Power-switching Compact General-purpose Relays

Bi-power Relays

- Wiring work can be shortened by as much as 60%* compared to conventional screw terminal sockets by combining with push-in plus terminal sockets (PYF-□-PU) that feature light insertion force and strong pull-out strength to achieve less wiring work.
- The standard models include models that are compliant with the UL, CSA, and SEV safety standards and with the Electrical Appliances and Material Safety Act.
- Equipped with an arc barrier for arc interruption.
- Withstand voltages up to 2,000 V.
- New built-in diode and built-in CR circuit models have joined the series.
- The lineup also includes models that are compliant with the LR and VDE safety standards.
- * When both push-in plus terminals and screw terminal sockets are combined with plug-in terminal types (according to actual OMRON measurements as of November 2015)

Refer to the Common Relay Precautions.





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Refer to the standards certifications and compliance section of your OMRON website for the latest information on certified models.

	Structure Grant Structure				Relays with PCB Terminals	Case-surface mounting	
Classification		imber poles		With operation indicators			
	1		*LY1	**LY1N	*LY1-0	*LY1F	
Standard models			*LY2	**LY2N	*LY2-0	*LY2F	
Compliance with Electrical Appliances	2	Bifur- cated	**LY2Z	**LY2ZN	**LY2Z-0	**LY2ZF	
and Material Safety Act	3		*LY3	**LY3N	*LY3-0	*LY3F	
	4		*LY4	**LY4N	*LY4-0	*LY4F	
	1		**LY1-D	**LY1N-D2			
Models with diode for coil surge absorption			**LY2-D	**LY2N-D2			
(DC coil specification only)	2	Bifur- cated	**LY2Z-D	**LY2ZN-D2			
→ ⊢	3		**LY3-D	**LY3N-D2			
	4		**LY4-D	**LY4N-D2			
Models with CR circuits	1						
for coil surge absorption			**LY2-CR	**LY2N-CR			
(AC coil specification only)	2	Bifur- cated	**LY2Z-CR	**LY2ZN-CR			

Note: 1. Cells with a diagonal line cannot be manufactured. Ask your OMRON representative for details on manufacturing products for cells containing "---" in the above table.

2. If #187 tab terminals are required, use the LY1F-T2 or LY2F-T2 (single-pole or double-pole models only).

3. Refer to page 21 for information on plug-in terminal and socket combinations.

4. Items with an asterisk (*) in the table are certified for UL, CSA, and SEV. This is indicated with a certification mark on the products.

5. Items with two asterisks (**) in the table are certified for UL and CSA. This is indicated with a certification mark on the products.

6. All models in the table are certified for IEC (TÜV).

Model Number Structure

^{7.} The models with plug-in terminals (single-pole, double-pole, and 4-pole) were combined with the PTF-E for the EC Declaration of Conformity. These products display the CE Marking.

Ordering Information When your order, specify the rated voltage.

Relays

Models with Plug-in Terminals

	Number of poles		1 pole		2 poles		3 poles		4 poles
Classificatio	n	Model	Rated voltage (V)	Model	Rated voltage (V)	Model	Rated voltage (V)	Model	Rated voltage (V)
	Standard models	LY1	12, 24, 100/110, 110/120, or 200/220 VAC	LY2	12, 24, 100/110,110/ 120, 200/220, or220/240 VAC	LY3	12, 24, 100/110, or 200/220 VAC	LY4	12, 24, 100/110, or 200/220 VAC
			12, 24, 48, or 100/110 VDC		12, 24, 48, or 100/110 VDC		12, 24, 48, or 100/110 VDC		12, 24, 48, or 100/110 VDC
	Models with built-in operation indicators	LY1N	12, 24, 100/110, 110/120, or 200/220 VAC	LY2N	12, 24, 100/110,110/ 120, 200/220, or 220/240 VAC	LY3N	12, 24, 100/110, or 200/220 VAC	LY4N	12, 24, 100/110, or 200/220 VAC
Models with	operation indicators		12, 24, or 100/110 VDC		12, 24, 48, or 100/110 VDC		12, 24, 48, or 100/110 VDC		12, 24, 48, or 100/110 VDC
single contacts	Models with built-in diodes	LY1-D	12, 24, 48, or 100/110 VDC	LY2-D	12, 24, 48, or 100/110 VDC	LY3-D	12, 24, 48, or 100/110 VDC	LY4-D	12, 24, 48, or 100/110 VDC
	Models with built-in diodes and operation indicators	LY1N- D2	12, 24, or 48 VDC	LY2N-D2	12, 24, 48, or 100/110 VDC	LY3N- D2	12, 24, or 100/110 VDC	LY4N- D2	12, 24, 48, or 100/110 VDC
	Models with built-in CR circuits	_	-	LY2-CR	100/110, 110/120, 200/220, or 220/240 VAC				
	Models with built-in CR circuits and operation indicators	_		LY2N-CR	100/110, 110/120, 200/220, or 220/240 VAC				
	Standard models	-		LY2Z	100/110 or200/220 VAC				
	Standard models	-		LIZZ	12, 24, 48, or 100/ 110 VDC				
	Models with built-in operation indicators		_	LY2ZN	100/110, 110/120, 200/220, or 220/240 VAC				
			-		12 or 24 VDC				
Bifurcated contacts	Models with built-in diodes			LY2Z-D	12, 24, or 48 VDC				
	Models with built-in diodes and operation indicators		_	LY2ZN- D2	12, 24, or 100/110 VDC				
	Models with built-in CR circuits		_	LY2Z-CR	100/110 VAC				
	Models with built-in CR circuits and operation indicators		-	LY2ZN- CR	100, 110, 110/1 20, or 200/220 VAC				

Relays with PCB Terminals

Number of poles	1 pole			2 poles		3 poles	4 poles	
Classification	Model	Rated voltage (V)	Model Rated voltage (V)		Model	Model Rated voltage (V)		Rated voltage (V)
Models with single contacts	LY1-0	24,100/110, 110/120, or 200/220 VAC	LY2-0	12, 24, 100/110, 110/120, 200/ 220, or 220/240 VAC	LY3-0	24, 100/110, or 200/220 VAC	LY4-0	24, 100/110, or 200/ 220 VAC
contacts		12 or 24 VDC		12, 24, 48 or 100/110 VDC		12, 24, 48, or 100/110 VDC		12, 24, 48, or 100/110 VDC
				100/110 VAC				
Bifurcated contacts			LY2Z-0	24, 48, or 100/110 VDC				

