

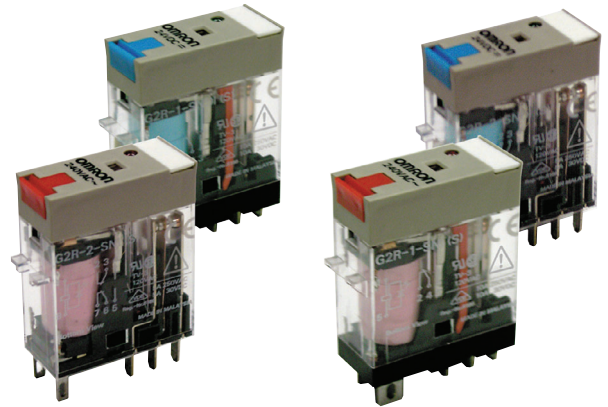
# General-purpose Relay

# G2R-□-S

CSM\_G2R-\_-S\_DS\_E\_2\_1

## 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

G2R   -       -     -  

1      2      3      4      5      6      7

#### 1. Relay Function

Blank: General-purpose

#### 2. Number of Poles

1: 1 pole  
2: 2 poles

#### 3. Contact Form

Blank: SPDT

#### 4. Contact Type

Blank: Single

#### 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 rating	Coil ratings	Contact form	
				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 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 G2R-1-S(N)(D)(ND)(NI)(NDI)	• P2RF-05S (See note.) + (P2CM-S (option))	• P2RF-05-E • P2RF-05	PCB terminals	P2R-05P, P2R-057P
			Solder terminals	P2R-05A
2 poles G2R-2-S(N)(D)(ND)(NI)(NDI)	• P2RF-08S (See note.) + (P2CM-S (option))	• P2RF-08-E • P2RF-08	PCB terminals	P2R-08P, P2R-087P
			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
	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 (approx.)	
	50 Hz	60 Hz		Armature OFF	Armature ON					
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*		Coil resistance*	Coil inductance (H) (ref. value)		Must operate voltage	Must release voltage	Max. voltage	Power consumption (approx.)
	50 Hz	60 Hz		Armature OFF	Armature ON				
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)	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 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:  $\lambda_{60} = 0.1 \times 10^{-6}/\text{operation}$

## Characteristics

Item	1 pole	2 poles
Contact resistance	100 m $\Omega$ 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.)	AC: 15 ms max.; DC: 10 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)	
Insulation resistance	1,000 M $\Omega$ 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: 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 <sup>2</sup> Malfunction: 200 m/s <sup>2</sup> when energized; 100 m/s <sup>2</sup> when not 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) (DC coil type)	
Ambient temperature	Operating: -40°C to 70°C (with no icing or condensation)	
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 mounted.

## Approved Standards

### UL 508 (File No. E41643)

Model	Contact form	Coil ratings	Contact ratings	Operations
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 <sup>3</sup>
G2R-2-S	DPDT		5 A, 30 VDC (resistive) 5 A, 250 VAC (general use) TV-3 (NO contact only)	6 x 10 <sup>3</sup>

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

Model	Contact form	Coil ratings	Contact ratings	Operations
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 <sup>3</sup>
G2R-2-S	DPDT		5 A, 30 VDC (resistive) 5 A, 250 VAC (general use) TV-3 (NO contact only)	6 x 10 <sup>3</sup>

### 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 ( $\cos\phi = 1.0$ ) 10 A, 250 VAC ( $\cos\phi = 1.0$ ) 10 A, 30 VDC (0 ms)	100 x 10 <sup>3</sup>
2 poles	6, 12, 24, 48 VDC 24, 110, 120, 230, 240 VAC	5 A, 250 VAC ( $\cos\phi = 1.0$ ) 5 A, 30 VDC (0 ms)	100 x 10 <sup>3</sup>

