General-purpose Relay G2R-□-**S** (S)

CSM_G2R-_-S_(S)_DS_E_2_3

Slim and Space-saving Power Plug-in Relay

- Reduces wiring work by 60% when combined with the P2RF-□-PU Push-In Plus Socket (according to actual OMRON measurements).
- Lockable test button models 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).



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

$$G2R - \frac{\square}{1} - \frac{S}{2} \frac{\square}{3} \frac{\square}{4} \frac{(S)}{5}$$

- 1. Number of Poles
 - 1 pole 1: 2: 2 poles
- 2. Terminals
 - Plua-in
- 3. 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

Note: Contact your OMRON representative for Relays with gold-plated contacts.

4. Rated Coil Voltage

5. Mechanical operation indicator and Nameplate

(S): Models with mechanical operation indicator and Nameplate

Ordering Information When your order, specify the rated voltage.

List of Models

Classification	Coil ratingo	Contact form			
	Coil ratings	SPDT	DPDT		
General-purpose		G2R-1-S (S)	G2R-2-S (S)		
LED indicator	AC 24, 48, 110, 120, 230, 240 DC 6, 12, 24, 48	G2R-1-SN (S)	G2R-2-SN (S)		
LED indicator with test button	00 0, 12, 24, 40	G2R-1-SNI (S)	G2R-2-SNI (S)		
Diode		G2R-1-SD (S)	G2R-2-SD (S)		
LED indicator and diode	DC 6, 12, 24, 48	G2R-1-SND (S)	G2R-2-SND (S)		
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, P2RF-□-S and P2RF-□-PU. The Relays bear the CE Marking.

Rated coil voltage

^{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)

Accessories (Order Separately)

Connecting Sockets

Track/surface-mounting Socket

Applicable relay model*1	Mounting Method	Conductive part protection	Terminal Type	Applicable crimp terminal/ Electric wire	Exclusive short bar (Order Separately)	Appearance	Model
		Available	Push-In Plus Terminal	Ferrules Solid wire Stranded wire	Available		P2RF-05-PU *2
G2R-1-S	Mounted on a DIN track or		Screw terminal (M3 screw size)	Forked terminals Solid wire Stranded wire	Available		P2RFZ-05-E *4 <u>NEW</u>
	with screws		Screw terminal	Round terminals Forked terminals	Available		P2RFZ-05 <u>NEW</u>
		None	(M3.5 screw size)	Solid wire Stranded wire	None		P2RF-05
		Available	Push-In Plus Terminal	Ferrules Solid wire Stranded wire	Available		P2RF-08-PU *2
G2R-2-S	Mounted on a DIN track or		Screw terminal (M3 screw size)	Forked terminals Solid wire Stranded wire	Available		P2RFZ-08-E *4 <u>NEW</u>
	with screws	Option (Terminal cover sold separately) *3	Screw terminal	Round terminals Forked terminals	Available		P2RFZ-08 <u>NEW</u>
		None		(M3.5 screw size) Solid wire Stranded wire		None	

^{*1.} The applicable relay model is a plug-in terminal type.

^{*2.} There are screw mounting holes in the DIN hooks on the P2RF-□□-PU. Pull out the DIN hook tabs to mount the Sockets with screws.

 $^{^{\}star}$ 3. Terminal cover type is P2CZ-Z. (Order Separately) For details, refer to the on page 6.

^{*4.} The finger-protection type (P2RFZ-□□-E) is a type in which the terminal cover is integrated into the socket. Round terminals cannot be used. Use forked terminals or ferrules instead.

