OMRON General Purpose Relay

- Arc barrier equipped
- High dielectric strength (2,000 VAC)
- Long dependable service life assured by AgCdO contacts
- Choose models with single or bifurcated contacts, LED indicator, diode surge suppression, push-to-test button, or RC circuit
- All models meet UL and CSA approvals; VDE, LR, and SEV approved versions are available

Ordering Information_

			Part numb	er				
			Single cont	act		Bifurcated of	contact	
Туре	Terminal	Contact form	Standard bracket mounting	Upper mounting bracket	Lower mounting bracket	Standard bracket mounting	Upper mounting bracket	Lower mounting bracket
Standard	Plug-in/solder	SPDT	LY1	LY1F	LY1S	_	_	_
		DPDT	LY2	LY2F	LY2S	LY2Z	LY2ZF	LY2ZS
		3PDT	LY3	LY3F	LY3S	—	_	_
		4PDT	LY4	LY4F	LY4S	—	_	_
	PCB	SPDT	LY1-0	—	_	—	_	—
		DPDT	LY2-0	_	_	LY2Z-0	_	—
		3PDT	LY3-0	_	—	—	—	_
		4PDT	LY4-0	_	—	—	—	_
LED indicator	Plug-in/solder	SPDT	LY1N	_	—	—	—	_
		DPDT	LY2N	_	—	LY2ZN	—	_
		3PDT	LY3N	_	—	—	—	_
		4PDT	LY4N	_	—	—	—	_
Diode surge		SPDT	LY1-D	_	—	—	—	_
suppression		DPDT	LY2-D	—	—	LY2Z-D	—	—
		3PDT	LY3-D	—	_	—	—	—
		4PDT	LY4-D	—	_	—	—	—
LED indicator		SPDT	LY1N-D2	—	_	—	—	—
and diode surge		DPDT	LY2N-D2	—	_	LY2ZN-D2	—	—
suppression		4PDT	LY4N-D2	—	—	—	—	—
RC circuit		SPDT	LY1-CR	—	_	—	—	—
		DPDT	LY2-CR	—	—	LY2Z-CR	—	—
LED indicator		SPDT	LY1N-CR	_	_	—	—	—
and RC circuit		DPDT	LY2N-CR	_	_	LY2ZN-CR	_	_

To Order: Select the part number and add the desired coil voltage rating (e.g., LY1-DC6).

Note: 1. Types with specifications other than those listed are available. Contact your OMRON Sales representative.

2. To order connecting sockets and mounting tracks, see "Accessories" section.

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Ordering Information, continued _____

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			Part number						
			Single contact			Bifurcated contact			
Туре	Terminal	Contact form	Standard bracket mounting	Upper mounting bracket	Lower mounting bracket	Standard bracket mounting	Upper mounting bracket	Lower mounting bracket	
Push-to-test	Plug-in/solder	SPDT	LY1I4	—	—	—	—	_	
button		DPDT	LY214	—	—	LY2ZI2	—	—	
		3PDT	LY3I4	_	—	_	—	—	
		4PDT	LY414	_	—	_	—	—	
LED indicator and	Plug-in/solder	DPDT	LY2I4N	_	_	LY2ZI2N	_	_	
push-to-test button		4PDT	LY4I4N	_	—	_	—	_	

Note: 1. Types with specifications other than those listed are available. Contact your OMRON Sales representative. 2. To order connecting sockets and mounting tracks, see "Accessories" section.

ACCESSORIES

Connecting Sockets

To Order: Select the appropriate part numbers for sockets, clips, and mounting tracks (if required) from the following charts.

Track mounted sockets

		Relay hold-down	clip	
Relay	Socket*	Standard	RC circuit	Mounting track
SPDT	PTF08A-E	PYC-A1	Y92H-3	PFP-100N/PFP-50N &
DPDT				PFP-M or PFP-100N2
3PDT	PTF11A			PFP-S (Option spacer)
4PDT	PTF14A-E			

* Track mounted socket can be used as a front connecting socket.

