

**開平市高成電子有限公司**  
**KOCEN ELECTRONIC(KAIPING) CO.,LTD.**

|                                         |                                            |                                                                                                                                                                                                                                                                                                                                                                                                 |      |      |                         |          |                      |               |  |
|-----------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-------------------------|----------|----------------------|---------------|--|
| 分類號碼：<br>1/5                            |                                            | 搖桿制品規格書<br>SPECIFICATIONS OF JOYSTICK CONTROLLERS                                                                                                                                                                                                                                                                                                                                               |      |      |                         |          | 版本（version）：<br>V2.0 |               |  |
| 1. 電器性能：<br>ELECTRICAL CHARACTERISTICS: |                                            |                                                                                                                                                                                                                                                                                                                                                                                                 |      |      |                         |          |                      |               |  |
| 1.1                                     | 碳膜有效角度<br>Carbon coat active angle         | <input type="checkbox"/> _____°±2° <input checked="" type="checkbox"/> 60° 中 6°±2°<br><input type="checkbox"/> _____°±2° <input checked="" type="checkbox"/> 60° middle 6°±2°                                                                                                                                                                                                                   |      |      |                         |          |                      |               |  |
| 1.2                                     | 全阻抗值<br>Total resistance                   | <input checked="" type="checkbox"/> 10K <input type="checkbox"/> 50K <input type="checkbox"/> 100K                                                                                                                                                                                                                                                                                              |      |      |                         |          |                      |               |  |
| 1.3                                     | Total Resistance Tolerance<br>全阻抗容許差值      | <input checked="" type="checkbox"/> ±20% <input type="checkbox"/> ±10% <input type="checkbox"/> _____% ~ _____%                                                                                                                                                                                                                                                                                 |      |      |                         |          |                      |               |  |
| 1.4                                     | 阻抗變化特性<br>Resistance law                   | 直線型：      B（線型偏移度±3%以內）<br>Linear type : B (±3% MAX)                                                                                                                                                                                                                                                                                                                                            |      |      |                         |          |                      |               |  |
| 1.5                                     | 分中阻值誤差<br>Center position resistance error | 推柄自由復歸后,端子1-2的阻值與端子2-3的阻值之差的絕對值<br>The absolute value of resistance different between terminal 1-2 and terminal 2-3 after the lever rest<br>_____ 0.5 KΩ Max                                                                                                                                                                                                                                    |      |      |                         |          |                      |               |  |
| 1.6                                     | 復歸阻值誤差<br>Reset resistance error           | 推柄推向端子1方向自由復歸后測得端子1-2或端子2-3的阻值與推柄向端子3方向自由復歸后測得端子1-2或端子2-3的阻值之差的絕對值<br>The absolute value of resistance different between terminal 1-2 and terminal 13 after the lever rest from the direction of terminal 1 and terminal 3 The absolute value of resistance different between terminal 2-3 and terminal 23 after lever rest from the direction of terminal 1 and terminal 3<br>_____ 0.5 KΩ Max |      |      |                         |          |                      |               |  |
| 1.7                                     | 殘留阻值<br>Residual resistance                | 端子1&2和2&3同在 _____ 500 Ω以下<br>Less than _____ 500 Ω between terminal 1&2 and 2&3                                                                                                                                                                                                                                                                                                                 |      |      |                         |          |                      |               |  |
| 1.8                                     | 接觸阻抗<br>Contact resistance                 | $(R_{1.2}+R_{2.3}-R_{1.3})/2 \leq \text{全阻值} \times 30\%$<br>端子 1-2 阻值加上端子 2-3 的阻值之和減去端子 1-3 的阻值之差的一半小于或等于全阻值的百分之三十<br>Sum of terminal 1-2 resistance plus terminal 2- 3 resistance and minus terminal 1-3 resistance $\leq$ total resistance $\times 30\%$                                                                                                                                     |      |      |                         |          |                      |               |  |
| 1.9                                     | 滑動雜音<br>Slide Noise                        | 依JIS測定方法, 300mV以下<br>300mV Max (By JIS method)                                                                                                                                                                                                                                                                                                                                                  |      |      |                         |          |                      |               |  |
| 1.10                                    | 絕緣阻抗<br>Insulation resistance              | 在端子和外框架之間加250V D.C 1分鐘以後,端子和外框架之間的電阻: 100MΩ 以上<br>More than 100M Ω at DC 250 V 1 minute between individual terminals of resistor and frame 1 minute later                                                                                                                                                                                                                                       |      |      |                         |          |                      |               |  |
|                                         | C                                          |                                                                                                                                                                                                                                                                                                                                                                                                 |      |      | APPD. CHKD. DSGD. TITLE |          |                      | SPECIFICATION |  |
|                                         | B                                          |                                                                                                                                                                                                                                                                                                                                                                                                 |      |      | 胡一帆                     | 周 凡      | 胡守偉                  | 圖名: 規 格 書     |  |
|                                         | A                                          |                                                                                                                                                                                                                                                                                                                                                                                                 |      |      |                         |          |                      | DOCUMENT NO.  |  |
| PAGE                                    | SYMB                                       | DATE                                                                                                                                                                                                                                                                                                                                                                                            | APPD | DSGD | 03.11.04                | 03.11.04 | 03.11.04             | 圖號: SRKJX-01  |  |

