

RH Series — General Purpose Midget Relays

Key features of the RH series include:

- Compact midget size saves space
- High switching capacity (10A)
- Choice of blade or PCB style terminals
- Relay options include indicator light, check button, and top mounting bracket
- DIN rail, surface, panel, and PCB type sockets available for a wide range of mounting applications



UL Recognized
Files No. E67770
E59804
E64245



CSA Certified
File No. LR35144



File No. BL951113332319



Specifications	Contact Material	Silver cadmium oxide
	Contact Resistance	50mΩ maximum (initial value)
	Minimum Applicable Load	24V DC/30mA, 5V DC/100mA (reference value)
	Operating Time	SPDT (RH1), DPDT (RH2): 20ms maximum 3PDT (RH3), 4PDT (RH4): 25ms maximum
	Release Time	SPDT (RH1), DPDT (RH2): 20ms maximum 3PDT (RH3), 4PDT (RH4): 25ms maximum
	Power Consumption	SPDT (RH1): DC: 0.8W AC: 1.1VA (50Hz), 1VA (60Hz) DPDT (RH2): DC: 0.9W AC: 1.4VA (50Hz), 1.2VA (60Hz) 3PDT (RH3): DC: 1.5W AC: 2VA (50Hz), 1.7VA (60Hz) 4PDT (RH4): DC: 1.5W AC: 2.5VA (50Hz), 2VA (60Hz)
	Insulation Resistance	100MΩ min (measured with a 500V DC megger)
	Dielectric Strength	SPDT (RH1) Between live and dead parts: 2,000V AC, 1 minute; Between contact circuit and operating coil: 2,000V AC, 1 minute; Between contacts of the same pole: 1,000V AC, 1 minute DPDT (RH2), 3PDT (RH3), 4PDT (RH4) 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 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	SPDT/DPDT: 200N (approximately 20G) 3PDT/4PDT: 100N (approximately 10G)
	Life Expectancy	Electrical: over 500,000 operations at 120V AC, 10A; (over 200,000 operations at 120V AC, 10A for SPDT [RH1], 3PDT [RH3], 4PDT [RH4]) Mechanical: 50,000,000 operations
	Operating Temperature	-30 to +70C
Weight	SPDT: 24g, DPDT: 37g (approximately) 3PDT: 50g, 4PDT: 74g (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.

RH2B-U

Coil Voltage:

AC220-240V

Part Numbers

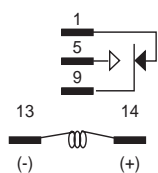
Part Numbers: RH Series with Options

Termination	Contact Configuration	Basic Part No.	Indicator Light	Check Button	Indicator, Check Button, Diode	Diode
B (blade)	SPDT	RH1B-U	RH1B-L	—	—	RH1B-D
	DPDT	RH2B-U	RH2B-UL	RH2B-UC	RH2B-LCD	RH2B-D
	3PDT	RH3B-U	RH3B-UL	RH3B-UC	RH3B-LCD	RH3B-D
	4PDT	RH4B-U	RH4B-UL	RH4B-UC	RH4B-LCD	RH4B-D
V2 (PCB 0.078" [2mm] wide)	SPDT	RH1V2-U	RH1V2-L	—	—	—
	DPDT	RH2V2-U	RH2V2-UL	RH2V2-UC	RH2V2-LCD	RH2V2-D
	3PDT	RH3V2-U	RH3V2-UL	RH3V2-UC	RH3V2-LCD	RH3V2-D
	4PDT	RH4V2-U	RH4V2-UL	RH4V2-UC	RH4V2-LCD	RH4V2-D

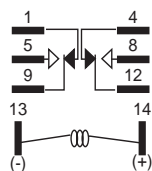
Part Numbers: Sockets

Relay	Standard DIN Rail Mount	Finger-Safe DIN Rail Mount	Surface Mount	Panel Mount	PCB Mount	Spring (optional)
RH1B	SH1B-05	SH1B-05C	—	SH1B-51	SH1B-62	SY2S-02F1 SFA-101 SFA-202 SY4S-51F1 SFA-301 SFA-302
RH2B	SH2B-05	SH2B-05C	SH2B-02	SH2B-51	SH2B-62	SY4S-02F1 SFA-101 SFA-202 SY4S-51F1
RH3B	SH3B-05	SH3B-05C	—	SH3B-51	SH3B-62	SH3B-05F1 SFA-101, -202 SY4S-51F1
RH4B	SH4B-05	SH4B-05C		SH4B-51	SH4B-62	SH4B-02F1 SFA-101, -202 SY4S-51F1

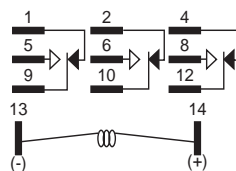
Internal Circuit



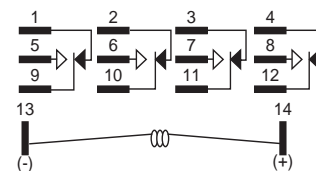
RH1



RH2



RH3



RH4

Ratings

Coil Ratings

Rated Voltage	Rated Current ±15% at 20C								Coil Resistance ±15% at 20C				
	60Hz				50Hz				SPDT	DPDT	3PDT	4PDT	
	SPDT		DPDT		3PDT		4PDT						
AC	6V	150mA	200mA	280mA	330mA	170mA	238mA	330mA	387mA	18.8Ω	9.4Ω	6.0Ω	5.4Ω
	12V	75mA	100mA	140mA	165mA	86mA	118mA	165mA	196mA	76.8Ω	39.3Ω	25.3Ω	21.2Ω
	24V	37mA	50mA	70mA	83mA	42mA	59.7mA	81mA	98mA	300Ω	153Ω	103Ω	84.5Ω
	120V*	7.5mA	11mA	14.2mA	16.5mA	8.6mA	12.9mA	16.4mA	19.5mA	7,680Ω	4,170Ω	27,70Ω	22,20Ω
	240V†	3.2mA	5.5mA	7.1mA	8.3mA	3.7mA	6.5mA	8.2mA	9.8mA	3,1200Ω	15,210Ω	12,100Ω	91,20Ω
		SPDT		DPDT		3PDT		4PDT		SPDT	DPDT	3PDT	4PDT
DC	6V	128mA		150mA		240mA		250mA		47Ω	40Ω	25Ω	24Ω
	12V	64mA		75mA		120mA		125mA		188Ω	160Ω	100Ω	96Ω
	24V	32mA		36.9mA		60mA		62mA		750Ω	650Ω	400Ω	388Ω
	48V	18mA		18.5mA		30mA		31mA		2,660Ω	2,600Ω	1,600Ω	15,50Ω
	110V‡	8mA		9.1mA		12.8mA		15mA		13,800Ω	12,100Ω	8,600Ω	7,340Ω



* For RH2 relays = 110/120V AC.
 † For RH2 relays = 220/240V AC.
 ‡ For RH2 relays = 100/110V DC.

