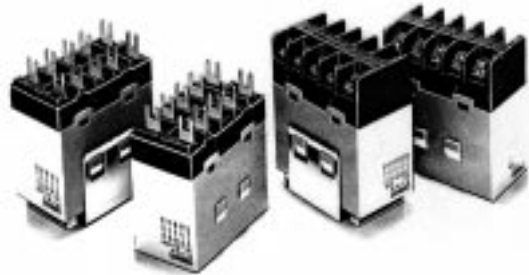





A High-capacity, High-withstand-voltage, Multi-pole Relay Used Like a Contactor

- Miniature hinge for maximum switching capacity for motor loads as well as resistive and inductive loads.
- No contact chattering for momentary voltage drops up to 50% of rated voltage.
- Withstanding more than 4 kV between contacts that are different in polarity and between the coil and contacts.
- Flame-resistance materials (UL94V-0-qualifying) used for all insulation material.



Ordering Information

Mounting type	Contact form	Rated voltage	PCB terminals	Screw terminals	Quick-connect terminals
					
PCB mounting	4PST-NO	100 to 120, 200 to 240 VAC	G7J-4A-P	---	---
	3PST-NO/SPST-NC	12, 24 VDC	G7J-3A1B-P	---	---
	DPST-NO/DPST-NC		G7J-2A2B-P	---	---
W-bracket (see note)	4PST-NO		---	G7J-4A-B	G7J-4A-T
	3PST-NO/SPST-NC		---	G7J-3A1B-B	G7J-3A1B-T
	DPST-NO/DPST-NC		---	G7J-2A2B-B	G7J-2A2B-T

Note: These relays need a W-bracket (sold separately) for mounting.

Model Number Legend:

G7J - -
1 2

1. Contact Form
4A: 4PST-NO
3A1B: 3PST-NO/SPST-NC
2A2B: DPST-NO/DPST-NC

2. Terminals
P: PCB terminals
B: Screw terminals
T: Quick-connect terminals

Accessories (Order Separately)

Name	Model	Applicable Relay
W-bracket	R99-04 for G5F	G7J-4A-B G7J-3A1B-B G7J-2A2B-B

Application Examples

- Compressors for air conditioners and heater switching controllers.
- Switching controllers for power tools or motors.
- Lamp controls, motor drivers, and power supply switching controllers in copy machines, facsimile machines, and other office equipment.
- Power controllers for packers or food processing equipment.
- Power controllers for inverters.

Specifications

■ Coil Ratings

Rated voltage		Rated current	Coil resistance	Must operate voltage	Must release voltage	Max. voltage	Power consumption	
AC	100 to 120 VAC	18 to 21.6 mA	---	75% max. of rated voltage	15% min. of rated voltage	110% of rated voltage	Approx. 1.8 to 2.6 VA	
	200 to 240 VAC	9 to 10.8 mA	---					
DC	12 VDC	167 mA	72 Ω		10% min. of rated voltage			Approx. 2.0 W
	24 VDC	83 mA	288 Ω					

- Note:**
- The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of +15%/-20% for AC rated current and ±15% for DC coil resistance.
 - Performance characteristic data are measured at a coil temperature of 23°C.
 - The operating voltages are 100, 110, 115 and 120 V (50/60 Hz).

■ Contact Ratings

Item	Resistive load (cos φ = 1)	Inductive load (cosφ = 0.4)	Resistive load
Rated load	NO: 25 A, 220 VAC (24 A, 230 VAC) NC: 8 A, 220 VAC (7.5 A, 230 VAC)		NO: 25 A, 30 VDC NC: 8 A, 30 VDC
Rated carry current	NO: 25 A NC: 8 A		
Max. switching voltage	250 VAC		125 VDC
Max. switching current	NO: 25 A NC: 8 A		
Max. switching capacity	NO: 5,500 VAC NC: 1,760 VAC		NO: 750 W DC NC: 240 W DC
Min. permissible load (see note)	100 mA, 24 VDC		

- Note:** P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation (operating frequency: 120 operations/min; ambient temperature: 23°C)

