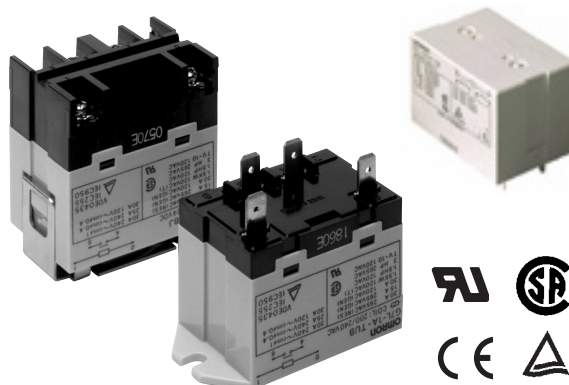


General Purpose Relay G7L

- Ideally suited for high-inrush fluid pump controls: pool/spa, water processing, emergency, chemical industry, etc.
- High-capacity, high-withstand voltage relay with no contact chattering for momentary voltage drops up to 50% of rated voltage.
- UL Class B construction standard.
- Wide-range AC-activated coil that handles 100 to 120 VAC at either 50 or 60 Hz.
- Miniature hinge for maximum switching capacity, particularly for inductive loads.
- Flame resistant materials (UL94V-0-qualifying) used for all insulation material.
- Quick-connect, screw, and PCB terminals available.
- Standard models are UL, CSA, and TUV approved; VDE/IEC 950 versions are now available. Meet pollution degree 3, Material Group II & III.



Ordering Information

To Order: Select the part number and add the desired coil voltage rating (e.g., G7L-1A-T-CB-AC100/120).

Type	Contact form	Model		
		Quick-connect terminal	Screw terminal	PCB terminal
E bracket (see note 1)	SPST-NO	G7L-1A-T-CB	G7L-1A-B-CB	—
	DPST-NO	G7L-2A-T-CB	G7L-2A-B-CB	—
E bracket (see note 1) (with test button)	SPST-NO	G7L-1A-TJ-CB	G7L-1A-BJ-CB	—
	DPST-NO	G7L-2A-TJ-CB	G7L-2A-BJ-CB	—
Upper bracket	SPST-NO	G7L-1A-TUB-CB	G7L-1A-BUB-CB	—
	DPST-NO	G7L-2A-TUB-CB	G7L-2A-BUB-CB	—
Upper bracket (with test button)	SPST-NO	G7L-1A-TUBJ-CB	G7L-1A-BUBJ-CB	—
	DPST-NO	G7L-2A-TUBJ-CB	G7L-2A-BUBJ-CB	—
PCB mounting	SPST-NO	—	—	G7L-1A-P-CB
	DPST-NO	—	—	G7L-2A-P-CB

- Note:**
1. E bracket or socket must be used for mounting (part number R99-07G5D). Refer to “Accessories” section for options and part numbers.
 2. For VDE approved versions, please consult OMRON.
 3. CE marking is provided only on non-PCB terminal versions.

Model Number Legend

G7L-□□-□□□□
1 2 3 4 5 6

- | | | |
|---|---|---|
| <p>1. Contact form
1A:SPST-NO
2A:DPST-NO</p> | <p>3. Mounting construction
No symbol:E bracket type
UB:Upper bracket type</p> | <p>5. 80: VDE approved version
(includes UL, CSA and TÜV)</p> |
| <p>2. Terminal shape
T:Quick-connect terminals
P:PCB terminals
B:Screw terminals</p> | <p>4. Special functions
No symbol:Without test button
J:With test button</p> | <p>6. CB: Class B insulation</p> <p>7. Rated coil voltage</p> |

Accessories

Quick-connect Terminals

Description	Model				Model
	Contact form				
	SPST-NO		DPST-NO		
E-brackets	G7L-1A-T	G7L-1A-TJ	G7L-2A-T	G7L-2A-TJ	R99-07G5D
Track mounting adaptor					P7LF-D
Front connecting socket					P7LF-06

Note: A socket terminal cover is supplied with the P7LF-06 socket and does not attach directly to the G7L relays. It cannot be purchased separately.

Screw Terminals

Description	Model				Model
	Contact form				
	SPST-NO		DPST-NO		
E-brackets	G7L-1A-B	G7L-1A-BJ	G7L-2A-B	G7L-2A-BJ	R99-07G5D
Track mounting adaptor					P7LF-D
Terminal Cover					P7LF-C

Note: The P7LF-C terminal cover attaches directly to the G7L-B style relays. It is sold separately.

