Next-generation PCB Relay Available in Various Models

- ROHS compliant.
- High sensitivity: (250mW) and high capacity (16A) models available
- Low profile: 15.7 mm max. in height.
- Conforms to EN 61810-1, UL508 and CSA22.2.
- Meets EN60335-1 requirements
- Creepage and clearance 10mm/10mm
- Tracking distance: CTI>250
- UL 1446 Class F Coil Insulation system available.
- 5mm and 7mm terminal pitch models available (contact Omron)



Ordering Information

Classification	Enclosure ratings	Contact form			
		SPST-NO	SPDT	DPST-NO	DPDT
Standard	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 12 VDC
Rated coil voltage

Model Number Legend

G2RL-□□□-□-□
1 2 3 4 5

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: Standard
   E: High-capacity (1 pole)
5. **Coil Power consumption**
   None: Approx. 400mW (48 VDC : Approx. 430 mW)
   H: Approx. 250 mW

Specifications

■ Coil Ratings (for Standard 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 the 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	10.4 mA
Coil resistance	100 Ω	576 Ω	2,304Ω
Must operate voltage	75% max. of the rated voltage		
Must release voltage	10% min. of the rated voltage		
Max. voltage	180% of the rated voltage (at 23˚C)		
Power consumption	Approx. 250 mW		

Note: Operating characteristics are measured at a coil temperature of 23˚C

■ Contact Ratings

Item	Standard		High-capacity	High-sensitivity
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 30 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	Standard/High Capacity	Standard	High-sensitivity
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 (1.2x50 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: –55˚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

UL508 (File No. E41643)/CSA C22.2 (No. 14) (File No. LR31928)

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		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)
G2RL-1-H	SPDT		10 A at 24 VDC (Resistive)
G2RL-2A	DPST-NO	3 to 48 VDC	8 A at 277 VAC (General use)
G2RL-2	DPDT		8 A at 30 VDC (Resistive)

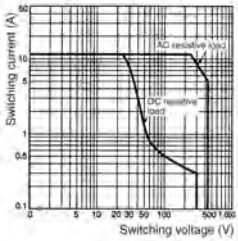
VDE (EN61810-1) (License No. 119650)

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 (high capacity	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 (high sensitivity)	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

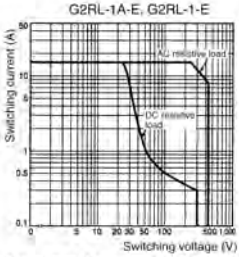
Engineering Data

Maximum Switching Capacity

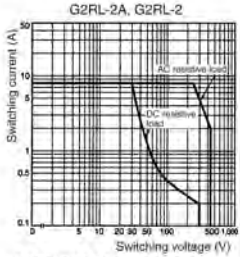
G2RL-1A, G2RL-1



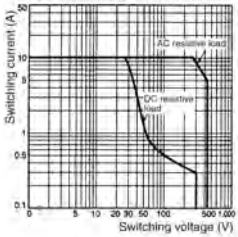
G2RL-1A-E, G2RL-1-E



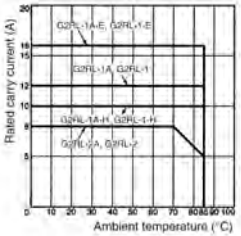
G2RL-2A, G2RL-2



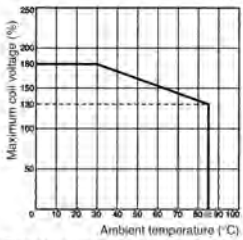
G2RL-1A-H, G2RL-1-H



Ambient Temperature vs Rated Carry Current



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.

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

Electrical Endurance Data

G2RL-1-E	16 A at 250 VAC (cosϕ=1) 16 A at 24 VDC 8 A at 250 VAC (cosϕ=0.4) 8 A at 30 VDC (L/R=7 ms)	30,000 operations min. 30,000 operations min. 200,000 operation min. (normally open side operation) 10,000 operation min. (normally open side operation)
G2RL-1	12 A at 250 VAC (cosϕ=1) 12 A at 24 VDC 5 A at 250 VAC (cosϕ=0.4) 5 A at 30 VDC (L/R=7 ms)	50,000 operations min. 30,000 operations min. 150,000 operation min. (normally open side operation) 20,000 operation min. (normally open side operation)
G2RL-1-H	10 A at 250 VAC (cosϕ=1) 10 A at 24 VDC	100,000 operations min. 50,000 operations min.
G2RL-2	8 A at 250 VAC (cosϕ=1) 8 A at 30 VDC	30,000 operations min. 30,000 operations min.
G2RL-1A-E	Pilot duty (A300), 250 VAC Pilot duty (A300), 125 VAC	250,000 operations min. 150,000 operations min.

