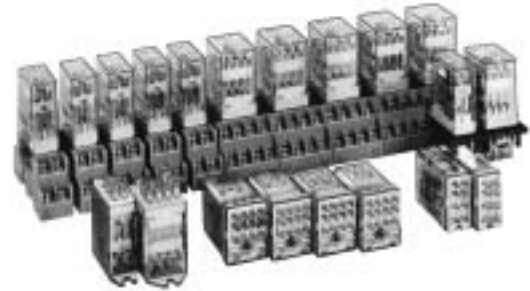


RY/RM Series — General Purpose Miniature Relays

Key features of the RY series include:

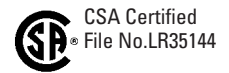
- Compact miniature size saves space
- 2PDT and 4PDT models, available with bifurcated crossbar contacts, ensure reliable low-current switching for dry circuit applications
- Choice of plug-in/solder or PCB type terminals
- Options include check button for test operation and indicator lights
- DIN rail, surface, panel, and PCB type sockets available for a wide range of mounting applications



Relays

Specifications

Contact Material	RY2, RY4: Silver (Ag), gold-plated RY22, RY42: Ag-Pd alloy RM: Silver (Ag)
Contact Resistance	RY2, RY4: 50mΩ maximum RY22, RY42: 100mΩ maximum RM: 30mΩ maximum
Minimum Applicable Load	RY2, RY4: 5V DC, 10mA/24V DC, 5mA RM2: 24VDC/10mA, 5VDC/20mA (reference value) Bifurcated contacts: RY22, RY42: 1V DC, 100μA (reference value)
Operating Time	20ms maximum
Release Time	20ms maximum
Maximum Continuous Applied Voltage (AC/DC) at 20°C	110% of the rated voltage
Minimum Operating Voltage (AC/DC) at 20°C	80% of the rated voltage
Drop-Out Voltage (AC)	30% or more of the rated voltage
Drop-Out Voltage (DC)	10% or more of the rated voltage
Power Consumption	RY2, RY22: DC: approximately 0.8W AC: approximately 1.1VA (50Hz), 1VA (60Hz) RY4, RY42, RM2: DC: approximately 0.9W AC: approximately 1.4VA (50Hz), 1.2VA (60Hz)
Insulation Resistance	100MΩ minimum (measured with 500V DC megger)
Dielectric Strength	RY2, RY22: Between live and dead parts: 1,500V AC, 1 minute; Between contact and coil: 1,500V AC, 1 minute; Between contacts of different poles: 1,500V AC, 1 minute; Between contacts of the same pole: 1,000V AC, 1 minute RY4, RY42, RM2: Between live and dead parts: 2,000V AC, 1 minute; Between contact and coil: 2,000V AC, 1 minute; Between contacts of different poles: 2,000V AC, 1 minute; Between contacts of the same pole: 1,000V AC, 1 minute
Frequency Response	1,800 operations/hour
Temperature Rise	Coil: 85°C maximum Contact: 65°C maximum
Vibration Resistance	0 to 6G (55Hz maximum)
Shock Resistance	RY2, RY22: 100N (approximately 10G) RY4, RY42, RM2: 200N (approximately 20G)
Life Expectancy	Electrical RY2, RY4: over 200,000 operations (120V, 3A) RY22, RY42: over 200,000 operations (120V AC, 1A) RM2: over 500,00 operations (240V AC, 5A)
	Mechanical over 50,000,000 operations
Operating Temperature	-30 to +70°C
Weight	DPDT: 23g; 4PDT: 34g (approximately)



File No. B020813332452



Ordering Information

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

Basic Part No.