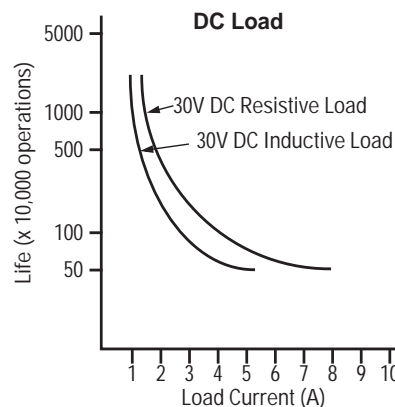
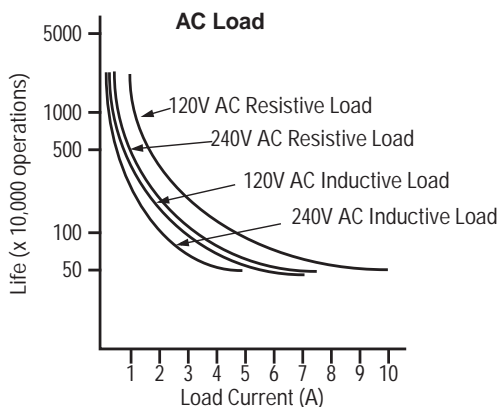
Contact Ratings

Voltage	Rating	Resistive				Inductive				Motor Load	
		SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT
28V DC	UL	10A	10A	10A	10A	7.5A	—	—	7.5A	—	—
30V DC	UL	10A	10A	10A	—	7A	7A	—	—	—	—
	CSA				10A		7.5A	7.5A	—	—	
	Nominal				—		7.5A	7.5A	—	—	
110V DC	Nominal	0.5A	0.5A	0.5A	0.5A	0.3A	0.3A	0.3A	0.3A	—	—
120V AC	UL	10A	10A	10A	10A	7.5A	—	—	7.5A	1/6	1/6
	CSA					7.5A	7.5A	7.5A	—	—	
	Nominal					7A	7.5A	7.5A	—	—	
240V AC	UL	10A	10A	—	7.5A	7A	7A	*	5A	1/3	1/3
	CSA			7.5A	7.5A	7A	5A	—	—		
	Nominal			7A	7.5A	7.5A	4.5A	5A	5A	5A	—



1. * 6.5A/pole, 20A total.
 2. Inductive load $\cos \phi = 0.3$, $L/R = 7ms$.

Electrical Life Curves



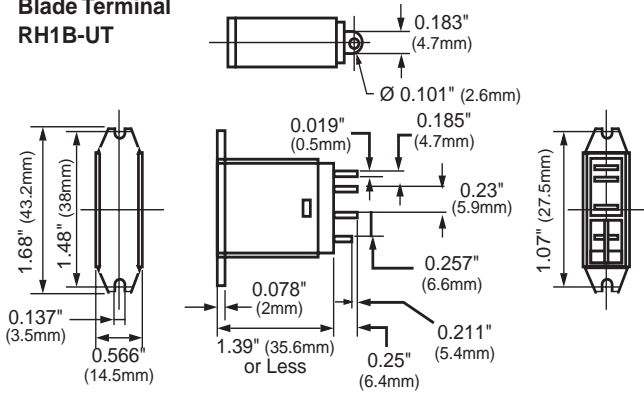
General Purpose and Latching Relay Dimensions

RH Series

Top Bracket Mounting

Blade Terminal

RH1B-UT

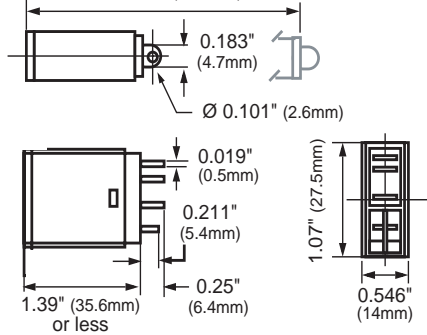


Plug-in

Blade Terminal

RH1B

Total length from panel surface including socket:
SH1B-05: 2.40" (61.5mm) maximum; **SH1B-51:** 1.54" (39mm) maximum
 Total length from panel surface including hold-down spring:
SH1B-05: 2.48" (63.5mm) maximum; **SH1B-51:** 1.62" (41.6mm) maximum

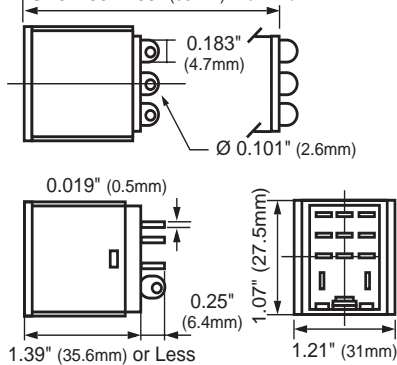


Plug-in

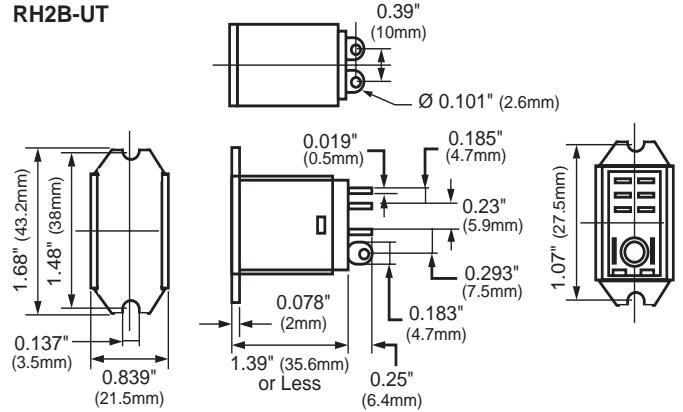
Blade Terminal

RH3B

Total length from panel surface including socket:
SH3B-05: 2.57" (66mm) maximum
 Total length from panel surface including hold-down spring:
SH3B-05: 2.65" (68mm) maximum

