Customer:

No. SS-2010-7656

Date: Apr. 22, 2010

Attention:

Your ref. No.:

Your Part No.:

SPECIFICATIONS

ALPS' ;

MODEL: RS60N11M9A08
(10kB)

Spec. No.:

Sample No.: F 9 9 0 7 0 0 5 M

RECEIPT STATUS

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Title

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ALPS ELECTRIC CO., LTD.

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Q1003#03A (EA)

No. SS-2010-7656

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

1. THIS SPECIFICATIONS APPLY TO RS60N11M9A08 POTENTIOMETER.

2. CONTENTS OF THIS SPECIFICATIONS.
   5S601RM009
   5S60RM-01
   5S000RM-06
   4S0001-200, -201
   S601RM922

3. MARKING
   • MARKING ON ALL UNITS
   DATE CODE, RESIST. VALUE, TAPER

   • NOTES
   ·Marking ⇒ in specifications shows standard and condition for application.

• CAUTION

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.The products shall be stored in the original packaging and kept at room temperature and humidity, out of direct sunlight, and away from any and all corrosive gas. The products shall be completely used as soon as possible, but no later than 6 months from the date of delivery.

Once product packaging is opened, the complete quantity of such products shall be promptly used.

CLASS No.

TITLE
MASTER TYPE POTENTIOMETER(SLIDE)

1. Environment 一般事項

1. 1 Operating temperature range 使用温度範囲 : −10~60°C
1. 2 Storage temperature range 保存温度範囲 : −30~70°C
1. 3 Test conditions 試験条件

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests is as follows.
Ambient temperature : 5°C to 35°C
Relative humidity : 45% to 85%
Air pressure : 86kpa to 106kpa.
If there is any doubt about the results, measurements shall be made within the following limits.
Ambient temperature : 20±2°C
Relative humidity : 60% to 70%
Air pressure : 86kpa to 106kpa.

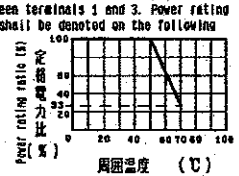
試験及び測定は特に規定がない限り温度5~35℃、相対湿度45~85%、気圧86~106kpaの標準状態のもとで行う。
なぞし、判定に疑義を生じた場合は温度20±2℃、相対湿度60~70%、気圧86~106kpaにて行う。

2. Appearance 外観

The potentiometer shall be well done and not have any excessive rust, crack, split, poor plating and discolor in any portion.

各部の仕上げは良好で機能上有害なサビ、キズ、ワレ、メッキ不良及び斜傷などがあってはならない。

3. Electrical characteristics 電気的性能

	Item 項目	Conditions 条件	Specifications 規格
3. 1	Nominal total resistance and tolerance 公称全抵抗値および許容差	Measurement shall be made by the resistance between terminal 1 and 3 with lever setted at terminal 1 or 3. レバーを端子1又は、3の終端におき、抵抗器の端子1−3間の抵抗値を測定する。	10kΩ±20%
3. 2	Power rating 定格電力	Power rating is based on continuous full load operation at the maximum voltage between terminals 1 and 3. Power rating vs. ambient temperature shall be denoted on the following graph. 端子1と3の間に連続負荷することが出来る最大電力。周囲温度に対する、電力軽減曲線は右図とする。 	0.2W
3. 3	Rated voltage 定格電圧	Rated voltage 定格電圧 $E=\sqrt{PR}$ (V) P : Power rating 定格電力 (W) R : Nominal total resistance 公称全抵抗値(Ω) When the rated voltage exceeds the maximum operating voltage, the maximum operating voltage shall be the rated voltage. なぞし、定格電圧が最高使用電圧を超える場合は、この最高使用電圧を定格電圧とする。	Maximum operating voltage 最高使用電圧 D.C. 10V A.C. 200V
3. 4	Resistance law (Taper) 抵抗変化特性	Measurement shall be made by the resistance law method. 電圧法にて測定する。 Measurement shall be made at the position of right diagram from the edge at the side of terminal 1. When based on terminal 3, from the edge at the side of terminal 3. $\frac{\text{output voltage between terminals 1 and 2}}{\text{Applied voltage between terminals 1 and 3}} \times 100(\%)$ $\frac{\text{1-2端子間出力電圧}}{\text{1-3端子間印加電圧}} \times 100(\%)$	TAPERED CURVE ALPS 'B' (S8S75)

SYMB | DATE | APPD | CHKD | DSGD

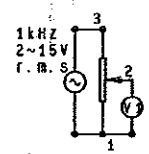
ALPS ELECTRIC CO., LTD.

APPD	CHKD	DSGD	TITLE
1-1G '01-12-06 阿部	1-1G '01-12-06 八代	1-1G '01-12-06 佐藤	規格書

DOCUMENT NO. 5S601RM009 (1/2)

CLASS No.