### LR

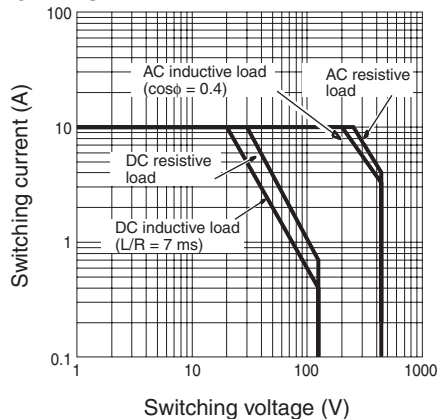
Number of poles	Coil ratings	Contact ratings	Operations
1 pole	5 to 110 VDC 5 to 240 VDC	10 A, 250 VAC (general use) 7.5 A, 250 VAC (PF0.4) 10 A, 30 VDC (resistive) 5A, 30VDC (L/R=7ms)	100 x 10 <sup>3</sup>
2 poles	5 to 110 VDC 5 to 240 VDC	5 A, 250 VAC (general use) 2 A, 250 VAC (PF0.4) 5 A, 30 VDC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

# Engineering Data

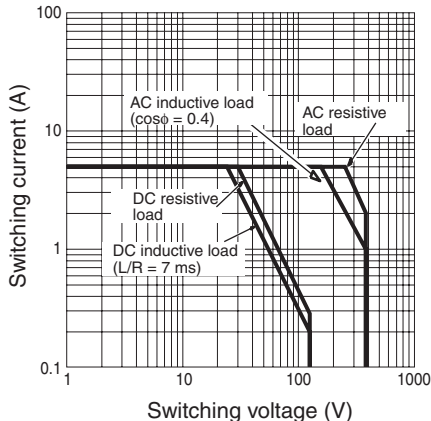
## Maximum Switching Power

### Plug-in Relays

G2R-1-S



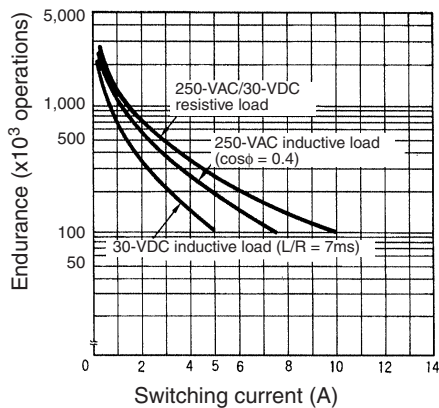
G2R-2-S



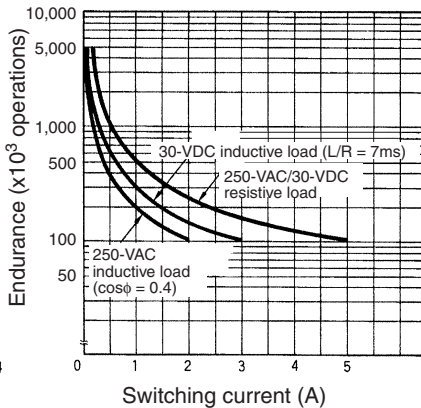
## Endurance

### Plug-in Relays

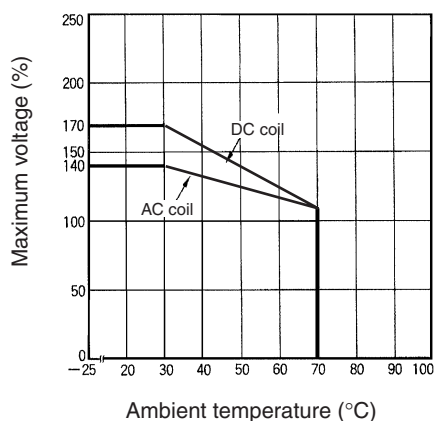
G2R-1-S



G2R-2-S



## 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.

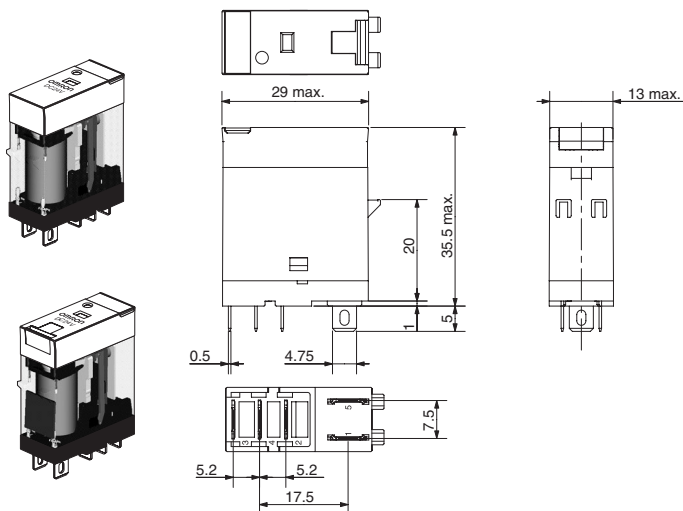
# Dimensions

Note: All units are in millimeters unless otherwise indicated.

