General Purpose Relay

- 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).

Туре	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)	SPST-NO	G7L-1A-TJ-CB	G7L-1A-BJ-CB	—
(with test button)	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	SPST-NO	G7L-1A-TUBJ-CB	G7L-1A-BUBJ-CB	—
(with test button)	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.

Model Number Legend

- 1. Contact form 1A:SPST-NO 2A:DPST-NO
- 2. Terminal shape T:Quick-connect terminals P:PCB terminals

B:Screw terminals

Accessories

Quick-connect Terminals

- 3. Mounting construction No symbol:E bracket type UB:Upper bracket type
- 4. Special functions No symbol:Without test button J:With test button
- 5. 80: VDE approved version (includes UL, CSA and TÜV)
- 6. CB: Class B insulation
- 7. Rated coil voltage

Description		Model			
	S	SPST-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			
	S	SPST-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-T, G7L-2A-B		G7L-1A-P, G7L-2A-P	
	Resistive load (cos∳ = 1)	Inductive load (cos∳ = 0.4)	Resistive load (cos∳ = 1)	Inductive load (cos∳ = 0.4)	Resistive load (cos∳ = 1)	Inductive load (cos∳ = 0.4)	
Rated load	30 A, 220 VAC	25 A, 220 VAC	· · · · · ·		20 A, 220 VAC		
Contact material	AgSnIn	AgSnIn					
Carry current	30 A		25 A		20 A		
Max. operating voltage	250 VAC	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 (p	00 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







■ Coil Data

AC

Rated voltage	Rated current	Resistance	Must operate	Must release	Max. voltage	Power
(V)	(mA)	(22)		% of rated voltage		consumption
6	283	18.90	75% max.	15% min.	110% max.	Approx.1.70
12	142	75				to 2.50 VA
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	Rated current	Resistance	Must operate	Must release	Max. voltage	Power
(V)	(mA)	(Ω)		consumption		
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 $23^{\circ}C$ ($73^{\circ}F$) 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 m Ω max.				
Operate time		30 ms max.				
Release time		30 ms max.				
Max. operating	Mechanical	1,800 operations/hour				
frequency	Electrical	1,800 operations/hour (under rated load)				
Insulation resistan	ce	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/s² (approx. 100 G)				
	Malfunction durability	1,000 m/s² (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 temperatu	ure	-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



Dimensions

Unit: mm (inch)

■ Relays

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



.80 (.031)

53 (2.086) max.

53 (2.086) max

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



* E bracket must be ordered separately.

Terminal arrangement/ Internal connections



Electrical service life





Mounting holes (Bottom view)



Terminal arrangement/ Internal connections (Top view)





Two 4.5 (.177) dia. holes or M4 tapped holes



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





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



G7L-1A-TUB



G7L-2A-TUB



*E bracket must be ordered separately.

Terminal arrangement/ Internal connections (Top view)



Terminal arrangement/ Internal connections (Top view)



Terminal arrangement/ Internal connections (Top view)



Terminal arrangement/ Internal connections (Top view)



Mounting holes (Bottom view)



Mounting holes (Bottom view)



Mounting holes (Bottom view)



Mounting holes (Bottom view)



Unit: mm (inch)

G7L-1A-TUBJ



G7L-2A-TUBJ



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





Terminal arrangement/ Internal connections (Top view)

Terminal arrangement/

Terminal arrangement/

Internal connections

(Top view)

Internal connections

(Top view)



Terminal arrangement/ Internal connections (Top view)



Mounting holes

Two 4.5 (.177) dia. holes or M4 tapped holes

(Bottom view)

(Bottom view)



Mounting holes (Bottom view)



Mounting holes (Bottom view)

> Two 4.5 (.177) dia. holes or M4 tapped holes

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



* E bracket must be ordered separately.

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





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





G7L-1A-BUB



G7L-2A-BUB



* E bracket must be ordered separately.

Terminal arrangement/ Internal connections (Top view)



Terminal arrangement/ Internal connections (Top view)





Terminal arrangement/ Internal connections (Top view)







Terminal arrangement/ Internal connections (Top view)





Mounting holes

Mounting holes

Two 4.5 (.177) dia. holes or M4 tapped holes

- 40±.10 -(1.574±.003)

(Bottom view)



Mounting holes (Bottom view)



Mounting holes (Bottom view)



Unit: mm (inch)

G7L-1A-BUBJ









G7L-1A-P



G7L-2A-P







Terminal arrangement/ Internal connections (Top view)



Mounting holes (Bottom view)



Mounting holes (Bottom view)



■ Accessories

E bracket R99-07G5D





Mounting holes (Bottom view)



Adaptor P7LF-D







51.5 (2.027)

max

5 (.196)

25 (.984)

- 46 (1.811) max.





Front connecting socket P7LF-06







Note: 1. To protect against electric shock, a socket terminal cover is supplied with the P7LF-06 socket.2. 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



* 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





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

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

Note: Contact Omron for actual ratings marked on G7L relays

TÜV (File No. R9251551)

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

- 3. 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.
- 4. In the interest of product improvement, specifications are subject to change.
- 5. Suffix T130 rated at 130°C
- 6. Pollution degree 3, Material Group II & III.

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.



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.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

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Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- · Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

Disclaimers

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

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