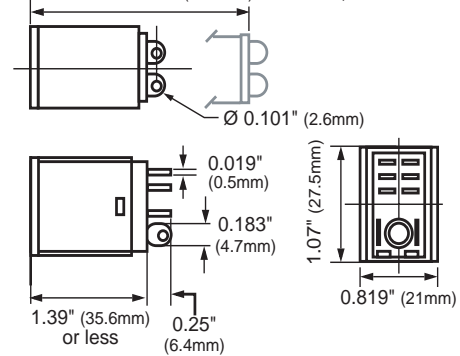


RH2B-UT



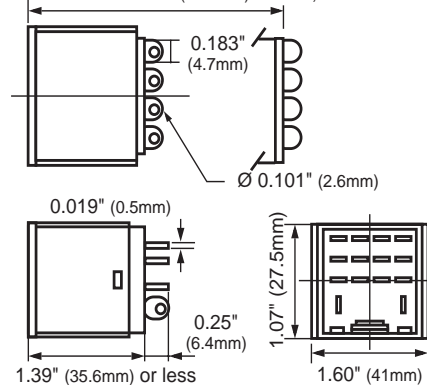
RH2B

Total length from panel surface including socket:
SH2B-05: 2.40" (61.5mm) maximum; **SH2B-51:** 1.54" (39.6mm)
 Total length from panel surface including hold-down spring:
SH2B-05: 2.48" (63.5mm) maximum; **SH2B-51:** 1.62" (41.6mm)



RH4B

Total length from panel surface including socket:
SH4B-05: 2.40" (61.5mm) or less; **SH4B-51:** 1.54" (39.6mm)
 Total length from panel surface including hold-down spring:
SH4B-05: 2.48" (63.5mm) or less; **SH4B-51:** 1.62" (41.6mm)

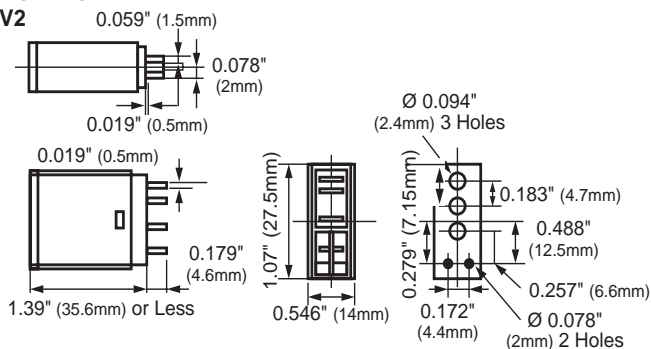


Dimensions, continued

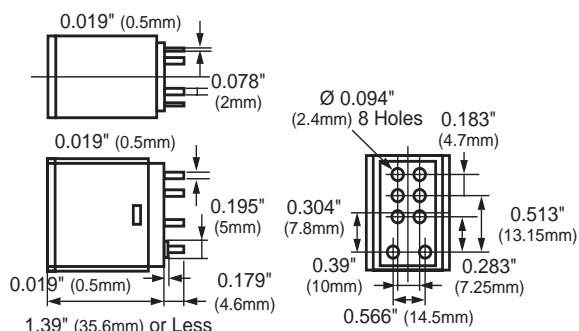
RH Series, continued

PCB Terminal

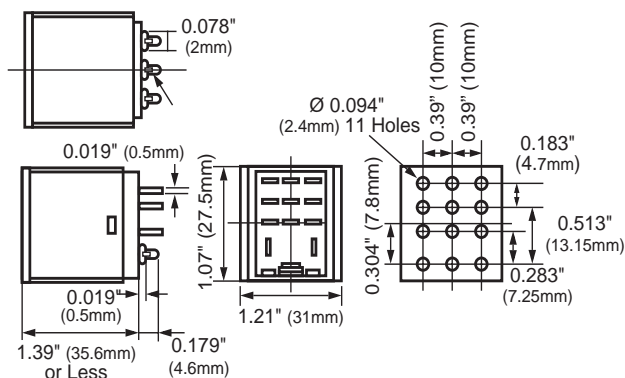
RH1V2



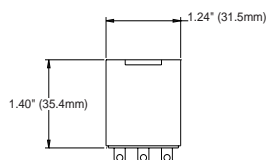
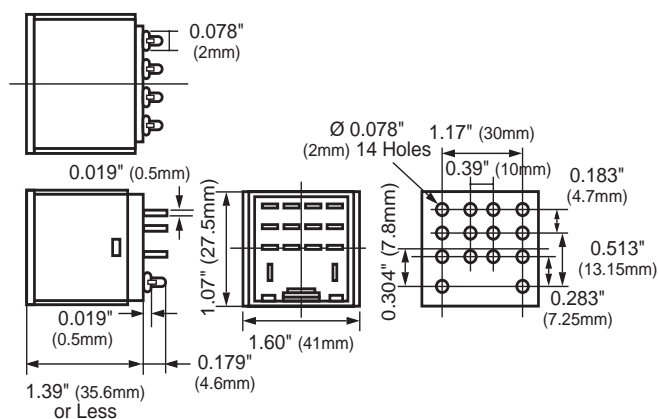
RH2V2



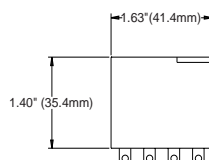
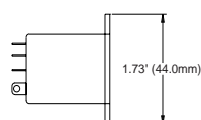
RH3V2



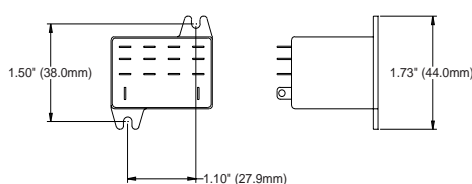
RH4V2



RH3B-UT

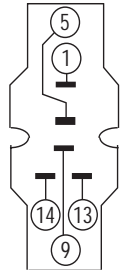
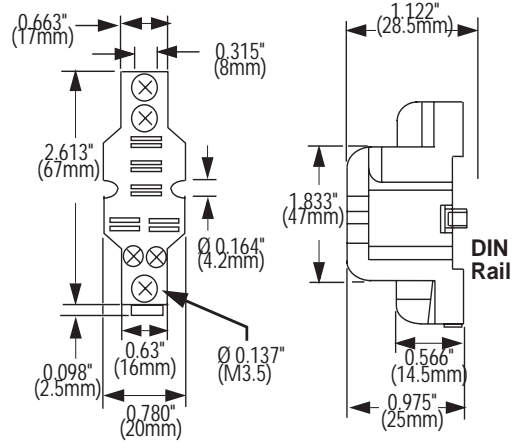
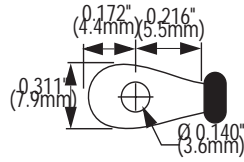


RH4B-UT



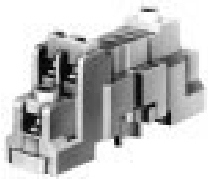
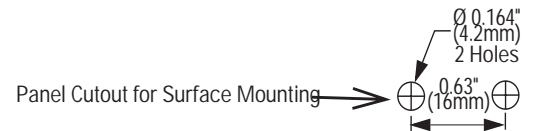
SH Series: DIN Rail Snap-Mount Sockets

