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Terminal Relay/Terminal SSR

G6B-4□□ND/G3S4

CSM_G6B-4__ND_G3S4_DS_E_3_1

Compact Terminal Relays/Terminal SSRs with four outputs

- Easy wiring with separated input/output terminals.
- LED operation indicator.
- Mounts either on DIN track or with screws.
- Special socket used for easy Relay/SSR replacement (except for high-reliability models).

- Terminal Relays
  - Equipped with four G6B Mini-relays that are compact, highly sensitive, and highly resistant to dielectric surges, and that can switch 5 amps of power.
  - Sealed plastic construction used for relays.
  - Built-in diode for absorption of coil surges.
  - UL and CSA certification for standard models (except for high-reliability models).
  - VDE certification for G6B-4BND/47BND/48BND for 12/24 VDC.

- Terminal SSRs
  - Easy-to-use SSR block that combines four compact G3S SSRs, sockets, and heat sink in one unit.



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

Refer to *Safety Precautions for All Relays* and Safety Precautions on page 7 and 11.

Terminal Relay types

G6B-4□□ND Mounted relays: Electromagnetic Relay .....page 2
G3S4 Mounted relays: Solid State Relay .....page 8

Common note

Options for the G6B-4CB, G6B-4□□ND, and G3S4 .....page 12

■Mounted relays

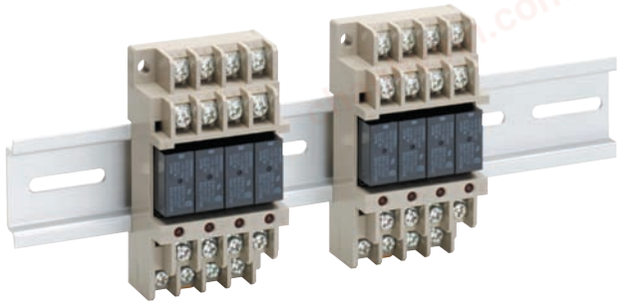
Relays and SSRs cannot be mounted together.

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Terminal Relay
G6B-4□□ND

Compact Terminal Relay with 4 Independent Outputs

- Equipped with four G6B Mini-relays that are compact, highly sensitive, and highly resistant to dielectric surges, and that can switch 5 amps of power.
- Sealed plastic construction used for relays.
- Easy wiring with separated input/output terminals.
- Special P6B Mounting Socket used to facilitate maintenance (except for high-reliability models).
- UL and CSA certification for standard models (except for high-reliability models).
  VDE certification for G6B-4BND/47BND/48BND for 12/24 VDC.
- DIN Track mounting, and screw mounting models are available.
- SSR-equipped G3S4 models are also available.



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

⚠ Refer to *Safety Precautions for All Relays* .

Model Number Structure

■Model Number Legend

G6B-□□□□ND
1 2 3

Note: UL508 and CSA requirements met by standard models.

1. Number of Poles
- 4: 4 poles (4PST-NO standard circuit)
- 47: 4 poles (4PST-NO long-life circuit)
- 48: 4 poles (4PST-NO high-reliability circuit)

2. Mounting
- None: DIN Track or screw mounting
- F: Screw mounting

3. Input Terminal
- B: Phillips screw terminals (4 independent points)
- B1: Flat-bladed screw terminals (4 points with same common)
- P: Connector terminals (4 independent points)

Ordering Information

List of Models

When your order, specify the rated voltage.

Classification	Contact form	Mounting method	Terminals	Model	Rated voltage
Equipped with operation indicator and diode to absorb coil surge	4PST (standard)	DIN Track or screw mounting	Phillips screw terminal	G6B-4BND	5 VDC 12 VDC 24 VDC
	4PST (long-life)	DIN Track or screw mounting	Phillips screw terminal	G6B-47BND	5 VDC 12 VDC 24 VDC
	4PST (high reliability)	DIN Track or screw mounting	Phillips screw terminal	G6B-48BND	5 VDC 12 VDC 24 VDC
	4PST (standard)	Screw mounting	Flat-bladed screw terminal	G6B-4FB1ND	5 VDC 12 VDC 24 VDC
	4PST (standard)	Screw mounting	Connector	G6B-4FPND	5 VDC 12 VDC 24 VDC

Note: 1. For replacement relays, use relays with the same voltage specifications as the relays provided with the Terminal when it was purchased. Longer operating life can be achieved by replacing the G6B-4□□ND with the G6B-1174P-FD-US-P6B.

2. Standard models and long-life models are also available without relays mounted to the sockets

3. SSR-equipped G3S4 models are also available. Refer to information on the G3S4 (page 8).

Terminal relay	Socket
G6B-4BND G6B-47BND	P6BF-4BND

Also give the voltage specification.
P6BF-4BND Connection Sockets do not have specific approved standards.