■ Characteristics

Contact resistance	50 mΩ max.
Operate time	50 ms max.
Release time	50 ms max.
Max. operating frequency	Mechanical: 1,800 operations/hr Electrical: 1,800 operations/hr
Insulation resistance	1,000 MΩ min. (at 500 VDC)
Dielectric withstand voltage	4,000 VAC, 50/60 Hz for 1 min between coil and contacts 4,000 VAC, 50/60 Hz for 1 min between contacts of different polarity 2,000 VAC, 50/60 Hz for 1 min between contacts of same polarity
Impulse withstand voltage	10,000 V between coil and contact (with 1.2 x 50 μs impulse wave)
Vibration resistance	Destruction: 10 to 55 Hz, 1.5-mm double amplitude Malfunction: NO: 10 to 55 Hz, 1.5-mm double amplitude NC: 10 to 26 Hz, 1.5-mm double amplitude
Shock resistance	Destruction: 1,000 m/s ² (approx. 100G) Malfunction: NO: 100 m/s ² (approx. 10G) NC: 20 m/s ² (approx. 2G)
Life expectancy	Mechanical: 1,000,000 operations min. (at 1,800 operations/hr) Electrical: 100,000 operations min. (at 1,800 operations/hr)
Ambient temperature	Operating: -25°C to 60°C (with no icing)
Ambient humidity	Operating: 35% to 85%
Weight	PCB terminal: approx. 140 g Screw terminal: approx. 165 g

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

■ Reference Data

Motor Load

Item	G7J-4A-P, G7J-3A1B-P, G7J-4A-B, G7J-3A1B-B
Load	3 Φ , 220 VAC, 2.7 kW (with a inrush current of 78 A and a breaking current of 13 A)
Life expectancy	Electrical: 100,000 operations min.

■ Under Application to Overseas Standards

Standard G7J products are under application to overseas standards. These products will be marked with approved markings as soon as they are authorized by the overseas standards.

UL/CSA

UL 508 applicable to industrial control devices (approved, File No. E41643)

UL 1950 applicable to information processing devices (approved, File No. E41643)

CSA 22.2 No. 14 applicable to industrial control devices (approved, File No. LR35535)

Coil ratings	Contact ratings	
	NO	NC
6 to 265 VAC 6 to 110 VDC	25 A, 277 VAC (resistive) 25 A, 120 VAC (general use) 25 A, 277 VAC (general use) 1.5 kW, 120 VAC, (tungsten) 1.5 hp, 120 VAC 3 hp, 240/265/277 VAC 3-phase, 3 hp, 240/265/277 VAC 3-phase, 5 hp, 240/265/277 VAC 20 FLA/120 LRA, 120 VAC 17 FLA/102 LRA, 277 VAC TV-10, 120 VAC 25 A, 30 VDC (resistive)	8 A, 277 VAC (resistive) 8 A, 120 VAC (general use) 8 A, 277 VAC (general use) 8 A, 30 VDC (resistive)

TÜV

IEC 255 applicable to relays (under application)

EN 60950 applicable to information processing devices (under application)

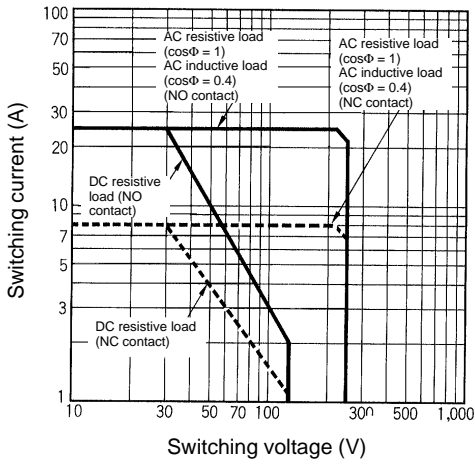
Coil ratings	Contact ratings	
	NO	NC
6, 12, 24, 48, 100, 110 VDC 6, 12, 24, 50, 100 to 120, 200 to 240 VAC	25 A, 240 VAC ($\cos\Phi = 0.4$) 25 A, 240 VAC ($\cos\Phi = 1$) 25 A, 30 VDC ($L/R \geq 1$)	8 A, 240 VAC ($\cos\Phi = 0.4$) 8 A, 240 VAC ($\cos\Phi = 1$) 8 A, 30 VDC ($L/R \geq 1$)

EN 60947-4-1 applicable to contactors (under application)

