General-purpose Relay MY New model

Versatile and Function-filled Miniature Power Relay for Sequence Control and Power Switching Applications

- Models with lockable test buttons now available.
- Many variations possible through a selection of operation indicators (mechanical and LED indicators), lockable test button, built-in diode and CR (surge suppression), bifurcated contacts, etc.
- Arc barrier standard on 4-pole Relays.
- Dielectric strength: 2,000 VAC (coil to contact)
- · Environment-friendly cadmium-free contacts.
- · Safety standard approvals obtained.
- Wide range of Sockets (PY, PYF Series) and optional parts are available.
- Max. Switching Current: 2-pole: 10 A, 4-pole: 5 A
- Provided with nameplate.

Ordering Information

Relays

Standard Coil Polarity

Туре	Contact form	Plug-in socket/s	Without LED indicator	
		Standard with LED indicator	With LED indicator and lockable test button	
Standard	DPDT	MY2N	MY2IN	MY2
	4PDT	MY4N	MY4IN	MY4
	4PDT (bifurcated)	MY4ZN	MY4ZIN	MY4Z
With built-in diode	DPDT	MY2N-D2	MY2IN-D2	
(DC only)	4PDT	MY4N-D2	MY4IN-D2	
	4PDT (bifurcated)	MY4ZN-D2	MY4ZIN-D2	
With built-in CR	DPDT	MY2N-CR	MY2IN-CR	
(220/240 VAC, 110/120 VAC only)	4PDT	MY4N-CR	MY4IN-CR	
	4PDT (bifurcated)	MY4ZN-CR	MY4ZIN-CR	

Reverse Coil Polarity

Туре	Contact form	Plug-in socket/Solder terminals		
		With LED indicator	With LED indicator and lockable test button	
Standard (DC only)	DPDT	MY2N1	MY2IN1	
	4PDT	MY4N1	MY4IN1	
	4PDT (bifurcated)	MY4ZN1	MY4ZIN1	
With built-in diode	DPDT	MY2N1-D2	MY2IN1-D2	
(DC only)	4PDT	MY4N1-D2	MY4IN1-D2	
	4PDT (bifurcated)	MY4ZN1-D2	MY4ZIN1-D2	

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: MY2 <u>6VAC</u> (S)



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■ Accessories (Order Separately)

Sockets

Poles	Front Mounting	Front-mounting	Back-mounting Socket					
	Socket (DIN-track/ screwless clamp [SLC])	Socket (DIN-track/ screw mounting)	Solder terminals		Wire-wrap terminals		PCB terminals	
		coron mounting)	Without clip	With clip	Without clip	With clip		
2	PYF08S	PYF08A-E PYF08A-N	PY08	PY08-Y1	PY08QN PY08QN2	PY08QN-Y1 PY08QN2-Y1	PY08-02	
4	PYF14S	PYF14A-E PYF14A-N PYF14-ESS PYF14-ESN	PY14	PY14-Y1	PY14QN PY14QN2	PY14QN-Y1 PY14QN2-Y1	PY14-02	

Socket Hold-down Clip Pairing

Relay type	Poles		Front Mounting Socket Front-connecting Socket (DIN-track/ Back-connecting S			cting Socket			
			(DIN-track/screwless clamp [SLC])		screw mounting)		wrap terminals	PCB te	erminals
		10		Socket	Clip	Socket	Clip	Socket	Clip
Without 2-pole test button	2	PYF08S	PYCM-08S	PYF08A-E PYF08A-N	PYC-A1	PY08(QN)	PYC-P PYC-P2	PY08-02	PYC-P PYC-P2
	4	PYF14S	PYCM-14S	PYF14A-E PYF14A-N		PY14(QN)		PY14-02	
				PYF14-ESS PYF14-ESN	PYC0 (metal) PYC35 (plastic)				
2-pole test button	2	PYF08S	PYCM-08S	PYF08A-E PYF08A-N	PYC-E1	PY08(QN)	PYC-P2	PY08-02	PYC-P2

Mounting Plates for Sockets

Socket model	For 1 Socket	For 18 Sockets	For 36 Sockets
PY08, PY08QN(2), PY14, PY14QN(2)	PYP-1	PYP-18	PYP-36

Note: PYP-18 and PYP-36 can be cut into any desired length in accordance with the number of Sockets.

