

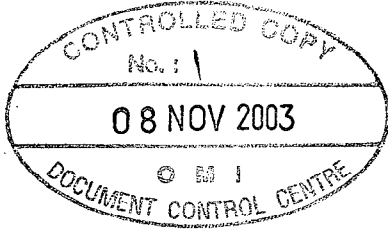
PRODUCT SPECIFICATION

- For reference
- For Approval

(1 / 8)

Spec. No. : OMI-G5SB-03006 A

Date of issue : Nov. 7 '03



Issued by	Checked by	Approved by
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
Sarjoko	Sujatmoko	Isman N.

PT. OMRON MANUFACTURING OF INDONESIA

CUSTOMER	:	
PRODUCT NAME	:	PCB POWER RELAY
TYPE	:	G5SB-1A4
SPECIFICATION	:	5,9,12 & 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.

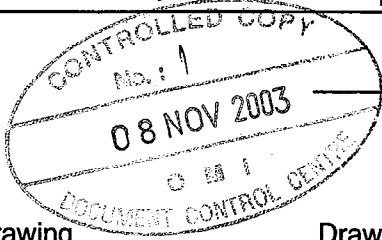
Receipt Confirmation and / Approval	
(Filled by Sales)	(Filled by End Customer)

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-G5SB-03006 A (2 / 8)



1. Type PCB POWER RELAY

2. Structure

2.1. Outline drawing Drawing No.: 0414015

2.2. Structure drawing Drawing No.: 0414018

2.3. Contact structure 1A

2.4. Contact mechanism Single Contact

2.5. Contact material Surface material — Base material Ag alloy

2.6. Protective structure Plastic sealed Flux protection

3. Standards

3.1. Authorized specifications UL, CSA, VDE

3.2. Applicable specifications
 UL 508 File No. E41515
 CSA (C22.2 No. 14) File No. LR31928
 IEC (255), VDE0435 File No. 40003957

3.3. Conforming specifications Electrical appliance and material control law of JAPAN

4. Ratings

4.1. Operating coil Refer to table 1. (Initial values)

(1) Rated voltage & frequency — V — Hz

(2) Rated current Setting current — mA ± 10 %

(at — V — Hz)

Resetting current — mA ± — %

(at — V — Hz)

(3) Coil resistance Setting resistance — Ω ± 10 %

Resetting resistance — Ω ± — %

(4) Rated power consumption Approx. 400 mW

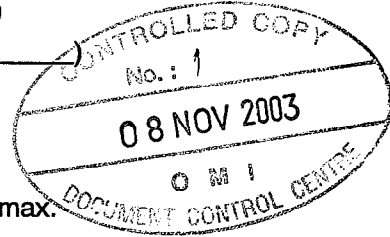
(5) Allowable range of voltage fluctuation : 90 to 110 % of the rated voltage

4.2 Switching section

(1) Rated load

Resistive load	250VAC 5A (NO)	50K ops
	125VAC 3A (NO)	200K ops
	30VDC 5A (NO)	100K ops
	250VAC 2A (NO)	250K ops

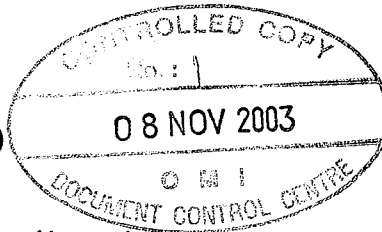
- (2) Rated current 5 A ^{2A7}
- (3) Maximum contact voltage AC 250 V DC 30 V
- (4) Maximum contact current Resistive load AC 5 A DC 5 A
 Inductive load AC — A
 (P.f. = —)
 DC — W
 (L/R = — ms)
- (5) Maximum switching capacity Resistive load AC 1250 VA, DC 150 W
 Inductive load AC — VA
 (P.f. = —)
 DC — W
 (L/R = — ms)
- (6) Minimum applicable load DC5 V 10 mA
 (— P standard, reference value)
 ($\lambda 60 = 0.1 \times 10^{-6}$)
 (Switching frequency : —)



