

RY 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 on 4PDT models
- DIN rail, surface, panel, and PCB type sockets available for a wide range of mounting applications



UL Recognized
Files No. E64245
E59804



File No. BL951113332319



CSA Certified
File No. LR35144

Specifications	Contact Material	RY2, RY4: Silver (Ag), gold-plated RY22, RY42: Ag-Pd alloy
	Contact Resistance	RY2, RY4: 50mΩ maximum RY22, RY42: 100mΩ maximum
	Minimum Applicable Load	DPDT/4PDT: 5V DC, 10mA/24V DC, 5mA (reference value) Bifurcated contacts: DPDT/4PDT: 1V DC, 100μA (reference value)
	Operating Time	20ms maximum
	Release Time	20ms maximum
	Power Consumption	RY2, RY22: DC: approximately 0.8W AC: approximately 1.1VA (50Hz), 1VA (60Hz) RY4, RY42: DC: approximately 0.9W AC: approximately 1.4VA (50Hz), 1.2VA (60Hz)
	Insulation Resistance	100MΩ minimum (measured with 500V DC megger)
	Dielectric Strength	DPDT: 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 4PDT: 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: 85C maximum Contact: 65C maximum
	Vibration Resistance	0 to 6G (55Hz maximum)
	Shock Resistance	RY2, RY22: 100N (approximately 10G) RY4, RY42: 200N (approximately 20G)
	Life Expectancy	RY2, RY4: Electrical: over 200,000 operations (120V, 3A) Mechanical: over 50,000,000 operations RY22, RY42: Electrical: over 200,000 operations (120V AC, 1A) Mechanical: over 50,000,000 operations
Operating Temperature	-30 to +70C	
Weight	DPDT: 23g; 4PDT: 34g (approximately)	

Operational Characteristics

Maximum Continuous Applied Voltage (AC/DC) at 20C	110% of the rated voltage
Minimum Operating Voltage (AC/DC) at 20C	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

Ordering Information

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

Basic Part No.

RY4S-U

Coil Voltage:

AC220-240V

Part Numbers

Part Numbers: RY Series with Options

Termination	Contact Configuration	Basic Part No.	Indicator Light	Diode	Indicator Light + Diode	CheckButton
S Solder/plug-in	DPDT	RY2S-U	RY2S-L	RY2S-D	RY2S-LD	RY2S-UC
	DPDT (bifurcated contacts)	RY22S-U	RY22S-L	RY22S-D	RY22S-LD	RY22S-UC
	4PDT	RY4S-U	RY4S-UL	RY4S-D	RY4S-LD	RY4S-UC
	4PDT (bifurcated contacts)	RY42S-U	RY42S-UL	RY42S-D	RY42S-LD	RY42S-UC
V PCB 0.031" (0.8mm) wide	DPDT	RY2V-U	RY2V-L	RY2S-D	RY2S-LD	—
	DPDT (bifurcated contacts)	RY22V-U	RY22V-L	RY22S-D	RY22S-LD	—
	4PDT	RY4V-U	RY4V-UL	RY4V-D	RY4V-LD	RY4V-UC
	4PDT (bifurcated contacts)	RY42V-U	RY42V-UL	RY42V-D	RY42V-LD	RY42V-UC

Part Numbers: Sockets

Relay	Standard DIN Rail Mount	Finger-Safe DIN Rail Mount	Panel Mount	PC Mount	Spring (optional)
RY2S RY22S	SY2S-05	SY2S-05C	SY2S-51	SY2S-61	SY2S-02F1 SFA-202 SFA-301 SFA-302 SY4S-51F1
RY4S RY42S	SY4S-05	SY4S-05C	SY4S-51	SY4S-61 SY4S-62	SY4S-02F1 SFA-101 SFA-202 SFA-301 SFA-302 SY4S-51F1



