

PRODUCT SPECIFICATION



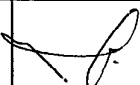


- For reference
- For Approval

( 1 / 8 )

Spec. No. : OMI-LY4-09002 A

Date of issue : July 9 '09

Issued by	Checked by	Approved by
		
Sofi	Anom W	Isman N

PT. OMRON MANUFACTURING OF INDONESIA

CUSTOMER	:	
PRODUCT NAME	:	POWER RELAY
TYPE	:	LY4N
SPECIFICATION	:	110 / 120 VAC

We have sent you this product specification sheets.

After you confirm, we would like you to return a copy to our side. ( Closing date : )

If not returned, we will judge that you approve this product specification.

Receipt Confirmation and / Approval	
( Filled by Sales )	( Filled by End Customer )

Distribution	No. of copies	Rev.	Date of revision	Revision contents
( Sales )				
(Customer)				



The units and figures in brackets { } are for reference only.

( Optional items are indicated by a check mark.  )

No. : OMI-LY4-09002 A

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1.	Type	<u>POWER RELAY</u>			
2.	Structure				
2.1.	Outline drawing	Drawing No.:	<u>0483414-8</u>		
2.2.	Structure drawing	Drawing No.:	<u>-</u>		
2.3.	Contact structure	<u>4PDT ( 4C Contact )</u>			
2.4.	Contact mechanism	<u>SINGLE CONTACT</u>			
2.5.	Contact material	Surface material	<u>—</u>	Base material	<u>AgSnIn</u>
2.6.	Protective structure	<input type="checkbox"/> Plastic sealed	<input type="checkbox"/> Flux tight	<input checked="" type="checkbox"/> Dust Cover	<u>                    </u>
3.	Standards				
3.1.	Authorized specifications	<u>UL, CSA, TUV</u>			
3.2.	Applicable specifications	<u>—</u>			
3.3.	Conforming specifications	<u>—</u>			
4.	Ratings				
4.1.	Operating coil	<input type="checkbox"/> Refer to table 1.	( Initial values )		
(1)	Rated voltage & frequency		<u>110/120</u> V	<u>60</u> Hz	%
(2)	Rated current	<input checked="" type="checkbox"/> Setting current	<u>18</u> mA	<u>+15/-20%</u> %	
		<input type="checkbox"/> Resetting current	( at <u>110</u> V	<u>—</u> Hz)	
			<u>—</u> mA ±	<u>—</u> %	
(3)	Coil resistance	<input checked="" type="checkbox"/> Setting resistance	( at <u>—</u> V	<u>—</u> Hz)	
			<u>1700</u> Ω ±	<u>± 15</u> %	
		<input type="checkbox"/> Resetting resistance	<u>—</u> Ω ±	<u>—</u> %	
(4)	Rated power consumption	Approx.	<u>1.95~2.5</u> VA (at 60 Hz)		
(5)	Allowable range of voltage fluctuation :	<u>90</u>	to	<u>110</u> %	of the rated voltage
4.2.	Switching section				
(1)	Rated load	Resistive load	AC <u>110</u> V	<u>10</u> A	
			DC <u>24</u> V	<u>10</u> A	
		Inductive load	AC <u>110</u> V	<u>7.5</u> A	
			(P.f. = <u>0.4</u> )		
			DC <u>24</u> V	<u>5</u> A	
			(L/R = <u>7</u> ms)		

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- (2) Rated current 10 A
- (3) Maximum contact voltage AC 250 V DC 125 V
- (4) Maximum contact current
  - Resistive load AC 10 A DC 10 A
  - Inductive load AC 10 A
    - (P.f. = 0.4 )
    - DC 10 A
    - (L/R = 7 ms)
- (5) Maximum switching capacity
  - Resistive load AC 1,100 VA, DC 240 W
  - Inductive load AC 825 VA
    - (P.f.= 0.4 )
    - DC 120 W
    - (L/R= 7 ms)
- (6) Minimum applicable load      mV      mA  
 (      P standard, reference value )  
 ( λ 60 =      -      )  
 ( Switching frequency:      -      )

