

PRODUCT SPECIFICATION

- For reference
- For Approval

(1 / 9)

Spec. No. : OMI-G5PA-00021 A

Date of issue : Nov. 07, 2000



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PT. OMRON MANUFACTURING OF INDONESIA

CUSTOMER : _____

PRODUCT NAME : POWER RELAY

TYPE : G5PA-1

SPECIFICATION : 5, 6, 9,12, 24VDC

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)

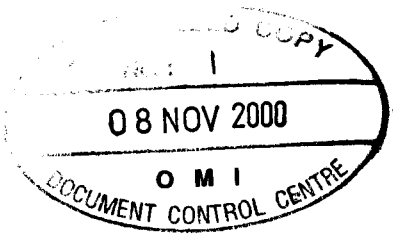
Distribution	No. of copies	Rev.	Date of revision	Revision contents
(Sales)				
(Customer)				

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

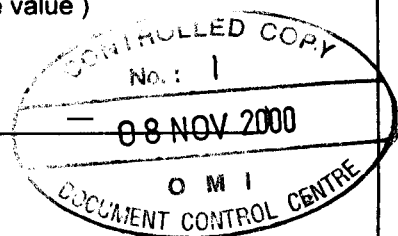
(Optional items are indicated by a check mark.)

No. : OMI-G5PA-00021 A (2 / 9)

1.	Type	SINGLE STABLE RELAY		
2.	Structure			
2.1.	Outline drawing	Drawing No.:	0 4 1 0 0 0 4	
2.2.	Structure drawing	Drawing No.:	0 3 1 0 0 0 5	
2.3.	Contact structure	1A Contact		
2.4.	Contact mechanism	Single contact		
2.5.	Contact material	Surface material	—	Base material <u>AgSn Alloy</u>
2.6.	Protective structure	<input type="checkbox"/> Plastic sealed	<input checked="" type="checkbox"/> Flux protection	<input type="checkbox"/> _____
3.	Standards			
3.1.	Authorized specifications	UL, CSA, TUV, SEMKO		
3.2.	Applicable specifications	UL No. : E41515	TUV License No. : R9650435	
		CSA No. : LR31928	SEMKO Reg. No. : 9933191	
3.3.	Conforming specifications	—		
4.	Ratings			
4.1.	Operating coil	<input checked="" type="checkbox"/> Refer to table 1.	(Initial values)	
(1)	Rated voltage & frequency		— V	— Hz
(2)	Rated current	<input type="checkbox"/> Setting current	— mA ±	— %
		<input type="checkbox"/> Resetting current	(at — V	— Hz)
(3)	Coil resistance	<input type="checkbox"/> Setting resistance	— mA ±	— %
		<input type="checkbox"/> Resetting resistance	(at — V	— Hz)
			— Ω ±	— %
			— Ω ±	— %
(4)	Rated power consumption	Approx.	— mW	(DC)
(5)	Allowable range of voltage fluctuation :	—	to	— % of the rated voltage
4.2.	Switching section			
(1)	Rated load	Resistive load	AC	— V — A
			DC	— V — A
		Inductive load	AC	— V — A
				(P.f. = —)
			DC	— V — A
				(L/R = — ms)



- (2) Rated current 5 A
- (3) Maximum contact voltage AC 250 V DC 30 V
- (4) Maximum contact current
 - Resistive load AC 5 A DC 5 A
 - Inductive load AC — A
 - (P.f. = —)
 - DC — A
 - (L/R = — ms)
- (5) Maximum switching capacity
 - Resistive load AC 1,250 VA, DC 150 W
 - Inductive load AC — VA
 - (P.f.= —)
 - DC — W
 - (L/R= — ms)
- (6) Minimum applicable load — mV — mA
 - (— standard, reference value)
 - (λ 60 = —)
 - (Switching frequency : —)