SH1B Sockets



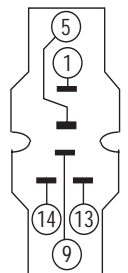
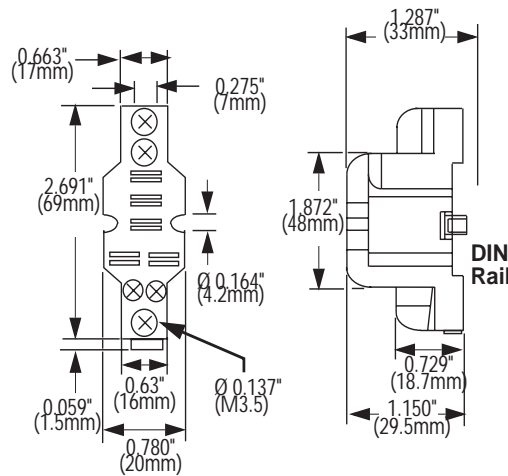
SH1B-05

Style	5-blade, snap-mount/surface mount
Terminal	(Coil) M3 screws/(contact) M3.5 screws with captive wire clamp
Wire Size	Maximum up to 2-#12AWG
Electrical Rating	250V, 10A
Compatible Relay	RH1B, RAHB, RBHB
Hold-Down Spring	SY2S-02F1
Hold-Down Clip	SFA-101, SFA-202



SH1B-05C Fingersafe

Style	5-blade, snap-mount/surface mount
Terminal	(Coil) M3 screws/(contact) M3.5 screws with captive wire clamp, fingersafe
Wire Size	Maximum up to 2-#12AWG
Electrical Rating	250V, 10A
Compatible Relay	RH1B, RAHB, RBHB
Hold-Down Spring	SY2S-02F1
Hold-Down Clip	SFA-101, SFA-202

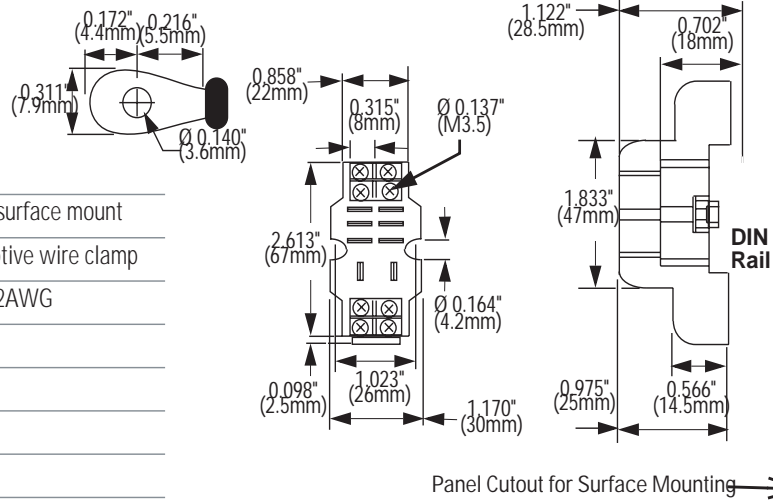


SH2B Sockets

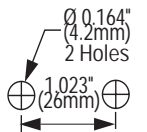


SH2B-05

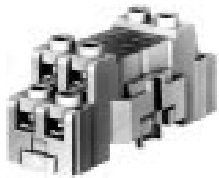
Style	8-blade, snap-mount/surface mount
Terminal	M3.5 screws with captive wire clamp
Wire Size	Maximum up to 2-#12AWG
Electrical Rating	300V, 10A
Compatible Relay	RH2B, RAMB, RBMB
Hold-Down Spring	SY4S-02F1
Hold-Down Clip	SFA-101, SFA-202



Terminal Arrangements (top view)

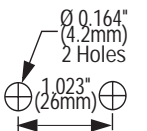
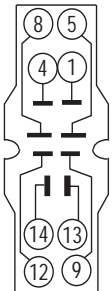
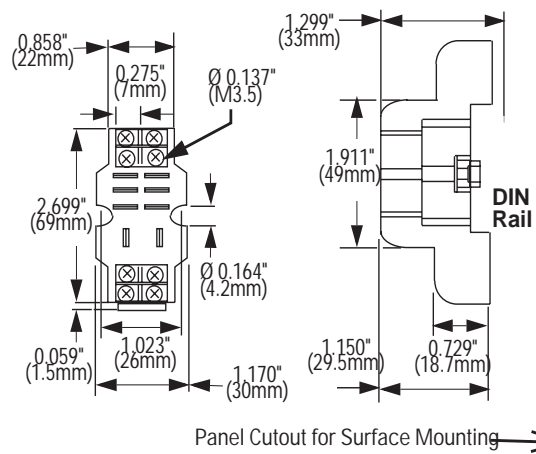


Panel Cutout for Surface Mounting →



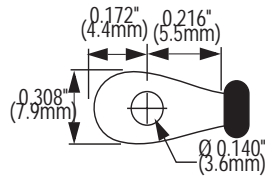
SH2B-05C Fingersafe

Style	8-blade, snap-mount/surface mount
Terminal	M3.5 screws with captive wire clamp, fingersafe
Wire Size	Maximum up to 2-#12AWG
Electrical Rating	300V, 10A
Compatible Relay	RH2B, RAMB, RBMB
Hold-Down Spring	SY4S-02F1
Hold-Down Clip	SFA-101, SFA-202



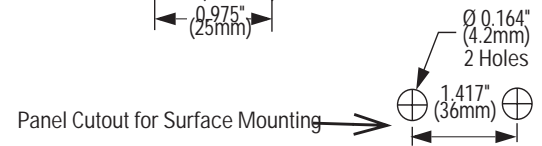
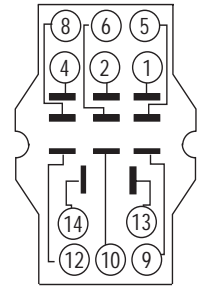
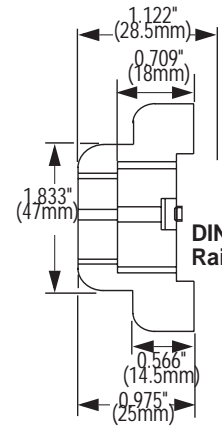
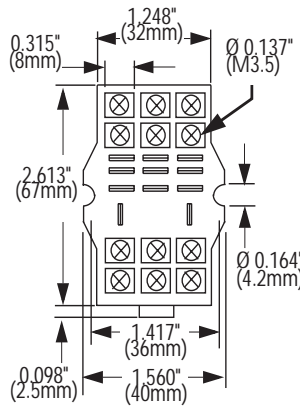
Panel Cutout for Surface Mounting →

