

**MS1000DXXX 八向汽车座椅开关规格书**  
**MS1000DXXX SERIES SPECIFICATION**

**1. 一般事项General**

1-1. 适用规格 Scope

本规格书适用于强电流回路的电子设备，属八向开关模组。  
This specification is applied for electronic components of high-current circuit, especially for 8-direction switch model.

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

如果对在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 doubts arises 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 : -40°C to 85°C

1-4. 保存温度范围

Storage temperature range : -40°C to 85°C

**2. 构造Construction**

2-1. 尺寸 Dimensions

见所附成品图 Refer to attached drawing

**3. 功能 Function**

3-1. 八向开关调节

8 direction switch adjust

**4. 额定值 Rating**

4-1. 额定电压

Rated voltage:DC 12V

4-2. 最大额定电流（阻抗负载）

Rated current:10A (Load Resistance)

**5. 使用上的事项Application Notes**

5-1. a. 产品以交货时的状态在常温、常湿，不受阳光直射照射，不产生腐蚀性气体的场所保管，自交货起6个月内使用为佳。

a. Please store it within the normal temperature、normal humidity、without the direct sunlight irradiation no corrosive gas place、 and use it within the 6 month from the delivery date would be better.

b. 包装被打开后未使用完的产品使用聚乙烯袋与空气隔断（例如：使用密封袋将其密封）请在a环境下保管与尽快使用。

b. Once opened, the unused products should be packed in polyethylene bag, and protected from the air (eg. Use the sealing bag to seal it), please store it under the environment a, and use it ASAP.

**6. 电气性能 Electrical Characteristics**

项目 ITEM	条件 CONDITIONS	规格 SPECIFICATIONS
6-1. 额定功率 Rated Power		DC 12V 10A
6-2. 初期接触电阻 Initial Contact Resistance	出力信号处于0N时安定状态条件下测定。 Measurement shall be done on stable 0N condition.	100mΩ Max
6-3. 过电流 Max current	DC 12V 25A 10Minnute	接触电阻≤500mΩ Contact Resistance≤500mΩ
6-4. 绝缘阻抗-1 Insulation resistance	在端子和非导通端子间施加电压 500V DC（10S保持）。 Measurement shall be made under the condition A voltage of 500V DC shall be applied between individual terminals and terminals（continue 10S）.	100MΩ 以上 100MΩ Min
6-5. 绝缘阻抗-2 Insulation resistance	在端子和塑胶外壳之间施加电压 500V DC（10S保持） Measurement shall be made under the condition A voltage of 500V DC shall be applied between individual terminals and plastic shell.	100MΩ 以上 100MΩ Min
6-6. 耐电压 Dielectric strength	在端子和塑胶外壳间施加AC 500V电压1分钟 A voltage of 500V AC shall be applied for 1 minute between individual terminals and plastic shell.	不得有绝缘破坏 Without arcing or breakdown.



