

# 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 $\Omega$	75% max. of rated voltage	8% min. of rated voltage	110% of rated voltage	Approx. 11 W
24 VDC	469 mA	51.2 $\Omega$				
48 VDC	234 mA	204.8 $\Omega$				
60 VDC	188 mA	320.0 $\Omega$				
100 VDC	113 mA	888.9 $\Omega$				

- Note:**
- The figures for the rated current and coil resistance are for a coil temperature of 23°C and have a tolerance of  $\pm 10\%$ .
  - The figures for the operating characteristics are for a coil temperature of 23°C.
  - 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 $\Omega$ max. (0.2 m $\Omega$ 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 $\Omega$ min.
	Between contacts of the same polarity	1,000 M $\Omega$ 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 <sup>2</sup> )
	Malfunction	10 to 55 to 10 Hz 0.75-mm single amplitude (Acceleration: 2.94 to 88.9 m/s <sup>2</sup> )
Shock resistance	Destruction	490 m/s <sup>2</sup>
	Malfunction	196 m/s <sup>2</sup>
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	

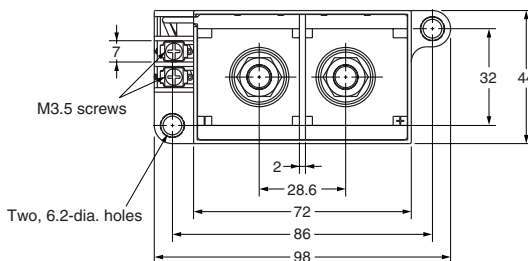
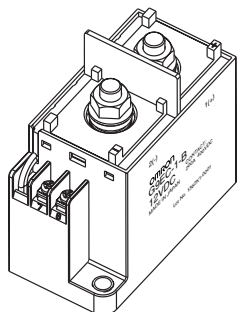
- Note:**
- The above values are initial values at an ambient temperature of 23°C unless otherwise specified.
  - The contact resistance was measured with 1 A at 5 VDC using the voltage drop method.
  - The insulation resistance was measured with a 500-VDC megohmmeter.
  - The impulse withstand voltage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

# Dimensions

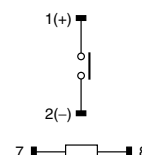
Note: All units are in millimeters unless otherwise indicated.

## Models with Screw Terminals

### G9EC-1-B

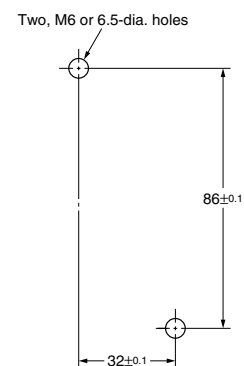


Terminal Arrangement/  
Internal Connections  
(TOP VIEW)

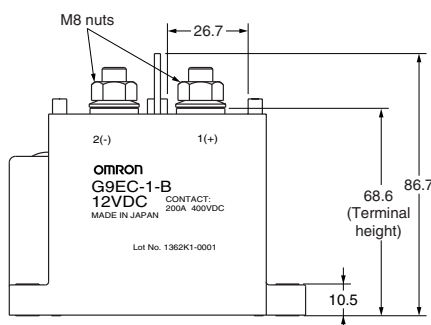
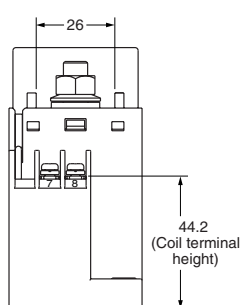


Note: Be sure to connect terminals with the correct polarity. Coils do not have polarity.

Mounting Hole Dimensions  
(TOP VIEW)

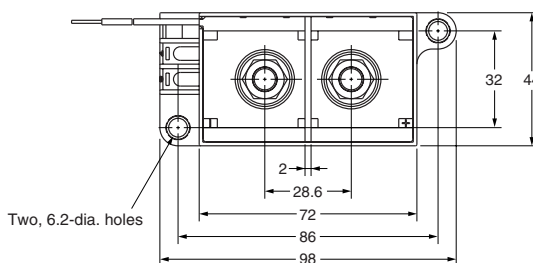
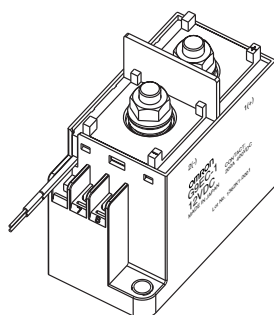


Dimension (mm)	Tolerance (mm)
10 or lower	±0.3
10 to 50	±0.5
50 or higher	±1

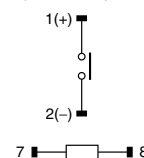


## Models with Lead Wires

### G9EC-1

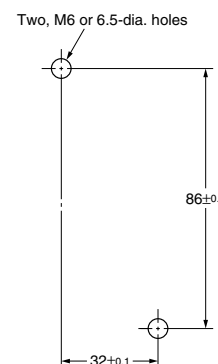


Terminal Arrangement/  
Internal Connections  
(TOP VIEW)



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