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Specifications

■Ratings

Coil Ratings (per G6B Relay)

Rated voltage	5 VDC	12 VDC	24 VDC
Rated current	35.5 mA (43.4)	19.1 mA	10.7 mA (10.3)
Coil resistance	125 Ω	720 Ω	2,880 Ω
Must operate voltage	80% max. of rated voltage		
Must release voltage	10% min. of rated voltage		
Max. voltage	130% of rated voltage		
Power consumption	Approx. 200 mW		

Note: 1. Rated current and coil resistance were measured at a coil temperature of 23°C with a tolerance of ±10%.
2. Operating characteristics were measured at a coil temperature of 23°C.
3. The maximum allowable voltage is the maximum value of the allowable voltage range for the relay coil operating power supply. There is no continuous allowance.
4. Diodes to absorb coil surge are equivalent to S5688J (reverse voltage resistance: 600 V; forward current: 1 A).
5. The values in parentheses are for the G6B-4FB1ND and G6B-4FPND.
6. The rated current includes the LED current.

Contact Ratings

Classification	G6B-4BND (standard), G6B-47BND (long-life)		G6B-48BND (high-reliability)	
Load	Resistive load ($\cos\phi$ = 1)	Inductive load ($\cos\phi$ = 0.4, L/R = 7 ms)	Resistive load ($\cos\phi$ = 1)	Inductive load ($\cos\phi$ = 0.4, L/R = 7 ms)
Rated load	5 A at 250 VAC, 5 A at 30 VDC	2 A at 250 VAC, 2 A at 30 VDC	2 A at 250 VAC, 2 A at 30 VDC	0.5 A at 250 VAC, 0.5 A at 30 VDC
Rated carry current	5 A		2 A	
Max. switching voltage	380 VAC, 125 VDC			
Max. switching current	5 A	2 A	2 A	0.5 A
Max. switching power	1,250 VA, 150 W	500 VA, 60 W	500 VA, 60 W	125 VA, 15 W
Error rate (reference value) (see note)	10 mA at 5 VDC		1 mA at 1 VDC	

Note: This value fulfills the P reference value of opening/closing at a rate of 120 times per min (ambient operating environment and determination criteria according to JIS C5442).

■Characteristics

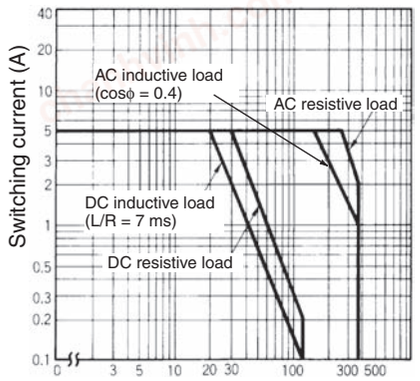
Contact resistance (see note 2)	100 mΩ max.
Operate time	10 ms max. (approx. 3 ms)
Release time	15 ms max. (approx. 4 ms)
Insulation resistance	1,000 MΩ min. (at 500 VDC)
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min between coil and contacts 2,000 VAC, 50/60 Hz for 1 min between contacts of different polarity 1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity 250 VAC, 50/60 Hz for 1 min between coils of different polarity
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, 0.75-mm single amplitude (1.5-mm double amplitude)
Shock resistance	Destruction: 1,000 m/s^2 (approx. 100G) Malfunction: 100 m/s^2 (approx. 10G)
Endurance	Mechanical: 50,000,000 operations min. (at 18,000 operations/hr) Electrical: 100,000 operations min. (at 1,800 operations/hr, rated load) 500,000 operations min. for long-life at 2 A 100,000 operations min for long-life at 5 A
Ambient temperature	Operating: –25°C to 55°C (with no icing or condensation) Storage: –25°C to 55°C (with no icing or condensation)
Ambient humidity	Operating: 35% to 85%
Weight	Approx. 75 g

Note: 1. The above values are initial values.
2. Measurement condition: 1 A at 5 VDC

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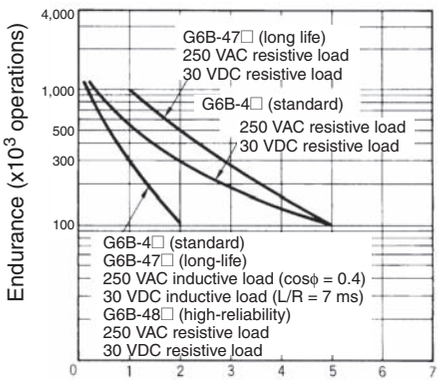
Engineering Data

