

Customer : AEE-DS

No. KK-2001-0056

Date : Nov. 16, 2001

Attention:

Your ref. No:

Your Part. No: 401951

SPECIFICATIONS

ALPS :

MODEL RK16816MG
(10k DX6)

Spec. No. :

Sample No. : G62409670

RECEIPT STATUS
 RECEIVED
 By Date _____
Signature _____
Name _____
Title _____

ALPS ELECTRIC CO., LTD.

HEAD OFFICE
 1-7, YUKIGAYA-OHTSUKA-CHO,
 OHTA-KU, TOKYO 145-8501 JAPAN

DSG'D *F. Ashida*

APP'D *F. Ohya*

Sales _____

SPECIFICATIONS

1. THIS SPECIFICATIONS APPLY TO RK16816MG POTENTIOMETER.

2. CONTENTS OF THIS SPECIFICATIONS.

5K166FMG007, 4K16M-2
K166FMG03A

3. MARKING

·MARKING ON ALL UNITS
DATE CODE, RESIST. VALUE, TAPER

4. REMARKS

·FURNISH PACKAGE
NUT: 1, WASHER: 1

·CAUTION

Regardless of the suggested applications of these products being introduced in the specifications, when using them for equipment and devices requiring a high degree of safety, respective manufacturers will please preserve safety of the planned equipment and devices by providing necessary protective circuits and redundancy circuits and reconfirm if safety is being duly preserved.

Products being introduced in the specifications have been designed and manufactured for applications to ordinary electronic equipment and devices such as the AV equipment, electric home appliances, office machines and communications equipment. Consequently, when employing these products for applications requiring a high degree of safety and reliability such as the medical equipment, aviation and aircraft equipment, space equipment and burglar alarm equipment, the using manufacturers will please thoroughly study the proprieties of these products for the planned applications.

Although we are exerting our best efforts to maintain the quality of these products, we cannot guarantee that they will never cause short circuiting and open circuitry. Therefore, when designing an equipment or device with which the priority is given to the safety, you will please carefully study the influences to the whole equipment of a single function failure of Potentiometers and Encoders in advance to make out a fail-safe design providing.

SPECIFICATIONS

Feature

This is a potentiometer with D.C. magnet motor and it is adjustable by both manual shaft and motor.

Temperature for operating and storage

1. Dimensions : See attached drawing.
2. Operating temperature : -10°C ~ +70°C
3. Storage temperature : -20°C ~ +80°C
4. Motor : D.C. magnet motor
(With 6V Disk varistor)

Mechanical specifications.

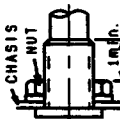
1. Operation : Manual operation and motor drive.
2. Total rotational angle : 300°±5°
3. Rotational speed : 12±3 sec/300°
(at 4.5V D.C. applied to motor.)
4. Direction of rotation : C.W. rotation at normal polarity.
(When the potentiometer is looked at from the shaft side.)
5. Mechanical noise : Continuous, monotonous, not unpleasant sound to heard.
To be mutually discussed when questionable.
(at 4.5V D.C. applied to motor)
6. Rotational torque : 10~40mN·m (Rotational speed 60°/sec.)

7. Stopper strength of shaft

- With manual operation : No damage with an application of 0.9N·m.
- With motor drive : Shaft must be slipped at the both ends of manual rotation.

8. Bushing nut tightening strength

- Tightening torque to be no greater than 1.2N·m.
- (Pay attention otherwise the strength may not be assured.)



9. Push / pull strength

- No damages with an application of push or pull force 100N for 10 sec.

10. Resistance to soldering heat

- After soldering there shall be no evidence of poor contact between resistance element and terminals, or any physical damages as a result of the test.

The terminal of the potentiometer
less than 300°C and within 3 sec.
The terminal of the motor
less than 350°C and within 2 sec.

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SYMB	DATE	APPD	CHKD	DSGD

SPECIFICATIONS

Electrical specifications

- (R1-R6)
1. Total resistance : 10k±20%
2. Rated power : 0.05 W
3. Rated voltage :

The rated voltage shall be the voltage of D.C. or A.C. (commercial frequency effective value) corresponding to the rated power (dissipation), and be obtained from the following formula. When the obtained rated voltage exceeds the maximum working voltage given in the following, however, the maximum working voltage of the following shall be the rated voltage.

$$E = \sqrt{P \cdot R} \quad (V)$$

where
E : Rated voltage (V)
P : Rated power (dissipation) (W)
R : Nominal total resistance (Ω)

Maximum working voltage : 50V A.C.

(This potentiometer is designed for A.C. voltage only).