Case-surface Mounting

Number of poles	1 pole			2 poles		3 poles	4 poles	
Classification	Model Rated voltage (V) Model Rated voltage (V) Model		Model	Model Rated voltage (V)		Rated voltage (V)		
Models with single contacts	LY1F	24, 100/110, 110/120, 200/220, or 220/240 VAC	LY2F	12, 24, 100/110, 110/ 120, 200/220, or 220/240 VAC	LY3F	12, 24, 100/110, or 200/220 VAC	LY4F	12, 24, 100/110, or 200/220 VAC
contacts		6, 12, 24, or 100/110 VDC		12, 24, 48, or 100/110 VDC		12, 24, or 100/110 VDC		12, 24, or 100/110 VDC
Bifurcated contacts			LY2ZF	24, 100/110, or 200/220 VAC				
				12 or 24 VDC	1			

Accessories (Order Separately)

Front-mounting Sockets

Applicable relay model	Mounting Method	Conductive part protection	Terminal Type	Applicable crimp terminal/ Electric wire	Appearance	Model	Hold-down Clips/ Release Levers (Order Separately)		
			Push-In Plus Terminal	Ferrules Solid wire Stranded wire		PTF-08-PU * LY2D-CR cannot be used PTF-08-PU-L	With release lever * Hold by release lever		
LY1 LY2 LY2 CR		Available		Forked terminals Solid wire Stranded wire		PTFZ-08-E *	LY2□-CR: Y92H-3 Other than those above: PYC-A1		
			Screw terminal (M3.5 screw size)			PTF08A-E *			
	Mounted on a DIN track or	None		Round terminals Forked terminals Solid wire Stranded wire		PTF08A			
LY3	with screws	None	Screw terminal (M3.5 screw size)	Round terminals Forked terminals Solid wire Stranded wire		PTF11A	PYC-A1		
					Push-In Plus Terminal	Ferrules Solid wire Stranded wire		PTF-14-PU-L	
LY4		Available		Forked terminals Solid wire		PTFZ-14-E *	PYC-A1		
			Screw terminal (M3.5 screw size)	Stranded wire		PTF14A-E *			
		None		Round terminals Forked terminals Solid wire Stranded wire		PTF14A			

* The PYFZ_A-E and PTF_A-E Relays have finger protection. Round terminals cannot be used. Use forked terminals.

Back-mounting Sockets

Applicable relay model	Terminal Type	Appearance	Mode	Hold-down Clips (Order Separately)
	Solder terminals		PT08*	
LY1□ LY2□ LY2□-CR	Wrapping terminals		PT08QN	LY2□-CR: PYC-1 Other than those above: PYC-P
	PCB terminals		PT08-0	
	Solder terminals		PT11*	
LY3	Wrapping terminals		PT11QN	РҮС-Р
	PCB terminals		PT11-0	
	Solder terminals	UT ALL OF A	PT14*	
LY4	Wrapping terminals		PT14QN	РҮС-Р
	PCB terminals		PT14-0	

When ordering PT08, PT11, or PT14 sockets, please note that the minimum order quantity is 10 and orders are accepted in multiples of the minimum order.

Relay Hold-down Clips

Application Item	Used wit	h Socket	Used with Socket mounting plate	For models with built-in CR circuits		
Appearance	Approx. 3		Approx. 2.5			
Model	PYC-A1	PYC-P	PYC-S	Y92H-3	PYC-1	
Minimum order (quantity)*	100	100	10	10	10	

* Orders are accepted in multiples of the minimum order.

Socket Mounting Plates

Applicable sockets	Number of sockets	Model
	1	PYP-1 *1
PT08 PT08QN	18	PYP-18*2
	36	PYP-36 *2
PT11	1	PTP-1-3
PT11QN	12	PTP-12
PT14	1	PTP-1
PT14QN	10	PTP-10

***1.** When ordering PYP-1, please note that the minimum order quantity is 10 and orders are accepted in multiples of the minimum order. ***2.** PYP-18 and PYP-36 can be cut to any required length.

DIN Track Mounting Parts

Туре		Appearance	Model
	Shallow type, total length: 1 m		PFP-100N
DIN Tracks	Shallow type, total length: 0.5 m		PFP-50N
	Deep type, total length: 1 m	1000g	PFP-100N2
End Plate			PFP-M
Spacer			PFP-S

Ratings and Specifications

Ratings

Standard Models with Built-in Operation Indicators

Operating Coil, Single-pole and Double-pole Models

	ltem	Rated cur	rent (mA)	Coil	Coil indu	ctance (H)	Must-operate	Must-release	Maximum	Power
Rated (V)	d voltage	50 Hz	60Hz	resistance (Ω)	Armature OFF	Armature ON	voltage (V)	voltage (V)	voltage (V)	consumption (VA, W)
	12	106.5	91	46	0.17	0.33				Approx. 1.0
	24	53.8	46	180	0.69	1.3			110% of rated voltage	to 1.2
	50	25.7	22	788	3.22	5.66				(at 60 Hz)
AC	100/110	11.7/12.9	10/11	3,750	14.54	24.6		30% min.* ²		Approx. 0.9 to 1.1 (at 60 Hz)
	110/120	9.9/10.8	8.4/9.2	4,430	19.2	32.1				
	200/220	6.2/6.8	5.3/5.8	12,950	54.75	94.07	80% max.*1			
	220/240	4.8/5.3	4.2/4.6	18,790	83.5	136.4	00% max."			
	6	15	50	40	0.16	0.33				
	12	7	5	160	0.73	1.37				Approx. 0.9
DC	24	36	.9	650	3.2	5.72		10% min.*2		
	48	18	.5	2,600	10.6	21.0	1			
	100/110	9.1	/10	11,000	45.6	86.2	1			

3 poles

	Item	Rated cur	rrent (mA)	Coil	Coil indu	ctance (H)	Must-operate	Must-release	Maximum	Power
Rateo (V)	i voltage	50 Hz	60Hz	resistance (Ω)	Armature OFF	Armature ON	voltage (V)	voltage (V)	voltage (V)	consumption (VA, W)
	12	159	134	24	0.12	0.21				
AC	24	80	67	100	0.44	0.79		30% min.*2	110% of	Approx. 1.6 to 2.0
AC	100/110	14.1/16	12.4/13.7	2,300	10.5	18.5				(at 60 Hz)
	200/220	9.0/10.0	7.7/8.5	8,650	34.8	59.5	80% max.*1			. ,
	12	1	12	107	0.45	0.98	00% max.**		rated voltage	
DC	24	58	3.6	410	1.89	3.87		10% min.* ²		Approx 1.4
DC	48	28	3.2	1,700	8.53	13.9	1			Approx. 1.4
	100/110	12.7	7/13	8,500	29.6	54.3				

4 poles

	ltem	Rated cur	rent (mA)	Coil	Coil indu	ctance (H)	Must-operate	Must-release	Maximum	Power
Ratec (V)	l voltage	50 Hz	60Hz	resistance (Ω)	Armature OFF	Armature ON	voltage (V)	voltage (V)	voltage (V)	consumption (VA, W)
	12	199	170	20	0.1	0.17			110% of rated	
AC	24	93.6	80	78	0.38	0.67		30% min.*2		Approx. 1.95 to 2.5 (at 60 Hz)
AC	100/110	22.5/25.5	19/21.8	1,800	10.5	17.3				
	200/220	11.5/13.1	9.8/11.2	6,700	33.1	57.9	80% max.*1			
	12	12	20	100	0.39	0.84	00% max."		voltage	
DC	24	6	9	350	1.41	2.91		10% min.*2		Approx 1 F
DC	48	3	0	1,600	6.39	13.6	1			Approx. 1.5
	100/110	15/1	15.9	6,900	32.0	63.7	1			

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 ±15% 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 capacity was measured at an ambient temperature of 23°C.
*1. There is variation between products, but actual values are 80% max. To ensure operation, apply at least 80% of the rated value (at a coil temperature of +23° C).
*2. The actual values are 30% min. for AC and 10% min. for DC. To ensure release, use a value that is lower than the specified value.

