

Confidential

Customer: (ALEU-DS office)

No. VR183086A

Date: Feb. 28, 2018

Attention:

Your Ref. No. :

Your Part No. : RK11K1120A2B

S P E C I F I C A T I O N S

ALPS Model : RK11K1120A2B

ALPS Spec. No. :

ALPS Sample No. : 0024118813

RECEIPT STATUS
RECEIVED
By. Date _____
Signature _____ Name
Title

ALPS[®]
ALPS ELECTRIC CO., LTD.

DSG'D
APP'D

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ENG. DEPT.

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ACY04-G03B (EA)

SPECIFICATIONS

1. THIS SPECIFICATIONS APPLY TO RK11K1120A2B POTENTIOMETER.

2. CONTENTS OF THIS SPECIFICATIONS.

0024118813

K111G0Z39

3. MARKING

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

4. REMARKS

- FURNISH PACKAGE
NUT:0 WASHER:0

• NOTES

- This unit uses polycarbonate. To be careful for using this unit in such violent gas atmospheric condition as ammonia, amine, alkaline aqueous solution, aromatic hydrocarbon, keton, ester, alkyl hydrocarbon, etc.

• CAUTION

There is a possibility that might be affected by contact resistance of resistive element and wiper in case of low impedance of output side in voltage regulation circuit.

For this reason, we require that you adjust to impedance of output side more than 100 times of total resistance.

1. For the export of products which are controlled items subject to foreign and domestic export laws and regulations, you must obtain approval and/or follow the formalities of such laws and regulations.
2. Products must not be used for military and/or antisocial purposes such as terrorism, and shall not be supplied to any party intending to use the products for such purposes.
3. Unless provided otherwise, the products have been designed and manufactured for application to equipment and devices which are sold to end-users in the market, such as AV (audio visual) equipment, home electric equipment, office and commercial electronic equipment, information and communication equipment or amusement equipment. The products are not intended for use in, and must not be used for, any application of nuclear equipment, driving control equipment for aerospace or any other unauthorized use.
With the exception of the above mentioned banned applications, for applications involving high levels of safety and liability such as medical equipment, burglar alarm equipment, disaster prevention equipment and undersea equipment, please contact an Alps sales representative and/or evaluate the total system on the applicability. Also, implement a fail-safe design, protection circuit, redundant circuit, malfunction protection and/or fire protection into the complete system for safety and reliability of the total system.
4. Before using products which were not specifically designed for use in automotive applications, please contact an Alps sales representative.
5. Please store the product without open package, keep same condition as delivery, under normal temperature and humidity, prevent direct sunlight, and corrosive gas exposure then use product as soon as you can within about six months after delivery. Once you open package, please use plastic bag which is used for packaging and prevent product from exposure of outside air then store the product under same condition as above.
6. About characteristics and conditions for test or measurement are not mentioned in this document should be examined by each product specification in order to specify them.

1. 電気的特性 Electrical characteristics

- 1-1. 公称全抵抗値 10kΩ ± 20%
Nominal total resistance
- 1-2. 定格電力 0.05 W
Rated power
- 1-3. 定格電圧 E : 定格電圧 = $\sqrt{P \cdot R}$ (V) E : Rated voltage = $\sqrt{P \cdot R}$ (V)
Rated voltage P : 定格電力 (W) P : Rated power (dissipation) (W)
R : 公称全抵抗値 (Ω) R : Nominal total resistance (Ω)

ただし、定格電圧が最高使用電圧を越える場合は、この最高使用電圧を定格電圧とする。
最高使用電圧 : A.C. 50V, D.C. 20V
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.
Maximum working voltage : 50V A.C., 20V D.C.

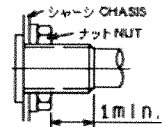
- 1-4. 抵抗変化特性 "B" 別紙参照
Resistance taper Refer to the attached
- 1-5. 残留抵抗 端子1-2間20Ω以下、端子2-3間20Ω以下
Residual resistance Between term.1 & 2, term.2 & 3 :20Ω max.
between terminals
- 1-6. しゅう動雑音 JISの測定方法により 100mV未満
Sliding noise Less than 100mV (Measured by JIS C 6443.)
- 1-7. 絶縁抵抗 D.C. 500Vにて 100MΩ以上
Insulation resistance More than 100MΩ at 500V D.C.
- 1-8. 耐電圧 A.C. 500Vにて 1分間以上
Withstand voltage 500V A.C. for 1 minute.