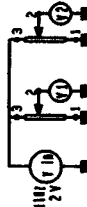
4. Resistance taper : See (T-K16MG-D01)

5. Residual resistance between terminals : 1±2 : 30Ω max.
2±3 : 30Ω max.

6. Sliding noise : Less than 100mV. (Measured by JIS C 6443)

7. Gang error : 2 dB max. at 150°

(R1-R2)(R3-R4)(R5-R6)



8. Insulation resistance

- Potentiometer section : More than 100 MΩ at 250V D.C.
- Motor section : More than 1 MΩ at 100V D.C.

9. Withstand voltage

- Potentiometer section : 300V A.C. for 1 minute.

10. Supply voltage for motor : 4~6V D.C.

11. Rated voltage for motor : 4.5V D.C.

12. Motor current (at 4.5V D.C. applied to motor)
Normal operation : 100mA max.
Slipping operation : 150mA max.

Endurance specifications

1. Rotational life : 15,000 cycles min.

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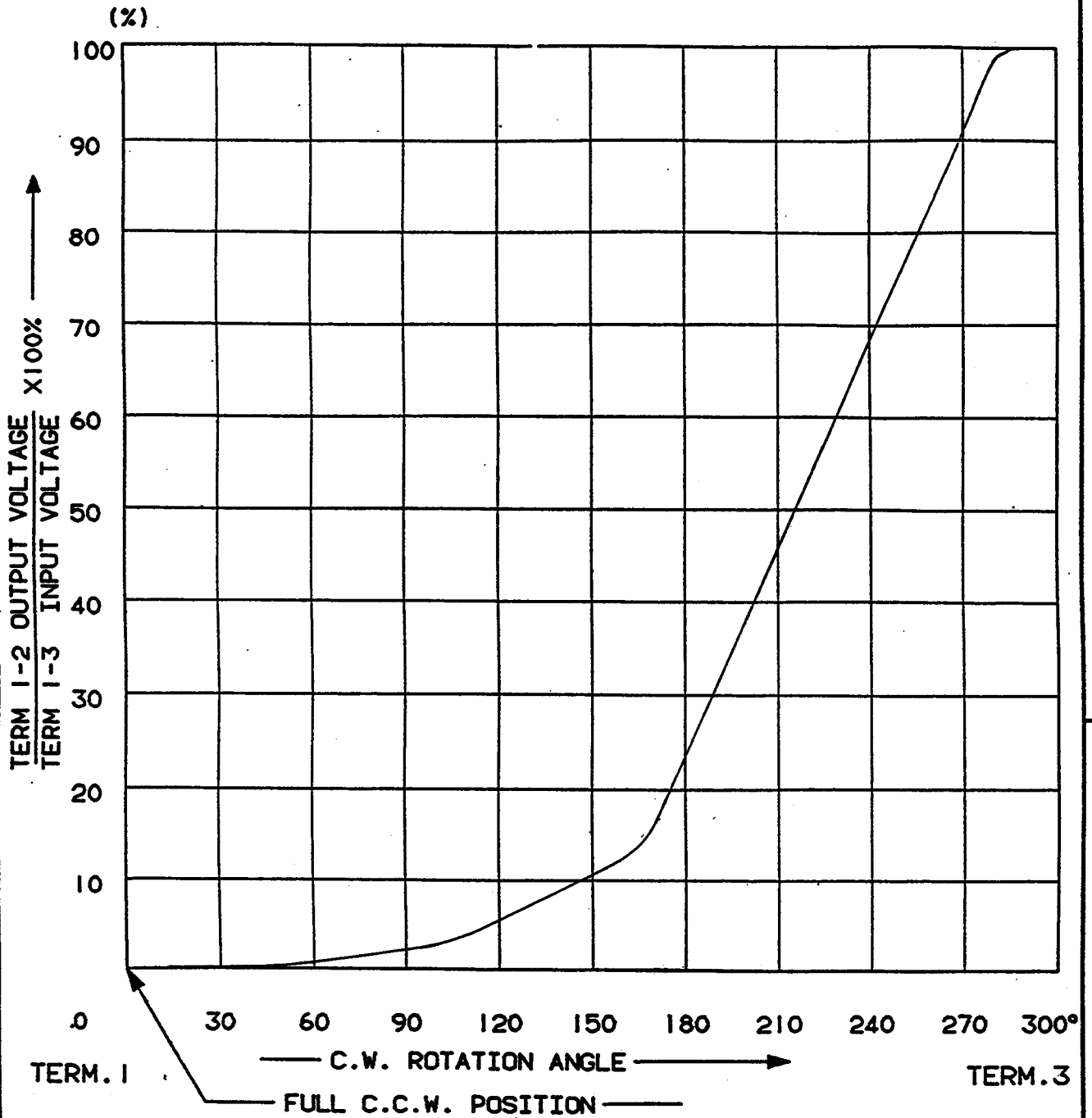
DOCUMENT NO.

