A Power relay with Various Models

ROHS Compliant

High-sensitivity (250 mW) and High-capacity (16 A) Models available.

Low profile: 15.7 mm max. in height

Conforms to VDE (EN61810-1), UL508 and CSA22.2.

Meets EN60335-1 requirements for household products.

Clearance and creepage distance: 10 mm/10 mm.

Tracking resistance: CTI>250

Coil Insulation system: Class F (UL1446)



■ Ordering Information

Enclosure ratings	Standard models				High-cap models		High-sensitivity models	
	SPST-NO	SPDT	DPST	DPDT	SPST-NO	SPDT	SPST-NO	SPDT
Flux protection	G2RL-1A	G2RL-1	G2RL-2A	G2RL-2	G2RL-1A-E-(CV)	G2RL-1-E	G2RL-1A-H	G2RL-1-H
Fully sealed	G2RL-1A4	G2RL-14	G2RL-2A4	G2RL-24	G2RL-1A4-E	G2RL-14-E	---	---

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

Example: G2RL-1A 12 VDC

Rated coil voltage

Model Number Legend

G2RL-□□□-□-□ □VDC

1 2 3 4 5 6

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)
5. **Special Requirement**
   - None: General purpose
   - CV: 16 A, pinning 5mm,: switching at 105°C
6. **Rated Coil Voltage**
   - 5, 12, 24, 48 VDC

Specifications

Contact Rating

	Standard models		High-capacity models	High-sensitivity models
Number of poles	1 pole	2 pole	1 pole	1 pole
Contact materials	$AgSnO_2$ (Cd free)			
Contact resistance	100 mΩ max.			
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	2,000 VA	4,000 VA	2,500 VA
Mechanical endurance	20,000,000 operations (at 18,000 operations/h)			
Max operating frequency	Mechanical: 18,000 operation/h Electrical: 1,800 operation/h at rated load			
Electrical endurance data	C.O.:12 A at 250 VAC (cosφ=1) 50,000 operations min. 12 A at 24 VDC 30,000 operations min. N.O. only:5 A at 250 VAC (cosφ=0.4) 150,000 operations min. 5 A at 30 VDC (L/R=7 ms) 20,000 operations min.	C.O.:8 A at 250 VAC (cosφ=1) 30,000 operations min. 8 A at 30 VDC 30,000 operations min.	C.O.:16 A at 250 VAC (cosφ=1) 30,000 operations min. 16 A at 24 VDC 30,000 operations min. N.O. only:8 A at 250 VAC (cosφ=0.4) 200,000 operations min. 8 A at 30 VDC (L/R=7 ms) 10,000 operations min. Pilot duty (A300), 250 VAC 250,000 operations min. Pilot duty (A300), 125 VAC 150,000 operations min. 16 A at 250 VAC (cosf=1) at 105×C 100,000 operations min, by -CV type.	C.O.:10 A at 250 VAC (cosφ=1) 100,000 operations min. 10 A at 24 VDC 50,000 operations min.
Contact rating (Approved Standards)	UL508 (File No. E41643)/CSA C 22.2(No. 14) (File No. LR31928)			
	12 A at 250 VAC (General use) 12 A at 24 VDC (Resistive)	8 A at 277 VAC (General use) 8 A at 30 VDC (Resistive)	16 A at 250 VAC (General use) 16 A at 24 VDC (Resistive)	10 A at 250 VAC (General use) 10 A at 24 VDC (Resistive)
	VDE (EN61810-1) (License No. 119650)			
	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	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	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 16 A at 250 VAC (cosφ=1) at 105°C -CV type	10 A at 250 VAC(cosφ=1) 10 A at 24 VDC (L/R=0 ms)

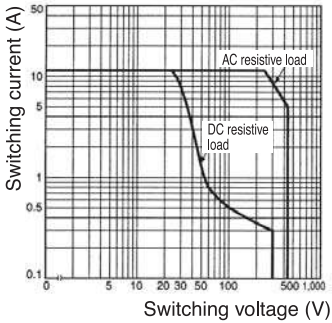
Note: Contact your OMRON representative for the ratings on fully sealed models.
Values in the above table are the initial values.
Electrical endurancewill vary depending on the test conditions. Contact your OMRON representative if you require more detailed information for the electrical endurance under your test conditions.

