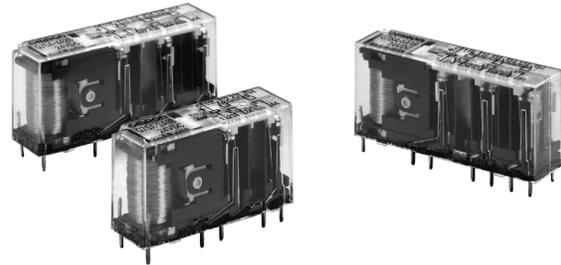


## Slim Plug-In Safety Relay

### Slim Safety Relay for Machine Control

- Slim body only 13 x 24 x 50 mm (six poles)
- Four-pole and six-pole models are available
- Terminal arrangement simplifies PCB pattern design
- Positive, force-guided contacts
- DIN rail-mounting and panel-mounting sockets available



## Ordering Information

### ■ SAFETY RELAYS

Number of contacts	NO contacts	NC contacts	Contact form	Part number
4 poles	3	1	3PST-NO, SPST-NC	<b>G7SA-3A1B</b>
	2	2	DPST-NO, DPST-NC	<b>G7SA-2A2B</b>
6 poles	5	1	5PST-NO, SPST-NC	<b>G7SA-5A1B</b>
	4	2	4PST-NO, DPST-NC	<b>G7SA-4A2B</b>
	3	3	3PST-NO, 3PST-NC	<b>G7SA-3A3B</b>

### ■ ACCESSORIES

Description			Part number
Mounting sockets	DIN-rail mounting and screw mounting	4 poles	<b>P7SA-10F</b>
		6 poles	<b>P7SA-14F</b>
	DIN-rail mounting and screw mounting with LED indicator	4 poles	<b>P7SA-10F-ND</b>
		6 poles	<b>P7SA-14F-ND</b>
	PCB terminal	4 poles	<b>P7SA-10P</b>
		6 poles	<b>P7SA-14P</b>

# Specifications

## ■ RATINGS

### Operation Coil

Number of contacts	Rated voltage	Rated current	Coil resistance	Minimum operate voltage	Release voltage	Max. voltage	Power consumption
4 poles	24 VDC	15 mA	1,600 Ω	75% max. (V)	10% min. (V)	110% (V)	Approx. 360 mW
6 poles		20.8 mA	1,152 Ω				Approx. 500 mW

- Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of ±15%.  
 2. Performance characteristics are based on a coil temperature of 23°C.  
 3. The voltage is based on an ambient operating temperature of 23°C maximum.

### Switching Section (Contact Ratings)

Load type	Resistive load (cos θ =1)
Rated load	250 VAC: 6 A, 30 VDC: 6 A
Rated carry current	6 A
Max. switching voltage	250 VAC, 125 VDC
Max. switching current	6 A

## ■ CHARACTERISTICS

Contact resistance	100 mΩ max. (Measurement conditions: 5 VDC, 1 A, voltage drops)	
Operating time	(Rated voltage operation, does not include bounce time)	20 ms max.
Release time		20 ms max.
Response time (See Note 2.)		10 ms max.
Maximum operating frequency	Mechanical	36,000 operations/hr
	Rated load	1,800 operations/hr
Insulation resistance (See Note 3, 4.)	100 MΩ	
Dielectric strength	Between coil contacts/different poles: 4,000 VAC, 50/60 Hz for 1 min. Between poles 3-4 (4 poles) Between contacts of same polarity: 1,500 VAC, 50/60 Hz for 1 min.	
Vibration	10 to 55 Hz, 1.5-mm double amplitude	
Shock	Destruction	1,000 m/s <sup>2</sup> (approx. 100G)
	Malfunction	100 m/s <sup>2</sup> (approx. 10G)
Life expectancy	Mechanical	10,000,000 operations min. (at approx. 36,000 operations/hr)
	Electrical	100,000 operations min. (at the rated load and approx. 1,800 operations/hr)
Ambient temperature (See Note 5.)	Operating	-40°C to 85°C (-40°F to 185°F) no icing
	Storage	-40°C to 85°C (-40°F to 185°F) no icing
Ambient humidity	Operating	35% to 85%
	Storage	35% to 85%
Weight	4 poles: Approx. 22 g 6 poles: Approx. 25 g	

- Note: 1. The values listed above are initial values.  
 2. The response time is the time it takes for the NO contacts to open after the coil voltage is turned OFF.  
 3. Pole 3: poles 31-32 or 33-34, pole 4: poles 43-44, pole 5: poles 53-54, pole 6: poles 63-64.  
 4. When using a P7SA socket, the dielectric strength between coil contacts/different poles is 2,500 VAC, 50/60 Hz for 1 min.  
 5. When operating at a temperature between 70°C and 85°C, reduce the rated carry current (6 A at 70°C or less) by 0.1 A for each degree above 70°C.

