

承认书

FOR APPROVAL

新规 New release	00
变更 Revised	

客户名称 Customer: D00777

客户机型 Product: — — 客户料号 Customer, s No: — —

品号 Part No: RE1202HJ1-H01-0620 规格 Specification: 24P24, AL14.5F7

图号 Drawing No: PR-RE120-034 样品批号 Samples Lot No: — —

本品符合RoHS要求
This product is in compliance with RoHS requirements

●确认后请回签一份承认书, 如果收到订单时未收到您回签的承认书, 我们将视您已完全同意。
Please return one copy of this drawing with your signature of approval In the event of an order being placed for this part number before the signer copy is returned, it will be assumed that full approval have been given

客户确认回复 Customer Approval Status:	接受 PASSED
	拒收 REJECTED

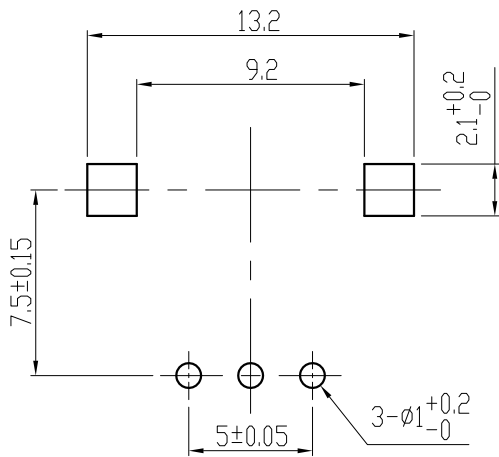
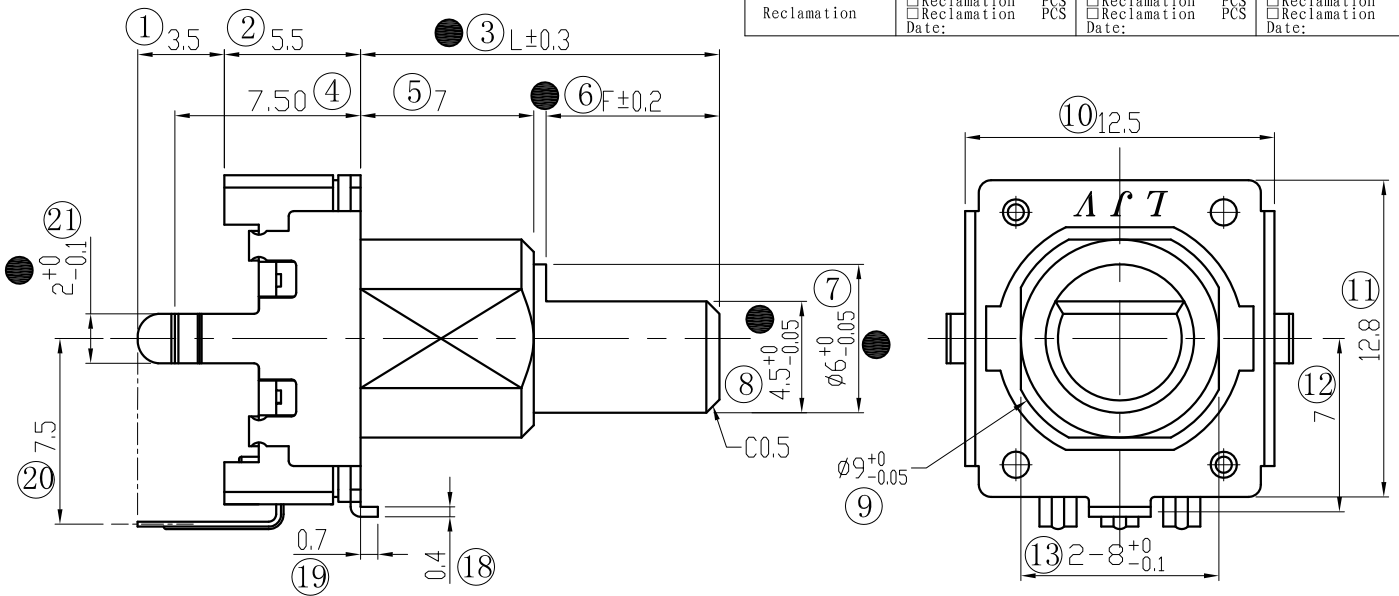
签核
Signature:

承认书包含以下内容:
This Specification is composed of under mentioned:

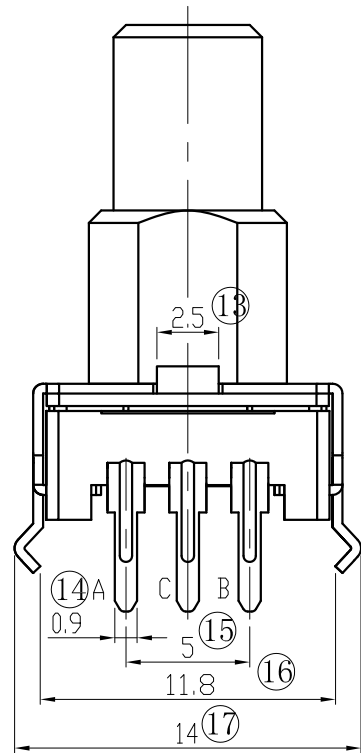
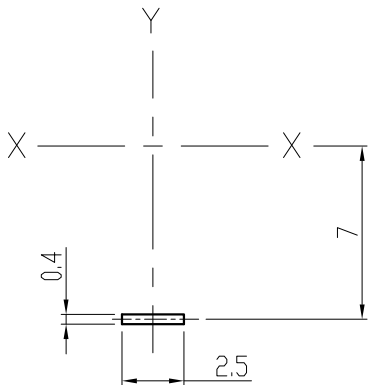
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4. 阻值变化特性(线型, 仅限于电位器) Resistance Characteristic(Taper, Only of VR)	—/—
5. 出货检验报告 Inspection report	—/—
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经办 Prepared By	核 对 Checked By	核 准 Approved	业 务 部 Sales Department
			

Receiving Dept	GC1/1:	PZ1/1:	SC1/1:
Reclamation Date:	<input type="checkbox"/> Reclamation <input type="checkbox"/> Reclamation	PCS PCS	<input type="checkbox"/> Reclamation <input type="checkbox"/> Reclamation
		PCS PCS	PCS PCS



P.C.B.MOUNTING DETAIL



L	F
14.5	7

“●” 标识表示需重点管控的尺寸

The “●” mark indicates the size of the key controls

东莞市林积为实业投资有限公司 Dongguan LJV Industry Investments Co.,Ltd.	TOL. UNLESS OTHRWISE SPEC.		. ISSU.	DATE	REVISION	DESIGN
	BASIC DIMENSIONS	TOL.	00	2018-05-07	初始制作	张伟
SCALE 3:1 UNIT mm	L ≤ 10	± 0.3	01			
	10 < L	± 0.5	02			
	100 ≤ L	± 0.8	03			
	ANGLE	± 5°	04			
MODEL: RE1202HJ1-H01			VERSION	DRAW	CHKD	APPD
DRAWING NO: PR-RE120-034			A6	 2018.05.07 刘银	 2018.05.07 刘建清	 2018.05.07 刘建清
第 1 页						

RE12系列规格书
RE12 SERIES SPECIFICATION

1. 一般事项General

1-1. 适用规格 Scope

本规格书适用于微小电流回路的电子设备，属12mm型回转型编码器。
This specification applies to 12mm size low-profile rotary encoder (incremental type) for microscopic current circuits, used in electronic equipment.

