

Low profile power relay with 15.7 mm height, ideal for incorporation in miniature equipments

- A wide variety of single pole, double pole, high-capacity (16 A) type and high-sensitivity type (250 mW) relays are available.
- IEC/EN 60335-1 conformed. (-HA Model)
- Satisfies ambient operating temperature requirement of 85°C and 105°C (-CV Model).
- Clearance and creepage distance: 8 mm / 8 mm min.
- G2RL-1(A)-E-ASI: TV3 rating models available.
- IEC/EN 60079-15 conformed
- (Except G2RL-1(A)-H, G2RL-1A-E-CV(-HA) Models).
- Reduced power consumption with voltage holding and pulse width modulation (PWM) control (only for G2RL-□-PW1 model).

RoHS Compliant

Model Number Legend

1. Number of Poles

1 : 1 pole 2 : 2 pole **2. Contact Form** None : SPDT (1c) A : SPST-NO (1a) 3. Enclosure Rating None : Flux protection 4 : Sealed 4. Classification None : Standard E : High-capacity H : High-sensitivity

5. Contact Material

None : Standard (Ag-alloy, Cd free) ASI : AgSnIn

6. Special Requirement 1 None : Standard CV : 16 A, pinning 5 mm,

switching at 105°C

7. Market Code

None : General purpose HA : Home Appliance according to IEC/EN60335-1

8. Special Requirement 2

None : Standard PW1 :Coil holding voltage and PWM control type



Application Examples

- Home appliances
- OA equipment
- Industrial machinery

Ordering Information

Terminal Shape	Market Code	Classification	Contact Form	Enclosure Rating	Model	Rated Coil Voltage	Minimum Packing Unit
				Flux protection	G2RL-1A	5, 12, 24, 48 VDC	
			SPST-NO (1a)	r lux protection	G2RL-1A-PW1	5, 12, 24 VDC	-
				Sealed	G2RL-1A4	5, 12, 24, 48 VDC	
				Flux protection	G2RL-1	- 5, 12, 24, 46 VDC	
			SPDT (1c)	c)	G2RL-1-PW1	5, 12, 24 VDC	
				Sealed	G2RL-14	5, 12, 24, 48 VDC	
		Standard		Flux protection	G2RL-2A	- 5, 12, 24, 40 VDC	
			DPST-NO (2a)	r lux protection	G2RL-2A-PW1	5, 12, 24 VDC	
				Sealed	G2RL-2A4		
					G2RL-2	5, 12, 24, 48 VDC	
			DPDT (2c)		G2RL-2-ASI		
	General		DPDT (2C)		G2RL-2-PW1	5, 12, 24 VDC	
	Purpose			Sealed	G2RL-24	5, 12, 24, 48 VDC 5, 12, 24 VDC	
		High-capacity	SPST-NO (1a)	Flux protection	G2RL-1A-E		- 20 pcs/tube
PCB terminals					G2RL-1A-E-ASI		
FCB terminals					G2RL-1A-E-CV		
					G2RL-1A-E-PW1		
				Sealed	G2RL-1A4-E		
				Flux protection	G2RL-1-E	5, 12, 24, 48 VDC	-
					G2RL-1-E-ASI		
			SPDT (1c)		G2RL-1-E-PW1	5, 12, 24 VDC	
				Sealed	G2RL-14-E	5, 12, 24, 48 VDC	
		High-sensitivity	SPST-NO (1a)		G2RL-1A-H		
		Figh-sensitivity	SPDT (1c)		G2RL-1-H		
			SPDT (1c)		G2RL-1-HA	- 5, 12, 24 VDC	
		Standard	DPST-NO (2a)	Flux protection	G2RL-2A-HA		
	Home		DPDT (2c)		G2RL-2-HA		
	Application		SPST NO (1a)		G2RL-1A-E-HA		
		High-capacity	SPST-NO (1a)		G2RL-1A-E-CV-HA	1	
			SPDT (1c)		G2RL-1-E-HA		

Note 1. When ordering, add the rated coil voltage to the model number.

However, the notation of the coil voltage on the product case will be marked as □□VDC.

Note 2. Place your order in tube (20 pcs/tube) units.

Note 3. Contact your OMRON sales representative for sealed models.