■ Maximum Switching Power



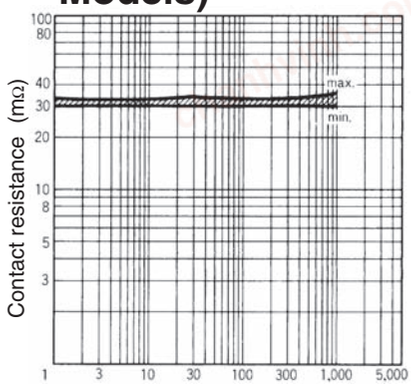
Switching voltage (V)

■ Endurance



Switching current (A)

■ Contact Reliability (High-reliability Models)



Number of switching operations
(×10⁴ times)

Note: 1. Measurement values taken from production line samples have been plotted in graphs to provide this data. Use this data only as a guide. Relays are mass-produced, so allowances must be made for a certain amount of variation in measurement data.

2. The data shown above are values for a single relay.

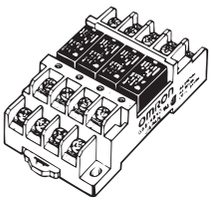
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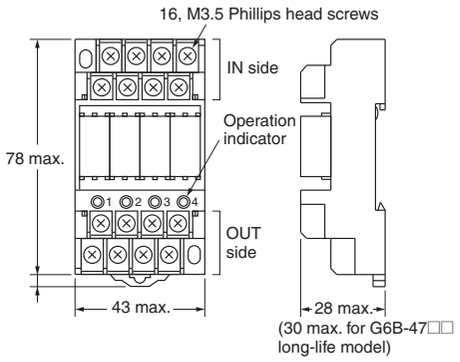
Dimensions

Note: All units are in millimeters unless otherwise indicated.

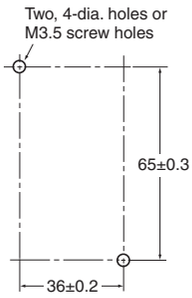
Philip Screw Terminals

G6B-4BND
G6B-47BND
G6B-48BND
Note: G6B-4BND is shown in illustration (terminal numbers are incised).

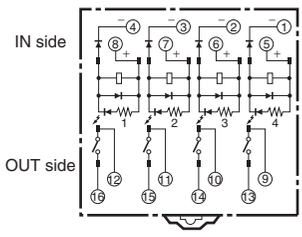




Mounting Holes (Top View)



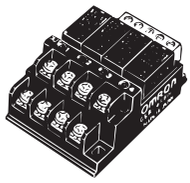
Terminal Arrangement/ Internal Connections (Top View)

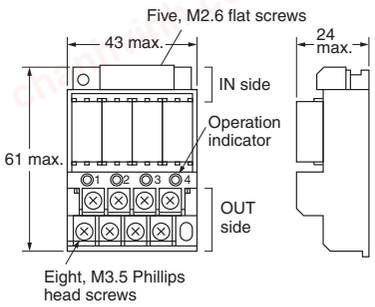


Note: Do not reverse the coil polarity.

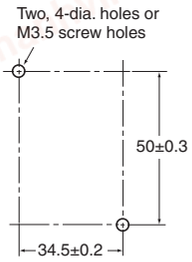
Flat Screw Terminal

G6B-4FB1ND

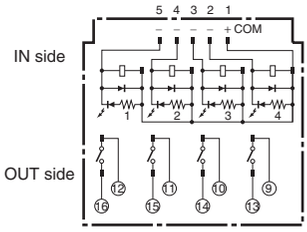




Mounting Holes (Top View)



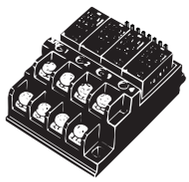
Terminal Arrangement/ Internal Connections (Top View)

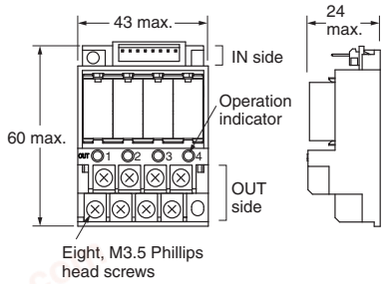


Note: Do not reverse the coil polarity.