5. Performance (Initial values)

- 5.1. Contact resistance 100 miliohm (m Ω) max.
 - Measured by the voltage drop method with 5 VDC 1 A
 - Measured by _____
- 5.2. Operate voltage
 - Setting voltage — V max.
 - Refer to Table 1.
- 5.3. Release voltage
 - Resetting voltage — V min.
 - Refer to Table 1.
- 5.4. Operate time
 - Setting time 15 ms max. (operated with rated voltage)
- 5.5. Release time
 - Resetting time 5 ms max. (operated with rated voltage)
- 5.6. Insulation resistance (500 VDC 250 VDC)
 - (1) Between coil and contacts. 1,000 Megaohm min.
 - (2) Between contacts of opposite polarities — Megaohm min.
 - (3) Between contacts of the same polarity 1,000 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. 4,000 VAC
- (2) Between contacts of opposite polarities — VAC
- (3) Between contacts of the same polarity 1,000 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 50 °C max. (by the resistance method)
Voltage applied to coil : 100 % — Hz of the rated voltage.
Contact current : 5 A
- (2) Contact 60 °C max. (by the thermometer method)
Voltage applied to coil : 100 % — Hz of the rated voltage.
Contact current : 5 A

5.9. Vibration resistance

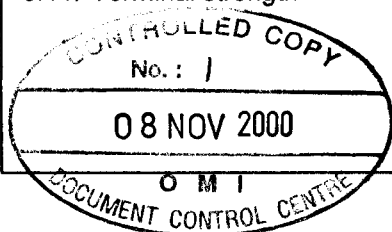
- (1) Durability After varied vibration with a double amplitude of 1.5 mm and oscillation of 10 to 55 Hz is applied in each direction for 2 hours, no abnormality in structure and characteristics shall be observed.
- (2) Malfunction
 - Set status (Energized) After varied vibration with a double amplitude of 1.5 mm and oscillation of 10 to 55 Hz is applied in each direction for 5 minutes, no contact opening of more than 1 ms shall be observed.
 - Reset status (Not energized) After varied vibration with a double amplitude of — mm and oscillation of — to — Hz is applied in each direction for — minutes, no contact opening of more than — ms shall be observed.

5.10. Shock resistance

- (1) Durability After shock of 1,000 m/s² is applied in each direction for 3 times, no abnormality in structure and characteristics shall be observed.
- (2) Malfunction
 - Set status (Energized) After shock of 200 m/s² is applied in each direction for 3 times, no contact opening of more than 1 ms shall be observed.
 - Reset status (Not energized) After shock of — m/s² is applied in each direction for — times, no contact opening of more than — ms shall be observed.

5.11. Terminal strength

When stress force of 1 kgf { 9.8 N } is applied in the direction of the vertical axis for 10 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 260 ± 5 °C 10 seconds, then left a normal temperature / humidity for 2 hours, no abnormality in structure and characteristic shall be observed.

5.15. Life expectancy

(1) Mechanical Life

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

(2) Electrical Life

40,000 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. Storage conditions :

Products shall be stored under the following conditions.

7.1. Temperature

-40 to 70 °C — to — °C
There shall be no ice formation or dew condensation.

7.2. Humidity

35 to 85 %RH

7.3. 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.

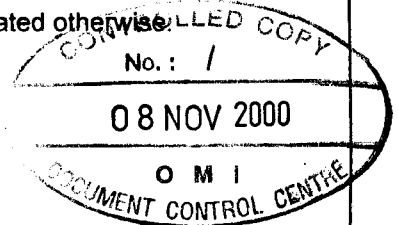
No force or stress that can cause dimensional deformation or quality deterioration shall be applied.

8. Operating conditions :

Products shall be used under the following conditions :

8.1. Temperature

-25 to 70 °C — to — °C
There shall be no ice formation or dew condensation.



8.2. Humidity 45 to 85 %RH

8.3. Mounting direction Free directions

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

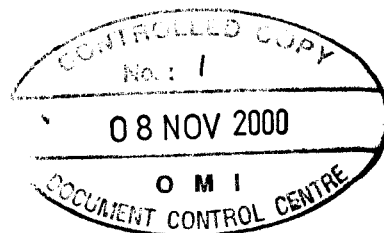
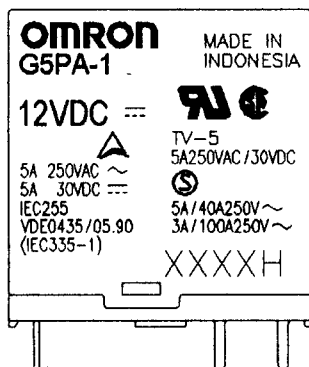
11.1. Warranty period is one year from the date on which the products are delivered to the location designated by the customer.

