

Solid State Relays G3□-VD


G3H/G3HD

CSM_G3H_G3HD_DS_E_5_2

New Models with International Standards Added to G3H Series (-VD in model number). Same Profile as LY1 and LY2 Bi-power Relays



- Certified by UL, CSA, and VDE (models numbers with a suffix of “-VD”).
- Socket type, same size as LY Power Relays.
- Operation indicator provided to confirm input (models numbers with “N” before the suffix).

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



Note: The socket is optional.

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

Model Number Structure

Model Number Legend

G3H-□□□□□□-□
1 2 3 4 5 6 7 8

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Basic Model Name
G3H: Solid State Relay</p> <p>2. Rated Load Power Supply Voltage
2: 200 VAC</p> <p>3, 4. Rated Load Current
03: 3 A</p> <p>5. Terminal Type
S: Plug-in terminals</p> | <p>6. Zero Cross Function
Blank: Equipped with zero cross function
L: Not equipped with zero cross function</p> <p>7. Operation Indicator
Blank: Not equipped with operation indicator
N: Equipped with operation indicator</p> <p>8. Certification
VD: Certified by UL, CSA, and VDE standards</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

G3HD-□□□□□-□
1 2 3 4 5 6 7

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Basic Model Name
G3H: Solid State Relay</p> <p>2. Load Power Supply Type
D: DC</p> <p>3. Rated Load Power Supply Voltage
X: 50 VDC</p> <p>4. Rated Load Current
03: 3 A</p> | <p>5. Terminal Type
S: Plug-in terminals</p> <p>6. Operation Indicator
Blank: Not equipped with operation indicator
N: Equipped with operation indicator</p> <p>7. Certification
VD: Certified by UL, CSA, VDE</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Ordering Information

List of Models

Isolation	Zero cross function	Indicator	Rated output load	Rated input voltage	Model
Photocoupler	Yes	Yes	3 A at 100 to 240 VAC *1	5 to 24 VDC	G3H-203SN-VD
Phototriac coupler	No			5 VDC	G3H-203SLN-VD
				12 VDC	
			24 VDC		
Photocoupler	---		3 A at 4 to 48 VDC *2	5 to 24 VDC	G3HD-X03SN-VD
Photocoupler	Yes	No	3 A at 100 to 240 VAC *1	4 to 24 VDC	G3H-203S-VD
Phototriac coupler	No			5 VDC	G3H-203SL-VD
				12 VDC	
			24 VDC		
Photocoupler	---		3 A at 4 to 48 VDC *2	4 to 24 VDC	G3HD-X03S-VD
Photovoltaic coupler	---	Yes	2.5 A at 24 to 240 VDC *3	12 to 24 VDC	G3HD-202SN-VD

Note: Add “-V” to the end of the model number to order a Relay for an AC inductive load with a full-wave rectifier. However, “-V” can be added only to models that do not have the zero cross function.(Example: G3H-203SL-V)

*1 Product is labelled “240 VAC”.

*2 Product is labelled “48 VDC”.

*3 Product is labelled “240 VDC”.

Accessories (Order Separately)

Connecting Sockets

Item	PTF08A-E	PT08	PT08-0	PT08QN
Connecting	Front connecting	Back connecting		
Mounting method/ Terminal type	Track mounted screw terminals	Solder terminals	PCB terminals	Wire-wrapping terminals
Hold-down clip	PYC-A1	PYC-P		

Specifications

Ratings (at an Ambient Temperature of 25°C)