TITLE
MASTER TYPE POTENTIOMETER(SLIDE)

	Item 項目	Conditions 条件	Specifications 規格
3. 5	Attenuation and insertion loss 最大減衰量と挿入損失	The attenuation and insertion loss at each end of lever travel shall be measured. しゅう動子を移動距離の各終端に置いたとき 最大減衰量、挿入損失を測定する。 The voltage of 2V r.m.s. to 15V r.m.s shall be applied between terminal 1 and 3 by measuring frequency at 1kHz. The output voltage shall be measured between terminals 1 and 2. If there is not any doubt about the results, D.C. voltage shall be used as the test vltage. 端子1−3間に1kHzで2~15V(正弦波実効値)の電圧を加え、端子1−2間の出力電圧を測定する。なお、判定に疑義が生じなければ、試験電圧として直流を用いても良い。  Input impedance of the voltmeter : 10MΩ or more. 電圧計の入力インピーダンスは10MΩ以上	Attenuation 最大減衰量 45dB or more 以上 Insertion loss 挿入損失 Within 0.1dB 以内
3. 6	Noise しゅう動雑音	20 V d.c., when the rated voltage is 20 V or less, its rated voltage shall be applied to the terminals between 1 and 3. And then the noise shall be measured by the specified speed. For other procedures, refer to IEC 393-1-4.15 . Traveling speed:20 mm/sec. 端子1−3間に直流電圧20V(定格が20V以下の時は、その電圧)を加え、レバーを20mm/秒の速さで移動させ、このとき発生する雑音電圧を測定する。その他 JIS C 5261 A 法による。	Less than 47 mV p-p 未満
3. 7	Insulation resistance 絶縁抵抗	A voltage of 250 V d.c. shall be applied for 1 min., after which measurement shall be made. D.C. 250Vの電圧を1分間印加して測定。	Between individual terminals and frame/lever 100 MΩ or more. 端子−レバー間 端子− 枠 間 100 MΩ 以上
3. 8	Dielectric strength 耐電圧	Trip current : 2 mA Measuring frequency : 50/60 Hz 250 V a.c. r.m.s. for 1 min. A.C. 250Vr.m.s. 1分間. 感度電流 : 2 mA (周波数 : 50/60 Hz)	Between individual terminals and frame/lever Without damage to parts, arcing or breakdown etc. 端子−レバー間、端子−枠間 損傷、アークおよび絶縁破壊を生じないこと。
3. 9	Conductive resistance 導通抵抗	Touch sense track resistance (lever between terminal ⓣ) タッチセンサ用トラック(レバー − 端子ⓣ間)	1KΩ MAX.

SYMB | DATE | APPD | CHKD | DSGD

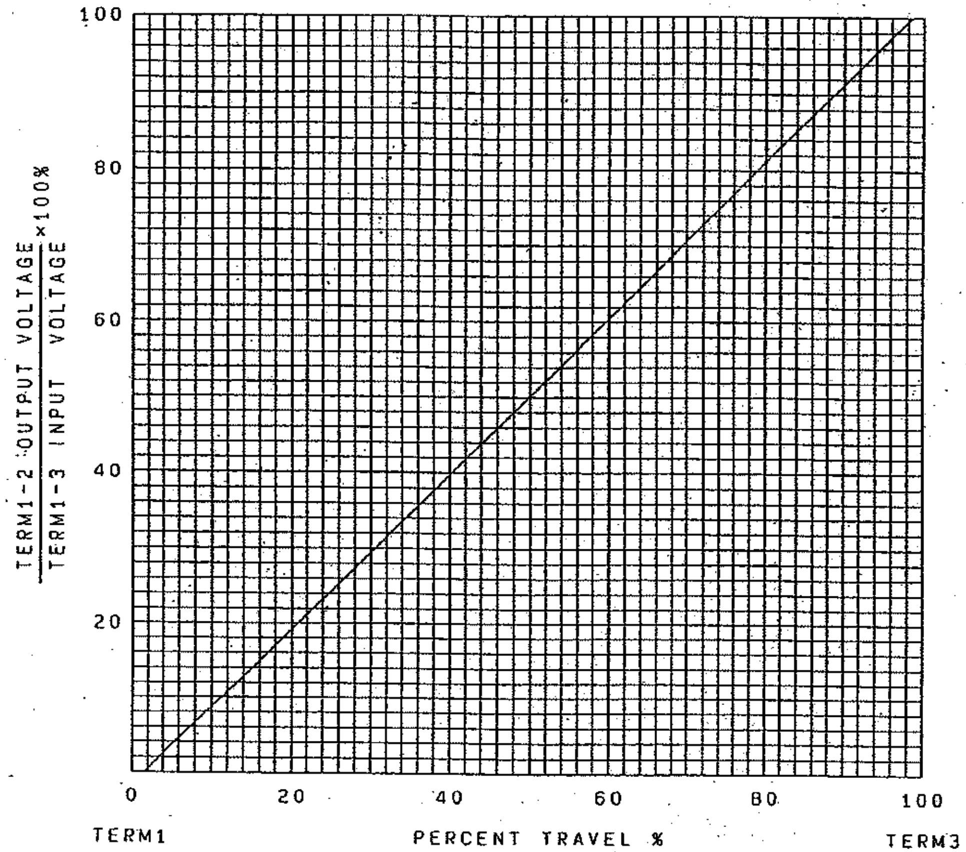
ALPS ELECTRIC CO., LTD.