5. Performance (Initial values)

- 5.1. Contact resistance 100 milliohm (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 10 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 1 mA, 50 / 60 Hz, 1 minute of application)
- | | |
|--|------------------|
| (1) Between coil and contact. | <u>4,000</u> VAC |
| (2) Between contacts of opposite polarities | <u>—</u> VAC |
| (3) Between contacts of the same polarity | <u>1,000</u> VAC |
| (4) Between set coil and reset coil. | <u>—</u> VAC |
| (5) Between coil / contact terminals and exposed non - charged metallic section (grounding etc.) | <u>—</u> VAC |



5.8. Temperature rise

- (1) Coil 45 (Ta 85°C) max. (by resistance method)
Voltage applied to coil : 100 % — Hz of the rated voltage.
Contact current : 5 A
- (2) Contact 65 °C max. (by 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 single amplitude of 0.75 mm (1.50 mm double amplitude) and frequency of 10 to 55 to 10 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 0.75 mm (1.50 mm double amplitude) and frequency of 10 to 55 to 10 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 — mm (— mm double amplitude) and frequency of — Hz is applied in each direction for — cycle (5 minutes). No contact opening of more than — 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 1,000 m/s² in each direction for 3 times.
- (2) Malfunction
 Set status (When Energized) Contacts must not open for 1 ms or longer after the relay is subjected to a shock of 100 m/s² in each direction for 3 times.
- Reset status (When not Energized) Contacts must not open for — ms or longer after the relay is subjected to a shock of — m/s² in each direction for — times.

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. Must be free from any abnormality after a bend stress of ± 45° angle is applied to the terminal in a round trip. 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 endurance

(1) Mechanical endurance

5,000,000 times min.
(no contact load, switching frequency : 18,000 times / h)

(2) Electrical endurance

refer to point 4.2(1) times min. 1,800 times / h)
(under rated load switching frequency :

6. Standard testing conditions :

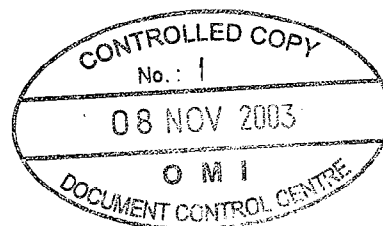
The specification values in this document are based on the following testing conditions, unless indicated otherwise.

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.
- (4) 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

-40 to 70 °C — to — °C

There shall be no ice formation or dew condensation.

8.2. Humidity 5 to 95 %RH

8.3. Mounting direction Free

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.
- (4) No force or stress that can caused dimensional deformation or quality deterioration shall be applied.

9. Table 1 (Coil Ratings)

Rated Voltage (V)	Rated Current (mA)	Coil Resistance (Ω)	Operate Voltage	Release Voltage	Permissible Voltage	Power Consumption (mW)
			% of Rated Voltage			
5	80	62.5	75 Max.	5 Min.	90 ~ 110	400 Approx.
9	44.4	202.5				
12	33.3	360				
24	16.7	1440				

10. Change of indications

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

11. Validity of specification sheet

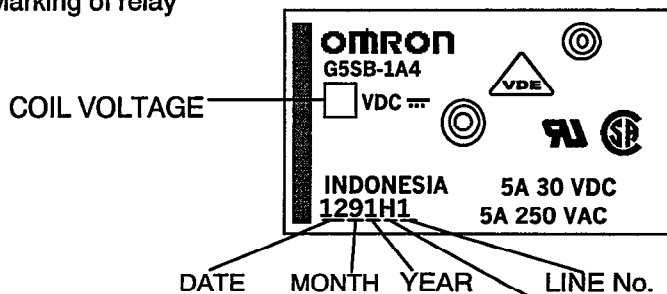
- 11.1 When no confirmation is received within one year of the issuing date of this specification sheet, this specification sheet will be invalidated.
- 11.2 This specification sheet is valid for 3 years after the date of receiving confirmation

12. Warranty period

- 12.1 Warranty period is one year from the date on which the products are delivered to the location designated by the customer.
- 12.2 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.