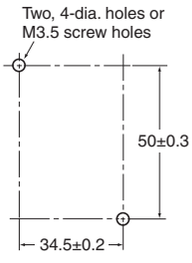
Connector Terminal

G6B-4FPND

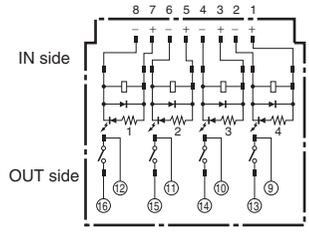




Mounting Holes (Top View)



Terminal Arrangement/ Internal Connections (Top View)



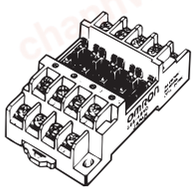
Note: Do not reverse the coil polarity.

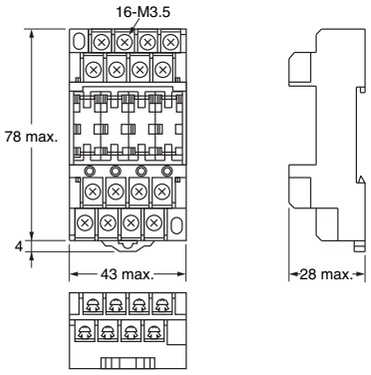
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■Accessories (Order Separately)

Connection Socket (Can be Purchased Individually)

P6BF-4BND
(with operation indicator)





Replacement Relays

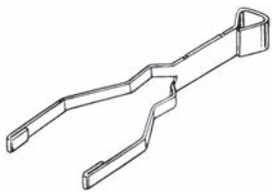
Applicable terminal relay	Model	Rated voltage
G6B-4BND G6B-4FB1ND G6B-4FPND	G6B-1114P-FD-US-P6B	5 VDC 12 VDC 24 VDC
G6B-47BND	G6B-1174P-FD-US-P6B	5 VDC 12 VDC 24 VDC

Note: Relays cannot be replaced for G6B-48BND, which is mounted directly to boards.

Relay Mounting Products

Name	Model
Relay Removal Tool	P6B-Y1
Short Bars	G6B-4-SB
Mounting Track	PFP-100N
	PFP-50N
	PFP-100N2
End Plate	PFP-M
Spacer	PFP-S

P6B-Y1 Relay Removal Tool

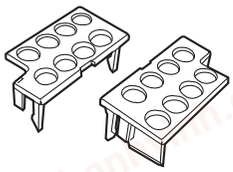


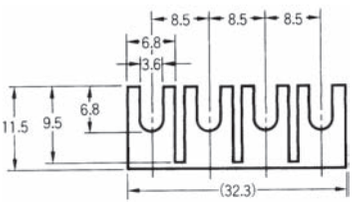
G6B-4-SB Short Bars

Short Bars are used to wire crossovers for common terminals for coils or contacts.



G6B-4-C Terminal Covers (Two per set)





Relay Removal Tool, Short Bar and Terminal Cover (Order Separately)

Refer to *Options for the G6B-4CB, G6B-4□□ND, and G3S4* on page 12.

Relay Mounting Products (Order Separately)

Refer to *Common Sockets/Products Related DIN Tracks*.

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Safety Precautions

Refer to *Safety Precautions for All Relays*.

Wiring

Be sure to turn OFF the power when wiring the Unit and do not touch the charged terminals of the Unit. Otherwise, an electric shock may result.

Do not apply overvoltage to the input terminals. Otherwise, the Unit may malfunction or burn.

Relay Models

Do not connect the Unit to loads exceeding the rated switching power (switching voltage or current). Otherwise, faulty insulation, contact weld, or faulty contact of Relays, or damage to Relays may result, or the Relays may malfunction or burn.

The life of Relays varies with the switching condition. Test the Relays under the actual operating conditions before using the Relays within the permissible switching frequency. The use of deteriorated Relays may result in the faulty insulation of the Relays or cause the Relays to burn.

Do not use the Unit in locations with inflammable gas. Otherwise, a fire or explosion due to the heat of the Relays or sparks from the Relays may result when they are switched.

■Correct Use

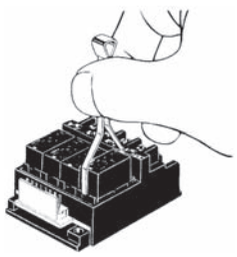
Mounting

Heat generated by the relays must be considered when gang-mounting. Space must be provided between the relays or other methods must be taken to maintain the relays' ambient temperature at 55 °C or lower.

Replacement of Relays

G6B-4□□ND

Use the P6B-Y1 Removal Tool as shown in the following diagram.



Be sure to turn OFF the power to the Unit before replacing a Relay.

Relays must be inserted straight onto the socket connector pins to ensure proper connection.

G6B-48BND models (high reliability) are connected directly to boards to increase reliability and the relays are thus not replaceable. If relay replacement is necessary, use the P6BF-4BND Terminal Sockets together with the G6B-1184P Mini Relays. P6BF-4BND Terminal Sockets are equipped with relay replacement sockets.