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 doubt arises on the decision based 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. 额定值 Rating

3-1. 额定电压

Rated voltage: DC 5V

3-2. 最大额定电流 (阻抗负载)

Maximum operating current (resistive 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 6 months 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，信号的取样时间及电子回路中的微电脑软体等考虑进去。

The encoder pulses count method should be designed with taking operating speed, sampling time and esign 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，推荐以A相位为参考基准。

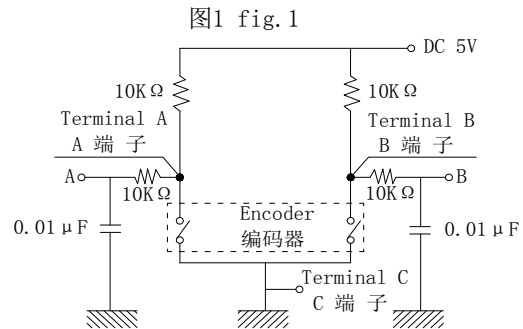
With this products the detent position output consult fig. 5-1. Therefore make the A phase the reference at the soft ware design stage. Recommended that use A output signal for the reference.

4-4. 在设计时要考虑到杂讯，建议使用R/C滤波电路，(图1)

At design of the pulse count process. Using the C/R filter circuit is Recommended. (fig. 1)

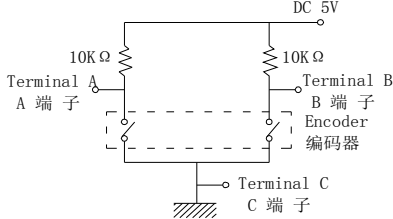
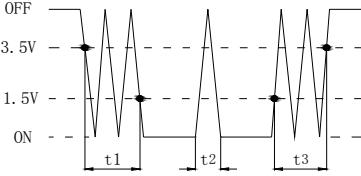
4-5. 本产品请勿碰触到水，可能会导致输出波形的异常。

Care must be taken not to expose this product to water or dew to prevent possible problem in pluses output waveform.



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5. 电气性能 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，输出波形详见图2/3（虚线表示带卡点装置的上攀子处位置） 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 (A-C端子间) A (Terminal A-C)	OFF ON	图2 fig. 2
		B (B-C端子间) B (Terminal B-C)	OFF ON	图3 fig. 3
逆时针方向 C. C. W	A (A-C端子间) A (Terminal A-C)	OFF ON	图2 fig. 2	
	B (B-C端子间) B (Terminal B-C)	OFF ON	图3 fig. 3	
5-2. 分解能力 Resolution	回转360° 的输出脉冲数。 Number of pulses in 360° rotation.		□ 12 个脉冲/360° (图2) 12 pulses/360° (fig. 2)	
			□ 12 个脉冲/360° (图3) 12 pulses/360° (fig. 3)	
			■ 24 个脉冲/360° (图3) 24 pulses/360° (fig. 3)	
5-3. 开关特性 Switching characteristics	下(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)			
	  <p>(注) 编码OFF指输出电压3.5V以上的状态(fig. 5). Code-OFF area : The area which the voltage is 3.5V or more(fig. 5). 编码ON指输出电压1.5V以下的状态(fig. 5). Code-ON area : The area which the voltage is 1.5V or less(fig. 5).</p>			
5-3-1. 振荡 Chattering	编码从OFF→ON或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)		t1, t3 ≤ 3ms	
5-3-2. 滑动杂讯 (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 bounce has code-ON time less than 1ms between 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.		t2 ≤ 2ms	