SH3B Sockets



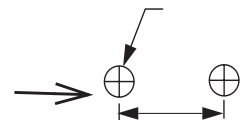
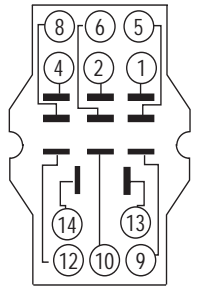
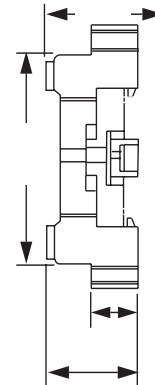
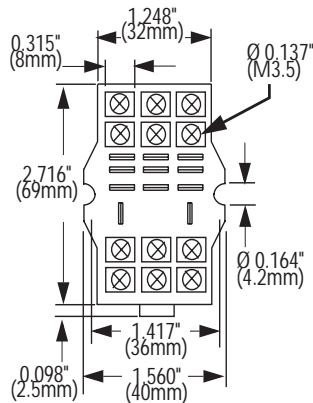
SH3B-05

Style	11-blade, snap-mount/surface mount
Terminal	M3.5 screws with captive wire clamp
Wire Size	Maximum up to 2-#12AWG
Electrical Rating	300V, 10A
Compatible Relay	RH3B, *RH2LB (*latching relay)
Hold-Down Spring	SH3B-05F1
Hold-Down Clip	SFA-101, SFA-202

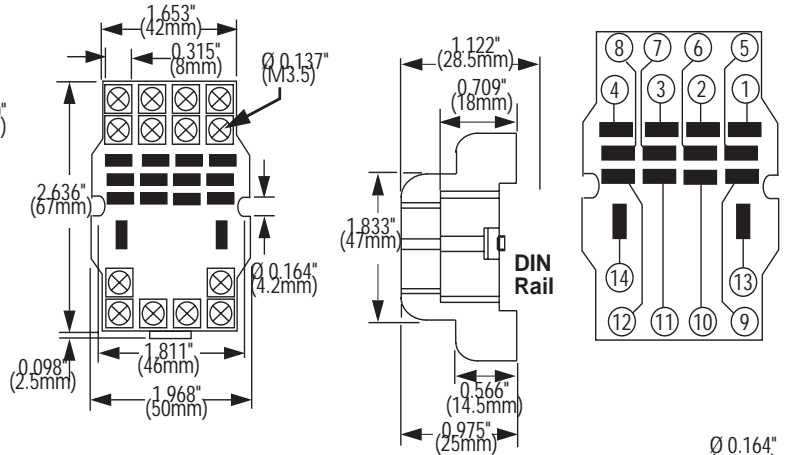
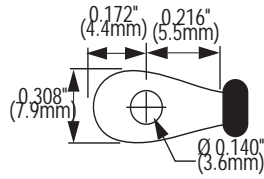


SH3B-05C Fingersafe

Style	11-blade, snap-mount/surface mount
Terminal	M3.5 screws with captive wire clamp, fingersafe
Wire Size	Maximum up to 2-#12AWG
Electrical Rating	300V, 10A
Compatible Relay	RH3B, *RH2LB (*latching relay)
Hold-Down Spring	SH3B-05F1
Hold-Down Clip	SFA-101, SFA-202



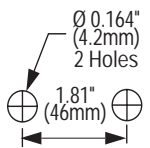
SH4B Sockets



SH4B-05

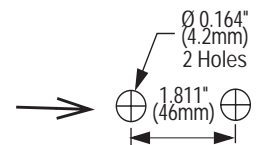
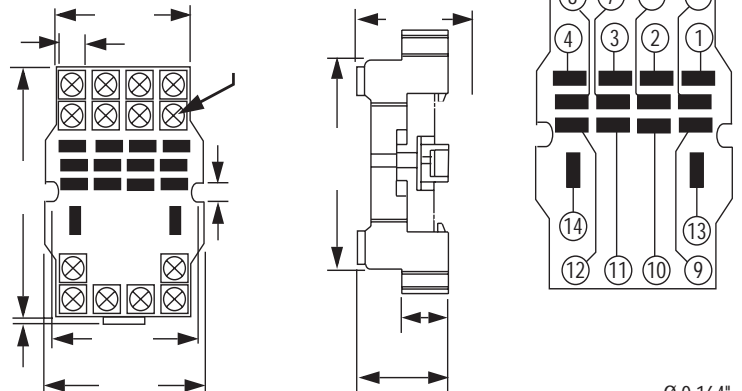
Style	14-blade, snap-mount/surface mount
Terminal	M3.5 screws with captive wire clamp
Wire Size	Maximum up to 2-#12AWG
Electrical Rating	300V, 10A
Compatible Relay	RH4B
Hold-Down Spring	SH4B-02F1
Hold-Down Clip	SFA-101, SFA-202

Panel Cutout for Surface Mounting →



SH4B-05C Fingersafe

Style	14-blade, snap-mount/surface mount
Terminal	M3.5 screws with captive wire clamp, fingersafe
Wire Size	Maximum up to 2-#12AWG
Electrical Rating	300V, 10A
Compatible Relay	RH4B
Hold-Down Spring	SH4B-02F1
Hold-Down Clip	SFA-101, SFA-202

