

DC Power Relays (200-A Models)

G9EC-1

DC Power Relays Capable of Interrupting High-voltage, High-current Loads

- A compact relay (98 x 44 x 86.7 mm (L x W x H)) capable of switching 400-V 200-A DC loads. (Capable of interrupting 1,000 A at 400 VDC max.)
- The switching section and driving section are gas-injected and hermetically sealed, allowing these compact relays to interrupt high-capacity loads. The sealed construction also requires no arc space, saves space, and helps ensure safe applications.
- Downsizing and optimum design allow no restrictions on the mounting direction.
- Terminal Cover is also available for industrial applications.
- UL/CSA standard UL508 approved.

Note: Refer to "Precautions", located on page 7.



Model Number Structure

Model Number Legend

G9EC-□-□-□-□
1 2 3 4

1. Number of Poles

1: 1 pole

2. Contact Form

Blank: SPST-NO

3. Coil Terminals

B: M3.5 screw terminals (standard)

Blank: Lead wire output

4. Special Functions

Ordering Information

List of Models

Models	Terminals		Contact form	Coil rated voltage	Model
	Coil terminals	Contact terminals			
Switching/current conduction models	Screw terminals	Screw terminals	SPST-NO	12 VDC 24 VDC 48 VDC 60 VDC 100 VDC	G9EC-1-B
	Lead wire				G9EC-1

Note: 1. Relays come with two M8 nuts for the main terminals (contacts).

2. Relays with coil terminals and screw terminals come with two M3.5 screws.

Specifications

■ Ratings

Coil

Rated voltage	Rated current	Coil resistance	Must-operate voltage	Must-release voltage	Maximum voltage (See note 3.)	Power consumption
12 VDC	938 mA	12.8 Ω	75% max. of rated voltage	8% min. of rated voltage	110% of rated voltage	Approx. 11 W
24 VDC	469 mA	51.2 Ω				
48 VDC	234 mA	204.8 Ω				
60 VDC	188 mA	320.0 Ω				
100 VDC	113 mA	888.9 Ω				

- Note:** 1. The figures for the rated current and coil resistance are for a coil temperature of 23°C and have a tolerance of $\pm 10\%$.
 2. The figures for the operating characteristics are for a coil temperature of 23°C.
 3. The figure for the maximum voltage is the maximum voltage that can be applied to the relay coil for period of 10 minutes at an ambient temperature of 23°C. It does not apply to continuous operation.

Contacts

Item	Resistive load
	G9EC-1(-B)
Rated load	200 A at 400 VDC
Rated carry current	200 A
Maximum switching voltage	400 V
Maximum switching current	200 A

■ Characteristics

Item		G9EC-1(-B)
Contact resistance (See note 2.)		30 m Ω max. (0.2 m Ω typical)
Contact voltage drop		0.1 V max. (for a carry current of 200 A)
Operate time		50 ms max.
Release time		30 ms max.
Insulation resistance (See note 3.)	Between coil and contacts	1,000 M Ω min.
	Between contacts of the same polarity	1,000 M Ω min.
Dielectric strength	Between coil and contacts	2,500 VAC, 1 min
	Between contacts of the same polarity	2,500 VAC, 1 min
Impulse withstand voltage (See note 4.)		4,500 V
Vibration resistance	Destruction	10 to 55 to 10 Hz 0.75-mm single amplitude (Acceleration: 2.94 to 88.9 m/s ²)
	Malfunction	10 to 55 to 10 Hz 0.75-mm single amplitude (Acceleration: 2.94 to 88.9 m/s ²)
Shock resistance	Destruction	490 m/s ²
	Malfunction	196 m/s ²
Mechanical endurance (See note 5.)		200,000 operations min.
Electrical endurance (resistive load) (See note 6.)		400 VDC, 200 A, 3,000 operations min.
Short-time carry current		300 A (15 min)
Maximum interruption current		1,000 A at 400 VDC (10 times)
Overload interruption		700 A at 400 VDC (40 times min.)
Reverse polarity interruption		–200 A at 200 VDC (1,000 times min.)
Ambient operating temperature		–40 to 50°C (with no icing or condensation)
Ambient operating humidity		5% to 85%
Weight		Approx. 560 g