## Relays with Plug-in Terminals

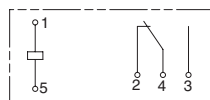
### SPDT Relays

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

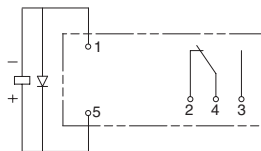


### Terminal Arrangement/Internal Connections (Bottom View)

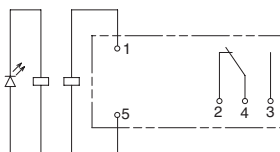
G2R-1-S



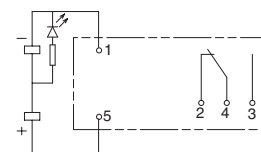
G2R-1-SD (DC)



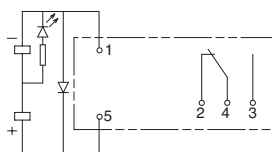
G2R-1-SN, G2R-1-SNI (AC)



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

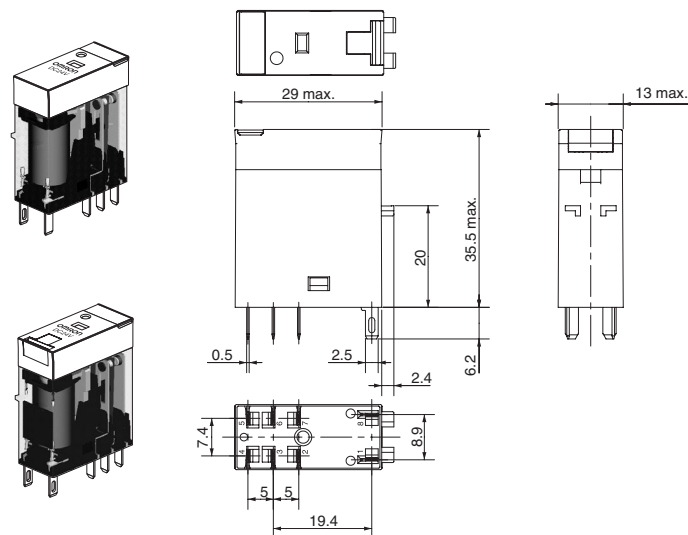


G2R-1-SND, G2R-1-SNDI (DC)



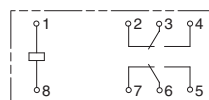
### DPDT Relays

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

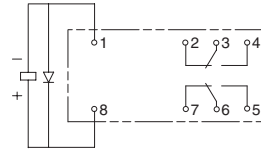


### Terminal Arrangement/Internal Connections (Bottom View)

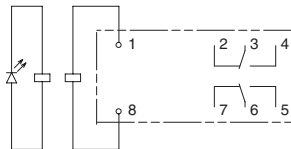
G2R-2-S



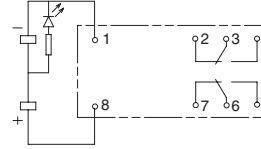
G2R-2-SD (DC)



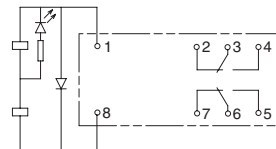
G2R-2-SN, G2R-2-SNI (AC)



