General-purpose Relay

CSM_G2R-_-S_DS_E_3_2

Slim and Space-saving Power Plug-in Relay

- Lockable test button models now available.
- Built-in mechanical operation indicator.
- Provided with nameplate.
- AC type is equipped with a coil-disconnection self-diagnostic function (LED type).
- High switching power (1-pole: 10 A).
- Environment-friendly (Cd, Pb free).
- Wide range of Sockets also available.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Model Number Structure

Model Number Legend

1. Relay Function

Blank: General-purpose

2. Number of Poles

1 pole 2: 2 poles

3. Contact Form

Blank: SPDT

4. Contact Type

Blank: Single

5. Terminals

Plug-in

6. Classification

Blank: General-purpose N: LED indicator

D: Diode

ND: LED indicator and diode NI: LED indicator with test button

NDI: LED indicator and diode with test button

7. Rated Coil Voltage

Ordering Information

List of Models

Classification		Enclosure	Cail rations	Contact form	
	Classification		Coil ratings	SPDT	DPDT
General-purpose LED indicator AC/DC		G2R-1-S	G2R-2-S		
	LED indicator	- -	AC/DC	G2R-1-SN	G2R-2-SN
Diva in terminal	LED indicator with test button			G2R-1-SNI (S)	G2R-2-SNI (S)
Plug-in terminal	Diode	Unsealed		G2R-1-SD	G2R-2-SD
	LED indicator and diode		DC	G2R-1-SND	G2R-2-SND
	LED indicator and diode with test button			G2R-1-SNDI (S)	G2R-2-SNDI (S)

Note: 1. The standard models are compliant with UL/CSA and VDE standards. Also, an EC compliance declaration has been made for combinations with the P2RF-E and P2RF-S. The Relays bear the CE Marking.

2. Refer to *Connecting Sockets*, below, for applicable Socket models.

3. When ordering, add the rated coil voltage and "(S)" to the model number. Rated coil voltages are given in the coil ratings table. Example: G2R-1-S 12 VDC (S)—New model

-Rated coil voltage

Accessories (Order Separately)

Connecting Sockets

Applicable Relay model	Track/surface-mour	nting Socket	Back-mounting Socket		
Applicable nelay illouel	Screwless clamp terminal	Screw terminal	Terminals	Model	
1 pole	P2RF-05S (See note.)	• P2RF-05-E	PCB terminals	P2R-05P, P2R-057P	
G2R-1-S(N)(D)(ND)(NI)(NDI)	(P2CM-S (option))	• P2RF-05	Solder terminals	P2R-05A	
2 poles	• P2RF-08S (See note.)	• P2RF-08-E	PCB terminals	P2R-08P, P2R-087P	
G2R-2-S(N)(D)(ND)(NI)(NDI)	(P2CM-S (option))	• P2RF-08	Solder terminals	P2R-08A	

Note: Use of the P2CM Clip & Release Lever is recommended to ensure stable mounting.

Accessories for Screwless Clamp Terminal Socket (Option)

Name	Model
Clip & Release Lever	P2CM-S
Nameplate R99-11 Nameplate for MY	
Socket Bridge	P2RM-SR (for AC), P2RM-SB (for DC)

Mounting Tracks

Applicable Socket	Description	Model	
Track-connecting Socket	Mounting track	50 cm (ℓ) x 7.3 mm (t): PFP-50N 1 m (ℓ) x 7.3 mm (t): PFP-100N 1 m (ℓ) x 16 mm (t): PFP-100N2	
The state of the s	End plate	PFP-M	
	Spacer	PFP-S	
Back-connecting Socket	Mounting plate	P2R-P*	

^{*} Used to mount several P2R-05A and P2R-08A Connecting Sockets side by side.