■Ratings

●Coil

	Item Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V) % of rated voltage	Max. voltage (V)	Power consumption (mW)
Standard,	5 VDC	80.0	62.5	 - 70% max.	10% min.	130% (at 85°C)	Approx 400
	12 VDC	33.3	360				Approx. 400 Approx. 120*
High- capacity	24 VDC	16.7	1,440	70% max.	10 to 41%*		Appiox. 120
capacity	48 VDC	8.96	5,358				Approx. 430
Llink	5 VDC	50	96	75% max.		(at 65 C)	
High- sensitivity	12 VDC	20.8	576		10%		Approx. 250
sensitivity	24 VDC	10.42	2,304				

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

Note 2. The operating characteristics are measured at a coil temperature of 23°C.

Note 3. The "max. voltage" is the maximum voltage that can be applied to the relay coil.

* These numbers are only for -PW1 type. Power consumption with holding voltage is approx.120mW. Please confirm the detail in page 8 coil voltage reduction (holding voltage).

Contacts: Flux Protection Type

	Classification	Standard typ	pe (resistive load)	High-capacity type (resistive load)	High-sensitivity type (resistive load)		
Item	Model	1-pole	1-pole 2-pole 1-po				
Contact typ	be		Single				
Contact ma	aterial	Ag-alloy (Cd free)					
Rated load	I	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 (See note)		
Rated carry	y current	12 A (See note)	8 A (70°C)/5 A (85°C) (See note)	16 A (See note)	10 A (See note)		
Max. switch	hing voltage	440 VAC, 300 VDC					
Max. switch	hing current	12 A	8 A	16 A	10 A		
Failure rate (reference	· · · ·	40 mA at 24 VDC					

* This value was measured at a switching frequency of 120 operations/min. Note: Contact your OMRON representative for the ratings on sealed models.

Example: G2RL-1A DC5

■Characteristics

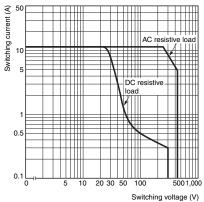
•Flux Protection Type

	mber of poles	1-pole			High-sensitivity type		
	o *1		1-pole 2-pole				
Inerate time	ontact resistance *1 100 mΩ max.						
operate time			15 m	s max.			
Release time			5 ms	s max.			
nsulation resistan	nce *2		1,000	M Ω min.			
Dielectric strength Between coil and contacts Between contacts of the same polarity			5,000 VAC, 50	0/60 Hz for 1min			
			1,000 VAC, 50/60 Hz for 1min				
-	veen contacts fferent polarity	-	2,500 VAC, 50/60 Hz for 1min		-		
mpulse withstand	d voltage		10 kV (1.	.2 x 50 μs)			
/ibration Destr	ruction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)					
esistance Malfu	unction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)					
Shock Destr	ruction		1,00	0 m/s ²			
esistance Malfu	unction	Energized: 100 m/s ² , De-energized: 100 m/s ²					
Mech	hanical	20,000,000 operations (at 18,000 operations/hr)					
	trical *3 stive load)	G2RL-1A, G2RL-1(-HA, -PW1): 50,000 operations at 250 VAC, 12 A 30,000 operations at 24 VDC, 12 A	G2RL-2(A)(-HA, -PW1), G2RL-2-ASI: 30,000 operations at 250 VAC, 8 A 30,000 operations at 30 VDC, 8 A	G2RL-1A-E(-ASI, -HA, -PW1), G2RL-1-E(-ASI, -HA, -PW1): 30,000 operations at 250 VAC, 16 A 30,000 operations at 24 VDC, 16 A G2RL-1A-E-CV(-HA): 50,000 operations at 250 VAC, 16 A at 105°C	G2RL-1(A)-H: 50,000 operations at 250 VAC, 10		
Ambient operating	g temperature		-40°C to 105°C (with no icing or	o icing or condensation) condensation) by G2RL-1A-E-CV			
Ambient operating	g humidity	5% to 85% (with no icing or condensation)					
Veight		Approx. 12 g					

Engineering Data

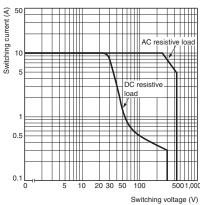
Maximum Switching Capacity Linels Standard Type



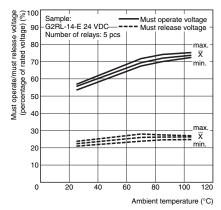


High-sensitibity Type

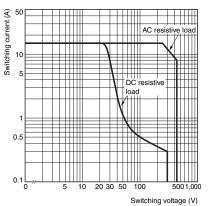
G2RL



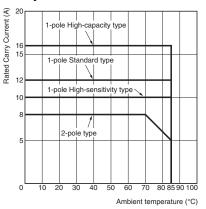
Ambient Temperature vs. Must Operate and Must Release Voltages