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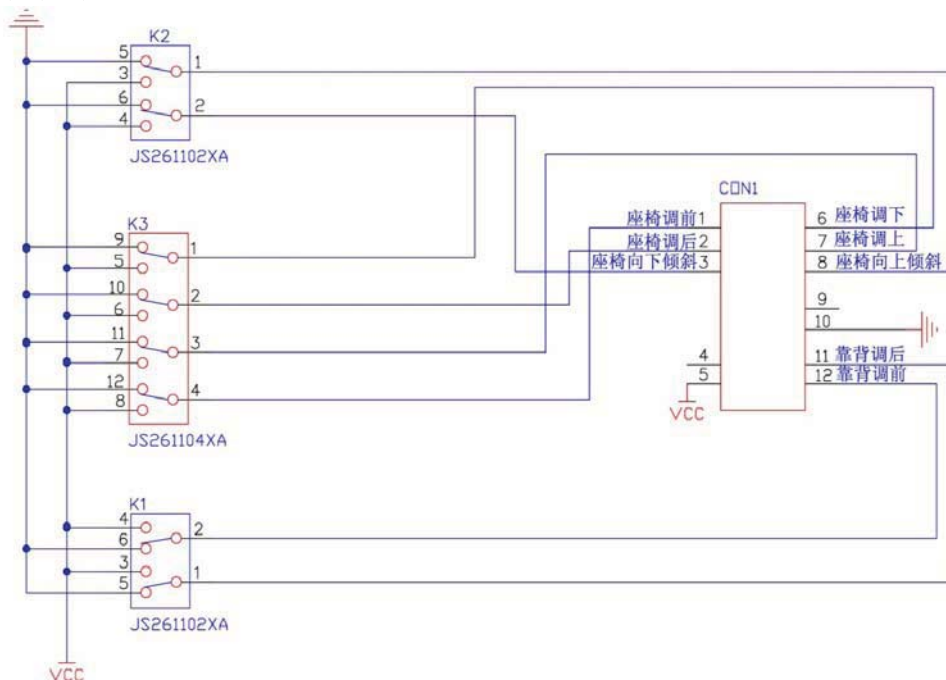
7. 机械性能 Mechanical Characteristics		
项目 ITEM	条件 CONDITIONS	规格 SPECIFICATIONS
7-1. 操作力 Operation force	在旋钮操作受力点沿着操作方向施加作用力。 Apply the force along the direction of operation at the knob stress point.	8±2 N
7-2. 操作行程 Total Travel of switch		2.0±0.5mm
7-3. 回弹力 Back to the spring		≥0.5 N
7-4. 手感系数 Handle coefficient		无卡滞、圆滑动作 15%-50%
7-5. 旋钮的操作强度 Operating strength of knob	在旋钮的操作受力点施加一个100N的静载荷力，方向、作用点和正常操作时相同 Exert a force of 100N in the knob point, Direction、action point as normal operation	电气和机械特性没有异常 No abnormality in electric and Mechanical characteristics □
7-6. 旋钮的组装脱离力 Assembly disengaging force	以开关旋钮的取出方向作为力的作用方向 The knob assembly, remove the direction as force action direction	取出≥50N，取出后无异常，可以正常使用 Remove≥50N, The knob has no broken
7-7. 摆动虚位间隙 Shaft wobble	在旋钮的操作受力点施加一个1N的静载荷力，方向、作用点和正常操作时相同。 In Apply a force knob of 1N,	≤0.5mm
7-8. 轴向间隙 Shaft play in axial direction	沿着摇杆开关的轴向施加一个1N的静载荷力。 When 1N force is applied axially.	虚位间隙±0.5mm 以下 Shaft play in ±0.5mm Max
7-9. 耐振性 Vibration Resistance	开关模组采用常规的安装方法牢固地安装在试验设备上，并在下述参数条件下进行试验： (1)典型的随机振动条件：扫引周期频率：(8.3±1)Hz→(200±4)Hz→(8.3±1)Hz 扫引对数的方法：最大速度43.2m/s <sup>2</sup> ；最大摆幅10mm (2)振动方向：三个相互垂直的方向，其中一个方向应该促动元件运动的方向； (3)周期：每个方向12个周期（1个周期的比率扫引20分钟） Install the encoder to the test equipment with conventional installation methods, do test under the following specification conditions: (1)Typical random vibration conditions:Cyle frequency sweep cited(8.3±1)Hz→(200±4)Hz→(8.3±1)Hz Logarithmic sweep cited methods:maximum speed 43.2m/s <sup>2</sup> ; Maximum amplitude:10mm (2)Direction of vibration: Three mutually perpendicular directions, one of them should be to motivate the direction of movement components. (3)Time:12 cycles in every direction(Sweep rate of 1 cycle at least 20 minutes)	端子间接触阻抗200mΩ 以下； 其他性能满足第6-3、6-4、6-5、6-6； Contact resistance 200 mΩ Max The performance requirements specified in item6-3--6-6 shall be satisfied
8. 耐久性能 Endurance Characteristics		
项目 ITEM	条件 CONDITIONS	规格 SPECIFICATIONS
8-1. 操作寿命 Operating-life	在带额定负载的条件下施以8N以下的操作力，以600次循环/小时的速度操作。 operating force 8N to the shaft of under no-load conditions, and with a speed of 600 cycles/hour.	20,000±200次循环（八个方向各按压一下为一次） 端子间接触阻抗200mΩ 以下， 其它性能符合第6-3、6-4、6-5、6-6； 20,000±200cycles. Contact resistance 200mΩMax; The performance requirements specified in item 6-3 --- 6-6 shall be satisfied