Back-mounting Socket

Applicable Relay model	Mounting Method	Appearance	Models
	PCB terminals		P2R-05P
G2R-1-S	PUB terminais		P2R-057P
	Solder terminals		P2R-05A
	PCB terminals		P2R-08P
G2R-2-S	PCB terminals		P2R-087P
	Solder terminals		P2R-08A

For Push-In Plus Terminal Block Sockets Short Bars

Applicable sockets	Pitch	Application	Shape/external dimensions	Number of poles	L (Length)	Insulation color	Short Bars Model*1
			3.90	2	15.1		PYDN-7.75-020□
	7.75 mm	Bridging contact		3	22.85		PYDN-7.75-030□
	7.75 mm	terminals (common)		4	30.6	Red (R) Blue (S)	PYDN-7.75-040□
P2RF-05-PU			2.25 1.57	20	154.6		PYDN-7.75-200□
P2RF-08-PU	15.5 mm	For Coil terminals	115.85 12 18.5 1.57	8	115.55	Yellow(Y)	PYDN-15.5-080□

^{*1.} Replace the box (\square) in the model number with the code for the covering color. \square Color selection: R = Red, S = Blue, Y = Yellow

Labels

Applicable sockets	Model
P2RF-05-PU	XW5Z-P4.0LB1
P2RF-08-PU	(1 sheet/60 pieces)

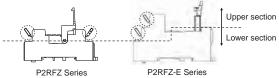
For Screw Terminal Sockets

Short Bars

Applicable sockets	Pitch	Appearance	Dimensions (mm)	Number of poles	Insulation color	Short Bars Model	Maximum carry current	Minimum order (set)
P2RFZ-05-E P2RFZ-08-E	6.8 mm		15.7 max. 15.7 max. 15.7 max.	20	Blue(S)	P2DN-6.8-100S	20 A	1
	15.7 mm		2.9 15.7 max. 9 15.4 max. 15.4 max. 2.5 max.	10		P2DN-15.7-100S		
P2RFZ-05 P2RFZ-08	8.5 mm		19.4-0-1 8.5-0-1 3.4 10.7 10.7 16.2 max. 16.2 max. 2.5 max.	20	Blue(S)	P2DN-8.5-100S	20 A	1
	19.4 mm		3.4 19.4 to 10.7 8.7 max. 187.7 max.	10		P2DN-19.4-100S		

Note: 1. Select an applicable type of short bars by checking applicable socket type, appearance, and dimensions.

- Use the Short Bars for crossover wiring within one Socket or between Sockets.
 Cannot be used on the P2RF-05, P2RF-08.
- 4. Use the short bars on the lower section of the socket. When using the short bars on the upper section of the socket, insert them so that their heads are pointed upwards (see the figure below). Otherwise, short bars may interfere with the socket, leading to improper wiring and contact failure.



^{*} One set (order unit) contains 10 short bars and 20 caps.

Accessories for Short Bars (P2DN) Cap

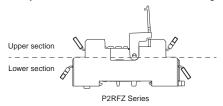
Short Bars Models	Appearance	Dimensions (mm)	Model
P2DN-8.5-100S P2DN-19.4-100S P2DN-6.8-100S P2DN-15.7-100S		4 max.	P2DN-CP100

For Screw Terminal Sockets (P2RFZ-05/P2RFZ-08)

Terminal covers

Applicable sockets	Appearance	Model	Minimum order (set)
P2RFZ-05 P2RFZ-08		P2CZ-C	

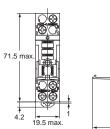
- Note: 1. These covers cannot be used for P2RF-05 and P2RF-08.
 - 2. Use these covers in a combination with P2RFZ-05 and P2RFZ-08.
 - Do not install short bars (optional) on the upper section (see the figure below). Short bars may interfere with the terminal cover, making the terminal cover unusable.

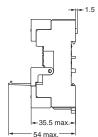


Dimensions with terminal cover

P2RFZ-05

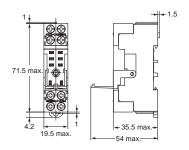






P2RFZ-08





Labels

Applicable sockets	Model	Minimum order (sheet) (quantity per sheet)
P2RFZ-□-E	XW5Z-P2.5LB1	5 1 sheet (72 pieces)

Note: This label cannot be applied on sockets other than P2RFZ-\(\subseteq\)-E.