Specifications

Coil Ratings

Rated voltage		Rated current*		Coil resistance*	Coil inductance (H) (ref. value)		Must operate voltage	Must release voltage	Max. voltage	Power consumption
		50 Hz	60 Hz	resistance	Armature OFF	Armature ON	% of rated voltage		(approx.)	
	24 V	43.5 mA	37.4 mA	253 Ω	0.81	1.55		30% max. 30% max.	max. 110%	
	110 V	9.5 mA	8.2 mA	5,566 Ω	13.33	26.83				
AC	120 V	8.6 mA	7.5 mA	7,286 Ω	16.13	32.46	80% max.			0.9 VA at 60 Hz
+	230 V	4.4 mA	3.8 mA	27,172 Ω	72.68	143.90				
	240 V	3.7 mA	3.2 mA	30,360 Ω	90.58	182.34				

Rated voltage		Rated current*	Coil resistance*	Coil inductance (H) (ref. value)		Must operate voltage	Must release voltage	Max. voltage	Power consumption
		resistance		Armature OFF	Armature ON	% of rated voltage		(approx.)	
	6 V	87.0 mA	69 Ω	0.25	0.48		0% max. 15% min.	110%	0.53 W
DC	12 V	43.2 mA	278 Ω	0.98	2.35	700/ may			
DC	24 V	21.6 mA	1,113 Ω	3.60	8.25	70% max.			
	48 V	11.4 mA	4,220 Ω	15.2	29.82				

 $^{^{\}star}$ The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of $\pm 10\%$.

Contact Ratings

Number of poles	1 pole		2 poles	
Load			Resistive load (cosφ = 1)	Inductive load (cosφ = 0.4; L/R = 7 ms)
Rated load	10 A at 250 VAC; 10 A at 30 VDC	7.5 A at 250 VAC; 5 A at 30 VDC	5 A at 250 VAC; 5 A at 30 VDC	2 A at 250 VAC; 3 A at 30 VDC
Rated carry current	10 A	10 A		
Max. switching voltage	440 VAC, 125 VDC		380 VAC, 125 VDC	
Max. switching current	10 A		5 A	
Max. switching power	2,500 VA, 300 W	1,875 VA, 150 W	1,250 VA, 150 W	500 VA, 90 W
Failure rate (reference value)	100 mA at 5 VDC		10 mA at 5 VDC	

Note: P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation

Characteristics

Item		1 pole	2 poles		
Contact resistance	100 mΩ max.				
Operate (set) time	15 ms max.				
Release (reset) time		x.; DC: 5 ms max. le: 20 ms max.)	AC: 15 ms max.; DC: 10 ms max. (w/built-in diode: 20 ms max.)		
Max. operating frequency	Mechanical: Electrical:	and the second s			
Insulation resistance	1,000 M Ω min	1,000 MΩ min. (at 500 VDC)			
Dielectric strength	5,000 VAC, 50/60 Hz for 1 min between coil and contacts*; 1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity		5,000 VAC, 50/60 Hz for 1 min between coil and contacts*; 3,000 VAC, 50/60 Hz for 1 min between contacts of different polarity 1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity		
Vibration resistance	Destruction: Malfunction:		amplitude (1.5 mm double amplitude) amplitude (1.5 mm double amplitude)		
Shock resistance	Destruction: Malfunction:	,			
Endurance	Mechanical: Electrical:	DC coil: 20,000,000 operations min. (at 18,000 operations/hr)			
Ambient temperature	Operating:	-40°C to 70°C (with no icing or co	ndensation)		
Ambient humidity	Operating:	5% to 85%			
Weight	Approx. 21 g				

Approved Standards

UL 508 (File No. E41643)

Model	Contact form	Coil ratings	Contact ratings	Oper- ations
G2R-1-S	SPDT	5 to 110 VDC	10 A, 30 VDC (resistive) 10 A, 250 VAC (general use) TV-3 (NO contact only)	6 x 10 ³
G2R-2-S	DPDT	6 to 240 VAC	5 A, 30 VDC (resistive) 5 A, 250 VAC (general use) TV-3 (NO contact only)	6 x 10 ³

CSA 22.2 No.0, No.14 (File No. LR31928)

