

Reverse Power Relay

RPR-01

Features

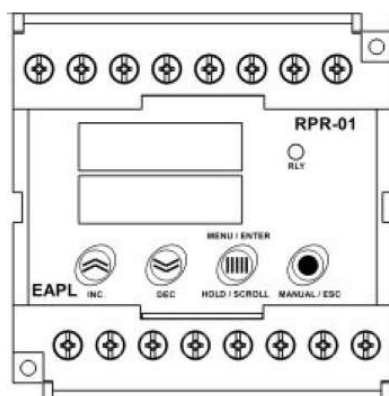
- Auto / Manual mode.
- Front button resetting facility is available in manual mode.
- High brightness numeric LED display for parameters and numeric values
- LED indication for relay status.
- Window displays the type of fault that has occurred during unhealthy condition
- Trip delay time and limits for each parameter can be set digitally
- Unwanted parameters can be by-passed as per User's choice.
- Relay can be configured to have NO or NC status during healthy condition.
- Unit will retain fault till accepted in manual mode.
- Window displays the type of fault that has occurred during unhealthy condition.



Ordering Information

Models	Function	Source Voltage	Output Voltage
RPR-01	Reverse Power Relay	85-270V AC, self powered	1 c/o 5A

Front View RPR-01



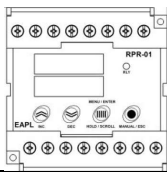
Over-all Dimension

Models	Dimension Details in mm		
	W	H	D
RPR-01	76	78	115

■ Specifications

Parameters	Models	RPR-01
Function		Reverse power, Under Voltage, Over Voltage Monitor
Input Voltage		85 to 270V AC
Input Current		Current input (AR) Ib=5A (in-Built CT)
Input Frequency		50 / 60Hz \pm 5%
Control output		1c/o rated for 5A @ 250VAC/28VDC resistive load
Accuracy	Voltage	\pm 4V of display value
	Current	\pm 5% of Ib \pm 1 digit (Ib = 5A)
	Trip Time	\pm 1% of set delay \pm 2 sec
Power Consumption		5VA/ 1W
Trip Setting	Under Voltage	85 to 230V AC
	Over Voltage	250 to 270V AC
	Reverse Current	2% to 20% of Nominal
	Minimum sensing current	0.1A
	Maximum setting current	5A(Above 5A>Ext. CT can be used, CT setting max.500/5 in steps of 5
	Nominal current	5A
	Recovery Time	2 sec Min
	Power On Delay	1 to 10 sec settable
	Mode of Operation	Auto/ Manual
	Hysteresis	Voltage: \pm 3V Current : 2% to 6% of full scale
Climatic	Ambient Temperature	Operation: -10 ⁰ C to +55 ⁰ C Storage : -25 ⁰ C to +80 ⁰ C
	Humidity	MAX 85% RH @ 40 ⁰ C
Mechanical Endurance	Service life (under no load)	10 ⁶ operation minimum
	Rated frequency of operation	1800 +/- 5%operations
	Electrical life (under full load)	10 ⁵ operation minimum
	Insulation resistance	>100M ohm @500V DC
	Dielectric strength	a)2.5KV AC, 50 Hz for 1 minute.(Between current carrying & non-current carrying parts) b)1.5KV AC, 50Hz for 1 min.(Between contacts & control circuit) c)750V AC, 50Hz for 1 min.(Between non continuous relay contacts)
	Electrical connection	Screw type terminals with self lifting clamps
Dimension (W x H x D)		76X 78X 115 mm

Connection and Terminal Details

Connection Details	RPR-01
	
Terminal Details	RPR-01
	1,2 - P, N 9, 10 - S1, S2 14, 15, 16 - NC, COM, NO)

■ Coils Ratings for High-sensitivity Models

Rated voltage	5VDC	12VDC	24VDC
Rated current	50.0mA	20.8mA	10.42 mA
Coil resistance	100Ω	576Ω	2,304Ω
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. 250mW		