Track and Accessories

Supporting Track (length = 500 mm)	PFP-50N
Supporting Track (length = 1,000 mm)	PFP-100N, PFP-100N2
End Plate	PFP-M
Spacer	PFP-S

Specifications

■ Coil Ratings

1	Rated voltage Rated current		Coil resistance		ductance nce value)	Must operate voltage	Must release voltage	Max. voltage	Power consumption (approx.)	
		50 Hz	60 Hz		Arm. OFF	Arm. ON	%	of rated volt	age	
AC	6 V*	214.1 mA	183 mA	12.2 Ω	0.04 H	0.08 H	80% max.	30% min.	110%	1.0 to 1.2 VA
	12 V	106.5 mA	91 mA	46 Ω	0.17 H	0.33 H				(60 Hz)
	24 V	53.8 mA	46 mA	180 Ω	0.69 H	1.30 H				
	48/50 V*	24.7/ 25.7 mA	21.1/ 22.0 mA	788 Ω	3.22 H	5.66 H				
	110/120 V	9.9/10.8 mA	8.4/9.2 mA	4,430 Ω	19.20 H	32.1 H				0.9 to 1.1 VA
	220/240 V	4.8/5.3 mA	4.2/4.6 mA	18,790 Ω	83.50 H	136.4 H				(60 Hz)
DC	6 V*	151 mA		39.8 Ω	0.17 H	0.33 H		10% min.		0.9 W
	12 V	75 mA		160 Ω	0.73 H	1.37 H				
	24 V	37.7 mA		636 Ω	3.20 H	5.72 H				
	48 V*	18.8 mA		2,560 Ω	10.60 H	21.0 H	1			
	100/110 V	9.0/9.9 mA		11,100 Ω	45.60 H	86.2 H				

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of +15%/–20% for rated currents and ±15% for DC coil resistance.

2. Performance characteristic data are measured at a coil temperature of 23°C.

3. AC coil resistance and impedance are provided as reference values (at 60 Hz).

4. Power consumption drop was measured for the above data. When driving transistors, check leakage current and connect a bleeder resistor if required.

5. Rated voltage denoted by "*" will be manufactured upon request. Ask your OMRON representative.

■ Contact Ratings

Item	2-pole		4-pole		4-pol	e (bifurcated)
	Resistive load	Inductive load	Resistive load	Inductive load	Resistive load	Inductive load
	(cos∳ = 1)	(cos∳ = 0.4, L/R = 7 ms)	(cos∳ = 1)	(cos∳ = 0.4, L/R = 7 ms)	(cos∳ = 1)	(cos∳ = 0.4, L/R = 7 ms)
Rated load	5A, 250 VAC	2A, 250 VAC	3 A, 250 VAC	0.8 A, 250 VAC	3 A, 250 VAC	0.8 A, 250 VAC
	5A, 30 VDC	2 A, 30 VDC	3 A, 30 VDC	1.5 A, 30 VDC	3 A, 30 VDC	1.5 A, 30 VDC
Carry current	10 A (see note)		5 A (see note)			
Max. switching	250 VAC		250 VAC			
voltage	125 VDC		125 VDC			
Max. switching current	10 A		5 A			
Max. switching	2,500 VA	1,250 VA	1,250 VA	500 VA	1,250 VA	500 VA
power	300 W	300 W	150 W	150 W	150 W	150 W
Failure rate (reference value)	5 VDC, 1 mA		1 VDC, 1 mA		1 VDC, 100 μA	

Note: Don't exceed the carry current of a Socket in use. Please see page 10.