Specifications

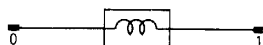
Contact Data

Load	G7L-1A-T, G7L-1A-B		G7L-2A-T, G7L-2A-B		G7L-1A-P, G7L-2A-P	
	Resistive load (cosφ = 1)	Inductive load (cosφ = 0.4)	Resistive load (cosφ = 1)	Inductive load (cosφ = 0.4)	Resistive load (cosφ = 1)	Inductive load (cosφ = 0.4)
Rated load	30 A, 220 VAC	25 A, 220 VAC			20 A, 220 VAC	
Contact material	AgSnIn					
Carry current	30 A		25 A		20 A	
Max. operating voltage	250 VAC					
Max. operating current	30 A		25 A		20 A	
Max. switching capacity	6,600 VA	5,500 VA			4,400 VA	
Min. permissible load	100 mA, 5 VDC (please inquire for lower minimum rating)					

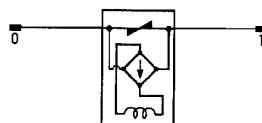
Note: P level: $\lambda_{60} = 0.1 \times 10^{-6}$ operation.

Coil Internal Circuit

DC operating coil



AC operating coil



■ Coil Data

AC

Rated voltage (V)	Rated current (mA)	Resistance (Ω)	Must operate	Must release	Max. voltage	Power consumption
			% of rated voltage			
6	283	18.90	75% max.	15% min.	110% max.	Approx. 1.70 to 2.50 VA
12	142	75				
24	71	303				
50	34	1,310				
100/120	17.00/20.40	5,260	75 volts	18 volts	132 volts	
200/240	8.50/10.20	21,000	150 volts	36 volts	264 volts	

DC

Rated voltage (V)	Rated current (mA)	Resistance (Ω)	Must operate	Must release	Max. voltage	Power consumption
			% of rated voltage			
6	317	18.90	75% max.	15% min.	110% max.	Approx. 1.90 W
12	158	75				
24	79	303				
48	40	1,220				
100	19	5,260				

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C (73°F) with tolerances of +15%/-20% for AC rated current and ±15% for DC coil resistance.

2. Performance characteristic data are measured at a coil temperature of 23°C (73°F).

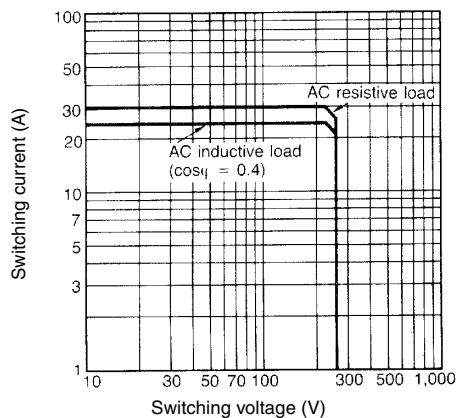
■ Characteristics

Contact resistance		50 mΩ max.
Operate time		30 ms max.
Release time		30 ms max.
Max. operating frequency	Mechanical	1,800 operations/hour
	Electrical	1,800 operations/hour (under rated load)
Insulation resistance		1,000 MΩ min. (at 500 VDC)
Dielectric strength		4,000 VAC, min./5,000 VAC typical, 50/60 Hz for 1 minute between coil and contacts
		2,000 VAC, 50/60 Hz for 1 minute between contacts of same pole
		2,000 VAC, 50/60 Hz for 1 minute between contacts of different poles (DPST-NO type)
Impulse withstand voltage		Between coil and contact: 10,000 V min./12,000 V typ. (impulse wave used: 1.20 x 50 μs)
Vibration	Mechanical durability	10 to 55 Hz; 1.50 mm (0.06 in) double amplitude
	Malfunction durability	10 to 55 Hz; 1.50 mm (0.06 in) double amplitude
Shock	Mechanical durability	1,000 m/s ² (approx. 100 G)
	Malfunction durability	1,000 m/s ² (approx. 10 G)
Life expectancy	Mechanical	1,000,000 operations min. (at 1,800 operations/hour)
	Electrical	100,000 operations min. (at 1,800 operations/hour under rated load 250,000 ops typical)
Ambient temperature		-25° to 60°C (-13° to 140°F)
Humidity		35% to 85% RH
Weight	Quick-connect terminal type: approx. 90 g (3.17 oz)	
	PCB terminal type: approx. 100 g (3.52 oz)	
	Screw terminal type: approx. 120 g (4.23 oz)	

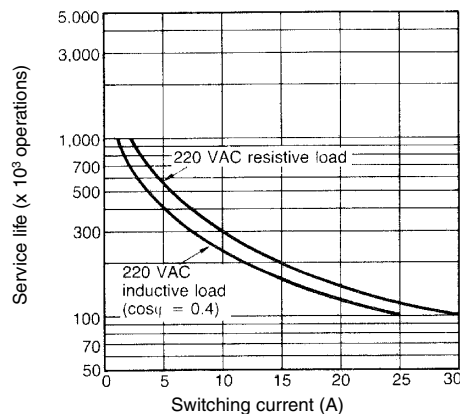
Note: Data shown are of initial value.