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

■ 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 ($\cos\phi=1$)			
Rated load	12A at 250VAC 12A at 24 VDC (See note.)	8A at 250 VAC 8A at 30VDC (See note.)	16A at 250VAC 16A at 30VDC (See note.)	10A at 250VAC 10A at 24VDC (See note.)
Rated carry current	12A (See note.)	8A (70°C)/5A (85°C) (See note.)	16A (See note.)	10A (See note.)
Max. switching voltage	440VAC, 300VDC			
Max. switching current	12A	8A	16A	10A
Max. switching power	3,000VA (4,000VA)	2,000VA	4,000 VA	2,500VA

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	100mΩ max.		
Operate (set) time	15ms max.		
Release (reset) time	5ms max.		
Max. operating frequency	Mechanical: 18,000 operation/hr Electrical: 1,800 operation/hr at rated load		
Insulation resistance	1,000MΩ min. (at 500VDC)		
Dielectric strength	5,000VAC, 1min between coil and contacts 1,000VAC, 1min between contacts of same polarity	5,000VAC, 1min between coil and contacts 2,500VAC, 1min between contacts of different polarity 1,000VAC, 1min between contacts of same polarity	5,000VAC, 1min between coil and contacts 1,000VAC, 1min between contacts of same polarity
Impulse withstand voltage	10kV (1.2×50μs) between coil and contact		
Vibration resistance	Destruction: 10 to 55 to 10Hz, 0.75mm single amplitude (1.5mm double amplitude) Malfunction: 10 to 55 to 10Hz, 0.75mm single amplitude (1.5mm double amplitude)		
Shock resistance	Destruction: 1,000m/s ² (approx. 100G) 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. 12g		

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	Number of test operations
G2RL-1A	SPST-NO	3 to 48 VDC	12 A at 250 VAC (General use)	100,000
G2RL-1	SPDT		12 A at 24 VDC (Resistive)	50,000
G2RL-1A-E	SPST-NO	3 to 48 VDC	16 A at 250 VAC (General use)	100,000
G2RL-1-E	SPDT		16 A at 24 VDC (Resistive)	50,000
G2RL-1A-H	SPST-NO	5 to 24 VDC	10 A at 250 VAC (General use) 10 A at 24 VDC (Resistive)	50,000
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)	100,000
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 ($\cos\phi=1$) 12 A at 24 VDC (L/R=0ms) AC15: 3 A at 240 VAC DC13: 2.5 A at 24 VDC, 50ms
G2RL-1(A)-E	1 pole	5, 12, 18, 22, 24, 48 VDC	16 A at 250 VAC ($\cos\phi=1$) 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), 50ms
G2RL-1(A)-H	1 pole	5, 9, 12, 24 VDC	10 A at 250 VAC ($\cos\phi=1$) 10 A at 24 VDC (L/R=0ms)
G2RL-2(A)	2 poles	5, 12, 18, 22, 24, 48 VDC	8 A at 250 VAC ($\cos\phi=1$) 8 A at 24 VDC (L/R=0 ms) AC15: 1.5 A at 240 VAC DC13: 2 A at 30 VDC, 50ms

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

Electrical Life Data

G2RL-1-E	16 A at 250 VAC ($\cos\phi=1$) 16 A at 24 VDC 8 A at 250 VAC ($\cos\phi=0.4$) 8 A at 30 VDC (L/R=7ms)	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 ($\cos\phi=1$) 12 A at 24 VDC 5 A at 250 VAC ($\cos\phi=0.4$) 5 A at 30 VDC (L/R=7ms)	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 ($\cos\phi=1$) 10 A at 24 VDC	100,000 operations min. 50,000 operations min.
G2RL-2	8 A at 250 VAC ($\cos\phi=1$) 8 A at 30 VDC	30,000 operations min. 30,000 operations min.

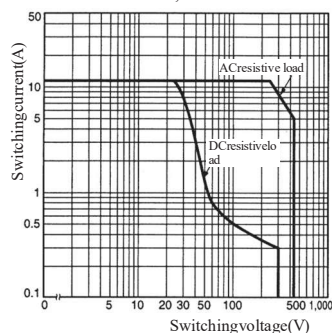
Note: 1. The results shown reflect values measured using very severe test conditions i.e., Duty: 1s ON/1s OFF.