					ALPS ELECTRIC CO., LTD.			
					APPD.	CHKD,	DSGD.	TITLE
					Oct.01.1993	Oct.01.1993	Oct.01.1993	回転形可変抵抗器 規格書 Rotary potentiometer specification
					S. Aizawa	M. Satoh	S. Sugawara	DOCUMENT No.
SYMB.	DATE	APPD.	CHKD.	DSGD.				0024118813 (1/3)

2. 機械的性能 Mechanical characteristics

- 2-1. 全回転角度 300° ± 5°
Total rotational angle
- 2-2. 回転トルク 3~20mN・m (但し、回転速度60°/1秒)
Rotational torque (Rotational speed 60°/sec)
- 2-3. 軸ガタ 取付け後 軸先端に50mN・mのモーメントを加え軸先端で
Shaft play 0.7×L/30mm p-p以内 (Lは、軸長を示す)
After installing the potentiometer, the resistor shall be mounted by soldering the mounting legs on the panel When a side thrust of 50mN・m shall be applied at the end of shaft, the total shaft play shall not exceed 0.7×L / 30mm p-p.
(L:shaft length)
- 2-4. 軸の押し引き強度 取付け後、押し引き共に80Nを加えて異常のない事。
Push / pull strength With the potentiometer mounted, no damage with 80N of push and pull force.
- 2-5. 軸の回転止め強度 0.6N・mを加えて異常のない事。
Stopper strength No damage with an application of 0.6N・m.
- 2-6. 軸横押し強度 取り付け後、軸先端へ垂直に30Nを加えて異常のない事。
Robustness of shaft against side thrust With the potentiometer mounted, no damage with 30N of thrust force to the shaft top.
- 2-7. はんだ耐熱性 手はんだ付け(温度350°C以下、時間3秒以内)後、著しいガタ、接触不良を生じない事。
Resistance to soldering heat After manual soldering (less than 350°C and within 3 seconds) there shall be no evidence of poor contact between resistance element and terminals, or any physical damages as a result of the test.

- 2-8. 軸受ねじ締付強度 1N・m以下で使用のこと。
軸受ねじ締付強度について
右図のような状態でねじ締付をお願いします。
右図を満足できませんと、締付強度は保証できない場合がありますので、ご注意ください。
Bushing nut tightening strength:Tightening torque to be no greater than 1N・m.
Pay attention to tighten as shown right.
Otherwise, the strength may not be assured.



3. 耐久性能 ENDURANCE

- 3-1. 抵抗体回転寿命特性 15,000 回転以上
Rotational life 15,000 cycles min.