Mounting Tracks

Applicable Socket	De	scription	Model	Minimum order (quantity)
		50 cm (l) × 7.3 mm (t):	PFP-50N	
	Mounting track	1 m (l) × 7.3 mm (t):	PFP-100N	
Track-connecting Socket		1 m (l) × 16 mm (t):	PFP-100N2	
	End plate *1		PFP-M	40
	Spacer		PFP-S	10
Back-connecting Socket	Mounting plate *2		P2R-P	1

^{*1.} When mounting DIN rail, please use End Plate (PFP-M).

^{*2.} Used to mount several P2R-05A and P2R-08A Connecting Sockets side by side.

Specifications

Coil Ratings

Rated voltage		Rated current*		Coil resistance		ctance (H) /alue)	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	80% max.	- 80% max. 30% max.					
	48 V	21.8 mA	18.8 mA	1,040 Ω	3.12	6.17					İ		
AC	110 V	9.5 mA	8.2 mA	5,566 Ω	13.33	26.83			110%	0.0.) (A -+ 0.0.1.1-			
AC	120 V	8.6 mA	7.5 mA	7,286 Ω	16.13	32.46			- 00 % IIIax. 30 % IIIa	30% IIIax.	110%	0.9 VA at 60 Hz	
	230 V	4.4 mA	3.8 mA	27,172 Ω	72.68	143.90							
	240 V	4.2 mA	3.7 mA	27,800 Ω	90.58	182.34							

Rated voltage		Rated current*	Coil resistance		ctance (H) 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	70% max.	- 70% max. 15% min.					
DC	12 V	43.2 mA	278 Ω	0.98	2.35			110%	0.53 W			
DC	24 V	21.6 mA	1,113 Ω	3.60	8.25			70% max. 15% mm.	11076	U.55 VV		
	48 V	11.4 mA	4,220 Ω	15.2	29.82							

- Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of +15%/-20% for the AC rated current and ±10% for the DC coil resistance.
 - 2. The AC coil resistance and inductance values are reference values only (at 60 Hz).
 - 3. Operating characteristics were measured at a coil temperature of 23°C.
 - **4.** The maximum voltage is the maximum possible value of the voltage that can be applied to the relay coil. It is not the maximum voltage that can be applied continuously.

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

^{*}This value was measured at a switching frequency of 120 operations per minute.

Characteristics

Item		1 pole	2 poles		
Contact configration	SPDT				
Contact structure	Single	Single			
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:				
Insulation resistance	1,000 MΩ 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:				
Shock resistance	Destruction: Malfunction:				
Endurance	Mechanical: Electrical:	DC coil: 20,000,000 operations min. (at 18,000 operations/hr)			
Ambient temperature	Operating:	Operating: -40°C to 70°C (with no icing or condensation)			
Ambient humidity	Operating: 5% to 85%				
Weight	Approx. 20 g				

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

Approved Standards UL 508 (File No. E41643)

Model	Contact form	Coil ratings	Contact ratings	Opera- tions
G2R-1-S (S)	SPDT	5 to 110 VDC 6 to 240 VAC	10 A, 30 VDC (resistive) 10 A, 250 VAC (general use)	100 × 10 ³
			TV-3 (NO contact only)	25 × 10 ³
G2R-2-S (S)	DPDT		5 A, 30 VDC (resistive) 5 A, 250 VAC (general use)	100 × 10 ³
			TV-3 (NO contact only)	25 × 10 ³

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

Model	Contact form	Coil ratings	Contact ratings	Opera- tions
G2R-1-S (S)	SPDT	5 to 110 VDC	10 A, 30 VDC (resistive) 10 A, 250 VAC (general use)	100 × 10 ³
			TV-3 (NO contact only)	25 × 10 ³
G2R-2-S (S)	DPDT	6 to 240 VAC	5 A, 30 VDC (resistive) 5 A, 250 VAC (general use)	100 × 10 ³
			TV-3 (NO contact only)	25 × 10 ³

IEC/VDE (Certificate No. 40015012 EN 61810-1)

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 × 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 × 10 ³