Back connecting sockets

	Solder terminal	Wire wrap terminal	Relay hold-	down clip		Socket Mounting Plate				
Relay	socket	socket	Standard	Push-to-test	RC circuit	Mtg. plate	1	10	12	18
SPDT DPDT	PT08	PT08QN	PYC-P	PYC-P2	PYC-1	PYC-S	PYP-1	-	-	PYP-18
3PDT	PT11	PT11QN					PTP-1-3	-	PTP-12	-
4PDT	PT14	PT14QN					PTP-1	PTP-10	-	-

Note: Types PYP-18, PTP-12 and PTP-10 may be cut to any desired length.

		Relay hold-down clip	-	
Relay	PC terminal socket	Standard	Push-to-test	RC circuit
SPDT	PT08-0	PYC-P	PYC-P2	PYC-1
DPDT				
3PDT	PT11-0			
4PDT	PT14-0			

Specifications.

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■ CONTACT DATA

	Single contact				Bifurcated contac	xt
	SPDT		DPDT, 3PDT, 4PI	от	DPDT	
Load	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)
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
Contact material	AgCdO					
Carry current	15 A		10 A		7 A	
Max. operating voltage	250 VAC 125 VDC					
Max. operating current	15 A		10 A		7 A	
Max. switching capacity	1,700 VA 360 W	1,100 VA 170 W	1,100 VA 240 W	830 VA 120 W	550 VA 120 W	440 VA 100 W
Min. permissible load	100 mA, 5 VDC				10 mA, 5 VDC	

COIL DATA

1- and 2-pole types – AC

			Coil		Coil inductance (ref. value) (H)		Dropout	Maximum	Power
Rated	Rated currer	nt (mA)	resistance	Armature	Armature	voltage	voltage	voltage	consumption
voltage (V)	50 Hz	60 Hz	(Ω)	OFF	ON	(% of rated	voltage)		(VA, W)
6	214.10	183	12.20	0.04	0.08	80% max.	30% min.	110%	Approx.
12	106.50	91	46	0.17	0.33				1.00 to 1.20
24	53.80	46	180	0.69	1.30				(60 Hz)
50	25.70	22	788	3.22	5.66				
100/110	11.70/12.90	10/11	3,750	14.54	24.60				Approx.
110/120	9.90/10.80	8.40/9.20	4,430	19.20	32.10				0.90 to 1.10
200/220	6.20/6.80	5.30/5.80	12,950	54.75	94.07				(60 Hz)
220/240	4.80/5.30	4.20/4.60	18,790	83.50	136.40				

1- and 2-pole types – DC

		Coil			Pick-up	Dropout	Maximum	Power
Rated		resistance	Armature	Armature	voltage	voltage	voltage	consumption
voltage (V)	Rated current (mA)	(Ω)	OFF	ON	(% of rated	voltage)		(VA, W)
6	150	40	0.16	0.33	80% max.	10% min.	110%	Approx.
12	75	160	0.73	1.37				0.90
24	36.90	650	3.20	5.72				
48	18.50	2,600	10.60	21				
100/110	9.10/10	11,000	45.60	86.20				

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C (73°F) with tolerances of +15%, -20% for AC rated current, and ±15% for DC rated coil resistance.

