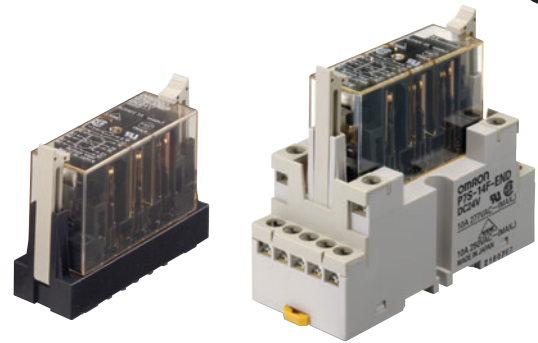



## Relays Conforming to EN Standard

- Relays with forcibly guided contacts (EN50205 Class A, certified by VDE).
- Supports the CE marking of machinery (Machinery Directive).
- Helps avoid hazardous machine status when used as part of an interlocking circuit.
- Track-mounting and Back-mounting Sockets are available.



 Be sure to read the "Safety Precautions" on page 5 and the "Precautions for All Relays with Forcibly Guided Contacts".

## Model Number Structure

### Model Number Legend

G7S- A B

1      2

1. **NO Contact Poles**
  - 4: 4PST-NO
  - 3: 3PST-NO
2. **NC Contact Poles**
  - 2: DPST-NC
  - 3: 3PST-NC

## Ordering Information

### Relays with Forcibly Guided Contacts

Type	Poles	Contact configuration	Rated voltage	Model
Standard	6 poles	4PST-NO, DPST-NC	24 VDC	<b>G7S-4A2B</b>
		3PST-NO, 3PST-NC		<b>G7S-3A3B</b>

### Sockets

Type		Rated voltage	Model
Track-mounting	Common for track mounting and screw mounting	24 VDC	<b>P7S-14F-END</b>
Back-mounting	PCB terminals	---	<b>P7S-14P-E</b>

## Specifications

### Ratings

#### Coil

Rated voltage	Item	Rated current (mA)	Coil resistance ( $\Omega$ )	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (W)
24 VDC		30	800	80% max.	10% min.	110%	Approx. 0.8

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

#### Contacts

Item	Load	Resistive load	Inductive load ( $\cos \phi = 0.4, L/R = 7 \text{ ms}$ )
Rated load		240 VAC: 3 A, 24 VDC: 3 A	240 VAC: 3 A, 24 VDC: 1 A
Rated carry current		6 A	
Maximum switching voltage		250 VAC, 24 VDC	
Maximum switching current		6 A	

### Characteristics of Sockets

Model	Continuous current	Dielectric strength	Insulation resistance
P7S-14□	10 A	2,000 VAC for 1 min. between terminals	1,000 M $\Omega$ min. *

**Note:** Use the P7S-14F-END in the ambient humidity range of 35 to 85%.

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

### Characteristics

Contact resistance *1		100 m $\Omega$ max.
Operating time *2		50 ms max.
Release time *2		50 ms max.
Maximum operating frequency	Mechanical	18,000 operations/h
	Rated load	1,800 operations/h
Insulation resistance *3		100 M $\Omega$ min.
Dielectric strength		2,500 VAC, 50/60 Hz for 1 min. (1,500 VAC between contacts of same polarity)
Vibration resistance	Destruction	10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)
	Malfunction	10 to 55 to 10 Hz, 0.375-mm single amplitude (0.75-mm double amplitude)
Shock resistance	Destruction	1,000 m/s <sup>2</sup>
	Malfunction	100 m/s <sup>2</sup>
Durability *4	Mechanical	10,000,000 operations min. (at approx. 18,000 operations/h)
	Electrical	100,000 operations min. (at the rated load and approx. 1,800 operations/h)
Failure rate (P level) (reference value *5)		5 VDC, 1 mA
Ambient operating temperature		-25 to 70°C (with no icing or condensation)
Ambient operating humidity		5% to 85%
Weight		Approx. 65 g

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

\*1. Measurement conditions: 5 VDC, 10 mA, voltage drops.