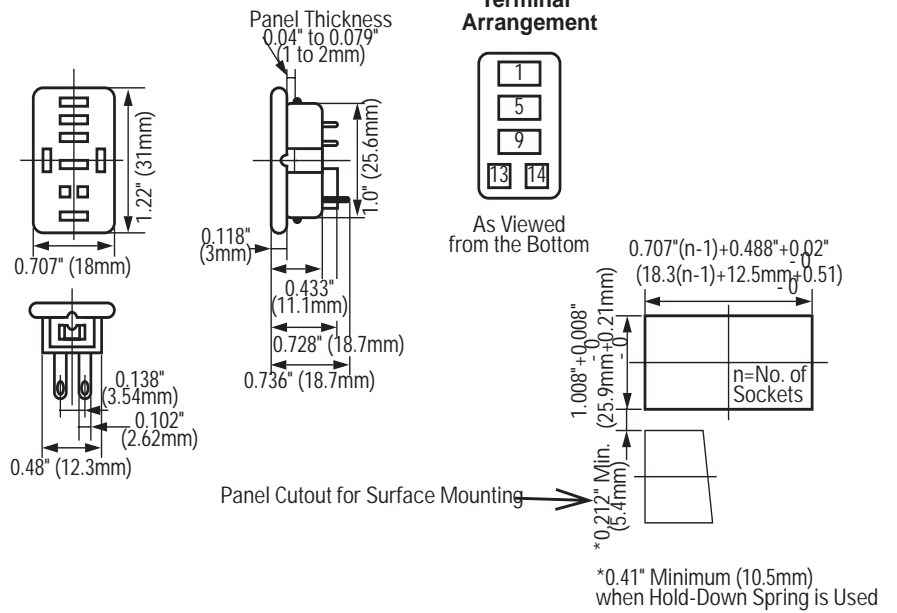


SH Series: Panel Mount Sockets



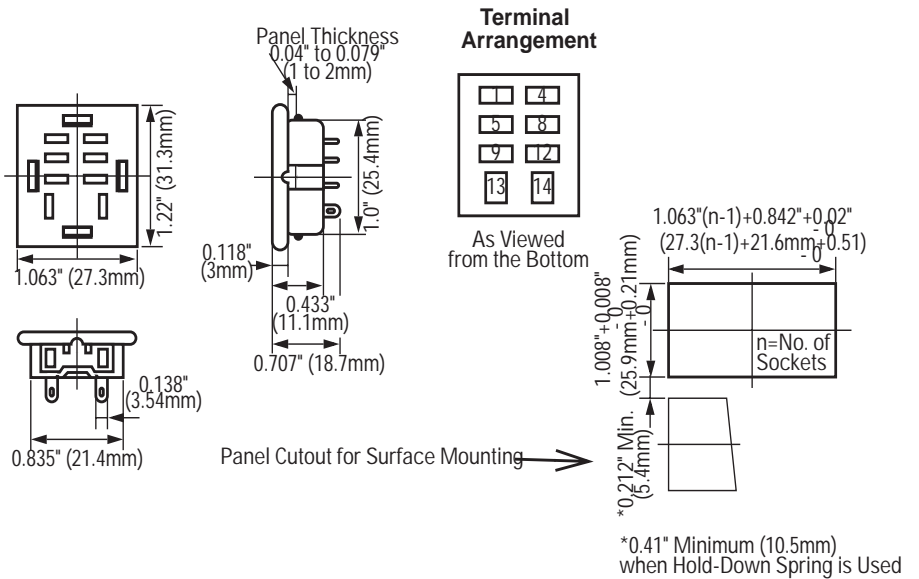
SH1B-51

Style	5-blade, panel mount
Terminal	Solder
Electrical Rating	300V, 10A
Compatible Relay	RH1B, RAHB, RBHB
Hold-Down Spring	SY4S-51F1
Hold-Down Clip	SFA-301, SFA-302



SH2B-51

Style	8-blade, panel mount
Terminal	Solder
Electrical Rating	300V, 10A
Compatible Relay	RH2B, RAMB, RBMB
Hold-Down Spring	SY4S-51F1, SY4S-02F1
Hold-Down Clip	SFA-301, SFA-302

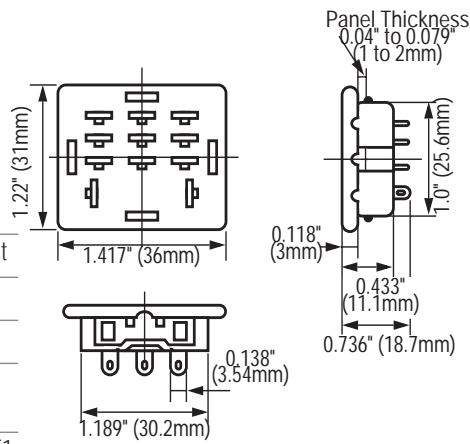


SH Series: Panel Mount Sockets, continued

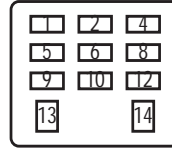


SH3B-51

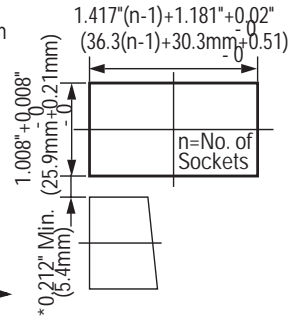
Style	11-blade, panel mount
Terminal	Solder
Electrical Rating	300V, 10A
Compatible Relay	RH3B, *RH2LB (*latching relay)
Hold-Down Spring	SY4S-51F1, SY4S-02F1
Hold-Down Clip	SFA-301, SFA-302



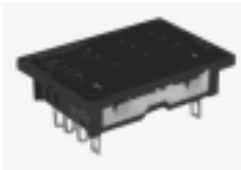
Terminal Arrangement



As Viewed from the Bottom

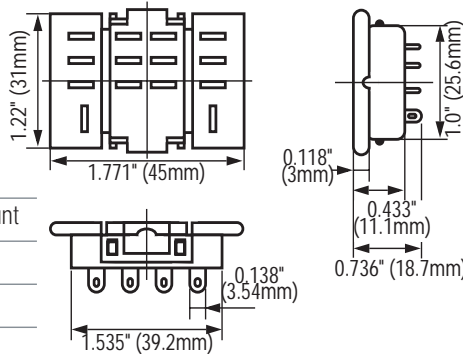


*0.41" Minimum (10.5mm) when Hold-Down Spring is Used

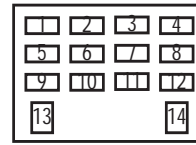


SH4B-51

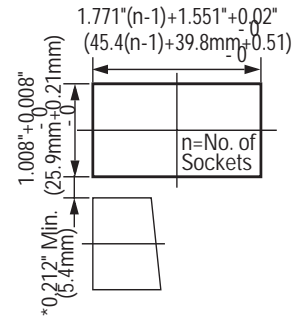
Style	14-blade, panel mount
Terminal	Solder
Electrical Rating	300V, 10A
Compatible Relay	RH4B
Hold-Down Spring	SY4S-51F1, SY4S-02F1
Hold-Down Clip	SFA-301, SFA-302



Terminal Arrangement



As Viewed from the Bottom



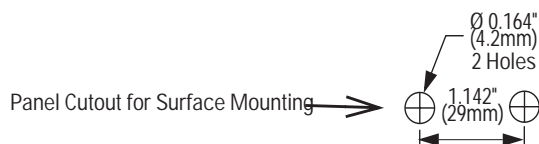
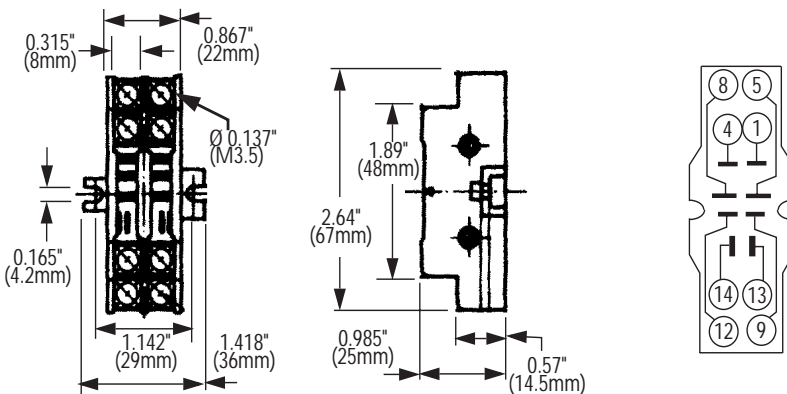
*0.41" Minimum (10.5mm) when Hold-Spring is Used