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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 3.5Vmin
5-4. 相差位 Phase difference	<p>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 360°/s</p> <div style="text-align: center;"> <p>图6 fig.6</p> </div> <p>A信号(A~C间) signal A B信号(B~C间) signal B C.W Direction</p>	T1、T2、T3、T4≥0.08T 见图6 (fig.6)
5-5. 绝缘阻抗 Insulation resistance	在端子和支架间施加电压 250V DC。 Measurement shall be made under the condition which a voltage of 250V DC is applied between individual terminals and frame.	100mΩ 以上 100mΩ Min
5-6. 耐电压 Dielectric strength	在端子和支架间施加 AC 300V电压1分钟 A voltage of 300V AC shall be applied for 1 minute between individual terminals and frame.	不得有绝缘破坏 Without arcing or breakdown.
5-7. 端子间接触阻抗 Contact resistance	出力信号处于ON时安定状态条件下测定。 Measurement shall be stable condition which a output signal is ON.	1Ω 以下 1Ω Max
6. 机械性能 Mechanical Characteristics		
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.	2.94-14.7N.mm (30-150gf.cm)
6-3. 定位点数及位置 Number and position of detent	只适用于附卡点装置 Only suitable for C.C, equipment.	□12点定位间隔角度30° ±2° 12detents Step angle:30° ±2° ■24点定位间隔角度15° ±2° 24detents Step angle:15° ±2°
6-4. 轴的推拉力强度 Push-pull strength of shaft	在轴端,沿轴向施加80N(8.16Kgf)的静负荷力推和拉各10秒钟(产品焊锡固定在PCB上。) Push and pull static load of 80N(8.16Kgf) shall be applied to the shaft in the axial direction for 10s.(After soldering of the PC board)	轴向虚位间隙0.4mm以内 Shaft play in axial direction 0.4mm Max
6-5. 端子强度 Terminal strength	在端子的先端施加5N(510gf)的力1分钟。 A static load of 5N(510gf) be applied to the tip of terminals for 1 minute in any direction.	端子无损坏,无过度的松动.允许变形。 Without damage or excessive looseness of terminals. terminal bend is permitted.
6-5. 轴套螺纹紧固强度 Bushing Nut Tighten Strength	轴套装入螺母,施加700N.mm(7.14Kgf.cm)的力10秒钟.螺母的顶部与轴套顶部的距离需在1mm以上(不带螺纹的产品无此项功能) Push the torque of 700N.mm(7.14Kgf.cm) for 10s,and the distance between the top of nut and sleeve is more than 1mm. (The product without thread has no this function)	无螺牙损坏、松动的不良。 thread without damage and loose
6-7. 轴向间隙 Shaft play in axial direction		0.4mm 以下 0.4mm Max
6-8. 轴摆动 Shaft wobble	在距离轴顶端5mm处,沿径向瞬间施加5N(510gf)的力测试 A momentary load of 5N(510gf) should be applied at the point 5mm from the tip of the shaft in a direction perpendicular to the axis of shaft.	0.7*L/30mm p-p 以下(L:指安装平面到轴的柄端的距离。) 0.7*L/30mm p-p Max L:Distance between mounting surface and measuring point on the shaft
6-9. 轴的回转方向摆动 Shaft play in rotational wobble	用角度板测定。 Testing by angle board.	5° 以下 5° Max