APPD	CHKD	DSGD	TITLE
1-1G '01-12-06 阿部	1-1G '01-12-06 八代	1-1G '01-12-06 佐藤	規格書

DOCUMENT NO. 5S601RM009 (2/2)

USED ON 60mm TRAVEL TYPE	NAME RESISTANCE TAPER
ALPS ELECTRIC CO., LTD. 1-7 YUKIGAYA OTSUKA-CHO OTA-KU TOKYO JAPAN	TITLE SPECIFICATIONS

TAPERD CURVE: ALPS "B"

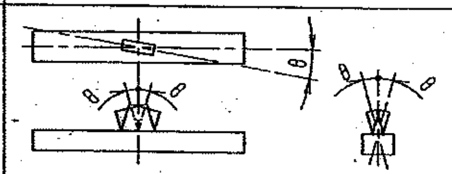
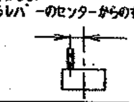


NOTES: PERCENT VOLTAGE

CHECK POINT	TORERANCE
50% TRAVEL FROM TERM. 1	45 - 55 %

SYMB.	DATE.	APPD.	CHKD.	DSGD.	APPD.	CHKD.	DSGD.	NAME
					Mar. 23 '94	Mar 23 '94	Mar 23 '94	RESISTANCE TAPER
Original	Mar. 19 '96	M. I	S.S	Tk	K. Mozami	K. Matsubara	R. Ogawa	DOCUMENT NO. SBS75

4. Mechanical characteristics 機械的性能

	Item 項目	Conditions 条件	Specifications 規格
4.1	Lever travel レバー移動距離		60 ± 1 mm
4.2	Operating force 作動力	Traveling speed : 20mm/s Operating position : Tip of the lever 移動速度は20mm/秒とする。 操作位置はレバー先端部とする。	0.8 ± 0.5 N
	Starting force 始動力	Traveling speed : 20mm/s. Operating position : Tip of the lever 移動速度は20mm/秒とする。 操作位置はレバー先端部とする。	Operating force + 1N MAX. 作動力 + 1N 以下
4.3	Lever travel stop strength レバーの移動止強度	A static load of 100N shall be applied at the point 5mm from top surface of the case for both ends in the direction of lever travel for 10s. しゅう動範囲の両末端において、枠上面より5mmの位置に100Nの力を10秒間加える。	Without excessive play or poor contact. 著しいガタ及び接触不良を生じないこと。
4.4	Side thrust of the lever レバーの横押し強度	A static load of 20N shall be applied at the point 5mm from top surface of the case in a direction perpendicular to the axial direction for 10s. with the potentiometer mounted in assembly conditions. 本体をシャーシに固定し、枠上面より5mmの位置にレバー移動方向に対して直角方向に20Nの力を10秒間加える。	Without deformation or breaks in the sliding part and contact part. 操作部及び関連部品に変形、破損がないこと。
4.5	Thrust and tensile lever レバーの押し引き強度	Thrust and tensile static load of 50N shall be applied to the potentiometer in the lever direction for 10s. レバーの押し方向及び引張り方向に、50Nの力を10秒間加える。	Without damage such as bad sliding and braking or play in the lever. Electrical characteristics shall be satisfied. レバーのガタ及び破損、しゅう動ムラ等がなく、電気的性能を満足すること。
4.6	Displacement of lever レバーの振れ	A torsion moment of 25mN·m shall be applied at the lever in a direction perpendicular to the axial direction and then the displacement shall be measured. レバーに25mN·mの曲げモーメントを移動方向に対して、直角に加えレバー先端で測定する。	2(2×L/25) mmP-P or less 以下 L=Lenght of lever レバー長さ
4.7	Lever inclination and torsion レバーの傾き及びねじれ		θ shall be 2° or less. θ は2度以下。
4.8	Distance from the center of the lever レバーのセンターズレ	After sliding lever as far as it will go in each direction, the distance from the center of the lever to the middle of the mounting screw hole shall be measured at the both ends. 取付けネジ穴中心に対するレバーのセンターからのずれを、片側ごとに測定する。 	0.5mm or less on each end. 片側 0.5mm以下
4.9	Resistance to soldering heat はんだ耐熱	Bit temperature : 350°C or less Application time of soldering iron : 3 s or less 温度350°C以下、時間3秒以内。 但し、端子に異常加圧のないこと。	Change in total resistance is relative to the value before test: 5% without excessive looseness of terminals and failure contact 全抵抗値の変化は初期値の±5%以内。著しいガタ、接触不良を生じないこと。

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SYMB	DATE	APPD	CHKD	DSGD	APPD.	CHKD.	DSGD.	TITLE
					'00.1.13	'00.1.13	'00.1.12	SPECIFICATIONS
								DOCUMENT NO. 5S60RM-01 (1/3)