Input

Model	Rated voltage	Operating voltage	Impedance	Voltage level	
				Must operate voltage	Must release voltage
G3H-203SN-VD	5 to 24 VDC	4 to 28 VDC	15 mA max. (See note 2.)	4 VDC max.	1 VDC min.
G3H-203SLN-VD	5 VDC	4 to 6 VDC	390 Ω±20%	4 VDC max.	1 VDC min.
	12 VDC	9.6 to 14.4 VDC	900 Ω±20%	9.6 VDC max.	
	24 VDC	19.2 to 28.8 VDC	2 kΩ±20%	19.2 VDC max.	
G3HD-X03SN-VD	5 to 24 VDC	4 to 28 VDC	1.5 kΩ ^{+20%} / _{-10%} (See note 1.)	4 VDC max.	1 VDC min.
G3H-203S-VD	4 to 24 VDC	3 to 28 VDC	15 mA max. (See note 2.)	3 VDC max.	1 VDC min.
G3H-203SL-VD	5 VDC	4 to 6 VDC	390 Ω±20%	4 VDC max.	1 VDC min.
	12 VDC	9.6 to 14.4 VDC	900 Ω±20%	9.6 VDC max.	
	24 VDC	19.2 to 28.8 VDC	2 kΩ±20%	19.2 VDC max.	
G3HD-X03S-VD	4 to 24 VDC	3 to 28 VDC	1.5 kΩ ^{+20%} / _{-10%} (See note 1.)	3 VDC max.	1 VDC min.
G3HD-202SN-VD	12 to 24 VDC	9.6 to 28.8 VDC	25 mA max. (at 24 VDC) (See note 2.)	9.6 VDC max.	1 VDC min.

Note: 1. The input impedance is given for the maximum operating voltage. For details, refer to the *Technical Guide for Solid State Relays*.
2. With constant current input system.

Output

Model	Applicable load			
	Rated load voltage	Load voltage range	Load current	Inrush current
G3H-203SN-VD G3H-203S-VD G3H-203SLN-VD G3H-203SL-VD	100 to 240 VAC	75 to 264 VAC	0.1 to 3 A at 40°C	45 A 60 Hz, 1 cycle
G3HD-X03SN-VD G3HD-X03S-VD	4 to 48 VDC	3 to 52.8 VDC	0.1 to 3 A at 40°C	18 A (10 ms)
G3HD-202SN-VD	24 to 240 VDC	19.2 to 264 VDC	0.001 to 2.5 A at 40°C	20 A (10 ms)

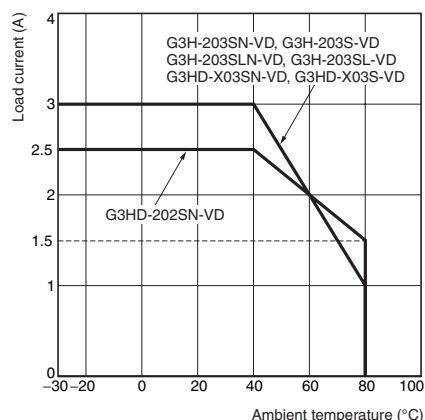
Characteristics

Model	G3H-203SN-VD/203S-VD	G3H-203SLN-VD/203SL-VD	G3HD-X03SN-VD/X03S-VD	G3HD-202SN-VD
Operate time	1/2 cycle of load power source + 1 ms max.	1 ms max.	0.5 ms max.	5 ms max.
Release time	1/2 cycle of load power source + 1 ms max.		2 ms max.	10 ms max.
Output ON voltage drop	1.6 V (RMS) max.			3 V max. (output ON-resistance: 1.25 Ω max.)
Leakage current	5 mA max. (at 100 VAC); 10 mA max. (at 200 VAC)	2.5 mA max. (at 100 VAC); 5 mA max. (at 200 VAC)	5 mA max. (at 50 VDC)	0.1 mA max. (at 200 VDC)
Insulation resistance	100 MΩ min. (at 500 VDC)			
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min		1,500 VAC, 50/60 Hz for 1 min	
Vibration resistance	Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude			
Shock resistance	Destruction: 1,000 m/s ²			
Ambient temperature	Operating: -30°C to 80°C (with no icing) Storage: -30°C to 100°C (with no icing)			
Ambient humidity	45% to 85%			
Certified standards	G3H: UL508, CSA C22.2 No. 14, EN60947-4-3 G3HD: UL508, CSA C22.2 No. 14, EN60950-1			
EMC	Emission: EN55011 Group 1 Class B Immunity: EN61000-6-2			
Weight	Approx. 50 g			