2. The AC coil resistance and inductance are reference values at 60 Hz.

3. The performance characteristics are measured at a coil temperature of 23°C (73°F).

4. Class B coil insulation is available.

■ COIL DATA(continued)

3-pole type - ACU.com

			Coil	Coil induct (ref. value)		Pick-up	Dropout	Maximum	Power
Rated	Rated curre	nt (mA)	resistance	Armature	Armature	voltage	voltage	voltage	consumption
voltage (V)	50 Hz	60 Hz	(Ω)	OFF	ON	(% of rated	voltage)		(VA, W)
6	310	270	6.70	0.03	0.05	80% max.	30% min.	110%	Approx.
12	159	134	24	0.12	0.21				1.60 to 2.00
24	80	67	100	0.44	0.79				(60 Hz)
50	38	33	410	2.24	3.87				
100/110	15.90/18.30	13.60/15.60	2,300	10.50	18.50				
120	17.30	14.8	2,450	11.50	20.60				
200/220	10.50/11.60	9.00/9.90	8,650	34.80	59.50				
240	9.40	8	10,400	38.60	74.60				

3-pole type – DC

		Coil			Pick-up	Dropout	Maximum	Power
Rated		resistance	Armature	Armature	voltage	voltage	voltage	consumption
voltage (V)	Rated current (mA)	(Ω)	OFF	ON	(% of rated	voltage)		(VA, W)
6	234	25.70	0.11	0.21	80% max.	10% min.	110%	Approx.
12	112	107	0.45	0.98				1.40
24	58.60	410	1.89	3.87				
48	28.20	1,700	8.53	13.90				
100/110	12.70/13	8,500	29.60	54.30				

4-pole type – AC

			Coil		Coil inductance (ref. value) (H)		Dropout	Maximum	Power	
Rated	Rated currer	nt (mA)	resistance	Armature	Armature	Armature	voltage	voltage	voltage	consumption
voltage (V)	50 Hz	60 Hz	(Ω)	OFF	ON	(% of rated	voltage)		(VA, W)	
6	386	330	5	0.02	0.04	80% max.	30% min.	110%	Approx.	
12	199	170	20	0.10	0.17				1.95 to 2.50	
24	93.60	80	78	0.38	0.67				(60 Hz)	
50	46.80	40	350	1.74	2.88					
100/110	22.50/25.50	19/21.80	1,800	10.50	17.30					
120	19.00	16.40	2,200	9.30	19					
200/220	11.50/13.10	9.80/11.20	6,700	33.10	57.90]				
240	11.00	9.50	9,000	33.20	63.40					

4-pole type – DC

		Coil			Pick-up	Dropout	Maximum	Power
Rated		resistance	Armature	Armature	voltage	voltage	voltage	consumption
voltage (V)	Rated current (mA)	(Ω)	OFF	ON	(% of rated	voltage)		(VA, W)
6	240	25	0.09	0.21	80% max.	10% min.	110%	Approx.
12	120	100	0.39	0.84				1.50
24	69	350	1.41	2.91]			
48	30	1,600	6.39	13.60]			
100/110	15/15.90	6,900	32	63.70				

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C (73°F) with tolerances of +15%, -20% for AC rated current, and ±15% for DC rated coil resistance.

2. The AC coil resistance and inductance are reference values at 60 Hz.

3. The performance characteristics are measured at a coil temperature of 23°C (73°F).

4. Class B coil insulation is available.

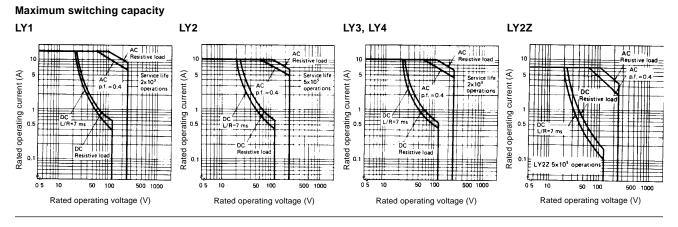
■ CHARACTERISTICS

LY :