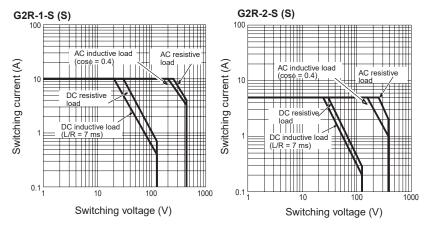
LR

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 × 10 ³
2 poles	5 to 110 VDC 5 A, 250 VAC (general use) 2 A, 250 VAC (PF0.4) 5 A, 30 VDC (resistive) 3A, 30VDC (L/R=7ms)		100 × 10 ³

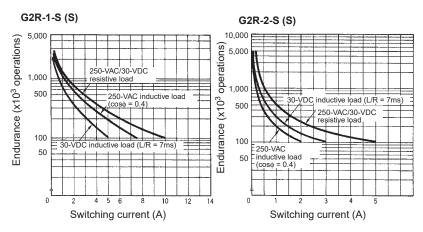
^{*}These values are relay only. Prease refer to the "Products Related to Common Sockets and DIN Tracks Data Sheet" for connecting sockets.

Engineering Data

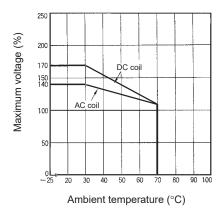
Maximum Switching Power



Endurance



Ambient Temperature vs Maximum Coil Voltage

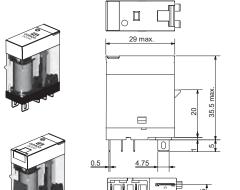


Dimensions (Unit: mm)

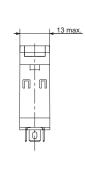
Note: All units are in millimeters unless otherwise indicated.

SPDT Relays

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

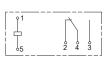


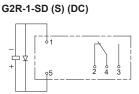
5.2 17.5



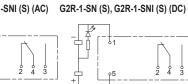
Terminal Arrangement/Internal Connections (Bottom View)

G2R-1-S (S)

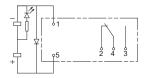




G2R-1-SN (S), G2R-1-SNI (S) (AC)

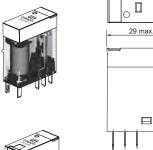


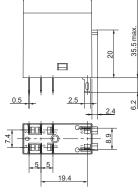
G2R-1-SND (S), G2R-1-SNDI (S) (DC)



DPDT Relays

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



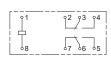


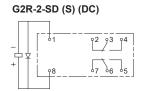
Terminal Arrangement/Internal Connections (Bottom View)

G2R-2-S (S)

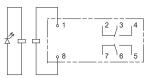
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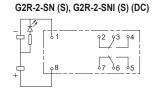
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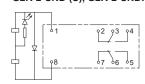


G2R-2-SN (S), G2R-2-SNI (S) (AC)





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



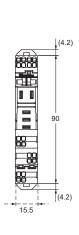
Accessories (Order Separately) Socket Characteristics