Engineering Data

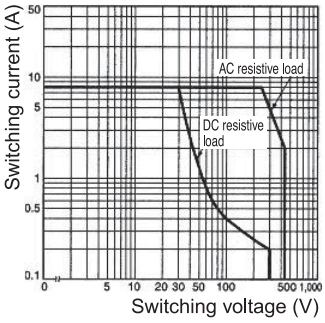
Maximum Switching Capacity

Standard models

G2RL-1A, G2RL-1

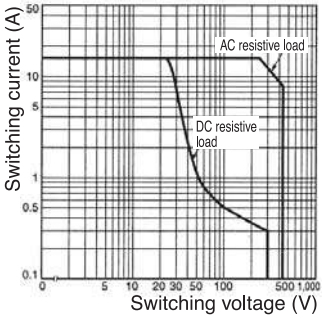


G2RL-2A, G2RL-2

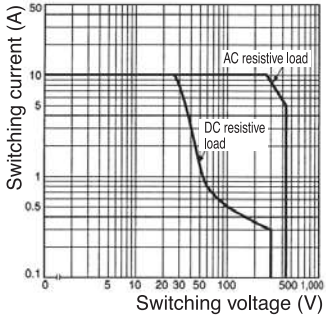


Engineering Data

High-capacity models G2RL-1A-E, G2RL-1-E



High-sensitivity models G2RL-1A-H, G2RL-1-H



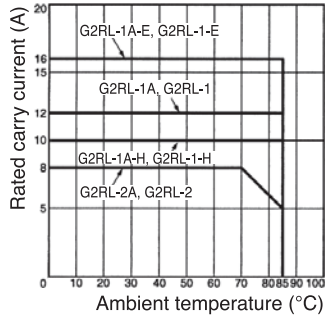
■ Coil Rating

	Standard models				High-capacity models				High-sensitivity models		
Rated voltage	5 VDC	12 VDC	24 VDC	48 VDC	5 VDC	12 VDC	24 VDC	48 VDC	5 VDC	12 VDC	24 VDC
Rated current	80.0 mA	33.3 mA	16.7 mA	8.96 mA	80.0 mA	33.3 mA	16.7 mA	8.96 mA	50.0 mA	20.8 mA	10.42 mA
Coil resistance	62.5Ω	360Ω	1,440Ω	5,358Ω	62.5Ω	360Ω	1,440Ω	5,358Ω	100Ω	576Ω	2,304Ω
Must operate voltage	70% max. of the rated 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.400 mW			Approx. 430 mW	Approx.400 mW			Approx. 430 mW	Approx. 250 mW		
Coil insulation system according to UL	Class F										

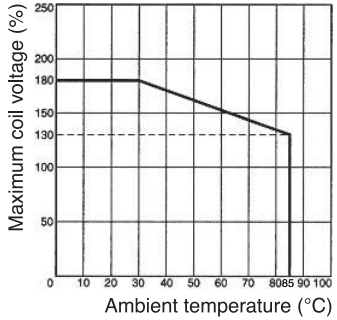
Note: The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.

■ Engineering Data

Ambient Temperature vs Rated Carry Current



High-sensitivity models G2RL-1A-H, G2RL-1-H



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

■ Insulation

	Standard models		High-capacity models	High-sensitivity models
Number of poles	1 pole	2 pole	1 pole	1 pole
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	5,000 VAC, 1 min between coil and contacts 1,000 VAC, 1 min between contacts of same polarity
Impulse withstand voltage	10 kV(1.2X50μs) between coil and contact			
Insulation resistance	1,000 MΩ min. (at 500 VDC)			
Creepage distance	10 mm MIN.			
Clearance distance	10 mm MIN.			
Insulation material group	IIIa			
Insulation to IEC 60664-1				
Type of insulation coil-contact circuit	Reinforced			
Type of insulation open contact circuit	Functional			
Rated insulation voltage	250 V			
Pollution degree	3 (Flux protection), 2(Fully sealed)			3
Rated voltage system	250 V (Flux protection), 400 V (Fully sealed)			250 V
Over voltage category	III			

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

■ Other Data

	Standard/High-capacity/High-sensitivity models
RoHs directive 2002/95/EC	Compliant
Flammability class according to UL94	V-0
Operate(set) time	15 ms max.
Release(reset) time	5 ms max.
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/s² (approx. 100G) Malfunction: 100 m/s² (approx. 10G)
Ambient temperature	Operating: -40°C to 85°C (with no icing) Storage: -55°C to 85°C (with no icing)
Ambient humidity	Operating: 5% to 85%
Category of protection (IEC 61810)	RT II(Flux protection), RT III(Fully sealed)
Weight	Approx. 12g

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

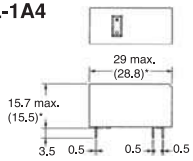
Dimensions

Note: All units are in millimetres unless otherwise indicated.