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

Ratings

Coil Ratings

	Rated Voltage (V)		Rated Current ±15% at 20C				Coil Resistance ±10% at 20C	
	DPDT	4PDT	60Hz		50Hz		DPDT	4PDT
AC	6V	6V	150mA	200mA	170mA	240mA	18.8Ω	9.4Ω
	12V	12V	75mA	100mA	86mA	121mA	76.8Ω	39.3Ω
	24V	24V	37mA	50mA	42mA	60.5mA	300Ω	153Ω
	120V	120V*	7.5mA	11mA	8.6mA	13.1mA	7,680Ω	4,170Ω
	240V	240V †	3.2mA	5.5mA	3.7mA	6.6mA	31,200Ω	15,210Ω
DC	6V	6V	128mA		150mA		47Ω	40Ω
	12V	12V	64mA		75mA		188Ω	160Ω
	24V	24V	32mA		36.9mA		750Ω	650Ω
	48V	48V	18mA		18.5mA		2,660Ω	2,600Ω
	—	110V‡	—		9.1mA		—	12,100Ω



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

† For RY4/RY42 relays = 220/240V AC.

‡ For RY4/RY42 relays = 100/110V DC.

Ratings, continued

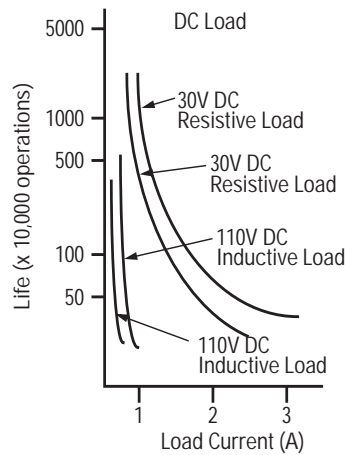
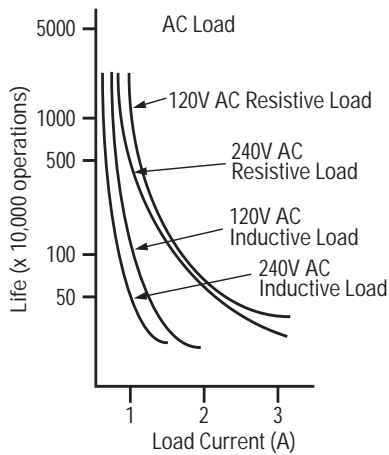
Contact Ratings (gold plated)

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	5A
	4PDT	5A	5A	5A	5A
240V AC	DPDT	3A	3A	0.8A	5A
	4PDT	5A	5A	5A	5A

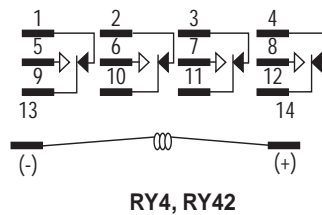
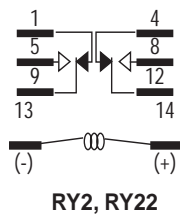
Contact Ratings (bifurcated)

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

Electrical Life Curves



Internal Circuit



Dimensions, continued

RY Series

Solder Terminal

Plug-in

RY2S

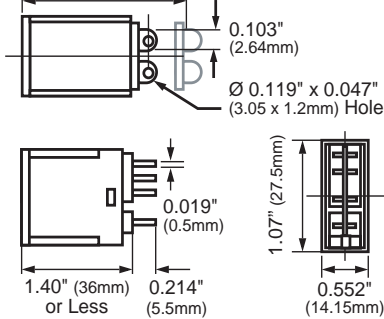
RY22S

Total length from panel surface including socket:

SY2S-02: 2.40" (61.6mm) maximum; **SY2S-51:** 1.56" (40mm)

Total length from surface including hold-down spring:

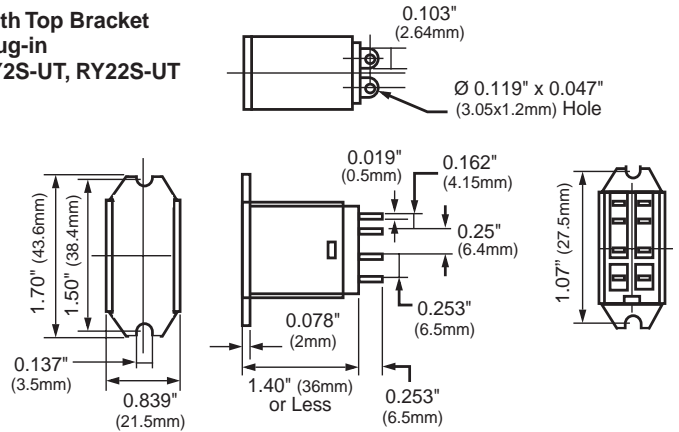
SY2S-02: 2.48" (63.6mm) maximum; **SY2S-51:** 1.64" (42mm)