5. Endurance 耐久性能

	Item 項目	Conditions 条件	Specifications 規格
5.1	Endurance without load 無負荷しゅう動寿命	The moving contact, without electrical load, shall be slided from one end stop to the other and returned to its original position extended over 90% or more effective distance. This procedure constitutes 1 cycle. And the moving contact shall be subjected to 600 cycles per hour, a total of 30000±200 cycles (5000 to 8000 continuous cycles for 24 hours.) 無負荷にてレバーを600サイクル/時の速さで有効移動距離の90%以上にわたり、1日連続5000~8000サイクル、合計30000±200サイクル移動させる。	Change in total resistance is relative to the value before test:±15% Noise:Refer to Note 1) Operating force:0.1N~2N 全抵抗値の変化は、初期値の±15%以内 しゅう動雑音は、注記 1)による。 作動力は、0.1N~2N
5.2	Cold 耐寒性	The potentiometer shall be stored at a temperature of −30±2°C for 96 hours in a thermostatic chamber. Then the potentiometer shall be taken out of the chamber and its surface moisture shall be removed And then the potentiometer shall be subjected to standard atmospheric conditions for 1 hour, after which measurement shall be made. −30±2°Cの恒温槽中にて96時間放置し、常温常湿中に1時間放置後1時間以内に測定する。 但し水滴は、取り除くものとする。	Change in total resistance is relative to the value before test:±20% 全抵抗値の変化は、初期値の±20%以内
5.3	Dry heat 耐熱性	The potentiometer shall be stored at a temperature of 70±2°C for 240±8 hours in a thermostatic chamber. Then the potentiometer shall be maintained at standard atmospheric conditions for 1 hour, after which measurements shall be made. 70±2°Cの恒温槽中にて240±8時間放置し、常温常湿中に1時間放置後1時間以内に測定する。	Change in total resistance is relative to the value before test:+5/−30% Noise:Refer to Note 1) Operating force:0.1N~2N 全抵抗値の変化は、初期値の+5~−30%以内 しゅう動雑音は、注記 1)による。 作動力は、0.1~2N
5.4	Damp heat 耐湿性	The potentiometer shall be stored at a temparature of 40±2°C with relative humidity of 90% to 95% for 96±4 hours in a thermostatic chamber. And its surface moisture shall be removed. And then the potentiometer shall be subjected to standard atmospheric conditions for 1 hour, after which measurement shall be made. 40±2°C相対湿度90~95%の恒温恒湿槽中にて96±4時間放置し、常温常湿中に1時間放置後1時間以内に測定する。 但し水滴は、取り除くものとする。	Change in total resistance is relative to the value before test:+35/−5% Noise:Refer to Note 1) Operating force:0.1~2N 全抵抗値の変化は、初期値の+35~−5%以内 しゅう動雑音は、注記 1)による。 作動力は、0.1~2N

SYMB	DATE	APPD	CHKD	DSGD

ALPS ELECTRIC CO., LTD.

APPD. 技-2G 00.1.13 相沢 | CHKD. 技-2G 00.1.13 阿部 | DSGD. 00.1.12

TITLE SPECIFICATIONS

DOCUMENT NO. 5S60RM-01 (2/3)

	Item 項目	Conditions 条件	Specifications 規格
5.5	Change of temperature 温度サイクル	The potentiometer shall be subjected to 5 successive change of temperature cycles, each as shown in table below. Then its surface moisture shall be removed. And then the potentiometer shall be subjected to standard atmospheric conditions for 1 hour, after which measurements shall be made. 下記条件で5サイクル試験後、常温常湿中に1時間放置後1時間以内に測定する。 但し水滴は、取り除くものとする。	Change in total resistance is relative to the value before test:±20% Noise:Refer to Note 1) Operating force: 0.1N~2N 全抵抗値の変化は、初期値の±20%以内 しゅう動雑音は、注記 1)による。 作動力は、0.1N~2N

Step 段階	Temperature 温度	Duration 時間
1	−10±3°C	30 min. 30分
2	Standard atmospheric conditions 常温	10~15 min. 10~15分
3	70±2°C	30 min. 30分
4	Standard atmospheric conditions 常温	10~15 min. 10~15分

Note 1) For noise specification after the test, erfer to the list below.
注記 1) 試験後のしゅう動雑音規格は、下表による。

Nominal total resistance 公称全抵抗値 (kΩ) 5≦Ra≦50	Nominal total resistance 公称全抵抗値 (kΩ) 50<Ra≦500
Less than 150mVp-p未満	Less than 300mVp-p未満

SYMB	DATE	APPD	CHKD	DSGD

ALPS ELECTRIC CO., LTD.

