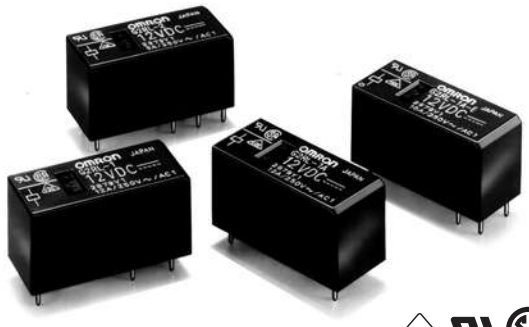
PCB Relay
G2RL

A Power Relay with Various Models

- High-sensitivity (250 mW) and High-capacity (16 A) versions.
- Designed for cooking and HVAC controls: blower motor, damper, active air purification, duct flow boost fans, etc.
- Conforms to VDE (EN61810-1). UL recognized/ CSA certiified
- Meets EN60335-1 requirements for household products.
- Clearance and creepage distance: 10 mm/10 mm.
- Tracking resistance: CTI>250
- Coil Insulation system: Class F.
- RoHS Compliant



Ordering Information

Classification	Enclosure ratings	Contact form			
		SPST-NO	SPDT	DPST-NO	DPDT
General-purpose	Flux protection	**G2RL-1A**	**G2RL-1**	**G2RL-2A**	**G2RL-2**
	Fully sealed	**G2RL-1A4**	**G2RL-14**	**G2RL-2A4**	**G2RL-24**
High-capacity	Flux protection	**G2RL-1A-E**	**G2RL-1-E**	---	---
	Fully sealed	**G2RL-1A4-E**	**G2RL-14-E**	---	---
High-sensitivity	Flux protection	**G2RL-1A-H**	**G2RL-1-H**	---	---

Note: When ordering, add the rated coil voltage to the model number.
Example: G2RL-1A DC12
Rated coil voltage

Model Number Legend

G2RL-□□□-□
1 2 3 4

1. **Number of Poles**
   1: 1 pole
   2: 2 poles
2. **Contact Form**
   None: □PDT
   A: □PST-NO
3. **Enclosure Ratings**
   None: Flux protection
   4: Fully sealed
4. **Classification**
   None: General purpose
   E: High capacity (1 pole)
   H: High sensitivity (1 pole)

Specifications

■ Coils Ratings for General-purpose and High-capacity Models

Rated voltage	5 VDC	12 VDC	24 VDC	48 VDC
Rated current	80.0 mA	33.3 mA	16.7 mA	8.96 mA
Coil resistance	62.5 Ω	360 Ω	1,440 Ω	5,358 Ω
Must operate voltage	70% max. of the rated voltage			
Must release voltage	10% min. of the rated voltage			
Max. voltage	180% of rated voltage (at 23°C)			
Power consumption	Approx. 400 mW			Approx. 430 mW

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

■ Coils Ratings for High-sensitivity Models

Rated voltage	5 VDC	12 VDC	24 VDC
Rated current	50.0 mA	20.8 mA	10.42 mA
Coil resistance	100 Ω	576 Ω	2,304 Ω
Must operate voltage	75% max. of the rated voltage		
Must release voltage	10% min. of the rated voltage		
Max. voltage	180% of rated voltage (at 23°C)		
Power consumption	Approx. 250 mW		

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

■ Contact Ratings

Item	General-purpose Models		High-capacity Models	High-sensitivity Models
Number of poles	1 pole	2 poles	1 pole	1 pole
Contact material	Ag Alloy (Cd free)			
Load	Resistive load (cosϕ=1)			
Rated load	12 A at 250 VAC 12 A at 24 VDC (See note.)	8 A at 250 VAC 8 A at 30 VDC (See note.)	16 A at 250 VAC 16 A at 24 VDC (See note.)	10 A at 250 VAC 10 A at 24 VDC (See note.)
Rated carry current	12 A (See note.)	8 A (70°C)/5 A (85°C) (See note.)	16 A (See note.)	10 A (See note.)
Max. switching voltage	440 VAC, 300 VDC			
Max. switching current	12 A	8 A	16 A	10 A
Max. switching power	3,000 VA (4,000 VA)	2,000 VA	4,000 VA	2,500 VA

Note: Contact your OMRON representative for the ratings on fully sealed models.