Model	Contact form	Coil ratings	Contact ratings	Oper- ations
G2R-1-S	SPDT	5 to 110 VDC 6 to 240 VAC	10 A, 30 VDC (resistive) 10 A, 250 VAC (general use) TV-3 (NO contact only)	6 x 10 ³
G2R-2-S	DPDT		5 A, 30 VDC (resistive) 5 A, 250 VAC (general use) TV-3 (NO contact only)	6 x 10 ³

IEC/VDE (EN61810)

Contact form	Coil ratings	Contact ratings	Operations
1 pole	6, 12, 24, 48 VDC 24, 110, 120, 230, 240 VAC	5 A, 440 VAC (cosφ = 1.0) 10 A, 250 VAC (cosφ = 1.0) 10 A, 30 VDC (0 ms)	100 x 10 ³
2 poles	6, 12, 24, 48 VDC 24, 110, 120, 230, 240 VAC	5 A, 250 VAC (cos	100 x 10 ³

LR

Number of poles	Coil ratings	Contact ratings	Operations
1 pole	5 to 110 VDC 6 to 240 VDC	10 A, 250 VAC (general use) 7.5 A, 250 VAC (PF0.4) 10 A, 30 VDC (resistive) 5A, 30VDC (L/R=7ms)	100 x 10 ³
2 poles	5 to 110 VDC 6 to 240 VDC	5 A, 250 VAC (general use) 2 A, 250 VAC (PF0.4) 5 A, 30 VDC (resistive) 3A, 30VDC (L/R=7ms)	100 x 10 ³

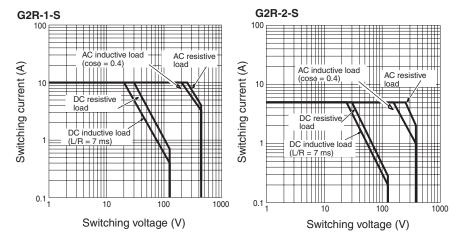
Note: Values in the above table are the initial values.

*4,000 VAC, 50/60 Hz for 1 minute when the P2R-05A or P2R-08A Socket is mounted.

Engineering Data

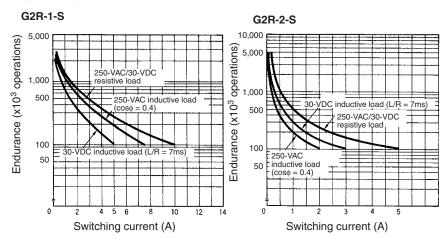
Maximum Switching Power

Plug-in Relays

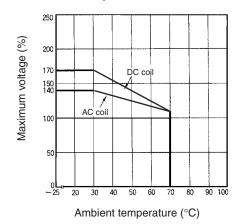


Endurance

Plug-in Relays



Ambient Temperature vs Maximum Coil Voltage



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

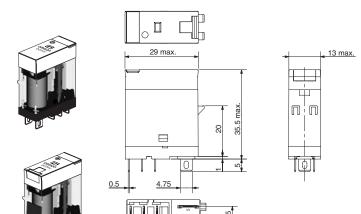
Dimensions

Note: All units are in millimeters unless otherwise indicated.

Relays with Plug-in Terminals

SPDT Relays

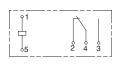
G2R-1-S, G2R-1-SN, G2R-1-SNI (S) G2R-1-SD, G2R-1-SND, G2R-1-SNDI (S)

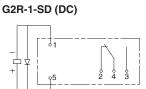


17.5

Terminal Arrangement/Internal Connections (Bottom View)

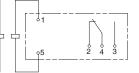
G2R-1-S

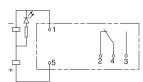




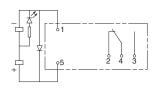
G2R-1-SN, G2R-1-SNI (AC)

G2R-1-SN, G2R-1-SNI (DC)





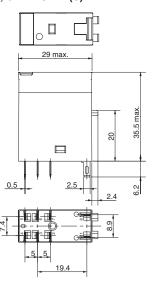
G2R-1-SND, G2R-1-SNDI (DC)



