OMRON PCB Relay

G2R

A Power Relay for a Variety of Purposes with Various Models

- Conforms to VDE0435 (VDE approval: C250 insulation grade), UL508, CSA22.2, SEV, SEMKO.
- Meets VDE0700 requirements for household products according to VDE0110.
- Clearance and creepage distance: 8 mm/8 m.
- Models with CTI250 material available.
- High-sensitivity (360 mW) and high-capacity (16 A) types available.
- Double-winding latching type available.
- Plug-in with test button and quick-connect terminals available.
- Highly functional socket available.

Ordering Information





C	lassification	Enclosure	Coil		Contact	form	
		ratings	ratings	SPST-NO	SPDT	DPST-NO	DPDT
PCB terminal	General-purpose	Flux protection	AC/DC	G2R-1A	G2R-1	G2R-2A	G2R-2
		Fully sealed		G2R-1A4	G2R-14	G2R-2A4	G2R-24
	Bifurcated contact	Flux protection	DC	G2R-1AZ	G2R-1Z		
		Fully sealed		G2R-1AZ4	G2R-1Z4		
	High-capacity	Flux protection	AC/DC	G2R-1A-E	G2R-1-E		
	High-sensitivity	Flux protection	DC	G2R-1A-H	G2R-1-H	G2R-2A-H	G2R-2-H
	Double-winding latching	Flux protection		G2RK-1A	G2RK-1	G2RK-2A	G2RK-2
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
Plug-in terminal (Bifurcated crossbar	General-purpose		AC/DC	G2R-1A3-S	G2R-13-S		
	LED indicator			G2R-1A3-SN	G2R-13-SN		
contact)	LED indicator and diode		DC	G2R-1A3-SND	G2R-13-SND		

Note: 1. When ordering, add the rated coil voltage to the model number. Example: G2R-1A 12 VDC

— Rated coil voltage

 OMRON has also prepared the above relays with AgSnIn contacts, which are more tolerant of large inrush currents and physical movement compared with relays with standard contacts. When ordering, add "-ASI" to the model number. Example: G2R-1A-ASI

3. Standard, NO contact type relays are TV-3 class products in accordance with the TV standards of the UL/CSA. Models with AgSnIn contacts are TV-5 class products.

Example: G2R-1A-ASI

When ordering a TV-8 class model, insert "-TV8" into the model number as follows: Example: G2R-1A-TV8-ASI

4. Models with CTI250 material are also available. Contact your OMRON representative for more details.

Model Number Legend



Accessories (Order Separately)

Connecting Sockets

- S: Plug-in
- T: Quick-connect (upper bracket mounting)
- 7. Classification
 - None: General-purpose
 - E: High-capacity
 - H: High-sensitivity
 - N: LED indicator
 - D: Diode
 - ND: LED indicator and diode
- 8. Test button
 - I: Test button
 - Note: Applied for only SN and SND type
- 9. Contact Material
 - None: AgCdO
 - ASI: AgSnIn
- 10. Rated Coil Voltage
 - Refer to Coil Ratings.

Number of poles	Applicable Relay model	Track/surface-mounting	Back-mounting Socket		
		Socket	Terminals	Model	
1 pole	G2R-1-	P2RF-05-E	PCB terminals	P2R-05P, P2R-057P	
	S(N)(D)(ND)(NI)(NDI)G2R-13- S (G2R-1A3-S)	P2RF-05	Solder terminals	P2R-05A	
2 poles	G2R-2-S(N)(D)(ND)(NI)(NDI)	P2RF-08-E	PCB terminals	P2R-08P, P2R-087P	
		P2RF-08	Solder terminals	P2R-08A	

Note: See Dimensions for details on socket size.