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

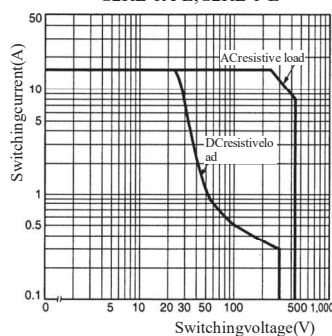
EngineeringData

■ MaximumSwitchingCapacity

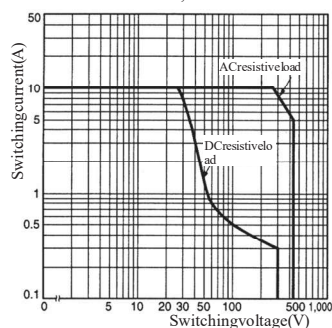
G2RL-1A,G2RL-1



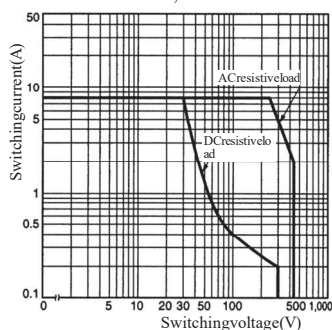
G2RL-1A-E,G2RL-1-E



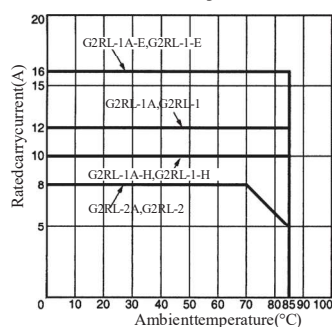
G2RL-1A-H,G2RL-1-H



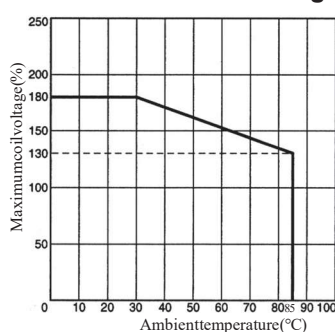
G2RL-2A,G2RL-2



■ AmbientTemperature vs Rated Carry Current



■ AmbientTemperature vs Maximum Coil Voltage



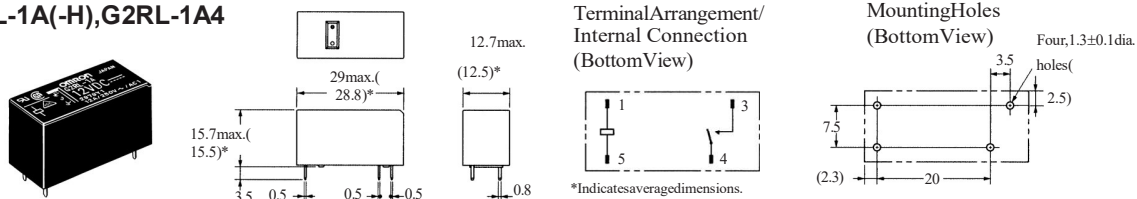
Note: The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

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

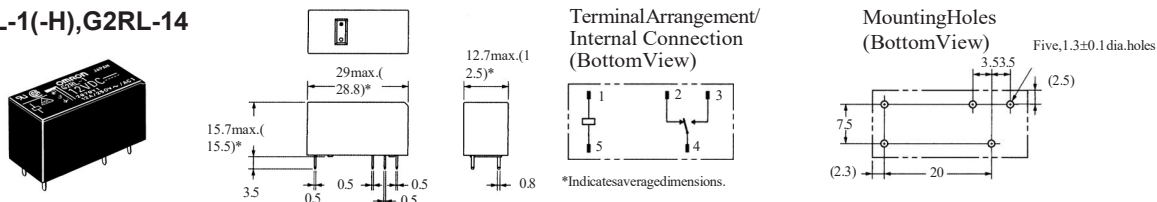
Dimensions

Note: All units are in millimeters unless otherwise indicated.