\*2. Measurement conditions: Rated voltage operation

Ambient operating temperature: 23°C

Contact bounce time is not included.

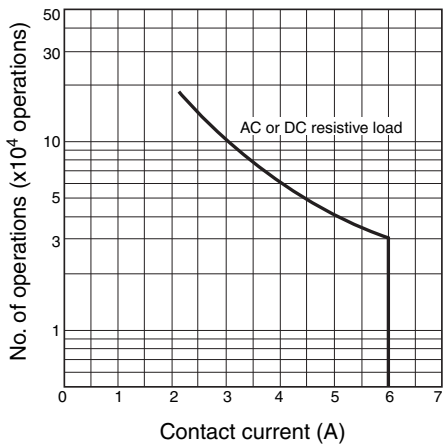
\*3. The insulation resistance was measured with a 500-VDC megohmmeter at the same locations as the dielectric strength was measured.

\*4. The durability is for an ambient temperature of 15 to 35°C and an ambient humidity of 25% to 75%.

\*5. The failure rate is based on an operating frequency of 60 operations/min.

# Engineering Data

## Durability Curve (Rated Resistive Load)

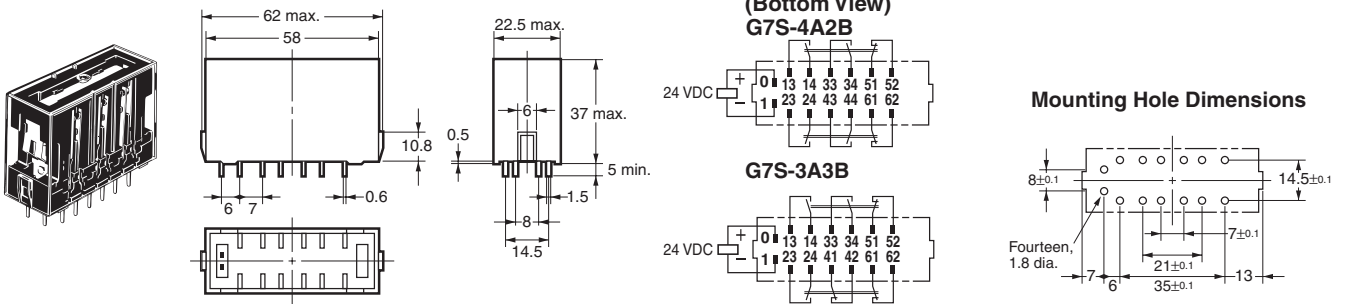


## Dimensions

(Unit: mm)

### Relays with Forcibly Guided Contacts

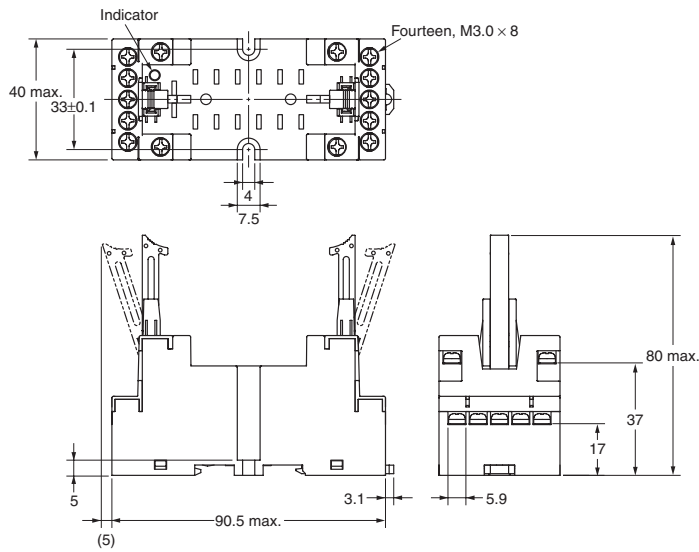
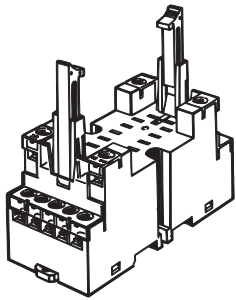
G7S-4A2B  
G7S-3A3B



