

# Hybrid Power Relay G9H


CSM\_G9H\_DS\_E\_2\_1

## Hybridization of a Magnetic Relay and an SSR Achieves 10-A Switching for 10 Million Operations.



- Using a triac to open and close the circuit reduces chattering and arcing, thereby increasing the electrical durability to 10 million operations.
- Relays contacts for power ON and 10-A switching with high-capacity are provided in a compact body without the need of radiators. Plus, there is almost no effect on heat generation or ambient temperature.
- Operation indicators to easily check operation.
- Built-in temperature fuse prevents internal burning due to triac or relay malfunctions.
- Socket-type Relays the same size as the 1-pole and 2-pole LY Relays.



 Refer to *Safety Precautions for All Solid State Relays*.

## Ordering Information

### List of Model

Isolation method	Zero cross function	Operation indicator	Applicable output load (See note.)	Rated input voltage	Model
Relay	No	Yes	5 A 100 to 240 VAC	5 VDC	G9H-205S DC5
				12 VDC	G9H-205S DC12
				24 VDC	G9H-205S DC24
			10 A 100 to 240 VAC	5 VDC	G9H-210S DC5
				12 VDC	G9H-210S DC12
				24 VDC	G9H-210S DC24

**Note:** 1. The actual product is labeled "250 VAC."

2. For information on products that are certified for international standards, consult your OMRON sales representatives

### Accessories (Order Separately)

#### Connecting Socket Mounting Plate

Model	Minimum quantity packaged (units)
PYP-1	10
PYP-18	1

**Note:** Order the models above in increments of the minimum quantity packaged.

# Specifications

## ■ Ratings

### Input

Rated voltage	Item	Operating voltage	Coil resistance	Must operate voltage	Must release voltage	Power consumption
DC	5 V	4 to 6 VDC	104 $\Omega$	4 VDC max.	0.5 VDC min.	Approx. 240 mW
	12 V	9.6 to 14.4 VDC	600 $\Omega$	9.6 VDC max.	1.2 VDC min.	
	24 V	19.2 to 28.8 VDC	2,400 $\Omega$	19.2 VDC max.	2.4 VDC min.	

**Note:** 1. The coil resistance is measured at a coil temperature of 23°C with a tolerance of  $\pm 10\%$ .  
 2. Performance characteristic data are measured at a coil temperature of 23°C.

### Output

Model	Item	Applicable load			
		Rated load voltage	Load voltage range	Load current (See note.)	Inrush current resistance
G9H-205S		100 to 240 VAC	75 to 264 VAC	50 mA to 5 A (at 55°C)	80 A (60 Hz, 1 cycle)
G9H-210S				50 mA to 10 A (at 55°C)	170 A (60 Hz, 1 cycle)

**Note:** The load current depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in Engineering Data.

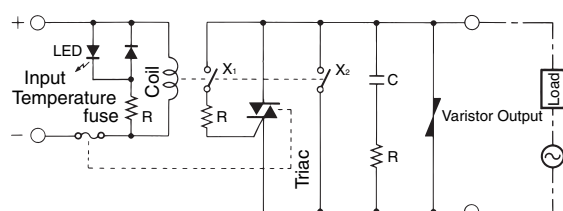
## ■ Characteristics

Item	Model	G9H-205S	G9H-210S
Operate time		10 ms max.	
Release time		1/2 cycle max. + 10 ms	
Output ON voltage drop		1.6 V max. (RMS) (at 5 A)	1.6 V max. (RMS) (at 10 A)
Leakage current		5 mA max. at 250 VAC	
Inrush current resistance		80 A	170 A
Temperature rise		50°C max. (rated voltage applied using resistance method)	
Insulation resistance		100 M $\Omega$ min. (at 500 VDC)	
Dielectric strength		2,000 VAC 50/60 Hz 1 min	
Vibration resistance	Destruction	10 to 55 to 10 Hz, 1-mm single amplitude (2-mm double amplitude)	
	Malfunction	10 to 45 to 10 Hz, 1-mm single amplitude (2-mm double amplitude)	
Shock resistance (See note.)	Destruction	1,000 m/s <sup>2</sup>	
	Malfunction	100 m/s <sup>2</sup>	
Life expectancy	Mechanical	10 million operations min. (switching frequency: 18,000 operations/hour)	
	Electrical	10 million operations min. (resistive load and switching frequency: 18,000 operations/hour)	
Storage temperature		-25 to 70°C (with no icing or condensation)	
Ambient operating temperature		-25 to 60°C (with no icing or condensation)	
Ambient operating humidity		35% to 85%	
Weight		Approx. 25 g	