RY4S-U

Coil Voltage:

AC110-120V

Part Numbers

Part Numbers: RY/RM Series with Options

Termination	Contact Configuration	Basic Part No.	Indicator Light	Check Button	Indicator Light and Check Button	Top Bracket
S Solder/plug-in	DPDT small footprint	RY2S-U	RY2S-UL	RY2S-UC	RY2S-ULC	RY2S-UT
	DPDT (bifurcated contacts)	RY22S-U	RY22S-UL	—	—	RY22S-UT
	DPDT wide footprint	RM2S-U	RM2S-UL	RM2S-UC	RM2S-ULC	RM2S-UT
	4PDT	RY4S-U	RY4S-UL	RY4S-UC	RY4S-ULC	RY4S-UT
	4PDT (bifurcated contacts)	RY42S-U	RY42S-UL	RY42S-UC	RY42S-ULC	RY42S-UT
V PCB 0.031" (0.8mm) wide	DPDT small footprint	RY2V-U	RY2V-UL	RY2V-UC	RY2V-ULC	—
	DPDT (bifurcated contacts)	RY22V-U	RY22V-UL	—	—	—
	DPDT wide footprint	RM2V-U	RM2V-UL	RM2V-UC	RM2V-ULC	—
	4PDT	RY4V-U	RY4V-UL	RY4V-UC	RY4V-ULC	—
	4PDT (bifurcated contacts)	RY42V-U	RY42V-UL	RY42V-UC	RY42V-ULC	—

E

Relays

Ratings

Coil Ratings

Rated Voltage (V)	Rated Current ±15% at 20°C				Coil Resistance ±10% at 20°C		Coil Inrush (60Hz)		Coil Inductance				
	60Hz		50Hz		RY2, RY22	RM2, RY4, RY42	RY2, RY22	RM2, RY4, RY42	Energizing		De-Energizing		
	RY2, RY22	RM2, RY4, RY42	RY2, RY22	RM2, RY4, RY42					RY2, RY22	RM2, RY4, RY42	RY2, RY22	RM2, RY4, RY42	
AC	6V	150mA	200mA	170mA	240mA	18.8Ω	9.4Ω	250mA	340mA	0.09H	0.08H	0.06H	0.04H
	12V	75mA	100mA	86mA	121mA	76.8Ω	39.3Ω	120mA	170mA	0.37H	0.30H	0.22H	0.16H
	24V	37mA	50mA	42mA	60.5mA	300Ω	153Ω	56mA	85mA	1.5H	1.2H	.9H	0.63H
	120V*	7.5mA	11mA	8.6mA	13.1mA	7,680Ω	4,170Ω	12mA	16mA	37H	33H	22H	15H
	240V †	3.2mA	5.5mA	3.7mA	6.6mA	31,200Ω	15,210Ω	7mA	8mA	130H	130H	77H	62H
DC		RY2, RY22		RM2, RY4, RY42		RY2, RY22	RM2, RY4, RY42	N/A					
	6V	128mA		150mA		47Ω	40Ω						
	12V	64mA		75mA		188Ω	160Ω						
	24V	32mA		36.9mA		750Ω	650Ω						
	48V	18mA		18.5mA		2,660Ω	2,600Ω						
110V‡	—		9.1mA		—	12,100Ω							

* For RY4/RY42/RM2 relays = AC110/120V AC.

† For RY4/RY42/RM2 relays = 220/240V AC.

‡ For RY4/RY42/RM2 relays = 100/110V DC.



Contact Ratings (gold plated) RY4, RY2

Voltage	Contact	Resistive		Inductive	
		UL	CSA	UL	CSA
30V DC	DPDT	3A	3A	3A	1.5A
	4PDT	5A	5A	5A	1.5A
100V DC	DPDT	0.2A	—	0.2A	0.2A
	4PDT	0.2A	—	0.2A	0.2A
120V AC	DPDT	3A	3A	1.5A	1.5A
	4PDT	5A	5A	5A	5A
240V AC	DPDT	3A	3A	0.8A	0.8A
	4PDT	5A	5A	5A	5A

Contact Ratings (bifurcated) RY42, RY22

Voltage	Resistive UL/CSA	Inductive UL/CSA
30V DC	1A	0.5A
120V AC	1A	0.5A
240V AC	0.8A	0.4A