■ Characteristics

Item	All Relays
Contact resistance	100 mΩ max.
Operate time	20 ms max.
Release time	20 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	2,000 VAC, 50/60 Hz for 1.0 min (1,000 VAC between contacts of same polarity)
Vibration resistance	Destruction: 10 to 55 to 10 Hz, 0.5 mm single amplitude (1.0 mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 0.5 mm single amplitude (1.0 mm double amplitude)
Shock resistance	Destruction: 1,000 m/s ² Malfunction: 200 m/s ²
Endurance	See the following table.
Ambient temperature	Operating: -55°C to 70°C (with no icing)
Ambient humidity	Operating: 5% to 85%
Weight	Approx. 35 g

Note: The values given above are initial values.

■ Endurance Characteristics

Pole	Mechanical life (at 18,000 operations/hr)	Electrical life (at 1,800 operations/hr under rated load)
2-pole		500,000 operations min.
4-pole	DC:100,000,000 operations min.	200,000 operations min.
4-pole (bifurcated)	20,000,000 operations min.	100,000 operations min.

3

■ Approved Standards

VDE Recognitions (File No. 112467UG, IEC 255, VDE 0435)

No. of poles	Coil ratings	Contact ratings	Operations
	110/120, 200/220,	10 A, 250 VAC (cosφ=1) 10 A, 30 VDC (L/R=0 ms)	10 x 10 ³
4		5 A, 250 VAC (cosφ=1) 5 A, 30 VDC (L/R=0 ms)	100 x 10 ³ MY4Z AC; 50 x 10 ³

UL508 Recognitions (File No. 41515)

No. of poles	Coil ratings	Contact ratings	Operations
		10 A, 30 VDC (General purpose) 10 A, 250 VAC (General purpose)	6 x 10 ³
4		5 A, 250 VAC (General purpose) 5 A, 30 VDC (General purpose)	

CSA C22.2 No. 14 Listings (File No. LR31928)

	No. of poles	Coil ratings	Contact ratings	Operations
2			10 A, 30 VDC 10 A, 250 VAC	6 x 10 ³
4			5 A, 250 VAC (Same polarity) 5 A, 30 VDC (Same polarity)	

IMQ (File No. EN013 to 016)

	No. of poles	Coil ratings	Contact ratings	Operations
2		110/120, 200/220,	10 A, 30 VDC 10 A, 250 VAC	10 x 10 ³
4				100 x 10 ³ MY4Z AC; 50 x 10 ³

LR Recognitions (File No. 98/10014)

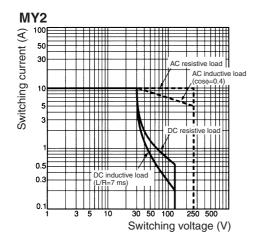
No. of poles	Coil ratings	Contact ratings	Operations
2	6 to 240 VAC 6 to 125 VDC	10 A, 250 VAC (Resistive) 2 A, 250 VAC (PF0.4) 10 A, 30 VDC (Resistive) 2 A, 30 VDC (L/R=7 ms)	50 x 10 ³
4		5 A, 250 VAC (Resistive) 0.8 A, 250 VAC (PF0.4) 5 A, 30 VDC (Resistive) 1.5 A, 30 VDC (L/R=7 ms)	50 x 10 ³

SEV Listings (File No. 99.5 50902.01)

No. of poles	Coil ratings	Contact ratings	Operations
2	6 to 240 VAC 6 to 125 VDC	10 A, 250 VAC 10 A, 30 VDC	10 x 10 ³
4		5 A, 250 VAC 5 A, 30 VDC	100 x 10 ³ MY4Z AC; 50 x 10 ³

