

		WE11 SERIES SPECIFICATION RE11规格书			P 1/5	
TYPE :	Encoder	NO :		PREPARED	EXAMINE	APPROVED
类型	编码器	序号		编制	审核	批准
SERIES :	WE11	VERSION:	A	彭洪波	刘洪云	谢小林
系列		版本				
PART NO.:	WE1103EDVWP15KB16BD	DATE :	11/17/2020			
产品型号		日期				

SPECIFICATION 规格书

1.一般事项 General

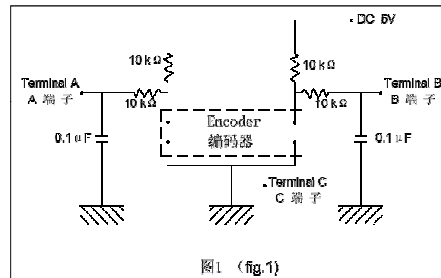
- 本规格书适用于微小电流回路的电子设备,属11型回转型编码器.This specification applies to 11mm size low-profile rotary encoder(incremental type)for microscopic current circuits,used in electronic equipment.
- 1-1 适用规格 Scope
- 1-2 标准状态Standard atmospheric conditions  
除另有规定外,测量应在以下状态下进行 Unless otherwise specified , the standard tange of atmospheric conditions for making measurements and test is as lollowing limits:  
温度 Ambient temperature : 15°C to 35°C  
相对湿度 Relative humidity : 25% to 85%  
气压 Ambint temperature: 86kpa to 106kpa
- 1-3 使用温度范围Operating temperature range -30°C to 80°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.额定值 Rating

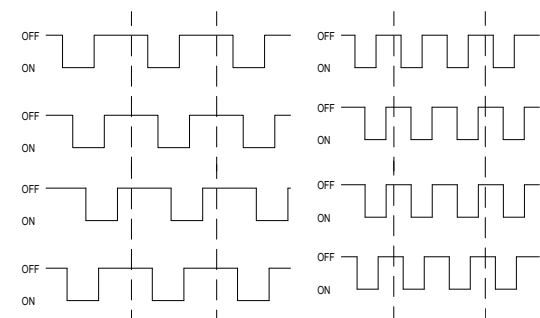
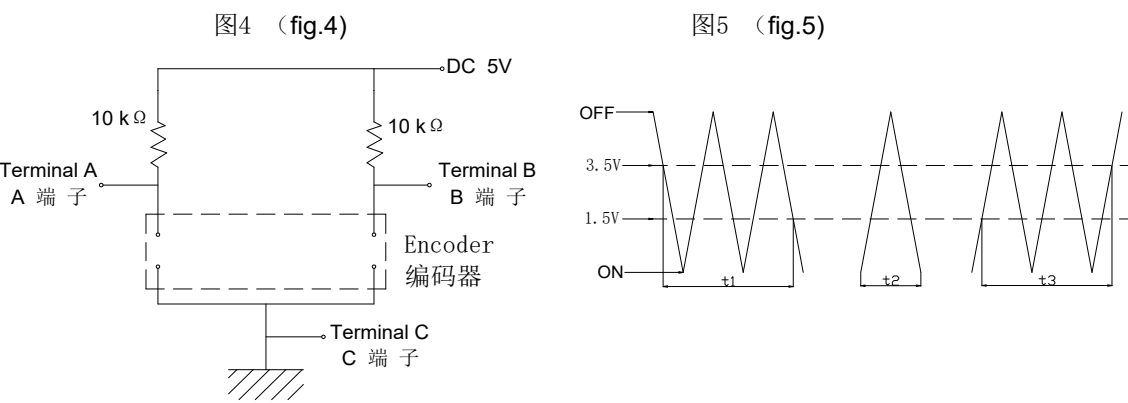
- 3-1 额定电压 Rating Rated voltage:DC 5V
- 3-2 最大额定电流(阻抗负载) Maximum operating current(resestive load)  
各相导线 Each lead : 0.5mA( MAX 5mA ; MIN 0.5mA)  
公共导线 Common lead : 1mA( MAX 10mA ; MIN 0.5mA)