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. Others

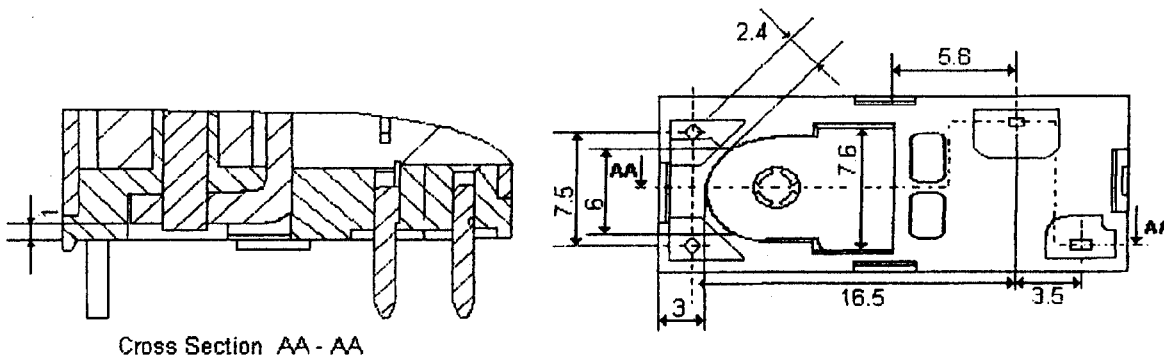
13.1. Coil Rating (Table 1)

Rated Voltage (V)	Rated Current (mA)	Coil Resistance (Ohm)	Operate Voltage (V)	Release Voltage (V)	Allowable range of Voltage fluctuation	Power consumption (mW)
5	50	100	80% of the rated voltage max.	10% of the rated voltage min.	90 - 110% of the rated voltage	Approx. 250
6	41.7	143				
9	27.8	324				
12	20.8	576				
24	10.4	2,304				

NOTE : 1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerance of ± 10 %.

13.2. Attention for printed board design have metal exposed between coil terminal of bottom side of relay and contact terminal.

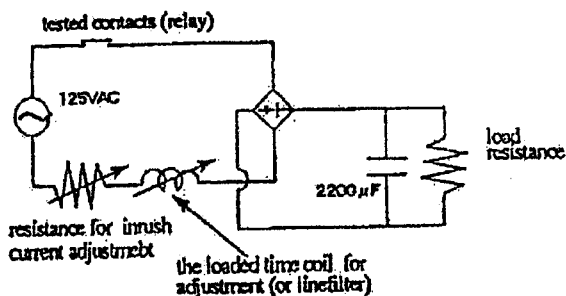
Please design the printed board carefully, and do separate from metal part without having pattern design between relay terminals of the installed face.



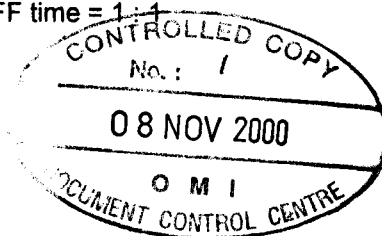
Cross Section AA - AA

13.2. Power supply suspected load and life.

- Fundamental way of thinking : Rated load in consideration of switching the power supply.
- Electrical life : 40,000 operations at the following condition.
- TV set circuit : Random phase switching with the following requirements.
- Current : Inrush peak current 100A, Steady-state current 3A. (Actual values)