Characteristic Data

Maximum switching capacity



Electrical service life

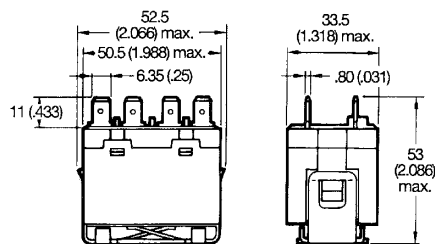


Dimensions

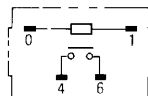
Unit: mm (inch)

Relays

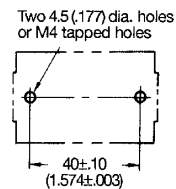
G7L-1A-T (E Bracket Attached)*



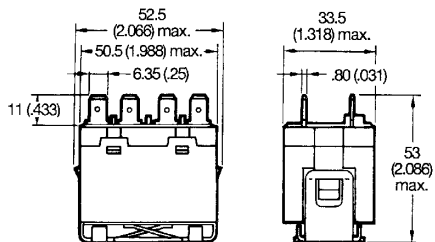
Terminal arrangement/ Internal connections (Top view)



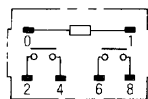
Mounting holes (Bottom view)



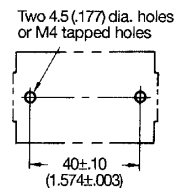
G7L-2A-T (E Bracket Attached)*



Terminal arrangement/ Internal connections (Top view)

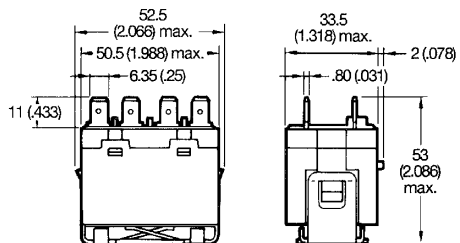


Mounting holes (Bottom view)

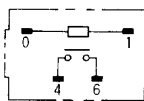


* E bracket must be ordered separately.

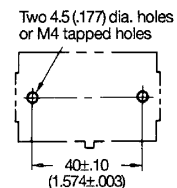
**G7L-1A-TJ
(E Bracket Attached)***



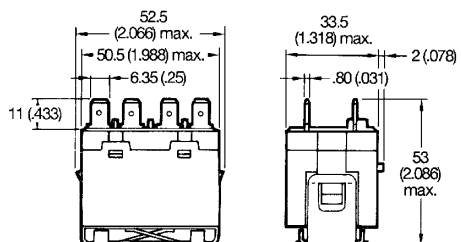
**Terminal arrangement/
Internal connections
(Top view)**



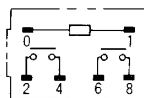
**Mounting holes
(Bottom view)**



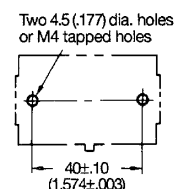
**G7L-2A-TJ
(E Bracket Attached)***



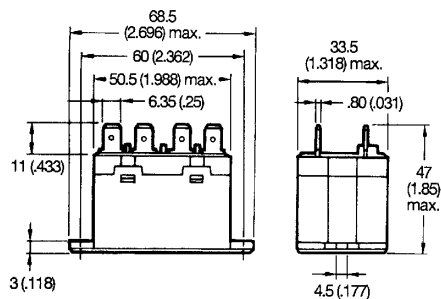
**Terminal arrangement/
Internal connections
(Top view)**



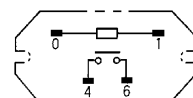
**Mounting holes
(Bottom view)**



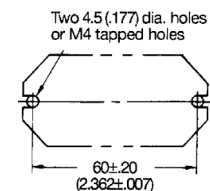
G7L-1A-TUB



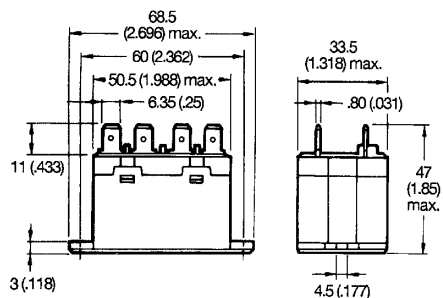
**Terminal arrangement/
Internal connections
(Top view)**



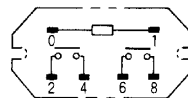
**Mounting holes
(Bottom view)**



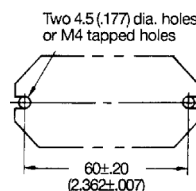
G7L-2A-TUB



**Terminal arrangement/
Internal connections
(Top view)**



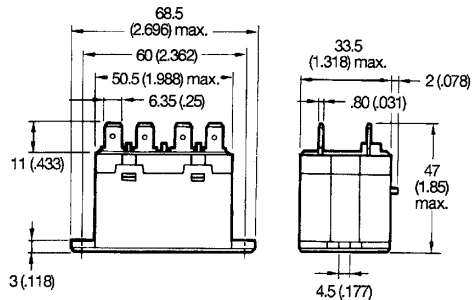
**Mounting holes
(Bottom view)**



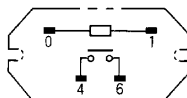
*E bracket must be ordered separately.

