

# 编码器规格书

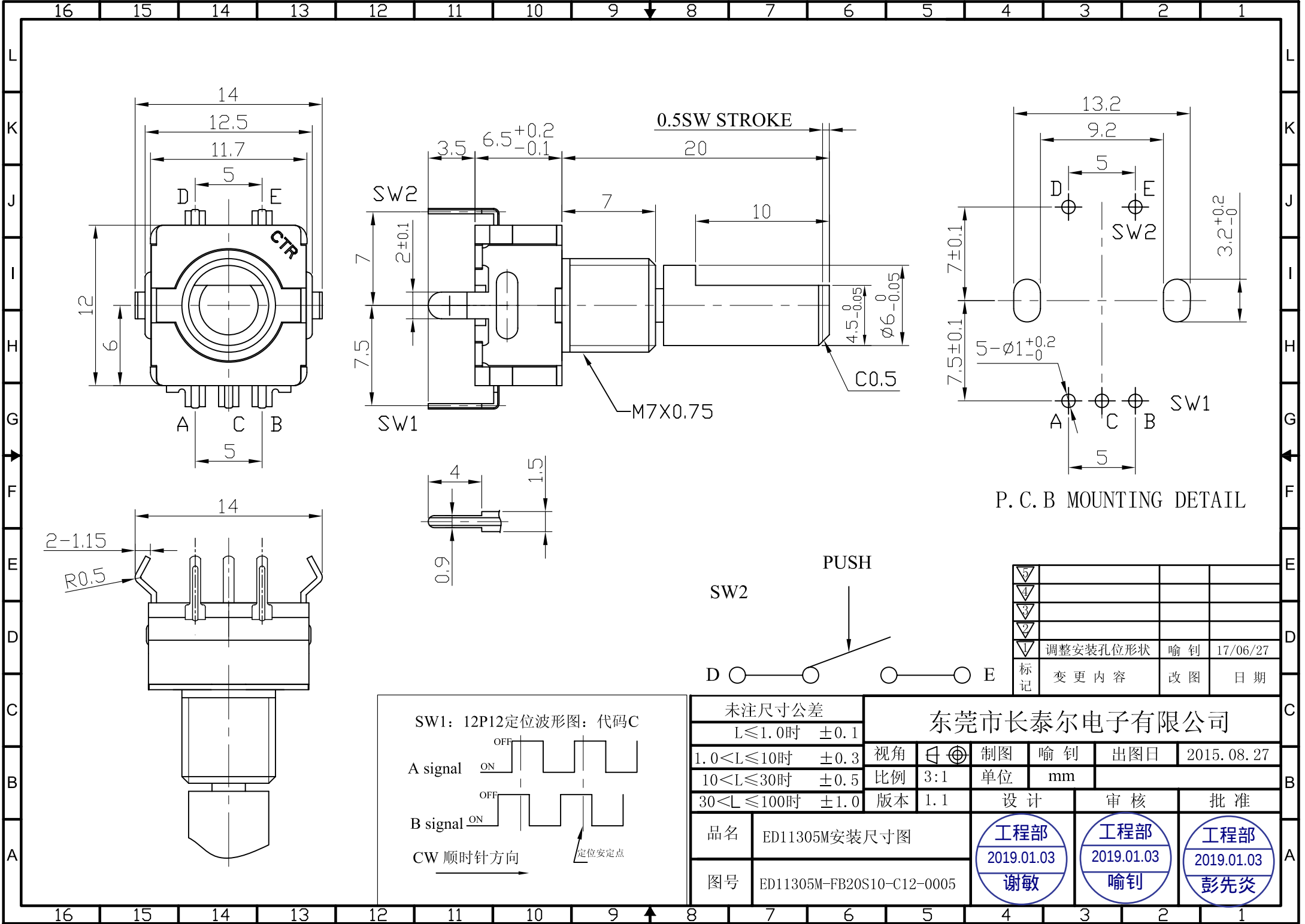
## ENCODER SPECIFICATIONS

|                                                    |                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1 一般事项</b><br><b>General information</b>        |                                                                                                                                                                                                                                                                                        |
| 1-1 适用型号<br>Applicable models                      | ED11305M-FB20S10-C12-0005                                                                                                                                                                                                                                                              |
| 1-2 使用环境温度<br>Usage environment temperature        | - 30℃ ~ + 80℃                                                                                                                                                                                                                                                                          |
| 1-3 保存环境温度<br>Storage environment temperature      | - 40℃ ~ + 85℃                                                                                                                                                                                                                                                                          |
| 1-4 测试条件<br>Test condition                         | 温度: 5~35℃, 湿度: 45~85%HR<br>Temperature:5~35℃, Moisture:45~85%HR                                                                                                                                                                                                                        |
| 1-5 环保要求<br>Environmental requisition              | 本产品符合 RoHS 指令<br>This product is compliant with RoHS Directive                                                                                                                                                                                                                         |
| 1-6 耐焊接热<br>Soldering heat-resistance              | 1、手工焊接温度最高 350℃ ± 5℃, 3 秒;<br>2、自动焊接温度最高 260℃ ± 5℃, 3 秒;<br>3、以上过程均保证在 1 到 2 次;<br>4、不适用回流焊。<br><br>1. Soldering iron Max ,350℃ ± 5℃ at 3 sec<br>2. Auto soldering 260℃ ± 5℃ max. at 3 Sec.<br>3. To guarantee the above process at 1 or 2 times.<br>4. No apply the reflow soldering. |
| 1-7 原产地<br>Country of origin                       | 中国<br>China                                                                                                                                                                                                                                                                            |
| <b>2 构造</b><br><b>Construction</b>                 |                                                                                                                                                                                                                                                                                        |
