR3P-06	SR3P-05C	SR3P-51	SR3B-02F1	SR3P-05, -05C, -06
				SR3P-01F1	SR3P-51
RR1BA RR2BA RR3B	SR3B-05	—	SR3B-51	SR3B-02F1	SR3B-05 SR3B-51

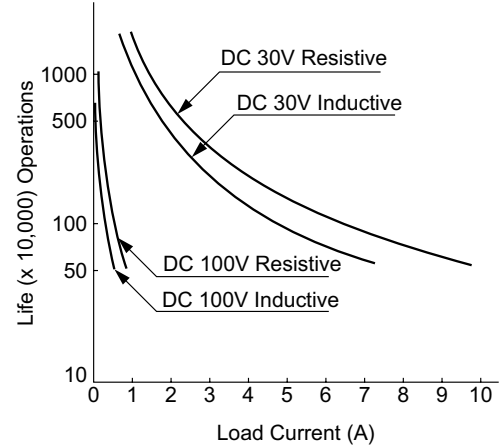
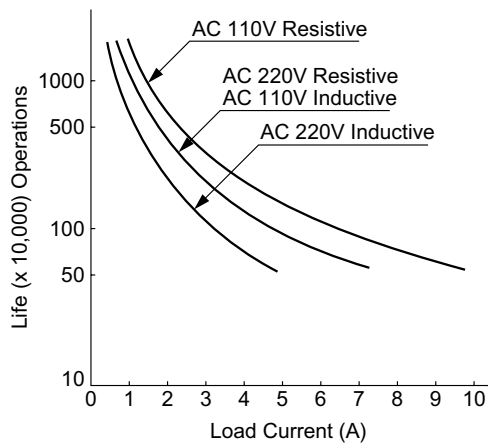


See Section F for details on sockets. All DIN rail mount sockets listed can be mounted using DIN rail BNDN1000.

## Internal Circuit



## Electrical Life Curves

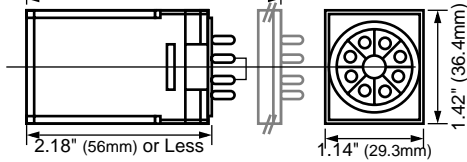




**Dimensions**

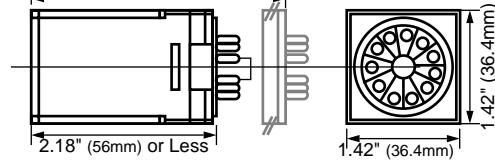
**8-Pin  
RR2P**

Total length from panel surface including socket:  
**SR2P-05:** 3.33" (85.3mm) [3.44" (88.3mm) maximum]  
**SR2P-51:** 2.48" (63.6mm) [2.68" (68.7mm) maximum]



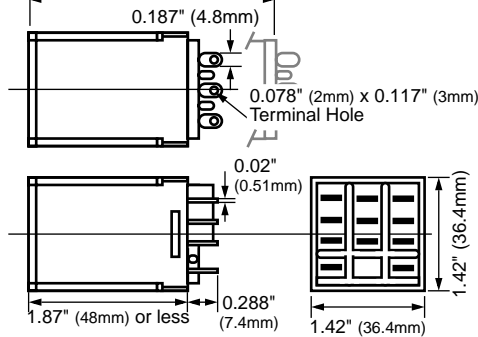
**11-Pin  
RR3PA**

Total length from panel surface including socket:  
**SR2P-05:** 3.33" (85.3mm) [3.44" (88.3mm) maximum]  
**SR2P-51:** 2.48" (63.6mm) [2.68" (68.7mm) maximum]



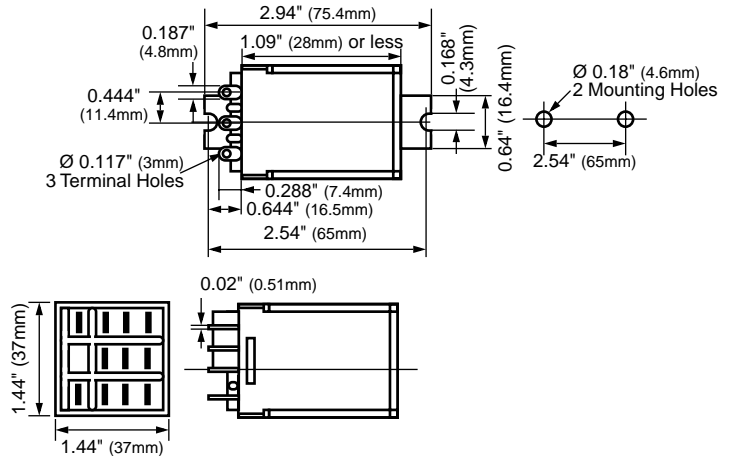
**Blade  
RR1BA, RR2BA, RR3B**

Total length from panel surface including socket:  
**SR3B-02:** 2.87" (73.7mm) [3.0" (76.7mm) maximum]  
**SR3B-51:** 2.21" (56.6mm) [2.36" (60.6mm) maximum]



**Note:** Dimensions in [ ] include hold-down spring.

**Side Flange  
RR1BA-US, RR2BA-US, RR3B-US**



**E**