Refer to List of Certified Models for a list of models that are certified for safety standards and the Electrical Appliances and Material Safety Act.

Classificat	Classification 1 pole		Double-, 3-, and 4-pole models		Bifurcated contacts		
Item Lo	oad	Resistive load	Inductive load (cos φ = 0.4, L/R = 7 ms)	Resistive load	Inductive load (cos φ = 0.4, L/R = 7 ms)	Resistive load	Inductive load (cos φ = 0.4, L/R = 7 ms)
Contact type		Single			Bifurcated		
Contact materials			Ag	alloy		Ag	
Rated load		15 A at 110 VAC 15 A at 24 VDC	10 A at 110 VAC 7 A at 24 VDC	10 A at 110 VAC 10 A at 24 VDC	7.5 A at 110 VAC 5 A at 24 VDC	5 A at 110 VAC 5 A at 24 VDC	4 A at 110 VAC 4 A at 24 VDC
Rated carry current		15 A		10 A		7 A	
Maximum contact volta	age	250 VAC 125 VDC		250 VAC 125 VDC		250 VAC 125 VDC	
Maximum contact curr	ent	15 A	15 A	10 A	10 A	7 A	7 A

Type	Single-pole and double-pole models (standard models and bifurcated contact models)	Single-pole, double-pole models (models with built-in operation indicators, models with built-in diodes, and models with built-in CR circuits), 3-pole and 4-pole models	
Ambient operating temperature	-25 to 55°C (with no icing or condensation)*1	-25 to +40°C (with no icing or condensation)*2	
Ambient operating humidity	5% to 85%		

- Some models in the LY1 and LY2 Series have an upper temperature limit of +40°C. This limitation is due to the diode junction temperature and the elements used.
 Refer to Ambient Temperature vs. Coil Temperature Rise in Engineering Data on page 8 to 9 for information on operation in temperature conditions that are not described here.
- on operation in temperature conditions that are not described here.
 When you apply a minimum of 10 A of current to an LY1 when it is used in combination with the PTF-08-PU, PTF-08-PUL, PTF08A, PTF08A-E, or PT08, connect each of the following terminal pairs: (1) to (2), (3) to (4), and (5) to (6).
 *1. If the carry current is 4 A or less, the usable ambient temperature range is -25 to 70° C.
 *2. If the flowing current is 4 A or less, the usable ambient temperature range is -25 to 55° C.

Note: The values at the left are initial values.
*1. Measurement conditions: 1 A at 5 VDC using the voltage drop method
*2. Measurement conditions: With rated operating power

*2. Weasurement confluing contact bounce. Ambient temperature condition: 23° C
 *3. Measurement conditions: F00 VDC applied to the same location as for dielectric strength measurement.
 *4. Ambient temperature condition: 23° C
 *5. This value was measured at a switching frequency of 120 operations per minute.

Characteristics

Type Item		Standard models, models with built-in operation indicators, models with built-in CR circuits, and models with built-in diodes	Bifurcated contacts		
Contact resis	stance ^{*1}	50 mΩ max.			
Operating tin	ne ^{#2}	25 ms max.			
Release time	\$2	25 ms max.			
Maximum	Mechanical	18,000 operations/h			
operating frequency Rated load		1,800 operations/h			
Insulation resistance*3		100 MΩ min.			
	Between coil and contacts				
Dielectric strength	Between contacts of different polarity	2,000 VAC at 50/60 Hz for 1 min.			
suengui	Between contacts of the same polarity	1,000 VAC at 50/60 Hz for 1 min.			
Vibration	Destruction	10 to 55 to 10 Hz, 0.5-mm single amplitude (1.0-mm double amplitude)			
resistance	Malfunction	10 to 55 to 10 Hz, 0.5-mm single amplitude (1.0-mm double amplitude)			
Shock	Destruction	1,000 m/s ²			
resistance	Malfunction	200 m/s ²			
	Mechanical	AC: 50,000,000 operations min. DC: 100,000,000 operations min.	(switching frequency: 18,000 operations/h)		
Endurance	Electrical ^{#4}	1-, 3-, 4-pole: 200,000 operations min. 2-pole: 500,000 operations min. (rated load, operating frequency: 1,800 operations/h)	2-pole: 500,000 operations min. (rated load, operating frequency: 1,800 operations/h)		
Failure rate P v	alue (reference value)*6	100 mA at 5 VDC 10mA at 5 VDC			
Weight		1-pole and 2-pole: 40 g, 3-pole: Approx	. 50 g, 4-pole: Approx. 70 g		

Endurance Under Real Loads (Reference Only)

Item	L	Y1, 100 VAC		L	LY2, 100 VAC			LY4, 100 VAC		
Load type	Conditions	Operating frequency	Electrical life (×10,000 operations min.)	Conditions	Operating frequency	Electrical life (×10,000 operations min.)	Conditions	Operating frequency	Electrical life (×10,000 operations min.)	
	400 W, 100 VAC single- phase with 35-A inrush	ON for 10 s, OFF for 50 s	5	200 W, 100 VAC single- phase with 25-A inrush	ON for 10 s, OFF for 50 s	20	200 W, 200 VAC three- phase with 5-A inrush current, 1-A current flow	ON for 10 s,	50	
				current, 5-A current flow		20	750 W, 200 VAC three- phase with 18-A inrush current, 3.5-A current flow	OFF for 50 s	7	
AC lamp	300 W, 100 VAC with 51-A inrush current, 3- A current flow ON	ON for 5 s,	10	300 W, 100 VAC with 51-A inrush current, 3-	ON for 5 s,	8	300 W, 100 VAC with 51-A inrush current, 3-	ON for 5 s,	5	
	500 W, 100 VAC with 78-A inrush current, 5- A current flow	OFF for 55 s	00 W, 100 VAC with OFF for 55 s B-A inrush current, 5- 2.5 A current flow	OFF for 55 s	A current flow	OFF for 55 s	3			
Capacitor	24 VDC with 50-A	ON for 1 s,	10	24 VDC with 50-A inrush current, 1-A current flow	ON for 1 s,	1	24 VDC with 50-A inrush current, 1-A current flow	ON for 1 s, OFF for 15 s	0.5	
(2,000 μF) inrush current, 1-A current flow		OFF for 6 s	10	24 VDC with 20-A inrush current, 1-A current flow	OFF for 15 s	15	24 VDC with 20-A inrush current, 1-A current flow	ON for 1 s, OFF for 2 s	20	
AC solenoid	50 VA with 2.5-A inrush current, 0.25-A current flow ON for 1 s,	150	50 VA with 2.5-A inrush current, 0.25-A current flow		100	50 VA with 2.5-A inrush current, 0.25-A current flow	ON for 1 s,	100		
AC SCIENCIU	100 VA with 5-A inrush current, 0.5-A current flow	OFF for 2 s	80	100 VA with 5-A inrush current, 0.5-A current flow	OFF for 2 s	50	100 VA with 5-A inrush current, 0.5-A current flow	OFF for 2 s	50	