| 2-1 外观<br>Appearance                               | 各部件应完整, 无锈蚀、裂痕、电镀不良<br>Every part should finished, be not exist rust flaw crack and bad plating                                                                                                                                                                                        |
| 2-2 寸法<br>Measurements                             | 依照图面规定<br>Under conditions prescribed by design drawing.                                                                                                                                                                                                                               |
| <b>3 机械性能</b><br><b>Mechanical characteristics</b> |                                                                                                                                                                                                                                                                                        |
| 3-1 全回转角度<br>Total rotational angle                | 360°                                                                                                                                                                                                                                                                                   |
| 3-2 回转力矩<br>Rotational torque                      | 80~350gf.cm (旋转速度: 60° /1 秒)<br>80~350gf.cm (Rotational velocity : 60° /1 Sec. )                                                                                                                                                                                                       |
| 3-3 定位数<br>Number of detent                        | <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 12 <input type="checkbox"/> 24                                                                                                                                                                                          |
| 3-4 轴压引强度<br>Pull-Push Strength of Shaft           | 10Kgf.cm Min.                                                                                                                                                                                                                                                                          |
| 3-5 螺母锁紧强度<br>Nut tightening strength              | 10Kgf.cm Min.                                                                                                                                                                                                                                                                          |
| 3-6 轴摇晃度<br>Shaft wobble                           | 在距离轴顶端 5mm 处, 沿径向瞬间施加 500gf.cm 力的测试; 轴径向偏移量小于 0.18<br>A momentary load of 500gf.cm should be applied at the point 5mm from the tip of the shaft in a direction perpendicular to the axis of shaft; Shaft radial deviant be smaller than0.18                                            |