Engineering Data

Load Current vs. Ambient Temperature Characteristics

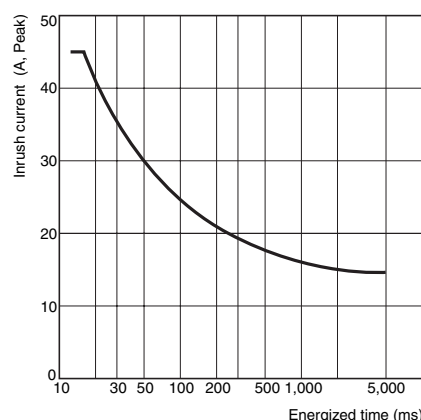
G3H-203SN-VD/203S-VD/203SLN-VD/203SL-VD
G3HD-X03SN-VD/X03S-VD
G3HD-202SN-VD



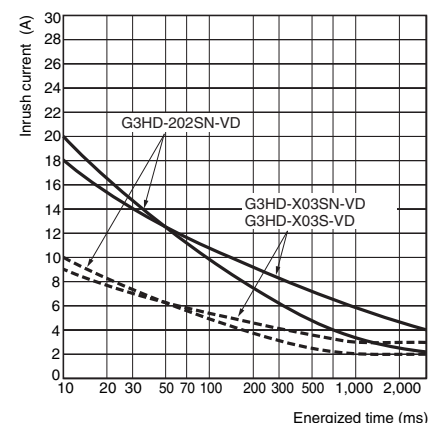
One Cycle Surge Current: Non-repetitive

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

G3H-203SN-VD/203S-VD/203SLN-VD/
G3H-203SL-VD

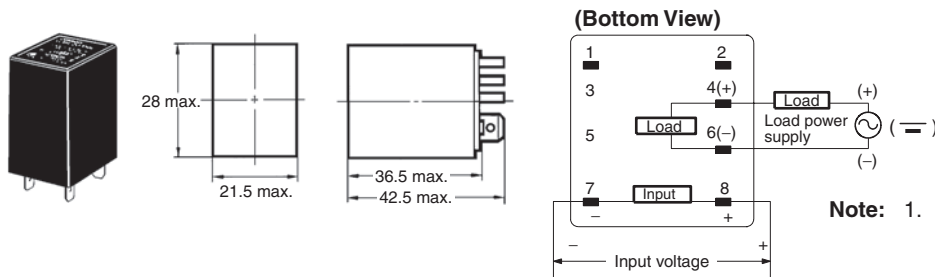


G3HD-X03SN-VD/X03S-VD
G3HD-202SN-VD



Dimensions

Note: All units are in millimeters unless otherwise indicated.



- Note:**
1. The plus and minus symbols shown in the parentheses are for DC loads.
 2. The coil has no polarity.
 3. The load is possible to connect either + side or - side.

Safety Precautions

Precautions for Correct Use

Please observe the following precautions to prevent failure to operate, malfunction, or undesirable effect on product performance.

Connection

The SSR for DC switching use can connect to a load regardless of the polarity of the positive and negative output terminals.

Close Mounting of Multiple Relays

If multiple Relays are mounted side by side, be aware that the outer wall of each SSR works as a heat sink.

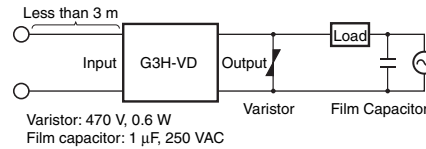
The SSR casing serves to dissipate heat. Install the Relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.

Protective Terminal

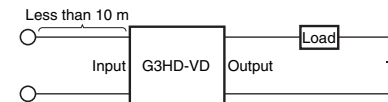
No overvoltage absorption element is built in. (The G3HD-202SN has a built-in varistor.) Be sure to connect an overvoltage absorption element when using the G3H or G3HD with an inductive load.

EMC Directive Compliance

1. AC-switching models comply with EMC Directives under the following conditions ("-VD" models only).



- Connect a varistor between the output terminals.
 - Connect a film capacitor to the load power supply.
 - The input cable must be less than 3 m.
2. DC-switching models comply with EMC Directives under the following conditions ("-VD" models only).



- The input cable must be less than 10 m.

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.

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- Systems, machines, and equipment that could present a risk to life or property.

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CHANGE IN SPECIFICATIONS

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

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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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