**Note:** Value when excited.

# Connection

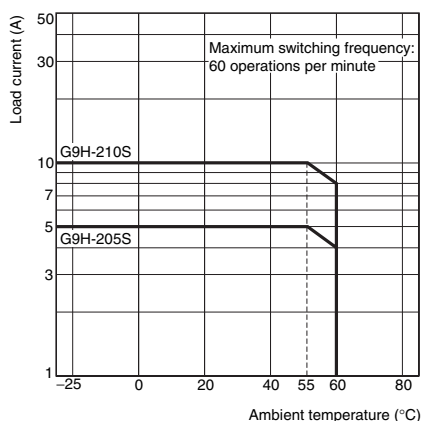
## ■ Layout



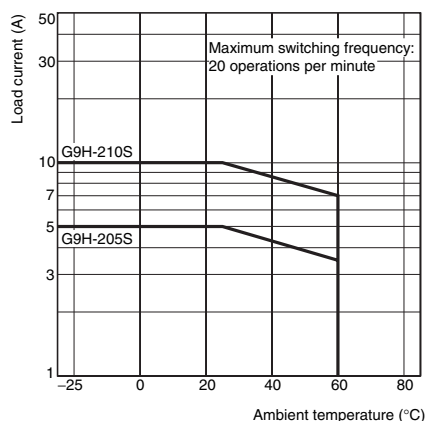
# Engineering Data

## Load Current vs. Ambient Temperature

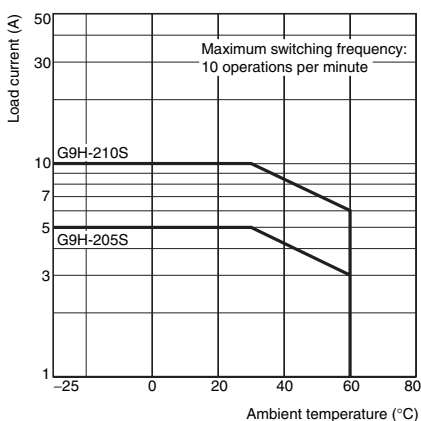
### Resistive load



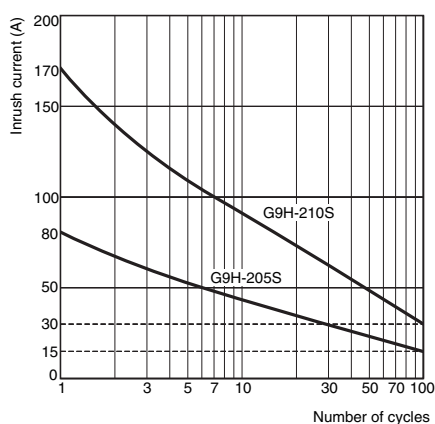
### Lamp load (Inrush current: 6 times the rated current, Inrush current time: 2 cycles)



### Motor load (Inrush current: 4 times the rated current, Inrush current time: 12 cycles)



### Inrush Current Resistance vs. ON Time (1/2 max. if it occurs repetitively)



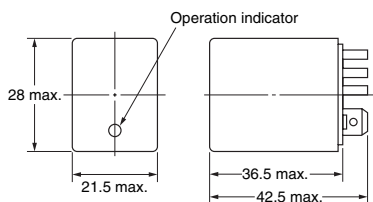
## Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

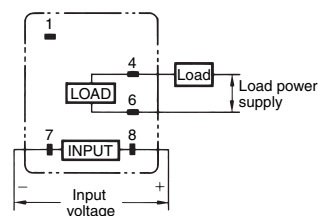
### Hybrid Power Relays

G9H-205S

G9H-210S



### Terminal Arrangement/Internal Connections (Bottom View)



## ■ Accessories (Order Separately)

### Connecting Socket

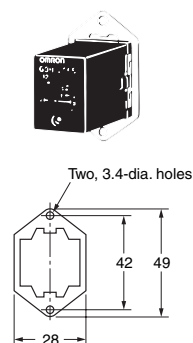
Use the PTF08A (-E), PT08, PT08-0, or PT08QN.

### Connecting Socket Mounting Plate (t = 1.6)

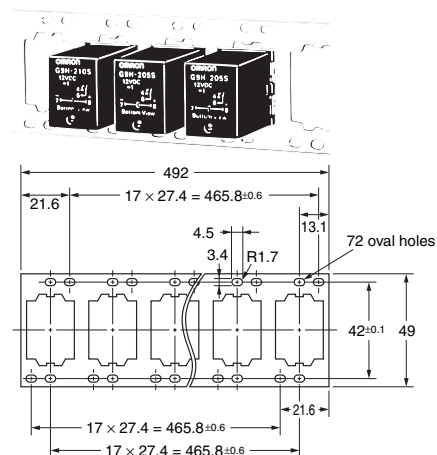
Use a Mounting Plate when two or more Connecting Sockets are mounted side by side.

Types of Mounting Plates are available: the PYP-1 (for mounting one Unit) and the PYP-18 (for mounting up to 18 Units). The Mounting Plate for 18 Units can be cut to the desired length before use.

**PYP-1**



**PYP-18**



## Safety Precautions

Refer to *Safety Precautions for All Solid State Relays*.

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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