4. その他 NOTE

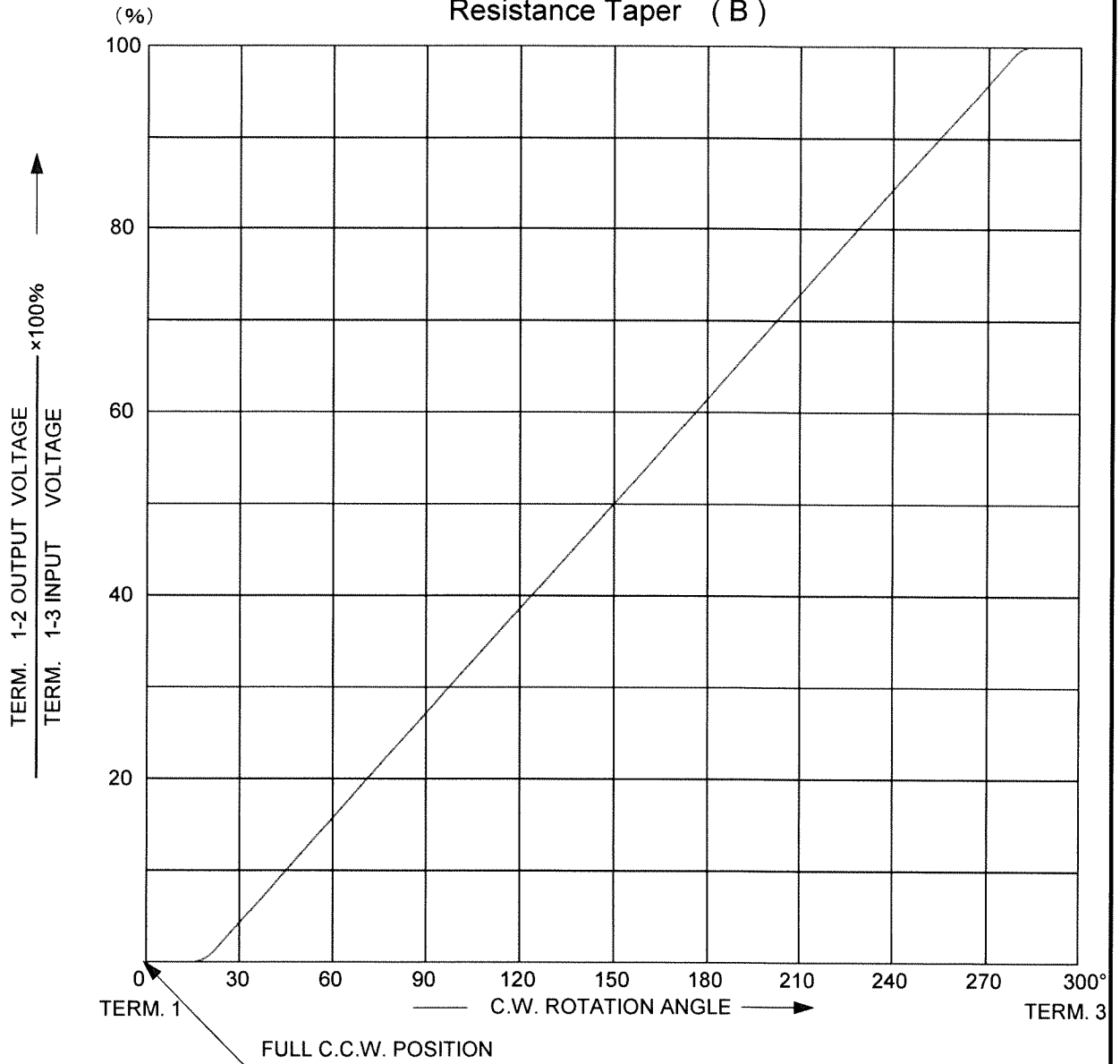
- 4-1. 他の性能は、JIS C 6443 普通級炭素系可変抵抗器による。
The items except above mentioned items shall meet or exceed JIS C 6443.
- 4-2. 使用温度範囲 -10°C~+70°C
Operating temperature range
- 4-3. 保存温度範囲 -30°C~+70°C
Storage temperature range

					ALPS ELECTRIC CO., LTD.			
					APPD.	CHKD,	DSGD.	TITLE
					Oct.01.1993	Oct.01.1993	Oct.01.1993	回転形可変抵抗器 規格書 Rotary potentiometer specification
					S. Aizawa	M. Satoh	S. Sugawara	DOCUMENT No.
SYMB.	DATE	APPD.	CHKD.	DSGD.				0024118813

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Resistance Taper (B)



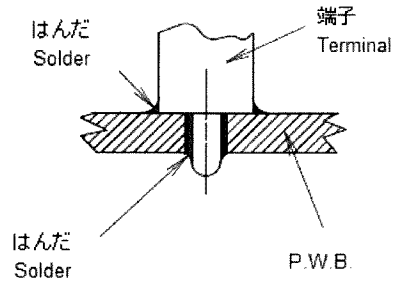
端子1側から150°の位置において、端子1-3間の印加電圧に対する端子1-2間の出力電圧比は40~60%
 AT 150° C.W. SHAFT ROTATION FROM FULL C.C.W. POSITION VOLTAGE
 PERCENT SHALL FALL WITHIN THE LIMITS OF 40~60 PERCENT.

					ALPS ELECTRIC CO., LTD.			
					APPD. May. 27. 1992 M. Inoue	CHKD, May. 27. 1992 K. Magami	DSGD. May. 27. 1992 S. Sasaki	TITLE 回転形可変抵抗器 規格書 Rotary potentiometer specification
SYMB.	DATE	APPD.	CHKD.	DSGD.	DOCUMENT No. 0024118813			(3/3)

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1. はんだ付けに関するその他注意事項
Other precautions for Soldering

- 1) 図のようにP.W.B.の上にはんだ付けをする配線は、お避け下さい。
Please avoid soldering on upper surface of P.W.B. as shown below.



- 2) 基板に挿入される金属足ははんだ付けしてご使用願います。
Please solder all inserted metal terminals and bracket to a P.W.B.
- 3) はんだ付け後、溶剤などで製品を洗浄しないで下さい。
After soldering , please not to wash or clean products by liquid such as solvent or any similar.