APPD. 技-2G 00.1.13 相沢 | CHKD. | DSGD. 00.1.12

TITLE SPECIFICATIONS

DOCUMENT NO. 5S60RM-01 (3/3)

CLASS.NO.	TITLE
	MASTER TYPE POTENTIOMETER (SLIDE)

Motor drive characteristics.
モータ駆動時性能

	Item 項目	Conditions 条件	Specifications 規格
1	Rated voltage 定格電圧	Between terminals of the motor モータ部端子間	10 V D.C.
2	Operating supply voltage range 使用電圧範囲	Voltage supply ripple : 0.3%or less 電源リップル0．3%以下	6 - 11 V D.C.
3	Starting current 起動電流	Supply voltage 10 V D.C. D.C.10V印加	800 mA or less 800mA以下
4	Starting force 起動作動力	Supply voltage 10 V D.C. It shall be measured at the top of lever. D.C.10V印加、測定位置はレバー先端とする。	0.2 N or more 0.2 N 以上
5	Moving speed of lever レバー移動速度	Supply voltage 10 V D.C. D.C.10V印加	20 mm / 0.1 sec. or more 20 mm / 0.1 秒以上
6	Maximum current レバー固定時電流 (モータロック状態)	Lock the shaft of the motor and the rated voltage shall be applied to the motor. レバーを固定し、定格電圧を印加する。	400 - 800 mA

SYMB.	DATE	APPD.	CHKD.	DSGD.

ALPS ELECTRIC CO., LTD.

APPD.	CHKD.	DSGD.	TITLE
1佐-2G 00.4.17	1佐-2G 00.4.17 阿部	1佐-2G 00.4.13 渡邊	SPECIFICATIONS

DOCUMENT NO. 5S000RM-06 (1/2)

Caution
ご使用上の注意

1. Do not lock the lever for five seconds or more when the motor is supplied with electricity and do not use the motor under the overloaded condition. Please use the master type potentiometer with safety device for protecting the over-current in a motor drive circuit. Because part of the motor is heated excessively and the motor is burned out in case it is used under the overloaded condition continuously.
モータに通電した状態で、レバーを5秒以上固定（ロック）又は、過負荷状態でご使用しないで下さい。
ロック 又は、過負荷状態が持続しますとモータの一部が発熱焼損しますので、過電流防止用の保護回路等の安全装置をご使用下さい。

2. Do not supply the electricity which is not capable of driving the lever to the motor for ten seconds or more.
(The valve of current is approximately 1 to 300 mA in this case)
Please use the master type potentiometer with safety device for protecting the constant current which is minute current lasted for ten seconds or more in a motor drive circuit. Because part of the motor is heated excessively and the motor is burned out in case it is supplied with the minute current mentioned above constantly.
レバーが動作しない電流（1～300mA程度）をモータに10秒以上通電しないで下さい。通電状態が持続しますとモータの一部が、発熱 焼損します。10秒以上定電流が流れた場合、電源を切る等の回路的なご配慮をお願いします。

3. Please use the master type potentiometer with a motor-drive circuit which is capable of supplying the sufficient current. This current value is 800 mA.or more.
モータの駆動回路については、800mA以上の電流供給能力を持たせて下さい。

4. Do not use the master type potentiometer in the following atmospheric conditions.
Corrosive atmosphere : For example,H_2S,SO_2,NO_2,Cl_2
Do not use the master type potentiometer with the following materials.
Poison materials : Especially, siliconized materials,cyano materials formalin, phenolic materials.
腐蝕性ガス（H_2S, SO_2, NO_2, Cl_2 等）はもとより、有害なガス雰囲気中及び有害なガスを発生する物質（特に有機シリコン系、シアン系、ホルマリン系、フェノール系物質等）が存在する場所でのご使用は避けるようにして下さい。
尚、セット内に於いても上記物質が存在する場合は、事前に十分ご確認下さい。

5. Avoid storing the master type potentiometer in unusual atmosphere,for example, high temperature,high humidity,and low temperature.
If you store the master type potentiometer for a long time,be careful about the place for the storage and do not store the master type potentiometer more than six month even if it is storaged in usual atmosphere.
保管は上記腐蝕性ガスの雰囲気中及び高温、低温、多湿の場所は避けて下さい。
尚、保管は常温常湿中の6ヶ月以内に止めていただく様ご配慮下さい。

SYMB.	DATE	APPD.	CHKD.	DSGD.

ALPS ELECTRIC CO., LTD.

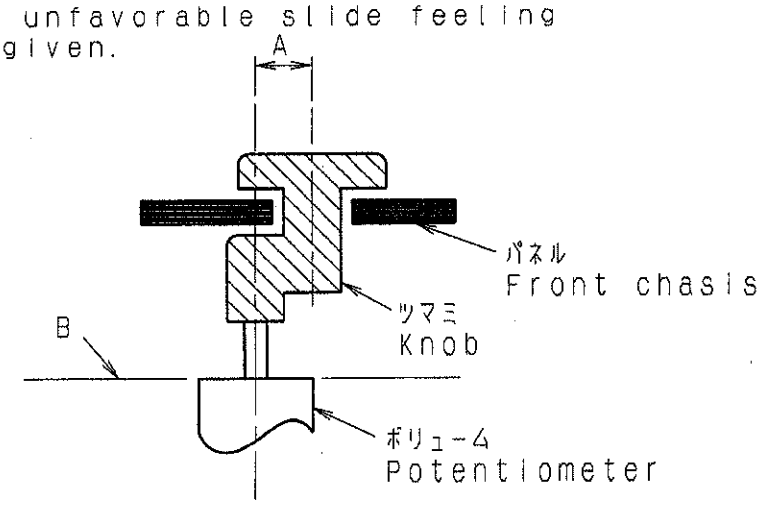
APPD.	CHKD.	DSGD.	TITLE
1佐-2G 00.4.17 指沢	1佐-2G 00.4.17 阿部	1佐-2G 00.4.13 渡邊	SPECIFICATIONS

