

编码器规格书

SPECIFICATIONS

适用型号 : ED11C02M-FE13S6.5-E08-10G
APPLICABLE MODELS: ED11C02M-FE13S6.5-E08-10G

1. 一般事项 General information

1-1 适用范围: 本规格书适用于车载机器、AV 机器、收音机、通讯设备用之 11 型金属轴编码器。

Applying range: This specification is applied to 11mm size metal shaft type encoder used in vehicle ,audio-visual. radio and communication equipment.

1-2 使用温度范围 Operating temperature range $-30^{\circ}\text{C} \sim +85^{\circ}\text{C}$

1-3 储存温度范围 Storage temperature range $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$

1-4 试验的状态 温度 $15 \sim 35^{\circ}\text{C}$ 、 $25 \sim 85\%\text{RH}$ 、气压 $86 \sim 106\text{kPa}$ 的标准状态.当判定有疑问时,则在以下基准状态下进行: 温度 $20 \pm 1^{\circ}\text{C}$ 、 $63 \sim 67\%\text{RH}$ 、气压 $86 \sim 106\text{kPa}$

Test condition As our standard condition:Temperature $15 \sim 35^{\circ}\text{C}$ 、Moisture: $25 \sim 85\%\text{RH}$ 、air pressure: $86 \sim 106\text{kPa}$.Should any doubt arise in judgment , tesrs shall be conducted at the following conditions:
Temperature $20 \pm 1^{\circ}\text{C}$ 、Moisture: $63 \sim 67\%\text{RH}$ 、air pressure: $86 \sim 106\text{kPa}$.

2.外观尺寸 Appearance and dimensions

2-1 外观 外观无锈蚀,电镀不良,破裂和明显变形.

Appearance No harmful rust ,cracks ,scratches and poor under functioning

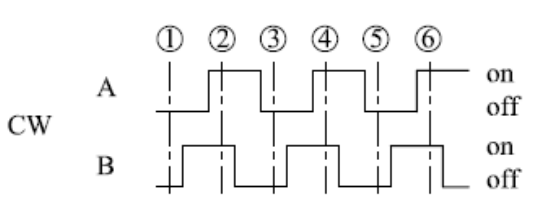
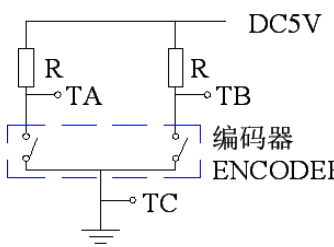
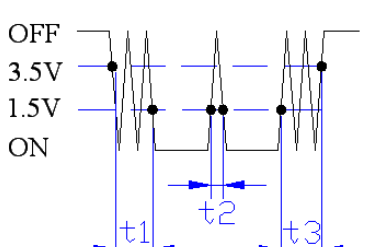
2-2 尺寸 见附图 Dimensions Refer to attached drawing

3.额定参数 Electrical ratings

3-1 最大额定(电阻负荷) 2.5 mA DC5V

Rating(max.)(Resistive load)