Do not mount Relays that are different to one another in voltage.

Relays Mounted

G6B-4□□ND standard: G6B-1114P-FD-US-P6B
G6B-4□□ND long life: G6B-1174P-FD
G6B-4□□ND high reliability: G6B-1184P-US
Replacement is not possible for G6B-48BND.

Mounted Relays

Relays and SSRs cannnot be mounted together.

Wiring

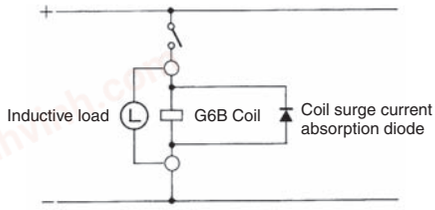
Be sure to connect the input terminals with the correct polarity.

Coil Voltage

Be sure not to impose voltage exceeding the permissible voltage on the coil continuously.

Do not use the relays when other inductive loads are connected in parallel with the coil input or when there are surges during power supply because the built-in diodes used to absorb surge may be destroyed.

Do Not Use the Following Circuit



Handling

Do not drop, shock, or vibrate the Unit excessively. Otherwise, damage to the Unit may result or the Unit may malfunction.

Make sure that all the Relays are properly mounted before use.

Screw Tightening Torque

Tighten each terminal screw to a torque described below.
M3 terminal screw: 0.4 to 0.56 N·m.
M3.5 terminal screw: 0.78 to 1.18 N·m.

Tighten each mounting screw to a torque of 0.59 to 0.98 N·m.

Installation Environment

Do not install the Unit in the following locations. Otherwise, damage to the Unit may result or the Unit may malfunction.

Locations with direct sunlight.

Locations with an ambient temperature range not within 0°C to 55°C.

Locations with rapid temperature changes resulting in condensation or locations with relative humidity ranges not within 10% to 90%.

Locations with corrosive or inflammable gas.

Locations with excessive dust, salinity, or metal powder.

Locations with vibration or shock affecting the Unit.

Locations with water, oil, or chemical sprayed on the Unit.

Disassembly, Repair, and Modification

Do not disassemble, repair, or modify the Unit. Otherwise, an electric shock may result or the Unit may malfunction.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

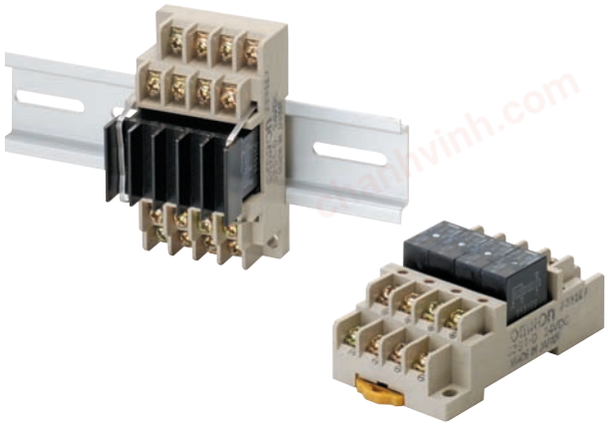
In the interest of product improvement, specifications are subject to change without notice.

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Terminal SSR
G3S4

Compact Terminal SSR with 4 Outputs

- Easy-to-use SSR block that combines four compact G3S SSRs, sockets, and heat sink in one unit.
- Easy wiring with separate I/O terminal construction.
- LED operation indicator.
- Special socket used for easy Relay replacement.
- Mounts either on DIN track or with screws.
- Electromagnetic relay-equipped G6B-4□□ND models are also available.



⚠ Refer to *Safety Precautions for All Relays* .

Ordering Information

■List of Models

When your order, specify the rated voltage.

Contact configuration	Heat sink	Built-in SSRs	Zero cross function	Applicable output load	Model	Rated voltage
Four SPST-NO relays	Yes	G3S-201PL-PD	No	1 A at 75 to 264 VAC (See note 1.)	G3S4-A	5 VDC
						12 VDC
						24 VDC
	No			0.6 A at 75 to 264 VAC (See note 1.)	G3S4-A1	5 VDC
						12 VDC
						24 VDC
	Yes	G3SD-Z01P-PD		1 A at 3 to 26 VDC (See note 2.)	G3S4-D	5 VDC
						12 VDC
						24 VDC
	No			0.6 A at 3 to 26 VDC (See note 2.)	G3S4-D1	5 VDC
						12 VDC
						24 VDC

Note: 1. Electromagnetic relay-equipped G6B-4□□ND models are also available. Refer information on *G6B-4□□ND* (page 2).
2. Given as "250 VAC" on the G3S4.
3. Given as "24 VDC" on the G3S4.