With Top Bracket

Plug-in

RY2S-UT, RY22S-UT



RY4S

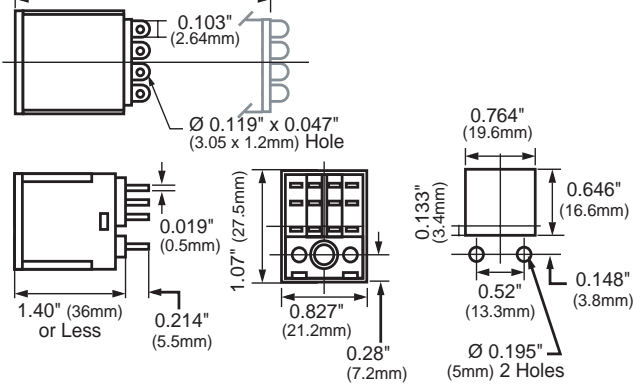
RY42S

Total length from panel surface including socket:

SY4S-02: 2.40" (61.6mm) maximum; **SY4S-51:** 1.56" (40mm)

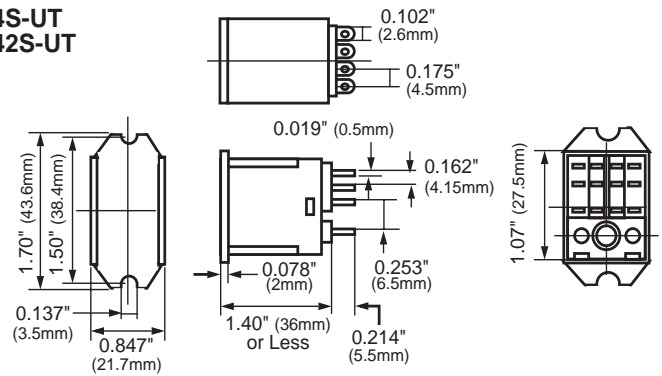
Total length from surface including hold-down spring:

SY4S-02: 2.48" (63.6mm) maximum; **SY4S-51:** 1.64" (42mm)



