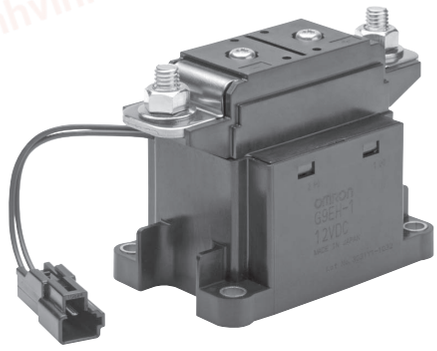
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OMRON

DC Power Relay (300 A type)
G9EH-1

Capable of Interrupting High-voltage, High-current Loads

- A compact relay (L111 x W60 x H76.7 mm) capable of switching DC400 V, 300 A. (Capable of interrupting max. DC300 V, 2500 A)
- The switching section and driving section are gas-injected and hermetically sealed, allowing these compact relays to interrupt high-current. The sealed construction also achieves no arc space, space saving, and helps to ensure safe applications. In addition, the contacts have a high contact reliability that is unaffected by ambient atmosphere.
- Downsizing of parts and optimum design allow no restrictions on the mounting direction.



⚠ Refer to "**DC Power Relays Common Precautions**".

■Type standard

G9EH-□-□-□
1 2 3

1. Number of contact poles
1: 1 pole

2. Contact structure
Blank: 1a contact

3. Coil terminal form
Blank: Connector terminal

■Classification

Classification	Terminal form		Contact structure	Rated coil voltage	Type name
	Coil terminals	Contact terminals			
Switching / current conduction type	Connector terminal	Screw terminals	1a	DC12 V DC24 V	**G9EH-1**

Note 1. Come with two M8 nuts for main terminals (contacts).
Note 2. Above models are not certificated for the safety standards of UL or CSA, etc.

■Ratings

●Operation coil

Rated voltage (V)	Rated current (mA)	Coil resistance (Ω)	Operating voltage (V)	Release voltage (V)	Maximum voltage (V)	Power consumption (W)
DC12	583	20.6	75% or less of rated voltage	8% or more of rated voltage	130% of rated voltage (at 23°C within 10min.)	Approx. 7
DC24	292	82.3				

Note 1. Values of the rated current and the coil resistance are at coil temperature of +23°C, and have a tolerance of ±10%.
Note 2. The figures for the operating characteristics are at a coil temperature of 23°C.
Note 3. Value of the maximum voltage is the maximum voltage that can be applied to the relay coil.

●Switching area

Item	Resistance load
	G9EH-1
Rated load	DC400 V 300 A
Rated current	300 A
Maximum switching voltage	400 V
Maximum switching current	300 A

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■Performance

Item		G9EH-1
Contact resistance *1		30 mΩ or less (Typ. 0.2 mΩ)
Contact voltage drop		0.1 V or less (at 300 A)
Operating time		50 ms or less
Release time		30 ms or less
Insulation resistance *2	Between coil and contacts	1,000 MΩ or more
	Between homopolar contacts	1,000 MΩ or more
Withstand voltage	Between coil and contacts	AC2,500 V for 1min.
	Between homopolar contacts	AC2,500 V for 1min.
Vibration tolerance	Durability	10 to 55 to 10 Hz Single amplitude 0.75 mm (Acceleration: 2.94 to 88.9 m/s^2)
	Malfunction	10 to 55 to 10 Hz Single amplitude 0.75 mm (Acceleration: 2.94 to 88.9 m/s^2)
Shock resistance	Durability	490 m/s^2
	Malfunction	200 m/s^2
Mechanical endurance *3		200,000 times or more
Electrical endurance (Resistance load) *4		DC400 V 200 A 3,000 times or more
		DC400 V 300 A 1,000 times or more
Short time carry current		450 A (for 10 min)
Maximum interruption current		DC400 V 2,500 A (1 time)
Overload interruption		DC400 V 700 A (40 times or more)
Reverse polarity interruption		DC200 V -200 A (1,000 times or more)
Minimum load current		1 A
Ambient temperature		-40 to +85°C (with no icing or condensation)
Ambient humidity		5% to 85% RH
Weight (including accessories)		Approx. 850 g

Note. All values above are in early time under an ambient temperature of +23°C unless stated.
*1. Measurement condition: By voltage drop method at DC5 V 1 A.
*2. Measurement condition: By insulation resistance at DC500 V.
*3. Test condition / Switching frequency: 3,600 times/hour.
*4. Test condition / Switching frequency: 60 times/hour.

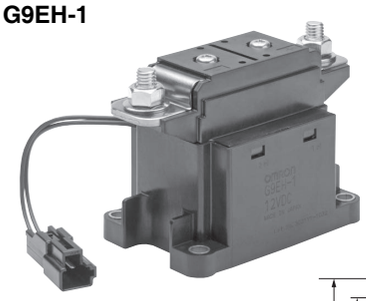
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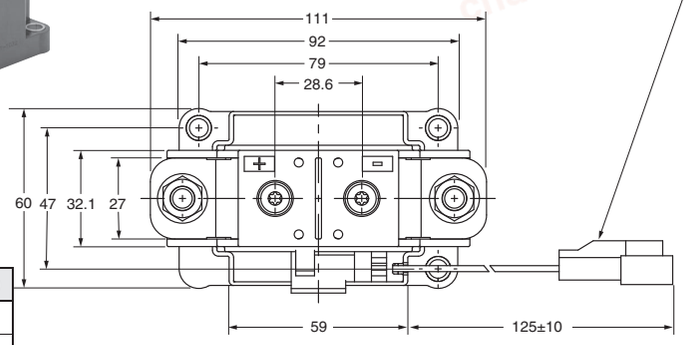
■Dimensions