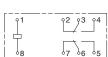
DPDT Relays

G2R-2-S, G2R-2-SN, G2R-2-SNI (S) G2R-2-SD, G2R-2-SND, G2R-2-SNDI (S)



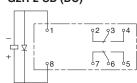


Terminal Arrangement/Internal Connections (Bottom View) G2R-2-S G2R-2-SD (DC)

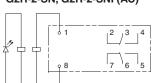


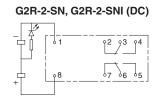
13 max.

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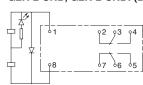


G2R-2-SN, G2R-2-SNI (AC)



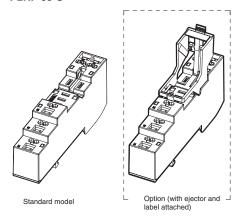


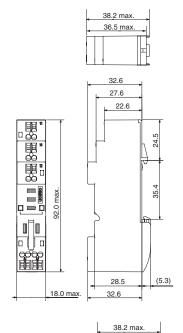
G2R-2-SND, G2R-2-SNDI (DC)

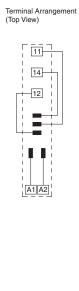


Track/Surface Mounting Sockets

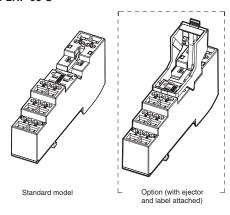
P2RF-05-S

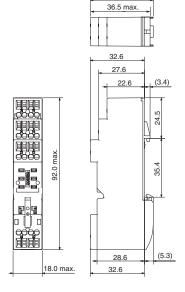


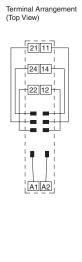




P2RF-08-S

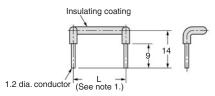




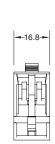


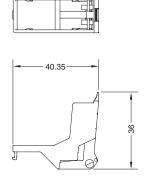
Accessories for P2RF-□-S

Socket Bridge



Clip and Release Lever

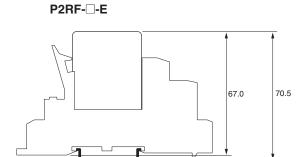




Terminal Arrangement Mounting Holes P2RF-05-E (Top View) (for Surface Mounting) Five, M3.5×7 48 max 3.2-dia. hole **4** (11) (14) ② (12) 39.5±0.1 85.5 max. 3.5-dia hole M3 or 3.5-dia. hole 1 11.5 16.0 max. Note: Pin numbers in parentheses apply to DIN standard. P2RF-08-E **Terminal Arrangement Mounting Holes** (for Surface Mounting) (Top View) Eight, M3×8 48.0 max. (21) (22) (11) (12) (14) 3.2-dia. hole 35.5 85.5 max. 39.5±0.1 (A1) 3.5-dia. hole M3 or 3.5-dia. hole (A2)① 61.0 11.5 max. 16.0 max. P2RF-05 **Terminal Arrangement Mounting Holes** Five, M3.5 x 8 (Top View) (for Surface Mounting) 4-dia. holes 4.2-dia. hole 35.5 71.5 max 30±0.05 0 19.5 M3 or 3.2-dia 19.5 max. 30 max. hole **P2RF-08** Eight, M3.5 x 8 **Terminal Arrangement Mounting Holes** (Top View) (for Surface Mounting) 4-dia. holes 88 4.2-dia. hole 71.5 max 00 30±0.05 00 19.5 19.5 max 30 max. M3 or 3.2-dia hole 54 max.