DOCUMENT NO. 5S000RM-06 (2/2)

ご使用上の注意
PRECAUTION IN USE

1．偏心ツマミをご使用になる場合
レバーの中心より離れたところを作用点としてご使用になる場合、可能な限り下図A寸法を短くしてご使用下さい。
If it will be used the operating point away from the center line of the lever, it should be shorter as possible.

2．レバー長さについて
レバー長さについては、ツマミを含めて、下図B面より極力短いものをご使用願います。レバー長さについては、作用点までの距離が短いほどしゅう動感触が良好となり、長いほど好ましくない感触になります。
About the length of lever
If conditions permit, it is advisable to use the shortest possible lever.
The longer the length up to operating point, the more unfavorable slide feeling will be given.



3．レバーの駆動に関しては上記内容を考慮の上、セット実装を行いあらかじめ異常のないことをご確認願います。
Regarding the operation of the lever, please consider the above mentioned , and make sure nothing is wrong with the operation under installing in your appliance that you plan to use our products actually.

4．ツマミ挿入及びレバー操作は、ボリュームマウント基板にソリ（曲がり）のない状態で行って下さい。
Knob assembly on the lever and functioning the lever to be performed under the condition of P.C.B. without worp.

5．電圧調整形回路において出力側のインピーダンスが低い場合には抵抗体と摺動子間の接触抵抗の影響を受けることがありますのでインピーダンスを公称全抵抗値の１００倍以上に設定願います。
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.

SYMB	DATE	APPD	CHKD	DSGD
ORIGINAL	1991-07-03	Y・Y	K・N	S・A

ALPS ELECTRIC CO., LTD.

APPD 通・設計試作 '07.4.5 池之上
CHKD 通・設計試作 '07.4.5 大矢
DSGD 通一設計試作 '07.4.5 玉田

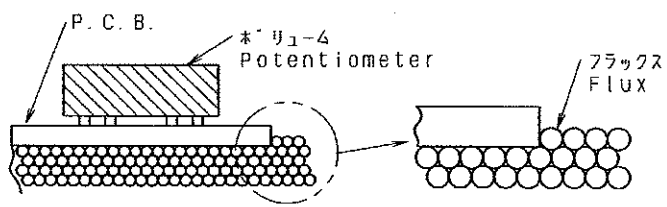
TITLE スライドボリューム 仕様書
SPECIFICATIONS

DOCUMENT NO. 4S0001-200

OR

はんだ付け条件
FOLLOW THE NEXT CONDITIONS FOR SOLDERING

1. はんだ SOLDER
   JIS Z 3282に規定のA30C5はんだを使用
   JIS Z 3282, A30C5
2. 使用基板 BOARD IN USE
   両面スルーホール基板又は、片面銅張積層板　板厚 t=1.6mm
   Double-faces through-hole board or Single-face copper laid laminate board.
   Plate thickness (t)=1.6mm
3. 自動はんだ<DIP条件>
   (1)レバー位置　センター付近に設定願います。
   (2)フラックス比重　0.83±0.01(発泡式)
   (3)フラックス高さ　プリント基板の板厚の半分の位置にフラックスの上面が接するレベル(図1)
   又、ボリューム挿入面への流れ込みのないこと。(フラックス上がり、飛散に注意)
   (4)プリヒート温度　100°C max. 時間1分以内。(プリント基板のボリューム挿入側の温度)
   (5)はんだ温度　260°C max. 時間5秒以内。はんだ回数は1回までとする。
   IN THE CASE OF DIP SOLDERING
   (1)State of potentiometer
   Position a lever in the vicinity of center.
   (2)Specific Gravity of Flux
   0.83±0.01(foaming type)
   (3)Height of Flux face
   A level of the upper face of flux for reaching the position at a half of the plate thickness of printed board.(Fig.1)
   Further, no flow of flux invading on the surface of printed board on the side of installing potentiometer is allowed.
   (4)Preheat condition
   100°C max..within 1 minute
   (Temperature on the side of installing printed board is designated.)
   (5)Soldering condition
   Solder temperature; 260°C max.
   Soldering period ; within 5 seconds
   Time of soldering ; only one time is permitted



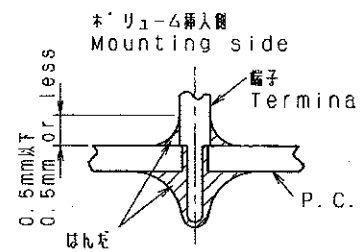
(Fig.1)

