

未指定容許±尺寸之公差	
10以下	±0.3
10~100	±0.5
100以上	±0.8
角 度	±5°

						东莞市凡睿电子科技有限公司			
MTL	SPEC	DISPOSAL		UNIT	SCALE	TITLE			
△				MM	3 / 1	RS20 Series			
△		DRAWN	DESIGN	CHECK	APPROVAL	DWG NAME			
△						RS2012N1-5P-4C700-M7B6-YA15A6.5			
△						DWG NO.			
△									



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1、一般事項 General

1-1 適用規格 Scope

本規格書適用於 20 型波段開關。

This specification applies to more than 20 type band switch

1-2 標準狀態 Standard atmospheric conditions

除另有規定外，測量應在以下狀態下進行：

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

溫度 Ambient temperature : 15°C to 35°C

相對溼度 Relative humidity : 25 % to 85%

氣壓 Air pressure : 86 kPa to 106 kPa

1-3 使用溫度範圍 Operating temperature range : - 10 °C to +70 °C

1-4 保存溫度範圍 Storage temperature range : - 20 °C to +85 °C

2、構造 Construction

2-1 尺寸 Dimensions

見所附成品圖 Refer to attached drawing



2. Mechanical Characteristics

2. 機械特性

Item 項目	Measuring condition 測試條件	Specifications 規格	
Rotation operation (Encoder block) 回轉操作	2.1 Changeover 切換角度	Effective switching angles 有效切換角度	30°±5°
	2.2 Rotation torque 回轉 力矩		700±300gf.cm
	2.3 Push-pull strength 軸的推拉強度	Push and pull static load of 8Kg shall be applied to the shaft in the axial direction for 10s.(after soldering of the PC board) 在軸端,沿軸向施加 8kg 的靜負荷力推和拉各 10 秒鐘(產品焊錫固定在 PCB 上。)	Without damage and abnormal on the outlook and function of the shaft. Electrical characteristics should be satisfied. 軸無破損, 旋轉無異常。 電氣性能符合規定要求。
	2.5 端子強度 Terminal strength	Apply 400g force in each direction to the terminal end, and the terminal does not fall off or damage the terminal board within 1 minute 端子末端各方向加 400g 力 1 分鐘內端子無脫落,端子板無破損	
	2-6 止動強度 Locking strength	Rotatioual morment shall be applied to the shart for is at both end. 將軸旋轉至兩邊止檔位置	4kg/15s



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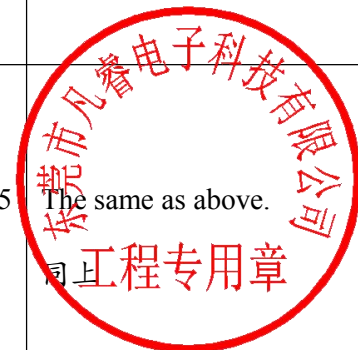
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3. Encoder electrical characteristic s		3. 電氣特性	
Item 項目	Measuring condition 測試條件	Specifications 規格	
3.1	Sections 段數	5	
3.2	Poles 極數	1	
3.3	Rating 額定值	Rating of voltage and current between COM and A (COM and B). C 端和 A 端(C 端和 B 端)間額定電壓和電流	D.C30V 0.1A
3.4	Insulation resistance 絕緣電阻	Measure to Apply D.C500V. (Between terminal for reinforcing and the other terminals) D.C500V 測試 (在塑膠與接線端之間)	≥100MΩ
3.5	Withstand voltage 耐電壓	Apply A.C500V for 1min. (Between terminal for reinforcing and the other terminals) C500V1 分鐘 (在塑膠與接線端之間)	No damage. Arc and dielectric breakdown. 無損傷、電弧和電故障
3.6	Contact resistance 接觸電阻	Shall be measured at 1kHz±200Hz(max.20mV,max.50mA) or 5VDC, 1A by a voltage drop method. 在直流電壓 5V,電流 1A,頻率為 1kHz±200Hz 下測試	≤30mΩ
4. Endurance		4. 耐久特性	
Item 項目	Measuring condition 測試條件	Specifications 規格	
4.1	Heat resistance 耐熱特性	Temperature 85±2°C Time 96 ±10hours After that , leave in ordinary temp and humidity for 1.5 hour. Then measure. 溫度 85±2°C 時間 96 ±10 小時 然後放置在常溫和濕度下 1.5 小時再測試。	Specification in clause all items in shall be satisfied. 所有項應滿足初期規格
4.2	Moisture resistance 耐濕特性	Temperature 40±2°C Humidity 90~95%Rh Time 96±10 hours After that , leave in ordinary temp and humidity for 1.5 hour. Then measure. 溫度 40±2°C 濕度 90~95%Rh 時間 96±10 小時 然後放置在常溫和濕度下 1.5 小時再測試。	The same as above. 同上
4.3	Low temperature resistance 耐寒特性	Temperature -20±2°C Time 96±10 hours After that , leave in ordinary temp and humidity for 1.5 hour. Then measure. 溫度 -20±2°C 時間 96±10 小時 然後放置在常溫和濕度下 1.5 小時再測試。	The same as above. 同上





