

HSE32A ENCODER SPECIFICATION

HSE32A 系列編碼器規格書

一、一般事項 General:

1.1適用規格 Scope

本規格書適用於帶旋轉型編碼器的電源開關。

This specification is applied to power switches and Rotary Encoder used for electronic equipment

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 : 5℃ to 35℃

相對濕度 Relative humidity : 25% to 85%

氣 壓 Air pressure :86kpa to 106kpa

如果對上述所提到的條件中所做的實測值有疑問的話，應使用以下條件進行測量:

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

溫 度 Ambient temperature : 20 ± 2℃

相對濕度 Relative humidity : 25% to 85%

氣 壓 Air pressure : 86kpa to 106kpa

1.3 使用溫度範圍 Operating temperature range : - 10℃ to + 70℃

1.4 保存溫度範圍 Storage temperature range : - 30℃ to + 85℃

二、構造 Construction

2.1 尺寸 Dimensions 見所附成品圖 Refer to attached drawing

2.2 外觀 Appearance:

成品外觀良好，沒有妨害機械性能的銹化、裂痕、破損、電鍍不良及剝離等情形

Switch shall have good finishing, and no rust, crack or plating failures.

三、額定值 Rating

3.1 電源開關 Power switch : 16 (6) A 250VAC

3.2 編碼器 Encoder 12VDC 0.1A

四、電氣性能 Electrical Characteristics

電源開關 Power switch

項目ITEM	條件CONDITIONS	規格SPECIFICATIONS
4-1.接觸阻抗 Contact resistance	用DC 5V 1A電壓測定 Voltage test at DC 5V 1A.	100mΩ以下 100mΩMax
4-2. 絕緣阻抗 Insulation resistance	在端子之間及端子和外殼之間施加DC 500V電壓1分±5秒 Test voltage:500 V DC, measured after 1 min ± 5 s Applied position: Between all terminals Between terminals and ground (frame)	500MΩ 以上 500MΩ Min
4-3.耐 電 壓 Voltage proof	按以下測試電壓各測試1分鐘。(感度電流 2 mA) Following test voltages shall be applied for 1 min. (Cut-off current : 2 mA) Between terminals of open contacts開關端子與接點間 : 2,000 V AC (50~60Hz) Between terminals of opposite polarity 異極間: 2,000 V AC (50~60Hz) Between terminals and ground (frame) 端子與地面之間 (外殼) : 4,000 V AC (50~60Hz)	不得有絕緣破壞 Without arcing or breakdown.

VERSION	DATE	REVISION	DSGD	Huizhou City HongYu High-Tech Electronics Co., Ltd.		
A1						
A2						
A3						
A4						
A5						
A6						
A7						

HSE32A ENCODER SPECIFICATION
HSE32A 系列編碼器規格書

編碼器 Encoder

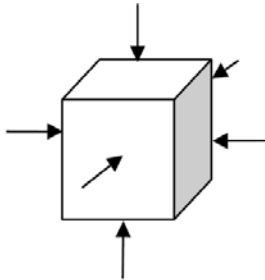
4-4. 接觸電阻 Contact resistance	用DC 5V 1A電壓測定 Voltage test at DC 5V 1A.	1Ω MAX
4-5. 絕緣阻抗 Insulation resistance	在端子之間及端子和外殼之間施加DC 100V電壓1分±5秒 Test voltage:100 V DC, measured after 1 min ± 5 s Applied position: Between all terminals Between terminals and ground (frame)	100MΩ 以上 100MΩ Min
4-6.耐 電 壓 Voltage proof	在端子和外殼間施加AC 100V電壓1分鐘。 a voltage of 100V AC shall be applied for 1 minute between individual terminals and frame.	不得有絕緣破壞 Without arcing or breakdown.