RY4S-UT

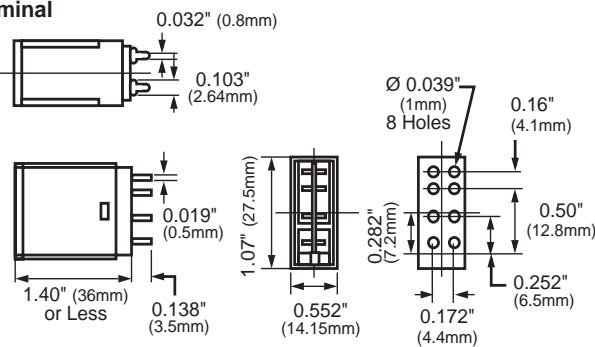
RY42S-UT



PCB Terminal

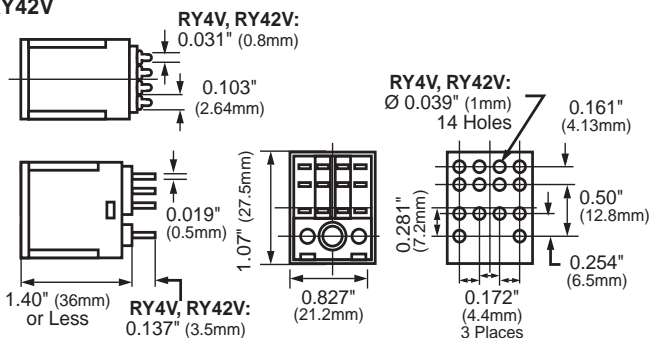
RY2V

RY22V



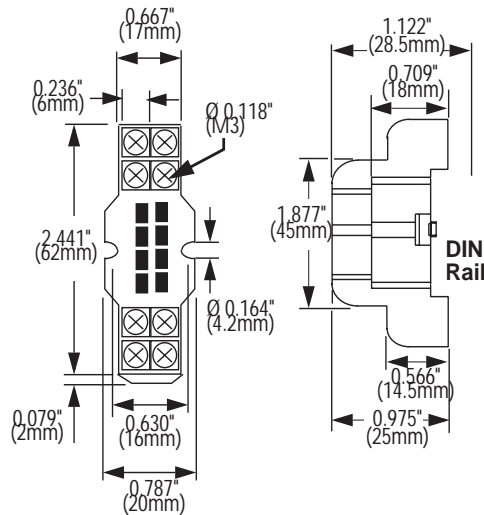
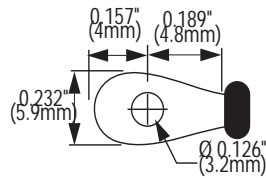
PCB Terminal

RY4V, RY42V

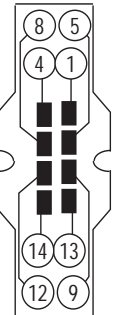


SY Series: DIN Rail Snap-Mount Sockets

SY2S Sockets

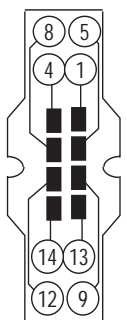
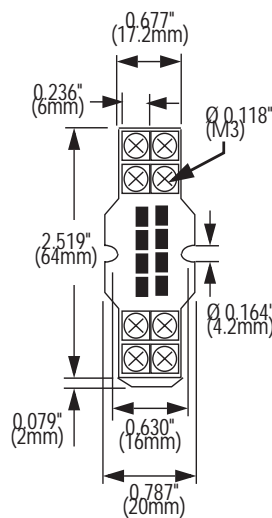


Terminal Arrangements (top view)



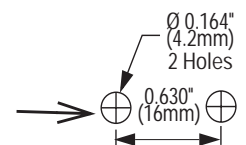
SY2S-05

Style	8-blade, snap-mount/surface mount
Terminal	M3 screws with captive wire clamp
Wire Size	Maximum up to 2-#14AWG
Electrical Rating	300V, 7A
Compatible Relay	RY2S, RY22S
Hold-Down Spring	SY2S-02F1
Hold-Down Clip	SFA-101, SFA-202

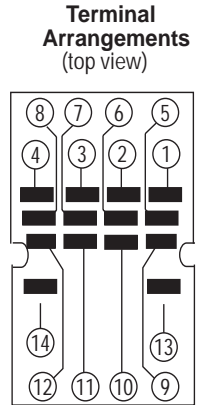
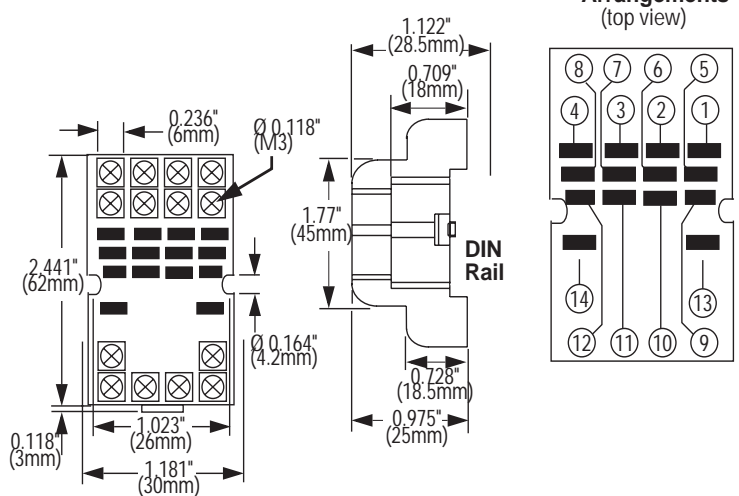
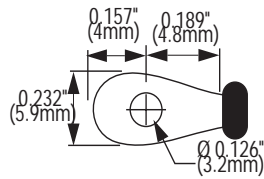
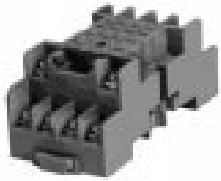