Details on Safety-standard-certified Models, LY \square

- Standard models are certified for the UL, CSA, and SEV safety standards.
- Refer to *Model Number Structure* on page 1 for a list of applicable models.
- The rated values for safety standard certification are not the same as individually defined performance values. Always check the specifications before use.

UL-certified Models (File No. E41643)

Model	Coil ratings	Number of poles	Contact ratings	Certified number of operations	
			15A, 120VAC (General use)	100,000 operations	
			15A, 240VAC (General use)	6 000 operations	
	6 to 240VAC		15A, 30VDC (Resistive)	0,000 operations	
	6 to 240VAC 6 to 125VDC	1	1/2HP, 120VAC	100.000 appretions	
			8.5FLA, 30LRA, 120VAC	Too,000 operations	
			TV-5, 120VAC	of operations	
			470VA, Pilot duty, 120VAC	6,000 operations	
			15A, 120VAC (General use)	100,000 operations	
			12A, 240VAC (General use)		
		2	7A, 250VAC (General use)	6 000 operations	
	6 to 240VAC 6 to 125VDC		15A, 30VDC (Resistive)	0,000 operations	
			5A, 38VDC (Resistive)		
			1/2HP, 120VAC	100,000 operations	
LY			1/3HP, 240VAC	1,000 operations	
			8.5FLA, 30LRA, 120VAC	100.000 anarationa	
			5FLA, 50LRA, 50VDC	100,000 operations	
			TV-3, 120VAC	25,000 operations	
			345VA, Pilot duty, 120-240VAC	C 000 energiane	
			B300/R300	6,000 operations	
			10A, 240VAC (General use) (Same polarity)		
			10A, 30VDC (General use) (Same polarity)	6,000 operations	
	6 to 240VAC 6 to 125VDC	3 4	2A, 40VDC (Resistive) (Same polarity)		
			1/2HP, 240VAC	1,000 operations	
			0.6A, 100VDC (Resistive) (Same polarity)	6,000 operations	

CSA-certified Models (File No. LR31928)

Model	Coil ratings	Number of poles	Contact ratings	Certified number of operations	
			15A, 120VAC (General use)	100,000 operations	
			15A, 240VAC (General use)	0.000	
	6 to 240VAC		15A, 30VDC (Resistive)	6,000 operations	
	6 to 240VAC 6 to 125VDC	1	1/2HP, 120VAC	100,000 operations	
			8.5FLA, 30LRA, 120VAC		
			TV-5, 120VAC	25,000 operations	
			470VA, Pilot duty, 120VAC	6,000 operations	
			15A, 120VAC (General use)		
			12A, 240VAC (General use)		
			7A, 250VAC (General use)	6,000 operations	
	6 to 240VAC 6 to 125VDC	2	15A, 30VDC (Resistive)	_	
			5A, 38VDC (Resistive)		
			1/2HP, 120VAC	100,000 operations	
LY			1/3HP, 240VAC	1,000 operations	
			8.5FLA, 30LRA, 120VAC	100,000 operations	
			5FLA, 50LRA, 50VDC		
			TV-3, 120VAC	25,000 operations	
			345VA, Pilot duty, 120-240VAC		
			B300/R300 Pilot duty	6,000 operations	
			10A, 240VAC (General use) (Same polarity)	0.000	
			10A, 30VDC (Resistive) (Same polarity)	 6,000 operations 	
	6 to 240VAC	3	1/8HP, 240VAC (Same polarity)	1,000 operations	
	6 to 125VDC	4	1/2HP, 240VAC (Same polarity)		
			1/3HP, 240VAC (Same polarity)		
			2A, 40VDC (Resistive)	6.000 energiana	
			0.6A, 100VDC (Resistive)	6,000 operations	

TÜV-certified Models (File No. R50030064, EN 61810-1)

Model	Coil ratings Number of poles		Contact ratings	Certified number of operations
			15 A, 110 VDC resistive load	
			10 A, 110 VAC inductive load	
			10 A, 250 VAC resistive load	
		1	7A, 250 VAC inductive load	
			10 A, 30 VDC resistive load	
			7 A, 30 VDC inductive load	200,000
	6 to 240 VAC		10 A, 110 VAC resistive load	operations
LYD	6 to 110 VDC		7.5A, 110 VAC inductive load	
			7A, 250 VAC resistive load	
		2	4 A, 250 VAC inductive load	
			7 A, 30 VDC resistive load	
			4 A, 30 VDC inductive load	
		3	10 A, 110 VAC resistive load	100,000
		4	7.5A, 110 VAC inductive load	operations

LY

 When ordering a model that is certified for VDE or Lloyd's Register (LR) standards, always specify "VDE-certified Model" or "LR Standard-certified Model" with your order.

VDE Certification (Certificate No. 6359, EN 61810-1)

Model	Coil ratings	Number of poles	Contact ratings	Certified number of operations	
			10 A, 220 VAC resistive load		
		1	7 A, 220 VAC inductive load		
		1	10 A, 28 VDC resistive load		
LYD-VD	6, 12, 24, 50, 110, or 220 VAC 6, 12, 24, 48, or 110 VDC 4 A, 220 VAC inductive load	Contact ratings of operatio 10 A, 220 VAC resistive load 7 A, 220 VAC resistive load 10 A, 28 VDC resistive load 200,000 7 A, 220 VAC resistive load 200,000 7 A, 220 VAC resistive load 200,000			
			7 A, 220 VAC resistive load	operations	
			4 A, 220 VAC inductive load		
		2	Contact ratings of operation 10 A, 220 VAC resistive load 7 A, 220 VAC resistive load 7 A, 220 VAC resistive load 200,00 7 A, 220 VAC resistive load 200,00		
			4 A, 28 VDC inductive load		

LR-certified Models (File No. 00/10047)

Model	lodel Coil ratings		Contact ratings
LYD	6 to 240 VAC	2	7.5 A, 230 VAC inductive load
	6 to 110 VDC	4	5 A, 24 VDC inductive load