五、機械性能 Mechanical Characteristics

5-1.全回轉角度 Total rotational angle		360°(無止檔點) 360°(Endless)
5-1.端子強度 Terminal strength	電源開關端子 Power switch terminal 在端子的先端施加20N的力1分鐘。 A static load of 20N be applied to the tip of terminals for 1 minute in any direction. 編碼器端子 Encoder terminal 在端子的先端施加5N的力1分鐘。 A static load of 5N be applied to the tip of terminals for 1 minute in any direction.	端子無損壞，無過度的鬆動，允許變形。試驗后滿足第4項電氣性能要求。 Without damage or excessive looseness of terminals. Terminal bend is permitted. Specified in item 4 shall be satisfial.
5-2.操作部強度 Robustness of actuator	在旋轉方向施加 100 N的靜負荷力推15秒钟 A static load of 100 N shall be applied in the push in direction of rotator for 15 s 在正常安裝狀態下施加30 N的靜負荷力于垂直旋轉方向15秒钟 A static load of 30 N shall be applied in the vertical direction of rotator at the normal mounting condition for 15s	無明顯彎曲、變形及機械異常 Shall be free from pronounced wobble, defamation and mechanical abnormalities
5-3.耐 振 性 Vibration	開關採用常規安裝方法牢固地安裝在試驗設備上，并在下述參數條件下進行試驗。試驗后測試開關。 Switch shall be secured to a testing machine by a normal mounting device and method. Switch shall be measured after following test. (1) 振頻Vibration frequency range: 5~500Hz (2) 振幅Total amplitude : 7.5mm (3) 振動變化速率: 5~500~5Hz 30分±1分 Sweep ratio: 5~500~5Hz 30 min ± 1 min (4) 變頻方法: 對數或線性形式 Method of changing the sweep vibration frequency : Logarithmic or linear (5) 振動方向: 三個相互垂直的方向，其中一個方向應是促動元件運動的方向 Direction of vibration:Three perpendicular directions including actuator (6) 振動時間Duration: 10小時 10H	電源開關端子 Power switch terminal 接觸電阻Contact resistance: 100 mΩ MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電壓 Voltage proof: 不得有絕緣破Without arcing or breakdown. 編碼器 Encoder 接觸電阻Contact resistance: 1Ω MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電壓 Voltage proof: 不得有絕緣破壞Without arcing or breakdown.

VERSION	DATE	REVISION	DSGD	Huizhou City HongYu High-Tech Electronics Co., Ltd.		
A1						
A2				DSGD	CHKD	APPD
A3						
A4						
A5						
A6						
A7						

HSE32A ENCODER SPECIFICATION
HSE32A 系列編碼器規格書

		共通事項Common element 回轉力矩：規格值內。 Rotational torque: Within specified value. 無機械異常Shall be free from mechanical abnormalities				
5-4. 耐衝擊性 Shock	在下述參數條件下進行試驗，試驗后測試開關。Switch shall be measured after following test. (1) 安裝方法：常規方法 Mounting method :Normal mounting method (2) 加速度Acceleration：490m/s2 (3) 時間Duration： 11 ms (4)测试次数-6个方向，各 3次共计 18次。 Test time-6direction ,each 3 times total 18 times 	電源開關端子 Power switch terminal 接觸電阻Contact resistance: 100 mΩ MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電壓 Voltage proof: 不得有絕緣破壞 Without arcing or breakdown. 編碼器Encoder 接觸電阻Contact resistance: 1Ω MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電壓 Voltage proof: 不得有絕緣破壞 Without arcing or breakdown. 共通事項Common element 回轉力矩：規格值內。 Rotational torque: Within specified value. 無機械異常Shall be free from mechanical abnormalities				
5-5. 可焊性 Solderability	涂上助焊剂后After sprated flux 溫度temperature :245± 5℃ 焊接时间soldering time :5±1 sec	75%或更多的浸焊面积能被焊锡覆盖 More than 75% of immersed part shall be covered with solder.				
5-6. 耐焊接热Soldering heat test	自動焊接Dip soldering: 260℃±5℃, 10±1 sec。 手工焊接Manual soldering: 350℃±10℃, 3±1 sec。 浸漬深度Immersion depth:浸漬深度須达到印刷电路板上的铜层部分。Immersion depth shall be at copper plating portion for P. C. B. terminal after mounting 印刷电路板厚度Thickness of P. C. B: 1.6mm	无外观及功能损坏，电气性能应符合第4部份的要求。 No abnormalities shall be observed in Appearance and operation. The electrical Performance requirements specified in item 4 shall be satisfied.				
六、耐久性能Durability						
6-1.無負載壽命 Operating life Without load	在无负荷条件下以30次/分鐘的速度連續動作30，000次。 30，000 cycles of operation shall be performed continuously at a rate of 30 cycles/min Without load.	電源開關端子 Power switch terminal 接觸電阻Contact resistance: 100 mΩ MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電壓 Voltage proof: 不得有絕緣破壞 Without arcing or breakdown. 編碼器 Encoder 接觸電阻Contact resistance: 1Ω MAX				
VERSION	DATE	REVISION	DSGD	Huizhou City HongYu High-Tech Electronics Co., Ltd.		
A1				DSGD	CHKD	APPD
A2						
A3						
A4						
A5						
A6						
A7						