Mounting Track

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
	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		12 VAC	24 VAC	100/ (110) VAC	120 VAC	200/ (220) VAC	220 VAC	230 VAC	240 VAC
Rated current	50 Hz	93 mA	46.5 mA	11 mA	9.3 mA	5.5 (4.0) mA	5.1 mA	4.7 (3.7) mA	4.7 mA
	60 Hz	75 mA	37.5 mA	9/ (10.6) mA	7.5 mA	4.5 (5.3) mA	4.1 mA	3.8 (3.1) mA	3.8 mA
Coil resistance		65 Ω	260 Ω	4,600 Ω	6,500 Ω	20,200 (25,000) Ω	25,000 Ω	26,850 (30,000) Ω	30,000 Ω
Coil inductance	Armature OFF	0.19	0.81	13.34	21	51.3	57.5	62	65.5
(H) (ref. value)	Armature ON	0.39	1.55	26.84	42	102	117	124	131
Must operate vol	tage	80% max.	of rated vo	ltage					
Must release voltage 30% min. of rated voltage									
Max. voltage 140% of rated voltage (at 23°C)									
Power consumpt	ion	Approx. 0.	9 VA at 60	Hz (approx. 0	.7 VA at 60	Hz)			

Note: 1. Rated voltage of bifurcated crossbar contact type: 100/(110) VAC, 200/(220) VAC, 230 VAC (Approx. 0.7 VA at 60 Hz)

2. Depending on the type of Relay, some Relays do not have coil specifications. Contact your OMRON representative for more details.

Rated voltage		5 VDC	6 VDC	12 VDC	24 VDC	48 VDC	100 VDC
Rated current (50	/60 Hz)	106 mA	88.2 mA	43.6 mA	21.8 mA	11.5 mA	5.3 mA
Coil resistance		47 Ω	68 Ω	275 Ω	1,100 Ω	4,170 Ω	18,860 Ω
Coil inductance	Armature OFF	0.20	0.28	1.15	4.27	13.86	67.2
(H) (ref. value)	Armature ON	0.39	0.55	2.29	8.55	27.71	93.2
Must operate volt	age	70% max. of rat	ed voltage				
Must release volta	age	15% min. of rated voltage					
Max. voltage		170% of rated voltage (at 23°C)					
Power consumpti	on	Approx. 0.53 W					

Note: Rated voltage of bifurcated crossbar contact type: 12 VDC, 24 VDC

High-sensitivity Relays

Rated voltage		5 VDC	6 VDC	12 VDC	24 VDC	48 VDC		
Rated current (50/60 Hz) (see note 1.)		71.4 mA	60 mA	30 mA	15 mA	7.5 mA		
Coil resistance (se	ee note 1.)	70 Ω	100 Ω	400 Ω	1,600 Ω	6,400 Ω		
Coil inductance	Armature OFF	0.37	0.53	2.14	7.80	31.20		
(H) (ref. value)	Armature ON	0.75	1.07	4.27	15.60	62.40		
Must operate volt	age	70% max. of rated voltage						
Must release volta	age	15% min. of rated	15% min. of rated voltage					
Max. voltage		170% of rated voltage (at 23°C)						
Power consumpti	on	Approx. 0.36 W						

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ^{+15%}/_{-20%} (AC rated current) or ±10% (DC coil resistance).

2. LEDs are used for the built-in operation indicator. For models equipped with these indications, the VAC rated current must be increased by approximately 1 mA; the VDC rated current, by approximately 4 mA.

3. Operating characteristics are measured at a coil temperature of 23°C.

Double-winding Latching Relays

Rated voltage			5 VDC	6 VDC	12 VDC	24 VDC
Set coil	Rated current (see note 1.)		167 mA	138 mA	70.6 mA	34.6 mA
	Coil resistance (se	ee note 1.)	30 Ω	43.5 Ω	170 Ω	694 Ω
	Coil inductance	Armature OFF	0.073	0.104	0.42	1.74
	(H) (ref. value)	Armature ON	0.146	0.208	0.83	3.43
Reset coil	Rated current		119 mA	100 mA	50 mA	25 mA
	Coil resistance		42 Ω	60 Ω	240 Ω	960 Ω
	Coil inductance	Armature OFF	0.003	0.005	0.018	0.079
	(H) (ref. value)	Armature ON	0.006	0.009	0.036	0.148
Must set voltag	ge		70% max. of rated	voltage		
Must reset voltage		70% max. of rated voltage				
Max. voltage		140% of rated voltage (at 23°C)				
Power consum	ption		Set coil: Approx. 850 mW; Reset coil: Approx. 600 mW			

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.
2. Operating characteristics are measured at a coil temperature of 23°C.

