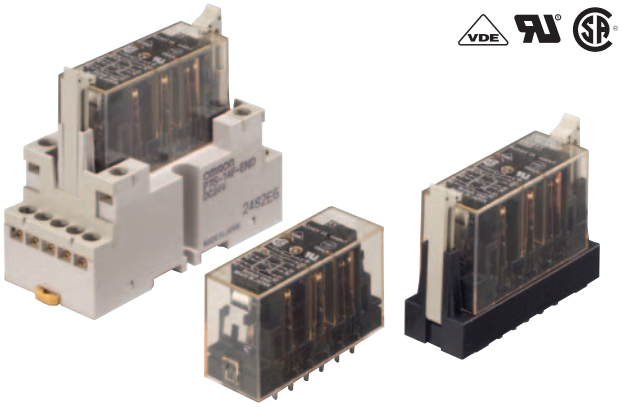
Relays with Forcibly Guided Contacts

G7S-□-E

CSM_G7S-_-E_DS_E_6_1

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

- 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.



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 4 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

Relays with Forcibly Guided Contacts

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

Sockets

Type4		Rated voltage	Model
Track-mounting	Common for track mounting and screw mounting	24 VDC	**P7S-14F-END**
Back-mounting	PCB terminals	---	**P7S-14P-E**

Specifications

Ratings

Coil

Item / Rated voltage	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

G7S-□-E Characteristics of Sockets

Model	P7S-14F-END	P7S-14P-E
Continuous current	10 A	
Dielectric strength	2000 VAC for 1 min. between terminals	
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.

Characteristics

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^2
	Malfunction	100 m/s^2
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 temparature 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

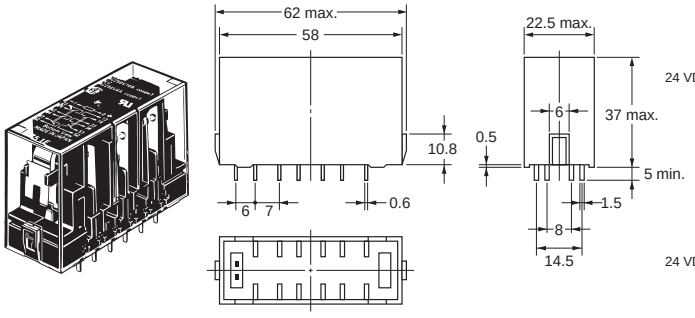
✻8. The failure rate is based on an operating frequency of 60 operations/min.

Dimensions

(Unit: mm)

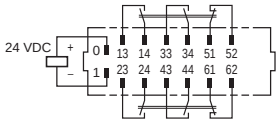
Relays with Forcibly Guided Contacts

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

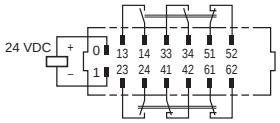


Terminal Arrangement/Internal Connection Diagram (Bottom View)

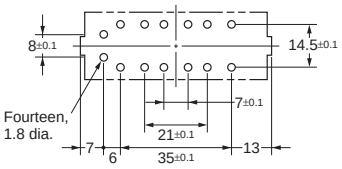
G7S-4A2B-E



G7S-3A3B-E

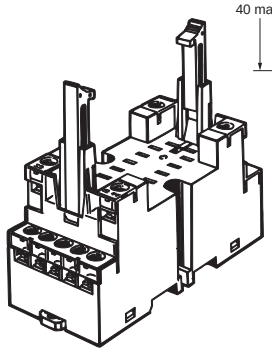


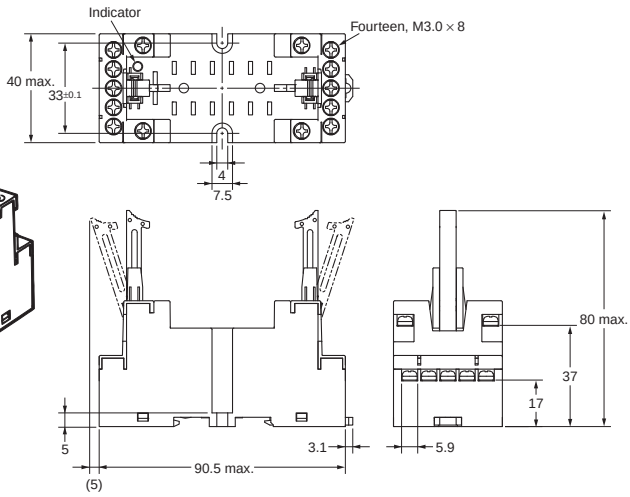
Mounting Hole Dimensions



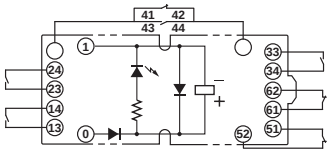
Sockets

Track-mounting Socket
P7S-14F-END

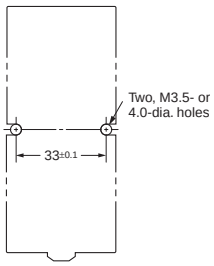




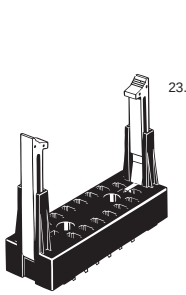
Terminal Arrangement/Internal Connection Diagram (Top View)

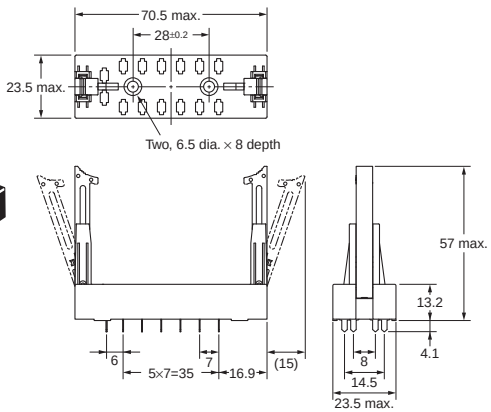


Mounting Hole Dimensions

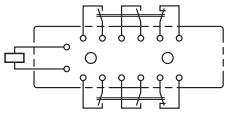


Back-mounting Socket (PCB Terminals)
P7S-14P-E

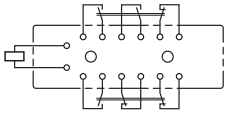




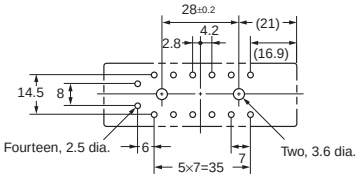
Terminal Arrangement/Internal Connection Diagram (Bottom View) With G7S-4A2B-E mounted



With G7S-3A3B-E mounted



Mounting Hole Dimensions



Certified Standards

G7S-□-E
- EN standards, VDE certified
  EN61810-1 (Electromechanical non-specified time all-or-nothing relays)
  EN60255-23 (Contact performance)
  EN50205 (Relays with forcibly guided (linked) contacts)
- UL standards: UL508 (Industrial Control Equipment)
- CSA standards: CSA C22.2 No.14 (Industrial Control Equipment)

P7S-□-E
- UL standards: UL508 (Industrial Control Equipment)
- CSA standards: CSA C22.2 No.14 (Industrial Control Equipment)

Forcibly Guided Contacts (from EN50205)

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

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

Indication and Meaning for Safe Use

⚠ CAUTION	**Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.**
Precautions for Safe Use	**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^2
  Solid wire: 1.0 to 1.5 mm^2
- 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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