HSE32A ENCODER SPECIFICATION

HSE32A 系列編碼器規格書

		絕緣阻抗Insulation Resistance: 100MΩ Min 耐電壓 Voltage proof: 不得有絕緣破壞Without arcing or breakdown. 共通事項Common element 回轉力矩: 規格值±30%內。 Rotational torque: Within ±30% specified value. 外觀、結構無異常 No abnormalities shall be recognized in Appearance and construction																																								
6-2.編碼器 負載壽命 Operating life With load Apply for Encoder	在DC 12V, 0.1A条件下以30次/分鐘的速度連續動作30, 000次。 30, 000 cycles of operation shall be performed continuously at a rate of 30 cycles/min With load of 0.1A, 12 V DC.	接觸電阻Contact resistance: 1Ω MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電壓 Voltage proof: 不得有絕緣破壞Without arcing or breakdown. 編碼器能在額定電流正常使用 Encoder shall function properly at rated current 回轉力矩: 規格值±30%內。 Rotational torque: Within ±30% specified value. 無機械異常Shall be free from mechanical abnormalities																																								
6-3. 電源開關負載壽命 Operating life With load , Apply for Power switch	開關將按試驗1、試驗2、試驗3的順序進行通斷操作 Switch shall be operated according to following sequence. (Test1→Test2→Test3) 16 (6) A 250VAC T85 <table><tr><th rowspan="3"></th><th rowspan="3">試驗電壓 Voltage</th><th colspan="4">試驗電流Current</th><th rowspan="3">開閉速度 次/分鐘</th><th rowspan="3">開閉回數</th></tr><tr><th colspan="2">閉路 Make</th><th colspan="2">開路 Break</th></tr><tr><th>電流</th><th>力率</th><th>電流</th><th>力率</th></tr><tr><td>Test1</td><td>287.5V</td><td>41.4A</td><td>0.6±0.05</td><td>18.4A</td><td>0.95±0.05</td><td>15</td><td>100 次</td></tr><tr><td>Test2</td><td>250V</td><td>36A</td><td>0.6±0.05</td><td>16A</td><td>0.95±0.05</td><td>1.5</td><td>100 次</td></tr><tr><td>Test3</td><td>250V</td><td>36A</td><td>0.6±0.05</td><td>16A</td><td>0.95±0.05</td><td>15</td><td>9800 次</td></tr></table>		試驗電壓 Voltage	試驗電流Current				開閉速度 次/分鐘	開閉回數	閉路 Make		開路 Break		電流	力率	電流	力率	Test1	287.5V	41.4A	0.6±0.05	18.4A	0.95±0.05	15	100 次	Test2	250V	36A	0.6±0.05	16A	0.95±0.05	1.5	100 次	Test3	250V	36A	0.6±0.05	16A	0.95±0.05	15	9800 次	接觸電阻Contact resistance: 100mΩ MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電壓 Voltage proof: 不得有絕緣破壞Without arcing or breakdown. 開關能在額定電流正常使用 Switch shall function properly at rated current 回轉力矩: 規格值±30%內。 Rotational torque: Within ±30% specified value. 外觀、結構無異常 No abnormalities shall be recognized in Appearance and construction 溫度上升Temperature rise:55℃ Max
	試驗電壓 Voltage			試驗電流Current						開閉速度 次/分鐘	開閉回數																															
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VERSION	DATE	REVISION	DSGD	Huizhou City HongYu High-Tech Electronics Co., Ltd.																																						
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A7																																										