Contact resistance		50 mΩ max.	
Operate time		25 ms max.	
Release time		25 ms max.	
Operating frequency Mechanically		18,000 operations/hour	
	Under rated load	1,800 operations/hour	
Insulation resistance		100 MΩ min. (at 500 VDC)	
Dielectric strength		2,000 VAC, 50/60 Hz for 1 minute	
		1,000 VAC, 50/60 Hz for 1 minute between contacts of same polarity	
Vibration Mechanical durability		10 to 55 Hz, 1.00 mm (0.04 in) double amplitude	
	Malfunction durability	10 to 55 Hz, 1.00 mm (0.04 in) double amplitude	
Shock Mechanical durability		1,000 m/s² (approx. 100 G)	
	Malfunction durability	200 m/s ² (approx. 20 G)	
Ambient temperature Operating		-40° to 70°C (-40° to 158°F)	
Humidity		35 to 85% RH	
Service Life	Mechanically	AC: 50 million operations min. (at operating frequency of 18,000 operations/hour)	
		DC: 100 million operations min. (at operating frequency of 18,000 operations/hour)	
	Electrically	See "Characteristic Data"	
Weight		SPDT, DPDT: Approx. 40 g (1.41 oz), 3PDT: Approx. 50 g (1.76 oz)	
		4PDT: Approx. 70 g (2.47 oz)	

Note: Data shown are of initial value.

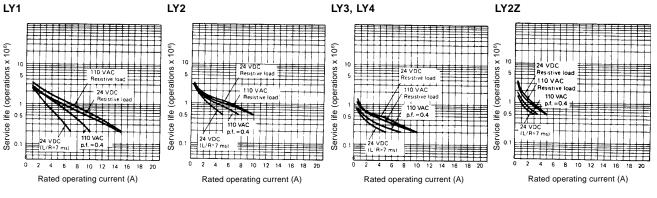
■ CHARACTERISTIC DATA



Electrical service life LY1



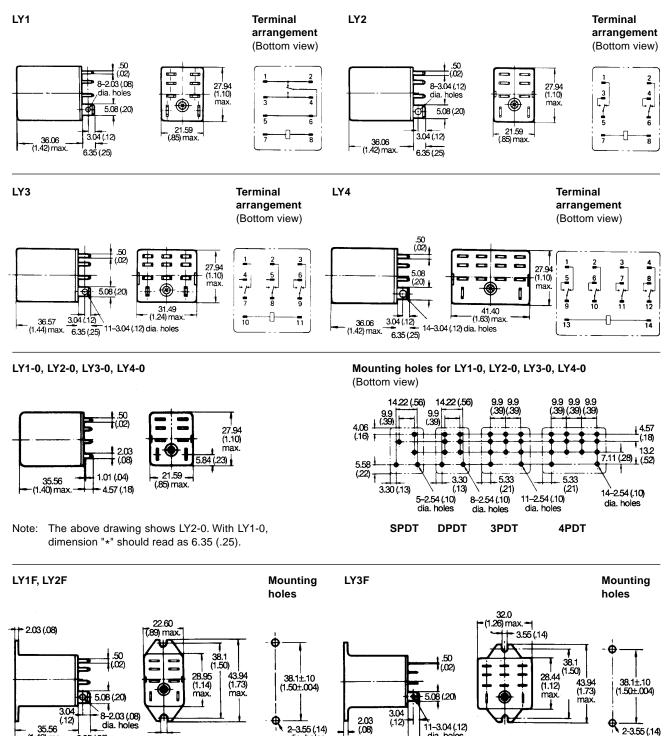




Dimensions

Unit: mm (inch)et4U.com

RELAYS



2–3.55 (.14) dia. holes (or 2 M3)

11-3.04 (.12)

dia. holes

6.35 (25)

35.56 (1.40) max.

Note: The above drawing shows LY1F. With LY2F, dimension "*" should read as eight 3.05 mm (0.12 in) dia. holes.

3.55 (.14)

2-3.55 (.14) dia. holes

(or 2 M3)

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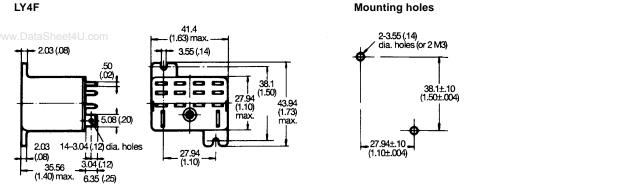
35.56 (1.40) max.