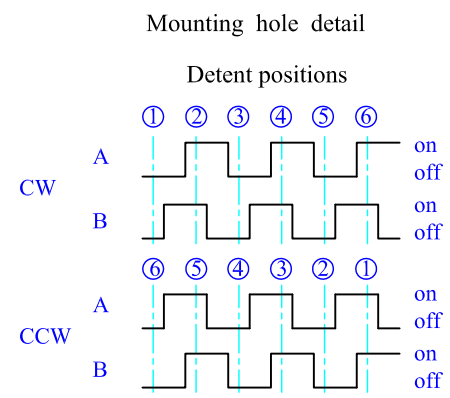
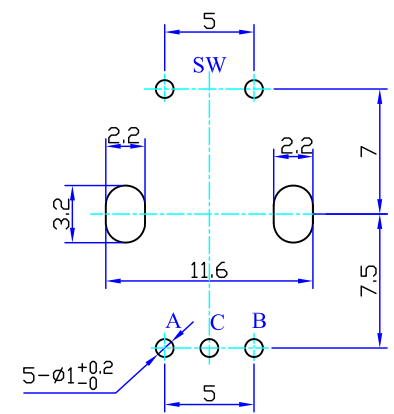
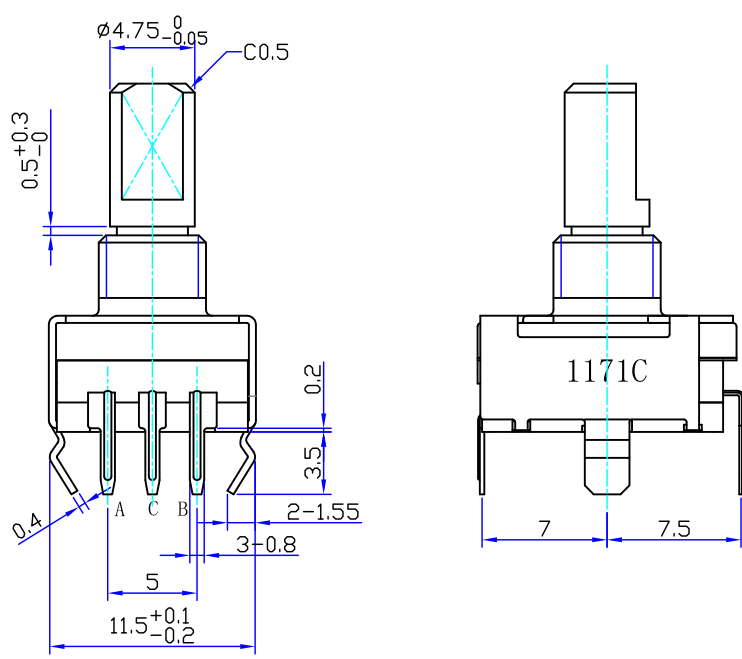
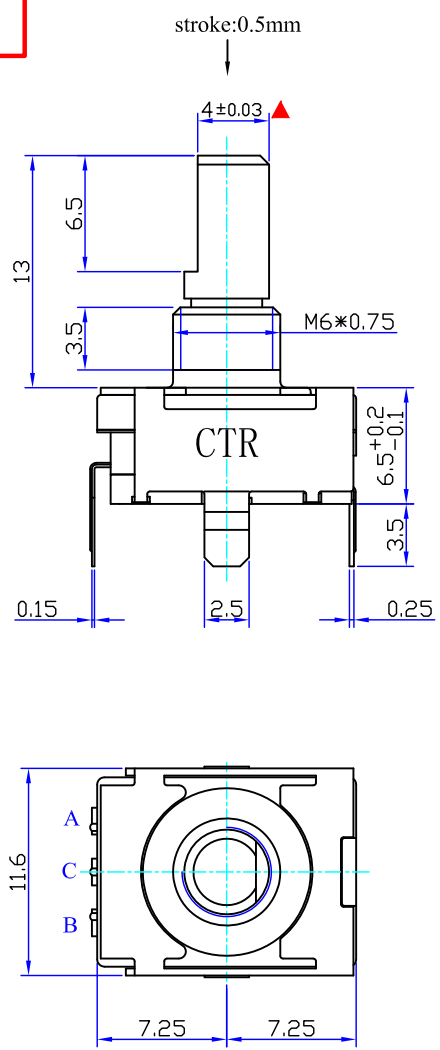
4.电气特性 Electrical characteristics

项目 Items	规格 Specifications	条件 Condition
4-1 最高使用电流 Maximum operating current	2.5mA	有负载的情况下, 公共端为 5 mA Common terminal shall be withstood at 5 mA
4-2 耐电压 Dielectric strength	绝缘材料无击穿 No subversion on insulated material	交流 380V/2 秒,施加位置: 所有端子与接地(外壳)间 AC380V/ 2S Applied position: Between all terminals and ground(frame)
4-3 绝缘电阻 Insulation resistance	100MΩ 以上 100MΩMIN	直流 250V 1 分钟,施加位置: 所有端子与接地(外壳)间 DC250V 1min±5S Applied position: Between all terminals and ground(frame)
4-4 输出信号 Output signal	A、B 二信号的相位差输出 Output of A and B signal, proportionate to phase difference. 	
4-5 滑动噪音 Sliding noise	在恒定转动速度下测量。   测定条件:旋转速度 $360^{\circ}/\text{秒}$ Measurement shall be made under the condition which the shaft is rotated im constant speed. $360^{\circ}/\text{S}$ 开码区间:输出电压 $\leq 1.5\text{V}$,关码区间:输出电压 $\geq 3.5\text{V}$ Code-on area: output $V \leq 1.5\text{V}$ area, Code-offarea: output $V \geq 3.5\text{V}$ area R=5K 振动/chattering:5ms max 回弹/bounce:5ms max	

5.机械特性 Mechanical characteristics			
项目 Items	规格 Specifications		条件 Condition
5-1 定位点力矩 Detent torque	250～500 gf. cm		
5-2 定位点数(360°) Number of detent	16 定位点 16 detents		
5-3 全旋转角度 Total rotational angle	360° endless		
5-4 端子强度 Terminal strength	端子焊接部位无松动、损坏、脱落。试验后,端子可能弯曲,但是应满足第 4 项规定的电气参数要求。 Shall be free from terminal looseness damage and breakage of terminal holding portion. terminals may be bent after test. electrical performance requirements specified in item 4 shall be satisfied.		在端子前端的垂直方向施加 2N 的静止荷重 10 秒钟。(每个端子 1 次) A static load of 2N shall be applied to the tip of terminal for 10S in a desired direction. The test shall be done once perterminal.
5-5 轴推拉强度 Push-pull strength(N)	操作部摆动不超过预定值、无损坏和机械异常,满足系 4 项规定的电气参数要求 Shall be free from pronounced wobble, deformation and mechanical abnormality.		在操作部顶部按压方向施加静荷重 100N 10 秒 A static load of 100N shall be applied to the tip of the shaft for 10s in the push and pull direction.
5-6 轴偏摆 Shaft wobble	轴套长 Bushing length	轴偏摆 Wobble(mm) (以下 less)	在距安装面 30mm 轴柄的位置，施加弯曲力矩 50mN.m. Bending moment of 50mN.m to be applied to the shaft at 30 mm from the mounting surface. L: 距轴套安装面的测量点 L: Measurement point from surface of bushing.mounting
	5	0.7×L/30	
	7	0.6×L/30	
	10 以上 MIN	0.5×L/30	
5-7 轴套锁紧强度 Bushing nut tightening strength	螺母锁紧力矩值，不得超出下表所列： Nut tightening torque shall not exceed value shown in the table below		
	轴套直径 bushing diameter		强度 torque
	M6		1.2N.m
	M7		1.0N.m
5-8 耐焊接热 Resistance to soldering heat	不应有外观及操作异常发生，电气性能符合规格第 4 项要求。 NO abnormalities shall be observed in appearance and operation. The electrical performance requirements specified in item 4 shall be satisfied. 被浸入表面均匀的焊锡涂层，应达到 75%以上。 A new uniform coating of solder shall cover a minimum of 75% of the surface being immersed.		应符合每 8 项“焊接条件” Specified by the clause 8 “soldering conditions”
5-9 防水性能 Assuring IPX7 waterproof grade	轴套部分置于 1 米深水中 0.5H 无进水 A part of stalk is place in one meter the deep 0.5 H in water has no into the water		