Standard models/High-sensitivity models

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



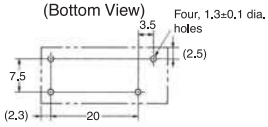


Terminal Arrangement/
Internal Connection
(Bottom View)



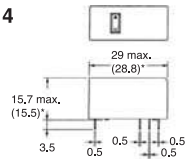
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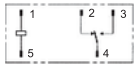
Mounting Holes
(Bottom View)



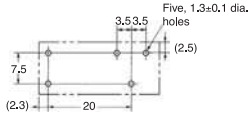
G2RL-1(-H), G2RL-14





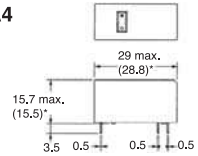


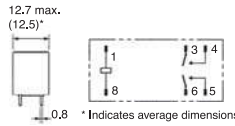
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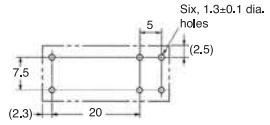
G2RL-2A, G2RL-2A4





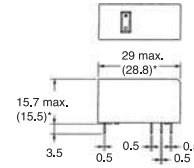


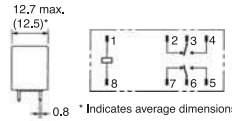
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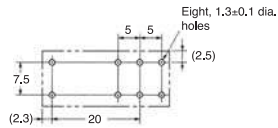
G2RL-2, G2RL-24







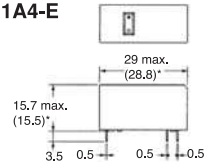
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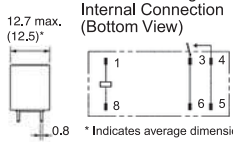


High-capacity models

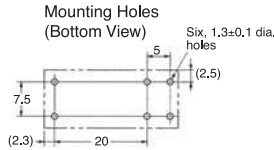
G2RL-1A-E, G2RL-1A4-E





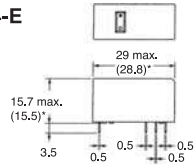


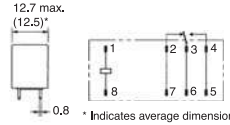
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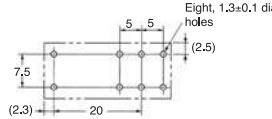
G2RL-1-E, G2RL-14-E







* Indicates average dimensions.



Precautions

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 those applying to general electric applications. Any responsibility for the application of the product remains with the customer alone. THIS COMPONENT CAN NOT BE USED FOR AUTOMOTIVE APPLICATIONS.

ALL DIMENSIONS SHOWN ARE IN MILLIMETRES.
To convert millimetres into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

CAT. No.J117-E2-05-X

Omron Electronic Components Business – Europe is extending its popular G2RL power relay with a new, high temperature version, aimed specifically at home appliance cooking application and other heater control applications involving exposure to higher temperature conditions.

Omron Electronic Components Business – Europe is extending its popular G2RL power relay with a new, high temperature version, aimed specifically at home appliance cooking application and other heater control applications involving exposure to higher temperature conditions.

The new Omron G2RL-1A-E-CV is rated for use at temperatures up to 20º higher than the standard type, tolerating up to 105ºC as opposed to 85ºC for the standard component. It also offers superior switching performance with longer electrical endurance of up to 100,000 operations switching 16A at 250VAC and 105ºC. Initially released in SPST-NO open form, Omron is expecting to release the higher temperature versions in SPDT type, and also to offer normally closed (NC) versions.

Available in 24 different models, Omron's G2RL PCB relay family is ideal for ovens, washing machines, boilers and HVAC equipment. The high sensitivity type, G2RL-H, has a coil sensitivity of 250mW and is available with a UL 1446 Class F Coil Insulation system. The relays conform to VDE (EN 61810-1/EN 60255-23) and UL 508/CSA C22.2 standards and meet VDE0700 regulations for safety of household and similar electrical appliances according to VDE0110.