4. 手はんだ IN THE CASE OF MANUAL SOLDERING
   はんだ温度　350°Cmax. 時間3秒以内 はんだ回数は1回までとする。
   Solder temperature ; 350°C max.
   Soldering period ; within 3 seconds
   Time of soldering ; only one time is permitted

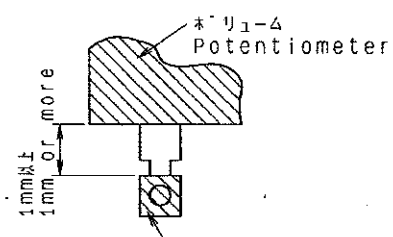
					ALPS ELECTRIC CO., LTD.			
					APPD. DESIGN 08.02.25 IKENOUE	CHKD. DESIGN 08.02.25 Y.OHYA	DSGD. DESIGN 08.02.25 T.TANADA	TITLE スライドボリューム 仕様書 SPECIFICATIONS 1/2
ORIGINAL	'91-9-3	Y-Y	S-A	S-S				DOCUMENT NO. 4S0001-201
SYMB	DATE	APPD	CHKD	DSGD				

OR

5. 注意事項
   (1)はんだ付けの際に、端子にストレスを加えないで下さい。例えば、端子に熱を加えたまま製品を動かしますと、かしめカシメ及び電気的特性が劣化する恐れがあります。
   (2)両面スルーホール基板を使用する場合は、ボリューム挿入側の端子取付穴に、はんだランドがないようにご配慮願います。ボリューム挿入側での配線が必要な場合は端子取付穴からの直接取り出しを避けスルーホール配線用の穴を設けるなどのご配慮をお願いします。
   (3)ボリューム挿入側へのはんだ上がりは、はんだ熱による端子接触不良の発生原因となりますので(図2)を参照願います。
   (4)リード配線の場合、ボリューム本体と、はんだ付け部の距離を1mm以上開けてはんだ付け願います。(図3)
   (5)はんだ付けによるボリュームへの影響は、プリント基板の大きさ、ボリュームの取付け位置、はんだ槽の大きさ、等により異なりますのであらかじめの実使用状態で実施し、異常のないことを確認の上、はんだ付けして下さい。
   MATTERS TO BE NOTED
   (1)Do not add any stress on terminals in the case of soldering. For instance, forced movement of potentiometer with terminals being heated may probably deteriorate the electric features due to generation of looseness in connection between resistant board and terminals.
   (2)Avoid use of double-faces through-hole board as much as possible. If it is necessary to use it. Do not apply through-hole plating to a hole in which a potentiometer is inserted. and install a land to which terminals are soldered only on a face oppsite to the face on the side of installing potentiometer.
   (3)Use caution to soldering process so as to prevent solder from rising up to the surface of printed board on the side of installing potentiometer, because defective contact may take place in terminal connecting part due to soldering heat .(Fig.2)
   (4)In the case of lead wiring, solder it so that a gap of 1 mm or more may be reserved between the potentiometer body and soldering part.(Fig.3)
   (5)The grade of influence of soldering exerted on the potentiometer depends upon the size of a printed board, installing position of the potentiometer, and the size of a solder bath etc. Therefore, make sure, in advance, of no abnomal state under the conditions of soldering to be carried our at present.



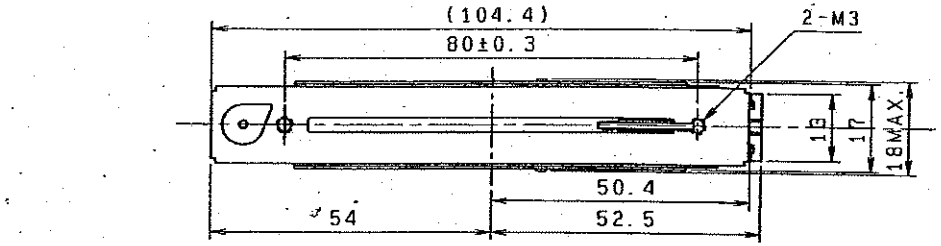
(Fig.2)