6.耐久性 Durability				
项目 Items	规格 Specifications	条件 Condition		
6-1 旋转寿命 Rotational life	1.定位点力矩：大于 1.5N.cm Detent torque: 1.5N.cm min 2.电气性能符合初始规格 4 的要求。 Specification in clause 4 shall be satisfied.	无负荷，速度：600 周/小时：30,000 次 Encoder shall be operated 30000 cycles at 600 cycles /H without load after which measurement shall be made。		
6-2 按压部分 Push portion	接触电阻:≤500mΩ。 Contact resistance:≤500mΩ。	无负荷，速度：30-40 周/分钟：30,000 次 Encoder shall be operated 30000 cycles at 30-40 cycles /min without load。		
6-3 耐寒性 Cold	符合初始规格 4 的要求。 Specification in clause 4 shall be satisfied.	-40℃ 96 小时(无负荷放置) -40℃ 96 hours left without loading.		
6-4 耐热性 Dry heat		85℃ 96 小时(无负荷放置) 85℃ 96 hours left without loading.		
6-5 耐湿性 Damp heat		40℃ 90-95%RH 96 小时(无负荷放置) 40℃ 90-95%RH 96 hours left without loading.		
7.按压开关规格 push-on switch specifications				
项目 Items	规格 Specifications			
7-1 开关回路/接点数 Switch circuit/number of contact	单极单投 Single pole and single throw (push on)			
7-2 开关移动量 Travel of switch (mm)	0.5±0.2mm			
7-3 开关动作力 Operating force of switch (g)	800±200gf.cm			
7-4 额定值 Rating	1 mA / 5V DC			
7-5 接触电阻 Contact resistance	初期 200mΩmax . 200mΩmax .Fox initial			
8. 焊接条件 Soldering condering				
8-1 耐焊性 Soldering heat-resistance	1.手工焊接温度最高 350℃±5℃，3 秒 Soldering iron Max ,350℃±5℃ at 3 sec 2.自动焊接温度最高 260℃，10 秒 Auto soldering Max. 260℃ at 10 sec			
8-2 可焊性 Solderability	浸没面积至少达到 75%，焊锡温度 235±5℃，3±0.5 秒 With being covered 75% min. of immersed area. Solder temperature:235±5℃ Solder dipping time: 3±0.5 sec			
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型号 Model	ED11C02M-FE13S6.5-E08-10G	版本 Edition	1.3	CT-QR2215	页码 Page	4/4
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COUNTRY OF ORIGIN: C (CHINA)
WEEK CODE: 1 (1st Week) 、 2 (2nd Week) 、 3 (3rd Week) 、 4 (4th Week) 、 5 (5th Week))
MONTH CODE: 1 (Jan.) 、 2 (Feb.) ... O(Oct.) 、 N (Nov.) 、 D (Dec.)
YEAR CODE: 1 (2001) 、 2 (2002) 、 3 (2003) ... 9 (2009) 、 10 (2010) 、 11 (2011)

型号/Type	备注/Remarks
ED11C02M-FE13S6.5-E08-10G	16定位点 16 detents 本色 Light yellow

未注尺寸公差 Gen.tolerance
L≤1.0: ±0.1
1.0<L≤10: ±0.3
10<L≤30: ±0.5
30<L≤100: ±1.0

东 莞 市 长 泰 尔 电 子 有 限 公 司								
DONG GUAN CHANG TAI ER ELECTRONICS CO.,LTD.								
比例 Scale	2:1	版本 Edition	1. 1	单位 Unit	mm	设 计 Designed By	审 核 Checked By	批 准 Approved By
品 名 Type Name	ED11C02M 安装尺寸 MOUNT DIMENSION					研发工程部 2023.06.28 李 阳	研发工程部 2023.06.28 喻 钊	研发工程部 2023.06.28 彭先炎
图 号 Dwg.NO.	ED11C02M-FE13S6.5-E08-10G							