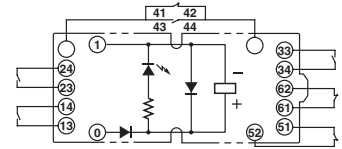
Sockets

Track-mounting Socket

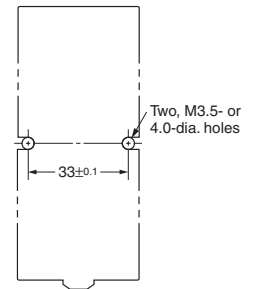
P7S-14F-END



Terminal Arrangement/Internal Connection Diagram (Top View)

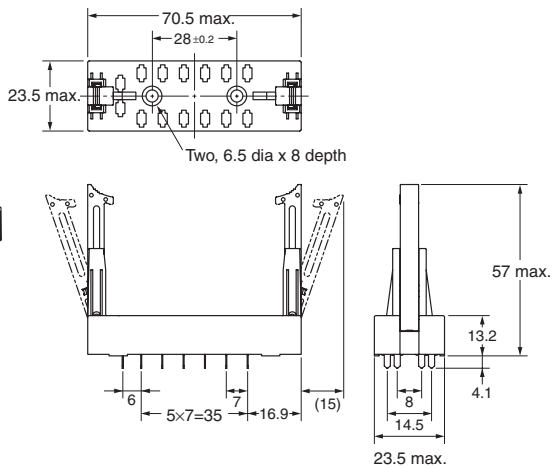
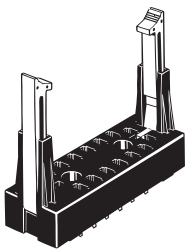


Mounting Hole Dimensions

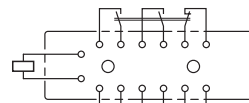


Back-mounting Socket (PCB Terminals)

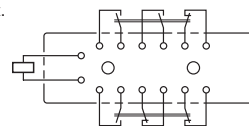
P7S-14P-E



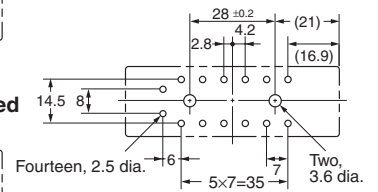
Terminal Arrangement/Internal Connection Diagram (Bottom View) With G7S-4A2B mounted



With G7S-3A3B mounted



Mounting Hole Dimensions



## Certified Standards

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- EN Standards, VDE Certified  
EN61810-1 (Electromechanical non-specified time all-or-nothing relays)  
EN50205 (Relays with forcibly guided (linked) contacts)
- UL standard UL508 Industrial Control Devices
- CSA standard CSA C22.2 No. 14 Industrial Control Devices

## Forcibly Guided Contacts (from EN50205)

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If an NO contact becomes welded, all NC contacts will maintain a minimum distance of 0.5 mm when the coil is not energized. Likewise if an NC contact becomes welded, all NO contacts will maintain a minimum distance of 0.5 mm when the coil is energized.

## Safety Precautions

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Refer to the *“Precautions for All Relays”* and *“Precautions for All Relays with Forcibly Guided Contacts”*.

<b>Precautions for Correct Use</b>
------------------------------------

### Wiring

- Use one of the following wires to connect to the P7S-14F-END.  
Stranded wire: 0.75 to 1.5 mm<sup>2</sup>  
Solid wire: 1.0 to 1.5 mm<sup>2</sup>
- Tighten each screw of the P7S-14F-END to a torque of 0.78 to 0.98 N·m.
- Refer to the internal connections diagram of the G9S Safety Relay Unit for an application example of the G7S.
- Wire the terminals correctly with no mistakes in coil polarity, otherwise the G7S will not operate.

### Cleaning

The G7S is not of enclosed construction. Therefore, do not wash the G7S with water or detergent.

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