■Accessories (Order Separately)

Connection Sockets (Can be Purchased Individually)

Model	Rated voltage
P6BF-4BND	5 VDC
	12 VDC
	24 VDC

Heat Sinks (Can be Purchased Individually)

Model
Y92B-S10

Replacement Relays

Model	Rated voltage
G3S-201PL-PD	5 VDC
	12 VDC
	24 VDC
G3SD-Z01P-PD	5 VDC
	12 VDC
	24 VDC

Relay Removal Tool, Short Bar and Terminal Cover (Order Separately)

Refer to *Options for the G6B-4CB, G6B-4□□ND, and G3S4* on page 12.

Relay Mounting Products (Order Separately)

Refer to *Common Sockets/Products Related DIN Tracks*.

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Specifications

■Ratings

Input (per G3S Relay)

Rated voltage		Operating voltage	Must operate level	Must release voltage level	Input impedance		Rated current	
					G3S4-A, G3S4-A1	G3S4-D, G3S4-D1	G3S4-A, G3S4-A1	G3S4-D, G3S4-D1
DC	5 V	4 to 6 VDC	4 VDC max.	1 VDC min.	440 Ω±20%	550 Ω±20%	19.2 mA±20%	15.8 mA±20%
	12 V	9.6 to 14.4 VDC	9.6 VDC max.		1 kΩ±20%	1.2 kΩ±20%	15.8 mA±20%	12.5 mA±20%
	24 V	19.2 to 28.8 VDC	19.2 VDC max.		2.1 kΩ±20%	2.3 kΩ±20%	15.7 mA±20%	13.2 mA±20%

Note: The rated current includes the terminal's LED current.

Output (per G3S Relay)

Model / Applicable load	Load voltage	Load current	Inrush current resistance
G3S4-A	75 to 264 VAC	0.1 to 1 A	15 A (60 Hz, 1 cycle)
G3S4-A1		0.1 to 0.6 A	
G3S4-D	3 to 26 VDC	0.01 to 1 A	3 A (10 ms)
G3S4-D1		0.01 to 0.6 A	

■Characteristics

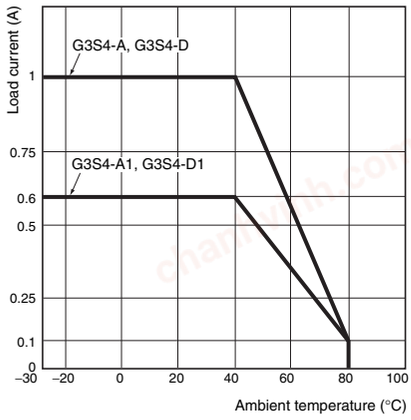
Item / Model	G3S4-A, G3S4-A1	G3S4-D, G3S4-D1
Must operate time	1 ms max.	
Release time	0.5 × load power cycle + 1 ms max.	1 ms max.
Output ON voltage drop	1.6 V max. (RMS)	1.5 V max.
Leakage current	2 mA max.	0.1 mA max. (at 26 VDC)
Insulation resistance	100 MΩ min. (at 500 VDC)	
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min	
Vibration resistance	10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)	
Shock resistance	1,000 m/s^2	
Storage temperature	–30 to 100°C (with no icing)	
Ambient operating temperature	–30 to 80°C (with no icing)	
Ambient operating humidity	45% to 85%	
Weight	Approx. 95 g (-A model)	Approx. 95 g (-D model)

Engineering Data

■Reference Data

(per G3S Relay)

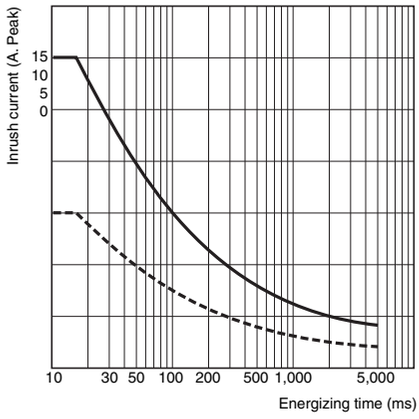
Load Current vs. Ambient Rated Temperature



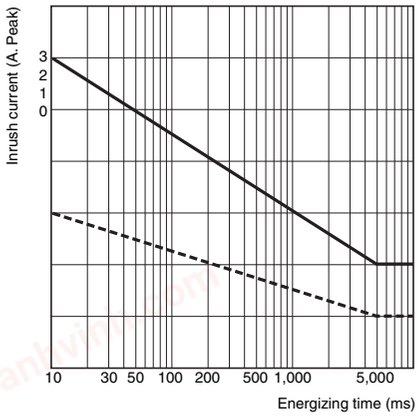
Inrush Current Resistance

Non-repetitive (Keep the inrush current to half the rated value if inrush current occurs repetitively.)