Contact Ratings

PCB/Flux Protection, Plug-in, Quick-connect Terminal Relays

Item	Gener	General-purpose, quick-connect terminal				
Number of poles	1 pole		2 poles		1 pole	
Load	Resistive load $(\cos\phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)	Resistive load $(\cos\phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)	Resistive load $(\cos\phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)
Rated load	10 (1) A at 250 VAC; 10 (1) 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	16 A at 250 VAC; 16 A at 30 VDC	8 A at 250 VAC; 8 A at 30 VDC
Rated carry current	10 (1) A		5 A		16 A	
Max. switching voltage	380 VAC, 125 VDC		380 VAC, 125 VDC		380 VAC, 125 VDC	
Max. switching current	10 (1) A		5 A		16 A	
Max. switching power	2,500 (250) VA, 300 (30) W	1,875 VA, 150 W	1,250 VA, 150 W	500 VA, 90 W	4,000 VA, 480 W	2,000 VA, 240 W
Failure rate (reference value)	100 mA at 5 VDC (1	mA at 5 VDC)	10 mA at 5 VDC	2	100 mA at 5 VD	C

Note: 1. P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation 2. (): Bifurcated crossbar contact type.

PCB/Flux Protection Relays

ltem	Bifurcate	d contacts	High-sensitivity				
Number of poles	1 pole		1 pole		2 poles	2 poles	
Load	Resistive load $(\cos \phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)	Resistive load $(\cos \phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)	Resistive load $(\cos \phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)	
Rated load	5 A at 250 VAC; 5 A at 30 VDC	2 A at 250 VAC; 3 A at 30 VDC	5 A at 250 VAC; 5 A at 30 VDC	2 A at 250 VAC; 3 A at 30 VDC	3 A at 250 VAC; 3 A at 30 VDC	1 A at 250 VAC; 1.5 A at 30 VDC	
Rated carry current	5 A		5 A		3 A		
Max. switching voltage	380 VAC, 125 VE	C	380 VAC, 125 VDC		380 VAC, 125 VDC		
Max. switching current	5 A		5 A		3 A		
Max. switching power	1,250 VA, 150 W	500 VA, 90 W	1,250 VA, 150 W	500 VA, 90 W	750 VA, 90 W	250 VA, 45 W	
Failure rate (reference value)	1 mA at 5 VDC		100 mA at 5 VDC		10 mA at 5 VDC		

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

ltem		General-purpos	e (single contact)		Bifurcate	ed contact	
Number of poles	1 pole		2 poles		1 pole	1 pole	
Load	Resistive load $(\cos\phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)	Resistive load $(\cos\phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)	Resistive load $(\cos\phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)	
Rated load	8 A at 250 VAC; 8 A at 30 VDC	6 A at 250 VAC; 4 A at 30 VDC	4 A at 250 VAC; 4 A at 30 VDC	1.5 A at 250 VAC; 2.5 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	8 A		4 A		5 A		
Max. switching voltage	380 VAC, 125 VE	DC	380 VAC, 125 VDC		380 VAC, 125 VDC		
Max. switching current	8 A		4 A		5 A		
Max. switching power	2,000 VA, 240 W	1,500 VA, 120 W	1,000 VA, 120 W	375 VA, 75 W	1,250 VA, 150 W	500 VA, 90 W	
Failure rate (reference value)	100 mA at 5 VDC	;	10 mA at 5 VDC		1 mA at 5 VDC		