SH Series: Surface Mount Sockets



SH2B-02

Style	8-blade, snap-mount/surface mount
Terminal	M3.5 screws with captive wire clamp
Electrical Rating	300V, 10A
Wire Size	Maximum up to 2-#12AWG
Compatible Relay	RH2B, RAHB, RBHB
Hold-Down Spring	SY4S-02F1

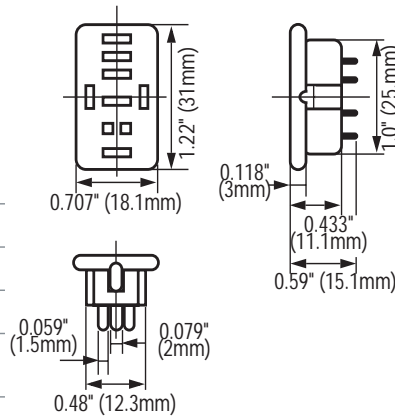


SH Series: PC Board Mount Sockets

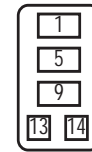


SH1B-62

Style	5-blade
Terminal	Solder/PCB mount
Electrical Rating	250V, 10A
Compatible Relay	RH1B, RAHB, RBHB
Hold-Down Spring	SY4S-51F1
Hold-Down Clip	SFA-301, SFA-302

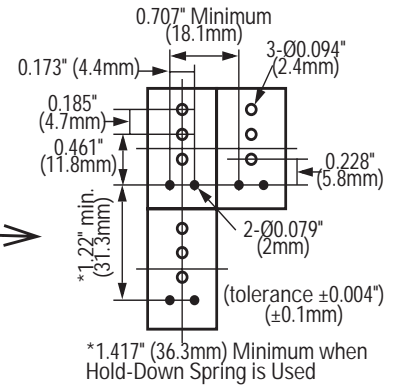


Terminal Arrangement



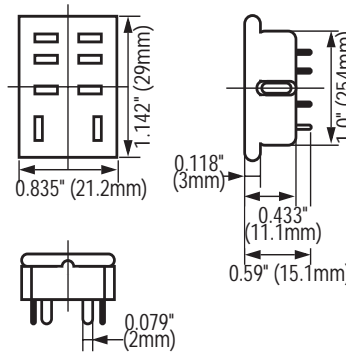
As Viewed from the Bottom

PCB Layout

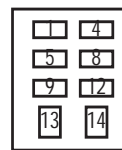


SH2B-62

Style	8-blade
Terminal	Solder/PCB mount
Electrical Rating	300V, 10A
Compatible Relay	RH2B, RAMB, RBMB
Hold-Down Spring	SY4S-51F1, SY4S-02F1

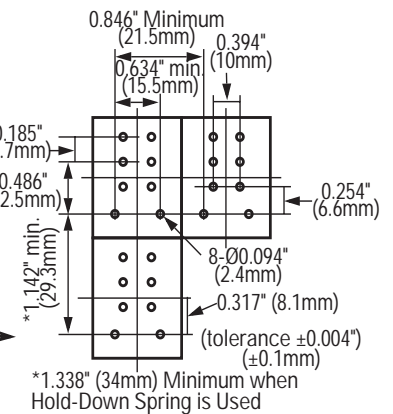


Terminal Arrangement



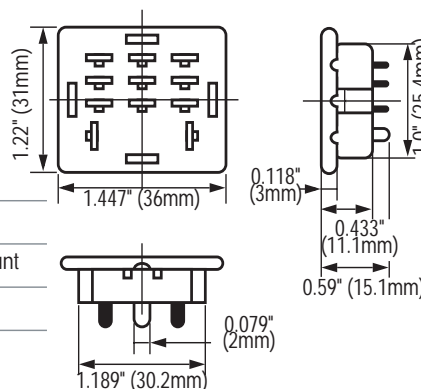
As Viewed from the Bottom

PCB Layout

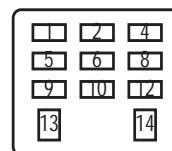


SH3B-62

Style	11-blade
Terminal	Solder/PCB mount
Electrical Rating	300V, 10A
Compatible Relay	RH3B, *RH2LB (*latching relay)
Hold-Down Spring	SY4S-51F1, SY4S-02F1
Hold-Down Clip	SFA-301, SFA-302

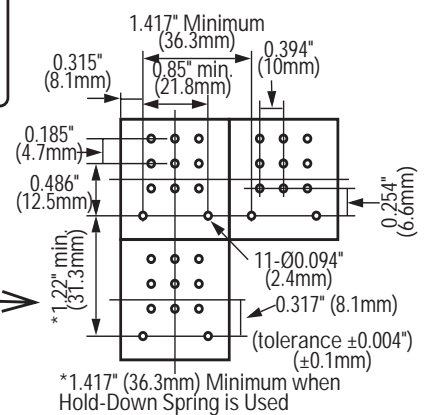


Terminal Arrangement



As Viewed from the Bottom

PCB Layout

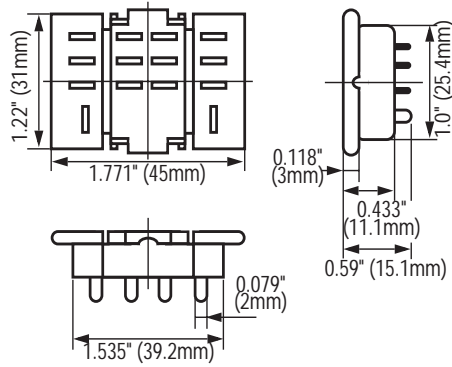


SH Series: PC Board Mount Sockets, continued

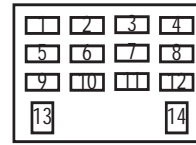


SH4B-62

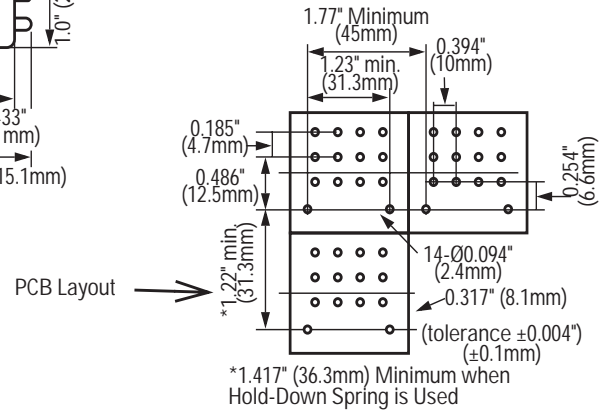
Style	14-blade
Terminal	Solder/ PCB mount
Electrical Rating	300V, 10A
Compatible Relay	RH4B
Hold-Down Springs	SY4S-51F1, SY4S-02F1
Hold-Down Clip	SFA-301, SFA-302