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

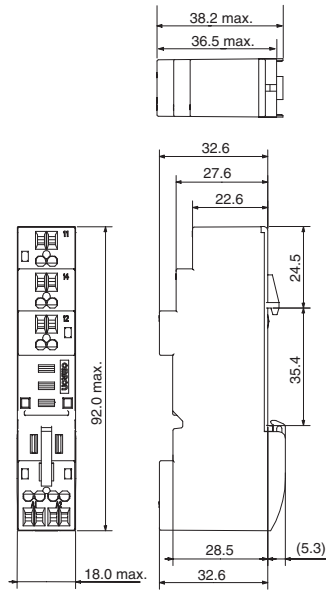
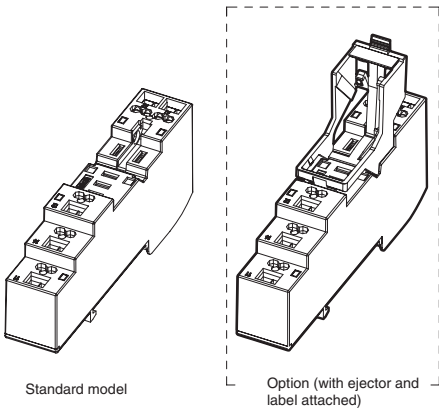


G2R-2-SND, G2R-2-SNDI (DC)

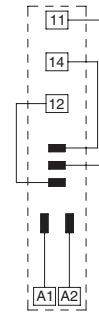


## Track/Surface Mounting Sockets

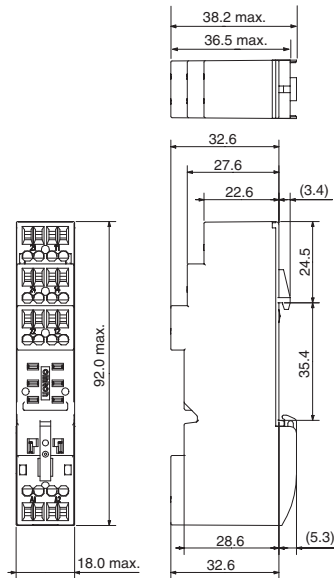
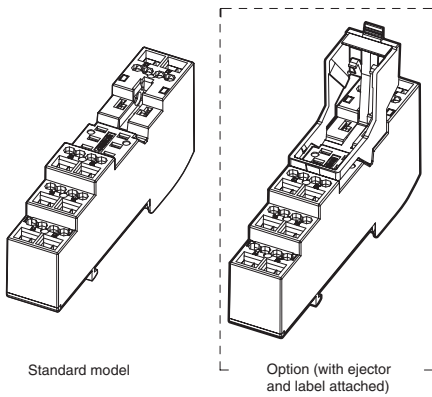
### P2RF-05-S



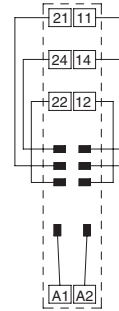
Terminal Arrangement (Top View)



### P2RF-08-S

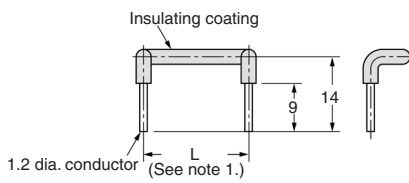


Terminal Arrangement (Top View)

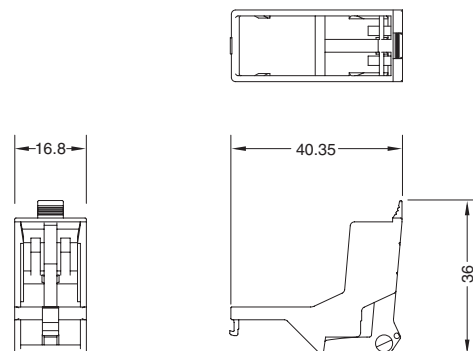


### Accessories for P2RF-□-S

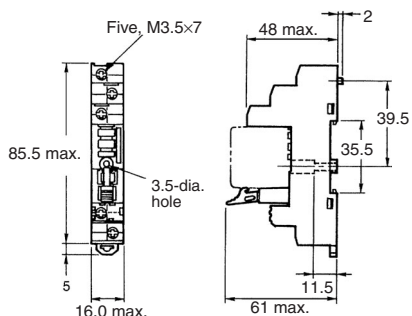
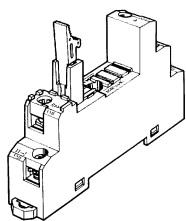
#### Socket Bridge