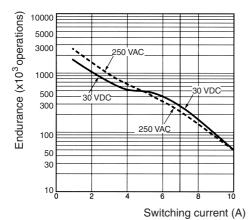
Engineering Data

Maximum Switching Power

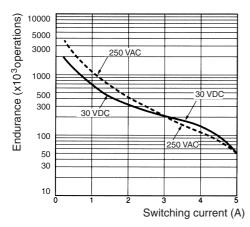


Endurance

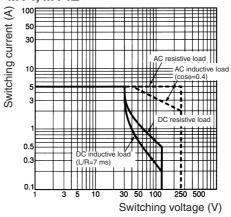
MY2 (Resistive Loads)



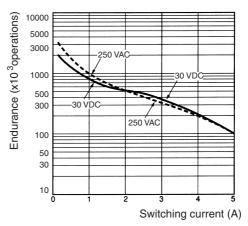
MY4 (Resistive Loads)



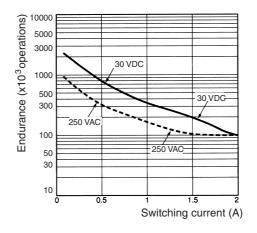
MY4, MY4Z



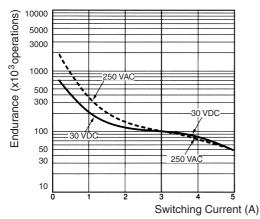
MY2 (Inductive Loads)



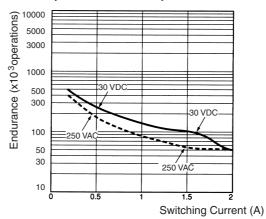




MY4Z (Resistive Loads)



MY4Z (Inductive Loads)

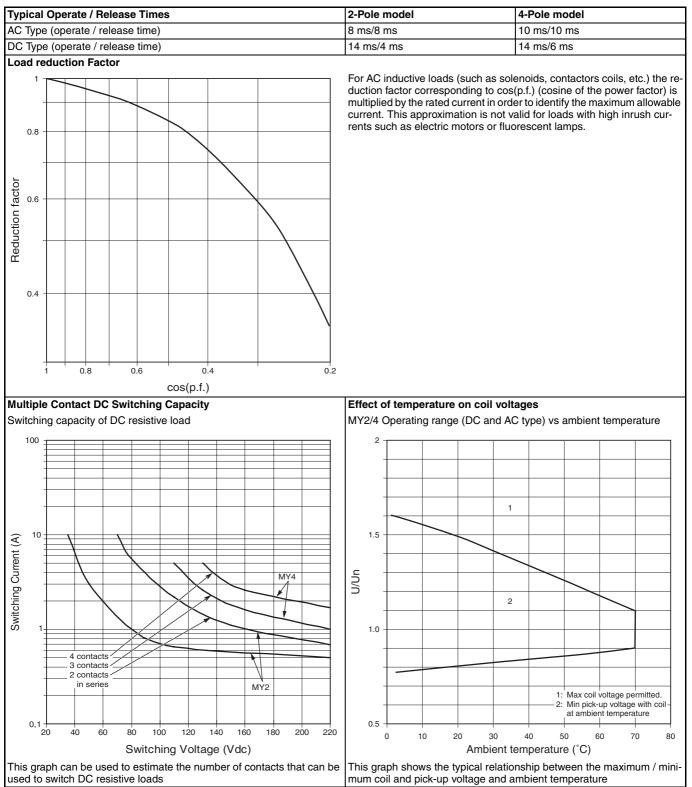


Technical and Environmental Properties

	2-Pole model	4-Pole model	
Tracking Resistance	600 CTI (base)	600 CTI (base)	
Environmental Protection	RT1	RT1	
Flammability Class	Base, Insulator, Spool Case, Indicator, Nameplate, Push Button		ul 94V-0 ul 94V-2
Pollution Degree	2	1	
Creepage Distance	4.0 mm	3.2 mm	
Clearance Distance	3.0 mm 3.0 mm		
Contact Material Ag AgNi + A		AgNi + Au	

Typical information for reference only

The following data is provided as experimental and/or calculated data for reference only. These figures fall under the category of typical behaviour and the operation of individual relays will vary according to the exact operating conditions.