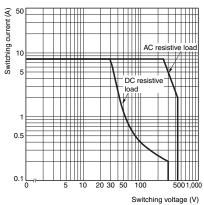
1-pole High-capacity Type



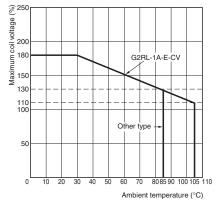
Ambient Temperature vs. Rated Carry Current



2-pole Type



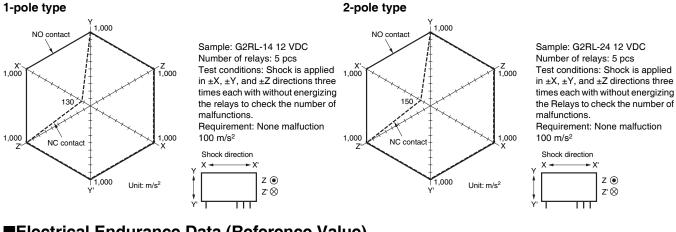
•Ambient Temperature vs. Maximum Coil Voltage



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

G2RL

Shock Malfunction

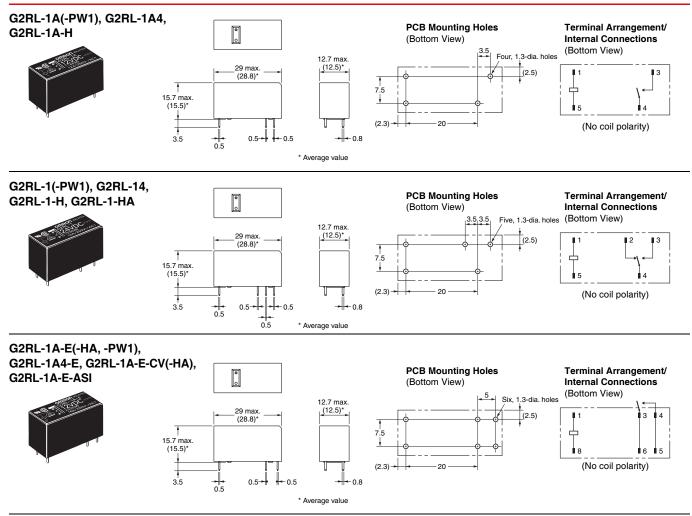


■Electrical Endurance Data (Reference Value)

G2RL-1-E	8 A 250 VAC (cosφ=0.4) 8 A 30 VDC (L/R=7 ms)	200,000 operation min. (NO) 10,000 operation min. (NO)			
G2RL-1	5 A 250 VAC (cosφ=0.4) 5 A 30 VDC (L/R=7 ms)	150,000 operation min. (NO) 10,000 operation min. (NO)			
G2RL-2	8 A 250 VAC (cos∳=1) 8 A 30 VDC	30,000 operation min. 10,000 operation min.			
G2RL-1A-E	Pilot duty (A300), 250 VAC 250,000 operation min.Pilot duty (A300), 125 VAC 150,000 operation min.				

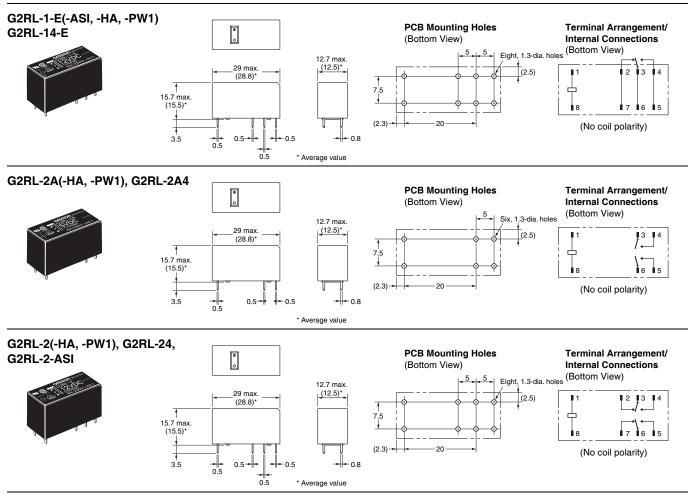
Note. The results shown reflect values at ambient temperature 23°C. Electrical endurance will vary depending on the test conditions. Contact your OMRON representative if you require more detailed information for the electrical endurance under your test condition.