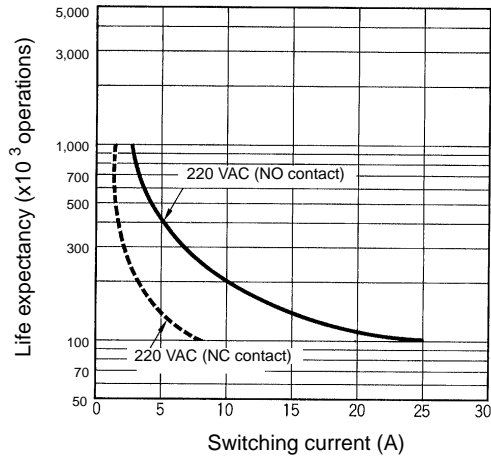
Coil ratings	Contact ratings
	NO
6, 12, 24, 48, 100, 110 VDC 6, 12, 24, 50, 100 to 120, 200 to 240 VAC	3-phase, AC3, 2.7 kW, 220 VAC 3-phase, AC3, 3.7 kW, 380 to 480 VAC 3-phase, AC1, 5.5 kW, 220 VAC 3-phase, AC1, 5.5 kW, 380 to 480 VAC

Engineering Data

Maximum Switching Capacity



Life Expectancy

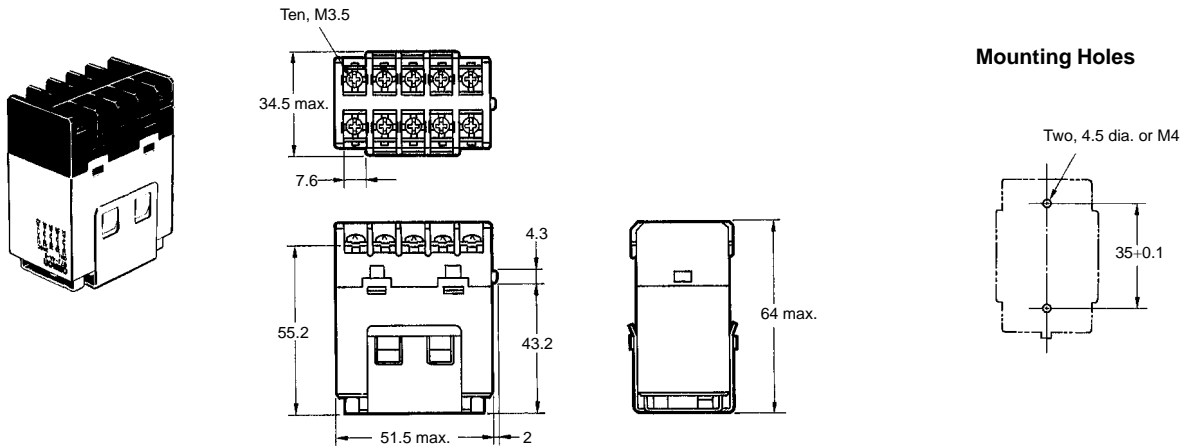


Dimensions

Note: All units are in millimeters unless otherwise indicated.

