

Customer: ALPS EUROPE DISTRIBUTION

No. KK-2007-2700

Date: Jan. 30, 2007

Attention:

Your ref. No.:

Your Part No.: RK27112MC01L

## SPECIFICATIONS

ALPS';

MODEL: RK27112MC01L  
(100kBX2)

Spec. No.:

Sample No.: F 3 7 3 8 0 5 8 M

### RECEIPT STATUS

RECEIVED

By Date

Signature

Name

Title

**ALPS**  
ALPS ELECTRIC CO., LTD.

Head Office

1-7, Yukigaya-otsuka-cho, Ota-ku, Tokyo, 145-8501 Japan  
Phone, +81(3)3726-1211

DSG'D

*Y. Ohya*

APP'D

*S. Ikenoue*

ENG. DEPT. DIVISION

Sales

B6523

Q1003#03A (EA)

# SPECIFICATIONS

1. THIS SPECIFICATIONS APPLY TO RK27112MC01L POTENTIOMETER.

2. CONTENTS OF THIS SPECIFICATIONS.

5K272AMS-5

K272AMC02C

4K16M-1

4K-1

3. MARKING

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

4. REMARKS

- FURNISH PACKAGE  
NUT:1 WASHER:1

• NOTES

- Silver printed patterns are coated with carbon as a protection against sulphuration.
- Marking  $\Rightarrow$  in specifications shows standard and condition for application.

• 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.

| CLASS.NO.                             | TITLE                                                                                                                                                                                                                                                                                                               |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       | S P E C I F I C A T I O N S                                                                                                                                                                                                                                                                                         |
| Feature                               | <p>This is a potentiometer with D.C. magnet motor and it is adjustable by both manual shaft and motor.</p>                                                                                                                                                                                                          |
| 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<br>(With 6V Disk Varistor)                                                                                                                                                                                                                                                                        |
| Mechanical specifications             |                                                                                                                                                                                                                                                                                                                     |
| 1.Operation :                         | manual operation and motor drive                                                                                                                                                                                                                                                                                    |
| 2.Total rotational angle :            | 300° ± 3°                                                                                                                                                                                                                                                                                                           |
| 3.Rotational speed :                  | 12 ± 3 sec/300°<br>(at 4.5V D.C. applied to motor)                                                                                                                                                                                                                                                                  |
| 4.Direction of rotation :             | C.W. rotation at normal polarity.<br>(When the potentiometer is looked at from the shaft side.)                                                                                                                                                                                                                     |
| 5.Mechanical noise :                  | Continuous, monotonous, not unpleasant sound to be heard.<br>To be mutually discussed when questionable.                                                                                                                                                                                                            |
| 6.Rotational torque :                 | 15 ~ 45 mN·m (Rotational speed 60° /sec.)                                                                                                                                                                                                                                                                           |
| 7.Stopper strength of shaft           | <p>with manual operation : No damage with an application of 0.9 N·m.</p> <p>with motor drive : Shaft must be slipped at the both ends of manual rotation.</p>                                                                                                                                                       |
| 8.Bushing nut tightening strength :   | <p>Tightening torque to be no greater than 1.5 N·m.</p> <p>(Pay attention otherwise the strength may not be assured.)</p>                                                                                                                                                                                           |
| 9.Push / pull strength :              | No damages with an application of push or pull force<br>100 N for 10 sec                                                                                                                                                                                                                                            |
| 10.Resistance to soldering heat :     | <p>After soldering there shall be no evidence of poor contact between resistance element and terminals, or any physical damage as a result of the test.</p> <p>The terminal of the potentiometer<br/>less than 350 °C and within 5 sec.</p> <p>The terminal of the motor<br/>less than 350 °C and within 2 sec.</p> |

|           |                                      |  |
|-----------|--------------------------------------|--|
| CLASS.NO. | TITLE<br>S P E C I F I C A T I O N S |  |
|-----------|--------------------------------------|--|

Electrical specifications (100k $\Omega$ )

- Total resistance : Nominal total resistance  $\pm 20\%$  (10k $\Omega \leq R \leq 2M\Omega$ )
- Rated voltage : 30V A.C. This potemtrometer is designed for A.C.
- Resistance taper : See (HSB02) voltage only.
- Maximum attenuation level at full C.C.W. (\*C.W.) position :

|                                 |                   |
|---------------------------------|-------------------|
| Total resistance                | Attenuation level |
| $R \geq 100k\Omega$             | 100 dB min.       |
| $100k\Omega > R \geq 50k\Omega$ | 90 dB min.        |
| $50k\Omega > R \geq 10k\Omega$  | 80 dB min.        |