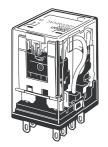


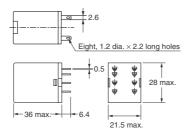
Dimensions

Note: All units are in millimeters unless otherwise indicated.

2-Pole Models

MY2N

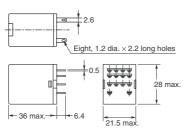




4-Pole Models

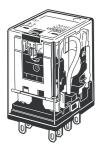
MY4N

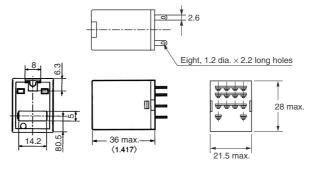




Models with Test Button

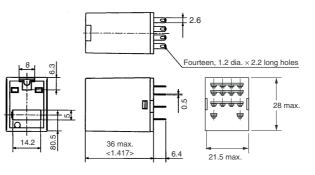
MY2IN





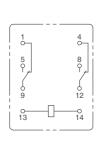
MY4IN

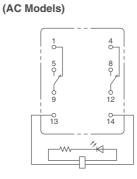




Terminal Arrangement/Internal Connections (Bottom View)

MY2





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MY2N-CR/MY2IN-CR

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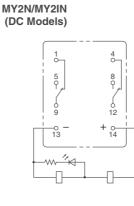
-0 13

MY4(Z)N/MY4(Z)IN

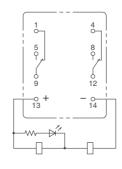
(AC Models)

(AC Models Only)

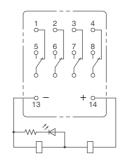
MY2N/MY2IN



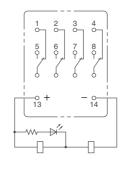
MY2N1/MY2IN1 (DC Models Only)



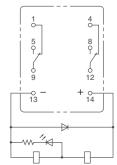
MY4(Z)N/MY4(Z)IN (DC Models)



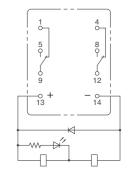
MY4(Z)N1/MY4(Z)IN1 (DC Models Only)



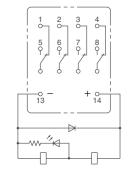
MY2N-D2/MY2IN-D2 (DC Models Only)



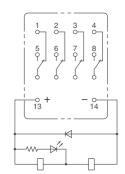
MY2N1-D2/MY2IN1-D2 (DC Models Only)



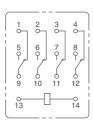
MY4(Z)N-D/MY4(Z)IN-D2 (DC Models Only)



MY4(Z)N1-D2/MY4(Z)IN1-D2 (DC Models Only)

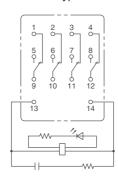


MY4(Z)



MY4(Z)N-CR/MY4(Z)IN-CR (AC Models Only)

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Note: The DC models have polarity.



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# Socket for MY

### Track-mounted (DIN Track) Socket Conforms to VDE 0106, Part 100

- Snap into position along continuous sections of any mounting track.
- Facilitates sheet metal design by standardized mounting dimensions.
- Design with sufficient dielectric separation between terminals eliminates the need of any insulating sheet.