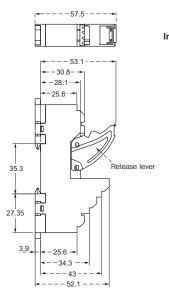
Model	Continuous carry current	Dielectric strength	Insulation resistance*	Remarks
P2RF-05-PU	10 A	Between contact terminals of same polarity: 1,000 VAC for 1 min	1,000 MΩ min.	_
F2KF-03-F0 10 A		Between coil and contact terminals: 4,000 VAC for 1 min	1,000 10122 111111.	
		Between contact terminals of different polarity: 3,000 VAC for 1 min		
P2RF-08-PU	6 A	Between contact terminals of same polarity: 1,000 VAC for 1 min	1,000 M Ω min.	
		Between coil and contact terminals: 4,000 VAC for 1 min		
P2RFZ-05(-E)	10 A	Between contact terminals of same polarity: 1,000 VAC for 1 min	1.000 MΩ min.	
P2RFZ-05(-E)	10 A	Between coil and contact terminals: 4,000 VAC for 1 min	1,000 1012 111111.	
		Between contact terminals of different polarity: 3,000 VAC for 1 min		
P2RFZ-08(-E)	6 A	Between contact terminals of same polarity: 1,000 VAC for 1 min	1,000 MΩ min.	
		Between coil and contact terminals: 4,000 VAC for 1 min		
P2RF-05	10 A	Between contact terminals of same polarity: 1,000 VAC for 1 min	1.000 MΩ min.	
P2RF-05	10 A	Between coil and contact terminals: 4,000 VAC for 1 min	1,000 MIS2 MIN.	
		Between contact terminals of different polarity: 3,000 VAC for 1 min		
P2RF-08	5 A	Between contact terminals of same polarity: 1,000 VAC for 1 min	1,000 MΩ min.	
		Between coil and contact terminals: 4,000 VAC for 1 min		
DOD OFF	10 A	Between contact terminals of same polarity: 1,000 VAC for 1 min	4 000 MO min	
P2R-05P		Between coil and contact terminals: 4,000 VAC for 1 min	1,000 MΩ min.	
	5 A	Between contact terminals of different polarity: 3,000 VAC for 1 min		
P2R-08P		Between contact terminals of same polarity: 1,000 VAC for 1 min	1,000 MΩ min.	
		Between coil and contact terminals: 4,000 VAC for 1 min		
DOD 057D	10.4	Between contact terminals of same polarity: 1,000 VAC for 1 min	4.000 Mg	
P2R-057P	10 A	Between coil and contact terminals: 5,000 VAC for 1 min	1,000 MΩ min.	
		Between contact terminals of different polarity: 3,000 VAC for 1 min		
P2R-087P	5 A	Between contact terminals of same polarity: 1,000 VAC for 1 min	1,000 MΩ min.	
		Between coil and contact terminals: 5,000 VAC for 1 min		
		Between contact terminals of same polarity: 1,000 VAC for 1 min		
P2R-05A	10 A	Between ground terminals: 1,500 VAC for 1 min	1,000 MΩ min.	
		Between coil and contact terminals: 4,000 VAC for 1 min		
		Between contact terminals of different polarity: 3,000 VAC for 1 min		
DOD 00A	- A	Between contact terminals of same polarity: 1,000 VAC for 1 min	4 000 MO ***	
P2R-08A	5 A	Between ground terminals: 1,500 VAC for 1 min	$-$ 1,000 M Ω min.	
		Between coil and contact terminals: 4,000 VAC for 1 min	1	

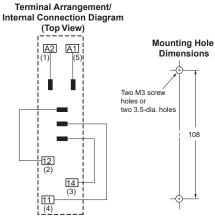
^{*} The insulation resistance was measured with a 500-VDC insulation resistance meter at the same places as those used for measuring the dielectric strength.

Track/Surface Mounting Sockets P2RF-05-PU







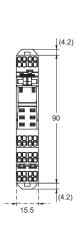


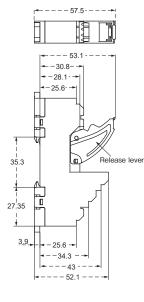
Note: The numbers in parentheses are traditionally used terminal numbers.

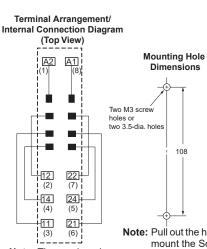
Note: Pull out the hooks to mount the Socket with screws.

P2RF-08-PU





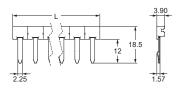




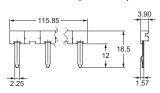
Note: The numbers in parentheses are traditionally used terminal numbers

Note: Pull out the hooks to mount the Socket with screws.

Accessories for P2RF-□-PU **Short Bars** PYDN-7.75-□□ (7.75 mm)







Application	Pitch	No. of poles	L (Length)	Colors	Model *	Maximum carry current
For Contact terminals (common)	7.75 mm –	2	15.1	Red (R) Blue (S) Yellow (Y)	PYDN-7.75-020□	
		3	22.85		PYDN-7.75-030□	
		4	30.6		PYDN-7.75-040□	20 A
		20	154.6		PYDN-7.75-200□	2071
For Coil terminals	15.5 mm	8	115.85		PYDN-15.5-080□	

^{*}Replace the box (
) in the model number with the code for the covering color.