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

Latching Relays

Number of poles	1 pole		2 poles		
Load	Resistive load $(\cos\phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)	Resistive load $(\cos \phi = 1)$	Inductive load ($\cos\phi = 0.4$; L/R = 7 ms)	
Rated load	5 A at 250 VAC; 5 A at 30 VDC	3.5 A at 250 VAC; 2.5 A at 30 VDC	3 A at 250 VAC; 3 A at 30 VDC	1.5 A at 250 VAC; 2 A at 30 VDC	
Rated carry current	5 A		3 A		
Max. switching voltage	380 VAC, 125 VDC		380 VAC, 125 VDC		
Max. switching current	5 A		3 A		
Max. switching power	1,250 VA, 150 W 875 VA, 75 W		750 VA, 90 W 375 VA, 60 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

Standard Relays

Item	1 pole	2 poles				
Contact resistance	30 m Ω max. (high-capacity type: 100 m Ω max.)	50 m Ω max.				
Operate (set) time	15 ms max.					
Release (reset) time	AC: 10 ms max.; DC: 5 ms max. (w/built-in diode:	20 ms max.)				
Max. operating frequency	Mechanical: 18,000 operations/hr Electrical: 1,800 operations/hr (under rated load	d)				
Insulation resistance	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 contacts of same polarity 1,000 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: 10 to 55 to 10 Hz, 0.75-mm single am Malfunction: 10 to 55 to 10 Hz, 0.75-mm single am	nplitude (1.5-mm double amplitude) nplitude (1.5-mm double amplitude)				
Shock resistance	Destruction: 1,000 m/s ² Malfunction: 200 m/s ² when energized; 100m/s ² w	vhen no energized				
Endurance	Mechanical: AC coil: 10,000,000 operations min.; DC coil: 20,000,000 operations min. (at 18,000 operations/hr) Electrical: 100,000 operations min. (at 1,800 operations/hr under rated load)					
Ambient temperature	Operating: -40°C to 70°C (with no icing)					
Ambient humidity	Operating: 5% to 85%					
Weight	Approx. 17 g (plug-in terminal: approx. 20 g)					

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

*2,000 VAC, 50/60 Hz for 1 minute when the P2R-05A or P2R-08A socket is mounted.

Double-winding Latching Relays

ltem	1 pole	2 poles	
Contact resistance	$30 \text{ m}\Omega$ max.	50 m Ω max.	
Set time	20 ms max.		
Reset time	20 ms max.		
Min. set/reset signal width	30 ms max.		
Max. operating frequency	Mechanical:18,000 operations/hr Electrical: 1,800 operations/hr (under rated load)		
Insulation resistance	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 pole; 1,000 VAC, 50/60 Hz for 1 min between set and reset coil	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 poles 1,000 VAC, 50/60 Hz for 1 min between contacts of same pole 1,000 VAC, 50/60 Hz for 1 min between set and reset coil	
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/s ² (approx. 100G) Malfunction: Set: 500 m/s ² (approx. 50G); 200m/s ² (approx. 20G) Reset: 100 m/s ² (approx. 10G)		
Endurance	Mechanical: 10,000,000 operations min (at 18,000 operations/hr) Electrical: 100,000 operations min. (at 1,800 operations/hr under rated load)		
Ambient temperature	Operating: -40°C to 70°C (with no icing)		
Ambient humidity	Operating: 5% to 85%		
Weight	Approx. 17 g		

Note: Values in the above table are the initial values. *2,000 VAC, 50/60 Hz for 1 minute when the P2R-05A or P2R-08A socket is mounted.