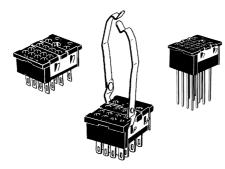


**FL (†** 

# ■ Safety Standards for Sockets

| Model              | Standards | File No. |
|--------------------|-----------|----------|
| PYF08A-E, PYF08A-N | UL508     | E87929   |
| PYF14A-E, PYF14A-N | CSA22.2   | LR31928  |
| PYF14-ESN,         | UL508     | E244189  |
| PYF14-ESS          | CSA22.2   | LR225761 |

### **Back-connecting Sockets**



# ■ Specifications

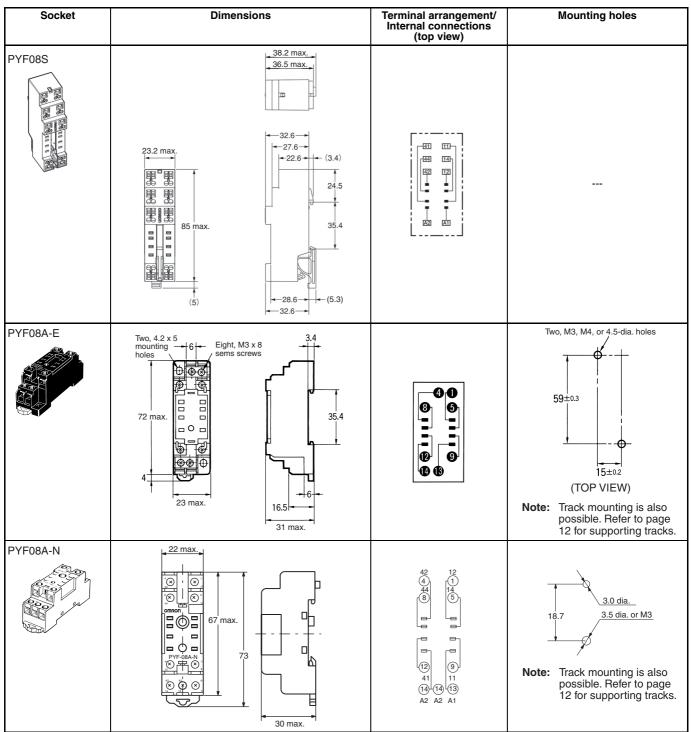
| Item            | Pole | Model                 | Carry current    | Dielectric withstand voltage | Insulation resistance<br>(see note 2) |
|-----------------|------|-----------------------|------------------|------------------------------|---------------------------------------|
| Screwless Clamp | 2    | PYF08S                | 10 A             | 2,000 VAC, 1 min             | Less than 1,000 $M\Omega$             |
| Terminal Socket | 4    | PYF14S                | 5 A              |                              |                                       |
| Track-mounted   | 2    | PYF08A-E              | 7 A              | 2,000 VAC, 1 min             | 1,000 MΩ min.                         |
| Socket          |      | PYF08A-N (see note 3) | 7 A (see note 4) |                              |                                       |
|                 | 4    | PYF14A-E              | 5 A              |                              |                                       |
|                 |      | PYF14A-N (see note 3) | 5 A (see note 4) |                              |                                       |
|                 | 4    | PYF14-ESN/-ESS        | 12 A             | > 3 kV                       | > 5 MΩ                                |
| Back-connecting | 2    | PY08(-Y1)             | 7 A              | 1,500 VAC, 1 min             | 100 MΩ min.                           |
| Socket          |      | PY08QN(-Y1)           |                  |                              |                                       |
|                 |      | PY08-02               |                  |                              |                                       |
|                 | 4    | PY14(-Y1)             | 3 A              |                              |                                       |
|                 |      | PY14QN(-Y1)           | 1                |                              |                                       |
|                 |      | PY14-02               |                  |                              |                                       |