Unit: mm (inch)

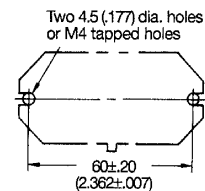
G7L-1A-TUBJ



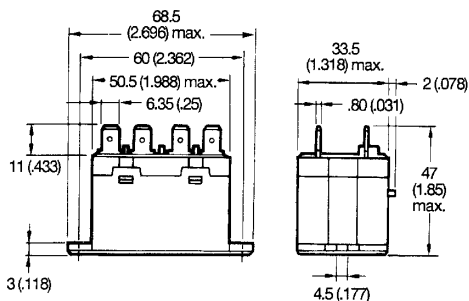
**Terminal arrangement/
Internal connections
(Top view)**



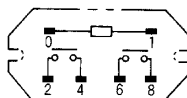
**Mounting holes
(Bottom view)**



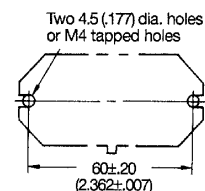
G7L-2A-TUBJ



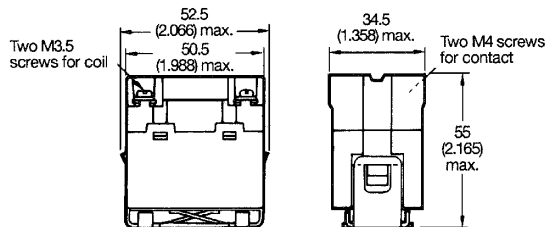
**Terminal arrangement/
Internal connections
(Top view)**



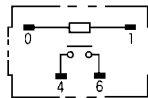
**Mounting holes
(Bottom view)**



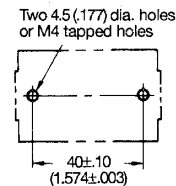
**G7L-1A-B
(E bracket Attached)***



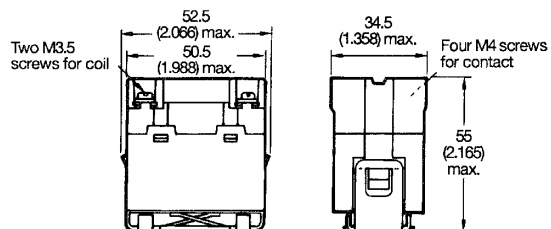
**Terminal arrangement/
Internal connections
(Top view)**



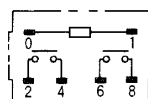
**Mounting holes
(Bottom view)**



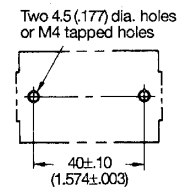
**G7L-2A-B
(E bracket Attached)***



**Terminal arrangement/
Internal connections
(Top view)**

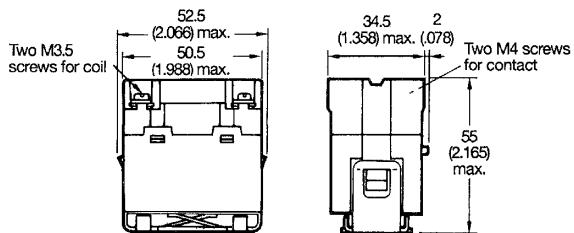


**Mounting holes
(Bottom view)**

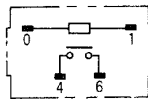


* E bracket must be ordered separately.

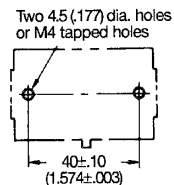
G7L-1A-BJ
(E bracket Attached)*



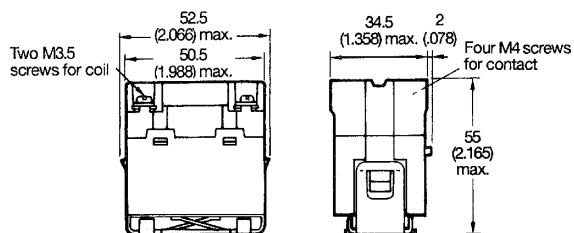
**Terminal arrangement/
Internal connections**
(Top view)



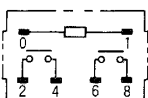
Mounting holes
(Bottom view)