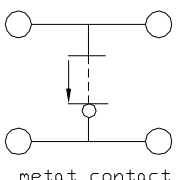
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| 分類號碼：<br>2/5                            |                                                 | 搖桿制品規格書<br>SPECIFICATIONS OF JOYSTICK CONTROLLERS |      |      |                                                                                                                                                                                                                                                                                         | 版本（version）：<br>V2.0 |               |
| 1. 電器性能：<br>ELECTRICAL CHARACTERISTICS: |                                                 |                                                   |      |      |                                                                                                                                                                                                                                                                                         |                      |               |
| 1.11                                    | 額定電壓<br>Rated voltage                           |                                                   |      |      | Linear Taper B: AC 50V or DC 5V<br>Max Operation Voltage Ea £ PR<br>P: Rated Power (W)<br>R: Total Resistance (Ω)                                                                                                                                                                       |                      |               |
| 1.12                                    | 額定負載功率<br>Rated Power                           |                                                   |      |      | Linear Taper B: 0.0125 W                                                                                                                                                                                                                                                                |                      |               |
| 1.13                                    | 耐電壓<br>Dielectric strength                      |                                                   |      |      | 1 minute at AC 250V/ 2ma /50Hz                                                                                                                                                                                                                                                          |                      |               |
| 1.14                                    | 抵抗溫度特性<br>Resistance-Temperature Characteristic |                                                   |      |      | ■10K type:+5%~-20% 以內<br>□50K、□100K、□120K type:+5%~-25% 以內<br>The controller shall be maintained in a thermostatic chamber at temperature of 70 ±3° C、without electrical load for s hours after which the total resistance shall be measured immediately、溫度在 70±3° C 無負荷的恆溫槽中放置 5 小時后測試 |                      |               |
| 1.15                                    | 耐熱性<br>Dry heat                                 |                                                   |      |      | Temperature: +80 ±2° C<br>Time: 96 hours<br>The controller shall be subjected to standard atmospheric Conditions for 2 hours after which measurement shall be made 溫度在 80±2° C,放置 96 小時,2 小時后正常狀態下測試                                                                                    |                      |               |
| 1.16                                    | 耐寒性<br>Cold                                     |                                                   |      |      | Temperature: -30 ±2° C<br>Time: 96 hours<br>Surface moisture shall be removed, and then the controller shall Be subjected to standard atmospheric conditions for 2hours after Which measurement shall be made 溫度在-30±2 C,放置 96 小時,表面水份攝取后 2 小時正常狀態下測試                                   |                      |               |
| 1.17                                    | 耐濕性<br>Damp Heat                                |                                                   |      |      | Temperature: +60 ±2° C<br>Humidity: 90%-95%RH<br>Time: 96 hours<br>Surface moisture shall be subjected to standard atmospheric Conditions for 2 hours after which measurement shall be wade 溫度在-60±2° C,放置 96 小時,表面水份攝取后 2 小時正常狀態下測試                                                    |                      |               |
|                                         | C                                               |                                                   |      |      | APPD. CHKD. DSGD. TITLE.                                                                                                                                                                                                                                                                |                      | SPECIFICATION |
|                                         | B                                               |                                                   |      |      | 胡一帆                                                                                                                                                                                                                                                                                     | 周凡                   | 圖名：規格書        |
|                                         | A                                               |                                                   |      |      |                                                                                                                                                                                                                                                                                         | 胡守偉                  | DOCUMENT NO.  |
| PAGE                                    | SYMB                                            | DATE                                              | APPD | DSGD | 03.11.04                                                                                                                                                                                                                                                                                | 03.11.04             | 03.11.04      |
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| 分類號碼：<br>3/5                            |                                       | 搖桿制品規格書<br>SPECIFICATIONS OF JOYSTICK CONTROLLERS |      |      |                                                                                                                                                                                                                                                                                                                                                         | 版本（version）：<br>V2.0 |          |              |
