


## Relays with Forcibly Guided Contacts and High Switching Capacity of 10 A

- Relays with forcibly guided contacts (EN61810-3, 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.



**Note:** Sockets are sold separately.

For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

 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-E**  
1      2

#### 1. NO Contact Poles

- 4: 4PST-NO
- 3: 3PST-NO

#### 2. NC Contact Poles

- 2: DPST-NC
- 3: 3PST-NC

## Ordering Information

### Main unit

#### Relays with Forcibly Guided Contacts

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

### Options (order separately)

#### Sockets

Type4	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

#### Safety Relay Unit

#### Coil

Rated voltage	Item	Rated current (mA)	Coil resistance (Ω)	Max. voltage (V)	Power consumption (W)
24 VDC		30	800	110%	Approx. 0.8

- 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.

## Contacts

Item	Load	Resistive load
Rated load	NO contact	10 A at 250 VAC 10 A at 30 VDC
	NC contact	6 A at 250 VAC 6 A at 30 VDC
Rated carry current	NO contact	10 A
	NC contact	6 A
Maximum switching voltage		250 VAC, 30 VDC
Maximum switching current	NO contact	10 A
	NC contact	6 A

## Characteristics

### Safety Relay Unit

Contact resistance *1		100 mΩ max.
Operating time *2		50 ms max.
Release time *2		50 ms max.
Must operate voltage		80% max.
Must release voltage		10% min.
Maximum operating frequency	Mechanical	18,000 operations/h
	Rated load	1,800 operations/h
Insulation resistance *3		100 MΩ min.
Dielectric strength *4 *5		Between coil and contacts: Between coil and pole 3 or coil and pole 4: 4,000 VAC, 50/60 Hz for 1 min Other than the above: 2,500 VAC, 50/60 Hz for 1 min Between different poles: Between pole 1, 3, or 5 and pole 2, 4, or 6: 4,000 VAC, 50/60 Hz for 1 min Other than the above: 2,500 VAC, 50/60 Hz for 1 min Between contacts of same polarity: 1,500 VAC, 50/60 Hz for 1 min
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 *6	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)
Inductive load switching capability *7 (IEC60947-5-1)	NO Contact	AC15 AC240V 5A DC13 DC24V 2A
	NC Contact	AC15 AC240V 3A DC13 DC24V 2A
Failure rate (P level) (reference value *8)		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: 1. The above values are initial values.

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

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

\*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. When using a P7S Socket, the dielectric strength between coil and contacts and between different poles is 2,000 VAC, 50/60 Hz for 1 min.

\*5. The coil refers to terminals 0-1, pole 1 refers to terminals 13-14, pole 2 refers to terminals 23-24, pole 3 refers to terminals 33-34, pole 4 refers to terminals 41-42 or 43-44, pole 5 refers to terminals 51-52, and pole 6 refers to terminals 61-62.

\*6. The durability is for an ambient temperature of 15 to 35°C and an ambient humidity of 25% to 75%.

\*7. AC15:  $\cos\phi = 0.3$ , DC13: L/R = 96-ms

\*8. The failure rate is based on an operating frequency of 60 operations/min.

## Options (order separately)

### Sockets

Model		P7S-14F-END	P7S-14P-E
Continuous current		10 A	
Dielectric strength	Between contact terminals of different polarity	2000 VAC for 1 min.	
	Between contact terminals of same polarity	1500 VAC for 1 min.	
	Between coil and contact terminals	2000 VAC for 1 min.	
Insulation resistance		1000 MΩ min. *	
Weight		Approx. 110g	Approx. 25g

Note: Use the P7S-14F-END in the ambient humidity range of 25 to 85%, the P7SA-14P-E in the ambient humidity range of 5 to 85%.

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

## Certified Standards

### Safety Relay Unit

#### EN Standards, VDE Certified

Models	Ratings	Standard number	Certification No.	Operating coil	Contact ratings
G7S-3A3B-E G7S-4A2B-E	24 VDC	EN61810-1 Electromagnetic relay EN61810-3 Relays with forcibly guided contacts	40011951	24 VDC	NO Contact: 10 A 250 VAC (Resistive) 10 A 30 VDC (Resistive)  NC Contact: 6 A 250 VAC (Resistive) 6 A 30 VDC (Resistive)

#### UL Standards Certification (File No. E41515) Industrial Control Devices

Models	Standard number	Category	Listed/ Recognized	Contact ratings	Operating Coil ratings
G7S-3A3B-E G7S-4A2B-E	UL508	NRNT2	Recognized	NO Contact: 10 A per pole, 20 A total, 277 VAC (Resistive)  NC Contact: 6 A per pole, 20 A total, 277 VAC (Resistive)	24 VDC