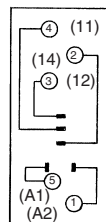
#### Clip and Release Lever



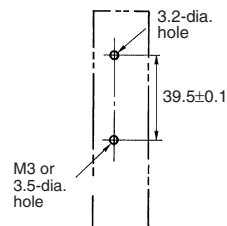
**P2RF-05-E**



**Terminal Arrangement (Top View)**

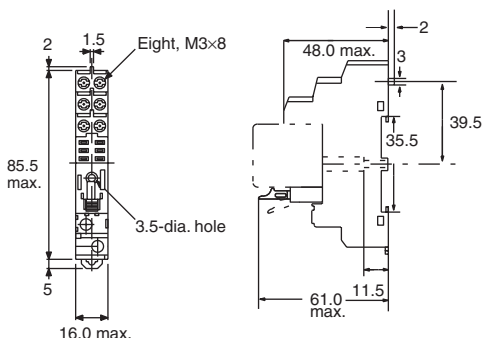
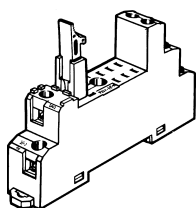


**Mounting Holes (for Surface Mounting)**

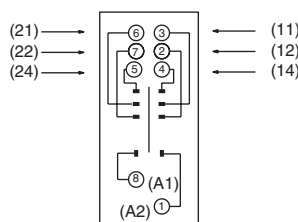


**Note:** Pin numbers in parentheses apply to DIN standard.

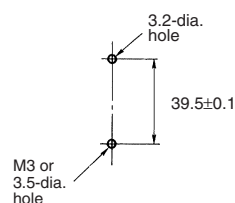
**P2RF-08-E**



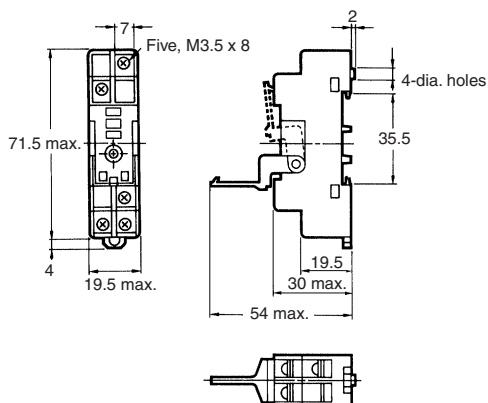
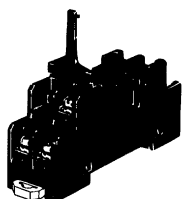
**Terminal Arrangement (Top View)**



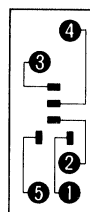
**Mounting Holes (for Surface Mounting)**



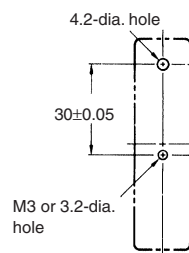
**P2RF-05**



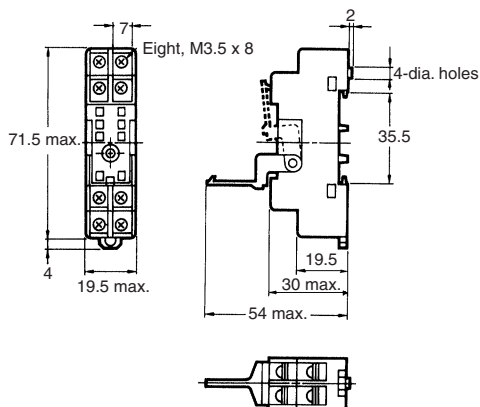
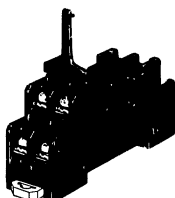
**Terminal Arrangement (Top View)**



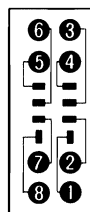
**Mounting Holes (for Surface Mounting)**