6.35 (25)





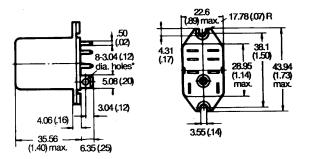
LY :



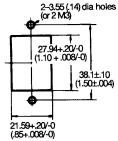
LY1S, LY2S

Round hole



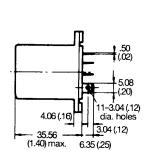


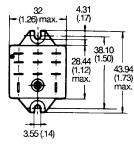
38.1±.10 (1.50±.004) 29.97 (1.18) dia. holes 2-3.55 (.14) dia. holes (or 2 M3)



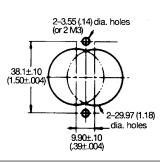
Note: The above drawing shows LY2S-US. With LY1S-US, dimension "*" should read as eight 2.03 mm (0.08 in) dia. holes.

LY3S

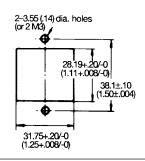




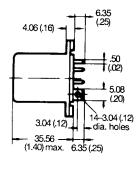


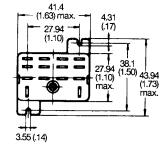


Rectangular hole

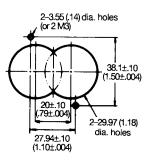




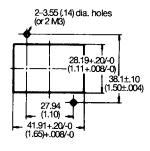




Round hole



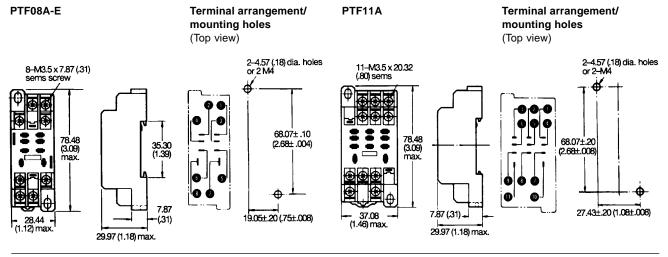




ACCESSORIES

Unit: mm (inch)

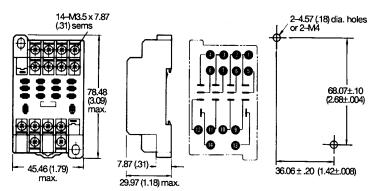
Track mounted sockets (UL File No. E87929) (CSA Report No. LR31928)



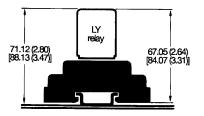
Track mounting sockets (UL File No. E87929) (CSA Report No. LR31928)

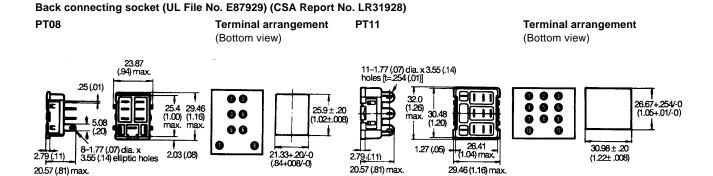
PTF14A-E

Terminal arrangement/ mounting holes (Top view)



Note: 1. UL/CSA does not apply to wire wrap (Q) type sockets. 2. Values in brackets for LY□CR. Mounting height of relay with socket (Applies to all PTF□A sockets)





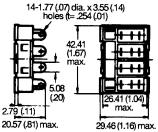
: LY

Back connecting socket (UL File No. E87929) (CSA Report No. LR31928)

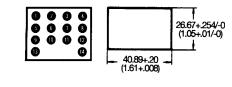
PT14

LY =

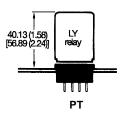
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Terminal arrangement (Bottom view)



Mounting height of relay with socket (Applies to all PT sockets)



PT14QN

as Type PT14.