■Dimensions (Unit: mm)



G2RL

G2RL



■Approved Standards

• The approval rating values for overseas standards are different from the performance values determined individually. Confirm the values before use.

UL Recognized: 💫 (File No. 41643)

CSA Certified: (File No. LR31928)

Model	Contact form	Coil ratings	Contact ratings	Number of test operations
G2RL-1A(-PW1)	SPST-NO (1a)	3 to 48 VDC	12 A, 250 VAC (General Use) 40°C	100,000
G2RL-1(-HA, -PW1)	SPDT (1c)	3 10 46 VDC	12 A, 24 VDC (Resistive) 40°C	50,000
G2RL-1A-E(-HA, -PW1)	SPST-NO (1a)	3 to 48 VDC	16 A, 250 VAC (General Use) 40°C	100,000
G2RL-1-E(-HA, -PW1)	SPDT (1c)	3 10 48 VDC	16 A, 24 VDC (Resistive) 40°C	50,000
G2RL-1A-E-ASI	SPST-NO (1a)	3 to 48 VDC	16 A, 250 VAC (Resistive) 85°C	30,000
G2RL-1-E-ASI	SPDT (1c)	3 10 46 VDC	TV-3 40°C	25,000
G2RL-1A-E-CV(-HA)	SPST-NO (1a)	3 to 48 VDC	16 A, 250 VAC (Resistive) 105°C	100,000
G2RL-1A-H	SPST-NO (1a)	3 to 48 VDC	10 A, 250 VAC (General Use) 40°C	50.000
G2RL-1-H	SPDT (1c)	3 to 48 VDC	10 A, 24 VDC (Resistive) 40°C	50,000
G2RL-2A(-HA, -PW1)	DPST-NO (2a)	3 to 48 VDC	8 A, 277 VAC (General Use) 40°C	100.000
G2RL-2(-HA, -PW1)	DPDT (2c)	3 10 48 VDC	8 A, 30 VDC (Resistive) 40°C	100,000
G2RL-2-ASI		3 to 48 VDC	8 A, 250 VAC (Resistive) 85°C	15,000
UZRL-Z-AOI	DPDT (2c)	3 10 48 VDC	8 A, 30 VDC (Resistive) 85°C	15,000

EN/IEC, VDE Certified (Certificate No. 119650)

Model	Contact form	Coil ratings	Contact ratings	Number of test operations
G2RL-1A(-PW1)	SPST-NO (1a)	5, 12, 24, 48	12 A, 250 VAC (cosφ=1) 85°C 12 A, 24 VDC (L/R=0 ms) 85°C	100,000
G2RL-1(-HA, -PW1)	SPDT (1c)	VDC	AC15: 3 A at 240 VAC at room temperature DC13: 2.5 A at 24 VDC, 50ms at room temperature	6,000
			16 A, 250 VAC (cosφ=1) 85°C	30,000
G2RL-1A-E(-HA, -PW1)	SPST-NO (1a)	5, 12, 24, 48	16 A, 24 VDC (L/R=0 ms) 85°C	15,000
G2RL-1-E(-HA, -PW1)	SPDT (1c)	VDC	AC15: 3 A at 240 VAC (NO) at room temperature, 1.5 A at 240V AC (NC) at room temperature DC13: 2.5 A at 24 VDC (NO), 50ms at room temperature	6,000
G2RL-1A-E-ASI G2RL-1-E-ASI	SPST-NO (1a) SPDT (1c)	5, 12, 24, 48 VDC	16 A, 250 VAC (coso=1) 85°C	30,000
G2RL-1A-E-CV(-HA)	SPST-NO (1a)	5, 12, 24, 48 VDC	16 A, 250 VAC (coso=1) 105°C	100,000
			10 A, 250 VAC (coso=1) 85°C	50,000
G2RL-1A-H G2RL-1-H	SPST-NO (1a) SPDT (1c)	5, 12, 24 VDC	10 A, 250 VAC (cos = 1) 40°C	100,000
GZRL-1-H	SPDT (TC)		10 A, 24 VDC (L/R=0 ms) 85°C	50,000
G2RL-2A (-HA, -PW1)	DPST-NO (2a)		8 A, 250 VAC (cos = 1) 85°C	30,000
G2RL-2A (-HA, -PWT)	DPST-NO (2a)	5, 12, 24, 48	8 A, 30 VDC (L/R=0 ms) 85°C	15,000
G2RL-2 (-HA, -PW1)	DPDT (2c)	VDC	AC15: 1.5 A at 240VAC at room temperature DC13: 2 A at 30 VDC, 50ms at room temperature	6,000
G2RL-2-ASI	DPDT (2c)	5, 12, 24, 48	8 A, 250V AC (Resistive) 85°C	15,000
GZRL-Z-AGI		VDC	8 A, 30V DC (Resistive) 85°C	15,000