G3S4-A, G3S4-A1



G3S4-D, G3S4-D1



Note: Measurement values taken from production line samples have been plotted in graphs to provide this data. Use this data only as a guide. Relays are mass-produced, so allowances must be made for a certain amount of variation in measurement data.

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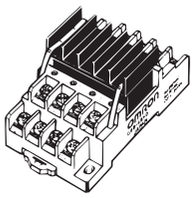
Dimensions

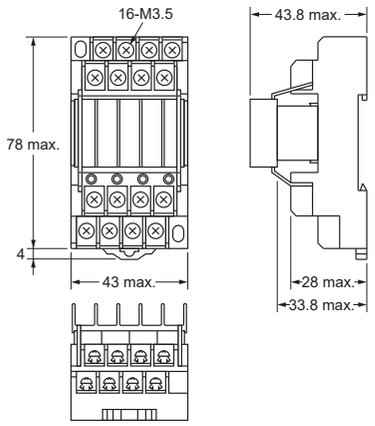
Note: All units are in millimeters unless otherwise indicated.

■Relays

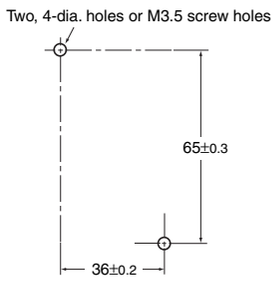
With Heat Sinks

G3S4-A
G3S4-D



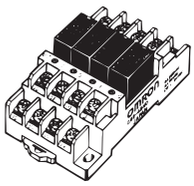


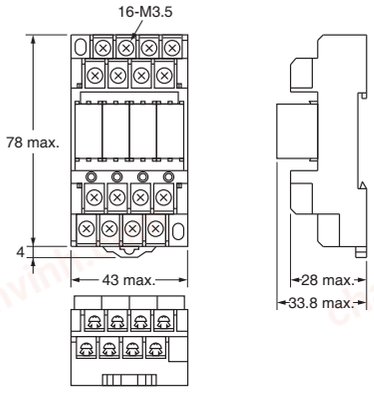
Mounting Holes (Top View)



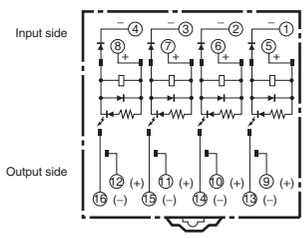
Without Heat Sinks

G3S4-A1
G3S4-D1





Terminal Arrangement/Internal Connections (Top View)

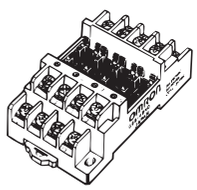


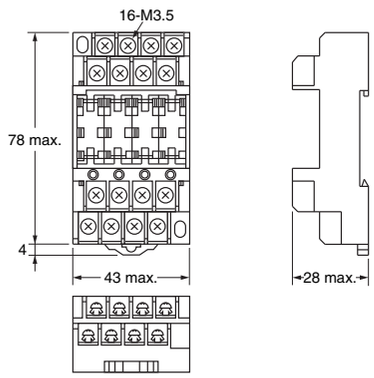
Note: Make sure that the polarity of the input terminal is correct. The polarity given inside parentheses ( ) is for G3S4-D and G3S4-D1 Relays. There is no indication of polarity when Connection Sockets are used alone.

■Accessories (Order Separately)

Connection Socket (Can be Purchased Individually)

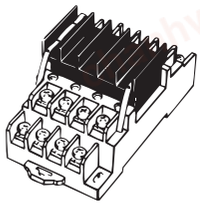
P6BF-4BND
(with operation indicator)

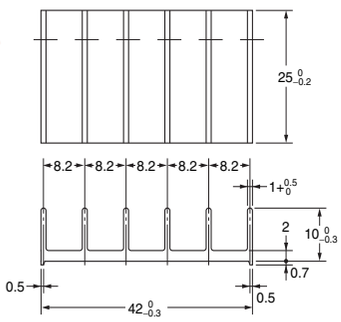




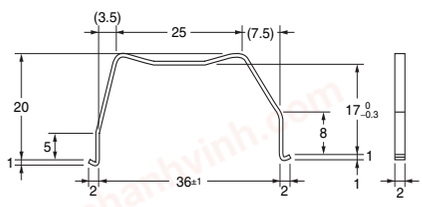
Heat Sinks (Can be Purchased Individually)