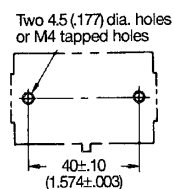
G7L-2A-BJ
(E bracket Attached)*



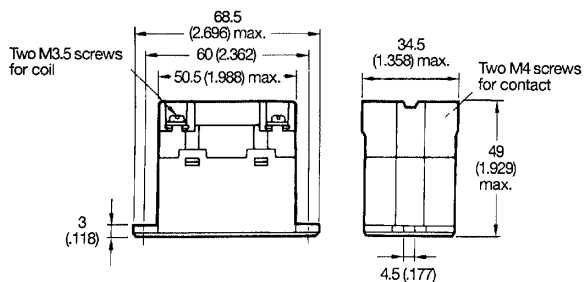
**Terminal arrangement/
Internal connections**
(Top view)



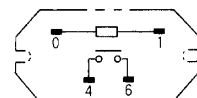
Mounting holes
(Bottom view)



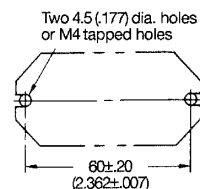
G7L-1A-BUB



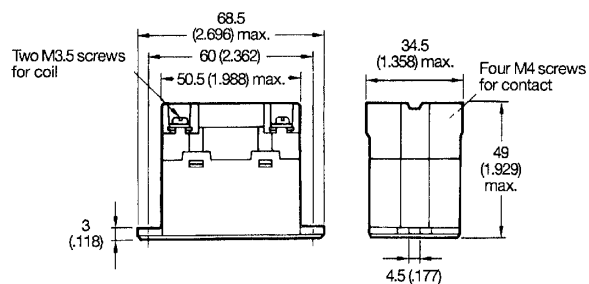
**Terminal arrangement/
Internal connections**
(Top view)



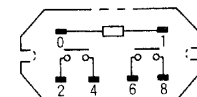
Mounting holes
(Bottom view)



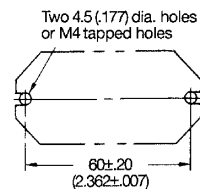
G7L-2A-BUB



**Terminal arrangement/
Internal connections**
(Top view)



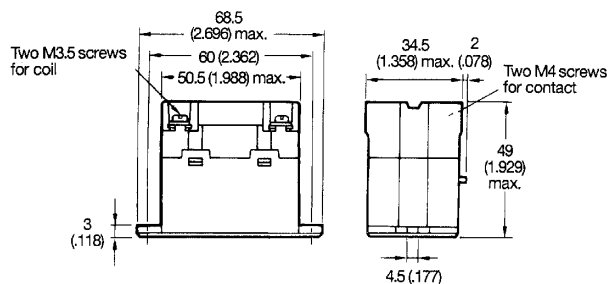
Mounting holes
(Bottom view)



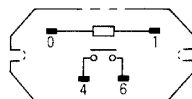
* E bracket must be ordered separately.

Unit: mm (inch)

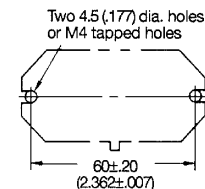
G7L-1A-BUBJ



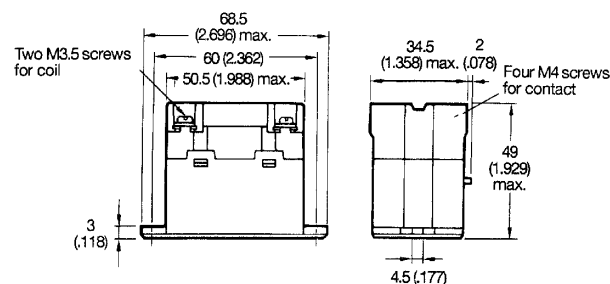
**Terminal arrangement/
Internal connections
(Top view)**



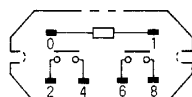
**Mounting holes
(Bottom view)**



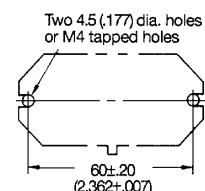
G7L-2A-BUBJ



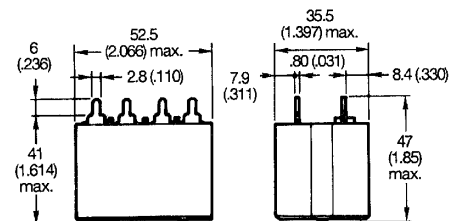
**Terminal arrangement/
Internal connections
(Top view)**



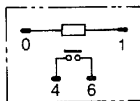
**Mounting holes
(Bottom view)**



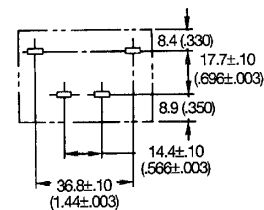
G7L-1A-P



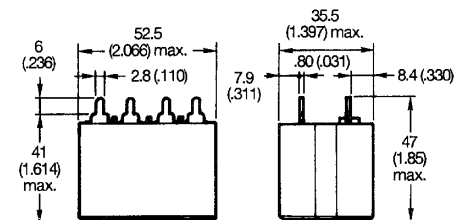
**Terminal arrangement/
Internal connections
(Top view)**