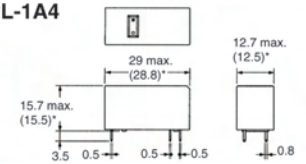
Note: The results shown reflect values measured using very severe test conditions i.e., Duty: 1 s ON/1 s OFF. Electrical endurance will vary depending on the test conditions. Contact your OMRON representative if you require more detailed information for the electrical endurance under your test conditions.

Dimensions

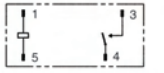
Note: All units are in millimetres unless otherwise indicated.

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



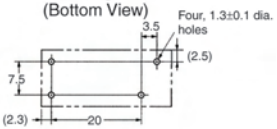


Terminal Arrangement/ Internal Connection (Bottom View)



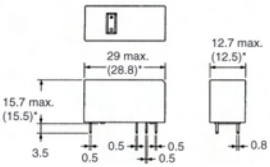
* Indicates average dimensions.

Mounting Holes (Bottom View)

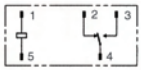


G2RL-1(-H), G2RL-14



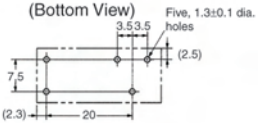


Terminal Arrangement/ Internal Connection (Bottom View)



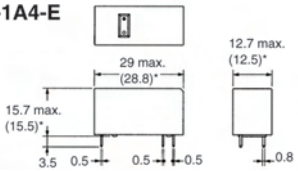
* Indicates average dimensions.

Mounting Holes (Bottom View)

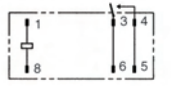


G2RL-1A-E, G2RL-1A4-E



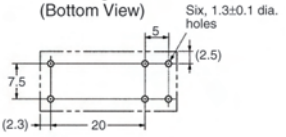


Terminal Arrangement/ Internal Connection (Bottom View)



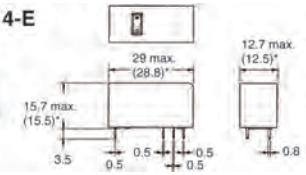
* Indicates average dimensions.

Mounting Holes (Bottom View)



G2RL-1-E, G2RL-14-E



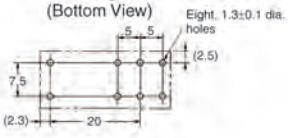


Terminal Arrangement/ Internal Connection (Bottom View)



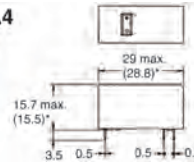
* Indicates average dimensions.

Mounting Holes (Bottom View)



G2RL-2A, G2RL-2A4



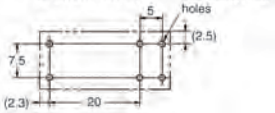


Terminal Arrangement/
Internal Connection
(Bottom View)



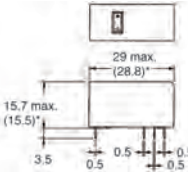
* Indicates average dimensions.

Mounting Holes
(Bottom View)

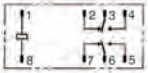


G2RL-2, G2RL-24



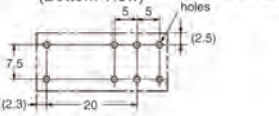


Terminal Arrangement/
Internal Connection
(Bottom View)



* Indicates average dimensions.

Mounting Holes
(Bottom View)



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.

Disclaimer:
All technical performance data applies to the product as such; specific conditions of individual applications are not considered. Always check the suitability of the product for your intended purpose. OMRON does not assume any responsibility or liability for noncompliance herein, and we recommend prior technical clarification for applications where requirements, loading, or ambient conditions differ from

CAT. No. J117-E2-04A-X