(Unit: mm)

●Relay with Connector

G9EH-1

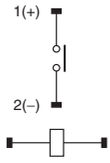




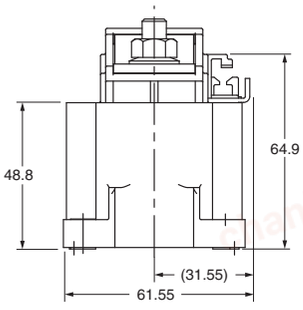
Connector part number: 7282-1020 (Yazaki)
Note: Harness side
Female connector number: 7283-1020

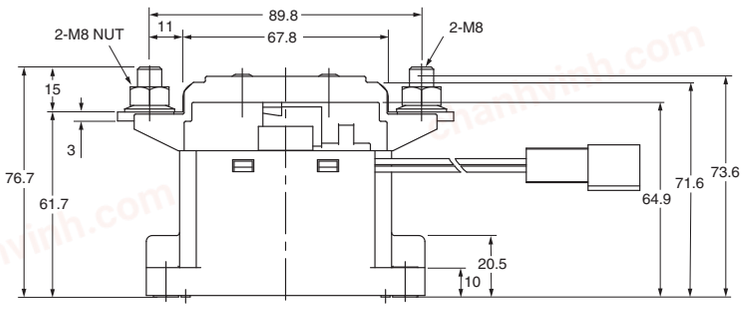
Size (mm)	Tolerance (mm)
to 10	±0.3
10 to 50	±0.5
50 to	±1

Terminal arrangement / Internal connections
(BOTTOM VIEW)

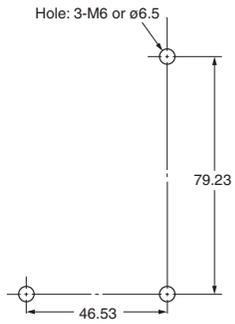


Note: Be sure to connect terminals with the correct polarity. Coils do not have polarity.





Mounting holes
(BOTTOM VIEW)



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■Precautions

⚠ WARNING

Take measures to prevent contact with charged parts when using the Relay for high voltages.



Precautions for Correct Use

Refer to the relevant catalog for common precautions.

1. Be sure to tighten all screws to the appropriate torque given below. Loose screws may result in burning due to abnormal heat generation during energization.
   • M8 screws: 8.82 to 9.80 N·m
2. Do not drop or disassemble this Relay. Not only may the Relay fail to meet the performance specifications, it may also result in damage, electric shock, or burning.
3. Do not use these Relays in strong magnetic fields of 800 A/m or higher (e.g., near transformers or magnets). The arc discharge that occurs during switching may be bent by the magnetic field, resulting in flashover or insulation faults.
4. This Relay is a device for switching high DC voltages. If it is used for voltages exceeding the specified range, it may not be possible to interrupt the load and burning may result. In order to prevent fire spreading, use a configuration in which the current load can be interrupted in the event of emergencies. In order to ensure safety of the system, replace the Relay on a regular basis.
5. If the Relay is used for no-load switching, the contact resistance may increase and so confirm correct operation under the actual operating conditions.
6. These Relays contain pressurized gas. Even in applications with low switching frequencies, the ambient temperature and heat caused by arc discharge in the contacts may allow permeation of the sealed gas, resulting in arc interruption failure. In order to ensure safety of the system, replace Relays on a regular basis.
7. With this Relay, if the rated voltage (or current) is continuously applied to the coil and contacts, and then turned OFF and immediately ON again, the coil temperature, and consequently the coil resistance, will be higher than usual. This means that the must operate voltage will also be higher than usual, exceeding the rated value (“hot start”). In this case, take the appropriate countermeasures, such as reducing the load current or restricting the energizing time or ambient operating temperature.
8. The ripple percentage for DC relays can cause fluctuations in the must-operate voltage or humming. For this reason, reduce the ripple percentage in full-wave rectified power supply circuits by adding a smoothing capacitor. Ensure that the ripple percentage is less than 5%.
9. Ensure that a voltage exceeding the specified maximum voltage is not continuously applied to the coil. Abnormal heating in the coil may shorten the lifetime of the insulation coating.
10. Do not use the Relay at a switching voltage or current greater than the specified maximum values. Doing so may result in arc discharge interruption failure or burning due to abnormal heating in the contacts.
11. The contact ratings are for resistive loads. The electrical endurance with inductive loads is inferior to that of resistive loads. Confirm correct operation under the actual operating conditions.
12. Do not use the Relay in locations where water, solvents, chemicals, or oil may come in contact with the case or terminals. Doing so may result in deterioration of the case resin or abnormal heating due to corrosion or contamination of the terminals. Also, if electrolyte adheres to the output terminals, electrolysis may occur between the output terminals, resulting in corrosion of the terminals or wiring disconnections.
13. Be sure to turn OFF the power and confirm that there is no residual voltage before replacing the Relay or performing wiring.
14. The distance between crimp terminals or other conductive parts will be reduced and insulation properties will be lowered if wires are laid in the same direction from the contact terminals. Use insulating coverings, do not wire in the same direction, and take other measures as required to maintain insulation properties.
15. Use either a varistor, or a diode plus Zener diode as a protective circuit against reverse surge in the relay coil. Using a diode alone will reduce the switching characteristics.
16. Be sure to use the screws provided with the product for wiring coil terminals and contact terminals. The specified tightening torque cannot be achieved with different screws and may result in abnormal heat generation when energized.

Recommended Wire Size

Model	Size
G9EH-1	100 mm² min.

Note. Use flexible leads.

Please check each region's Terms & Conditions by region website.

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