SY2S-05C Fingersafe

Style	8-blade, snap-mount/surface mount
Terminal	M3 screws with captive wire clamp, fingersafe
Wire Size	Maximum up to 2-#14AWG
Electrical Rating	300V, 7A
Compatible Relay	RY2S, RY22S
Hold-Down Spring	SY2S-02F1
Hold-Down Clip	SFA-101, SFA-202

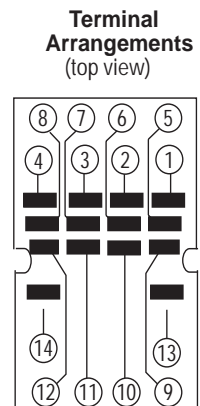
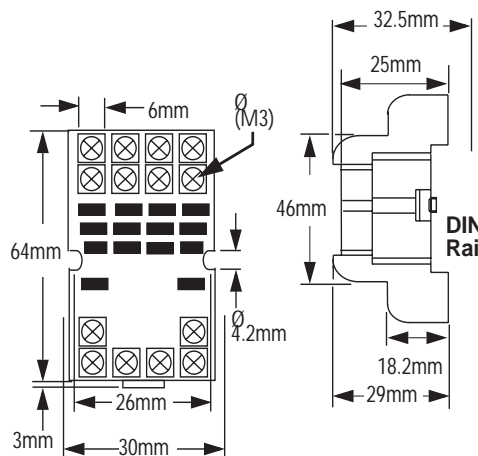


SY4S Sockets



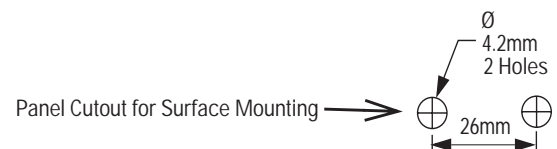
SY4S-05

Style	14-blade, snap-mount/surface mount
Terminal	M3 screw with captive wire clamp
Wire Size	Maximum up to 2-#14AWG
Electrical Rating	300V, 7A
Compatible Relay	RY4S, RY42S, RM2S, *RY2KS, *RY2LS (*latching relays)
Compatible Timer	GT5Y
Hold-Down Spring	SY4S-51F1, *SY4S-51F3 (*for RY2KS)
Hold-Down Clip	SFA-101, SFA-202



SY4S-05C Fingersafe

Style	14-blade, snap-mount/surface mount
Terminal	M3 screw with captive wire clamp, fingersafe
Wire Size	Maximum up to 2-#14AWG
Electrical Rating	300V, 7A
Compatible Relay	RY4S, RY42S, RM2S, *RY2KS, *RY2LS (*latching relays)
Compatible Timer	GT5Y
Hold-Down Spring	SY4S-51F1, *SY4S-51F3 (*for RY2KS)
Hold-Down Clip	SFA-101, SFA-202