- Insertion loss at full C.W. (\*C.C.W.) position : 0.1 dB max.
- Gang error :

|                                 |                                                                                                                           |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Total resistance                | Gang error                                                                                                                |
| $R \geq 100k\Omega$             | 5 dB max. between -80 dB less than -70 dB<br>3 dB max. between -70 dB less than -60 dB<br>2 dB max. between -60 dB ~ 0 dB |
| $100k\Omega > R \geq 50k\Omega$ | 3 dB max. between -70 dB less than -60 dB<br>2 dB max. between -60 dB ~ 0 dB                                              |
| $50k\Omega > R \geq 20k\Omega$  | 3 dB max. between -60 dB less than -50 dB<br>2 dB max. between -50 dB ~ 0 dB                                              |
| $20k\Omega > R \geq 10k\Omega$  | 3 dB max. between -60 dB less than -40 dB<br>2 dB max. between -40 dB ~ 0 dB                                              |

- Sliding noise : Less than 47mV measured by JIS C 6443.  
(Neglected a impulsive noise at the C.W. and C.C.W. ends of position.)
- Insulation resistance  
Potentiometer section : More than 100M $\Omega$  at 500V D.C.  
Motor section : More than 1M $\Omega$  at 100V D.C.
- Withstand voltage  
Potentiometer section : 500V A.C. for 1 minute.
- Supply voltage of motor : 4~6V D.C.
- Motor current (at 4.5V D.C. applied to motor)  
Normal operation : 100mA max.  
Slipping operation  
at both ends : 150mA max.
- Rated voltage for motor : 4.5V D.C.

Endurance specifications

- Rotational life : 15,000 cycles min.

|    |    |    |    |
|----|----|----|----|
|    |    |    |    |
| .. | .. | .. | .. |
| .. | .. | .. | .. |
| .. | .. | .. | .. |
| .. | .. | .. | .. |

**ALPS ELECTRIC CO., LTD.**

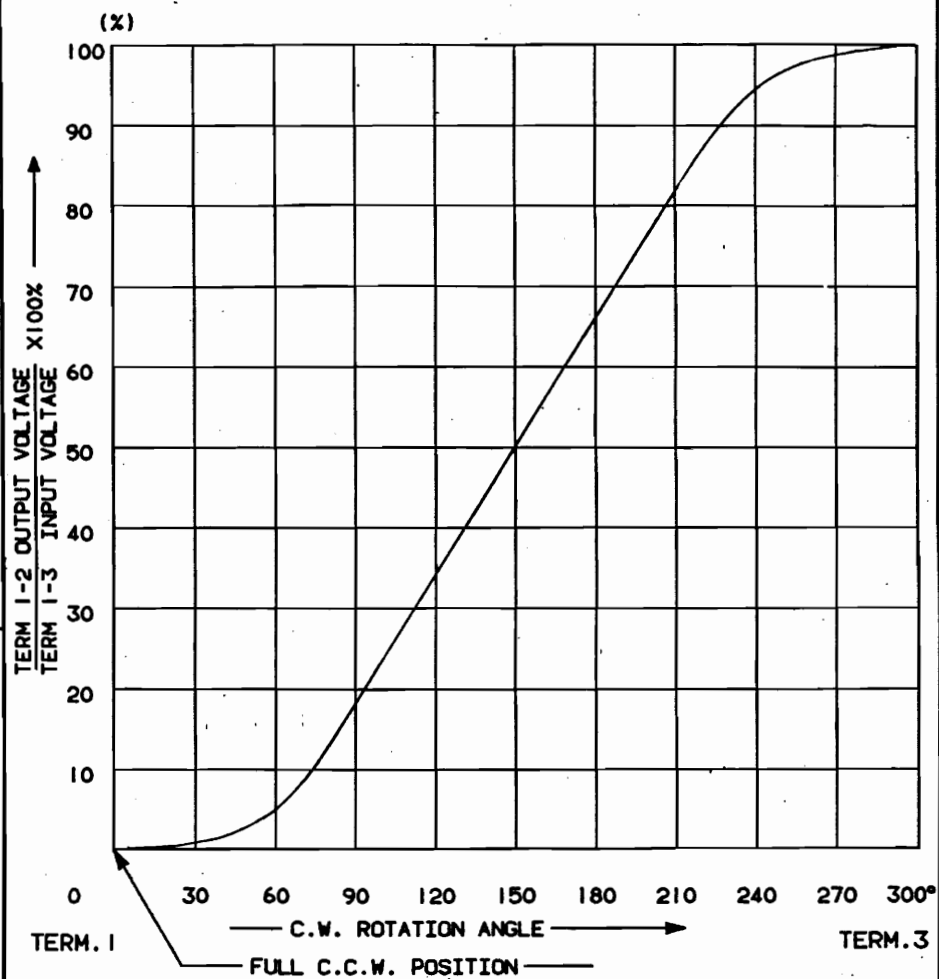
DOCUMENT NO.