Details on Safety-standard-certified Models, Sockets

UL-certified Models (File No. E87929)

Model	Ratings	Standard number	Category	Listed/Recognized
PTF-08-PU	10A 250V			
PTF-14-PU	10A 250V (Same polarity)			
PTFZ-08-E	15A 250V (at 50 deg)			
PTFZ-14-E	12A 250V (at 70 deg)			
PTF08A(-E) PT08	15A 250V	UL508	SWIV2	Recognized
PTF11A PTF14A(-E) PT11 PT14	10A 250V			

CSA-certified Models (File No. LR31928)

Model	Ratings	Standard number	Class number
PTF-08-PU	10A 250V		
PTF-14-PU	10A 250V (Same polarity)		3211 07
PTFZ-08-E	15A 250V (at 50 deg)	CSA C22.2 (No.14)	
PTFZ-14-E	12A 250V (at 70 deg)		
PTF08A(-E)	15A 240V AC		
PTF11A PTF14A(-E)	10A 240V AC		

CE Marking Compliance

Model	EMC Directive	Low Voltage Directive	Machinery Directive	Safety Category
PTFZ-08-E				
PTFZ-14-E	Net explicable	2	Net exclinable	4
PTF08A(-E)	Not applicable	0	Not applicable	1
PTF14A(-E)				

CE compliance is achieved when used with a relay (LY).
 The Safety Category refers to the maximum applicable category selected when constructing control system safety components. The category does not apply to individual components.

TÜV Rheinland certification

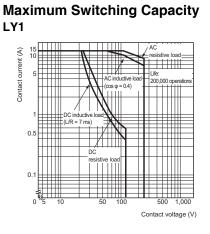
Model	Ratings	Standard number	Certification number	
PTF-08-PU	10A 250V *1		B50327595	
PTF-14-PU	10A 250V *2	EN 61984	n30327393	
PTFZ-08-E	15A 250V (at 50 deg)	EN 01904	B50438680	
PTFZ-14-E	12A 250V (at 70 deg)		130430000	

*1. Ratings are for an ambient temperature of 55°C. At an ambient temperature of 70°C, the value is 7A.
*2. Ratings are for an ambient temperature of 40°C. At an ambient temperature of 70°C, the value is 7A.

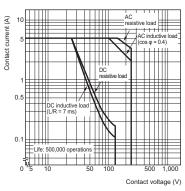
Compliance with Electrical Appliances and Material Safety Act, LY

All standard models comply with the Electrical Appliances and Material Safety Act.

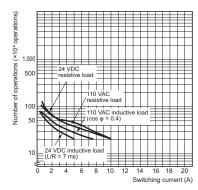
Model	Coil ratings	Number of poles	Contact ratings
	6 to 240 VAC 6 to 120 VDC	1	15 A at 200 VAC
LY		2 3 4	10A at 200 VAC



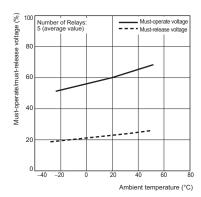




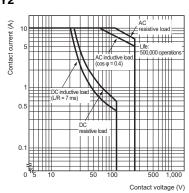
LY3 and LY4



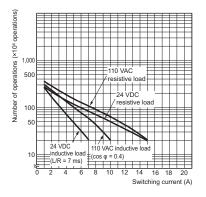
LY2 24 VDC

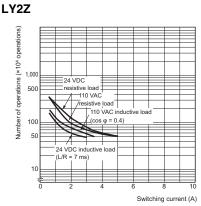




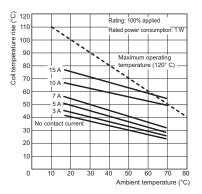




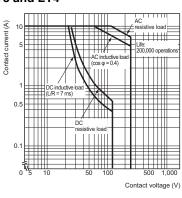


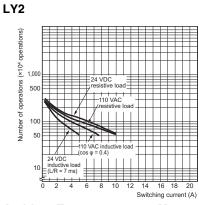


Ambient Temperature vs. Coil Temperature Rise LY1 24 VDC

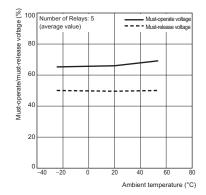


LY3 and LY4

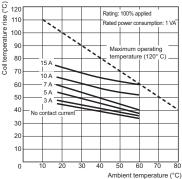




Ambient Temperature vs. Mustoperate and Must-release Voltage LY2 100/110 VAC at 50Hz



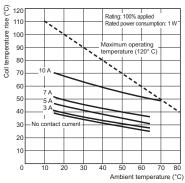
LY1 100/110 VAC at 50Hz



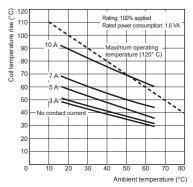
OMRON

LY

LY2 24 VDC

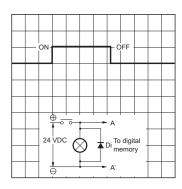


LY3 100/110 VAC at 50Hz

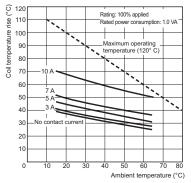


Models with built-in diodes

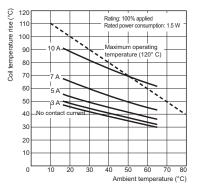
The diode absorbs surge from the coil. With Diode



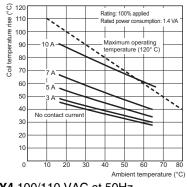
LY2 100/110 VAC at 50Hz



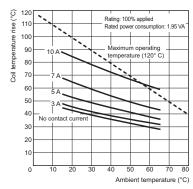
LY4 24 VDC



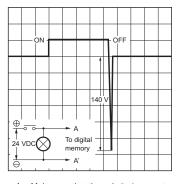
LY3 24 VDC



LY4 100/110 VAC at 50Hz



Without Diode



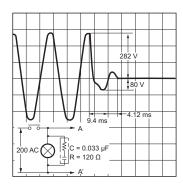
Make sure that the polarity is correct. The release time will increase, but the Note: 1. 2. 25-ms specification for standard models

3.