Approved Standards

UL 508 (File No. E41643)

Model	Contact form	Coil ratings	Contact ratings
G2R-1 G2R-14 G2R-1-H G2R-1-S G2R-1-T	SPDT	3 to 110 VDC 3 to 240 VAC	10 A, 30 VDC (resistive) 10 A, 250 VAC (general use) TV-3 (NO contact only)
G2R-1A G2R-1A4 G2R-1A-H G2R-1A-S G2R-1A-T	SPST-NO		
G2R-1-E	SPDT		16 A, 30 VDC (resistive, NO contact only)
G2R-1A-E	SPST-NO		TV-3 (NO contact only); 1/3 hp, 120 VAC
G2R-2 G2R-24 G2R-2-H G2R-2-S	DPDT		5 A, 30 VDC (resistive) 5 A, 250 VAC (general use) TV-3 (NO contact only)
G2R-2A G2R-2A4 G2R-2A-H G2R-2A-S	DPST-NO		
G2R-1A-ASI	SPST-NO		10 A, 30 VDC (resistive) 10 A, 250 VAC (general use) TV-5/TV-8 (NO contact only)

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

Model	Contact form	Coil ratings	Contact ratings
G2R-1 G2R-14 G2R-1-H G2R-1-S G2R-1-T	SPDT	3 to 110 VDC 3 to 240 VAC	10 A, 30 VDC (resistive) 10 A, 250 VAC (general use) T-3 (NO contact only)
G2R-1A G2R-1A4 G2R-1A-H G2R-1A-S G2R-1A-T	SPST-NO		
G2R-1-E	SPDT		16 A, 30 VDC (resistive, N.O only)
G2R-1A-E	SPST-NO		TV-3 (NO contact only)
G2R-2 G2R-24 G2R-2-H G2R-2-S	DPDT		5 A, 30 VDC (resistive) 5 A, 250 VAC (general use) TV-3 (NO contact only)
G2R-2A G2R-2A4 G2R-2A-H G2R-2A-S	DPST-NO		
G2R-1A-ASI	SPST-NO		10 A, 30 VDC (resistive) 10 A, 250 VAC (general use) TV-8 (NO contact only); 1/4 hp, 125 VAC

SEV

Contact form	Coil ratings	Contact ratings
1 pole	3 to 110 VDC 3 to 240 VAC	16 A, 250 VAC1 (AgSnIn contact) 16 A, 30 VDC1 (AgSnIn contact) 10 A, 250 VAC1 5 A, 250 VAC3 10 A, 30 VDC1
2 poles	3 to 110 VDC 3 to 240 VAC	5 A, 250 VAC1 2 A, 380 VAC1 5 A, 30 VDC1

SEMKO

Contact form	Coil ratings	Contact ratings
1 pole	3 to 110 VDC 6 to 240 VAC	10/80 A, 250 VAC 3/100 A, 250 VAC 16/128 A, 250 VAC (AgSnIn contact)
2 poles		5/40 A, 250 VAC

TÜV (IEC 255)

Contact form	Coil ratings	Contact ratings
1 pole	3 to 110 VDC, 6 VAC to 240 VAC (for Standard coil) 3 to 48 VDC (for K, U coil)	10 A, 250 VAC (cosφ = 1.0) 10 A, 30 VDC (0 ms) 16 A, 250 VAC (cosφ = 1.0) (AgSnIn contact)
2 poles	3 to 70 VDC (for H coil)	8 A, 250 VAC ($\cos\phi = 0.4$) 5 A, 250 VAC ($\cos\phi = 1.0$) 5 A, 30 VDC (0 ms) 2.5 A, 250 VAC ($\cos\phi = 0.4$)

VDE (IEC 255, VDE 0435), IMQ

Contact form	Coil ratings	Contact ratings
1 pole	5, 6, 9, 12, 18, 24, 48, 60, 100, 110 VDC 12, 18, 24, 48, 50, 100/(110), 110, 120, 200/(220), 220, 230, 240 VAC	10 A, 250 VAC (cosφ = 1.0) 10 A, 30 VDC (0 ms) 16 A, 250 VAC (cosφ = 1.0)
2 poles	5, 6, 9, 12, 18, 24, 48, 60, 100, 110 VDC 12, 18, 24, 48, 50, 100/(110), 110, 120, 200/(220), 220, 230, 240 VAC	5 A, 250 VAC (cosφ =1.0) 5 A, 30 VDC (0 ms)