Contact Ratings RM2

Voltage	Resistive			Inductive		
	Nominal	UL	CSA	Nominal	UL	CSA
30V DC	5A	5A	5A	2.5A	—	2.5A
110V DC	0.4A	0.4A	—	0.4A	—	0.4A
120V AC	5A	5A	5A	2.5A	2.5A	2.5A
240V AC	5A	5A	5A	2A	2A	2A

Applicable Sockets

Part Numbers: Sockets

Relay	Standard DIN Rail Mount	Finger-Safe DIN Rail Mount	Panel Mount	PC Mount
RY2S RY22S	SY2S-05	SY2S-05C	SY2S-51	SY2S-61
RM2	SM2S-05	SM2S-05C	SM2S-51	SY4S-61 SY4S-62
RY4S RY42S	SY4S-05	SY4S-05C	SY4S-51	

Springs (optional)	
Part Number	Use With
SY2S-02F1③ SFA-101① SFA-202②	SY2S-05, -05C
SFA-301① SFA-302② SY4S-51F1③	SY2S-51, -61
SY4S-02F1③ SFA-101① SFA-202②	SY2S-05, -05C
SFA-301① SFA-302② SY4S-51F1③	SY4S-51, -61



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



- ① Top latch
- ② Side latch
- ③ Pullover spring

E

Relays

Internal Circuits

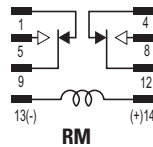
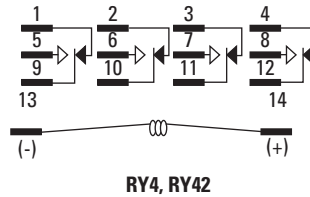
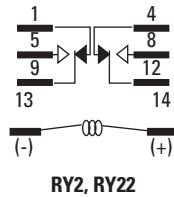
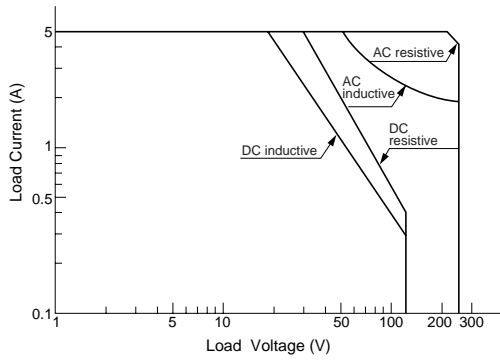


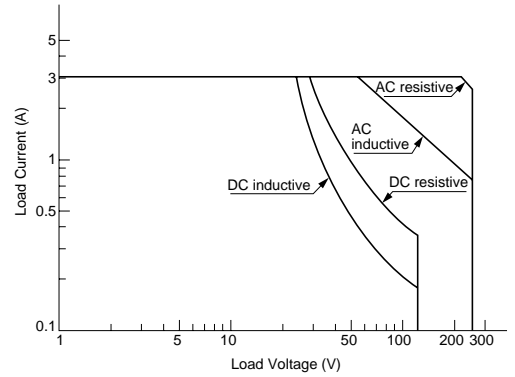
Image as viewed from bottom of relay. Refer to socket for exact wiring layout (Section F).

