

P.C.B MOUNTING DETAIL

CIRCUIT DIAGRAM

7	端子 Terminal	磷铜 Phosphor copper	镀银 Silver plating
6	铆钉 Rivet	红铜 Pure copper	镀镍 Nickel plating
5	开关本体 Switch Body	PA66	洁净 Cleaning
4	本体 Body	PBT	洁净 Cleaning
3	垫片 Spacer	SUS	洁净 Cleaning
2	轴套 Shaft sleeve	Zn	震动研磨 Vibration Grinding
1	轴芯 Axis	C3604	洁净 Cleaning
序号 No.	名称 Name	材质 Material	表面处理 surface treatment

	SCALE	UNIT	公差除非另有规定 TOL. UNLESS OTHERWISE SPEC.		期号 ISSU.	日期 DATE	修订 REVISION	设计 Design	
			基本尺寸 BASIC DIMENSIONS		TOL.	00	2013-04-01	原始图纸 ORIGINAL DRAWING	LINJIANHUI
			L ≤ 10	±0.3	01				
			10 < L	±0.5	02				
	3:1	mm	100 ≤ L	±0.8	03				
			ANGLE	±5°	04				
MODEL: RP08110SNAX-V01-764 BE轴					版本 VERSION	绘图 DRAW	审核 CHKD	核准 APPD	
DRAWING NO: PR-RP081-001					A0				

RP08系列规格书

RP08 SERIES SPECIFICATION

1. 一般事项 General

1-1. 适用规格 Scope

本规格书适用于08型回转型电位器.

This specification applies to 08mm size rotary potentiometer.

1-2. 标准状态 Standard atmospheric conditions

除另有规定外, 测量应在以下状态下进行:

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and test is as following limits:

温度 Ambient temperature : 15°C to 35°C

相对湿度 Relative humidity : 25% to 85%

气压 Air pressure : 86kpa to 106kpa

如果对上述所提到的条件中所做的实测值有疑问的话, 应使用以下条件进行测量:

If doubt arises on the decision based on the measured values under the above-mentioned conditions, the following conditions shall be employed:

温度 Ambient temperature : 20 ± 1°C

相对湿度 Relative humidity : 63% to 67%

气压 Air pressure : 86kpa to 106kpa

1-3. 使用温度范围

Operating temperature range : □ -10°C to +60°C ■ -30°C to +60°C

1-4. 保存温度范围

Storage temperature range : -40°C to +70°C

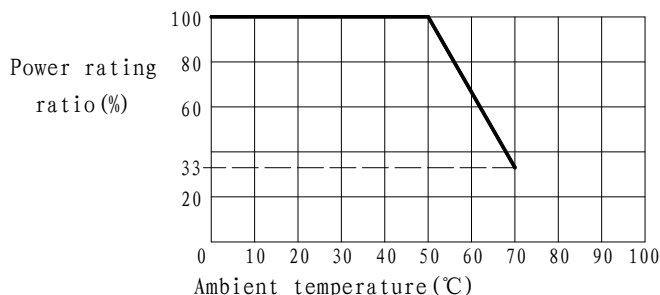
2. 构造 Construction

2-1. 尺寸 Dimensions

见所附成品图 Refer to attached drawing

3. 电气性能 ELECTRICAL CHARACTERISTICS

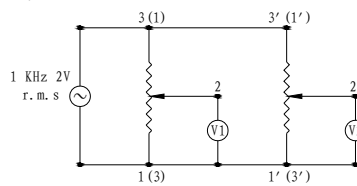
项目 ITEM	条件 CONDITIONS	规格 SPECIFICATIONS
3-1. 全阻值 Total Resistance	测试1~3端子间的阻值 The resistance between terminal 1 and 3 shall be measured.	50K Ω (Terminal 1 ~ 3)
3-2. 容许误差 Total Resistance Tolerance		□ ± 10% ■ ± 20% □ Other _____ % (Terminal 1 ~ 3)
3-3. 电阻变化特性 Resistance law (Taper)	端子1-2电压对端子1-3电压的百分比。Percentage of the voltage of terminal 1-2 to the voltage fo terminal 1-3.	B Taper Refer to Taper sheet
3-4. 额定功率 Power rating	1~3端子间连续负载后之最大功率, 周围温度对功率影响之曲线如下图所示。 Power rating is based on continuous full load operation at the maximum voltage between terminal 1 and 3. power rating vs. ambient temperature shall be denoted on the following graph.	B Taper 0.05W Other 0.025W