#### CSA standard CSA C22.2 No.14 Industrial Control Devices

Models	Class number	File No.	Contact ratings	Operating Coil ratings
G7S-3A3B-E G7S-4A2B-E	3211-07	LR35535	NO Contact: 10 A per pole, 20 A total, 277 VAC (Resistive)  NC Contact: 6A per pole, 20 A total, 277 VAC (Resistive)	24 VDC

## Sockets

### CE Marking Compliance

Models	EMC Directive	Low Voltage Directive	Machinery Directive	Safety Category
P7S-14F-END P7S-14P-E	Not applicable	○	Not applicable	1

The CE compliance declaration was made in combination with the Safety Relay.

**Note: 1.** The Safety Category refers to the maximum applicable category selected when constructing control system safety components. The category does not apply to individual components.

**2.** Details and other information on conformity levels are issued as part of the "EU Declaration of Conformity". Please contact your OMRON representative for more information.

#### EN Standards, VDE Certified

Models	Standard number	Certification No.
P7S-14F-END P7S-14P-E	EN61984	40007595

#### UL Standards Certification (File No. E87929) Industrial Control Devices

Models	Standard number	Category	Listed/Recognized
P7S-14F-END P7S-14P-E	UL508	SWIV2	Recognized

#### CSA standard CSA C22.2 No.14 and CSA C22.2 No. 158 Industrial Control Devices

Models	Class number	File No.
P7S-14F-END P7S-14P-E	3211 07	LR35535

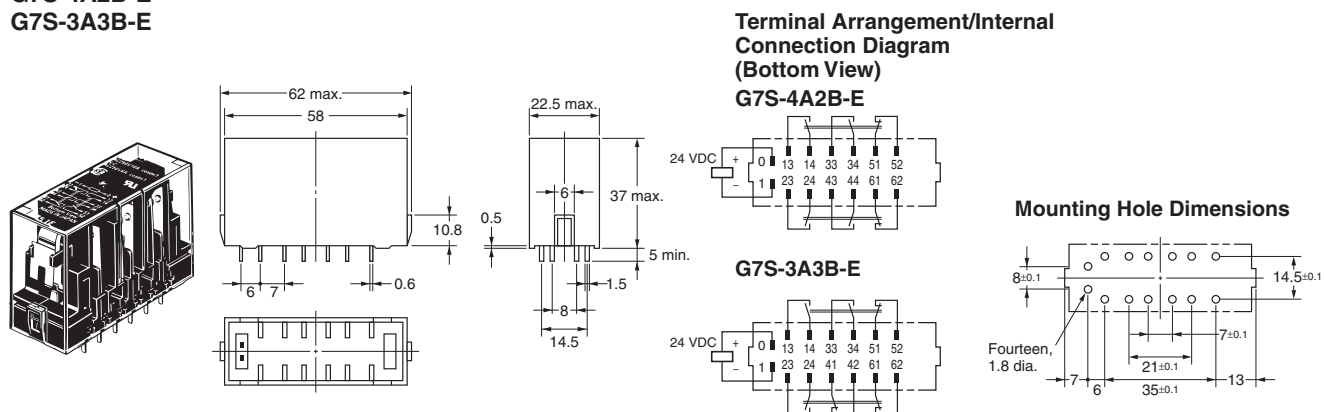
## Forcibly Guided Contacts (from EN61810-3)

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.