Maximum Switching Capacity

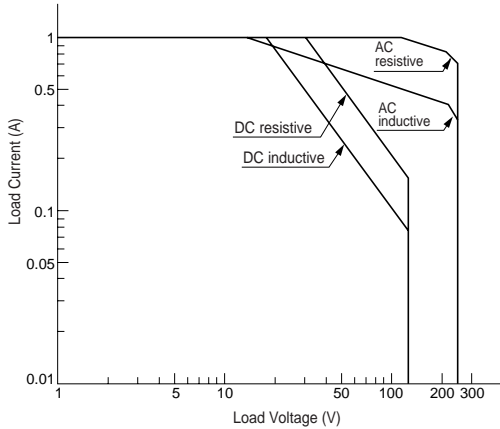
RY4/RM2



RY2

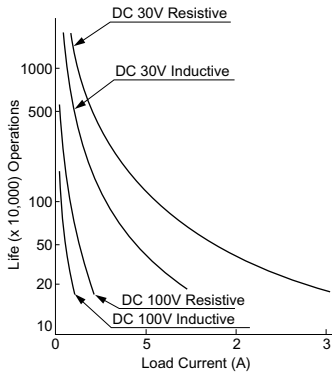
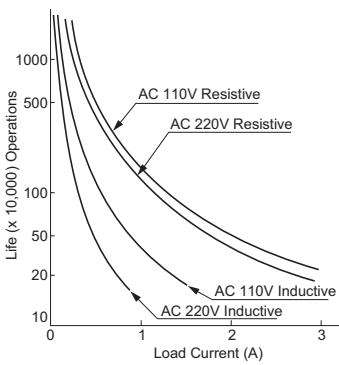


RY Bifurcated

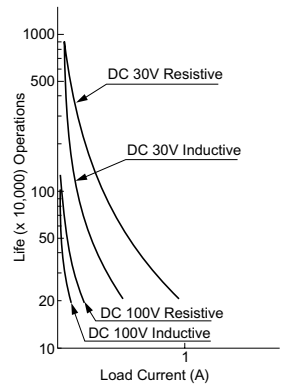
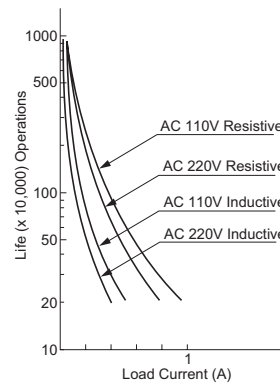


Electrical Life Curves

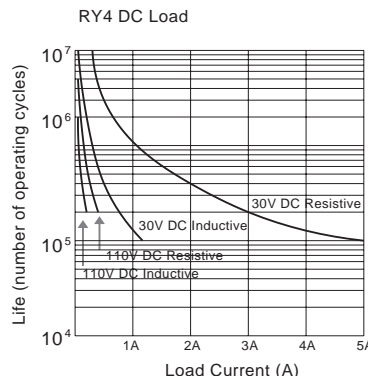
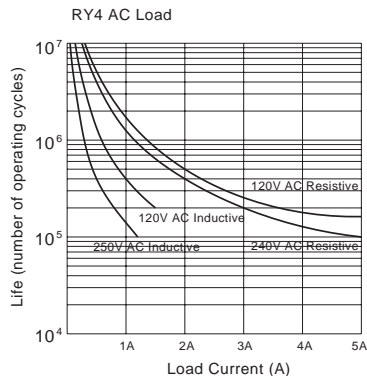
RY2



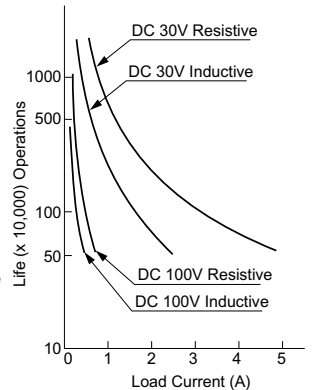
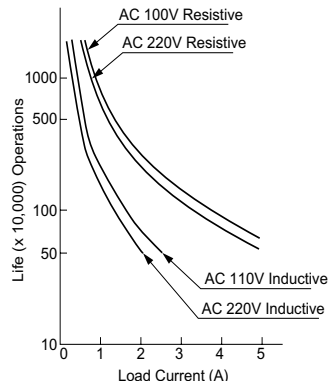
Bifurcated Contacts RY42, RY22