SYMB	DATE	APPD	CHKD	DSGD



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AT 150° C.W. SHAFT ROTATION FROM FULL C.C.W. POSITION, VOLTAGE PERCENT SHALL FALL WITHIN THE LIMITS OF 6~15 PERCENT.

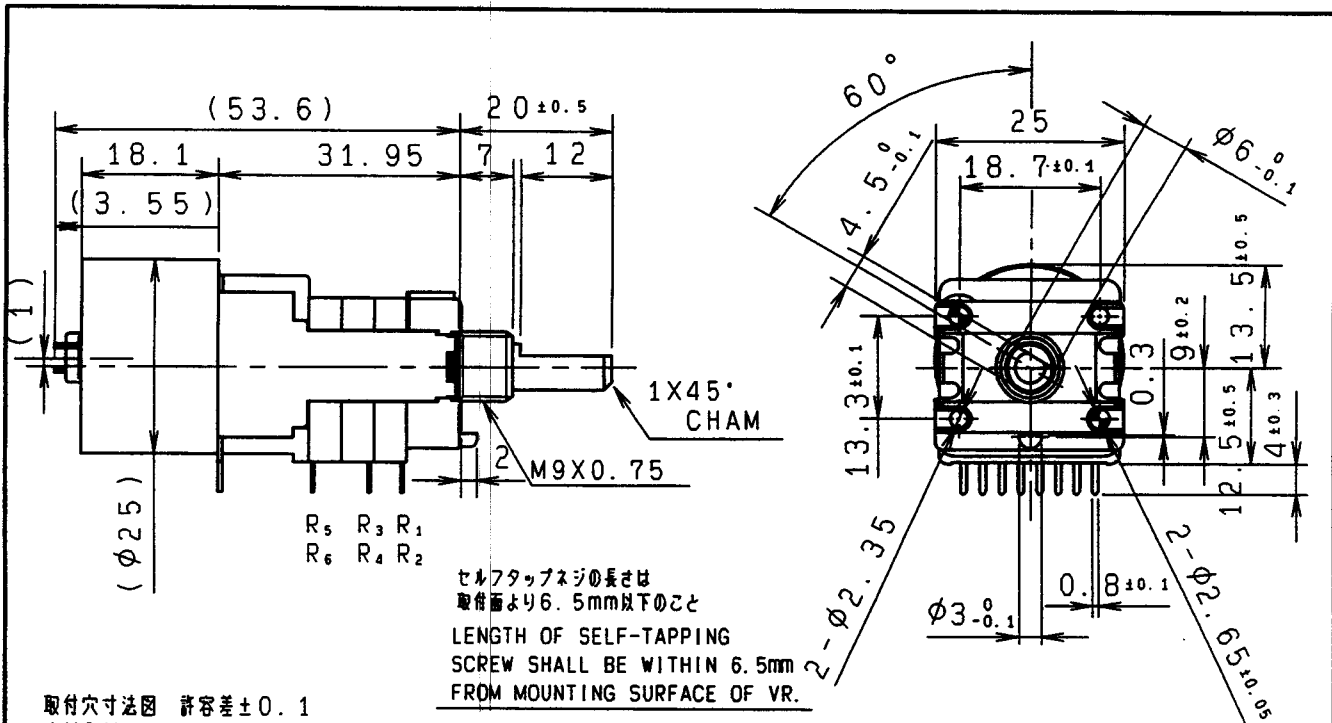
					DSGD <i>T. Shioya Oct. 16 '89</i>	SCALE	
					CHKD. <i>K. Nagami Oct. 16 '89</i>		TITLE RESISTANCE TAPER
					APPD. <i>M. Inoue Oct 17 '89</i>	UNIT mm	DOCUMENT NO. T-K16MG-D01
SYMB	DATE	APPD	CHKD	DSGD			

CLASSNO.	TITLE	SPECIFICATIONS
		<p>Note</p> <ol style="list-style-type: none"> The standard test shall be subject to a temperature from 5 °C to 35 °C and relative humidity from 45% to 85%. Test shall be done under environmental requirements of a temperature of 20 ± 2 °C and relative humidity of 65 ± 5% if a decision is in question. Notice on motor <ol style="list-style-type: none"> Motor terminals shall not be bent more than twice. Soldering to the motor terminals shall be within a few second, not to cause the transformation of terminal base plastics. And, avoid that the flux flows into the motor. Pay special attention to the terminals when they are wave soldered. If the flux flows into the motor, it may cause a poor contact. Motor terminal should not be pressed inside the motor. It may cause a poor contact in the motor. Pay attention that a piece of iron and an alien substance are not crept into the motor. In operation, temperature around the motor produce an effect on the performance and life. Pay special attention in high temperature and humidity. Storage in high temperature and humidity, and in corrosive gas, shall be avoided. In case, using the adhesive agent and the seal agent etc. for fit up, make sure that there is no generation of the harmful gas for motor. (including all chemicals around the motor.) Pay special attention to cyanogen system adhesive agent and organically system silicone.