HSE32A ENCODER SPECIFICATION
HSE32A 系列編碼器規格書

注Remarks
 1. Test1; 加速試驗Test at accelrated speed (IEC1058-1)
 Test2; 低速試驗 Test at low speed (IEC1058-l)
 Test3; 加速試驗Test at accelrated speed (IEC1058 1)
 2 In above test, the specified making current are maintained for 50 to 100 ms, and are reduced to breaking current.
 溫度上升Temperature rise
 額定電流通電1小時，測試周圍溫度差
 Difference between temperature rise and ambient temperature shall be measured after conducting the rated current for 1 hour.
 按以下測試電壓各測試1分鐘。（感度電流 2 mA）
 Following test voltages shall be applied for 1 min. (Cut-off current : 2 mA)
 Between terminals of open contacts 開關端子與接點間: 1,500 V AC (50~60Hz)
 Between terminals of opposlte polarity 異極間: 1,500 V AC (50~60Hz)
 Between terminals and ground (frame) 端子與地面之間（外殼）: 3,000 V AC (50~60Hz)

七、耐候性 Environmental test

7-1.耐寒性
Cold heat

在-40±2℃ 的温度放置240 小时，然后在正常温度和湿度下恢复1 小时，并在此后1 小时内对试品进行测量，水滴应消失。
 After testing at -40±2℃ for 240 h, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h and then measurement shall be made within 1 h. Water drops shall be removed.

電源開關端子 Power switch terminal
 接觸電阻Contact resistance: 100 mΩ MAX
 絕緣阻抗Insulation Resistance: 100MΩ Min
 耐電壓 Voltage proof: 不得有絕緣破Without arcing or breakdown.
 編碼器 Encoder
 接觸電阻Contact resistance: 1Ω MAX
 絕緣阻抗Insulation Resistance: 100MΩ Min
 耐電壓 Voltage proof: 不得有絕緣破壞Without arcing or breakdown.
 共通事項Common element
 回轉力矩：規格值±30%內。
 Rotational torque: Within ±30% specified value.
 外觀、結構無異常
 No abnormalities shall be recognized in Appearance and construction

VERSION	DATE	REVISION	DSGD	Huizhou City HongYu High-Tech Electronics Co., Ltd.		
A1						
A2				DSGD	CHKD	APPD
A3						
A4						
A5						
A6						
A7						