Mounting Height of Relay with Track/Surface Mounting Sockets

P2RF-□ 62.0 66.5

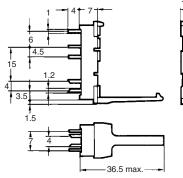


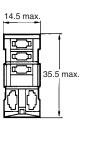
P2RF-□-S 72.0 65.0 28.6 (5.30)

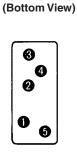
Back-connecting Sockets

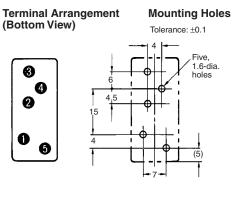






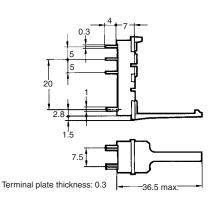


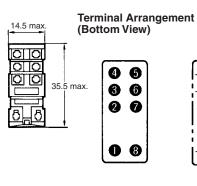


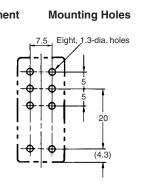


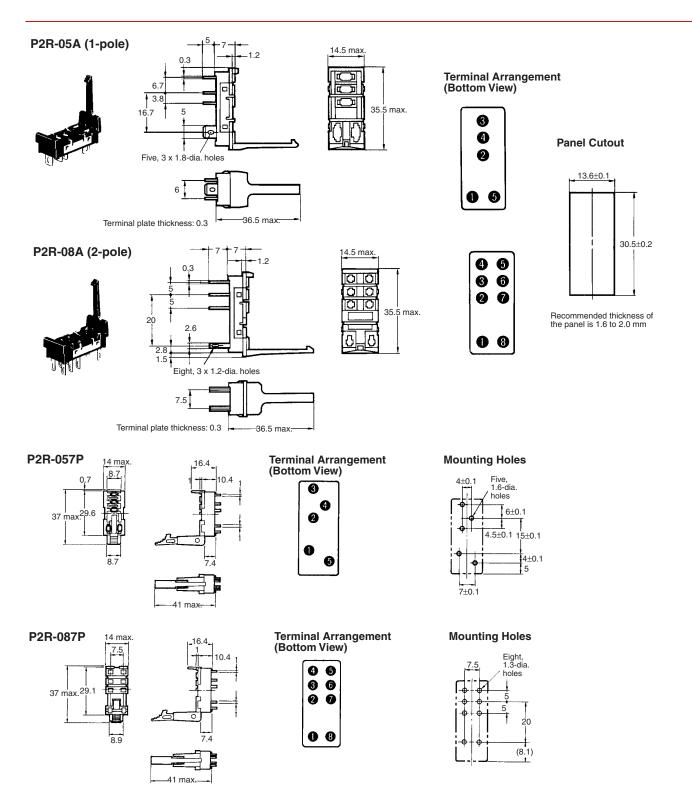
P2R-08P (2-pole)



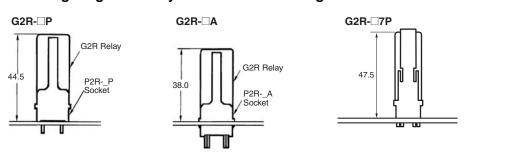








Mounting Height of Relay with Back-connecting Sockets

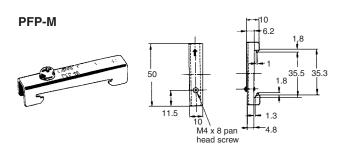


Mounting Tracks

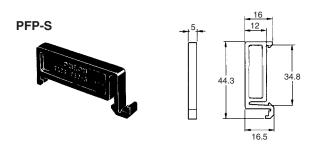
It is recommended to use a panel 1.6 to 2.0 mm thick.

PFP-100N2 4.5 15 25 10 1,000 1,000

End Plate



Spacer



Precautions

- Do not use the test button for any purpose other than testing. Be sure not to touch the test button accidentally as this will turn the contacts ON. Before using the test button, confirm that circuits, the load, and any other connected item will operate safely.
- Check that the test button is released before turning ON relay circuits.
- If the test button is pulled out too forcefully, it may bypass the momentary testing position and go straight into the locked position.
- Use an insulated tool when you operate the test button.