					ALPS ELECTRIC CO., LTD.			
					APPD.	CHKD.	DSGD.	TITLE
					Oct.29.2015	Oct.29.2015	Oct.29.2015	その他注意事項 (手はんだ) Other precautions (Manual soldering)
					S.Urushihara	J.Yashiro	H.Kimura	DOCUMENT No.
SYMB.	DATE	APPD.	CHKD.	DSGD.				0024118813
								C-1 (1/1)

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1. ご使用上の注意 precautions in use

- 1) 当製品は密閉構造ではありませんので、使用環境によって外部ガスが製品内部に侵入し接点障害を起こす場合があります。同一セット内に以下の様な部材を使用しないで下さい。
 - ・硫化、酸化ガスを発生する部材（例：ゴム材,接着材,合板,潤滑剤,梱包材）
 - ・低分子シロキサンガスを発生する部材（例：シリコン系ゴム,潤滑剤,接着剤）

As this product does not have hermetical structure , it is possible gas from outside get inside of product and may cause contact failure depends on using environment Please avoid using following materials.
If you have to use any of material in parentheses , please pay special attention and confirm it does not influence to products through tests under actual using conditions.

 - materials which may generate sulfide gas or oxidized gas.
(rubber , glue , adhesive , plywood , packaging material)
 - materials which may generate low-molecular-weight siloxane gas.
(silicone base rubber , lubricant ,glue)

- 2) 高湿度環境下,又は結露する環境下,液体が製品にかかる環境下では、端子間の電流リークが発生する恐れがありますのでご使用にならないで下さい。

Please not to use this product under the atmosphere with high humidity , with possibility of dew condensation or of direct splash of liquid. Because it may cause leak between terminals.

- 3) ツマミを挿入する際に、軸に規定荷重以上の力や衝撃荷重が加わると製品が破壊する場合があります。ツマミの寸法や 挿入治具の圧力管理は、規定荷重以下で挿入できる設定の配慮をお願いします。

The product may have malfunction if excessive stress or impact than specified value is applied when insert knob to the shaft.
Please fix appropriate dimension for knob or fix insertion force of knob of mounting equipment which can avoid excessive stress to the product than specified value.

- 4) 使用温度範囲の上限、下限付近で長期間の連続使用はできません。動作寿命の規定は常温15℃～35℃、常温25%～85%の環境条件に限ります。使用温度範囲の上限、下限付近で長期間の連続動作を行う場合は、機種毎に仕様規定が可能かどうか確認が必要になります。

This product can't be continuously used under high operating temperature or low operating temperature specified in this document Unless otherwise specified , the durability is specified only under normal conditions , temperature 15 to 35 degree Celsius and related humidity 25 to 85%.
When this product is operated at temperature near from upper or lower limit of operating temperature range , feasibility must be examined by each product specification.

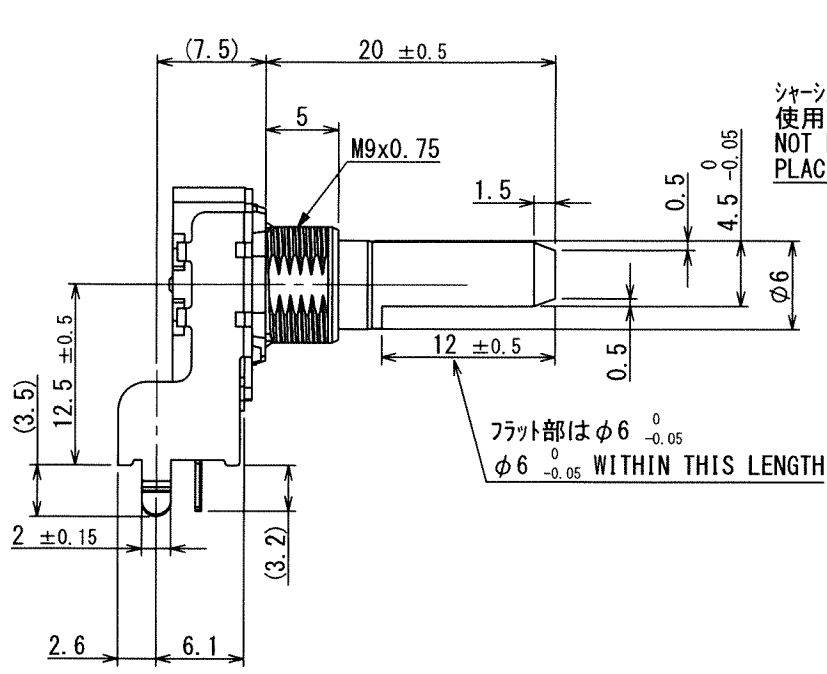
- 5) 製品本体を規定の取付面まで挿入して水平になるように取付けて下さい。水平にならないまま取付けますと、動作不良の要因となります。

Insert these switches to the specified mounting surface and mount them horizontally.
If not mounted horizontally, these switches will malfunction.