HSE32A ENCODER SPECIFICATION
HSE32A 系列編碼器規格書

7-2.耐熱性 Dry heat	在85±2℃ 的溫度下放置240 小时，然后在正常温度和湿度下恢复1 小时，并在此后1 小时内对试品进行测量。 After testing at 85±2℃ for 240 h, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h and then measurement shall be made within 1 h.	電源開關端子 Power switch terminal 接觸電阻Contact resistance: 100 mΩ MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電压 Voltage proof: 不得有絕緣破壞Without arcing or breakdown. 編碼器 Encoder 接觸電阻Contact resistance: 1Ω MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電压 Voltage proof: 不得有絕緣破壞Without arcing or breakdown. 共通事項Common element 回轉力矩: 規格值±30%內。 Rotational torque: Within ±30% specified value. 外觀、結構無異常 No abnormalities shall be recognized in Appearance and construction				
7-3.耐濕性 Damp heat	在40±2℃, 90~95%RH下放置240 小时，然后在正常温度和湿度下恢复1 小时，并在此后1 小时内对试品进行测量，水滴应消失。 After testing at 40±2℃ and 90~95%RH for 240 h, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h and then measurement shall be made within 1 h. Water drops shall be removed.	電源開關端子 Power switch terminal 接觸電阻Contact resistance: 100 mΩ MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電压 Voltage proof: 不得有絕緣破壞Without arcing or breakdown. 編碼器Encoder 接觸電阻Contact resistance: 1Ω MAX 絕緣阻抗Insulation Resistance: 100MΩ Min 耐電压 Voltage proof: 不得有絕緣破壞Without arcing or breakdown. 共通事項Common element 回轉力矩: 規格值±30%內。 Rotational torque: Within ±30% specified value. 外觀、結構無異常 No abnormalities shall be recognized in Appearance and construction				
VERSION	DATE	REVISION	DSGD	Huizhou City HongYu High-Tech Electronics Co., Ltd.		
A1						
A2						
A3						
A4						
A5						
A6						
A7						

HSE32A ENCODER SPECIFICATION

HSE32A 系列編碼器規格書

7-4. 溫度轉換
Change of temperature

按下述实验条件试验10 次循环，然后在正常温度和湿度下恢复1 小时，并在此后1 小时内对试品进行测量，水滴应消失。

After 10 cycles of following conditions, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h and then measurement shall be made within 1 h. Water drops shall be removed.

	溫度	持续时间
一次 循环	-25±3℃	30 分鐘
	室溫	2~3 分鐘
	70±2℃	30 分鐘
	室溫	2~3 分鐘

電源開關端子 Power switch terminal
接觸電阻Contact resistance: 100 mΩ MAX
絕緣阻抗Insulation Resistance: 100MΩ Min
耐電壓 Voltage proof: 不得有絕緣破壞Without arcing or breakdown.
編碼器 Encoder
接觸電阻Contact resistance: 1Ω MAX
絕緣阻抗Insulation Resistance: 100MΩ Min
耐電壓 Voltage proof: 不得有絕緣破壞Without arcing or breakdown.
共通事項Common element
回轉力矩: 規格值±30%內。
Rotational torque: Within ±30% specified value.
外觀、結構無異常
No abnormalities shall be recognized in Appearance and construction

7-5. 鹽霧試驗
Salt mist

按下列條件試驗后測試。
Switch shall be checked after following test
1. 溫度Temperature : 35±2° c
2. 鹽水濃度Salt solution: 5±1%
3. 試驗時間Duration: 24±1 h
試驗后材料上的鹽垢用水沖掉。
After the test, salt deposit shall be removed in running water.

金屬部分無腐蝕。
No remarkable corrosion shall be recognized in metal part.

使用注意事項Precaution in use

1. 切換電流在100 mA以下時，會接觸不穩定的可能，請另行商議。

Power switches are unstable contact may occur if the switch current is lower than 100 mA. Please consult for special applications.

2. 電源開關適用於交流電。用于直流時，請另行詢問。

Power switches are applied for alternating current. Please consult us if these are applied for direct current.

3. 給端子進行焊接時，如果在端子上施加負荷，因條件不同會有鬆動，變形及電特性退化的可能，請在使用時注意。
Note that if the load is applied to the terminals during soldering they might suffer deformation and defects in electrical performance