## ■ CHARACTERISTICS OF SAFETY RELAY SOCKET

Model	Continuous current	Dielectric strength	Insulation resistance
P7SA-14□	6 A	2,500 VAC for 1 min. between poles	100 MΩ min. (See Note.)

Note: Measurement conditions: Measurement of the same points as for the dielectric strength at 500 VDC.

■ APPROVED STANDARDS

EN61810-1 (IEC61810-1)

EN502105

UL508

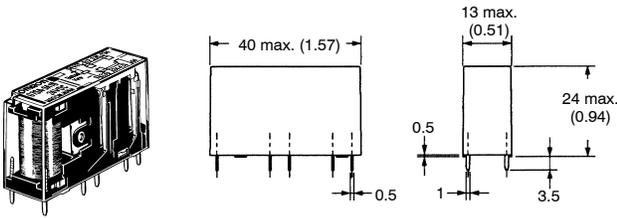
CSA22.2 No. 14

Dimensions

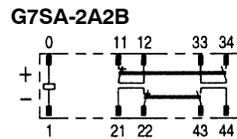
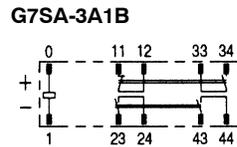
Unit: mm (inch)

■ SAFETY RELAYS

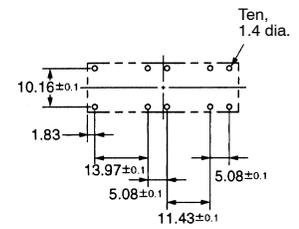
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G7SA-2A2B



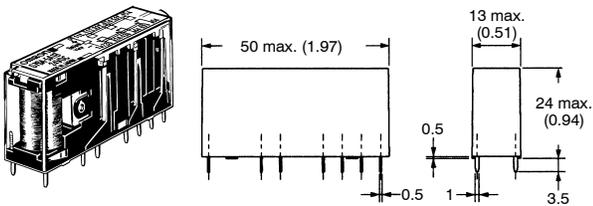
Terminal Installation/  
Internal Connection Diagram  
(Bottom View)



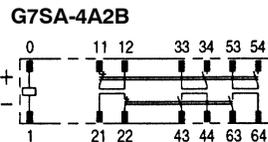
Mounting Holes  
(Bottom View)



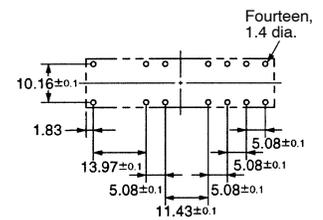
G7SA-5A1B  
G7SA-4A2B  
G7SA-3A3B



Terminal Installation/  
Internal Connection Diagram  
(Bottom View)

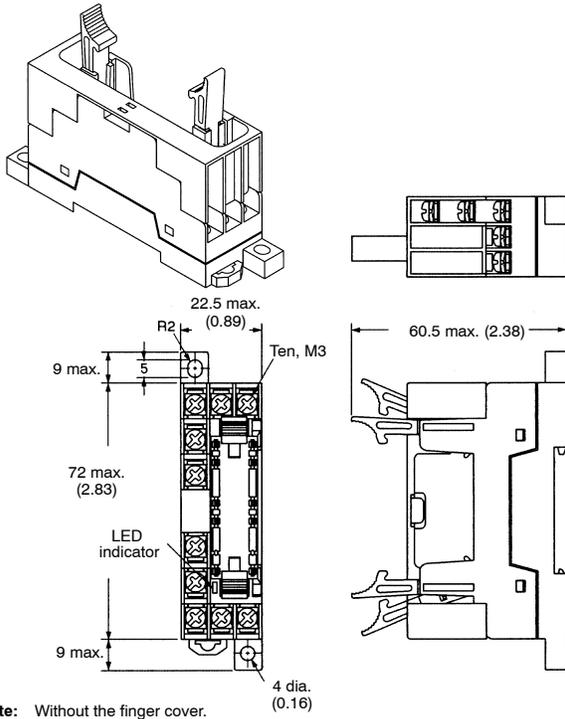


Mounting Holes  
(Bottom View)