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3-5. 额定电压 Rated Voltage	额定电压超过最高使用电压时, 最高使用电压为额定电压 When the rated voltage exceeds the maximum operating voltage, the maximum operating voltage shall rated voltage 最高使用电压 Maximum operating voltage	Rated Voltage $E=\sqrt{P \cdot R}$ AC 50V, DC 10V
3-6. 残留阻值 Residual resistance	刷子停留在终端位置时, 端子1-2和端子2-3间测定之电阻值 Resistance at each end of the between terminals 1 and 2, and 2 and 3 shall be measured.	$R \leq 10K\Omega: \leq 10\Omega; 10K < R < 500K\Omega: \leq 20\Omega$ $R \geq 500K: 0.1\% \text{ max. of total resistance}$
3-7. 转动杂音 Noise	端子1-3间施加电压测试 (测试速度: 每分钟30圈), $R > 1K\Omega$ 使用DC 20V, $R \leq 1K\Omega$ 使用DC 12V. The terminals between 1 and 3 shall be applied for voltage test, $R > 1K\Omega$ as per DC 20V, $R \leq 1K\Omega$ as per DC 12V. And then the noise shall be measured by the specified speed. For other procedures, refer to IEC PUB 393-1 Test method A. (Test speed: 30r/min)	100mV以下 Less than 100mV
3-8. 同步误差 Gang error	将轴放在指定位置, 在端子1-3间输入频率1KHz, 电压2V的正弦波有效值, 测量端子2与指定端子(端子1或端子3)之间的电压, 然后使用以下公式来确定同步误差。 如无疑问, 在测试中使用DC电压。 With the shaft (lever) placed in the specified position, gang error shall be determined by applying test voltage of 2V r.m.s between the terminals 1 and 3 at 1KHz and measuring the voltage between the resistor terminal 2 and the specified terminal (terminal 1 or 3) and then by using the following equation. If there are no questions on determination, DC voltage may be applied for this test. 同步误差 (Gang error) = $20 \log V_2 / V_1$ 电压表输入阻抗: 10MΩ 以上 Input impedance of the voltmeter: 10MΩ or more	$\pm 4\text{dB}$ at $-40\text{dB} \sim 0\text{dB}$
3-9. 绝缘阻抗 Insulation	DC 250V 1分钟. A voltage of 250V DC shall be applied for 1 minute, after which measurement shall be made. 端子与支架间. Between terminals and frame.	100 MΩ 以上 100 MΩ Max
3-10. 耐电压 Withstand Voltage	感度电流 2mA, 频率50/60Hz, AC 300V 1分钟, 端子与支架间. Trip current: 2mA, Measuring frequency: 50/60 Hz 300V AC for 1 minute, Between terminals and frame.	没有损伤、变形、绝缘破坏等情形 Without damage to parts, arcing or breakdown etc.



4、机械性能: MECHANICAL CHARACTERISTICS

项目 ITEM	条件 CONDITIONS	规格 SPECIFICATIONS
4-1. 全回转角度 Total Rotational Angle	有效回转角度 Angle of effective rotation	$300^\circ \pm 5^\circ$
4-2. 回转力矩 Rotational torque	Standard atmospheric conditions 常温 5° to 35°C	20 ~ 120gf.cm
	$\square -10^\circ\text{C}$ $\blacksquare -30^\circ\text{C}$	30 ~ 200gf.cm