Panel cut-out and terminal

arrangement are the same

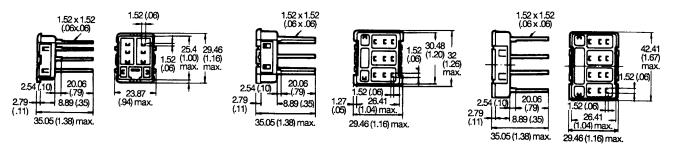
Note: Values in brackets for LYDCR.

Back connecting socket (UL File No. E87929) (CSA Report No. LR31928)

PT08QN

Panel cut-out and terminal arrangement are the same as Type PT08.

PT11QN Panel cut-out and terminal arrangement are the same as Type PT11.



Back connecting socket (UL File No. E87929) (CSA Report No. LR31928)

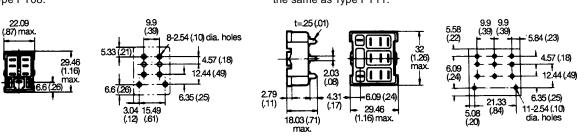
PT08-0

Terminal arrangement is the same as Type PT08.

.25 (.01)

4.31

Mounting holes (Bottom view) **PT11-0** Terminal arrangement is the same as Type PT11.



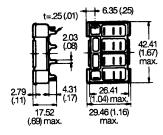
Back connecting socket (UL File No. E87929) (CSA Report No. LR31928)

PT14-0

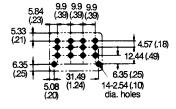
18.03 (.71)

max.

Terminal arrangement is the same as Type PT14.







Mounting holes (Bottom view)



: LY

ACCESSORIES (continued)

5.08 (.20) max.

> 36.32 (1.43)

4.57 1.52 (.18) (.06)

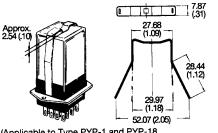
Unit: mm (inch)

Relay hold-down clips

PYC-A1 For PTF□A socket

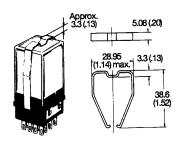
PYC-S

For relay mounting plates (Applicable to Type PYP-1 and PYP-18 socket mounting plates only.)



(Applicable to Type PYP-1 and PYP-18 socket mounting plates only.)

PYC-P For PT⊡ socket

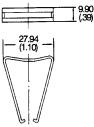


Relay hold-down clips PYC-P2

For push-to-test button type with PT□ socket

4.57





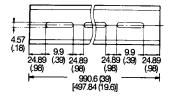
Y92H-3 For RC circuit type

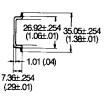


PYC-1 For RC circuit type

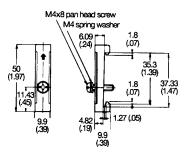


Mounting track/end plate/spacer PFP-100N/PFP-50N mounting track





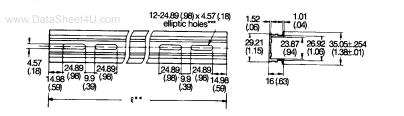
PFP-M end plate

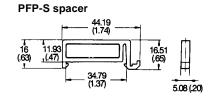




PFP-100N2 mounting track

LY :



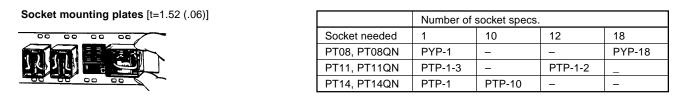


- LY

- * This dimension is 14.99 mm (0.59 in) on both ends in the case of PFP-100N, but on one end in the case of PFP-50N.
- ** L = Length PFP-50NL = 497.84 mm (19.60 in) PFP-100NL = 990.60 mm (39.00 in) PFP-100N2L = 990.60 mm (39.00 in)

PTP-1-3

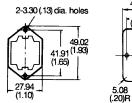
*** A total of twelve 24.89 x 4.57 mm (0.98 x 0.18 in) elliptic holes are provided, with six holes cut from each end of the track at a pitch of 9.91 (0.39) between holes.