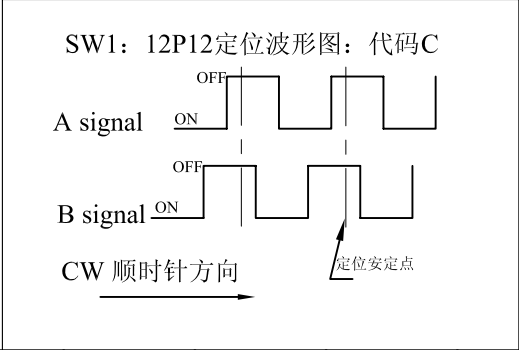
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| <b>4 电气性能</b><br><b>Electrical characteristics</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 4-1 额定电压<br>Voltage rating                         | DC 5V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4-2 额定电流<br>Current rating                         | 2.5mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4-3 耐电压<br>Voltage proof                           | AC 300V 1 分钟以上（端子和本体之间，端子和轴芯之间）<br>1 Minute at AC 300V (Between terminal – case, Between terminal –shaft).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4-4 绝缘抵抗<br>Insulation resistance                  | DC 250V 100M $\Omega$ 以上（端子和本体之间，端子和轴芯之间）<br>100M $\Omega$ min. At DC 250V (Between terminal – case, Between terminal –shaft).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4-5 脉冲数<br>Number of pulses                        | <b>■ 12</b><br>旋转一周（360°）输出的总脉冲数<br>Output total pulses of rotate one circle(360° ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4-6 输出信号<br>Output signals                         | <p>A、B 信号相位差输出波形如下：<br/>           * 备注：A 信号（A—COM 间），B 信号（B—COM 间）<br/>           Output signals A and B of phase difference wave form as below.<br/>           *Remark: A signal （Between A-common）,B signal （Between B-common）</p> <p><b>SW1：12P12定位波形图：代码C</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 4-7 相位差<br>Phase difference                        | <p>在没有定位的情况下 <math>T_d = T/4 \pm T/6</math><br/>           * 备注：T=周期<br/>           In no detent circumstances <math>T_d = T/4 \pm T/6</math> in case of no detent.<br/>           *Remark: T= Cycle</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 4-8 回转寿命<br>Rotational life                        | <p>无负荷情况下每小时旋转 600 周，寿命 30,000 周，寿命后：<br/>           1、绝缘抵抗 10M<math>\Omega</math> 以上 DC250V（端子和本体之间，端子和轴芯之间）；<br/>           2、耐电压 AC100V 1 分钟（端子和本体之间，端子和轴芯之间），绝缘阻抗无击穿；<br/>           3、回转力矩：满足第 3-2 项；<br/>           4、外观和结构无损坏。<br/>           30,000 cycles under no load circumstances by 600 r/h of rotation, afterlife cycle:<br/>           1. Insulation resistance:10M<math>\Omega</math> min. At DC 250V. (Between terminal – case, Between terminal –shaft).<br/>           2. Withstanding voltage : AC 100V at 1 minute (Between terminal – case, Between terminal –shaft). No subversion on insulation resistance.<br/>           3. Rotational torque : Content item No. 3-2.<br/>           4. No damage on appearance and structure.</p> |

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <p>4-9 耐湿性</p> <p>Damp heat</p> | <p>温度 <math>40\pm2^{\circ}\text{C}</math>,湿度 90-95%的恒温恒湿槽中放置 <math>96\pm4</math> 小时,在常温、常湿中放置 1.5 小时后测试.</p> <p>所有项目应满足初期规格.</p> <p>The encoder shall be stored at temperature of <math>40^{\circ}\text{C}\pm2^{\circ}\text{C}</math> with relative humidity of 90% to 95% for <math>96\pm4\text{H}</math> in a thermostatic chamber . And the encoder shall be subjected to standard atmospheric conditions for 1.5H , After which measurements shall be made.</p> <p>Specifications in clause all items is shall be satisfied.</p> |
| <p>4-10 耐热性</p> <p>Dry heat</p> | <p>温度 <math>85\pm3^{\circ}\text{C}</math>的恒温箱中放置 <math>96\pm4</math> 小时; 在常温、常湿中放置 1.5 小时后测试.</p> <p>所有项目应满足初期规格.</p> <p>The encoder shall be stored at a temperature of <math>85\pm3^{\circ}\text{C}</math> for <math>96\pm4\text{H}</math> in a thermostatic chamber . And the encoder shall be subjected to standard atmospheric conditions for 1.5H , After which measurements shall be made.</p> <p>Specifications in clause all items is shall be satisfied.</p>                                                               |
| <p>4-11 低温特性</p> <p>Cold</p>    | <p>温度<math>-40\pm3^{\circ}\text{C}</math>的恒温箱中放置 <math>96\pm4</math> 小时; 在常温、常湿中放置 1.5 小时后测试.</p> <p>所有项目应满足初期规格.</p> <p>The encoder shall be stored at a temperature of <math>-40\pm3^{\circ}\text{C}</math> for <math>96\pm4\text{H}</math> in a thermostatic chamber . And the encoder shall be subjected to standard atmospheric conditions for 1.5H , After which measurements shall be made.</p> <p>Specifications in clause all items is shall be satisfied.</p>                                                              |