| 1. 電器性能：<br>ELECTRICAL CHARACTERISTICS: |                                       |                                                   |      |      |                                                                                                                                                                                                                                                                                                                                                         |                      |          |              |
| 1.18                                    | 溫度循環測試<br>Temperature Cycling Test    |                                                   |      |      | Low temperature: -10 ±3° C 30minutes<br>High temperature: +60 ±2° C 30minutes<br>Number of cycles: 5 tines<br>Surface moisture shall be removed, and then the controller shall Be subjected to standard atmospheric conditions for 2hours after Which measurement shall be made<br>在低溫為-10±3° C 放置 30 分鐘,高溫 60±2° C 放置 30 分鐘,測試 5 次,表面水份攝取后 2 小時正常狀態下測試 |                      |          |              |
| 1.19                                    | 自由落下試驗<br>Free Falling                |                                                   |      |      | Height: 75cm<br>Number of falls: 3 tines<br>Without change and lever deformation, but deformations of terminals and molded parts are available<br>從高度為 75 厘米落下測試 3 次后外觀內部無不良產生,端子變形除外                                                                                                                                                                   |                      |          |              |
| 1.20                                    | 焊錫性<br>Solder ability                 |                                                   |      |      | Temperature of solder: 235 ±5° C dipping duration: 3 ±0.5s,Not less than 3/4 of the surface dipped shall be covered with new solder<br>焊錫溫度在 235±5° C,浸錫時間 3±0.5 秒,浸錫部分表面最小 3/4 被新錫蓋                                                                                                                                                                    |                      |          |              |
| 1.21                                    | 焊錫耐熱性<br>Resistance to soldering heat |                                                   |      |      | Solder temperature of 260±5° C for 5 sec variation of total Resistance shall be within ±5%,and terminals shall not work loose to Injure electric contact after test<br>焊錫溫度 260±5° 5 秒,全阻值變化±5%以內,無損壞電氣這接的端子松動                                                                                                                                          |                      |          |              |
| 2. 機械特性：<br>MECHANICAL CHARACTERISTICS: |                                       |                                                   |      |      |                                                                                                                                                                                                                                                                                                                                                         |                      |          |              |
| 2.1                                     | 推柄使用有效角度<br>Operation angle of lever  |                                                   |      |      | 60±5°                                                                                                                                                                                                                                                                                                                                                   |                      |          |              |
| 2.2                                     | 推柄移動形式<br>Figure of lever operation   |                                                   |      |      | 環形方式<br>Circular operating                                                                                                                                                                                                                                                                                                                              |                      |          |              |
| 2.3                                     | 推柄止動強度<br>Stopper strength of lever   |                                                   |      |      | 3Kgf-cm Min 3秒以下.<br>More than 3.1 kgf .cm 3 seconds min                                                                                                                                                                                                                                                                                                |                      |          |              |
|                                         | C                                     |                                                   |      |      | APPD. CHKD. DSGD. TITLE. SPECIFICATION                                                                                                                                                                                                                                                                                                                  |                      |          |              |
|                                         | B                                     |                                                   |      |      | 胡一帆                                                                                                                                                                                                                                                                                                                                                     | 周 凡                  | 胡守偉      | 圖名：規 格 書     |
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| 分類號碼：<br>4/5                                                                   |                                                 | 搖桿制品規格書<br>SPECIFICATIONS OF JOYSTICK CONTROLLERS |                                                                                                                                                                                                                                                        |      | 版本（version）：<br>V2.0 |                                  |
| 2. 機械特性：<br>MECHANICAL CHARACTERISTICS:                                        |                                                 |                                                   |                                                                                                                                                                                                                                                        |      |                      |                                  |