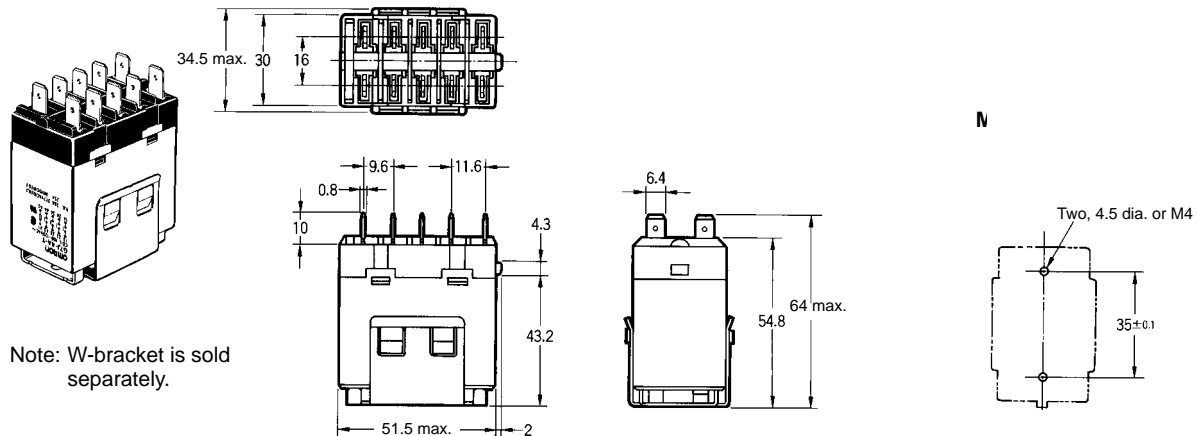
Screw Terminals with W-bracket

G7J-4A-B, G7J-3A1B-B, G7J-2A2B-B



Quick-connect terminal with W-bracket

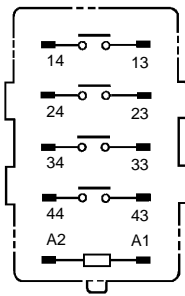
G7J-4A-T, G7J-3A1B-T, G7J-2A2B-T



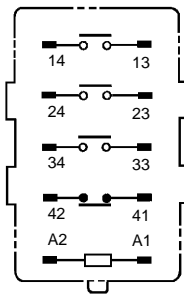
Note: W-bracket is sold separately.

Terminal Arrangement/Internal Connections

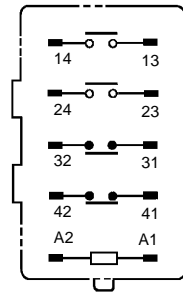
G7J-4A-P(B)



G7J-3A1B-P(B)

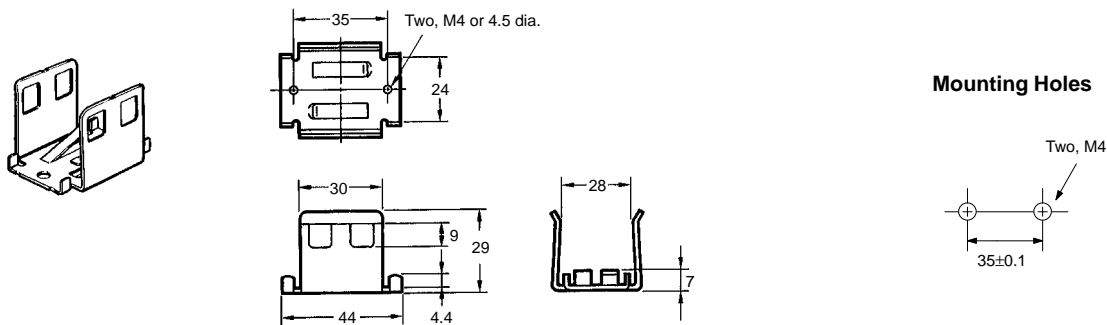


G7J-2A2B-P(B)



Accessories (Order Separately)

R99-04 W-bracket (for G5F)



Precautions

Handling

To preserve 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 140 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.

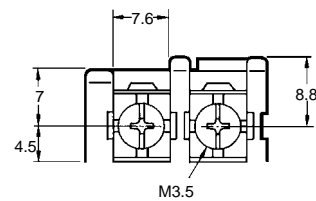
Mount the G7J with its test button facing downwards. The relay may malfunction due to shock if the test button faces upwards. Be careful not to press the test button by mistake because the contacts will go ON if the test button is pressed.

Cleaning PCB Terminals

PCB terminals have a flux protection construction which prevents flux from penetrating into the relay base housing, e.g., due to capillary action up the terminals when a relay is soldered onto the PCB. This type of relay cannot be immersed for cleaning.

Connecting

Refer to the following diagram when connecting a wire with a screw terminal to the G7J.

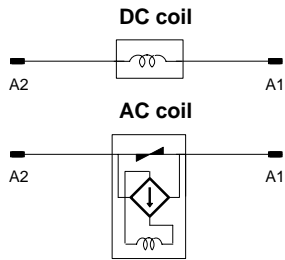


Allow suitable slack on leads when wiring, and do not subject the terminals to excessive force.

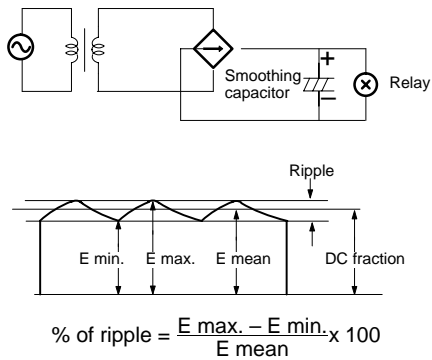
Tightening torque: 10 kgf \$ cm (0.98 N \$ m)

Operating Coil

Internal Connections of Coils



As a rule, either a DC battery or a DC power supply with a maximum of 5% ripple must be 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 pulses, 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.