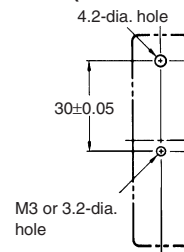
**P2RF-08**



**Terminal Arrangement (Top View)**

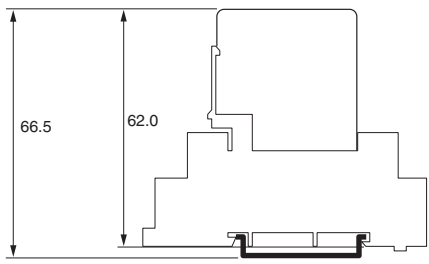


**Mounting Holes (for Surface Mounting)**

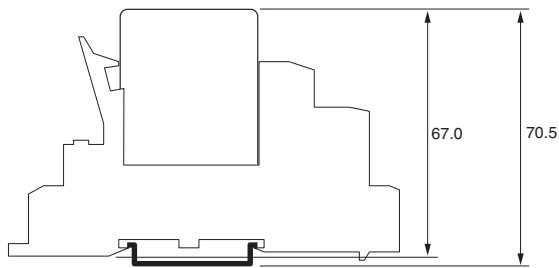


Mounting Height of Relay with Track/Surface Mounting Sockets

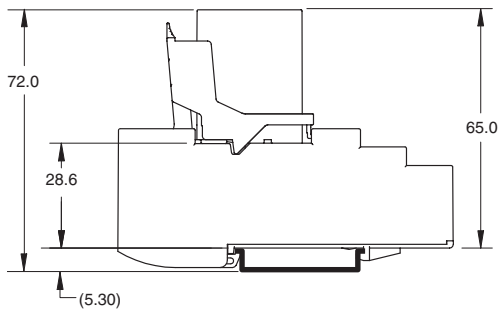
P2RF-□



P2RF-□-E

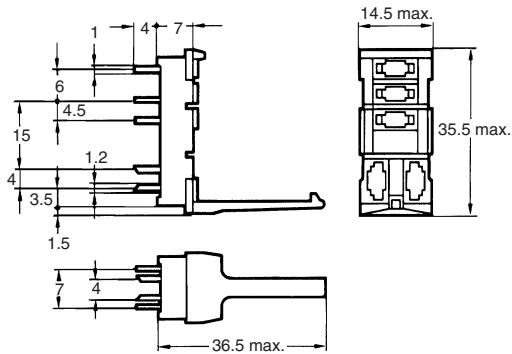
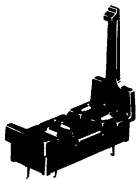


P2RF-□-S

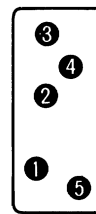


Back-connecting Sockets

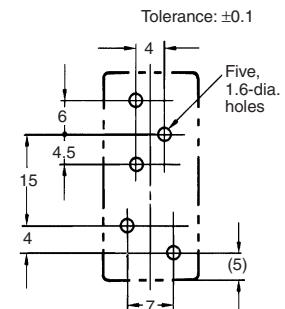
P2R-05P (1-pole)



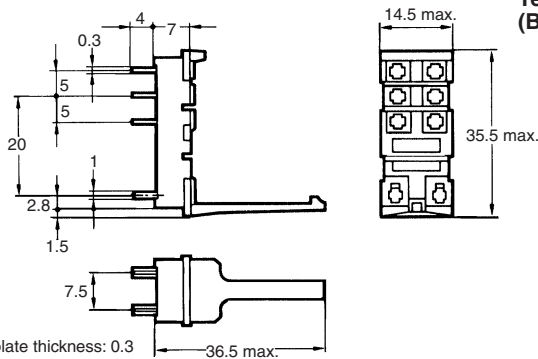
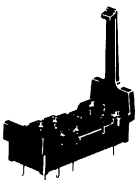
Terminal Arrangement (Bottom View)



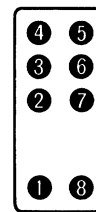
Mounting Holes



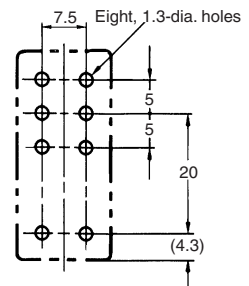
P2R-08P (2-pole)