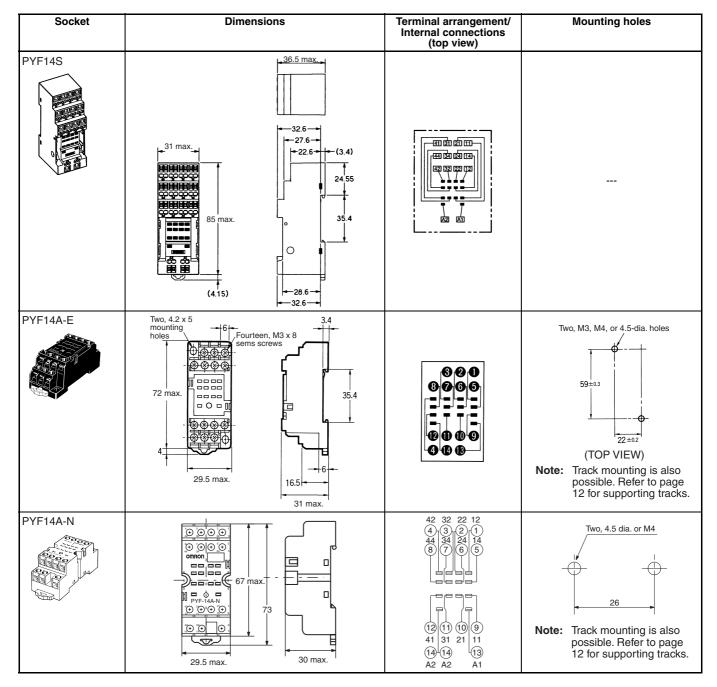
Note: 1. The values given above are initial values.

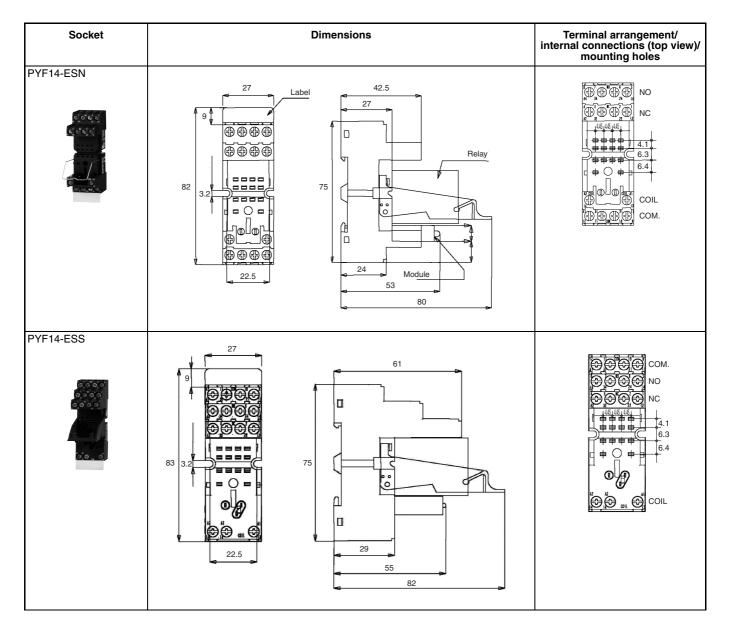
- 2. The values for insulation resistance were measured at 500 V at the same place as the dielectric strength.
- 3. The maximum operating ambient temperature for the PYF08A-N and PYF14A-N is  $55^\circ\text{C}.$
- 4. When using the PYF08A-N or PYF14A-N at an operating ambient temperature exceeding 40°C, reduce the current to 60%.
- 5. The MY2(S) can be used at 70°C with a carry current of 7 A.