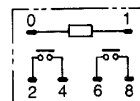
**Mounting holes
(Bottom view)**



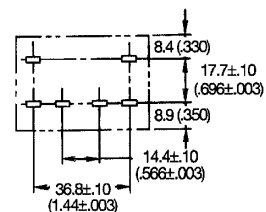
G7L-2A-P



**Terminal arrangement/
Internal connections
(Top view)**

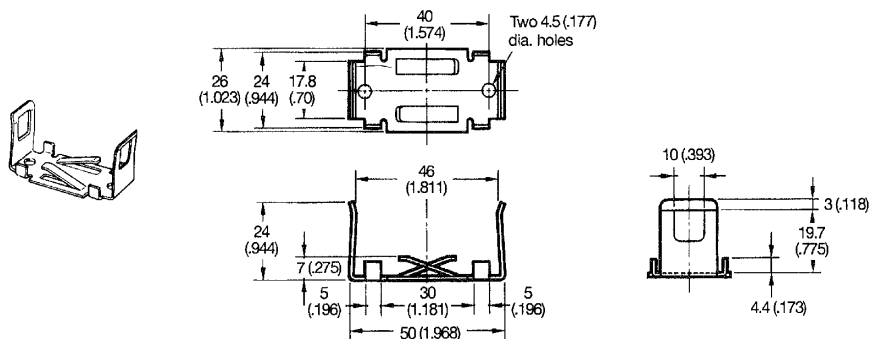


**Mounting holes
(Bottom view)**

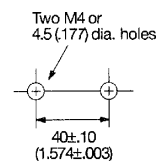


Accessories

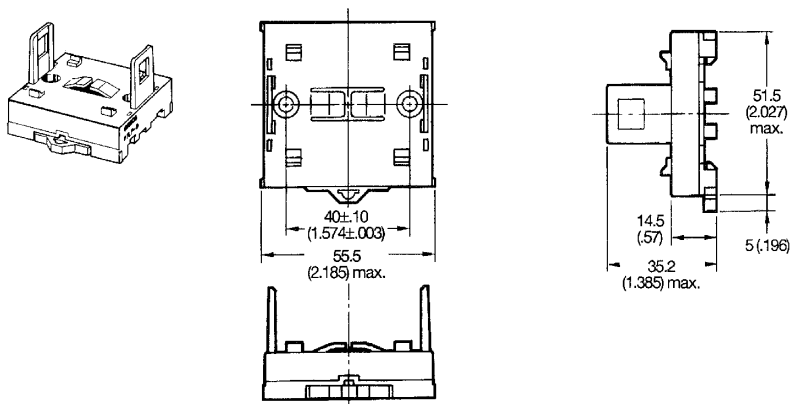
E bracket R99-07G5D



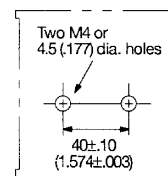
Mounting holes (Bottom view)



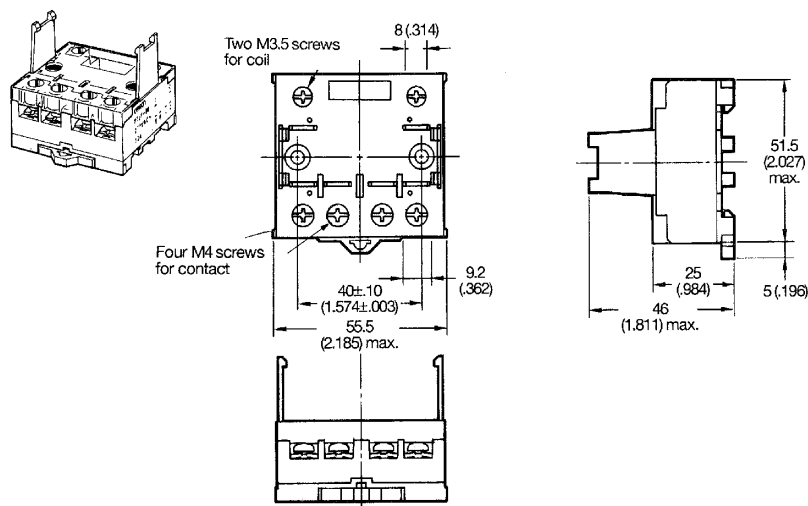
Adaptor P7LF-D



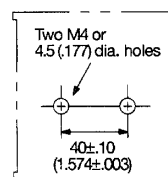
Mounting holes (Bottom view)



Front connecting socket P7LF-06



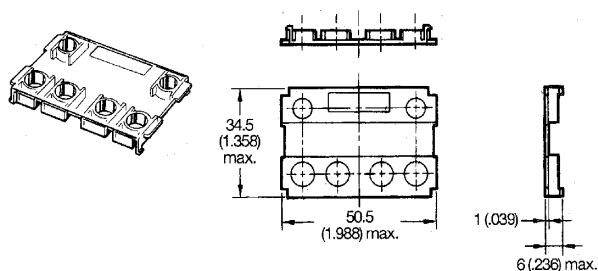
Mounting holes (Bottom view)



- Note:**
- To protect against electric shock, a socket terminal cover is supplied with the P7LF-06 socket.
 - The P7LF-06 is panel or track mountable.