5. Performance ( Initial values )

- 5.1. Contact resistance 50 miliohm ( m Ω ) max.  
 Measured by the voltage drop method with 5 VDC 1 A  
 Measured by
- 5.2. Operate voltage  Setting voltage 88 V max.  
 Refer to Table 1.
- 5.3. Release voltage  Resetting voltage 36 V min.  
 Refer to Table 1.
- 5.4. Operate time  Setting time 25 ms max. ( operated with rated voltage )
- 5.5. Release time  Resetting time 25 ms max. ( operated with rated voltage )
- 5.6. Insulation resistance (  500 VDC  250 VDC )
  - (1) Between coil and contacts. 100 Megaohm min.
  - (2) Between contacts of opposite polarities 100 Megaohm min.
  - (3) Between contacts of the same polarity 100 Megaohm min.
  - (4) Between set coil and reset coil.      Megaohm min.
  - (5) Between coil / contact terminals and exposed non - charged metallic section ( grounding etc. )      Megaohm min.



5.7. Dielectric withstand voltage ( Leak current 3 mA, 50 / 60 Hz, 1 minute of application )

(1) Between coil and contact.	<u>2,000</u> VAC
(2) Between contacts of opposite polarities	<u>2,000</u> VAC
(3) Between contacts of the same polarity	<u>1,000</u> VAC
(4) Between set coil and reset coil.	— VAC
(5) Between coil / contact terminals and exposed non - charged metallic section ( grounding etc. )	— VAC

## 5.8. Temperature rise

- (1) Coil 55 °C max. ( by resistance method )  
(at 60°C)  
Voltage applied to coil : 100 % 50 Hz of the rated voltage.  
Contact current : 10 A
- (2) Contact 60 °C max. ( by thermometer method )  
Voltage applied to coil : 100 % 50 Hz of the rated voltage.  
Contact current : 10 A

## 5.9. Vibration resistance

- (1) Durability After varied vibration with a single amplitude of 0.5 mm single amplitude ( 1.0 mm double amplitude ) and frequency of 10 to 55 Hz is applied in each direction for 2 hours, no abnormality in structure and characteristics shall be observed.
- (2) Malfunction
- Set status ( When Energized ) After varied vibration with a single amplitude of 0.5 mm single amplitude ( 1.0 mm double amplitude ) and frequency of 10 to 55 Hz is applied in each direction for 1 cycle (5 minutes). No contact opening of more than 1 ms shall be observed.
- Reset status ( When not Energized ) After varied vibration with a single amplitude of 0.5 mm single amplitude ( 1.0 mm double amplitude ) and frequency of 10 to 55 Hz is applied in each direction for 1 cycle (5 minutes). No contact opening of more than 1 ms shall be observed.

## 5.10. Shock resistance

- (1) Durability Must be free from any abnormality in both the construction and characteristics after the relay is subjected to a shock of 1000 m/s<sup>2</sup> in each direction for 3 times.
- (2) Malfunction
- Set status ( When Energized ) Contacts must not open for 1.0 ms or longer after the relay is subjected to a shock of 200 m/s<sup>2</sup> in each direction for 3 times.
- Reset status ( When not Energized ) Contacts must not open for 1.0 ms or longer after the relay is subjected to a shock of 200 m/s<sup>2</sup> in each direction for 3 times.

## 5.11. Terminal strength

When stress force of 7 kgf { 68.6 N } is applied in the direction of the vertical axis for 60 seconds, there shall be no abnormality. However, dimensional deformation of terminal caused by the force shall not be considered mechanical damage.

5.12. Temperature resistance

(1) Heat resistance When left at a temperature of 85 ± 2 °C for 16 hours, then at a normal temperature / humidity for 2 hours, no abnormality in structure and characteristic shall be observed.

(2) Cold resistance When left at a temperature of -55 ± 3 °C for 72 hours, then at a normal temperature / humidity for 2 hours, no abnormality in structure and characteristic shall be observed.

5.13. Humidity resistance

When left at a temperature of 40 ± 2 °C and relative humidity of 90 to 95 % RH for 48 hours, then at a normal temperature / humidity for 2 hours, no abnormality in structure and characteristic shall be observed. However, the insulation resistance shall be 5 MegaOhm min.