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| <b>5 开关的性能</b><br><b>Switch characteristics</b>                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                                                       |                                                                                       |
| <input checked="" type="checkbox"/> 适用 <input type="checkbox"/> 不适用<br>Apply                                  No apply |                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                                                       |                                                                                       |
| 5-1 开关型式<br>Switch type                                                                                                | 按压式<br>Push type,                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                      |                                                                                       |                                                                                       |
| 5-2 开关回路<br>Switch circuit                                                                                             | 单刀单掷<br>S.P.S.T                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                                                       |                                                                                       |
| 5-3 开关定格电力<br>Switch working angle                                                                                     | DC 5V, 10mA                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                      |                                                                                       |                                                                                       |
| 5-4 开关按压行程<br>Switch push travel                                                                                       | 0.5±0.3mm                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                      |                                                                                       |                                                                                       |
| 5-5 开关按压力<br>Switch push pressure                                                                                      | 1300±300gf                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                      |                                                                                       |                                                                                       |
| 5-6 开关接触电阻<br>Switch contact resistance                                                                                | ≤100mΩ, 寿命后: ≤200mΩ<br>≤100mΩ, after life cycle: ≤200mΩ                                                                                                                                                                                                                                                                                                                                                                              |                                                                                      |                                                                                       |                                                                                       |
| 5-7 开关按压寿命<br>Operating life for momentary push switch                                                                 | 无负荷情况下每小时按压 600 次, 寿命 20,000 次, 寿命后:<br>1、耐电压 AC100V 1 分钟 (开关端子和本体之间), 绝缘阻抗无击穿;<br>2、开关按压力: 满足第 5-5 项;<br>3、外观和结构无损坏。<br><br>20,000 cycles under no load circumstances by 600 r/h of push, afterlife cycle:<br>1. Withstanding voltage: AC 100V at 1 minute (Between switch terminal – case). No subversion on insulation resistance.<br>2. Switch push pressure: Content item No. 5-5.<br>3. No damage on appearance and structure. |                                                                                      |                                                                                       |                                                                                       |
| <b>6 防水性能</b><br><b>Waterproof standard characteristics</b>                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                                                       |                                                                                       |
| 6-1 防水标准<br>Waterproof standard                                                                                        | <input type="checkbox"/> 不适用<br>No Apply<br><br><input checked="" type="checkbox"/> 七级防水<br>编码器轴芯轴套置于水中 1 米深处, 其它部件密封后暴露在标准大气压中, 30 分钟后电位器内部未进水。<br>Grade -7 of Waterproof standard<br>Encoder's Shaft and Bush in water 1M deep, after other component sealed exposed to the standard atmosphere, after 30 minutes no water into the Encoder's inner.                                                                               |                                                                                      |                                                                                       |                                                                                       |
| <b>东莞市长泰尔电子有限公司</b><br><b>DONG GUAN CHANG TAI ER ELECTRONIC CO., LTD.</b>                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                      | 制 作<br>Designed By                                                                   | 审 核<br>Checked By                                                                     | 核 准<br>Approved By                                                                    |
|                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |



|    |          |     |          |
|----|----------|-----|----------|
| 5  |          |     |          |
| 4  |          |     |          |
| 3  |          |     |          |
| 2  |          |     |          |
| 1  | 调整安装孔位形状 | 喻 钊 | 17/06/27 |
| 标记 | 变更内容     | 改图  | 日期       |



|                |                           |              |     |    |     |     |            |
|----------------|---------------------------|--------------|-----|----|-----|-----|------------|
| 未注尺寸公差         |                           | 东莞市长泰尔电子有限公司 |     |    |     |     |            |
| L≤1.0时 ±0.1    |                           | 视角           |     | 制图 | 喻 钊 | 出图日 | 2015.08.27 |
| 1.0<L≤10时 ±0.3 |                           | 比例           | 3:1 | 单位 | mm  |     |            |
| 10<L≤30时 ±0.5  |                           | 版本           | 1.1 | 设计 |     | 审核  |            |
| 30<L≤100时 ±1.0 |                           |              |     |    |     | 批准  |            |
| 品名             | ED11305M安装尺寸图             |              |     |    |     |     |            |
| 图号             | ED11305M-FB20S10-C12-0005 |              |     |    |     |     |            |