CLASSNO.	TITLE	SPECIFICATIONS
		<ol style="list-style-type: none"> Power supply <p>Regulated D.C. power supply shall be used. (ripple to be 1% max.) Motor terminal shall not be connected with fixed resistors in series.</p> <p>And supply current is to be 350mA min.</p> The items except above mentioned items shall meet or exceed JIS C 6443.

APPR.	Nov 27	CHIEF	
INSPE.	Mar 10	CHIEF	
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TITLE		DOCUMENT NO.	
		4K16M-2 (2/1)	

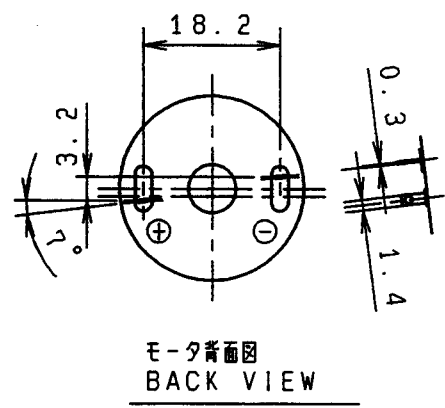
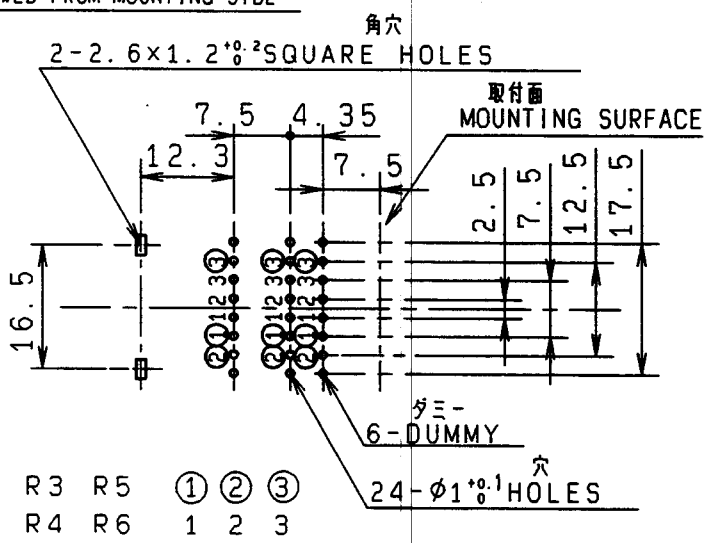
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取付穴寸法図 許容差±0.1
(挿入側から見た図)
P. W. B. MOUNTING DETAIL
TOLERANCE±0.1
VIEWED FROM MOUNTING SIDE

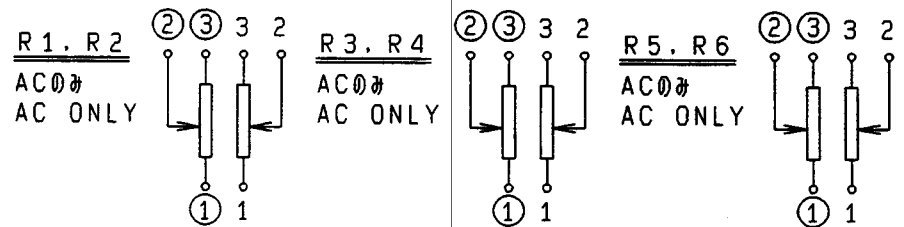
セルフタッピングの長さは
取付面より6.5mm以下のこと
LENGTH OF SELF-TAPPING
SCREW SHALL BE WITHIN 6.5mm
FROM MOUNTING SURFACE OF VR.

上図は軸を反時計方向に
回し切った状態を示す
SHAFT SHOWN
IN FULL CCW POSITION



R1 R3 R5 ① ② ③
R2 R4 R6 1 2 3

回路図
CIRCUIT



指定なき部分の許容差 TOLERANCES UNLESS OTHERWISE SPEC	
$L \leq 10$	±0.3
$10 < L < 100$	±0.5
$100 \leq L$	±0.8
角度 ANGULAR DIMENSION	±5°

PART NO.	NAME	MATERIAL NAME / CODE	FINISH	IT 独立 シールドケース付
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DSGN.	Y. ASHIDA 2001-11-17	SCALE	1 : 1
CHKD.	Y. SAITO 2001-11-17	TITLE	1軸6連 照光無し モーター駆動ポリューム組立図
APPD.	<i>Y. Ohya</i> 2001-11-19	UNIT	mm mm
SYMB	DATE	APPD	CHKD
			DSGD
		DOCUMENT NO. K166FMG03A	