■ Characteristics

Item	General-purpose (High-capacity) Models	General-purpose Models	High-sensitivity Models
Number of poles	1 pole	2 pole	1 pole
Contact resistance	100 mΩ max.		
Operate (set) time	15 ms max.		
Release (reset) time	5 ms max.		
Max. operating frequency	Mechanical:18,000 operation/hr Electrical:1,800 operation/hr at rated load		
Insulation resistance	1,000 MΩ min. (at 500 VDC)		
Dielectric strength	5,000 VAC, 1 min between coil and contacts 1,000 VAC, 1 min between contacts of same polarity	5,000 VAC, 1 min between coil and contacts 2,500 VAC, 1 min between contacts of different polarity 1,000 VAC, 1 min between contacts of same polarity	5,000 VAC, 1 min between coil and contacts 1,000 VAC, 1 min between contacts of same polarity
Impulse withstand voltage	10 kV (1.2×50 μs) between coil and contact		
Vibration resistance	Destruction:10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude) Malfunction:10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)		
Shock resistance	Destruction:1,000 m/s^2 (approx. 100 G) Malfunction:100 m/s^2 (approx. 10 G)		
Endurance (Mechanical)	20,000,000 operations (at 18,000 operations/hr)		
Ambient temperature	Operating:–40°C to 85°C (with no icing) Storage:–40°C to 85°C (with no icing)		
Ambient humidity	5% to 85%		
Weight	Approx. 12 g		

Note: Values in the above table are the initial values.

■ Approved Standards

UL Recognized (File No. E41643) / CSA Certified (File No. LR31928) - - Ambient Temp. = 40°C

Model	Contact form	Coil ratings	Contact ratings
G2RL-1A	SPST-NO	3 to 48 VDC	12 A at 250 VAC (General use)
G2RL-1	SPDT		12 A at 24 VDC (Resistive)
G2RL-1A-E	SPST-NO	3 to 48 VDC	16 A at 250 VAC (General use)
G2RL-1-E	SPDT		16 A at 24 VDC (Resistive)
G2RL-1A-H	SPST-NO	5 to 24 VDC	10 A at 250 VAC (General use) 10 A at 24 VDC (Resistive)
G2RL-1-H	SPDT		
G2RL-2A	DPST-NO	3 to 48 VDC	8 A at 277 VAC (General use) 8 A at 30 VDC (Resistive)
G2RL-2	DPDT		

Note: Consult Omron for additional UL / CSA ratings

VDE (EN61810-1) (License No. 119650)

Model	Contact form	Coil ratings	Contact ratings
G2RL-1(A)	1 pole	5, 12, 18, 22, 24, 48 VDC	12 A at 250 VAC (cosϕ=1) 12 A at 24 VDC (L/R=0 ms) AC15: 3 A at 240 VAC DC13: 2.5 A at 24 VDC, 50 ms
G2RL-1(A)-E	1 pole	5, 12, 18, 22, 24, 48 VDC	16 A at 250 VAC (cosϕ=1) 16 A at 24 VDC (L/R=0 ms) AC15: 3 A at 240 VAC (NO) 1.5 A at 240 VAC (NC) DC13: 2.5 A at 24 VDC (NO), 50 ms
G2RL-1(A)-H	1 pole	5, 9, 12, 24 VDC	10 A at 250 VAC (cosϕ=1) 10 A at 24 VDC (L/R=0 ms)
G2RL-2(A)	2 poles	5, 12, 18, 22, 24, 48 VDC	8 A at 250 VAC (cosϕ=1) 8 A at 24 VDC (L/R=0 ms) AC15: 1.5 A at 240 VAC DC13: 2 A at 30 VDC, 50 ms

Note: To achieve approved life cycles on sealed models, the relay should be vented by removing the “knock off vent nib” on top of relay case after the soldering/washing process.

Electrical Life Data

G2RL-1-E	16 A at 250 VAC (cosϕ=1)	30,000 operations min.
	16 A at 24 VDC	30,000 operations min.
	8 A at 250 VAC (cosϕ=0.4)	200,000 operation min. (normally open side operation)
	8 A at 30 VDC (L/R=7 ms)	10,000 operation min. (normally open side operation)
G2RL-1	12 A at 250 VAC (cosϕ=1)	50,000 operations min.
	12 A at 24 VDC	30,000 operations min.
	5 A at 250 VAC (cosϕ=0.4)	150,000 operation min. (normally open side operation)
	5 A at 30 VDC (L/R=7 ms)	20,000 operation min. (normally open side operation)
G2RL-1-H	10 A at 250 VAC (cosϕ=1)	100,000 operations min.
	10 A at 24 VDC	50,000 operations min.
G2RL-2	8 A at 250 VAC (cosϕ=1)	30,000 operations min.
	8 A at 30 VDC	30,000 operations min.

Note: 1. The results shown reflect values measured using very severe test conditions i.e., Duty: 1 s ON/1 s OFF.