CQC Certified (Certificate No. CQC17002171904)

Model	Contact form	Coil ratings	Contact ratings	Number of test operations
G2RL-1A(-PW1)	SPST-NO (1a)		12 A, 250 VAC (coso=1) at room temperature	50,000
		5 to 48 VDC	12 A, 24 VDC (L/R=0 ms) at room temperature	30,000
G2RL-1(-HA, -PW1)	SPDT (1c)	5 10 40 VDC	12 A, 250 VAC (coso=1) at room temperature	50,000
	SPD1 (10)		12 A, 24 VDC (L/R=0 ms) at room temperature	30,000
G2RL-1A-E(-ASI, -HA, -PW1)	SPST-NO (1a)	- 5 to 48 VDC	16 A, 250 VAC (coso=1) at room temperature	30,000
G2RL-1A-E-CV(-HA)			16 A, 24 VDC (L/R=0 ms) at room temperature	30,000
G2RL-1-E(-ASI,-HA, -PW1)	SPDT (1c)		16 A, 250 VAC (cos =1) at room temperature	30,000
			16 A, 24 VDC (L/R=0 ms) at room temperature	30,000
G2RL-2A (4)(-HA, -PW1)	DPST-NO (2a)	- 5 to 48 VDC	8 A, 250 VAC (coso=1) at room temperature	30,000
	DF 31-110 (2d)		8 A, 30 VDC (L/R=0 ms) at room temperature	30,000
G2RL-2(-ASI,-HA, -PW1)			3 A, 250 VAC (coso=1) at room temperature	30,000
azne-z(-ASI,-HA, -FWT)	DPDT (2c)		3 A, 30 VDC (L/R=0 ms) at room temperature	30,000

Creepage distance	8 mm min.
Clearance distance	8 mm min.
Insulation material group	Illa
Type of insulation coil-contact circuit	Reinforced
open contact circuit	Micro disconnection
Rated Insulation voltage	250 V
Pollution degree	3 (Flux protection / Sealed)
Rated voltage system	250 V / 400 V (Flux protection)
Over voltage category	
Category of protection according to IEC 61810-1	RT II (Flux protection) / RT III (Sealed)
Glow wire according to IEC 60335-1	<ha models="" only=""> GWT 750°C min. (IEC 60695-2-11) / GWFI 850°C min. (IEC 60695-2-12)</ha>
Tracking Index of relay base	PTI 250 V min. (housing parts)

Precautions

· Please refer to "PCB Relays Common Precautions" for correct use.

Correct Use

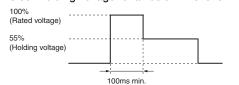
Mounting Position Compared to G2R Model

 Although the G2RL model and the G2R model are both low profile relays, their characteristics such as switching capacity are different. Be sure to check operation under the actual operating conditions before use.

Cleaning

- The G2RL model is flux-resistant with two sealing holes on the case. Thus, do not clean the relay by boiling or soaking in water. Consult your Omron sales representative for sealed type relay.
- Using Relays in an Atmosphere Containing Corrosive Gas
- Do not use relays in an atmosphere containing corrosive gas (sulfuric or organic gas). Otherwise, connection failure due to corrosion on the contact surface may lead to functional faults.
- corrosion on the contact surface may lead to functional faults. •Coil Voltage Reduction (Holding Voltage) after Relay Operation
- If the coil voltage is reduced to the holding voltage after relay operation, first apply the rated voltage to the coil for at least 100 ms, as shown below.

• A voltage of at least 55% of the rated voltage is required for the coil holding voltage. Do not allow voltage fluctuations to cause the coil holding voltage to fall below this level.