**5K272AMS-5**

|       |      |            |       |            |       |
|-------|------|------------|-------|------------|-------|
| SYMB. | DATE | APPD.      | CHKD. | DSGD.      | TITLE |
|       |      | Oct. 4 '99 |       | Oct. 1 '99 |       |
|       |      |            |       |            |       |



ALPS ELECTRIC CO., LTD  
1-7 YUKIGAYA OTSUKA-CHO STA-KU TOKYO JAPAN



AT 150° C.W. SHAFT ROTATION FROM FULL C.C.W. POSITION, VOLTAGE PERCENT SHALL FALL WITHIN THE LIMITS OF 40 - 60 PERCENT.

VOL

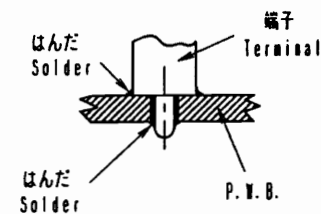
|       |                       |      |          |              |                  |
|-------|-----------------------|------|----------|--------------|------------------|
| DSGD  | K. Chonan May. 11 '96 |      |          | SCALE        |                  |
| CHKD. |                       |      |          | UNIT         | mm               |
| APPD. | S.S.T.K.H.S.          | DATE | 81-01-21 | TITLE        | RESISTANCE TAPER |
| DSGD  | S. Sasaki May. 13 '96 | DATE |          | DOCUMENT NO. | HSB02            |

< はんだ付け時の注意事項 >

図のように P. W. B. の上面に はんだ付けをする配線は、お避け下さい。

Caution for soldering

Please avoid soldering on upper surface of P. W. B. as shown

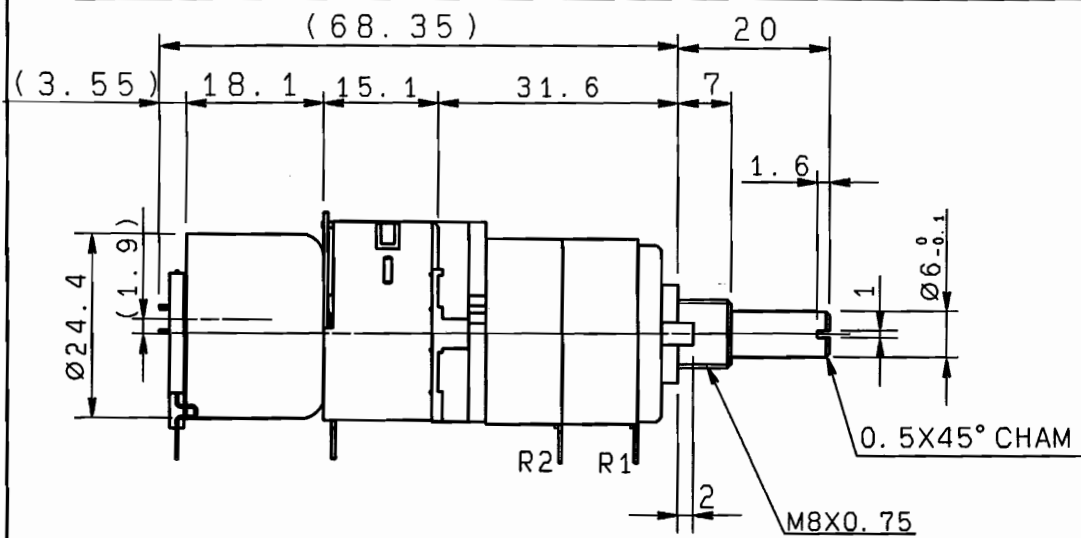


ALPS ELECTRIC CO., LTD.