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4-3. 轴的推拉强度 Push-pull strength of shaft	在轴端,沿轴向施加 7Kg 的静负荷力推和拉10秒钟 (产品焊锡固定在PCB上。) Push and pull static load of 7Kg shall be applied to the shaft in the axial direction for 10s. (After soldering of the PC board)	轴向虚位间隙0.4以内 Shaft play in axial direction 0.4 Max
4-4. 端子强度 Terminal strength	在任一方向施加5N负荷10秒钟 A static load of 5N shall be applied to the terminals for 10S.	无功能不良且端子无接触不良 Without functional problem because of rickety terminals or poor contact
4-5. 轴套螺纹紧固强度 Bushing Nut Tighten Strength		7.0Kgf.cm以上 7.0Kgf.cm Min
4-6. 止动强度 Stopper Strength		3Kgf.cm 以上 3Kgf.cm Min
4-7. 轴向间隙 Shaft play in axial direction		0.4mm 以下 0.4mm Max
4-8. 轴摆动 Shaft wobble	在距离轴顶端5MM处,沿径向瞬间施加50mN.m(500gf.cm)的力测试 A momentary load of 500gf.cm should be applied at the point 5mm from the tip of the shaft in a direction perpendicular to the axis of shaft.	0.7*L/30mm p-p 以下 (L: 指安装平面到轴的柄端的距离。) 0.7*L/30mm p-p Max L: Distance between mounting surface and measuring point on the shaft
4-9. 防水等级 Water resistant grade		□IP67

5. 耐久性能 ENDURANCE CHARACTERISTICS

项目 ITEM	条件 CONDITIONS	规格 SPECIFICATIONS
5-1. 回转寿命 Rotational life	在无负荷条件下轴以600~1000周/小时的速度,在有效旋转角度90%以上,24小时连续5000~8000次。 The moving contact. Without electrical load, shall be rotated from end stop to the other and returned to its original position extended over 90% or more effective angle, this procedure constitutes 1 cycle. And the moving contact shall be subjected of 600 to 1000 cycles per hour. (5000 to 8000 continuous cycles for 24 hours.)	30,000 ± 200周. □IP67: 15,000 ± 200周 30,000 ± 200cycles. □IP67: 15,000 ± 200 全阻值变化初期值 ± 20% 杂音: 150mV p-p以下 残留: 初始规格值的两倍 Change in total resistance is relative to the value before test : ± 20%. Noise: less than 150mvp-p Residual resistance: Two times of original.
5-2. 耐寒性 Cold	温度-30 ± 2℃的恒温试验箱内放置96H,拿出后擦干表面水份并在常温下放置1.5H后测试。 The potentiometer shall be stored at a temperature of -30 ± 2℃ 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 maintained at standard atmospheric conditions for 1.5 hours, after which measurement shall be made.	全阻值变化初期值 ± 20% Change in total resistance is relative to the value before test : ± 20%
5-3. 耐热性 Dry heat	温度70 ± 2℃的恒温试验箱内放置240 ± 8H,拿出后在常温下放置1.5H后测试。 The potentiometer shall be stored at a temperature of 70 ± 2℃ for 240 ± 8hours in a thermostatic chamber, Then the potentiometer shall be taken out of the chamber and then the potentiometer shall be maintained at standard atmospheric conditions for 1.5 hours, after which measurement shall be made.	全阻值变化初期值+5%~-30% Change in total resistance is relative to the value before test : +5/-30%