G2R-1-E. G2R-1A-E

Engineering Data

Maximum Switching Power







G2R-1Z. G2R-1AZ



G2R-13-S, G2R-1A3-S





Switching voltage (V)



Switching voltage (V)







G2RK-2A, G2RK-2



Switching voltage (V)





Ambient Temperature vs Maximum Coil Voltage



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

Dimensions

SPST-NO Relays G2R-1A, G2R-1AZ, G2R-1A-H

SPDT/High-capacity Relays

G2R-1-E















(No coil polarity)



29 max. (28.8)*

0.5

0.16

0.3

0.3

*Average value



13 max

(12 7)



(No coil polarity)



(No coil polarity)



25.5 max. (25.3)*

(0.3)

4







G2R

3 4

7 645

2 3 4

DPDT Relays G2R-2-S, G2R-2-SD, G2R-2-SN, G2R-2-SNI, G2R-2-SNDI G2R-2-SND



G2R





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(After confirming coil polarity, wire correctly.)













85.5 max.

5

85.5 max

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Terminal Arrangement (Top View)

-④ (11) (14) ② (12) ³ Г 5 (A1) (A2) 1

Terminal Arrangement (Top View)

Mounting Holes (for Surface Mounting) 3.2-dia. hole



M3 or 3.5-dia: hole

(11) (12) (14)

Note: Pin numbers in parentheses apply to DIN standard.

P2RF-08-E







2

п

4 dia. holes

35.5





Mounting Holes (for Surface Mounting)

P2RF-05







Terminal Arrangement



Mounting Holes (for Surface Mounting)



P2RF-08







Terminal Arrangement











1,5

4





<u>14.5 max</u>. <u>ئ</u>ال 3

35.5 max.



Terminal Arrangement



Terminal Arrangement

Mounting Holes

Mounting Holes Tolerance: ±0.1



P2R-08P (2-pole)







P2R-05A (1-pole)





Terminal Arrangement



Panel Cutout



P2R-08A (2-pole)





14.5 max. 0 0 35.5 max. ð _0

14.5 max

고 고

. 35.5 max.

4 3 2	5 6 7
0	8

Mounting Height of Relay with Socket



Mounting Track PFP-100N, PFP-50N

25

T

10







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

25 25 *

10

L: Length		
1 m	PFP-100N	
50 cm	PFP-50N	
1 m	PFP-100N2	

End Plates PFP-M



Mounting Plates P2R-P



PFP-100N2

-

16

27 24

1

29.2

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1.5

Precautions

Mounting

When mounting a number of relays on a PCB, be sure to provide a minimum mounting space of 5 mm between the two juxtaposed relays as shown below.



The above minimum mounting space is necessary due to mutual thermal interference generated by the relays. This restriction may be ignored, however, depending on the operating conditions of the relays. Consult OMRON for details.

There is no restriction on the mounting direction of each relay on the PCB.

When using this circuit, confirm the set and reset states and then take into account the circuit constant.

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

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.



Model Number Structure -

Model Number Legend



- 1. Relay Function Blank: General purpose
- 2. Number of Poles 1. 1 pole
 - 2: 2 pole
- 3. Contact Form Blank: SPDT
- 4. Contact Type Blank: Single

Ordering Information

List of Models

Classification		Enclosure	Coil ratings	Contact form	
		rating		SPDT	DPDT
Plug-in terminal	General-purpose	Unsealed	AC/DC	G2R-1-S	G2R-2-S
LED indicator		1		G2R-1-SN	G2R-2-SN
LED indicator with test button		1		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

5. Terminals

6. Classification Blank: General-purpose

Plua-in

Diode

7. Rated Coil Voltage

LED indicator

LED indicator and diode

LED indicator with test button

LED indicator and diode with test button

S٠

N:

D٠

ND

NDI:

NI:

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 12 VDC (S)----- 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	Description	Model
Track-connecting Socket	Mounting track	50 cm (<i>l</i>) x 7.3 mm (t): PFP-50N 1 m (<i>l</i>) x 7.3 mm (t): PFP-100N 1 m (<i>l</i>) x 16 mm (t): PFP-100N2
	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 Coil induc resistance* (ref. v		Must operate voltage	Must release voltage	Max. voltage	Power consumption (approx.)		
		50 Hz	60 Hz		Armature OFF	Armature ON	% of rated voltage			
AC	24 V	43.5 mA	37.4 mA	253 Ω	0.81	1.55	80% max.	30% max.	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				

Rated voltage Rated current*		Rated current*	Coil resistance*	Coil inductance (H) (ref. 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	1			
	48 V	11.4 mA	4,220 Ω	15.2	29.82	1			

* 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	1 pole		
Load	Resistive load (cos = 1)	Inductive load (cos	Resistive load (cos = 1)	Inductive load (coso = 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 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: 1. P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation

Characteristics

ltem		1 pole	2 poles			
Contact resistance	100 mΩ max.					
Operate (set) time	15 ms max.	5 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:	chanical: 18,000 operations/hr ctrical: 1,800 operations/hr (under rated load)				
Insulation resistance	1,000 MΩ min	000 MΩ min. (at 500 VDC)				
Dielectric strength	5,000 VAC, 50 contacts*; 1,000 VAC, 50 same polarity	/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 a 10 to 55 to 10 Hz, 0.75 mm single a	amplitude (1.5 mm double amplitude) amplitude (1.5 mm double amplitude)			
Shock resistance	Destruction: Malfunction:	1,000 m/s² 200 m/s² when energized; 100 m/s² when not energized				
Endurance	Mechanical: Electrical:	AC coil: 10,000,000 operations min.; DC coil: 20,000,000 operations min. (at 18,000 operations/hr) 100,000 operations min. (at 1,800 operations/hr under rated load) (DC coil type)				
Ambient temperature	Operating:	-40°C to 70°C (with no icing or con	densation)			
Ambient humidity	Operating:	5% to 85%				
Weight	Approx. 21 g					

Note: Values given above are initial values

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

■ 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

CSA 22.2 No.0, No.14 (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 (cos¢ =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

Engineering Data

Maximum Switching Power

Plug-in Relays



Endurance

Plug-in Relays



Ambient Tempreture 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.

Relays with Plug-in Terminals

Note: All units are in millimetres unless otherwise indicated.

Π

29 max

5.2 17.5

SPDT Relays

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







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)



General Purpose Relays

DPDT Relays

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









Terminal Arrangement/Internal Connections (Bottom View)

G2R-2-S



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







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



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



Track/Surface Mounting Sockets

P2RF-05-S



Standard model









Terminal Arrangement (Top View)



P2RF-08-S





Accessories for P2RF-----S

Socket Bridge





(3.4)

24.5

35.4

(5.3)









General Purpose Relay – G2RS

P2RF-05-E





Terminal Arrangement (Top View)



Mounting Holes (for Surface Mounting)

OMRON



Note: Pin numbers in parentheses apply to DIN standard.

P2RF-08-E







Terminal Arrangement (Top View)

(21)

(22)

(24)

Mounting Holes (for Surface Mounting)



P2RF-05







a ar di i

Terminal Arrangement (Top View)



Mounting Holes (for Surface Mounting)



M3 or 3.2-dia hole

P2RF-08







Terminal Arrangement (Top View)

66 Ø 0 Ľ 1 0 Ē 0 00

Mounting Holes (for Surface Mounting)



Mounting Height of Relay with Track/Surface Mounting Sockets





OMRON

P2RF-D-S



Back-connecting sockets



General Purpose Relay – G2RS

OMRON



Mounting Height of Relay with Back-connecting Sockets



General Purpose Relays

General Purpose Relay – G2RS

Mounting Tracks

PFP-100N, PFP-50N



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

End Plate







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.

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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-D-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.

CAT. No. J114-E2-02