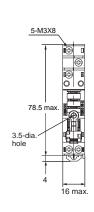
Note: 1. Use the Short Bars for crossover wiring within one Socket or between Sockets.

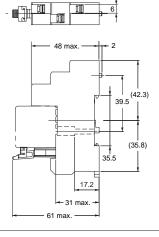
2. When using short bar to coil terminals of PYF- PU, make sure to use PYDN-31.0-080 (31 mm).

When using short bar to coil terminals of P2RF- PU, make sure to use PYDN-15.5-080 (15.5 mm).

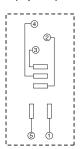
P2RFZ-05-E



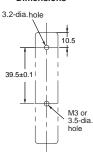




Terminal Arrangement/ Internal Connection Diagram (Top View)

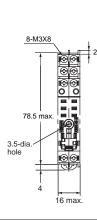


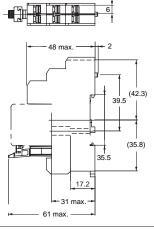
Mounting Hole Dimensions



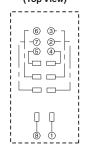
P2RFZ-08-E







Terminal Arrangement/ Internal Connection Diagram (Top View)

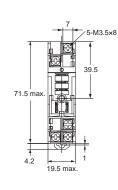


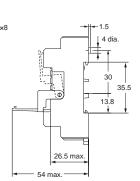


M3 or 3.5-dia. hole

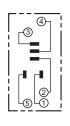
P2RFZ-05



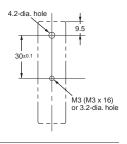




Terminal Arrangement/
Internal Connection Diagram (Top View)

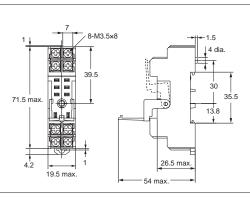


Mounting Hole Dimensions

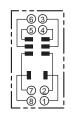


P2RFZ-08

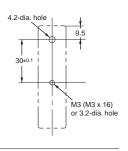


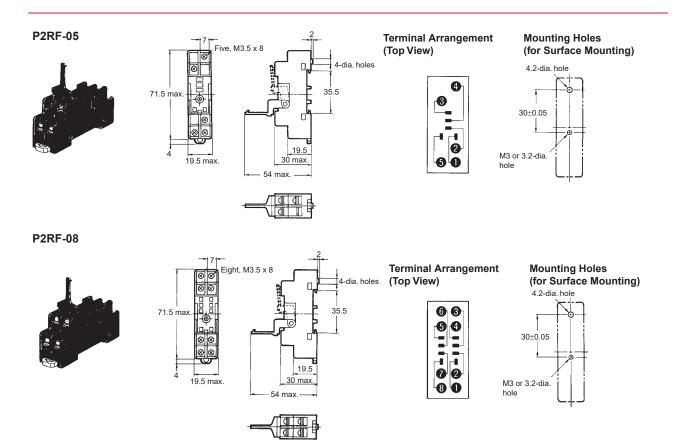


Terminal Arrangement/ Internal Connection Diagram (Top View)