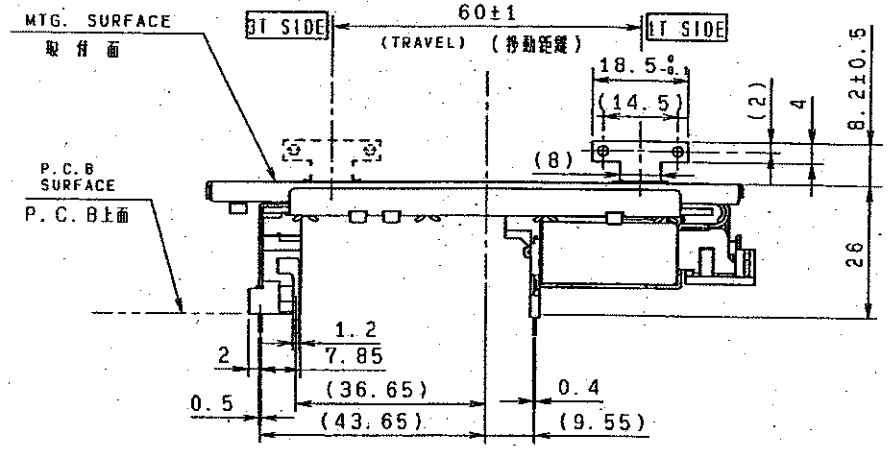


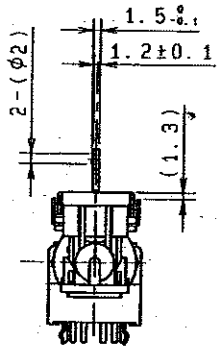
(Fig.3)

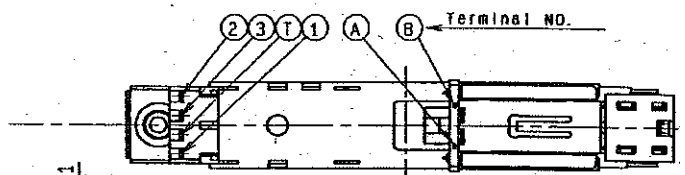
					ALPS ELECTRIC CO., LTD.			
					APPD. DESIGN 08.02.25 IKENOUE	CHKD. DESIGN 08.02.25 Y.OHYA	DSGD. DESIGN 08.02.25 T.TANADA	TITLE スライドボリューム 仕様書 SPECIFICATIONS 2/2
ORIGINAL	'91-9-3	Y-Y	S-A	S-S				DOCUMENT NO. 4S0001-201
SYMB	DATE	APPD	CHKD	DSGD				

OR

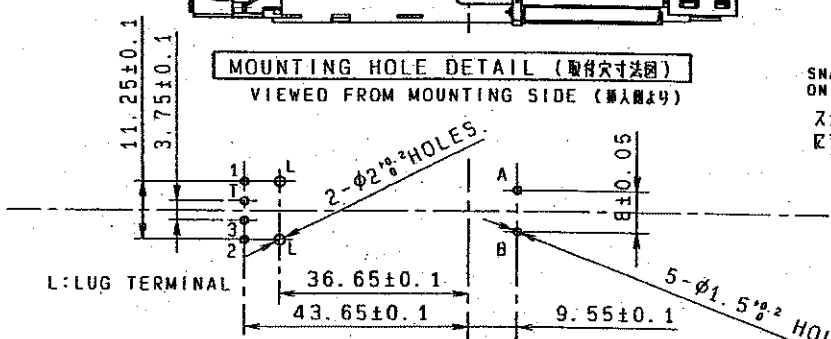








MOUNTING HOLE DETAIL (取付穴寸法図)
VIEWED FROM MOUNTING SIDE (挿入側より)



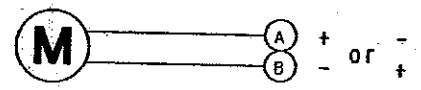
SNAP PORTION IS DESIGNED BASED ON 1.6mmTHICK P.C.B.
スナップ部はP.C.B.板厚1.6mm基準にて設計しております。

NOTES 1. MOUNTING SCREW THREAD LENGTH SHALL BE CHASSIS THICKNESS+3mm OR LESS.
2. IN CASE OF PUTTING A KNOB ON THE LEVER, THE HEIGHT OF THE KNOB FROM MTG. SURFACE SHALL BE 25mm OR LESS.

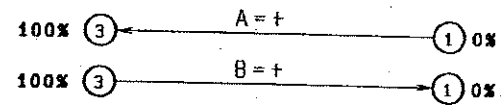
注記 1. 取付用ネジの首下長さは、シャーシ板厚+3mm以下でご使用願います。
2. 取付面からツマミ先端まで25mm以内でご使用願います。

Circuit diagram

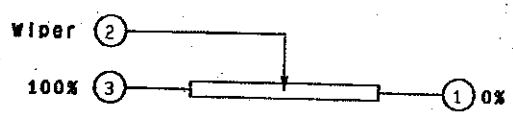
Motor



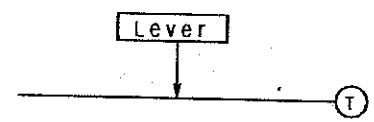
Moving direction of lever and contacts



Servo track



Touch line



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°

NO.	SYMB	DATE	APPD	CHKD	DSGD

PART NO.	MATERIAL	SPEC/NAME	FINISH

ALPS ELECTRIC CO., LTD.

DSGD. 1-1G-9201092 J. YASHIRO 01-12-06	SCALE N:1	NO.	
CHKD. T. Ohara 2001-12-6		TITLE 60形 車速 モータ駆動フェーダ	
APPD. S. Abe 2001-12-6	UNIT mm	DOCUMENT NO. S601RM922	

2001.4.22