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7 耐久性能 Endurance Characteristics		
项目 ITEM	条件 CONDITIONS	规格 SPECIFICATIONS
7-1. 回转寿命 Rotational life	在无负荷条件下轴以600~1000周/小时速度回转（顺时针旋转360°，再逆时针旋转360°为一周），一日连续5000~8000次。 The shaft of encoder shall be rotated at a speed of 600~1000cycles/H(clockwise for 360°，and then counter-clockwise for 360° as one cycle),without electrical load, after with measurements shall be made. (5000 to 8000 continuous cycles for 24 hours.)	旋转寿命15,000±200周。 Rotational life 15,000±200 weeks. 振荡 t1,t3≤5ms. 突跳 t2≤3ms. 满足初始力矩的±50% 端子间接触阻抗200Ω以下 Chattering t1,t3≤5ms. Bounce t2≤3ms. Detent feeling has to remains Contact resistance 200Ω Max
7-2. 耐湿性 Damp heat	温度40±2℃,湿度90~95%的恒温恒湿槽中放置240±4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 of40 ±2℃ with relative humidity of 90% to95% for240±4H in a thermostatic chamber.And the encoder shall be subjected to standard atmospheric conditions for 1.5H,After which measurements shall be made.	端子间接触阻抗200Ω以下； 开关接触阻抗200mΩ以下；力矩变化率为初始值的±50%； 按压力变化率为初始值的±40%； 其它性能符合第5-1---5-6； Contact Resistance: 200Ω Max. Switch Contact Resistance:200mΩ or less. Change rate of rotational torque shall be within ±50% against initial value. Change rate of switch operation force shall be within±40% against initial value. Clauses 5-1 to 5-6 shall be satisfied.
7-3. 耐热性 Dry heat	温度85±3℃的恒温箱中放置240±4小时,常温、常湿放置1.5小时后测试。 The encoder shall be stored at a temperature of 85±3℃for 240±4H in a thermostatic chamber.And then the encoder. shall be subjected to standard atmospheric conditions for 1.5H,After which measurements shall be made.	端子间接触阻抗200Ω以下； 开关接触阻抗200mΩ以下；力矩变化率为初始值的±50%； 按压力变化率为初始值的±40%； 其它性能符合第5-1---5-6； Contact Resistance: 200Ω Max. Switch Contact Resistance:200mΩ or less. Change rate of rotational torque shall be within ±50% against initial value. Change rate of switch operation force shall be within±40% against initial value. Clauses 5-1 to 5-6 shall be satisfied.
7-4. 低温特性 Cold	温度-40±3℃的恒温箱中放置240±4小时,常温、常湿放置1.5小时后测试。 The encoder shall be stored at a temperature of -40±3℃for 240±4H in a thermostatic chamber.And then the encoder. shall be subjected to standard atmospheric conditions for 1.5H,After which measurements shall be made.	端子间接触阻抗200Ω以下； 开关接触阻抗200mΩ以下；力矩变化率为初始值的±50%； 按压力变化率为初始值的±40%； 其它性能符合第5-1---5-6； Contact Resistance: 200Ω Max. Switch Contact Resistance:200mΩ or less. Change rate of rotational torque shall be within ±50% against initial value. Change rate of switch operation force shall be within±40% against initial value. Clauses 5-1 to 5-6 shall be satisfied.
7-5. 焊锡耐热性 Resistance to Soldering heat	槽焊 Dip soldering. 使用基板:t=1.6mm的单面覆铜板。 Printed wiring board:single-sided copper clad laminate board with thickness of 1.6mm. 预热:基板表面温度100℃以下,时间1分钟以内。 Preheating:1.Surface temperature of board:100℃ or less 2.Preheating time:within 1 minute. 焊接:温度260±5℃或以下,时间3秒以内。 Soldering:Solder temperature:260±5℃ or less Immersion time:within 3s 手焊 Manual soldering. 温度300℃以下,时间3秒以内。 Bit temperature of soldering iron:300℃less than Application time of soldering iron:within 3s.	不得有绝缘体的破损、变形、接触无异常。 Electrical characteristics shall be satisfied No mechanical abnormality.
7-6. 焊锡性 Solderability	端子在260±5℃温度的焊锡槽内浸锡3±0.5秒。 The terminals shall be immersed into solder bath at 260±5℃for 3±0.5s.	浸渍面须有75%以上焊锡附着 A new uniform coating of solder shall cover75% minimum of the surface being immersed.

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RE12 SERIES SPECIFICATION

包装部分 Packing Portion					
项目 ITEM	条件 CONDITIONS			规格 SPECIFICATIONS	
1-1. 包装方式 Packing	使用泡沫盒和纸箱包装。 Packed in foamed plastic plate and carton.			每盒250PCS，每箱8盒。 共计：2000PCS/箱 Put 250PCS products into foamed plastic plate, then pack 8 plates into a carton , total 2000PCS/carton.	
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