4.使用上的事项 Application Notes

- 4-1 避免储藏于高温、潮湿及腐蚀的场所,产品购入后尽可能在6个月内使用完,拆包装后未使用完的剩余产品需储藏于防潮防毒的环境下。  
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 6months limitation.If any remainder left after packing is opened,please store it with proper moistureproofing, gasproofing etc.
- 4-2 编码器信号的计算方法应将操作的速度、信号的取样时间和电子回路中的微电脑软件等考虑进去。  
The encoder pulses count method should be designed with talking operating speed ,sampling time and design of the microcomputer software into cosideration.
- 4-3 此产品在定位点的输出波形参照(5-1),因此在设计软体时请留意其状态。  
With this products the detent posetion output consult fig.5-1.Therefore make the Aphase the reference at the soft ware desegn stage.
- 4-4 此产品在定位点的输出波形参照(5-1),因此在设计软体时请留意其状态。  
At design of the pulse count process. Using the C/R filter circuet is Recommended. (fig.1)
- 4-5 本产品请勿碰触到水,可能会导致输出波形的异常。  
Care must be taken not to expose this product to water or dew to prevent possible problem in pluses output waveform.

5. 电器性能 ELECTRICAL CHARACTERISTICS

项目 ITEM	条件 CONDITIONS	规格 SPECIFICATIONS	
5.1 输出信号 Output signal format	A、B两信号输出相位差，输出波形详细见（图2/3）（虚线表示带卡点装置的上擎子处位置） 2 Phase-different signals (signal A, signal B) Details shown in (fig.2/3) (The broken line shows detent position.)		
	轴回转方向 Shaft rotational direction	信号 Signal	输出波形 Output
	顺时针方向 C. W.	(A-C端子间) Terminal A-C (B-C端子间) Terminal B-C	图2 (fig.2)      图 (fig.3)
	逆时针方向 C. C. W.	(A-C端子间) Terminal A-C (B-C端子间) Terminal B-C	
5.2 分解能力 Resolution	回转360° 的输出脉冲数。 Number of pulses in 360° rotation.	■ 15个脉冲 / 360° (图2) 15 pulses/360° (fig.2) for each phase.  □ 20个脉冲 / 360° (图3) 20 pulses/360° (fig.3) for each phase.	
5.3 开关特性 Switching characteristics	(图4) 所示回路，轴以360° /S的速度转动测定。 Measurement shall be made under the condition as follows. Shaft rotational speed : 360° /S Test circuit : (fig.4)		
5-3-1. 振荡 Switching characteristics	编码从OFF—ON或从ON—OFF时，输出1.5V~3.5V的通过时间应符合规定。 Specified by the signal's passage time from 1.5V to 3.5V of each switching position (code OFF~ON or ON~OFF)	$t_1, t_3 \leq 5ms$	
5-3-2. 滑动杂音 (突跳) Sliding noise (Bounce)	编码ON部份的1.5V以上的电压变动时间在振荡t1, t3之间会产生1ms以上，1.5V以下的ON部份另外，如果各突跳间1.5V以下的范围在1ms以上时，则判定为另一个突跳。 Specified by the time of voltage change exceed 1.5V in code ON area. When the voltage change exceed 1.5V in code ON area. When the bounce has code ON time less than 1ms between chattering (t1 or t3) chattering (t1 or t3). the voltage change shall be regarded as a part of chattering. When the code ON time between 2 bounces is less than 1ms. they are regarded as 1 linked bounce.	$t_2 \leq 2ms$	
5-3-3. 滑动噪音 Sliding noise	编码OFF部份的电压变动。 The voltage change in code OFF area.	3.5V以上 3.6Vmin	
	下 (图6) 所示回路，轴以360° /S的速度转动测定。 Measurement shall be made under the condition which the shaft is rotated at 60r/min 图6 (fig.6) A信号 (A~C间)	$T_1, T_2, T_3, T_4 \geq 4ms$	

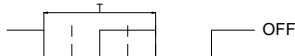
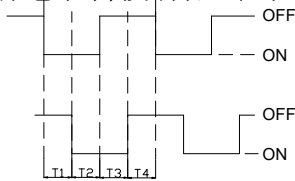


图6 (fig.6)  
深圳市文泰创新电子科技有限公司



见图6(fig. 6)

5-4 相位差 Phase difference	Signal A B信号 (B~C间) Signal B	
5-5 绝缘阻抗 Insulation resistance	在端子和轴之间施加电压250V DC. Measurement shall be made under the condetion which a voltage of 250V DV is applied between individual terminals and bushing.	100MΩ 以上 100MΩ Min
5-6 耐电压 Dielectric strength	在端子和轴之间施加AC300V电压1分钟 A voltage of 300V AC shall be applied for 1 minute between individual terminals and bushing.	不得有绝缘破坏 Without arcing or breakdown.
5-7 端子间接触阻抗 Contactresistance	出力信号处于ON时安定状态条件下测定。 Measurement shall be stalbe condition which a output signal is ON.	1Ω 以下 1Ω Max