- 6) 塵埃が多い環境で使用されますと塵埃が開口部から入り出力不良や動作不良の原因となることがありますのでセット設計時に予めご配慮ください。

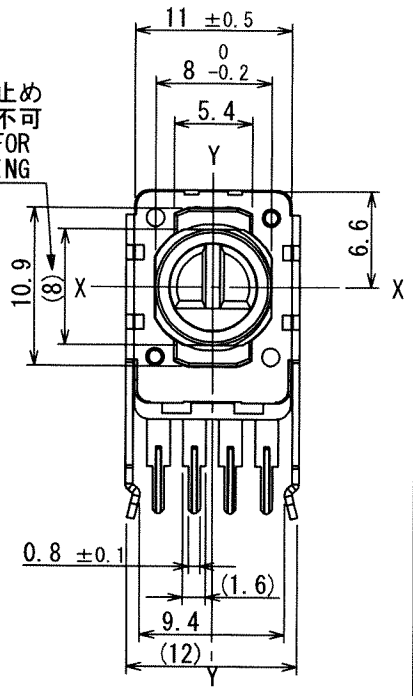
If this product is used under dusty conditions , dust or debris may get inside of product from openings and possible to cause output failure or malfunction.
Please consider protections against dust when surrounding parts of the product are designed.

					ALPS ELECTRIC CO., LTD.			
					APPD.	CHKD,	DSGD.	TITLE
					Oct.15.2015	Oct.15.2015	Oct.15.2015	ご使用上の注意（共通） Precautions in use (Common)
					S. Urushihara	K. Sasaki	Y. Ashida	DOCUMENT No.
SYMB.	DATE	APPD.	CHKD.	DSGD.				0024118813
								C-4 (1/1)

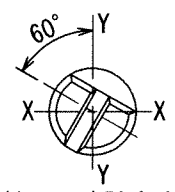


フラット部は $\phi 6 \begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$
 $\phi 6 \begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$ WITHIN THIS LENGTH

シャフト止め
 使用不可
 NOT FOR
 PLACING

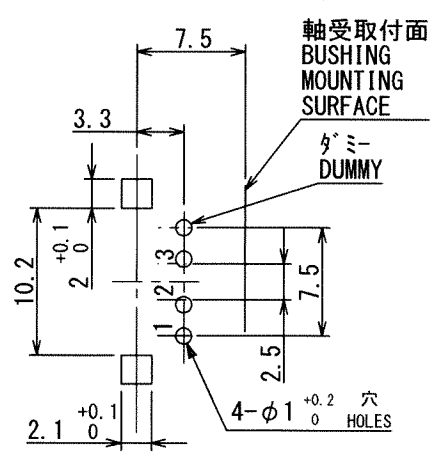


軸はセンター位置又は
 センタークリック位置を示す
 SHAFT SHOWN IN CENTER
 POSITION OR CENTER
 CLICK POSITION.



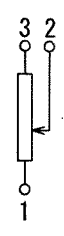
軸は反時計方向に
 回しきった状態を示す
 SHAFT SHOWN IN FULL
 C. C. W. POSITION.

取付穴寸法図 (公差±0.1)
 *挿入側からみた図
 P. W. B. MOUNTING DETAIL (TOLERANCE±0.1)
 VIEWED FROM MOUNTING SIDE



P. W. B. 板厚 T=1.6

回路図
 CIRCUIT



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

				クリック無し	
PART NO.	NAME	MATERIAL NAME / CODE	FINISH		
ALPS ELECTRIC CO., LTD.					
		DSGD. 1-設計1課 Y, SAITOH	'94-07-20	SCALE 2:1	0024118813
		CHKD. M, SATOH	'94-07-20		TITLE FIGURE 11形単連絶縁軸林*リム組立図
		APPD. R, ARASAWA	'94-07-20	UNIT mm	DOCUMENT NO. F07
SYMB	DATE	APPD	CHKD	DSGD	K111G0Z39