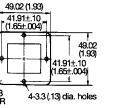


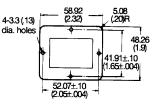


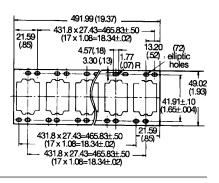


PYP-18

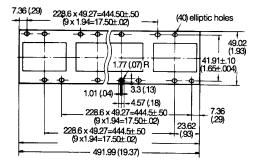




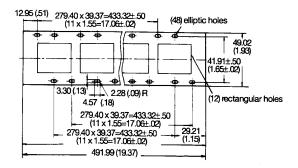




PTP-10



PTP-12



LY :

RELAY OPTIONS

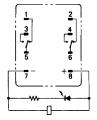
LED Indicator

Specifications and dimensions same as the Standard Type with the following exception. With the LED indicator type, the rated current is approximately 0 to 5.0 mA higher than the Standard Type.

Terminal arrangement/Internal connections (Bottom view)

LY2N

DC coil rating type



AC coil rating type

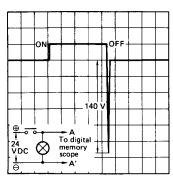
Note: 1. The coil terminals 10 and 11 of Type LY3N become (-) and (+) and terminals 13 and 14 of Type LY4N become (-) and (+), respectively.

2. Pay special attention to the polarities when using the DC type.

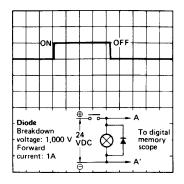
Diode Surge Suppression

Specifications and dimensions same as the Standard Type with the following exception. Ambient operating temperature: -25° to 40°C (-13° to 104°F)

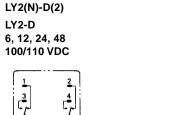
Without Diode



With Diode



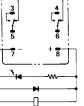
Terminal arrangement/Internal connections (Bottom view)



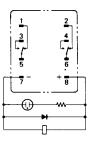




LY2N-D2







Note: 1. Pay special attention to the polarities when using the DC type.

- 2. The release time is somewhat longer, but satisfies the standard specifications of 25 ms.
- 3. The reverse-breakdown voltage of the diode is 1,000 VDC.
- 4. Available on DC versions only.

- LY

With RC circuit

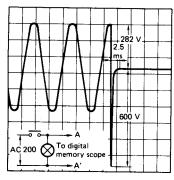
RELAY OPTIONS

RC Circuit

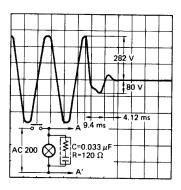
Specifications and dimensions same as the Standard Type with the following exceptions.

Characteristic Data

Without RC circuit

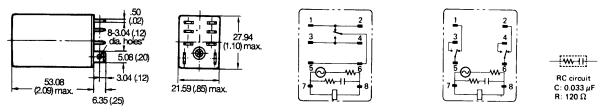


LY1-CR, LY2(Z)-CR



 Terminal arrangement/Internal connections (Bottom view)

 LY1-CR
 LY2(Z)-CR

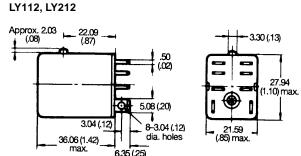


Note: 1. The above drawing shows LY2(Z)-CR. With LY1-CR, "*" should read eight 2.03 mm (0.08 in) dia. holes. 2. Available on AC versions only.