4. 焊接時，水溶性助焊劑有可能腐蝕開關，請避免使用。

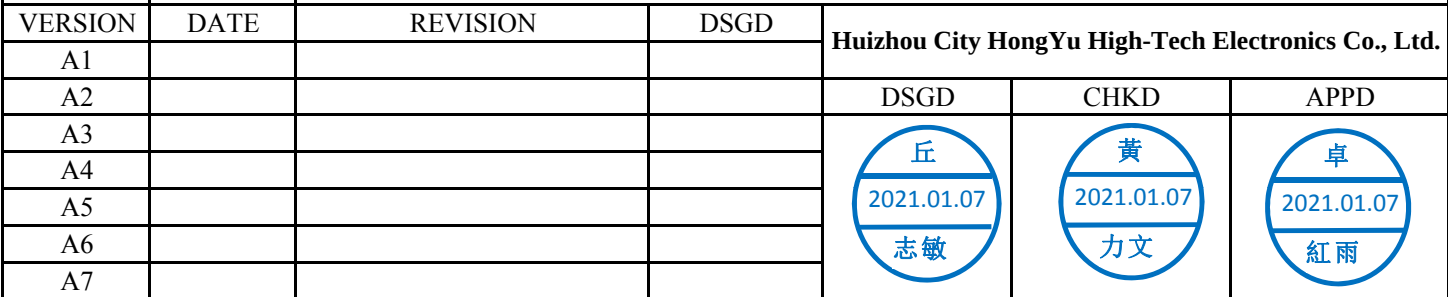
Use of water-soluble soldering flux shall be avoided because it may cause corrosion of the switch.

5. 產品以交貨時的狀態在常溫，常濕，不受直射日光照射，不產生腐蝕性氣體的地方保管，自交貨起6個月為限度，請盡快使用。

In case of storing this switch for a long period (longer than six months after delivery), it must be sealed in a plastic bag and stored in a cool and dark place in order to prevent the solderability of the terminal surface from deteriorating due to film to be formed on it.

VERSION	DATE	REVISION	DSGD	Huizhou City HongYu High-Tech Electronics Co., Ltd.		
A1						
A2						
A3						
A4						
A5						
A6						
A7						

HSE32A ENCODER SPECIFICATION HSE32A 系列編碼器規格書

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HSE32A ENCODER SPECIFICATION
HSE32A 系列編碼器規格書

九. Packing Explanation 包裝說明 (適用HSE32A系列)

9-1 Using plastic tray and carton.

使用吸塑和紙箱包裝。

9-2 Plastic tray size (length x width×high):

410mm×285mm×45mm

吸塑規格(長×寬×高):410mm×285mm×45mm

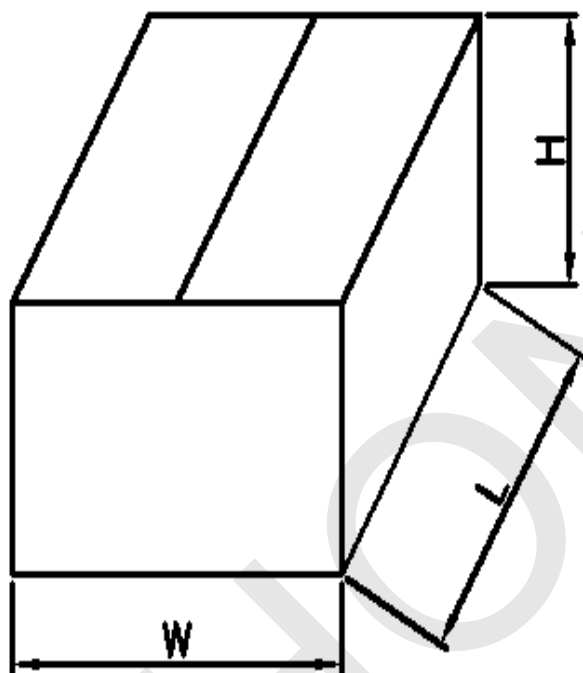
9-3 Carton size (length x width×high):

435mm×300mm×365mm.

外箱規格 (長L×寬W×高H): 435mm×300mm×365mm

9-4 640PCS for one carton : 80pcs for one plastic tray,
total 8 plastic tray.

每個吸塑盒80PCS, 每箱8盒 共計: 640PCS/箱



Carton



Plastic tray and products

VERSION	DATE	REVISION	DSGD	Huizhou City HongYu High-Tech Electronics Co., Ltd.		
A1				DSGD	CHKD	APPD
A2						
A3						
A4						
A5						
A6						
A7						