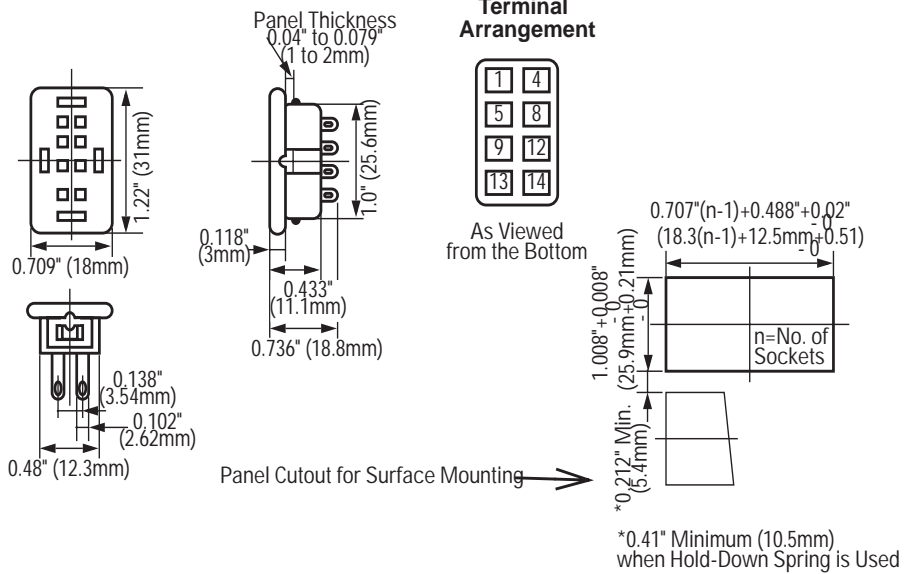


SY Series: Panel Mount Sockets



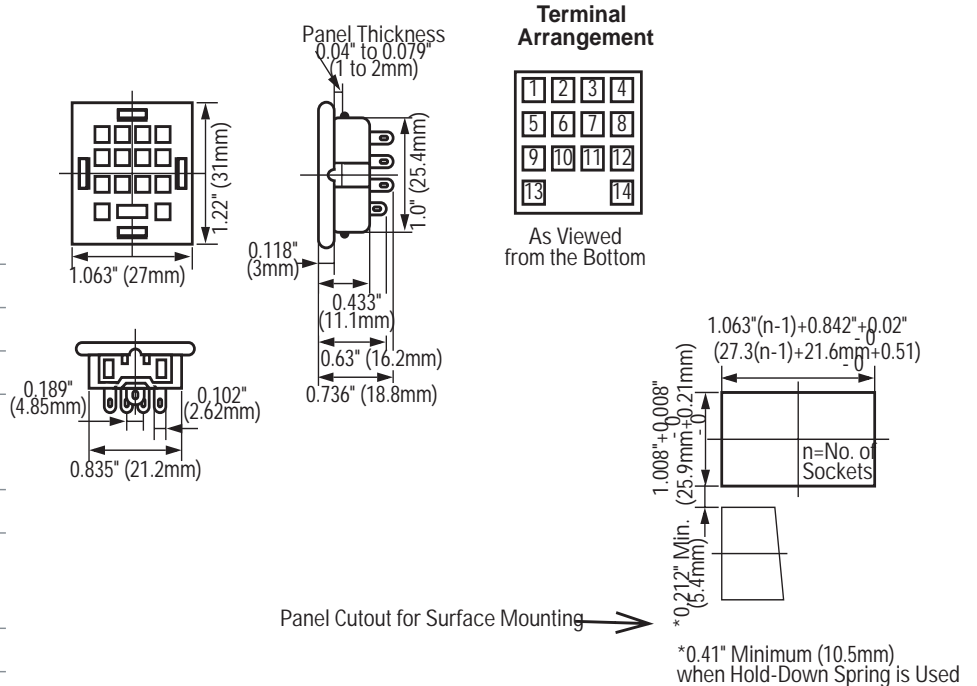
SY2S-51

Style	8-blade, panel mount
Terminal	Solder
Electrical Rating	300V, 7A
Compatible Relay	RY2S, RY22S
Hold-Down Spring	SY4S-51F1
Hold-Down Clip	SFA-301, SFA-302



SY4S-51

Style	14-blade, panel mount
Terminal	Solder
Electrical Rating	300V, 7A
Compatible Relay	RY4S, RY42S, RM2S, *RY2KS, *RY2LS (*latching relays)
Compatible Timer	GT5Y
Hold-Down Spring	SY4S-51F1, *SY4S-02F3 (*for RY2KS relay)
Hold-Down Clip	SFA-301, SFA-302