Y92B-S10





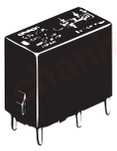
Mounting Brackets

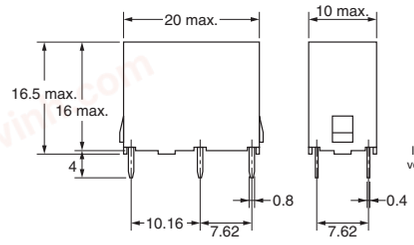


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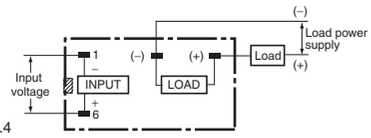
Replacement Relays

G3S-201PL-PD
G3SD-Z01P-PD





Terminal Arrangement/Connections (Bottom View)



Note: 1. The polarity given inside parentheses ( ) is for DC loads.
2. The load can be connected to ether the positive or negative SSR output terminal.

Relay Removal Tool and Short Bar (Order Separately)

Refer to *Options for the G6B-4CB, G6B-4□□ND, and G3S4* on page 12.

Relay Mounting Products (Order Separately)

Refer to *Common Sockets/Products Related DIN Tracks*.

Safety Precautions

Refer to *Safety Precautions for All Relays*.

■Precautions for Correct Use

- The four SSRs are mounted individually. Use standard SSR connection methods.
- There is almost no differences based on the mounting direction. Mount the Terminal SSR with the best air flow.
- Apply a silicon grease for heat radiation (e.g., YG6260 or G746 from Shin-Etsu Chemical Co. Ltd.) between the heat sink and the SSR if the heat sink is removed during maintenance of the G3S4-A or G3S4-D Terminal SSR (with external heat sinks) or if an external heat sink that was purchased separately is mounted.
- The load voltage cannot be increased by connecting the G3S4 load terminals in serial. This is because there is a small difference in the SSR operating time
- The load current cannot be increased by connecting the G3S4 load terminal in parallel. This is because there is a small difference in the SSR operating time.
- The P6BF-4BND Connection Socket has an operation indicator and is available in 5-VDC, 12-VDC, and 24-VDC models.
- Use the P6B-Y1 Relay Removal Tool to remove SSRs.

Mounted Relays

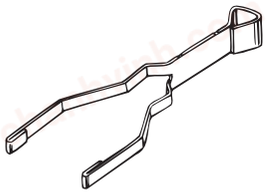
Relays and SSRs cannot be mounted together.

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Options for the G6B-4CB, G6B-4□□ND, and G3S4

Relay Removal Tool

P6B-Y1



Ordering Information

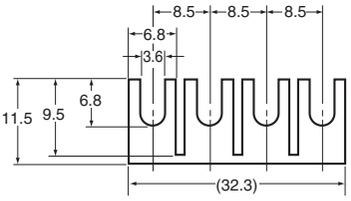
Applicable Terminal Relays	Model
G6B-4CB G6B-4□□ND G3S4	**P6B-Y1**

Short Bar

G6B-4-SB

A Short Bar is used to wire crossovers for common terminals for coils or contacts.



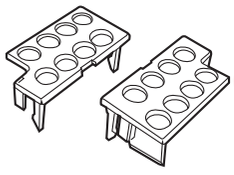


Ordering Information

Applicable Terminal Relays	Model
G6B-4CB G6B-4□□ND G3S4	**G6B-4-SB**

Terminal Cover (Two per Set)

G6B-4-C

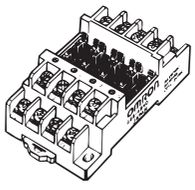


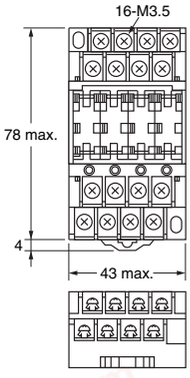
Ordering Information

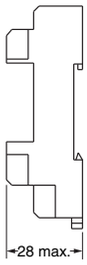
Applicable Terminal Relays	Model
G6B-4BND G6B-47BND G6B-48BND G3S4-A1 G3S4-D1	**G6B-4-C**

Connection Socket (Can be Purchased Individually)

P6BF-4BND (with operation indicator)







Ordering Information

Applicable Terminal Relays	Model	Rated voltage
G6B-4BND G6B-47BND G3S4	**P6BF-4BND**	5 VDC
		12 VDC
		24 VDC

Also give the voltage specification.

P6BF-4BND Connection Sockets do not have specific approved standards.

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2024.11

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