13. Marking of relay



Note : For DC9V, VDE still in progress
VDE logo will be put after get approval.



14. Handling cautions

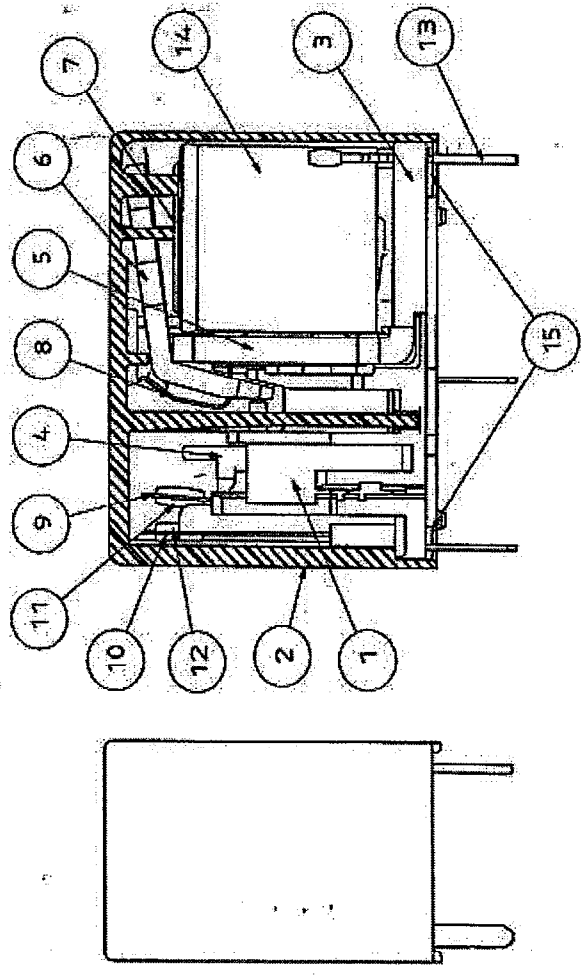
- 14.1 Do not use ultrasonic cleaning, since it causes resonance inside the relay and can result in coil disconnection and contact sticking.
- 14.2 Do not drop products to avoid deterioration of the initial performance.

No	PARTS NAME	MATERIAL NAME	QTY
1	BASE	POLYBUTYLENE TEREPHTHALATE	1
2	CASE	POLYBUTYLENE TEREPHTHALATE	1
3	SPOOL	POLYBUTYLENE TEREPHTHALATE	1
4	CARD	POLYBUTYLENE TEREPHTHALATE	1
5	YOKE	SOFT MAGNETIC IRON PLATE	1
6	ARMATURE	SOFT MAGNETIC IRON PLATE	1
7	CORE	SOFT MAGNETIC IRON BAR	1
8	HINGE SPRING	COPPER ALLOY	2
9	MOV. TERMINAL C	COPPER ALLOY	2
10	STA. TERMINAL A	COPPER ALLOY	1
11	MOV. CONTACT C	SILVER ALLOY	1
12	STA. CONTACT A	SILVER ALLOY	1
13	TERMINAL COIL	COPPER ALLOY	2
14	MAGNET WIRE	POLYURETHANE COPPER WIRE	3
15	SEAL	EPOXY RESIN	1

APPLICATION	QTY.
TYPE : G5SB-1A(4)	
STRUCTURE DRAWING	
DRWG NO. 0414018	REV. A
DESIGNED FOR G5SB-1A	

MATERIAL FINISH	SCALE 3:1
TOLERANCES UNLESS SPECIFIED	3RD ANGLE SHEET 1/1
DESIGNED DS/KMR K.UDD	CHECKED APPROVED
DESIGNED BY: K.UDD	DRAWN BY: [Signature]
DESIGNED DATE: Sept. 18, 2001	DRAWN DATE: Sept. 27, 2001
E/C NO. HI-G5SB-01006	SIGN
DATE: Sept. 27, 01	CONTENTS

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 CONTROL ENGINEER



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