| 2.4                                                                            | 推柄拉拔承受強度<br>Pull-push strength of lever         |                                                   | 壓5Kgf-cm 3秒,拉5Kgf-cm 3秒,扭力0.3Nm.<br>Push 5Kgf-cm 3 sec., pull 5Kgf-cm 3 sec.<br>Torsion moment 0.3Nm Min.                                                                                                                                              |      |                      |                                  |
| 2.5                                                                            | 搖柄動作力矩<br>Operating force of lever              |                                                   | ■ 80~120gf-cm. □ 130~180gf-cm. □ 180~240gf-cm.                                                                                                                                                                                                         |      |                      |                                  |
| 2.6                                                                            | 推柄垂直復歸精度<br>Accuracy of reset Position of lever |                                                   | ±5°。                                                                                                                                                                                                                                                   |      |                      |                                  |
| 2.7                                                                            | 耐久次數值<br>Number of cycles                       |                                                   | ■ 500,000 Cycles Min □ 1,000,000 Cycles Min<br>□ Other ____ (Cycles Min)<br>滿足以下條件:meet the conditions of:<br>a.全阻值變化 Total resistance: 初始值(initial value): ±20%<br>b.雜訊 Slide noise: less than 300mv (by JIS method)<br>c.機械方面能動作 (Mechanical action) |      |                      |                                  |
| 3. 開關特性.(※註： 僅適用於開關機種)<br>SWITCH CHARACTERISTICS: (※ For switch type use only) |                                                 |                                                   |                                                                                                                                                                                                                                                        |      |                      |                                  |
| 3.1                                                                            | 最大定格<br>Maximum ratings                         |                                                   | 12V DC 50mA                                                                                                                                                                                                                                            |      |                      |                                  |
| 3.2                                                                            | 接觸阻抗<br>Contact resistance                      |                                                   | 100mΩ 以下<br>100mΩ Max                                                                                                                                                                                                                                  |      |                      |                                  |
| 3.3                                                                            | 開關動作力<br>Operation force of tact switch         |                                                   | □100gf      ■ 160gfm      □260gf                                                                                                                                                                                                                       |      |                      |                                  |
| 3.4                                                                            | 開關移動作量<br>Operation force of tact switch        |                                                   | 0.5 mm Max                                                                                                                                                                                                                                             |      |                      |                                  |
| 3.5                                                                            | 開關回路<br>Switch circuit Diagram:                 |                                                   |                                                                                                                                                                     |      |                      |                                  |
| 3.6                                                                            | 耐電壓<br>Dielectric strength                      |                                                   | 250 v AC 50 Hz at /1 minute                                                                                                                                                                                                                            |      |                      |                                  |
|                                                                                | C                                               |                                                   |                                                                                                                                                                                                                                                        |      | APPD.                | CHKD. DSGD. TITLE. SPECIFICATION |
|                                                                                | B                                               |                                                   |                                                                                                                                                                                                                                                        |      | 胡一帆                  | 周 凡 胡守偉 圖名： 規 格 書                |
|                                                                                | A                                               |                                                   |                                                                                                                                                                                                                                                        |      |                      | DOCUMENT NO.                     |
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3. 開關特性.