Unit: mm (inch)

Cover
P7LF-C

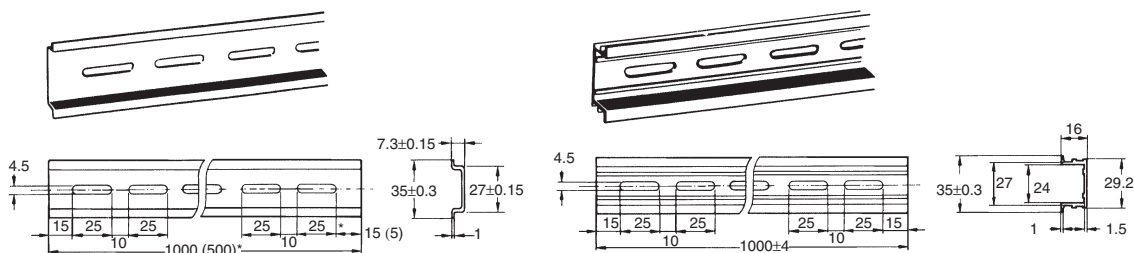


Note: P7LF-C cover attaches directly to G7L-B style relays. To protect against electric shock, use the P7LF-C on G7L-B terminals.

Mounting track

PFP-100N, PFP-50N
(Conforming to EN 50022)

PFP-100N2
(Conforming to EN 50022)



* The figure in parenthesis is for PFP-50N.

Note: 1. It is recommended that a panel thickness of 1.60 to 2.00 mm (0.06 to 0.08 in) be used.

2. L = Length

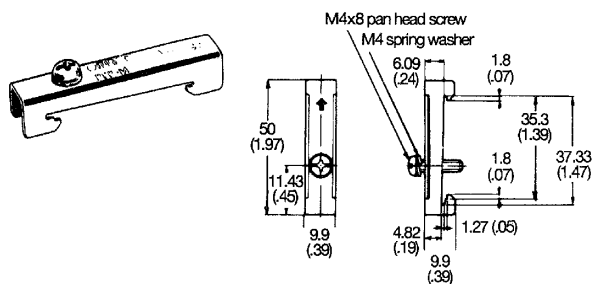
PFP-100N L = 1 m (39.00 in)

PFP-50N L = 50 cm (19.60 in)

PFP-100N2 L = 1 m (39.00 in)

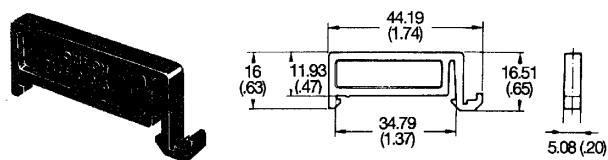
End plate

PFP-M



Spacer

PFP-S



■ Approvals

UL Recognized (File No. E41643) / CSA Certified (File No. LR35535) - - Ambient Temp. = 40°C

Type	Contact form	Terminal type	Contact ratings
G7L-1A-T-CB G7L-1A-TJ-CB G7L-1A-TUB-CB G7L-1A-TUBJ-CB	SPST-NO	Quick-connect	30 A, 277 VAC, General Use, 100,000 ops 1.5 kW, 120 VAC, Tungsten, 6,000 ops 1.5 HP, 120 VAC, 6,000 ops 3 HP, 277 VAC, 6,000 ops
G7L-1A-B-CB G7L-1A-BJ-CB G7L-1A-BUB-CB G7L-1A-BUBJ-CB		Screw	20 FLA/120 LRA, 120 VAC, 30,000 ops 17 FLA/102 LRA, 265 VAC, 30,000 ops TV-10, 120 VAC, 25,000 ops
G7L-1A-P-CB		PCB	
G7L-2A-T-CB G7L-2A-TJ-CB G7L-2A-TUB-CB G7L-2A-TUBJ-CB	DPST-NO	Quick-connect	
G7L-2A-B-CB G7L-2A-BJ-CB G7L-2A-BUB-CB G7L-2A-BUBJ-CB		Screw	
G7L-2A-P-CB		PCB	

Note: Contact Omron for actual ratings marked on G7L relays

TÜV (File No. R9251551)