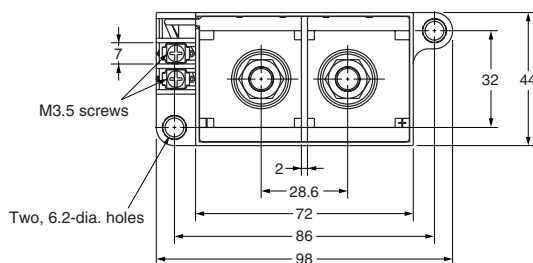
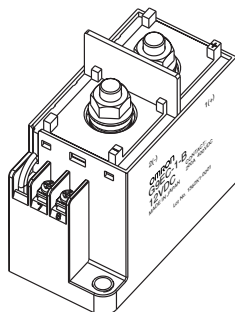
- Note:** 1. The above values are initial values at an ambient temperature of 23°C unless otherwise specified.
 2. The contact resistance was measured with 1 A at 5 VDC using the voltage drop method.
 3. The insulation resistance was measured with a 500-VDC megohmmeter.
 4. The impulse withstand voltage was measured with a JEC-212 (1981) standard impulse voltage waveform (1.2 $\times$ 50 μ s).
 5. The mechanical endurance was measured at a switching frequency of 3,600 operations/hr.
 6. The electrical endurance was measured at a switching frequency of 60 operations/hr.

Dimensions

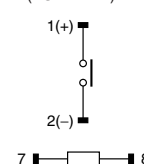
Note: All units are in millimeters unless otherwise indicated.

Models with Screw Terminals

G9EC-1-B

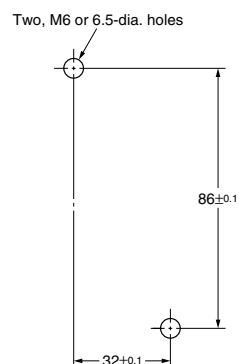


**Terminal Arrangement/
Internal Connections
(TOP VIEW)**

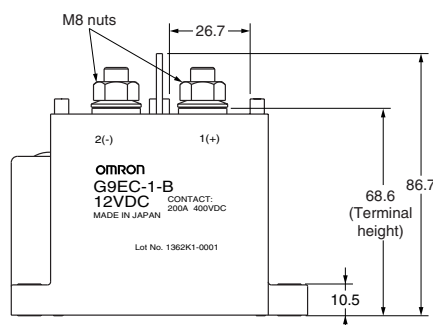
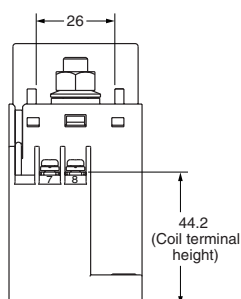


Note: Be sure to connect terminals with the correct polarity. Coils do not have polarity.

**Mounting Hole Dimensions
(TOP VIEW)**

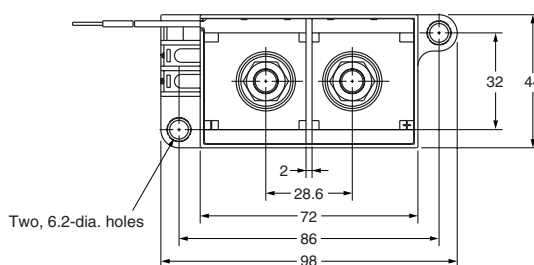
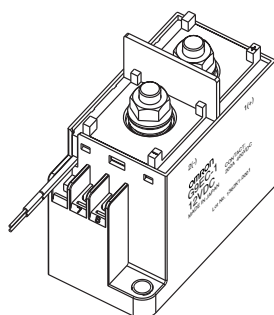


Dimension (mm)	Tolerance (mm)
10 or lower	±0.3
10 to 50	±0.5
50 or higher	±1

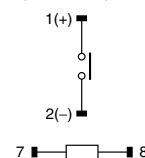


Models with Lead Wires

G9EC-1

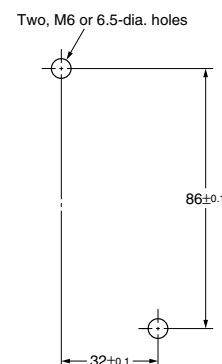


**Terminal Arrangement/
Internal Connections
(TOP VIEW)**



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

**Mounting Hole Dimensions
(TOP VIEW)**



Dimension (mm)	Tolerance (mm)
10 or lower	±0.3
10 to 50	±0.5
50 or higher	±1