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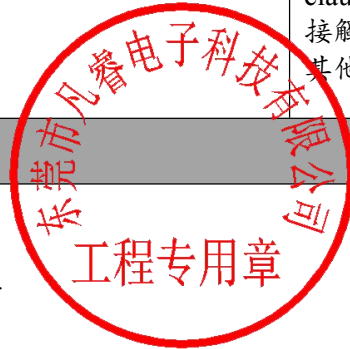
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Item 項目		Measuring condition 測試條件	Specifications 規格
4-4	耐落下性 Free falling	製品從 60cm 高度以任意方向自由落到鋪展在水泥地面上的塑膠墊上。 The encoder shall be fallen freely at any posture from 60cm height to the concrete floor covered with vinyl-tile. After which measurement shall be made.	沒有明顯的變形、破損。應滿足初期規格。(但端子變形除外) No excessive deformation or damage. (Except the deformation of terminals.) And specifications in clause 4.1~4.6 and 5.1~5.3 shall be satisfied.
5、耐久性能 Endurance characteristics			
5-1	迴轉壽命 Rotational life	在無負荷條件下軸以 800/h 速度迴轉 10,000 周。 The shaft of encoder shall be rotated to 10,000 cycles at a speed of 800/h without electrical load, after which measurements shall be made.	Contact resistance 300 mΩ or less Specification in clause shall be satisfied. 接觸電阻: ≤300mΩ. 其他應滿足初期規格
6、焊接條件 Soldering conditions			
<p>6-1 手工焊接 Manual soldering 溫度 260℃ 以下，時間 5 秒以內。 Bit temperature of soldering iron : 260℃ or less. Application time of soldering iron : within 5s.</p> <p>6-2 槽焊 Dip soldering 使用基板: t=1.6 的單面覆銅板。 Printed wiring board: Single-sided copper clad laminate board with thickness of 1.6mm. 焊劑: 採用比重為 0.83±0.05 以上的焊料和發泡式助焊劑，浸入深度不超過基板厚度的二分之一，且基板表面不得有焊劑流入。 Flux: Specific gravity: 0.83 or more. Flux shall be applied to the board using a bubble foaming type fluxer. The board shall be soaked in the flux bubble only to the middle of its thickness. Flux shall not come into contact with the component side surface. 預熱: 基板表面溫度 100℃ 以下，時間 50~70 秒以內。 Preheating: Surface temperature of board: 100℃ or less.</p> <p>6-3 焊接: 溫度 350℃±5℃ 以下、時間 5±1 秒以內。 Soldering: Solder temperature: 350℃ or less. Immersion time: Within 3s. 以上操作不得重覆二次以上。 Apply the above soldering process for 1 or 2 times.</p>			





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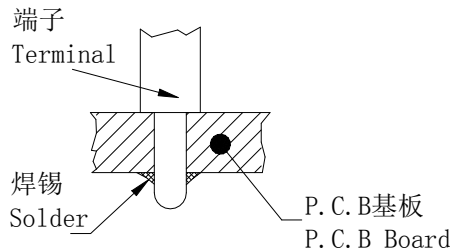
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7、焊接注意事項 Note for soldering method

7-1 如下圖所示，請不要在 P.C.B 板上面焊接處附近配線。

Please avoid soldering on upper surface (the component side surface) of the PC board as shown below.



插脚式机种焊线图



7-2 焊接後洗淨後,如果焊劑流入編碼器內可時能產生接觸不良,請注意!

8、其它,使用方面的注意事項 Precautions in use.

8-1 避免儲藏與高溫潮濕及腐蝕的場所，產品溝入後盡可能在 6 個月內使用完。拆包裝後未使用完的剩餘產品需儲藏於防潮防毒的環境下。

Avoid storing the products in a place at high temperature, high humidity and in corrosive gases. Please use this product as soon as possible with 6 months limitation. If any remainder left after packing is opened, please store it with proper moisture proofing, gas proofing etc.

8-2 本制品本體若接觸水分則對脈沖波形能產生異常影響,避免直接接觸水分。

This product when touching wet or water can be influence the pulse wave.

8-3 本制品對軸不能施加橫壓力,為避免制品機能損傷,應事先設置旋鈕方向。

The shaft can't be over pressure. For avoided damaged the function, please Presetting the button direction.

8-4 本制品對軸不要施加過大的沖擊力,以免使產品機能受損。

Please don't shocking the shaft. To avoided damaged the function.

文件名称	制订日期	版本	核准	审核	制订
RS20 开关系列规格书	2023-06-16	A			