6.机械性能 Mechanical characteristics

项目 ITEM	条件 CONDITIONS	规格SPECIFICATIONS
6-1. 全回转角度 Total rotational angle		360° (无止档点) 360° (Endless)
6-2. 定位点力矩 Detent torque	只适用于附卡点装置 Only suitable for C. C, equipment.	3~20mN. m. (3~20gf. cm) Shaft rotatable at -10° ~+5° 但在 -10° ~+5° 轴勉强可转动。
6-3. 定位点数及位置 Mumber andposition of detent	只适用于附卡点装置 Only suitable for C. C, equipment.	30detents (Step angle:12° ±2° ) ■30点定位 (间隔角度12° ±2° ) 20detents (Step angle:18° ±2° ) □20点定位 (间隔角度18° ±2° )
6-4. 轴的推拉强度 Push-pull strength of shaft	在轴端, 沿轴向施加 8 kg 的静负荷力推和拉各式各样10秒钟 (产品焊锡固定在PCB上。) Push and pull static load of 8kg shall be applide to the shaft in the axial direction for 10s. (After soldering of the PC board)	轴无破损, 回转无异常, 电气性能无异常。 Without damage or excessive play in shaft. No excesseve abnormality in rotational feeling. And electrical characteristics shall be satisfied.
6-5. 轴摆动 Shaft wobble	在轴前端5mm处, 沿径向瞬间施加50mN. m(500gf. cm)的力。 A momentary load of 50mN. m(500gf. cm) shall be applied at the point 5mm from the tip of the shaft in a direction perpendicular to the axis of shaft.	5xL/30mm P-P 以下 (L:指安装平面到轴的柄端的距离。) 5xL/30mm P-P MAX (L:Distance between mounting surface and measuring point on the shaft.
6-6. 轴的回转方向摆动 Shaft play in rotational	用角度板测定 Testing by angle board.	5° 以下 5° MAX

7.耐久性能 Endurance characteristics

项目 ITEM	条件 CONDITIONS	规格SPECIFICATIONS
7-1. Rotational life 回转寿命	The shaft of encoder shall be rotated to 30000 cycles at a speed of 600~1000 cycles/H without electronal load, after with measruements shall be made. 在无负荷条件下轴以600~1000周 / 小时速度加转30000周.	Chattering t1, t3≤5mS 振荡 t1, t3≤5mS Bonnce t2≤3mS 突跳 t2≤3mS Detent feeling has to remains 尚有轻微定位感 Contact resistance 200Ω MAX 端子间接触阻抗200Ω 以下
7-2. Damp heat 耐湿性	The encoder shall be stored at temperature of 40±2° with relative humidity of 90% to 95% for 96±4H in a thermostatic chamber. And the encoder shall be subjected to standard atmospheric conditions for 1.5H, After which measurements shall be made. 温度40±2° , 湿度90% to 95%的	Specifications in clause all items is . shall be satisfied. 所有项应满足初期规格

深圳市文泰创新电子科技有限公司

	恒温恒湿槽中放置96±4小时后，在常温、常湿中放置1.5小时后测试。	Apecifications in clause all itens is
7-3. Dry heat 耐热性	The encoder shall be stored at a temperature of 80±3℃ for 96±4H in a thermostatic chamber.And then the encoder shall be subjected to standard atmospheric conditions for1.5H,After which measurements shall be made. 温度80±3℃的恒温箱中放置 96±4小时。 常温、常湿放置1.5小时后测试。	shall be satisfied. 所有项应满足初期规格。
7-4. Cold 低温特性	The encoder shall be stored at a temperature of -25±3℃ for 96±4H in a thermostatic chamber.And then the encoder shall be subjected to standard atmospheric conditions for1.5H,After which measurements shall be made. 温度-25±3℃的恒温箱中放置 96±4小时。 常温、常湿放置1.5小时后测试。	Apecifications in clause all itens is shall be satisfied. 所有项应满足初期规格。
7-5. Solder ability 焊锡性	The terminals shall be immersed into solder bath at 260℃±5℃ for 3s±0.5sin the same manner as para. 端子在245℃±5℃ 温度的焊锡槽内浸锡 3s±0.5s	A new uniform coating of solder shall cover 75% minimm of the surface being immersed. 浸渍面须有75%以上焊锡附着
7-6. Resistance to Soldering heat 耐焊接热	<p>■Manual soldering 手工焊接</p> <p>Bit temperature of solderling iron:240℃ less than Application time of soldering iron:within 3s 温度240℃以下，时间3秒以内。</p> <p>□Dip soldering. 槽焊</p> <p>Printed wiring board:single-sided copper clad laminate board with thickness of 1.6mm. 使用基板: t=1.6mm的单面覆铜板。</p> <p>Preheating :1. Surface temperature of board:100℃ or less. 2. Preheating time:within 1 min. 预热: 基板表面温度100℃以下，时间1分钟以内。</p> <p>Soldering:Solder temperature:245℃±5℃ or less</p> <p>Immersion time:within 3S</p> <p>焊接: 温度245℃±5℃或以下，时间 3 秒以内。</p>	Electrical characteristics shall be satisfied No mechanical abnormality. 不得有绝缘体的破损、变形、接触无异常。