RY4

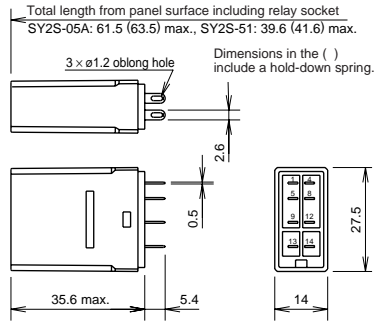


RM2

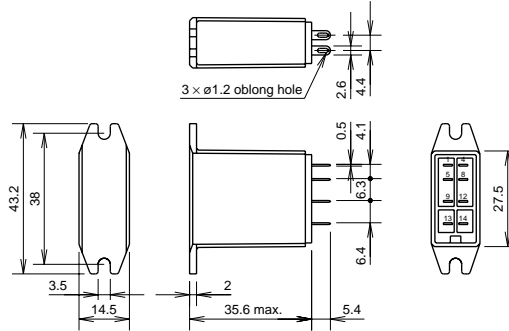


Dimensions

**Solder Terminal
Plug-in
RY2S
RY22S**

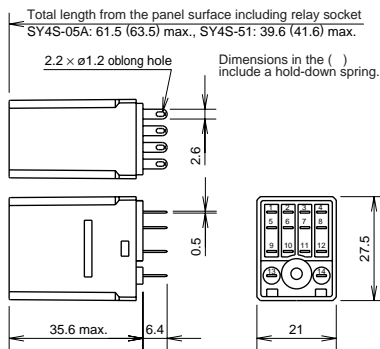


**With Top Bracket
Plug-in
RY2S-UT, RY22S-UT**

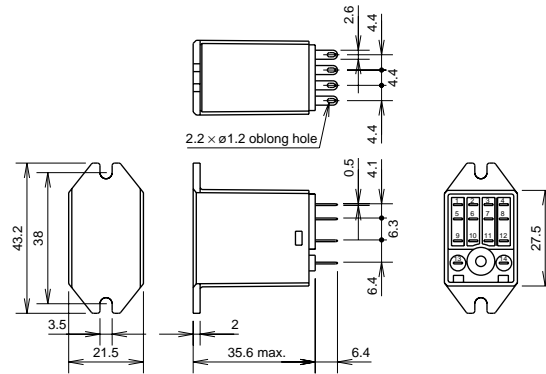


E

**RY4S
RY42S**

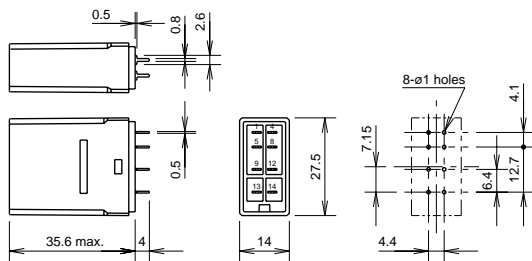


**RY4S-UT
RY42S-UT**

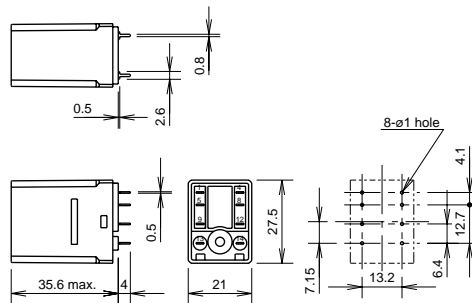


Relays

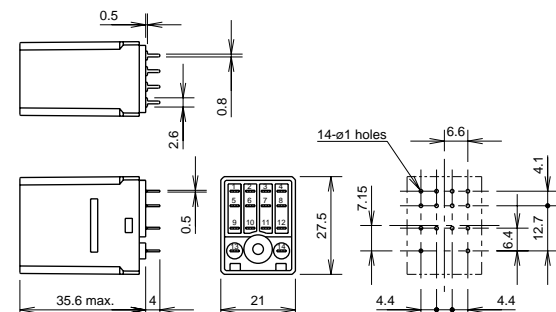
**PCB Terminal
RY2V
RY22V**



**PCB Terminal
RM2S, RM2V**



**PCB Terminal
RY4V, RY42V**



All dimensions in mm.