SWITCH CHARACTERISTICS:

|     |                           |                                                                                                                                                                                                                           |
|-----|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.7 | 耐久次數值<br>Number of cycles | <input checked="" type="checkbox"/> 100,000 Cycles Min <input type="checkbox"/> Other ____ (Cycles Min)<br>滿足以下條件:meet the conditions of:<br>a.接觸阻抗(Contact resistance): <u>200mΩ MAX</u><br>b.機械方面能動作(Mechanical action) |
|-----|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

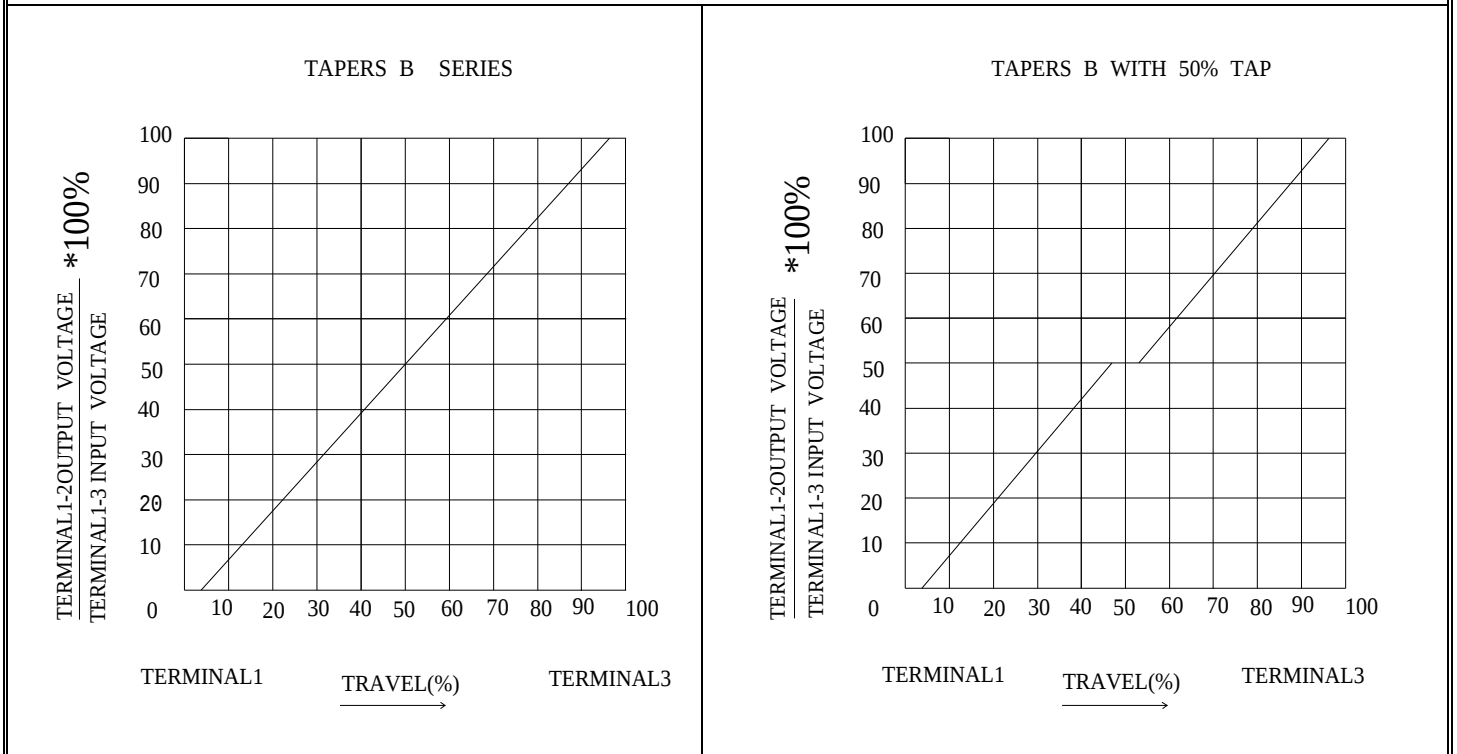
4. 其它

NOTE

|     |                                                                                                   |           |
|-----|---------------------------------------------------------------------------------------------------|-----------|
| 4.1 | 使用溫度範圍<br>Operating temperature range                                                             | -10℃~70℃. |
| 4.2 | 保存溫度範圍<br>Storage temperature range                                                               | -30℃~80℃. |
| 4.3 | 依照 JISC-6443 普通級碳素系可變電阻器。(可變電阻器部分)<br>Meet or exceed JISC-6443 requirements. (potentiometer part) |           |

5. 附:

直線型:            B  
Linear type:      B



|      |      |      |      |      |          |          |          |              |               |
|------|------|------|------|------|----------|----------|----------|--------------|---------------|
|      | C    |      |      |      | APPD.    | CHKD.    | DSGD.    | TITLE.       | SPECIFICATION |
|      | B    |      |      |      | 胡一帆      | 周凡       | 胡守偉      | 圖名: 規格書      |               |
|      | A    |      |      |      |          |          |          | DOCUMENT NO. |               |
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