5.14. Soldering Heat Resistance

After terminal is immersed in a molten solder of — °C — seconds, then left a normal temperature / humidity for 2 hours, no abnormality in structure and characteristic shall be observed.

5.15. Life Endurance

(1) Mechanical Endurance 50,000,000 times min.  
( no contact load, switching frequency : 18,000 times / h )

(2) Electrical Endurance 200,000 times min.  
( rated load switching frequency : 1,800 times / h )

6. Standard testing conditions : The specification values in this document are based on the following testing conditions, unless indicated otherwise.

6.1. Temperature 23 °C

6.2. Humidity 65% RH

7. Environments

- (1) Products shall not be exposed to corrosive gases such a hydrogen sulfide gas, or air containing salt.
(2) The storage site shall have no visible dust.
(3) Products shall not be exposed to direct sunlight.
No force or stress that can cause dimensional deformation or quality deterioration shall be applied.

8. Operating conditions :

8.1. Temperature  -25 to +40 °C  - to - °C
There shall be no ice formation or dew condensation.

8.2. Humidity 5 to 85 %RH

8.3. Mounting direction \_\_\_\_\_

8.4. Environments

- (1) Products shall not be used in a place exposed to corrosive gases such a hydrogen sulfide gas or air containing salt.
  - (2) There shall be no visible dust.
  - (3) Products shall not be exposed to direct sunlight.
- No force or stress that can caused dimensional deformation or quality deterioration shall be applied.

9. Change of indications

Specification other than the ratings, performance, structure and external dimensions and mounting dimension are subject to change.

10. Validity of specification sheet

10.1. When no confirmation is received within one year of the issuing date of this specification sheet, this specification sheet will be invalidated.

10.2. This specification sheet is valid for 3 years after the date of receiving confirmation

11. Warranty period

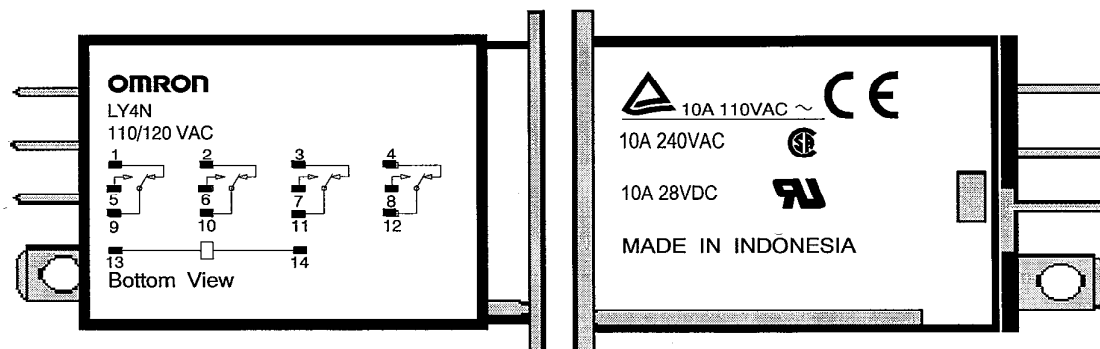
11.1. Warranty period is one year from the date on which the products are delivered to the location designated by the customer.

11.2. Scope of warranty

The warranty is limited only to repairs or replacement of defective parts, when Omron is responsible for the malfunctioning or defect that occurs during the warranty period.

The warranty applies only to individual products delivered by Omron. Therefore, the warranty does not cover any other damages induced by the malfunctioning of Omron products.

12. Marking of relay



### 13. Handling cautions

- 13.1. Do not use ultrasonic cleaning, since it causes resonance inside the relay and can result in coil disconnection and contact sticking.
- 13.2. Do not drop products to avoid deterioration of the initial performance.

### 14 Other Related Matters

#### 14.1 Before Using This Product

- (1) Please ensure the safety of the product by bearing in mind the normally predictable possible failures of the product.
- (2) Please maintain the product conditions related to operation, storage and disposal (including the cautions and warnings in the operation manual, catalogue, specifications, etc.)
- (3) If you wish to use the product in critical operations where the failure of the product may cause injury or death, or property damage (e.g. nuclear power control, railways, aviation, vehicles, combustion equipment, medical equipment, safety equipment, etc.), please add a sufficient allowance in the ratings and characteristics as well as in safety measures such as failsafe procedures, etc.
- (4) If any accident occurs due to a defect in this product, please immediately contact our sales person.