推动开关部份 Push Switch Portion

Note:The following specification is only suitable fou the one type with switch construction of RE11 encoder series.

备注:以下规格适用于RE11编码器带开关系列.

1. 额定值 Rating 1-1 额定电压 Rated voltage :DC 5V  
1-2 最大额定电流 (阻抗负载) Maximum operating current (resistive load):10mA MAX

2. 电气性能 ELECTRICAL CHARACTERISTICS

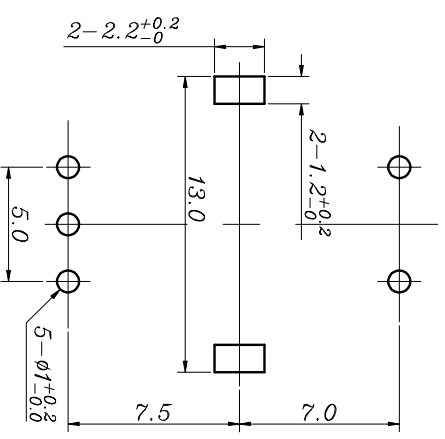
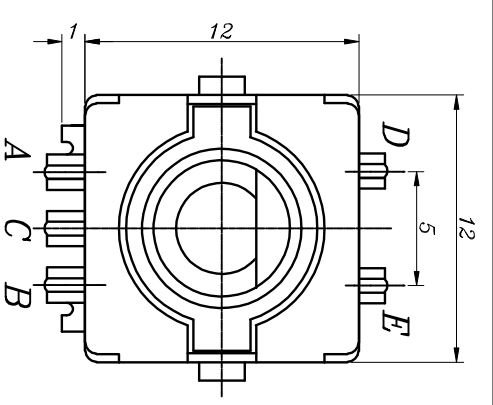
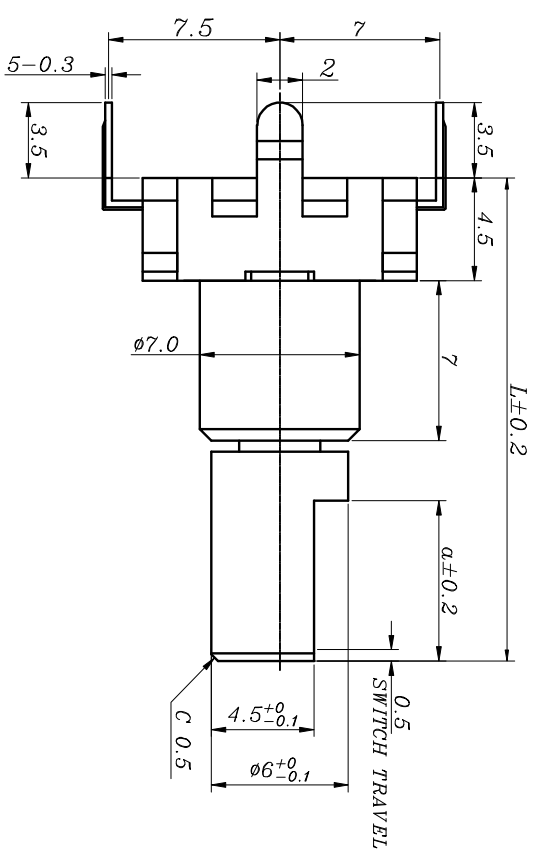
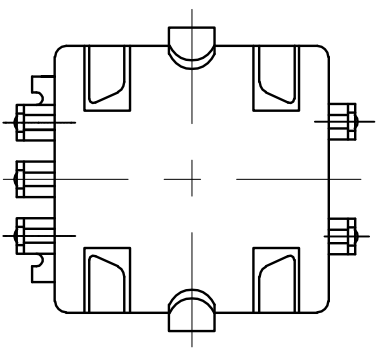
项目 ITEM	条件 CONDITIONS	规格SPECIFICATIONS
2.1 Contact resistance 接触电阻	Voltage rest at DC 5V 1mA. 用DC 5V 1mA 电压测定	200mΩ or less ≤200mΩ
2.2 Insulation resistance 绝缘阻抗	Measurement shall be made under the condition which a voltage of 250V DC is applied between individual terminals and bushing and plank. 在端子和安装板间施加电压250V DC。	100mΩ 以上 100mΩ M
2.3 bonncing 振荡	Shaft shall be push at 1 cycles/s (OFF-ON-OFF) 以一秒钟往返 (OFF-ON-OFF) 按压动作。	10ms or less ≤10ms
2.4 Dielectric strength 耐电压	A voltage of 300V AC shall be applied for 1 minute between individual terminals and bushing and plank. 在端子和安装板间施加AC 300V 电压 1 分钟。	Without arcing or breakdown. 不得有绝缘破坏。