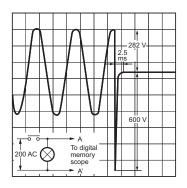
is satisfied. Diode characteristics: Reversed dielectric strength: 1,000 V Forward current: 1 A

Models with Built-in CR Circuits

With CR



Without CR



Malfunctioning Shock

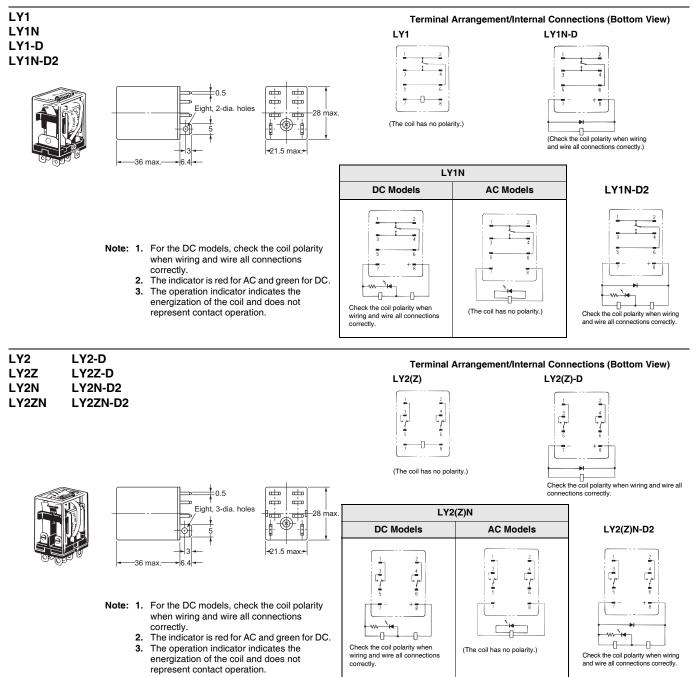
LY2 100/110 VAC N = 20 Eneraized 560 Measurement: Shock was applied 2 times each in 6 directions along 3 axes Not energized with the Relay energized and not energized to check the shock values that cause the Relay to malfunction. Criteria: Non-energized: 200 m/s² , Energized: 200 m/s² 520 Shock direction 450 X --- X' 700 z 💿 Z' 🛇 Unit: m/s² 600

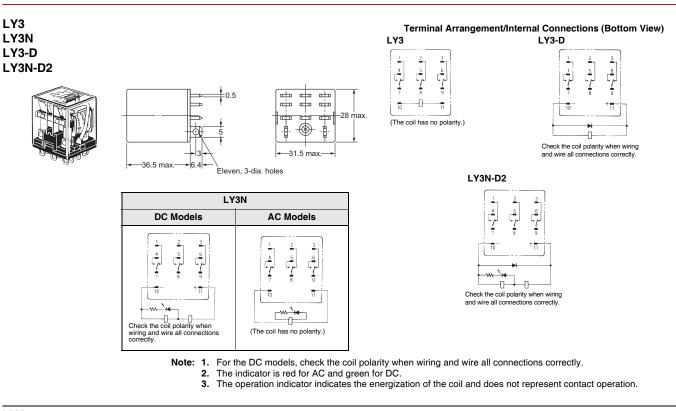
(Unit: mm)

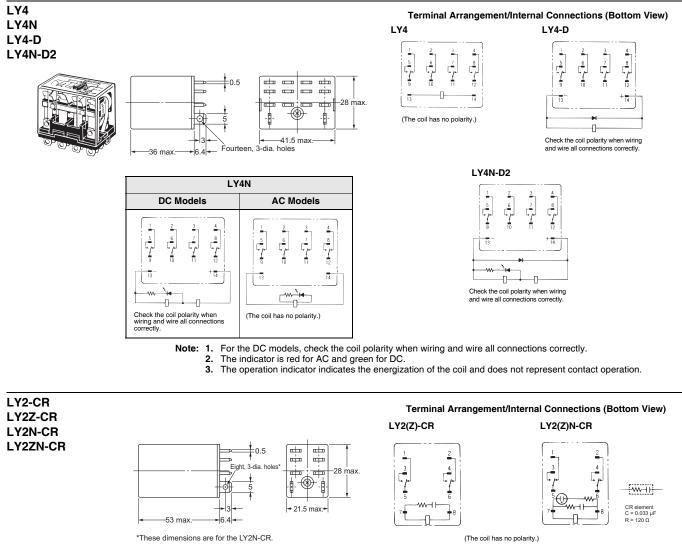
Relays

Solder terminals

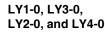
Dimensions



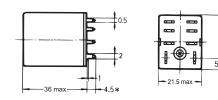




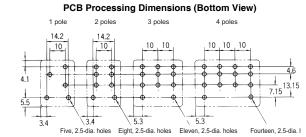
Relays with PCB Terminals





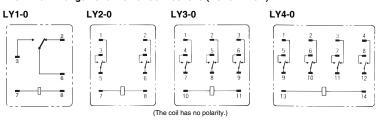


Note: The figures and dimensions depicted here are for the LY2-0. The dimension with an asterisk (*) is 6.4 for the LY1-0.



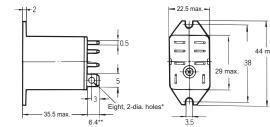
Note: 1. The dimensional tolerance is 0.1 mm.
2. There are exposed parts (conductive parts) on the LY1-0 other than the terminals. Be careful when using this Relay on a double-sided PCBs.

Terminal Arrangement/Internal Connections (Bottom View)

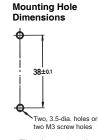


Case-surface mounting

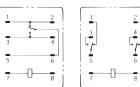




- **Note: 1.** The figures and dimensions depicted here are for the LY1F. The LY2F is also conforms to these measurements.
 - The dimension with an asterisk (*) for the LY2F is "eight, 3-dia. holes."
 For the LY1F-T2 and LY2F-T2 terminal (#187) dimensions, the hole dimension marked with an asterisk (*) is eight 1.55-dia. and the length marked with two asterisks (**) is 8.45.

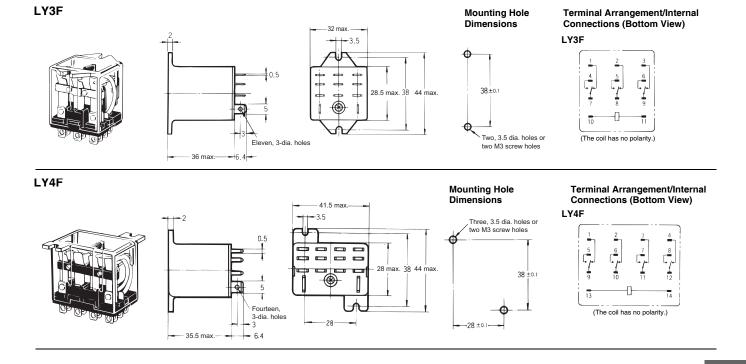






(The coil has no polarity.)

Note: The dimensional tolerance is ±0.1 mm.