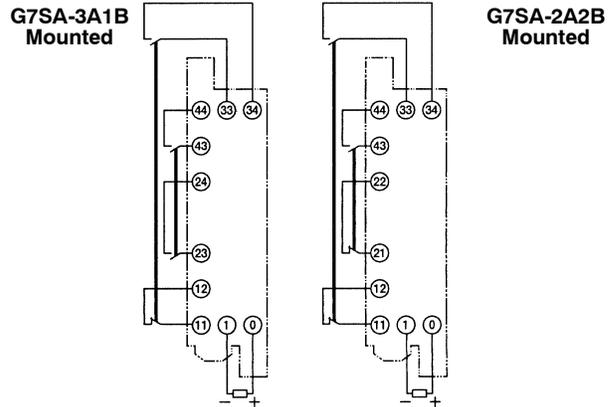


■ SAFETY RELAY SOCKETS

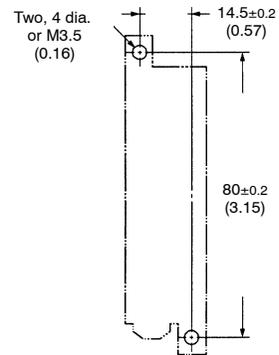
P7SA-10F, P7SA-10F-ND  
DIN Rail-mounting Socket or Panel Mounting



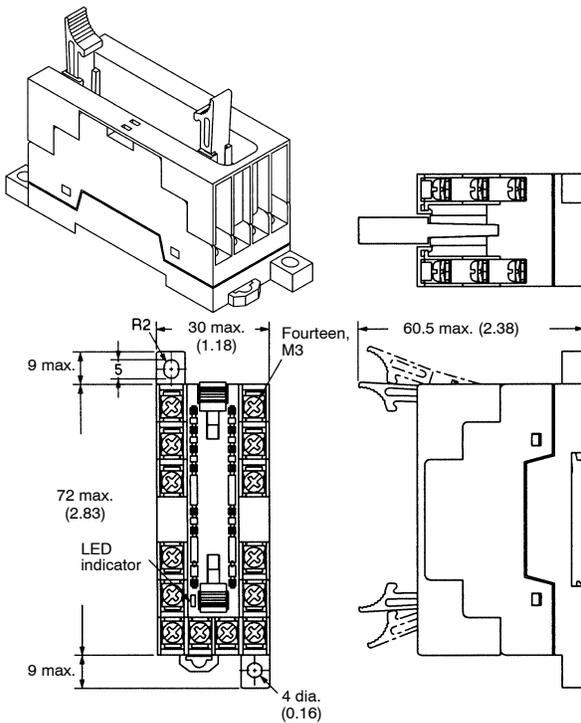
Terminal Installation/Internal Connection Diagram (Top View)



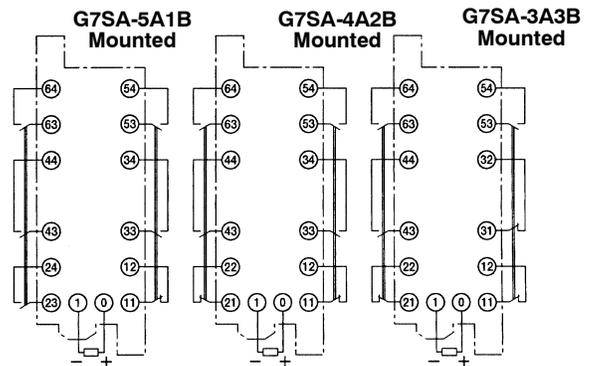
Mounting Holes (Top View)



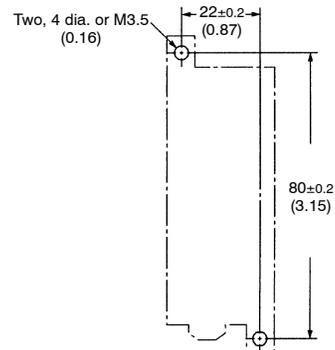
P7SA-14F, P7SA-14F-ND  
DIN Rail-mounting Socket or Panel Mounting