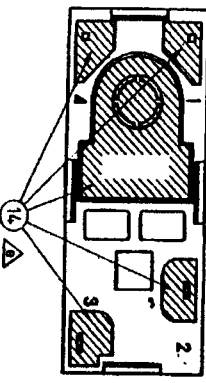
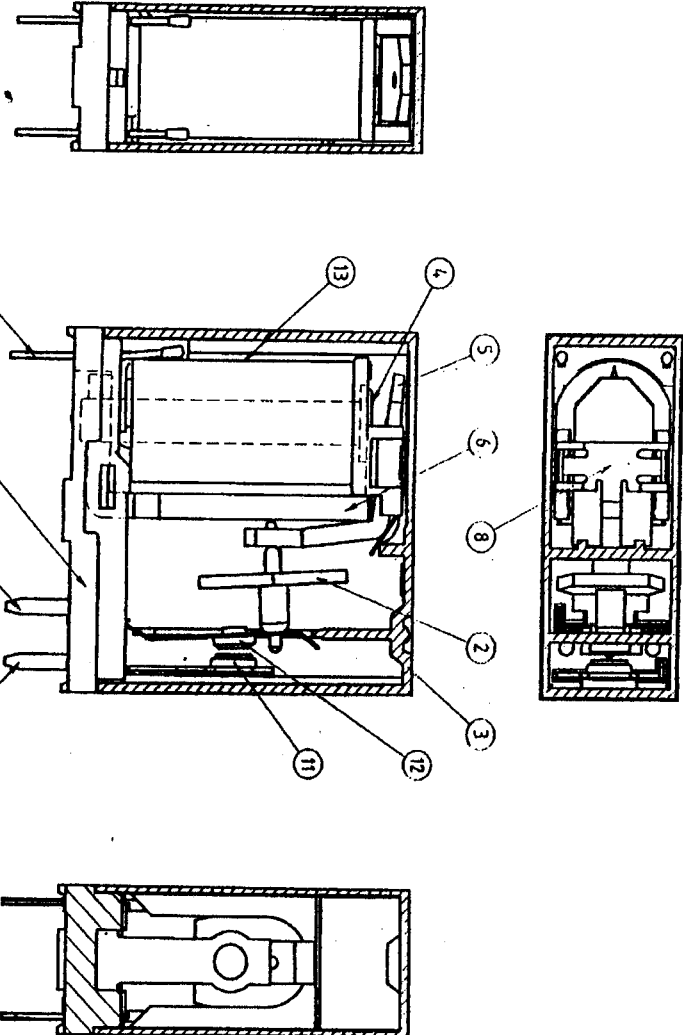
Must adjust the inrush peak current 0 - 100A, 300 to 350 µs for the load time. Must adjust the inrush peak current to be occurred more than the specified values, once out 12 operations.
 Frequency : 2s / operation.
 ON time : OFF time = 1 : 1



14. Handling cautions

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

No.	PART NAME	MATERIAL	QTY.
1.	BASE	POLYBUTYLENE TEREPHTHALATE	1
2.	CARD	POLYBUTYLENE TEREPHTHALATE	1
3.	CASE	POLYBUTYLENE TEREPHTHALATE	1
4.	CORE	SOFT MAGNETIC IRON	1
5.	ARMATURE.	SOFT MAGNETIC IRON	1
6.	Y O K E	SOFT MAGNETIC IRON	1
7.	TERMINAL, COIL	COPPER ALLOY	2
8.	HINGE SPRING	COPPER ALLOY	1
9.	TERMINAL, STATIONARY	COPPER ALLOY	1
10.	TERMINAL, MOVABLE	COPPER ALLOY	1
11.	CONTACT, STATIONARY	SLAYER TIN ALLOY	1
12.	CONTACT, MOVABLE	SLAYER TIN ALLOY	1
13.	MAGNETIC WIRE	POLYURETHAN COPPER WIRE	1
14.	SEAL	EPOXY RESIN	1



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DOCUMENT CONTROL CENTRE

STYL	DATE	E/C	CONTENTS	E/C NO.	SIGN	FINISH	TOLERANCES (DESIGNED)	DRAWN	CHECKED	APPROVED	SCALE	ANGLES	SHEET	NO.	DESIGNED FOR
	09/09/78		Change design for: add application												
	Apr: 1978		Re-issued & changed to OM version												
	Dec: 1979		Add bond applying area												

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