3. 机械性能 MECHANICAL CHARACTERISTICS

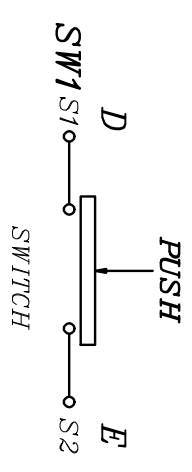
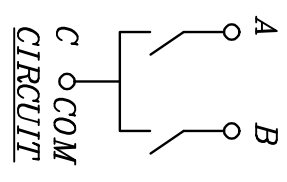
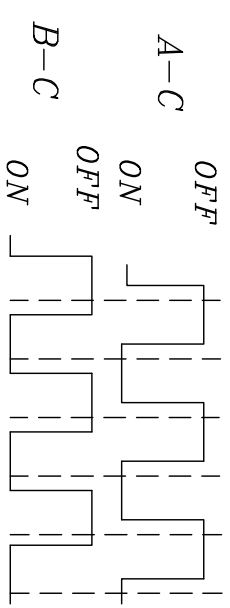
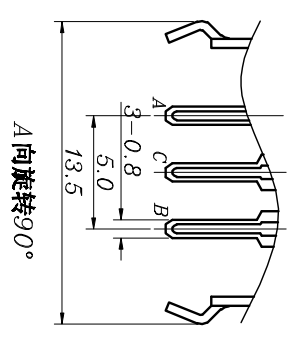
项目 ITEM	条件 CONDITIONS	规格SPECIFICATIONS
circuit and number of pulse		Single pole and single throw

深圳市文泰创新电子科技有限公司

3.1. pulse 开关电路、接点数		(push ON) 单极单投(按压ON)
3.2 Operation force of switch 开关动作力	Push static load to the shaft in the axial direction 在轴端, 沿轴向施加的按压力。	500±150gf
3.3 Travel of switch 开关移动量		0.5 <sup>+0.4mm</sup> -0.2mm
4. 耐久性能 ENDURANCE CHARACTERISTICS		
项目 ITEM	条件 CONDITIONS	规格SPECIFICATIONS
Push life 按压寿命	The shaft of encoder shall be push to 30000 cycles at a speed of 600 cycles/H without electrical load, after with measurements shall be made. 在无负荷条件下轴以600次/小时速度按压往返30000周。	Contact resistance:200mΩ or less Specification in clause shall be satisfied. 接触电阻: ≤200mΩ. 其它应满足初期规格.



P.C.B MOUNTING HOLE DETAIL



□	H1	E7	J0	H6
L	22.5	20.0	24.5	21.5
a	7	7.0	10.0	6.0

04	-	-	-	TOL. UNLESS OTHERWISE SPEC.	TOL.	MODEL: WE1103EFFH1P15FJ06BG DRAWING NO: -				
03	-	-	-	BASIC DIMENSIONS						
02	-	-	-	L < 10	±0.3					
01	-	-	-	10 < L	±0.5					
00	ORIGINAL DRAWING	-	-	100 ≤ L	±0.8					
ISSU	REVISION	DATE	DSGD.	CHKD.	APPD.	SCALE	UNIT	mm	ANGLE	±5°