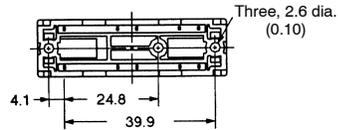
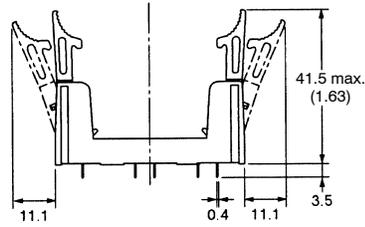
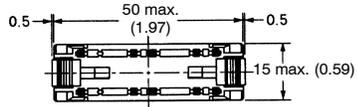
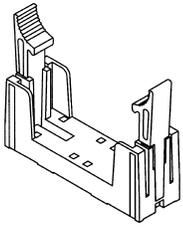
Terminal Installation/Internal Connection Diagram (Top View)



Mounting Holes (Top View)

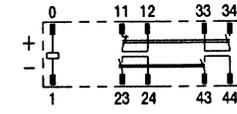


**P7SA-10P Panel-mounting Socket (PCB Terminals)**

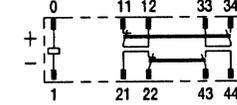


**Terminal Installation/Internal Connection Diagram (Bottom View)**

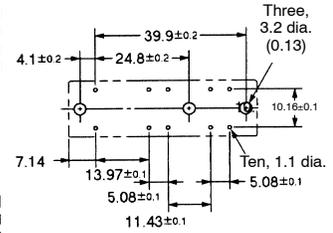
**G7SA-3A1B**



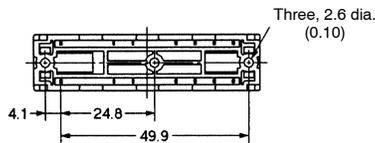
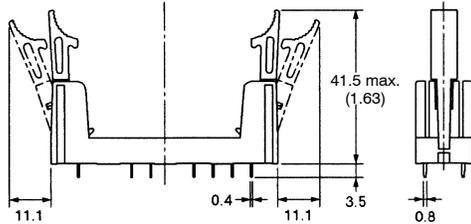
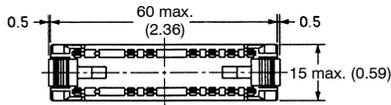
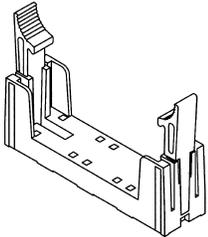
**G7SA-2A2B**



**Mounting Holes (Bottom View)**

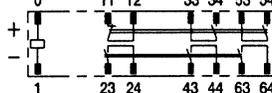


**P7SA-14P Panel-mounting Socket (PCB Terminals)**

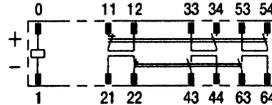


**Terminal Installation/Internal Connection Diagram (Bottom View)**

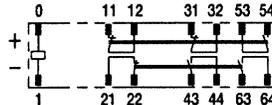
**G7SA-5A1B**



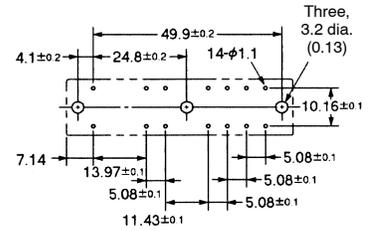
**G7SA-4A2B**



**G7SA-3A3B**



**Mounting Holes (Bottom View)**



## Precautions

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### ■ WIRING

- Use one of the following wires to connect to the P7SA-10F/10F-ND/14F/14F-ND.  
Stranded wire: 0.75 to 1.5 mm<sup>2</sup> 16 to 18 AWG  
Solid wire: 1.0 to 1.5 mm<sup>2</sup> 16 to 18 AWG
- Tighten each screw of the P7SA-10F/10F-ND/14F/14F-ND to a torque of 0.98 N • m (10 kgf • cm) securely.
- Insure correct coil polarity, or the G7SA will not operate.

### ■ CLEANING

The G7SA is not of enclosed construction. For this reason, do not wash the G7SA with water or detergent.

### ■ FORCIBLY GUIDED CONTACTS (FROM EN50205)

If NO contacts become welded, all NC contacts will maintain a minimum distance of 0.5 mm when the coil is not energized. Similarly, if NC contacts become welded, all NO contacts will maintain a minimum distance of 0.5 mm when the coil is energized.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, divide by 25.4
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