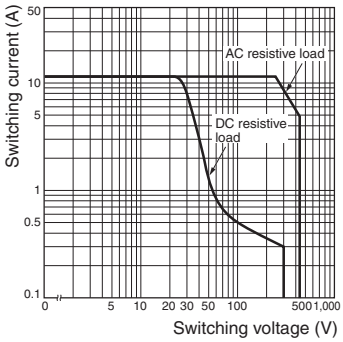
2. In order to obtain the full rated life cycles on the fully sealed models, the relay should be properly vented by removing the “knock off vent nib” on top of the relay case after the soldering/washing process.

3. Electrical endurance will vary depending on the test conditions. Contact your OMRON representative if you require more detailed information for the electrical endurance under your test conditions.

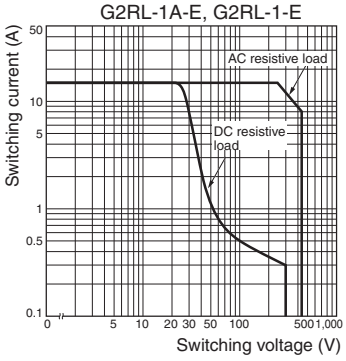
Engineering Data

■ Maximum Switching Capacity

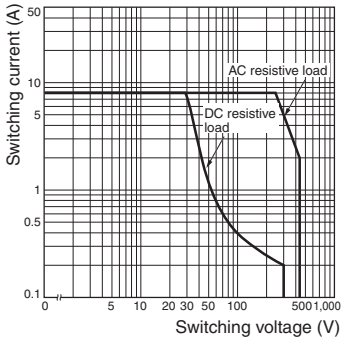
G2RL-1A, G2RL-1



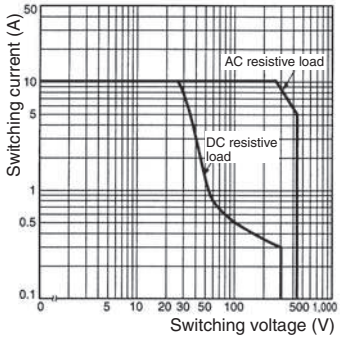
G2RL-1A-E, G2RL-1-E



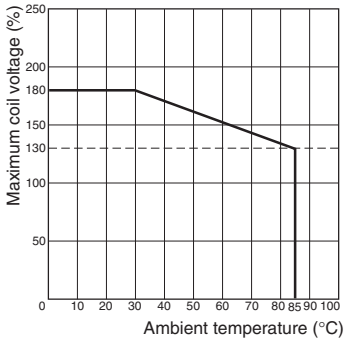
G2RL-2A, G2RL-2



G2RL-1A-H, G2RL-1-H

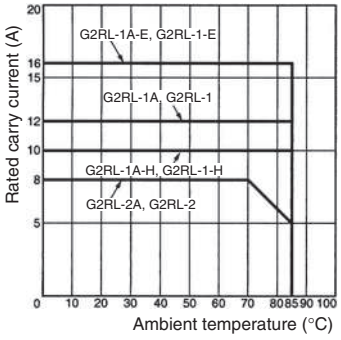


■ Ambient Temperature vs Maximum Coil Voltage

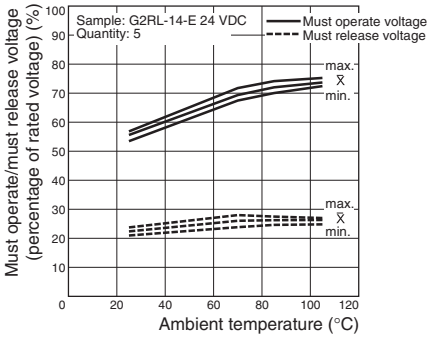


Note: The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

■ Ambient Temperature vs Rated Carry Current



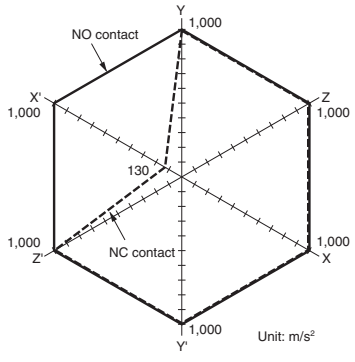
■ Ambient Temperature vs Must Operate and Must Release Voltages



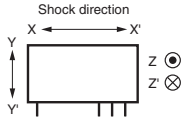
Note: Contact your OMRON representative for the data on fully sealed models.