#### 14.2 Warranty Period

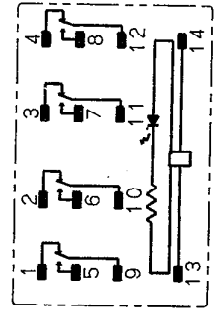
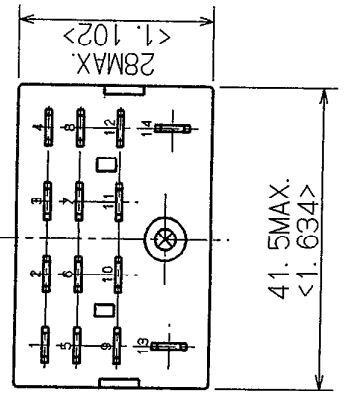
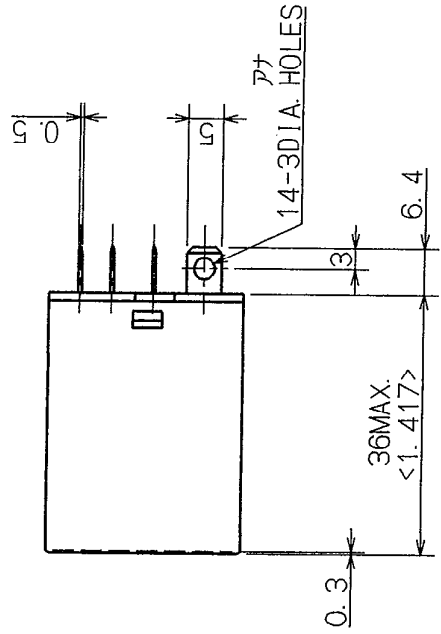
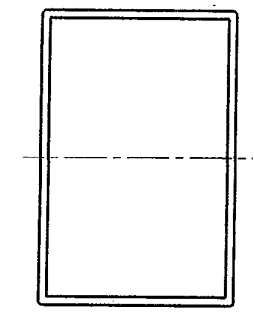
The product is under warranty for one year after delivery of the product to the specified location.

#### 14.3 Warranty Range

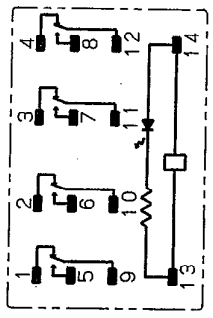
If any failure occurs during the above warranty period for which we are responsible, the product or faulty part will be replaced, exchanged or repaired at no extra cost at the place where the product was purchased or received. The following cases, however, are outside the warranty range :

- (1) Where the cause of the failure originated with the product
- (2) Where the product has been remodeled or repaired by someone not from our company.
- (3) Where the failure has been caused by incorrect operation
- (4) Where the contents of Section 15.1, "Before Using This Product" have been ignored.
- (5) Where the cause of the failure may be defined as force majeure, and hence is not our fault

# REVISION



AC



DC

ワンシハイチ/サイモツクス  
 TERMINAL ARRANGEMENT/  
 INTERNAL CONNECTIONS  
 (BOTTOM VIEW)

参考図 '03.6.23

REFERENCE

< > IN INCHES

MATERIAL		SCALE	
FINISH		VI イル・カ イケイ	
TOLERANCES UNLESS SPECIFIED		VI POWER RELAY OUTL. DRWG.	
DESIGNED	CHECKED	DRWG NO. 0483414-8 B	
92/09/01	APPROVED	DESIGNED FOR LY4N	
製品技術課 伊ナカ	製品技術課 伊ナカ	SHEET 1 / 1	
製品技術課 シモダ	製品技術課 伊ナカ	3RD ANGLE	
製品技術課 伊ナカ	製品技術課 伊ナカ	SHEET 1 / 1	
SY#		DATE	
E/C CONTENTS		E/C NO.	
SIGN		SIGN	



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