Terminal Arrangement



As Viewed from the Bottom



Hold-Down Springs and Clips Selection Guide

DIN Rail Snap-Mount Sockets

Socket Part No.	Applicable Relays, Timer	Hold-Down Spring	Hold-Down Clip
SR2P-05 SR2P-05C	RR2P, RAPP, RBPP	SR2B-02F1	SFA-203
	RTE-P1, GT3, GT5P	—	SFA-203
SR2P-06	RR2P, RAPP, RBPP	SR2B-02F1	SFA-202
	GT3 (8-pin), RTE-P1, GT5P	—	SFA-202
SR3P-05 SR3P-05C	RR3PA	SR3B-02F1	SFA-203
	RR2KP	SR3P-06F3	SFA-203
	RTE-P2, GT3 (11-pin)	—	SFA-203
SR3P-06	RR3PA	SR3B-02F1	SFA-202
	RR2KP	SR3P-06F3	SFA-202
	RTE-P2, GT3 (11-pin)	—	SFA-202
SR3B-05	RR1BA, RR2BA, RR3B, RTE-B	SR3B-02F1	SFA-202
SH1B-05 SH1B-05C	RH1B, RAHB, RBHB	SY2S-02F1	SFA-101 SFA-202
SH2B-05 SH2B-05C	RH2B, RAMB, RBMB	SY4S-02F1	SFA-101 SFA-202
SH3B-05 SH3B-05C	RH3B, RH2LB	SH3B-05F1	SFA-101 SFA-202
SH4B-05 SH4B-05C	RH4B	SH4B-02F1	SFA-101 SFA-202
SY2S-05 SY2S-05C	RY2S, RY22S	SY2S-02F1	SFA-101 SFA-202
SY4S-05 SY4S-05C	RY4S, RY42S, RY2LS, RM2S	SY4S-51F1	SFA-101 SFA-202
	RY2KS, GT5Y	(SY4S-51F3)	SFA-202

Panel and PC Board Mount Sockets

Socket Part No.	Applicable Relays, Timer	Hold-Down Spring	Hold-Down Clip
SR2P-51	RR2P, RAPP, RBPP	SR3P-01F1	—
	GT3 (8-pin), RTE-P1	—	SFA-402
SR3P-51	RR3PA	SR3P-01F1	—
	RR2KP	SR3P-51F3	—
	GT3 (11-pin), RTE-P2	—	SFA-402
SR3B-51	RR1BA, RR2BA, RR3B, RTE-B	SR3B-02F1	—
SH1B-51 SH1B-62	RH1B, RAHB, RBHB	SY4S-51F1	SFA-301 SFA-302
SH2B-51	RH2B, RAMB, RBMB	SY4S-51F1 (SY4S-02F1)	SFA-301 SFA-302
SH2B-62	RH2B, RAMB, RBMB	SY4S-51F1 (SY4S-02F1)	—
SH3B-51 SH3B-62	RH3B, RH2LB	SY4S-51F1 (SY4S-02F1)	SFA-301 SFA-302
SH4B-51 SH4B-62	RH4B	SY4S-51F1 (SY4S-02F1)	SFA-301 SFA-302
SY2S-51 SY2S-61	RY2S, RY22S	SY4S-51F1	SFA-301 SFA-302
SY4S-51 SY4S-61	RY4S, RY42S, RY2LS	SY4S-51F1 (SY4S-02F1)	SFA-301 SFA-302
	RY2KS	SY4S-51F1 (SY4S-02F3)	SFA-302
	GT5Y	—	SFA-302
SY4S-62 *	RY4S, RY42S, RY2LS, RM2S	SY4S-51F1 (SY4S-02F1)	—
	RY2KS	SY4S-51F1 (SY4S-02F3)	—

* Does not accept hold down clips



- When mounting relays with a check button onto panel mount or PC board mount sockets, use the hold-down spring shown in parenthesis. Hold-down springs for relays with check buttons are not available for SR2P-51.
- For close mounting of panel mount or PC mount sockets, use hold-down clips rather than hold-down springs.



SFA-101



SFA-202



SFA-302



SFA-402

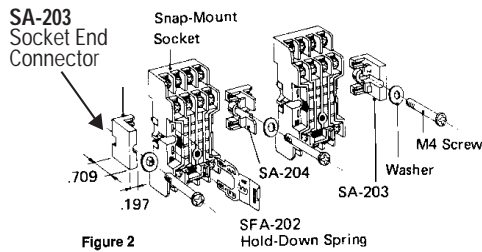





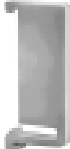



SR3P-01F1



SY4S-51F1

Accessories



Description	Appearance	Use with	Part No.	Remarks
Aluminum DIN Rail (1 meter length)		All DIN rail sockets	BNDN1000	IDEC offers a low-profile DIN rail (BNDN-1000). The BNDN-1000 is designed to accommodate snap-mount sockets and surface mount sockets. Made of durable extruded aluminum, the BNDN-1000 measures 0.413" in height and 1.37" (35mm) in width (DIN standard). Standard length is 39" (1,000mm).
DIN Rail End Stop		BNDN1000 DIN rail	BNL5	9.1 mm wide.
Surface Mount End Connector		SY2S, SY4S, SR3B, SH1B, SH2B, SH3B, SH4B	SA-203	For use on ends of socket groupings when surface mounting.
			SA-204	For use between adjoining sockets when surface mounting.
Surface Mount Connector		SY2S, SY4S, SR3B, SH1B, SH2B, SH3B, SH4B	SA-405	For use between adjoining sockets when surface mounting.
DIN Rail Spacer		All DIN rail sockets	SA-406	
Steel Mounting Plates (for panel mount sockets)		SY4S-51, SH2B-51	SA-402	11.42" length with 10 holes.
		SY4S-51, SH2B-51	SA-403	23.33" length with 21 holes.
Relay Holders		RH2B, RM2S, RY4S, RY42S, RY2LS, RAMB, RBMB	RH-01	For diagram, see next page.
		RY2S, RAHB, RBHB, RH1B	RH-03	
Replacement Hold-Down Spring Anchor (horseshoe clip)		All DIN rail sockets	Y778-011	For use with hold-down springs (bale wire types) or DIN rail mount sockets. 2 pieces included with each socket.