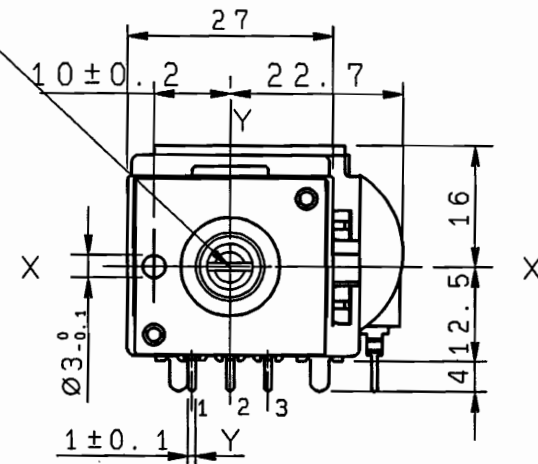
|                       |                       |                       |           |
|-----------------------|-----------------------|-----------------------|-----------|
| APPD.                 | CHKD.                 | DSGD.                 | TITLE     |
| 1-21<br>96.1.11<br>吉岡 | 1-21<br>96.1.11<br>佐藤 | 1-21<br>96.1.11<br>大矢 |           |
| DOCUMENT NO.          |                       |                       | 4K-1      |
| SYMB                  | DATE                  | APPD                  | CHKD DSGD |

10 R1



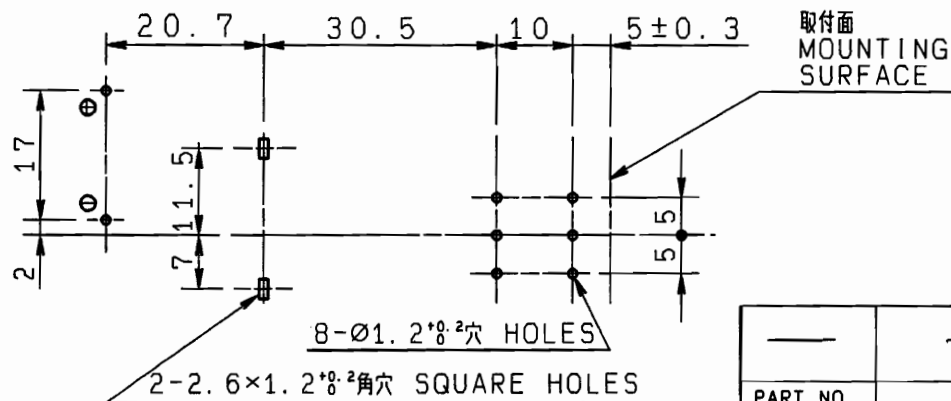
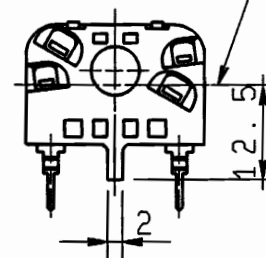


スリ割り角度は任意とする  
SHAFT SLOT IS OPTIONAL ANGLE



背面図  
BACK VIEW

ボリュウム軸センター  
SHAFT CENTER



取付穴寸法図許容差±0.1  
挿入側よりみた図  
P. W. B. MOUNTING DETAIL  
TOLERANCE 0.1  
VIEWED FROM MOUNTING SIDE

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<br>ANGULAR DIMENSION | ±5°  |

|                                                                                                                                                                                                                                                                                                                                                                         |      |      |      |                      |      |            |  |        |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|----------------------|------|------------|--|--------|--|
| PART NO.                                                                                                                                                                                                                                                                                                                                                                |      | NAME |      | MATERIAL NAME / CODE |      | FINISH     |  | モータ基板付 |  |
|                                                                                                                                                                                                                                                                                                                                                                         |      |      |      |                      |      |            |  |        |  |
| <div style="display: flex; justify-content: space-between;"> <div> <p>ALPS</p> <p>ALPS ELECTRIC CO., LTD.</p> </div> <div> <p>DSGN. セツケ11-906011</p> <p>Y. SAITOH 94-04-21</p> <p>CHKD. <i>m. Saitoh</i> 94-04-22</p> <p>APPD. <i>K. Yamazaki</i> 94-04-22</p> </div> <div> <p>SCALE 1:1</p> <p>TITLE 27形1軸2連モーターVR組立図</p> <p>DOCUMENT NO. K272AMC02C</p> </div> </div> |      |      |      |                      |      |            |  |        |  |
| SYMB                                                                                                                                                                                                                                                                                                                                                                    | DATE | APPD | CHKD | DSGD                 | UNIT | 1994. 5. 9 |  |        |  |
|                                                                                                                                                                                                                                                                                                                                                                         |      |      |      |                      | m m  |            |  |        |  |

89.3g

OR