■ Shock Malfunction

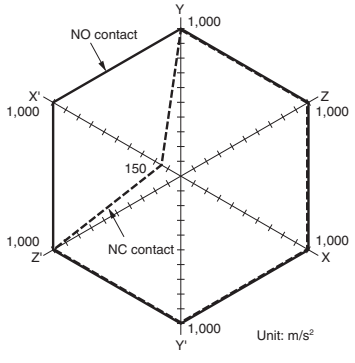
G2RL-1 (A)-E



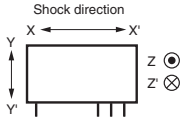
Sample: G2RL-14 DC12V
Number of Relays: 5pcs
Conditions: Shock is applied in ±X,±Y,±Z directions three times each with and without energizing the Relays to check the number of malfunctions.
Requirement: None malfunction 100m/s²



G2RL-2 (A)



Sample: G2RL-24 DC12V
Number of Relays: 5pcs
Conditions: Shock is applied in ±X,±Y,±Z directions three times each with and without energizing the Relays to check the number of malfunctions.
Requirement: None malfunction 100m/s²

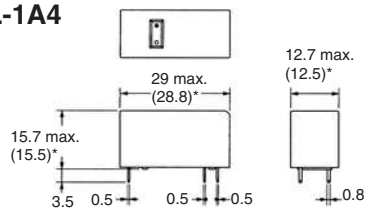


Dimensions

Note: All units are in millimeters unless otherwise indicated.

G2RL-1A(-H), G2RL-1A4



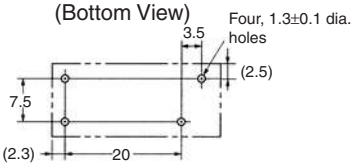


Terminal Arrangement/
Internal Connection
(Bottom View)



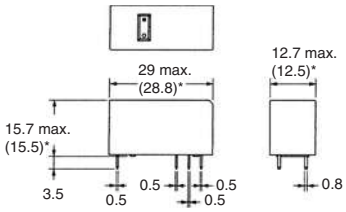
* Indicates average dimensions.

Mounting Holes
(Bottom View)



G2RL-1(-H), G2RL-14





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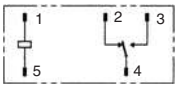
(Bottom View)



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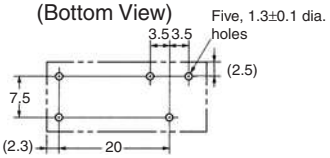
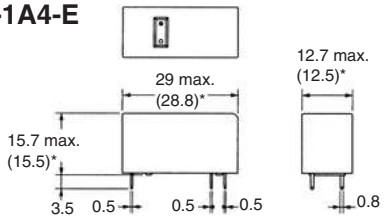


G2RL-1A-E, G2RL-1A4-E





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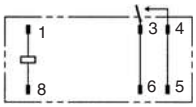

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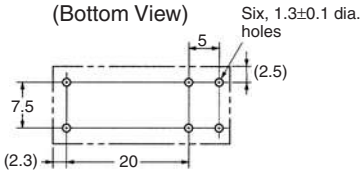
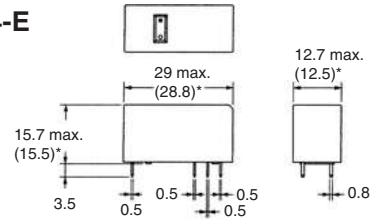
(Bottom View)



G2RL-1-E, G2RL-14-E





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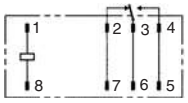

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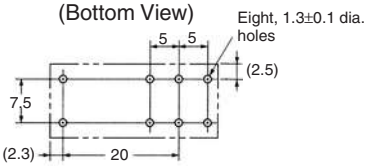
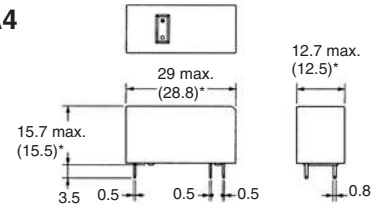
Mounting Holes
(Bottom View)



G2RL-2A, G2RL-2A4





Terminal Arrangement/
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Mounting Holes
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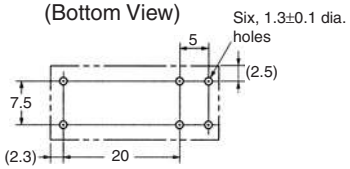
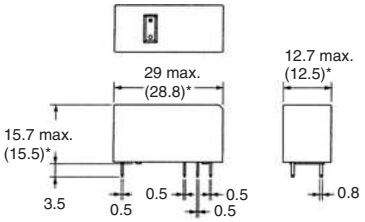


G2RL-2, G2RL-24





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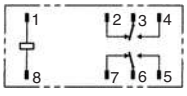

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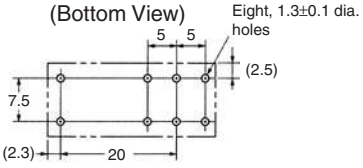
(Bottom View)



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