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<p>5-4. 耐湿性 Damp heat</p>	<p>温度$40 \pm 2^{\circ}\text{C}$、湿度90%~95%的恒温试验箱内放置$96 \pm 4\text{H}$，拿出后擦干水份并在常温下放置1.5H后测试。 The potentiometer shall be stored at a temperature of $40 \pm 2^{\circ}\text{C}$ with relativ humidity of 90% to 95% for 96 ± 4 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 maintained at standard atmospheric conditions for 1.5 hours, after which measurement shall be made.</p>	<p>全阻值变化初期值$+35\% \sim -5\%$ 杂音: 150mV p-p以下 绝缘阻抗: $20\text{M}\Omega$ DC 250V Change in total resistance is relative to the value before test : $+35/-5\%$ Noise: less than 150mV p-p Insulation resistance: $20\text{M}\Omega$ DC 250V</p>															
<p>5-5. 温度变化特性 Change of temperature</p>	<p>在下表条件中5次温度循环后去除表面湿气，在常温常湿中放置1小时后再进行测量。 The potentiometer shall be subjected to 5 successive change of temperature cycles, each as shown in table and then the potentiometer shall be subjected to standard atmospheric conditions for 1 hours, after which measurement shall be made.</p> <table border="1" data-bbox="395 981 1008 1238"> <thead> <tr> <th>Step</th> <th>Temperature</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>$-10 \pm 3^{\circ}\text{C}$</td> <td>30 minutes</td> </tr> <tr> <td>2</td> <td>Standard atmospheric conditions</td> <td>10-15 minutes</td> </tr> <tr> <td>3</td> <td>$70 \pm 2^{\circ}\text{C}$</td> <td>30 minutes</td> </tr> <tr> <td>4</td> <td>Standard atmospheric conditions</td> <td>10-15 minutes</td> </tr> </tbody> </table>	Step	Temperature	Duration	1	$-10 \pm 3^{\circ}\text{C}$	30 minutes	2	Standard atmospheric conditions	10-15 minutes	3	$70 \pm 2^{\circ}\text{C}$	30 minutes	4	Standard atmospheric conditions	10-15 minutes	<p>全阻值变化初期值$\pm 30\%$ 耐电压: AC 300V 1分钟 绝缘阻抗: $20\text{M}\Omega$ DC 250V Change in total resistance is relative to the value before test : $\pm 30\%$ Withstand Voltage: AC 300V 1 minute. Insulation resistance: $20\text{M}\Omega$ DC 250V</p>
Step	Temperature	Duration															
1	$-10 \pm 3^{\circ}\text{C}$	30 minutes															
2	Standard atmospheric conditions	10-15 minutes															
3	$70 \pm 2^{\circ}\text{C}$	30 minutes															
4	Standard atmospheric conditions	10-15 minutes															
<p>5-6. 焊锡性 Solderability</p>	<p>端子在$260^{\circ}\text{C} \pm 5^{\circ}\text{C}$温度的焊锡槽内浸锡$3\text{s} \pm 0.5\text{s}$。 The terminals shall be immersed into solder bath at 260°C for $3\text{S} \pm 0.5\text{S}$.</p>	<p>浸渍面须有75%以上焊锡附着 A new uniform coating of solder shall cover 75% minimum of the surface being immersed.</p>															
<p>5-7. 焊锡耐热性 Resistance to soldering heat</p>	<p>槽焊 使用基板: $t=1.6\text{mm}$的单面覆铜板。 预热: 基板表面温度100°C以下，时间1分钟以内。 焊接: 温度$260 \pm 5^{\circ}\text{C}$或以下，时间3秒以内。 Dip soldering Printed wiring board: single-sided copper clad laminate board with thickness of 1.6mm. Preheating: 1. Surface temperature of board: 100°C or less. 2. preheating time: within 1 minute. Soldering: Solder temperature: $260 \pm 5^{\circ}\text{C}$ or less Immersion time: within 3S. 手工焊接 温度300°C以下，时间3秒以内。 Manual soldering Bit temperature of soldering iron: 300°C less than Application time of soldering iron: within 3S.</p>	<p>不得有绝缘体的破损、变形、接触无异常。 Electrical characteristics shall be satisfied no mechanical abnormality.</p>															

RP08系列规格书

RP08 SERIES SPECIFICATION

开关性能 Switch CHARACTERISTICS

备注：以下规格适用于RP08电位器带开系列。

Note: The following specification is only suitable for the one type with switch construction of RP08 potentiometer series.

1. 额定值 Rating

1-1. 额定电压

Rated voltage: DC 12V

1-2. 最大额定电流 (阻抗负载)

Maximum operating current (resistive load): 1A Max

2. 电气性能 ELECTRICAL CHARACTERISTICS

项目 ITEM	条件 CONDITIONS	规格 SPECIFICATIONS
2-1. 开关接触阻抗 Contact Resistance of Power	用DC 5V 1mA 电压测定。 Voltage test at DC 5V 1mA.	≤100mΩ 100mΩ or less
2-2. 绝缘阻抗 Insulation resistance	DC 250V 1分钟。A voltage of 250V DC shall be applied for 1 minute, after which measurement shall be made. 端子与支架间。Between terminals and frame.	100 MΩ以上 100 MΩMax
2-3. 耐电压 Withstand Voltage	感度电流 2mA, 频率50/60Hz, AC 300V 1分钟。 Trip current: 2mA, Measuring frequency: 50/60 Hz 300V AC for 1 minute 端子与支架间。Between terminals and frame.	没有损伤、变形、绝缘破坏等情形 Without damage to parts, arcing or breakdown etc.