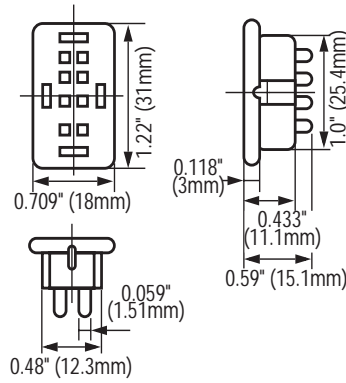


SY Series: PC Board Mount Sockets



SY2S-61

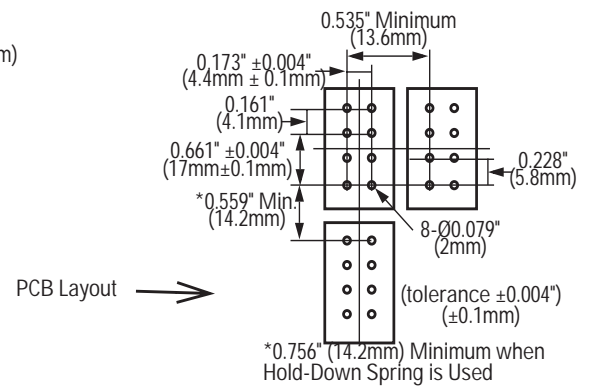
Style	8-blade
Terminal	Solder/PCB mount
Electrical Rating	300V, 7A
Compatible Relay	RY2S, RY22S
Hold-Down Spring	SY4S-51F1
Hold-Down Clip	SFA-301, SFA-302



Terminal Arrangement



As Viewed from the Bottom



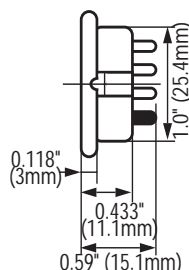
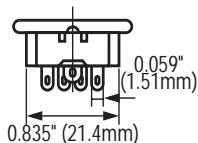
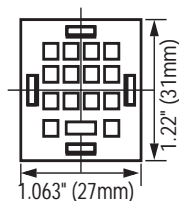
PCB Layout →

SY Series: PC Mount Sockets, continued



SY4S-61

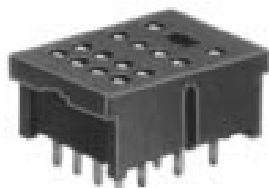
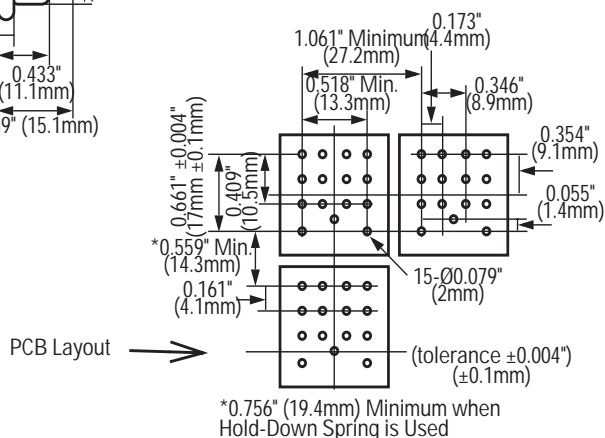
Style	14-blade
Terminal	Solder/PCB mount
Electrical Rating	300V, 7A
Compatible Relay	RY4S, RY42S, RM2S, *RY2KS, *RY2LS (*latching relays)
Compatible Timer	GT5Y
Hold-Down Spring	SY4S-51F1, *SY4S-02F1 (*for RY2KS relay)
Hold-Down Clip	SFA-301, SFA-302



Terminal Arrangement

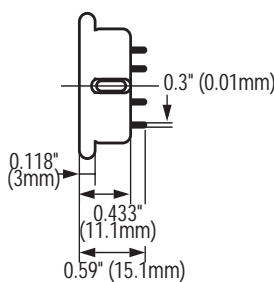
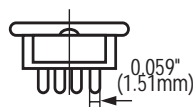
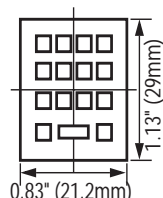


As Viewed from the Bottom



SY4S-62

Style	14-blade
Terminal	Solder/PCB mount
Electrical Rating	250V, 7A
Compatible Relay	RY4S, RY42S, RY2LS, RY2KS
Compatible Timer	GT5Y
Hold-Down Spring	SY4S-51F1, SY4S-51F3, SY4S-51F4, *SY4S-02F1, *SY4S-02F3 (*when mounting a relay with check button)



Terminal Arrangement



As Viewed from the Bottom