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<p>8-2. 耐湿性 Damp heat</p>	<p>温度<math>60\pm 2^{\circ}\text{C}</math>, 湿度90~95%的恒温恒湿槽中放置<math>240\pm 10</math>小时后, 在常温、常湿中放置1.5小时后测试。 The encoder shall be stored at temperature of <math>60\pm 2^{\circ}\text{C}</math> with relative humidity of 90% to 95% for <math>240\pm 10\text{H}</math> in a thermostatic chamber. And the encoder shall be subjected to standard atmospheric conditions for 1.5H, After which measurements shall be made.</p>										
<p>8-3. 耐热性 Dry heat</p>	<p>温度<math>80\pm 3^{\circ}\text{C}</math>的恒温箱中放置<math>240\pm 10</math>小时, 常温、常湿放置1.5小时后测试。 The encoder shall be stored at a temperature of <math>90\pm 3^{\circ}\text{C}</math> for <math>240\pm 10\text{H}</math> in a thermostatic chamber. And then the encoder shall be subjected to standard atmospheric conditions for 1.5H, After which measurements shall be made.</p>	<p>端子间接触阻抗<math>200\text{m}\Omega</math>以下; 其它性能符合第6-3、6-4、6-5、6-6; Contact resistance <math>200\text{m}\Omega\text{Max}</math>; The performance requirements specified in item 6-3 --- 6-6 shall be satisfied</p>									
<p>8-4. 低温特性 Cold</p>	<p>温度<math>-40\pm 3^{\circ}\text{C}</math>的恒温箱中放置<math>240\pm 10</math>小时, 常温、常湿放置1.5小时后测试。 The encoder shall be stored at a temperature of <math>-40\pm 3^{\circ}\text{C}</math> for <math>240\pm 10\text{H}</math> in a thermostatic chamber. And then the encoder shall be subjected to standard atmospheric conditions for 1.5H, After which measurements shall be made.</p>										
<p>8-5. 温度循环特性 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1.5小时后再进行测量。</p> <table border="1" data-bbox="475 1037 919 1155"> <thead> <tr> <th>STEP</th> <th>TEMPERATURE</th> <th>TIME</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><math>-40^{\circ}\text{C}\pm 2^{\circ}\text{C}</math></td> <td>30 MINUTES</td> </tr> <tr> <td>2</td> <td><math>85^{\circ}\text{C}\pm 2^{\circ}\text{C}</math></td> <td>30 MINUTES</td> </tr> </tbody> </table> <p>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 atmosphere conditions for 1.5 hours, after which measurement shall be made.</p>	STEP	TEMPERATURE	TIME	1	$-40^{\circ}\text{C}\pm 2^{\circ}\text{C}$	30 MINUTES	2	$85^{\circ}\text{C}\pm 2^{\circ}\text{C}$	30 MINUTES	<p>端子间接触阻抗<math>200\text{m}\Omega</math>以下; 其它性能符合第6-3、6-4、6-5、6-6; Contact resistance <math>200\text{m}\Omega\text{Max}</math>; The performance requirements specified in item 6-3 --- 6-6 shall be satisfied</p>
STEP	TEMPERATURE	TIME									
1	$-40^{\circ}\text{C}\pm 2^{\circ}\text{C}$	30 MINUTES									
2	$85^{\circ}\text{C}\pm 2^{\circ}\text{C}$	30 MINUTES									

**9. 电路及输出说明 Circuit and the output explain**

9-1. 内部电路 Internal circuit

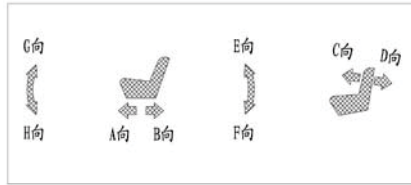


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9-2. 引脚分配 Pin assignment

引脚编号 Pin NO:	引脚分配	Pin Assignment	引脚定义	Pin definition
Pin-1	输出-A方向	Output-A	座椅调前	Track FWD
Pin-2	输出-B方向	Output-B	座椅调后	Track BWD
Pin-3	输出-H方向	Output-H	座椅向下倾斜	Sloping Downward
Pin-4	空位	Empty	空位	Empty
Pin-5	输入	Input	输入	Power(+)
Pin-6	输出-F方向	Output-F	座椅调下	High Adjust Down
Pin-7	输出-E方向	Output-E	座椅调上	High Adjust Up
Pin-8	输出-G方向	Output-G	座椅向上倾斜	Sloping Upward
Pin-9	空位	Empty	空位	Empty
Pin-10	接地	Ground Wire	接地	Ground Wire
Pin-11	输出-D方向	Output-D	靠背调后	Recliner BWD
Pin-12	输出-C方向	Output-C	靠背调前	Recliner FWD

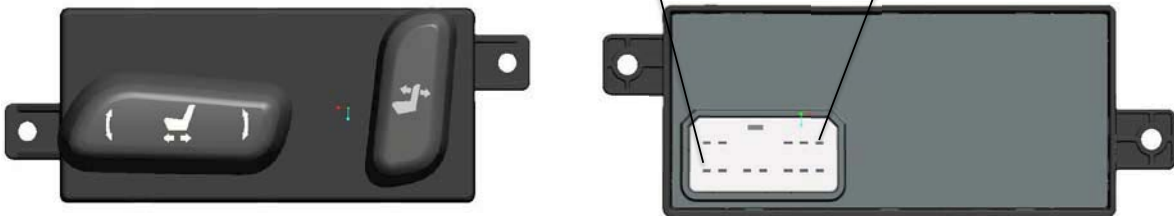
9-3. 方向定义 Direction definition



9-4. 测力点定义 Measuring point definition



9-5. 引脚定义 Pin definition



10-1. 环保要求: 产品所含零件都符RoHS标准

10-1. environmental requirement: products comply RoHS

11-1. 包装方式: 使用吸塑盘和纸箱包装

Packing method: Packed in plastic tray and carton

1、一层吸塑盒装8pcs成品

a layer of blister box 8 pcs finished products

2、一个纸箱装入3层, 共24pcs成品

a PE bags into three layers, a total of 24 pcs finished products

3、纸箱上层放入一层泡沫板

carton top into a layer of foam board

4、纸箱用封箱胶纸封箱

carton seating tape sealing



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