3 机械性能 Mechanical characteristics

3-1. 开关电路接点数 Switch circuit and number of pulse		单极单投 Single pole and single throw
3-2. 开关动作力 rotational torque of switch	开关从关到开、从开到关的力 The force of the switch from ON to OFF and from OFF to ON.	80~300 gf.cm
3-3. 开关旋转角度 Switch Rotation Angle	使用角度板测量开关从开到关的角度。 The angle of the switch from ON to OFF by the angle board.	≤50°

4 耐久性能 ENDURANCE CHARACTERISTICS

开关寿命 Switch-life	在无负荷条件下轴以600次/小时速度回转， 24小时连续5000~8000次。 The shaft of potentiometer shall be rotated at a speed of 600cycles/H without electrical load, after with measurements shall be made. (5000 to 8000 continuous cycles for 24 hours.)	■ 30,000 ± 200次	□ 10,000 ± 200次
		30,000 ± 200 cycles	10,000 ± 200cycles
		接触电阻: ≤1Ω。 其它应满足初期规格。 Contact resistance: 1Ω or less Specification in clause shall be satisfied.	

包装部分 Packing Portion

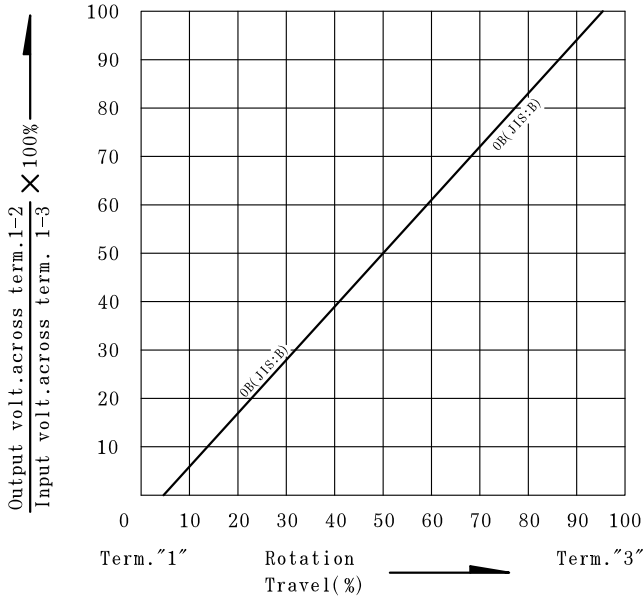
项目 ITEM	条件 CONDITIONS	规格 SPECIFICATIONS
1-1. 包装方式 Packing	使用胶管和纸箱包装。 Packed into tubes and cartons.	每根胶管装7-20PCS, 每箱装500根胶管。 Put 7-20PCS into a tube, and then pack 500pcs tubes into a carton.

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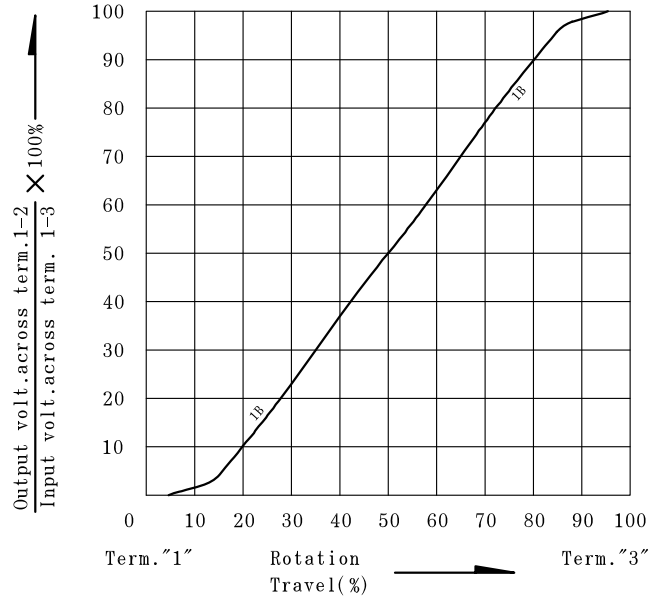
阻值變化特性