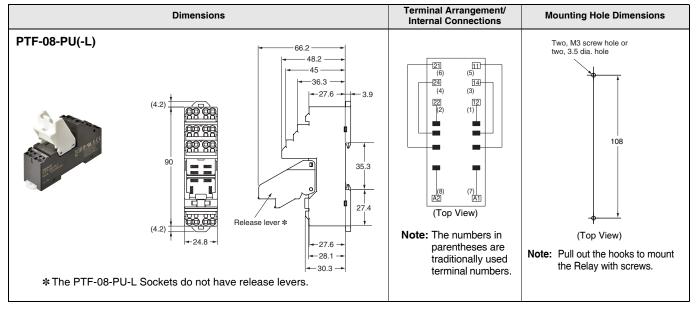
Accessories (Order Separately)

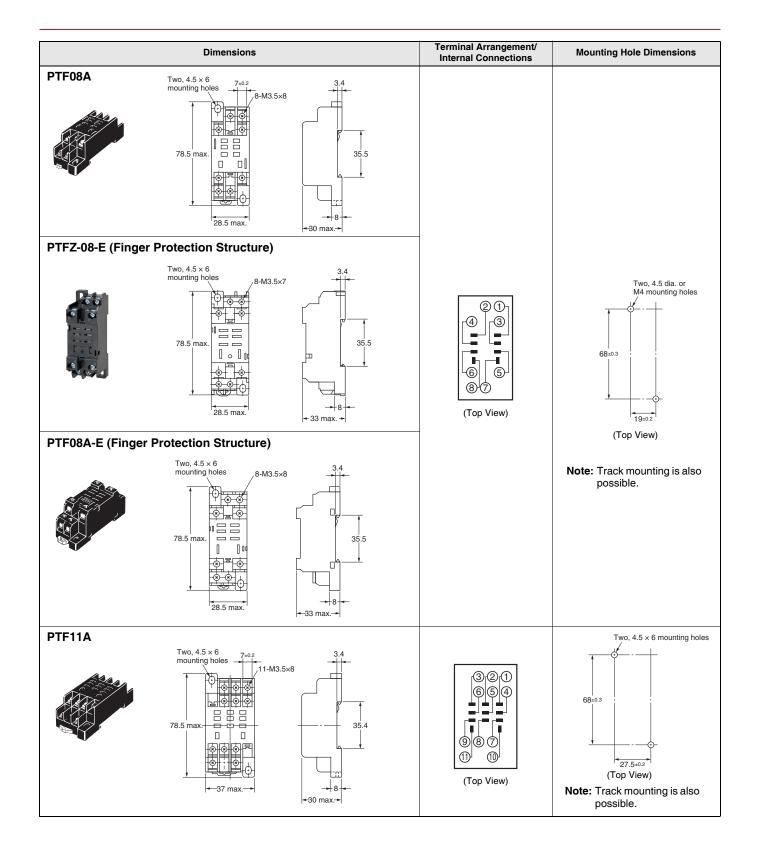
Socket Characteristics

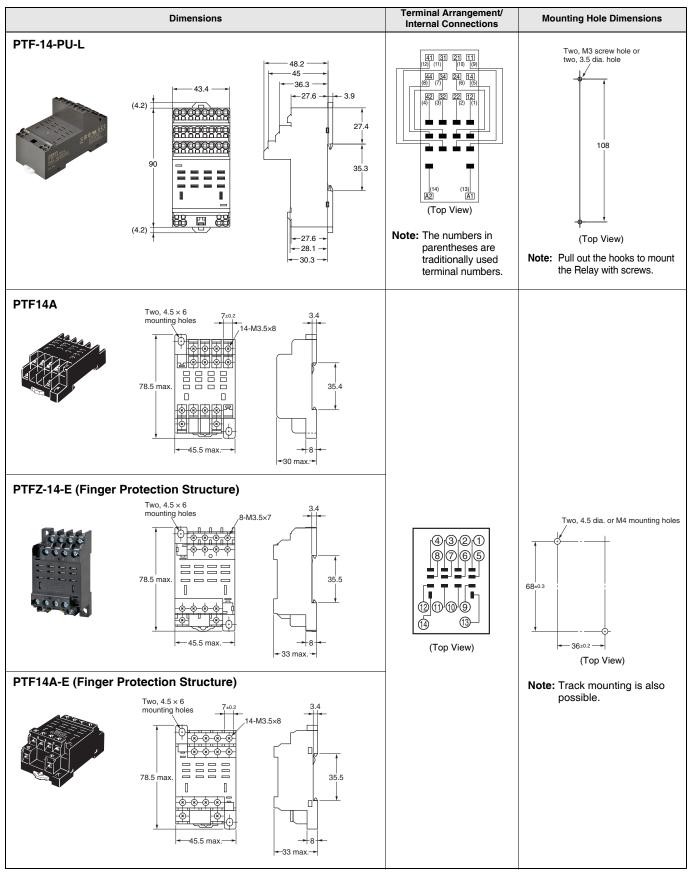
Model	Continuous carry current	Dielectric strength	Insulation resistance *	Remarks
PTF-□-PU(L)	10 A	Between contact terminals of same polarity: 2,000 VAC, 1 min		
		Between contact terminals of different polarity: 2,000 VAC, 1 min	1,000 M Ω min.	
		Between coil and contact terminals: 2,000 VAC, 1 min		
PTFZ-0-E	12 A (@70°C) 15 A (@50°C)	Between contact terminals of different polarity: 2,500 VAC, 1 min		
		Between contact terminals of same polarity: 2,500 VAC, 1 min	– 1,000 MΩ min.	
		Between ground terminals: 2,500 VAC, 1 min		
		Between coil and contact terminals: 2,500 VAC, 1 min		
PTFDA(-E)	10 A	Between terminals: 2,000 VAC for 1 min	100 MΩ min.	
PT-	10 A	Between terminals: 2,000 VAC for 1 min	100 MΩ min.	
PT0	10 A	Between terminals: 2,000 VAC for 1 min	100 MΩ min.	
PT□□QN	10 A	Between terminals: 2,000 VAC for 1 min	100 M Ω min.	