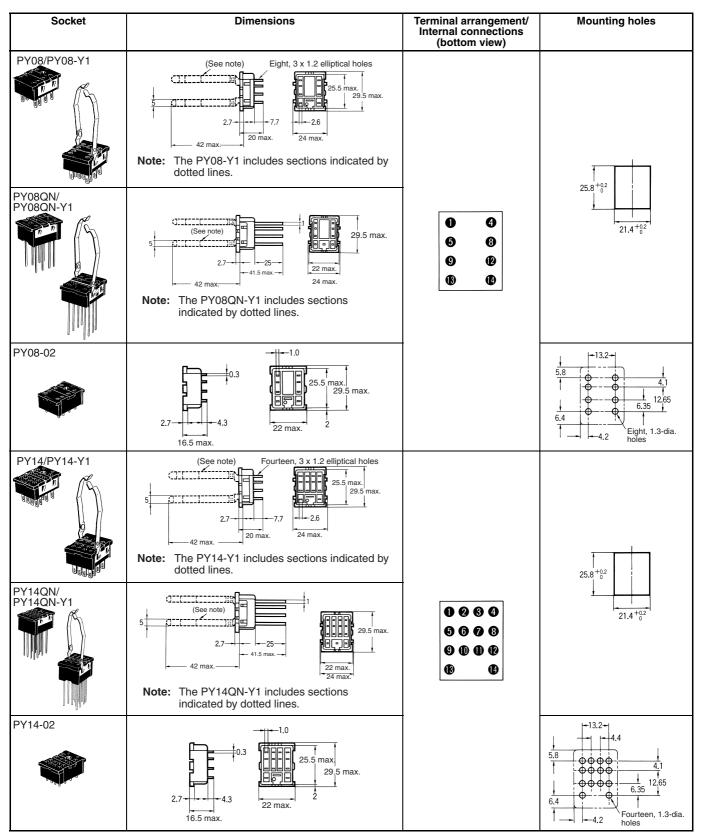
# Dimensions

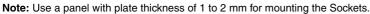
Note: All units are in millimeters unless otherwise indicated.



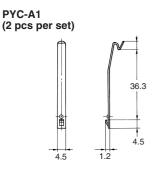








### **Hold-down Clips**





4 5±0.1

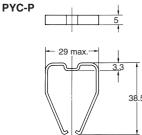
36.3

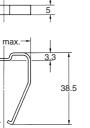
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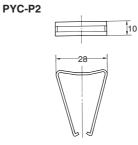
#### For sockets PYF14-ESN/-ESS

| Model   | Description                                 |
|---------|---------------------------------------------|
| PYC 0   | Metal spring clip (Used with<br>Relay only) |
| PYC 35  | Plastic holding clip (Used with Relay only) |
| PYC TR1 | Thermoplastic writeable label               |

Note: For total dimensions with plastic clip please refer to drawings of the sockets.







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### **Mounting Plates for Back-connecting Sockets**

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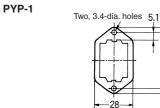
13.1

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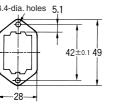
5.1

t = 1.6

42±0.1 49



-21.6

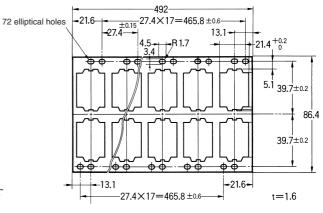


-<u>±0.15</u>27.4×17=465.8±0.6---27.4→I -492-

> 4 4

R17

**PYP-36** 



**PYP-18** 

72 elliptical holes

#### $\phi \phi$ $\phi \phi$ $\phi \phi$ <del>ф ф</del>

### **Tracks and Accessories**

### **Supporting Tracks**

PFP-50N/PFP-100N



Note: The figure in the parentheses is for PFP-50N.

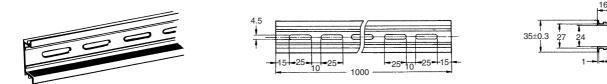
7.3±0.15

-1

27±0.15

29.2

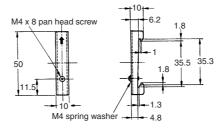
#### **PFP-100N2**



#### End Plate

PFP-M

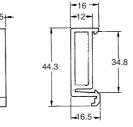




### Spacer

PFP-S





# **Precautions**

Refer to General Precautions on page 11 of the General-purpose Relays and Power Relays Group Catalog (X034).

# ■ Connections

Do not reverse polarity when connecting DC-operated Relays with built-in diodes or indicators or high-sensitivity DC-operated Relays.

### Mounting

• Whenever possible, mount Relays so that it is not subject to vibration or shock in the same direction as that of contact movement.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. J03E-EN-01A In the interest of product improvement, specifications are subject to change without notice.

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