Terminal Arrangement (Bottom View)

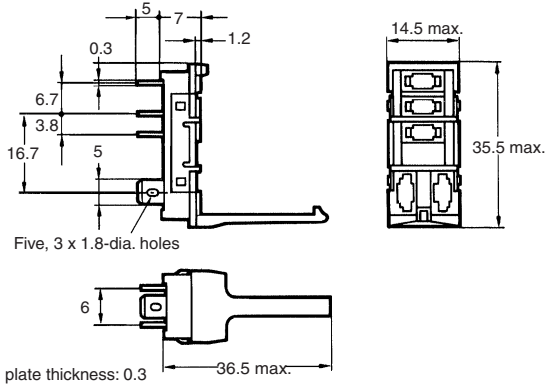
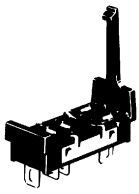


Mounting Holes

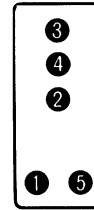




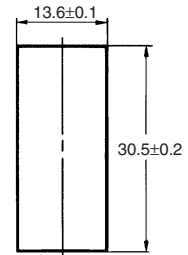
**P2R-05A (1-pole)**



**Terminal Arrangement (Bottom View)**

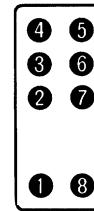
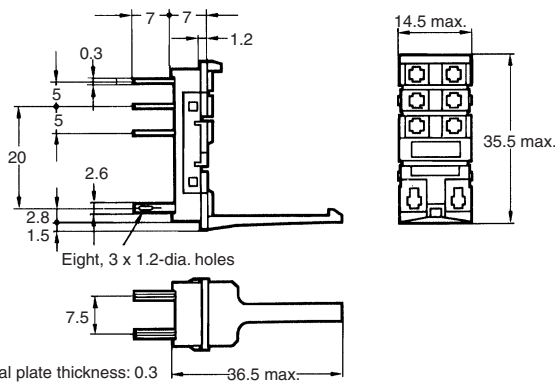
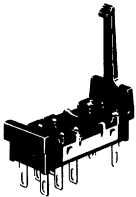


**Panel Cutout**

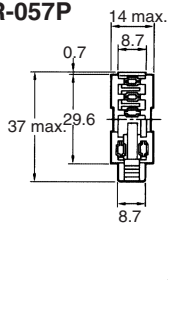


Recommended thickness of the panel is 1.6 to 2.0 mm

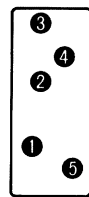
**P2R-08A (2-pole)**



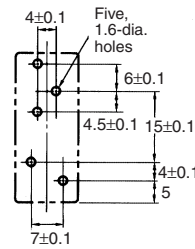
**P2R-057P**



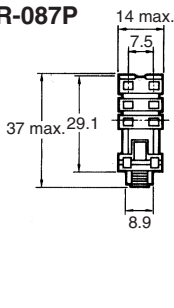
**Terminal Arrangement (Bottom View)**



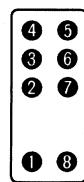
**Mounting Holes**



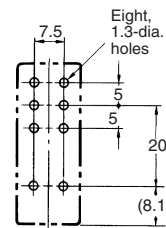
**P2R-087P**



**Terminal Arrangement (Bottom View)**

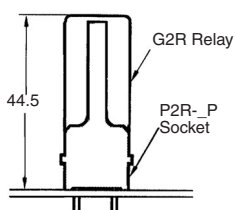


**Mounting Holes**

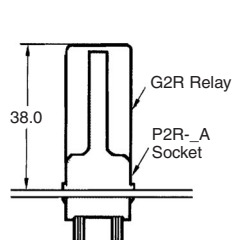


**Mounting Height of Relay with Back-connecting Sockets**

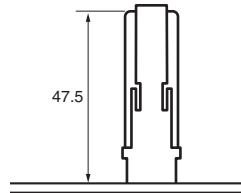
**G2R-□P**



**G2R-□A**



**G2R-□7P**





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