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

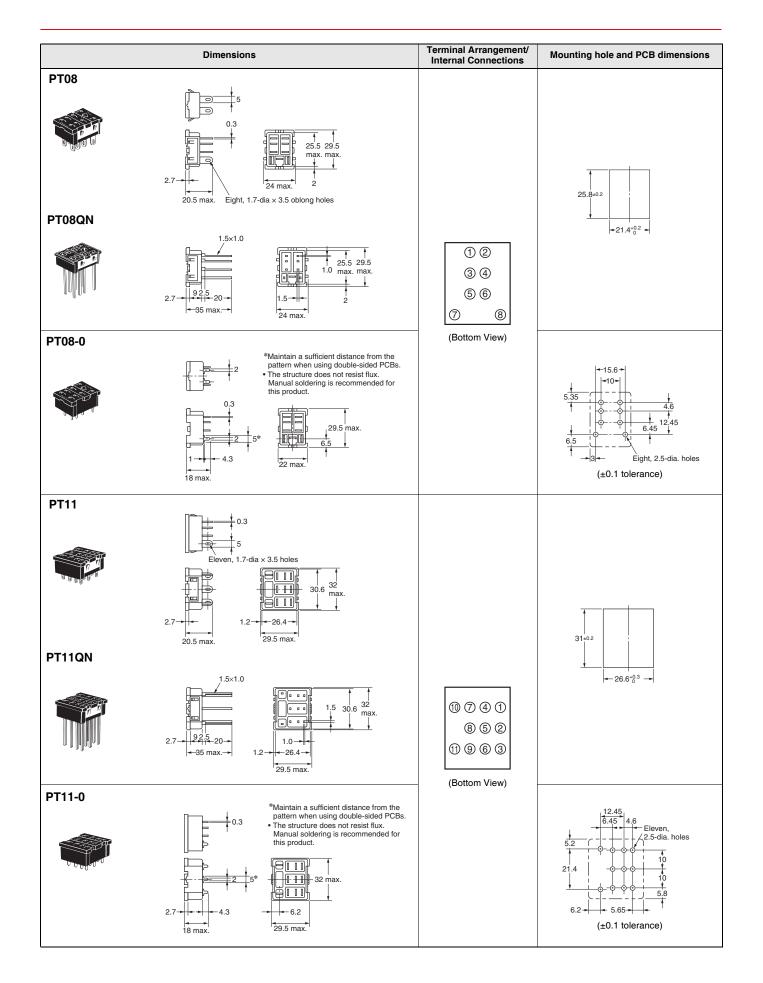
Connection Sockets

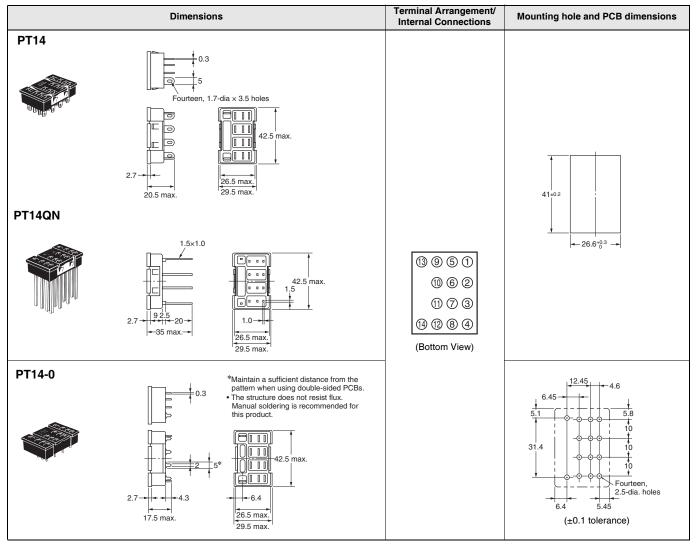






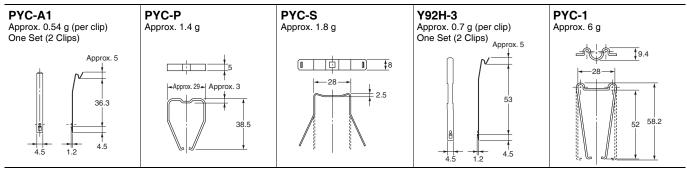
Note: If you use the PTF-08-PU, PTF-08-PU-L, PTF08A, PTF08A-E, or PT08 with an LY1 Relay, connect the following terminal pairs: 1-2, 3-4, and 5-6 (for usage at 10 A or higher).





Note: Use a panel with a thickness of 1 to 2 mm when mounting a Socket on it.

Hold-down Clips



Socket Mounting Plates (t = 1.6)

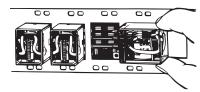
Two, 3.4-dia. holes

5.1

42

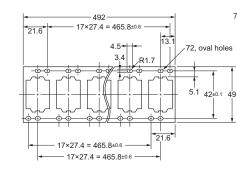
49

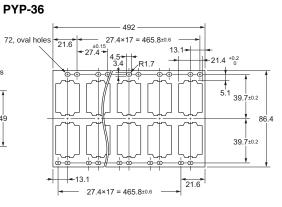
OMRON can provide Socket Mounting Plate for convenient Socket installation. Please use these Plates as required.



PYP-1

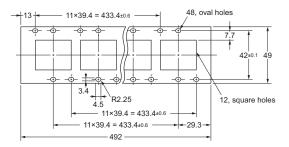






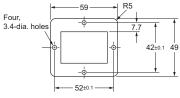


49 - 42±0.1 - 42±0.1 - 42±0.1 - 7.7 - 42±0.1 - 42± PTP-12

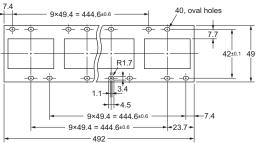




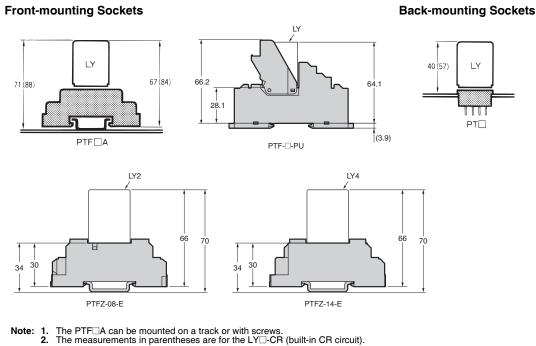




PTP-10



Mounting Height with Sockets



Safety Precautions

Refer to the Common Relay Precautions for precautions that apply to all Relays.

Precautions for Correct Use

- Use two M3 screws to attach case-surface-mounted models (LY1F, LY2F, LY3F, and LY4F) and tighten the screws securely. (Normal tightening torque: 0.98 N·m)
- For Relays with Tab Terminals, select a wire diameter for the lead wires that connect to the faston receptacle terminals that is within the allowed range for the load current.
- Do not impose excessive external force on the Relay when inserting the Relay to the faston receptacle or pulling the Relay out from the faston receptacle. Do not attempt to insert a terminal diagonally or insert or pull out more than one terminal at the same time.
- LY Single-contact Relays are for power switching applications. Do not use the LY Series for switching minute loads of 100 mA or less, such as signals.

About the Built-in Diode and CR Elements

The diode or CR element that are built into the Relay are designed to absorb the reverse voltage from the Relay coil. If a large surge in voltage is applied to the diode or CR element from an external source, the element will be destroyed.

If there is the possibility of large voltage surges that could be applied to the elements from an external source, take any necessary surge absorption measures.

Applying 10 A or More When Using an LY1 with the Following Sockets

When you use an LY1 in combination with the PTF-08-PU, PTF-08-PU-L, PTF08A, PTF08A-E, or PT08, connect each of the following terminal pairs: (1) to (2), (3) to (4), and (5) to (6).

Relay Replacement

To replace the Relay, turn OFF the power supply to the load and Relay coil sides to prevent unintended operation and possible electrical shock.

Attaching and Removing Relay Hold-down Clips

When you attach a Hold-down Clip to or remove it from a Socket, wear gloves or take other measures to prevent injuring your fingers on the Hold-down Clip.

Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

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