	Applied coil voltage	Coil resistance*	Power consumption
Rated voltage	100%	62.5Ω (5 VDC) 360Ω (12 VDC)	Approx. 400 mW
Holding voltage	55%	1,440Ω (24 VDC)	Approx. 120 mW

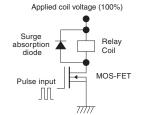
The coil resistance were measured at a coil temperature of 23°C with tolerances of \pm 10%.

Power consumption reduction of coil with pulse width modulation (PWM)

- Models with PWM drive capability (-PW1) can reduce coil holding current with PWM control. This function reduces power consumption by reducing the current held by coil.
- Apply the rated voltage for at least 100 ms at the time of relay operation.
- The following are our verification conditions. When using, it be sure to check the actual machine under the actual usage conditions.

Example of drive circuit

Conditions of validation carried out by OMRON



- Applied voltage: rated voltage
- Duty: 60% or more
- Frequency: 10 kHz or more
- Diode Vf: 0.4 V or less

Please check each region's Terms & Conditions by region website.

In the interest of product improvement, specifications are subject to change without notice.

OMRON Corporation Electronic and Mechanical Components Company

Regional Contact

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G2RL-2-CF-DC12 G2RL-2-CF-DC24 G2RL-1-DC5 G2RL-1A4-E-CF-DC5 G2RL-2A4-DC5 G2RL-1A4-DC5 G2RL-2A-DC5 G2RL-2-CF-DC5 G2RL-14-DC5 G2RL-24-DC5 G2RL-2A-DC12 G2RL-1-CFDC5 G2RL-2A-DC24 G2RL-14-E-DC5 G2RL-1-E-CF-DC5 G2RL-1A-DC12 G2RL-1A-DC24 G2RL-2A-CF-DC5 G2RL-1A4-E-DC12 G2RL-2A4-CF-DC12 G2RL-1A4-E-CF-DC12 G2RL-14-E-DC12 G2RL-1A4-E-DC5 G2RL-1A4-E-CF-DC24 G2RL-1-E-CF-DC12 G2RL-1A-E-CF-DC24 G2RL-1A4-DC24 G2RL-2A4-DC24 G2RL-2A4-DC12 G2RL-1A4-DC12 G2RL-1A-DC5 G2RL-1-CFDC24 G2RL-14-DC24 G2RL-24-DC12 G2RL-2A-CF-DC24 G2RL-14-DC12 G2RL-24-DC24 G2RL-2A-CF-DC12 G2RL-24-CF-DC12 G2RL-1 DC48 G2RL-14 DC48 G2RL-14-E DC48 G2RL-1A DC48 G2RL-1A-E DC48 G2RL-1A4 DC48 G2RL-1A4-E DC24 G2RL-2 DC48 G2RL-24 DC48 G2RL-2A DC48 G2RL-2A4 DC48 G2RL-14-CF DC12 G2RL-14-CF DC5 G2RL-14-E-CF DC48 G2RL-1A-CF DC48 G2RL-1A-CF DC5 G2RL-1A-E DC18 G2RL-1A-E-CF DC18 G2RL-1A-E-CF DC9 G2RL-1-CF DC48 G2RL-1-E DC18 G2RL-1-E DC22 G2RL-1-E-CF DC9 G2RL-24 DC18 G2RL-24-CF DC5 G2RL-2A DC18 G2RL-2A4-CF DC48 G2RL-2-CF DC48 G2RL-1ATP7-E-DC24 G2RL-24-CF-DC24 G2RL-14 DC22 G2RL-1A4 DC9 G2RL-1-E-R DC18 G2RL-2 DC18 G2RL-1-H-DC5 G2RL-1-H-DC12 G2RL-1-H-DC24 G2RL-14-E DC24 G2RL-1A-E DC5 G2RL-1A-E-CV DC12 G2RL-1A-E-HA DC12 G2RL-1A-E-CV DC24 G2RL-1A4-E DC18 G2RL-1A-E-HA DC24 G2RL-1ATP5-E-DC12 G2RL-1-E DC48 G2RL-1-DC12 G2RL-1-E-DC24 G2RL-2-DC5 G2RL-1-E-DC12 G2RL-1A-E-DC24 G2RL-1A-E-DC12 G2RL-1-DC24 G2RL-2-DC24 G2RL-1-E-DC5 G2RL-2-DC12 G2RL-1A4-E DC9 G2RL-1A-E-ASI DC5 G2RL-1A-E-ASI DC12 G2RL-1A-E-ASI DC24 G2RL-1A-E-ASI DC48