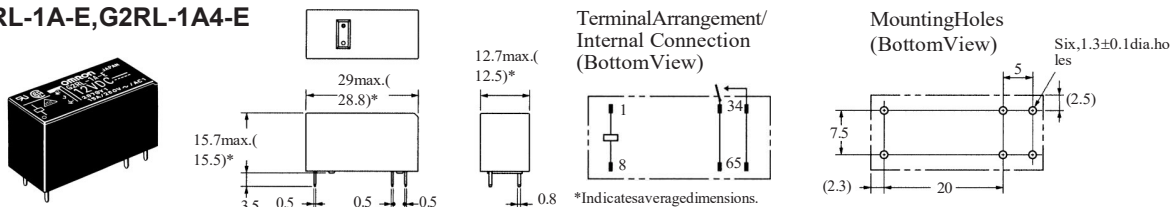
G2RL-1A(-H), G2RL-1A4



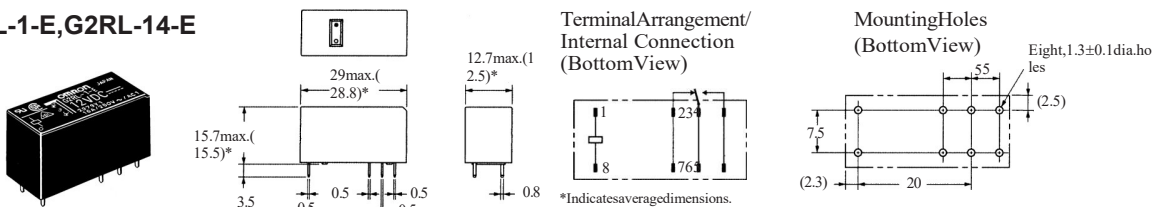
G2RL-1(-H), G2RL-14



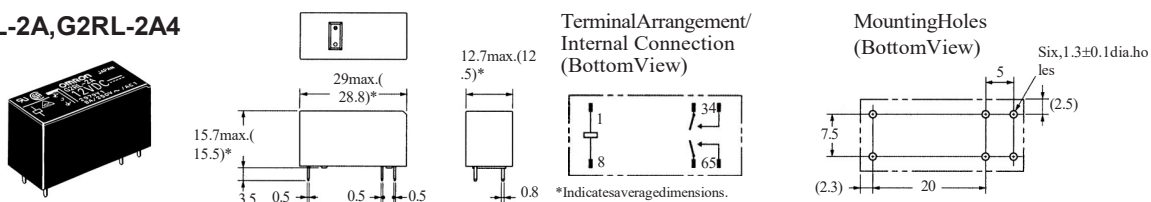
G2RL-1A-E, G2RL-1A4-E



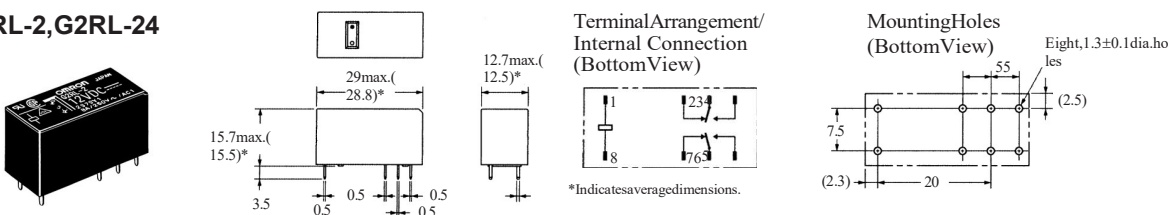
G2RL-1-E, G2RL-14-E



G2RL-2A, G2RL-2A4



G2RL-2, G2RL-24



MEMO

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ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters to inches, multiply by 0.03937. To convert grams to ounces, multiply by 0.03527.

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