

Hybrid Power Relay G9H


CSM_G9H_DS_E_3_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 Ω	4 VDC max.	0.5 VDC min.	Approx. 240 mW
	12 V	9.6 to 14.4 VDC	600 Ω	9.6 VDC max.	1.2 VDC min.	
	24 V	19.2 to 28.8 VDC	2,400 Ω	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.

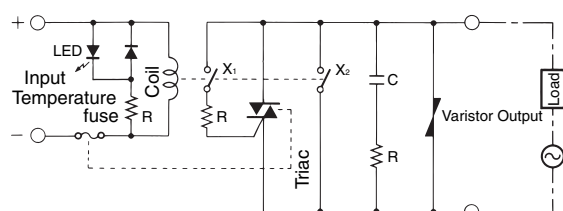
■ Characteristics

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 MΩ 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 ²	
	Malfunction	100 m/s ²	
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

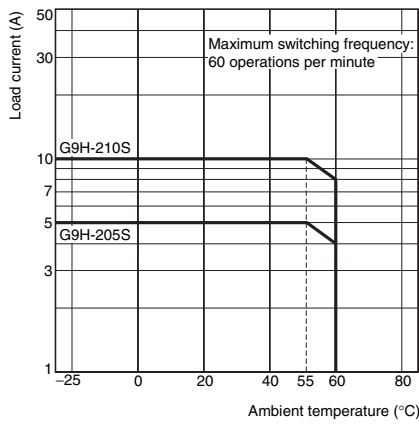
■ Layout



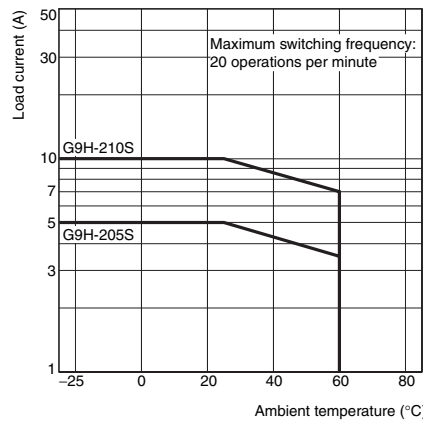
Engineering Data

Load Current vs. Ambient Temperature

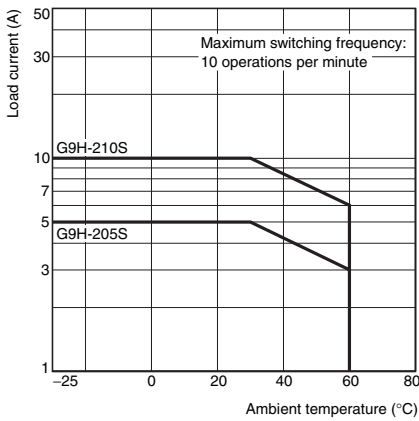
Resistive load



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

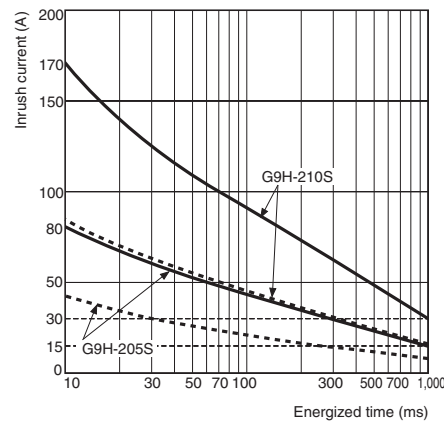


Motor load (Inrush current: 4 times the rated current, Inrush current time: 12 cycles)



Inrush Current Resistance vs. ON Time

Non-repetitive (Keep the inrush current below the dotted line if it occurs repetitively.)

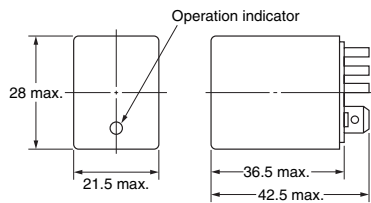


Dimensions

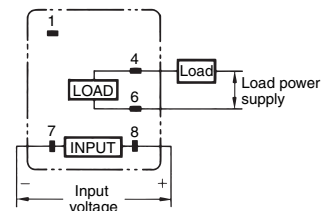
Note: All units are in millimeters unless otherwise indicated.

Hybrid Power Relays

G9H-205S
G9H-210S



Terminal Arrangement/Internal Connections (Bottom View)



■ Accessories (Order Separately)

Connecting Socket

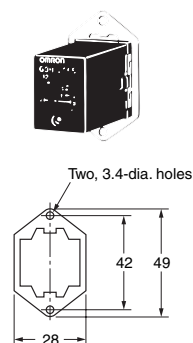
Use the PTF08A (-E), PT08, PT08-0, or PT08QN.

Connecting Socket Mounting Plate (t = 1.6)

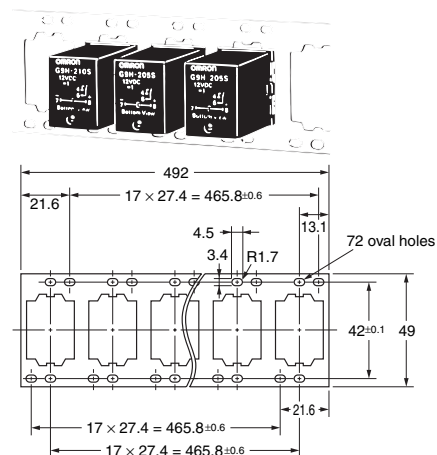
Use a Mounting Plate when two or more Connecting Sockets are mounted side by side.

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.

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.

LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

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.

PROGRAMMABLE PRODUCTS

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.

ERRORS AND OMISSIONS

The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

2009.1

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

OMRON Corporation
Industrial Automation Company

<http://www.ia.omron.com/>

(c)Copyright OMRON Corporation 2009 All Right Reserved.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Omron:

[G9H-205S-DC24](#) [G9H-210S DC12](#) [G9H-210S-DC24](#)