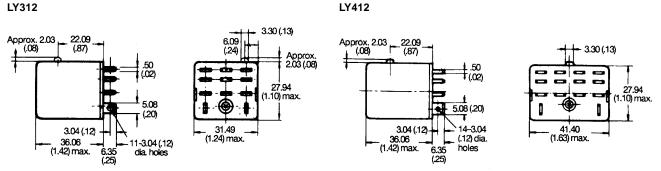
Push-to-test Button

Specifications and dimensions same as the Standard Type with the following exceptions. LYD12 LY112, LY212





Note: Type LY112 has the same dimensions and appearances as Type LY212 shown except that dimension "*" is 2.03 mm (0.08 in) dia. holes



LY :

APPROVALS

UL recognized type (File No. E41643)

Туре	Contact form	Coil ratings	Contact ratings
LY	SPDT	6 to 240 VAC	15 A, 240 VAC (Inductive)
		6 to 120 VDC	15 A, 28 VDC (Resistive)
			TV-5 (ACTV)
			1/2 HP, 120 VAC (Motor)
LY	DPDT		13 A, 120 VAC (Resistive)
			12 A, 240 VAC (Inductive)
			10 A, 28 VDC (Resistive)
			TV-3 (ACTV)
			1/2 HP, 120 VAC (Motor)
LY	3PDT		10 A, 240 VAC (Inductive)
	4PDT		10 A, 28 VDC (Resistive)
			1/2 HP, 240 VAC (Motor)

CSA certified type (File No. LR31928)

Туре	Contact form	Coil ratings	Contact ratings
LY	SPDT	6 to 240 VAC	15 A, 120 VAC (Inductive)
		6 to 120 VDC	10 A, 240 VAC (Inductive)
			15 A, 28 VDC (Resistive)
			TV-5 (ACTV)
LY□	DPDT		13 A, 28 VDC (Resistive)
			12 A, 120 VAC (Inductive)
			10 A, 240 VAC (Inductive)
			1/3 HP, 120 VAC (Motor)
		_	TV-3 (ACTV)
LY	3PDT		10 A, 240 VAC (Inductive)
	4PDT		10 A, 28 VDC (Resistive)

VDE approved type (File No. 9903 [SPDT, DPDT & 3PDT], File No. 9947 [4PDT])

Туре	Contact form	Coil ratings	Contact ratings
LY□-VD	SPDT	6, 12, 24, 50,	10 A, 220 VAC (Resistive)
		110, 220 VAC	10 A, 28 VDC (Resistive)
		and 6, 12, 24,	7 A, 220 VAC (Inductive)
		48, 110 VDC	7 A, 28 VDC (Inductive)
LY□-VD	DPDT		7 A, 220 VAC (Resistive)
	3PDT		7 A, 28 VDC (Resistive)
	4PDT		4 A, 220 VAC (Inductive)
			4 A, 28 VDC (Inductive)

LR (Lloyd's Register) approved type (File No. 562KOB-204523)

Туре	Contact form	Coil ratings	Contact ratings
LY	DPDT	6 to 240 VAC	7.5 A, 230 VAC (Inductive)
	4PDT	6 to 110 VDC	5 A, 24 VDC (Inductive)

SEV listed type (File No. D7 91/82 [2- & 4-pole], D 91/204a [1- & 3-pole])

Туре	Contact form	Coil ratings	Contact ratings
LY□-SV	SPDT	6 to 240 VAC	15 A, 220 VAC (Resistive)
		6 to 110 VDC	15 A, 24 VDC (Resistive)
LY□-SV	DPDT		10 A, 220 VAC (Resistive)
	3PDT		10 A, 24 VDC (Resistive)
	4PDT		

Note: 1. The rated values approved by each of the safety standards (e.g., UL, CSA, VDE, and SEV) may be different from the performance characteristics individually defined in this catalog.

2. In the interest of product improvement, specifications are subject to change.



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9/97

Specifications subject to change without notice.

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