Precautions for P2RF-□-S Connection

- Do not move the screwdriver up, down, or from side to side while it is inserted in the hole. Doing so may cause damage to internal components (e.g., deformation of the clamp spring or cracks in the housing) or cause deterioration of insulation.
- Do not insert the screwdriver at an angle. Doing so may break the side of the socket and result in a short-circuit.

Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

PROGRAMMABLE PRODUCTS

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

Disclaimers

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

ERRORS AND OMISSIONS

The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

2012.9

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



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G2R-2-S-DC24S G2R-2S-DC5 G2R-2-S-AC120S G2R-2S-DC24 G2R-2S-AC220 G2R-2-S-DC12(S) G2R-2-S-AC24S G2R-2-SN-AC24S G2R-2-SN-AC120S G2R-2-SDDC24(S) G2R-2-SNIDC24(S) G2R-2-SDC6(S) G2R-2-SN-DC12S G2R-2-SN-DC24S G2R-2S-DC12 G2R2SNDC24 G2R-2SND-DC24S G2R-2S-AC120 G2R-2S-AC24 G2R-2SN-AC24 G2R-1-S AC240(S) G2R-1-S DC100(S) G2R-1-S DC110(S) G2R-1-S DC48(S) G2R-1-SD DC12(S) G2R-1-SD DC24(S) G2R-1-SD DC6(S) G2R-1-SKVD-AC220 G2R-1-SN AC110(S) G2R-1-SN AC230(S) G2R-1-SN AC240(S) G2R-1-SN DC5(S) G2R-1-SN DC6(S) G2R-1-SND DC6(S) G2R-1-SNDI DC12(S) G2R-1-SNI AC110(S) G2R-1-SNI AC120(S) G2R-1-SNI AC230(S) G2R-1-SNI AC24(S) G2R-1-SNI AC240(S) G2R-1-SNI DC12(S) G2R-1-SNI DC24(S) G2R-2-S AC240(S) G2R-2-S DC100(S) G2R-2-S DC48(S) G2R-2-S DC5(S) G2R-2-SD DC12(S) G2R-2-SD DC48(S) G2R-2-SD DC6(S) G2R-2-SKVD-AC220 G2R-2-SN AC110(S) G2R-2-SN AC12(S) G2R-2-SN AC230(S) G2R-2-SN AC240(S) G2R-2-SN DC48(S) G2R-2-SN DC6(S) G2R-2-SND DC6(S) G2R-2-SND-DC12(S) G2R-2-SNDI DC12(S) G2R-2-SNDI DC24(S) G2R-2-SNI AC120(S) G2R-2-SNI AC230(S) G2R-2-SNI AC24(S) G2R-2-SNI DC12(S) G2R-2-S DC110(S) G2R-2-SND DC24 G2R-2-SD-DC5(S) G2R-1-SNDI DC48(S) G2R-2-S-AC220 G2R-2-S-DC12 G2R-2-S-AC120 G2R-2-SN-AC24 G2R-2-SD-DC24(S) G2R-2-S-DC24 G2R-2-SN-DC24 G2R-2-S-DC5 G2R-2-SNI-DC24(S) G2R-2-S-AC24 G2R-2-SND-DC24(S) G2R-1-SN-DC24S G2R-2-SNDI DC48(S) G2R-1-SN-AC120 G2R-1-S-DC24S G2R-1-S-DC5(S) G2R-1-S-AC24S G2R-1-SND-DC48(S) G2R-1-SN-AC120S G2R-1-S-AC120S G2R-1-SN AC200/(220)(S) G2R-1-S-DC12S G2R-1-SN-AC24S G2R-1-SN-DC12(S) G2R-1-S-DC6S G2R-1-SN DC48(S) G2R-1-SNI DC6(S) G2R-1-SN-DC24 G2R-2-SNI DC48(S) G2R-1-SND-DC24S G2R-2-SNI DC6(S) G2R-1-S AC230(S)