# Dimensions

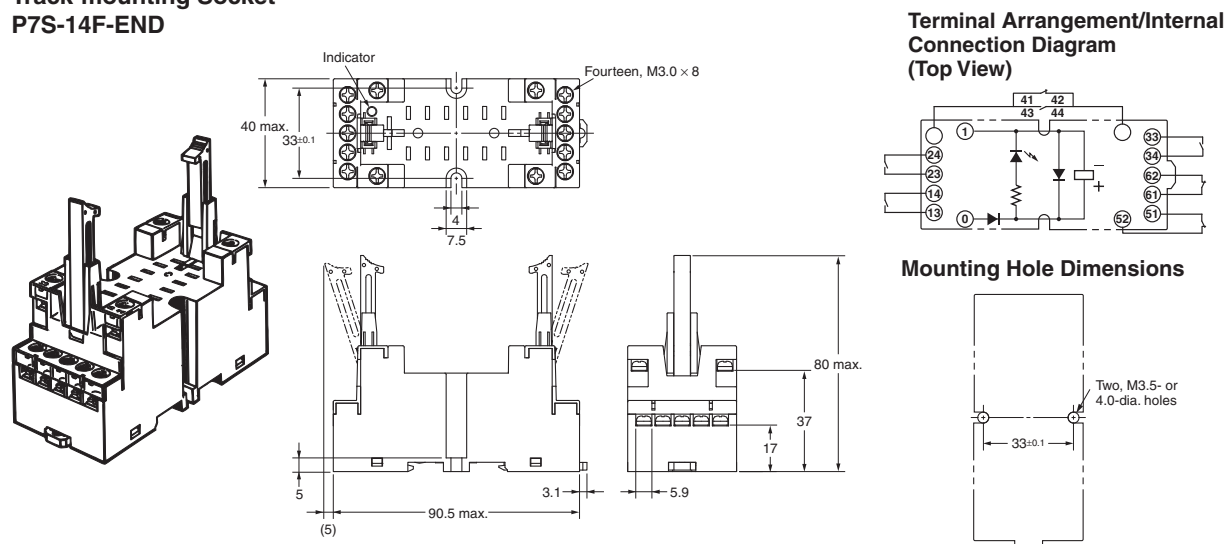
## Relays with Forcibly Guided Contacts

G7S-4A2B-E  
G7S-3A3B-E

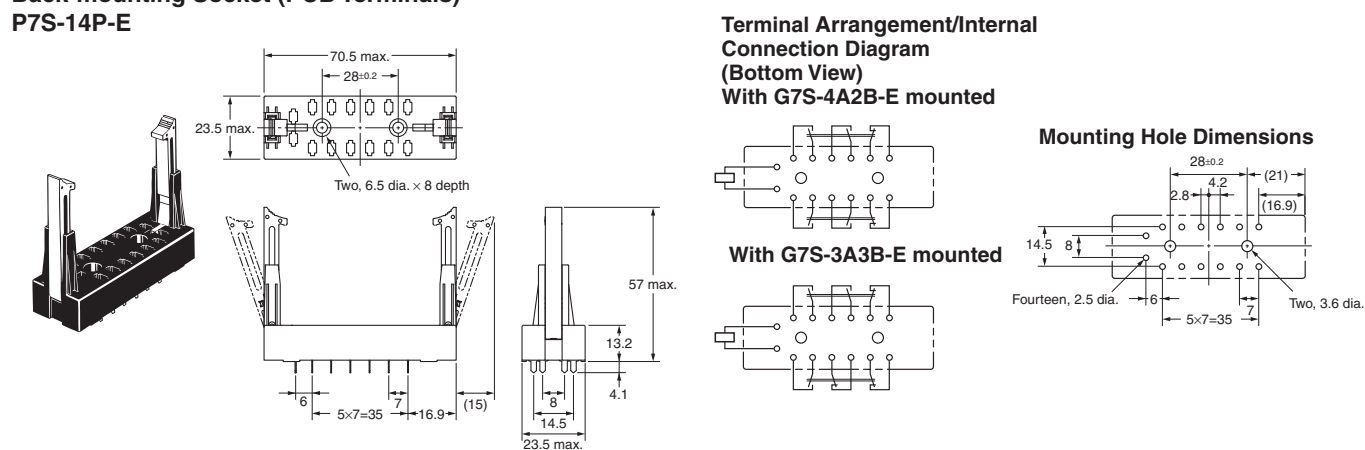


## Sockets

Track-mounting Socket  
P7S-14F-END




Back-mounting Socket (PCB Terminals)  
P7S-14P-E



## Safety Precautions

Be sure to read the precautions for “*Precautions for All Relays with Forcibly Guided Contacts*” in the website at:<http://www.ia.omron.com/>.

### Indication and Meaning for Safe Use

 <b>CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.
<b>Precautions for Safe Use</b>	Supplementary comments on what to do or avoid doing, to use the product safely.

### CAUTION

Do not pass currents of 6 A or more when using this product in combination with the P7S-14F/14P/14A Socket. Doing so may result in fire. Use this product in combination with the P7S-14F-END/14P-E.



### Precautions for Correct Use

#### 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.
- Wire the terminals correctly with no mistakes in coil polarity, otherwise the G7S will not operate.
- If you use the P7S-14F-END, the release time of the G7S will be longer because the P7S-14F-END has a built-in diode to absorb coil surge. Confirm operation under actual conditions before you use the P7S-14F-END.

#### Cleaning

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

#### Mounting

The G7SA can be installed in any direction.

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