

New G2RS Series

N CEMAX 54

The G2RS Space-saving Power Plug-in Relay has a mechanical indicator and nameplate as standard features. A relay with a lockable test button is also available.

Details on the New G2RS

Overview

LED indicator —— Mechanical indicator

Test button – DC: Blue AC: Red

Nameplate -

New Features

- Nameplate and mechanical indicator provided as a standard.
- Models with two-way-action test button available.
- Environment-friendly construction.



yellow button with an insulated

tool to operate the contact.

Pull down the test button to the second stop position. (The contact is now in the locked position.)

General-purpose Relay

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 selfdiagnostic function (LED type).
- High switching power (1-pole: 10 A).
- Environment-friendly (Cd, Pb free).
- · Wide range of Sockets also available.



Model Number Structure

Model Number Legend



- 5. Terminals
- S: 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	Coil ratings	Contact form/Model	
		rating		SPDT	DPDT
Plug-in terminal	General-purpose	Unsealed	AC/DC	G2R-1-S	G2R-2-S
	LED indicator			G2R-1-SN	G2R-2-SN
	LED indicator with test button			G2R-1-SNI	G2R-2-SNI
	Diode		DC	G2R-1-SD	G2R-2-SD
	LED indicator and diode			G2R-1-SND	G2R-2-SND
	LED indicator and diode with test button			G2R-1-SNDI	G2R-2-SNDI

Note: 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 <u>DC12 (S)</u> New model Rated coil voltage

■ Accessories (Order Separately)

Connecting Sockets

Applicable Relay model	Track/surface-mounting Socket		Back-mounting Socket		
	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	D	escription	Model
Mounting track and accessories	Mounting track		PFP-50N PFP-100N PFP-100N2
	End plate		PFP-M
	Spacer		PFP-S
Mounting plate	Back-connecting S	ockets	P2R-P*

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

Specifications

■ Coil Ratings

Ra	Rated voltage Rated current*		tage Rated current* Coil Coil inducta resistance* (ref. val			Must operate voltage	Must release voltage	Max. voltage	Power consumption (approx.)	
		50 Hz	60 Hz		Armature OFF	Armature ON	% of rated voltage		1	
AC	24 V	43.5 mA	37.4 mA	253 Ω	0.81	1.55	80% max.	30% min.	110%	0.9 VA at 60 Hz
	110 V	9.5 mA	8.2 mA	5,566 Ω	13.33	26.83				
	120 V	8.6 mA	7.5 mA	7,286 Ω	16.13	32.46				
	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				

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

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

■ Contact Ratings

Number of poles	1 pole		2 poles		
Load	Resistive load $(\cos \phi = 1)$			Inductive load $(\cos\phi = 0.4; L/R = 7 ms)$	
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		5 A		
Max. switching voltage	440 VAC, 125 VDC		380 VAC, 125 VDC		
Max. switching current	10 A		5 A		
Max. switching capacity	2,500 VA, 300 W			500 VA, 90 W	
Minimum permissible load	100 mA at 5 VDC	100 mA at 5 VDC			

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

■ Characteristics

Item		1 pole	2 poles			
Contact resistance	100 m Ω max.					
Operate (set) time	15 ms max.	ms max.				
Release (reset) time	AC: 10 ms ma (w/built-in diod	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:					
Insulation resistance	1,000 MΩ min. (at 500 VDC)					
Dielectric strength	contacts*;	/60 Hz for 1 min between coil and /60 Hz for 1 min between contacts of	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:	10 to 55 to 10 Hz, 0.75 mm single 10 to 55 to 10 Hz, 0.75 mm single	amplitude (1.5 mm double amplitude) amplitude (1.5 mm double amplitude)			
Shock resistance	Destruction: Malfunction:	1,000 m/s ² 200 m/s ² when energized; 100 m/s	² when not energized			
Service life	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 cor	ndensation)			
Ambient humidity	Operating:	5% to 85%				
Weight	Approx. 21 g					

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 used.

■ Approved Standards UL 508 (File No. E41643)

Model	Contact form	Coil ratings	Contact ratings	Opera- tions
G2R-1-S	SPDT	5 to 110 VDC 5 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

<u>CSA 22.2 No.0, No.14</u> (File No. LR31928)

Model	Contact form	Coil ratings	Contact ratings	Opera- tions
G2R-1-S	SPDT	5 to 110 VDC 5 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 (cosφ =1.0) 5 A, 30 VDC (0 ms)	100 x 10 ³

LR

Number of poles	Coil ratings	Contact ratings	Operations
1 pole	5 to 110 VDC 5 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 5 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

Maximum Switching Capacity

Plug-in Relays

G2R-1-S





■ Electrical Service Life

Plug-in Relays G2R-1-S

G2R-2-S



Ambient Temperature vs. Maximum Coil Voltage



4

Dimensions

Unit: mm (inch)

Relays with Plug-in Terminals

SPDT Relays



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 G2R-2-SD, G2R-2-SND, G2R-2-SNDI





 \Box

Terminal Arrangement/Internal Connections (Bottom View)

G2R-2-S

13 max

(0.51)

5. | F



G2R-2-SD (DC)



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



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







Track/Surface Mounting Sockets



Accessories for P2RF-□-S

Socket Bridge

6



Note: The color of insulating coating indicates power type.

Model	Power	Color
P2RM-SR	AC	Red
P2RM-SB	DC	Blue

Clip and Release Lever









Mounting Height of Relay with Track/Surface Mounting Sockets





P2RF-□-S



Back-connecting Sockets



8



16 (0.63)

29.2

(1,15)

-1.5 (0.06)

24

1 (0.04)

27

Mounting Height of Relay with Back-connecting Sockets



Mounting Tracks



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

End Plate



4.5 (0.18) 35±0.3 (1.38±0.01) (1.06) (0.94) \in 25 25 15 (0.59 25 (0.98) 0 (0.39 1,000 (39.37)



PFP-100N2



Precautions

✓!\ Caution

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.

/!\ Caution

Check that the test button is released before turning ON relay circuits.

/!\ Caution

If the test button is pulled out too forcefully, it may bypass the momentary testing position and go straight into the locked position.

∕!∖ Caution

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.

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