

Slim, Miniature Relay, Capable of Relaying Programmable Controller and Temperature Controller Outputs

- ROHS compliant.
- Slim 5-mm width, and miniature size.
- Reduced mounting area ideal for high-density mounting.
- Highly efficient magnetic circuit for high sensitivity (40% higher than the G6D, with power consumption of 120 mW).
- Satisfies EN61131-2 and EN61010 requirements.
- SIL (single-in-line) terminal pitch.
- UL, CSA and EN approved.



Ordering Information

| Classification | Contact form | Enclosure ratings | Model |
|----------------|--------------|-------------------|--------|
| Standard | SPST-NO | Fully sealed | G6M-1A |

Note: When ordering, add the rated coil voltage to the model number.

Example: G6M-1A 12 VDC
└─── Rated coil voltage

Model Number Legend

G6M - VDC
1 2 3

1. Number of Poles

1: 1 pole

2. Contact Form

A: SPST-NO

3. Rated Coil Voltage

5, 12, 24 VDC

Specifications

■ Coil Ratings

| | | | |
|-----------------------------|---------------------------------|---------|---------|
| Rated voltage | 5 VDC | 12 VDC | 24 VDC |
| Rated current | 24 mA | 10 mA | 5 mA |
| Coil resistance | 208 Ω | 1,200 Ω | 4,800 Ω |
| Must operate voltage | 70% max. of rated voltage | | |
| Must release voltage | 10% min. of rated voltage | | |
| Max. voltage | 160% of rated voltage (at 23°C) | | |
| Power consumption | Approx. 120 mW | | |

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.

2. Operating characteristics are measured at a coil temperature of 23°C.

3. The maximum allowable voltage is the maximum possible value of the voltage that can be applied to the relay coil. It is not the maximum voltage that can be applied continuously.

4. The must operate voltage is 72% or less of the rated voltage if the relay is mounted vertically and the terminals are pointed downwards.

■ Contact Ratings

| | |
|------------------------|----------------------------------------|
| Rated load | 3 A at 250 VAC, 3 A at 30 VDC |
| Contact material | AgNi |
| Rated carry current | 5 A |
| Max. switching voltage | 270 VAC, 125 VDC |
| Max. switching current | 5 A |
| Max. switching power | 750 VAC, 90 W |
| Min. permissible load | 10 mA at 5 VDC (at 120 operations/min) |

Note: P level: $\lambda_{60} = 0.1 \times 10^{-6}/\text{operation}$

■ Characteristics

| | | |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Contact resistance | 100 m Ω max. | |
| Operate time | 10 ms max. | |
| Release time | 5 ms max. | |
| Insulation resistance | 1,000 M Ω min. (at 500 VDC) | |
| Dielectric strength | 3,000 VAC, 50/60 Hz for 1 min between coil and contacts 750 VAC, 50/60 Hz for 1 min between contacts of same polarity | |
| Impulse withstand voltage | 5,080 V (1.2 x 50 μ s) between coil and contacts | |
| Insulation Distance | Creepage (Typ) | 3.5 mm |
| | Clearance (Typ) | 3.5 mm |
| Tracking Resistance (CTI) | 250 V | |
| Vibration resistance | Destruction: 10 to 55 Hz, 2.5-mm single amplitude (5.0-mm double amplitude) Malfunction: 10 to 55 Hz, 0.75-mm single amplitude (1.5-mm double amplitude) | |
| Shock resistance | Destruction: 1,000 m/s ² Malfunction: 100 m/s ² | |
| Endurance | Mechanical: 20,000,000 operations min. (at 18,000 operations/hr) Electrical: 100,000 operations min. (3 A at 250 VAC/30 VDC, resistive load at 1,800 operations/hr) | |
| Ambient temperature | Operating: -40°C to 85°C (with no icing) | |
| Ambient humidity | Operating: 5% to 85% | |
| Weight Approx. | 4 g | |

■ Approved Standards

UL508 (File No. E41515)/CSA C22.2 (No.14) (File No. LR31928)

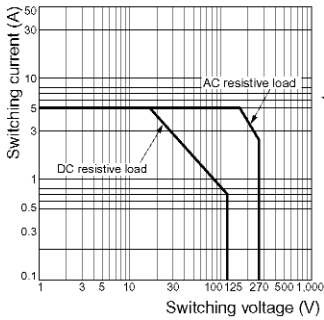
| Model | Coil ratings | Contact ratings |
|--------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| G6M-1A | 4.5 to 24 VDC | 5 A, 250 VAC (resistive load, 6,000 operations) 5 A, 30 VDC (resistive load, 6,000 operations) 3 A, 250 VAC (general use, 100,000 operations) 3A, 30 VDC (general use, 100,000 operations) |

EN 61810-1 (VDE Reg. no 400003429)

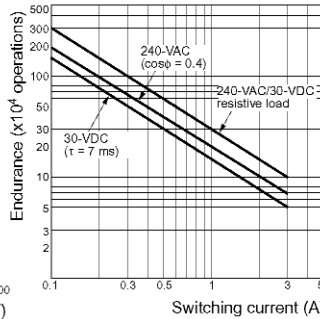
| Model | Coil ratings | Contact ratings |
|--------|--------------------|-------------------------------------------------------------|
| G6M-1A | 4.5, 5, 12 & 24VDC | 3A, 250VAC (cos ϕ 1,50,000) 3A, 30VDC (0ms, 50,000) |

Engineering Data

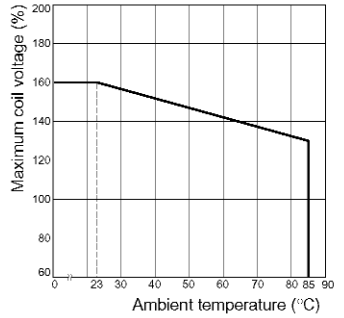
Maximum Switching Power



Endurance



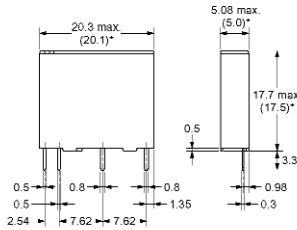
Ambient Temperature vs. Maximum Coil Voltage



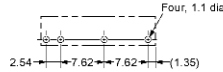
Note: The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

Dimensions

G6M-1A

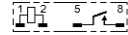


Terminal Arrangement/ Internal Connections (Bottom View)



Mounting Holes (Bottom View)

Tolerance: ± 0.1



*Average value

Precautions

BASIC INFORMATION

Before actually committing any component to a mass-production situation, OMRON strongly recommends situational testing, in as close to actual production situations as possible. One reason is to confirm that the product will still perform as expected after surviving the many handling and mounting processes involved in mass production. Also, even though OMRON relays are individually tested a number of times, and each meets strict requirements, a certain testing tolerance is permissible. When a high-precision product uses many components, each depends upon the rated performance thresholds of the other components. Thus, the overall performance tolerance may accumulate into undesirable levels.

To avoid problems, always conduct tests under the actual application conditions.

General

To maintain the initial characteristics of a relay, exercise care that it is not dropped or mishandled. For the same reason, do not remove the case of the relay; otherwise, the characteristics may degrade. Avoid using the relay in an atmosphere containing sulfuric acid (SO_2), hydrogen sulfide (H_2S), or other corrosive gases.

Do not continuously apply a voltage higher than the rated maximum voltage to the relay. Never try to operate the relay at a voltage and a current other than those rated.

Do not use the relay at temperatures higher than that specified in the catalog or data sheet.

ALL DIMENSIONS SHOWN ARE IN MILLIMETRES.

To convert millimetres into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.