Type	Contact form	Coil ratings	Terminal type	Contact ratings
G7L-1A-T-CB G7L-1A-TJ-CB G7L-1A-TUB-CB G7L-1A-TUBJ-CB	SPST-NO	6, 12, 24, 48, 100, 110, 200, 220 VDC	Quick-connect	25 A, 240 VAC, (cosφ = 1) 25 A, 240 VAC, (cosφ = 0.4)
G7L-1A-B-CB G7L-1A-BJ-CB G7L-1A-BUB-CB G7L-1A-BUBJ-CB			Screw	30 A, 240 VAC, (cosφ = 1) 25 A, 240 VAC, (cosφ = 0.4) 30 A, 240 VAC, (cosφ = 0.4)
G7L-1A-P-CB			PCB	20 A, 240 VAC, (cosφ = 1) 20 A, 240 VAC, (cosφ = 0.4)
G7L-2A-T-CB G7L-2A-TJ-CB G7L-2A-TUB-CB G7L-2A-TUBJ-CB	DPST-NO	12, 24, 50, 100/120, 200/240 VAC	Quick-connect	25 A, 240 VAC, (cosφ = 1) 25 A, 240 VAC, (cosφ = 0.4)
G7L-2A-B-CB G7L-2A-BJ-CB G7L-2A-BUB-CB G7L-2A-BUBJ-CB			Screw	25 A, 240 VAC, (cosφ = 1) 25 A, 240 VAC, (cosφ = 0.4)
G7L-2A-P-CB			PCB	20 A, 240 VAC, (cosφ = 1) 20 A, 240 VAC, (cosφ = 0.4)

VDE recognized type (Licence no. 1530 UG)

Note: 1. Please consult OMRON for details of VDE approvals.

2. The G7L relay conforms to the following standards:

Electrical safety: DIN IEC 255 Teil 1-00/DIN VDE 0435 Teil 201/05. 83
DIN VDE 0435 Teil 201 A1/05. 90
DIN IEC 255 Teil 0-20/DIN VDE 0435 Teil 120/10. 81
DIN EN 60 950/VDE 0805/11. 93

EMC: prEN 50082-2, EN 55022

- The rated values approved by each of the safety standards (e.g., UL and CSA) may be different from the performance characteristics individually defined in this catalog.
- In the interest of product improvement, specifications are subject to change.
- Suffix T130 rated at 130°C
- Pollution degree 3, Material Group II & III.
- CE marking is provide only on non-PCB terminal versions.

Precautions

■ Handling

- To preserve initial performance, do not drop or otherwise subject the power relay to shock.
- The case is not designed to be removed during normal handling and operation. Doing so may affect performance.
- Use the power relay in a dry environment free from excessive dust, SO₂, H₂S, or organic gas.
- Do not allow a voltage greater than the maximum allowable coil voltage to be applied continuously.
- Do not use the power relay outside of specified voltages and currents.
- Do not allow the ambient operating temperature to exceed the specified limit.

■ Installation

- Although there are not specific limits on the installation site, it should be as dry and dust-free as possible.
- PCB terminal-equipped relays weigh approximately 100 g. Be sure that the PCB is strong enough to support them. We recommend dual-side through-hole PCBs to reduce solder cracking from heat stress.
- Quick-connect terminals can be connected to fast on receptacle #250 and positive-lock connectors.
- Allow suitable slack on leads when wiring, and do not subject the terminals to excessive force.

■ Cleaning PCB Terminals

- PCB terminals have semi-sealed construction which prevents flux from entering the relay base. It is recommended that the user should apply a tape seal over the vent hole prior to wave soldering or cleaning. The tape should then be removed after processing.

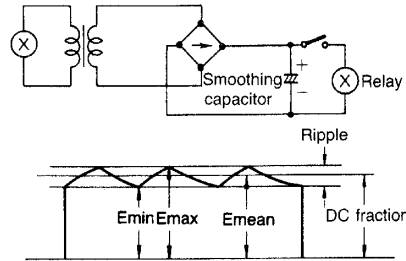
■ Applications

- Compressors for package air conditioners and heater switching controllers
- Switching controllers for power tools or motors
- Power controllers for water heaters
- Power controllers for dryers
- Lamp control, motor drivers, and power supply switching in copy machines, facsimiles, and other OA equipment
- Lighting controllers
- Power controllers for packers or food processing equipment
- Magnetron control in microwaves

■ Operating Coil

- As a rule, either a battery or a DC power supply with a maximum 5% ripple is used for the operating voltage for DC relays. Before using a rectified AC supply, confirm that the ripple is not greater than 5%. Ripple greater than this can lead to variations in the operating and reset voltages.

As excessive ripple can generate beats, the insertion of a smoothing capacitor is recommended as shown below.



$$\% \text{ of ripple} = \frac{E_{\max} - E_{\min}}{E_{\text{mean}}} \times 100$$

E max: Max. ripple
 E min: Min. ripple
 E mean: Mean DC value

- When driving a transistor, check the leakage current and connect a bleeder resistor if necessary.
- Momentary voltage drops on coil input voltage should not exceed one second duration after contact mating with no shock or vibration.

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.

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