Resistance Characteristic

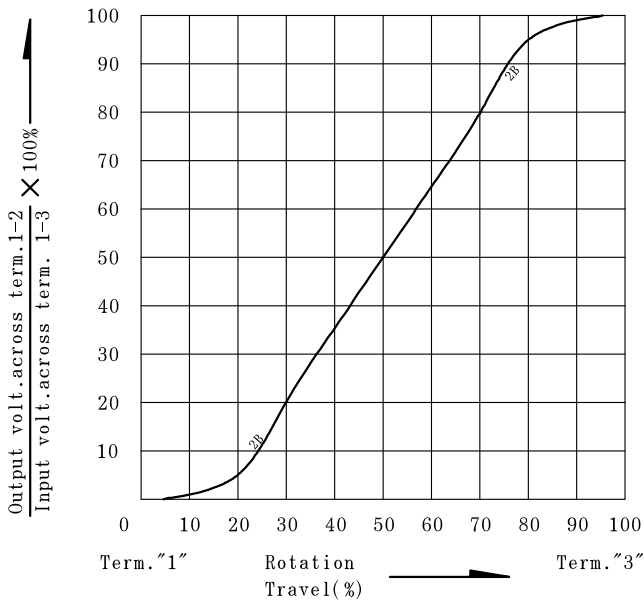
■ TAPERS(0B) SERIES



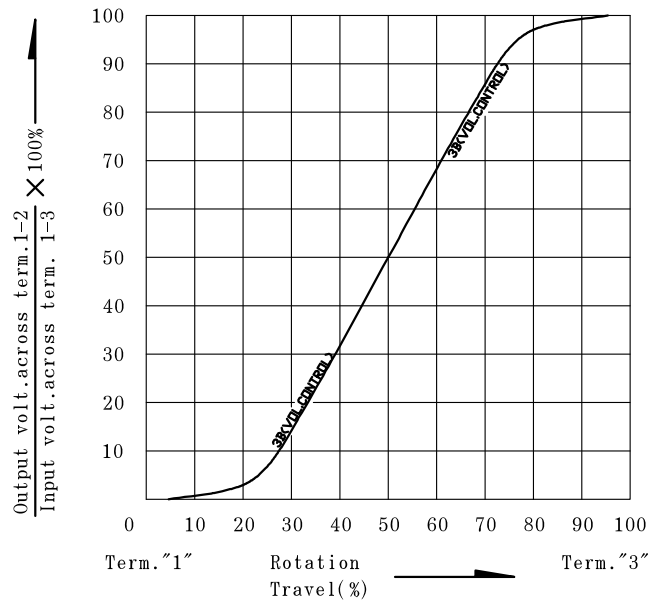
□ TAPERS(1B) SERIES



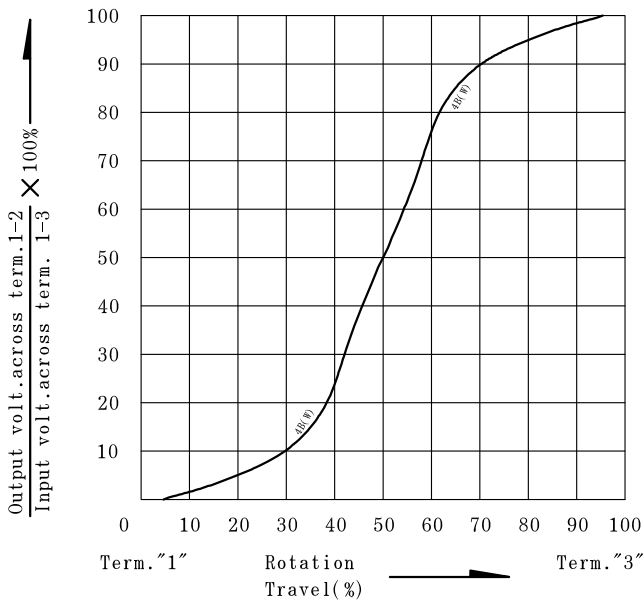
□ TAPERS(2B) SERIES



□ TAPERS(3B) SERIES



□ TAPERS(4B) SERIES



□ TAPERS(5B) SERIES