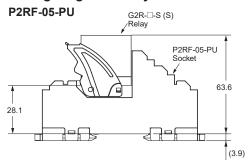


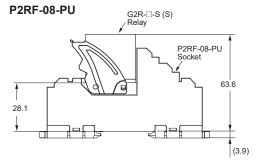
Mounting Hole Dimensions



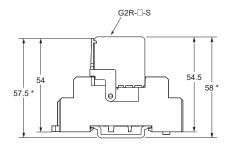


Mounting Height of Relay with Track/Surface Mounting Sockets

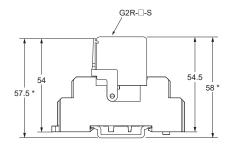




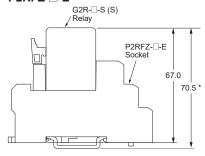
P2RFZ-05

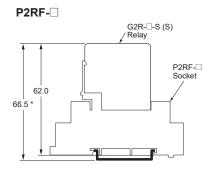


P2RFZ-08



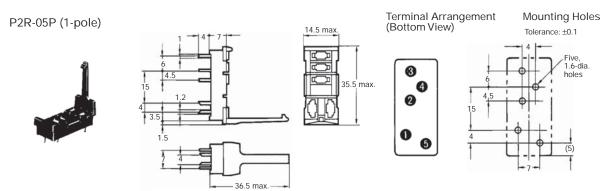




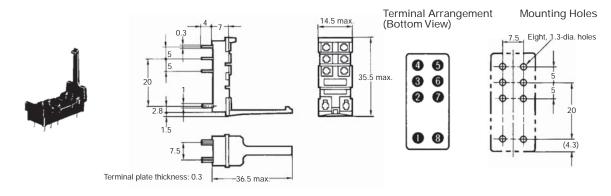


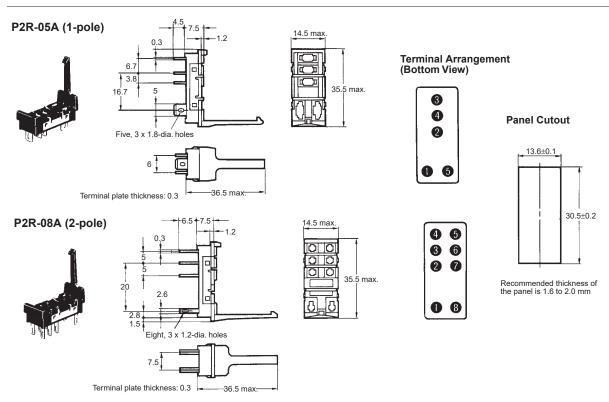
^{*} These are values when using the DIN track PFP-□N.
Heights become higher by approximately 9 mm when using PFP-□N2.

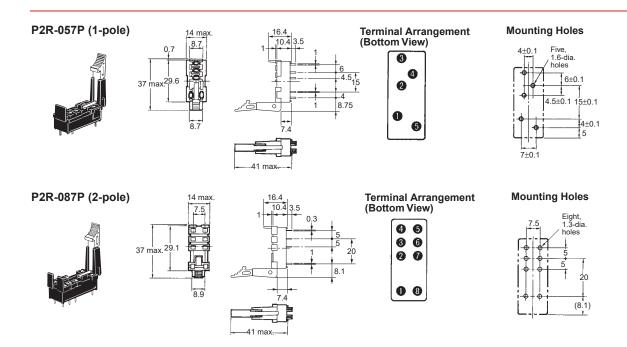
Back-connecting Sockets



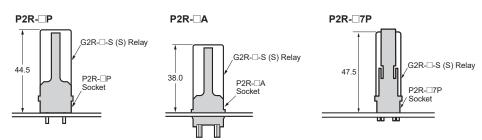
P2R-08P (2-pole)



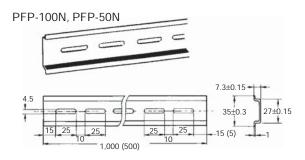


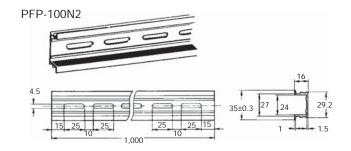


Mounting Height of Relay with Back-connecting Sockets



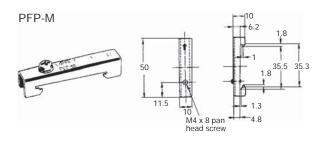
Mounting Tracks



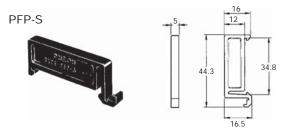


It is recommended to use a panel 1.6 to 2.0 mm thick.

End Plate



Spacer



Mounting Plate

P2R-P

