

## Socket Accessories

### Short Bars (For P7SA-□F-ND-PU)

Pitch	No. of poles	Colors	Model*1*2
5.2 mm	2	Red (RD) Blue (BL) Yellow (YL)	XW5S-P2.5-2□
	3		XW5S-P2.5-3□
	4		XW5S-P2.5-4□
	5		XW5S-P2.5-5□

**Note:** Use for crossover wiring of adjacent contact terminals (bottom) within one Socket.

\*1. Replace the box (□) in the model number with the code for the covering color. Color Options: RD = red, BL = blue, YL = yellow

Example: XW5S-P2.5-10RD when the covering color is red.

\*2. XW5S-P2.5-5□ cannot be used with P7SA-10F-ND-PU.

### Parts for DIN Track Mounting

Type	Model	Minimum Order (quantity)
DIN Tracks	1 m	1
	0.5 m	
End Plate *	PFP-M	10
Spacer	PFP-S	

\* When mounting DIN track, please use End Plate (Model PFP-M).

## Specifications

## Ratings

Safety Relay Unit  
Coil (4 poles)

Item	Rated current (mA)	Coil resistance (Ω)	Max. voltage (V)	Power consumption (mW)
Rated voltage				
12 VDC	30	400	110%	Approx. 360
18 VDC	20	900		
21 VDC	17.1	1,225		
24 VDC	15	1,600		
48 VDC	7.5	6,400		
110 VDC	3.8	28,810		

## Coil (6 poles)

Item	Rated current (mA)	Coil resistance (Ω)	Max. voltage (V)	Power consumption (mW)
Rated voltage				
12 VDC	41.7	288	110%	Approx. 500
18 VDC	27.8	648		
21 VDC	23.8	882		
24 VDC	20.8	1,152		
48 VDC	10.4	4,606		
110 VDC	5.3	20,862		

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

## Characteristics

## Safety Relay Unit

Contact resistance *1		100 mΩ max.
Operating time *2		20 ms max.
Response time *3		10 ms max.
Release time *2		20 ms max.
Must operate voltage		75% max.
Must release voltage		10% min.
Maximum operating frequency	Mechanical	36,000 operations/h
	Rated load	1,800 operations/h
Insulation resistance *4		1,000 MΩ min.
Dielectric Strength *5 *6	Between coil and contacts	4,000 VAC, 50/60 Hz for 1 min.
	Between contacts of different polarity	4,000 VAC, 50/60 Hz for 1 min. (except for followings) 4 poles (for poles 3-4 in 4-pole Relays), 6 poles (for poles 3-5, 4-6, and 5-6 in 6-pole Relays): 2,500 VAC, 50/60 Hz for 1 min.
	Between contacts of the same polarity	1,500 VAC, 50/60 Hz for 1 min.
Vibration resistance		10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)
Shock resistance	Destruction	1,000 m/s <sup>2</sup>
	Malfunction	100 m/s <sup>2</sup>
Durability *7	Mechanical	10,000,000 operations min. (at approx. 36,000 operations/h)
	Electrical	100,000 operations min. (at the rated load)
Inductive load switching capability *8 (IEC60947-5-1)		AC15 240 VAC, 2 A DC13 24 VDC, 1 A/48 VDC, 0.5 A/110 VDC, 0.2 A
Failure rate (P level) (reference value *9)		5 VDC, 1 mA
Ambient operating temperature *10		12 to 48 VDC: -40 to 85°C (with no icing or condensation) 110 VDC: -40 to 60°C (with no icing or condensation)
Ambient operating humidity		5% to 85%
Weight		4 poles: Approx. 22 g 6 poles: Approx. 25 g

**Note:** 1. The above values are initial values.

2. Performance characteristics are based on coil temperature of 23°C.

\*1. The contact resistance was measured with 1 A at 5 VDC using the voltage-drop method.

\*2. These times were measured at the rated voltage and an ambient temperature of 23°C. Contact bounce time is not included.

\*3. The response time is the time it takes for the normally open contacts to open after the coil voltage is turned OFF. Contact bounce time is included. Measurement conditions: Rated voltage operation, Ambient temperature: 23°C

\*4. The insulation resistance was measured with a 500-VDC megohmmeter at the same locations as the dielectric strength was measured.

\*5. Pole 3 refers to terminals 31-32 or 33-34, pole 4 refers to terminals 43-44, pole 5 refers to terminals 53-54, and pole 6 refers to terminals 63-64.

\*6. When using a P7SA Socket, the dielectric strength between coil contacts/different poles is 2,500 VAC, 50/60 Hz for 1 min. When using Push-In Plus terminal sockets (P7SA-□F-ND-PU), the dielectric strength between coil contacts as well as between different poles is 4,000 VAC, 50/60 Hz for 1 min.

\*7. The durability is for an ambient temperature of 15 to 35°C and an ambient humidity of 25% to 75%. For the durability performance to the load, refer to the Durability Curve.

\*8. AC15:  $\cos\phi = 0.3$ , DC13: L/R = 48-ms.

\*9. The failure rate is based on an operating frequency of 300 operations/min.

\*10. 12 to 48 VDC: When operating between 70 and 85°C, reduce the rated carry current of 6 A by 0.1 A for each degree above 70°C.

110 VDC: When operating between 40 and 60°C, reduce the rated carry current of 6 A by 0.27 A for each degree above 40°C.

## Contacts

Item	Load	Resistive load
Rated load		6 A at 250 VAC, 6 A at 30 VDC
Rated carry current		6 A
Max. switching voltage		250 VAC, 125 VDC
Max. switching current		6 A
Contact materials		Au plating + Ag alloy